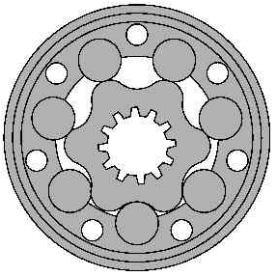
maxima®

Hydraulic motor
Series MAR

The MAR Series motor takes advantage of the latest proven technology for improved durability and reliability. Industry standard mounting flanges and output shafts allow the MAR Series motors to be easily incorporated in your application. The MAR Series motors are fixed displacements, geroler type units that are known for dependability and performance. This design provides better endurance characteristics for these motors in your application.



Specifications

TYPE		MAR MARW 50	MAR MARW 80	MAR MARW 100	MAR MARW 125	MAR MARW 160	MAR(1) MARW 200	MAR(2) MARW 200	MAR(1) MARW 250	MAR(2) MARW 250	MAR(1) MARW 315	MAR(2) MARW 315	MAR(1) MARW 400	MAR(2) MARW 400
Displacement (c.c/rev)		51.2	80.5	100.8	125.1	159.4	199.6	199.6	249.8	249.8	315.7	315.7	396.5	396.5
Max. speed (rpm)	Cont	770	745	600	470	370	300	300	240	240	190	190	150	150
	Int(3)	970	940	750	600	470	370	370	300	300	240	240	190	190
Max. Torque (da Nm)	Cont	10	19.6	24.2	27.1	38.9	45	38.5	53.8	38.8	53.1	38.5	58.5	35.5
	Int(3)	12.8	22.1	28.1	33.9	42.8	50	46	60.8	57.9	63	57	68.7	59.8
	Peak(4)	16.8	27	32.1	36.8	45.8	56	56	70.6	65.5	83	83	86.8	71.3
Max. output (Kw)	Cont	6.9	12.6	12	12.4	11.4	11	9	10.5	6.4	9	6	7.7	4.7
	Int(3)	8.3	15	15	14.5	12.6	13	11.5	12	10.5	11	9.6	10.6	8.7
Max. pressure drop (bar)	Cont	140	160	160	160	160	160	135	150	105	135	85	110	65
	Int(3)	175	180	180	180	180	180	175	175	160	150	130	140	75
	Peak(4)	210	210	210	210	210	210	210	210	200	175	175	175	175
Max.oil flow (l/min)	Cont	40	60	60	60	60	60	60	60	60	60	60	60	60
	Int(3)	50	75	75	75	75	75	75	75	75	75	75	75	75
Max. Inlet pressure (bar)	Cont	175	175	175	175	175	175	175	175	175	175	175	175	175
	Int(3)	200	200	200	200	200	200	200	200	200	200	200	200	200
	Peak(4)	225	225	225	225	225	225	225	225	225	225	225	225	225
Weight (kg)		6.7	6.9	6.9	7.2	7.5	8.1	8.1	8.5	8.5	9.1	9.1	9.5	9.5

(1)MAR...motor with CA, CB, TA, SH, SB shafts. (2)MAR...motor with C,CO, T, S shafts.

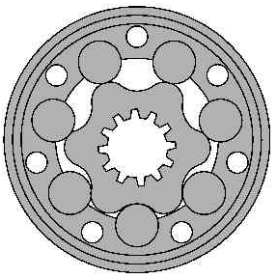
(3) Intermittent operation rating applies to 6 sec. of every minute (4) Peak load rating applies to 0.6 sec of every minute

TYPE		MAR MARW 50	MAR MARW 80	MAR MARW 100	MAR MARW 125	MAR MARW 160	MAR(1) MARW 200	MAR(2) MARW 200	MAR(1) MARW 250	MAR(2) MARW 250	MAR(1) MARW 315	MAR(2) MARW 315	MAR(1) MARW 400	MAR(2) MARW 400
Displacement (in.3/r)		3.1	4.9	6.2	7.6	9.7	12.2	12.2	15.2	15.2	19.3	19.3	24.2	24.2
Max. speed (rpm)	Cont	770	745	600	470	370	300	300	240	240	190	190	150	150
	Int(3)	970	940	750	600	470	370	370	300	300	240	240	190	190
Max. Torque (lb-in)	Cont	885	17.5	21.42	2394	3443	3983	3407	4761	3434	4699	3407	5177	3142
	Int(3)	1133	1956	2487	3000	3788	4425	4071	5381	5124	5576	5045	6080	5292
	Peak(4)	1487	2390	2841	3257	4.53	4956	4956	5248	5797	7345.5	7346	7682	6310
Max. output (hp)	Cont	9.2	16.9	16.1	16.6	15.3	14.7	12.1	14.1	8.6	12.1	8	10.3	6.3
	Int(3)	11.1	20.1	20.1	19.4	16.9	17.4	15.4	16.1	14.1	14.7	12.9	14.2	11.7
Max. pressure drop (psi)	Cont	2030	2320	2320	2320	2320	2320	1965	2175	1525	1885	1235	1600	945
	Int(3)	2540	2610	2610	2610	2610	2610	2540	2540	2320	2175	1885	2030	1450
	Peak(4)	3045	3045	3045	3045	3045	3045	3045	3045	2900	2540	2540	2540	2030
Max.oil flow (gpm)	Cont	10.6	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
	Int(3)	13.2	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Max. Inlet pressure (psi)	Cont	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540
	Int(3)	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900
	Peak(4)	3260	3260	3260	3260	3260	3260	3260	3260	3260	3260	3260	3260	3260
Weight (lbs)		14.9	15.3	15.3	16	16.7	18	18	18.9	18.9	20.2	20.2	21.1	21.1

maxima®

Hydraulic motor
Series MARS

The MARS Series motor takes advantage of the latest proven technology for improved durability and reliability. Industry standard mounting flanges and output shafts allow the MARS Series motors to be easily incorporated in your application. The MARS Series motors are fixed displacements, geroler type units that are known for dependability and performance. This design provides better endurance characteristics for these motors in your application.



Specifications

TYPE		MARS 50	MARS 80	MARS 100	MARS 125	MARS 160	MARS 200	MARS 250	MARS 315	MARS 400
Displacement (c.c/rev)		51.2	80.5	100.8	125.1	159.4	199.6	249.8	315.7	396.5
Max. speed (rpm)	Cont	770	745	600	470	370	300	240	190	150
	Int(3)	970	940	750	600	470	370	300	240	190
Max. Torque (da Nm)	Cont	10	19.6	24.2	27.1	38.9	38.5	38.8	38.5	35.5
	Int(3)	12.8	22.1	28.1	33.9	42.8	46	57.9	57	59.8
	Peak(4)	16.8	27	32.1	36.8	45.8	56	65.5	83	71.3
Max. output (Kw)	Cont	6.9	12.6	12	12.4	11.4	9	6.4	6	4.7
	Int(3)	8.3	15	15	14.5	12.6	11.5	10.5	9.6	8.7
Max. pressure drop (bar)	Cont	140	160	160	160	160	135	105	85	65
	Int(3)	175	180	180	180	180	175	160	130	100
	Peak(4)	210	210	210	210	210	210	200	175	140
Max.oil flow (l/min)	Cont	40	60	60	60	60	60	60	60	60
	Int(3)	50	75	75	75	75	75	75	75	75
Max. Inlet pressure (bar)	Cont	175	175	175	175	175	175	175	175	175
	Int(3)	200	200	200	200	200	200	200	200	200
	Peak(4)	225	225	225	225	225	225	225	225	225
Weight (kg)		6.7	6.9	6.9	7.2	7.5	8.1	8.5	9.1	9.5

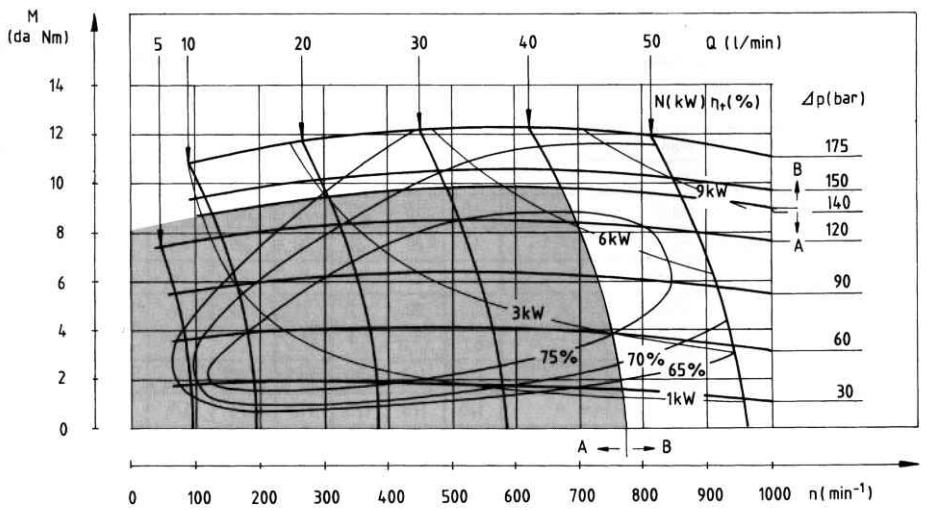
(3) Intermittent operation rating applies to 6 sec. of every minute

(4) Peak load rating applies to 0.6 sec of every minute

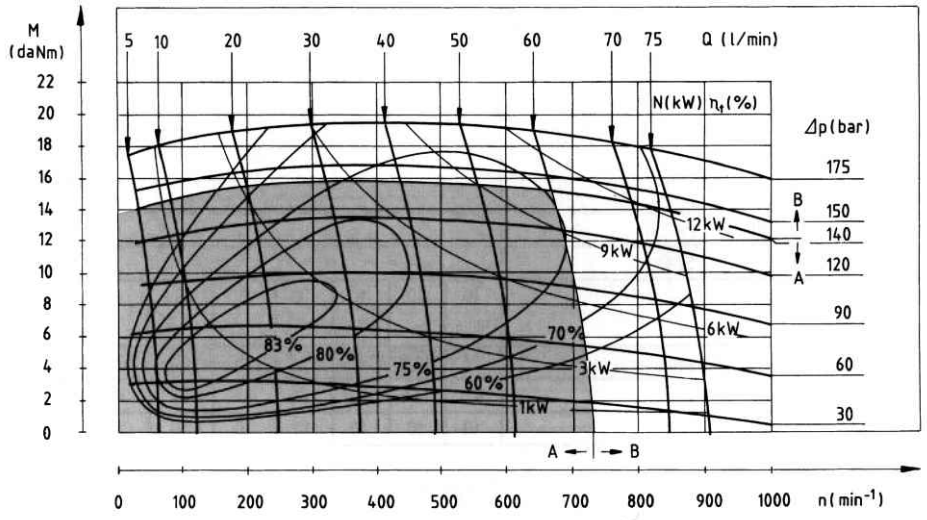
TYPE		MARS 50	MARS 80	MARS 100	MARS 125	MARS 160	MARS 200	MARS 250	MARS 315	MARS 400
Displacement (in.3/r)		3.1	4.9	6.2	7.6	9.7	12.2	15.2	19.3	24.2
Max. speed (rpm)	Cont	770	745	600	470	370	300	240	190	150
	Int(3)	970	940	750	600	470	370	300	240	190
Max. Torque (lb-in)	Cont	885	1735	2142	2394	3443	3407	3434	3407	3142
	Int(3)	1133	1956	2487	3000	3788	4071	5124	5045	5292
	Peak(4)	1487	2390	2841	3257	4053	4956	5797	7346	6310
Max. output (hp)	Cont	9.2	16.9	16.1	16.6	15.3	12.1	8.6	8.0	6.3
	Int(3)	11.1	20.1	20.1	19.4	16.9	15.4	14.1	12.9	11.7
Max. pressure drop (psi)	Cont	2030	2320	2320	2320	2320	1960	1525	1235	945
	Int(3)	2540	2610	2610	2610	2610	2540	2320	1885	1450
	Peak(4)	3045	3045	3045	3045	3045	3045	2900	2540	2030
Max.oil flow (gpm)	Cont	10.6	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
	Int(3)	13.2	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Max. Inlet pressure (psi)	Cont	2540	2540	2540	2540	2540	2540	2540	2540	2540
	Int(3)	2900	2900	2900	2900	2900	2900	2900	2900	2900
	Peak(4)	3260	3260	3260	3260	3260	3260	3260	3260	3260
Weight (lbs)		14.9	15.3	15.3	16	16.7	18	18.9	20.2	21.1

A : Continuous operation
B : Intermittent operation rating applies to 6 sec. of every minute.

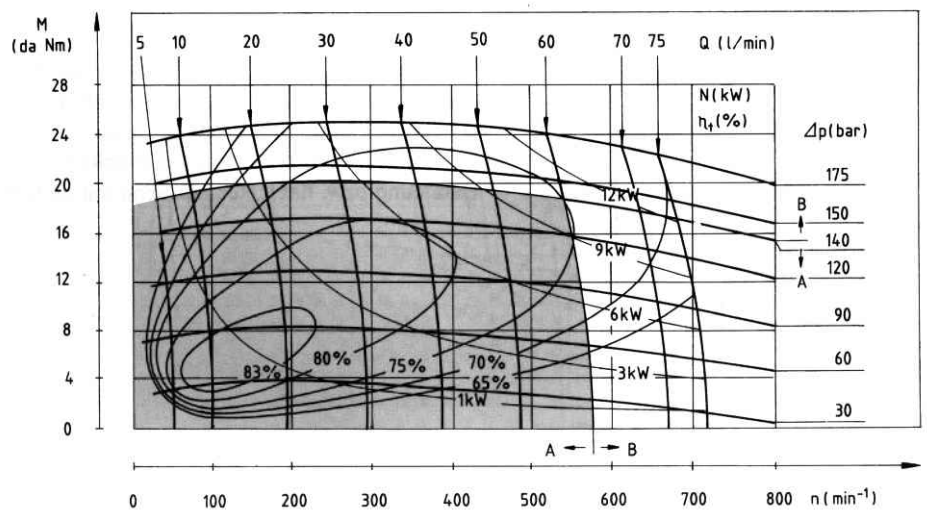
MAR/MARS50



MAR/MARS80

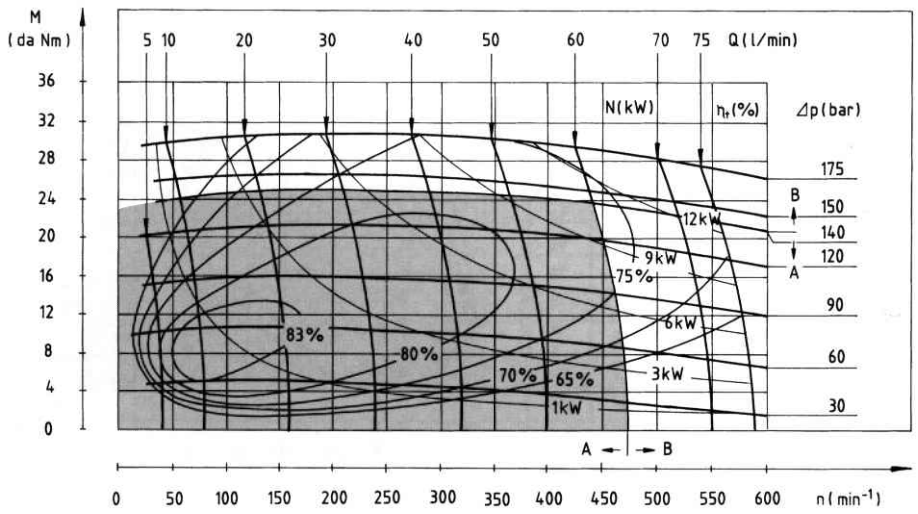


MAR/MARS100

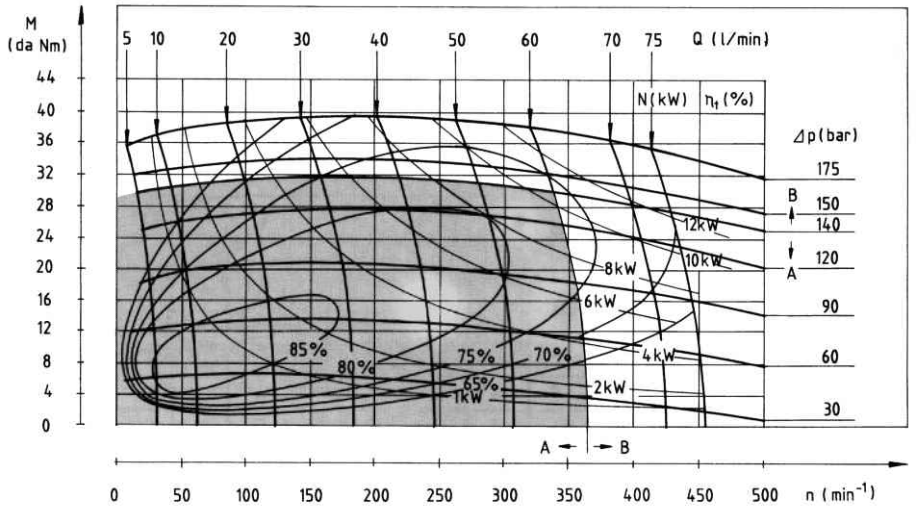


A : Continuous operation
B : Intermittent operation rating applies to 6 sec. of every minute.

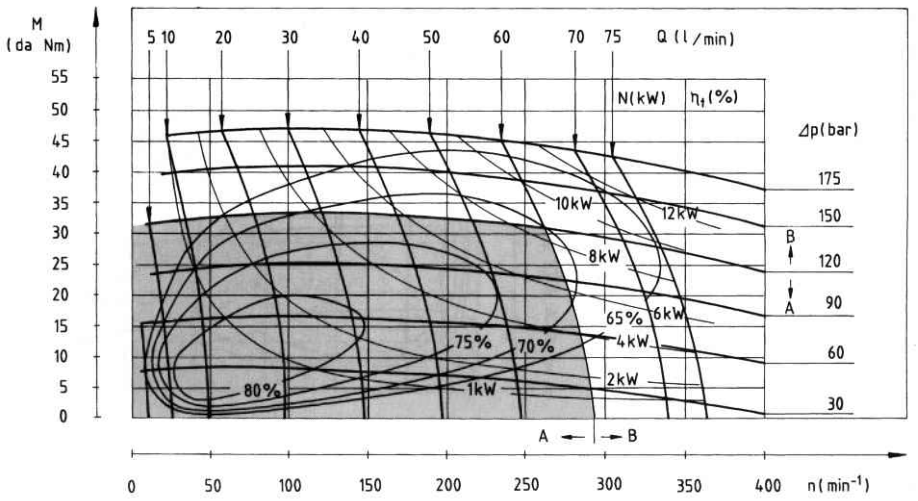
MAR/MARS125



MAR/MARS160

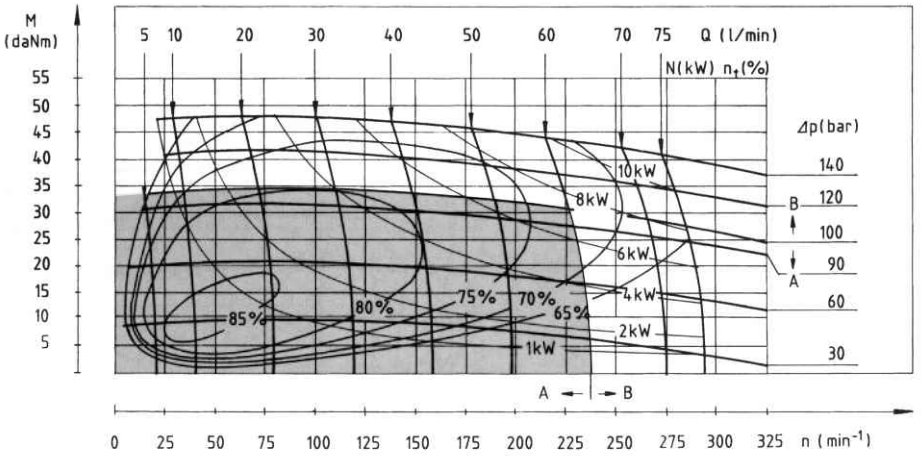


MAR/MARS200

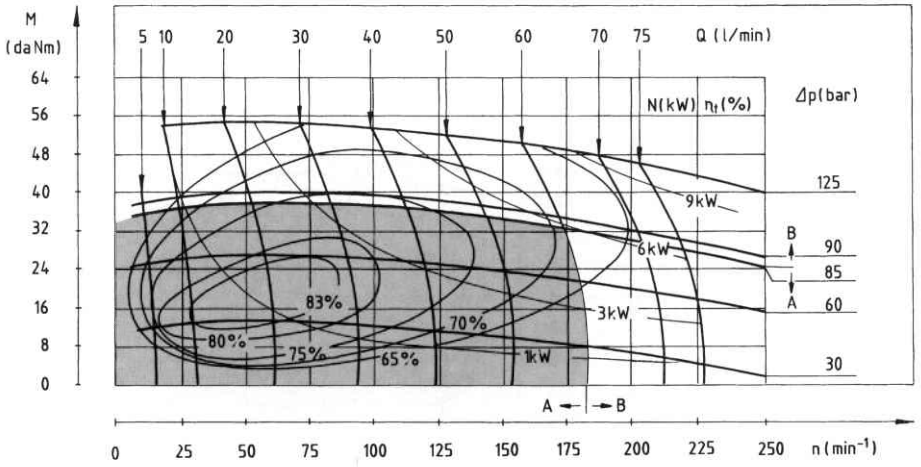


A : Continuous operation
B : Intermittent operation rating applies to 6 sec. of every minute.

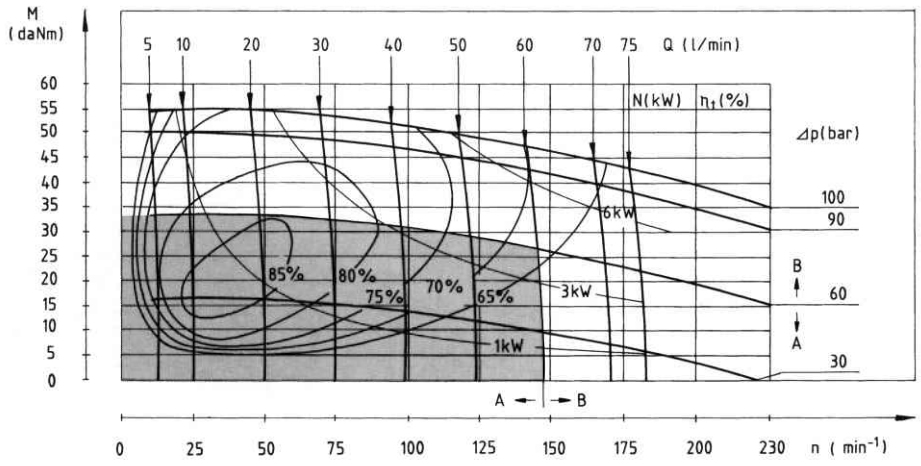
MAR/MARS250



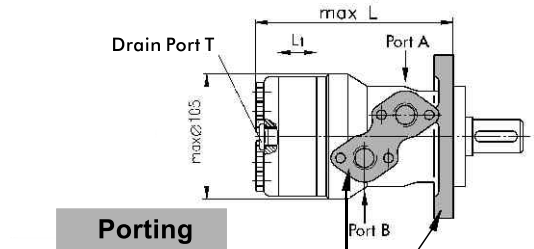
MAR/MARS315



MAR/MARS400



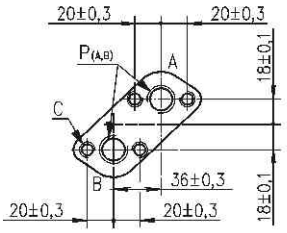
Dimensions and Mounting Data



Porting

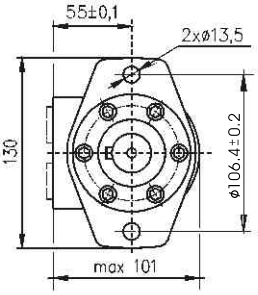
Side Ports

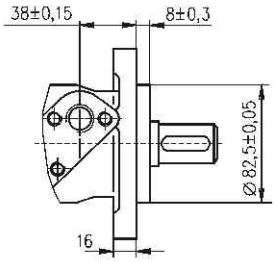
Versions G M U P



Mounting

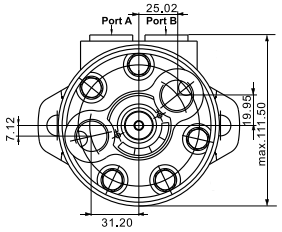
Oval Mount SAE. A (2 Holes)



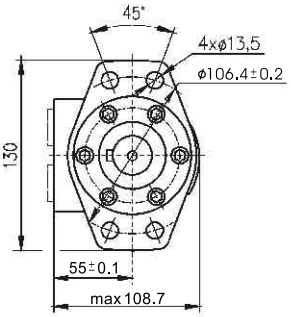


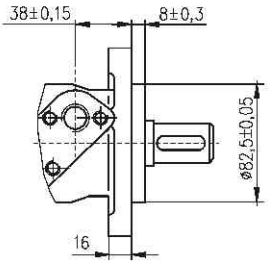
E Rear Ports

Versions G M U P



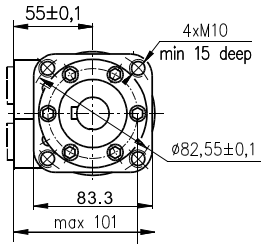
F Magneto Mount (4 Holes)

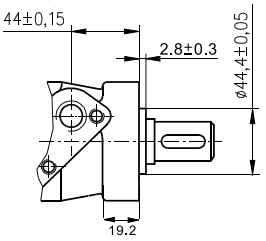




Code / Port	Versions			
	Omit	M	U	P
P(A,B)	2 x G 1/2	2 x M22 x 1.5	7/8-14 O-ring	2 x 1/2 NPTF
T	G 1/4	M14	7/16-20UNF	7/16-20UNF
C	4 x M8	4 x M8	5/16-18UNC	5/16-18UNC

Q Square Mount (4 Bolts)

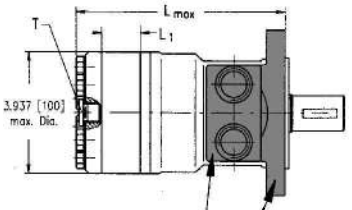




Type	L	Type	L	Type	L	Type	L	L1
MAR(F) 50	140	MARQ 50	146	MAR(F)E 50	151	MARQE 50	157	10
MAR(F) 80	146	MARQ 80	152	MAR(F)E 80	157	MARQE 80	163	16
MAR(F) 100	150	MARQ 100	156	MAR(F)E 100	161	MARQE 100	167	20
MAR(F) 125	155	MARQ 125	161	MAR(F)E 125	166	MARQE 125	173	25
MAR(F) 160	161.5	MARQ 160	167.5	MAR(F)E 160	172.5	MARQE 160	178.5	31.5
MAR(F) 200	170	MARQ 200	176	MAR(F)E 200	181	MARQE 200	187	40
MAR(F) 250	180	MARQ 250	186	MAR(F)E 250	191	MARQE 250	197	50
MAR(F) 315	192	MARQ 315	198	MAR(F)E 315	203	MARQE 315	209	62
MAR(F) 400	204	MARQ 400	210	MAR(F)E 400	215	MARQE 400	221	74

Dimensions and Mounting Data

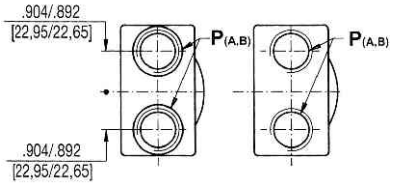
(mm) show in brackets [ ]



Porting

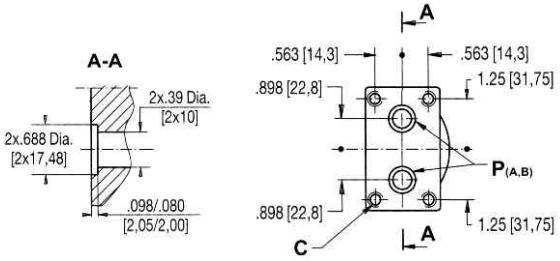
Side Ports

Versions U P G



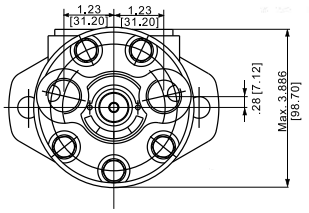
Versions MU

Manifold



E Rear Ports

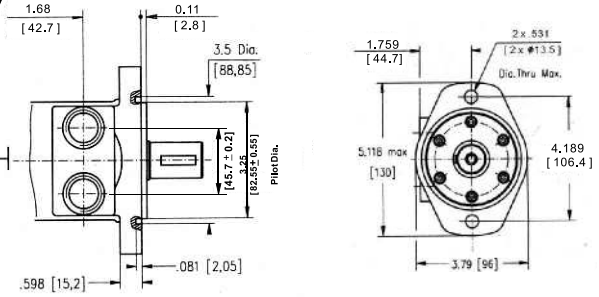
Versions U P G



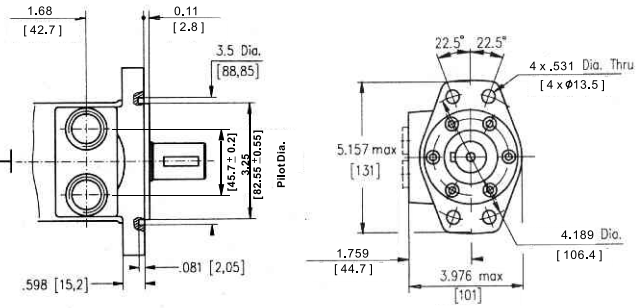
Code / Port	Versions			
	Omit	P	G	MU
P(A,B)	7/8-14UNF	1/2-14NPTF	G 1/2	.39 Dia.[ϕ10]
T	7/16-20UNF	7/16-20UNF	G 1/4	7/16-20UNF
C	–	–	–	5/16-18UNC

Mounting

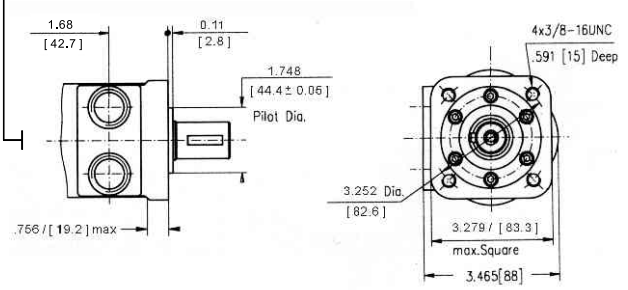
Oval Mount SAE. A (2 Holes)



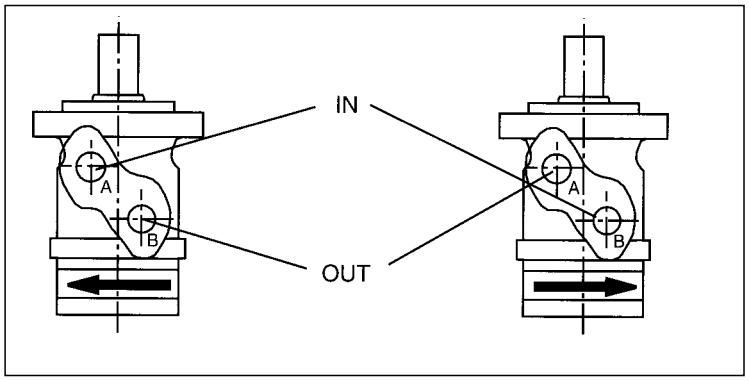
F Magneto Mount (4 Holes)



Q Square Mount (4 Bolts)



Type	L	Type	L	Type	L	Type	L	L1
MARS(F)50	144	MARSQ50	144	MARS(F)E50	155	MARSQE50	155	10
MARS(F)80	150	MARSQ80	150	MARS(F)E80	161	MARSQE80	161	16
MARS(F)100	154	MARSQ100	154	MARS(F)E100	165	MARSQE100	165	20
MARS(F)125	159	MARSQ125	159	MARS(F)E125	170	MARSQE125	170	25
MARS(F)160	165.5	MARSQ160	165.5	MARS(F)E160	176.5	MARSQE160	176.5	31.5
MARS(F)200	174	MARSQ200	174	MARS(F)E200	185	MARSQE200	185	40
MARS(F)250	184	MARSQ250	184	MARS(F)E250	195	MARSQE250	195	50
MARS(F)315	196	MARSQ315	196	MARS(F)E315	207	MARSQE315	207	62
MARS(F)400	208	MARSQ400	208	MARS(F)E400	209	MARSQE400	209	74



Rotation Selection

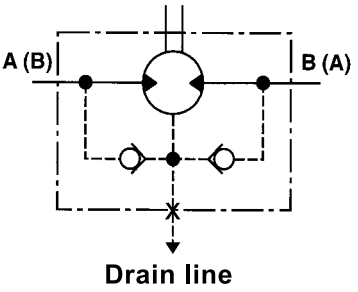
The MAR & MARS built-in check valves. The pressure on the shaft seal is identical to the output pressure.

Max. return pressure without drain line or/ Max. pressure in drain line

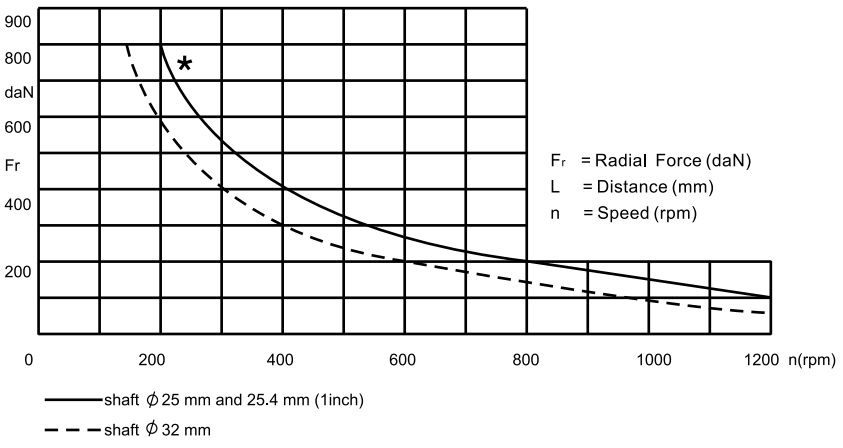
rpm	Cont. (bar)
0 - 100 rpm	75
100 - 300 rpm	50
300 - 1000 rpm	25

Max. return pressure with drain line

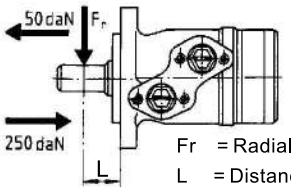
Continuous	160 bar
Intermittent	175 bar
Peak	210 bar



Shaft Load



$$F_r = \frac{800}{n} \cdot \frac{25000}{95+L} \text{ daN}$$



Fr = Radial Force (daN)
L = Distance (mm)
n = Speed (rpm)

Hydraulic motor
Series MAR & MARS Ordering Information

	1	2	3	4	5	6	7	8	9
MAR									

Pos.1 Mounting Flange

Omit - Oval mount, SAE. A 2 holes

F - Magneto mount, 4 holes

Q - Square mount, 4 bolts

Pos.2 Option Bearings

Omit - None

N - With needle bearings

Pos.3 Port Type

Omit - Side Ports

E - Rear Ports (not available)

Pos.4 Displacement Code

50 - 51.2cc / 3.1 [in.3/r]

80 - 80.5cc / 4.9 [in.3/r]

100 - 100.8cc / 6.1 [in.3/r]

125 - 125.1cc / 7.7 [in.3/r]

160 - 159.4cc / 9.7 [in.3/r]

200 - 199.6cc / 12.2 [in.3/r]

250 - 251.1cc / 15.3 [in.3/r]

315 - 315.7cc / 19.3 [in.3/r]

400 - 398.5cc / 24.3 [in.3/r]

Pos.5 Shaft Extensions (See Page 16)

C - ϕ25 Straight, Parallel key A8 x 7 x 32

CO - ϕ1" Straight, Parallel key 1/4" x 1/4" x 1 1/4"

S - ϕ25,32 Splined (SAE 6B)

T - Tapered 1:10, Parallel key B5 x 5 x 14

C1 - ϕ1 1/4" Straight, Parallel key 5/16" x 5/16" x 1 1/4"

C2 - ϕ32 Straight, Parallel key A10 x 8 x 45

TA - Tapered 1:8 SAE. J501, Parallel key 5/16" x 5/16" x 1 1/4"

SB - ϕ31.75" [1 1/4"] Splined 14T, DP 12/24

SH - ϕ31.75" [1 1/4] Splined 14T, DP 12/24

Pos.6 Shaft Seal Version

Omit - Standard Seal

D - High Pressure Seal

Pos.7 Porting

Omit - G 1/2

M - Metric

U - 7/8-14 UNF, O-ring

P - 1/2-14 NPTF

Pos.8 Painting

Omit - Grey

B - Black

00 - No Paint

Pos.9 Rotation

Omit - Standard Rotation

R - Reverse Rotation

	1	2	3	4	5	6	7	8	9
MARS									

Pos.1 Mounting Flange

Omit - Oval mount, SAE. A 2 holes

F - Magneto mount, 4 holes

Q - Square mount, 4 bolts

Pos.2 Option Bearings

Omit - None

N - With needle bearings

Pos.3 Port Type

Omit - Side Ports

E - Rear Ports

Pos.4 Displacement Code

50 - 51.2cc / 3.1 [in.3/r]

80 - 80.5cc / 4.9 [in.3/r]

100 - 100.8cc / 6.1 [in.3/r]

125 - 125.1cc / 7.7 [in.3/r]

160 - 159.4cc / 9.7 [in.3/r]

200 - 199.6cc / 12.2 [in.3/r]

250 - 251.1cc / 15.3 [in.3/r]

315 - 315.7cc / 19.3 [in.3/r]

400 - 398.5cc / 24.3 [in.3/r]

Pos.5 Shaft Extensions (See Page 18)

C - ϕ25 Straight, Parallel key A8 x 7 x 28

CO - ϕ1" Woodruff key ϕ1/4" x 1"

S - ϕ25,32 Splined (SAE 6B)

T - 1" [25.4] SAE J501 Tapered Woodruff key 1/4" x 1"

SA - 13T Splined 7/8" [22.2]

H - ϕ1" (25.4), Straight w/.406[10.3] Crosshole

HA - ϕ1" (25.4), Straight w/.315[8] Crosshole

HB - ϕ1" (25.4), Straight w/.406[10.3] Crosshole

Pos.6 Shaft Seal Version

Omit - Standard Seal

D - High Pressure Seal

Pos.7 Porting

Omit - 7/8-14 UNF O-ring **T**: 7/16-20UNF

P - 1/2-14 NPTF **T**: 7/16-20 UNF

G - G 1/2 **T**:G 1/4

MU - Manifold

Pos.8 Painting

Omit - Grey

B - Black

00 - No Paint

Pos.9 Rotation

Omit - Standard Rotation

R - Reverse Rotation