

SHAFT OPTIONS

Series 40 motors are available with a variety of splined, straight keyed, and tapered shaft ends. Nominal shaft sizes and torque ratings for some available shafts are shown in the accompanying table. Other shaft options may exist. Contact your Sauer-Danfoss representative for availability.

Torque ratings assume no external radial loading. **Continuous torque** ratings for splined shafts are based on spline tooth wear, and assume the mating spline has a minimum hardness of R_c 55 to full spline depth and coupling has good lubrication.

Maximum torque ratings are based on shaft torsional strength and assume a maximum of 200,000 load reversals.

Shaft availability and torque ratings

N•m [lbf•in]		M25 MF	M35 MF	M44 MF	M35 MV	M44 MV	M46 MV
Spline 13-tooth, 16/32 pitch	Continuous	80 [750]	73 [650]	73 [650]	73 [650]	73 [650]	73 [650]
	Max	140 [1240]	226 [2000]	226 [2000]	226 [2000]	226 [2000]	226 [2000]
Spline 15-tooth, 16/32 pitch	Continuous	-	153 [1350]	153 [1350]	153 [1350]	153 [1350]	153 [1350]
	Max	-	362 [3200]	362 [3200]	362 [3200]	362 [3200]	362 [3200]
Spline 19-tooth 16/32 pitch	Continuous	-	-	-	-	-	194 [1710]
	Max	-	-	-	-	-	460 [4070]
Tapered 1.00 inch	Max	140 [1240]	497 [4400]	497 [4400]	-	-	497 [4400]
Straight keyed 0.875 inch	Max	-	226 [2000]	226 [2000]	-	-	-

Recommended mating splines for Series 40 splined output shafts should be in accordance with ANSI B92.1 Class 5. Sauer-Danfoss external splines are modified Class 5 Fillet Root Side Fit. The external spline Major Diameter and Circular Tooth Thickness dimensions are reduced in order to assure a clearance fit with the mating spline.

**THROUGH-SHAFT
 OPTIONS**

Optional through-shafts are available on Series 40 fixed and variable displacement motors (as noted in the accompanying table). Through-shafts are provided for use in secondary (parking) braking systems. Through-shaft ends are not intended for continuous power transmission.

Through-shaft availability and torque limitations

Frame size	Shaft spline	Max. torque limit N•m [lbf•in]
M35 MF	13T 16/32 P	328 [2900]
M44 MF	13T 16/32 P	328 [2900]
M46 MV(SAE)	13T 16/32 P	328 [2900]

▲ WARNING

Potential loss of braking capacity.

Exceeding these torque limits could cause shaft breakage. Ensure your application never exceeds maximum torque limits under any operating conditions.

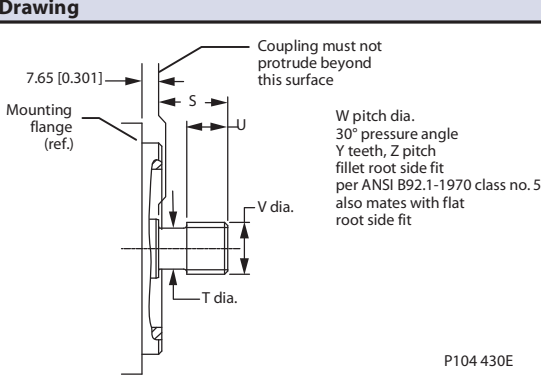
M25 MF

Code	Description	Torque rating		Drawing
		Maximum torque rating N•m [lbf•in]	Continuous torque rating N•m [lbf•in]	
E	13-tooth 16/32 pitch (ANSI B92.1 1970 - Class 5)	140 [1240]	80 [750]	<p>P104 428E</p>
N	Ø 25.4 mm [1.000 in] 1:8 taper	140 [1240]	—	<p>P104 429E</p>

Contact SAUER-DANFOSS Application Engineering for specific installation drawings.

Dimensions in mm [in]

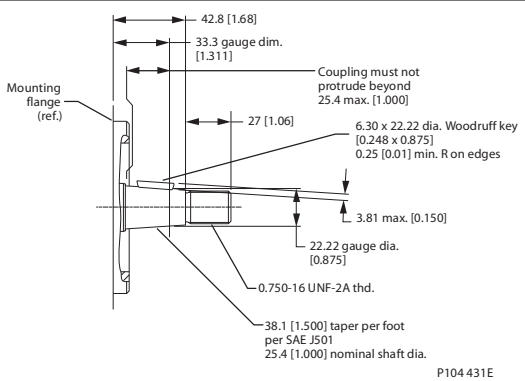
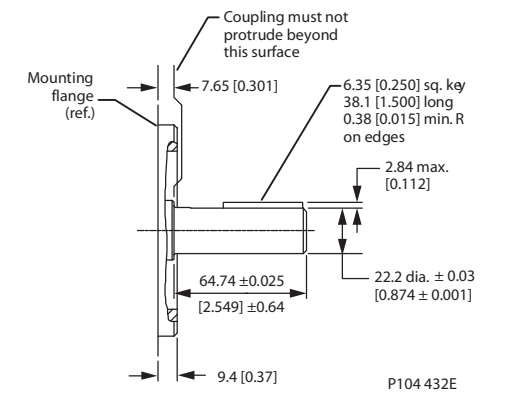
M35/44 MF

Code	Description	Torque rating		Drawing
		Maximum torque rating N•m [lbf•in]	Continuous torque rating N•m [lbf•in]	
A, C	Splined output shaft (see table)	13 tooth 226 [2000]	13 tooth 73 [650]	 <p>W pitch dia. 30° pressure angle Y teeth, Z pitch fillet root side fit per ANSI B92.1-1970 class no. 5 also mates with flat root side fit</p> <p>P104 430E</p>
F		15 tooth 362 [3200]	15 tooth 153 [1350]	

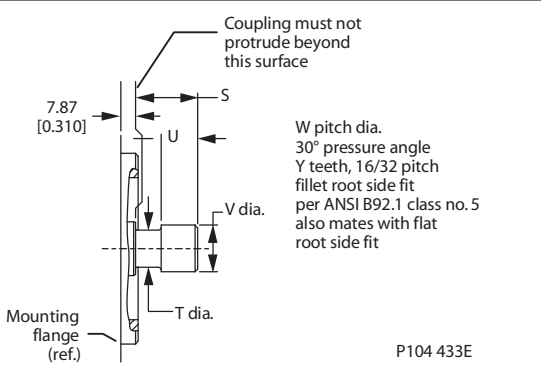
M35 / M44 MF splined shaft option

Shaft option	Shaft length S	Shaft diameter T	Full spline U	Major dia. V	Pitch dia. W	No. teeth Y	Pitch Z	Thru shaft
A	33.55 [1.321]	18.8 [0.74]	16.5 [0.65]	21.72 [0.8550]	20.638 [0.8125]	13	16/32	---
C	33.55 [1.321]	18.8 [0.74]	16.5 [0.65]	21.72 [0.8550]	20.638 [0.8125]	13	16/32	13T
F	33.55 [1.321]	21.98 [0.865]	18.5 [0.73]	24.89 [0.9800]	23.812 [0.9375]	15	16/32	---

M35/44 MF (CONTINUED)

Code	Description	Torque rating		Drawing
		Maximum torque rating N•m [lbf•in]	Continuous torque rating N•m [lbf•in]	
N	Ø 25.4 mm [1.000 in] 1:8 taper	497 [4400]	—	
Y	Ø 22.2 mm [0.874 in] straight keyed	226 [2000]	—	

M35/44 MV

Code	Description	Torque rating		Drawing
		Maximum torque rating N•m [lbf•in]	Continuous torque rating N•m [lbf•in]	
A	Splined output shaft (see table)	73 [650]	226 [2000]	

M35 / M44 MV splined shaft option

Shaft option	Max. coupling engagement S	Shaft diameter T	Full spline length U	Major dia. V	Pitch dia. W	No. teeth Y	Pitch	Thru shaft
A	33.3 [1.31]	18.8 [0.74]	16.5 [0.65]	21.72 [0.855]	20.638 [0.8125]	13	16/32	---

M46 MV

Code	Description	Torque rating		Drawing
		Maximum torque rating N•m [lbf•in]	Continuous torque rating N•m [lbf•in]	
A, B,	Splined output shaft (see table)	13 tooth 226 [2000]	13 tooth 73 [650]	<p>P104 434E</p>
E, F,		15 tooth 362 [3200]	15 tooth 153 [1350]	
D		19 tooth 460 [4070]	19 tooth 194 [1710]	
J	25.4 [1.000] tapered shaft	—	497 [4400]	<p>P104 435E</p>

M46 MV splined shaft option

Shaft option	Shaft extension R	Max. coupling engagement S	Shaft diameter T	Full spline length U	Major dia. V	Pitch dia. W	No. teeth Y	Pitch Z	Thru shaft
A	32.94 [1.297]	32 [1.26]	19.1 [0.75]	15.8 [0.62]	21.72 [0.855]	20.638 [0.8125]	13	16/32	---
B	32.94 [1.297]	32 [1.26]	19.1 [0.75]	15.8 [0.62]	21.72 [0.855]	20.628 [0.8125]	13	16/32	13T
E	37.72 [1.485]	36.6 [1.44]	22.3 [0.88]	22.86 [0.90]	24.89 [0.980]	23.812 [0.9375]	15	16/32	---
F	37.72 [1.485]	36.6 [1.44]	22.3 [0.88]	22.86 [0.90]	24.89 [0.980]	23.812 [0.9375]	15	16/32	13T
D	37.72 [1.485]	36.6 [1.44]	28.4 [1.114]	22.35 [0.88]	31.24 [1.230]	30.162 [1.1875]	19	16/32	---

Contact SAUER-DANFOSS Application Engineering for specific installation drawings.

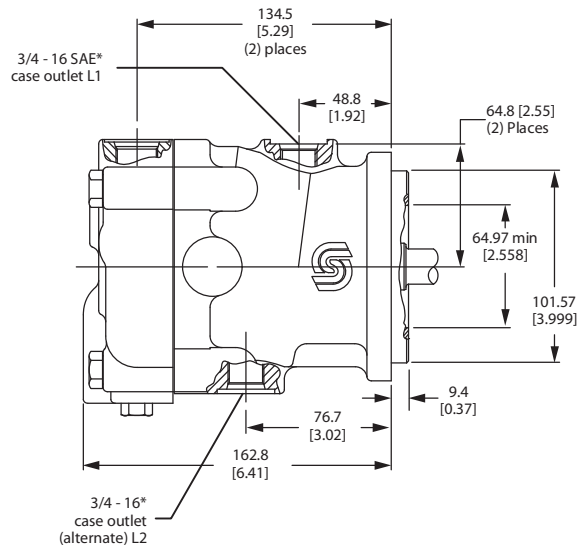
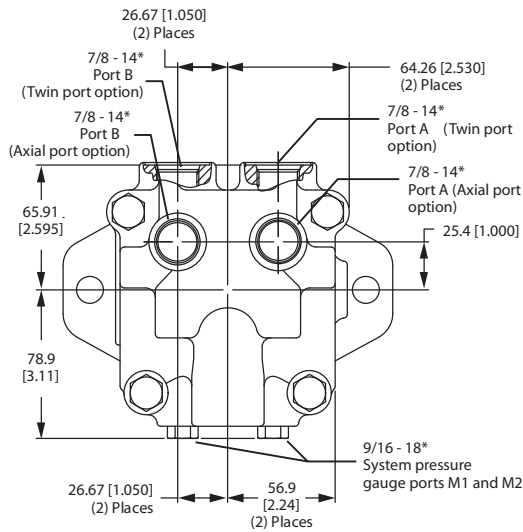
Dimensions in mm [in]

**M25 MF: AXIAL PORTS,
 TWIN PORTS, LOOP
 FLUSHING, SPEED
 SENSOR**

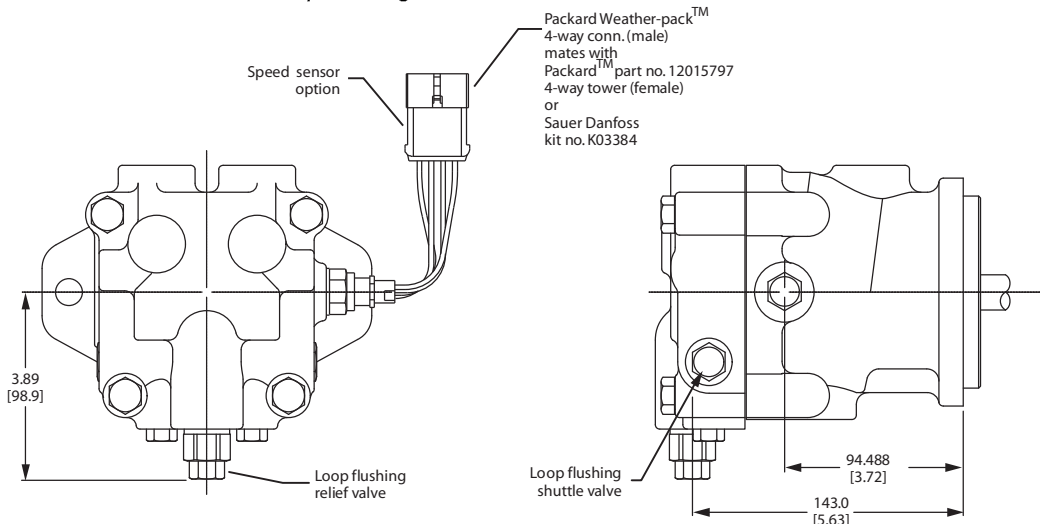
Flow direction

Motor shaft rotation	Port A	Port B
Clockwise (CW)	In	Out
Counterclockwise (CCW)	Out	In

Axial or twin ports



With loop flushing

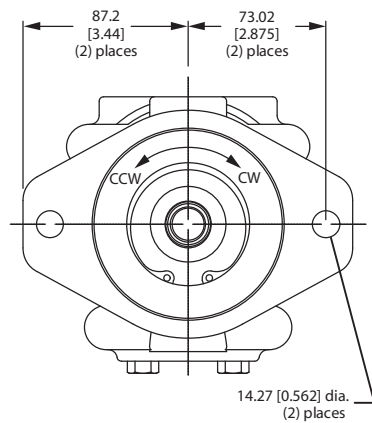


P100 565E

*All ports are SAE straight thread o-ring ports per SAE J514, unless otherwise specified.
 Shaft rotation is determined by viewing pump from input shaft end.
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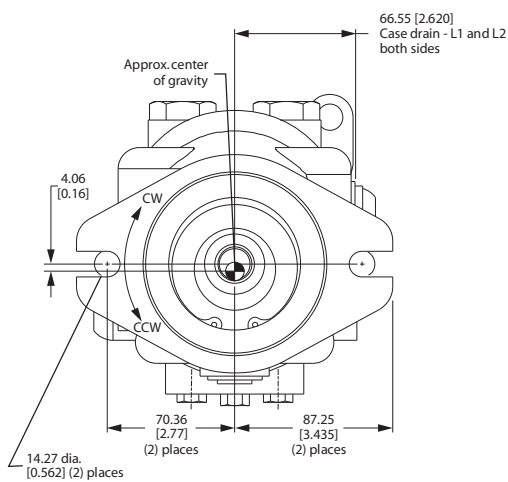
Dimensions in mm [in]

**M25 MF: MOUNTING
 FLANGE**



P100 566E

**M35/M44 MF: MOUNTING
 FLANGE**



P100 569E

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 Shaft rotation is determined by viewing pump from input shaft end.
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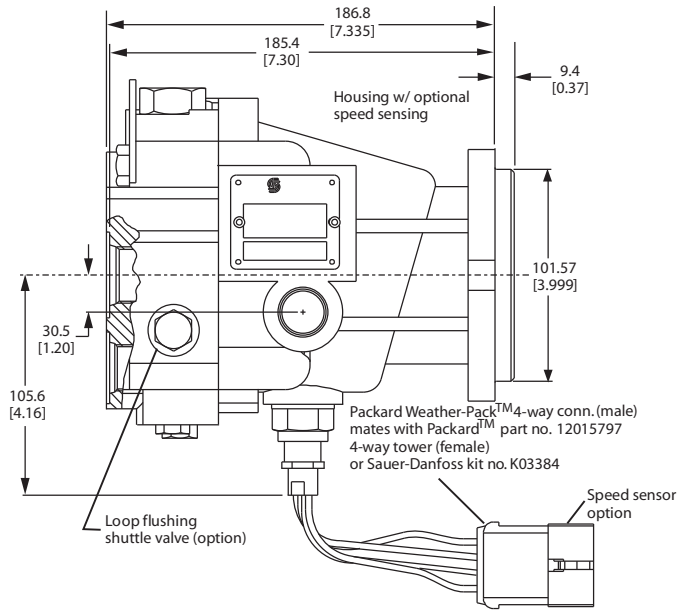
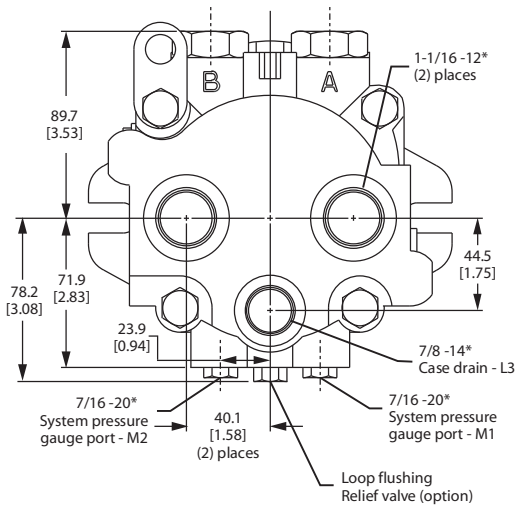
Dimensions in mm [in]

**M35/M44 MF: AXIAL
 PORTS, TWIN PORTS,
 LOOP FLUSHING, SPEED
 SENSOR**

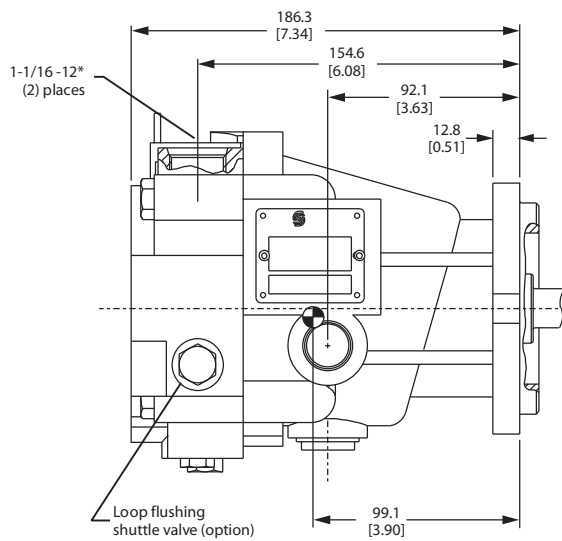
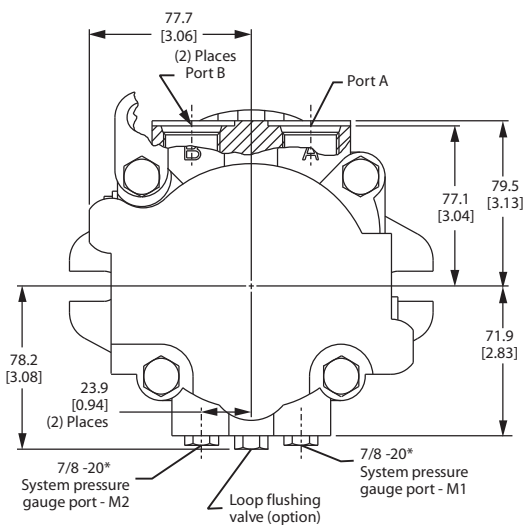
Flow direction

Motor shaft rotation	Port A	Port B
Clockwise	In	Out
Counterclockwise	Out	In

Axial ports



Twin ports



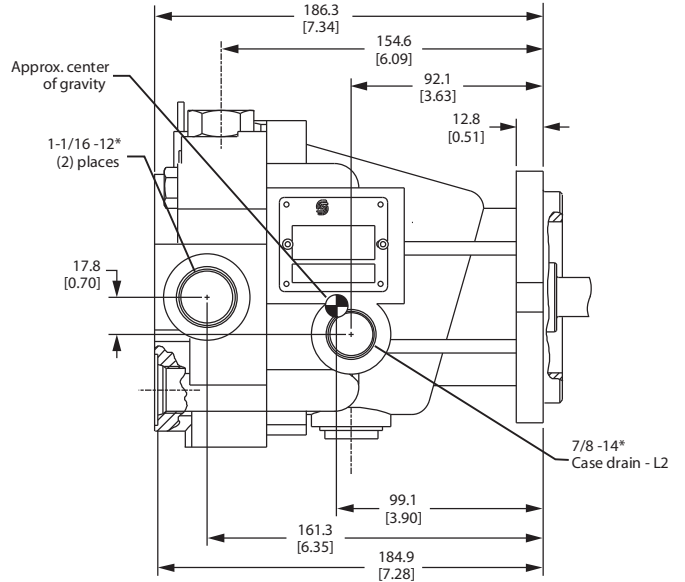
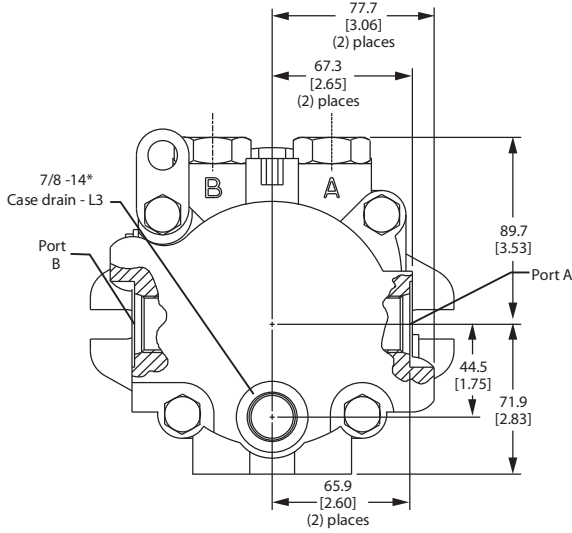
P100 567E

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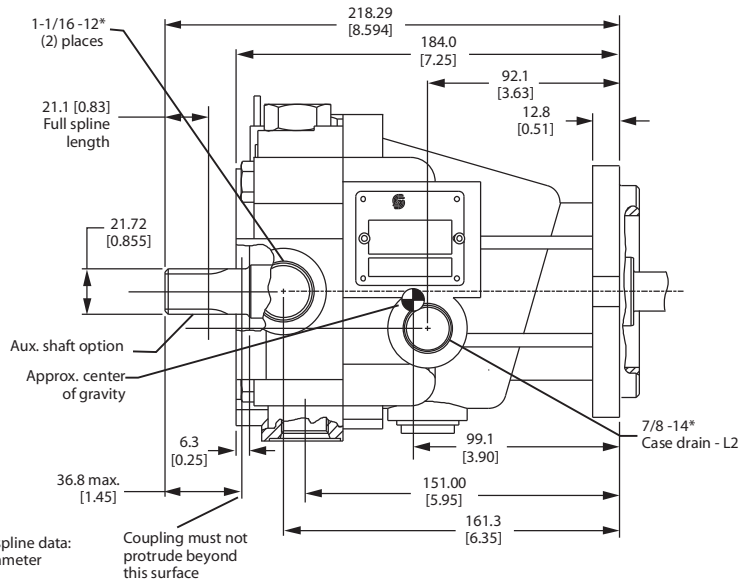
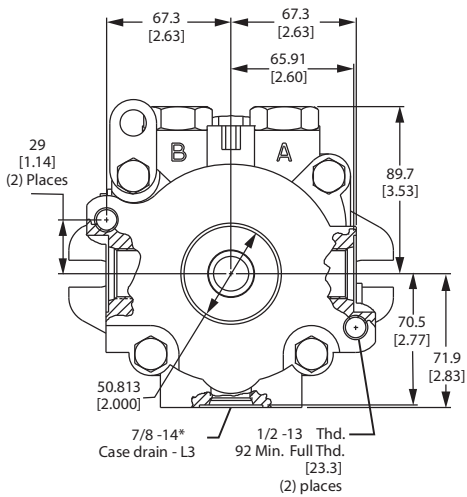
Dimensions in mm [in]

M35/M44 MF: SIDE PORTS, THROUGH SHAFT

Side ports



Side ports with thru shaft



Auxiliary drive spline data:
 20.638 pitch diameter [0.8125]
 30° pressure angle
 13 teeth, 16/32 pitch
 fillet root side fit
 ANSI B92.1-1790 class no.5
 also mates with flat root side fit

P100 568E

*All ports are SAE straight thread o-ring ports per SAE J514, unless otherwise specified.
 Shaft rotation is determined by viewing pump from input shaft end.
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Dimensions in mm [in]