

Calzoni



MR-MRE Low Speed High Torque Small Displacement Radial Piston Motors

The outstanding performance of this robust product is the result of our original, patented design. Used widely in the injection molding, mining, off shore drilling, oil field, and marine markets, the Parker Calzoni motor is produced in sizes from 32cc up to 23034cc per revolution. The efficiency of our design allows for

a smaller installed product for the same displacement vs. our competitors. Since there are no internal connecting rods, we have greatly reduced frictional drag as well as most thrust loading. By creating a static balance on the shaft we have extended the expected lifetime as well.



MRT-MRTE-MRTF Low Speed High Torque Large Displacement Radial Piston Motors



MRD-MRDE, MRV-MRVE Low Speed High Torque Variable Displacement Radial Piston Motors

Performance Data

Series	Displacement in ³ /rev (cc/rev)	Max. Pressure PSI (BAR)	Max. Speed RPM	Torque (in-lb/PSI)
MR	1.96 - 425.16 (32.1 - 6967.2)	4350 (300)	1400	0.025 - 5.665
MRE	20.28 - 502.01 (332.4 - 8226.4)	3600 (250)	750	0.270 - 6.657
MRT	433.27 - 1190.45 (7100 - 19508)	4350 (300)	150	5.75 - 15.79
MRTE/MRTF	476.47 - 1405.62 (7808 - 23034)	3600 (250)	130	6.32 - 18.64

Series	Displacement in ³ /rev (cc/rev)	Max. Pressure PSI (BAR)	Max. Speed RPM	Min. Torque (in-lb/PSI)	Max. Torque (in-lb/PSI)
MRD/MRV	18.56 - 419.05 (304.1 - 6867)	4350 (300)	1100	0.123 - 1.823	0.244 - 3.646
MRDE/MRVE	20.28 - 501.98 (332.4 - 8226)	3600 (250)	1000	0.135 - 2.187	0.270 - 4.374

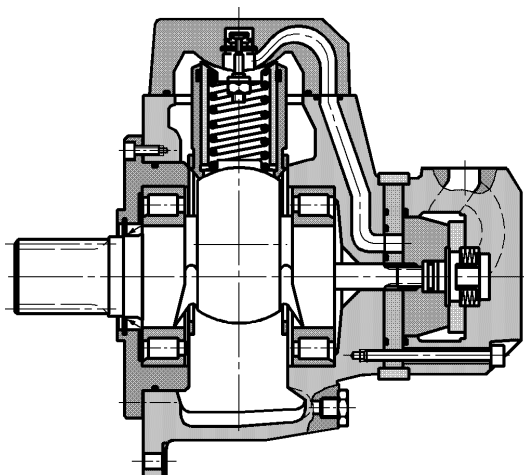


MR-MRE Low Speed High Torque Small Displacement Radial Piston Motors

Performance Data

Series	Displacement in ³ /rev (cc/rev)	Max. Pressure PSi (BAR)	Max. Speed RPM	Torque (in-lb/PSI)
MR33	1.96 (32.1)	4350 (300)	1800	0.025
MR57	3.44 (56.4)	4350 (300)	1600	0.046
MR73	4.43 (72.6)	4350 (300)	1200	0.061
MR93	5.65 (92.6)	4350 (300)	1150	0.076
MR110	6.65 (109.0)	4350 (300)	1100	0.087
MR125	7.61 (124.7)	4350 (300)	900	0.102
MR160	9.75 (159.7)	4350 (300)	900	0.129
MR190	11.69 (191.6)	4350 (300)	850	0.155
MR200	12.16 (199.2)	4350 (300)	800	0.163
MR250	15.31 (250.9)	4350 (300)	800	0.203
MR300	18.56 (304.4)	4350 (300)	750	0.244
MR350	21.33 (349.5)	4350 (300)	640	0.283
MR450	27.56 (451.6)	4350 (300)	600	0.366
MR600	37.10 (607.9)	4350 (300)	520	0.493
MR700	43.09 (706.9)	4350 (300)	500	0.575
MR1100	68.7 (1125.8)	4350 (300)	330	0.910
MR1600	97.54 (1598.4)	4350 (300)	260	1.292
MR1800	110.43 (1809.6)	4350 (300)	250	1.465
MR2400	139.93 (2293.1)	4350 (300)	220	1.937
MR2800	170.38 (2792.0)	4350 (300)	215	2.263
MR3600	221.93 (3636.8)	4350 (300)	180	2.944
MR4500	274.77 (4502.7)	4350 (300)	170	3.346
MR6500	394.24 (6460.5)	4350 (300)	130	5.267
MR7000	425.16 (6967.2)	4350 (300)	130	5.665
MRE330	20.28 (332.4)	3600 (250)	750	0.270
MRE500	30.38 (497.9)	3600 (250)	600	0.403
MRE800	49.08 (804.2)	3600 (250)	450	0.651
MRE1400	83.57 (1369.5)	3600 (250)	280	1.109
MRE2100	127.61 (2091.2)	3600 (250)	250	1.693
MRE3100	189.40 (3103.7)	3600 (250)	215	2.512
MRE5400	329.6 (5401.2)	3600 (250)	160	4.374
MRE8200	502.0 (8226.4)	3600 (250)	130	6.657

MR-MRE Low Speed High Torque Small Displacement Radial Piston Motors

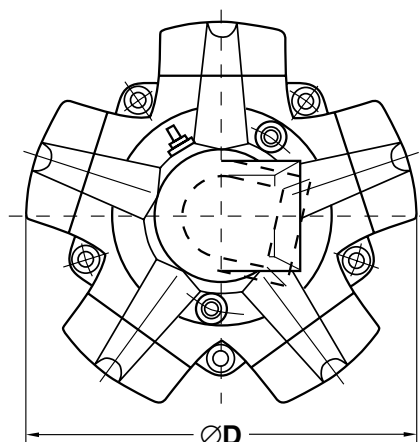
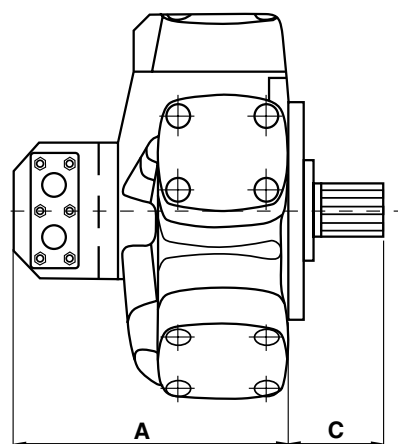


Benefits/Features

- 5-piston design
- Wide range of displacements
- Starting torque from 90-95% theoretical
- Total efficiency up to 96%
- Resistance to thermal shocks
T = 176°F
- Speed feedback accessories optional

Dimensions, inch (mm)

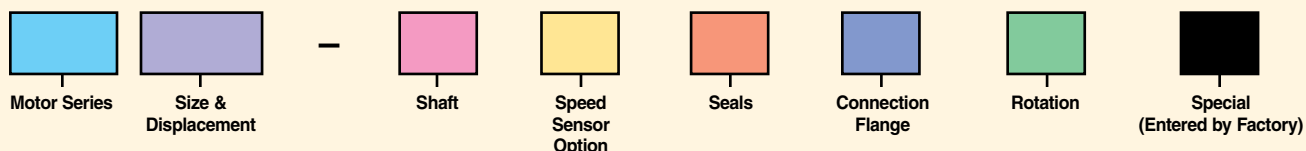
Series	A	C Max.	D
MR33 MR57	7.72 (196.1)	2.25 (57.2)	9.27 (235.5)
MR73 MR93 MR110	9.0 (228.6)	2.70 (68.6)	9.84 (249.9)
MR125 MR160 MR190	9.53 (242.1)	2.64 (67.1)	12.33 (313.2)
MR200 MR250 MR300 MRE330	9.53 (242.1)	3.19 (81.0)	12.91 (327.9)
MR350 MR450 MRE500	10.98 (178.9)	3.82 (97.0)	14.49 (368.0)
MR600 MR700 MRE800	11.77 (299.0)	3.98 (101.1)	15.95 (405.1)
MR1100 MRE1400	13.43 (341.1)	4.61 (117.1)	18.5 (469.9)
MR1600 MR1800 MRE2100	14.72 (373.9)	5.20 (132.1)	21.97 (558.0)
MR2400 MR2800 MRE3100	18.35 (466.1)	6.02 (152.9)	25.28 (642.1)
MR3600 MR4500 MRE5400	19.27 (489.5)	8.27 (210.1)	30.16 (766.1)
MR6500 MR7000 MRE8200	22.28 (565.9)	9.06 (230.1)	34.02 (864.1)





Motors

MR/MRE Model Ordering Code



Code	Motor Series
MR	Standard 3626 PSI (250.0 BAR) Max. Continuous
MRE	Expanded 3026 PSI (208.6 BAR) Max. Continuous

Size & Displacement			
Code	Displacement in ³ (cm ³)	MR	MRE
33A	1.96 (32.1)	x	—
57A	3.44 (56.4)	x	—
73B	4.43 (72.6)	x	—
93B	5.65 (92.6)	x	—
110B	6.65 (109.0)	x	—
125C	7.61 (124.7)	x	—
160C	9.75 (159.8)	x	—
190C	11.69 (191.6)	x	—
200D	12.16 (199.3)	x	—
250D	15.31 (250.9)	x	—
300D	18.56 (304.5)	x	—
330D	20.28 (332.3)	—	x
350E	21.33 (349.5)	x	—
450E	27.56 (451.6)	x	—
500E	30.38 (497.8)	—	x
600F	37.10 (608.0)	x	—
700F	43.09 (706.1)	x	—
800F	49.08 (804.3)	—	x
1100G	68.7 (1126)	x	—
1400G	83.6 (1370)	—	x
1600H	97.5 (1598)	x	—
1800H	110.4 (1809)	x	—
2100H	127.6 (2091)	—	x
2400I	139.9 (2292)	x	—
2800I	170.4 (2792)	x	—
2100I	189.4 (3104)	—	x
3600L	221.9 (3636)	x	—
4500L	274.8 (4503)	x	—
5400L	329.6 (5401)	—	x
6500M	394.2 (6460)	x	—
7000M	408.7 (6697)	x	—
8200M	502.0 (8226)		x

Code	Shaft
N1	Spline Ex DIN 5463
D1	Spline DIN 5480
F1	Female Spline DIN 5480
P1	Shaft with Key
B1	Spline B.S. 3550

Code	Speed Sensor Option
N1	None
Q1	Encoder Drive
C1	Mechanized Tachometer Drive
T1	Tachometer Drive
M1	Incremental Elcis Encoder, Uni-directional*
B1	Incremental Elcis Encoder, Bi-directional*

* 500 pulse/rev

Code	Seals
N1	NBR Mineral Oil
F1	NBR, 218 PSI (15.0 BAR) Shaft Seal
V1	Fluorocarbon
U1	No Shaft Seal (for Brake)

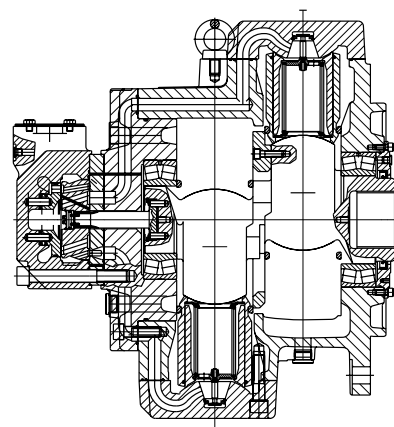
Code	Connection Flange
N1	None
C1	Standard DENISON Calzoni
S1	Standard SAE Metric
T1	Standard SAE UNC
G1	SAE 6000 PSI (413.7 BAR) Metric
L1	SAE 6000 PSI (413.7 BAR) UNC

Code	Rotation
N	Standard Rotation (CW: Inlet in A; CCW: Inlet in B)
S	Reversed Rotation (CW: Inlet in B; CCW: Inlet in A)

MRT-MRTE-MRTF Low Speed High Torque Large Displacement Radial Piston Motors

Performance Data

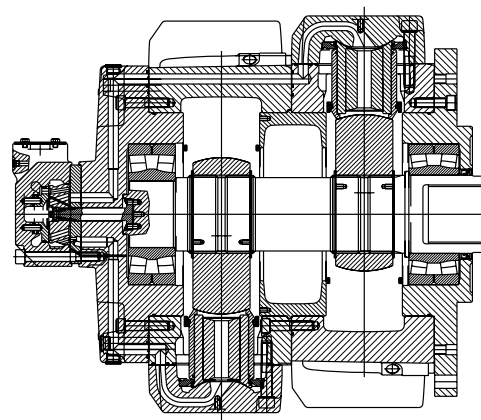
Series	Displacement in ³ /rev (cc/rev)	Max. Pressure PSI (BAR)	Max. Speed RPM	Torque (in-lb/PSI)
MRT7100	433.29 (7100.4)	4350 (300)	150	5.75
MRTF7800	476.50 (7808.4)	3600 (250)	130	6.32
MRTE8500	519.76 (8517.3)	3600 (250)	120	6.90
MRT9000	549.54 (9005.4)	4350 (300)	130	7.29
MRTF9900	604.37 (9903.9)	3600 (250)	120	8.02
MRTE10800	659.20 (10802.4)	3600 (250)	110	8.75
MRT14000	854.94 (14010)	4350 (300)	80	11.34
MRTF15500	932.20 (15276)	3600 (250)	75	12.36
MRTE16500	1009.46 (16542)	3600 (250)	70	13.39
MRT17000	1022.70 (16759)	4350 (300)	70	14.58
MRTF18000	1099.95 (18025)	3600 (250)	65	14.59
MRT19500	1190.45 (19508)	4350 (300)	60	15.79
MRTE20000	1207.54 (19788)	3600 (250)	60	16.01
MRTF21500	1298.04 (21271)	3600 (250)	55	17.21
MRTE23000	1405.62 (23034)	3600 (250)	50	18.64



10-Piston Design

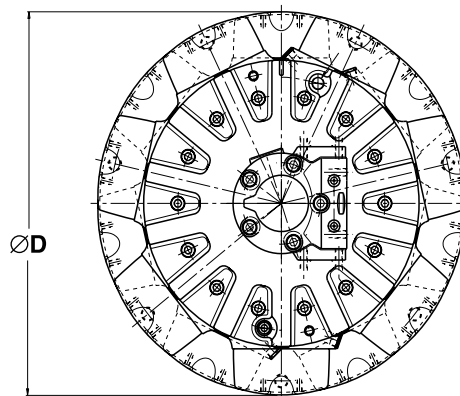
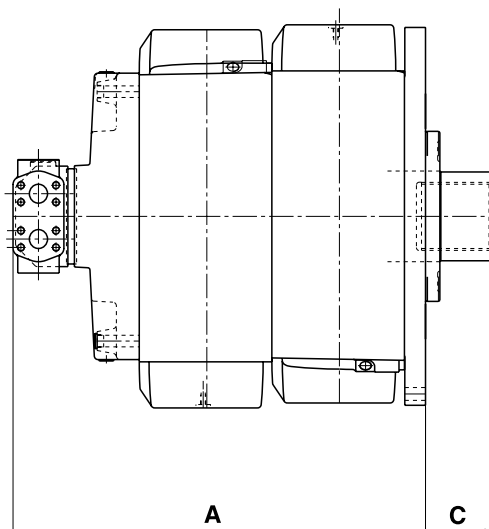
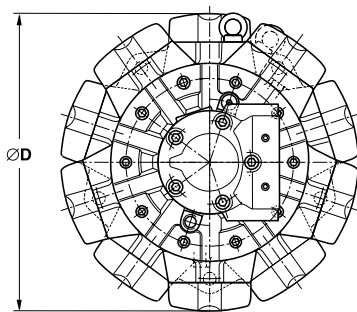
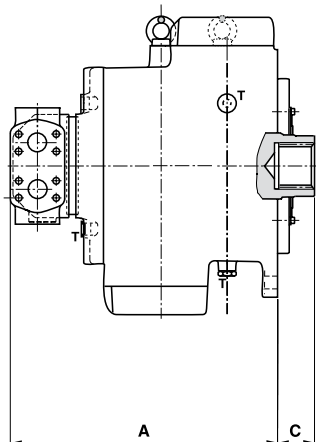
Benefits/Features

- Hydraulically balanced 10 and 14-piston twin row design
- Wide range of displacements
- Starting torque from 91% theoretical
- Total efficiency up to 96%
- Speed feedback accessories optional



14-Piston Design

MRT-MRTE-MRTF Low Speed High Torque Large Displacement Radial Piston Motors

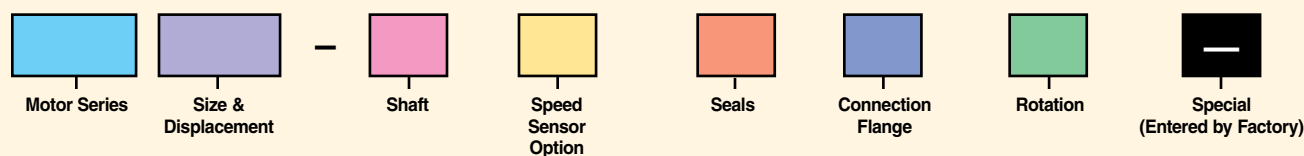


Dimensions, inch (mm)

Series			A	C Max.	D
MRT7100	MRTE8500	MRTF7800	27.106	1.969	30.157
MRT9000	MRTE10800	MRTF9900	(688.5)	(50.0)	(766.0)
MRT1400	MRTE16500	MRTF1550	44.705	3.15	39.921
MRT17000	MRTE20000	MRTF18000	(1135.5)	(80.0)	(1014.0)
MRT19500	MRTE23000	MRTF21500			

Motors

MRT-MRTE-MRTF Model Ordering Code



Code	Motor Series
MRT	Standard 3626 PSI (250.0 BAR) Max. Continuous
MRTE MRTF	Expanded 3026 PSI (208.6 BAR) Max. Continuous

Size & Displacement				
Code	Displacement in ³ (cm ³)	MRT	MRTE	MRTF
7100P	433.3 (7103)	x	—	—
7800P	476.5 (7808)	—	—	x
8500P	529.8 (8518)	—	x	—
9000P	549.5 (9005)	x	—	—
9800P	604.4 (9904)	—	—	x
10800P	659.2 (10802)	—	x	—
14000Q	854.9 (14009)	x	—	—
15500Q	832.3 (15278)	—	—	x
16500Q	1009.5 (16543)	—	x	—
17000Q	1022.7 (16759)	x	—	—
18000Q	1100.0 (18026)	—	—	x
19500Q	1190.5 (19509)	x	—	—
20000Q	1207.5 (19787)	—	x	—
21500Q	1298.0 (21270)	—	—	x
23000Q	1405.6 (23034)	—	x	—

Code	Shaft
D1	Spline DIN 5480
F1	Female Spline DIN 5480

Code	Speed Sensor Option
N1	None
Q1	Encoder Drive
C1	Mechanized Tachometer Drive
T1	Tachometer Drive
M1	Incremental Elcis Encoder, Uni-directional*
B1	Incremental Elcis Encoder, Bi-directional*

* 500 pulse/rev

Code	Seals
N1	NBR Mineral Oil
F1	NBR, 218 PSI (15.0 BAR) Shaft Seal
V1	Fluorocarbon
U1	No Shaft Seal (for Brake)

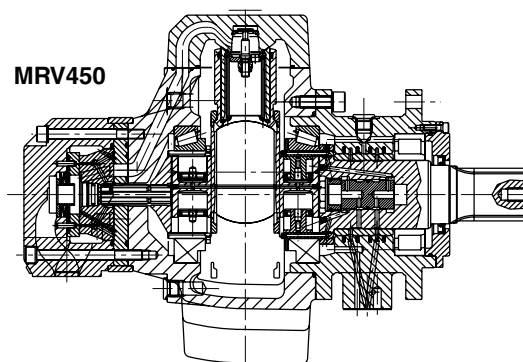
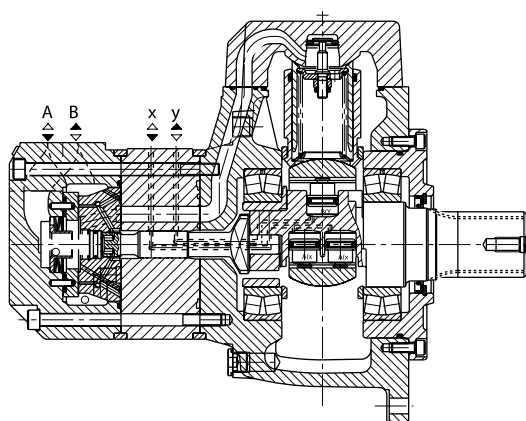
Code	Connection Flange
S1	Standard SAE Metric
G1	SAE 6000 PSI (413.7 BAR) Metric
M1	SAE 6000 PSI (413.7 BAR) Metric Special Timing

Code	Rotation
N	Standard Rotation (CW: Inlet in A; CCW: Inlet in B)
S	Reversed Rotation (CW: Inlet in B; CCW: Inlet in A)

MRD-MRDE, MRV-MRVE Low Speed High Torque Variable Displacement Radial Piston Motors

Performance Data

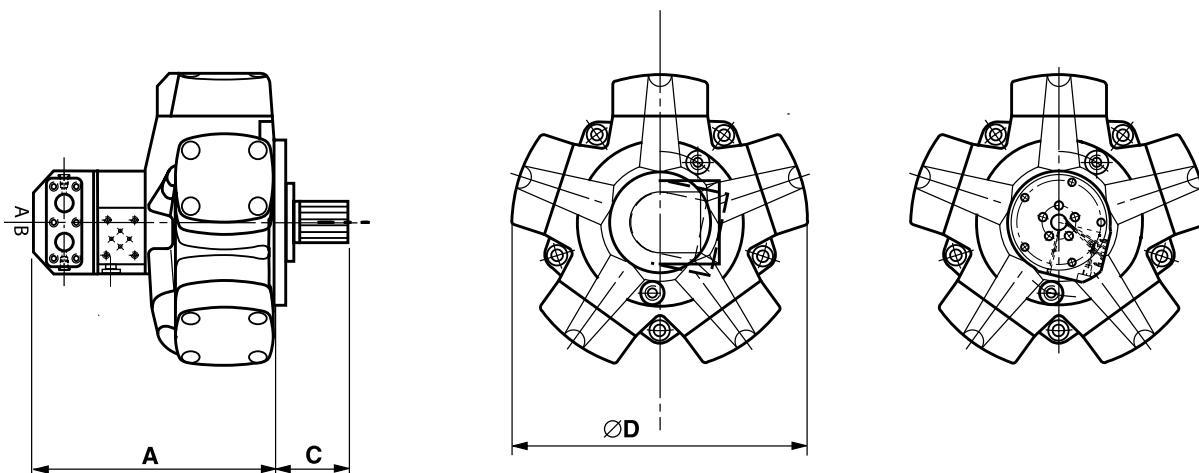
Series	Displacement in ³ /rev (cc/rev)	Max. Pressure PSI (BAR)	Max. Speed RPM	Min-Max Torque (in-lb/PSI)
MRD300 —	18.56 (304.1)	4350 (300)	1000	0.123 0.244
MRD450 —	27.56 (451.6)	4350 (300)	850	0.183 0.366
— MRV450	27.56 (451.6)	4350 (300)	850	0.107 0.366
MRD700 MRV700	43.14 (706.9)	4350 (300)	700	0.275 0.575
MRD1100 MRV1100	68.70 (1125.8)	4350 (300)	580	0.412 0.910
MRD1800 MRV1800	110.43 (1809.6)	4350 (300)	400	0.733 1.465
MRD2800 MRV2800	170.38 (2792.0)	4350 (300)	280	1.130 2.263
MRD4500 MRV4500	274.77 (4502.7)	4350 (300)	250	1.823 3.646
MRDE330 —	20.28 (332.4)	3600 (250)	1000	0.135 0.270
MRDE500 —	30.38 (497.9)	3600 (250)	800	0.201 0.403
MRDE800 MRVE800	20.28 (804.2)	3600 (250)	650	0.313 0.651
MRDE1400 MRVE1400	83.57 (1369.5)	3600 (250)	550	0.501 1.109
MRDE2100 MRVE2100	127.61 (2091.2)	3600 (250)	370	0.847 1.693
MRDE3100 MRVE3100	189.40 (3103.7)	3600 (250)	280	1.257 2.512
MRDE5400 MRVE5400	329.60 (5401.2)	3600 (250)	210	2.187 4.374



Benefits/Features

- 5-piston design
- Displacement ratios of 1:2 or 1:3
- Starting torque from 90-95% theoretical
- Total efficiency up to 96%
- Resistance to thermal shocks
T = 176°F
- Speed feedback accessories optional

MRD-MRDE, MRV-MRVE Low Speed High Torque Variable Displacement Radial Piston Motors



Dimensions, inch (mm)

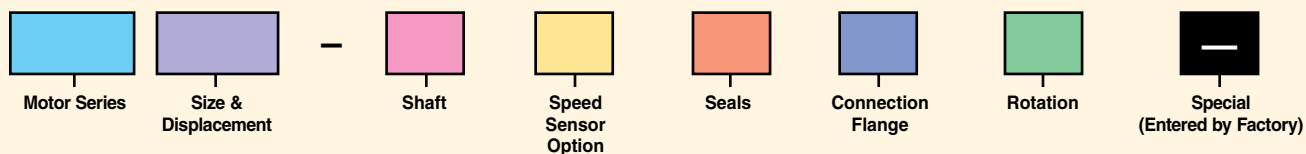
Series	A	C Max.	D
MRD300 MRDE330	11.10 (281.9)	3.19 (81.0)	12.91 (327.9)
MRD450 MRDE500	12.95 (328.9)	3.82 (97.0)	14.49 (368.0)
MRV450	16.06 (407.9)	4.33 (110.0)	14.49 (368.0)
MR*700 MR*E800	13.74 (349.0)	3.98 (101.1)	15.94 (404.9)
MR*1100 MR*E1400	15.79 (401.1)	4.61 (117.1)	18.50 (469.9)
MR*1800 MR*E2100	17.09 (434.1)	5.20 (132.1)	21.97 (558.0)
MR*2800 MR*E3100	20.71 (526.0)	6.02 (152.9)	25.28 (642.1)
MR*4500 MR*E5400	20.71 (526.0)	8.27 (210.1)	30.16 (766.1)

* MRD and MRV



Motors

MRD-MRDE, MRV-MRVE Model Ordering Code



Code	Motor Series
MRD	Dual, Standard 3626 PSI (250.0 BAR) Max. Continuous
MRDE	Dual, Expanded 3026 PSI (208.6 BAR) Max. Continuous
MRV	Variable, Standard 3626 PSI (250.0 BAR) Max. Continuous
MRVE	Variable, Expanded 3026 PSI (208.6 BAR) Max. Continuous

Size & Displacement					
Code	Displacement in ³ /rev (cc/rev)	MRD	MRDE	MRV	MRVE
300 D 150	18.56 / 9.28 (304.1 / 152.1)	x	—	—	—
330 D 165	20.28 / 10.14 (332.4 / 166.2)	—	x	—	—
450 E 133	27.56 / 8.12 (451.6 / 133)	—	—	x	—
450 E 225	27.56 / 13.78 (451.6 / 225.8)	x	—	—	—
500 E 250	30.38 / 15.19 (497.9 / 248.9)	—	x	—	—
700 F 235	43.14 / 14.38 (706.9 / 235.6)	x	—	x	—
800 F 270	49.08 / 16.36 (804.2 / 268.1)	—	x	—	x
1100 G 375	68.70 / 22.90 (1125.8 / 375.3)	x	—	x	—
1400 G 450	83.57 / 27.86 (1369.5 / 456.5)	—	x	—	x
1800 H 600	110.43 / 36.81 (1809.6 / 603.2)	x	—	x	—
2100 H 700	127.61 / 42.54 (2091.2 / 697.1)	—	x	—	x
2800 I 930	170.38 / 56.79 (2792.0 / 930.7)	x	—	x	—
3100 I 1035	189.40 / 63.14 (3103.7 / 1034.6)	—	x	—	x
4500 L 1500	274.77 / 91.59 (4502.7 / 1500.9)	x	—	x	—
5400 L 1800	329.60 / 109.87 (5401.2 / 1800.4)	—	x	—	x
7000 M 2300	425.15 / 141.72 (6967 / 2322.4)	x	—	x	—
8200 M 2750	501.98 / 167.33 (8226 / 2742.1)	—	x	—	x

Code	Shaft
N1	Spline Ex DIN 5463
D1	Spline DIN 5480
F1	Female Spline DIN 5480
P1	Shaft with Key
B1	Spline B.S. 3550

Code	Speed Sensor Option
N1	None
Q1	Encoder Drive
C1	Mechanized Tachometer Drive
T1	Tachometer Drive
M1	Incremental Elcis Encoder, Uni-directional*
B1	Incremental Elcis Encoder, Bi-directional*

*500 pulse/rev

Code	Seals
N1	NBR Mineral Oil
F1	NBR, 218 PSI (15.0 BAR) Shaft Seal
V1	Fluorocarbon
U1	No Shaft Seal (for Brake)

Code	Connection Flange
N1	None
C1	Standard Denison Calzoni
S1	Standard SAE Metric
T1	Standard SAE UNC
G1	SAE 6000 PSI (413.7 BAR) Metric
L1	SAE 6000 PSI (413.7 BAR) UNC

Code	Rotation
N	Standard Rotation (CW: Inlet in A; CCW: Inlet in B)
S	Reversed Rotation (CW: Inlet in B; CCW: Inlet in A)