

# ISO 21287 CYLINDER SERIES LINER



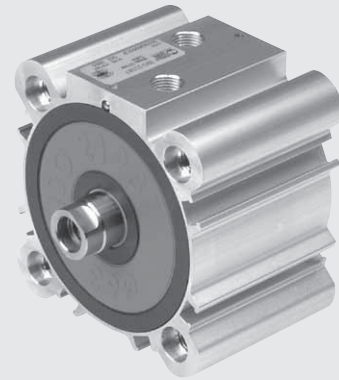
Compact cylinder to ISO 21287, LINER series, available in different versions to meet all possible requirements:

- With or without magnet
- Double acting, single or through piston rod
- Double acting, perforated through piston rod
- Single acting, extended, retracted or through piston rod
- Single acting, perforated through rod
- Double acting anti-rotating version and double acting through piston rod
- Polyurethane or FKM/FPM gaskets (for high temperatures) also available
- Dimensions and centre distances to ISO 21287.

The heads have been eliminated for ease of installation, improved sturdiness and precision. The metal lining is designed to withstand heavy-duty work, tensile stress and impact. Technopolymer parts can withstand dynamic and pneumatic thrust. The lining virtually acts as a "bearing" to which most of user accessories are attached.

The wide range of anchors provide numerous fixing points.

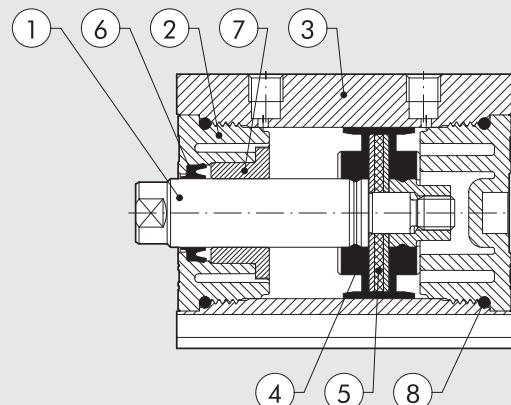
Retractable magnetic limit switches can be mounted to identify the position in the cylinder grooves.



TECHNICAL DATA		POLYURETHANE				FKM/FPM			
Max operating pressure	bar	10							
	MPa	1							
	psi	145							
Temperature range	°C	-10 to +60 (Ø 20 to 63)				-10 to +150 (non-magnetic cylinders)			
		-10 to +80 (Ø 80 to 100)							
Fluid		Unlubricated air. Lubrication, if used, must be continuous							
Bores	mm	20; 25; 32; 40; 50; 63; 80; 100 with ISO 21287 fixing centre distances							
Design		With profile							
Versions		Double-acting, Double-acting through-rod, Single-acting extended or retracted rod, Single-acting through-rod, Double-acting through-rod perforated, Double-acting non-rotating, Double-acting through-rod non-rotating, No stick-slip							
		All versions are available with male or female piston rod.							
Magnet for sensors		All versions come complete with magnet. Supplied without magnet on request.							
Inrush pressure		Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100
	for single piston rod	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.4
	for through-rod	0.8	0.8	0.6	0.4	0.4	0.4	0.4	0.4
Forces generated at 6 bar thrust/retraction		See cylinder "General technical data" at the beginning of the chapter							
Weights		See cylinder "General technical data" at the beginning of the chapter							
Notes		For correct operation, it is advisable to use 50 µm filtered air							
		<b>For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air</b>							

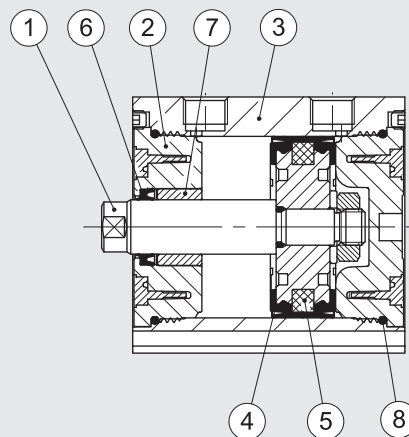
## COMPONENTS Ø 20-25

- ① PISTON ROD: stainless steel, thick chromed
- ② END CAP: high-performance technopolymer
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane or FKM/FPM (for high temperature)
- ⑤ MAGNET: plasteodimio
- ⑥ PISTON ROD GASKET: polyurethane or FKM/FPM (for high temperature)
- ⑦ GUIDE BUSHING: sintered bronze
- ⑧ STATIC O-RINGS: NBR or FKM/FPM (for high temperature)



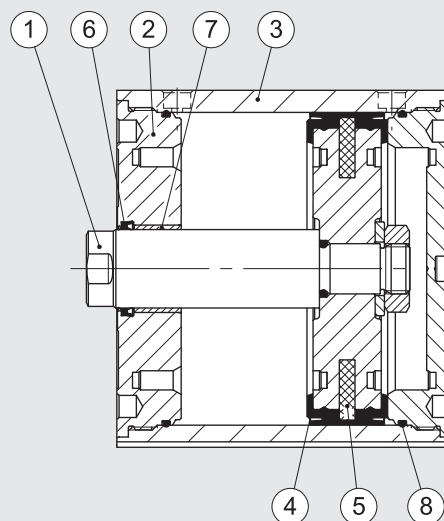
## COMPONENTS Ø 32-63

- ① PISTON ROD: C45 steel or stainless steel, thick chromed
- ② END CAP: high-performance technopolymer
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane or FKM/FPM (for high temperature)
- ⑤ MAGNET: Ø 32 plastoneodimio - Ø 40 to 63 plastoferrite
- ⑥ PISTON ROD GASKET: polyurethane or FKM/FPM (for high temperature)
- ⑦ GUIDE BUSHING: sintered bronze
- ⑧ STATIC O-RINGS: NBR or FKM/FPM (for high temperature)

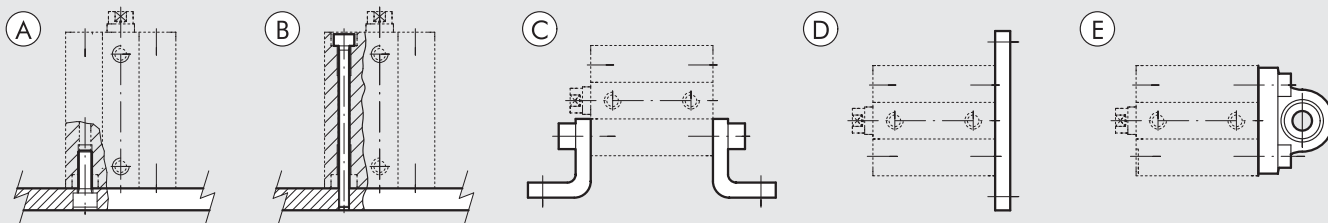


## COMPONENTS Ø 80-100

- ① PISTON ROD: C45 steel or stainless steel, thick chromed
- ② END CAP: anodized aluminium alloy
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane or FKM/FPM (for high temperature)
- ⑤ MAGNET: plastoferrite
- ⑥ PISTON ROD GASKET: polyurethane or FKM/FPM (for high temperature)
- ⑦ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑧ STATIC O-RINGS: NBR or FKM/FPM (for high temperature)



## FIXING OPTIONS



- Ⓐ Fixing to structural work with a through screw, using the thread in the heads
- Ⓑ Direct fixing from above using long through screws or tie rods. Non-magnetic stainless steel must be used (e.g. AISI 304)
- Ⓒ Fixing with feet; the ordering code covers the supply of one foot and two screws for fixing to the cylinder
- Ⓓ Fixing with a flange mounted on the front or rear head; the ordering code covers the supply of a flange and four screws for fixing to the cylinder
- Ⓔ Fixing with articulated hinge to compensate for slight system misalignment and turn freely  
The ordering code covers the supply of a hinge and four screws for fixing to the cylinder.

**FORCE OF SPRINGS IN SINGLE-ACTING CYLINDERS (THEORETICAL)**

Bore	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100
Min. load (N)	8.40	13.90	19.00	24.80	36.30	50.20	77.60	131.80
Max. load (N)	20.90	33.20	35.90	53.70	62.20	82.30	118.90	183.30

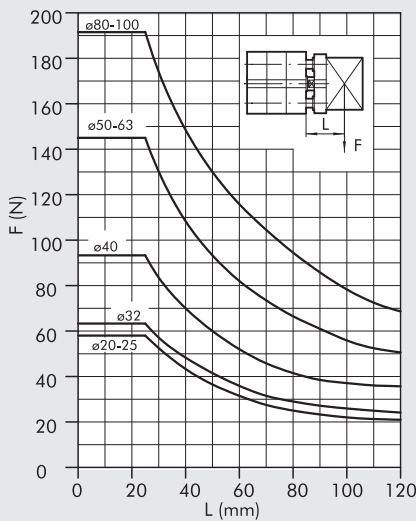
**STROKES FOR COMPACT CYLINDERS ISO 21287**

Standard stroke for single-acting cylinders	Standard stroke for other types	Max. recommended strokes for other types	Max. recommended strokes for non-rotating cylinders	Max recommended strokes for through-rod perforated
Ø 20 to 100 → from 1 to 25 mm	Ø 20 to 25 → from 1 to 60 mm Ø 32 to 100 → from 1 to 80 mm	Ø 20 to 25 → 300 mm Ø 32 to 63 → 400 mm Ø 80 to 100 → 500 mm	Ø 20 to 63 → 120 mm Ø 80 to 100 → 150 mm	Ø 20 to 40 → from 1 to 80 mm Ø 50 to 63 → from 1 to 100 mm Ø 80 to 100 → from 1 to 160 mm

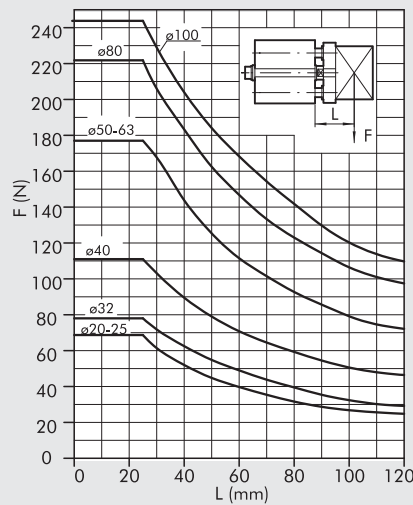
Maximum recommended strokes. Higher values can create operating problems

**MAXIMUM LOADS FOR NON-ROTATING VERSION**

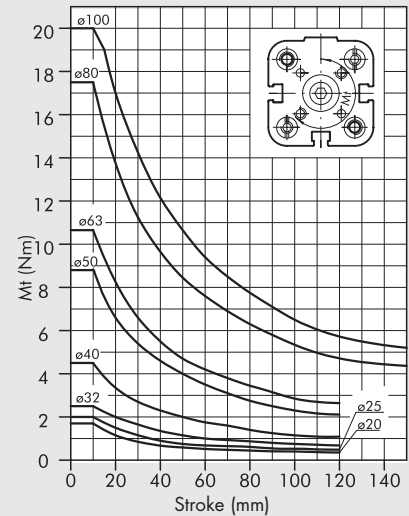
TRANSVERSAL FORCE FOR NON-ROTATING



TRANSVERSAL FORCE FOR NON-ROTATING THROUGH-ROD

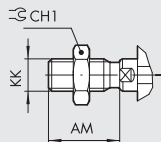


TORQUE DEPENDING ON STROKE



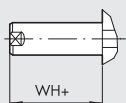
**DIMENSIONS OF DOUBLE-ACTING Ø 20 to 50 AND SINGLE-ACTING Ø 20 to 50**

SE-DE MALE PISTON ROD

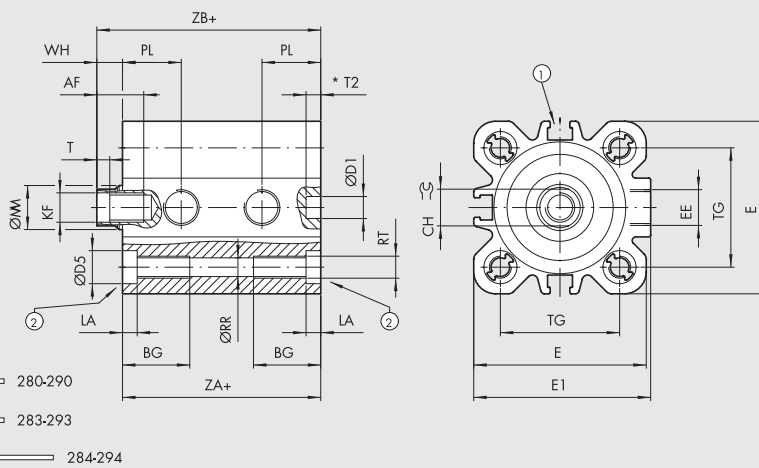
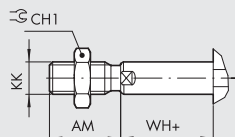


- + = ADD THE STROKE
- \* = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS

SE EXTENDED PISTON ROD



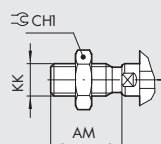
SE MALE EXTENDED PISTON ROD



Ø	AF	AM	BG	CH	CH1	ØD1 <sup>H9</sup>	ØD5	E	E1	EE	KF	KK	LA	ØMM	PL	ØRR	RT	T	T2	TG <sup>+0.2</sup>	WH	ZA <sup>+0.3</sup>	ZB
20	14	16	17.5	8	13	6	7.5	35.5	36.5	M5	M6	M8	4.2	10	12	4.2	M5	2.5	3	22	6	37	43
25	14	16	17.5	8	13	6	7.5	39.5	40	M5	M6	M8	4.2	10	13	4.2	M5	2.5	3.5	26	6	39	45
32	16.5	19	21.5	10	17	6	9	47	48.2	G1/8	M8	M10x1.25	4	12	16	5.1	M6	3.5	4	32.5	7	44	51
40	16.5	19	21.5	10	17	6	9	55.5	56.5	G1/8	M8	M10x1.25	4	12	16	5.1	M6	3.5	4	38	7	45	52
50	17	22	21	13	19	6	10.5	66.5	67.8	G1/8	M10	M12x1.25	4.5	16	15.5	6.8	M8	4	3	46.5	8	45	53

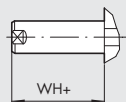
**DIMENSIONS OF DOUBLE-ACTING Ø 63 to 100 AND SINGLE-ACTING Ø 63 to 100**

SE-DE MALE PISTON ROD

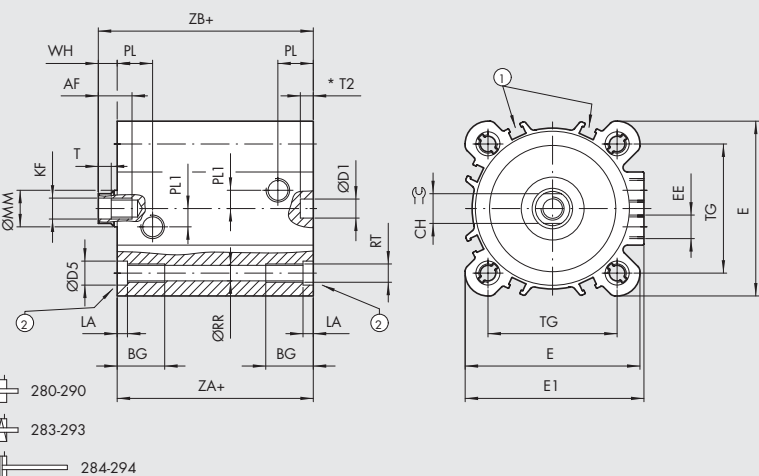
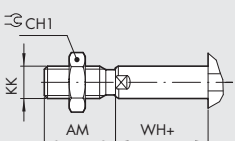


- + = ADD THE STROKE
- \* = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS

SE EXTENDED PISTON ROD



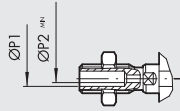
SE MALE EXTENDED PISTON ROD



Ø	AF	AM	BG	CH	CH1	ØD1 <sup>H9</sup>	ØD5	E	E1	EE	KF	KK	LA	ØMM	PL1	PL	ØRR	RT	T	T2	TG <sup>+0.2</sup>	WH	ZA <sup>+0.4</sup>	ZB
63	17	22	21	13	19	8	10.5	76.5	78.3	G1/8	M10	M12x1.25	4.5	16	8	15.5	6.8	M8	4	3.5	56.5	8	49	57
80	22	28	22.5	17	24	8	14	95.5	95.5	G1/8	M12	M16x1.5	5	20	14	16.5	8.5	M10	5	4	72	10	54	64
100	24	28	25.5	22	30	8	14	114	114	G1/8	M12	M16x1.5	5	25	19	19.2	8.5	M10	5	4	89	10	67	77

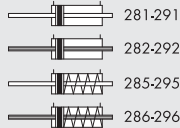
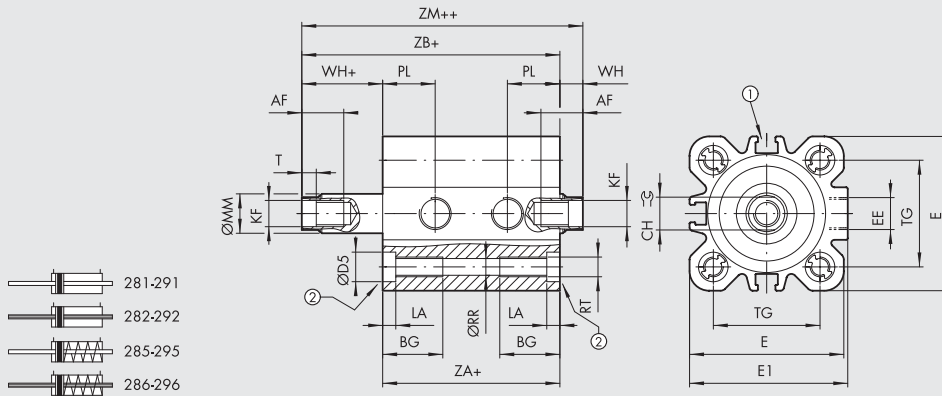
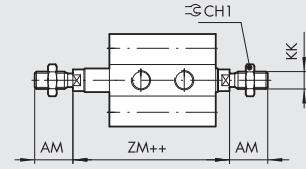
**DIMENSIONS OF THROUGH-ROD Ø 20 to 50**

SE-DE MALE PERFORATED THROUGH-ROD



- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS

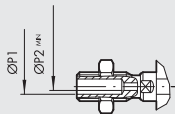
SE-DE MALE PISTON ROD



Ø	AF	AM	BG	CH	CH1	ØD5	E	E1	EE	KF	KK	LA	ØMM	ØP1	ØP2	PL	ØRR	RT	T	TG <sup>+0.2</sup>	WH	ZA <sup>+0.3</sup>	ZB	ZM
20	14	16	17.5	8	13	7.5	35.5	36.5	M5	M6	M8	4.2	10	3	1.5	12	4.2	M5	2.5	22	6	37	43	49
25	14	16	17.5	8	13	7.5	39.5	40	M5	M6	M8	4.2	10	3	1.5	13	4.2	M5	2.5	26	6	39	45	51
32	16.5	19	21.5	10	17	9	47	48.2	G1/8	M8	M10x1.25	4	12	4	2.5	16	5.1	M6	3.5	32.5	7	44	51	58
40	16.5	19	21.5	10	17	9	55.5	56.5	G1/8	M8	M10x1.25	4	12	4	2.5	16	5.1	M6	3.5	38	7	45	52	59
50	17	22	21	13	19	10.5	66.5	67.8	G1/8	M10	M12x1.25	4.5	16	6	4	15.5	6.8	M8	4	46.5	8	45	53	61

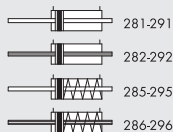
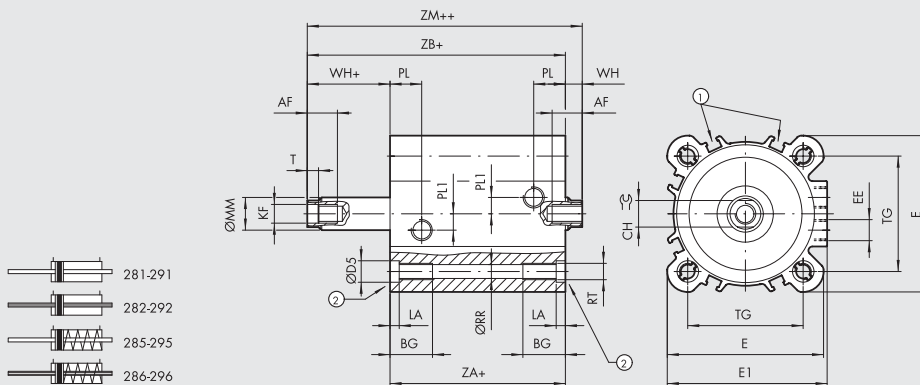
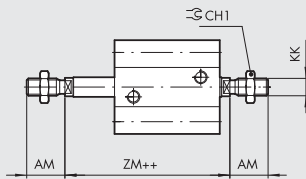
**DIMENSIONS OF THROUGH-ROD Ø 63 to 100**

SE-DE MALE PERFORATED THROUGH-ROD



- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS

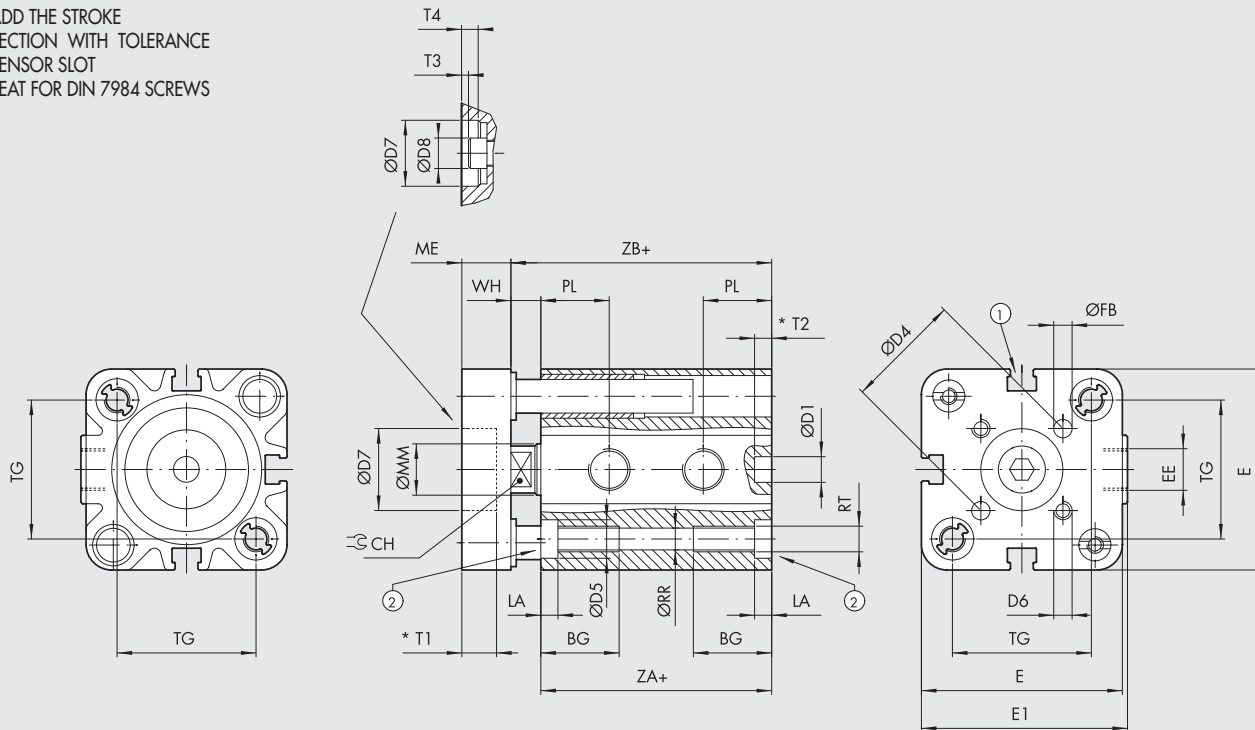
SE-DE MALE PISTON ROD



Ø	AF	AM	BG	CH	CH1	ØD5	E	E1	EE	KF	KK	LA	ØMM	ØP1	ØP2	PL1	PL	ØRR	RT	T	TG <sup>+0.2</sup>	WH	ZA <sup>+0.4</sup>	ZB	ZM
63	17	22	21	13	19	10.5	76.5	78.3	G1/8	M10	M12x1.25	4.5	16	6	4	8	15.5	6.8	M8	4	56.5	8	49	57	65
80	22	28	22.5	17	24	14	95.5	95.5	G1/8	M12	M16x1.5	5	20	G1/8	5	14	16.5	8.5	M10	5	72	10	54	64	74
100	24	28	25.5	22	30	14	114	114	G1/8	M12	M16x1.5	5	25	G1/8	6	19	19.2	8.5	M10	5	89	10	67	77	87

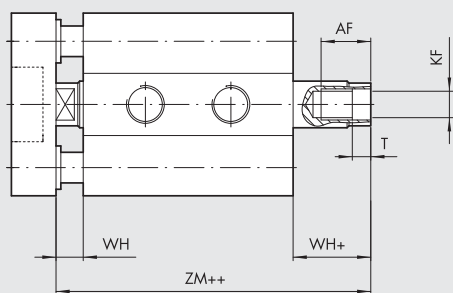
**DIMENSIONS OF NON-ROTATING Ø 20 to 50**

- + = ADD THE STROKE
- \* = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS



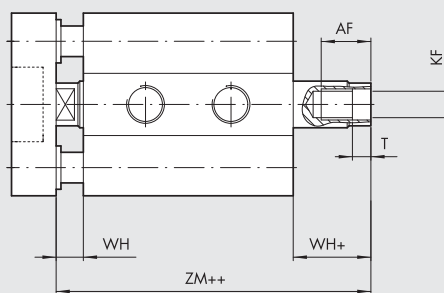
**NON-ROTATING FEMALE THROUGH-ROD**

- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE



**NON-ROTATING MALE THROUGH-ROD**

- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE

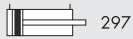
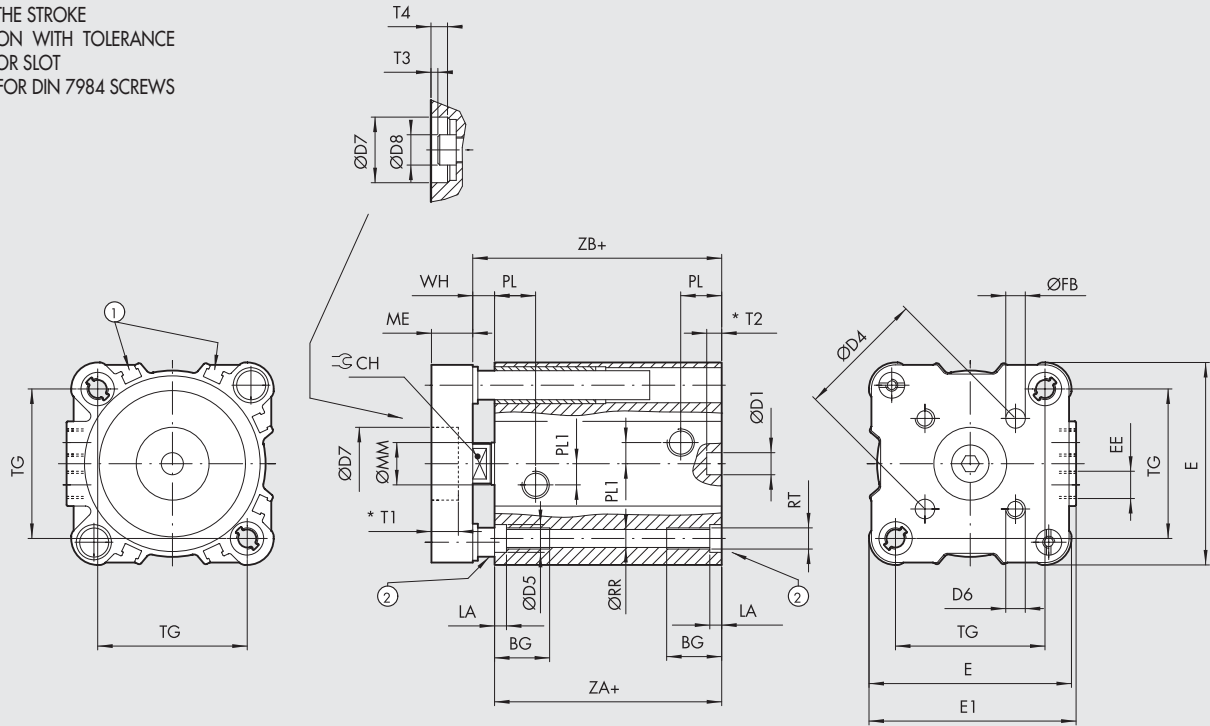


Ø	AF	AM	BG	CH	CH1	ØD1 <sup>H9</sup>	ØD4	ØD5	D6	ØD7 <sup>H9</sup>	ØD8	E	E1	EE	ØFB	KF	KK	LA	ME	ØMM	PL	ØRR	RT	T	T1	T2	T3	T4
20	14	16	17.5	8	13	6	17	7.5	M4	-	-	35.5	36.5	M5	4	M6	M8	4.2	8	10	12	4.2	M5	2.5	-	3	-	-
25	14	16	17.5	8	13	6	22	7.5	M5	14	10	39.5	40	M5	5	M6	M8	4.2	8	10	13	4.2	M5	2.5	3.5	3.5	1	3.5
32	16.5	19	21.5	10	17	6	28	9	M5	17	13	47	48.2	G1/8	5	M8	M10x1.25	4	10	12	16	5.1	M6	3.5	3.5	4	1	3.5
40	16.5	19	21.5	10	17	6	33	9	M5	17	13	55.5	56.5	G1/8	5	M8	M10x1.25	4	10	12	16	5.1	M6	3.5	3.5	4	1	3.5
50	17	22	21	13	19	6	42	10.5	M6	22	16	66.5	67.8	G1/8	6	M10	M12x1.25	4.5	12	16	15.5	6.8	M8	4	5	3	1.5	5

Ø	TG <sup>+0.2</sup>	WH	ZA <sup>+0.3</sup>	ZB	ZM
20	22	6	37	43	49
25	26	6	39	45	51
32	32.5	7	44	51	58
40	38	7	45	52	59
50	46.5	8	45	53	61

**DIMENSIONS OF NON-ROTATING Ø 63 to 100**

- + = ADD THE STROKE
- \* = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS

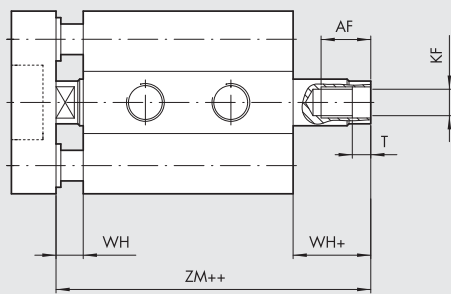


ACTUATORS

ISO 21287 CYLINDER – SERIES LINER

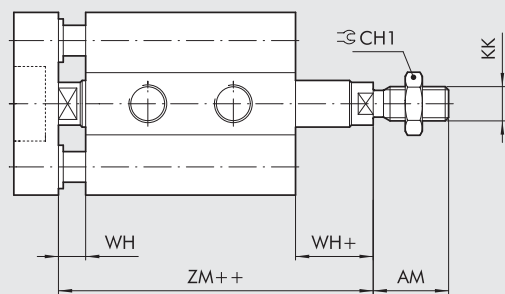
**NON-ROTATING FEMALE THROUGH-ROD**

- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE



**NON-ROTATING MALE THROUGH-ROD**

- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE



Ø	AF	AM	BG	CH	CH1	ØD1 <sup>H9</sup>	ØD4	ØD5	D6	ØD7 <sup>H9</sup>	ØD8	E	E1	EE	ØFB	KF	KK	LA	ME	ØMM	PL1	PL	ØRR	RT	T	T1	T2	T3
63	17	22	21	13	19	8	50	10.5	M6	22	16	76.5	78.3	G1/8	6	M10	M12x1.25	4.5	12	16	8	15.5	6.8	M8	4	5	3.5	1.5
80	22	28	22.5	17	24	8	65	14	M8	24	18	95.5	95.5	G1/8	8	M12	M16x1.5	5	14	20	14	16.5	8.5	M10	5	7.5	4	3.5
100	24	28	25.5	22	30	8	80	14	M10	24	18	114	114	G1/8	10	M12	M16x1.5	5	14	25	19	19.2	8.5	M10	5	7.5	4	3.5

Ø	T4	TG <sup>+0.2</sup>	WH	ZA <sub>0</sub> <sup>+0.4</sup>	ZB	ZM
63	5	56.5	8	49	57	65
80	7.5	72	10	54	64	74
100	7.5	89	10	67	77	87

## KEY TO CODE

CYL	2 8 TYPE	0	0	20 BORE	0	0 5 0 STROKE **	X MATERIAL	P GASKETS	
28	Compact cylinder ISO 21287 male piston rod	0	Double-acting	0	Magnetic	20	* C	P Polyurethane gaskets ▶ V FKM/FPM gaskets	
		1	Double-acting through-rod	<input type="checkbox"/> S	Non-magnetic	25	C45 piston rod chromium-plated		
29	Compact cylinder ISO 21287 female piston rod	2	Double-acting through-rod perforated	▲ G	No stick-slip	32		▷ X	Stainless steel piston rod and nut
		● 3	Single-acting retracting piston rod	◆	100	◁ A		C45 chromed rod, aluminium piston	
		● 4	Single-acting extended piston rod	○ Z	Stainless steel piston rod and nut	aluminium piston			
		● 5	Single-acting through-rod						
		● 6	Single-acting through piston rod perforated						
▼ 7	Double-acting non-rotating								
	A	Double-acting through-rod non-rotating							

\*\* For the maximum suppliabe stroke, see page A1.75

- Can also be used as double-acting with spring return
- ▼ For versions 29 only (female piston rod)
- ▲ For  $\varnothing$  12 to 25 the standard version (0 or S) it's already No stick-slip  
For  $\varnothing$  20 to 100 version with gaskets in FKM / FPM (0 or S) is already "No stick-slip"
- For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only
- ◆ In the code of cylinder with letter in fourth position  $\varnothing$  100 becomes A1
- ▶ Only for standard double acting and standard through rod double acting version (for  $\varnothing$ 20 and  $\varnothing$ 25 only "non-magnetic" version provided)
- Compulsory for  $\varnothing$  20 and  $\varnothing$  25 version Z
- \* Only for  $\varnothing$  32 to 63 P version (Polyurethane gaskets)
- ▷ Only for  $\varnothing$  20 to 63 P version (Polyurethane gaskets)
- ◁ Only for  $\varnothing$  32 to 100 V version (FKM/FPM gaskets) and for  $\varnothing$  80 and 100 P version (Polyurethane gaskets)
- Only for  $\varnothing$  20 to 100 V version (FKM/FPM gaskets) and for  $\varnothing$  80 and 100 P version (Polyurethane gaskets)

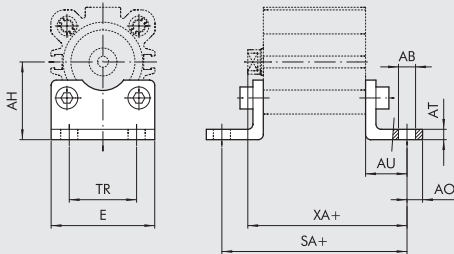
## NOTES



# ACCESSORIES FOR ISO 21287 CYLINDERS: FIXING

## FOOT - MODEL A

+ = ADD THE STROKE



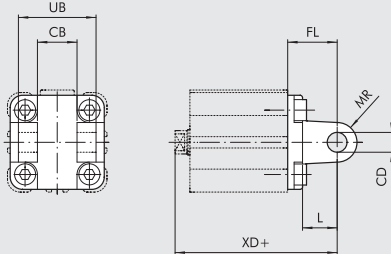
Code	Ø	ØAB	AH	AO	AT	AU	E	SA	TR	XA	Weight [g]
W0950206001	20	6.6	27	6	4	16	36	69	22	59	46
W0950256001	25	6.6	30*	6	4	16	40	71	26	61	52
W0950322001	32	7	32*	11*	4	24*	45	92*	32	75*	76
W0950402001	40	9	36*	15*	4	28*	52	101*	36	80*	100
W0950502001	50	9	45	15*	5	32*	65	109*	45	85*	162
W0950632001	63	9	50	15*	5	32*	75	113*	50	89*	266
W0950802001	80	12	63	20*	6	41*	95	136*	63	105*	456
W0951002001	100	14	71*	25*	6	41*	115	149*	75	118*	572

Note: Individually packed with 2 screws

\* **IMPORTANT:** Values not to ISO 21287. Cylinder pins to ISO 15552 are used.

## FEMALE HINGE-MODEL B

+ = ADD THE STROKE

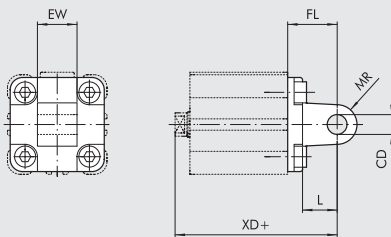


Code	Ø	CB <sup>H14</sup>	ØCD <sup>H9</sup>	FL	L	MR	UB <sup>H14</sup>	XD	Weight [g]
W0950322003	32	26	10	22	12	10	45	73	112
W0950402003	40	28	12	25	15	12	52	77	159
W0950502003	50	32	12	27	15	12	60	80	250
W0950632003	63	40	16	32	20	16	70	89	390
W0950802003	80	50	16	36	20	16	90	100	668
W0951002003	100	60	20	41	25	20	110	118	1047

Note: Supplied with 4 screws, 4 washers, 2 snap-rings and 1 pin

## MALE HINGE-MODEL BA

+ = ADD THE STROKE

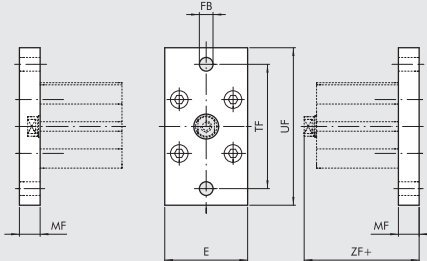


Code	Ø	ØCD <sup>H9</sup>	EW	FL	L	MR	XD	Weight [g]
W0950206004	20	8	16	20	12	8	63	44
W0950256004	25	8	16	20	12	8	65	48
W0950322004	32	10	26	22	12	11	73	94
W0950402004	40	12	28	25	15	13	77	124
W0950502004	50	12	32	27	15	13	80	220
W0950632004	63	16	40	32	20	17	89	316
W0950802004	80	16	50	36	20	17	100	578
W0951002004	100	20	60	41	25	21	118	850

Note: Supplied with 4 screws, 4 washers

## FLANGE Ø 20 to 25 - MODEL C (FRONT AND REAR)

+ = ADD THE STROKE



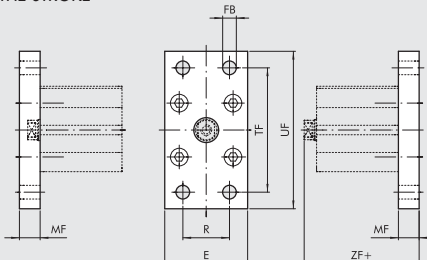
Code	Ø	E	ØFB	MF	TF	UF	ZF	Weight [g]
W0950206002	20	36	6.6	10*	55	70	53*	184
W0950256002	25	40	6.6	10*	60	76	55*	226

Note: Supplied with 4 screws

\* **IMPORTANT:** Non ISO 21287 norm fixing distance

## FLANGE Ø 32 to 100 - MODEL C (FRONT AND REAR)

+ = ADD THE STROKE

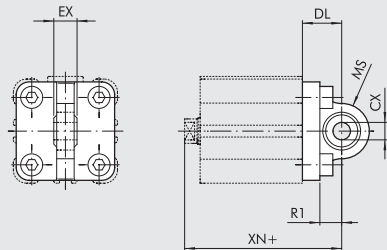


Code	Ø	E	ØFB	MF	R	TF	UF	ZF	Weight [g]
W0950322002	32	50	7	10	32	64	80	61	246
W0950402002	40	55	9	10	36	72	90	62	290
W0950502002	50	65	9	12	45	90	110	65	522
W0950632002	63	75	9	12	50	100	120	69	670
W0950802002	80	95	12	16	63	126	153	80	1420
W0951002002	100	115	14	16	75	150	178	93	2040

Note: Supplied with 4 screws

**ARTICULATED MALE HINGE - MODEL BAS**

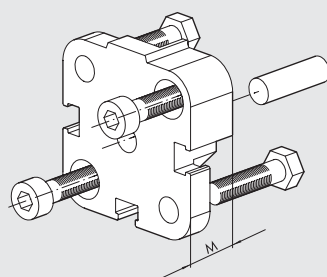
+ = ADD THE STROKE



Code	Ø	ØCX	DL	EX	MS	R1	XN	Weight [g]
W0950322006	32	10	22	14	16	12	73	106
W0950402006	40	12	25	16	18	15	77	142
W0950502006	50	12	27	16	21	19	80	236
W0950632006	63	16	32	21	23	20	89	336
W0950802006	80	16	36	21	28	24	100	572
W0951002006	100	20	41	25	30	25	118	840

Note: Supplied with 4 screws, 4 washers

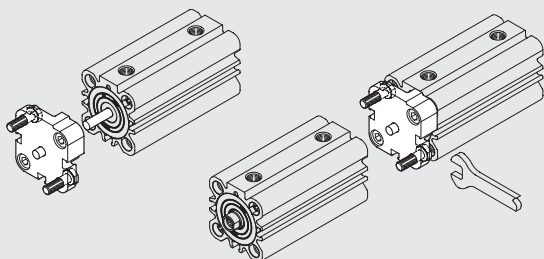
**FLANGE FOR OPPOSITE CYLINDERS**



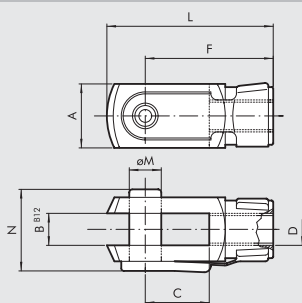
Code	Ø	M	Weight [g]
0950203060	20	12.5	45
0950253060	25	13	57
0950323060	32	14.5	88
0950403061	40	14.5	106
0950503061	50	14.5	158
0950633061	63	14.5	258
0950803061	80	16.5	452
0951003061	100	19.5	801

Note: Supplied complete with 1 pin, 4 screws

**ASSEMBLING OPPOSING CYLINDERS**



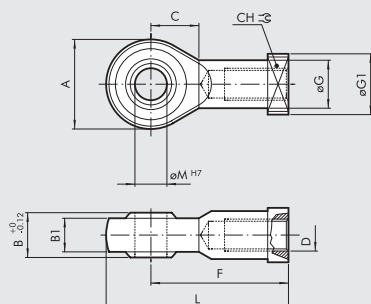
**FORK - MODEL GK-M**



Code	Ø	A	B	C	D	F	L	øM	N	Weight [g]
W0950200020	20	16	8	16	M8	32	42	8	22	48
W0950200025	25	16	8	16	M8	32	42	8	22	48
W0950322020	32	20	10	20	M10x1.25	40	52	10	26	92
W0950322025	40	20	10	20	M10x1.25	40	52	10	26	92
W0950402020	50	24	12	24	M12x1.25	48	62	12	32	148
W0950402025	63	24	12	24	M12x1.25	48	62	12	32	148
W0950502020	80	32	16	32	M16x1.5	64	83	16	40	340
W0950502025	100	32	16	32	M16x1.5	64	83	16	40	340

Note: Individually packed

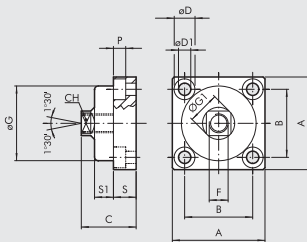
**ROD EYE - MODEL GA-M**



Code	Ø	A	B	B1	C	CH	D	F	øG	øG1	L	øM	Weight [g]
W0950200025	20	24	12	9	13	14	M8	36	12.5	16	48	8	50
W0950200025	25	24	12	9	13	14	M8	36	12.5	16	48	8	50
W0950322025	32	28	14	10.5	15	17	M10x1.25	43	15	19	57	10	78
W0950322025	40	28	14	10.5	15	17	M10x1.25	43	15	19	57	10	78
W0950402025	50	32	16	12	17	19	M12x1.25	50	17.5	22	66	12	116
W0950402025	63	32	16	12	17	19	M12x1.25	50	17.5	22	66	12	116
W0950502025	80	42	21	15	23	22	M16x1.5	64	22	27	85	16	226
W0950502025	100	42	21	15	23	22	M16x1.5	64	22	27	85	16	226

Note: Individually packed

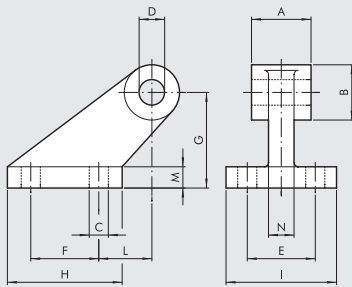
**COMPENSATION JOINT - MODEL GA**



Code	Ø	A	B	C	CH	øD	øD1	F	øG	ØG1	P	S	S1	Weight [g]
W0950326021	32	49	36	30	13	11	6.5	M10x1.25	39.5	17	6.5	12	10	172
W0950326021	40	49	36	30	13	11	6.5	M10x1.25	39.5	17	6.5	12	10	172
W0950406021	50	59	42	36	15	14	8.5	M12x1.25	44	19	8.5	15	13.5	286
W0950406021	63	59	42	36	15	14	8.5	M12x1.25	44	19	8.5	15	13.5	286
W0950506021	80	79	58	44	22	17	10.5	M16x1.5	59	26	10.5	20	15	628
W0950506021	100	79	58	44	22	17	10.5	M16x1.5	59	26	10.5	20	15	628

Note: Individually packed

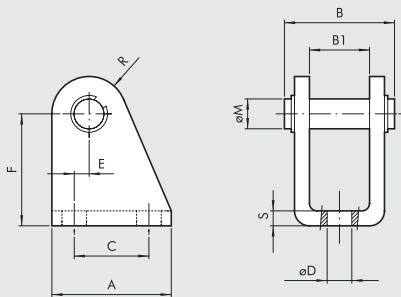
**COUNTER-HINGE CETOP Ø 32 to 100**



Code	Ø	A	B	C	D	E	F	G	H	I	L	M	N	Weight [g]
W0950322008	32	26	19	7	10	25	20	32	37	41	18	8	10	96
W0950402008	40	28	26	9	12	32	32	45	54	52	25	10	12	216
W0950502008	50	32	26	9	12	32	32	45	54	52	25	10	12	212
W0950632008	63	40	33	11	16	40	50	63	75	63	32	12	15	440
W0950802008	80	50	33	11	16	40	50	63	75	63	32	12	15	464
W0951002008	100	60	44	14	20	50	70	90	103	80	40	16	22	985

Note: Supplied complete with 4 screws, 4 washers

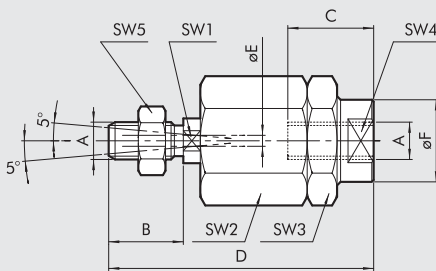
**COUNTER-HINGE Ø 16 to 25 - MODEL BC**



Code	Ø	A	B	B1	C	øD	E	F	øM	R	S	Weight [g]
W0950200005	20	32	30	16	20	6.5	4	30	8	10	4	78
W0950200005	25	32	30	16	20	6.5	4	30	8	10	4	78

Note: Supplied complete with 1 pin and 2 snap rings

**SELF ALIGNING ROD COUPLER - MODEL GA-K**



Code	Ø	A	B	C	D	øE	øF	SW1	SW2	SW3	SW4	SW5	Weight [g]
W0950200030	20	M8	20	20	57	4	12.5	7	17	17	11	13	56
W0950200030	25	M8	20	20	57	4	12.5	7	17	17	11	13	56
W0950322030	32	M10x1.25	20	20	71	4	22	12	30	30	19	17	216
W0950322030	40	M10x1.25	20	20	71	4	22	12	30	30	19	17	216
W0950402030	50	M12x1.25	24	20	75	4	22	12	30	30	19	19	220
W0950402030	63	M12x1.25	24	20	75	4	22	12	30	30	19	19	220
W0950502030	80	M16x1.5	32	32	103	4	32	20	41	41	30	24	620
W0950502030	100	M16x1.5	32	32	103	4	32	20	41	41	30	24	620

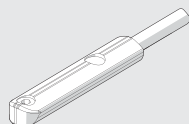
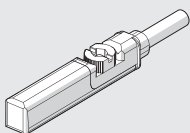
Note: Individually packed

**RETRACTABLE SENSOR**

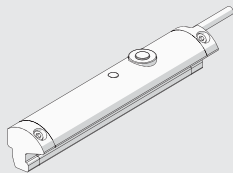
**SENSOR, SQUARE TYPE**  
Latest generation,  
secure fixing

**SENSOR, OVAL TYPE**  
Traditional

For codes and technical data, see **chapter A6**.



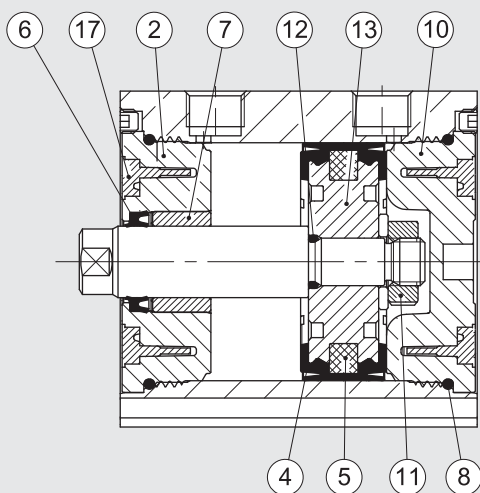
LTS POSITION SENSORS



For technical data and usage strokes see **chapter A6**.

SPARE PARTS FOR ISO 21287 CYLINDER

COMPACT CYLINDERS ISO 21287 (POLYURETHANE)



Code	Bores	Type	Parts
009 ... L001	Ø 20, 25	Complete set of gaskets polyurethane	4 6 8
009 ... L001	Ø 32 to 63	Complete set of gaskets polyurethane	4 6 8 12 17
009 ... L001	Ø 80, 100	Complete set of gaskets polyurethane	4 6 8 12
009 ... L008	Ø 20, 25	Complete set of (high temperature) FKM/FPM gaskets	4 6 8
009 ... L008	Ø 32 to 63	Complete set of (high temperature) FKM/FPM gaskets	4 6 8 12 17
009 ... L008	Ø 80, 100	Complete set of (high temperature) FKM/FPM gaskets	4 6 8 12
009 ... 7013	Ø 20 to 100	Polyurethane piston rod gasket kit	6
009 ... 7014	Ø 20 to 100	FKM/FPM piston rod gasket kit	6
009 ... L101	Ø 20, 25, 80, 100	Front head kit	2 6 7 8
009 ... L101	Ø 32 to 63	Front head kit	2 6 7 8 17
009 ... L201	Ø 20, 25, 80, 100	Rear head kit	8 10
009 ... L201	Ø 32 to 63	Rear head kit	8 10 17
009 ... 7401	Ø 20, 25	Piston kit polyurethane	4 5 11
009 ... L401	Ø 32 to 63	Piston kit polyurethane	4 5 11 12 13 17
009 ... 7401	Ø 80 to 100	Piston kit polyurethane	4 5 11 12 13
009 ... 7501	Ø 20, 25, 80, 100	Magnet	5
009 ... L501	Ø 32 to 63	Magnet	5 17
009 ... L901	Ø 20, 25	Front + rear cylinder head + piston kit polyurethane	2 4 5 6 7 8 10 11
009 ... L901	Ø 32 to 63	Front + rear cylinder head + piston kit polyurethane	2 4 5 6 7 8 10 11 12 13 17
009 ... L901	Ø 80, 100	Front + rear cylinder head + piston kit polyurethane	2 4 5 6 7 8 10 11 12 13

# COMPACT CYLINDER SERIES CMPC

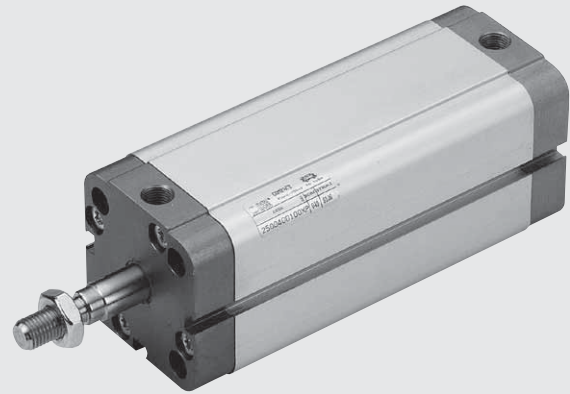


Compact cylinder series CMPC available in numerous versions to meet a full range of requirements:

- With or without magnet
- Single-acting extended rod, retracted or through-rod
- Dual-acting non-rotating and dual-acting through-rod versions
- Tandem with two, three or four stages
- Multi-position with two and three stages
- Fixing centre distances to ISO 15552 from Ø 32 to Ø 100 and from Ø 20 to Ø 100 complying with French standard NFE 49-004-1 and 2 (UNITOP). Ø 12 and Ø 16 have centre distances compatible with trade cylinders.

The special profile and outer heads locked onto the barrel by screws ensure optimal guiding of the cylinder and multiple fixing options with a wide range of mountings. To determine the position in the relevant cylinder slots, it is possible to mount retracting magnetic limit switches.

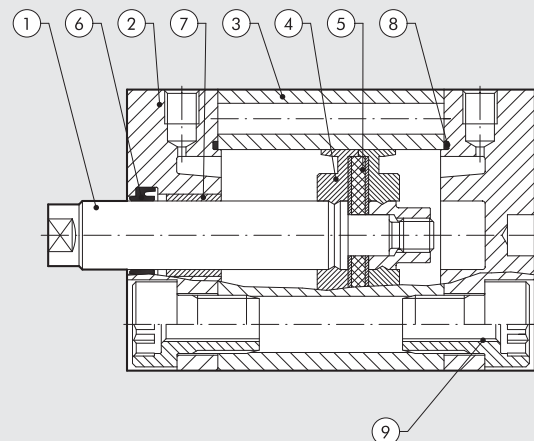
Available also in a version having FKM/FPM gaskets (for high temperature) from Ø 20 to Ø 100.



TECHNICAL DATA		POLYURETHANE					FKM/FPM				
Max operating pressure	bar						10				
	MPa						1				
	psi						145				
Temperature range	°C	-10 to +80					-10 to +150 (non-magnetic cylinders)				
Fluid		Unlubricated air. Lubrication, if used, must be continuous									
Bores	mm	Ø 12; 16; interchangeable with similar products									
	mm	Ø 32; 40; 50; 63; 80; 100 with ISO 15552 fixing centre distances									
	mm	Ø 20; 25; 32; 40; 50; 63; 80; 100 with NFE 49-004-1 and 2 fixing centre distances									
Design		With profile, heads with screws									
Versions		Double-acting, Single-acting extended or retracted rod, Through-rod, Through-rod perforated, Single-acting through-rod, Through-rod non-rotating, No stick-slip									
Magnet for sensors		All versions come complete with magnet. Supplied without magnet on request									
Inrush pressure	bar	Ø 12	Ø 16	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100
		single piston rod	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.4
through-rod	bar	1	0.8	0.8	0.8	0.6	0.4	0.4	0.4	0.4	0.4
Forces generated at 6 bar thrust/retraction		See cylinder "General technical data" at the beginning of the chapter									
Weights		See cylinder "General technical data" at the beginning of the chapter									
Notes		For correct operation, it is advisable to use 50 µm filtered air									
		<b>For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air</b>									

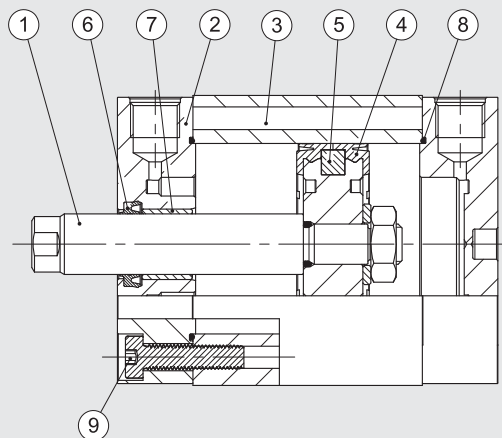
## COMPONENTS Ø 12 to 25

- ① PISTON ROD: stainless steel, thick chromed
- ② HEAD: extruded anodised aluminium alloy
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane or FKM/FPM
- ⑤ MAGNET: neodymium-plastic
- ⑥ PISTON ROD GASKET: polyurethane or FKM/FPM
- ⑦ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑧ STATIC O-RINGS: NBR or FKM/FPM
- ⑨ SECURING SCREWS: zinc-plated steel



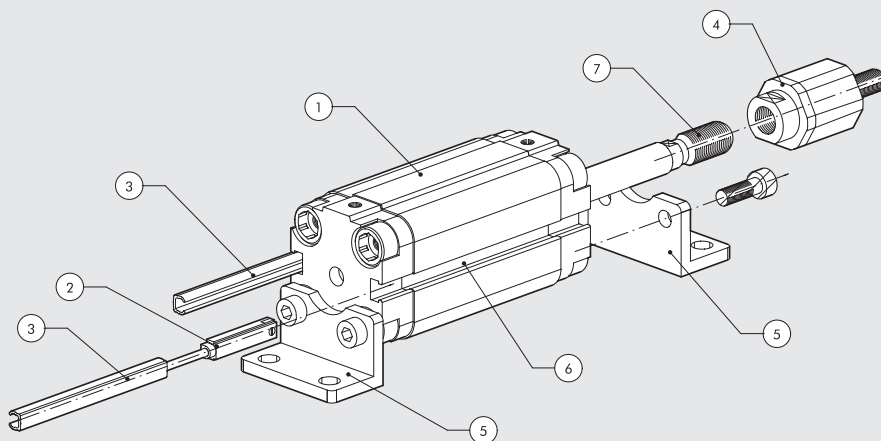
## COMPONENTS Ø 32 to 100

- ① PISTON ROD: C45 steel or stainless steel, thick chromed
- ② HEAD: extruded anodised aluminium alloy
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane or FKM/FPM
- ⑤ MAGNET: Ø 12 to 32 neodymium-plastic  
Ø 40 to 100 plastoferrite
- ⑥ PISTON ROD GASKET: polyurethane or FKM/FPM
- ⑦ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑧ STATIC O-rings: NBR or FKM/FPM
- ⑨ SECURING SCREWS: zinc-plated steel

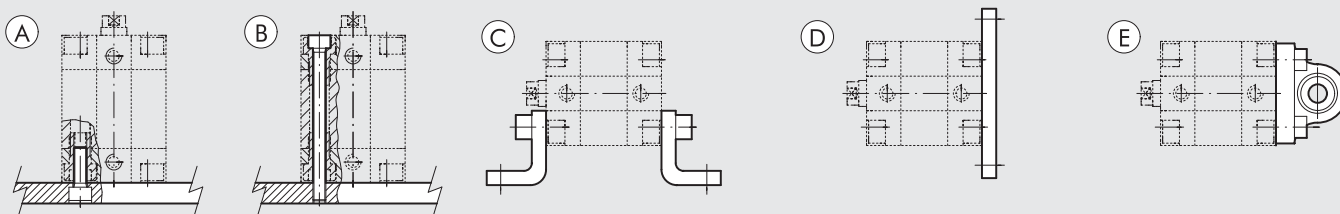


## TECHNICAL DATA

- ① Compact cylinder available with two separate fixing centre distances
  - Ø 32 to 100 to ISO 15552
  - Ø 20 to 100 to NFE 49-004-1 and 2
- ② Pre-wired retracting sensor with or without connector
- ③ Plastic strip to keep out dirt and/or protect the sensor wire cod. W0950000160
- ④ Ball-and-socket joint code W095\_\_2030
- ⑤ Example of cylinder mounting with feet code W095\_\_6001. All mountings come complete with cylinder assembly screws
- ⑥ Sensor slot
- ⑦ Piston rod with male or female thread as required



## COMPACT CYLINDER FIXING OPTIONS



- (A) Fixing to structural work with a through screw, using the thread in the heads
- (B) Direct fixing from above using long through screws or tie rods. Non-magnetic stainless steel must be used (e.g. AISI 304)
- (C) Fixing with feet; the ordering code covers the supply of one foot and two screws for fixing to the cylinder
- (D) Fixing with a flange mounted on the front or rear head; the ordering code covers the supply of a flange and four screws for fixing to the cylinder
- (E) Fixing with articulated hinge to compensate for slight system misalignment and turn freely. The ordering code covers the supply of a hinge and four screws for fixing to the cylinder

**FORCE OF SPRINGS IN SINGLE-ACTING CYLINDERS (THEORETICAL)**

Bore	Ø 12	Ø 16	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Ø 80	Ø 100
Min. load (N)	4.40	4.90	8.40	13.90	19.00	24.80	36.30	50.20	77.60	131.80
Max. load (N)	9.80	14.20	20.90	33.20	35.90	53.70	62.20	82.30	118.90	183.30

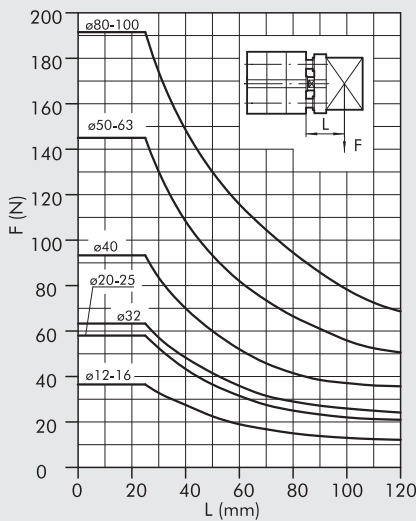
**STROKES FOR COMPACT CYLINDERS**

Standard stroke for single-acting cylinders	Standard stroke for other types	Max. recommended strokes for other types	Max. recommended strokes for non-rotating cylinders	Max recommended strokes for through-rod perforated
Ø 12 → from 5 to 10 mm	Ø 12 to 16 → from 5 to 40 mm	Ø 12 to 25 → 200 mm	Ø 12 to 63 → 120 mm	Ø 20 to 40 → from 5 to 80 mm
Ø 16 to 100 → from 5 to 25 mm	Ø 20 to 25 → from 5 to 50 mm	Ø 32 to 40 → 300 mm	Ø 80 to 100 → 150 mm	Ø 50 to 63 → from 5 to 100 mm
	Ø 32 to 100 → from 5 to 80 mm	Ø 50 to 63 → 400 mm		Ø 80 to 100 → from 5 to 160 mm
		Ø 80 to 100 → 500 mm		

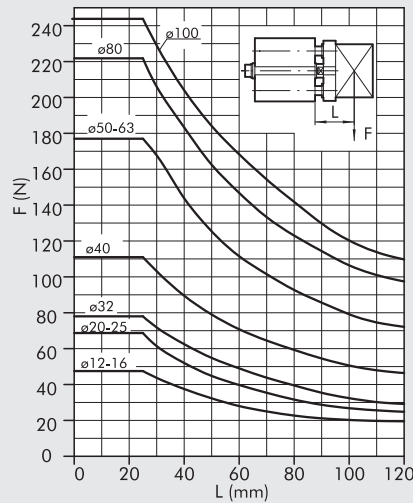
Maximum recommended strokes. Higher values can create operating problems

**MAXIMUM LOADS FOR NON-ROTATING VERSION**

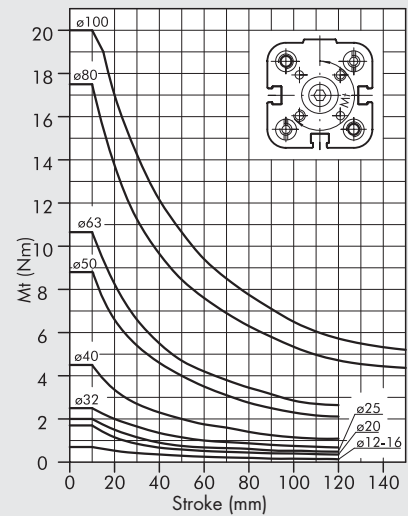
TRANSVERSAL FORCE FOR NON-ROTATING



TRANSVERSAL FORCE FOR NON-ROTATING THROUGH-ROD

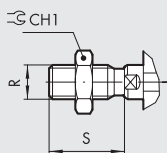


TORQUE DEPENDING ON STROKE



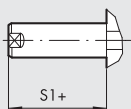
**DIMENSIONS OF DOUBLE-ACTING Ø 12 to 25 AND SINGLE-ACTING Ø 12 to 25**

SE-DE MALE PISTON ROD

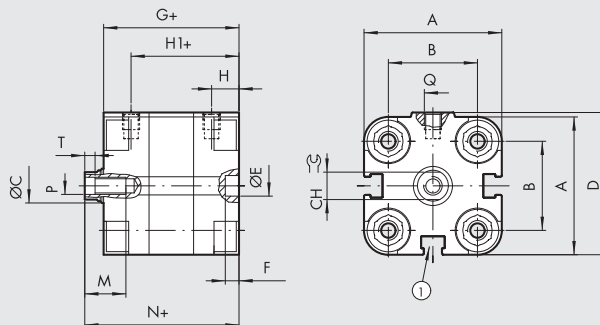
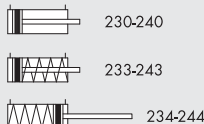
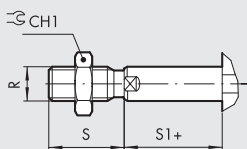


+ = ADD THE STROKE  
1 = SENSOR SLOT

SE EXTENDED PISTON ROD



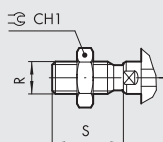
SE MALE EXTENDED PISTON ROD



Ø	A	B	ØC	CH	CH1	D	ØE <sup>H9</sup>	F	G	H	H1	L	M	N	O	ØO1	P	Q	R	S	S1	T	NORM
12	29	18	6	5	10	30	6	4	38	8	30	18.5	8	42.5	M4	3.2	M3	M5	M6	16	4.5	2	-
16	29	18	8	7	13	30	6	4	38	8	30	18.5	10	42.5	M4	3.2	M4	M5	M8	20	4.5	2	-
20	36.5	22	10	8	17	37.5	6	4	38	8	30	18.5	12	42.5	M5	4.2	M5	M5	M10x1.25	22	4.5	2	UNITOP
25	40.5	26	10	8	17	41.5	6	4	39.5	8	31.5	19	12	45	M5	4.2	M5	M5	M10x1.25	22	5.5	2	UNITOP

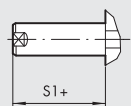
**DIMENSIONS OF DOUBLE-ACTING Ø 32 to 100 AND SINGLE-ACTING Ø 32 to 100**

SE-DE MALE PISTON ROD

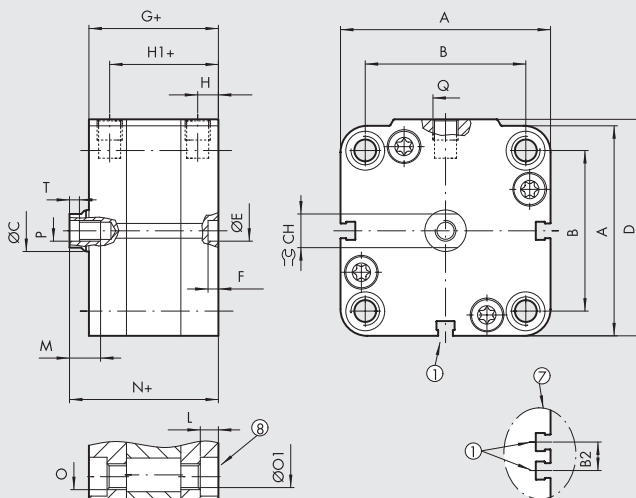
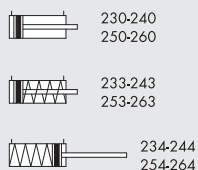
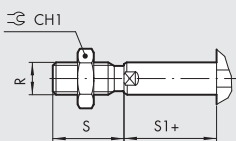


+ = ADD THE STROKE  
1 = SENSOR SLOT  
7 = ONLY FOR Ø 63 to Ø 100  
8 = SEAT FOR DIN 7984 SCREWS

SE EXTENDED PISTON ROD



SE MALE EXTENDED PISTON ROD

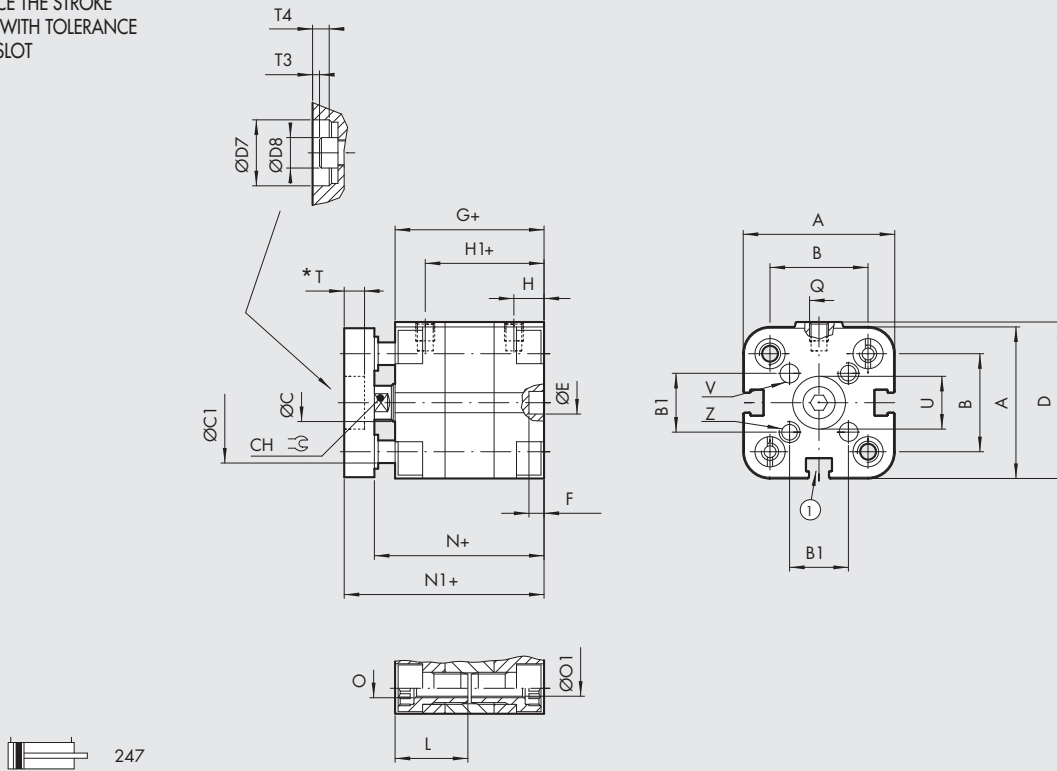


Ø	A	B		ØC	CH	CH1	D	ØE <sup>H9</sup>	F	G	H	H1	L	M	N	O		ØO1		Q	R	S	S1	T		
		ISO	UNITOP													ISO	UNITOP	P								
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	-	12	10	17	48.5	6	4	44.5	7.5	37	4	14	50.5	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	6	2.5
40	56	38	42	-	12	10	17	57.5	6	4	45.5	7.5	38	4.5	14	52	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	6.5	2.5
50	67	46.5	50	-	16	13	19	69	6	4	45.5	7.5	38	4.5	16	53	M8	M8	6.2	6.2	M8	G1/8	M12x1.25	24	7.5	3.5
63	80	56.5	62	13	16	13	19	82	8	4	50	7.5	42.5	5.5	16	57.5	M8	M10	6.2	8.5	M8	G1/8	M12x1.25	24	7.5	3.5
80	102	72	82	17	20	17	24	105	8	4	56	8.5	47.5	5.5	20	64	M10	M10	8.5	8.5	M10	G1/8	M16x1.5	32	8	4
100	123	89	103	21	25	22	30	126	8	4	66.5	10.5	56	5.5	24	76.5	M10	M10	8.5	8.5	M12	G1/4	M20x1.5	40	10	5



**DIMENSIONS OF NON-ROTATING Ø 12 to 25**

- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE
- \* = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT

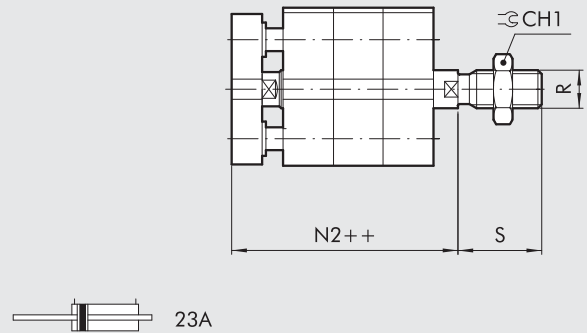
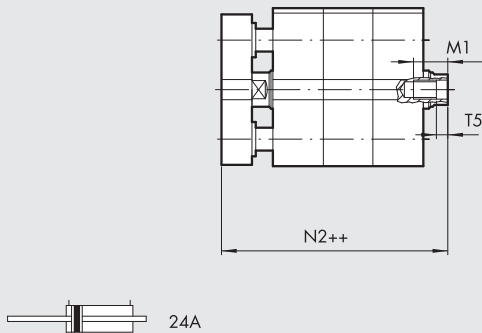


ACTUATORS

COMPACT CYLINDER – SERIES CMPC

**NON-ROTATING FEMALE THROUGH-ROD**

**NON-ROTATING MALE THROUGH-ROD**

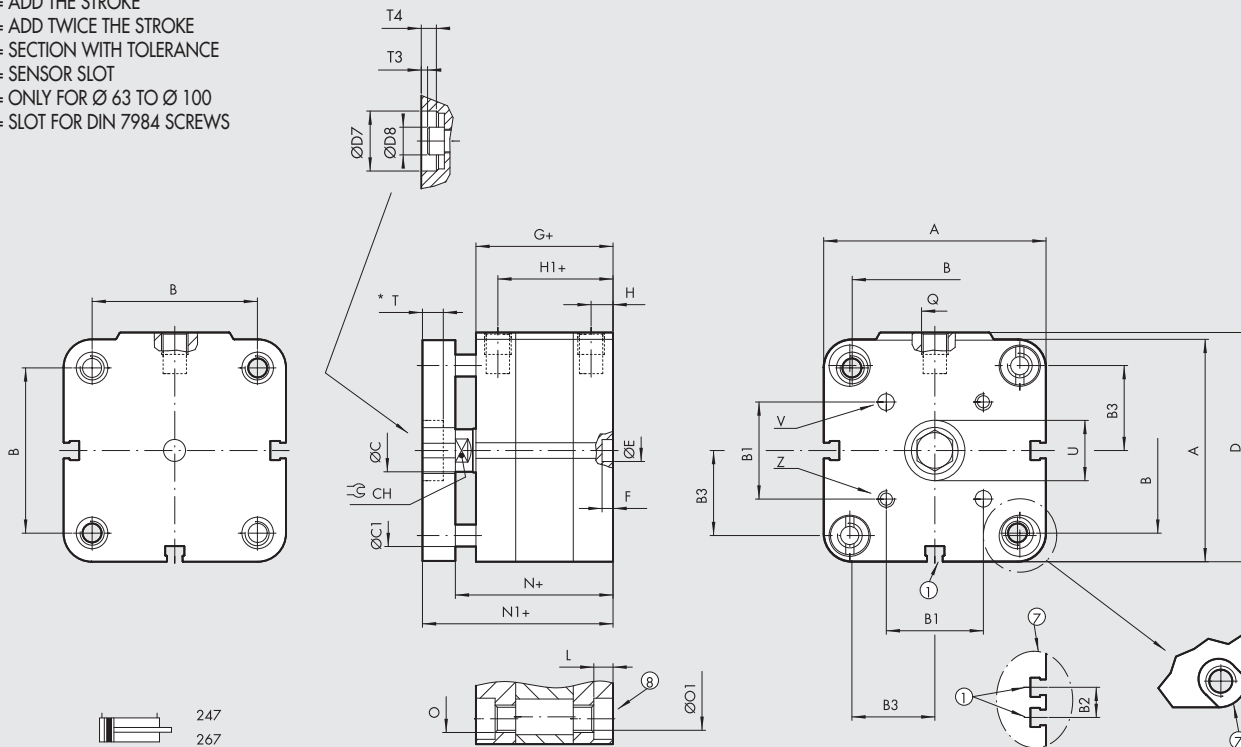


Ø	A	B	B1	ØC	ØC1	CH	CH1	D	ØD7 <sup>H9</sup>	ØD8	ØE <sup>H9</sup>	F	G	H	H1	L	M1 x strokes		N	N1	N2	O	Ø01	P	Q	R	S	T
																	< 5	≥ 5										
12	29	18	9.9	6	5	5	10	30	6	5.5	6	4	38	8	30	18.5	5	8	42.5	48.5	53	M4	3.2	M3	M5	M6	16	2
16	29	18	9.9	8	5	7	13	30	8	7	6	4	38	8	30	18.5	5	10	42.5	48.5	53	M4	3.2	M4	M5	M8	20	2
20	36.5	22	12	10	6	8	17	37.5	10	8.5	6	4	38	8	30	18.5	7	12	42.5	50.5	55	M5	4.2	M5	M5	M10x1.25	22	3.5
25	40.5	26	15.6	10	6	8	17	41.5	14	8.5	6	4	39.5	8	31.5	19	7	12	45	53	58.5	M5	4.2	M5	M5	M10x1.25	22	4

Ø	T3	T4	T5	ØU <sup>H9</sup>	ØV <sup>H8</sup>	Z	NORM
12	1	2	2	6	3	M3	-
16	0.5	2	2	8	3	M3	-
20	1.7	3.5	2	10	4	M4	UNITOP
25	2.2	4	2	14	5	M5	UNITOP

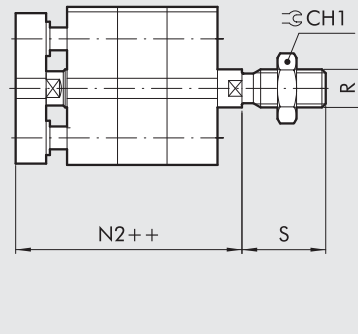
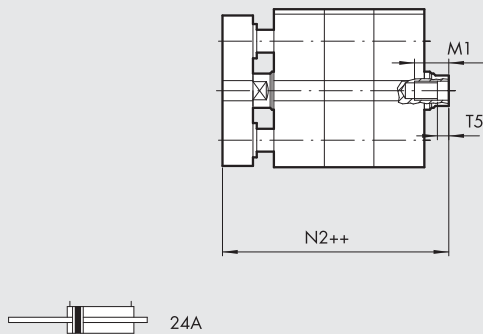
**DIMENSIONS OF NON-ROTATING Ø 32 to 100**

- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE
- \* = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 7 = ONLY FOR Ø 63 TO Ø 100
- 8 = SLOT FOR DIN 7984 SCREWS



**NON-ROTATING FEMALE THROUGH-ROD**

**NON-ROTATING MALE THROUGH-ROD**

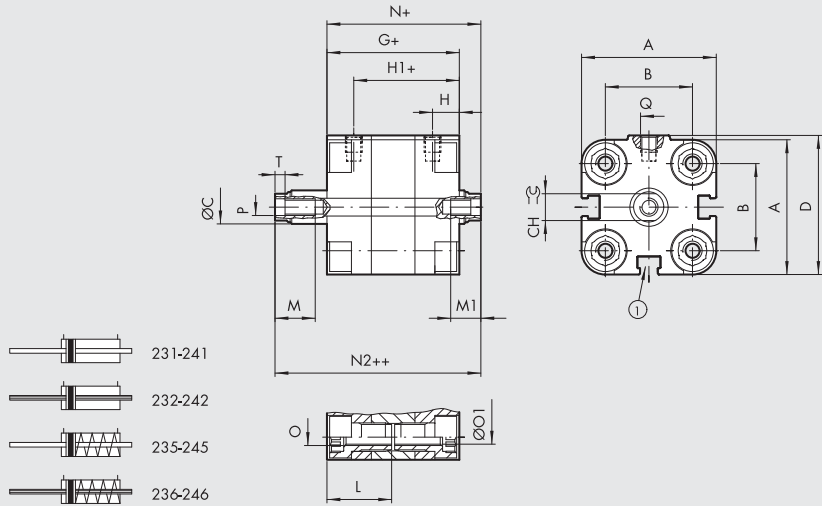


Ø	B																		
	A	ISO	UNITOP	B1	B2	B3	ØC	ØC1	CH	CH1	D	ØD7 <sup>HP</sup>	ØD8	ØE <sup>HP</sup>	F	G	H	H1	L
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	19.8	-	16.1	12	8	10	17	48.5	17	11.5	6	4	44.5	7.5	37	4
40	56	38	42	23.3	-	20	12	8	10	17	57.5	17	11.5	6	4	45.5	7.5	38	4.5
50	67	46.5	50	29.7	-	24	16	10	13	19	69	22	15	6	4	45.5	7.5	38	4.5
63	80	56.5	62	35.4	13	30	16	10	13	19	82	22	15	8	4	50	7.5	42.5	5.5
80	102	72	82	46	17	38.5	20	12	17	24	105	28	18.5	8	4	56	8.5	47.5	5.5
100	123	89	103	56.6	21	48	25	12	22	30	126	30	21	8	4	66.5	10.5	56	5.5

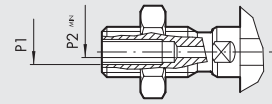
Ø	M1 x strokes		O										ØO1							
	< 5	≥ 5	N	N1	N2	ISO	UNITOP	ISO	UNITOP	P	Q	R	S	T	T3	T4	T5	ØU <sup>HP</sup>	ØV <sup>H8</sup>	Z
32	14	9	50.5	60.5	66.5	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	4.5	1	4.5	2.5	17	5	M5
40	14	9	52	62	68.5	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	4.5	1	4.5	2.5	17	5	M5
50	16	11	53	65	72.5	M8	M8	6.2	6.2	M8	G1/8	M12x1.25	24	6	1	6	3.5	22	6	M6
63	16	11	57.5	69.5	77	M8	M10	6.2	8.5	M8	G1/8	M12x1.25	24	6	1	6	3.5	22	6	M6
80	20	15	64	78	86	M10	M10	8.5	8.5	M10	G1/8	M16x1.5	32	8	1	8	4	28	8	M8
100	24	19	76.5	90.5	100.5	M10	M10	8.5	8.5	M12	G1/4	M20x1.5	40	9	-	8.5	5	30	10	M10

**DIMENSIONS OF THROUGH-ROD Ø 12 to 25**

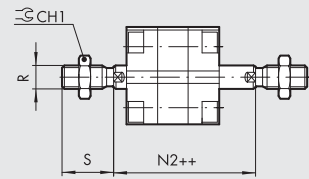
+ = ADD THE STROKE  
 ++ = ADD TWICE THE STROKE  
 1 = SENSOR SLOT



SE-DE MALE PERFORATED THROUGH-ROD



SE-DE MALE THROUGH-ROD

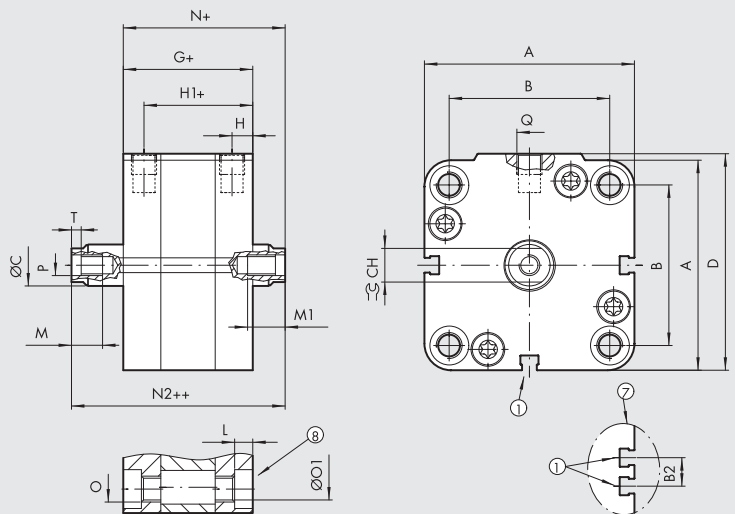


Ø	A	B	ØC	CH	CH1	D	G	H	H1	L	M	M1 x strokes		N	N2	O	ØO1	P	P2	Q	R	S	T	NORM
												< 5	≥ 5											
12	29	18	6	5	10	30	38	8	30	18.5	8	5	8	42.5	47	M4	3.2	M3	-	M5	M6	16	2	-
16	29	18	8	7	13	30	38	8	30	18.5	10	5	10	42.5	47	M4	3.2	M4	-	M5	M8	20	2	-
20	36.5	22	10	8	17	37.5	38	8	30	18.5	12	7	12	42.5	47	M5	4.2	M5	1.5	M5	M10x1.25	22	2	UNITOP
25	40.5	26	10	8	17	41.5	39.5	8	31.5	19	12	7	12	45	50.5	M5	4.2	M5	1.5	M5	M10x1.25	22	2	UNITOP

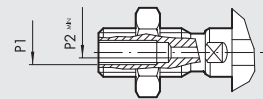
**DIMENSIONS OF THROUGH-ROD Ø 32 to 100**

+ = ADD THE STROKE  
 ++ = ADD TWICE THE STROKE

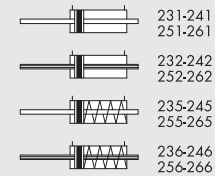
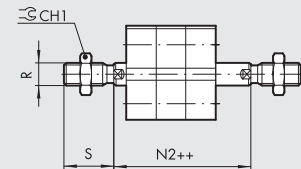
1 = SENSOR SLOT  
 7 = ONLY FOR Ø 63 TO Ø 100  
 8 = SLOT FOR DIN 7984 SCREWS



SE-DE MALE PERFORATED THROUGH-ROD



SE-DE MALE THROUGH-ROD



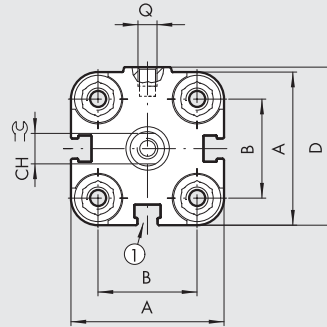
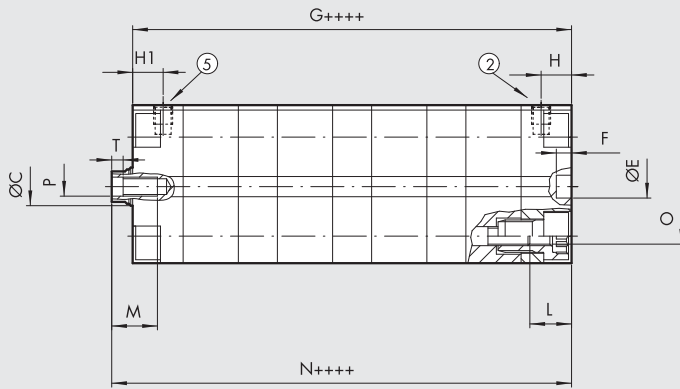
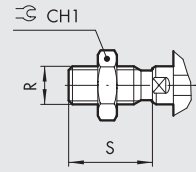
Ø	A	B		ØC	CH	CH1	D	G	H	H1	L	M	M1 x strokes		N	N2	O		ØO1		P	P1	P2	Q	R	S	T	
		ISO	UNITOP										B2	< 5			≥ 5	ISO	UNITOP	ISO								UNITOP
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	-	12	10	17	48.5	44.5	7.5	37	4	14	14	9	50.5	56.5	M6	M6	5.2	5.2	M6	-	2.5	G1/8	M10x1.25	22	2.5
40	56	38	42	-	12	10	17	57.5	45.5	7.5	38	4.5	14	14	9	52	58.5	M6	M6	5.2	5.2	M6	-	2.5	G1/8	M10x1.25	22	2.5
50	67	46.5	50	-	16	13	19	69	45.5	7.5	38	4.5	16	16	11	53	60.5	M8	M8	6.2	6.2	M8	-	4	G1/8	M12x1.25	24	3.5
63	80	56.5	62	13	16	13	19	82	50	7.5	42	5.5	16	16	11	57.5	65	M8	M10	6.2	8.5	M8	-	4	G1/8	M12x1.25	24	3.5
80	102	72	82	17	20	17	24	105	56	8.5	47.5	5.5	20	20	15	64	72	M10	M10	8.5	8.5	M10	1/8	5	G1/8	M16x1.5	32	4
100	123	89	103	21	25	22	30	126	66.5	10.5	56	5.5	24	24	19	76.5	86.5	M10	M10	8.5	8.5	M12	1/4	6	G1/4	M20x1.5	40	5

**DIMENSIONS OF TANDEM Ø 20 to 25 - 4-STAGES**

- ++ = ADD TWICE THE STROKE
- +++ = ADD THREE TIMES THE STROKE
- ++++ = ADD FOUR TIMES THE STROKE

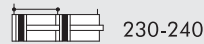
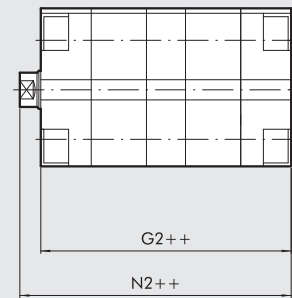
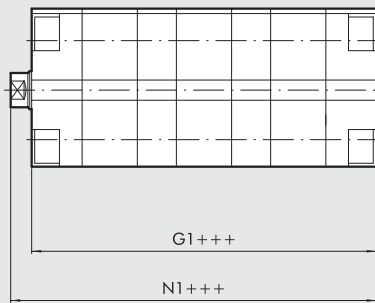
- 1 = SENSOR SLOT
- 2 = CYLINDERS OUT
- 5 = CYLINDERS IN

**MALE PISTON ROD**



**TANDEM 3 STAGES**

**TANDEM 2 STAGES**



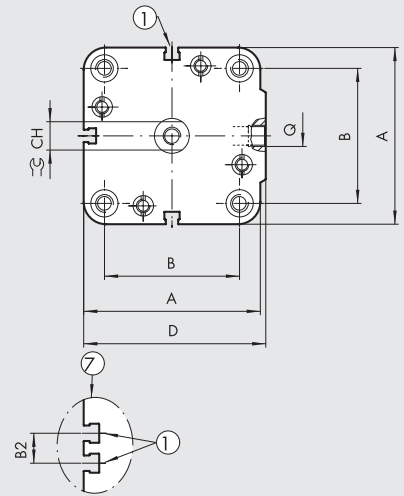
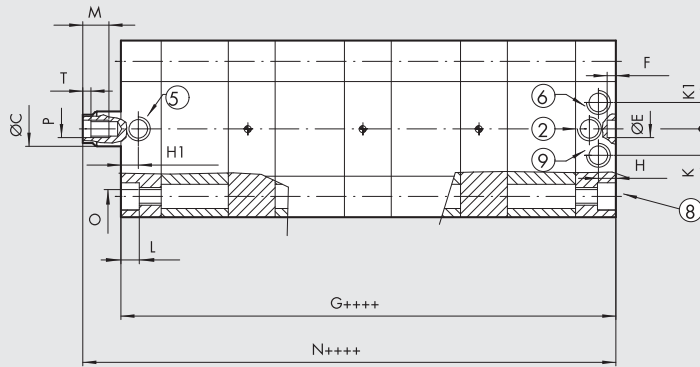
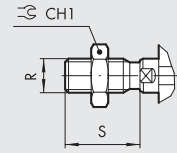
Ø	A	B	ØC	CH	CH1	D	ØE <sup>H9</sup>	F	G	G1	G2	H	H1	L	M	N	N1	N2	O	P	Q	R	S	T	NORM
20	36.5	22	10	8	17	37.5	6	4	114.5	89	63.5	8	8	10	12	119	93.5	68	M5	M5	M5	M10x1.25	22	2	UNITOP
25	40.5	26	10	8	17	41.5	6	4	118	92	66	8	8	10	12	123.5	97.5	71.5	M5	M5	M5	M10x1.25	22	2	UNITOP

**DIMENSIONS OF TANDEM Ø 32 to 100 - 4-STAGES**

++ = ADD TWICE THE STROKE  
 +++ = ADD THREE TIMES THE STROKE  
 ++++ = ADD FOUR TIMES THE STROKE

2 = CYLINDERS OUT FOR Ø 32 to 63  
 5 = CYLINDERS IN FOR Ø 32 to 63  
 6 = CYLINDERS IN FOR Ø 80; 100  
 9 = CYLINDERS OUT FOR Ø 80; 100  
 1 = SENSOR SLOT  
 7 = ONLY FOR Ø 63 to 100  
 8 = SLOT FOR DIN 7984 SCREWS

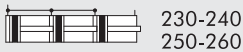
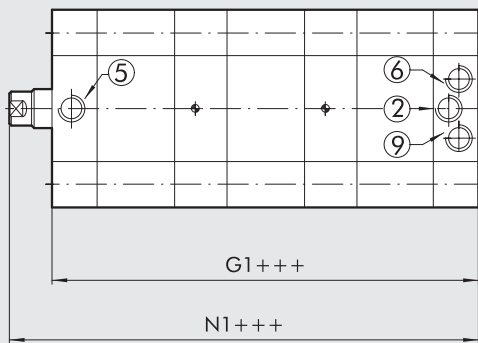
MALE PISTON ROD



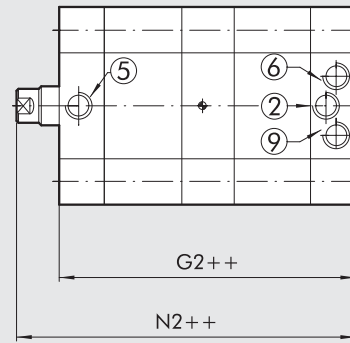
230-240  
250-260

**TANDEM 3-STAGES**

**TANDEM 2-STAGES**



230-240  
250-260



230-240  
250-260

Ø	A	B			ØC	CH	CH1	D	ØE <sup>HP</sup>	F	G	G1	G2	H	H1	K	K1
		ISO	UNITOP	B2													
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	-	12	10	17	48.5	6	4	154	117.5	81	7.5	7.5	-	-
40	56	38	42	-	12	10	17	57.5	6	4	162.5	123.5	84.5	7.5	7.5	-	-
50	67	46.5	50	-	16	13	19	69	6	4	163.5	124	85	7.5	7.5	-	-
63	80	56.5	62	13	16	13	19	82	8	4	182	138	94	7.5	7.5	-	-
80	102	72	82	17	20	17	24	105	8	4	204.5	155	105.5	8.5	-	10.5	10.5
100	123	89	103	21	25	22	30	126	8	4	243	184	125.5	10.5	-	14.5	14.5

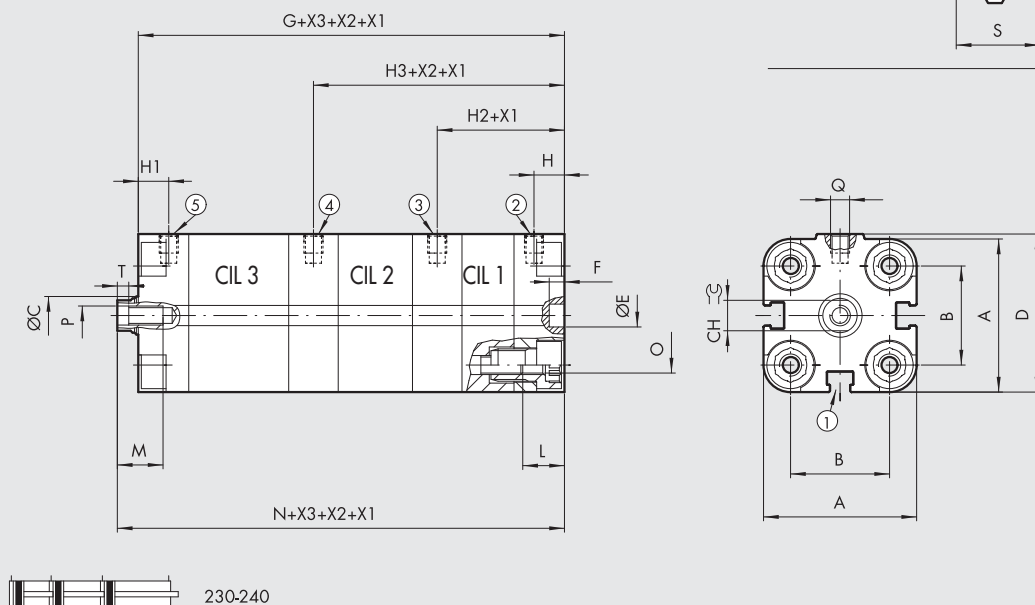
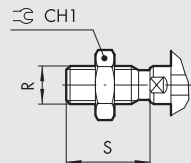
Ø	L	M	N	N1	N2	O		P	Q	R	S	T
						ISO	UNITOP					
32	4	14	160	123.5	87	M6	M6	M6	G1/8	M10x1.25	22	2.5
40	4.5	14	169	130	91	M6	M6	M6	G1/8	M10x1.25	22	2.5
50	4.5	16	171	131.5	92.5	M8	M8	M8	G1/8	M12x1.25	24	3.5
63	5.5	16	189.5	145.5	101.5	M8	M10	M8	G1/8	M12x1.25	24	3.5
80	5.5	20	212.5	163	113.5	M10	M10	M10	G1/8	M16x1.5	32	4
100	5.5	24	253	194	135.5	M10	M10	M12	G1/4	M20x1.5	40	5

**DIMENSIONS OF MULTI-POSITION Ø 12 to 25 - 3-STAGES**

- 1 = SENSOR SLOT
- 2 = CYLINDER 1 OUT
- 3 = CYLINDER 2 OUT
- 4 = CYLINDER 3 OUT
- 5 = CYLINDERS 1-2-3 IN

- X1 = CYLINDER 1 STROKE
- X2 = CYLINDER 2 STROKE
- X3 = CYLINDER 3 STROKE

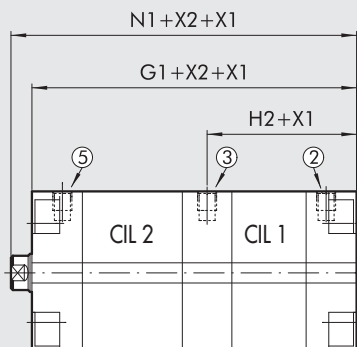
MALE PISTON ROD



**MULTI-POSITION 2-STAGES**

- 2 = CYLINDER 1 OUT
- 3 = CYLINDER 2 OUT
- 5 = CYLINDERS 1-2 IN

- X1 = CYLINDER 1 STROKE
- X2 = CYLINDER 2 STROKE



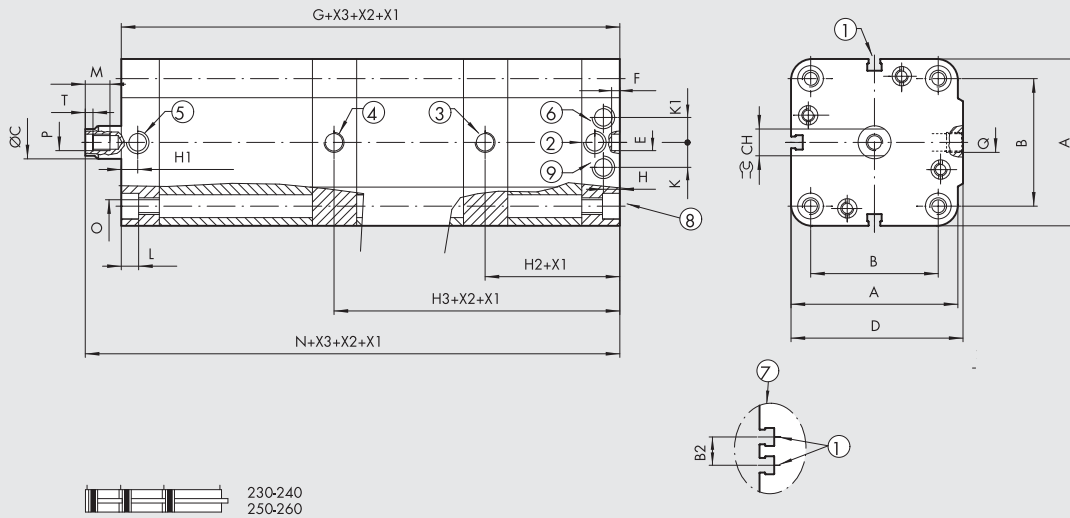
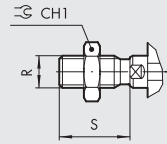
Ø	A	B	ØC	CH	CH1	D	ØE <sup>HP</sup>	F	G	G1	H	H1	H2	H3	L	M	N	N1	O	P	Q	R	S	T	NORM
12	29	18	6	5	10	30	6	4	89	63.5	8	8	33.5	59	10	8	93.5	68	M4	M3	M5	M6	16	2	-
16	29	18	8	7	13	30	6	4	89	63.5	8	8	33.5	59	10	10	93.5	68	M4	M4	M5	M8	20	2	-
20	36.5	22	10	8	17	37.5	6	4	89	63.5	8	8	33.5	59	10	12	93.5	68	M5	M5	M5	M10x1.25	22	2	UNITOP
25	40.5	26	10	8	17	41.5	6	4	92	66	8	8	34	60	10	12	97.5	71.5	M5	M5	M5	M10x1.25	22	2	UNITOP

**DIMENSIONS OF MULTI-POSITION Ø 32 to 100 - 3-STAGES**

- 1 = SENSOR SLOT
- 2 = CYLINDER 1 OUT FOR Ø 32 to 63
- 3 = CYLINDER 2 OUT FOR Ø 32 to 100
- 4 = CYLINDER 3 OUT FOR Ø 32 to 100
- 5 = CYLINDER 1-2-3 IN FOR Ø 32 to 63
- 6 = CYLINDER 1-2-3 IN FOR Ø 80 to 100
- 7 = ONLY FOR Ø 63 to 100
- 8 = SLOT FOR DIN 7984 SCREWS
- 9 = CYLINDER 1 OUT FOR Ø 80 to 100

- X1 = CYLINDER 1 STROKE
- X2 = CYLINDER 2 STROKE
- X3 = CYLINDER 3 STROKE

MALE PISTON ROD

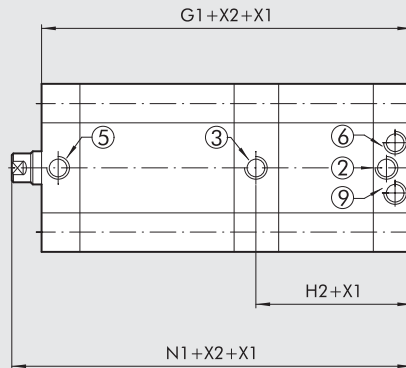


230-240  
250-260

**MULTI-POSITION 2-STAGES**

- 2 = CYLINDER 1 OUT FOR Ø 32 to 63
- 3 = CYLINDER 2 OUT FOR Ø 32 to 100
- 5 = CYLINDER 1-2 IN FOR Ø 32 to 63
- 6 = CYLINDER 1-2 IN FOR Ø 80 to 100
- 9 = CYLINDER 1 OUT FOR Ø 80 to 100

- X1 = CYLINDER 1 STROKE
- X2 = CYLINDER 2 STROKE



230-240  
250-260

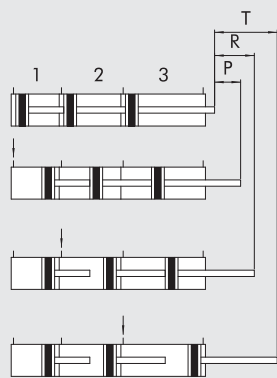
Ø	B				ØC	CH	CH1	D	ØE <sup>HP</sup>	F	G	G1	H	H1	H2	H3
	A	ISO	UNITOP	B2												
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	-	12	10	17	48.5	6	4	117.5	81	7.5	7.5	44	80.5
40	56	38	42	-	12	10	17	57.5	6	4	123.5	84.5	7.5	7.5	46.5	85.5
50	67	46.5	50	-	16	13	19	69	6	4	124	85	7.5	7.5	47	86
63	80	56.5	62	13	16	13	19	82	8	4	138	94	7.5	7.5	51.5	95.5
80	102	72	82	17	20	17	24	105	8	4	155	105.5	8.5	-	58	107.5
100	123	89	103	21	25	22	30	126	8	4	184	125.5	10.5	-	69.3	128

Ø	K	K1	L	M	N	N1	O		P	Q	R	S	T
							ISO	UNITOP					
32	-	-	4	14	123.5	87	M6	M6	M6	G1/8	M10x1.25	22	2.5
40	-	-	4.5	14	130	91	M6	M6	M6	G1/8	M10x1.25	22	2.5
50	-	-	4.5	16	131.5	92.5	M8	M8	M8	G1/8	M12x1.25	24	3.5
63	-	-	5.5	16	145.5	101.5	M8	M10	M8	G1/8	M12x1.25	24	3.5
80	10.5	10.5	5.5	20	163	113.5	M10	M10	M10	G1/8	M16x1.5	32	4
100	14.5	14.5	5.5	24	194	135.5	M10	M10	M12	G1/4	M20x1.5	40	5

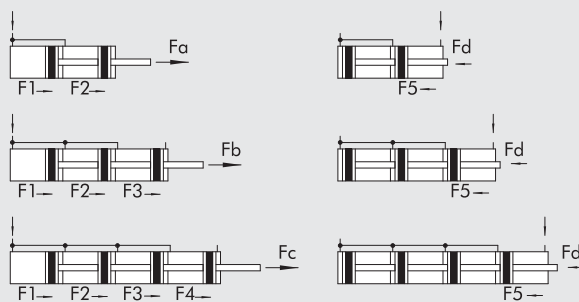
FUNCTIONAL DIAGRAMS

MULTI-POSITION



1 = STAGE 1  
2 = STAGE 2  
3 = STAGE 3

TANDEM



LEGENDA

P = Stage 1 stroke  
R = Stage 2 stroke  
T = Stage 3 stroke

Fa = F1+F2 [N]  
Fb = F1+F2+F3 [N]  
Fc = F1+F2+F3+F4 [N]  
Fd = F5 [N]

KEY TO CODE

CYL	2 3	1	0	2 5	0	0 5 0	X	P
	TYPE			BORE		STROKE **	MATERIAL	GASKETS
	23 Compact cylinder centre distances to UNITOP male piston rod	0 Double-acting 1 Double-acting through-rod + 2 Double-acting through-rod perforated	0 Magnetic □ S Non-magnetic ▲ G No stick-slip	12 16 20 25 32 40 50 63 80 ◆ 100	0 Standard + A 2-stage tandem + B 3-stage tandem + C 4-stage tandem		* C C45 piston rod chromium-plated ▷ X Stainless steel piston rod and nut	P Polyurethane gaskets ▶ + V FKM/FPM gaskets
	24 Compact cylinder centre distances to UNITOP female piston rod	● 3 Single-acting retracting piston rod ● 4 Single-acting extended piston rod ● 5 Single-acting through-rod			<b>MULTI-POSITION</b> ●● P Stage 1 ●● R Stage 2 ●● T Stage 3		◁ A C45 chromed rod, aluminium piston ○ Z Stainless steel piston rod and nut aluminium piston	
	■ 25 Compact cylinder centre distances to ISO male piston rod	● + 6 Single-acting through-rod piston rod perforated ▼ 7 Double-acting non-rotating						
	■ 26 Compact cylinder centre distances to ISO female piston rod	A Double-acting through-rod non-rotating						

\*\* For the maximum suppliabe stroke, see page A1.87

- ◆ In the code of cylinder with letter in fourth position Ø 100 becomes A1
- Codes only for cylinders Ø 32 to 100
- Can also be used as double-acting with spring return
- + Available from Ø 20
- ▼ For versions 24 and 26 only (female piston rod)
- ▲ For Ø 12 to 25 the standard version (0 or S) it's already "no stick-slip"  
For Ø 20 to 100 version with gaskets in FKM / FPM (0 or S) is already "no sick slip"  
**For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only**
- ▶ Only for standard double acting and standard through rod double acting version (for Ø20 and Ø25 only "non-magnetic" version provided)
- Compulsory for Ø 20 and Ø 25 version Z
- \* Only for Ø 32 to 100 P version (Polyurethane gaskets)
- ▷ Only for Ø 12 to 100 P version (Polyurethane gaskets)
- ◁ Only for Ø 32 to 100 V version (FKM/FPM gaskets)
- Only for Ø 20 to 100 V version (FKM/FPM gaskets)

●● The ordering codes for a Multi-position cylinder is a combination of several codes, each describing a stage.

**Coding example for a UNITOP multiposition cylinder**  
2 stages Ø 20 strokes 40 + 10 (total stroke 50 mm) male rod:  
1° STADIO (P) : 230020P040XP +  
2° STADIO (R) : 230020R050XP

**Coding example for a UNITOP multiposition cylinder**  
3 stages Ø 20 strokes 15 + 30 + 40 (total stroke 85 mm) male rod:  
1° STADIO (P) : 230025P015XP +  
2° STADIO (R) : 230025R045XP +  
3° STADIO (T) : 230025T085XP



# COMPACT CYLINDER SERIES CMPC TWO-FLAT



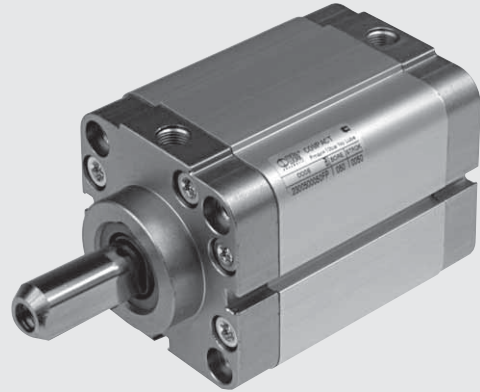
This version is used to keep at an angle the objects fixed onto the piston rod and to apply torques within the specified limits.

The piston rod in Two-Flat cylinders has two opposing longitudinal surfaces and is made entirely of stainless steel. The front head of the cylinder includes a sintered bronze bush that engages the piston rod and prevents it from rotating. A special polyurethane gasket guarantees air-tightness and dirt removal. This technical solution is more airtight and reliable than square or hexagonal piston rods.

These compact cylinders come in the following versions:

- with or without a magnet
- dual-acting, single piston rod
- dual-acting, through piston rod – one piston rod is Two-Flat, and the other is cylindrical
- fixing centre distances compatible with, ISO 15552 (former ISO 6431), or with French standard NFE 49-004-1 and 2 (UNITOP).

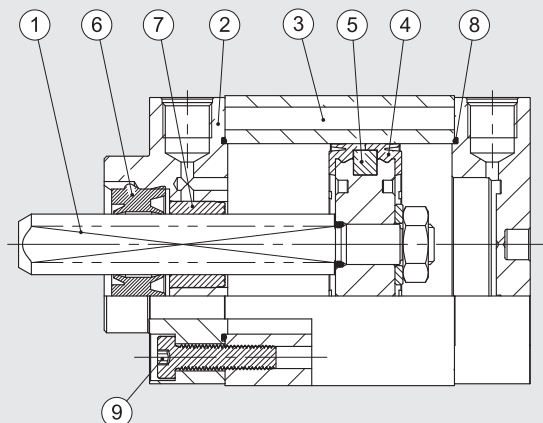
The special profile and the fact that the external heads are screwed onto the liner give an excellent guide. Numerous fixing options are available thanks to wide range of anchor points. Retractable magnetic limit switches can be mounted in slots in the cylinder to measure the position.



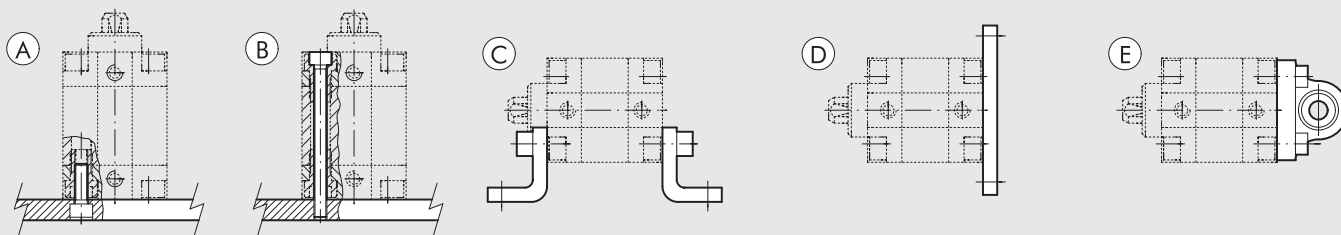
TECHNICAL DATA		POLYURETHANE
Max operating pressure	bar	10
	MPa	1
	psi	145
Temperature range	°C	-10 to +80
Fluid		Unlubricated air. Lubrication, if used, must be continuous
Bores	mm	32; 40; 50; 63; 80 with ISO 15552 fixing centre distances
	mm	32; 40; 50; 63; 80 with NFE 49-004-1 and 2 fixing centre distances
Design		With profile, heads with screws
Maximum strokes †	mm	Ø 32-40 = 300; Ø 50-63 = 400; Ø 80 = 500
Versions		Double-acting, Double-acting Through-rod
Magnet for sensors		All versions come complete with magnet. Supplied without magnet on request
Inrush pressure	bar	Ø 32 = 0.8; from Ø 40 to 80 = 0.6
Max torque on piston rod	Nm	Ø 32 and 40 = 0.2; Ø 50 and 63 = 0.4; Ø 80 = 1
Maximum rotation on the rod	degrees	Ø 32 and 40 = 1° 30'; Ø 50 and 63 = 1° 30'; Ø 80 = 1°
Weights		See cylinder "General technical data" at the beginning of the chapter
Notes		† Maximum recommended strokes. Higher values can create operating problems
		<b>For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air</b>

## COMPONENTS Ø 12 to 25

- ① PISTON ROD: stainless steel, Two-Flat
- ② HEAD: extruded anodised aluminium alloy
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane
- ⑤ MAGNET: Ø 32 neodymium - Ø 40 to 100 plastoferrite
- ⑥ PISTON ROD GASKET TWO-FLAT: polyurethane
- ⑦ GUIDE BUSHING: steel strip with bronze
- ⑧ STATIC O-rings: NBR
- ⑨ SECURING SCREWS: zinc-plated steel



FIXING OPTIONS



- Ⓐ Fixing to structural work with a through screw, using the thread in the heads
- Ⓑ Direct fixing from above using long through screws or tie rods. Non-magnetic stainless steel must be used (e.g. AISI 304)
- Ⓒ Fixing with feet; the ordering code covers the supply of one foot and two screws for fixing to the cylinder.
- Ⓓ Fixing with a flange mounted on the front or rear head; the ordering code covers the supply of a flange and four screws for fixing to the cylinder
- Ⓔ Fixing with articulated hinge to compensate for slight system misalignment and turn freely  
The ordering code covers the supply of a hinge and four screws for fixing to the cylinder

KEY TO CODE

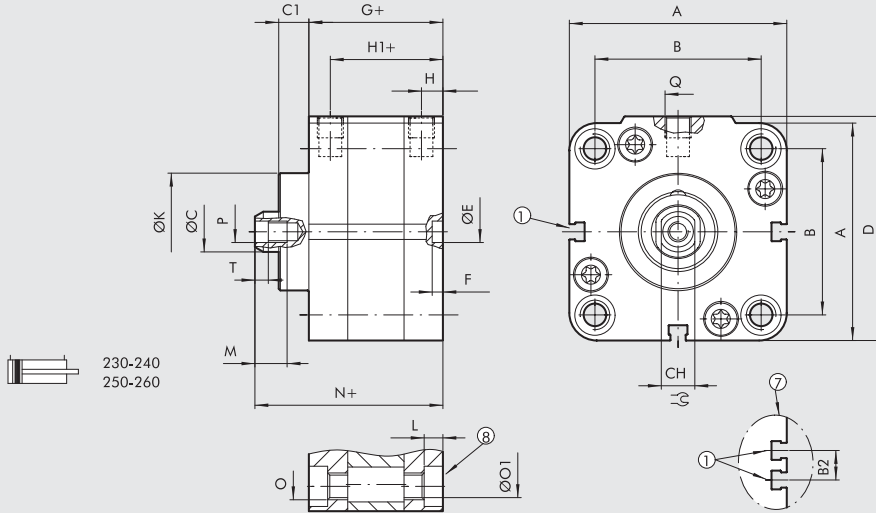
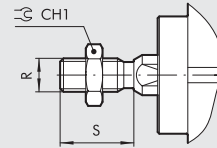
CYL	2 3 TYPE	1	0	3 2 BORE	0	0 5 0 STROKE *	F MATERIAL	P GASKETS
	23 Compact cylinder centre distances to UNITOP male piston rod	0 Double-acting 1 Double-acting through-rod	0 Magnetic S Non-magnetic ▲ G No stick-slip	32 40 50 63 80	0 Standard		F "Two-Flat" piston rod AISI 303 stainless steel	P Polyurethane gaskets
	24 Compact cylinder centre distances to UNITOP female piston rod							
	25 Compact cylinder centre distances to ISO male piston rod							
	26 Compact cylinder centre distances to ISO female piston rod							

\* For the maximum suppliable strokes, look at the technical data  
 ▲ For speeds lower than 0.2 m/s, to prevent surging. Use no-lubricated air only

**DIMENSIONS OF DOUBLE-ACTING**

+ = ADD THE STROKE  
 1 = SENSOR SLOT  
 7 = ONLY FOR Ø 63 to 100  
 8 = SEAT FOR DIN 7984 SCREWS

DE MALE PISTON ROD



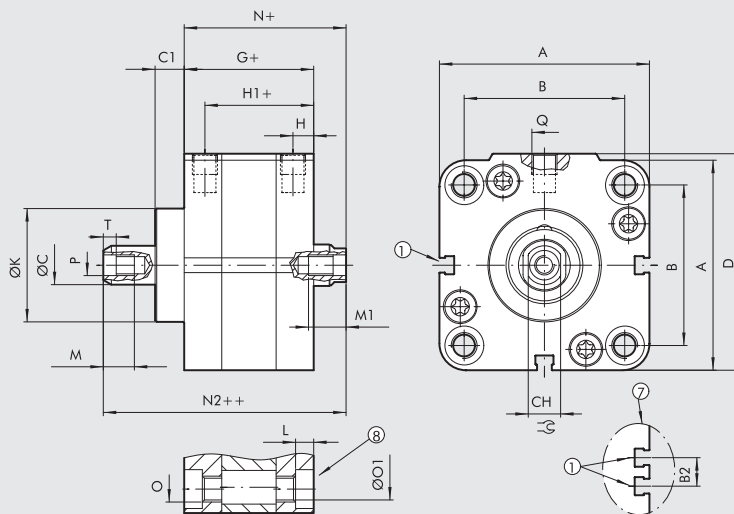
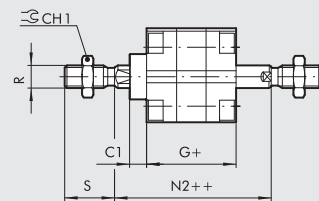
Ø	A	ISO	B		B2	ØC	C1	CH	CH1	D	ØE <sup>H9</sup>	F	G	H	H1	ØK	L	M	N	O		Ø01		P	Q	R	S	T
			UNITOP	ISO																UNITOP	ISO							
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	-	12	9	10	17	48.5	6	4	44.5	7.5	37	30	4	14	59.5	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	2.5	
40	56	38	42	-	12	9	10	17	57.5	6	4	45.5	7.5	38	35	4.5	14	61	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	2.5	
50	67	46.5	50	-	16	11.5	13	19	69	6	4	45.5	7.5	38	40	4.5	16	64.5	M8	M8	6.2	6.2	M8	G1/8	M12x1.25	24	3.5	
63	80	56.5	62	13	16	11.5	13	19	82	8	4	50	7.5	42.5	45	5.5	16	69	M8	M10	6.2	8.5	M8	G1/8	M12x1.25	24	3.5	
80	102	72	82	17	20	13	17	24	105	8	4	56	8.5	47.5	45	5.5	20	77	M10	M10	8.5	8.5	M10	G1/8	M16x1.5	32	4	

**DIMENSIONS OF THROUGH-ROD**

+ = ADD THE STROKE  
 ++ = ADD TWICE THE STROKE

1 = SENSOR SLOT  
 7 = ONLY FOR Ø 63 TO Ø 80  
 8 = SLOT FOR DIN 7984 SCREWS

DE MALE PISTON ROD



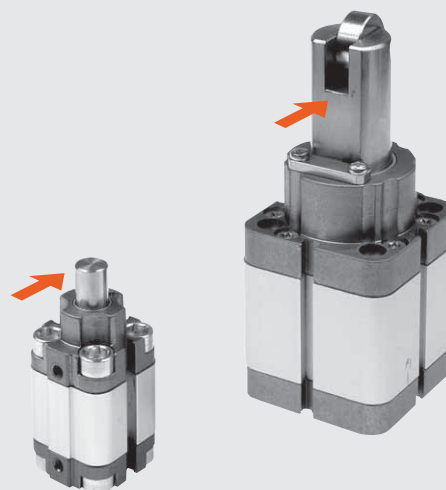
Ø	A	ISO	B		B2	ØC	C1	CH	CH1	D	G	H	H1	ØK	L	M	M1 x strokes		N2	O		Ø01		P	Q	R	S	T
			UNITOP	ISO													UNITOP	ISO		≥ 5	< 5							
32	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	-	12	9	10	17	48.5	44.5	7.5	37	30	4	14	9	50.5	65.5	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	2.5	
40	56	38	42	-	12	9	10	17	57.5	45.5	7.5	38	35	4.5	14	9	52	67.5	M6	M6	5.2	5.2	M6	G1/8	M10x1.25	22	2.5	
50	67	46.5	50	-	16	11.5	13	19	69	45.5	7.5	38	40	4.5	16	11	53	72	M8	M8	6.2	6.2	M8	G1/8	M12x1.25	24	3.5	
63	80	56.5	62	13	16	11.5	13	19	82	50	7.5	42	45	5.5	16	11	57.5	76.5	M8	M10	6.2	8.5	M8	G1/8	M12x1.25	24	3.5	
80	102	72	82	17	20	13	17	24	105	56	8.5	47.5	45	5.5	20	15	64	85	M10	M10	8.5	8.5	M10	G1/8	M16x1.5	32	4	


# COMPACT STOPPER CYLINDER

Compact stopper cylinders designed for stopping moving parts or chucks.

- With or without magnet execution
- Single-acting, oversize extended piston rod
- Can be also used as double-acting with spring return
- Fixing centre distances to ISO 15552 for  $\varnothing 32$ ,  $\varnothing 50$ ,  $\varnothing 80$  and French standard NFE 49-004-1 and 2 (UNITOP).

In the relevant cylinder slots, it is possible to mount retracting magnetic sensor.

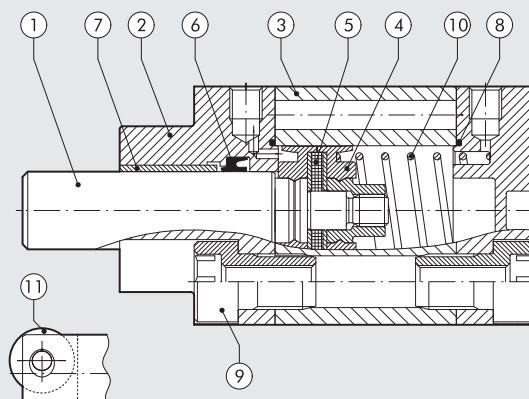


 Chuck impact direction

TECHNICAL DATA	
Max operating pressure	bar 10 MPa 1 psi 145
Temperature range	$^{\circ}\text{C}$ -10 to +80
Fluid	Unlubricated air. Lubrication, if used, must be continuous
Stroke bore	mm $\varnothing 20 \times 15$ ; $\varnothing 32 \times 20$ ; $\varnothing 50 \times 30$ ; $\varnothing 80 \times 30$ ; $\varnothing 80 \times 40$ a with NFE 49-004-1 and 2 fixing centre distances (UNITOP) mm $\varnothing 32 \times 20$ ; $\varnothing 50 \times 30$ ; $\varnothing 80 \times 30$ ; $\varnothing 80 \times 40$ with ISO 15552 fixing centre distances
Design	With profile, heads with screws
Versions	Single-acting extended rod, Can be also used as double-acting with spring return
Magnet for sensors	All versions come complete with magnet. Supplied without magnet on request
Inrush pressure	bar $\varnothing 20$ : 1.2; $\varnothing 32$ -50: 1; $\varnothing 80$ : 0.5
Weights	See cylinder "General technical data" at the beginning of the chapter
Notes	For correct operation, it is advisable to use 50 $\mu\text{m}$ filtered air

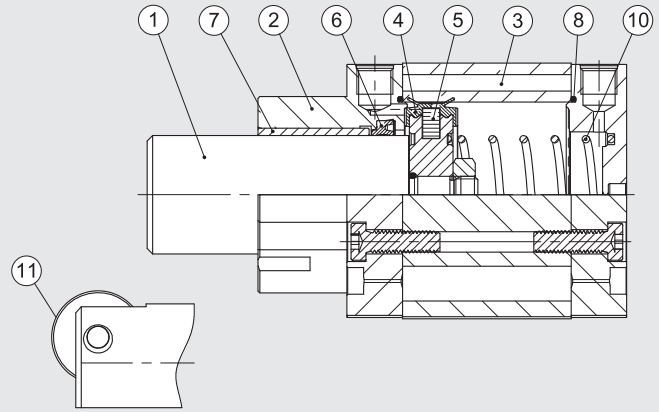
## COMPONENTS $\varnothing 20$

- ① PISTON ROD: Stainless steel, thick chromed
- ② HEAD: extruded anodised aluminium alloy
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane
- ⑤ MAGNET: neodymium-plastic
- ⑥ PISTON ROD GASKET: polyurethane
- ⑦ GUIDE BUSHING: steel strip with bronze and PTFE insert
- ⑧ STATIC O-RINGS: NBR
- ⑨ SECURING SCREWS: zinc-plated steel
- ⑩ RETURN SPRING: spring stainless steel
- ⑪ WHEEL: zinc-plated steel



**COMPONENTS Ø 32, Ø 50, Ø 80**

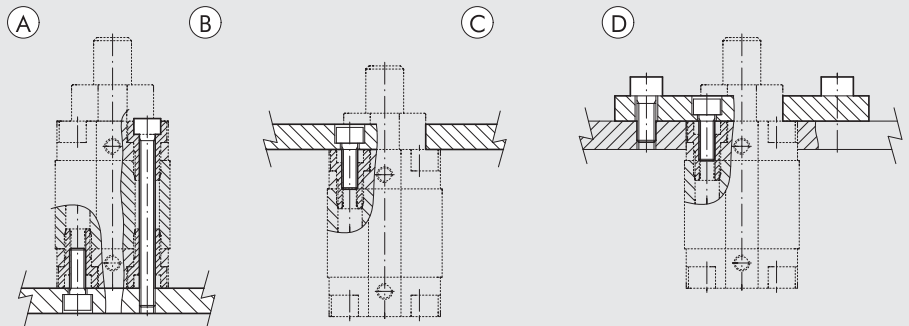
- ① PISTON ROD: Stainless steel, thick chromed
- ② HEAD: extruded anodised aluminium alloy
- ③ BARREL: drawn anodised and calibrated aluminium alloy
- ④ PISTON GASKET: polyurethane
- ⑤ MAGNET: Ø 32 neodymium-plastic - Ø 50 to 80 plastoferrite
- ⑥ PISTON ROD GASKET: polyurethane
- ⑦ GUIDE BUSHING: steel strip with bronze and PTFE insert.
- ⑧ STATIC O-rings: NBR
- ⑨ SECURING SCREWS: zinc-plated steel
- ⑩ RETURN SPRING: spring stainless steel
- ⑪ WHEEL: zinc-plated steel



ACTUATORS  
COMPACT STOPPER CYLINDER

**COMPACT STOPPER CYLINDER FIXING OPTIONS**

- Ⓐ Fixing with screws, using the thread in the rear heads
- Ⓑ Direct fixing from above using long through screws or tie rods. Non-magnetic stainless steel must be used (e.g. AISI 304)
- Ⓒ Fixing with screws, using the thread in the front heads.
- Ⓓ Fixing using flange fixed onto the cylinder.

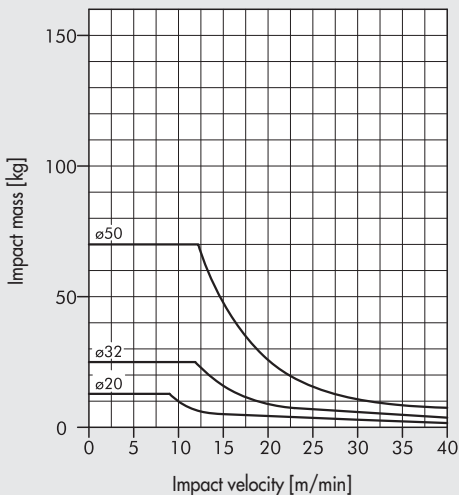


**FORCE OF SPRINGS IN COMPACT STOPPER CYLINDERS (THEORETICAL)**

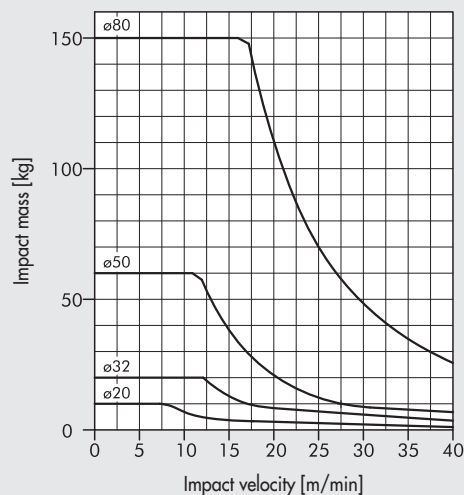
Stroke bore	Ø 20 x 15	Ø 32 x 20	Ø 50 x 30	Ø 80 x 30	Ø 80 x 40
Min. load (N)	13.7	22.4	50.2	97.9	71.0
Max. load (N)	21.2	36.0	115.9	178.5	178.5

**LOAD GRAPH**

TRUNNION VERSION



ROLLER VERSION

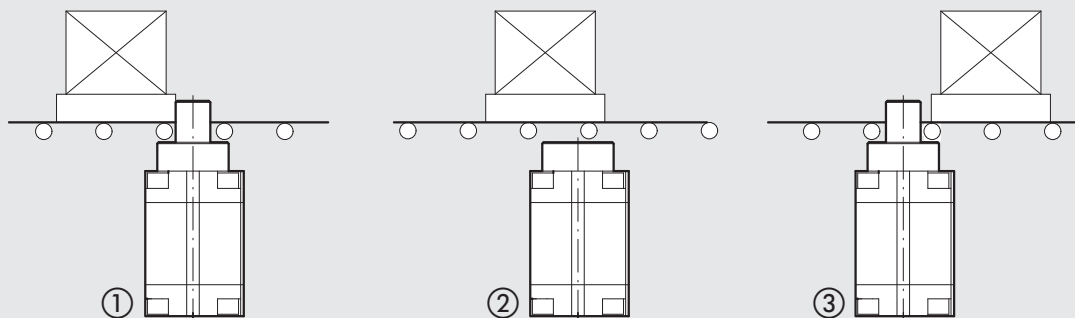
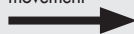


With stopper cylinders it is important to keep to the values shown in the graph to prevent early breakage of the mechanical parts. The values shown are only valid with about 1 mm plastic deformation (stopper on chuck).

## OPERATING DIAGRAMS

## TRUNNION VERSION

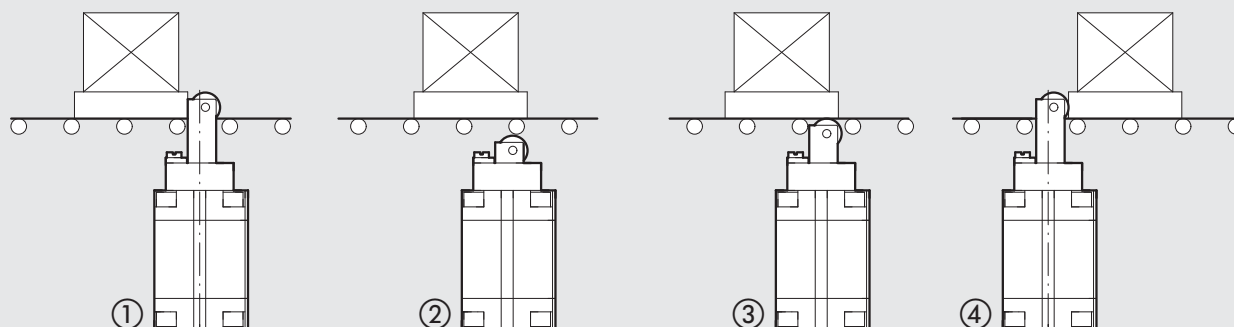
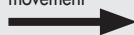
Direction of movement



- ① Deceleration of the chuck as it comes into contact with the piston rod, with elastic deformation of about 1 mm.
- ② The cylinder is pressurized to release the chuck.
- ③ The pressure in the front chamber is maintained until the chuck has passed the stopper cylinder. The piston rod extends due to the effect of the spring and any pressure in the opposite chamber. The system is now ready to stop the next chuck.

## ROLLER VERSION

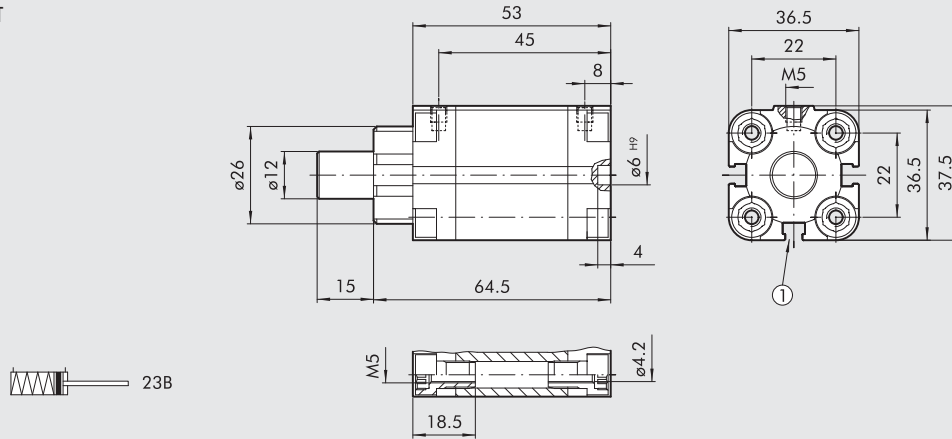
Direction of movement



- ① Deceleration of the chuck as it comes into contact with the piston rod, with elastic deformation of about 1 mm.
- ② The cylinder is pressurized to release the chuck.
- ③ When the pressure in the front chamber drops, the piston rod extends due to the effect of the spring or any pressure until the wheel reaches the chuck and moves it on.
- ④ After the chuck has passed, the cylinder extends the piston rod fully. The system is now ready to stop the next chuck.

**Ø 20 STROKE 15 mm TRUNNION VERSION**

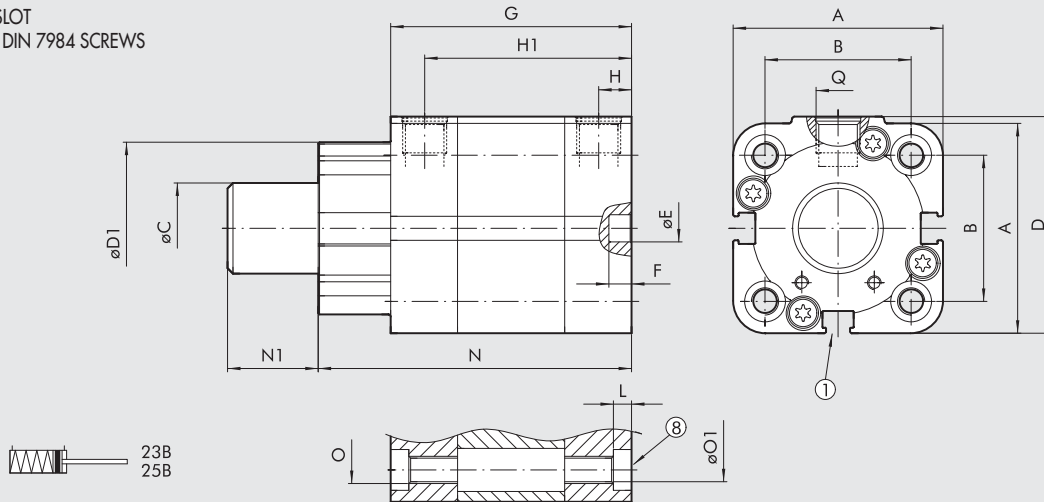
1 = SENSOR SLOT



Code	Description
23B0200015XP	Compact stopper cylinder, trunnion Ø 20, stroke 15
23BS200015XP	Compact stopper cylinder, trunnion Ø 20, stroke 15 (non-magnetic version)

**Ø 32 STROKE 20 mm; Ø 50 STROKE 30 mm TRUNNION VERSION**

1 = SENSOR SLOT  
8 = SEAT FOR DIN 7984 SCREWS



Ø	A	B		ØC	D	D1	ØE <sup>H9</sup>	F	G	H	H1	L	N	N1	O		ØO1		Q
		ISO	UNITOP												ISO	UNITOP			
32x20	47	32.5 <sup>+0.1</sup> <sub>-0.4</sub>	32 <sup>+0.4</sup> <sub>-0.1</sub>	20	48.5	38	6	4	64.5	7.5	57	4	80.5	20	M6	M6	5.2	5.2	G1/8
50x30	67	46.5	50	32	69	53	6	4	75.5	7.5	68	4.5	99.5	30	M8	M8	6.2	6.2	G1/8

Code	Description
23B0320020XP	Compact stopper cylinder, trunnion Ø 32, stroke 20 UNITOP
25B0320020XP	Compact stopper cylinder, trunnion Ø 32, stroke 20 ISO 15552
23BS320020XP	Compact stopper cylinder, trunnion Ø 32, stroke 20 UNITOP (non-magnetic version)
25BS320020XP	Compact stopper cylinder, trunnion Ø 32, stroke 20 ISO 15552 (non-magnetic version)
23B0500030XP	Compact stopper cylinder, trunnion Ø 50, stroke 30 UNITOP
25B0500030XP	Compact stopper cylinder, trunnion Ø 50, stroke 30 ISO 15552
23BS500030XP	Compact stopper cylinder, trunnion Ø 50, stroke 30 UNITOP (non-magnetic version)
25BS500030XP	Compact stopper cylinder, trunnion Ø 50, stroke 30 ISO 15552 (non-magnetic version)

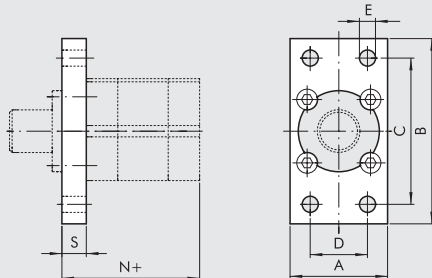




## ACCESSORIES FOR STOPPER CYLINDER

### FLANGE Ø 32, Ø 50, Ø 80

+ = ADD THE STROKE



#### UNITOP

Code	Ø	A	B	C	D	E	N	S	Weight [g]
W0950326302	32	50	80	64	32	7	54.5	10	210
W0950506302	50	68	110	90	45	9	57.5	12	502
W0950806302	80	107	160	135	63	12	111	15	1575

#### ISO

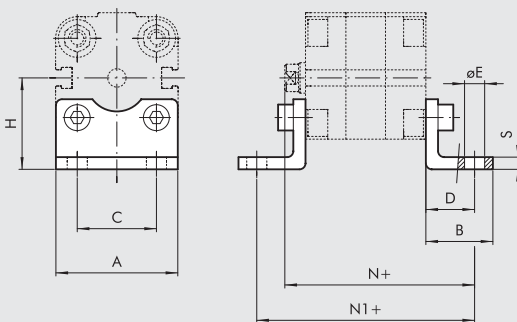
Code	Ø	A	B	C	D	E	N	S	Weight [g]
W0950326302	32	50	80	64	32	7	54.5	10	210
W0950506312	50	65	110	90	45	9	57.5	12	447
W0950806312	80	95	153	126	63	12	112	16	1190

Note: Supplied with 4 screws.

## ACCESSORIES FOR COMPACT AND COMPACT TWO-FLAT CYLINDERS

### FOOT - MODEL A

+ = ADD THE STROKE



#### CMPC UNITOP, TWO-FLAT UNITOP

Code	Ø	A	B	C	D	ØE	H	N	N1	S	Weight [g]
W0950126001 ▲	12	30	17.5	18	13	5.5	22	55.5	64	3	26
W0950126001 ▲	16	30	17.5	18	13	5.5	22	55.5	64	3	26
W0950206001	20	36	22	22	16	6.6	27	58.5	70	4	46
W0950256001	25	40	22	26	16	6.6	30	58.5	71.5	4	52
W0950322001	32	45	35	32	24	7	31.9	74.5	92.5	4	76
W0950406001	40	60	28	42	20	9	42.5	72	85.5	5	88
W0950406001F *	40	60	28	42	20	9	42.5	72	85.5	5	88
W0950506001	50	68	32	50	24	9	47	77	93.5	6	176
W0950506001F *	50	68	32	50	24	9	47	77	93.5	6	176
W0950636001	63	84	39	62	27	11	59.5	84.5	104	6	276
W0950636001F *	63	84	39	62	27	11	59.5	84.5	104	6	276
W0950806001	80	102	42	82	30	11	65.5	94	116	8	392
W0951006001	100	123	45	103	33	13.5	78	109.5	132.5	8	558

\* Only for Two-Flat version

#### CMPC ISO, TWO-FLAT ISO

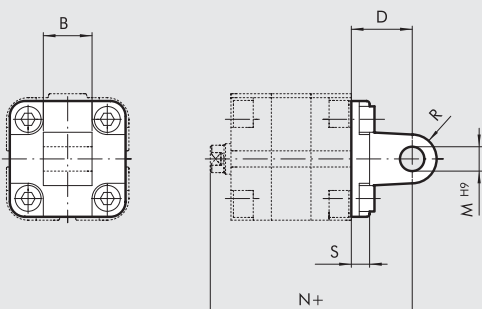
Code	Ø	A	B	C	D	ØE	H	N	N1	S	Weight [g]
W0950322001	32	45	35	32	24	7	31.9	74.5	92.5	4	76
W0950402001	40	52	43	36	28	9	36	80	101.5	4	100
W0950502001	50	65	47	45	32	9	45	85	109.5	4	162
W0950632001	63	75	47	50	32	9	50	89.5	114	6	266
W0950802001	80	95	61	63	41	12	63	105	138	6	456
W0951002001	100	115	65	75	41	14	71	117.5	148.5	6	572

Note: Individually packed with 2 screws.

▲ Non UNITOP norm fixing distance

### MALE HINGE-MODEL BA

+ = ADD THE STROKE



#### CMPC UNITOP, TWO-FLAT UNITOP

Code	Ø	B	D	M	N	R	S	Weight [g]
W0950126004 ▲	12	12	16	6	58.5	6	6	24
W0950126004 ▲	16	12	16	6	58.5	6	6	24
W0950206004	20	16	20	8	62.5	8	8	44
W0950256004	25	16	20	8	62.5	8	8	48

#### CMPC ISO, TWO-FLAT ISO

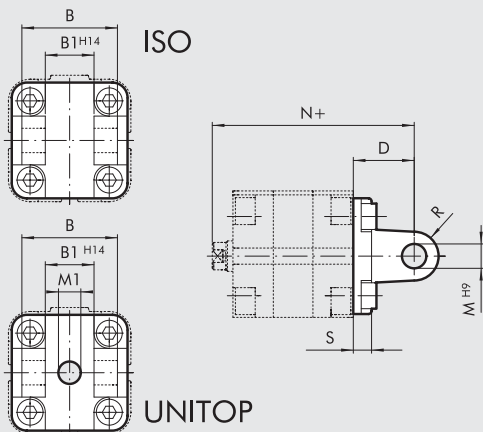
Code	Ø	B	D	M	N	R	S	Weight [g]
W0950322004	32	26	22	10	72.5	11	10	94
W0950402004	40	28	25	12	77	13	10	124
W0950502004	50	32	27	12	80	13	12	220
W0950632004	63	40	32	16	89.5	17	12	316
W0950802004	80	50	36	16	100	17	16	578
W0951002004	100	60	41	20	117.5	21	16	850

Note: Supplied with 4 screws, 4 washers

▲ Non UNITOP norm fixing distance

**FEMALE HINGE-MODEL B**

+ = ADD THE STROKE



**CMPC UNITOP, TWO-FLAT UNITOP**

Code	Ø	B	B1	D	M	M1	N	R	S	Weight [g]
W0950322003	32	45	26	22	10	14	72.5	11	10	116
W0950406003	40	52	28	25	12	14	77	12.5	9	184
W0950506003	50	60	32	27	12	18	80	12.5	11	266
W0950636003	63	70	40	32	16	-	89.5	15	11	470
W0950806003	80	90	50	36	16	23	100	15	13	670
W0951006003	100	110	60	41	20	28	117.5	20	15	1110

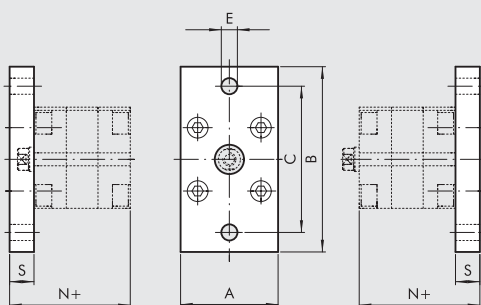
**CMPC ISO, TWO-FLAT ISO**

Code	Ø	B	B1	D	M	N	R	S	Weight [g]
W0950322003	32	45	26	22	10	72.5	11	10	116
W0950402003	40	52	28	25	12	77	13	10	160
W0950502003	50	60	32	27	12	80	13	12	252
W0950632003	63	70	40	32	16	89.5	17	12	394
W0950802003	80	90	50	36	16	100	17	16	670
W0951002003	100	110	60	41	23	117.5	21	16	1085

Note: Supplied with 4 screws, 4 washers, 2 snap-rings and 1 pin.

**FLANGE Ø 12 to 25 - MODEL C (FRONT AND REAR)**

+ = ADD THE STROKE



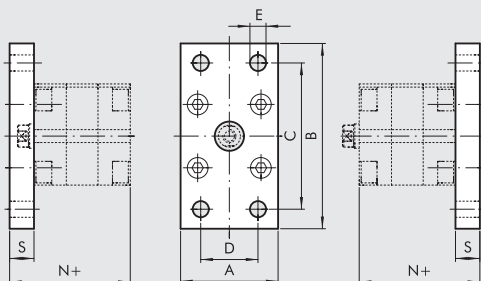
**CMPC**

Code	Ø	A	B	C	E	N	S	Weight [g]
W0950126002 ▲	12	29	55	43	5.5	48	10	112
W0950126002 ▲	16	29	55	43	5.5	48	10	112
W0950206002	20	36	70	55	6.6	48	10	184
W0950256002	25	40	76	60	6.6	49.5	10	226

Note: Supplied with 4 screws  
▲ Non UNITOP norm fixing distance

**FLANGE Ø 32 to 100 - MODEL C (FRONT AND REAR)**

+ = ADD THE STROKE



**CMPC UNITOP**

Code	Ø	A	B	C	D	E	N	S	Weight [g]
W0950322002	32	50	80	64	32	7	54.5	10	246
W0950406002	40	60	102	82	36	9	55.5	10	454
W0950506002	50	68	110	90	45	9	57.5	12	655
W0950636002	63	87	130	110	50	9	65	15	1255
W0950806002	80	107	160	135	63	12	71	15	1900
W0951006002	100	128	190	163	75	14	81.5	15	2700

**TWO-FLAT UNITOP**

Code	Ø	A	B	C	D	E	N	S	Weight [g]
W0950322002	32	50	80	64	32	7	54.5	10	246
W0950406002F	40	60	102	82	36	9	55.5	10	454
W0950506002F	50	68	110	90	45	9	57.5	12	655
W0950636002F	63	87	130	110	50	9	65	15	1255
W0950806002F	80	107	160	135	63	12	71	15	1900

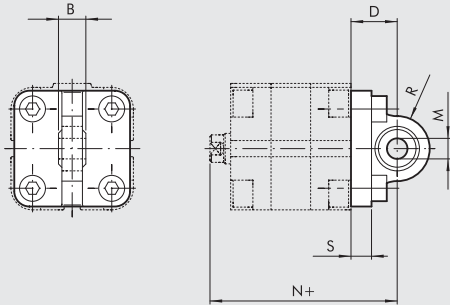
**CMPC ISO, TWO-FLAT ISO**

Code	Ø	A	B	C	D	E	N	S	Weight [g]
W0950322002	32	50	80	64	32	7	54.5	10	246
W0950402002	40	55	90	72	36	9	55.5	10	290
W0950502002	50	65	110	90	45	9	57.5	12	522
W0950632002	63	75	120	100	50	9	62	12	670
W0950802002	80	95	153	126	63	12	72	16	1420
W0951002002	100	115	178	150	75	14	82.5	16	2040

Note: Supplied with 4 screws

**ARTICULATED MALE HINGE - MODEL BAS**

+ = ADD THE STROKE

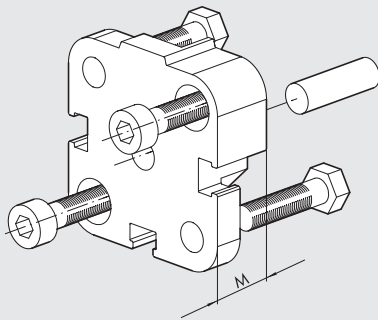


**CMPC ISO, TWO-FLAT ISO**

Code	Ø	B	D	M	N	R	S	Weight [g]
W0950322006	32	14	22	10	72.5	16	10	106
W0950402006	40	16	25	12	77	18	10	142
W0950502006	50	16	27	12	80	21	12	236
W0950632006	63	21	32	16	89.5	23	12	336
W0950802006	80	21	36	16	100	28	16	572
W0951002006	100	25	41	20	117.5	30	16	840

Note: Supplied with 4 screws, 4 washers

**FLANGE FOR OPPOSITE CYLINDERS**

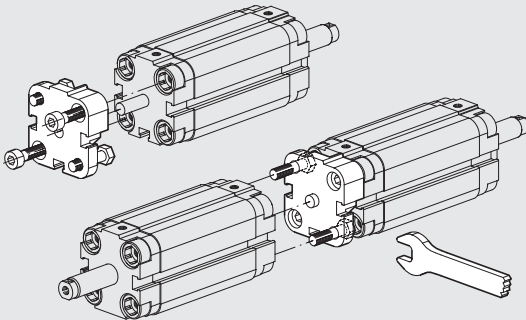


CMPC UNITOP Code	CMPC ISO Code	Ø	M	Weight [g]	
				UNITOP	ISO
0950123060 ▲	-	12	12.5	29	-
0950123060 ▲	-	16	12.5	29	-
0950203060	-	20	12.5	45	-
0950253060	-	25	13	57	-
0950323060	0950323060	32	14.5	88	88
0950403060	0950403061	40	14.5	106	106
0950503060	0950503061	50	14.5	172	158
0950633060	0950633061	63	14.5	274	258
0950803060	0950803061	80	16.5	470	452
0951003060	0951003061	100	19.5	826	801

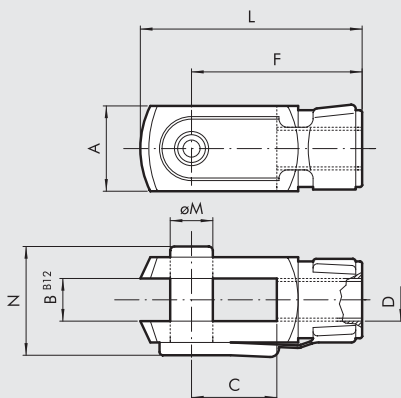
Note: Supplied complete with 1 pin, 4 screws

▲ Non UNITOP norm fixing distance

**ASSEMBLING OPPOSING CYLINDERS**



**FORK - MODEL GK-M**

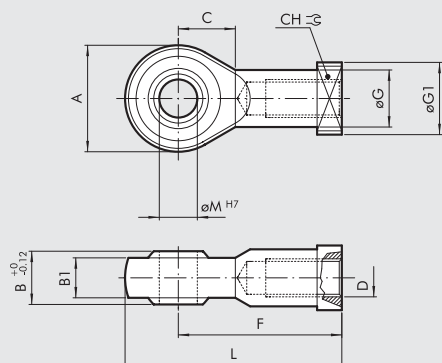


**CMPC UNITOP AND ISO, TWO-FLAT UNITOP AND ISO**

Code	Ø	A	B	C	D	F	L	ØM	N	Weight [g]
W0950120020	12	12	6	12	M6	24	31	6	16	20
W0950200020	16	16	8	16	M8	32	42	8	22	48
W0950322020	20	20	10	20	M10x1.25	40	52	10	26	92
W0950322020	25	20	10	20	M10x1.25	40	52	10	26	92
W0950322020	32	20	10	20	M10x1.25	40	52	10	26	92
W0950322020	40	20	10	20	M10x1.25	40	52	10	26	92
W0950402020	50	24	12	24	M12x1.25	48	62	12	32	148
W0950402020	63	24	12	24	M12x1.25	48	62	12	32	148
W0950502020	80	32	16	32	M16x1.5	64	83	16	40	340
W0950802020	100	40	20	40	M20x1.5	80	105	20	48	690

Note: Individually packed

ROD EYE - MODEL GA-M

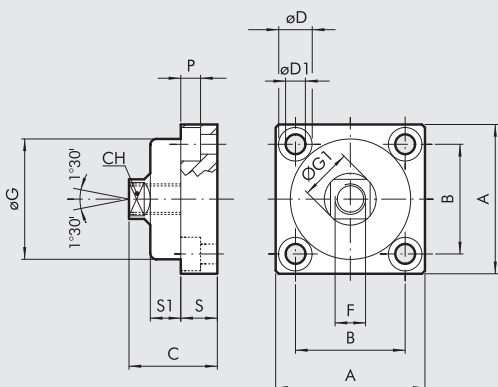


CMPC UNITOP AND ISO, TWO-FLAT UNITOP AND ISO

Code	Ø	A	B	B1	C	CH	D	F	ØG	ØG1	L	ØM	Weight [g]
W0950120025	12	20	9	6.75	11	11	M6	30	10	13	40	6	28
W0950200025	16	24	12	9	13	14	M8	36	12.5	16	48	8	50
W0950322025	20	28	14	10.5	15	17	M10x1.25	43	15	19	57	10	78
W0950322025	25	28	14	10.5	15	17	M10x1.25	43	15	19	57	10	78
W0950322025	32	28	14	10.5	15	17	M10x1.25	43	15	19	57	10	78
W0950322025	40	28	14	10.5	15	17	M10x1.25	43	15	19	57	10	78
W0950402025	50	32	16	12	17	19	M12x1.25	50	17.5	22	66	12	116
W0950402025	63	32	16	12	17	19	M12x1.25	50	17.5	22	66	12	116
W0950502025	80	42	21	15	23	22	M16x1.5	64	22	27	85	16	226
W0950802025	100	50	25	18	27	30	M20x1.5	77	27.5	34	102	20	404

Note: Individually packed.

COMPENSATION JOINT - MODEL GA

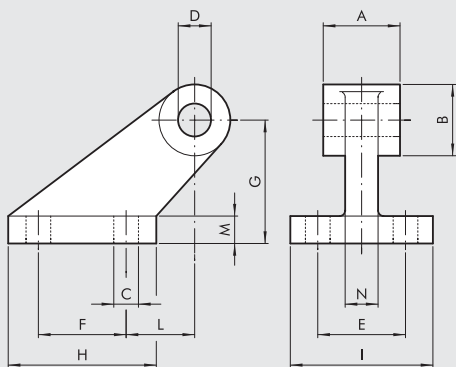


CMPC UNITOP, ISO, TWO-FLAT

Code	Ø	A	B	C	CH	ØD	ØD1	F	ØG	ØG1	P	S	S1	Weight [g]
W0950326021	20	49	36	30	13	11	6.5	M10x1.25	39.5	17	6.5	12	10	172
W0950326021	25	49	36	30	13	11	6.5	M10x1.25	39.5	17	6.5	12	10	172
W0950326021	32	49	36	30	13	11	6.5	M10x1.25	39.5	17	6.5	12	10	172
W0950326021	40	49	36	30	13	11	6.5	M10x1.25	39.5	17	6.5	12	10	172
W0950406021	50	59	42	36	15	14	8.5	M12x1.25	44	19	8.5	15	13.5	286
W0950406021	63	59	42	36	15	14	8.5	M12x1.25	44	19	8.5	15	13.5	286
W0950506021	80	79	58	44	22	17	10.5	M16x1.5	59	26	10.5	20	15	628
W0950806021	100	89	65	51	27	19	12.5	M20x1.5	69	31	12.5	20	20	1200

Note: Individually packed.

COUNTER-HINGE CETOP Ø 32 to 100

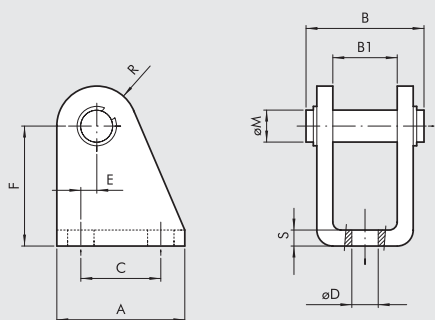


CMPC UNITOP AND ISO, TWO-FLAT UNITOP AND ISO

Code	Ø	A	B	C	D	E	F	G	H	I	L	M	N	Weight [g]
W0950322008	32	26	19	7	10	25	20	32	37	41	18	8	10	96
W0950402008	40	28	26	9	12	32	32	45	54	52	25	10	12	216
W0950502008	50	32	26	9	12	32	32	45	54	52	25	10	12	212
W0950632008	63	40	33	11	16	40	50	63	75	63	32	12	15	440
W0950802008	80	50	33	11	16	40	50	63	75	63	32	12	15	464
W0951002008	100	60	44	14	20	50	70	90	103	80	40	16	22	985

Note: Supplied complete with 4 screws, 4 washers

COUNTER-HINGE Ø 12 to 25 - MODEL BC

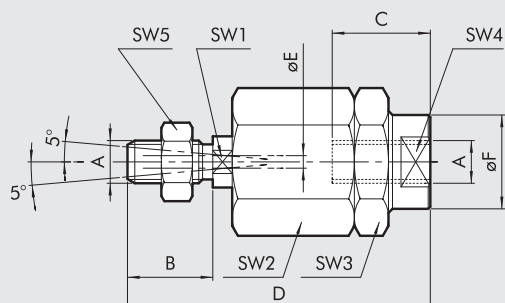


CMPC UNITOP

Code	Ø	A	B	B1	C	ØD	E	F	ØM	R	S	Weight [g]
W0950120005	12	25	25	12	15	5.5	2	27	6	7	3	40
W0950120005	16	25	25	12	15	5.5	2	27	6	7	3	40
W0950200005	20	32	30	16	20	6.5	4	30	8	10	4	78
W0950200005	25	32	30	16	20	6.5	4	30	8	10	4	78

Note: Supplied complete with 1 pin and and 2 snap rings

### SELF ALIGNING ROD COUPLER - MODEL GA-K



#### CMPC UNITOP, ISO, TWO-FLAT UNITOP E ISO

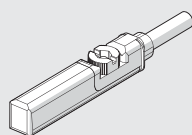
Code	Ø	A	B	C	D	ØE	ØF	SW1	SW2	SW3	SW4	SW5	Weight [g]
W0950120030	12	M6	10	10	35	2	8.5	5	13	13	7	10	24
W0950200030	16	M8	20	20	57	4	12.5	7	17	17	11	13	56
W0950322030	20	M10x1.25	20	20	71	4	22	12	30	30	19	17	216
W0950322030	25	M10x1.25	20	20	71	4	22	12	30	30	19	17	216
W0950322030	32	M10x1.25	20	20	71	4	22	12	30	30	19	17	216
W0950322030	40	M10x1.25	20	20	71	4	22	12	30	30	19	17	216
W0950402030	50	M12x1.25	24	20	75	4	22	12	30	30	19	19	220
W0950402030	63	M12x1.25	24	20	75	4	22	12	30	30	19	19	220
W0950502030	80	M16x1.5	32	32	103	4	32	20	41	41	30	24	620
W0950802030	100	M20x1.5	40	40	119	4	32	20	41	41	30	30	680

Note: Individually packed.

### RETRACTABLE SENSOR

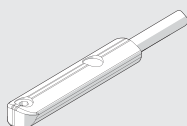
#### SENSOR, SQUARE TYPE

Latest generation,  
secure fixing



#### SENSOR, OVAL TYPE

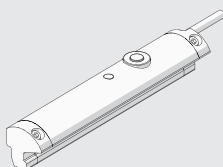
Traditional



For codes and technical data, see **chapter A6**.

### LTS POSITION SENSORS

For technical data and usage strokes see **chapter A6**.



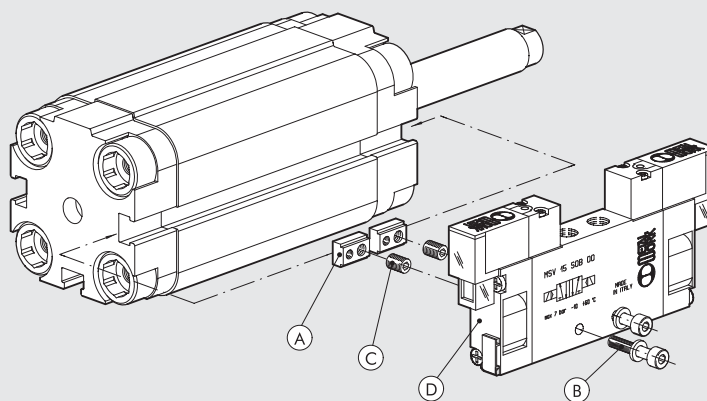
### VALVE ASSEMBLY ON CYLINDER

With this type of cylinder, the valves (D) can be mounted directly using the retracting sensor slot, without requiring the use of intermediate brackets. This can be done using the special plates (A) which come with both M3 and M4 threads, and screws (B) of the size, type and quantity shown in the table below.

The plates are supplied complete with 2 stud pins, one M3 and one M4 (C).

After the valve centre distance and the position of the valve have been determined, the plates can be secured to the cylinder.

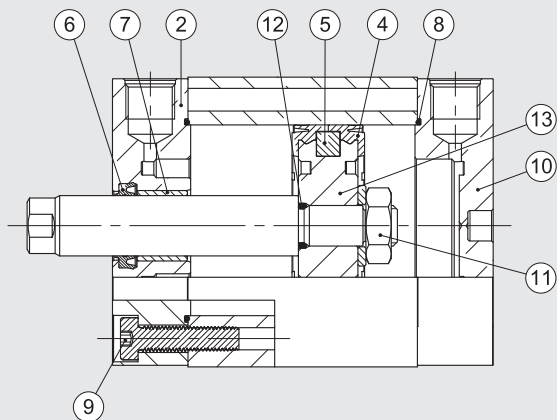
A "position memory" will be created to facilitate subsequent maintenance on the valve.



Type of valve to mount (D)	Fixing plate (A) CODE 0950003000	Position memory: grub screw (C) to be used	Screw (B) for connection to the cylinder (one per plate)	Washer (B) (one per screw)
MINIMACH	n° 2	M4	M3x16 UNI 5931 (DIN 912)	A3.2 UNI 1751 (DIN 127A)
MACH 11	n° 2	M4	M3x16 UNI 5931 (DIN 912)	A3.2 UNI 1751 (DIN 127A)
SERIE 70 1/8	n° 2	M3	M4x25 UNI 5931 (DIN 912)	—
SERIE 70 1/4	n° 2	M3	M4x30 UNI 5931 (DIN 912)	A4.3 UNI 1751 (DIN 127A)

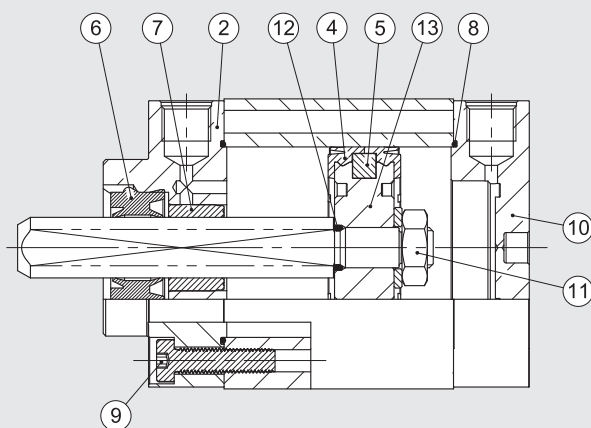
## SPARE PARTS

### COMPACT CYLINDERS, SERIES CMPC



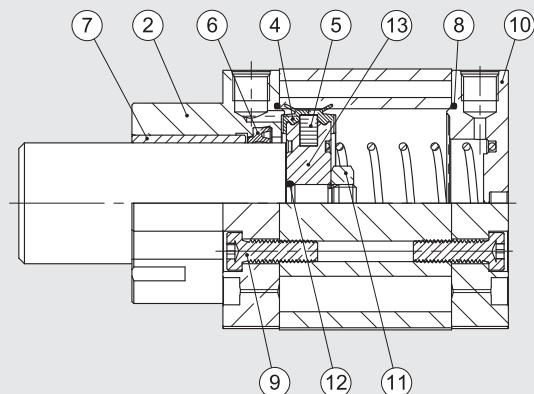
Code	Bores	Type	Parts
009 ... 7001	Ø 12 to 100	Complete set of gaskets polyurethane	4 6 8
009 ... 7008	Ø 20 to 100	Complete set of (high temperature) FKM/FPM gaskets	4 6 8
009 ... 7013	Ø 12 to 100	Polyurethane piston rod gasket kit	6
009 ... 7014	Ø 20 to 100	FKM/FPM piston rod gasket kit	6
009 ... 7101	Ø 12 to 100	Front cylinder head kit for UNITOP polyurethane	2 7 6 8 9
0090327101	Ø 32	Front cylinder head kit for ISO Ø 32 polyurethane	2 7 6 8 9
009 ... 8101	Ø 40 to 100	Front cylinder head kit for ISO polyurethane	2 7 6 8 9
009 ... 7201	Ø 12 to 100	Rear cylinder head kit for UNITOP polyurethane	8 9 10
0090327201	Ø 32	Rear cylinder head kit for ISO Ø 32 polyurethane	8 9 10
009 ... 8201	Ø 40 to 100	Rear cylinder head kit for ISO polyurethane	8 9 10
009 ... 7401	Ø 12 to 100	Piston kit polyurethane	4 5 11 12 13
009 ... 7501	Ø 12 to 100	Magnet	5
009 ... 7901	Ø 12 to 100	Front + rear cylinder head + piston kit for UNITOP polyurethane	2 4 5 6 7 8 9 10 11 12 13
0090327901	Ø 32	Front + rear cylinder head + piston kit for ISO Ø 32 polyurethane	2 4 5 6 7 8 9 10 11 12 13
009 ... 8901	Ø 40 to 100	Front + rear cylinder head + piston kit for ISO polyurethane	2 4 5 6 7 8 9 10 11 12 13

### COMPACT CYLINDERS, SERIES CMPC TWO-FLAT



Code	Bores	Type	Parts
009 ... 7001F	Ø 32 to 80	Set of gaskets	4 8 12
009 ... 7101F	Ø 40 to 80	Front cylinder head kit for UNITOP	2 7 6 8 9
0090327101F	Ø 32	Front cylinder head kit for ISO Ø 32	2 7 6 8 9
009 ... 8101F	Ø 40 to 80	Front cylinder head kit for ISO	2 7 6 8 9
009 ... 7201	Ø 40 to 80	Rear cylinder head kit for UNITOP	8 9 10
0090327201	Ø 32	Rear cylinder head kit for ISO Ø 32	8 9 10
009 ... 8201	Ø 40 to 80	Rear cylinder head kit for ISO	8 9 10
009 ... 7401	Ø 32 to 80	Piston kit	4 5 11 12 9 13
009 ... 7501	Ø 32 to 80	Magnet	5
009 ... 7901F	Ø 40 to 80	Front + rear cylinder head + piston kit for UNITOP	2 4 5 6 7 8 9 10 11 12 13
0090327901F	Ø 32	Front + rear cylinder head + piston kit for ISO Ø 32	2 4 5 6 7 8 9 10 11 12 13
009 ... 8901F	Ø 40 to 80	Front + rear cylinder head + piston kit for ISO	2 4 5 6 7 8 9 10 11 12 13

## COMPACT CYLINDERS, STOPPER



Code	Bores	Type	Parts
009...7060	Ø 20; 32; 50; 80	Complete set of gaskets	4 6 8
009...7160	Ø 20; 32; 50; 80	Front cylinder head kit for UNITOP	2 7 6 8 9
0090327160	Ø 32	Front cylinder head kit for ISO Ø 32	2 7 6 8 9
009...8160	Ø 50; 80	Front cylinder head kit for ISO	2 7 6 8 9
009...7201	Ø 20; 32	Rear cylinder head kit for UNITOP Ø 20 - Ø 32	8 9 10
009...7260	Ø 50; 80	Rear cylinder head kit for UNITOP	8 9 10
0090327201	Ø 32	Rear cylinder head kit for ISO Ø 32	8 9 10
009...8260	Ø 50; 80	Rear cylinder head kit for ISO	8 9 10
0090207401	Ø 20	Piston kit Ø 20	4 5 11
009...7460	Ø 32; 50; 80	Piston kit	4 5 11 12 13
009...7501	Ø 20; 32; 50; 80	Magnet	5
009...7960	Ø 20; 32; 50; 80	Front + rear cylinder head + piston kit for UNITOP	2 4 5 6 7 8 9 10 11 12 13
0090327960	Ø 32	Front + rear cylinder head + piston kit for ISO Ø 32	2 4 5 6 7 8 9 10 11 12 13
009...8960	Ø 50; 80	Front + rear cylinder head + piston kit for ISO	2 4 5 6 7 8 9 10 11 12 13

## NOTES