

Hydraulic Cylinder Series SCL

DIN ISO 3320

For Working Pressures Up to 160 bar



*High Quality Cylinders
for Heavy Duty Application*

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Hydraulic cylinder Series SCL



Technical Data

Standards:

Siam Hydraulic standards; Main dimensions such as piston \varnothing and piston rod \varnothing meet the requirements of DIN ISO 3320.

Nominal pressure: 160 bar

Static test pressure: 240 bar

With extreme shock loads the mounting elements and piston rod threads must be laid out for continuous operation.

Operating pressure:

Up to a max. 240 bar
Dependent on the cylinder version and application for operating pressures up to 240 bar and suitable for a maximum of 200,000 load cycles.

Installation: Optional

Pressure fluid temperature range:

Hydraulic oils: $-20\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$

Viscosity: 2.8 to 380 mm^2/s

Degree of contamination: Maximum permissible degree of contamination of the pressure fluid is to NAS 1638 class 10. We therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.

Stroke speed: Max. 0.5 m/s (depending on the connection port)

Piston \varnothing	Piston Rod \varnothing - mm.	Push Force 160 bar (kN)	Pull Force 160 bar (kN)	Piston Areas cm^2	Annulus Areas cm^2
40	22	6.08	14.02	12.56	8.76
50	28	9.85	21.55	19.63	13.47
63	36	16.28	33.57	31.16	20.98
80	45	25.43	54.95	50.24	34.34
100	56	39.39	86.21	78.5	53.88
125	70	61.54	134.71	122.66	84.19
160	90	101.74	219.80	200.96	137.38
200	110	151.98	350.42	314.00	219.02



Cylinder SCL According to **DIN ISO 3320 Standards****Ordering Code**

SCL E 125 / 70 — 250 — MF4 — WC — N — SH 63

1 2 3 4 5 6 7 8 9

1 **Hydraulic Cylinder Low Pressure type according to ISO 3320**

2 **Piston rod End**

I = Internal thread
E = External thread

3 **Piston \varnothing (in mm.)**

4 **Piston rod \varnothing (in mm.)**

5 **Stroke length (in mm.)**

6 **Cylinder Mounting**

MP3 = Base Plain clevis
MP3-1 = Base Plain Clevis & Front Self-Aligning Clevis
MF4 = Base Round Flange
MF3 = Head Round Flange
MT4 = Trunnions

7 **End position cushioning**

WC = Without

8 **Seal version**

N = Standard

9 **Piston rod mounting**

SH = Self aligning clevis ISO 6982



Mounting Type Overview

Base Plain Clevis
(ISO Style MP3)



Base Round Flange
(ISO Style MF4)



Base Plain Clevis & Front Self-Aligning Clevis
(ISO Style MP3-1)



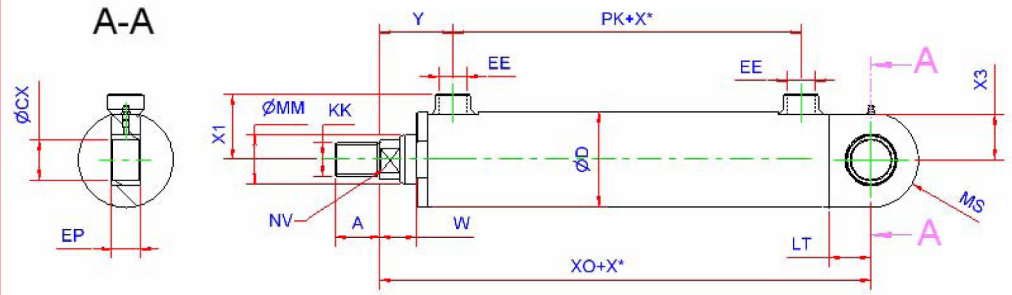
Trunnions
(ISO Style MT4)



Head Round Flange
(ISO Style MF3)



Base Plain Clevis (ISO Style MP3)



Dimensions MP3 (Nominal Dimensions in mm.)

AL Ø	MM Ø	KK	A	NV	W	Y	PK	EE	X1 ±1	X3 ±1	X0
40	22	M16x1.5	22	17	13	60	50	G 1/4	39	29	140
50	28	M20x1.5	28	22	13	62	57	G 3/8	45	33	157
63	36	M27x2	36	28	14	68	69	G 1/2	55	40	182
80	45	M33x2	45	36	16	84	76	G 1/2	65	53	208
100	56	M42x2	56	46	18	90	85	G 3/4	80	63	227
125	70	M48x2	63	60	20	99	93	G 3/4	95	78	259
160	90	M65x1.5	65	75	23	104	143	G 1	110	100	367
200	110	M80x2	80	95	23	105	154	G1	134	120	396

AL Ø	MM Ø	D max	LT	MS H7	CX ³⁾ ±2	EP h12
40	22	52	24	28	20	16
50	28	62	31	33	25	20
63	36	77	38	42	32	22
80	45	98	46	51	40	26
100	56	122	54	61	50	34
125	70	152	65	76	63	42
160	90	220	86	90	70 ⁴⁾	40
200	110	268	102	110	80 ⁴⁾	45

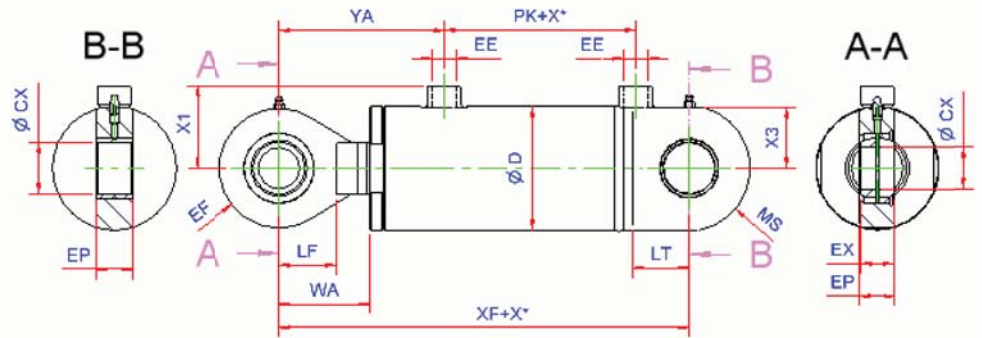
AL = Piston Ø
MM = Piston rod Ø
X* = Stroke length

1) Piston rod end "H"
2) Piston rod end "F"
3) Associated pin Ø j6

4) Tolerance: 0/-0.015



Base Plain Clevis & Front Self-Aligning Clevis (ISO Style MP3)



Dimensions MP3-1 (Nominal Dimensions in mm.)

AL	MM	XF	D	LT	LF	MS	CX ³⁾	EP	EX	EF
Ø	Ø		max			H7	±2	h12	max	
40	22	171	52	24	23	28	20	16	20	28
50	28	194	62	31	29	33	25	20	25	33
63	36	231	77	38	34	42	32	22	32	42
80	45	268	98	46	44	51	40	26	40	51
100	56	297	122	54	50	61	50	34	50	61
125	70	345	152	65	63	76	63	42	63	76
160	90	482	220	86	83	90	70 ⁴⁾	40	65	90
200	110	536	268	102	100	110	80 ⁴⁾	45	74	110

AL	MM	WA	YA	PK	EE	X1	X3
Ø	Ø					±1	±1
40	22	44	91	50	G 1/4	39	29
50	28	50	99	57	G 3/8	45	33
63	36	63	117	69	G 1/2	55	40
80	45	76	144	76	G 1/2	65	53
100	56	88	160	85	G 3/4	80	63
125	70	106	185	93	G 3/4	95	78
160	90	139	219	143	G 1	110	100
200	110	162	245	154	G1	134	120

AL = Piston Ø

MM = Piston rod Ø

X* = Stroke length

1) Piston rod end "H"

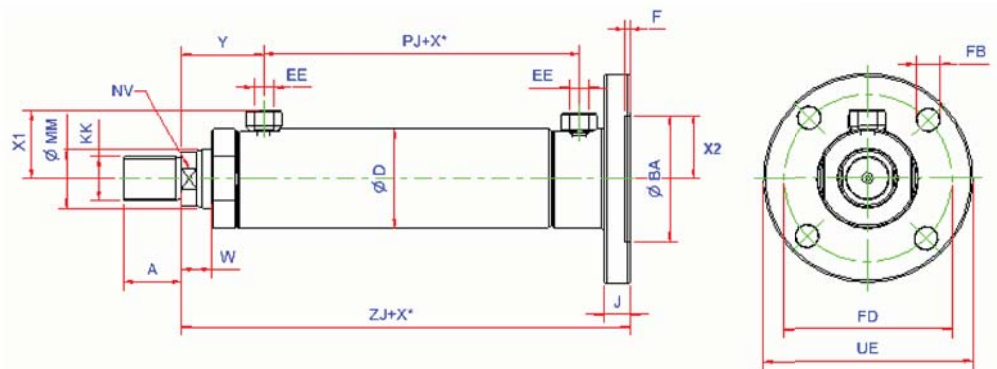
2) Piston rod end "F"

3) Associated pin Ø j6

4) Tolerance: 0/-0.015



Base Round Flange (ISO Style MF4)



Dimensions MF4 (Nominal Dimensions in mm.)

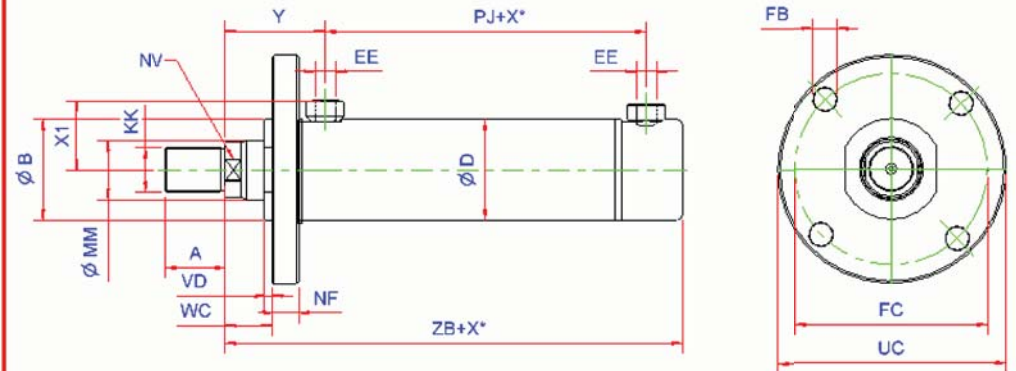
AL Ø	MM Ø	KK	A	NV	W	D max	Y	PJ	EE	X1 ±1
40	22	M16x1.5	22	17	13	52	60	50	G 1/4	39
50	28	M20x1.5	28	22	13	62	62	57	G 3/8	45
63	36	M27x2	36	28	14	77	68	71	G 1/2	55
80	45	M33x2	45	36	16	98	84	80	G 1/2	65
100	56	M42x2	56	46	18	122	90	89	G 3/4	80
125	70	M48x2	63	60	20	152	99	97	G 3/4	95
160	90	M65x1.5	65	75	23	220	104	133	G 1	110
200	110	M80x2	80	95	23	268	105	144	G 1	134

AL Ø	MM Ø	X2 ±1	ZJ	BA E8	F	J	FB	FD	UE
40	22	22	141	50	3	14	11	85	108
50	28	27	158	60	3	16	13.5	100	128
63	36	33.5	185	75	3	20	17.5	120	148
80	45	44.5	211	93	3	25	22	150	188
100	56	57	228	120	3	25	22	180	218
125	70	72	254	150	3	32	17.5	200	238
160	90	110	300	93	5	36	22	270	316
200	110	125	316	114	5	40	26	325	380

AL = Piston Ø
 MM = Piston rod Ø
 X* = Stroke length



Head Round Flange (ISO Style MF3)



Dimensions MF3 (Nominal Dimensions in mm.)

AL	MM	KK	A	NV	B	VD	WC	NF	D
∅	∅				±0.3				
40	22	M16x1.5	22	17	50	7	20	14	52
50	28	M20x1.5	28	22	60	7	20	16	62
63	36	M27x2	36	28	75	7	21	20	77
80	45	M33x2	45	36	93	7	23	25	98
100	56	M42x2	56	46	120	8	26	25	122
125	70	M48x2	63	60	150 ¹⁾	9	29	32	152
160	90	M65x1.5	65	75	-	-	35	36	220
200	110	M80x2	80	95	-	-	35	40	268

AL	MM	Y	PJ	EE	X1	ZB	FB	FC	UC
∅	∅				±1		H13		max
40	22	60	50	G 1/4	39	124	11	85	108
50	28	62	57	G 3/8	45	135	13.5	100	128
63	36	68	71	G 1/2	55	159	17.5	120	148
80	45	84	80	G 1/2	65	185	22	150	188
100	56	90	89	G 3/4	80	202	22	180	218
125	70	99	97	G 3/4	95	221	17.5	200	238
160	90	104	133	G 1	100	300	22	270	316
200	110	105	144	G 1	134	316	26	325	380

AL = Piston ∅

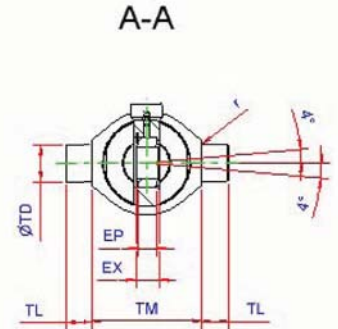
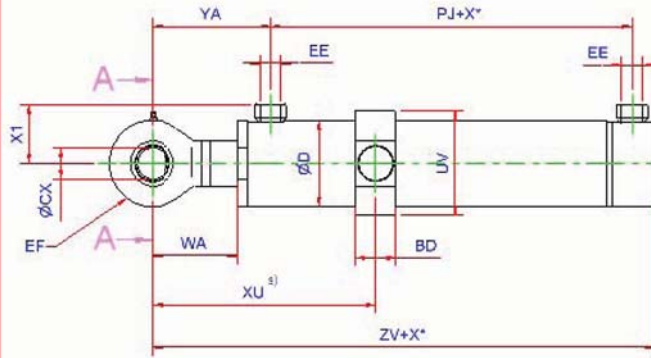
X* = Stroke length

MM = Piston rod ∅

1) Tolerance ±0.5



Trunnions (ISO Style MT4)



Dimensions MF3 (Nominal Dimensions in mm.)

AL	MM	X1	XU ³⁾	XU ³⁾	ZV	BD	UV	TD	TL	TM	r	CX	EX	EP	EF
∅	∅	±1	min	max				∅8		h12		H7	h12		max
40	22	39	125	102+X*	155	35	86	20	16	90	1.5	20	20	16	28
50	28	45	141	109+X*	172	40	100	25	20	105	1.5	25	25	20	33
63	36	55	168	131+X*	208	50	126	32	25	120	2	32	32	22	42
80	45	65	204	153+X*	245	65	145	40	32	135	2.5	40	40	26	51
100	56	80	232	163+X*	272	80	175	50	40	160	2.5	50	50	34	61
125	70	95	269	184+X*	307	100	215	63	50	195	3	63	63	42	76
160	90	110	380	235+X*	383	100	250	80	63	240	2.5	70 ⁵⁾	65	40	90
200	110	134	425	260+X*	420	125	300	100	80	295	3	80 ⁵⁾	74	45	110

AL	MM	KK	WA	D	YA	EE	PJ
∅	∅			max			
40	22	M16x1.5	44	52	91	G 1/4	50
50	28	M20x1.5	50	62	99	G 3/8	57
63	36	M27x2	63	77	117	G 1/2	71
80	45	M33x2	76	98	144	G 1/2	80
100	56	M42x2	88	122	160	G 3/4	89
125	70	M48x2	106	152	185	G 3/4	97
160	90	M65x1.5	139	220	219	G 1	133
200	110	M80x2	162	268	245	G 1	144

AL = Piston ∅

MM = Piston rod ∅

X* = Stroke length

1) Piston rod end "H"

2) the trunnion can be located as required

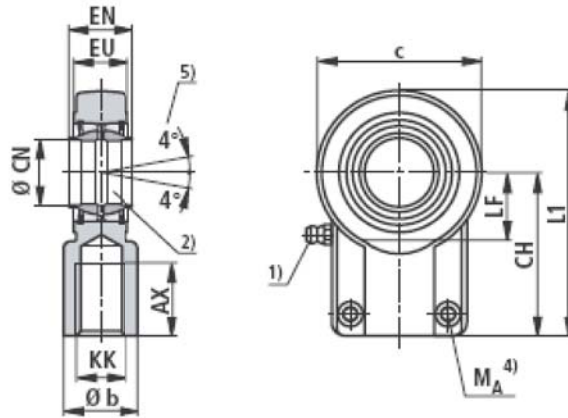
Dim. "XV" must always be stated in clear text in mm in the order

3) Take the minimum stroke length "X* min"



Piston rod Mounting

SH Self-Aligning Clevis ISO 6982



CN H7	AX min	b	c max.	CH js16	EN h12	EU	KK	LF	L1	Internal Hexagon		Mass kg
										Size	Torque(Nm)	
SH20	23	26.5	50	52	20	19	M16x1.5	21	77.5	M8	23	0.40
SH25	23	30	65	68	20	17	M16x1.5	30	100.5	M8	23	0.68
	17	26.5	58	52	20	23.5	M16x1.5	27	81	M8	23	0.49
SH30	19	32	62	65	25	23	M20x1.5	26	97	M8	23	0.66
	29	36	80	85	22	19	M20x1.5	35	125	M10	46	1.35
SH32	37	40	76	80	32	29	M27x2	31	120	M10	46	1.20
SH40	37	45	100	105	28	23	M27x2	45	155	M10	46	2.40
	46	49	97	97	40	34	M33x2	40	147	M10	46	2.00
SH50	46	55	122	130	35	30	M33x2	58	192.5	M12	79	3.80
	57	60.5	118	120	50	42	M42x2	49	181	M12	79	3.50
SH60	57	68	160	150	44	38	M42x2	68	230	M16	195	8.50
SH63	64	72.5	142	140	63	55	M48x2	61	213	M16	195	6.80
SH80	64	90	205	185	55	47	M48x2	92	287.5	M20	390	14.50





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SIAM HYDRAULIC CO., LTD.

888 Lasalle Road, Bangna, Bangkok 10260

Tel. : (66) 2748-6775 Fax. : (66) 2748-6775 Ext. 61,65

Email. : sales@siamhyd.com, Web. : www.siamhyd.com