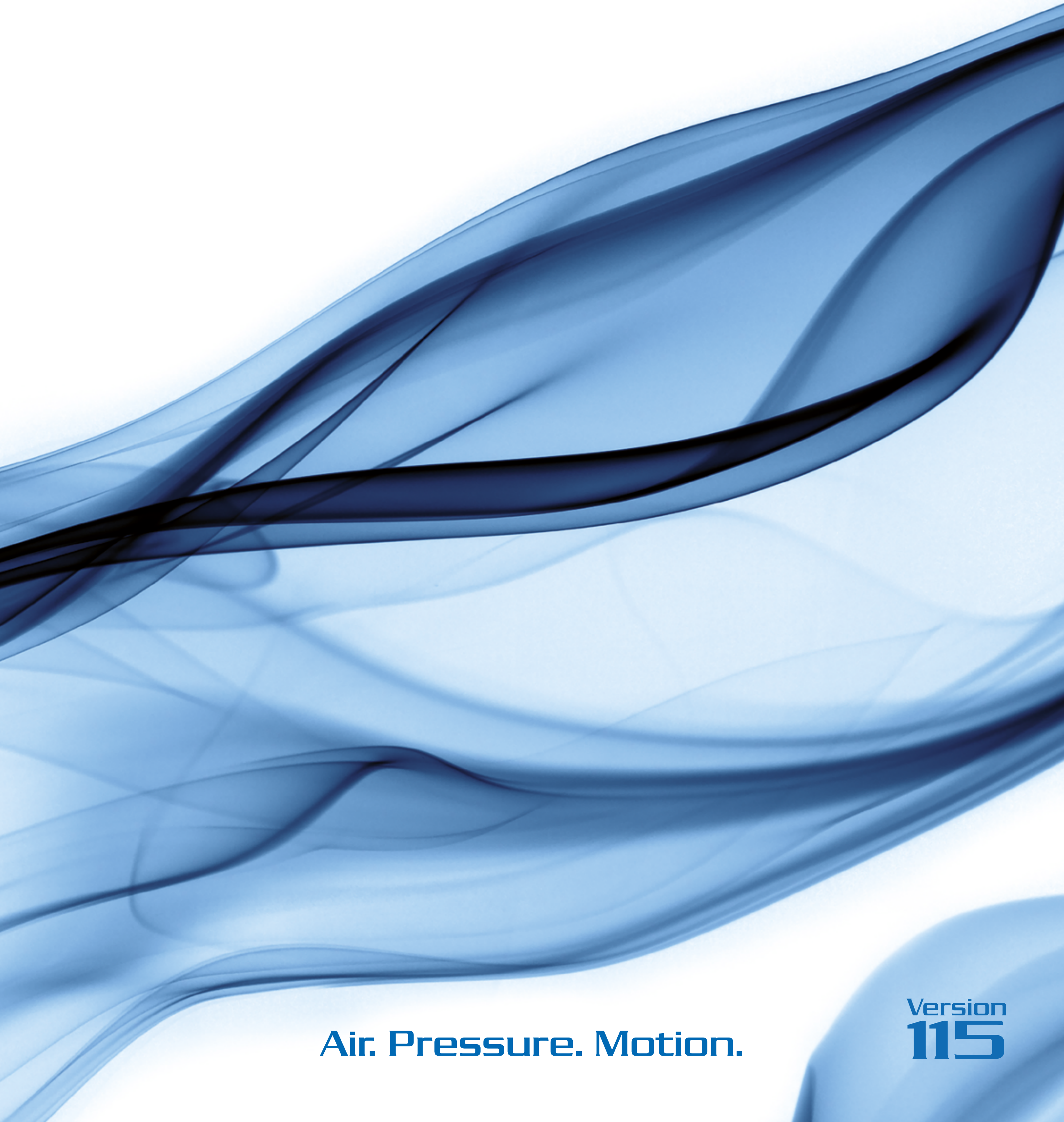
airtec

Pneumatics Catalogue



Air. Pressure. Motion.

Version 115

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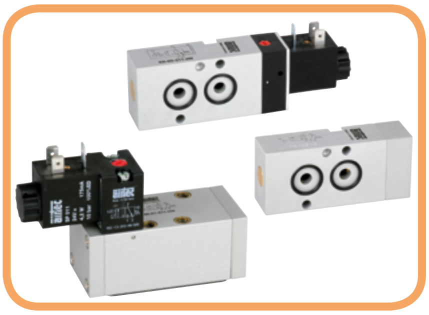
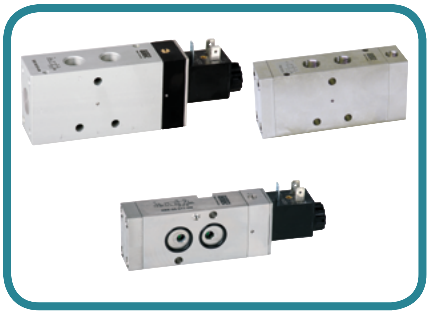
Chapter 2
Mechanically operated valves

Chapter 3
Pneumatically operated valves

Chapter 4
Electrically operated valves

Chapter 5
Standardized valve series



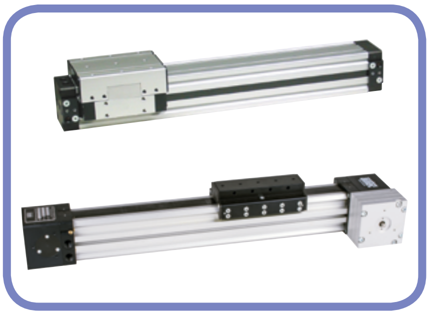


Chapter 6
Low temperature valves

Chapter 7
Valve terminals

Chapter 8
Function valves

Chapter 9
Pneumatic cylinders



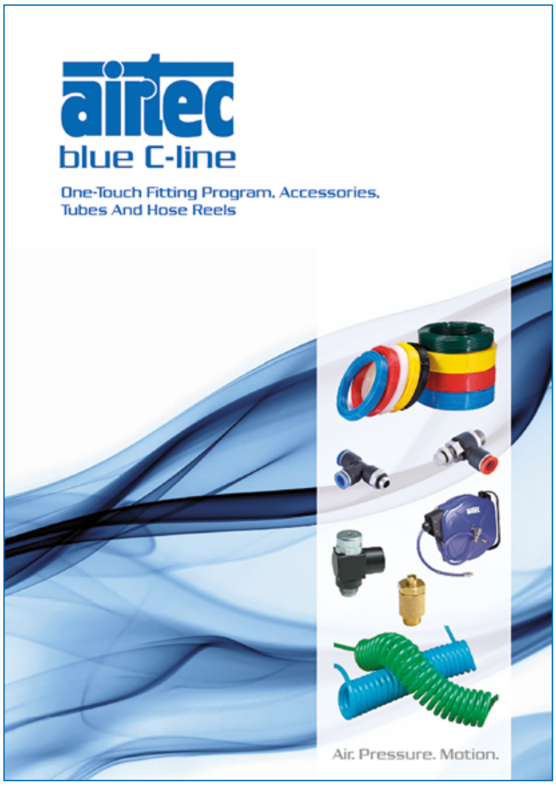
Chapter 10
Rodless cylinders

Chapter 11
Vacuum technology

Chapter 12
Air preparation units

Chapter 13
Technical information

Other catalogues from AIRTEC-program



More information

Table of contents

Table of contents

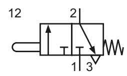
Series E-25

Technical details

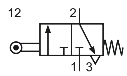
Connection	M5
Nominal size	2 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel (E), plastic (ER, EL), roller: stainless steel (ER), plastic (EL), lever: brass

Mechanically operated seat valve.

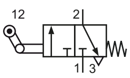
3/2-way valves



E-25-310
3/2-way, mechanical spring return,
stem operated



ER-25-310
3/2-way, mechanical spring return,
roller operated



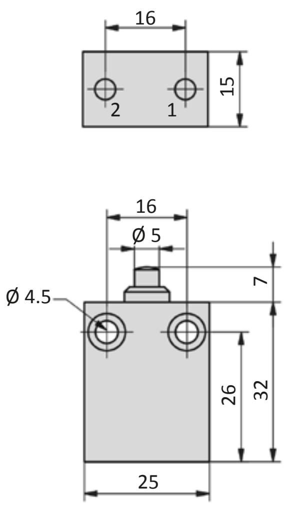
EL-25-310
3/2-way, mechanical spring return,
roller operated with free return

Technical data

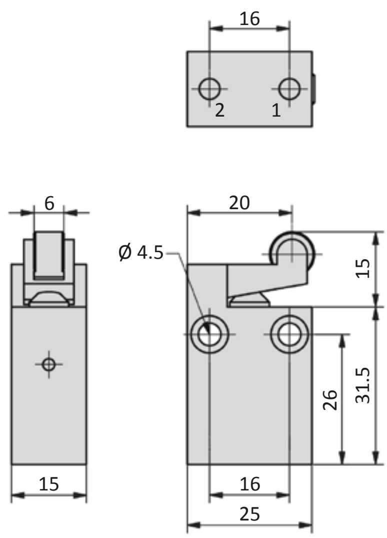
Model-no.:	E-25-310	ER-25-310	EL-25-310
Operating pressure (bar)	0 ... 12	0 ... 12	0 ... 12
Flow rate (Nl/min)	80	80	80
Actuating force at 6 bar (N)	15	8	8
Pre-stroke (mm)	1.25	1.5	1.5
Actuation stroke (mm)	1.25	1.5	1.5
Pre actuation stroke (mm)	1.5	1.2	1.2
Weight (kg)	0.035	0.046	0.044

Dimensions

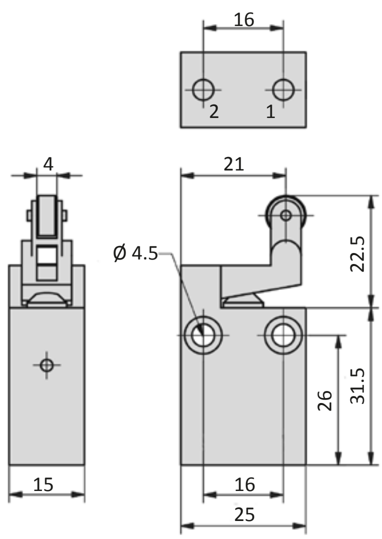
E-25-310



ER-25-310



EL-25-310



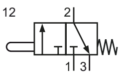
Series E-28

Technical details

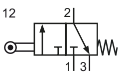
Connection	G1/8
Nominal size	4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: Al, stainless steel and brass, stem, lever: stainless steel, roller: plastic

Mechanically operated seat valve.

3/2-way valves



E-28-310
3/2-way, mechanical spring return, stem operated



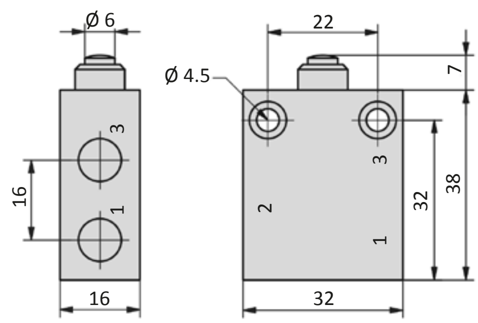
ER-28-310
3/2-way, mechanical spring return, roller operated

Technical data

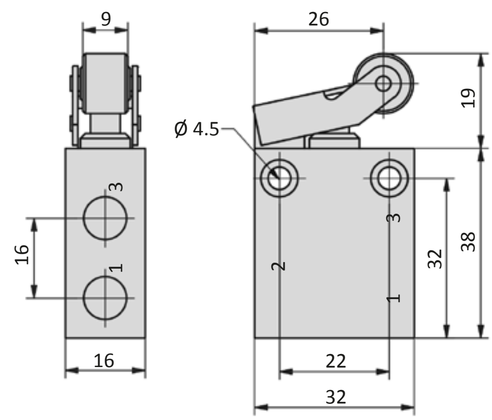
Model-no.:	E-28-310	ER-28-310
Operating pressure (bar)	0 ... 12	0 ... 12
Flow rate (Nl/min)	210	210
Actuating force at 6 bar (N)	16	9
Pre-stroke (mm)	1	2
Actuation stroke (mm)	1	1
Pre actuation stroke (mm)	2	2
Weight (kg)	0.053	0.063

Dimensions

E-28-310



ER-28-310



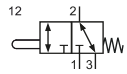
1 = pressure inlet
2 = outlet
3 = exhaust

Technical details

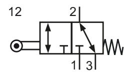
Connection	G1/8
Nominal size	4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel (E), plastic (ER, EL), roller: plastic, lever: Al (anodized), brass

Mechanically operated spool valve.

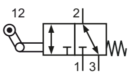
3/2-way valves



E-18-310
3/2-way, mechanical spring return, stem operated

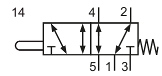


ER-18-310
3/2-way, mechanical spring return, roller operated

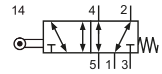


EL-18-310
3/2-way, mechanical spring return, roller operated with free return

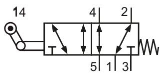
5/2-way valves



E-18-510
5/2-way, mechanical spring return, stem operated



ER-18-510
5/2-way, mechanical spring return, roller operated



EL-18-510
5/2-way, mechanical spring return, roller operated with free return

Technical data

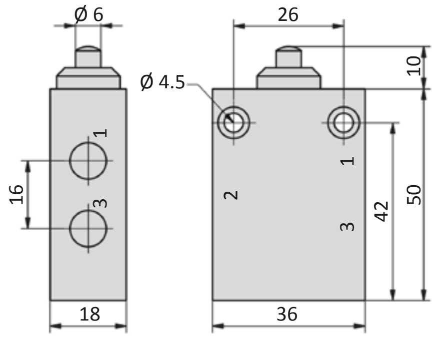
Model-no.:	E-18-310	ER-18-310	EL-18-310
Operating pressure (bar)	0 ... 12	0 ... 12	0 ... 12
Flow rate (Nl/min)	320	320	320
Actuating force at 6 bar (N)	27	17	17
Pre-stroke (mm)	1.5	2.5	2.5
Actuation stroke (mm)	2.5	2.5	2.5
Pre actuation stroke (mm)	1	3.5	3.5
Weight (kg)	0.094	0.102	0.099

Model-no.:	E-18-510	ER-18-510	EL-18-510
Operating pressure (bar)	0 ... 12	0 ... 12	0 ... 12
Flow rate (Nl/min)	320	320	320
Actuating force at 6 bar (N)	27	17	17
Pre-stroke (mm)	1.5	2.5	2.5
Actuation stroke (mm)	2.5	2.5	2.5
Pre actuation stroke (mm)	1	3.5	3.5
Weight (kg)	0.118	0.125	0.123

Series E-18

Dimensions

E-18-310



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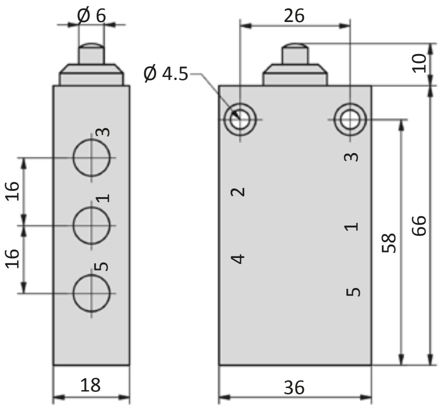

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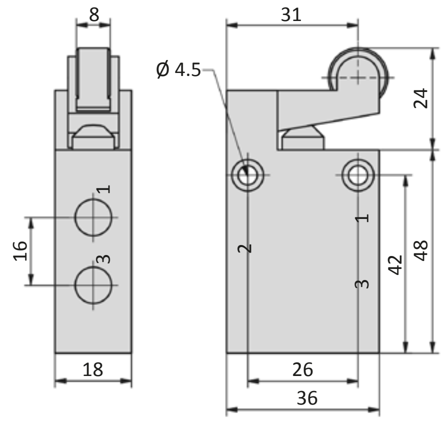
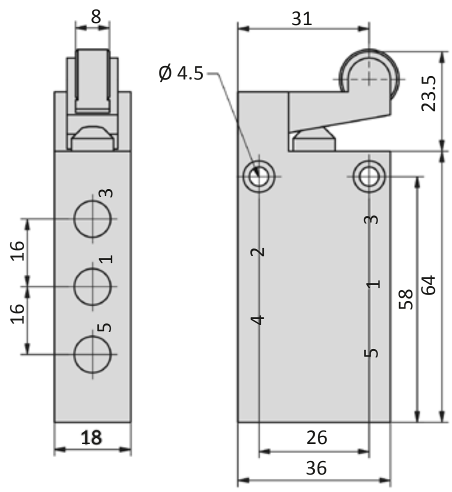


ER-18-510



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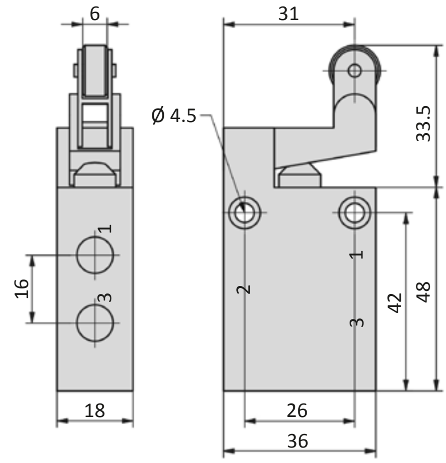
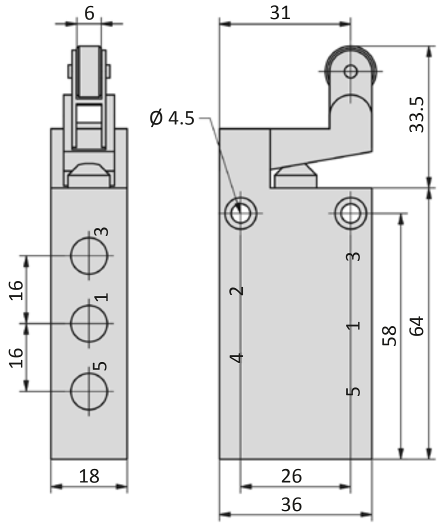


EL-18-510



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

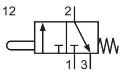
Series E-30

Technical details

Connection	M5
Nominal size	2 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: FKM, NBR, inner parts: stainless steel, brass, stem: stainless steel

Mechanically operated seat valve.

3/2-way valve



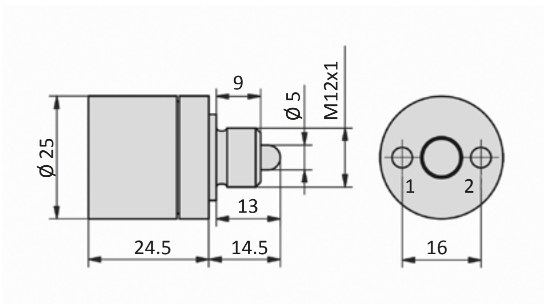
E-30-311-M12
3/2-way, mechanical spring return, stem operated

Technical data

Model-no.:	E-30-311-M12
Operating pressure (bar)	0 ... 12
Flow rate (Nl/min)	110
Actuating force at 6 bar (N)	21
Pre-stroke (mm)	1
Actuation stroke (mm)	1
Pre actuation stroke (mm)	2
Weight (kg)	0.037

Dimensions

E-30-311-M12



1 = pressure inlet
2 = outlet

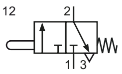
Series T-25

Technical details

Connection	M5
Nominal size	2.5 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel

Mechanically operated seat valve including mounting adapter for actuator installation.

3/2-way valve



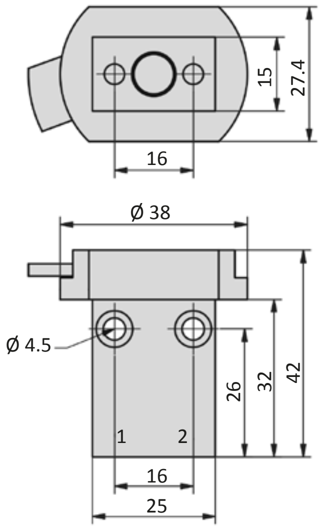
T-25-311
3/2-way, mechanical spring return,
stem operated

Technical data

Model-no.:	T-25-311
Operating pressure (bar)	0 ... 12
Flow rate (Nl/min)	95
Actuating force at 6 bar (N)	22
Actuation stroke (mm)	4
Weight (kg)	0.042

Dimensions

T-25-311



1 = pressure inlet
2 = outlet

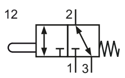
Series T-28

Technical details

Connection	G1/8
Nominal size	4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel
Ex	T-28-311 in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

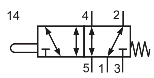
Mechanically operated spool valve including mounting adapter for actuator installation.

3/2-way valve



T-28-311
3/2-way, mechanical spring return, stem operated

5/2-way valve



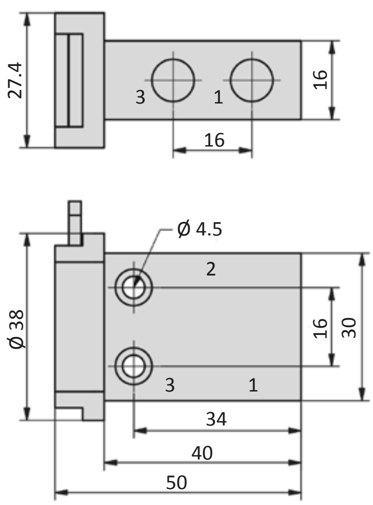
T-28-511
5/2-way, mechanical spring return, stem operated

Technical data

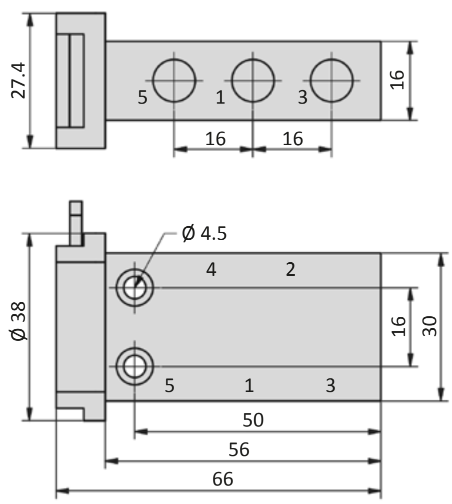
Model-no.:	T-28-311	T-28-511
Operating pressure (bar)	0 ... 12	0 ... 12
Flow rate (Nl/min)	450	465
Actuating force at 6 bar (N)	25	15
Actuation stroke (mm)	4	4
Weight (kg)	0.058	0.075

Dimensions

T-28-311



T-28-511



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

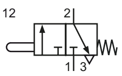
Series T-30

Technical details

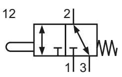
Connection	M5
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass, stem: stainless steel
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Mechanically operated seat valve (T-30-310) or spool valve (T-30-510) including mounting adapter for actuator mount.

3/2-way-Valves

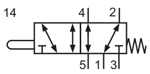


T-30-310
3/2-way, mechanical spring return, stem operated



T-30-310-ATEX
3/2-way, mechanical spring return, stem operated

5/2-way-Valves



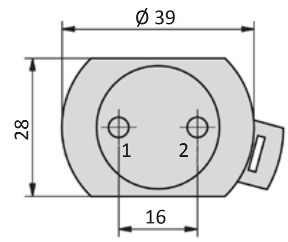
T-30-510
5/2-way, mechanical spring return, stem operated

Technical data

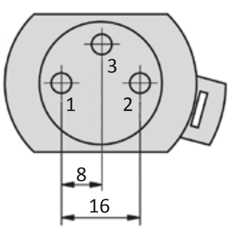
Model-no.:	T-30-310	T-30-510
Operating pressure (bar)	0 ... 12	0 ... 12
Flow rate (Nl/min)	80	100
Nominal size (mm)	2	2.4
Actuating force at 6 bar (N)	10	21
Actuation stroke (mm)	4	4
Weight (kg)	0.052	0.076

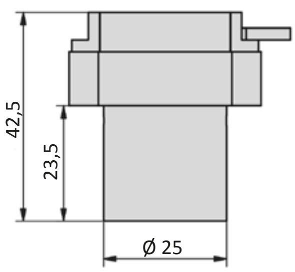
Dimensions

T-30-310

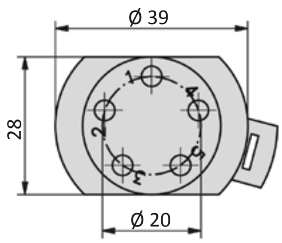


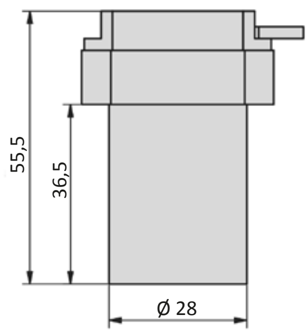
T-30-310-ATEX





T-30-510

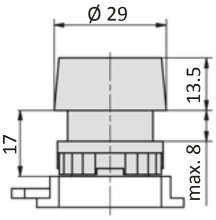




1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Actuator Ø 22.5 mm

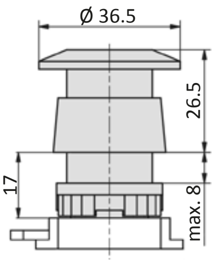
18-T-23-011-xx Push button



Model-no.: 18-T-23-011-xx +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	13	23
Weight (incl. valve) (kg)	0.057	0.073	0.090	0.067	0.091

Please complete: xx = colour (20 = green, 21 = green with white line, 30 = black, 40 = red, 42 = red with white circle, 50 = yellow, 60 = blue)

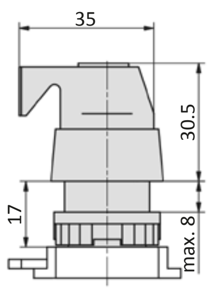
18-T-23-012-xx Mushroom



Model-no.: 18-T-23-012-xx +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	13	23
Weight (incl. valve) (kg)	0.062	0.078	0.095	0.072	0.096

Please complete: xx = colour (20 = green, 30 = black, 40 = red)

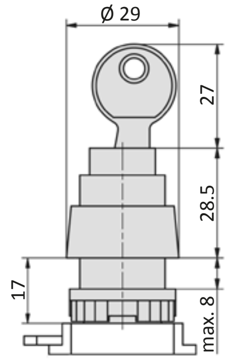
18-T-23-013 2 position switch



Model-no.: 18-T-23-013 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	26	25
Weight (incl. valve) (kg)	0.064	0.080	0.097	0.074	0.098

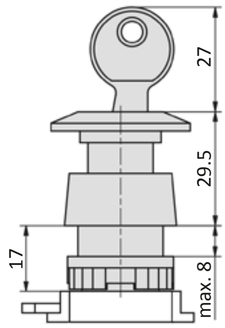
Actuator Ø 22.5 mm

18-T-23-014 Key-return



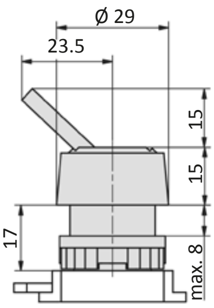
Model-no.: 18-T-23-014 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	13	23
Weight (incl. valve) (kg)	0.123	0.139	0.156	0.133	0.157

18-T-23-015 Stop, key-return



Model-no.: 18-T-23-015 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	13	23
Weight (incl. valve) (kg)	0.125	0.141	0.158	0.135	0.159

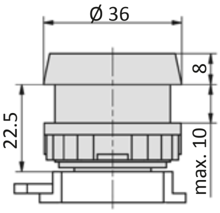
18-T-23-016 Toggle

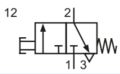
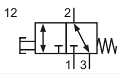
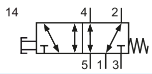
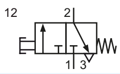
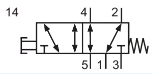


Model-no.: 18-T-23-016 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	26	25
Weight (incl. valve) (kg)	0.069	0.085	0.102	0.079	0.103

Actuator Ø 30 mm

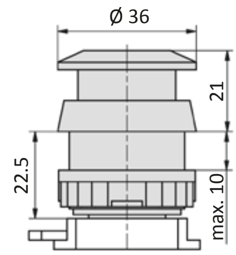
18-T-30-011-xx Push button

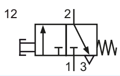
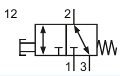
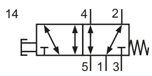
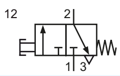
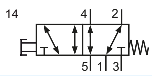


Model-no.: 18-T-30-011-xx +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	15	24
Weight (incl. valve) (kg)	0.066	0.082	0.099	0.076	0.100

Please complete: xx = colour (20 = green, 30 = black, 40 = red, 50 = yellow)

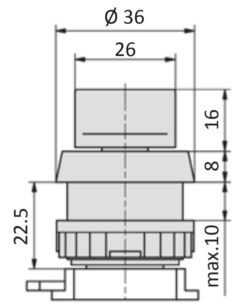
18-T-30-012-xx Mushroom

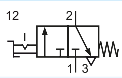
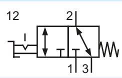
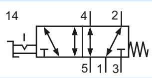
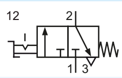
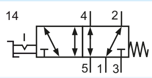


Model-no.: 18-T-30-012-xx +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	15	24
Weight (incl. valve) (kg)	0.071	0.087	0.104	0.081	0.105

Please complete: xx = colour (30 = black, 40 = red)

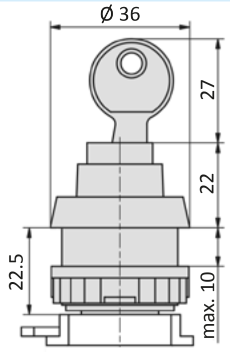
18-T-30-013 2 position switch



Model-no.: 18-T-30-013 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	15	25
Weight (incl. valve) (kg)	0.071	0.087	0.104	0.081	0.105

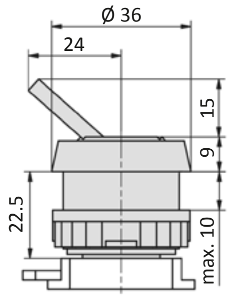
Actuator Ø 30 mm

18-T-30-014 Key-return



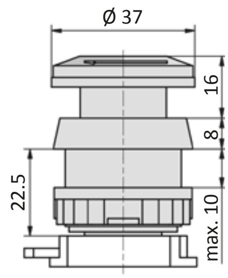
Model-no.: 18-T-30-014 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	15	25
Weight (incl. valve) (kg)	0.122	0.138	0.155	0.132	0.156

18-T-30-016 Toggle



Model-no.: 18-T-30-016 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	9	11
Weight (incl. valve) (kg)	0.069	0.085	0.102	0.079	0.103

18-T-30-018 Mushroom red, detent



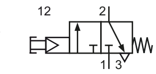
Model-no.: 18-T-30-018 +	T-25-311	T-28-311	T-28-511	T-30-310	T-30-510
Symbol					
Actuating force at 6 bar (N)	24	23	15	31	25
Weight (incl. valve) (kg)	0.077	0.093	0.110	0.087	0.111

Technical details

Connection	G1/8
Nominal size	3 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass

Servo-operated spool valve with low actuating force. The actuating is constantly pilot air supported and is venting* in resting position a small amount of air. *(through a gap between holder and body)

3/2-way valve



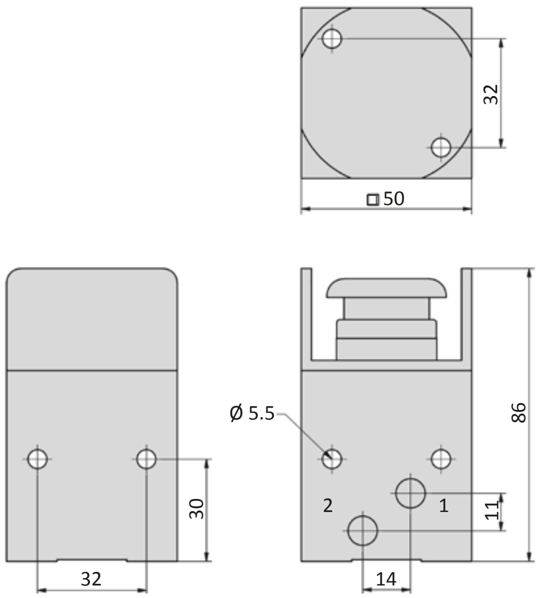
ST-18-310
3/2-way, mechanical spring return,
push button

Technical data

Model-no.:	ST-18-310
Operating pressure (bar)	3 ... 10
Flow rate (Nl/min)	220
Actuating force at 6 bar (N)	3.5
Air consumption (Nl/min)	2.5
Weight (kg)	0.400

Dimensions

ST-18-310



1 = pressure inlet
2 = outlet

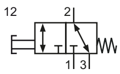
Series TK-28

Technical details

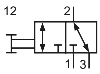
Connection	G1/8
Nominal size	4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: Al, stainless steel and brass,

Manually operated spool valve.

3/2-way valves

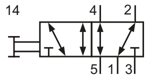


TK-28-311
3/2-way, mechanical spring return, push function



TK-28-320
3/2-way, two positions, actuator pull/push function

5/2-way valve



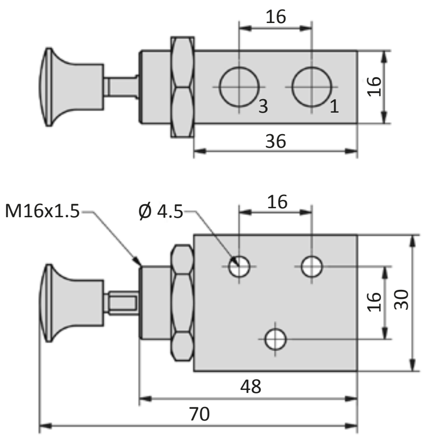
TK-28-520
5/2-way, two positions, actuator pull/push function

Technical data

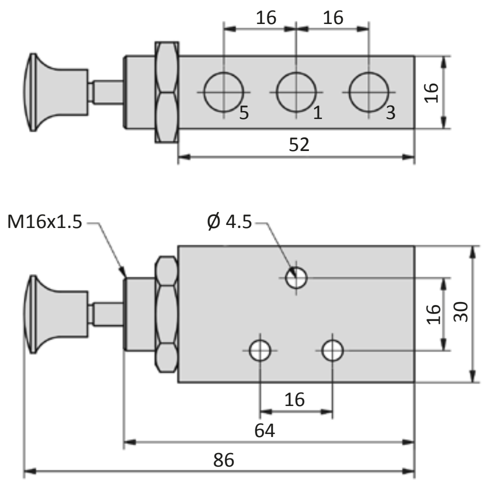
Model-no.:	TK-28-311	TK-28-320	TK-28-520
Operating pressure (bar)	2 ... 10	2 ... 10	2 ... 10
Flow rate (Nl/min)	500	500	480
Actuating force at 6 bar (N)	11	3	4
Weight (kg)	0.061	0.061	0.078

Dimensions

TK-28-3xx



TK-28-520



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

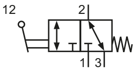
Series HF, HR

Technical details

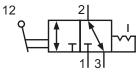
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Hand lever operated spool valve.

3/2-way valves



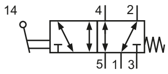
HF-xx-310
3/2-way, hand lever, mechanical spring return



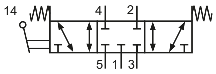
HR-xx-320
3/2-way, two positions, hand lever, detent

Please complete: xx = 18 for G1/8
xx = 14 for G1/4
xx = 12 for G1/2

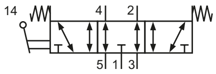
5/2- and 5/3-way valves



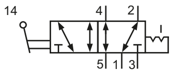
HF-xx-510
5/2-way, hand lever, mechanical spring return



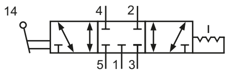
HF-xx-530
5/3-way, center position closed, hand lever, spring return



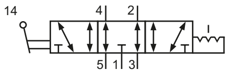
HF-xx-533
5/3-way, center position exhausted, hand lever, spring return



HR-xx-520
5/2-way, two positions, hand lever, detent



HR-xx-530
5/3-way, center position closed, hand lever, detent



HR-xx-533
5/3-way, center position exhausted, hand lever, detent

Technical data

Model-no.:	HF-18-310	HF-14-310	HF-12-310	HF-18-510	HF-14-510	HF-12-510
Connection	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2
Nominal size (mm)	6	9	14	6	9	14
Flow rate (Nl/min)	750	1580	3300	750	1580	3300
Operating pressure (bar)	0 ... 12	0 ... 12	0 ... 12	0 ... 12	0 ... 12	0 ... 12
Actuating force at 6 bar (N)	13	20	32	13	20	32
Weight (kg)	0.266	0.48	1.21	0.31	0.56	1.43

Model-no.:	HF-18-530	HF-14-530	HF-12-530	HF-18-533	HF-14-533	HF-12-533
Connection	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2
Nominal size (mm)	6	9	14	6	9	14
Flow rate (Nl/min)	780	1800	3300	780	1800	3300
Operating pressure (bar)	0 ... 10	0 ... 12	0 ... 12	0 ... 10	0 ... 12	0 ... 12
Actuating force at 6 bar (N)	20	25	36	20	25	36
Weight (kg)	0.32	0.58	1.43	0.32	0.58	1.43

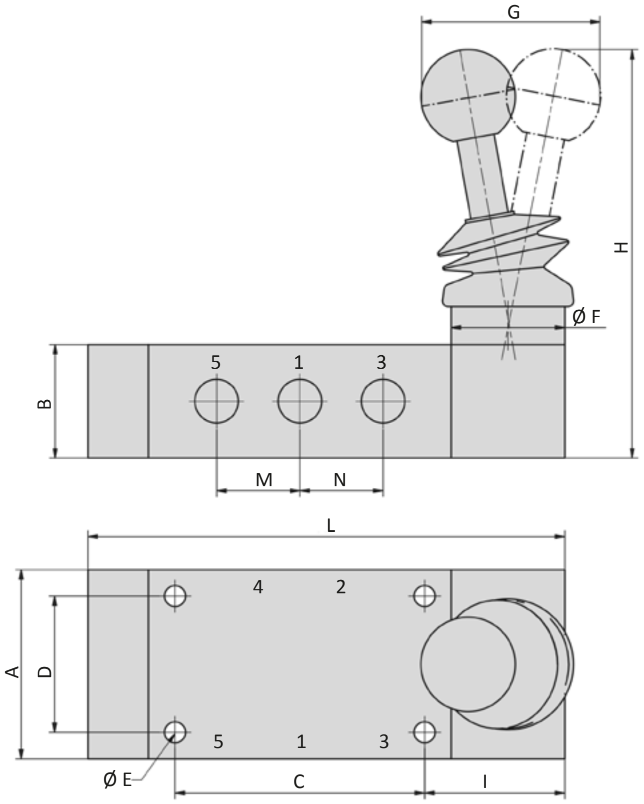
Model-no.:	HR-18-320	HR-14-320	HR-12-320	HR-18-520	HR-14-520	HR-12-520
Connection	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2
Nominal size (mm)	6	9	14	6	9	14
Flow rate (Nl/min)	750	1580	3300	750	1580	3300
Operating pressure (bar)	0 ... 12	0 ... 12	0 ... 12	0 ... 12	0 ... 12	0 ... 12
Actuating force at 6 bar (N)	16	24	36	16	24	36
Weight (kg)	0.268	0.485	1.215	0.312	0.564	1.43

Series HF, HR

Technical data

Model-no.:	HR-18-530	HR-14-530	HR-12-530	HR-18-533	HR-14-533	HR-12-533
Connection	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2
Nominal size (mm)	6	9	14	6	9	14
Flow rate (Nl/min)	780	1800	3300	780	1800	3300
Operating pressure (bar)	0 ... 10	0 ... 12	0 ... 12	0 ... 10	0 ... 12	0 ... 12
Actuating force at 6 bar (N)	20	25	40	20	25	40
Weight (kg)	0.32	0.58	1.43	0.32	0.58	1.43

Dimensions



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Model-no.:		A	B	C	D	Ø E	Ø F	G	H	I	L	M	N
HF-18-310	HR-18-320	40	25	34	30	4.5	25	36	88	31	87	-	18
HF-14-310	HR-14-320	50	30	44	36	5.5	30	46	112	37	104	-	22
HF-12-310	HR-12-320	70	40	70	50	6.5	40	64	148	51	148	-	36
HF-18-510	HR-18-520	40	25	52	30	4.5	25	36	88	31	105	18	18
HF-14-510	HR-14-520	50	30	66	36	5.5	30	46	112	37	126	22	22
HF-12-510	HR-12-520	70	40	106	50	6.5	40	64	148	51	184	36	38
HF-18-53x	HR-18-53x	40	25	52	30	4.5	25	45	88	31	105	18	18
HF-14-53x	HR-14-53x	50	30	66	36	5.5	30	53	112	37	126	22	22
HF-12-53x	HR-12-53x	70	40	106	50	6.5	40	64	148	51	193	36	36

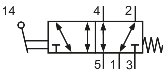
Series 84-4HF, 84-4HR

Technical details

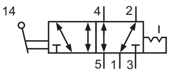
Temperature range	0°C ... +60°C
Operating pressure	0 ... 8 bar
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR , inner parts: Al, steel

Hand lever operated spool valve.

5/2-way valves



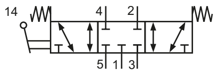
84-4HF-xx-510
5/2-way, hand lever, mechanical spring return



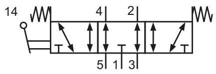
84-4HR-xx-520
5/2-way, two positions, hand lever, detent

Please complete: xx = 18 for G1/8
xx = 14 for G1/4
xx = 12 for G1/2

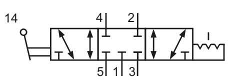
5/3-way valves



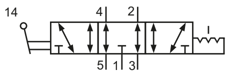
84-4HF-xx-530
5/3-way, center position closed, hand lever, spring return



84-4HF-xx-533
5/3-way, center position exhausted, hand lever, spring return



84-4HR-xx-530
5/3-way, center position closed, hand lever, detent



84-4HR-xx-533
5/3-way, center position exhausted, hand lever, detent

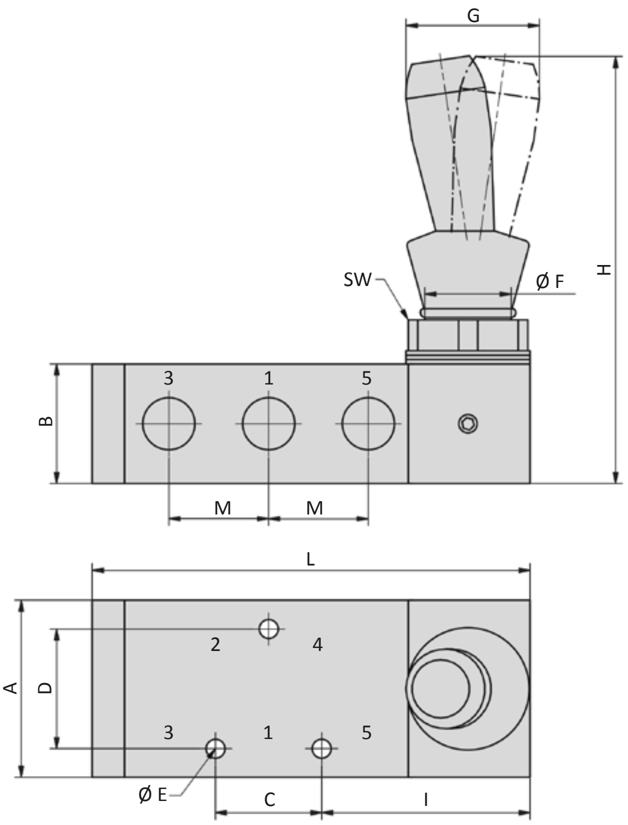
Technical data

Model-no.:	84-4HF-18-510	84-4HF-14-510	84-4HF-14-530	84-4HF-14-533
Connection	G1/8	G1/4	G1/4	G1/4
Nominal size (mm)	4.5	6	5	5
Flow rate (Nl/min)	750	1350	980	980
Weight (kg)	0.168	0.252	0.310	0.310

Model-no.:	84-4HR-18-520	84-4HR-14-520	84-4HR-12-520	84-4HR-14-530	84-4HR-14-533	84-4HR-12-530
Connection	G1/8	G1/4	G1/2	G1/4	G1/4	G1/2
Nominal size (mm)	4.5	6	8	5	5	6.5
Flow rate (Nl/min)	750	1350	2500	980	980	1600
Weight (kg)	0.170	0.255	0.540	0.250	0.250	0.560

Series 84-4HF, 84-4HR

Dimensions



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Model-no.:	A	B	C	D	Ø E	Ø F	G	H	I	L	M	SW
84-4HF-18-510	35	22	20	21	4.3	15	16	90	38	81.3	18	22
84-4HF-14-510	40	27	24	27	4.3	20	20	93	48	100.5	22.5	27
84-4HF-14-530	40	27	24	27	4.3	20	20	93	67	119.5	22.5	27
84-4HF-14-533	40	27	24	27	4.3	20	20	93	67	119.5	22.5	27
84-4HR-18-520	35	22	20	21	4.3	15	16	90	38	81.3	18	22
84-4HR-14-520	40	27	24	27	4.3	20	20	93	48	100.5	22.5	27
84-4HR-14-530	40	27	24	27	4.3	20	20	93	48	100.5	22.5	27
84-4HR-14-533	40	27	24	27	4.3	20	20	93	48	100.5	22.5	27
84-4HR-12-520	50	34	28	35	5.5	22	28	103.5	57	128.5	31.5	-
84-4HR-12-530	50	34	28	35	5.5	22	30	108.5	57	128.5	31.5	27

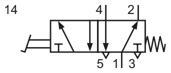
2

Technical details

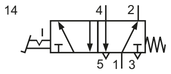
Connection	G1/4
Nominal size (mm)	9
Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR , inner parts: Al, steel

Foot pedal operated spool valve.

5/2-way valves



84-4FF-511-14-H
5/2-way, pedal, mechanical spring return

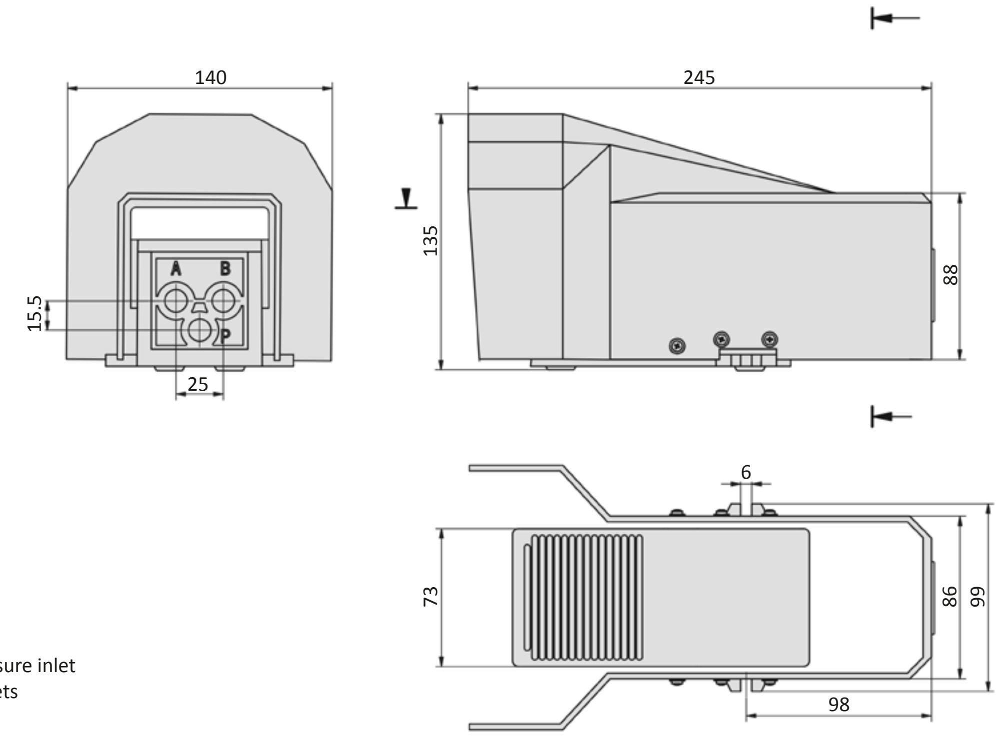


84-4FR-520-14-H
5/2-way, two positions, pedal, detent

Technical data

Model-no.:	84-4FF-511-14-H	84-4FR-520-14-H
Operating pressure (bar)	0 ... 8	0 ... 8
Flow rate (Nl/min)	530	530
Weight (kg)	0.900	0.900

Dimensions



P = pressure inlet
A,B = outlets

Table of contents

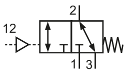
Series L-25

Technical details

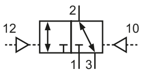
Connection	M5
Nominal size	3.2 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

3/2-way valves

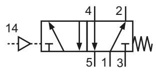


L-25-311
3/2-way, single pilot, mechanical spring return

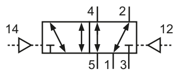


L-25-320
3/2-way, double pilot

5/2-way valves



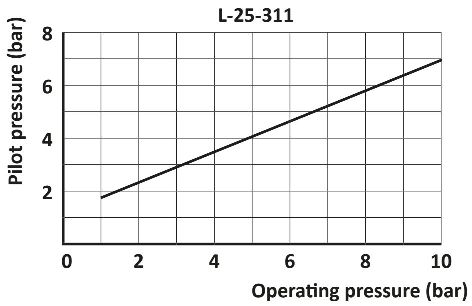
L-25-511
5/2-way, single pilot, mechanical spring return



L-25-520
5/2-way, double pilot

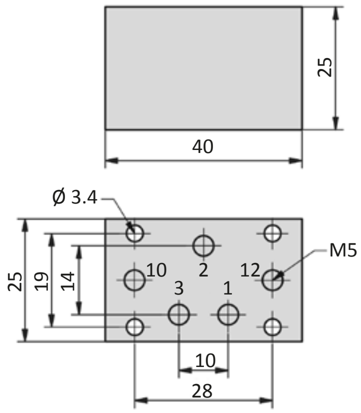
Technical data

Model-no.:	L-25-311	L-25-320	L-25-511	L-25-520
Operating pressure (bar)	1 ... 10	0 ... 10	0 ... 10	0 ... 10
Pilot pressure (bar)	see diagram	2 ... 10	3 ... 10	2 ... 10
Flow rate (Nl/min)	160	160	160	160
Weight (kg)	0.065	0.068	0.084	0.085

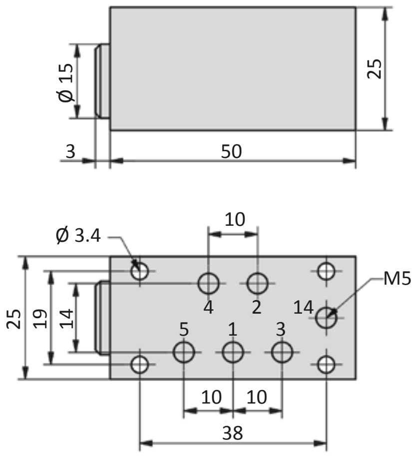


Dimensions

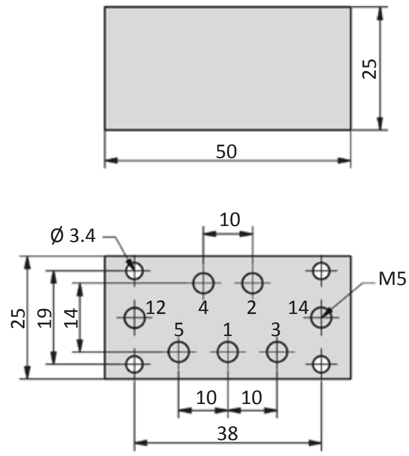
L-25-3xx



L-25-511



L-25-520



1	= pressure inlet
2,4	= outlets
3,5	= exhausts
10,12,14	= pilot ports

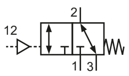
Series L-28

Technical details

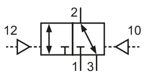
Connection	G1/8
Nominal size	6 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

3/2-way valves

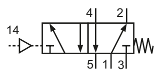


L-28-311
3/2-way, single pilot, mechanical spring return

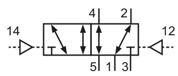


L-28-320
3/2-way, double pilot

5/2-way valves



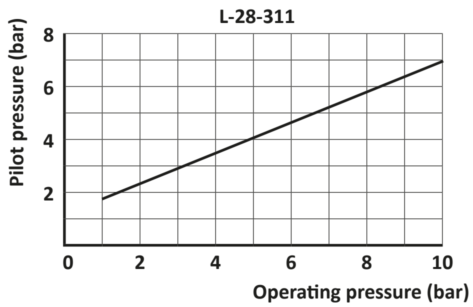
L-28-511
5/2-way, single pilot, mechanical spring return



L-28-520
5/2-way, double pilot

Technical data

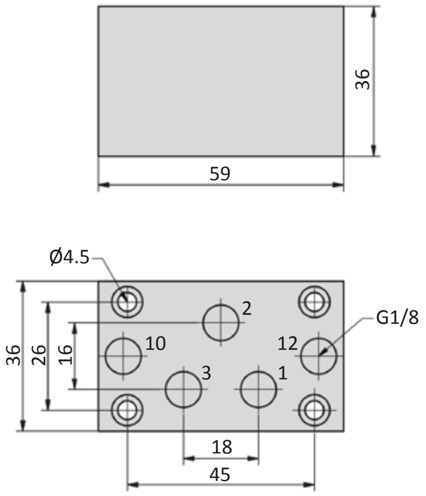
Model-no.:	L-28-311	L-28-320	L-28-511	L-28-520
Operating pressure (bar)	1 ... 10	0 ... 10	0 ... 10	0 ... 10
Pilot pressure (bar)	see diagram	2 ... 10	3 ... 10	2 ... 10
Flow rate (Nl/min)	600	600	600	600
Weight (kg)	0.192	0.195	0.254	0.250



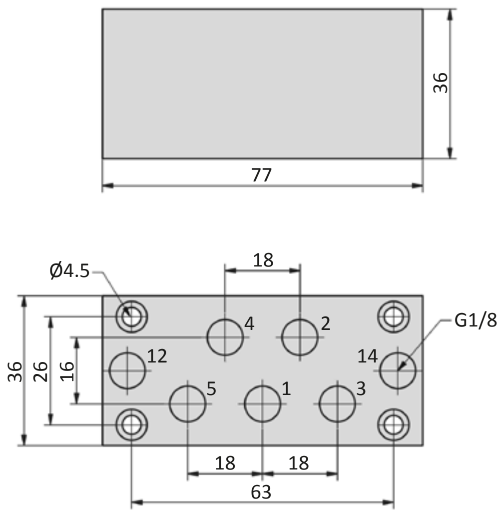
3

Dimensions

L-28-3xx



L-28-5xx



1	= pressure inlet
2,4	= outlets
3,5	= exhausts
10,12,14	= pilot ports

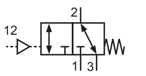
Series P-05

Technical details

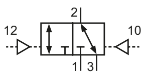
Connection	G1/8
Nominal size	6 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
⟨Ex⟩	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

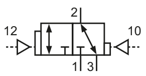
3/2-way valves



P-05-311
3/2-way, single pilot, mechanical spring return

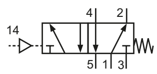


P-05-320
3/2-way, double pilot

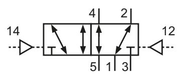


P-05-322
3/2-way, double pilot, one side dominant

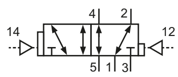
5/2- and 5/3-way valves



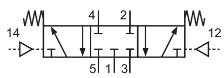
P-05-511
5/2-way, single pilot, mechanical spring return



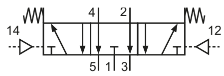
P-05-520
5/2-way, double pilot



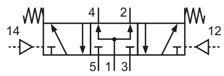
P-05-522
5/2-way, double pilot, one side dominant



P-05-530
5/3-way, center position closed



P-05-533
5/3-way, center position exhausted

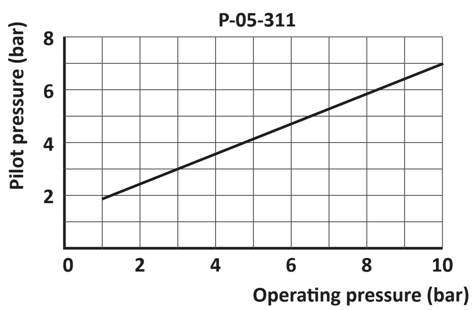


P-05-534
5/3-way, center position pressurized

Technical data

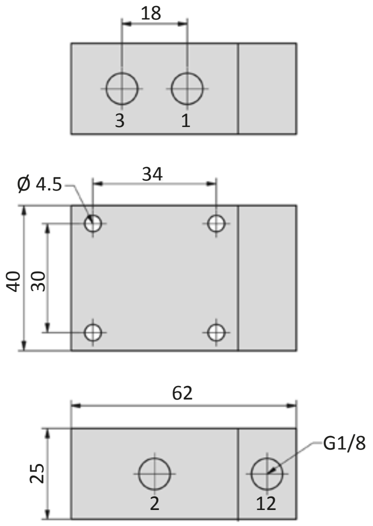
Model-no.:	P-05-311	P-05-320	P-05-322
Operating pressure (bar)	1 ... 10	0 ... 10	0 ... 10
Pilot pressure (bar)	see diagram	2 ... 10	2 ... 10
Flow rate (Nl/min)	750	750	750
Weight (kg)	0.158	0.195	0.2

Model-no.:	P-05-511	P-05-520	P-05-522	P-05-530	P-05-533	P-05-534
Operating pressure (bar)	0 ... 10	0 ... 10	0 ... 10	0 ... 8	0 ... 8	0 ... 8
Pilot pressure (bar)	3 ... 10	2 ... 10	2 ... 10	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	750	750	750	650	650	650
Weight (kg)	0.205	0.245	0.245	0.245	0.245	0.245

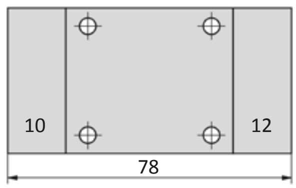


Dimensions

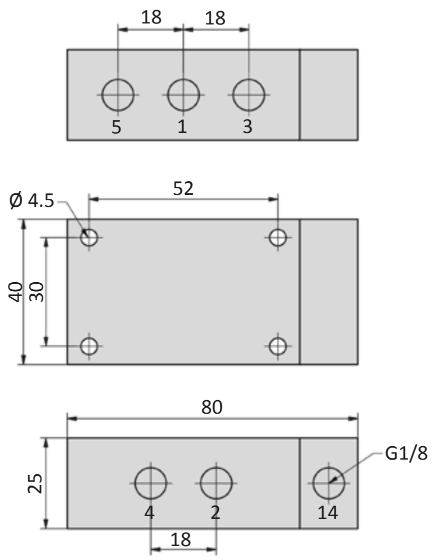
P-05-311



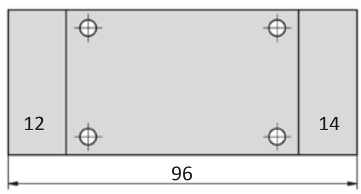
P-05-32x



P-05-511



P-05-52x, P-05-53x



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
10,12,14 = pilot ports
Pilot ports can be repositioned by 180°.

Accessories

Manifolds: page 4-10

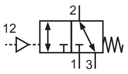
Series P-07

Technical details

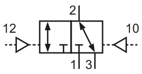
Connection	G1/4
Nominal size	9 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

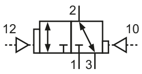
3/2-way valves



P-07-311
3/2-way, single pilot, mechanical spring return

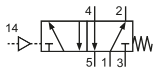


P-07-320
3/2-way, double pilot

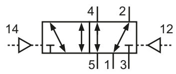


P-07-322
3/2-way, double pilot, one side dominant

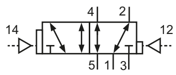
5/2- and 5/3-way valves



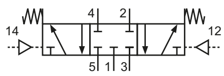
P-07-511
5/2-way, single pilot, mechanical spring return



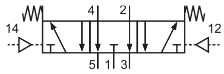
P-07-520
5/2-way, double pilot



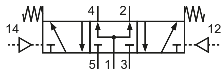
P-07-522
5/2-way, double pilot, one side dominant



P-07-530
5/3-way, center position closed



P-07-533
5/3-way, center position exhausted

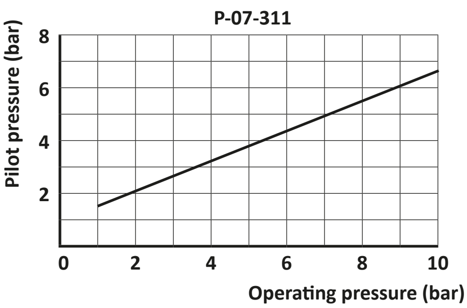


P-07-534
5/3-way, center position pressurized

Technical data

Model-no.:	P-07-311	P-07-320	P-07-322
Operating pressure (bar)	1 ... 10	0 ... 10	0 ... 10
Pilot pressure (bar)	see diagram	1.5 ... 10	1.5 ... 10
Flow rate (Nl/min)	1580	1580	1580
Weight (kg)	0.281	0.350	0.350

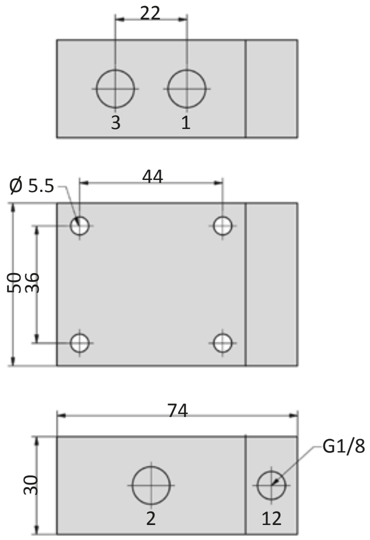
Model-no.:	P-07-511	P-07-520	P-07-522	P-07-530	P-07-533	P-07-534
Operating pressure (bar)	0 ... 10	0 ... 10	0 ... 10	0 ... 8	0 ... 8	0 ... 8
Pilot pressure (bar)	3 ... 10	1.5 ... 10	1.5 ... 10	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	1580	1580	1580	1300	1300	1300
Weight (kg)	0.360	0.420	0.420	0.420	0.420	0.420



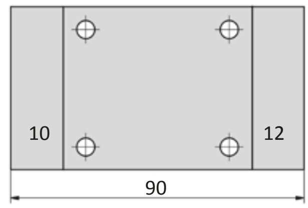
3

Dimensions

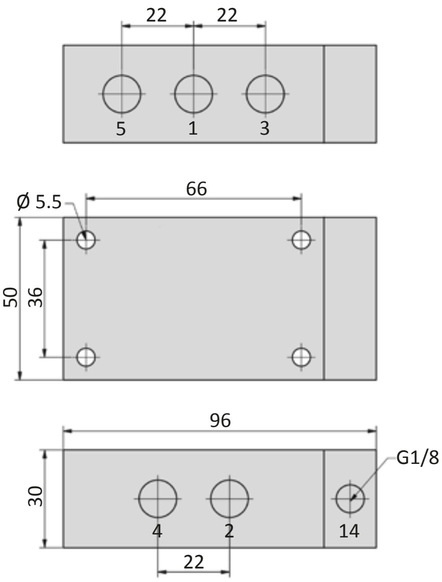
P-07-311



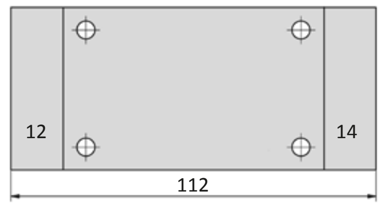
P-07-32x



P-07-511



P-07-52x, P-07-53x



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
10,12,14 = pilot ports
Pilot ports can be repositioned by 180°.

Accessories

Manifolds: page 4-14

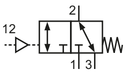
Series P-12

Technical details

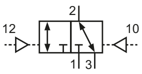
Connection	G1/2
Nominal size	14 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

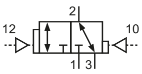
3/2-way valves



P-12-311
3/2-way, single pilot, mechanical spring return

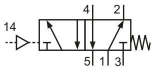


P-12-320
3/2-way, double pilot

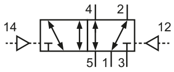


P-12-322
3/2-way, double pilot, one side dominant

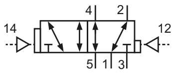
5/2- and 5/3-way valves



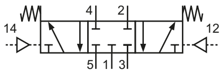
P-12-511
5/2-way, single pilot, mechanical spring return



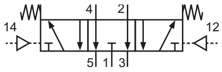
P-12-520
5/2-way, double pilot



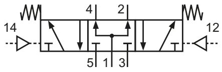
P-12-522
5/2-way, double pilot, one side dominant



P-12-530
5/3-way, center position closed



P-12-533
5/3-way, center position exhausted



P-12-534
5/3-way, center position pressurized

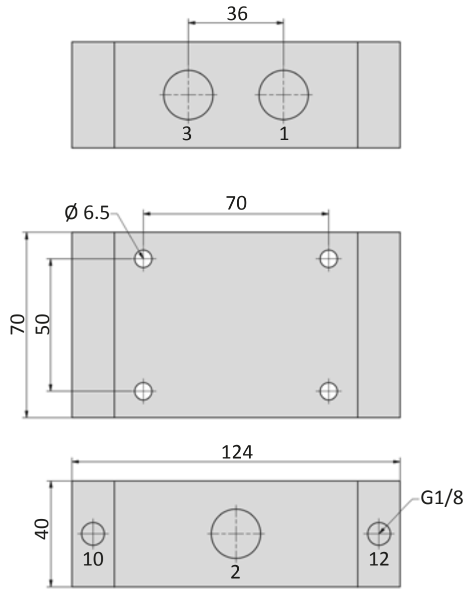
Technical data

Model-no.:	P-12-311	P-12-320	P-12-322
Operating pressure (bar)	1 ... 10	0 ... 10	0 ... 10
Pilot pressure (bar)	2 ... 10	1 ... 10	1 ... 10
Flow rate (Nl/min)	3300	3300	3300
Weight (kg)	0.830	0.855	0.855

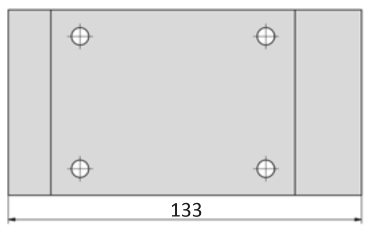
Model-no.:	P-12-511	P-12-520	P-12-522	P-12-530	P-12-533	P-12-534
Operating pressure (bar)	0 ... 10	0 ... 10	0 ... 10	0 ... 10	0 ... 10	0 ... 10
Pilot pressure (bar)	2 ... 10	1 ... 10	1 ... 10	3 ... 10	3 ... 10	3 ... 10
Flow rate (Nl/min)	3300	3300	3300	3300	3300	3300
Weight (kg)	1.065	1.080	1.080	1.080	1.080	1.080

Dimensions

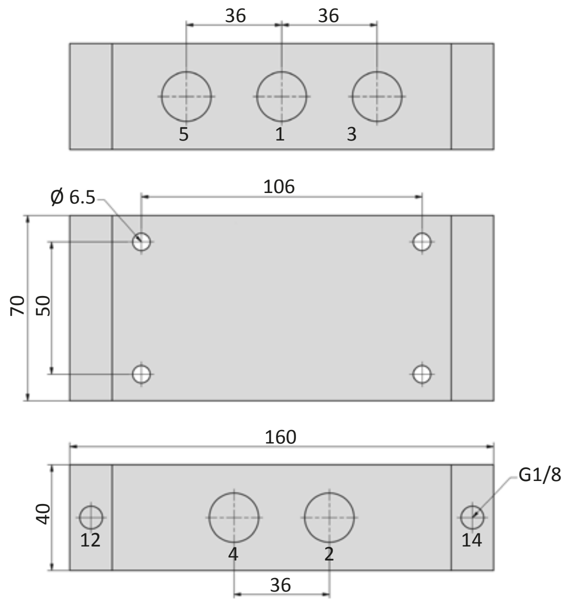
P-12-311, P-12-320



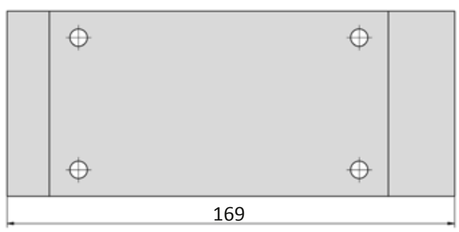
P-12-322



P-12-511, P-12-520, P-12-53x



P-12-522



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
10,12,14 = pilot ports
Pilot ports can be repositioned by 180°.

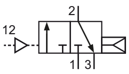
Series BP-01 and BP-02

Technical details

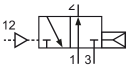
Connection	BP-01: G1/8 BP-02: G1/4
Nominal size	BP-01: 5 mm BP-02: 7 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, PU, inner parts: Al, brass, plastic

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

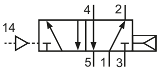
3/2- and 5/2-way valves



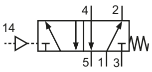
BP-01-310
BP-02-310
3/2-way, single pilot, air spring return, NC



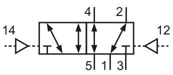
BP-01-312
BP-02-312
3/2-way, single pilot, air spring return, NO



BP-01-510
BP-02-510
5/2-way, single pilot, air spring return

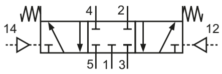


BP-01-511
BP-02-511
5/2-way, single pilot, mechanical spring return

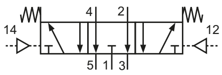


BP-01-520
BP-02-520
5/2-way, double pilot

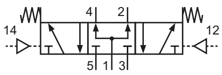
5/3-way valves



BP-01-530
BP-02-530
5/3-way, center position closed



BP-01-533
BP-02-533
5/3-way, center position exhausted



BP-01-534
BP-02-534
5/3-way, center position pressurized

Technical data

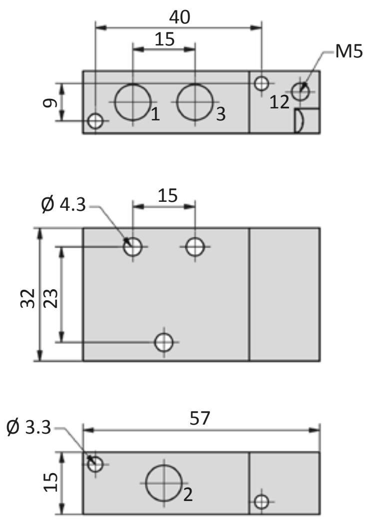
Model-no.:	BP-01-310	BP-01-320	BP-02-310	BP-02-312
Operating pressure (bar)	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Flow rate (Nl/min)	660	600	1090	920
Weight (kg)	0.065	0.066	0.125	0.125

Model-no.:	BP-01-510	BP-01-511	BP-01-520	BP-01-530	BP-01-533	BP-01-534
Operating pressure (bar)	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	3 ... 8	2 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	780	800	790	690	670	1030
Weight (kg)	0.090	0.092	0.102	0.100	0.100	0.100

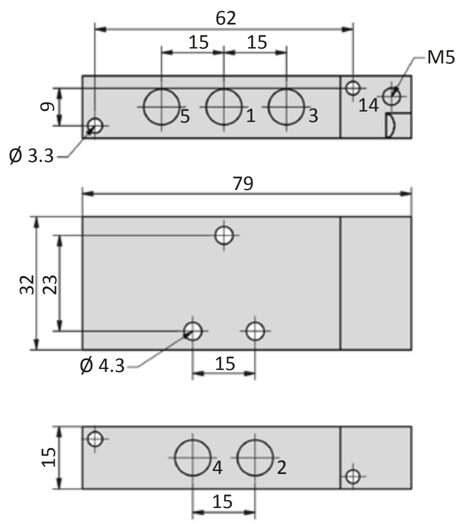
Model-no.:	BP-02-510	BP-02-511	BP-02-520	BP-02-530	BP-02-533	BP-02-534
Operating pressure (bar)	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	3 ... 8	2 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	1700	1600	1540	1300	1470	1660
Weight (kg)	0.185	0.185	0.210	0.202	0.202	0.202

Dimensions

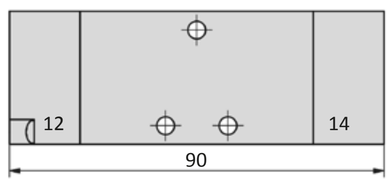
BP-01-31x



BP-01-51x



BP-01-520, BP-01-53x

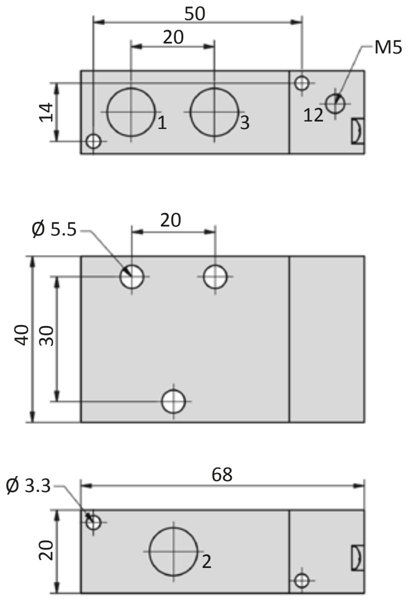


1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12,14 = pilot ports

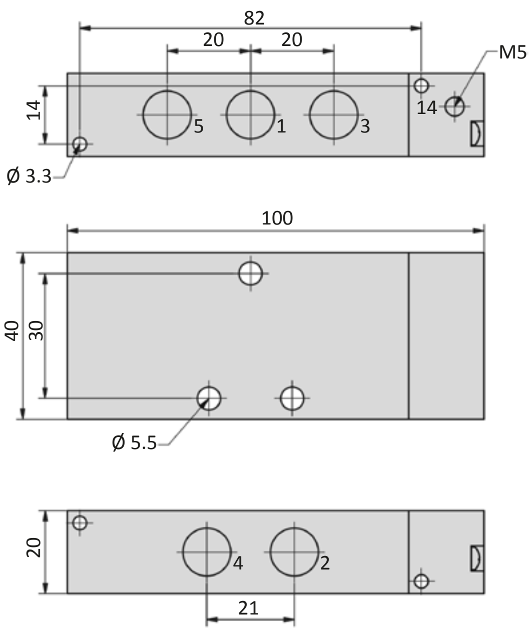
Series BP-01 and BP-02

Dimensions

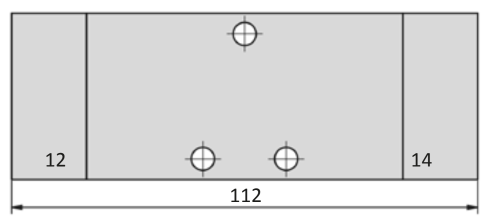
BP-02-31x



BP-02-51x

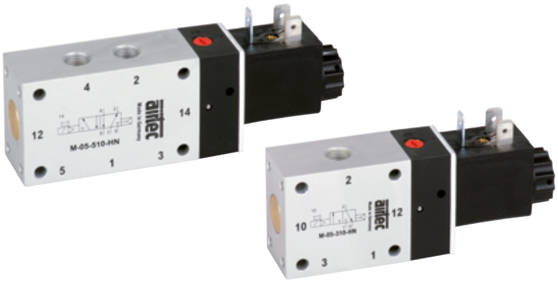


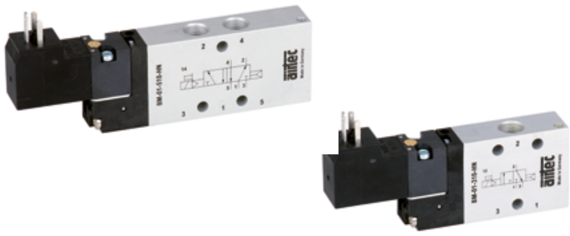
BP-02-520, BP-02-53x

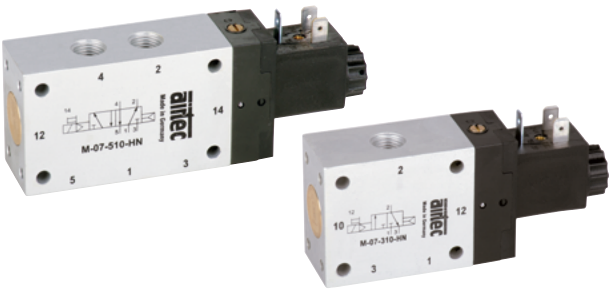


1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12,14 = pilot ports

Table of contents







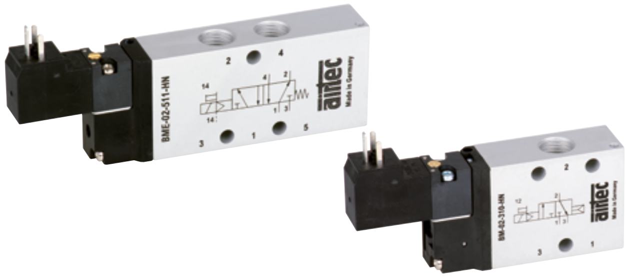


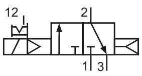
Table of contents

Technical details

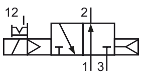
Connection	G1/8
Nominal size	4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

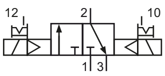
3/2-way valves



M-04-310-HN-xxx
3/2-way, single solenoid, air spring return, NC



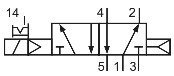
MO-04-310-HN-xxx
3/2-way, single solenoid, air spring return, NO



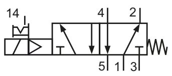
M-04-320-HN-xxx
3/2-way, double solenoid

Please complete: xxx = electrical option

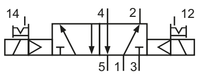
5/2- and 5/3-way valves



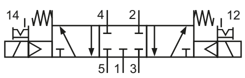
M-04-510-HN-xxx
5/2-way, single solenoid, air spring return



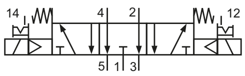
M-04-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



M-04-520-HN-xxx
5/2-way, double solenoid



M-04-530-HN-xxx
5/3-way, center position closed



M-04-533-HN-xxx
5/3-way, center position exhausted

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Manual override on same side of ports 2 or 2 and 4	1, 3 or 1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-441	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-431
24 V DC	4.2 W		Form B industrial norm	-442	-412
24 V DC	4.8 W		M 12	-O42	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O62	-O32
24 V AC	7/4 VA		Form B industrial norm	-452	-422
115 V AC	7/4 VA		Form B industrial norm	-456	-426
230 V AC	7/4 VA		Form B industrial norm	-457	-427

***1** *Plug socket not included, suitable plug sockets see page 4-38.*

Series M-04

Technical data

Model-no.:	M-04-310	MO-04-310	M-04-320	M-04-510	M-04-511	M-04-520	M-04-530	M-04-533
Operating pressure* (bar)	2 ... 10	2 ... 10	2.5 ... 10	2,5 ... 10	3 ... 10	2,5 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	2 ... 10	2 ... 10	2.5 ... 10	2,5 ... 10	3 ... 10	2,5 ... 10	3 ... 10	3 ... 10
Flow rate (Nl/min)	360	360	360	360	360	360	360	360
Response time (ms) at 6 bar	on: 13 off: 16	on: 13 off: 16	on: 12 off: 12	on: 12 off: 14	on: 13 off: 16	on: 12 off: 12	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.185	0.185	0.315	0.210	0.220	0.335	0.335	0.335

* max. 8 bar at 2.2 W and 2.5 W

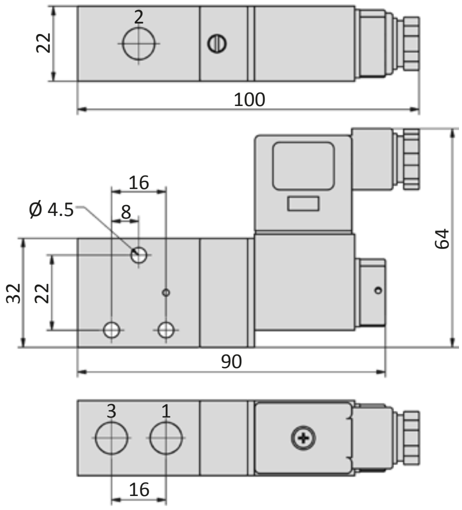
Accessories

Plug sockets: page 4-38

Manifolds: page 4-06

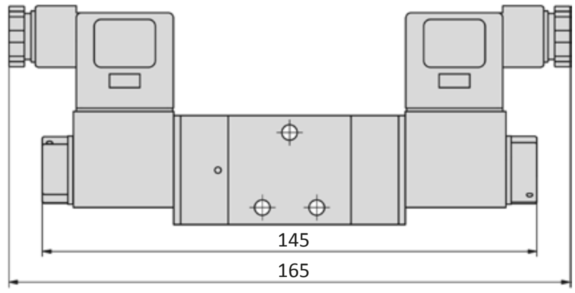
Dimensions

M-04-310-HN, MO-04-310-HN*

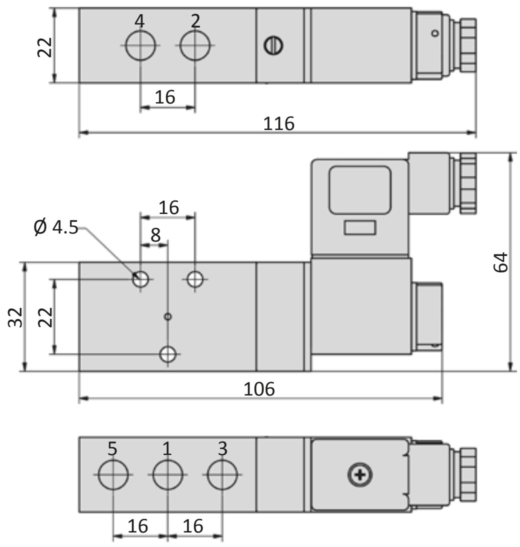


*For the NO version MO-04 the ports 1 and 3 are inverted.

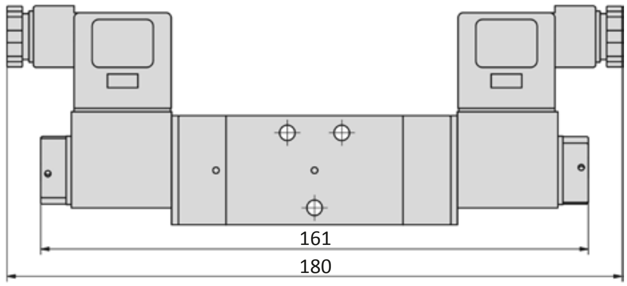
M-04-320-HN



M-04-510-HN, M-04-511-HN



M-04-520-HN, M-04-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

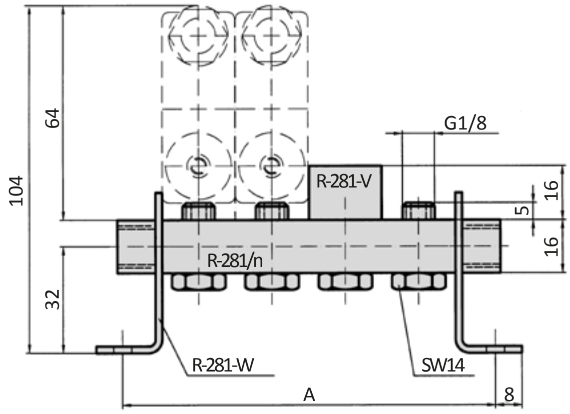
Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

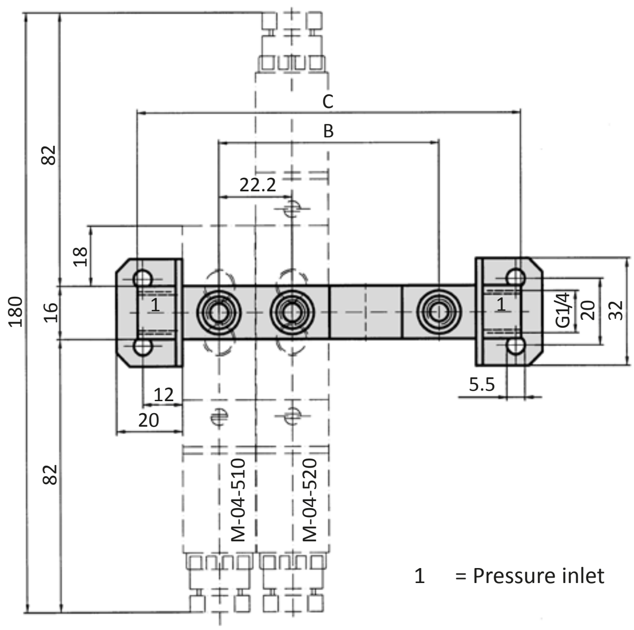
Series M-04

General information

The R-281/n manifold is suitable for the M-04 valve series. As well available are blind plates R-281-V for blank stations and mounting brackets R-281-W (pair).
Hollow bolts and gaskets are included.

Dimensions





Model-no.:	A	B	C	Weight (kg)
R-281/2	68.4	22.2	72	0.053
R-281/3	90.6	44.4	94	0.074
R-281/4	112.8	66.6	116	0.095
R-281/5	135	88.8	138	0.116
R-281/6	157.2	111	160	0.137
R-281/8	201.6	155.5	204	0.179
R-281/10	246	199.8	248	0.222

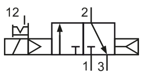
Technical details

Connection	G1/8
Nominal size	6 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

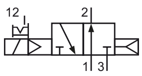
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

4

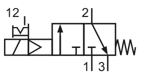
3/2-way valves



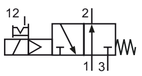
M-05-310-HN-xxx
3/2-way, single solenoid, air spring return, NC



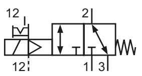
MO-05-310-HN-xxx
3/2-way, single solenoid, air spring return, NO



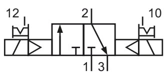
M-05-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC



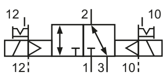
MO-05-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NO



ME-05-311-HN-xxx
3/2-way, single solenoid, external pilot pressure, mechanical spring return



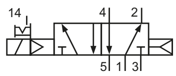
M-05-320-HN-xxx
3/2-way, double solenoid



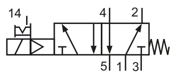
ME-05-320-HN-xxx
3/2-way, double solenoid, external pilot pressure

Please complete: xxx = electrical option

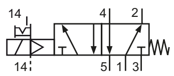
5/2- and 5/3-way valves



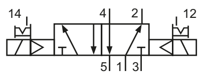
M-05-510-HN-xxx
5/2-way, single solenoid, air spring return



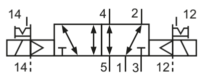
M-05-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



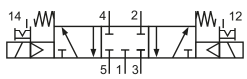
ME-05-511-HN-xxx
5/2-way, single solenoid, external pilot pressure, mechanical spring return



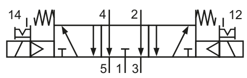
M-05-520-HN-xxx
5/2-way, double solenoid



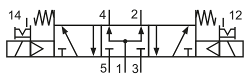
ME-05-520-HN-xxx
5/2-way, double solenoid, external pilot pressure



M-05-530-HN-xxx
5/3-way, center position closed



M-05-533-HN-xxx
5/3-way, center position exhausted



M-05-534-HN-xxx
5/3-way, center position pressurized

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Manual override on same side of ports 2 or 2 and 4	-xxx Manual override on same side of ports 1, 3 or 1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-441	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-431
24 V DC	4.2 W		Form B industrial norm	-442	-412
24 V DC	4.8 W		M 12	-042	-012
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-432
24 V DC	2.5 W	max. 8 bar	M 12	-062	-032
24 V AC	7/4 VA		Form B industrial norm	-452	-422
115 V AC	7/4 VA		Form B industrial norm	-456	-426
230 V AC	7/4 VA		Form B industrial norm	-457	-427

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

Series M-05

Technical data

Model-no.:	M-05-310	MO-05-310	M-05-311	MO-05-311	ME-05-311	M-05-320	ME-05-320
Operating pressure* (bar)	2 ... 10	2 ... 10	3 ... 10	3 ... 10	0 ... 10	2 ... 10	0 ... 10
Pilot pressure* (bar)	2 ... 10	2 ... 10	3 ... 10	3 ... 10	3 ... 10	2 ... 10	2 ... 10
Flow rate (Nl/min)	750	750	750	750	750	750	750
Response time (ms) at 6 bar	on: 13 off: 16	on: 13 off: 16	on: 13 off: 16	on: 13 off: 16	on: 13 off: 18	on: 12 off: 12	on: 12 off: 12
Weight (kg)	0.255	0.255	0.260	0.260	0.308	0.400	0.426

Model-no.:	M-05-510	M-05-511	ME-05-511	M-05-520	ME-05-520	M-05-530	M-05-533	M-05-534
Operating pressure* (bar)	2 ... 10	3 ... 10	0 ... 10	2 ... 10	0 ... 10	3 ... 8	3 ... 8	3 ... 8
Pilot pressure* (bar)	2 ... 10	3 ... 10	3 ... 10	2 ... 10	2 ... 10	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	750	750	750	750	750	650	650	650
Response time (ms) at 6 bar	on: 13 off: 16	on: 13 off: 18	on: 15 off: 19	on: 12 off: 12	on: 12 off: 12	on: 13 off: 18	on: 13 off: 18	on: 13 off: 18
Weight (kg)	0.295	0.300	0.360	0.440	0.470	0.440	0.440	0.440

* max. 8 bar at 2.2 W and 2.5 W

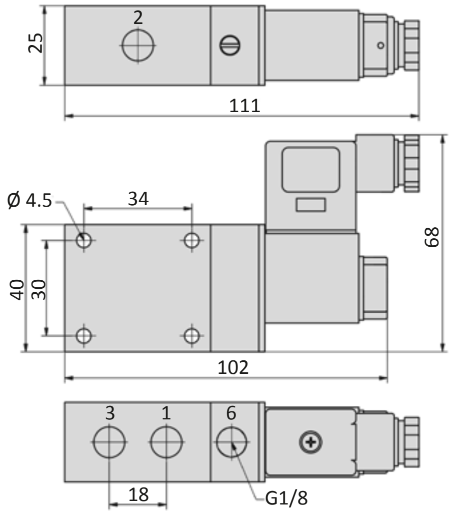
Accessories

Plug sockets: page 4-38

Manifolds: page 4-10

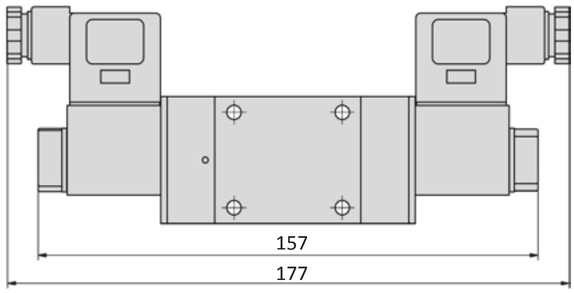
Dimensions

M-05-31x-HN, MO-05-31x-HN*, ME-05-31x-HN

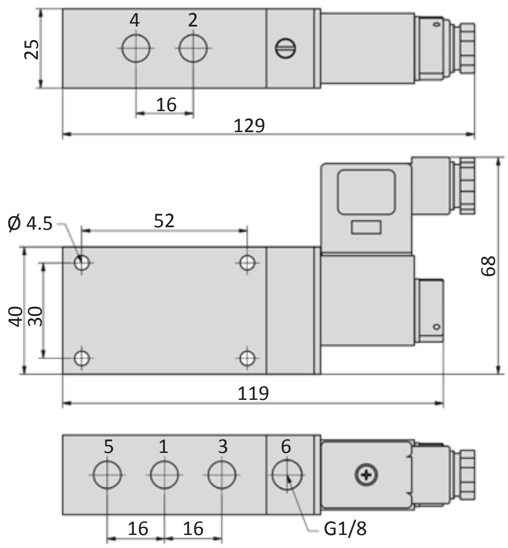


*For the NO version MO-05 the ports 1 and 3 are inverted.

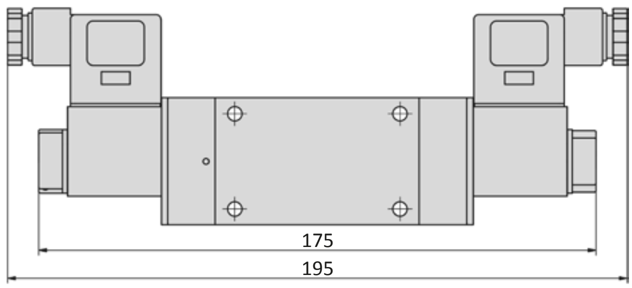
M-05-320-HN, ME-05-320-HN



M-05-51x-HN, ME-05-511-HN



M-05-520-HN, ME-05-520-HN, M-05-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
6 = external pilot pressure supply (only at ME-valves)

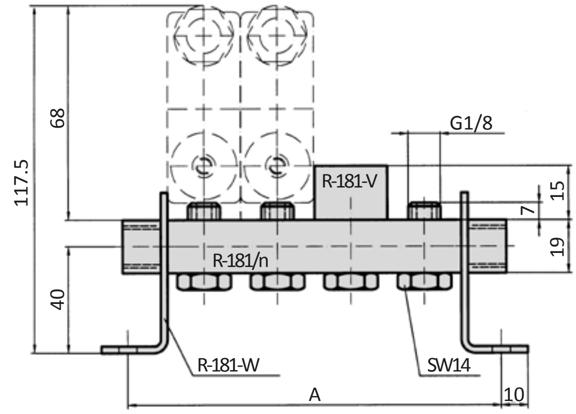
Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

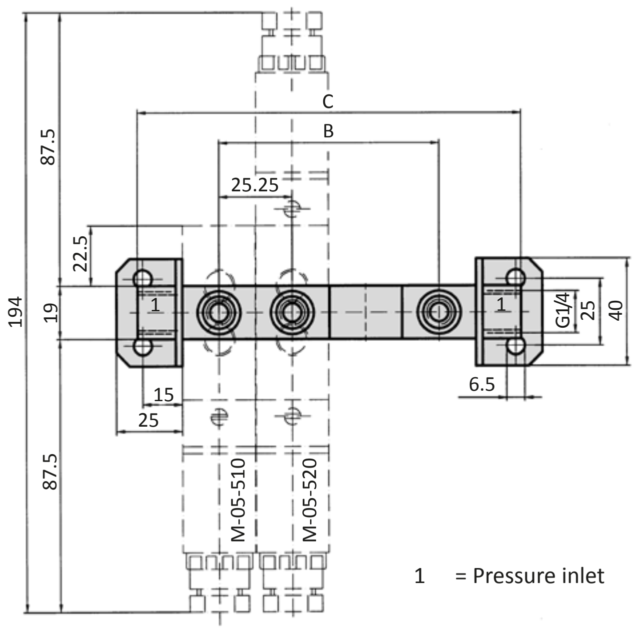
Series M-05

General information

The R-181/n manifold is suitable for the M-05 valve series. As well available are blind plates R-181-V for blank stations and mounting brackets R-181-W (pair).
Hollow bolts and gaskets are included.
The manifold is as well suitable for the pneumatically operated valve series P-05.

Dimensions



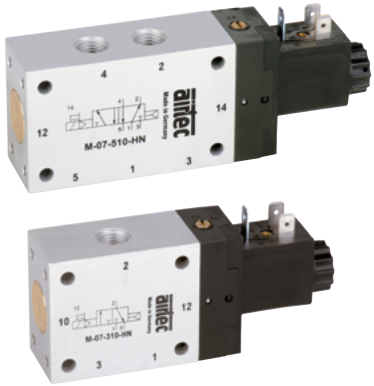


1 = Pressure inlet

Model-no.:	A	B	C	Weight (kg)
R-181/2	80.5	25.25	85	0.084
R-181/3	105.75	50.5	110	0.113
R-181/4	131	75.75	135	0.144
R-181/5	156.25	101	160	0.174
R-181/6	181.5	126.25	185	0.215
R-181/8	232	176.75	235	0.266
R-181/10	282.5	227.25	285	0.326
R-181/12	333	277.75	335	0.385

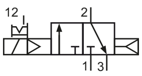
Technical details

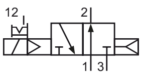
Connection	G1/4
Nominal size	9 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

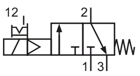


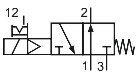
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

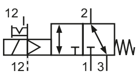
3/2-way valves

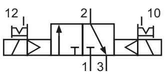

M-07-310-HN-xxx
3/2-way, single solenoid, air spring return, NC

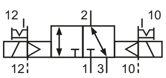

MO-07-310-HN-xxx
3/2-way, single solenoid, air spring return, NO


M-07-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC


MO-07-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NO

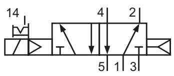

ME-07-311-HN-xxx
3/2-way, single solenoid, external pilot pressure, mechanical spring return

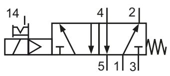

M-07-320-HN-xxx
3/2-way, double solenoid

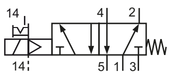

ME-07-320-HN-xxx
3/2-way, double solenoid, external pilot pressure

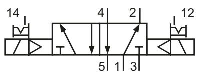
Please complete: xxx = electrical option

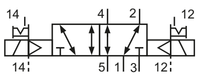
5/2- and 5/3-way valves

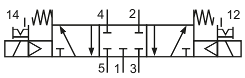

M-07-510-HN-xxx
5/2-way, single solenoid, air spring return

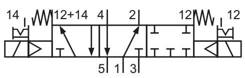

M-07-511-HN-xxx
5/2-way, single solenoid, mechanical spring return

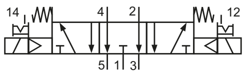

ME-07-511-HN-xxx
5/2-way, single solenoid, external pilot pressure, mechanical spring return

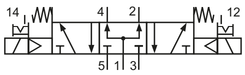

M-07-520-HN-xxx
5/2-way, double solenoid


ME-07-520-HN-xxx
5/2-way, double solenoid, external pilot pressure


M-07-530-HN-xxx
5/3-way, center position closed


M-07-532-HN-xxx
5/3-way, center position safety


M-07-533-HN-xxx
5/3-way, center position exhausted


M-07-534-HN-xxx
5/3-way, center position pressurized

Electrical options

				-xxx Manual override on same side of ports	
Nominal voltage	**Power consumption**	**Specifics**	**Plug connection*1**	**2 or 2 and 4**	**1, 3 or 1, 3 and 5**
12 V DC	4.2 W		Form B industrial norm	-441	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-431
24 V DC	4.2 W		Form B industrial norm	-442	-412
24 V DC	4.8 W		M 12	-042	-012
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-432
24 V DC	2.5 W	max. 8 bar	M 12	-062	-032
24 V AC	7/4 VA		Form B industrial norm	-452	-422
115 V AC	7/4 VA		Form B industrial norm	-456	-426
230 V AC	7/4 VA		Form B industrial norm	-457	-427

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

Series M-07

Technical data

Model-no.:	M-07-310	MO-07-310	M-07-311	MO-07-311	ME-07-311	M-07-320	ME-07-320
Operating pressure* (bar)	1.5 ... 10	1.5 ... 10	2.5 ... 10	2.5 ... 10	0 ... 10	1.5 ... 10	0 ... 10
Pilot pressure* (bar)	1.5 ... 10	1.5 ... 10	2.5 ... 10	2.5 ... 10	2.5 ... 10	1.5 ... 10	1.5 ... 10
Flow rate (Nl/min)	1580	1580	1580	1580	1580	1580	1580
Response time (ms) at 6 bar	on: 15 off: 19	on: 15 off: 19	on: 15 off: 19	on: 15 off: 19	on: 15 off: 22	on: 14 off: 14	on: 14 off: 14
Weight (kg)	0.375	0.375	0.380	0.380	0.450	0.520	0.578

Model-no.:	M-07-510	M-07-511	ME-07-511	M-07-520	ME-07-520
Operating pressure* (bar)	1.5 ... 10	2.5 ... 10	0 ... 10	2 ... 10	0 ... 10
Pilot pressure* (bar)	1.5 ... 10	2.5 ... 10	2.5 ... 10	2 ... 10	2 ... 10
Flow rate (Nl/min)	1580	1580	1580	1580	1580
Response time (ms) at 6 bar	on: 15 off: 19	on: 15 off: 22	on: 15 off: 19	on: 14 off: 14	on: 14 off: 14
Weight (kg)	0.455	0.465	0.530	0.620	0.650

Model-no.:	M-07-530	M-07-532	M-07-533	M-07-534
Operating pressure* (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Pilot pressure* (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	1300	1280	1300	1300
Response time (ms) at 6 bar	on: 15 off: 22	on: 35 off: 42	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.620	0.620	0.620	0.620

* max. 8 bar at 2.2 W and 2.5 W

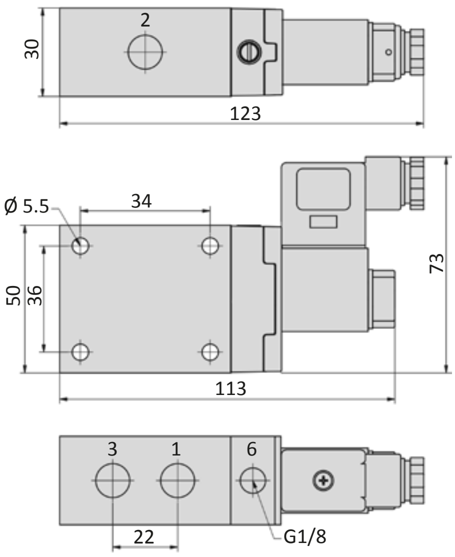
Accessories

Plug sockets: page 4-38

Manifolds: page 4-14

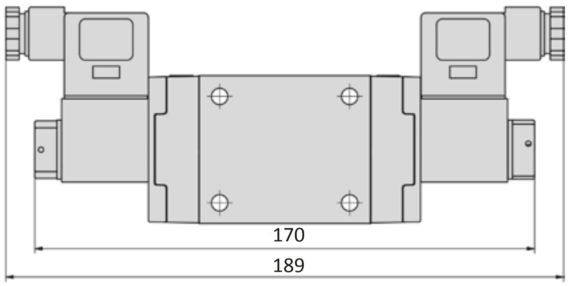
Dimensions

M-07-31x-HN, MO-07-31x-HN*, ME-07-31x-HN

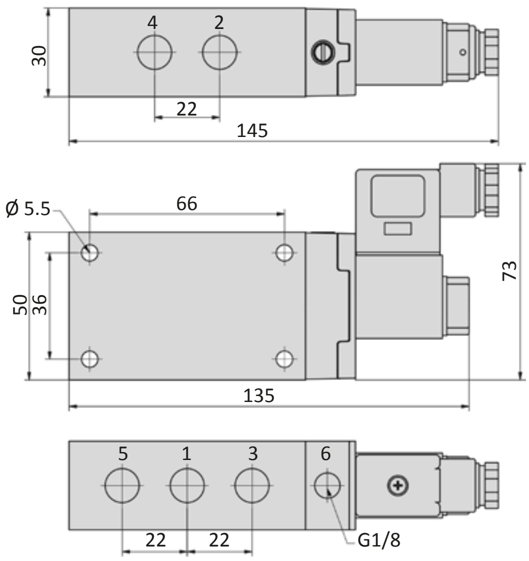


*For the NO version MO-07 the ports 1 and 3 are inverted.

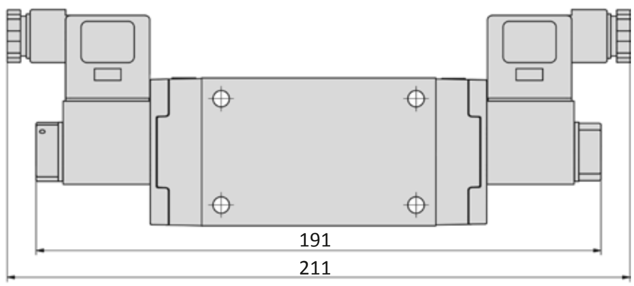
M-07-320-HN, ME-07-320-HN



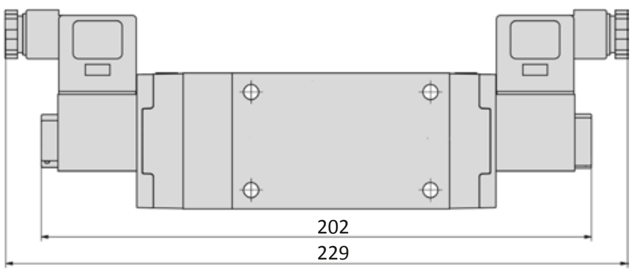
M-07-51x-HN, ME-07-511-HN



M-07-520-HN, ME-07-520-HN, M-07-53x-HN



M-07-532-HN



1   = pressure inlet
2,4 = outlets
3,5 = exhausts
6   = external pilot pressure supply (only at ME-valves)

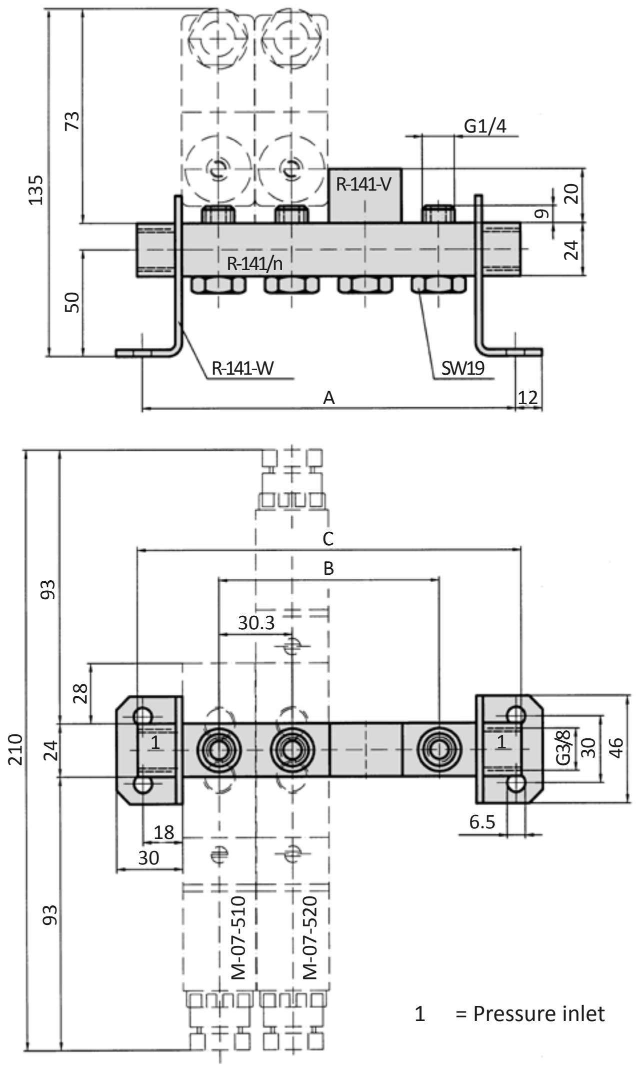
Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Series M-07

General information

The R-141/n manifold is suitable for the M-07 valve series. As well available are blind plates R-141-V for blank stations and mounting brackets R-141-W (pair).
Hollow bolts and gaskets are included.
The manifold is as well suitable for the pneumatically operated valve series P-07.

Dimensions



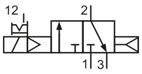
Model-no.:	A	B	C	Weight (kg)
R-141/2	96.6	30.3	100	0.165
R-141/3	126.9	60.6	130	0.227
R-141/4	157.2	90.9	160	0.287
R-141/5	187.5	121.2	190	0.349
R-141/6	217.8	151.5	220	0.412
R-141/8	248.1	181.8	250	0.473
R-141/12	399.6	333.3	400	0.781

Technical details

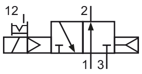
Connection	G1/2
Nominal size	14 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

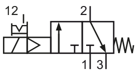
3/2-way valves



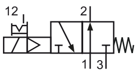
M-22-310-HN-xxx
3/2-way, single solenoid, air spring return, NC



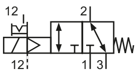
MO-22-310-HN-xxx
3/2-way, single solenoid, air spring return, NO



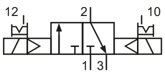
M-22-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC



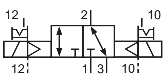
MO-22-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NO



ME-22-311-HN-xxx
3/2-way, single solenoid, external pilot pressure, mechanical spring return

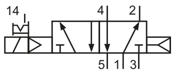


M-22-320-HN-xxx
3/2-way, double solenoid

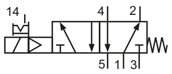


ME-22-320-HN-xxx
3/2-way, double solenoid, external pilot pressure

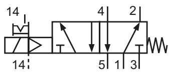
5/2- and 5/3-way valves



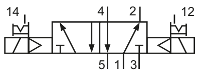
M-22-510-HN-xxx
5/2-way, single solenoid, air spring return



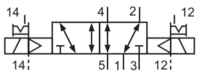
M-22-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



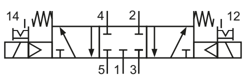
ME-22-511-HN-xxx
5/2-way, single solenoid, external pilot pressure, mechanical spring return



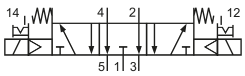
M-22-520-HN-xxx
5/2-way, double solenoid



ME-22-520-HN-xxx
5/2-way, double solenoid, external pilot pressure



M-22-530-HN-xxx
5/3-way, center position closed



M-22-533-HN-xxx
5/3-way, center position exhausted

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	4.2 W		Form B industrial norm	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-431
24 V DC	4.2 W		Form B industrial norm	-412
24 V DC	4.8 W		M 12	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O32
24 V AC	7/4 VA		Form B industrial norm	-422
115 V AC	7/4 VA		Form B industrial norm	-426
230 V AC	7/4 VA		Form B industrial norm	-427

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

Series M-22

Technical data

Model-no.:	M-22-310	MO-22-310	M-22-311	MO-22-311	ME-22-311	M-22-320	ME-22-320
Operating pressure* (bar)	1 ... 10	1 ... 10	2 ... 10	2 ... 10	0 ... 10	1 ... 10	0 ... 10
Pilot pressure* (bar)	1 ... 10	1 ... 10	2 ... 10	2 ... 10	2 ... 10	1 ... 10	1 ... 10
Flow rate (Nl/min)	3300	3300	3300	3300	3300	3300	3300
Response time (ms) at 6 bar	on: 30 off: 58	on: 30 off: 58	on: 28 off: 68	on: 28 off: 68	on: 28 off: 68	on: 20 off: 20	on: 20 off: 20
Weight (kg)	0.910	0.910	0.965	0.965	0.965	0.984	0.984

Model-no.:	M-22-510	M-22-511	ME-22-511	M-22-520	ME-22-520	M-22-530	M-22-533
Operating pressure* (bar)	1 ... 10	2 ... 10	0 ... 10	1 ... 10	0 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	1 ... 10	2 ... 10	2 ... 10	1 ... 10	1 ... 10	3 ... 10	3 ... 10
Flow rate (Nl/min)	3300	3300	3300	3300	3300	3300	3300
Response time (ms) at 6 bar	on: 30 off: 59	on: 20 off: 80	on: 20 off: 80	on: 22 off: 22	on: 22 off: 22	on: 30 off: 50	on: 30 off: 50
Weight (kg)	1.150	1.180	1.160	1.260	1.260	1.250	1.250

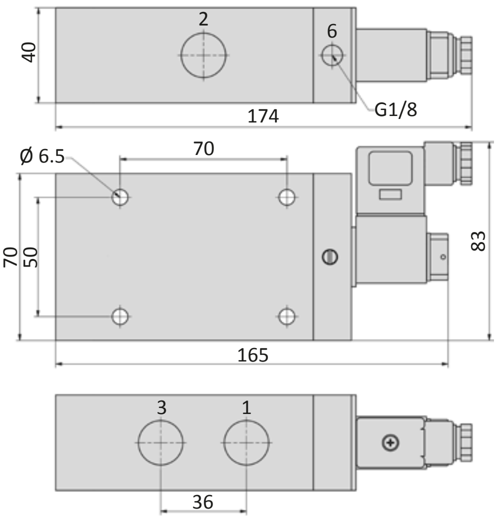
* max. 8 bar at 2.2 W and 2.5 W

Accessories

Plug sockets: page 4-38

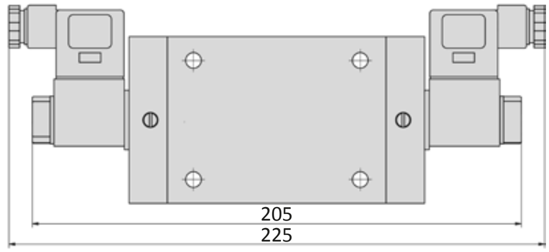
Dimensions

M-22-31x-HN, MO-22-31x-HN*, ME-22-31x-HN

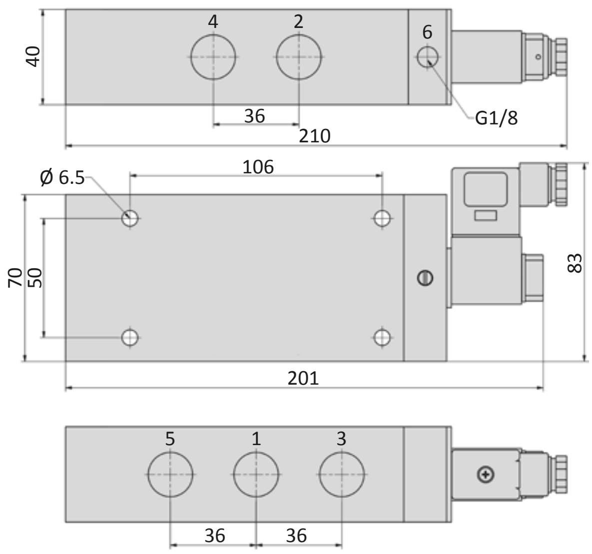


*For the NO version MO-22 the ports 1 and 3 are inverted.

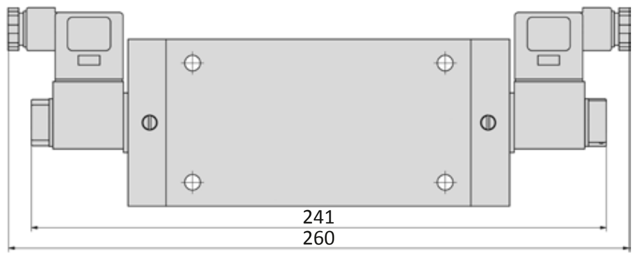
M-22-320-HN, ME-22-320-HN



M-22-51x-HN, ME-22-511-HN



M-22-520-HN, ME-22-520-HN, M-22-53x-HN



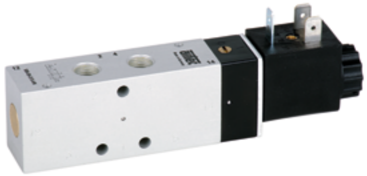
1   = pressure inlet
2,4 = outlets
3,5 = exhausts
6   = external pilot pressure supply (only at ME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Series KM-09 and KM-10

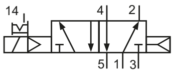
Technical details

Connection	KM-09: G1/8 KM-10: G1/4
Nominal size	KM-09: 6 mm KM-10: 9 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, stainless steel and brass
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

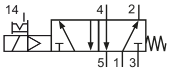


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

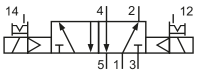
5/2-way valves



KM-09-510-HN-xxx
KM-10-510-HN-xxx
5/2-way, single solenoid, air spring return

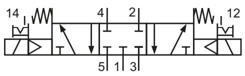


KM-09-511-HN-xxx
KM-10-511-HN-xxx
5/2-way, single solenoid, mechanical spring return

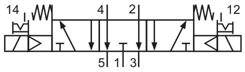


KM-09-520-HN-xxx
KM-10-520-HN-xxx
5/2-way, double solenoid

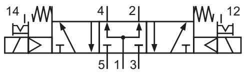
5/3-way valves



KM-09-530-HN-xxx
KM-10-530-HN-xxx
5/3-way, center position closed



KM-09-533-HN-xxx
KM-10-533-HN-xxx
5/3-way, center position exhausted



KM-09-534-HN-xxx
KM-10-534-HN-xxx
5/3-way, center position pressurized

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Manual override on same side of ports 2 and 4	 1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-441	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-431
24 V DC	4.2 W		Form B industrial norm	-442	-412
24 V DC	4.8 W		M 12	-042	-012
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-432
24 V DC	2.5 W	max. 8 bar	M 12	-062	-032
24 V AC	7/4 VA		Form B industrial norm	-452	-422
115 V AC	7/4 VA		Form B industrial norm	-456	-426
230 V AC	7/4 VA		Form B industrial norm	-457	-427

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

Series KM-09 and KM-10

Technical data

Model-no.:	KM-09-510	KM-09-511	KM-09-520	KM-09-530	KM-09-533	KM-09-534
Operating pressure* (bar)	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10
Flow rate (Nl/min)	950	810	950	680	680	680
Response time (ms) at 6 bar	on: 15 off: 16	on: 13 off: 28	on: 15 off: 15	on: 14 off: 16	on: 14 off: 16	on: 14 off: 16
Weight (kg)	0.230	0.231	0.330	0.330	0.330	0.330

Model-no.:	KM-10-510	KM-10-511	KM-10-520	KM-10-530	KM-10-533	KM-10-534
Operating pressure* (bar)	2.5 ... 10	2.5 ... 10	2.5 ... 10	3 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	2.5 ... 10	2.5 ... 10	2.5 ... 10	3 ... 10	3 ... 10	3 ... 10
Flow rate (Nl/min)	2100	1800	2100	1500	1500	1500
Response time (ms) at 6 bar	on: 18 off: 19	on: 16 off: 27	on: 18 off: 18	on: 16 off: 22	on: 16 off: 22	on: 16 off: 22
Weight (kg)	0.470	0.470	0.630	0.630	0.630	0.630

* max. 8 bar at 2.2 W and 2.5 W

4

Accessories

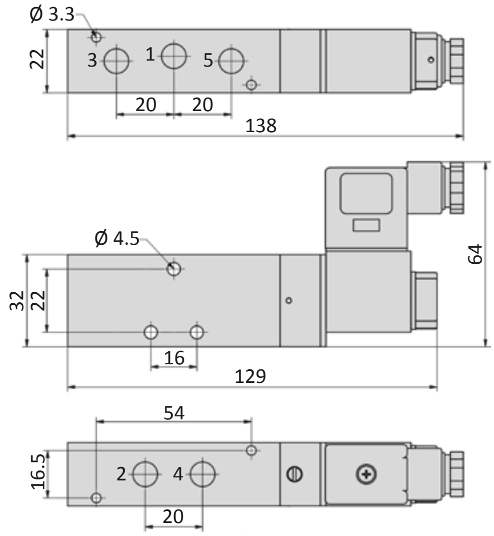
Plug sockets: page 4-38

Manifolds and accessories: page 4-21

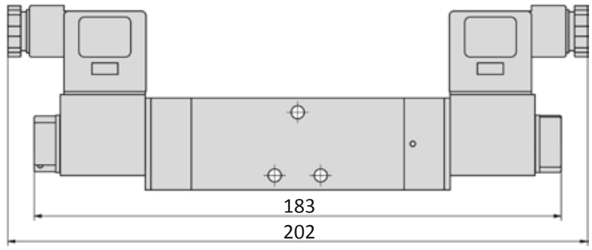
Series KM-09 and KM-10

Dimensions

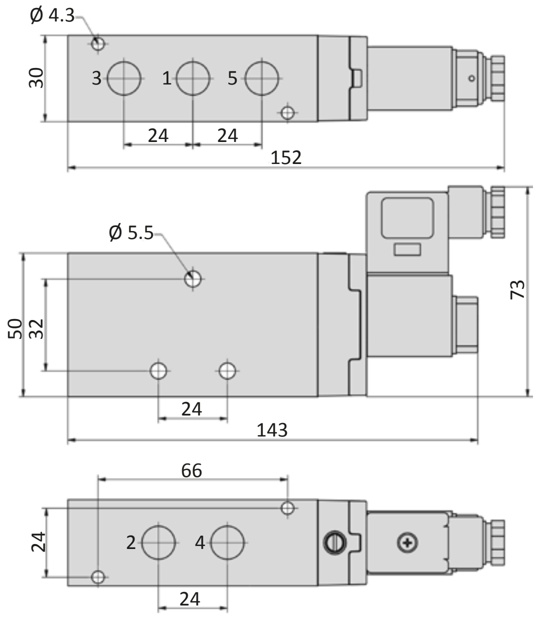
KM-09-51x-HN



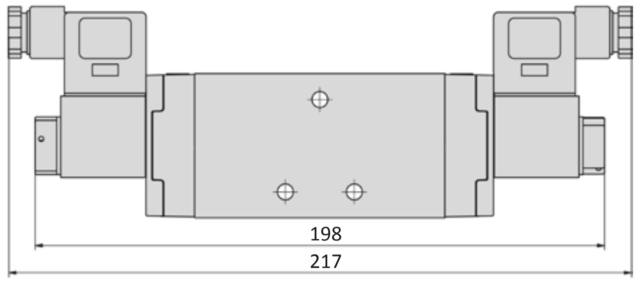
KM-09-520-HN, KM-09-53x-HN



KM-10-51x-HN



KM-10-520-HN, KM-10-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

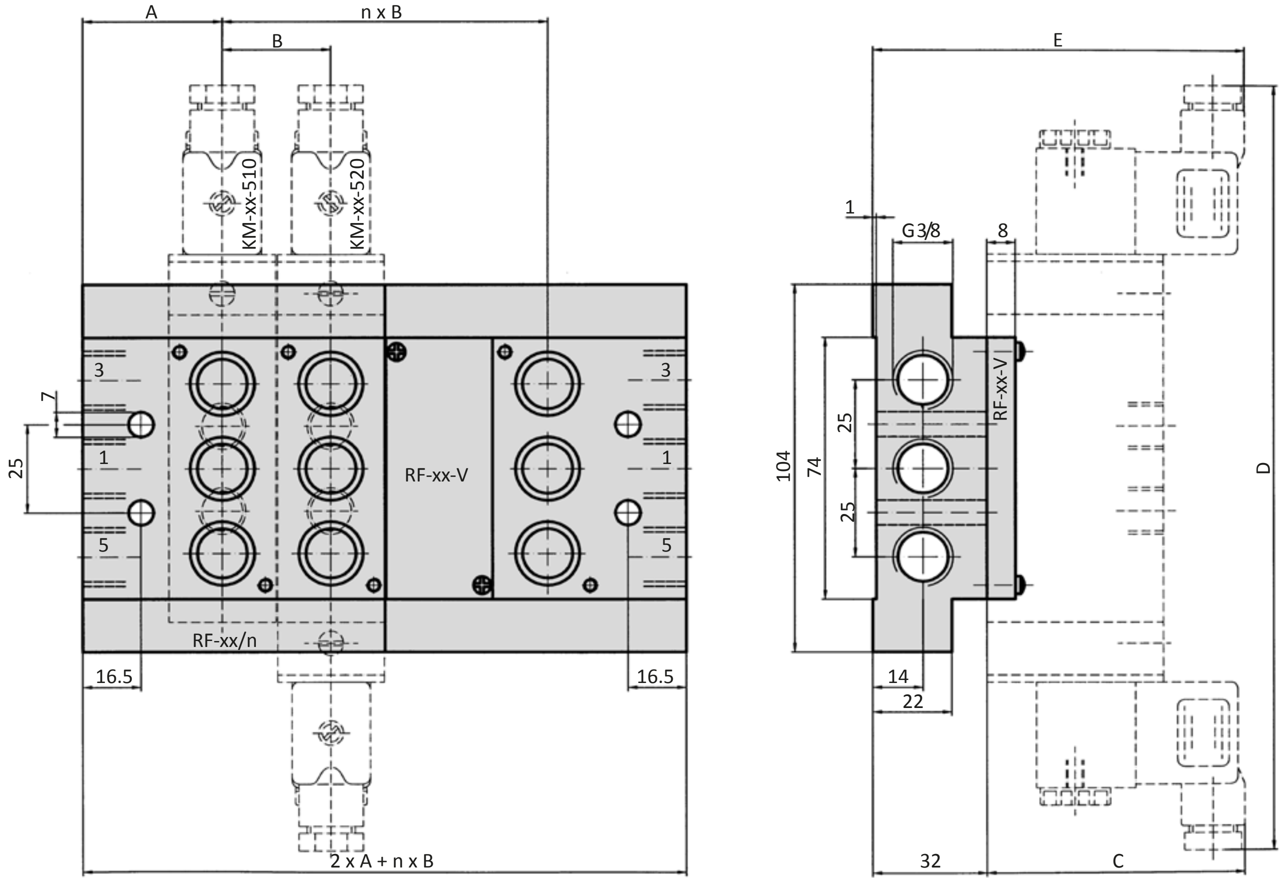
Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Series KM-09 and KM-10

General information

The RF-09/n and RF-10/n manifolds are suitable for the KM-09 and KM-10 valve series. This is a modular system and extendable.
The RF-09 and RF-10 can be combined into one manifold with different valve sizes.
Blind plates RF-09-V and RF-10-V are available for blank stations.
All mounting screws and o-rings are included.

Dimensions



n = number of stations
1 = pressure inlet
3,5 = exhausts

Model-no.:	A	B	C	D	E
RF-09/n	35.25	22.5	64	202	96
RF-10/n	39.25	30.5	73	217	105

Model-no.:	n	1	2	3	4	5	6	7	8
Weight (kg)	RF-09/n	0.415	0.550	0.680	0.810	0.990	1.060	1.190	1.320
	RF-10/n	0.470	0.660	0.850	1.040	1.250	1.380	1.570	1.760

Model-no.:	n	9	10	11	12	13	14	15	16
Weight (kg)	RF-09/n	1.500	1.565	1.700	1.830	2.010	2.075	2.210	2.340
	RF-10/n	1.970	2.100	2.290	2.480	2.690	2.820	3.010	3.200

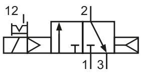
Series BM-01 and BM-02

Technical details

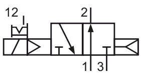
Connection	BM-01: G1/8
	BM-02: G1/4
Nominal size	BM-01: 5 mm
	BM-02: 7 mm
Temperature range	-10°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, FKM and PU, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is non-detent (HNT) or detent (HNR) and is operated by bolt or screwdriver.

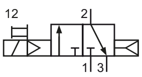
3/2-way valves



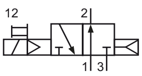
BM-01-310-HNR-xxx
BM-02-310-HNR-xxx
3/2-way, single solenoid, air spring return, NC



BM-01-312-HNR-xxx
BM-02-312-HNR-xxx
3/2-way, single solenoid, air spring return, NO

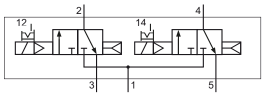


BM-01-310-HNT-xxx
BM-02-310-HNT-xxx
3/2-way, single solenoid, air spring return, NC

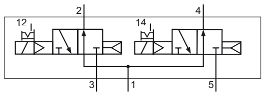


BM-01-312-HNT-xxx
BM-02-312-HNT-xxx
3/2-way, single solenoid, air spring return, NO

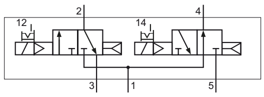
2 x 3/2-way valves



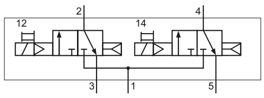
BM-01-310/2-HNR-xxx
BM-02-310/2-HNR-xxx
2 x 3/2-way, single solenoid, air spring return, NC



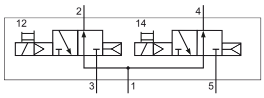
BM-01-312/2-HNR-xxx
BM-02-312/2-HNR-xxx
2 x 3/2-way, single solenoid, air spring return, NO



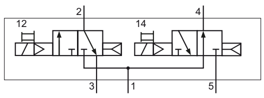
BM-01-314/2-HNR-xxx
BM-02-314/2-HNR-xxx
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO



BM-01-310/2-HNT-xxx
BM-02-310/2-HNT-xxx
2 x 3/2-way, single solenoid, air spring return, NC



BM-01-312/2-HNT-xxx
BM-02-312/2-HNT-xxx
2 x 3/2-way, single solenoid, air spring return, NO



BM-01-314/2-HNT-xxx
BM-02-314/2-HNT-xxx
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx electrical pins on same side of ports 2 or 2 and 4	1, 3 or 1, 3 and 5
12 V DC	1 W		Form C	-461	-431
24 V DC	1 W		Form C	-462	-432
24 V DC	1 W		M12	-N62	-
24 V AC	3 VA		Form C	-452	-422
115 V AC	3 VA		Form C	-456	-426
230 V AC	3 VA		Form C	-457	-427

*1 *Plug socket not included, suitable plug sockets see page 4-39.*

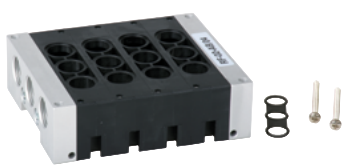
Series BM-01 and BM-02

Technical data

Model-no.:	BM-01-310	BM-01-312	BM-01-310/2	BM-01-312/2	BM-01-314/2
Operating pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Pilot pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Flow rate (Nl/min)	660	600	650	550	580
Response time (ms) at 6 bar	on: 19 off: 32	on: 16 off: 30	on: 18 off: 34	on: 18 off: 34	on: 18 off: 34
Weight (kg)	0.108	0.110	0.154	0.154	0.154

Model-no.:	BM-02-310	BM-02-312	BM-02-310/2	BM-02-312/2	BM-02-314/2
Operating pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Pilot pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Flow rate (Nl/min)	1090	920	1050	1030	NC: 1050. NO: 920
Response time (ms) at 6 bar	on: 19 off: 23	on: 25 off: 27	on: 22 off: 24	on: 22 off: 24	on: 22 off: 24
Weight (kg)	0.150	0.150	0.250	0.250	0.250

Accessories



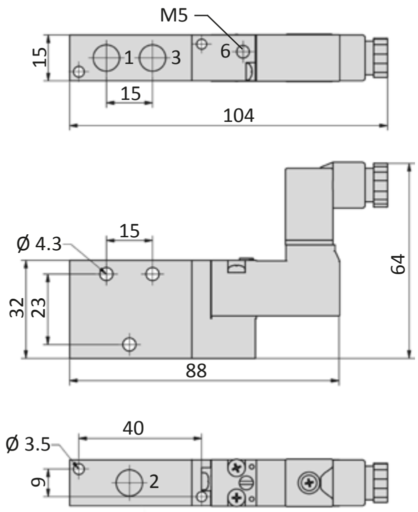
Plug sockets: page 4-39

Manifolds and accessories: page 4-29

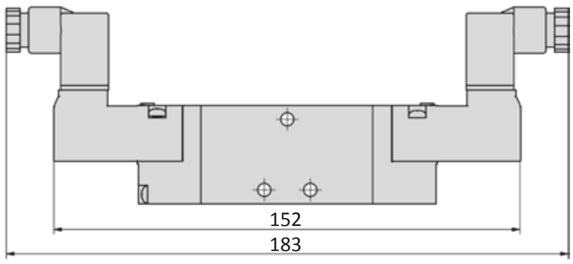
Series BM-01 and BM-02

Dimensions

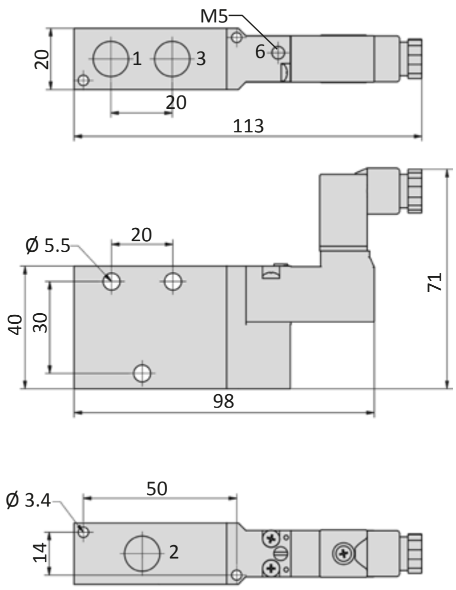
BM-01-31x-HNx



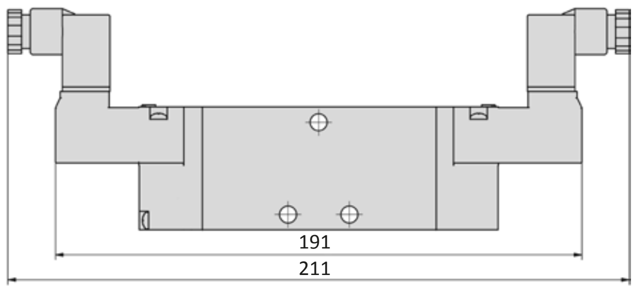
BM-01-31x/2-HNx



BM-02-31x-HNx



BM-02-31x/2-HNx



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
6 = pilot air exhaust (only at BM-valves)
6 = external pilot pressure supply (only at BME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.

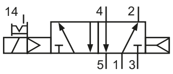
Series BM-01 and BM-02

Technical details

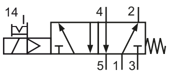
Connection	BM-01: G1/8 BM-02: G1/4
Nominal size	BM-01: 5 mm BM-02: 7 mm
Temperature range	-10°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, FKM and PU, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is non-detent or detent and is operated by bolt or screwdriver.

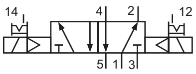
5/2-way valves



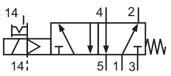
BM-01-510-HNR-xxx
BM-02-510-HNR-xxx
5/2-way, single solenoid, air spring return



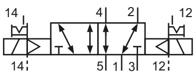
BM-01-511-HNR-xxx
BM-02-511-HNR-xxx
5/2-way, single solenoid, mechanical spring return



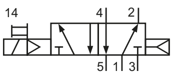
BM-01-520-HNR-xxx
BM-02-520-HNR-xxx
5/2-way, double solenoid



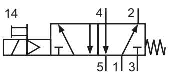
BME-01-511-HNR-xxx
BME-02-511-HNR-xxx
5/2-way, single solenoid, external pilot pressure, mechanical spring return



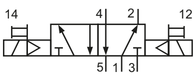
BME-01-520-HNR-xxx
BME-02-520-HNR-xxx
5/2-way, double solenoid, external pilot pressure



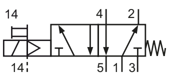
BM-01-510-HNT-xxx
BM-02-510-HNT-xxx
5/2-way, single solenoid, air spring return



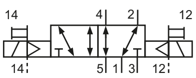
BM-01-511-HNT-xxx
BM-02-511-HNT-xxx
5/2-way, single solenoid, mechanical spring return



BM-01-520-HNT-xxx
BM-02-520-HNT-xxx
5/2-way, double solenoid



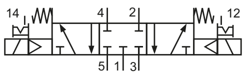
BME-01-511-HNT-xxx
BME-02-511-HNT-xxx
5/2-way, single solenoid, external pilot pressure, mechanical spring return



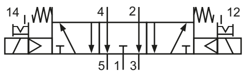
BME-01-520-HNT-xxx
BME-02-520-HNT-xxx
5/2-way, double solenoid, external pilot pressure

Please complete: xxx = electrical option

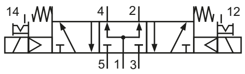
5/3-way valves



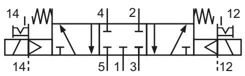
BM-01-530-HNR-xxx
BM-02-530-HNR-xxx
5/3-way, center position closed



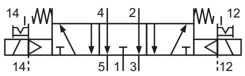
BM-01-533-HNR-xxx
BM-02-533-HNR-xxx
5/3-way, center position exhausted



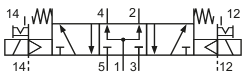
BM-01-534-HNR-xxx
BM-02-534-HNR-xxx
5/3-way, center position pressurized



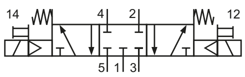
BME-01-530-HNR-xxx
BME-02-530-HNR-xxx
5/3-way, center position closed, external pilot pressure



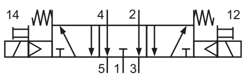
BME-01-533-HNR-xxx
BME-02-533-HNR-xxx
5/3-way, center position exhausted, external pilot pressure



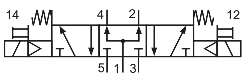
BME-01-534-HNR-xxx
BME-02-534-HNR-xxx
5/3-way, center position pressurized, external pilot pressure



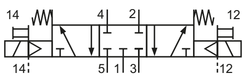
BM-01-530-HNT-xxx
BM-02-530-HNT-xxx
5/3-way, center position closed



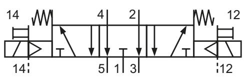
BM-01-533-HNT-xxx
BM-02-533-HNT-xxx
5/3-way, center position exhausted



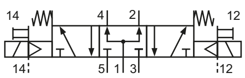
BM-01-534-HNT-xxx
BM-02-534-HNT-xxx
5/3-way, center position pressurized



BME-01-530-HNT-xxx
BME-02-530-HNT-xxx
5/3-way, center position closed, external pilot pressure



BME-01-533-HNT-xxx
BME-02-533-HNT-xxx
5/3-way, center position exhausted, external pilot pressure



BME-01-534-HNT-xxx
BME-02-534-HNT-xxx
5/3-way, center position pressurized, external pilot pressure

Series BM-01 and BM-02

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx electrical pins on same side of ports 2 and 4	1. 3 and 5
12 V DC	1 W		Form C	-461	-431
24 V DC	1 W		Form C	-462	-432
24 V DC	1 W		M12	-N62	-
24 V AC	3 VA		Form C	-452	-422
115 V AC	3 VA		Form C	-456	-426
230 V AC	3 VA		Form C	-457	-427

*1 *Plug socket not included. suitable plug sockets see page 4-39.*

Technical data

Model-no.:	BM-01-510	BM-01-511	BM-01-520	BME-01-511	BME-01-520
Operating pressure (bar)	2 ... 8	3 ... 8	2 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	3 ... 8	2 ... 8	3 ... 8	2 ... 8
Flow rate (Nl/min)	780	800	790	800	790
Response time (ms) at 6 bar	on: 17 off: 32	on: 15 off: 35	on: 13 off: 13	on: 15 off: 35	on: 13 off: 13
Weight (kg)	0.118	0.120	0.156	0.126	0.168

Model-no.:	BM-01-530	BM-01-533	BM-01-534	BME-01-530	BME-01-533	BME-01-534
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	690	670	1030	690	670	1030
Response time (ms) at 6 bar	on: 17 off: 17	on: 16 off: 43	on: 17 off: 49	on: 17 off: 17	on: 16 off: 43	on: 17 off: 49
Weight (kg)	0.154	0.154	0.154	0.166	0.166	0.166

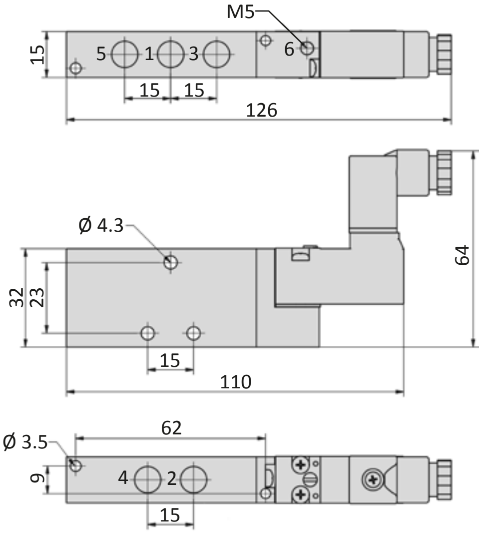
Model-no.:	BM-02-510	BM-02-511	BM-02-520	BME-02-511	BME-02-520
Operating pressure (bar)	2 ... 8	3 ... 8	2 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	3 ... 8	2 ... 8	3 ... 8	2 ... 8
Flow rate (Nl/min)	1700	1600	1540	1600	1540
Response time (ms) at 6 bar	on: 23 off: 33	on: 13 off: 35	on: 11 off: 11	on: 13 off: 35	on: 11 off: 11
Weight (kg)	0.220	0.220	0.270	0.220	0.270

Model-no.:	BM-02-530	BM-02-533	BM-02-534	BME-02-530	BME-02-533	BME-02-534
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	1300	1470	1660	1300	1470	1660
Response time (ms) at 6 bar	on: 20 off: 26	on: 26 off: 28	on: 26 off: 33	on: 20 off: 26	on: 26 off: 28	on: 26 off: 33
Weight (kg)	0.260	0.260	0.260	0.260	0.260	0.260

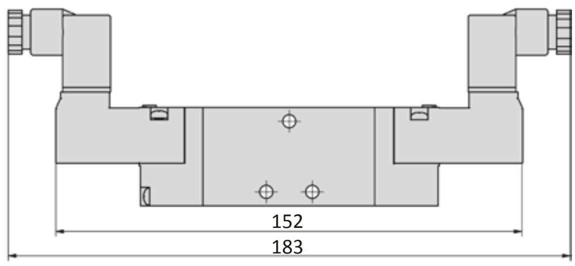
Series BM-01 and BM-02

Dimensions

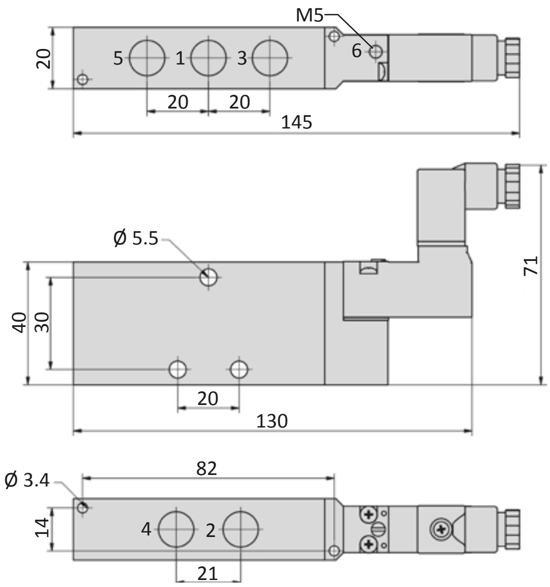
BM-01-51x-HNx, BME-01-51x-HNx



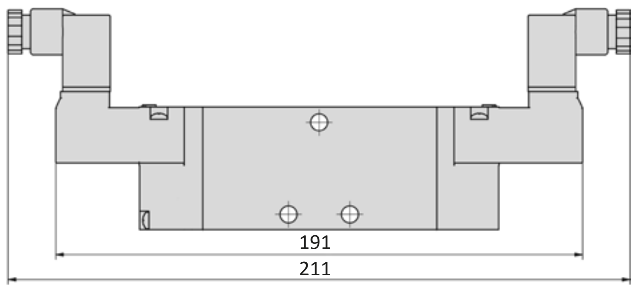
BM-01-520-HNx, BME-01-520-HNx, BM-01-53x-HNx, BME-01-53x-HNx



BM-02-51x-HNx, BME-02-51x-HNx



BM-02-520-HNx, BME-02-520-HNx, BM-02-53x-HNx, BME-02-53x-HNx



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
6 = pilot air exhaust

Plug socket (not included in scope of delivery) can be repositioned by 180°.

Accessories

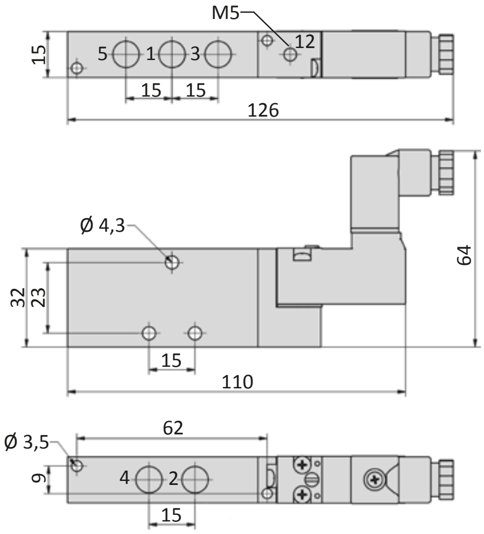
Plug sockets: page 4-39

Manifolds and accessories: page 4-29

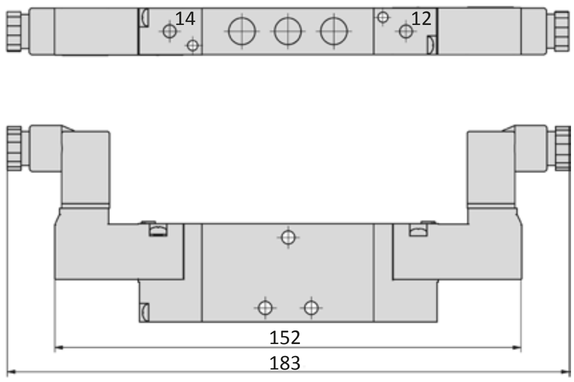
Series BM-01 and BM-02

Dimensions

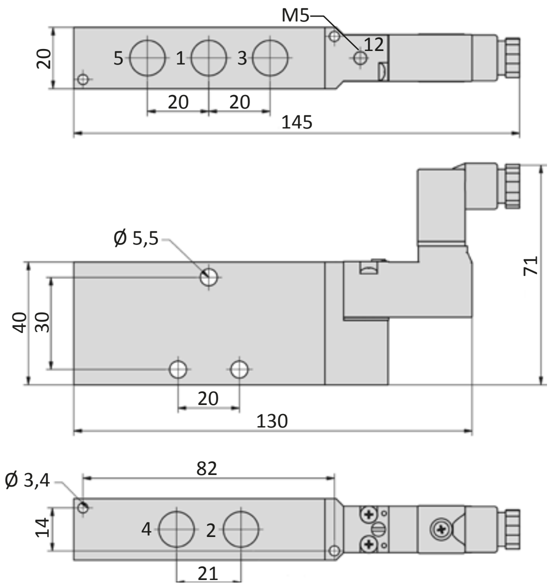
BME-01-51x-HNx



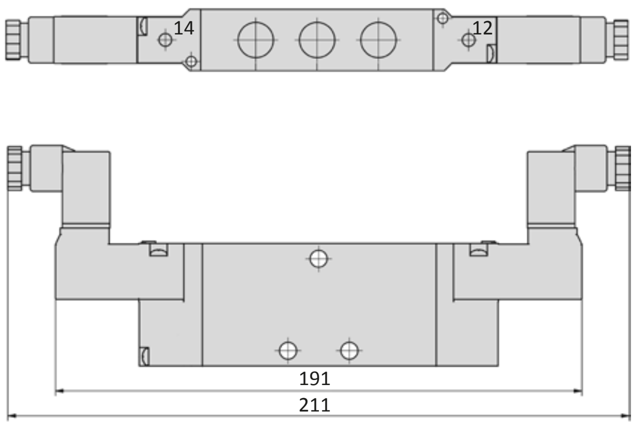
BME-01-520-HNx, BME-01-53x-HNx



BME-02-51x-HNx



BME-02-520-HNx, BME-02-53x-HNx

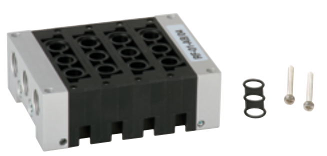


1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12,14 = external pilot pressure supply

Plug socket (not included in scope of delivery) can be repositioned by 180°.

Accessories

Plug sockets: page 4-39



Manifolds and accessories: page 4-29

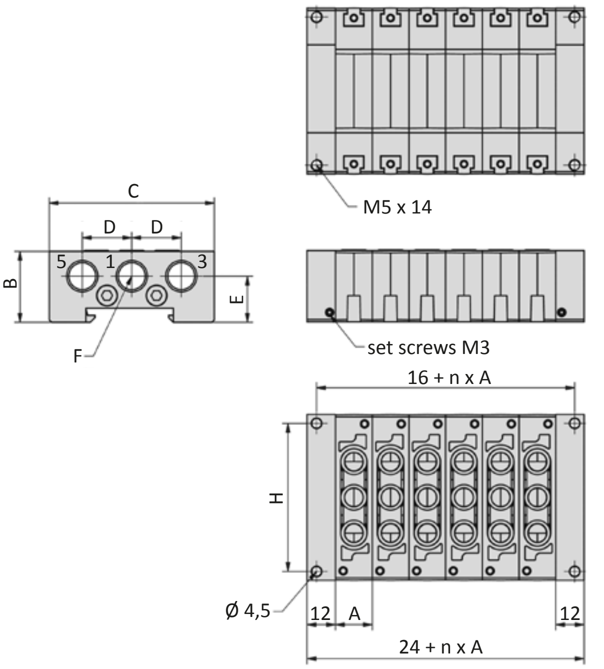
Series BM-01 and BM-02

General information

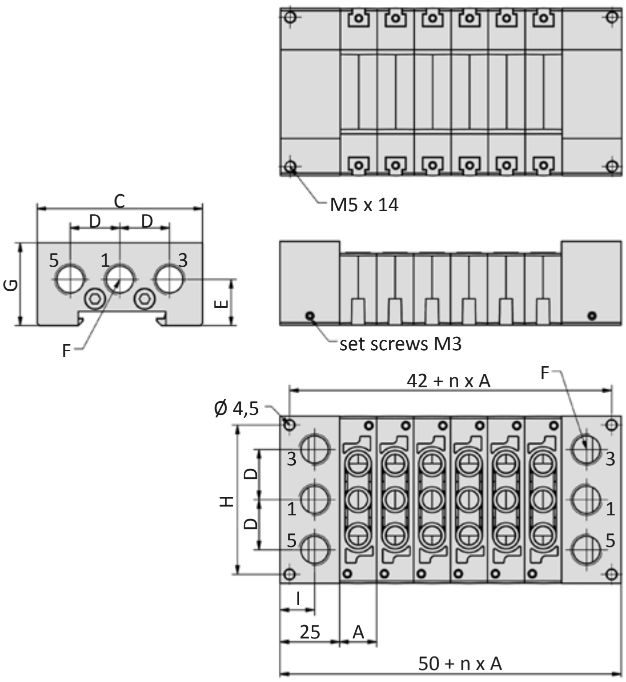
The RF-01-xx/n and RF-02-xx/n manifolds are suitable for the BM-01 and BM-02 valve series. The system is modular and can be extended up to 12 stations.
Blind plates RF-01-V and RF-02-V are available.
All mounting screws and gaskets are included.

Dimensions

RF-01-AB, RF-02-AB



RF-01-CD, RF-02-CD



n = number of stations
1 = pressure inlet
3,5 = exhausts

Model-no.:	A	B	C	D	E	F	G	H	I
RF-01-xx/n	15.7	30	70	21	19.5	G1/4	35	62.5	14.5
RF-02-xx/n	20.5	32	90	25	20	G3/8	38	82	12.5

Model-no.:	nn	02	03	04	05	06	07	08	09	10	11	12
Weight (kg)	RF-01-AB/nn	0.150	0.190	0.230	0.270	0.310	0.350	0.390	0.430	0.470	0.510	0.550
	RF-02-AB/nn	0.230	0.270	0.310	0.350	0.390	0.430	0.470	0.510	0.550	0.590	0.630

Model-no.:	nn	02	03	04	05	06	07	08	09	10	11	12
Weight (kg)	RF-01-CD/nn	0.300	0.340	0.380	0.420	0.460	0.500	0.540	0.580	0.620	0.660	0.700
	RF-02-CD/nn	0.420	0.460	0.500	0.540	0.580	0.620	0.660	0.700	0.740	0.780	0.820

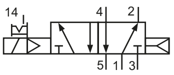
Series M-20

Technical details

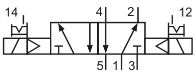
Connection	M5
Nominal size	3 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

5/2-way valves

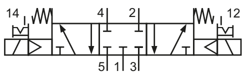


M-20-510-HN-xxx
5/2-way, single solenoid, air spring return

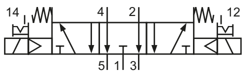


M-20-520-HN-xxx
5/2-way, double solenoid

5/3-way valves



M-20-530-HN-xxx
5/3-way, center position closed



M-20-533-HN-xxx
5/3-way, center position exhausted

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	2 W		Form C industrial norm	-411
24 V DC	2 W		Form C industrial norm	-412

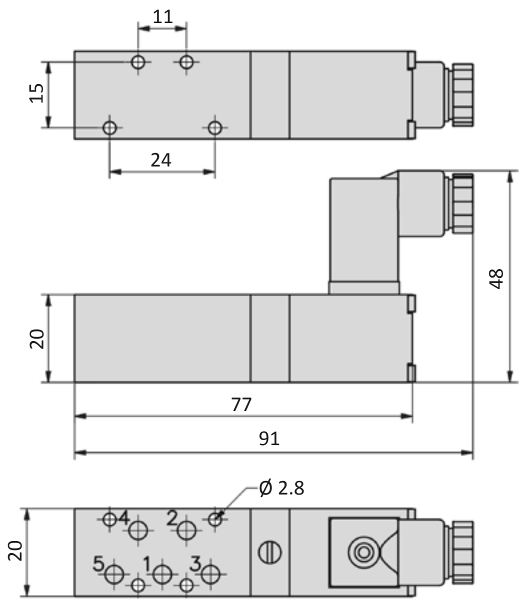
***1** *Plug socket not included, suitable plug sockets see page 4-39.*

Technical data

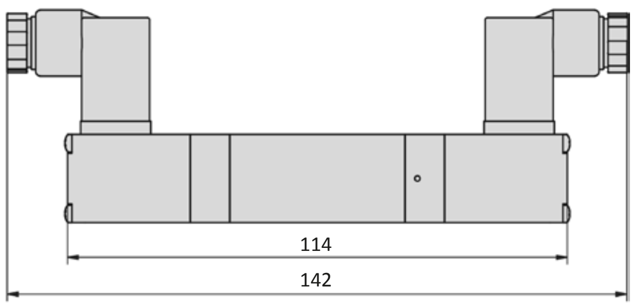
Model-no.:	M-20-510	M-20-520	M-20-530	M-20-533
Operating pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	220	220	220	220
Response time (ms) at 6 bar	on: 12 off: 12	on: 11 off: 11	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.098	0.156	0.162	0.162

Dimensions

M-20-510-HN



M-20-520-HN, M-20-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil and manual override can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-39

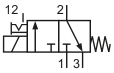
Series MS-18

Technical details

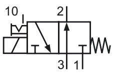
Connection	G1/8
Nominal size	1.4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Electrically operated poppet valve. The manual override is detent and is operated by screwdriver.

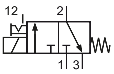
3/2-way valves



MS-18-310-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC



MSO-18-310-HN-xxx
3/2-way, single solenoid, mechanical spring return, NO



MS-18-310/n-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option
n = number of stations (2 to 6)

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	4.2 W		Form B industrial norm	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-431
24 V DC	4.2 W		Form B industrial norm	-412
24 V DC	4.8 W		M 12	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O32
24 V AC	7/4 VA		Form B industrial norm	-422
115 V AC	7/4 VA		Form B industrial norm	-426
230 V AC	7/4 VA		Form B industrial norm	-427

***1** *Plug socket not included. suitable plug sockets see page 4-38.*

Series MS-18

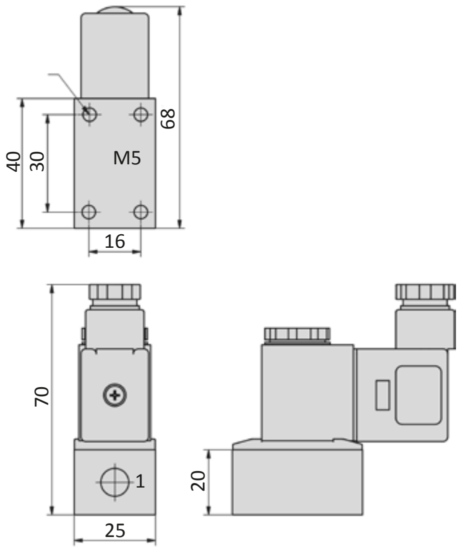
Technical data

Model-no.:	MS-18-310	MSO-18-310	MS-18-310/n
Pressure range* (bar)	- 0.95 ... 10	- 0.95 ... 10	- 0.95 ... 10
Flow rate (Nl/min)	56	56	56
Response time (ms) at 6 bar	on: 10 off: 12	on: 10 off: 12	on: 10 off: 12
Weight (kg)	0.150	0.150	0.150 + 0.140 * n

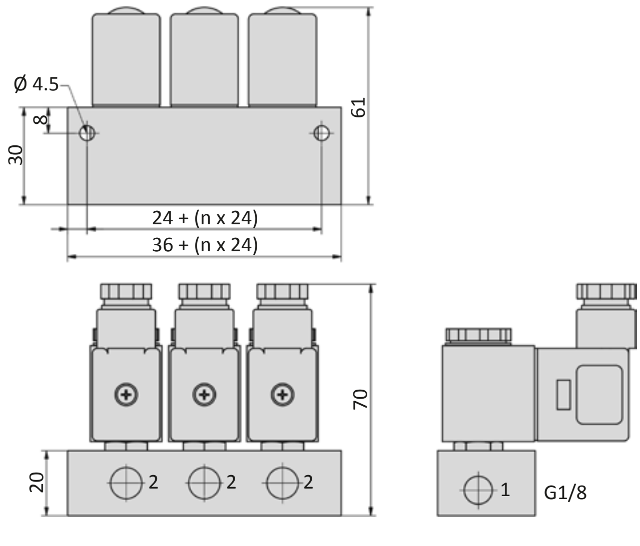
* max. 8 bar at 2.2 W and 2.5 W

Dimensions

MS-18-310-HN



MS-18-310/n-HN



n = number of stations (2 to 6)

1 = pressure inlet (outlet by MSO)
2 = outlet
3 = exhaust (pressure inlet by MSO)

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-38

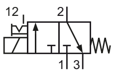
Series MS-20

Technical details

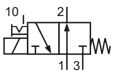
Connection	M5
Nominal size	1.2 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529

Electrically operated poppet valve. The manual override is detent and is operated by screwdriver.

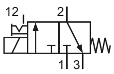
3/2-way-valves



MS-20-310-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC



MSO-20-310-HN-xxx
3/2-way, single solenoid, mechanical spring return, NO



MS-20-310/n-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option
n = number of stations (2 to 6)

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	2 W		Form C industrial norm	-411
24 V DC	2 W		Form C industrial norm	-412

***1** *Plug socket not included, suitable plug sockets see page 4-39.*

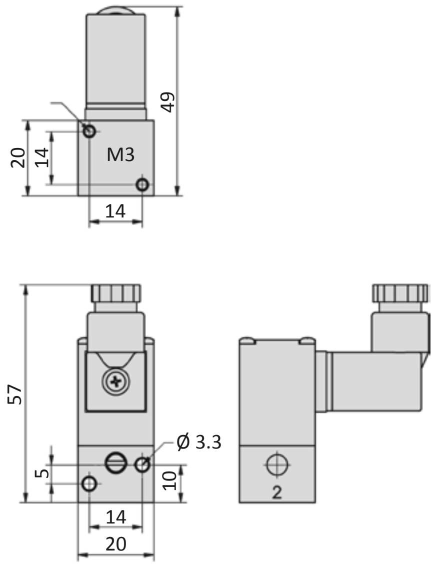
Series MS-20

Technical data

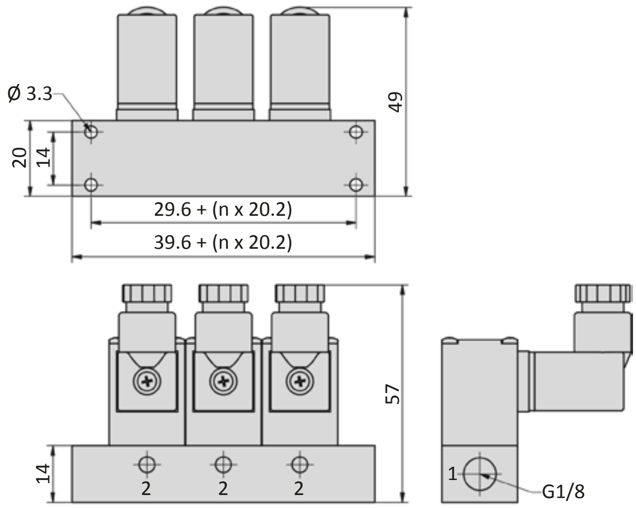
Model-no.:	MS-20-310	MSO-20-310	MS-20-310/n
Pressure range (bar)	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	-	-	-
Flow rate (Nl/min)	38	38	38
Response time (ms) at 6 bar	on: 8 off: 8	on: 8 off: 8	on: 8 off: 8
Weight (kg)	0.064	0.064	0.01 + 0.066 x n

Dimensions

MS-20-310-HN, MSO-20-310-HN



MS-20-310/n-HN



n = number of stations (2 to 6)

1 = pressure inlet
2 = outlet
3 = exhaust

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-39

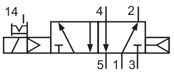
Series MC-20 and MD-20

Technical details

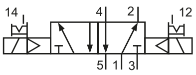
Connection	Sub-base mounting
Nominal size	3 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.
Gaskets and screws are part of delivery.

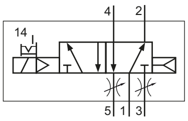
5/2-way valves



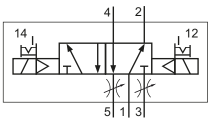
MC-20-510-HN-xxx
5/2-way, single solenoid, air spring return



MC-20-520-HN-xxx
5/2-way, double solenoid



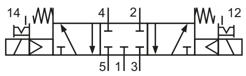
MD-20-510-HN-xxx
5/2-way, single solenoid, air spring return, with exhaust throttles



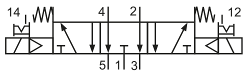
MD-20-520-HN-xxx
5/2-way, double solenoid, with exhaust throttles

Please complete: xxx = electrical option

5/3-way valves



MC-20-530-HN-xxx
5/3-way, center position closed



MC-20-533-HN-xxx
5/3-way, center position exhausted

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Plug connections opposite 1,2,3,4,5	at 1,2,3,4,5
12 V DC	1 W		Form C industrial norm	-411	-441
24 V DC	1 W		Form C industrial norm	-412	-442

***1** *Plug socket not included, suitable plug sockets see page 4-39.*

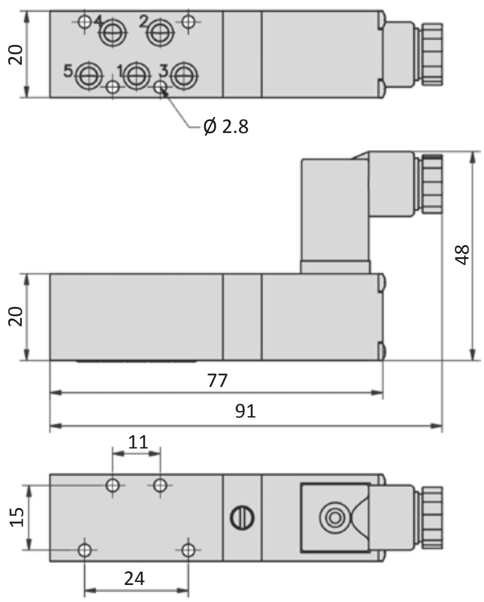
Series MC-20 and MD-20

Technical data

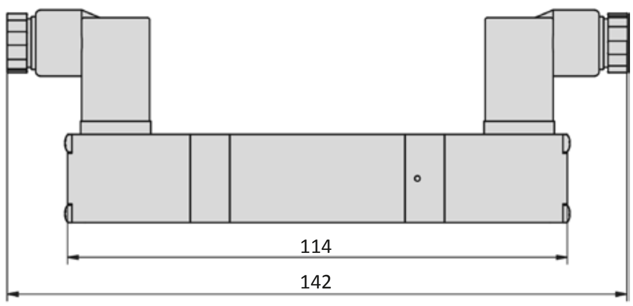
Model-no.:	MC-20-510 MD-20-510	MC-20-520 MD-20-520	MC-20-530	MC-20-533
Operating pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	220	220	220	220
Response time (ms) at 6 bar	on: 12 off: 12	on: 11 off: 11	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.100	0.156	0.162	0.162

Dimensions

MC-20-510-HN



MC-20-520-HN, MC-20-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-39

Plug sockets

Form A according to DIN EN 175301-803

Overall width	27 mm
Contact distance	18 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a profile gasket
For use with series	no standard

Model-no.:	28-ST-03	28-ST-11-112
Voltage (AC/DC)	0 - 250 V	24 V
Status indicator	no	yes
Protective circuit	no	yes (varistor)
Connecting cable	without	without
Wire cross section	max. 1.5 mm²	max. 1.5 mm²
Ø Connecting cable	6 - 8 mm	6 - 8 mm

Form B according to DIN EN 175301-803

Overall width	22 mm
Contact distance	10 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	no standard

Model-no.:	28-ST-01-G
Voltage (AC/DC)	0 - 250 V
Status indicator	no
Protective circuit	no
Connecting cable	without
Wire cross section	max. 1.5 mm²
Ø Connecting cable	6 - 8 mm

Form B industrial norm

Overall width	22 mm
Contact distance	11 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	M-04, M-05, M-07, M-22, KM-09, KM-10, MS-18, KN-05, MN-06, MI-01, MI-02, MI-03

Model-no.:	28-ST-01	28-ST-04-112	28-ST-04-127	28-ST-06-112	28-ST-06-127	28-ST-06-K3-112*	28-ST-06-K3-127*
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V	230 V
Status indicator	no	yes	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m	3 m
Wire cross section	max. 1.5 mm²	max. 1.5 mm²	max. 1.5 mm²	max. 1.5 mm²	max. 1.5 mm²	3 x 0.75 mm²	3 x 0.75 mm²
Ø Connecting cable	6 - 8 mm	6 - 8 mm	6 - 8 mm	6 - 8 mm	6 - 8 mm		

* These plug sockets are fitted with integrated flat gaskets.

Plug sockets

Form C according to DIN EN 175301-803

Overall width	15 mm
Contact distance	8 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	BM-01, BM-02

Model-no.:	28-ST-02-1	28-ST-09-1-112	28-ST-09-1-127	28-ST-10-1-112	28-ST-10-1-127	28-ST-10-1-K3-112 *
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V
Status indicator	no	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m
Wire cross section	max. 0.75 mm²	max. 0.75 mm²	max. 0.75 mm²	max. 0.75 mm²	max. 0.75 mm²	3 x 0.5 mm²
Ø Connecting cable	4 - 6 mm	4 - 6 mm	4 - 6 mm	4 - 6 mm	4 - 6 mm	

Model-no.:	28-ST-02-1-05
Voltage (AC/DC)	24 V
Status indicator	yes
Protective circuit	yes (varistor)
Connection	M8

Form C industrial norm

Overall width	15 mm
Contact distance	9.4 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	M-20, MC-20, MD-20, MS-20

Model-no.:	28-ST-02-01	28-ST-09-112	28-ST-09-127	28-ST-10-112	28-ST-10-127	28-ST-10-K3-112 *
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V
Status indicator	no	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m
Wire cross section	max. 0.75 mm²	max. 0.75 mm²	max. 0.75 mm²	max. 0.75 mm²	max. 0.75 mm²	3 x 0.5 mm²
Ø Connecting cable	4 - 6 mm	4 - 6 mm	4 - 6 mm	4 - 6 mm	4 - 6 mm	

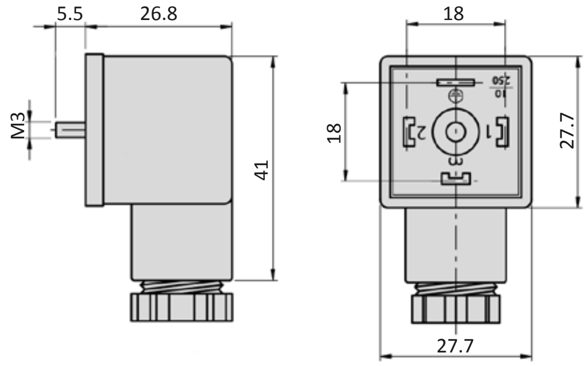
Model-no.:	28-ST-02-2-05	28-ST-02-2-07
Voltage (AC/DC)	24 V	24 V
Status indicator	yes	yes
Protective circuit	yes (varistor)	yes (varistor)
Connection	M8	M12

* These plug sockets are fitted with integrated flat gaskets.

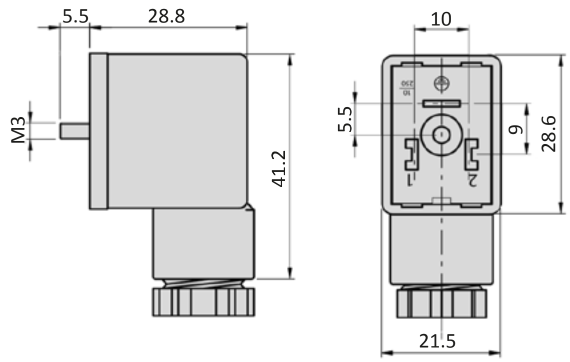
Plug sockets

Dimensions

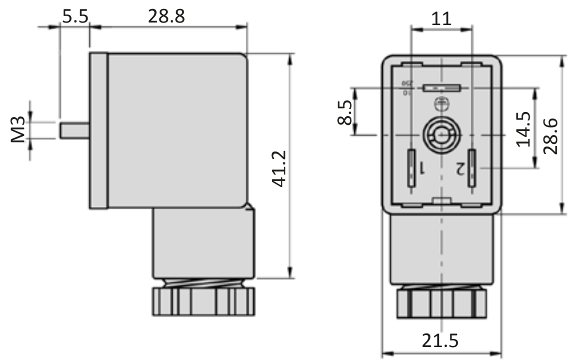
Form A according to DIN EN 175301-803



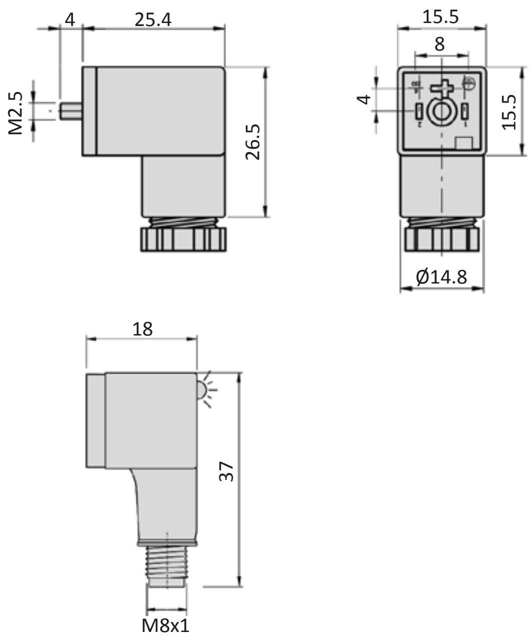
Form B according to DIN EN 175301-803



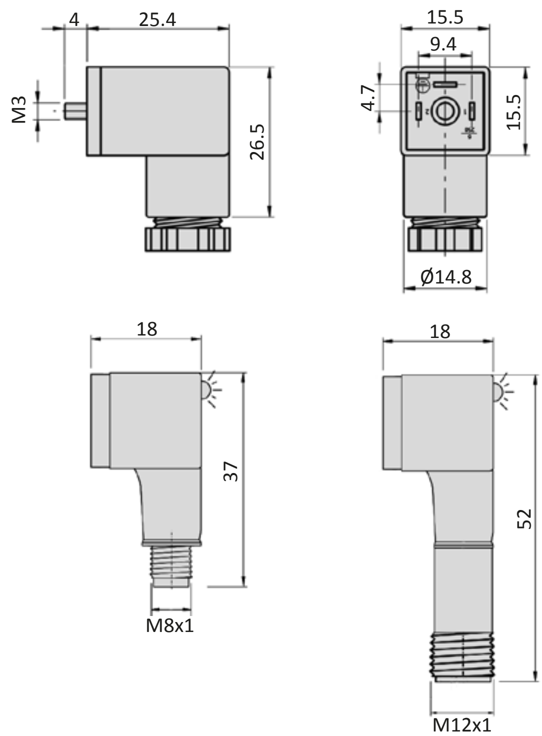
Form B industrial norm



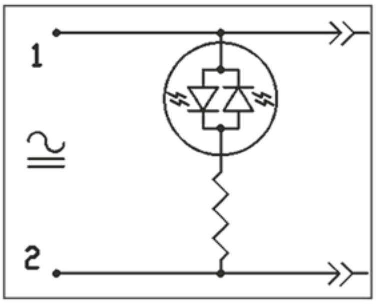
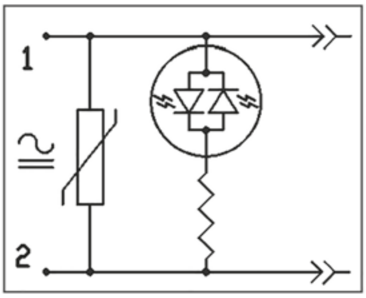
Form C according to DIN EN 175301-803



Form C industrial norm



Electrically circuits

Status indicator (LED)	Status indicator (LED) and protective circuit (varistor)
	

Solenoid coils

Form A according to DIN EN 175301-803

Overall width	30 mm
Contact distance	18 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-20°C ... +50°C
Voltage tolerance	± 10 %
For use with series	no standard

* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-016-712	23-SP-016-722	23-SP-016-726	23-SP-016-727
Voltage	24 V DC	24 V AC	110/115 V AC	230 V AC/ 110 V DC
Power consumption DC	4.5 W	-	-	5.3 W
Power consumption AC	-	8.0 VA	7.6 VA/ 8.6 VA	7.9 VA
Specifics	enhanced humidity resistance			

Form B according to DIN EN 175301-803

Overall width	22 mm
Contact distance	10 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-20°C ... +50°C
Voltage tolerance	± 10 %
For use with series	no standard

* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-011-G-412	23-SP-011-G-427
Voltage	24 V DC	230 V AC
Power consumption DC	4.2 W	-
Power consumption AC	-	4.0 VA

Solenoid coils

Form B industrial norm

Overall width	22 mm
Contact distance	11 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-20°C ... +50°C
Voltage tolerance	± 10 %
For use with series	M-04, M-05, M-07, M-22, KM-09, KM-10, MS-18, KN-05, MN-06, MI-01, MI-02, MI-03

* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-011-411	23-SP-011-412	23-SP-011-422	23-SP-011-426	23-SP-011-427	23-SP-012-431	23-SP-012-432
Voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC	12 V DC	24 V DC
Power consumption DC	4.2 W	4.2 W	-	-	-	2.2 W	2.2 W
Power consumption AC	-	-	4 VA	4 VA	4 VA		

Model-no.:	23-SP-011-1-711	23-SP-011-1-712	23-SP-011-1-725	23-SP-011-1-727	23-SP-012-1-732
Voltage	12 V DC/ 24V AC	24 V DC/ 48 V AC	110/115 V AC	230 V AC	24 V DC
Power consumption DC	4.6 W	4.8 W	-	-	2.5 W
Power consumption AC	7.1 VA	7.7 VA	6.0 VA/ 7.6 VA	7.9 VA	-
Specifics	enhanced humidity resistance				

M12 connection

Overall width	22 mm
Contact distance	-
Contacts	2P
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-20°C ... +50°C
Voltage tolerance	± 10 %
For use with series	no standard

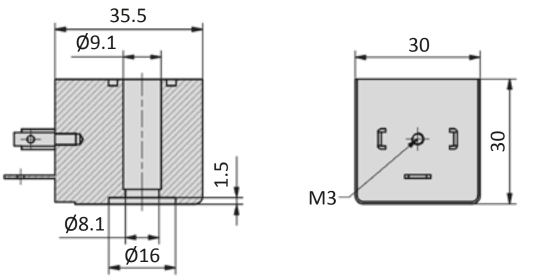
* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-011-5-O12	23-SP-012-5-O32
Voltage	24 V DC	24 V DC
Power consumption DC	4.8 W	2.5 W
Power consumption AC	-	-
Specifics	Mounting on manifold not allowed. With integrated LED and protective circuit.	Min. mounting distance for manifold mounting is 20 mm. With integrated LED and protective circuit.

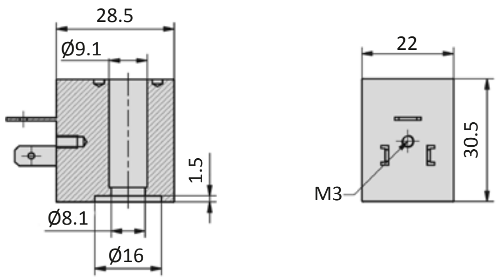
Solenoid coils

Dimensions

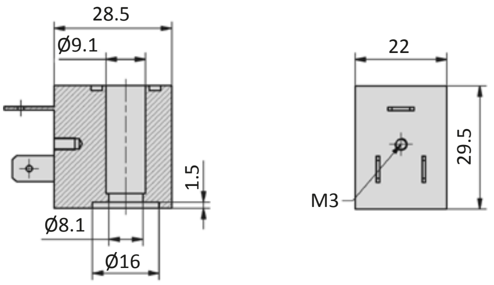
Form A according to DIN EN 175301-803



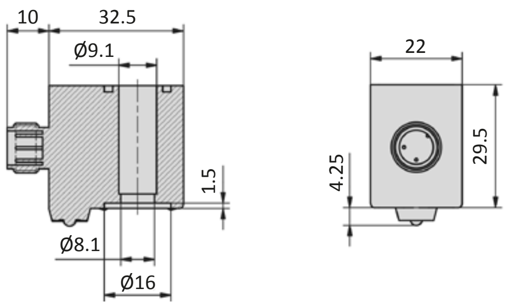
Form B according to DIN EN 175301-803



Form B industrial norm



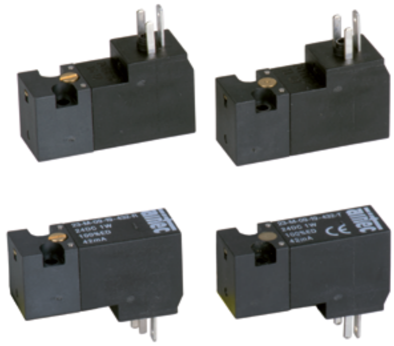
M12 connection



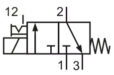
Plug connection shape C according to DIN EN 175301-803

Overall width	15 mm
Contact distance	8 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-10°C ... +50°C
Voltage tolerance	± 10 %
For use with series	BM-01, BM-02

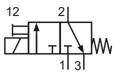
* The max. applicable operating temperature depends on the temperature specification of the used valve.



3/2-way valves



23-M-09-19-xxx-R
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



23-M-09-19-xxx-T
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

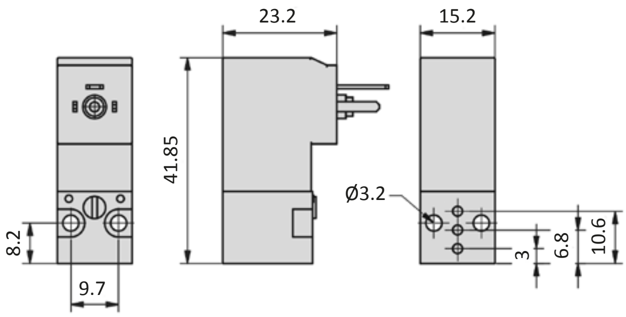
Please complete: xxx = electrical option

Model-no.:	23-M-09-19-461-y	23-M-09-19-462-y	23-M-09-19-452-y	23-M-09-19-456-y	23-M-09-19-457-y
Voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
Power consumption DC	1 W	1 W	-	-	-
Power consumption AC	-	-	3 VA	3 VA	3 VA
	electric connector on side of manual override				

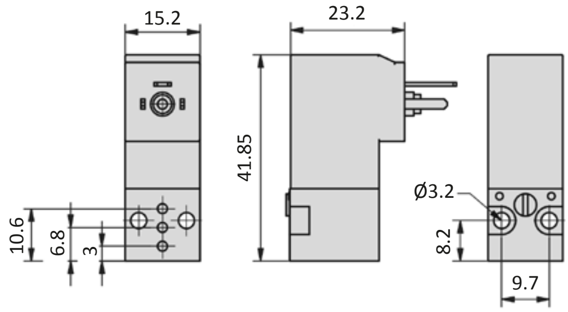
Model-no.:	23-M-09-19-431-y	23-M-09-19-432-y	23-M-09-19-422-y	23-M-09-19-426-y	23-M-09-19-427-y
Voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
Power consumption DC	1 W	1 W	-	-	-
Power consumption AC	-	-	3 VA	3 VA	3 VA
	electric connector opposite of manual override y = manual override (R = detent, T = non-detent)				

Dimensions

electric connector on side of manual override



electric connector opposite side of manual override



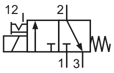
Pilot valves

M12 connection

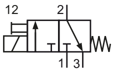
Overall width	15 mm
Contact distance	-
Contacts	M12 plug
Protection	IP 67 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-10°C ... +50°C
Voltage tolerance	± 10 %
For use with series	BM-01, BM-02

* The max. applicable operating temperature depends on the temperature specification of the used valve.

3/2-way valves



23-M-09-19-xxx-R
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



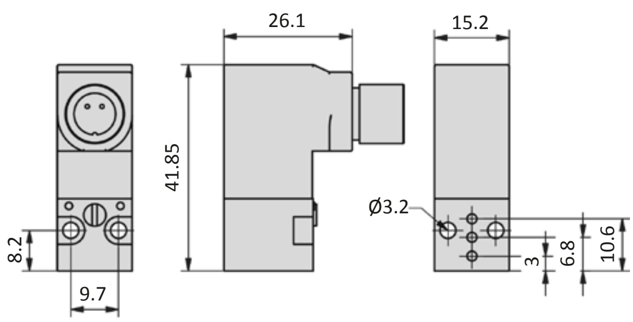
23-M-09-19-xxx-T
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

Please complete: xxx = electrical option

Model-no.:	23-M-09-19-N42-T	23-M-09-19-N62-R
Voltage	24 V DC	24 V DC
Power consumption DC	2.5 W	1 W
Power consumption AC	-	-
	electric connector on side of manual override	

Dimensions

electric connector on side of manual override



Voltage code

- HN * - * * *

Manual override	
HN	detent
HNR	detent
HNT	non-detent

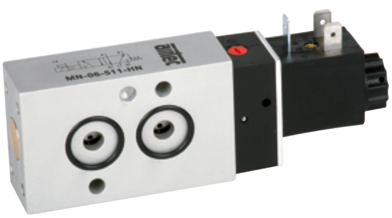
	Coil and plug options	Coil type
0	ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037
1	with coil and plug	according to valve
2		
3		
4	with coil, without plug	according to valve
5	without coil	no
6	without pilot valve	no
7	with coil, with enhanced humidity resistance, without plug	according to valve
8	with coil, with enhanced humidity resistance, with plug	according to valve
9	ATEX 2GD, intrinsically safe, with plug width 30 mm	23-SP-038
A	ATEX 3GD, without plug, width 30 mm	23-SP-040
B	ATEX 3GD, with plug, width 30 mm	23-SP-040
C	ATEX 3GD, without plug, width 22 mm	23-SP-041
D		
E	ATEX 2GD, encapsulated with casting compound width 22 mm	23-SP-036
F	with coil, with enhanced humidity resistance, without plug, low temperature version	23-SP-060-1
G		
H	with coil shape B according to DIN EN 175301-803, with plug	23-SP-011-G
I	with coil shape B according to DIN EN 175301-803, without plug	23-SP-011-G
J	with coil shape A according to DIN EN 175301-803, without plug (if not standard)	23-SP-016
K	with coil shape A according to DIN EN 175301-803, with plug (if not standard)	23-SP-016
L	with coil, with plug with LED and protective circuit	according to valve
M	with coil, with plug with LED, without protective circuit	according to valve
N	with coil with M12 connection	according to valve
O	with coil with M12 connection with LED and protective circuit	according to valve
P	without connector bridge, without plug	
Q	with coil with cable	according to valve
R	with cable up to 1 m length	according to valve
S	with connector bridge, without plug	
T		
U	ATEX 2GD, without coil (for coil 23-SP-036)	no
V	ATEX 2GD, Flame proof enclosure and encapsulated with casting compound	23-SP-045
W	ATEX 2GD / 3GD, without coil (for coil 23-SP-041 and 23-SP-045)	no
X	ATEX 3GD, without coil (for coil 23-SP-040 in 230V AC and 115V AC)	no
Y	ATEX 2GD, without coil (for coil 23-SP-038)	no
Z	ATEX 2GD / 3GD, without coil (for coil 23-SP-040 in 24V DC and 23-SP-037)	no

	Manual override position on side of
0	without indication ports 1/3/(5)
1	DC ports 1/3/(5)
2	AC ports 1/3/(5)
3	DC, low power consumption ports 1/3/(5)
4	DC ports 2/(4)
5	AC ports 2/(4)
6	DC, low power consumption ports 2/(4)
7	without indication ports 2/(4)

	Voltage
0	without indication
1	12 V
2	24 V
3	42 V
4	48 V
5	110 V
6	115 V
7	230 V
8	240 V
9	
A	4 V
B	6 V
C	8 V
D	61 V
E	36 V
F	9 V

Not all options are suitable for all valve series

Table of contents



Series PI-01, PI-02, PI-03

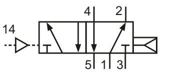
ISO 5599/1, Size 1 to 3

Technical details

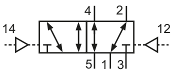
Connection	ISO 5599/1
Nominal size	Size 1: 9 mm
	Size 2: 13 mm
	Size 3: 14 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

5/2-way valves

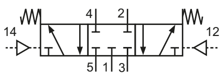


PI-01-511
PI-02-511
PI-03-511
5/2-way, single pilot, mechanical spring return

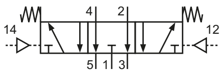


PI-01-520
PI-02-520
PI-03-520
5/2-way, double pilot

5/3-way valves



PI-01-530
PI-02-530
PI-03-530
5/3-way, center position closed



PI-01-533
PI-02-533
PI-03-533
5/3-way, center position exhausted

Technical data

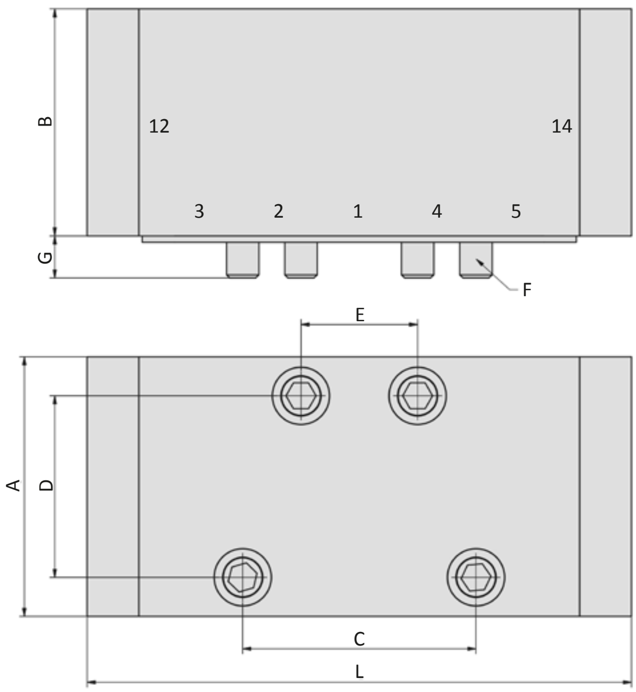
Model-no.:	PI-01-511	PI-01-520	PI-01-530	PI-01-533
Operating pressure (bar)	0...10 bar	0...10 bar	0...10 bar	0...10 bar
Pilot pressure (bar)	2.5...10 bar	1.5...10 bar	1.5...10 bar	1.5...10 bar
Flow rate (Nl/min)	1700	1700	1700	1700
Weight (kg)	0.32	0.32	0.32	0.32

Model-no.:	PI-02-511	PI-02-520	PI-02-530	PI-02-533
Operating pressure (bar)	0...10 bar	0...10 bar	0...10 bar	0...10 bar
Pilot pressure (bar)	2.5...10 bar	1.5...10 bar	1.5...10 bar	1.5...10 bar
Flow rate (Nl/min)	2020	2020	2020	2020
Weight (kg)	0.54	0.56	0.54	0.54

Model-no.:	PI-03-511	PI-03-520	PI-03-530	PI-03-533
Operating pressure (bar)	0...10 bar	0...10 bar	0...10 bar	0...10 bar
Pilot pressure (bar)	2.5...10 bar	1.5...10 bar	1.5...10 bar	1.5...10 bar
Flow rate (Nl/min)	4150	4150	4150	4150
Weight (kg)	0.96	1.00	0.96	0.96

Series PI-01, PI-02, PI-03
ISO 5599/1, Size 1 to 3

Dimensions



Model-no.:	A	B	C	D	E	F	G
PI-01-5xx	40	35	36	28	18	M5	8
PI-02-5xx	50	40	48	38	24	M6	8
PI-03-5xx	65	45	64	48	32	M8	13

Accessories

Manifolds and accessories: www.airtec.de

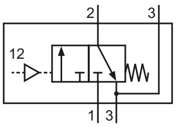
Series PN-05
NAMUR

Technical details

Connection	G1/4, Namur
Nominal size	6 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), zinc coated steel, plastic, seals: NBR, inner parts: Al, steel and plastic
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

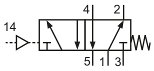
Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.
The location pin, screws and seals are included.

3/2-way valve

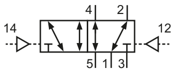


PN-05-311
3/2-way, single pilot, mechanical spring return

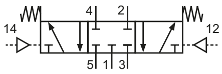
5/2- and 5/3-way valves



PN-05-511
5/2-way, single pilot, mechanical spring return



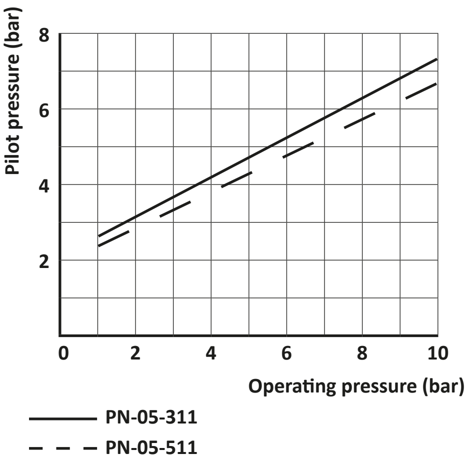
PN-05-520
5/2-way, double pilot



PN-05-530
5/3-way, center position closed

Technical data

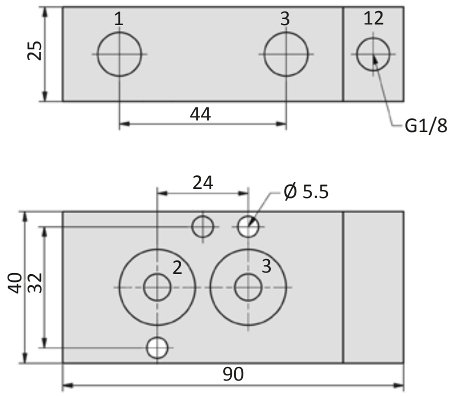
Model-no.:	PN-05-311	PN-05-511	PN-05-520	PN-05-530
Operating pressure (bar)	0...10 bar	0...10 bar	0...10 bar	0...10 bar
Pilot pressure (bar)	see diagram	see diagram	2...10 bar	3...10 bar
Flow rate (Nl/min)	800	800	900	680
Weight (kg)	0.22	0.22	0.26	0.28



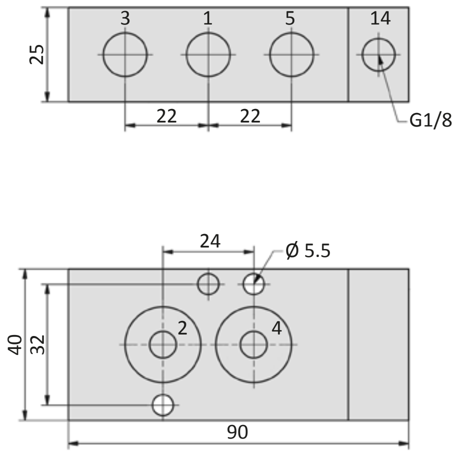
Series PN-05
NAMUR

Dimensions

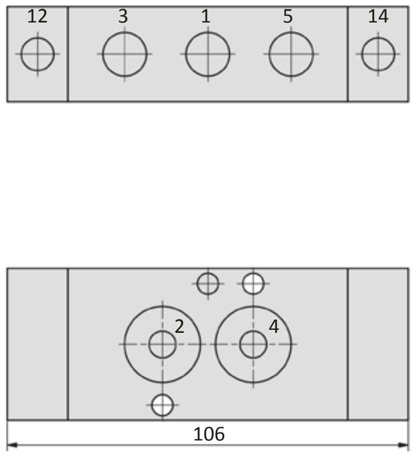
PN-05-311



PN-05-511



PN-05-520, P-05-530



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12,14 = pilot ports
Pilot ports can be repositioned by 180°.

Series MI-01, MI-02, MI-03

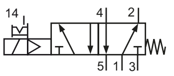
ISO 5599/1, Size 1 to 3

Technical details

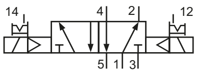
Connection	ISO 5599/1
Nominal size	Size 1: 9 mm
	Size 2: 13 mm
	Size 3: 14 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass
Protection	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

5/2-way valves

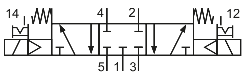


MI-01-511-HN-xxx
MI-02-511-HN-xxx
MI-03-511-HN-xxx
5/2-way, single solenoid, mechanical spring return

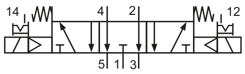


MI-01-520-HN-xxx
MI-02-520-HN-xxx
MI-03-520-HN-xxx
5/2-way, double solenoid

5/3-way valves



MI-01-530-HN-xxx
MI-02-530-HN-xxx
MI-03-530-HN-xxx
5/3-way, center position closed



MI-01-533-HN-xxx
MI-02-533-HN-xxx
MI-03-533-HN-xxx
5/3-way, center position exhausted

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection[*1]	-xxx
12 V DC	4.2 W		Form B industrial norm	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-431
24 V DC	4.2 W		Form B industrial norm	-412
24 V DC	4.8 W		M 12	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O32
24 V AC	7/4 VA		Form B industrial norm	-422
115 V AC	7/4 VA		Form B industrial norm	-426
230 V AC	7/4 VA		Form B industrial norm	-427

[*1] *Plug socket not included, suitable plug sockets see page 4-38.*

Series MI-01, MI-02, MI-03
ISO 5599/1, Size 1 to 3

Technical data

Model-no.:	MI-01-511	MI-01-520	MI-01-530	MI-01-533
Operating pressure* (bar)	2.5...10	2...10	3...10	3...10
Pilot pressure* (bar)	2.5...10	2...10	3...10	3...10
Flow rate (Nl/min)	1700	1700	1610	1610
Response time (ms) at 6 bar	on: 15 off: 27	on: 13 off: 13	on: 17 off: 19	on: 17 off: 19
Weight (kg)	0.480	0.645	0.620	0.620

Model-no.:	MI-02-511	MI-02-520	MI-02-530	MI-02-533
Operating pressure* (bar)	2...10	2...10	3...10	3...10
Pilot pressure* (bar)	2...10	2...10	3...10	3...10
Flow rate (Nl/min)	2020	2020	2020	2020
Response time (ms) at 6 bar	on: 29 off: 57	on: 17 off: 17	on: 20 off: 27	on: 20 off: 27
Weight (kg)	0.708	0.850	0.847	0.847

Model-no.:	MI-03-511	MI-03-520	MI-03-530	MI-03-533
Operating pressure* (bar)	2...10	2...10	3...10	3...10
Pilot pressure* (bar)	2...10	2...10	3...10	3...10
Flow rate (Nl/min)	4150	4150	4150	4150
Response time (ms) at 6 bar	on: 32 off: 57	on: 20 off: 20	on: 22 off: 55	on: 22 off: 55
Weight (kg)	1.115	1.287	1.277	1.277

* max. 8 bar at 2.2 W and 2.5 W

5

Accessories

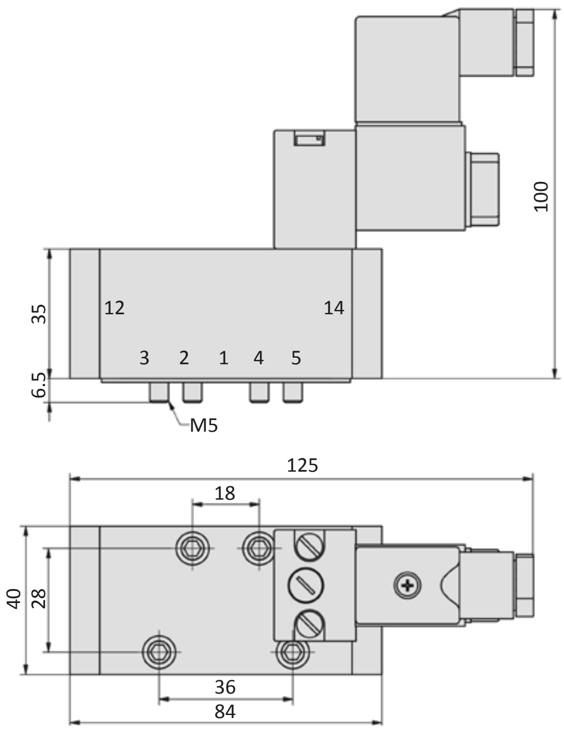
Plug sockets: page 4-38

Manifolds and Accessories: www.airtec.de

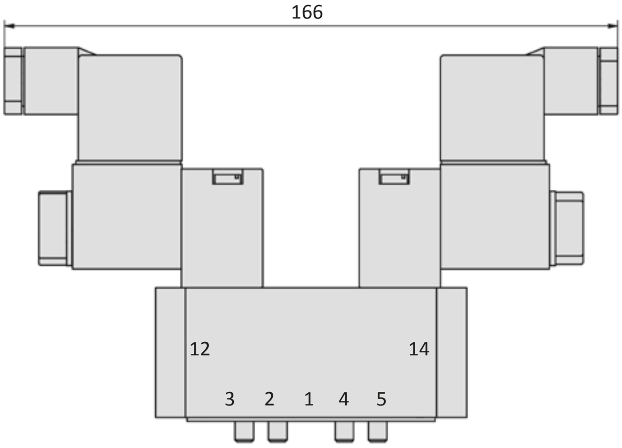
Series MI-01, MI-02, MI-03
ISO 5599/1, Size 1 to 3

Dimensions

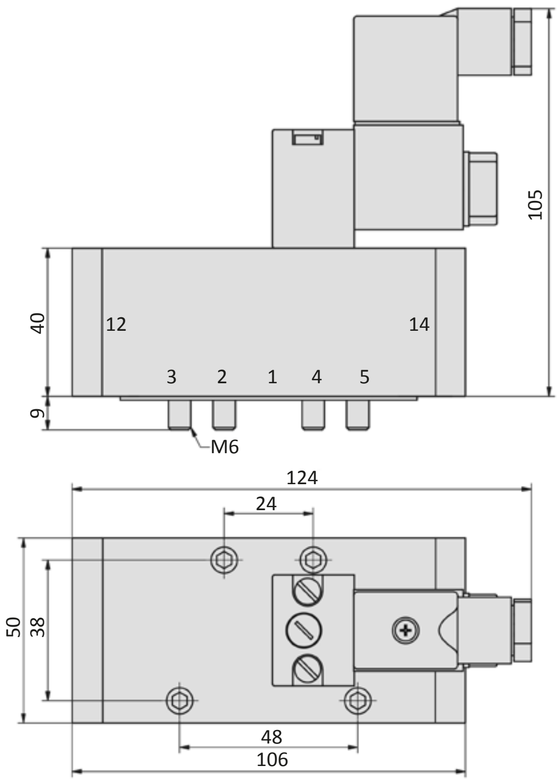
MI-01-511-HN



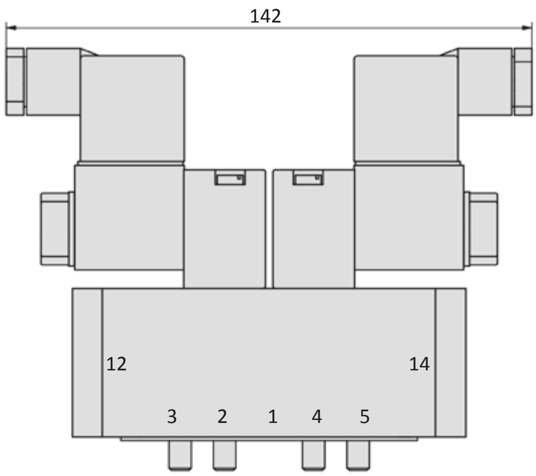
MI-01-520-HN, MI-01-53x-HN



MI-02-511-HN



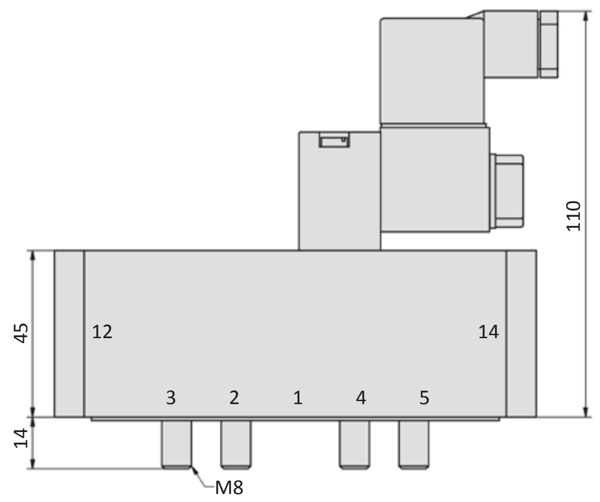
MI-02-520-HN, MI-02-53x-HN

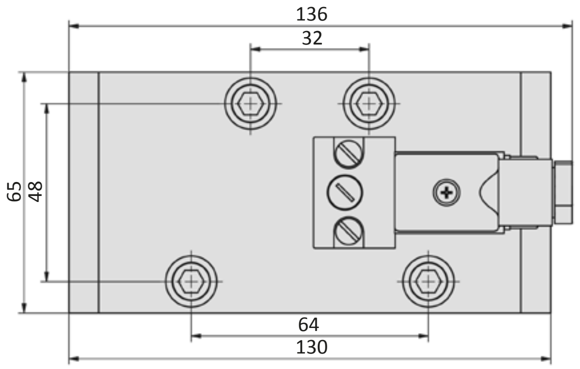


Series MI-01, MI-02, MI-03
ISO 5599/1, Size 1 to 3

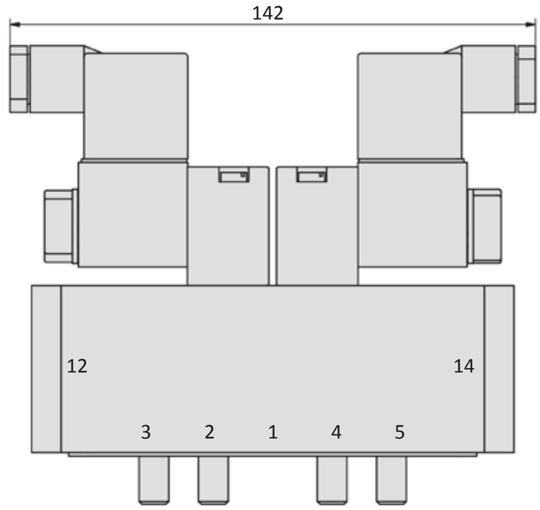
Dimensions

MI-03-511-HN





MI-03-520-HN, MI-03-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 2 x 90°.

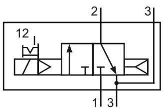
Series KN-05, KN-55
NAMUR

Technical details

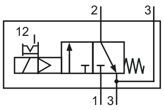
Connection	G1/4, Namur
Nominal size	6 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.
The model KN-55 has a coil with enhanced humitidy resistance and an additional gasket at the coil. The location pin, screws and seals are included.

3/2-way valves



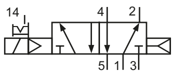
KN-05-310-HN-xxx
KN-55-310-HN-xxx
3/2-way, single solenoid, air spring return, NC



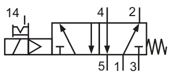
KN-05-311-HN-xxx
KN-55-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option

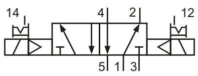
5/2- and 5/3-way valves



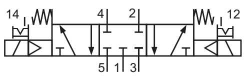
KN-05-510-HN-xxx
KN-55-510-HN-xxx
5/2-way, single solenoid, air spring return



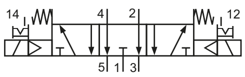
KN-05-511-HN-xxx
KN-55-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



KN-05-520-HN-xxx
KN-55-520-HN-xxx
5/2-way, double solenoid



KN-05-530-HN-xxx
KN-55-530-HN-xxx
5/3-way, center position closed



KN-05-533-HN-xxx
KN-55-533-HN-xxx
5/3-way, center position exhausted

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx KN-05	KN-55
12 V DC	4.2 W		Form B industrial norm	-441	-741
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-761
24 V DC	4.2 W		Form B industrial norm	-442	-742
24 V DC	4.8 W		M 12	-042	-
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-762
24 V DC	2.5 W	max. 8 bar	M 12	-062	-
24 V AC	7/4 VA		Form B industrial norm	-452	-752
115 V AC	7/4 VA		Form B industrial norm	-456	-756
230 V AC	7/4 VA		Form B industrial norm	-457	-757

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

Series KN-05, KN-55
NAMUR

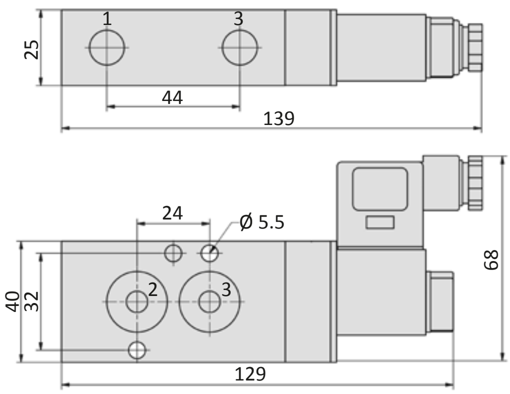
Technical data

Model-no.:	KN-05-310 KN-55-310	KN-05-311 KN-55-311	KN-05-510 KN-55-510	KN-05-511 KN-55-511	KN-05-520 KN-55-520	KN-05-530 KN-55-530	KN-05-533 KN-55-533
Operating pressure* (bar)	3...10	3...10	3...10	3...10	2...10	3...10	3...10
Pilot pressure* (bar)	3...10	3...10	3...10	3...10	2...10	3...10	3...10
Flow rate (Nl/min)	780	780	900	800	900	680	680
Response time (ms) at 6 bar	on: 16 off: 18	on: 13 off: 16	on: 16 off: 17	on: 16 off: 18	on: 14 off: 14	on: 14 off: 16	on: 14 off: 16
Weight (kg)	0.320	0.320	0.320	0.320	0.440	0.440	0.440

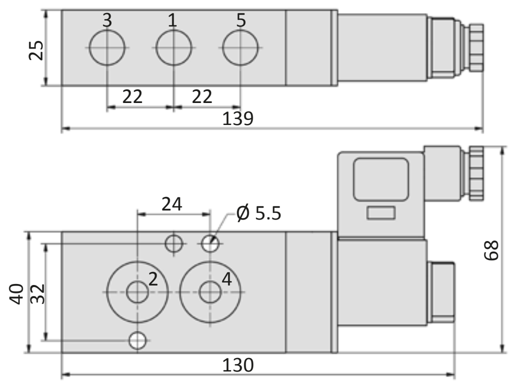
* max. 8 bar at 2.2 W and 2.5 W

Dimensions

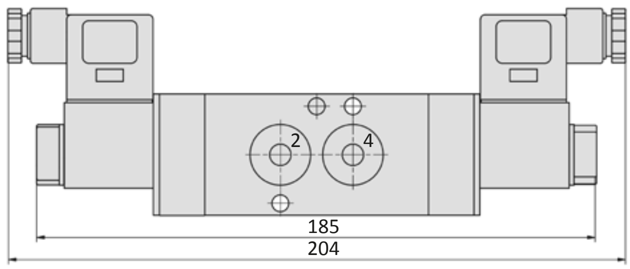
KN-05-31x-HN, KN-55-31x-HN



KN-05-51x-HN, KN-55-51x-HN



KN-05-520-HN, KN-55-520-HN, KN-05-53x-HN, KN-55-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-38

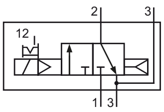
Series MN-06
NAMUR

Technical details

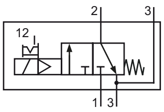
Connection	G1/4, Namur
Nominal size	6 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR and POM, inner parts: Al, stainless steel and brass
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.
The location pin, screws and seals are included.

3/2-way valves



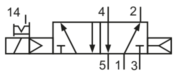
MN-06-310-HN-xxx
3/2-way, single solenoid, air spring return, NC



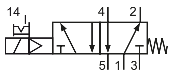
MN-06-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option

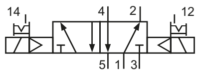
5/2- and 5/3-way valves



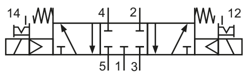
MN-06-510-HN-xxx
5/2-way, single solenoid, air spring return



MN-06-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



MN-06-520-HN-xxx
5/2-way, double solenoid



MN-06-530-HN-xxx
5/3-way, center position closed

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	4.2 W		Form B industrial norm	-441
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461
24 V DC	4.2 W		Form B industrial norm	-442
24 V DC	4.8 W		M 12	-O42
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462
24 V DC	2.5 W	max. 8 bar	M 12	-O62
24 V AC	7/4 VA		Form B industrial norm	-452
115 V AC	7/4 VA		Form B industrial norm	-456
230 V AC	7/4 VA		Form B industrial norm	-457

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

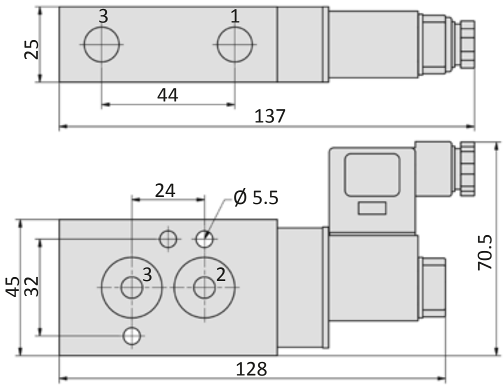
Technical data

Model-no.:	MN-06-310	MN-06-311	MN-06-510	MN-06-511	MN-06-520	MN-06-530
Operating pressure* (bar)	2...10	3...10	2...10	3...10	2...10	3...10
Pilot pressure* (bar)	2...10	3...10	2...10	3...10	2...10	3...10
Flow rate (Nl/min)	750	750	750	750	750	650
Response time (ms) at 6 bar	on: 13 off: 16	on: 13 off: 16	on: 13 off: 16	on: 13 off: 16	on: 12 off: 12	on: 13 off: 15
Weight (kg)	0.320	0.320	0.320	0.320	0.460	0.460

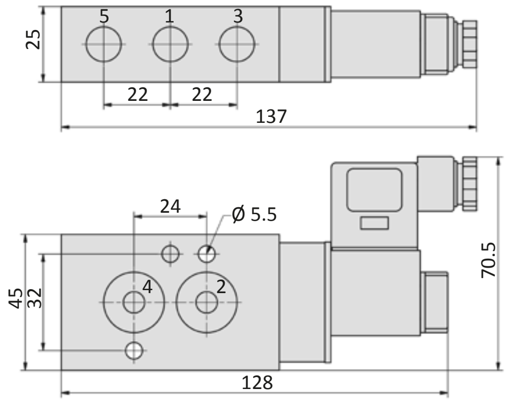
* max. 8 bar at 2.2 W and 2.5 W

Dimensions

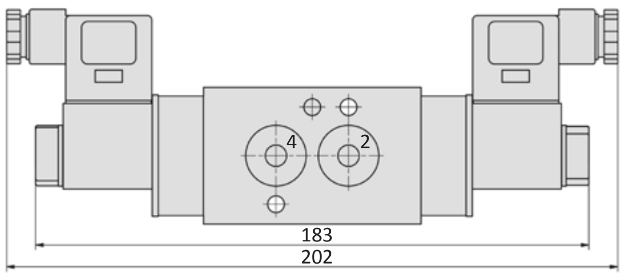
MN-06-31x-HN



MN-06-51x-HN



MN-06-520-HN, MN-06-530-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-38

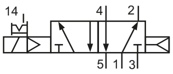
Series MN-22
NAMUR

Technical details

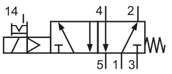
Connection	G1/2, Namur
Nominal size	14 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR and POM, inner parts: Al, stainless steel and brass
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.
The location pin, screws and seals are included.

5/2- way valves



MN-22-510-HN-xxx
5/2-way, single solenoid, air spring return



MN-22-511-HN-xxx
5/2-way, single solenoid, mechanical spring return

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	4.2 W		Form B industrial norm	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-431
24 V DC	4.2 W		Form B industrial norm	-412
24 V DC	4.8 W		M 12	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O32
24 V AC	7/4 VA		Form B industrial norm	-422
115 V AC	7/4 VA		Form B industrial norm	-426
230 V AC	7/4 VA		Form B industrial norm	-427

***1** *Plug socket not included, suitable plug sockets see page 4-38.*

Series MN-22
NAMUR

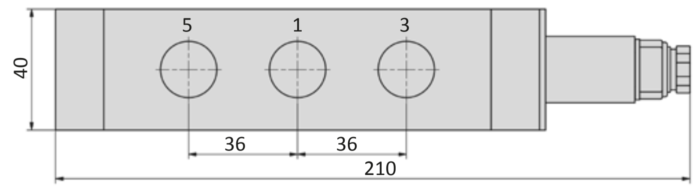
Technical data

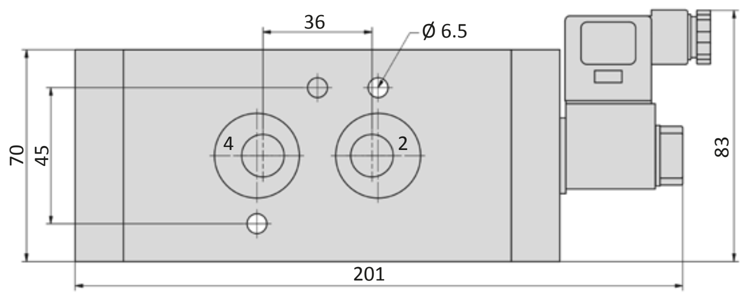
Model-no.:	MN-22-510	MN-22-511
Operating pressure* (bar)	1...10	3...10
Pilot pressure* (bar)	1...10	3...10
Flow rate (Nl/min)	3300	3300
Response time (ms) at 6 bar	on: 30 off: 59	on: 20 off: 80
Weight (kg)	1.10	1.10

* max. 8 bar at 2.2 W and 2.5 W

Dimensions

MN-22-51x-HN





1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned by 4 x 90°.

Accessories

Plug sockets: page 4-38

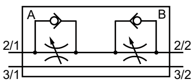
Flow control valves
NAMUR

Technical details

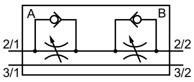
Connection	Namur
Nominal size	5 mm
Flow rate	KN-063: 210 Nl/min, KN-065: 290 Nl/min
Weight	0.170 kg
Temperature range	-25°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized) seals: NBR inner parts: brass
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Flow control valves for speed regulation of pneumatically operated actuators. Mounting between NAMUR valve and actuator. Adjustable with screwdriver or manually. The location pin, screws and seals are included.

3/2-way

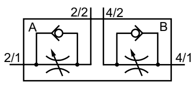


KN-063-DRS
for 3/2-way valves,
adjustable with screwdriver

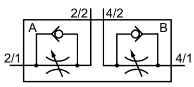


KN-063-DRH
for 3/2-way valves,
manually adjustable

5/2- and 5/3-way



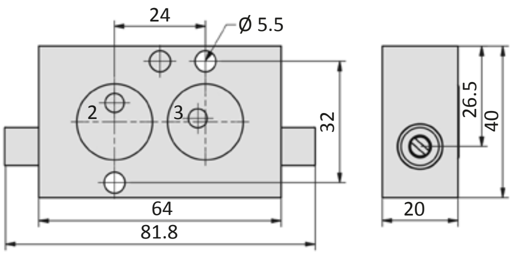
KN-065-DRS
for 5/2-way- and 5/3-way valves,
adjustable with screwdriver



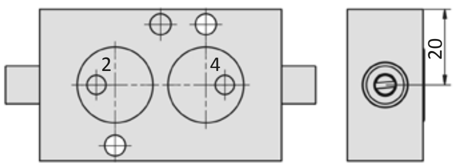
KN-065-DRH
for 5/2-way- and 5/3-way valves,
manually adjustable

Dimensions

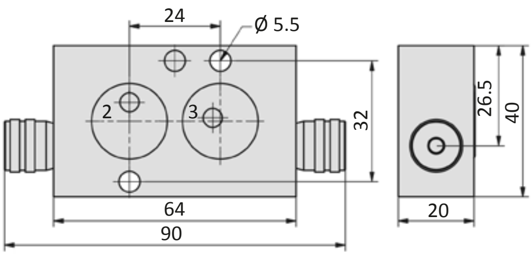
KN-063-DRS



KN-065-DRS



KN-063-DRH



KN-065-DRH

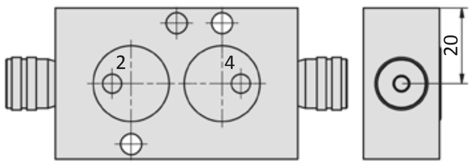
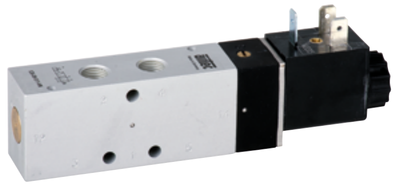


Table of contents

Series ICK-09 and ICK-10

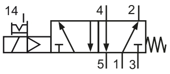
Technical details

Connection	ICK-09: G1/8 ICK-10: G1/4
Nominal size	ICK-09: 6 mm ICK-10: 9 mm
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: FKM and PU, inner parts: Al, stainless steel and brass
Protection	IP 65 according to EN 60529

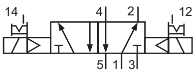


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

5/2-way valves

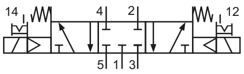


ICK-09-511-HN-xxx
ICK-10-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



ICK-09-520-HN-xxx
ICK-10-520-HN-xxx
5/2-way, double solenoid

5/3-way valves



ICK-09-530-HN-xxx
ICK-10-530-HN-xxx
5/3-way, center position closed

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Manual override on same side of ports 2 and 4	1, 3 and 5
24 V DC	4.2 W		Form B industrial norm	-F42	-F12

***1** *Plug socket not included, suitable plug sockets see page 6-14.*

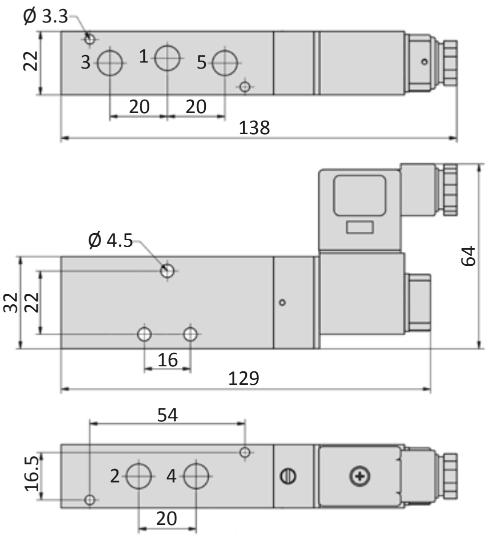
Technical data

Model-no.:	ICK-09-511	ICK-09-520	ICK-09-530	ICK-10-511	ICK-10-520	ICK-10-530
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	2.5 ... 8	2.5 ... 8	3 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	2.5 ... 8	2.5 ... 8	3 ... 8
Flow rate (Nl/min)	810	950	680	1800	2100	1500
Response time (ms) at 6 bar	on: 13 off: 28	on: 15 off: 15	on: 14 off: 16	on: 16 off: 27	on: 18 off: 18	on: 16 off: 22
Weight (kg)	0.231	0.330	0.330	0.470	0.630	0.630

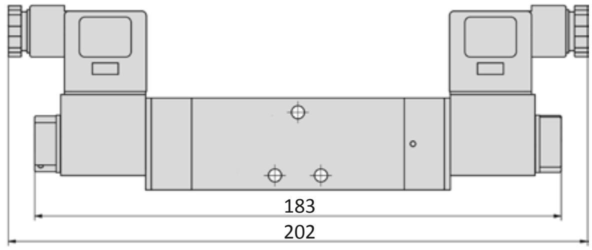
Series ICK-09 and ICK-10

Dimensions

ICK-09-511-HN

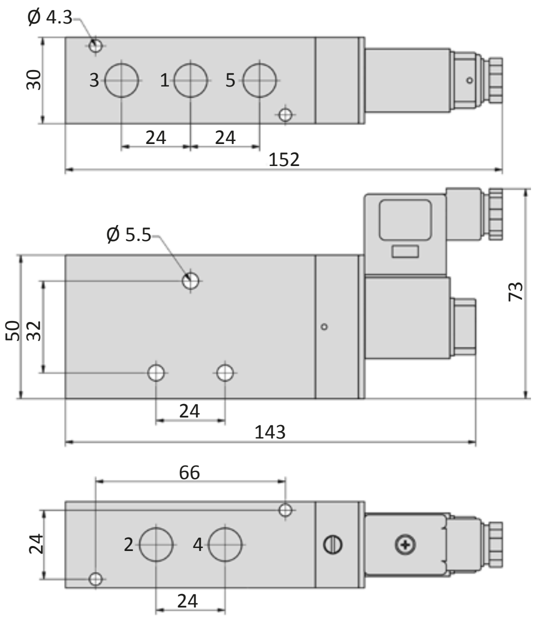


ICK-09-520-HN, ICK-09-530-HN

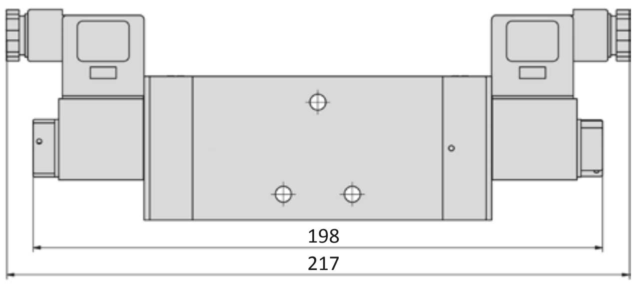


6

ICK-10-511-HN



ICK-10-520-HN, ICK-10-530-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°. Solenoid coil can be repositioned.

Accessories

Plug sockets: page 6-14

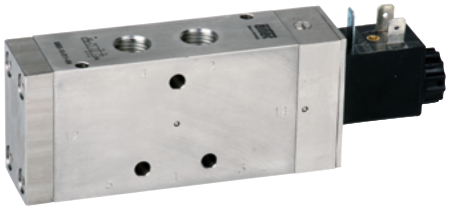
Manifolds and accessories: page 4-21

Series KMX-09 and KMX-10

premium line

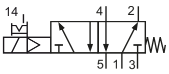
Technical details

Connection	KMX-09: G1/8
	KMX-10: G1/4
Nominal size	KMX-09: 6 mm
	KMX-10: 9 mm
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: stainless steel 1.4571, seals: FKM and PU, inner parts: stainless steel 1.4305
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

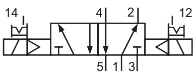


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

5/2-way valves

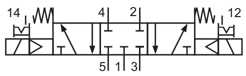


KMX-09-511-HN-xxx
KMX-10-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



KMX-09-520-HN-xxx
KMX-10-520-HN-xxx
5/2-way, double solenoid

5/3-way valve



KMX-10-530-HN-xxx
5/3-way, center position closed

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Manual override on same side of ports 2 and 4	-xxx Manual override on same side of ports 1, 3 and 5
24 V DC	4.2 W		Form B industrial norm	-F42	-F12

*1 *Plug socket not included, suitable plug sockets see page 6-14.*

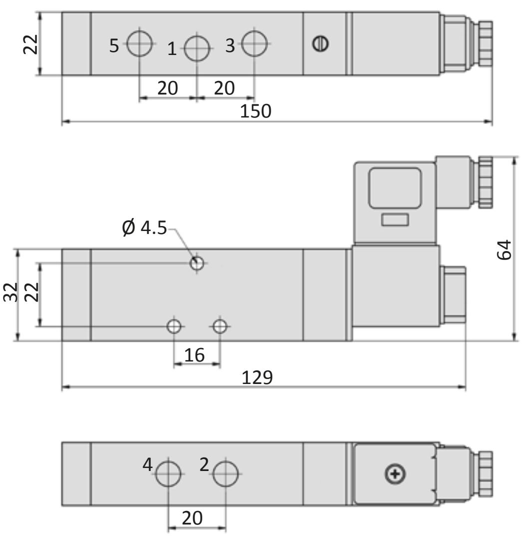
Technical data

Model-no.:	KMX-09-511	KMX-09-520	KMX-10-511	KMX-10-520	KMX-10-530
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	810	950	1800	2100	1500
Response time (ms) at 6 bar	on: 13 off: 28	on: 15 off: 15	on: 16 off: 27	on: 18 off: 18	on: 16 off: 22
Weight (kg)	0.231	0.330	0.470	0.630	0.630

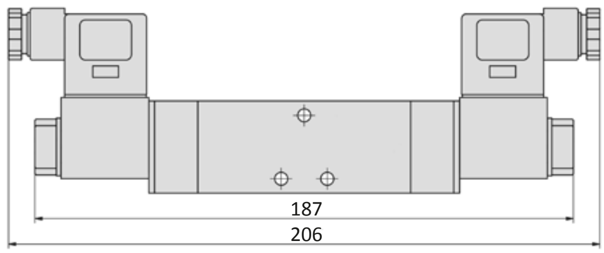
Series KMX-09 and KMX-10

Dimensions

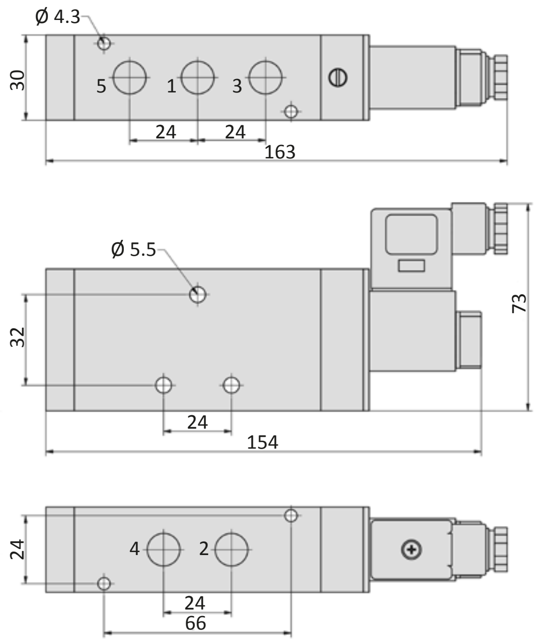
KMX-09-511-HN



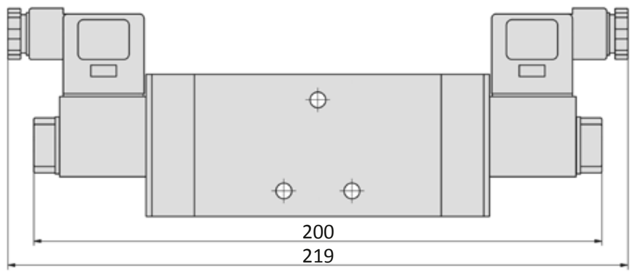
KMX-09-520-HN



KMX-10-511-HN



KMX-10-520-HN, KMX-10-530-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°. Solenoid coil can be repositioned.

Accessories

Plug sockets: page 6-14

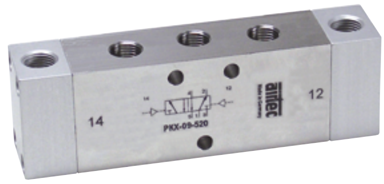
Series PKX-09 and PKX-10

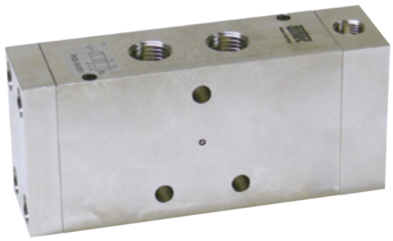
EDELSTAHL Rost frei INOX STAINLESS STEEL

airtec premium line

Technical details

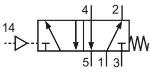
Connection	PKX-09: G1/8
	PKX-10: G1/4
Nominal size	PKX-09: 6 mm
	PKX-10: 9 mm
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: stainless steel 1.4571, seals: FKM and PU, inner parts: stainless steel 1.4305
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)



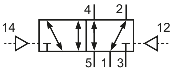


Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.

5/2-way valves

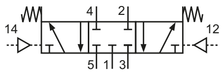


PKX-09-511
PKX-10-511
5/2-way, single pilot, mechanical spring return



PKX-09-520
PKX-10-520
5/2-way, double pilot

5/3-way valve



PKX-10-530
5/3-way, center position closed

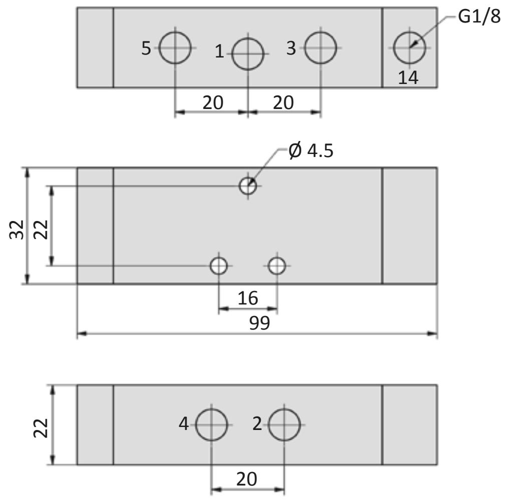
Technical data

Model-no.:	PKX-09-511	PKX-09-520	PKX-10-511	PKX-10-520	PKX-10-530
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	1080	1110	1980	1920	1770
Weight (kg)	0.450	0.460	1.120	1.170	1.160

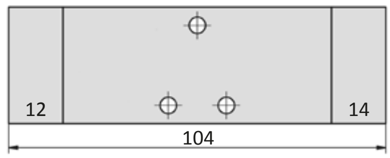
Series PKX-09 and PKX-10

Dimensions

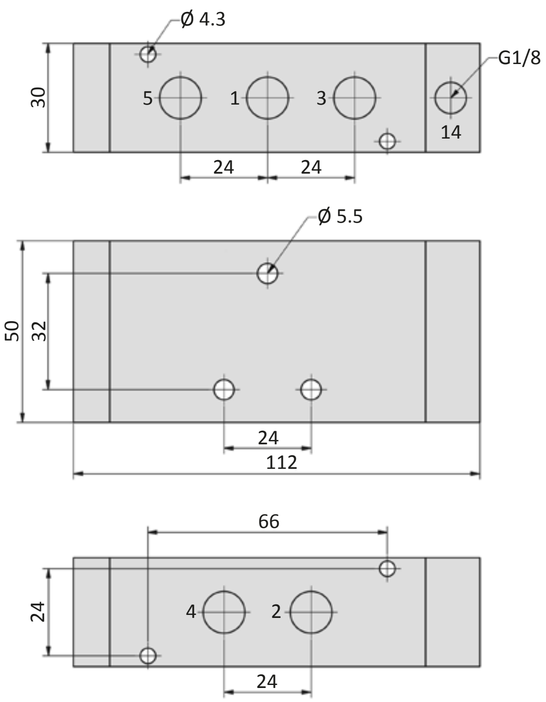
PKX-09-511



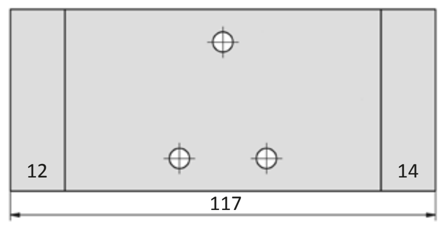
PKX-09-520



PKX-10-511



PKX-10-520, PKX-10-530



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12,14 = pilot ports
Pilot ports can be repositioned by 180°.

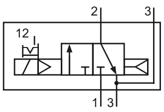
Series ICKN-55
NAMUR

Technical details

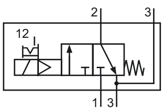
Connection	G1/4, Namur
Nominal size	6 mm
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: FKM , inner parts: Al, stainless steel and brass
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.
The location pin, screws and seals are included.

3/2-way valves



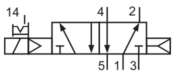
ICKN-55-310-HN-xxx
3/2-way, single solenoid, air spring return, NC



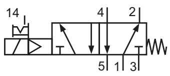
ICKN-55-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option

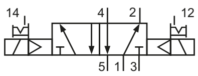
5/2- and 5/3-way valves



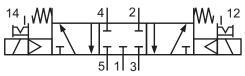
ICKN-55-510-HN-xxx
5/2-way, single solenoid, air spring return



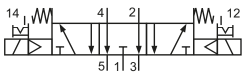
ICKN-55-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



ICKN-55-520-HN-xxx
5/2-way, double solenoid



ICKN-55-530-HN-xxx
5/3-way, center position closed



ICKN-55-533-HN-xxx
5/3-way, center position exhausted

Electrical options

Nominal lvotage	Power consumption	Specifics	Plug connection*1	-xxx
24 V DC	4.2 W		Form B industrial norm	-F42

*1 *Plug socket not included, suitable plug sockets see page 6-14.*

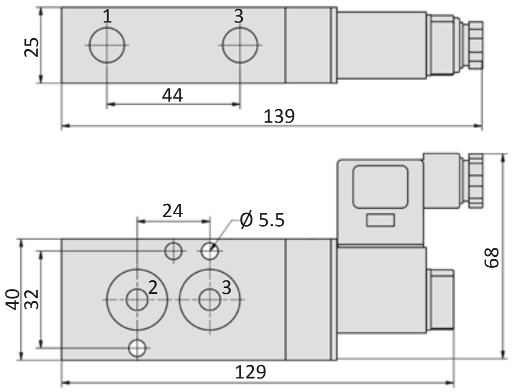
Series ICKN-55
NAMUR

Technical data

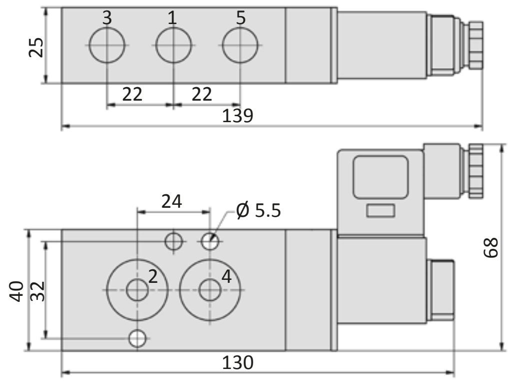
Model-no.:	ICKN-55-310	ICKN-55-311	ICKN-55-510	ICKN-55-511	ICKN-55-520	ICKN-55-530	ICKN-55-533
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	2 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	2 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	780	780	900	800	900	680	680
Response time (ms) at 6 bar	on: 16 off: 18	on: 13 off: 16	on: 16 off: 17	on: 16 off: 18	on: 14 off: 14	on: 14 off: 16	on: 14 off: 16
Weight (kg)	0.320	0.320	0.320	0.320	0.440	0.440	0.440

Dimensions

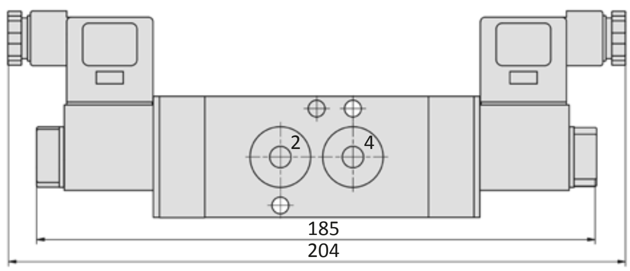
ICKN-55-31x-HN



ICKN-55-51x-HN



ICKN-55-520-HN, ICKN-55-53x-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned.

Accessories

Plug sockets: page 6-14

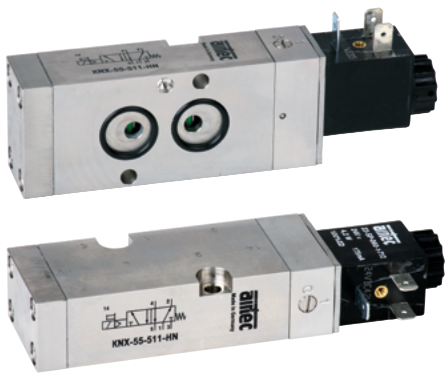
6

Series KNX-55
NAMUR

EDELSTAHL Rost frei INOX STAINLESS STEEL

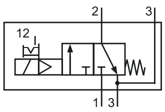
Technical details

Connection	G1/4, Namur
Nominal size	6 mm
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: stainless steel 1.4571, seals: PU, NBR, inner parts: stainless steel 1.4305
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)



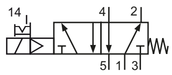
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.
The location pin, screws and seals are included.

3/2-way valve

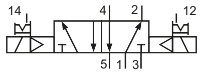


KNX-55-311-HN-xxx
3/2-way, single solenoid, mechanical spring return, NC

5/2- and 5/3-way valves



KNX-55-511-HN-xxx
5/2-way, single solenoid, mechanical spring return



KNX-55-520-HN-xxx
5/2-way, double solenoid

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection[*1]	-xxx
24 V DC	4.2 W		Form B industrial norm	-F42

*1 *Plug socket not included, suitable plug sockets see page 6-14.*

Technical data

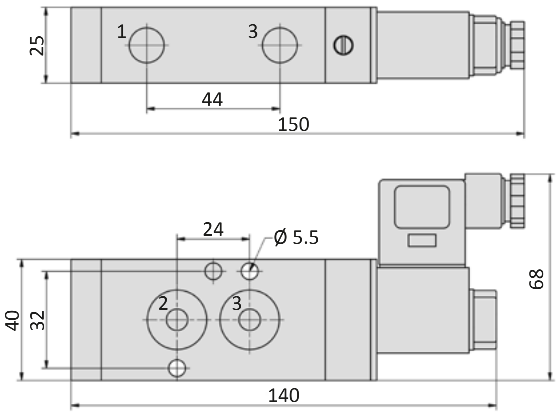
Model-no.:	KNX-55-311	KNX-55-511	KNX-55-520
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8
Flow rate (Nl/min)	1280	1060	1050
Response time (ms) at 6 bar	on: 13 off: 47	on: 12 off: 74	on: 14 off: 14
Weight (kg)	0.670	0.660	0.720

EDELSTAHL Rost frei INOX STAINLESS STEEL

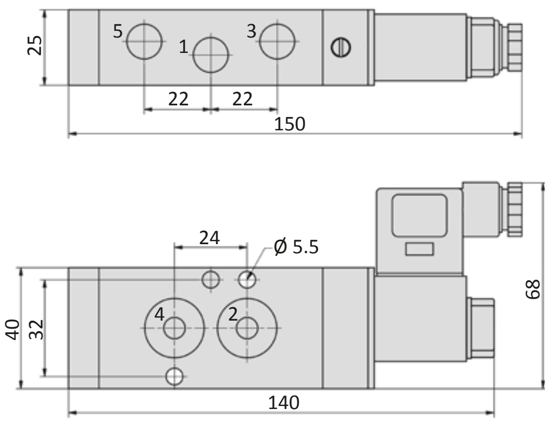
Series KNX-55
NAMUR

Dimensions

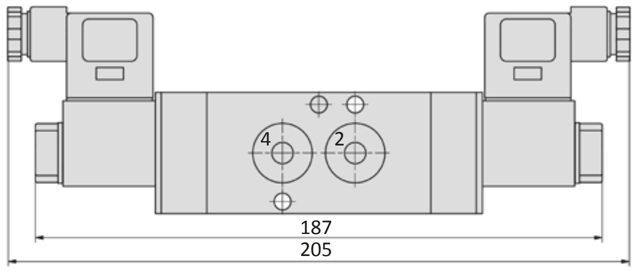
KNX-55-311-HN



KNX-55-511-HN



KNX-55-520-HN



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.
Solenoid coil can be repositioned.

Accessories

Plug sockets: page 6-14

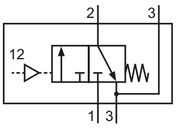
Series PNX-55
NAMUR

Technical details

Connection	G1/4, Namur
Nominal size	6 mm
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: stainless steel 1.4571, seals: PU, NBR, inner parts: stainless steel 1.4305
Protection	IP 65 according to EN 60529
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

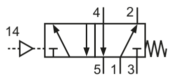
Pneumatically operated spool valve. The valve switches upon pressurization of the pilot port.
The location pin, screws and seals are included.

3/2-way valve

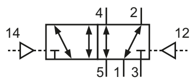


PNX-55-311
3/2-way, single pilot, mechanical spring return

5/2- and 5/3-way valves



PNX-55-511
5/2-way, single pilot, mechanical spring return



PNX-55-520
5/2-way, double pilot

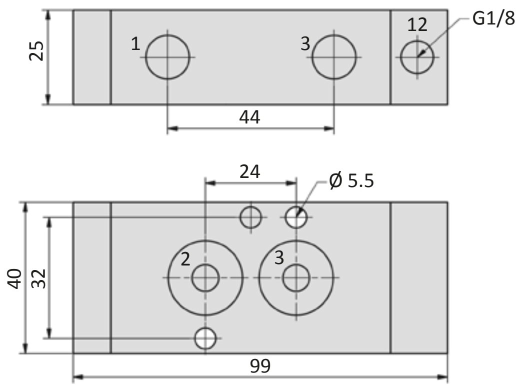
Technical data

Model-no.:	PNX-55-311	PNX-55-511	PNX-55-520
Operating pressure (bar)	3 ... 8 bar	3 ... 8 bar	3 ... 8 bar
Pilot pressure (bar)	3 ... 8 bar	3 ... 8 bar	3 ... 8 bar
Flow rate (Nl/min)	1280	1060	1050
Weight (kg)	0.640	0.630	0.660

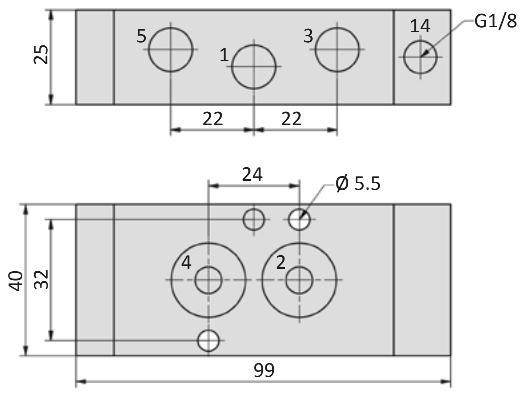
Series PNX-55
NAMUR

Dimensions

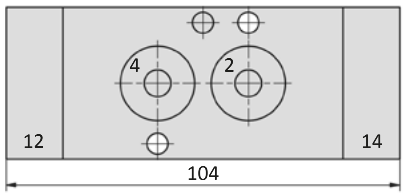
PNX-55-311



PNX-55-511



PNX-55-520



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12,14 = pilot ports
Pilot ports can be repositioned by 180°.

Plug sockets

Form B industrial norm

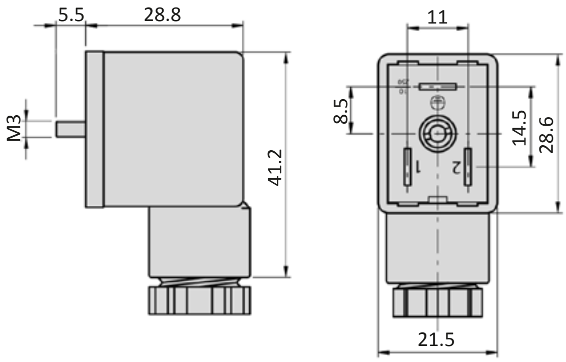
Overall width	22 mm
Contact distance	11 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	ICK-09, ICK-10, KMX-09, KMX-10, ICKN-55, KNX-55

Model-no.:	28-ST-01	28-ST-04-112	28-ST-04-127	28-ST-06-112	28-ST-06-127	28-ST-06-K3-112*	28-ST-06-K3-127*
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V	230 V
Status indicator	no	yes	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m	3 m
Wire cross section	max. 1.5 mm²	max. 1.5 mm²	max. 1.5 mm²	max. 1.5 mm²	max. 1.5 mm²	3 x 0.75 mm²	3 x 0.75 mm²
Ø Connecting cable	6 - 8 mm	6 - 8 mm	6 - 8 mm	6 - 8 mm	6 - 8 mm		

* These plug sockets are fitted with integrated flat gaskets.

Dimensions

Form B industrial norm



Solenoid coils

Form B industrial norm

Overall width	22 mm
Contact distance	11 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-40°C ... +80°C
Voltage tolerance	± 10 %
For use with series	ICK-09, ICK-10, KMX-09, KMX-10, ICKN-55, KNX-55

* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-060-1-712
Voltage	24 V DC
Power consumption DC	4.2 W
Power consumption AC	-

6

Dimensions

Form B industrial norm

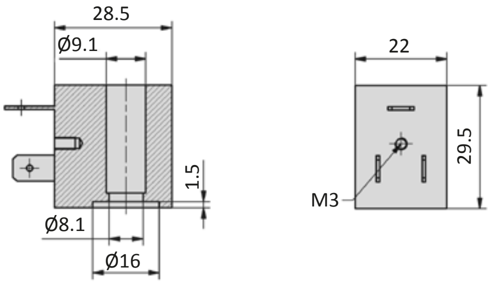


Table of contents

Series RE-04

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR
Protection	IP 65 according to EN 60529

Manifold system with integrated electrical connection including LED, manual override and built-in circuit protection.
Double solenoid valves and 5/3-way valves require 2 stations on the manifold.
The above order code covers only the manifold. The valves and the multi-pin plug with cable must be ordered separately.
The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers on the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

Order code

RE-04/-***

Series

Electrical options

M	Multi-pin

Number of stations

04	4 stations
06	6 stations
08	8 stations
10	10 stations
12	12 stations
14	14 stations
16	16 stations

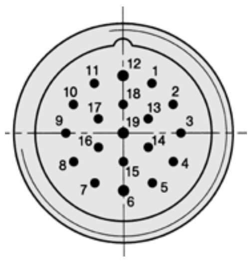
Electrical options

Multi-pin

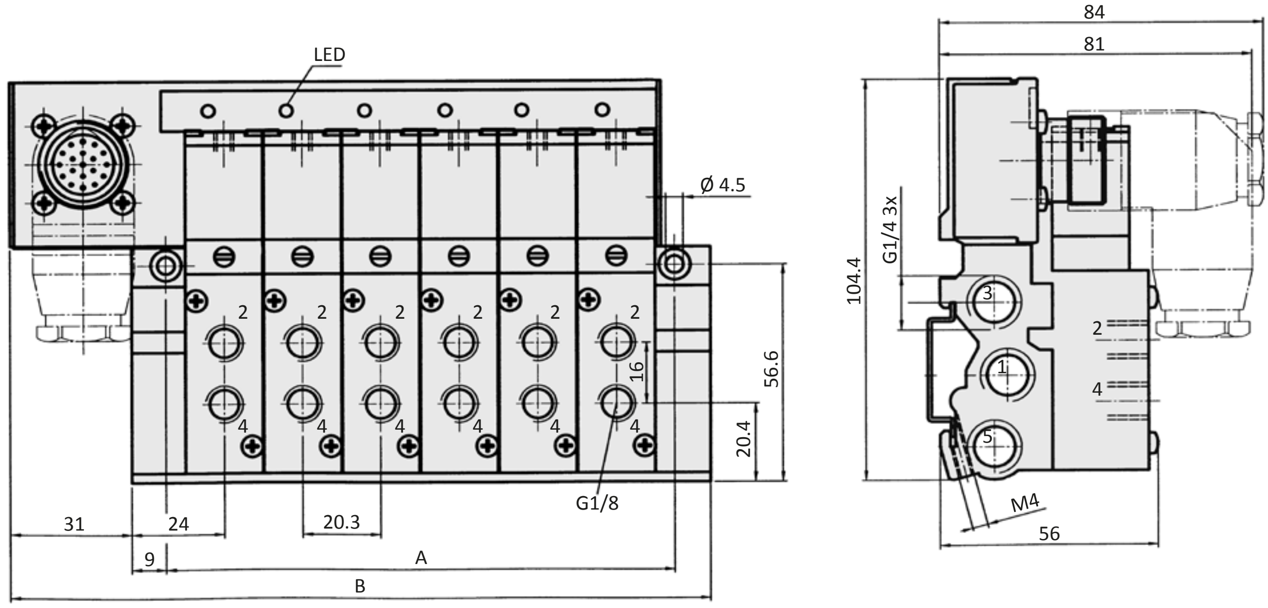
The 19-pin multi plug (see page 7-04) has to be ordered separately.

Pin	Function	Cable, 8-pin	Cable, 16-pin
1	valve 1	black 1	black 1
2	valve 2	black 2	black 2
3	valve 3	black 3	black 3
4	valve 4	black 4	black 4
5	valve 5	black 5	black 5
6	GND	black 9	black 9
7	valve 6	black 6	black 6
8	valve 7	black 7	black 7
9	valve 8	black 8	black 8
10	valve 9	-	black 17

Pin	Function	Cable, 8-pin	Cable, 16-pin
11	valve 10	-	black 10
12	PE	green/ yellow	green/ yellow
13	valve 11	-	black 11
14	valve 12	-	black 12
15	valve 13	-	black 13
16	valve 14	-	black 14
17	valve 15	-	black 15
18	valve 16	-	black 16
19	GND	-	black 18



Dimensions



1 = pressure inlet
2,4 = outlets
3,5 = exhausts

Model-no.:	A	B	Weight without valves (kg)
RE-04/04-M	90.9	140	0.51
RE-04/06-M	131.5	180.6	0.72
RE-04/08-M	172.1	221.2	0.93
RE-04/10-M	212.7	261.8	1.14
RE-04/12-M	253.3	302.4	1.35
RE-04/14-M	293.9	343	1.56
RE-04/16-M	334.5	383.6	1.77

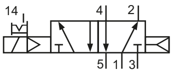
Series RE-04

Technical details

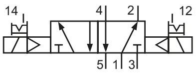
Outlets	G1/8
Nominal size	4 mm
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR and POM, inner parts: Al, stainless steel and brass
Nominal voltage	24 V DC, ± 10%
Power consumption	2 W
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

5/2-way valves

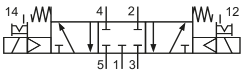


MF-04-510-HN-412
5/2-way, single solenoid, air spring return

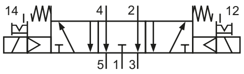


MF-24-520-HN-412
5/2-way, double solenoid

5/3-way valves



MF-24-530-HN-412
5/3-way, center position closed



MF-24-533-HN-412
5/3-way, center position exhausted

Technical data

Model-no.:	MF-04-510-HN-412	MF-24-520-HN-412	MF-24-530-HN-412	MF-24-533-HN-412
Required space	1 station	2 stations	2 stations	2 stations
Operating pressure (bar)	2.5...8	2.5...8	3...8	3...8
Pilot pressure (bar)	2.5...8	2.5...8	3...8	3...8
Flow rate (Nl/min)	360	360	360	360
Response time (ms) at 6 bar	on: 13 off: 16	on: 11 off: 11	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.112	0.230	0.232	0.232

Accessories

Model-no.:	RE-04-DT
	Pressure dividing plug

Model-no.:	28-ST-RE-10x-yy
	19-pin multi plug, straight x = 3 3 m cable x = 7 7 m cable yy = 8 up to 8 stations yy = 16 up to 16 stations

Model-no.:	RE-04-V-EP
	Blind plate

Model-no.:	28-ST-RE-11x-yy
	19-pin multi plug, elbow x = 3 3 m cable x = 7 7 m cable yy = 8 up to 8 stations yy = 16 up to 16 stations

Technical details

Temperature range	-10°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR
Protection	IP 65 according to EN 60529

Manifold system with integrated electrical connection including LED indicators, manual override and built-in circuit protection.
Valves with connection G1/4 require 2 stations on the manifold.
The above order code covers only the manifold. The multi-pin plug with cable must be ordered separately.
The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers at the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

Order code

RE-19/-*****

Series

Number of stations	
04*	4 stations
06	6 stations
08	8 stations
10	10 stations
12	12 stations
14	14 stations
16	16 stations
18	18 stations
20	20 stations
22	22 stations
24**	24 stations

* not for Profibus-DP
** not for Multi-pin

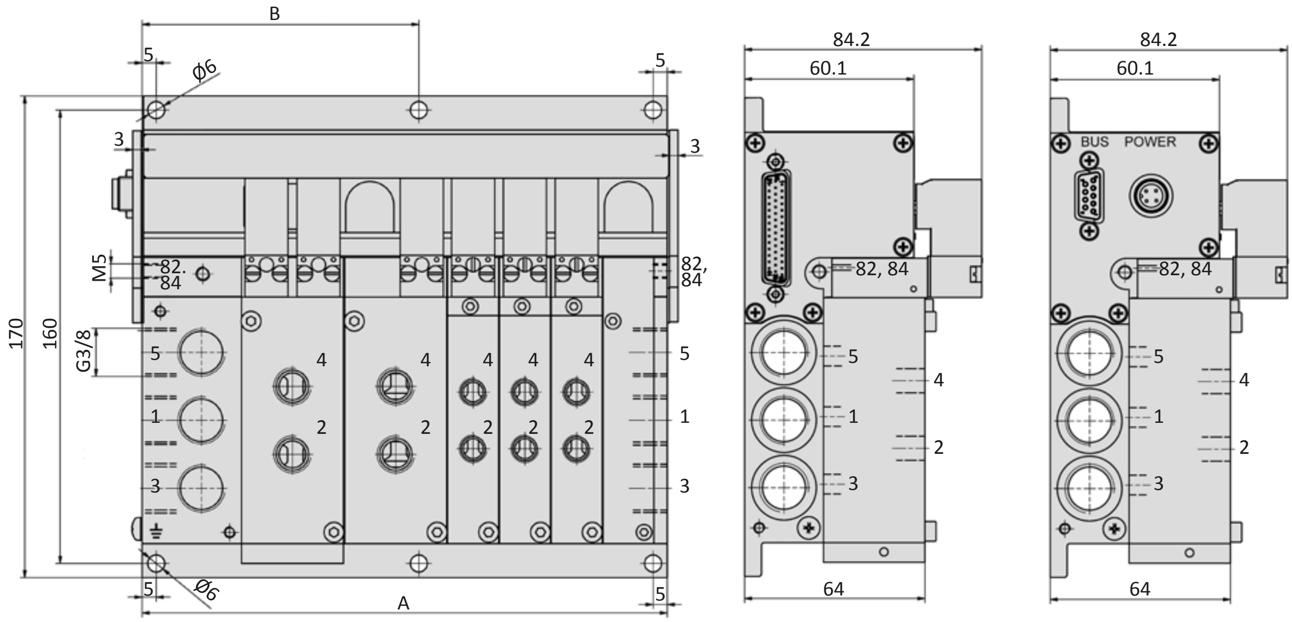
Electrical options	
M-1	Multi-pin
AS3	AS-Interface (only for 4, 8 and 12 stations)
B1-1	Profibus-DP

More detailed information about the installation you find in the manual at www.airtec.de.

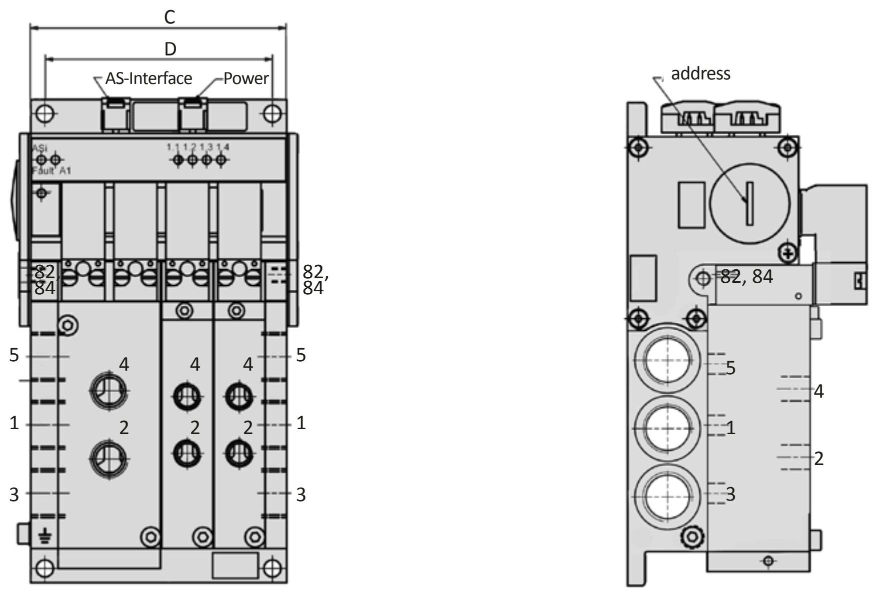
Series RE-19

Dimensions

Multi-pin, Profibus-DP



AS-Interface



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
82,84 = solenoid exhausts

Model-no.:		A	B	Weight without valves (kg)
RE-19/04-M-1		113	-	0.93
RE-19/06-M-1	RE-19/06-B-1	149	-	1.26
RE-19/08-M-1	RE-19/08-B-1	186	-	1.59
RE-19/10-M-1	RE-19/10-B-1	222	-	1.92
RE-19/12-M-1	RE-19/12-B-1	259	129.5	2.25
RE-19/14-M-1	RE-19/14-B-1	295	147.5	2.58
RE-19/16-M-1	RE-19/16-B-1	332	166	2.91
RE-19/18-M-1	RE-19/18-B-1	369	184.5	3.24
RE-19/20-M-1	RE-19/20-B-1	405	202.5	3.57
RE-19/22-M-1	RE-19/22-B-1	442	221	3.90
	RE-19/24-B-1	478	239	4.23

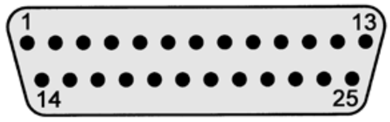
Model-no.:	C	D	Weight without valves (kg)
RE-19/04-AS3	96	80	0.82
RE-19/08-AS3	165	155	1.48
RE-19/12-AS3	228	238	2.14

Electrical options

Multi-pin

The 25-pin multi plug (see page 7-07) has to be ordered separately.

Pin	Function	Wire colour	Pin	Function	Wire colour
1	valve 1	white	14	valve 14	brown/ green
2	valve 2	brown	15	valve 15	white/ yellow
3	valve 3	green	16	valve 16	yellow/ brown
4	valve 4	yellow	17	valve 17	white/ grey
5	valve 5	grey	18	valve 18	grey/ brown
6	valve 6	pink	19	valve 19	white/ pink
7	valve 7	blue	20	valve 20	pink/ brown
8	valve 8	red	21	valve 21	white/ blue
9	valve 9	black	22	valve 22	brown/ blue
10	valve 10	violet	23	GND	white/ red
11	valve 11	grey/ pink	24	GND	brown/ red
12	valve 12	red/ blue	25	GND	white/ black
13	valve 13	white/ green			



Profibus-DP

Bus connector	bushing 9-pin D-SUB
Power connector	plug 4-pin M12
Baud rate	selectable between 9600 Bit/s and 12 Mbit/s
Voltage	24 V DC ± 10%
Address selection	by 2 decimal coded rotary switches.
Bus terminal resistance	switchable ON - OFF

7

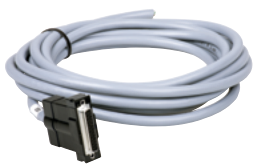
AS-Interface

Bus connector	AS-Interface connector
Power connector	AS-Interface connector
Bus voltage	18.5 ... 31.6 V DC
Power voltage	24 V DC ± 10%
Address selection	Each IC slave (max. 4 valves) 1 programming socket = 1 address

Accessories

Model-no.:	RE-19-DT
	Pressure dividing plug

Model-no.:	28-ST-68-M-xxx
	25-pin multi plug, straight



xxx = 105	5 m cable
xxx = 110	10 m cable

Model-no.:	RE-19-V-EP
	Blind plate

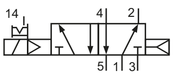
Series RE-19

Technical details

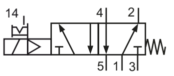
Outlets	G1/8, G1/4
Temperature range	-10°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: Al, stainless steel and brass
Nominal voltage	24 V DC, ± 10%
Power consumption	1 W
Protection	IP 65 according to EN 60529

Electrically operated spool valve. The manual override is non-detent or detent and is operated by bolt or screwdriver.

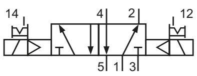
5/2-way valves



KF-09-510-HNx-442
KF-10-510-HNx-442
5/2-way, single solenoid, air spring return



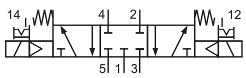
KF-09-511-HNx-442
KF-10-511-HNx-442
5/2-way, single solenoid, mechanical spring return



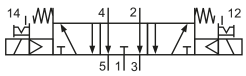
KF-10-520-HNx-442
5/2-way, double solenoid

Please complete: x = manual override (R = detent, T = non-detent)

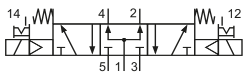
5/3-way valves



KF-10-530-HNx-442
5/3-way, center position closed



KF-10-533-HNx-442
5/3-way, center position exhausted



KF-10-534-HNx-442
5/3-way, center position pressurized

Technical data

Model-no.:	KF-09-510-HNx-442	KF-09-511-HNx-442	KF-10-510-HNx-442	KF-10-511-HNx-442
Required space	1 station	1 station	2 stations	2 stations
Outlets	G1/8	G1/8	G1/4	G1/4
Operating pressure (bar)	3...8	3...8	2.5...8	2.5...8
Pilot pressure (bar)	3...8	3...8	2.5...8	2.5...8
Nominal size (mm)	6	6	9	9
Flow rate (Nl/min)	950	810	2100	1800
Response time (ms) at 6 bar	on: 11 off: 20	on: 10 off: 26	on: 13 off: 26	on: 18 off: 29
Weight (kg)	0.200	0.200	0.370	0.370

Model-no.:	KF-10-520-HNx-442	KF-10-530-HNx-442	KF-10-533-HNx-442	KF-10-534-HNx-442
Required space	2 stations	2 stations	2 stations	2 stations
Outlets	G1/4	G1/4	G1/4	G1/4
Operating pressure (bar)	2.5...8	3...8	3...8	3...8
Pilot pressure (bar)	2.5...8	3...8	3...8	3...8
Nominal size (mm)	9	9	9	9
Flow rate (Nl/min)	2100	1500	1500	1500
Response time (ms) at 6 bar	on: 16 off: 16	on: 16 off: 26	on: 16 off: 26	on: 16 off: 26
Weight (kg)	0.430	0.430	0.430	0.430

Please complete: x = manual override (R = detent, T = non-detent)

Technical details

Temperature range	+5°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, FKM
Protection	IP 65 according to EN 60529

Manifold system with integrated electrical connection including LED indicators. Each station can accommodate two 3/2-way valves or one 5/2- or 5/3-way valve. All connections are accessible from the front.
The valves and the multi-pin plug with cable must be ordered separately.
The manifold can be mounted with 4 M5 screws from bottom or from top using the mounting bracket RE-10-B-01 or on a DIN-rail (screws are included).
The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers on the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

Order code

RE-10/-***-*****

Series	

Number of stations	
04	4 stations
06*	6 stations
08	8 stations
10*	10 stations
12	12 stations
	* only for Multi-pin

Pneumatical connections	
040	tube connection Ø 4 at 2 and 4 G1/4 at 1
041	tube connection Ø 4 at 2 and 4 tube connection Ø 8 at 1
042	tube connection Ø 4 at 2 and 4 tube connection Ø 10 at 1
060	tube connection Ø 6 at 2 and 4 G1/4 at 1
061	tube connection Ø 6 at 2 and 4 tube connection Ø 8 at 1
062	tube connection Ø 6 at 2 and 4 tube connection Ø 10 at 1

Electrical options	
M-1	Multi-pin
B1	Profibus-DP
B6	CANopen

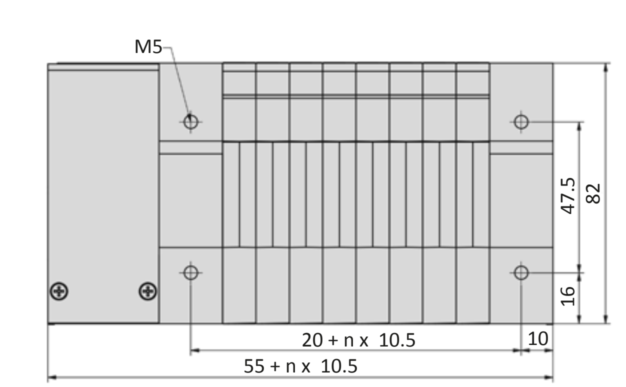
More detailed information about the installation you find in the manual at www.airtec.de.

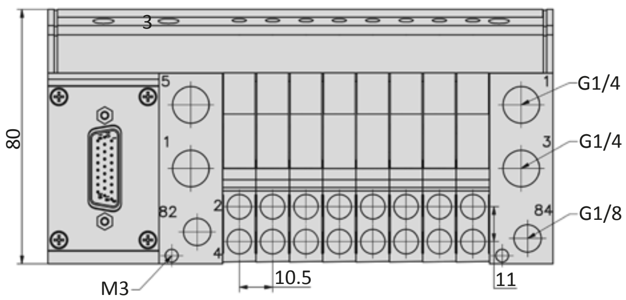
7

Series RE-10

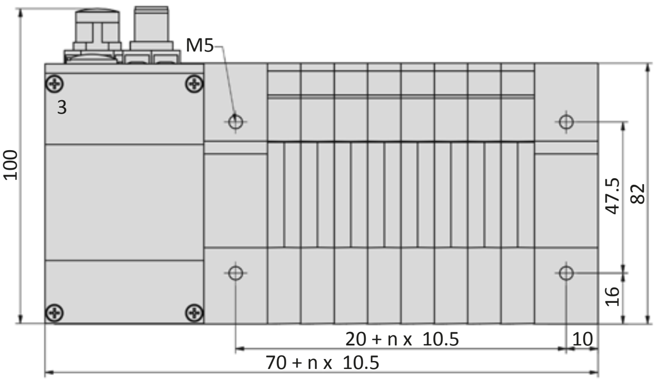
Dimensions

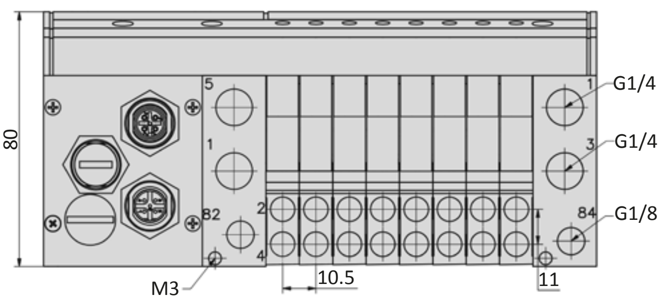
Multi-pin





Bus connection





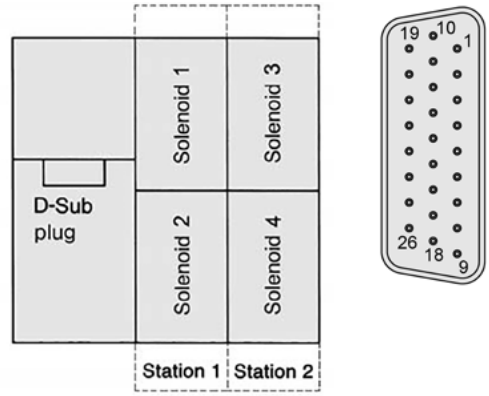
1 = pressure inlet
2,4 = outlets
3,5 = exhausts
82,84 = solenoid exhausts
n = number of stations

Electrical options

Multi-pin

The 26-pin multi plug (see page 7-13) has to be ordered separately.

Pin	Function	Wire colour	Pin	Function	Wire colour
1	solenoid 1	white	14	solenoid 14	brown/ green
2	solenoid 2	brown	15	solenoid 15	white/ yellow
3	solenoid 3	green	16	solenoid 16	yellow/ brown
4	solenoid 4	yellow	17	solenoid 17	white/ grey
5	solenoid 5	grey	18	solenoid 18	grey/ brown
6	solenoid 6	pink	19	solenoid 19	white/ pink
7	solenoid 7	blue	20	solenoid 20	pink/ brown
8	solenoid 8	red	21	solenoid 21	white/ blue
9	solenoid 9	black	22	solenoid 22	brown/ blue
10	solenoid 10	violet	23	solenoid 23	white/ red
11	solenoid 11	grey/ pink	24	solenoid 24	brown/ red
12	solenoid 12	red/ blue	25	GND	white/ black
13	solenoid 13	white/ green	26	-	-



Profibus-DP

Bus connector	Bus In: plug M12 5-pin B-code Bus Out: socket M12 5-pin B-code
Power connector	plug M12 5-pin A-code
Baud rate	9.6 Kbit/s ... 12 Mbit/s
Voltage	24 V DC ± 10%
Power consumption	4.3 W
Address selection	by 2 decimal coded rotary switches
Bus terminal resistance	external over Bus Out socket

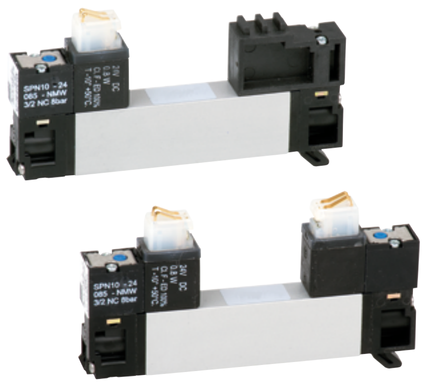
CANopen

Bus connector	Bus In: plug M12 5-pin A-code Bus Out: socket M12 5-pin A-code
Power connector	plug M12 4-pin A-code
Baud rate	10 Kbit/s ... 1 Mbit/s
Voltage	24 V DC ± 10%
Power consumption	4.3 W
Address selection	by 2 decimal coded rotary switches
Bus terminal resistance	external over Bus Out socket

Series RE-10

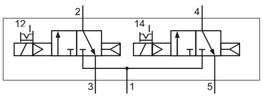
Technical details

Outlets	according to the pneumatical connections of the terminal
Nominal size	4 mm
Temperature range	+5°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, FKM, PU inner parts: Al, stainless steel and brass
Nominal voltage	24 V DC, ± 10%
Power consumption	0.8 W
Protection	IP 65 according to EN 60529

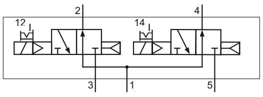


Electrically operated spool valve. The manual override is non-detent. The manual override is located on top of the terminal cover.

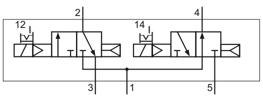
2 x 3/2-way valves



LF-10-310/2-HN-412
2 x 3/2-way, single solenoid, air spring return, NC

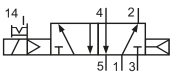


LF-10-312/2-HN-412
2 x 3/2-way, single solenoid, air spring return, NO

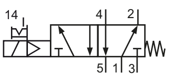


LF-10-314/2-HN-412
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

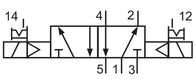
5/2-way valves



LF-10-510-HN-412
5/2-way, single solenoid, air spring return

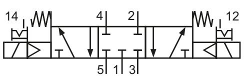


LF-10-511-HN-412
5/2-way, single solenoid, mechanical spring return

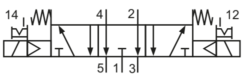


LF-10-520-HN-412
5/2-way, double solenoid

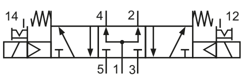
5/3-way valves



LF-10-530-HN-412
5/3-way, center position closed



LF-10-533-HN-412
5/3-way, center position exhausted



LF-10-534-HN-412
5/3-way, center position pressurized

Technical data

Model-no.:	LF-10-310/2-HN-412	LF-10-312/2-HN-412	LF-10-314/2-HN-412
Operating pressure (bar)	1.5...8	1.5...8	1.5...8
Pilot pressure (bar)	1.5...8	1.5...8	1.5...8
Flow rate (Nl/min)	300	220	300 / 220 (NC / NO)
Response time (ms) at 6 bar	on: 14 off: 22	on: 14 off: 22	on: 14 off: 22
Weight (kg)	0.050	0.050	0.050

Technical data

Model-no.:	LF-10-510-HN-412	LF-10-511-HN-412	LF-10-520-HN-412
Operating pressure (bar)	1.5...8	3...8	1.5...8
Pilot pressure (bar)	1.5...8	3...8	1.5...8
Flow rate (Nl/min)	300	300	300
Response time (ms) at 6 bar	on: 18 off: 28	on: 14 off: 30	on: 15 off: 15
Weight (kg)	0.044	0.042	0.052

Model-no.:	LF-10-530-HN-412	LF-10-533-HN-412	LF-10-534-HN-412
Operating pressure (bar)	3.5...8	3.5...8	3.5...8
Pilot pressure (bar)	3.5...8	3.5...8	3.5...8
Flow rate (Nl/min)	280	280	300
Response time (ms) at 6 bar	on: 20 off: 30	on: 16 off: 30	on: 16 off: 30
Weight (kg)	0.050	0.050	0.050

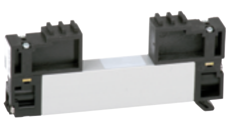
7

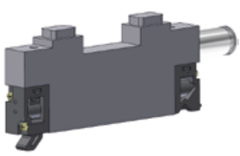
Accessories

Model-no.:	RE-10-DT-01
	Pressure dividing plug P-canal

Model-no.:	RE-10-MS-01
	Kit for DIN-rail mounting

Model-no.:	RE-10-B-01
	Mounting bracket (pair)

Model-no.:	RE-10-V-EP
	Blind plate

Model-no.:	RE-10-P-01
	Device for additional air supply

Model-no.:	28-ST-10-M1-26-xxx
	26-pin multi plug, straight xxx = 105 5 m cable xxx = 110 10 m cable

Model-no.:	28-ST-RE-46-xx-yy
	Connector kit xx = 01 in- and output xx = 02 with termination resistance yy = B1 Profibus yy = B6 CANopen

Series RE-46

Technical details

Temperature range	-10°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR
Protection	IP 65 according to EN 60529

Manifold system with integrated electrical connection including LED indicators. Each station can accommodate two 3/2-way valves or one 5/2- or 5/3-way valve. All connections are accessible from the front.
The valves and the multi-pin plug with cable must be ordered separately.
The valve terminal is delivered pre-assembled and function-tested. If not specified with the order, valve configuration is as follows: Valves are mounted according to their order number, starting with high numbers at the side of the multi-pin, ending with low numbers on the opposite side, followed by blind plates (if ordered).

Order code

RE-46/-*-***-*****

Series

Number of stations	
04	4 stations
06	6 stations
08	8 stations
10	10 stations
12	12 stations
14	14 stations
16	16 stations
18	18 stations
20	20 stations
22*	22 stations
24*	24 stations
	* only for terminals with Bus connection

Position of the pneumatic connection	
blank	at the side
G*	at the bottom
	* only for 8, 12 and 16 stations

Pneumatical connections	
00	G1/8 at 2 and 4 G3/8 at 1
60	tube connection Ø 6 at 2 and 4 tube connection Ø 10 at 1
61	tube connection Ø 6 at 2 and 4 tube connection Ø 8 at 1
62	tube connection Ø 6 at 2 and 4 tube connection Ø 12 at 1
80	tube connection Ø 8 at 2 and 4 tube connection Ø 10 at 1
81	tube connection Ø 8 at 2 and 4 tube connection Ø 8 at 1
82	tube connection Ø 8 at 2 and 4 tube connection Ø 12 at 1

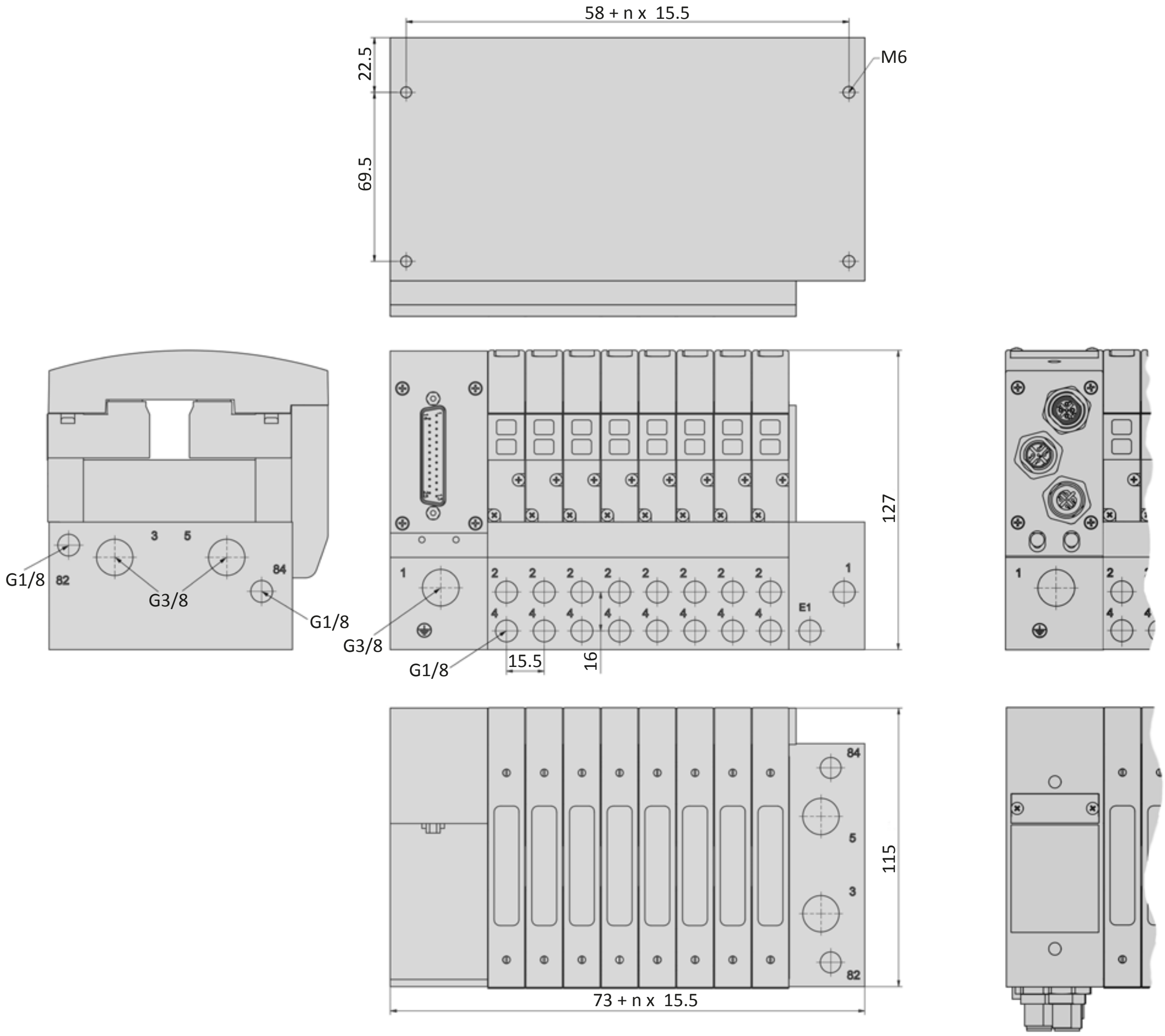
Pilot air	
0	internal (standard)
E	external

Electrical options	
M-1	Multi-pin
AS3	AS-Interface (only for 4, 8 and 12 stations)
B1-1	Profibus-DP
B6-1	CANopen
B7-1	Profinet-RT
B8-1*	EtherCAT
	* on request

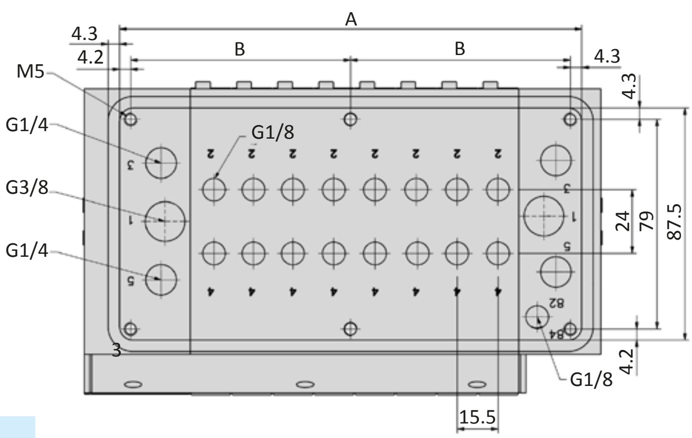
More detailed information about the installation you find in the manual at www.airtec.de.

Dimensions

Multi-pin, Bus connection



Version RE-46-G



Model-no.:	A	B
RE-46/08-G	174.5	83 (2x)
RE-46/12-G	236.5	76 (3x)
RE-46/16-G	298.5	72.5 (4x)

1 = pressure inlet
2,4 = outlets
3,5 = exhausts
82,84 = solenoid exhausts
n = number of stations

Series RE-46

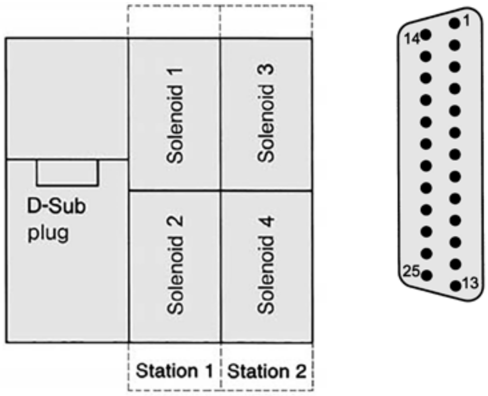
Electrical options

Multi-pin, 2 up to 12 stations

The 25-pin multi plug (see page 7-19) has to be ordered separately.

Pin	Function	Wire colour
1	GND	white
2	solenoid 1	brown
3	solenoid 3	green
4	solenoid 5	yellow
5	solenoid 7	grey
6	solenoid 9	pink
7	solenoid 11	blue
8	solenoid 13	red
9	solenoid 15	black
10	solenoid 17	violet
11	solenoid 19	grey/ pink
12	solenoid 21	red/ blue
13	solenoid 23	white/ green

Pin	Function	Wire colour
14	solenoid 2	brown/ green
15	solenoid 4	white/ yellow
16	solenoid 6	yellow/ brown
17	solenoid 8	white/ grey
18	solenoid 10	grey/ brown
19	solenoid 12	white/ pink
20	solenoid 14	pink/ brown
21	solenoid 16	white/ blue
22	solenoid 18	brown/ blue
23	solenoid 20	white/ red
24	solenoid 22	brown/ red
25	GND	white/ black

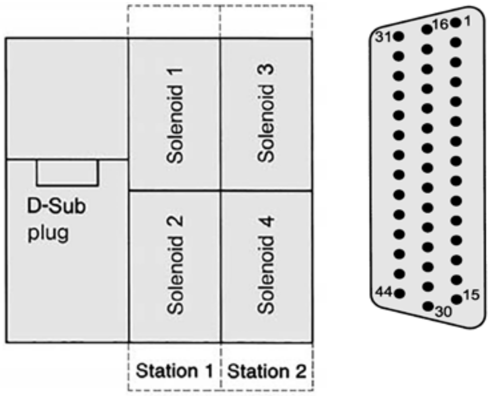


Multi-pin, 14 up to 20 stations

The 44-pin multi plug (see page 7-19) has to be ordered separately.

Pin	Function	Wire colour
1	GND	white
2	solenoid 3	brown
3	solenoid 6	green
4	solenoid 9	yellow
5	solenoid 12	grey
6	solenoid 15	pink
7	solenoid 18	blue
8	solenoid 21	red
9	solenoid 24	black
10	solenoid 27	violet
11	solenoid 30	grey/ pink
12	solenoid 33	red/ blue
13	solenoid 36	white/ green
14	solenoid 39	brown/ green
15	-	white/ yellow
16	GND	yellow/ brown
17	solenoid 2	white/ grey
18	solenoid 5	grey/ brown
19	solenoid 8	white/ pink
20	solenoid 11	pink/ brown
21	solenoid 14	white/ blue
22	solenoid 17	brown/ blue

Pin	Function	Wire colour
23	solenoid 20	white/ red
24	solenoid 23	brown/ red
25	solenoid 26	white/ black
26	solenoid 29	brown/ black
27	solenoid 32	grey/ green
28	solenoid 35	yellow/ grey
29	solenoid 38	pink/ green
30	-	yellow/ pink
31	solenoid 1	green/ blue
32	solenoid 4	yellow/ blue
33	solenoid 7	green/ red
34	solenoid 10	yellow/ red
35	solenoid 13	green/ black
36	solenoid 16	yellow/ black
37	solenoid 19	grey/ blue
38	solenoid 22	pink/ blue
39	solenoid 25	grey/ red
40	solenoid 28	pink/ red
41	solenoid 31	grey/ black
42	solenoid 34	pink/ black
43	solenoid 37	blue/ black
44	solenoid 40	red/ black



AS-Interface

Bus connector	AS-Interface connector
Power connector	AS-Interface connector
Bus voltage	18.5 ... 31.6 V DC
Power voltage	24 V DC ± 10%
Address selection	Low voltage switch plug Ø 1.3 mm, slave selection by DIP-switch

Electrical options

Profibus-DP

Bus connector	Bus In: plug M12, 5-pin, B-code Bus Out: socket M12, 5-pin, B-code
Power connector	plug M12, 5-pin, A-code
Baud rate	9.6 Kbit/s ... 12 Mbit/s, automatic adjustment
Voltage	24 V DC ± 10%
Power consumption	2.9 W
Address selection	by 2 decimal coded rotary switches
Bus terminal resistance	external over Bus Out socket

CANopen

Bus connector	Bus In: plug M12, 5-pin, A-code Bus Out: socket M12, 5-pin, A-code
Power connector	plug M12, 5-pin, A-code
Baud rate	10 Kbit/s ... 1 Mbit/s
Voltage	24 V DC ± 10%
Power consumption	2.9 W
Address selection	by 2 decimal coded rotary switches
Bus terminal resistance	external over Bus Out socket

7

Profinet-RT

Bus connector	Bus In: socket M12, 4-pin, D-code Bus Out: socket M12, 4-pin, D-code
Power connector	plug M12, 5-pin, A-code
Baud rate	100 Mbit/s, full duplex
Voltage	24 V DC ± 10%
Power consumption	3.6 W
Address selection	by controler remote

EtherCAT

Bus connector	Bus In: socket M12, 4-pin, D-code Bus Out: socket M12, 4-pin, D-code
Power connector	plug M12, 5-pin, A-code
Baud rate	100 Mbit/s, full duplex
Voltage	24 V DC ± 10%
Power consumption	3.5 W

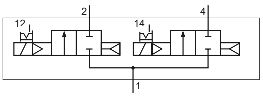
Series RE-46

Technical details

Outlets	according to the pneumatical connections of the terminal
Temperature range	-10°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, stainless steel and brass
Nominal voltage	24 V DC, ± 10%
Power consumption	1.3 W
Protection	IP 65 according to EN 60529

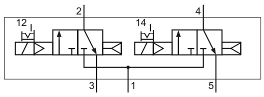
Electrically operated spool valve. The manual override is non-detent. The manual override is located on top of the valve cover.

2/2-way valve

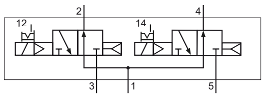


KF-46-210/2-HN-S12
2 x 2/2-way, single solenoid, air spring return, NC

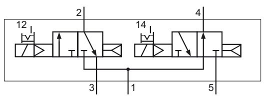
2 x 3/2-way valves



KF-46-310/2-HN-S12
2 x 3/2-way, single solenoid, air spring return, NC

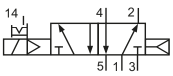


KF-46-312/2-HN-S12
2 x 3/2-way, single solenoid, air spring return, NO

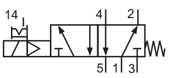


KF-46-314/2-HN-S12
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

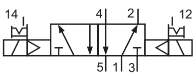
5/2-way valves



KF-46-510-HN-S12
5/2-way, single solenoid, air spring return

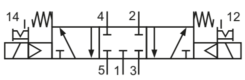


KF-46-511-HN-S12
5/2-way, single solenoid, mechanical spring return

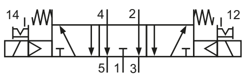


KF-46-520-HN-S12
5/2-way, double solenoid

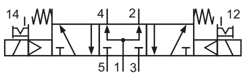
5/3-way valves



KF-46-530-HN-S12
5/3-way, center position closed



KF-46-533-HN-S12
5/3-way, center position exhausted



KF-46-534-HN-S12
5/3-way, center position pressurized

Technical data

Model-no.:	KF-46-210/2-HN-S12	KF-46-310/2-HN-S12	KF-46-312/2-HN-S12	KF-46-314/2-HN-S12
Operating pressure (bar)	2.5...8	2.5...8	2.5...8	2.5...8
Pilot pressure (bar) *	2.5...8	2.5...8	2.5...8	2.5...8
Nominal size (mm)	4.5	4.5	4.5	4.5
Flow rate (Nl/min)	430	430	630	430 / 630 (NC / NO)
Response time (ms) at 6 bar	on: 15 off: 28	on: 15 off: 28	on: 15 off: 28	on: 15 off: 28
Weight (kg)	0.188	0.188	0.188	0.188

* Valves are not suitable for external pilot supply.

Technical data

Model-no.:	KF-46-510-HN-S12	KF-46-511-HN-S12	KF-46-520-HN-S12
Internal pilot pressure			
Operating pressure (bar)	2.5...8	2.5...8	2.5...8
Pilot pressure (bar)	2.5...8	2.5...8	2.5...8
External pilot pressure			
Operating pressure (bar)	- *	0...10	0...10
Pilot pressure (bar)	- *	3...8	3...8
Nominal size (mm)	6	6	6
Flow rate (Nl/min)	950	810	950
Response time (ms) at 6 bar	on: 15 off: 31	on: 14 off: 33	on: 20 off: 20
Weight (kg)	0.158	0.158	0.188

* Valves are not suitable for external pilot supply.

Model-no.:	KF-46-530-HN-S12	KF-46-533-HN-S12	KF-46-534-HN-S12
Internal pilot pressure			
Operating pressure (bar)	3...8	3...8	3...8
Pilot pressure (bar)	3...8	3...8	3...8
External pilot pressure			
Operating pressure (bar)	0...10	0...10	0...10
Pilot pressure (bar)	3...8	3...8	3...8
Nominal size (mm)	6	6	6
Flow rate (Nl/min)	680	680	680
Response time (ms) at 6 bar	on: 20 off: 30	on: 20 off: 30	on: 20 off: 30
Weight (kg)	0.188	0.188	0.188

7

Accessories

Model-no.:	RE-19-DT

Pressure dividing plug

Model-no.:	28-ST-46-M1-yy-xxx

25- or 44-pin multi plug, straight

yy = 25 25-pin
yy = 44 44-pin
xxx = 105 5 m cable
xxx = 110 10 m cable

Model-no.:	RE-x6-V-EP

x = 1
Blind plate, set

x = 4
Blind plate for valve and coil station

Model-no.:	28-ST-RE-46-xx-yy

Connector kit

xx = 01 in- and output
xx = 02 with termination resistance

yy = B1 Profibus
yy = B6 CANopen

Model-no.:	RE-46-RSV

Check valve

Model-no.:	RE-46-B-01

Mounting bracket (pair)

Series REF-10 and REF-14

Technical details

Temperature range	-10°C ... +50°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, in each case free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below the lowest occurring ambient temperature.
Materials	Body: Al (anodized), plastic, seals: NBR
Protection	IP 65 according to EN 60529

Description

- Modular valve-terminal for pneumatic control systems
- Flexible and extendable
- Up to 24 stations can be incorporated into each terminal
- 2 valve sizes (10 mm and 14 mm width) can be mounted on the same terminal
- Outlet ports of the valve can be configured 3 ways. Upward, Lateral or Rear
- Din Rail mounting option
- Various Bus Systems and IO Link available
- Options:
    - internal or external pilot port
    - adapter plates for additional operating ports
    - pressure dividing plate in air channels 1, 3 and 5

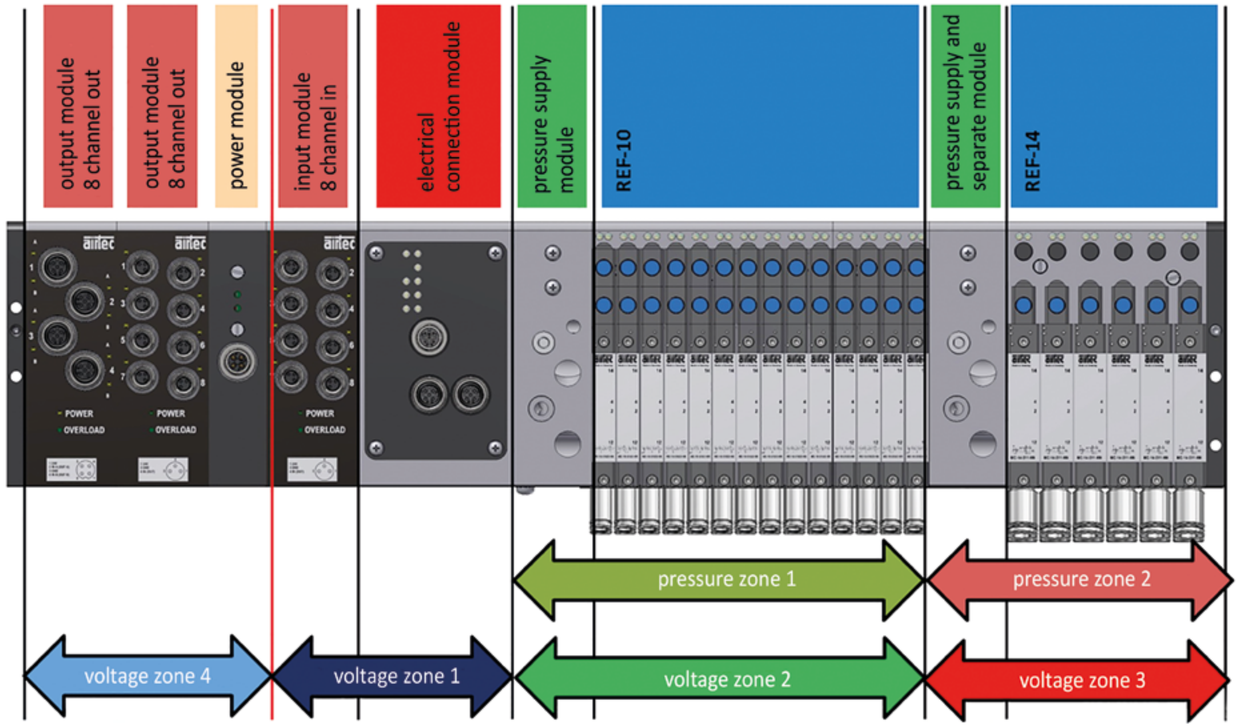
Technical data

Number of stations	3 to 24
Electrical connection	Multi-pin, IO-Link, CANopen, ProfiNet (IRT/RT), EtherCAT
Voltage	24 V DC ± 10%
Power consumption	max. 1,3 W solenoid, electronic according version
Flow rate	10 mm: 400 Nl/min, 14 mm: 600 Nl/min
Inlet/Exhaust Ports	1, 3 and 5 G1/4, E1 (external pilot port) M7
Operating ports	M7 (10 mm valves), G1/8 (14 mm valves)
Operating pressure	0 ... 8 bar (external pilot pressure), 3 ... 8 bar (internal pilot pressure)
Pilot pressure	3 ... 8 bar

For further information please see: www.airtec.de

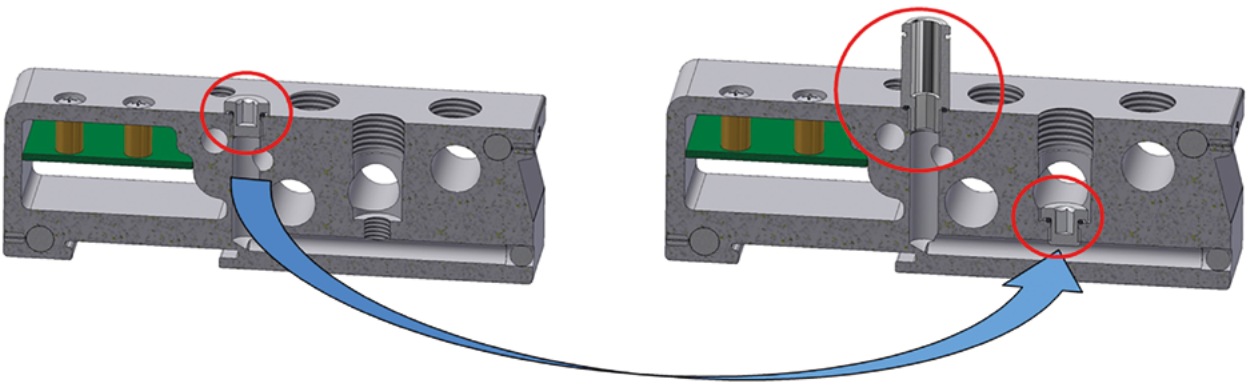
Series REF-10 and REF-14

Voltage- and pressure zones



Up to 4 seperate suitable voltage zones for emergency stops, voltage switch off´s operated by separation- or power-module.

Changing from internal to external pilot pressure

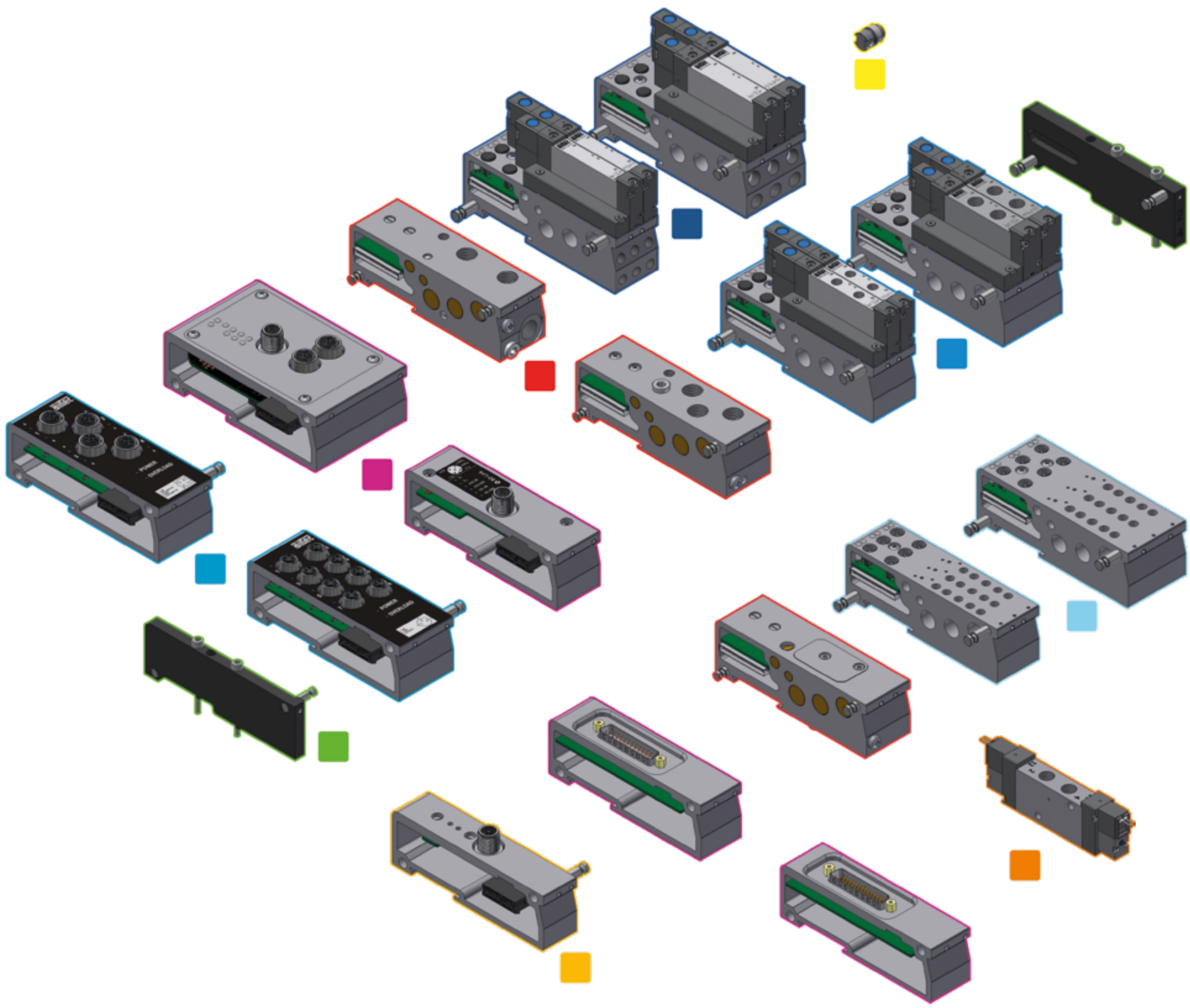


Internal pilot pressure:
- plug on pilot pressure port

External pilot pressure:
- plug displaced to port 1
- pilot port with M7 push in fitting

Series REF-10 and REF-14

Modular platform



Electrical modules

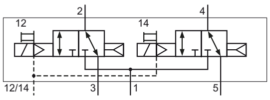
- Bus-module, IO-Link, Multi-pin
- Input- and Output-module
- Power module

Pneumatical modules

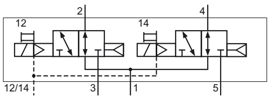
- Manifolds with lateral outlet ports, MC-valves
- Manifolds without outlet ports, MF-valves
- Manifolds with rear outlet ports, MC-valves
- Adapter to allow dual operating pressures
- End plates
- M-valve for direct wiring
- Pressure dividing plate

Series REF-10 and REF-14

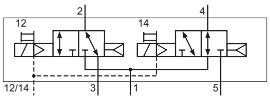
Valve functions



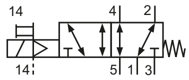
2 x 3/2-way, single solenoid, air spring return, NC



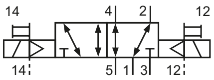
2 x 3/2-way, single solenoid, air spring return, NO



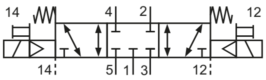
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO



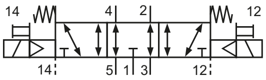
5/2-way, single solenoid, mechanical spring return



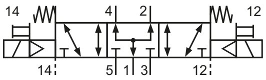
5/2-way, double solenoid



5/3-way, center position closed



5/3-way, center position exhausted

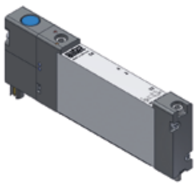


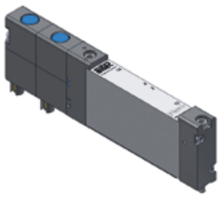
5/3-way, center position pressurized

7

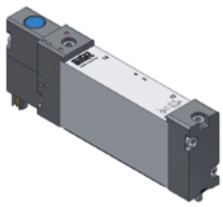
Valve series

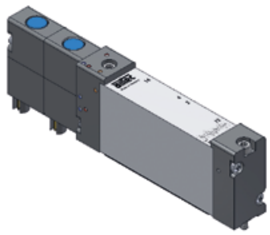
MC-10





MC-14





For further information please see:

Table of contents

8

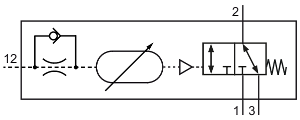
Series VZ

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass

This valve may be used either normally open or normally closed.
Normally closed: pressure inlet port 1 (P).
Normally open: pressure inlet port 3 (R).
A signal arriving at 12 (Z) switches the flow of the valve from 1 (P) to 2 (A) and closes port 3 (R) after the set time has expired. Instead of supplying main pressure to either port 1 or 3, the branched signal line can be connected to 1 or 3. The signal line to port 1 or 3 must not be longer than the signal line to port 12.

3/2-way valves



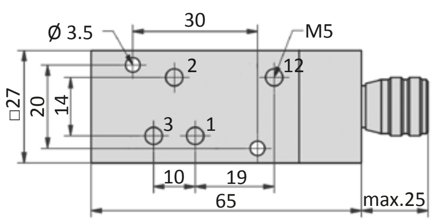
VZ
3/2-way, single pilot,
mechanical spring return,
adjustable time delay

Technical data

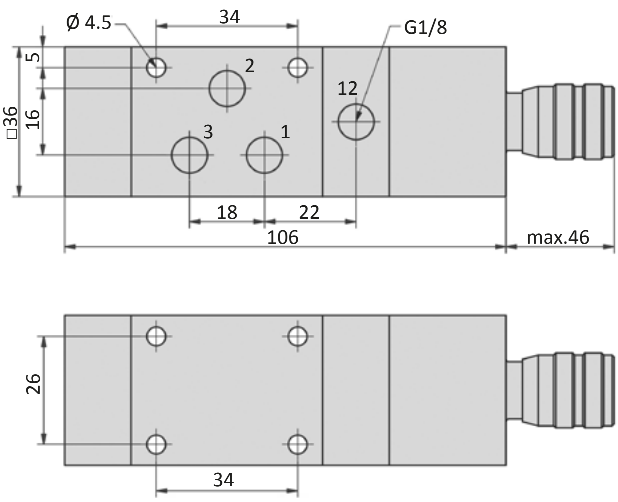
Model-no.:	VZ-25-310	VZ-18-310	VZ-18-310-20
Connection	M5	G1/8	G1/8
Nominal size (mm)	3.2	6	6
Operating pressure (bar)	3 ... 10	3 ... 10	3 ... 10
Pilot pressure (bar)	3 ... 10	3 ... 10	3 ... 10
Time range (s)	0.25 ... 5	0.5 ... 10	1 ... 20
Flow rate (Nl/min)	160	600	600
Weight (kg)	0.135	0.360	0.360

Dimensions

VZ-25-310



VZ-18-310, VZ-18-310-20



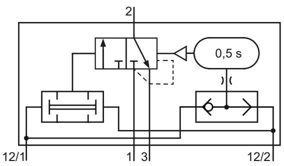
1 = pressure inlet
2 = outlet
3 = exhaust
12 = signal port

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass

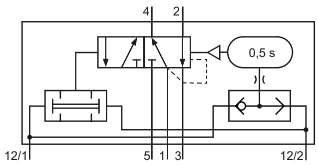
The valve operates after two input signals at 12 arriving within 0.5 s.
The valve is actuated as long as the signals continue.
If the input signals do not arrive within 0.5 s, the valve does not operate.
Both signals must be reset before the valve switches back on.

3/2-way valve



SZ-18-310
two-signal controls,
3/2-way

5/2-way valve



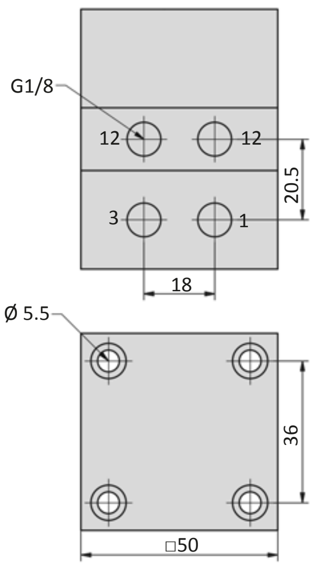
SZ-14-510
two-signal controls,
5/2-way

Technical data

Model-no.:	SZ-18-310	SZ-14-510
Connection	G1/8	G1/4
Nominal size (mm)	4	8
Operating pressure (bar)	4 ... 10	4 ... 10
Pilot pressure (bar)	4 ... 10	4 ... 10
Flow rate (Nl/min)	280	1300
Weight (kg)	0.360	0.825

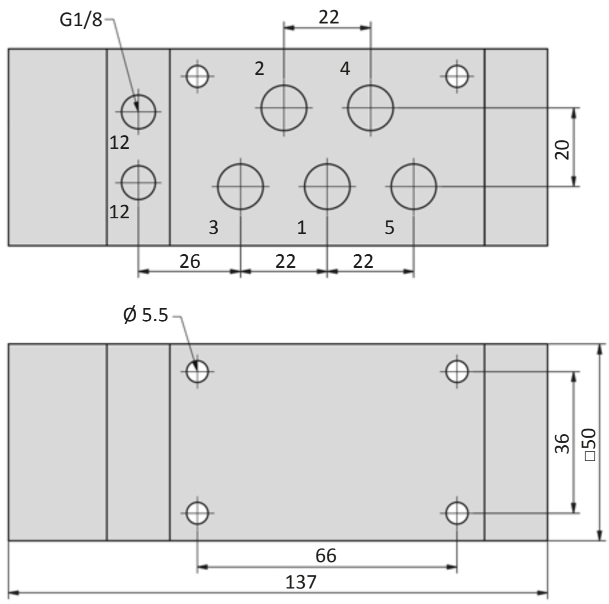
Dimensions

SZ-18-310



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12 = signal ports

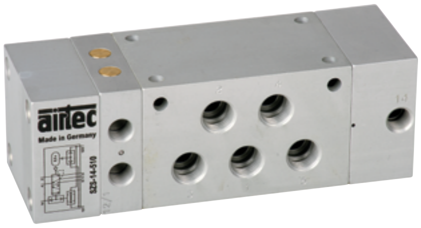
SZ-14-510



Series SZS

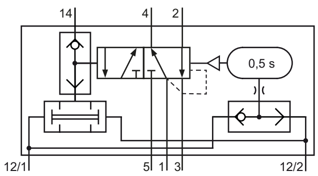
Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass



The valve operates after two input signals at 12 arriving within 0.5 s.
The valve is actuated as long as the signals continue.
If the input signals do not arrive within 0.5 s, the valve does not operate.
Both signals must be reset before the valve switches back on.
In addition, it has a self- locking device. A signal to 14 actuates
the two-signal-control as a standard 5/2-valve. When the signal at 14 ends, the valve resets.

5/2-way valve



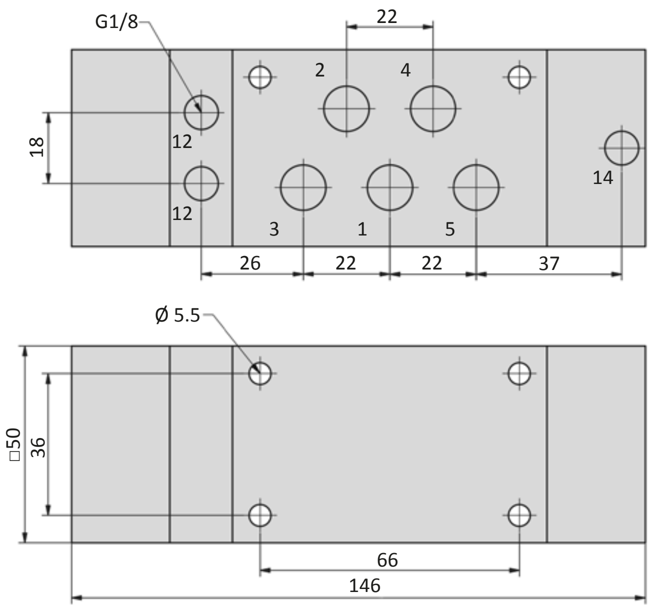
SZS-14-510
two-signal controls,
5/2-way

Technical data

Model-no.:	SZS-14-510
Connection	G1/4
Nominal size (mm)	8
Operating pressure (bar)	4 ... 10
Pilot pressure (bar)	4 ... 10
Flow rate (Nl/min)	1300
Weight (kg)	0.885

Dimensions

SZS-14-510



1 = pressure inlet
2,4 = outlets
3,5 = exhausts
12 = signal ports
14 = signal port

 Subject to change

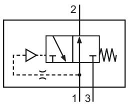
Series SU

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass

3/2-way one-shot valve. It converts a continuous pneumatic signal into a 0.3 s pulse.

3/2-way valve



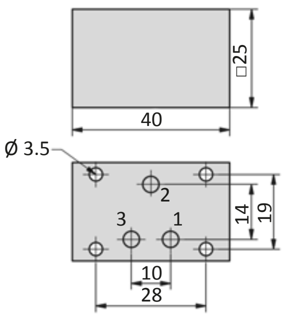
SU-25-310
signal interrupter,
3/2-way

Technical data

Model-no.:	SU-25-310
Connection	M5
Nominal size (mm)	3.2
Operating pressure (bar)	3 ... 10
Pilot pressure (bar)	3 ... 10
Duration of pulse (s)	0.3
Reset time (s)	0.1
Flow rate (Nl/min)	160
Weight (kg)	0.063

Dimensions

SU-25-310



1 = pressure inlet
2 = outlet
3 = exhaust

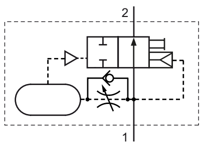
Series SUZ

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR and POM, inner parts: Al, stainless steel and brass

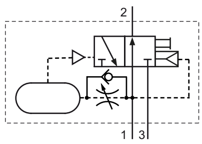
The valve is interrupting a permanent pneumatic signal and provides an impulse. The duration of the impulse is adjustable.
Not activated, the incoming air at port 1 has free flow to port 2. Depending on the adjusted time at the adjusting screw (see drawing below). the valve will change position, closing using the model SUZ-18-210-H, or air is vented from port 2 to port 3 using model SUZ-18-310-H.
The valve will maintain this position until there is A new air signal at port one. This will switch the valve back to the NO position and keeps it open based on the adjusted time setting.
Operating the manual override is switching the valve back to its NO position.

2/2-way valve



SUZ-18-210-H
signal interrupter,
2/2-way, adjustable time delay,
manual override non-detend

3/2-way valve



SUZ-18-310-H
signal interrupter,
3/2-way, adjustable time delay,
manual override non-detend

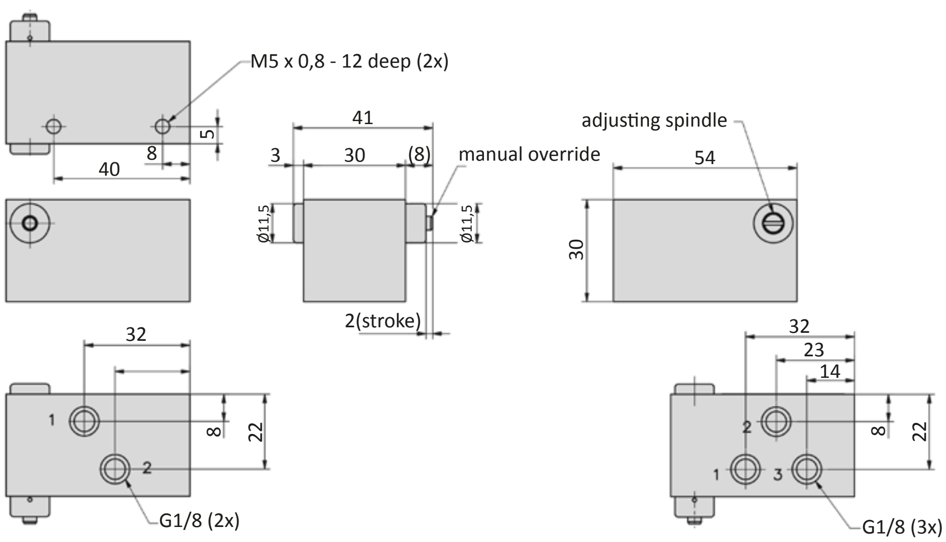
Technical data

Model-no.:	SUZ-18-210-H	SUZ-18-310-H
Connection	G1/8	G1/8
Nominal size (mm)	6	5,3
Operating pressure (bar)	3 ... 10	3 ... 10
Pilot pressure (bar)	3 ... 10	3 ... 10
Duration of pulse (s)	0,3 ... 5	0,3 ... 5
Reset time (s)	0,1	0,1
Flow rate (Nl/min)	500	480
Weight (kg)	0,135	0,135

Dimensions

SUZ-18-210-H

SUZ-18-310-H



1 = pressure inlet
2 = outlet
3 = exhaust

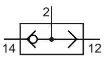
Series OR

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass

Output signal is present if one inlet is pressurized. The higher input signal (min. difference 0.2 bar) is dominant.

OR valves



OR-xx
OR valve

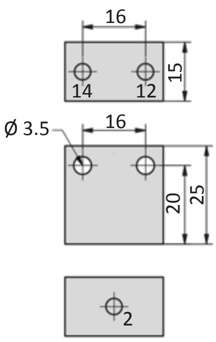
Technical data

Model-no.:	OR-25	OR-18	OR-14-01
Connection	M5	G1/8	G1/4
Nominal size (mm)	3.2	4	5.5
Operating pressure (bar)	-0.95 ... 10	-0.95 ... 10	-0.95 ... 10
Min. difference (bar)	0.2	0.2	0.2
Flow rate (Nl/min)	160	280	900
Weight (kg)	0.026	0.038	0.110

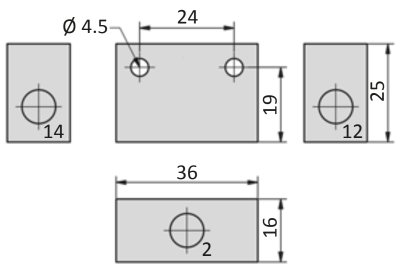
8

Dimensions

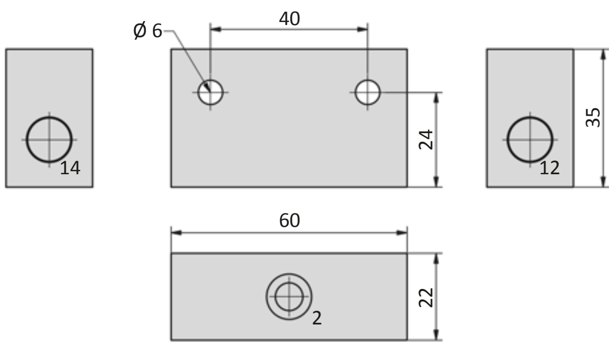
OR-25



OR-18



OR-14-01



12, 14 = signal input
2 = signal output

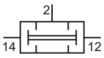
Series AN

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR, inner parts: stainless steel and brass

Output signal at port 2 is present if both inlets 12 and 14 are pressurized.
If both pressures are different (min. 0.2 bar), the lower pressure is switched to 2.

AND valves



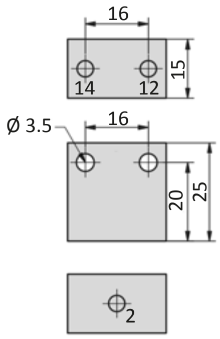
AN-xx
AND valve

Technical data

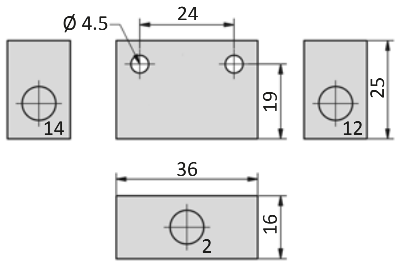
Model-no.:	AN-25	AN-18
Connection	M5	G1/8
Nominal size (mm)	3.2	4
Operating pressure (bar)	-0.95 ... 10	-0.95 ... 10
Min. difference (bar)	0.2	0.2
Flow rate (Nl/min)	160	280
Weight (kg)	0.026	0.038

Dimensions

AN-25



AN-18



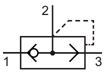
12, 14 = signal input
2 = signal output

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR
Ex	Valves in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

A quick exhaust valve is used to increase the speed of a pneumatic cylinder. The flow from the control valve to the cylinder ports is unrestricted. If valve port 1 is de-pressurized, air is exhausted from 2 to 3.

SE valves



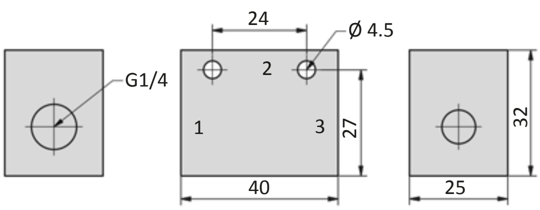
SE-xx
quick exhaust valve

Technical data

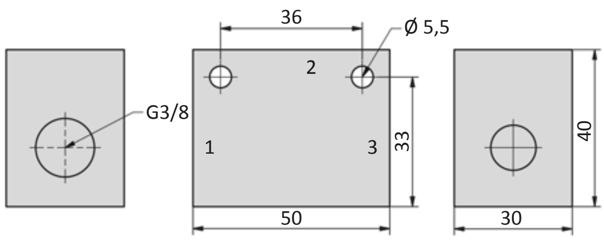
Model-no.:	SE-18	SE-14	SE-12
Connection	G1/8	G1/4	G1/2
Nominal size 1-2 (mm)	5	7	12
Nominal size 2-3 (mm)	8	10	16
Flow rate 1-2 (Nl/min)	600	1200	2800
Flow rate 2-3 (Nl/min)	1200	2400	5600
Operating pressure (bar)	0.5 ... 10	0.5 ... 10	0.5 ... 10
Weight (kg)	0.070	0.125	0.310

Dimensions

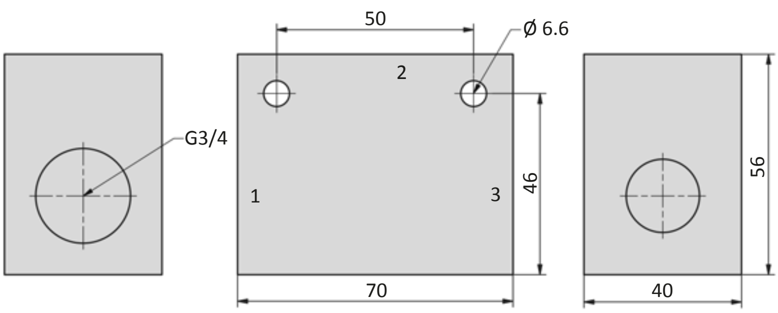
SE-18



SE-14



SE-12



1 = inlet from valve
2 = outlet to cylinder
3 = exhaust

8

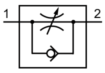
Series DR

Technical details

Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), seals: NBR

This valve is used for the speed control of a pneumatic cylinder. The flow rate can be regulated by turning the adjusting screw.

DR valves



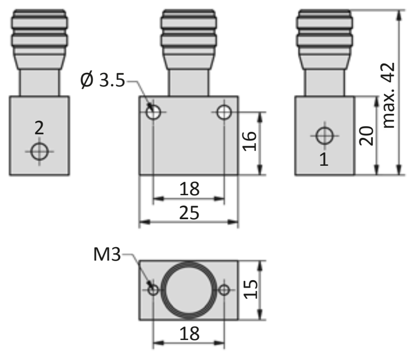
DR-xx
flow control valve

Technical data

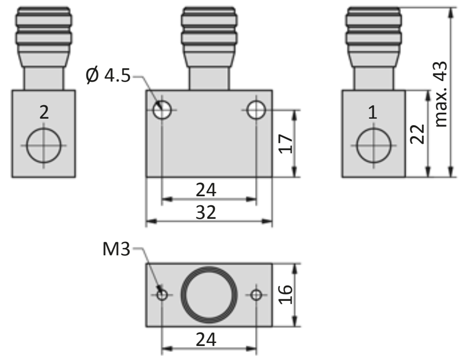
Model-no.:	DR-25	DR-18	DR-14	DR-10
Connection	M5	G1/8	G1/4	G1/2
Nominal size 1-2 (mm)	0.5 ... 1.5	0.5 ... 2	1 ... 5	1 ... 7
Nominal size 2-1 (mm)	2.5	4.5	7.5	11
Flow rate 1-2 (Nl/min)	5 ... 40	5 ... 90	50 ... 600	50 ... 600
Flow rate 2-1 (Nl/min)	120	480	1300	1400
Operating pressure (bar)	0.5 ... 10	0.5 ... 10	0.5 ... 10	2 ... 10
Weight (kg)	0.034	0.040	0.098	0.215

Dimensions

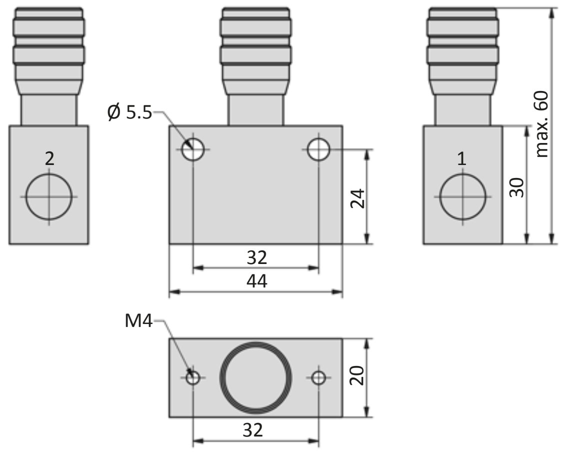
DR-25



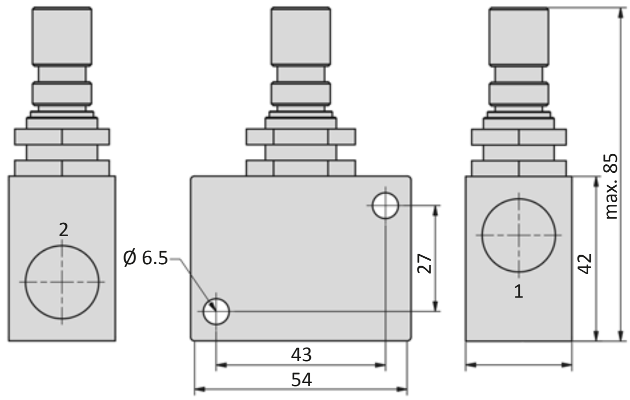
DR-18



DR-14



DR-10



1 = inlet
2 = outlet

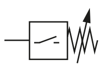
Series PE

Technical details

Temperature range	-10°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Zinc coated steel, seals: NBR (PE-14), FKM (PE-18)

Adjustable diaphragm pressure switch. The pressure switch is pre-adjusted at 4 bar and is adjustable within the pressure range. The protective cup (PE-18) and plug connector (PE-14) are included.

Pressure switch



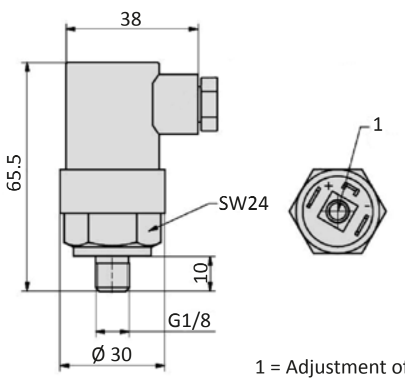
PE
pressure switch

Technical data

Model-no.:	PE-18-01-40		PE-14-01-40	
Connection	G1/8		G1/4	
Pressure range (bar)	1 ... 10		1 ... 5	
Default setting (bar)	4		4	
Overpressure safety (bar)	300		300	
Repeatability (bar at 20°C)	± 0.5		± 0.3	
Contact function	NO		Change-over contact	
Max. operating voltage	30 V DC	250 V AC	30 V DC	250 V AC
Max. current	1 A	0.5 A	3 A	1 A
Protection	IP 65 according to EN 60529		IP 65 according to EN 60529	
Weight (kg)	0.070		0.140	

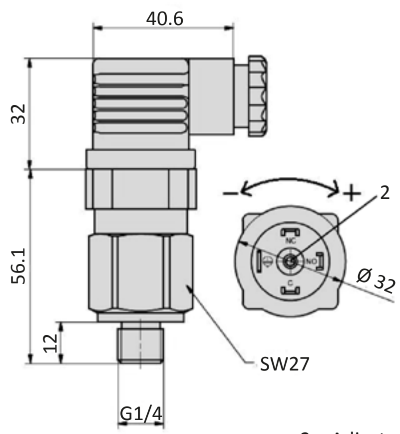
Dimensions

PE-18-01-40



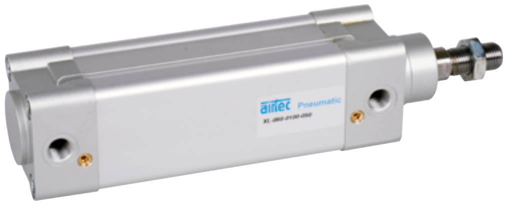
1 = Adjustment of pressure range
(with screwdriver)

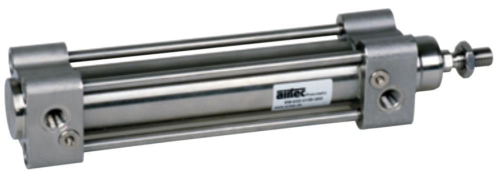
PE-14-01-40



2 = Adjustment of pressure range
(with hex key)

Table of contents





9

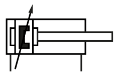
Table of contents

Technical details

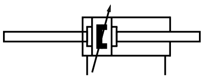
Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C (XL, XLD, XLL) (XLH: -10°C ... +150°C, XLC/ XLCD: -40°C ...+80°C)
Max. stroke	2800 mm
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: steel hard chrome plated (optional 1.4301) Seals: PU, NBR (optional FKM)
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Double acting Al-profile cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors.
The sensors can be installed directly into the sensor grooves of the Al-profile.
Standard stroke lengths in table below, additional lengths on request.

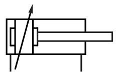
Versions



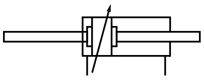
050, 054, 000, 004
double acting, adjustable cushioning, with magnetic piston



450, 454, 400, 404
double acting, double end piston rod, adjustable cushioning, with magnetic piston



152, 102
double acting, adjustable cushioning



552, 502
double acting, double end piston rod, adjustable cushioning

Order code

XL**-***-****-***-****

Series	
XL	standard
XLC	low temperature version
XLCD	low temperature version, with metal scraper
XLD	with metal scraper
XLH	high temperature version
XLL	low friction version

Piston Ø	
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm
125	125 mm

Not all combinations are possible and available.

* For longer stroke lengths please check the max buckling load.

Options	
ATEX	cylinders in accordance with 2014/34/EU (ATEX)
E8	piston rod seal E8, two-part, with plastic scraper

Versions	
050 450	standard version
000 400	piston rod stainless steel
054 454	piston rod seal FKM
004 404	piston rod stainless steel , piston rod seal FKM
152 552	high temperature version (without magnetic piston)
102 502	high temperature version, piston rod stainless steel (without magnetic piston)

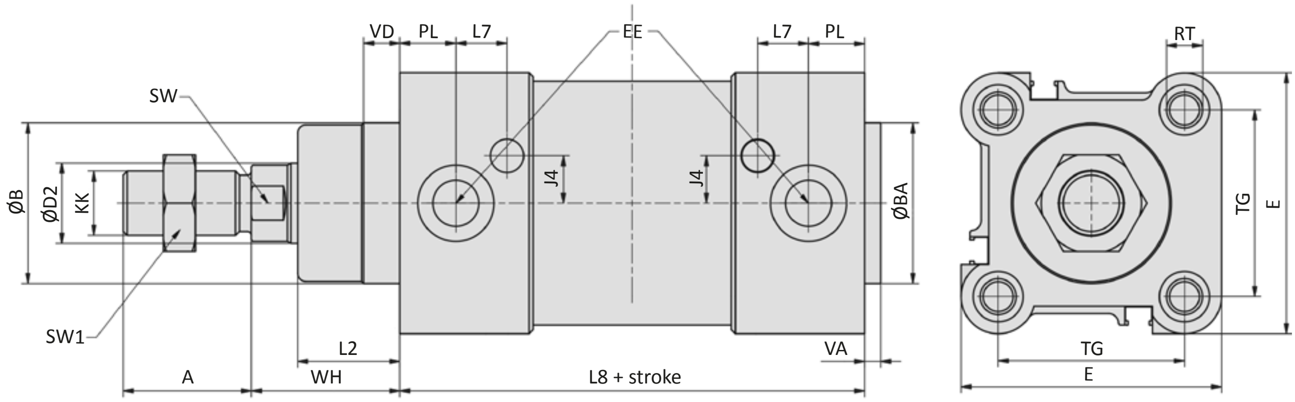
Stroke (mm)	
XXXX	max. 2800 mm*
Standard	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 mm

Series XL
ISO 15552, double acting

Technical data

Model-no.:		XL-032-...	XL-040-...	XL-050-...	XL-063-...	XL-080-...	XL-100-...	XL-125-...
Piston Ø (mm)		32	40	50	63	80	100	125
Force at 6 bar (N)	Extension	434	678	1060	1682	2713	4239	6623
	Retraction	373	570	890	1513	2448	3974	6189
Connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	G1/2
Piston rod thread		M10 x 1.25	M12 x 1.25	M16 x 1.5	M16 x 1.5	M20 x 1.5	M20 x 1.5	M27 x 2
Cushioning length (mm)		27	29	32	32	32	32	42

Dimensions series XL

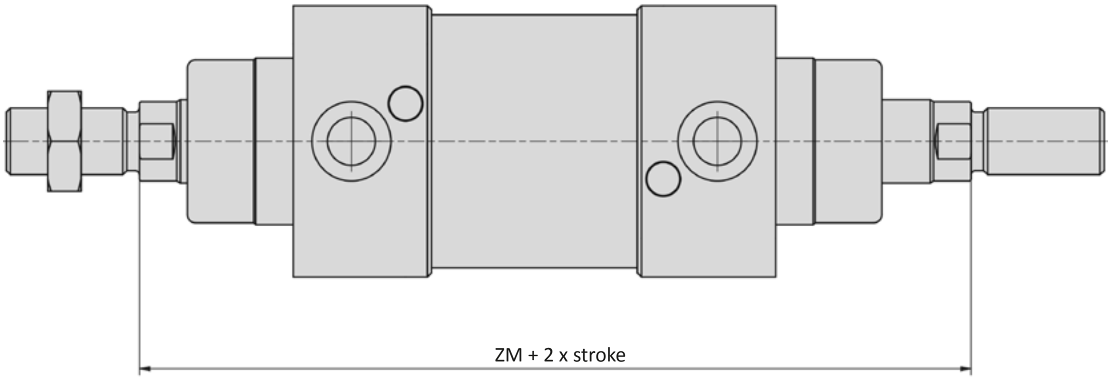


Piston Ø	A	Ø B	Ø BA	Ø D2	E	EE	J4	KK	L2
32	22	30	30	12	47	G1/8	6	M10 x 1.25	18
40	24	35	35	16	54	G1/4	9	M12 x 1.25	22
50	32	40	40	20	63	G1/4	8	M16 x 1.5	25.5
63	32	45	45	20	74	G3/8	9.5	M16 x 1.5	25
80	40	45	45	25	93.5	G3/8	14	M20 x 1.5	35
100	40	55	55	25	110	G1/2	15	M20 x 1.5	38
125	54	60	60	32	137.5	G1/2	15	M27 x 2	46

Piston Ø	L7	L8	PL	RT	SW	SW1	TG	VA	VD	WH
32	11.5	94	12.5	M6	10	17	32.5	4	9.5	26
40	13	105	14	M6	13	19	38	4	9.5	30
50	12.75	106	14	M8	17	24	46.5	4	9.5	37
63	14.5	121	16.5	M8	17	24	56.5	4	9.5	37
80	13.75	128	17	M10	22	30	72	4	10	46
100	15.5	138	18	M10	22	30	89	4	10	51
125	20	160	18	M12	27	41	110	6	11	65

Piston Ø (mm)		32	40	50	63	80	100	125
Weight (kg)	0 mm stroke	0.617	0.925	1.421	1.950	3.250	4.396	6.391
	each 100 mm stroke	0.286	0.403	0.528	0.597	0.861	0.946	1.517

Dimensions series XL (addition at double end piston rod)



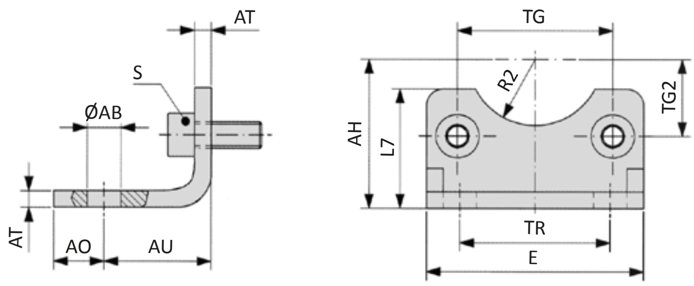
Piston Ø (mm)	32	40	50	63	80	100	125
ZM	146	165	180	195	220	240	290

Piston Ø (mm)		32	40	50	63	80	100	125
Weight (kg)	0 mm stroke	0.702	1.065	1.713	2.208	3.780	5.057	9.387
	each 100 mm stroke	0.374	0.559	0.768	0.837	1.243	1.328	2.143

9

Series XL
Mounting accessories

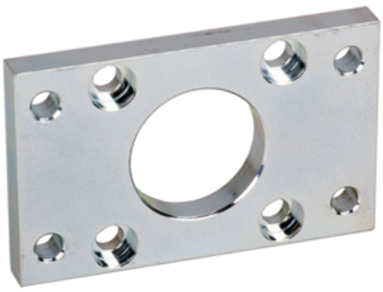
XLB-xxx-01 Foot mount

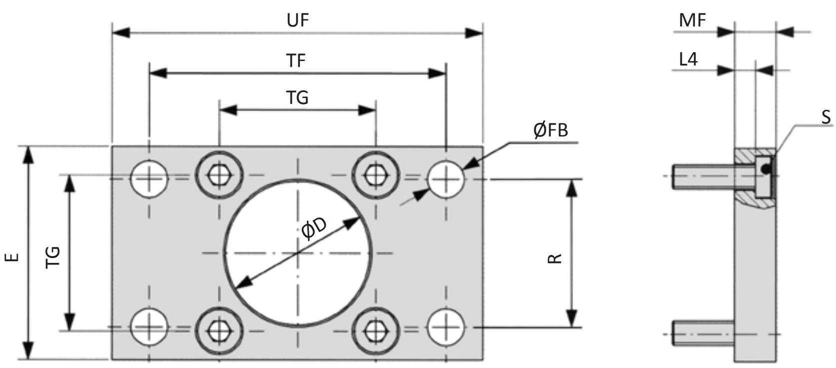


Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
XLB-032-01	7	32	11	24	4	45	30	15	M6 x 16	32.5	16.25	32
XLB-040-01	10	36	8	28	4	52	30	17.5	M6 x 16	38	19	36
XLB-050-01	10	45	15	32	5	65	36	20	M8 x 20	46.5	23.25	45
XLB-063-01	10	50	13	32	5	75	35	22.5	M8 x 20	56.5	28.25	50
XLB-080-01	12	63	14	41	6	95	47	22.5	M10 x 20	72	36	63
XLB-100-01	14.5	71	16	41	6	115	53	27.5	M10 x 20	89	44.5	75
XLB-125-01	16.5	90	25	45	8	140	70	30	M12 x 25	110*	55	90
tolerances and adjustments	H14	JS16		± 0.2				H15		± 0.2 *± 0.3		JS14

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

XLB-xxx-02 Flange mount





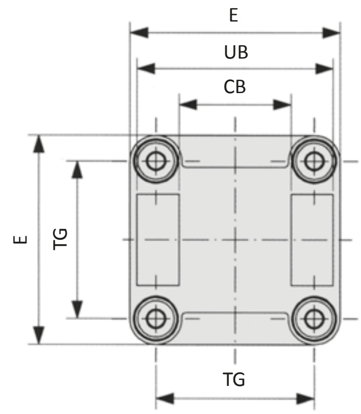
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
XLB-032-02	30	45	7	5	10	32	M6 x 20	64	32.5	80
XLB-040-02	35	52	9	5	10	36	M6 x 20	72	38	90
XLB-050-02	40	65	9	6.5	12	45	M8 x 20	90	46.5	110
XLB-063-02	45	75	9	6.5	12	50	M8 x 20	100	56.5	120
XLB-080-02	45	95	12	9	16	63	M10 x 25	126	72	150
XLB-100-02	55	115	14	9	16	75	M10 x 25	150	89	170
XLB-125-02	60	140	16	10.5	20	90	M12 x 25	180	110*	205
tolerances and adjustments	H11		H13	- 0.5	JS14	JS14		JS14	± 0.2 *± 0.3	

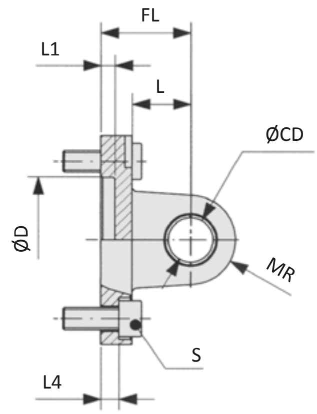
Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

Series XL
Mounting accessories

XLB-xxx-04 Clevis mount with bushing

Inclusive clevis pin
order no:**XLB-xxx-48**

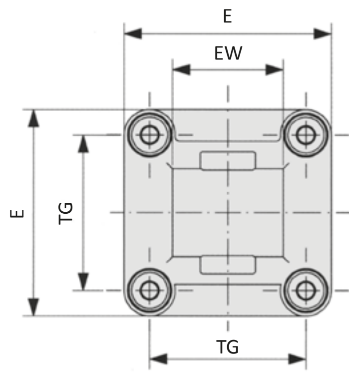


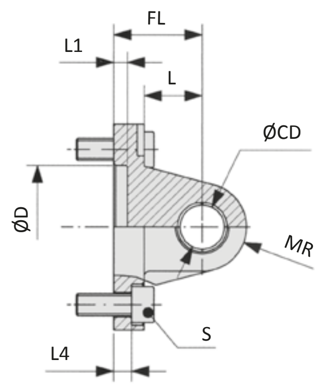


Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
XLB-032-04	26	10	30	45	22	13	5	5.5	10	M6 x 20	32.5	45
XLB-040-04	28	12	35	52	25	16	5	5.5	12	M6 x 20	38	52
XLB-050-04	32	12	40	65	27	16	5	6.5	12	M8 x 20	46.5	60
XLB-063-04	40	16	45	75	32	21	5	6.5	16	M8 x 20	56.5	70
XLB-080-04	50	16	45	95	36	22	5	10	16	M10 x 25	72	90
XLB-100-04	60	20	55	115	41	27	5	10	20	M10 x 25	89	110
XLB-125-04	70	25	60	140	50	30	7	10	25	M12 x 25	110*	130
tolerances and adjustments	H14	H9	H11		± 0.2			± 0.5			± 0.2 *± 0.3	h13

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

XLB-xxx-05 Swivel mount



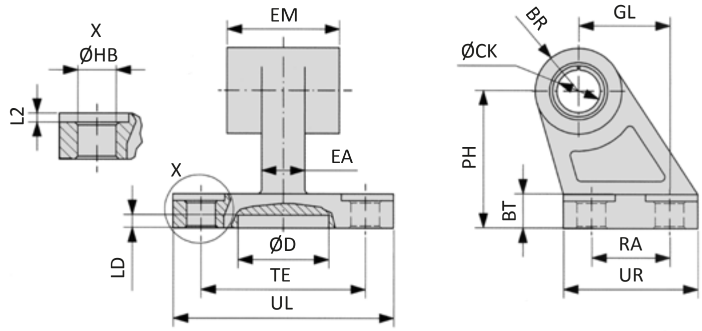


Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
XLB-032-05	10	30	45	26	22	13	5	5.5	10	M6 x 20	32.5
XLB-040-05	12	35	52	28	25	16	5	5.5	12	M6 x 20	38
XLB-050-05	12	40	65	32	27	16	5	6.5	12	M8 x 20	46.5
XLB-063-05	16	45	75	40	32	21	5	6.5	16	M8 x 20	56.5
XLB-080-05	16	45	95	50	36	22	5	10	16	M10 x 25	72
XLB-100-05	20	55	115	60	41	27	5	10	20	M10 x 25	89
XLB-125-05	25	60	140	70	50	30	7	10	25	M12 x 25	110*
tolerances and adjustments	H9	H11			± 0.2			± 0.5			± 0.2 *± 0.3

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

Series XL
Mounting accessories

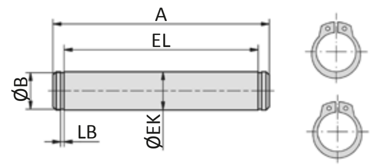
XLB-xxx-06 Swivel mount 90°



Model-no.:	BR	BT	ØCK	Ø D	EA	EM	GL	ØHB	L2	LD	PH	RA	TE	UL	UR
XLB-032-06	10	8	10	21	10	26	21	6.6	1.6	3	32	18	38	51	31
XLB-040-06	11	10	12	21	15	28	24	6.6	1.6	3	36	22	41	54	35
XLB-050-06	13	12	12	21	16	32	33	9	1.6	3	45	30	50	65	45
XLB-063-06	15	14	16	21	16	40	37	9	1.6	3	50	35	52	67	50
XLB-080-06	15	14	16	21	20	50	47	11	2.5	3	63	40	66	86	60
XLB-100-06	19	17	20	11	20	60	55	11	2.5	3	71	50	76	96	70
XLB-125-06	22.5	20	25	21	30	70	70	14	3.2	3	90	60	94	124	90
tolerances and adjustments			H9				JS14	H13			JS15	JS14	JS14		

Materials: Al, bushing steel and PTFE

XLB-xxx-08 Clevis pin

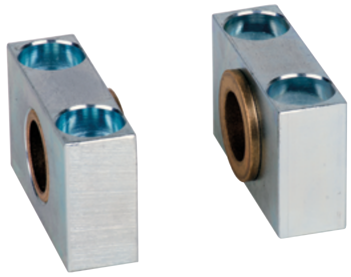


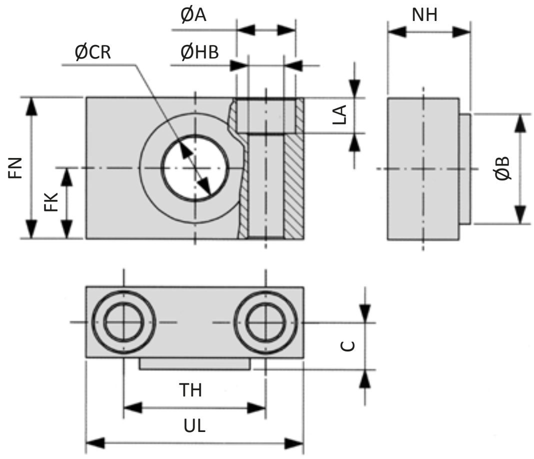
Model-no.:	A	Ø B	Ø EK	EL	LB
XLB-032-08	53	9.6	10	46	1.1
XLB-040-08	60	11.5	12	53	1.1
XLB-050-08	68	11.5	12	61	1.1
XLB-063-08	78	15.2	16	71	1.1
XLB-080-08	98	15.2	16	91	1.1
XLB-100-08	118	19	20	111	1.3
XLB-125-08	139	23.9	25	132*	1.3
tolerances and adjustments			e8	+ 2 *+ 3	

Material: steel, zinc plated; 2 snap rings are included.

Series XL
Mounting accessories

XLB-xxx-09 Bearing block

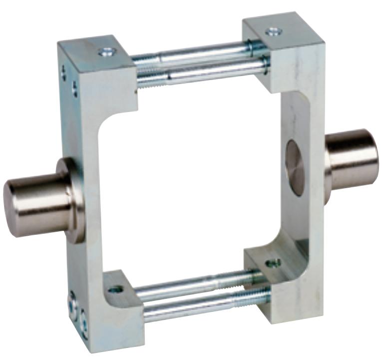


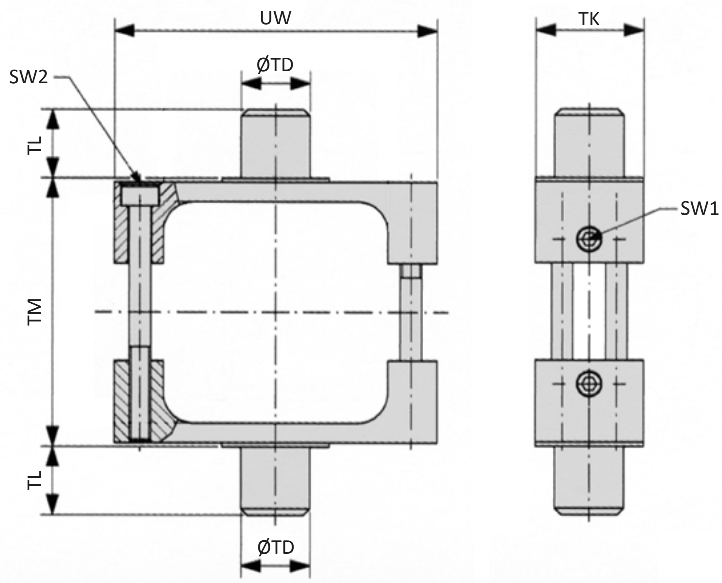


Model-no.:	Ø A	Ø B	C	Ø CR	FK	FN	Ø HB	LA	NH	TH	UL
XLB-032-09	11	22	10.5	12	15	30	6.6	7	18	32	46
XLB-040-09	15	28	12	16	18	36	9	9	21	36	55
XLB-063-09	18	32	13	20	20	40	11	11	23	42	65
XLB-100-09	20	39	16	25	25	50	14	13	28.5	50	75
tolerances and adjustments				H9	± 0.1		H13			± 0.2	

Materials: Al, bronze bushing

XLB-xxx-10 Trunnion mount



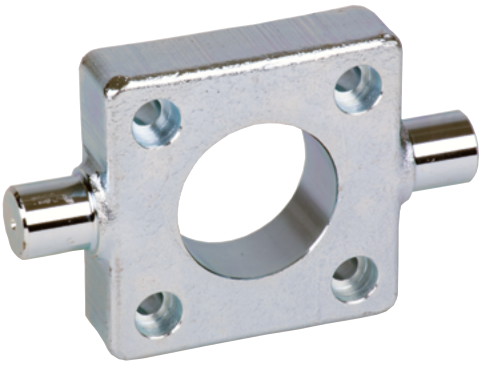


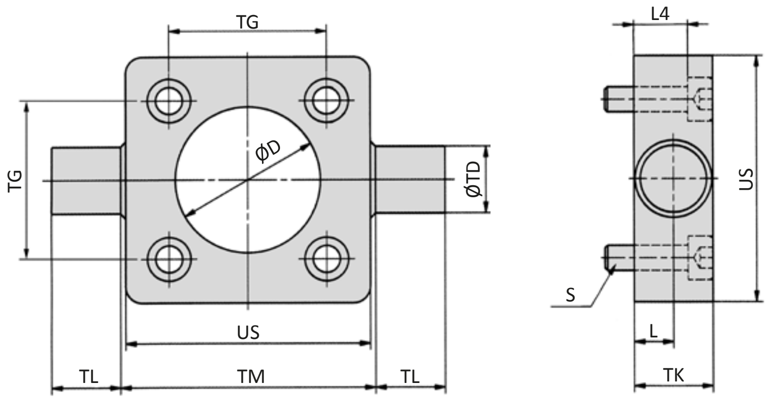
Model-no.:	SW1	SW2	Ø TD	TK	TL	TM	UW
XLB-032-10	3	2.5	12	25	12	50	65
XLB-040-10	3	3	16	25	16	63	75
XLB-050-10	3	4	16	30	16	75	95
XLB-063-10	3	4	20	30	20	90	105
XLB-080-10	3	4	20	30	20	110	130
XLB-100-10	4	5	25	40	25	132	145
XLB-125-10	4	6	25	40	25	160	175
tolerances and adjustments			e9		h14	h14	

Material: steel, zinc plated

Series XL
Mounting accessories

XLB-xxx-11 Trunnion mount

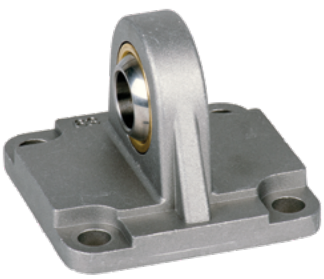


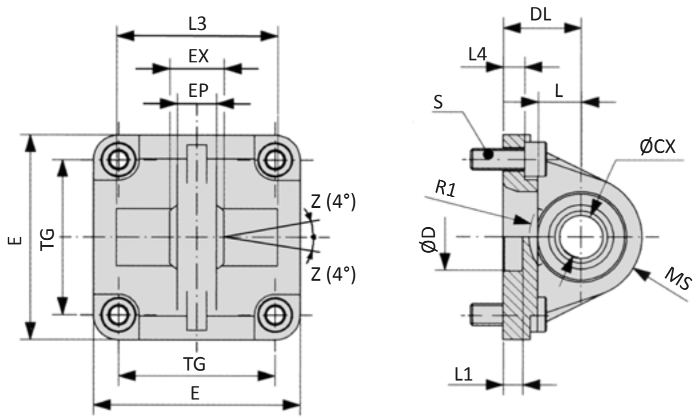


Model-no.:	Ø D	L	L4	S	Ø TD	TG	TK	TL	TM	US
XLB-032-11	30	6.5	8	M6 x 20	12	32.5	14	12	50	46
XLB-040-11	35	9	13	M6 x 25	16	38	19	16	63	59
XLB-050-11	40	9	11	M8 x 25	16	46.5	19	16	75	69
XLB-063-11	45	11.5	16	M8 x 30	20	56.5	24	20	90	84
XLB-080-11	45	11.5	14	M10 x 30	20	72	24	20	110	102
XLB-100-11	55	14	19	M10 x 35	25	89	29	25	132	125
XLB-125-11	60	15	18	M12 x 35	25	110*	30	25	160	150
tolerances and adjustments	H 11	+ 0.2			e9	± 0,2 *± 0,3		h14	h14	

Material: steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

XLB-xxx-12 Swivel mount with spherical bearing

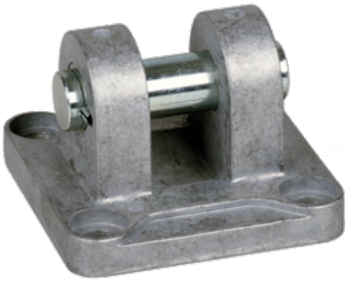


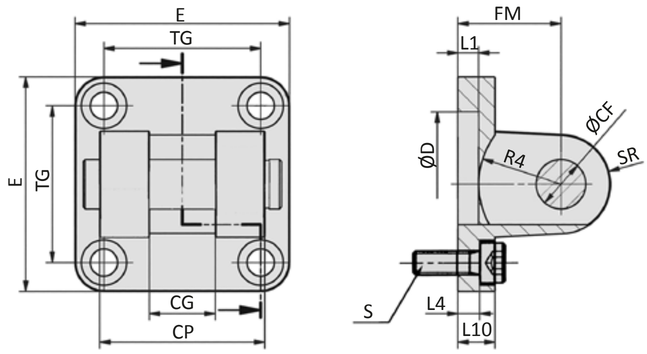


Model-no.:	Ø CX	Ø D	DL	E	EP	EX	L	L1	L3	L4	MS	R1	S	TG
XLB-032-12	10	30	22	45	10.5	14	12	7	-	5.5	16	-	M6 x 20	32.5
XLB-040-12	12	35	25	52	12	16	15	7	-	5.5	18	-	M6 x 20	38
XLB-050-12	16	40	27	65	15	21	15	7	51	6.5	21	19	M8 x 20	46.5
XLB-063-12	16	45	32	75	15	21	20	7	-	6.5	23	-	M8 x 20	56.5
XLB-080-12	20	45	36	95	18	25	20	9	74	10	28	24	M10 x 25	72
XLB-100-12	20	55	41	115	18	25	25	9	-	10	30	-	M10 x 25	89
XLB-125-12	30	60	50	140	25	37	30	9	-	10	40	-	M12 x 25	110*
tolerances and adjustments	H7	H11	± 0.2			± 0.1				± 0.5				± 0.2 *± 0.3

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

XLB-xxx-14 Clevis mount small with pin



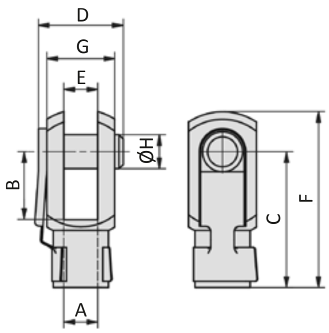


Model-no.:	Ø CF	CG	CP	Ø D	E	FM	L1	L4	L10	R4	S	SR	TG
XLB-032-14	10	14	34	30	45	22	5	5.5	9	17	M6 x 20	10	32.5
XLB-040-14	12	16	40	35	52	25	5	5.5	9	20	M6 x 20	12	38
XLB-050-14	16	21	45	40	65	27	5	6.5	11	22	M8 x 20	14	46.5
XLB-063-14	16	21	51	45	75	32	5	6.5	11	25	M8 x 20	18	56.5
XLB-080-14	20	25	65	45	95	36	5	10	14	30	M10 x 25	20	72
XLB-100-14	20	25	75	55	115	41	5	10	14	32	M10 x 25	22	89
XLB-125-14	30	37	97	60	140	50	7	10	20	42	M12 x 25	25	110*
tolerances and adjustments	F7	D10	d12	H11		± 0.2		± 0.5					± 0.2 *± 0.3

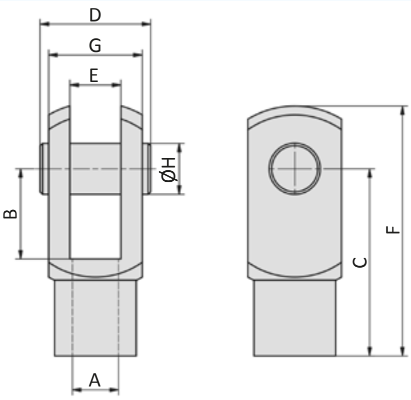
Materials: Al, bushing steel and PTFE, clevis pin steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

RD-xx, FD-xxx Rod clevis

Spring loaded pin (RD-25, FD-40...80)



Clevis pin with snap rings (FD-125)

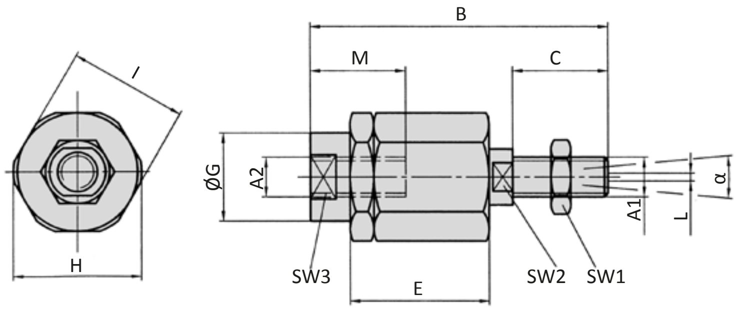


Model-no.:	for cylinder	A	B	C	D	E	F	G	Ø H
RD-25	XL-032	M10 x 1.25	20	40	26	10	52	20	10
FD-40	XL-040	M12 x 1.25	24	48	32	12	62	24	12
FD-63	XL-050, XL-063	M16 x 1.5	32	64	40	16	83	32	16
FD-80	XL-080, XL-100	M20 x 1.5	40	80	50	20	105	40	20
FD-125	XL-125	M27 x 2	54	110	65	30	148	55	30

Material: steel, zinc plated

Series XL
Mounting accessories

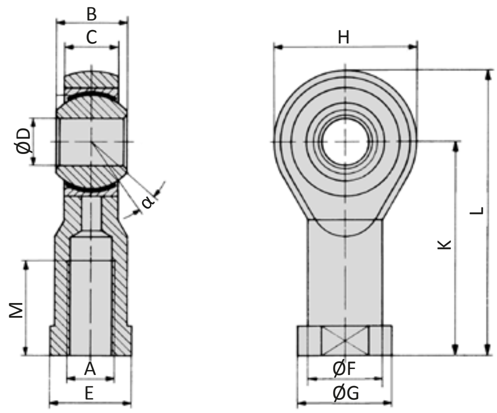
FK-xxx Flexible coupling



Model-no.:	for cylinder	A1, A2	B	C	D	E	Ø G	H	I	L	M	SW1	SW2	SW3	α
FK-32	XL-032	M10 x 1.25	71.5	20	7.5	35	22	32	30	2	22	17	12	19	8°
FK-40	XL-040	M12 x 1.25	71.5	20	7.5	35	22	32	30	2	22	19	12	19	8°
FK-63	XL-050, XL-063	M16 x 1.5	104	32	10	53	32	45	41	2	30	24	20	27	6°
FK-80	XL-080, XL-100	M20 x 1.5	119	40	10	53	32	45	41	2	37	30	20	27	6°
FK-125	XL-125	M27 x 2	147	54	10	60	57	70	65	2	48	41	24	54	8°

Material: steel, zinc plated

RO-xx, FO-xxx Rod eye



Model-no.:	for cylinder	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
RO-25	XL-032	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
FO-40	XL-040	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°
FO-63	XL-050, XL-063	M16 x 1.5	21	15	16	22	22	27	42	64	85	28	15°
FO-80	XL-080, XL-100	M20 x 1.5	25	18	20	30	27.5	34	50	77	102	33	14°
FO-125	XL-125	M27 x 2	37	25	30	41	40	50	70	110	145	51	17°

Materials: steel, zinc plated, bearing steel, bronze bushing

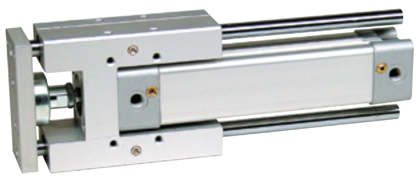
Proximity sensors

Page 9-90

Series LE
Linear guides

Technical details

Operating pressure	1 ... 10 bar	
Temperature range	-30°C ... +100°C	
Max. stroke	1000 mm	
Materials	Body:	Al (anodized)
	Guide rod:	steel hard chrome plated (bronze bearing) steel, getempert (ball bearings)
	Bearing:	sintered bronze (bronze bearing) steel (ball bearings)
	Seals:	NBR



Linear guide for piston rod cylinders in accordance with ISO 15552.

Order code

LE-***-****-**

Series	
LE	

Cylinder-Ø	
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Versions	
HK	type H ball bearings
HG	type H bronze bearings
CG*	type C bronze bearings

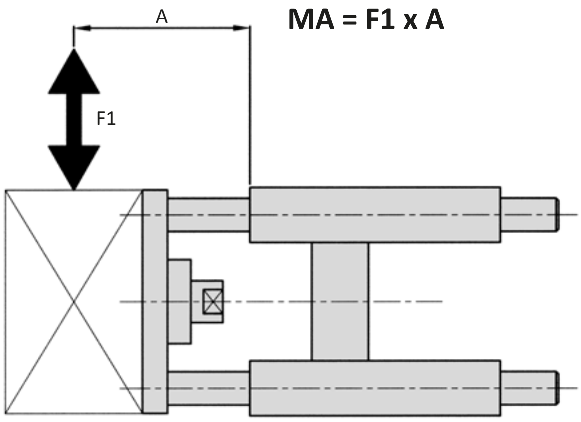
Stroke (mm)	
XXXX	max. 1000 mm

* only up to Ø 63 mm

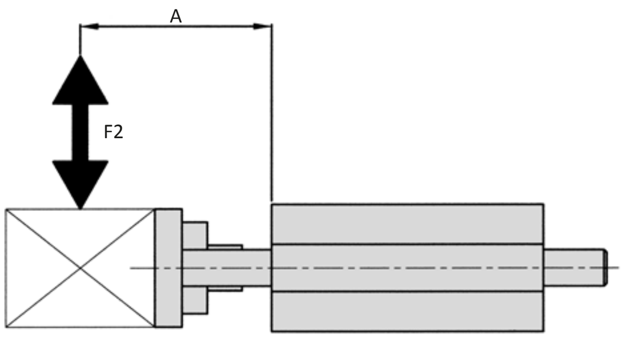
Technical information

Version	Piston Ø (mm)	32	40	50	63	80	100
CG	max. load MA (Nm)	13	21	21	26	-	-
	max. load MB (Nm)	12	19	19	23	-	-
HG	max. load MA (Nm)	20	35	50	60	72	80
	max. load MB (Nm)	18	32	45	54	65	72
HK	max. load MA (Nm)	16	29	42	48	60	60
	max. load MB (Nm)	14	16	38	43	54	54

MA = F1 x A

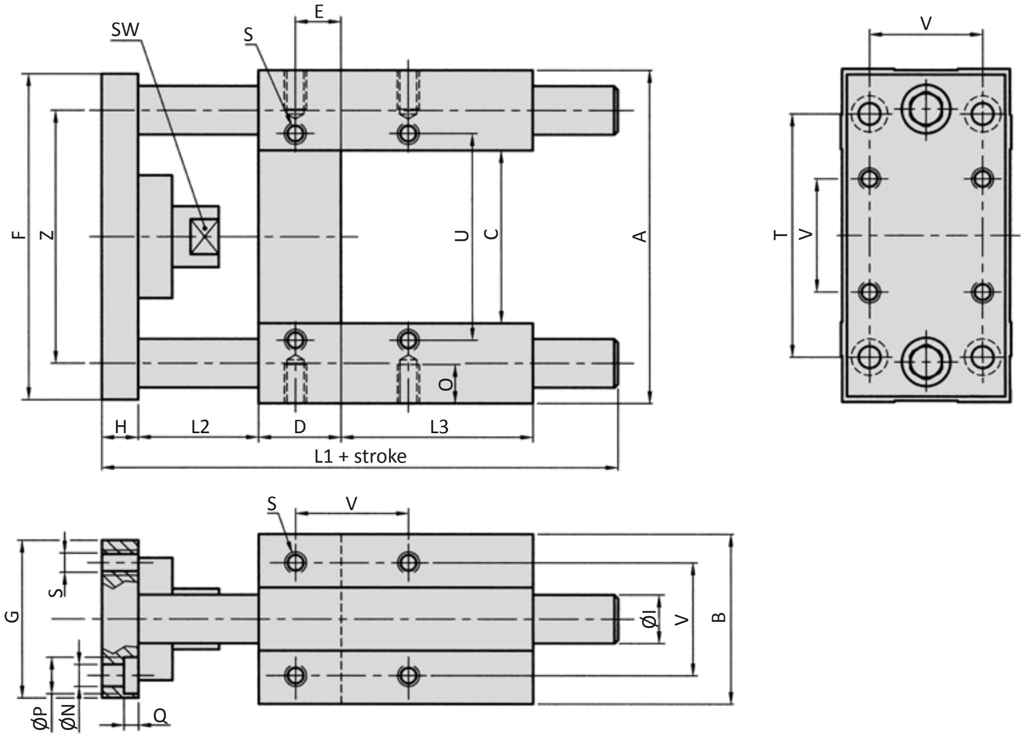


MB = F2 x A



Series LE
Linear guides

Dimensions type CG

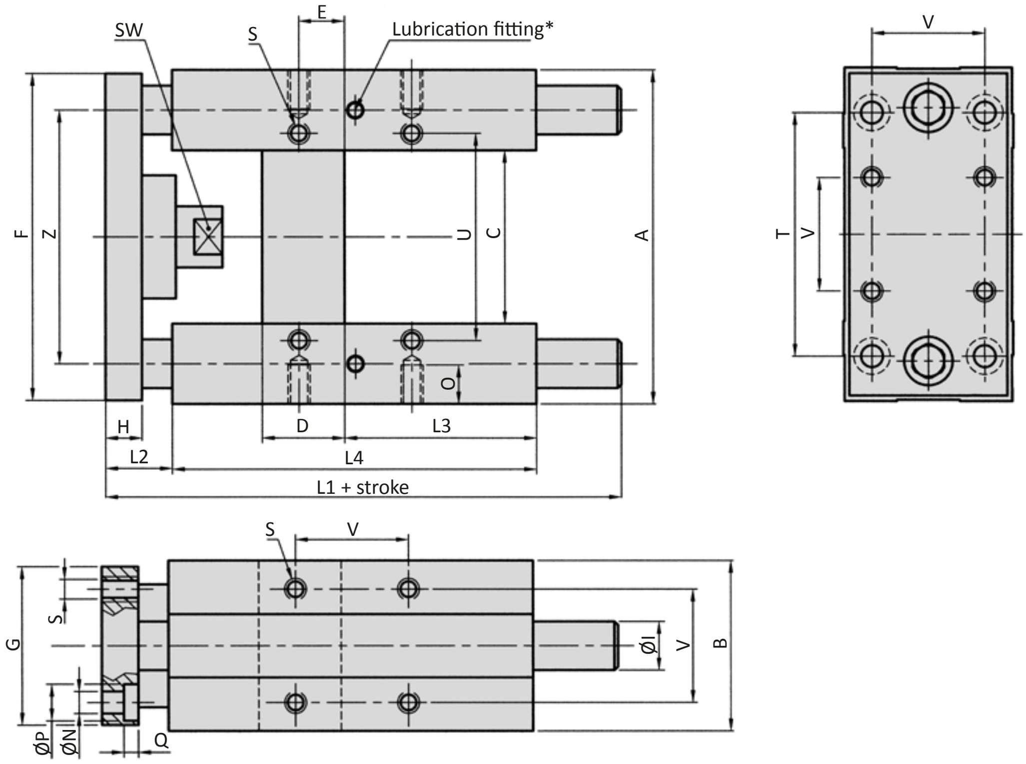


Piston Ø	A	B	C	D	E	F	G	H	Ø I	L1	L2
32	97	49	51	17	9.25	93	45	12	12	120	42
40	115	58	58.2	21	11	112	55	12	16	130	43
50	137	70	70.2	25	18.8	134	65	15	20	143	49
63	152	85	85.2	25	15.3	147	80	15	20	161	49

Piston Ø	L3	Ø N	O	Ø P	Q	S	SW	T	U	V	Z
32	31	6.6	12	11	6.5	M6	15	78	61	32.5	74
40	37	6.6	12	11	6.5	M6	15	84	69	38	87
50	34	9	16	15	8.5	M8	20	100	85	46.5	104
63	51	9	16	15	9	M8	20	105	100	56.5	119

Piston Ø (mm)		32	40	50	63
Weight (kg)	**0 mm stroke**	0.80	1.30	2.30	3.00
	each 100 mm stroke	0.18	0.32	0.50	0.50

Dimensions types HG, HK



*only type HK

Piston Ø	A	B	C	D	E	F	G	H	Ø I	L1	L2
32	97	49	51	24	4.3	93	45	12	12	187	20
40	115	58	58.2	28	11	112	55	12	16	207	20
50	137	70	70.2	34	18.8	134	65	15	20	223	19
63	152	85	85.2	34	15.3	147	80	15	20	243**	19
80	189	105	105.5	50	25	180	100	20	25	267	33
100	213	130	130.5	55	30	206	120	20	25	290	33

** 225 mm only version HK

Piston Ø	L3	L4	Ø N	O	Ø P	Q	S	SW	T	U	V	Z
32	75	125	6.6	12	11	6.5	M6	15	78	61	32.5	74
40	80	140	6.6	12	11	6.5	M6	15	84	69	38	87
50	78	148	9	16	15	8.5	M8	20	100	85	46.5	104
63	106	178	9	16	15	9	M8	20	105	100	56.5	119
80	111	195	11	20	18	11	M10	26	130	130	72	148
100	128	218	11	20	18	11	M10	26	150	150	89	173

Piston Ø (mm)		32	40	50	63	80	100
Weight HG (kg)	0 mm stroke	1.29	2.40	3.50	4.60	8.40	11.80
	each 100 mm stroke	0.18	0.32	0.50	0.50	0.77	0.77
Weight HK (kg)	0 mm stroke	1.20	2.30	3.40	4.40	8.20	11.60
	each 100 mm stroke	0.18	0.32	0.50	0.50	0.77	0.77

Series XLVK
ISO 15552

Technical details

Series cylinder	XL
Series valve	KM-09 (up to Ø 63 mm), KM-10 (up from Ø 80 mm)
Operating pressure	3 ... 10 bar
Temperature range	-10°C ... +70°C
Max. stroke	2800 mm
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Protection	IP 65 according to EN 60529

Double acting Al-profile cylinder with integrated sensor grooves, adjustable cushions and magnetic piston for proximity sensors. The sensors can be installed directly into the sensor grooves of the Al-profile. The cylinder includes a 5/2- or 5/3-way valve with a high flow rate and compact dimensions.
Standard stroke lengths in table below, additional lengths on request.

Order code

XLVK-*-**-***-******

Series

Piston Ø

032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm
125	125 mm

* For longer stroke lengths please check the max buckling load.

Stroke (mm)

XXXX max. 2800 mm*

Electrical options

see table below

Type

see page 9-17

Electrical options

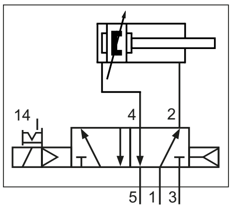
Nominal voltage	Power consumption	Specifics	Plug connection[*1]	-XXX Manual override on same side of ports 2 and 4	1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-441	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-431
24 V DC	4.2 W		Form B industrial norm	-442	-412
24 V DC	4.8 W		M 12	-O42	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O62	-O32
24 V AC	7/4 VA		Form B industrial norm	-452	-422
115 V AC	7/4 VA		Form B industrial norm	-456	-426
230 V AC	7/4 VA		Form B industrial norm	-457	-427

*1 *Plug socket not included, suitable plug sockets see page 4-38.*

Series XLVK
ISO 15552

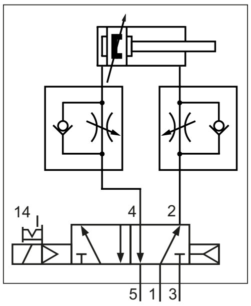
Types

single solenoid valve, normally retracted



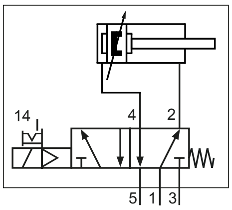
01
valve with air spring return, cylinder piston rod steel hard chrome plated

03
valve with air spring return, cylinder piston rod stainless steel



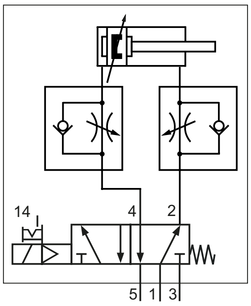
05
valve with air spring return, cylinder piston rod steel hard chrome plated, with mounted flow controls

07
valve with air spring return, cylinder piston rod stainless steel,
with mounted flow controls



02
valve with mechanical spring return, cylinder piston rod steel hard chrome plated

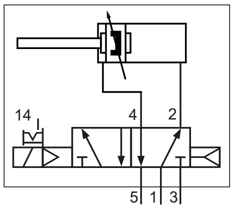
04
valve with mechanical spring return, cylinder piston rod stainless steel



06
valve with mechanical spring return, cylinder piston rod steel hard chrome plated,
with mounted flow controls

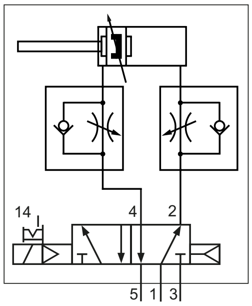
08
valve with mechanical spring return, cylinder piston rod stainless steel,
with mounted flow controls

single solenoid valve, normally extended



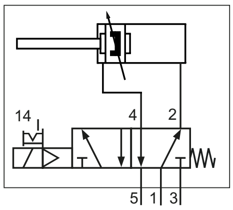
10
valve with air spring return, cylinder piston rod steel hard chrome plated

12
valve with air spring return, cylinder piston rod stainless steel



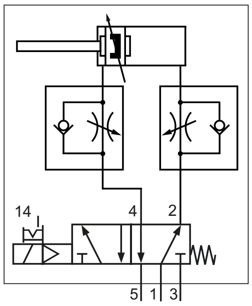
15
valve with air spring return, cylinder piston rod steel hard chrome plated,
with mounted flow controls

17
valve with air spring return, cylinder piston rod stainless steel,
with mounted flow controls



11
valve with mechanical spring return, cylinder piston rod steel hard chrome plated

13
valve with mechanical spring return, cylinder piston rod stainless steel

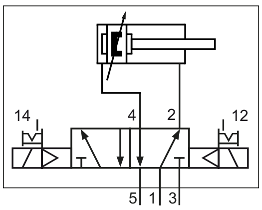


16
valve with mechanical spring return, cylinder piston rod steel hard chrome plated,
with mounted flow controls

18
valve with mechanical spring return, cylinder piston rod stainless steel,
with mounted flow controls

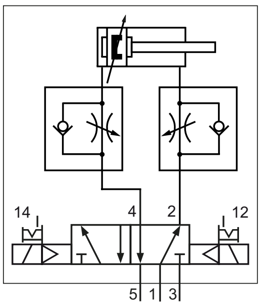
9

double solenoid valve



20
cylinder piston rod steel hard chrome plated

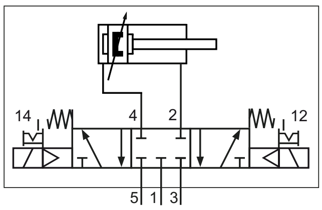
21
cylinder piston rod stainless steel



22
cylinder piston rod steel hard chrome plated,
with mounted flow controls

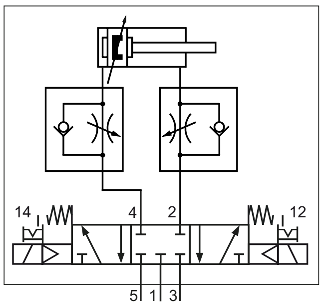
23
cylinder piston rod stainless steel,
with mounted flow controls

5/3-way, center position closed



25
cylinder piston rod steel hard chrome plated

26
cylinder piston rod stainless steel



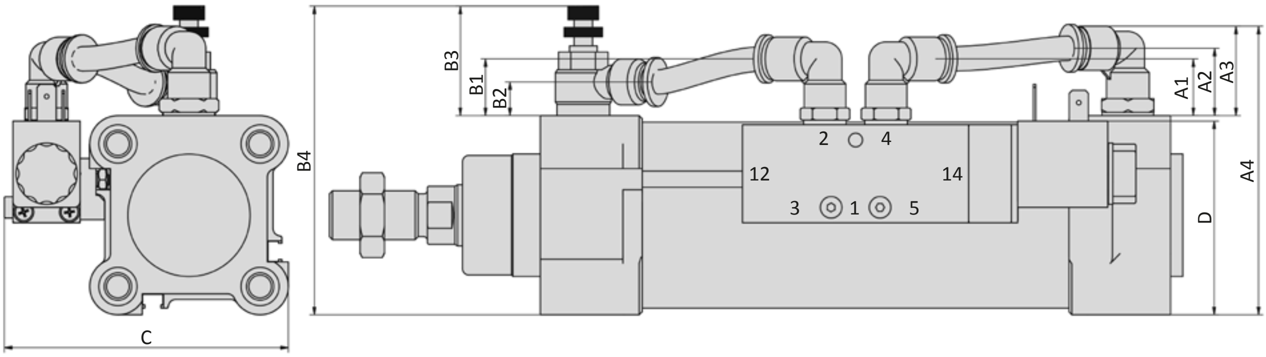
27
cylinder piston rod steel hard chrome plated,
with mounted flow controls

28
cylinder piston rod stainless steel,
with mounted flow controls

Series XLVK

ISO 15552

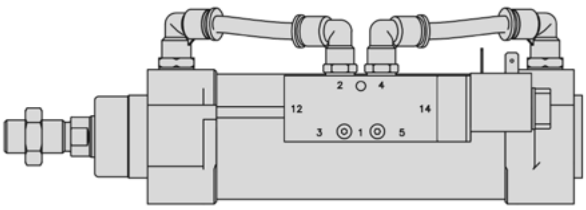
Dimensions



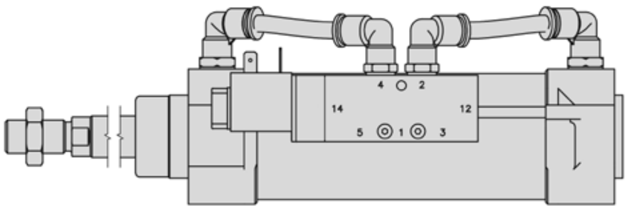
Piston Ø	A1	A2	A3	A4	B1	B2	$B3_{max}$	$B4_{max}$	C	D
32	20	21	28.5	76.5	20	9.5	34.5	81.5	76.5	47.7
40	18.8	22	29.5	83.5	18.8	11	39.5	93.5	83.3	52.5
50	18.6	22	29.5	94.5	18.6	11	39.5	102.5	92.9	63.3
63	24	18.9	31.5	106.5	24	11.4	44	118	106.5	78.9
80	22.8	18.9	30	124	26.4	13	44	137.5	132.9	86.5
100	35.4	25.8	45	156	35.4	14.5	49.5	159.5	151.8	112.5
125	26.3	25.3	36	175	16.3	14	49.5	187.5	178.4	131.4*

*versions with flow controls D = 121.4

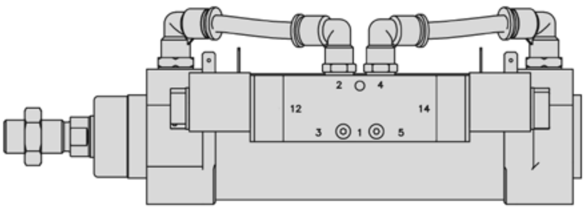
single solenoid valve, normally retracted



single solenoid valve, normally extended



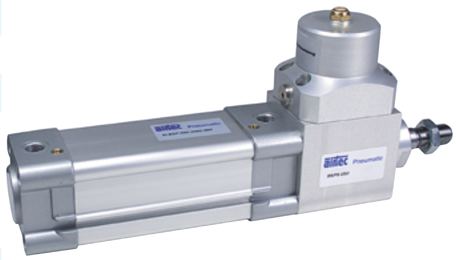
double solenoid valve, 5/3-way valve



Series XLBSP
ISO 15552

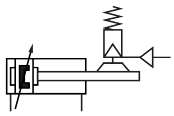
Technical details

Operating pressure	Brake system 3 ... 6 bar
Temperature range	-10°C ... +50°C
Max. stroke	2800 mm
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: steel hard chrome plated Seals: PU, NBR Brake system: Al anodized, stainless steel, brass, bronze, POM, NBR, EPDM, PTFE, brake fluid DOT4



Double acting Al-profile cylinder with adjustable cushions and magnetic piston. It includes an extended piston rod and a pneu-matic-hydraulic brake system which is mounted onto the cylinder. The brake should only be applied at piston speed of 0.2 m/s or lower. The system is NC and is released by applying pressure at the pilot port of the brake.

Versions



XLBSP
passive brake system, double acting cylinder, adjustable cushioning, with magnetic piston

Order code

XLBSP-*-****-*****

Series	

Piston Ø	
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm
125	125 mm

Stroke (mm)	
XXXX	max. 2800 mm*

Versions	
050	standard version

* For longer stroke lengths please check the max buckling load.

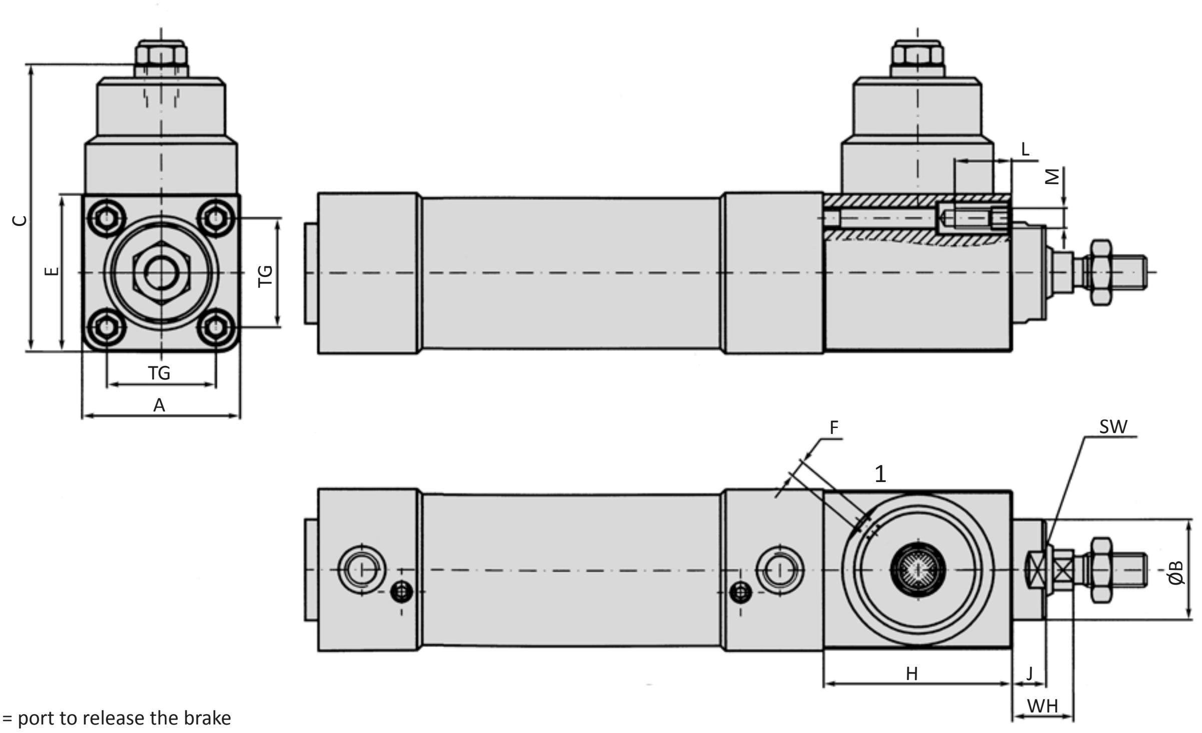
9

Series XLBSP
ISO 15552

Technical data

Model-no.:		XLBSP-032	XLBSP-040	XLBSP-050	XLBSP-063	XLBSP-080	XLBSP-100	XLBSP-125
Piston Ø (mm)		32	40	50	63	80	100	125
Force at 6 bar (N)	Extension	434	678	1060	1682	2713	4239	6623
	Retraction	373	570	890	1513	2448	3974	6189
Clamp force (N)		600	890	1900	2500	3800	6000	9000
Operating pressure cylinder (bar)		1 ... 7	1 ... 7	1 ... 8	1 ... 8	1 ... 8	1 ... 8	1 ... 8
Release pressure (bar)		> 4.5	> 4.5	> 4.5	> 4.5	> 4.5	> 4.5	> 4.5

Dimensions series XLBSP



1 = port to release the brake

Piston Ø	A	Ø B	C	E	F	H	J	L	M	TG	SW	WH
32	47	30	103	47	M5	56	10	17	M6	32.5	28	26
40	52	35	108	52	M5	62	10	17	M6	38	32	30
50	65	40	130	70.5	G1/8	74	20	20	M8	46.5	36	37
63	74	45	137	77	G1/8	74	20	20	M8	56.5	41	37
80	95	45	155	95	G1/8	95	20	22	M10	72	42	46
100	115	55	170	115	G1/8	115	15	22	M10	89	50	51
125	138	60	193	138	G1/8	138	20	25	M12	110	50	65

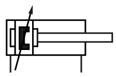
Series XM
ISO 15552, double acting

Technical details

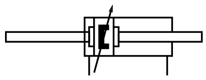
Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C (0 ... +150°C for high temperature version)
Max. stroke	1000 mm
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: AISI 304 (1.4301) or AISI 316 (1.4401) End caps: AISI 304 (1.4301) or AISI 316 (1.4401) Piston rod: AISI 304 (1.4301) or AISI 316 (1.4401) Seals: PU, NBR, PBT, PTFE
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Double acting pneumatic cylinder with adjustable cushions and magnetic piston for proximity sensors.

Versions



000, 002, 004, 0V0, 0V2, 0V4
double acting, adjustable cushioning, with magnetic piston



400, 403, 404, 4V0, 4V2, 4V4
double acting, double end piston rod, adjustable cushioning, with magnetic piston

Order code

XM**-***-****-***-****

Series	
XM	AISI 304 (1.4301)
XM4	AISI 316 (1.4401)
XMH	AISI 304, high temperature version
XM4H	AISI 316, high temperature version

Piston Ø	
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm
125	125 mm

Not all combinations are possible and available.

Options	
ATEX	cylinders in accordance with 2014/34/EU (ATEX)

Versions	
000 400	standard version
004 404	piston rod seal FKM
002 402	high temperature version (with magnetic piston up to +80°C)
0V0 4V0	piston rod AISI 316 (1.4401)
0V4 4V4	piston rod seal FKM, piston rod AISI 316 (1.4401)
0V2 4V2	high temperature version (with magnetic piston up to +80°C), piston rod AISI 316 (1.4401)

Stroke (mm)	
XXXX	max. 1.000 mm

9

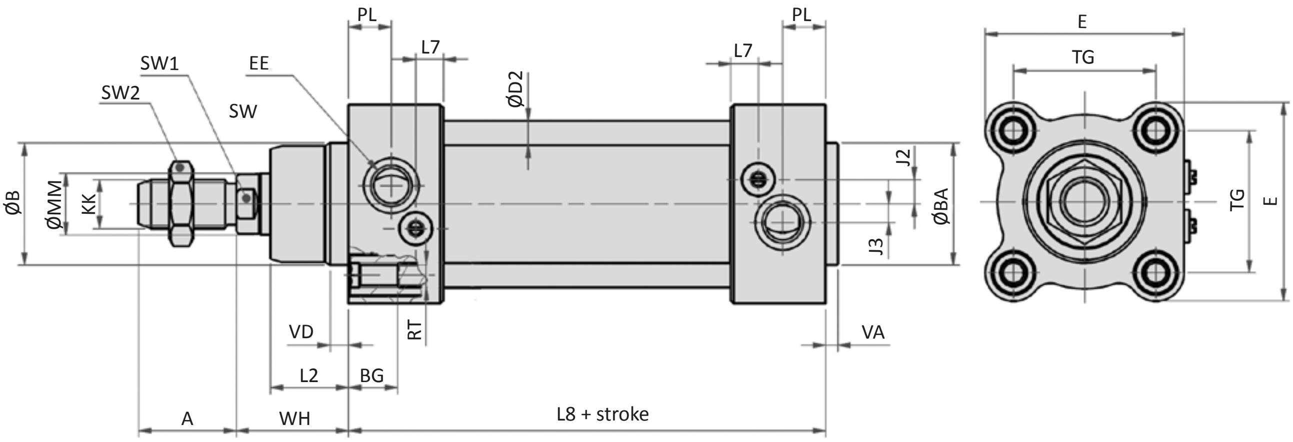
Series XM
ISO 15552, double acting

EDELSTAHL Rost frei INOX STAINLESS STEEL

Technical data

Model-no.:		XM-032-...	XM-040-...	XM-050-...	XM-063-...	XM-080-...	XM-100-...	XM-125-...
Piston Ø (mm)		32	40	50	63	80	100	125
Force at 6 bar (N)	Extension	434	678	1060	1682	2713	4239	6623
	Retraction	373	570	890	1513	2448	3974	6189
Connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	G1/2
Piston rod thread		M10 x 1.25	M12 x 1.25	M16 x 1.5	M16 x 1.5	M20 x 1.5	M20 x 1.5	M27 x 2
Cushioning length (mm)		20	22	25	25	35	35	35

Dimensions series XM (Versions: -000 and -010)



Piston Ø	A	Ø B	Ø BA	BG	Ø D2	E	EE	J2	J3	KK	L2
32	22	30	30	16	6	48	G1/8	6.6	5.3	M10 x 1.25	18
40	24	35	35	16	6	52	G1/4	8.5	5	M12 x 1.25	22
50	32	40	40	16	8	65	G1/4	8	6	M16 x 1.5	25.5
63	32	45	45	16	8	75	G3/8	10	6.5	M16 x 1.5	26
80	40	45	45	18	10	95	G3/8	8	8	M20 x 1.5	32
100	40	55	55	18	10	115	G1/2	15	7	M20 x 1.5	38
125	54	60	60	20	12	140	G1/2	13	7	M27 x 2	46

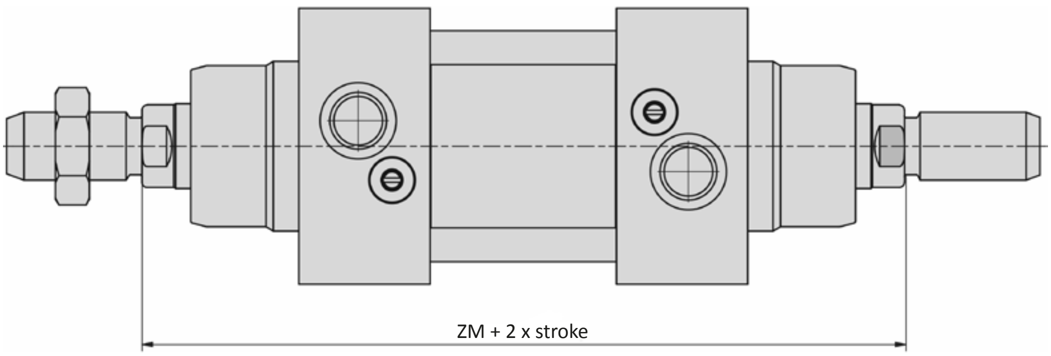
Piston Ø	L7	L8	Ø MM	PL	RT	SW1	SW2	TG	VA	VD	WH
32	7.2	94	12	13	M6	10	17	32.5	4	5	26
40	9.2	105	16	14	M6	13	19	38	4	5	30
50	9	106	20	14	M8	17	24	46.5	4	6	37
63	9.5	121	20	16	M8	17	24	56.5	4	6	37
80	11	128	25	16	M10	22	30	72	4	7	46
100	12	138	25	18	M10	22	30	89	4	7	51
125	12	160	32	18	M12	27	41	110	6	10	65

Piston Ø (mm)		32	40	50	63	80	100	125
Weight (kg)	0 mm stroke	0.960	1.455	2.370	2.550	6.030	9.420	14.550
	each 100 mm stroke	0.240	0.290	0.430	0.480	1.050	1.200	2.200

Series XM

ISO 15552, double acting

Dimensions series XM (addition at double end piston rod)



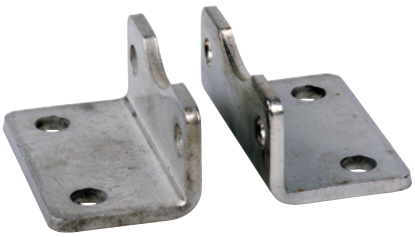
Piston Ø (mm)	32	40	50	63	80	100	125
ZM	146	165	180	195	220	240	290

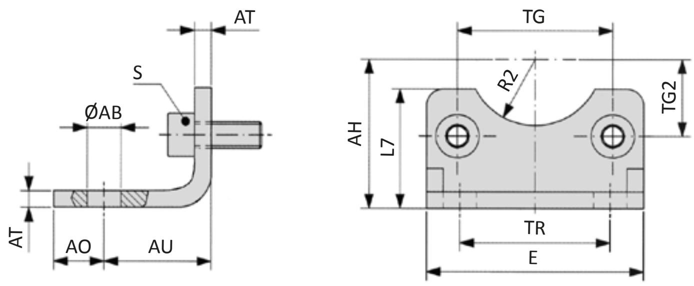
Piston Ø (mm)		32	40	50	63	80	100	125
Weight (kg)	0 mm stroke	1.086	1.615	2.677	3.930	6.561	10.180	15.868
	each 100 mm stroke	0.330	0.480	0.810	0.850	1.440	1.930	2.920

9

Series XM
Mounting accessories

CXM-xxx-01 Foot mount

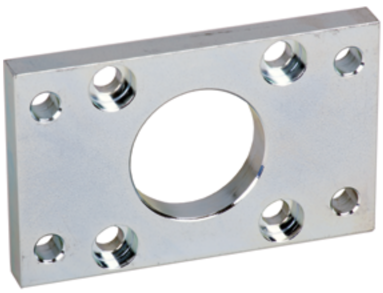


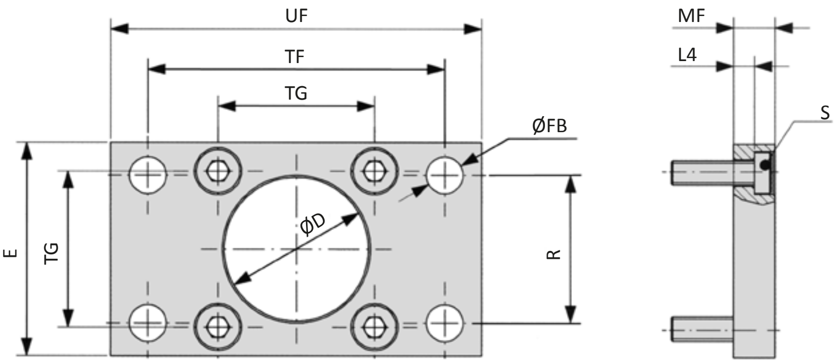


Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
CXM-032-01	7	32	11	24	4	45	30	15	M6 x 20	32.5	16.25	32
CXM-040-01	10	36	8	28	4	52	30	17.5	M6 x 20	38	19	36
CXM-050-01	10	45	15	32	5	65	36	20	M8 x 20	46.5	23.25	45
CXM-063-01	10	50	13	32	5	75	35	22.5	M8 x 20	56.5	28.25	50
CXM-080-01	12	63	14	41	6	95	47	22.5	M10 x 20	72	36	63
CXM-100-01	14.5	71	16	41	6	115	53	27.5	M10 x 20	89	44.5	75
CXM-125-01	16.5	90	25	45	8	140	70	30	M12 x 25	110	55	90

Material: stainless steel AISI 304 (1.4301); 2 x 2 screws in accordance with EN ISO 4762 are included.

CXM-xxx-02 Flange mount



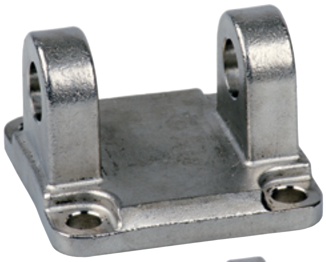


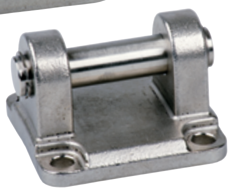
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
CXM-032-02	30	45	7	5	10	32	M6 x 20	64	32.5	80
CXM-040-02	35	52	9	5	10	36	M6 x 20	72	38	90
CXM-050-02	40	65	9	6.5	12	45	M8 x 20	90	46.5	110
CXM-063-02	45	75	9	6.5	12	50	M8 x 20	100	56.5	120
CXM-080-02	45	95	12	9	16	63	M10 x 25	126	72	150
CXM-100-02	55	115	14	9	16	75	M10 x 25	150	89	170
CXM-125-02	60	140	16	10.5	20	90	M12 x 25	180	110	205

Material: stainless steel AISI 304 (1.4301); 2 x 2 screws in accordance with DIN 7984 are included.

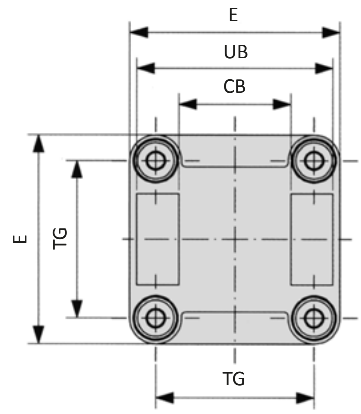
Series XM
Mounting accessories

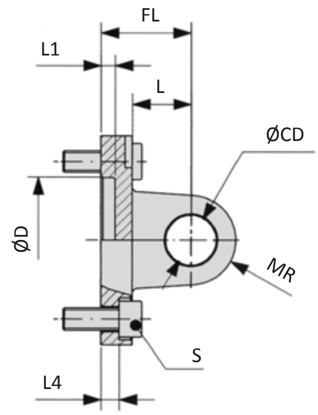
CXM-xxx-03 Clevis mount





Inclusive clevis pin
order no: **CXM-xxx-38**

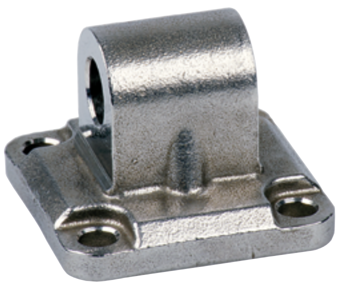


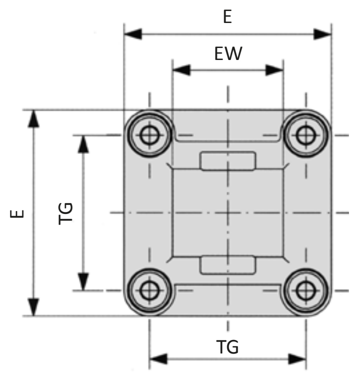


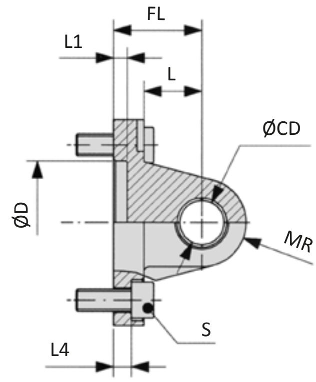
Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
CXM-032-03	26	10	30	45	22	13	5	5.5	10	M6 x 20	32.5	45
CXM-040-03	28	12	35	52	25	16	5	5.5	12	M6 x 20	38	52
CXM-050-03	32	12	40	65	27	16	5	6.5	12	M8 x 20	46.5	60
CXM-063-03	40	16	45	75	32	21	5	6.5	16	M8 x 20	56.5	70
CXM-080-03	50	16	45	95	36	22	5	10	16	M10 x 25	72	90
CXM-100-03	60	20	55	115	41	27	5	10	20	M10 x 25	89	110
CXM-125-03	70	25	60	140	50	30	7	10	25	M12 x 25	110	130

Material: stainless steel AISI 304 (1.4301); 4 screws in accordance with EN ISO 4762 are included.

CXM-xxx-05 Swivel mount







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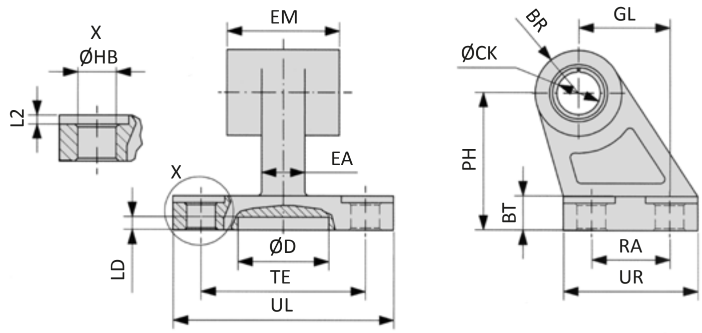
Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
CXM-032-05	10	30	45	26	22	13	5	5.5	10	M6 x 20	32.5
CXM-040-05	12	35	52	28	25	16	5	5.5	12	M6 x 20	38
CXM-050-05	12	40	65	32	27	16	5	6.5	12	M8 x 20	46.5
CXM-063-05	16	45	75	40	32	21	5	6.5	16	M8 x 20	56.5
CXM-080-05	16	45	95	50	36	22	5	10	16	M10 x 25	72
CXM-100-05	20	55	115	60	41	27	5	10	20	M10 x 25	89
CXM-125-05	25	60	140	70	50	30	7	10	25	M12 x 25	110

Material: stainless steel AISI 304 (1.4301); 4 screws in accordance with EN ISO 4762 are included.

Series XM
Mounting accessories

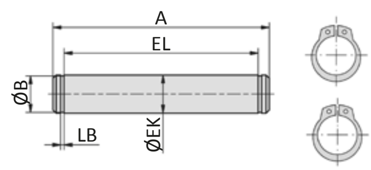
CXM-xxx-06 Swivel mount 90°



Model-no.:	BR	BT	ØCK	Ø D	EA	EM	GL	ØHB	L2	LD	PH	RA	TE	UL	UR
CXM-032-06	10	8	10	21	10	26	21	6.6	1.6	3	32	18	38	51	31
CXM-040-06	11	10	12	21	15	28	24	6.6	1.6	3	36	22	41	54	35
CXM-050-06	13	12	12	21	16	32	33	9	1.6	3	45	30	50	65	45
CXM-063-06	15	14	16	21	16	40	37	9	1.6	3	50	35	52	67	50
CXM-080-06	15	14	16	21	20	50	47	11	2.5	3	63	40	66	86	60
CXM-100-06	19	17	20	11	20	60	55	11	2.5	3	71	50	76	96	70
CXM-125-06	22.5	20	25	21	30	70	70	14	3.2	3	90	60	94	124	90

Material: stainless steel AISI 304 (1.4301)

CXM-xxx-08 Clevis pin

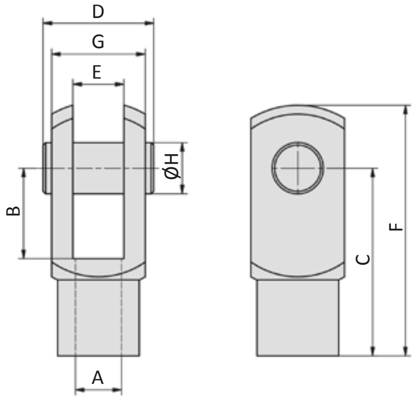


Model-no.:	A	Ø B	Ø EK	EL	LB
CXM-032-08	53	9.6	10	46	1.1
CXM-040-08	60	11.5	12	53	1.1
CXM-050-08	68	11.5	12	61	1.1
CXM-063-08	78	15.2	16	71	1.1
CXM-080-08	98	15.2	16	91	1.1
CXM-100-08	118	19	20	111	1.3
CXM-125-08	139	23.9	25	132*	1.3

Material: stainless steel AISI 304 (1.4301); 2 snap rings are included.

Series XM
Mounting accessories

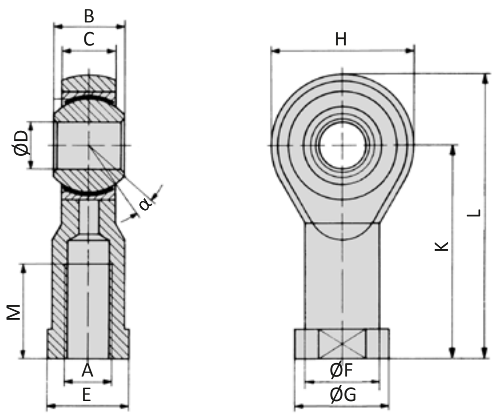
PD-xx Rod clevis



Model-no.:	for cylinder	A	B	C	D	E	F	G	Ø H
PD-25	XM-032	M10 x 1.25	20	40	26	10	52	20	10
PD-40	XM-040	M12 x 1.25	24	48	32	12	62	24	12
PD-63	XM-050, XM-063	M16 x 1.5	32	64	40	16	83	32	16
PD-80	XM-080, XM-100	M20 x 1.5	40	80	50	20	105	40	20

Material: stainless steel AISI 303 (1.4305)

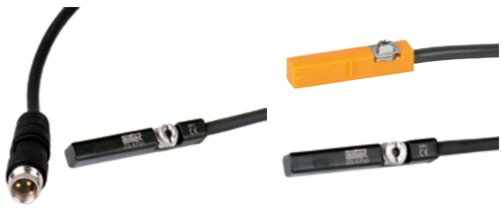
PO-xx Rod eye



Model-no.:	for cylinder	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
PO-25	XM-032	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
PO-40	XM-040	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°
PO-63	XM-050, XM-063	M16 x 1.5	21	15	16	22	22	27	42	64	85	28	15°
PO-80	XM-080, XM-100	M20 x 1.5	25	18	20	30	27.5	34	50	77	102	33	14°

Materials: stainless steel AISI 331 (1.4057), bearing stainless steel AISI 316 Ti, PTFE coated, bushing stainless steel AISI 420 (1.4034)

Proximity sensors



Page 9-90

9

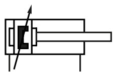
Baureihe XG
ISO 15552, doppeltwirkend

Technische Merkmale der Baureihe

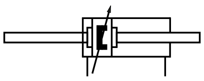
Arbeitsdruck	1 ... 10 bar
Temperaturbereich	-20°C ... +80°C (XGH: -10°C...+150°C)
max. Hub	2.500 mm
Medium	Gefilterte, ölfreie und getrocknete Druckluft nach ISO 8573-1:2010, Klasse 7:2:4 - frei von aggressiven Bestandteilen. Abweichend davon muss der Drucktaupunkt mindestens 10°C unter der tiefsten auftretenden Umgebungstemperatur sein.
Werkstoffe	Zylinderrohr: Aluminium, lackiert Zylinderköpfe: Al-Druckguß, lackiert Kolbenstange: Stahl, hartverchromt (optional 1.4301) Dichtungen: PU, NBR (optional FKM)
Ex	Ausführungen nach 2014/34/EU (ATEX) lieferbar. (Kap. 13)

Doppeltwirkender Pneumatikzylinder, beidseitig mit einstellbarer, pneumatischer Endlagendämpfung. Mit Positionserkennung zur berührungslosen Stellungsabfrage mit Zylinderschaltern.
Sonderhublängen sind auf Wunsch lieferbar.

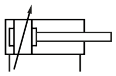
Ausführungen



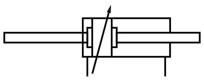
050, 054, 000, 004
doppeltwirkend, beidseitig einstellbare, pneumatische Endlagendämpfung, Positionserkennung



450, 454, 400, 404
doppeltwirkend, durchgehende Kolbenstange, beidseitig einstellbare, pneumatische Endlagendämpfung, Positionserkennung



152, 102
doppeltwirkend, beidseitig einstellbare, pneumatische Endlagendämpfung



552, 502
doppeltwirkend, durchgehende Kolbenstange, beidseitig einstellbare, pneumatische Endlagendämpfung

Bestellschlüssel

XG*-*-****-***-****

Baureihe, Ausführung	
XG	Standard
XGH	Hochtemperaturausführung²
XGS	mit montierter Mittenbefestigung

Kolben-Ø	
160	160 mm
200	200 mm
250	250 mm
320	320 mm

Nicht alle möglichen Kombinationen des Bestellschlüssels sind sinnvoll und umsetzbar.

* Bei großen Hublängen ist die maximale Knickbelastung der Kolbenstange zu beachten.

² nur für Ø 160 und Ø 200 verfügbar

³ nur für Ø 160 bis Ø 250 verfügbar

Optionen	
ATEX	Ausführung nach 2014/34/EU (ATEX)
XXX	Abstand XV in mm bei Baureihe XGS

Ausführungen	
050 450	Standardausführung
000 400	Kolbenstange aus Edelstahl³
054 454	Kolbenstangendichtung FKM²
004 404	Kolbenstange aus Edelstahl , Kolbenstangendichtung FKM²
152 552	Hochtemperaturausführung (ohne Positionserkennung)²
102 502	Hochtemperaturausführung, Kolbenstange aus Edelstahl (ohne Positionserkennung)²

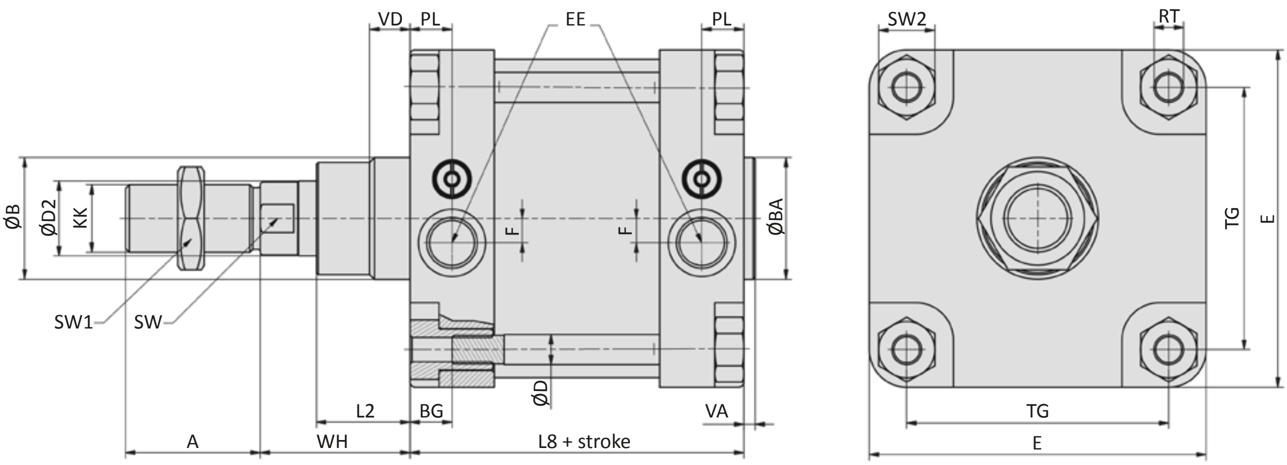
Hub (mm)	
XXXX	max. 2.500 mm*

Series XG
ISO 15552, double acting

Technical data

Model-no.:		XG-160-...	XG-200-...	XG-250-...	XG-320-...
Piston Ø (mm)		160	200	250	320
Force at 6 bar (N)	Extension	10852	16956	26494	43407
	Retraction	10174	16278	25434	41725
Connection		G3/4	G3/4	G1	G1
Piston rod thread		M36 x 2	M36 x 2	M42 x 2	M48 x 2
Cushioning length (mm)		50	50	60	65

Dimensions series XG



Piston Ø	A	Ø B	Ø BA	BG	Ø D	Ø D2	E	EE	F	KK	L2
160	72	65	65	22.5	16	40	180	G3/4	13	M36 x 2	50
200	72	75	75	22.5	16	40	220	G3/4	13	M36 x 2	55
250	84	90	90	25	20	50	268	G1	15	M42 x 2	67
320	96	110	110	28	25	63	340	G1	0	M48 x 2	82

Piston Ø	L8	PL	RT	SW	SW1	SW2	TG	VA	VD	WH
160	179.5	22.5	M16	36	55	30	140	6	21.5	80
200	180	22.5	M16	36	55	30	175	6	26.5	95
250	200	31	M20	46	65	36	220	10	20	105
320	220	31	M24	55	75	46	270	10	20	120

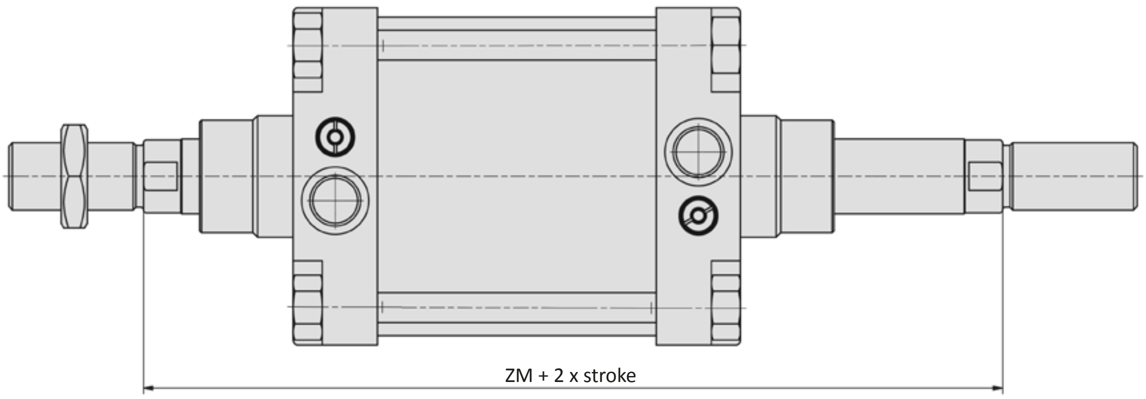
Piston Ø (mm)		160	200	250	320
Weight (kg)	0 mm stroke	15.0	20.0	28.5	48.4
	each 100 mm stroke	2.0	2.5	3.8	6.2

9

Series XG

ISO 15552, double acting

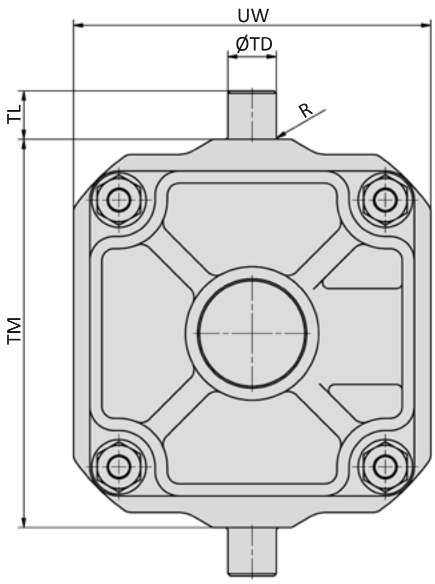
Dimensions series XG (addition at double end piston rod)

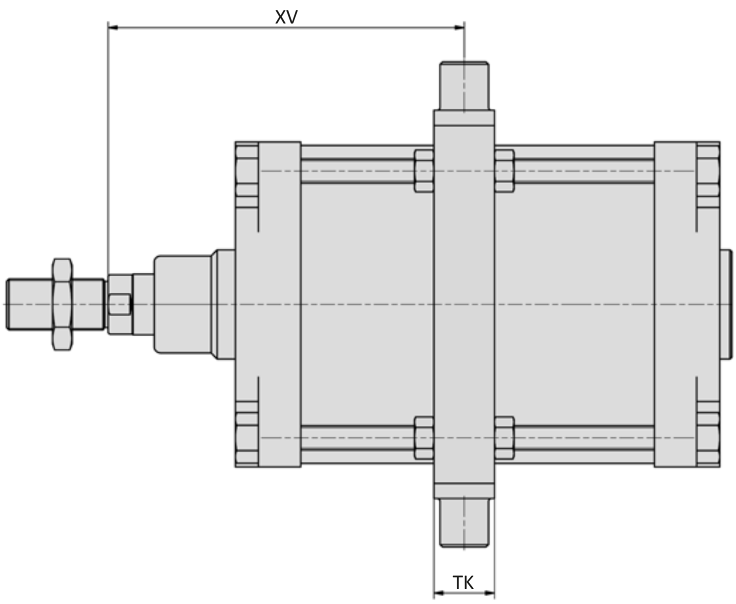


Piston Ø (mm)	160	200	250	320
ZM	340	370	410	460

Piston Ø (mm)		160	200	250	320
Weight (kg)	0 mm stroke	16.9	22.5	32.3	54.8
	each 100 mm stroke	3.3	3.5	4.0	6.4

Dimensions series XGS (addition at mounted trunnion mount)



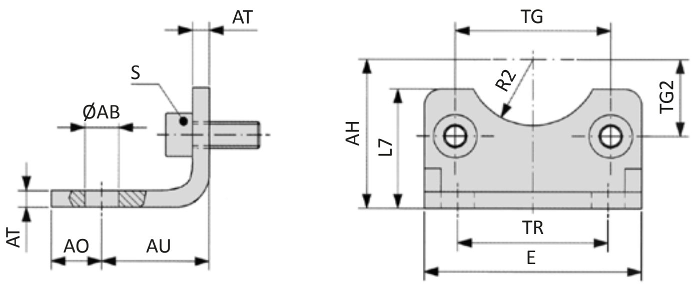


Piston Ø	R	Ø TD	TK	TL	TM	UW	XV_{min}
160	2.5	32	40	32	200	190	153
200	2.5	32	40	32	250	240	168
250	2.5	40	50	40	320	295	200
320	2.5	50	70	50	400	370	231

Piston Ø (mm)		160	200	250	320
Weight (kg)	0 mm stroke	19.2	27.3	41.0	72.6
	each 100 mm stroke	2.0	2.5	3.8	6.2

Series XG
Mounting accessories

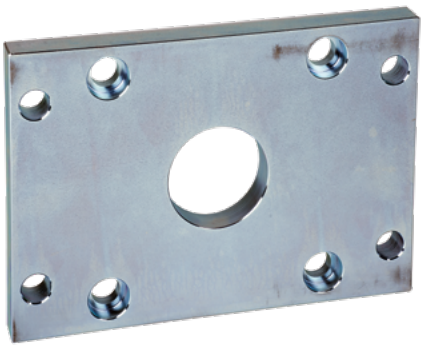
VLB-xxx-01 Foot mount

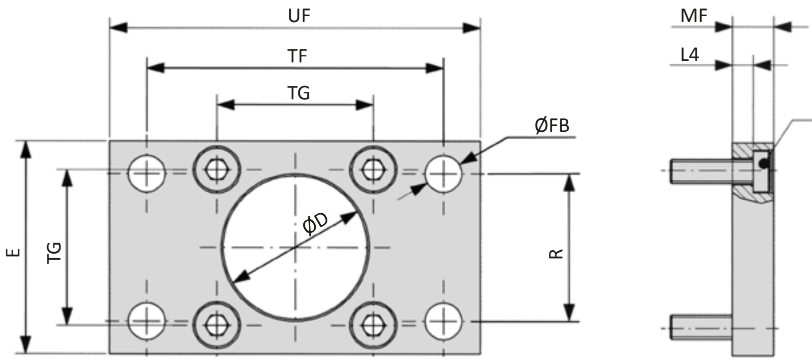


Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
VLB-160-01	18	115	15	60	9	180	100	32.5	M16 x 30	140	70	115
VLB-200-01	22	135	30	70	12	220	100	37.5	M16 x 30	175	87.7	135
VLB-250-01	26	165	25	75	14	270	150	45	M20 x 40	220	110	165
tolerances and adjustments	H14	JS16		± 0.2	± 1			H15		± 0.3		JS14

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

VLB-xxx-02 Flange mount





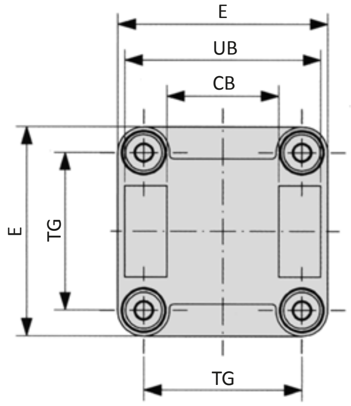
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
VLB-160-02	65	180	18	9.5	20	115	M16 x 30	230	140	260
VLB-200-02	75	220	22	12.5	25	135	M16 x 30	270	175	300
VLB-250-02	90	285	26	10.5	25	165	M20 x 30	330	220	400
VLB-320-02	110	350	33	15	30	200	M24 x 40	400	270	470
tolerances and adjustments	H11		H13	0 - 0.5	JS14	JS14		JS14	± 0.3	

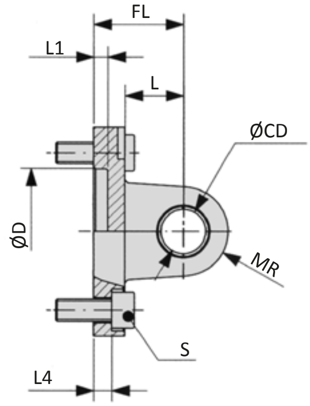
Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

Series XG
Mounting accessories

VLB-xxx-04 Clevis mount with bushing

Inclusive clevis pin
order no: **VLB-xxx-48**

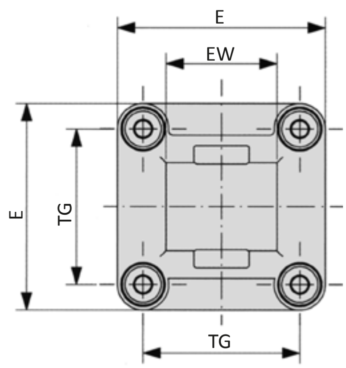


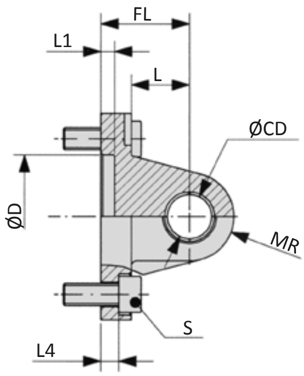


Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
VLB-160-04	90	30	65	180	55	35	7	10	25	M16 x 30	140	170
VLB-200-04	90	30	75	220	60	35	7	11	25	M16 x 30	175	170
VLB-250-04	110	40	90	270	70	45	-	11	40	M20 x 30	220	200
VLB-320-04	120	45	110	350	80	50	-	15	45	M24 x 40	270	220
tolerances and adjustments	H14	H9	H11		± 0.2			± 0.5			± 0.3	h13

Materials: Al, bushing steel and PTFE (Ø 250 and 320 without bushing); 4 screws in accordance with EN ISO 4762 are included.

VLB-xxx-05 Swivel mount

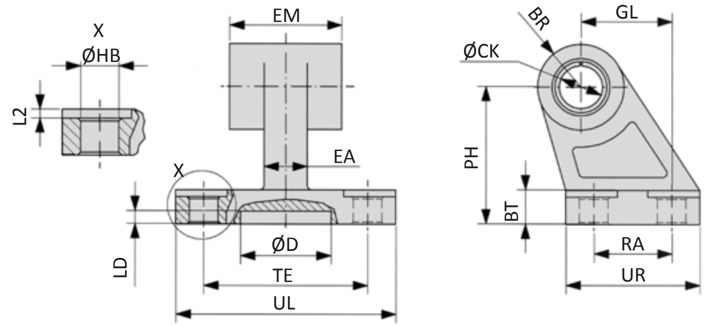




Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
VLB-160-05	30	65	180	90	55	35	7	10	25	M16 x 30	140
VLB-200-05	30	75	220	90	60	35	7	11	25	M16 x 30	175
VLB-250-05	40	90	270	110	70	45	11	11	40	M20 x 30	220
VLB-320-05	45	110	350	120	80	50	15	15	45	M24 x 40	270
tolerances and adjustments	H9	H11		-0.5 -1.2	± 0.2			± 0.5			± 0.3

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

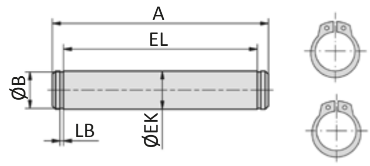
VLB-xxx-06 Swivel mount 90°



Model-no.:	BR	BT	Ø CK	Ø D	EA	EM	GL	Ø HB	L2	LD	PH	RA	TE	UL	UR
VLB-160-06	31.5	25	30	31	36	90	97	14	4	5	115	88	118	156	126
VLB-200-06	31.5	30	30	31	40	90	105	18	4	5	135	90	122	162	130
tolerances and adjustments			H9			-0.5 -1.5	JS14	H13			JS15	JS14	JS14		

Material: Al

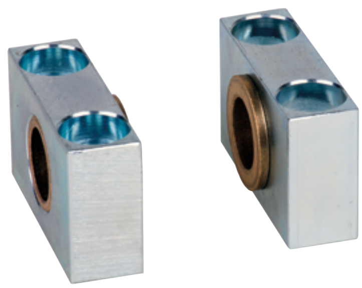
VLB-xxx-08 Clevis pin

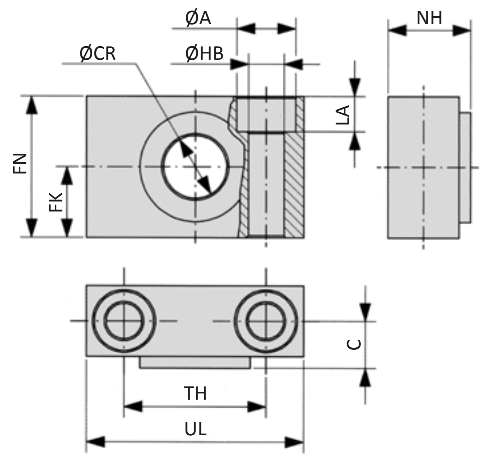


Model-no.:	A	Ø B	Ø EK	EL	LB
VLB-200-08	178	28.6	30	171.5	1.60
VLB-250-08	211	37.5	40	202	1.85
VLB-320-08	234	42.5	45	222	1.85
tolerances and adjustments			e8	+ 3 0	

Material: steel, zinc plated; 2 snap rings are included.

VLB-xxx-09 Bearing block



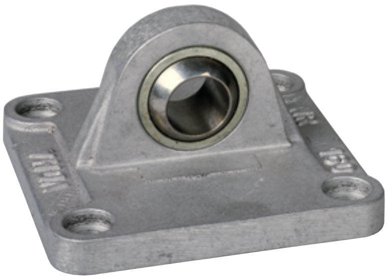


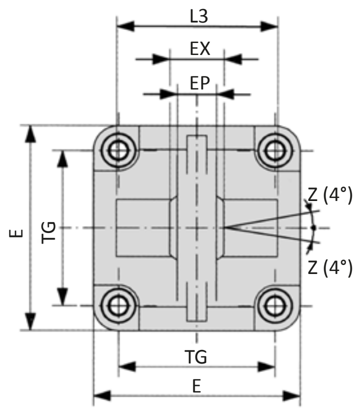
Model-no.:	Ø A	C	Ø CR	FK	FN	Ø HB	LA	NH	TH	UL
VLB-200-09	26	22.5	32	30	60	18	17	40	60	92
VLB-250-09	33	31	40	35	70	22	20	56	70	140
tolerances and adjustments			H9	± 0.2		H13			± 0.3	

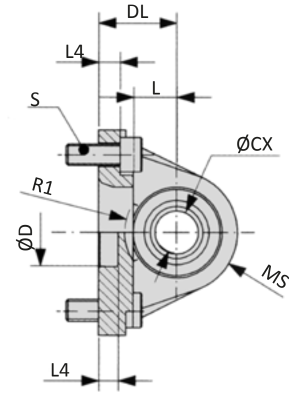
Materials: Al, bronze bushing

Series XG
Mounting accessories

VLB-xxx-12 Swivel mount with spherical bearing



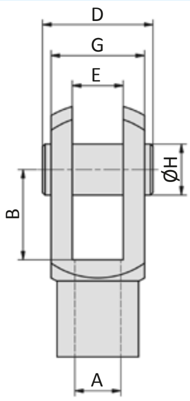


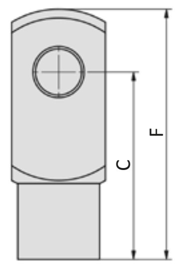


Model-no.:	Ø CX	Ø D	DL	E	EP	EX	L	L1	L3	L4	MS	R1	S	TG
VLB-160-12	35	65	55	180	28	43	35	7	-	10	45	-	M16 x 30	140
VLB-200-12	35	75	60	220	28	43	35	7	-	11	48	-	M16 x 30	175
tolerances and adjustments	H7	H11	± 0.2			± 0.1				± 0.5				± 0.3

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

FD-xxx Rod clevis



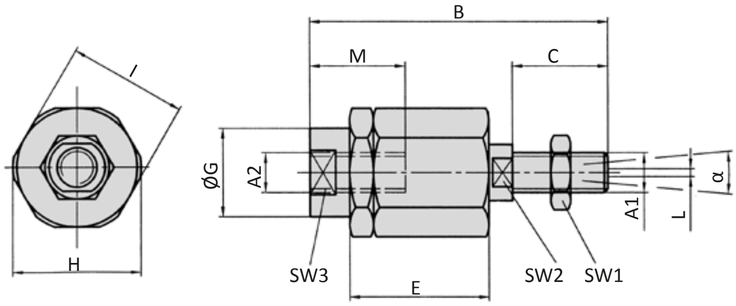


Model-no.:	for cylinder	A	B	C	D	E	F	G	H
FD-200	XG-160, XG-200	M36 x 2	72	144	84	35	188	70	35
FD-250	XG-250	M42 x 2	84	168	104.5	40	232	85	40
FD-320	XG-320	M48 x 2	96	192	117.5	50	265	96	50

Material: steel, zinc plated

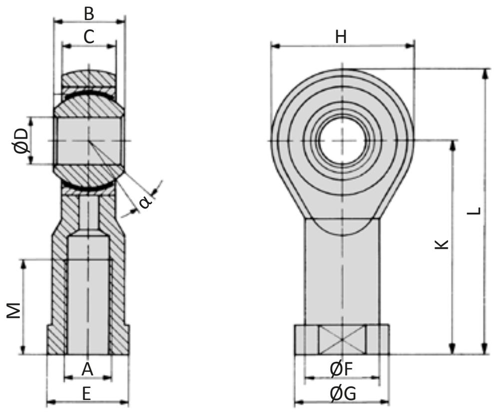
Series XG
Mounting accessories

FK-xxx Flexible coupling



Model-no.:	for cylinder	A1, A2	B	C	D	E	ØG	H	I	L	M	SW1	SW2	SW3	α
FK-200	XG-160, XG-200	M36 x 2	190	72	15.5	77	57	75	70	2	68	32	54	55	8°
	Material: steel, zinc plated														

FO-xxx Rod eye



Model-no.:	for cylinder	A	B	C	ØD	E	ØF	ØG	H	K	L	M	α
FO-160/200	XG-160, XG-200	M36 x 2	43	28	35	50	46	58	80	125	165	56	16°
FO-250	XG-250	M42 x 2	49	33	40	55	53	65	91	142	187	60	16°
FO-320	XG-320	M48 x 2	60	45	50	60	65	75	117	162	218	65	14°
	Materials: steel, zinc plated, bearing steel, bronze bushing												

9

Proximity sensors

Page 9-90

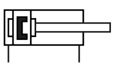
Series HM
Mini cylinders ISO 6432, double acting

Technical details

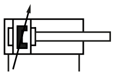
Operating pressure	1 ... 10 bar
Temperature range	-30°C ... +80°C (0 ... +150°C for high temperature version)
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: stainless steel End caps: Al (anodized) Piston rod: stainless steel Seals: PU, NBR
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings or adjustable cushions.
Standard stroke lengths in table below, additional lengths on request.

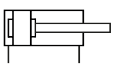
Versions



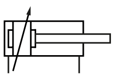
HM, HMS, HMZ
double acting, with magnetic piston



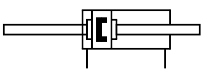
HMP
double acting, adjustable cushioning, with magnetic piston



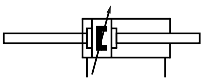
HDH
double acting, high temperature version



HDPH
double acting, adjustable cushioning, high temperature version



HMDE
double acting, double end piston rod, with magnetic piston



HMPDE
double acting, double end piston rod, adjustable cushioning, with magnetic piston

Order code

H**-**-***-****

Series	
HM	standard
HMP*	
HMDE*	
HMPDE*	
HDH**	
HDPH*	
HMS*	lateral air connection, rear
HMZ*	central air connection, rear

* only for Ø 16, 20 and 25 mm

** not for Ø 8 mm

\# only for series HM and HMP in consideration of max. stroke

Options	
ATEX	cylinders in accordance with 2014/34/EU (ATEX)

Stroke (mm)	
XXX	max. stroke see technical data
Standard#	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400 mm

Piston Ø	
08	8 mm
10	10 mm
12	12 mm
16	16 mm
20	20 mm
25	25 mm

Series HM

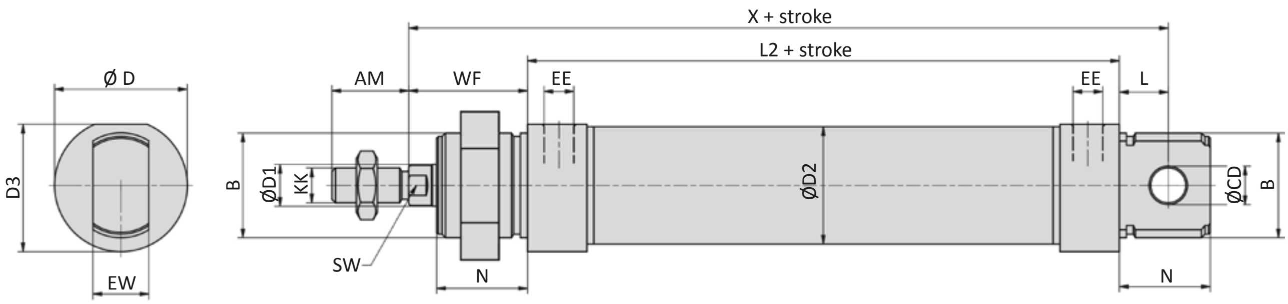
Mini cylinders ISO 6432, double acting

Technical data

Model-no.:		HM-08-...	HM-10-...	HM-12-...	Hxx-16-...	Hxx-20-...	Hxx-25-...
Piston Ø (mm)		8	10	12	16	20	25
Force at 6 bar (N)	Extension	27	42	61	109	170	265
	Retraction	20	36	46	93	142	223
Connection		M5	M5	M5	M5	G1/8	G1/8
Piston rod thread		M4	M4	M6	M6	M8	M10 x 1.25
Max. stroke (mm)		100	200	500	900	900	900
Cushioning length (mm)*		-	-	-	15.5	17	19.5

* only for series HMP, HMPDE, HDPH

Dimensions series HM, HMP, HDH, HDPH



Piston Ø	AM	B	Ø CD	Ø D	Ø D1	Ø D2	D3	EE
8	12	M12 x 1.25	4	16	4	9.27	15	M5
10	12	M12 x 1.25	4	16	4	11.27	15	M5
12	16	M16 x 1.5	6	19	6	13.27	18	M5
16	16	M16 x 1.5	6	19*	6	17.27	18	M5
20	20	M22 x 1.5	8	27	8	21.27	25.5	G1/8
25	22	M22 x 1.5	8	30	10	26.5	28.5	G1/8

* 21 mm for HMP, HMPDE, HDPH

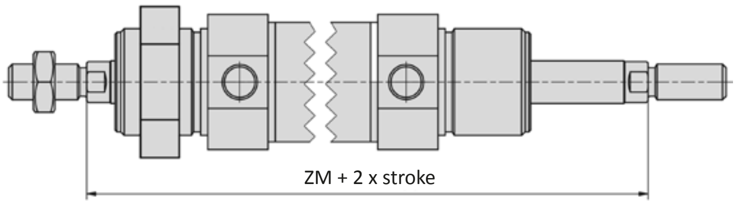
Piston Ø	EW	KK	L	L2	N	SW	WF	X
8	8	M4	6	46	12	-	16	64
10	8	M4	6	46	12	-	16	64
12	12	M6	9	48	18	5	22	75
16	12	M6	9	53	18*	5	22	82
20	16	M8	12	67	20	7	24	95
25	16	M10 x 1.25	12	68	22	9	28	104

* 17 mm for HMP, HMPDE, HDPH

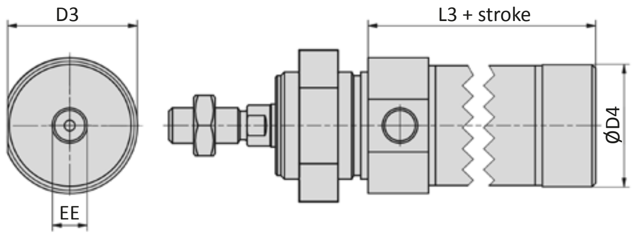
Series HM
Mini cylinders ISO 6432, double acting

Additional dimensions Series HMDE, HMPDE, HMZ, HMS

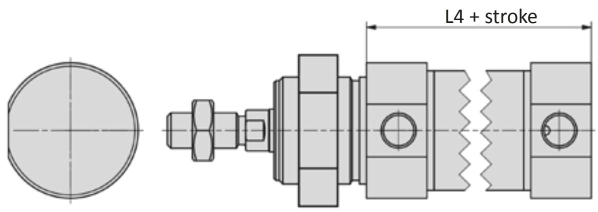
double end piston rod



Series HMZ



Series HMS



Piston Ø	ZM	EE	Ø D	Ø D4	L3	L4
16	97	M5	19	17.2	52	52.5
20	115	G1/8	27	22.2	65	67
25	124	G1/8	30	27	66	68

Series HE

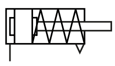
Mini cylinders ISO 6432, single acting

Technical details

Operating pressure	1 ... 10 bar
Temperature range	-30°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: stainless steel End caps: Al (anodized) Piston rod: stainless steel Seals: PU, NBR

Single acting pneumatic cylinder with built-in cushioning rings.

Versions



HE, HES, HEZ
single acting, normally retracted

Order code

HE*--***-*****

Series	
HE	standard
HES*	lateral air connection, rear
HEZ*	central air connection, rear

* only for Ø 16, 20 and 25 mm

Options	
without	standard version, normally retracted

Stroke (mm)	
XXX	10, 25, 50

Piston Ø	
08	8 mm
10	10 mm
12	12 mm
16	16 mm
20	20 mm
25	25 mm

9

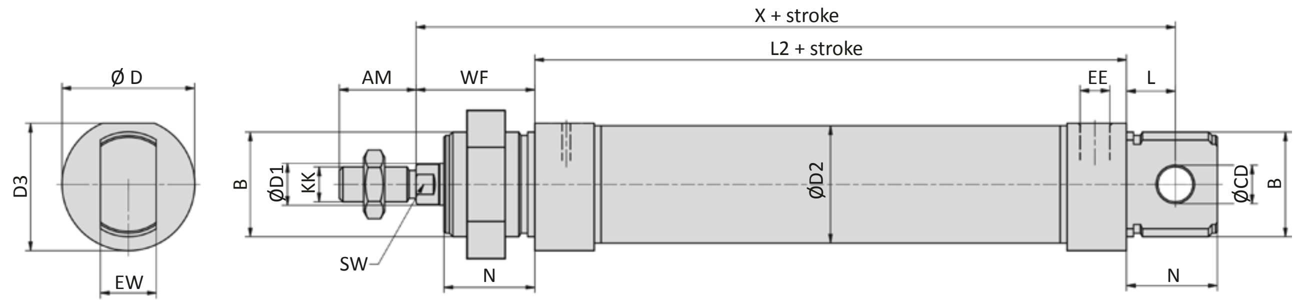
Series HE

Mini cylinders ISO 6432, single acting

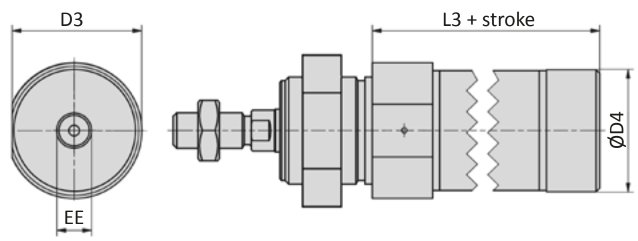
Technical data

Model-no.:		HE-08-...	HE-10-...	HE-12-...	HEx-16-...	HEx-20-...	HEx-25-...
Piston Ø (mm)		8	10	12	16	20	25
Force at 6 bar and 10 mm stroke (N)	Extension	19.0 ... 19.7	36.0 ... 36.7	51.7 ... 52.0	87.5 ... 90.0	142.8 ... 145.0	243.7 ... 245.0
	Retraction	4.5 ... 5.2	4.5 ... 5.2	5.7 ... 6.0	15.0 ... 17.5	21.3 ... 23.5	18.2 ... 19.5
Force at 6 bar and 25 mm stroke (N)	Extension	19.0 ... 20.3	36.0 ... 37.3	51.7 ... 52.6	87.5 ... 93.5	142.8 ... 148.3	243.7 ... 247.0
	Retraction	3.9 ... 5.2	3.9 ... 5.2	5.1 ... 6.0	11.5 ... 17.5	18.0 ... 23.5	16.2 ... 19.5
Force at 6 bar and 50 mm stroke (N)	Extension	19.0 ... 21.7	36.0 ... 38.7	51.7 ... 53.6	87.5 ... 99.7	142.8 ... 153.8	243.7 ... 250.3
	Retraction	2.5 ... 5.2	2.5 ... 5.2	4.1 ... 6.0	5.3 ... 17.5	12.5 ... 23.5	12.9 ... 19.5
Connection		M5	M5	M5	M5	G1/8	G1/8
Piston rod thread		M4	M4	M6	M6	M8	M10 x 1.25

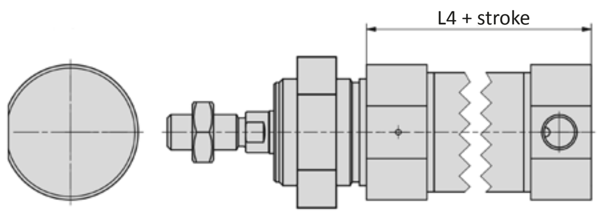
Dimensions series HE



Series HEZ



Series HES

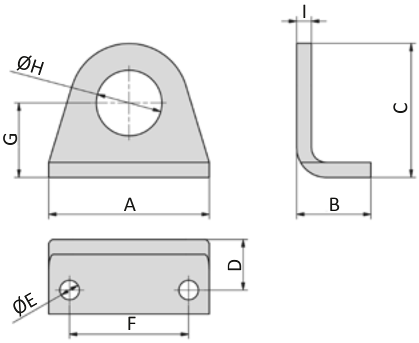


Piston Ø	AM	B	Ø CD	Ø D	Ø D1	Ø D2	D3	Ø D4	EE
8	12	M12 x 1.25	4	16	4	9.27	15	-	M5
10	12	M12 x 1.25	4	16	4	11.27	15	-	M5
12	16	M16 x 1.5	6	19	6	13.27	18	-	M5
16	16	M16 x 1.5	6	19	6	17.27	18	17.2	M5
20	20	M22 x 1.5	8	27	8	21.27	25.5	22.2	G1/8
25	22	M22 x 1.5	8	30	10	26.5	28.5	27	G1/8

Piston Ø	EW	KK	L	L2	L3	L4	N	SW	WF	X
8	8	M4	6	46	-	-	12	-	16	64
10	8	M4	6	46	-	-	12	-	16	64
12	12	M6	9	48	-	-	18	5	22	75
16	12	M6	9	53	52	52.5	18	5	22	82
20	16	M8	12	67	65	67	20	7	24	95
25	16	M10 x 1.25	12	68	66	68	22	9	28	104

Series HM
Mounting accessories

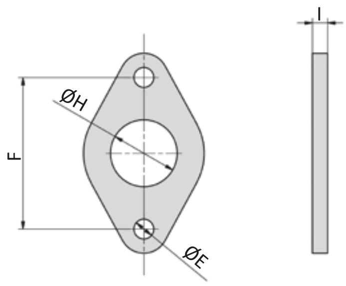
RA-xx Foot mount



Model-no.:	for cylinder Ø	A	B	C	D	Ø E	F	G	Ø H	I
RA-10	8, 10	35	16	26	11	4.5	25	16	12	3
RA-16	12, 16	42	20	32.5	14	5.5	32	20	16	4
RA-25	20, 25	54	25	45	17	6.6	40	25	22	5

Material: steel, zinc plated

RB-xx Flange mount

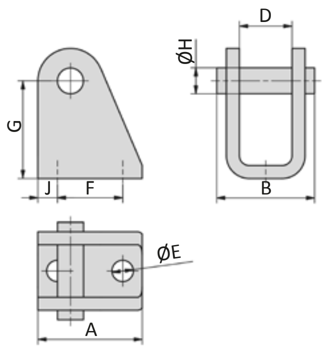


Model-no.:	for cylinder Ø	Ø E	F	Ø H	I
RB-10	8, 10	4.5	30	12	3
RB-16	12, 16	5.5	40	16	4
RB-25	20, 25	6.6	50	22	5

Material: steel, zinc plated

9

RC-xx Clevis mount

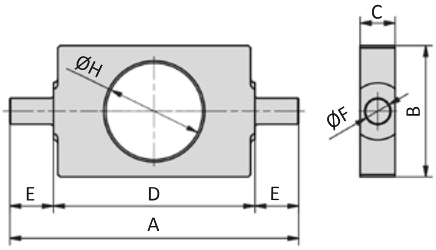


Model-no.:	for cylinder Ø	A	B	D	Ø E	F	G	Ø H	J
RC-10	8, 10	20	17	8.1	4.5	12.5	24	4	5
RC-16	12, 16	25	23	12.1	5.5	15	27	6	5
RC-30	20, 25	32	30	16.1	6.6	20	30	8	6

Material: steel, zinc plated, 2 snap rings are included.

Series HM
Mounting accessories

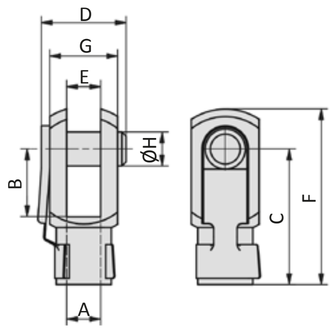
RH-xx Trunnion mount



Model-no.:	for cylinder Ø	A	B	C	D	E	Ø F	Ø H
RH-10	8, 10	38	20	6	26	6	4	12
RH-16	12, 16	58	25	8	38	10	6	16
RH-25	20, 25	66	30	8	46	10	6	22

Material: steel, zinc plated

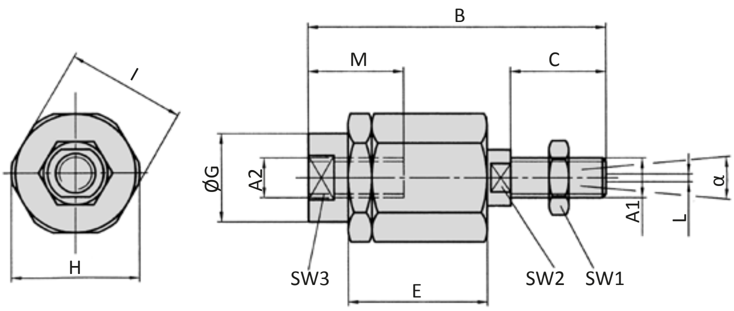
RD-xx Rod clevis



Model-no.:	for cylinder Ø	A	B	C	D	E	F	G	Ø H
RD-10	8, 10	M4	8	16	11.5	4	21	8	4
RD-16	12, 16	M6	12	24	16	6	31	12	6
RD-20	20	M8	16	32	22	8	42	16	8
RD-25	25	M10 x 1.25	20	40	26	10	52	20	10

Material: steel, zinc plated

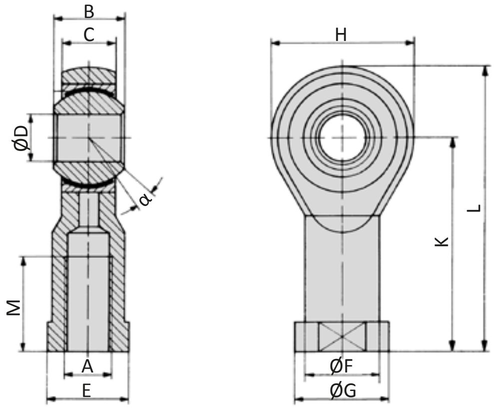
FK-xx Flexible coupling



Model-no.:	for cylinder Ø	A1, A2	B	C	D	E	Ø G	H	I	L	M	SW1	SW2	SW3	α
FK-16	12, 16	M6	35	11	2.5	17.5	8.5	14.5	13	1	12.5	10	5	7	6°
FK-20	20	M8	57	21	5	26	12.5	19	17	2	16	13	7	11	8°
FK-32	25	M10 x 1.25	71.5	20	7.5	35	22	32	30	2	22	17	12	19	8°

Material: steel, zinc plated

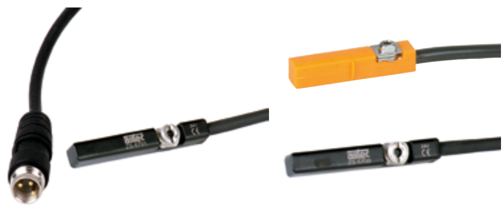
RO-xx Rod eye



Model-no.:	for cylinder Ø	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
RO-16	12, 16	M6	9	6.75	6	11	10	13	20	30	40	12	13°
RO-20	20	M8	12	9	8	14	12.5	16	24	36	48	16	14°
RO-25	25	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°

Materials: steel, zinc plated, bearing steel, bronze bushing

Proximity sensors



Page 9-90

For piston Ø 8, 10 and 12 mm only electronic switches (ZS-6700, ZS-6701, ZS-7300 or ZS-7302) can be used.

9

Series LE
Linear guides

Technical details

Operating pressure	1 ... 10 bar	
Temperature range	-30°C ... +100°C	
Max. stroke	1000 mm	
Materials	Body:	Al (anodized)
	Guide rod:	steel hard chrome plated (bronze bearing) steel, tempered (ball bearings)
	Bearing:	sintered bronze (bronze bearing) steel (ball bearings)
	Seals:	NBR

Linear guide for mini cylinder in accordance with ISO 6432.

Order code

LE-***-****-**

Series

Cylinder-Ø

16	12, 16 mm
25	20, 25 mm

Versions

HK	type H ball bearings
HG	type H bronze bearings
CG	type C bronze bearings

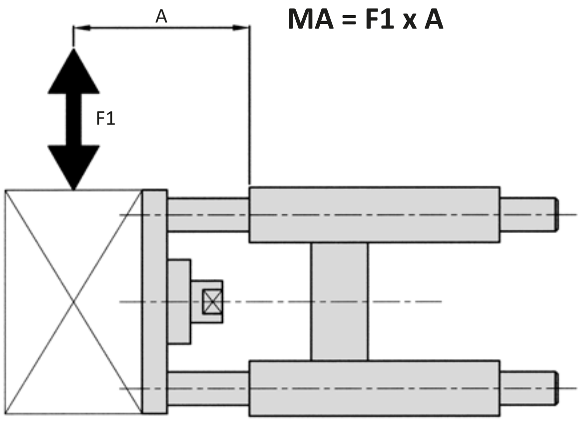
Stroke (mm)

XXXX	max. 1.000 mm

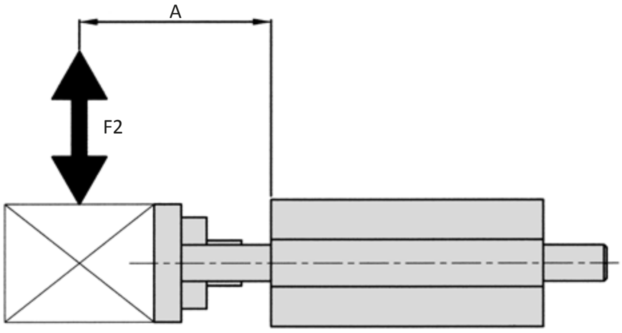
Technical information

Version	Ø (mm)	16	25
CG	max. load MA (Nm)	6	13
	max. load MB (Nm)	5	12
HG	max. load MA (Nm)	6.5	19
	max. load MB (Nm)	5.8	17
HK	max. load MA (Nm)	9	11
	max. load MB (Nm)	8	10

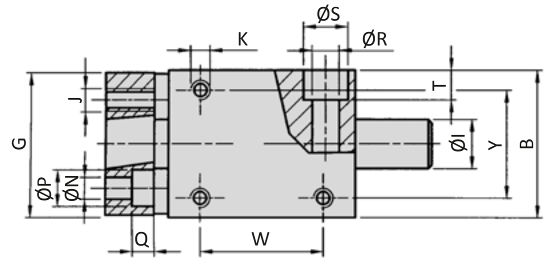
MA = F1 x A

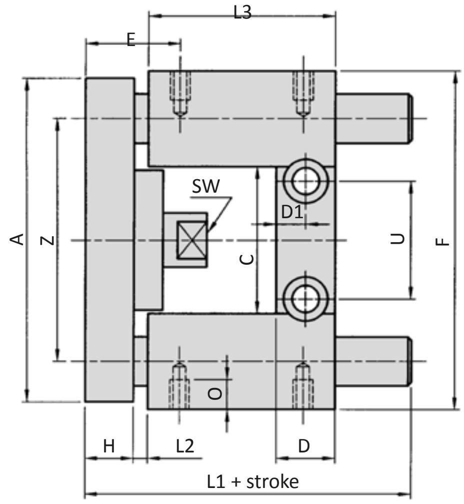


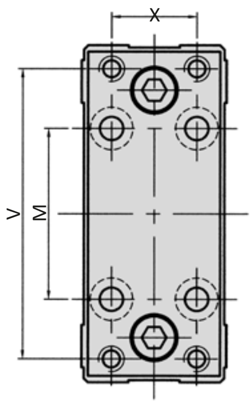
MB = F2 x A



Dimensions type CG







Ø	A	B	C	D	D1	E	F	G	H	Ø I	J	K	L1	L2	L3
16	66	30	30	12	6	19.5	69	29	10	10	M4	M4	66.5	3	38
25	78	34	37	17	8.5	21.75	79	32	12	12	M5	M6	83	3	48

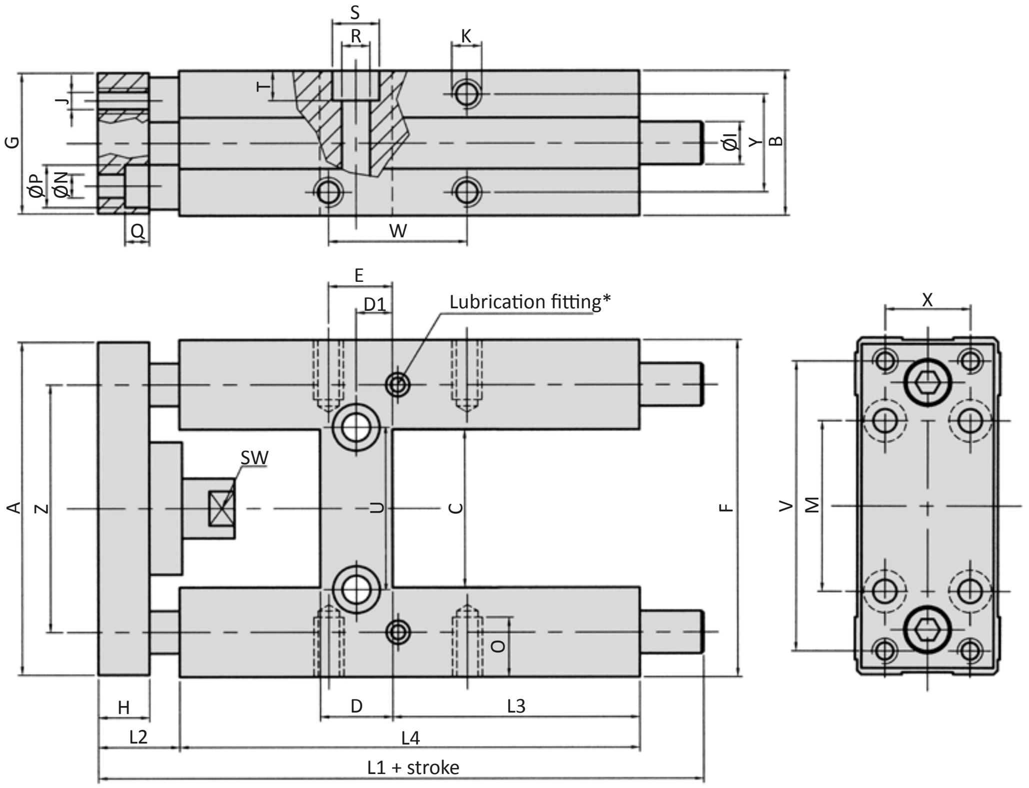
Ø	M	Ø N	O	Ø P	Q	Ø R	Ø S	SW	T	U	V	W	X	Y	Z
16	32	4.5	6	7.5	4.5	5.5	9	8	6	24	58	25	18	22	49.5
25	38	5.5	9	10	7.5	6.5	11	12	7	38	68	32.5	20	23	58

Ø (mm)		16	25
Weight (kg)	0 mm stroke	0.30	0.50
	each 100 mm stroke	0.12	0.18

9

Series LE
Linear guides

Dimensions type HG, HK



*only type HK

Ø	A	B	C	D	D1	E	F	G	H	Ø I	Ø I*	J	K	L1	L2	L3
16	66	30	30	12	6	8	69	29	10	10	8	M4	M4	123	32	46
25	78	34	37	17	8.5	15	79	32	12	12	10	M5	M6	165	15	58

* Version HK

Ø	L4	M	Ø N	O	Ø P	Q	Ø R	Ø S	SW	T	U	V	W	X	Y	Z
16	68	32	4.5	6	8	6	5.5	9	8	5.5	24	58	18	18	22	49.5
25	108	38	5.5	9	10	9	6.5	11	12	6.5	38	68	32.5	20	23	58

Ø (mm)		16	25
Weight HG (kg)	**0 mm stroke**	0.40	0.90
	each 100 mm stroke	0.12	0.18
Weight HK (kg)	**0 mm stroke**	0.36	0.84
	each 100 mm stroke	0.08	0.12

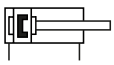
Series CM
Mini cylinders ISO 6432, double acting

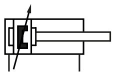
Technical details

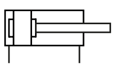
Operating pressure	1 ... 10 bar
Temperature range	-30°C ... +80°C (0 ... +150°C for high temperature version)
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: AISI 304 (1.4301) End caps: AISI 304 (1.4301) Piston rod: AISI 316 (1.4401) Seals: PU (optional FKM)
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

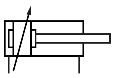
Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings.

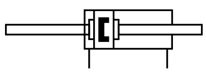
Versions

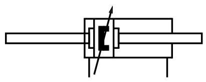

CM
double acting, with magnetic piston


CMP
double acting, adjustable cushioning, with magnetic piston


CDH
double acting, high temperature version


CDHP
double acting, adjustable cushioning, high temperature version


CMDE
double acting, double end piston rod, with magnetic piston


CMPDE
double acting, double end piston rod, adjustab-le cushioning, with magnetic piston

9

Order code

C**-**-***-****

Series	
CM	standard
CMP*	
CMDE	
CMPDE*	
CDH	
CDPH*	

* only for Ø 20 and 25 mm

Options	
ATEX	cylinders in accordance with 2014/34/EU (ATEX)

Stroke (mm)	
XXX	max. stroke see technical data

Piston Ø	
16	16 mm
20	20 mm
25	25 mm

Series CM

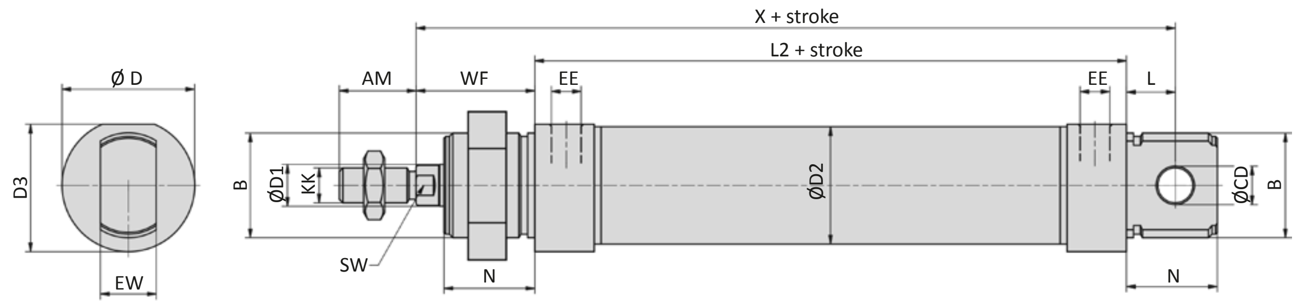
Mini cylinders ISO 6432, double acting

Technical data

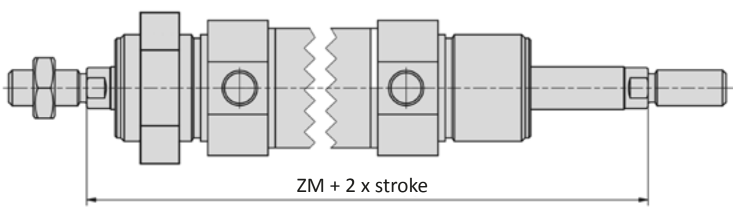
Model-no.:		Cxx-16-...	Cxx-20-...	Cxx-25-...
Piston Ø (mm)		16	20	25
Force at 6 bar (N)	Extension	109	170	265
	Retraction	93	142	223
Connection		M5	G1/8	G1/8
Piston rod thread		M6	M8	M10 x 1.25
Max. stroke (mm)		250	600	600
Cushioning length (mm)*		15.5	17	19.5

* only for series CMP, CMPDE, CDHP

Dimensions series CM, CMP, CDH, CDHP



double end piston rod

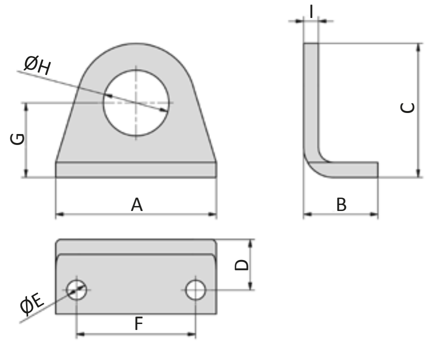


Piston Ø	AM	B	Ø CD	Ø D	Ø D1	Ø D2	D3	EE
16	16	M16 x 1.5	6	19	6	17.27	18	M5
20	20	M22 x 1.5	8	27	8	21.27	25.5	G1/8
25	22	M22 x 1.5	8	30	10	26.5	28.5	G1/8

Piston Ø	EW	KK	L	L2	N	SW	WF	X	ZM
16	12	M6	9	53	18	5	22	82	97
20	16	M8	12	67	20	7	24	95	115
25	16	M10 x 1.25	12	68	22	9	28	104	124

Series CM
Mounting accessories

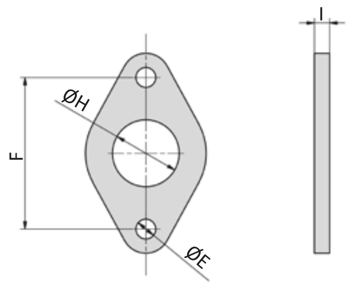
PA-xx Foot mount



Model-no.:	for cylinder Ø	A	B	C	D	Ø E	F	G	Ø H	I
PA-16	16	42	20	33	14	5.5	32	20	16.1	4
PA-25	20, 25	54	25	45	17	6.6	40	25	22.1	5

Material: stainless steel AISI 304 (1.4301)

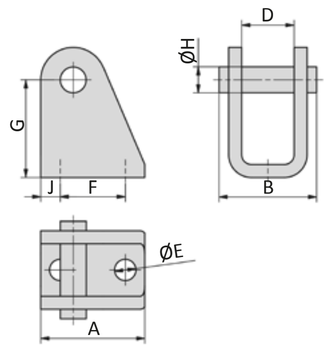
PB-xx Flange mount



Model-no.:	for cylinder Ø	Ø E	F	Ø H	I
PB-16	16	5.5	40	16.1	4
PB-25	20, 25	6.6	50	22.1	5

Material: stainless steel AISI 304 (1.4301)

PC-xx Clevis mount

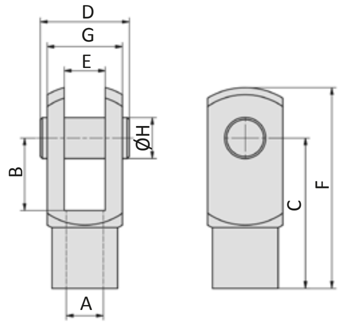


Model-no.:	for cylinder Ø	A	B	D	Ø E	F	G	Ø H	J
PC-16	16	25	24	12.1	5.5	15	27	6	5
PC-25	20, 25	32	30	16.1	6.6	20	30	8	6

Material: stainless steel AISI 304 (1.4301), 2 snap rings are included.

Series CM
Mounting accessories

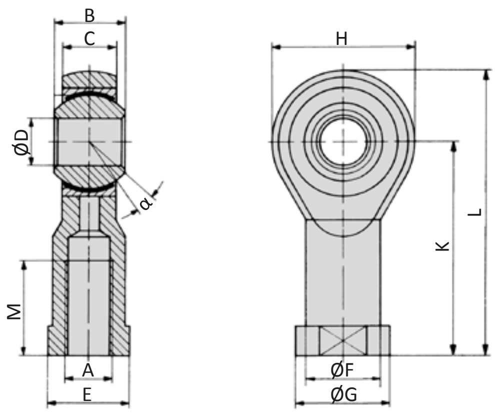
PD-xx Rod clevis



Model-no.:	for cylinder Ø	A	B	C	D	E	F	G	Ø H
PD-16	16	M6	12	24	16	6	31	12	6
PD-20	20	M8	16	32	22	8	42	16	8
PD-25	25	M10 x 1.25	20	40	26	10	52	20	10

Material: stainless steel AISI 303 (1.4305)

PO-xx Rod eye



Model-no.:	for cylinder Ø	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
PO-16	16	M6	9	6.75	6	11	10	13	20	30	40	12	13°
PO-20	20	M8	12	9	8	14	12.5	16	24	36	48	16	14°
PO-25	25	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°

Materials: stainless steel AISI 331 (1.4057), bearing stainless steel AISI 316 Ti, PTFE coated, bushing stainless steel AISI 420 (1.4034)

Proximity sensors

Page 9-90

Series HMU

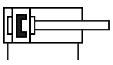
Mini cylinders, double acting

Technical details

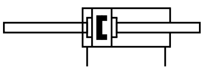
Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C
Max. stroke	900 mm
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: stainless steel End caps: Al (anodized) Piston rod: stainless steel Seals: PU, NBR

Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings or adjustable cushions.

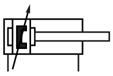
Versions



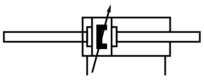
HMU
double acting, with magnetic piston



HMUDE
double acting, double end piston rod, with magnetic piston



HMUP
double acting, adjustable cushioning, with magnetic piston



HMUPDE
double acting, double end piston rod, adjustable cushioning, with magnetic piston

Order code

HMU*-*-**-***-****

Series
HMU
HMUP
HMUDE
HMUPDE

Version	
without	standard version
S	lateral air connection, rear
Z	central air connection, rear

Piston Ø	
32	32 mm
40	40 mm

Stroke (mm)	
XXX	max. 900 mm
Standard#	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 mm

Options	
RG	piston rod thread according to ISO

only for series HMU and HMUP

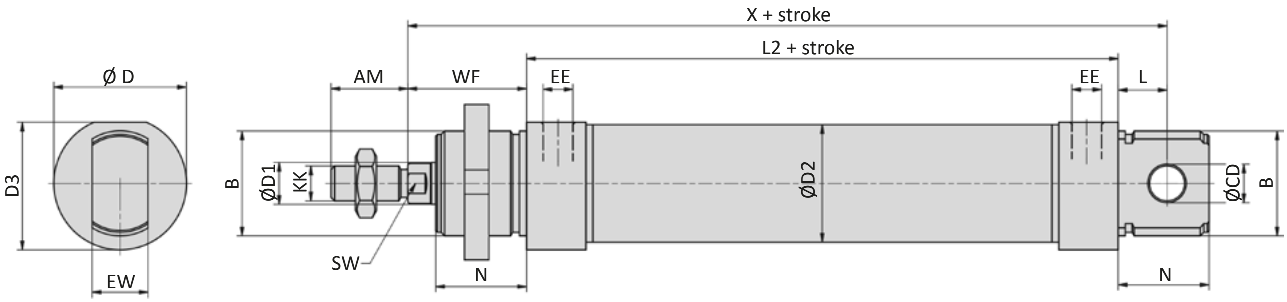
Series HMU

Mini cylinders, double acting

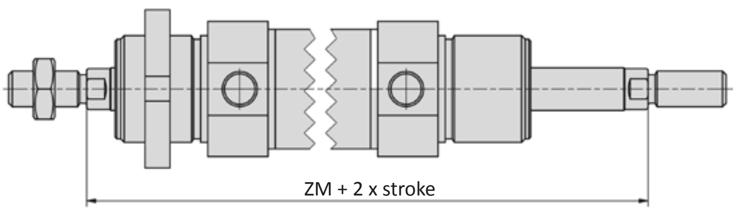
Technical data

Model-no.:		HMU-32-...	HMU-40-...	HMUP-32-...	HMUP-40-...
Piston Ø (mm)		32	40	32	40
Force at 6 bar (N)	Extension	434	678	434	678
Force at 6 bar (N)	Retraction	373	570	373	570
Connection		G1/8	G1/4	G1/8	G1/4
Piston rod thread		M10 x 1.25	M12 x 1.25	M10 x 1.25	M12 x 1.25
Cushioning length (mm)		-	-	22.5	24.5

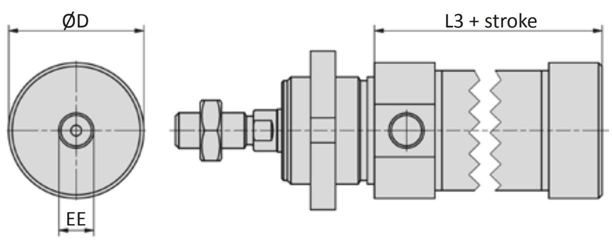
Dimensions series HMU, HMUP



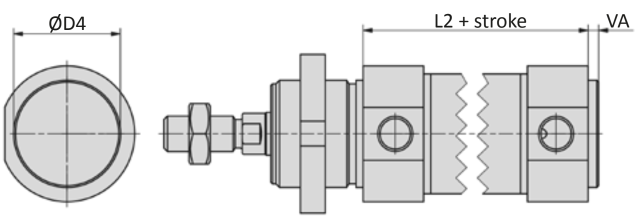
double end piston rod



Version -Z



Version -S

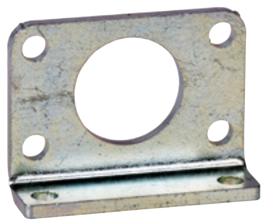


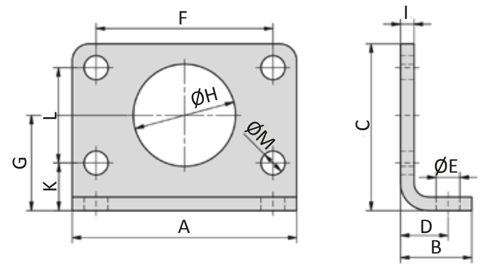
Piston Ø	AM	B	Ø CD	Ø D	Ø D1	Ø D2	D3	Ø D4	EE	EW
32	22	M30 x 1.5	10	38	12	33.6	36.5	30	G1/8	16
40	24	M38 x 1.5	12	46	16	41.6	44	38	G1/4	18

Piston Ø	KK	L	L2	L3	N	SW	VA	WF	X	ZM
32	M10 x 1.25	14	69.5	65.5	26	10	3	34	117.5	137.5
40	M12 x 1.25	16	84.5	77.5	30	13	4	39	139.5	162.5

Series HMU
Mounting accessories

RA-xx Foot mount

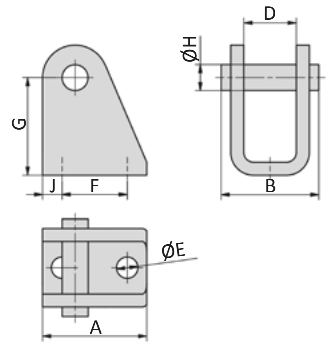




Model-no.:	A	B	C	D	Ø E	F	G	Ø H	I	K	L	Ø M
RA-32	66	21	49	14	7	52	28	30	4	14	28	7
RA-40	80	30	58	20	9	60	33	38	5	18	30	9

Material: steel, zinc plated

RC-xx-1 Clevis mount

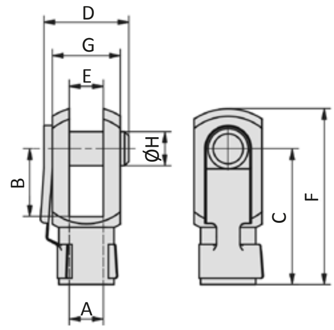


Model-no.:	A	B	D	Ø E	F	G	Ø H	J
RC-32-1	35	31.3	16.1	6.6	24	35	10	5.5
RC-40-1	45	35.5	18.1	9	30	40	12	7.5

Material: steel, zinc plated, 2 snap rings are included.

9

RD-xx, FD-xx Rod clevis

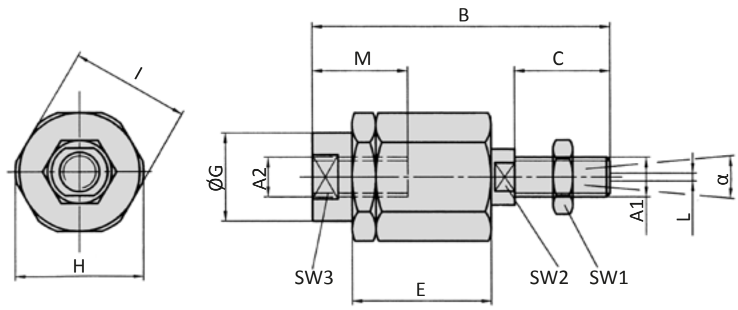


Model-no.:	A	B	C	D	E	F	G	Ø H
RD-25	M10 x 1.25	20	40	26	10	52	20	10
FD-40	M12 x 1.25	24	48	32	12	62	24	12

Material: steel, zinc plated

Series HMU
Mounting accessories

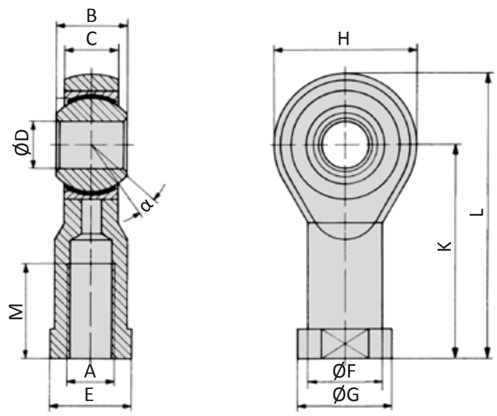
FK-xx Flexible coupling



Model-no.:	A1, A2	B	C	D	E	Ø G	H	I	L	M	SW1	SW2	SW3	α
FK-32	M10 x 1.25	71.5	20	7.5	35	22	32	30	2	22	17	12	19	8°
FK-40	M12 x 1.25	71.5	20	7.5	35	22	32	30	2	22	19	12	19	8°

Material: steel, zinc plated

RO-xx, FO-xx Rod eye



Model-no.:	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
RO-25	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
FO-40	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°

Materials: steel, zinc plated, bearing steel, bronze bushing

Proximity sensors

Page 9-90

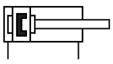
Series NYD
ISO 21287, double acting

Technical details

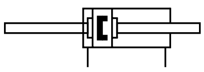
Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C (NYDH: -10°C ... +150°C)
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: stainless steel Seals: PU, NBR (optional FKM)
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Double acting pneumatic cylinder with magnetic piston for proximity sensors and built-in cushioning rings.
Standard stroke lengths in table below, additional lengths on request.

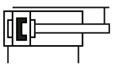
Versions



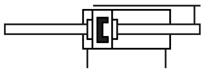
200, 210
double acting, built-in cushioning rings, with magnetic piston



600, 610, 800, 810
double acting, double end piston rod, built-in cushioning rings, with magnetic piston



220
double acting, non rotating, built-in cushioning rings, with magnetic piston



620
double acting, non rotating, double end piston rod, built-in cushioning rings, with magnetic piston

Order code

NYD*-*-***-***-*****

Series	
NYD	standard
NYDH	high temperature version

Piston Ø	
020	20 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm
125***	125 mm

Stroke (mm)	
XXX	max. 250 mm
Standard	5, 10, 15, 20, 25, 30, 40, 50, 60*, 80*

* up from Ø 32 mm

** max. stroke 100 mm (up to Ø 25 mm) , 200 mm (up from Ø 32 mm)

*** only version 200 and 210

Options	
ATEX	cylinders in accordance with 2014/34/EU (ATEX)

Versions	
200 600	standard version, male thread
210 610	standard version, female thread
220 620	non rotating
202 602	high temperature version (with magnetic piston up to 80°C effective), male thread
212 612	high temperature version (with magnetic piston up to 80°C effective), female thread
222 622	high temperature version (with magnetic piston up to 80°C effective), non rotating + female thread
800**	double end, through hollow piston rod, male thread
810**	double end, through hollow piston rod, female thread

Not all combinations are possible and available.

9

Series NYD
ISO 21287, double acting

Technical data

Model-no.:		NYD-020-...	NYD-025-...	NYD-032-...	NYD-040-...	NYD-050-...
Piston Ø (mm)		20	25	32	40	50
Force at 6 bar (N)	Extension	170	265	434	678	1060
	Retraction	127	223	373	617	951
Connection		M5	M5	G1/8	G1/8	G1/8
Piston rod thread	male	M8	M8	M10 x 1.25	M10 x 1.25	M12 x 1.25
	female	M6	M6	M8	M8	M10

Model-no.:		NYD-063-...	NYD-080-...	NYD-100-...	NYD-125-...
Piston Ø (mm)		63	80	100	125
Force at 6 bar (N)	Extension	1682	2713	4239	6623
	Retraction	1574	2543	3974	6345
Connection		G1/8	G1/8	G1/8	G1/4
Piston rod thread	male	M12 x 1.25	M16 x 1.5	M16 x 1.5	M20 x 1.5
	female	M10	M12	M12	M16

Piston Ø (mm)		20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-200)	0.143	0.178	0.240	0.301	0.471	0.661	1.066	1.793
	0 mm stroke (-210)	0.131	0.166	0.217	0.278	0.435	0.625	0.996	1.722
	each 10 mm stroke	0.024	0.028	0.029	0.030	0.048	0.057	0.088	0.115

Piston Ø (mm)		20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-220)	0.163	0.204	0.287	0.373	0.590	0.833	1.398	2.261
	each 10 mm stroke	0.028	0.034	0.035	0.038	0.062	0.071	0.114	0.139

Piston Ø (mm)		20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-600)	0.140	0.175	0.232	0.293	0.463	0.653	1.050	1.833
	0 mm stroke (-610)	0.164	0.199	0.278	0.339	0.535	0.725	1.190	1.975
	each 10 mm stroke	0.030	0.034	0.037	0.038	0.064	0.073	0.114	0.149

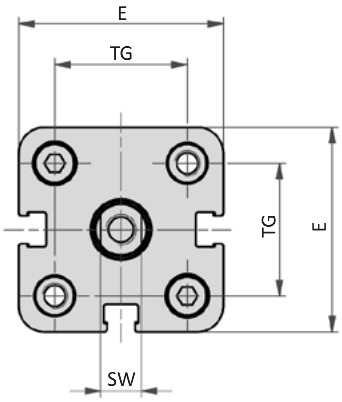
Piston Ø (mm)		20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-620)	0.172	0.213	0.302	0.388	0.618	0.861	1.452	2.372
	each 10 mm stroke	0.034	0.040	0.043	0.046	0.078	0.087	0.140	0.173

Series NYD

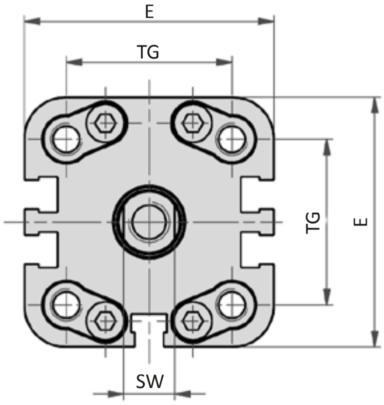
ISO 21287, double acting

Dimensions series NYD (versions 200 and 210)

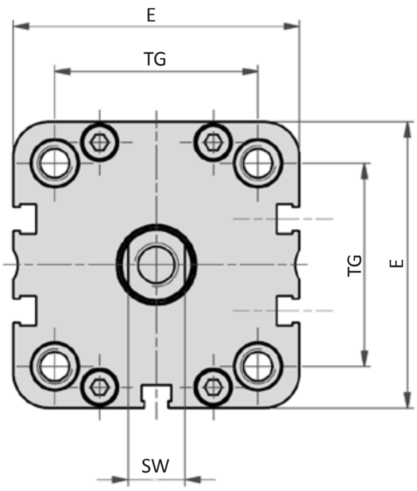
Ø 20 - 25



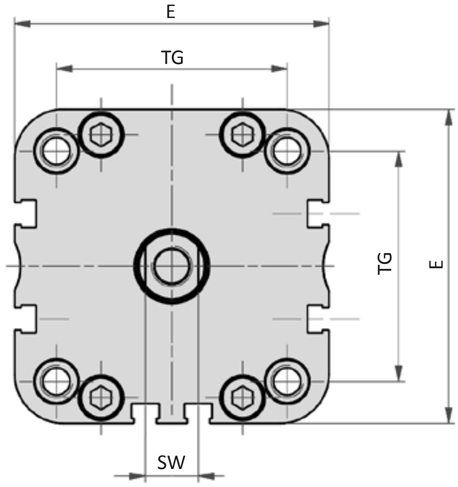
Ø 32

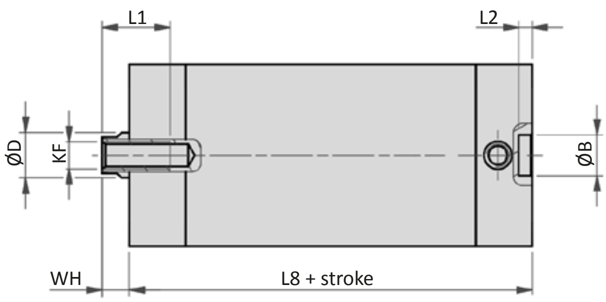


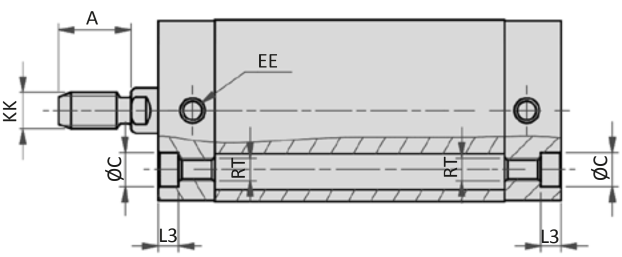
Ø 40 - 50



Ø 63 - 125







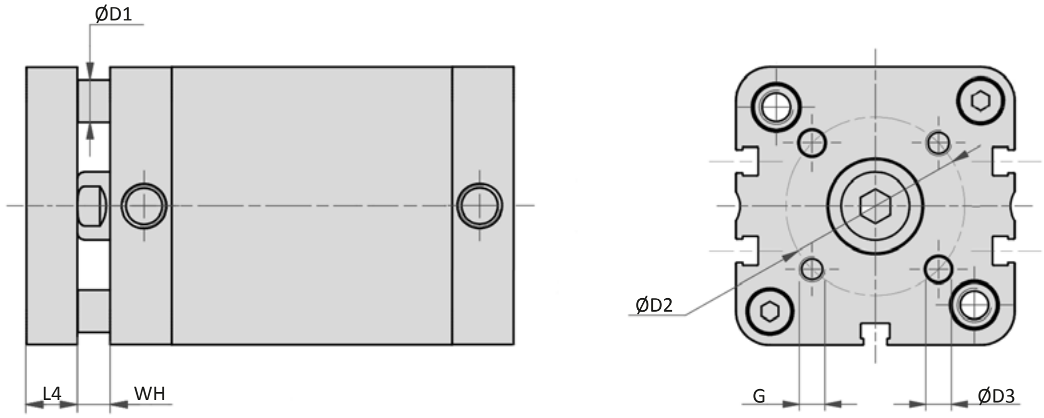
Piston Ø	A	Ø B	Ø C	Ø D	E	EE	KF	KK	L1	L2	L3	L8	RT	SW	TG	WH
20	16	9	7.5	10	36	M5	M6	M8	15	3	4.5	37	M5	8	22	6.5
25	16	9	7.5	10	40	M5	M6	M8	15	3	4.5	39	M5	8	26	6
32	19	9	9	12	49	G1/8	M8	M10 x 1.25	16	3	5	44	M6	10	32.5	6.5
40	19	9	9	12	54.5	G1/8	M8	M10 x 1.25	16	3	5	45	M6	10	38	7
50	22	12	10.5	16	65.5	G1/8	M10	M12 x 1.25	17	4	5	45	M8	13	46.5	8
63	22	12	10.5	16	77	G1/8	M10	M12 x 1.25	17	4	5	49	M8	13	56.5	8
80	28	12	13.5	20	95.5	G1/8	M12	M16 x 1.5	20	4	3	54	M10	17	72	9
100	28	12	13.5	25	113.5	G1/8	M12	M16 x 1.5	20	4	3	67	M10	22	89	10
125	40	12	-	25	135	G1/4	M16	M20 x 1.5	25	4	-	81	M12	22	110	11

Series NYD

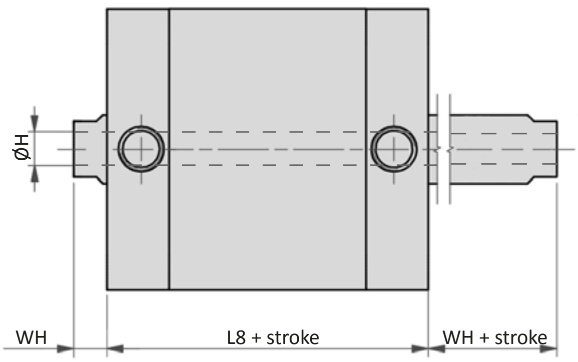
ISO 21287, double acting

Dimensions series NYD (versions 220, 600, 610, 620, 800 and 810)

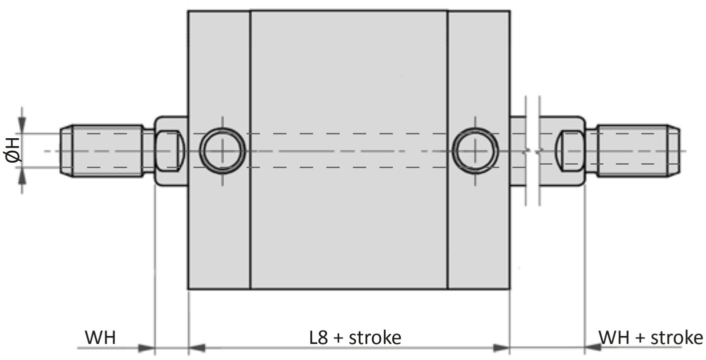
Version 220



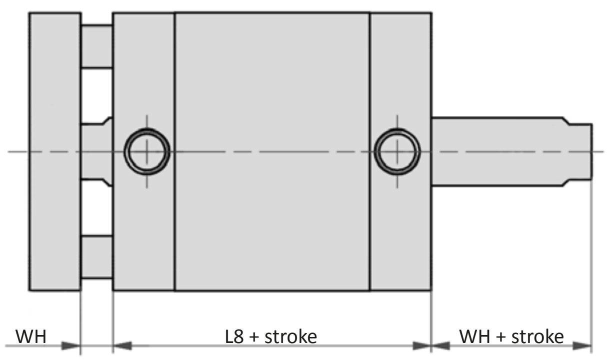
Versions 610, 810



Versions 600, 800



Version 620



Piston Ø	Ø D1	Ø D2	Ø D3	G	Ø H*	L4	L8	WH
20	5	17	4	M4	4	8	37	6.5
25	6	22	5	M5	4	8	39	6
32	6	28	5	M5	5	10	44	6.5
40	8	33	5	M5	5	10	45	7
50	10	42	6	M6	6	12	45	8
63	10	50	6	M6	6	12	49	8
80	14	65	8	M8	8	14	54	9
100	14	80	10	M10	10	14	67	10

* only for versions 800 and 810

Series NYD

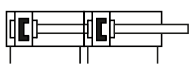
High force and multiple positioning cylinder, double acting

Technical details

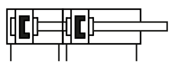
Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: stainless steel Seals: PU, NBR (optional FKM)
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

A back to back mounting of cylinders with same piston diameter is available up to 4 positions.
Combining 2 to 3 cylinders with same piston diameter but different stroke lengths provides a max. of 4* positions.
Multiplying the force will be achieved by adding several cylinders with same diameter and same stroke length.

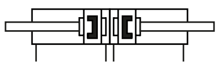
Versions



NYDKx
high force cylinder, double acting, built-in cushioning rings, with magnetic piston, x-times force



NYMy
multiple positioning cylinder, double acting, built-in cushioning rings, with magnetic piston, y+1 positions



NYR2
multiple positioning cylinder, double acting, built-in cushioning rings, with magnetic piston

Order code

NY*##-***-*********-*****

Series	
NYDK2	high force cylinder, 2 x force
NYDK3	high force cylinder, 3 x force
NYDK4	high force cylinder, 4 x force
NYM2	multiple positioning cylinder, 2 strokes, 3 positions
NYM3	multiple positioning cylinder, 3 strokes, 4 positions
NYR2	multiple positioning cylinder, 2 strokes, 3 positions

AG*	piston rod male thread
IG*	piston rod female thread

Piston Ø	
020	20 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm

** only for NYM2 and NYM3*

Versions	
without	only NYM2 and NYM3
200	standard version, male thread
210	standard version, female thread

Stroke (mm)	
XXX XXX XXX	stroke 1, stroke 2, stroke 3**

***stroke 2 and stroke 3 only for multiple positioning cylinder*

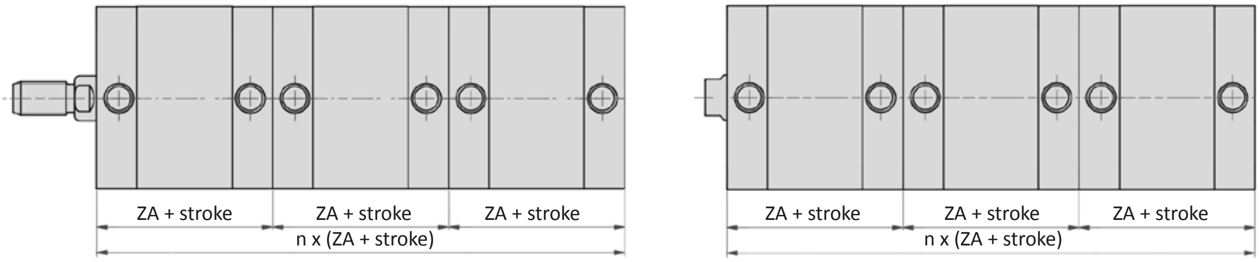
9

Series NYD

High force and multiple positioning cylinder, double acting

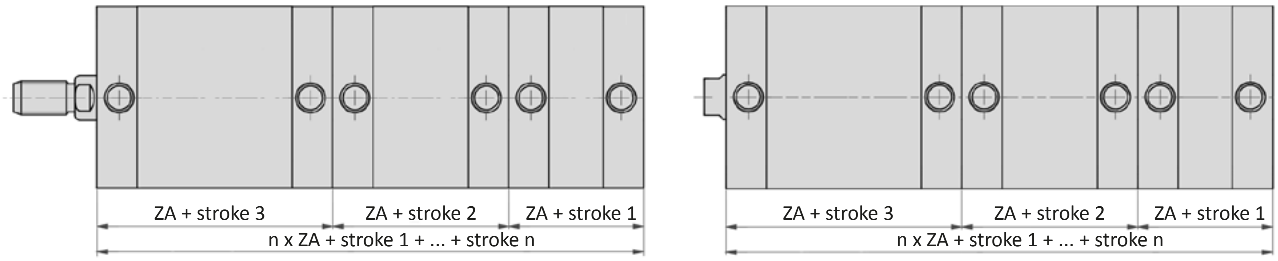
Dimensions series NYD (versions NYDK, NYM, NYR)

Version NYDK



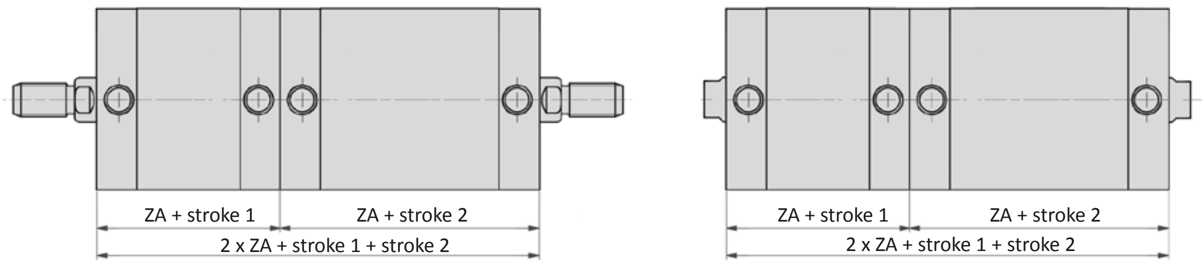
For cylinder applications for NYDK3 and NYDK4 check mounting advices with our technical department.

Version NYM



stroke 3 (max. total stroke) > stroke 2 > stroke 1

Version NYR



Piston Ø (mm)		20	25	32	40	50	63	80	100
ZA		37	39	44	45	45	49	54	67
Weight (kg)	**0 mm stroke (-200/-AG)**	0.286	0.351	0.480	0.597	0.888	1.278	2.136	3.605
	0 mm stroke (-210/-IG)	0.274	0.339	0.457	0.574	0.852	1.242	2.066	3.534
	surcharge for 3rd and more cylinders	0.143	0.173	0.240	0.296	0.417	0.617	1.070	1.812
	each 10 mm stroke*	0.024	0.028	0.029	0.030	0.048	0.057	0.088	0.115

* total of all strokes

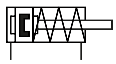
Series NYE
ISO 21287, single acting

Technical details

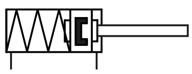
Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al-die-cast (painted) Piston rod: stainless steel Seals: PU, NBR (optional FKM)
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Single acting cylinder with magnetic piston for proximity sensors and built-in cushioning rings.
Standard stroke lengths in table below, additional lengths on request.

Versions



000, 010
single acting, built-in cushioning rings,
with magnetic piston,
normally retracted



200, 210
single acting, built-in cushioning rings,
with magnetic piston,
normally extended

Order code

NYE-***-***-***-****

Series	
NYE	standard

Piston Ø	
020	20 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm

Options	
ATEX	cylinders in accordance with 2014/34/EU (ATEX)

Versions	
000	standard version, male thread, normally retracted
010	standard version, female thread, normally retracted
200	standard version, male thread, normally extended
210	standard version, female thread, normally extended

Stroke (mm)	
XXX	max. 60 mm
Standard	5, 10, 15, 20, 25

Technical data

Model-no.:		NYE-020-...	NYE-025-...	NYE-032-...	NYE-040-...	NYE-050-...	NYE-063-...	NYE-080-...	NYE-100-...
Piston Ø (mm)		20	25	32	40	50	63	80	100
Connection		M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8
Piston rod thread	**male**	M8	M8	M10 x 1.25	M10 x 1.25	M12 x 1.25	M12 x 1.25	M16 x 1.5	M16 x 1.5
	female	M6	M6	M8	M8	M10	M10	M12	M12
Weight (kg)	**0 mm stroke (-x00)***	0.143	0.178	0.240	0.301	0.471	0.661	1.066	1.793
	0 mm stroke (-x10)*	0.131	0.166	0.217	0.278	0.435	0.625	0.996	1.722
	0 mm stroke (-x00)**	0.167	0.202	0.264	0.325	0.495	0.685	1.114	1.841
	0 mm stroke (-x10)**	0.155	0.190	0.241	0.302	0.459	0.649	1.044	1.770
	each 10 mm stroke	0.024	0.028	0.029	0.030	0.048	0.057	0.088	0.115

* up to 30 mm stroke, ** from 35 mm stroke

Series NYE

ISO 21287, single acting

Technical data

Model-no.:		NYE-020-xxx-0x0	NYE-025-xxx-0x0	NYE-032-xxx-0x0	NYE-040-xxx-0x0
Force at 6 bar and 5 mm stroke (N)	Extension	132 ... 137	223 ... 227	381 ... 386	609 ... 616
	Retraction	33 ... 38	38 ... 42	48 ...53	63 ... 70
Force at 6 bar and 10 mm stroke (N)	Extension	132 ... 141	223 ... 232	381 ... 392	609 ... 623
	Retraction	29 ... 38	33 ... 42	42 ...53	56 ... 70
Force at 6 bar and 15 mm stroke (N)	Extension	132 ... 146	223 ... 236	381 ... 397	609 ... 630
	Retraction	24 ... 38	29 ... 42	37 ...53	49 ... 70
Force at 6 bar and 20 mm stroke (N)	Extension	132 ... 151	223 ... 241	381 ... 403	609 ... 637
	Retraction	19 ... 38	24 ... 42	31 ...53	42 ... 70
Force at 6 bar and 25 mm stroke (N)	Extension	132 ... 155	223 ... 245	381 ... 408	609 ... 644
	Retraction	15 ... 38	20 ... 42	26 ...53	35 ... 70

Model-no.:		NYE-050-xxx-0x0	NYE-063-xxx-0x0	NYE-080-xxx-0x0	NYE-100-xxx-0x0
Force at 6 bar and 5 mm stroke (N)	Extension	985 ... 993	1586 ... 1594	2564 ... 2573	4027 ... 4039
	Retraction	67 ... 75	89 ... 97	141 ... 150	202 ... 214
Force at 6 bar and 10 mm stroke (N)	Extension	985 ... 1001	1586 ... 1602	2564 ... 2581	4027 ... 4052
	Retraction	59 ... 75	81 ... 97	133 ... 150	189 ... 214
Force at 6 bar and 15 mm stroke (N)	Extension	985 ... 1008	1586 ... 1610	2564 ... 2590	4027 ... 4064
	Retraction	52 ... 75	73 ... 97	124 ... 150	177 ... 214
Force at 6 bar and 20 mm stroke (N)	Extension	985 ... 1016	1586 ... 1619	2564 ... 2599	4027 ... 4076
	Retraction	44 ... 75	64 ... 97	115 ... 150	165 ... 214
Force at 6 bar and 25 mm stroke (N)	Extension	985 ... 1024	1586 ... 1627	2564 ... 2607	4027 ... 4089
	Retraction	36 ... 75	56 ... 97	107 ... 150	152 ... 214

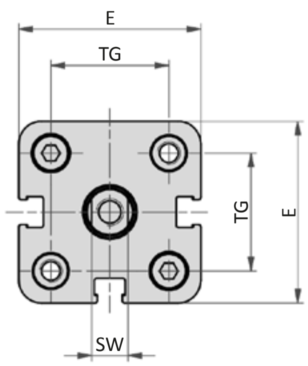
Model-no.:		NYE-020-xxx-2x0	NYE-025-xxx-2x0	NYE-032-xxx-2x0	NYE-040-xxx-2x0
Force at 6 bar and 5 mm stroke (N)	Extension	33 ... 38	38 ... 42	48 ... 53	63 ... 70
	Retraction	89 ... 94	181 ... 185	320 ... 325	548 ... 555
Force at 6 bar and 10 mm stroke (N)	Extension	29 ... 38	33 ... 42	42 ... 53	56 ... 70
	Retraction	89 ... 98	181 ... 190	320 ... 331	548 ... 562
Force at 6 bar and 15 mm stroke (N)	Extension	24 ... 38	29 ... 42	37 ... 53	49 ... 70
	Retraction	89 ... 103	181 ... 194	320 ... 336	548 ... 569
Force at 6 bar and 20 mm stroke (N)	Extension	19 ... 38	24 ... 42	31 ... 53	42 ... 70
	Retraction	89 ... 108	181 ... 199	320 ... 342	548 ... 576
Force at 6 bar and 25 mm stroke (N)	Extension	15 ... 38	29 ... 42	26 ... 53	35 ... 70
	Retraction	89 ... 112	181 ... 203	320 ... 347	548 ... 583

Model-no.:		NYE-050-xxx-2x0	NYE-063-xxx-2x0	NYE-080-xxx-2x0	NYE-100-xxx-2x0
Force at 6 bar and 5 mm stroke (N)	Extension	67 ... 75	89 ... 97	141 ... 150	202 ... 214
	Retraction	877 ... 885	1478 ... 1486	2395 ... 2404	3762 ... 3774
Force at 6 bar and 10 mm stroke (N)	Extension	59 ... 75	81 ... 97	133 ... 150	189 ... 214
	Retraction	877 ... 893	1478 ... 1494	2395 ... 2412	3762 ... 3787
Force at 6 bar and 15 mm stroke (N)	Extension	52 ... 75	73 ... 97	124 ... 150	177 ... 214
	Retraction	877 ... 900	1478 ... 1502	2395 ... 2421	3762 ... 3799
Force at 6 bar and 20 mm stroke (N)	Extension	44 ... 75	64 ... 97	115 ... 150	165 ... 214
	Retraction	877 ... 908	1478 ... 1511	2395 ... 2430	3762 ... 3811
Force at 6 bar and 25 mm stroke (N)	Extension	36 ... 75	56 ... 97	107 ... 150	152 ... 214
	Retraction	877 ... 916	1478 ... 1519	2395 ... 2438	3762 ... 3824

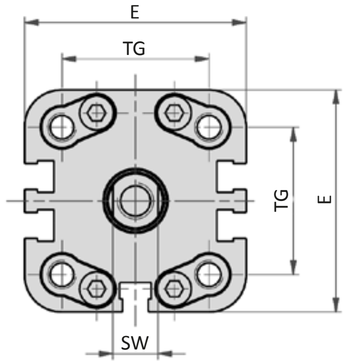
Series NYE
ISO 21287, single acting

Dimensions series NYE

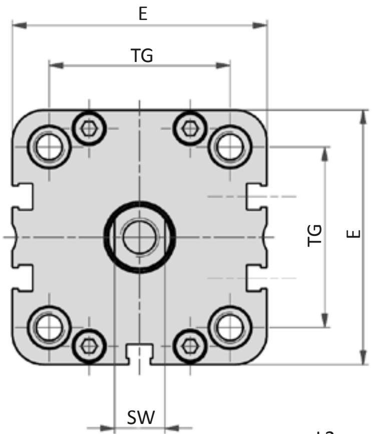
Ø 20 - 25



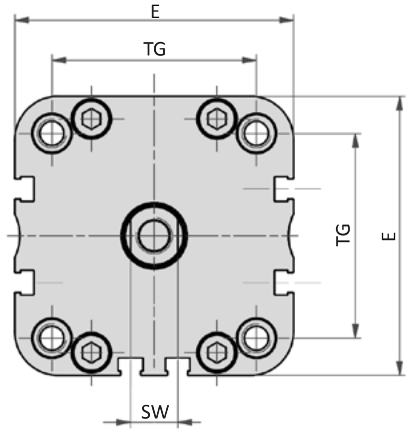
Ø 32



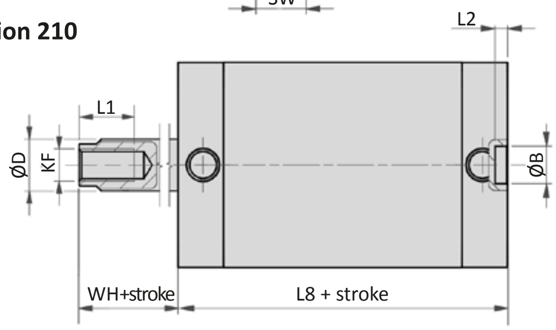
Ø 40 - 50



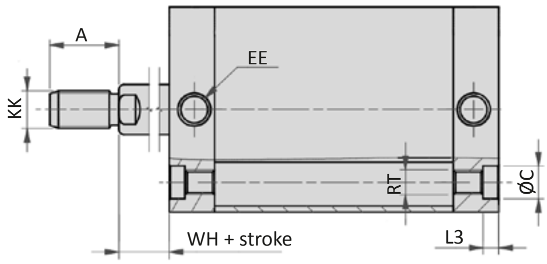
Ø 63 - 100



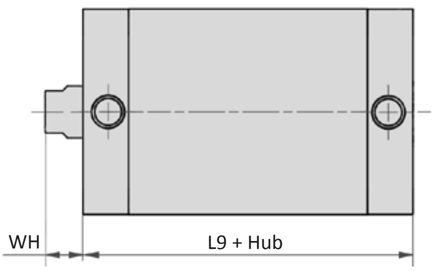
Version 210



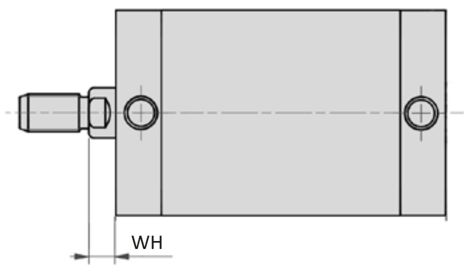
Version 200



Version 010



Version 000



Piston Ø	A	Ø B	Ø C	Ø D	E	EE	KF	KK	L1	L2	L3	L8*	L8**	L9*	L9**	RT	SW	TG	WH
20	16	9	7,5	10	36	M5	M6	M8	15	3	4,5	37	47	37	47	M5	8	22	6,5
25	16	9	7,5	10	40	M5	M6	M8	15	3	4,5	39	49	39	59	M5	8	26	6
32	19	9	9	12	49	G1/8	M8	M10 x 1,25	16	3	5	44	54	44	64	M6	10	32,5	6,5
40	19	9	9	12	54,5	G1/8	M8	M10 x 1,25	16	3	5	45	55	45	65	M6	10	38	7
50	22	12	10,5	16	65,5	G1/8	M10	M12 x 1,25	17	4	5	45	55	45	65	M8	13	46,5	8
63	22	12	10,5	16	77	G1/8	M10	M12 x 1,25	17	4	5	49	59	49	69	M8	13	56,5	8
80	28	12	13,5	20	95,5	G1/8	M12	M16 x 1,5	20	4	3	54	74	54	84	M10	17	72	9
100	28	12	13,5	25	113,5	G1/8	M12	M16 x 1,5	20	4	3	67	87	67	97	M10	22	89	10

* up to 30 mm stroke, ** from 35 mm stroke

Series NYSE

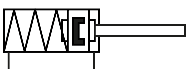
Stopper cylinders, single acting

Technical details

Operating pressure	2 ... 10 bar
Temperature range	-20°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al (anodized) Piston rod: stainless steel Seals: PU, NBR (optional FKM)

Single acting compact cylinders with magnetic piston, built-in cushioning rings and return spring.

Versions



280
single acting, built-in cushioning rings,
with magnetic piston,
normally extended

The cylinders are suitable as double acting as well.

Order code

NYSE*-*-***-*****

Series	
NYSE	standard
NYSER	with roller

Piston Ø	
020	20 mm
032	32 mm
050	50 mm
080	80 mm

Versions	
280	standard version, without thread, normally extended

Stroke (mm)	
XXX	standard stroke length
015	15 mm, for Ø 20 mm
020	20 mm, for Ø 32 mm
030	30 mm, for Ø 50 and 80 mm

Technical data

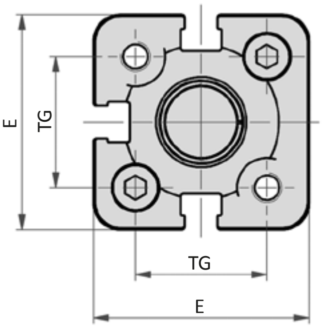
Model-no.:		NYSE*-020-...	NYSE*-032-...	NYSE*-050-...	NYSE*-080-...
Piston Ø (mm)		20	32	50	80
Stroke (mm)		15	20	30	30
Connection		M5	G1/8	G1/8	G1/8
Spring force (N)	min.	28	36	49	133
	max	36	51	78	187
Weight (kg)	NYSE	0.20	0.40	1.04	3.20
	NYSER	0.24	0.46	1.30	4.50

Series NYSE

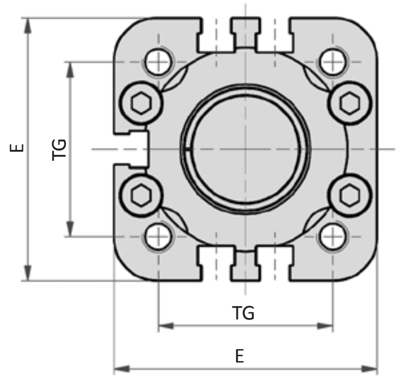
Stopper cylinders, single acting

Dimensions series NYSE and NYSER

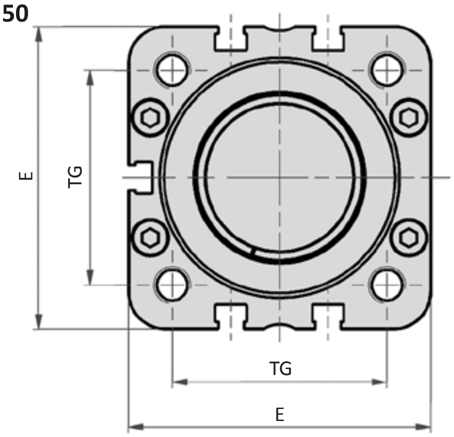
Ø 20



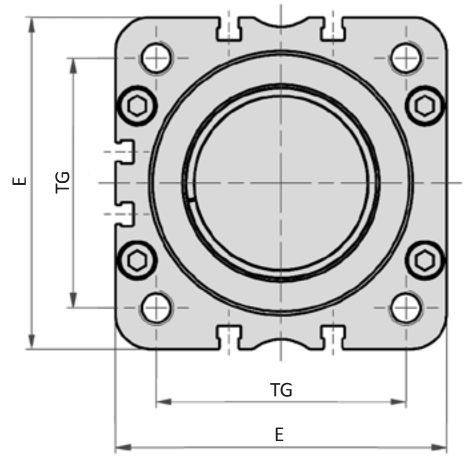
Ø 32

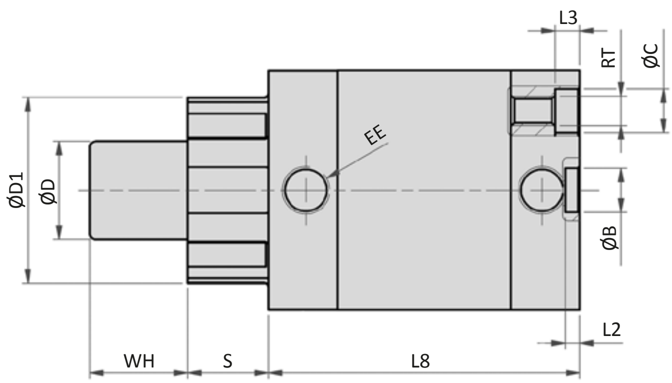


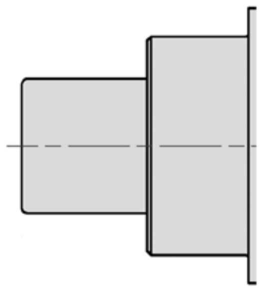
Ø 50

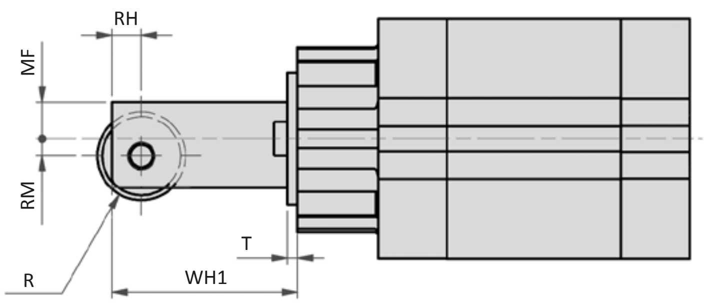


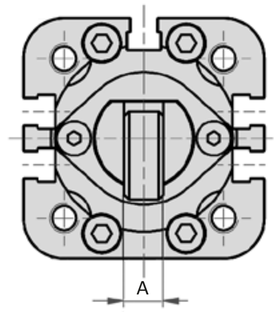
Ø 80







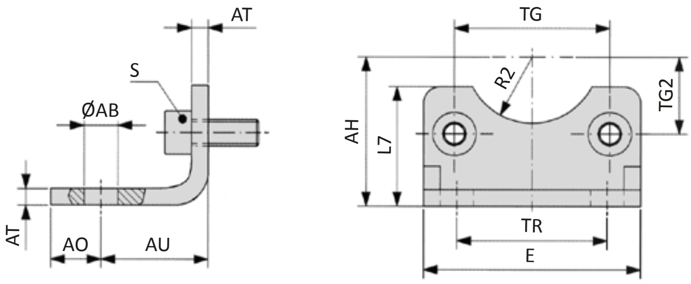




Piston Ø	A	Ø B	Ø C	Ø D	Ø D1	E	EE	L2	L3	L8	MF	R	RH	RM	RT	S	T	TG	WH	WH1
20	4	9	7.5	12	26	36	M5	3	4.5	53	4.5	5	3	2	M5	11.5	2	22	15	24
32	8	9	9	20	38	49	G1/8	3	5	64	7.5	9	6	3.5	M6	16.5	2	32.5	20	38
50	10	12	10.5	32	52	65.5	G1/8	4	5	75	12	12.5	6	7	M8	24.5	2	46.5	30	50.5
80	18	12	13.5	50	76	95.5	G1/8	4	4	126	18	18	10	11	M10	15	3	72	30	63

Series NYD
Mounting accessories

XLB-xxx-01 Foot mount

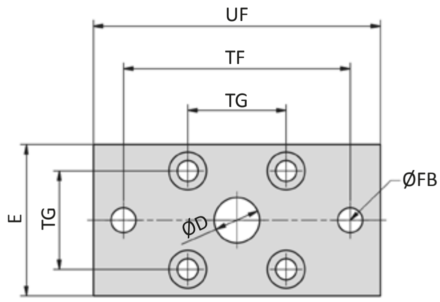


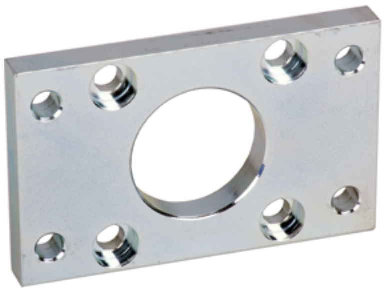
Model-no.:	Ø AB	AH	AO	AU	AT	E	L7	R2	S	TG	TG2	TR
XLB-032-01	7	32	11	24	4	45	30	15	M6 x 16	32.5	16.25	32
XLB-040-01	10	36	8	28	4	52	30	17.5	M6 x 16	38	19	36
XLB-050-01	10	45	15	32	5	65	36	20	M8 x 20	46.5	23.25	45
XLB-063-01	10	50	13	32	5	75	35	22.5	M8 x 20	56.5	28.25	50
XLB-080-01	12	63	14	41	6	95	47	22.5	M10 x 20	72	36	63
XLB-100-01	14.5	71	16	41	6	115	53	27.5	M10 x 20	89	44.5	75
XLB-125-01	16.5	90	25	45	8	140	70	30	M12 x 25	110*	55	90
tolerances and adjustments	H14	JS16		± 0.2				H15		± 0.2 *± 0.3		JS14

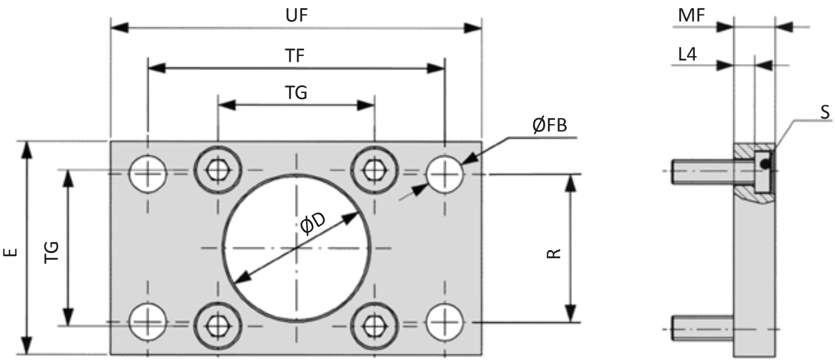
Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

Series NYD
Mounting accessories

NXB-xxx-02, XLB-xxx-02 Flange mount







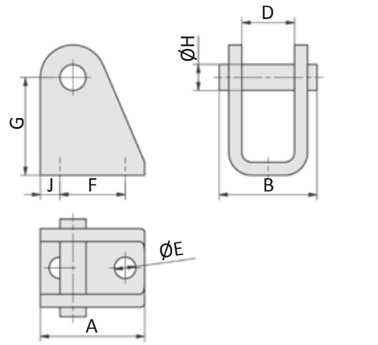
Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
NXB-020-02	12	36	6.6	4.6	10	-	M5 x 20	55*	22	70
NXB-025-02	12	40	6.6	4.6	10	-	M5 x 20	60*	26	76
XLB-032-02	30	45	7	5	10	32	M6 x 20	64	32.5	80
XLB-040-02	35	52	9	5	10	36	M6 x 20	72	38	90
XLB-050-02	40	65	9	6.5	12	45	M8 x 20	90	46.5	110
XLB-063-02	45	75	9	6.5	12	50	M8 x 20	100	56.5	120
XLB-080-02	45	95	12	9	16	63	M10 x 25	126	72	150
XLB-100-02	55	115	14	9	16	75	M10 x 25	150	89	170
XLB-125-02	60	140	16	10.5	20	90	M12 x 25	180	110*	205
tolerances and adjustments	H11		H13	- 0.5	JS14	JS14		*JS13 JS14	± 0.2 *± 0.3	

Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

9

Series NYD
Mounting accessories

RC-xx Clevis mount

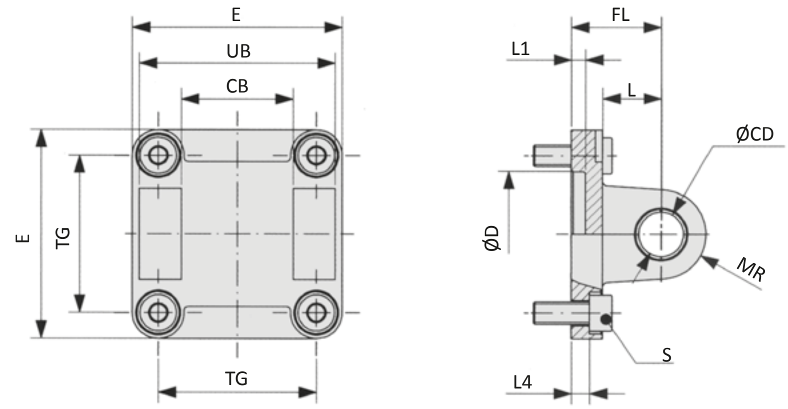


Model-no.:	A	B	D	Ø E	F	G	Ø H	J
RC-30	32	30	16.1	6.6	20	30	8	6

Material: steel, zinc plated, 2 snap rings are included.

XLB-xxx-04 Clevis mount with bushing

Inclusive clevis pin
order no: **XLB-xxx-48**

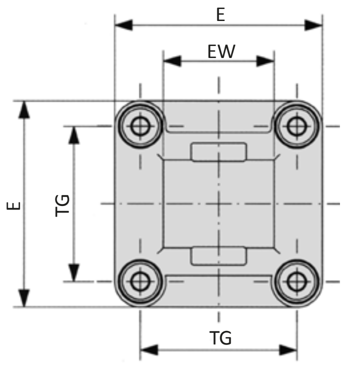


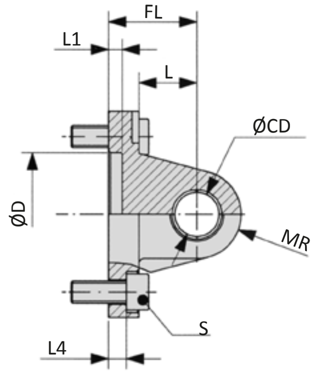
Model-no.:	CB	Ø CD	Ø D	E	FL	L	L1	L4	MR	S	TG	UB
XLB-032-04	26	10	30	45	22	13	5	5.5	10	M6 x 20	32.5	45
XLB-040-04	28	12	35	52	25	16	5	5.5	12	M6 x 20	38	52
XLB-050-04	32	12	40	65	27	16	5	6.5	12	M8 x 20	46.5	60
XLB-063-04	40	16	45	75	32	21	5	6.5	16	M8 x 20	56.5	70
XLB-080-04	50	16	45	95	36	22	5	10	16	M10 x 25	72	90
XLB-100-04	60	20	55	115	41	27	5	10	20	M10 x 25	89	110
XLB-125-04	70	25	60	140	50	30	7	10	25	M12 x 25	110*	130
tolerances and adjustments	H14	H9	H11		± 0.2			± 0.5			± 0.2 * ± 0.3	h13

Materials: Al, bushing steel and PTFE; 4 screws in accordance with EN ISO 4762 are included.

Series NYD
Mounting accessories

NXB-xxx-04, XLB-xxx-05 Swivel mount

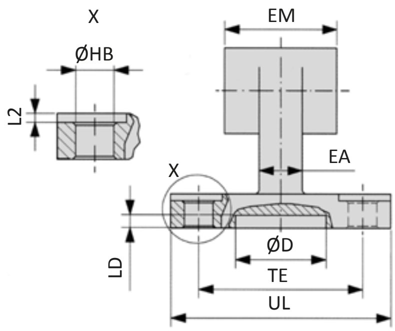


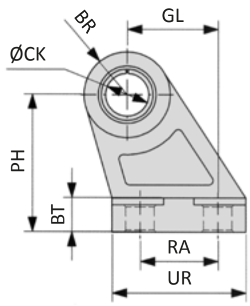


Model-no.:	Ø CD	Ø D	E	EW	FL	L	L1	L4	MR	S	TG
NXB-020-04	8	12	34	16	20	14	3	2.6	8	M5 x 16	22
NXB-025-04	8	12	38	16	20	14	3	2.6	8	M5 x 16	26
XLB-032-05	10	30	45	26	22	13	5	5.5	10	M6 x 20	32.5
XLB-040-05	12	35	52	28	25	16	5	5.5	12	M6 x 20	38
XLB-050-05	12	40	65	32	27	16	5	6.5	12	M8 x 20	46.5
XLB-063-05	16	45	75	40	32	21	5	6.5	16	M8 x 20	56.5
XLB-080-05	16	45	95	50	36	22	5	10	16	M10 x 25	72
XLB-100-05	20	55	115	60	41	27	5	10	20	M10 x 25	89
XLB-125-05	25	60	140	70	50	30	7	10	25	M12 x 25	110*
tolerances and adjustments	H9	H11			± 0.2			± 0.5			± 0.2 *± 0.3

Materials: Al, bushing steel and PTFE (only XLB); 4 screws in accordance with EN ISO 4762 are included.

XLB-xxx-06 Swivel mount 90°





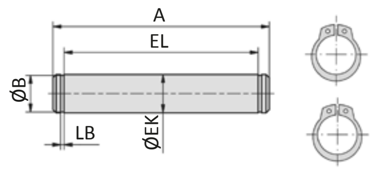
Model-no.:	BR	BT	ØCK	Ø D	EA	EM	GL	ØHB	L2	LD	PH	RA	TE	UL	UR
XLB-032-06	10	8	10	21	10	26	21	6.6	1.6	3	32	18	38	51	31
XLB-040-06	11	10	12	21	15	28	24	6.6	1.6	3	36	22	41	54	35
XLB-050-06	13	12	12	21	16	32	33	9	1.6	3	45	30	50	65	45
XLB-063-06	15	14	16	21	16	40	37	9	1.6	3	50	35	52	67	50
XLB-080-06	15	14	16	21	20	50	47	11	2.5	3	63	40	66	86	60
XLB-100-06	19	17	20	11	20	60	55	11	2.5	3	71	50	76	96	70
XLB-125-06	22.5	20	25	21	30	70	70	14	3.2	3	90	60	94	124	90
tolerances and adjustments			H9				JS14	H13			JS15	JS14	JS14		

Material: Al, bushing steel and PTFE

9

Series NYD
Mounting accessories

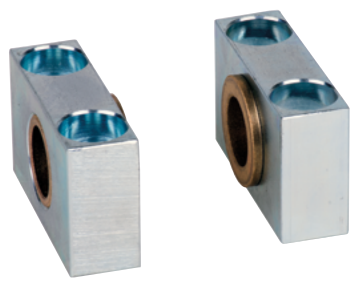
XLB-xxx-08 Clevis pin

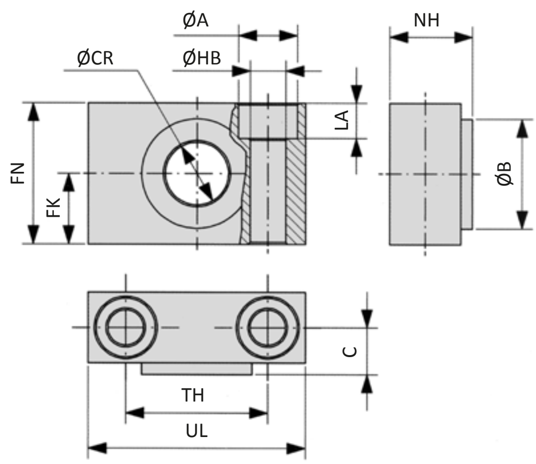


Model-no.:	A	Ø B	Ø EK	EL	LB
XLB-032-08	53	9.6	10	46	1.1
XLB-040-08	60	11.5	12	53	1.1
XLB-050-08	68	11.5	12	61	1.1
XLB-063-08	78	15.2	16	71	1.1
XLB-080-08	98	15.2	16	91	1.1
XLB-100-08	118	19	20	111	1.3
XLB-125-08	139	23.9	25	132*	1.3
tolerances and adjustments			e8	+ 2 *+ 3	

Material: steel, zinc plated; 2 snap rings are included.

XLB-xxx-09 Bearing block



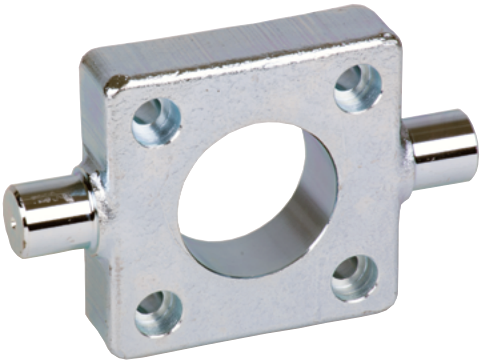


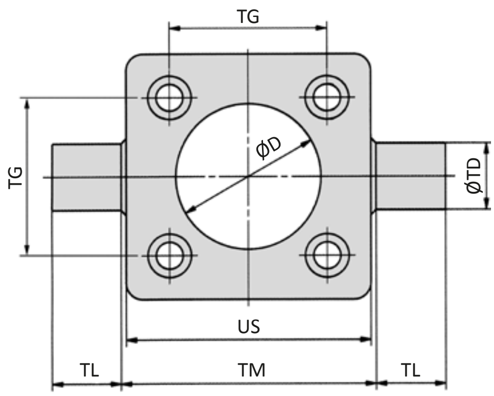
Model-no.:	Ø A	Ø B	C	Ø CR	FK	FN	Ø HB	LA	NH	TH	UL
XLB-032-09	11	22	10.5	12	15	30	6.6	7	18	32	46
XLB-040-09	15	28	12	16	18	36	9	9	21	36	55
XLB-063-09	18	32	13	20	20	40	11	11	23	42	65
XLB-100-09	20	39	16	25	25	50	14	13	28.5	50	75
tolerances and adjustmentsn				H9	± 0.1		H13			± 0.2	

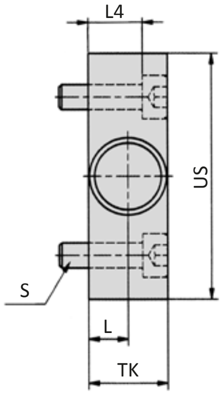
Materials: Al, bronze bushing

Series NYD
Mounting accessories

XLB-xxx-11 Trunnion mount



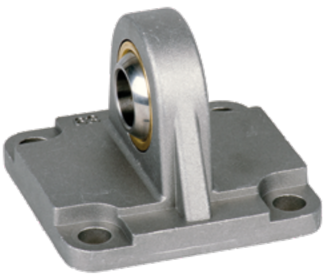


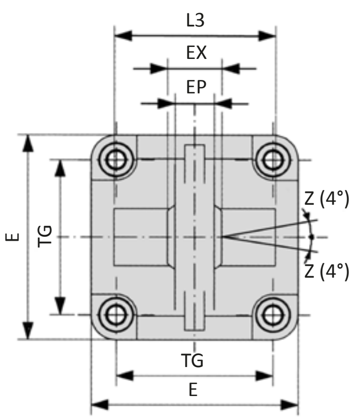


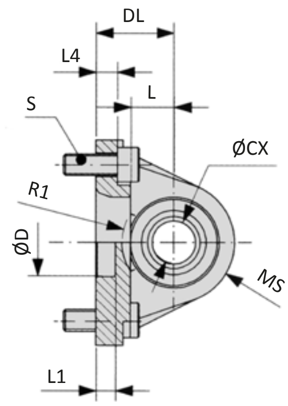
Model-no.:	Ø D	L	L4	S	Ø TD	TG	TK	TL	Ø TM	US
XLB-032-11	30	6.5	8	M6 x 20	12	32.5	14	12	50	46
XLB-040-11	35	9	13	M6 x 25	16	38	19	16	63	59
XLB-050-11	40	9	11	M8 x 25	16	46.5	19	16	75	69
XLB-063-11	45	11.5	16	M8 x 30	20	56.5	24	20	90	84
XLB-080-11	45	11.5	14	M10 x 30	20	72	24	20	110	102
XLB-100-11	55	14	19	M10 x 35	25	89	29	25	132	125
XLB-125-11	60	15	18	M12 x 35	25	110*	30	25	160	150
tolerances and adjustments	H 11	+ 0.2			e9	± 0.2 *± 0.3		h14	h14	

Material: steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

XLB-xxx-12 Swivel mount with spherical bearing





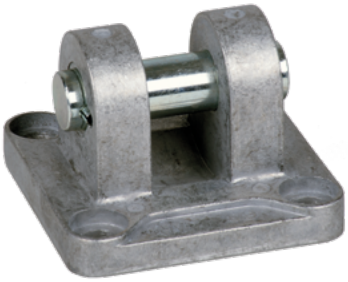


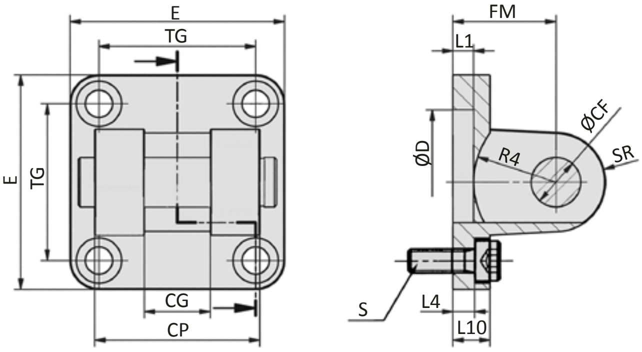
Model-no.:	Ø CX	Ø D	DL	E	EP	EX	L	L1	L3	L4	MS	R1	S	TG
XLB-032-12	10	30	22	45	10.5	14	12	7	-	5.5	16	-	M6 x 20	32.5
XLB-040-12	12	35	25	52	12	16	15	7	-	5.5	18	-	M6 x 20	38
XLB-050-12	16	40	27	65	15	21	15	7	51	6.5	21	19	M8 x 20	46.5
XLB-063-12	16	45	32	75	15	21	20	7	-	6.5	23	-	M8 x 20	56.5
XLB-080-12	20	45	36	95	18	25	20	9	74	10	28	24	M10 x 25	72
XLB-100-12	20	55	41	115	18	25	25	9	-	10	30	-	M10 x 25	89
XLB-125-12	30	60	50	140	25	37	30	9	-	10	40	-	M12 x 25	110*
tolerances and adjustments	H7	H11	± 0.2			± 0.1				± 0.5				± 0.2 *± 0.3

Materials: Al, bearing steel, bronze bushing; 4 screws in accordance with EN ISO 4762 are included.

Series NYD
Mounting accessories

XLB-xxx-14 Clevis mount small with pin

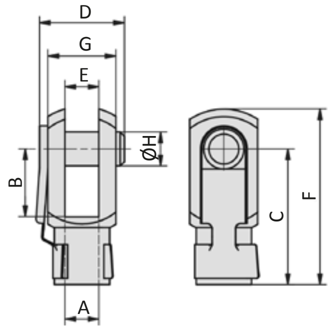




Model-no.:	Ø CF	CG	CP	Ø D	E	FM	L1	L4	L10	R4	S	SR	TG
XLB-032-14	10	14	34	30	45	22	5	5.5	9	17	M6 x 20	10	32.5
XLB-040-14	12	16	40	35	52	25	5	5.5	9	20	M6 x 20	12	38
XLB-050-14	16	21	45	40	65	27	5	6.5	11	22	M8 x 20	14	46.5
XLB-063-14	16	21	51	45	75	32	5	6.5	11	25	M8 x 20	18	56.5
XLB-080-14	20	25	65	45	95	36	5	10	14	30	M10 x 25	20	72
XLB-100-14	20	25	75	55	115	41	5	10	14	32	M10 x 25	22	89
XLB-125-14	30	37	97	60	140	50	7	10	20	42	M12 x 25	25	110*
tolerances and adjustments	F7	D10	d12	H11		± 0.2		± 0.5					± 0.2 *± 0.3

Materials: Al, bushing steel and PTFE, Clevis pin aus steel, zinc plated; 4 screws in accordance with EN ISO 4762 are included.

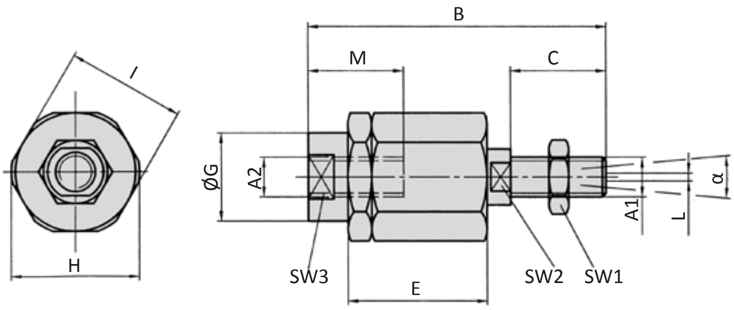
RD-xx, FD-xx Rod clevis



Model-no.:	for cylinder Ø	A	B	C	D	E	F	G	Ø H
RD-20	20. 25	M8	16	32	22	8	42	16	8
RD-25	32. 40	M10 x 1.25	20	40	26	10	52	20	10
FD-40	50. 63	M12 x 1.25	24	48	32	12	62	24	12
FD-63	80. 100	M16 x 1.5	32	64	40	16	83	32	16
FD-80	125	M20 x 1.5	40	80	50	20	105	40	20

Material: steel, zinc plated

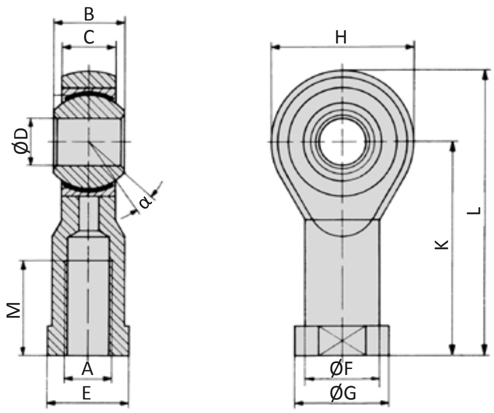
FK-xx Flexible coupling



Model-no.:	for cylinder	A1, A2	B	C	D	E	Ø G	H	I	L	M	SW1	SW2	SW3	α
FK-20	20. 25	M8	57	21	5	26	12.5	19	17	2	16	13	7	11	8°
FK-32	32. 40	M10 x 1.25	71.5	20	7.5	35	22	32	30	2	22	17	12	19	8°
FK-40	50. 63	M12 x 1.25	71.5	20	7.5	35	22	32	30	2	22	19	12	19	8°
FK-63	80. 100	M16 x 1.5	104	32	10	53	32	45	41	2	30	24	20	27	6°
FK-80	125	M20 x 1.5	119	40	10	53	32	45	41	2	37	30	20	27	6°

Material: steel, zinc plated

RO-xx, FO-xx Rod eye

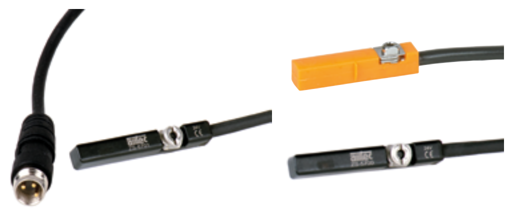


Model-no.:	for cylinder	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
RO-20	20. 25	M8	12	9	8	14	12.5	16	24	36	48	16	14°
RO-25	32. 40	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
FO-40	50. 63	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°
FO-63	80. 100	M16 x 1.5	21	15	16	22	22	27	42	64	85	28	15°
FO-80	125	M20 x 1.5	25	18	20	30	27.5	34	50	77	102	33	14°

Materials: steel, zinc plated, bearing steel, bronze bushing

9

Proximity sensors



Page 9-90

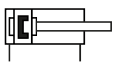
Series NXD
Double acting

Technical details

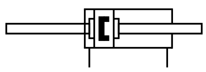
Operating pressure	1 ... 10 bar
Temperature range	-10°C ... +80°C (NXDH: 0°C ... +150°C)
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al (anodized) Piston rod: stainless steel Seals: PU, NBR (optional FKM)

Double acting pneumatic cylinder with magnetic piston for proximity sensors and built-in cushioning rings.
Standard stroke lengths in table below, additional lengths on request.

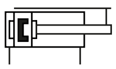
Versions



200, 210
double acting, built-in cushioning rings, with magnetic piston



600, 610
double acting, double end piston rod, built-in cushioning rings, with magnetic piston



220
double acting, non rotating, built-in cushioning rings, with magnetic piston

Order code

NXD*-*-***-*****

Series	
NXD	standard
NXDH	high temperature version

Piston Ø	
012	12 mm
016	16 mm
020	20 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm

Not all combinations are possible and available.

Versions	
200 600	standard version, male thread
210 610	standard version, female thread
220	non rotating
202 602	high temperature version (with magnetic piston up to 80°C effective), male thread
212 612	high temperature version (with magnetic piston up to 80°C effective), female thread
222	high temperature version (with magnetic piston up to 80°C effective), non rotating + female thread

Stroke (mm)	
XXX	max. 250 mm**
Standard	5, 10, 15, 20, 25, 30, 40, 50*, 60**, 80***, 100 ****

* from Ø 16 mm, ** from Ø 25 mm, *** from Ø 50 mm, ****from Ø 80 mm

Series NXD
Double acting

Technical data

Model-no.:		NXD-012-...	NXD-016-...	NXD-020-...	NXD-025-...	NXD-032-...
Piston Ø (mm)		12	16	20	25	32
Force at 6 bar (N)	Extension	109	109	170	265	434
	Retraction	81	81	127	223	373
Connection		M5	M5	M5	M5	G1/8
Piston rod thread	male	M6	M8	M10 x 1.25	M10 x 1.25	M10 x 1.25
	female	M3	M4	M5	M5	M6

Model-no.:		NXD-040-...	NXD-050-...	NXD-063-...	NXD-080-...	NXD-100-...
Piston Ø (mm)		40	50	63	80	100
Force at 6 bar (N)	Extension	678	1060	1682	2713	4239
	Retraction	617	951	1574	2543	3974
Connection		G1/8	G1/8	G1/8	G1/8	G1/4
Piston rod thread	male	M10 x 1.25	M12 x 1.25	M12 x 1.25	M16 x 1.5	M20 x 1.5
	female	M6	M8	M8	M10	M12

Piston Ø (mm)		12	16	20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-200)	0.078	0.082	0.135	0.153	0.275	0.376	0.502	0.776	1.453	2.659
	0 mm stroke (-210)	0.074	0.074	0.121	0.139	0.261	0.362	0.481	0.755	1.402	2.560
	each 100 mm stroke	0.170	0.170	0.270	0.310	0.410	0.500	0.630	0.780	1.180	1.600

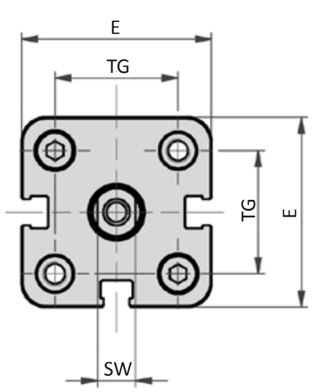
Piston Ø (mm)		16	20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-220)	0.097	0.150	0.195	0.335	0.461	0.636	0.976	1.845	3.190
	each 100 mm stroke	0.200	0.300	0.350	0.530	0.620	0.750	0.900	1.420	1.840

Piston Ø (mm)		12	16	20	25	32	40	50	63	80	100
Weight (kg)	0 mm stroke (-600)	0.097	0.108	0.170	0.188	0.325	0.426	0.591	0.865	1.617	2.958
	0 mm stroke (-610)	0.092	0.092	0.143	0.161	0.298	0.399	0.548	0.822	1.516	2.760
	each 100 mm stroke	0.210	0.210	0.330	0.370	0.500	0.590	0.790	0.940	1.430	1.980

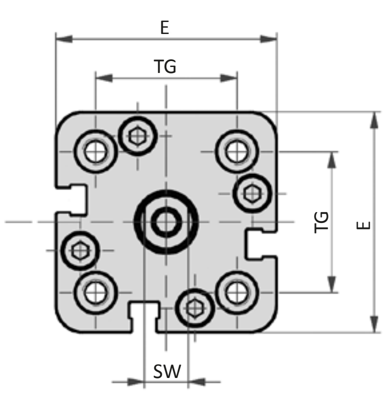
Series NXD
Double acting

Dimensions series NXD (versions 200 and 210)

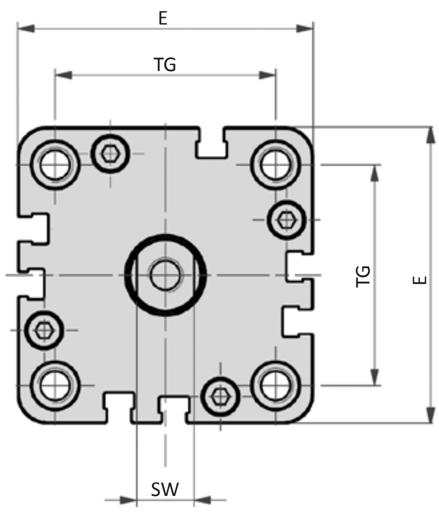
Ø 12 - 25



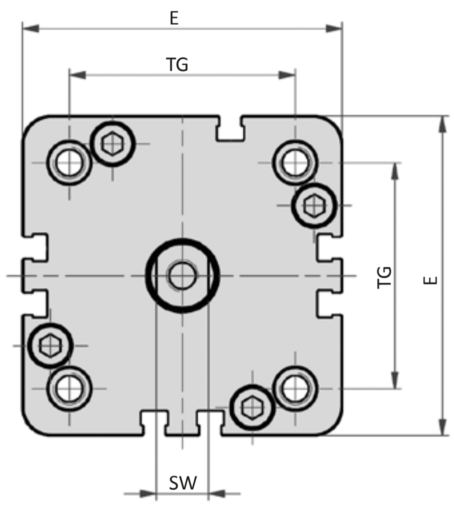
Ø 32 - 40

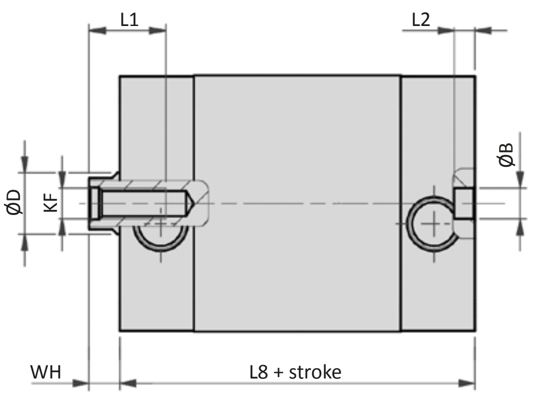


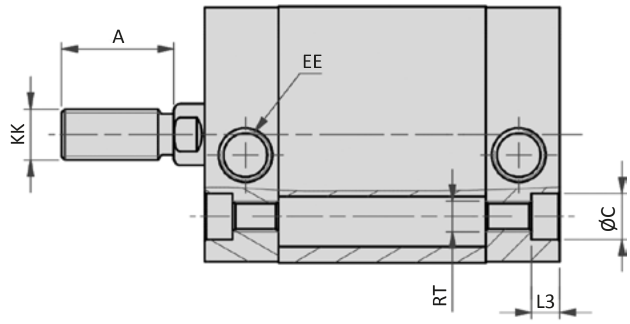
Ø 50



Ø 63 - 100



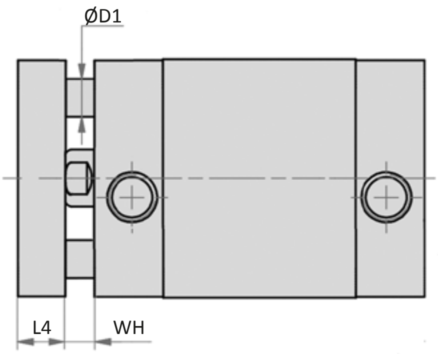


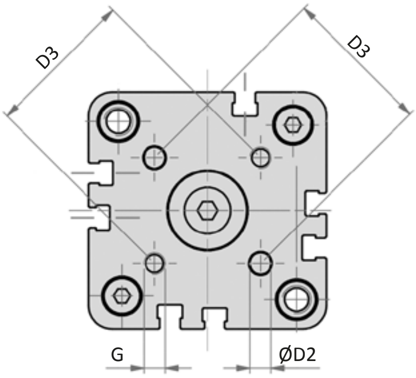


Piston Ø	A	Ø B	Ø C	Ø D	E	EE	KF	KK	L1	L2	L3	L8	RT	SW	TG	WH
12	16	6	6	8	29	M5	M3	M6	6	4	3.5	38	M4	5	18	4.5
16	20	6	6	8	29	M5	M4	M8	8	4	3.5	38	M4	6	18	4.5
20	22	6	7.5	10	36	M5	M5	M10 x 1.25	10	4	4.5	38	M5	8	22	4.5
25	22	6	7.5	10	40	M5	M5	M10 x 1.25	10	4	4.5	39.5	M5	8	26	5.5
32	22	6	9	12	50	G1/8	M6	M10 x 1.25	12	4	5.5	44.5	M6	10	32	6
40	22	6	9	12	58	G1/8	M6	M10 x 1.25	12	4	5.5	45.5	M6	10	42	6.5
50	24	6	10.5	16	67	G1/8	M8	M12 x 1.25	12	4	6.5	45.5	M8	13	50	7.5
63	24	8	13.5	16	80	G1/8	M8	M12 x 1.25	14	4	8.5	50	M10	13	62	7.5
80	32	8	13.5	20	100	G1/8	M10	M16 x 1.5	15	4	8.5	56	M10	17	82	8
100	40	8	13.5	25	124	G1/4	M12	M20 x 1.5	20	4	8.5	66.5	M10	22	103	10

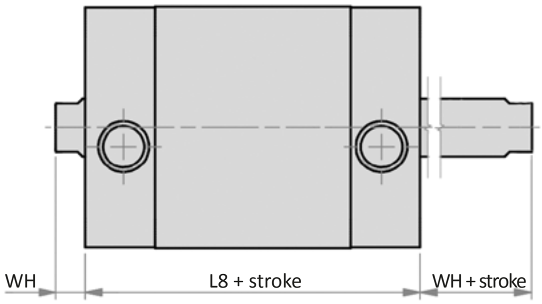
Dimensions series NXD (Versions 220, 600 and 610)

Version 220

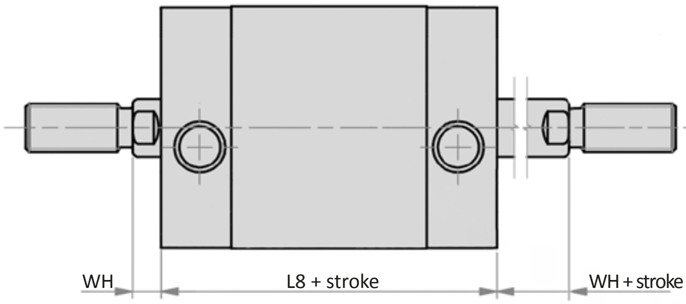




Version 610



Version 600



Piston Ø	Ø D1	Ø D2	D3	G	L4	L8	WH
12	-	-	-	-	-	38	4.5
16	5	3	14	M3	6	38	4.5
20	5	4	17	M4	8	38	4.5
25	6	5	22	M5	8	39.5	5.5
32	8	5	28	M5	10	44.5	6
40	10	5	33	M5	10	45.5	6.5
50	10	6	42	M6	12	45.5	7.5
63	10	6	50	M6	12	50	7.5
80	14	8	65	M8	14	56	8
100	14	10	80	M10	14	66.5	10

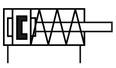
Series NXE
Single acting

Technical details

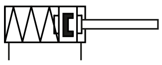
Operating pressure	1 ... 10 bar
Temperature range	-10°C ... +80°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Cylinder tube: Al (anodized) End caps: Al (anodized) Piston rod: stainless steel Seals: PU, NBR (optional FKM)

Single acting pneumatic cylinder with magnetic piston for proximity sensors and built-in cushioning rings.
Standard stroke lengths in table below, additional lengths on request.

Versions



000, 010
single acting, built-in cushioning rings,
with magnetic piston,
normally retracted



200, 210
single acting, built-in cushioning rings,
with magnetic piston,
normally extended

Order code

NXE-*-***-*****

Series	
NXE	standard

Piston Ø	
012	12 mm
016	16 mm
020	20 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
063	63 mm
080	80 mm
100	100 mm

Versions	
000	standard version, male thread, normally retracted
010	standard version, female thread, normally retracted
200	standard version, male thread, normally extended
210	standard version, female thread, normally extended

Stroke (mm)	
XXX	max. 60 mm
Standard	5, 10, 15, 20, 25

Model-no.:		NXE-012-...	NXE-016-...	NXE-020-...	NXE-025-...	NXE-032-...
Piston Ø (mm)		12	16	20	25	32
Connection		M5	M5	M5	M5	G1/8
Piston rod thread	**male**	M6	M8	M10 x 1.25	M10 x 1.25	M10 x 1.25
	female	M3	M4	M5	M5	M6

Model-no.:		NXE-040-...	NXE-050-...	NXE-063-...	NXE-080-...	NXE-100-...
Piston Ø (mm)		40	50	63	80	100
Connection		G1/8	G1/8	G1/8	G1/8	G1/4
Piston rod thread	**male**	M10 x 1.25	M12 x 1.25	M12 x 1.25	M16 x 1.5	M20 x 1.5
	female	M6	M8	M8	M10	M12

Series NXE
Single acting

Technical data

Model-no.:	NXE-	012-...	016-...	020-...	025-...	032-...	040-...	050-...	063-...	080-...	100-...
Weight (kg)	0 mm stroke (-x00)*	0.078	0.082	0.135	0. 153	0.275	0.376	0.502	0.776	1.453	2.659
	0 mm stroke (-x10)*	0.074	0.074	0.121	0.139	0.261	0.362	0.481	0.755	1.402	2.560
	0 mm stroke (-x00)**	0.095	0.099	01.62	0.215	0.357	0.476	0.628	0.932	1.807	3.139
	0 mm stroke (-x10)**	0.091	0.091	0.148	0.201	0.343	0.462	0.607	0.911	1.756	3.040
	each 100 mm stroke	0.170	0.170	0.270	0.310	0.410	0.500	0.630	0.780	1.180	1.600

* up to 30 mm stroke, ** from 35 mm stroke

Model-no.:		NXE-012-xxx-0x0	NXE-016-xxx-0x0	NXE-020-xxx-0x0	NXE-025-xxx-0x0	NXE-032-xxx-0x0
Force at 6 bar and 5 mm stroke (N)	Extension	81 ... 83	81 ... 83	133 ... 136	224 ... 227	382 ... 386
	Retraction	26 ... 28	26 ... 28	34 ... 37	38 ... 41	48 ...52
Force at 6 bar and 10 mm stroke (N)	Extension	81 ... 86	81 ... 86	133 ... 139	224 ... 230	382 ... 389
	Retraction	23 ... 28	23 ... 28	31 ... 37	35 ... 41	45 ...52
Force at 6 bar and 15 mm stroke (N)	Extension	81 ... 88	81 ... 88	133 ... 142	224 ... 233	382 ... 393
	Retraction	21 ... 28	21 ... 28	28 ... 37	32 ... 41	41 ...52
Force at 6 bar and 20 mm stroke (N)	Extension	81 ... 90	81 ... 90	133 ... 145	224 ... 236	382 ... 397
	Retraction	19 ... 28	19 ... 28	25 ... 37	29 ... 41	38 ...52
Force at 6 bar and 25 mm stroke (N)	Extension	81 ... 92	81 ... 92	133 ... 148	224 ... 239	382 ... 400
	Retraction	17 ... 28	17 ... 28	22 ... 37	26 ... 41	34 ...52

Model-no.:		NXE-040-xxx-0x0	NXE-050-xxx-0x0	NXE-063-xxx-0x0	NXE-080-xxx-0x0	NXE-100-xxx-0x0
Force at 6 bar and 5 mm stroke (N)	Extension	611 ... 616	992 ... 997	1588 ... 1594	2568 ... 2574	4031 ... 4041
	Retraction	63 ... 68	67 ... 75	89 ... 95	140 ... 147	200 ... 210
Force at 6 bar and 10 mm stroke (N)	Extension	611 ... 621	992 ... 1003	1588 ... 1600	2568 ... 2580	4031 ... 4051
	Retraction	58 ... 68	61 ... 75	83 ... 95	134 ... 147	190 ... 210
Force at 6 bar and 15 mm stroke (N)	Extension	611 ... 626	992 ... 1008	1588 ... 1606	2568 ... 2586	4031 ... 4061
	Retraction	53 ... 68	56 ... 75	77 ... 95	128 ... 147	180 ... 210
Force at 6 bar and 20 mm stroke (N)	Extension	611 ... 631	992 ... 1013	1588 ... 1612	2568 ... 2593	4031 ... 4071
	Retraction	48 ... 68	51 ... 75	71 ... 95	121 ... 147	170 ... 210
Force at 6 bar and 25 mm stroke (N)	Extension	611 ... 636	992 ... 1018	1588 ... 1618	2568 ... 2599	4031 ... 4081
	Retraction	43 ... 68	45 ... 75	65 ... 95	115 ... 147	160 ... 210

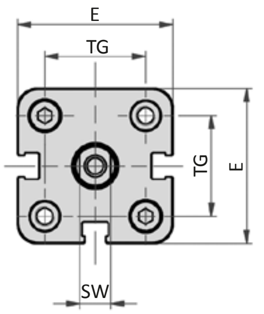
Model-no.:		NXE-012-xxx-2x0	NXE-016-xxx-2x0	NXE-020-xxx-2x0	NXE-025-xxx-2x0	NXE-032-xxx-2x0
Force at 6 bar and 5 mm stroke (N)	Extension	26 ... 28	26 ... 28	34 ... 37	38 ... 41	48 ...52
	Retraction	53 ... 55	53 ... 55	133 ... 136	224 ... 227	382 ... 386
Force at 6 bar and 10 mm stroke (N)	Extension	23 ... 28	23 ... 28	31 ... 37	35 ... 41	45 ...52
	Retraction	53 ... 58	53 ... 58	133 ... 139	224 ... 230	382 ... 389
Force at 6 bar and 15 mm stroke (N)	Extension	21 ... 28	21 ... 28	28 ... 37	32 ... 41	41 ...52
	Retraction	53 ... 60	53 ... 60	133 ... 142	224 ... 233	382 ... 393
Force at 6 bar and 20 mm stroke (N)	Extension	19 ... 28	19 ... 28	25 ... 37	29 ... 41	38 ...52
	Retraction	53 ... 62	53 ... 62	133 ... 145	224 ... 236	382 ... 397
Force at 6 bar and 25 mm stroke (N)	Extension	17 ... 28	17 ... 28	22 ... 37	26 ... 41	34 ...52
	Retraction	53 ... 64	53 ... 64	133 ... 148	224 ... 239	382 ... 400

Model-no.:		NXE-040-xxx-2x0	NXE-050-xxx-2x0	NXE-063-xxx-2x0	NXE-080-xxx-2x0	NXE-100-xxx-2x0
Force at 6 bar and 5 mm stroke (N)	Extension	63 ... 68	67 ... 75	89 ... 95	140 ... 147	200 ... 210
	Retraction	611 ... 616	992 ... 997	1588 ... 1594	2568 ... 2574	4031 ... 4041
Force at 6 bar and 10 mm stroke (N)	Extension	58 ... 68	61 ... 75	83 ... 95	134 ... 147	190 ... 210
	Retraction	611 ... 621	992 ... 1003	1588 ... 1600	2568 ... 2580	4031 ... 4051
Force at 6 bar and 15 mm stroke (N)	Extension	53 ... 68	56 ... 75	77 ... 95	128 ... 147	180 ... 210
	Retraction	611 ... 626	992 ... 1008	1588 ... 1606	2568 ... 2586	4031 ... 4061
Force at 6 bar and 20 mm stroke (N)	Extension	48 ... 68	51 ... 75	71 ... 95	121 ... 147	170 ... 210
	Retraction	611 ... 631	992 ... 1013	1588 ... 1612	2568 ... 2593	4031 ... 4071
Force at 6 bar and 25 mm stroke (N)	Extension	43 ... 68	45 ... 75	65 ... 95	115 ... 147	160 ... 210
	Retraction	611 ... 636	992 ... 1018	1588 ... 1618	2568 ... 2599	4031 ... 4081

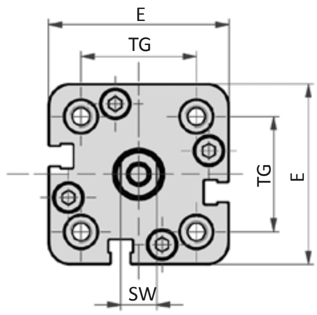
Series NXE
Single acting

Dimensions series NXE

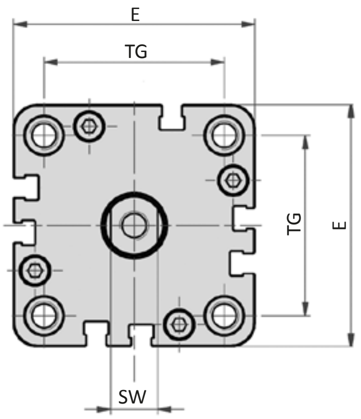
Ø 12 - 25



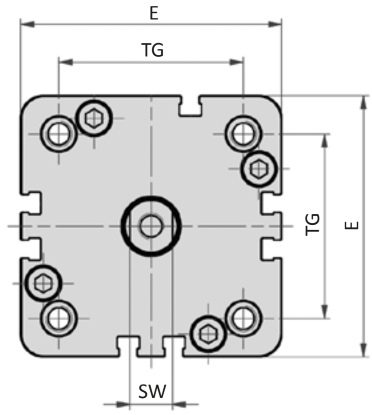
Ø 32-40



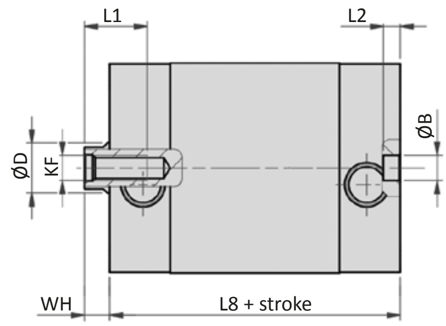
Ø 50



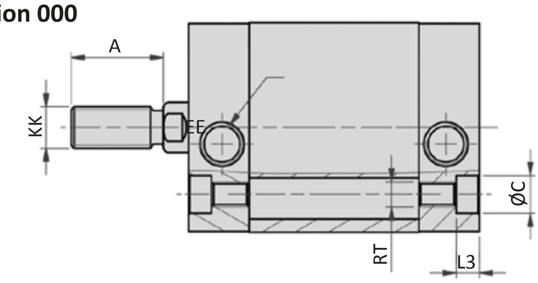
Ø 63 - 100



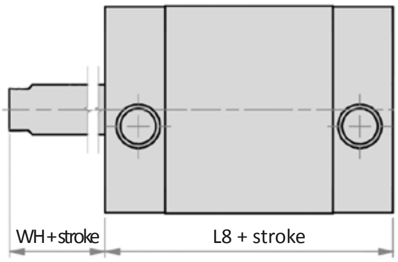
Version 010



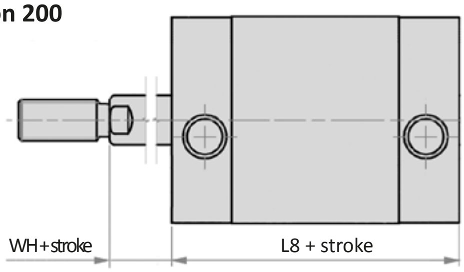
Version 000



Version 210



Version 200

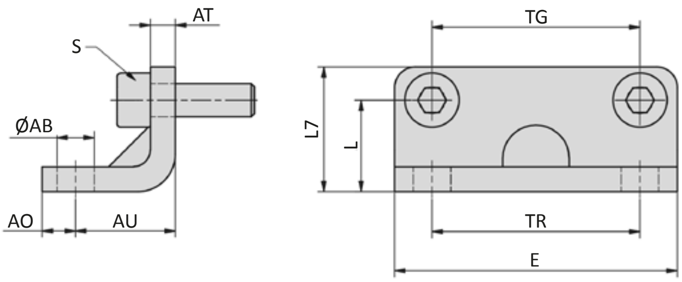


Piston Ø	A	Ø B	Ø C	Ø D	E	EE	KF	KK	L1	L2	L3	L8*	L8**	RT	SW	TG	WH
12	16	6	6	8	29	M5	M3	M6	6	4	3.5	38	48	M4	5	18	4.5
16	20	6	6	8	29	M5	M4	M8	8	4	3.5	38	48	M4	6	18	4.5
20	22	6	7.5	10	36	M5	M5	M10 x 1.25	10	4	4.5	38	48	M5	8	22	4.5
25	22	6	7.5	10	40	M5	M5	M10 x 1.25	10	4	4.5	39.5	59.5	M5	8	26	5.5
32	22	6	9	12	50	G1/8	M6	M10 x 1.25	12	4	5.5	44.5	64.5	M6	10	32	6
40	22	6	9	12	58	G1/8	M6	M10 x 1.25	12	4	5.5	45.5	65.5	M6	10	42	6.5
50	24	6	10.5	16	67	G1/8	M8	M12 x 1.25	12	4	6.5	45.5	65.5	M8	13	50	7.5
63	24	8	13.5	16	80	G1/8	M8	M12 x 1.25	14	4	8.5	50	70	M10	13	62	7.5
80	32	8	13.5	20	100	G1/8	M10	M16 x 1.5	15	4	8.5	56	86	M10	17	82	8
100	40	8	13.5	25	124	G1/4	M12	M20 x 1.5	20	4	8.5	66.5	96.5	M10	22	103	10

* up to 30 mm stroke, ** from 35 mm stroke

Series NXD
Mounting accessories

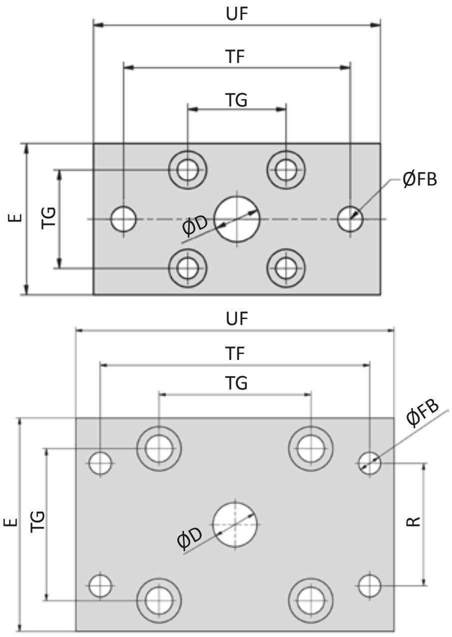
NXB-xxx-01 Foot mount

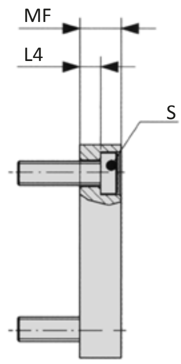


Model-no.:	Ø AB	AO	AU	AT	E	L	L7	S	TG	TR
NXB-032-01	6.6	8	18	5	50	16	24	M6 x 20	32	32
NXB-040-01	9	8	20	5	60	21.5	29.5	M6 x 20	42	42
NXB-050-01	9	8	24	6	68	22	30	M8 x 20	50	50
NXB-063-01	11	12	27	6	84	28.5	39	M8 x 20	62	62
NXB-080-01	11	12	30	8	102	24.5	36.5	M10 x 20	82	82
NXB-100-01	13.5	12	33	8	123	26.5	38.5	M10 x 20	103	103

Material: steel, zinc plated; 2 x 2 screws in accordance with EN ISO 4762 are included.

NXB-xxx-02 Flange mount



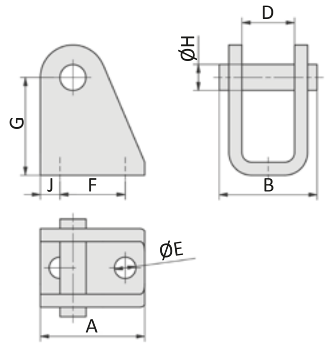


Model-no.:	Ø D	E	Ø FB	L4	MF	R	S	TF	TG	UF
NXB-016-02	10	29	5.5	4.6	10	-	M4 x 16	43	18	55
NXB-020-02	12	36	6.6	4.6	10	-	M5 x 20	55	22	70
NXB-025-02	12	40	6.6	4.6	10	-	M5 x 20	60	26	76
NXB-032-02	14	50	7	3.6	10	32	M6 x 20	65	32	80
NXB-040-02	14	60	9	3.6	10	36	M6 x 20	82	42	102
NXB-050-02	18	68	9	3.4	12	45	M8 x 25	90	50	110
NXB-063-02	18	87	9	4.4	15	50	M10 x 25	110	62	130
NXB-080-02	23	107	12	4.4	15	63	M10 x 25	135	82	160
NXB-100-02	28	128	14	4.4	15	75	M10 x 30	163	103	190

Material: steel, zinc plated; 4 screws in accordance with DIN 7984 are included.

Series NXD
Mounting accessories

RC-xx Clevis mount

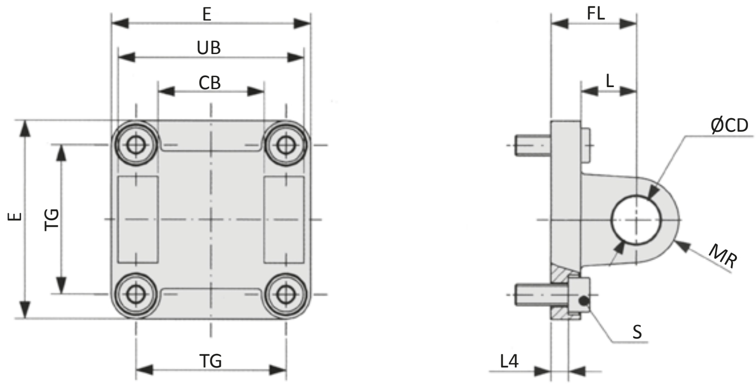


Model-no.:	A	B	D	Ø E	F	G	Ø H	J
RC-16	25	23	12.1	5.5	15	27	6	5
RC-30	32	30	16.1	6.6	20	30	8	6

Material: steel, zinc plated, 2 snap rings are included.

NXB-xxx-03 Clevis mount

Inclusive clevis pin
order no: **NXB-xxx-38**

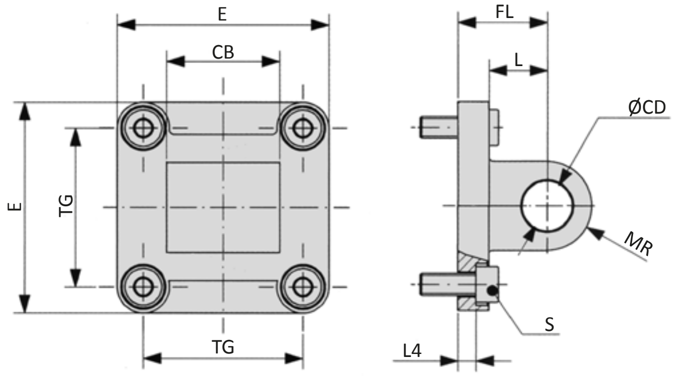


Model-no.:	CB	Ø CD	E	FL	L	L4	MR	S	TG	UB
NXB-032-03	26	10	48	22	13	5.5	10	M6 x 16	32	45
NXB-040-03	28	12	58	25	16	5.5	12.5	M6 x 16	42	52
NXB-050-03	32	12	66	27	16	6.5	12.5	M8 x 20	50	60
NXB-063-03	40	16	83	32	21	6.5	15	M10 x 25	62	70
NXB-080-03	50	16	102	36	23	10	15	M10 x 30	82	90
NXB-100-03	60	20	123	41	26	10	20	M10 x 30	103	110

Material: Al, 4 screws in accordance with EN ISO 4762 are included.

Series NXD
Mounting accessories

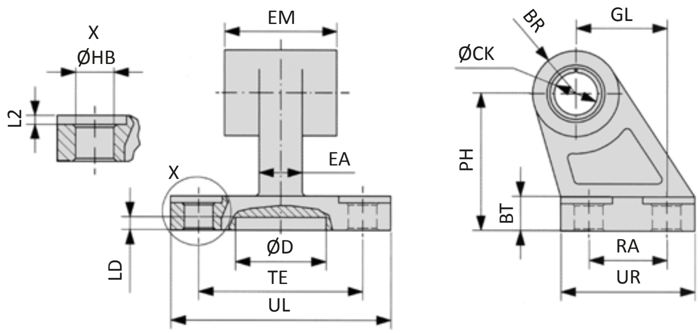
NXB-xxx-04 Swivel mount



Model-no.:	CB	Ø CD	E	FL	L	L4	MR	S	TG
NXB-016-04	12	6	27	16	10	2.6	6	M4 x 12	18
NXB-020-04	16	8	34	20	14	2.6	8	M5 x 16	22
NXB-025-04	16	8	38	20	14	2.6	8	M5 x 16	26

Material: Al, 4 screws in accordance with EN ISO 4762 are included.

XLB-xxx-06 Swivel mount 90°

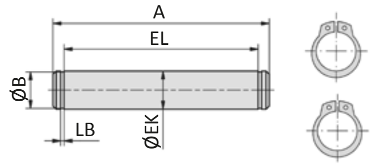


Model-no.:	BR	BT	ØCK	Ø D	EA	EM	GL	ØHB	L2	LD	PH	RA	TE	UL	UR
XLB-032-06	10	8	10	21	10	26	21	6.6	1.6	3	32	18	38	51	31
XLB-040-06	11	10	12	21	15	28	24	6.6	1.6	3	36	22	41	54	35
XLB-050-06	13	12	12	21	16	32	33	9	1.6	3	45	30	50	65	45
XLB-063-06	15	14	16	21	16	40	37	9	1.6	3	50	35	52	67	50
XLB-080-06	15	14	16	21	20	50	47	11	2.5	3	63	40	66	86	60
XLB-100-06	19	17	20	11	20	60	55	11	2.5	3	71	50	76	96	70

Materials: Al, bushing steel and PTFE

Series NXD
Mounting accessories

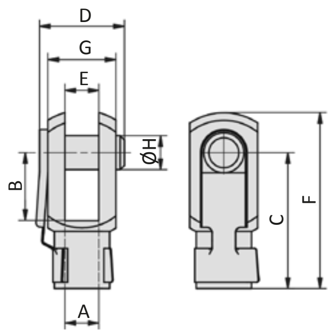
XLB-xxx-08 Clevis pin



Model-no.:	A	Ø B	Ø EK	EL	LB
XLB-032-08	53	9.6	10	46	1.1
XLB-040-08	60	11.5	12	53	1.1
XLB-050-08	68	11.5	12	61	1.1
XLB-063-08	78	15.2	16	71	1.1
XLB-080-08	98	15.2	16	91	1.1
XLB-100-08	118	19	20	111	1.3

Material: steel, zinc plated; 2 snap rings are included.

RD-xx, FD-xx Rod clevis



Model-no.:	for cylinder Ø	A	B	C	D	E	F	G	Ø H
RD-16	12	M6	12	24	16	6	31	12	6
RD-20	16	M8	16	32	22	8	42	16	8
RD-25	20 - 40	M10 x 1.25	20	40	26	10	52	20	10
FD-40	50, 63	M12 x 1.25	24	48	32	12	62	24	12
FD-63	80	M16 x 1.5	32	64	40	16	83	32	16
FD-80	100	M20 x 1.5	40	80	50	20	105	40	20

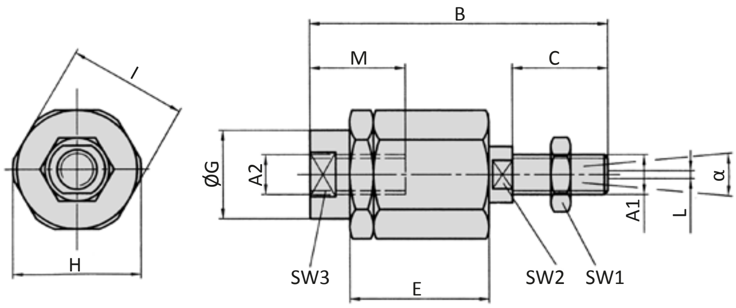
Material: steel, zinc plated

Proximity sensors

Page 9-90

Series NXD
Mounting accessories

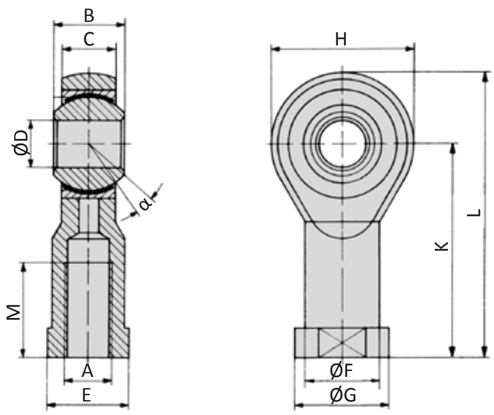
FK-xx Flexible coupling



Model-no.:	for cylinder	A1, A2	B	C	D	E	Ø G	H	I	L	M	SW1	SW2	SW3	α
FK-16	12	M6	35	11	2.5	17.5	8.5	14.5	13	1	12.5	10	5	7	6°
FK-20	16	M8	57	21	5	26	12.5	19	17	2	16	13	7	11	8°
FK-32	20 - 40	M10 x 1.25	71.5	20	7.5	35	22	32	30	2	22	17	12	19	8°
FK-40	50, 63	M12 x 1.25	71.5	20	7.5	35	22	32	30	2	22	19	12	19	8°
FK-63	80	M16 x 1.5	104	32	10	53	32	45	41	2	30	24	20	27	6°
FK-80	100	M20 x 1.5	119	40	10	53	32	45	41	2	37	30	20	27	6°

Material: steel, zinc plated

RO-xx, FO-xx Rod eye



Model-no.:	for cylinder	A	B	C	Ø D	E	Ø F	Ø G	H	K	L	M	α
RO-16	12	M6	9	6.75	6	11	10	13	20	30	40	12	13°
RO-20	16	M8	12	9	8	14	12.5	16	24	36	48	16	14°
RO-25	20 - 40	M10 x 1.25	14	10.5	10	17	15	19	28	43	57	20	13°
FO-40	50, 63	M12 x 1.25	16	12	12	19	17.5	22	32	50	66	22	13°
FO-63	80	M16 x 1.5	21	15	16	22	22	27	42	64	85	28	15°
FO-80	100	M20 x 1.5	25	18	20	30	27.5	34	50	77	102	33	14°

Materials: steel, zinc plated, bearing steel, bronze bushing

Series LX

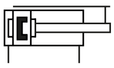
Guide units, double acting

Technical details

Operating pressure	1 ... 10 bar
Temperature range	-20°C ... +80°C
Operating speed	50 ... 500 mm/s
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Profile: Al (anodized) Flange plate: steel (zinc plated) Piston rod: stainless steel Guide rod: stainless steel (-000), hardened steel (-100) Seals: PU

Double acting pneumatic cylinder with magnetic piston and built-in cushioning rings. The sensors can be installed directly into the sensor grooves of the Al-profile.
The integrated cylinder and guide unit ensures precise and accurate movement.
Standard stroke lengths in table below, additional lengths on request.

Versions



000, 100
double acting, built-in cushioning rings,
with magnetic piston,
guide unit

Order code

LX-*-***-*****

Series	
LX	standard

Piston Ø	
020	20 mm
025	25 mm
032	32 mm
040	40 mm
050	50 mm
063	63 mm

Stroke (mm)	
XXX	max. 200 mm
Standard	20*, 25**, 30*, 40*, 50, 75, 100, 125, 150, 175, 200

* only for Ø 20 and 25 mm, ** only for Ø 32 - 63 mm

Versions	
000	standard version, bronze bearing
100	standard version, ball bearings

Technical data

Model-no.:		LX-020-...	LX-025-...	LX-032-...	LX-040-...	LX-050-...	LX-063-...
Piston Ø (mm)		20	25	32	40	50	63
Force at 6 bar (N)	**Extension**	170	265	434	678	1060	1682
	Retraction	127	204	326	570	890	1513
Connection		G1/8	G1/8	G1/8	G1/8	G1/4	G1/4

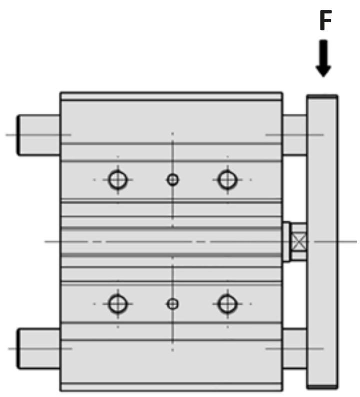
Technical information

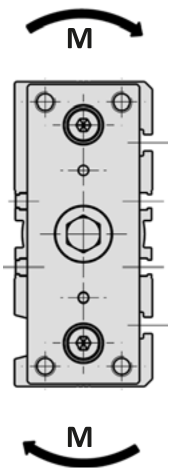
Maximum force (N)

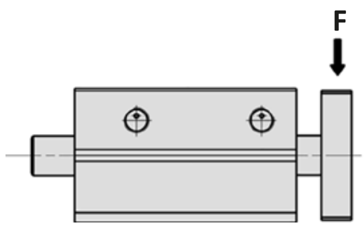
Piston Ø (mm)	Stroke length (mm)	20	25	30	40	50	75	100	125	150	175	200
20	Version 000	100	-	93	81	73	114	93	98	85	75	67
	Version 100	110	-	100	125	121	90	86	69	58	49	43
25	Version 000	140	-	120	115	103	165	135	150	131	116	104
	Version 100	142	-	85	154	148	106	82	97	81	70	61
32	Version 000	-	253	-	-	214	225	208	225	198	176	159
	Version 100	-	222	-	-	91	167	129	145	122	104	90
40	Version 000	-	251	-	-	197	215	206	224	196	175	157
	Version 100	-	221	-	-	93	167	128	145	121	104	90
50	Version 000	-	317	-	-	273	267	299	257	225	200	179
	Version 100	-	203	-	-	152	161	193	156	130	110	95
63	Version 000	-	316	-	-	273	267	299	257	225	200	179
	Version 100	-	201	-	-	151	158	195	157	130	110	94

Maximum torque (Nm)

Piston Ø (mm)	Stroke length (mm)	20	25	30	40	50	75	100	125	150	175	200
20	Version 000	1.7	-	1.5	1.2	1.0	2.9	2.8	2.6	2.3	2.0	1.8
	Version 100	3.0	-	2.7	3.4	3.3	2.4	2.3	1.9	1.6	1.3	1.2
25	Version 000	3.4	-	2.9	3.6	3.3	4.2	4.3	3.8	3.2	2.7	2.3
	Version 100	3.5	-	2.7	4.9	4.7	3.4	2.6	3.1	2.6	2.2	2.0
32	Version 000	-	6.7	-	-	6.5	7.2	7.0	6.6	5.6	4.8	4.1
	Version 100	-	6.3	-	-	3.6	6.5	5.1	5.7	4.8	4.1	3.5
40	Version 000	-	8.7	-	-	7.3	9.2	8.8	9.6	8.4	7.5	6.7
	Version 100	-	8.5	-	-	4.0	7.2	5.5	6.2	5.2	4.5	3.9
50	Version 000	-	15.4	-	-	12.9	12.6	13.4	12.1	11.3	10.1	9.8
	Version 100	-	11.1	-	-	8.3	8.8	10.6	8.6	7.1	6.0	5.2
63	Version 000	-	15.1	-	-	14.3	16.6	17	14	11.3	9.7	9.1
	Version 100	-	8.3	-	-	7.2	9.8	12.1	9.7	8.1	6.8	5.8



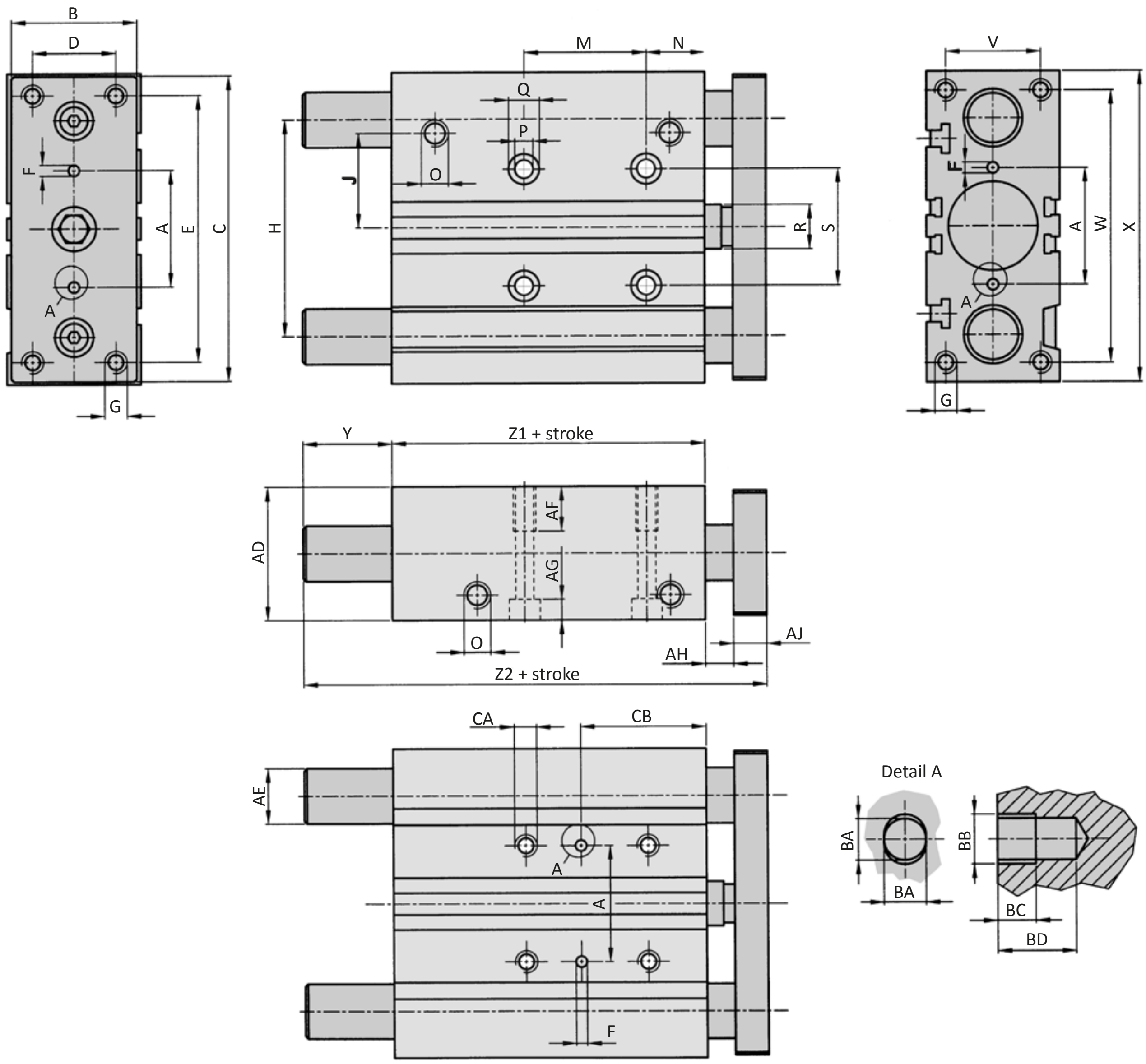




Series LX

Guide units, double acting

Dimensions



Piston Ø	A	B	C	D	E	Ø F	G	H	J	N	O	Ø P	Ø Q	Ø R	S
20	28	30	81	18	70	3 x 6	M5 x 13	54	25	17	G1/8	5.5	9.5	10	28
25	34	40	91	26	78	4 x 6	M6 x 15	64	28.5	17	G1/8	5.5	9.5	12	34
32	42	45	110	30	96	4 x 6	M8 x 20	78	34	21	G1/8	6.5	11	16	42
40	50	45	118	30	104	4 x 6	M8 x 20	86	38	22	G1/8	6.5	11	16	50
50	66	60	146	40	130	5 x 8	M10 x 22	110	47	24	G1/4	8.5	14	20	66
63	80	70	158	50	130	5 x 8	M10 x 22	124	55	24	G1/4	8.5	14	20	80

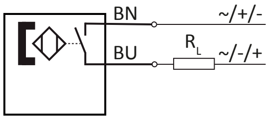
Piston Ø	V	W	X	Z1	AD	AF	AG	AH	AJ	AK	Ø BA	BB	BC	BD	CA
20	24	72	83	37	36	12	5.5	6	10	11.5	3	3.5	3	6	M6
25	30	82	93	37.5	42	12	5.5	6	10	13.5	4	4.5	3	6	M6
32	34	98	112	37.5	48	16	7.5	10	12	15	4	4.5	3	6	M8
40	40	106	120	44	54	16	7.5	10	12	18	4	4.5	3	6	M8
50	46	130	148	44	64	20	9	13	15	21.5	5	6	4	8	M10
63	58	142	162	49	78	20	9	13	15	28	5	6	4	8	M10

Dimensions

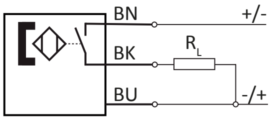
Piston Ø	Stroke	Version	Y	Z2	Ø AE	M	CB
20	20 - 30	000	21.5	74.5	12	24	29
20	20 - 30	100	19	72	10	24	29
20	40 - 50	000	21.5	74.5	12	44	39
20	75 - 100	000	26.5	79.5	12	44	39
20	40 - 100	100	22	75	10	44	39
20	125 - 200	000	26.5	79.5	12	120	77
20	125 - 200	100	32	85	10	120	77
25	20	000	21	74.5	16	24	29
25	30	000	27	80.5	16	24	29
25	20 - 30	100	21	74.5	12	24	29
25	40 - 50	000	27	80.5	16	44	39
25	75 - 100	000	31.5	85	16	44	39
25	40 - 100	100	32	85.5	12	44	39
25	125 - 200	000	31.5	85	16	120	77
25	125 - 200	100	44.5	98	12	120	77
32	25	000	14	73.5	20	24	33
32	25	100	26.5	86	16	24	33
32	50	000	32	91.5	20	48	45
32	50	100	26.5	86	16	48	45
32	75 - 100	000	32	91.5	20	48	45
32	75 - 100	100	35.5	95	16	48	45
32	125 - 200	000	32	91.5	20	124	83
32	125 - 200	100	50.5	110	16	124	83
40	25	000	7.5	73.5	20	24	34
40	25	100	20	86	16	24	34
40	50 - 100	000	25.5	91.5	20	48	46
40	50	100	20	86	16	48	46
40	75 - 100	100	29	95	16	48	46
40	125 - 200	000	25.5	91.5	20	124	84
40	125 - 200	100	44	110	16	124	84
50	25	000	26.5	98.5	25	24	36
50	25	100	21	93	20	24	36
50	50 - 100	000	26.5	98.5	25	48	48
50	50 - 75	100	21	93	20	48	48
50	100	100	40	112	20	48	48
50	125 - 200	000	26.5	98.5	25	124	86
50	125 - 200	100	40	112	20	124	86
63	25	000	21.5	98.5	25	28	38
63	25	100	16	93	20	28	38
63	50 - 100	000	21.5	98.5	25	52	50
63	50 - 75	100	16	93	20	52	50
63	100	100	35	112	20	52	50
63	125 - 200	000	21.5	98.5	25	128	88
63	125 - 200	100	35	112	20	128	88

Series ZS
Proximity sensors

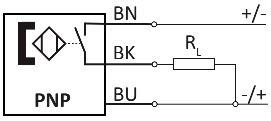
Proximity sensors with cable



ZS-5600

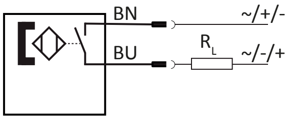


ZS-5700

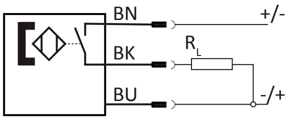


ZS-6700, ZS-7300

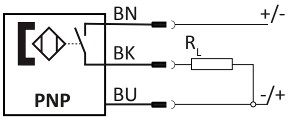
Proximity sensors with plug



ZS-5601



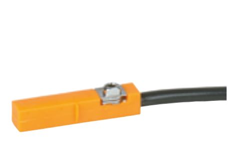
ZS-5701



ZS-6701, ZS-7302

Technical data

Model-no.:	ZS-5600	ZS-5601	ZS-5700	ZS-5701
				
Design	2-pole Reed sensor	2-pole Reed sensor	3-pole Reed sensor	3-pole Reed sensor
Contact function	NO	NO	NO	NO
Rated operational voltage	5 ... 240 V AC / DC	5 ... 60 V AC / DC	5 ... 30 V DC	5 ... 30 V DC
Rated operational current I_E	3 ... 100 mA	3 ... 100 mA	≤ 500 mA	≤ 500 mA
Max. voltage drop at I_E	≤ 2.5	≤ 2.5	≤ 0.1	≤ 0.1
Breaking capacity	10 W	10 W	10 W	10 W
Cable length	3 m	0.3 m with M8 connection	5 m	0.3 m with M8 connection
Temperature range	-10 ... +70°C	-10 ... +70°C	-10 ... +70°C	-10 ... +70°C
Protection	IP 67	IP 67	IP 67	IP 67
Switching status indication	LED red	LED red	LED yellow	LED yellow

Model-no.:	ZS-6700	ZS-6701	ZS-7300	ZS-7302
				
Design	3-pole inductive	3-pole inductive	3-pole inductive	3-pole inductive
Contact function	NO	NO	NO	NO
Output	PNP	PNP	PNP	PNP
Rated operational voltage	5 ... 30 V DC	5 ... 30 V DC	10 ... 30 V DC	10 ... 30 V DC
Rated operational current I_E	≤ 200 mA	≤ 200 mA	≤ 100 mA	≤ 100 mA
Max. voltage drop at I_E	≤ 1.0	≤ 1.0	≤ 2.5	≤ 2.5
Breaking capacity	6 W	6 W	3 W	3 W
Cable length	3 m	0.3 m with M8 connection	6 m	0.3 m with M12 connection
Temperature range	-10 ... +70°C	-10 ... +70°C	-20 ... +60°C	-20 ... +60°C
Protection	IP 67	IP 67	IP 67	IP 67
Switching status indication	LED green	LED green	LED yellow	LED yellow
Ex	-	-	II 3G Ex nA T4 II 3D Ex tD A22 IP67 T 125°C	II 3D Ex tc IIIC T125°C Dc X

Series ZS
Proximity sensors

Cable with bushing for proximity sensors

Model-no.:	KA-30	KA-50	KA-51	KA-100	KA-101
Connection	M8, snap-in	M8, snap-in	M8, snap-in	M8, snap-in	M8, snap-in
Version	straight	straight	elbow 90°	straight	elbow 90°
Cable length	3 m	5 m	5 m	10 m	10 m

Mounting

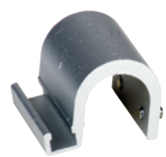
The sensors are mounted at the groove of the cylinder profile. It is fixed by turning the fixing screw at the sensor clockwise. The cover stripe XLB-011 (see below) can be used for protecting the sensor cable.
A direct sensor mounting is possible for following series:

Series XL
Series NXD, Series NXE
Series NYD, Series NYE, Series NYSE
Series LX
Series ZX

For this cylinder series separate mounting brackets are necessary for the sensor mounting:

Series XG, Series XM
Series HM, Series HE, Series HMU
Series CM

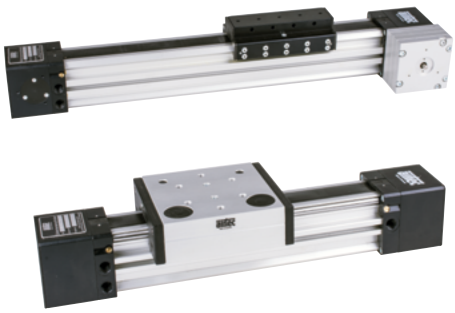
Mounting brackets for proximity sensors

Model-no.:	NT-250	NT-500	HTM-080/100-1
			
Design	sensor mounting	sensor mounting	mounting bracket for tie rod design
For series	HM, HE, CM, XG, XM	HMU	XG-160, XG-200

Cover for sensor groove

Model-no.:	XLB-011
	
Design	plastic profile, 50 cm length, blue
For series	XL, NXD, NXE, NYD, NYE, NYSE, LX

Table of contents



10

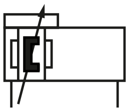
Series ZX

Technical details

Operating pressure	1 ... 8 bar
Temperature range	-10°C ... +70°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. If speeds exceed 1 m/s lubricated air is recommended.
Materials	Cylinder tube: Al (anodized) Outer parts: Al (anodized), Plastics Seals: NBR, PU
Ex	Cylinders in accordance with 2014/34/EU (ATEX) available. (Chapter 13)

Double acting Al-profile rodless cylinder with integrated sensor grooves, adjustable cushions and permanent magnet for proximity sensors.
The sensors can be installed directly into the sensor grooves of the Al-profile.

Versions



ZX-***
double acting, adjustable cushioning,
with magnetic piston

Order code

ZX-**-**-****-**-**

Series	

Piston Ø	
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

Versions	
S	standard cylinder
K	short cylinder
SG	cylinder with slide guide
KG	short cylinder with slide guide
SR	cylinder with roller guide
KR	short cylinder with roller guide

Optionen	
EX	cylinders in accordance with 2014/34/EU (ATEX)

Air connection options (details see page 10-09)	
01	air connection on each end
02	air connection on one end
03	air connection on one end, guide on the ride side *
04	air connection on both face ends
	* only for versions KG, SG, KR, SR

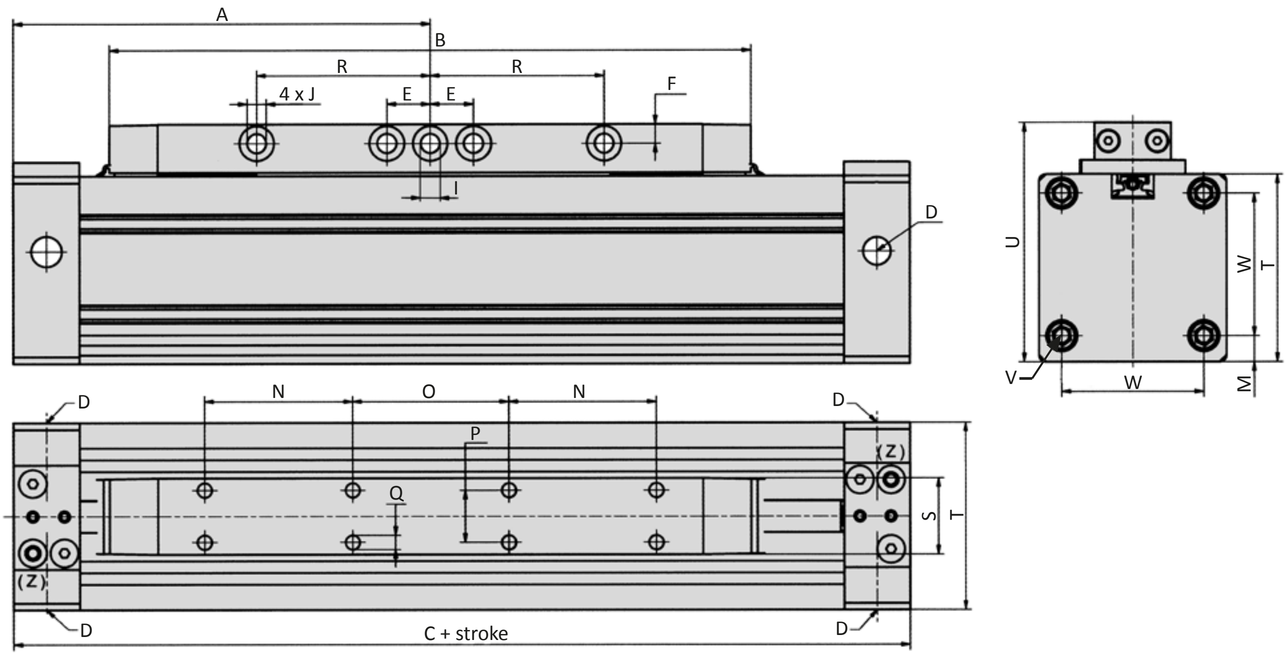
Stroke (mm)	
XXXX	max. 5860 mm - 6000 mm
	(details see data sheets)

Series ZX-S

Technical data

Model-no.:		ZX-25-S-...	ZX-32-S-...	ZX-40-S-...	ZX-50-S-...	ZX-63-S-...
Piston Ø (mm)		25	32	40	50	63
Connection		G1/8	G1/8	G1/4	G3/8	G3/8
Cushioning length (mm)		24	28	36	45	59
Weight (kg)	0 mm stroke	0.88	1.40	2.41	5.30	8.10
	each 100 mm stroke	0.30	0.39	0.52	0.96	1.32
max. stroke (mm)		6000	6000	5950	5910	5860

Dimensions



Piston Ø	A	B	C	D	E	F	I	J	M	N
25	100	149.6	200	G1/8	12.5	5	6	4.5	4.5	20
32	120	184.5	240	G1/8	12.5	5.5	6	5.5	7.5	42.5
40	150	222.6	300	G1/4	12.5	7	7	6.5	7.5	35
50	175	262	350	G3/8	17.5	9	10	8.5	12.5	45
63	200	300	400	G3/8	25	9.5	10	8.5	14	80

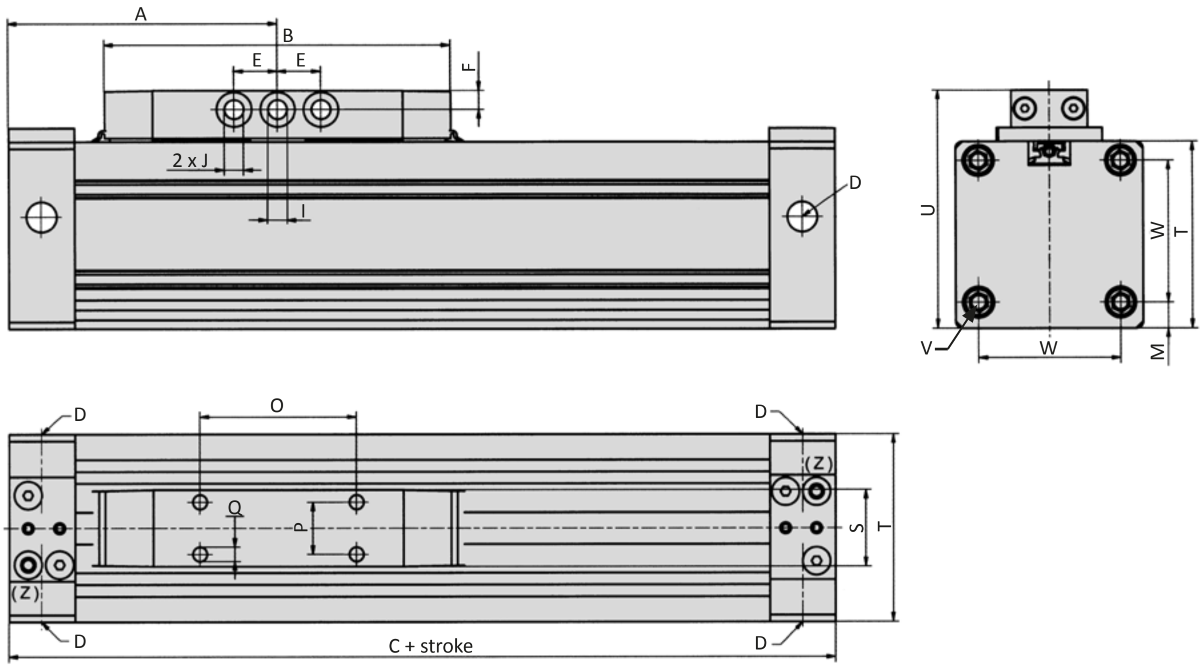
Piston Ø	O	P	Q	R	S	T	U	V	W
25	50	15	M5 x 7	35	22	45	60	M4 x 11	36
32	45	15	M5 x 7	50	22	54	69	M5 x 11	41
40	90	15	M5 x 9	65	22	64	82	M6 x 12	49
50	60	34	M8 x 16	90	46	90	115	M8 x 17	65
63	80	34	M8 x 16	90	46	106	131	M8 x 17	78

Series ZX-K

Technical data

Model-no.:		ZX-25-K-...	ZX-32-K-...	ZX-40-K-...	ZX-50-K-...	ZX-63-K-...
Piston Ø (mm)		25	32	40	50	63
Connection		G1/8	G1/8	G1/4	G3/8	G3/8
Cushioning length (mm)		24	28	36	45	59
Weight (kg)	0 mm stroke	0.62	0.96	1.65	3.50	5.40
	each 100 mm stroke	0.30	0.39	0.52	0.96	1.32
max. stroke (mm)		6000	6000	6000	6000	6000

Dimensions



Piston Ø	A	B	C	D	E	F	I	J	M
25	67.5	84.6	135	G1/8	12.5	5	6	4.5	4.5
32	77.5	99.6	155	G1/8	12.5	5.5	6	5.5	7.5
40	95	112.6	190	G1/4	12.5	7	7	6.5	7.5
50	105	122	210	G3/8	17.5	9	10	8.5	12.5
63	125	150	250	G3/8	25	9.5	10	8.5	14

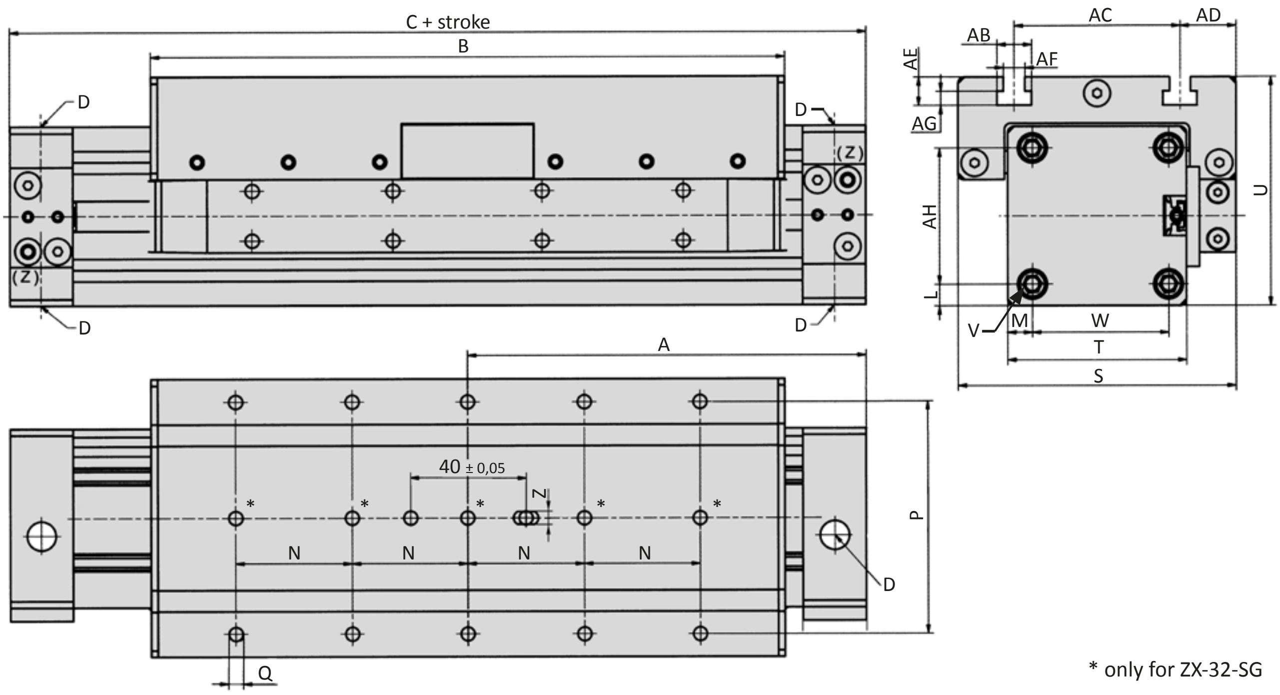
Piston Ø	O	P	Q	S	T	U	V	W
25	35	15	M5 x 7	22	45	60	M4 x 11	36
32	45	15	M5 x 7	22	54	69	M5 x 11	41
40	50	15	M5 x 9	22	64	82	M6 x 12	49
50	64	34	M8 x 16	46	90	115	M8 x 17	65
63	80	34	M8 x 16	46	106	131	M8 x 17	78

Series ZX-SG

Technical data

Model-no.:		ZX-25-SG-...	ZX-32-SG-...	ZX-40-SG-...	ZX-50-SG-...	ZX-63-SG-...
Piston Ø (mm)		25	32	40	50	63
Connection		G1/8	G1/8	G1/4	G3/8	G3/8
Cushioning length (mm)		24	28	36	45	59
Weight (kg)	0 mm stroke	1.31	2.09	3.58	7.28	11.02
	each 100 mm stroke	0.30	0.39	0.52	0.96	1.32
max. stroke (mm)		6000	6000	5950	5910	5860

Dimensions



* only for ZX-32-SG

Piston Ø	A	B	C	D	L	M	N	P	Q	S	T
25	100	159	200	G1/8	4.5	4.5	30	30	M5 x 8	75	45
32	120	191	240	G1/8	6.5	7.5	35	70	M5 x 11	83.8	54
40	150	246	300	G1/4	7.5	7.5	55	55	M6 x 12	100	64
50	175	270	350	G3/8	12.5	12.5	50	42	M8 x 16	133	90
63	200	320	400	G3/8	14	14	60	60	M8 x 16	150	106

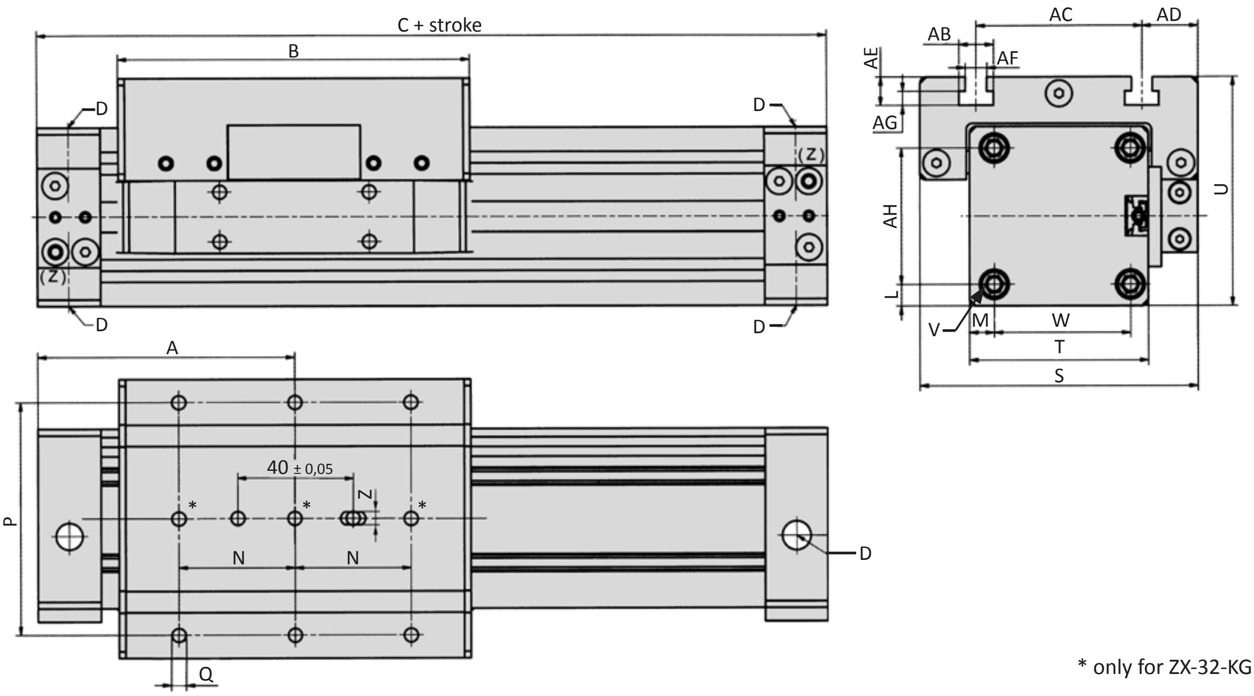
Piston Ø	U	V	W	Z	AB	AC	AD	AE	AF	AG	AH
25	59	M4 x 11	36	4 x 4.4	10.4	50	12.5	8.6	6.4	4.3	36
32	69	M5 x 11	41	4 x 4.4	10.4	50	16.9	8.6	6.4	4.3	41
40	79	M6 x 12	49	4 x 4.4	10.4	80	10	8.6	6.4	4.3	49
50	112.5	M8 x 17	65	4 x 4.4	10.4	94	23	8.6	6.4	4.3	65
63	134.5	M8 x 17	78	4 x 4.4	10.4	110	24	8.6	6.4	4.3	78

Series ZX-KG

Technical data

Model-no.:		ZX-25-KG-...	ZX-32-KG-...	ZX-40-KG-...	ZX-50-KG-...	ZX-63-KG-...
Piston Ø (mm)		25	32	40	50	63
Connection		G1/8	G1/8	G1/4	G3/8	G3/8
Cushioning length (mm)		24	28	36	45	59
Weight (kg)	0 mm stroke	0.88	1.35	2.30	4.63	7.10
	each 100 mm stroke	0.30	0.39	0.52	0.96	1.32
max. stroke (mm)		6000	6000	6000	6000	6000

Dimensions



* only for ZX-32-KG

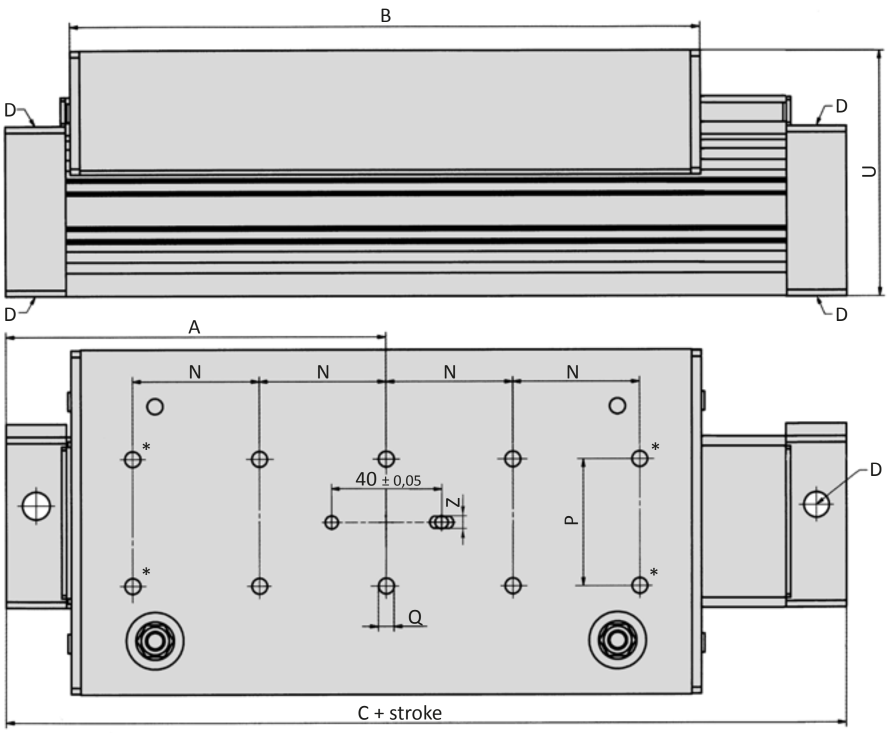
Piston Ø	A	B	C	D	L	M	N	P	Q	S	T
25	67.5	94	135	G1/8	4.5	4.5	30	30	M5 x 8	75	45
32	77.5	106	155	G1/8	6.5	7.5	35	70	M5 x 11	83.8	54
40	95	136	190	G1/4	7.5	7.5	55	55	M6 x 12	100	64
50	105	148	210	G3/8	12.5	12.5	50	42	M8 x 16	133	90
63	125	180	250	G3/8	14	14	60	60	M8 x 16	150	106

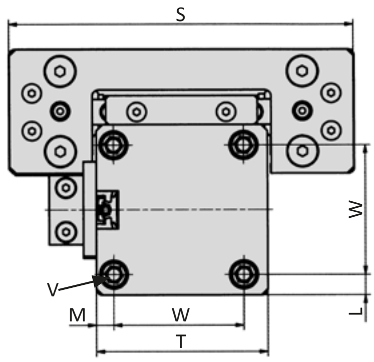
Piston Ø	U	V	W	Z	AB	AC	AD	AE	AF	AG	AH
25	59	M4 x 11	36	4 x 4.4	10.4	50	12.5	8.6	6.4	4.3	36
32	69	M5 x 11	41	4 x 4.4	10.4	50	16.9	8.6	6.4	4.3	41
40	79	M6 x 12	49	4 x 4.4	10.4	80	10	8.6	6.4	4.3	49
50	112.5	M8 x 17	65	4 x 4.4	10.4	94	23	8.6	6.4	4.3	65
63	134.5	M8 x 17	78	4 x 4.4	10.4	110	24	8.6	6.4	4.3	78

Technical data

Model-no.:		ZX-25-SR-...	ZX-32-SR-...	ZX-40-SR-...	ZX-50-SR-...	ZX-63-SR-...
Piston Ø (mm)		25	32	40	50	63
Connection		G1/8	G1/8	G1/4	G3/8	G3/8
Cushioning length (mm)		24	28	36	45	59
Weight (kg)	0 mm stroke	1.97	2.96	5.89	9.10	13.17
	each 100 mm stroke	0.42	0.48	0.74	1.08	1.42
max. stroke (mm)		6000	6000	5950	5910	5860

Dimensions





* not for ZX-25-SR

Piston Ø	A	B	C	D	L	M	N	P
25	100	160	200	G1/8	4.5	4.5	40	40
32	120	201	240	G1/8	6.5	5.5	40	40
40	150	252	300	G1/4	7.5	7.5	55	55
50	175	270	350	G3/8	12.5	12.5	55	55
63	200	320	400	G3/8	14	14	70	70

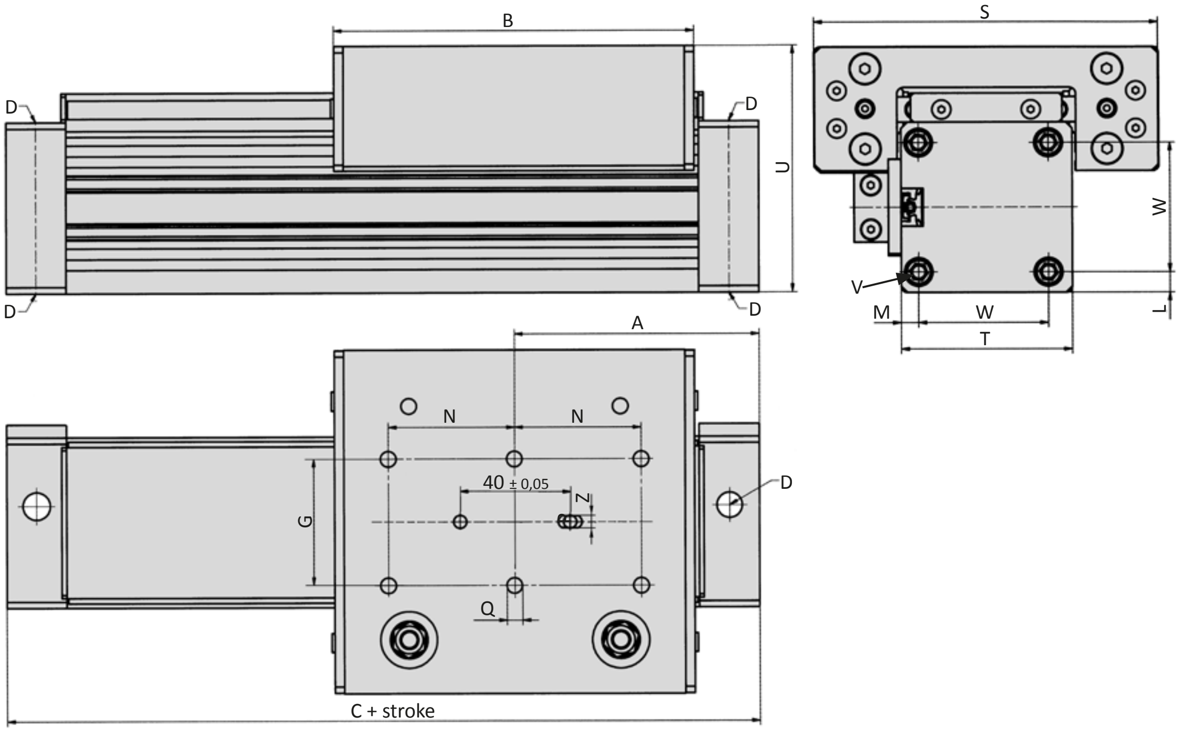
Piston Ø	Q	S	T	U	V	W	Z
25	M5 x 7.5	97	45	68.2	M4 x 11	36	4 x 4.4
32	M6 x 9	108.8	54	78	M5 x 11	41	4 x 4.4
40	M6 x 12	145	64	90.5	M6 x 12	49	4 x 4.4
50	M8 x 15	164	90	120	M8 x 17	65	4 x 4.4
63	M8 x 17	180	106	137	M8 x 17	78	4 x 4.4

Series ZX-KR

Technical data

Model-no.:		ZX-25-KR-...	ZX-32-KR-...	ZX-40-KR-...	ZX-50-KR-...	ZX-63-KR-...
Piston Ø (mm)		25	32	40	50	63
Connection		G1/8	G1/8	G1/4	G3/8	G3/8
Cushioning length (mm)		24	28	36	45	59
Weight (kg)	0 mm stroke	1.33	1.91	3.84	5.82	8.66
	each 100 mm stroke	0.42	0.48	0.74	1.08	1.42
max. stroke (mm)		6000	6000	6000	6000	6000

Dimensions

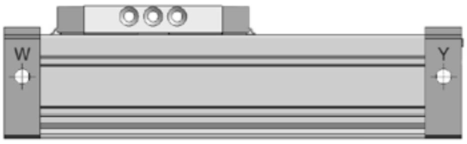


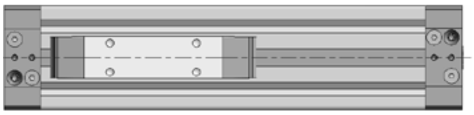
Piston Ø	A	B	C	D	L	M	N	P
25	67,5	95	135	G1/8	4.5	4.5	20	40
32	77,5	115	155	G1/8	6.5	5.5	40	40
40	95	143,5	190	G1/4	7.5	7.5	55	55
50	105	148	210	G3/8	12.5	12.5	55	55
63	125	188	250	G3/8	14	14	70	70

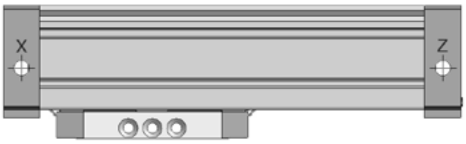
Piston Ø	Q	S	T	U	V	W	Z
25	M5 x 7.5	97	45	68.2	M4 x 11	36	4 x 4.4
32	M6 x 9	108.8	54	78	M5 x 11	41	4 x 4.4
40	M6 x 12	145	64	90.5	M6 x 12	49	4 x 4.4
50	M8 x 15	164	90	120	M8 x 17	65	4 x 4.4
63	M8 x 17	180	106	137	M8 x 17	78	4 x 4.4

Option -01 Air connection on each end

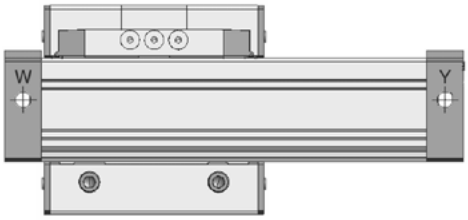
without guide

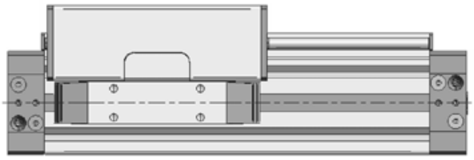


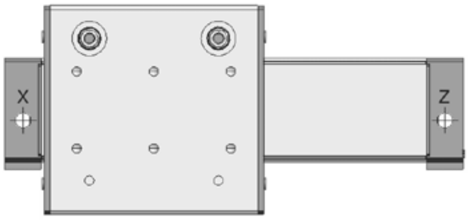




with guide



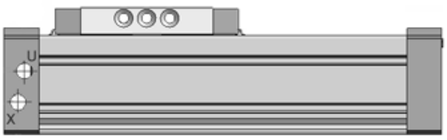


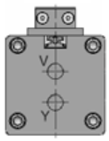


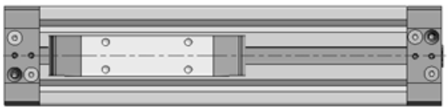
Option -01 cylinder comes with two pressure connections (ports W-X and ports Y-Z respectively) on each end. User is required to select one of two pressure connections on each end.
Second port will require the installation of a sealing plug (2 plugs are supplied).

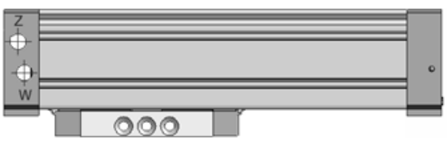
Option -02 Air connection on one end

without guide

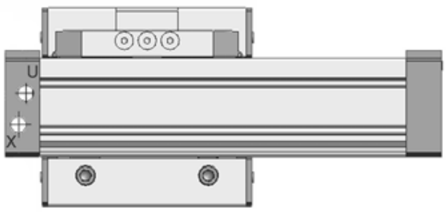


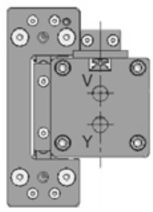


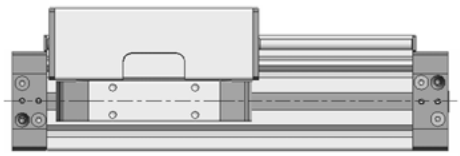


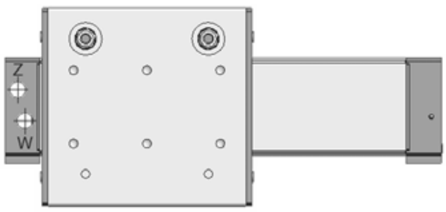


with guide







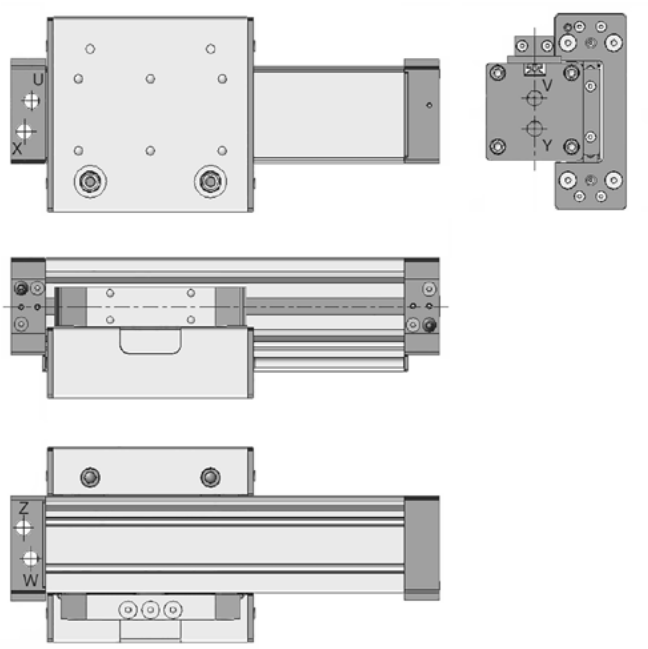


One cylinder head is supplied with 6 ports (3 for each direction, ports U-V-W air travels in one direction and ports X-Y-Z air travels in the opposite direction). User is required to select one of three pressure connections for each direction. The second and third ports will require the installation of a sealing plug (4 plugs are supplied).
With this option the slide guide is mounted on the left side of the piston driver.
Ports V and Y must be plugged when using a head mount.

Series ZX

Option -03 Air connection on one end

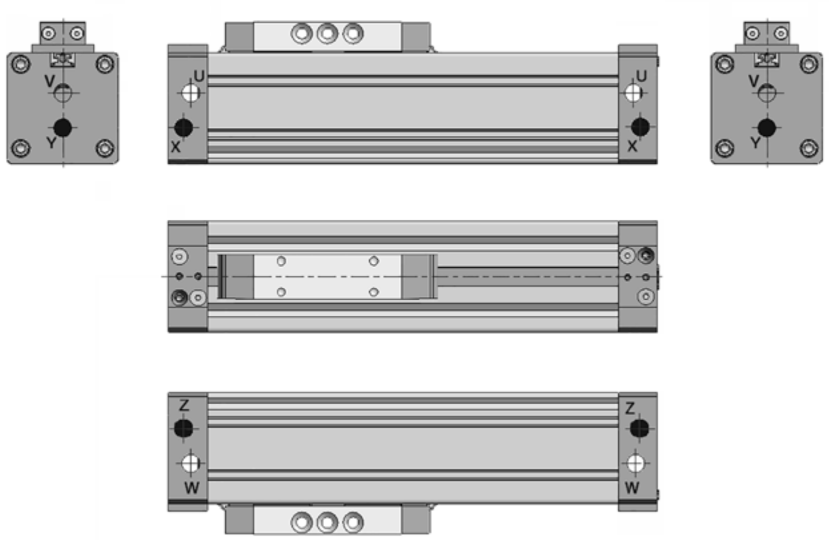
with guide



One cylinder head is supplied with 6 ports (3 for each direction, ports U-V-W air travels in one direction and ports X-Y-Z air travels in the opposite direction). User is required to select one of three pressure connections for each direction. The second and third ports will require the installation of a sealing plug (4 plugs are supplied).
With this option the slide guide is mounted on the right side of the piston driver.
Ports V and Y must be plugged when using a head mount.

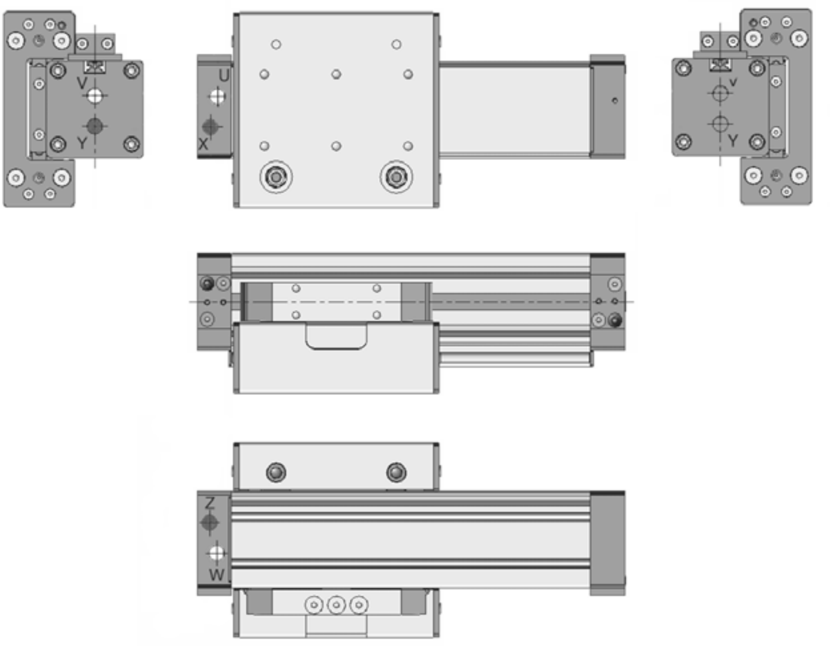
Option -04 Air connection on both face ends

without guide



Option -04 Air connection on both face ends

with guide

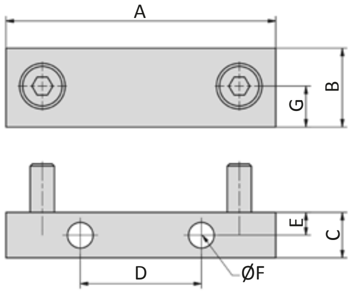


Option -04 enables to connect pressure at both face ends or one face and one side port.
Therefore the head with 6 ports from option -02 is used at both ends. Now it is possible to use the upper ports (U-V-W). The lower ports (X-Y-Z) are plugged.
This option is for using ports at both cylinder heads only.

10

Series ZX
Mounting parts

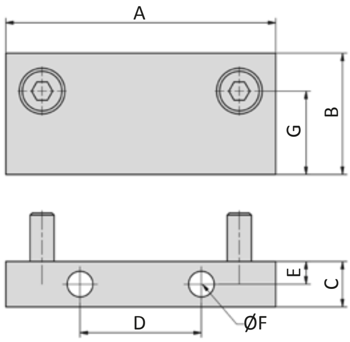
ZXB-xx-01 Head mount



Model-no.:	A	B	C	D	E	Ø F	G
ZXB-25-01	45	10	10	22	5	5.5	4.5
ZXB-32-01	51	16	15	25	7.5	7	7.5
ZXB-40-01	64	16	15	25	7.5	9	7.5
ZXB-50-01	89	26	15	40	7.5	8.5	12.5
ZXB-63-01	105	29	15	50	7.5	8.5	14

Screws to mount the head mount to the cylinder are included.
The face ports must be plugged when using a head mount.

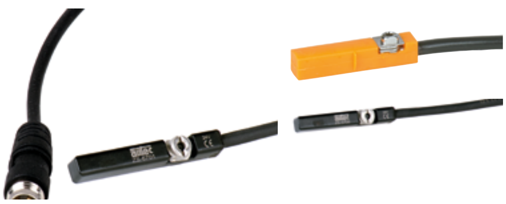
ZXB-xx-02 Head mount, tall



Model-no.:	A	B	C	D	E	Ø F	G
ZXB-25-02	45	18	10	22	5	5.5	12.5
ZXB-32-02	51	34	15	25	7.5	7	16.5
ZXB-40-02	64	26	15	25	7.5	9	17.5
ZXB-50-02	89	40	15	40	7.5	8.5	27.5
ZXB-63-02	105	40	15	50	7.5	8.5	29

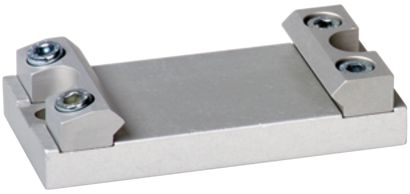
Screws to mount the head mount to the cylinder are included.
The face ports must be plugged when using a head mount.

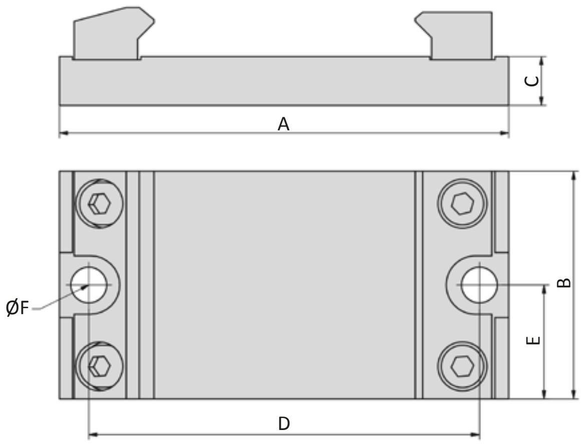
Proximity sensors



Page 9-90

ZXB-xx-10 Center mount

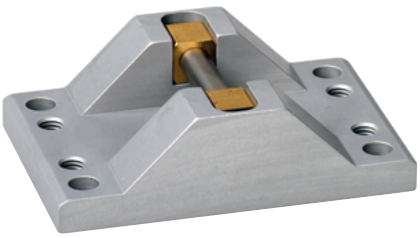


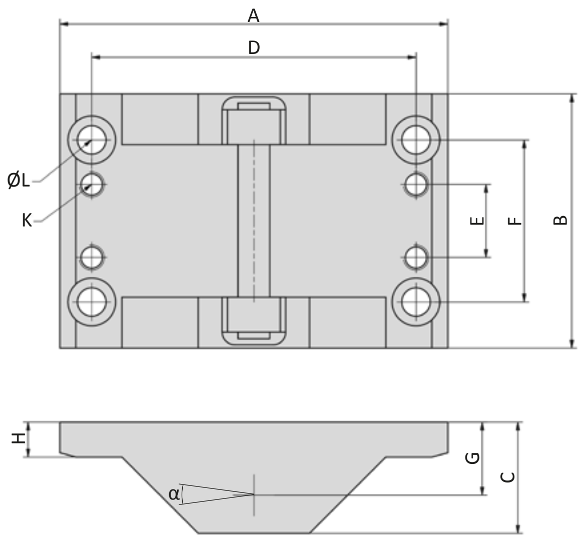


Model-no.:	A	B	C	D	E	ØF
ZXB-25-10	70	35	8	60	30	5.5
ZXB-32-10* ZXB-32-11*	85	40	10	73	36.5	6.6
ZXB-40-10	105	40	10	90.5	45.25	9
ZXB-50-10	138	70	15	120	60	11
ZXB-63-10	154	70	15	136	68	11

*The model ZXB-32-10 is only suitable for bottom mount. For side mounting and versions SG, KG, SR and KR please use center mount ZXB-32-11.

ZXB-xx-20 Alignment coupler





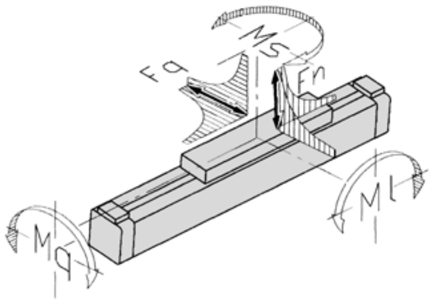
Model-no.:	Cylinder Ø	A	B	C	D	E	F	G	H	K	Ø L	α
ZXB-25-20	25	80	54	24	66	20	40	18 ... 20	8	M6	6.5	16°
ZXB-25-20	32	80	54	24	66	20	40	17.9 ... 18.9	8	M6	6.5	12°
ZXB-40-20	40	80	54	24	66	20	40	18 ... 20	8	M6	6.5	9°-12°
ZXB-50-20	50	122	80	35	102	23	51	23 ... 25	11	M8	9	7°-10°
ZXB-50-20	63	122	80	35	102	23	51	23 ... 25	11	M8	9	5°-9°

The alignment coupler is designed to be used with external guide systems. This coupler compensates for the mis-alignment between the rodless cylinder and the external guide system (supplied by customer). For use with cylinder series ZX-K and ZX-S.

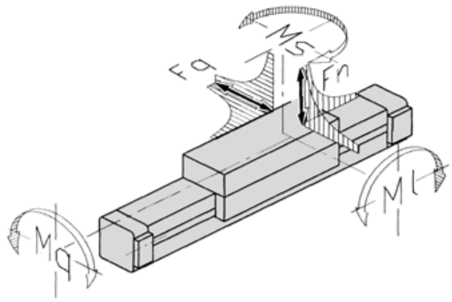
Series ZX

Forces and torques

ZX-xx-K, ZX-xx-S



ZX-xx-KG, ZX-xx-SG, ZX-xx-KR, ZX-xx-SR



Model-no.:	Force (N) at 6 bar	$Fn_{max.}$ (N)	$Fq_{max.}$ (N)	$Ml_{max.}$ (Nm)	$Mq_{max.}$ (Nm)	$Ms_{max.}$ (Nm)
ZX-25-S	255	270	-	13	2.5	11
ZX-25-K	255	270	-	8	2.0	7
ZX-25-SG	250	580	580	23	10.0	23
ZX-25-KG	250	340	340	9	5.0	9
ZX-25-SR	250	850	1300	65	35.0	105
ZX-25-KR	250	850	1300	29	35.0	64
ZX-32-S	420	300	-	30	3.0	24
ZX-32-K	420	300	-	15	3.0	12
ZX-32-SG	410	850	850	33	15.0	33
ZX-32-KG	410	460	460	14	6.5	14
ZX-32-SR	410	900	1500	79	40.0	125
ZX-32-KR	410	900	1500	36	40.0	76
ZX-40-S	655	650	-	60	4.0	54
ZX-40-K	655	650	-	30	4.0	27
ZX-40-SG	640	1120	1120	60	25.0	60
ZX-40-KG	640	600	600	25	11.0	25
ZX-40-SR	640	1200	2000	190	45.0	118
ZX-40-KR	640	1200	2000	85	45.0	72
ZX-50-S	1000	800	-	80	17.0	74
ZX-50-K	1000	800	-	38	17.0	32
ZX-50-SG	1000	1550	1500	200	70.0	200
ZX-50-KG	1000	820	800	60	40.0	60
ZX-50-SR	1000	4100	2000	157	50.0	170
ZX-50-KR	1000	1800	2000	67	50.0	106
ZX-63-S	1600	1400	-	110	17.0	100
ZX-63-K	1600	1400	-	50	17.0	48
ZX-63-SG	1600	2000	2000	300	102.0	300
ZX-63-KG	1600	1100	1100	105	56.0	105
ZX-63-SR	1600	5000	2000	196	55.0	208
ZX-63-KR	1600	2500	2000	99	55.0	134

The mounting surface of the assembled mass should not exceed a straightness tolerance of 0.1 mm to avoid additional tension or clearance in the guiding system.

Complex loads

If more than one force and torque appear simultaneously, they have to be calculated by the formula:

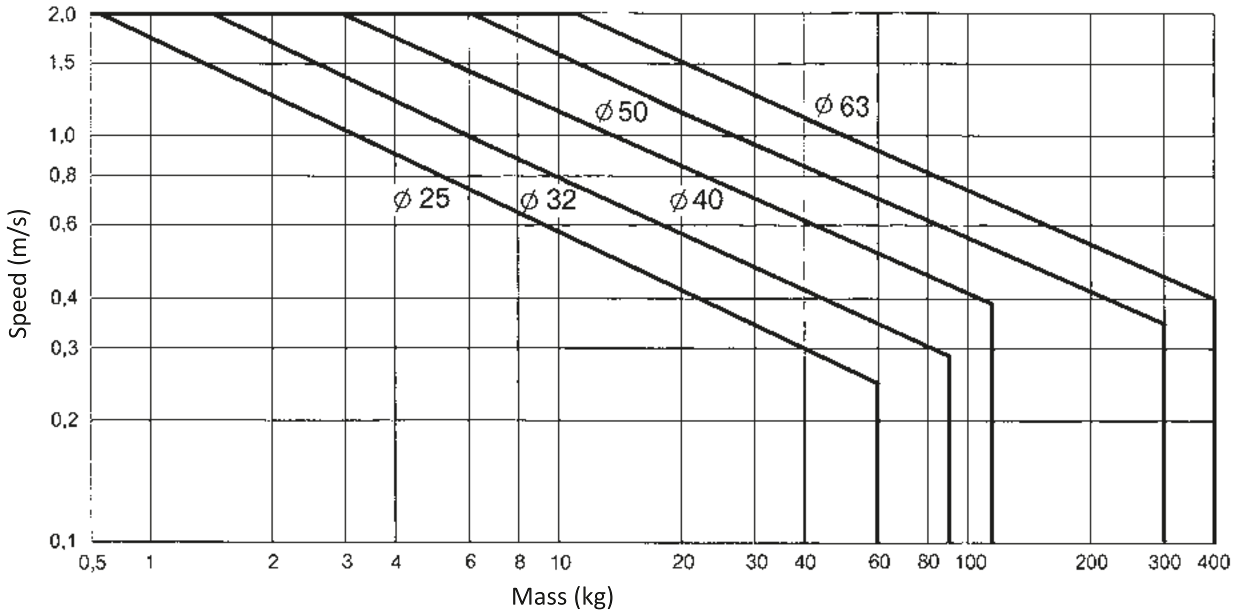
$$\frac{Fn}{Fn_{max.}} + \frac{Fq}{Fq_{max.}} + \frac{Ml}{Ml_{max.}} + \frac{Mq}{Mq_{max.}} + \frac{Ms}{Ms_{max.}} \leq 1$$

Information on forces and torques refers to speeds for slide guides (series S, K, SG and KG) of ≤ 0.2 m/s and speeds for roller guides (series SR and KR) of ≤ 2 m/s.
Where speeds exceed 0.2 m/s the permissible values of the slide guides are to be multiplied by the loading coefficient (see table below).
The information on torques refers to the center point of the slide which, in the case of the ZX-S and ZX-K cylinders, is the center of the tube. In versions with slide guides, the center point of the guide is in the slide.

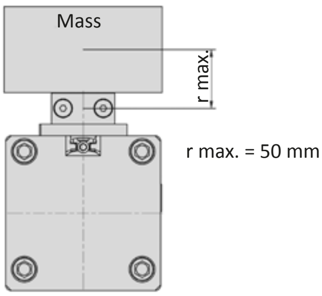
v (m/s)	0.2	0.3	0.4	0.5	0.75	1
Factor	1	0.75	0.5	0.4	0.27	0.2

Cushioning diagram

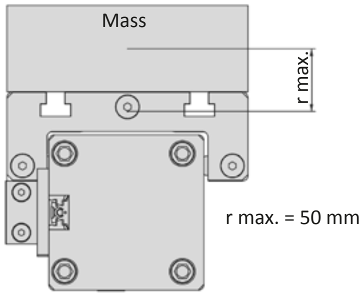
If the application is out of the diagram range, an external shock absorber is required. The mounting position of shock absorbers must be close to the center of the mass.
The data applies to a horizontal mounting position.



ZX-xx-K, ZX-xx-S

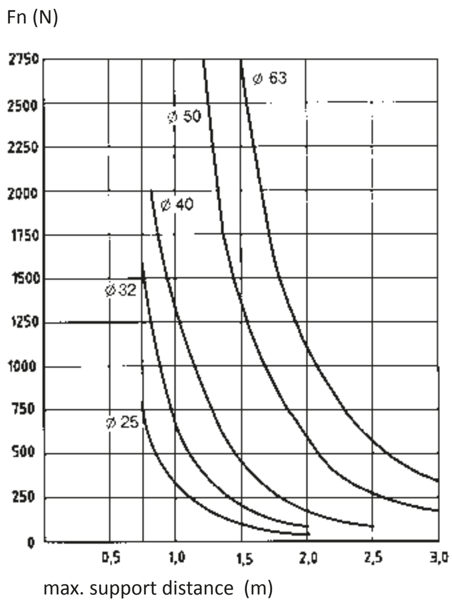


ZX-xx-KG, ZX-xx-SG, ZX-xx-KR, ZX-xx-SR

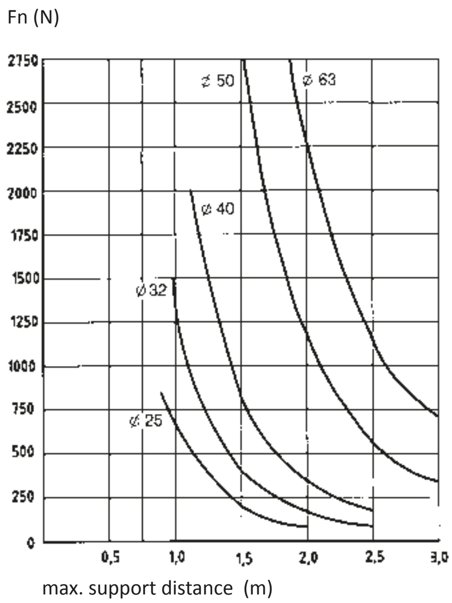


Deflection

Deflection 0,5 mm



Deflection 1 mm

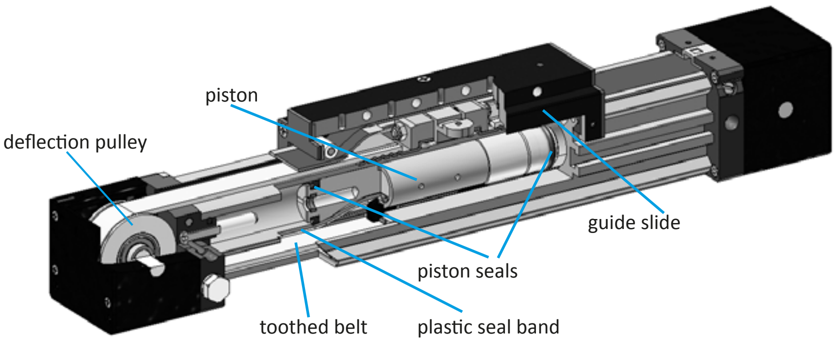


10

Series ZR

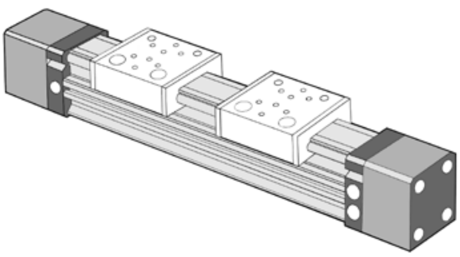
Design and function

The toothed belt cylinder consists of an extruded cylinder tube with two chambers. They are connected to each other over the entire length of the cylinder. The pressure chamber is sealed by a PU seal strip. Between the two piston seals a pressure-free space is created. In this space the seal band is lifted to the inside and is passed through the piston.
Simultaneously, a driver (piston bracket) grasps through the slot into the outer chamber.
Since the outer chamber encloses the longitudinal slot, it does not expand under pressure. This results in minimal leakage and better flexural and torsional stiffness.



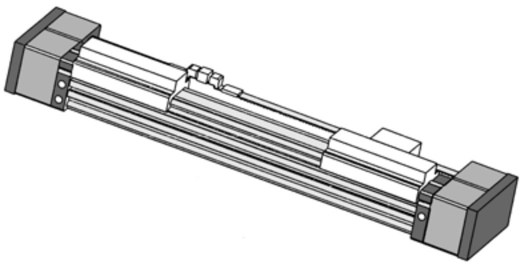
In the outer chamber, the piston bracket grips the toothed belt, which leads to a tension lock at the opposite side via the deflection pulley. Inside the slide, the cover belt is lifted from the slot, and the slide is connected to the tension lock.
By this principle, dirt is kept away from the sealing strip enabling use under rough operating conditions.
The force is transmitted, free of slip, to a shaft via the toothed belt pulley. As a result, several cylinders can be linked and operated synchronously, enabling torques from the off-center application forces.
The cylinder can also be supplied with a brake mounted on the driven shaft without the use of an additional energy transmission chain. A cylinder supplied with a brake and encoder results in an inexpensive positioning system.
Since the slide or roller guide is already integrated into the slide, a complete linear drive is available with this cylinder.

With 2 slides



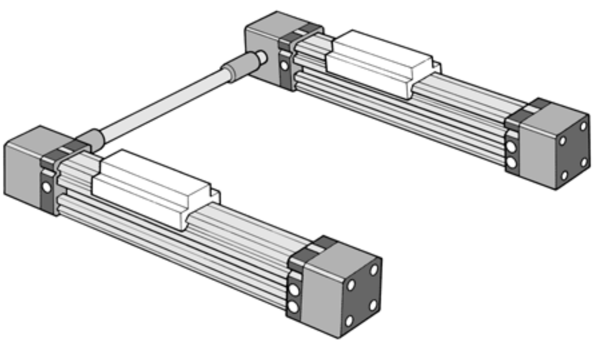
For higher loads.

As a gripping cylinder



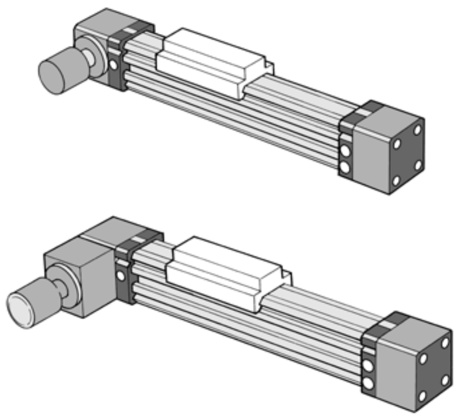
By mounting a second toothed belt and using a slide in tangential feed.

Synchronous running



The system is suitable for synchronisation of 2 or more cylinders.
(see options)

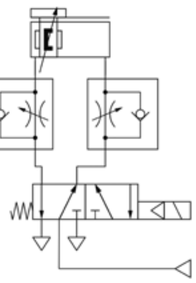
With brake / with encoder mount



Since the running performance is stick slip free, an encoder mount is possible. A holding brake keeps the position.
(see options)

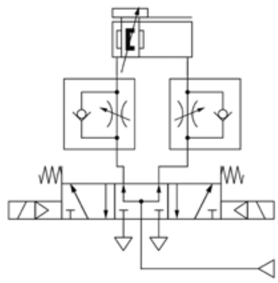
Circuit examples

Control 1



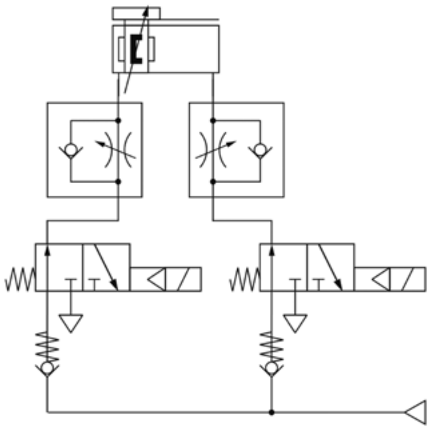
Simple system for controlling the slide from end to end.
A flow control valve can be used to adjust the cylinder speed.

Control 2



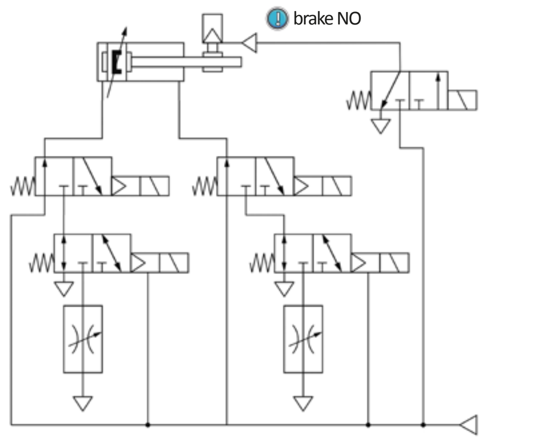
System to stop the cylinder on intermediate position with higher tolerances.

Control 3



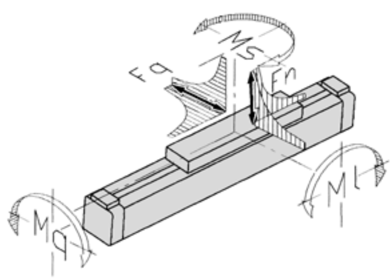
This control circuit improves the positioning accuracy. The use of check valves reduces the stopping distance and also increases the load stiffness.

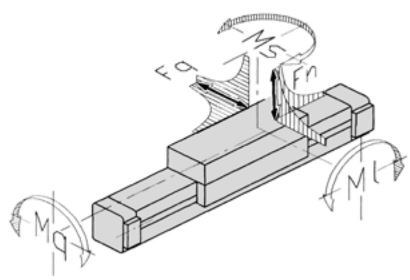
Control 4



This circuit example permits the selection of different speeds (rapid or inching) for either forward or reverse motion. The brake is activated by a 3/2 solenoid valve.

Loads, forces and torques





Cylinder	Operating force *	Braking force**	F_n	F_q	Ml	M_q	M_s
ZR-25	250 N	380 N	400 N	400 N	40 Nm	20 Nm	30 Nm
ZR-25S	250 N	380 N	400 N	400 N	80 Nm	40 Nm	60 nm
ZR-40	640 N	750 N	800 N	800 N	75 Nm	30 Nm	50 Nm
ZR-40S	640 N	750 N	800 N	800 N	150 Nm	60 Nm	100 Nm
ZR-40L	640 N	750 N	1200 N	1200 N	95 Nm	45 Nm	95 Nm

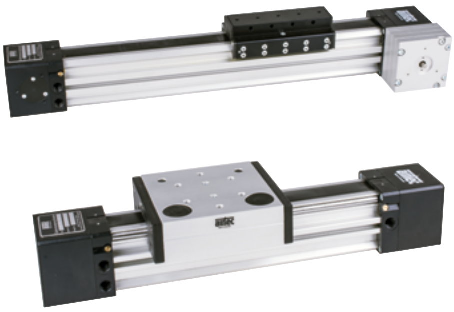
v in m/s	0.2	0.3	0.4	0.5	0.75	1
Factor***	1	0.75	0.5	0.4	0.27	0.2

* at 6 bar
** only at versions with brake, braking force at 6 bar, static
*** Force and torque data are based on the speed of the slide guideways of ≤ 0.2 m/s, in case of roller guides of ≤ 2 m/s.
If speed exceeds 0.2 m/s, the permissible values of the slide guideways must be multiplied by the factors from the table. For roller or ball guide types is no factor required.

Series ZR

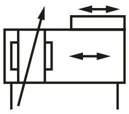
Technical details

Operating pressure	1 ... 8 bar
Temperature range	-15°C ... +70°C
max. Stroke	4500 mm (4300 mm for ZR-**S)
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature. If speeds exceed 1 m/s lubricated air is recommended.
Materials	Cylinder tube: Al (anodized) End caps: Al (anodized) Seals: PA, NBR, PDF



Double acting rodless toothed belt cylinder with adjustable cushions. The toothed belt is driven by the piston in a closed profile tube. The piston actuates a slide with an adjustable slide guideway.
Note: Slide guide and piston are working in opposite direction.

Versions



ZR-***
double acting, adjustable cushioning,
with magnetic piston

Order code

ZR- * - **** - * - ****

Series	

Piston Ø	
25	25 mm
40	40 mm

Guide	
blank	slide guide
S	heavy-duty slide guide
L	roller bearing guide (only for Ø 40)

Stroke (mm)	
XXXX	max. 4500 mm (max. 4300 mm for ZR-**S)

Options (details see page 10-25)	
A	brake
B	brake with extended shaft at opposite side
C	brake with extended shaft end-to-end (both sides)
D	brake with extended shaft (brake side)
F	extended shaft for synchronisation
G	extended shaft for encoder mounting
H	extended shaft for encoder mounting and synchronisation
J	extended shaft end-to-end (both sides) for synchronisation

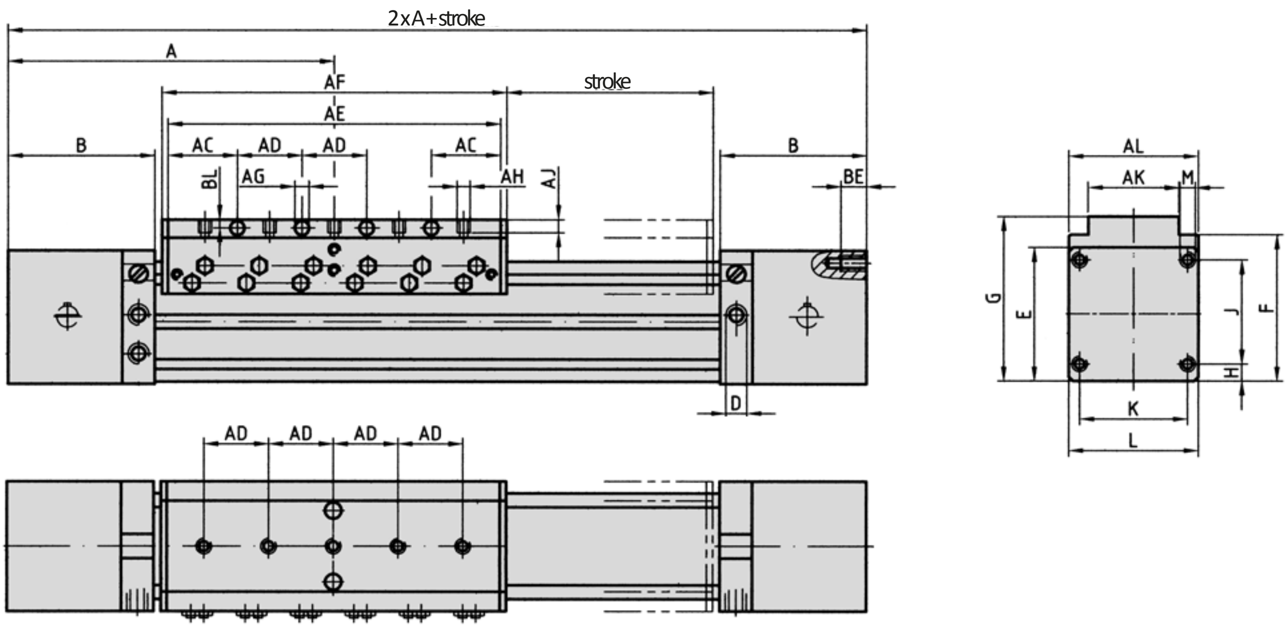
Air connection options (details see page 10-27)	
1	double air connection at 1
2	double air connection at 2
3	double air connection at 3
4	double air connection at 4

Series ZR

Technical data

Model-no.:		ZR-25	ZR-40	ZR-25S	ZR-40S	ZR-40L
Piston Ø (mm)		25	40	25	40	40
Connection		G1/8	G1/4	G1/8	G1/4	G1/4
Cushioning length (mm)		25	32	25	32	32
Weight (kg)	0 mm stroke	2.18	3.19	2.58	3.59	4.84
	each 100 mm stroke	0.40	0.50	0.40	0.50	0.70

Dimensions series ZR

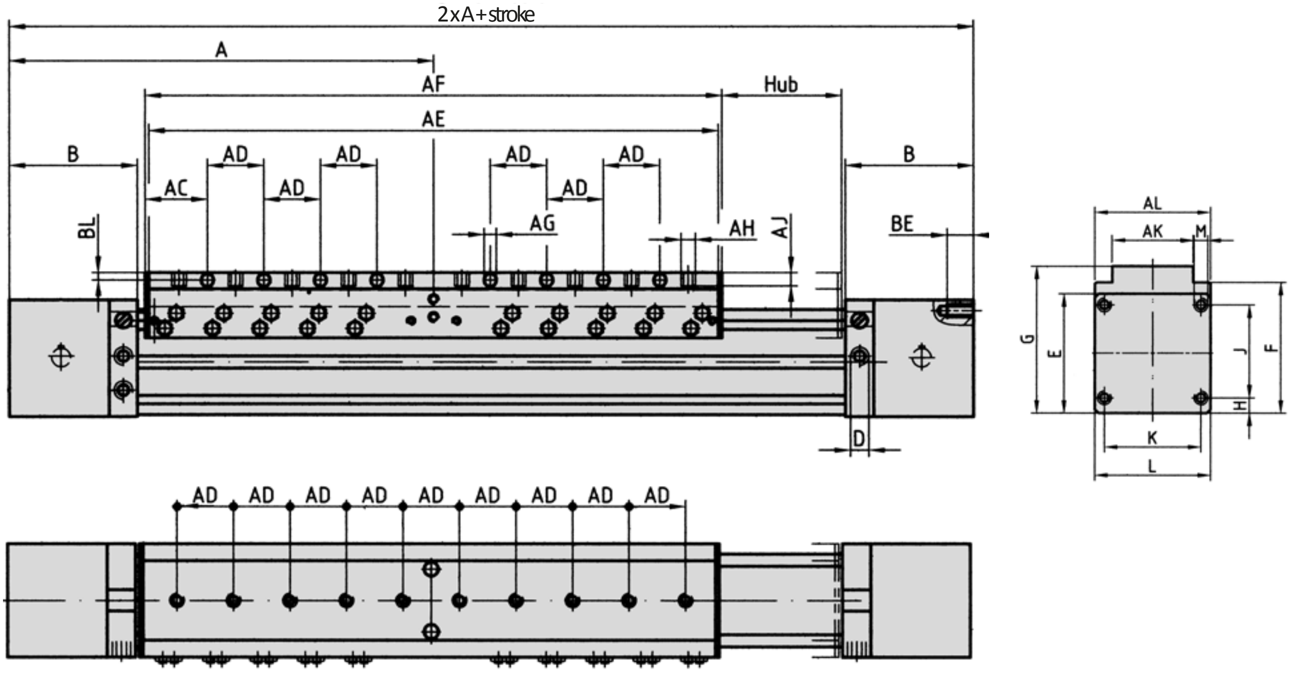


Cylinder	A	B	D	E	F	G	H	J	K	L	M
ZR-25	150	68	G1/8	62	67.5	76	8	48	50	60	M5
ZR-40	150	75	G1/4	76.8	80.5	97.5	9	54	54	72	M6

Cylinder	AC	AD	AE	AF	AG	AH	AJ	AK	AL	BE	BL
ZR-25	33	30	156	160	5.5	M5	7	42	60	10	4
ZR-40	25	30	140	148	5.5	M5	8.5	40	72	12	6

Series ZR

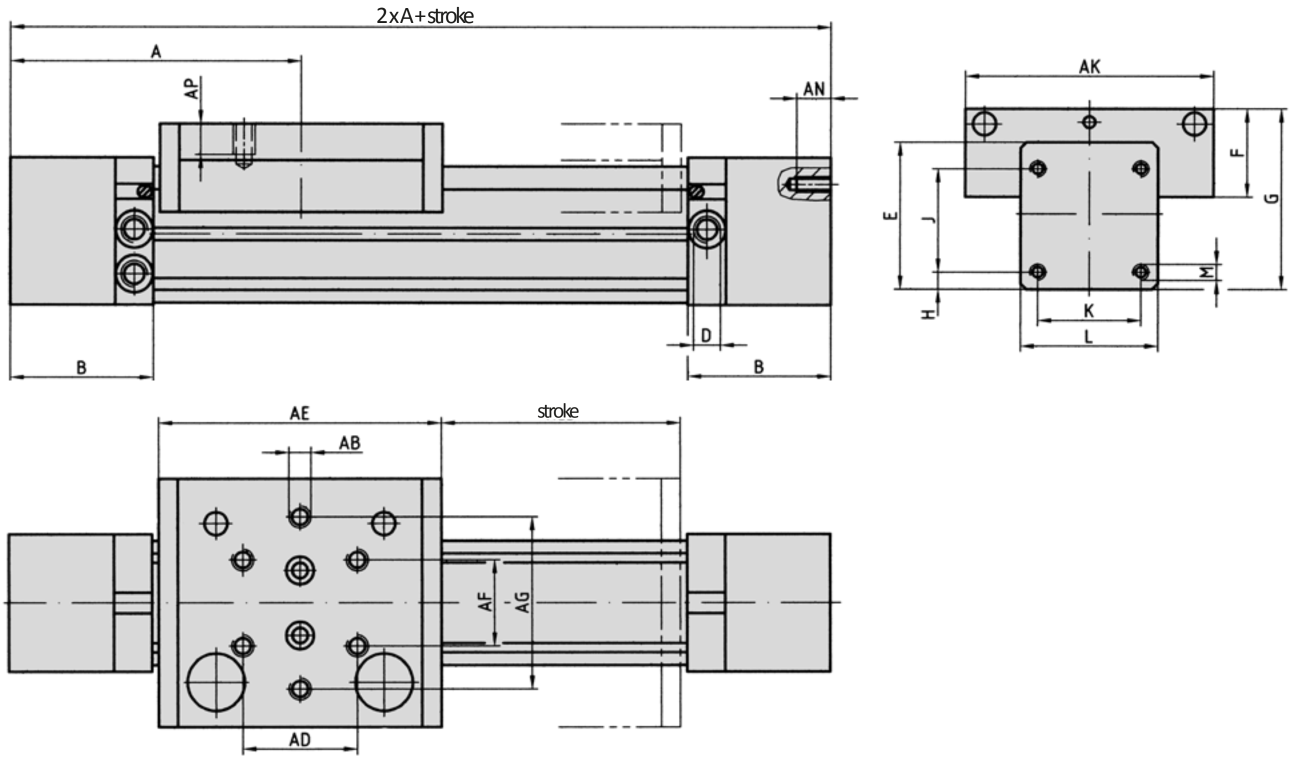
Dimensions series ZR-S



Cylinder	A	B	D	E	F	G	H	J	K	L	M
ZR-25S	225	68	G1/8	62	67.5	76	8	48	50	60	M5
ZR-40S	225	75	G1/4	76.8	80.5	97.5	9	54	54	72	M6

Cylinder	AC	AD	AE	AF	AG	AH	AJ	AK	AL	BE	BL
ZR-25S	35	30	306	310	5.5	M5	7	42	60	10	4
ZR-40S	29	30	290	298	5.5	M5	8.5	40	72	12	6

Dimensions series ZR-L

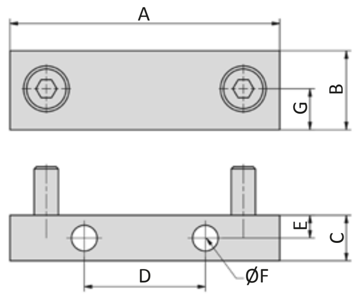


Cylinder	A	B	D	E	F	G	H	J	K	L
ZR-40L	150	75	G1/4	76.8	46.1	94.4	9	54	54	72

Cylinder	M	AB	AD	AE	AF	AG	AK	AN	AP
ZR-40L	M6	M8	60	148	45	90	130	12	15

Series ZR
Mounting parts

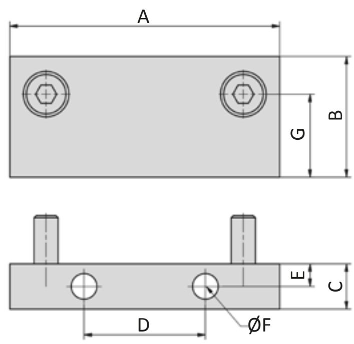
ZK-xx2 Head mount



Model-no.:	A	B	C	D	E	Ø F	G
ZK-252	60	20	20	30	10	9	11
ZK-402	71	20	20	30	10	9	11

Screws to mount the head mount to the cylinder are included.

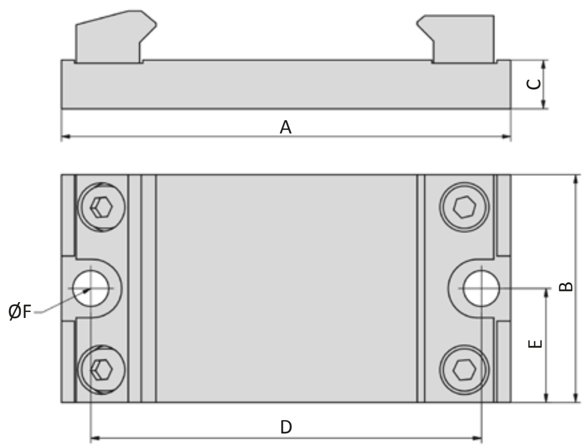
ZK-xx3 Head mount, tall (for use in combination with center mount)



Model-no.:	A	B	C	D	E	Ø F	G
ZK-253	60	30	20	30	10	9	17
ZK-403	71	30	20	30	10	9	18

Screws to mount the head mount to the cylinder are included.

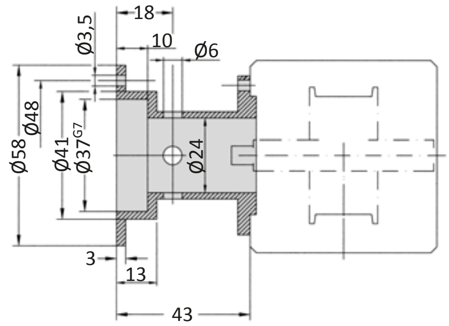
ZK-xx1 Center mount



Model-no.:	A	B	C	D	E	ØF
ZK-251	90	60	10	75	37.5	9
ZK-401	100	60	10	84	42	9

Series ZR
Accessories

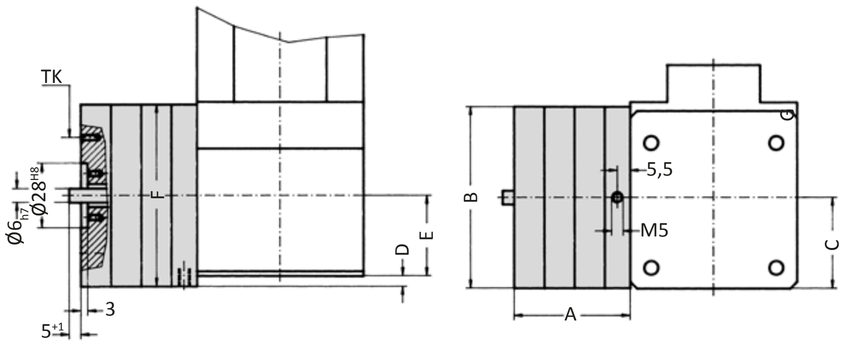
ZA-3x Adapter for encoder mounting



Model-no.:	Mounting
ZA-36	mounted on brake
ZA-37	mounted on head

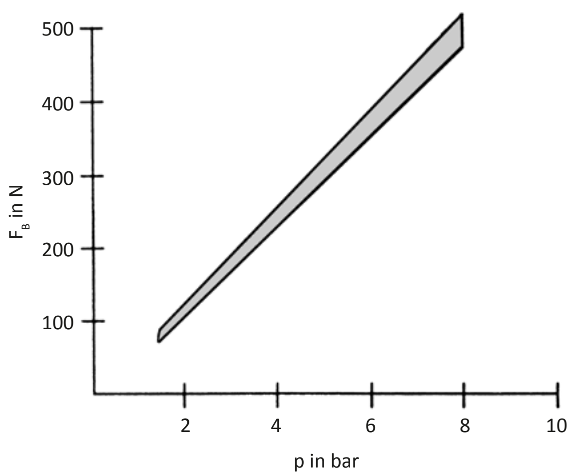
The adapters can be mounted on all cylinders of series ZR and will fit to all encoders with a 36 mm centering collar.

BR-xx Brake

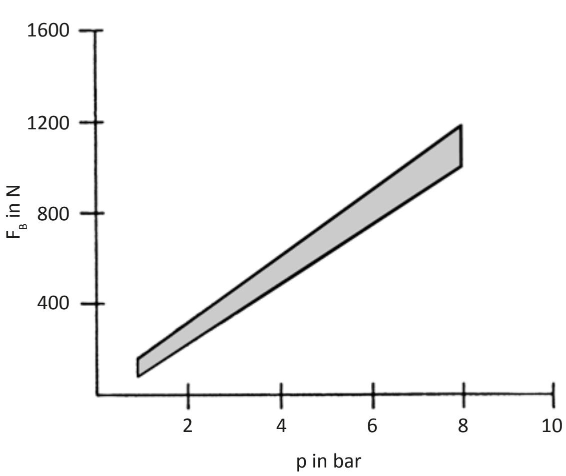


Model-no.:	A	B	C	D	E	F	TK
BR-25	43	61	31.2	2	27.5	51	45 (3 x M3 x 6 deep drawn offset)
BR-40	50	78.5	39.4	4.5	34.7	78.5	50 (3 x M3 x 7 deep drawn offset)

BR-25 Braking force static



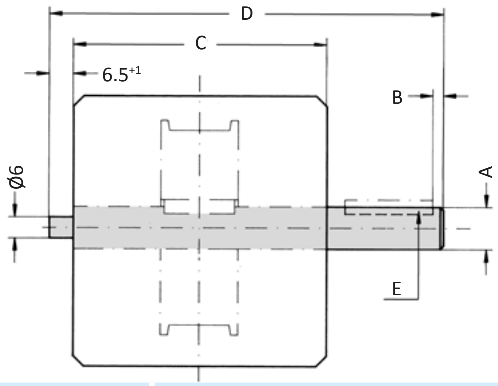
BR-40 Braking force static



The brake is designed to hold the position. Do not use to stop the cylinder.

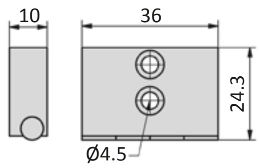
Series ZR
Accessories

Extended shaft



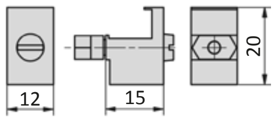
Piston Ø	A	B	C	D	E (key)	slide travel (mm) per one rotation
25	10_{h7}	2	60	93	3 x 3 x 20 DIN 6885	135
40	12_{h7}	3	72	112	4 x 4 x 25 DIN 6885	185

ZR-4006 Magnet



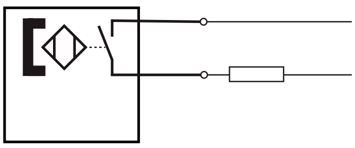
For use with our proximity sensor ZS-100.1. The magnet is mounted at the slide. Mounting screws are included. The model ZE-40L has the magnet already included.

ZR-4007 Mounting bracket for proximity sensors



For direct mounting at the cylinder groove.

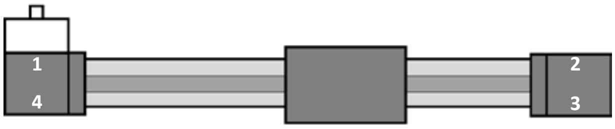
ZS-100.1 Proximity sensor



Model-no.:	ZS-100.1
Design	2-pole Reed sensor
Contact function	NO
Rated operational voltage	3 ... 250 V AC / DC
Rated operational current I_E	1 A
Breaking capacity	50 W bzw. 50 VA
Cable	2 x 0.25 mm², 3 m length
Temperature range	-30 ... +80°C
Protection	IP 67
Switching status indication	LED red
Switching time	< 2 ms
Response time	< 0.1 ms

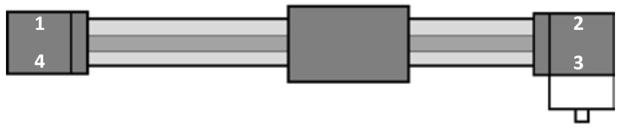
Series ZR
Accessories

Option A1



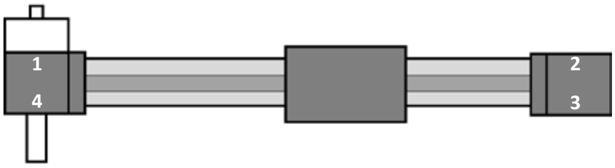
Brake with encoder connection mounted at 1

Option A3



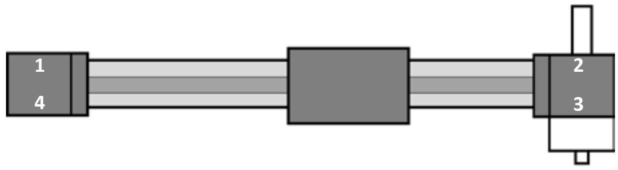
Brake with encoder connection mounted at 3

Option B1



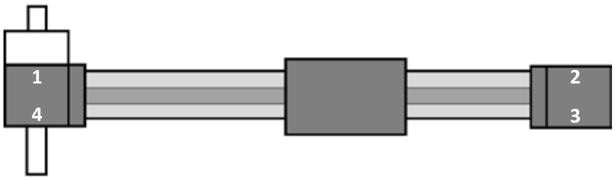
Brake at 1 with extended shaft for synchronisation at 4

Option B3



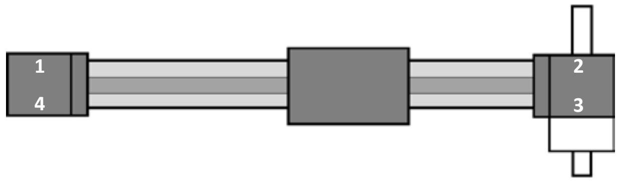
Brake at 3 with extended shaft for synchronisation at 2

Option C1



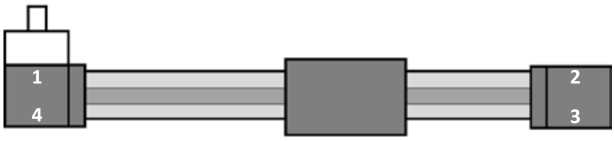
Brake at 1 with shaft for synchronisation at 1 and 4

Option C3



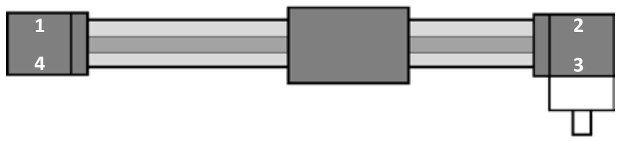
Brake at 3 with shaft for synchronisation at 2 and 3

Option D1



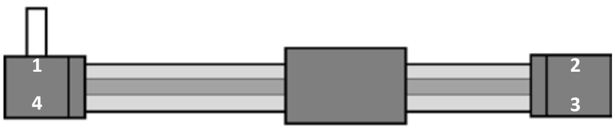
Brake at 1 with extended shaft for synchronisation at 1

Option D3



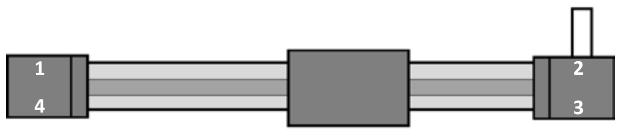
Brake at 3 with extended shaft for synchronisation at 3

Option F1



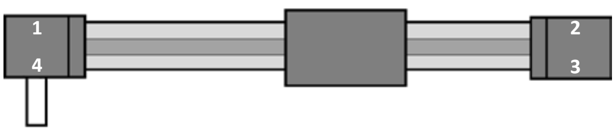
Shaft for synchronisation at 1

Option F2



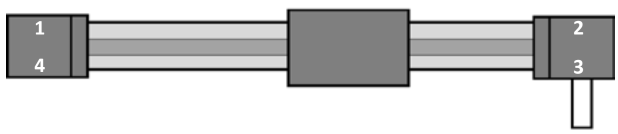
Shaft for synchronisation at 2

Option F4



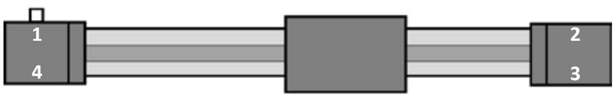
Shaft for synchronisation at 4

Option F3



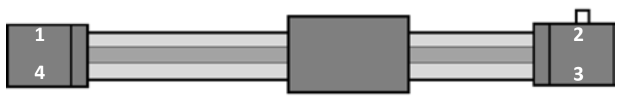
Shaft for synchronisation at 3

Option G1



Shaft for encoder connection at 1

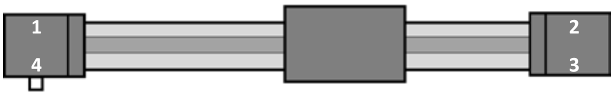
Option G2



Shaft for encoder connection at 2

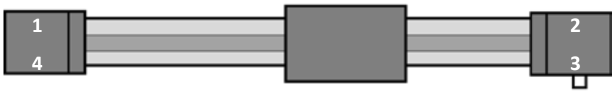
Series ZR
Accessories

Option G4



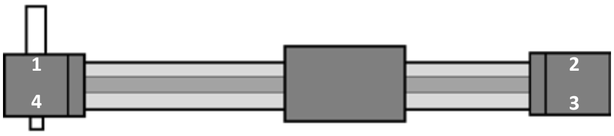
Shaft for encoder connection at 4

Option G3



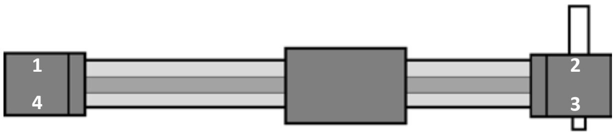
Shaft for encoder connection at 3

Option H1



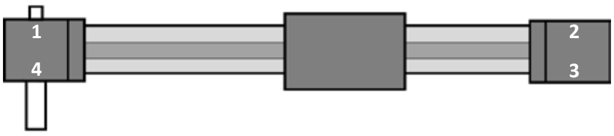
Shaft for encoder connection at 4 and synchronisation at 1

Option H2



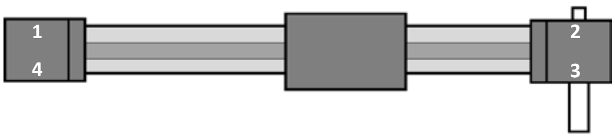
Shaft for encoder connection at 3 and synchronisation at 2

Option H4



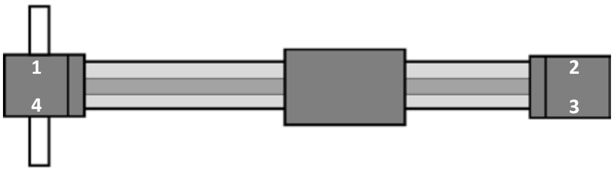
Shaft for encoder connection at 1 and synchronisation at 4

Option H3



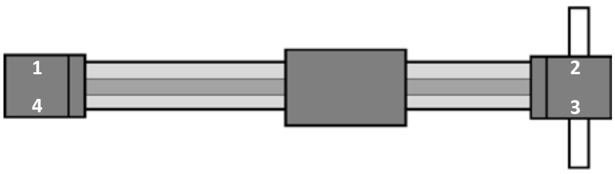
Shaft for encoder connection at 2 and synchronisation at 3

Option J1



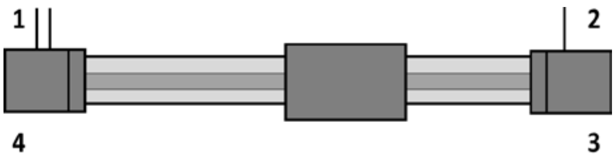
Shaft for synchronisation at 1 and 4

Option J3

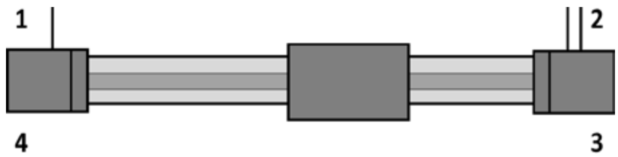


Shaft for synchronisation at 2 and 3

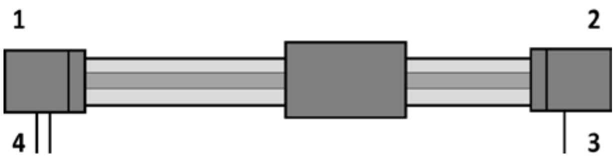
Option 1



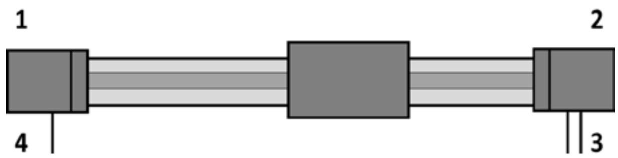
Option 2



Option 4



Option 3



The cylinder is supplied with three air connections. Two connections are necessary for operation, while the third is closed by a plug (included in the scope of delivery). The desired position of the double connection has to be specified in the order code after the stroke length by choosing the adequate number.

10

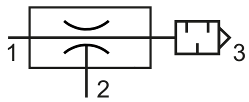
Table of contents

Series HV

Technical details

Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), fittings: brass, nickel plated, silencer: plastic

Vacuum ejectors work according to the Venturi principle. The pressure and vacuum connection have an integrated filter which protects against large dirt particles. The granulate silencer is part of delivery.
The HV series is developed for high vacuum level.

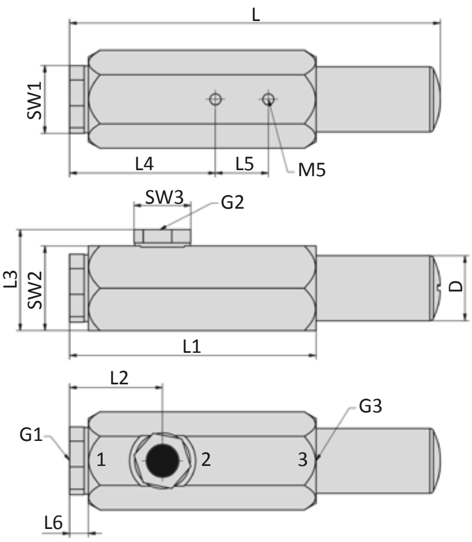


Technical data

Model-no.:	HV-33	HV-63	HV-93	HV-133	HV-333	HV-533
Max. vacuum level (%)	95	95	95	95	95	95
Flow rate (l/min)**	4	10	15	30	40	45
Air consumption (l/min)*	25	45	70	120	300	480
Time to evacuate (s/l)**	7.50	3.20	2.00	0.95	0.53	0.42
Nozzle-Ø (mm)	0.7	1.1	1.3	1.7	2.5	3.0
Operating pressure (bar)	4 ... 6	4 ... 6	4 ... 6	4 ... 6	4 ... 6	4 ... 6
Weight (kg)	0.052	0.131	0.131	0.242	0.368	0.385

* at 5 bar operating pressure
** at 70% vacuum level and 5 bar operating pressure

Dimensions



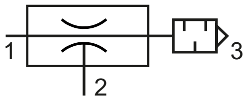
1 = pressure inlet
2 = vacuum inlet
3 = exhaust

Model-no.:	L	L1	L2	L3	L4	L5	L6	SW1	SW2	SW3	G1	G2	G3	Ø D
HV-33	76	49.5	23.5	27.8	-	-	6.5	17	17	13	G1/8	G1/8	G1/8	15
HV-63	129.5	82.5	33.5	34.5	47	16	6.5	24	19	13	G1/4	G1/8	G3/8	24.5
HV-93	129.5	82.5	33.5	34.5	47	16	6.5	24	19	13	G1/4	G1/8	G3/8	24.5
HV-133	140	93	35	38	55	20	7	32	24	19	G1/4	G1/4	G1/2	24.5
HV-333	207	110	35	38.1	52	29	7	32	24	19	G1/4	G1/4	G3/4	48
HV-533	207	110	35	38.1	52	29	7	32	24	19	G1/4	G1/4	G3/4	48

Technical details

Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), fittings: brass, nickel plated, silencer: plastic

Vacuum ejectors work according to the Venturi principle. The pressure and vacuum connection have an integrated filter which protects against large dirt particles. The granulate silencer is part of delivery.
The HF series is developed for high flow rates.

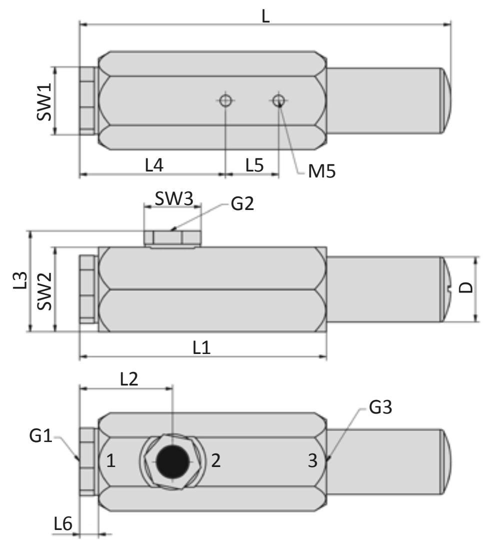


Technical data

Model-no.:	HF-133	HF-333	HF-533
Max. vacuum level (%)	60	65	80
Flow rate (l/min)**	80	190	215
Air consumption (l/min)*	110	300	480
Time to evacuate (s/l)**	0.22	0.12	0.09
Nozzle-Ø (mm)	1.7	2.5	3.0
Operating pressure (bar)	4 ... 6	4 ... 6	4 ... 6
Weight (kg)	0.242	0.368	0.385

* at 5 bar operating pressure
** at 40% vacuum level and 5 bar operating pressure

Dimensions



1 = pressure inlet
2 = vacuum inlet
3 = exhaust

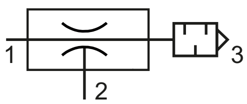
Model-no.:	L	L1	L2	L3	L4	L5	L6	SW1	SW2	SW3	G1	G2	G3	Ø D
HF-133	140	93	35	38	55	20	7	32	24	19	G1/4	G1/4	G1/2	24.5
HF-333	207	110	35	38.1	52	29	7	32	24	19	G1/4	G1/4	G3/4	48
HF-533	207	110	35	38.1	52	29	7	32	24	19	G1/4	G1/4	G3/4	48

Series HV

Technical details

Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), silencer: plastic

Vacuum ejectors work according to the Venturi principle. The granulate silencer is part of delivery.
The HV series is developed for high vacuum level.

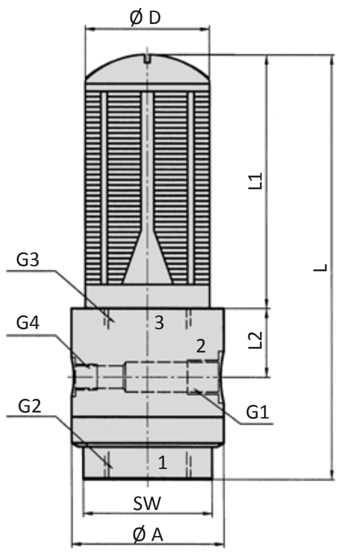


Technical data

Model-no.:	HV-80	HV-150	HV-300	HV-600
Max. vacuum level (%)	80	85	85	85
Flow rate (l/min)**	10	33	57	77
Air consumption (l/min)*	88	170	350	630
Time to evacuate (s/l)**	1.22	0.42	0.25	0.19
Operating pressure (bar)	3 ... 7	3 ... 7	3 ... 7	3 ... 7
Weight (kg)	0.300	0.300	0.400	0.400

* at 5 bar operating pressure
** at 60% vacuum level and 5 bar operating pressure

Dimensions



1 = pressure inlet
2 = vacuum inlet
3 = exhaust

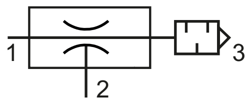
Model-no.:	**Ø A**	**Ø D**	**G1**	**G2**	**G3**	**G4**	**L**	**L1**	**L2**	**SW**
HV-80	48	24.5	G1/4	G1/2	G1/2	G1/8	109	47	25	40
HV-150	48	24.5	G1/4	G1/2	G1/2	G1/8	109	47	25	40
HV-300	59	48	G1/4	G1	G1	G1/8	163	97	28	50
HV-600	59	48	G1/4	G1	G1	G1/8	163	97	28	50

Series HF

Technical details

Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), silencer: plastic

Vacuum ejectors work according to the Venturi principle. The granulate silencer is part of delivery.
The HF series is developed for high flow rates.

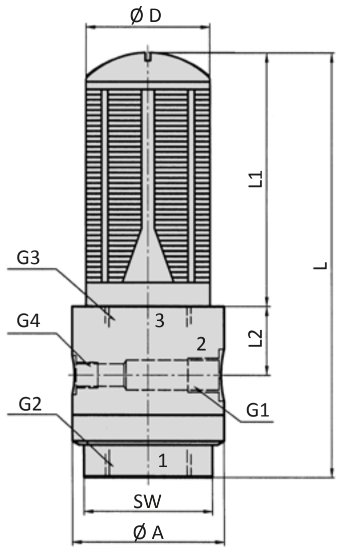


Technical data

Model-no.:	HF-100	HF-200	HF-300	HF-450	HF-600	HF-1150	HF-1500
Max. vacuum level (%)	75	74	80	78	78	80	68
Flow rate (l/min)**	40	95	135	130	200	407	436
Air consumption (l/min)*	108	220	320	480	650	1250	1600
Time to evacuate (s/l)**	0.180	0.100	0.060	0.016	0.011	0.021	0.021
Operating pressure (bar)	3 ... 7	3 ... 7	3 ... 7	3 ... 7	3 ... 7	3 ... 7	3 ... 7
Weight (kg)	0.240	0.400	0.400	0.400	0.400	0.900	0.900

* at 5 bar operating pressure
** at 40% vacuum level and 5 bar operating pressure

Dimensions



1 = pressure inlet
2 = vacuum inlet
3 = exhaust

Model-no.:	**Ø A**	**Ø D**	**G1**	**G2**	**G3**	**G4**	**L**	**L1**	**L2**	**SW**
HF-100	48	24.5	G1/4	G1/2	G1/2	G1/8	109	47	25	40
HF-200	59	48	G1/4	G1	G1	G1/8	163	97	28	50
HF-300	59	48	G1/4	G1	G1	G1/8	163	97	28	50
HF-450	59	48	G1/4	G1	G1	G1/8	163	97	28	50
HF-600	59	48	G1/4	G1	G1	G1/8	163	97	28	50
HF-1150	88	64	G3/8	G1½	G2	G1/8	180	90	38	69
HF-1500	88	64	G3/8	G1½	G2	G1/8	180	90	38	69

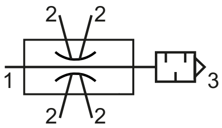
11

Series MI

Technical details

Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), silencer: plastic

The MI series is based on the Venturi principle. The unit is available with 4, 6 or 8 vacuum ports. The vacuum is maintained on all ports, even in cases were one or several cups draw atmospheric pressure. The granulate silencer is part of delivery.
The MI series is developed for high vacuum level.

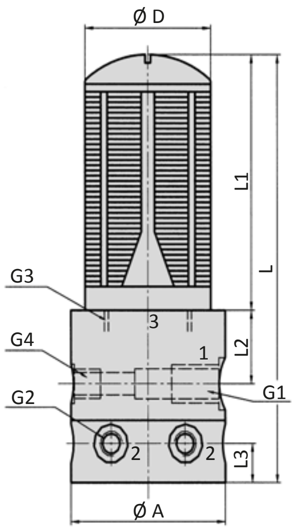


Technical data

Model-no.:	MI-4/20	MI-4/40	MI-6/30	MI-6/55	MI-8/40
Max. vacuum level (%)	78	82	80	82	82
Number of vacuum ports	4	4	6	6	8
Flow rate (l/min)**	2	6	3	8	6
Air consumption (l/min)*	100 (4 x 25)	168 (4 x 42)	198 (6 x33)	390 (6 x 65)	384 (8x48)
Time to evacuate (s/l)**	6.7	2.4	3.7	1.7	2.2
Operating pressure (bar)	4.5 ... 6	4.5 ... 6	4.5 ... 6	4.5 ... 6	4.5 ... 6
Weight (kg)	0.300	0.300	0.300	0.400	0.400

* at 5 bar operating pressure
** at 60% vacuum level and 5 bar operating pressure

Dimensions



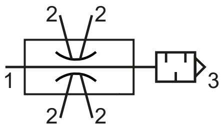
1 = pressure inlet
2 = vacuum inlet
3 = exhaust

Model-no.:	Ø A	Ø D	G1	G2	G3	G4	L	L1	L2	L3
MI-4/20	48	24.5	G1/4	G1/8	G1/2	G1/8	109	47	25	15
MI-4/40	48	24.5	G1/4	G1/8	G1/2	G1/8	109	47	25	15
MI-6/30	48	24.5	G1/4	G1/8	G1/2	G1/8	109	47	25	15
MI-6/55	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15
MI-8/40	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15

Technical details

Temperature range	0°C ... +60°C
Medium	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
Materials	Body: Al (anodized), silencer: plastic

The MI series is based on the Venturi principle. The unit is available with 4, 6 or 8 vacuum ports. The vacuum is maintained on all ports, even in cases were one or several cups draw atmospheric pressure. The granulate silencer is part of delivery.
The MIF series is developed for high flow rates.

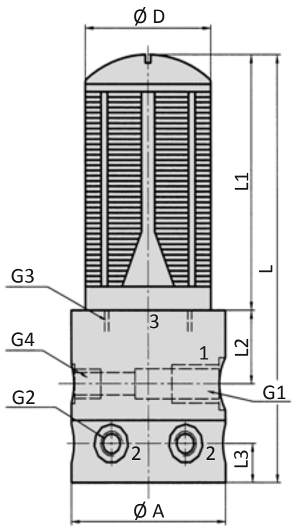


Technical data

Model-no.:	MIF-4/25	MIF-4/60	MIF-4/80	MIF-6/40	MIF-6/55	MIF-8/30	MIF-8/40
Max. vacuum level (%)	70	73	70	73	67	70	70
Number of vacuum ports	4	4	4	6	6	8	8
Flow rate (l/min)**	8	16	25	9	17	11	16
Air consumption (l/min)*	112 (4x28)	240 (4x60)	376 (4x94)	240 (6x40)	366 (6x61)	240 (8x30)	400 (8x50)
Time to evacuate (s/l)**	1.1	0.6	0.4	0.8	0.6	0.8	0.6
Operating pressure (bar)	4.5 ... 6	4.5 ... 6	4.5 ... 6	4.5 ... 6	4.5 ... 6	4.5 ... 6	4.5 ... 6
Weight (kg)	0.240	0.370	0.370	0.370	0.370	0.370	0.370

* at 5 bar operating pressure
** at 40% vacuum level and 5 bar operating pressure

Dimensions



1 = pressure inlet
2 = vacuum inlet
3 = exhaust

Model-no.:	**Ø A**	**Ø D**	**G1**	**G2**	**G3**	**G4**	**L**	**L1**	**L2**	**L3**
MIF-4/25	48	24.5	G1/4	G1/8	G1/2	G1/8	109	47	25	15
MIF-4/60	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15
MIF-4/80	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15
MIF-6/40	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15
MIF-6/55	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15
MIF-8/30	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15
MIF-8/40	59	48	G1/4	G1/8	G1	G1/8	163	97	28	15

Table of contents

Table of contents

Table of contents

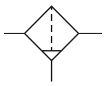
Table of contents

Filter FY

Technical details

Temperature range	0°C ... +50°C
Input range	1.5 ... 16 bar (size Y0 max. 12 bar)
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66), bowl: PC, seals: NBR, inner parts: POM

Sintered filter according to the centrifugal force principle.



Order code

FY*--00-*-**01**

Series	
FY	standard filter
FYF	coalescing filter
FYM	micro filter
FYA	activated carbon filter

Connection / Size	
04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Versions

Digit 1	Bowl
1	PC with PA-guard
3	metal bowl with sight glass

Digit 2	Drain
0	without
2	**semi-automatic (standard)**
3	automatic. NO (open at 0 bar input pressure)
4	automatic. NC (closed at 0 bar input pressure)

Filter element	
5	**5 µm (standard)**
3	0.3 µm
1	0.01 µm
A	activated carbon filter 0.005 µm

Filter FY

Technical data

Model-no.:	FY-04-...	FY-14-...	FY-37-...	FY-38-...	FY-12-...	FY-34-...	FY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)*	1000	2000	2000	3500	5100	8000	8000
Bowl volume (cm³)	16	28	28	49	49	87	87
Weight (kg)	0.13	0.25	0.24	0.42	0.40	0.89	0.86

* Measured at p1 = 6 bar and Δp = 1 bar.

Model-no.:	FYF-04-...	FYF-14-...	FYF-37-...	FYF-38-...	FYF-12-...	FYF-34-...	FYF-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)*	450	500	500	750	750	2000	2000
Bowl volume (cm³)	16	28	28	49	49	87	87
Weight (kg)	0.13	0.28	0.27	0.46	0.44	1.02	0.95

* Measured at p1 = 6 bar and Δp = 0.2 bar.

Model-no.:	FYM-04-...	FYM-14-...	FYM-37-...	FYM-38-...	FYM-12-...	FYM-34-...	FYM-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)*	350	350	350	450	450	1500	1500
Bowl volume (cm³)	16	28	28	49	49	87	87
Weight (kg)	0.13	0.28	0.27	0.46	0.44	1.02	0.95

* Measured at p1 = 6 bar and Δp = 0.1 bar.

Model-no.:	FYA-04-...	FYA-14-...	FYA-37-...	FYA-38-...	FYA-12-...	FYA-34-...	FYA-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)*	500	500	500	1600	1600	3000	3000
Weight (kg)	0.14	0.26	0.25	0.44	0.42	0.97	0.91

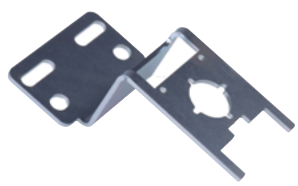
* Measured at p1 = 6 bar and Δp = 0.2 bar.

Accessories

Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting brackets WYP



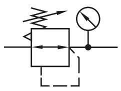
Details: Page 12-23

Pressure regulator RY

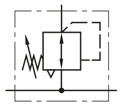
Technical details

Temperature range	0°C ... +50°C
Input range	max. 16 bar (size Y0 max. 12 bar)
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66) and POM, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Pressure regulator with diaphragm and relieving feature.
Locking: rotary lock and padlock possible.



RY



RYK

Order code

RY--**-0-00*1**

Series	
RY	standard
RYK	with continuous pressure supply

Connection / Size	
04 *	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Output range	
04	0.2 ... 4 bar
08	0.5 ... 8 bar
10	**0.5 ... 10 bar (standard)**

Versions

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

* RY-04 only with integrated gauge and flow from left to right available.

12

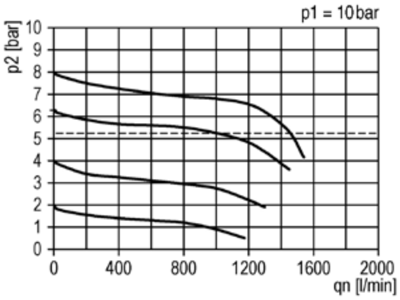
Pressure regulator RY

Technical data

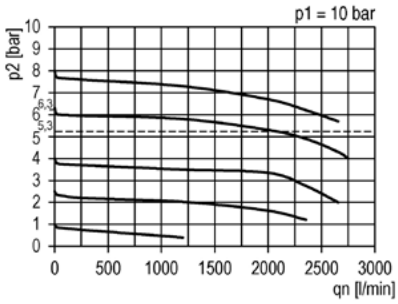
Model-no.:	RY-04-...	RY-14-...	RY-37-...	RY-38-...	RY-12-...	RY-34-...	RY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)	1000	2200	2600	4300	5100	14000	14000
Internal air consumption	-	-	-	-	-	max. 1.5 l/min	max. 1.5 l/min
Weight (kg)	0.17	0.30	0.29	0.52	0.50	1.02	0.95

Flow characteristic

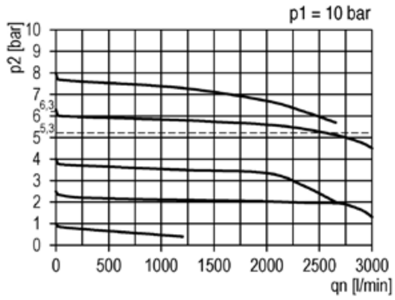
RY-04



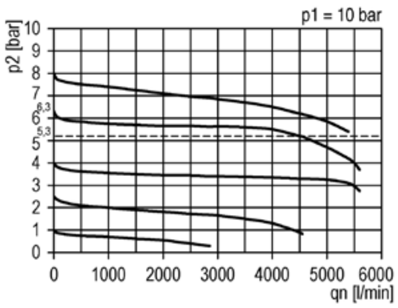
RY-14



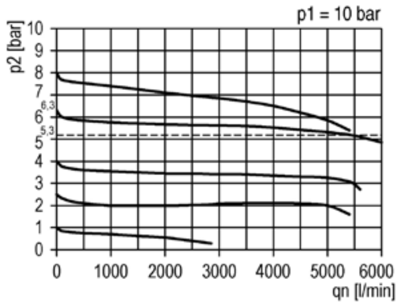
RY-37



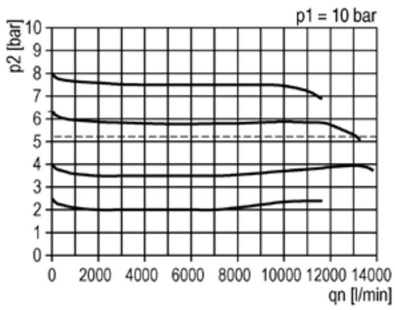
RY-38



RY-12



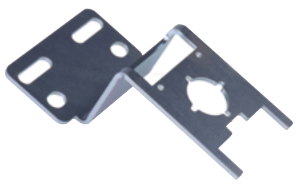
RY-34, RY-10



Accessories

Mounting brackets WYL

Mounting brackets WYP



Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting nut RMY

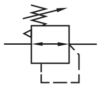
Details: see page 12-23

Precision pressure regulator RYP

Technical details

Temperature range	0°C ... +50°C
Input range	max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66) and POM, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Precision pressure regulator with diaphragm and relieving feature.
Locking: rotary lock and padlock possible.



Order code

RYP--**-0-00*1**

Series

Connection / Size	
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2

Output range	
01	0.1 ... 1 bar
02	0.1 ... 2 bar
04	0.2 ... 4 bar
08	0.5 ... 8 bar
10	**0.5 ... 10 bar (standard)**
16	0.5 ... 16 bar

Versions

Digit 3	Gauge, flow direction
0	**without gauge, flow from left to right (standard)**
1	without gauge, flow from right to left
2	with gauge, flow from left to right
3	with gauge, flow from right to left

12

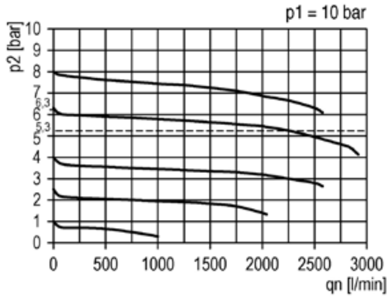
Precision pressure regulator RYP

Technical data

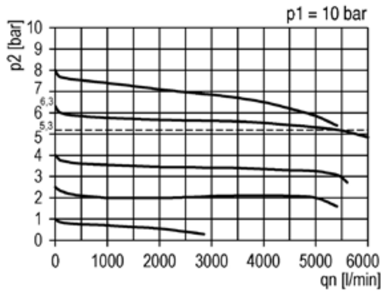
Model-no.:	RYP-14-...	RYP-37-...	RYP-38-...	RYP-12-...
Connection	G1/4	G3/8	G3/8	G1/2
Size	Y1	Y1	Y2	Y2
Flow (Nl/min)	2200	2200	5000	5000
Internal air consumption	max. 2.6 l/min	max. 2.6 l/min	max. 2.6 l/min	max. 2.6 l/min
Weight (kg)	0.30	0.29	0.51	0.49

Flow characteristic

RYP-14, RYP-37

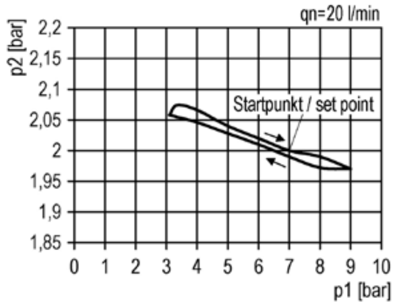


RYP-38, RYP-12

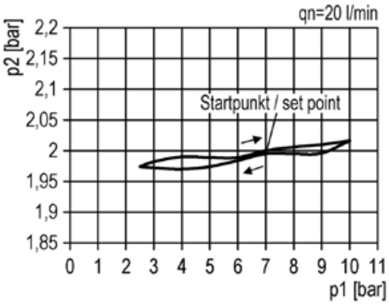


Hysterese

RYP-14, RYP-37



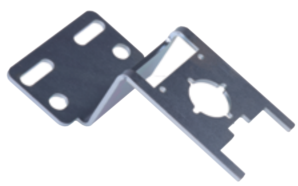
RYP-38, RYP-12



Accessories

Mounting brackets WYL

Mounting brackets WYP



Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting nut RMY

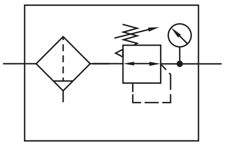
Details: see page 12-23

Filter regulator FRY

Technical details

Temperature range	0°C ... +50°C
Input range	1.5 ... 16 bar (size Y0 max. 12 bar)
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66) and POM, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Combination of pressure regulator with diaphragm and relieving feature and sintered filter according to the centrifugal force principle.
Locking: rotary lock and padlock possible.



Order code

FRY--**-5-***1**

Series	

Connection / Size	
04 *	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Output range	
04	0.2 ... 4 bar
08	0.5 ... 8 bar
10	**0.5 ... 10 bar (standard)**

Filter element	
5	5 µm

Versions

Digit 1	Bowl
1	PC with PA-guard
3	metal bowl with sight glass

Digit 2	Drain
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

* FRY-04 only with integrated gauge and flow from left to right available.

12

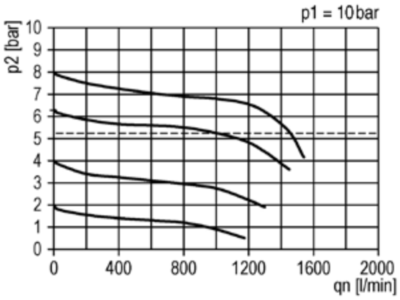
Filter regulator FRY

Technical data

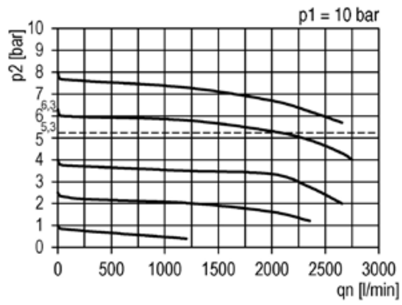
Model-no.:	FRY-04-...	FRY-14-...	FRY-37-...	FRY-38-...	FRY-12-...	FRY-34-...	FRY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)	1000	2200	2600	4300	5200	14000	14000
Internal air consumption	-	-	-	-	-	max. 1.5 l/min	max. 1.5 l/min
Bowl volume (cm³)	16	28	28	49	49	87	87
Weight (kg)	0.23	0.36	0.36	0.85	0.85	0.99	0.99

Flow characteristic

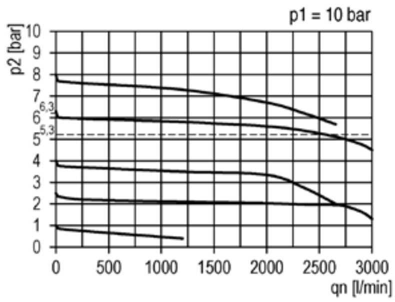
FRY-04



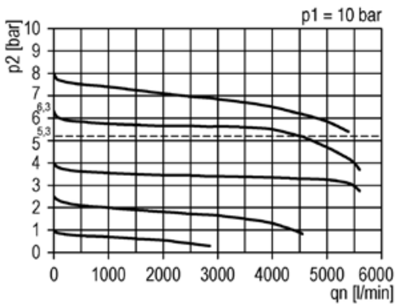
FRY-14



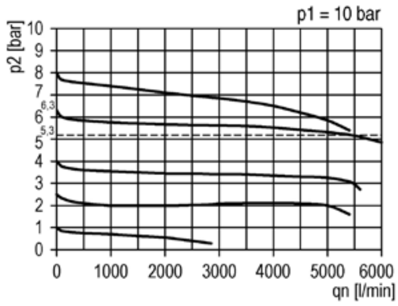
FRY-37



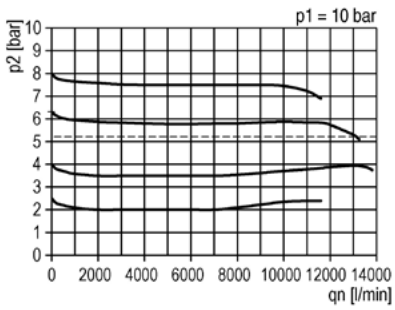
FRY-38



FRY-12



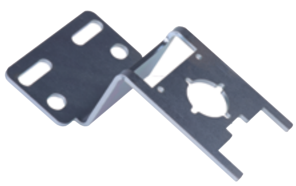
FRY-34, FRY-10



Accessories

Mounting brackets WYL

Mounting brackets WYP



Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting nut RMY

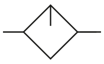
Details: see page 12-23

Lubricator OY

Technical details

Temperature range	0°C ... +50°C
Input range	max. 16 bar (size Y0 max. 12 bar)
Mounting	vertically
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66), seals: NBR, inner parts: plastic and brass

Micro lubricator (size Y0)
Lubricator with automatic oil filling (scale Y1 to Y3)



Order code

OY-∗∗-00-0-∗001

Series	

Connection / Size	
04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Versions

Digit 1	Bowl
1	PC with PA-guard
3	metal bowl with sight glass

12

Lubricator OY

Technical data

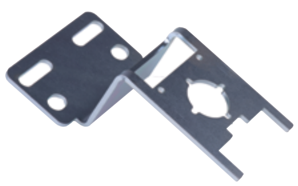
Model-no.:	OY-04-...	OY-14-...	OY-37-...	OY-38-...	OY-12-...	OY-34-...	OY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)	1400	2800	2800	8000	8000	16000	16000
Lubricator operating limit (Nl/min)	30	100	100	70	70	115	115
Bowl volume lubricator (cm³)	35	40	40	80	80	181	181
Weight (kg)	0.15	0.27	0.26	0.43	0.41	0.95	0.89

Accessories

Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting brackets WYP



Details: Page 12-23

Two piece air service unit FROY

Technical details

Temperature range	0°C ... +50°C
Input range	1.5 ... 16 bar (size Y0 max. 12 bar)
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66) and POM, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Combination of filter, regulator and lubricator.
Locking: rotary lock and padlock possible.

Order code

FROY--**-5-***1**

Series	

Connection / Size	
04 *	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Output range	
04	0.2 ... 4 bar
08	0.5 ... 8 bar
10	**0.5 ... 10 bar (standard)**

Filter element	
5	5 µm

Versions

Digit 1	Bowl
1	PC with PA-guard
3	metal bowl with sight glass

Digit 2	Drain
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

* FROY-04 only with integrated gauge and flow from left to right available.

12

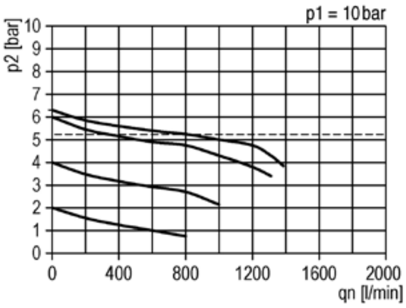
Two piece air service unit FROY

Technical data

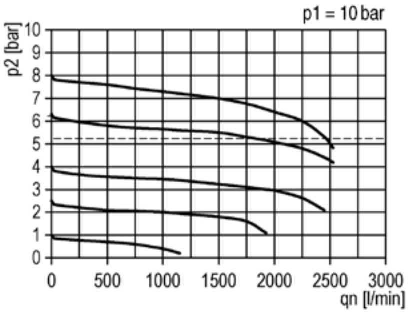
Model-no.:	FROY-04-...	FROY-14-...	FROY-37-...	FROY-38-...	FROY-12-...	FROY-34-...	FROY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)	600	1800	1800	3500	3500	12000	12000
Lubricator operating limit (Nl/min)	30	100	100	70	70	115	115
Internal air consumption	-	-	-	-	-	max. 1.5 l/min	max. 1.5 l/min
Bowl volume (cm³)	16	28	28	49	49	87	87
Bowl volume lubricator (cm³)	35	40	40	80	80	181	181
Weight (kg)	0.39	0.67	0.65	1.09	1.06	2.27	2.13

Flow characteristic

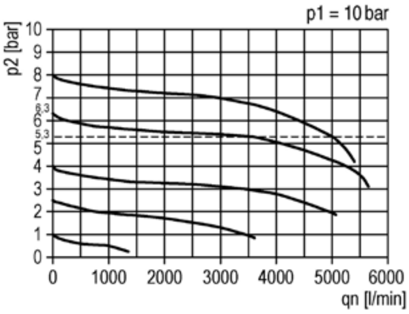
FROY-04



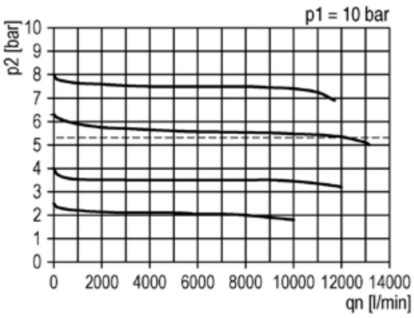
FROY-14, FROY-37



FROY-38, FROY-12



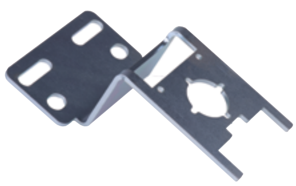
FROY-34, FROY-10



Accessories

Mounting brackets WYL

Mounting brackets WYP



Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting nut RMY

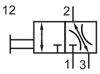
Details: see page 12-23

Ball valve KY

Technical details

Temperature range	0°C ... +50°C
Input range	max. 16 bar (size Y0 max. 12 bar)
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66), seals: NBR, inner parts: plastic and brass

3/2 directional control valve, operated by a knob, 3-fold.
Locking: rotary lock and padlock possible.
Silencer is mounted in exhaust.



Order code

KY--00-0-0001**

Series

Connection / Size

04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Technical data

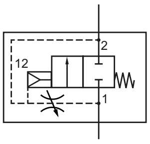
Model-no.:	KY-04-...	KY-14-...	KY-37-...	KY-38-...	KY-12-...	KY-34-...	KY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (1-2 in Nl/min)	2300	1900	1900	11000	11000	25000	25000
Weight (kg)	0.10	0.27	0.26	0.54	0.52	1.19	1.15

Soft start valve DAY

Technical details

Temperature range	0°C ... +50°C
Input range	2.5 ... 16 bar (size Y0 max. 12 bar)
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66), seals: NBR, inner parts: plastic, stainless steel and brass

Poppet valve, operated by secondary pressure
The filling time is adjustable.



Order code

DAY--00-0-0001**

Series

Connection / Size

04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Technical data

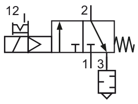
Model-no.:	DAY-04-...	DAY-14-...	DAY-37-...	DAY-38-...	DAY-12-...	DAY-34-...	DAY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)	2000	2000	2000	4500	4500	10000	10000
Weight (kg)	0.14	0.24	0.22	0.54	0.52	0.79	0.63

3/2-way inline valve VMY

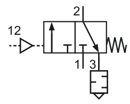
Technical details

Temperature range	0°C ... +50°C
Input range	electrically operated: 2 ... 10 bar pneumatically operated: max. 16 bar (size Y0 max. 12 bar)
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66) and POM, seals: NBR, inner parts: zinc coated steel, stainless steel and brass
Protection	IP 65 according to EN 60529

3/2-way poppet valve, electrically or pneumatically operated.
Silencer is mounted in exhaust.
Plug socket is included.



electrically operated
3/2-way, single solenoid, mechanical
spring return, NC



pneumatically operated
3/2-way, single pilot, mechanical
spring return, NC

Order code

VMY--00-0-000***

Series

Connection / Size	
04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Versions

Digit 4	Version
A	24 V DC, 2.5 W
D	115 V AC, 3 VA
E	230 V AC, 3 VA
F	pneumatically operated

Technical data

Model-no.:	VMY-04-...	VMY-14-...	VMY-37-...	VMY-38-...	VMY-12-...	VMY-34-...	VMY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (1-2 in Nl/min)	2000	2000	2000	4300	4300	12500	12500
Weight(Version A-E) (kg)	0.22	0.28	0.27	0.59	0.58	0.78	0.71
Weight(Version F) (kg)	0.19	0.25	0.24	0.56	0.55	0.75	0.68

Non-return valve NY

Technical details

Temperature range	0°C ... +50°C
Input range	2.5 ... 16 bar (size Y0 max. 12 bar)
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66), seals: NBR, inner parts: plastic, stainless steel and brass

Poppet valve, spring loaded.

Order code

NY-∗∗-00-0-0001

Series	
Connection / Size	
04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

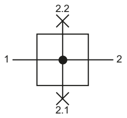
Technical data

Model-no.:	NY-04-...	NY-14-...	NY-37-...	NY-38-...	NY-12-...	NY-34-...	NY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Flow (Nl/min)	2000	2000	2000	4500	4500	10000	10000
Weight (kg)	0.14	0.24	0.22	0.54	0.52	0.79	0.63

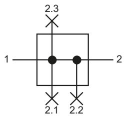
Distributor block TY

Technical details

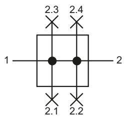
Temperature range	0°C ... +50°C
Input range	max. 16 bar (size Y0 max. 12 bar)
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: Grivory (PA66), seals: NBR, inner parts: plastic and brass



Distributor block, 2 outlets
Series KY-04, KY-34, KY-10



Distributor block, 3 outlets
Series KY-14, KY-37



Distributor block, 4 outlets
Series KY-38, KY-12

Order code

TY--00-0-0001**

Series	

Connection / Size	
04	G1/4 / Y0
14	G1/4 / Y1
37	G3/8 / Y1
38	G3/8 / Y2
12	G1/2 / Y2
34	G3/4 / Y3
10	G1 / Y3

Distributor block TY

Technical data

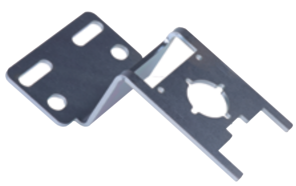
Model-no.:	TY-04-...	TY-14-...	TY-37-...	TY-38-...	TY-12-...	TY-34-...	TY-10-...
Connection	G1/4	G1/4	G3/8	G3/8	G1/2	G3/4	G1
Size	Y0	Y1	Y1	Y2	Y2	Y3	Y3
Connection 2.1 (bottom)	G1/4	G1/4	G1/4	G3/8	G3/8	G3/4	G3/4
Connection 2.2 (top)	G1/4	G1/4	G1/4	G1/4	G1/4	G3/4	G3/4
Connection 2.3 (front)	-	G1/4	G1/4	G3/8	G3/8	-	-
Connection 2.4 (backward)	-	-	-	G3/8	G3/8	-	-
Flow (1-2 in Nl/min)	2300	2700	2700	7250	7250	18000	18000
Flow (1-2.1 in Nl/min)	950	2000	2000	5500	5500	12000	12000
Flow (1-2.2 in Nl/min)	2000	2000	2000	22500	22500	8500	8500
Flow (1-2.3 in Nl/min)	-	900	900	2300	2300	-	-
Flow (1-2.4 in Nl/min)	-	-	-	2300	2300	-	-
Weight (kg)	0.10	0.19	0.17	0.35	0.33	0.88	0.82

Accessories

Coupling kits for wall mounting KPY-W

Coupling kits KPY-K

Mounting brackets WYP



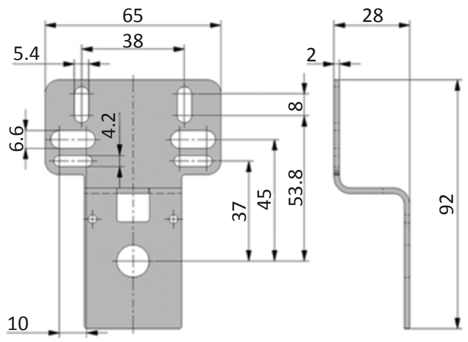
Details: see page 12-23

Fastening elements

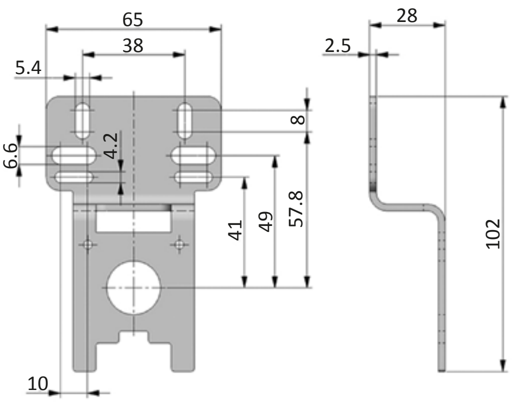
Bracket kit WYP

Bracket kit made of zinc coated steel.
The bracket can be mounted at the rear side after removing the rear cover of the unit. The 2 mounting screws are included.

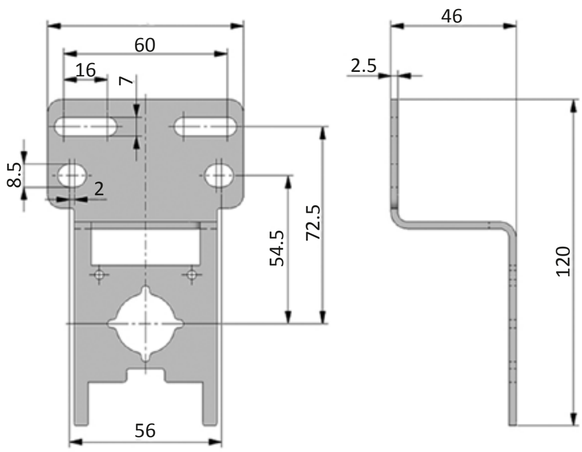
WYP-00



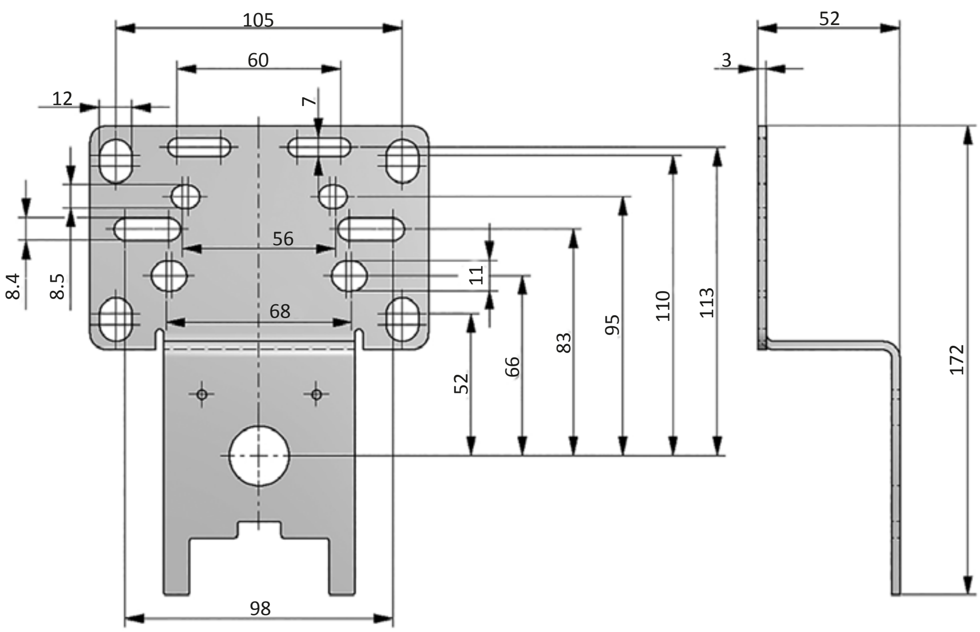
WYP-01



WYP-02



WYP-03

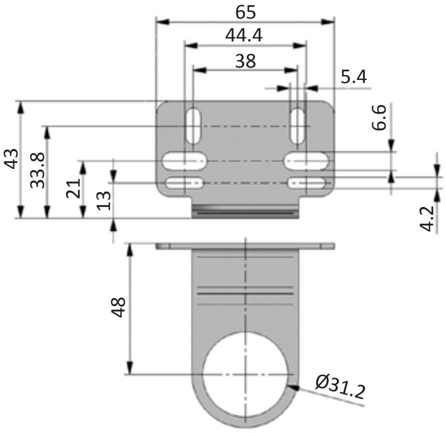


Fastening elements

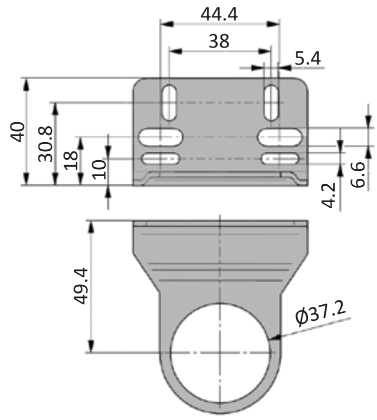
Mounting brackets WYL

Mounting brackets made of zinc coated steel. Assembling with mounting nut (not included).

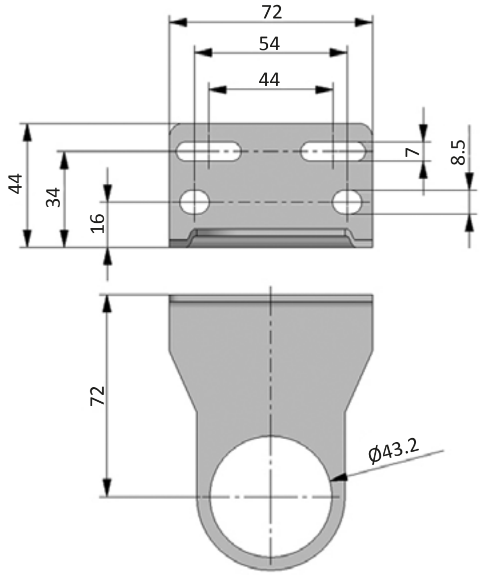
WYL-00



WYL-01



WYL-02

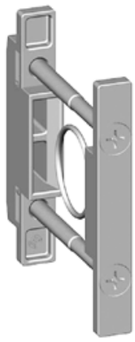


Coupling kits

Coupling kits KPY-K

KPY-00-K, KPY-01-K

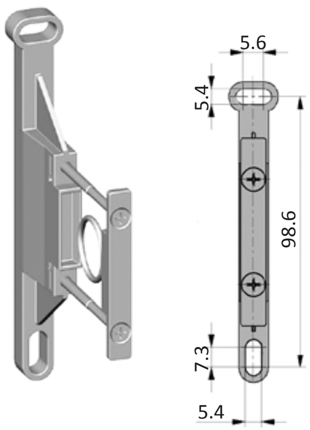
KPY-02-K



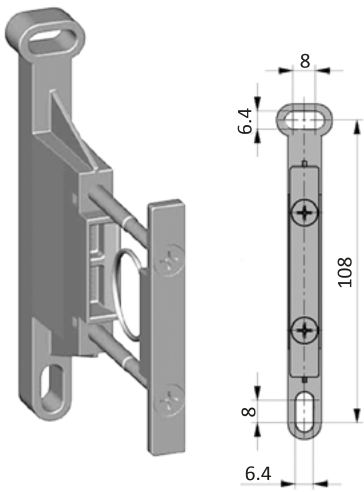
KPY-03-K

Coupling kits for wall mounting KPY-W

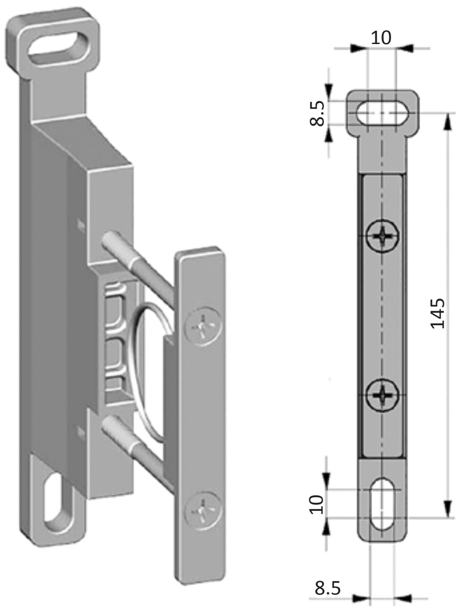
KPY-00-W, KPY-01-W



KPY-02-W



KPY-03-W

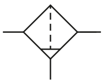


Filter FX

Technical details

Temperature range	0°C ... +60°C
Input range	1.5 ... 16 bar
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: POM

Sintered filter according to the centrifugal force principle.



Order code

FX*--00-*-**01**

Series	
FX	standard filter
FXF*	coalescing filter
FXM*	micro filter
FXA*	activated carbon filter

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Versions

Digit 1	Bowl
1	PC
3	metal bowl with sight glass
4	PC with guard

Digit 2	Drain
0	without
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Filter element	
5	**5 µm (standard)**
3	0.3 µm
1	0.01 µm
A	activated carbon filter 0.005 µm

* only for connections 14 and 12 available.

Filter FX

Technical data

Model-no.:	FX-14-...	FX-37-...	FX-12-...	FX-34-...
Connection	G1/4	G3/8	G1/2	G3/4
Size	X1	X1	X2	X2
Flow (Nl/min)*	2100	2100	4000	4000
Bowl volume (cm³)	25	25	50	50
Weight (kg)	0.30	0.29	0.78	0.70

* Measured at p1 = 6 bar and Δp = 1 bar.

Model-no.:	FXF-14-...	FXF-12-...	FXM-14-...	FXM-12-...	FXA-14-...	FXA-12-...
Connection	G1/4	G1/2	G1/4	G1/2	G1/4	G1/2
Size	X1	X2	X1	X2	X1	X2
Flow (Nl/min)*	380	1500	280	720	380	1500
Bowl volume (cm³)	25	49	25	49		
Weight (kg)	0.31	0.75	0.31	0.75	0.32	0.81

* Measured at p1 = 6 bar and Δp = 0.2 bar (for FXM Δp = 0.1 bar) .

12

Accessories

Coupling kits KPX

Mounting brackets WX

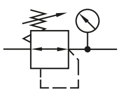
Details: see page 12-39

Pressure regulator RX

Technical details

Temperature range	0°C ... +60°C
Input range	max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Pressure regulator with diaphragm and relieving feature.
Locking: rotary lock possible.



Order code

RX--**-0-00****

Series	

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Output range	
03	0.2 ... 3 bar
06	0.5 ... 6 bar
10	**0.5 ... 10 bar (standard)**

Versions

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

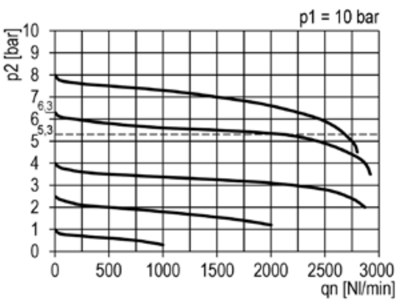
Digit 4	
1	standard
2	key lockable

Technical data

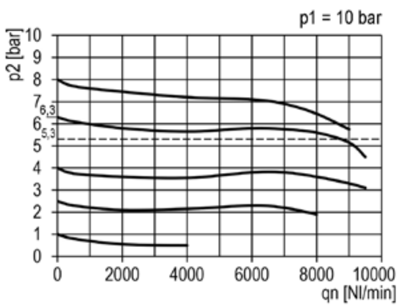
Model-no.:	RX-14-...	RX-37-...	RX-12-...	RX-34-...
Connection	G1/4	G3/8	G1/2	G3/4
Size	X1	X1	X2	X2
Flow (Nl/min)	2000	2000	8800	8800
Weight (kg)	0.32	0.31	0.80	0.77

Flow characteristic

RX-14, RX-37



RX-12, RX-34



Accessories

Mounting brackets WK

Mounting brackets WX

Coupling kits KPX

Mounting nut RM

Details: see page 12-39

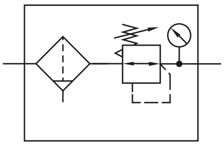
12

Filter regulator FRX

Technical details

Temperature range	0°C ... +60°C
Input range	1.5 ... 16 bar
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Combination of pressure regulator with diaphragm and relieving feature and sintered filter according to the centrifugal force principle.
Locking: rotary lock possible.



Order code

FRX-**-**-5-****

Series	

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Output range	
03	0.2 ... 3 bar
06	0.5 ... 6 bar
10	**0.5 ... 10 bar (standard)**

Filter element	
5	5 µm

Versions

Digit 1	Bowl
1	PC
3	metal bowl with sight glass
4	PC with guard

Digit 2	Drain
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

Digit 4	
1	standard
2	key lockable

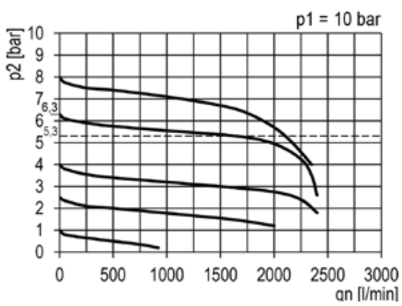
Filter regulator FRX

Technical data

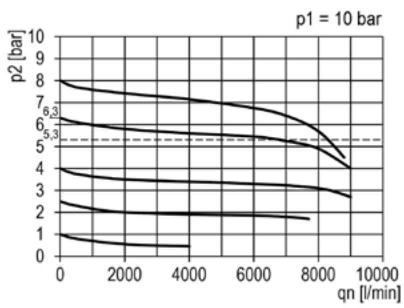
Model-no.:	FRX-14-...	FRX-37-...	FRX-12-...	FRX-34-...
Connection	G1/4	G3/8	G1/2	G3/4
Size	X1	X1	X2	X2
Flow (Nl/min)	1650	1650	6700	6700
Bowl volume (cm³)	25	25	50	50
Weight (kg)	0.37	0.36	0.89	0.87

Flow characteristic

FRX-14, FRX-37



FRX-12, FRX-34



Accessories

Mounting brackets WK

Mounting brackets WX

Coupling kits KPX

Mounting nut RM

Details: see page 12-39

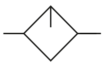
12

Lubricator OX

Technical details

Temperature range	0°C ... +60°C
Input range	max. 16 bar
Mounting	vertically
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic and brass

Proportional lubricator, can be filled with oil during operation.



Order code

OX-∗∗-00-0-∗001

Series	

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Versions

Digit 1	Bowl
1	PC
3	metal bowl with sight glass
4	PC with guard

Technical data

Model-no.:	OX-14-...	OX-37-...	OX-12-...	OX-34-...
Connection	G1/4	G3/8	G1/2	G3/4
Size	X1	X1	X2	X2
Flow (Nl/min)	1900	1900	5000	5000
Lubricator operating limit (Nl/min)	75	75	170	170
Bowl volume lubricator (cm³)	50	50	125	125
Weight (kg)	0.31	0.30	0.79	0.75

Two piece air service unit FROX

Technical details

Temperature range	0°C ... +60°C
Input range	1.5 ... 16 bar
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Combination of filter, regulator and lubricator.
Locking: rotary lock possible.

Order code

FROX--**-5-******

Series	

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Output range	
03	0.2 ... 3 bar
06	0.5 ... 6 bar
10	**0.5 ... 10 bar (standard)**

Filter element	
5	5 µm

Versions

Digit 1	Bowl
1	PC
3	metal bowl with sight glass
4	PC with guard

Digit 2	Drain
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

Digit 4	
1	standard
2	key lockable

12

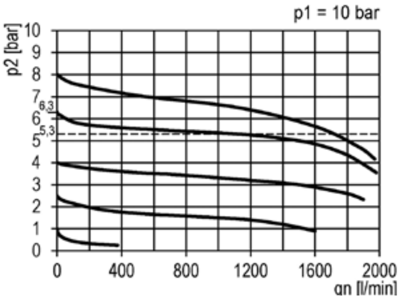
Two piece air service unit FROX

Technical data

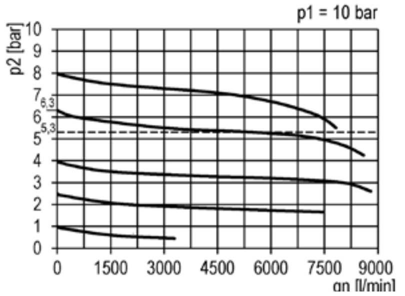
Model-no.:	FROX-14-...	FROX-37-...	FROX-12-...	FROX-34-...
Connection	G1/4	G3/8	G1/2	G3/4
Size	X1	X1	X2	X2
Flow (Nl/min)	1200	1200	5250	5250
Lubricator operating limit (Nl/min)	75	75	170	170
Bowl volume (cm³)	25	25	50	50
Bowl volume lubricator (cm³)	50	50	125	125
Weight (kg)	0.69	0.67	1.68	1.60

Flow characteristic

FROX-14, FROX-37



FROX-12, FROX-34



Accessories

Mounting brackets WK

Mounting brackets WX

Coupling kits KPX

Mounting nut RM

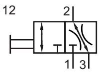
Details: see page 12-39

Ball valve KX

Technical details

Temperature range	0°C ... +60°C
Input range	max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic and brass

3/2 directional control valve, operated by a knob.
Locking: padlock possible.
Silencer is mounted in exhaust.



Order code

KX--00-0-0001**

Series

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Technical data

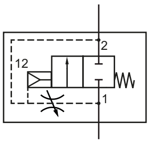
Model-no.:	KX-14-...	KX-37-...	KX-12-...	KX-34-...
Connection	G1/4	G3/8	G1/2	G3/4
Size	X1	X1	X2	X2
Flow (1-2 in Nl/min)	2800	2800	11000	11000
Weight (kg)	0.35	0.34	0.79	0.77

Soft start valve DAX

Technical details

Temperature range	0°C ... +60°C
Input range	2.5 ... 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic, stainless steel and brass

Poppet valve, operated by secondary pressure.
The filling time is adjustable.



Order code

DAX-∗∗-00-0-0001

Series	
Connection / Size	
14	G1/4 / X1
12	G1/2 / X2

Technical data

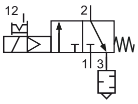
Model-no.:	DAX-14-...	DAX-12-...
Connection	G1/4	G1/2
Size	X1	X2
Flow (Nl/min)	1000	4000
Weight (kg)	0.33	0.72

3/2-way inline valve VMX

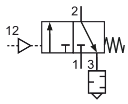
Technical details

Temperature range	0°C ... +60°C
Input range	electrically operated: 2 ... 10 bar pneumatically operated: max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: zinc coated steel, stainless steel and brass
Protection	IP 65 according to EN 60529

3/2-way poppet valve, electrically or pneumatically operated.
Silencer is mounted in exhaust.
Plug socket is included.



electrically operated
3/2-way, single solenoid, mechanical
spring return, NC



pneumatically operated
3/2-way, single pilot, mechanical
spring return, NC

Order code

VMX--00-0-000***

Series	

Connection / Size	
14	G1/4 / X1
12	G1/2 / X2

Versions

Digit 4	Version
A	24 V DC, 3 W
D	115 V AC, 7.9 VA
E	230 V AC, 7.9 VA
F	pneumatically operated

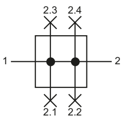
Technical data

Model-no.:	VMX-14-...	VMX-12-...
Connection	G1/4	G1/2
Size	X1	X2
Flow (1-2 in Nl/min)	900	4000
Weight(Version A-E) (kg)	0.46	1.04
Weight(Version F) (kg)	0.38	0.97

Distributor block TX

Technical details

Temperature range	0°C ... +60°C
Input range	2.5 ... 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic and brass



Distributor block, 4 outlets

Order code

TX--00-0-000***

Series	

Connection / Size	
14	G1/4 / X1
37	G3/8 / X1
12	G1/2 / X2
34	G3/4 / X2

Versions

Digit 4	Width
1	standard
3	small (only for G1/4 and G1/2)

Technical data

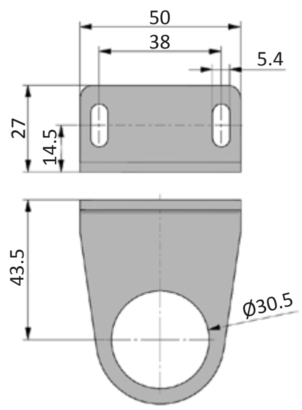
Model-no.:	TX-14-00-0-0001	TX-14-00-0-0003	TX-37-00-0-0001	TX-12-00-0-0001	TX-12-00-0-0003	TX-34-00-0-0001
Connection	G1/4	G1/4	G3/8	G1/2	G1/2	G3/4
Size	X1	X1	X1	X2	X2	X2
Connection 2.1 (buttom)	G1/4	G1/4	G1/4	G1/2	G3/8	G1/2
Connection 2.2 (top)	G1/4	G1/4	G1/4	G1/2	G1/8	G1/2
Connection 2.3 (front)	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4
Connection 2.4 (rear)	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4
Flow (1-2 in Nl/min)	2500	3300	2500	11000	11000	11000
Flow (1-2.1 in Nl/min)	2000	2300	2000	8750	3450	8750
Flow (1-2.2 in Nl/min)	2000	1100	2000	8750	1400	8750
Flow (1-2.3 in Nl/min)	900	2300	900	1300	3100	1300
Flow (1-2.4 in Nl/min)	900	2300	900	1300	3100	1300
Weight (kg)	0.32	0.19	0.28	0.66	0.36	0.66

Fastening elements

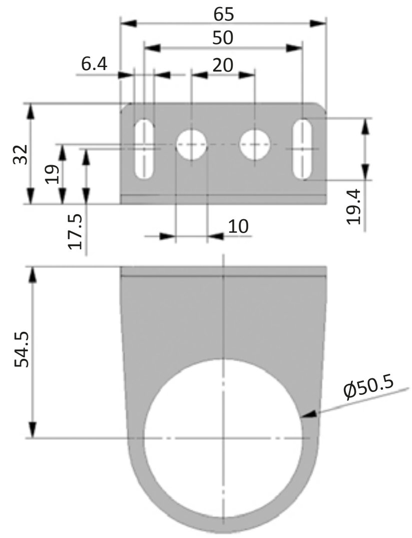
Mounting brackets WK

Mounting brackets made of zinc coated steel. Assembling with mounting nut (not included).

WK-30



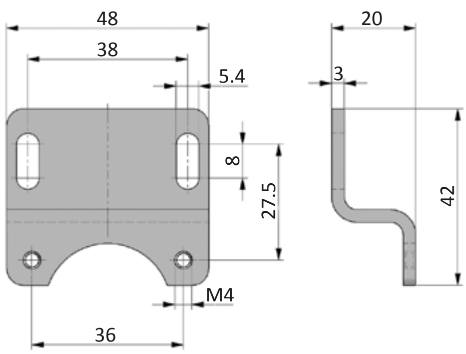
WK-50



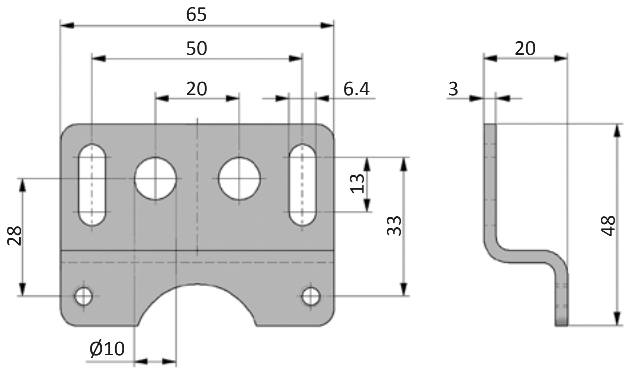
Mounting brackets WX

Mounting brackets made of zinc coated steel.

WX-11

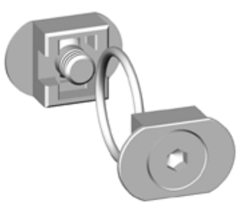


WX-33

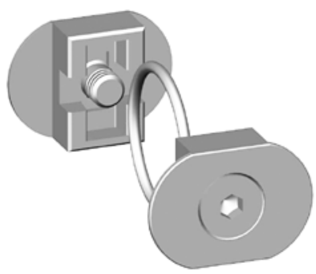


Coupling kits KPX

KPX-11



KPX-33



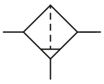
12

Filter FK

Technical details

Temperature range	0°C ... +60°C
Input range	1.5 ... 16 bar
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: POM

Sintered filter according to the centrifugal force principle.



Order code

FK*--00-*-**01**

Series	
FK	standard filter
FKF	coalescing filter
FKM	micro filter
FKA	activated carbon filter

Connection	
18	G1/8
14	G1/4

Versions

Digit 1	Bowl
1	PC
2	metal
4	PC with guard

Digit 2	Drain
0	without
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Filter element	
5	**5 µm (standard)**
3	0.3 µm
1	0.01 µm
A	activated carbon filter 0.005 µm

Filter FK

Technical data

Model-no.:	FK-18	FK-14	FKF-18	FKF-14
Connection	G1/8	G1/4	G1/8	G1/4
Flow (Nl/min)	1000*	1000*	350**	600**
Bowl volume (cm³)	16	16	16	16
Weight (kg)	0.25	0.24	0.26	0.25

* Measured at p1 = 6 bar and Δp = 1 bar ** Measured at p1 = 6 bar and Δp = 0.2 bar

Model-no.:	FKM-18	FKM-14	FKA-18	FKA-14
Connection	G1/8	G1/4	G1/8	G1/4
Flow (Nl/min)	230*	450*	310**	380**
Bowl volume (cm³)	16	16	-	-
Weight (kg)	0.26	0.25	0.26	0.27

* Measured at p1 = 6 bar and Δp = 0.1 bar ** Measured at p1 = 6 bar and Δp = 0.2 bar

12

Accessories

Coupling kits KPK

Mounting brackets WK

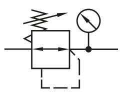
Details: see page 12-53

Pressure regulator RK

Technical details

Temperature range	0°C ... +60°C
Input range	max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Pressure regulator with diaphragm and relieving feature.
Locking: rotary lock possible.



Order code

RK-**-**-0-00**

Series	

Connection	
18	G1/8
14	G1/4

Output range	
03	0.1 ... 3 bar
06	0.2 ... 6 bar
10	**0.5 ... 10 bar (standard)**

Versions

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

Digit 4	
1	standard
2	key lockable

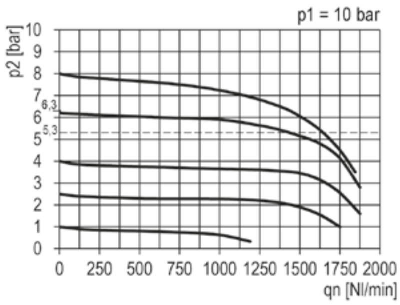
Pressure regulator RK

Technical data

Model-no.:	RK-18-...	RK-14-...
Connection	G1/8	G1/4
Flow (Nl/min)	1450	1450
Weight (kg)	0.26	0.25

Flow characteristic

RK-18, RK-14



Accessories

Mounting brackets WK

Mounting brackets WK

Coupling kits KPK

Mounting nut RM

Details: see page 12-53

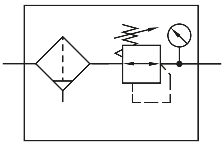
12

Filter regulator FRK

Technical details

Temperature range	0°C ... +60°C
Input range	1.5 ... 16 bar
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Combination of pressure regulator with diaphragm and relieving feature and sintered filter according to the centrifugal force principle.
Locking: rotary lock possible.



Order code

FRK-**-**-5-****

Series	

Connection	
18	G1/8
14	G1/4

Output range	
03	0.1 ... 3 bar
06	0.2 ... 6 bar
10	**0.5 ... 10 bar (standard)**

Filter element	
5	5 µm

Versions

Digit 1	Bowl
1	PC
2	metal
4	PC with guard

Digit 2	Drain
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

Digit 4	
1	standard
2	key lockable

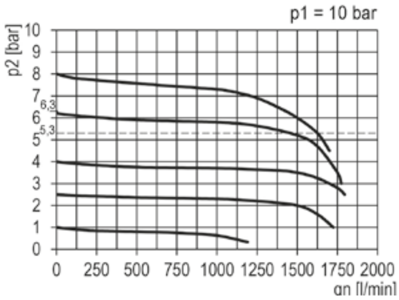
Filter regulator FRK

Technical data

Model-no.:	FRK-18-...	FRK-14-...
Connection	G1/8	G1/4
Flow (Nl/min)	1450	1450
Bowl volume (cm³)	16	16
Weight (kg)	0.30	0.29

Flow characteristic

FRK-18, FRK-14



Accessories

Mounting brackets WK

Mounting brackets WK

Coupling kits KPK

Mounting nut RM

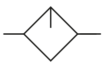
Details: see page 12-53

Lubricator OK

Technical details

Temperature range	0°C ... +60°C
Input range	max. 16 bar
Mounting	vertically
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic and brass

Proportional lubricator.



Order code

OK--00-0-*001**

Series

Connection / Size	
18	G1/8
14	G1/4

Versions

Digit 1	Bowl
1	PC
2	metal
4	PC with guard

Technical data

Model-no.:	OK-18-...	OK-14-...
Connection	G1/8	G1/4
Flow (Nl/min)	1000	1000
Lubricator operating limit (Nl/min)	28	28
Bowl volume lubricator (cm³)	35	35
Weight (kg)	0.26	0.25

Two piece air service unit FROK

Technical details

Temperature range	0°C ... +60°C
Input range	1.5 ... 16 bar
Mounting	vertically, drain at bottom
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, bowl: PC, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Combination of filter, regulator and lubricator.
Locking: rotary lock possible.

Order code

FROK--**-5-******

Series	

Connection	
18	G1/8
14	G1/4

Output range	
03	0.1 ... 3 bar
06	0.2 ... 6 bar
10	**0.5 ... 10 bar (standard)**

Filter element	
5	5 µm

Versions

Digit 1	Bowl
1	PC
2	metal
4	PC with guard

Digit 2	Drain
2	**semi-automatic (standard)**
3	automatic, NO (open at 0 bar input pressure)
4	automatic, NC (closed at 0 bar input pressure)

Digit 3	Gauge, flow direction
0	without gauge, flow from left to right
1	without gauge, flow from right to left
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

Digit 4	
1	standard
2	key lockable

12

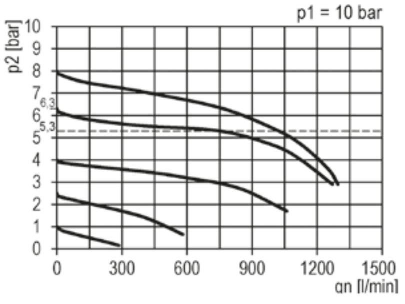
Two piece air service unit FROK

Technical data

Model-no.:	FROK-18-...	FROK-14-...
Connection	G1/8	G1/4
Flow (Nl/min)	750	750
Lubricator operating limit (Nl/min)	28	28
Bowl volume (cm³)	16	16
Bowl volume lubricator (cm³)	35	35
Weight (kg)	0.55	0.53

Flow characteristic

FROK-18, FROK-14



Accessories

Mounting brackets WK

Mounting brackets WK

Coupling kits KPK

Mounting nut RM

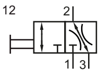
Details: see page 12-53

Ball valve KK

Technical details

Temperature range	0°C ... +60°C
Input range	max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic and brass

3/2 directional control valve, operated by a knob.
Locking: padlock possible.



Order code

KK-**-00-0-0001

Series	
Connection	
18	G1/8
14	G1/4

Technical data

Model-no.:	KK-18-...	KK-14-...
Connection	G1/8	G1/4
Flow (1-2 in Nl/min)	1800	1800
Weight (kg)	0.21	0.20

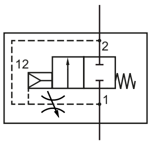
12

Soft start valve DAK

Technical details

Temperature range	0°C ... +60°C
Input range	2.5 ... 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic, stainless steel and brass

Poppet valve, operated by secondary pressure.
The filling time is adjustable.



Order code

DAK-∗∗-00-0-0001

Series	
Connection	
14	G1/4

Technical data

Model-no.:	DAK-14-...
Connection	G1/4
Flow (Nl/min)	2250
Weight (kg)	0.42

Accessories

Coupling kits KPK

Mounting brackets WK

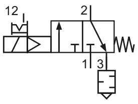
Details: see page 12-53

3/2-way inline valve VMK

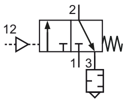
Technical details

Temperature range	0°C ... +60°C
Input range	electrically operated: 2 ... 10 bar pneumatically operated: max. 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: zinc coated steel, stainless steel and brass
Protection	IP 65 according to EN 60529

3/2-way poppet valve, electrically or pneumatically operated.
Silencer is mounted in exhaust.
Plug socket is included.



electrically operated
3/2-way, single solenoid, mechanical spring return, NC



pneumatically operated
3/2-way, single pilot, mechanical spring return, NC

Order code

VMK-∗∗-00-0-000∗

Series

Connection	
14	G1/4

Versions

Digit 4	Version
A	24 V DC, 3 W
D	115 V AC, 7.9 VA
E	230 V AC, 7.9 VA
F	pneumatically operated

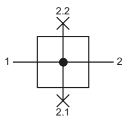
Technical data

Model-no.:	VMK-14-...
Connection	G1/4
Flow (1-2 in Nl/min)	1600
Weight(Version A-E) (kg)	0.46
Weight(Version F) (kg)	0.54

Distributor block TK

Technical details

Temperature range	0°C ... +60°C
Input range	2.5 ... 16 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: plastic and brass



Distributor block, 2 outlets

Order code

TK-**-00-0-0001

Series	
Connection	
14	G1/4

Technical data

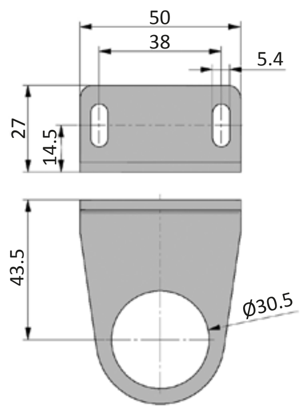
Model-no.:	TK-14-00-0-0001
Connection	G1/4
Connection 2.1 (buttom)	G1/8
Connection 2.2 (top)	G1/8
Flow (1-2 in Nl/min)	2700
Flow (1-2.1 in Nl/min)	1300
Flow (1-2.2 in Nl/min)	1300
Weight (kg)	0.13

Fastening elements

Mounting bracket WK

Mounting bracket made of zinc coated steel. Assembling with mounting nut (not included).

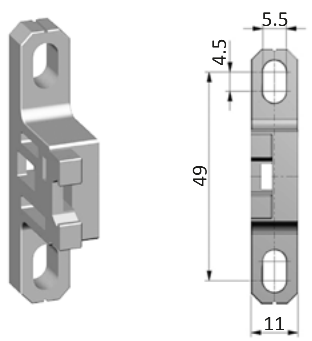
WK-30



Mounting bracket WK-00

Mounting bracket (set of two pieces) made of PA 66. Mounting only sidewise possible.

WK-00



Coupling kit KPK

KPK-00

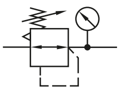
12

Pressure regulator RD

Technical details

Temperature range	0°C ... +60°C
Input range	max. 25 bar
Mounting	arbitrary
Medium	compressed air according to ISO 8573-1:2010, neutral gases
Materials	Body: zinc diecasting, seals: NBR, inner parts: zinc coated steel, stainless steel and brass

Pressure regulator with diaphragm and relieving feature.
Locking: rotary lock possible..



Order code

RD--**-0-00*1**

Series	

Connection	
18	G1/8
14	G1/4

Output range	
03	0.1 ... 3 bar
07	0.15 ... 7 bar
10	**0.5 ... 10 bar (standard)**

Versions

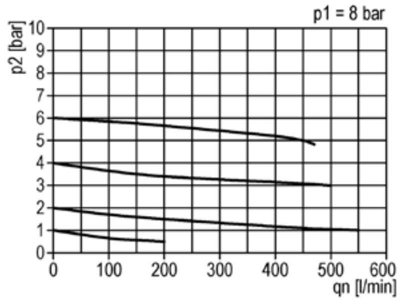
Digit 3	Gauge, flow direction
0	without gauge
2	**with gauge, flow from left to right (standard)**
3	with gauge, flow from right to left

Technical data

Model-no.:	RD-18-...	RD-14-...
Connection	G1/8	G1/4
Flow (Nl/min)	340	340
Weight (kg)	0.14	0.14

Flow characteristic

RD-18, RD-14

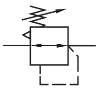


Precision pressure regulator RP

Technical details

Temperature range	0°C ... +50°C
Input range	max. 16 bar
Mounting	arbitrary
Medium	compressed air filtered 5µm, oilfree
Materials	Body: zinc diecasting, seals: NBR and EPDM, inner parts: zinc coated steel, stainless steel and brass

Precision pressure regulator with diaphragm and relieving feature.



Order code

RP--*-0-0001**

Series	

Connection	
14	G1/4
12	G1/2

Output range	
B*	0.05 ... 2 bar
C*	0.05 ... 4 bar
D	0.05 ... 7 bar
E**	0.05 ... 3 bar
F**	0.05 ... 5 bar
G**	0.05 ... 10 bar

* only for RP-14

** only for RP-12

12

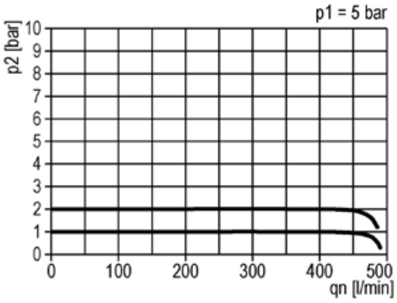
Precision pressure regulator RP

Technical data

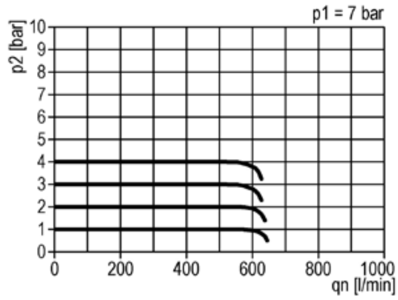
Model-no.:	RP-14-...	RP-12-...
Connection	G1/4	G1/2
Gauge connection	G1/8	G1/4
Flow (Nl/min)	see diargram	see diargram
Internal air consumption	max. 4.1 l/min	max. 6 l/min
Weight (kg)	0.67	1.40

Flow characteristic

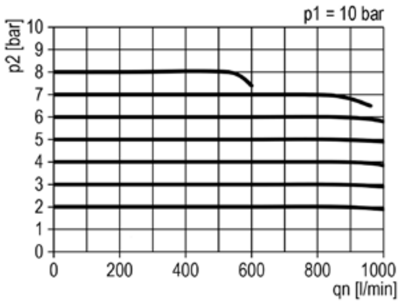
RP-14-B-...



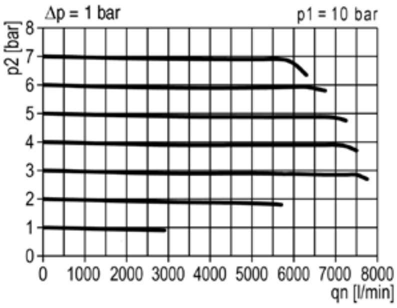
RP-14-C-...



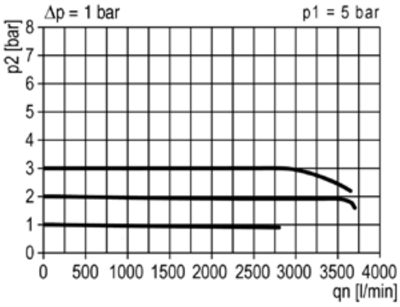
RP-14-D-...



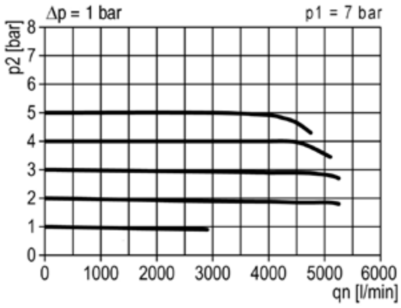
RP-12-D-...



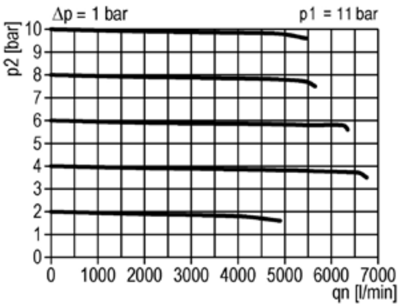
RP-12-E-...



RP-12-F-...

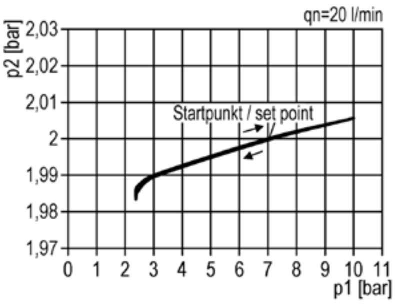


RP-12-G-...

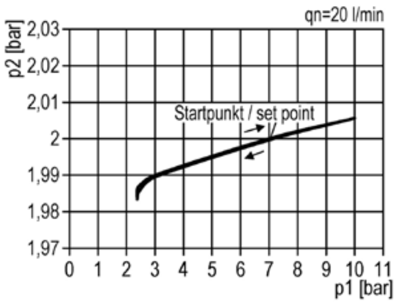


Hysteresis

RP-14-...



RP-12-...

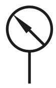


Gauge MXA

Technical details

Temperature range	-20°C ... +60°C
Accuracy class	2.5 according to EN 837-1
Application	Constant load: 3/4 x scale value
	Alternating load: 2/3 x scale value
Materials	Body: ABS, black
	Window: plastic, clear, clipped-on
	Dial: plastic, white with stop pin
	Scale black (bar) and blue (psi)
Temperature drift	± 0.4% / 10 K if deviation from normal temperature (+ 20°C)

Bourdon tube pressure gauge (EN 837-1), pressure connection rear.



Order code

MXA--**-****

Series	

Diameter	
40	40 mm
50	50 mm
63	63 mm

Range	
06	0 ... 6 bar
10	0 ... 10 bar
16	0 ... 16 bar

Connection	
18	G1/8
14	G1/4

Technical data

Model-no.:	MXA-50-06-14	MXA-50-10-14	MXA-50-16-14
Connection	G1/4	G1/4	G1/4
Standard for series	-	-	X1. X2. Y1. Y2
Range	0 ... 6 bar	0 ... 10 bar	0 ... 16 bar
Weight (kg)	0.071	0.071	0.071

Model-no.:	MXA-40-06-18	MXA-40-10-18	MXA-40-16-18	MXA-63-06-14	MXA-63-10-14	MXA-63-16-14
Connection	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4
Standard for series	-	-	K. RD	-	-	Y3
Range	0 ... 6 bar	0 ... 10 bar	0 ... 16 bar	0 ... 6 bar	0 ... 10 bar	0 ... 16 bar
Weight (kg)	0.071	0.071	0.071	0.080	0.080	0.080

Table of contents

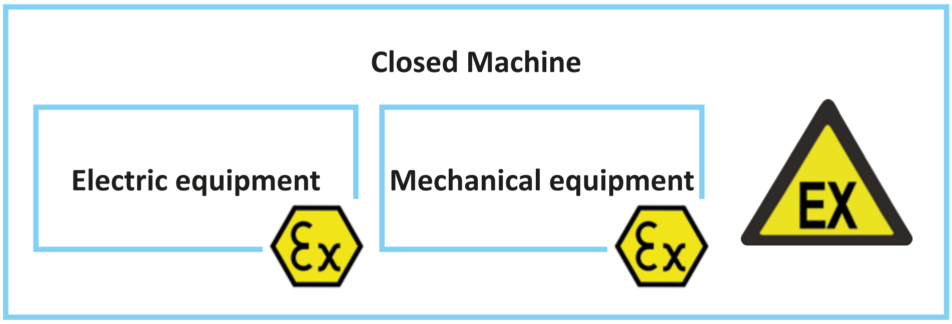
General information

The directive 2014/34/EU

ATEX derives it’s name from ATmosphère EXposible and stands for the Directive 2014/34/EU of the European Parliament.
The Directive concerns electrical and non-electrical equipment and protection systems for use in potential explosive atmospheres.
Since 1st of July 2003, devices and protection systems for use in potentially explosive areas must satisfy the new Directive 94/9/EC. This directive has been replaced by 2014/34/EU since 20th of April 2016.

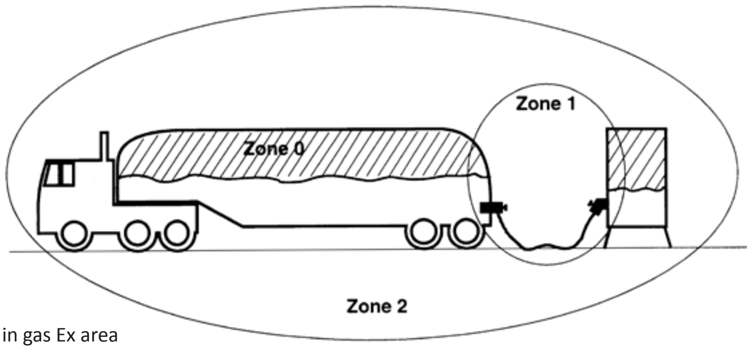
ATEX classifies explosive atmospheres and associates equipment

Problem:	Plant evaluation acc. to ATEX directive 99/92/EC	Equipment evaluation according to ATEX directive 2014/34/EU
Guarantor:	Equipment manufacturer	AIRTEC Pneumatic GmbH
Outcome:	**Zone classification**	**Equipment group**
	- Temperature class - Explosion group - Ambient temperature	- Temperature class - Explosion group - Ambient temperature



Zone and category

Zone classification reflects the liklihood of the occurence of an explosive atmosphere. Furthermore, differentiation is made as to whether the hazard is due to gases, vapour and mists or due to dust.
The category indicates in which zone the equipment is suitable.

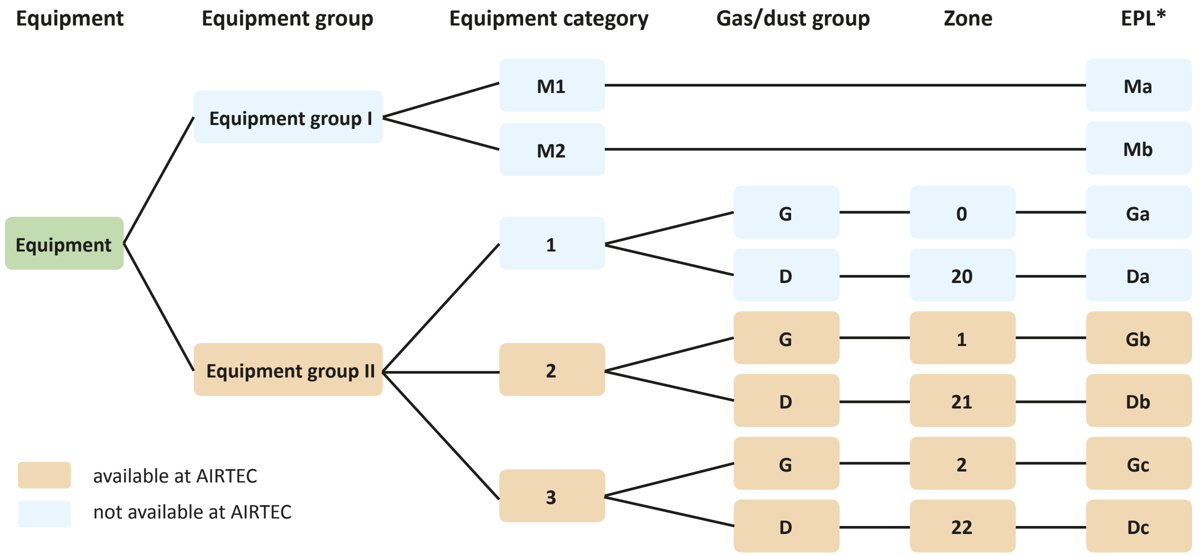


Example of zone classification in gas Ex area

Equipments are divided in 2 groups. Group I is subdivided in category M1 and M2 and specifies the use of which equipment can be used in underground mining works.
All further equipment is classified into Group II.
Group II is divided in Category 1, 2 and 3.
Category 1: Equipment in this category is characterised by a very high degree of safety and is specified in Zone 0 and 20.
Category 2: Equipment in this category is characterised by a high degree of safety and is specified in Zone 1 and 21
Category 3: Equipment in this category affords the necessary degree of safety in normal operation and is specified in Zone 2 and 22

General information

Overview Zones und Categories



* EPL = Equipment protection level

Equipment category 1

Devices in Equipment category 1 guarantee a very high level of safety.
They are designed for areas, in which an explosive gas atmosphere is present continuously, frequently or for long periods.
Devices in this category can also be used in Equipment category 2 and 3.

Category 1G	Category 1D
Devices for use in **Zone 0**	Devices for use in **Zone 20**
Inflammable gases, vapors or mists	Inflammable dusts
An area in which an explosive gas atmosphere is present continuously, frequently or for long periods. Equipment protection level Ga, very high level of safety.	An area in which an explosive dust atmosphere, in the form of a cloud of dust in air, is present continuously, frequently or for long periods. Equipment protection level Da, very high level of safety.

Equipment category 2

Devices in Equipment category 2 guarantee a high level of safety.
They are designed for areas, in which an explosive gas atmosphere is likely to occur periodically or occasionally in normal operation. Devices in this category can also be used Equipment category 3.

Category 2G	Category 2D
Devices for use in **Zone 1**	Devices for use in **Zone 21**
Inflammable gases, vapors or mists	Inflammable dusts
An area in which an explosive gas atmosphere is likely to occur periodically or occasionally in normal operation Equipment protection level Gb, high level of safety.	An area in which an explosive dust atmosphere, in the form of a cloud of dust in air, is likely to occur in normal operation occasionally. Equipment protection level Db, high level of safety.

Equipment category 3

Devices in Equipment category 3 guarantee a normal level of safety.
They are designed for areas, in which an explosive gas atmosphere is not likely to occur in normal operation but, if it does occur, it will exist for a short period only.

Category 3G	Category 3D
Devices for use in **Zone 2**	Devices for use in **Zone 22**
Inflammable gases, vapors or mists	Inflammable dusts
An area in which an explosive gas atmosphere is not likely to occur in normal operation but, if it does occur, it will exist for a short period only. Equipment protection level Gc, normal level of safety.	An area rea in which an explosive dust atmosphere, in the form of a cloud of combustible dust in air, is not likely to occur in normal operation but, if it does occur, will persist for a short period only. Equipment protection level Dc, normal level of safety.

13

General information

Equipment protection level

EPL Ga or Da

Equipment with a very high protection level for use in hazardous areas. In normal operation this equipment represents no risk of ignition in the event of predictable or rare faults/malfunctions.

EPL Gb or Db

Equipment with a high protection level for use in hazardous areas which represents no risk of ignition in normal operation or in the event of predictable faults/malfunctions.

EPL Gc or Dc

Equipment with an advanced protection level for use in hazardous areas. There is no risk of ignition during normal operation. The equipment has additional protective measures that ensure no risk of ignition in the event of typically predictable equipment faults.

Temperature class

It must be ensured that the ignition temperature of an inflammable material is not reached during operation.
For this purpose, the maximum surface temperature of a device must be less than the minimum ignition temperature. For this reason, the maximum surface temperature of equipment for use with inflammable gases, vapors or mists is specified in temperature classes. For dusty environments, the maximum surface temperature is specified in °C.

Temperature class	Maximum permissible surface temperature of the device
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

Device marking

II 2G Ex h IIC T5 Gb
II 2D Ex h IIIC T100°C Db

1. row

marking according to RL 2014/34/EU

II	Equipment group: II Equipment for hazardous areas - apart from mining
2G	Equipment category: 2 for Zone 1 and G for gases

marking according to DIN EN ISO 80079-36

Ex	abbreviation for explosion protection
h	Symbol for ignition protection class: h is representative for 6 different ignition protection classes h can be e.g. constructional safety c, flameproof enclosure d, pressurised enclosure p etc.
IIC	Explosion group II = gases The device group II is sub-devided into explosion group A, B and C. The subdivision is indicating the gap width of a technical device. C indicates the highest and A the lowest requirement class. The selection of the explosion is depending of the media and the correspondent explosion group requirement.
T5	Temperature class: T5 assignment of gases and vapors accordance to the ignition temperature > 100°C
Gb	Equipment protection level (EPL) G = gases b = Equipment with a high protection level for use in hazardous areas which represents no risk of ignition in normal operation or in the event of predictable faults/malfunctions. suitable for zone 1

2. row

marking according to RL 2014/34/EU

II	Equipment group: II Equipment for hazardous areas - apart from mining
2D	Equipment category: 2 for Zone 1 and D for dust Zone 21

marking according to DIN EN ISO 80079-36

Ex	abbreviation for explosion protection
h	Symbol for ignition protection class: h is representative for 6 different ignition protection classes h can be e.g. constructional safety c, flameproof enclosure d, pressurised enclosure p etc.
IIIC	Explosion group III = Inflammable dusts, fluff C is indicating the type of dust for which the equipment is suitable. Additionally it`s divided in A: flammable suspended materials, B: flammable suspended materials and non-conductive dusts and C: flammable suspended materials and conductive dusts.
T100°C	maximum permissible surface temperature
Db	Equipment protection level (EPL) D = dust b = Equipment with a high protection level for use in hazardous areas which represents no risk of ignition in normal operation or in the event of predictable faults/malfunctions. suitable for zone 21

Valves
Mechanically and pneumatically operated

Mechanically operated valves

Device marking

Mechanically operated valves are marked as follows:

Ex II 2GD c T6 T85°C *
-10°C Tamb +60°C

* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

Mechanically operated valves conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

Available valves

Series	Versions
HF-12	310, 510, 530, 533
HF-14	310, 510, 530, 533
HF-18	310, 510, 530, 533
HR-12	320, 520, 530, 533

Series	Versions
HR-14	320, 520, 530, 533
HR-18	320, 520, 530, 533
T-28	311
T-30	310, 510

Pneumatically operated valves

Device marking

Pneumatically operated valves are marked as follows:

Ex II 2GD c T5 T100°C *
-10°C Tamb +50°C

* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

Pneumatically operated valves conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

Available Valves

Series	Versions
L-25	311, 320, 511, 520
L-28	311, 320, 511, 520
P-05	311, 320, 511, 520, 530, 533, 534
P-07	311, 320, 511, 520, 530, 533, 534
P-12	311, 320, 511, 520, 530, 533, 534
PI-01	511, 520
PI-02	511, 520, 530, 533, 534
PI-03	511, 520, 530, 533, 534

Series	Versions
PKX-09	511, 520
PKX-10	511, 520, 530
PN-05	311, 511, 520, 530
PNX-55	311, 511, 520

The operating instructions for the valve must be taken into account before putting into operation. These are included with each valve and are available at www.airtec.de .

Device marking

Electrically operated valves are marked as follows:

II 2GD c T5 T100°C *
-10°C T amb +50°C

* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

Electrically operated valves conform to equipment category 2 can be used in Zone 1 respectively in Zone 21.
For the use in hazardous areas the category group of the used coil has to be taken into account. The specification of the whole equipment corresponds always to the lowest category of the single components.

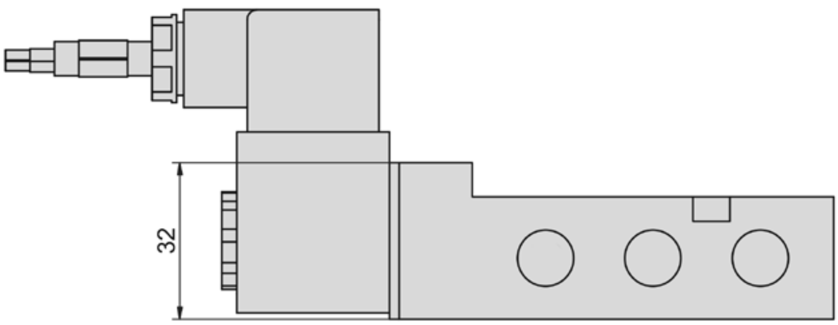
Available valves

Series	Versions
KM-09	510, 511, 520, 530, 533, 534
KM-10	510, 511, 520, 530, 533, 534
KMX-09	511, 520
KMX-10	511, 520, 530
KN-05	310, 311, 510, 511, 520, 530, 533, 534
KN-55	311, 511
KNX-55	311, 511, 520
M-04	310, 510, 511, 520, 530, 533
M-05	310, 311, 510, 511, 520, 530, 533, 534
M-07	310, 311, 510, 511, 520, 530, 533, 534
M-22	310, 311, 510, 511, 520, 530, 533

Series	Versions
ME-05	311, 320, 511, 520
ME-07	311, 320, 511, 520
MO-05	311
MO-07	311
MO-22	310, 311
MI-01	511, 520, 530, 533
MI-02	511, 520, 530, 533
MI-03	511, 520, 530, 533
MN-06	310, 311, 510, 511, 520, 530
MS-18	310

The use of special electrical equipment and operators requires in certain cases a design change of the valve. All changes are shown on the following pages.
For the NAMUR valve as well the body dimension is different to standard. Please see below.

KN-05, MN-06 Divergent dimensions



The operating instructions for the valve and the electrical equipment must be taken into account before putting into operation. These are included with each valve and are available at www.airtec.de .

Valves
Electrically operated

Solenoid coils

23-SP-036

Ignition protection class	Encapsulated with casting compound mb (gases) mb tb (dust)
Classification	II 2G Ex mb IIC T4 II 2D Ex mb tb IIIC T130°C IP65
Overall width	22 mm
Temperature range*	-20°C...+50°C (battery fitted -20°C...+40°C)
Temperature range medium	-10°C...+50°C (battery fitted -10°C...+40°C)

* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-036-011-03	23-SP-036-012-03
Voltage	12 V DC	24 V DC
Power consumption	4.5 W	5 W
Rated current	375 mA	207 mA
Connecting cable	3 m	3 m

23-SP-037

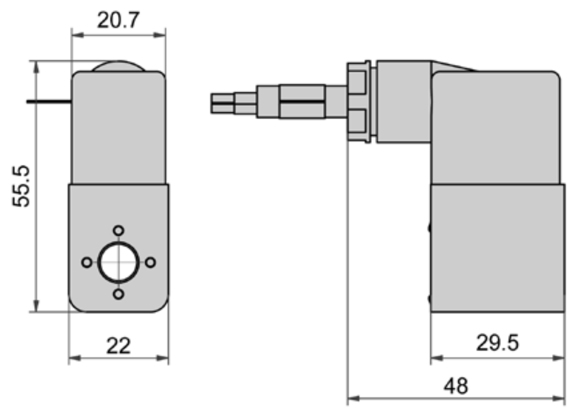
Ignition protection class	Encapsulated with casting compound mb (gases) mb tb (dust)
Classification	II 2G Ex mb IIC T5 II 2D Ex mb tb IIIC T95°C IP65
Overall width	30 mm
Temperature range*	-20°C...+50°C (battery fitted -20°C...+40°C)
Temperature range medium	-10°C...+50°C (battery fitted -10°C...+40°C)

* The max. applicable operating temperature depends on the temperature specification of the used valve.

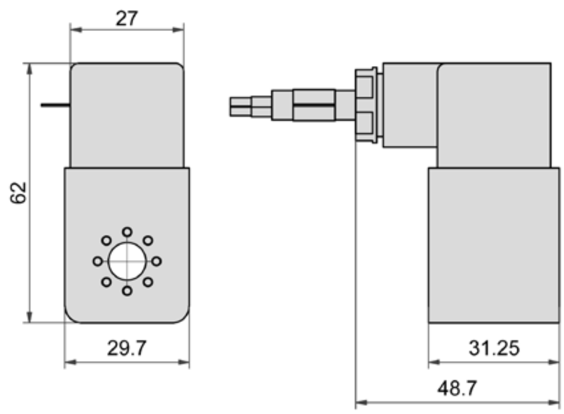
Model-no.:	23-SP-037-012-xx	23-SP-037-025-xx	23-SP-037-027-xx
Voltage	24 V DC	110...120 V AC	230 V AC
Power consumption	3.3 W	3 VA	3.1 VA
Rated current	136 mA	27 mA	14 mA
Connecting cable (xx)	03 = 3 m, 05 = 5 m, 10 = 10 m	03 = 3 m, 05 = 5 m, 10 = 10 m	03 = 3 m, 05 = 5 m, 10 = 10 m

Dimensions

23-SP-036



23-SP-037



Solenoid coils

23-SP-038

Ignition protection class	Intrinsically safe ia (gases) t (dust)
Classification	II 2G Ex ia IIC T6 Ga (≤ 28 V DC) II 2G Ex ia IIB T6 Ga (≤ 32 V DC) II 2D Ex t IIIC T80°C Db IP65
Overall width	30 mm
Temperature range*	-40°C...+50°C
Temperature range medium	-10°C...+50°C (battery fitted -10°C...+40°C)

* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-038-01-912
Voltage	U ≤ 28 V DC / U ≤ 32 V DC
Rated current	I ≤ 115 mA / I ≤ 195 mA
Rated current	375 mA
Connection	plug (part of delivery)

23-SP-040

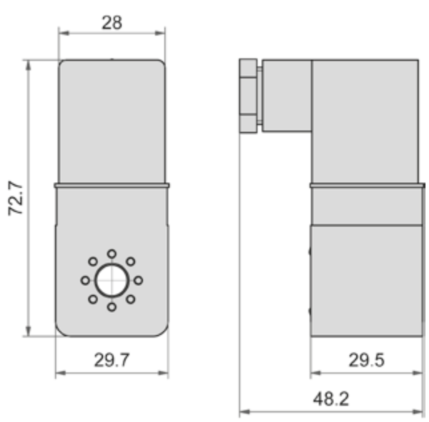
Ignition protection class	Non-sparking device na (gases) tc (dust)
Classification	II 3G Ex nA IIC T6 Gc II 3D Ex tc IIIC T95°C Dc IP65
Overall width	30 mm
Temperature range*	-20°C...+50°C
Temperature range medium	-10°C...+50°C (battery fitted not allowed)

* The max. applicable operating temperature depends on the temperature specification of the used valve.

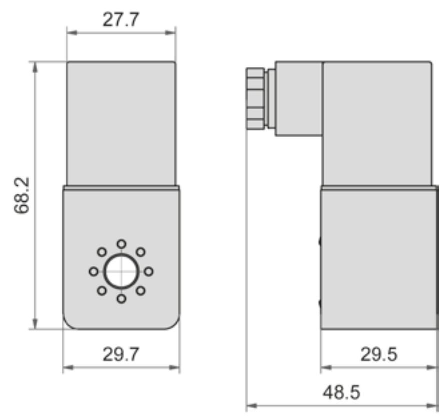
Model-no.:	23-SP-040-B12	23-SP-040-B27
Voltage	24 V DC	230 V AC
Power consumption	2.7 W	4 VA
Rated current	112 mA	15...18 mA
Connection	plug (part of delivery)	plug (part of delivery)

Dimensions

23-SP-038



23-SP-040



Valves
Function valves

Function valves

Device marking

Mechanically operated valves according ATEX are marked with following suffix:

-ATEX

Classification

II 2GD c T6 T85°C *
-10°C Tamb +50°C

* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.
Function valves conform to Equipment category 2 and can be used in Zone 1 respectively Zone 21.

Available valves

Series	Versions
SE	SE-18, SE-14, SE-12

Piston rod cylinders

Device marking

Piston rod cylinders according ATEX are marked with following suffix:

-ATEX
-EX
-X

Classification

II 2GD c T5 T100°C *
-20°C Tamb +80°C

* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

The equipment is according category 2 and can be used in zone 1 and zone 21.

Available cylinders

Series	Versions
XL	XL, XLH
	XLC (-40°C Tamb +80°C)
XG	XG, XGH (only up to Ø 200 mm)
HM	HM, HMP, HMDE, HMPDE
CM	CM, CMP, CMDE, CMPDE

Classification

II 2GD c T4 T120°C *
-20°C Tamb +80°C

* Marking according to DIN EN 13463-1/ -5 valid until 30.10.2019, thereafter according to DIN EN ISO 80079-36/ -37.

The equipment is according category 2 and can be used in zone 1 and zone 21.

Available cylinders

Series	Versions
XM	XM, XM4, XMH, XM4H
NYD	Ø 20 and 25 with 5 ... 60 mm stroke, Ø 32 up to 100 with 5 ... 80 mm stroke
NYE	5, 10, 15, 20 and 25 mm stroke
NYDK	NYDK2, NYDK3, NYDK4
NYM	MYM2AG, NYM2IG, NYM3AG, NYM3IG
NYR2	NYR2

The operating instructions for the cylinder must be taken into account before putting into operation. These are included with each cylinder and are available at www.airtec.de .

Cylinders

Rodless cylinders series ZX

Device marking

ZX-cylinder are marked as follows: Ex II 2GD c T6 T85°C -10°C ≤ Tamb ≤ 60°C

The equipment is according category 2 and can be used in zone 1 and zone 21.

Available rodless cylinders

ZX	ZX-Ø-S, ZX-Ø-K, ZX-Ø-SG, ZX-Ø-KG, ZX-Ø-SR, ZX-Ø-KR,

The operating instructions for the cylinder must be taken into account before putting into operation. These are included with each cylinder and are available at www.airtec.de .

Accessories for valves

The valves are intended to be used with the following accessories:

Accessories	series
Manifolds	R-181/n, R-281/n, R-141/n
Manifolds	RF-09/n, RF-10/n
Blind plates	RF-181-V, RF-281-V, R-141-V, RF-09-V, RF-10-V
Mounting brackets	R-181-W, R-281-W, R-141-W

Accessories for piston rod cylinders

The cylinders are intended to be used with the following accessories:

Accessories	series
Flexible coupling	FK-Ø
Rod eye	FO-Ø, RO-Ø, PO-Ø (v_{max} 1 m/s)
Rod clevis	FD-Ø, RD-Ø, PD-Ø
Piston rod nut	FE-Ø, RL-Ø, PL-Ø
Mounting accessories XL	XLB-Ø-01, XLB-Ø-02, XLB-Ø-03, XLB-Ø-04, XLB-Ø-05, XLB-Ø-06, XLB-Ø-07, XLB-Ø-08, XLB-Ø-09, XLB-Ø-10, XLB-Ø-11, XLB-Ø-12, XLB-Ø-13, XLB-Ø-14,
Mounting accessories XG	VLB-Ø-01, VLB-Ø-02, VLB-Ø-03, VLB-Ø-04, VLB-Ø-05, VLB-Ø-06, VLB-Ø-08, VLB-Ø-09, VLB-Ø-12
Mounting accessories HM	RA-Ø, RC-Ø, RG-Ø, RH-Ø, RB-Ø, RM-Ø
Mounting accessories CM	PA-Ø, PC-Ø, PB-Ø, PM-Ø

Accessories for rodless cylinders

The cylinders are intended to be used with the following accessories:

Accessories	series
Mounting accessories ZX	ZXB-Ø-01, ZXB-Ø-02, ZXB-Ø-10, ZXB-Ø-20

Proximity switches

Model-No.	Classification / Identification marking
ZS-7300	II 3G Ex nA T4 II 3D Ex tD A22 IP67 T 125°C
ZS-7302	II 3D Ex tc IIIC T125°C Dc X

The operating instructions for the equipment must be taken into account before putting into operation. These are available at www.airtec.de .

Air consumption cylinder (Nl for a single stroke of 100 mm, based upon extension)

Piston-Ø	Pressure in bar						
	2	3	4	5	6	7	8
8	0.02	0.02	0.03	0.03	0.04	0.04	0.05
10	0.02	0.03	0.04	0.05	0.05	0.06	0.07
12	0.03	0.05	0.06	0.07	0.08	0.09	0.10
16	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20	0.09	0.13	0.16	0.19	0.22	0.25	0.28
25	0.15	0.20	0.25	0.29	0.34	0.39	0.44
32	0.24	0.32	0.40	0.48	0.56	0.64	0.72
40	0.38	0.50	0.63	0.75	0.88	1.01	1.13
50	0.59	0.79	0.98	1.18	1.37	1.57	1.77
63	0.94	1.25	1.56	1.87	2.18	2.49	2.81
80	1.51	2.01	2.51	3.02	3.52	4.02	4.52
100	2.36	3.14	3.93	4.71	5.50	6.28	7.07
125	3.72	4.96	6.21	7.42	8.64	9.91	11.14
160	6.09	8.12	10.16	12.16	14.16	16.23	18.25
200	9.52	12.68	15.88	19.00	22.12	25.36	28.52
250	14.88	19.81	24.81	29.69	34.56	39.63	44.56

Required flow rate (Nl/min at p = 6 bar)

Piston-Ø	speed (m/s)				
	0.25	0.5	1	1.5	2
8	5	11	21	32	42
10	8	16	33	49	66
12	12	24	47	71	95
16	21	42	84	127	169
20	33	66	132	198	264
25	52	103	206	309	412
32	84	169	338	506	675
40	132	264	528	791	1055
50	206	412	824	1236	1649
63	327	654	1309	1963	2617
80	528	1055	2110	3165	4220
100	824	1649	3297	4946	6594
125	1288	2576	5152	7727	10303
160	2110	4220	8440	12660	16881
200	3297	6594	13188	19782	26376

Force chart cylinders (N)

Piston-Ø	Series	Piston rod Ø (mm)	Pressure in bar						
			2	3	4	5	6	7	8
8			9	14	18	23	27	32	36
	HM	4	7	10	14	17	20	24	27
10			14	21	28	35	42	49	57
	HM	4	12	18	24	30	36	42	47
12			20	31	41	51	61	71	81
	HM	6	15	23	31	38	46	53	61
16			36	54	72	90	109	127	145
	HM, CM	6	31	47	62	78	93	109	124
	NXD	8	27	41	54	68	81	95	109
20			57	85	113	141	170	198	226
	HM, CM	8	47	71	95	119	142	166	190
	NYD, NXD, LX	10	42	64	85	106	127	148	170
25			88	132	177	221	265	309	353
	HM, CM, NYD, NXD	10	74	111	148	185	223	260	297
	LX	12	68	102	136	170	204	238	272
32			145	217	289	362	434	506	579
	XL, XM, NYD, NXD, HMU	12	124	187	249	311	373	435	497
	LX	16	109	163	217	271	326	380	434
40			226	339	452	565	678	791	904
	NYD, NXD	12	206	309	411	514	617	720	823
	XL, XM, LX, HMU	16	190	285	380	475	570	665	760
50			353	530	707	883	1060	1236	1413
	NYD, NXD	16	317	476	634	793	951	1110	1268
	XL, XM, LX	20	297	445	593	742	890	1039	1187
63			561	841	1122	1402	1682	1963	2243
	NYD, NXD	16	525	787	1049	1312	1574	1836	2099
	XL, XM, LX	20	504	756	1009	1261	1513	1765	2017
80			904	1356	1809	2261	2713	3165	3617
	NYD, NXD	20	848	1272	1696	2120	2543	2967	3391
	XL, XM	25	816	1224	1632	2040	2448	2856	3264
100			1413	2120	2826	3533	4239	4946	5652
	XL, XM, NYD, NXD	25	1325	1987	2649	3312	3974	4636	5299
125			2208	3312	4416	5520	6623	7727	8831
	XL, XM, NYD	32	2063	3095	4126	5158	6189	7221	8252
160			3617	5426	7235	9043	10852	12660	14469
	XG	40	3391	5087	6782	8478	10174	11869	13565
200			5652	8478	11304	14130	16956	19782	22608
	XG	40	5426	8139	10852	13565	16278	18991	21704
250			8831	13247	17663	22078	26494	30909	35325
	XG	50	8478	12717	16956	21195	25434	29673	33912
320			14469	21704	28938	36173	43407	50642	57876
	XG	63	13908	20862	27817	34771	41725	48679	55633

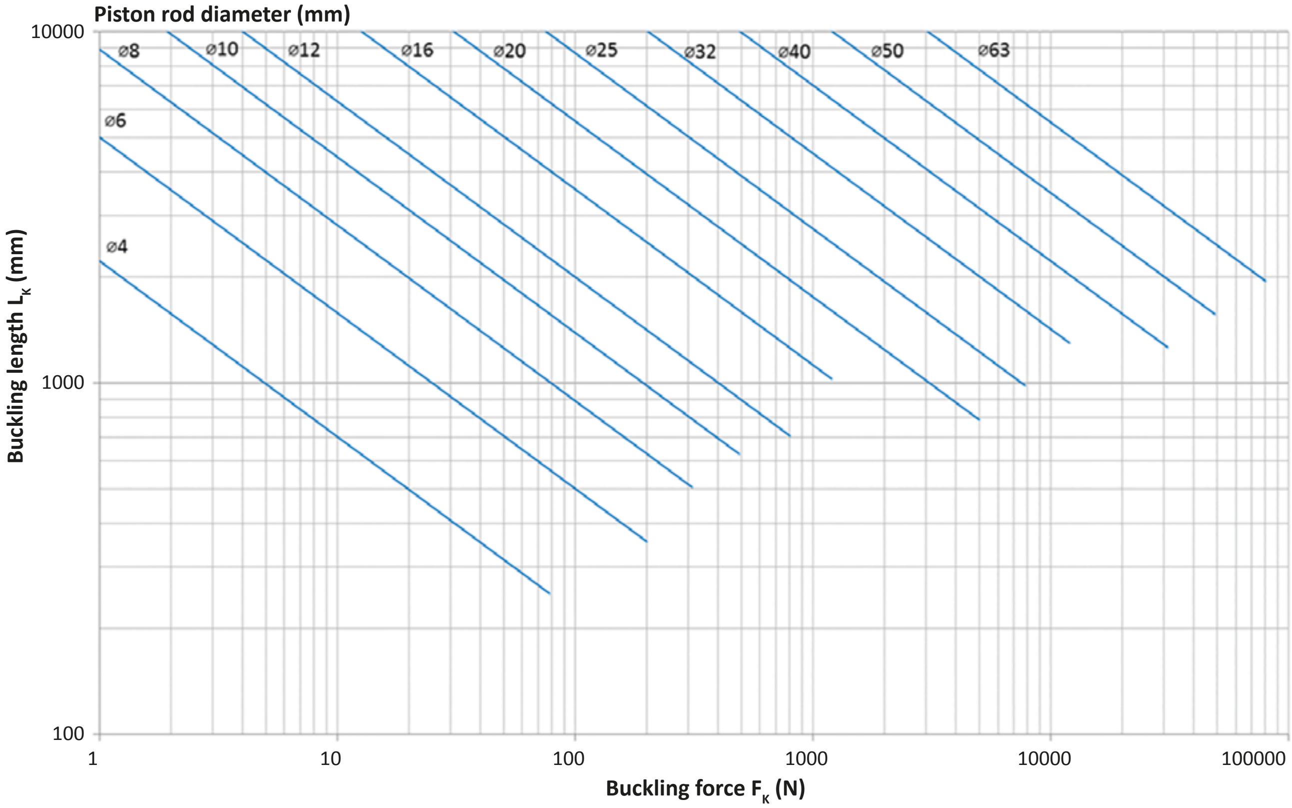
extension force*

retraction force*

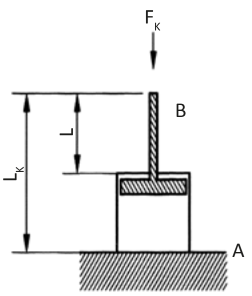
* A correction factor of 0.9 for the internal friction is already calculated.

13

Critical load diagram for the piston rod

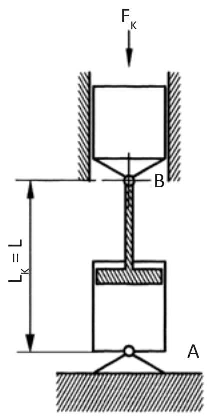


First elastic case of buckling



A: fixed restraint
B: open end
L_K≈4*cylinder stroke length

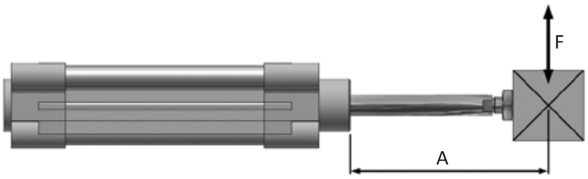
Second elastic case of buckling



A: joint
B: joint
L_K≈2*cylinder stroke length

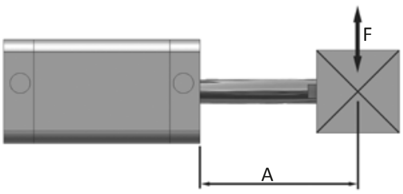
Knowing the actual buckling case, either 1 or 2, and knowing the requested stroke length you can calculate the buckling length L_K. If you know the buckling force F_K (compressive force) you determine in the diagram above the intersection of both data. Choose the next graph line above to get the necessary rod diameter.

Permissible side load F (N), series XL and XM



Piston-Ø	Distance A (mm)											
	25	40	50	80	100	125	160	200	250	320	400	500
32	75	55	50	40	34	28	23	20	16	12	9	7
40	175	150	130	105	91	78	62	55	45	35	28	21
50 + 63	220	180	170	130	120	105	90	80	65	52	43	33
80 + 100	500	450	400	350	310	270	230	205	180	150	125	100
125	810	710	680	590	520	470	420	390	330	270	230	200

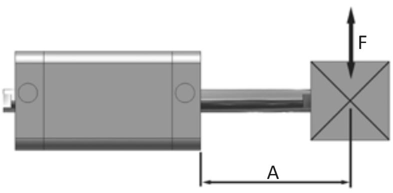
Permissible side load F (N), series NYD* and NXD, version 200 and 210



Piston-Ø	Distance A (mm)									
	25	30	40	50	60	70	80	90	100	125
12 + 16	8	7	6	6	5	5	4	3	2	-
20 + 25	12	11	9	7	6	5	4	3	3	-
32 + 40	23	20	16	12	10	8	7	7	6	4
50 + 63	38	34	28	22	18	15	13	12	11	3
80	49	43	35	28	24	20	18	17	16	12
100	93	82	67	55	46	40	37	34	31	23

* series NYD from Ø 20 mm

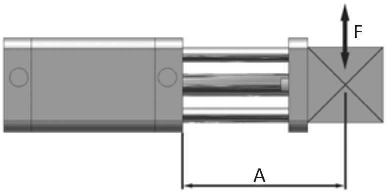
Permissible side load F (N), series NYD* and NXD, version 600 and 610



Piston-Ø	Distance A (mm)									
	25	30	40	50	60	70	80	90	100	125
12 + 16	22	20	18	15	13	11	10	10	9	6
20 + 25	32	30	26	21	19	16	14	13	12	9
32 + 40	47	43	38	32	28	26	22	20	18	13
50 + 63	83	78	68	59	51	46	41	38	36	27
80	112	108	93	83	74	67	60	57	54	40
100	194	181	160	144	130	118	108	101	96	72

* series NYD from Ø 20 mm

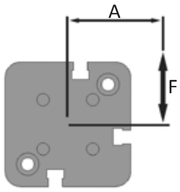
Permissible side load F (N), series NYD* and NXD, version 220



Piston-Ø	Distance A (mm)									
	25	30	40	50	60	70	80	90	100	125
16 + 20	38	33	27	23	20	18	16	14	12	9
25	59	53	43	37	31	27	24	23	22	15
32	76	68	58	49	43	38	35	34	32	24
40	112	101	84	72	62	56	50	47	46	34
50 + 63	145	130	108	92	83	74	66	61	56	42
80 + 100	200	180	155	135	120	110	100	90	80	60

* series NYD from Ø 20 mm

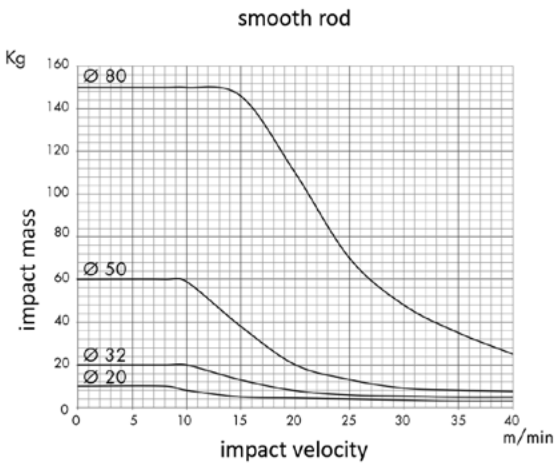
Permissible torque F x A (Nm), series NYD* and NXD, version 220

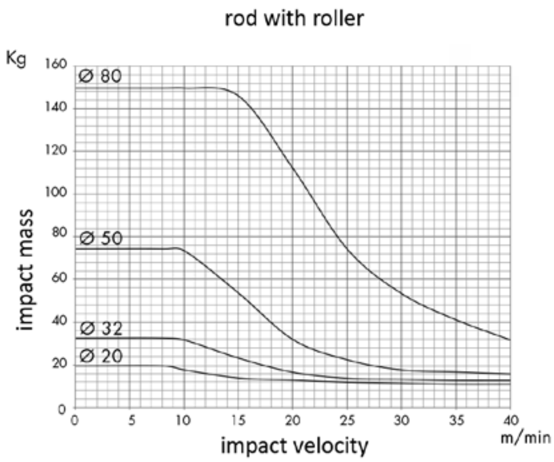


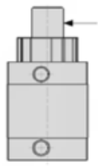
Piston-Ø	Distance A (mm)										
	10	15	20	25	30	40	50	60	70	80	90	100
16	0.75	0.7	0.6	0.5	0.45	0.4	0.35	0.3	0.25	0.2	0.15	0.1
20	1.0	0.85	0.8	0.7	0.6	0.4	0.35	0.35	0.3	0.25	0.2	0.2
25	2.0	1.75	1.6	1.3	1.2	0.9	0.75	0.6	0.5	0.45	0.45	0.4
32	2.7	2.5	2.2	2.0	1.8	1.6	1.3	1.1	1.0	0.9	0.9	0.8
40	5.0	4.0	3.5	3.3	3.0	2.5	2.2	2.0	1.8	1.5	1.4	1.3
50	8.8	7.6	6.7	6.0	5.4	4.6	4.0	3.5	3.0	2.8	2.6	2.4
63	10.7	9.4	8.3	7.4	6.7	5.5	4.8	4.2	3.8	3.5	3.2	2.9
80	17.5	15.3	13.7	12.4	11.3	9.6	8.5	7.6	7.0	6.3	5.8	5.3
100	20.0	19.0	17.0	15.5	14.0	12.0	10.5	9.5	8.5	7.7	7.0	6.5

* series NYD from Ø 20 mm

Applicable load, series NYSE







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14

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