

TECHINICAL DATA - MOTOR TYPE MR - MRE

Size Motor version		Displacement	Moment Inertia of rotating parts	Theoretical specific torque	Min. start. torque / Theoretical torque	Maximum Pressure					Speed range		Maximum output power		Weight
						input					flushing		flushing		
						cont.	int.	peak	A+B *	Drain	without	with	without	with	
						p	p	p	p	p	n	n	P	P	
		V	J		%	p	p	p	p	p	rpm	rpm	Hp	Hp	lb
		in³	lb.in²	lb.ft/psi		psi	psi	psi	psi	psi	rpm	rpm	Hp	Hp	lb
M R	33	1.96	1.48	0.025	90	3626	4351	6092	5802	72.5 (218 psi with "F1" shaft seal)	1-1400	1-1400	8.9	13.4	66.14
	57	3.44	1.59	0.046	90						1-1300	1-1300	14.8	22.8	66.14
	73	4.43	4.79	0.061	90						1-1200	1-1200	20.2	26.8	83.78
	93	5.65	5.16	0.076	90						1-1150	1-1150	22.8	33.5	83.78
	110	6.65	5.53	0.087	90						1-1100	1-1100	24.1	37.6	83.78
	125	7.61	19.44	0.102	90						1-900	1-900	22.8	33.5	101.4
	160	9.75	19.65	0.129	90						1-900	1-900	26.8	40.2	101.4
	190	11.69	19.89	0.155	90						1-850	1-850	32.2	48.3	101.4
	200	12.16	19.56	0.163	90						1-800	1-800	33.5	51.0	110.2
	250	15.31	20.78	0.203	90						1-800	1-800	42.9	64.4	110.2
	300	18.56	22.36	0.244	90						1-750	1-750	46.9	71.1	110.2
	350	21.33	77.19	0.283	90						1-640	1-640	55.0	83.1	169.8
	450	27.56	78.53	0.366	90						1-600	1-600	61.7	100.6	169.8
	600	37.10	90.58	0.493	90						1-520	1-520	75.1	112.6	213.8
	700	43.09	122.47	0.575	90						1-500	1-500	87.2	130.1	213.8
	1100	68.7	154.28	0.910	90						0.5-330	0.5-330	103.3	159.6	308.6
	1600	97.5	227.73	1.292	90						0.5-260	0.5-260	128.7	193.1	460.8
	1800	110.4	291.86	1.465	90						0.5-250	0.5-250	138.1	205.2	460.8
	2400	139.9	968.89	1.937	90						0.5-220	0.5-220	160.9	245.4	716.5
	2800	170.4	1016.83	2.263	90						0.5-215	0.5-215	170.3	260.2	716.5
3600	221.9	1657.78	2.944	90	0.5-150	0.5-180	164.9	248.1	1120						
4500	274.8	1713.72	3.346	91	0.5-130	0.5-170	187.7	281.6	1120						
6500	394.2	3887.52	5.267	91	0.5-110	0.5-130	221.3	321.8	1764						
7000	408.7	3887.52	5.665	91	0.5-100	0.5-130	228	335.3	1764						
M R E	330	20.28	22.38	0.270	90	3046	3626	5076	5802	72.5 (218 psi with "F1" shaft seal)	1-750	1-750	42.9	65.7	110.2
	500	30.38	78.53	0.403	90						1-600	1-600	61.7	93.9	169.8
	800	49.08	122.47	0.651	90						1-450	1-450	87.2	124.7	213.8
	1400	83.6	154.28	1.109	92						0.5-280	0.5-280	103.3	136.8	319.7
	2100	127.6	291.86	1.693	91						0.5-250	0.5-250	134.1	198.5	487.2
	3100	189.4	1016.83	2.512	91						0.5-215	0.5-215	167.6	254.8	725.3
	5400	329.6	1713.72	4.374	92						0.5-120	0.5-160	187.7	281.6	1129
	8200	502	3887.52	6.657	92						0.5-90	0.5-120	228	335.3	1786
LARGER DISPLACEMENTS ARE AVAILABLE IN THE MRT - MRTE - MRTF MOTOR SERIES															

(*) Please contact PARKER Calzoni

OPERATING DIAGRAM - MOTOR TYPE MR - MRE

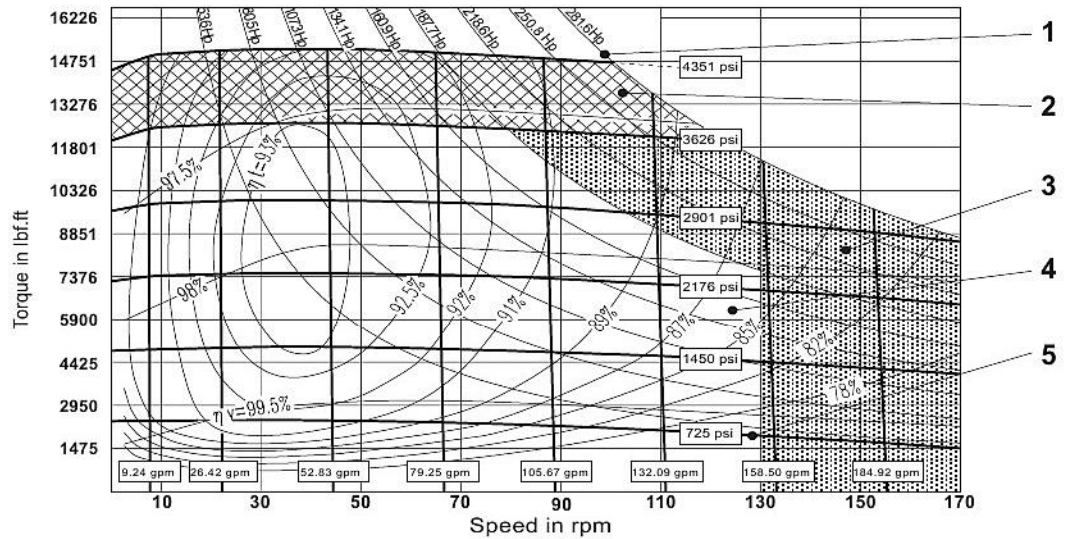
OPERATING DIAGRAM

(average values) measured at $V = 167 \text{ SUS (36 mm}^2\text{/s)}$; $t = 113^\circ\text{F (45}^\circ\text{C)}$;

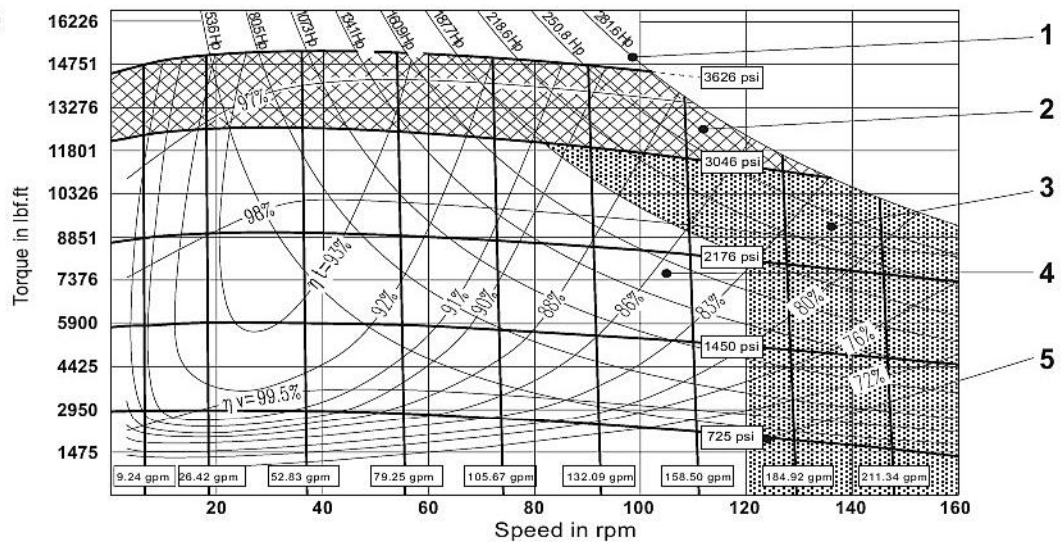
$p_{\text{outlet}} = 0 \text{ psi (0 bar)}$

- 1** Output power **2** Intermittent operating area **3** Continuous operating area with flushing
4 Continuous operating area **5** Inlet pressure η_t Total efficiency η_v Volumetric efficiency

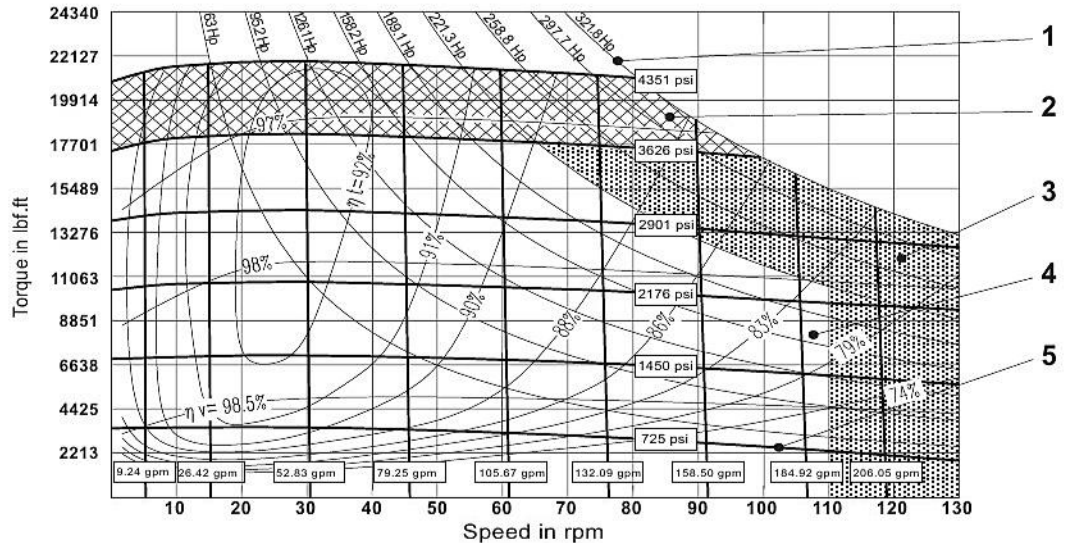
MR 4500



MRE 5400



MR 6500



OPERATING DIAGRAM - MOTOR TYPE MR - MRE

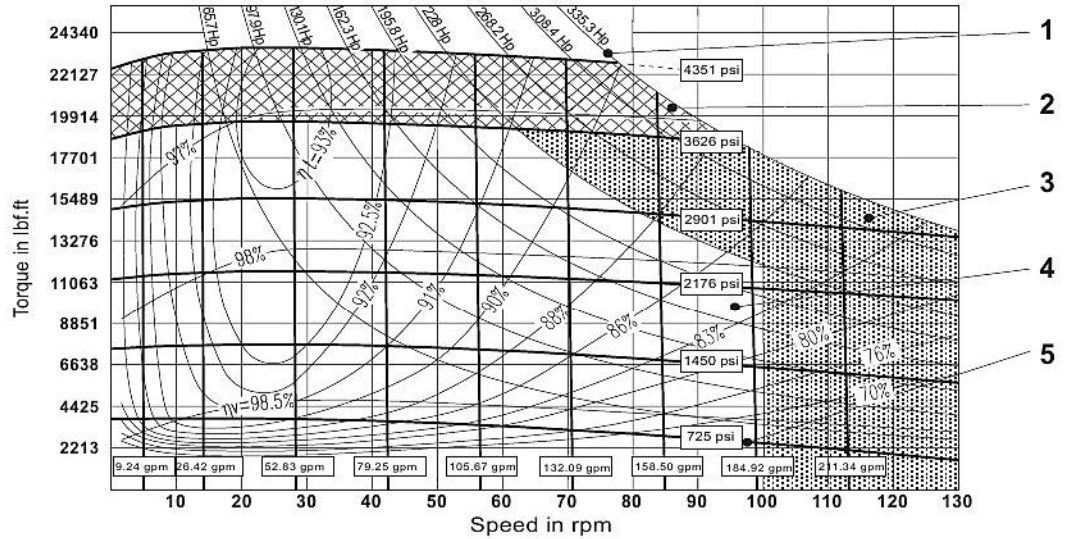
OPERATING DIAGRAM

(average values) measured at $V = 167 \text{ SUS (36 mm}^2\text{/s)}$; $t = 113^\circ\text{F (45}^\circ\text{C)}$;

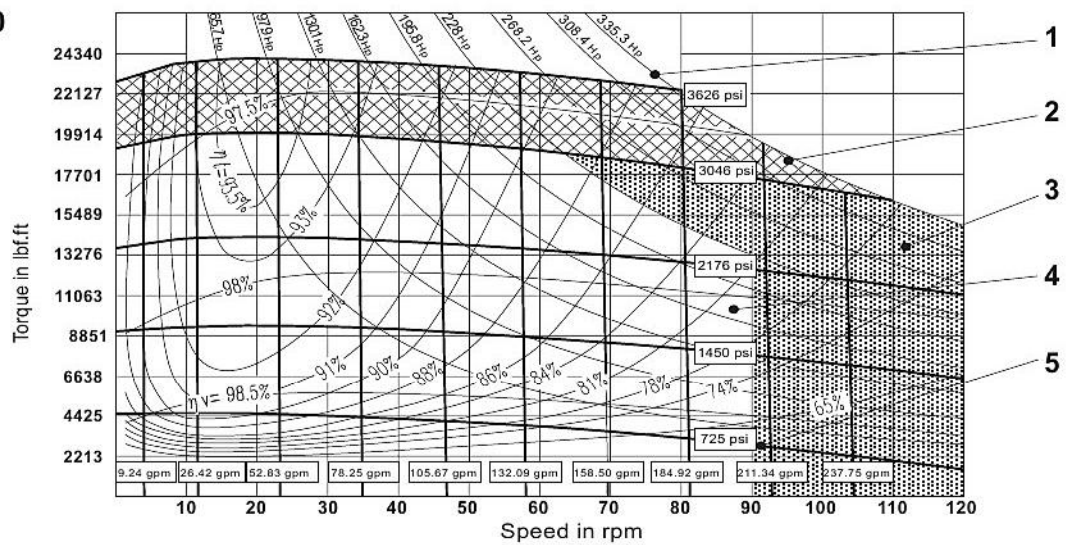
$p_{\text{outlet}} = 0 \text{ psi (0 bar)}$

- | | | |
|-----------------------------|-------------------------------|--|
| 1 Output power | 2 Intermittent operating area | 3 Continuous operating area with flushing |
| 4 Continuous operating area | 5 Inlet pressure | η_t Total efficiency η_v Volumetric efficiency |

MR 7000

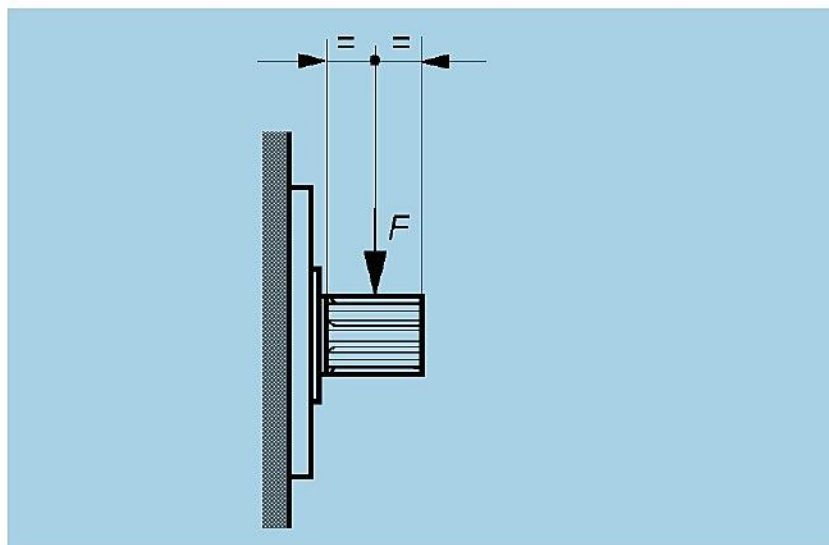


MRE 8200



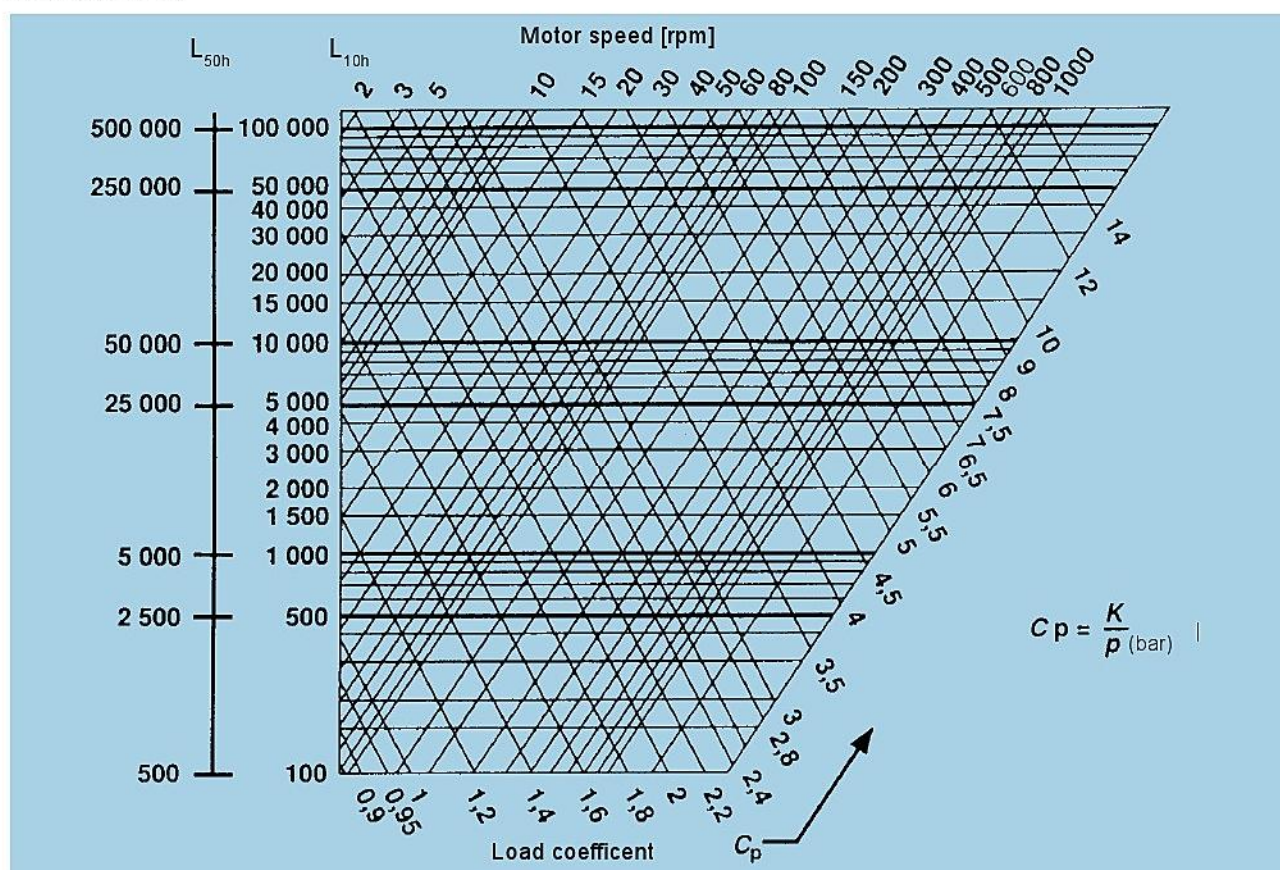
RADIAL LOAD - MOTOR TYPE MR - MRE

RADIAL LOAD



MOTOR TYPE	RADIAL FORCE ^{MAX I} BRIEFLY PERMITTED WITH DYNAMIC LOAD F in lbf ')	MAX. PERMITTED RADIAL FORCE IN SHAFT CENTRE BASED ON L _{HTG} 5000 HOURS			speed in rpm
		INPUT PRESSURE 2901 psi F in lbf	INPUT PRESSURE 2176 psi F in lbf	INPUT PRESSURE 1450 psi F in lbf	
MR 33	4271.37	2135.69	2293.05	2382.98	400
MR 57	4271.37	2135.69	2293.05	2382.98	400
MR 73	5058.20	2023.28	2607.78	3034.92	350
MR 93	5058.20	2023.28	2607.78	3034.92	350
MR 110	5058.20	2023.28	2607.78	3034.92	350
MR 125	5058.20	1124.05	2225.61	2900.04	275
MR 160	5058.20	1124.05	2225.61	2900.04	275
MR 190	5058.20	1124.05	2225.61	2900.04	275
MR 200 *	-	-	-	-	-
MR 250	6294.65	1258.93	2225.61	2832.59	250
MR 300	6294.65	1258.93	2225.61	2832.59	250
MR 350	7868.31	3259.73	4136.49	4765.95	225
MR 450	7868.31	3259.73	4136.49	4765.95	225
MR 600	9666.78	3372.13	5058.20	6137.28	200
MR 700	9666.78	3372.13	5058.20	6137.28	200
MR 1100	12139.7	4158.97	6407.06	7913.28	150
MR 1600	15287	5889.99	9127.24	11240.45	125
MR 1800	15287	5889.99	9127.24	11240.45	125
MR 2400	19108.76	11262.93	14837.39	17265.33	110
MR 2800	19108.76	12139.68	15511.82	17849.83	100
MR 3600	24279.37	12364.50	20232.8	23155.32	100
MR 4500	24279.37	17535.1	21806.47	24504.17	85
MR 6500	30124.4	16635.86	27651.5	31698.06	50
MR 7000	30124.4	16635.86	27651.5	31698.06	50
MRE 330	6294.65	1011.64	1910.88	2675.23	250
MRE 500	7868.31	2787.63	3889.20	4676.03	225
MRE 800	9666.78	1910.87	4451.22	5912.48	200
MRE 1400	12139.7	1933.35	5395.42	7553.58	140
MRE 2100	15287	2810.11	8003.20	10858.27	120
MRE 3100	19108.76	10116.4	14500.18	17445.17	100
MRE 5400	24279.37	14162.96	20277.77	24122	80
MRE 8200	30124.4	15287.01	24728.98	28775.54	50
') in accordance with the dynamic condition, higher values can be accepted - MR 200* only code "F1"					

BEARING LIFE

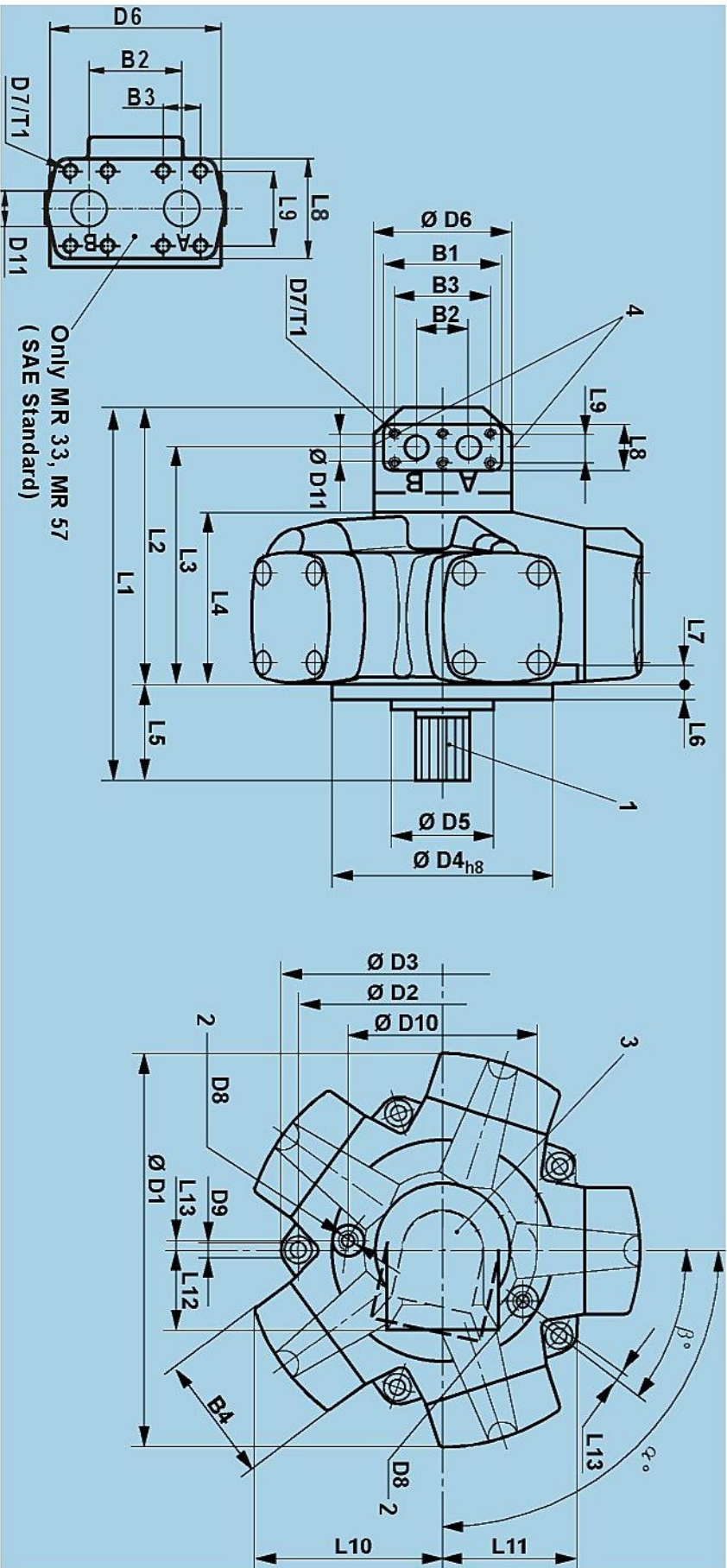


C_p = Load coefficient
 K = Service life coefficient for standard bearing
 p = operating pressure in bar
 Convert pressure 1psi = 0.0690 bar

L_{10h} is the theoretically service life value normally reached or exceeded by the 90% of the bearings.

50 % of the bearings reach the value $L_{50h} = 5 \text{ times } L_{10h}$.

MOTOR TYPE	K	MOTOR TYPE	K	MOTOR TYPE	K
MR 33	2150	MRE 330	850	MRE 2100	722
MR 57	2150	MR 350	1126	MR 2400	924
MR 73	1320	MR 450	1126	MR 2800	924
MR 93	1320	MRE 500	1021	MRE 3100	828
MR 110	1320	MR 600	920	MR 3600	709
MR 125	950	MR 700	920	MR 4500	709
MR 160	950	MRE 800	808	MRE 5400	591
MR 190	950	MR 1100	844	MR 6500	710
MR 200	950	MRE 1400	693	MR 7000	710
MR 250	950	MR 1600	835	MRE 8200	550
MR 300	950	MR 1800	835		

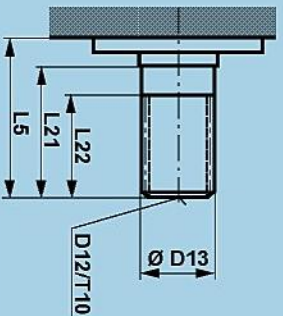


- 1 Splined shaft with flank contact
(for dimension see page 26)
Ordering code "N1"
(for further shaft ends see page 26 - 27)
- 2 Case drain port
BSP threads to ISO 228/1
- 3 On request the port flange can be
rotated by 72°
(For MR 33, MR 57, MR 73, MR 93,
MR 110, MR 125, MR 160, MR 190,
MR 200, MR 250, MR 300, MRE 330,
MR 350, MR 450, MRE 500, MR 600,
MR 700, MRE 800
can be rotated by 36°)
For standard position see angle α .
- 4 Port 1/4" BSP threads to ISO 228/1
for pressure reading.

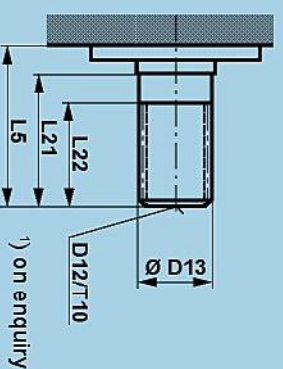
Dir. of Rotation (Viewed on shaft end)	Port inlet	ordering code (see page35)
clockwise	A	"N"
anti-clockwise	B	
clockwise	B	
anti-clockwise	A	"S"

MOTOR TYPE	L1 (in)	L2 (in)	L3 (in)	L4 (in)	L5 (in)	L6 (in)	L7 (in)	L8 (in)	L9 (in)	L10 (in)	L11 (in)	L12 (in)	L13 (in)	B1 (in)	B2 (in)	B3 (in)	B4 (in)	Ø D1 (in)	Ø D2 (in)	Ø D3 (in)	Ø D4 _M (in)	Ø D5 (in)	Ø D6 (in)	D7 (mm)	T1 (in)	D8 (in)	Ø D9 (in)	Ø D10 (in)	Ø D11 (in)	α	β
MR 33 MR 57	9.97	7.72	5.83	4.21	2.25	0.55	0.75	2.76	2.06	4.34	3.09	2.76	0.78	4.88	2.56	1.03	2.73	9.27	6.3	7.09	4.9212 4.9188 (125 mm)	-	4.72	M10	0.98	G 1/4	0.35	3.82	0.98	108°	36°
MR 73 MR 93 MR 110	11.69	9.00	7.50	5.18	2.70	0.67	0.79	2.13	1.34	4.72	3.70	2.84	-	4.72	1.97	3.94	3.54	9.84	8.03	8.84	5.7086 5.7082 (145 mm)	-	5.08	M8	0.59	G 3/8	0.43	-	0.79	90°	36°
MR 125 MR 160 MR 190	12.17	9.53	8.03	5.71	2.64	0.55	0.63	2.13	1.34	5.81	4.06	2.84	0.26	4.72	1.97	3.94	3.94	12.33	8.86	9.80	6.2991 6.2967 (160 mm)	-	5.08	M8	0.59	G 3/8	0.43	6.30	0.79	90°	36°
MR 200 MR 250 MR 300 MRE 330																					6.8897 6.8873 (175 mm)		5.08	M8	0.59	G 3/8	0.43	6.38	0.79	90°	36°
MR 350 MR 450 MRE 500	14.8	10.98	9.25	6.57	3.82	0.59	0.71	2.77	1.57	6.87	5.12	3.31	0.37	5.59	2.36	4.72	4.69	14.49	10.47	11.65	7.4802 7.4775 (190 mm)	3.78	6.14	M10	0.71	G 3/8	0.51	7.64	0.98	90°	36°
MR 600 MR 700 MRE 800	15.75	11.77	10.04	7.36	3.98	0.59	0.79	2.77	1.57	7.56	5.63	3.31	0.31	5.59	2.36	4.72	5.24	15.95	11.42	12.60	8.6614 8.6586 (220 mm)	4.02	6.14	M10	0.71	G 3/8	0.51	8.15	0.98	90°	36°
MR 1100 MRE 1400	18.03	13.43	11.54	7.99	4.61	0.79	0.87	3.23	1.97	8.78	6.50	4.13	0.35	6.38	2.87	5.35	5.83	18.50	12.99	14.45	9.8425 9.8397 (250 mm)	4.72	6.77	M12	0.83	G 1/2	0.59	8.98	1.22	104°	36°
MR 1600 MR 1800 MRE 2100	19.92	14.72	12.83	9.29	5.20	0.83	0.94	3.23	1.97	10.39	7.76	4.13	0.43	6.38	2.87	5.35	6.61	21.97	14.96	16.65	11.4173 11.4141 (290 mm)	5.83	6.77	M12	0.83	G 1/2	0.67	10.47	1.22	90°	36°
MR 2400 MR 2800 MRE 3100	24.37	18.35	15.43	11.22	6.02	0.94	1.02	3.86	2.44	11.93	8.70	4.84	0.59	8.19	3.39	7.09	7.48	25.28	17.32	19.45	13.1889 13.1854 (335 mm)	5.51	8.46	M14	1.10	G 1/2	0.75	12.36	1.46	90°	36°
MR 3600 MR 4500 MRE 5400	27.54	19.27	16.48	12.11	8.27	1.34	1.10	3.86	2.68	14.15	9.72	5.51	0.75	9.06	4.57	7.87	9.45	30.16	21.26	23.50	15.7479 15.7457 (400 mm)	-	8.46	M16	1.26	G 1/2	0.91	14.96	1.50	108°	36°
MR 6500 MR 7000 MRE 8200	31.34	22.28	19.49	15.12	9.06	1.46	1.18	3.86	2.68	16.04	9.72	5.51	0.83	9.06	4.57	7.87	10.39	34.02	23.62	25.93	17.7165 17.714 (450 mm)	7.48	8.46	M16	1.25	G 1/2	0.98	17.72	1.50	108°	36°

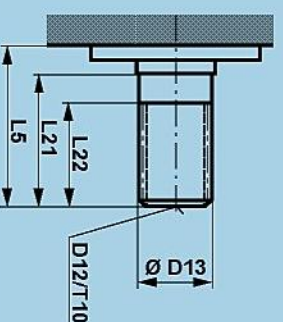
Code N 1 (Standard)



Code B 1 - BS 3550 - ¹⁾



Code D 1 - DIN 5480 - (Standard)



Version	N 1						B 1						D 1					
	L5 (in)	L21 (in)	L22 (in)	D12 (mm)	T10 (in)	ØD13 ex DIN 5463 (mm)	L5 (in)	L21 (in)	L22 (in)	D12 (mm)	T10 (in)	ØD13 BS 3550	L5 (in)	L21 (in)	L22 (in)	D12 (mm)	T10 (in)	ØD13 DIN 5480 (mm)
MR 33	2.24	1.57	1.10	-	-	B6x26x32	-	-	-	-	-	-	2.24	1.57	1.10	-	-	W32x1.5x20-8e
MR 57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 73	2.70	2.03	1.24	M12	-	B6x28x34	-	-	-	-	-	-	2.70	2.03	1.24	M12	-	W35x2x16-8e
MR 93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 125	2.64	1.97	1.40	M12	0.79	B8x32x38	2.64	1.97	1.40	M12	0.79	12/24-17	2.64	1.97	1.40	M12	0.79	W38x2x18-8e
MR 160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 200 *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 300	3.19	2.36	1.81	M12	0.98	B8x42x48	3.19	2.36	1.77	M12	0.98	12/24-21	3.19	2.36	1.81	M12	0.98	W48x2x22-8e
MR E 330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 350	3.82	2.91	2.22	M12	0.98	B8x46x54	3.82	2.91	2.40	M12	0.98	8/16-17	3.82	2.91	2.36	M12	0.98	W55x3x17-8e
MR 450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR E 500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 600	3.98	3.07	2.44	M12	0.98	B8x52x60	3.98	3.07	2.44	M12	0.98	8/16-17	3.98	3.07	2.44	M12	0.98	W60x3x18-8e
MR 700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR E 800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 1100	4.61	3.46	2.72	M12	0.98	B8x62x72	4.61	3.46	2.64	M12	0.98	6/12-14	4.61	3.46	2.83	M12	0.98	W70x3x22-8e
MR E 1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 1500	5.20	3.94	3.11	M12	0.98	B10x72x82	5.20	3.94	2.99	M12	0.98	6/12-20	5.20	3.94	3.15	M12	0.98	W80x3x25-8e
MR 1800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR E 2100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 2400	6.02	4.72	3.90	M12	0.98	B10x82x92	6.02	4.72	2.99	M12	0.98	6/12-20	6.02	4.72	3.94	M12	0.98	W90x4x21-8e
MR 2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR E 3100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 3600	8.27	6.81	5.67	M12	0.98	B10x102x112	8.27	6.81	5.61	M12	0.98	6/12-20	8.27	6.81	5.67	M12	0.98	W110x4x26-8e
MR 4500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR E 5400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR 5500	9.06	7.40	5.91	M12	0.98	B10x112x125	9.06	7.40	6.02	M12	0.98	6/12-26	9.06	7.40	6.02	M12	0.98	W120x4x28-8e
MR 7000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR E 8200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: the threaded holes (D12/T10) for the shaft versions "N1", "B1" and "D1" must be considered as service holes. In case the holes dimensions required by the application are different from the ones listed here above, please contact DENISON Calzoni.

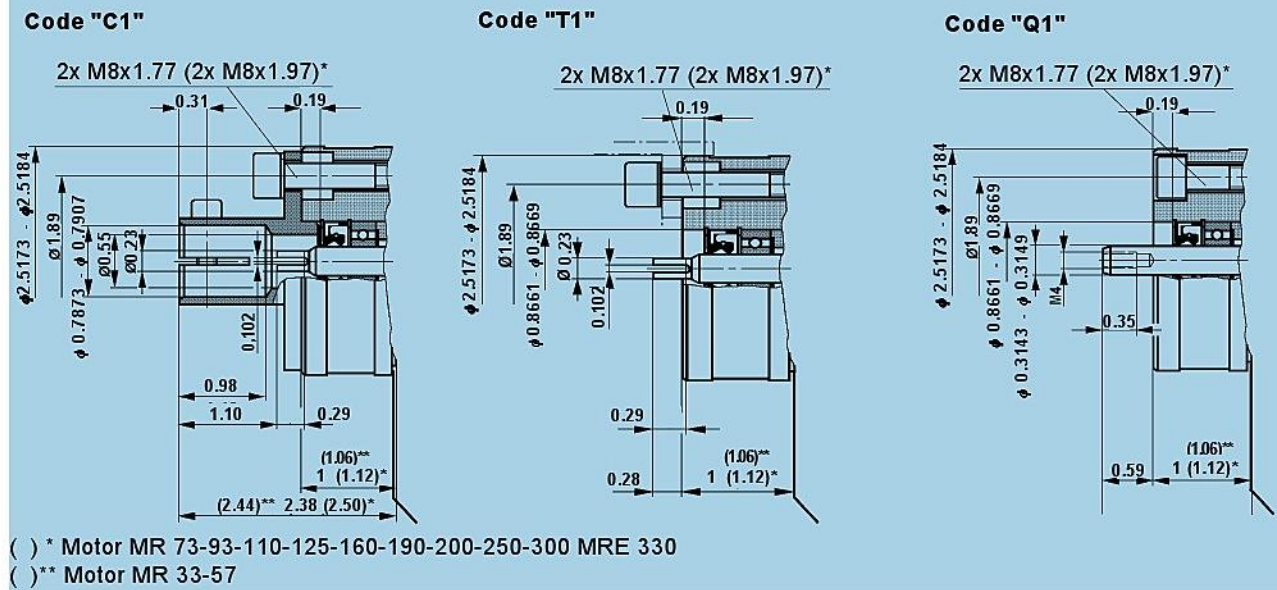
MR 200 * only code "F1"

**MECHANICAL
TACHOMETER DRIVE**

**TACHOGENERATOR
DRIVE**

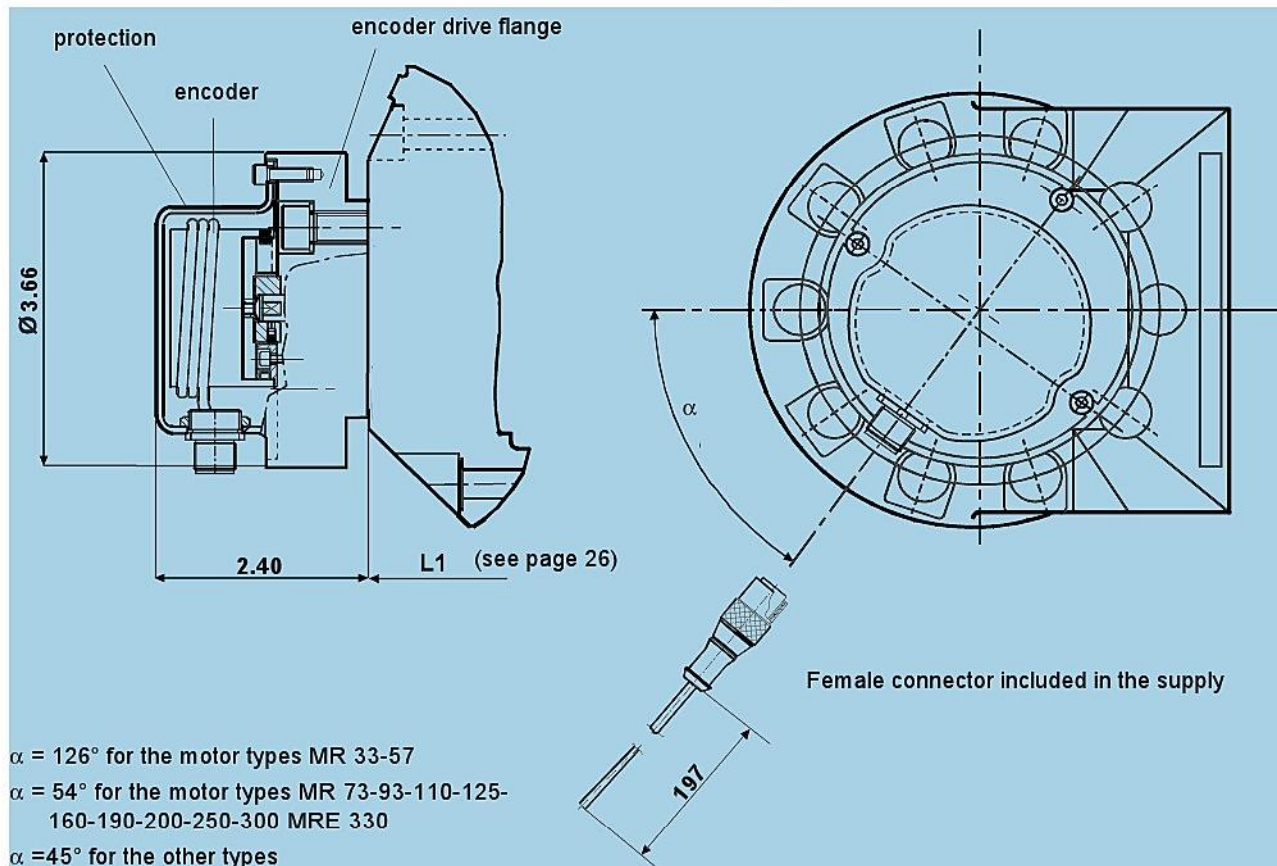
**ENCODER
DRIVE**

Dimensions in inch (threaded holes in mm)



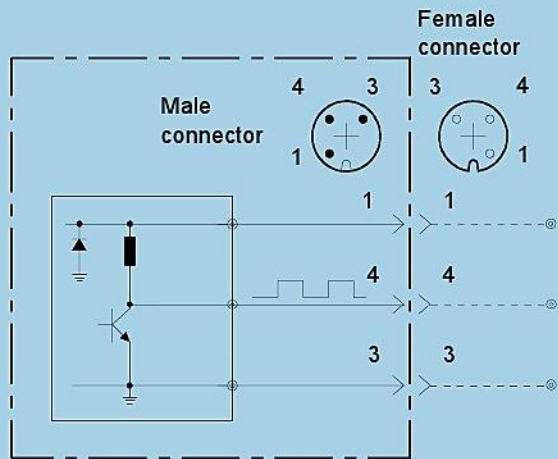
**INCREMENTAL ENCODER
DIMENSIONS**

Dimensions in inch (in)

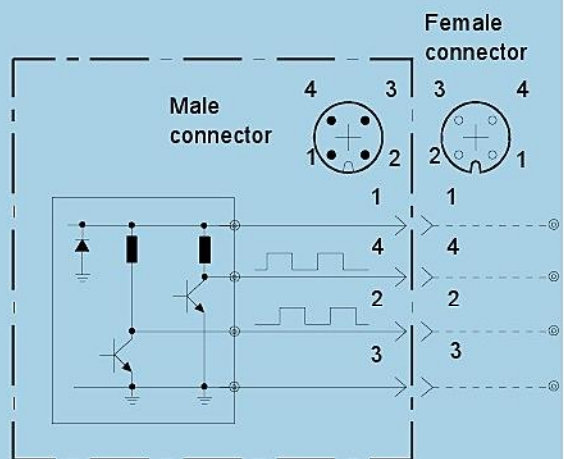


INCREMENTAL ENCODER CONNECTION DIAGRAMS

Monodirectional



Bidirectional



Color wires and function

1	Brown	Power Supply (8 to 24 Vdc)
2	White	Output B phase (MAX 10 mA - 24 Vcc)
3	Blue	Power Supply (0 Vdc)
4	Black	Output A phase (MAX 10 mA - 24 Vcc)

INCREMENTAL ENCODER TECHNICAL DATA

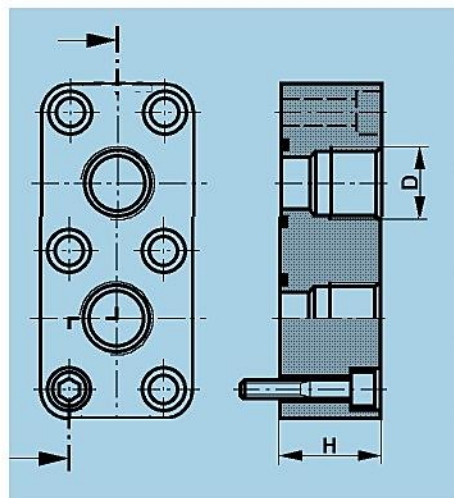
Encoder type:	ELCIS mod. 478
Supply voltage:	8 to 24 Vcc
Current consumption:	120 mA max
Current output:	10 mA max
Output signal:	A phase- MONODIRECTIONAL A and B phase BIDIRECTIONAL
Response frequency:	100 KHz max
Number of pulses:	500 (others on request - max 2540)
Slew speed:	Always compatible with maximum motor speed
Operating temperature range:	from 32 to 158 °F
Storage temperature range:	from -22 to +185 °F
Ball bearing life:	1.5x10 ⁹ rpm
Weigth:	0,220 lb
Protection degree:	IP 67 (with protection and connector assembled)
Connectors:	
MONODIRECTIONAL	RSF3/0.5 M (Lumberg) male RKT3-06/5m (Lumberg) female
BIDIRECTIONAL	RSF4/0.5 M (Lumberg) male RKT4-07/5m (Lumberg) female
Note: Female connectors cable length equal to 16.4 foot (ft).	

PIPE CONNECTION FLANGES - MOTOR TYPE MR - MRE

STANDARD CONNECTION FLANGE

Code "C1"

Flange is supplied complete with screws and seals.



MR MRE	D (BSP)	H (inch)	CODE NBR	CODE FPM
73 - 93 - 110 125 - 160 - 190 200 - 250 300 - 330	3/4"	1.42	262 098	229 394
350 - 450 500 600 - 700 800	1 1/4"	1.57	262 089	229 395
1100 - 1400 1600 - 1800 2100	1 1/2"	1.77	262 093	229 396
2400 - 2800 3100	1 1/2"	2.36	264 572	229 397
3600 - 4500 5400 6500 - 7000 8200	2"	2.36	272 724	229 398

BSP threads to ISO 228/1

Permitted up to 6000 PSI

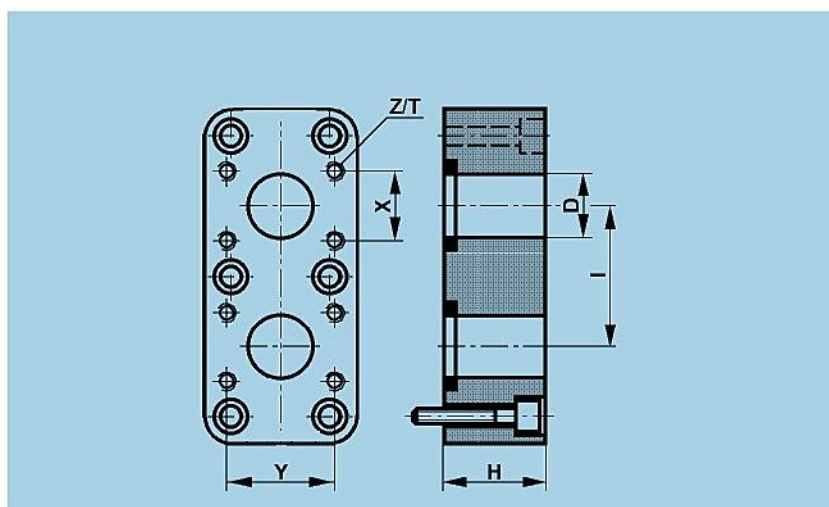
SAE CONNECTION FLANGE

Codice "S1"

Codice "T1"

Codice "G1"

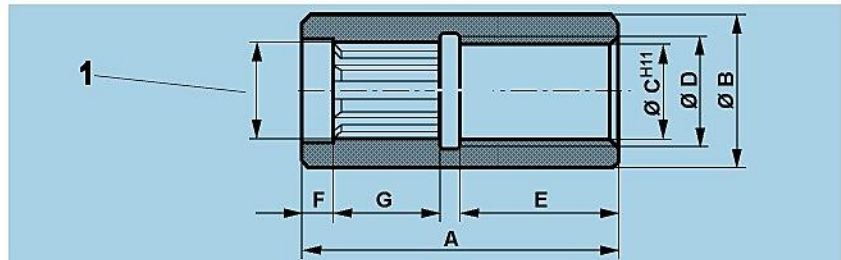
Codice "L1"



Flange is supplied complete with screws and seals. FPM seals enquiry.

MR MRE	SAE PSI	D		H (inch)	I (inch)	X (inch)	Y (inch)	METRIC		UNC		
		..	(inch)					Z (mm) T (inch)	Danlon Calzoni part N° NBR	Z (")	T (inch)	Danlon Calzoni part N° NBR
73 - 93 - 110 125 - 160 - 190 200 - 250 300 - 330	5000	3/4"	0.748 (19 mm)	1.42	2.17	0.87	1.87	M10/0.98	277 295	3/8"-16	0.984	223 335
350 - 450 500 600 - 700 800	5000	1"	0.984 (25 mm)	1.57	2.36	1.03	2.06	M10/0.98	277 297	3/8"-16	0.984	223 336
1100 - 1400 1800 - 1600 2100	4000	1 1/4"	1.220 (31 mm)	1.77	2.95	1.19	2.31	M10/0.98	277 299	7/16"-14	1.18	223 337
	6000	1"	0.984 (25 mm)	1.77	2.80	1.09	2.25	M12/0.87	230 166	7/16"-14	1.18	342 092
2400 - 2800 3100	3000	1 1/2"	1.457 (37 mm)	2.36	3.39	1.41	2.75	M12/1.18	277 301	1/2"-13	1.18	223 338
	6000	1 1/2"	1.457 (37 mm)	2.36	3.84	1.44	3.13	M16/1.18	230 168	5/8"-11	1.37	349068
3600 - 4500 5400 6500 - 7000 8200	3000	2"	1.969 (50 mm)	2.36	4.41	1.69	3.06	M12/1.18	277 303	1/2"-13	1.18	223 339
	6000	2"	1.969 (50 mm)	2.36	4.57	1.75	3.81	M20/1.38	230 170	3/4"-10	1.49	342 547

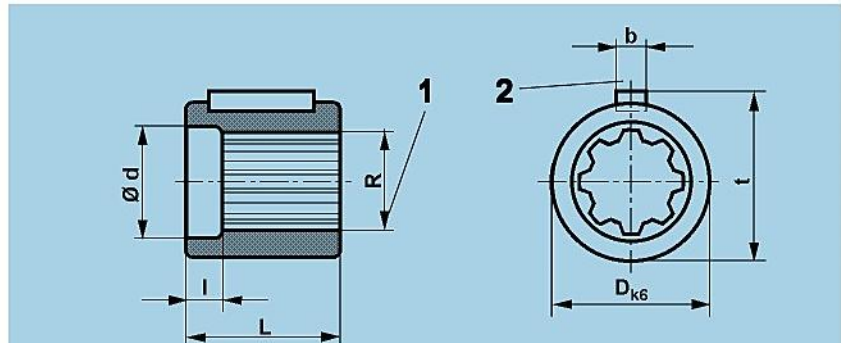
COUPLINGS



1 For standard male splined shaft version "N1" (see page 26).

MR MRE	ORDERING CODE	A (Inch)	B (Inch)	C _{CH1} (Inch)	D (Inch)	E (Inch)	F (Inch)	G (Inch)
125 - 160 190	465 203	4.49	2.20	1.5417 1.5354 (39 mm)	1.85	2.13	0.61	1.36
250 - 300 330	465 202	5.31	2.80	1.9354 1.9291 (49 mm)	2.36	2.52	0.59	1.77
350 - 450 500	465 201	6.10	3.15	2.1728 2.1653 (55 mm)	2.68	2.68	0.73	2.19
600 - 700 800	465 200	6.73	3.54	2.4090 2.4016 (61 mm)	2.95	3.15	0.75	2.32
1100 1400	464 785	7.32	4.17	2.8814 2.8740 (73 mm)	3.48	3.37	0.79	2.58
1600 - 1800 2100	465 199	8.82	4.65	3.2763 3.2677 (83 mm)	3.86	4.21	0.87	3.07
2400 - 2800 3100	465 198	10.43	5.20	3.6700 3.6614 (93 mm)	4.41	5	0.91	3.82
3600 - 4500 5400	474 692	13.98	5.91	4.4574 4.4488 (113 mm)	4.96	6.50	1.18	5.51
6500 - 7000 8200	422 544	15.35	7.68	4.9704 4.9606 (126 mm)	5.51	7.28	1.50	5.79

ADAPTERS WITH KEY



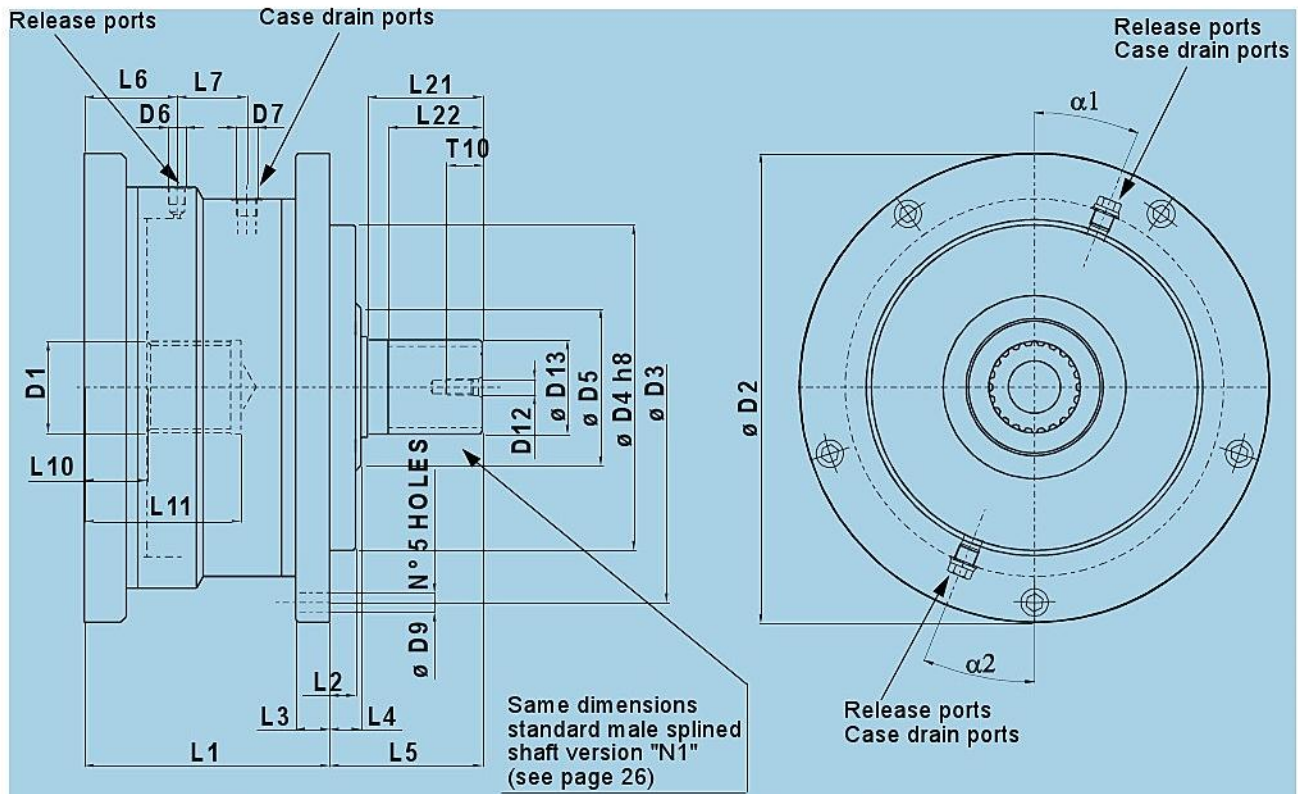
1 For standard male splined shaft version "N1" (see page 26).

2 Key to DIN 6885

MR MRE	ORDERING CODE	R EX DIN 5463 (mm)	d (Inch)	l (Inch)	D _{k6} (Inch)	L (Inch)	b (Inch)	t (Inch)	Key (mm) DIN 6885
125 - 160 190	271 117	A8x32x38	1.508	0.61	2.2842 2.2835 (58 mm)	1.97	0.39	2.40	10x8x45
250 - 300 330	271 118	A8x42x48	1.902	0.59	2.7567 2.7560 (70 mm)	2.36	0.55	2.89	14x9x56
350 - 450 500	271 119	A8x46x54	2.138	0.73	3.1504 3.1497 (80 mm)	2.95	0.63	3.31	16x10x70
600 - 700 800	271 120	A8x52x60	2.374	0.75	3.5442 3.5434 (90 mm)	3.15	0.71	3.70	18x11x70
1100 - 1400	271 121	A8x62x72	2.846	0.79	4.1348 4.1340 (105 mm)	3.54	0.79	4.311	20x12x90
1600 - 1800 2100	271 122	A10x72x82	3.24	0.87	4.6466 4.6457 (118 mm)	4.65	0.87	4.84	22x14x110
2400 - 2800 3100	271 123	A10x82x92	3.634	0.91	5.1191 5.1182 (130 mm)	5.83	0.98	5.32	25x14x140
3600 - 4500 5400	272 719	A10x102x112	4.421	1.18	6.3002 6.2993 (160 mm)	7.40	1.10	6.54	28x16x180
6500 - 7000 8200	223 476	A10x112x125	4.944	1.50	7.2847 7.2836 (185 mm)	7.40	1.77	7.68	45x25x180

HOLDING BRAKE UNIT DIMENSIONS - MOTOR TYPE MR - MRE

BRAKE TYPE	B 190	B 300	B 450	B 700	B 1100	B 1800	B 2800
MOTOR TYPE MR - MRE	125 - 160 190	250 - 300 330	350 - 450 500	600 - 700 800	1100 - 1400	1600 - 1800 2100	2400 - 2800 3100



α1, α2 Corresponding angles to the release ports 1 and 2, to case the drain ports 1 and 2

BRAKE TYPE	L1 (inch)	L2 (inch)	L3 (inch)	L4 (inch)	L5 (inch)	L6 (inch)	L7 (inch)	L10 (inch)	L11 (inch)	L21 (inch)	L22 (inch)	D1 (mm)	D2 (inch)	D3 (inch)	D4 _{h8} (inch)	D5 (inch)	D6 (BSP)	D7 (BSP)	D9 (inch)	D12 (inch)	D13 (mm)	T10 (inch)	α1	α2
B 190	4.76	-	0.87	0.55	2.64	1.61	1.15	0.79	2.84	1.97	1.40	N 38x 2x18-9H DIN 5480	9.84	8.86	6.2991 6.2967 (160 mm)	-	1/4"	3/8"	0.41	M12	B 8x32x38 ex DIN 5463	1.10	22°30'	22°30'
B 300	5.35	-	0.98	0.59	3.19	1.65	1.56	0.83	3.39	2.36	1.81	N 48x2x22-9H DIN 5480	10.08	9.13	6.8897 6.8872 (175 mm)	-	1/4"	3/8"	0.41	M12	B 8x42x48 ex DIN 5463	1.10	22°30'	22°30'
B 450	5.79	-	1.06	0.59	3.82	1.95	1.42	0.95	3.94	2.91	2.22	N 55x3x17-9H DIN 5480	11.65	10.47	7.4802 7.4774 (190 mm)	-	1/4"	3/8"	0.53	M12	B 8x46x54 ex DIN 5463	1.10	22°30'	22°30'
B 700	6.77	-	1.10	0.59	3.98	2.17	1.81	0.98	4.13	3.07	2.44	N 60x3x18-9H DIN 5480	12.60	11.42	8.6613 8.6585 (220 mm)	-	1/4"	3/8"	0.53	M12	B 8x52x60 ex DIN 5463	1.10	22°30'	22°30'
B 1100	7.40	0.79	1.02	0.95	4.61	2.80	2.11	1.89	4.72	3.47	2.84	N 70x3x22-9H DIN 5480	14.17	12.99	9.8424 9.8396 (250 mm)	4.72	1/4"	M16x-1.5	0.59	M12	B 8x62x72 ex DIN 5463	1.10	0°	0°
B 1800	8.50	-	1.10	0.83	5.20	2.50	2.30	1.34	5.32	3.94	3.11	N 80x3x25-9H DIN 5480	16.65	14.96	11.4172 11.4141 (290 mm)	-	1/4"	1/2"	0.69	M12	B 10x72x82 ex DIN 5463	1.10	22°30'	22°30'
B 2800	10.35	-	1.18	0.95	6.02	3.43	2.64	1.67	6.50	4.72	3.90	N 90x4x21-9H DIN 5480	19.45	17.32	13.1889 13.1854 (335 mm)	-	1/4"	2"	0.75	M12	B 10x82x92 ex DIN 5463	1.10	22°30'	22°30'

HOLDING BRAKE TECHNICAL DATA - MOTOR TYPE MR - MRE

TECHNICAL DATA

(For operation outside these parameters, please consult **PARKER Calzoni**)

CHARACTERISTICS		BRAKE TYPE						
		B 190	B 300	B 450	B 700	B 1100	B 1800	B 2800
STATIC BRAKING TORQUE	lbf.ft	922	1328	1955	2950	4573	8408	12612
DYNAMIC BRAKING TORQUE	lbf.ft	642	885	1069	1623	3098	4610	8851
RELEASE PRESSURE	psi	406	406	392	392	392	435	435
MAX. OPERATING PRESSURE	psi	6092	6092	6092	6092	6092	6092	6092
MOMENT OF INERTIA OF ROTATING PARTS	lbf.ft ²	0.112	0.147	0.688	1.020	1.448	4.746	6.407
WEIGHT	lb	70.5	86	119	163	220,5	348.5	577.5
MOTOR TYPE MR MRE		125 160 190	250 300 330	350 450 500	600 700 800	1100 1400	1600 1800 2100	2400 2800 3100

CODE

Example: BRAKE - B 450 - N1 V1 **

1. BRAKE - B 450 NI V1 **

BRAKE TYPE

B 190	Brake for motor size "C"
B 300	Brake for motor size "D"
B 450	Brake for motor size "E"
B 700	Brake for motor size "F"
B 1100	Brake for motor size "G"
B 1800	Brake for motor size "H"
B 2800	Brake for motor size "I"

2. BRAKE - B 450 - N1 V1 **

SHAFT

N1	Spline ex DIN 5463 (see page 26)
D1 *	Spline DIN 5480 (see page 26)
F1 *	Female spline DIN 5480 (see page 27)
* please contact DENISON Calzoni	

3. BRAKE - B 450 - N1 V1 **

SEALS

N1	NBR: mineral oil
V1 *	FPM seals
U1	No shaft seal (for brake)
* please contact DENISON Calzoni	

4. BRAKE - B 450 - N1 V1 **

SPECIAL

**	Space reserved to Denison Calzoni
-----------	-----------------------------------

Mounting

Any mounting position

- Note the position of the case drain port (see below)

Install the motor properly

- Mounting surface must be flat and resistant to bending

Min. tensile strength of mounting screws to DIN 267 Part 3 class 10.9

- Note the prescribed fastening torque

Pipes, pipe connections

Use suitable screws!

- Depending on type of motor use either threaded or flange connection

Choose pipes and hoses suitable for the installation

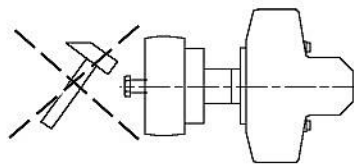
- Please note manufacturing data!

Before operation fill with hydraulic fluid

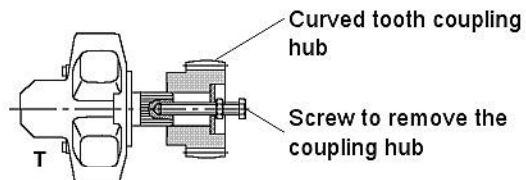
- Use the prescribed filter!

NOTE: Two of the mounting screws must be precisely located/fitted if operation is started and stopped frequently or if high reversible frequencies exist.

Coupling



- Mounting with screws
- Use threaded bore in the drive shaft
- Take apart with extractor



DRAIN AND FLUSHING LINK INSTALLATION EXAMPLES

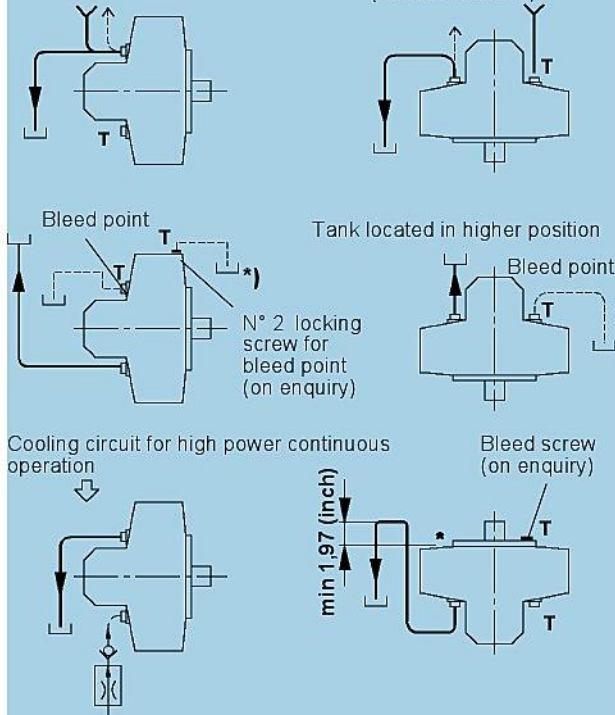
Note: Position the case drain pipe, so that the motor **cannot** run empty.

T = Seal
Y = Motor housing feeding line
← = Bleed

Installation instructions for motors of the series "MR - MRE"

Low pressure case drain returns to tank.

(release to bleed)

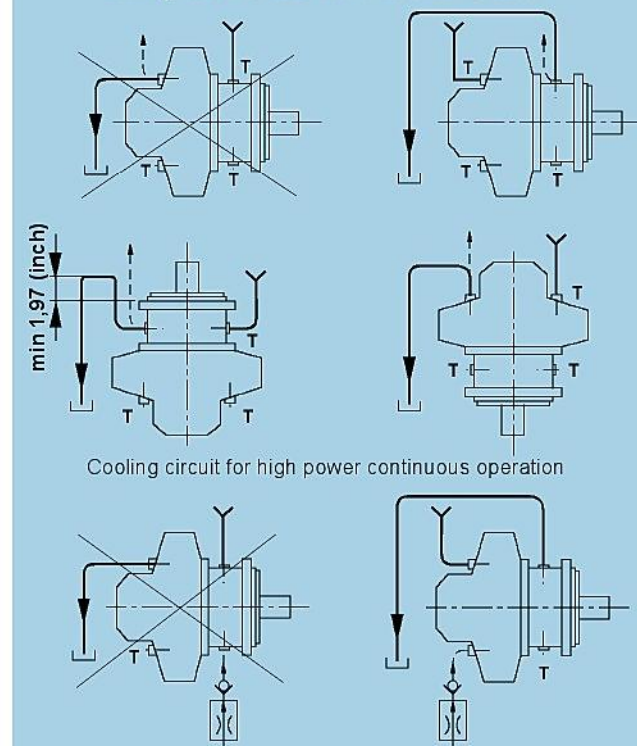


Flushing $p_{max}=72.5$ psi

*) Special designs for applications, where the equipment needs to be filled with oil (e.g. in a salty atmosphere)

Installation instructions for motors of the series "MR - MRE with brakes"

Low pressure case drain returns to tank.



Flushing $p_{max}=72.5$ psi

Motors without shaft seal used with brake

ORDERING CODE - MOTOR TYPE MR - MRE

CODE

Example: MR 160C - N1 M1 F1 N1 N **

1. MR 160C - N1 M1 F1 N1 N **
SERIES

MR	standard 3626 psi max. continuous
MRE	expanded 3046 psi max. continuous

2. MR 160C - N1 M1 F1 N1 N **

SIZE & DISPLACEMENT

A	code	MR 33 A	MR 57 A		
	in³	1.96	3.44		
B	code	MR 73 B	MR 93 B	MR110 B	
	in³	4.43	5.65	6.65	
C	code	MR 125 C	MR 160 C	MR 190 C	
	in³	7.61	9.75	11.69	
D	code	MR 200 D	MR 250 D	MR 300 D	MRE 330 D
	in³	12.16	15.31	18.56	20.28
E	code	MR 350 E	MR 450 E	MRE 500 E	
	in³	21.33	27.56	30.38	
F	code	MR 600 F	MR 700 F	MRE 800 F	
	in³	37.10	43.09	49.08	
G	code	MR 1100 G	MRE 1400 G		
	in³	68.7	83.6		
H	code	MR 1600 H	MR 1800 H	MRE 2100 H	
	in³	97.5	110.4	127.6	
I	code	MR 2400 I	MR 2800 I	MRE 3100 I	
	in³	139.9	170.4	189.4	
L	code	MR 3600 L	MR 4500 L	MRE 5400 L	
	in³	221.9	274.8	329.6	
M	code	MR 6500 M	MR 7000 M	MRE 8200 M	
	in³	394.2	408.7	502	

3. MR 160C - N1 M1 F1 N1 N **

SHAFT

N1	spline ex DIN 5463 (see page 26)
D1	spline DIN 5480 (see page 26)
F1	female spline DIN 5480 (see page 27)
P1	shaft with key (see page 27)
B1	spline B.S. 3550 (see page 26)

4. MR 160C - N1 M1 F1 N1 N **

SPEED SENSOR OPTION

N1	none	
Q1	encoder drive (see page 28)	
C1	mechanical tachometer drive (see page 28)	
T1	tachogenerator drive (see page 28)	
M1	incremental Elcis encoder	Uni-directional
B1	(500 pulse/rev) (see page 28)	Bi-directional

5. MR 160C - N1 M1 F1 N1 N **

SEALS

N1	NBR mineral oil
F1	NBR, 218 psi shaft seal
V1	FPM seals
U1	no shaft seal (for brake)

6. MR 160C - N1 M1 F1 N1 N **

CONNECTION FLANGE

N1	none
C1	standard DENISON Calzoni (see page 30)
S1	standard SAE metric (see page 30)
T1	standard SAE UNC (see page 30)
G1	SAE 6000 psi metric (see page 30)
L1	SAE 6000 psi UNC (see page 30)

7. MR 160C - N1 M1 F1 N1 N **

ROTATION

N	standard rotation (CW: inlet in A, CCW: inlet in B)
S	reversed rotation (CW: inlet in B, CCW: inlet in A)

8. MR 160C - N1 M1 F1 N1 N **

SPECIAL

**	space reserved to Denison Calzoni
-----------	-----------------------------------