Minicylinders Series 16, 24 and 25

Single and double–acting [CETOP RP52–P DIN/ISO 6432 Standard, BSP and NPTF ports]
Series 16: bore ø 8, 10, 12 mm [5/16″, 3/8″, 1/2″ inch approximations]
Series 24: bore ø 16, 20, 25 mm magnetic piston [5/8″, 3/4″, 1″]
Series 25: bore ø 16, 20, 25 mm magnetic piston adjusting cushioning [5/8″, 3/4″, 1″]

Minicylinders Series 16, 24 and 25 are manufactured according to the European Standard Specifications CETOP RP52–P and DIN/ISO 6432. The choice of materials and other design features have provided the basis for a complete range of versatile and reliable cylinders.

The precise method of placing the tube at the end block ensures that all the parts are perfectly aligned.
Since the Series 16 and 24 may be required to operate at very high speeds, a fixed mechanical cushioning has been fitted as standard in order to reduce wear by high impact loads.
Series 25 has an adjustable pneumatic cushioning and a magnetic piston.
Various mounting accessories are available to enable the cylinders to be fitted to suit the requirement of a particular application.
Series 24 cylinders are intended to be used with magnetic sensors mounted on the cylinder. Their dimensions are identical to those of the Series 16.

Note: The brackets and sensor have to be ordered separately from cylinders.
Rod nut and end cap nut included.

- Standard CETOP RP52–P DIN/ISO 6432
- Stainless steel tube and piston rod
- Anodized aluminum end blocks

Dimensions are in millimeters, inch notations are approximate for bore sizes.

GENERAL DATA

Type of construction	Flanged
Operation	Single–acting or double–acting
Materials	Aluminum end–blocks, stainless steel tube (AISI 304) and piston rod (AISI 303), polyurethane seals, other parts (see coding)
Operating temperature	0°C – 80°C (with dry air–20°C), 32°F – 175°F (Dry Air –40°F)
Bore	Series 16: ø 8, 10, 12 mm; Series 24: ø 16, 20, 25 mm; Series 25: ø 16, 20, 25 mm
Stroke	Standard (see table) mm and inch approximations
Brackets †	Screw, flange, feet, trunnion
Special designs	For applications in damp, dusty or aggressive environments for NPTF cylinder bores see code key below

*For special design requests, contact factory for exact code

†Brackets are supplied separately and are not mounted on cylinders.

PNEUMATIC DATA

Operating pressure	Min. pressure: 1 bar (14.5 psi)
	Max. pressure: 10 bar (145 psi)
Speed	Minimum = 10 mm/sec (no load)
	Maximum ≤ 1000 mm/sec (no load)
Fluid	Clean air, with or without lubrication

MINICYLINDER CODING

24N2A16A100 TF ___

SERIES
16 = non–magnetic, with bumpers
24 = magnetic, with bumpers
25 = magnetic, adjustable cushioning

MODIFICATIONS
N = standard

OPERATION
1 = single–acting (front spring)
2 = double–acting
3 = double–acting (double–rod)
7 = single–acting (double–rod)

MATERIALS USED
A = stainless steel rod, (AISI 303) tube
B = stainless steel rod, (AISI 303) tube and niploy heads

BORE
in mm
8mm 16mm
10mm 20mm
12mm 25mm

TYPE OF BRACKET†
A = standard (screw with ring + lock nut for rod)
RL = cylinder with rod lock **ø 20-25**
† The brackets are supplied separately and are not mounted on cylinders

STROKE
in mm

PORTS
TF = NPTF Ports
Blank = BSPP/G Ports

SPECIAL ORDER

Note: All cylinders are supplied complete with rod nut and end cap included.

Dimensions are in millimeters, inch notations are approximate for bore sizes.

TABLE SHOWING OUTPUT FORCES OF THE SERIES 16, 24 AND 25

Bore ø mm (inch)	Rod ø mm	Working area in cm^2		Operating pressure in bar, 1 bar = 14.5 psi									
				1	2	3	4	5	6	7	8	9	10
				Output force in N (efficiency factor 0,9) (N x 0.2245 = lbf)									
8 (5/16")	4	extend side	0.50	4	9	13	18	22	26	31	35	40	44
		retract side	0.38	3	7	10	13	17	20	23	27	30	33
10 (3/8")	4	extend side	0.78	7	14	21	28	35	42	48	55	62	69
		retract side	0.66	6	12	17	23	29	35	41	47	52	58
12 (1/2")	6	extend side	1.13	10	20	30	40	50	60	70	80	90	100
		retract side	0.85	7	15	22	30	38	45	52	60	67	75
16 (5/8")	6	extend side	2.00	18	35	53	71	88	106	123	141	159	176
		retract side	1.72	15	30	46	61	76	91	106	122	137	152
20 (3/4")	8	extend side	3.14	28	55	83	111	138	166	193	222	250	277
		retract side	2.64	23	47	70	93	116	140	162	186	210	233
25 (1")	10	extend side	4.90	43	86	130	173	216	260	302	346	389	432
		retract side	4.12	36	73	109	145	181	218	254	291	327	363

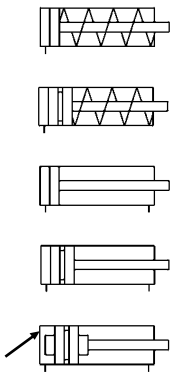
THE VALUES SHOWN IN THE TABLE WERE OBTAINED USING THE FOLLOWING FORMULA:

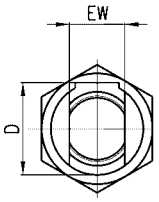
$$Ss = \frac{D^2 \cdot \pi}{4} \cdot P \cdot \eta \qquad St = \frac{(D^2 - d^2) \cdot \pi}{4} \cdot P \cdot \eta$$

Ss = Output force on extend side
St = Output force on retract side
P = Operating pressure in bar
D = diameter on extend side in cm
d = rod diameter in cm
η = efficiency factor

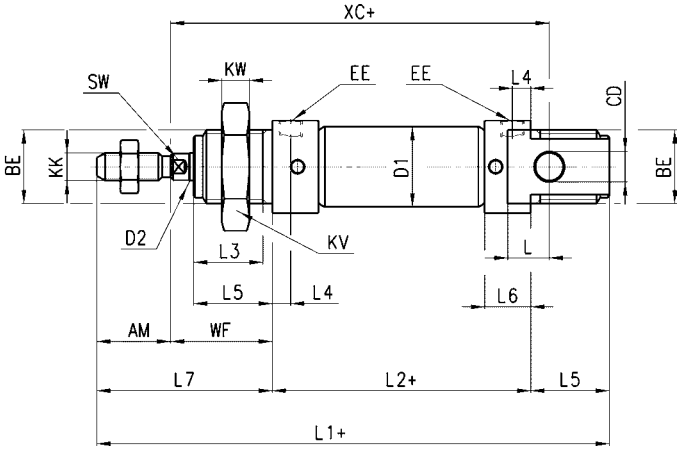
Dimensions are in millimeters, inch notations are approximate for bore sizes.

Minicylinders Series 16 – 24 – 25





(+ = add stroke)



DIMENSIONS

Series	Bore ø mm (inch)	EW	KW	BE	KK	øCD	øD1	NPTF EE	øD2	L1	XC	L2	AM	L3	L4	L5	L	WF	L6	L7	KV	SW	D
16	8 (5/16")	8	7	M12x1,25	M4x0,7	4	9,3	M5*	4	86	64	46	12	10	4,5	12	6	16	9	28	19	-	15
16	10 (3/8")	8	7	M12x1,25	M4x0,7	4	11,3	M5*	4	86	64	46	12	10	4,5	12	6	16	9	28	19	-	15
16	12 (1/2")	12	8	M16x1,5	M6x1	6	14	M5*	6	105	75	50	16	15	4,5	17	9	22	9	38	24	5	20
24–25	16 (5/8")	12	8	M16x1,5	M6x1	6	18	M5*	6	111	82	56	16	15	4	17	9	22	10	38	24	5	20
24–25	20 (3/4")	16	10	M22x1,5	M8x1,25	8	22	1/8"	8	132	95	68	20	18	8	20	12	24	16	44	32	7	27
24–25	25 (1")	16	10	M22x1,5	M10x1,25	8	27	1/8"	10	141,5	104	69,5	22	20	8	22	12	28	16	50	32	9	27

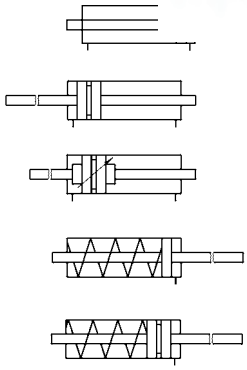
For special order rod threads, contact factory
For NPTF cylinder part number, contact factory

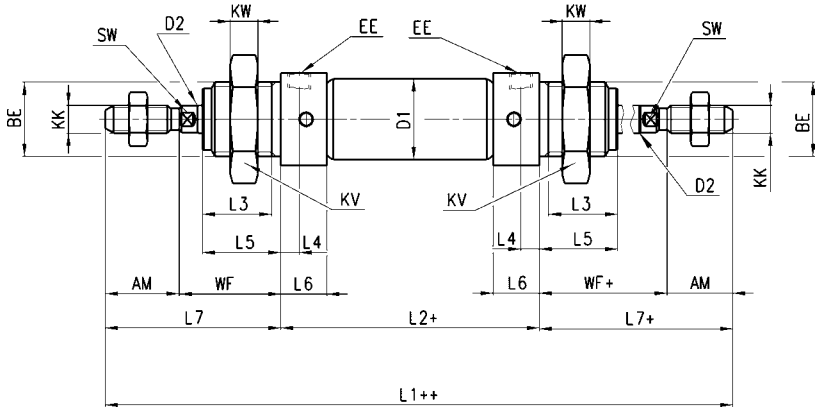
1 meter = 39.37 inches
* MS ports (10-32 UNF thread compatible)

Dimensions are in millimeters, inch notations are approximate for bore sizes.

Minicylinders Series 16 – 24 – 25

With double–rod.



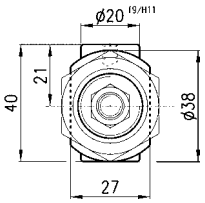


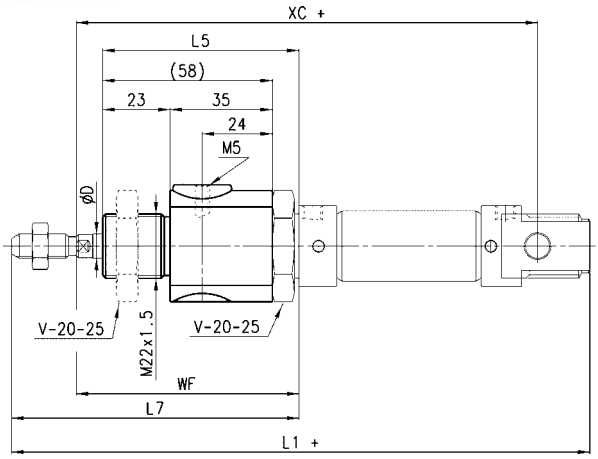
+ = add stroke
++ add stroke two times

DIMENSIONS

Series	ø	KW	BE	KK	øD1	EE	øD2	L1	L2	AM	L3	L4	L5	WF	L6	L7	KV	SW
16	8(5/16")	7	M12x1,25	M4x0,7	9,3	M5	4	102	46	12	10	4,5	12	16	9	28	19	-
16	10(3/8")	7	M12x1,25	M4x0,7	11,3	M5	4	102	46	12	10	4,5	12	16	9	28	19	-
16	12(1/2")	8	M16x1,5	M6x1	14	M5	6	126	50	16	15	4,5	17	22	9	38	24	5
24-25	16(5/8")	8	M16x1,5	M6x1	18	M5	6	132	56	16	15	4	17	22	10	38	24	5
24-25	20(3/4")	10	M22x1,5	M8x1,25	22	1/8"	8	156	68	20	18	8	20	24	16	44	32	7
24-25	25(1")	10	M22x1,5	M10x1,25	27	1/8"	10	169,5	69,5	22	20	8	22	28	16	50	32	9

Version with rod lock





+ = add stroke

DIMENSIONS								*REQUIRED
ø	D f7	WF	L5	L7	XC	L1	Holding force (lbf)	Rod extension
20	8	74	70	94	145	182	67.44	+50
25	10	76	70	98	152	189,5	89.9	+48

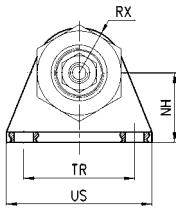
* must be indicated on cylinder order.

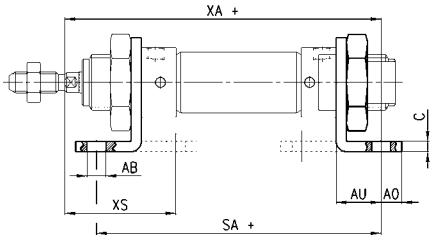
Dimensions are in millimeters, inch notations are approximate for bore sizes.

Foot mount Mod. B...

Material: zinc-plated steel.
The following is supplied:
N° 2 feet
N° 1 front end cap nut mod. V

+ = add stroke





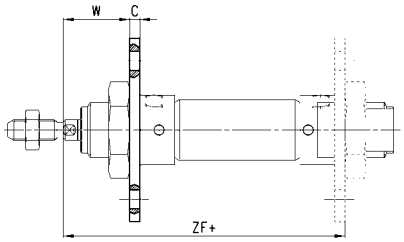
DIMENSIONS

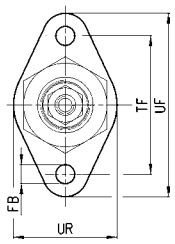
Mod.	ø	TR	US	øAB	C	NH	AO	AU	RX	XA	SA	XS
B-8-10	8-10	25	35	4,5	2,5	16	4,5	10,5	10	72,5	67	54
B-12-16	12	32	42	5,5	3	20	6	13	13	82,5	71	64
B-12-16	16	32	42	5,5	3	20	6	13	13	91	82	68
B-20-25	20	40	54	6,6	4	25	8	16	20	108	100	80
B-20-25	25	40	54	6,6	4	25	8	16	20	113,5	101,5	85,5

Front/rear flange mount Mod. E...

Material: zinc-plated steel.

+ = add stroke





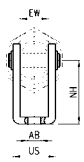
DIMENSIONS

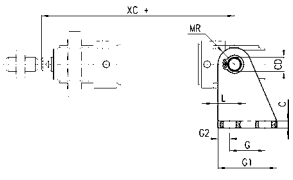
Mod.	ø	C	øFB	TF	UF	UR	W	ZF
E-8-10	8-10	2,5	4,5	30	25	40	13,5	64,5
E-12-16	12	3	5,5	40	30	53	19	75
E-12-16	16	3	5,5	40	30	53	19	81
E-20-25	20	4	6,6	50	40	66	20	96
E-20-25	25	4	6,6	50	40	66	24	101,5

Rear Trunnion bracket Mod. I...

Material: zinc-plated steel.

+ add the stroke



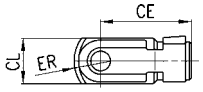


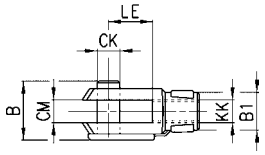
DIMENSIONS

Mod.	ø	G1	G	G2	øCD	øAB	C	NH	EW	US	MR	XC	L
I-8-10	8-10	20	12,5	3,5	4	4,5	2,5	24	8	13,1	5	64	6
I-12-16	12	25	15	5	6	5,5	3	27	12	18,1	7	75	9
I-12-16	16	25	15	5	6	5,5	3	27	12	18,1	7	82	9
I-20-25	20	32	20	6	8	6,6	4	30	16	24,1	10	95	12
I-20-25	25	32	20	6	8	6,6	4	30	16	24,1	10	104	12

Rod Fork End Mod. G...

ISO 8140
Material: zinc-plated steel.





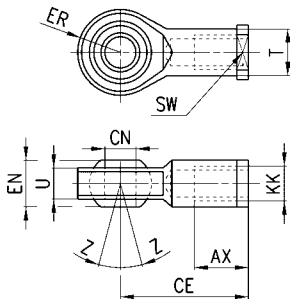
DIMENSIONS

Mod.	ø	øCK	LE	CM	CL	ER	CE	KK	B	øB1
G-8-10	8-10	4	8	4	8	5	16	M4x0,7	11	8
G-12-16	12-16	6	12	6	12	7	24	M6x1	16	10
G-20	20	8	16	8	16	10	32	M8x1,25	22	14
G-25-32	25	10	20	10	20	12	40	M10x1,25	26	18

Dimensions are in millimeters, inch notations are approximate for bore sizes.

Swivel Ball Joint Mod. GA...

ISO 8139
Material: zinc-plated steel.

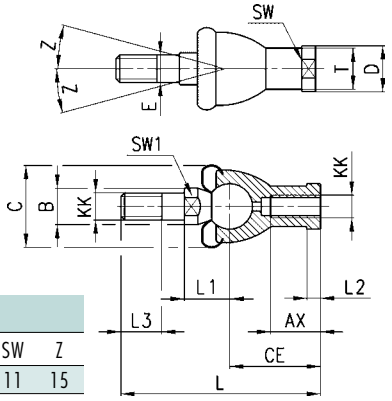


DIMENSIONS

Mod	ø	øCN (H7)	U	EN	ER	AX	CE	KK	øT	Z	SW
GA-12-16	12-16	6	7	9	10	12	30	M6x1	10	6,5	11
GA-20	20	8	9	12	12	16	36	M8x1.25	12,5	6,5	14
GA-32	25	10	10,5	14	14	20	43	M10x1.25	15	6,5	17

Piston Rod Socket Joint Mod. GY...

Material: zama and zinc-plated steel.

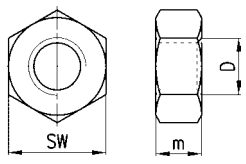


DIMENSIONS

Mod.	ø	KK	L	CE	L2	AX	E	øB	øC	øT	øD	L1	L3	SW1	SW	Z
GY-12-16	12-16	M6x1	55	28	5	15	6	10	20	10	13	12,2	11	8	11	15
GY-20	20	M8x1,25	65	32	5	16	8	12	24	12,5	16	16	12	10	14	15
GY-25-32	25	M10x1,25	74	35	6,5	18	10	14	28	15	19	19,5	15	11	17	15

Piston Rod Nut Mod. U...

Included with cylinder.

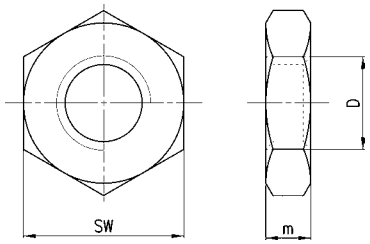


DIMENSIONS

Mod.	ø mm	D	m	SW
U–8–10	8–10	M4x0,7	3	7
U–12–16	12–16	M6x1	4	10
U–20	20	M8x1.25	5	13
U–25–32	25	M10x1.25	6	17

End Cap Nut Mod. V...

Included with cylinder.



DIMENSIONS

Mod.	ø cyl.	D	m	SW
V–8–10	8–10	M12x1,25	7	19
V–12–16	12–16	M16x1,5	8	24
V–20–25	20–25	M22x1,5	10	32

Dimensions are in millimeters, inch notations are approximate for bore sizes.