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HYDRAULIC ACTUATOR





SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

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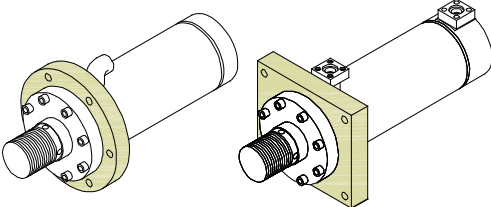
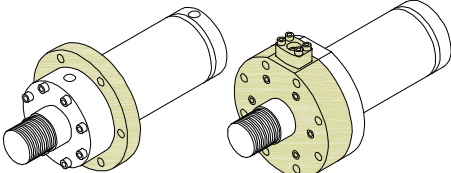
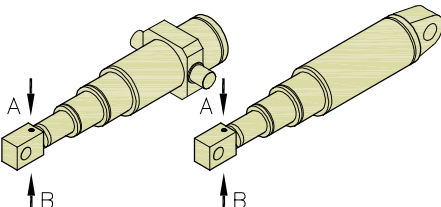
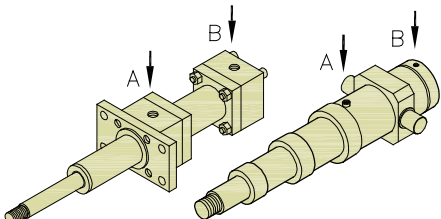
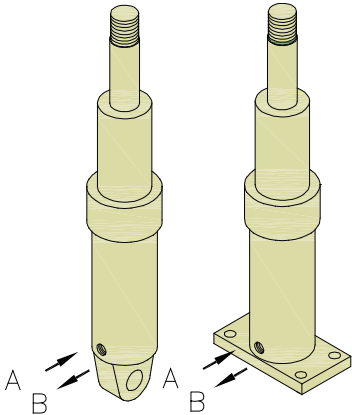
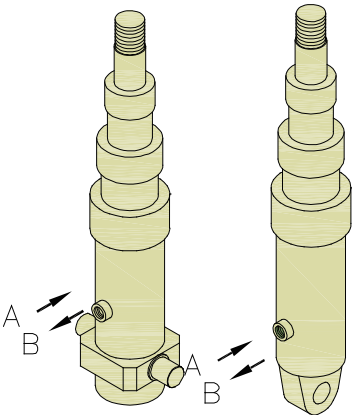
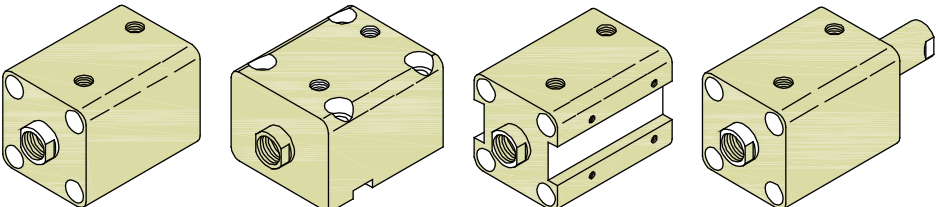
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HYDRAULIC ACTUATOR(CYLINDER)

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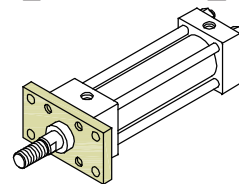
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HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

【SHA1】

The SHA1 standard hyd. cylinders which designed accord to comprehensive mechanical plant requirement adn can be employed in general production machinery & machine tools. Since there are being with much mounting styles and also with high precision action at how speed output rating.



※MODEL NUMBER DESIGNATION

SHA1-	140-	FA-	080-	A-	800-	A-	E-	(R)-	V
I	II	III	IV	V	VI	VII	VIII	IX	X
I. Series SHA1 SHA1R: SHA1 with Sensor SHA1D: Double Rod				VI. Stroke: (M.M.) Must less than Max. Permissible Stroke					
II. Operating Pressure:(Bar) 70: 70 Bar 140: 140 Bar				VII. Port & Air Vent Position A, B, C, D					
III. Mounting Type: Please Refer to Below Table				VIII. Optional Attachment E: Rod End with Other Threading F: With Dust-Protective Cover L: With "I" Type Adapter K: With Locking Nut Y: With "Y" Type Adapter					
IV. Actuator(Cylinder) Bore Size: (M.M.) 40: Ø40 70: Ø70 100: Ø100 50: Ø50 80: Ø80 125: Ø125 63: Ø63 90: Ø90 150: Ø150				The Optional Attachment Can be Employed in Intgral as Item E Such as for Which in Necessary.					
V. Rod Dia: Refer to Technical DRAW A, B				IX. Contact Option R: With Contact RN: Without Contact					
				X. Seal Type NBR: NBR PU: PU V: Viton					

※MODEL NUMBER DESIGNATION

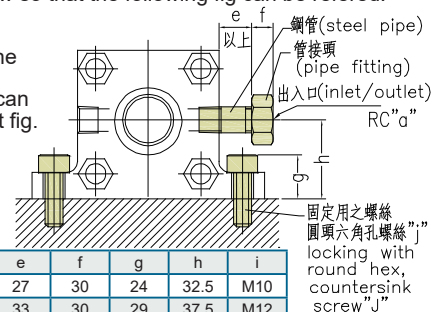
Symbol	Description	Configuration	Symbol	Description	Configuration
LA	Foot Mounting Side Luge		FC	Square Flange at Cylinder Head	
LB	Foot Mounting Side End Angles		FD	Square Flange at Cyinder Cap	
FA	Rectangular Flange at Cylinder Head		TA	Trunnion Mounting at Cylinder Head	
FB	Rectangular Flange at Cylinder Cap		TC	Centre Trunnion Mounting	
CA	Plaie Clevis at Cylinder Cap		SD	Basic Type	

	Extend	Retract	Extend&Retract
FA			Refer to the Max. output, anyhow extend or retract, please select two mount in right configurations if want same for extend&retract in necessary, please contact us
FB			
LA LB			
CA	If the stroke is over than 1000m.m. for which mounting crossly is prohibited		

Remarks during LA mounting:

The LA bore dia: 40~100 and the port position for which at B(right) or D(left). Since the pipe fitting will be disturbed the mounting screw so that the following fig can be referred.

If employed the inserted pipe fitting, which can be referd right fig.



Cyl. Bore	a	e	f	g	h	i
40	3/8	27	30	24	32.5	M10
50	3/8	33	30	29	37.5	M12
63	3/8	36	30	31	45	M12
70	1/2	38	40	37	50	M16
80	1/2	40	40	41	55	M16
90	1/2	43	40	43	62.5	M16
100	3/4	46	42	47	67.5	M20

固定用之螺絲
圓頭六角孔螺絲“J”
locking with
round hex,
countersink
screw“J”



SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

※SPECIFICATION

Bore	Mounting	Operating Pressure	Max. Operating Pressure	Min. Operating Pressure	Max. Operating Speed	Min. Operating Speed	Max. Stroke	Range of Ambient Temp.	Related Attachment
Ø m.m.		SHA1-70/SHA1-140 (Kg/CM ²)		(Kg/CM ²)	(m.m./sec)	(m.m./sec)	m.m.	°C	
40, 50, 63, 70, 80, 90, 100, 125, 150	LA, LB, FA, FB, FC, FD, CA, SD, TA, TC	70/140	90/180	3	Ø40~63=400, Ø80~125=300, Ø140~250=200	8	Ø40~50=1200, Ø60~80=1600, Ø90~150=2000	-10~80	Clevis Hand Type "I" or "Y" Dust-Protective

- ▶ 1. The Max. operating pressure which means the instantaneous increased pressure and the insensivity is indicated the Max. operating pressure.
▶ 2. The Max. stroke is derived from the lowest value of bending strength refer the Max. stroke for which, the cylinder rod will be bended and refer to (DRAW)

※TOLERANCE OF STROKE

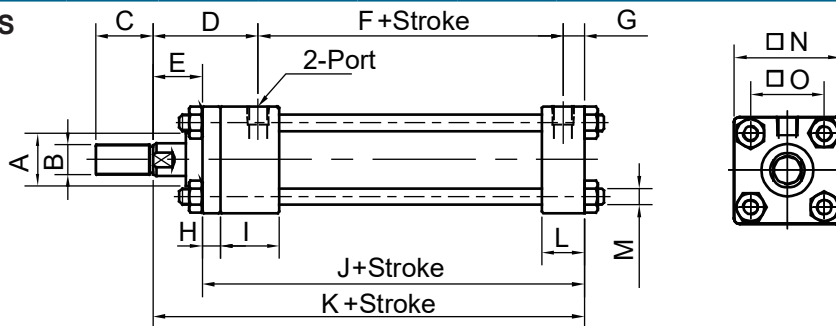
Stroke (m.m.)	~100	100~250	250~630	630~1000	1000~1600	1600~
Tolerance (m.m.)	+0.8	+1.0	+1.25	+1.4	+1.6	+1.8

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
40	---	Extend	12.6	377	880	1759	2639	132.9	0.8
	20	Retract	9.4	283	660	1319	1979	177.2	0.6
	25		7.7	230	536	1072	1608	218.1	0.5
50	---	Extend	19.6	589	1374	2749	4123	85.1	1.2
	25	Retract	14.7	442	1031	2062	3093	113.4	0.9
	30		12.6	377	880	1759	2639	132.9	0.8
63	---	Extend	31.2	935	2181	4364	6546	53.6	1.9
	1.9	Retract	24.1	723	1687	3375	5062	69.3	1.4
	35		21.6	647	1509	3017	4256	77.5	1.3
70	---	Extend	38.5	1155	2694	5388	8082	43.4	2.3
	35	Retract	28.9	866	2020	4041	6061	57.9	1.7
	40		25.9	778	1814	3629	5443	64.4	1.6
80	---	Extend	50.3	1508	3519	7037	10556	33.2	3.0
	40	Retract	37.7	1131	2639	5278	7917	44.3	2.3
	45		34.4	1031	2405	4811	7216	48.6	2.1
90	---	Extend	63.6	1909	4453	8906	13360	26.3	3.8
	45	Retract	47.7	1431	3340	6680	10020	35.0	2.9
	50		44.0	1319	3079	6158	9236	38.0	2.6
100	---	Extend	78.5	2356	5495	10996	16493	21.3	4.7
	50	Retract	58.9	1767	4123	8247	12370	28.4	3.5
	60		50.3	1508	3519	7037	10556	33.2	3.0
125	---	Extend	122.7	3682	8590	17181	25771	13.6	7.3
	60	Retract	94.4	2833	6611	13222	19833	17.7	5.7
	70		84.2	2527	5896	11793	17689	19.8	5.0
150	---	Extend	176.7	5301	12370	24740	37110	9.5	10.6
	70	Retract	138.2	4147	9676	19352	29028	12.1	8.3
	90		113.1	3393	7917	15834	23750	14.8	6.8

※DIMENSIONS

SHA1
SD



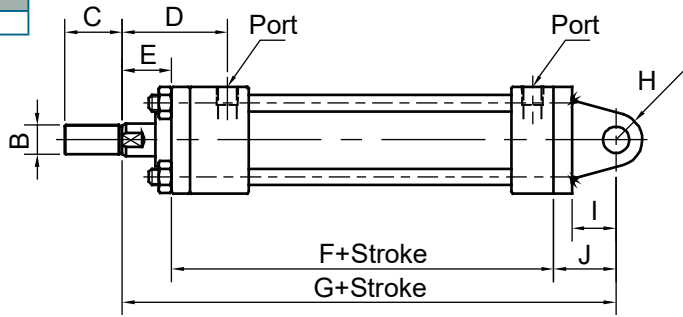
BORE	ØROD	ØA	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Port	
Ø40	TYPE A	20(0.79)	32(1.26)	M18xP1.5	35	64	30	86	13	11	36	133	163	26	M10	65	45	PT(Rc) 1/4"
	TYPE B	25(0.98)	38(1.50)	M22xP1.5	(1.38)	(2.52)	(1.18)	(3.39)	(0.51)	(0.43)	(1.42)	(5.24)	(6.42)	(1.20)		(2.56)	(1.77)	
Ø50	TYPE A	25(0.98)	38(1.50)	M22xP1.5	35	72	30	93	17	13	42	152	182	34	M10	75	51	PT(Rc) 3/8"
	TYPE B	30(1.18)	44(1.73)	M26xP1.5	(1.38)	(2.83)	(1.18)	(3.66)	(0.67)	(0.51)	(1.65)	(5.98)	(7.17)	(1.33)		(2.95)	(2.00)	
Ø63	TYPE A	30(1.18)	44(1.73)	M26xP1.5	40	79	35	96	---	15	42	157	192	34	M12	90	63	PT(Rc) 3/8"
	TYPE B	55(2.17)	50(1.97)	M30xP1.5	(1.57)	(3.11)	(1.38)	(3.78)	(0.59)	(0.59)	(1.65)	(6.18)	(7.56)	(1.33)		(3.54)	(2.48)	
Ø70	TYPE A	35(1.38)	50(1.97)	M30xP1.5	40	79	35	109	20	15	46	173	208	40	M14	100	72	PT(Rc) 1/2"
	TYPE B	40(1.57)	54(2.13)	M36xP2.0	(1.57)	(3.11)	(1.38)	(4.29)	(0.79)	(0.59)	(1.81)	(6.81)	(8.19)	(1.57)		(3.94)	(2.83)	
Ø80	TYPE A	40(1.57)	54(2.13)	M36xP2.0	45	82	35	109	20	18	46	176	211	40	M16	110	80	PT(Rc) 1/2"
	TYPE B	45(1.77)	58(2.28)	M40xP2.0	(1.77)	(3.23)	(1.38)	(4.29)	(0.79)	(0.71)	(1.81)	(6.93)	(8.31)	(1.57)		(4.33)	(3.15)	
Ø90	TYPE A	45(1.77)	58(2.28)	M40xP2.0	45	82	35	109	20	18	46	176	211	40	M16	125	94	PT(Rc) 1/2"
	TYPE B	50(1.97)	64(2.52)	M45xP2.0	(1.77)	(3.23)	(1.38)	(4.29)	(0.79)	(0.71)	(1.81)	(6.93)	(8.31)	(1.57)		(4.92)	(3.7)	
Ø100	TYPE A	50(1.97)	64(2.52)	M45xP2.0	50	92	40	120	20	20	50	292	232	40	M18	135	102	PT(Rc) 3/4"
	TYPE B	60(2.36)	75(2.95)	M55xP2.0	(1.97)	(3.62)	(1.57)	(4.72)	(0.79)	(0.79)	(1.97)	(11.50)	(9.13)	(1.57)		(5.31)	(4.02)	
Ø125	TYPE A	60(2.36)	75(2.95)	M55xP2.0	60	112	50	132	28	24	58	222	272	48	M22	165	122	PT(Rc) 3/4"
	TYPE B	70(2.76)	85(3.35)	M65xP2.0	(2.36)	(4.41)	(1.97)	(5.20)	(1.10)	(0.94)	(2.28)	(8.74)	(10.71)	(1.89)		(6.50)	(4.80)	
Ø150	TYPE A	70(2.76)	85(3.35)	M65xP2.0	60	111	50	148	24	26	58	233	283	48	M27	195	148	PT(Rc) 3/4"
	TYPE B	90(3.54)	105(4.13)	M85xP2.0	(2.36)	(4.37)	(1.97)	(5.83)	(0.94)	(1.02)	(2.28)	(9.17)	(11.14)	(1.89)		(7.68)	(5.83)	



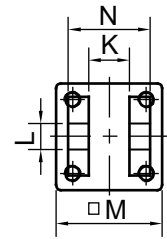
HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

SHA1
CA

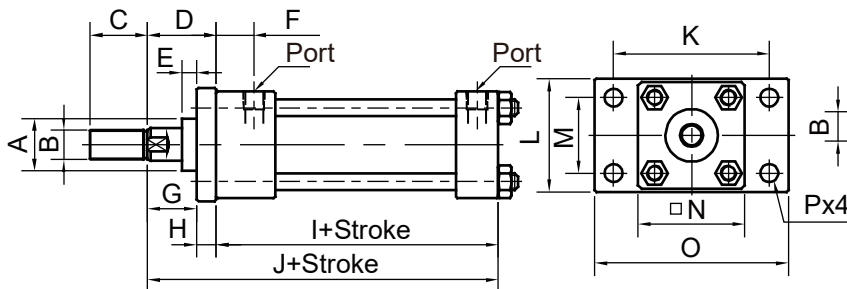


SHA1
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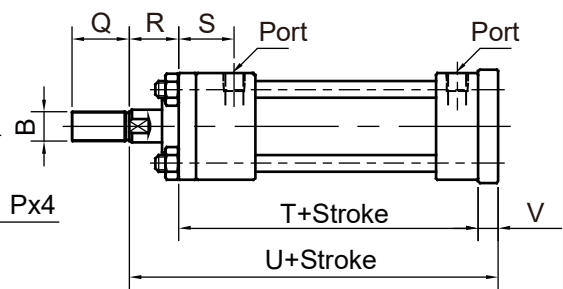


BORE		B	C	D	E	F	G	H	I	J	K	ØL	M	N	Port
Ø40	TYPE A	M18xP1.5	35	64	30	133	201	R16	27	38	25	16	65	50	PT(Rc) 1/4"
	TYPE B	M22xP1.5	(1.38)	(2.52)	(1.18)	(5.24)	(7.91)	(0.63)	(1.06)	(1.50)	(0.98)	(0.63)	(2.56)	(1.97)	
Ø50	TYPE A	M22xP1.5	35	72	30	152	227	R20	32	45	31.5	20	75	63.5	PT(Rc) 3/8"
	TYPE B	M26xP1.5	(1.38)	(2.83)	(1.18)	(5.98)	(8.94)	(0.79)	(1.26)	(1.77)	(1.24)	(0.79)	(2.95)	(2.50)	
Ø63	TYPE A	M26xP1.5	40	79	35	157	255	R31.5	48	63	40	31.5	90	80	PT(Rc) 3/8"
	TYPE B	M30xP1.5	(1.57)	(3.11)	(1.38)	(6.18)	(10.04)	(1.24)	(1.89)	(2.48)	(1.57)	(1.24)	(3.54)	(3.15)	
Ø70	TYPE A	M30xP1.5	40	79	35	173	273	R31.5	50	65	40	31.5	100	80	PT(Rc) 1/2"
	TYPE B	M36xP2.0	(1.57)	(3.11)	(1.38)	(6.81)	(10.75)	(1.24)	(1.97)	(2.56)	(1.57)	(1.24)	(3.94)	(3.15)	
Ø80	TYPE A	M36xP2.0	45	82	35	148	283	R31.5	54	72	40	31.5	110	80	PT(Rc) 1/2"
	TYPE B	M40xP2.0	(1.77)	(3.23)	(1.38)	(5.83)	(11.14)	(1.24)	(2.13)	(2.83)	(1.57)	(1.24)	(4.33)	(3.15)	
Ø90	TYPE A	M40xP2.0	45	82	35	260	300	R40	62	80	45	40	125	90	PT(Rc) 1/2"
	TYPE B	M45xP2.0	(1.77)	(3.23)	(1.38)	(10.24)	(11.81)	(1.57)	(2.45)	(3.15)	(1.77)	(1.57)	(4.92)	(3.54)	
Ø100	TYPE A	M45xP2.0	50	92	40	276	316	R40	64	84	50	40	135	100	PT(Rc) 3/4"
	TYPE B	M55xP2.0	(1.97)	(3.62)	(1.57)	(10.87)	(12.44)	(1.57)	(2.52)	(3.31)	(1.97)	(1.57)	(5.31)	(3.94)	
Ø125	TYPE A	M55xP2.0	60	112	50	322	372	R50	76	100	63	50	165	126	PT(Rc) 3/4"
	TYPE B	M65xP2.0	(2.36)	(4.41)	(1.97)	(12.68)	(14.65)	(1.97)	(2.99)	(3.94)	(2.48)	(1.97)	(6.50)	(4.96)	
Ø150	TYPE A	M65xP2.0	60(2.36)	111	50	341	391	R63	82	108	80	63	195	160	PT(Rc) 3/4"
	TYPE B	M85xP2.0		(4.37)	(1.97)	(13.43)	(15.39)	(2.48)	(3.23)	(4.25)	(3.15)	(2.48)	(7.68)	(6.30)	

SHA1
FA



SHA1
FB



BORE		ØROD	ØA	B	C, Q	D, R	E	F	G	H	I	J	K	L	M	N	O	ØP	S	T	U	V	Port
Ø40	TYPE A	20(0.79)	32(1.26)	M18xP1.5	35	42	9	23	30	12	122	164	95	69	46	65	118	11	34	133	175	12	PT(Rc) 1/4"
	TYPE B	25(0.98)	38(1.50)	M22xP1.5	(1.38)	(1.65)	(0.35)	(0.91)	(1.18)	(0.47)	(4.80)	(6.46)	(3.74)	(2.72)	(1.81)	(2.56)	(4.65)	(0.43)	(1.34)	(5.24)	(6.89)	(0.47)	
Ø50	TYPE A	25(0.98)	38(1.50)	M22xP1.5	35	45	4	29	30	15	139	184	115	85	58	75	145	11	42	152	197	15	PT(Rc) 3/8"
	TYPE B	30(1.18)	44(1.73)	M26xP1.5	(1.38)	(1.77)	(0.16)	(1.14)	(1.18)	(0.59)	(5.47)	(7.24)	(4.53)	(3.35)	(2.28)	(2.95)	(5.71)	(0.43)	(1.65)	(5.98)	(7.76)	(0.59)	
Ø63	TYPE A	30(1.18)	44(1.73)	M26xP1.5	40	54	3	29	35	19	142	196	132	98	65	90	165	14	44	157	211	19	PT(Rc) 3/8"
	TYPE B	55(2.17)	50(1.97)	M30xP1.5	(1.57)	(2.13)	(0.12)	(1.14)	(1.38)	(0.75)	(5.59)	(7.72)	(5.20)	(3.86)	(2.56)	(3.54)	(6.50)	(0.55)	(1.73)	(6.18)	(8.31)	(0.75)	
Ø70	TYPE A	35(1.38)	50(1.97)	M30xP1.5	40	57	3	29	35	22	158	215	144	110	78	100	180	18	44	173	230	22	PT(Rc) 1/2"
	TYPE B	40(1.57)	54(2.13)	M36xP2.0	(1.57)	(2.24)	(0.12)	(1.14)	(1.38)	(0.87)	(6.22)	(8.46)	(5.67)	(4.33)	(3.07)	(3.94)	(7.09)	(0.71)	(1.73)	(6.81)	(9.96)	(0.87)	
Ø80	TYPE A	40(1.57)	54(2.13)	M36xP2.0	45	57	3	29	35	22	158	215	155	118	87	110	190	18	47	176	233	22	PT(Rc) 1/2"
	TYPE B	45(1.77)	58(2.28)	M40xP2.0	(1.77)	(2.24)	(0.12)	(1.14)	(1.38)	(0.87)	(6.22)	(8.46)	(6.10)	(4.65)	(3.43)	(4.33)	(7.48)	(0.71)	(1.85)	(6.93)	(9.17)	(0.87)	
Ø90	TYPE A	45(1.77)	58(2.28)	M40xP2.0	45	64	3	33	40	24	162	226	170	132	98	125	206	18	51	180	244	24	PT(Rc) 1/2"
	TYPE B	50(1.97)	64(2.52)	M45xP2.0	(1.77)	(2.52)	(0.12)	(1.30)	(1.57)	(0.94)	(6.38)	(8.90)	(6.69)	(5.20)	(3.86)	(4.92)	(8.11)	(0.71)	(2.01)	(7.09)	(9.60)	(0.94)	
Ø100	TYPE A	50(1.97)	64(2.52)	M45xP2.0	50	64	4	32	40	24	172	236	190	150	109	135	230	18	52	192	252	24	PT(Rc) 3/4"
	TYPE B	60(2.36)	75(2.95)	M55xP2.0	(1.97)	(2.52)	(0.16)	(1.26)	(1.57)	(0.94)	(6.77)	(9.29)	(7.48)	(5.91)	(4.29)	(5.31)	(9.06)	(0.71)	(2.05)	(7.56)	(9.92)	(0.94)	
Ø125	TYPE A	60(2.36)	75(2.95)	M55xP2.0	60	77	7	38	50	27	198	275	224	175	130	165	272	22	62	222	296	24	PT(Rc) 3/4"
	TYPE B	70(2.76)	85(3.35)	M65xP2.0	(2.36)	(3.03)	(0.28)	(1.50)	(1.97)	(1.06)	(7.80)	(10.83)	(8.82)	(6.89)	(5.12)	(6.50)	(10.71)	(0.87)	(2.44)	(8.74)	(11.65)	(0.94)	
Ø150	TYPE A	70(2.76)	85(3.35)	M65xP2.0	60	82	14	35	50	32	207	289	270	210	155	195	320	25	61	233	309	32	PT(Rc) 3/4"
	TYPE B	90(3.54)	105(4.13)	M85xP2.0	(2.36)	(3.23)	(0.55)	(1.38)	(1.97)	(1.26)	(8.15)	(11.38)	(10.63)	(8.27)	(6.10)	(7.68)	(12.60)	(0.98)	(2.40)	(9.17)	(12.17)	(1.26)	

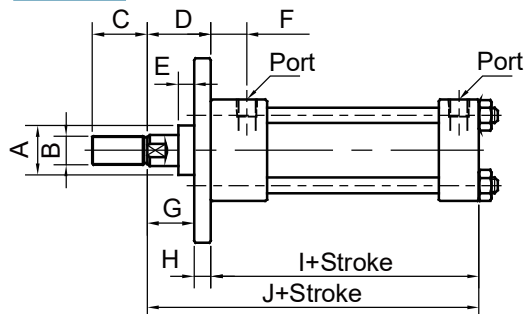


HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

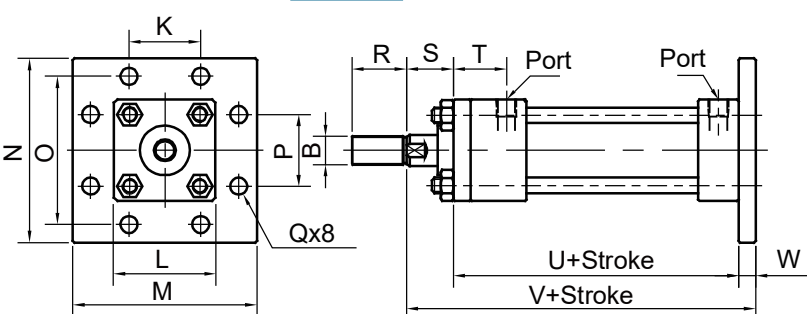
SHA1

FC



SHA1

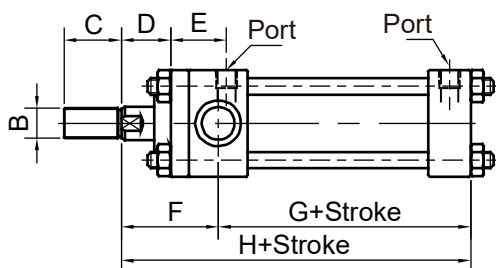
FD



BORE	ØROD	ØA	B	C,R	D	E	F	G	H,W	I	J	K,P	L	M,N	O	ØQ	S	T	U	V	Port	
Ø40	TYPE A	20(0.79)	32(1.26)	M18xP1.5	35	41	10	23	30	11	122	163	46	65	118	95	11	30	34	133	174	PT(Rc) 1/4"
	TYPE B	25(0.98)	38(1.50)	M22xP1.5	(1.38)	(1.61)	(0.39)	(0.91)	(1.18)	(0.43)	(4.80)	(6.42)	(1.81)	(2.56)	(4.65)	(3.74)	(0.43)	(1.18)	(1.34)	(5.24)	(6.85)	
Ø50	TYPE A	25(0.98)	38(1.50)	M22xP1.5	35	43	6	29	30	13	139	182	58	75	145	115	11	30	42	152	195	PT(Rc) 3/8"
	TYPE B	30(1.18)	44(1.73)	M26xP1.5	(1.38)	(1.69)	(0.24)	(1.14)	(1.18)	(0.51)	(5.47)	(7.17)	(2.28)	(2.95)	(5.71)	(4.53)	(0.43)	(1.18)	(1.65)	(5.98)	(7.68)	
Ø63	TYPE A	30(1.18)	44(1.73)	M26xP1.5	40	50	7	29	35	15	142	192	65	90	165	132	14	35	44	157	207	PT(Rc) 3/8"
	TYPE B	55(2.17)	50(1.97)	M30xP1.5	(1.57)	(1.97)	(0.28)	(1.14)	(1.38)	(0.59)	(5.59)	(7.56)	(2.56)	(3.54)	(6.50)	(5.20)	(0.55)	(1.38)	(1.73)	(6.18)	(8.15)	
Ø70	TYPE A	35(1.38)	50(1.97)	M30xP1.5	40	50	10	29	35	15	158	208	78	100	180	144	18	35	44	173	223	PT(Rc) 1/2"
	TYPE B	40(1.57)	54(2.13)	M36xP2.0	(1.57)	(1.97)	(0.39)	(1.14)	(1.38)	(0.59)	(6.22)	(8.19)	(3.07)	(3.94)	(7.09)	(5.67)	(0.71)	(1.38)	(1.73)	(6.81)	(8.78)	
Ø80	TYPE A	40(1.57)	54(2.13)	M36xP2.0	45	53	7	29	35	18	158	211	87	110	190	155	18	35	47	176	229	PT(Rc) 1/2"
	TYPE B	45(1.77)	58(2.28)	M40xP2.0	(1.77)	(2.09)	(0.28)	(1.14)	(1.38)	(0.71)	(6.22)	(8.31)	(3.43)	(4.33)	(7.48)	(6.10)	(0.71)	(1.38)	(1.85)	(6.93)	(9.02)	
Ø90	TYPE A	45(1.77)	58(2.28)	M40xP2.0	45	58	9	33	40	18	162	220	98	125	206	170	18	40	51	180	238	PT(Rc) 1/2"
	TYPE B	50(1.97)	64(2.52)	M45xP2.0	(1.77)	(2.28)	(0.35)	(1.30)	(1.57)	(0.71)	(6.38)	(8.67)	(3.86)	(4.92)	(8.11)	(6.69)	(0.71)	(1.57)	(2.01)	(7.09)	(9.37)	
Ø100	TYPE A	50(1.97)	64(2.52)	M45xP2.0	50	60	8	32	40	20	172	232	109	135	230	190	18	40	52	192	252	PT(Rc) 3/4"
	TYPE B	60(2.36)	75(2.95)	M55xP2.0	(1.97)	(2.36)	(0.31)	(1.26)	(1.57)	(0.79)	(6.77)	(9.13)	(4.29)	(5.31)	(9.06)	(7.48)	(0.71)	(1.57)	(2.05)	(7.56)	(9.92)	
Ø125	TYPE A	60(2.36)	75(2.95)	M55xP2.0	60	74	10	38	50	24	198	272	130	165	272	224	22	50	62	222	296	PT(Rc) 3/4"
	TYPE B	70(2.76)	85(3.35)	M65xP2.0	(2.36)	(2.91)	(0.39)	(1.50)	(1.97)	(0.94)	(7.80)	(10.71)	(5.12)	(6.50)	(10.71)	(8.82)	(0.87)	(1.97)	(2.44)	(8.74)	(11.65)	
Ø150	TYPE A	70(2.76)	85(3.35)	M65xP2.0	60	76	14	35	50	26	207	283	155	195	320	270	25	50	61	233	309	PT(Rc) 3/4"
	TYPE B	90(3.54)	105(4.13)	M85xP2.0	(2.36)	(2.99)	(0.55)	(1.38)	(1.97)	(1.02)	(8.15)	(11.14)	(6.10)	(7.68)	(12.60)	(10.63)	(0.98)	(1.97)	(2.40)	(9.17)	(12.17)	

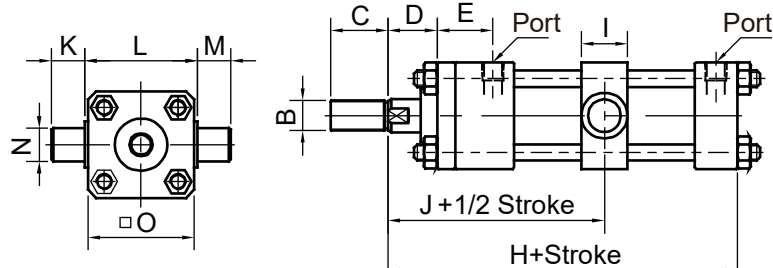
SHA1

TA



SHA1

TC



BORE	ØROD	B	C	D	E	F	G	H	I	J	K	L	M	ØN	O	Port	
Ø40	TYPE A	20(0.79)	M18xP1.5	35	30	34	59	104	163	28	107	20	69	20	20	65	PT(Rc) 1/4"
	TYPE B	25(0.98)	M22xP1.5	(1.38)	(1.18)	(1.34)	(2.32)	(4.09)	(6.42)	(1.10)	(4.21)	(0.79)	(2.72)	(0.79)	(0.79)	(2.56)	
Ø50	TYPE A	25(0.98)	M22xP1.5	35	30	42	64	118	182	31	116.5	25	85	25	25	75	PT(Rc) 3/8"
	TYPE B	30(1.18)	M26xP1.5	(1.38)	(1.18)	(1.65)	(2.52)	(4.65)	(7.17)	(1.22)	(4.59)	(0.98)	(3.35)	(0.98)	(0.98)	(2.95)	
Ø63	TYPE A	30(1.18)	M26xP1.5	40	35	44	71	121	192	38	124.5	31.5	98	31.5	31.5	90	PT(Rc) 3/8"
	TYPE B	55(2.17)	M30xP1.5	(1.57)	(1.38)	(1.73)	(2.80)	(4.76)	(7.56)	(1.50)	(4.90)	(1.24)	(3.86)	(1.24)	(1.24)	(3.54)	
Ø70	TYPE A	35(1.38)	M30xP1.5	40	35	44	73	135	208	38	132	31.5	106	31.5	31.5	100	PT(Rc) 1/2"
	TYPE B	40(1.57)	M36xP2.0	(1.57)	(1.38)	(1.73)	(2.87)	(5.31)	(8.19)	(1.50)	(5.20)	(1.24)	(4.17)	(1.24)	(1.24)	(3.94)	
Ø80	TYPE A	40(1.57)	M36xP2.0	45	35	47	76	135	211	38	135	31.5	118	31.5	31.5	110	PT(Rc) 1/2"
	TYPE B	45(1.77)	M40xP2.0	(1.77)	(1.38)	(1.85)	(2.99)	(5.31)	(8.31)	(1.50)	(5.31)	(1.24)	(4.65)	(1.24)	(1.24)	(4.33)	
Ø90	TYPE A	45(1.77)	M40xP2.0	45	40	51	83	137	220	50	144	40	135	40	40	125	PT(Rc) 1/2"
	TYPE B	50(1.97)	M45xP2.0	(1.77)	(1.57)	(2.01)	(3.27)	(5.39)	(8.66)	(1.97)	(5.67)	(1.57)	(5.31)	(1.57)	(1.57)	(4.92)	
Ø100	TYPE A	50(1.97)	M45xP2.0	50	40	52	85	147	232	50	151	40	145	40	40	135	PT(Rc) 3/4"
	TYPE B	60(2.36)	M55xP2.0	(1.97)	(1.57)	(2.05)	(3.35)	(5.79)	(9.13)	(1.97)	(5.94)	(1.57)	(5.71)	(1.57)	(1.57)	(5.31)	
Ø125	TYPE A	60(2.36)	M55xP2.0	60	50	62	103	169	272	---	178	50	175	50	50	165	PT(Rc) 3/4"
	TYPE B	70(2.76)	M65xP2.0	(2.36)	(1.97)	(2.44)	(4.06)	(6.65)	(10.71)		(7.01)	(1.97)	(6.89)	(1.97)	(1.97)	(6.50)	
Ø150	TYPE A	70(2.76)	M65xP2.0	60	50	61	105	178	283	69	184.5	63	206	63	63	195	PT(Rc) 3/4"
	TYPE B	90(3.54)	M85xP2.0	(2.36)	(1.97)	(2.40)	(4.13)	(7.01)	(11.14)	(2.72)	(7.26)	(2.48)	(8.11)	(2.48)	(2.48)	(7.68)	

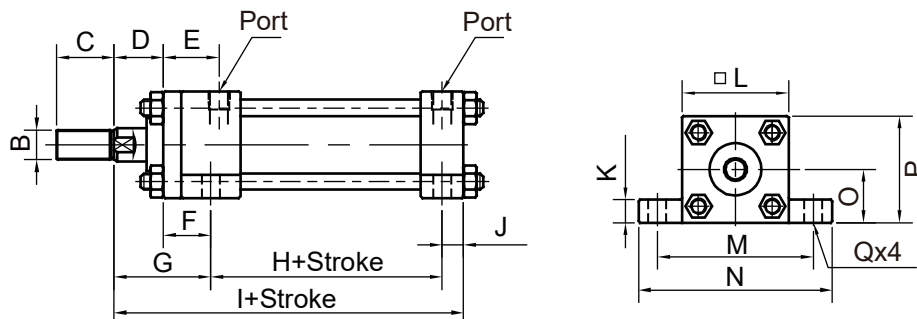


HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

SHA1

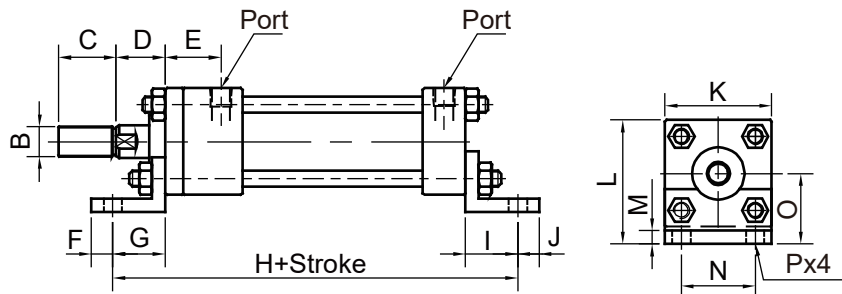
LA



BORE	ØROD	B	C	D	E	F	G	H	I	J	K	L, P	M	N	O	Q	Port
Ø40	TYPE A 20(0.79)	M18xP1.5	35	30	34	29	59	91	163	13	14	65	95	118	32.5	11	PT(Rc) 1/4"
	TYPE B 25(0.98)	M22xP1.5	(1.38)	(1.18)	(1.34)	(1.14)	(2.32)	(3.58)	(6.42)	(0.51)	(0.55)	(2.56)	(3.74)	(4.65)	(1.28)	(0.43)	
Ø50	TYPE A 25(0.98)	M22xP1.5	35	30	42	34	64	101	182	---	17	75	110	130	37.5	11	PT(Rc) 3/8"
	TYPE B 30(1.18)	M26xP1.5	(1.38)	(1.18)	(1.65)	(1.34)	(2.52)	(3.97)	(7.17)		(0.67)	(2.95)	(4.33)	(5.11)	(1.48)	(0.43)	
Ø63	TYPE A 30(1.18)	M26xP1.5	40	35	44	36	71	104	192	---	19	90	120	150	45	14	PT(Rc) 3/8"
	TYPE B 55(2.17)	M30xP1.5	(1.57)	(1.38)	(1.73)	(1.42)	(2.80)	(4.09)	(7.56)		(0.75)	(3.54)	(4.72)	(5.91)	(1.77)	(0.55)	
Ø70	TYPE A 35(1.38)	M30xP1.5	40	35	44	38	73	115	208	---	21	100	130	162	50	18	PT(Rc) 1/2"
	TYPE B 40(1.57)	M36xP2.0	(1.57)	(1.38)	(1.73)	(1.54)	(2.87)	(4.53)	(8.19)		(0.83)	(3.94)	(5.12)	(6.38)	(1.97)	(0.71)	
Ø80	TYPE A 40(1.57)	M36xP2.0	45	35	47	41	76	115	211	---	25	110	140	165	55	18	PT(Rc) 1/2"
	TYPE B 45(1.77)	M40xP2.0	(1.77)	(1.38)	(1.85)	(1.61)	(2.99)	(4.53)	(8.31)		(0.98)	(4.33)	(5.51)	(6.50)	(2.17)	(0.71)	
Ø90	TYPE A 45(1.77)	M40xP2.0	45	40	51	43	83	117	220	---	27	125	160	190	62.5	18	PT(Rc) 1/2"
	TYPE B 50(1.97)	M45xP2.0	(1.77)	(1.57)	(2.01)	(1.69)	(3.27)	(4.61)	(8.66)		(1.06)	(4.92)	(6.30)	(7.48)	(2.46)	(0.71)	
Ø100	TYPE A 50(1.97)	M45xP2.0	50	40	52	45	85	127	232	---	27	135	175	205	67.5	18	PT(Rc) 3/4"
	TYPE B 60(2.36)	M55xP2.0	(1.97)	(1.57)	(2.05)	(1.77)	(3.35)	(5.0)	(9.13)		(1.06)	(5.31)	(6.89)	(8.07)	(2.66)	(0.71)	
Ø125	TYPE A 60(2.36)	M55xP2.0	60	50	62	53	103	145	272	---	32	165	205	245	82.5	22	PT(Rc) 3/4"
	TYPE B 70(2.76)	M65xP2.0	(2.36)	(1.97)	(2.44)	(2.09)	(4.06)	(5.71)	(10.71)		(1.26)	(6.50)	(8.07)	(9.65)	(3.25)	(0.87)	
Ø150	TYPE A 70(2.76)	M65xP2.0	60	50	61	55	105	154	283	---	37	195	245	295	97.5	25	PT(Rc) 3/4"
	TYPE B 90(3.54)	M85xP2.0	(2.36)	(1.97)	(2.40)	(2.17)	(4.13)	(6.06)	(11.14)		(1.46)	(7.68)	(9.65)	(11.61)	(3.84)	(0.98)	

SHA1

LB



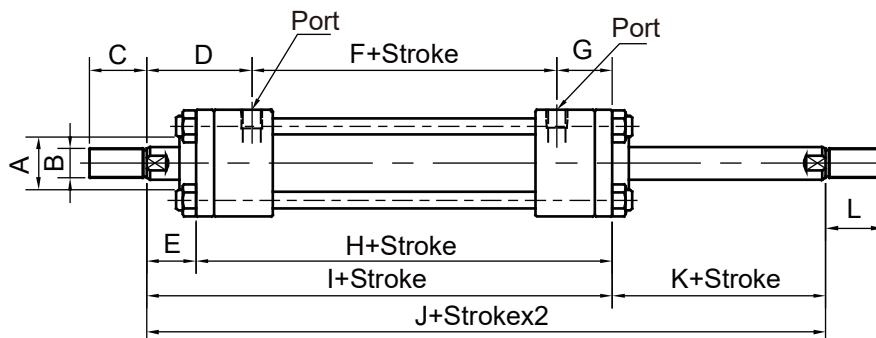
BORE	ØROD	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Port
Ø40	TYPE A 20(0.79)	M18xP1.5	35	30	34	13	32	197	32	13	65	75.5	8	45	43	11	PT(Rc) 1/4"
	TYPE B 25(0.98)	M22xP1.5	(1.38)	(1.18)	(1.34)	(0.51)	(1.26)	(7.76)	(1.26)	(0.51)	(2.56)	(2.97)	(0.31)	(1.77)	(1.69)	(0.43)	
Ø50	TYPE A 25(0.98)	M22xP1.5	35	30	42	15	35	222	35	15	75	75	8	50	50	11	PT(Rc) 3/8"
	TYPE B 30(1.18)	M26xP1.5	(1.38)	(1.18)	(1.65)	(0.59)	(1.38)	(8.74)	(1.38)	(0.59)	(2.95)	(2.95)	(0.31)	(1.97)	(1.97)	(0.43)	
Ø63	TYPE A 30(1.18)	M26xP1.5	40	35	44	18	42	241	42	18	90	105	10	58	60	14	PT(Rc) 3/8"
	TYPE B 55(2.17)	M30xP1.5	(1.57)	(1.38)	(1.73)	(0.70)	(1.65)	(9.49)	(1.65)	(0.70)	(3.54)	(4.13)	(0.39)	(2.28)	(2.36)	(0.55)	
Ø70	TYPE A 35(1.38)	M30xP1.5	40	35	44	20	50	273	50	20	100	115	10	74	65	18	PT(Rc) 1/2"
	TYPE B 40(1.57)	M36xP2.0	(1.57)	(1.38)	(1.73)	(0.79)	(1.97)	(10.75)	(1.97)	(0.79)	(3.94)	(4.53)	(0.39)	(2.91)	(2.56)	(0.71)	
Ø80	TYPE A 40(1.57)	M36xP2.0	45	35	47	20	50	276	50	20	110	127	10	78	72	18	PT(Rc) 1/2"
	TYPE B 45(1.77)	M40xP2.0	(1.77)	(1.38)	(1.85)	(0.79)	(1.97)	(10.87)	(1.97)	(0.79)	(4.33)	(5.0)	(0.39)	(3.07)	(2.83)	(0.71)	
Ø90	TYPE A 45(1.77)	M40xP2.0	45	40	51	23	55	290	55	23	125	140	12	90	70	18	PT(Rc) 1/2"
	TYPE B 50(1.97)	M45xP2.0	(1.77)	(1.57)	(2.01)	(0.91)	(2.17)	(11.42)	(2.17)	(0.91)	(4.92)	(5.51)	(0.47)	(3.54)	(2.76)	(0.71)	
Ø100	TYPE A 50(1.97)	M45xP2.0	50	40	52	23	55	302	55	23	135	152.5	12	96	85	18	PT(Rc) 3/4"
	TYPE B 60(2.36)	M55xP2.0	(1.97)	(1.57)	(2.05)	(0.91)	(2.17)	(11.89)	(2.17)	(0.91)	(5.31)	(6.00)	(0.47)	(3.78)	(3.35)	(0.71)	
Ø125	TYPE A 60(2.36)	M55xP2.0	60	50	62	29	66	354	66	29	165	187.5	15	120	105	22	PT(Rc) 3/4"
	TYPE B 70(2.76)	M65xP2.0	(2.36)	(1.97)	(2.44)	(1.14)	(2.60)	(13.94)	(2.60)	(1.14)	(6.50)	(7.38)	(0.59)	(4.72)	(4.13)	(0.87)	
Ø150	TYPE A 70(2.76)	M65xP2.0	60	50	61	30	75	383	75	30	195	220.5	16	146	123	25	PT(Rc) 3/4"
	TYPE B 90(3.54)	M85xP2.0	(2.36)	(1.97)	(2.40)	(1.18)	(2.95)	(15.08)	(2.95)	(1.18)	(7.68)	(8.68)	(0.63)	(5.75)	(4.84)	(0.98)	



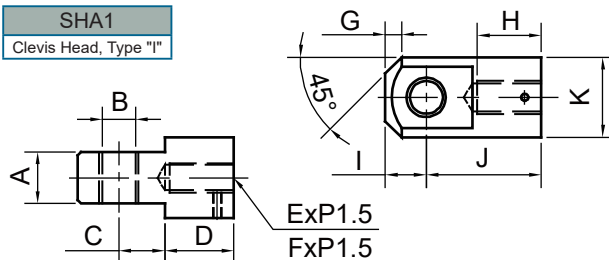
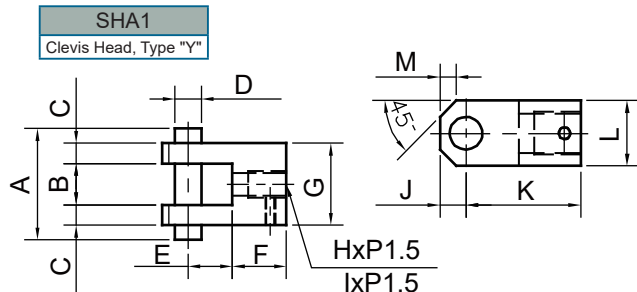
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

SHA1
DOUBLE ROD

BORE	ØROD	ØA	B	C	D	E	F	G	H	I	J	K	L	Port	
Ø40	TYPE A	20(0.79)	32(1.26)	M18xP1.5	35	64	30	86	34	154	184	214	30	35	PT(Rc)
	TYPE B	25(0.98)	38(1.50)	M22xP1.5	(1.38)	(2.52)	(1.18)	(3.39)	(1.34)	(6.06)	(7.24)	(8.43)	(1.18)	(1.38)	1/4"
Ø50	TYPE A	25(0.98)	38(1.50)	M22xP1.5	35	72	30	89	42	173	203	233	30	35	PT(Rc)
	TYPE B	30(1.18)	44(1.73)	M26xP1.5	(1.38)	(2.83)	(1.18)	(3.50)	(1.65)	(6.81)	(7.99)	(9.17)	(1.18)	(1.38)	3/8"
Ø63	TYPE A	30(1.18)	44(1.73)	M26xP1.5	40	79	35	92	44	180	212	250	35	40	PT(Rc)
	TYPE B	55(2.17)	50(1.97)	M30xP1.5	(1.57)	(3.11)	(1.38)	(3.62)	(1.73)	(7.09)	(8.35)	(9.84)	(1.38)	(1.57)	3/8"
Ø70	TYPE A	35(1.38)	50(1.97)	M30xP1.5	40	79	35	106	44	194	229	264	35	40	PT(Rc)
	TYPE B	40(1.57)	54(2.13)	M36xP2.0	(1.57)	(3.11)	(1.38)	(4.17)	(1.73)	(7.64)	(9.02)	(10.39)	(1.38)	(1.57)	1/2"
Ø80	TYPE A	40(1.57)	54(2.13)	M36xP2.0	45	82	35	106	47	200	235	270	35	45	PT(Rc)
	TYPE B	45(1.77)	58(2.28)	M40xP2.0	(1.77)	(3.23)	(1.38)	(4.17)	(1.85)	(7.87)	(9.25)	(10.63)	(1.38)	(1.77)	1/2"
Ø90	TYPE A	45(1.77)	58(2.28)	M40xP2.0	45	82	40	106	51	200	211	270	40	45	PT(Rc)
	TYPE B	50(1.97)	64(2.52)	M45xP2.0	(1.77)	(3.23)	(1.57)	(4.17)	(2.01)	(7.87)	(8.31)	(10.63)	(1.57)	(1.77)	1/2"
Ø100	TYPE A	50(1.97)	64(2.52)	M45xP2.0	50	92	40	118	52	222	262	302	40	50	PT(Rc)
	TYPE B	60(2.36)	75(2.95)	M55xP2.0	(1.97)	(3.62)	(1.57)	(4.65)	(2.05)	(8.74)	(10.31)	(11.89)	(1.57)	(1.97)	3/4"
Ø125	TYPE A	60(2.36)	75(2.95)	M55xP2.0	60	112	50	132	62	256	306	356	50	60	PT(Rc)
	TYPE B	70(2.76)	85(3.35)	M65xP2.0	(2.36)	(4.41)	(1.97)	(5.20)	(2.44)	(10.08)	(12.05)	(14.02)	(1.97)	(2.36)	3/4"
Ø150	TYPE A	70(2.76)	85(3.35)	M65xP2.0	60	111	50	147	61	269	319	369	50	60	PT(Rc)
	TYPE B	90(3.54)	105(4.13)	M85xP2.0	(2.36)	(4.37)	(1.97)	(5.79)	(2.40)	(10.59)	(12.56)	(14.53)	(1.97)	(2.36)	3/4"

SHA1
Clevis Head, Type "I"SHA1
Clevis Head, Type "Y"

BORE	A	ØB	C	D	E TYPE A	F TYPE B	G	H	I	J	ØK
Ø40	31.5 (1.24)	20 (0.79)	28 (1.10)	42 (1.65)	M18	M22	10 (0.39)	39 (1.54)	25 (0.98)	70 (2.76)	49 (1.93)
Ø50	40 (1.57)	30 (1.18)	43 (1.69)	72 (2.83)	M22	M26	15 (0.59)	53 (2.09)	35 (1.38)	115 (4.53)	62 (2.44)
Ø63	40 (1.57)	30 (1.18)	43 (1.69)	72 (2.83)	M26	M30	15 (0.59)	50 (1.97)	35 (1.38)	115 (4.53)	62 (2.44)
Ø70	40 (1.57)	30 (1.18)	43 (1.69)	72 (2.83)	M30	M36	15 (0.59)	50 (1.97)	35 (1.38)	115 (4.53)	62 (2.44)
Ø80	40 (1.57)	35 (1.38)	43 (1.69)	72 (2.83)	M36		15 (0.59)	50 (1.97)	35 (1.38)	115 (4.53)	62 (2.44)
Ø90	40 (1.57)	35 (1.38)	43 (1.69)	72 (2.83)	M40		15 (0.59)	50 (1.97)	35 (1.38)	115 (4.53)	62 (2.44)
Ø100	50 (1.97)	40 (1.57)	55 (2.17)	90 (3.54)	M45		20 (0.79)	65 (1.56)	40 (1.57)	145 (5.71)	79 (3.11)
Ø125	63 (2.48)	50 (1.97)	65 (1.56)	115 (4.53)	M55		25 (0.98)	80 (3.15)	50 (1.97)	180 (7.09)	100 (3.94)
Ø150	63 (2.48)	50 (1.97)	65 (1.56)	115 (4.53)	M65		25 (0.98)	80 (3.15)	50 (1.97)	180 (7.09)	100 (3.94)

BORE	A	B	C	ØD	E TYPE A	F TYPE B	G	H	I	J	K	L	M
Ø40	68 (2.68)	25 (0.98)	12.5 (0.49)	16 (0.63)	27 (1.06)	33 (1.30)	50 (1.97)	M18	M22	16 (0.63)	60 (2.36)	32 (1.26)	C4
Ø50	80 (3.15)	31.5 (1.24)	16 (0.63)	20 (0.79)	32 (1.26)	38 (1.50)	63.5 (2.50)	M22	M26	16 (0.63)	70 (2.76)	40 (1.57)	10 (0.39)
Ø63	98 (3.86)	40 (1.57)	20 (0.79)	31.5 (1.24)	50 (1.97)	65 (1.56)	80 (3.15)	M26	M30	30 (1.18)	115 (4.53)	60 (2.36)	12 (0.47)
Ø70	98 (3.86)	40 (1.57)	20 (0.79)	31.5 (1.24)	60 (2.36)	65 (1.56)	80 (3.15)	M30	M36	30 (1.18)	125 (4.92)	60 (2.36)	12 (0.47)
Ø80	98 (3.86)	40 (1.57)	20 (0.79)	31.5 (1.24)	50 (1.97)	65 (1.56)	80 (3.15)	M36		30 (1.18)	115 (4.53)	60 (2.36)	12 (0.47)
Ø90	125 (4.92)	50 (1.97)	25 (0.98)	40 (1.57)	60 (2.36)	85 (3.35)	100 (3.94)	M40		40 (1.57)	145 (5.71)	80 (3.15)	15 (0.59)
Ø100	125 (4.92)	50 (1.97)	25 (0.98)	40 (1.57)	60 (2.36)	85 (3.35)	100 (3.94)	M45		40 (1.57)	145 (5.71)	80 (3.15)	15 (0.59)
Ø125	150 (5.91)	63 (2.48)	31.5 (1.24)	50 (1.97)	70 (2.76)	110 (4.33)	126 (4.96)	M55		50 (1.97)	180 (7.09)	100 (3.94)	20 (0.79)
Ø150	185 (7.28)	80 (3.15)	40 (1.57)	63 (2.48)	90 (3.54)	135 (5.31)	160 (6.30)	M65		65 (2.56)	225 (8.86)	120 (4.72)	25 (0.98)



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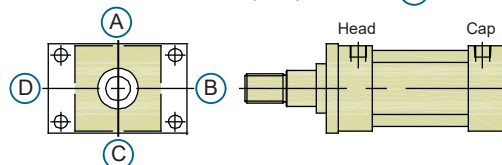
HYDRAULIC ACTUATOR(CYLINDER)

STANDARD TYPE-70/140 Bar

※PORT & AIR VENT POSITIONS

► Each position is viewed from the cylinder head and (A)(B)(C)(D) turn in clockwise so that the standard port position at (A) and the air vent position will be at (D) as fig. shown.

Remarks: The port position & air vent position MUST not at same side.

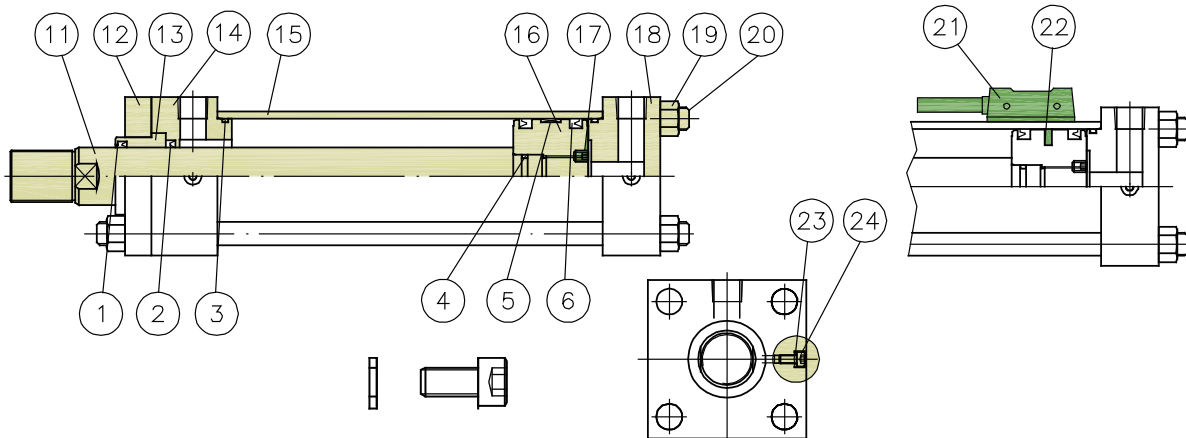


※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

Bore	Parameter	SD	FA	FB	FC	FD	CA	LA	LB	TA	TC
Ø40	W1 (Kg)	4.2	4.5	5.0	5.0	5.5	4.9	4.6	4.9	4.3	4.9
	W2 (kg/100mm)	0.93									
Ø50	W1 (Kg)	6.4	7.2	7.8	8.2	8.8	7.5	6.9	7.1	6.5	7.4
	W2 (kg/100mm)	1.31									
Ø63	W1 (Kg)	8.6	10.0	11.0	10.8	11.8	11.2	9.3	10.0	9.1	11.2
	W2 (kg/100mm)	1.76									
Ø70	W1 (Kg)	12.4	14.5	15.8	15.0	16.2	15.3	13.2	14.1	12.9	15.3
	W2 (kg/100mm)	2.18									
Ø80	W1 (Kg)	15.7	17.8	19.0	19.0	20.1	18.9	16.0	17.7	15.7	17.3
	W2 (kg/100mm)	2.68									
Ø90	W1 (Kg)	20.3	23.0	25.3	23.9	26.1	25.4	21.4	23.4	21.3	24.3
	W2 (kg/100mm)	3.1									
Ø100	W1 (Kg)	23.1	26.6	29.5	28.4	31.2	29.9	24.5	26.7	24.8	27.4
	W2 (kg/100mm)	4.2									
Ø125	W1 (Kg)	40.7	45.5	49.4	54.5	51.6	43.0	47.2	42.6	48.2	
	W2 (kg/100mm)	5.9									
Ø150	W1 (Kg)	57.7	66.5	74.2	70.5	77.9	74.6	43.0	47.2	42.6	48.2
	W2 (kg/100mm)	8.2									

Example: FA, ST=200mm
 Weight = W1 + (W2 x Stroke)
 = 4.5+ (0.93 x 2)
 = 6.36 Kg

※MATERIAL LIST



NO	1	2	3	4	5	6
	Dust Seal	Rod Seal	O-Ring	O-Ring	Wear Ring	Piston Seal
Material	PU	PU	NBR	NBR	PTFE	PU
Quantity	1	1	2	1	1	2
Bore Ø, Ø _w (mm)	A B	A B				
Ø40	20-28-6 25-33-6	20-28-5 25-33-5	G-35	P-12	40-2.5	40-30-6
Ø50	25-33-6 30-38-6.5	25-33-5 30-40-6	G-45	P-16	50-2.5	50-40-6
Ø63	30-38-6.5 35-43-6.5	30-40-6 35-45-6	G-58	P-18	63-2.5	63-53-6
Ø70	35-43-6.5 40-48-6.5	35-45-6 40-50-6	G-65	P-22	70-2.5	70-60-6
Ø80	40-48-6.5 45-53-6.5	40-50-6 45-55-6	G75-	P-25	80-2.5	80-70-6
Ø90	45-53-6.5 50-58-6.5	45-55-6 50-60-6	G-85	G-30	90-2.5	90-80-6
Ø100	50-58-6.5 60-68-6.5	50-60-6 60-70-6	G-95	G-35	100-2.5	100-85-9
Ø125	60-68-6.5 70-80-8	60-70-6 70-80-6	G-125	G-45	125-2.5	125-112-9
Ø150	70-80-8 90-100-8	70-80-6 90-105-9	G-145	G-55	150-2.5	150-136-9

NO	Description	Material	Q'ty
11	Piston Rod	Carbon Steel for Mechanical Structure	1
12	Cover	Roller Steel for General Structure	1
13	Bush	Brass Alloy	1
14	Head	Rolled Steel for General Structure	1
15	Cylinder Tube	Carbon Steel Pipe for Mechanical Structure	1
16	Pitson	Rolled Steel for General Structure	1
17	Set Screw	Carbon Steel for Mechanical Structure	1

NO	Description	Material	Q'ty
18	Cylinder Cap	Rolled Steel for General Structure	1
19	Tie Rod Nut	rolled Steel for General Structure	4
20	Tie Rod	Carbon Steel for Mechanical Structure	4
21	Senser	---	---
22	Magnet	---	---
23	Washer	Brass Alloy	2
24	Socket Head Cap Screw	Carbon Steel for Mechanical Structure	2



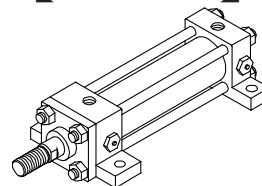
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

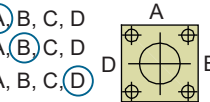
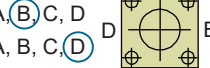
JIS BASIC STANDARD TYPE-70/140 Bar

【SHA2】

The SHA2 standard hyd. actuator which manufactured accord to JIS B 8354 specifications, and can be employed in general production machinery & machine tools, wide applications. Since there are being with much mounting styles , especially those series hyd. actuator have reformed the cushioning structure, so that, there are being with no impulse and slowly stopped features.



※MODEL NUMBER DESIGNATION

SHA2-	70-	LA-	125-	B-	100-	B-	A	B	D-	E-	---	V
I	II	III	IV	V	VI	VII	VIII	IX	X	X I	X II	X III
I . Series: SHA2, SHA2R: SHA1 with Sensor, SHA1D: Double Rod						VIII. Port Position: 						
II . Operating Pressure:(Bar) 70: 70 Bar 140: 140 Bar						IX. Cushioning Valve Position:  B, C, D						
III . Mounting Type: Please Refer to Below Table						X. Air Vent Position: A, B, C,  D Means Std. Position.						
IV. Actuator(Cylinder) Bore Size: (M.M.) 40: Ø40 80: Ø80 150: Ø150 250: Ø250 50: Ø50 100: Ø100 180: Ø180 63: Ø63 125: Ø125 200: Ø200						X I . Optional Attachment E: Rod End with Other Threading F: With Dust-Protective Cover L: With "I" Type Adapter K: With Locking Nut Y: With "Y" Type Adapter The Optional Attachment Can be Employed in Intgral as Item E Such as for Which in Necessary.						
V . Rod Dia: A, B Refer to Technical DRAW												
VI. Stroke: (M.M.) Must less than Max. Permissible Stroke						X II . Contact Option R: With Contact RN: Without Contact						
VII. Location of Cushioning: B: The head and cap with cushioning N: No Cushioning R: The head with cushioning H: The cap with cushioning						X III . Seal Type NBR: NBR PU: PU V: Viton						

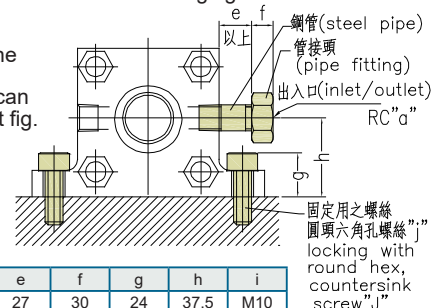
※MODEL NUMBER DESIGNATION

Symbol	Description	Configuration	Symbol	Description	Configuration
LA	Foot Mounting Side Luge		FC	Square Flange at Cylinder Head	
LB	Foot Mounting Side End Angles		FD	Square Flange at Cylinder Cap	
FA	Rectangular Flange at Cylinder Head		TA	Trunnion Mounting at Cylinder Head	
FB	Rectangular Flange at Cylinder Cap		TC	Centre Trunnion Mounting	
CA	Plaie Clevis at Cylinder Cap		SD	Basic Type	
CB	Clevis Fork at Cylinder Cap				

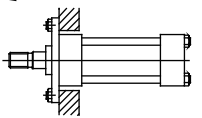
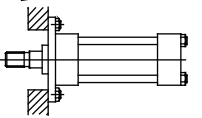
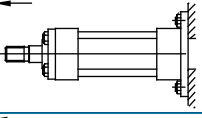
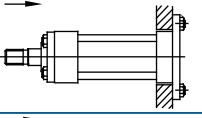
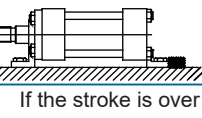
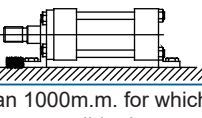
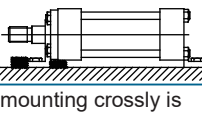
Remarks during LA mounting:

The LA bore dia: 40~100 and the port position for which at B(right) or D(left). Since the pipe fitting will be disturbed the mounting screw so that the following fig can be referred.

If employed the inserted pipe fitting, which can be referd right fig.



Cyl. Bore	a	e	f	g	h	i
40	3/8	27	30	24	37.5	M10
50	1/2	33	40	29	45	M12
63	1/2	36	40	35	50	M16
80	3/4	40	42	41	60	M16
100	3/4	46	42	47	71	M20

	Extend	Retract	Extend&Retract
FA			Refer to the Max. output, anyhow extend or retract, please select two mount in right configurations if want same for extend&retract in necessary, please contact us
FB			
LA LB			
CA CB	If the stroke is over than 1000m.m. for which mounting crossly is proibited		



HYDRAULIC ACTUATOR(CYLINDER)

JIS BASIC STANDARD TYPE-70/140 Bar

※SPECIFICATION

Bore	Mounting	Operating Pressure (SHA2-70/SHA2-140)	Max. Operating Pressure			Min. Operating Pressure	Max. Operating Speed	Min. Operating Speed	Max. Stroke	Range of Ambient Temperature	Accuracy of Threading of Rod End
			Intensify Press	Rod Side							
				Rod Type "B"	Rod Type "C"						
Ø m.m.		(Kg/Ɔm²)	SHA2-70/SHA2-140 (Kg/Ɔm²)			(Kg/Ɔm²)	(m.m./sec)	(m.m./sec)	m.m.	°C	
40, 50, 63, 70, 80, 90, 100, 125, 150	LA, LB, FA, FB, FC, FD, CA, CB, SD, TA, TC	70/140	90/180	135/180	110/140	≤ 3	Ø40-63=400, Ø80-125=300, Ø140-150=200	8	Ø40-50=1200, Ø60-80=1600, Ø100-150=2000	-10~80	JIS B 0211-6g (Class 2)

- 1. The Max. operating pressure which means the instantaneous increased pressure and the intensity is indicated the Max. operating pressure.
► 2. The Max. stroke is derived from the lowest value of bending strength refer the Max. stroke for which, the cylinder rod will be bended and refer to (DRAW)

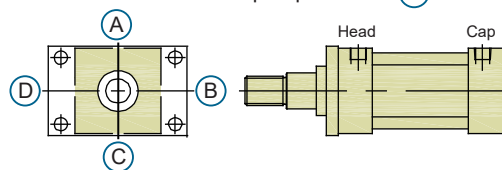
※TOLERANCE OF STROKE

Stroke (m.m.)	~100	100~250	250~630	630~1000	1000~1600	1600~
Tolerance (m.m.)	+0.8	+1.0	+1.25	+1.4	+1.6	+1.8

※PORT & AIR VENT POSITIONS

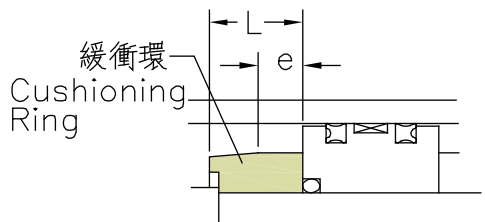
- Each position is viewed from the cylinder head and (A)(B)(C)(D) turn in clockwise so that the standard port position at (A) and the air vent position will be at (D) as fig. shown.

Remarks: The port position & air vent position MUST not at same side.



※CUSHIONING

Because the cushioning ring is processed by special throttle processing, there will be with moved slowly & smoothly effectiveness if those stopped from heading or end about 3mm. will be formed illness. And if need more longer cushioning ring, please consult us.



Bore Dia.	L	e
32.40	20	10
50.63	20	8
80~160	25	8

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
40	---	Extend	12.6	377	880	1759	2639	132.9	0.8
	18	Retract	10.0	301	702	1403	2105	166.6	0.6
	22.4		8.6	259	604	1208	1811	193.6	0.5
50	---	Extend	19.6	589	1374	2749	4123	85.1	1.2
	22.4	Retract	15.7	471	1099	2197	3296	106.4	0.9
	28		13.5	404	943	1887	2830	123.9	0.8
63	---	Extend	31.2	935	2182	4364	6546	53.6	1.9
	28	Retract	25.0	750	1751	3502	5253	66.8	1.5
	35.5		21.3	638	1489	2978	4468	78.5	1.3
80	---	Extend	50.3	1508	3519	7037	10556	33.2	3.0
	35.5	Retract	40.3	1211	2826	5651	8477	41.4	2.4
	45		34.4	1031	2045	4811	7216	48.6	2.1
100	---	Extend	78.5	2356	5498	10996	16493	21.3	4.7
	45	Retract	62.6	1879	4384	8769	13153	26.7	3.8
	56		53.9	1671	3774	7547	11321	31.0	3.2
125	---	Extend	122.7	3682	8590	17181	25771	13.6	7.3
	56	Retract	98.1	2943	6866	13732	20599	17.0	5.9
	70		84.2	2527	5896	11793	17689	19.8	5.0
150	---	Extend	176.7	5301	12370	24740	37110	9.5	10.6
	67	Retract	141.5	4244	9902	19804	29706	11.8	8.5
	85		120.0	3599	8398	16796	25194	13.9	7.2
180	---	Extend	254.5	7634	17813	35626	53438	6.6	15.2
	80	Retract	204.2	6126	14294	28588	42883	8.2	12.2
	100		175.9	5278	12315	24630	36945	9.5	10.5
200	---	Extend	31.42	9425	21991	43982	65973	5.3	18.8
	90	Retract	250.5	7516	17538	35076	52614	6.7	15.0
	110		219.1	6574	15339	30678	46016	7.6	13.1
250	---	Extend	490.9	14726	34361	68722	103084	3.4	29.4
	110	Retract	395.8	11875	27709	55418	83127	4.2	23.7
	140		336.9	10108	23586	47171	70757	5.0	20.2

- There are no catalogue for Ø180, 200, 250. Please contact SOLTECH for more information.

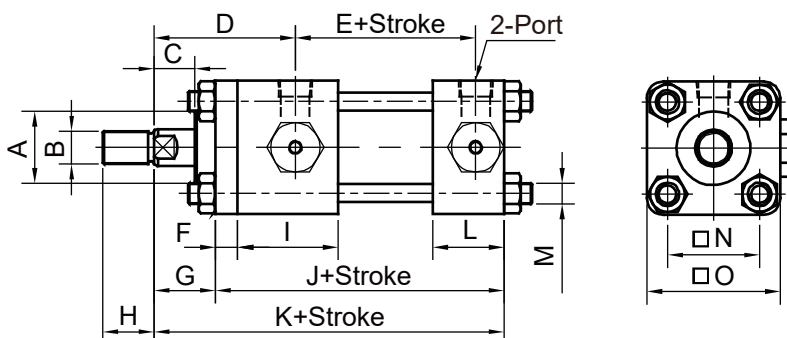


HYDRAULIC ACTUATOR(CYLINDER)

JIS BASIC STANDARD TYPE-70/140 Bar

※DIMENSIONS

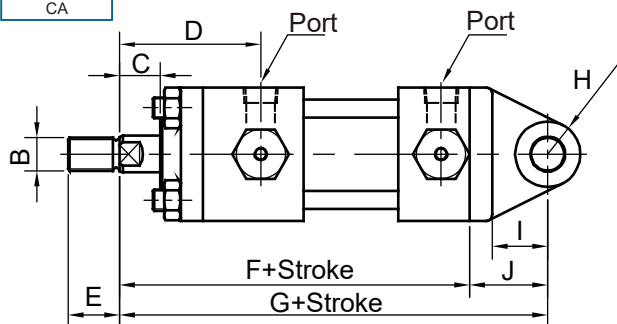
SHA2
SD



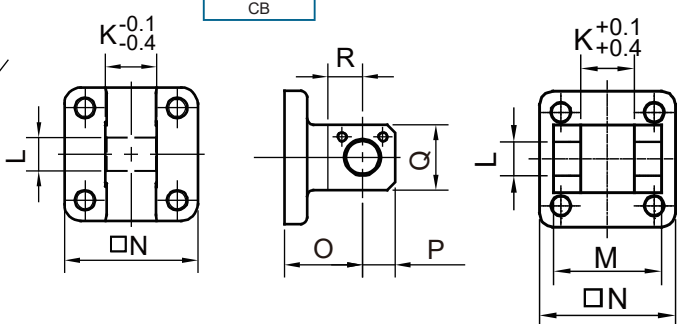
BORE	ØROD		ØA	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Port
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	20	69	88	11	30	25	49	141	171	35	M10	45	65	PT(Rc) 3/8"
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(0.79)	(2.72)	(3.46)	(0.43)	(1.18)	(0.98)	(1.93)	(5.55)	(6.73)	(1.38)		(1.77)	(2.56)	
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	20	74	96	13	30	30	56	155	185	40	M12	55	80	PT(Rc) 1/2"
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(0.79)	(2.91)	(3.78)	(0.51)	(1.18)	(1.18)	(2.20)	(6.10)	(7.28)	(1.57)		(2.17)	(3.14)	
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	25	77	104	15	35	35	44	163	198	34	M14	65	94	PT(Rc) 1/2"
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(0.98)	(3.03)	(4.09)	(0.59)	(1.38)	(1.38)	(1.73)	(6.41)	(7.80)	(1.34)		(2.56)	(3.70)	
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	25	83	118	18	35	45	50	184	219	38	M16	82	110	PT(Rc) 3/4"
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(0.98)	(3.27)	(4.64)	(0.71)	(1.38)	(1.77)	(1.97)	(7.24)	(8.62)	(1.50)		(3.23)	(4.33)	
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	30	94	120	20	40	60	57	192	232	41	M20	103	138	PT(Rc) 3/4"
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(1.18)	(3.70)	(4.72)	(0.79)	(1.57)	(2.36)	(2.24)	(7.56)	(9.13)	(1.61)		(4.06)	(5.43)	
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	35	108	134	24	45	75	67	220	265	51	M24	125	168	PT(Rc) 1"
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(1.38)	(4.25)	(5.28)	(0.94)	(1.77)	(2.95)	(2.64)	(8.66)	(10.43)	(20.01)		(4.92)	(6.61)	
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	40	117	147	28	50	85	67	240	290	54	M27	148	196	PT(Rc) 1"
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(1.57)	(4.61)	(5.79)	(1.10)	(1.97)	(3.35)	(2.64)	(9.45)	(11.42)	(2.13)		(5.83)	(7.72)	

M

SHA2
CA



SHA2
CB



BORE	ØROD	B	C	D	E	F	G	H	I	J	O	K	ØL	M	N	P	Q	R	Port
Ø40	TYPE A	18(0.71)	M16xP1.5	20	69	25	171	209	R16	27	38	25	16	+0.043(0.0016)	---	65	16	32	PT(Rc) 3/8"
	TYPE B	22.4(0.88)	M20xP1.5	(0.79)	(2.72)	(0.98)	(6.73)	(8.23)		(1.06)	(1.50)	(0.98)	(0.63)	-0		(2.56)	(0.63)	(1.26)	
Ø50	TYPE A	22.4(0.88)	M20xP1.5	20	74	30	---	230	R20	32	45	31.5	20	+0.052(0.0020)	63.5	80	20	17	PT(Rc) 1/2"
	TYPE B	28(1.10)	M24xP1.5	(0.79)	(2.91)	(1.18)		(9.06)		(1.26)	(1.77)	(1.24)	(0.79)	-0		(2.50)	(3.15)	(0.79)	
Ø63	TYPE A	28(1.10)	M24xP1.5	25	77	35	---	261	R31.5	48	63	40	31.5	+0.062(0.0024)	80	94	30	60	PT(Rc) 1/2"
	TYPE B	35.5(1.40)	M30xP1.5	(0.98)	(3.03)	(1.38)		(10.28)		(1.89)	(2.48)	(1.57)	(1.24)	-0		(3.15)	(3.70)	(1.18)	
Ø80	TYPE A	35.5(1.40)	M30xP1.5	25	83	45	---	291	R31.5	54	72	40	31.5	+0.062(0.0024)	80	110	30	60	PT(Rc) 3/4"
	TYPE B	45(1.77)	M39xP1.5	(0.98)	(3.27)	(1.77)		(11.46)		(2.13)	(2.83)	(1.57)	(1.24)	-0		(3.15)	(4.33)	(1.18)	
Ø100	TYPE A	45(1.77)	M39xP1.5	30	94	60	---	316	R40	64	84	50	40	+0.062(0.0024)	100	138	40	80	PT(Rc) 3/4"
	TYPE B	56(2.20)	M48xP1.5	(1.18)	(3.70)	(2.36)		(12.44)		(2.52)	(3.31)	(1.97)	(1.57)	-0		(3.94)	(5.43)	(1.57)	
Ø125	TYPE A	56(2.20)	M48xP1.5	35	108	75	---	365	R55	76	100	63	50	+0.062(0.0024)	126	168	50	100	PT(Rc) 1"
	TYPE B	70(2.76)	M64xP2.0	(1.38)	(4.25)	(2.95)		(10.43)		(2.99)	(3.94)	(2.48)	(1.97)	-0		(4.96)	(6.61)	(1.97)	
Ø150	TYPE A	67(2.64)	M60xP2.0	40	117	85	---	412	R65	94	122	80	63	+0.074(0.0029)	160	196	65	130	PT(Rc) 1"
	TYPE B	85(3.35)	M76xP2.0	(1.57)	(4.61)	(3.35)		(16.22)		(3.70)	(4.80)	(3.15)	(2.48)	-0		(6.30)	(7.72)	(2.56)	

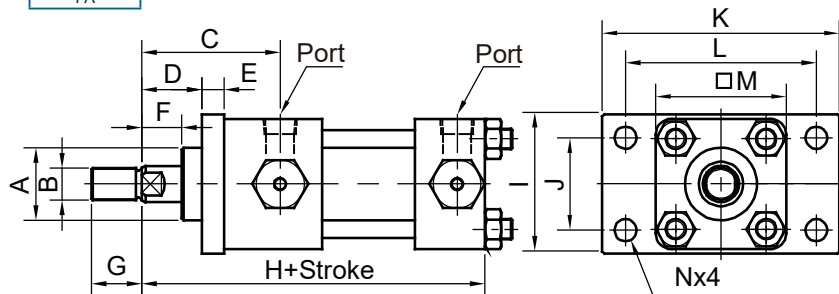


HYDRAULIC ACTUATOR(CYLINDER)

JIS BASIC STANDARD TYPE-70/140 Bar

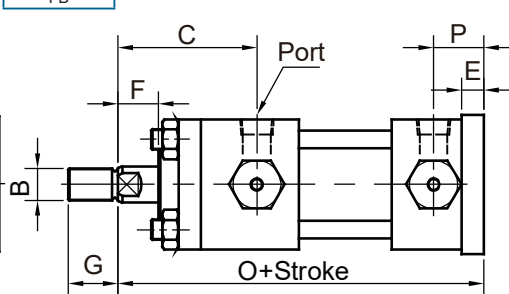
SHA2

FA



SHA2

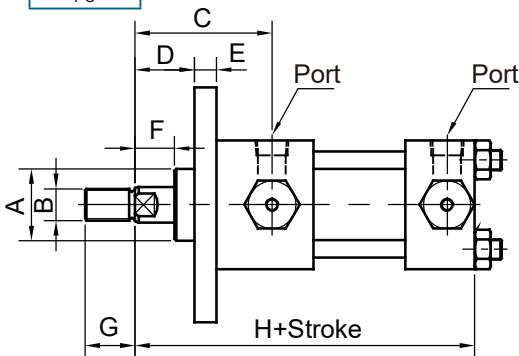
FB



BORE	ØROD		ØA	B	C	D	E	F	G	H	I	J	K	L	M	ØN	O	P	Port
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	69	30	11	20	25	171	69	46	118	95	65	11	182	25	PT(Rc)
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(2.72)	(1.18)	(0.43)	(0.79)	(0.98)	(6.73)	(2.72)	(1.81)	(4.65)	(3.74)	(2.56)	(0.43)	(7.17)	(0.98)	3/8"
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	74	30	13	20	30	185	85	58	145	115	80	14	198	28	PT(Rc)
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(2.91)	(1.18)	(0.51)	(0.79)	(1.18)	(7.28)	(3.35)	(2.28)	(5.71)	(4.53)	(3.14)	(0.55)	(7.80)	(1.10)	1/2"
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	77	35	15	25	35	198	98	65	165	132	94	18	213	32	PT(Rc)
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(3.03)	(1.38)	(0.59)	(0.98)	(1.38)	(7.80)	(3.86)	(2.56)	(6.50)	(5.20)	(3.70)	(0.71)	(8.39)	(1.26)	1/2"
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	83	35	18	25	45	219	118	87	190	155	110	18	237	36	PT(Rc)
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(3.27)	(1.38)	(0.71)	(0.98)	(1.77)	(8.62)	(4.65)	(3.43)	(7.48)	(6.10)	(4.33)	(0.71)	(9.33)	(1.42)	3/4"
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	94	40	20	30	60	232	150	109	230	190	138	22	252	38	PT(Rc)
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(3.70)	(1.57)	(0.79)	(1.18)	(2.36)	(9.13)	(5.91)	(4.29)	(9.06)	(7.48)	(5.43)	(0.87)	(9.92)	(1.50)	3/4"
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	108	45	24	35	75	265	175	130	272	224	168	25	289	47	PT(Rc)
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(4.25)	(1.77)	(0.94)	(1.38)	(2.95)	(10.43)	(6.89)	(5.12)	(10.71)	(8.82)	(6.61)	(0.98)	(11.38)	(1.85)	1"
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	117	50	28	40	85	290	210	155	320	270	196	30	318	54	PT(Rc)
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(4.61)	(1.97)	(1.10)	(1.57)	(3.35)	(11.42)	(2.7)	(6.10)	(1.26)	(10.63)	(7.72)	(1.18)	(12.52)	(2.13)	1"

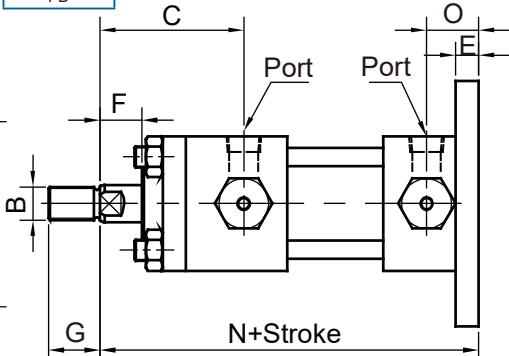
SHA2

FC



SHA2

FD



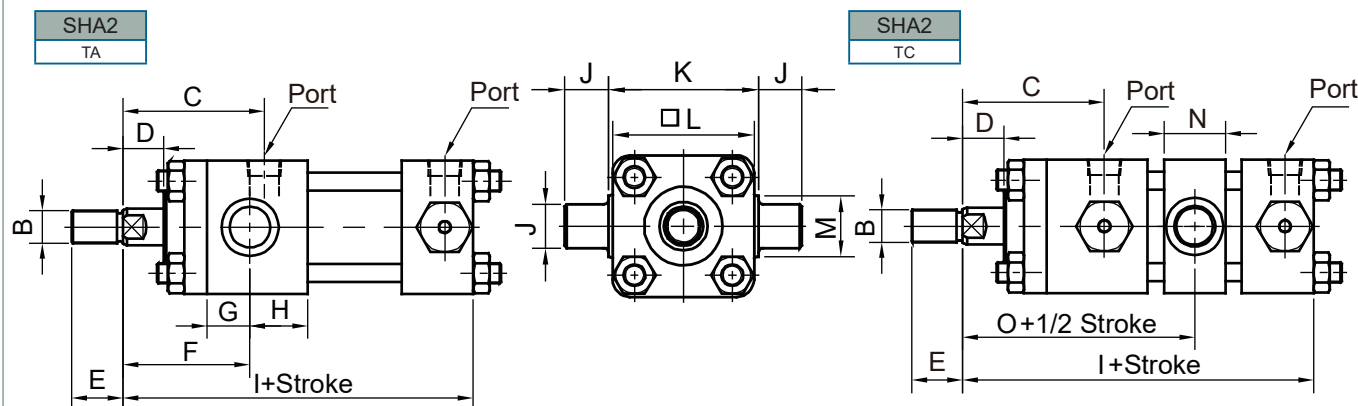
BORE	ØROD		ØA	B	C	D	E	F	G	H	I	J	K	L	ØM	N	O	Port
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	69	30	11	20	25	171	118	95	65	46	11	182	25	PT(Rc)
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(2.72)	(1.18)	(0.43)	(0.79)	(0.98)	(6.73)	(4.65)	(3.74)	(2.56)	(1.81)	(0.43)	(7.17)	(0.98)	3/8"
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	74	30	13	20	30	185	145	115	80	58	14	198	28	PT(Rc)
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(2.91)	(1.18)	(0.51)	(0.79)	(1.18)	(7.28)	(5.71)	(4.53)	(3.14)	(2.28)	(0.55)	(7.80)	(1.10)	1/2"
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	77	35	15	25	35	198	165	132	94	65	18	213	32	PT(Rc)
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(3.03)	(1.38)	(0.59)	(0.98)	(1.38)	(7.80)	(6.50)	(5.20)	(3.70)	(2.56)	(0.71)	(8.39)	(1.26)	1/2"
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	83	35	18	25	45	219	190	155	110	87	18	237	36	PT(Rc)
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(3.27)	(1.38)	(0.71)	(0.98)	(1.77)	(8.62)	(7.48)	(6.10)	(4.33)	(3.42)	(0.71)	(9.33)	(1.42)	3/4"
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	94	40	20	30	60	232	230	190	138	109	22	252	38	PT(Rc)
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(3.70)	(1.57)	(0.79)	(1.18)	(2.36)	(9.13)	(9.06)	(7.48)	(5.43)	(4.29)	(0.87)	(9.92)	(1.50)	3/4"
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	108	45	24	35	75	265	272	224	168	130	25	289	47	PT(Rc)
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(4.25)	(1.77)	(0.94)	(1.38)	(2.95)	(10.43)	(10.71)	(8.82)	(6.61)	(5.12)	(0.98)	(11.38)	(1.85)	1"
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	117	50	28	40	85	290	320	270	196	155	30	318	54	PT(Rc)
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(4.61)	(1.97)	(1.10)	(1.57)	(3.35)	(11.42)	(1.26)	(10.63)	(7.72)	(6.10)	(1.18)	(12.52)	(2.13)	1"



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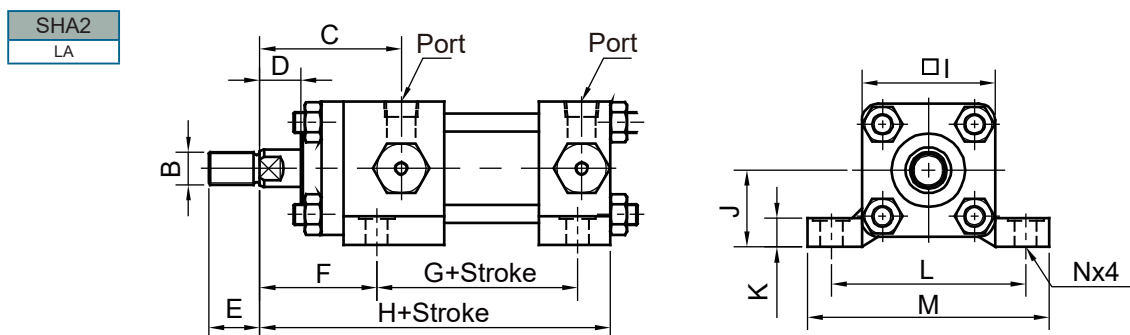
HYDRAULIC ACTUATOR(CYLINDER)

JIS BASIC STANDARD TYPE-70/140 Bar



BORE	ØROD		ØA	B	C	D	E	F	G	H	I	J		K		L	ØM	N	O	Port
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	69	20	25	62	21	28	171	20	-0.04	69	+0	65	28	30	113	PT(Rc)
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(2.72)	(0.79)	(0.98)	(2.44)	(0.83)	(1.10)	(6.73)	(0.79)	-0.092	(2.72)	-0.3	(2.56)	(1.10)	(1.18)	(4.45)	3/8"
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	74	20	30	66	23	33	185	25	-0.04	85	+0	80	---	38	121	PT(Rc)
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(2.91)	(0.79)	(1.18)	(2.60)	(0.91)	(1.30)	(7.28)	(0.98)	-0.092	(3.35)	-0.4	(3.14)	---	(1.50)	(4.76)	1/2"
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	77	25	35	74	24	20	198	31.5	-0.05	98	---	94	---	45	132	PT(Rc)
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(3.03)	(0.98)	(1.38)	(2.91)	(0.94)	(0.79)	(7.80)	(1.24)	-0.089	(3.86)	---	(3.70)	---	(1.77)	(5.20)	1/2"
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	83	25	45	82	29	21	219	31.5	-0.05	118	---	110	---	45	146	PT(Rc)
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(3.27)	(0.98)	(1.77)	(3.23)	(1.14)	(0.83)	(8.62)	(1.24)	-0.089	(4.65)	---	(4.33)	---	(1.77)	(5.75)	3/4"
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	94	30	60	89	29	28	232	40	-0.05	145	---	138	---	57	156	PT(Rc)
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(3.70)	(1.18)	(2.36)	(3.50)	(1.14)	(1.10)	(9.13)	(1.57)	-0.089	(5.71)	---	(5.43)	---	(2.24)	(6.14)	3/4"
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	108	35	75	103	34	33	265	50	-0.05	175	+0	168	---	58	177	PT(Rc)
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(4.25)	(1.38)	(2.95)	(4.06)	(1.34)	(1.30)	(10.43)	(1.97)	-0.112	(6.89)	-0.4	(6.61)	---	(2.28)	(6.97)	1"
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	117	40	85	112	34	33	290	63	-0.06	206	-0.1	196	---	78	194	PT(Rc)
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(4.61)	(1.57)	(3.35)	(4.41)	(1.34)	(1.30)	(11.42)	(2.48)	-0.134	(8.11)	-0.4	(7.72)	---	(3.07)	(7.64)	1"

M



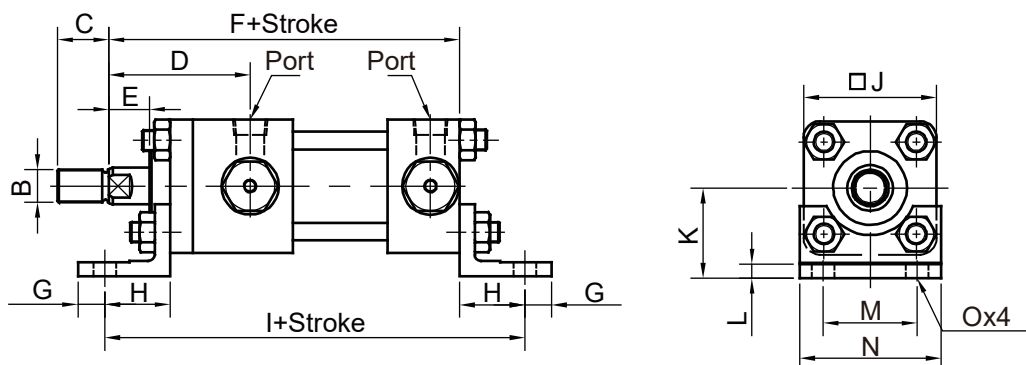
BORE	ØROD		ØA	B	C	D	E	F	G	H	I	J	K	L	M
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	69	20	25	57	98	171	65	37.5±0.15	14	95	118
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(2.72)	(0.79)	(0.98)	(2.24)	(3.86)	(6.73)	(2.56)	(1.48)	(0.55)	(3.74)	(4.65)
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	74	20	30	60	108	185	80	45±0.15	17	115	145
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(2.91)	(0.79)	(1.18)	(2.36)	(4.25)	(7.28)	(3.14)	(1.77)	(0.67)	(4.53)	(5.71)
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	77	25	35	71	106	198	94	50±0.25	19	132	165
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(3.03)	(0.98)	(1.38)	(2.80)	(4.17)	(7.80)	(3.70)	(1.97)	(0.75)	(5.20)	(6.50)
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	83	25	45	74	124	219	110	60±0.25	25	155	190
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(3.27)	(0.98)	(1.77)	(2.91)	(4.88)	(8.62)	(4.33)	(2.36)	(0.98)	(6.10)	(7.48)
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	94	30	60	85	122	232	138	71±0.25	27	190	230
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(3.70)	(1.18)	(2.36)	(3.35)	(4.80)	(9.13)	(5.43)	(2.80)	(1.06)	(7.48)	(9.06)
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	108	35	75	99	136	265	168	85±0.25	32	224	272
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(4.25)	(1.38)	(2.95)	(3.90)	(5.35)	(10.43)	(6.61)	(3.35)	(1.26)	(8.82)	(10.71)
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	117	40	85	111	146	290	196	106±0.25	37	270	320
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(4.61)	(1.57)	(3.35)	(4.37)	(5.75)	(11.42)	(7.72)	(4.17)	(1.46)	(10.63)	(12.60)



HYDRAULIC ACTUATOR(CYLINDER)

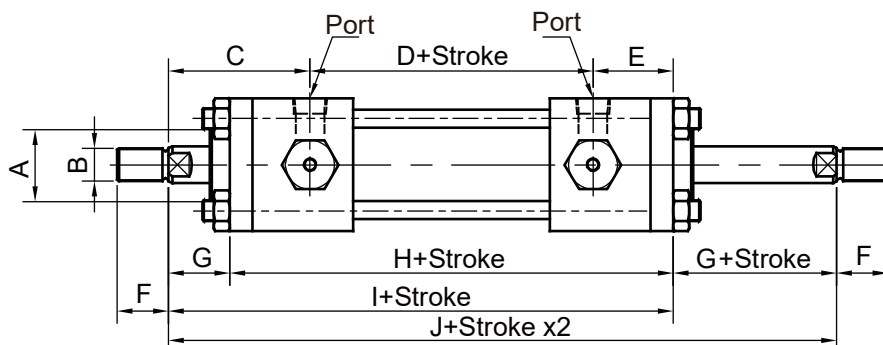
JIS BASIC STANDARD TYPE-70/140 Bar

SHA2
LB



BORE	ØROD		ØA	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Port
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	25	69	20	171	13	32	205	65	44±0.15	7	46	69	11	PT(Rc 3/8"
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(0.98)	(2.72)	(0.79)	(6.73)	(0.51)	(1.26)	(8.07)	(2.56)	(1.73)	(0.28)	(1.81)	(2.72)	(0.43)	
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	30	74	20	185	15	35	225	80	51.5±0.15	7	58	85	14	PT(Rc 1/2"
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(1.18)	(2.91)	(0.79)	(7.28)	(0.59)	(1.38)	(8.86)	(3.14)	(2.03)	(0.28)	(2.28)	(3.35)	(0.55)	
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	35	77	25	198	18	42	247	94	60±0.25	11	65	98	18	PT(Rc 1/2"
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(1.38)	(3.03)	(0.98)	(7.80)	(0.71)	(1.65)	(9.72)	(3.70)	(2.36)	(0.43)	(2.56)	(3.86)	(0.71)	
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	45	83	25	219	20	50	284	110	73.5±0.25	11	87	118	18	PT(Rc 3/4"
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(1.77)	(3.27)	(0.98)	(8.62)	(0.79)	(1.97)	(11.18)	(4.33)	(2.89)	(0.43)	(3.42)	(4.65)	(0.71)	
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	60	94	30	232	23	55	302	138	86.5±0.25	12	109	150	22	PT(Rc 3/4"
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(2.36)	(3.70)	(1.18)	(9.13)	(0.91)	(2.17)	(11.89)	(5.43)	(3.41)	(0.47)	(4.29)	(5.91)	(0.87)	
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	75	108	35	265	29	69	352	168	105±0.15	15	130	175	25	PT(Rc 1"
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(2.95)	(4.25)	(1.38)	(10.43)	(1.14)	(2.72)	(13.86)	(6.61)	(4.13)	(0.59)	(5.12)	(6.89)	(0.98)	
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	85	117	40	290	30	77	390	196	123±0.15	17.5	155	210	30	PT(Rc 1"
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(3.35)	(4.61)	(1.57)	(11.42)	(1.18)	(3.03)	(15.35)	(7.72)	(4.84)	(0.69)	(6.10)	(.27)	(1.18)	

SHA2
DOUBLE ROD



BORE	ØROD	ØA	B	C	D	E	F	G	H	I	J	Port
Ø40	TYPE A	18(0.71)	36(1.42)	M16xP1.5	69	69	20	25	166	196	226	PT(Rc) 3/8"
	TYPE B	22.4(0.88)	40(1.57)	M20xP1.5	(2.72)	(2.72)	(0.79)	(0.98)	(6.54)	(7.72)	(8.90)	3/8"
Ø50	TYPE A	22.4(0.88)	40(1.57)	M20xP1.5	74	74	20	30	184	214	244	PT(Rc) 1/2"
	TYPE B	28(1.10)	46(1.81)	M24xP1.5	(2.91)	(2.91)	(0.79)	(1.18)	(7.24)	(8.43)	(9.61)	1/2"
Ø63	TYPE A	28(1.10)	46(1.81)	M24xP1.5	77	77	25	35	188	223	258	PT(Rc) 1/2"
	TYPE B	35.5(1.40)	55(2.17)	M30xP1.5	(3.03)	(3.03)	(0.98)	(1.38)	(7.40)	(8.78)	(10.16)	1/2"
Ø80	TYPE A	35.5(1.40)	55(2.17)	M30xP1.5	83	83	25	45	214	249	284	PT(Rc) 3/4"
	TYPE B	45(1.77)	65(2.56)	M39xP1.5	(3.27)	(3.27)	(0.98)	(1.77)	(8.43)	(9.80)	(11.18)	3/4"
Ø100	TYPE A	45(1.77)	65(2.56)	M39xP1.5	94	94	30	60	228	268	308	PT(Rc) 3/4"
	TYPE B	56(2.20)	80(3.15)	M48xP1.5	(3.70)	(3.70)	(1.18)	(2.36)	(8.98)	(10.55)	(12.13)	3/4"
Ø125	TYPE A	56(2.20)	80(3.15)	M48xP1.5	108	108	35	75	260	305	350	PT(Rc) 1"
	TYPE B	70(2.76)	95(3.74)	M64xP2.0	(4.25)	(4.25)	(1.38)	(2.95)	(10.24)	(12.00)	(13.78)	1"
Ø150	TYPE A	67(2.64)	90(3.54)	M60xP2.0	117	117	40	85	281	331	381	PT(Rc) 1"
	TYPE B	85(3.35)	110(4.33)	M76xP2.0	(4.61)	(4.61)	(1.57)	(3.35)	(11.06)	(13.03)	(15.00)	1"

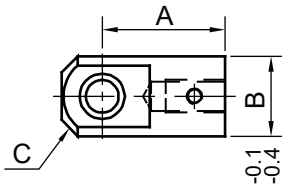


HYDRAULIC ACTUATOR(CYLINDER)

JIS BASIC STANDARD TYPE-70/140 Bar

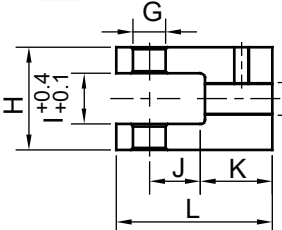
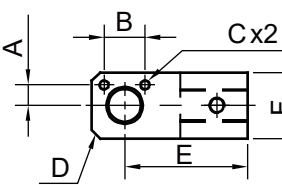
SHA2

Clevis Head, Type "I"



SHA2

Clevis Head, Type "Y"



BORE	A	ØB	C	ØD	E	F	G	H	I
Ø40	60 (2.36)	39 (1.54)	C8	16 (0.63)	+0.043 -0	25 (0.98)	23 (0.91)	37 (1.46)	80 (3.15)
Ø50	70 (2.76)	49 (1.93)	C10 x2	20 (0.79)	+0.052 -0	31.5 (1.24)	28 (1.10)	42 (1.65)	95 (3.74)
Ø63	115 (4.53)	62 (2.44)	C15 x2	31.5 (1.24)	+0.062 -0	30 (1.57)	43 (1.69)	72 (2.83)	150 (5.91)
Ø80	115 (4.53)	62 (2.44)	C15 x2	31.5 (1.24)	+0.062 -0	40 (1.57)	43 (1.69)	72 (2.83)	150 (5.91)
Ø100	145 (5.71)	79 (3.11)	C20 x2	40 (1.57)	+0.062 -0	50 (1.97)	55 (2.17)	90 (3.54)	185 (7.28)
Ø125	180 (7.09)	100 (3.94)	C25 x2	50 (1.97)	+0.062 -0	63 (2.48)	65 (2.56)	115 (4.53)	230 (9.06)
Ø150	225 (8.86)	130 (5.12)	C25 x2	63 (2.48)	+0.074 -0	80 (3.15)	90 (3.54)	135 (5.31)	290 (11.42)

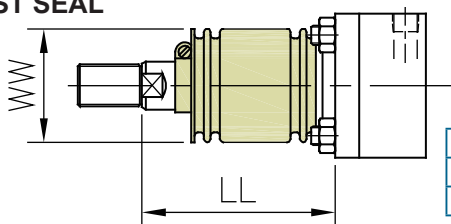
BORE	A	B	C	D	E	F	G	H	I	J	K	L	M
Ø40	10 (0.39)	20 (0.79)	M5xP0.8	C4 x2	60 (2.36)	32 (1.26)	16 (0.63)	+0.07 -0	50 (1.97)	25 (0.98)	35 (1.38)	76 (2.99)	TYPE A M16xP1.5 TYPE B M20xP1.5
Ø50	12 (0.47)	20 (0.79)	M5xP0.8	C10 x2	70 (2.76)	40 (1.57)	20 (0.79)	+0.084 -0	63.5 (2.50)	31.5 (1.24)	38 (1.50)	90 (3.54)	TYPE A M20xP1.5 TYPE B M24xP1.5
Ø63	19 (0.75)	34 (1.34)	M8xP1.25	C12 x2	115 (4.53)	60 (2.36)	31.5 (1.24)	+0.062 -0	80 (3.15)	40 (1.57)	50 (1.97)	145 (5.71)	TYPE A M24xP1.5 TYPE B M30xP1.5
Ø80	19 (0.75)	34 (1.34)	M8xP1.25	C12 x2	115 (4.53)	60 (2.36)	31.5 (1.24)	+0.062 -0	80 (3.15)	40 (1.57)	50 (1.97)	145 (5.71)	TYPE A M30xP1.5 TYPE B M39xP1.5
Ø100	24 (0.94)	50 (1.97)	M10xP1.5	C15 x2	145 (5.71)	80 (3.15)	40 (1.57)	+0.062 -0	100 (3.94)	50 (1.97)	60 (2.36)	185 (7.28)	TYPE A M39xP1.5 TYPE B M48xP1.5
Ø125	27 (1.06)	60 (2.36)	M10xP1.5	C20 x2	---	100 (3.94)	50 (1.97)	+0.062 -0	126 (4.96)	63 (2.48)	70 (2.76)	230 (9.06)	TYPE A M48xP1.5 TYPE B M64xP2.0
Ø150	27 (1.06)	60 (2.36)	M10xP1.5	C20 x2	225 (8.86)	120 (4.72)	63 (2.48)	+0.074 -0	160 (6.30)	80 (3.15)	90 (3.54)	290 (11.42)	TYPE A M60xP2.0 TYPE B M76xP2.0

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
40	---	Extend	12.6	377	880	1759	2639	132.9	0.8
	18	Retract	10.0	301	702	1403	2105	166.6	0.6
	22.4		8.6	259	604	1208	1811	193.6	0.5
50	---	Extend	19.6	589	1374	2749	4123	85.1	1.2
	22.4	Retract	15.7	471	1099	2197	3296	106.4	0.9
	28		13.5	404	943	1887	2830	123.9	0.8
63	---	Extend	31.2	935	2182	4364	6546	53.6	1.9
	28	Retract	25.0	750	1751	3502	5253	66.8	1.5
	35.5		21.3	638	1489	2978	4468	78.5	1.3
80	---	Extend	50.3	1508	3519	7037	10556	33.2	3.0
	35.5	Retract	40.3	1211	2826	5651	8477	41.4	2.4
	45		34.4	1031	2045	4811	7216	48.6	2.1
100	---	Extend	78.5	2356	5498	10996	16493	21.3	4.7
	45	Retract	62.6	1879	4384	8769	13153	26.7	3.8
	56		53.9	1671	3774	7547	11321	31.0	3.2
125	---	Extend	122.7	3682	8590	17181	25771	13.6	7.3
	56	Retract	98.1	2943	6866	13732	20599	17.0	5.9
	70		84.2	2527	5896	11793	17689	19.8	5.0
150	---	Extend	176.7	5301	12370	24740	37110	9.5	10.6
	67	Retract	141.5	4244	9902	19804	29706	11.8	8.5
	85		120.0	3599	8398	16796	25194	13.9	7.2
180	---	Extend	254.5	7634	17813	35626	53438	6.6	15.2
	80	Retract	204.2	6126	14294	28588	42883	8.2	12.2
	100		175.9	5278	12315	24630	36945	9.5	10.5
200	---	Extend	314.2	9425	21991	43982	65973	5.3	18.8
	90	Retract	250.5	7516	17538	35076	52614	6.7	15.0
	110		219.1	6574	15339	30678	46016	7.6	13.1
250	---	Extend	490.9	14726	34361	68722	103084	3.4	29.4
	110	Retract	395.8	11875	27709	55418	83127	4.2	23.7
	140		336.9	10108	23586	47171	70757	5.0	20.2

▶ There are no catalogue for Ø180, 200, 250. Please contact SOLTECH for more information.

※DUST SEAL



Ø40, Ø50	1/2.5 St.+X
Ø63~Ø100	1/3 St.+X
Ø125, Ø150	1/3.5 St.+X

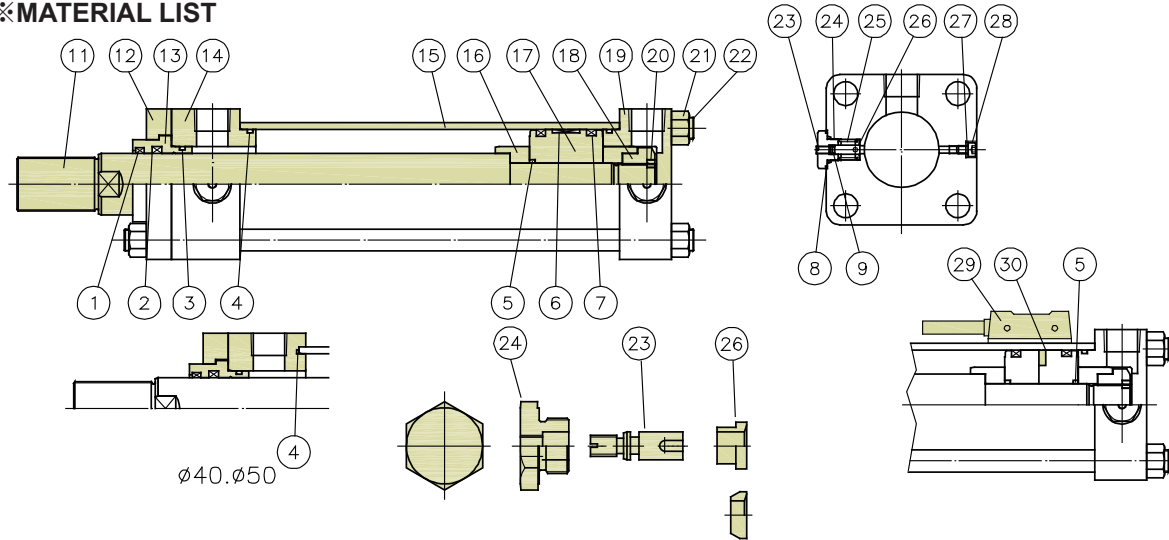
Bore	Ø40	Ø50	Ø63	Ø70	Ø80	Ø90	Ø100	Ø125	Ø150
WW	Ø50	Ø63	Ø71	Ø71	Ø80	Ø90	Ø100	Ø125	Ø130
LL	47	50	61	61	55	60	60	69	70



HYDRAULIC ACTUATOR(CYLINDER)

JIS BASIC STANDARD TYPE-70/140 Bar

※MATERIAL LIST



NO	1	2	3	4	5	6	7	8	9
	Dust Seal	Rod Seal	O-Ring	O-Ring	O-Ring	Wear Ring	Piston Seal	O-Ring	O-Ring
Material	PU	PU	NBR	NBR	NBR	PTFE	PU	NBR	NBR
Quantity	1	1	1	2	1	1	2	1	1
Bore ø,ø,w (mm)	A B	A B							
ø40	18-24-6 22.4-30.4-6	18-24-5 22.4-30-5	G-25	□40	P-16	40-2.5	40-30-6	P-14	P-5
ø50	22.4-30.4-6 28-36-6	22.4-30-5 28-35.5-5	G-30	□50	P-20	50-2.5	50-40-6	P-14	P-5
ø63	28-36-6 35.5-43.5-6	28-35.5-5 35.5-45-6	G-40	G-58	G-25	63-2.5	63-53-6	P-14	P-5
ø80	35.5-43.5-6 45-53-6.5	35.5-45-6 45-55-6	G-50	G75-	G-30	80-2.5	80-70-6	P-14	P-5
ø100	45-53-6.5 56-64-6.5	45-55-6 56-66-6	G-60	G-95	P-38	100-2.5	100-85-9	P-14	P-5
ø125	56-64-6.5 70-80-8	56-66-6 70-80-6	G-75	G-125	G-45	125-2.5	125-112-9	P-18	P-7
ø150	67-75-6.5 85-95-8	67-77-6 85-100-9	G-90	G-145	G-55	150-2.5	150-136-9	P-18	P-7

NO	Description	Material	Q'ty
11	Piston Rod	Carbon Steel for Mechanical Structure	1
12	Cover	Roller Steel for General Structure	1
13	Bush	Brass Alloy	1
14	Head	Roller Steel for General Structure	1
15	Cylinder Tube	Carbon Steel Pipe for Mechanical Structure	1
16	Cylinder Bush	Block Lead Spherical Cast Iron	2
17	Piston	Roller Steel for General Structure	1
18	Cushion Nut	Carbon Steel for Mechanical Structure	1
19	Cylinder Cap	Roller Steel for General Structure	1
20	Set Screw	Carbon Steel for Mechanical Structure	1

NO	Description	Material	Q'ty
21	Tie Rod Nut	rolled Steel for General Structure	4
22	Tie Rod	Carbon Steel for Mechanical Structure	4
23	Cushion Adjustment	Carbon Steel for Mechanical Structure	2
24	Cushion Body	Carbon Steel for Mechanical Structure	2
25	Spring	Qin Steel Wire	1
26	bush	Carbon Steel for Mechanical	1
27	Washer	Brass Alloy	2
28	Socket Head Cap Screw	Carbon Steel for Mechanical Structure	2
29	Sensor	---	---
30	Magnet	---	---

※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

Bore	Parameter	SD	FA	FB	FC	FD	CA	CB	LA	LB	TA	TC
ø40	W1=RODø18 (Kg)	4.1	4.4	4.7	4.9	5.2	4.7	4.8	4.5	4.6	4.2	4.7
	W1=RODø22.4 (Kg)	4.2	4.5	4.8	5.0	5.3	4.8	4.9	4.6	4.7	4.3	4.8
	W2 (kg/100mm)	RODø18=0.9, RODø22.4=1.0										
ø50	W1=RODø22.4 (Kg)	6.7	7.2	7.8	8.0	8.6	7.7	7.9	7.5	7.5	6.8	7.7
	W1=RODø28 (Kg)	6.6	7.3	7.9	8.1	8.7	7.8	8.0	7.6	7.6	6.9	7.8
	W2 (kg/100mm)	RODø22.4=1.2, RODø28=1.3										
ø63	W1=RODø28 (Kg)	9.8	10.5	11.6	11.7	12.8	12.1	12.8	10.8	11.5	10.3	11.7
	W1=RODø35.5 (Kg)	9.9	10.6	11.7	11.8	12.9	12.1	12.8	10.9	11.6	10.4	11.8
	W2 (kg/100mm)	RODø28=1.6, RODø35.5=1.9										
ø80	W1=RODø35.5 (Kg)	14.9	16.2	18.0	18.0	19.8	18.0	18.9	16.0	17.3	15.6	17.4
	W1=RODø45 (Kg)	15.1	16.4	18.4	18.2	20.0	18.4	19.3	16.4	17.7	16.0	17.8
	W2 (kg/100mm)	RODø35.5=2.4, RODø45=2.9										
ø100	W1=RODø45 (Kg)	25.1	27.3	30.3	30.0	33.0	31.3	32.8	26.9	29.0	26.5	30.4
	W1=RODø56 (Kg)	25.5	27.7	30.7	30.4	33.4	31.7	33.2	27.3	29.4	26.9	30.8
	W2 (kg/100mm)	RODø45=3.8, RODø56=4.4										
ø125	W1=RODø56 (Kg)	4.64	49.7	55.1	54.3	59.7	57.2	60.2	49.3	56.3	47.8	54.3
	W1=RODø70 (Kg)	46.0	50.1	55.5	54.7	60.3	57.8	60.6	49.7	56.7	48.2	54.7
	W2 (kg/100mm)	RODø56=6.6, RODø70=7.8										
ø150	W1=RODø67 (Kg)	70.5	76.2	84.9	83.3	90.4	87.3	92.0	72.2	88.5	76.4	84.1
	W1=RODø85 (Kg)	84.1	79.8	88.5	86.9	95.6	90.9	95.6	80.2	92.1	80.0	87.7
	W2 (kg/100mm)	RODø67=9.6, RODø85=11.2										

Example: FA, ST=200mm
Weight = W1 + (W2 x Stroke)
= 4.4 + (0.9 x 2)
= 6.2 Kg



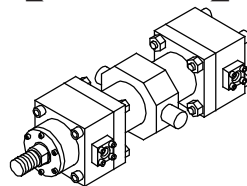
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

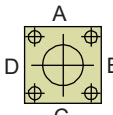
MILL TYPE

[SHA3]

The SHA3 are specially applied in steel mill plant and designed which meet strictly environmental condition application, heavy load and anit impulse burst pressure etc. Those are emphasised on processing precision surface treatment & oil sealer's material and for which high performance.



※MODEL NUMBER DESIGNATION

SHA3-	140-	LA-	125-	B-	100-	N-	(B	A	D)-	SSA-	K-	V
I	II	III	IV	V	VI	VII	VIII	IX	X	X I	X II	X III
I . Series: SHA3						VIII. Port Position:			A, B, C, D		 View from actuator head	
II . Operating Pressure:(Bar)						IX . Cushioning Valve Position:			A, B, C, D			
140: 70 Bar 210: 210 Bar						X . Air Vent Position:			A, B, C, D			
III . Mounting Type: Please Refer to Below Table						"N"					or Means Std. Position.	
IV . Actuator(Cylinder) Bore Size: (M.M.)						X I . Port Type			SSA, SSA-B, LSA, RC		K: With Locking Nut L: With "I" Type Adapter The code can be used together, ex. KL- With Locking Nut and "I" Type Adapter	
50: Ø50 100: Ø100 160: Ø160 224: Ø224						X II . Optional Attachment			F: With Dust-Protective Cover			
63: Ø63 125: Ø125 180: Ø180 250: Ø250												
80: Ø80 140: Ø140 200: Ø200												
V . Rod Type: A, B												
VI . Stroke: (M.M.) Must less than Max. Permissible Stroke												
VII . Location of Cushioning:												
B: The head and cap with cushioning N: No Cushioning												
R: The head with cushioning H: The cap with cushioning						X III . Seal Type			NBR: NBR PU: PU V: Viton			

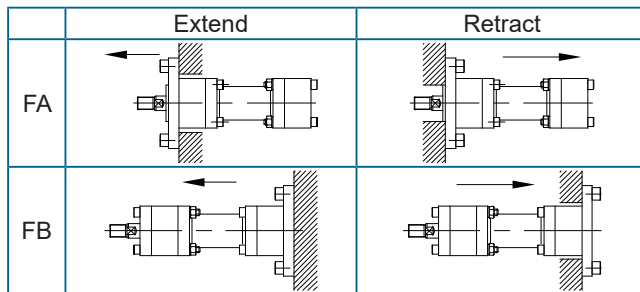
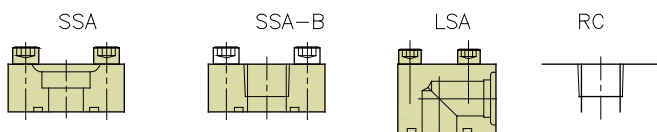
※MOUNTING TYPE

Symbol	Description	Configuration	Symbol	Description	Configuration
FA	Rectangular Flange at Actuator Head		FB	Rectangular Flange at Actuator Cap	
LA	Foot Mounting		TC	Centre Turnnion Mounting	
CA	Plain Clevis at Actuator Cap				

Besides TC mounting type, if the stroke is less than 100 or 150mm(please refer to the following talbe), all must use intensified screw bolt.

Bore (m.m.)	50~80	100~150	140~200	224~250
Stroke (m.m.)	< 100	< 150	< 200	< 250

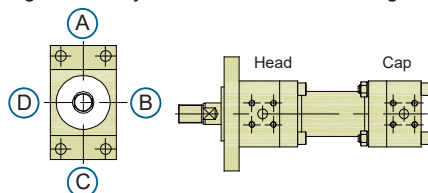
※PORT FLANGE KITE



Refer following configuration to select the suitable mounting and the retracting and extending for which emphasised at big output. As for in same output which must consult us.

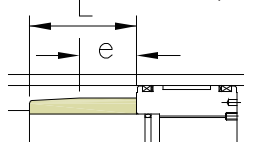
※PORT & AIR VENT POSITIONS

- ▶ FA, FB type which must cared port position and the bore dia. 50~80mm for which the mounting screw may be disturbed with the flange of port, thus the port position must avoided set at up of (A) or lower of (C)
- ▶ The standard position of port at (B) and cushioning regulator's position at (A)
- ▶ Especially teh port position & cushioning regulator must NOT at same direction.
- ▶ As for the port position, cushioning regulator and air vent position etc., directing toward actuator head and turn in clockwise (A)(B)(C)(D) in series.



※CUSHIONING

When the bore dia. is 50 or 60mm. and the rod type is A, it can't be installed the cushioning device at actuator head.Because the cushioning ring is processed be special throttle processing so that there are being with moved slowly & smoothly effectness if thoe stopped ar from end about 3 mm, and will be formed illness since if need longer cushioning ring(L), please contact SOLTECH.



Bore	50, 63	80, 100	125	140	160	180	200	224, 250
Rod Dia.	A	B	A	B	A	B	A	B
Head	L	---	35	40	45	50	55	65
	e	---	15	15	10	15	10	15
Cap	L	30	35	35	35	40	40	55
	e	10	10	10	10	10	10	10



HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

※SPECIFICATION

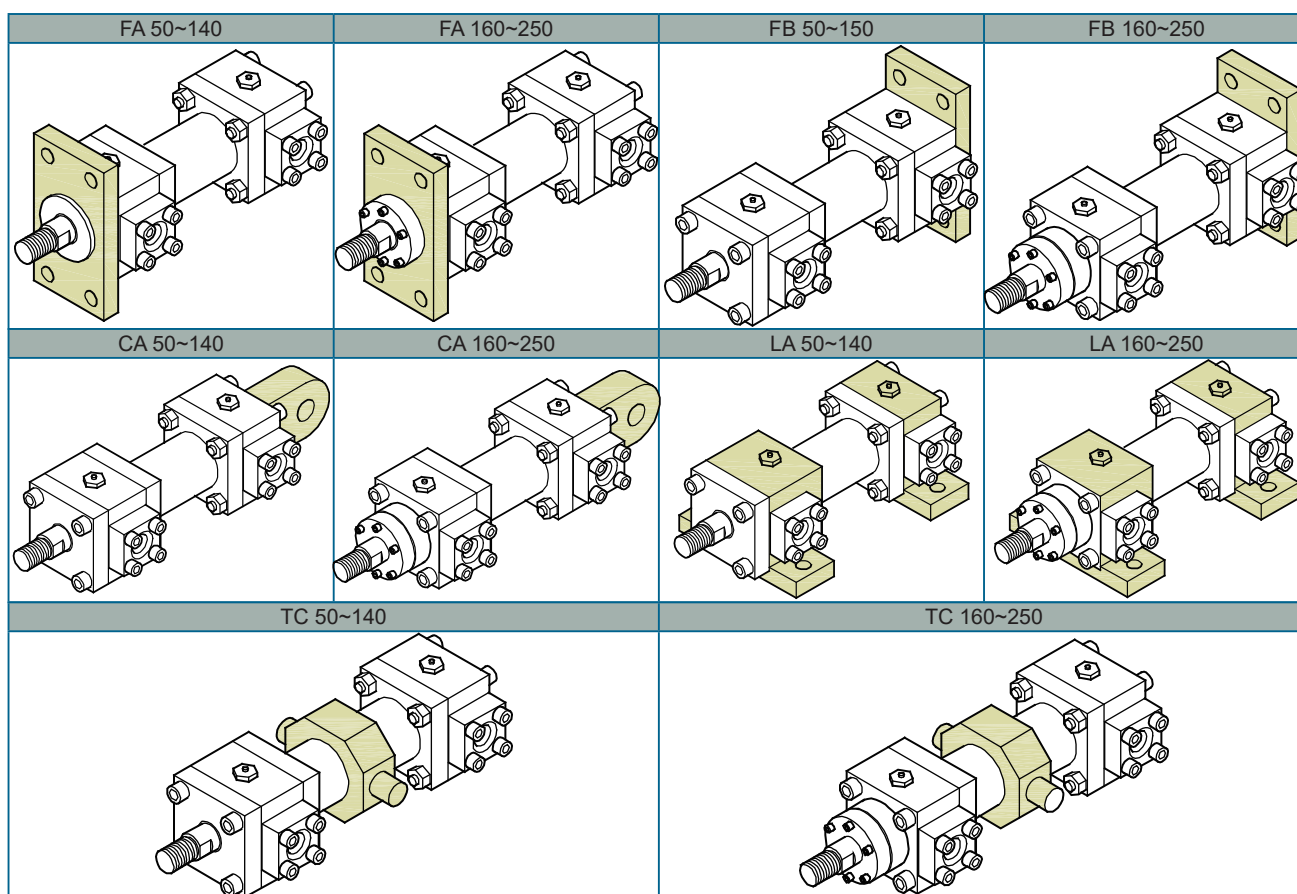
Model Item	Bore	Mounting Type	Operating Pressure	Max. Operating Pressure	Min. Operating Pressure	Max. Speed	Min. Speed mm/sec		Max.Stroke	Range of Ambient Temperature	Tolerance of Stroke	Accuracy of Threading at Rod End
	Ø m.m.		Bar(psi)	Bar(psi)	Bar(psi)	mm/sec	50~140	160~250				
SHA3	50, 63, 80, 100, 125, 140, 160, 180, 200, 224, 250	FA, FB, LA, TC, CA	140(2030)	230(3335)	5(72.5)	800	30	20	Refer to DRAW	-10~80	JIS B 8354 A Class	JIS B 0211-6g (Class 2)

- ▶ The Max. operating pressure which means the Max. operating pressure at instantaneous bursting intensity.
- ▶ The Max. operating pressure which no initeria loading pressure included.
- ▶ The lowest speed value which no cushioning stroke included.
- ▶ If use VITON seal, the working temperature can reach 160°C

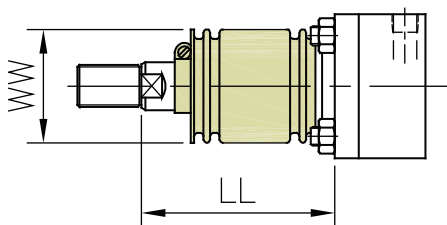
※TOLERANCE OF STROKE

Stroke (m.m.)	~100	100~250	250~630	630~1000	1000~1600	1600~2000	2000~2500	2500~3000
Tolerance (m.m.)	+0.8	+1.0	+1.25	+1.4	+1.6	+1.8	+2.0	+2.5

※SCHEMATICS



※DUST SEAL



Bore	Ø50		Ø63		Ø80		Ø100		Ø125		Ø140		Ø160		Ø180		Ø200		Ø224		Ø250	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
WW	Ø63	Ø71	Ø71	Ø80	Ø80	Ø100	Ø100	Ø125	Ø125	Ø140	Ø140	Ø160	Ø140	Ø180	Ø160	Ø180	Ø180	Ø200	Ø180	Ø220	Ø200	Ø240
LL	1/3.5 ST+57		1/4 ST+60		1/4 ST+54		1/4 ST+64		1/5 ST+64		1/5 ST+69		1/5 ST+60		1/5 ST+80		1/5 ST+83		1/6 ST+87		1/6 ST+83	



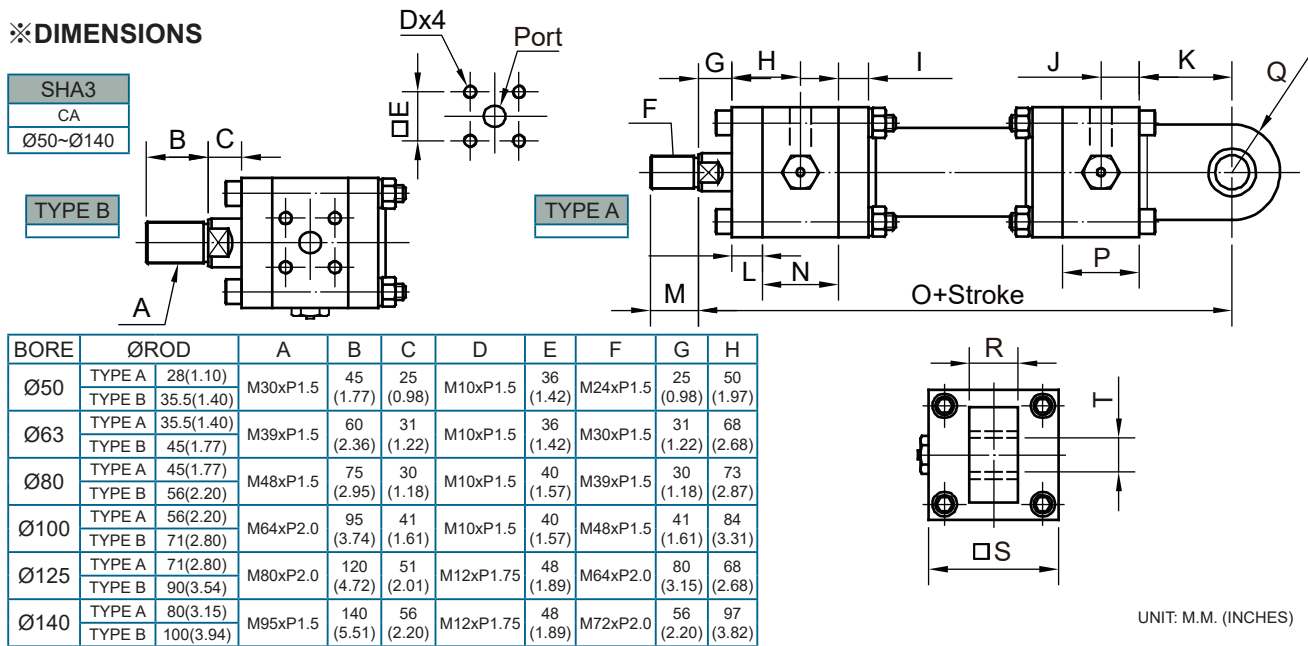
HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
50	---	Extend	19.6	589	1374	2748	4123	85.1	1.2
	A=28	Retract	13.5	404	943	1886	2830	123.9	0.8
	B=35.5		9.7	292	681	1362	2045	171.5	0.6
63	---	Extend	31.2	935	2181	4362	6546	53.6	1.9
	A=35.5	Retract	21.3	638	1489	2978	4468	78.5	1.3
	B=45		15.3	458	1068	2138	3206	109.4	0.9
80	---	Extend	50.3	1507	3517	7034	10556	33.2	3.0
	A=45	Retract	34.4	1030	2404	4811	7216	48.6	2.1
	B=56		25.6	769	1794	3587	5383	65.1	1.5
100	---	Extend	78.5	2355	5498	10990	16493	21.3	4.7
	A=56	Retract	53.9	1617	3772	7547	11321	31.0	3.2
	B=71		38.9	1168	2725	5453	8179	42.9	2.3
125	---	Extend	122.7	3680	8590	17181	25771	13.6	7.4
	A=71	Retract	83.1	2493	5816	11638	17457	20.1	5.0
	B=90		59.1	1772	4315	8270	12411	28.3	3.5
140	---	Extend	153.9	4616	10776	21551	32327	10.8	9.2
	A=80	Retract	103.7	3109	7253	14514	21771	16.1	6.2
	B=100		75.4	2261	5275	10556	15834	22.1	4.5
160	---	Extend	201	6029	14074	28149	42223	8.3	12.1
	A=90	Retract	137.4	4121	9616	19242	28863	12.2	8.2
	B=112		102.5	3075	7174	14349	21534	16.3	6.1
180	---	Extend	254.5	7630	17813	35626	53438	6.6	15.3
	A=100	Retract	175.9	5275	12309	24630	36945	9.5	10.6
	B=125		131.8	3951	9218	18445	27668	1.3	7.9
200	---	Extend	314.2	9425	21991	43982	65973	5.3	18.8
	A=112	Retract	215.5	6466	15087	30189	45284	7.7	13
	B=140		160.1	4804	11210	22431	33646	10.4	9.6
224	---	Extend	394.1	11822	27586	55171	82757	4.2	23.6
	A=125	Retract	271.4	8141	18986	37991	56956	6.2	16.3
	B=160		193.0	5788	13505	27023	40534	8.7	11.6
250	---	Extend	490.9	14726	34361	68722	103084	3.4	29.4
	A=140	Retract	336.9	10108	23586	47171	70757	5.0	20.2
	B=180		236.4	7089	16548	33097	49645	7.1	14.2

※DIMENSIONS



BORE	ØROD	A	B	C	D	E	F	G	H
Ø50	TYPE A 28(1.10)	M30xP1.5	45 (1.77)	25 (0.98)	M10xP1.5	36 (1.42)	M24xP1.5	25 (0.98)	50 (1.97)
	TYPE B 35.5(1.40)								
Ø63	TYPE A 35.5(1.40)	M39xP1.5	60 (2.36)	31 (1.22)	M10xP1.5	36 (1.42)	M30xP1.5	31 (1.22)	68 (2.68)
	TYPE B 45(1.77)								
Ø80	TYPE A 45(1.77)	M48xP1.5	75 (2.95)	30 (1.18)	M10xP1.5	40 (1.57)	M39xP1.5	30 (1.18)	73 (2.87)
	TYPE B 56(2.20)								
Ø100	TYPE A 56(2.20)	M64xP2.0	95 (3.74)	41 (1.61)	M10xP1.5	40 (1.57)	M48xP1.5	41 (1.61)	84 (3.31)
	TYPE B 71(2.80)								
Ø125	TYPE A 71(2.80)	M80xP2.0	120 (4.72)	51 (2.01)	M12xP1.75	48 (1.89)	M64xP2.0	80 (3.15)	68 (2.68)
	TYPE B 90(3.54)								
Ø140	TYPE A 80(3.15)	M95xP1.5	140 (5.51)	56 (2.20)	M12xP1.75	48 (1.89)	M72xP2.0	56 (2.20)	97 (3.82)
	TYPE B 100(3.94)								

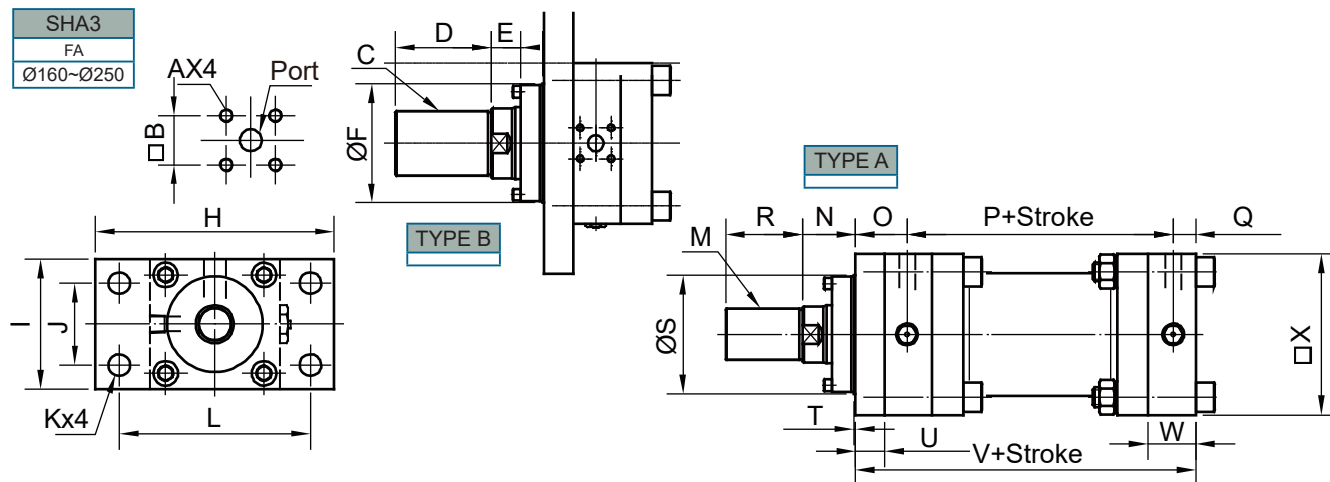
BORE	I	J	K	M	L	N	P	Q	R	S	ØT	Port
Ø50	22 (0.87)	28 (1.10)	68 (2.68)	35 (1.38)	22 (0.87)	56 (2.20)	56 (2.20)	R35 (1.38)	35.5 (1.40)	95 (3.74)	25 (0.98)	2xSSA15 2xRc1/2"
	30 (1.18)	29 (1.14)	67 (2.64)	45 (1.77)	29 (1.14)	68 (2.68)	58 (2.28)	R45 (1.77)	40 (1.57)	110 (4.33)	31.5 (1.24)	2xSSA15 2xRc1/2"
Ø63	30 (1.18)	29 (1.14)	85 (3.35)	60 (2.36)	29 (1.14)	73 (2.87)	58 (2.28)	R55 (2.17)	50 (1.97)	130 (5.12)	40 (1.57)	2xSSA20 2xRc3/4"
	30 (1.18)	30 (1.18)	105 (4.13)	75 (2.95)	29 (1.15)	85 (3.35)	60 (2.36)	R60 (2.36)	63 (2.48)	160 (6.30)	50 (1.97)	2xSSA20 2xRc3/4"
Ø80	37 (1.46)	35 (1.38)	129 (5.08)	95 (3.74)	29 (1.15)	103 (4.06)	70 (2.76)	R75 (2.95)	80 (3.15)	200 (7.87)	63 (2.48)	2xSSA25 2xRc1"
	36 (1.42)	35 (1.38)	147 (5.79)	110 (4.33)	29 (1.15)	63 (2.48)	70 (2.76)	R85 (3.35)	80 (3.15)	220 (8.66)	71 (2.80)	2xSSA25 2xRc1"



HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

SHA3
FA
Ø160~Ø250



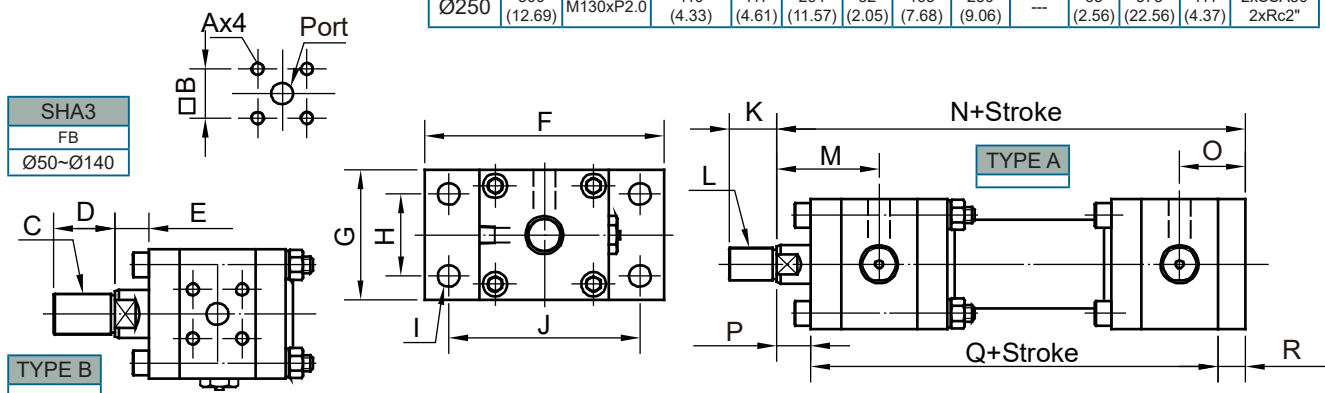
BORE	ØROD		A	B	C	D	E	F	H	I, X	J	ØK
Ø160	TYPE A	90(3.54)	M12xP1.75	48	M100xP2.0	150	45	185	405	250	185	36
	TYPE B	112(4.41)		(1.89)		(5.91)	(1.77)	(7.28)	(15.94)	(9.84)	(7.28)	(1.42)
Ø180	TYPE A	100(3.94)	M12xP1.75	65	M95xP2.0	180	45	210	445	280	210	39
	TYPE B	125(4.92)		(2.56)		(6.30)	(1.77)	(8.30)	(17.52)	(11.02)	(8.30)	(1.54)
Ø200	TYPE A	112(4.41)	M16xP2.0	65	M130xP2.0	195	45	230	485	305	230	42
	TYPE B	140(5.51)		(2.56)		(7.68)	(1.77)	(9.06)	(19.09)	(12.00)	(9.06)	(1.65)
Ø224	TYPE A	125(4.92)	M16xP2.0	65	M150xP2.0	225	45	255	545	345	255	48
	TYPE B	160(6.30)		(2.56)		(8.86)	(1.77)	(10.04)	(21.46)	(13.58)	(10.04)	(1.89)
Ø250	TYPE A	140(5.51)	M16xP2.0	73	M170xP3.0	255	50	275	590	380	285	52
	TYPE B	180(7.09)		(2.87)		(10.04)	(1.97)	(10.83)	(23.23)	(14.96)	(11.22)	(2.05)

UNIT: M.M. (INCHES)

BORE	L	M	N	O	P	Q	R	S	T	U	V	W	Port
Ø160	340 (13.39)	M80xP2.0	82 (3.23)	80 (3.15)	214 (8.43)	35 (1.38)	120 (4.72)	185 (7.28)	3 (0.12)	45 (1.77)	329 (12.95)	74 (2.91)	2xSSA25 2xRc1"
Ø180	375 (14.76)	M95xP2.0	82 (3.23)	89 (3.50)	236 (9.29)	39 (1.54)	140 (5.51)	170 (6.69)	---	50 (1.97)	364 (14.33)	84 (3.31)	2xSSA32 2xRc1-1/4"
Ø200	410 (16.14)	M100xP2.0	85 (3.35)	102 (4.01)	266 (10.47)	47 (1.85)	150 (5.91)	185 (7.28)	---	55 (2.17)	415 (16.33)	---	2xSSA40 2xRc1-1/2"
Ø224	460 (18.11)	M120xP2.0	94 (3.70)	107 (4.22)	276 (10.87)	47 (1.85)	180 (7.09)	210 (8.27)	---	60 (2.36)	430 (16.93)	102 (4.02)	2xSSA40 2xRc1-1/2"
Ø250	500 (12.69)	M130xP2.0	110 (4.33)	117 (4.61)	294 (11.57)	52 (2.05)	195 (7.68)	230 (9.06)	---	65 (2.56)	573 (22.56)	111 (4.37)	2xSSA50 2xRc2"

M

SHA3
FB
Ø50~Ø140



UNIT: M.M. (INCHES)

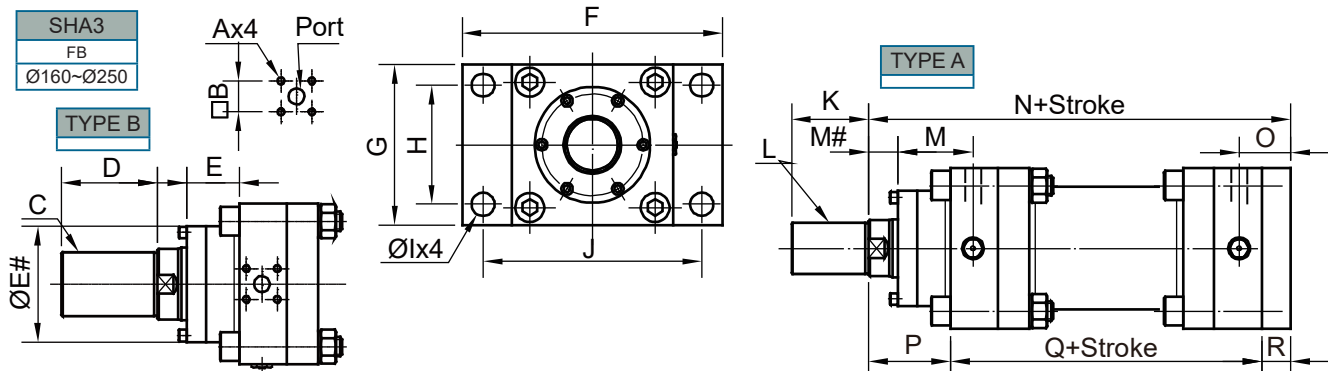
BORE	ØROD		A	B	C	D	E, P	F	G	H	I	J	K	L	M	N	O	Q	R	Port
Ø50	TYPE A	28(1.10)	M10xP1.5	36 (1.42)	M30xP1.5	45 (1.77)	25 (0.98)	175 (6.89)	95 (3.74)	60 (2.36)	16 (0.63)	140 (5.51)	35 (1.38)	M24xP1.5	75 (2.95)	243 (9.57)	48 (1.89)	198 (7.80)	20 (0.79)	2xSSA15 2xRc1/2"
	TYPE B	35.5(1.40)		36 (1.42)	M39xP1.5	60 (2.36)	31 (1.22)	190 (7.48)	110 (4.33)	75 (2.95)	18 (0.71)	155 (6.10)	45 (1.77)	M30xP1.5	99 (3.90)	299 (11.77)	54 (2.13)	243 (9.57)	25 (0.98)	2xSSA15 2xRc1/2"
Ø63	TYPE A	35.5(1.40)	M10xP1.5	36 (1.42)	M39xP1.5	60 (2.36)	31 (1.22)	190 (7.48)	110 (4.33)	75 (2.95)	18 (0.71)	155 (6.10)	45 (1.77)	M30xP1.5	99 (3.90)	299 (11.77)	54 (2.13)	243 (9.57)	25 (0.98)	2xSSA15 2xRc1/2"
	TYPE B	45(1.77)		40 (1.57)	M48xP1.5	75 (2.95)	30 (1.18)	220 (8.67)	130 (5.12)	90 (3.54)	20 (0.79)	180 (7.09)	60 (2.36)	M39xP1.5	103 (4.06)	313 (12.32)	54 (2.13)	258 (10.16)	25 (0.98)	2xSSA20 2xRc3/4"
Ø80	TYPE A	45(1.77)	M10xP1.5	40 (1.57)	M48xP1.5	75 (2.95)	30 (1.18)	220 (8.67)	130 (5.12)	90 (3.54)	20 (0.79)	180 (7.09)	60 (2.36)	M39xP1.5	103 (4.06)	313 (12.32)	54 (2.13)	258 (10.16)	25 (0.98)	2xSSA20 2xRc3/4"
	TYPE B	56(2.20)		40 (1.57)	M64xP2.0	95 (3.74)	41 (1.61)	265 (10.43)	160 (6.30)	115 (4.53)	24 (0.94)	220 (8.67)	75 (2.95)	M48xP1.5	125 (4.92)	339 (13.34)	60 (2.36)	268 (10.55)	30 (1.18)	2xSSA20 2xRc3/4"
Ø100	TYPE A	56(2.20)	M10xP1.5	40 (1.57)	M64xP2.0	95 (3.74)	41 (1.61)	265 (10.43)	160 (6.30)	115 (4.53)	24 (0.94)	220 (8.67)	75 (2.95)	M48xP1.5	125 (4.92)	339 (13.34)	60 (2.36)	268 (10.55)	30 (1.18)	2xSSA20 2xRc3/4"
	TYPE B	71(2.80)		48 (1.89)	M80xP2.0	120 (4.72)	51 (2.01)	330 (12.99)	200 (7.87)	145 (5.71)	30 (1.18)	275 (10.83)	95 (3.74)	M64xP2.0	148 (5.83)	392 (15.43)	70 (2.76)	306 (12.05)	35 (1.38)	2xSSA25 2xRc1"
Ø125	TYPE A	71(2.80)	M12xP1.75	48 (1.89)	M80xP2.0	120 (4.72)	51 (2.01)	330 (12.99)	200 (7.87)	145 (5.71)	30 (1.18)	275 (10.83)	95 (3.74)	M64xP2.0	148 (5.83)	392 (15.43)	70 (2.76)	306 (12.05)	35 (1.38)	2xSSA25 2xRc1"
	TYPE B	90(3.54)		48 (1.89)	M95xP2.0	140 (5.51)	56 (2.20)	365 (14.37)	220 (8.67)	160 (6.30)	33 (1.30)	305 (12.00)	110 (4.33)	M72xP2.0	153 (6.02)	412 (16.22)	75 (2.95)	316 (12.44)	40 (1.57)	2xSSA25 2xRc1"
Ø140	TYPE A	80(3.15)	M12xP1.75	48 (1.89)	M95xP2.0	140 (5.51)	56 (2.20)	365 (14.37)	220 (8.67)	160 (6.30)	33 (1.30)	305 (12.00)	110 (4.33)	M72xP2.0	153 (6.02)	412 (16.22)	75 (2.95)	316 (12.44)	40 (1.57)	2xSSA25 2xRc1"
	TYPE B	100(3.94)																		



HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

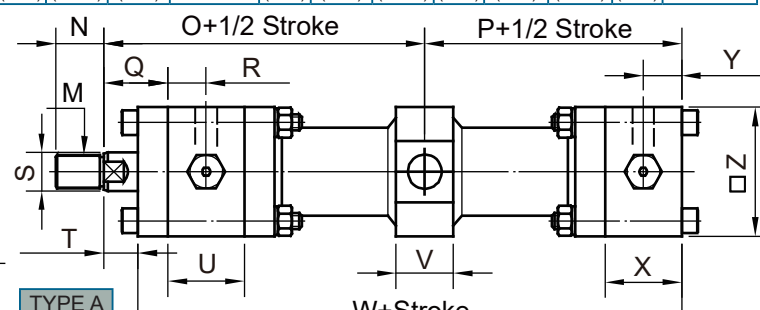
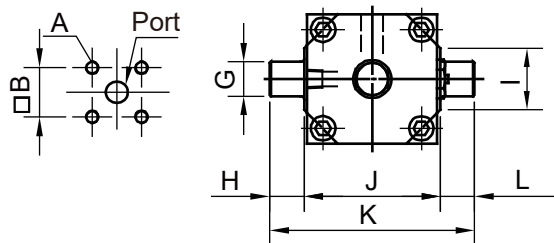
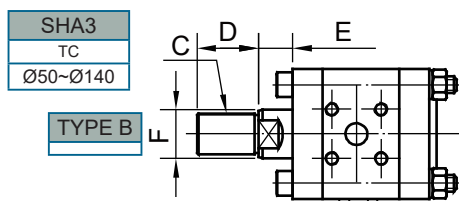
SOLTECH



BORE	ØROD	A	B	C	D	E	E#	F	G	H
Ø160	TYPE A	90(3.54)	M12xP1.75	48 (1.89)	M100xP2.0	150 (5.91)	82 (3.23)	180 (7.09)	405 (15.94)	250 (9.84)
	TYPE B	112(4.41)	M12xP1.75	65 (2.56)	M120xP2.0	180 (6.30)	87 (3.43)	210 (8.27)	445 (17.52)	280 (11.02)
Ø180	TYPE A	100(3.94)	M12xP1.75	65 (2.56)	M120xP2.0	180 (6.30)	87 (3.43)	210 (8.27)	445 (17.52)	280 (11.02)
	TYPE B	125(4.92)	M12xP1.75	65 (2.56)	M120xP2.0	180 (6.30)	87 (3.43)	210 (8.27)	445 (17.52)	280 (11.02)
Ø200	TYPE A	112(4.41)	M16xP2.0	65 (2.56)	M130xP2.0	195 (7.68)	95 (3.74)	230 (9.06)	485 (19.09)	305 (12.00)
	TYPE B	140(5.51)	M16xP2.0	65 (2.56)	M130xP2.0	195 (7.68)	95 (3.74)	230 (9.06)	485 (19.09)	305 (12.00)
Ø224	TYPE A	125(4.92)	M16xP2.0	65 (2.56)	M150xP2.0	225 (8.86)	109 (4.29)	255 (10.04)	545 (21.46)	345 (13.58)
	TYPE B	160(6.30)	M16xP2.0	65 (2.56)	M150xP2.0	225 (8.86)	109 (4.29)	255 (10.04)	545 (21.46)	345 (13.58)
Ø250	TYPE A	140(5.51)	M16xP2.0	73 (2.87)	M170xP3.0	255 (10.04)	125 (4.92)	275 (10.83)	590 (23.23)	380 (14.96)
	TYPE B	180(7.09)	M16xP2.0	73 (2.87)	M170xP3.0	255 (10.04)	125 (4.92)	275 (10.83)	590 (23.23)	380 (14.96)

UNIT: M.M. (INCHES)

BORE	I	J	K	L	M	M#	N	O	P	Q	R	Port
Ø160	36 (1.42)	140 (5.51)	120 (4.72)	M80xP2.0	117 (4.61)	45 (1.77)	456 (17.95)	48 (1.89)	127 (5.00)	284 (11.18)	20 (0.79)	2xSSA25 2xRc1"
Ø180	39 (1.54)	375 (14.76)	140 (5.51)	M95xP2.0	126 (4.96)	45 (1.77)	496 (19.53)	89 (3.50)	140 (5.51)	319 (12.56)	50 (1.97)	2xSSA32 2xRc1-1/4"
Ø200	42 (1.65)	410 (16.14)	150 (5.91)	M100xP2.0	142 (5.59)	45 (1.77)	555 (21.85)	102 (4.02)	140 (5.51)	360 (14.17)	55 (2.17)	2xSSA40 2xRc1-1/2"
Ø224	48 (1.89)	460 (18.11)	180 (7.09)	M120xP2.0	201 (7.91)	45 (1.77)	584 (22.99)	107 (4.21)	180 (7.09)	370 (14.57)	60 (2.36)	2xSSA40 2xRc1-1/2"
Ø250	52 (2.05)	500 (19.69)	195 (7.68)	M130xP2.0	125 (4.92)	50 (1.97)	638 (25.12)	117 (4.61)	195 (7.68)	198 (15.67)	65 (2.56)	2xSSA50 2xRc2"



BORE	ØROD	A	B	C	D	E, T	ØF	ØG, H, L
Ø50	TYPE A	28(1.10)	M10xP1.5	36 (1.42)	M30xP1.5	45 (1.77)	25 (0.98)	35.5 (1.40)
	TYPE B	35.5(1.40)	M10xP1.5	36 (1.42)	M30xP1.5	45 (1.77)	25 (0.98)	35.5 (1.40)
Ø63	TYPE A	35.5(1.40)	M10xP1.5	36 (1.42)	M39xP1.5	60 (2.36)	31 (1.22)	45 (1.77)
	TYPE B	45(1.77)	M10xP1.5	36 (1.42)	M39xP1.5	60 (2.36)	31 (1.22)	45 (1.77)
Ø80	TYPE A	45(1.77)	M10xP1.5	40 (1.57)	M48xP1.5	75 (2.95)	30 (1.18)	56 (2.20)
	TYPE B	56(2.20)	M10xP1.5	40 (1.57)	M48xP1.5	75 (2.95)	30 (1.18)	56 (2.20)
Ø100	TYPE A	56(2.20)	M10xP1.5	40 (1.57)	M64xP2.0	95 (3.74)	41 (1.61)	71 (2.80)
	TYPE B	71(2.80)	M10xP1.5	40 (1.57)	M64xP2.0	95 (3.74)	41 (1.61)	71 (2.80)
Ø125	TYPE A	71(2.80)	M12xP1.75	48 (1.89)	M80xP2.0	120 (4.72)	51 (2.00)	90 (3.54)
	TYPE B	90(3.54)	M12xP1.75	48 (1.89)	M80xP2.0	120 (4.72)	51 (2.00)	90 (3.54)
Ø140	TYPE A	80(3.15)	M12xP1.75	48 (1.89)	M95xP2.0	140 (5.51)	56 (2.20)	100 (2.94)
	TYPE B	100(3.94)	M12xP1.75	48 (1.89)	M95xP2.0	140 (5.51)	56 (2.20)	100 (2.94)

UNIT: M.M. (INCHES)

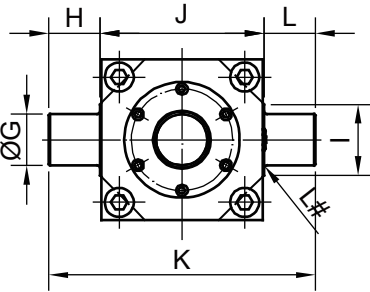
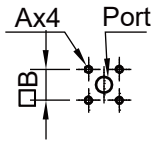
BORE	I	J	K	M	N	O	P	Q	R	ØS	U	V	W	X	Y	Z	Port
Ø50	45 (1.77)	100 (3.94)	150 (5.91)	M24xP1.5	35 (1.38)	135 (5.31)	88 (3.46)	47 (1.85)	28 (1.10)	28 (1.10)	56 (2.20)	42 (1.65)	198 (7.80)	56 (2.20)	28 (1.10)	95 (3.74)	2xSSA15 2xRc1/2"
Ø63	50 (1.97)	115 (4.53)	178 (7.00)	M30xP1.5	45 (1.77)	165 (6.50)	109 (4.29)	35.5 (1.40)	68 (2.68)	47 (1.85)	68 (2.68)	47 (1.85)	243 (9.57)	58 (2.28)	29 (1.14)	110 (4.33)	2xSSA15 2xRc1/2"
Ø80	60 (2.36)	135 (5.31)	215 (8.46)	M39xP1.5	60 (2.36)	180 (7.09)	79 (3.11)	59 (2.32)	44 (1.73)	45 (1.77)	73 (2.87)	57 (2.24)	258 (10.16)	58 (2.28)	29 (1.14)	130 (5.12)	2xSSA20 2xRc3/4"
Ø100	70 (2.76)	165 (6.50)	265 (10.43)	M48xP1.5	70 (2.76)	205 (8.07)	104 (4.09)	70 (2.76)	55 (2.17)	56 (2.20)	85 (3.35)	67 (2.64)	268 (10.55)	60 (2.36)	30 (1.18)	---	2xSSA20 2xRc3/4"
Ø125	80 (3.15)	205 (8.07)	331 (13.03)	M64xP2.0	95 (3.74)	225 (8.86)	132 (5.20)	80 (3.15)	68 (2.68)	71 (2.80)	103 (4.06)	77 (3.03)	357 (14.06)	70 (2.76)	35 (1.38)	---	2xSSA25 2xRc1"
Ø140	95 (3.74)	225 (8.86)	367 (14.45)	M72xP2.0	110 (4.33)	240 (9.45)	132 (5.20)	85 (3.35)	68 (2.68)	80 (3.15)	103 (4.06)	85 (3.35)	316 (12.44)	70 (2.76)	35 (1.38)	220 (8.66)	2xSSA25 2xRc1"



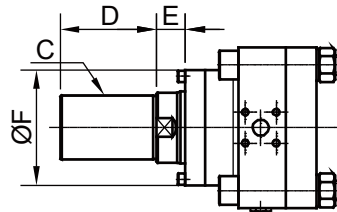
HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

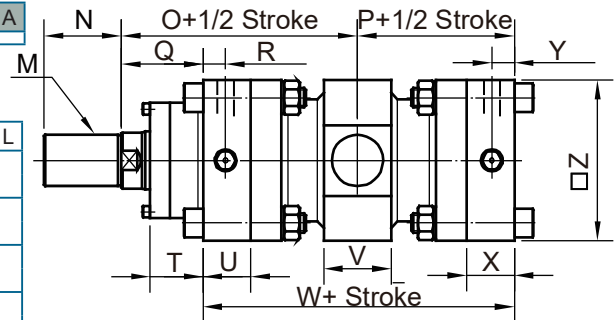
SHA3
TC
Ø160~Ø250



TYPE B



TYPE A

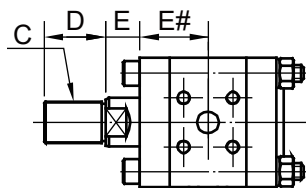


BORE	ØROD	A	B	C	D	E	ØF	ØG, H, L
Ø160	TYPE A 90(3.54)	M12xP1.75	48 (1.89)	M100xP2.0	150 (5.91)	45 (1.77)	180 (7.09)	80 (3.15)
	TYPE B 112(4.41)							
Ø180	TYPE A 100(3.94)	M12xP1.75	65 (2.56)	M120xP2.0	180 (6.30)	45 (1.77)	210 (8.27)	90 (3.54)
	TYPE B 125(4.92)							
Ø200	TYPE A 112(4.41)	M16xP2.0	65 (2.56)	M130xP2.0	195 (7.68)	45 (1.77)	230 (9.06)	100 (3.94)
	TYPE B 140(5.51)							
Ø224	TYPE A 125(4.92)	M16xP2.0	65 (2.56)	M150xP2.0	225 (8.86)	45 (1.77)	255 (10.04)	112 (4.41)
	TYPE B 160(6.30)							
Ø250	TYPE A 140(5.51)	M16xP2.0	73 (2.87)	M170xP3.0	255 (10.04)	50 (1.97)	275 (10.83)	125 (4.92)
	TYPE B 180(7.09)							

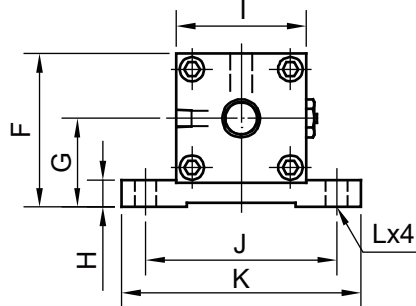
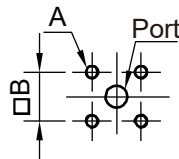
UNIT: M.M. (INCHES)

BORE	I	J	K	M	N	O	P	Q	R	T	U	V	W	X	Y	Z	Port
Ø160	110 (4.33)	255 (10.04)	415 (16.34)	M80xP2.0	120 (4.72)	267 (10.51)	144 (5.67)	127 (5.0)	35 (1.38)	82 (3.23)	74 (2.91)	105 (4.13)	284 (11.18)	74 (2.91)	35 (1.38)	250 (9.84)	2xSSA25 2xRc1"
	120 (4.72)	285 (11.22)	465 (18.31)		140 (5.51)	272 (10.71)	174 (6.85)	132 (5.20)	42 (1.65)	87 (3.43)	84 (3.31)	115 (4.53)	314 (12.36)	78 (3.07)	39 (1.54)	280 (11.02)	2xSSA32 2xRc1-1/4"
Ø200	130 (5.12)	310 (12.20)	510 (20.08)	M100xP2.0	150 (5.91)	307 (12.09)	193 (7.60)	140 (5.51)	51 (2.01)	95 (3.74)	102 (4.01)	118 (4.65)	360 (14.17)	94 (3.70)	47 (1.85)	305 (12.00)	2xSSA40 2xRc1-1/2"
	140 (5.51)	350 (13.78)	574 (22.60)		180 (7.09)	341 (13.43)	183 (7.20)	154 (6.06)	51 (2.01)	109 (4.29)	102 (4.01)	135 (5.31)	370 (14.57)	94 (3.70)	47 (1.85)	345 (13.58)	2xSSA40 2xRc1-1/2"
Ø224	140 (5.51)	350 (13.78)	574 (22.60)	M120xP2.0	180 (7.09)	341 (13.43)	183 (7.20)	154 (6.06)	51 (2.01)	109 (4.29)	102 (4.01)	135 (5.31)	370 (14.57)	94 (3.70)	47 (1.85)	345 (13.58)	2xSSA40 2xRc1-1/2"
	180 (7.09)	385 (15.16)	635 (25.00)		195 (7.68)	374 (14.72)	199 (7.83)	175 (6.89)	55.5 (2.19)	125 (4.92)	111 (4.37)	155 (6.10)	398 (15.67)	104 (4.09)	52 (2.05)	380 (14.96)	2xSSA50 2xRc2"

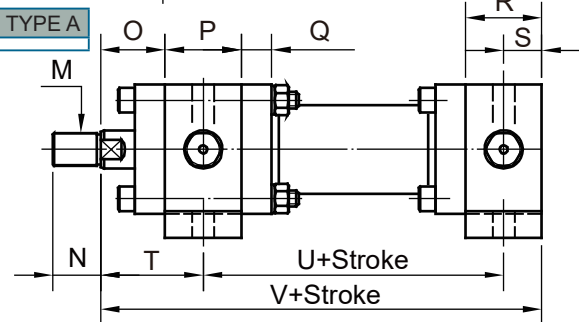
SHA3
LA
Ø50~Ø140



TYPE B



TYPE A



BORE	ØROD	A	B	C	D	E	E#	F	G
Ø50	TYPE A 28(1.10)	M10xP1.5	36 (1.42)	M30xP1.5	45 (1.77)	25 (0.98)	50 (1.97)	112.5 (4.43)	65 (2.56)
	TYPE B 35.5(1.40)								
Ø63	TYPE A 35.5(1.40)	M10xP1.5	36 (1.42)	M39xP1.5	60 (2.36)	31 (1.22)	68 (2.68)	125 (4.92)	70 (2.76)
	TYPE B 45(1.77)								
Ø80	TYPE A 45(1.77)	M10xP1.5	40 (1.57)	M48xP1.5	75 (2.95)	30 (1.18)	73 (2.87)	145 (5.71)	80±0.25 (3.15)
	TYPE B 56(2.20)								
Ø100	TYPE A 56(2.20)	M10xP1.5	40 (1.57)	M64xP2.0	95 (3.74)	41 (1.61)	84 (3.31)	175 (6.89)	95 (3.74)
	TYPE B 71(2.80)								
Ø125	TYPE A 71(2.80)	M12xP1.75	48 (1.89)	M80xP2.0	120 (4.72)	51 (2.01)	97 (3.82)	215 (8.46)	115 (4.53)
	TYPE B 90(3.54)								
Ø140	TYPE A 80(3.15)	M12xP1.75	48 (1.89)	M95xP2.0	140 (5.51)	56 (2.20)	97 (3.82)	235 (9.25)	125 (4.92)
	TYPE B 100(3.94)								

UNIT: M.M. (INCHES)

BORE	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Port
Ø50	20 (0.79)	95 (3.74)	140 (5.51)	175 (6.89)	16 (0.63)	M24xP1.5	35 (1.38)	47 (1.85)	56 (2.20)	22 (0.87)	56 (2.20)	28 (1.10)	75 (2.95)	120 (4.72)	223 (8.78)	2xSSA15 2xRc1/2"
	25 (0.98)	110 (4.33)	155 (6.10)	190 (7.48)	18 (0.71)		45 (1.77)	60 (2.36)	68 (2.68)	30 (1.18)	58 (2.28)	29 (1.14)	95 (3.74)	150 (5.91)	274 (10.79)	2xSSA15 2xRc1/2"
Ø63	30 (1.18)	130 (5.12)	180±0.5 (7.09)	220 (8.66)	20 (0.79)	M39xP1.5	60 (2.36)	59 (2.32)	73 (2.87)	30 (1.18)	58 (2.28)	29 (1.14)	95 (3.74)	165 (6.50)	288 (11.34)	2xSSA20 2xRc3/4"
	35 (1.38)	160 (6.30)	220 (8.67)	265 (10.43)	24 (0.94)		75 (2.95)	70 (2.76)	85 (3.35)	30 (1.18)	60 (2.36)	30 (1.18)	115 (4.52)	165 (6.50)	309 (12.17)	2xSSA20 2xRc3/4"
Ø80	40 (1.57)	200 (7.87)	275 (10.83)	330 (12.99)	30 (1.18)	M64xP2.0	95 (3.74)	80 (3.15)	103 (4.06)	37 (1.46)	70 (2.76)	35 (1.38)	130 (5.12)	195 (7.68)	357 (14.06)	2xSSA25 2xRc1"
	45 (1.77)	220 (8.67)	305 (12.00)	365 (14.37)	33 (1.30)		110 (4.33)	85 (3.35)	103 (4.06)	36 (1.42)	70 (2.76)	35 (1.38)	135 (5.31)	200 (7.87)	372 (14.65)	2xSSA25 2xRc1"

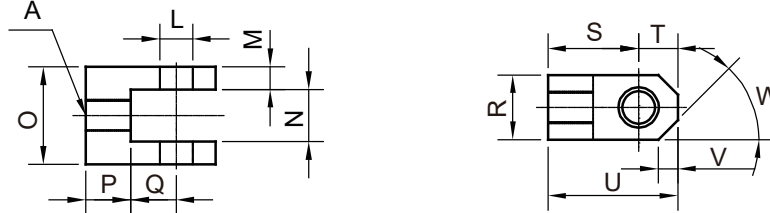


HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

SHA3

Clevis Head, Type "Y"



UNIT: M.M. (INCHES)

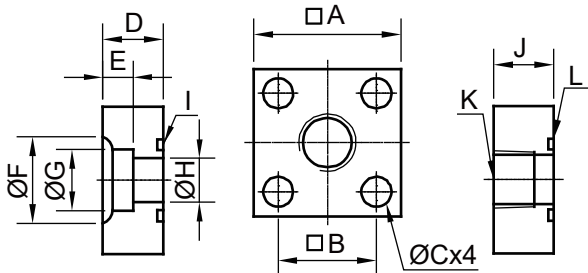
BORE	A	L	M	N	O	P	Q	R	S	T	U	V	W	Weight (Kg)
Ø50	TYPE A M24x1.5	25	17.5	40	75	35(1.38)	35	50	70(2.76)	30	100(3.94)	15	45°	1.7
	TYPE B M30x1.5	(0.98)	(0.69)	(1.57)	(2.95)	45(1.77)	(1.38)	(1.97)	80(3.15)	(1.18)	110(4.33)	(0.59)		1.6
Ø63	TYPE A M30x1.5	31.5	20	45	85	45(1.77)	40	70	85(3.35)	35	120(4.72)	15	45°	3.7
	TYPE B M39x1.5	(1.24)	(0.79)	(1.77)	(3.35)	60(2.36)	(1.57)	(2.76)	100(3.94)	(1.38)	135(5.31)	(0.59)		3.4
Ø80	TYPE A M39x1.5	40	25	55	105	60(2.36)	50	80	110(4.33)	40	150(5.91)	15	45°	5.9
	TYPE B M48x1.5	(1.57)	(0.98)	(2.17)	(4.13)	75(2.95)	(1.97)	(3.15)	125(4.92)	(1.57)	165(6.50)	(0.59)		5.4
Ø100	TYPE A M48x1.5	50	30	70	130	80(3.15)	65	100	145(5.71)	50	195(7.68)	20	45°	11.5
	TYPE B M64x2	(1.97)	(1.18)	(2.76)	(5.12)	95(3.74)	(2.56)	(3.94)	160(6.30)	(1.97)	210(8.27)	(0.79)		11.7
Ø125	TYPE A M64x2	63	40	90	170	95(3.74)	80	130	175(6.89)	65	240(9.45)	25	45°	22
	TYPE B M80x2	(2.48)	(1.57)	(3.54)	(6.69)	120(4.72)	(3.15)	(5.12)	200(7.87)	(2.56)	265(10.43)	(0.98)		25
Ø140	TYPE A M72x2	71	40	90	170	110(4.33)	90	150	200(7.87)	75	275(10.83)	30	45°	32
	TYPE B M95x2	(2.80)	(1.57)	(3.54)	(6.69)	140(5.51)	(3.54)	(5.91)	230(9.06)	(2.95)	305(12.01)	(1.18)		33
Ø160	TYPE A M80x2	80	50	110	210	120(4.72)	100	160	220(8.66)	80	300(11.81)	30	45°	46
	TYPE B M100x2	(3.15)	(1.97)	(4.33)	(8.27)	150(5.91)	(3.94)	(6.30)	250(9.84)	(3.15)	330(12.99)	(1.18)		49
Ø180	TYPE A M95x2	90	62.5	135	260	140(5.51)	115	180	255(10.04)	90	345(13.58)	40	45°	74
	TYPE B M120x2	(3.54)	(2.46)	(5.31)	(10.24)	180(7.09)	(4.53)	(7.09)	295(11.61)	(3.54)	385(15.16)	(1.57)		80
Ø200	TYPE A M100x2	100	62.5	135	260	150(5.91)	125	200	275(10.83)	100	375(14.76)	40	45°	94
	TYPE B M130x2	(3.94)	(2.46)	(5.31)	(10.24)	195(7.68)	(4.92)	(7.87)	320(12.60)	(3.94)	420(16.54)	(1.57)		101
Ø224	TYPE A M120x2	112	70	150	290	180(7.09)	140	230	320(12.60)	115	435(17.13)	50	45°	130
	TYPE B M150x2	(4.41)	(2.76)	(5.91)	(11.42)	225(8.86)	(5.51)	(9.06)	365(14.37)	(4.53)	480(18.90)	(1.97)		153
Ø250	TYPE A M130x2	125	80	170	330	195(7.68)	160	250	355(13.98)	125	480(18.90)	60	45°	176
	TYPE B M170x2	(4.92)	(3.15)	(6.69)	(12.99)	255(10.04)	(6.30)	(9.84)	415(16.34)	(4.92)	540(21.26)	(2.36)		189

SSA

Port Flange Kits

RC

Port Flange Kits



UNIT: M.M. (INCHES)

※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

Bore	Parameter	FA	FB	CA	LA	TC
Ø50	W1=RODØ28 (Kg)	15.6	16.9	16.5	15.6	15.4
	W1=RODØ35.5 (Kg)	15.9	17.2	16.8	15.9	15.7
	W2 (kg/100mm)	RODØ28=1.15, RODØ35.5=1.45				
Ø63	W1=RODØ35.5 (Kg)	24.7	26.2	25.7	24.0	25.2
	W1=RODØ45 (Kg)	25.2	26.7	26.2	24.5	25.7
	W2 (kg/100mm)	RODØ35.5=1.6, RODØ45=2.0				
Ø80	W1=RODØ45 (Kg)	35.6	38.7	39.8	35.9	36.9
	W1=RODØ56 (Kg)	36.5	39.6	40.4	36.9	37.7
	W2 (kg/100mm)	RODØ45=2.6, RODØ56=3.3				
Ø100	W1=RODØ56 (Kg)	58.4	64.4	66.4	59.4	65.4
	W1=RODØ71 (Kg)	60.4	66.4	68.4	61.4	65.4
	W2 (kg/100mm)	RODØ56=4.0, RODØ71=5.2				
Ø125	W1=RODØ71 (Kg)	102	112	116	101	110
	W1=RODØ90 (Kg)	106	116	120	107	114
	W2 (kg/100mm)	RODØ71=6.4, RODØ90=8.3				
Ø140	W1=RODØ90 (Kg)	135	149	151	133	146
	W1=RODØ100 (Kg)	140	154	157	138	151
	W2 (kg/100mm)	RODØ90=8.6, RODØ100=10.8				

BORE	A	B	C	D, J	E	F	G	H	I, L	K
Ø50	54 (2.13)	36 (1.42)	11 (0.43)	22 (0.87)	11 (0.43)	32 (1.26)	22.2 (0.87)	16 (0.63)	ORING G-25	Rc 1/2"
Ø63	54 (2.13)	36 (1.42)	11 (0.43)	22 (0.87)	11 (0.43)	32 (1.26)	22.2 (0.87)	16 (0.63)	ORING G-25	Rc 1/2"
Ø80	58 (2.28)	40 (1.57)	11 (0.43)	22 (0.87)	12 (0.47)	38 (1.50)	27.7 (1.09)	20 (0.79)	ORING G-30	Rc 3/4"
Ø100	58 (2.28)	40 (1.57)	11 (0.43)	22 (0.87)	12 (0.47)	38 (1.50)	27.7 (1.09)	20 (0.79)	ORING G-30	Rc 3/4"
Ø125	68 (2.68)	48 (1.89)	13 (0.51)	28 (1.10)	14 (0.55)	45 (1.77)	34.5 (1.36)	25 (0.98)	ORING G-35	Rc 1"
Ø140	68 (2.68)	48 (1.89)	13 (0.51)	28 (1.10)	14 (0.55)	45 (1.77)	34.5 (1.36)	25 (0.98)	ORING G-35	Rc 1"
Ø160	68 (2.68)	48 (1.89)	13 (0.51)	28 (1.10)	14 (0.55)	45 (1.77)	34.5 (1.36)	25 (0.98)	ORING G-35	Rc 1"
Ø180	76 (2.99)	56 (2.20)	13 (0.51)	28 (1.10)	16 (0.63)	56 (2.20)	43.2 (1.70)	31.5 (1.24)	ORING G-40	Rc 1-1/4"
Ø200	92 (3.62)	65 (2.56)	18 (0.71)	36 (1.42)	18 (0.71)	63 (2.48)	49.1 (1.93)	37.5 (1.48)	ORING G-50	Rc 1-1/2"
Ø224	92 (3.62)	65 (2.56)	18 (0.71)	36 (1.42)	18 (0.71)	63 (2.48)	49.1 (1.93)	37.5 (1.48)	ORING G-50	Rc 1-1/2"
Ø250	100 (3.94)	73 (2.87)	18 (0.71)	36 (1.42)	20 (0.79)	75 (2.95)	61.1 (2.41)	47.5 (1.87)	ORING G-60	Rc 2"

Bore	Parameter	FA	FB	CA	LA	TC
Ø160	W1=RODØ90 (Kg)	176	182	193	162	180
	W1=RODØ112 (Kg)	185	193	204	173	191
	W2 (kg/100mm)	RODØ90=10.3, RODØ112=13.0				
Ø180	W1=RODØ100 (Kg)	253	260	282	230	257
	W1=RODØ125 (Kg)	266	278	300	248	275
	W2 (kg/100mm)	RODØ100=14.0, RODØ125=17.5				
Ø200	W1=RODØ112 (Kg)	342	352	374	315	348
	W1=RODØ140 (Kg)	362	377	399	340	373
	W2 (kg/100mm)	RODØ112=18.7, RODØ140=23.0				
Ø224	W1=RODØ125 (Kg)	440	455	485	399	445
	W1=RODØ160 (Kg)	468	490	520	434	480
	W2 (kg/100mm)	RODØ125=22.7, RODØ160=28.8				
Ø250	W1=RODØ140 (Kg)	578	595	645	523	589
	W1=RODØ180 (Kg)	620	648	698	576	642
	W2 (kg/100mm)	RODØ140=28.3, RODØ180=36.2				

Example: FA, ST=200mm, Type A
Weight = W1 + (W2 x Stroke)
= 15.6+ (1.15 x 2)
= 17.9 Kg

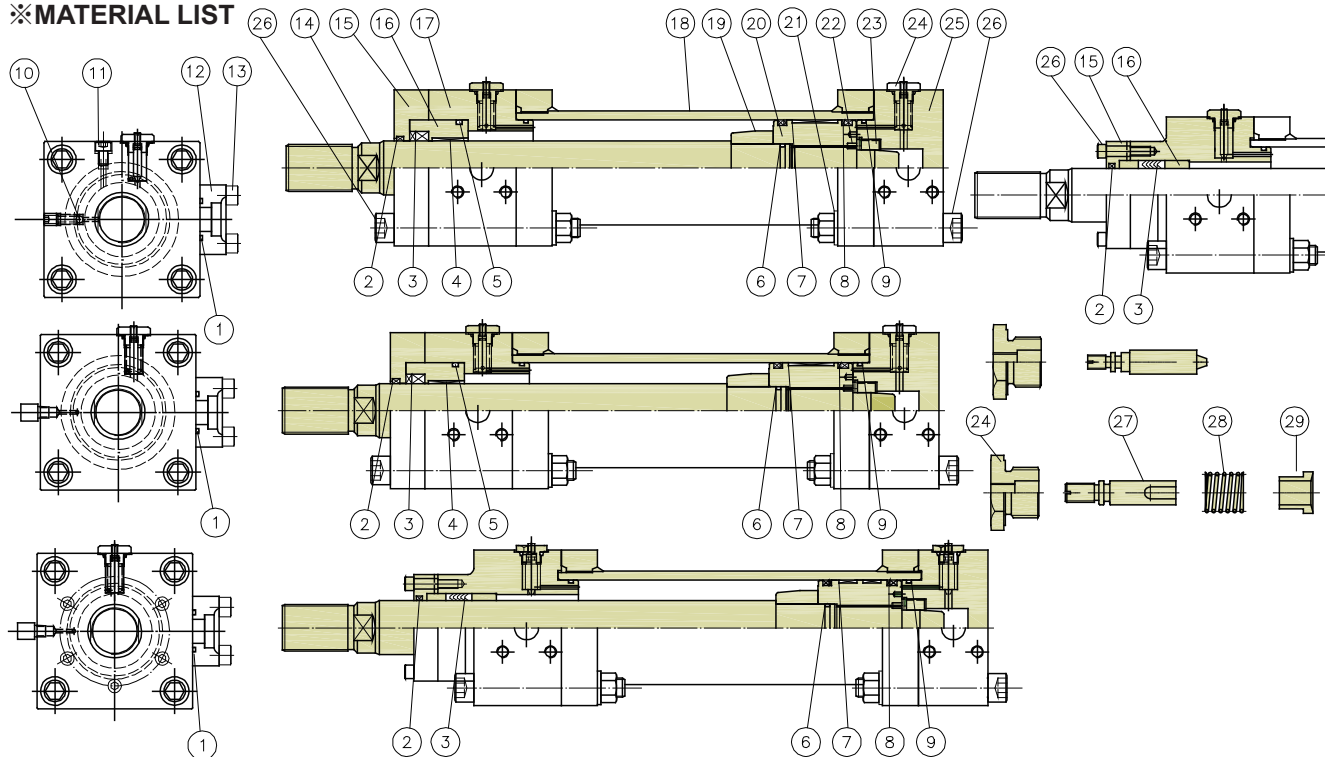


SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

※MATERIAL LIST



NO	1	2		3		4		5		6	7	8	9
	O-Ring	Dust Seal		Rod Seal+Backup Ring		Wear Ring		O-Ring		O-Ring	Wear Ring	Piston Seal +Backup Ring	O-Ring
Material	NBR	PU		PU		PTFE		NBR		NBR	PTFE	PU	NBR
Quantity Bore Ø,Ø,w (mm)	2	1		1		1		2		1	2	2	1
	A	B	A	B	A	B	A	B					
Ø50	G-25	28-36-6	35.5-43.5-6	28-41-13	35.5-51.5-13	28-2.5	35.5-2.5	G-45	G-55	P-20	50-2.5	50-40-8.5	G-50
Ø63	G-30	35.5-43.5-6	45-53-6.5	35.5-51.5-13	45-61-16	35.5-2.5	45-2.5	G-65		P-22	63-2.5	63-53-8.5	G-58
Ø80	G-30	45-53-6.5	56-64-6.5	45-61-16	56-72.16	45-2.5	56-2.5	G-75		G-35	80-2.5	80-60-13	G-75
Ø100	G-30	56-64-6.5	71-81-8	56-72-16	71-91-16	56-2.5	71-2.5	G-95		G-45	100-2.5	100-80-16	G-95
Ø125	G-35	71-81-8	90-100-8	71-91-16	90-110-16	71-2.5	90-2.5	G-115		G-60	125-2.5	125-105-16	G-120
Ø140	G-35	80-90-8	100-110-8	80-100-16	100-120-16	80-2.5	100-2.5	G-125		G-65	140-2.5	140-120-19	G-135
Ø160	G-35	90-100-8	112-122-8	90-110-16	112-132-19	90-2.5	112-2.5	G-135		G-75	160-2.5	160-135-24	G-150
Ø180	G-40	100-110-8	125-138-9.5	100-120-33.5	125-150-33.5	---	---	---		G-85	180-2.5	180-155-24	G-170
Ø200	G-50	112-122-8	140-153-9.5	112-132-38	140-165-45.5	---	---	---		G-95	200-2.5	200-17-24	G-190
Ø224	G-50	125-138-9.5	160-174-9.5	125-150-45.5	160-185-45.5	---	---	---		G-105	224-2.5	224-199-24	g-210
Ø250	G-60	140-153-9.5	180-194-9.5	140-165-45.5	180-205-45.5	---	---	---		g-120	250-2.5	250-225-24	g-240

NO	Description	Material	Q'ty
1	O-Ring	NBR	2
2	Dust Seal	NBR	1
3	Rod Seal	NBR	1
4	Wear Ring	PTFE	1
5	O-Ring	NBR	1
6	O-Ring	NBR	1
7	Wear Ring	PTFE	2
8	Piston Seal	NBR	2
9	O-Ring	NBR	2
10	Check Valve	Carbon Steel for Mechanical Structure	1
11	Socket Head Cap Screw	Carbon Steel for Mechanical Structure	2
12	Flange	Rolled Steel for General	1
13	Socket Head Cap Screw	Carbon Steel fro Mechanical Structure	4
14	Piston Pod	Carton Steel for Mechanical structure	1
15	Cover	Rolled Steel for General	1

NO	Description	Material	Q'ty
16	Guide Bush	Carbon Steel for Mechanical Structure	2
17	Head	Rolled Steel for General	1
18	Actuator Tube	Carbon Steel for Mechanical Structure	1
19	Cushion Bush	Black Lead Special Cast Iron	2
20	Piston	Rolled Steel for General	1
21	Tie Rod Nut	Rolled Steel for General	4
22	Set Screw	Carbon Steel for Mechanical Structure	1
23	Cushion Bush	Black Lead Special Cast Iron	1
24	Cushion Body	Carbon Steel for Mechanical Structure	2
25	Actuator Cap	Rolled Steel for General	1
26	Socket head Cap Screw	Carbon Steel for Mechanical Structure	4
27	Cushion Adjustment	Carbon Steel for Mechanical Structure	2
28	Spring	Qin Steel Wire	2
29	Bush	Carbon Steel for Mechanical Structure	2
30	---	---	---



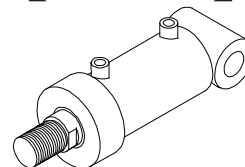
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

ELEVATING PLATFORM AND OTHER SPECIFIC APPLICATION

[SHA4]

The SHA4 are designed and applied in elevating platform, vehicle & packing equipments etc., They work well in strictly environment, such as vibration resistant, impulse resistant & anti-instantaneous burst pressure. This series is aim at extending force and its cap area is double of head, so the back pressure must emphasized at inlet/outlet of the actuator head during operating.

**※MODEL NUMBER DESIGNATION**

SHA4-	140-	FB-	125-	90-	100-	B-	A-	E-	U
I	II	III	IV	V	VI	VII	VIII	IX	X
I. Series: SHA4					VII. Rod End Type Type-A Type-B				
II. Operating Pressure:(Bar) 140: 140 Bar 210: 210 Bar					VIII. Port Position: (A) B, C, D				
III. Mounting Type: Please Refer to Below Table					IX. Option, only for Type-A E: Rod End With Other Threading K: With Locking Nut L: Clevis Head LO, GF				
IV. Actuator(Cylinder) Bore Size: (M.M.) 50: Ø50 90: Ø90 100: Ø100 63: Ø63 80: Ø80 125: Ø125					X. Seal: U- Pison Seal for "U" Type T- Pison Seal for "T" Type				
V. Rod Dia.: (M.M.) 35: Ø35 40: Ø40 55: Ø55 65: Ø65 70: Ø70 90: Ø90					View from actuator head				
VI. Stroke: (M.M.) Max. Permissible Stroke									

※MOUNTING TYPE

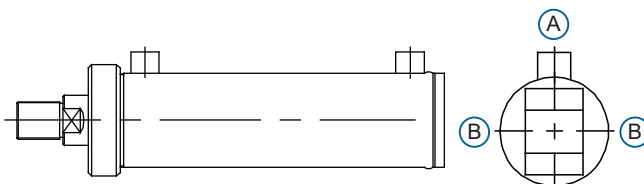
Symbol	Description	Configuration	Symbol	Description	Configuration
FB	Rectangular Flange at Actuator Cap		CA	Plain Clevis at Actuator Cap	
			CD	Tube Clevis at Actuator Cap	

※ROD END TYPE

TYPE A	TYPE B

※PORT POSITIONS

► The port position is divided into (A) (B), But the standard is at (A).

**※SCHEMATICS**

CD, TYPE A	CA, TYPE A	FB, TYPE A
CD, TYPE B	CA, TYPE B	FB, TYPE B



HYDRAULIC ACTUATOR(CYLINDER)

ELEVATING PLATFORM AND OTHER SPECIFIC APPLICATION

SOLTECH

*SPECIFICATION

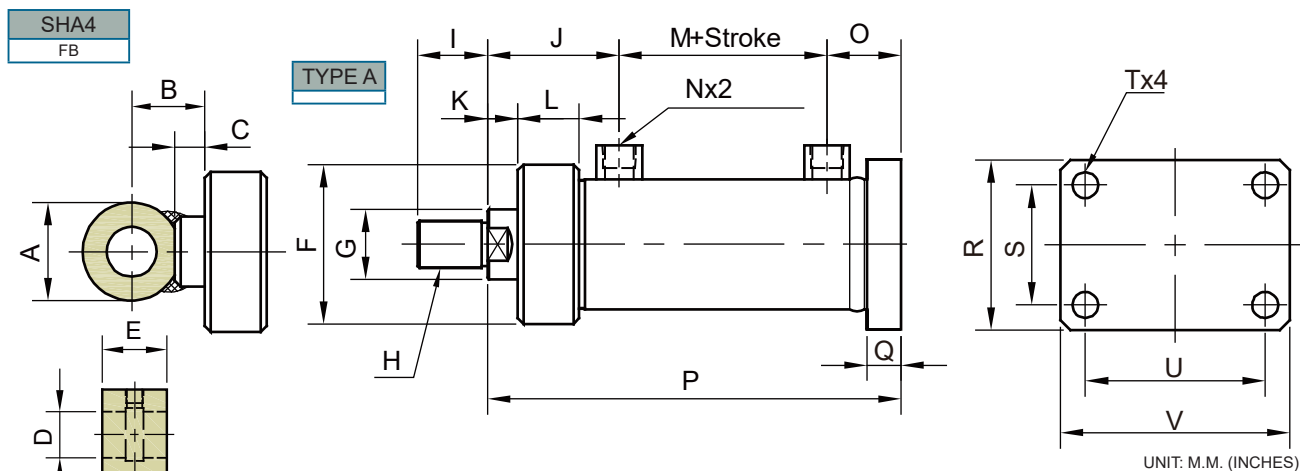
Model	Bore	Mounting Type	Operating Pressure	Max. Operating Pressure	Min. Operating Pressure	Max. Speed	Min. Speed	Rod End Type	Max.Stroke	Range of Ambient Temperature	Tolerance of Stroke
Item	Ø m.m.		Bar(psi)	Bar(psi)	Bar(psi)	mm/sec	mm/sec		m.m.	°C	
SHA4	50, 63, 80, 90, 100, 125	FB, CA, CD	140(2030)	230(3335)	3(43.5)	500	10	TYPE A & B	Refer to DRAW	-10~80	JIS B 8354 A Class

► Phosphatic ester oil is prohibited because of special materil of seal

*TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Ratio of Area (HA/RA)	Action	Effective Area (cm²)	Output Power (kgf)			Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
					70 (kgf/cm²)	140 (kgf/cm²)	210 (kgf/cm²)		
50	35	1.9	Extend	19.6	1374	2748	4123	85	1.2
		1	Retract	10	700	1400	2303	167	0.6
63	40	1.8	Extend	31.2	2181	4362	7170	53	1.9
		1	Retract	18.6	1302	2604	4279	90	1.1
80	55	1.9	Extend	50.3	3517	7034	11561	33	3.0
		1	Retract	26.5	1855	3711	6097	63	1.6
90	65	2	Extend	63.6	4451	8906	14632	26	3.8
		1	Retract	30.4	2129	4261	7000	55	1.8
100	70	2	Extend	78.5	5495	10996	18064	21	4.7
		1	Retract	40.1	2804	5608	9213	42	2.3
125	90	2	Extend	122.7	8586	17181	28225	14	7.4
		1	Retract	59.1	4135	8270	13593	28	3.5

*DIMENSIONS



UNIT: M.M. (INCHES)

BORE	ØA	B	C	ØD	E	ØF	ØG	H	I	J	K
Ø50	49 (1.93)	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	80 (3.15)	35 (1.38)	M24xP2	35 (1.38)	66 (2.60)	15 (0.59)
Ø63	60 (2.36)	48 (1.89)	20 (0.79)	30 (1.18)	50 (1.97)	90 (3.54)	40 (1.57)	M30xP2	45 (1.77)	75 (2.95)	20 (0.79)
Ø80	69 (2.72)	52 (2.05)	20 (0.79)	35 (1.38)	60 (2.36)	108 (4.25)	55 (2.17)	M39xP3	55 (2.17)	83 (3.27)	20 (0.79)
Ø90	75 (2.95)	52 (2.05)	20 (0.79)	40 (1.57)	70 (2.76)	124 (4.88)	65 (2.56)	M50xP3	75 (2.95)	83 (3.27)	20 (0.79)
Ø100	80 (3.15)	57 (2.24)	20 (0.79)	50 (1.97)	80 (3.15)	134 (5.28)	70 (2.76)	M50xP3	75 (2.95)	92 (3.62)	20 (0.79)
Ø125	100 (3.94)	67 (2.64)	20 (0.79)	60 (2.36)	95 (3.74)	172 (6.77)	90 (3.54)	M64xP3	95 (3.74)	103 (4.06)	20 (0.79)

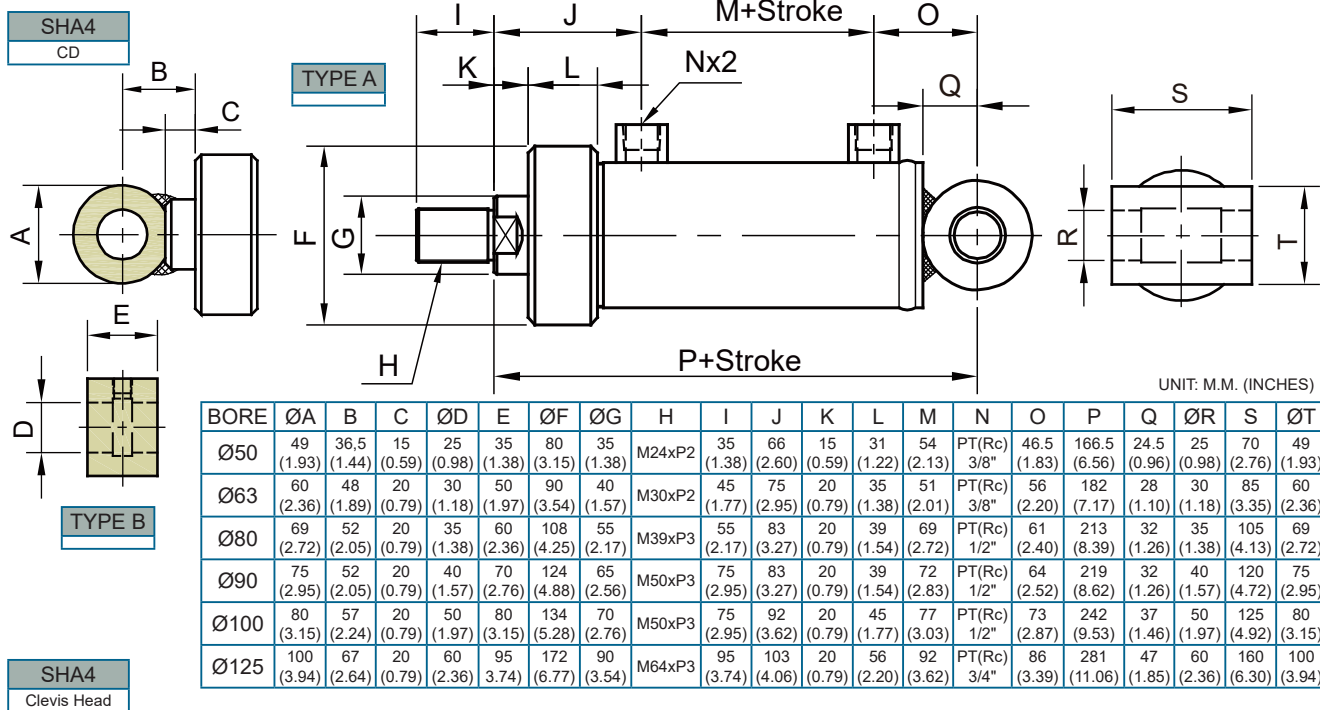
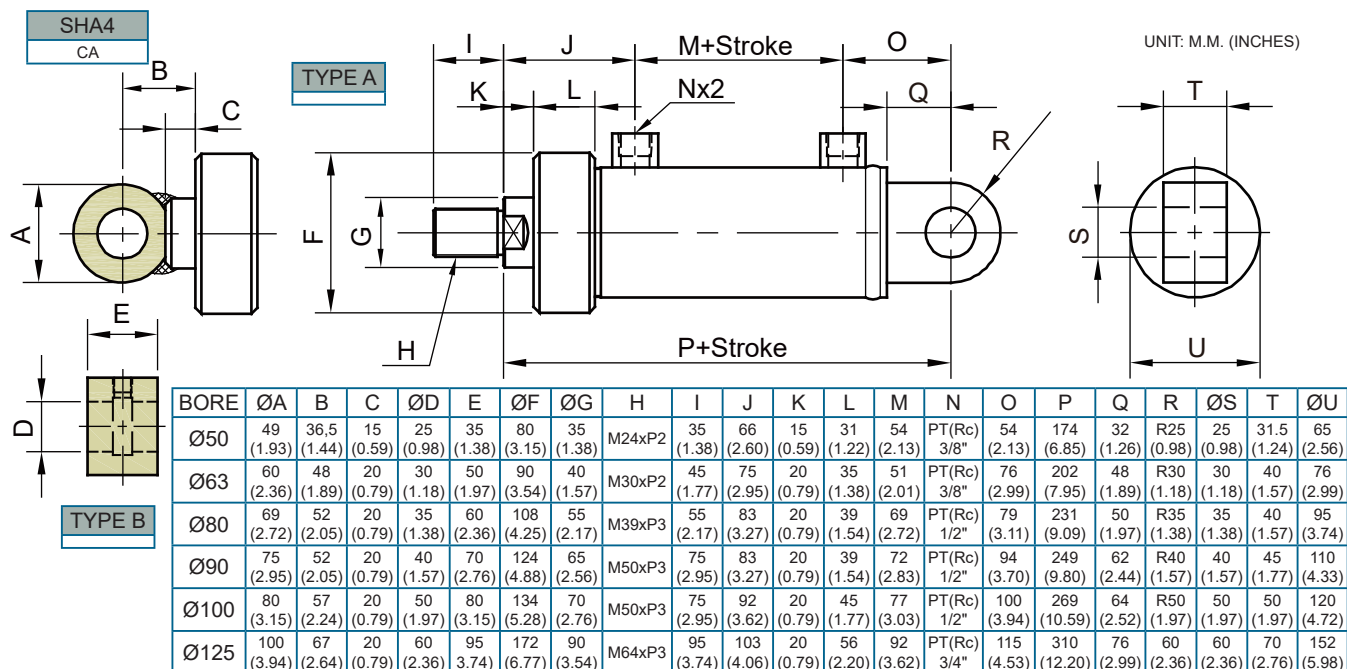
BORE	L	M	N	O	P	Q	R	S	ØT	U	V
Ø50	31 (1.22)	54 (2.13)	PT(Rc) 3/8"	37 (1.46)	157 (6.18)	17 (0.67)	85 (3.35)	60 (2.36)	13 (0.51)	90 (3.54)	115 (4.53)
Ø63	35 (1.38)	51 (2.01)	PT(Rc) 3/8"	41 (1.61)	167 (6.57)	21 (0.83)	105 (4.13)	70 (2.76)	14 (0.55)	105 (4.13)	135 (5.31)
Ø80	39 (1.54)	63 (2.48)	PT(Rc) 1/2"	48 (1.89)	194 (7.64)	24 (0.94)	135 (5.31)	90 (3.54)	18 (0.71)	135 (5.31)	175 (6.89)
Ø90	39 (1.54)	65 (2.56)	PT(Rc) 1/2"	49 (1.93)	197 (7.76)	24 (0.94)	145 (5.71)	95 (3.74)	20 (0.79)	145 (5.71)	190 (7.48)
Ø100	45 (1.77)	73 (2.87)	PT(Rc) 1/2"	53 (2.09)	218 (8.58)	26 (1.02)	150 (5.91)	110 (4.33)	20 (0.79)	160 (6.30)	200 (7.87)
Ø125	56 (2.20)	87 (3.43)	PT(Rc) 3/4"	62 (2.44)	252 (9.92)	35 (1.38)	185 (7.28)	135 (5.31)	22 (0.87)	190 (7.48)	240 (9.45)



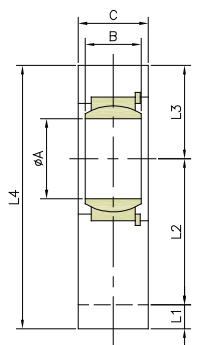
HYDRAULIC ACTUATOR(CYLINDER)

ELEVATING PLATFORM AND OTHER SPECIFIC APPLICATION

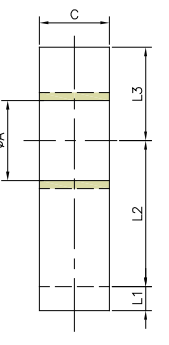
SOLTECH



Spherical Rod End Type
"GF1"



Plain Rod End Type
"GF2"



UNIT: M.M. (INCHES)

Piston Dia.	ØA	B	C	E	ØF	L1	L2	L3	L4	R
Ø50	30 (1.18)	22 (0.87)	28 (1.10)	65 (2.56)	28 (1.10)	14 (0.55)	51 (2.01)	32.5 (1.28)	97.5 (3.84)	32.5 (1.28)
Ø63	35 (1.38)	25 (0.98)	30 (1.18)	83 (3.27)	30 (1.18)	15 (0.59)	61 (2.40)	41.5 (1.63)	117.5 (4.63)	41.5 (1.63)
Ø80	40 (1.57)	28 (1.10)	35 (1.38)	100 (3.94)	45 (1.77)	23 (0.91)	69 (2.72)	50 (1.97)	142 (5.59)	50 (1.97)
Ø90	50 (1.97)	35 (1.38)	40 (1.57)	123 (4.84)	50 (1.97)	30 (1.18)	88 (3.46)	61.5 (2.42)	179.5 (7.06)	61.5 (2.42)
Ø100	50 (1.97)	35 (1.38)	40 (1.57)	123 (4.84)	55 (2.17)	35 (1.38)	88 (3.46)	61.5 (2.42)	184.5 (7.26)	61.5 (2.42)
Ø125	60 (2.36)	44 (1.73)	50 (1.97)	140 (5.51)	65 (2.56)	40 (1.57)	100 (3.94)	70 (2.76)	210 (8.27)	70 (2.76)



SOLTECH

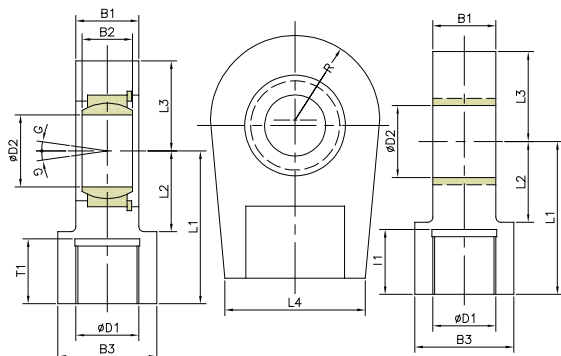
HYDRAULIC ACTUATOR(CYLINDER) ELEVATING PLATFORM AND OTHER SPECIFIC APPLICATION

SHA4

Clevis Head

Spherical Rod End Type
"LO1"

Plain Rod End Type
"LO2"



※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

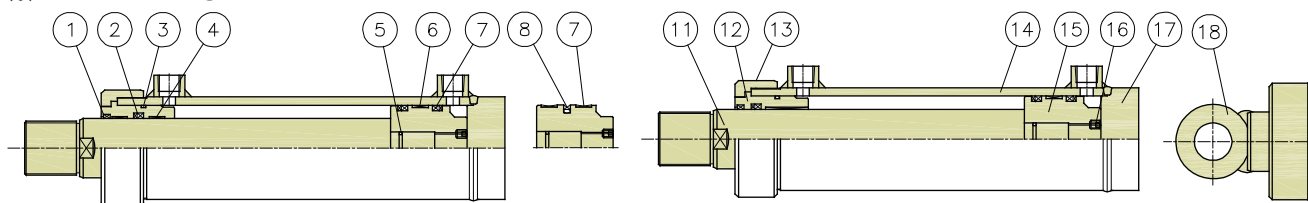
Bore	Parameter	FB	CA	CD
Ø50	W1 (Kg)	5.5	4.5	4.8
	W2 (kg/100mm)		1.83	
Ø63	W1 (Kg)	8.2	7.2	7.5
	W2 (kg/100mm)		2.1	
Ø80	W1 (Kg)	14.4	12.1	13.0
	W2 (kg/100mm)		3.5	
Ø90	W1 (Kg)	18.8	17.0	17.8
	W2 (kg/100mm)		5.1	
Ø100	W1 (Kg)	23.9		22.3
	W2 (kg/100mm)		5.8	
Ø125	W1 (Kg)	45.8	42.6	42.3
	W2 (kg/100mm)		9.7	

Example: FB, ST=200mm
Weight = W1 + (W2 x Stroke)
= 5.5+ (1.83 x 2)
= 9.16 Kg

UNIT: M.M. (INCHES)

Piston Dia.	B1	B2	B3	D1	ØD2	L1	L2	L3	L4	R	T1	G	Weight (Kg)
Ø50	28 (+0/-0.4) (1.10)	22 (+0/-0.12) (0.87)	34 (+0/-1.34) (1.34)	M24x2	30 (+0/-0.12) (1.18)	75 (2.95)	30 (1.18)	34 (1.34)	27 (1.06)	32 (1.26)	35 (1.38)	7"	1.0
Ø63	30 (+0/-0.4) (1.18)	25 (+0/-0.15) (0.98)	44 (+0/-1.73) (1.73)	M30x2	35 (+0/-0.15) (1.38)	90 (3.54)	40 (1.57)	42 (1.65)	33 (1.30)	65 (2.56)	45 (1.77)	7"	2.4
Ø80	35 (+0/-0.4) (1.38)	28 (+0/-1.10) (2.17)	55 (+0/-2.17) (2.17)	M39x3	40 (+0/-0.12) (1.57)	105 (4.13)	45 (1.77)	50 (1.97)	78 (3.07)	47 (1.85)	55 (2.17)	7"	2.4
Ø90	40 (+0/-0.4) (1.57)	35 (+0/-1.38) (2.76)	70 (+0/-2.76) (2.76)	M50x3	50 (+0/-0.12) (1.97)	135 (5.31)	55 (2.17)	63 (2.48)	90 (3.54)	58 (2.28)	75 (2.95)	7"	4.1
Ø100	40 (+0/-0.4) (1.57)	35 (+0/-1.38) (2.76)	70 (+0/-2.76) (2.76)	M50x3	50 (+0/-0.12) (1.97)	135 (5.31)	55 (2.17)	63 (2.48)	90 (3.54)	58 (2.28)	75 (2.95)	7"	4.1
Ø125	50 (+0/-0.4) (1.97)	44 (+0/-1.73) (3.43)	87 (+0/-3.43) (3.43)	M64x3	60 (+0/-0.15) (2.36)	170 (6.69)	65 (2.56)	70 (2.76)	118 (4.65)	65 (2.56)	95 (3.74)	7"	6.5

※MATERIAL LIST



No.	1	2	3	4	5	6	7	8
Name	Dust Seal	Rod Seal	O-Ring	Wear Ring	O-Ring	Wear Ring	Piston Seal	Piston Seal for "T" Type
Material	PU	PU	NBR	PTFE	NBR	PTFE	PU	PTFE+NBR
Quantity	1	1	1	2	1	1	2	1
Bore Ø, Ø.w (mm)		+Backup Ring					+Backup Ring	
Ø50	35-43-6.5	35-45-9	G-45	35-2.5	P-18	50-2.5	50-40-9	50-39-4.2
Ø63	40-48-6.5	40-50-9	G-58	40-2.5	P-21	63-2.5	63-53-9	63-52-4.2
Ø80	55-63-6.5	55-65-9	G-75	55-2.5	G-25	80-2.5	80-70-9	80-64.5-6.3
Ø100	65-73-6.5	65-75-9	G-85	65-2.5	G-35	90-2.5	90-80-9	90-74.5-6.3
Ø100	70-80-8	70-80-9	G-95	70-2.5	G-45	100-2.5	100-85-13	100-84.5-6.3
Ø125	90-100-8	90-105-13	G-120	90-2.5	G-60	125-2.5	125-112-13	125-109.5-6.3

NO	Description	Material	Q'ty
11	Piston Rod	Carbon Steel for Mechanical Structure	1
12	Head	Rolled Steel for General Structure	1
13	Cover	Rolled Steel for General Structure	1
14	Actuator Tube	Carbon Steel for Mechanical Structure	1

NO	Description	Material	Q'ty
15	Piston	Rolled Steel for General Structure	1
16	Set Screws	Carbon Steel for Mechanical Structure	1
17	Actuator Cap	Rolled Steel for General Structure	1
18	Clevis Head	Rolled Steel for General Structure	1



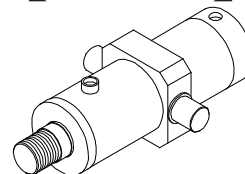
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

VEHICLE APPLICATION

[SHA5]

The SHA5 are being with no reinforced screwbolt, round profile structure and welded actuator cap, which are suitable for vehicle parking system and special purpose machinery etc.,



※MODEL NUMBER DESIGNATION

SHA5-	180-	FB-	125-	90-	100-	B-	A-	E-	U
I	II	III	IV	V	VI	VII	VIII	IX	X
I. Series: SHA5					VII. Rod End Type Type-A Type-B				
II. Operating Pressure:(Bar) 180: 180 Bar					VIII. Port Position: (A) B, C, D				
III. Mounting Type: Please Refer to Below Table					IX. Option, only for Type-A E: Rod End With Other Threading K: With Locking Nut L: With "I" Type adapter BAI				
IV. Actuator(Cylinder) Bore Size: (M.M.) 40: Ø40 60: Ø60 70: Ø70 90: Ø90 110: Ø110 50: Ø50 63: Ø63 80: Ø80 100: Ø100 125: Ø125					X. Seal: U- Pison Seal for "U" Type T- Pison Seal for "T" Type				
V. Rod Dia.: (M.M.) 22.4: Ø22.4 35: Ø35 45: Ø45 55: Ø55 70: Ø70 30: Ø30 40: Ø40 50: Ø50 65: Ø65					View from actuator head				
VI. Stroke: (M.M.) Max. Permissible Stroke									

※MOUNTING TYPE

Symbol	Description	Configuration	Symbol	Description	Configuration
FA	Flange at Actuator Head		TC	Centre Trunnion Mouning	
FB	Flange at Actuator Cap		CA	Plaie Clevis at Actuator Cap	
FD	Rectangular Flange at Actuator Cap		CD	Tube Clevis at Actuator Cap	

※TOLERANCE OF STROKE

Stroke (m.m.)	~100	100~250	250~630	630~1000	1000~1600	1600~
Tolerance (m.m.)	+0.8	+1.0	+1.25	+1.4	+1.6	+1.8

※ROD END TYPE

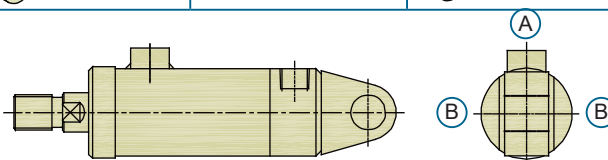
TYPE A	TYPE B

※SCHEMATICS

FA		FB		FD	
TYPE A	TYPE B	TYPE A	TYPE B	TYPE A	TYPE B
TC		CA		CD	
TYPE A	TYPE B	TYPE A	TYPE B	TYPE A	TYPE B

※PORT POSITIONS

► The port position is divided into (A) (B), But the standard is at (A).





HYDRAULIC ACTUATOR(CYLINDER)

VEHICLE APPLICATION

SOLTECH

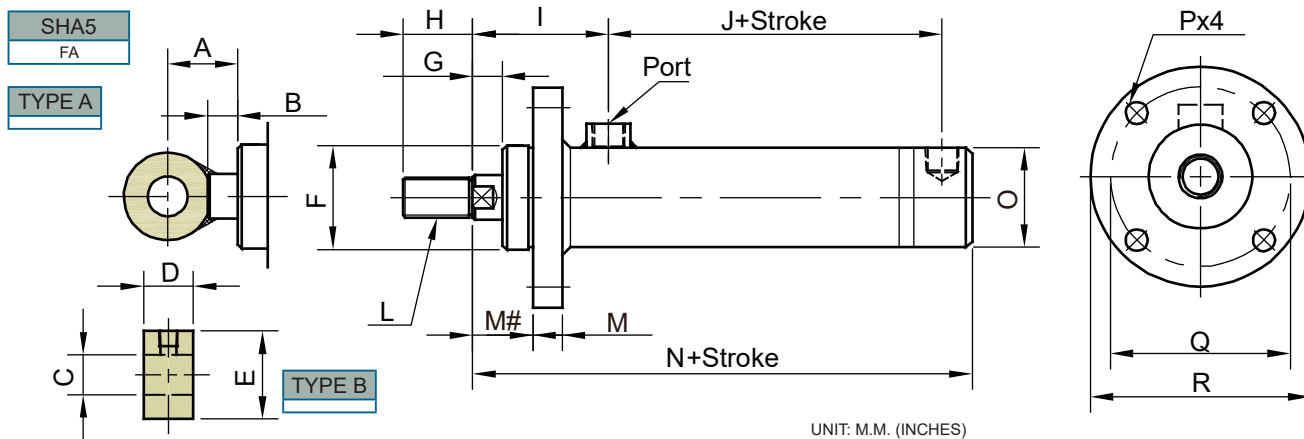
※SPECIFICATION

Model Item	Bore	Mounting Type	Operating Pressure	Testing Pressure	Min. Operating Pressure	Max. Speed	Min. Speed	Rod End Type	Max.Stroke	Range of Ambient Temperature	Fluid
	Ø m.m.		Bar(psi)	Bar(psi)	Bar(psi)	mm/sec	mm/sec		m.m.	°C	
SHA5	40, 50, 60, 63, 70, 80, 90, 100, 110, 125	FA, FB, FD, TC, CA CD	180(2610)	210(3045)	3(43.5)	500	10	TYPE A & B	Refer to DRAW	-10~80	Mineral Oil

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm²)	Output Power (kgf)					Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
				30 (kgf/cm²)	70 (kgf/cm²)	105 (kgf/cm²)	140 (kgf/cm²)	210 (kgf/cm²)		
40	22.4	Extend	12.6	126	377	879	1319	1758	132	0.8
		Retract	8.6	86	259	603	905	1207	193	0.5
50	30	Extend	19.6	196	589	1374	2061	2748	85	1.2
		Retract	12.6	126	377	879	1319	1758	132	0.8
60	30	Extend	28.3	283	848	1978	2967	3956	59	1.7
		Retract	21.2	212	636	1484	2225	2967	79	1.3
63	35	Extend	31.2	312	935	2181	3271	4362	53	1.9
		Retract	21.5	215	646	1508	2262	3016	77	1.3
70	40	Extend	38.5	385	1154	2693	4039	5385	43	2.3
		Retract	25.9	259	777	1813	2720	3627	64	1.6
80	45	Extend	50.3	503	1507	3517	5275	7034	33	3.0
		Retract	34.3	343	1030	2404	3606	4808	49	2.1
90	50	Extend	63.6	636	1908	4451	6676	8902	26	3.8
		Retract	44.0	440	1319	3077	4616	6154	38	2.6
100	55	Extend	78.5	785	2355	5495	8243	10990	21	4.7
		Retract	54.8	548	1643	3833	5749	7666	30	3.3
110	65	Extend	95.0	950	2850	6649	9973	13298	18	5.7
		Retract	61.8	618	1855	4327	6491	8655	27	3.7
125	70	Extend	122.7	1227	3680	8586	12879	17172	14	7.4
		Retract	84.2	842	2526	5893	8840	11787	20	5.0

※DIMENSIONS



BORE	A	B	ØC	D	ØE	ØF	G	H	I	J	L	M	M#	N	O	ØP	Q	ØR	Port
Ø40	35 (1.38)	15 (0.59)	20 (0.79)	25 (0.98)	44 (1.73)	52 (2.05)	15 (0.59)	35 (1.38)	68 (2.68)	67 (2.64)	M20xP1.5	15 (0.59)	30 (1.18)	150 (5.91)	50 (1.97)	11 (4.33)	P.C.D.90 (3.54)	110 (4.33)	Rc(PT) 3/8"
Ø50	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	49 (1.93)	62 (2.44)	15 (0.59)	35 (1.38)	74 (2.91)	69 (2.72)	M26xP1.5	17 (0.67)	32 (1.26)	158 (6.22)	60 (2.36)	13 (0.51)	P.C.D.100 (3.94)	120 (4.72)	Rc(PT) 3/8"
Ø60	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	74 (2.91)	20 (0.79)	40 (1.57)	87 (3.43)	71 (2.80)	M26xP1.5	21 (0.83)	42 (1.65)	173 (6.81)	72 (2.83)	14 (0.55)	P.C.D.120 (4.72)	148 (5.83)	Rc(PT) 3/8"
Ø63	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	76 (2.99)	20 (0.79)	40 (1.57)	87 (3.43)	74 (2.91)	M30xP1.5	21 (0.83)	42 (1.65)	176 (6.93)	73 (2.87)	14 (0.55)	P.C.D.120 (4.72)	148 (5.83)	Rc(PT) 3/8"
Ø70	48 (1.89)	20 (0.79)	35 (1.38)	45 (1.77)	65 (2.56)	87 (3.43)	20 (0.79)	40 (1.57)	87 (3.43)	80 (3.15)	M36xP1.5	21 (0.83)	42 (1.65)	182 (7.17)	85 (3.35)	18 (0.71)	P.C.D.142 (5.59)	170 (6.69)	Rc(PT) 3/8"
Ø80	52 (2.05)	20 (0.79)	35 (1.38)	55 (2.17)	69 (2.72)	97 (3.82)	20 (0.79)	45 (1.77)	101 (3.98)	84 (3.31)	M39xP1.5	24 (0.94)	50 (1.97)	202 (7.95)	---	18 (0.71)	P.C.D.150 (5.91)	185 (7.28)	Rc(PT) 1/2"
Ø90	52 (2.05)	20 (0.79)	40 (1.57)	60 (2.36)	78 (3.07)	107 (4.21)	20 (0.79)	45 (1.77)	101 (3.98)	84 (3.31)	M44xP1.5	24 (0.94)	50 (1.97)	202 (7.95)	105 (4.13)	20 (0.79)	P.C.D.160 (6.30)	195 (7.68)	Rc(PT) 1/2"
Ø100	68 (2.68)	30 (1.18)	50 (1.97)	60 (2.36)	98 (3.86)	115 (4.53)	30 (1.18)	50 (1.97)	122 (4.80)	105 (4.13)	M48xP1.5	26 (1.02)	58 (2.28)	252 (9.92)	114 (4.49)	20 (0.79)	P.C.D.190 (7.48)	230 (9.06)	Rc(PT) 3/4"
Ø110	79 (3.11)	40 (1.57)	50 (1.97)	70 (2.76)	96 (3.78)	126 (4.96)	40 (1.57)	50 (1.97)	130 (5.12)	107 (4.21)	M56xP2.0	30 (1.18)	68 (2.68)	262 (10.31)	125 (4.92)	20 (0.79)	P.C.D.200 (7.87)	240 (9.45)	Rc(PT) 3/4"
Ø125	69 (2.72)	30 (1.18)	50 (1.97)	80 (3.15)	100 (3.94)	146 (5.75)	30 (1.18)	60 (2.36)	136 (5.35)	112 (4.41)	M64xP2.0	35 (1.38)	63 (2.48)	273 (10.75)	145 (5.71)	22 (0.87)	P.C.D.220 (8.66)	260 (10.24)	Rc(PT) 3/4"



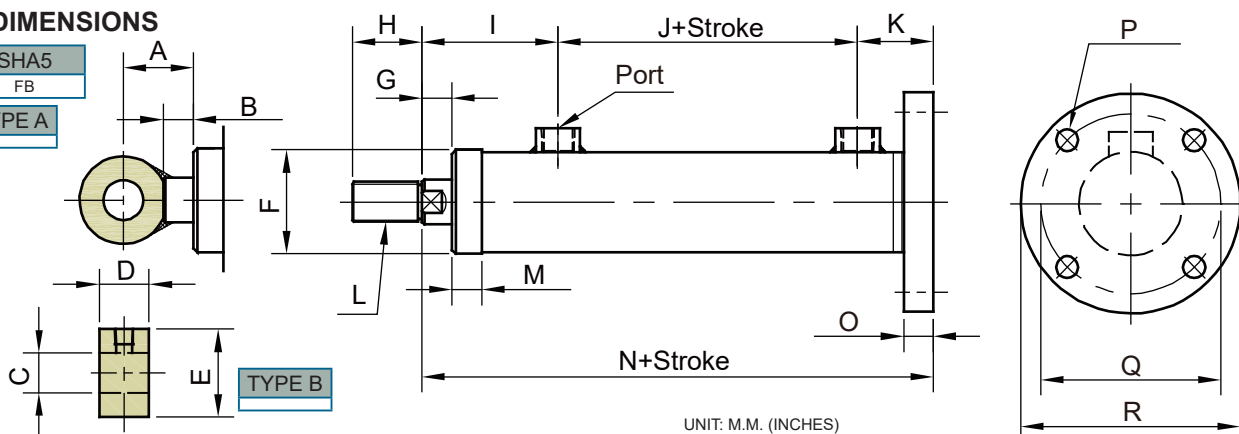
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

VEHICLE APPLICATION

※DIMENSIONS

SHA5
FB
TYPE A

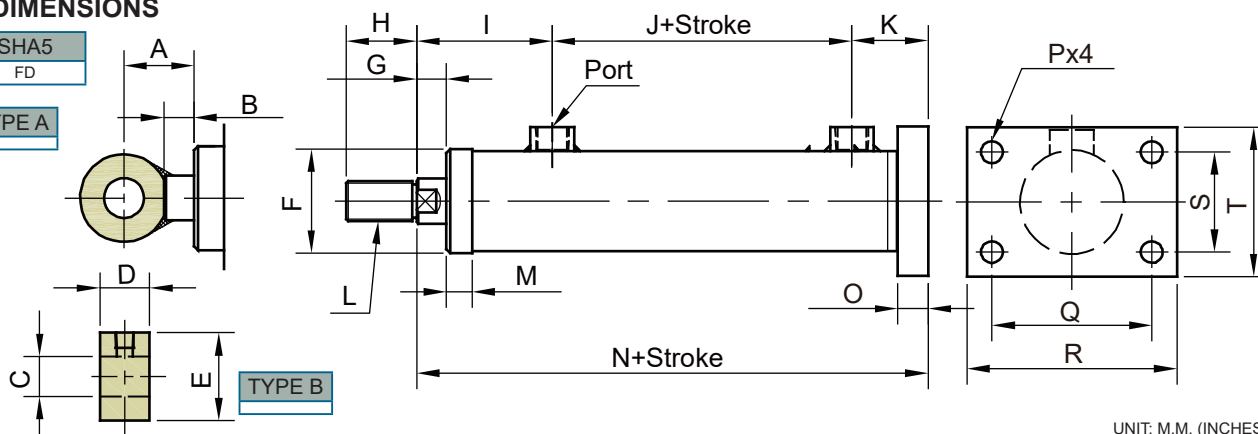


UNIT: M.M. (INCHES)

BORE	A	B	ØC	D	ØE	ØF	G	H	I	J	K	L	M	N	O	ØP	Q	ØR	Port
Ø40	35 (1.38)	15 (0.59)	20 (0.79)	25 (0.98)	44 (1.73)	52 (2.05)	15 (0.59)	35 (1.38)	68 (2.68)	50 (1.97)	38 (1.50)	M20xP1.5	15 (0.59)	156 (6.14)	15 (0.59)	11 (4.33)	P.C.D.90 (3.54)	110 (4.33)	Rc(PT) 3/8"
Ø50	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	49 (1.93)	62 (2.44)	15 (0.59)	35 (1.38)	74 (2.91)	48 (1.89)	41 (1.61)	M26xP1.5	14 (0.55)	163 (6.42)	17 (0.67)	13 (0.51)	P.C.D.100 (3.94)	120 (4.72)	Rc(PT) 3/8"
Ø60	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	74 (2.91)	20 (0.79)	40 (1.57)	86 (3.39)	51 (2.00)	46 (1.81)	M26xP1.5	17 (0.67)	183 (7.20)	21 (0.83)	14 (0.55)	P.C.D.120 (4.72)	148 (5.83)	Rc(PT) 3/8"
Ø63	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	76 (2.99)	20 (0.79)	40 (1.57)	87 (3.43)	54 (2.13)	46 (1.81)	M30xP1.5	17 (0.67)	186 (7.32)	21 (0.83)	14 (0.55)	P.C.D.120 (4.72)	148 (5.83)	Rc(PT) 3/8"
Ø70	48 (1.89)	20 (0.79)	35 (1.38)	45 (1.77)	65 (2.56)	87 (3.43)	20 (0.79)	40 (1.57)	87 (3.43)	59 (2.32)	46 (1.81)	M36xP1.5	17 (0.67)	192 (7.56)	21 (0.83)	18 (0.71)	P.C.D.142 (5.59)	170 (6.69)	Rc(PT) 3/8"
Ø80	52 (2.05)	20 (0.79)	35 (1.38)	55 (2.17)	69 (2.72)	97 (3.82)	20 (0.79)	45 (1.77)	93 (3.66)	62 (2.44)	50 (1.97)	M39xP1.5	20 (0.79)	205 (8.07)	24 (0.94)	18 (0.71)	P.C.D.150 (5.91)	185 (7.28)	Rc(PT) 1/2"
Ø90	52 (2.05)	20 (0.79)	40 (1.57)	60 (2.36)	78 (3.07)	107 (4.21)	20 (0.79)	45 (1.77)	99 (3.90)	62 (2.44)	51 (2.01)	M44xP1.5	23 (0.91)	212 (8.35)	24 (0.94)	20 (0.79)	P.C.D.160 (6.30)	195 (7.68)	Rc(PT) 1/2"
Ø100	68 (2.68)	30 (1.18)	50 (1.97)	60 (2.36)	98 (3.86)	115 (4.53)	30 (1.18)	50 (1.97)	109 (4.29)	80 (3.15)	59 (2.32)	M48xP1.5	21 (0.91)	248 (9.76)	26 (1.02)	20 (0.79)	P.C.D.190 (7.48)	230 (9.06)	Rc(PT) 3/4"
Ø110	79 (3.11)	40 (1.57)	50 (1.97)	70 (2.76)	96 (3.78)	126 (4.96)	40 (1.57)	50 (1.97)	128 (5.04)	80 (3.15)	63 (2.48)	M56xP2.0	25 (0.98)	271 (10.67)	30 (1.18)	20 (0.79)	P.C.D.200 (7.87)	240 (9.45)	Rc(PT) 3/4"
Ø125	69 (2.72)	30 (1.18)	50 (1.97)	80 (3.15)	100 (3.94)	146 (5.75)	30 (1.18)	60 (2.36)	132 (5.20)	82 (3.23)	72 (2.83)	M64xP2.0	30 (1.18)	286 (11.26)	35 (1.38)	22 (0.87)	P.C.D.220 (8.66)	260 (10.24)	Rc(PT) 3/4"

※DIMENSIONS

SHA5
FD
TYPE A



UNIT: M.M. (INCHES)

BORE	A	B	ØC	D	ØE	ØF	G	H	I	J	K	L	M	N	O	ØP	Q	ØR	S	T	Port
Ø40	35 (1.38)	15 (0.59)	20 (0.79)	25 (0.98)	44 (1.73)	52 (2.05)	15 (0.59)	35 (1.38)	68 (2.68)	50 (1.97)	38 (1.50)	M20xP1.5	13 (0.51)	156 (6.14)	15 (0.59)	11 (4.33)	P.C.D.90 (3.54)	110 (4.33)	50 (1.97)	75 (2.95)	Rc(PT) 3/8"
Ø50	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	49 (1.93)	62 (2.44)	15 (0.59)	35 (1.38)	74 (2.91)	48 (1.89)	41 (1.61)	M26xP1.5	14 (0.55)	163 (6.42)	17 (0.67)	13 (0.51)	P.C.D.100 (3.94)	120 (4.72)	60 (2.36)	85 (3.35)	Rc(PT) 3/8"
Ø60	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	74 (2.91)	20 (0.79)	40 (1.57)	86 (3.39)	51 (2.00)	46 (1.81)	M26xP1.5	17 (0.67)	183 (7.20)	21 (0.83)	14 (0.55)	P.C.D.120 (4.72)	148 (5.83)	70 (2.76)	105 (4.13)	Rc(PT) 3/8"
Ø63	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	76 (2.99)	20 (0.79)	40 (1.57)	87 (3.43)	54 (2.13)	46 (1.81)	M30xP1.5	17 (0.67)	186 (7.32)	21 (0.83)	14 (0.55)	P.C.D.120 (4.72)	148 (5.83)	70 (2.76)	105 (4.13)	Rc(PT) 3/8"
Ø70	48 (1.89)	20 (0.79)	35 (1.38)	45 (1.77)	65 (2.56)	87 (3.43)	20 (0.79)	40 (1.57)	87 (3.43)	59 (2.32)	46 (1.81)	M36xP1.5	17 (0.67)	192 (7.56)	21 (0.83)	18 (0.71)	P.C.D.142 (5.59)	170 (6.69)	75 (2.95)	115 (4.53)	Rc(PT) 3/8"
Ø80	52 (2.05)	20 (0.79)	35 (1.38)	55 (2.17)	69 (2.72)	97 (3.82)	20 (0.79)	45 (1.77)	93 (3.66)	62 (2.44)	50 (1.97)	M39xP1.5	20 (0.79)	205 (8.07)	24 (0.94)	18 (0.71)	P.C.D.150 (5.91)	185 (7.28)	90 (3.54)	130 (5.12)	Rc(PT) 1/2"
Ø90	52 (2.05)	20 (0.79)	40 (1.57)	60 (2.36)	78 (3.07)	107 (4.21)	20 (0.79)	45 (1.77)	99 (3.90)	62 (2.44)	51 (2.01)	M44xP1.5	23 (0.91)	212 (8.35)	24 (0.94)	20 (0.79)	P.C.D.160 (6.30)	195 (7.68)	95 (3.74)	140 (5.51)	Rc(PT) 1/2"
Ø100	68 (2.68)	30 (1.18)	50 (1.97)	60 (2.36)	98 (3.86)	115 (4.53)	30 (1.18)	50 (1.97)	109 (4.29)	80 (3.15)	59 (2.32)	M48xP1.5	21 (0.91)	248 (9.76)	26 (1.02)	20 (0.79)	P.C.D.190 (7.48)	230 (9.06)	110 (4.33)	150 (5.91)	Rc(PT) 3/4"
Ø110	79 (3.11)	40 (1.57)	50 (1.97)	70 (2.76)	96 (3.78)	126 (4.96)	40 (1.57)	50 (1.97)	128 (5.04)	80 (3.15)	63 (2.48)	M56xP2.0	25 (0.98)	271 (10.67)	30 (1.18)	20 (0.79)	P.C.D.200 (7.87)	240 (9.45)	120 (4.72)	160 (6.30)	Rc(PT) 3/4"
Ø125	69 (2.72)	30 (1.18)	50 (1.97)	80 (3.15)	100 (3.94)	146 (5.75)	30 (1.18)	60 (2.36)	132 (5.20)	82 (3.23)	72 (2.83)	M64xP2.0	30 (1.18)	286 (11.26)	35 (1.38)	22 (0.87)	P.C.D.220 (8.66)	260 (10.24)	135 (5.31)	185 (7.28)	Rc(PT) 3/4"

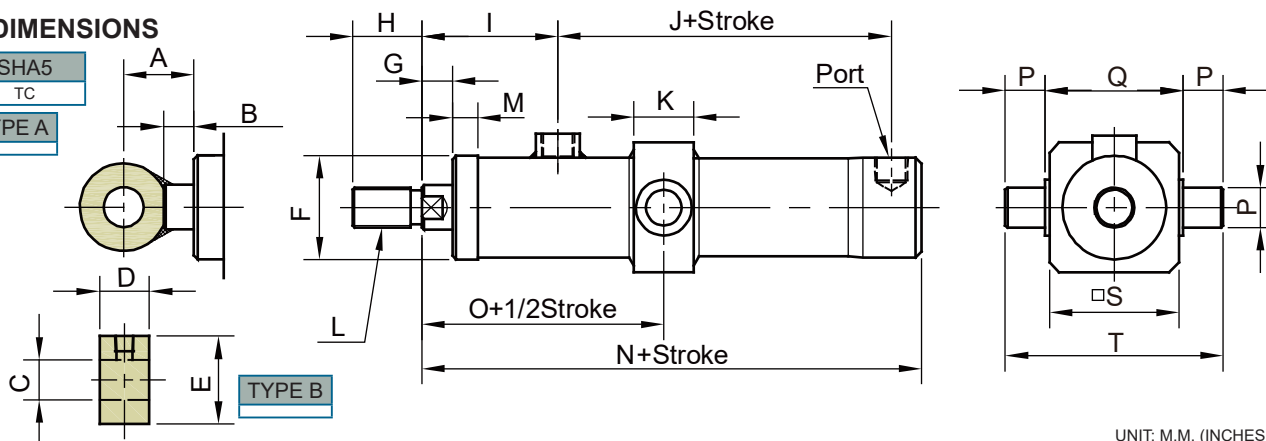


HYDRAULIC ACTUATOR(CYLINDER)

VEHICLE APPLICATION

※DIMENSIONS

SHA5
TC
TYPE A

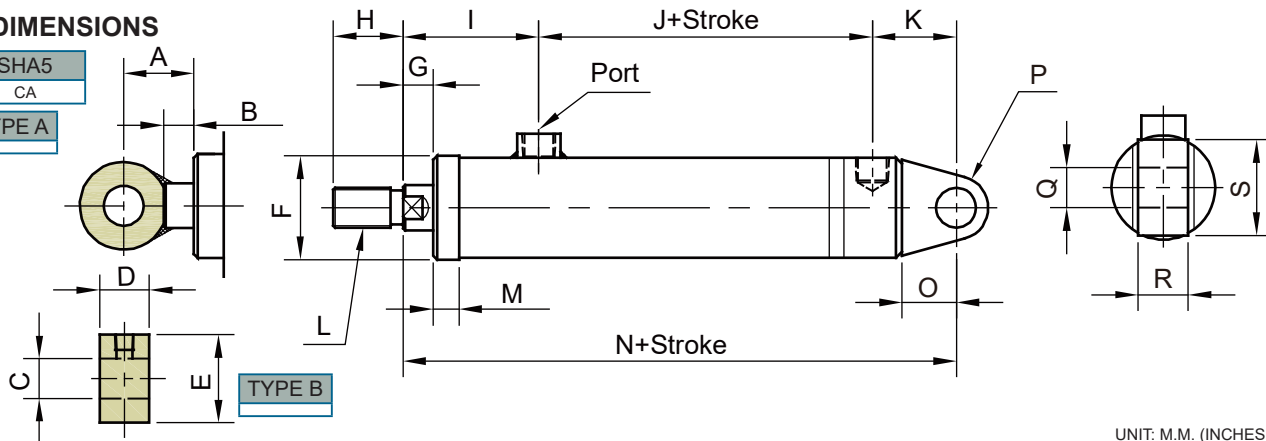


UNIT: M.M. (INCHES)

BORE	A	B	ØC	D	ØE	ØF	G	H	I	J	K	L	M	N	O	ØP	Q	S	T	Port
Ø40	35 (1.38)	15 (0.59)	20 (0.79)	25 (0.98)	44 (1.73)	52 (2.05)	15 (0.59)	35 (1.38)	68 (2.68)	67 (2.64)	30 (1.18)	M20xP1.5	13 (0.51)	150 (5.90)	71 (2.80)	20 (0.79)	69 (2.72)	65 (2.56)	109 (4.29)	Rc(PT) 3/8"
Ø50	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	49 (1.93)	62 (2.44)	15 (0.59)	35 (1.38)	74 (2.91)	61 (2.40)	38 (1.50)	M26xP1.5	14 (0.55)	150 (5.90)	75 (2.95)	25 (0.98)	85 (3.35)	80 (3.15)	135 (5.31)	Rc(PT) 3/8"
Ø60	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	74 (2.91)	20 (0.79)	40 (1.57)	86 (3.39)	72 (2.83)	45 (1.77)	M26xP1.5	17 (0.67)	173 (6.81)	90 (3.54)	31.5 (1.24)	98 (3.86)	94 (3.70)	161 (6.34)	Rc(PT) 3/8"
Ø63	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	76 (2.99)	20 (0.79)	40 (1.57)	87 (3.43)	75 (2.95)	45 (1.77)	M30xP1.5	17 (0.67)	176 (6.93)	90 (3.54)	31.5 (1.24)	98 (3.86)	94 (3.70)	161 (6.34)	Rc(PT) 3/8"
Ø70	48 (1.89)	20 (0.79)	35 (1.38)	45 (1.77)	65 (2.56)	87 (3.43)	20 (0.79)	40 (1.57)	87 (3.43)	80 (3.15)	45 (1.77)	M36xP1.5	17 (0.67)	182 (7.17)	90 (3.54)	31.5 (1.24)	106 (4.17)	101 (3.98)	182 (7.17)	Rc(PT) 3/8"
Ø80	52 (2.05)	20 (0.79)	35 (1.38)	55 (2.17)	69 (2.72)	97 (3.82)	20 (0.79)	45 (1.77)	93 (3.66)	85 (3.35)	45 (1.77)	M39xP1.5	20 (0.79)	195 (7.68)	91.5 (3.60)	31.5 (1.24)	118 (4.65)	110 (4.33)	181 (7.13)	Rc(PT) 1/2"
Ø90	52 (2.05)	20 (0.79)	40 (1.57)	60 (2.36)	78 (3.07)	107 (4.21)	20 (0.79)	45 (1.77)	99 (3.90)	86 (3.39)	50 (1.97)	M44xP1.5	23 (0.91)	202 (7.95)	105 (4.13)	40 (1.57)	135 (5.31)	125 (4.92)	215 (8.46)	Rc(PT) 1/2"
Ø100	68 (2.68)	30 (1.18)	50 (1.97)	60 (2.36)	98 (3.86)	115 (4.53)	30 (1.18)	50 (1.97)	109 (4.29)	109 (4.29)	57 (2.24)	M48xP1.5	21 (0.91)	243 (9.57)	116 (4.56)	40 (1.57)	145 (5.71)	138 (5.43)	225 (8.86)	Rc(PT) 3/4"
Ø110	79 (3.11)	40 (1.57)	50 (1.97)	70 (2.76)	96 (3.78)	126 (4.96)	40 (1.57)	50 (1.97)	128 (5.04)	109 (4.29)	57 (2.24)	M56xP2.0	25 (0.98)	262 (10.31)	135 (5.31)	40 (1.57)	155 (6.10)	148 (5.83)	235 (9.25)	Rc(PT) 3/4"
Ø125	69 (2.72)	30 (1.18)	50 (1.97)	80 (3.15)	100 (3.94)	146 (5.75)	30 (1.18)	60 (2.36)	132 (5.20)	116 (4.57)	60 (2.36)	M64xP2.0	30 (1.18)	273 (10.75)	140 (5.51)	50 (1.97)	175 (6.89)	168 (6.61)	175 (6.89)	Rc(PT) 3/4"

※DIMENSIONS

SHA5
CA
TYPE A



UNIT: M.M. (INCHES)

BORE	A	B	ØC	D	ØE	ØF	G	H	I	J	K	L	M	N	O	P	ØQ	R	S	Port
Ø40	35 (1.38)	15 (0.59)	20 (0.79)	25 (0.98)	44 (1.73)	52 (2.05)	15 (0.59)	35 (1.38)	68 (2.68)	67 (2.64)	42 (1.65)	M20xP1.5	13 (0.51)	177 (6.97)	27 (1.06)	R16 (0.63)	20 (0.79)	25 (0.98)	48 (1.89)	Rc(PT) 3/8"
Ø50	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	49 (1.93)	62 (2.44)	15 (0.59)	35 (1.38)	74 (2.91)	61 (2.40)	47 (1.85)	M26xP1.5	14 (0.55)	190 (7.48)	32 (1.26)	R20 (0.79)	20 (0.79)	31.5 (1.24)	58 (2.28)	Rc(PT) 3/8"
Ø60	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	74 (2.91)	20 (0.79)	40 (1.57)	86 (3.39)	72 (2.83)	63 (2.48)	M26xP1.5	17 (0.67)	221 (8.70)	48 (1.89)	R31.5 (1.24)	30 (1.18)	40 (1.57)	77 (3.03)	Rc(PT) 3/8"
Ø63	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	76 (2.99)	20 (0.79)	40 (1.57)	87 (3.43)	75 (2.95)	63 (2.48)	M30xP1.5	17 (0.67)	224 (8.81)	48 (1.89)	R31.5 (1.24)	30 (1.18)	40 (1.57)	77 (3.03)	Rc(PT) 3/8"
Ø70	48 (1.89)	20 (0.79)	35 (1.38)	45 (1.77)	65 (2.56)	87 (3.43)	20 (0.79)	40 (1.57)	87 (3.43)	80 (3.15)	60 (2.36)	M36xP1.5	17 (0.67)	232 (9.13)	50 (1.97)	R31.5 (1.24)	35 (1.38)	40 (1.57)	84 (3.31)	Rc(PT) 3/8"
Ø80	52 (2.05)	20 (0.79)	35 (1.38)	55 (2.17)	69 (2.72)	97 (3.82)	20 (0.79)	45 (1.77)	93 (3.66)	85 (3.35)	60 (2.36)	M39xP1.5	20 (0.79)	249 (9.80)	54 (2.13)	R31.5 (1.24)	35 (1.38)	40 (1.57)	84 (3.31)	Rc(PT) 1/2"
Ø90	52 (2.05)	20 (0.79)	40 (1.57)	60 (2.36)	78 (3.07)	107 (4.21)	20 (0.79)	45 (1.77)	99 (3.90)	86 (3.39)	60 (2.36)	M44xP1.5	23 (0.91)	264 (10.39)	62 (2.44)	R40 (1.57)	40 (1.57)	45 (1.77)	100 (3.94)	Rc(PT) 1/2"
Ø100	68 (2.68)	30 (1.18)	50 (1.97)	60 (2.36)	98 (3.86)	115 (4.53)	30 (1.18)	50 (1.97)	109 (4.29)	109 (4.29)	60 (2.36)	M48xP1.5	21 (0.91)	307 (12.09)	64 (2.52)	R40 (1.57)	40 (1.57)	50 (1.97)	108 (4.25)	Rc(PT) 3/4"
Ø110	79 (3.11)	40 (1.57)	50 (1.97)	70 (2.76)	96 (3.78)	126 (4.96)	40 (1.57)	50 (1.97)	128 (5.04)	109 (4.29)	60 (2.36)	M56xP2.0	25 (0.98)	326 (12.83)	64 (2.52)	R40 (1.57)	40 (1.57)	50 (1.97)	108 (4.25)	Rc(PT) 3/4"
Ø125	69 (2.72)	30 (1.18)	50 (1.97)	80 (3.15)	100 (3.94)	146 (5.75)	30 (1.18)	60 (2.36)	132 (5.20)	116 (4.57)	60 (2.36)	M64xP2.0	30 (1.18)	349 (13.74)	76 (2.99)	50 (1.97)	50 (1.97)	63 (2.48)	135 (5.31)	Rc(PT) 3/4"

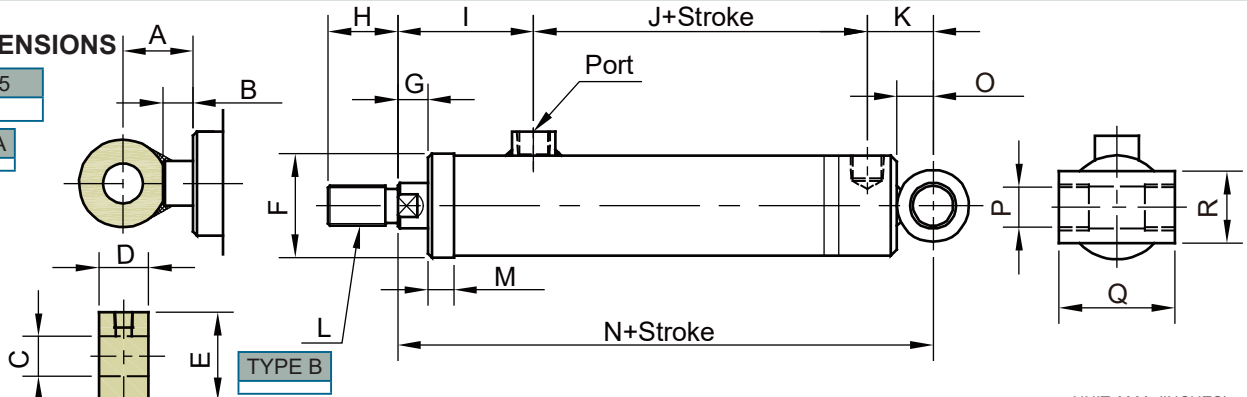


HYDRAULIC ACTUATOR(CYLINDER)

VEHICLE APPLICATION

※DIMENSIONS

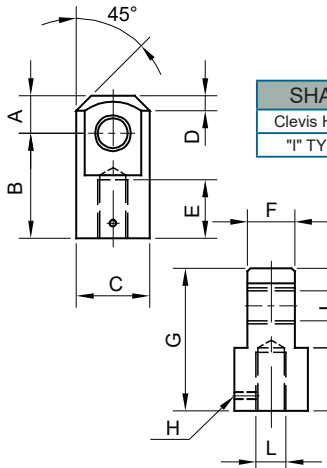
SHA5
CA
TYPE A



UNIT: M.M. (INCHES)

BORE	A	B	ØC	D	ØE	ØF	G	H	I	J	K	L	M	N	O	ØP	Q	ØR	Port
Ø40	35 (1.38)	15 (0.59)	20 (0.79)	25 (0.98)	44 (1.73)	52 (2.05)	15 (0.59)	35 (1.38)	68 (2.68)	67 (2.64)	33 (1.30)	M20xP1.5	13 (0.51)	168 (6.61)	18 (0.71)	20 (0.79)	58 (2.28)	36 (1.42)	Rc(PT) 3/8"
Ø50	36.5 (1.44)	15 (0.59)	25 (0.98)	35 (1.38)	49 (1.93)	62 (2.44)	15 (0.59)	35 (1.38)	74 (2.91)	61 (2.40)	34 (1.34)	M26xP1.5	14 (0.55)	177 (6.97)	19 (0.75)	20 (0.79)	68 (2.68)	38 (1.50)	Rc(PT) 3/8"
Ø60	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	74 (2.91)	20 (0.79)	40 (1.57)	86 (3.39)	72 (2.83)	38 (1.50)	M26xP1.5	17 (0.67)	196 (7.72)	23 (0.91)	30 (1.18)	85 (3.35)	46 (1.81)	Rc(PT) 3/8"
Ø63	47 (1.85)	20 (0.79)	30 (1.18)	40 (1.57)	60 (2.36)	76 (2.99)	20 (0.79)	40 (1.57)	87 (3.43)	75 (2.95)	36 (1.42)	M30xP1.5	17 (0.67)	197 (7.76)	21 (0.83)	30 (1.18)	85 (3.35)	46 (1.81)	Rc(PT) 3/8"
Ø70	48 (1.89)	20 (0.79)	35 (1.38)	45 (1.77)	65 (2.56)	87 (3.43)	20 (0.79)	40 (1.57)	87 (3.43)	80 (3.15)	43 (1.69)	M36xP1.5	17 (0.67)	210 (8.27)	28 (1.10)	35 (1.38)	95 (3.74)	56 (2.20)	Rc(PT) 3/8"
Ø80	52 (2.05)	20 (0.79)	35 (1.38)	55 (2.17)	69 (2.72)	97 (3.82)	20 (0.79)	45 (1.77)	93 (3.66)	85 (3.35)	47 (1.85)	M39xP1.5	20 (0.79)	225 (8.86)	30 (1.18)	35 (1.38)	105 (4.13)	60 (2.36)	Rc(PT) 1/2"
Ø90	52 (2.05)	20 (0.79)	40 (1.57)	60 (2.36)	78 (3.07)	107 (4.21)	20 (0.79)	45 (1.77)	99 (3.90)	86 (3.39)	52 (2.05)	M44xP1.5	23 (0.91)	237 (9.33)	35 (1.38)	40 (1.57)	115 (4.53)	70 (2.76)	Rc(PT) 1/2"
Ø100	68 (2.68)	30 (1.18)	50 (1.97)	60 (2.36)	98 (3.86)	115 (4.53)	30 (1.18)	50 (1.97)	109 (4.29)	109 (4.29)	62 (2.44)	M48xP1.5	21 (0.91)	280 (11.02)	37 (1.46)	40 (1.57)	130 (5.12)	80 (3.15)	Rc(PT) 3/4"
Ø110	79 (3.11)	40 (1.57)	50 (1.97)	70 (2.76)	96 (3.78)	126 (4.96)	40 (1.57)	50 (1.97)	128 (5.04)	109 (4.29)	63 (2.48)	M56xP2.0	25 (0.98)	300 (11.81)	38 (1.50)	40 (1.57)	130 (5.12)	80 (3.15)	Rc(PT) 3/4"
Ø125	69 (2.72)	30 (1.18)	50 (1.97)	80 (3.15)	100 (3.94)	146 (5.75)	30 (1.18)	60 (2.36)	132 (5.20)	116 (4.57)	70 (2.76)	M64xP2.0	30 (1.18)	318 (12.52)	45 (1.77)	50 (1.97)	150 (5.91)	90 (3.54)	Rc(PT) 3/4"

※DIMENSIONS

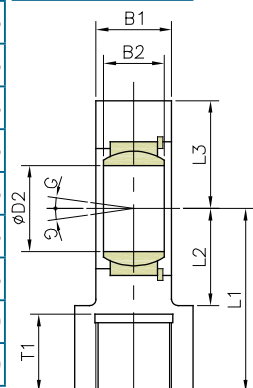


SHA5
Clevis Head
"I" TYPE

BORE	A	B	ØC	D	E	F	G	H	ØI	J	K	L
Ø40	25 (0.98)	70 (2.76)	49 (1.93)	10 (0.39)	39 (1.54)	31.5 (1.24)	95 (3.74)	M6	20 (0.79)	53 (2.09)	42 (1.65)	M20xP1.5
Ø50	35 (1.38)	115 (4.53)	62 (2.44)	15 (0.59)	50 (1.97)	40 (1.57)	150 (5.91)	M6	30 (1.18)	78 (3.08)	72 (2.83)	M26xP1.5
Ø60	35 (1.38)	115 (4.53)	62 (2.44)	15 (0.59)	50 (1.97)	40 (1.57)	150 (5.91)	M6	30 (1.18)	78 (3.08)	72 (2.83)	M26xP1.5
Ø63	35 (1.38)	115 (4.53)	62 (2.44)	15 (0.59)	50 (1.97)	40 (1.57)	150 (5.91)	M6	30 (1.18)	78 (3.08)	72 (2.83)	M26xP1.5
Ø70	35 (1.38)	115 (4.53)	62 (2.44)	15 (0.59)	50 (1.97)	40 (1.57)	150 (5.91)	M6	30 (1.18)	78 (3.08)	72 (2.83)	M36xP1.5
Ø80	35 (1.38)	115 (4.53)	62 (2.44)	15 (0.59)	50 (1.97)	40 (1.57)	150 (5.91)	M6	30 (1.18)	78 (3.08)	72 (2.83)	M39xP1.5
Ø90	40 (1.57)	145 (5.71)	79 (3.11)	20 (0.79)	65 (2.56)	50 (1.97)	185 (7.28)	M8	40 (1.57)	95 (3.74)	90 (3.54)	M44xP1.5
Ø100	40 (1.57)	145 (5.71)	79 (3.11)	20 (0.79)	65 (2.56)	50 (1.97)	185 (7.28)	M8	40 (1.57)	95 (3.74)	90 (3.54)	M48xP1.5
Ø110	50 (1.97)	180 (7.09)	100 (3.94)	25 (0.98)	80 (3.15)	63 (2.48)	230 (9.06)	---	50 (1.97)	115 (4.53)	115 (4.53)	M56xP2.0
Ø125	50 (1.97)	180 (7.09)	100 (3.94)	25 (0.98)	80 (3.15)	63 (2.48)	230 (9.06)	---	50 (1.97)	115 (4.53)	115 (4.53)	M64xP2.0

SHA5
Clevis Head

Spherical Rod End Type
"BAI"



BORE	B1		B2	B3	D1	ØD2		L1	L2	L3	L4	R	T1	G	Weight
Ø40	19	0	16	25	M16x1.5	20	0	50	25	30	48	28	17	9°	0.43
	(0.75)	-0.12	(0.63)	(0.98)		(0.79)	-0.01	(1.97)	(0.98)	(1.18)	(1.89)	(1.10)	(0.67)		
Ø50	23	0	20	28	M16x1.5	25	0	50	25	30	48	28	17	7°	0.48
	(0.91)	-0.12	(0.79)	(1.10)		(0.98)	-0.01	(1.97)	(0.98)	(1.18)	(1.89)	(1.10)	(0.67)		
Ø60	28	0	22	34	M22x1.5	30	0	60	30	34	54	32	23	6°	0.74
	(1.10)	-0.12	(0.87)	(1.34)		(1.18)	-0.01	(2.36)	(1.18)	(1.34)	(2.13)	(1.26)	(0.91)		
Ø63	28	0	22	34	M22x1.5	30	0	60	30	34	54	32	23	6°	0.74
	(1.10)	-0.12	(0.87)	(1.34)		(1.18)	-0.01	(2.36)	(1.18)	(1.34)	(2.13)	(1.26)	(0.91)		
Ø70	30	0	25	44	M28x1.5	35	0	70	38	42	66	39	29	6°	1.2
	(1.18)	-0.12	(0.98)	(1.73)		(1.38)	-0.012	(2.76)	(1.50)	(1.65)	(2.60)	(1.54)	(1.14)		
Ø80	30	0	25	44	M28x1.5	35	0	70	38	42	66	39	29	6°	1.2
	(1.18)	-0.12	(0.98)	(1.73)		(1.38)	-0.012	(2.76)	(1.50)	(1.65)	(2.60)	(1.54)	(1.14)		
Ø90	35	0	28	55	M35x1.5	40	0	85	45	50	78	47	36	7°	2.0
	(1.18)	-0.12	(1.10)	(2.17)		(1.57)	-0.012	(3.35)	(1.77)	(1.97)	(3.07)	(1.85)	(1.42)		
Ø100	40	0	35	70	M45x1.5	50	0	105	55	58	90	58	46	6°	3.8
	(1.57)	-0.12	(1.18)	(2.76)		(1.97)	-0.015	(4.13)	(2.17)	(2.28)	(3.54)	(2.28)	(1.81)		
Ø110	40	0	35	70	M45x1.5	50	0	105	55	58	90	58	46	6°	3.8
	(1.57)	-0.12	(1.18)	(2.76)		(1.97)	-0.015	(4.13)	(2.17)	(2.28)	(3.54)	(2.28)	(1.81)		
Ø125	50	0	44	87	M58x1.5	60	0	130	65	70	118	65	59	6°	5.4
	(1.97)	-0.15	(1.73)	(3.43)		(2.36)	-0.015	(5.12)	(2.56)	(2.76)	(4.65)	(2.56)	(2.32)		



HYDRAULIC ACTUATOR(CYLINDER)

VEHICLE APPLICATION

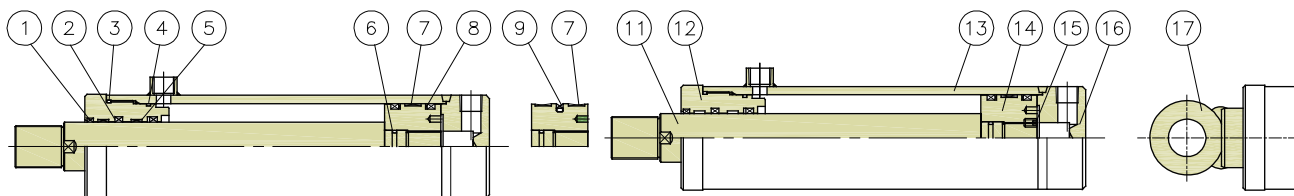
SOLTECH

※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

Bore	Parameter	FA		FB		FD		TC		CA		CD	
		TYPE A	TYPE B	TYPE A	TYPE B	TYPE A	TYPE B	TYPE A	TYPE B	TYPE A	TYPE B	TYPE A	TYPE B
Ø40	W1 (Kg)	3.2	3.5	3.1	3.4	2.9	3.2	2.8	3.1	2.5	2.8	2.5	2.8
	W2 (kg/100mm)	0.9											
Ø50	W1 (Kg)	5.0	5.3	5.3	5.6	4.7	5.0	5.0	5.3	4.5	4.8	4.4	4.7
	W2 (kg/100mm)	1.3											
Ø60	W1 (Kg)	7.5	8.0	7.0	7.5	7.4	7.9	7.5	8.0	6.6	7.1	5.9	6.4
	W2 (kg/100mm)	1.5											
Ø63	W1 (Kg)	8.3	8.8	8.2	8.7	7.7	8.2	8.1	8.6	7.4	7.9	6.7	7.2
	W2 (kg/100mm)	1.9											
Ø70	W1 (Kg)	10.7	11.1	10.7	11.1	9.9	10.3	9.9	10.3	9.6	10.0	8.9	9.3
	W2 (kg/100mm)	2.5											
Ø80	W1 (Kg)	15.0	15.7	14.4	15.1	13.8	14.5	13.2	13.9	12.9	13.6	12.5	13.2
	W2 (kg/100mm)	2.8											
Ø90	W1 (Kg)	21.0	22.1	20.8	21.9	20.4	21.5	20.3	21.4	20.0	21.1	19.4	20.5
	W2 (kg/100mm)	3.3											
Ø100	W1 (Kg)	26.7	27.9	25.8	27.0	23.5	24.7	24.4	25.6	23.1	24.3	23.0	24.2
	W2 (kg/100mm)	4.5											
Ø110	W1 (Kg)	32.2	34.1	32.8	34.7	30.4	32.3	29.5	31.4	27.9	29.8	27.7	29.6
	W2 (kg/100mm)	5.6											
Ø125	W1 (Kg)	42.3	44.4	42.3	44.4	40.1	42.2	39.1	41.2	38.1	40.2	37.0	39.1
	W2 (kg/100mm)	6.3											

Example: FA, ST=200mm, TYPE A
 Weight = W1 + (W2 x Stroke)
 = 3.2+ (0.9 x 2)
 = 5.0 Kg

※MATERIAL LIST



No.	1	2	3	4	5	6	7	8	9
Name	Dust Seal	Rod Seal	O-Ring	O-Ring	Wear Ring	O-Ring	Wear Ring	Piston Seal	Piston Seal for "T" Type
Material	PU	PU	NBR	NBR	PTFE	NBR	PTFE	PU	PTFE+NBR
Quantity	1	1	1	1	2	1	1	2	1
Bore Ø, w (mm)									
Ø40	22.4-30.4-6	22.4-30-5	G-40	G-35	22.4-2.5	P12	40-2.5	40-30-6	40-29-4.2
Ø50	---	---	---	G-45	---	P16	50-2.5	50-40-6	50-39-4.2
Ø60	30-38-6.5	40-40-6	G-60	G-55	30-2.5	P18	60-2.5	60-49-4.2	
Ø63	---	---	---	G-58	---	P18	63-2.5	63-53-6	63-52-4.2
Ø70	40-48-6.5	40-50-6	G-70	G-65	40-2.5	P22	70-2.5	70-60-6	70-59-4.2
Ø80	---	---	---	G-75	---	G-25	80-2.5	80-70-6	80-64.5-6.3
Ø90	50-58-6.5	50-60-6	G-90	G-85	50-2.5	G-30	90-2.5	90-80-6	90-74.5-6.3
Ø100	55-63-6.5	55-65-6	G-100	G-95	55-2.5	G-35	100-2.5	100-85-9	100-84.5-6.3
Ø110	65-73-6.5	65-75-6	G-110	G-105	65-2.5	G-45	110-2.5	110-95-9	110-94.5-6.3
Ø125	70-80-8	70-80-6	G-125	G-120	70-2.5	G-45	125-2.5	125-112-9	125-109.5-6.3

NO	Description	Material	Q'ty
11	Piston Rod	Carbon Steel for Mechanical Structure	1
12	Head	Rolled Steel for General Structure	1
13	Cover	Rolled Steel for General Structure	1
14	Actuator Tube	Carbon Steel for Mechanical Structure	1

NO	Description	Material	Q'ty
15	Set Screws	Carbon Steel for Mechanical Structure	1
16	Actuator Cap	Rolled Steel for General Structure	1
17	Celvis Head	Rolled Steel for General Structure	1



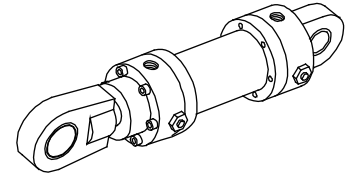
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

[SHA6]

The SHA3 are designed according to ISO specifications and specially applied in steel mill plant and designed which meet strictly environmental condition application, heavy load and anit impulse burst pressure etc. Those are emphasised on processing precision surface treatment & oil sealer's material and for which high performance.



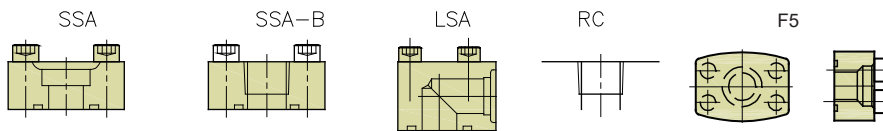
※MODEL NUMBER DESIGNATION

SHA6-	140-	LA-	80-	B-	100-	N-	(B	A	D)-	SSA-	K-
I	II	III	IV	V	VI	VII	VIII	IX	X	X I	X II
I . Series: SHA6						VIII. Port Position:		} See below "PORT & AIR VENT POSITIONS"			
II . Operating Pressure:(Bar) 140: 70 Bar 210: 210 Bar						IX. Cushioning Valve Position:					
III . Mounting Type: Please Refer to Below Table						X . Air Vent Position:					
IV. Actuator(Cylinder) Bore Size: (M.M.) 80: Ø80 140: Ø140 200: Ø200 280: Ø280 100: Ø100 160: Ø160 220: Ø220 300: Ø300 125: Ø125 180: Ø180 250: Ø250 320: Ø320						X I . Port FlangeType SSA, SSA-B, LSA, RC, F5		} See below "PORT & AIR VENT POSITIONS"			
V. Rod Type: A, B						X II . Optional Attachment F: With Dust-Protective Cover L: Plain Rod End Adapter M: Spherical Rod End Adapter-D0, L0 K: With Locking Nut E: Rod end with other threading.					
VI. Stroke: (M.M.) Must less than Max. Permissible Stroke						The code can be used together, ex. KL- With Locking Nut and "I" Type Adapter					
VII. Location of Cushioning: B: The head and cap with cushioning N: No Cushioning R: The head with cushioning H: The cap with cushioning											

※MOUNTING TYPE

Symbol	Description	Configuration	Symbol	Description	Configuration
FA	Rectangular Flange at Actuator Head		FB	Rectangular Flange at Actuator Cap	
LA	Foot Mounting		TC	Centre Turnnion Mounting	
CA	Plain Clevis at Actuator Cap		Besides TC mounting type, if the stroke is less than 100 (please refer to the following talbe), all must use intensified screw bolt.		
				Bore (m.m.)	50~80 100~150 140~200 224~250
				Stroke (m.m.)	< 100 < 150 < 200 < 250

※PORT FLANGE KITE

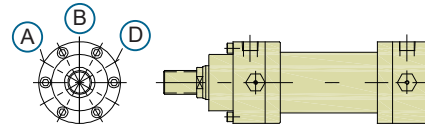


※TOLERANCE OF STROKE

Stroke (m.m.)	~100	100~250	250~630	630~1000	1000~1600	1600~2000	2000~2500	2500~3000
Tolerance (m.m.)	+0.8	+1.0	+1.25	+1.4	+1.6	+1.8	+2.0	+2.5

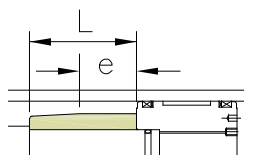
※PORT & AIR VENT POSITIONS

- ▶ Those are divided into cap screwed & cap welded which against the cylinder and cap assembled but those will be welded for cap no cushioning.
- ▶ As for the related position refer to port cushioning (A) & air vent (D) etc., position which can be specified by cylinder head formed angle as fig shown if those are no specified which means standard.



※CUSHIONING

Because the cushioning ring is processed be special throttle processing so that there are being with moved slowly & smoothly effectiveness if those stopped ar from end about 3 mm, and will be formed illness since if need longer cushioning ring(L), please contact SOLTECH.



Bore	50, 63		80, 100		125		140		160		180		200		224, 250	
Rod Dia.	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Head	L	---	35	40	45	50	50	55	65	75	15	10	15	10	15	10
e	---	15	15	10	15	10	15	10	15	10	15	10	15	10	15	10
Cap	L	30	35	35	35	35	40	40	40	55	10	10	10	10	10	10
e	---	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

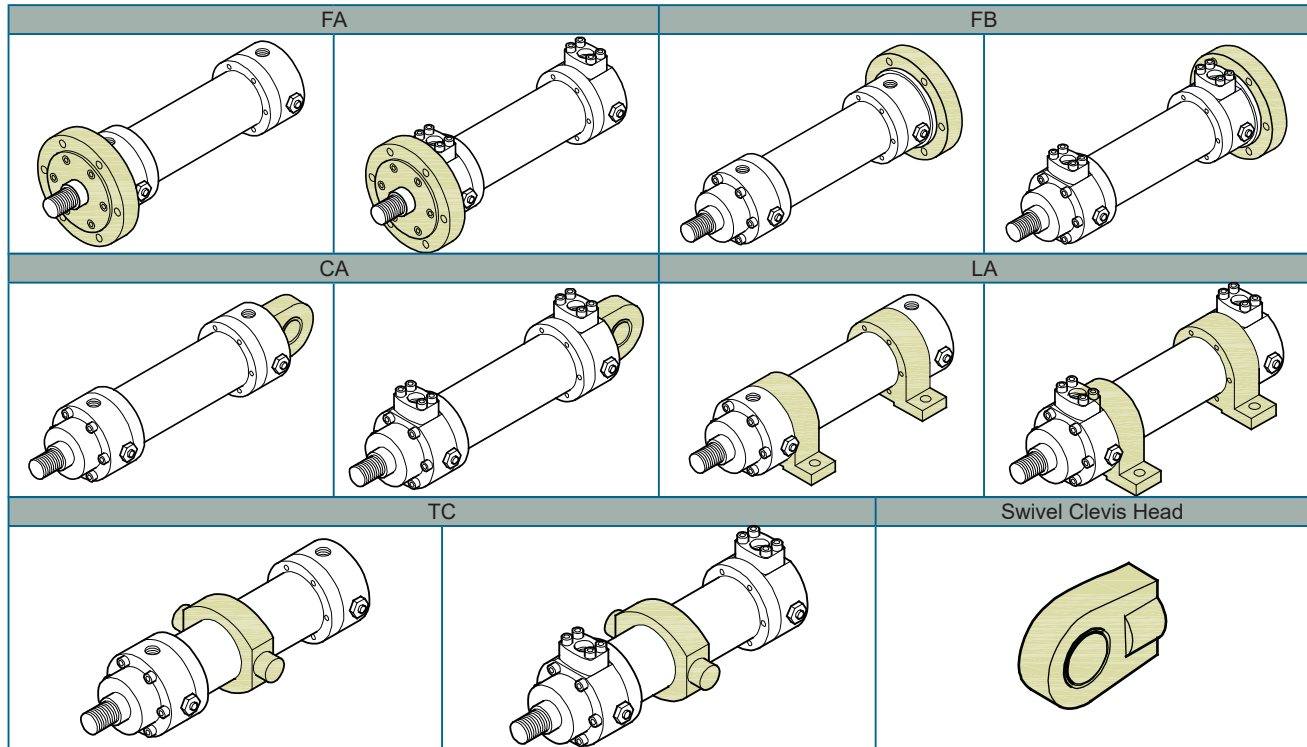


SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

※SCHEMATICS



※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
80	---	Extend	50.3	3517	5275	7034	10550	33	3.0
	A=56	Retract	25.6	1794	2690	3587	5376	65	1.5
	B=45		34.3	2404	3606	4808	7203	49	2.1
100	---	Extend	78.5	5495	8243	10990	16485	21	4.7
	A=35.5	Retract	40.0	2800	4200	5600	8400	41	2.4
	B=45		53.9	3772	5658	7544	11319	31	3.2
125	---	Extend	122.7	8586	12879	17172	25767	14	7.4
	A=45	Retract	59.1	4135	6202	8270	12411	28	3.5
	B=56		84.3	5901	8852	11802	17703	20	5.1
140	---	Extend	153.9	10770	16155	21540	32319	11	9.2
	A=56	Retract	75.4	5275	7913	10550	15834	22	4.5
	B=71		90.3	6321	9482	12642	18963	18	5.4
160	---	Extend	201.0	14067	21101	28134	42210	8	12.1
	A=71	Retract	106.0	7420	11130	14840	22260	16	6.4
	B=90		122.5	8575	12863	17150	25725	14	7.4
180	---	Extend	254.3	17804	26706	35608	53403	6.6	15.3
	A=80	Retract	131.7	9218	13826	18436	27657	13	7.9
	B=100		159.3	11151	16727	22302	33453	10	9.6
200	---	Extend	314	21980	32970	43960	65940	5.3	18.8
	A=90	Retract	160.1	11210	16815	22420	33621	10	9.6
	B=112		191.3	13391	20087	26762	40173	8.7	11.5
220	---	Extend	379.4	26558	39837	53116	79674	4.3	22.8
	A=100	Retract	178.4	12495	18743	24990	37465	9.3	10.7
	B=125		225.5	15785	23677	31570	47355	7.4	13.5
250	---	Extend	490.6	34344	51516	68688	103026	3.4	29.4
	A=112	Retract	236.3	16540	24810	33080	49623	7.0	14.2
	B=140		289.6	20275	30412	40549	60824	5.8	17.4
280	---	Extend	615.4	43078	64617	86156	129234	2.7	36.9
	A=125	Retract	301.4	21098	31647	42196	63294	5.5	18.1
	B=160		361.0	25270	37905	50540	75810	4.6	21.7
300	---	Extend	706.5	49455	74182	98910	148365	2.4	42.4
	A=140	Retract	392.5	27475	41212	54950	82425	4.2	24.6
	B=180		452.2	31654	47481	63308	94962	3.7	27.1
320	---	Extend	803.8	56266	84399	112532	168798	2.1	48.2
	A=220	Retract	423.9	29673	45095	59346	89019	3.9	25.4
	B=200		489.8	34286	51429	68572	102858	3.4	29.4



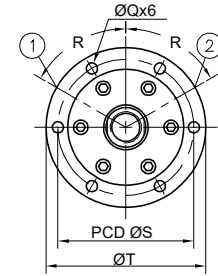
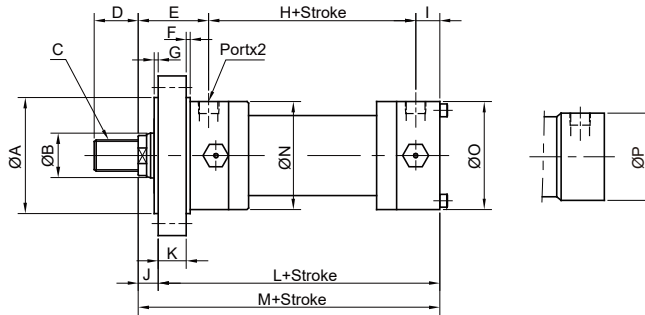
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

DIMENSIONS

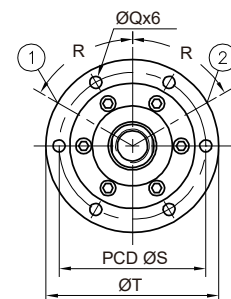
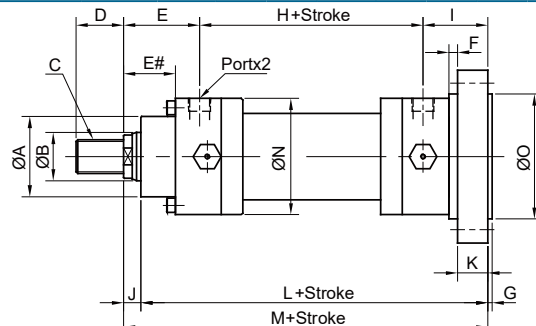
SHA6
FA



UNIT: M.M. (INCHES)

BORE	A	B	C	D	E	F	G	H	I	J	K	L	M	N, O	P	Q	R	S	T	Port	
Ø80	TYPE A	145	45(1.77)	M39xP3.0	55(2.17)	88	5	5	159	30	25	35	252	277	135	109	14	60°	170	200	3/4"
	TYPE B	(5.71)	56(2.20)	M35xP1.5	35(1.38)	(3.46)	(0.20)	(0.20)	(6.26)	(1.18)	(0.98)	(1.38)	(9.92)	(10.91)	(5.31)	(4.29)	(0.55)		(6.69)	(7.87)	
Ø100	TYPE A	175	56(2.20)	M50xP3.0	75(2.95)	115	5	5	180	30	35	45	290	325	165	130	18	54°	205	245	1"
	TYPE B	(6.89)	70(2.76)	M45xP1.5	45(1.77)	(4.53)	(0.20)	(0.20)	(7.09)	(1.18)	(1.38)	(1.77)	(11.42)	(12.80)	(6.50)	(5.12)	(0.71)		(8.07)	(9.65)	
Ø125	TYPE A	210	70(2.76)	M64xP3.0	95(3.74)	130	10	5	215	32	37	50	340	377	200	158	22	45°	245	295	1-1/4"
	TYPE B	(8.27)	90(3.54)	M58xP1.5	58(2.28)	(5.12)	(0.39)	(0.20)	(8.46)	(1.26)	(1.46)	(1.97)	(13.39)	(14.84)	(7.87)	(6.22)	(0.87)		(9.65)	(11.61)	
Ø140	TYPE A	230	90(3.54)	M80xP3.0	110(4.33)	142	10	10	238	35	45	50	370	415	220	176	22	36°	265	315	1-1/4"
	TYPE B	(9.06)	100(3.94)	M65xP1.5	65(2.56)	(5.59)	(0.39)	(0.39)	(9.37)	(1.38)	(1.77)	(1.97)	(14.57)	(16.34)	(8.66)	(6.93)	(0.87)		(10.43)	(12.40)	
Ø160	TYPE A	275	100(3.94)	M90xP3.0	120(4.72)	160	10	10	265	40	50	60	415	465	265	205	28	54°	325	385	1-1/2"
	TYPE B	(10.83)	110(4.33)	M80xP2.0	80(3.15)	(6.30)	(0.39)	(0.39)	(10.43)	(1.57)	(1.97)	(2.36)	(16.33)	(18.31)	(10.43)	(8.07)	(1.10)		(12.80)	(15.16)	
Ø180	TYPE A	300	110(4.33)	M100xP3.0	140(5.51)	175	10	10	295	40	50	70	460	510	290	226	30	45°	360	420	1-1/2"
	TYPE B	(11.81)	125(4.92)	M100xP2.0	100(3.94)	(6.89)	(0.39)	(0.39)	(11.61)	(1.57)	(1.97)	(2.76)	(18.11)	(20.08)	(11.42)	(8.90)	(1.18)		(14.17)	(16.53)	
Ø200	TYPE A	320	125(4.92)	M110xP4.0	150(5.91)	185	10	10	300	45	50	75	480	530	315	252	33	45°	375	445	1-1/2"
	TYPE B	(12.60)	140(5.51)	M110xP2.0	110(4.33)	(7.28)	(0.39)	(0.39)	(11.81)	(1.77)	(1.97)	(2.95)	(18.90)	(20.87)	(12.40)	(9.92)	(1.30)		(14.76)	(17.51)	
Ø220	TYPE A	370	140(5.51)	M120xP4.0	160(6.30)	220	10	10	313	62	60	80	535	595	355	275	33	45°	430	490	1-1/2"
	TYPE B	(14.57)	160(6.30)	M120xP3.0	120(4.72)	(8.66)	(0.39)	(0.39)	(12.32)	(2.44)	(2.36)	(3.15)	(21.06)	(23.43)	(13.98)	(10.83)	(1.30)		(16.93)	(19.29)	
Ø250	TYPE A	415	160(6.30)	M120xP4.0	160(6.30)	230	10	10	330	65	70	85	555	625	395	308	40	45°	485	555	1-1/2"
	TYPE B	(16.33)	180(7.09)	M120xP3.0	120(4.72)	(9.06)	(0.39)	(0.39)	(12.99)	(2.56)	(2.76)	(3.35)	(21.85)	(24.61)	(15.55)	(12.13)	(1.97)		(19.09)	(21.85)	
Ø280	TYPE A	450	180(7.09)	M150xP4.0	190(7.48)	270	10	10	360	90	65	95	655	720	420	342	40	33.75°	520	590	1-1/2"
	TYPE B	(17.72)	200(7.87)	M130xP3.0	130(5.12)	(10.63)	(0.39)	(0.39)	(14.17)	(3.54)	(2.56)	(3.74)	(25.79)	(28.35)	(16.54)	(13.46)	(1.58)		(20.47)	(23.23)	
Ø300	TYPE A	470	180(7.09)	M150xP4.0	190(7.48)	270	10	10	360	90	65	95	655	720	440	362	40	33.75°	540	610	1-1/2"
	TYPE B	(18.50)	200(7.87)	M130xP3.0	130(5.12)	(10.63)	(0.39)	(0.39)	(14.17)	(3.54)	(2.56)	(3.74)	(25.79)	(28.35)	(17.32)	(14.25)	(1.58)		(21.26)	(24.02)	
Ø320	TYPE A	510	200(7.87)	M160xP4.0	200(7.87)	295	10	10	370	95	65	120	695	760	490	394	45	33.75°	600	680	1-1/2"
	TYPE B	(20.08)	220(8.66)	M160xP3.0	150(5.91)	(11.61)	(0.39)	(0.39)	(14.57)	(3.74)	(2.56)	(5.12)	(27.36)	(29.92)	(19.29)	(15.51)	(1.77)		(23.62)	(26.77)	

SHA6
FB



UNIT: M.M. (INCHES)

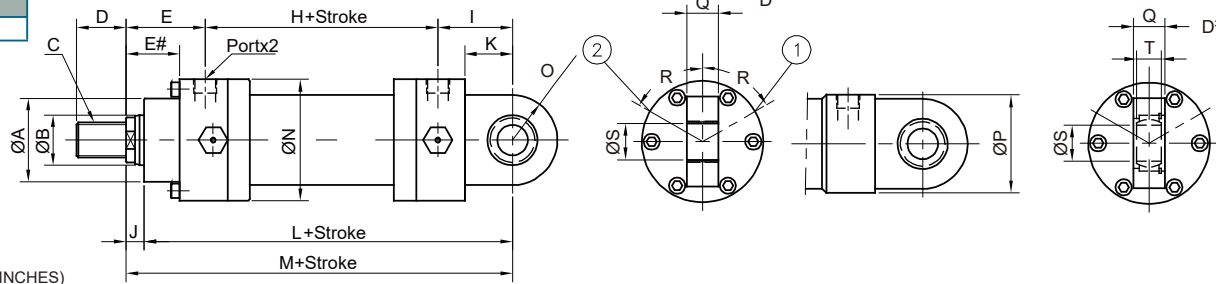
BORE	A	B	C	D	E	E#	F	G	H	I	J	K	L	M	N	O	Q	R	S	T	Port
Ø80	TYPE A 93 (3.66)	45(1.77)	M39xP3.0 M35xP1.5	55(2.17) 35(1.38)	88 (3.46)	60 (2.36)	10 (0.39)	5 (0.20)	159 (6.26)	75 (2.95)	20 (0.79)	35 (1.38)	302 (11.89)	322 (12.68)	135 (5.31)	145 (5.71)	14 (0.55)	60°	170 (6.69)	200 (7.87)	3/4"
Ø100	TYPE A 115 (4.53)	56(2.20)	M50xP3.0 M45xP1.5	75(2.95) 45(1.77)	115 (4.53)	85 (3.35)	10 (0.39)	5 (0.20)	180 (7.09)	85 (3.35)	35 (1.38)	45 (1.77)	345 (13.58)	385 (15.16)	165 (6.50)	175 (6.89)	18 (0.71)	54°	205 (8.07)	245 (9.65)	1"
Ø125	TYPE A 135 (5.31)	70(2.76)	M64xP3.0 M58xP1.5	95(3.74) 58(2.28)	130 (5.12)	97 (3.82)	10 (0.39)	5 (0.20)	215 (8.46)	92 (3.62)	32 (1.26)	50 (1.97)	405 (15.94)	437 (17.20)	200 (7.87)	210 (8.27)	22 (0.87)	45°	245 (9.65)	295 (11.61)	1-1/4"
Ø140	TYPE A 155 (6.10)	90(3.54)	M80xP3.0 M65xP1.5	110(4.33) 65(2.56)	142 (5.59)	97 (3.82)	10 (0.39)	10 (0.39)	238 (9.37)	95 (3.74)	37 (1.46)	50 (1.97)	438 (17.24)	475 (18.70)	220 (8.66)	230 (9.06)	22 (0.87)	36°	265 (10.43)	315 (12.40)	1-1/4"
Ø160	TYPE A 180 (7.09)	100(3.94)	M90xP3.0 M80xP2.0	120(4.72) 80(3.15)	160 (6.30)	120 (4.72)	10 (0.39)	10 (0.39)	265 (10.43)	110 (4.33)	54 (2.13)	60 (2.36)	481 (18.94)	535 (21.06)	265 (10.43)	275 (10.83)	28 (1.10)	54°	325 (12.80)	385 (15.16)	1-1/2"
Ø180	TYPE A 202 (7.95)	110(4.33)	M100xP3.0 M100xP2.0	140(5.51) 100(3.94)	175 (6.89)	120 (4.72)	10 (0.39)	10 (0.39)	295 (11.61)	120 (4.72)	52 (2.05)	70 (2.76)	538 (21.18)	590 (23.23)	290 (11.42)	300 (11.81)	30 (1.18)	45°	360 (14.17)	420 (16.53)	1-1/2"
Ø200	TYPE A 215 (8.46)	125(4.92)	M110xP4.0 M110xP2.0	150(5.91) 110(4.33)	185 (7.28)	125 (4.92)	10 (0.39)	10 (0.39)	300 (11.81)	130 (5.12)	52 (2.05)	75 (2.95)	563 (22.17)	615 (24.21)	315 (12.40)	320 (12.60)	33 (1.30)	45°	375 (14.76)	445 (17.51)	1-1/2"
Ø220	TYPE A 245 (9.65)	140(5.51)	M120xP4.0 M120xP3.0	160(6.30) 120(4.72)	220 (8.66)	140 (5.51)	10 (0.39)	10 (0.39)	313 (12.32)	152 (5.98)	52 (2.05)	80 (3.15)	633 (24.92)	685 (26.97)	355 (13.98)	370 (14.57)	33 (1.30)	45°	430 (16.93)	490 (19.29)	1-1/2"
Ø250	TYPE A 280 (11.02)	160(6.30)	M120xP4.0 M120xP3.0	160(6.30) 120(4.72)	230 (9.06)	155 (6.10)	10 (0.39)	10 (0.39)	330 (12.99)	160 (6.30)	52 (2.05)	85 (3.35)	668 (26.30)	720 (28.35)	395 (15.55)	415 (16.33)	40 (1.57)	45°	485 (19.09)	555 (21.85)	1-1/2"
Ø280	TYPE A 305 (12.00)	180(7.09)	M150xP4.0 M130xP3.0	190(7.48) 130(5.12)	270 (10.63)	160 (6.30)	10 (0.39)	10 (0.39)	360 (14.17)	195 (7.68)	57 (2.24)	95 (3.74)	768 (30.24)	825 (32.48)	420 (16.54)	450 (17.7)	40 (1.58)	33.75°	520 (20.47)	590 (23.23)	1-1/2"
Ø300	TYPE A 315 (12.40)	180(7.09)	M150xP4.0 M130xP3.0	190(7.48) 130(5.12)	270 (10.63)	160 (6.30)	10 (0.39)	10 (0.39)	360 (14.17)	195 (7.68)	57 (2.24)	95 (3.74)	768 (30.24)	825 (32.48)	440 (17.32)	470 (18.50)	40 (1.58)	33.75°	540 (21.26)	610 (24.02)	1-1/2"
Ø320	TYPE A 340 (13.39)	200(7.87)	M160xP4.0 M160xP3.0	200(7.87) 150(5.91)	295 (11.61)	185 (7.28)	10 (0.39)	10 (0.39)	370 (14.57)	225 (8.86)	56 (2.20)	120 (5.12)	834 (32.83)	890 (35.04)	490 (19.29)	510 (20.08)	45 (1.77)	33.75°	600 (23.62)	680 (26.77)	1-1/2"



HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

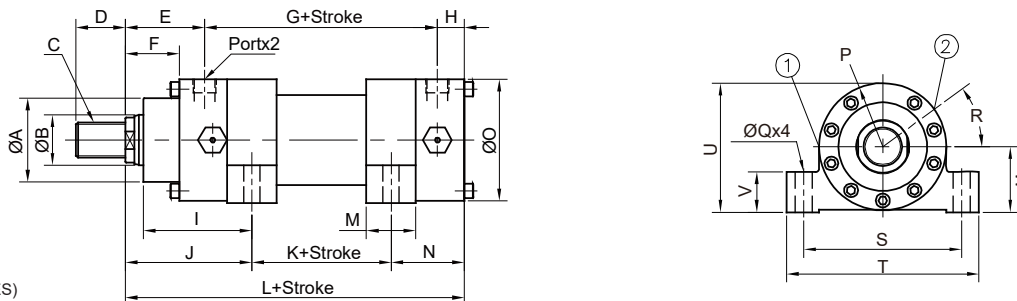
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UNIT: M.M. (INCHES)

BORE	A	B	C	D	E	E#	H	I	J	K	L	M	N	O	P	Q	R	S	T	Port	
Ø80	TYPE A	93	45(1.77)	M39xP3.0	55(2.17)	88	60	159	83	20	53	310	330	135	R50	109	35	60°	40	28	3/4"
	TYPE B	(3.66)	56(2.20)	M35xP1.5	35(1.38)	(3.46)	(2.36)	(6.26)	(3.27)	(0.79)	(2.09)	(12.20)	(12.99)	(5.31)	(1.97)	(4.29)	(1.38)		(1.57)	(1.10)	
Ø100	TYPE A	115	56(2.20)	M50xP3.0	75(2.95)	115	85	180	90	35	60	350	385	165	R62.5	130	40	54°	50	35	1"
	TYPE B	(4.53)	70(2.76)	M45xP1.5	45(1.77)	(4.53)	(3.35)	(7.09)	(3.54)	(1.38)	(2.36)	(13.78)	(15.16)	(6.50)	(1.46)	(5.12)	(1.57)		(1.97)	(1.38)	
Ø125	TYPE A	135	70(2.76)	M64xP3.0	95(3.74)	130	97	215	102	32	70	415	447	200	R65	158	50	45°	60	44	1-1/4"
	TYPE B	(5.31)	90(3.54)	M58xP1.5	58(2.28)	(5.12)	(3.82)	(8.46)	(4.02)	(1.26)	(2.76)	(16.34)	(17.60)	(7.87)	(2.56)	(6.22)	(1.97)		(2.36)	(1.73)	
Ø140	TYPE A	155	90(3.54)	M80xP3.0	110(4.33)	142	97	238	110	37	75	453	490	220	R77	176	55	36	70	49	1-1/4"
	TYPE B	(6.10)	100(3.94)	M65xP1.5	65(2.56)	(5.59)	(3.82)	(9.37)	(4.33)	(1.46)	(2.95)	(17.83)	(19.29)	(8.66)	(3.03)	(6.93)	(2.17)		(2.76)	(1.93)	
Ø160	TYPE A	180	100(3.94)	M90xP3.0	120(4.72)	160	120	265	125	54	85	496	550	265	R88	205	60	54°	80	55	1-1/2"
	TYPE B	(7.09)	110(4.33)	M80xP2.0	80(3.15)	(6.30)	(4.72)	(10.43)	(4.92)	(2.13)	(3.35)	(19.53)	(21.65)	(10.43)	(3.46)	(8.07)	(2.36)		(3.15)	(2.17)	
Ø180	TYPE A	202	110(4.33)	M100xP3.0	140(5.51)	175	120	295	140	52	100	558	610	290	R103	226	65	45°	90	60	1-1/2"
	TYPE B	(7.95)	125(4.92)	M100xP2.0	100(3.94)	(6.89)	(4.72)	(11.61)	(5.51)	(2.05)	(3.94)	(21.97)	(24.02)	(11.42)	(4.06)	(8.90)	(2.56)		(3.54)	(2.36)	
Ø200	TYPE A	215	125(4.92)	M110xP4.0	150(5.91)	185	125	300	160	52	115	593	645	315	R115	252	75	45°	100	70	1-1/2"
	TYPE B	(8.46)	140(5.51)	M110xP2.0	110(4.33)	(7.28)	(4.92)	(11.81)	(6.30)	(2.05)	(4.53)	(23.35)	(25.39)	(12.40)	(4.53)	(9.92)	(2.95)		(3.94)	(2.76)	
Ø220	TYPE A	245	140(5.51)	M120xP4.0	160(6.30)	220	140	313	187	52	125	668	720	355	R132	275	80	45°	110	70	1-1/2"
	TYPE B	(9.65)	160(6.30)	M120xP3.0	120(4.72)	(8.66)	(5.51)	(12.32)	(7.36)	(2.05)	(4.92)	(26.30)	(28.35)	(13.98)	(5.20)	(10.83)	(3.15)		(4.33)	(2.76)	
Ø250	TYPE A	280	160(6.30)	M120xP4.0	160(6.30)	230	155	330	205	52	140	713	765	395	R150	308	80	45°	110	70	1-1/2"
	TYPE B	(11.02)	180(7.09)	M120xP3.0	120(4.72)	(9.06)	(6.10)	(12.99)	(8.07)	(2.05)	(5.51)	(28.07)	(30.12)	(15.55)	(5.91)	(12.13)	(3.15)		(4.33)	(2.76)	
Ø280	TYPE A	305	180(7.09)	M150xP4.0	190(7.48)	270	160	360	240	57	150	813	870	420	170	342	90	33.75°	120	85	1-1/2"
	TYPE B	(12.00)	200(7.87)	M130xP3.0	130(5.12)	(10.63)	(6.30)	(14.17)	(9.45)	(2.24)	(5.91)	(32.01)	(34.25)	(16.54)	(6.69)	(13.46)	(3.54)		(4.72)	(3.35)	
Ø300	TYPE A	315	180(7.09)	M150xP4.0	190(7.48)	270	160	360	240	57	150	813	870	440	R170	362	90	33.75°	120	85	1-1/2"
	TYPE B	(12.40)	200(7.87)	M130xP3.0	130(5.12)	(10.63)	(6.30)	(14.17)	(9.45)	(2.24)	(5.91)	(32.01)	(34.25)	(17.32)	(6.69)	(14.25)	(3.54)		(4.72)	(3.35)	
Ø320	TYPE A	340	200(7.87)	M160xP4.0	200(7.87)	295	185	370	270	56	175	879	935	490	R190	394	110	33.75°	140	90	1-1/2"
	TYPE B	(13.39)	220(8.66)	M160xP3.0	150(5.91)	(11.61)	(7.28)	(14.57)	(10.63)	(2.20)	(6.89)	(34.61)	(36.81)	(19.29)	(7.48)	(15.51)	(4.33)		(5.51)	(3.54)	

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UNIT: M.M. (INCHES)

BORE		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	Port
Ø80	TYPE A	93	45(1.77)	M39xP3.0	55(2.17)	88	60	159	30	120.5	140.5	55	277	55	81.5	135	R67.5	18	60°	170	210	---	42	70	3/4"
	TYPE B	(3.66)	56(2.20)	M35xP1.5	35(1.38)	(3.46)	(2.36)	(6.26)	(1.18)	(4.74)	(5.53)	(2.17)	(10.91)	(2.17)	(3.21)	(5.31)	(2.66)	(0.71)		(6.69)	(8.27)		(1.65)	(2.76)	
Ø100	TYPE A	115	56(2.20)	M50xP3.0	75(2.95)	115	85	180	30	135	170	70	325	60	85	165	R82.5	22	54°	205	250	167.5	52	85	1"
	TYPE B	(4.53)	70(2.76)	M45xP1.5	45(1.77)	(4.53)	(3.35)	(7.09)	(1.18)	(5.31)	(6.69)	(2.76)	(12.80)	(2.36)	(3.35)	(6.50)	(3.25)	(0.87)		(8.07)	(9.84)	(6.59)	(2.05)	(3.35)	
Ø125	TYPE A	135	70(2.76)	M64xP3.0	95(3.74)	130	97	215	32	160	192	90	377	60	95	200	R105	25	45°	255	305	210	60	105	1-1/4"
	TYPE B	(5.31)	90(3.54)	M58xP1.5	58(2.28)	(5.12)	(3.82)	(8.46)	(1.26)	(6.30)	(7.56)	(3.54)	(14.84)	(2.36)	(3.74)	(7.87)	(4.13)	(0.98)		(10.04)	(12.01)	(8.27)	(2.36)	(4.13)	
Ø140	TYPE A	155	90(3.54)	M80xP3.0	110(4.33)	142	97	238	35	172.5	209.5	103	415	65	102.5	220	R110	28	36	280	340	225	65	115	1-1/4"
	TYPE B	(6.10)	100(3.94)	M65xP1.5	65(2.56)	(5.59)	(3.82)	(9.37)	(1.38)	(6.79)	(8.25)	(4.06)	(16.34)	(2.56)	(4.04)	(8.66)	(4.33)	(1.10)		(11.02)	(13.39)	(8.86)	(2.56)	(4.53)	
Ø160	TYPE A	180	100(3.94)	M90xP3.0	120(4.72)	160	120	265	40	178.5	232.5	120	465	75	112.5	265	R132.5	31	54°	330	400	267.5	70	135	1-1/2"
	TYPE B	(7.09)	110(4.33)	M80xP2.0	80(3.15)	(6.30)	(4.72)	(10.43)	(1.57)	(7.03)	(9.15)	(4.72)	(18.31)	(2.95)	(4.43)	(10.43)	(5.22)	(1.22)		(12.99)	(15.75)	(10.53)	(2.76)	(5.31)	
Ø180	TYPE A	202	110(4.33)	M100xP3.0	140(5.51)	175	120	295	40	203	255	135	510	80	120	290	R145	37	45°	360	440	295	80	150	1-1/2"
	TYPE B	(7.95)	125(4.92)	M100xP2.0	100(3.94)	(6.89)	(4.72)	(11.61)	(1.57)	(7.99)	(10.04)	(5.31)	(20.08)	(3.15)	(4.72)	(11.42)	(5.71)	(1.46)		(14.17)	(17.32)	(11.61)	(3.15)	(5.91)	
Ø200	TYPE A	215	125(4.92)	M110xP4.0	150(5.91)	185	125	300	45	213	265	135	530	90	130	315	R157.5	37	45°	385	465	317.5	85	160	1-1/2"
	TYPE B	(8.46)	140(5.51)	M110xP2.0	110(4.33)	(7.28)	(4.92)	(11.81)	(1.77)	(8.39)	(10.43)	(5.31)	(20.87)	(3.54)	(5.12)	(12.40)	(6.20)	(1.46)		(15.16)	(18.31)	(12.50)	(3.35)	(6.30)	
Ø220	TYPE A	245	140(5.51)	M120xP4.0	160(6.30)	220	140	313	62	255	307	136	595	94	152	355	R177.5	45	45°	445	530	362.5	95	185	1-1/2"
	TYPE B	(9.65)	160(6.30)	M120xP3.0	120(4.72)	(8.66)	(5.51)	(12.32)	(2.44)	(10.04)	(12.09)	(5.35)	(23.43)	(3.70)	(5.98)	(13.98)	(6.99)	(1.77)		(17.56)	(20.87)	(14.27)	(3.74)	(7.28)	
Ø250	TYPE A	280	160(6.30)	M120xP4.0	160(6.30)	230	155	330	65	268	320	150	625	100	155	395	R197.5	52	45°	500	600	402.5	110	205	1-1/2"
	TYPE B	(11.02)	180(7.09)	M120xP3.0	120(4.72)	(9.06)	(6.10)	(12.99)	(2.56)	(10.55)	(12.60)	(5.91)	(24.61)	(3.94)	(6.10)	(15.55)	(7.78)	(2.05)		(19.69)	(23.62)	(15.85)	(4.33)	(8.07)	
Ø280	TYPE A	305	180(7.09)	M150xP4.0	190(7.48)	270	160	360	90	313	370	160	720	110	190	420	R210	52	33.75°	530	630	435	125	225	1-1/2"
	TYPE B	(12.00)	200(7.87)	M130xP3.0	130(5.12)	(10.63)	(6.30)	(14.17)	(3.54)	(12.32)	(14.57)	(6.30)	(28.35)	(4.33)	(7.48)	(16.54)	(2.05)			(20.87)	(24.80)	(17.13)	(4.92)	(8.86)	
Ø300	TYPE A	315	180(7.09)	M150xP4.0	190(7.48)	270	160	360	90	315.5	372.5	155	720	115	192.5	440	R220	52	33.75°	545	645	450	130	230	1-1/2"
	TYPE B	(12.40)	200(7.87)	M130xP3.0	130(5.12)	(10.63)	(6.30)	(14.17)	(3.54)	(12.42)	(14.67)	(6.10)	(28.35)	(4.53)	(7.58)	(17.32)	(8.66)	(2.05)		(21.46)	(25.39)	(17.72)	(5.12)	(9.06)	
Ø320	TYPE A	340	200(7.87)	M160xP4.0	200(7.87)	295	185	370	95	344	400	160	760	120	200	490	R245	62	33.75°	610	730	500	140	255	1-1/2"
	TYPE B	(13.39)	220(8.66)	M160xP3.0	150(5.91)	(11.61)	(7.28)	(14.57)	(3.74)	(13.54)	(15.75)	(6.30)	(29.92)	(4.72)	(7.87)	(19.29)	(9.65)	(2.44)		(24.02)	(28.74)	(19.69)	(5.51)	(10.04)	

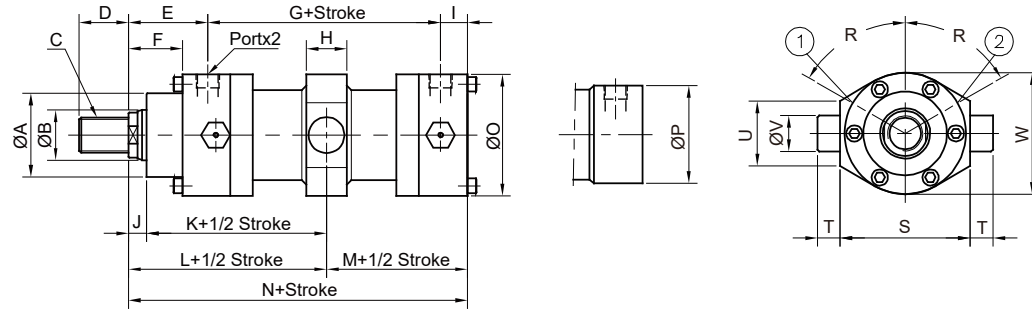


SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

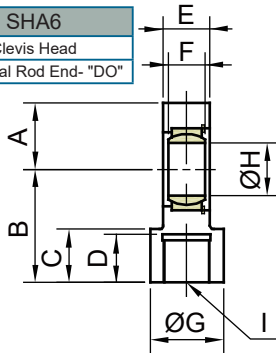
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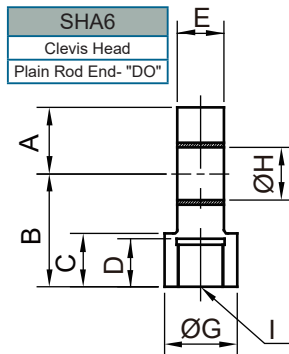
UNIT: M.M. (INCHES)

BORE	A	B	C	D	E	F	H	I	J	K	L	M	N	O, U	P	R	S	T	U	V	W	Port
Ø80	TYPE A 93 (3.66)	45(1.77)	M39xP3.0 56(2.20)	55(2.17)	88 (3.46)	60 (2.36)	159 (6.26)	83 (3.27)	20 (0.79)	150 (5.91)	170 (6.69)	107 (4.21)	277 (10.91)	135 (5.31)	109 (4.29)	60°	145 (5.71)	20 (0.79)	72 (2.83)	40 (1.57)	135 (5.31)	3/4"
Ø100	TYPE A 115 (4.53)	56(2.20)	M50xP3.0 70(2.76)	75(2.95)	115 (4.53)	85 (3.35)	180 (7.09)	90 (3.54)	35 (1.38)	166 (6.54)	201 (7.91)	124 (4.89)	325 (12.80)	165 (6.50)	130 (5.12)	54°	175 (6.89)	30 (1.18)	80 (3.15)	50 (1.97)	165 (6.50)	1"
Ø125	TYPE A 135 (5.31)	70(2.76)	M64xP3.0 90(3.54)	95(3.74)	130 (5.12)	97 (3.82)	215 (8.46)	102 (4.02)	32 (1.26)	205 (8.11)	237 (9.33)	140 (5.51)	377 (14.84)	200 (7.87)	158 (6.22)	45°	210 (8.27)	30 (1.18)	100 (3.94)	60 (2.36)	210 (8.27)	1-1/4"
Ø140	TYPE A 155 (6.10)	90(3.54)	M80xP3.0 100(3.94)	110(4.33)	142 (5.59)	97 (3.82)	238 (9.37)	110 (4.33)	37 (1.46)	223 (8.78)	260 (10.24)	155 (6.10)	415 (16.34)	220 (8.66)	176 (6.93)	36°	230 (9.06)	42.5 (1.67)	120 (4.72)	65 (2.56)	220 (8.66)	1-1/4"
Ø160	TYPE A 180 (7.09)	100(3.94)	M90xP3.0 110(4.33)	120(4.72)	160 (6.30)	120 (4.72)	265 (10.43)	125 (4.92)	54 (2.13)	238.5 (9.39)	292.5 (11.52)	172.5 (6.78)	465 (18.31)	265 (10.43)	205 (8.07)	54°	275 (10.83)	52.5 (2.07)	140 (5.51)	75 (2.95)	265 (10.43)	1-1/2"
Ø180	TYPE A 202 (7.95)	110(4.33)	M100xP3.0 125(4.92)	140(5.51)	175 (6.89)	120 (4.72)	295 (11.61)	140 (5.51)	52 (2.05)	265.5 (10.45)	317.5 (12.50)	192.5 (7.58)	510 (20.08)	290 (11.42)	226 (8.90)	45°	300 (11.81)	55 (2.17)	160 (6.30)	85 (3.35)	290 (11.42)	1-1/2"
Ø200	TYPE A 215 (8.46)	125(4.92)	M110xP4.0 140(5.51)	150(5.91)	185 (7.28)	125 (4.92)	300 (11.81)	160 (6.30)	52 (2.05)	280.5 (11.04)	332.5 (13.09)	197.5 (7.78)	530 (20.87)	315 (12.40)	252 (9.92)	45°	320 (12.60)	55 (2.17)	180 (7.09)	90 (3.54)	315 (12.40)	1-1/2"
Ø220	TYPE A 245 (9.65)	140(5.51)	M120xP4.0 160(6.30)	160(6.30)	220 (8.66)	140 (5.51)	313 (12.32)	187 (7.36)	52 (2.05)	338 (13.31)	390 (15.35)	205 (8.07)	595 (23.43)	355 (13.98)	275 (10.83)	45°	370 (14.57)	60 (2.36)	200 (7.87)	100 (3.94)	355 (13.98)	1-1/2"
Ø250	TYPE A 280 (11.02)	160(6.30)	M120xP3.0 180(7.09)	160(6.30)	230 (9.06)	155 (6.10)	330 (12.99)	205 (8.07)	52 (2.05)	355 (13.98)	407 (16.02)	218 (8.58)	625 (24.61)	395 (15.55)	308 (12.13)	45°	410 (16.14)	60 (2.36)	210 (8.27)	110 (4.33)	395 (15.55)	1-1/2"
Ø280	TYPE A 305 (12.00)	180(7.09)	M150xP4.0 200(7.87)	190(7.48)	270 (10.63)	160 (6.30)	360 (14.17)	240 (9.45)	57 (2.24)	395.5 (15.57)	452.5 (17.81)	267.5 (10.53)	720 (28.35)	420 (16.54)	342 (13.46)	33.75°	450 (17.72)	70 (2.76)	220 (8.66)	130 (5.12)	420 (16.54)	1-1/2"
Ø300	TYPE A 315 (12.40)	180(7.09)	M150xP4.0 200(7.87)	190(7.48)	270 (10.63)	160 (6.30)	360 (14.17)	240 (9.45)	57 (2.24)	395.5 (15.57)	452.5 (17.81)	267.5 (10.53)	720 (28.35)	440 (17.32)	362 (14.25)	33.75°	470 (18.50)	80 (3.15)	230 (9.06)	145 (5.71)	440 (17.32)	1-1/2"
Ø320	TYPE A 340 (13.39)	200(7.87)	M130xP3.0 220(8.66)	130(5.12)	106.3 (4.18)	185 (7.28)	370 (14.57)	270 (10.63)	56 (2.20)	444 (17.48)	500 (19.69)	260 (10.24)	760 (29.92)	490 (19.29)	394 (15.51)	33.75°	510 (20.08)	90 (3.54)	240 (9.45)	160 (6.30)	490 (19.29)	1-1/2"

SHA6
Clevis Head
Spherical Rod End- "DO"



SHA6
Clevis Head
Plain Rod End- "DO"



※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

Example: FA, ST=200mm
Weight = W1 + (W2 x Stroke)
= 30.9+ (4.1 x 2)
= 39.1 Kg

UNIT: M.M. (INCHES)

Bore	A	B	C	D	E	F	G	H	I	J	K
Ø80	85 (3.35)	40 (1.57)	36 (1.42)	35 (1.38)	28 (1.10)	55 (2.17)	40 (1.57)		M35xP1.5	78 (3.07)	R47 (1.85)
Ø100	105 (4.13)	50 (1.97)	46 (1.81)	40 (1.57)	35 (1.38)	70 (2.76)	50 (1.97)		m45xP1.5	90 (3.54)	R58 (2.28)
Ø125	130 (5.12)	65 (2.56)	59 (2.32)	50 (1.97)	44 (1.73)	87 (3.43)	60 (2.36)		M58xP1.5	118 (4.65)	R65 (2.56)
Ø140	150 (5.91)	75 (2.95)	66 (2.60)	55 (2.17)	49 (1.93)	93 (3.66)	70 (2.76)		M65xP1.5	130 (5.12)	R77 (3.03)
Ø160	170 (6.69)	90 (3.54)	81 (3.19)	60 (2.36)	55 (2.17)	125 (4.92)	80 (3.15)		M80xP2.0	158 (6.22)	R88 (3.46)
Ø180	210 (8.27)	120 (4.72)	101 (3.98)	65 (2.56)	60 (2.36)	143 (5.63)	90 (3.54)		M100xP2.0	162 (6.38)	R103 (4.06)
Ø200	235 (9.25)	130 (5.12)	111 (4.37)	75 (2.95)	70 (2.76)	153 (6.02)	100 (3.94)		M110xP2.0	172 (6.77)	R115 (4.53)
Ø220	265 (10.43)	150 (5.91)	125 (4.92)	80 (3.15)	70 (2.76)	176 (6.93)	110 (4.33)		M120xP3.0	194 (7.64)	R132.5 (5.22)
Ø250	265 (10.43)	150 (5.91)	125 (4.92)	80 (3.15)	70 (2.76)	176 (6.93)	110 (4.33)		M120xP3.0	194 (7.64)	R132.5 (5.22)
Ø280	310 (12.20)	170 (6.69)	135 (5.31)	90 (3.54)	85 (3.35)	188 (7.40)	120 (4.72)		M130xP3.0	224 (8.82)	R170 (6.69)
Ø300	310 (12.20)	170 (6.69)	135 (5.31)	90 (3.54)	85 (3.35)	188 (7.40)	120 (4.72)		M130xP3.0	224 (8.82)	R170 (6.69)
Ø320	420 (16.54)	235 (9.25)	200 (7.87)	110 (4.33)	90 (3.54)	230 (9.06)	235 (9.25)		M160xP3.0	246 (9.69)	R190 (7.48)

Bore	Parameter	FA	FB	TC	LA	CA
Ø80	W1 (Kg)	30.9	33.1	27.1	31.38	26.23
	W2 (kg/100mm)	Ø56 = 4.1, Ø45 = 3.4				
Ø100	W1 (Kg)	53.9	58.0	46.7	51.7	43.6
	W2 (kg/100mm)	Ø70 = 5.4, Ø56 = 4.6				
Ø125	W1 (Kg)	90.2	87.5	78.8	85.5	74.7
	W2 (kg/100mm)	Ø90 = 9.5, Ø70 = 7.6				
Ø140	W1 (Kg)	117.4	128.1	112.6	113.5	103.2
	W2 (kg/100mm)	Ø100 = 11.8, Ø90 = 10.7				
Ø160	W1 (Kg)	189	202.5	169.6	175.2	156.6
	W2 (kg/100mm)	Ø110 = 15.1, Ø100 = 13.8				
Ø180	W1 (Kg)	260	280.2	235.1	243.6	217.5
	W2 (kg/100mm)	Ø125 = 18.4, Ø110 = 16.2				
Ø200	W1 (Kg)	326.5	350.6	292.2	303.3	280.4
	W2 (kg/100mm)	Ø140 = 23.5, Ø125 = 21.1				
Ø220	W1 (Kg)	459.9	493.2	427.3	434.6	402.8
	W2 (kg/100mm)	Ø160 = 29.2, Ø140 = 25.5				
Ø250	W1 (Kg)	602.7	648.6	558.1	561.9	526.2
	W2 (kg/100mm)	Ø180 = 36.2, Ø160 = 32				
Ø280	W1 (Kg)	803.1	863.3	753.4	757.2	715.1
	W2 (kg/100mm)	Ø200 = 43.5, Ø180 = 38.8				
Ø300	W1 (Kg)	875.2	939.4	835.0	831.7	776.0
	W2 (kg/100mm)	Ø220 = 44.7, Ø180 = 40				
Ø320	W1 (Kg)	1183.8	1276.5	1088.6	1077.5	1023.7
	W2 (kg/100mm)	Ø220 = 56.6, Ø200 = 51.5				

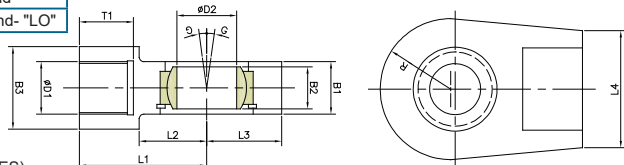


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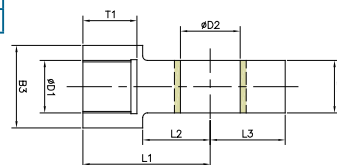
HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

SHA6
Clevis Head
Spherical Rod End- "LO"



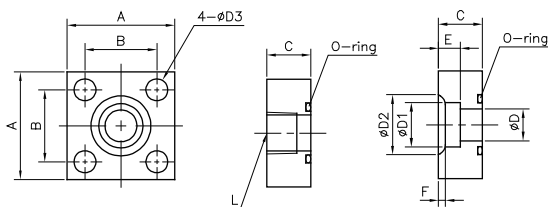
SHA6
Clevis Head
Plain Rod End- "LO"



UNIT: M.M. (INCHES)

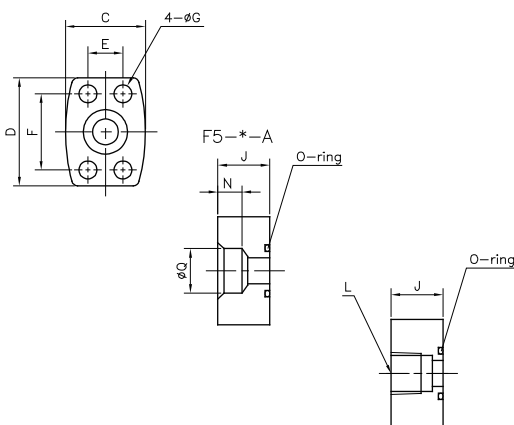
BORE	B1	B2	B3	D1	D2	L1	L2	L3	L4	R	T1	G	Weight (Kg)
Ø80	35(1.18)	28(1.10)	55(2.17)	M39X3	40(1.57)	105(4.13)	45(1.77)	50(1.97)	78(3.07)	47(1.85)	55(2.17)	7"	2.4
Ø100	40(1.57)	35(1.18)	70(2.76)	M50X3	50(1.97)	135(5.31)	55(2.17)	63(2.48)	90(3.54)	58(2.28)	75(2.95)	7"	4.1
Ø125	50(1.97)	44(1.73)	87(3.43)	M64X3	60(2.36)	170(6.69)	65(2.56)	70(2.76)	118(4.65)	65(2.56)	95(3.74)	7"	6.5
Ø140	55(2.17)	49(1.93)	105(4.13)	M80X3	70(2.76)	195(7.68)	75(2.95)	83(3.27)	130(5.12)	77(3.03)	110(4.33)	6"	9.5
Ø160	60(2.36)	55(2.17)	125(4.92)	M90X3	80(3.15)	210(8.27)	80(3.15)	95(3.74)	152(5.98)	88(3.46)	120(4.72)	6"	16.0
Ø180	65(2.56)	60(2.36)	150(5.91)	M100X3	90(3.54)	250(9.84)	90(3.54)	113(4.45)	162(6.38)	103(4.06)	140(5.51)	5"	28.0
Ø200	70(2.76)	70(2.76)	170(6.69)	M110X4	100(3.94)	275(10.83)	105(4.13)	125(4.92)	192(7.56)	115(4.53)	150(5.91)	7"	34.0
Ø220	80(3.15)	70(2.76)	180(7.09)	M120X4	110(4.33)	300(11.81)	115(4.53)	142.5(5.61)	194(7.64)	132.5(5.22)	160(6.30)	6"	44.0
Ø250	80(3.15)	70(2.76)	180(7.09)	M120X4	110(4.33)	300(11.81)	115(4.53)	142.5(5.61)	194(7.64)	132.5(5.22)	160(6.30)	6"	44.0
Ø280	90(3.54)	85(3.35)	210(8.27)	M150X4	120(4.72)	360(14.17)	140(5.51)	180(7.09)	224(8.82)	170(6.69)	190(7.48)	6"	75.0
Ø300	90(3.54)	85(3.35)	210(8.27)	M150X4	120(4.72)	360(14.17)	140(5.51)	180(7.09)	224(8.82)	170(6.69)	190(7.48)	6"	75.0
Ø320	110(4.33)	90(3.54)	230(9.06)	M160X4	140(5.51)	420(16.54)	185(7.28)	200(7.87)	246(9.69)	190(7.48)	200(7.87)	7"	160.0

SHA6
Pipe Flange Kits
SSA



SIZE	A	B	C	D	D1	D2	D3	E	F	L	O-Ring
15	54 (2.13)	36 (1.42)	22 (0.87)	16 (0.63)	22.2 (0.87)	32 (1.26)	11 (0.43)	11 (0.43)	3.5 (0.14)	PT(Rc) 1/2"	G25
20	58 (2.28)	40 (1.57)	22 (0.87)	20 (0.79)	27.7 (1.09)	38 (1.50)	11 (0.43)	12 (0.47)	4.0 (0.16)	PT(Rc) 3/4"	G30
25	68 (2.68)	48 (1.89)	25 (1.00)	25 (0.98)	34.5 (1.36)	45 (1.77)	13 (0.51)	14 (0.55)	4.0 (0.16)	PT(Rc) 1"	G35
32	76 (2.99)	56 (2.20)	28 (1.10)	31.5 (1.24)	43.2 (1.70)	56 (2.20)	13 (0.51)	16 (0.63)	6.0 (0.24)	PT(Rc) 1-1/4"	G40
40	92 (3.62)	65 (2.56)	36 (1.42)	37.5 (1.48)	49.1 (1.93)	63 (2.48)	18 (0.71)	18 (0.71)	7.0 (0.28)	PT(Rc) 1-1/2"	G50
50	100 (3.94)	73 (2.87)	36 (1.42)	47.5 (1.87)	61.1 (2.41)	75 (2.95)	18 (0.71)	20 (0.79)	7.0 (0.28)	PT(Rc) 2"	G60
65	128 (5.04)	92 (3.62)	45 (1.77)	60 (2.36)	77.1 (3.04)	95 (3.74)	22 (0.87)	22 (0.87)	9.0 (0.35)	PT(Rc) 2-1/2"	G75
80	140 (5.51)	103 (4.06)	45 (1.77)	71 (2.80)	90 (3.54)	108 (4.25)	24 (0.94)	25 (0.98)	11.0 (0.43)	PT(Rc) 3"	G85

SHA6
Pipe Flange Kits
F5



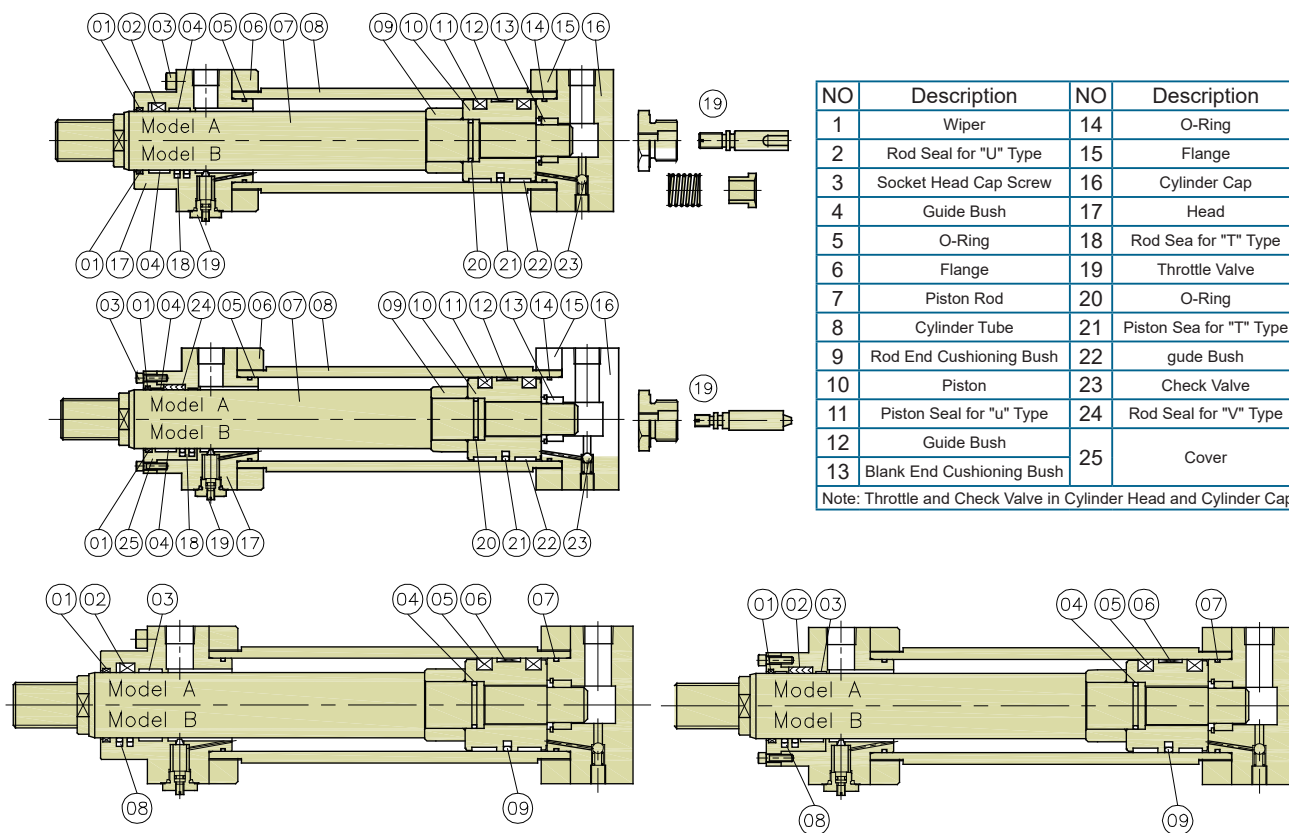
SIZE	C	D	E	F	G	J	N	Q	L	O-Ring	Weight (Kg)
F5-04W-A(B)	40 (1.57)	54 (2.13)	17.5 (0.69)	38.1 (1.50)	8.8 (0.35)	26 (1.02)	9 (0.35)	17.8 (0.70)	PT(Rc) 3/8"	P22	0.5
F5-04-A(B)	40 (1.57)	54 (2.13)	17.5 (0.69)	38.1 (1.50)	8.8 (0.35)	26 (1.02)	11 (0.43)	22.2 (0.87)	PT(Rc) 1/2"	P22	0.5
F5-06X-A(B)	48 (1.89)	65 (2.56)	22.2 (0.87)	47.6 (1.87)	11 (0.43)	28 (1.10)	12 (0.47)	27.7 (1.09)	PT(Rc) 3/4"	G30	0.7
F5-06-A(B)	48 (1.89)	65 (2.56)	22.2 (0.87)	47.6 (1.87)	11 (0.43)	28 (1.10)	12 (0.47)	27.7 (1.09)	PT(Rc) 3/4"	G30	0.7
F5-08W-A(B)	55 (2.17)	70 (2.76)	26.2 (1.03)	52.4 (2.06)	11 (0.43)	28 (1.10)	12 (0.47)	27.7 (1.09)	PT(Rc) 3/4"	G35	0.9
F5-08-A(B)	55 (2.17)	70 (2.76)	26.2 (1.03)	52.4 (2.06)	11 (0.43)	28 (1.10)	14 (0.55)	34.5 (1.36)	PT(Rc) 1"	G35	0.9
F5-10-A(B)	64 (2.52)	80 (3.15)	30.2 (1.19)	58.7 (2.31)	11 (0.43)	29 (1.14)	16 (0.63)	43.2 (1.70)	PT(Rc) 1-1/4"	G40	1.2
F5-12-A(B)	72 (2.83)	94 (3.70)	35.7 (1.41)	69.9 (2.75)	13.5 (0.53)	30 (1.18)	18 (0.71)	49.1 (1.93)	PT(Rc) 1-1/2"	G50	1.5
F5-16W-A(B)	85 (3.35)	102 (4.02)	42.9 (1.69)	77.8 (3.06)	13.5 (0.53)	30 (1.18)	18 (0.71)	49.1 (1.93)	PT(Rc) 1-1/2"	G60	1.8
F5-16-A(B)	85 (3.35)	102 (4.02)	42.9 (1.69)	77.8 (3.06)	13.5 (0.53)	30 (1.18)	20 (0.79)	61.1 (2.41)	PT(Rc) 2"	G65	1.7
F5-20-A(B)	102 (4.02)	114 (4.49)	50.8 (2.00)	88.9 (3.50)	13.5 (0.53)	38 (1.50)	22 (0.87)	77.1 (3.04)	PT(Rc) 2-1/2"	G75	2.0
F5-24-A(B)	116 (4.57)	135 (5.31)	61.9 (2.44)	106.4 (4.19)	17.5 (0.69)	38 (1.50)	25 (0.98)	90 (3.54)	PT(Rc) 3"	G85	2.7



HYDRAULIC ACTUATOR(CYLINDER)

MILL TYPE

※MATERIAL LIST



NO	Description	NO	Description
1	Wiper	14	O-Ring
2	Rod Seal for "U" Type	15	Flange
3	Socket Head Cap Screw	16	Cylinder Cap
4	Guide Bush	17	Head
5	O-Ring	18	Rod Sea for "T" Type
6	Flange	19	Throttle Valve
7	Piston Rod	20	O-Ring
8	Cylinder Tube	21	Piston Sea for "T" Type
9	Rod End Cushioning Bush	22	gude Bush
10	Piston	23	Check Valve
11	Piston Seal for "u" Type	24	Rod Seal for "V" Type
12	Guide Bush	25	Cover
13	Blank End Cushioning Bush		

Note: Throttle and Check Valve in Cylinder Head and Cylinder Cap

NO	1	2	3	4	5	6	7	8	9
	Dust Seal	Rod Seal+Backup Ring	Wear Ring	O-Ring	Piston Seal+Backup Ring	Wear Ring	O-Ring	Rod Seal "T"	Piston Seal "T"
Material	PU	PU	PTFE	NBR	PU	PTFE	NBR	PTFE+NBR	PTFE+NBR
Quantity	1	1	2	1	2	1	1	2	1
Bore Ø, Øw (mm)									
Ø80	TYPE A 45-53-6.5	45-61-16	45-2.5	G-35	80-60-13	80-2.5	G-75	45-60.1-6.3	80-64.5-6.3
	TYPE B 56-64-6.5	56-72-16	56-2.5	G-45				56-71.1-6.3	
Ø100	TYPE A 56-64-6.5	56-72-16	56-2.5	G-45	100-80-19	100-2.5	G-95	56-71.1-6.3	100-84.5-6.3
	TYPE B 70-80-8	70-90-16	70-2.5	G-60				70-85.1-6.3	
Ø125	TYPE A 70-80-8	70-90-16	70-2.5	G-60	125-105-19	125-2.5	G-120	70-85.1-6.3	125-109.5-6.3
	TYPE B 90-100-8	90-110-16	90-2.5	G-75				90-105.1-6.3	
Ø140	TYPE A 90-100-8	90-110-16	90-2.5	G-75	140-120-19	140-2.5	G-135	90-105.1-6.3	140-119-8.1
	TYPE B 100-110-8	100-120-16	100-2.5	G-85				100-115.1-6.3	
Ø160	TYPE A 100-110-8	100-120-16	100-2.5	G-85	160-135-24	160-2.5	G-150	100-115.1-6.3	160-125.1-8.1
	TYPE B 110-120-8	110-130-19	110-2.5	G-85				110-125.1-6.3	
Ø180	TYPE A 110-120-8	110-130-19	110-2.5	G-85	18--155-24	180-2.5	G-170	110-125.1-6.3	180-159-8.1
	TYPE B 125-138-9.5	125-155-39.5	125-2.5	P-95				125-140.1-6.3	
Ø200	TYPE A 125-138-9.5	125-155-39.5	125-2.5	P-95	200-175-24	200-2.5	G-190	125-140.1-6.3	200-179-8.1
	TYPE B 140-153-9.5	140-165-39.5	140-2.5	P-105				140-155.1-6.3	
Ø220	TYPE A 140-153-9.5	140-165-39.5	140-2.5	P-105	220-195-24	220-2.5	G-210	140-155.1-6.3	220-199-8.1
	TYPE B 160-174-9.5	160-185-45.5	160-2.5	P-115				160-175.1-6.3	
Ø250	TYPE A 160-174-9.5	160-185-45.5	160-2.5	P-115	250-220-24	250-2.5	G-240	160-175.1-6.3	250-229-8.1
	TYPE B 180-194-9.5	180-205-45.5	180-2.5	P-140				180-195.1-6.3	
Ø280	TYPE A 180-194-9.5	180-205-45.5	180-2.5	P-140	280-255-24	280-2.5	G-270	180-195.1-6.3	280-259-8.1
	TYPE B 200-214-9.5	200-255-45.5	200-2.5	P-160				200-220.5-8.1	
Ø300	TYPE A 200-214-9.5	200-255-45.5	200-2.5	P-160	300-275-24	300-2.5	G-290	200-220.5-8.1	300-279-8.1
	TYPE B 200-214-9.5	200-225-45.5	200-2.5	P-160				200-220.5-8.1	
Ø320	TYPE A 200-214-9.5	200-225-45.5	200-2.5	P-160	320-290-24	320-2.5	G-310	200-220.5-8.1	320-299-8.1
	TYPE B 220-223-9.5	220-250-50	220-2.5	P-180				220-240.5-8.1	



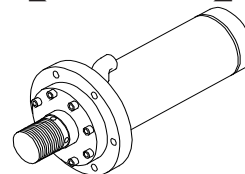
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HYDRAULIC ACTUATOR(CYLINDER)

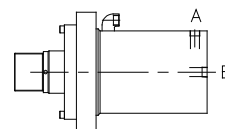
RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

[SHA7]

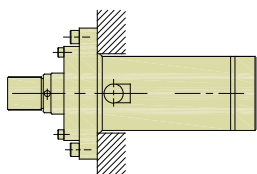
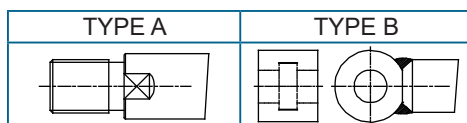
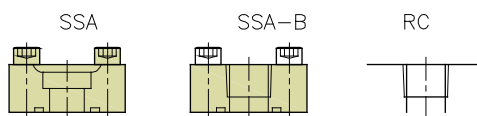
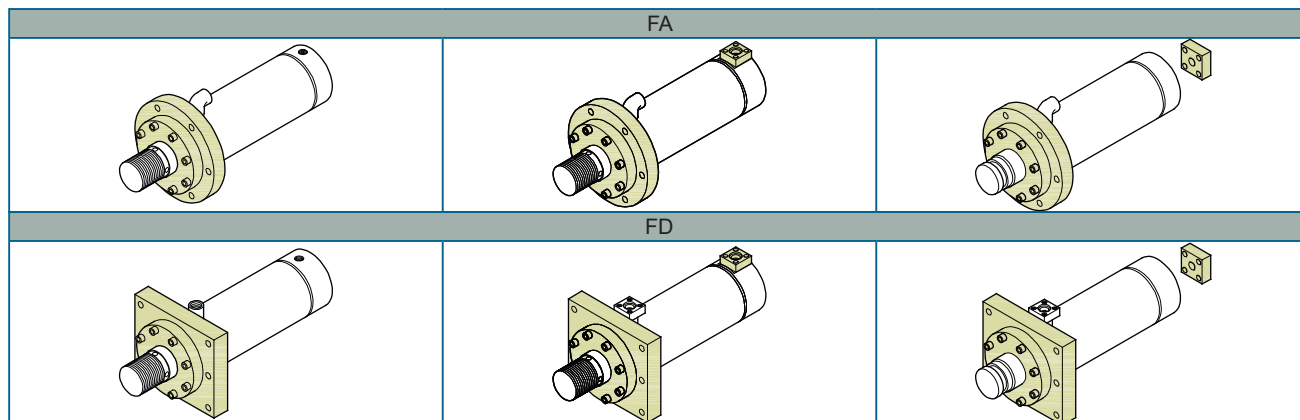
The SHA7 series with bore dia. from Ø125~Ø350 applied in rubber vulcanizing M/C, press power shears etc. It's a special purpose design and with only one mounting style. Aiming at extending force so please pay attention to its retracting force and not exceeding it limitation.

**※MODEL NUMBER DESIGNATION**

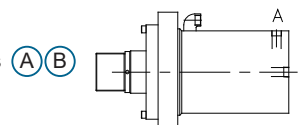
SHA7-	180-	FA-	125-	90-	100-	B-	A-	SSA-	E
I	II	III	IV	V	VI	VII	VIII	IX	X
I. Series: SHA7 II. Operating Pressure:(Bar) 180: 180 Bar III. Mounting Type: FA, FD. Please Refer to Below Table IV. Actuator(Cylinder) Bore Size: (M.M.) 125: Ø125, 150: Ø150, 180: Ø180, 200: Ø200, 220: Ø220, 250: Ø250, 280: Ø280, 300: Ø300, 320: Ø320, 350: Ø350 V. Rod Dia.: (M.M.) 80: Ø80, 110: Ø110, 140: Ø140, 170: Ø170, 190: Ø190, 90: Ø90, 125: Ø125, 150: Ø150, 180: Ø180, 200: Ø200 VI. Stroke: (M.M.) Max. Permissible Stroke					VII. Rod End Type Type-A Type-B VIII. Cap Port Position: IX. Port Flange Type: SSA, SSA-B, PT(Rc) X. Option, only for Type-A E: Rod End With Other Threading K: Fixed Screw Nut L: Fixed Flange				

**※SPECIFICATION**

Model Item	Bore	Mounting Type	Operating Pressure	Testing Pressure	Min. Operating Pressure	Max. Speed	Min. Speed	Rod End Type	Max.Stroke	Range of Ambient Temperature	Fluid	Tolerance of Stroke
	Ø m.m.		Bar(psi)	Bar(psi)	Bar(psi)	mm/sec	mm/sec		m.m.	°C		
SHA7	125, 150, 180, 200, 220, 250, 280, 300, 320, 350	FA, FD	160(2320)	230(3335)	3(43.5)	500	20	TYPE A & B	Refer to DRAW	-10~80	Mineral Oil	JIS B 8354 A CLASS

※INSTALLATIONS**※ROD END TYPE****※PORT FLANGE KITE****※SCHEMATIC DIAGRAM****※PORT POSITIONS**

- ▶ The port position of actuator cap can be divided into pipe thread & flange two models and the position as A B
- ▶ Beware, the port position must same as fig. shown, if need another position, please contact SOLTECH.





HYDRAULIC ACTUATOR(CYLINDER)

RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

※ESTIMATED WEIGHT OF HYDRAULIC ACTUATOR

Parameter	Bore	Ø125	Ø150	Ø180	Ø200	Ø220	Ø250	Ø280	Ø300	Ø320	Ø350
W1 (Kg)		43.5	65.5	103.7	144.8	202.5	264.7	360	434.9	537.5	658
W2 (kg/100mm)		7.2	10	14.7	18.2	24.9	28.3	33.8	40	45.8	50.3

Example: FA, ST=200mm
 Weight = W1 + (W2 x Stroke)
 = 43.5+ (7.2 x 2)
 = 69.3 Kg

※DIMENSIONS

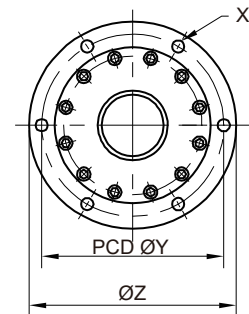
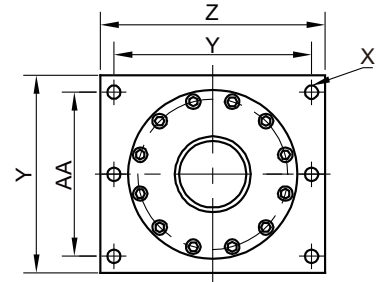
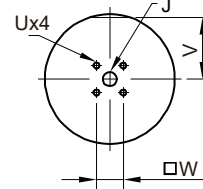
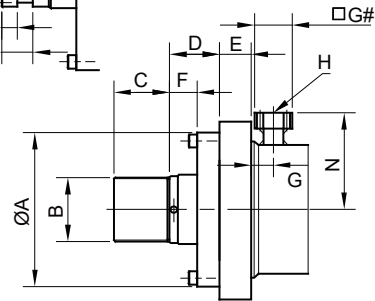
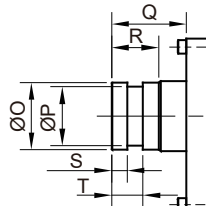
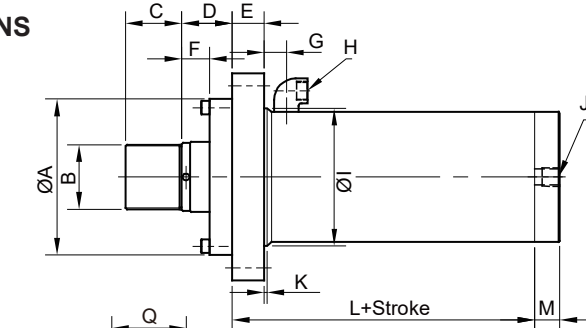
SHA7
FA

TYPE A

TYPE B

SHA7
FD

TYPE A



When Bore = Ø125, H, J = Rc 3/4", M=45(1.77) in TYPE A & B; H, J=SSA-20, M=73(2.87) in TYPE A, M=45(1.77) in TYPE B

When Bore = Ø200, H, J = Rc 1", M=50(1.97) in TYPE A & M=45(1.77) in TYPE B; H, J=SSA-25, M=85(3.35) in TYPE A & M=45(1.77) in TYPE B

UNIT: M.M. (INCHES)

BORE	A	B	C	D	E	F	G	G#	H, J	I	K	L	M	N	O	P	Q	R	
Ø125	A	184 (7.24)	M75xP2	70 (2.76)	70 (2.76)	35 (1.38)	40 (1.57)	33 (1.30)	58 (2.28)	Rc 3/4" SSA-20	155 (6.10)	5 (0.20)	170 (6.69)	73(2.87) 45(1.77)	120 (4.72)	75 (2.95)	65 (2.56)	85 (3.35)	45 (1.77)
	B	215 (8.46)		70 (2.76)	70 (2.76)	40 (1.57)	40 (1.57)	33 (1.30)	58 (2.28)	Rc 3/4" SSA-20	185 (7.28)	5 (0.20)	175 (6.89)	73(2.87) 45(1.77)	134.5 (5.30)	85 (3.35)	74 (2.91)	100 (3.94)	60 (2.36)
Ø150	A	250 (9.84)	M95xP2	80 (3.15)	75 (2.95)	50 (1.97)	40 (1.57)	36 (1.42)	58 (2.28)	Rc 3/4" SSA-20	225 (8.86)	5 (0.20)	200 (7.87)	45(1.77) 75(2.95) 35(1.38)	152 (5.98)	105 (4.13)	94 (3.70)	115 (4.53)	75 (2.95)
	B	278 (10.94)		100 (3.94)	90 (3.54)	57 (2.24)	50 (1.97)	40 (1.57)	68 (2.68)	Rc 1" SSA-25	246 (9.69)	5 (0.20)	240 (9.45)	50(1.97) 85(3.35) 45(1.77)	174 (6.85)	120 (4.72)	105 (4.13)	134 (5.28)	84 (3.31)
Ø200	A	310 (12.2)	M130xP3	120 (4.72)	95 (3.74)	63 (2.48)	55 (2.17)	47 (1.85)	68 (2.68)	Rc 1" SSA-25	277 (10.91)	5 (0.20)	268 (10.55)	50(1.97) 85(3.35) 45(1.77)	170 (6.69)	135 (5.31)	120 (4.72)	145 (5.71)	90 (3.54)
	B	350 (13.78)		120 (4.72)	105 (4.13)	70 (2.76)	60 (2.36)	47 (1.85)	68 (2.68)	Rc 1" SSA-25	310 (12.20)	6 (0.24)	312 (12.28)	50(1.97) 85(3.35) 45(1.77)	210 (8.27)	145 (5.71)	125 (4.92)	165 (6.50)	105 (4.13)
Ø250	A	383 (15.08)	M150xP3	145 (5.71)	120 (4.72)	78 (3.07)	70 (2.76)	51.5 (2.03)	76 (2.99)	Rc 1-1/4" SSA-32	339 (13.35)	7 (0.28)	347 (13.66)	60(2.36) 95(3.74) 50(1.97)	230 (9.06)	165 (6.50)	140 (5.51)	190 (7.48)	120 (4.72)
	B	401 (15.79)		160 (6.30)	140 (5.51)	85 (3.35)	90 (3.54)	51.5 (2.03)	76 (2.99)	Rc 1-1/4" SSA-32	368 (14.49)	7 (0.28)	355 (13.98)	60(2.36) 95(3.74) 60(2.36)	243 (9.57)	175 (6.89)	150 (5.91)	210 (8.27)	120 (4.72)
Ø300	A	426 (16.77)	M170xP4	180 (7.09)	145 (5.71)	90 (3.54)	90 (3.54)	55 (2.17)	92 (3.62)	Rc 1-1/2" SSA-40	393 (15.47)	9 (0.35)	365 (14.37)	75(2.95) 118(4.65) 65(2.56)	263.5 (10.37)	185 (7.28)	155 (6.10)	225 (8.86)	135 (5.31)
	B	461 (18.15)		190 (7.48)	158 (6.22)	100 (3.94)	100 (3.94)	55 (2.17)	92 (3.62)	Rc 1-1/2" SSA-40	423 (16.65)	9 (0.35)	410 (16.14)	75(2.95) 118(4.65) 70(2.76)	278.5 (10.96)	195 (7.68)	165 (6.50)	250 (9.84)	150 (5.91)
BORE	S		T		U		V		W		X		Y		Z		AA		
Ø125	15(0.59)		30(1.18)		M10xP1.5		67(2.64)		40(1.57)		16(0.63)		220(8.66)		256(10.08)		180(7.09)		
Ø150	20(0.79)		40(1.57)		M10xP1.5		82(3.22)		40(1.57)		18(0.71)		255(10.04)		295(11.61)		211(8.31)		
Ø180	25(0.98)		50(1.97)		M10xP1.5		100(3.94)		40(1.57)		20(0.79)		298(11.73)		340(13.39)		248(9.76)		
Ø200	28(1.10)		56(2.20)		M12xP1.75		110(4.33)		48(1.89)		22(0.87)		325(12.80)		370(14.57)		270(10.63)		
Ø220	30(1.18)		60(2.36)		M12xP1.75		127(5.0)		48(1.89)		24(0.94)		363(14.29)		415(16.33)		302(11.89)		
Ø250	35(1.38)		70(2.76)		M12xP1.5		142(5.59)		48(1.89)		24(0.94)		399(15.71)		457(17.99)		335(13.18)		
Ø280	40(1.57)		80(3.15)		M12xP1.75		156(6.14)		56(2.20)		26(1.02)		437(17.20)		489(19.25)		366(14.41)		
Ø300	40(1.57)		80(3.15)		M12xP1.75		173(6.81)		56(2.20)		28(1.10)		458(18.03)		510(20.09)		382(15.03)		
Ø320	45(1.77)		90(3.54)		M16xP2		181(7.13)		65(2.56)		32(1.26)		493(19.41)		555(21.85)		405(15.94)		
Ø350	50(1.97)		100(3.94)		M16xP2		197(7.76)		65(2.56)		32(1.26)		527(20.75)		589(23.19)		420(16.54)		



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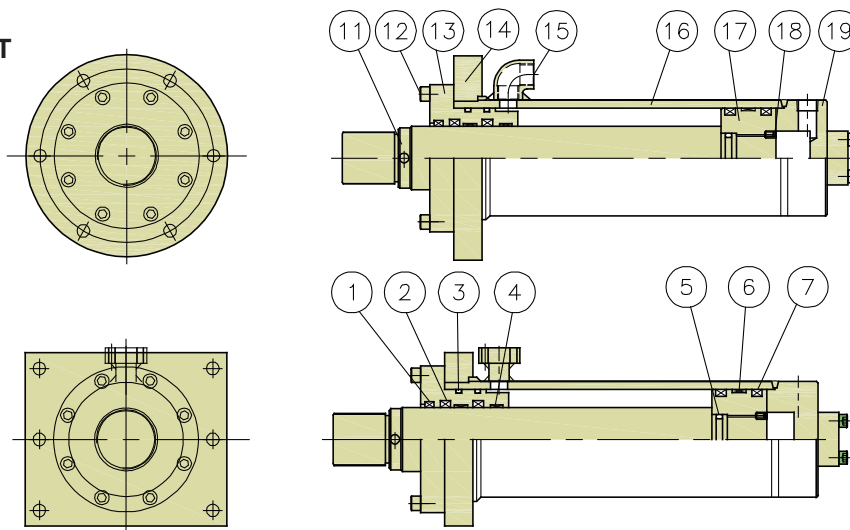
HYDRAULIC ACTUATOR(CYLINDER)

RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10 mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
125	80	Extend	122.7	3680	8586	17181	25771	14.0	7.4
		Retract	72.4	2172	5069	10143	15215	23.0	4.3
150	90	Extend	176.6	5299	12364	24740	37110	9.0	10.6
		Retract	113.0	3391	7913	15834	23750	15.0	6.8
180	110	Extend	254.3	7630	17804	35626	53438	7.0	15.3
		Retract	159.4	4781	11161	22321	33482	10.0	9.6
200	125	Extend	314.2	9420	21980	43982	65973	5.3	18.8
		Retract	191.3	5740	13401	26802	40203	8.7	11.5
220	140	Extend	380.0	11398	26596	53219	79828	4.4	22.8
		Retract	226.1	6782	15834	31667	47501	7.4	13.6
250	150	Extend	490.6	14179	34344	68722	103084	3.4	29.4
		Retract	314.0	9420	21991	43982	65973	5.3	18.8
280	170	Extend	615.4	18463	43081	86205	129308	2.7	36.9
		Retract	388.6	11657	27214	54428	81642	4.3	23.3
300	180	Extend	706.5	21195	49455	98960	148440	2.4	42.4
		Retract	452.2	13565	31667	63335	95000	3.7	27.1
320	190	Extend	804.2	24115	56269	112595	168892	2.1	48.2
		Retract	520.5	15614	36450	72900	109351	3.2	31.2
350	200	Extend	961.6	28849	67314	134696	202044	1.7	57.7
		Retract	647.6	19429	45357	90713	136070	2.6	38.9

※MATERIAL LIST



No.	1	2	3	4	5	6	7
Name	Dust Seal	Rod Seal	O-Ring	Wear Ring	O-Ring	Wear Ring	Piston Seal
Material	PU	PU	NBR	PTFE	NBR	PTFE	PU
Quantity	1	2	1	2	1	1	2
Bore Ø, Ø, w (mm)							
Ø125	80-90-8	80-90-6	G-120	80-2.5	G-55	125-2.5	125-112-13
Ø150	90-100-8	90-105-9	G-145	90-2.5	G-65	150-2.5	150-136-13
Ø180	110-120-8	110-125-9	G-170	110-2.5	G-95	180-2.5	180-165-13
Ø200	125-138-9.5	125-140-9	G-190	125-2.5	G-105	200-2.5	200-180-16
Ø220	140-153-9.5	140-155-9	G-210	140-2.5	P-115	220-2.5	220-200-16
Ø250	150-163-9.5	150-165-9	G-240	150-2.5	P-125	250-2.5	250-230-16
Ø280	170-185-14	170-185-9	G-270	170-2.5	P-145	280-2.5	280-255-20
Ø300	180-194-9.5	180-200-12	G-290	180-2.5	G-155	300-2.5	300-270-23
Ø320	190-203-9.5	190-210-12	P-300	190-2.5	G-165	320-2.5	320-290-24
Ø350	200-214-9.5	200-220-12	P-335	200-2.5	G-175	350-2.5	350-320-24

NO	Description	Material	Q'ty
11	Piston Rod	Carbon Steel for Mechanical Structure	1
12	Head	Rolled Steel for General Structure	1
13	Socket Head Cap Screw	Carbon Steel for Mechanical Structure	8
14	Flange	Rolled Steel for General Structure	1
15	Piston	Rolled Steel for General Structure	1

NO	Description	Material	Q'ty
16	Actuator Tube	Carbon Steel for Mechanical Structure	1
17	Piston	Rolled Steel for General Structure	1
18	Set Screw	Carbon Steel for Mechanical Structure	1
19	Actuator Cap	Rolled Steel for General Structure	

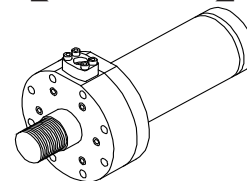


HYDRAULIC ACTUATOR(CYLINDER)

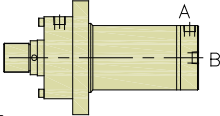
RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

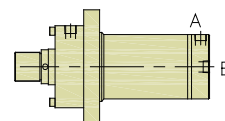
[SHA8]

The SHA8 series with bore dia. from Ø125~Ø350 applied in rubber vulcanizing M/C, press power shears etc. It's a reform type of SHA7 series and with two mounting style, extending & extracting are also suitable for FA type.



※MODEL NUMBER DESIGNATION

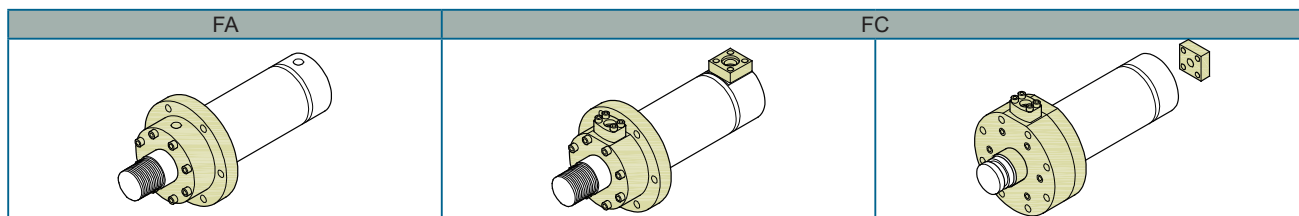
SHA8-	180-	FA-	125-	90-	100-	B-	A-	SSA-	E
I	II	III	IV	V	VI	VII	VIII	IX	X
I . Series: SHA8					VII. Rod End Type				
II . Operating Pressure:(Bar)					Type-A Type-B				
180: 180 Bar					VIII. Cap Port Position:				
III . Mounting Type: FA, FC. Please Refer to Below Table									
IV. Actuator(Cylinder) Bore Size: (M.M.)									
125: Ø125, 150: Ø150, 180: Ø180, 200: Ø200, 220: Ø220, 250: Ø250, 280: Ø280, 300: Ø300, 320: Ø320, 350: Ø350					IX. Port Flange Type:				
V . Rod Dia.: (M.M.)					SSA, SSA-B, PT(Rc), F5				
80: Ø80, 110: Ø110, 140: Ø140, 170: Ø170, 190: Ø190, 90: Ø90, 125: Ø125, 150: Ø150, 180: Ø180, 200: Ø200					X. Option, only for Type-A				
VI. Storque: (M.M.) Max. Permissible Stroke					E: Rod End With Other Threading				
					K: Fixed Screw Nut				
					L: Fixed Flange				



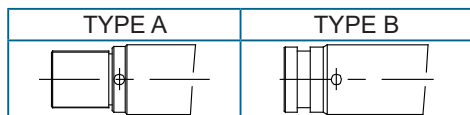
※SPECIFICATION

Model Item	Bore	Mounting Type	Operating Pressure	Testing Pressure	Min. Operating Pressure	Max. Speed	Min. Speed	Rod End Type	Max.Stroke	Range of Ambient Temperature	Fluid	Tolerance of Stroke
	Ø m.m.		Bar(psi)	Bar(psi)	Bar(psi)	mm/sec	mm/sec		m.m.	°C		
SHA8	125, 150, 180, 200, 220, 250, 280, 300, 320, 350	FA, FC	160(2320)	230(3335)	3(43.5)	500	20	TYPE A & B	Refer to DRAW	-10~80	Mineral Oil	JIS B 8354 A CLASS

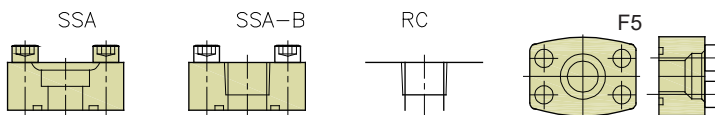
※ SCHEMATIC DIAGRAM



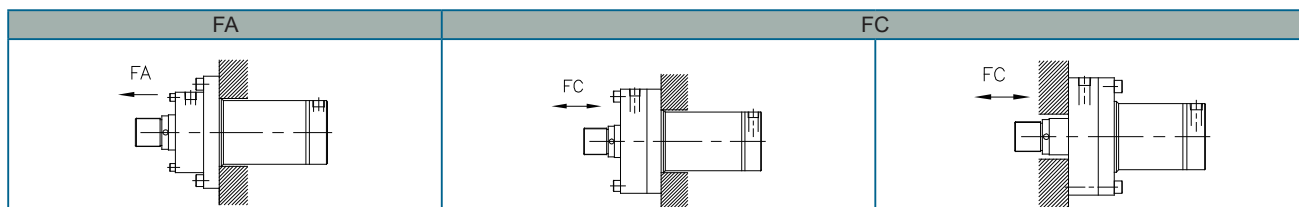
※ROD END TYPE



※PORT FLANGE KITE

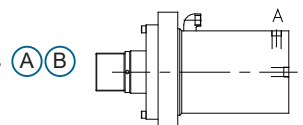


※ INSTALLATION



※PORT POSITIONS

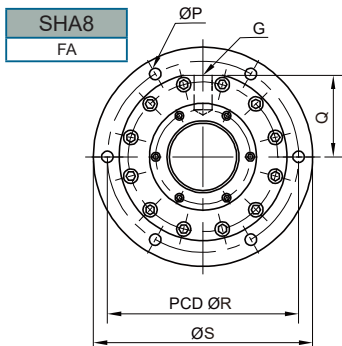
- The port position of actuator cap can be divided into pipe thread & flange two models and the position as (A) (B)
- Beware, the port position must same as fig. shown, if need another position, please contact SOLTECH.



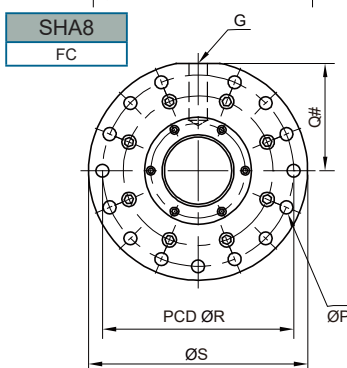
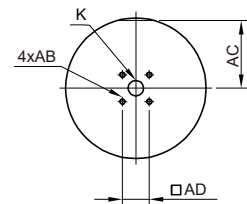
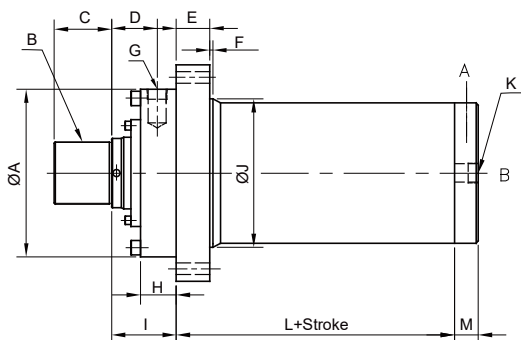


HYDRAULIC ACTUATOR(CYLINDER) RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

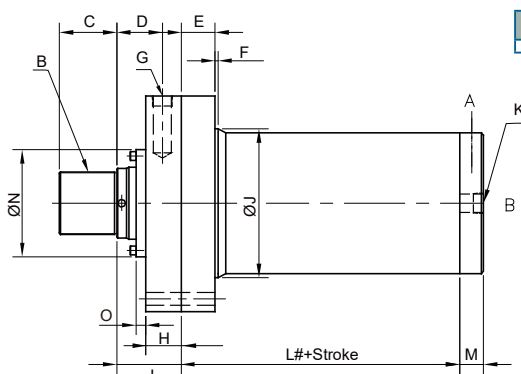
※DIMENSIONS



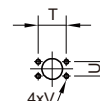
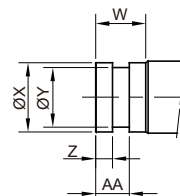
TYPE A



TYPE A



TYPE B



When Bore = Ø125, K= Rc 3/4", M=45(1.77) in TYPE A & B; K=SSA-20, M=73(2.87) in TYPE A, M=45(1.77) in TYPE B

When Bore = Ø200, K= Rc 1", M=50(1.97) in TYPE A & M=45(1.77) in TYPE B; K=SSA-25, M=85(3.35) in TYPE A & M=45(1.77) in TYPE B

BORE		A	B	C	D	E	F	G	H	I	J	K	L	L#	M	N	O	P	Q	Q#	R
Ø125	A	184	M75xP2	70	75	35	5	Rc 3/4"	65	105	155	RC 3/4"	105	170	75(2.95)	---	---	18	86	122.5	220
	B	(7.24)		(2.76)	(2.95)	(1.38)	(0.20)	G 3/4"	(2.56)	(4.13)	(6.10)		SSA-20	(4.13)	(6.69)						
Ø150	A	215	M75xP2	70	75	40	5	Rc 3/4"	65	105	185	RC 3/4"	110	175	75(2.95)	---	---	18	105	142	255
	B	(8.46)		(2.76)	(2.95)	(1.57)	(0.20)	G 3/4"	(2.56)	(4.13)	(7.28)		SSA-20	(4.33)	(6.89)						
Ø180	A	250	M95xP2	80	75	50	5	Rc 1"	70	110	225	RC 1"	147	217	45(1.77)	---	---	20	120	165	298
	B	(9.84)		(3.15)	(2.95)	(1.97)	(0.20)	G 1"	(2.76)	(4.33)	(8.86)		SSA-25	(5.79)	(8.54)						
Ø200	A	278	M115xP3	100	85	57	5	Rc 1"	70	120	246	RC 1"	145	215	50(1.97)	---	---	22	134	180	325
	B	(10.94)		(3.94)	(3.35)	(2.24)	(0.20)	G 1"	(2.76)	(4.72)	(9.69)		SSA-25	(5.71)	(8.46)						
Ø220	A	310	M130xP3	120	90	63	6	Rc 1"	70	125	277	RC 1"	170	240	50(1.97)	---	---	24	---	203	363
	B	(12.2)		(4.72)	(3.54)	(2.48)	(0.24)	G 1"	(2.76)	(4.92)	(10.91)		SSA-25	(6.69)	(9.45)						
Ø250	A	350	M130xP3	120	95	70	6	RC 1-1/4"	75	135	310	RC 1-1/4"	180	255	60(2.36)	223	20	24	170	224	399
	B	(13.78)		(4.72)	(3.74)	(2.76)	(0.24)	G 1-1/4"	(2.95)	(5.31)	(12.20)		SSA-32	(7.09)	(10.04)						
Ø280	A	383	M150xP3	145	110	78	7	RC 1-1/4"	80	150	339	RC 1-1/4"	172	252	60(2.36)	260	25	26	187	240	437
	B	(15.08)		(5.71)	(4.33)	(3.07)	(0.28)	G 1-1/4"	(3.15)	(5.91)	(13.35)		SSA-32	(6.77)	(9.92)						
Ø300	A	401	M160xP4	160	132.5	85	7	RC 1-1/4"	85	175	368	RC 1-1/4"	169	254	60(2.36)	270	30	28	196	251	458
	B	(15.79)		(6.30)	(5.22)	(3.35)	(0.28)	G 1-1/4"	(3.35)	(6.89)	(14.49)		SSA-32	(6.65)	(10.0)						
Ø320	A	426	M170xP4	180	137.5	90	9	RC 1-1/2"	95	185	393	RC 1-1/2"	185	280	75(2.95)	285	30	32	207	273	493
	B	(16.77)		(7.09)	(5.41)	(3.54)	(0.35)	G 1-1/2"	(3.74)	(7.28)	(15.47)		SSA-40	(7.28)	(11.02)						
Ø350	A	461	M180xP4	190	147.5	100	9	RC 1-1/2"	95	195	423	RC 1-1/2"	190	285	75(2.95)	300	40	32	225	290	527
	B	(18.15)		(7.48)	(5.81)	(3.94)	(0.35)	G 1-1/2"	(3.74)	(7.68)	(16.65)		SSA-40	(7.48)	(11.22)						

BORE	S	T	U	V, AB	W	X	Y	Z	AA	AC	AD
Ø125	256(10.08)	47.6(1.87)	22.2(0.87)	M10xP1.5	45(1.77)	75(2.95)	65(2.56)	15(0.59)	30(1.18)	66(2.60)	40(1.57)
Ø150	295(11.61)	47.6(1.87)	22.2(0.87)	M10xP1.5	60(2.36)	85(3.35)	74(2.91)	20(0.79)	40(1.57)	82(3.23)	40(1.57)
Ø180	340(13.39)	52.4(2.06)	26.2(1.03)	M10xP1.5	75(2.95)	105(4.13)	94(3.70)	25(0.98)	50(1.97)	99(3.90)	48(1.89)
Ø200	370(14.57)	52.4(2.06)	26.2(1.03)	M10xP1.5	84(3.31)	120(4.72)	105(4.13)	28(1.10)	56(2.20)	110(4.33)	48(1.89)
Ø220	415(16.33)	52.4(2.06)	26.2(1.03)	M10xP1.5	90(3.54)	135(5.31)	120(4.72)	30(1.18)	60(2.36)	1275(0.0)	48(1.89)
Ø250	457(17.99)	58.7(2.31)	30.2(1.19)	M10xP1.5	105(4.13)	145(5.71)	125(4.92)	35(1.38)	70(2.76)	141(5.55)	56(2.20)
Ø280	489(19.25)	58.7(2.31)	30.2(1.19)	M10xP1.5	120(4.72)	165(6.50)	140(5.51)	40(1.57)	80(3.15)	156(6.14)	56(2.20)
Ø300	510(20.09)	58.7(2.31)	30.2(1.19)	M10xP1.5	120(4.72)	175(6.89)	150(5.91)	40(1.57)	80(3.15)	181(7.13)	56(2.20)
Ø320	555(21.85)	69.9(2.75)	35.7(1.41)	M10xP1.5	135(5.31)	185(7.28)	155(6.10)	45(1.77)	90(3.54)	181(7.13)	65(2.56)
Ø350	589(23.19)	69.9(2.75)	35.7(1.41)	M12xP1.75	150(5.91)	195(7.68)	165(6.50)	50(1.97)	100(3.94)	197(7.76)	65(2.56)



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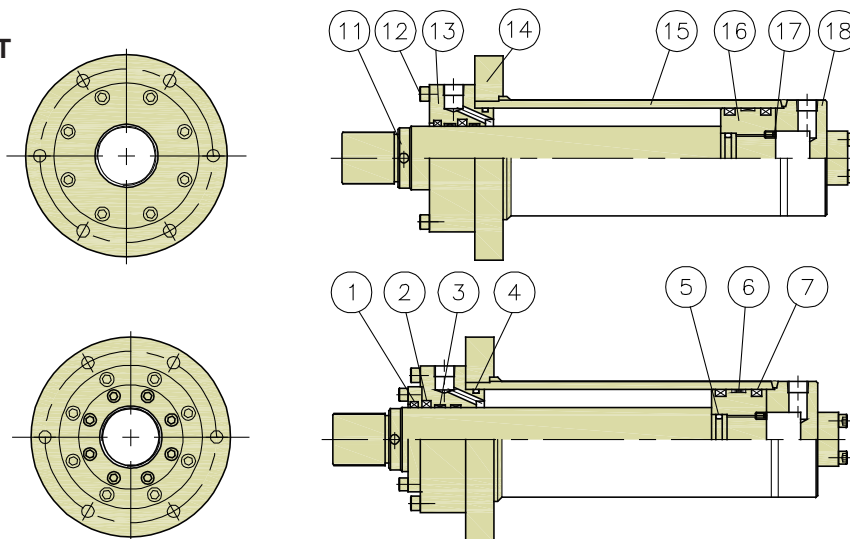
HYDRAULIC ACTUATOR(CYLINDER)

RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

※TECHNICAL DATA

Cylinder Bore (M.M.)	Rod Dia (M.M.)	Action	Effective Area (cm ²)	Output Power (kgf)				Flow Rate at Speed 10 l/min (mm/sec)	Speed at Flow Rate 10 mm/sec (l/min)
				30 (kgf/cm ²)	70 (kgf/cm ²)	140 (kgf/cm ²)	210 (kgf/cm ²)		
125	80	Extend	122.7	3680	8586	17181	25771	14.0	7.4
		Retract	72.4	2172	5069	10143	15215	23.0	4.3
150	90	Extend	176.6	5299	12364	24740	37110	9.0	10.6
		Retract	113.0	3391	7913	15834	23750	15.0	6.8
180	110	Extend	254.3	7630	17804	35626	53438	7.0	15.3
		Retract	159.4	4781	11161	22321	33482	10.0	9.6
200	125	Extend	314.2	9420	21980	43982	65973	5.3	18.8
		Retract	191.3	5740	13401	26802	40203	8.7	11.5
220	140	Extend	380.0	11398	26596	53219	79828	4.4	22.8
		Retract	226.1	6782	15834	31667	47501	7.4	13.6
250	150	Extend	490.6	14179	34344	68722	103084	3.4	29.4
		Retract	314.0	9420	21991	43982	65973	5.3	18.8
280	170	Extend	615.4	18463	43081	86205	129308	2.7	36.9
		Retract	388.6	11657	27214	54428	81642	4.3	23.3
300	180	Extend	706.5	21195	49455	98960	148440	2.4	42.4
		Retract	452.2	13565	31667	63335	95000	3.7	27.1
320	190	Extend	804.2	24115	56269	112595	168892	2.1	48.2
		Retract	520.5	15614	36450	72900	109351	3.2	31.2
350	200	Extend	961.6	28849	67314	134696	202044	1.7	57.7
		Retract	647.6	19429	45357	90713	136070	2.6	38.9

※MATERIAL LIST



No.	1	2	3	4	5	6	7
Name	Dust Seal	Rod Seal	O-Ring	Wear Ring	O-Ring	Wear Ring	Piston Seal
Material	PU	PU	NBR	PTFE	NBR	PTFE	PU
Quantity	1	2	1	2	1	1	2
Bore Ø, Ø _w (mm)							
Ø125	80-90-8	80-90-6	G-120	80-2.5	G-55	125-2.5	125-112-13
Ø150	90-100-8	90-105-9	G-145	90-2.5	G-65	150-2.5	150-136-13
Ø180	110-120-8	110-125-9	G-170	110-2.5	G-95	180-2.5	180-165-13
Ø200	125-138-9.5	125-140-9	G-190	125-2.5	G-105	200-2.5	200-180-16
Ø220	140-153-9.5	140-155-9	G-210	140-2.5	P-115	220-2.5	220-200-16
Ø250	150-163-9.5	150-165-9	G-240	150-2.5	P-125	250-2.5	250-230-16
Ø280	170-185-14	170-185-9	G-270	170-2.5	P-145	280-2.5	280-255-20
Ø300	180-194-9.5	180-200-12	G-290	180-2.5	G-155	300-2.5	300-270-23
Ø320	190-203-9.5	190-210-12	P-300	190-2.5	G-165	320-2.5	320-290-24
Ø350	200-214-9.5	200-220-12	P-335	200-2.5	G-175	350-2.5	350-320-24

NO	Description	Material	Q'ty
11	Piston Rod	Carbon Steel for Mechanical Structure	1
12	Head	Rolled Steel for General Structure	1
13	Socket Head Cap Screw	Carbon Steel for Mechanical Structure	8
14	Flange	Rolled Steel for General Structure	1

NO	Description	Material	Q'ty
15	Actuator Tube	Carbon Steel for Mechanical Structure	1
16	Piston	Rolled Steel for General Structure	1
17	Set Screw	Carbon Steel for Mechanical Structure	1
18	Actuator Cap	Rolled Steel for General Structure	



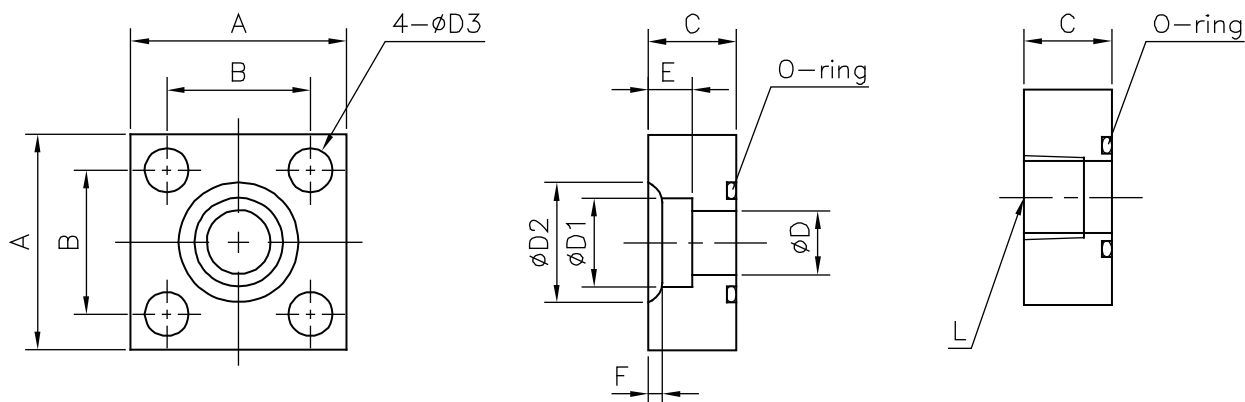
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

RUBBER VULCANIZING M/C PUNCHING PRESSES MACHINERY

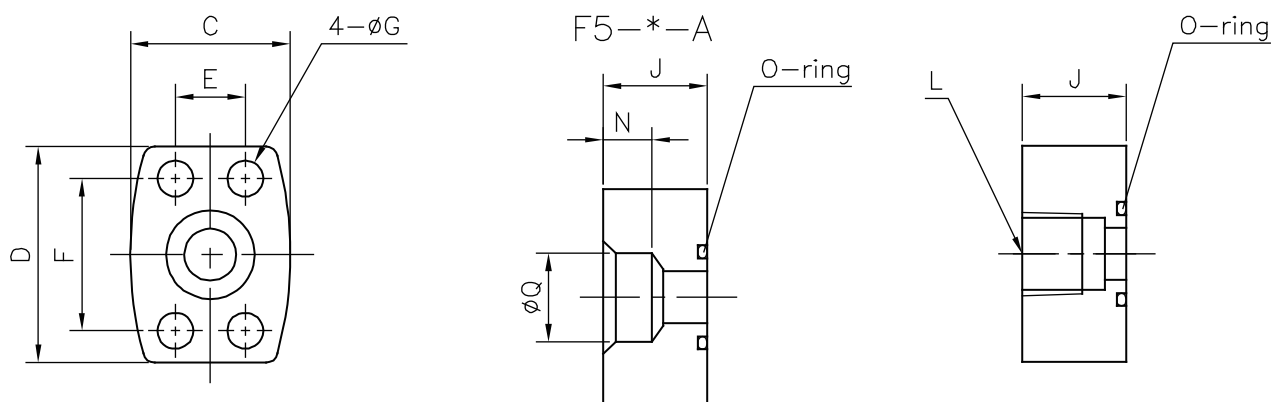
"SSA" Series Pipe Flange Kits

SHA7, SHA8



SIZE	A	B	C	D	D1	D2	D3	E	F	L	O-Ring	Weight(Kg)
15	54(2.13)	36(1.42)	22(0.87)	16(0.63)	22.2(0.87)	32(1.26)	11(0.43)	11(0.43)	3.5(0.14)	Rc 1/2"	G25	0.4
20	58(2.28)	40(1.57)	22(0.87)	20(0.79)	27.7(1.09)	38(1.50)	11(0.43)	12(0.47)	4.0(0.16)	Rc 3/4"	G30	0.5
25	68(2.68)	48(1.89)	28(1.10)	25(0.98)	34.5(1.36)	45(1.77)	13(0.51)	14(0.55)	4.0(0.16)	Rc 1"	G35	0.8
32	76(2.99)	56(2.20)	28(1.10)	31.5(1.24)	43.2(1.70)	56(2.20)	13(0.51)	16(0.63)	6.0(0.24)	Rc 1-1/4"	G40	0.9
40	92(3.62)	65(2.56)	36(1.42)	37.5(1.47)	49.1(1.93)	63(2.48)	18(0.71)	81(0.71)	7.0(0.28)	Rc 1-1/2"	G50	1.7
50	100(3.94)	73(2.87)	36(1.42)	47.5(1.87)	61.1(2.41)	75(2.95)	18(0.71)	19(0.75)	7.0(0.28)	RC 2"	G60	2.0
65	128(0.54)	92(3.62)	45(1.77)	60(2.36)	77.1(3.04)	95(3.74)	22(0.87)	22(0.87)	9.0(0.35)	RC 2-1/2"	G75	4.2
80	140(5.51)	103(4.06)	45(1.77)	71(2.80)	90.0(3.54)	108(4.25)	24(0.94)	25(0.98)	11.0(0.43)	RC 3"	G85	4.8

"F5" Series Pipe Flange Kits



SIZE	C	D	E	F	G	J	N	Q	L	O-Ring	Weight(Kg)
F5-04W-A(B)	40(1.57)	54(2.13)	17.5(0.69)	38.1(1.50)	8.8(0.35)	26(1.02)	9(0.35)	17.8(0.70)	Rc 3/8"	P22	0.5
F5-04-A(B)	40(1.57)	54(2.13)	17.5(0.69)	38.1(1.50)	8.8(0.35)	26(1.02)	11(0.43)	22.2(0.87)	Rc 1/2"	P22	0.5
F5-06X-A(B)	48(1.89)	65(2.56)	22.2(0.87)	47.6(1.87)	11(0.43)	28(1.10)	12(0.47)	27.7(1.09)	Rc 3/4"	G30	0.7
F5-06-A(B)	48(1.89)	65(2.56)	22.2(0.87)	47.6(1.87)	11(0.43)	28(1.10)	12(0.47)	27.7(1.09)	Rc 3/4"	G30	0.7
F5-08W-A(B)	55(2.17)	70(2.76)	26.2(1.03)	52.4(2.06)	11(0.43)	28(1.10)	12(0.47)	27.7(1.09)	Rc 3/4"	G35	0.9
F5-08-A(B)	55(2.17)	70(2.76)	26.2(1.03)	52.4(2.06)	11(0.43)	28(1.10)	14(0.55)	34.5(1.36)	Rc 1"	G35	0.9
F5-10-A(B)	64(2.52)	80(3.15)	30.2(1.19)	58.7(2.31)	11(0.43)	29(1.14)	16(0.63)	43.2(1.70)	Rc 1-1/4"	G40	1.2
F5-12-A(B)	72(2.83)	94(3.70)	35.7(1.41)	69.9(2.75)	13.5(0.53)	30(1.18)	18(0.71)	49.1(1.93)	Rc 1-1/2"	G50	1.5
F5-16W-A(B)	85(3.35)	102(1.02)	42.9(1.69)	77.8(3.06)	13.5(0.53)	30(1.18)	18(0.71)	49.1(1.93)	Rc 1-1/2"	G60	1.8
F5-16-A(B)	85(3.35)	102(1.02)	42.9(1.69)	77.8(3.06)	13.5(0.53)	30(1.18)	20(0.79)	61.1(2.41)	Rc 2"	G65	1.7
F5-20-A(B)	102(4.02)	114(4.49)	50.8(2.00)	88.9(3.50)	13.5(0.53)	38(1.50)	22(0.87)	77.1(3.04)	Rc 2-1/2"	G75	2.0
F5-24-A(B)	116(4.57)	135(5.31)	61.9(2.44)	106.4(4.19)	17.5(0.69)	38(1.50)	25(0.98)	90(3.54)	Rc 3"	G85	2.7



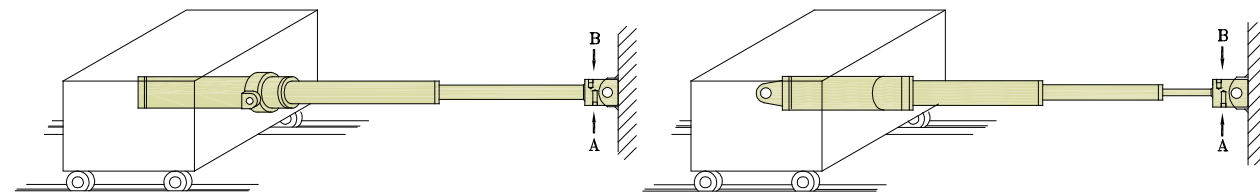
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HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION AT ROD END)

【SHA9】

The SHA9 are designed to multi-stage stroke to be reduce & concentrated in one actuator for saving space.



※MODEL NUMBER DESIGNATION

SHA9-	140-	TC-	125-	2-	1000-
I	II	III	IV	V	VI
I. Series: SHA9			V. Stage Number:		
II. Max. Operating Pressure:(Bar)			2: 2 Stage, 3: 3 Stage, 4: 4 Stage		
140: 140 Bar			VI. Stroke: (M.M.) Max. Permissible Stroke		
III. Mounting Type: TC, CA, CD. Please Refer to Below Table					
IV. Actuator(Cylinder) Bore Size: (M.M.)					
95: Ø95, 125: Ø125, 150: Ø150, 160: Ø160, 200: Ø200					

※SPECIFICATION

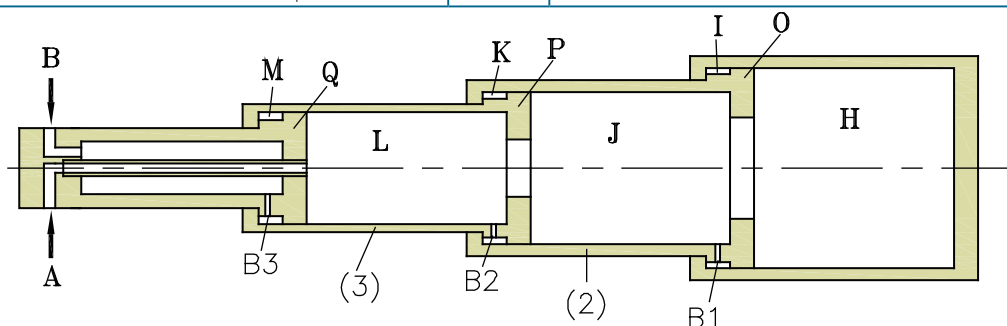
Max. Operating Pressure	Bar(psi)	140(2030)							
Range of Ambient Temperature	°C	-10~50							
Actuator Bore-Stage		95-2	90-3	125-2	125-3	150-3	150-4	160-3	200-3
Operating Speed	mm/sec	150	150	128	128	118	118	118	110
Permissible Stroke	mm	2500	2500	3100	3100	3100	3100	3100	3500

★The above metioned means the standard model. During the installation, the device bending value must be considered for max. stroke. If need longer size, please contact SOLTECH

※MOUNTING TYPE

Symbol	Configuration	Symbol	Configuration
TC		CD	
CA		TC	

※HOW TO ACT



► EXTENDING

The oil flow from port A and pass through the piston rod guide tube into chamber **H** and thrust piston **O**. Meanwhile, the oil in the chamber **I** will flow through port **B1** into chamber **K** and flow through port **B2** into chamber **M** thus the oil flow through port **B3** and discharged from port **B**.

During the chamber **O** is approaching to actuator head and the oil will thrust the piston **P**. Meanwhile, the third actuator acted also, the oil in chamber **K** flow through port **B2** into chamber **M**, thus the oil flow through port **B3** and discharged from port **B**.

During the piston **P** is approaching to actuator head and the oil will thrust the piston **Q**. Meanwhile, the fourth piston rod acted, thus the oil in chamber **M** flow through port **B3** and discharged from port **B**.

► EXTRACTING

The oil flow from port **B** and pass through port **B3** into chamber **M** and thrust piston **Q**. Meanwhile, the fourth piston rod will retracted the oil in chamber **L** which flow through piston rod guide tube and discharged from port **A**.

During the piston **Q** is approaching to piston **P** and the oil will flow through port **B2** into chamber **K** and thrust piston **P**. Meanwhile, the third piston rod will retract the oil in chamber **J** which flow through piston rod guide tube and discharged from port **A**.

During the piston **P** is approaching to piston **O** and oil will flow through port **B1** into Chamber **I** and thrust piston **O**. Meanwhile, the second piston rod will retract and oil in chamber **H** will flow through piston rod guide tube and discharged from port **A**.

※HOW TO GET THE HYDRAULIC ACTUATOR OUTPUT

ACTUATOR BORE-STAGE		95-2	90-3	125-2	125-3	150-3	150-4	160-3	200-3	200-4
STAGE BORE DIA.	2nd	70	70	95	95	125	125	120	160	160
STAGE BORE DIA.	3rd	---	50	---	70	95	95	80	120	120
STAGE BORE DIA.	4th	---	---	---	---	---	70	---	---	80
STAGE BORE DIA.	1st	80	80	110	110	140	140	140	180	180
STAGE BORE DIA.	2nd	50	50	80	80	110	110	95	140	140
STAGE BORE DIA.	3rd	---	35	---	50	80	80	60	90	95
STAGE BORE DIA.	4th	---	---	---	---	---	50	---	---	60

When extending, the actuator head & cap are stressed in the same time, so the real stressed area is the piston rod area.

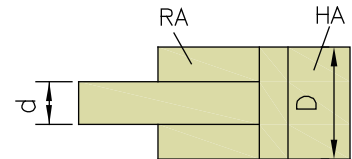
D = Actuator Bore

d = Piston rod Dia.(The Dia. of second bore)

$$HA = \frac{\pi D^2}{4}$$

$$RA = \frac{\pi (D^2 - d^2)}{4}$$

When extending, the stressing area: $\frac{\pi D^2}{4} - \frac{\pi (D^2 - d^2)}{4} = \frac{\pi d^2}{4} = \text{Piston Rod Area}$



And the extending force is (HA-RA) x P, extracting force is RA x P

$F = A \times P \times \beta$ Where F = Output Force (Kgf) A = Area (cm²) P = Pressure (Kgf/cm²) β = Loading Rate (%)

As for the practical output of actuator must consider the sliding resistance and pressure loss of pipg & machinery etc., The loading rate is the comparsion ratio to the practical output and the theoretical setting of actuator. The following are calculated by 80% of loading rate.

※EFFECTIVE AREA OF PISTON

Model	Effective Area	Extending				Extracting			
		1st.	2nd.	3rd.	4th.	1st.	2nd.	3rd.	4th.
95-2	50.2	38.5	---	---	---	20.6	18.8	---	---
95-3	50.2	28.3	19.6	---	---	20.6	10.2	10.0	---
125-2	95.0	63.6	---	---	---	27.7	20.6	---	---
125-3	95.0	50.2	38.5	---	---	---	---	18.8	---
150-3	153.9	95.0	63.6	---	---	22.8	27.7	20.6	---
150-4	153.9	95.0	50.2	38.5	---	22.8	27.7	20.6	18.8
160-3	165.0	86.6	63.6	---	---	35.9	36.1	35.3	---
200-3	268.7	165.0	122.7	---	---	45.3	35.9	36.1	---
200-4	268.7	165.0	86.6	63.6	---	45.3	35.9	36.1	35.3

► EXAMPLE

SHA9-125-2, double acting multi-stage hydraulic actuator, and operating pressure = 100 kgf/cm², for which derived the extending & extracting of each stage?

★/ Extending pressure of each stage:

- 1) 1st stage : A = 95 cm², F = 95x100x0.8 = 7600 kgf
- 2) 2nd stage: A = 63.6 cm², F = 63.6x100x0.8 = 5090 kgf

★/ Extracting pressure of each stage:

- 1) 1st stage : A = 27.7 cm², F = 27.7x100x0.8 = 2220 kgf
- 2) 2nd stage: A = 20.6 cm², F = 20.6x100x0.8 = 1650 kgf

► HOW TO SELECT SUITALBE ONE

If want to apply the double acting multi-stage actuator, and the operating pressure is 100 kgf/cm², extracting load at the last stage(3rd or 4th stage) with load 2800o kg for which derived 3rd or 4th actuator?

Formula: $A = \frac{F}{P \times \beta}$, and $A = \frac{2800 \text{kgf}}{100 \text{kgf/cm}^2 \times 0.8} = 35 \text{ cm}^2$

Conclusion: { if select 3 stage, SHA9-200-3 or SHA9-160-3 will be suitable.
if select 4 stage, SHA9-200-4 will be suitable.



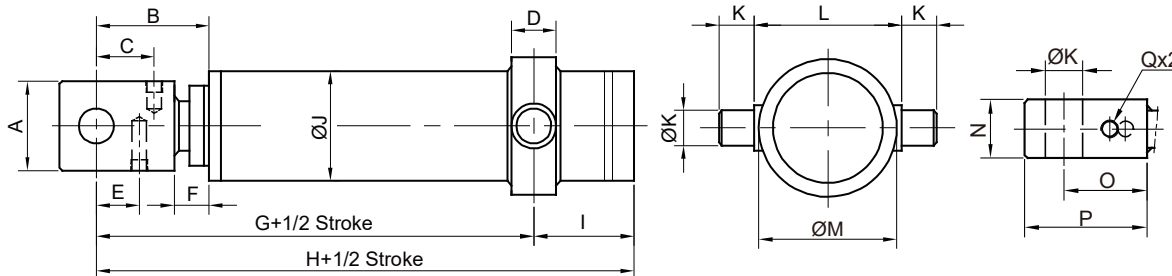
HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION AT ROD END)

SOLTECH

※DIMENSIONS

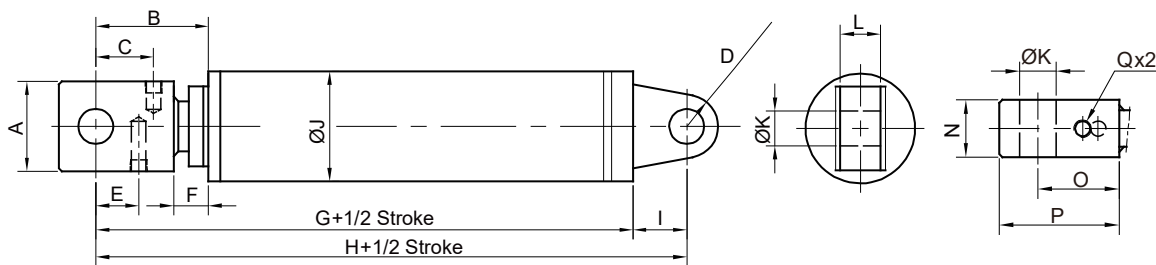
SHA9
TC



UNIT: M.M. (INCHES)

BORExSTAGE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Ø95x2	90(3.54)	113(4.45)	58(2.28)	45(1.77)	43(1.69)	35(1.38)	238(9.37)	338(13.31)	100(3.94)	110(4.33)	35(1.38)	148(5.83)	138(5.43)	55(2.17)	78(3.07)	115(4.53)	Rc/G 3/8"
Ø95x3	70(2.76)	123(4.84)	50(1.97)	45(1.77)	40(1.57)	---	219(8.62)	319(12.56)	100(3.94)	110(4.33)	35(1.38)	148(5.83)	138(5.43)	55(2.17)	70(2.76)	100(3.94)	Rc/G 3/8"
Ø125x2	90(3.54)	115(4.53)	60(2.36)	50(1.97)	45(1.77)	35(1.38)	235(9.25)	335(13.18)	100(3.94)	145(5.71)	40(1.57)	186(7.32)	175(6.89)	90(3.54)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø125x3	90(3.54)	130(5.12)	60(2.36)	50(1.97)	45(1.77)	50(1.97)	250(9.84)	350(13.78)	100(3.94)	145(5.71)	40(1.57)	186(7.32)	175(6.89)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø150x3	90(3.54)	130(5.12)	60(2.36)	55(2.17)	45(1.77)	50(1.97)	247(9.72)	347(13.66)	100(3.94)	175(6.89)	45(1.77)	216(8.50)	---	90(3.54)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø150x4	90(3.54)	145(5.71)	60(2.36)	55(2.17)	45(1.77)	65(2.56)	262(10.31)	362(14.25)	100(3.94)	175(6.89)	45(1.77)	216(8.50)	---	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø160x3	95(3.74)	155(6.10)	63(2.48)	78(3.07)	45(1.77)	65(2.56)	262(10.31)	362(14.25)	100(3.94)	175(6.89)	45(1.77)	216(8.50)	---	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø200x3	115(4.53)	175(6.89)	63(2.48)	110(4.33)	55(2.17)	65(2.56)	25.4(1.00)	404(15.91)	150(5.91)	232(9.13)	70(2.76)	290(11.42)	---	115(4.53)	90(3.54)	145(5.71)	Rc/G 1/2"
Ø200x4	115(4.53)	175(6.89)	63(2.48)	110(4.33)	55(2.17)	85(3.35)	274(10.79)	424(16.69)	150(5.91)	232(9.13)	80(3.15)	290(11.42)	---	80(3.15)	90(3.54)	145(5.71)	Rc/G 1/2"

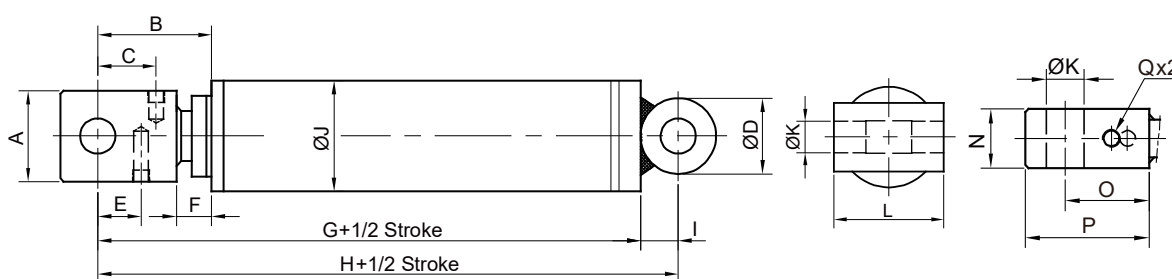
SHA9
CA



UNIT: M.M. (INCHES)

BORExSTAGE	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	Q
Ø95x2	90(3.54)	113(4.45)	58(2.28)	R31.5(1.24)	43(1.69)	35(1.38)	338(13.31)	392(15.43)	54(2.13)	110(4.33)	35(1.38)	40(1.57)	55(2.17)	78(3.07)	115(4.53)	Rc/G 3/8"
Ø95x3	70(2.76)	123(4.84)	50(1.97)	R31.5(1.24)	40(1.57)	---	319(12.56)	373(14.69)	54(2.13)	110(4.33)	35(1.38)	40(1.57)	55(2.17)	70(2.76)	100(3.94)	Rc/G 3/8"
Ø125x2	90(3.54)	115(4.53)	60(2.36)	R50(1.97)	45(1.77)	35(1.38)	335(13.19)	395(15.55)	60(2.36)	145(5.71)	40(1.57)	50(1.97)	90(3.54)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø125x3	90(3.54)	130(5.12)	60(2.36)	R50(1.97)	45(1.77)	50(1.97)	350(13.78)	410(16.14)	60(2.36)	145(5.71)	40(1.57)	50(1.97)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø150x3	90(3.54)	130(5.12)	60(2.36)	R50(1.97)	45(1.77)	50(1.97)	347(13.66)	412(16.22)	65(2.56)	175(6.89)	45(1.77)	60(2.36)	90(3.54)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø150x4	90(3.54)	145(5.71)	60(2.36)	R50(1.97)	45(1.77)	65(2.56)	362(14.25)	427(16.81)	65(2.56)	175(6.89)	45(1.77)	60(2.36)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø160x3	95(3.74)	155(6.10)	63(2.48)	R60(2.36)	45(1.77)	65(2.56)	404(15.91)	479(18.86)	75(2.95)	175(6.89)	45(1.77)	60(2.36)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø200x3	115(4.53)	175(6.89)	63(2.48)	R70(2.75)	55(2.17)	65(2.56)	404(15.91)	489(19.25)	85(3.35)	232(9.13)	70(2.76)	80(3.15)	115(4.53)	90(3.54)	145(5.71)	Rc/G 1/2"
Ø200x4	115(4.53)	175(6.89)	63(2.48)	R70(2.75)	55(2.17)	85(3.35)	424(16.69)	509(20.04)	85(3.35)	232(9.13)	80(3.15)	80(3.15)	80(3.15)	90(3.54)	145(5.71)	Rc/G 1/2"

SHA9
CD



UNIT: M.M. (INCHES)

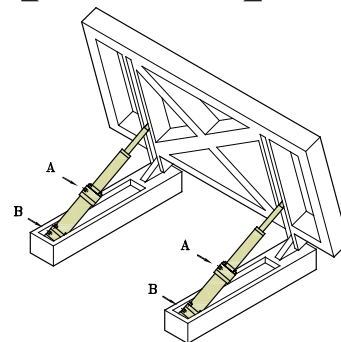
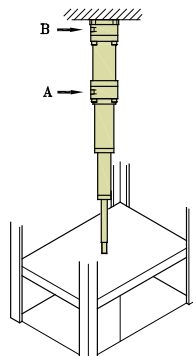
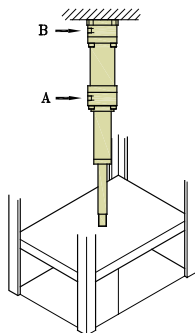
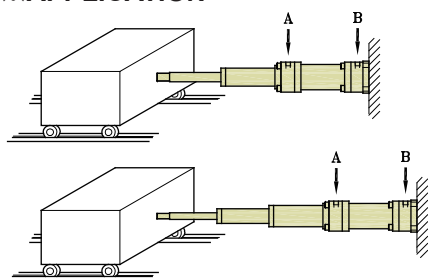
BORExSTAGE	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	Q
Ø95x2	90(3.54)	113(4.45)	58(2.28)	75(2.95)	43(1.69)	35(1.38)	338(13.31)	375.5(14.78)	37.5(1.48)	110(4.33)	35(1.38)	120(4.72)	55(2.17)	78(3.07)	115(4.53)	Rc/G 3/8"
Ø95x3	70(2.76)	123(4.84)	50(1.97)	75(2.95)	40(1.57)	---	319(12.56)	356.5(14.04)	37.5(1.48)	110(4.33)	35(1.38)	120(4.72)	55(2.17)	70(2.76)	100(3.94)	Rc/G 3/8"
Ø125x2	90(3.54)	115(4.53)	60(2.36)	80(3.15)	45(1.77)	35(1.38)	335(13.19)	395(15.55)	40(1.57)	145(5.71)	40(1.57)	155(6.10)	90(3.54)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø125x3	90(3.54)	130(5.12)	60(2.36)	80(3.15)	45(1.77)	50(1.97)	350(13.78)	390(15.35)	40(1.57)	145(5.71)	40(1.57)	155(6.10)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø150x3	90(3.54)	130(5.12)	60(2.36)	85(3.35)	45(1.77)	50(1.97)	347(13.66)	389.5(15.33)	42.5(1.67)	175(6.89)	45(1.77)	185(7.28)	90(3.54)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø150x4	90(3.54)	145(5.71)	60(2.36)	85(3.35)	45(1.77)	65(2.56)	362(14.25)	404.5(15.93)	42.5(1.67)	175(6.89)	45(1.77)	185(7.28)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø160x3	95(3.74)	155(6.10)	63(2.48)	110(4.33)	45(1.77)	65(2.56)	404(15.91)	459(18.07)	55(2.17)	175(6.89)	45(1.77)	199(7.83)	70(2.76)	80(3.15)	120(4.72)	Rc/G 3/8"
Ø200x3	115(4.53)	175(6.89)	63(2.48)	130(5.12)	55(2.17)	65(2.56)	404(15.91)	469(18.46)	65(2.56)	232(9.13)	70(2.76)	255(10.04)	115(4.53)	90(3.54)	145(5.71)	Rc/G 1/2"
Ø200x4	115(4.53)	175(6.89)	63(2.48)	130(5.12)	55(2.17)	85(3.35)	424(16.69)	489(19.25)	65(2.56)	232(9.13)	80(3.15)	255(10.04)	80(3.15)	90(3.54)	145(5.71)	Rc/G 1/2"



SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION AT HEAD & CAP)

[SHA10]**※APPLICATION****※MODEL NUMBER DESIGNATION**

SHA10-	140-	TC-	125-	2-	1000-	E
I	II	III	IV	V	VI	VII
I . Series: SHA10				V . Stage Number: 2: 2 Stage, 3: 3 Stage		
II . Max. Operating Pressure:(Bar) 140: 140 Bar				VI . Stroke: (M.M.) Max. Permissible Stroke		
III . Mounting Type: FA, FB, TC, CA. Please Refer to Below Table				VII . Optional Attachment: E: Rod end with other Thread L: With "I" Adapter K: With Locking Nut M: With "Y" Adapter		
IV . Actuator(Cylinder) Bore Size: (M.M.) 63: Ø63, 90: Ø90, 110: Ø110, 125: Ø125, 140: Ø140, 160: Ø160						

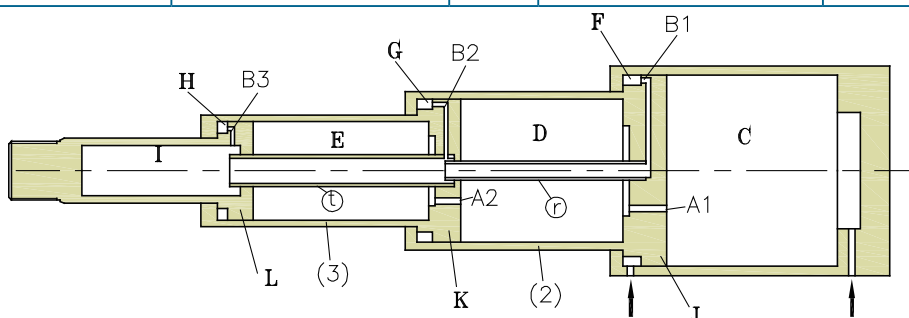
※SPECIFICATION

Max. Operating Pressure	Bar(psi)	140(2030)								
Range of Ambient Temperature	℃	-10~50								
Fluid		Mineral Oil								
Actuator Bore-Stage		63-2	90-2	90-3	110-2	110-3	125-2	125-3	140-2	160-2
Operating Speed	mm/sec	166	150	150	140	140	128	128	118	115
Permissible Stroke	mm	1700	2500	2500	3100	3100	3100	3100	3100	3100
★The above mentioned means the standard model. During the installation, the device bending value must be considered for max. stroke. If need longer size, please contact SOLTECH										

★The above mentioned means the standard model. During the installation, the device bending value must be considered for max. stroke. If need longer size, please contact SOLTECH

※MOUNTING TYPE

Symbol	Configuration	Symbol	Configuration
FB		FA	
CA		TC	

※HOW TO ACT**► EXTENDING**

The oil flow from port **A** into chamber **C** and thrust piston **J**. Meanwhile, the oil in the chamber **F** will discharged from port **B**.
During the chamber **J** is approaching to actuator head, the oil flow from port **A1** into chamber **D** and thrust the piston **K**. Meanwhile, the third actuator acted also, the oil in the chamber **G** flow from port **B2** through guide tube **r** & **B1** into chamber **F**, finally discharged from port **B**.
During the piston **K** is approaching to actuator head and the oil flow from port **A2** into chamber **E**. and thrust the piston **L**. Meanwhile, the fourth piston rod acted, thus the oil in chamber **H** flow from port **B3** through guide tube **t** & **B2**, finally discharged from port **B**.

► EXTRACTING

The oil flow from port **B** into chamber **F** and thrust piston **J**. Meanwhile, the 2nd. piston rod will retracted, the oil in chamber **C** will be discharged from port **A**.
During the piston **J** is approaching to the cap end and the oil will flow from port **B1** through guide tube **r** & **B2** into chamber **G** and thrust piston **K**. Meanwhile, the third piston rod will retract, the oil in chamber **D** will flow from **A1** and discharged from port **A**.
During the piston **K** is approaching to the cap end and oil will flow into chamber **I** through port **B3** into Chamber **H** and thrust piston **L**. Meanwhile, the piston rod will retract and oil in chamber **E** will flow through port **A1**&**A2** and finally discharged from port **A**.



SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION AT HEAD & CAP)

※EFFECTIVE AREA OF PISTON

Effective Area Model	Extending			Extracting		
	1st.	2nd.	3rd.	1st.	2nd.	3rd.
63-2	31.2	11.4	---	9.1	6.4	---
90-2	63.6	31.4	---	19.4	21.8	---
90-3	63.6	36.7	14.7	13.3	10.2	10.0
110-2	95.0	48.5	---	31.4	34.3	---
110-3	95.0	55.0	23.4	24.1	18.3	15.7
125-2	122.7	61.0	---	36.1	39.8	---
125-3	122.7	76.7	39.3	24.2	21.8	20.4
140-2	153.9	71.4	---	44.6	50.2	---
160-2	201.0	110.5	---	64.2	56.3	---

► EXAMPLE

SHA10-125-2, double acting multi-stage hydraulic actuator, and operating pressure = 100 kgf/cm², for which derived the extending & extracting of each stage?

★/ Extending pressure of each stage:

- 1) 1st stage : A = 122.7 cm², F = 122.7x100x0.8 = 9,820 kgf
- 2) 2nd stage : A = 76.7 cm², F = 76.7x100x0.8 = 6,140 kgf
- 3) 3rd stage : A = 39.3 cm², F = 39.3x100x0.8 = 3,150 kgf

★/ Extracting pressure of each stage:

- 1) 1st stage : A = 24.2 cm², F = 24.2x100x0.8 = 1,940 kgf
- 2) 2nd stage : A = 21.8 cm², F = 21.8x100x0.8 = 1,750 kgf
- 3) 3rd stage : A = 20.4 cm², F = 20.4x100x0.8 = 1,640 kgf

► HOW TO FIND THE SUITABLE ONE

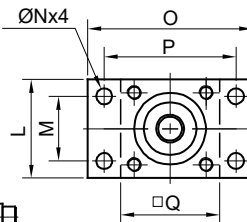
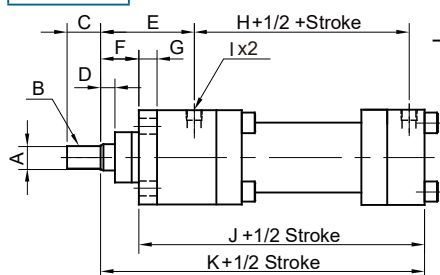
If want to apply the double acting multi-stage actuator, and the operating pressure is 140 kgf/cm², extracting load at the last stage(3rd stage) with load 1,800 kg for which derived 3rd actuator?

$$\text{Formula: } A = \frac{F}{P \times \beta}, \text{ and } A = \frac{1800 \text{ kgf}}{140 \text{ kgf/cm}^2 \times 0.8} = 16 \text{ cm}^2$$

Conclusion: { SHA10-100-3 will be suitable.
SHA10-125-3 will be suitable.

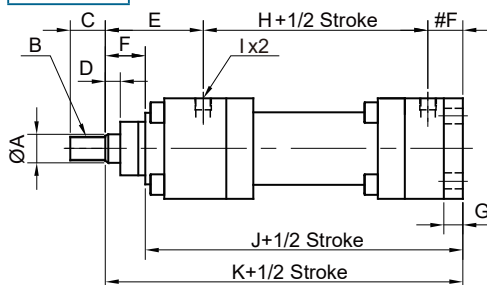
※DIMENSIONS

SHA10
FA

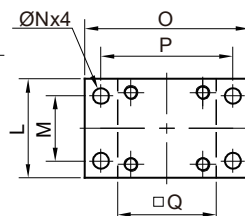


BORExSTAGE	AØ	B	C	D	E	F	G
Ø63x2	28(1.10)	M24xP1.5	35(1.38)	15(0.59)	98(3.86)	40(1.57)	19(0.75)
Ø90x2	38(1.50)	M33xP1.5	52(2.05)	15(0.59)	96(3.78)	41(1.61)	24(0.94)
Ø110x2	45(1.77)	M39xP1.5	55(2.17)	20(0.79)	122(4.80)	45(1.77)	35(1.38)
Ø125x2	55(2.17)	M45xP1.5	55(2.17)	20(0.79)	125(4.92)	45(1.77)	40(1.97)
Ø140x2	60(2.36)	M52xP2.0	80(3.15)	25(0.98)	140(5.51)	55(2.17)	45(1.77)
Ø160x2	85(3.35)	M76xP2.0	100(3.94)	25(0.98)	145(5.71)	65(2.56)	50(1.97)

SHA10
FB

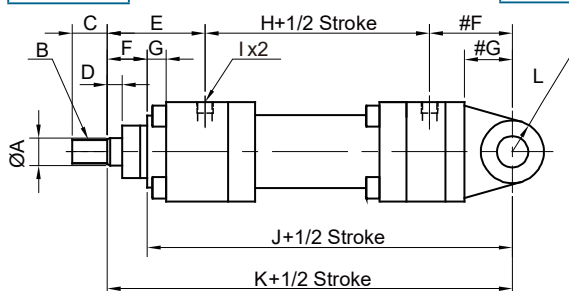


UNIT: M.M. (INCHES)



BORExSTAGE	AØ	B	C	D	E	F	#F
Ø63x2	28(1.10)	M24xP1.5	35(1.38)	15(0.59)	98(3.86)	40(1.57)	35(1.38)
Ø90x2	38(1.50)	M33xP1.5	52(2.05)	15(0.59)	96(3.78)	40(1.57)	47(1.85)
Ø110x2	45(1.77)	M39xP1.5	55(2.17)	20(0.79)	122(4.80)	45(1.77)	58(2.28)
Ø125x2	55(2.17)	M45xP1.5	55(2.17)	20(0.79)	125(4.92)	45(1.77)	68(2.68)
Ø140x2	60(2.36)	M52xP2.0	80(3.15)	25(0.98)	140(5.51)	55(2.17)	75(2.95)
Ø160x2	85(3.35)	M76xP2.0	100(3.94)	25(0.98)	145(5.71)	65(2.56)	75(2.95)

SHA10
CA



BORExSTAGE	AØ	B	C	D	E	F	#F
Ø63x2	28(1.10)	M24xP1.5	35(1.38)	15(0.59)	98(3.86)	40(1.57)	83(3.27)
Ø90x2	38(1.50)	M33xP1.5	52(2.05)	15(0.59)	96(3.78)	40(1.57)	85(3.35)
Ø110x2	45(1.77)	M39xP1.5	55(2.17)	20(0.79)	122(4.80)	45(1.77)	117(4.61)
Ø125x2	55(2.17)	M45xP1.5	55(2.17)	20(0.79)	125(4.92)	45(1.77)	134(5.28)
Ø140x2	60(2.36)	M52xP2.0	80(3.15)	25(0.98)	140(5.51)	55(2.17)	155(6.10)
Ø160x2	85(3.35)	M76xP2.0	100(3.94)	25(0.98)	145(5.71)	65(2.56)	160(6.30)

BORExSTAGE	G	#G	H	I	J	K	L	M	N	Q
Ø63x2	19(0.75)	48(1.89)	75(2.95)	Rc/G 3/8"	216(8.50)	256(10.08)	R31.5(1.24)	31.5(1.24)	40(1.57)	99(3.90)
Ø90x2	24(0.94)	62(2.44)	89(3.50)	Rc/G 1/2"	230(9.06)	270(10.63)	R40(1.57)	40(1.57)	45(1.77)	125(4.92)
Ø110x2	35(1.38)	64(2.52)	85(3.35)	Rc/G 1/2"	279(10.98)	324(12.76)	R40(1.57)	40(1.57)	50(1.97)	157(6.18)
Ø125x2	40(1.97)	76(2.99)	92(3.62)	Rc/G 3/4"	306(12.05)	351(13.82)	R50(1.97)	50(1.97)	63(2.48)	183(7.20)
Ø140x2	45(1.77)	125(4.92)	125(4.92)	Rc/G 3/4"	355(13.98)	420(16.54)	---	63(2.48)	80(3.15)	205(8.07)
Ø160x2	50(1.97)	95(3.74)	148(5.83)	Rc/G 3/4"	375(14.76)	453(17.83)	R75(2.95)	70(2.76)	80(3.15)	235(9.25)

UNIT: M.M. (INCHES)

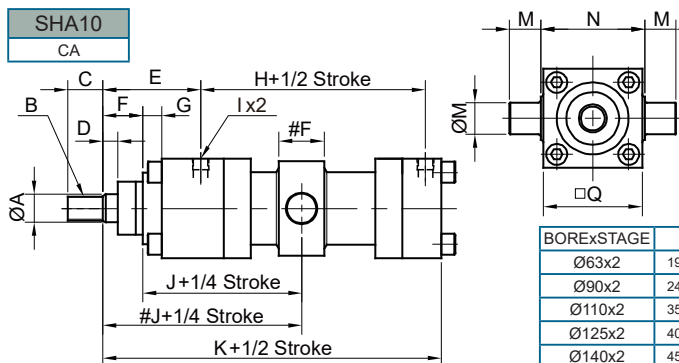


HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION AT HEAD & CAP)

SOLTECH

SHA10
CA

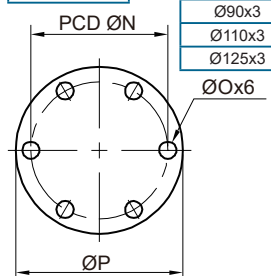


UNIT: M.M. (INCHES)

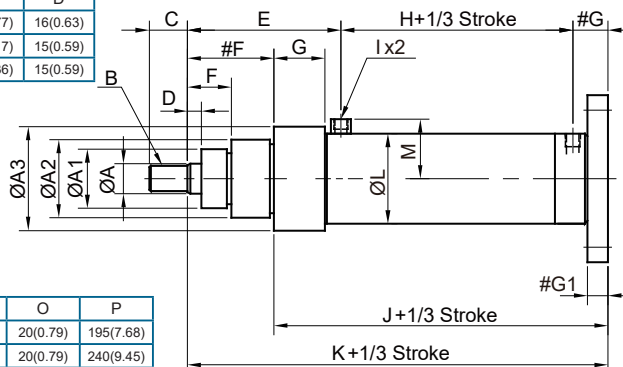
BORExSTAGE	AØ	B	C	D	E	F	#F
Ø63x2	28(1.10)	M24xP1.5	35(1.38)	15(0.59)	98(3.86)	40(1.57)	45(1.77)
Ø90x2	38(1.50)	M33xP1.5	52(2.05)	15(0.59)	96(3.78)	40(1.57)	50(1.97)
Ø110x2	45(1.77)	M39xP1.5	55(2.17)	20(0.79)	122(4.80)	45(1.77)	50(1.97)
Ø125x2	55(2.17)	M45xP1.5	55(2.17)	20(0.79)	125(4.92)	45(1.77)	60(2.36)
Ø140x2	60(2.36)	M52xP2.0	80(3.15)	25(0.98)	140(5.51)	55(2.17)	75(2.95)
Ø160x2	85(3.35)	M76xP2.0	100(3.94)	25(0.98)	145(5.71)	65(2.56)	87(3.43)

BORExSTAGE	G	H	I	J	#J	K	M	N	Q
Ø63x2	19(0.75)	75(2.95)	Rc/G 3/8"	84(3.31)	124(4.88)	189(7.44)	31.5(1.24)	104(4.09)	99(3.90)
Ø90x2	24(0.94)	89(3.50)	Rc/G 1/2"	94(3.70)	134(5.28)	208(8.19)	40(1.57)	135(5.31)	125(4.92)
Ø110x2	35(1.38)	85(3.35)	Rc/G 1/2"	110(4.33)	155(6.10)	230(9.06)	40(1.57)	163(6.42)	157(6.18)
Ø125x2	40(1.97)	92(3.62)	Rc/G 3/4"	120(4.72)	165(6.50)	235(9.26)	50(1.97)	193(7.60)	183(7.20)
Ø140x2	45(1.77)	125(4.92)	Rc/G 3/4"	125(4.92)	190(7.48)	295(11.61)	63(2.48)	210(8.27)	205(8.07)
Ø160x2	50(1.97)	148(5.83)	Rc/G 3/4"	132(5.20)	210(8.27)	318(12.52)	70(2.76)	240(9.45)	235(9.25)

SHA10
FB

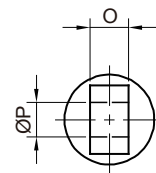
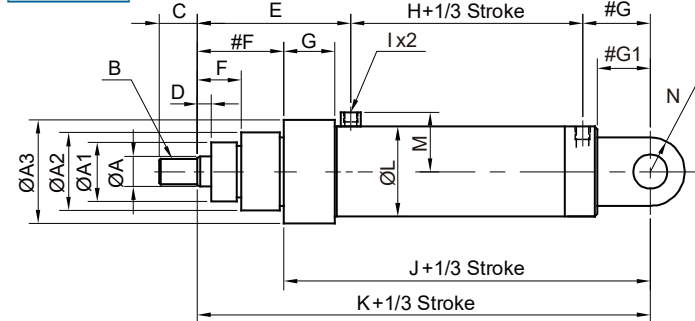


BORExSTAGE	A	A1	A2	A3	B	C	D
Ø90x3	35(1.38)	69(2.72)	91(3.58)	121(4.76)	M30xP1.5	45(1.77)	16(0.63)
Ø110x3	40(1.57)	84(3.31)	111(4.37)	141(5.55)	M36xP2.0	55(2.17)	15(0.59)
Ø125x3	55(2.17)	101(3.98)	128(5.04)	158(6.22)	M50xP2.0	60(2.36)	15(0.59)



BORExSTAGE	#G1	H	I	J	K	L	M	N	O	P
Ø90x3	24(0.94)	71(2.80)	Rc/G 1/2"	190(7.48)	291(11.46)	105(4.13)	69.5(2.74)	160(6.30)	20(0.79)	195(7.68)
Ø110x3	30(1.18)	114(4.49)	Rc/G 1/2"	246(9.69)	337(13.27)	125(4.92)	79.5(3.13)	200(7.87)	20(0.79)	240(9.45)
Ø125x3	35(1.38)	112(4.41)	Rc/G 3/4"	264(10.39)	360(14.17)	140(5.51)	87(3.43)	220(8.66)	22(0.87)	260(10.24)

SHA10
CA



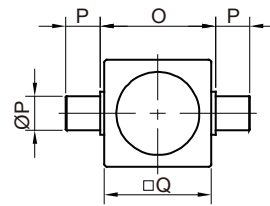
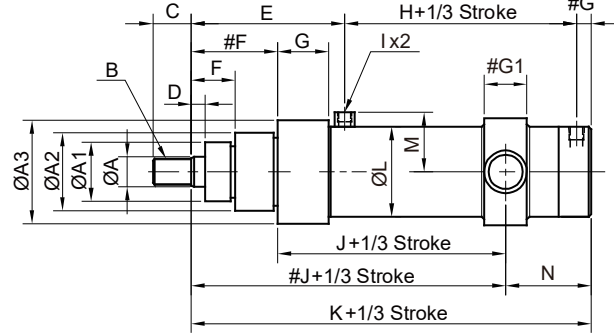
BORExSTAGE	A	A1	A2	A3	B	C	D
Ø90x3	35(1.38)	69(2.72)	91(3.58)	121(4.76)	M30xP1.5	45(1.77)	16(0.63)
Ø110x3	40(1.57)	84(3.31)	111(4.37)	141(5.55)	M36xP2.0	55(2.17)	15(0.59)
Ø125x3	55(2.17)	101(3.98)	128(5.04)	158(6.22)	M50xP2.0	60(2.36)	15(0.59)

BORExSTAGE	E	F	#F	G	#G	#G1	H
Ø90x3	179(7.05)	51(2.01)	101(3.98)	59(2.32)	79(3.11)	62(2.44)	71(2.80)
Ø110x3	168(6.61)	51(2.01)	91(3.58)	57(2.24)	89(3.50)	64(2.52)	114(4.49)
Ø125x3	188(7.40)	53(2.09)	96(3.78)	62(2.44)	101(3.98)	76(2.99)	112(4.41)

BORExSTAGE	I	J	K	L	M	N	O	P
Ø90x3	Rc/G 1/2"	228(8.98)	329(12.95)	105(4.13)	69.5(2.74)	R40(1.57)	45(1.77)	40(1.57)
Ø110x3	Rc/G 1/2"	280(11.02)	371(14.61)	125(4.92)	79.5(3.13)	R40(1.57)	50(1.97)	40(1.57)
Ø125x3	Rc/G 3/4"	305(12.01)	401(15.79)	140(5.51)	87(3.43)	R50(1.97)	63(2.48)	50(1.97)

UNIT: M.M. (INCHES)

SHA10
TC



BORExSTAGE	A	A1	A2	A3	B	C	D	E
Ø90x3	35(1.38)	69(2.72)	91(3.58)	121(4.76)	M30xP1.5	45(1.77)	16(0.63)	179(7.05)
Ø110x3	40(1.57)	84(3.31)	111(4.37)	141(5.55)	M36xP2.0	55(2.17)	15(0.59)	168(6.61)
Ø125x3	55(2.17)	101(3.98)	128(5.04)	158(6.22)	M50xP2.0	60(2.36)	15(0.59)	188(7.40)

BORExSTAGE	F	#F	G	#G	#G1	H	I	J	#J	K	L	M	N	O	P	Q
Ø90x3	51(2.01)	101(3.98)	59(2.32)	17(0.67)	50(1.97)	71(2.80)	Rc/G 1/2"	66(2.60)	167(6.57)	267(10.51)	105(4.13)	100(3.94)	135(5.31)	40(1.57)	125(4.92)	
Ø110x3	51(2.01)	91(3.58)	57(2.24)	---	---	114(4.49)	Rc/G 1/2"	58(2.28)	149(5.87)	307(12.09)	125(4.92)	79.5(3.13)	158(6.22)	40(1.57)	157(6.18)	
Ø125x3	53(2.09)	96(3.78)	62(2.44)	---	---	112(4.41)	Rc/G 3/4"	69(2.72)	165(6.50)	325(12.80)	140(5.51)	87(3.43)	160(6.30)	193(7.60)	50(1.97)	183(7.20)



TWO STAGE & SYNCHRONOUS

retracting, 1st
moving in the
opposite direction
supports the load

2nd
1st

A

M

PAGE 479

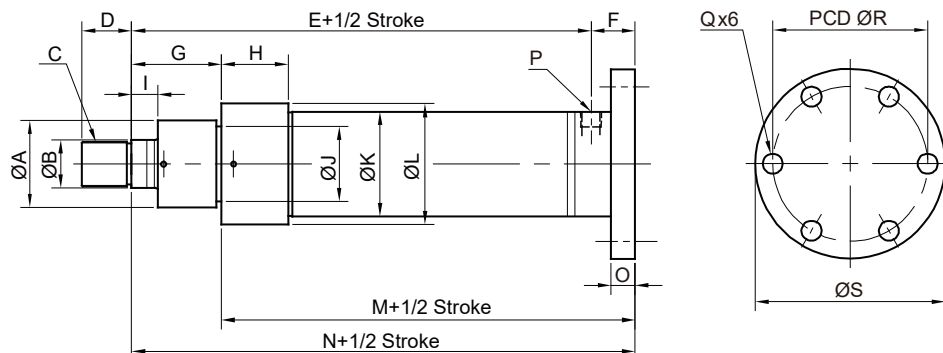


SOLTECH

HYDRAULIC ACTUATOR(CYLINDER) TWO STAGE & SYNCHRONOUS

※DIMENSIONS

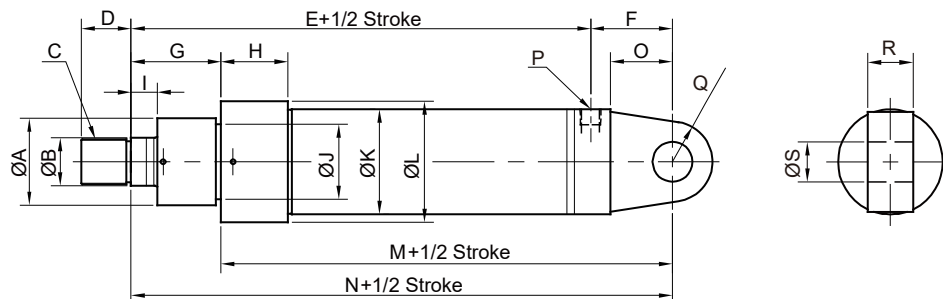
SHA11
FB



UNIT: M.M. (INCHES)

BORE	ØA	ØB	C	D	E	F	G	H	I	ØJ	ØK	ØL	M	N	O	P	ØQ	ØR	ØS
Ø90x2	87(3.43)	48(1.89)	M45xP1.5	50(1.97)	260(10.24)	44(1.73)	90(3.54)	67(2.64)	26(1.02)	75(2.95)	105(4.13)	121(4.76)	214(8.43)	304(11.97)	24(0.94)	Rc/G 1/2"	20(0.79)	155(6.10)	190(7.48)
Ø100x2	92(3.62)	58(2.28)	M55xP1.5	50(1.97)	265(10.43)	44(1.73)	90(3.54)	67(2.64)	26(1.02)	80(3.15)	114(4.49)	130(5.12)	219(8.62)	309(12.17)	24(0.94)	Rc/G 1/2"	20(0.79)	165(6.50)	200(7.87)
Ø125x2	120(4.72)	73(2.87)	M70xP2.0	80(3.15)	318(12.52)	55(2.17)	103(4.06)	---	28(1.10)	100(3.94)	145(5.71)	145(5.71)	270(10.63)	373(14.69)	35(1.38)	Rc/G 3/4"	22(0.87)	220(8.66)	260(10.24)
Ø150x2	140(5.51)	88(3.46)	M85xP2.0	80(3.15)	321(12.64)	65(2.56)	100(3.94)	---	24(0.94)	120(4.72)	175(6.89)	175(6.89)	286(11.26)	386(15.20)	45(1.77)	Rc/G 3/4"	27(1.06)	245(9.75)	290(11.42)
Ø180x2	150(5.91)	98(3.86)	M95xP2.0	100(3.94)	308(12.13)	75(2.95)	63(2.48)	---	30(1.18)	---	216(8.50)	216(8.50)	320(12.60)	383(15.08)	50(1.97)	Rc/G 1"	27(1.06)	300(11.81)	350(13.78)
Ø200x2	157(6.18)	118(4.65)	M115xP3.0	120(4.72)	333(13.11)	85(3.35)	68(2.68)	---	30(1.18)	---	242(9.53)	242(9.53)	350(13.78)	418(16.46)	55(2.17)	Rc/G1-1/4"	---	335(13.19)	390(15.35)

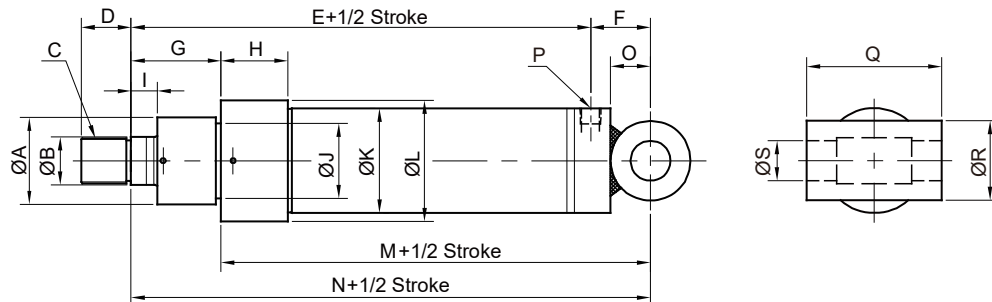
SHA11
CA



UNIT: M.M. (INCHES)

BORE	ØA	ØB	C	D	E	F	G	H	I	ØJ	ØK	ØL	M	N	O	P	Q	R	ØS
Ø90x2	87(3.43)	48(1.89)	M45xP1.5	50(1.97)	260(10.24)	82(3.23)	90(3.54)	67(2.64)	26(1.02)	75(2.95)	105(4.13)	121(4.76)	252(9.92)	342(13.46)	62(2.44)	Rc/G 1/2"	R40(1.57)	45(1.77)	40(1.57)
Ø100x2	92(3.62)	58(2.28)	M55xP1.5	50(1.97)	265(10.43)	84(3.31)	90(3.54)	67(2.64)	26(1.02)	80(3.15)	114(4.49)	130(5.12)	259(10.20)	349(13.74)	64(2.52)	Rc/G 1/2"	R40(1.57)	50(1.97)	40(1.57)
Ø125x2	120(4.72)	73(2.87)	M70xP2.0	80(3.15)	318(12.52)	96(3.78)	103(4.06)	---	28(1.10)	100(3.94)	145(5.71)	145(5.71)	311(12.24)	414(16.30)	76(2.99)	Rc/G 3/4"	R50(1.97)	63(2.48)	50(1.97)
Ø150x2	140(5.51)	88(3.46)	M85xP2.0	80(3.15)	321(12.64)	102(4.02)	100(3.94)	---	24(0.94)	120(4.72)	175(6.89)	175(6.89)	323(12.72)	423(16.65)	82(3.23)	Rc/G 3/4"	R63(2.48)	80(3.15)	63(2.48)
Ø180x2	150(5.91)	98(3.86)	M95xP2.0	100(3.94)	308(12.13)	142(5.59)	63(2.48)	---	30(1.18)	---	216(8.50)	216(8.50)	387(15.24)	450(17.72)	117(4.61)	Rc/G 1"	R80(3.15)	100(3.94)	80(3.15)
Ø200x2	157(6.18)	118(4.65)	M115xP3.0	120(4.72)	333(13.11)	147(5.79)	68(2.68)	---	30(1.18)	---	242(9.53)	242(9.53)	412(16.22)	480(18.90)	117(4.61)	Rc/G1-1/4"	R80(3.15)	100(3.94)	80(3.15)

SHA11
CD



UNIT: M.M. (INCHES)

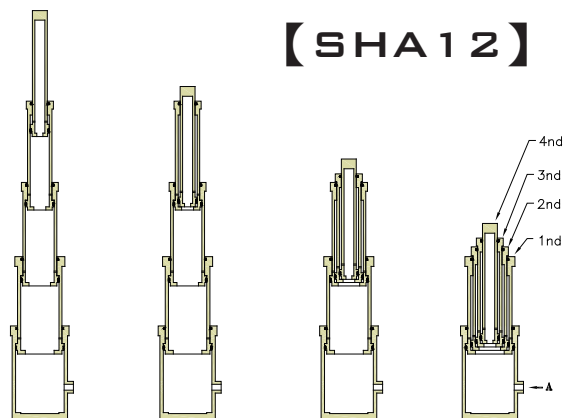
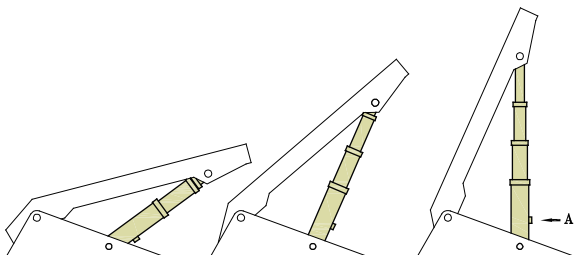
BORE	ØA	ØB	C	D	E	F	G	H	I	ØJ	ØK	ØL	M	N	O	P	Q	R	ØS
Ø90x2	87(3.43)	48(1.89)	M45xP1.5	50(1.97)	260(10.24)	60(2.36)	90(3.54)	67(2.64)	26(1.02)	75(2.95)	105(4.13)	121(4.76)	230(9.06)	320(12.60)	40(1.57)	Rc/G 1/2"	135(5.31)	80(3.15)	40(1.57)
Ø100x2	92(3.62)	58(2.28)	M55xP1.5	50(1.97)	265(10.43)	60(2.36)	90(3.54)	67(2.64)	26(1.02)	80(3.15)	114(4.49)	130(5.12)	235(9.25)	325(12.80)	40(1.57)	Rc/G 1/2"	144(5.67)	80(3.15)	40(1.57)
Ø125x2	120(4.72)	73(2.87)	M70xP2.0	80(3.15)	318(12.52)	70(2.76)	103(4.06)	---	28(1.10)	100(3.94)	145(5.71)	145(5.71)	285(11.22)	388(15.28)	50(1.97)	Rc/G 3/4"	175(6.89)	100(3.94)	50(1.97)
Ø150x2	140(5.51)	88(3.46)	M85xP2.0	80(3.15)	321(12.64)	80(3.15)	100(3.94)	---	24(0.94)	120(4.72)	175(6.89)	175(6.89)	301(11.85)	401(15.79)	60(2.36)	Rc/G 3/4"	200(7.87)	120(4.72)	63(2.48)
Ø180x2	150(5.91)	98(3.86)	M95xP2.0	100(3.94)	308(12.13)	100(3.94)	63(2.48)	---	30(1.18)	---	216(8.50)	216(8.50)	345(13.58)	408(16.06)	75(2.95)	Rc/G 1"	250(9.84)	150(5.91)	80(3.15)
Ø200x2	157(6.18)	118(4.65)	M115xP3.0	120(4.72)	333(13.11)	105(4.13)	68(2.68)	---	30(1.18)	---	242(9.53)	242(9.53)	370(14.57)	438(17.24)	75(2.95)	Rc/G1-1/4"	11.02	150(5.91)	80(3.15)



SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION BETWEEN HEAD & CAP)

【SHA12】**※MODEL NUMBER DESIGNATION**

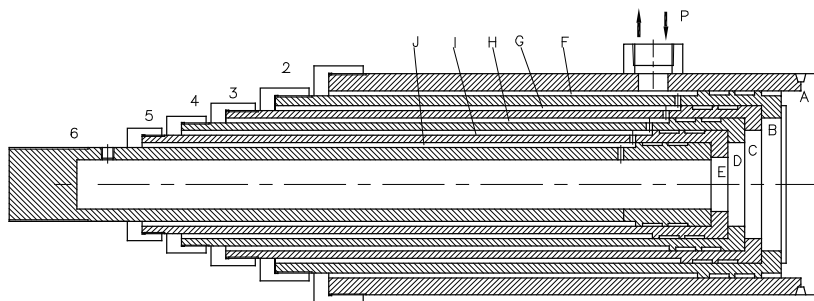
SHA12-	140-	TC-	135-	3-	2000-	E
I	II	III	IV	V	VI	VII
I . Series: SHA12			V . Stage Number:			
II . Max. Operating Pressure:(Bar)			2: 2 Stage, 3: 3 Stage, 4: 4 Stage, 5: 5 Stage, 6: 6 Stage			
160: 160 Bar			VI . Stroke: (M.M.) Max. Permissible Stroke			
III . Mounting Type: CD, TC. Please Refer to Below Table			VII . Optional Attachment:			
IV . Actuator(Cylinder) Bore Size: (M.M.)			E: Rod end with other Thread			
135: Ø135, 160: Ø160, 190: Ø190			K: With Locking Nut			

※SPECIFICATION

Max. Operating Pressure		Bar(psi)	160(2320)				
Range of Ambient Temperature		°C	-10~50	Oil Temperature	°C	-5~80	
Fluid			Mineral Oil				
Actuator Bore	mm	Main Actuator	135	160	160	190	190
		2nd	110	135	135	160	160
		3rd	85	110	110	135	135
		4th	---	---	85	110	110
		5th	---	---	---	---	85
Min. Piston Rod Dia.	mm	75	100	75	100	75	
Operating Speed	mm/sec	250	220	220	220	220	
Permissible Stroke	mm	8100	10200	10800	13600	13500	

※MOUNTING TYPE

Symbol	Configuration	Symbol	Configuration
TC		CD	

※HOW TO ACT**► EXTENDING**

The oil flow from port **P** into chamber **F**→**G**→**H**→**I**→**J**→**A** and thrust 2nd, 3rd...piston.

► EXTRACTING

Due to the load at the end of piston rod, the actuator will be extracting as sequence 6th→5th→...1st. Finally the oil will be discharged from port **P**.

► HOW TO FIND THE SUITABLE ONE

If want to apply the twin stage synchronous actuator on a lifting platform system, the operating pressure is 140 kgf/cm², and output will be 8,000 kgf., stroke: 13,500mm

$$\text{Formula: } A = \frac{F}{P \times \beta}, \text{ and } A = \frac{8000 \text{ kgf}}{140 \text{ kgf/cm}^2 \times 0.8} = 71.4 \text{ cm}^2$$

Conclusion: SHA12-190x4 will be suitable.

※EFFECTIVE AREA OF PISTON

Model	135x3	160x3	160x4	190x4	190x5
Effective Area	44.2	78.5	44.2	78.5	44.2



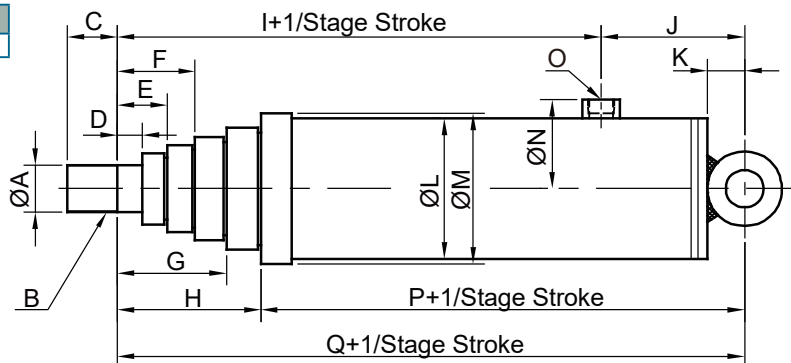
SOLTECH

HYDRAULIC ACTUATOR(CYLINDER)

MULTI-STAGE(PORT POSITION BETWEEN HEAD & CAP)

✳️DIMENSIONS

SHA12
CD

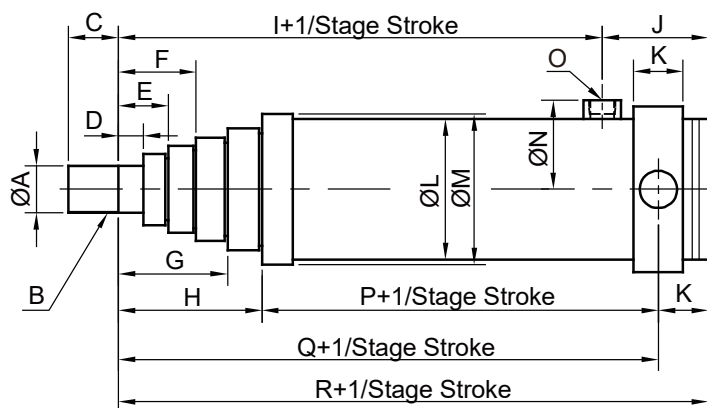


UNIT: M.M. (INCHES)

BORE	A	B	C	D	E	F	G	H
Ø135x3	75(2.85)	M75xP3.0	80(3.15)	40(1.57)	80(3.15)	---	---	125(4.93)
Ø160x3	100(3.94)	M100xP3.0	80(3.15)	40(1.57)	85(3.35)	---	---	135(5.31)
Ø160x4	75(2.85)	M75xP3.0	80(3.15)	40(1.57)	80(3.15)	125(4.93)	---	175(6.89)
Ø190x4	100(3.94)	M100xP3.0	80(3.15)	40(1.57)	85(3.35)	135(5.31)	190(7.48)	---
Ø190x5	75(2.85)	M75xP3.0	80(3.15)	40(1.57)	80(3.15)	125(4.93)	175(6.89)	230(9.06)

BORE	I	J	K	L	M	N	O	P	Q	R	S	T	U
Ø135x3	163(6.42)	220(8.66)	50(1.97)	150(5.91)	165(6.50)	100(3.94)	Rc/G 1"	258(10.16)	383(15.08)	50(1.97)	100(3.94)	180(7.09)	50(1.97)
Ø160x3	185(7.28)	225(8.86)	55(2.17)	185(7.28)	201(7.91)	122.5(4.82)	Rc/G 1-1/4"	275(10.83)	410(16.14)	60(2.36)	100(3.94)	220(8.66)	55(2.17)
Ø160x4	225(8.86)	225(8.86)	55(2.17)	185(7.28)	201(7.91)	122.5(4.82)	Rc/G 1-1/4"	275(10.83)	450(17.72)	60(2.36)	100(3.94)	220(8.66)	55(2.17)
Ø190x4	235(9.25)	230(9.06)	60(2.36)	225(8.86)	241(9.49)	42.5(1.67)	Rc/G 1-1/4"	275(10.83)	465(18.31)	60(2.36)	120(4.72)	260(10.24)	60(2.36)
Ø190x5	275(10.83)	230(9.06)	60(2.36)	225(8.86)	241(9.49)	42.5(1.67)	Rc/G 1-1/4"	275(10.83)	505(19.88)	60(2.36)	120(4.72)	260(10.24)	60(2.36)

SHA12
TC



UNIT: M.M. (INCHES)

BORE	A	B	C	D	E	F	G	H	I
Ø135x3	75(2.85)	M75xP3.0	80(3.15)	40(1.57)	80(3.15)	---	---	125(4.93)	163(6.42)
Ø160x3	100(3.94)	M100xP3.0	80(3.15)	40(1.57)	85(3.35)	---	---	135(5.31)	185(7.28)
Ø160x4	75(2.85)	M75xP3.0	80(3.15)	40(1.57)	80(3.15)	125(4.93)	---	175(6.89)	225(8.86)
Ø190x4	100(3.94)	M100xP3.0	80(3.15)	40(1.57)	85(3.35)	135(5.31)	190(7.48)	---	235(9.25)
Ø190x5	75(2.85)	M75xP3.0	80(3.15)	40(1.57)	80(3.15)	125(4.93)	175(6.89)	230(9.06)	275(10.83)

BORE	J	K	L	M	N	O	P	Q	R	S	T	U	V
Ø135x3	170(6.69)	80(3.15)	150(5.91)	165(6.50)	100(3.94)	Rc/G 1"	128(5.04)	253(9.96)	333(13.11)	50(1.97)	50(1.97)	55(2.17)	180(7.09)
Ø160x3	170(6.69)	80(3.15)	185(7.28)	201(7.91)	122.5(4.82)	Rc/G 1-1/4"	140(5.51)	275(10.83)	355(13.98)	60(2.36)	55(2.17)	60(2.36)	225(8.86)
Ø160x4	170(6.69)	80(3.15)	185(7.28)	201(7.91)	122.5(4.82)	Rc/G 1-1/4"	140(5.51)	315(12.40)	395(15.55)	60(2.36)	55(2.17)	60(2.36)	225(8.86)
Ø190x4	170(6.69)	80(3.15)	225(8.86)	241(9.49)	42.5(1.67)	Rc/G 1-1/4"	135(5.31)	325(12.80)	405(15.94)	60(2.36)	60(2.36)	70(2.76)	265(10.43)
Ø190x5	170(6.69)	80(3.15)	225(8.86)	241(9.49)	42.5(1.67)	Rc/G 1-1/4"	135(5.31)	365(14.37)	445(17.52)	60(2.36)	60(2.36)	70(2.76)	260(10.24)



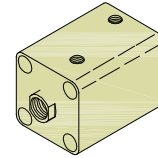
HYDRAULIC ACTUATOR(CYLINDER) COMPACT TYEP

[SHA13]

The SHA13 are compact design which only 1/3 length of general type, and easily maintained.

※COMMODITY SERIES

Model	Mounting Type	SD	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
Standard	140 Bar	Basic Type	●	●	●	●	●	●	●
	Foot Type	LA	●	●	●	●	●	●	●
Double Rod	140 Bar	Basic Type	●	●	●	●	●	●	●
	Foot Type	LAD	●	●	●	●	●	●	●
Sensor	140 Bar	Basic Type	●	●	●	●	●	●	●
Standard	210 Bar	Basic Type	●	●	●	●	●	●	●



※MODEL NUMBER DESIGNATION

SHA13-	140-	D-	SD-	50-	50-	N
I	II	III	IV	V	VI	VII

I . Series: SHA13

II . Max. Operating Pressure:(Bar)
140: 140 Bar

III . D: Double Rod, R: Sensor

IV . Mounting Type: SD, LA, SDD, LAD, SDR

VI. Actuator(Cylinder) Bore Size: (M.M.)

25: Ø25, 32: Ø32, 40: Ø40, 50: Ø50, 63: Ø63, 80: Ø80

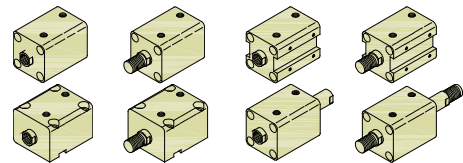
VI. Stroke: (M.M.) Max. Permissible Stroke

VII. Rod End Type

N: "N" Type W: "W" Type

※SPECIFICATION

Model	Bore	Mounting Type	Operating Pressure	Testing Pressure	Min. Operating Pressure	Max. Speed	Range of Ambient Temperature	Fluid
Item	Ø m.m.		Bar(psi)	Bar(psi)	Bar(psi)	mm/sec	°C	
SHA13	20, 25, 32, 40, 50, 63, 80	SD, LA	140(2030)	210(3045)	2(29)	100	-10~80	Mineral Oil

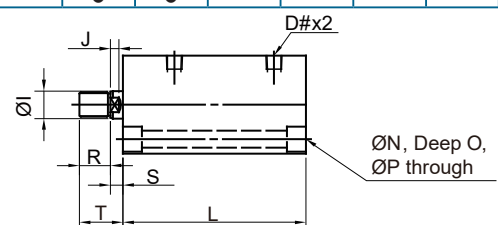
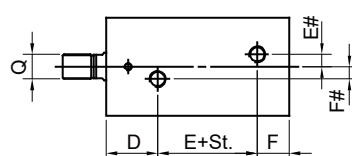
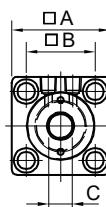


※STROKE RANGE

Model	Mounting Type	Bore (Øm.m.)	Stroke m.m.															● Standard			
			5	10	15	20	25	30	35	40	45	50	60	70	80	90	100				
Standard 140 Bar	Basic Type (SD)	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		63	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	Foot Type (LA)	32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
63		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Double Rod 140 Bar	Basic Type (SDD)	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		63	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	Foot Type (LAD)	32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
63		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Sensor 140 Bar	Basic Type (SDR)	32	---	---	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		40	---	---	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		50	---	---	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		63	---	---	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
		80	---	---	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
Standard 210 Bar	SD21	40	---	●	---	●	---	●	---	●	---	●	●	---	---	---	---	---			
		50	---	●	---	●	---	●	---	●	---	●	●	---	---	---	---	---			
		63	---	●	---	●	---	●	---	●	---	●	●	---	---	---	---	---			

※DIMENSIONS

SHA13
SD-21MPa



BORE	A	B	C	D	D#	E	F	E#	F#	I	J	L	N	O	P	R	S	T
Ø40	80(3.15)	56(2.20)	19(0.75)	42(1.65)	Rc/PT 1/4"	31(1.22)	26(1.02)	10(0.39)	10(0.39)	22.4(0.89)	7(0.28)	99(3.90)	14(0.55)	15.5(0.61)	20(0.79)	25(0.98)	10(0.39)	35(1.38)
Ø50	94(3.70)	67(2.64)	24(0.94)	42(1.65)	Rc/PT 1/4"	35(1.38)	31(1.22)	10(0.39)	10(0.39)	28(1.10)	8(0.31)	108(4.25)	16(0.63)	17.5(0.69)	23(0.91)	30(1.18)	11(0.43)	41(1.61)
Ø63	114(4.49)	82(3.23)	30(1.18)	45(1.77)	Rc/PT 3/8"	38(1.50)	37(1.46)	10(0.39)	10(0.39)	35.5(1.40)	9(0.35)	120(4.72)	18(0.71)	19.5(0.77)	26(1.02)	35(1.38)	13(0.51)	48(1.89)

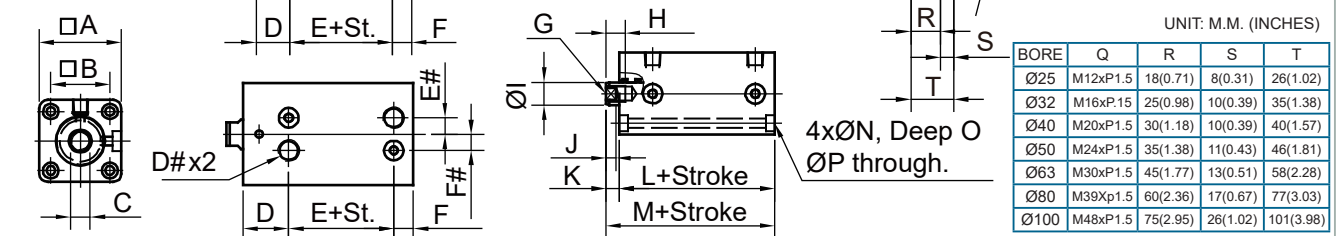


SOLTECH

HYDRAULIC ACTUATOR(CYLINDER) COMPACT TYPE

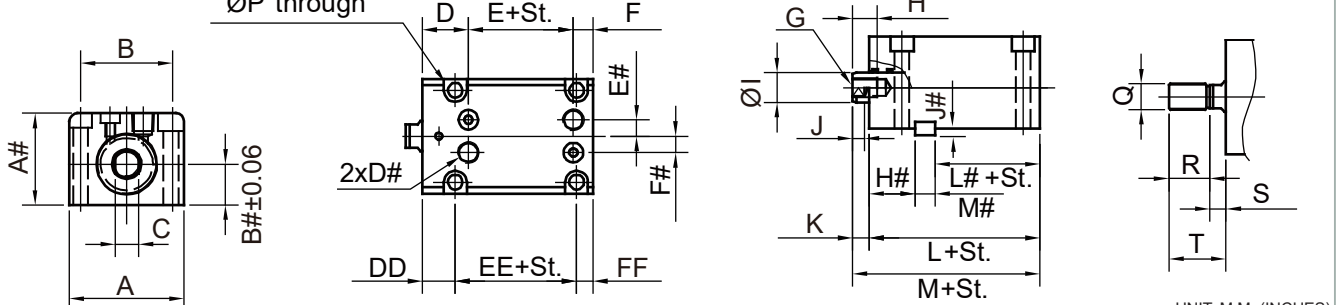
※DIMENSIONS

SHA13
SD



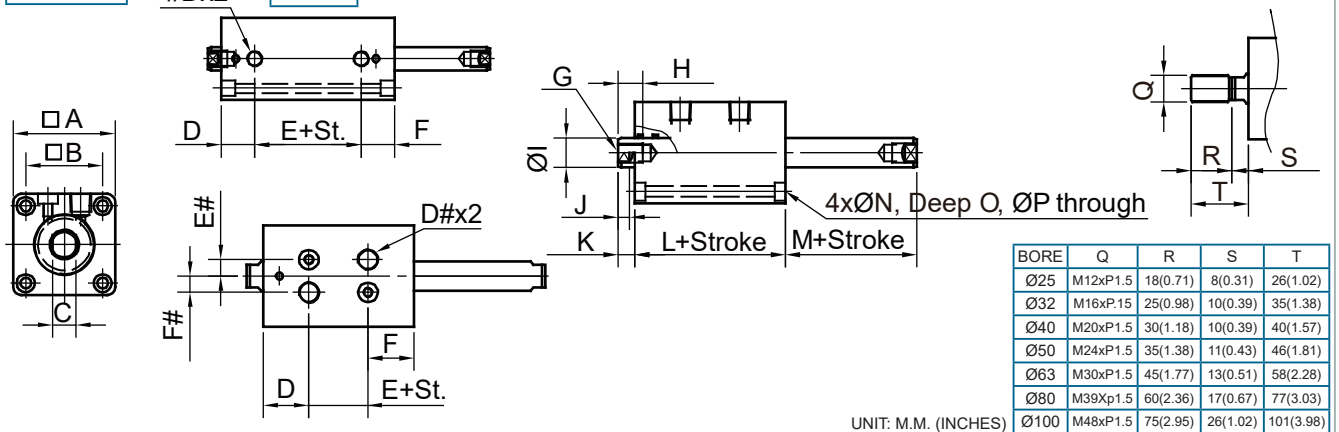
BORE	A	B	C	D	D#	E	E#	F	F#	G	H	I	J	K	L	M	N	O	P
Ø25	50(1.97)	36(1.42)	12(0.47)	20.5(0.81)	—	12.5(0.49)	—	12(0.47)	—	M10xP1.5	12(0.47)	14(0.55)	6(0.24)	8(0.31)	45(1.77)	53(2.09)	5.5(0.22)	5.5(0.22)	9.5(0.37)
Ø32	62(2.44)	47(1.85)	14(0.55)	28(1.10)	Rc/PT1/4"	14(0.55)	10(0.39)	12(0.47)	10(0.39)	M12xP1.75	15(0.59)	18(0.71)	7(0.28)	10(0.39)	54(2.13)	64(2.52)	6.6(0.26)	6.5(0.26)	11(0.43)
Ø40	70(2.76)	52(2.05)	19(0.75)	27(1.06)	Rc/PT 1/4"	16(0.63)	10(0.39)	12(0.47)	10(0.39)	M16xP2.0	20(0.79)	22.4(0.89)	7(0.28)	10(0.39)	55(2.17)	65(2.56)	9(0.35)	8.6(0.34)	14.5(0.57)
Ø50	80(3.15)	58(2.28)	24(0.94)	28(1.10)	Rc/PT 1/4"	19(0.75)	10(0.39)	13(0.51)	10(0.39)	M20xP2.5	24(0.94)	28(1.10)	8(0.31)	11(0.43)	60(2.36)	71(2.80)	11(0.43)	10.8(0.43)	17.5(0.69)
Ø63	94(3.70)	69(2.72)	30(1.18)	30(1.18)	Rc/PT 1/4"	24(0.94)	10(0.39)	13(0.51)	10(0.39)	M30xP1.5	33(1.30)	35.5(1.40)	9(0.35)	13(0.51)	67(2.64)	80(3.15)	14(0.55)	13(0.51)	20(0.79)
Ø80	114(4.49)	86(3.39)	41(1.61)	35(5.31)	Rc/PT 3/8"	25(0.98)	15(0.59)	18(0.71)	15(0.59)	m30xP3.5	33(1.30)	45(1.77)	14(0.55)	17(0.67)	78(3.07)	95(3.74)	16(0.63)	15.2(0.60)	23(0.91)
Ø100	145(5.71)	105(4.13)	50(1.97)	35(5.31)	Rc/PT 3/8"	39(1.54)	15(0.59)	21(0.83)	15(0.59)	M39xP4.0	45(1.77)	56(2.20)	20(0.79)	26(1.02)	95(3.74)	121(4.76)	22(0.87)	21.5(0.85)	32(1.26)

SHA13
LA



BORE	K	L	L#	M	M#	N	O	P	Q	R	S	T
Ø32	10(0.39)	54(2.13)	14(0.55)	64(2.52)	12(0.47)	9(0.35)	8.6(0.34)	14.5(0.57)	M16xP1.5	25(0.98)	10(0.39)	35(1.38)
Ø40	10(0.39)	55(2.17)	15(0.69)	65(2.56)	12(0.47)	11(0.43)	10.8(0.43)	17.5(0.69)	M20xP1.5	30(1.18)	10(0.39)	40(1.57)
Ø50	11(0.43)	60(2.36)	17(0.67)	71(2.80)	16(0.63)	14(0.55)	13(0.51)	20(0.79)	M24xP1.5	35(1.38)	11(0.43)	46(1.81)
Ø63	13(0.51)	67(2.64)	20(0.79)	80(3.15)	16(0.63)	16(0.63)	15.2(0.60)	23(0.91)	M30xP1.5	45(1.77)	13(0.51)	58(2.28)

SHA13
SDD



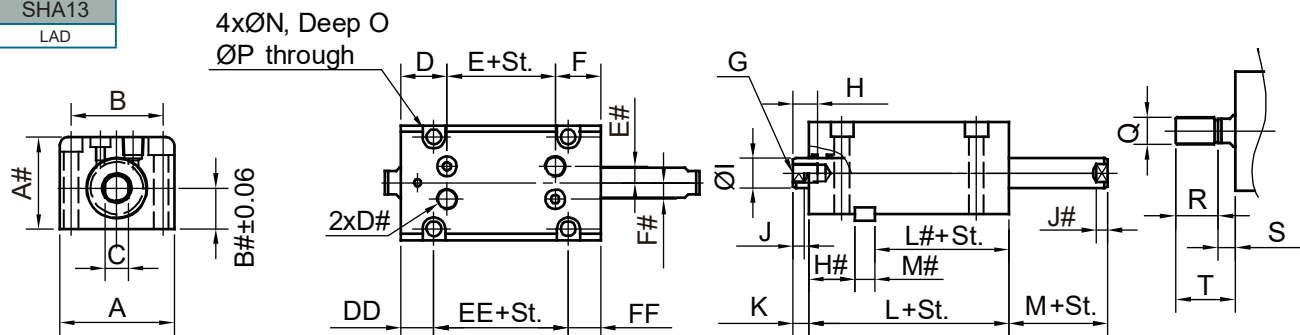
BORE	A	B	C	D	D#	E	E#	F	F#	G	H	I	J	K	L	M	N	O	P
Ø25	50(1.97)	36(1.42)	12(0.47)	20.5(0.81)	Rc/PT1/8"	15(0.59)	—	10.5(0.81)	—	M10xP1.5	12(0.47)	14(0.55)	—	8(0.31)	56(2.20)	8(0.31)	5.5(0.22)	5.5(0.22)	9.5(0.37)
Ø32	62(2.44)	47(1.85)	14(0.55)	28(1.10)	Rc/PT1/4"	16(0.63)	10(0.39)	28(1.10)	10(0.39)	M12xP1.75	15(0.59)	18(0.71)	7(0.28)	10(0.39)	72(2.83)	10(0.39)	6.6(0.26)	6.5(0.26)	11(0.43)
Ø40	70(2.76)	52(2.05)	19(0.75)	27(1.06)	Rc/PT 1/4"	18(0.71)	10(0.39)	27(1.06)	10(0.39)	M16xP2.0	20(0.79)	22.4(0.89)	7(0.28)	10(0.39)	72(2.83)	10(0.39)	9(0.35)	8.6(0.34)	14.5(0.57)
Ø50	80(3.15)	58(2.28)	24(0.94)	28(1.10)	Rc/PT 1/4"	19(0.75)	10(0.39)	28(1.10)	10(0.39)	M20xP2.5	24(0.94)	28(1.10)	8(0.31)	11(0.43)	75(2.95)	11(0.43)	11(0.43)	10.8(0.43)	17.5(0.69)
Ø63	94(3.70)	69(2.72)	30(1.18)	30(1.18)	Rc/PT 1/4"	22(0.87)	10(0.39)	30(1.18)	10(0.39)	M30xP1.5	33(1.30)	35.5(1.40)	9(0.35)	13(0.51)	82(3.23)	13(0.51)	14(0.55)	13(0.51)	20(0.79)
Ø80	114(4.49)	86(3.39)	41(1.61)	35(5.31)	Rc/PT 3/8"	25(0.98)	15(0.59)	35(5.31)	15(0.59)	m30xP3.5	33(1.30)	45(1.77)	14(0.55)	17(0.67)	75(2.95)	17(0.67)	16(0.63)	15.2(0.60)	23(0.91)
Ø100	145(5.71)	105(4.13)	50(1.97)	35(5.31)	Rc/PT 3/8"	39(1.54)	15(0.59)	35(5.31)	15(0.59)	M39xP4.0	45(1.77)	56(2.20)	20(0.79)	26(1.02)	109(4.29)	26(1.02)	22(0.87)	21.5(0.85)	32(1.26)



HYDRAULIC ACTUATOR(CYLINDER) COMPACT TYEP

SHA13

LAD

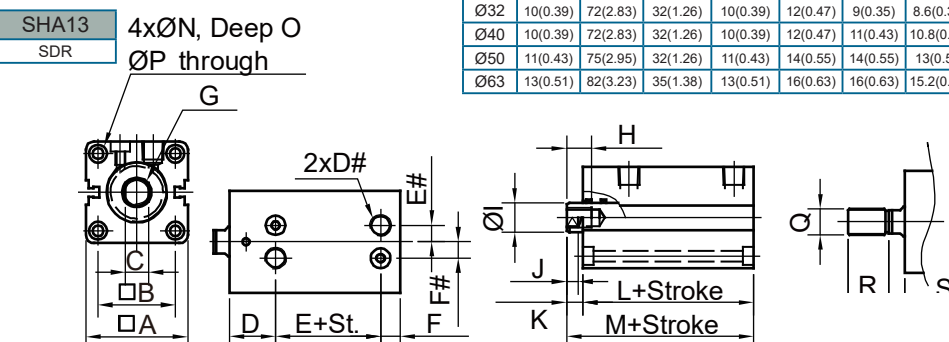


UNIT: M.M. (INCHES)

BORE	A	A#	B	B#	C	D	D#	DD	E	E#	EE	F	F#	FF	G	H	H#	I	J	J#
Ø32	70(2.76)	56(2.20)	56(2.20)	25(0.98)	14(0.55)	28(1.10)	Rc/PT 1/4"	20(0.79)	16(0.63)	10(0.39)	32(1.26)	28(1.10)	10(0.39)	20(0.79)	M12xP1.75	15(0.59)	28(1.10)	18(0.71)	7(0.28)	7(0.28)
Ø40	80(3.15)	64(2.52)	62(2.44)	29(1.14)	19(0.75)	27(1.06)	Rc/PT 1/4"	20(0.79)	18(0.71)	10(0.39)	32(1.26)	27(1.06)	10(0.39)	20(0.79)	M16xP2.0	20(0.79)	28(1.10)	22.4(0.89)	7(0.28)	7(0.28)
Ø50	94(3.70)	74(2.91)	74(2.91)	34(1.34)	24(0.94)	28(1.10)	Rc/PT 1/4"	20(0.79)	19(0.75)	10(0.39)	35(1.38)	28(1.10)	10(0.39)	20(0.79)	M20xP2.5	24(0.94)	29(1.14)	28(1.10)	8(0.31)	8(0.31)
Ø63	114(4.49)	89(3.50)	90(3.54)	42(1.65)	30(1.18)	30(1.18)	Rc/PT 1/4"	20(0.79)	22(0.87)	10(0.39)	35(1.38)	30(1.18)	10(0.39)	20(0.79)	M30xP1.5	33(1.30)	31(1.22)	35.5(1.40)	9(0.35)	9(0.35)

SHA13

SDR



UNIT: M.M. (INCHES)

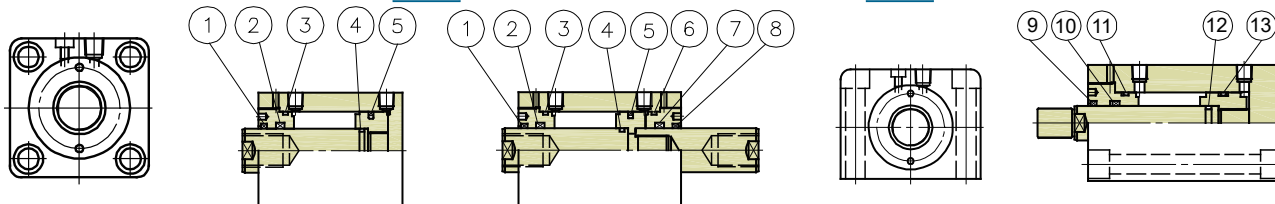
BORE	K	L	L#	M	M#	N	O	P	Q	R	S	T
Ø32	10(0.39)	72(2.83)	32(1.26)	10(0.39)	12(0.47)	9(0.35)	8.6(0.34)	14(0.55)	M16xP1.5	25(0.98)	10(0.39)	35(1.38)
Ø40	10(0.39)	72(2.83)	32(1.26)	10(0.39)	12(0.47)	11(0.43)	10.8(0.43)	17.5(0.69)	M20xP1.5	30(1.18)	10(0.39)	40(1.57)
Ø50	11(0.43)	75(2.95)	32(1.26)	11(0.43)	14(0.55)	14(0.55)	13(0.51)	20(0.79)	M24xP1.5	35(1.38)	11(0.43)	46(1.81)
Ø63	13(0.51)	82(3.23)	35(1.38)	13(0.51)	16(0.63)	16(0.63)	15.2(0.60)	23(0.91)	M30xP1.5	45(1.77)	13(0.51)	58(2.28)

BORE	A	B	C	D	D#	E	E#	F	F#	G	H	I	J	K	L	M	N	O	P
Ø32	62(2.44)	47(1.85)	14(0.55)	28(1.10)	Rc/PT 1/4"	14(0.55)	10(0.39)	12(0.47)	10(0.39)	M12xP1.75	15(0.59)	18(0.71)	7(0.28)	10(0.39)	54(2.13)	64(2.52)	6.6(0.26)	6.5(0.26)	11(0.43)
Ø40	70(2.76)	52(2.05)	19(0.75)	27(1.06)	Rc/PT 1/4"	16(0.63)	10(0.39)	12(0.47)	10(0.39)	M16xP2.0	20(0.79)	22.4(0.89)	7(0.28)	10(0.39)	55(2.17)	65(2.56)	9(0.35)	8.6(0.34)	14.5(0.57)
Ø50	80(3.15)	58(2.28)	24(0.94)	28(1.10)	Rc/PT 1/4"	19(0.75)	10(0.39)	13(0.51)	10(0.39)	M20xP2.5	24(0.94)	28(1.10)	8(0.31)	11(0.43)	60(2.36)	71(2.80)	11(0.43)	10.8(0.43)	17.5(0.69)
Ø63	94(3.70)	69(2.72)	30(1.18)	30(1.18)	Rc/PT 1/4"	24(0.94)	10(0.39)	13(0.51)	10(0.39)	M30xP1.5	33(1.30)	35.5(1.40)	9(0.35)	13(0.51)	67(2.64)	80(3.15)	14(0.55)	13(0.51)	20(0.79)
Ø80	114(4.49)	86(3.39)	41(1.61)	35(1.38)	Rc/PT 3/8"	25(0.98)	15(0.59)	18(0.71)	15(0.59)	m30xP3.5	33(1.30)	45(1.77)	14(0.55)	17(0.67)	78(3.07)	95(3.74)	16(0.63)	15.2(0.60)	23(0.91)

✱ MATERIAL LIST

14 MPa

21 MPa



No.	1	2	3	4	5	6	7	8
Name	Dust Seal	Rod Seal	O-Ring	O-Ring	Piston Seal	O-Ring	Rod Seal	Dust Seal
Material	NBR	NBR	NBR	NBR	PU+NBR	NBR	NBR	NBR
Quantity	1	1	1	1	1	1	1	1
Bores Ø, Øw (mm)								
Ø25	SER-14	NMY-14	AS-19	P10	P21	AS-19	NMY-14	SER-14
Ø32	SER-18	NMY-18	G-25	P14	PW4100320	G-25	NMY-18	SER-18
Ø40	SDR-22.4	SKY-22.4	G-35	P18	PW4200400	G-35	SKY-22.4	SDR-22.4
Ø50	SDR-28	SKY-28	G-45	P21	PW4200500	G-45	SKY-28	SDR-28
Ø63	SDR-35.5	SKY-35.5	G-58	G-30	PW4200630	G-58	SKY-35.5	SDR-35.5
Ø80	SDR-45	SKY-45	G-75	G-40	PW4300800	G-75	SKY-45	SDR-45
Ø100	SDR-56	SKY-56	G-95	G-50	PW4301000	G-50	SKY-56	SDR-56

No.	9	10	11	12	13
Name	Dust Seal	Rod Seal	O-Ring	O-Ring	Piston Seal
Material	NBR	NBR+PTFE		NBR	NBR+PTFE
Quantity	1	1+1	1+1	1	1+2
Bores Ø, Øw (mm)					
Ø40	SER-22.4	SKY-22.4	G-35	P18	P34
Ø50	SER-28	SKY-28	G-45	P-22A	P44
Ø63	SDR-35.5	SKY-35.5	G-58	G-30	P53