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Pneumatics




ROTEX

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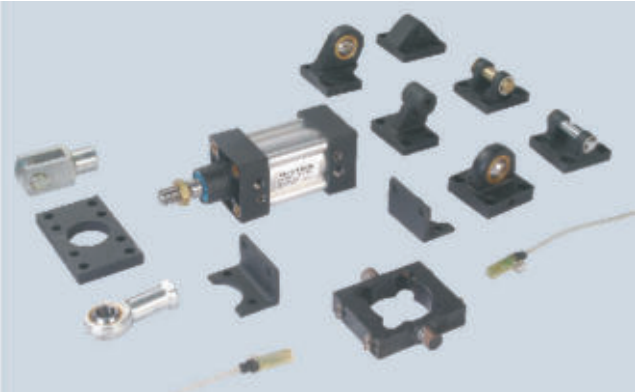
PNEUMATIC CYLINDERS

Ø8 -Ø25 PNEUMATIC CYLINDER

Ø32 -Ø160 CYLINDER

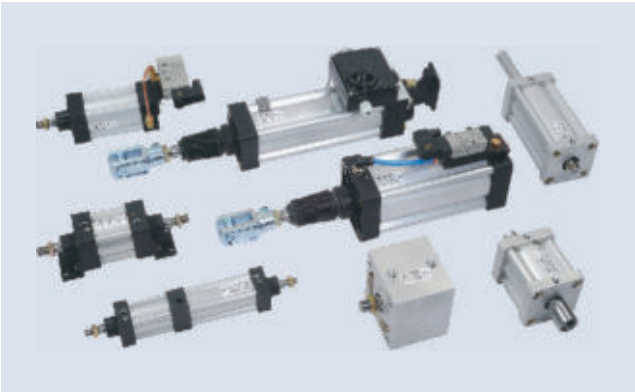
Ø32 -Ø100 SQUARE PROFILE CYLINDER



CYLINDER MOUNTINGS

F.R.L.

COMPACT CYLINDER



SPECIAL CUSTOM BUILT CYLINDER

COMPACT CYLINDER NON ROTATING

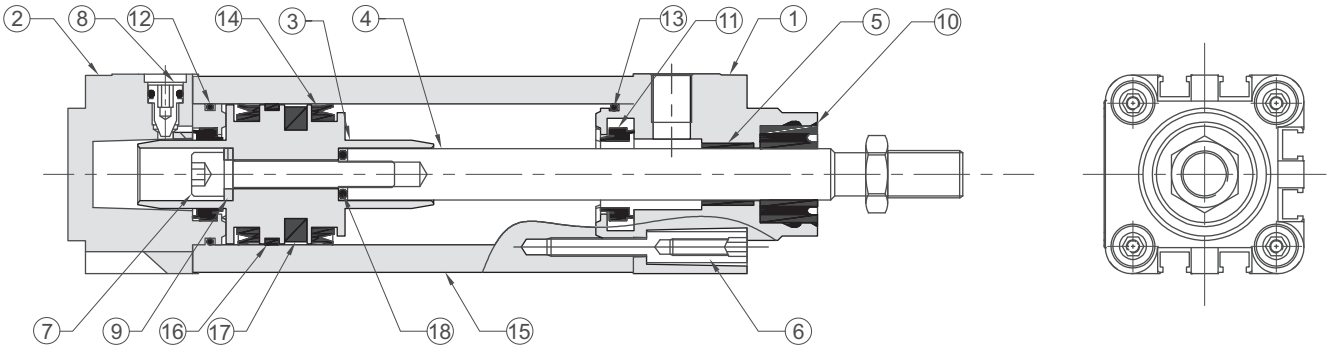
CYLINDER Ø 32 - Ø 100 AS PER ISO 15552 and VDMA 24562

SERIES SPC

FEATURES

- According to ISO 15552 & VDMA 24562
- Cylinder tube from extruded profile Aluminium Micro honed for extremely low friction
- Cylinder barrel treated for special anodizing to reduce fricition
- Cushioning adjustable at both ends, high energy absorption due to special profile
- Lubrication not necessary (maintain once started oil mist lubrication)
- Compressed air dried to a pressure dew point 3 °C - 5 °C admissible
- Operating medium: Compressed air, filtered to minimum 50 µm
- Operating pressure range 1-10 bar
- Operating Temperature range -20 °C to +70 °C
- Life 20,000 km
- Minimum pressure to move 0.1 bar
- Speed 3 m/ sec maximum
- Permanent Magnet is standard

CONSTRUCTION



MATERIAL OF CONSTRUCTION

PART	MATERIAL	PART No.	PART	MATERIAL	PART No.
Cylinder Tube	Anodized Aluminium	15	Cushioning Screw	Steel	8
Cover	Aluminium	1, 2	Cushioning Seal	NBR	11
Piston Rod	Stainless Steel (SS 410)	4	Rod Seal	Polyurethane	10
Piston	Aluminium	3	O Ring	NBR	18
Cover Seal	NBR	12, 13	Cover Bolt	Galvanized Steel	6
Lip Seal	NBR	14	Permanent Magnet	-	17
Piston Rod Guide	Self Lubricating High Polymer	5	SHC Screw	HGA Steel	7
Washer	Steel	9	Piston Guide	High Polymer	16

CYLINDER Ø 32 - Ø 100 AS PER ISO 15552 and VDMA 24562

SERIES SPC

FORCE, AIR CONSUMPTION FOR DOUBLE ACTING CYLINDER

Double acting Cylinder — **Force (N)**

Ø Bore	Ø Piston Rod		Pressure (bar) 1	2	3	4	5	6	7	8	9	10
32	12	⇄	80	160	240	320	400	480	560	640	720	800
			69	138	207	276	345	414	483	552	621	690
40	16	⇄	126	252	378	504	630	756	882	1008	1134	1260
			105	211	311	422	528	633	739	844	950	1055
50	20	⇄	196	392	588	788	980	1176	1372	1568	1764	1960
			165	330	495	660	825	990	1155	1320	1485	1650
63	20	⇄	312	624	936	1248	1560	1872	2184	2496	2808	3120
			281	562	843	1124	1405	1686	1967	2248	2529	2810
80	25	⇄	503	1006	1509	2012	2515	3018	3521	4024	4527	5030
			453	903	1359	1812	2265	2718	3171	3624	4077	4530
100	25	⇄	785	1570	2355	3140	3925	4710	5495	6280	7065	7850
			736	1473	2209	2946	3682	4419	5156	5892	6639	7365

Remark 1
Max. 0.1 bar is necessary to deal with the mechanical friction

Remark 2
To obtain a uniform speed, the load degree is not to be chosen over 60%

Single Acting Cylinder

Ø Bore	Spring Forces (N)	
32 40	30	80
50 63	75	130
80 100	150	320

Remark
The given spring forces are intended only for the return of the piston and piston rod.

Other spring forces can be provided. Consult ROTEX

For model E and EA spring forces remains same, cushioning not available on spring side, flow control not possible on spring side.

Air consumption — **dm^3 A.N.R./cm stroke** — **A.N.R.= dm^3 under Norm-conditions** — **1dm^3=1 litre**

Ø	1 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	8 bar	9 bar	10 bar
32	0.017	0.025	0.033	0.041	0.049	0.057	0.065	0.073	0.081	0.089
40	0.026	0.038	0.05	0.063	0.076	0.088	0.1	0.113	0.126	0.139
50	0.04	0.059	0.079	0.099	0.118	0.138	0.158	0.177	0.197	0.22
63	0.063	0.094	0.125	0.156	0.188	0.219	0.25	0.281	0.312	0.343
80	0.101	0.151	0.202	0.252	0.302	0.352	0.403	0.453	0.503	0.554
100	0.158	0.236	0.315	0.393	0.472	0.55	0.629	0.708	0.786	0.865

Note :

Special Spring return cylinder can be manufactured for application, where in larger spring forces are needed. Please consult ROTEX. We need working forces for your application. Force F1 when the spring is not compressed & F2 when spring is compressed ..... Ideally we need either F1 or F2.

Consider you want to operate gate valve which needs the force of 1000N. Add factor of safety 30%. So load required is 1300N. Let us assume gate valve needs fail safe close. So the spring force minimum has to be 1300N Air maximum has to be 1300N. The total force needed is 2600N. Choosing Ø 80 Cylinder with F1 =1300N, F2 = 1700N (This is factory chosen), you will get at 6 bar air Maximum 3018-1700 = 1318N. Air maximum is 3018-1300 = 1718N.
ROTEX can produce such special cylinders for your applications.

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CYLINDER Ø 32 - Ø 100 AS PER ISO 6431 & CETOP RP 52 P

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SERIES SPC

ORDERING CODE

TYPE	MODEL	SPECIAL MODEL	BORE	STROKE
1	2	3	4	5

1	TYPE	SPC	
2	MODEL	D	Double Acting
		E	Single Acting, Spring at Rod Side
		EA	Single Acting, Spring at Rear Cover
3	SPECIAL	-	Standard
		AV	Viton Seals
		SBG	Bellow
		CL	Polyurethane Coating
		DS	Double ended Piston Rod
		ZRM	SS 316 Material Piston Rod
		SU	Other. To define special models

4	BORE Ø	32	
		40	
		50	
		63	
		80	
		100	
		125	
		160	
5	STROKE	3000mm	Max. D
		100mm	Max. E
		100mm	Max. EA

ORDERING CODE

CYLINDER MOUNTINGS

-	4x Internal Thread Front and Rear
SMS1	2 Pedestal
SMF1	Front Flange
SMF2	Rear Flange
SGA	Female Hinge Rear
LG	Cardan Counter Hinge
SMP2	Female Hinge Rear
LB2	Male Counter Hinge
SMP3	Rear Trunnion Cardan
SMP4	Male Hinge Rear
SMT4	Central Trunnion
MT5	Front Trunnion
MT0	Fronter Hinge for MT4 and MT5

PISTON ROD CONNECTION

-	Outer Thread
F	Flexible Joint
S	Fork
W	Ball and Socket Joint
LN	Extra Lock Nut

ORDERING EXAMPLE

1. SPC-D-0-00-0-32/ 100
   Double acting Cylinder with 32mm bore and 100mm stroke

2. SPC-E-S-AV-MF1-40/ 175
   Single acting Cylinder with 40mm bore and 175mm stroke, Spring at Rod Side, with fork on the Piston Rod, Viton seals for high temperature application and front flange mounting

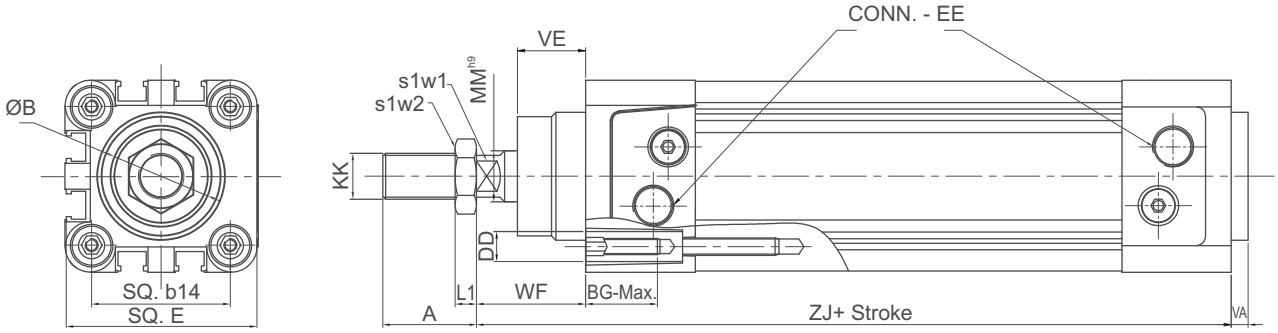
ORDERING EXAMPLE

MOUNTINGS

MP2-40
Rear Trunnion for 40 mm bore Cylinder
* Please note, the mountings will be supplied loose along with cylinder

CYLINDER Ø 32 - Ø 100 AS PER ISO 6431 & CETOP RP 52 P

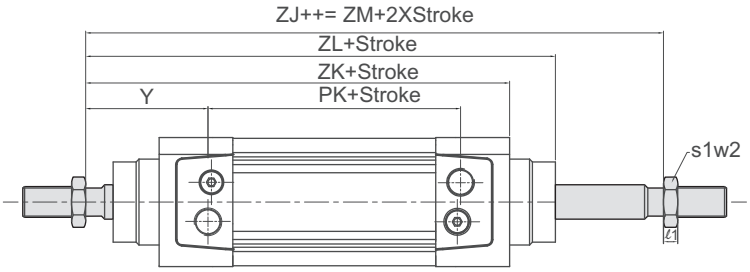
SERIES SPC



Ø	A	ØB	BG max.	DD	E max.	EE	KK	MM	b14	VA	VE	WF	ZJ	L1	slw1	slw2
32	22	30	16	M6	44.5	G 1/8	M10x1.25	12	32.5	4	18.5	26	125	6	10	17
40	24	35	16	M6	53	G 1/4	M12x1.25	16	38	4	21.5	31	136	8	14	19
50	32	40	20	M8	63	G 1/4	M16x1.5	20	46.5	4	27	37	144	8	17	24
63	32	45	21	M8	74	G 3/8	M16x1.5	20	56.5	3	29.5	37	159	8	17	24
80	40	45	22	M10	92	G 3/8	M20x1.5	25	72	4	35	51	176	10	22	30
100	40	55	22	M10	109	G 1/2	M20x1.5	25	89	4	28	57	193	10	22	30

DIMENSION FOR SPECIAL MODELS

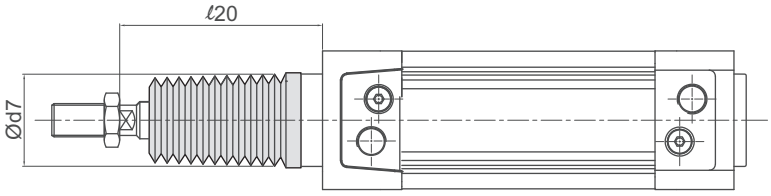
DS - DOUBLE ENDED PISTON ROD



ZJ++= ZM+2XStroke

Ø	PK	T	ZK	ZL	ZM
32	73	40	128	146	154
40	73	54	149	170	179
50	76	59	158	185	195
63	87	56	162	189	199
80	92	74	194	227	240
100	110	69	197	235	248

SBG - BELLOWS



Ø	ℓ at stroke			Bellow Max. Ø
Bore	5-250	251-500	501-750	d7
32	126	226	326	Ø50
40	130	230	330	Ø50
50	137	237	337	Ø50
63	137	237	337	Ø50
80	146	246	346	Ø60
100	150	250	350	Ø60

CYLINDER Ø 32 - Ø 100 AS PER ISO 6431 & CETOP RP 52 P

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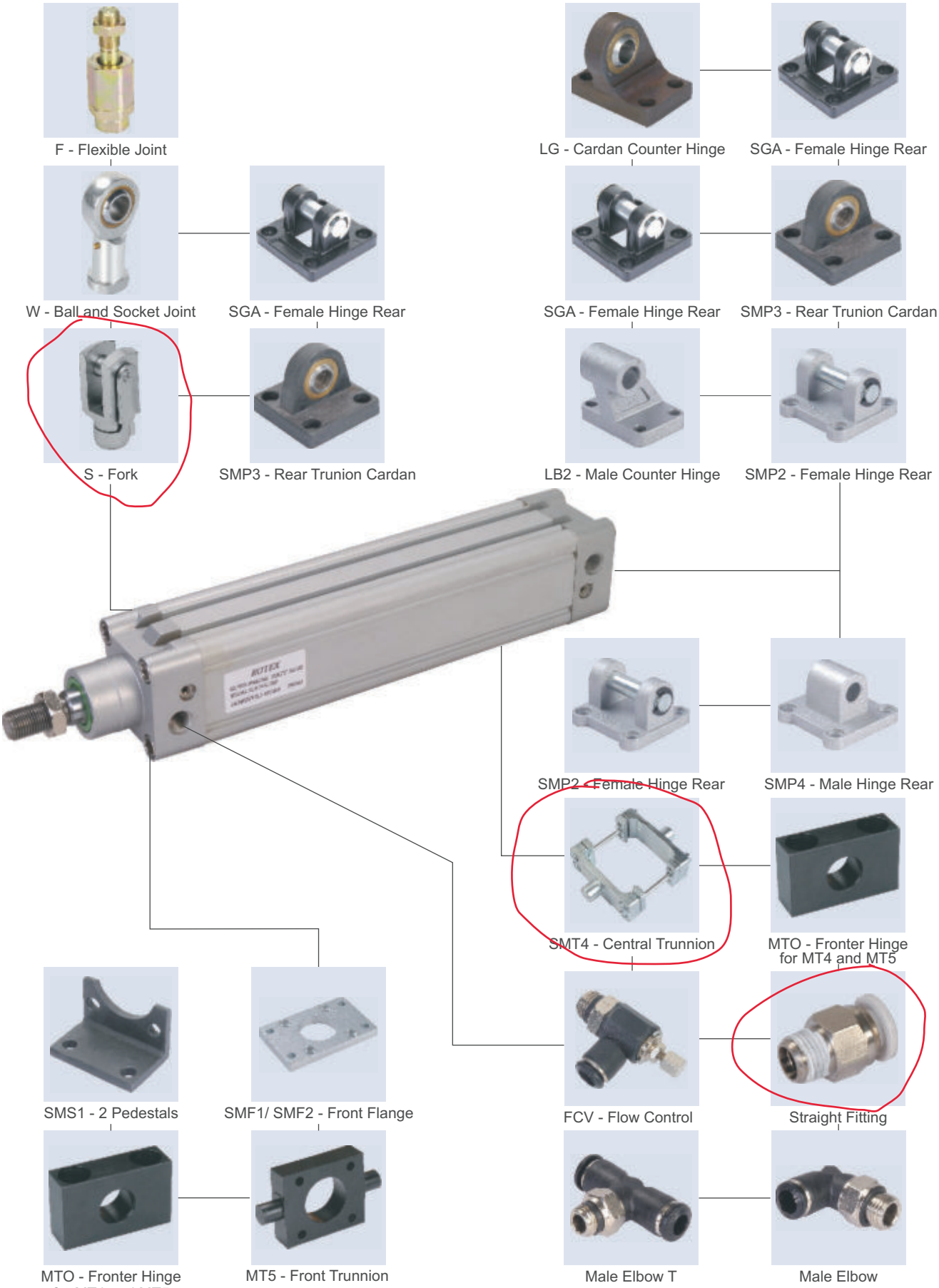
SERIES SPC

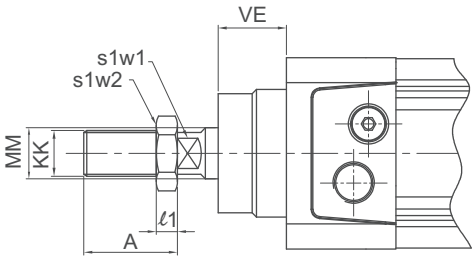
MOUNTING OVERVIEW



MOUNTINGS FOR CYLINDER Ø 32 - Ø 100

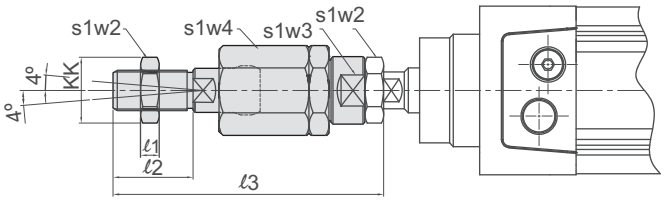
PISTON ROD CONNECTION

OUTER THREAD WITH LOCKNUT



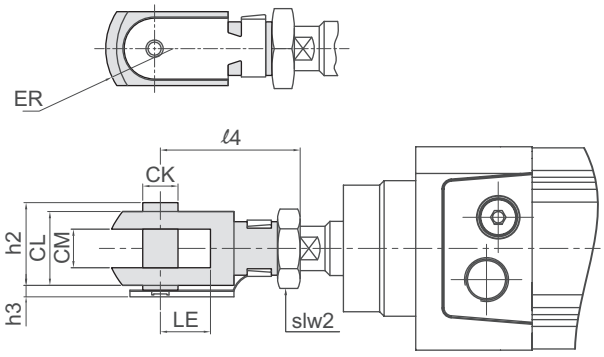
Ø	A 0/ 0.5	KK	MM h9	slw1
32	22	M10 x 1.25	12	10
40	24	M12 x 1.25	16	13
50	32	M16 x 1.5	20	17
63	32	M16 x 1.5	20	17
80	40	M20 x 1.5	25	22
100	40	M20 x 1.5	25	22

F - FLEXIBLE JOINT



Ø	KK	ℓ 1	ℓ 2	ℓ 3 min. - max.	slw2	slw3	slw4
32	M10 x 1,25	5	20	78 - 82	17	19	30
40	M12 x 1,25	6	24	85 - 88	19	19	30
50	M16 x 1,5	8	32	116 - 119	24	30	41
63	M16 x 1,5	8	32	116 - 119	24	30	41
80	M20 x 1,5	10	40	136 - 140	30	30	41
100	M20 x 1,5	10	40	136 - 140	30	30	41

S - FORK + PIN

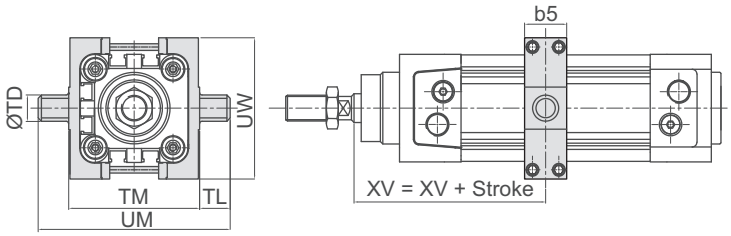


Ø	CK h11	CL	CM +0.15, 0.5	ER max.	LE Min.	h2	h3	ℓ 4	slw2
32	10	20	10	13	20	28	2	48 - 52	18
40	12	24	12	17	24	35	3	58 - 61	21
50	16	32	16	21	32	45	3	77 - 80	27
63	16	32	16	21	32	45	3	77 - 80	27
80	20	40	20	27	40	55	4	96 - 100	33
100	20	40	20	27	40	55	4	96 - 100	33

CYLINDER Ø 32 - Ø 100 AS PER ISO 6431 & CETOP RP 52 P

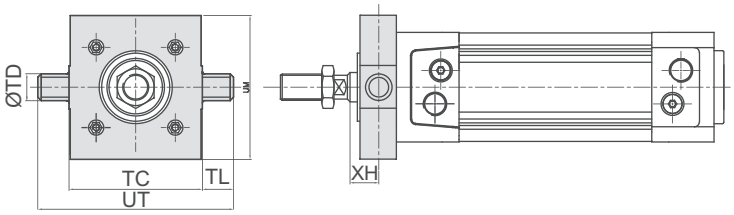
SERIES SPC

SMT4 - CENTRAL TRUNNION



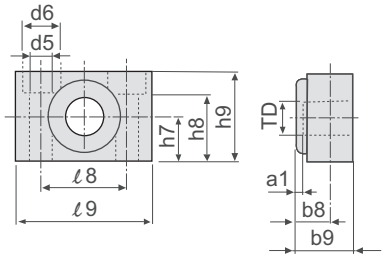
Ø	TD e9	TL h14	TM h14	UM	UW max.	XV min. max.	b5 Max.
32	12	12	54	79	65	57 - 89+	16
40	16	16	63	95	71	74 - 104+	21
50	16	16	75	107	92	81 - 106+	21
63	20	20	90	130	102	82 - 108+	26
80	20	20	110	150	122	102 - 126+	31
100	25	25	132	182	143	107 - 129+	41

MT5 - FRONT TRUNNION



Ø	TC h14	TL e9	TL h14	UN	UT	XH	r6
40	63	16	16	60	95	20	1.5
50	75	16	16	65	107	25	1.6
63	90	20	20	75	130	25	1.6
80	110	20	20	100	150	32	1.6
100	132	25	25	110	182	32	2

MTO - COUNTER HINGE FOR MT4 & MT5



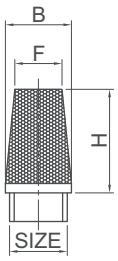
Ø	a1	B8	b9	d5	d6	h7	h8	h9	8	9	TD H8
40	1.7	12	21	9	15	18	27	36	36	55	16
50	1.7	12	21	9	15	18	27	36	36	55	16
63	1.7	13	23	11	18	20	29	40	42	65	20
80	1.7	13	23	11	18	20	29	40	42	65	20
100	2	16	28.5	14	20	25	37	50	50	75	25

PU TUBE, SILENCER AND BALL VALVE

SILENCER

SL

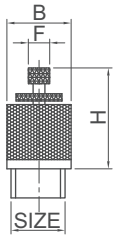
SIZE	F	B	H
1/8”	6	12	21
1/4”	6	15	25
3/8”	8	19	36
1/2”	10	23	43
3/4”	10	30	50
1”	12	36	61



SILENCER WITH FLOW CONTROL

SLF

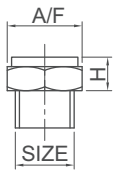
SIZE	F	B	H
1/8”	6	12	21
1/4”	6	15	25
3/8”	8	19	36
1/2”	10	23	43



SILENCER SILENCER

SB

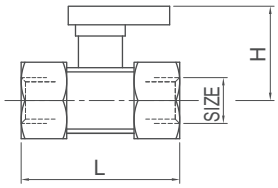
SIZE	F	H
1/8”	13	4
1/4”	15	4
3/8”	19	6
1/2”	23	6



BALL VALVE 6400 SERIES GHILUX

BVB

SIZE	ES	L	H
1/8”	14-15	35	21
1/4”	14-15	37	21
3/8”	18-19	42	22
1/2”	22-23	49	30.5
3/4”	28-30	58	33



SLIDE VALVE

HS

SIZE	L	H	MODEL No.
1/8”	35	21	HS 1
1/4”	37	21	HS 2
3/8”	42	22	HS 3
1/2”	49	30.5	HS 4
3/4”	58	33	HS 6