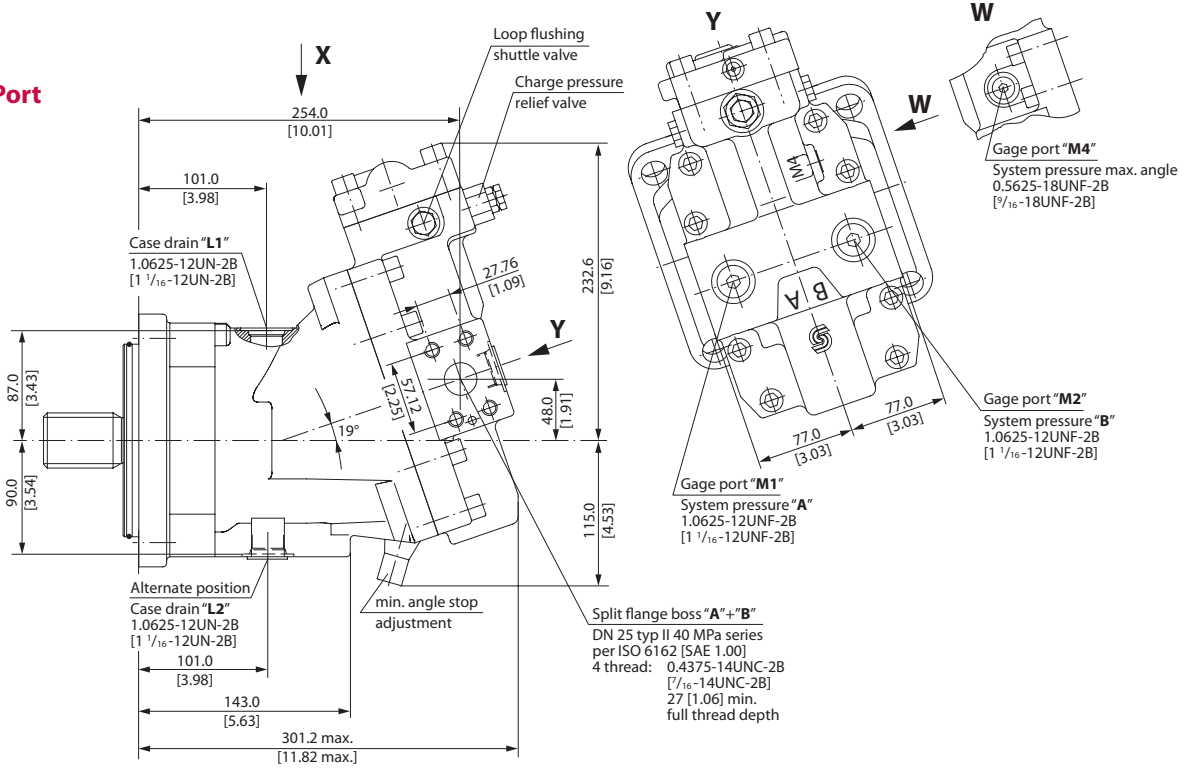


**SAE Flange Design  
 per ISO 3019/1**

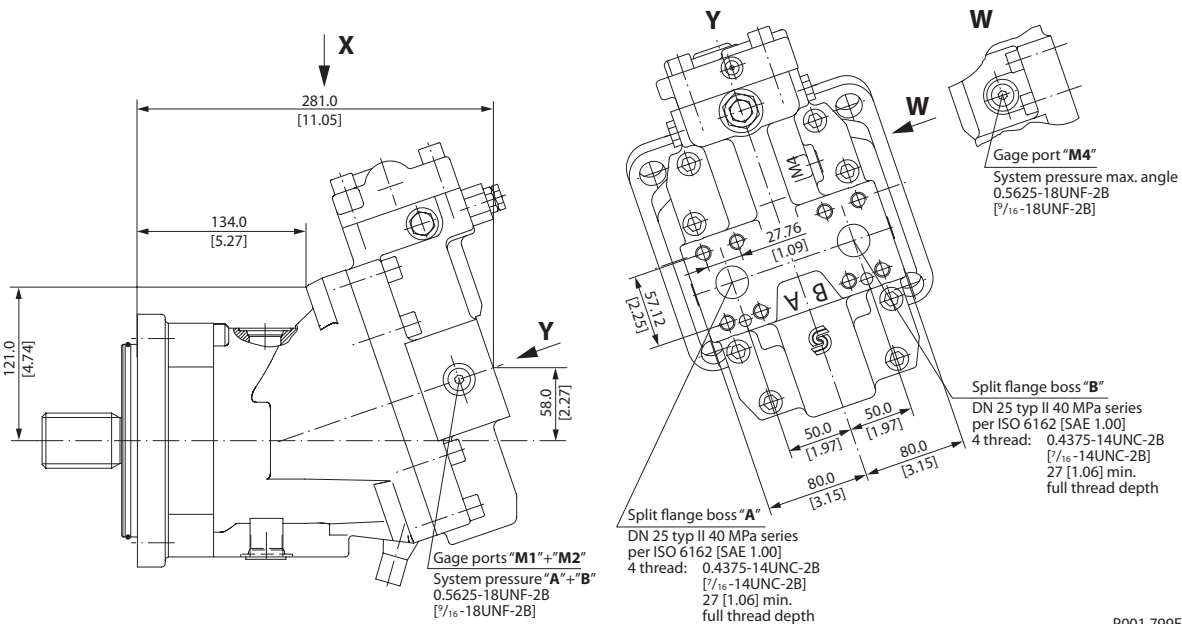
**51V110-1 Two Position Control, N1NN**

mm  
 [in]

**Side Port**



**Axial Port**

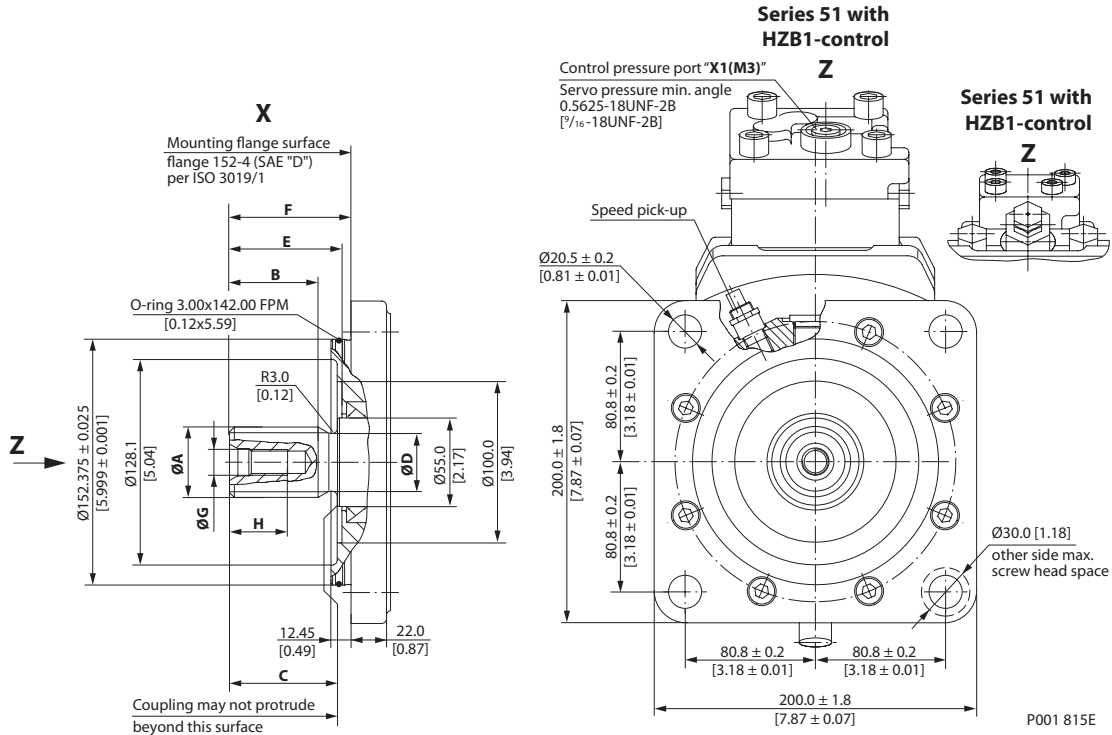




SAE Flange Design  
 per ISO 3019/1  
 (continued)

Shaft Options – 51V110-1 and 51V110

mm  
 [in]



Shaft Spline Data				
Shaft option	F1		C8	
Dimension	mm	[in]	mm	[in]
Number of teeth	13		27	
Pitch	8/16		16/32	
Pressure angle	30°			
Spline	ANSI B92.1-1970 class 5 flat root side fit			
Pitch dia	41.275	[1.625]	42.862	[1.688]
A	43.64	[1.72]	43.96	[1.73]
B	55.00	[2.17]	55.00	[2.17]
C	67.00 $\pm$ 0.5	[2.64]	67.00 $\pm$ 0.5	[2.64]
D	36.00	[1.42]	39.60	[1.56]
E	69.80 $\pm$ 1.1	[2.75]	69.80 $\pm$ 1.1	[2.75]
F	75.40 $\pm$ 0.7	[2.97]	75.40 $\pm$ 0.7	[2.97]
G	0.625-11UNC-2B [5/8-11UNC-2B] allowed torque in thread max. 200 Nm [1770 lbf·in]			
H	36.00	[1.42]	36.00	[1.42]

Flow into port **A** results in **CW** rotation of output shaft.  
 Flow into port **B** results in **CCW** rotation of output shaft.  
 Shaft rotation is determined by viewing from shaft end.  
 Ports with O-ring seal and inch threads shall be in accordance with ISO 11926/1.  
 Splite flange boss A and B per ISO 6162 is identical with high pressure series SAE J518 code 62 (6000 psi).  
 Contact your Sauer-Danfoss representative for specific installation drawings.

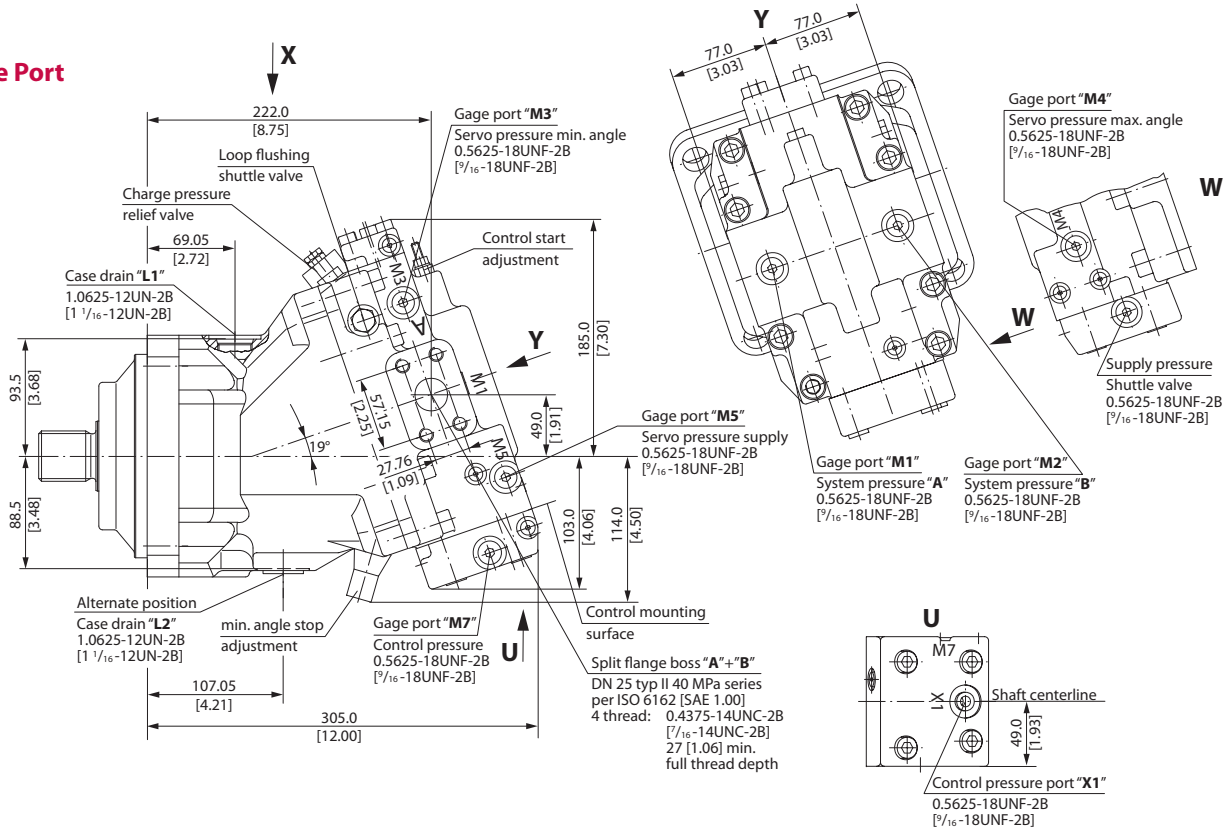


**DIN Flange Design  
 per ISO 3019/2  
 (continued)**

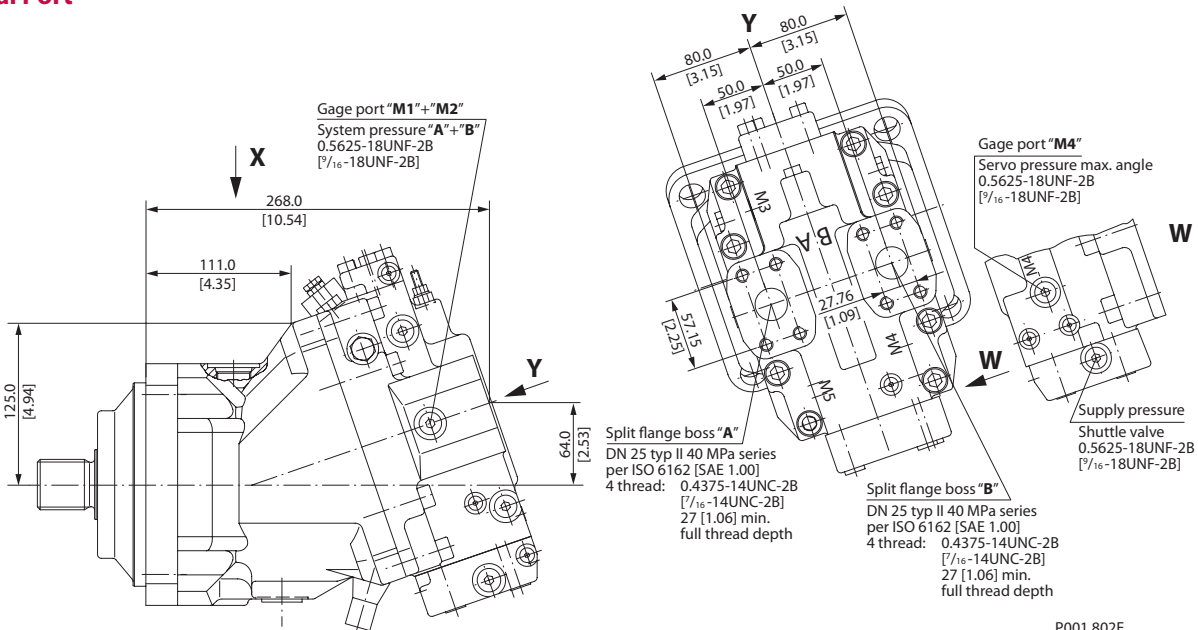
**51D110 Proportional and Two-Position Control, HZB1**

mm  
 [in]

**Side Port**



**Axial Port**

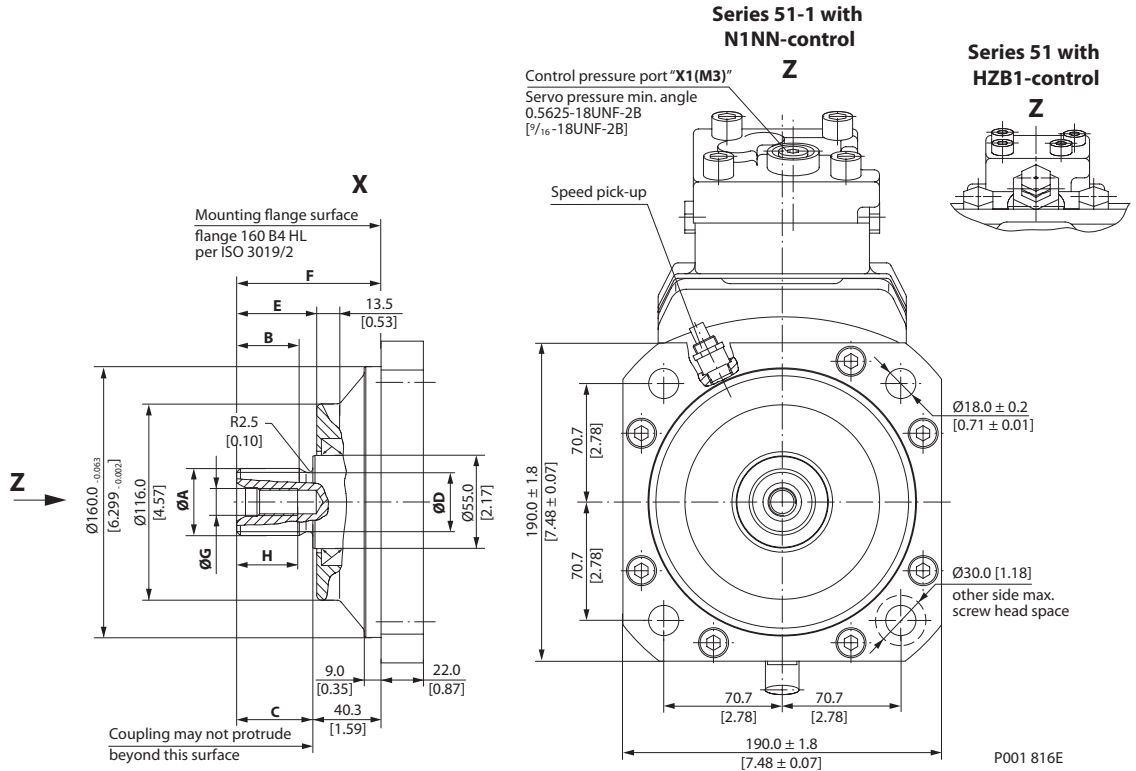


P001 802E

DIN Flange Design  
 PER ISO 3019/2  
 (continued)

Shaft Options – 51D110-1 and 51D110

mm  
 [in]



Shaft Spline Data				
Shaft option	D3		D4	
Dimension	mm	[in]	mm	[in]
Number of teeth	18		21	
Spline	W40x2x30x18x9g side fit DIN 5480		W45x2x30x21x9g side fit DIN 5480	
Pitch dia	36.000	[1.417]	42.000	[1.654]
A	39.60	[1.56]	44.60	[1.76]
B	37.00	[1.46]	42.00	[1.65]
C	45.00±0.5	[1.77]	50.00±0.5	[1.97]
D	35.00	[1.38]	40.00	[1.57]
E	47.30±1.1	[1.86]	52.30±1.1	[2.06]
F	85.30±0.6	[3.36]	90.30±0.6	[3.56]
G	M12x1.75 allowed torque in thread max. 115 Nm [1018 lbf·in]			
H	30.00	[1.18]	30.00	[1.18]

Flow into port **A** results in **CW** rotation of output shaft.  
 Flow into port **B** results in **CCW** rotation of output shaft.  
 Shaft rotation is determined by viewing from shaft end.  
 Ports with O-ring seal and inch threads shall be in accordance with ISO 11926/1.  
 Split flange boss A and B per ISO 6162 is identical with high pressure series SAE J518 code 62 (6000 psi).  
 Contact your Sauer-Danfoss representative for specific installation drawings.

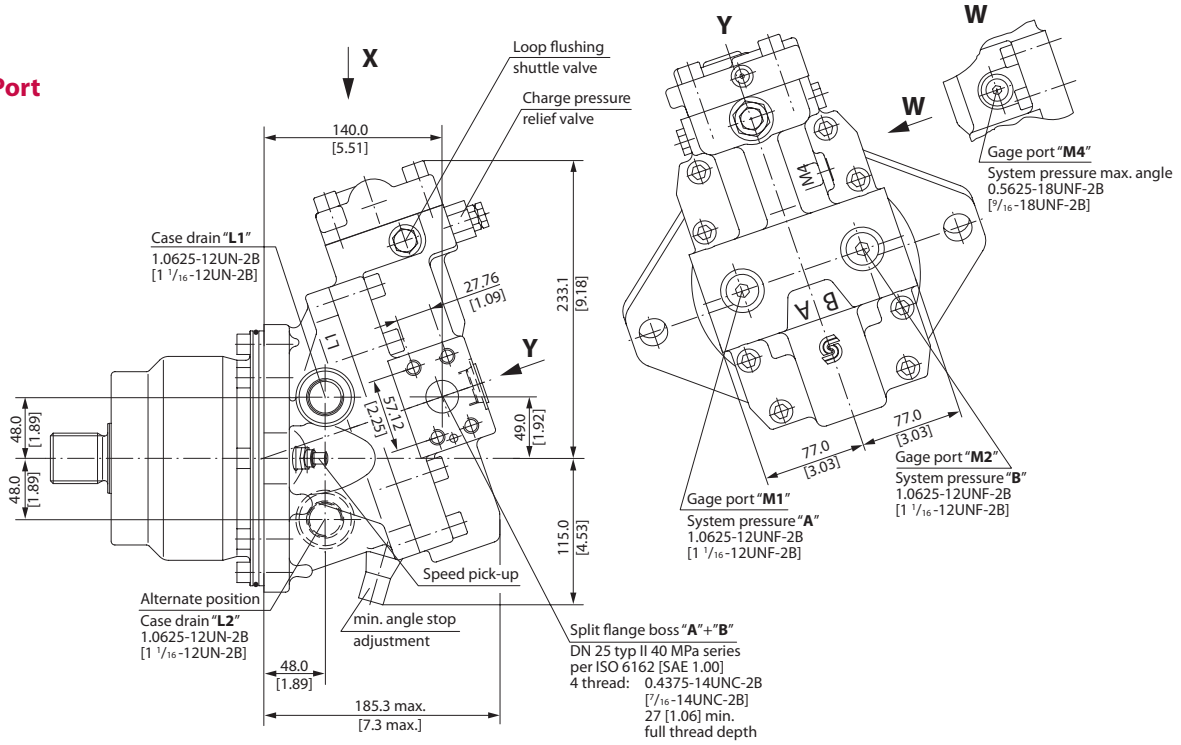


**Cartridge Flange**

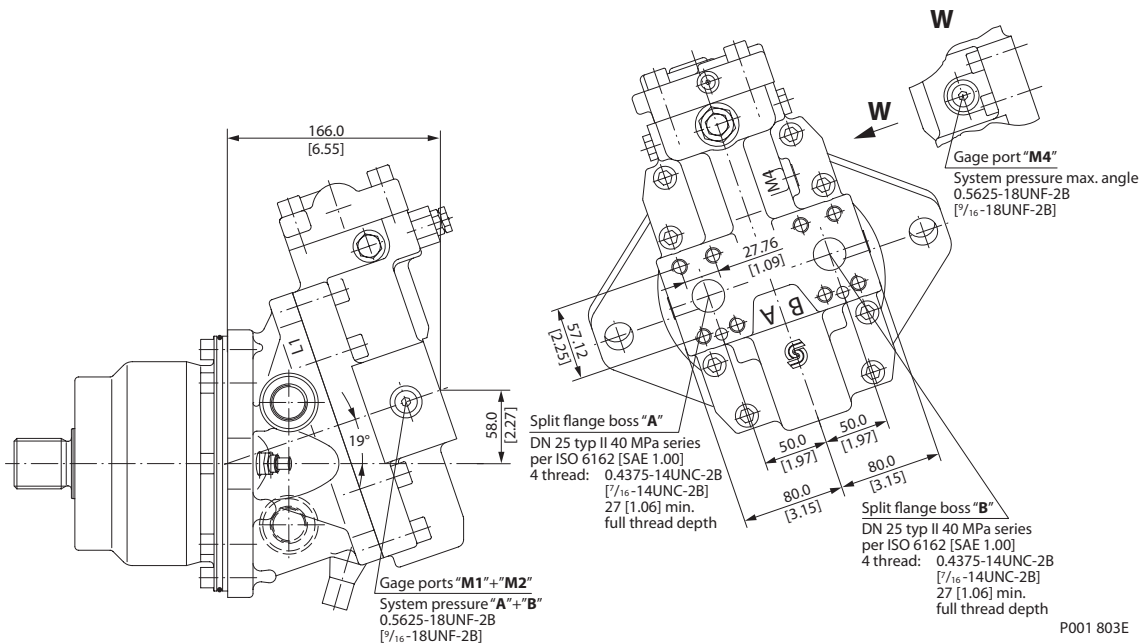
**51C110-1 Two Position Control, N1NN**

mm  
[in]

**Side Port**



**Axial Port**

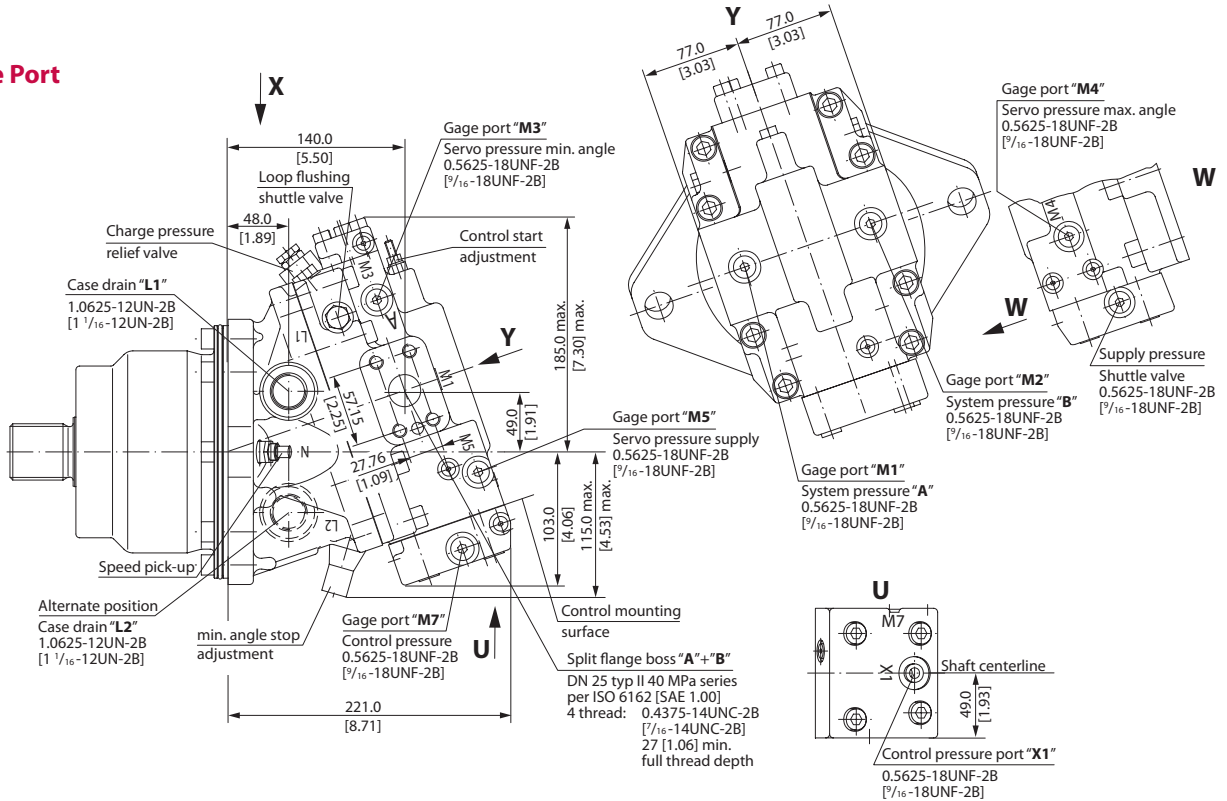


**Cartridge Flange  
 (continued)**

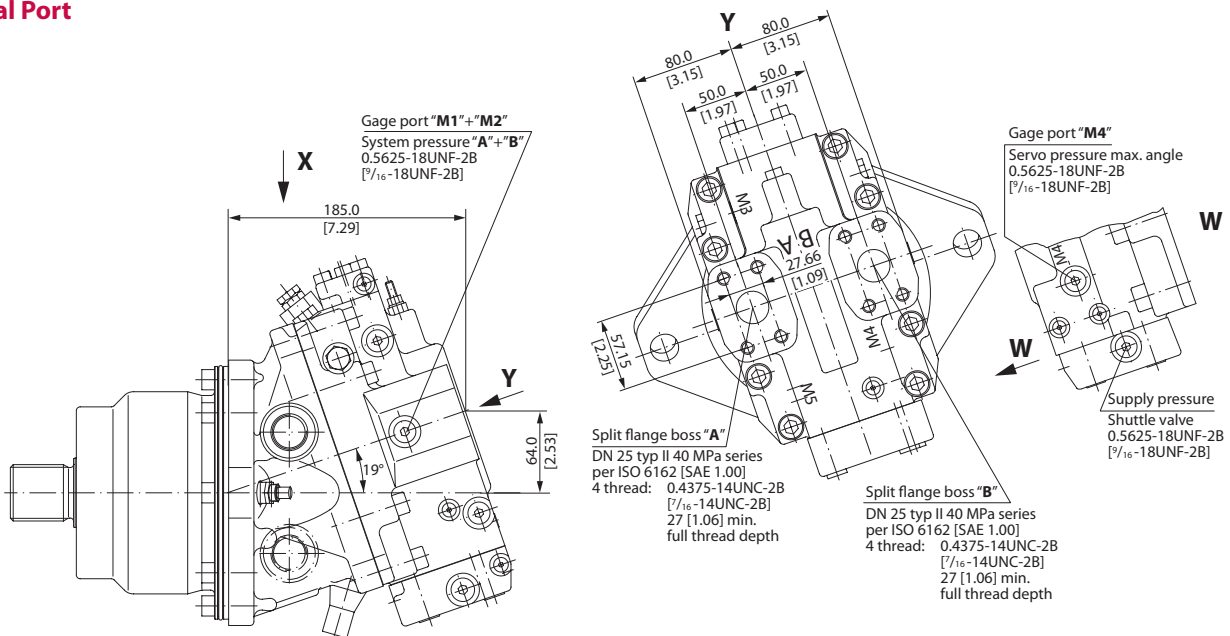
**51C110 Proportional and Two-Position Control, HZB1**

mm  
 [in]

**Side Port**



**Axial Port**



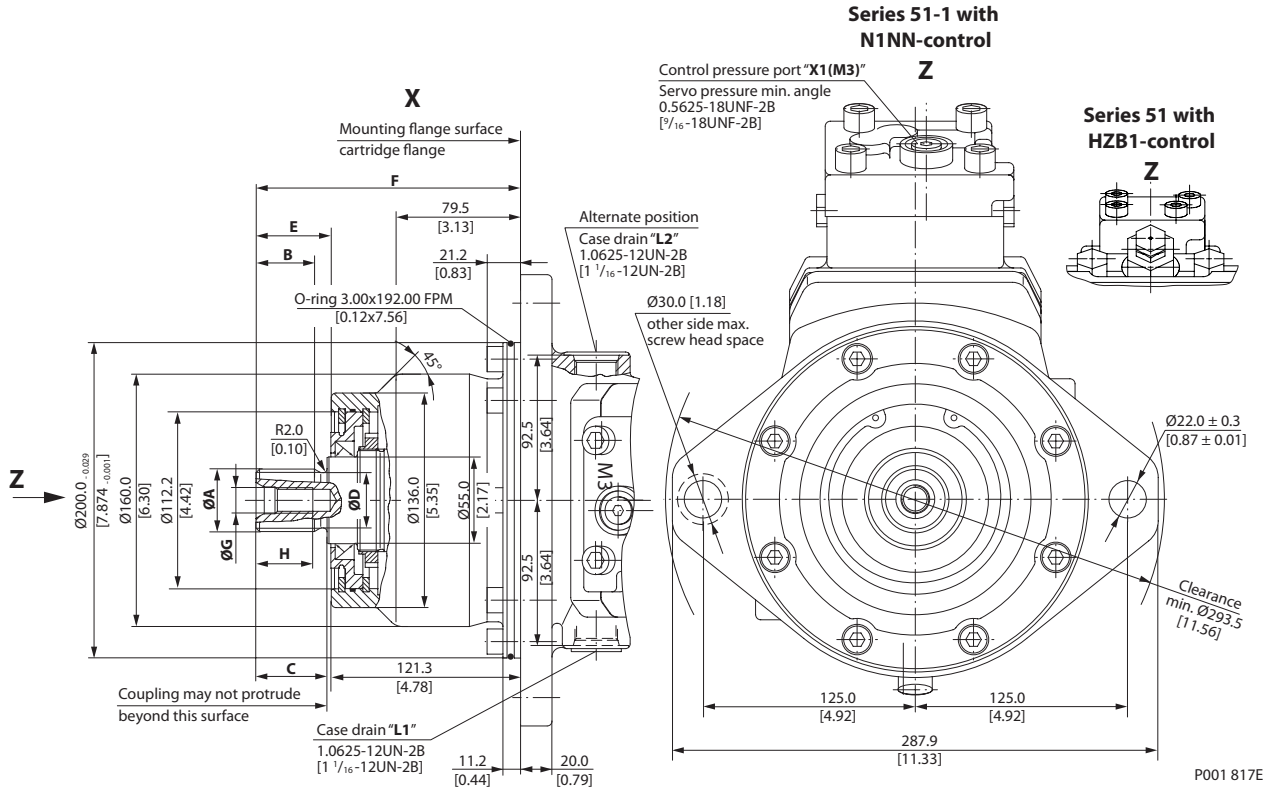
P001 804E



Cartridge Flange  
 (continued)

Shaft Options – 51C110-1 and 51C110

mm  
 [in]



Shaft Spline Data				
Shaft option	D3		D4	
Dimension	mm	[in]	mm	[in]
Number of teeth	18		21	
Spline	W40x2x30x18x9g side fit DIN 5480		W45x2x30x21x9g side fit DIN 5480	
Pitch dia	36.000	[1.417]	42.000	[1.654]
A	39.60	[1.56]	44.60	[1.76]
B	37.00	[1.46]	42.00	[1.65]
C	45.00±0.5	[1.77]	50.00±0.5	[1.97]
D	35.00	[1.38]	40.00	[1.57]
E	47.40±1.1	[1.87]	52.40±1.4	[2.06]
F	167.70±0.6	[6.60]	172.70±0.6	[6.80]
G	M12x1.75 allowed torque in thread max. 115 Nm [1018 lbf·in]			
H	30.00	[1.18]	30.00	[1.18]

Flow into port **A** results in **CW** rotation of output shaft.  
 Flow into port **B** results in **CCW** rotation of output shaft.  
 Shaft rotation is determined by viewing from shaft end.  
 Ports with O-ring seal and inch threads shall be in accordance with ISO 11926/1.  
 Split flange boss A and B per ISO 6162 is identical with high pressure series SA E J518 code 62 (6000 psi).  
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