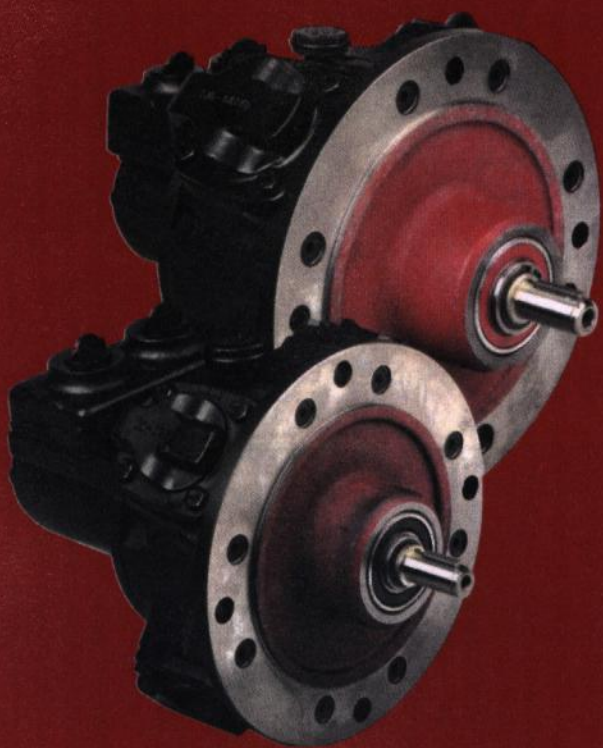


SPX FLUID POWER

**GLOBE[®] RADIAL PISTON
AIR MOTORS**



Your Global Force In Fluid Power



Radial Piston (RM) Air Motors

The Globe RM air motors are a series of compact heavy duty radial piston air motors offering an exceptional range of control valve and output options. The motors are four or five cylinder radial piston design with oil bath lubrication and are designed to develop greater power than other motors of equivalent size.

Advantages include:—

Modular motor, brake, gearbox and control valve options.

Relatively inexpensive variable speed control.

Intrinsically safe in hazardous environments (e.g. mines, petro-chemical etc.)

Instantly reversible.

Resistant to dirty, damp conditions.

Positive start.

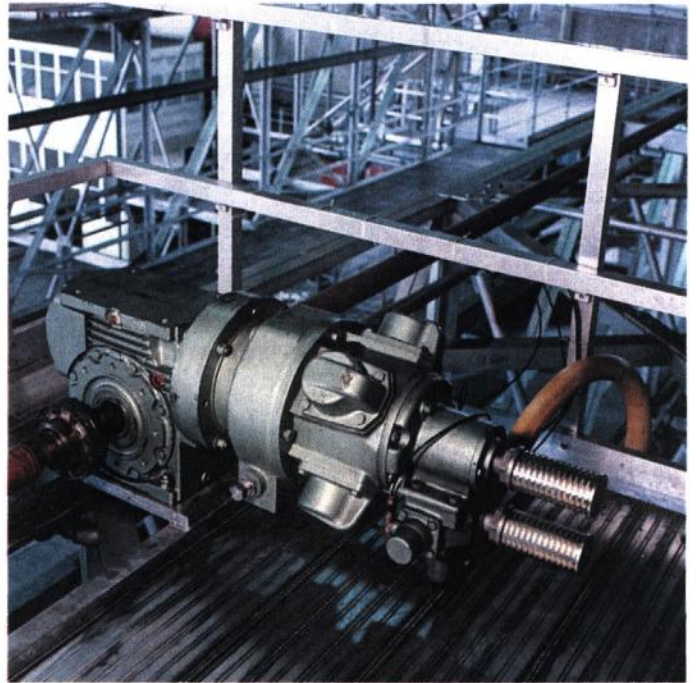
Rugged design.

Variety of mountings.

NEMA AND S.A.E. interfaces:

RM210, RM310, RM410, RM510 and RM610 motors can be supplied in configurations approximating to NEMA interfaces.

RM 410, RM510 and RM610 motors are also available with S.A.E. pump drives.



RM motors are most suitable for heavy duty applications and can be supplied direct coupled to gearboxes.

A variety of operating conditions can be achieved by utilisation of pressure regulators and flow control valves.

Natural gas and other gases can also be used. Please consult our Applications Department.



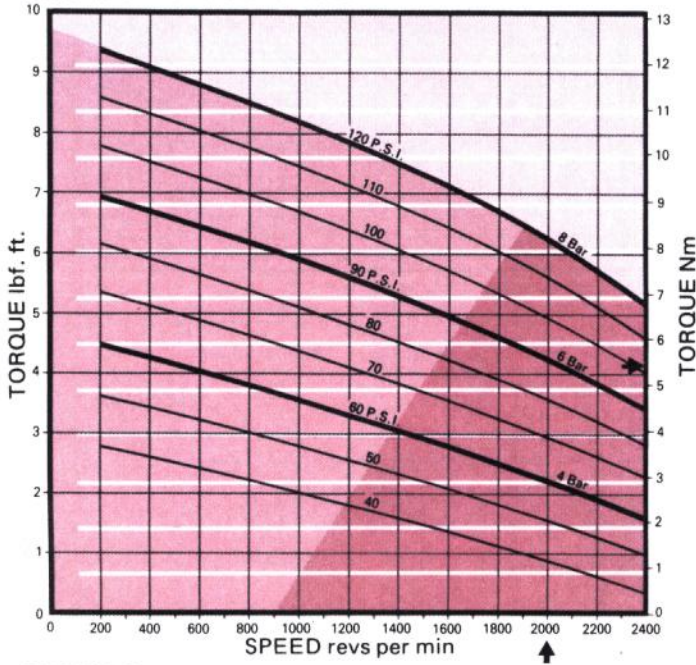
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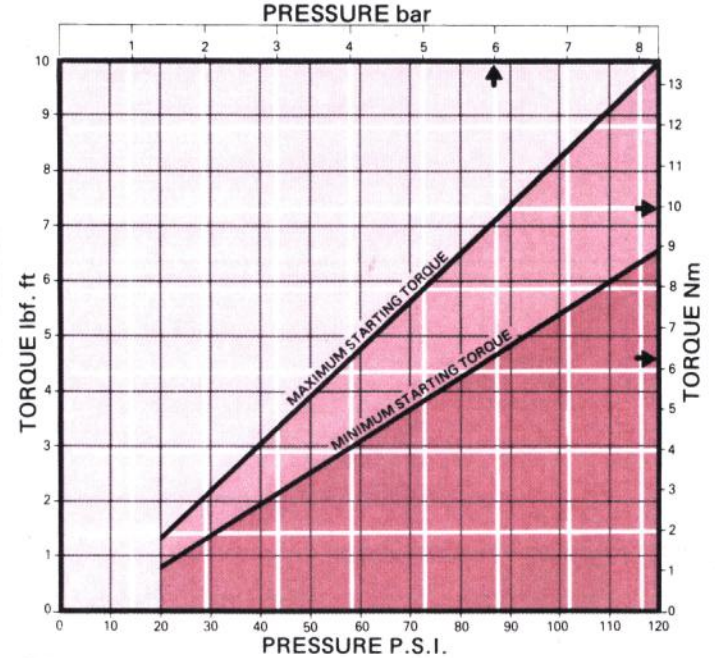
Typical Selection Graphs			3
Motor Performance Data,	0,8kW	RM050	4-5
Dimensions and	1,7kW	RM110	6-7
Geared Motor Details	4 kW	RM210	8-9
	7,5kW	RM310	10-11
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Typical Selection *Based on RM110*

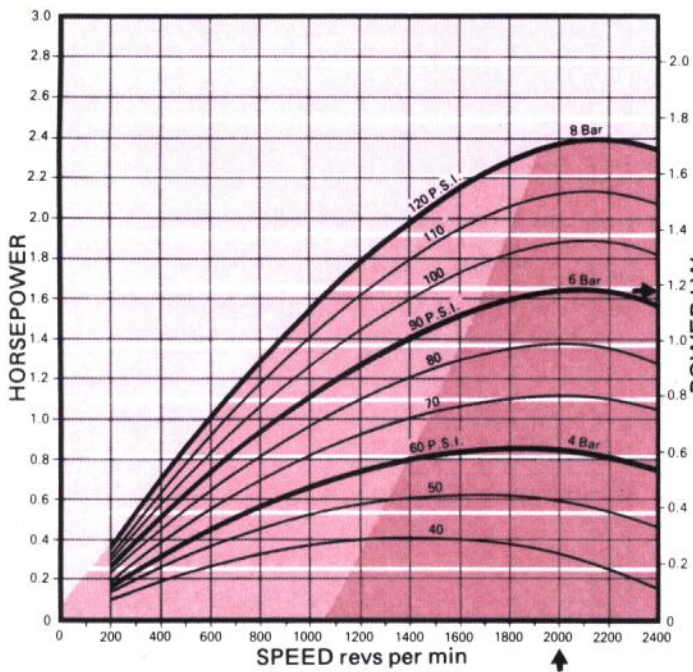
GRAPH 1 TORQUE - SPEED



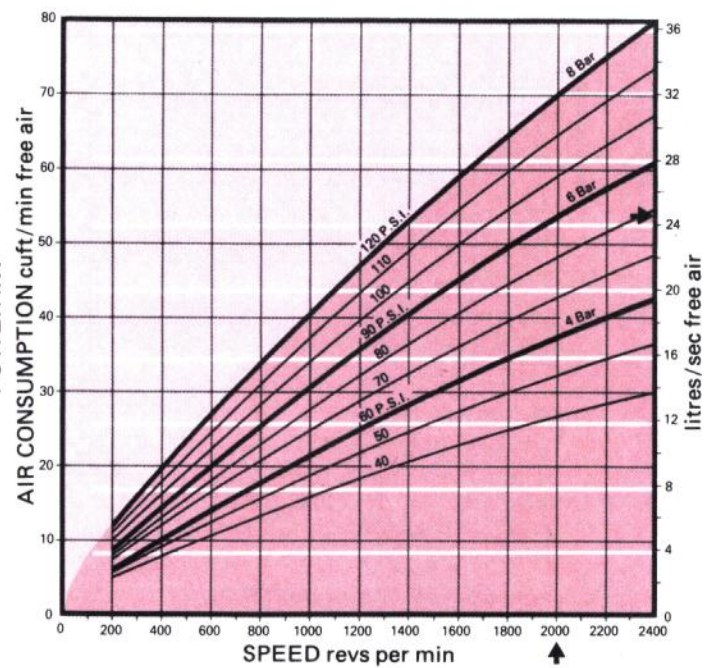
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED



READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

MOTOR SELECTION

Motor performance can be derived from the above graphs as in the examples shown.

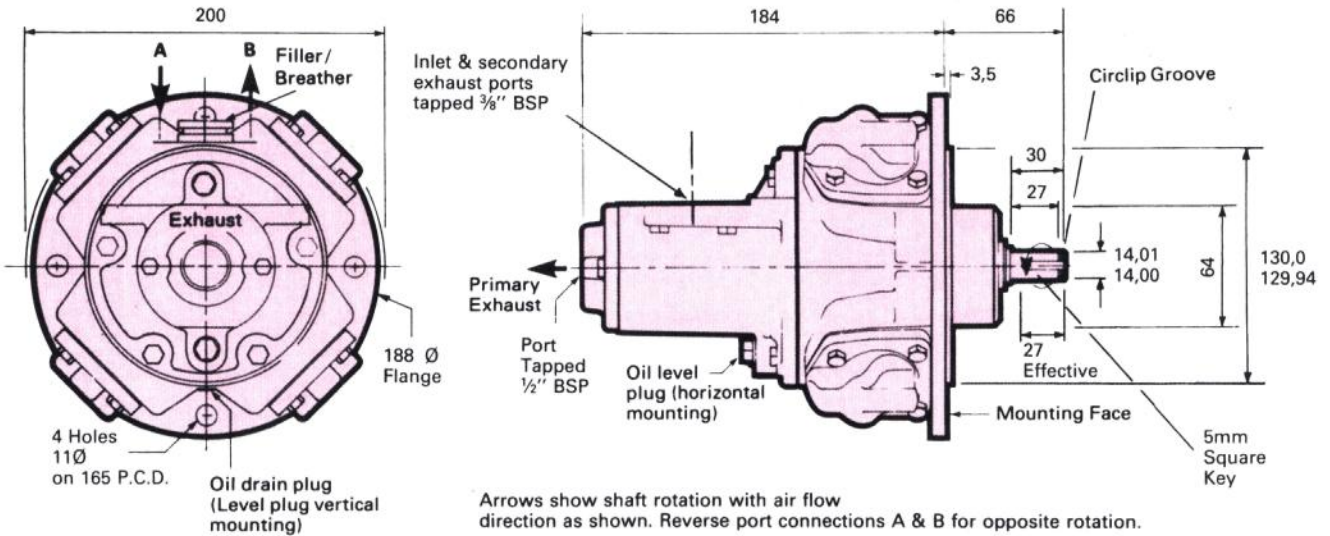
Where motors are not required to start under load, such as fan drives, selection may be made using either Graph 1 or Graph 3 using the required running torque or power only. For applications where the motor starts under load, such as hoists, winches or track drives, the starting torque in Graph 2 must also be considered. Starting torque varies between the maximum and minimum values shown, depending on the angular position of the output shaft.

1. Running torque example RM110 at 6 bar gives 5,5 Nm torque at 2000 r.p.m.
2. Starting torque example: RM110 at 6 bar gives between 6,2 and 10 Nm at start depending on output shaft position.
3. Output power example: RM110 at 6 bar gives 1,19 kW at 2000 r.p.m.
4. Air consumption example: RM110 at 6 bar and 2000 r.p.m. requires 24,2 l/sec. free air.

RM050

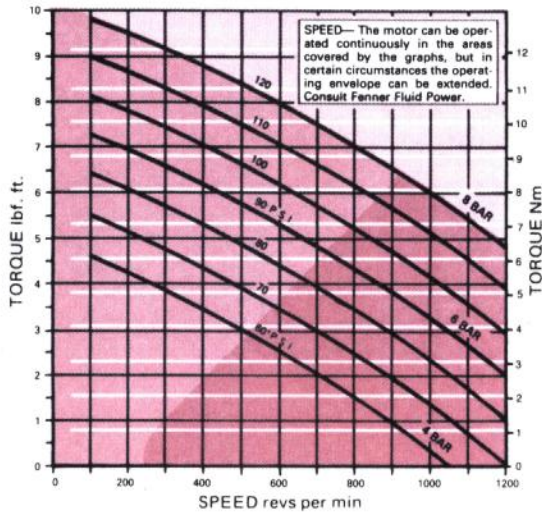
PEAK POWER 0,8kW

PERFORMANCE DATA

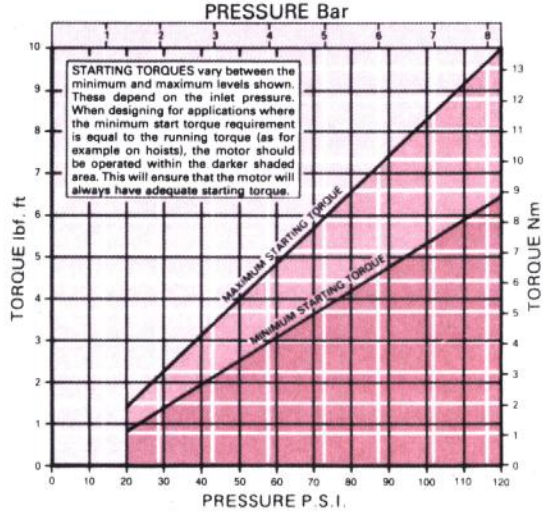


READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

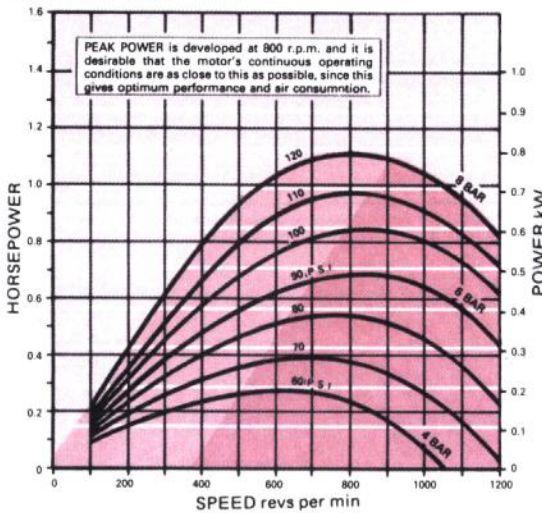
GRAPH 1 TORQUE - SPEED



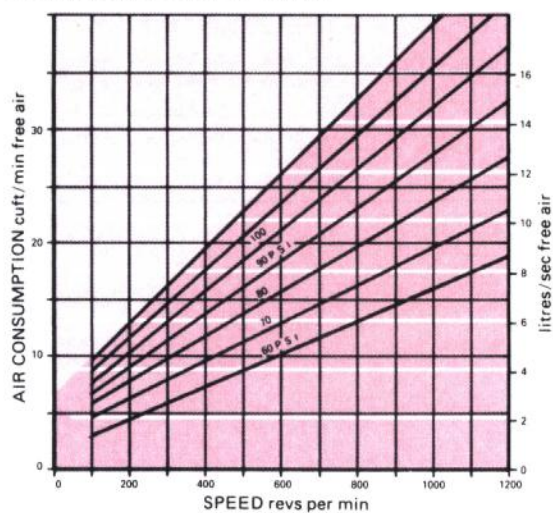
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED



LUBRICATING OIL CAPACITIES - Horizontal 75ml Vertical 150ml. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.
AIRLINE FILTRATION AND LUBRICATION - Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 11,4 kg
MOMENT OF INERTIA of rotating parts 0,01 gm²
MAX OVERHUNG FORCE on shaft 445 N.
TEMPERATURE RANGE -20°C to +80°C.

Motor Foot Brackets see page 17. Control Valves page 18. Remote Controllers page 19. Brakes page 20.

RM050 GEARED MOTOR INSTALLATION DETAILS

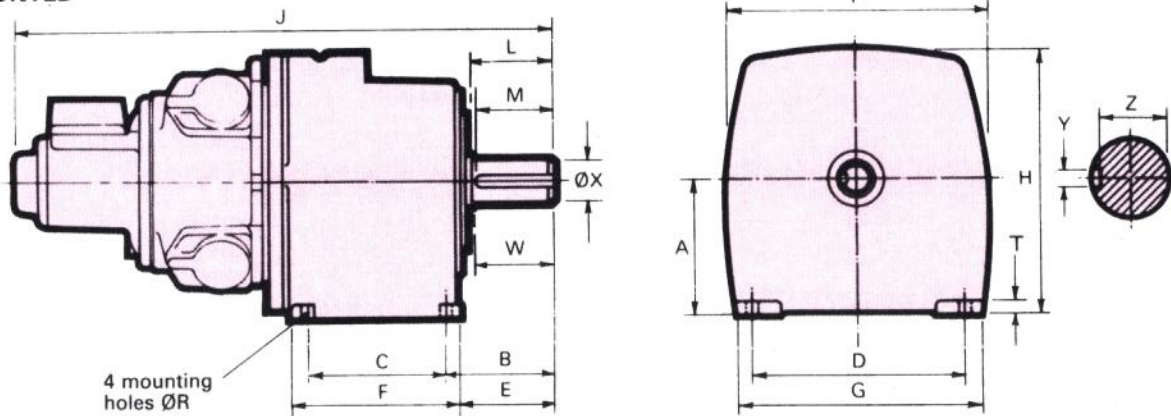


Maximum performance details listed below are at 6 bar (90 psi). The performance under different conditions can be obtained by using the curves on page 4. A typical minimum gearbox efficiency of 90% can be expected. For higher pressures consult SPX Fluid Power or their distributors. The maximum overhung force is assumed acting midway along the output shaft; for other positions or higher loads on intermittent applications; consult SPX Fluid Power or their distributors.

PERFORMANCE SUMMARY

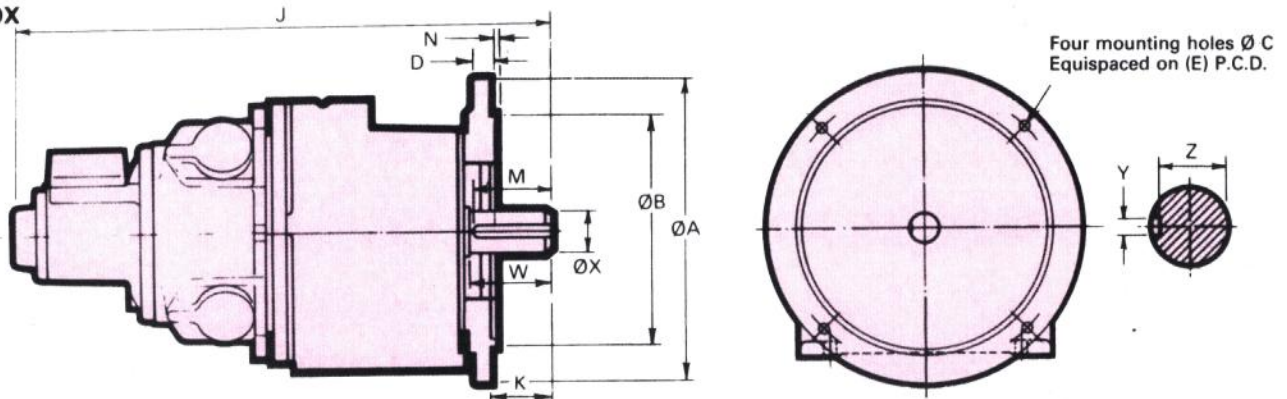
Gearbox Ratio	Maximum Power Conditions					Approx. Min Start Torque		Max. Cont. rpm	Max. Overhung Force	
	kW	hp	rpm	Torque		Nm	lbf. ft.		N	lbf.
				Nm	lbf. ft.					
2,8	0,5	0,6	307	14	11	17	13	433	1100	248
5,1	0,5	0,6	168	26	20	30	23	237	1310	295
7,6	0,5	0,6	112	40	30	45	35	159	1375	309
9,1	0,5	0,6	93	48	36	54	42	132	1500	338
14	0,5	0,6	63	71	54	81	62	89	1700	383
22	0,5	0,6	38	116	89	133	102	54	2400	540
30	0,5	0,6	28	158	121	181	138	40	2360	531

BASE MOUNTED GEARBOX



RATIO	A	B	C	D	E	F	G	H	J	L	M	P	R	T	W	X	Y	Z	MASS
2,8 to 14:1	100	80	105	140	65	135	170	195	388	53	45	190	11	13	50	24,009 23,996	7,964 8,000	20,0 19,8	22,0 kg
22:1	125	90	125	170	75	155	200	240	400	62	55	200	14	15	60	28,009 27,996	7,964 8,000	24,0 23,8	28,0 kg
30:1	112	63	115	170	50,5	140	195	212	452	51	45	202	9	13	50	24,009 23,996	7,964 8,000	20,0 19,8	37,5 kg

FLANGE MOUNTED GEARBOX

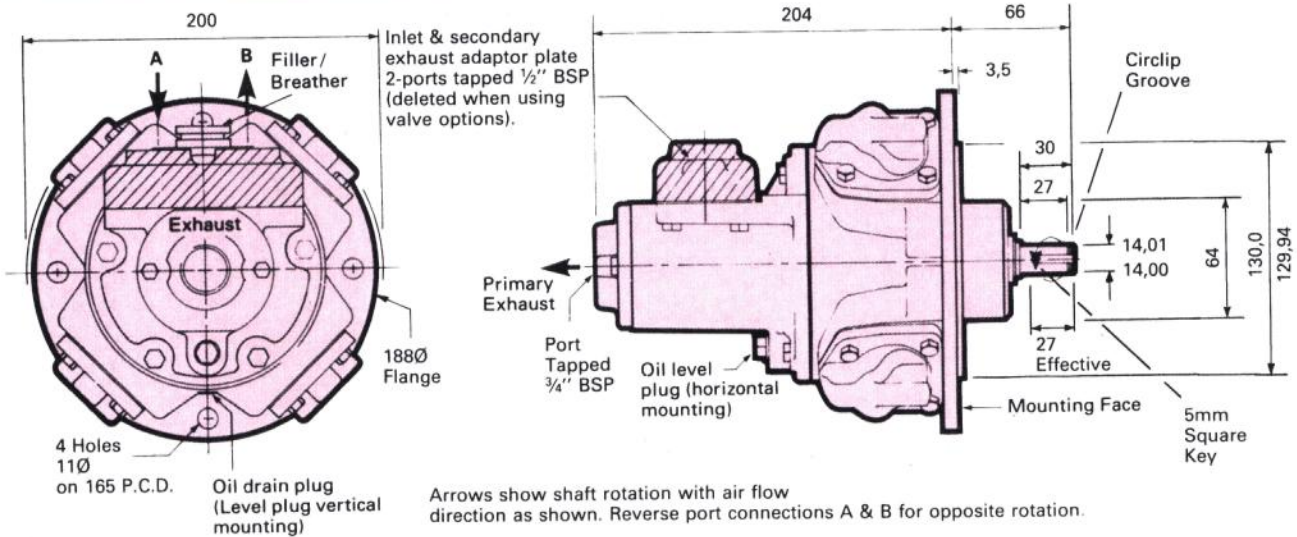


RATIO	A	B	C	D	E	J	K	L	M	N	W	X	Y	Z	MASS
2,8 to 14:1	200	130,000 129,937	12	11	165	388	50	N.A.	45	3,5	50	24,009 23,996	7,964 8,000	20,0 19,8	22,0 kg
22:1	250	180,000 179,937	15	11	215	400	60	N.A.	55	4,0	60	28,009 27,996	7,964 8,000	24,0 23,8	28,0 kg
30:1	250	180,000 179,937	14	12	215	452	34,5	70	45	3,0	50	24,009 23,996	7,964 8,000	20,0 19,8	40,5 kg

*MOTOR FLANGE 190 mm DIA.

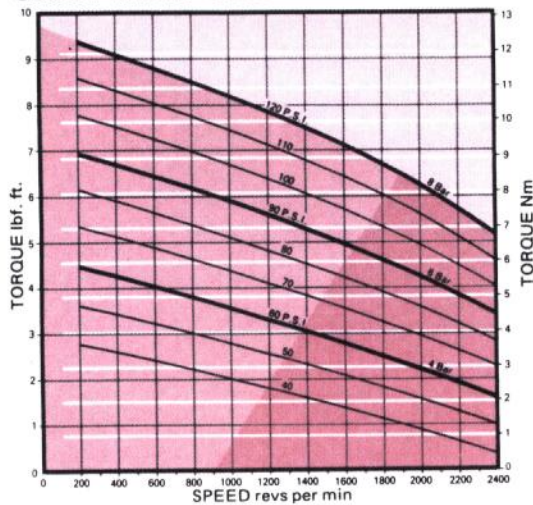
RM110 PEAK POWER 1,7kW

PERFORMANCE DATA

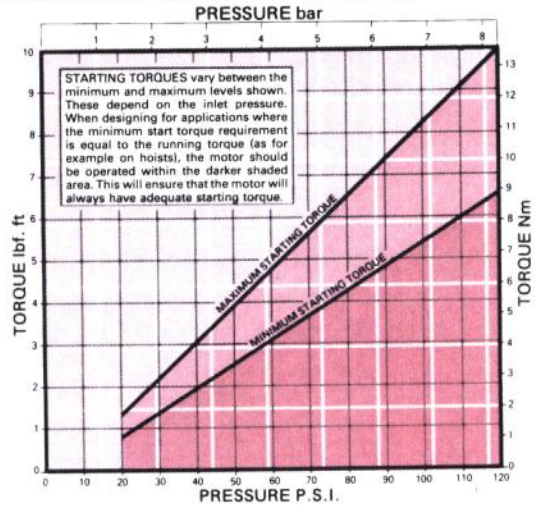


READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

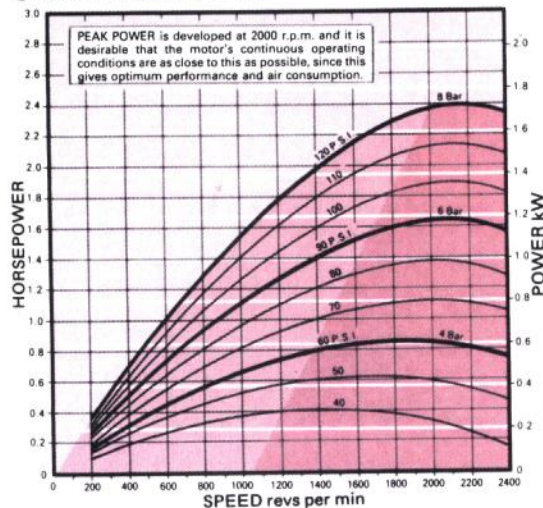
GRAPH 1 TORQUE - SPEED



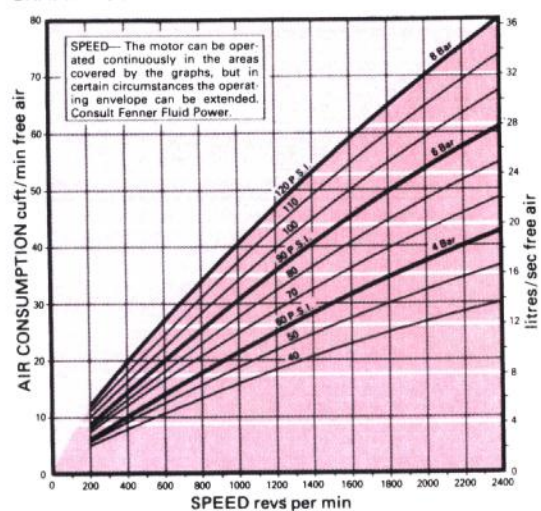
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED

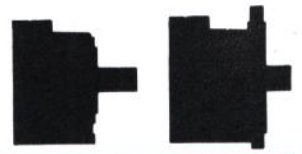


LUBRICATING OIL CAPACITIES — Horizontal 75 ml Vertical 150 ml. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.
AIRLINE FILTRATION AND LUBRICATION — Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 13 kg
MOMENT OF INERTIA of rotating parts 0,01 gm²
MAX OVERHUNG FORCE on shaft 445 N.
TEMPERATURE RANGE -20°C to +80°C.

Motor Foot Brackets see page 17. Control Valves page 18.
Remote Controllers page 19. Brakes page 20.

RM110 GEARED MOTOR INSTALLATION DETAILS

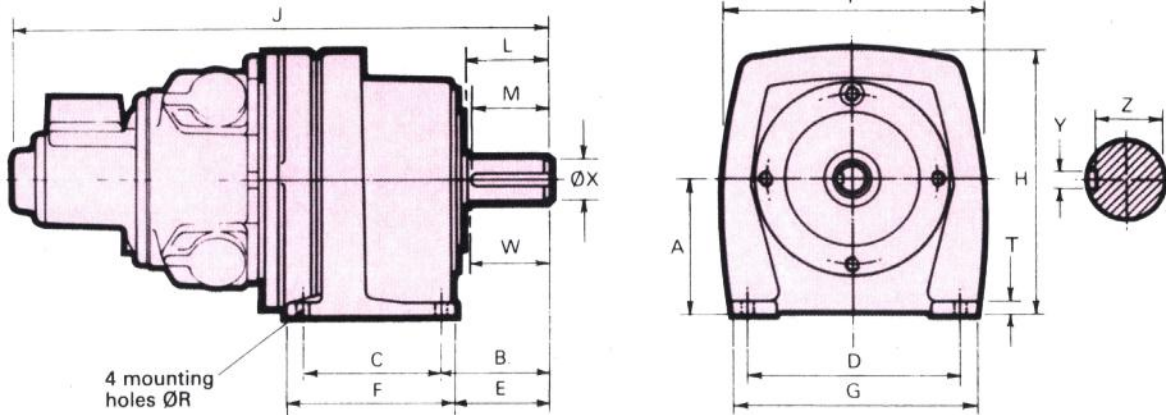


Maximum performance details listed below are at 6 bar (90 psi). The performance under different conditions can be obtained by using the curves on page 6. A typical minimum gearbox efficiency of 90% can be expected. For higher pressures consult SPX Fluid Power or their distributors. The maximum overhung force is assumed acting midway along the output shaft; for other positions or higher loads on intermittent applications; consult SPX Fluid Power or their distributors.

PERFORMANCE SUMMARY

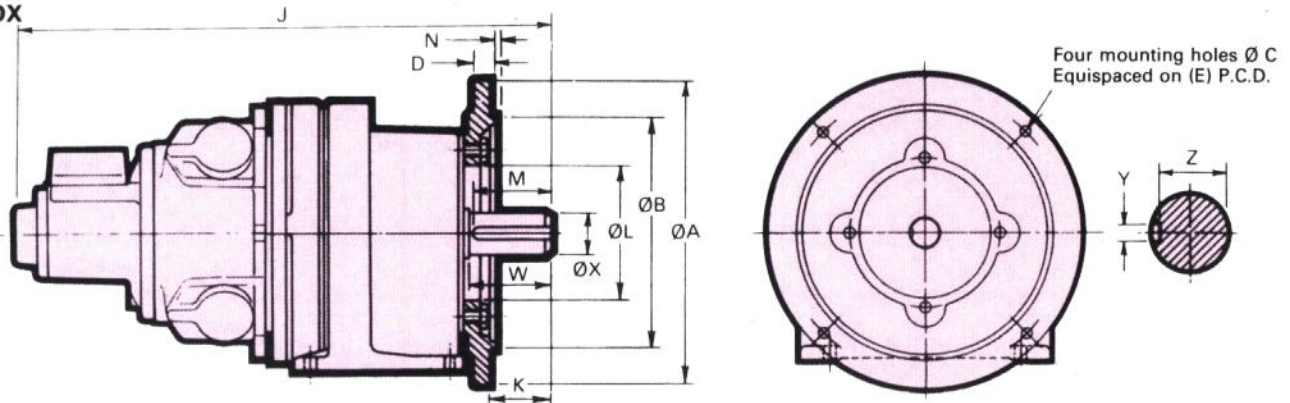
Gearbox Ratio	Maximum Power Conditions					Approx. Min Start Torque		Max. Cont. rpm	Max. Overhung Force	
	kW	hp	rpm	Torque		Nm	lbf. ft.		N	lbf.
				Nm	lbf. ft.					
2,8	1,1	1,5	758	14	10	17	13	866	970	218
5,1	1,1	1,5	415	25	19	30	23	474	1050	236
7,6	1,1	1,5	278	37	28	45	35	317	1110	250
9,1	1,1	1,5	231	45	34	54	42	264	1210	272
14	1,1	1,5	156	67	51	81	62	178	1320	297
22	1,1	1,5	94	110	84	133	102	108	2025	456
30	1,1	1,5	69	149	114	181	138	79	2180	491
60	1,1	1,4	35	280	213	339	259	40	4540	1020
88	1,1	1,4	24	414	316	501	382	27	4810	1080

BASE MOUNTED GEARBOX



RATIO	A	B	C	D	E	F	G	H	J	L	M	P	R	T	W	X	Y	Z	MASS
2.8 to 14:1	100	80	105	140	65	135	170	194	405	53	45	188	11	13	50	24,009 23,996	7,964 8,000	20,0 19,8	23,6 kg
22:1	125	90	125	170	75	155	200	240	421	62	55	200	14	15	60	28,009 27,996	7,964 8,000	24,0 23,8	29,5 kg
30:1	112	63	115	170	50,5	140	195	212	473	51	45	202	9	13	50	24,009 23,996	7,964 8,000	20,0 19,8	39 kg
60 & 88:1	132	83	135	205	68	165	235	257	505	63	55	252	12	14	60	28,009 27,996	7,964 8,000	24,0 23,8	65 kg

FLANGE MOUNTED GEARBOX

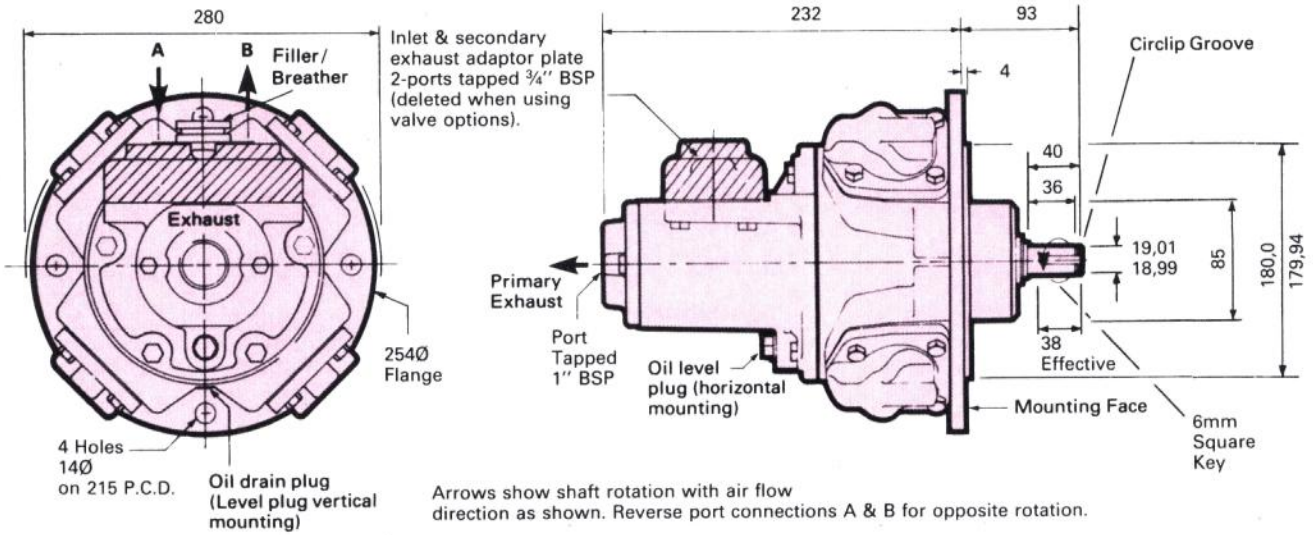


RATIO	A	B	C	D	E	J	K	L	M	N	W	X	Y	Z	MASS
2.8 to 14:1	200	130,000 129,937	12	11	165	405	50	N.A.	45	3,5	50	24,009 23,996	7,964 8,000	20,0 19,8	23,6 kg
22:1	250	180,000 179,937	15	11	215	421	60	N.A.	55	4,0	60	28,009 27,996	7,964 8,000	24,0 23,8	29,5 kg
30:1	250	180,000 179,937	14	12	215	473	34,5	70	45	3,0	50	24,009 23,996	7,964 8,000	20,0 19,8	42 kg
60 & 88:1	300	230,000 229,928	14	16	265	505	41	130	55	5,0	60	28,009 27,996	7,964 8,000	24,0 23,8	69 kg

*MOTOR ENVELOPE 200 mm DIA.

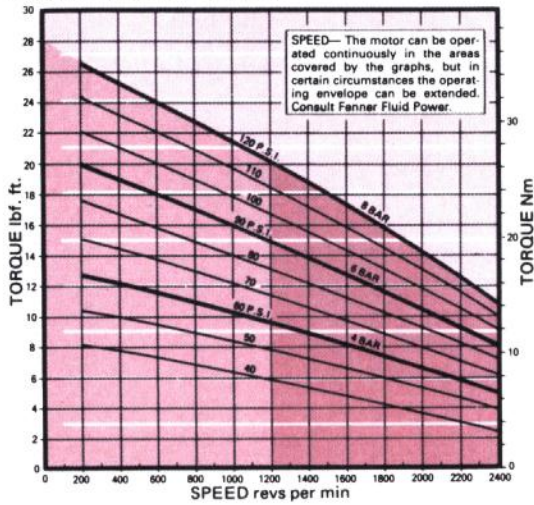
RM210 PEAK POWER 4kW

PERFORMANCE DATA

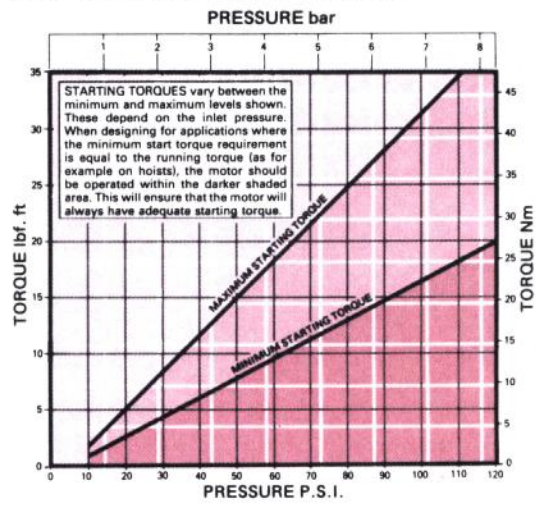


READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

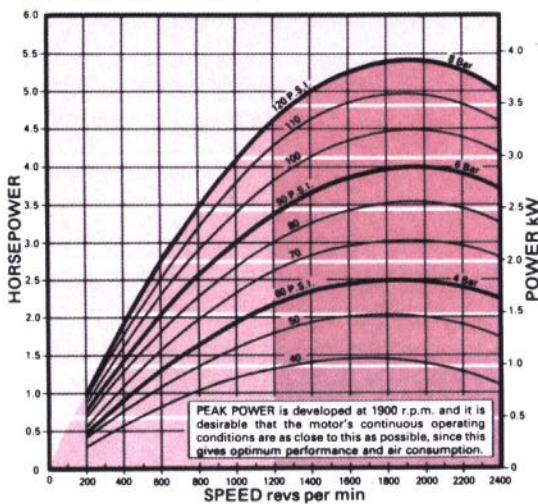
GRAPH 1 TORQUE - SPEED



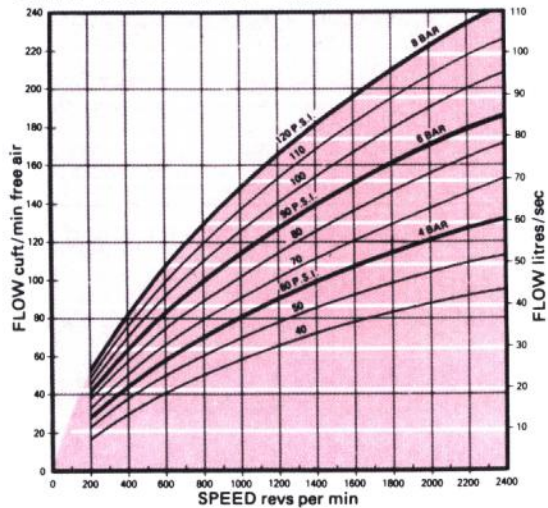
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED

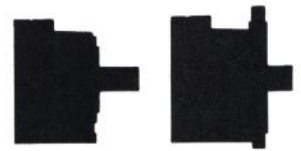


LUBRICATING OIL CAPACITIES – Horizontal 330 ml Vertical 450 ml. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.
AIRLINE FILTRATION AND LUBRICATION – Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 26 kg
MOMENT OF INERTIA of rotating parts 0,56 gm²
MAX OVERHUNG FORCE on shaft 890 N.
TEMPERATURE RANGE -20°C to +80°C.

Motor Foot Brackets see page 17. Control Valves page 18.
 Remote Controllers page 19. Brakes page 20.

RM210 GEARED MOTOR INSTALLATION DETAILS

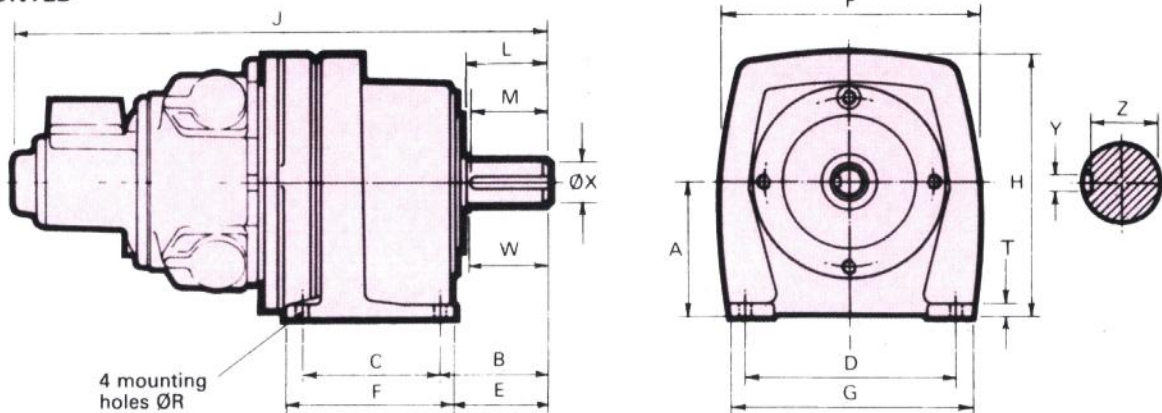


Maximum performance details listed below are at 6 bar (90 psi). The performance under different conditions can be obtained by using the curves on page 8. A typical minimum gearbox efficiency of 90% can be expected. For higher pressures consult SPX Fluid Power or their distributors. The maximum overhung force is assumed acting midway along the output shaft; for other positions or higher loads on intermittent applications; consult SPX Fluid Power or their distributors.

PERFORMANCE SUMMARY

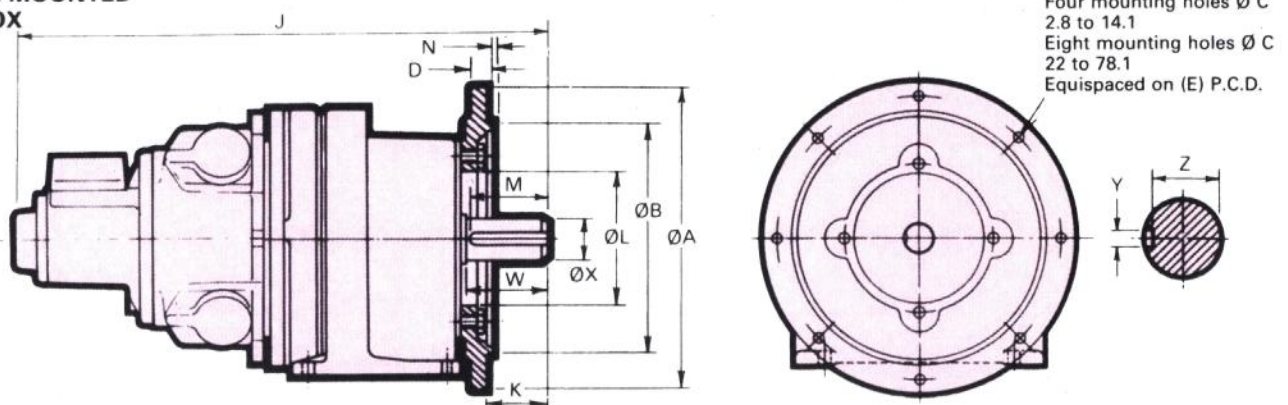
Gearbox Ratio	Maximum Power Conditions					Approx. Min Start Torque		Max. Cont. rpm	Max. Overhung Force	
	kW	hp	rpm	Torque		Nm	lbf. ft.		N	lbf.
				Nm	lbf. ft.					
2,7	2,8	3,8	720	36	27	49	37	886	1200	270
4,9	2,8	3,8	401	65	49	88	67	494	1470	331
7,6	2,8	3,8	256	101	77	137	105	315	1650	371
9,1	2,8	3,8	214	121	93	165	126	263	1760	396
13	2,8	3,8	146	178	136	242	184	179	1850	416
22	2,8	3,8	87	297	226	403	307	108	6140	1382
32	2,7	3,6	62	399	304	541	413	76	6590	1480
58	2,7	3,6	34	730	557	991	756	41	11100	2490
78	2,7	3,6	25	989	754	1342	1023	31	11100	2490

BASE MOUNTED GEARBOX



RATIO	A	B	C	D	E	F	G	H	J	L	M	P	R	T	W	X	Y	Z	MASS
2,7 to 13:1	125	90	125	170	75	155	200	252	476	62	55	254	14	15	60	28,009 27,996	7,964 8,000	24,0 23,8	50,6 kg
22 to 32:1	170	106	160	230	91	190	290	320	615	83	75	302	12	16	80	32,018 32,002	9,964 10,000	27,0 26,8	100 kg
58 & 78:1	170	118	170	240	94	218	290	320	648	83	75	302	14	18	80	38,018 38,002	9,964 10,000	33,0 32,8	106 kg

FLANGE MOUNTED GEARBOX

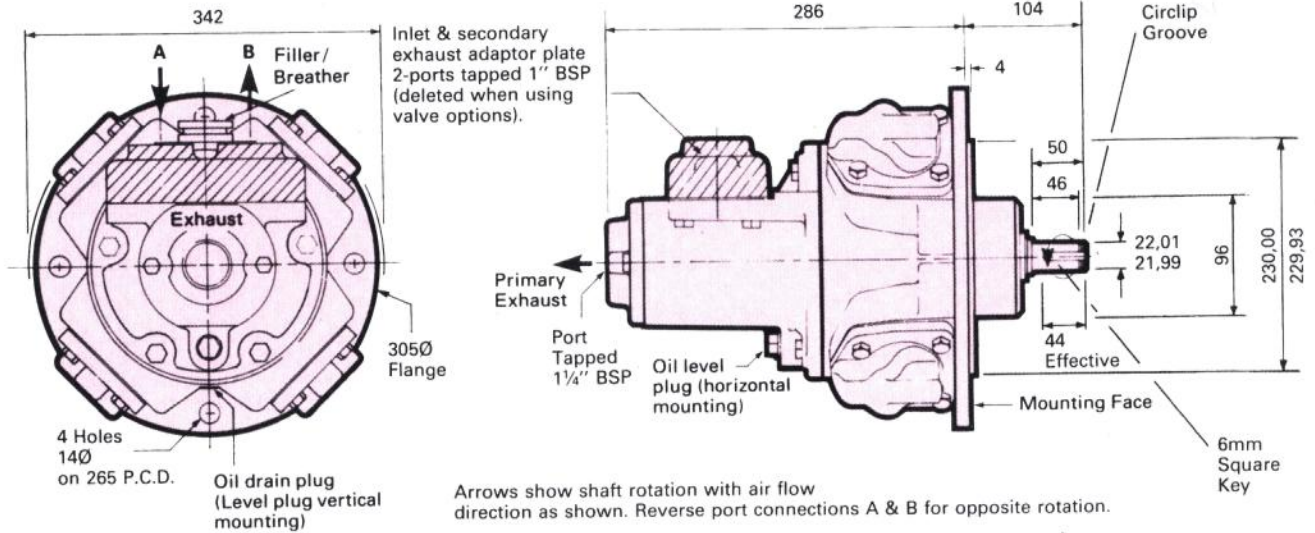


RATIO	A	B	C	D	E	J	K	L	M	N	W	X	Y	Z	MASS
2,7 to 13:1	250*	180,000 179,937	15	11	215	476	60	N.A.	55	4	60	28,009 27,996	7,964 8,000	24,0 23,8	50,6 kg
22 & 32:1	350	250,000 249,928	18	18	300	615	59	130	75	5	80	32,018 32,002	9,964 10,000	27,0 26,8	112 kg
58 & 78:1	350	250,00 249,928	18	18	300	648	59	130	75	5	80	38,018 38,002	9,964 10,000	33,0 32,8	118 kg

*MOTOR ENVELOPE 280 mm DIA.

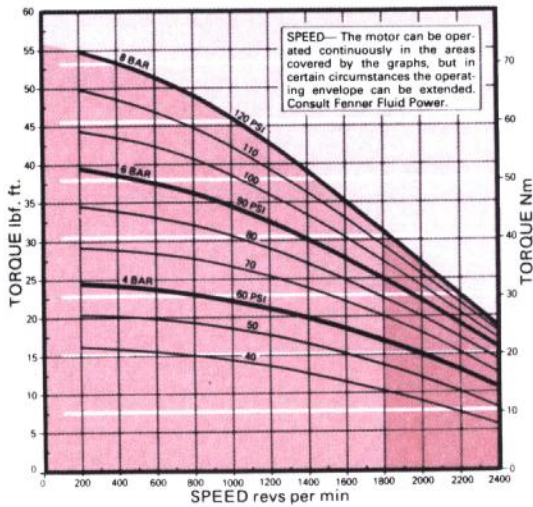
RM310 PEAK POWER 7,5kW

PERFORMANCE DATA

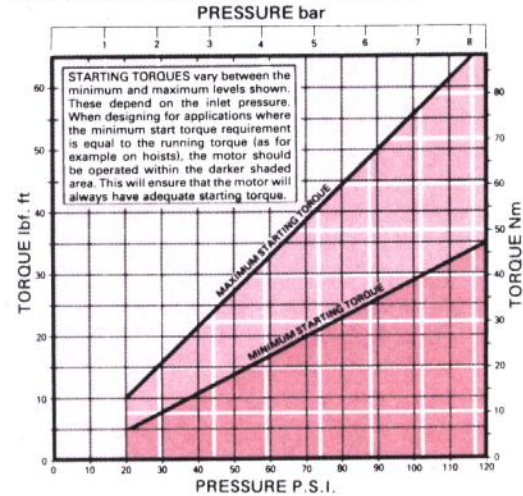


READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

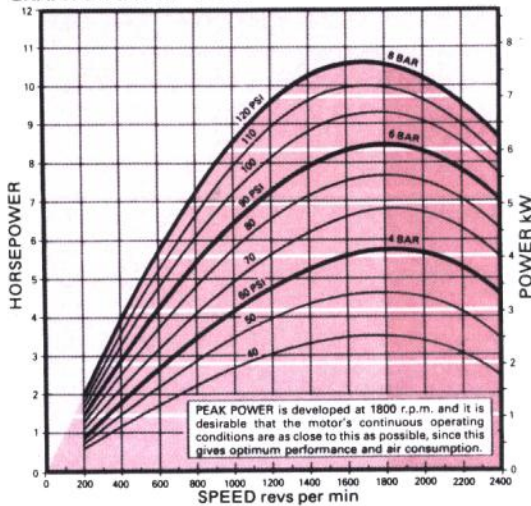
GRAPH 1 TORQUE - SPEED



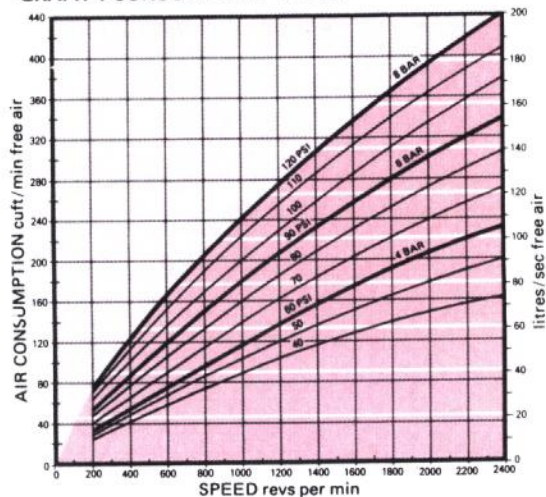
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED



LUBRICATING OIL CAPACITIES – Horizontal 350 ml Vertical 600 ml. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.
AIRLINE FILTRATION AND LUBRICATION – Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 48 kg
MOMENT OF INERTIA of rotating parts 1,8 gm²
MAX OVERHUNG FORCE on shaft 1330 N.
TEMPERATURE RANGE -20°C to +80°C.

Motor Foot Brackets see page 17. Control Valves page 18. Remote Controllers page 19. Brakes page 20.

RM310 GEARED MOTOR INSTALLATION DETAILS

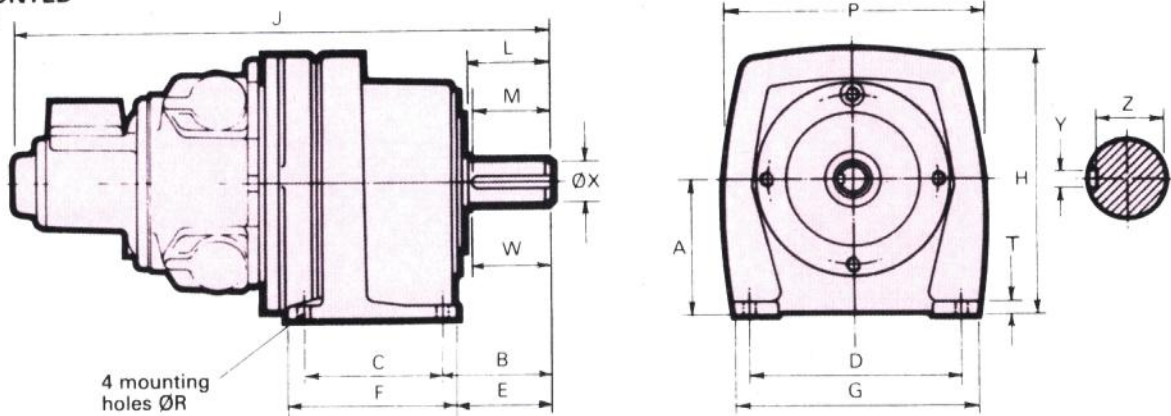


Maximum performance details listed below are at 6 bar (90 psi). The performance under different conditions can be obtained by using the curves on page 10. A typical minimum gearbox efficiency of 90% can be expected. For higher pressures consult SPX Fluid Power or their distributors. The maximum overhung force is assumed acting midway along the output shaft; for other positions or higher loads on intermittent applications; consult SPX Fluid Power or their distributors.

PERFORMANCE SUMMARY

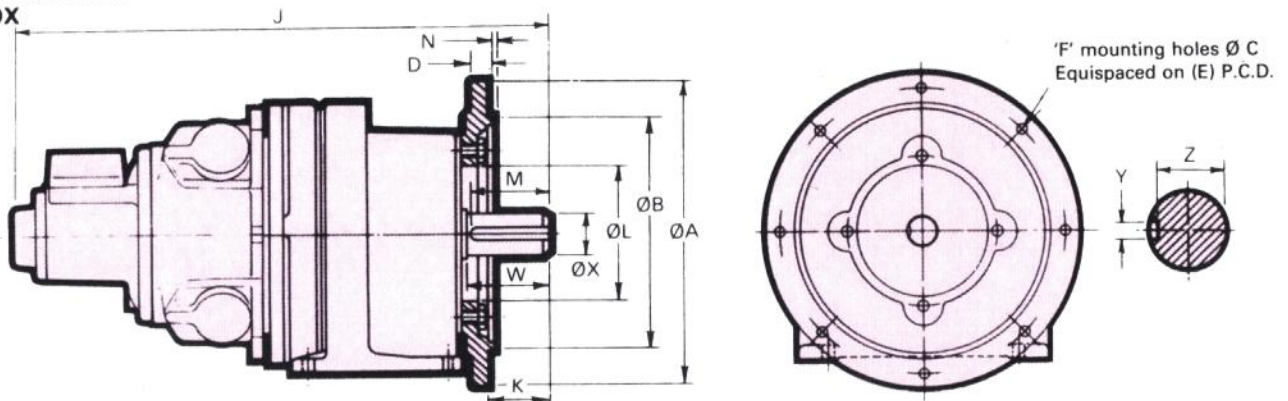
Gearbox Ratio	Maximum Power Conditions					Approx. Min Start Torque		Max. Cont. rpm	Max. Overhung Force	
	kW	hp	rpm	Torque		Nm	lbf. ft.		N	lbf.
				Nm	lbf. ft.					
2,8	6,1	8,2	647	87	66	90	68	863	1270	286
5,0	6,1	8,2	358	158	120	162	124	477	1490	335
7,1	6,1	8,2	253	223	170	230	175	337	1690	380
8,9	6,1	8,2	203	278	212	287	219	270	1770	398
13	6,1	8,2	136	414	316	427	325	182	1860	419
21	5,8	7,8	86	624	476	643	490	114	8010	1800
31	5,8	7,8	57	931	710	959	732	77	10200	2290
56	5,8	7,8	32	1674	1277	1725	1316	43	12900	2900
85	5,8	7,8	21	2512	1916	2588	1974	28	21400	4810

BASE MOUNTED GEARBOX



RATIO	A	B	C	D	E	F	G	H	J	L	M	P	R	T	W	X	Y	Z	MASS
2,8 to 13:1	155	115	165	210	95	205	250	308	600	83	75	305	14	25	80	38,018 38,002	9,964 10,000	33,0 32,8	85,5 kg
21 & 31:1	170	118	170	240	94	218	290	320	702	83	75	305	14	18	80	38,018 38,002	9,964 10,000	33,0 32,8	130 kg
56:1	190	150	195	275	123	247	320	365	710	114	100	350	22	22	114	45,018 45,002	13,957 14,000	39,5 39,3	145 kg
85:1	225	155	265	335	133	312	390	425	778	124	120	400	22	25	124	55,030 55,011	15,597 16,000	49,0 48,8	200 kg

FLANGE MOUNTED GEARBOX

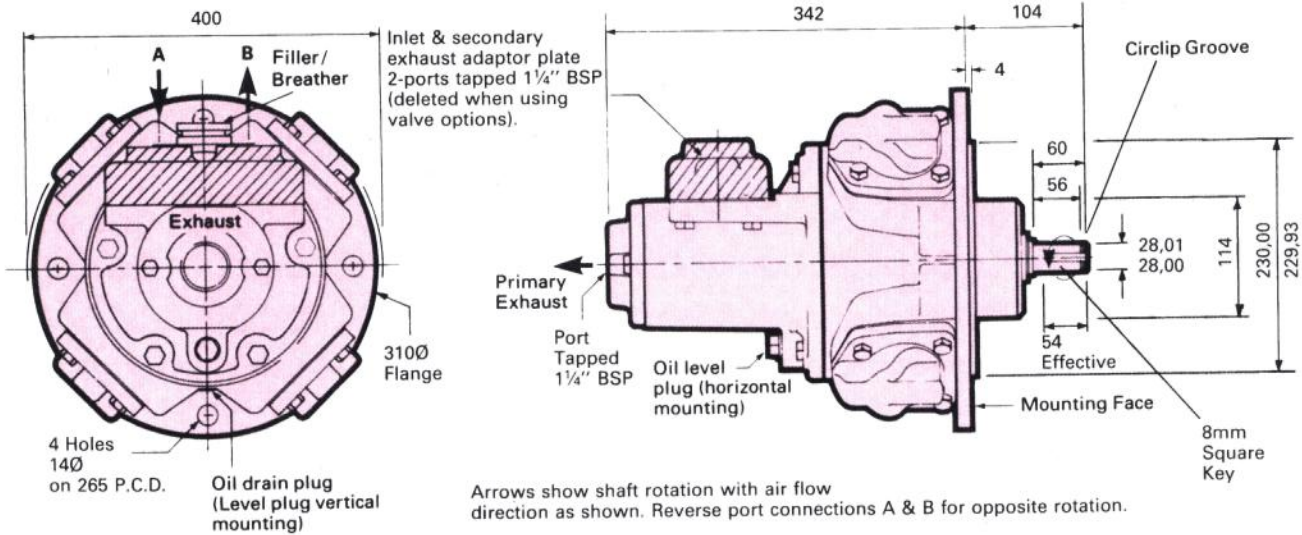


RATIO	A	B	C	D	E	F	J	K	L	M	N	W	X	Y	Z	MASS
2,8 to 13:1	300*	230,000 229,928	15	15	265	4	600	80	N.A.	75	4	80	38,018 38,002	9,964 10,000	33,0 32,8	85,5 kg
21 & 31:1	350	250,000 249,928	18	18	300	4	702	59	130	75	5	80	38,018 38,002	9,964 10,000	33,0 32,8	138 kg
56:1	450	350,000 349,911	19	20	400	8	710	80	180	100	5	114	45,018 45,002	13,957 14,000	39,5 39,3	155 kg
85:1	550	450,000 449,903	19	22	500	8	778	85	230	120	5	124	55,030 55,011	15,597 16,000	49,0 48,8	212 kg

*MOTOR ENVELOPE 342 mm DIA.

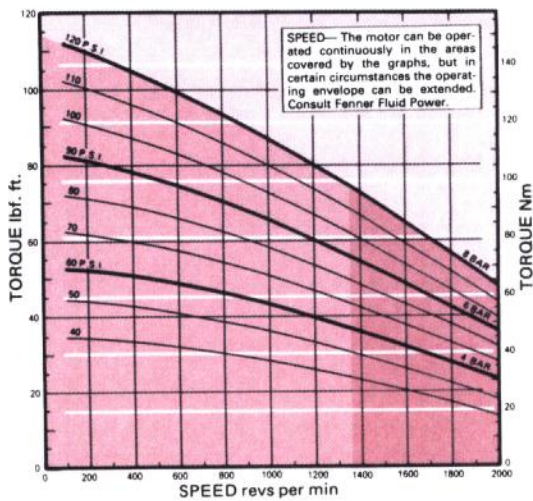
RM410 PEAK POWER 14kW

PERFORMANCE DATA

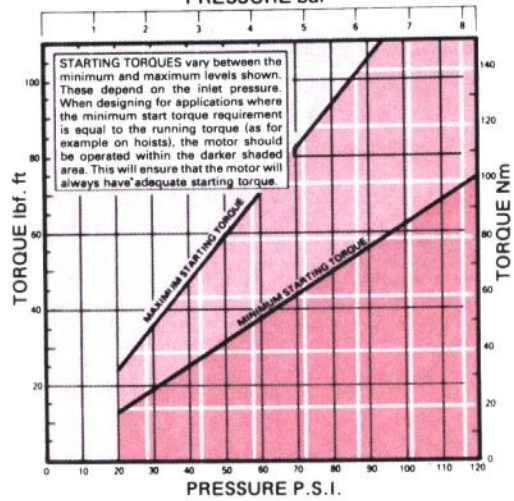


READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

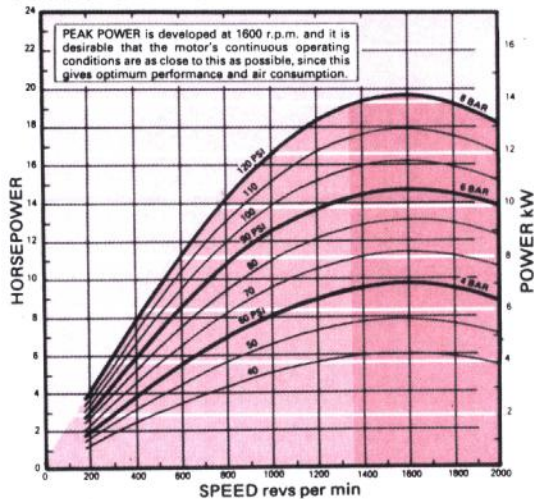
GRAPH 1 TORQUE - SPEED



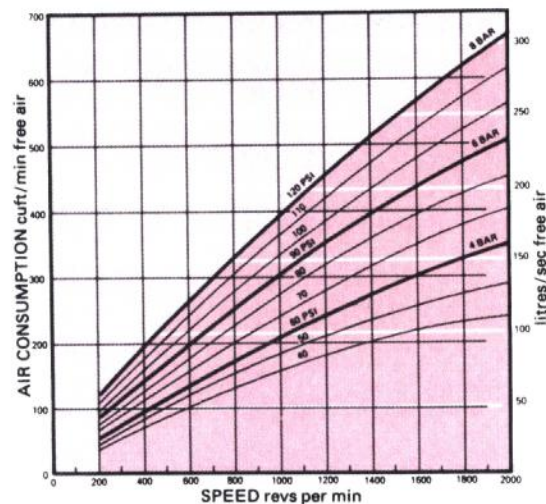
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED

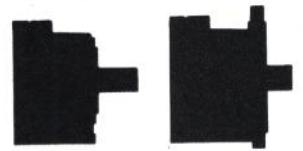


LUBRICATING OIL CAPACITIES — Horizontal 500 ml Vertical 940 ml. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.
AIRLINE FILTRATION AND LUBRICATION — Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 62 kg
MOMENT OF INERTIA of rotating parts 4,1 gm²
MAX OVERHUNG FORCE on shaft 1330 N.
TEMPERATURE RANGE -20°C to +80°C.

Motor Foot Brackets see page 17. Control Valves page 18. Remote Controllers page 19. Brakes page 20.

RM410 GEARED MOTOR INSTALLATION DETAILS

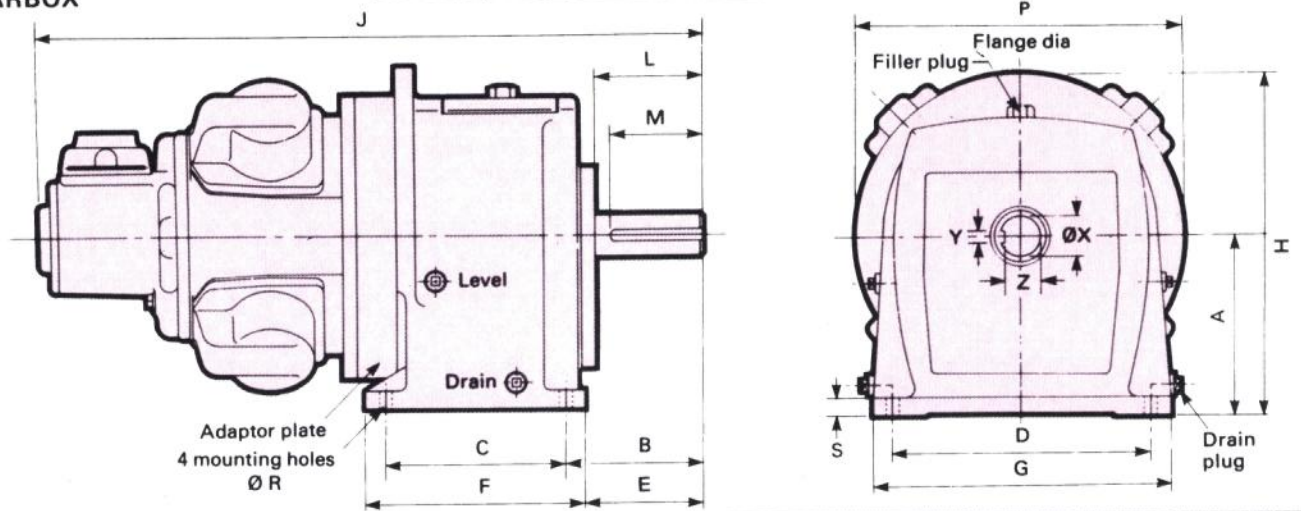


Maximum performance details listed below are at 6 bar (90 psi). The performance under different conditions can be obtained by using the curves on page 12. A typical minimum gearbox efficiency of 90% can be expected. For higher pressures consult SPX Fluid Power or their distributors. The maximum overhung force is assumed acting midway along the output shaft; for other positions or higher loads on intermittent applications; consult SPX Fluid Power or their distributors.

PERFORMANCE SUMMARY

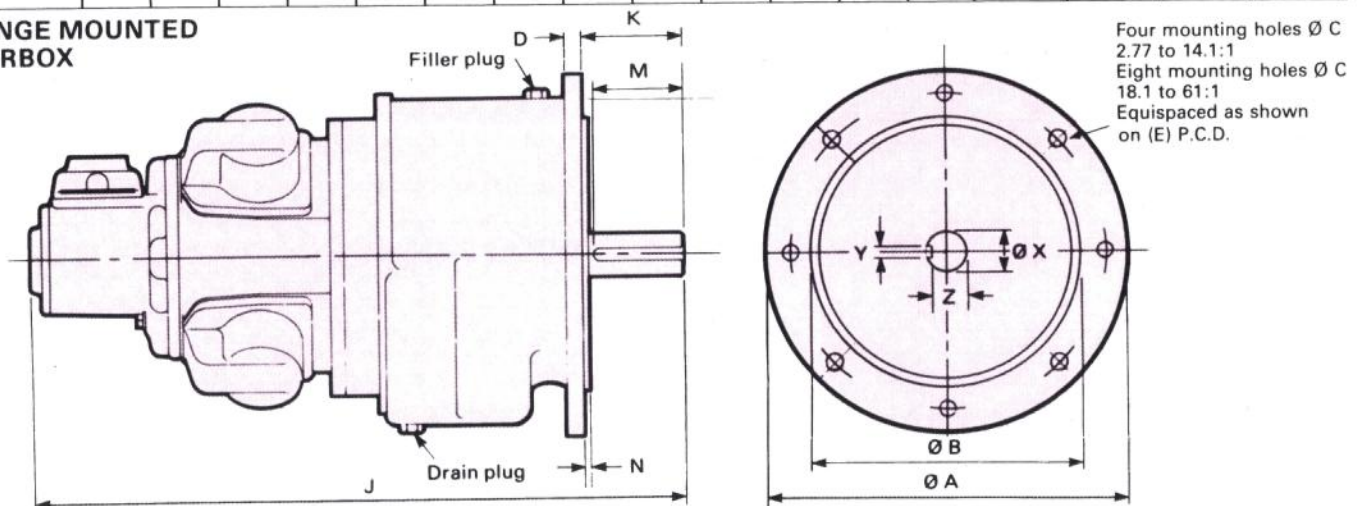
Gearbox Ratio	Maximum Power Conditions					Approx. Min Start Torque		Max. Cont. rpm	Max. Overhung Force	
	kW	hp	rpm	Torque		Nm	lbf. ft.		N	lbf.
				Nm	lbf. ft.					
2,8	10,5	14,1	578	168	128	189	145	722	6890	1550
4,5	10,5	14,1	360	271	206	304	232	449	7470	1680
7,2	10,5	14,1	222	438	334	493	376	277	8620	1940
11	10,5	14,1	148	656	500	738	563	185	9560	2150
14	10,5	14,1	113	857	654	964	736	142	10200	2300
18	10,0	13,4	88	1042	795	1172	894	111	16900	3800
24	10,0	13,4	67	1371	1046	1543	1177	84	17100	3850
28	10,0	13,4	57	1612	1230	1814	1383	71	18200	4100
37	10,0	13,4	44	2106	1607	2370	1807	55	20400	4600
61	10,0	13,4	26	3514	2680	3953	3015	33	24400	5500

BASE MOUNTED GEARBOX



RATIO	A	B	C	D	E	F	G	H	J	L	M	P	R	X	Y	Z	MASS
2,8 to 14:1	190	151	195	275	125	246	320	365	716	105	100	350	14	45,02 45,00	13,98 13,94	39,5 39,3	146 kg
18 to 61:1	265	185	305	380	152	365	440	490	816	138	125	450	28	65,03 65,01	17,98 17,94	58,0 57,8	273 kg

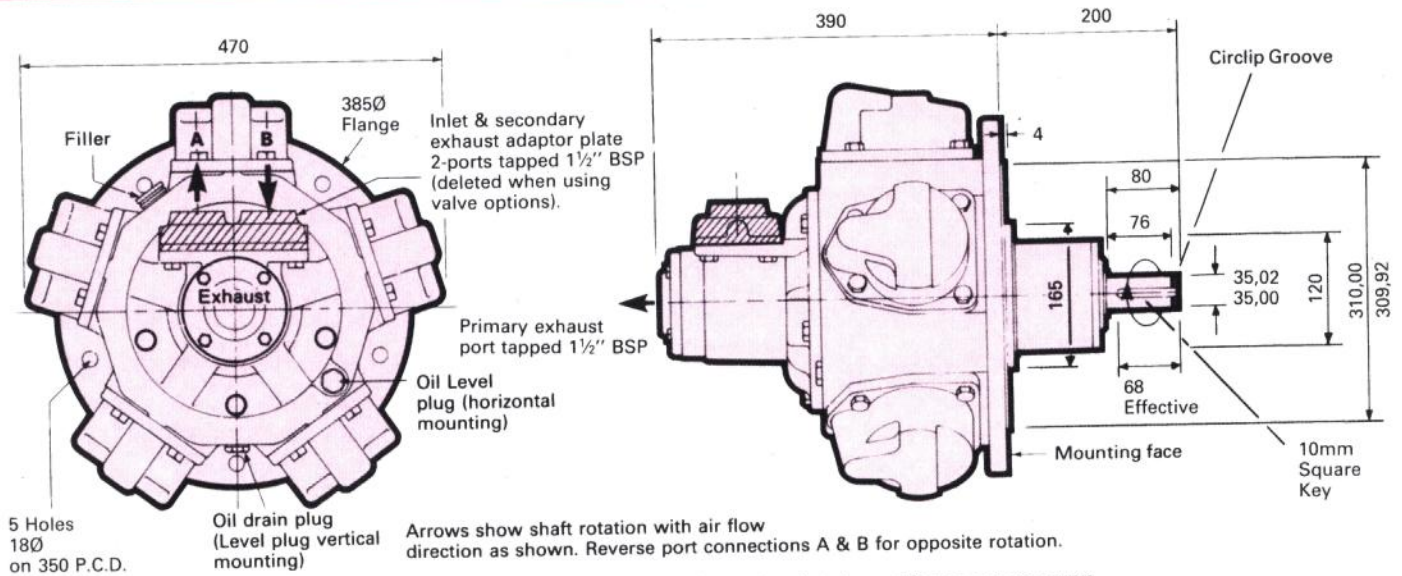
FLANGE MOUNTED GEARBOX



RATIO	A	B	C	D	E	J	K	M	N	X	Y	Z	MASS
2,8 to 14:1	400	300,00 299,92	4 x 18	19	350	716	110	100	6	45,02 45,00	13,98 13,94	39,5 39,3	146 kg
18 to 61:1	550	450,00 449,92	8 x 18	22	500	816	140	125	6	65,03 65,01	17,98 17,94	58,0 57,8	273 kg

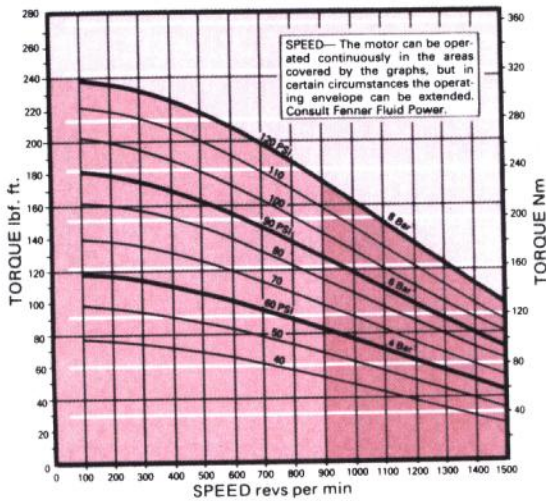
RM510 PEAK POWER 22kW

PERFORMANCE DATA

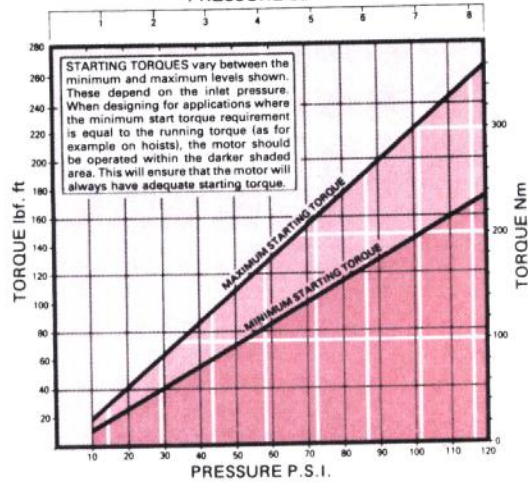


READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

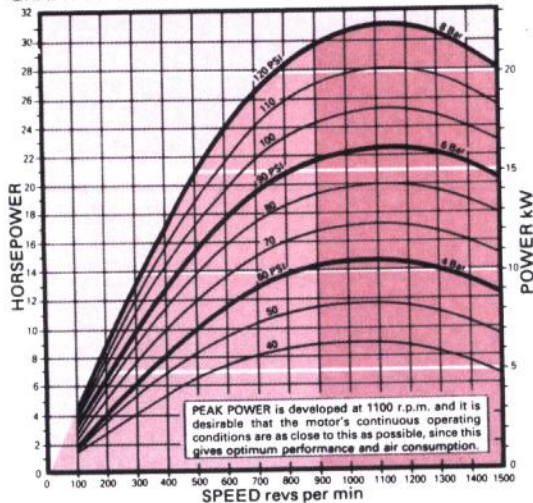
GRAPH 1 TORQUE - SPEED



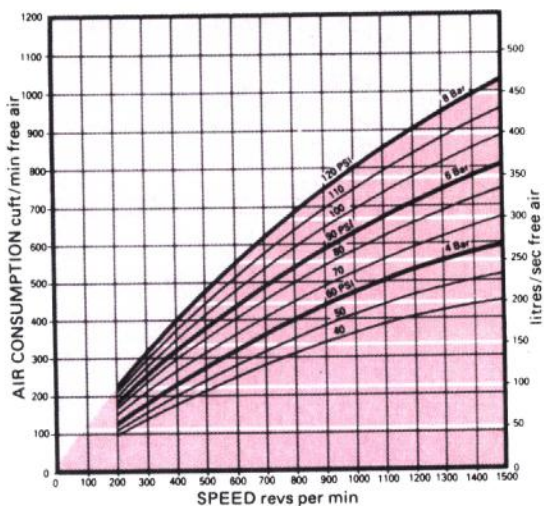
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED



LUBRICATING OIL CAPACITIES — Horizontal 1.1 | Vertical 2.1 l. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.

AIRLINE FILTRATION AND LUBRICATION — Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 115 kg
MOMENT OF INERTIA of rotating parts 14 gm²
MAX OVERHUNG FORCE on shaft 6500 N.
TEMPERATURE RANGE -20°C to +80°C.

Motor Foot Brackets see page 17. Control Valves page 18.
 Remote Controllers page 19. Brakes page 20.

RM510 GEARED MOTOR INSTALLATION DETAILS

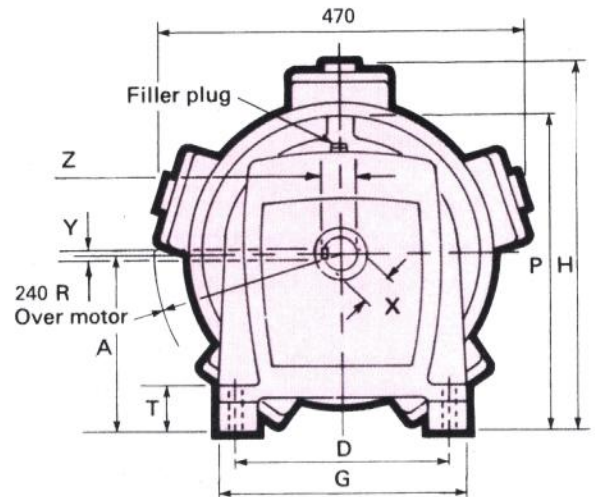
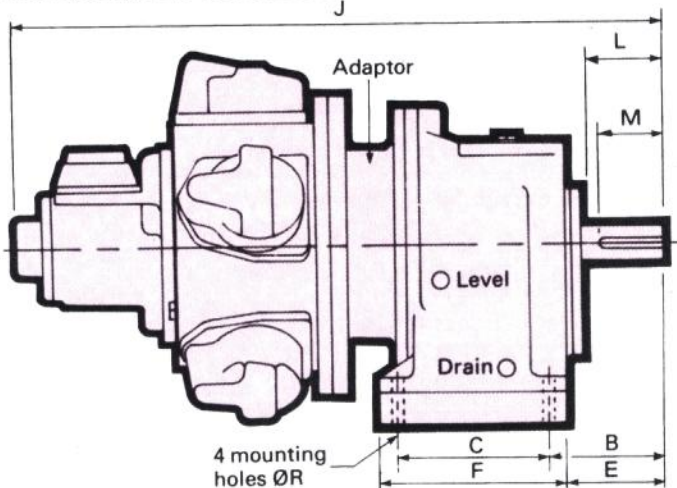


Maximum performance details listed below are at 6 bar (90 psi). The performance under different conditions can be obtained by using the curves on page 14. A typical minimum gearbox efficiency of 90% can be expected. For higher pressures consult SPX Fluid Power or their distributors. The maximum overhung force is assumed acting midway along the output shaft; for other positions or higher loads on intermittent applications; consult SPX Fluid Power or their distributors.

PERFORMANCE SUMMARY

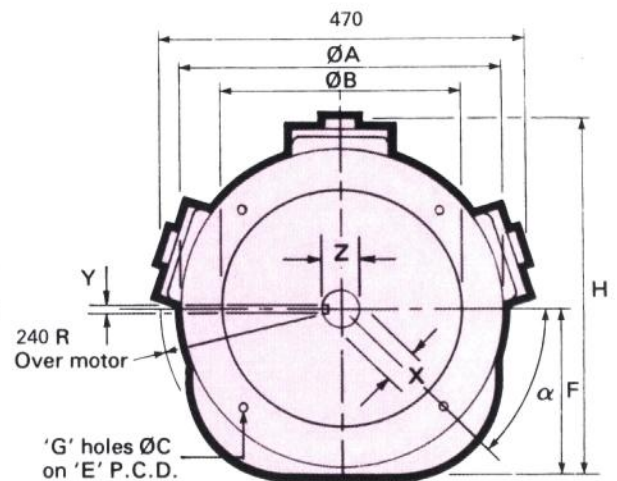
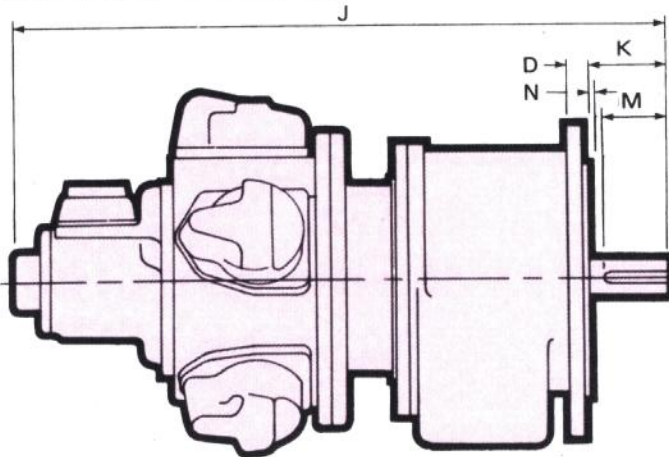
Gearbox Ratio	Maximum Power Conditions					Approx. Min Start Torque		Max. Cont. rpm	Max. Overhung Force	
	kW	hp	rpm	Torque		Nm	lbf. ft.		N	lbf.
				Nm	lbf. ft.					
2,8	16,3	21,9	415	363	277	447	341	542	7660	1722
3,9	16,3	21,9	292	517	394	636	485	381	8608	1935
8,7	16,3	21,9	132	1139	869	1403	1070	173	16090	3617
22	15,5	20,7	53	2681	2045	3303	2519	69	37220	8367
31	15,5	20,7	37	3870	2952	4767	3636	48	42760	9612
39	15,5	20,7	30	4798	3659	5910	4508	39	46900	10543

BASE MOUNTED GEARBOX



RATIO	A	B	C	D	E	F	G	H	J	L	M	P	R	T	X	Y	Z	MASS
2,8 & 3,9:1	230	151	195	275	125	246	322	470	825	105	100	406	14	59	45,018 45,002	14,000 13,957	48,50 48,21	210 kg
8,7:1	225	155	325	335	113	396	390	465	888	110	100	425	22	30	55,030 55,011	16,000 15,957	59,00 58,71	280 kg
22 to 39:1	335	267	460	460	226	530	530	515	1088	201	200	545	32	44	100,035 100,012	28,000 27,948	105,99 105,68	540 kg

FLANGE MOUNTED GEARBOX

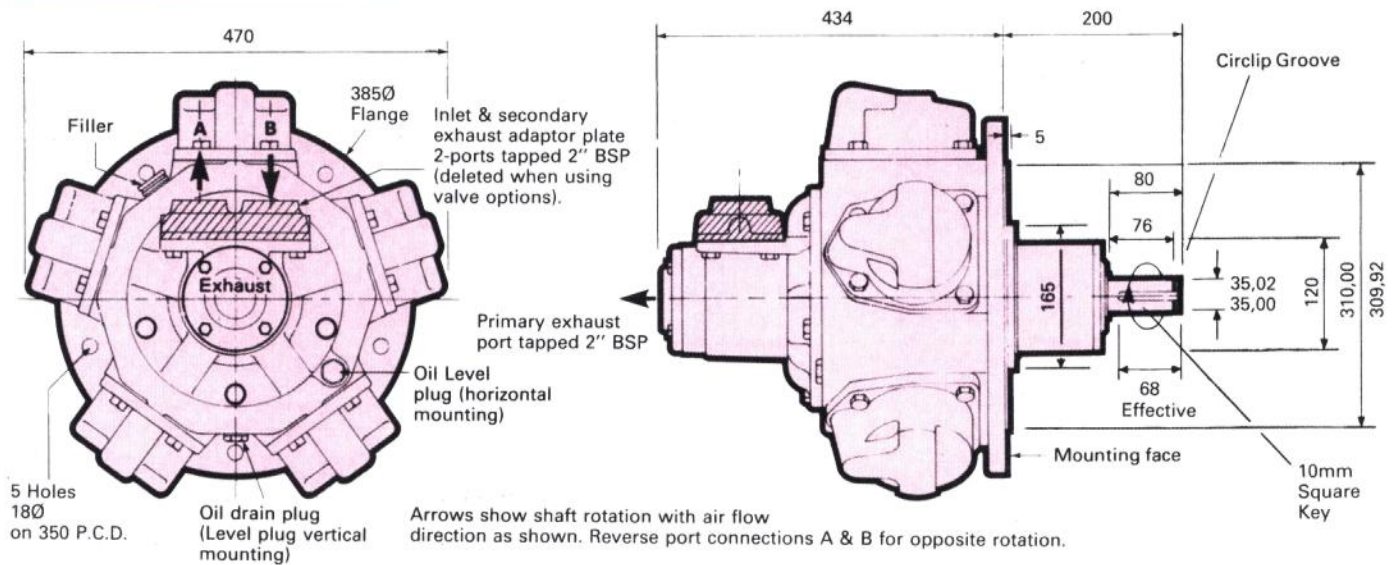


RATIO	A	B	C	D	E	α	F	G	H	J	K	M	N	X	Y	Z	MASS
2,8 & 3,9:1	400	300,00 299,92	18	19	350	45°	220	4 OFF	460	825	110	100	6	45,018 45,002	14,000 13,957	48,50 48,21	206 kg
8,7:1	450	350,00 349,91	19	25	400	45°	230	8 OFF	470	888	110	100	5	55,030 55,011	16,000 15,957	59,00 58,71	293 kg

Flange mounted RM510 gearboxes are not available above 8,7:1 gear ratio.

RM610 PEAK POWER 23kW

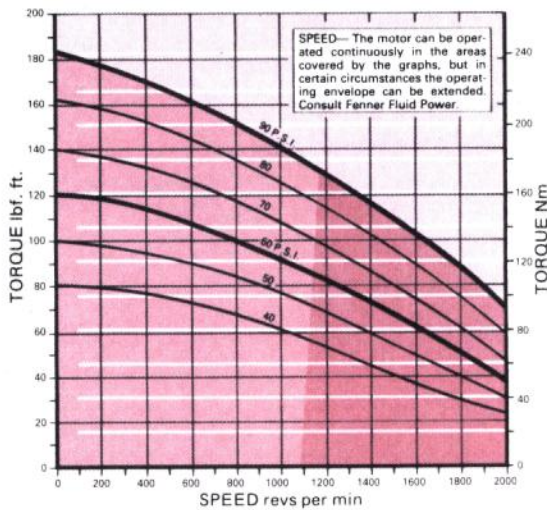
PERFORMANCE DATA



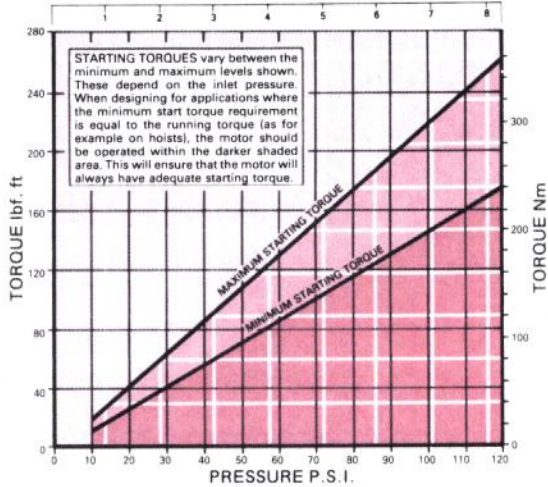
Arrows show shaft rotation with air flow direction as shown. Reverse port connections A & B for opposite rotation.

READING GRAPHS — Scales have been adjusted to enable bar and p.s.i. to be read from a common curve. Therefore only read p.s.i. with the left hand axis and bar with the right hand axis.

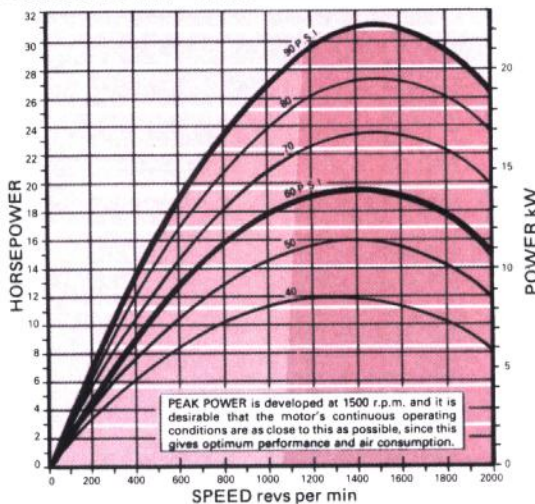
GRAPH 1 TORQUE - SPEED



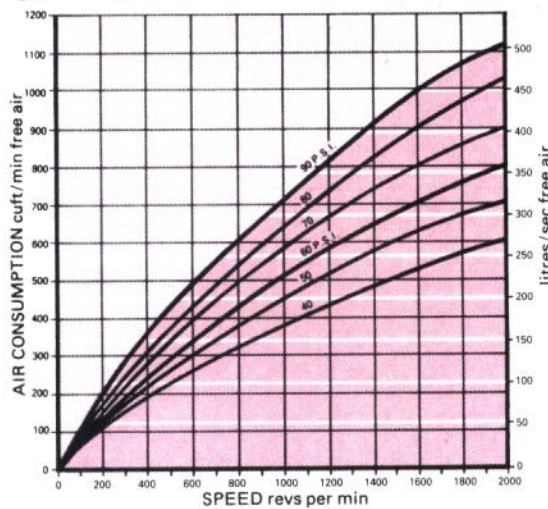
GRAPH 2 STARTING TORQUE - PRESSURE



GRAPH 3 POWER - SPEED



GRAPH 4 CONSUMPTION - SPEED



LUBRICATING OIL CAPACITIES — Horizontal 1.1 | Vertical 2.1 l. Use a good quality hydraulic oil with a viscosity of around 100cSt (460SSU) at 40°C.
AIRLINE FILTRATION AND LUBRICATION — Use 64 micron filtration or better. Choose a lubricator suitable for the flow required. Prior to initial start-up, inject oil into the inlet port. Lubricator drop rate: 3-4 drops/minute continuous operation. Lubricator drop rate: 6-10 drops/minute intermittent operation.

MASS (motor only) 125 kg
MOMENT OF INERTIA of rotating parts 14 gm²
MAX OVERHUNG FORCE on shaft 6500 N.
TEMPERATURE RANGE -20°C to +80°C.

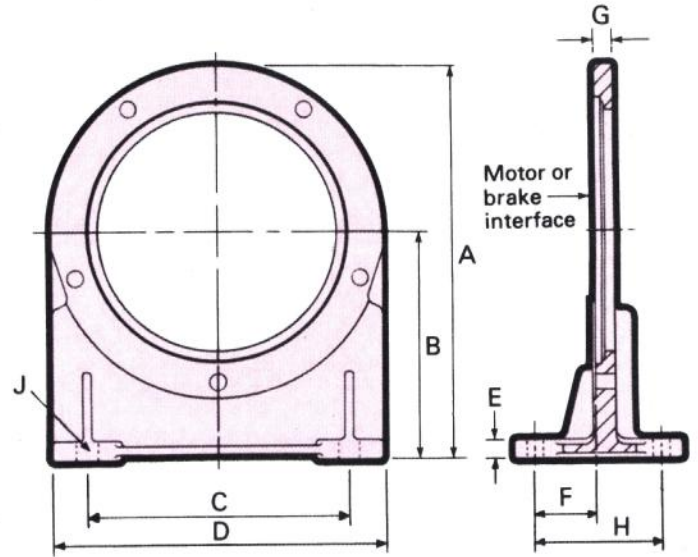
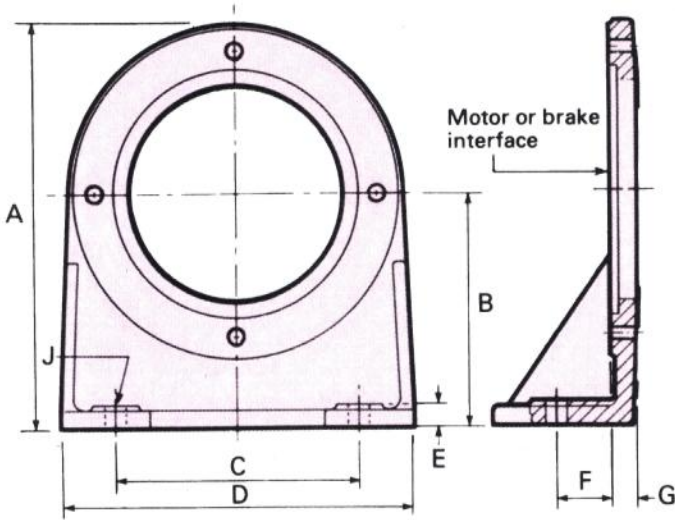
Motor Foot Brackets see page 17. Control Valves page 18.
 Remote Controllers page 19. Brakes page 20.

FOOT BRACKETS AND SILENCERS



FOOT BRACKET FOR:—
RM 050, 110, 210, 310, 410

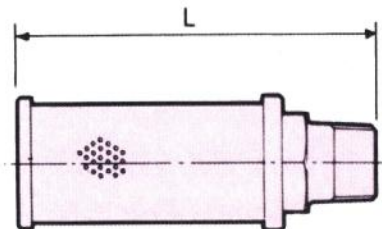
FOOT BRACKET FOR:—
RM 510, 610



	050	110	210	310	410	510	610
A	220	220	310	370	372	457	457
B	125 124,5	125 124,5	180 179,5	215 214,5	215 214,5	264 263,5	264 263,5
C	140	140	190	228	228	305	305
D	203	203	280	330	330	386	386
E	10	10	20	19	21	22	22
F	32	32	42	52	52	70	70
G	16	16	19	22	22	22	22
H	—	—	—	—	—	146	146
J	2 x ϕ 14	2 x ϕ 14	2 x ϕ 18	2 x ϕ 20	2 x ϕ 20	4 x ϕ 22	4 x ϕ 22

SILENCERS

Silencers screw directly into the primary and secondary exhaust ports. Note — control valves also have secondary exhaust ports. These silencers are designed for intermittent use, for continuous operation consult Fenner Fluid Power or your local distributor. If it is necessary to pipe the exhaust away from the motor, care must be taken to adequately size the pipework to avoid build up of back pressure in the system. If in doubt consult our Applications Department.



Normally supplied in kit form complete with fittings.

	050	110 PRIMARY	110 SECONDARY	210 PRIMARY	210 SECONDARY	310	410	510	610
SIZE	3/8"	3/4"	1/2"	1"	3/4"	1 1/4"	1 1/4"	1 1/2"	2"
L	84	90	76	110	90	200	200	234	CONSULT FFP

Valve Options



This range of bolt on valves offers very sensitive speed and directional control. One frictionless matched spool and sleeve assembly is offered with two alternative means of actuation.

CONFIGURATION

As standard these valves can be supplied with either EQUAL POWER OR BIASED POWER spools, the latter is suitable for hoisting applications (normal power for lifting - reduced power for lowering).

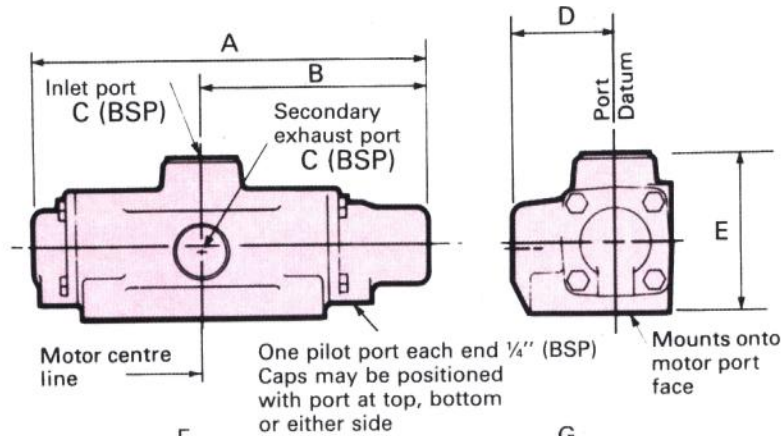
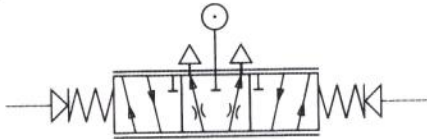
The direction of reduced power must be stated when ordering CW or CCW, when viewed on the output shaft of the motor or geared motor.

1. **REMOTELY CONTROLLED (RCV)** - This option is usually controlled from a remote position by one of the PC series or LC2 units shown opposite. A variable air pilot signal is applied to either end of the valve spool, depending on the required direction of motor rotation. The pilot pressure range is between 1.4 bar (20 psi) and 4.8 bar (70 psi), increased pilot pressure gives increased speed. The valve is spring centred to neutral.

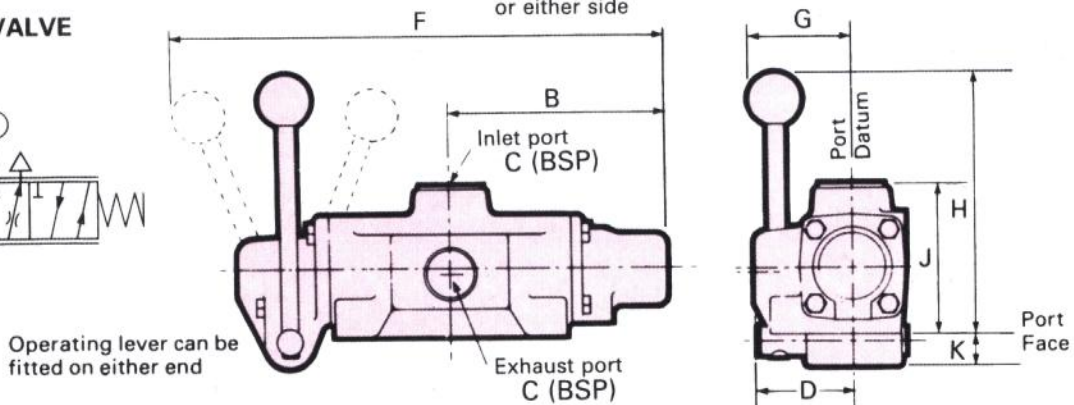
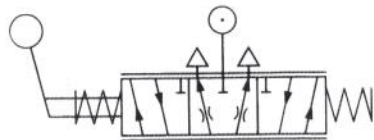
2. **HAND CONTROLLED (HCV)** - The control valve spool is operated directly by a lever mechanism. Speed increase is obtained as the lever is moved in either direction from the centre (neutral) position.

PRESSURE DROP - Minimal pressure drop will be experienced through the valves, having the effect of maintaining the output torque whilst reducing the motor output speed by approximately 10–15% at 6 bar (90 psi) at maximum power. The starting torque remains unaffected.

REMOTE CONTROL VALVE

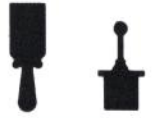


HAND CONTROL VALVE



MOTOR	A	B	C (BSP)	D	E	F	G	H	J	K
050 & 110	210	118	1/2"	61	84	270	61	162	84	21
210	210	118	3/4"	61	84	270	61	162	84	21
310	280	160	1"	72	103	365	75	193	103	27
410	280	160	1 1/4"	72	114	365	75	198	112	22
510	355	197	1 1/2"	97	137	413	90	190	137	27
610	CONSULT SPX FLUID POWER									

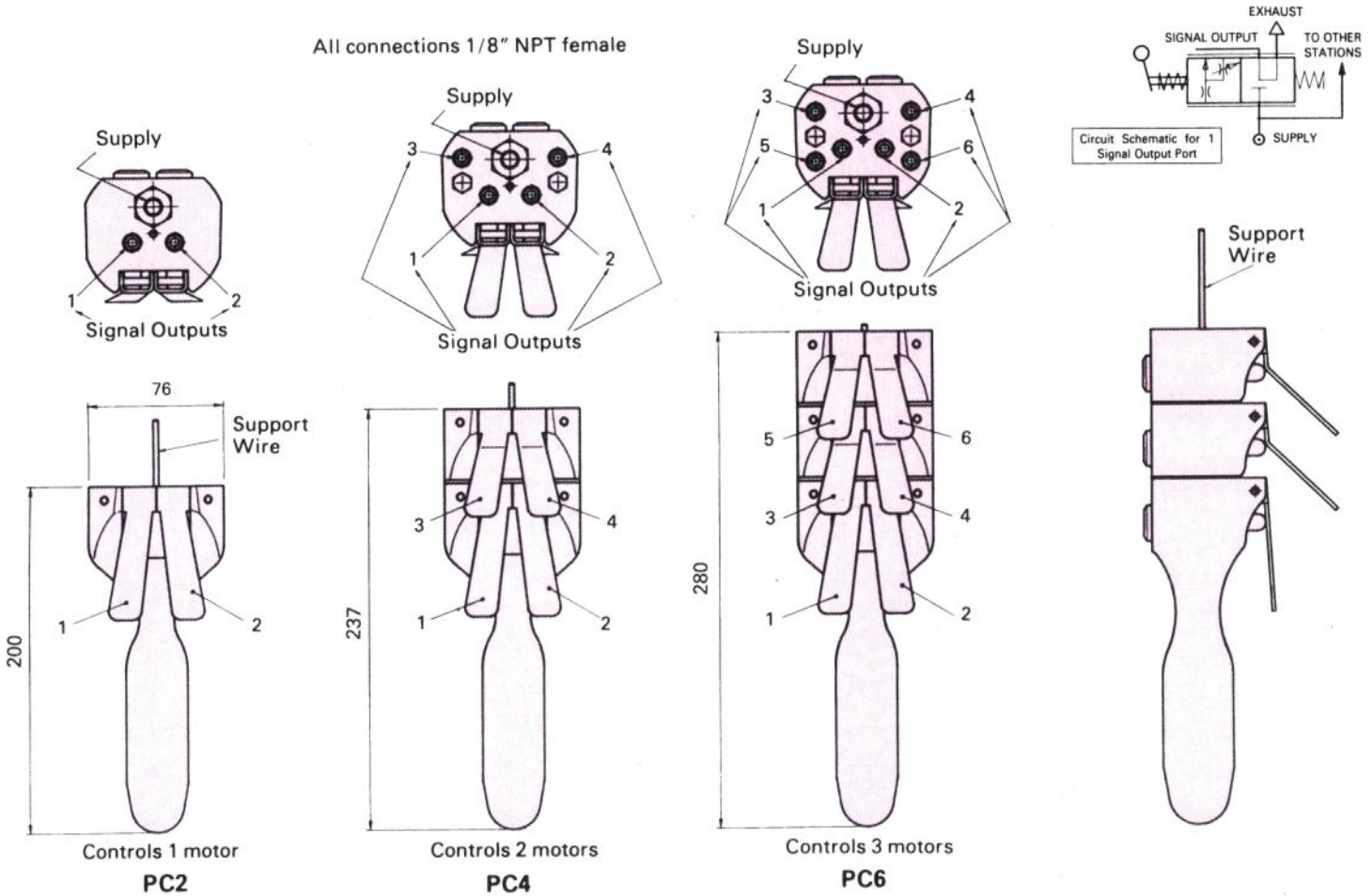
Remote Controllers



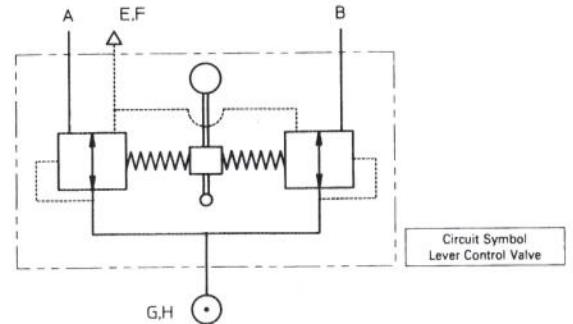
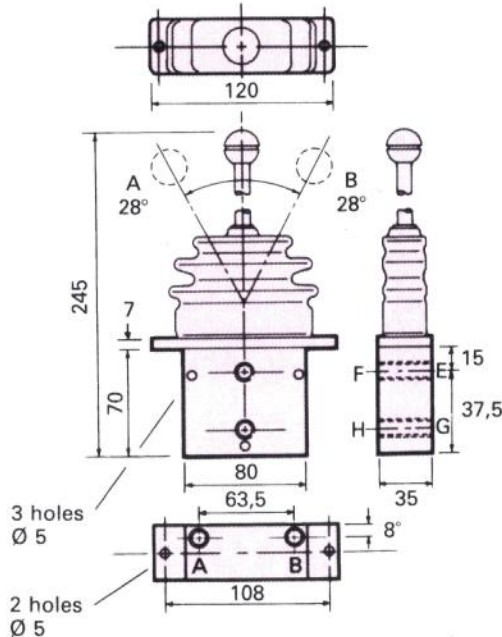
PENDANT CONTROLS (PC2, 4 or 6)

The PC2, 4 and 6 remote controllers are designed specifically for use with the RCV modules opposite. They provide the correct range of pilot pressure required to operate the RCV units, and give excellent control of motor speed. The PC2 is used to control one (hoist) motor; the PC4 can control two motors independently (say hoist and long travel); the PC6 can control three motors independently (hoist, long travel, traverse). Motors of different sizes can be controlled from the same unit. Control line lengths of 36m (120ft) give excellent response. For distance in excess of this consult SPX Fluid Power or distributors. The control lines are small bore eliminating the need for large capacity air supply lines between motor and controllers. If required, supply pressure can be taken from the tapping on the RCV. MARINE VERSIONS AVAILABLE. PC2M, PC4M or PC6M.

All connections 1/8" NPT female



LEVER CONTROL (LC2) MARINE STYLE (LC2M)



Note:
H and G are alternative supply ports.
A and B are outlet ports.

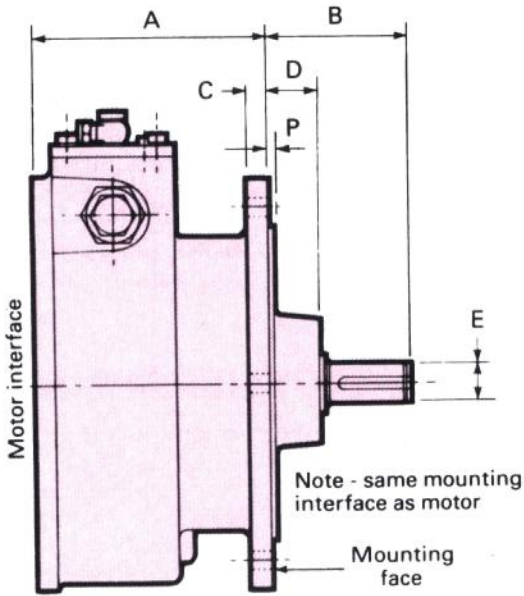
Plug alternative ports not connected.
E and F are exhaust ports.
All ports are 1/8" (BSP)

Brake Installation Details



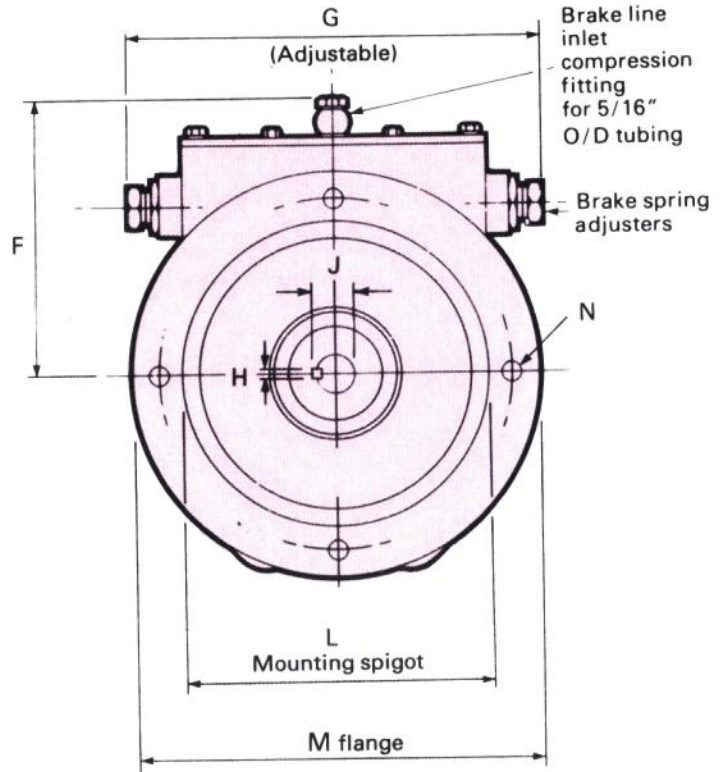
The brake module bolts directly onto the motor mounting face and has exactly the same interface as the motor. As shown on the drawing below, the brake consists of two spring applied shoes pressed against a central hub. These shoes are released by applying air pressure to the cylinder/piston assembly. The brake torque can be varied by means of two spring adjusters but it is normally set so that a pilot

pressure of 4.1 bar (60 p.s.i.) will fully release it. Pressures below this level will progressively reduce the braking torque available. The brakes are set at the plant but it may be necessary to make adjustments on site to suit the individual application.



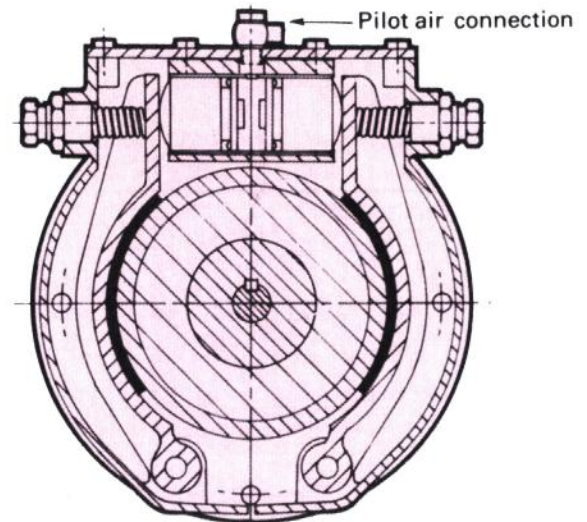
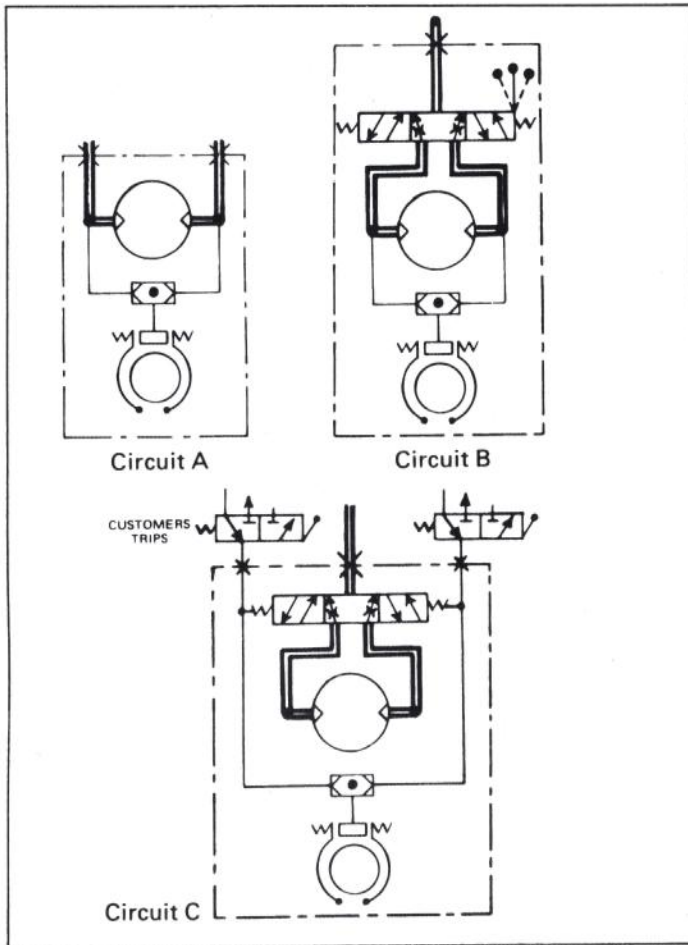
This is a Parking Brake ONLY

It MUST NOT be used in a Dynamic application



	A	B	C	D	E	F	G	P
050	100	66	8	30	14,01 14,00	126	210	3,6
110	100	66	8	30	14,01 14,00	126	210	3,6
210	115	93	11	46	19,01 18,99	129	235	4,0
310	140	104	15	46	22,01 21,99	160	270	4,0
410	175	104	16	37	28,01 28,00	206	340	4,0
510	172	96	16	16	35,02 35,00	268	450	5,1
610	172	96	16	16	35,02 35,00	268	450	5,1

Brake Installation Details



CIRCUIT (A) Applies to braked motors supplied without control valving. The unit will be fitted with a shuttle valve to allow brake operation for dual rotation.

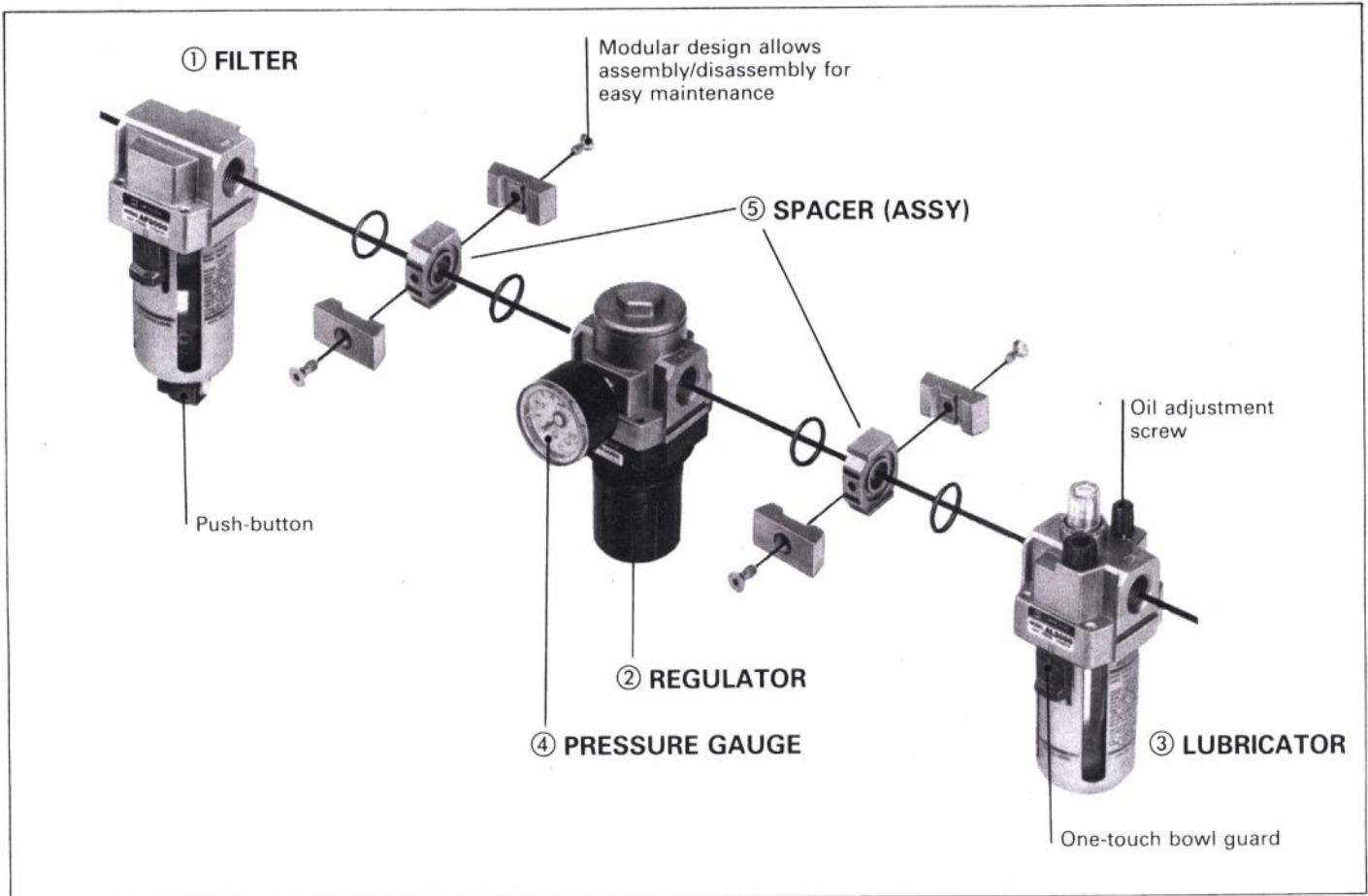
CIRCUIT (B) Units supplied with hand (HCV) controlled reversible valves. If trips are required they must be of the mechanical style (customer's supply).

CIRCUIT (C) Units supplied with remotely controlled valves. When override trips are required, they must be superimposed in the signal line close to the motor unit and be of the 3 way style. (Signal lines cut and exhausted in the tripped position.)

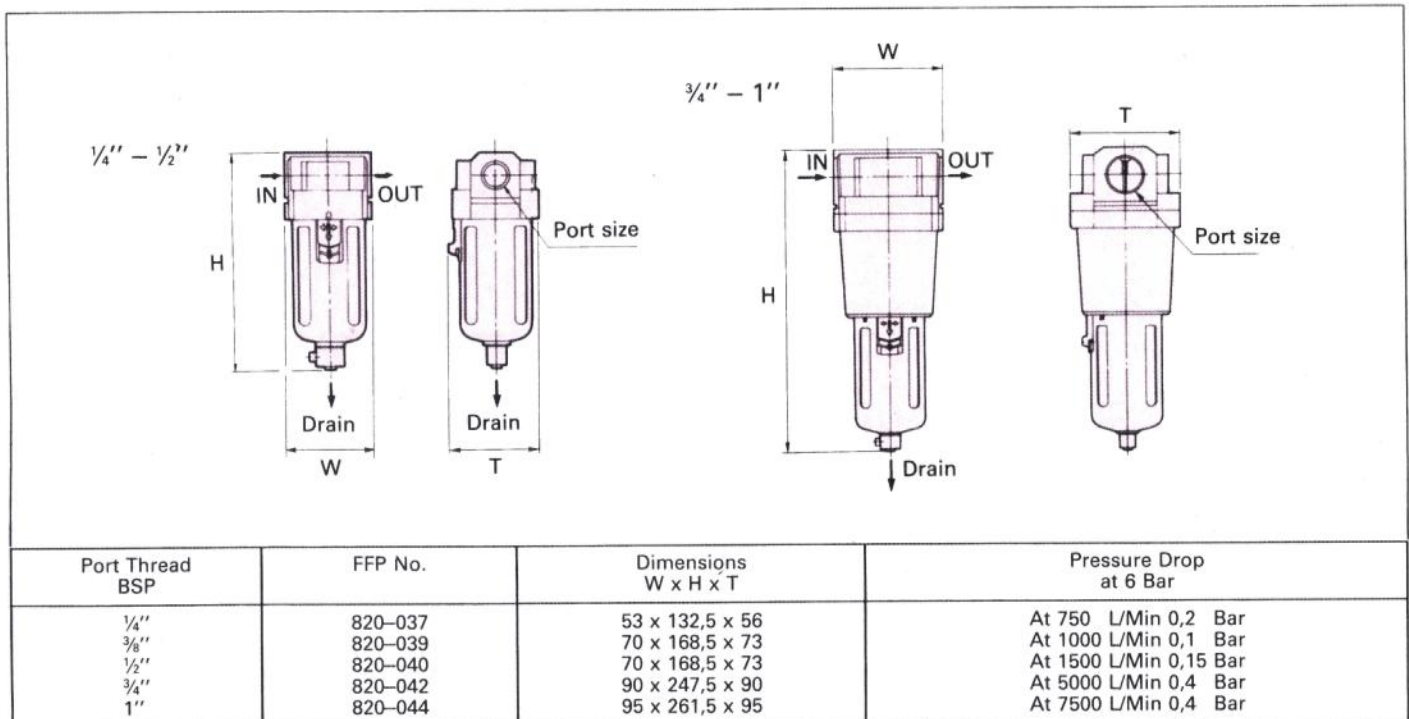
H	J	L	M	N-MOUNTING HOLES			
				No.	∅	P.C.D.	BOLT LENGTH (MAX)
5,00 4,97	16,00 15,87	130,00 129,94	188	4	11	165	28
5,00 4,97	16,00 15,87	130,00 129,94	188	4	11	165	28
6,00 5,97	21,50 21,27	180,00 179,94	254	4	14	215	25
6,00 5,97	24,50 24,27	230,00 229,93	305	4	14	265	35
8,00 7,94	31,01 30,71	230,00 229,93	305	4	14	265	40
10,00 9,96	38,00 37,71	310,00 309,92	385	5	18	350	35
10,00 9,96	38,00 37,71	310,00 309,92	385	5	18	350	35

Accessories

AIR SERVICE UNITS



① FILTER UNITS



Accessories

AIR SERVICE UNITS

② REGULATOR UNITS

$\frac{1}{4}'' - \frac{3}{4}''$
1'' has 'T' Bar Adjuster

Port Thread BSP	FFP No.	Dimensions W x H x T	Pressure Drop at 6 Bar
$\frac{1}{4}''$	820-069	53 x 127,5 x 53	At 1000 L/Min 0,5 Bar
$\frac{3}{8}''$	820-071	70 x 149,5 x 70	At 1000 L/Min 0,4 Bar
$\frac{1}{2}''$	820-072	70 x 149,5 x 70	At 1500 L/Min 0,5 Bar
$\frac{3}{4}''$	820-074	90 x 168 x 90	At 5000 L/Min 0,9 Bar
1''	820-076	95 x 204,5 x 95	At 7500 L/Min 0,9 Bar

③ LUBRICATOR UNITS

$\frac{1}{4}'' - \frac{1}{2}''$ $\frac{3}{4} - 1''$

$\frac{1}{4}''$	820-052	53 x 142 x 56	At 1000 L/Min 0,2 Bar
$\frac{3}{8}''$	820-054	70 x 177 x 73	At 1000 L/Min 0,1 Bar
$\frac{1}{2}''$	820-055	70 x 177 x 73	At 1500 L/Min 0,1 Bar
$\frac{3}{4}''$	820-057	90 x 254 x 90	At 5000 L/Min 0,3 Bar
1''	820-059	95 x 268 x 95	At 7500 L/Min 0,3 Bar

④ REGULATOR PRESSURE GAUGES

$\frac{1}{4}''$	820-055
$\frac{3}{8}''$, $\frac{1}{2}''$, $\frac{3}{4}''$, 1''	820-088

⑤ SPACER UNITS

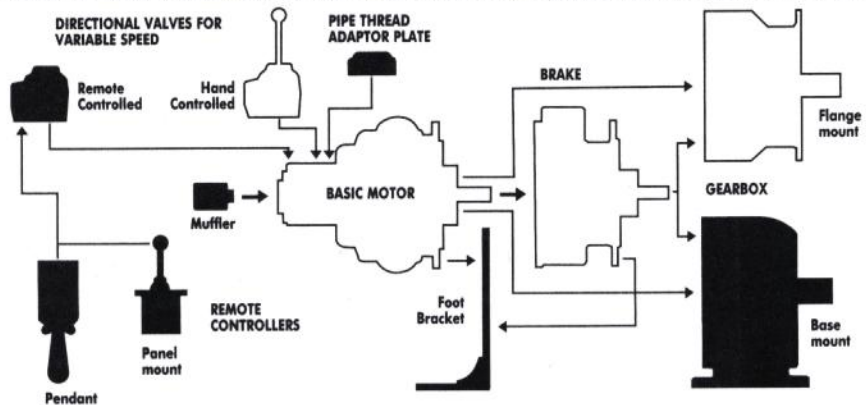
$\frac{1}{4}''$	820-113
$\frac{3}{8}''$	820-114
$\frac{1}{2}''$	820-114
$\frac{3}{4}''$	820-116
1''	820-116

FOR AIR SERVICE UNITS OVER
1'' BORE SIZE CONSULT
FENNER FLUID POWER OR
DISTRIBUTOR.

Model Ordering Code

R43	K	18	H	1
DESIGN CODE RM410 AIR MOTOR	NOMINAL GEAR RATIO (XX = NO GEARBOX)			
DESIGN CODE		VALVE OPTIONS		VALVE
RM050 - R05 RM410 - R43 RM110 - R13 RM510 - R52 RM210 - R23 RM610 - R62 RM310 - R33		A = Pipe Adaptor Plate H = Hand Controlled (HCV) R = Remote Controlled (RCV) X = No Valving or Adaptor Plate		0 = BSP } Equal Power 1 = NPT } 2 = BIASED: CW LOWERING (BSP) 3 = BIASED: CCW LOWERING (BSP) 4 = BIASED: CW LOWERING (NPT) 5 = BIASED: CCW LOWERING (NPT)
OUTPUT OPTIONS				
X = Motor only maleshaft B = Motor + base mounted gearbox (BG) C = NEMA 'D' Mounting flange D = Motor + Brake F = Motor + Flange mounted gearbox (FG)		K = Motor + Brake + FG L = Motor + Brake + BG M = Motor only female shaft N = SAE 'C' Hydraulic pump output		

EXAMPLE: R43K 18H1 (RM410 motor with brake, flange mounted 18:1 gearbox and hand controlled valve with NPT ports)



SPX FLUID POWER

SPX Fluid Power can be traced back to 1968 when Herb Stone founded Stone Hydraulic Industries, Inc. in Rockford IL. Stone Hydraulics manufactured a range of high quality hydraulic power units. In 1980, Fenner PLC purchased Stone Hydraulics to form Fenner Stone, Inc. and expanded their markets in Europe and North America. By 1986, Fenner Stone was fully integrated into Fenner Fluid Power and expanded into Australia and the Far East as well as increasing its activities in North America. In 2000, SPX Corporation purchased Fenner Fluid Power, and in March 2001, SPX Fluid Power was further enhanced by the acquisition of Smiths Industries Hydraulics Company (SIHC). The Stone Hydraulics brand is now combined with Power Team, Hytech, Globe, Water Hydraulics and Madan to form SPX Fluid Power with headquarters in Rockford.

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Your Global Force In Fluid Power