

Compact cylinder ADVUL

FESTO



Type code

001	Series
ADVUL	Compact cylinder, double-acting, protected against rotation by guide rod and yoke plate

002	Piston diameter [mm]
12	12
16	16
20	20
25	25
32	32
40	40
50	50
63	63
80	80
100	100

003	Stroke [mm]
...	1 ... 400

004	Cushioning
P	Elastic cushioning rings/plates on both sides

005	Position sensing
A	For proximity sensor

Datasheet

General technical data

Piston diameter	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Design	Piston, Piston rod									
Pneumatic connection	M5					G1/8			G1/4	
Piston-rod end	Female thread									
Type of mounting	Either:, With through-hole, With accessories									
Cushioning	Elastic cushioning rings/plates at both ends									
Position detection	Via proximity switch									
Mounting position	optional									

Operating and environmental conditions – ADVUL-12 ... 40

Piston diameter	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]					
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure	0.15 ... 1 MPa	0.12 ... 1 MPa	0.1 ... 1 MPa			
Operating pressure	1.2 ... 10 bar			1 ... 10 bar		
Operating pressure	21.75 ... 145 psi	17.4 ... 145 psi	14.5 ... 145 psi			
Ambient temperature ¹⁾	-20 ... 80°C					
Corrosion resistance class CRC ²⁾	2 - Moderate corrosion stress					

1) Note operating range of proximity switches.

2) More information www.festo.com/x/topic/kbk

Operating and environmental conditions – ADVUL-50 ... 100

Piston diameter	50 mm	63 mm	80 mm	100 mm
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure	0.1 ... 1 MPa			
Operating pressure	1 ... 10 bar			
Operating pressure	14.5 ... 145 psi			
Ambient temperature ¹⁾	-20 ... 80°C			
Corrosion resistance class CRC ²⁾	2 - Moderate corrosion stress			

1) Note operating range of proximity switches.

2) More information www.festo.com/x/topic/kbk

Forces and impact energy

$$V = \sqrt{\frac{2 \cdot E}{m_1 + m_2}}$$

$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

V = permissible impact velocity

E = max. impact energy

m1 = moving mass (drive)

m2 = moving payload

Piston diameter	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Theoretical force at 0.6 MPa (6 bar, 87 psi), advance stroke	68 N	121 N	188 N	295 N	483 N	754 N	1,178 N	1,870 N	3,016 N	4,712 N
Theoretical force at 0.6 MPa (6 bar, 87 psi), return stroke	51 N	90 N	141 N	247 N	415 N	686 N	1,057 N	1,750 N	2,827 N	4,418 N
Impact energy in end positions	0.07 J	0.1 J	0.14 J	0.1 J	0.4 J	0.52 J	0.64 J	0.7 J	0.75 J	1 J

Weight

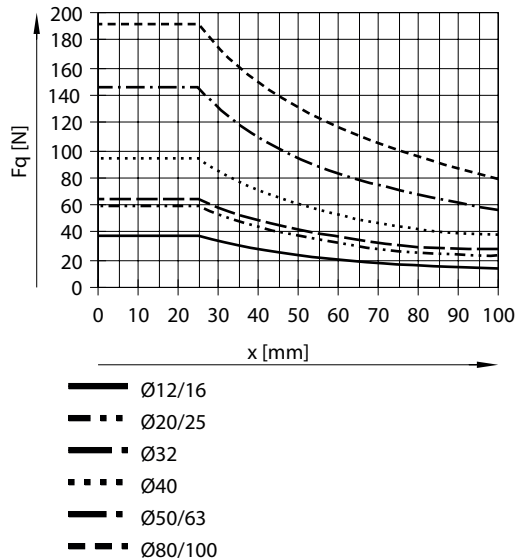
Piston diameter	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Basic weight for 0 mm stroke	100 g	103 g	179 g	215 g	362 g	517 g	707 g	1,252 g	2,150 g	3,316 g
Additional weight per 10 mm stroke	14 g	16 g	26 g	28 g	38 g	45 g	64 g	72 g	97 g	116 g

Datasheet

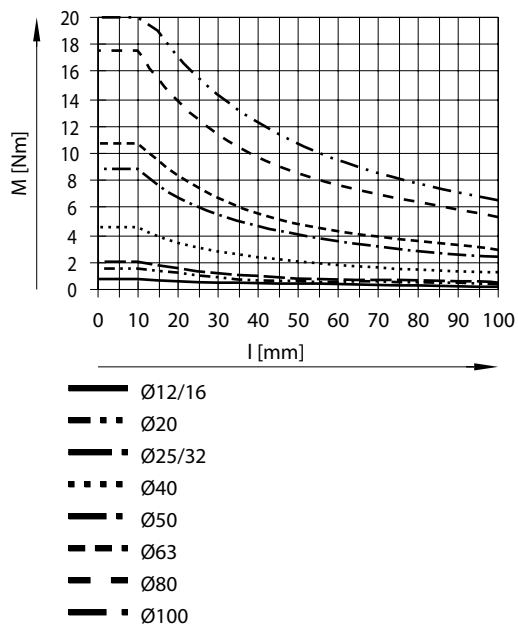
Materials

Piston diameter	12 mm	16 mm	20 mm	25 mm	32 mm	40 mm	50 mm	63 mm	80 mm	100 mm
Material cylinder barrel	Wrought aluminium alloy									
Material cover	Wrought aluminium alloy									
Material piston rod	High-alloy stainless steel					High-alloy steel				
Material collar screws	High-alloy stainless steel			Galvanised steel						
Material dynamic seals	NBR, TPE-U(PU)									

Max. lateral force F_q as a function of projection x

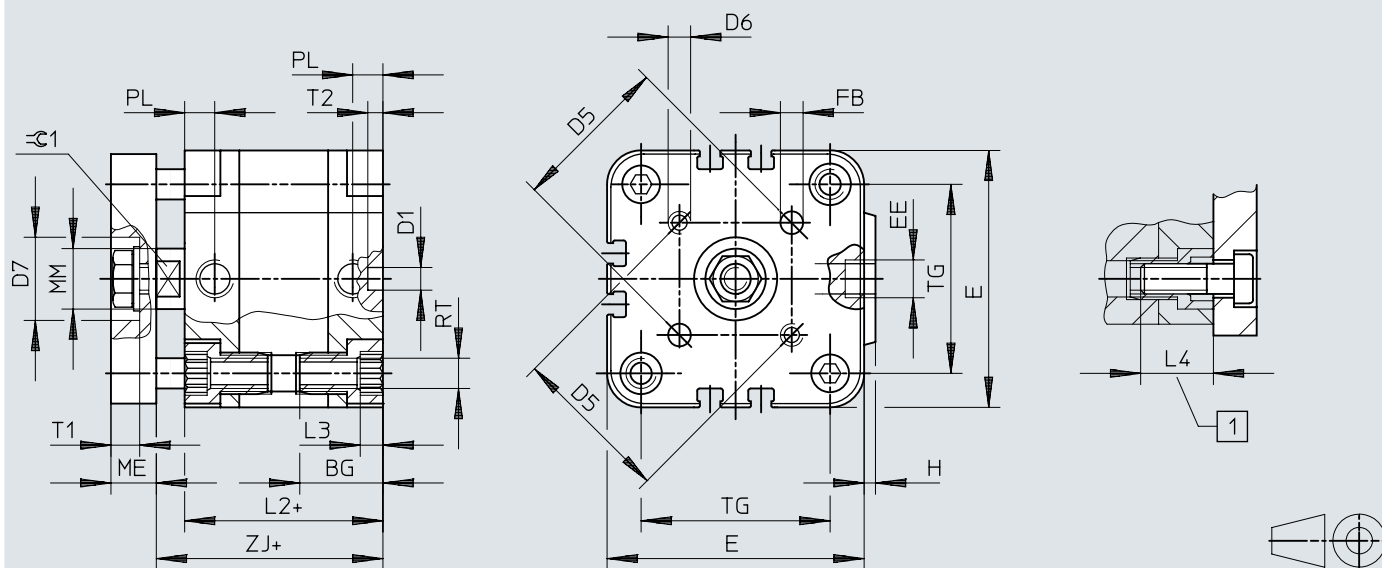


Torque M as a function of stroke l



Dimensions

Dimensions – Basic cylinder

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[1] Minimum screw-in depth

[2] + = plus stroke length

	BG ¹⁾	D1 ∅ H9	D5	D6	D7 ∅ H9	E	EE	FB ∅ H8	H	L2
ADVUL-12	18,5	6	14	M3	–	29	M5	3	1	38
ADVUL-16	18,5	6	14	M3	–	29	M5	3	1	38
ADVUL-20	18,5	6	17	M4	–	36	M5	4	1,5	38
ADVUL-25	18,5	6	22	M5	14	40	M5	5	1,5	39,5
ADVUL-32	21,5	6	28	M5	17	50	G1/8	5	2	44,5
ADVUL-40	21,5	6	33	M5	17	60	G1/8	5	2,5	45,5
ADVUL-50	22	6	42	M6	22	68	G1/8	6	3	45,5
ADVUL-63	24,5	8	50	M6	22	87	G1/8	6	4	50
ADVUL-80	27,5	8	65	M8	28	107	G1/8	8	4	56
ADVUL-100	32,5	8	80	M10	30	128	G1/4	10	5	66,5

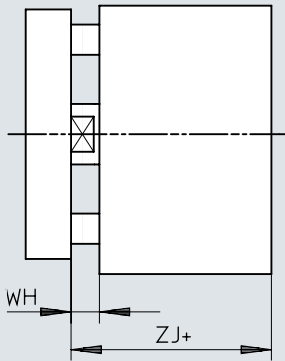
	L3	L4	ME	MM ∅	PL	RT	T1 +0,2	T2 –0,2	TG	$\pm C1$ h13
ADVUL-12	3	16	6	6	8	M4	–	4	18	5
ADVUL-16	3	16	6	8	8	M4	–	4	18	7
ADVUL-20	4	18	8	10	8	M5	–	4	22	9
ADVUL-25	4	18	8	10	8	M5	4,8	4	26	9
ADVUL-32	5	20	10	12	8	M6	6,1	4	32	10
ADVUL-40	5	20	10	12	8	M6	6,1	4	42	10
ADVUL-50	6	20	12	16	8	M8	7,6	4	50	13
ADVUL-63	8	25	12	16	8	M10	7,6	4	62	13
ADVUL-80	8	25	14	20	8,5	M10	8,7	4	82	17
ADVUL-100	8	25	14	25	10,5	M10	10,3	4	103	22

1) Do not exceed the screw-in depth

Dimensions

Dimensions – Piston rod at one end

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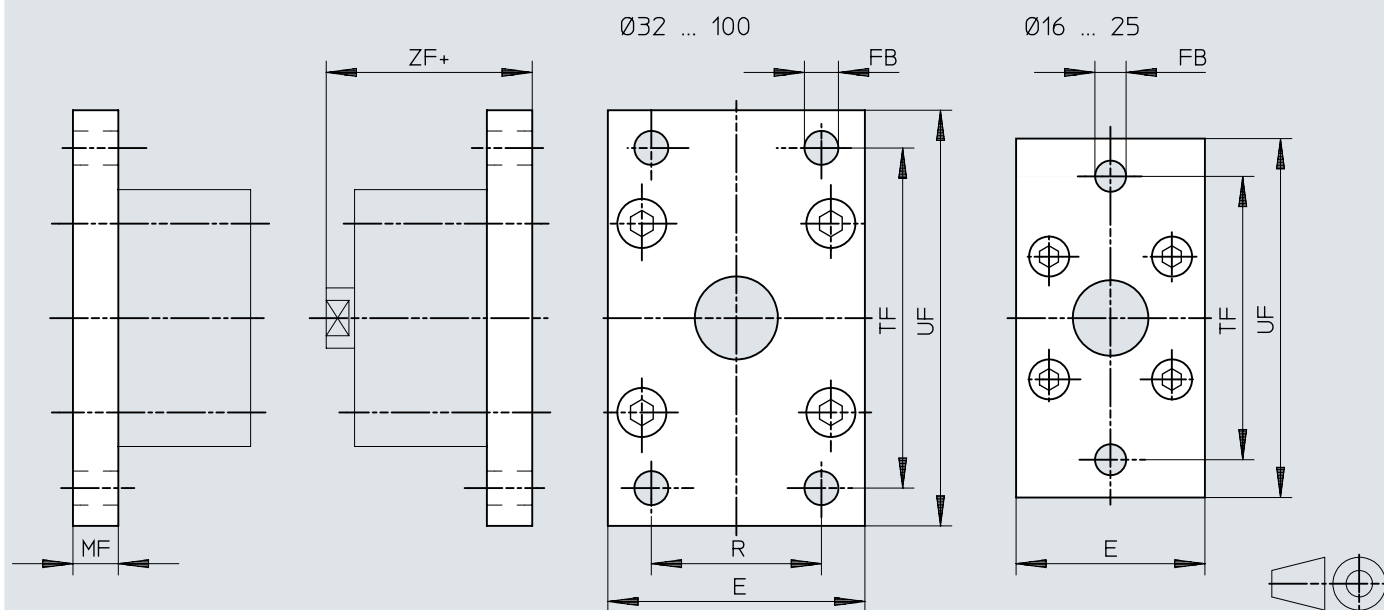


[1] += plus stroke length

	WH	ZJ
ADVUL-12	4,5	42,5
ADVUL-16	4,5	42,5
ADVUL-20	4,5	42,5
ADVUL-25	5,5	45
ADVUL-32	6	50,5
ADVUL-40	6,5	52
ADVUL-50	7,5	53
ADVUL-63	7,5	57,5
ADVUL-80	8	64
ADVUL-100	10	76,5

Dimensions

Dimensions – Flange mounting FUA

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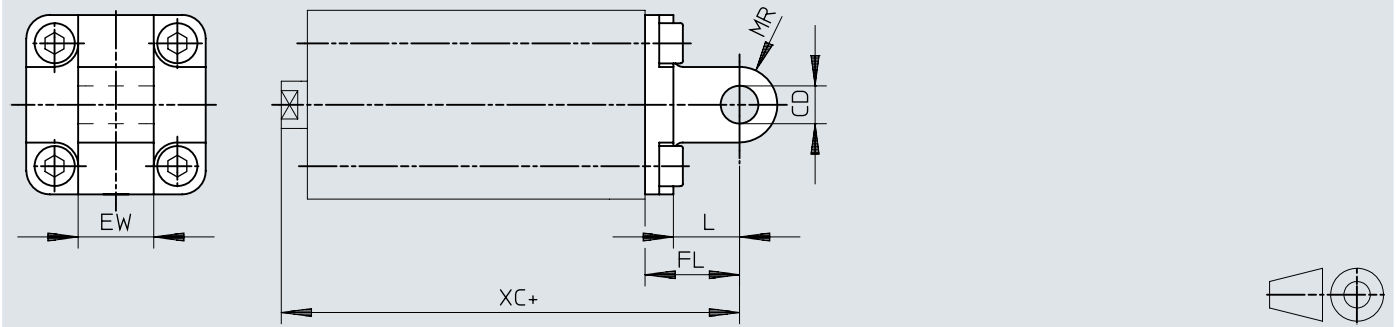
[1] += plus stroke length

	E	FB ∅	MF	R	TF	UF	ZF
FUA-12/16	29	5,5	10	–	43	55	52,5
FUA-20	36	6,6	10	–	55	70	52,5
FUA-25	40	6,6	10	–	60	76	55
FUA-32	50	7	10	32	65	80	60,5
FUA-40	60	9	10	36	82	102	62
FUA-50	68	9	12	45	90	110	65
FUA-63	87	9	15	50	110	130	72,5
FUA-80	107	12	15	63	135	160	76
FUA-100	128	14	15	75	163	190	91,5

Dimensions

Dimensions – Swivel flange SUA for ADVUL-12 ... 25

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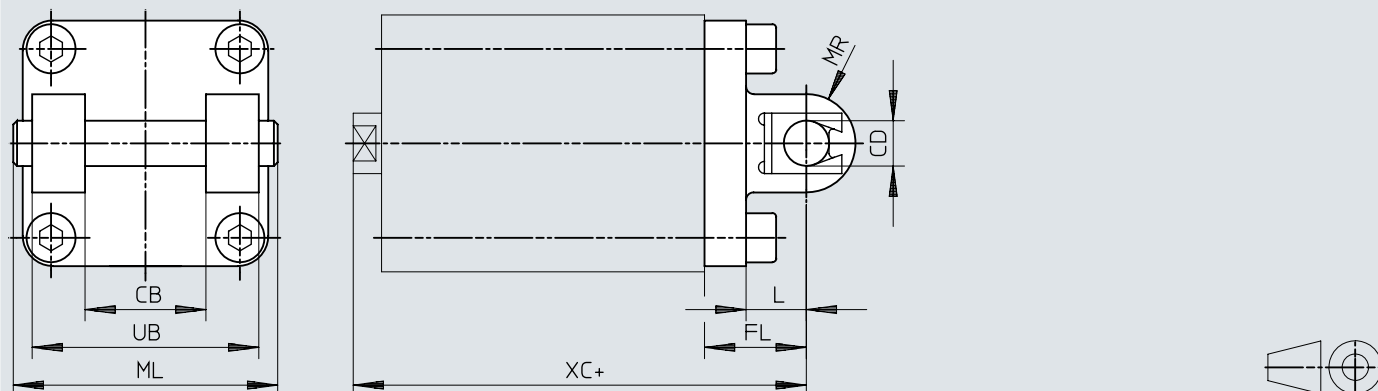


[1] += plus stroke length

	CD ∅	EW	FL	L	MR	XC
SUA-12/16	6	12	16	10	6	58,5
SUA-20	8	16	20	14	8	62,5
SUA-25	8	16	20	14	8	64

Dimensions

Dimensions – Swivel flange SUA for ADVUL-32 ... 100

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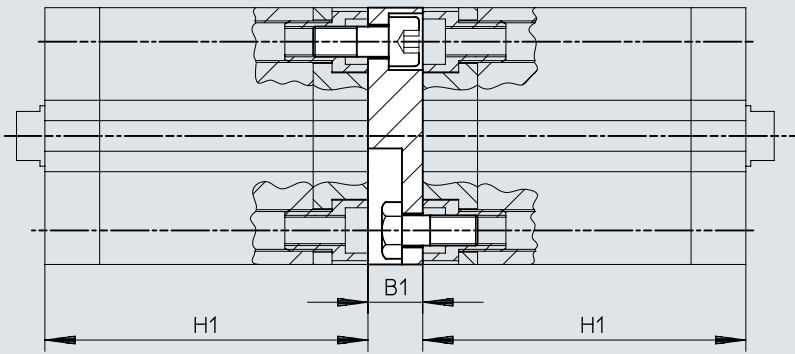
[1] += plus stroke length

	CB	CD ∅	FL	L	ML	MR	UB	XC
SUA-32	26	10	22	13	54	10	45	72,5
SUA-40	28	12	25	16	62	12	52	77
SUA-50	32	12	27	16	70	12	60	80
SUA-63	40	16	32	21	82	16	70	89,5
SUA-80	50	16	36	23	102	16	90	100
SUA-100	60	20	41	26	126	20	110	117,5

Dimensions

Dimensions – Mounting kit DPVU

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[1] The maximum total stroke length must not be exceeded when combining cylinders and multi-position kits.

	B1	H	1)
DPVU-12/16	12,5	38	400
DPVU-20	12,5	38	
DPVU-25	13	39,5	
DPVU-32	14,5	44,5	600
DPVU-40	14,5	45,5	
DPVU-50	14,5	45,5	
DPVU-63	14,5	50	800
DPVU-80	16,5	56	
DPVU-100	19,5	66,5	

1) Max. total stroke length [mm]

Ordering data

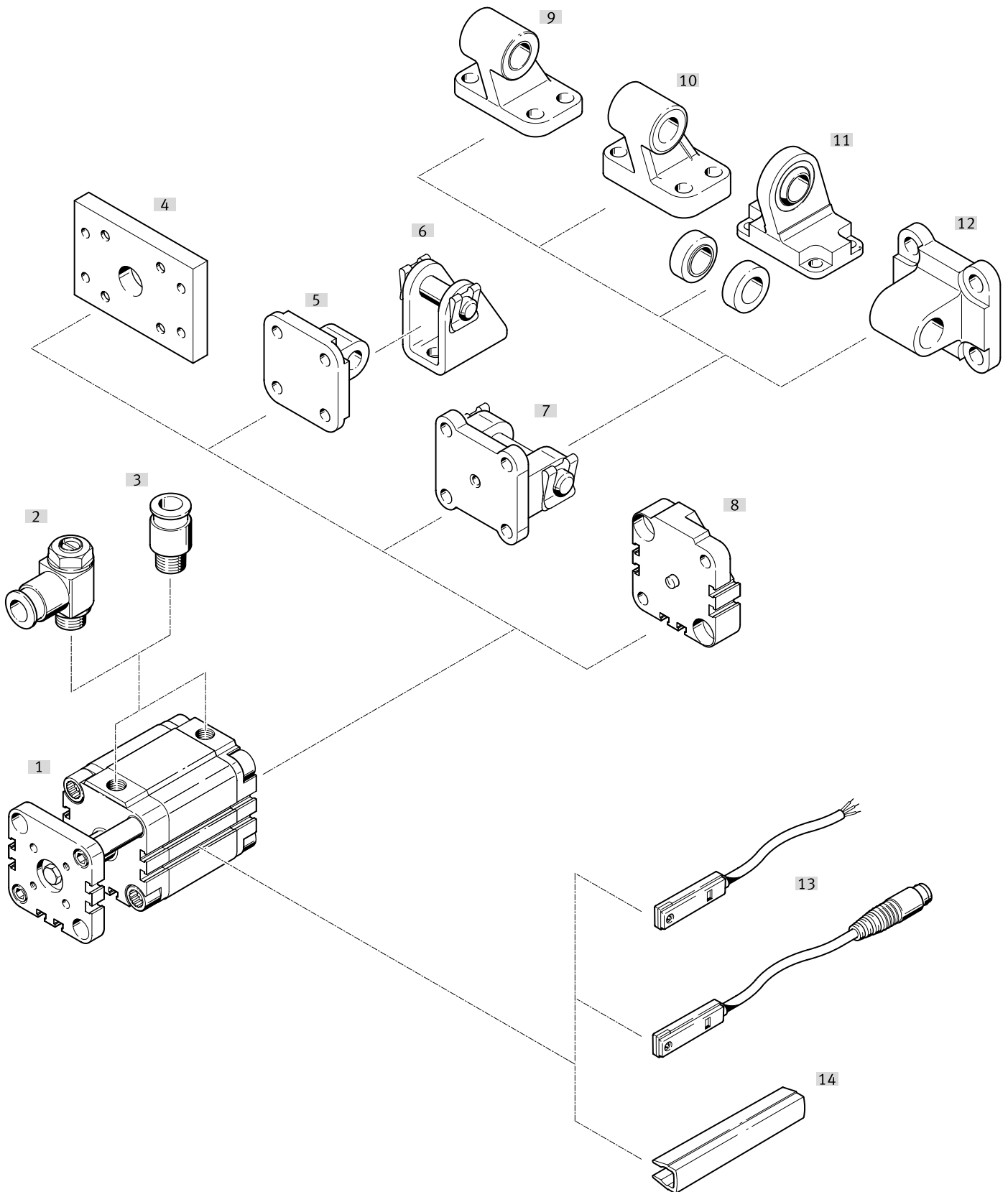
ADVUL			
Piston diameter	Stroke	Part no.	Type
12 mm	1 ... 200 mm	156200	ADVUL-12- -P-A
	5 mm	156844	ADVUL-12-5-P-A
	10 mm	156845	ADVUL-12-10-P-A
	15 mm	156846	ADVUL-12-15-P-A
	20 mm	156847	ADVUL-12-20-P-A
	25 mm	156848	ADVUL-12-25-P-A
	30 mm	156849	ADVUL-12-30-P-A
	40 mm	156850	ADVUL-12-40-P-A
16 mm	1 ... 200 mm	156201	ADVUL-16- -P-A
	5 mm	156851	ADVUL-16-5-P-A
	10 mm	156852	ADVUL-16-10-P-A
	15 mm	156853	ADVUL-16-15-P-A
	20 mm	156854	ADVUL-16-20-P-A
	25 mm	156855	ADVUL-16-25-P-A
	30 mm	156856	ADVUL-16-30-P-A
	40 mm	156857	ADVUL-16-40-P-A
20 mm	1 ... 200 mm	156202	ADVUL-20- -P-A
	5 mm	156858	ADVUL-20-5-P-A
	10 mm	156859	ADVUL-20-10-P-A
	15 mm	156860	ADVUL-20-15-P-A
	20 mm	156861	ADVUL-20-20-P-A
	25 mm	156862	ADVUL-20-25-P-A
	30 mm	156863	ADVUL-20-30-P-A
	40 mm	156864	ADVUL-20-40-P-A
	50 mm	156865	ADVUL-20-50-P-A
25 mm	1 ... 200 mm	156203	ADVUL-25- -P-A
	5 mm	156866	ADVUL-25-5-P-A
	10 mm	156867	ADVUL-25-10-P-A
	15 mm	156868	ADVUL-25-15-P-A
	20 mm	156869	ADVUL-25-20-P-A
	25 mm	156870	ADVUL-25-25-P-A
	30 mm	156871	ADVUL-25-30-P-A
	40 mm	156872	ADVUL-25-40-P-A
	50 mm	156873	ADVUL-25-50-P-A
32 mm	1 ... 300 mm	156204	ADVUL-32- -P-A
	5 mm	156874	ADVUL-32-5-P-A
	10 mm	156875	ADVUL-32-10-P-A
	15 mm	156876	ADVUL-32-15-P-A
	20 mm	156877	ADVUL-32-20-P-A
	25 mm	156878	ADVUL-32-25-P-A
	30 mm	156879	ADVUL-32-30-P-A
	40 mm	156880	ADVUL-32-40-P-A
	50 mm	156881	ADVUL-32-50-P-A
	60 mm	156882	ADVUL-32-60-P-A
40 mm	1 ... 300 mm	156205	ADVUL-40- -P-A
	5 mm	156884	ADVUL-40-5-P-A
	10 mm	156885	ADVUL-40-10-P-A
	15 mm	156886	ADVUL-40-15-P-A
	20 mm	156887	ADVUL-40-20-P-A
	25 mm	156888	ADVUL-40-25-P-A
	30 mm	156889	ADVUL-40-30-P-A
	40 mm	156890	ADVUL-40-40-P-A
	50 mm	156891	ADVUL-40-50-P-A
	60 mm	156892	ADVUL-40-60-P-A
50 mm	1 ... 300 mm	156206	ADVUL-50- -P-A
	10 mm	156894	ADVUL-50-10-P-A
	15 mm	156895	ADVUL-50-15-P-A
	20 mm	156896	ADVUL-50-20-P-A
	25 mm	156897	ADVUL-50-25-P-A

Ordering data

ADVUL			
Piston diameter	Stroke	Part no.	Type
50 mm	30 mm	156898	ADVUL-50-30-P-A
	40 mm	156899	ADVUL-50-40-P-A
	50 mm	156900	ADVUL-50-50-P-A
	60 mm	156901	ADVUL-50-60-P-A
	80 mm	156902	ADVUL-50-80-P-A
63 mm	1 ... 300 mm	156207	ADVUL-63- -P-A
	10 mm	156903	ADVUL-63-10-P-A
	15 mm	156904	ADVUL-63-15-P-A
	20 mm	156905	ADVUL-63-20-P-A
	25 mm	156906	ADVUL-63-25-P-A
	30 mm	156907	ADVUL-63-30-P-A
	40 mm	156908	ADVUL-63-40-P-A
	50 mm	156909	ADVUL-63-50-P-A
	60 mm	156910	ADVUL-63-60-P-A
80 mm	156911	ADVUL-63-80-P-A	
80 mm	1 ... 400 mm	156208	ADVUL-80- -P-A
	10 mm	156912	ADVUL-80-10-P-A
	15 mm	156913	ADVUL-80-15-P-A
	20 mm	156914	ADVUL-80-20-P-A
	25 mm	156915	ADVUL-80-25-P-A
	30 mm	156916	ADVUL-80-30-P-A
	40 mm	156917	ADVUL-80-40-P-A
	50 mm	156918	ADVUL-80-50-P-A
	60 mm	156919	ADVUL-80-60-P-A
80 mm	156920	ADVUL-80-80-P-A	
100 mm	1 ... 400 mm	156209	ADVUL-100- -P-A
	10 mm	156921	ADVUL-100-10-P-A
	15 mm	156922	ADVUL-100-15-P-A
	20 mm	156923	ADVUL-100-20-P-A
	25 mm	156924	ADVUL-100-25-P-A
	30 mm	156925	ADVUL-100-30-P-A
	40 mm	156926	ADVUL-100-40-P-A
	50 mm	156927	ADVUL-100-50-P-A
	60 mm	156928	ADVUL-100-60-P-A
80 mm	156929	ADVUL-100-80-P-A	

Peripherals

Peripherals overview

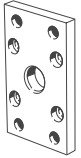


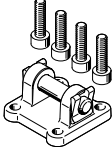
Accessories			→ Link
Type/order code	Description		
[1] Compact cylinders ADVUL	Pneumatic drive		advul
[2] One-way flow control valve GRLA	For controlling speed		grla

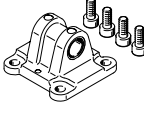
Peripherals

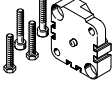
Accessories		→ Link
Type/order code	Description	
[3] Push-in fitting QS	For connecting compressed air tubing with standard O.D.	↗ qs
[4] Flange mounting FUA	For end caps	15
[5] Swivel flange SUA for Ø 12 ... 25	For end caps	15
[6] Clevis foot LBN	–	16
[7] Swivel flange SUA for Ø 32 ... 100	For end caps	15
[8] Mounting kit DPVU	For connecting two cylinders with the same piston diameter to form a multi-position cylinder	15
[9] Clevis foot LN	–	16
[10] Clevis foot LNG	–	16
[11] Clevis foot LSN	With spherical bearing	16
[12] Swivel flange SNCL	–	15
[13] Proximity switch SME-8	Can be integrated into the cylinder profile barrel	16
[13] Proximity switch SMT-8	Can be integrated into the cylinder profile barrel	16
[14] Slot cover ABP-5-S	For protecting the sensor cables and the sensor slots from contamination	17

Accessories

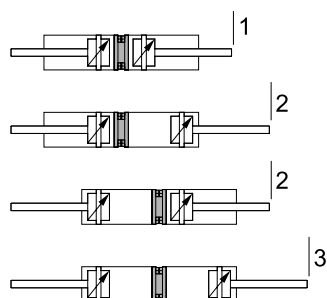
Flange mounting FUA					
	Description	Material mounting	Product weight	Part no.	Type
	For diameter 12/16	Wrought aluminium alloy	48 g	157299	FUA-12/16
	For Ø 20		77 g	157300	FUA-20
	For Ø 25		91 g	157301	FUA-25
	For Ø 32		290 g	157302	FUA-32
	For Ø 40		449 g	157303	FUA-40
	For Ø 50		658 g	157304	FUA-50
	For Ø 63		1,277 g	157305	FUA-63
	For Ø 80		1,910 g	157306	FUA-80
	For Ø 100		2,716 g	157307	FUA-100

Swivel flange SUA					
	Description	Material mounting	Product weight	Part no.	Type
	For diameter 12/16	Wrought aluminium alloy	22 g	157319	SUA-12/16
	For Ø 20		41 g	157320	SUA-20
	For Ø 25		45 g	157321	SUA-25
	For Ø 32		138 g	157322	SUA-32
	For Ø 40		199 g	157323	SUA-40
	For Ø 50		288 g	157324	SUA-50
	For Ø 63		531 g	157325	SUA-63
	For Ø 80		764 g	157326	SUA-80
	For Ø 100		1,285 g	157327	SUA-100

Swivel flange SNCL					
	Description	Material mounting	Product weight	Part no.	Type
	For Ø 32	Die-cast aluminium	71 g	★ 174404	SNCL-32
	For Ø 40		95 g	★ 174405	SNCL-40
	For Ø 50		158 g	★ 174406	SNCL-50
	For Ø 63		225 g	★ 174407	SNCL-63
	For Ø 80		436 g	★ 174408	SNCL-80
	For Ø 100		606 g	★ 174409	SNCL-100

Mounting kit DPVU					
	Description	Material flange	Product weight	Part no.	Type
	For diameter 12/16	Wrought aluminium alloy	35 g	161194	DPVU-12/16
	For Ø 20		54 g	161195	DPVU-20
	For Ø 25		65 g	161196	DPVU-25
	For Ø 32		111 g	161197	DPVU-32
	For Ø 40		155 g	161198	DPVU-40
	For Ø 50		212 g	161199	DPVU-50
	For Ø 63		372 g	161200	DPVU-63
	For Ø 80		580 g	161201	DPVU-80
	For Ø 100		935 g	161202	DPVU-100

Connecting two cylinders with the same piston diameter to form a three- or four-position cylinder



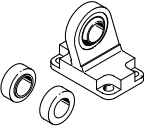
A multi-position cylinder consists of two separate cylinders whose piston rods extend in opposite directions. This means that, depending on actuation and stroke configuration, this type of cylinder can assume up to four positions. In each case the cylinder travels precisely to a stop.

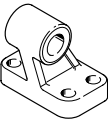
Note that when one end of the piston rod is fixed, the cylinder barrel executes the movement. This means that the connections to the cylinder must be flexible.

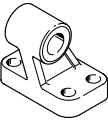
To realise 3 positions, two cylinders with the same stroke length must be connected together

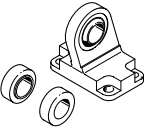
To realise 4 positions, two cylinders with different stroke lengths must be connected together

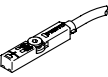
Accessories

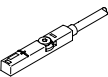
Clevis foot LBN					
	Description	Material mounting	Product weight	Part no.	Type
	For diameter 12/16	Steel, Galvanised	40 g	★ 6058	LBN-12/16
	For diameter 20/25		84 g	★ 6059	LBN-20/25

Clevis foot LN					
	Description	Material mounting	Product weight	Part no.	Type
	For Ø 32	Tempered steel	149 g	5147	LN-32
	For Ø 40		192 g	5148	LN-40
	For Ø 50		323 g	5149	LN-50
	For Ø 63	Spheroidal graphite cast iron	545 g	5150	LN-63
	For Ø 80		877 g	5151	LN-80
	For Ø 100		1,234 g	5152	LN-100

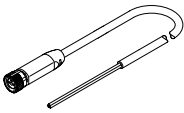
Clevis foot LNG					
	Description	Material mounting	Product weight	Part no.	Type
	For Ø 32	Tempered steel	133 g	★ 33890	LNG-32
	For Ø 40		161 g	★ 33891	LNG-40
	For Ø 50		281 g	★ 33892	LNG-50
	For Ø 63	Spheroidal graphite cast iron	486 g	★ 33893	LNG-63
	For Ø 80		805 g	★ 33894	LNG-80
	For Ø 100		1,141 g	★ 33895	LNG-100

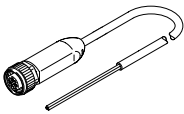
Clevis foot LSN					
	Description	Material mounting	Product weight	Part no.	Type
	For Ø 32	High-alloy steel	162 g	5561	LSN-32
	For Ø 40		219 g	5562	LSN-40
	For Ø 50		366 g	5563	LSN-50
	For Ø 63	Spheroidal graphite cast iron	471 g	5564	LSN-63
	For Ø 80		753 g	5565	LSN-80
	For Ø 100		1,169 g	5566	LSN-100

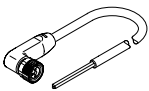
Proximity switch SMT for T-slot, magneto-resistive Link smt						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire NPN N/O contact	Open end	2.5 m	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE
			Plug M8, A-coded	0.3 m	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D
		3-wire PNP N/C contact	Open end	7.5 m	574340	SMT-8M-A-PO-24V-E-7,5-OE
			3-wire PNP N/O contact	2.5 m	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		Plug M8, A-coded		0.3 m	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
		Plug M12, A-coded	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12		

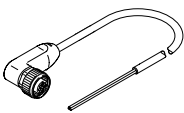
Proximity switch SME for T-slot, magnetic, reed Link sme						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire N/C contact	Open end	7.5 m	546799	SME-8M-DO-24V-K-7,5-OE
				2.5 m	543862	SME-8M-DS-24V-K-2,5-OE
		3-wire N/O contact	5 m	543863	SME-8M-DS-24V-K-5,0-OE	
			Plug M8, A-coded	0.3 m	543861	SME-8M-DS-24V-K-0,3-M8D
		2-wire PNP N/O contact	Open end	2.5 m	543872	SME-8M-ZS-24V-K-2,5-OE

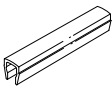
Accessories

Connecting cables NEBA, straight, M8 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	★ 8078223	NEBA-M8G3-U-2.5-N-LE3
				5 m	★ 8078224	NEBA-M8G3-U-5-N-LE3

Connecting cables NEBA, straight, M12 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	2.5 m	8078236	NEBA-M12G5-U-2.5-N-LE3
				5 m	8078237	NEBA-M12G5-U-5-N-LE3

Connecting cables NEBA, angled, M8 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	★ 8078230	NEBA-M8W3-U-2.5-N-LE3
				5 m	★ 8078231	NEBA-M8W3-U-5-N-LE3

Connecting cables NEBA, angled, M12 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	2.5 m	8078245	NEBA-M12W5-U-2.5-N-LE3
				5 m	8078246	NEBA-M12W5-U-5-N-LE3

Slot cover ABP for T-slot					
	Description	Packaging quantity [pieces]	Part no.	Type	
	Length 0.5 m, Inserted from above	2	151680	ABP-5-S	