

QR4/QS4 SHAFT SEALS AND DRIVE SHAFTS

SHAFT SEALS

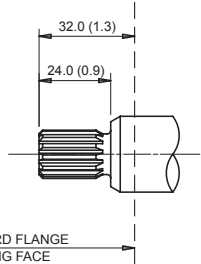
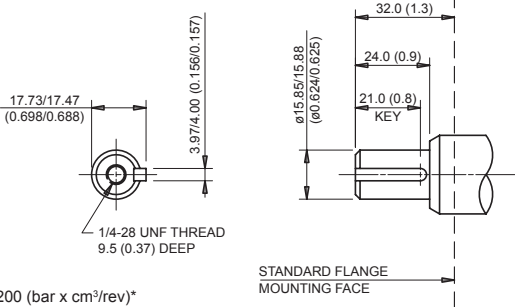
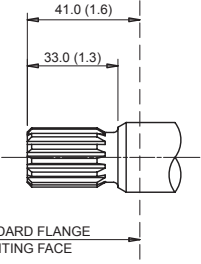
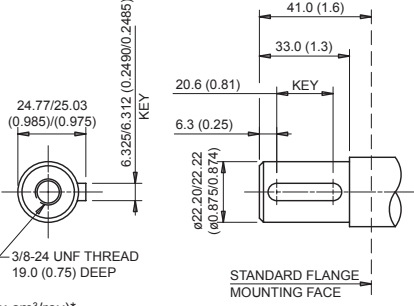
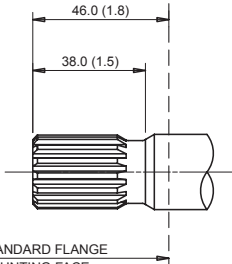
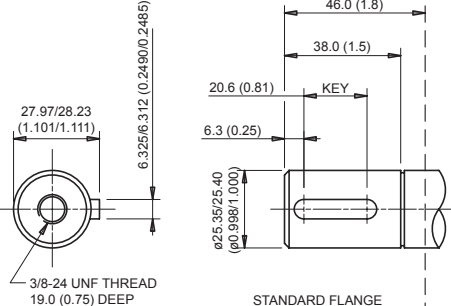
Code **A** Shaft seal and wiper for external drives

Example R1**A**4016A11A1D1AA

Code **C** Shaft seal, wiper and seal with tell-tale hole for torque converter and gearbox drives. The tell-tale hole indicates leakage before mixing of fluids can occur.

Example R1**C**4016A11A1D1AA

DRIVE SHAFTS

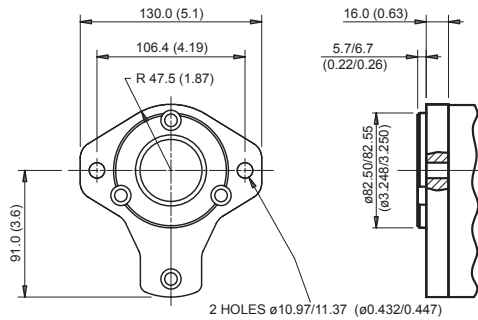
<p>Code A SAE 16-4 (A) 5/8" spline <i>Example</i> R1A4016A11A1D1AA</p> <p>INVOLUTE SPLINE 9 TEETH 16/32 DP FLAT ROOT SIDE FIT 30° PRESSURE ANGLE MAJOR DIA: 15.44/15.34 (0.608/0.604)</p>  <p>p x D = 5200 (bar x cm³/rev)* p x D = 4600 (psi x cu.in/rev)*</p>	<p>Code E SAE 16-1 (A) 5/8" parallel <i>Example</i> R1A4016E11A1D1AA</p>  <p>p x D = 5200 (bar x cm³/rev)* p x D = 4600 (psi x cu.in/rev)*</p>
<p>Code B SAE 22-4 (B) 7/8" spline <i>Example</i> R1A4016B11A1D1AA</p> <p>INVOLUTE SPLINE 13 TEETH 16/32 DP FLAT ROOT SIDE FIT 30° PRESSURE ANGLE MAJOR DIA: 21.79/21.69 (0.858/0.854)</p>  <p>p x D = 14226 (bar x cm³/rev)* p x D = 12590 (psi x cu.in/rev)*</p>	<p>Code F SAE 22-1 (B) 7/8" parallel <i>Example</i> R1A4016F11A1D1AA</p>  <p>p x D = 14226 (bar x cm³/rev)* p x D = 12590 (psi x cu.in/rev)*</p>
<p>Code Q SAE 25-4 (BB) 1" spline <i>Example</i> R1A4016Q11A1D1AA</p> <p>INVOLUTE SPLINE 15 TEETH 16/32 DP FLAT ROOT SIDE FIT 30° PRESSURE ANGLE MAJOR DIA: 24.97/24.87 (0.983/0.979)</p>  <p>p x D = 22450 (bar x cm³/rev)* p x D = 19869 (psi x cu.in/rev)*</p>	<p>Code H SAE 25-1 (BB) 1" parallel <i>Example</i> R1A4016H11A1D1AA</p>  <p>p x D = 22450 (bar x cm³/rev)* p x D = 19869 (psi x cu.in/rev)*</p>

* p = pressure, D = displacement. The stated values must not be exceeded.

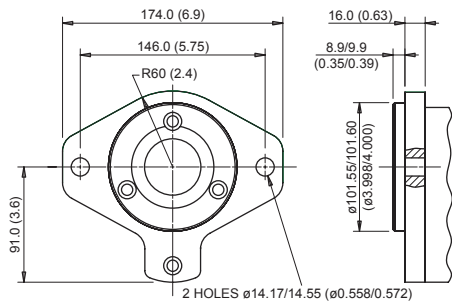
Note: For multiple pumps the sum of the p x D values must not exceed the stated value. See Page 38.

QR4/QS4 MOUNTING FLANGES

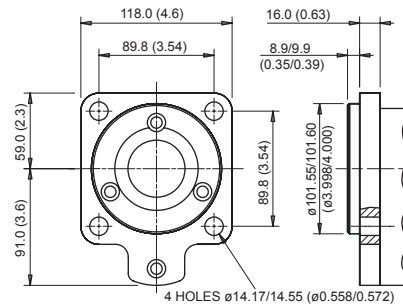
Code **1** SAE 82-2 (A - 2 bolt)
 Example R1A4016A**1**1A1D1AA



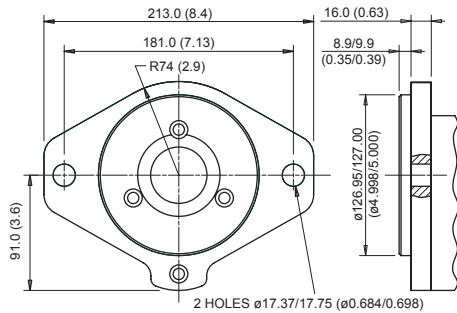
Code **2** SAE 101-2 (B - 2 bolt)
 Example R1A4016B**2**1A1D1AA



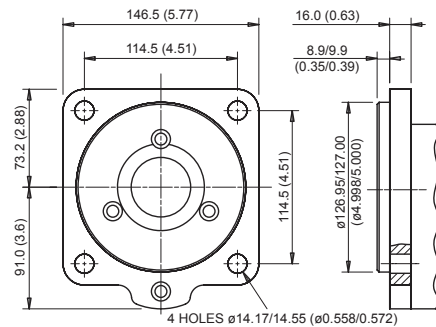
Code **3** SAE 101-4 (B - 4 bolt)
 Example R1A4016A**3**1A1D1AA



Code **4** SAE 127-2 (C - 2 bolt)
 Example R1A4016A**4**1A1D1AA



Code **5** SAE 127-4 (C - 4 bolt)
 Example R1A4016A**5**1A1D1AA



QR4/QS4 PORT POSITIONS & TYPES, SAE FLANGE DETAILS

NUMBER OF PUMP SECTIONS AND INLET PORT POSITIONS

Code **A**

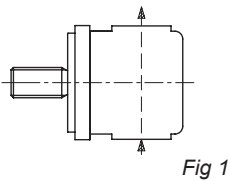


Fig 1

Code **C**

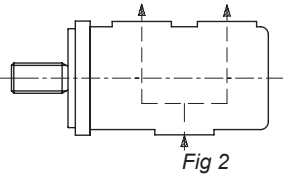


Fig 2

Code **B**

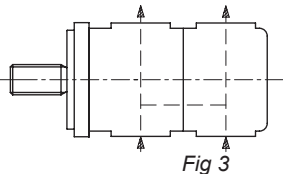


Fig 3

Code **A**

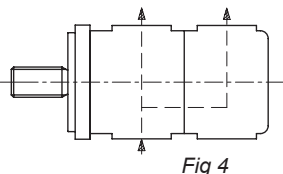
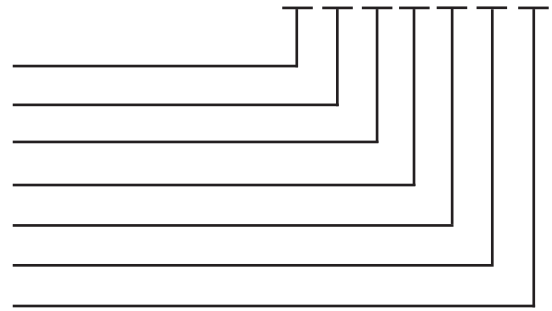


Fig 4

SINGLE PUMP Example

R 1 A 4 0 2 7 B 5 1 A 1 F 1 B C

Number of pump sections
 Inlet port position - see fig 1
 Inlet port type - see table 1
 Inlet port size - see table 1
 Outlet port type - see table 2
 Outlet port size - see table 2
 Rotation - viewed from shaft

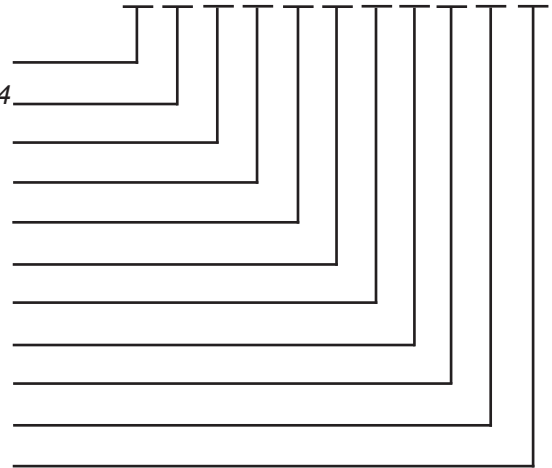


A = anti-clockwise
 C = clockwise

MULTI PUMP Example

R 1 A 4 0 2 7 S 4 0 2 7 Q 5 2 B 1 H 3 B 1 F 3 B C

Number of pump sections
 Inlet port position - see figs 2, 3 or 4
 1st Inlet port type - see table 1
 1st Inlet port size - see table 1
 1st Outlet port type - see table 2
 1st Outlet port size - see table 2
 2nd Inlet port type - see table 1
 2nd Inlet port size - see table 1
 2nd Outlet port type - see table 2
 2nd Outlet port size - see table 2
 Rotation - viewed from shaft



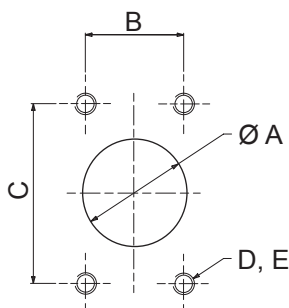
A = anti-clockwise
 C = clockwise

MULTIPLE PUMPS - Please consult your David Brown Hydraulics' representative.

SAE FLANGE PORT DETAILS

SAE code 61.

Standard pressure series



SAE FLANGE SIZE	A mm (in)	B mm (in)	C mm (in)	D	E DEPTH mm (in)
1/2" (A)	12.7	17.48	38.10	M8 x 1.25	24.0
	(0.500)	(0.688)	(1.500)	5/16"-18 UNC	(0.95)
3/4" (B)	19.1	22.23	47.63	M10 x 1.5	22.4
	(0.750)	(0.875)	(1.875)	3/8"-16 UNC	(0.88)
1" (D)	25.4	26.19	52.37	M10 x 1.5	22.4
	(1.000)	(1.031)	(2.062)	3/8"-16 UNC	(0.88)
1.1/4" (F)	31.8	30.18	58.72	M10 x 1.5	28.4
	(1.250)	(1.188)	(2.312)	7/16"-14 UNC	(1.12)
1.1/2" (H)	38.1	35.71	69.85	M12 x 1.75	26.9
	(1.500)	(1.406)	(2.750)	1/2"-13 UNC	(1.06)
2" (K)	50.8	42.88	77.77	M12 x 1.75	26.9
	(2.000)	(1.688)	(3.062)	1/2"-13 UNC	(1.06)

QR4/QS4 PORT OPTIONS

INLET PORT OPTIONS - Table 1

Port Type	SINGLE PUMP INLET PORT OPTIONS										COMMON INLET PORT OPTIONS								DUAL INLET PORT OPTION					
Port Type Code	3		1			2			4		1				2				1			2		
Port Type	BSPP		SAE Flange Metric			SAE Flange UNC			UNF O-ring		SAE Flange Metric				SAE Flange UNC				SAE Flange Metric			SAE Flange UNC		
Port Size Code	D	F	D	F	H	D	F	H	G	J	D	F	H	K	D	F	H	K	F	H	K	F	H	K
Port Size	1	1.1/4	1	1.1/4	1.1/2	1	1.1/4	1.1/2	1.5/16	1.5/8	1	1.1/4	1.1/2	2	1	1.1/4	1.1/2	2	1.1/4	1.1/2	2	1.1/4	1.1/2	2
R4016	■	□	■	□	□	■	□	□	■	□	□	□	■		□	□	■		□	□	■	□	□	■
R4019	■	□	■	□	□	■	□	□	■	□	□	□	■		□	□	■		□	□	■	□	□	■
R4023	■	□	■	□	□	■	□	□	■	□	□	□	■		□	□	■		□	□	■	□	□	■
R4027	□	■	□	■	□	□	■	□	□	■	□	□	■		□	□	■		□	□	■	□	□	■
R4032	□	■	□	■	□	□	■	□	□	■	□	□	■		□	□	■		□	□	■	□	□	■
R4038			□	■	□	□	■	□	□	■	□	□	■		□	□	■		□	□	■	□	□	■
R4045			□	□	■	□	□	■			□	□	■		□	□	■		□	□	■	□	□	■
R4053			□	□	■	□	□	■			□	□	■		□	□	■		□	□	■	□	□	■
R4060			□	□	■	□	□	■			□	□	■		□	□	■		□	□	■	□	□	■
S4016	■	□	■	□	□	■	□	□	■	□	□	□	■		□	□	■		□	□	■	□	□	■
S4023	■	□	■	□	□	■	□	□	■	□	□	□	■		□	□	■		□	□	■	□	□	■
S4027	□	■	□	■	□	□	■	□	□	■	□	□	■		□	□	■		□	□	■	□	□	■
S4032	□	■	□	■	□	□	■	□	□	■	□	□	■		□	□	■		□	□	■	□	□	■
S4037	□	■	□	■	□	□	■	□	□	■	□	□	■		□	□	■		□	□	■	□	□	■
S4042			□	□	■	□	□	■			□	□	■		□	□	■		□	□	■	□	□	■

- Preferred port size
- Non-preferred port size

Note: When coding, for single inlet multiple pumps, use '0' in '2nd inlet port type' and 'X' in '2nd inlet port size' in the model number.

OUTLET PORT OPTIONS - Table 2

Port Type Code	3				1			2			4			
Port Type	BSPP				SAE Flange Metric			SAE Flange UNC			UNF O-ring			
Port Size Code	A	B	D	F	A	B	D	A	B	D	C	E	G	J
Port Size	1/2	3/4	1	1.1/4	1/2	3/4	1	1/2	3/4	1	7/8	1.1/16	1.5/16	1.5/8
R4016	■	□	□	□	■	□	□	■	□	□	■	□	□	□
R4019	■	□	□	□	■	□	□	■	□	□	■	□	□	□
R4023	■	□	□	□	■	□	□	■	□	□	■	□	□	□
R4027	□	■	□	□	□	■	□	□	■	□	□	■	□	□
R4032	□	■	□	□	□	■	□	□	■	□	□	■	□	□
R4038	□	■	□	□	□	■	□	□	■	□	□	■	□	□
R4045	□	■	□	□	□	■	□	□	■	□	□	■	□	□
R4053	□	■	□	□	□	■	□	□	■	□	□	■	□	□
R4060	□	■	□	□	□	■	□	□	■	□	□	■	□	□
S4016	■	□	□	□	■	□	□	■	□	□	■	□	□	□
S4023	■	□	□	□	■	□	□	■	□	□	■	□	□	□
S4027	□	■	□	□	□	■	□	□	■	□	□	■	□	□
S4032	□	■	□	□	□	■	□	□	■	□	□	■	□	□
S4037	□	■	□	□	□	■	□	□	■	□	□	■	□	□
S4042	□	■	□	□	□	■	□	□	■	□	□	■	□	□

- Preferred port size
- Non-preferred port size