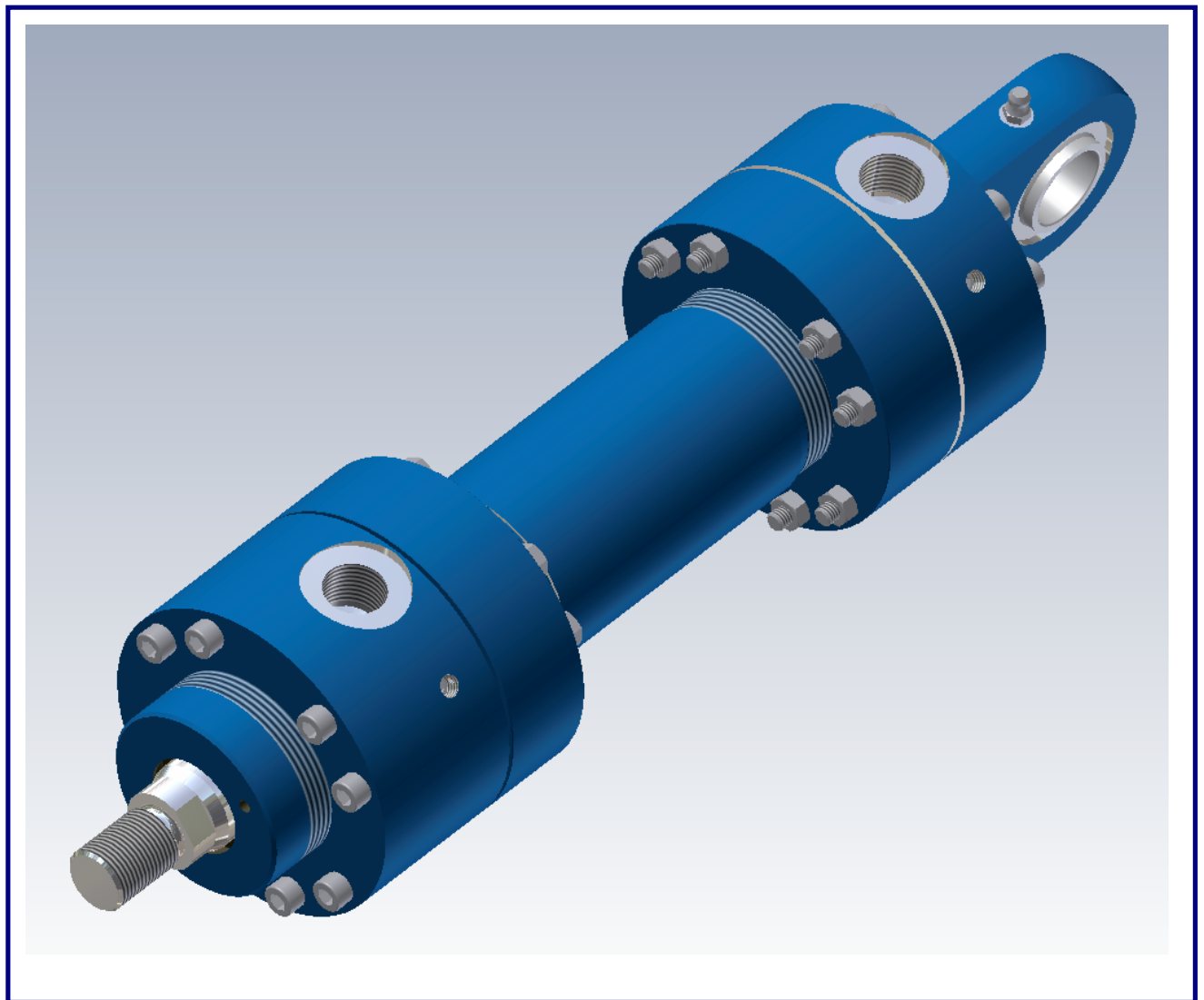

BRADFORD

Heavy Duty Flanged
Hydraulic Cylinders

Type MPF - 160 BAR
Bore Range 40mm - 400mm



BRADFORD CYLINDERS LIMITED

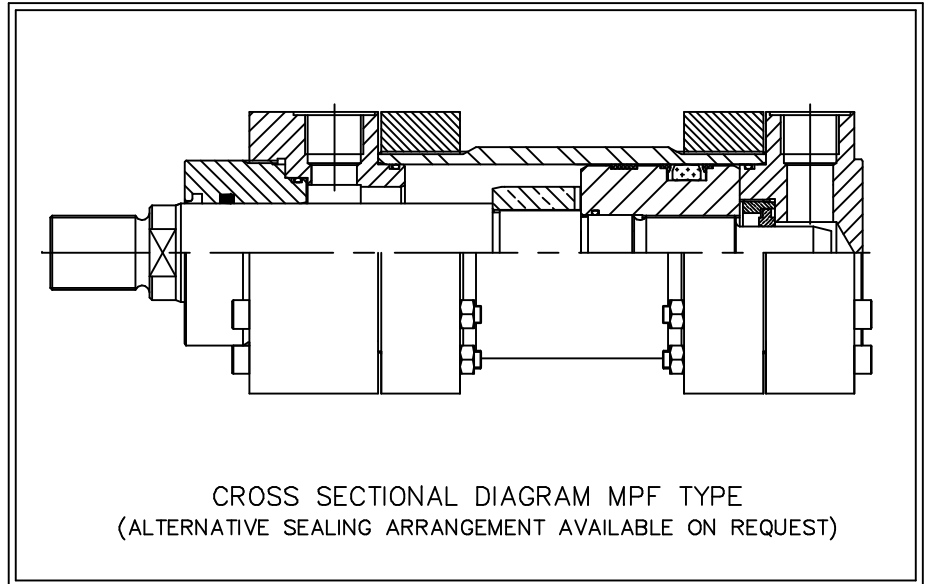
Station Mills, Station Road, Wyke, Bradford BD12 8LA

Tel +44(0)1274 711530 Fax +44(0)1274 679802

E-mail: sales@bradfordcylinders.co.uk

Website: <http://www.bradfordcylinders.co.uk>

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE



- **All Metric Design**
- **11 Standard Bore Sizes**
- **8 Mounting Styles**
- **Working Pressure 160 Bar**
- **Test Pressure 240 Bar**
- **Piston velocities upto 900mm/sec with standard seals**
- **Two standard rod sizes for each bore (male or female threads)**

DESCRIPTION

These Heavy Duty Flanged type cylinders are manufactured to the most exacting standards, with bore sizes and mounting dimensions in accordance with ISO 6020/1, CETOP standard R58H and BS6331 Pt1.

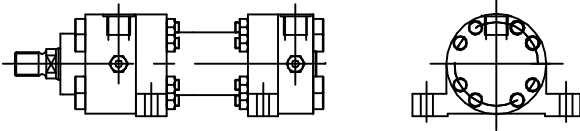
The range offers a choice of mounting arrangements, including trunnion and clevis pin mountings, and represent the best in modern cylinder design. Barrels are made from precision honed steel tubing and rods are hard chrome plated steel. End covers are bolted flanged configurations to permit easy maintenance.

The cylinders incorporate captive air bleeds and cushion adjuster valves at each end of stroke. The piston rod gland seal and wiper are designed for ease of servicing. The piston and piston rod are supported by substantial bearings. All 'O'rings have back-up rings to prevent extrusion. Solid mechanical locking secures the piston to rod and gland bearing is positioned to ensure good lubrication.

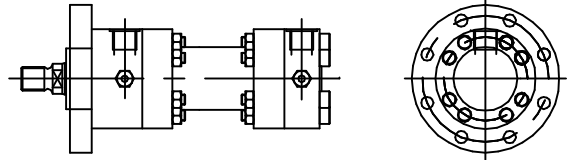
Note:- Type MPF cylinders can be supplied with bores in excess of 400mm and piston velocities in excess of 900mm/sec. However Bradford Cylinders must be contacted for advice on design specifications.

BRADFORD HYDRAULIC CYLINDERS

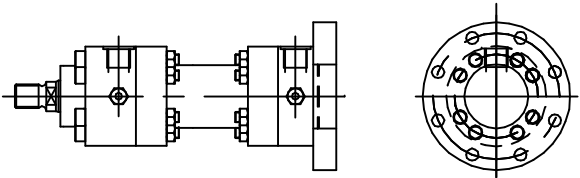
160 BAR - MPF RANGE



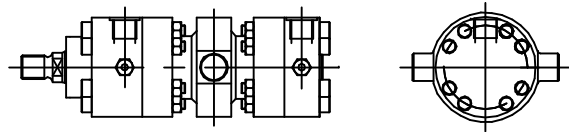
STYLE No. MS2 Foot Mounting
Page 1.



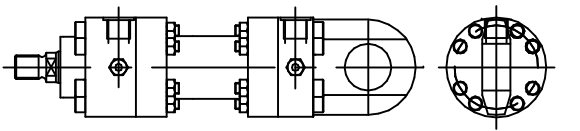
STYLE No. MF3 Front Flange Mounting
Page 2.



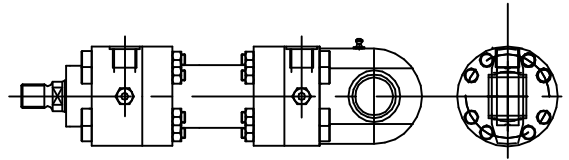
STYLE No. MF4 Rear Flange Mounting
Page 3.



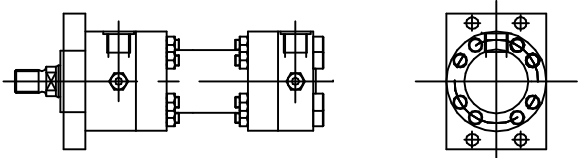
STYLE No. MT4 Trunnion Mounting
Page 4.



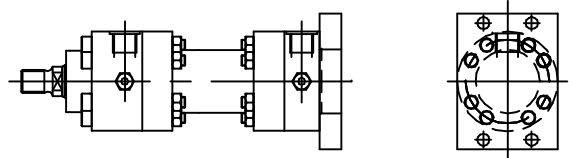
STYLE No. MP3 Plain Rear Clevis Mounting
Page 5.



STYLE No. MP3 Self Aligning Rear Clevis Mounting
Page 6.



STYLE No. MF1 front rectangular Flange Mounting
Page 7.



STYLE No. MF2 Rear rectangular Flange Mounting
Page 8.

CODES FOR DRILLING PORT, CUSHION VALVE & AIR RELEASE

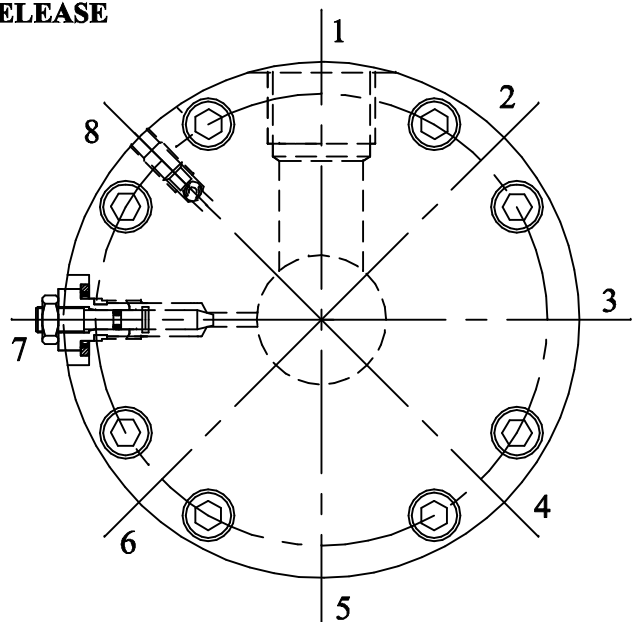
Ports can be drilled at any 1 of 4 positions i.e 1-3-5-7

Cushion valve can be drilled at any 1 of 4 positions i.e 1-3-5-7

Air bleed can be drilled at any 1 of 8 positions i.e 1-8

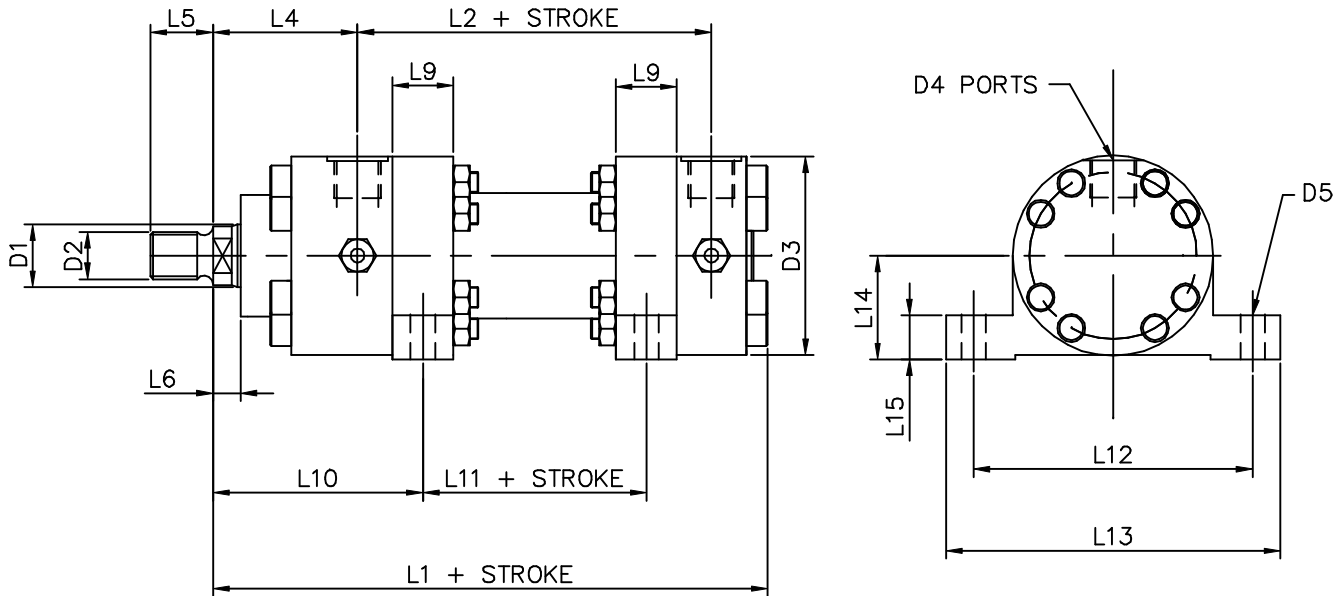
Looking at full bore end cover, standard catalogue positions are:
PORT 1 CUSHION VALVE 7 AIR BLEED 8

Note: For front or rear trunnion mounting cylinders we recommend that ports and cushion adjusters are mounted at positions 1 and 5 to avoid fouling with the trunnion bracket and for ease of access.



BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

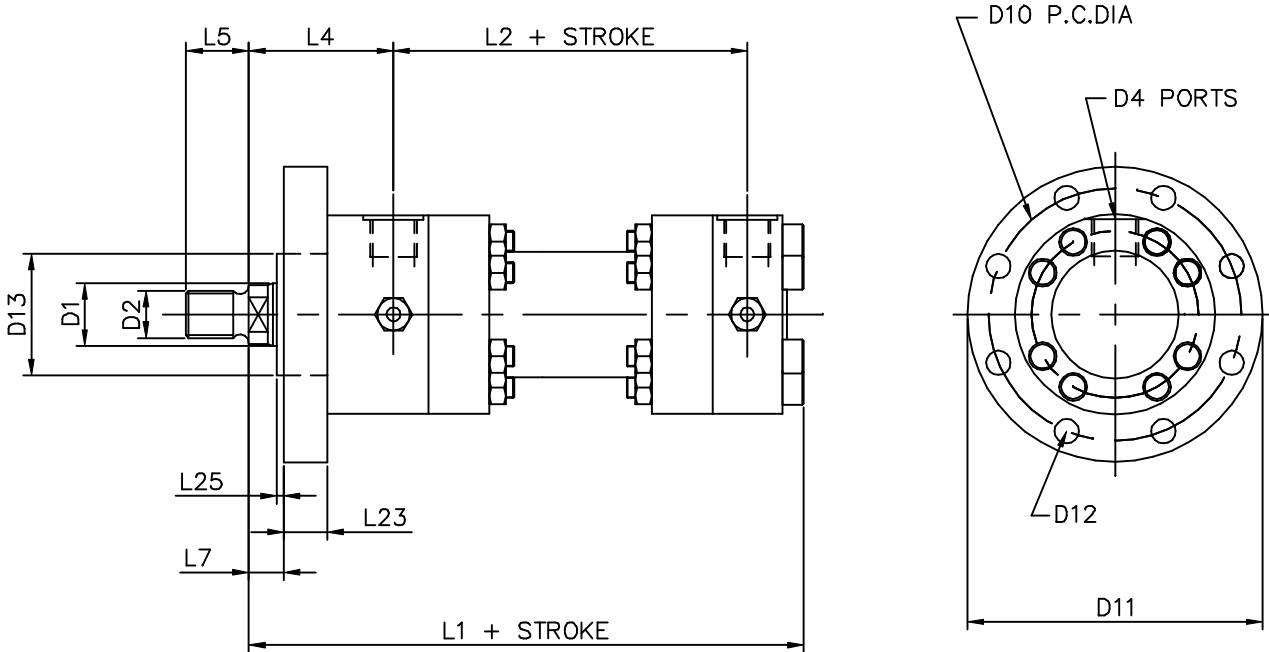
STYLE No. MS2 Foot Mounting



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	L1	L2	L4	L5	D5	L6	L9	L10	L11	L12	L13	L14	L15
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	196	103	70	22 28	9	13	26	100	43	120	145	45	15
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	211	115	73	28 36	11	14	28	105	51	140	170	53	20
63	36 45	M27 x 2 M33 x 2	115	3/4"	232	121	83	36 45	14	16	36	121	45	160	195	60	25
80	45 56	M33 x 2 M42 x 2	132	3/4"	260	136	94	45 56	18	18	40	135	54	190	230	70	25
100	56 70	M42 x 2 M48 x 2	160	1"	312	170	105	56 63	18	20	46	154	72	220	265	85	30
125	70 90	M48 x 2 M64 x 3	198	1"	341	187	113	63 85	22	23	50	164	85	260	310	100	35
160	90 110	M64 x 3 M80 x 3	242	1 1/4"	386	216	124	85 95	30	25	56	183	98	315	370	130	45
200	110 140	M80 x 3 M100 x 3	295	1 1/4"	470	274	146	95 112	36	30	60	207	151	370	430	155	50
250	140 180	M100 x 3 M125 x 4	360	1 1/2"	574	287	213	112 125	45	32	80	303	106	475	555	190	70
320	180 220	M125 x 4 M160 x 4	450	1 1/2"	684	342	262	125 160	52	37	94	355	156	575	670	240	90
400	220 280	M160 x 4 M200 x 4	560	2"	782	379	304	160 200	70	40	116	409	171	705	820	295	110

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

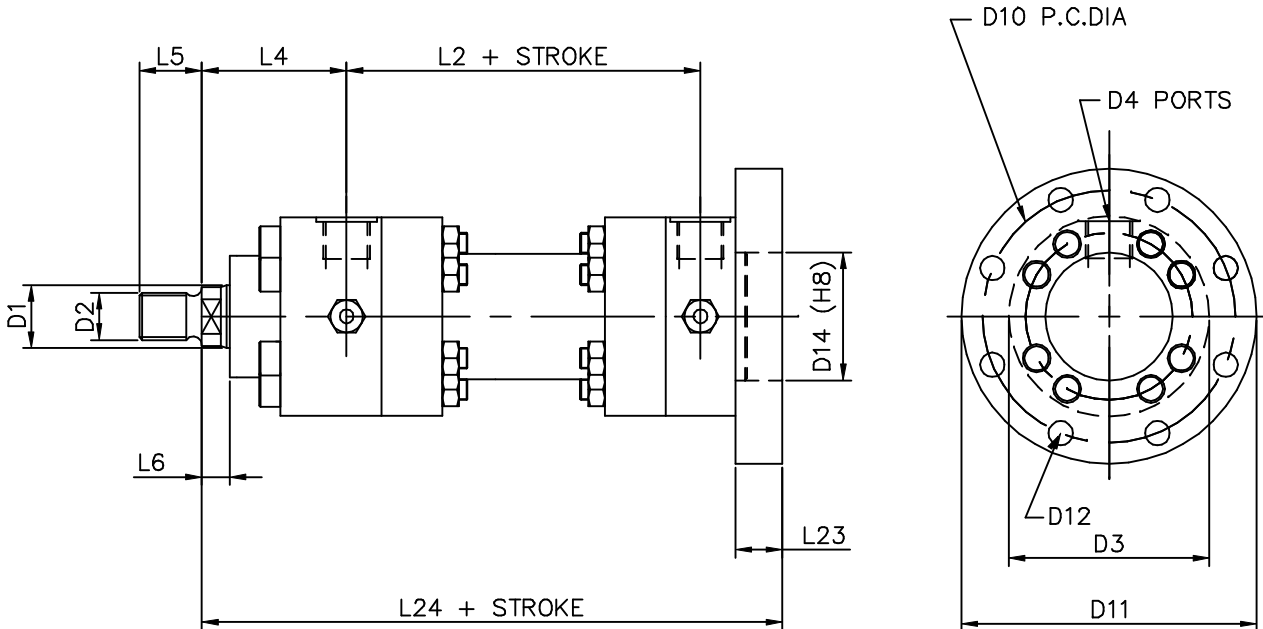
STYLE No. MF3 FRONT FLANGE MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	L1	L2	L4	L5	L7	D10	D11	D12	D13 (f8)	L23	L25
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	196	103	70	22 28	16	106	125	9	50	16	3
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	211	115	73	28 36	18	126	145	11	60	20	4
63	36 45	M27 x 2 M33 x 2	115	3/4"	232	121	83	36 45	20	145	170	14	70	25	4
80	45 56	M33 x 2 M42 x 2	132	3/4"	260	136	94	45 56	22	165	195	18	85	32	4
100	56 70	M42 x 2 M48 x 2	160	1"	312	170	105	56 63	25	200	240	22	106	32	5
125	70 90	M48 x 2 M64 x 3	198	1"	341	187	113	63 85	28	235	270	22	132	32	5
160	90 110	M64 x 3 M80 x 3	242	1 1/4"	386	216	124	85 95	30	280	320	22	160	36	5
200	110 140	M80 x 3 M100 x 3	295	1 1/4"	470	274	146	95 112	35	340	390	26	200	40	5
250	140 180	M100 x 3 M125 x 4	360	1 1/2"	574	287	213	112 125	40	420	480	33	250	56	8
320	180 220	M125 x 4 M160 x 4	450	1 1/2"	684	342	262	125 160	45	520	590	39	320	63	8
400	220 280	M160 x 4 M200 x 4	560	2"	782	379	304	160 200	50	640	725	45	400	80	10

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

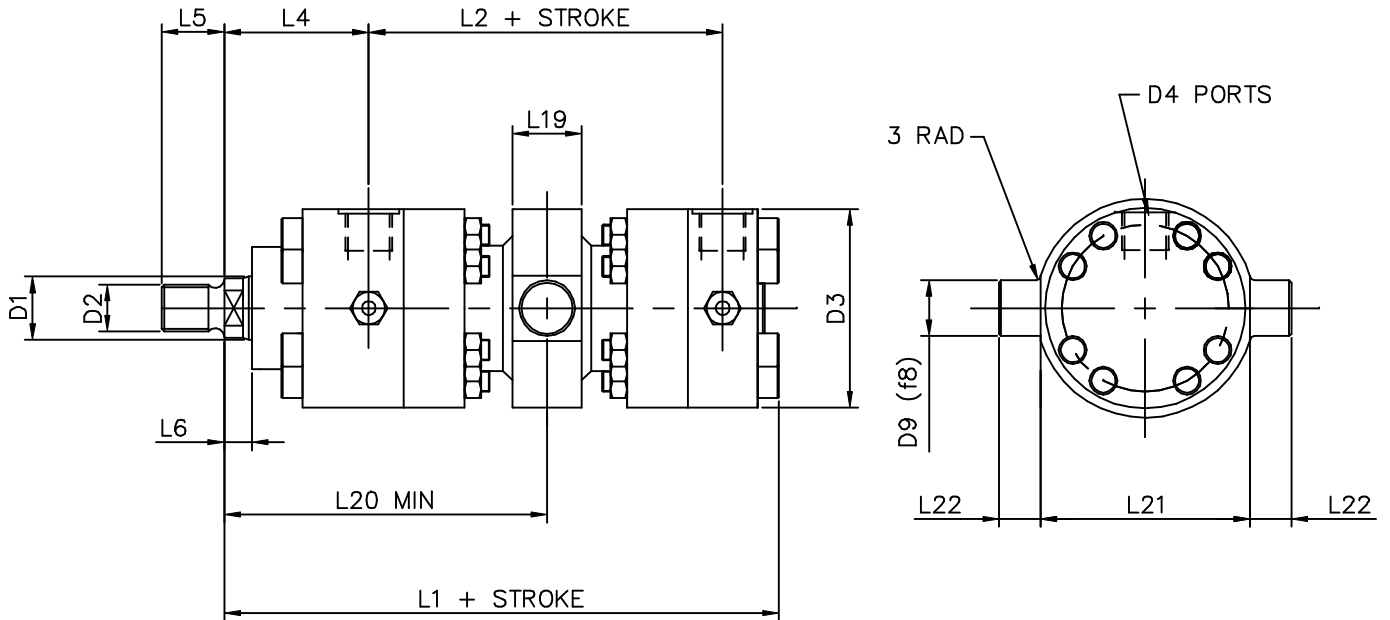
STYLE No. MF4 REAR FLANGE MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	L2	L4	L5	L6	D10	D11	D12	D14 (f8)	L23	L24
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	103	70	22 28	13	106	125	9	50	16	206
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	115	73	28 36	14	126	145	11	60	20	225
63	36 45	M27 x 2 M33 x 2	115	3/4"	121	83	36 45	16	145	170	14	70	25	249
80	45 56	M33 x 2 M42 x 2	132	3/4"	136	94	45 56	18	165	195	18	85	32	282
100	56 70	M42 x 2 M48 x 2	160	1"	170	105	56 63	20	200	240	22	106	32	332
125	70 90	M48 x 2 M64 x 3	198	1"	187	113	63 85	23	235	270	22	132	32	357
160	90 110	M64 x 3 M80 x 3	242	1 1/4"	216	124	85 95	25	280	320	22	160	36	406
200	110 140	M80 x 3 M100 x 3	295	1 1/4"	274	146	95 112	30	340	390	26	200	40	490
250	140 180	M100 x 3 M125 x 4	360	1 1/2"	287	213	112 125	32	420	480	33	250	56	606
320	180 220	M125 x 4 M160 x 4	450	1 1/2"	342	262	125 160	37	520	590	39	320	63	723
400	220 280	M160 x 4 M200 x 4	560	2"	379	304	160 200	40	640	725	45	400	80	820

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

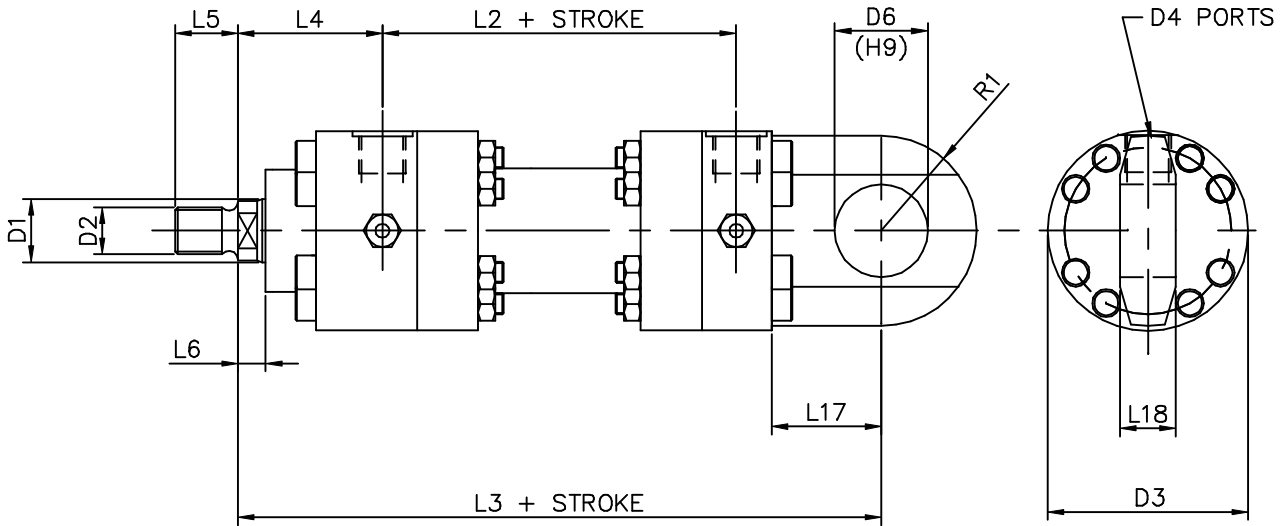
STYLE No. MT4 TRUNNION MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	D9 (f8)	L1	L2	L4	L5	L6	L19	L20	L21	L22
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	20	196	103	70	22 28	13	25	99.5	90	16
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	25	211	115	73	28 36	14	30	105	105	20
63	36 45	M27 x 2 M33 x 2	115	3/4"	32	232	121	83	36 45	16	40	123	120	25
80	45 56	M33 x 2 M42 x 2	132	3/4"	40	260	136	94	45 56	18	50	140	135	32
100	56 70	M42 x 2 M48 x 2	160	1"	50	312	170	105	56 63	20	60	161	160	40
125	70 90	M48 x 2 M64 x 3	198	1"	63	341	187	113	63 85	23	70	174	195	50
160	90 110	M64 x 3 M80 x 3	242	1 1/4"	80	386	216	124	85 95	25	90	200	240	63
200	110 140	M80 x 3 M100 x 3	295	1 1/4"	100	470	274	146	95 112	30	115	234.5	295	80
250	140 180	M100 x 3 M125 x 4	360	1 1/2"	125	574	287	213	112 125	32	140	335	370	100
320	180 220	M125 x 4 M160 x 4	450	1 1/2"	160	684	342	262	125 160	37	180	398	470	125
400	220 280	M160 x 4 M200 x 4	560	2"	200	782	379	304	160 200	40	225	463.5	570	160

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

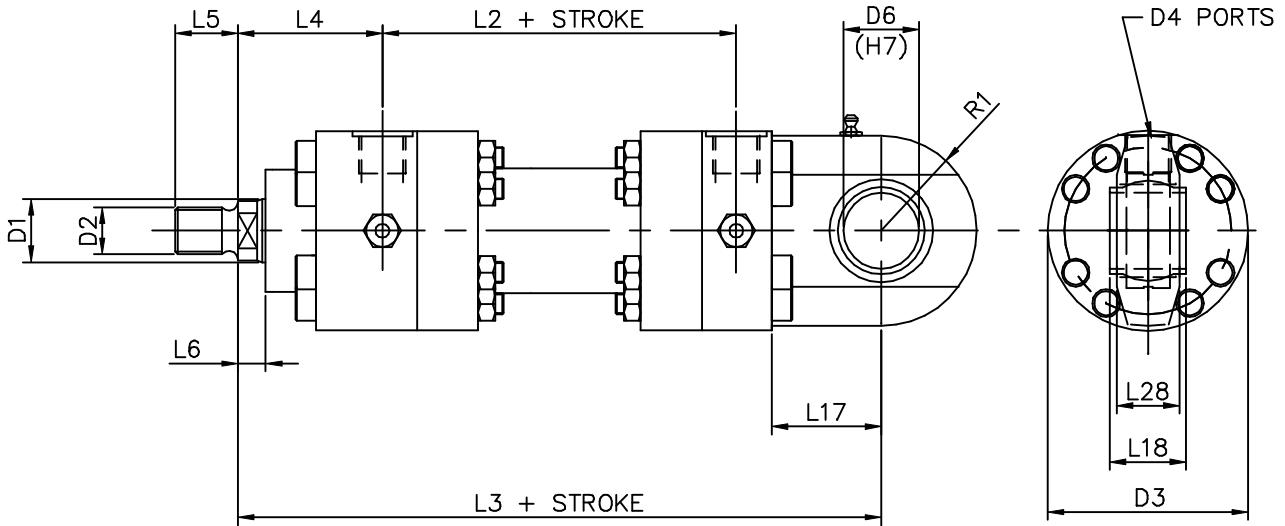
STYLE No. MP3 PLAIN REAR CLEVIS MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	D6 (H9)	L1	L2	L3	L4	L5	L6	L17	L18	R1
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	20	196	103	231	70	22 28	13	41	20	25
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	25	211	115	257	73	28 36	14	52	25	32
63	36 45	M27 x 2 M33 x 2	115	3/4"	32	232	121	289	83	36 45	16	65	32	40
80	45 56	M33 x 2 M42 x 2	132	3/4"	40	260	136	332	94	45 56	18	82	40	50
100	56 70	M42 x 2 M48 x 2	160	1"	50	312	170	395	105	56 63	20	95	50	63
125	70 90	M48 x 2 M64 x 3	198	1"	63	341	187	428	113	63 85	23	103	63	71
160	90 110	M64 x 3 M80 x 3	242	1 1/4"	80	386	216	505	124	85 95	25	135	80	90
200	110 140	M80 x 3 M100 x 3	295	1 1/4"	100	470	274	615	146	95 112	30	165	100	112
250	140 180	M100 x 3 M125 x 4	360	1 1/2"	125	574	287	773	213	112 125	32	223	125	145
320	180 220	M125 x 4 M160 x 4	450	1 1/2"	160	684	342	930	262	125 160	37	270	160	178
400	220 280	M160 x 4 M200 x 4	560	2"	200	782	379	990	304	160 200	40	250	200	230

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

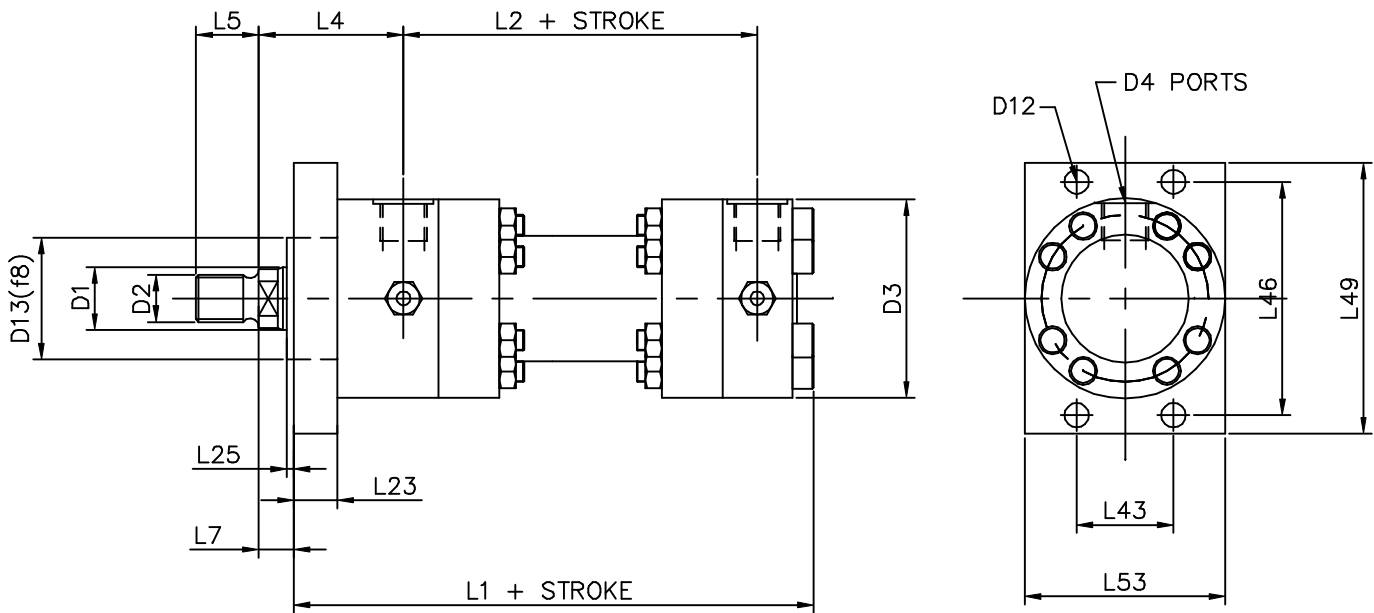
STYLE No. MP5 SELF ALIGNING REAR CLEVIS MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	D6 (H9)	L1	L2	L3	L4	L5	L6	L7	L8	L28	R1
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	20	196	103	231	70	22 28	13	41	20	16	25
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	25	211	115	257	73	28 36	14	52	25	20	32
63	36 45	M27 x 2 M33 x 2	115	3/4"	32	232	121	289	83	36 45	16	65	32	24	40
80	45 56	M33 x 2 M42 x 2	132	3/4"	40	260	136	332	94	45 56	18	82	40	30	50
100	56 70	M42 x 2 M48 x 2	160	1"	50	312	170	395	105	56 63	20	95	50	39	63
125	70 90	M48 x 2 M64 x 3	198	1"	63	341	187	428	113	63 85	23	103	63	49	71
160	90 110	M64 x 3 M80 x 3	242	1 1/4"	80	386	216	505	124	85 95	25	135	80	64	90
200	110 140	M80 x 3 M100 x 3	295	1 1/4"	100	470	274	615	146	95 112	30	165	100	77	112
250	140 180	M100 x 3 M125 x 4	360	1 1/2"	125	574	287	773	213	112 125	32	223	125	95	145
320	180 220	M125 x 4 M160 x 4	450	1 1/2"	160	684	342	930	262	125 160	37	270	160	128	178
400	220 280	M160 x 4 M200 x 4	560	2"	200	782	379	990	304	160 200	40	250	200	140	230

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

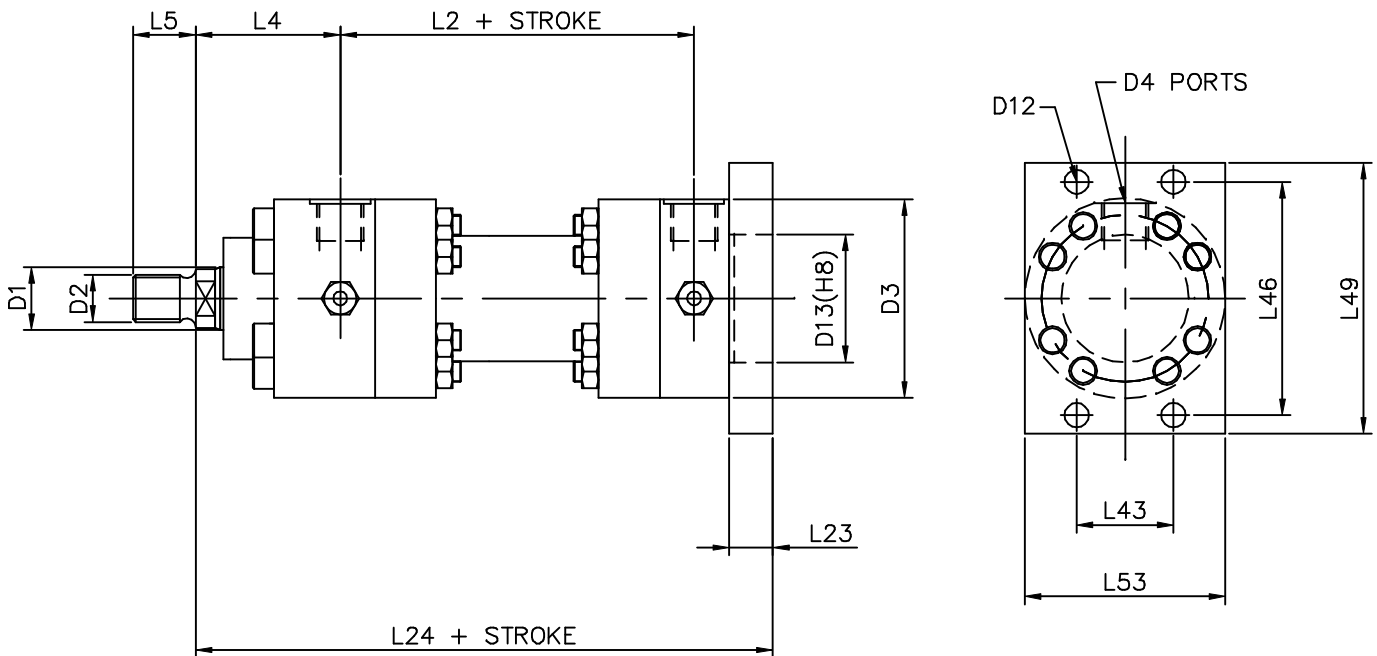
STYLE No. MF1 FRONT RECTANGULAR FLANGE MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	D12	D13 (f8)	L1	L2	L4	L5	L7	L23	L25	L43	L46	L49	L53
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	9	50	190	103	70	22 28	16	16	3	40.6	98	115	85
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	11	60	205	115	73	28 36	18	20	4	48.2	116.4	140	100
63	36 45	M27 x 2 M33 x 2	115	3/4"	14	70	224	121	83	36 45	20	25	4	55.5	134	160	115
80	45 56	M33 x 2 M42 x 2	132	3/4"	18	85	250	136	94	45 56	22	32	4	63.1	152.5	185	130
100	56 70	M42 x 2 M48 x 2	160	1"	22	106	300	170	105	56 63	25	32	5	76.5	184.8	225	160
125	70 90	M48 x 2 M64 x 3	198	1"	22	132	325	187	113	63 85	28	32	5	89.9	217.1	255	190

BRADFORD HYDRAULIC CYLINDERS 160 BAR - MPF RANGE

STYLE No. MF2 REAR RECTANGULAR FLANGE MOUNTING



BORE SIZE	ROD DIA D1	ROD THREAD D2	D3	D4 BSPG	D12	D13 (H8)	L2	L4	L5	L6	L23	L24	L43	L46	L49	L53
40	22 28	M16 x 1.5 M20 x 1.5	85	1/2"	9	50	103	70	22 28	13	16	206	40.6	98	115	85
50	28 36	M20 x 1.5 M27 x 2	100	1/2"	11	60	115	73	28 36	14	20	225	48.2	116.4	140	100
63	36 45	M27 x 2 M33 x 2	115	3/4"	14	70	121	83	36 45	16	25	249	55.5	134	160	115
80	45 56	M33 x 2 M42 x 2	132	3/4"	18	85	136	94	45 56	18	32	282	63.1	152.5	185	130
100	56 70	M42 x 2 M48 x 2	160	1"	22	106	170	105	56 63	20	32	332	76.5	184.8	225	160
125	70 90	M48 x 2 M64 x 3	198	1"	22	132	187	113	63 85	23	32	357	89.9	217.1	255	190