

QR6/QS6

HYDRAULIC GEAR PUMPS



 **DAVID BROWN**
HYDRAULICS

QR6/QS6 DIMENSIONAL DATA

Note Drawings show clockwise rotation pumps. For anti-clockwise rotation pumps reverse the inlet and outlet port positions. (Rotation convention - view from pump shaft end).

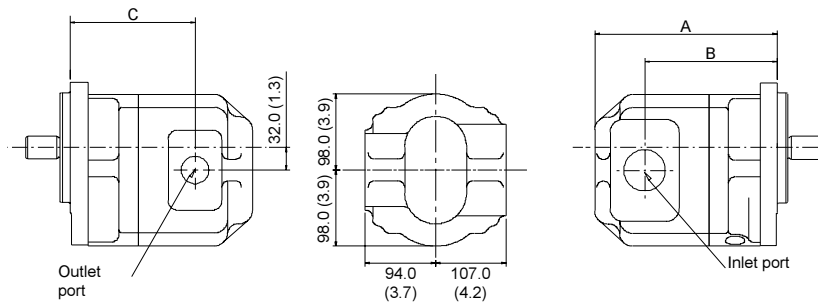
Full detailed dimensions are shown on the relevant pages covering drive shafts, mounting flanges and ports.

SINGLE PUMPS - standard ports

Code **A**

Example

R1A6100C41 **A** 1L1HA

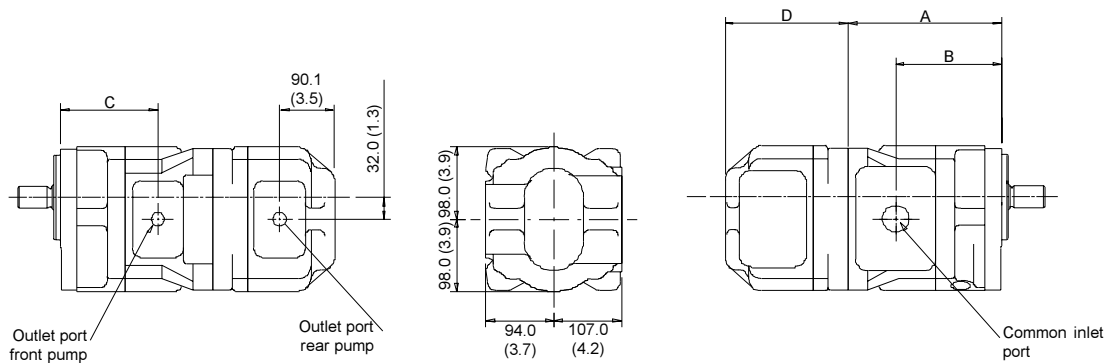


DOUBLE PUMPS - 1 inlet/2 outlets

Code **A**

Example

R1A6100R6100C42 **A** 1M1H1M1HA

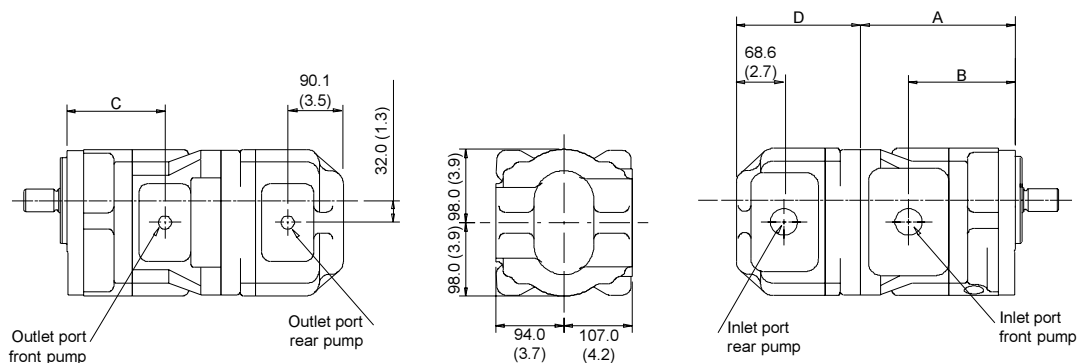


DOUBLE PUMPS - 2 inlets/2 outlets

Code **B**

Example

R1A6100R6100C42 **B** 1L1H1L1HA



TRIPLE AND QUADRUPLE PUMPS - See Pages 38 and 39.

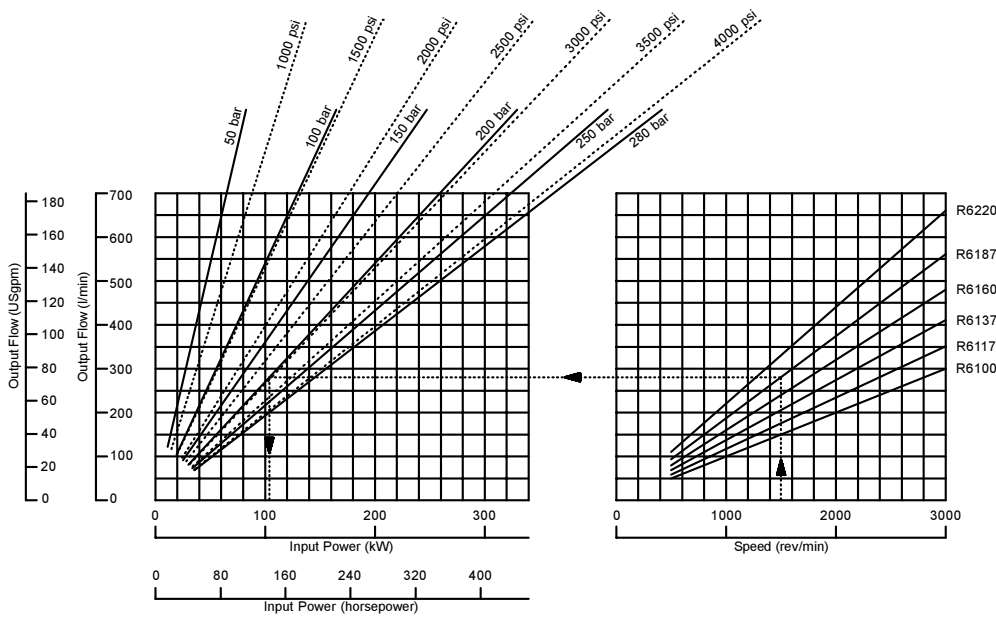
QR6/QS6 DIMENSIONAL DATA

PUMP	A mm (in)	B mm (in)	C mm (in)	D mm (in)	WEIGHT kg (lb)		
					Single*	Front*	Rear*
R6100	220.0 (8.7)	152.0 (6.0)	130.0 (5.1)	182.0 (7.2)	35.0 (77.0)	40.0 (88.0)	30.0 (66.0)
R6117	226.0 (8.9)	158.0 (6.2)	136.0 (5.3)	188.0 (7.4)	36.5 (80.0)	41.5 (91.0)	31.5 (69.0)
R6137	233.0 (9.2)	165.0 (6.5)	143.0 (5.6)	195.0 (7.7)	39.0 (86.0)	44.0 (97.0)	34.0 (75.0)
R6160	241.0 (9.5)	173.0 (6.8)	151.0 (5.9)	203.0 (8.0)	42.0 (92.0)	47.0 (103.0)	37.0 (81.0)
R6187	251.0 (9.9)	182.0 (7.2)	161.0 (6.3)	213.0 (8.4)	45.3 (100.0)	50.3 (111.0)	40.3 (89.0)
R6220	263.0 (10.4)	194.0 (7.6)	173.0 (6.8)	225.0 (8.9)	49.0 (108.0)	54.0 (119.0)	44.0 (97.0)
S6083	226.0 (8.9)	158.0 (6.2)	136.0 (5.4)	188.0 (7.4)	40.5 (39.0)	45.5 (100.0)	35.5 (77.0)
S6097	234.0 (9.2)	165.0 (6.5)	143.0 (5.6)	196.0 (7.7)	42.0 (92.0)	47.0 (103.0)	37.0 (87.0)
S6113	242.9 (9.5)	173.0 (6.8)	151.0 (5.9)	204.0 (8.0)	43.5 (96.0)	48.5 (107.0)	38.5 (85)
S6132	251.0 (9.9)	183.0 (7.2)	161.0 (6.3)	213.0 (8.4)	45.5 (100.0)	50.5 (111.0)	40.5 (89.0)
S6155	263.0 (10.4)	194.0 (7.6)	173.0 (6.8)	225.0 (8.8)	47.5 (105.0)	52.5 (116.0)	42.5 (94.0)

* **Note** Weights are approximate
Double pump weight = (front + rear) weights

QR6/QS6 PERFORMANCE DATA

QR6 SERIES

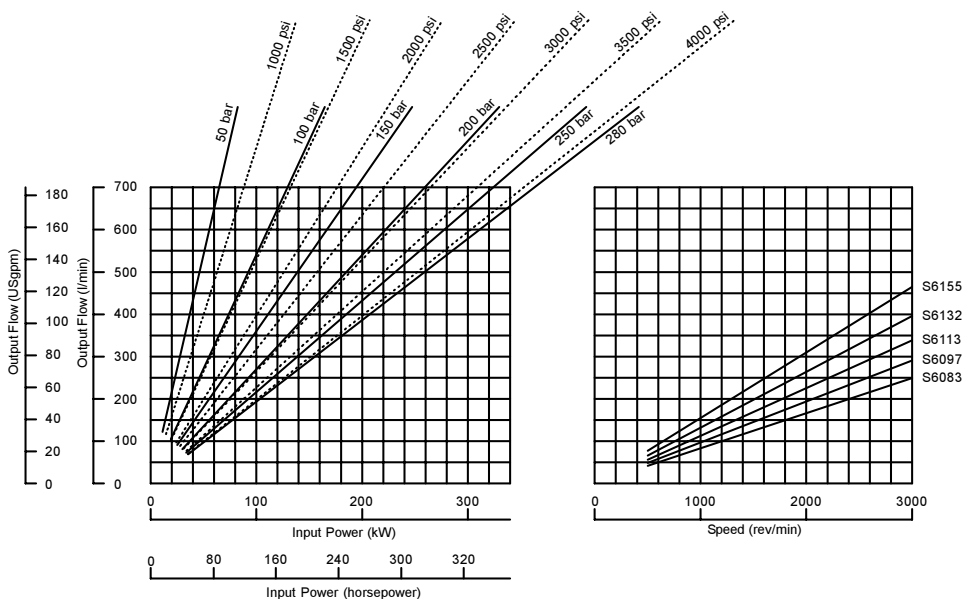


OUTPUT FLOWS are theoretical. Generally volumetric efficiencies are in excess of 95%. Your David Brown Hydraulics' representative will advise for specific conditions.

INPUT POWERS are actual, taking into account average efficiencies. Please consult your David Brown Hydraulics' representative when output pressure is less than 50 bar.

Example R6187 at 1500 rev/min gives output flow of 281 l/min (74 US gal/min) and requires 107 kW (144hp) to drive it at 200 bar (2900 psi).

QS6 SERIES

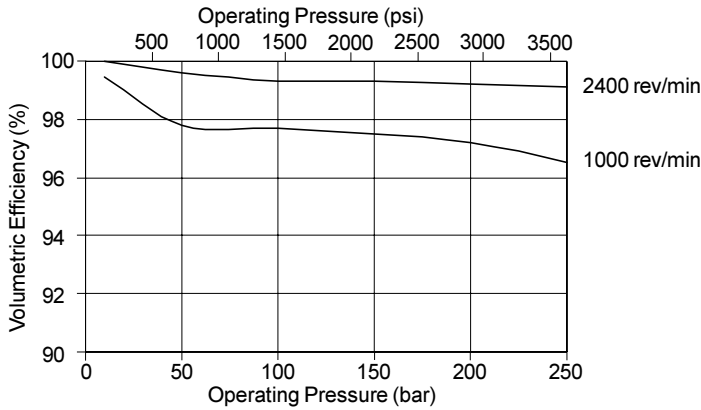


Curves drawn for average pumps at 50°C (120°F) - fluid viscosity 23 mm²/sec (110 SSU).

QR6/QS6 EFFICIENCIES, NOISE LEVELS, MOMENTS OF INERTIA

PUMP EFFICIENCIES

All Q Series pumps share very high efficiencies. The graph shows typical QS6 volumetric efficiency curves at 1000 and 2400 rev/min.

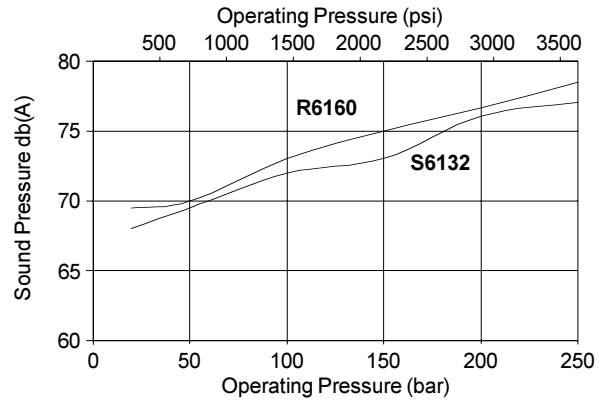
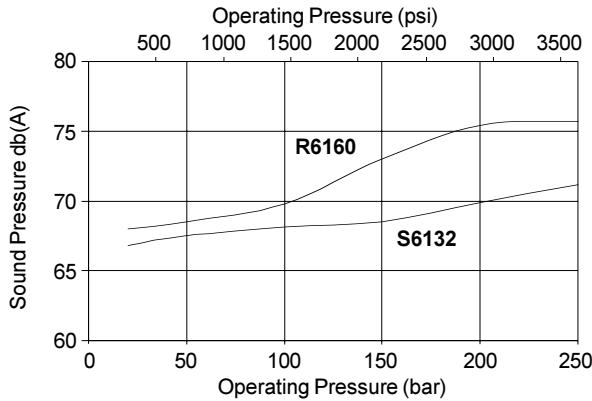


NOISE LEVELS

As described on Page 6, the reduction of noise levels was a major factor in the development of the Q Series pumps. The following graphs show QR6 and QS6 sound pressure levels at one metre from the pump derived from measurements of sound power levels to ISO9614-4.

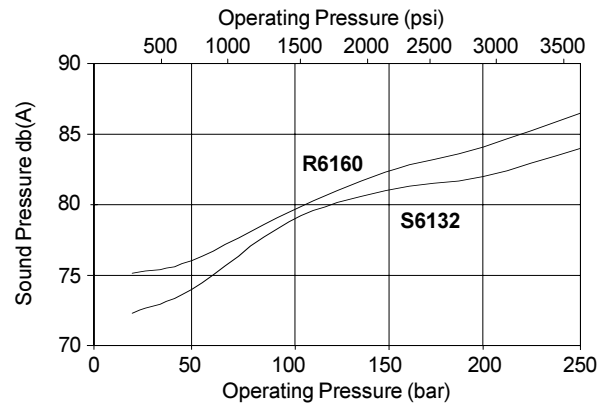
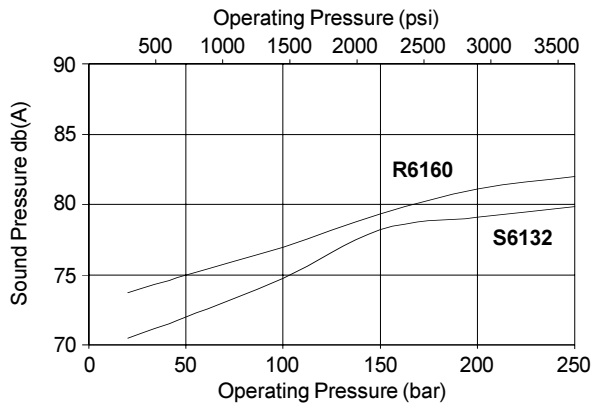
Q6 Sound Pressure at 1 metre - 1000 rpm

Q6 Sound Pressure at 1 metre - 1500 rpm



Q6 Sound Pressure at 1 metre - 1800 rpm

Q6 Sound Pressure at 1 metre - 2400 rpm



MOMENTS OF INERTIA

QR6 SERIES

PUMP SIZE		R6100	R6117	R6137	R6160	R6187	R6220
Moment of Inertia	kg cm ² (lb in ²)	16.18 (5.50)	17.76 (6.04)	19.61 (6.67)	21.74 (7.40)	24.24 (8.24)	27.29 (9.28)

QS6 SERIES

PUMP SIZE		S6083	S6097	S6113	S6132	S6155
Moment of Inertia	kg cm ² (lb in ²)	21.71 (7.38)	23.50 (7.99)	25.55 (8.69)	27.98 (9.51)	30.92 (10.51)

QR6/QS6 SHAFT SEALS & DRIVE SHAFTS

SHAFT SEALS

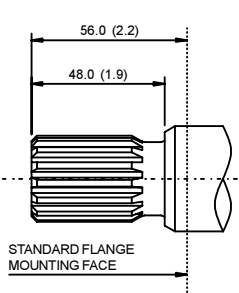
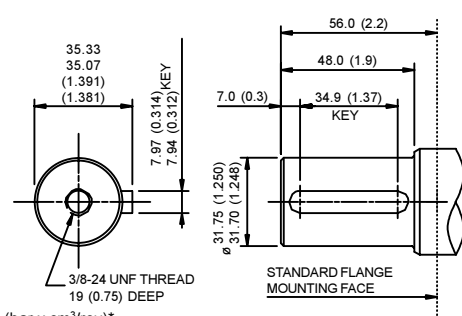
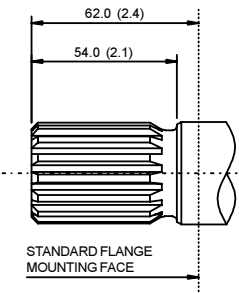
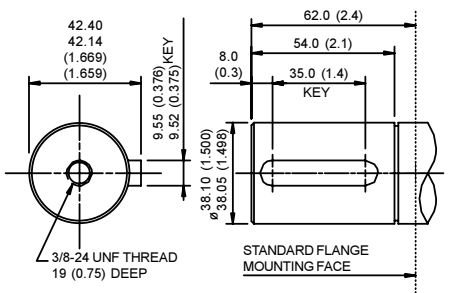
Code **A** Shaft seal and wiper for external drives

Example R1**A**6100C11A1L1HA

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**6100C41A1L1HA

DRIVE SHAFTS

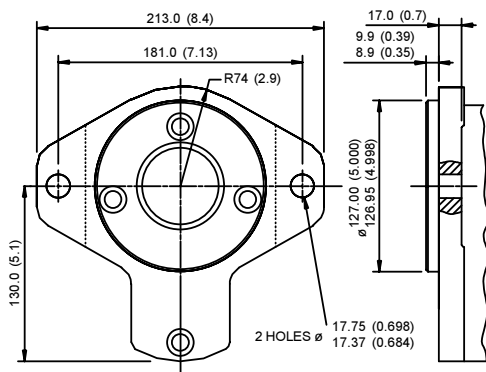
<p>Code C SAE 32-4 (C) 1.1/4" spline <i>Example</i> R1A6100C41A1L1HA</p> <p>INVOLUTE SPLINE 14 TEETH 12/24 DP FLAT ROOT SIDE FIT 30° PRESSURE ANGLE MAJOR DIA: 31.22/31.12 (1.229/1.225)</p>  <p>STANDARD FLANGE MOUNTING FACE</p> <p>$p \times D = 45565 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$ $p \times D = 40325 \text{ (psi} \times \text{cu.in/rev)}^*$</p>	<p>Code G SAE 32-1 (C) 1.1/4" parallel <i>Example</i> R1A6100G41A1L1HA</p>  <p>STANDARD FLANGE MOUNTING FACE</p> <p>$p \times D = 45565 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$ $p \times D = 40325 \text{ (psi} \times \text{cu.in/rev)}^*$</p>
<p>Code T SAE 38-4 (CC) 1.1/2" spline <i>Example</i> R1A6100T41A1L1HA</p> <p>INVOLUTE SPLINE 17 TEETH 12/24 DP FLAT ROOT SIDE FIT 30° PRESSURE ANGLE MAJOR DIA: 37.57/37.44 (1.479/1.474)</p>  <p>STANDARD FLANGE MOUNTING FACE</p> <p>$p \times D = 86950 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$ $p \times D = 76950 \text{ (psi} \times \text{cu.in/rev)}^*$</p>	<p>Code N SAE 38-1 (CC) 1.1/2" parallel <i>Example</i> R1A6100N41A1L1HA</p>  <p>STANDARD FLANGE MOUNTING FACE</p> <p>$p \times D = 86950 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$ $p \times D = 76950 \text{ (psi} \times \text{cu.in/rev)}^*$</p>

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

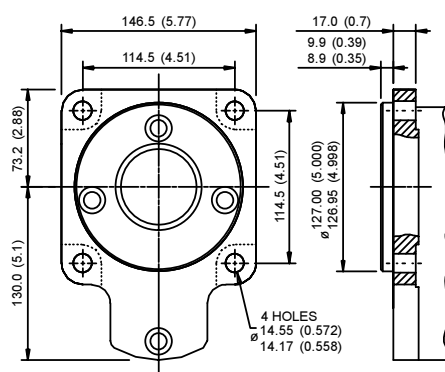
Note For multiple pumps the sum of the $p \times D$ values must not exceed the stated value. See Page 38.

QR6/QS6 MOUNTING FLANGES

Code **4** SAE 127-2 (C - 2 bolt)
Example R1A6100C **4** 1A1L1HA



Code **5** SAE 127-4 (C - 4 bolt)
Example R1A6100C **5** 1A1L1HA



QR6/QS6 PORT POSITIONS & TYPES, SAE FLANGE DETAILS

NUMBER OF PUMP SECTIONS AND INLET PORT POSITIONS

Code **A**

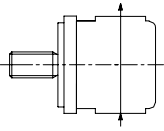


Fig 1

Code **B**

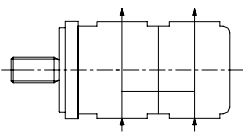


Fig 2

Code **A**

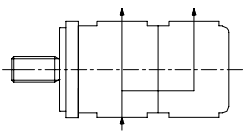
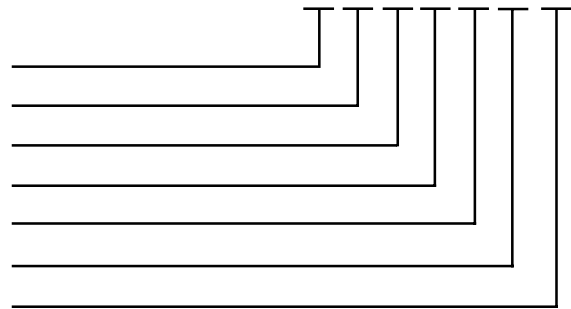


Fig 3

SINGLE PUMP Example

R 1 A 6 1 6 0 C 5 1 A 1 L 1 H 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

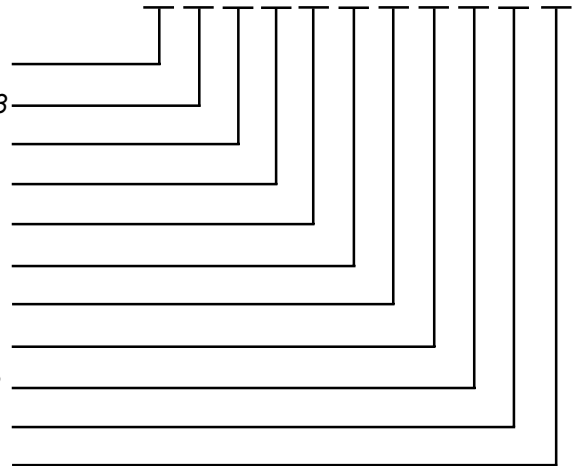


A = anti-clockwise
C = clockwise

MULTI PUMP Example

R 1 A 6 1 6 0 R 6 1 0 0 T 5 2 A 1 L 1 H 0 X 1 H C

- Number of pump sections
- Inlet port position - see figs 2 or 3
- 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



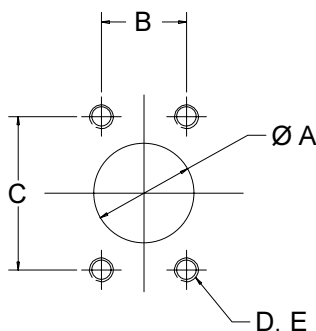
A = anti-clockwise
C = clockwise

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)
1.1/2"	38.1	35.7	70.0	M12x1.75	26.9
	(1.50)	(1.406)	(2.750)	1/2"-13 UNC	(1.06)
2.1/2"	63.5	50.8	89.0	M12x1.75	30.2
	(2.50)	(2.00)	(3.50)	1/2"-13 UNC	(1.19)
3"	76.2	61.9	106.4	M16x2.00	30.2
	(3.00)	(2.44)	(4.19)	5/8"-11 UNC	(1.19)

QR6/QS6 PORTS, DOUBLE & MULTIPLE PUMPS - SAE FLANGE DETAILS

INLET PORT OPTIONS - Table 1

Port Type	SINGLE PUMP INLET PORT OPTIONS						COMMON INLET PORT OPTIONS							
Port Type Code	1			2			1				2			
Port Type	SAE Flange Metric			SAE Flange UNC			SAE Flange Metric				SAE Flange UNC			
Port Size Code	K	L	M	K	L	M	K	L	M	N	K	L	M	N
Port Size	2	2.1/2	3	2	2.1/2	3	2	2.1/2	3	4	2	2.1/2	3	4
R6100	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R6117	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R6137	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R6160	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R6187	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R6220	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S6083	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S6097	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S6113	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S6132	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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- Preferred port size
- Non-preferred port size

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

OUTLET PORT OPTIONS - Table 2

Port Type Code	1					2				
Port Type	SAE Flange Metric					SAE Flange UNC				
Port Size Code	A	B	D	F	H	A	B	D	F	H
Port Size	1/2	3/4	1	1.1/4	1.1/2	1/2	3/4	1	1.1/4	1.1/2
R6100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R6117	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R6137	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R6160	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R6187	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R6220	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S6083	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S6097	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S6113	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S6132	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S6155	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Preferred port size
- Non-preferred port size



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