

ISO 21287 CYLINDER SERIES LINER

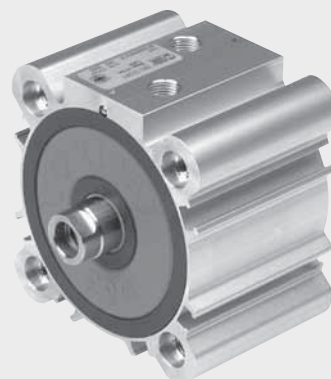
Compact cylinder to ISO 21287, LINER series, available in different versions to meet all possible requirements:

- 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.

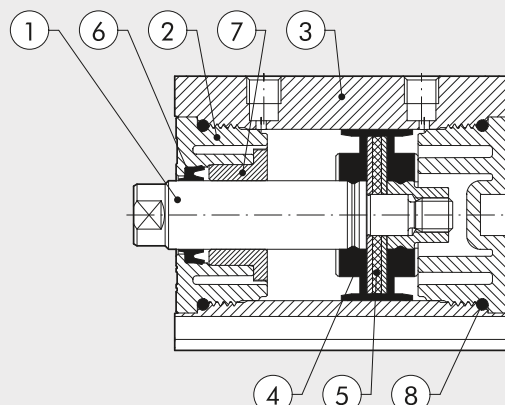
Retractable magnetic limit switches can be mounted to identify the position in the cylinder grooves.



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	bar	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.4
for through-rod	bar	0.8	0.8	0.6	0.4	0.4	0.4	0.4	0.4
Forces generated at 6 bar thrust/retraction		see page 1-7							
Weights		see page 1-9							
Notes		For correct operation, it is advisable to use 50 µm filtered air							
		For speeds lower than 0.2 m/s to prevent surging, use the version No stick-slip and non-lubricated air.							

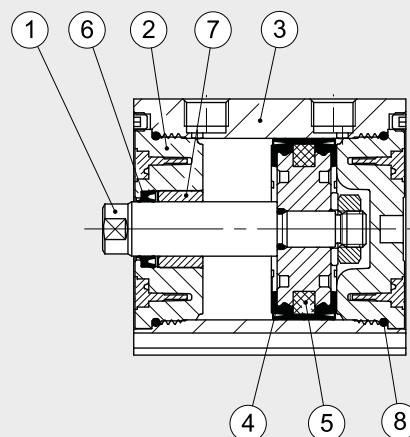
COMPONENTS Ø 20-25

- 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)



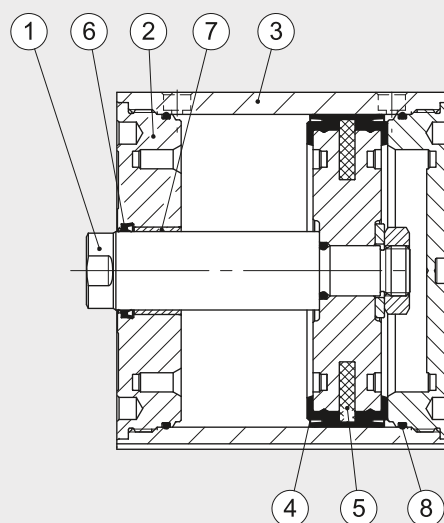
COMPONENTS Ø 32-63

- 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)

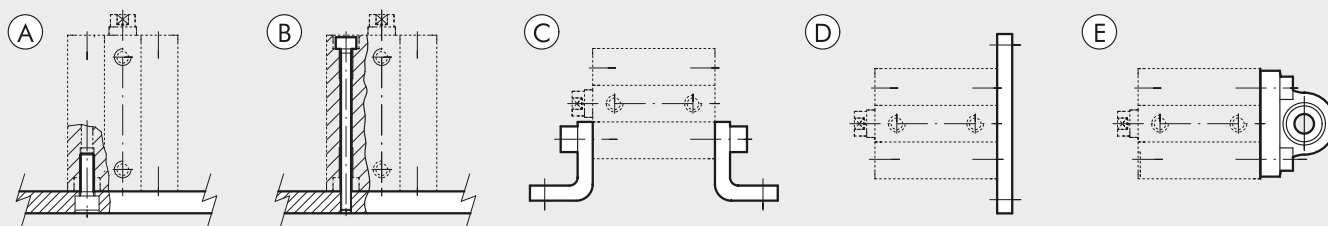


COMPONENTS Ø 80-100

- 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



- 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 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

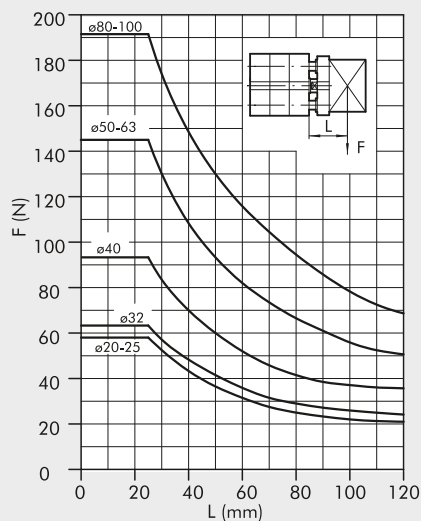
STROKES FOR COMPACT CYLINDERS ISO 21287

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 → 25 mm	Ø 20 to 25 → 5 to 60 mm Ø 32 to 100 → 5 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 → 5 to 80 mm Ø 50 to 63 → 5 to 100 mm Ø 80 to 100 → 5 to 160 mm

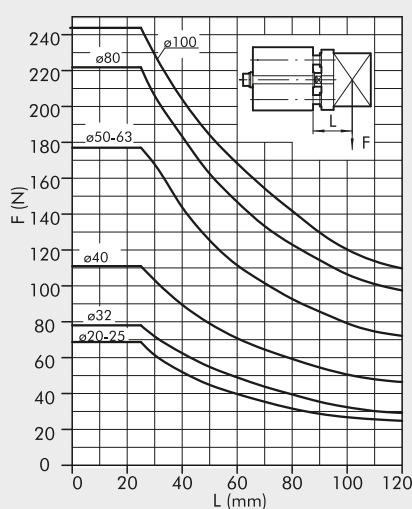
Maximum recommended strokes. Higher values can create operating problems

MAXIMUM LOADS FOR NON-ROTATING VERSION

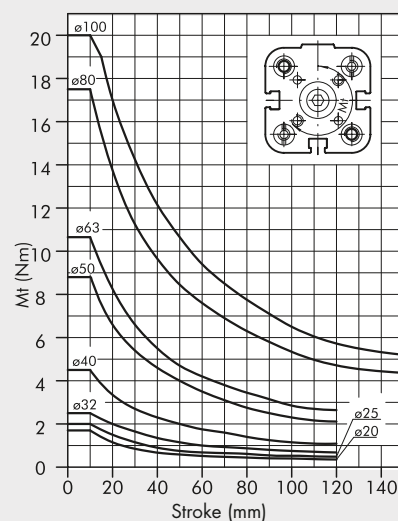
TRANSVERSAL FORCE FOR NON-ROTATING



TRANSVERSAL FORCE FOR NON-ROTATING THROUGH-ROD

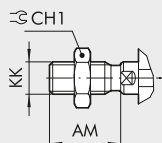


TORQUE DEPENDING ON STROKE

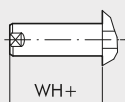


DIMENSIONS OF DOUBLE-ACTING Ø 20 to 50 AND SINGLE-ACTING Ø 20 to 50

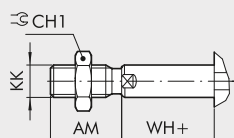
SE-DE MALE PISTON ROD



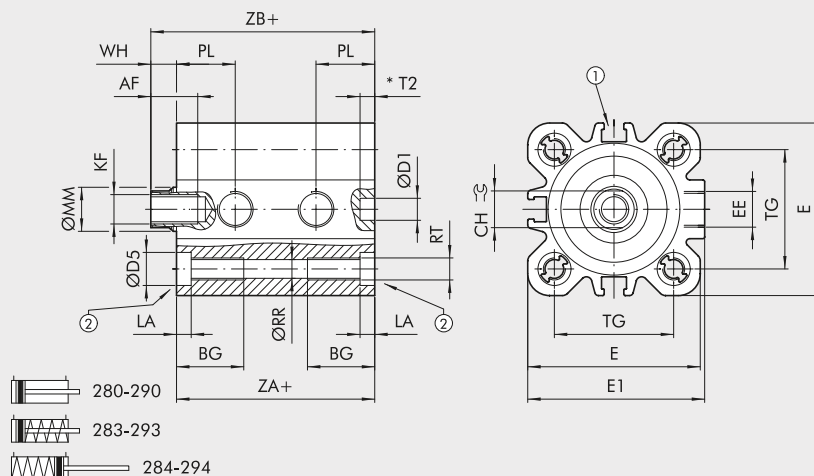
SE EXTENDED PISTON ROD



SE MALE EXTENDED PISTON ROD



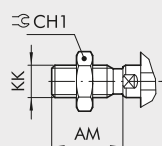
- + = ADD THE STROKE
- * = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS



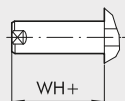
Ø	AF	AM	BG	CH	CH1	ØD1 ^{H9}	ØD5	E	E1	EE	KF	KK	LA	ØMM	PL	ØRR	RT	T2	TG ^{±0.2}	WH	ZA ^{+0.3} ₀	ZB
20	14	16	17.5	8	13	6	7.5	35.5	36.5	M5	M6	M8	4.2	10	12	4.2	M5	3	22	6	37	43
25	14	16	17.5	8	13	6	7.5	39.5	40	M5	M6	M8	4.2	10	13	4.2	M5	3.5	26	6	39	45
32	16.5	19	21.5	10	17	6	9	47	48.2	G1/8	M8	M10x1.25	4	12	16	5.1	M6	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	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	3	46.5	8	45	53

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

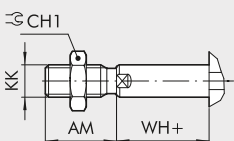
SE-DE MALE PISTON ROD



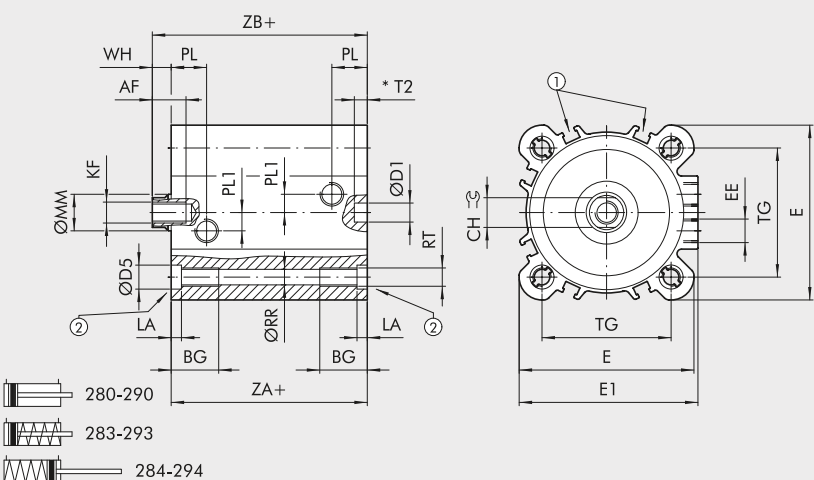
SE EXTENDED PISTON ROD



SE MALE EXTENDED PISTON ROD



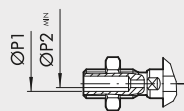
- + = ADD THE STROKE
- * = SECTION WITH TOLERANCE
- 1 = SENSOR SLOT
- 2 = SEAT FOR DIN 7984 SCREWS



Ø	AF	AM	BG	CH	CH1	ØD1 ^{H9}	ØD5	E	E1	EE	KF	KK	LA	ØMM	PL1	PL	ØRR	RT	T2	TG ^{±0.2}	WH	ZA ^{+0.4} ₀	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	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	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	4	89	10	67	77

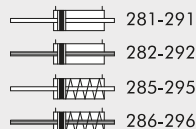
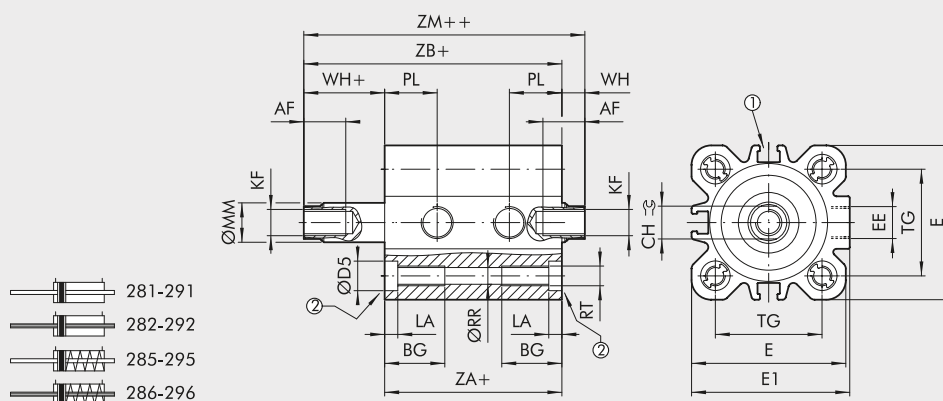
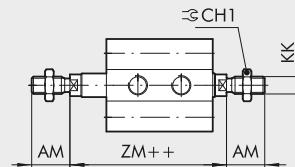
DIMENSIONS OF THROUGH-ROD Ø 20 to 50

SE-DE MALE PERFORATED THROUGH-ROD



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

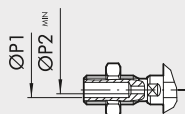
SE-DE MALE PISTON ROD



Ø	AF	AM	BG	CH	CH1	ØD5	E	E1	EE	KF	KK	LA	ØMM	ØP1	ØP2	PL	ØRR	RT	TG ^{+0.2}	WH	ZA ^{+0.3}	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	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	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	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	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	46.5	8	45	53	61

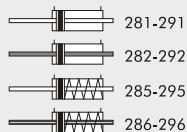
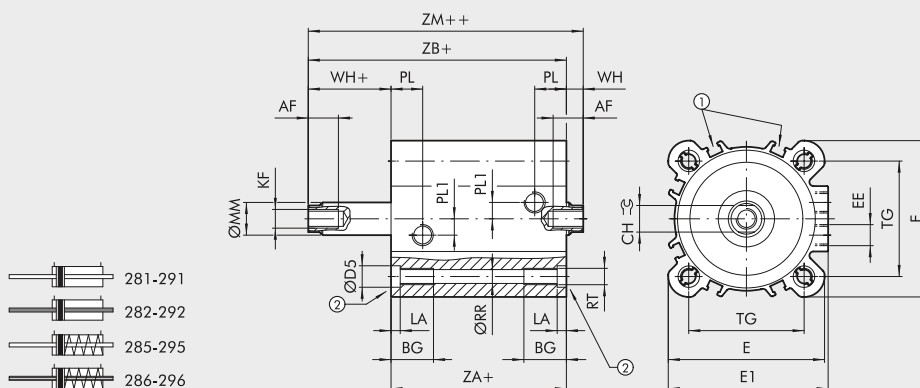
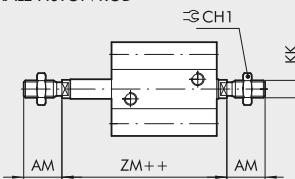
DIMENSIONS OF THROUGH-ROD Ø 63 to 100

SE-DE MALE PERFORATED THROUGH-ROD



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

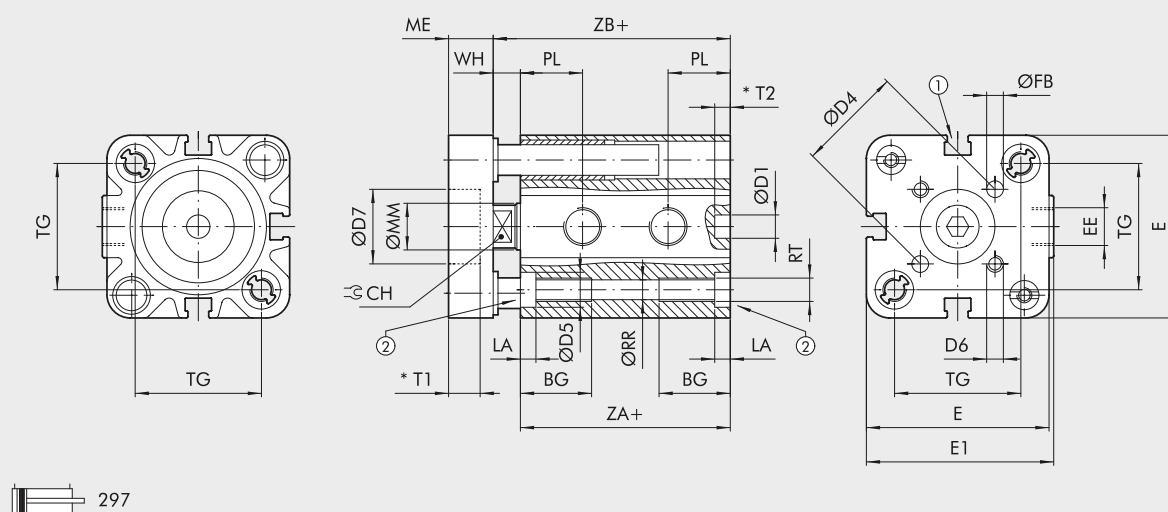
SE-DE MALE PISTON ROD



Ø	AF	AM	BG	CH	CH1	ØD5	E	E1	EE	KF	KK	LA	ØMM	ØP1	ØP2	PL1	PL	ØRR	RT	TG ^{+0.2}	WH	ZA ^{+0.4}	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	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	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	89	10	67	77	87

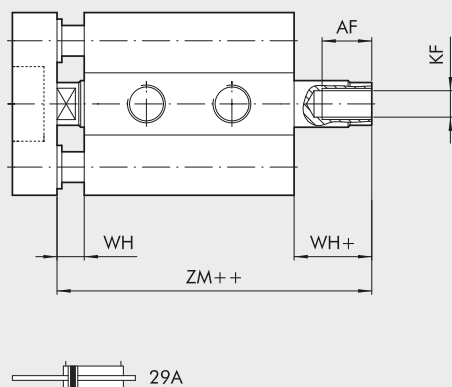
DIMENSIONS OF NON-ROTATING Ø 20 to 50

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



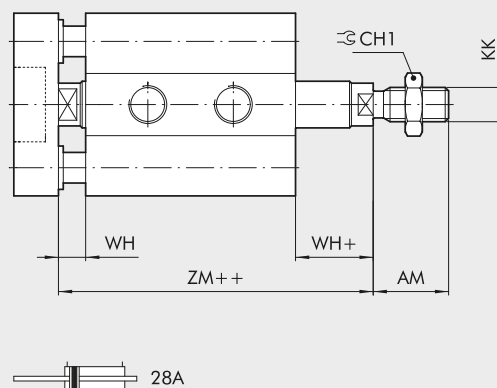
NON-ROTATING FEMALE THROUGH-ROD

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



NON-ROTATING MALE THROUGH-ROD

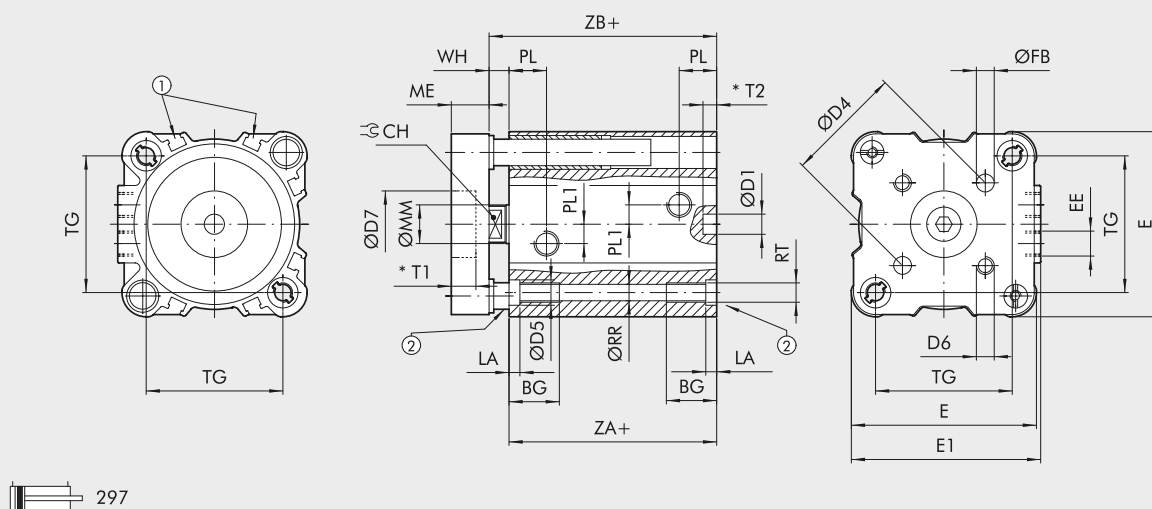
- + = ADD THE STROKE
- ++ = ADD TWICE THE STROKE



Ø	AF	AM	BG	CH	CH1	ØD1 ¹⁰	ØD4	ØD5	D6	ØD7 ¹⁰	E	E1	EE	ØFB	KF	KK	LA	ME	ØMM	PL	ØRR	RT	T1	T2	TG ^{10,2}	WH	ZA ^{10,3}	ZB	ZM
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	-	3	22	6	37	43	49
25	14	16	17.5	8	13	6	22	7.5	M5	14	39.5	40	M5	5	M6	M8	4.2	8	10	13	4.2	M5	3.5	3.5	26	6	39	45	51
32	16.5	19	21.5	10	17	6	28	9	M5	17	47	48.2	G1/8	5	M8	M10x1.25	4	10	12	16	5.1	M6	3.5	4	32.5	7	44	51	58
40	16.5	19	21.5	10	17	6	33	9	M5	17	55.5	56.5	G1/8	5	M8	M10x1.25	4	10	12	16	5.1	M6	3.5	4	38	7	45	52	59
50	17	22	21	13	19	6	42	10.5	M6	22	66.5	67.8	G1/8	6	M10	M12x1.25	4.5	12	16	15.5	6.8	M8	5	3	46.5	8	45	53	61

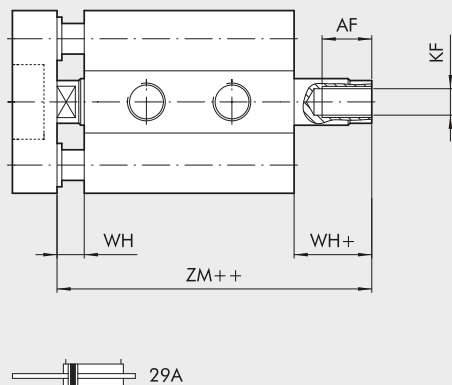
DIMENSIONS OF NON-ROTATING Ø 63 to 100

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



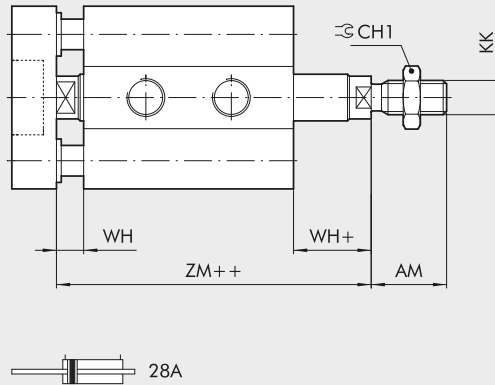
NON-ROTATING FEMALE THROUGH-ROD

- + = 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 ^{HP}	ØD4	ØD5	D6	ØD7 ^{HP}	E	E1	EE	ØFB	KF	KK	LA	ME	ØMM	PL1	PL	ØRR	RT	T1	T2	TG ^{+0.2}	WH	ZA ^{+0.4}	ZB	ZM
63	17	22	21	13	19	8	50	10.5	M6	22	76.5	78.3	G1/8	6	M10	M12x1.25	4.5	12	16	8	15.5	6.8	M8	5	3.5	56.5	8	49	57	65
80	22	28	22.5	17	24	8	65	14	M8	24	95.5	95.5	G1/8	8	M12	M16x1.5	5	14	20	14	16.5	8.5	M10	7.5	4	72	10	54	64	74
100	24	28	25.5	22	30	8	80	14	M10	24	114	114	G1/8	10	M12	M16x1.5	5	14	25	19	19.2	8.5	M10	7.5	4	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 1 Double-acting through-rod 2 Double-acting through-rod perforated	0 Magnetic □ S Non-magnetic ▲ G No stick slip	20 25 32 40 50 63 80 ◆ 100	0 Standard		* C C45 piston rod chromium-plated ▷ X Stainless steel piston rod and nut ◁ A C45 chromed rod, aluminium piston ○ Z Stainless steel piston rod and nut aluminium piston	P Polyurethane gaskets ▶ V FKM/FPM gaskets
	29 Compact cylinder ISO 21287 female piston rod	● 3 Single-acting retracting piston rod ● 4 Single-acting extended piston rod ● 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 suppliance stroke, see page 1-68.

- Can also be used as double-acting with spring return
- ▼ For versions 29 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 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 Ø 100 becomes A1
- ▶ 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 63 P version (Polyurethane gaskets)
- ▷ Only for Ø 20 to 63 P version (Polyurethane gaskets)
- ◁ Only for Ø 32 to 100 V version (FKM/FPM gaskets) and for Ø 80 and 100 P version (Polyurethane gaskets)
- Only for Ø 20 to 100 V version (FKM/FPM gaskets) and for Ø 80 and 100 P version (Polyurethane gaskets)

NOTES