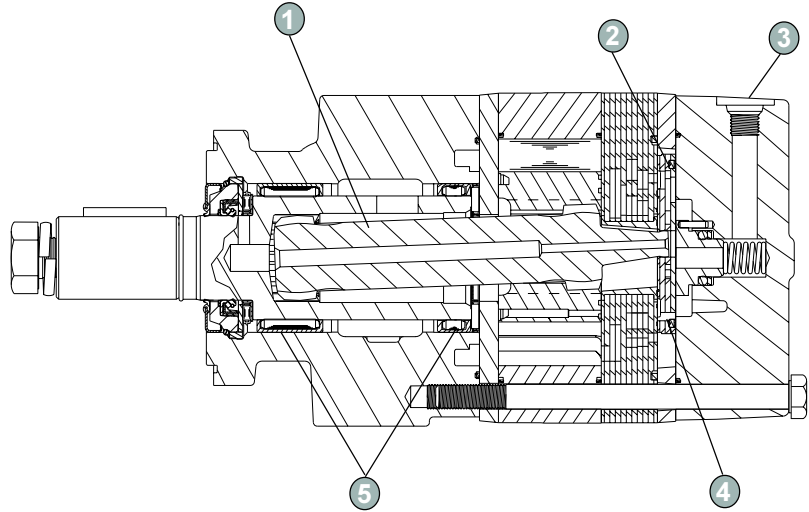


•Features

- ① **Heavy-Duty Drive Link** is most durable in class and receives case flow lubrication for reduced wear and increased life.
- ② **Three-Zone Orbiting Valve** precisely meters oil to produce exceptional volumetric efficiency.
- ③ **Standard Case Drain** increases shaft seal life by reducing pressure on seal.
- ④ **Rubber Energized Steel Face Seal** does not extrude or melt under high pressure or high temperature.
- ⑤ **Three Bearing Options** allow load carrying capabilities of motor to be matched to application.



High Torque, Wide Speed Range

Due to its case drain design, the DR Series motor is an excellent medium size motor for applications with high duty cycles or frequent direction reversals. The case drain design produces a number of benefits including reduction of pressure on the shaft seal and the ability to provide a cooling loop for the system. The case flow also lubricates the vital drive components, extending motor life. An internal drain option is also available. A laminated manifold and three-zone orbiting valve are used to produce higher overall efficiencies and more usable power. A steel faced seal in the orbiting valve also lessens the risk of the seal extruding or melting, which is possible in competitive designs.



Specifications

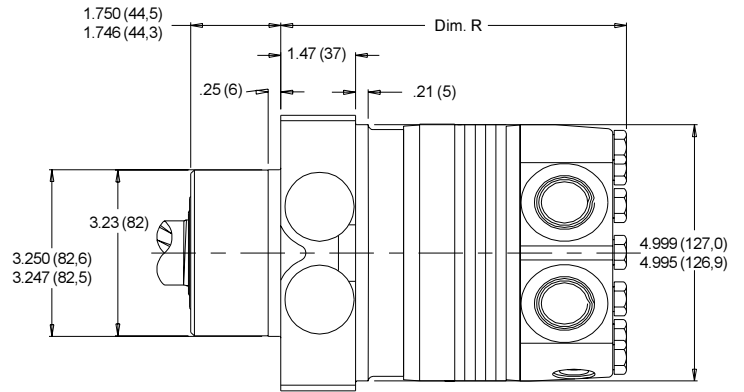
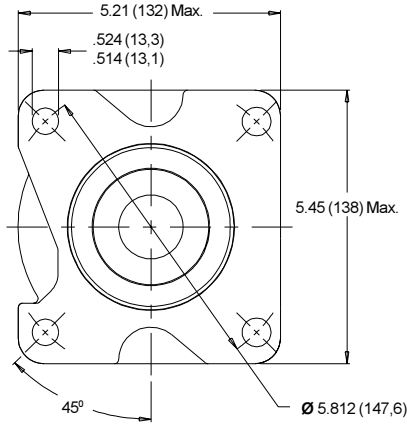
Code	Displacement in ³ /rev (cc)	Max Speed RPM		Max Flow GPM (LPM)		Max Torque lb-in (Nm)			Pressure ΔPSI(ΔBar)		
		Cont.	Inter.	Cont.	Inter.	Cont.	Inter.	*Stall	Cont.	Inter.	Peak
200	12.4 (204)	470	560	25 (95)	30 (114)	4900 (554)	5700 (644)	4055 (458)	3000 (207)	3500 (241)	4000 (276)
260	15.9 (261)	360	440	25 (95)	30 (114)	6590 (745)	7600 (859)	5495 (621)	3000 (207)	3500 (241)	4000 (276)
300	18.3 (300)	320	380	25 (95)	30 (114)	7450 (842)	8600 (972)	6685 (755)	3000 (207)	3500 (241)	4000 (276)
350	21.2 (348)	270	320	25 (95)	30 (114)	8600 (972)	9800 (1107)	7035 (795)	3000 (207)	3500 (241)	4000 (276)
375	22.8 (374)	250	300	25 (95)	30 (114)	9600 (1085)	11000 (1243)	8135 (919)	3000 (207)	3500 (241)	4000 (276)
470	28.3 (464)	200	240	25 (95)	30 (114)	9800 (1107)	11650 (1316)	8735 (987)	2500 (172)	3000 (207)	3500 (241)
540	32.7 (536)	180	210	25 (95)	30 (114)	9150 (1034)	11300 (1277)	8120 (918)	2000 (138)	2500 (172)	3000 (207)
750	45.6 (748)	130	150	25 (95)	30 (114)	9200 (1040)	12300 (1390)	8055 (910)	1500 (103)	2000 (138)	2500 (172)

* Stall torque measured at 1 RPM at continuous pressure per SAE J746b.

• **Housings**
Wheel Mount / SAE "A" Flange

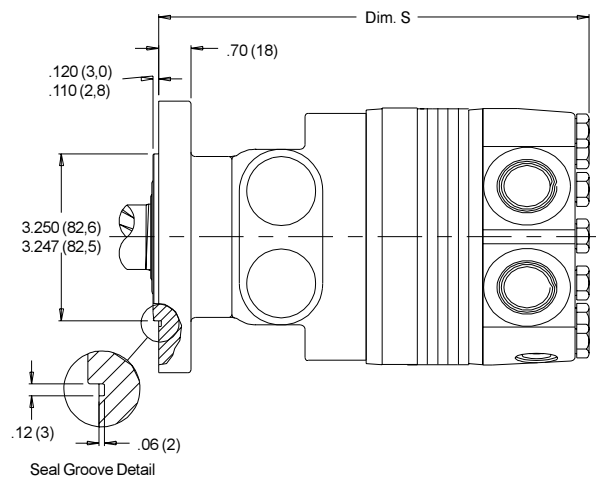
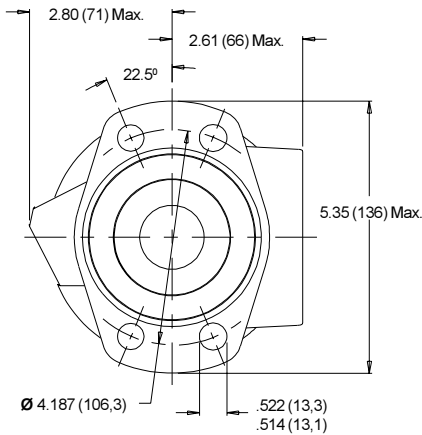
W2 4-Hole with End Ports

W8 4-Hole with Side Ports



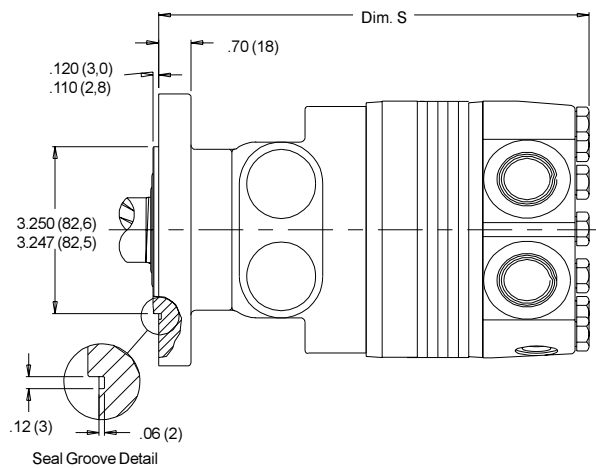
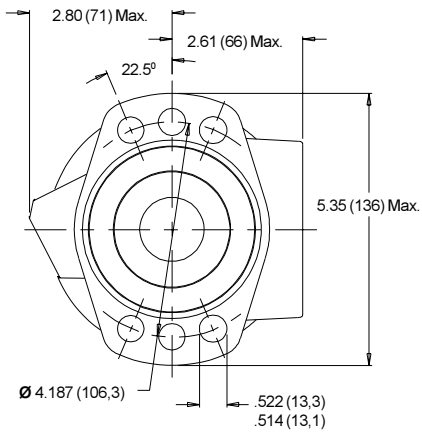
A2 4-Hole with End Ports

A8 4-Hole with Side Ports



A4 6-Hole with End Ports

A9 6-Hole with Side Ports



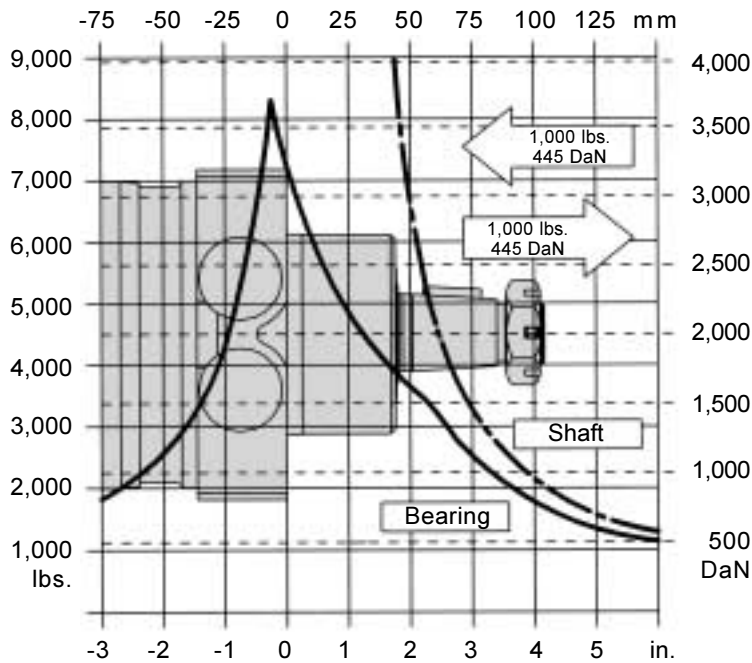
•Technical

Allowable Bearing And Shaft Loads

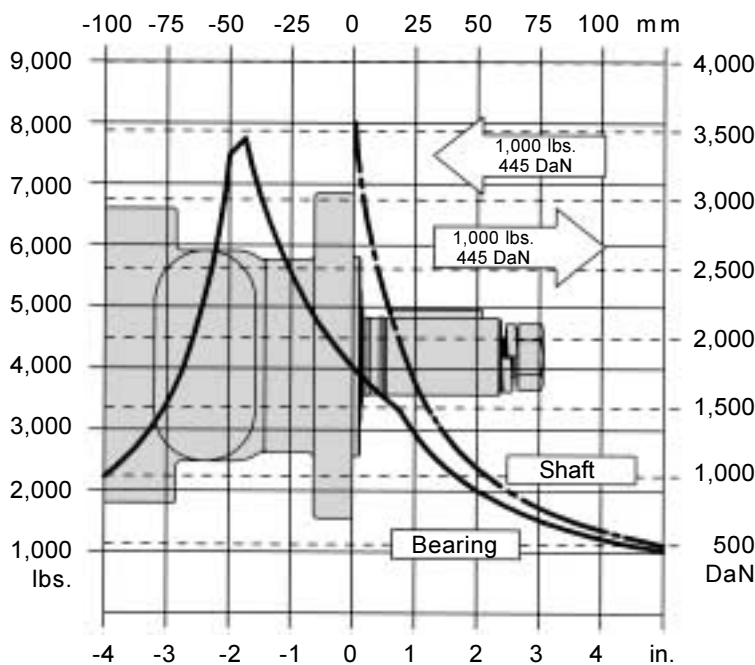
Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2000 hours at 100 RPM. Radial loads for speeds other than 100 RPM may be calculated using the multiplication factor table located on page 23.

Shaft Curve: The shaft curve represents a 3:1 safety factor based on a tensile strength of 330 kpsi.

Wheel Mount



"A" Style Flange



Length and Weight Tables

Wheel Mount

Disp. Code	Dim. R in (mm)	Weight lbs (kg)
200	6.53 (166)	29.6 (13,4)
260	6.72 (171)	30.6 (13,9)
300	6.85 (174)	32.2 (14,6)
350	7.40 (188)	34.7 (15,7)
375	7.10 (180)	33.4 (15,2)
470	7.40 (188)	34.7 (15,7)
540	7.64 (194)	35.8 (16,2)
750	8.35 (212)	39.1 (17,7)

DR motor weights vary ± 2 lb (.9 kg) depending upon motor configuration.

Subtract .11 in (3mm) from dimension for motors using 0 or 5 endcover.

"A" Style Flange

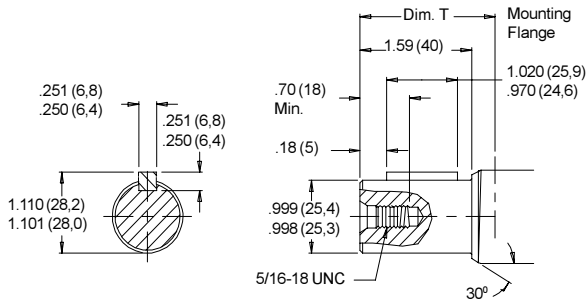
Disp. Code	Dim. S in (mm)	Weight lbs (kg)
200	8.19 (208)	35.0 (15,9)
260	8.37 (213)	36.0 (16,3)
300	8.50 (216)	36.6 (16,6)
350	9.06 (230)	39.2 (17,8)
375	8.75 (222)	37.8 (17,1)
470	9.06 (230)	39.2 (17,8)
540	9.29 (236)	40.3 (18,3)
750	10.00 (254)	43.5 (19,7)

DR motor weights vary ± 2 lb (.9 kg) depending upon motor configuration.

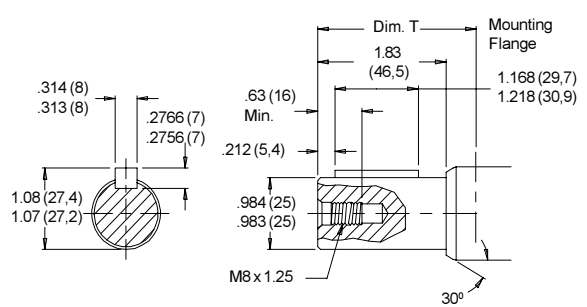
Subtract .11 in (3mm) from dimension for motors using 0 or 5 endcover.

•Shafts

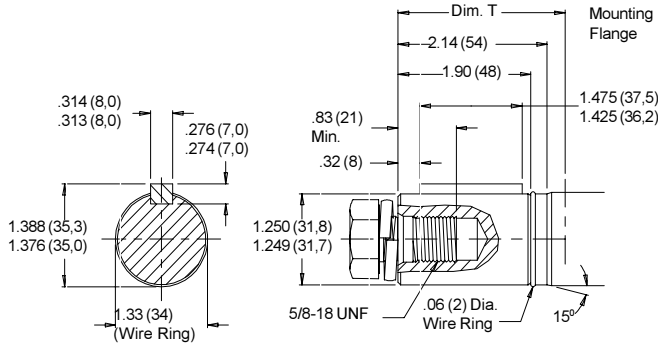
10 1" Straight Max. Torque: 5,880 lb-in 660 Nm



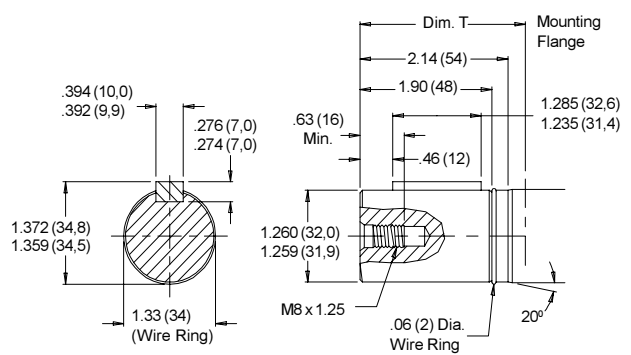
12 25mm Straight Max. Torque: 5,617 lb-in 635 Nm



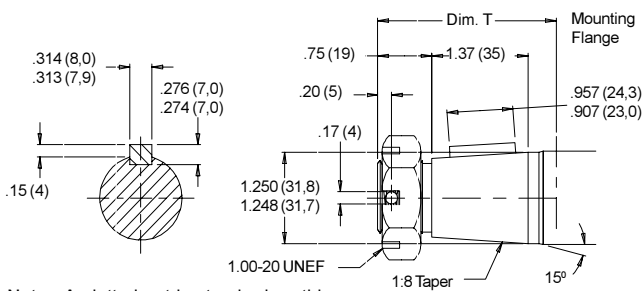
20 1-1/4" Straight Max. Torque: 10,600 lb-in 1,200 Nm



21 32mm Straight Max. Torque: 10,600 lb-in 1,200 Nm

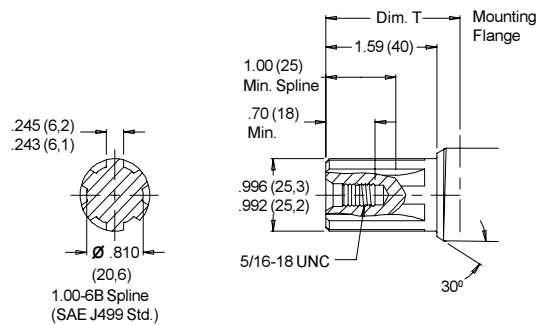


22 1-1/4" Tapered Max. Torque: 10,600 lb-in 1,200 Nm

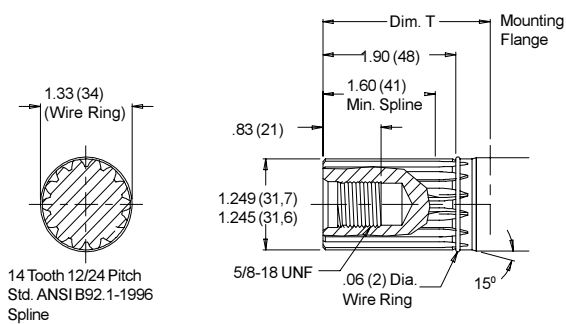


Note: A slotted nut is standard on this shaft.

02 6-B Spline Max. Torque: 10,600 lb-in 1,200 Nm



23 14 Tooth Spline Max. Torque: 10,600 lb-in 1,200 Nm



14 Tooth 12/24 Pitch Std. ANSI B92.1-1996 Spline

Shaft Lengths

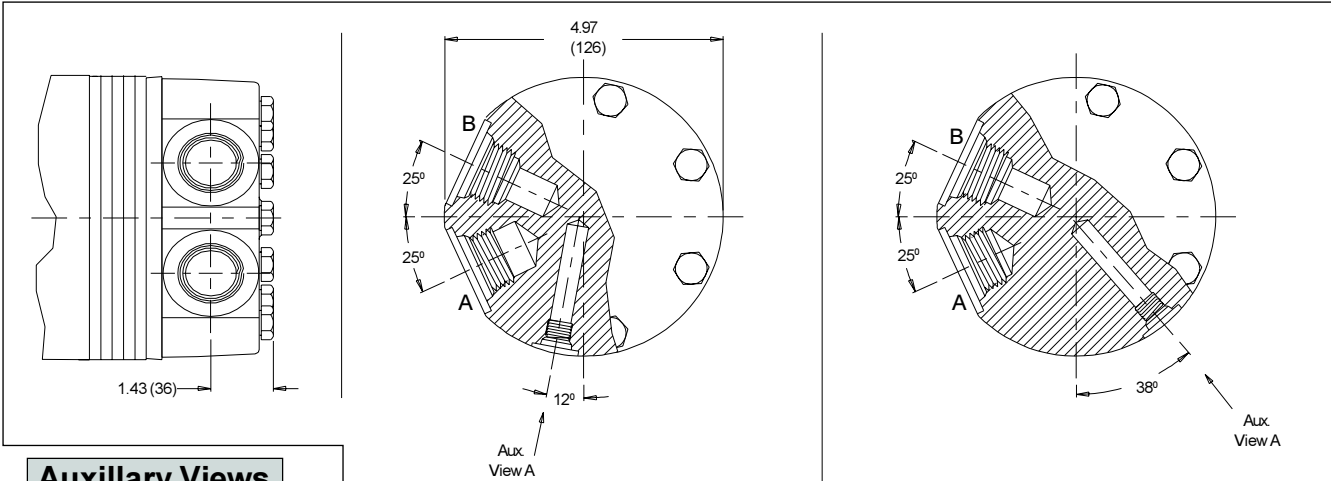
Dim. T	Shaft Code	SAE "A" Flange in (mm)	Setback Flange in (mm)
	02	1.97 (50)	3.60 (91)
	12	2.21 (56)	3.84 (98)
	22	2.58 (66)	4.22 (107)
	20	2.41 (61)	4.05 (103)
	23	2.42 (61)	4.06 (103)
	10	1.97 (50)	3.60 (91)
	21	2.41 (61)	4.05 (103)

Shaft lengths vary ± .030 in (.8mm)

•Porting Side Ports

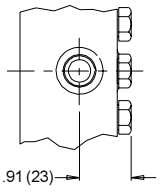
5 1 1/16" O-Ring with 7/16" Drain

2 3/4" BSP.F with 1/4" Drain

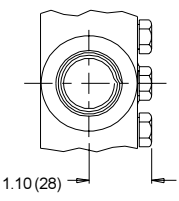


Auxillary Views

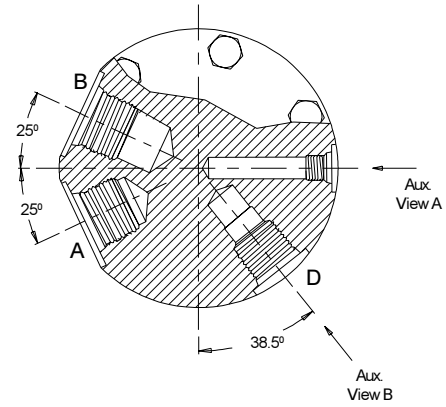
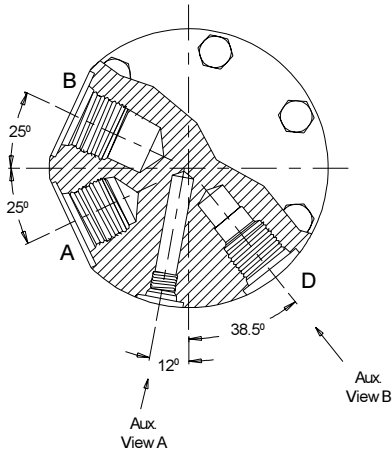
View A - Case Drain Port



View B - Valve Cavity



D - 10 Series/2-way Valve Cavity (7/8-14 UNF-2B)

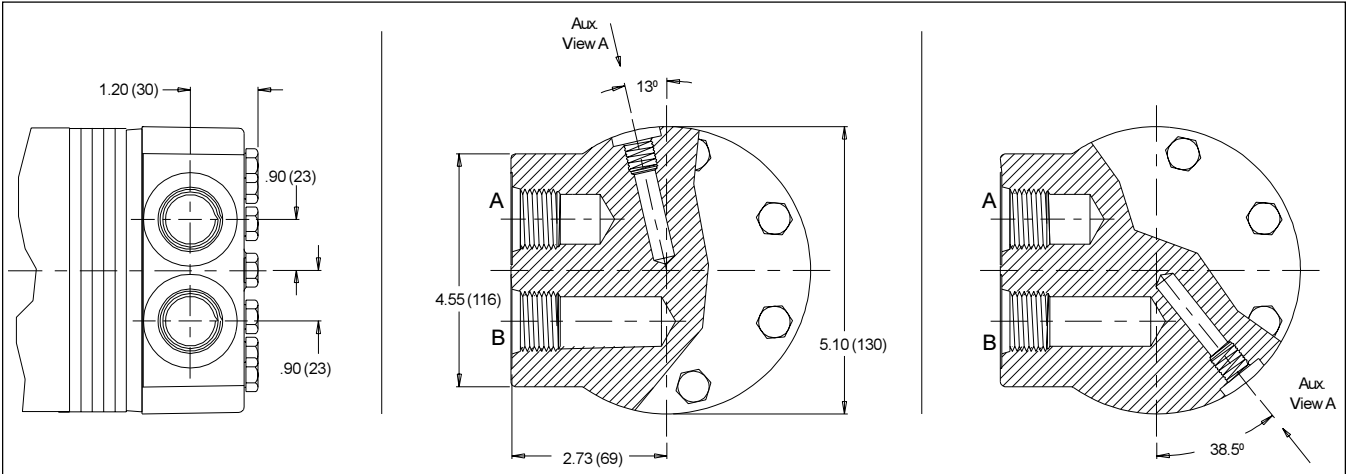


The 5 & 2 porting options can be ordered with an internal drain and/or a relief valve cavity.

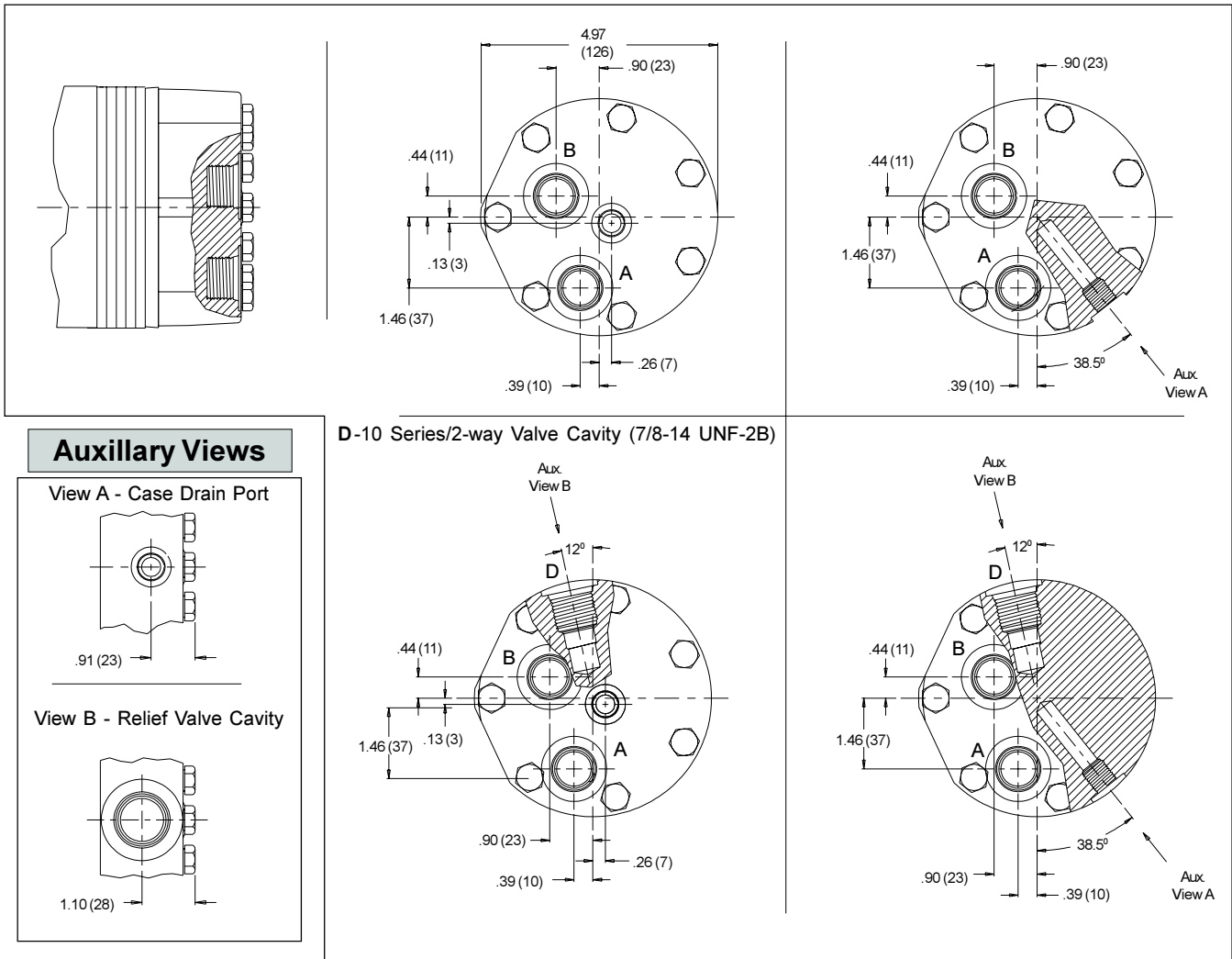
6 1 1/16" O-Ring with 7/16" Drain

7 3/4" BSP.F with 1/4" Drain

The 6 & 7 porting options can be ordered with an internal drain.

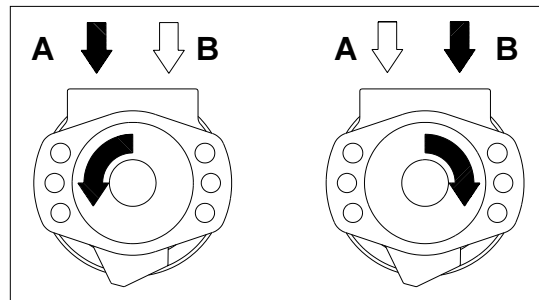


1 7/8" O-Ring with 7/16" Drain

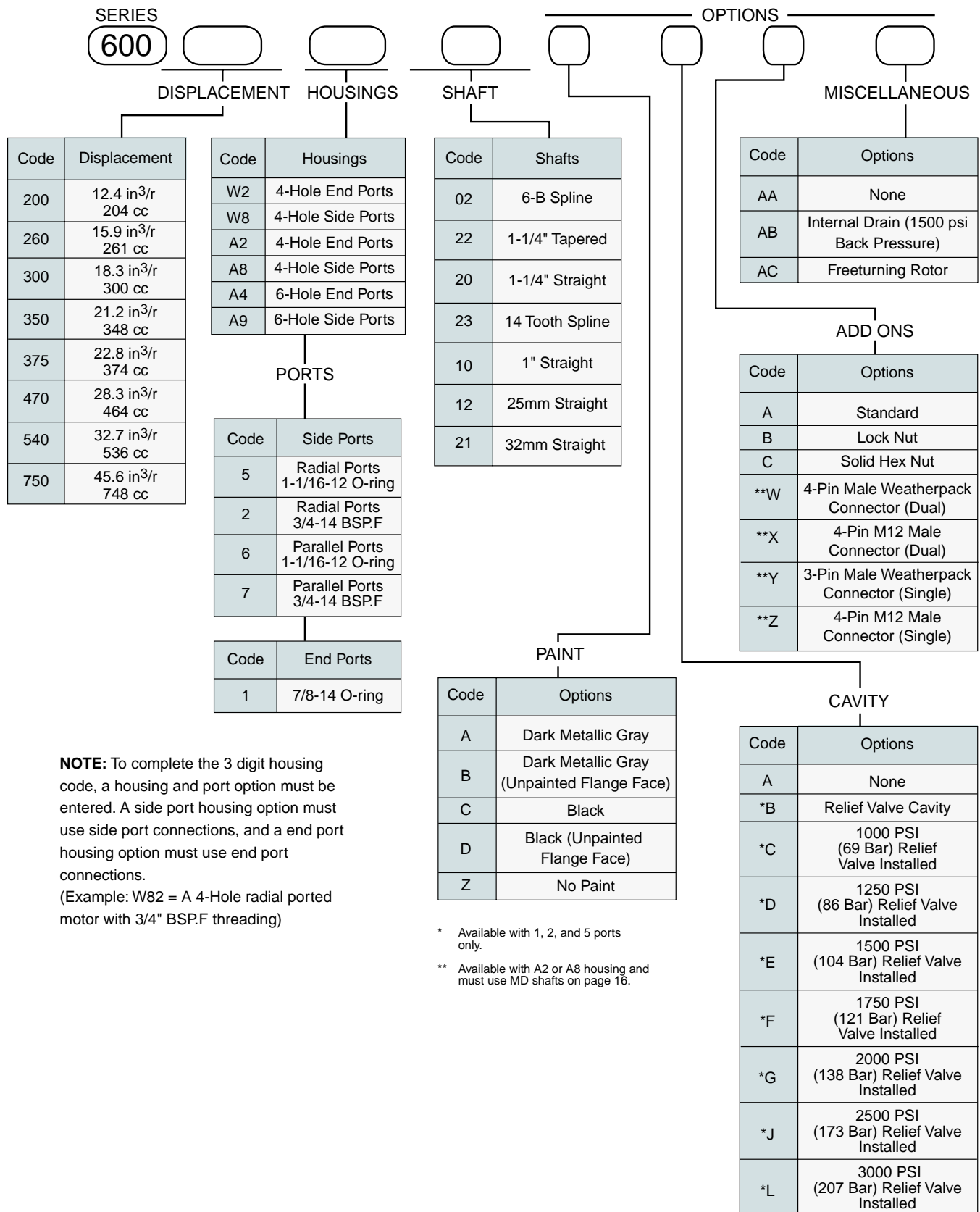


The 1 porting option can be ordered with an internal drain and/or a relief valve cavity.

DR Rotation Selection



•Ordering Information



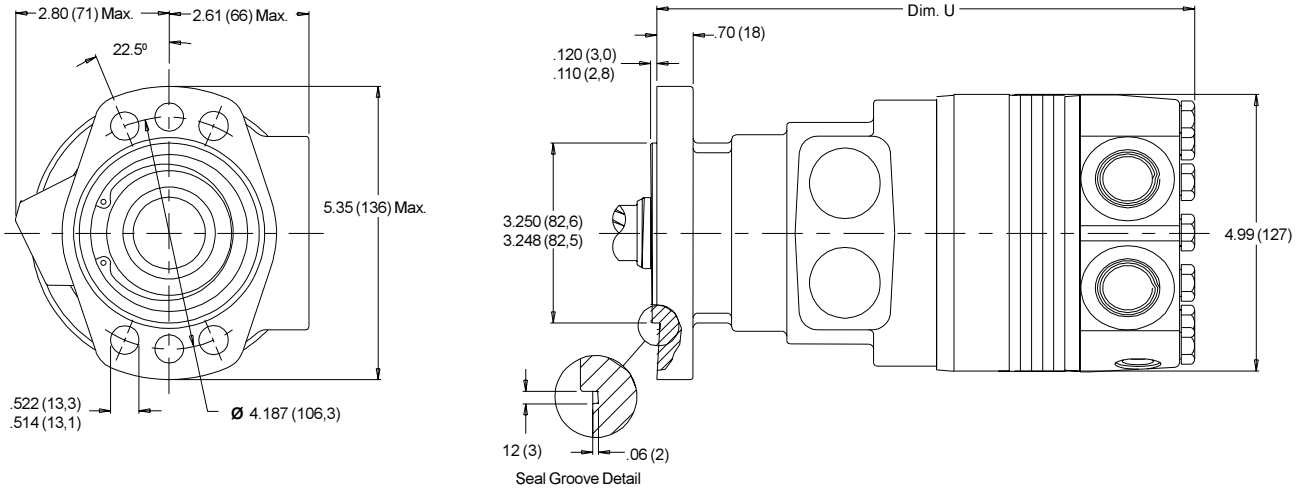
NOTE: To complete the 3 digit housing code, a housing and port option must be entered. A side port housing option must use side port connections, and a end port housing option must use end port connections.
(Example: W82 = A 4-Hole radial ported motor with 3/4" BSP.F threading)

* Available with 1, 2, and 5 ports only.

** Available with A2 or A8 housing and must use MD shafts on page 16.

•Housings SAE "A" Flange

A4	6-Hole with End Ports
A9	6-Hole with Side Ports



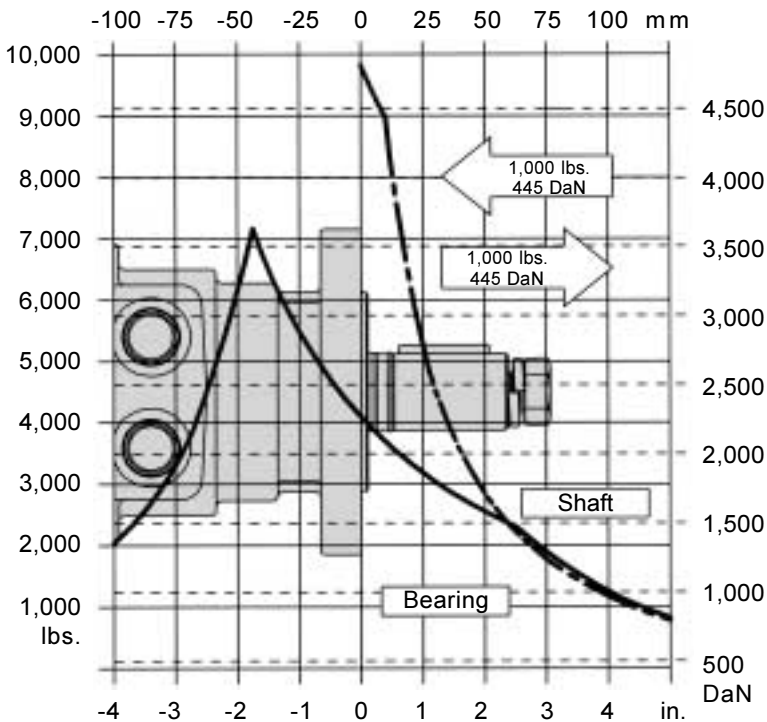
•Technical

Allowable Bearing And Shaft Loads

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2000 hours at 100 RPM. Radial loads for speeds other than 100 RPM may be calculated using the multiplication factor table located on page 23.

Shaft Curve: The shaft curve represents a 3:1 safety factor based on a tensile strength of 330 kpsi.

"A" Style Flange



Length and Weight Tables

"A" Style Flange

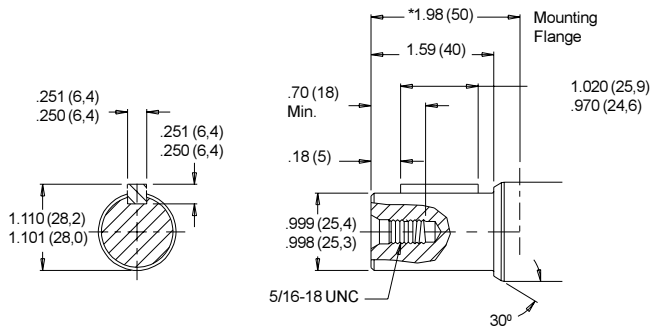
Disp. Code	Dim. U in (mm)	Weight lbs (kg)
200	9.19 (233)	34.5 (15,7)
260	9.38 (238)	35.6 (16,2)
300	9.51 (242)	37.2 (16,9)
350	10.06 (256)	39.7 (18,0)
375	9.76 (248)	38.4 (17,4)
470	10.06 (256)	39.7 (18,0)
540	10.30 (262)	40.8 (18,5)
750	11.01 (280)	44.1 (20,0)

DR motor weights vary ± 2 lb (.9 kg) depending upon motor configuration.

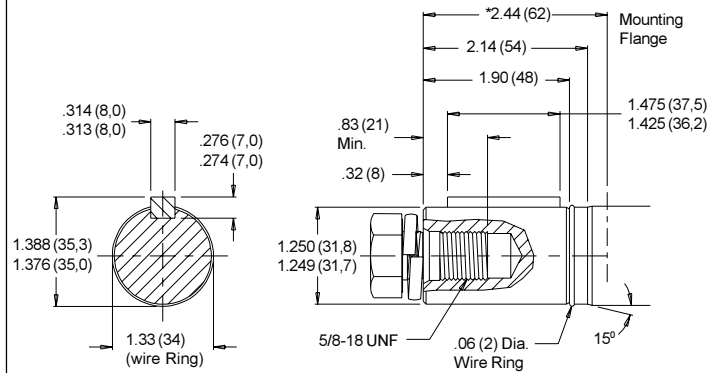
Subtract .11 in (3mm) from dimension for motors using 0 or 5 endcover.

•Shafts

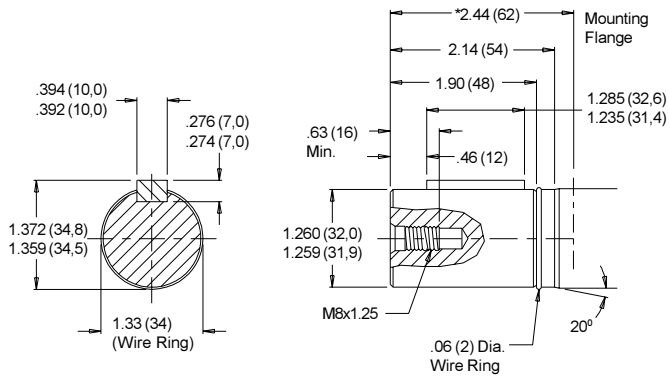
15 1" Straight Max. Torque: 5,850 lb-in
660 Nm



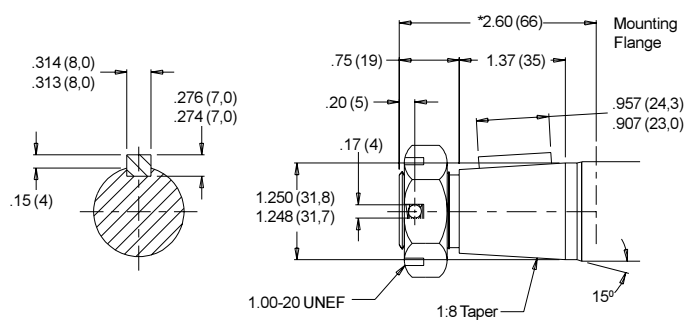
07 1-1/4" Straight Max. Torque: 10,600 lb-in
1,200 Nm



08 32mm Straight Max. Torque: 10,600 lb-in
1,200 Nm

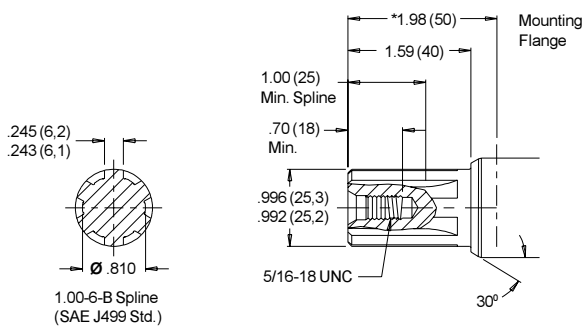


25 1-1/4" Tapered Max. Torque: 10,600 lb-in
1,200 Nm

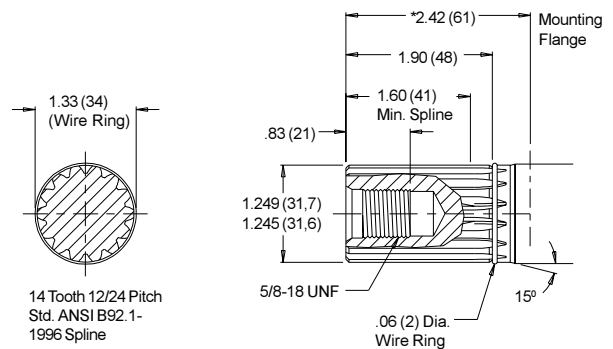


Note: A slotted nut is standard on this shaft.

03 6-B Spline Max. Torque: 10,600 lb-in
1,200 Nm

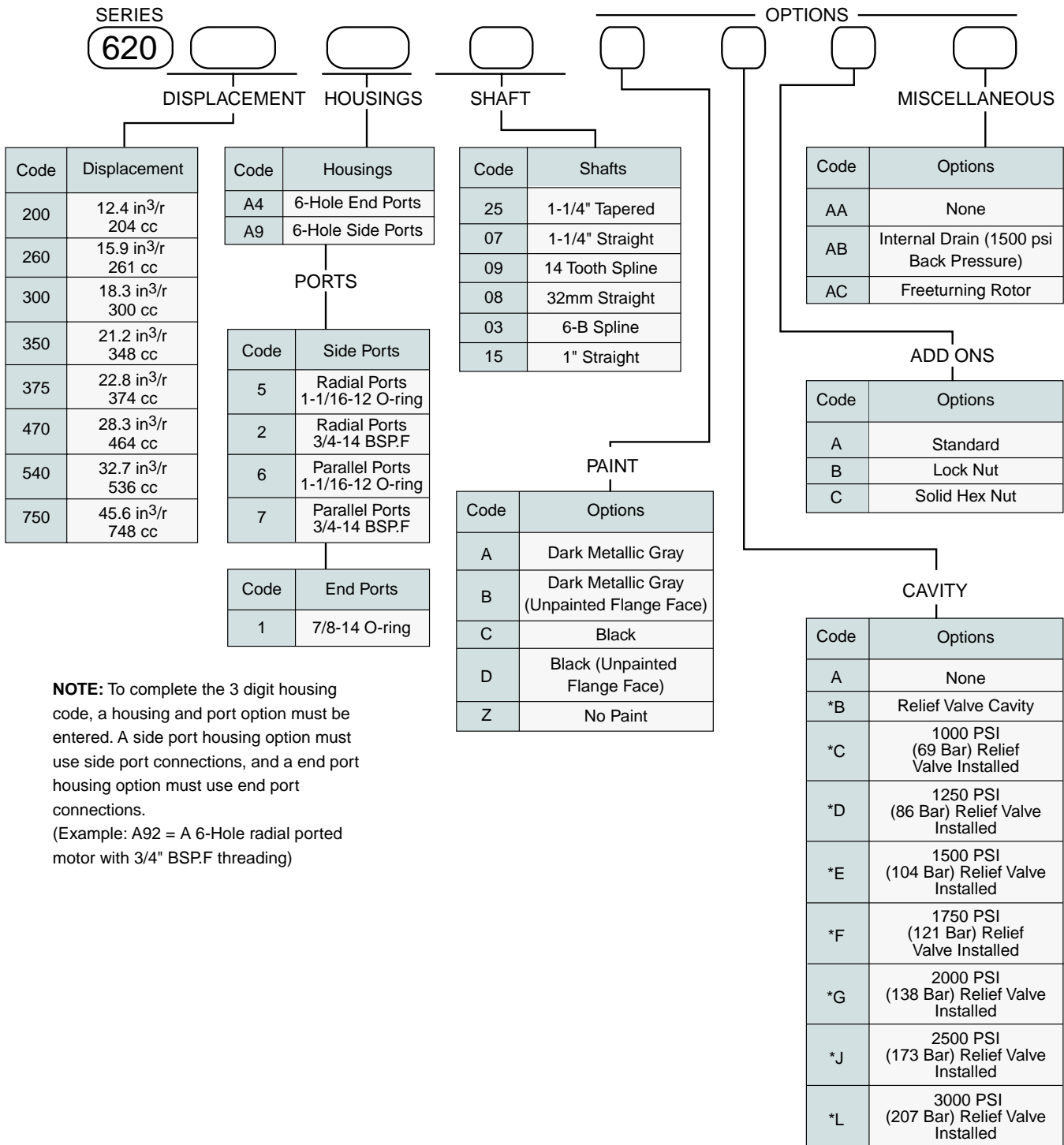


09 14 Tooth Spline Max. Torque: 10,600 lb-in
1,200 Nm



*Shaft lengths vary $\pm .030$ in (.8mm)

•Ordering Information

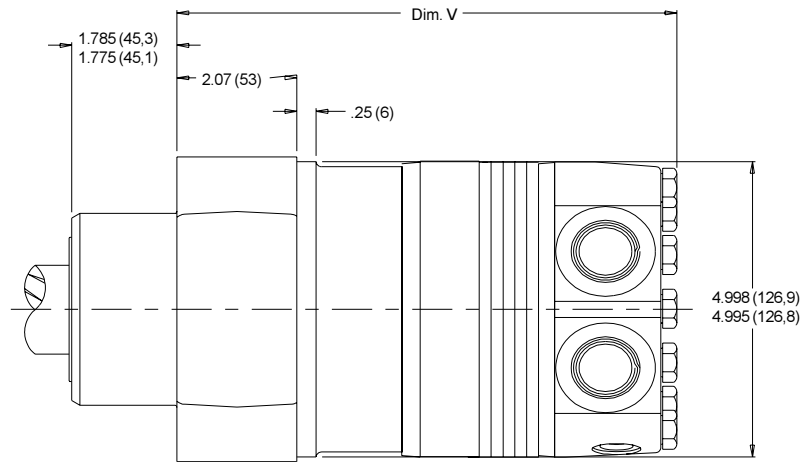
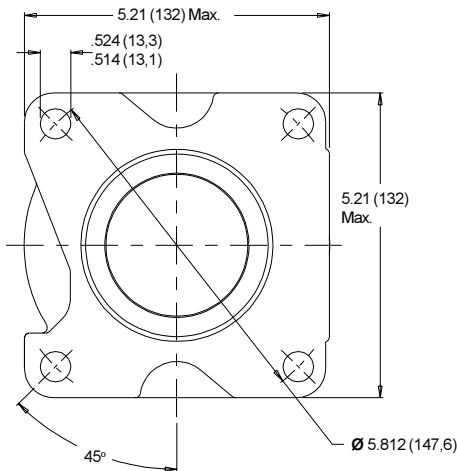


NOTE: To complete the 3 digit housing code, a housing and port option must be entered. A side port housing option must use side port connections, and a end port housing option must use end port connections.
(Example: A92 = A 6-Hole radial ported motor with 3/4" BSP.F threading)

* Available with 1, 2, and 5 ports only

•Housings Wheel Mount

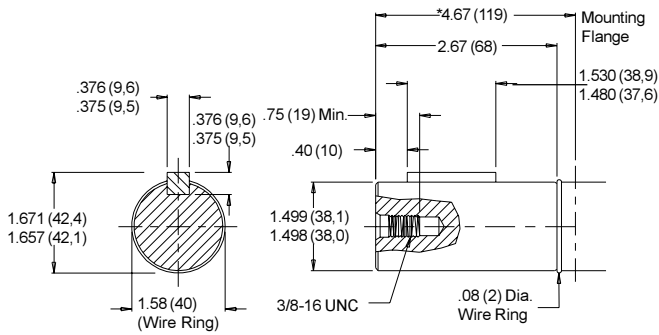
W2	4-Hole with End Ports
W8	4-Hole with Side Ports



•Shafts

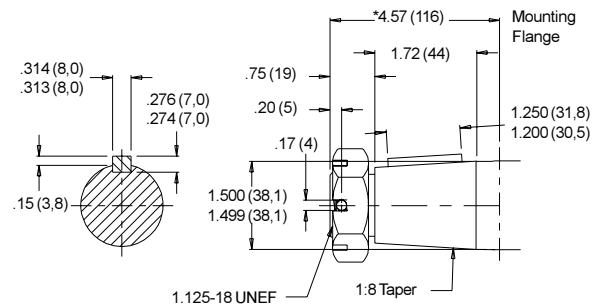
30 1-1/2" Straight

Max. Torque: 10,600 lb-in
1200 Nm



31 1-1/2" Tapered

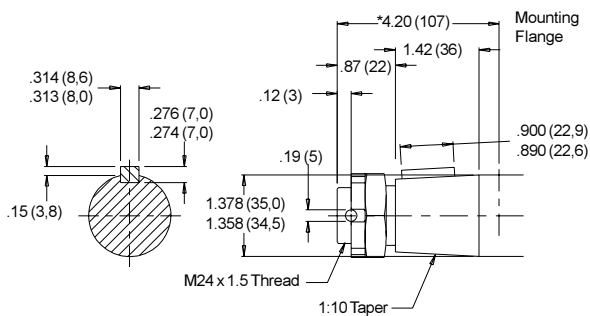
Max. Torque: 10,600 lb-in
1200 Nm



Note: A slotted nut is standard on this shaft.

28 35mm Tapered

Max. Torque: 10,600 lb-in
1200 Nm



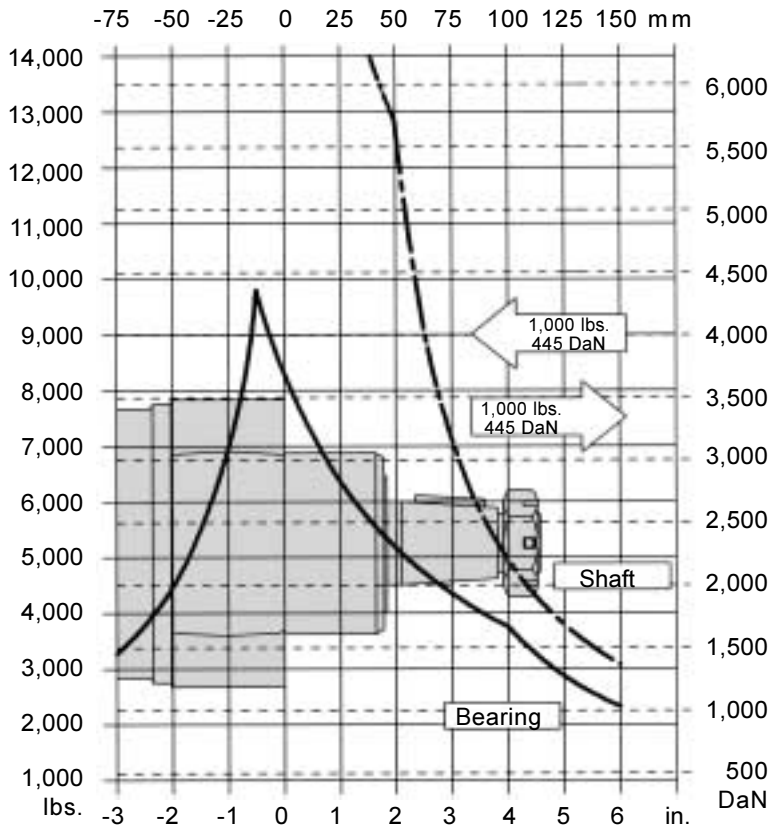
*Shaft lengths may vary by $\pm .030$ in (.8mm)

Allowable Bearing And Shaft Loads

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2000 hours at 100 RPM. Radial loads for speeds other than 100 RPM may be calculated using the multiplication factor table located on page 23.

Shaft Curve: The shaft curve represents a 3:1 safety factor based on a tensile strength of 330 kpsi.

Wheel Mount



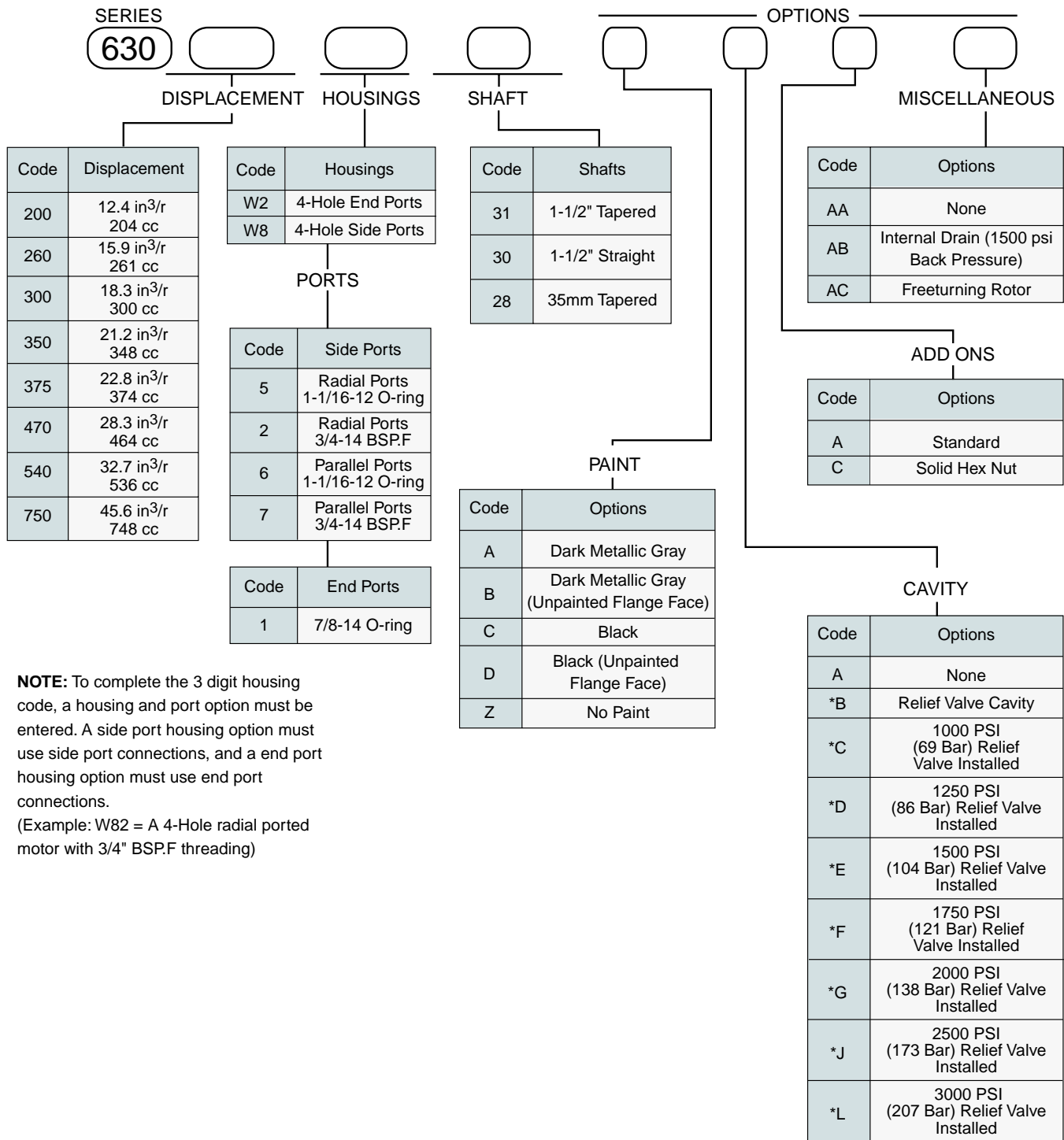
Wheel Mount

Disp. Code	Dim. V in (mm)	Weight lbs (kg)
200	7.96 (202)	38.5 (17,4)
260	8.15 (207)	39.5 (17,9)
300	8.28 (210)	40.1 (18,2)
350	8.83 (224)	42.6 (19,3)
375	8.53 (217)	41.2 (18,7)
470	8.83 (224)	42.6 (19,3)
540	9.07 (230)	43.7 (19,8)
750	9.78 (248)	47.0 (21,3)

DR motor weights vary ± 2 lb (.9 kg) depending upon motor configuration.

Subtract .11 in (3mm) from dimension for motors using 0 or 5 endcover.

•Ordering Information

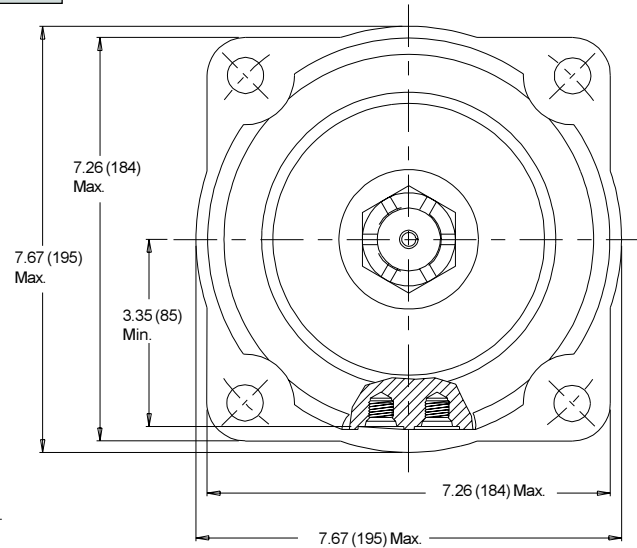
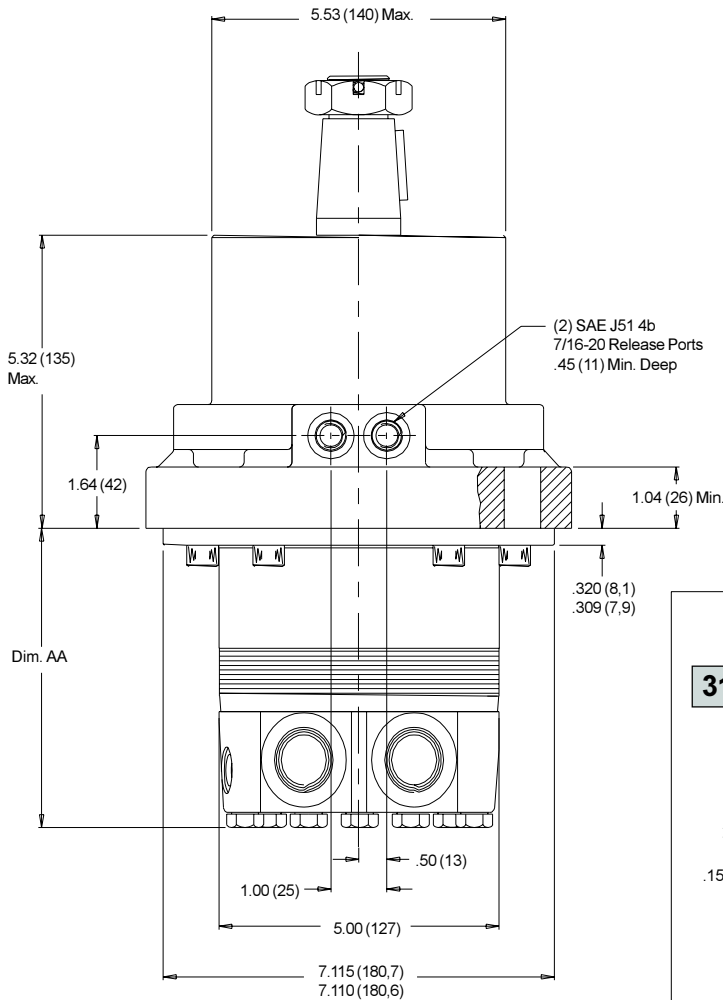


NOTE: To complete the 3 digit housing code, a housing and port option must be entered. A side port housing option must use side port connections, and an end port housing option must use end port connections.
(Example: W82 = A 4-Hole radial ported motor with 3/4" BSP.F threading)

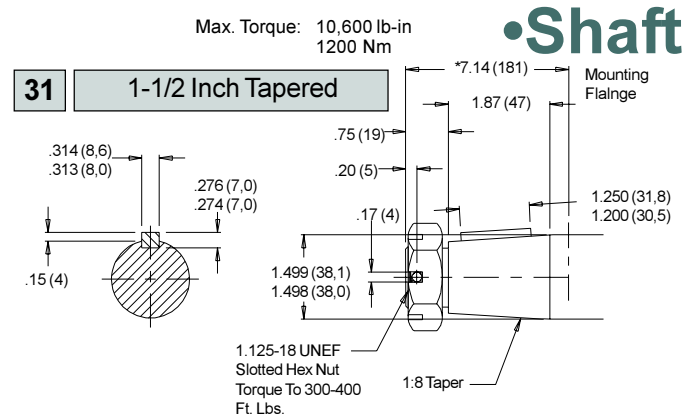
* Available with 1, 2, and 5 ports only

•Housings

W2 4-Hole with End Ports **W8** 4-Hole with Side Ports



•Shaft



Note: A slotted nut is standard on this shaft.

Note: Shaft lengths vary ± .030 (.8mm)

Length and Weight Tables

Disp. Code	Dim. AA in (mm)	Weight lbs (kg)
200	4.22 (107)	58.4 (26,5)
260	4.41 (112)	59.4 (26,9)
300	4.54 (115)	60.0 (27,2)
350	5.09 (129)	62.5 (28,3)
375	4.79 (122)	61.1 (27,7)
470	5.09 (129)	62.5 (28,3)
540	5.33 (135)	63.6 (28,8)
750	6.04 (153)	66.9 (30,3)

DR motor weights vary ± 2 lb (.9 kg) depending upon motor configuration.

Subtract .11 in (3mm) from dimension for motors using 0 or 5 endcover.

CAUTION: It is vital that all operating recommendations on page 22 be followed. Failure to do so could result in injury or death.

•Operating Recommendations

CAUTION! - White Hydraulics motors/brakes are intended to operate as static or parking brakes. System circuitry must be designed to bring the load to a stop before applying the brake.

CAUTION! - Because it is possible for some large displacement motors to overpower the brake, it is critical that the maximum system pressure be limited for these applications. Failure to do so could cause serious injury or death. When choosing a motor/brake for an application, consult the performance chart for the series and displacement chosen for the application to verify that the maximum operating pressure of the system will not allow the motor to produce more torque than the maximum rating of the brake. Also, it is vital that the system relief be set low enough to insure that the motor is not able to overpower the brake.

To ensure proper operation of the brake, case drain back pressure must be maintained at 500 psi or less. Case drain back pressure above 500 psi can result in erratic operation of the brake. To avoid potential problems with the operation of the brake, a separate case drain line is recommended. Use of the internal drain option is not recommended due to the possibility of return line pressure spikes. A simple schematic of a system utilizing a motor/brake is shown in Figure A at the bottom.

Although maximum brake release pressure may be used for an application, a 500 psi pressure reducing valve is recommended to promote maximum life for the brake release piston seals.

To achieve proper brake release operation, it is necessary to bleed out any trapped air and fill brake release cavity and hoses before all connections are tightened. To facilitate this operation, all motor/brakes feature two release ports. One or both of these ports may be used to release the brake in the unit. Motor/brakes should be configured so that the release ports are near the top of the unit in the installed position. Once all system connections are made, one release port must be opened to atmosphere and the brake release line carefully charged with fluid until all air is removed from the line and motor/brake release cavity. When this has been accomplished the port plug or secondary release line must be reinstalled.

In the event of a pump or battery failure, an external pressure source may be connected to the brake release port to release the brake, allowing the machine to be moved.

Typical motor/brake schematic

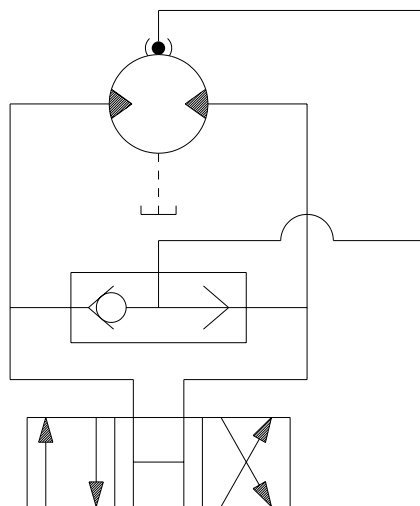


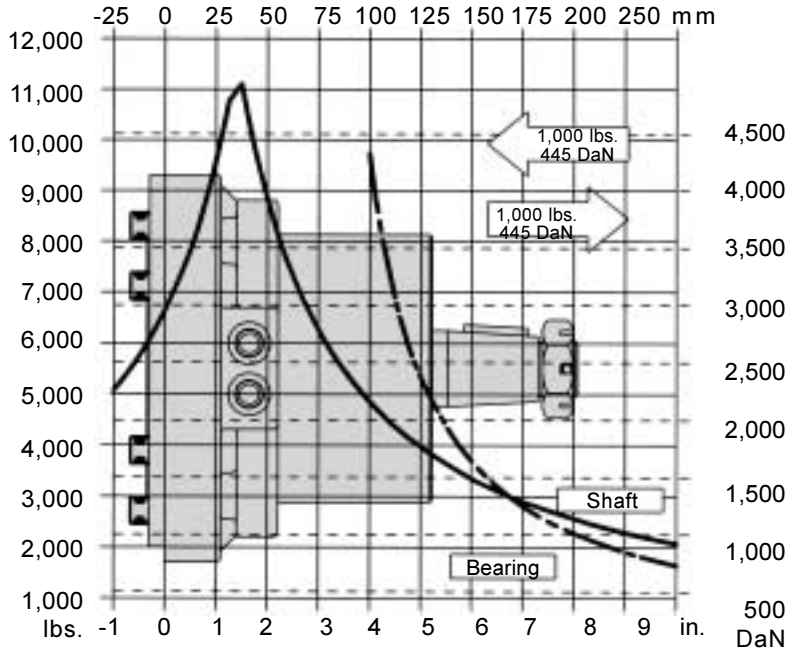
Figure A

•Technical

Allowable Bearing And Shaft Loads

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2000 hours at 100 RPM. Radial loads for speeds other than 100 RPM may be calculated using the multiplication factor table.

Shaft Curve: The shaft curve represents a 3:1 safety factor based on a tensile strength of 330 kpsi.



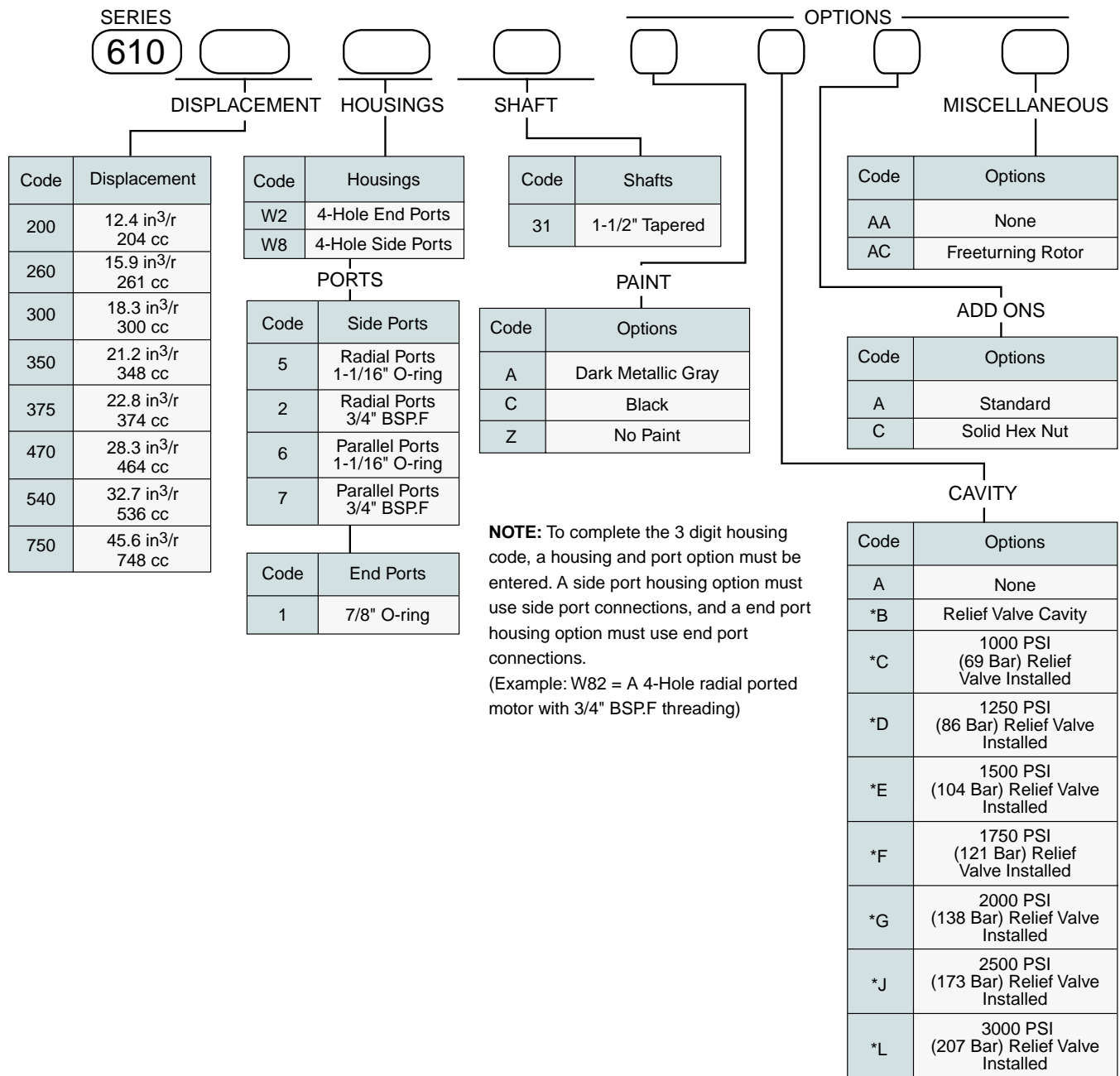
Bearing Load Multiplication Factor Table

RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.50

Operating Specifications

- Rated brake torque: 14,000 lb-in (1,582 Nm)
- Initial release pressure 275 psi (19 bar)
- Full release pressure 475 psi (33 bar)
- Maximum release pressure . 3,000 psi (207 bar)
- Release volume8 - 1.0 cu. in. (13-16cc)

•Ordering Information

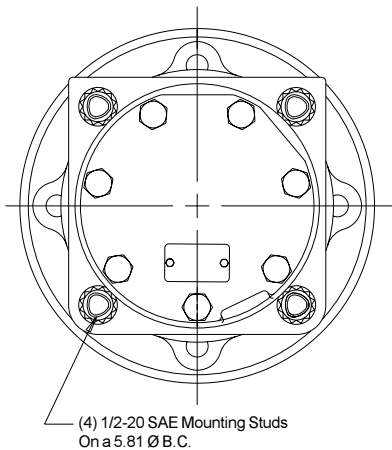
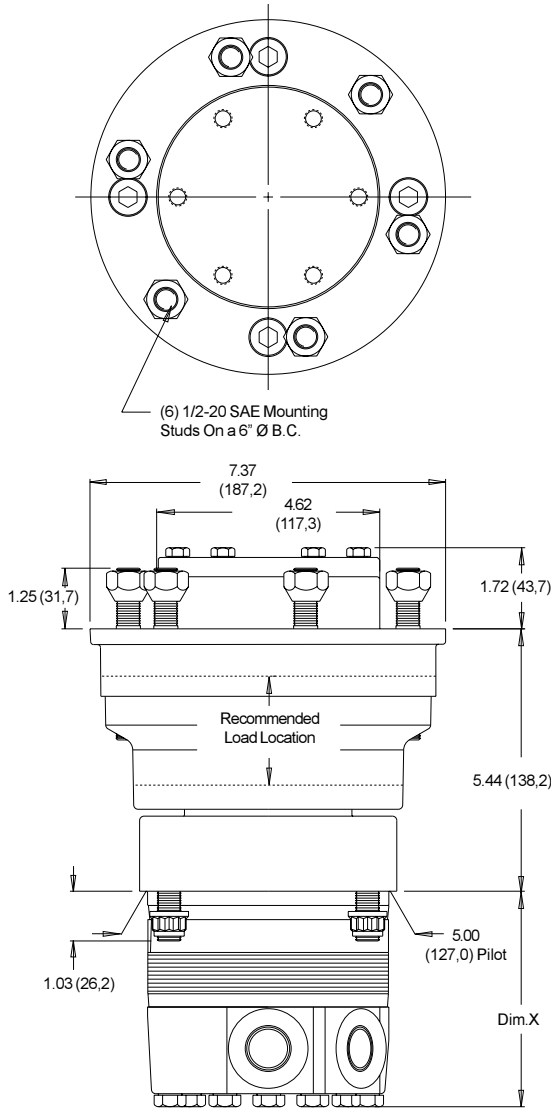


NOTE: To complete the 3 digit housing code, a housing and port option must be entered. A side port housing option must use side port connections, and an end port housing option must use end port connections.
(Example: W82 = A 4-Hole radial ported motor with 3/4" BSP.F threading)

* Available with 1, 2, and 5 ports only

W2 4-Hole with End Ports

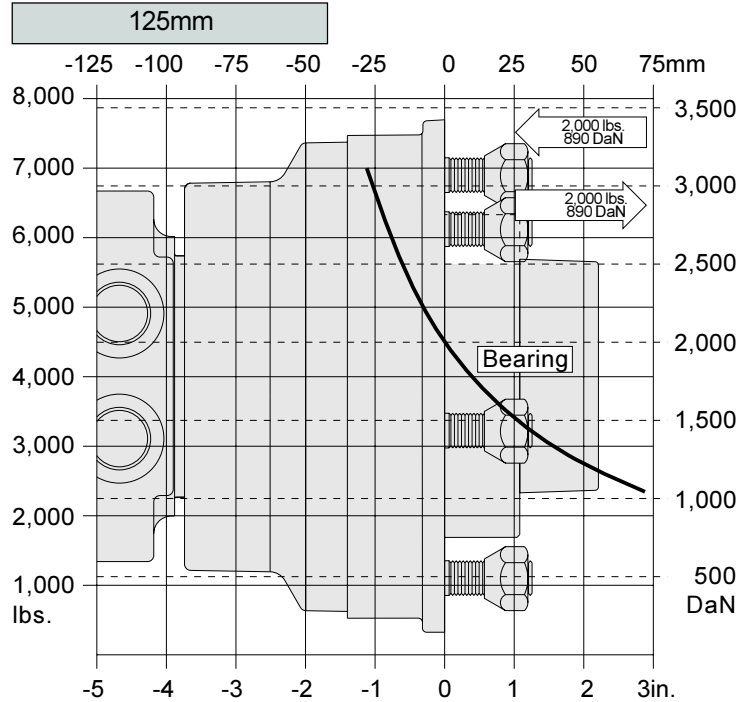
W8 4-Hole with Side Ports



Allowable Bearing And Shaft Loads

Bearing Curve: The bearing curve represents allowable bearing loads based on ISO 281 bearing capacity for an L_{10} life of 2000 hours at 100 RPM. Radial loads for speeds other than 100 RPM may be calculated using the multiplication factor table located on page 23.

Shaft Curve: The shaft curve represents a 3:1 safety factor based on a tensile strength of 330 kpsi.



Length and Weight Table

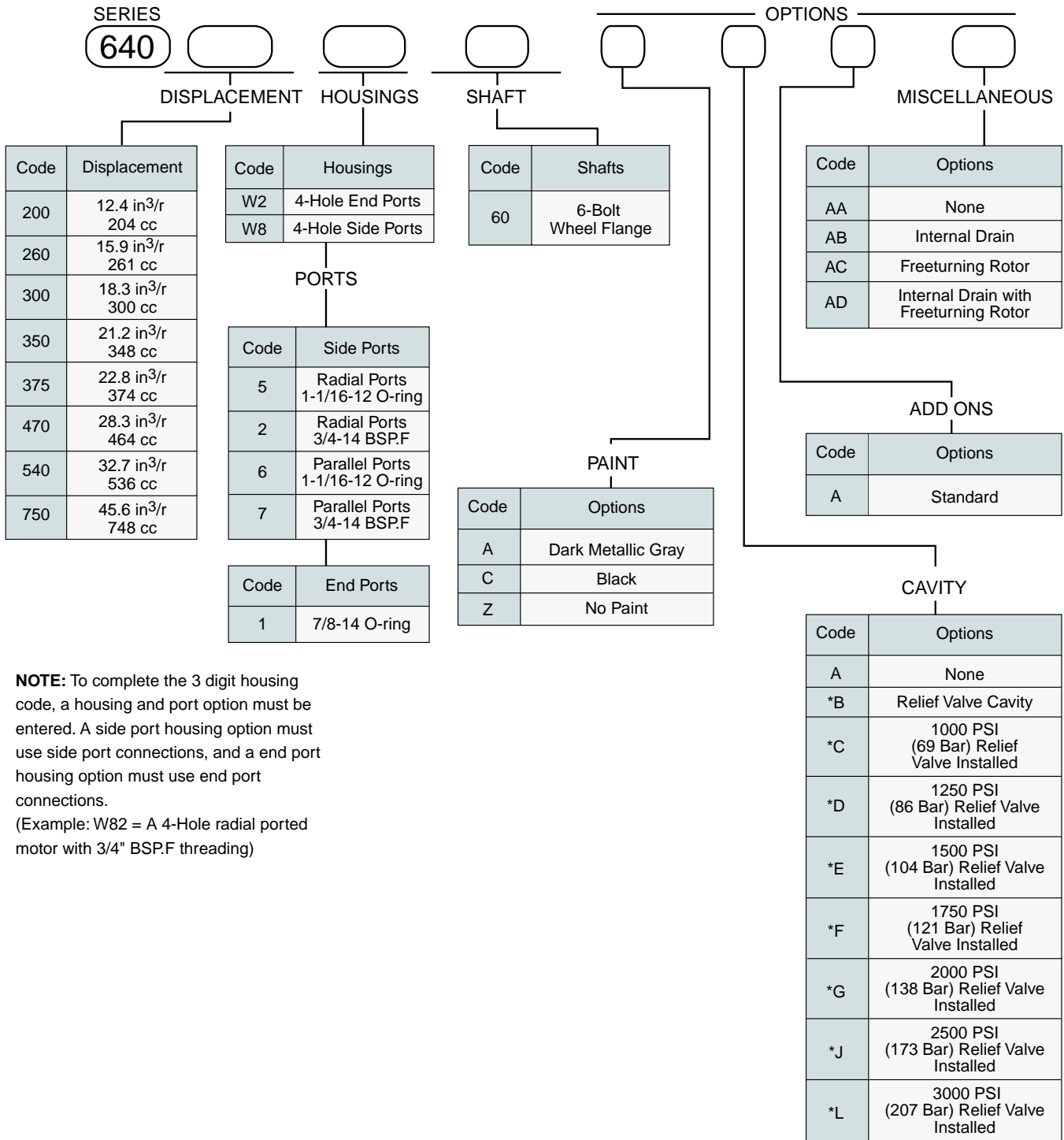
125mm

Disp. Code	Dim. X in (mm)	Weight lbs (kg)
200	4.42 (112)	53.9 (24,4)
260	4.61 (117)	54.7 (24,8)
300	4.74 (120)	55.5 (25,2)
350	5.29 (134)	57.9 (26,3)
375	4.99 (127)	56.7 (25,7)
470	5.29 (134)	57.9 (26,3)
540	5.53 (141)	59.1 (26,8)
750	6.24 (159)	62.2 (28,2)

DR motor weights vary ± 2 lb (.9 kg) depending upon motor configuration.

Subtract .11 in (3mm) from dimension for motors using 0 or 5 endcover.

•Ordering Information



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(Example: W82 = A 4-Hole radial ported motor with 3/4" BSP.F threading)

* Available with 1, 2, and 5 ports only