Profile Design Air Cylinder

Series CP95

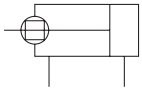
ø32, ø40, ø50, ø63, ø80, ø100

Features

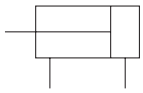
- *Conforms to VDMA 24 562 (parts 1 and 2), ISO 6431 and CETOP standards.*
- *Combines lightweight profile barrel design with enclosed tie rods for clean lines.*
- *Unique seal system ensures efficient performance and long life.*
- *Fully adjustable cushioning at end of stroke.*
- *Magnetic proximity sensing.*
- *Superior cushioning performance and Kinetic energy absorption.*

JIS Symbol

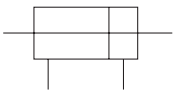
Non-Rotating
Double acting, Single rod



Double acting, Single rod



Double acting, double rod



Technical Specifications

Bore size (mm)	32	40	50	63	80	100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5 MPa					
Max. operating pressure	1.0 MPa					
Min. operating pressure	0.05 MPa					
Ambient and fluid temperature	Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000 mm/s					
Allowable stroke tolerance	Up to 250: $^{+1.0}_{0}$, 251 to 1000: $^{+1.4}_{0}$, 1001 to 1500: $^{+1.8}_{0}$					
Cushion	Both ends (Air cushion)					
Thread tolerance	JIS Class 2					
Port size	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 1/2
Mounting	Basic style, Axial foot style, Rod side flange style, Head side flange style, Single clevis style, Double clevis style					

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max. * stroke
32	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	700
40	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	800
50	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1200
63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1200
80	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1400
100	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1500

Intermediate strokes are available.
* Please consult with SMC for longer strokes.

How to Order: Cylinders

CP95 S D B 32 – 80 –

Auto Switch Specifications
Refer to switch section.

Piston rod
- S Standard
- K Non-rotating

D With built-in magnet

Ø Bore [mm]
- 32
- 40
- 50
- 63
- 80
- 100

Stroke [mm] (Standard strokes)

Rod specifications
- Nil Hard chromed rod as standard
- W Double/through rod

Special specifications
- XB6 Heat resistant to150° C (without magnet)
- XC6 Stainlees steel piston rod and rod end nut

Specifications

Type		Model	Bore						Stroke end cushioning as standard	Rod specifications	
			32	40	50	63	80	100		XC6	XB6
Double acting	Standard	CP95SB	•	•	•	•	•	•	•	•	•
		CP95SDB	•	•	•	•	•	•	•	•	–
	Double rod	CP95SB•W	•	•	•	•	•	•	•	•	•
		CP95SDB•W	•	•	•	•	•	•	•	•	–
	Non-rotating rod	CP95KB	•	•	•	•	•	•	•	•	–
		CP95KDB	•	•	•	•	•	•	•	•	–

W = Double/through rod
XC6 = stainless rod
XB6 = heat resistant (to 150°C)

•available
– not available

Rod Accessories



Bore size (mm)	Rod Clevis DIN 71752	Piston Rod Ball Joint DIN 648	Floating Joint
32	GKM10-20	KJ10D	JA30-10-125
40	GKM12-24	KJ12D	JA40-12-125
50	GKM16-32	KJ16D	JA50-16-150
63	GKM16-32	KJ16D	JA50-16-150
80	GKM20-40	KJ20D	JAH50-20-150
100	GKM20-40	KJ20D	JAH50-20-150

Cylinder Mounting Accessories

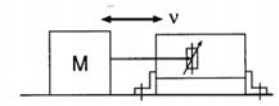
Bore size (mm)	Front/ Rear Flange	Female Rear Clevis	Male Rear Clevis		Angled Rear Clevis	Foot	Female Rear Clevis	Angled Rear Clevis
			Plain	with ball joint				
32	F5032	D5032	C5032	CS5032	E5032	L5032	DS5032	ES5032
40	F5040	D5040	C5040	CS5040	E5040	L5040	DS5040	ES5040
50	F5050	D5050	C5050	CS5050	E5050	L5050	DS5050	ES5050
63	F5063	D5063	C5063	CS5063	E5063	L5063	DS5063	ES5063
80	F5080	D5080	C5080	CS5080	E5080	L5080	DS5080	ES5080
100	F5100	D5100	C5100	CS5100	E5100	L5100	DS5100	ES5100

Kinetic Energy

Kinetic energy absorbable by air cushion.

$$E = \frac{1}{2} m \cdot v^2$$

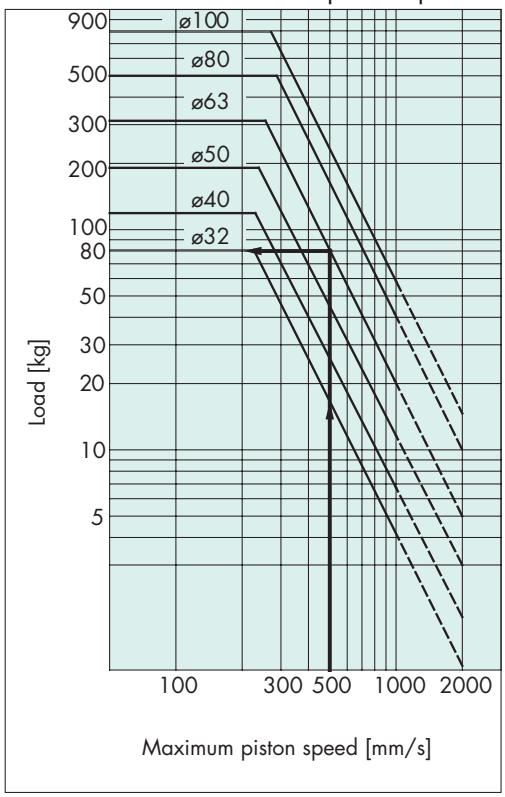
E: Kinetic energy [J = Nm]
m: Load weight [kg]
v: Piston speed [m/s]



Note: v is final velocity which is 1.4 • average velocity.

If the kinetic energy obtained is no greater than the absorbable kinetic energy shown in the table above, the life of the cushion seal should be 10 million cycles or more.

Moveable mass at various piston speeds



Example: Find the rod end load limit when a ø63 air cylinder is operated at a maximum drive speed of 500mm/s. Extend upward from 500mm/s on the horizontal axis of the graph to the intersection point with the line for a tube bore of 63mm, and then extend lefward from this point to find the load of 80kg.

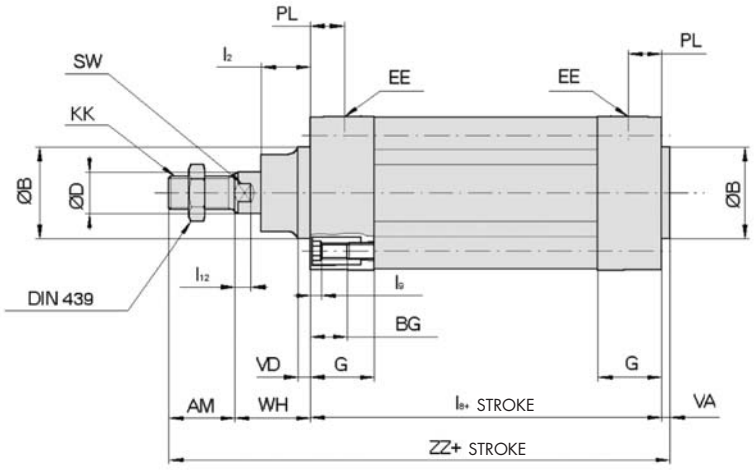
Replacement Parts: Seal Kits

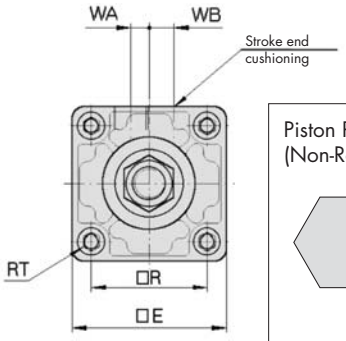
Ø	Order No's	
	Standard	Non-Rotating
32	CS95-32	CK95-32
40	CS95-40	CK95-40
50	CS95-50	CK95-50
63	CS95-63	CK95-63
80	CS95-80	CK95-80
100	CS95-100	CK95-100

Actuators

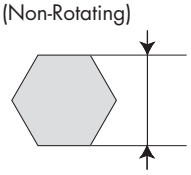
Dimensions - Standard Specifications (mm)

CP95S□BØ-stroke Magnetic, Non-Magnetic and Non Rotating





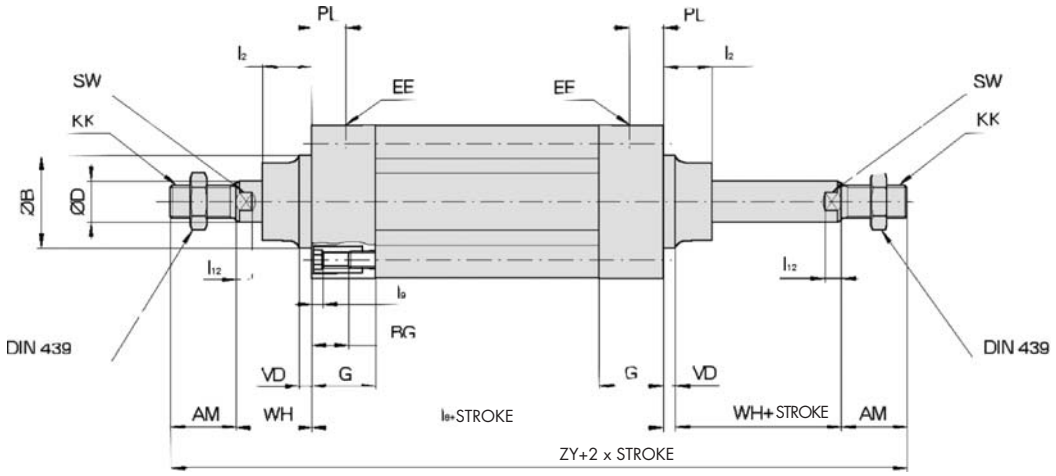
Piston Rod (Non-Rotating)



(mm)

Ø Bore	Rod width across flats
32	12.2
40	14.2
50	19
63	19
80	23
100	27

CP95S□BØ-stroke W Double/Through Rod

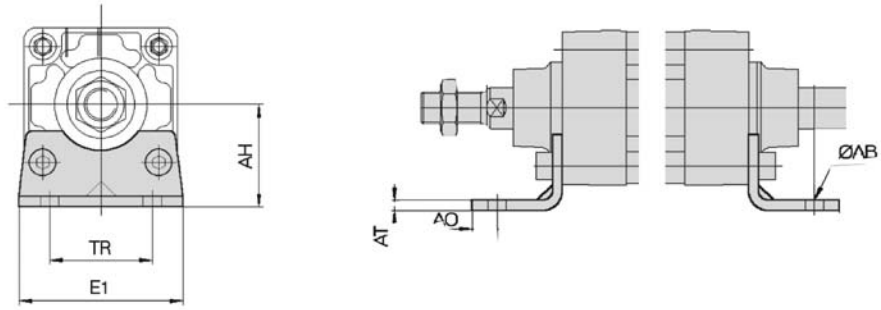


Ø Bore	AM	ØB	ØD	EE	PL	RT	l_{12}	KK	SW	G	BG	l_8	VD	VA	WA	WB	WH	ZZ	ZY	□E	□R	l_2	l_9
32	22	30	12	G1/8	13	M6	6	M10x1.25	10	27	16	94	4	4	4	6.5	26	146	190	46	32.5	15	4
40	24	35	16	G1/4	14	M6	6.5	M12x1.25	13	27	16	105	4	4	4	9	30	163	213	52	38	17	4
50	32	40	20	G1/4	15.5	M8	8	M16x1.5	16	31.5	16	106	6	4	5	10.5	37	179	244	65	46.5	24	5
63	32	45	20	G3/8	16.5	M8	8	M16x1.5	16	31.5	16	121	6	4	9	12	37	194	259	75	56.5	24	5
80	40	45	25	G3/8	19	M10	10	M20x1.5	21	38	16	128	8	4	11.5	14	46	218	300	95	72	30	5
100	40	55	30	G1/2	19	M10	10	M20x1.5	21	38	16	138	8	4	17	15	51	233	320	114	89	32	5

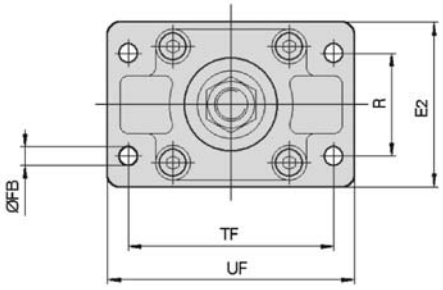
CP95 Cylinder Mounting Accessories

Dimensions: Mounting Accessories L, F, C and D (mm)

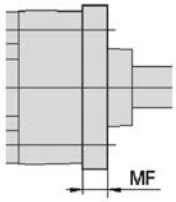
Foot Mounting
Mounting type L



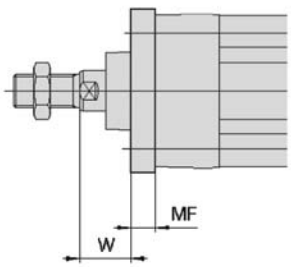
Flange
Mounting type F



Rear mounting

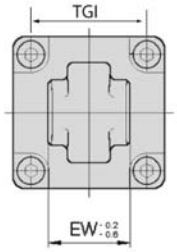


Front mounting

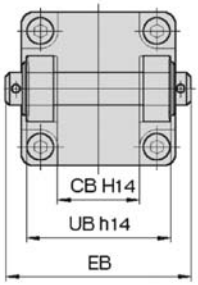


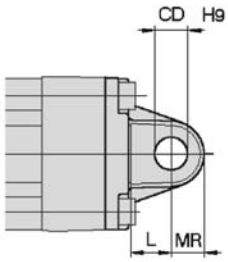
Rear Clevis

Mounting type C



Mounting type D



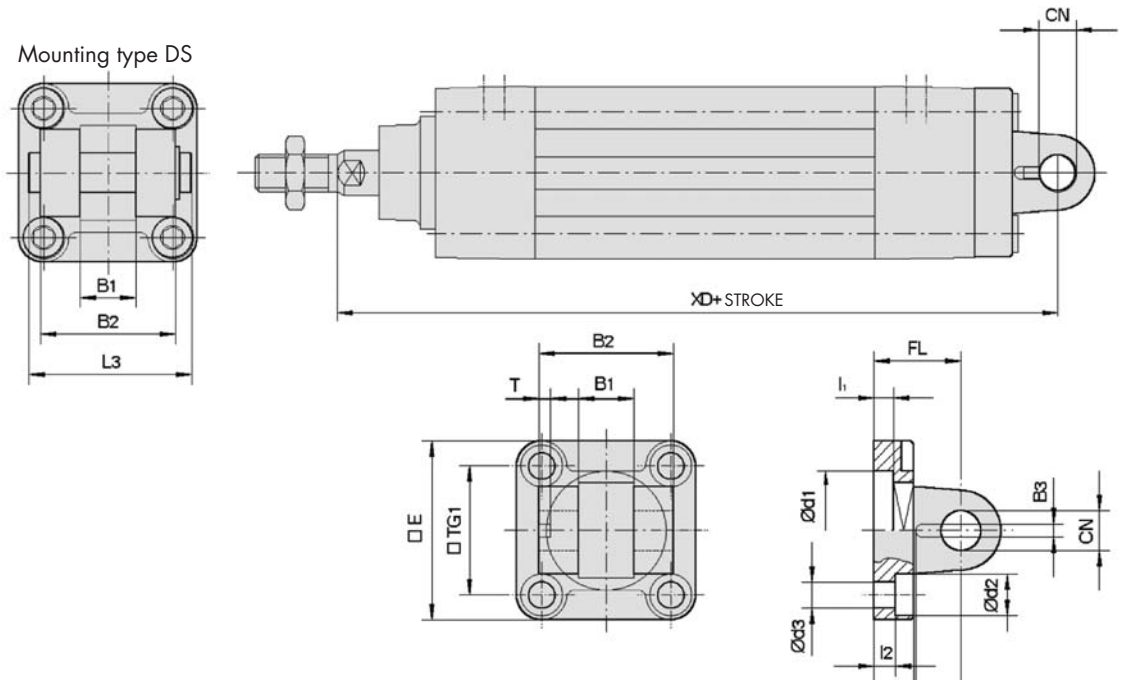


Ø Bore	E1	R	W	MF	ØFB	CD	EB	L	UB	CB	EW	MR	TR	AO	AT	AH	ØAB	TF	UF	E2	□TGl
32	48	32	16	10	7	10	65	12	45	26	26	9.5	32	10	4	32	7	64	79	50	32.5
40	55	36	20	10	9	12	75	15	52	28	28	12	36	11	4	36	9	72	90	55	38
50	68	45	25	12	9	12	80	15	60	32	32	12	45	12	5	45	9	90	110	70	46.5
63	80	50	25	12	9	16	90	20	70	40	40	16	50	12	5	50	9	100	120	80	56.5
80	100	63	30	16	12	16	110	20	90	50	50	16	63	14	6	63	12	126	153	100	72
100	120	75	35	16	14	20	140	25	110	60	60	20	75	16	6	71	14	150	178	120	89

CP95 Cylinder Mounting Accessories

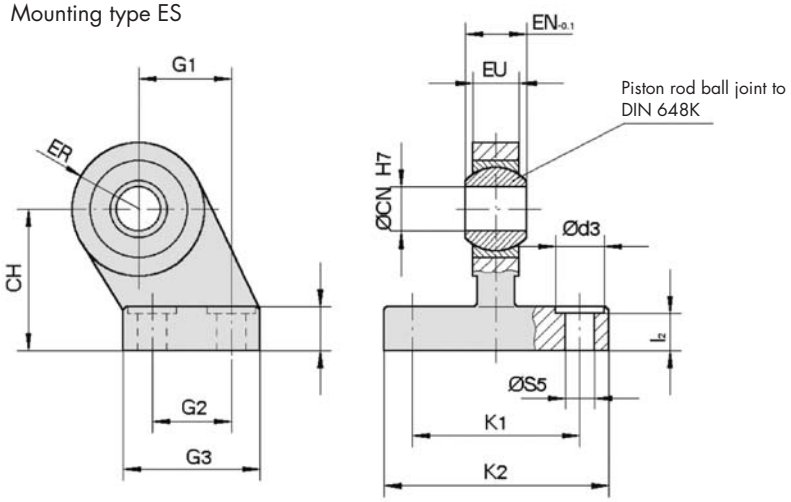
Dimensions: Mounting Accessories L, F, C and D (mm)

Mounting type DS



Ø Bore	□E	B 1	B2	B3	□TG 1	T	L1	L3	l_1	l_2	FL	H	Ød1	Ød2	Ød3	CN	XD
32	45	14	34	3.3	32.5	3	11.5	41	5	5.5	22	10	30	10.5	6.6	10	142
40	55	16	40	4.3	38	4	12	48	5	5.5	25	10	35	11	6.6	12	160
50	65	21	45	4.3	46.5	4	14	54	5	6.5	27	10	40	15	9	16	170
63	75	21	51	4.3	56.5	4	14	60	5	6.5	32	12	45	15	9	16	190
80	95	25	65	4.3	72	4	16	75	5	10	36	16	45	18	11	20	210
100	115	25	75	6.3	89	4	16	85	5	10	41	16	55	18	11	20	230

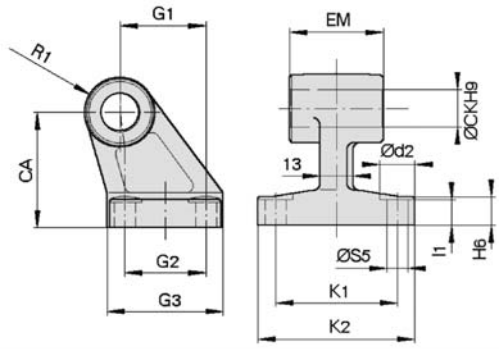
Mounting type ES



Ø Bore	Ød3	ØCN	ØS5	K1	K2	l_2	G1	G2	G3	EN	EU	CH	H6	ER
32	11	10	6.6	38	51	8.5	21	18	31	14	10.5	32	10	15
40	11	12	6.6	41	54	8.5	24	22	35	16	12	36	10	18
50	15	16	9	50	65	10.5	33	30	45	21	15	45	12	20
63	15	16	9	52	67	10.5	37	35	50	21	15	50	12	23
80	18	20	11	66	86	11.5	47	40	60	25	18	63	14	27
100	18	20	11	76	96	12.5	55	50	70	25	18	71	15	30

CP95 Cylinder Mounting Accessories

Mounting type E

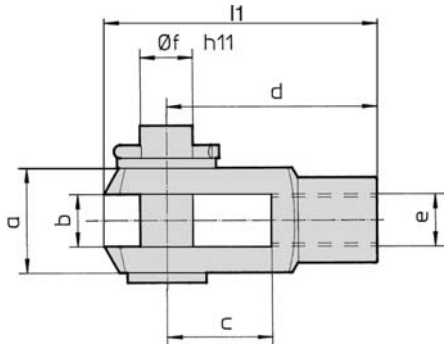


Ø Bore	Ød2	ØCK	ØS5	K1	K2	l3	G1	l_1	G2	EM	G3	CA	H6	R1
32	11	10	6.6	38	51	10	21	7	18	26	31	32	8	10
40	11	12	6.6	41	54	10	24	9	22	28	35	36	10	11
50	15	12	9	50	65	12	33	11	30	32	45	45	12	12
63	15	16	9	52	67	14	37	11	35	40	50	50	12	15
80	18	16	11	66	86	18	47	12.5	40	50	60	63	14	15
100	18	20	11	76	96	20	55	13.5	50	60	70	71	15	19

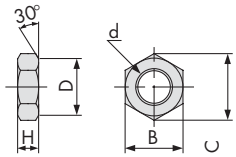
CP95 Piston Rod Accessories

Rod clevis GKM (DIN 71752), supplied with bolt and safety device
Chromed steel

Ø Bore	e	Order No.	b	d	Øf	l1	c	a
32	M10x1.25	GKM10-20	10	40	10	52	20	20
40	M12x1.25	GKM12-24	12	48	12	62	24	24
50/63	M16x15	GKM16-32	16	64	16	83	32	32
80/100	M20x15	GKM20-40	20	80	20	105	40	40



Rod end nut
(standard equipment)



Order No.	Bore size (mm)	d	H	B	C	D
NT-03	32	M10x1.25	6	17	19.6	16.5
NT-04	40	M12x1.25	8	22	25.4	21
NT-05	50, 63	M16x1.5	11	27	31.2	26
NT-08	80	M20x1.5	13	32	37.0	31
NT-10	100	M20x1.5	16	41	47.3	39

Pistonrod ball joint KJ (DIN 648)
Zinc chromate plated steel

Ø Bore	d3	Order No.	d1	h	d6	b3	b1	l	d7	α	l3	sw
32	M10x1.25	KJ10D	10	43	28	10.5	14	20	19	13°	14	17
40	M12x1.25	KJ12D	12	50	32	12	16	22	22	13°	16	19
50/63	M16x15	KJ16D	16	64	42	15	21	28	27	15°	26	32
80/100	M20x15	KJ20D	20	77	50	18	25	33	34	15°	26	32