

Since 1981

Devoted to the Commitments



**Pneumatic Cylinders**  
(Tie rod construction)

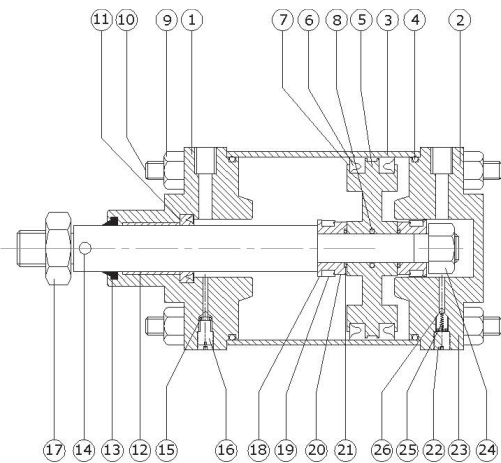
**Hydro Pneumatic Controls**

*An ISO 9001-2008 Certified Company*

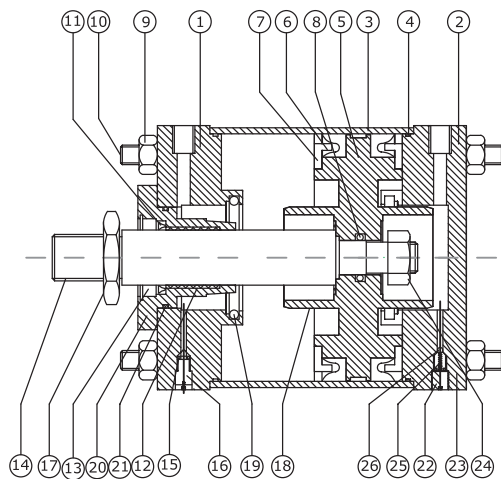


### Ø1½" - Ø14" Bore Air Cylinders

- ◆ Sizes available 1 ½", 2", 2¼", 2½, 3" and 4" bore diameter (Medium bore) and 5", 6", 8", 10", 12" and 14" bore diameter. (Large Bore)
- ◆ Suitable for a wide range of applications.
- ◆ Available in all types of mountings and attachments.
- ◆ Single, Double acting, Magnetic, Double Ended, Tandem, Telescopic.
- ◆ Max stroke lengths upto 2000 mm.



### Ø1½" - 4" Medium Bore Cylinders



### Ø5" - 14" Large Bore Cylinders

### Part List

No.	Description	Qty.
01	Front cover	1
02	Rear cover	1
03	Tube	1
04	'O' ring for cover	2
05	Wear ring	1
06	'U' cup seal for piston	2
07	Piston	2
08	'O' ring for piston	1
09	Tie rod nut	8
10	Tie rod	4
11	'U' cup for piston rod seal	1
12	Bush bearing	1
13	Wiper Seal	1
14	Piston rod	1
15	'O' ring for bleed screw	2
16	Bleed Screw	2
17	Lock nut	2
18	Cap (for Medium Bore cylinders)	2
19	Cushioning boss (for Large Bore cylinders)	2
20	Cushioning Seal	2
21	Sleeve (for Medium Bore cylinders)	2
22	bush (for Large Bore cylinders)	2
23	'O' ring for Sleeve (for Medium Bore cylinders)	2
24	'O' ring bush (for Large Bore cylinders)	2
25	Check Screw	2
26	'O' ring for check screw	2
27	Piston rod nut	1
28	Spring	2
29	Ball	2

### Technical Characteristics :

- ◆ Media : Air
- ◆ Mountings & Accessories
- ◆ Seals : Nitrile, Viton on request
- ◆ Temperature : 0°C to 80°C (for Nitrile Seals)
- ◆ Piston : Up to 4" Aluminium & from 5" to 14" cast iron.
- ◆ Pressure : 0.5 to 10.2 kgf/cm<sup>2</sup>, high pressure on request.
- ◆ Piston rod : En-8 (ground & Hard Chrome Plated), SS304 on request
- ◆ End Covers : Up to 4" Aluminium die Casted & powder coated.  
From 5" to 14" close grain cast iron & powder coated.
- ◆ Cylinder Barrel : Upto 4" Dia, Aluminium, M.S.  
(Honed & Hard Chrome Plated) From 5" dia. To 14" dia .  
MS (Honed & Hard Chrome Plated) Powder Coated on request.

### Piston Thrust Chart (Theoretical)

Bore Size		Air Pressure (BAR)										Free Air Consumption Litters / 25 mm stroke
		1	2	3	4	5	6	7	8	9	10	
<b>Thrust Available (KGF)</b>												
38 (1-1/2")	Push	11	23	34	45	57	68	79	91	102	114	0.22
	Pull	9	19	28	37	47	56	65	75	84	94	0.184
50.8 (2")	Push	19	39	58	78	98	117	137	156	176	196	0.205
	Pull	17	34	51	69	86	103	120	138	155	172	0.310
57 (2-1/4")	Push	25	51	76	102	128	153	179	204	230	256	0.504
	Pull	23	47	70	94	118	141	165	188	212	236	0.465
63 (2-1/4")	Push	31	63	95	126	158	190	221	253	285	317	0.625
	Pull	29	59	88	118	148	177	207	236	266	296	0.568
76 (3")	Push	45	91	136	182	228	273	319	364	410	456	0.9013
	Pull	40	81	121	162	203	243	284	324	365	406	0.804
102 (4")	Push	81	162	243	324	405	486	567	648	729	810	1.60
	Pull	76	152	228	304	380	456	532	608	684	761	1.53
127 (5")	Push	102	282	304	406	506	608	710	811	912	1014	2.53
	Pull	94	187	281	375	468	562	655	750	843	937	2.34
152 (6")	Push	149	298	447	596	745	894	1043	1192	1342	1497	3.73
	Pull	142	282	424	566	706	848	990	1131	1272	1414	3.53
203 (8")	Push	262	523	785	1046	1307	1569	1830	2092	2354	2615	6.54
	Pull	249	498	746	995	1244	1493	1742	1990	2239	2468	6.22
254 (10")	Push	406	811	1216	1622	2027	2433	2838	3243	3649	4045	10.14
	Pull	385	770	1155	1540	1925	2310	2695	3090	3465	3850	9.63
304 (12")	Push	581	1162	1742	2323	2904	3485	4065	4646	5226	5807	14.52
	Pull	560	1121	1681	2241	2801	3362	3922	4482	5043	5603	14.01
354(14")	Push	792	1568	2376	3168	3960	4752	5543	6335	7127	7919	19.80
	Pull	771	1544	2314	3068	3858	4629	5401	6172	6952	7715	19.29

### Standard Cylinders Mode Selection Chart

HPC	Bore	Mounting	Stroke	Extra Mounting	
1	2	3	4	5	
HPC	1½"	(15)	Rear Pivot (RP)	50	Single
	2¼"	(20)	Front Pivot (FP)	:	Pivot (SP)
	2½"	(22)	Front Flange (FF)	100	Rod End (RE)
	3"	(25)	Rear Flange (RF)	:	Fork (F)
	4"	(30)	Foot MTG (FM)	200	Double
	5"	(40)	NECK MTG (NM)	:	Ended (DE)
	6"	(50)	Centre Trunion (CT)	1000	Flexible Connector (F)
	8"	(60)	Flexible Connector (S)	:	Basic (B)
	10"	(80)	Basic (B)		
	12"	(100)			
	14"	(120)			
		(140)			

E.g. 1½" Bore x 400 mm Stroke Rear Pivot with Fork is represented as (15 RP 400 S)

**Note :** Due to continuous developments dimensions are subject to change without notice.

#### Note :

#### To decide cylinder bore size :

- ◆ Establish force required and working pressure available.
- ◆ Select working pressure on top of the chart.
- ◆ Select force required by reading down from selected working pressure.
- ◆ Read Out Cylinder bore size on left of the chart.

#### Example :

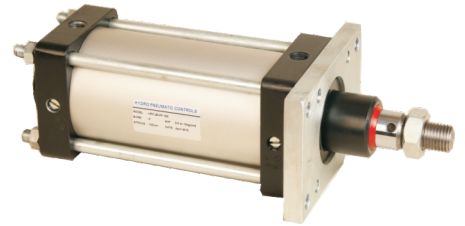
If it is established that the force required is 150kg and working pressure available is 7 bar, above chart will lead you to select 2¼" bore cylinder.



**Stroke Adjustable Cylinders**



**Double Ended Cylinders**



**Flange Mounted Cylinders**



**Rear Trunion Mounted Cylinders**

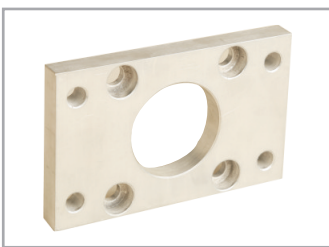


**Central Trunion Mounted Cylinders**

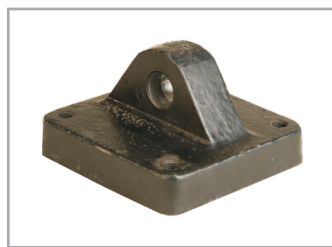


**Neck Mounted Cylinders**

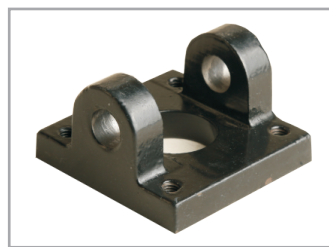
## Mountings



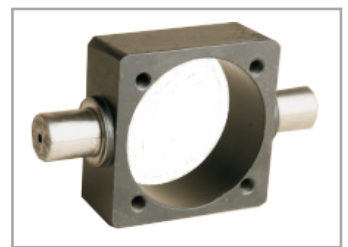
**Flange (FF / RF)**



**Single Pivot (SP)**



**Rear Pivot (RP)**



**Centre Trunion (CT)**



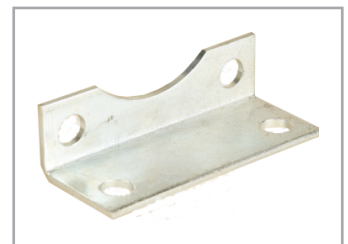
**Rod End (RE)**



**Fork (F)**



**Flexible Connection (S)**



**Foot Mounting (FM )**