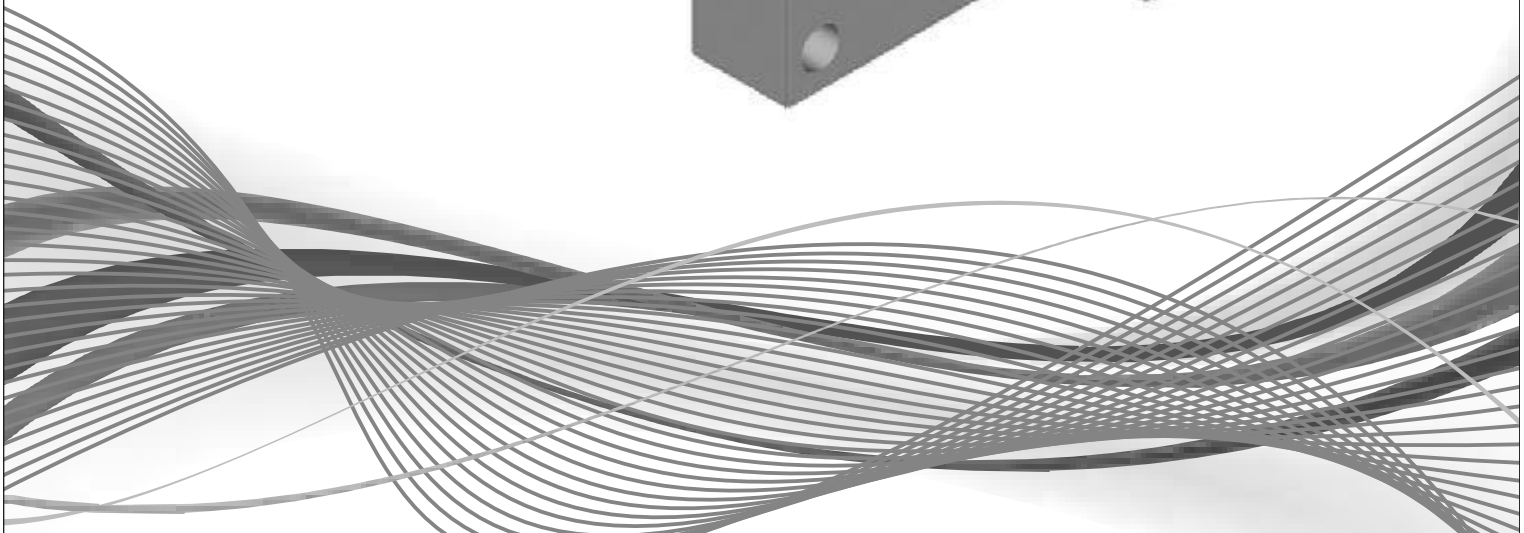
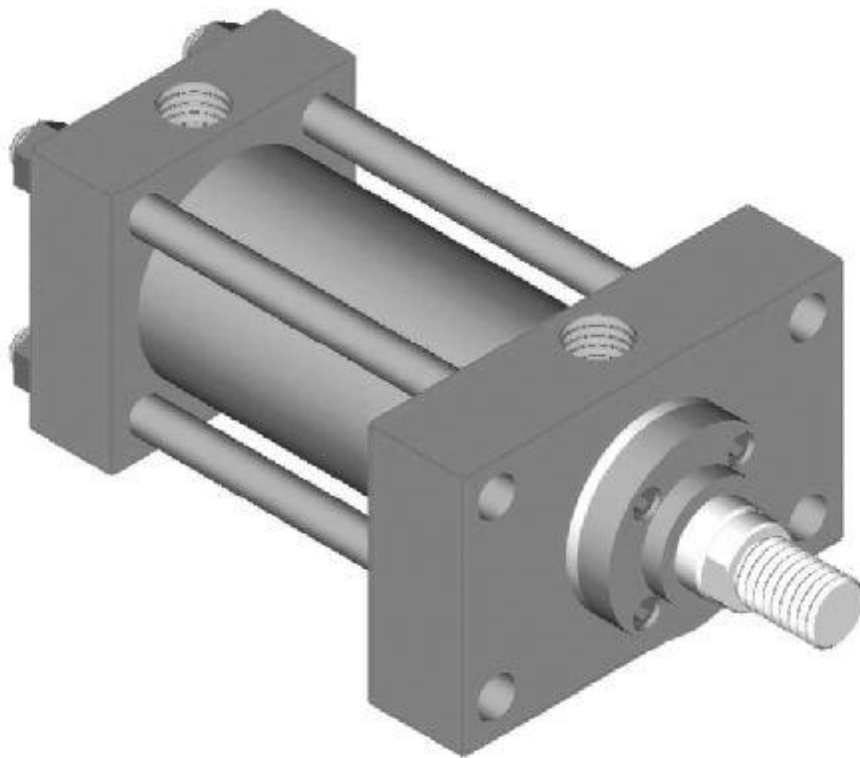


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**HYDRAULIC CYLINDER**  
**ISO 6020 / 2**  
**COMPACT SERIES**  
**160 Kg/cm<sup>2</sup>.**

**INDIAN PNEUMATIC & HYDRAULIC COMPANY PVT. LTD.**



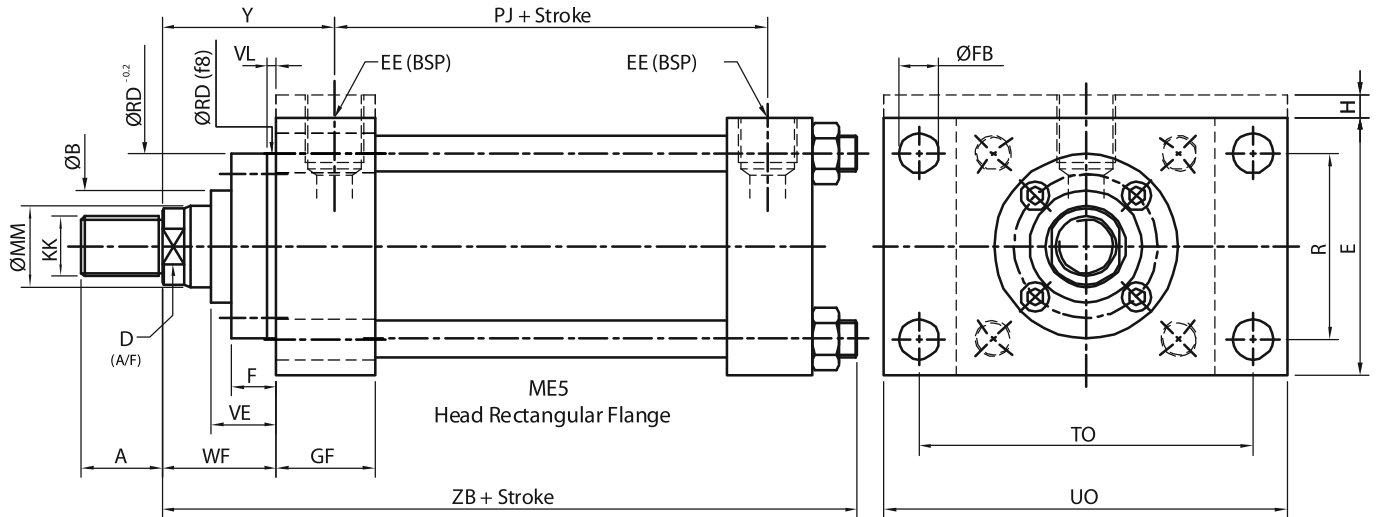
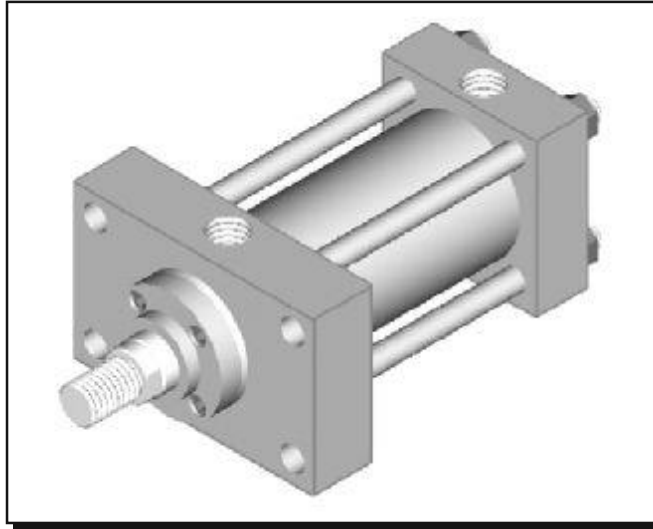
# IPH HYDRAULIC CYLINDER



IPH

ME 5

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	R	TO	UO	FB	GF	WF	B	RD	VE	F	VL	ZB
25	12	M10x1.25	14	9	1/4"	5	50	53	40	27	51	65	5.5	-	25	24	38	16	10	3	121
	18	M14x1.5	18	15												30	38				
32	16	M12x1.25	16	13	1/4"	5	60	56	45	33	58	70	6.6	-	35	26	42	22	10	3	137
	22	M16x1.5	22	18												34	42				
40	18	M14x1.5	18	15	3/8"	-	62	73	63	41	87	110	11	40	35	30	62	22	10	3	166
	28	M20x1.5	28	22												42	62				
50	22	M16x1.5	22	18	1/2"	-	67	74	75	52	105	130	14	42	41	34	74	25	16	4	176
	36	M27x2	36	30												50	74				
63	28	M20x1.5	28	22	1/2"	-	71	80	90	65	117	145	14	38	48	42	75	29	16	4	185
	45	M33x2	45	36												60	88				
80	36	M27x2	36	30	3/4"	-	77	93	115	83	149	180	18	44	51	50	82	29	20	4	212
	56	M42x2	56	46												72	105				
100	45	M33x2	45	36	3/4"	-	82	101	130	97	162	200	18	43	57	60	92	32	22	5	225
	70	M48x2	63	60												88	125				
125	56	M42x2	56	46	1"	-	86	117	165	126	208	250	22	47	57	72	105	32	22	5	260
	90	M64x3	85	80												108	150				
160	70	M48x2	63	60	1"	-	86	130	205	155	253	300	26	51	57	88	125	32	25	5	279
	110	M80x3	95	100												133	170				
200	90	M64x3	85	80	1-1/4"	-	98	165	245	190	300	360	33	64	57	108	150	32	25	5	336
	140	M100x3	112	120												163	210				

Note:- All above dimensions are in mm.

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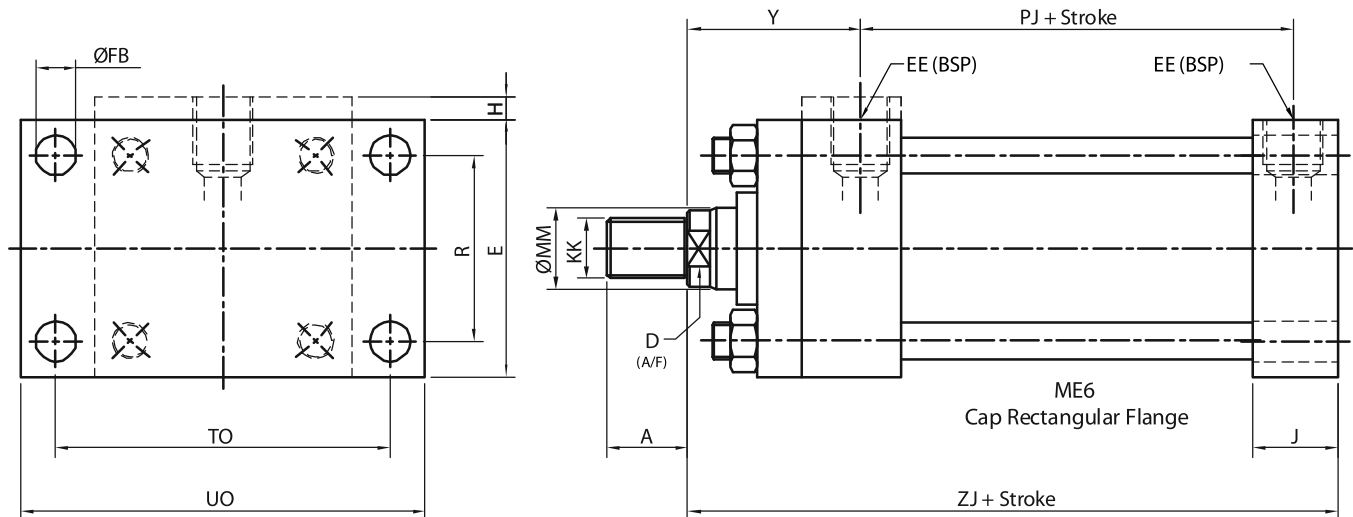
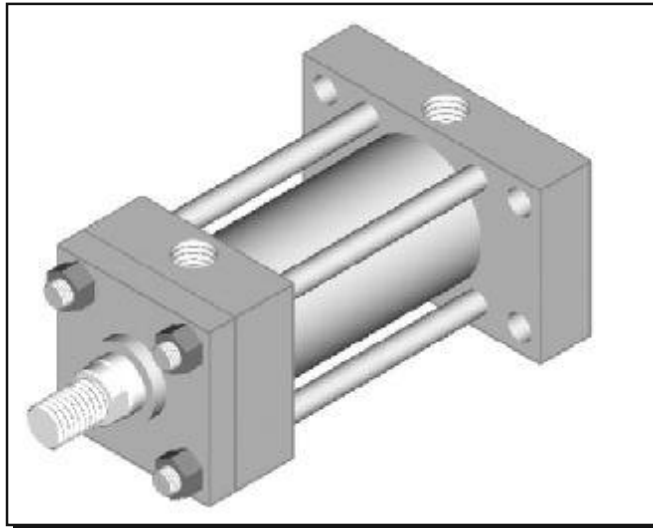
# IPH HYDRAULIC CYLINDER



IPH

ME 6

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	R	TO	UO	FB	J	ZJ
25	12	M10x1.25	14	9	1/4"	5	50	53	40	27	51	65	5.5	-	114
	18	M14x1.5	18	15											
32	16	M12x1.25	16	13	1/4"	5	60	56	45	33	58	70	6.6	-	128
	22	M16x1.5	22	18											
40	18	M14x1.5	18	15	3/8"	-	62	73	63	41	87	110	11	31	153
	28	M20x1.5	28	22											
50	22	M16x1.5	22	18	1/2"	-	67	74	75	52	105	130	14	32	159
	36	M27x2	36	30											
63	28	M20x1.5	28	22	1/2"	-	71	80	90	65	117	145	14	34	168
	45	M33x2	45	36											
80	36	M27x2	36	30	3/4"	-	77	93	115	83	149	180	18	38	190
	56	M42x2	56	46											
100	45	M33x2	45	36	3/4"	-	82	101	130	97	162	200	18	38	203
	70	M48x2	63	60											
125	56	M42x2	56	46	1"	-	86	117	165	126	208	250	22	38	232
	90	M64x3	85	80											
160	70	M48x2	63	60	1"	-	86	130	205	155	253	300	26	51	245
	110	M80x3	95	100											
200	90	M64x3	85	80	1-1/4"	-	98	165	245	190	300	360	33	53	299
	140	M100x3	112	120											

Note:- All above dimensions are in mm.

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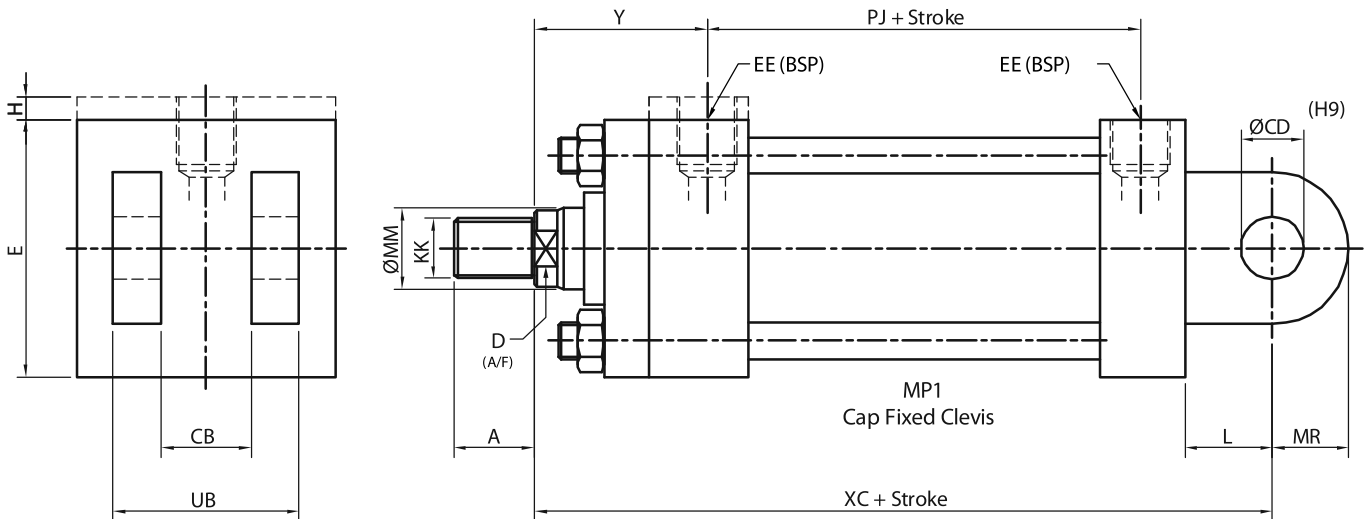
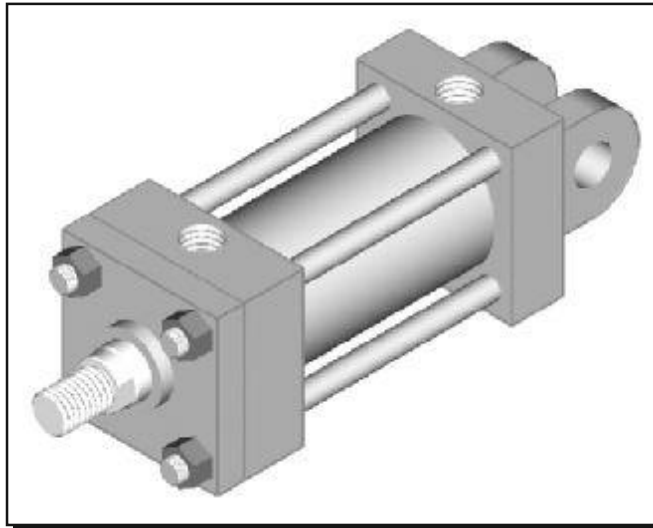
# IPH HYDRAULIC CYLINDER



IPH

MP 1

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	L	MR	CD	CB	UB	XC
25	12	M10x1.25	14	9	1/4"	5	50	53	40	13	12	10	12	25	127
	18	M14x1.5	18	15											
32	16	M12x1.25	16	13	1/4"	5	60	56	45	19	17	12	16	34	147
	22	M16x1.5	22	18											
40	18	M14x1.5	18	15	3/8"	-	62	73	63	19	17	14	20	42	172
	28	M20x1.5	28	22											
50	22	M16x1.5	22	18	1/2"	-	67	74	75	32	29	20	30	62	191
	36	M27x2	36	30											
63	28	M20x1.5	28	22	1/2"	-	71	80	90	32	29	20	30	62	200
	45	M33x2	45	36											
80	36	M27x2	36	30	3/4"	-	77	93	115	39	34	28	40	83	229
	56	M42x2	56	46											
100	45	M33x2	45	36	3/4"	-	82	101	130	54	50	36	50	103	257
	70	M48x2	63	60											
125	56	M42x2	56	46	1"	-	86	117	165	57	53	45	60	23	289
	90	M64x3	85	80											
160	70	M48x2	63	60	1"	-	86	130	205	63	59	56	70	143	308
	110	M80x3	95	100											
200	90	M64x3	85	80	1-1/4"	-	98	165	245	82	78	70	80	163	381
	140	M100x3	112	120											

Note:- All above dimensions are in mm.

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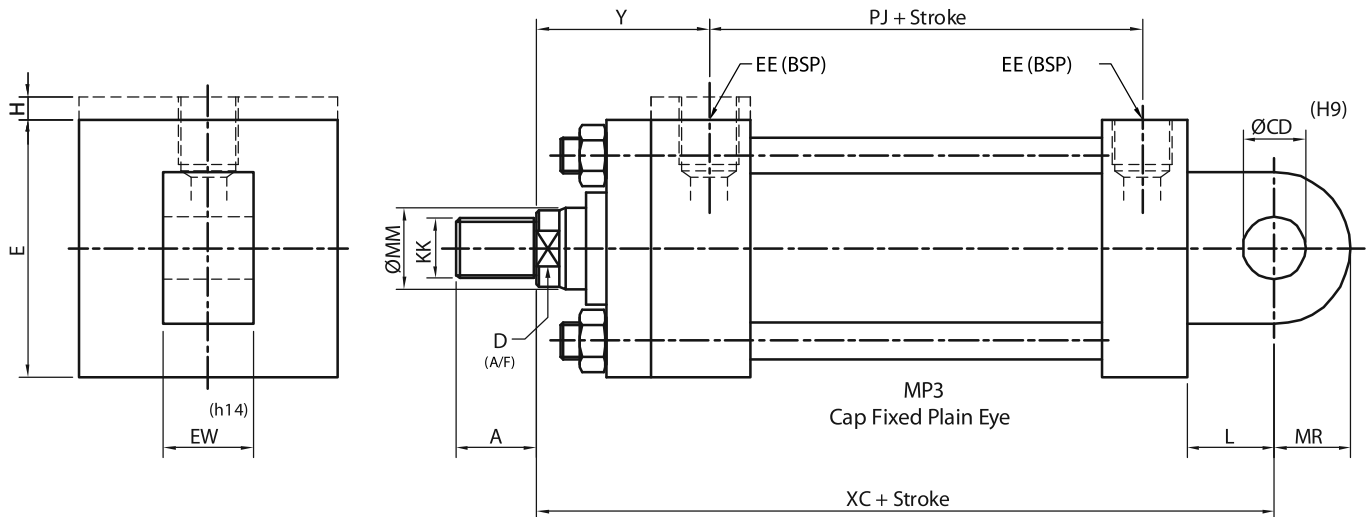
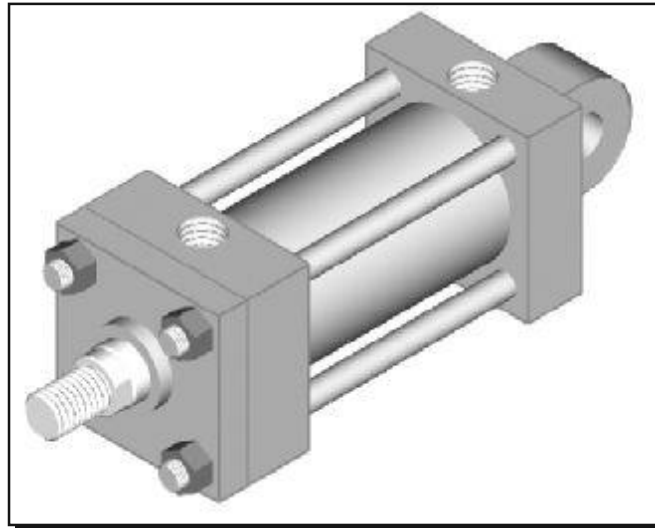
# IPH HYDRAULIC CYLINDER



IPH

MP 3

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	L	MR	CD	EW	XC
25	12	M10x1.25	14	9	1/4"	5	50	53	40	13	12	10	12	127
	18	M14x1.5	18	15										
32	16	M12x1.25	16	13	1/4"	5	60	56	45	19	17	12	16	147
	22	M16x1.5	22	18										
40	18	M14x1.5	18	15	3/8"	-	62	73	63	19	17	14	20	172
	28	M20x1.5	28	22										
50	22	M16x1.5	22	18	1/2"	-	67	74	75	32	29	20	30	191
	36	M27x2	36	30										
63	28	M20x1.5	28	22	1/2"	-	71	80	90	32	29	20	30	200
	45	M33x2	45	36										
80	36	M27x2	36	30	3/4"	-	77	93	115	39	34	28	40	229
	56	M42x2	56	46										
100	45	M33x2	45	36	3/4"	-	82	101	130	54	50	36	50	257
	70	M48x2	63	60										
125	56	M42x2	56	46	1"	-	86	117	165	57	53	45	60	289
	90	M64x3	85	80										
160	70	M48x2	63	60	1"	-	86	130	205	63	59	56	70	308
	110	M80x3	95	100										
200	90	M64x3	85	80	1-1/4"	-	98	165	245	82	78	70	80	381
	140	M100x3	112	120										

Note:- All above dimensions are in mm.

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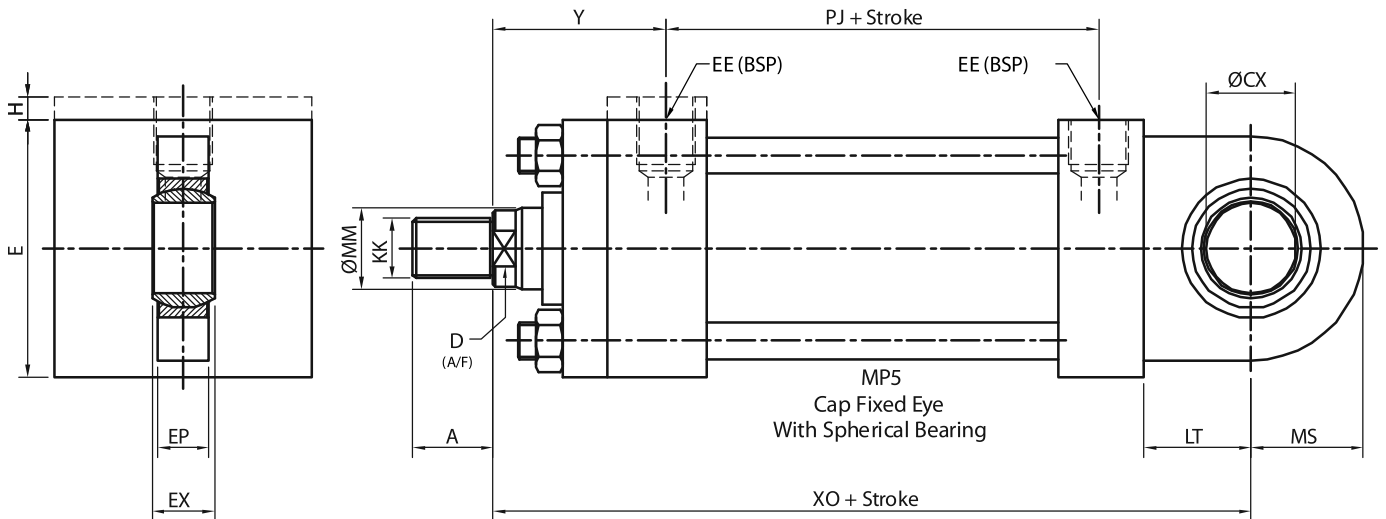
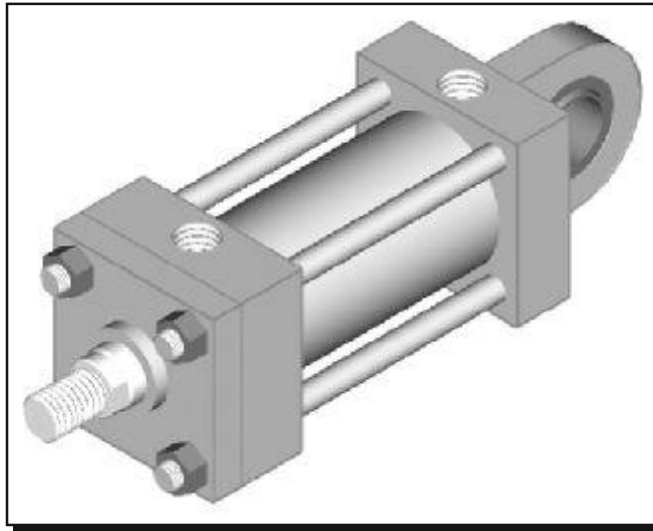
# IPH HYDRAULIC CYLINDER



IPH

MP 5

ISO-6020/2

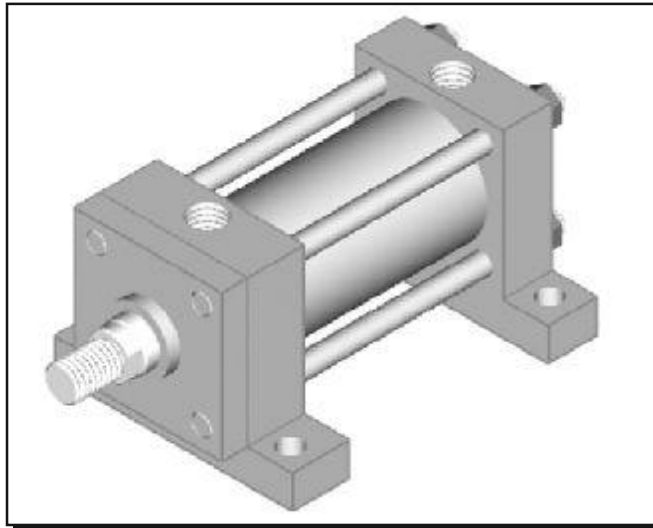


BORE	MM	KK	A	D	EE	H	Y	PJ	E	LT	MS	CX	EP	EX	XO
25	12	M10x1.25	14	9	1/4"	5	50	53	40	16	20	12	8	10	130
	18	M14x1.5	18	15											
32	16	M12x1.25	16	13	1/4"	5	60	56	45	20	22.5	16	11	14	148
	22	M16x1.5	22	18											
40	18	M14x1.5	18	15	3/8"	-	62	73	63	25	29	20	13	16	178
	28	M20x1.5	28	22											
50	22	M16x1.5	22	18	1/2"	-	67	74	75	31	33	25	17	20	190
	36	M27x2	36	30											
63	28	M20x1.5	28	22	1/2"	-	71	80	90	38	40	30	19	22	206
	45	M33x2	45	36											
80	36	M27x2	36	30	3/4"	-	77	93	115	48	50	40	23	28	238
	56	M42x2	56	46											
100	45	M33x2	45	36	3/4"	-	82	101	130	58	62	50	30	35	261
	70	M48x2	63	60											
125	56	M42x2	56	46	1"	-	86	117	165	72	80	60	38	44	304
	90	M64x3	85	80											
160	70	M48x2	63	60	1"	-	86	130	205	92	100	80	47	55	337
	110	M80x3	95	100											
200	90	M64x3	85	80	1-1/4"	-	98	165	245	116	120	100	57	70	415
	140	M100x3	112	120											

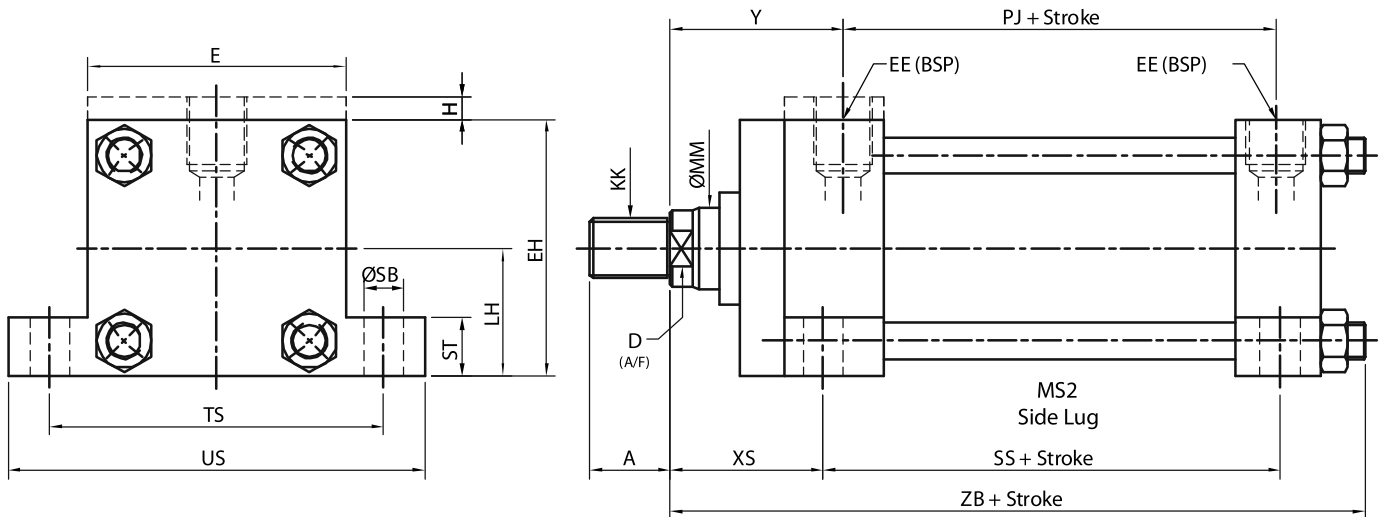
Note:- All above dimensions are in mm.

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# IPH HYDRAULIC CYLINDER



  
**IPH**  
**MS 2**  
 ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	EH	LH	ST	TS	US	SB	XS	SS	ZB
25	12	M10x1.25	14	9	1/4"	5	50	53	40	39	19	8.5	54	72	6.6	33	72	121
	18	M14x1.5	18	15														
32	16	M12x1.25	16	13	1/4"	5	60	56	45	44.5	22	12.5	63	84	9	45	72	137
	22	M16x1.5	22	18														
40	18	M14x1.5	18	15	3/8"	-	62	73	63	62.5	31	12.5	83	103	11	45	97	166
	28	M20x1.5	28	22														
50	22	M16x1.5	22	18	1/2"	-	67	74	75	74.5	37	19	102	127	14	54	91	176
	36	M27x2	36	30														
63	28	M20x1.5	28	22	1/2"	-	71	80	90	89	44	26	124	161	18	65	85	185
	45	M33x2	45	36														
80	36	M27x2	36	30	3/4"	-	77	93	115	114.5	57	26	149	186	18	68	104	212
	56	M42x2	56	46														
100	45	M33x2	45	36	3/4"	-	82	101	130	128	63	32	172	216	26	79	101	225
	70	M48x2	63	60														
125	56	M42x2	56	46	1"	-	86	117	165	164.5	82	32	210	254	26	79	130	260
	90	M64x3	85	80														
160	70	M48x2	63	60	1"	-	86	130	205	203.5	101	38	260	318	33	86	129	279
	110	M80x3	95	100														
200	90	M64x3	85	80	1-1/4"	-	98	165	245	244.5	122	44	311	381	39	92	171	336
	140	M100x3	112	120														

Note:- All above dimensions are in mm.

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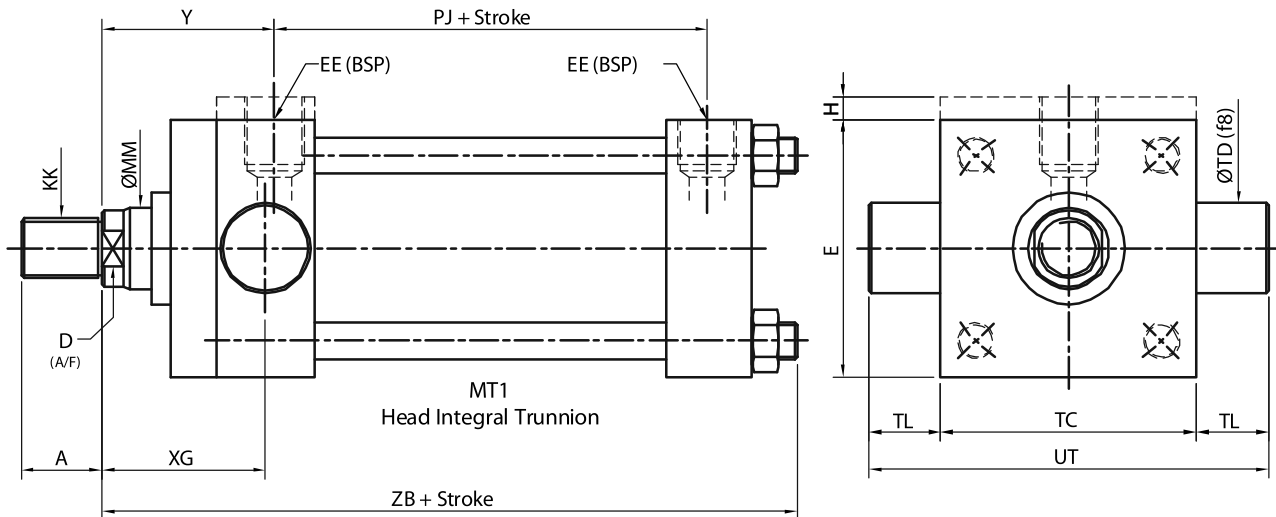
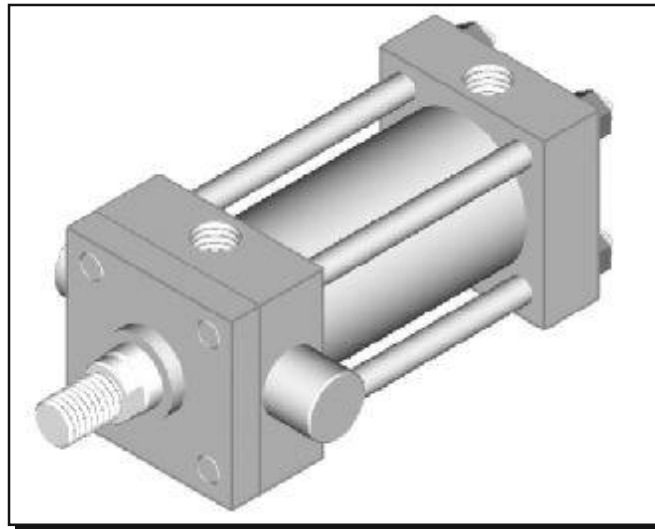
# IPH HYDRAULIC CYLINDER



IPH

MT 1

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	TC	UT	TD	TL	XG	ZB
25	12	M10x1.25	14	9	1/4"	5	50	53	40	38	58	12	10	44	121
	18	M14x1.5	18	15											
32	16	M12x1.25	16	13	1/4"	5	60	56	45	44	68	16	12	54	137
	22	M16x1.5	22	18											
40	18	M14x1.5	18	15	3/8"	-	62	73	63	63	95	20	16	57	166
	28	M20x1.5	28	22											
50	22	M16x1.5	22	18	1/2"	-	67	74	75	76	116	25	20	64	176
	36	M27x2	36	30											
63	28	M20x1.5	28	22	1/2"	-	71	80	90	89	139	32	25	70	185
	45	M33x2	45	36											
80	36	M27x2	36	30	3/4"	-	77	93	115	114	178	40	32	76	212
	56	M42x2	56	46											
100	45	M33x2	45	36	3/4"	-	82	101	130	127	207	50	40	71	225
	70	M48x2	63	60											
125	56	M42x2	56	46	1"	-	86	117	165	165	265	63	50	75	260
	90	M64x3	85	80											
160	70	M48x2	63	60	1"	-	86	130	205	203	329	80	63	75	279
	110	M80x3	95	100											
200	90	M64x3	85	80	1-1/4"	-	98	165	245	241	401	100	80	85	336
	140	M100x3	112	120											

Note:- All above dimensions are in mm.

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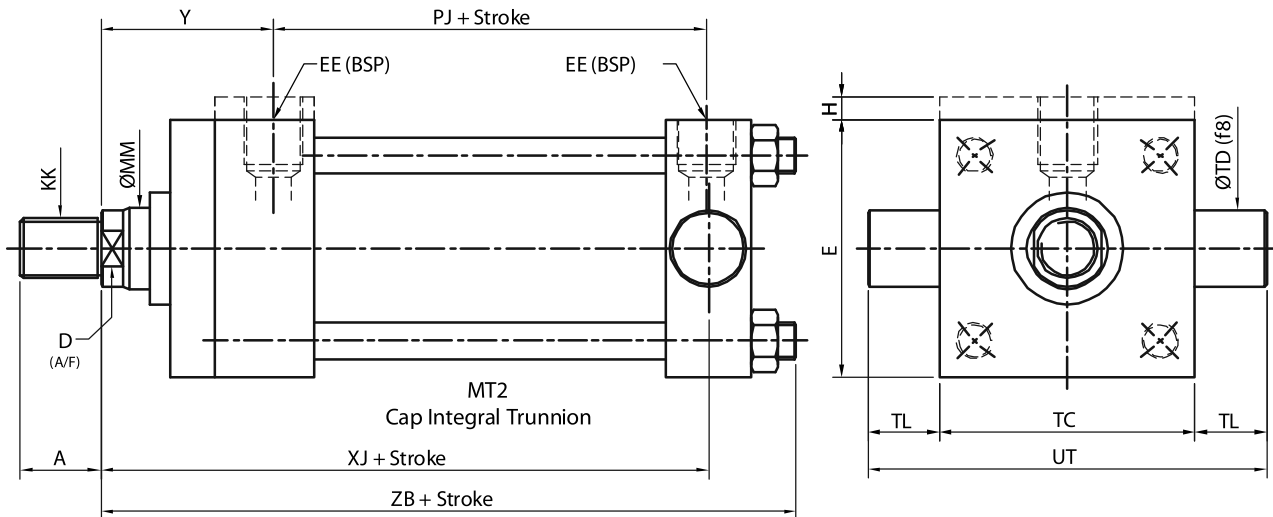
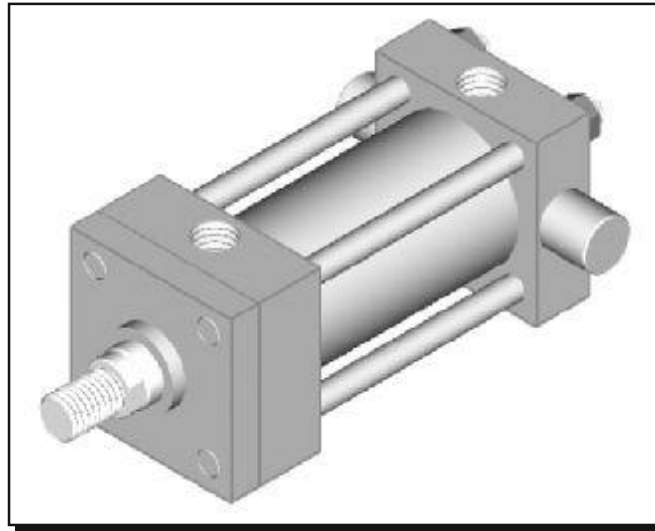
# IPH HYDRAULIC CYLINDER



IPH

MT 2

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	TC	UT	TD	TL	XJ	ZB
25	12	M10x1.25	14	9	1/4"	5	50	53	40	38	58	12	10	101	121
	18	M14x1.5	18	15											
32	16	M12x1.25	16	13	1/4"	5	60	56	45	44	68	16	12	115	137
	22	M16x1.5	22	18											
40	18	M14x1.5	18	15	3/8"	-	62	73	63	63	95	20	16	134	166
	28	M20x1.5	28	22											
50	22	M16x1.5	22	18	1/2"	-	67	74	75	76	116	25	20	140	176
	36	M27x2	36	30											
63	28	M20x1.5	28	22	1/2"	-	71	80	90	89	139	32	25	149	185
	45	M33x2	45	36											
80	36	M27x2	36	30	3/4"	-	77	93	115	114	178	40	32	168	212
	56	M42x2	56	46											
100	45	M33x2	45	36	3/4"	-	82	101	130	127	207	50	40	187	225
	70	M48x2	63	60											
125	56	M42x2	56	46	1"	-	86	117	165	165	265	63	50	209	260
	90	M64x3	85	80											
160	70	M48x2	63	60	1"	-	86	130	205	203	329	80	63	230	279
	110	M80x3	95	100											
200	90	M64x3	85	80	1-1/4"	-	98	165	245	241	401	100	80	276	336
	140	M100x3	112	120											

Note:- All above dimensions are in mm.

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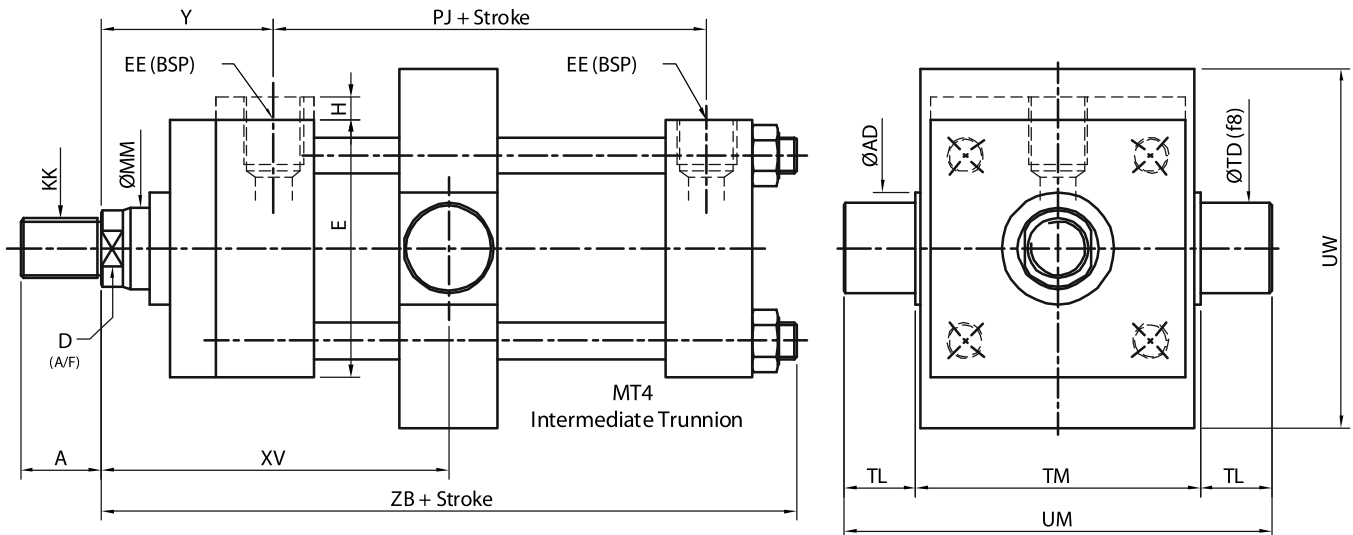
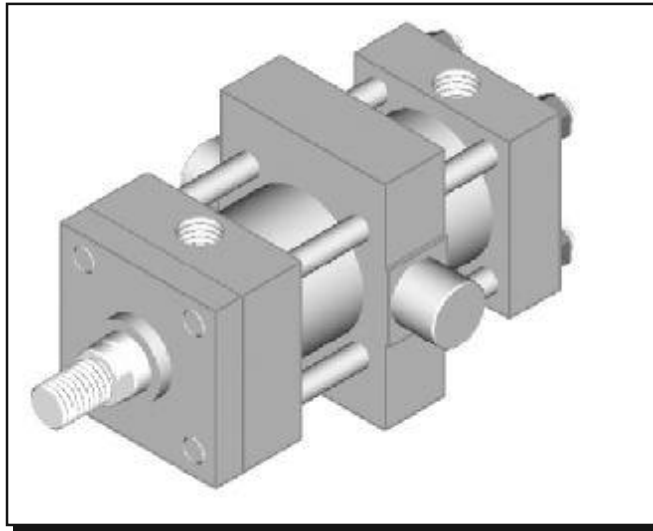
# IPH HYDRAULIC CYLINDER



IPH

MT 4

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	TM	UM	TD	TL	AD	UW	XV	ZB					
25	12	M10x1.25	14	9	1/4"	5	50	53	40	48	68	12	10	20	63	To Specify	121					
	18	M14x1.5	18	15																		
32	16	M12x1.25	16	13	1/4"	5	60	56	45	55	79	16	12	25	75		To Specify	137				
	22	M16x1.5	22	18																		
40	18	M14x1.5	18	15	3/8"	-	62	73	63	76	108	20	16	30	92			To Specify	166			
	28	M20x1.5	28	22																		
50	22	M16x1.5	22	18	1/2"	-	67	74	75	89	129	25	20	40	112				To Specify	176		
	36	M27x2	36	30																		
63	28	M20x1.5	28	22	1/2"	-	71	80	90	100	150	32	25	40	126					To Specify	185	
	45	M33x2	45	36																		
80	36	M27x2	36	30	3/4"	-	77	93	115	127	191	40	32	50	160						To Specify	212
	56	M42x2	56	46																		
100	45	M33x2	45	36	3/4"	-	82	101	130	140	220	50	40	60	180	To Specify						225
	70	M48x2	63	60																		
125	56	M42x2	56	46	1"	-	86	117	165	178	278	63	50	73	215		To Specify					260
	90	M64x3	85	80																		
160	70	M48x2	63	60	1"	-	86	130	205	215	341	80	63	90	260			To Specify				279
	110	M80x3	95	100																		
200	90	M64x3	85	80	1-1/4"	-	98	165	245	279	439	100	80	110	355				To Specify			336
	140	M100x3	112	120																		

Note:- All above dimensions are in mm.

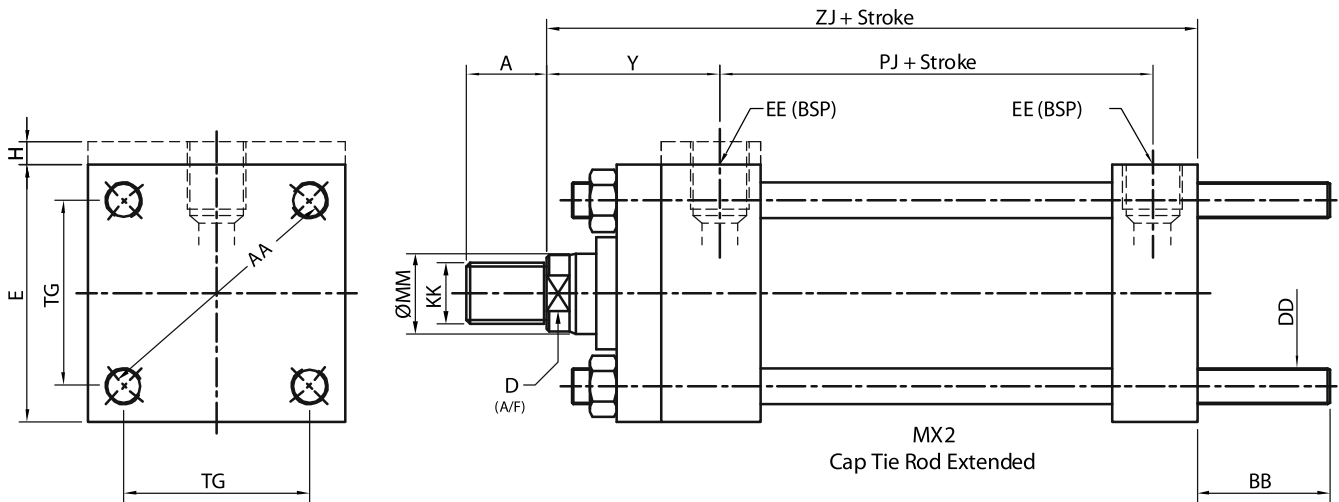
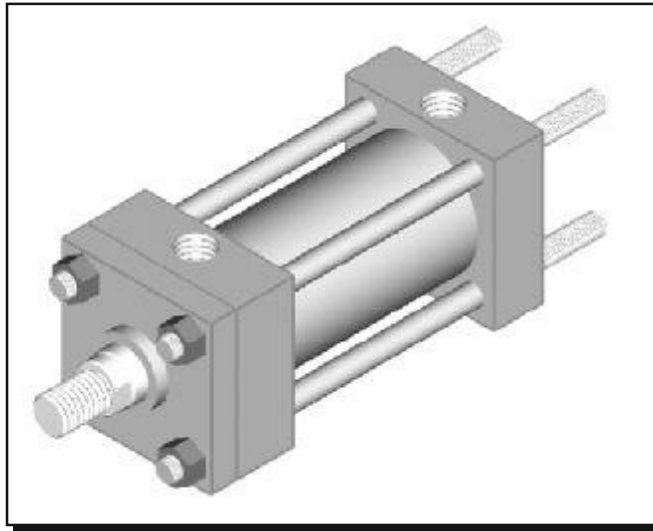
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# IPH HYDRAULIC CYLINDER



IPH  
MX 2

ISO-6020/2



BORE	MM	KK	A	D	EE	H	Y	PJ	E	TG	AA	DD	BB	ZJ
25	12	M10x1.25	14	9	1/4"	5	50	53	40	28.3	40	M5x0.8	19	114
	18	M14x1.5	18	15										
32	16	M12x1.25	16	13	1/4"	5	60	56	45	33.2	47	M6x1	24	128
	22	M16x1.5	22	18										
40	18	M14x1.5	18	15	3/8"	-	62	73	63	41.7	59	M8x1	35	153
	28	M20x1.5	28	22										
50	22	M16x1.5	22	18	1/2"	-	67	74	75	52.3	74	M12x1.25	46	159
	36	M27x2	36	30										
63	28	M20x1.5	28	22	1/2"	-	71	80	90	64.3	91	M12x1.25	46	168
	45	M33x2	45	36										
80	36	M27x2	36	30	3/4"	-	77	93	115	82.7	117	M16x1.5	59	190
	56	M42x2	56	46										
100	45	M33x2	45	36	3/4"	-	82	101	130	96.9	137	M16x1.5	59	203
	70	M48x2	63	60										
125	56	M42x2	56	46	1"	-	86	117	165	125.9	178	M22x1.5	81	232
	90	M64x3	85	80										
160	70	M48x2	63	60	1"	-	86	130	205	154.9	219	M27x2	92	245
	110	M80x3	95	100										
200	90	M64x3	85	80	1-1/4"	-	98	165	245	190.2	269	M30x2	115	299
	140	M100x3	112	120										

Note:- All above dimensions are in mm.

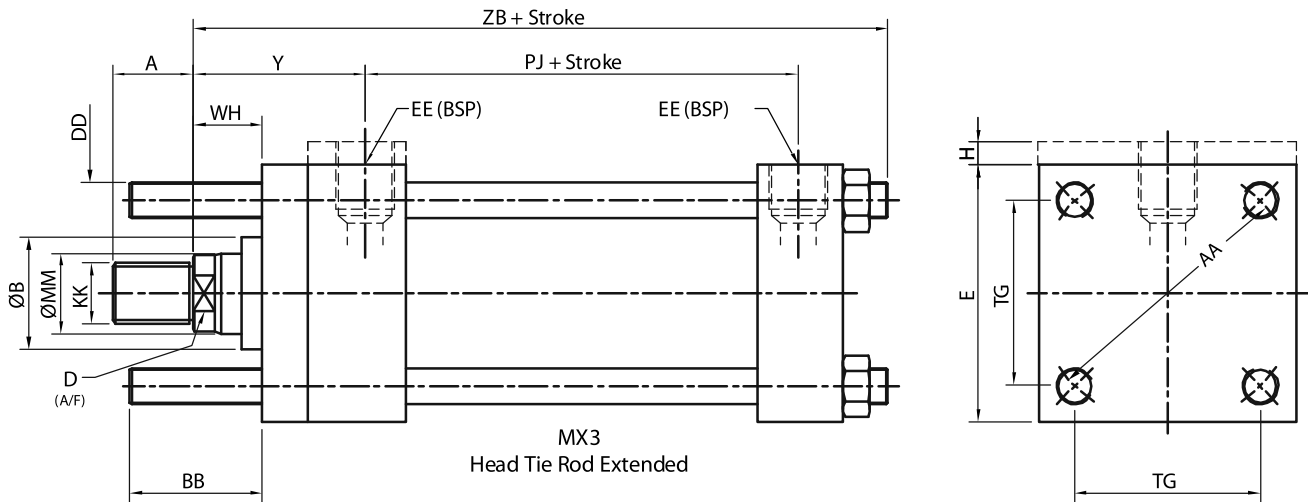
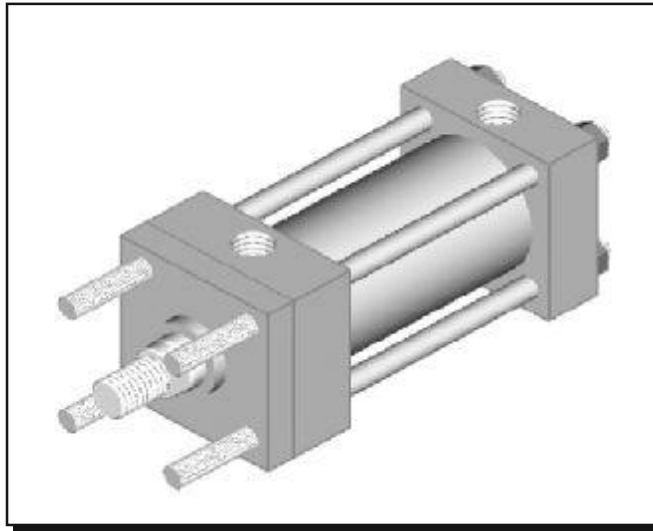
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# IPH HYDRAULIC CYLINDER



IPH  
MX 3

ISO-6020/2

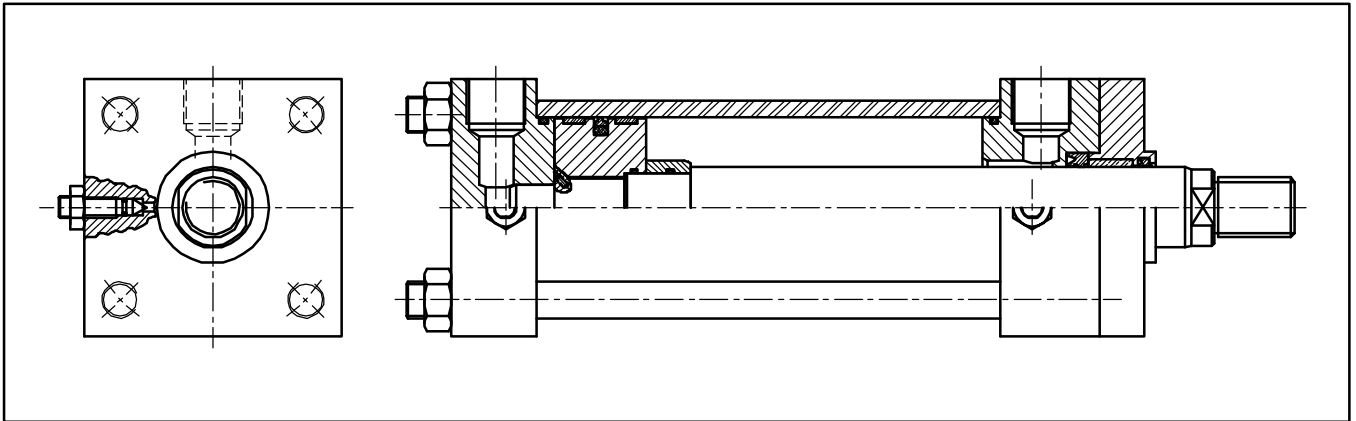


BORE	MM	KK	A	D	EE	H	Y	PJ	E	TG	AA	DD	BB	ZB	B	WH
25	12	M10x1.25	14	9	1/4"	5	50	53	40	28.3	40	M5x0.8	19	121	24	15
	18	M14x1.5	18	15											30	
32	16	M12x1.25	16	13	1/4"	5	60	56	45	33.2	47	M6x1	24	137	26	25
	22	M16x1.5	22	18											34	
40	18	M14x1.5	18	15	3/8"	-	62	73	63	41.7	59	M8x1	35	166	30	25
	28	M20x1.5	28	22											42	
50	22	M16x1.5	22	18	1/2"	-	67	74	75	52.3	74	M12x1.25	46	176	34	25
	36	M27x2	36	30											50	
63	28	M20x1.5	28	22	1/2"	-	71	80	90	64.3	91	M12x1.25	46	185	42	32
	45	M33x2	45	36											60	
80	36	M27x2	36	30	3/4"	-	77	93	115	82.7	117	M16x1.5	59	212	50	31
	56	M42x2	56	46											72	
100	45	M33x2	45	36	3/4"	-	82	101	130	96.9	137	M16x1.5	59	225	60	35
	70	M48x2	63	60											88	
125	56	M42x2	56	46	1"	-	86	117	165	125.9	178	M22x1.5	81	260	72	35
	90	M64x3	85	80											108	
160	70	M48x2	63	60	1"	-	86	130	205	154.9	219	M27x2	92	279	88	32
	110	M80x3	95	100											133	
200	90	M64x3	85	80	1-1/4"	-	98	165	245	190.2	269	M30x2	115	336	108	32
	140	M100x3	112	120											163	

Note:- All above dimensions are in mm.

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## CONSTRUCTIONAL DETAILS



IPH Hydraulic Cylinders as per ISO 6020/2 : 2006 (E) are of COMPACT design and suitable for working pressure up to 160 BAR with the following construction details :

**BARREL:** Made from cold drawn seamless tubes and honed to a surface finish of 0.4 micron and higher.

**PISTON ROD:** Made from medium carbon steel, accurately ground, hard chrome plated super finished.

**COVER PLATES:** Fine machined from steel, and constructed with a sturdy design to withstand high pressure loads.

**GLAND:** Phosphor bronze bush inserted for smooth operation of the piston rod and for provided suitable guiding action.

**TIE RODS:** Made from high tensile steel rod tightened with hexagonal nut for easy maintenance.

**MOUNTING:** Various type of mounting are available according to the requirement ensuring complete interchangeability with other ISO standard cylinder.

**CUSHIONING:** Self aligning cushioning boss ensures alignment of the rod movement inside the cushioning chamber, providing accurate damping action at end of stroke.

**CUSHIONING SCREW:** For fine adjustment of cushioning movement.

**AIR BLEED:** Screw provided for releasing the air trapped in the cylinder.

### **SEALLING ELEMENTS:**

**PISTON SEAL:** Provided with one turcon Glydring™ for low friction, Stick / Slip free movement along with two turcite Slydring for conforms to ISO 7245/1.

**GLAND SEAL:** Polyurethane RU3 U-Cup™ seal is used, which has primary and secondary lip for maximum flexibility. Conforms to ISO 5597.

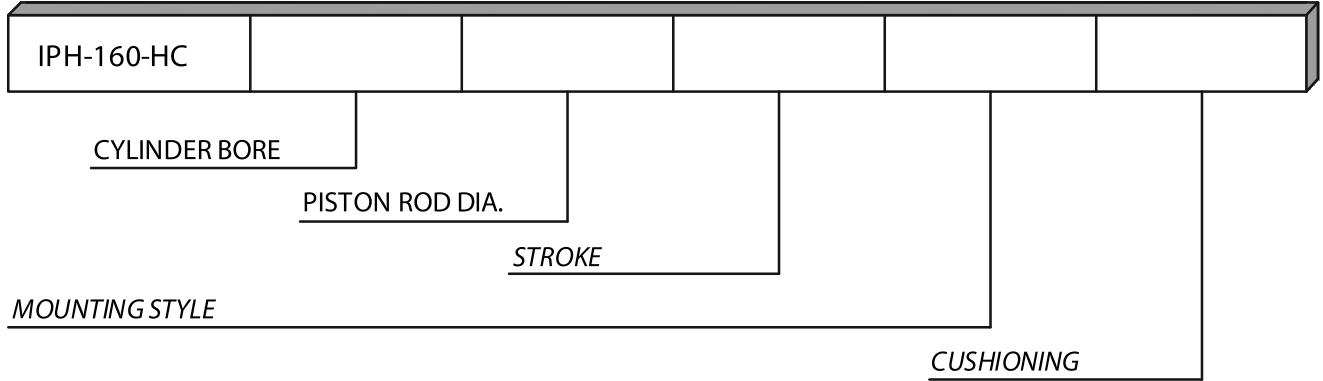
**WIPER SEAL:** DA-22™ Double Acting Polyurethane scraper is used conforming to ISO 6195 Type C groove dimensions. This wears resistant seal has a scraper lip which scrapes off the dirt completely from the Piston Rod, but leaves a residual oil film which is required for proper lubrication.

**STATIC SEALS:** Nitrile Rubber 'O' ring are used for static sealing purposes. They are used for the end seals, piston locking and cushioning seals.

**ORDERING DETAILS**

Hydraulic Cylinders, rated for Operating Pressure of upto 160 Kg/cm<sup>2</sup>  
Tie Rod Construction  
As per ISO 6020 / 2 Compact Series

Please use the following format when Ordering :



- ME 5 = Head Rectangular Flange
- ME 6 = Cap Rectangular Flange
- MP 1 = Cap Fixed Clevis
- MP 3 = Cap Fixed Plain Eye
- MP 5 = Cap Fixed Eye with Spherical Bearing
- MS 2 = Side Lugs
- MT 1 = Head Integral Trunnion
- MT 2 = Cap Integral Trunnion
- MT 4 = Intermediate Trunnion
- MX 2 = Cap Tie Rod Extended
- MX 3 = Head Tie Rod Extended

- CB = Cushioning at Both Ends
- NC = Non Cushioned
- CC = Cap End Cushioned
- CH = Head End Cushioned

Example: For Hydraulic Cylinder with Bore 100 mm, Piston Rod dia 45 mm, Stroke 500 mm  
Mounting Head Rectangular Flange, and Cushioned at both ends will be specified as  
IPH - 160 - HC / 100 / 45 / 500 / ME5 / CB

*Reference number ISO 6020-2 : 2006*



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