

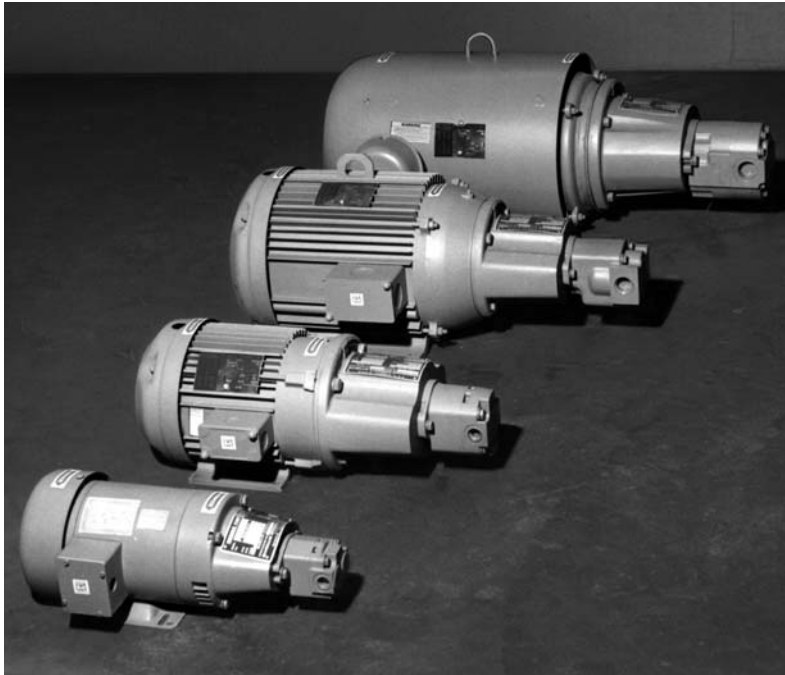


HYDRAULIC PUMP/MOTOR MOUNTS



MACMILLIN

Safer, quieter hydraulic power assemblies with MacMillin flanged pump/motor mounts



- Strong, lightweight aluminum alloy casting completely encloses shafts and coupling for greater safety, quieter operation.
- Assembly time reduced up to 75% by simply bolting mount to motor and pump. Centerline boring process assures accurate alignment.
- Lower costs as the pump/motor mount eliminates the need for expensive bed plates, pump foot brackets, riser blocks, shims, and associated labor.
- Mount permits maximum flexibility of power unit design. Complete assembly installs anywhere the motor feet can be bolted.
- MacMillin pump/motor mounts bring a more complete, compact look to the entire hydraulic power unit.
- Wide selection of models to fit standard NEMA "C" flange electric motors in framesizes 56C thru 445TC and 445TSC, and for a variety of pumps with SAE 2- or 4-bolt flange mountings.
- Optional cover guards are available to close off the coupling access opening.

How to Select MacMillin Mounts

1 BASIC MOUNT TYPE

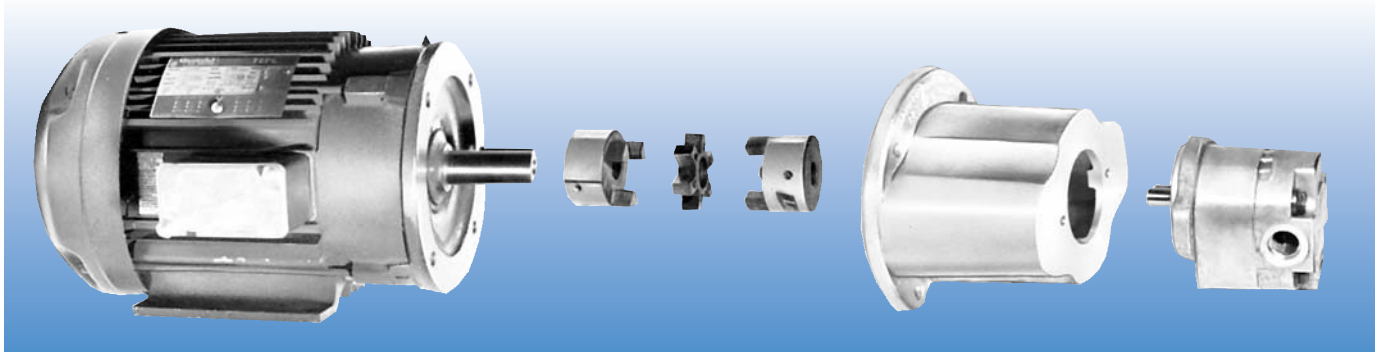
Using motor frame size, select the basic Mount type to fit the NEMA-C face. (Example: NEMA-C size 284-TC will accept Type F3 Mounts)

2 PUMP END STYLE

From pump manufacturer's data, determine mounting style, shaft length and pilot thickness of pump. Standard SAE 2 & 4 bolt styles shown in Tables 1 & 2.

3 PROPER LENGTH

Face-to-face distance (Dimension E) must accommodate length of motor shaft (Dimension AH, Table 3), pump shaft and pilot thickness. Allow at least 3/16" clearance between shafts.



Ordering Information

EXAMPLE:

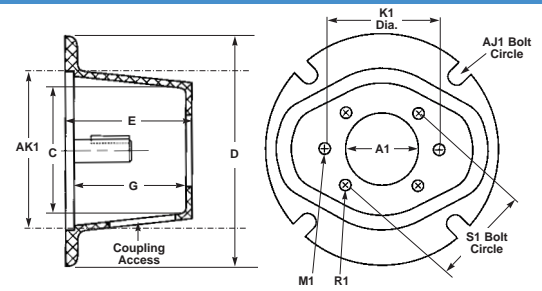
F1L - 2A is a Type 1 Long Motor Mount that will fit motor frames to 145TC and fit SAE 2A pumps.

Type	Max. Motor Frame Size	Style Mount	SAE Pump Designation
F1	145TC	L – Long Motor Mount	2A or 4A
F2	256TC	S – Short Motor Mount	2B or 4B
F3	286TC	No Letter – Standard Mount	2C or 4C
F4	405TC		2D or 4D
F5	445TSC		2F or 4F

NOTE: To include coupling with order, add the coupling number from Table 4 to the description above. Provide details for bore sizes and keyways for both motor and pump halves.

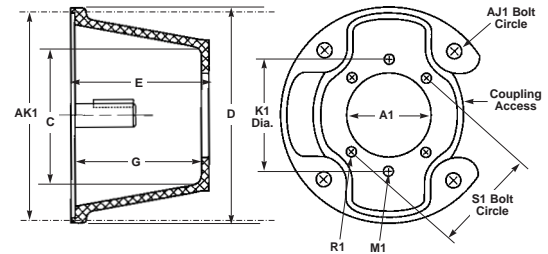
TYPE F1 MOUNTS - For NEMA Frames 56C, 143TC and 145TC

Type Mount	Pump Flange Style	A1	C	D	E	G	K1	M1 Tapped Holes	R1 Tapped Holes	S1	AJ1 Holes	AK1	Wt. Lbs.	
F1S-2A F1L-2A	SAE A 2-Bolt	3.251	3.50	6.50	3.50 4.25	3.00 3.18	4.18	(2) 3/8-16			(4) 7/16 on 5-7/8" B.C.	4.501 4.503	1.5	
F1S-2AA F1L-2AA	SAE AA 2-Bolt	2.001	3.50	6.50	3.50 4.25	3.00 3.18	3.25	(2) 3/8-16					2.0	
F1S-4AA F1L-4AA	SAE AA 4-Bolt	1.782	3.50	6.50	3.50 4.25	3.00 3.18			(4) 5/16-18	2.84			2.5	
														2.0
F1L-6H	6-Bolt	2.626	3.50	6.50	4.37	3.625			(6) 3/8-16	3.25				2.5



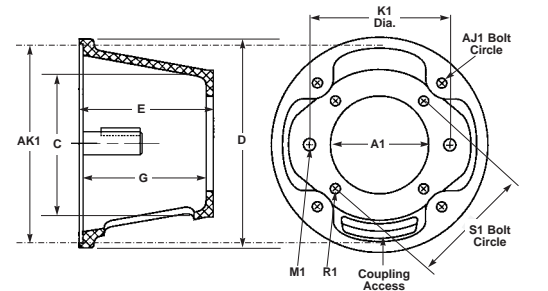
TYPE F2 MOUNTS - For NEMA Frames 182TC thru 256TC

Type Mount	Pump Flange Style	A1	C	D	E	G	K1	M1 Tapped Holes	R1 Tapped Holes	S1	AJ1 Holes	AK1	Wt. Lbs.		
F2S-A F2L-A	SAE A 2-Bolt and 4-Bolt	3.251	4.75	8.75	5.00 5.81 6.81	4.50 5.18 6.18	4.188	(2) 3/8-16	(4) 3/8-16	4.125	(4) 17/32 on 7-1/4" B.C.	8.501 8.503	4.0		
F2S-B F2L-B	SAE B 2-Bolt and 4-Bolt	4.001	4.75	8.75	5.00 5.81 6.81	4.50 5.18 6.18	5.75	(2) 1/2-13	(4) 1/2-13	5.00			4.5		
F2S-2AA F2L-2AA	SAE AA 2-Bolt	2.001	4.75	8.75	5.00 5.81	4.50 5.18	3.25	(2) 3/8-16					5.0		
F2S-4AA F2L-4AA	SAE AA 4-Bolt	1.782	4.75	8.75	5.00 5.81	4.50 5.18			(4) 5/16-18	2.84			4.5		
F2S-6H F2L-6H	6-Bolt	2.626	4.75	8.75	5.00 5.81	4.37 5.18			(6) 3/8-16	3.25			6.0		
														5.0	
															4.0
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															5.5



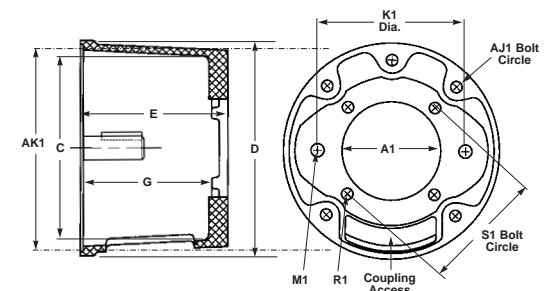
TYPE F3 MOUNTS - For NEMA Frames 284TC/TSC thru 286TC/TSC

Type Mount	Pump Flange Style	A1	C	D	E	G	K1	M1 Tapped Holes	R1 Tapped Holes	S1	AJ1 Holes	AK1	Wt. Lbs.
F3-A F3L-A	SAE A 2-Bolt SAE A 4-Bolt	3.251	6.75	11.0	6.87 8.68	6.12 8.43	4.188	(2) 3/8-16	(4) 3/8-16	4.125	(4) 17/32 on 9" B.C.	10.502 10.505	8.0
F3-B F3L-B	SAE B 2-Bolt SAE B 4-Bolt	4.001	6.75	11.0	6.87 8.68	6.12 8.43	5.750	(2) 1/2-13	(4) 1/2-13	5.000			12.0
F3-C F3L-C	SAE C 2-Bolt SAE C 4-Bolt	5.001	6.75	11.0	6.87 8.68	6.12 8.43	7.125	(2) 5/8-11	(4) 1/2-13	6.375			8.0



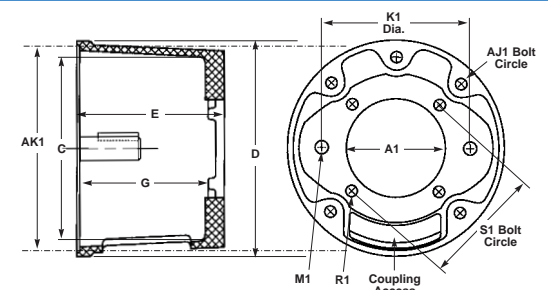
TYPE F4 MOUNTS - For NEMA Frames 324TC/TSC thru 405TC/TSC

Type Mount	Pump Flange Style	A1	C	D	E	G	K1	M1 Tapped Holes	R1 Tapped Holes	S1	AJ1 Holes	AK1	Wt. Lbs.
F4-B F4S-B	SAE B 2-Bolt and 4-Bolt	4.001	6.75	13.06	8.75 7.62	7.75 6.75	5.75	(2) 1/2-13	(4) 1/2-13	5.00	(4) 21/32 on 11" B.C.	12.502 12.505	15.5
F4-C F4S-C	SAE C 2-Bolt and 4-Bolt	5.001	6.75	13.06	8.75 7.62	7.75 6.75	7.125	(2) 5/8-11	(4) 1/2-13	6.375			14.0
F4-2D F4S-2D	SAE D 2-Bolt SAE D 2-Bolt	6.001	6.75	13.06	8.75 7.62	7.75 6.75	9.00	(2) 3/4-10					15.0
F4-4D F4L-4D	SAE D 4-Bolt SAE D 4-Bolt	6.001	7.00 8.75	13.06	8.75 10.625	7.75 9.38			(4) 3/4-10 (4) 3/4-10	9.00 9.00			13.0
F4L-4E	SAE E 4-Bolt	6.501	8.75	13.06	10.625	9.38			(4) 3/4-10	12.50			14.5

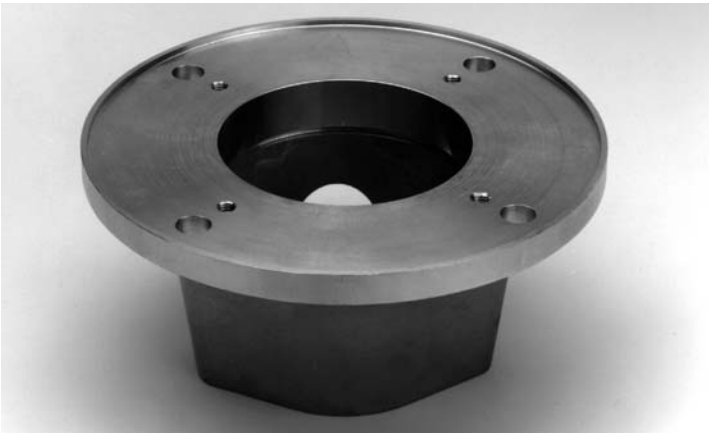


TYPE F5 MOUNTS - For NEMA Frames 444TSC thru 445TSC

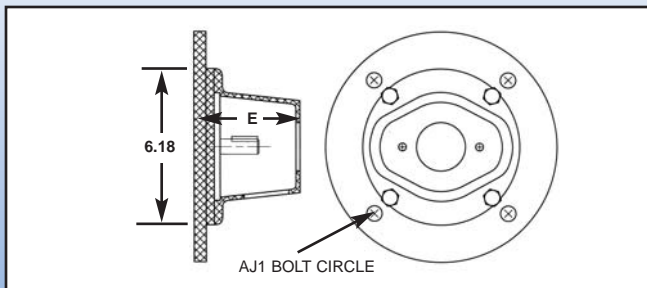
Type Mount	Pump Flange Style	A1	C	D	E	G	K1	M1 Tapped Holes	R1 Tapped Holes	S1	AJ1 Holes	AK1	Wt. Lbs.		
F5-C	SAE C 2-Bolt SAE C 4-Bolt	5.001	9.25	16.75	8.75	8.00	7.12	(2) 5/8-11	(4) 1/2-13	6.37	(5) 21/32 on 14" B.C.	16.002 16.005	46.5		
F5-D	SAE D 2-Bolt SAE D 4-Bolt	6.001	9.25	16.75	8.75	8.00	9.00	(2) 3/4-10	(4) 3/4-10	9.00			45.5		
F5-2E F5-2F	SAE E 2-Bolt SAE F 2-Bolt	6.501 7.001	9.25	16.75	8.75	8.00	12.50 13.78	(2) 1-8 (2) 1-8						44.5	
															43.5



TYPE F2R MOUNTS



Mount extends the application range of Type 1 Mounts by adding a specially designed adapter plate that can accommodate motor frames up to 256TC. As this assembly takes less space in the reservoir than a Type 2 Mount, it is ideal for shallow, compact installations such as vertical applications



Dimensions are identical to the Type 2 Mounts except for Dimension E and the clearance diameter shown above.

Type Mount	Pump Flange Style	E	AJ1 Holes	Wt. Lbs.
F2RS-2A	SAE A 2-Bolt	4.312	(4) 17/32" on 7-1/4" B.C.	3.75
F2RL-2A		5.062		3.92
F2RS-2AA	SAE AA 2-Bolt	4.312		3.85
F2RS-4AA	SAE AA 4-Bolt	4.312		3.90

Custom Mounts



MacMillan pump/motor mount can be readily adapted or modified to meet special requirements, such as custom length dimensions, metric sized, and other non-SAE applications. Consult factory for a prompt quotation.

MOUNTING FLANGES

SAE 2 BOLT MOUNTING FLANGES

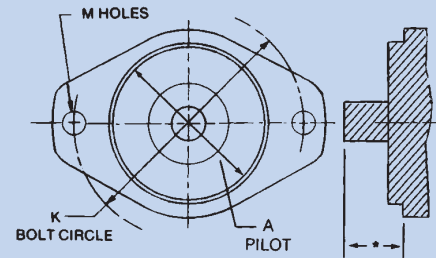


Table 1

Mounting Flange		Pilot Dimension	Flange Dimensions	
ANSI	SAE	A	K	M
50-2	AA	2.000	3.250	0.406
		1.998		
82-2	A	3.250	4.188	0.437
		3.248		
101-2	B	4.000	5.750	0.562
		3.998		
127-2	C	5.000	7.125	0.687
		4.998		
152-2	D	6.000	9.000	0.812
		5.998		
165-2	E	6.500	12.500	1.062
		6.498		
177-2	F	7.000	13.781	1.062
		6.998		

*See manufacturer's data for dimension.

SAE 4 BOLT MOUNTING FLANGES

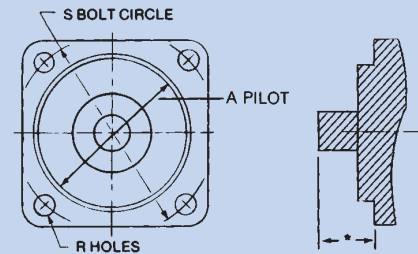


Table 2

Mounting Flange		Pilot Dimension	Flange Dimensions	
ANSI	SAE	A	S	R
-	AA	1.781	2.838	0.375
		1.779		
-	A	3.250	4.125	0.438
		3.248		
101-4	B	4.000	5.000	0.562
		3.998		
127-4	C	5.000	6.375	0.562
		4.998		
152-4	D	6.000	9.000	0.812
		5.998		
165-4	E	6.500	12.500	0.812
		6.498		
177-4	F	7.000	13.781	1.062
		6.998		

*See manufacturer's data for dimension.

NEMA Electric Motor Shaft and "C" Face

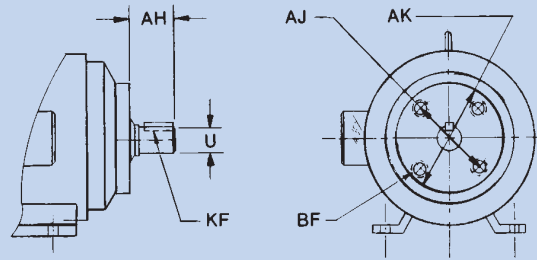


Table 3

NEMA Motor	Frame	Bolt Circle AJ	Register AK	Shaft Diameter U	Shaft Length AH	Key Sq.	Key Length	BF (Tapped Holes) Size	No. Req'd.
56C		5-7/8	4-1/2	5/8	2-1/16	3/16	1	3/8-16	4
143TC		5-7/8	4-1/2	7/8	2-1/8	3/16	1-3/8	3/8-16	4
145TC		5-7/8	4-1/2	7/8	2-1/8	3/16	1-3/8	3/8-16	4
182TC		7-1/4	8-1/2	1-1/8	2-5/8	1/4	1-3/4	1/2-13	4
184TC		7-1/4	8-1/2	1-1/8	2-5/8	1/4	1-3/4	1/2-13	4
213C		7-1/4	8-1/2	1-3/8	3-1/8	5/16	2-3/8	1/2-13	4
215TC		7-1/4	8-1/2	1-3/8	3-1/8	5/16	2-3/8	1/2-13	4
254TC		7-1/4	8-1/2	1-5/8	3-3/4	3/8	2-7/8	1/2-13	4
256TC		7-1/4	8-1/2	1-5/8	3-3/4	3/8	2-7/8	1/2-13	4
284TC		9	10-1/2	1-7/8	4-3/8	1/2	3-1/4	1/2-13	4
284TSC		9	10-1/2	1-5/8	3	3/8	1-7/8	1/2-13	4
286TC		9	10-1/2	1-7/8	4-3/8	1/2	3-1/4	1/2-13	4
286TSC		9	10-1/2	1-5/8	3	3/8	1-7/8	1/2-13	4
324TC	324TC	11	12-1/2	2-1/8	5	1/2	3-7/8	5/8-11	4
324TSC		11	12-1/2	1-7/8	3-1/2	1/2	2	5/8-11	4
326TC	326TC	11	12-1/2	2-1/8	5	1/2	3-7/8	5/8-11	4
326TSC		11	12-1/2	1-7/8	3-1/2	1/2	2	5/8-11	4
364TC	364TC	11	12-1/2	2-3/8	5-5/8	5/8	4-1/4	5/8-11	8
364TSC		11	12-1/2	1-7/8	3-1/2	1/2	2	5/8-11	8
365TC	365TC	11	12-1/2	2-3/8	5-5/8	5/8	4-1/4	5/8-11	8
365TSC		11	12-1/2	1-7/8	3-1/2	1/2	2	5/8-11	8
404TC	404TC	11	12-1/2	2-7/8	7	3/4	5-5/8	5/8-11	8
404TSC		11	12-1/2	2-1/8	4	1/2	2-3/4	5/8-11	8
405TC	405TC	11	12-1/2	2-7/8	7	3/4	5-5/8	5/8-11	8
405TSC		11	12-1/2	2-1/8	4	1/2	2-3/4	5/8-11	8
444TC	444TC	14	16	3-3/8	8-1/4	7/8	6-7/8	5/8-11	8
444TSC		14	16	2-3/8	4-1/2	5/8	3	5/8-11	8
445TC	445TC	14	16	3-3/8	8-1/4	7/8	6-7/8	5/8-11	8
445TSC		14	16	2-3/8	4-1/2	5/8	3	5/8-11	8

Flexible Couplings

Rated horsepower includes a factor of 1.5 for pump service

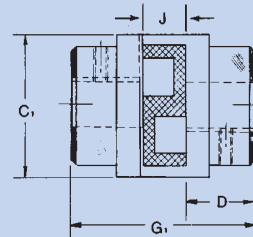


Table 4

Coupling No.	Rated HP @ 1800 RPM	Max. Bore	Outside Dia. C ₁	Length thru Bore D	Overall Length G ₁	Max. Between Shafts J
ML-075	1.44	7/8	1-3/4	13/16	2-1/8	1/2
ML-090	2.40	7/8	2-1/8	15/16	2-3/8	1/2
ML-095	3.36	1-1/8	2-1/8	1	2-1/2	1/2
ML-099	5.04	1-3/16	2-9/16	1-1/16	2-7/8	3/4
ML-100	7.20	1-3/8	2-9/16	1-3/8	3-1/2	3/4
ML-110	13.2	1-5/8	3-5/16	1-11/16	4-1/16	7/8
ML-150	20.4	1-7/8	3-3/4	1-3/4	4-1/2	1
ML-190	26.4	2-1/8	4-1/2	2-1/8	5-1/4	1
ML-225	39.6	2-3/8	5	2-1/2	6-1/16	1-1/16
MM-500	134	2-1/8	4-7/8	1-3/4	4-3/4	1-1/4
MM-600	260	2-3/8	6	2-3/8	6	1-3/8
MM-800	600	3-3/4	8-5/8	3	8	2

Flexible couplings are ideally suited to pump/motor applications. They require no lubrication and are easy to install without special tools. From horsepower requirements, select a coupling from information in Table 4.

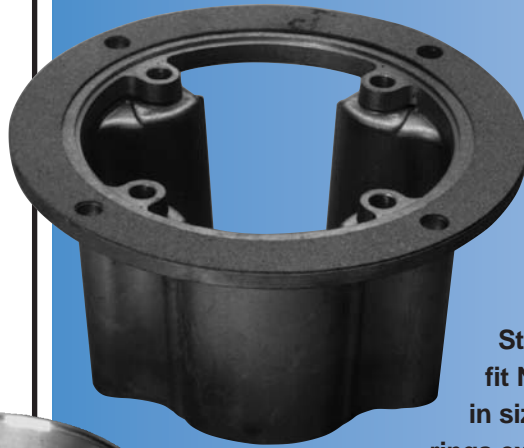
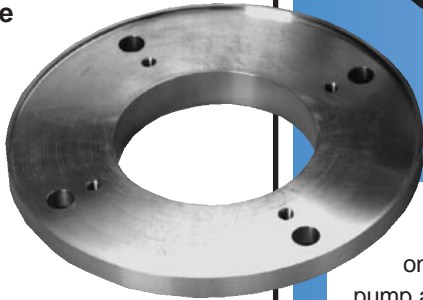
To ensure correct selection of the mount and coupling, recheck the distance between shaft ends. Also, check coupling C₁ and G₁ dimensions for proper clearance in the mount by making sure they are less than the C and G dimensions in the motor/mount tables.

In some instances, adaption may be necessary to use a standard mount, such as shortening excess motor shaft length or using a hollow coupling spider to provide shaft clearance.



VERTICAL MOUNTS

For those applications or physical layouts where horizontal space is limited the pump/motor assembly can be mounted vertically atop the reservoir. With drop-in installation the pump end of the assembly is lowered through the clearance hole in the tank cover and the mount is easily fastened to the top.



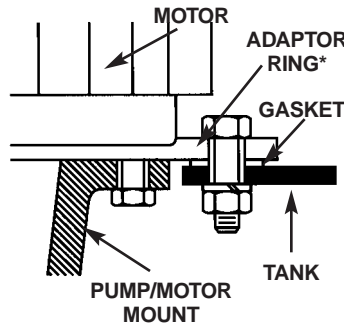
Standard Types F1 and F2 mounts fit NEMA "C" flange T and U frames in sizes 56C to 256C. Flange adaptor rings extend the Type F2 mount's motor capacity to include frames 284C to 405C.



Power unit built on a 10-gallon reservoir, with MacM™ Circuit-Bloc assembly.

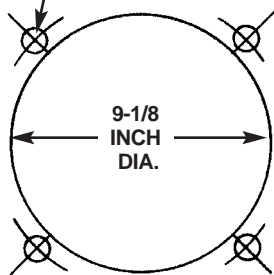
The F2 series will mount on any thickness. Assemble pump and motor with coupling to flange and insert into reservoir through the top.

F2 Series Mounting



*Adds .480 to E dimension

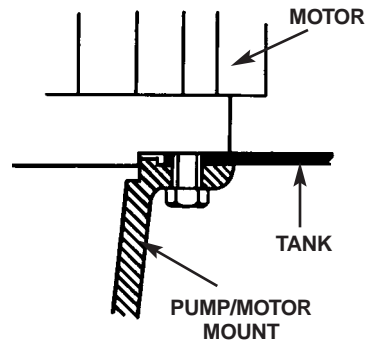
7/32 DIAMETER HOLES ON 10-1/4 B.C.



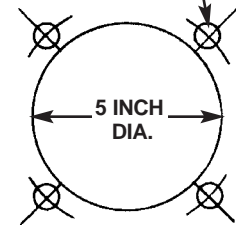
TANK OPENING

The F1 series is limited to tank top thicknesses of .060" minimum to .150" maximum. Thickness must be specified. Assemble the reservoir top between motor and flange.

F1 Series Mounting



7/16 DIAMETER HOLES ON 5-7/8 B.C.



TANK OPENING



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