

ISO Cylinder/Standard: Double Acting

Series CP95

ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Standard

CP95SD B 32 100 W Z76 S

Built-in magnet

Mounting

B	Basic/Without bracket
L	Axial foot
F	Front flange
G	Rear flange
C	Single rear clevis
D	Double rear clevis

Bore size

32	32mm
40	40mm
50	50mm
63	63mm
80	80mm
100	100mm

Auto switch

— Without auto switch

* Refer to table below for selection of applicable auto switch.

Number of auto switches

—	2
S	1
3	3
n	n

Rod Specifications

	Hard chromed rod as standard
W	Double/through rod
R	Stainless steel piston rod
K	stainless steel and acid-proof piston rod
F	Rod boot

Stroke (mm)

Refer to standard stroke table on p.5-4

Applicable Auto Switches/Direct mounting type

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch model		Lead wire length (m) ^{Note}			Applicable load	Mounting bracket
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)		
Reed switch	—	Grommet	Yes	3 wire	—	5V	—	Z76	●	●	—	IC circuit	BMP1-032
			No	2 wire	24V	—	100V	Z73	●	●	●	—	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	Y69A	●	●	○	IC circuit	
				3 wire (PNP)				Y7PV	●	●	○	—	
				2 wire				Y69B	●	●	○	—	
				3 wire (NPN)				Y7NWV	●	●	○	IC circuit	
				3 wire (PNP)				Y7PWV	●	●	○	—	
				2 wire				Y7BWV	●	●	○	—	
	Diagnostic indication (2 colour indicator)	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	Y7BWV	●	●	○	—	
	Water resistant (2 colour indicator)			2 wire				—	Y7BA	—	●	—	
	—	Connector and Grommet	Yes	3 wire (NPN)	24V	5V, 12V	—	M9NV	●	●	○	IC circuit	BMP1-032 + BMG2-012
				3 wire (PNP)				M9PV	●	●	○	—	
				2 wire				M9BV	●	●	○	—	

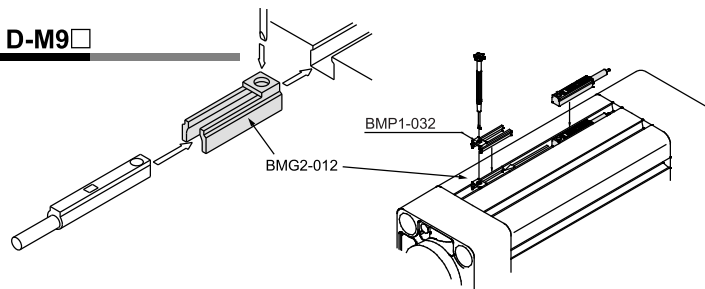
* Lead wire length 0.5m..... — (Example: A53)
 3m..... L (Example: A53L)
 5m..... Z (Example: A53Z)

○: Manufactured upon receipt of order.

Auto Switch Mounting Accessories for D-M9

Bore size (mm)	Order No.
ø32~ø100	BMP1-032
	BMG2-012

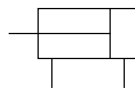
Note: For the mounting of auto switch D-M9, both BMP1-032 and BMG2-012 are necessary.



Series CP95



ISO Symbol
Double acting



Minimum Strokes for Auto Switch Mounting

Refer to p.5-32 for "Minimum Strokes for Auto Switch Mounting".

Specifications

Bore size	ø32	ø40	ø50	ø63	ø80	ø100
Action	Double acting					
Fluid	Air					
Proof pressure	1.5MPa					
Max. operating pressure	1.0MPa					
Min. operating pressure	0.05MPa					
Ambient and fluid temperature	Without magnet -10 to 70°C (No freezing)					
	With magnet -10 to 60°C (No freezing)					
Lubrication	Not required (Non-lube)					
Operating piston speed	50 to 1000mm/s					
Allowable stroke tolerance	to 250: $^{+1.0}_0$, 251 to 1000: $^{+1.4}_0$					
Cushion	Both ends (Air cushion)					
Port size	G1/8	G1/4	G1/4	G3/8	G3/8	G1/2
Mounting	Basic, axial foot, front flange, rear flange, spherical bearing, single rear clevis, double rear clevis					

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	1000
63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1000
80	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1000
100	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1000

Intermediate strokes are available.

* Please consult with SMC for longer strokes.

Mounting Bracket, Mounting Accessories

Description	Bore size	ø32	ø40	ø50	ø63	ø80	ø100
L	Foot ⁽¹⁾	L5032	L5040	L5050	L5063	L5080	L5100
F,G	Flange	F5032	F5040	F5050	F5063	F5080	F5100
C	Single rear clevis	C5032	C5040	C5050	C5063	C5080	C5100
D	Double rear clevis	D5032	D5040	D5050	D5063	D5080	D5100
DS	Double rear clevis (for ES accessory)	DS5032	DS5040	DS5050	DS5063	DS5080	DS5100
ES	Angled rear clevis with ball joint	ES5032	ES5040	ES5050	ES5063	ES5080	ES5100
E	Angled rear clevis	E5032	E5040	E5050	E5063	E5080	E5100
GKM	Rod clevis	GKM10-20	GKM12-24	GKM16-32	GKM16-32	GKM20-40	GKM20-40
KJ	Piston rod ball joint	KJ100	KJ120	KJ160	KJ160	KJ200	KJ200
JA	Floating joint	JA30-10-125	JA40-12-125	JA50-16-150	JA50-16-150	JA80-20-150	JA80-20-150

Note 1) Two foot brackets required for one cylinder.

Note 2) Accessories for each mounting bracket are as follows.

Foot, Flange, Single clevis: Mounting bolts

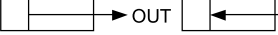
Double rear clevis: (D,DS): Clevis pin

Note 3) GKM according to ISO 8140

Note 4) KJ according to ISO 8139

Note 5) Piston rod nut is standard

Theoretical Force

(Unit : N) 

Bore size (mm)	Rod diameter (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)								
				0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
32	12	OUT	804	161	241	322	402	482	563	643	724	804
		IN	691	138	207	276	346	415	484	553	622	691
40	16	OUT	1257	251	377	503	629	754	880	1006	1131	1257
		IN	1056	211	317	422	528	634	739	845	950	1056
50	20	OUT	1963	393	589	785	982	1178	1374	1570	1767	1963
		IN	1649	330	495	660	825	989	1154	1319	1484	1649
63	20	OUT	3117	623	935	1247	1559	1870	2182	2494	2805	3117
		IN	2803	561	841	1121	1402	1682	1962	2242	2523	2803
80	25	OUT	5027	1005	1508	2011	2514	3016	3519	4022	4524	5027
		IN	4536	907	1361	1814	2268	2722	3175	3629	4082	4536
100	30	OUT	7854	1571	2356	3142	3927	4712	5498	6283	7068	7854
		IN	7147	1429	2144	2859	3574	4288	5003	5718	6432	7147

Note) Theoretical force(N) = Pressure (MPa) X Piston area (mm²)

Weight table

[kg]

Ø Bore	Mounting type	32	40	50	63	80	100
Basic weight	Basic type B	0.59	0.87	1.44	2.00	3.37	4.45
	Foot L	0.16	0.20	0.38	0.46	0.89	1.09
	Front/rear flange F	0.20	0.23	0.47	0.58	1.30	1.81
	Male rear clevis C	0.16	0.23	0.37	0.60	1.07	1.73
	Female rear clevis D	0.20	0.32	0.45	0.71	1.28	2.11
	Angled rear clevis E	0.16	0.22	0.42	0.52	0.94	1.40
	Female rear clevis DS	0.17	0.27	0.45	0.64	1.37	2.05
	Spherical bearing ES	0.18	0.27	0.46	0.55	0.97	1.33
Additional weight per 50 mm stroke		0.11	0.17	0.28	0.40	0.67	0.89
Accessories	Piston rod ball joint KJ	0.15	0.23	0.26	0.26	0.60	0.83
	Rod clevis GKM	0.22	0.37	0.43	0.43	0.87	1.27
	Floating joint JA	0.015	0.20	0.26	0.26	0.9	0.9

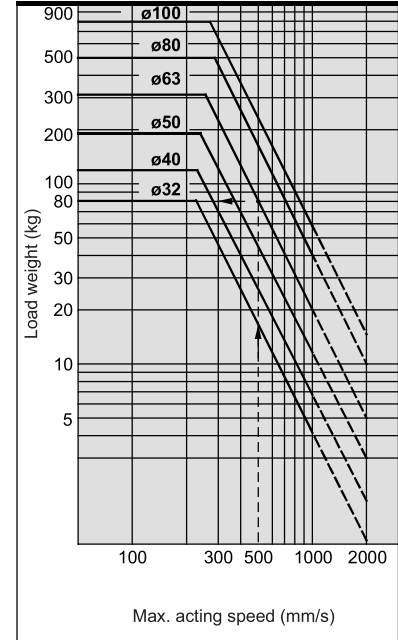
Weight calculation method

Example: CP95S32-100
(basic Ø32, 100st)

- Basic weight0.59kg
(Standard Ø32)
- Additional weight . .0.11kg/50mm
stroke
- Cylinder stroke . . .100st

Cylinder weight =
0.59+(0.11 x 100/50)=0.81kg

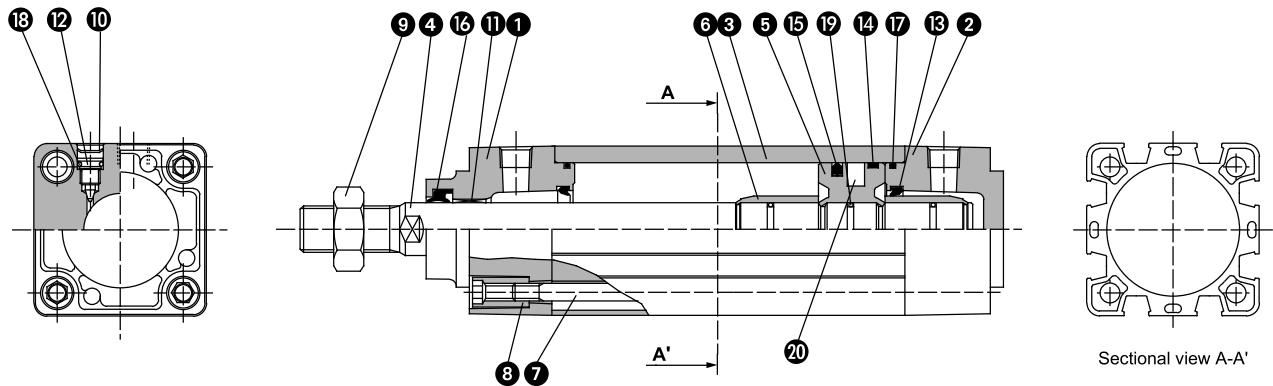
Allowable Kinetic Energy



Example: Load limit at rod end when air cylinder ø63 is actuated with max. actuating speed 500mm/s. See the intersection of lateral axis 500mm/s and ø63 line, and extend the intersection to left. Thus the allowable load is 80kg.

Series CP95

Construction



Parts list

No.	Description	Material
①	Head cover	Die-cast aluminum
②	End cover	Die-cast aluminum
③	Cylinder tube	Die-cast aluminum
④	Piston rod	Hard chromed steel C45
⑤	Piston	Die-cast aluminum
⑥	Cushion ring	Brass
⑦	Tie rod	Steel, zinc chromate plated
⑧	Tie rod nut	Steel, zinc chromate plated
⑨	Rod end nut	Steel, zinc chromate plated
⑩	Snap ring	Steel nickel plated
⑪	Bushing	Lead-bronze casting
⑫	Cushion valve	Steel, zinc chromate plated
⑬	Cushion seal	Elastomer
⑭	Wear ring	Antifriction material
⑮	Piston seal	NBR
⑯	Rod seal	NBR
⑰	Cylinder tube gasket	NBR
⑱	Cushioning valve seal	NBR
⑲	Piston/rod gasket	NBR
⑳	Magnet ring	

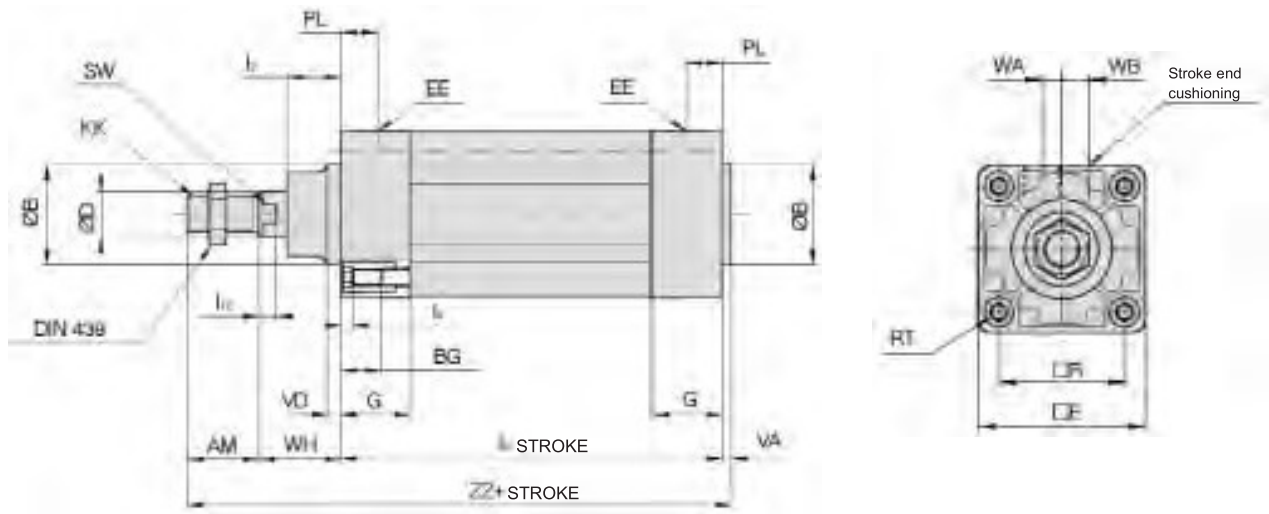
Replacement parts: Seal kits

Ø32 includes order No. from ⑬ to ⑰,
 Ø40 - Ø100 includes from ⑫ to ⑱

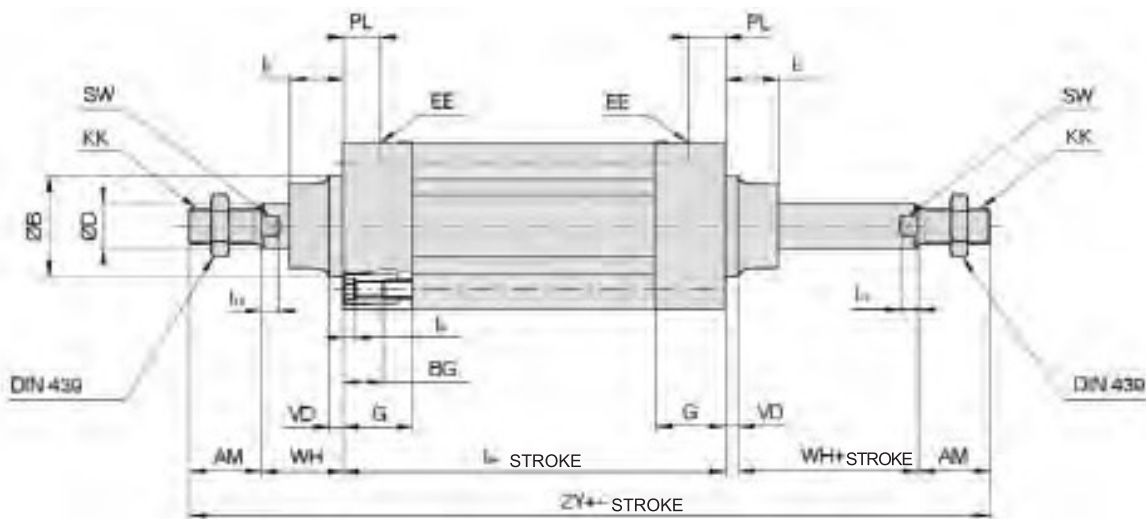
Ø	Order No.
32	CS95-32
40	CS95-40
50	CS95-50
63	CS95-63
80	CS95-80
100	CS95-100

Without Mounting Bracket

CP95SBø-Stroke



CP95SBø-Stroke W



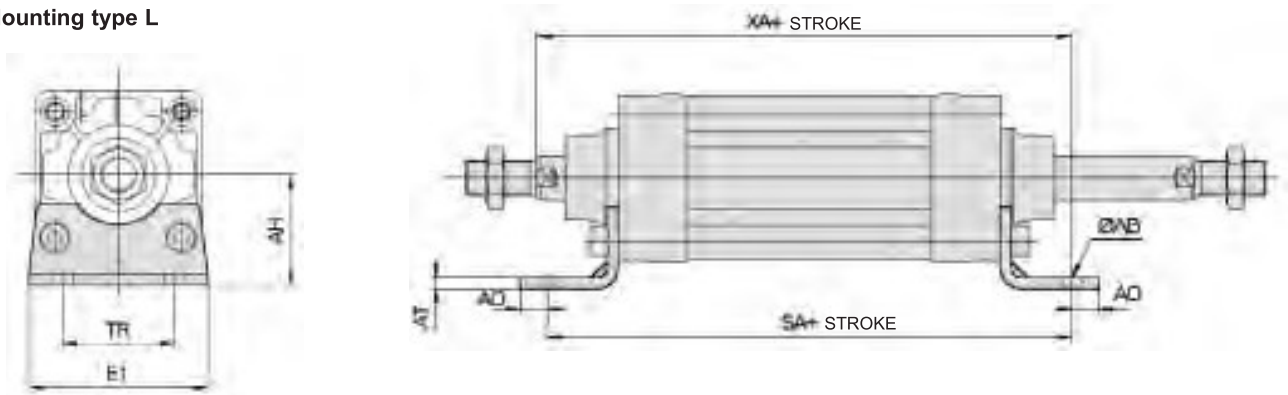
Ø Bore	AM	ØB	ØD	EE	PL	RT	I ₁₂	KK	SW	G	BG	I ₈	VD	VA	WA	WB	WH	ZZ	ZY	□E	□R	I ₂	I ₉
32	22	30	12	G1/8	13	M6	6	M10x1.25	10	27	16	94	4	4	4	6.5	26	146	190	46	32.5	15	4
40	24	35	16	G1/4	14	M6	6.5	M12x1.25	13	27	16	105	4	4	4	9	30	163	213	52	38	17	4
50	32	40	20	G1/4	15.5	M8	8	M16x1.5	16	31.5	16	106	6	4	5	10.5	37	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

Series **CP95**

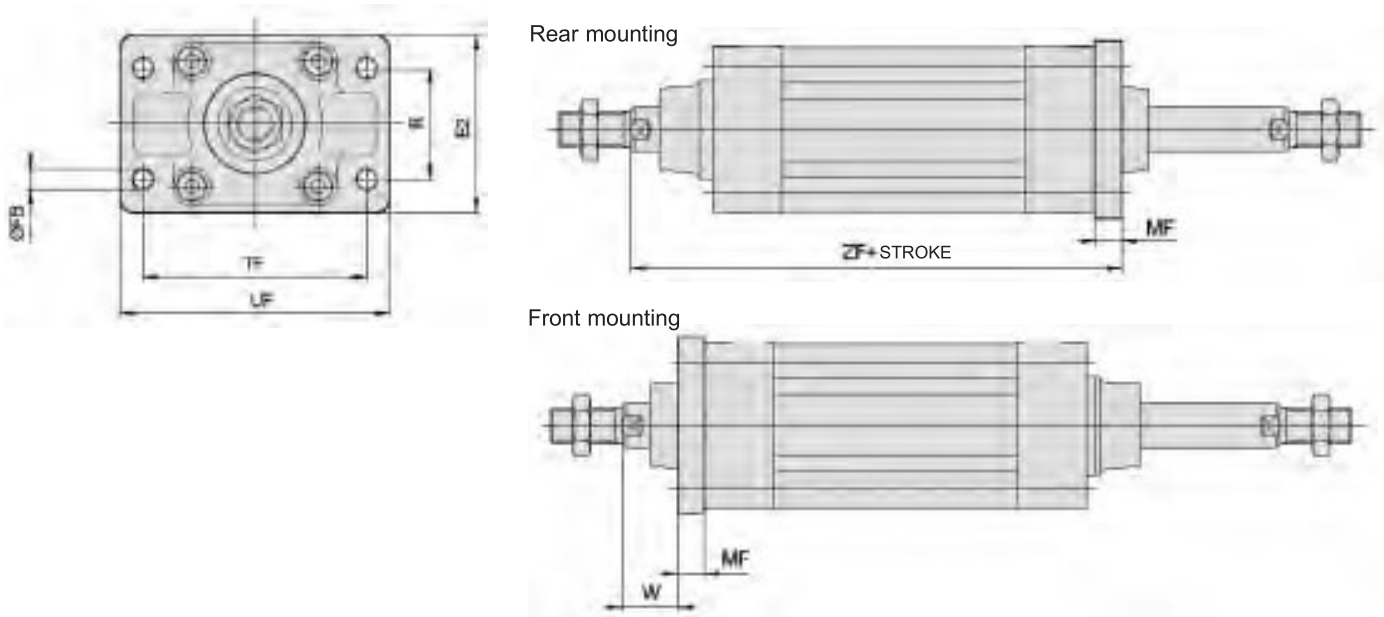
Dimensions – mounting accessories L, F, C and D

[mm]

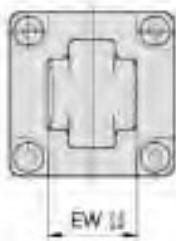
Mounting type L



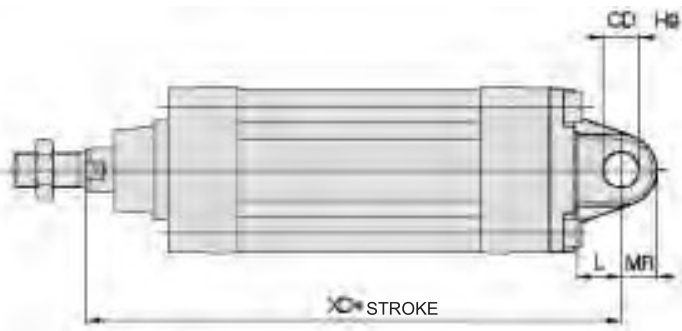
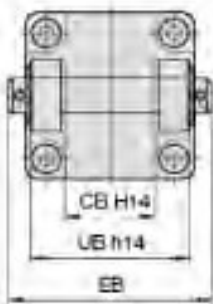
Mounting type F



Mounting type C



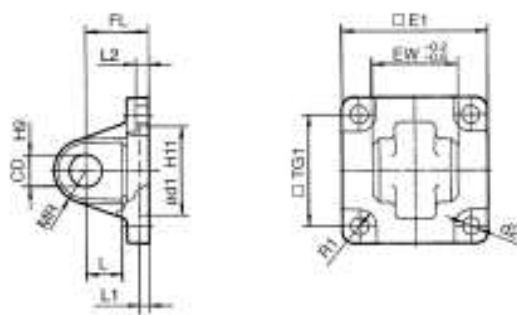
Mounting type D



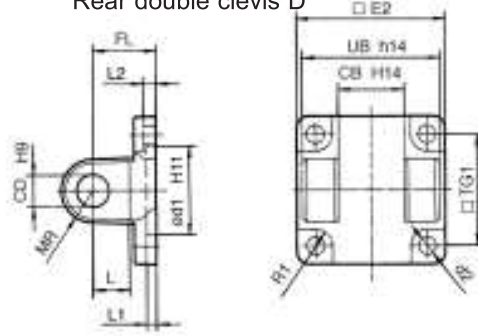
	E1	TR	W	MF	ZF	AB	CD	EB	L	AD	UB	CB	EW	MF	TR	AD	AT	XA	SA	AH	AB	TF	LF	E2
32	48	32	16	10	130	7	10	85	12	142	45	28	26	12.5	32	10	4	144	142	32	7	84	78	50
40	55	36	20	10	145	9	12	75	15	160	52	28	28	12	36	11	4	163	161	36	9	72	90	55
50	66	45	25	12	155	9	12	80	15	170	60	32	32	12	45	12	5	175	170	45	9	90	110	70
63	80	50	25	12	170	9	16	90	20	190	70	40	40	16	50	12	5	196	195	50	9	100	120	80
80	100	60	30	16	190	12	16	110	20	210	80	50	50	16	60	14	6	213	210	60	12	126	150	100
100	120	75	35	16	205	14	20	140	25	230	110	60	60	20	75	16	6	238	220	71	14	150	178	120

Accessories

Rear single clevis C

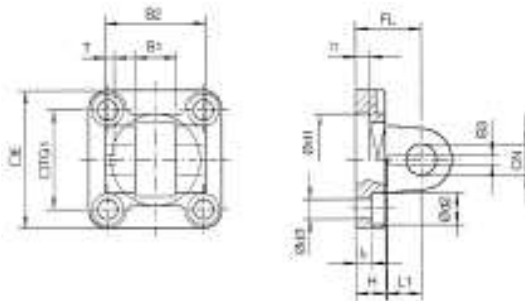


Rear double clevis D



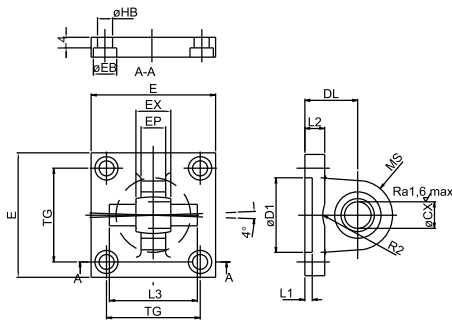
Bore (mm)	□E1	EW	□TG1	FL	L1	L	L2	ød1	CD	MR	d2	R1	□E2	UB	CB
32	45	26	32.5	22	5	12	5.5	30	10	9.5	6.6	6.5	48	45	26
40	51	28	38	25	5	15	5.5	35	12	12	6.6	6.5	56	52	28
50	64	32	46.5	27	5	15	6.5	40	12	12	9	8.5	64	60	32
63	74	40	56.5	32	5	20	6.5	45	16	16	9	8.5	75	70	40
80	94	50	72	36	5	20	10	45	16	16	11	11	95	90	50
100	113	60	89	41	5	25	10	55	20	20	11	12	115	110	60

Rear Single Clevis DS



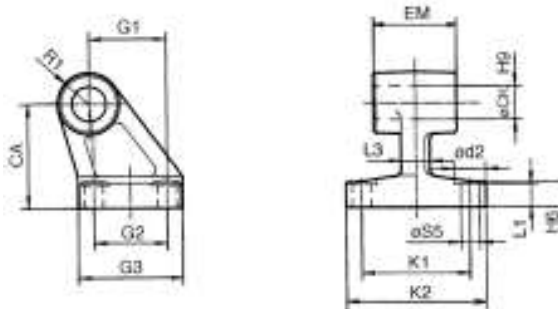
Bore (mm)	□E	B1	B2	B3	□TG1	T	L1	L3	I1	I2	FL	H	Ød1	Ød2	Ød3	CN	XD
32	45	14	34	3.3	32.5	3	11.5	41	5	5.5	22	10	30	10.5	6.6	10	142
40	55	16	40	4.3	38	4	12	48	5	5.5	25	10	35	11	6.6	12	160
50	65	21	45	4.3	46.5	4	14	54	5	6.5	27	10	40	15	9	16	170
63	75	21	51	4.3	56.5	4	14	60	5	6.5	32	12	45	15	9	16	190
80	95	25	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

Rear Single Clevis CS



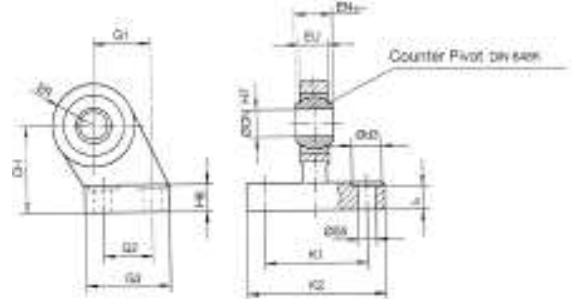
Part No.	Bore (mm)	E	TG	EX	DL	L1	L2	MS	L3	EB	HB	R2	CX	D1	L4	EP
CS5032	32	48	32.5	14	22	5	10	16	36	11	6.6	12.5	10	30	5.5	10
CS5040	40	56	38	16	25	5	10	16	42	11	6.6	14.5	12	35	5.5	11.5
CS5050	50	64	46.5	21	27	5	10	20	48	15	9	19.5	16	40	6.5	14.5
CS5063	63	75	56.5	21	32	5	12	22	55	15	9	19.5	16	45	6.5	14.5
CS5080	80	95	72	25	36	5	14	26	70	18	11	24.5	20	45	10	17.5
CS5100	100	115	89	25	41	5	16	26	80	18	11	24.5	20	55	10	17.5

Counter pivot E



Bore (mm)	ød2	øCK	øS5	K1	K2	L3	G1	L1	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

Angles rear clevis ES



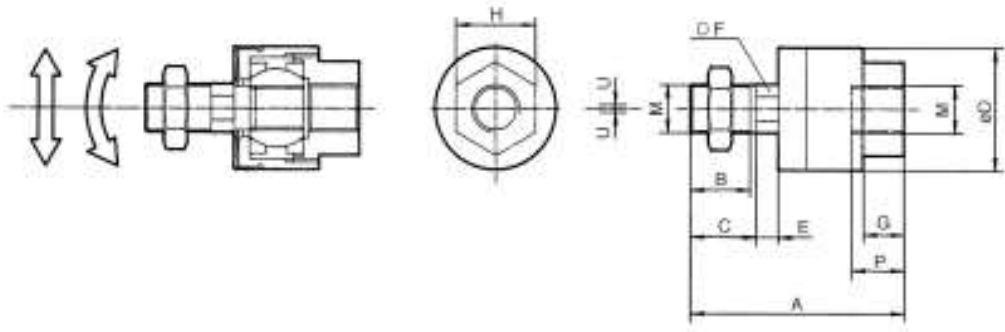
Bore (mm)	Ød3	ØCN	ØS5	K1	K2	I2	G1	G2	G3	EN	EU	CH	H6	ER
32	11	10	6.6	38	51	8.5	21	18	31	14	10.5	32	10	15
40	11	12	6.6	41	54	8.5	24	22	35	16	12	36	10	18
50	15	16	9	50	65	10.5	33	30	45	21	15	45	12	20
63	15	16	9	52	67	10.5	37	35	50	21	15	50	12	23
80	18	20	11	66	86	11.5	47	40	60	25	18	63	14	27
100	18	20	11	76	96	12.5	55	50	70	25	18	71	15	30

Series CP95

Accessories

Floating joint JA

Steel, zinc chromate plated

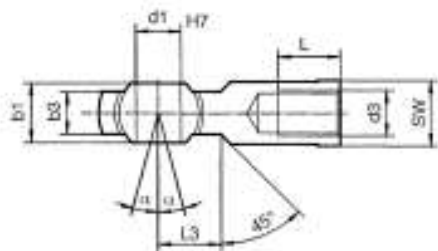
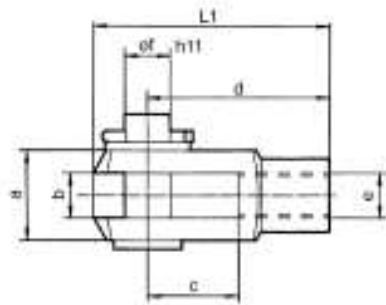


Bore (mm)	M	A	B	C	øD	E	F	G	H	P	U	Load (kn)	Weight (g)	Radial deflection
32	M10 X 1.25	49.5	19.5	—	24	5	8	8	17	9	0.5	2.5	70	±5
40	M12 X 1.25	60	20	—	31	6	11	11	22	13	0.75	4.4	160	
50/63	M16 X 1.5	71.5	22	—	41	7.5	14	13.5	27	15	1.0	11	300	
80/100	M20 X 1.5	101	28	31	59.5	11.5	24	16	32	18	2.0	18	1080	

Piston rod clevis GKM (ISO 8140)

Steel, zinc chromate plated

Bore (mm)	e	b	d	øf	L1	c	a
32	M10 X 1.25	10	40	10	52	20	20
40	M12 X 1.25	12	48	12	62	24	24
50/63	M16 X 1.5	16	64	16	83	32	32
80/100	M20 X 1.5	20	80	20	105	40	40



Piston rod ball joint KJ (ISO 8139)

Steel, zinc chromate plated

Bore (mm)	d3	d1	h	d6	b3	b1	L	d7	α	L3	SW
32	M10 X 1.25	10	43	28	10.5	14	20	19	13°	14	17
40	M12 X 1.25	12	50	32	12	16	22	22	13°	16	19
50/63	M16 X 1.5	16	64	42	15	21	28	27	15°	26	32
80/100	M20 X 1.5	20	77	50	18	25	33	34	15°	26	32

