

- ML7/14 square cylinders meet the spec. Which was defined by japan fluid power association.
- Two different rods can be choosen.
- Suitable for mill industry

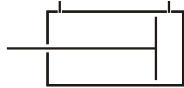
Theoretical force

bore(mm)		40	50	63	80	100	125	140	160	180	200	224	250		
pressed piston area (cm ²)	push	12.6	19.6	31.2	50.3	78.5	122.7	154	201	254	314	394	491		
	pull	rod bore	C	8.7	13.5	21.3	34.4	53.9	83.1	103.8	137.4	175.5	191.3	271.3	337
			B	6.4	9.7	15.3	25.7	38.9	59.1	75.5	102.5	131.3	160	193	237
output force (kg)	working pressure 70 kg/cm ²	push	882	1372	2184	3521	5495	8589	10780	14070	17780	21980	27580	34370	
		rod bore	C	609	945	1491	2408	3773	5817	7266	9618	12285	13391	18991	23590
			B	448	679	1071	1799	2723	4137	5285	7175	9191	11200	13510	16590
	working pressure 140 kg/cm ²	push	1764	2744	4368	7042	10990	17178	21560	28140	35560	43960	55160	68740	
		rod bore	C	1218	1890	2982	4816	7546	11634	14532	19236	24570	26782	37982	47180
			B	896	1358	2142	3598	5446	8274	10570	14350	18382	22400	27020	33180

Features

model		ML 7	ML 14	
working pressure		70kgf/cm ² (7MPa)	140kgf/cm ² (14MPa)	
test pressure		105kgf/cm ² (10.5MPa)	210kgf/cm ² (21MPa)	
temperature	regular	-10°~+80°C		
	vitonor FMP seal	-10°~+200°C		
stroke(mm)	stroke	tolerance	stroke	tolerance
	≤100	+0.8 0	631~1000	+1.4 0
	101~250	+1.0 0	1001~1600	+1.6 0
	251~630	+1.25 0	1601~2000	+1.8 0
cushion		1.note1.with a load, if the cylinder's speed is over 500mm/sec, cushion devices should be considered. 2.If the cylinder's speed is much higher than 500mm/sec, reducing valvesor regulators should be added. cushion selection : N:(or space)no cushion · R : cushion on rod cover H : cushion on head cover · B : cushion on both covers		
oil & seal	mineraloil (eg. : R68)	PU ●	NBR ●	FPM ●
	water solution	×	●	●
	soluble	×	●	●
	phosphate ester	×	×	●

Type

type	symbol	drawing	with bellow	heat proof	bore(mm)
double acting	ML7-A		ML7-AJ	ML7-AH	40.50.63.80
	ML14-A		ML14-AJ	ML14-AH	100.125.140 160.180.200 224.250

MILL TYPE cylinders

GENTLE AUTOMATIC SOLUTION SDN BHD

No.36, Jalan Industri USJ 1/13, Taman Perindustrian USJ 1, 47600 Subang Jaya, Selangor.

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Installation

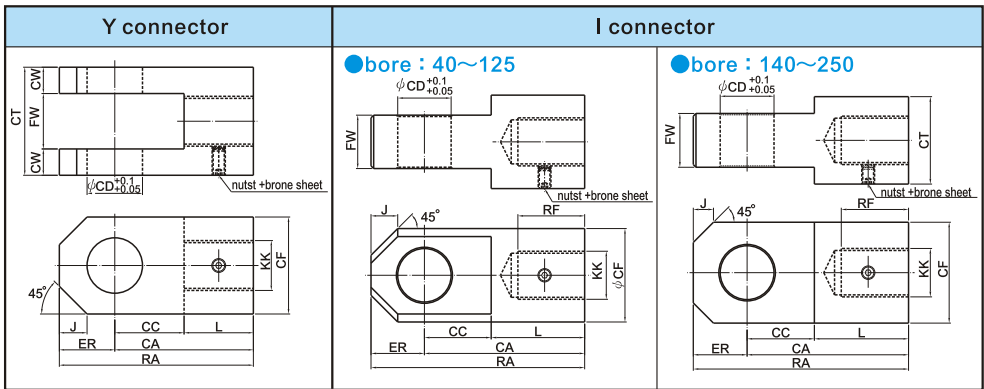
symbol	name	drawing	bore
SD	basic		40
FA	rod flange		50 63 80
FB	head flange		100 125 140
CA	clevis		160 180 200
TC	intermediate trunnion		224 250
LA	foot		

Inlet port

flange (F)		bore name	40	50	63	80	100	125	140	160	180	200	224	250
		symbol	JIS	SSA15	SSA20	SSA25	SSA32	SSA40	SSA50					
		A	54	58	68	76	92	106						
		B	36	40	48	56	65	73						
		C	22	22	28	28	36	36						
		d	16	20	25	31.5	37.5	47.5						
		d ₁	22.2	27.7	34.5	43.2	49.1	61.1						
		d ₂	11	11	13	13	18	18						
		d ₃	G25	G30	G35	G40	G50	G60						
		d ₄	M10	M10	M12	M12	M16	M16						
thread (rc)			RC1/2	RC3/4	RC1	RC1-1/4	RC1-1/2	RC2						

Mounting type

Y. I connector



Yconnector

Symbol bore	CA		CC	CD	CF	CT	CW	ER	FW	J	KK		L		RA	
	B	C									B	C	B	C	B	C
φ 40	65	60	30	φ 20H10	40	70	16	25	38 ^{+1.0 +0.1}	8	M24×1.5	M20×1.5	35	30	90	85
φ 50	80	70	35	φ 25H10	50	75	17.5	30	40 ^{+1.0 +0.1}	15	M30×1.5	M24×1.5	45	35	110	100
φ 63	100	85	40	φ 31.5H10	70	85	20	35	45 ^{+1.0 +0.1}	15	M39×1.5	M30×1.5	60	45	135	120
φ 80	125	110	50	φ 40H10	80	105	25	40	55 ^{+2.0 +0.1}	15	M48×1.5	M39×1.5	75	60	165	150
φ 100	160	145	65	φ 50H10	100	130	30	50	70 ^{+2.0 +0.1}	20	M64×2.0	M48×1.5	95	80	210	195
φ 125	200	175	80	φ 63H10	130	170	40	65	90 ^{+2.0 +0.1}	25	M80×2.0	M64×2.0	120	95	265	240
φ 140	230	200	90	φ 71H10	150	170	40	75	90 ^{+2.0 +0.1}	30	M95×2.0	M72×2.0	140	110	305	275
φ 160	250	220	100	φ 80H10	160	210	50	80	110 ^{+2.0 +0.1}	30	M100×2.0	M80×2.0	150	120	330	300
φ 180	295	255	115	φ 90H10	180	260	62.5	90	135 ^{+3.0 +0.1}	40	M120×2.0	M95×2.0	180	140	385	345
φ 200	320	275	125	φ 100H10	200	260	62.5	100	135 ^{+3.0 +0.1}	40	M130×2.0	M100×2.0	195	150	420	375
φ 224	365	320	140	φ 112H10	230	290	70	115	150 ^{+3.0 +0.1}	50	M150×2.0	M120×2.0	225	180	480	435
φ 250	415	355	160	φ 125H10	250	330	80	125	170 ^{+4.0 +0.1}	60	M170×3.0	M130×2.0	255	195	540	480

I connector

Symbol bore	CA		CC	CD	CF	CT		ER	FW	J	KK		L		RA		RF	
	B	C				B	C				B	C	B	C	B	C	B	C
φ 40	70	70	28	φ 20H10	φ 49	-	-	25	31.5 ^{-0.1 -0.4}	10	M24×1.5	M20×1.5	42	42	95	95	37	32
φ 50	95	95	35	φ 25H10	φ 49	-	-	30	35.5 ^{-0.1 -0.4}	15	M30×1.5	M24×1.5	60	60	125	125	47	37
φ 63	115	115	43	φ 31.5H10	φ 62	-	-	35	40 ^{-0.1 -0.4}	15	M39×1.5	M30×1.5	72	72	150	150	62	47
φ 80	145	145	55	φ 40H10	φ 79	-	-	40	50 ^{-0.1 -0.4}	20	M48×1.5	M39×1.5	90	90	185	185	77	62
φ 100	180	180	65	φ 50H10	φ 100	-	-	50	63 ^{-0.1 -0.4}	30	M64×2.0	M48×1.5	115	115	230	230	97	77
φ 125	220	195	80	φ 63H10	φ 120	110	90	70	80 ^{-0.1 -0.6}	30	M80×2.0	M64×2.0	140	115	290	265	125	100
φ 140	255	220	90	φ 71H10	φ 140	130	100	80	80 ^{-0.1 -0.6}	30	M95×2.0	M72×2.0	165	130	335	300	145	115
φ 160	275	245	100	φ 80H10	φ 160	140	110	90	100 ^{-0.1 -0.6}	40	M100×2.0	M80×2.0	175	145	365	335	155	125
φ 180	325	285	115	φ 90H10	φ 180	170	130	105	125 ^{-0.1 -0.6}	40	M120×2.0	M95×2.0	210	170	430	390	185	145
φ 200	355	310	125	φ 100H10	φ 200	180	140	115	125 ^{-0.1 -0.6}	40	M130×2.0	M100×2.0	230	185	470	425	200	155
φ 224	405	360	140	φ 112H10	φ 220	210	170	125	140 ^{-0.1 -0.6}	50	M150×2.0	M120×2.0	265	220	530	485	230	185
φ 250	455	395	160	φ 125H10	φ 250	240	180	140	160 ^{-0.1 -0.6}	60	M170×3.0	M130×2.0	295	235	595	535	260	200

MILL TYPE cylinders

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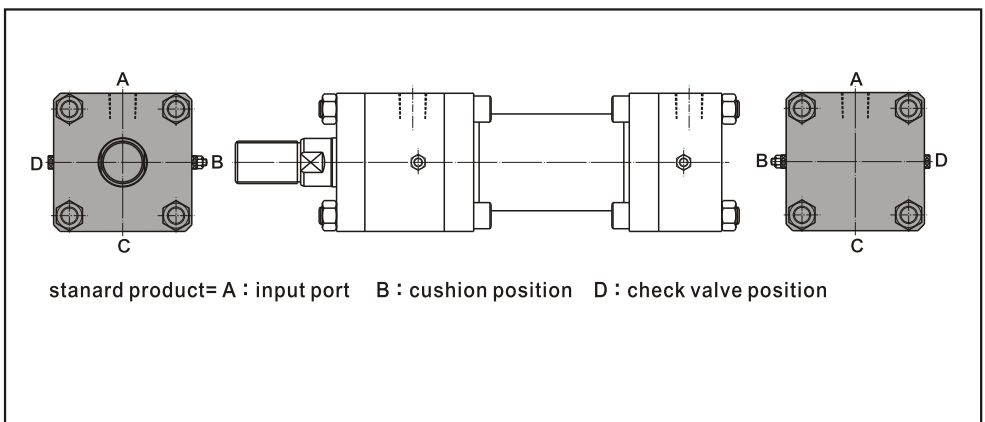
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Rod nuts

KK1	B	C	H	KK1	B	C	H	KK2	D	DD	H	Z
M20×1.5	30	34.6	16	M64×2.0	95	110	51	M100×2.0	150	15	80	18
M24×1.5	36	41.6	19	M72×2.0	105	121	64	M120×2.0	180	15	96	18
M30×1.5	46	53.1	24	M80×2.0	115	133	64	M130×2.0	200	20	104	25
M39×1.5	60	69.3	31	M95×2.0	135	156	76	M150×2.0	230	20	120	25
M48×1.5	75	86.5	38					M170×2.0	260	20	136	25

Port and cushion positions



Order form

ML7/14 – J – C – Cr – SD – 63 × 200 – B – A – B – F – PU – Y
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

ML7/14 : MILL TYPE square cylinders												
①	working pressure (kgf/cm ²)	(1)ML7 : working pressure 70kgf/cm ² (2)ML14 : working pressure 140kgf/cm ²										
②	options	(1)J : with heat/erosion proof (2)H : with bellow (3)space : no need										
③	rod size	(1)C : small(standard ML7 with C class rod) (2)B : large(standard ML14 with B class rod)										
④	rod treatment	(1)space : S45C+Cr plating (2)H : SCM440+anench and temper (3)N : S45C+Ni plating + Cr plating										
⑤	mounting type	(1)SD (refer to P12.13) (2)FA (3)FB (4)CA (5)TC (6)LA										
⑥	bore(mm)	40,50,63,80,100,125,140,160,180,200,224,250										
⑦	stroke(mm)	based on customer's request										
⑧	cushion	(1)space : no cushion (2)B : cushions on both ends (3)R : cushion on rod cover (4)H : cushion on head cover <table border="1" style="margin-left: 20px;"> <tr> <td>bore(mm)</td> <td>40,50,63</td> <td>80,100,125,140,160</td> <td>180,200,224</td> <td>250</td> </tr> <tr> <td>cushion length</td> <td>20</td> <td>25</td> <td>30</td> <td>35</td> </tr> </table>	bore(mm)	40,50,63	80,100,125,140,160	180,200,224	250	cushion length	20	25	30	35
bore(mm)	40,50,63	80,100,125,140,160	180,200,224	250								
cushion length	20	25	30	35								
⑨	inlet position	A , B , C , D (see P12.15)										
⑩	cushion position	A , B , C , D (see P12.15)										
⑪	port position	(1)F (2)RC : thread (see P12.13)										
⑫	seal material	(1)PU (2)NBR (3)FPM										
⑬	rod end connectors	(1)Y : Yconnector (2)I : Iconnector (see P12.14)										

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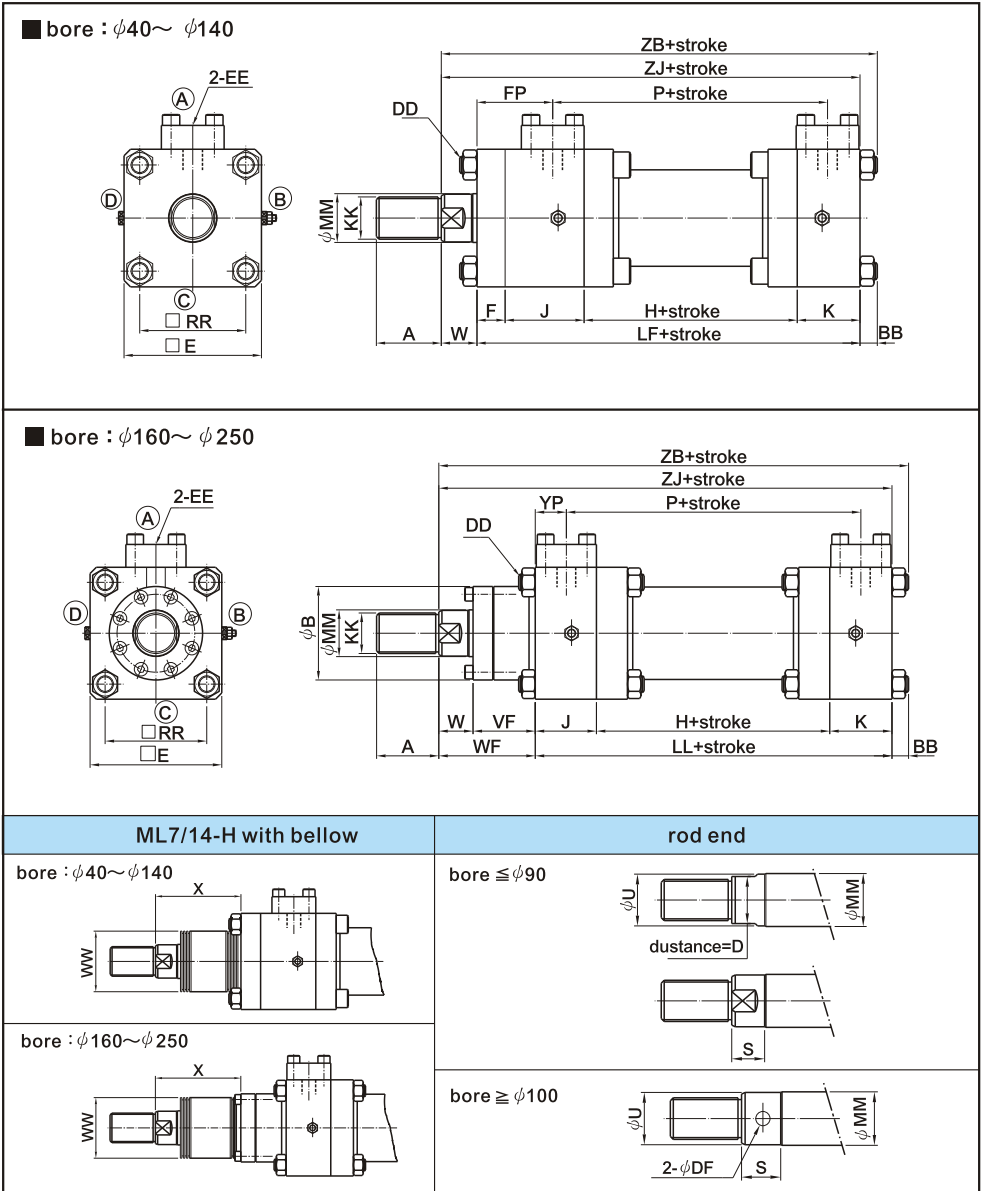
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External dimensions

SD



ML7/14 square cylinders

Symbol bore	bore B class									BB	DD		E	
	A	B	D	DF	KK	MM	S	U	WW					
φ 40	55	-	24	-	M24×1.5	φ 28	-	-	φ 63	11	M10×1.5	80		
φ 50	65	-	30	-	M30×1.5	φ 35.5	-	-	φ 71	13	M12×1.75	90		
φ 63	85	-	41	-	M39×1.5	φ 45	25	φ 44	φ 80	14	M14×2.0	110		
φ 80	105	-	50	-	M48×1.5	φ 56	28	φ 55	φ 100	16	M16×2.0	127		
φ 100	140	-	65	-	M64×2.0	φ 71	34	φ 70	φ 125	19	M20×2.5	154		
φ 125	175	-	85	-	M80×2.0	φ 90	39	φ 89	φ 140	22	M24×2.0	188		
φ 140	210	-	-	φ 12	M95×2.0	φ 100	35	φ 99	φ 160	26	M27×2.0	212		
φ 160	220	φ 191	-	φ 15	M100×2.0	φ 112	30	φ 111	φ 180	28	M30×2.0	238		
φ 180	265	φ 208	-	φ 15	M120×2.0	φ 125	35	φ 124	φ 180	30	M33×2.0	272		
φ 200	285	φ 229	-	φ 15	M130×2.0	φ 140	33	φ 139	φ 200	33	M36×2.0	298		
φ 224	330	φ 253	-	φ 15	M150×2.0	φ 160	35	φ 159	φ 220	35	M39×2.0	328		
φ 250	375	φ 280	-	φ 15	M170×3.0	φ 180	35	φ 179	φ 240	38	M42×2.0	362		
Symbol bore	bore C class									EE		F	FP	
	A	B	D	DF	KK	MM	S	U	WW	F	RC			
φ 40	45	-	19	-	M20×1.5	φ 22.4	-	-	φ 50	SSA15	1/2	18	47	
φ 50	55	-	24	-	M24×1.5	φ 28	-	-	φ 63	SSA15		18	47	
φ 63	65	-	30	-	M30×1.5	φ 35.5	25	φ 34.5	φ 71	SSA15		20	61	
φ 80	85	-	41	-	M39×1.5	φ 45	28	φ 44	φ 80	SSA20	3/4	26	70	
φ 100	105	-	50	-	M48×1.5	φ 56	34	φ 55	φ 100	SSA20		31	87	
φ 125	140	-	65	-	M64×2.0	φ 71	39	φ 70	φ 125	SSA25	1	36	105	
φ 140	160	-	75	-	M72×2.0	φ 80	40	φ 79	φ 125	SSA25		36	105	
φ 160	175	φ 162	85	-	M80×2.0	φ 90	30	φ 89	φ 140	SSA25		-	-	
φ 180	210	φ 172	-	φ 12	M95×2.0	φ 100	35	φ 99	φ 160	SSA32	1 1/4	-	-	
φ 200	220	φ 191	-	φ 15	M100×2.0	φ 112	33	φ 111	φ 180	SSA40		-	-	
φ 224	265	φ 208	-	φ 15	M120×2.0	φ 125	35	φ 124	φ 180	SSA40	1 1/2	-	-	
φ 250	285	φ 229	-	φ 15	M130×2.0	φ 140	35	φ 139	φ 200	SSA50		2	-	-
Symbol bore	H	J	K	LF	LL	P	RR	VF	W	WF	X	YP	ZB	ZJ
	φ 40	64	56	54	192	-	118	60	-	29	-	1/3.5×stroke+42	-	232
φ 50	68	56	54	196	-	122	68	-	29	-	1/3.5×stroke+57	-	238	225
φ 63	87	68	54	229	-	141	80	-	40	-	1/4×stroke+60	-	283	269
φ 80	97	73	58	254	-	155	98	-	33	-	1/4×stroke+53	-	303	287
φ 100	96	85	58	270	-	154	120	-	39	-	1/4×stroke+64	-	328	309
φ 125	106	103	68	313	-	174	144	-	44	-	1/5×stroke+64	-	379	357
φ 140	116	103	68	323	-	184	162	-	49	-	1/5×stroke+69	-	398	372
φ 160	132	74	72	-	278	204	184	92	35	127	1/5×stroke+60	38	433	405
φ 180	142	84	82	-	308	224	214	92	40	132	1/5×stroke+80	43	470	440
φ 200	152	102	102	-	356	254	232	102	38	140	1/5×stroke+78	51	529	496
φ 224	162	102	102	-	366	264	256	112	42	154	1/6×stroke+82	51	555	520
φ 250	172	111	102	-	385	274	286	127	48	175	1/6×stroke+78	60	598	560

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