

Internal Gear Pumps

Series QX



motion and progress

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1 General

1.1 Product description

The QX pumps are the 5th generation of Bucher internal gear pumps, which have proven themselves in thirty years of service around the world. Numerous improvements have been made to the straightforward and robust design.

Advances in the manufacturing process have made it possible without making higher demands on individual components to build pumps that are considerably lighter and more compact.

A new tooth profile, conceived and optimised with the help of CAE, has yielded another significant reduction in noise levels. Large sealing areas result in higher efficiencies.

The internal gear ring is supported by a hydrodynamic/ hydrostatic lubricating film, which allows operation at low viscosities or low and high speeds. QX pumps are therefore suitable for use with variable speed drives, where they can provide variable deliveries.

1.2 Advantages

- extremely long service life
- sound pressure level < 57 dB (A)
- volumetric efficiency up to 98%
- suitable for use with variable speed drivers
- Can be used with fire-resistant fluids (HFB, HFC and HFD), fuels, biodegradable and low-viscosity fluids
- certifications by ATEX 2, ABS, DNV, GL, LR, NK, ...
- low flow and pressure pulsations

2 Technical data

2.1 General (deviating values according manufacturer's specification)

Installation attitude	unrestricted
Mounting method (standard)	oval 2-hole flange to ISO 3019/1 (SAE): QX 3 to 6 oval 2-hole flange to ISO 3019/2 (metric) QX 2 and 8
Direction of rotation	CW alternatively CCW (but not reversible)
Pump drive method	in-line, through a flexible coupling
Volumetric efficiency η_v	better than 95%
Fluids	HLP mineral oils to DIN 51524, Part 2 HFC fluids to VDMA 24317
Minimum fluid cleanliness	NAS 1638, Class 9 or ISO 4406, code 20/18/15
Operating viscosity Starting viscosity	50 - 750 S.U.S 50 - 1500 S:U:S
Fluid temperature range	HLP-mineral oils - 176 °F max. HFC 122 °F max.
Inlet pressure maximum minimum	21.75 PSI absolute (without external drain connection) 7.25-14.21 PSI absolute (dependent on pump frame size and speed, see example in section 3.3.2)
Return line pressure	maximum 290 PSI (higher values, contact Bucher Hydraulics)

2.2 Main characteristics for pressure range 1

Effective displacement		Flow rate ¹⁾	Maximum speed	Type	Mineral oil to DIN 51524	HFC to VDMA 24317	Torque ³⁾	Power requirement ⁴⁾
					Continuous/Max. interm. press. ²⁾			
cm ³ /rev (in ³ /rev)		GPM	rpm		PSI	PSI	lb-in	HP
10,3 (0.63)	3.94	3600	QX21-010	2320/3045	1885/2610	230	5.4	
12.6 (0.77)	4.83	3600	QX21-012	1813/2320	1450/1958	221	5.1	
15.9 (0.97)	6.08	3600	QX21-016	1450/1813	1160/1450	221	5.2	
20.0 (1.22)	7.66	3000	QX31-020	2320/3045	1885/2610	451	10.3	
25.3 (1.54)	9.70	3000	QX31-025	1813/2320	1450/1958	443	10.3	
31.2 (1.90)	11.94	3000	QX31-032	1450/1813	1160/1450	443	10.1	
40.7 (2.48)	15.59	3000	QX41-040	2320/3045	1885/2610	921	21.0	
50.3 (3.07)	19.26	2600	QX41-050	1813/2320	1450/1958	885	20.7	
64.7 (3.95)	24.78	2300	QX41-063	1450/1813	1160/1450	912	20.9	
78.6 (4.80)	30.12	2300	QX51-080	2320/3045	1885/2610	1770	40.7	
101.1 (6.17)	38.57	2100	QX51-100	1813/2320	1450/1958	1779	40.9	
127.3 (7.77)	48.61	1800 ⁵⁾	QX51-125	1450/1813	1160/1450	1767	41.3	
160.5 (9.80)	61.29	1800 ⁶⁾	QX61-160	2320/3045	1885/2610	3620	83.0	
202.1 (12.33)	77.41	1800 ⁶⁾	QX61-200	1813/2320	1450/1958	3558	81.7	
249.7 (15.24)	95.64	1800 ⁶⁾	QX61-250	1450/1813	1160/1450	3514	80.9	
326.0 (19.89)	124.7	1750 ⁶⁾	QX81-315	2320/3045	1885/2610	7346	168.8	
402.6 (24.57)	154.0	1750 ⁶⁾	QX81-400	1813/2320	1450/1958	7090	162.9	
498.5 (30.42)	190.8	1500 ⁶⁾	QX81-500	1450/1813	1160/1450	7019	161.5	

2.2.1 Suction arrangements for pump types QX61 and QX81

Minimum inlet pressure is 12.33 PSI absolute with viscosity 50... 1500 S.U.S

	Speed 1500 rpm Suction height		Speed 1800 rpm Suction height	
	up to 5.9 in	over 5.9 in	up to 59 in	over 59 in
QX61-160	I	I	I	II
QX61-200	I	I	I	II
QX61-250	I	II	II	II
QX81-315	I	II	II	II
QX81-400	II	II	II	-
QX81-500	II	II	-	-

I = standard pump with one suction port

II = model with two suction ports

All pump types coded II can be used without the second suction port up to 1200 rpm

2.3 Main characteristics for pressure range 2

Effective displacement		Flow rate ¹⁾	Maximum speed	Type	Mineral oil to DIN 51524	HFC to VDMA 24317	Torque ³⁾	Power requirement ⁴⁾
					Continuous/Max. interm. press. ²⁾			
cm ³ /rev (in ³ /rev)		GPM	rpm		PSI	PSI	lb-in	HP
5.1	(0.31)	1.96	3600	QX22-005			150	3.5
6.3	(0.38)	2.40	3600	QX22-006	3045 / 3625	2610 / 3045	186	4.3
8.0	(0.49)	3.04	3600	QX22-008			239	5.4
10.0	(0.61)	3.83	3400	QX32-010			301	6.8
12.6	(0.77)	4.83	3400	QX32-012	3045 / 3625	2610 / 3045	372	8.6
15.6	(0.95)	5.97	3400	QX32-016			460	10.6
20.4	(1.24)	7.79	3200	QX42-020			602	13.9
25.1	(1.53)	9.62	3200	QX42-025	3045 / 3625	2610 / 3045	743	17.0
32.4	(1.98)	12.36	3200	QX42-032			956	22.1
39.3	(2.40)	15.03	2800	QX52-040			1168	26.7
50.6	(3.09)	19.34	2800	QX52-050	3045 / 3625	2610 / 3045	1505	34.4
63.7	(3.89)	24.33	2800	QX52-063			1885	43.3
80.2	(4.89)	30.65	2500 ⁷⁾	QX62-080			2372	54.5
101.0	(6.16)	38.57	2300 ⁷⁾	QX62-100	3045 / 3625	2610 / 3045	2992	68.6
124.8	(7.62)	47.82	2000 ⁷⁾	QX62-125			3631	85.0
163.0	(9.95)	62.35	1800 ⁷⁾	QX82-160			4815	110.8
201.3	(12.28)	76.88	1750 ⁷⁾	QX82-200	3045 / 3625	2610 / 3045	5948	136.8
249.2	(15.21)	95.38	1500 ⁷⁾	QX82-250			7373	169.5

2.4 Main characteristics for pressure range 3

Effective displacement		Flow rate ¹⁾	Maximum speed	Type	Mineral oil to DIN 51524	HFC to VDMA 24317	Torque ³⁾	Power requirement ⁴⁾
					Continuous/Max. interm. press. ²⁾			
cm ³ /rev (in ³ /rev)		GPM	rpm		PSI	PSI	lb-in	HP
5.1	(0.31)	1.96		QX23-005			230	5.7
6.3	(0.38)	2.40	3600	QX23-006	4640 / 5800	4060 / 5075	283	6.6
8.0	(0.49)	3.04		QX23-008			363	8.3
10.0	(0.61)	3.83		QX33-010			451	10.3
12.6	(0.77)	4.83	3400	QX33-012	4640 / 5800	4060 / 5075	566	13.0
15.6	(0.95)	5.97		QX33-016			708	16.2
20.4	(1.24)	7.79		QX43-020			921	21.2
25.1	(1.53)	9.62	3200	QX43-025	4640 / 5800	4060 / 5075	1133	26.0
32.4	(1.98)	12.36		QX43-032			1460	33.5
39.3	(2.40)	15.03		QX53-040			1770	40.7
50.6	(3.09)	19.34	3000	QX53-050	4640 / 5800	4060 / 5075	2284	52.4
63.7	(3.89)	24.33		QX53-063			2841	66.0
80.2	(4.89)	30.65	2500 ⁷⁾	QX63-080			3620	83.1
101.0	(6.16)	38.57	2300 ⁷⁾	QX63-100	4640 / 5800	4060 / 5075	4549	104.7
124.8	(7.62)	47.82	2000 ⁷⁾	QX63-125			5629	129.3
163.0	(9.95)	62.35	1800 ⁷⁾	QX83-160			7346	168.8
201.3	(12.28)	76.88	1750 ⁷⁾	QX83-200	4640 / 5800	4060 / 5075	9072	208.6
249.2	(15.21)	95.38	1500 ⁷⁾	QX83-250			11241	258.2

The operating data are valid for hydraulic oils as well as fire-resistant and environmentally-friendly fluids with a viscosity of 210 S.U.S

1) at speed n = 1450 rpm

2) maximum intermittent pressure for max. 20 sec. and not more than 10% of the duty cycle

3) theoretical value at the max. permitted continuous pressure for mineral oil

4) theoretical value at the max. permitted continuous pressure for mineral oil at n = 1450 rpm

5) for speeds higher than 1500 rpm. the minimum permissible inlet pressure is 13.77 PSI absolute

6) max. speed only possible with second suction port. see section 2.2.1.

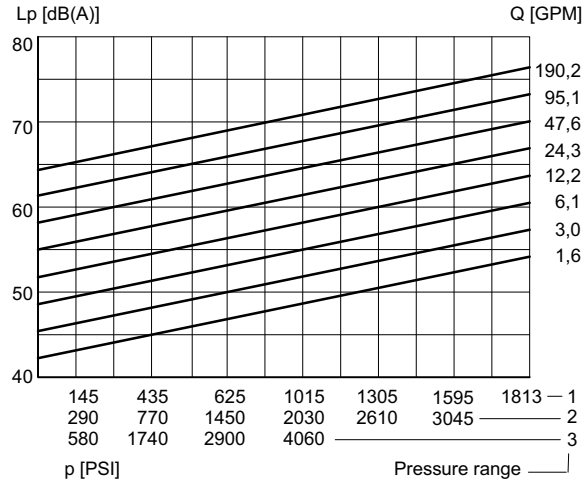
7) for max. speed minimum permissible inlet pressure is 13.77 PSI absolute. for speeds higher contact Bucher Hydraulics

3 Performance graphs

The performance graphs shown are valid for the specified pump models.
For other pump sizes, contact Bucher Hydraulics.

3.1 Noise level (Lp)

measured to DIN 45635, Part 26, in Stuttgart University's low-echo noise measurement chamber;
measurement distance 1 m; speed n = 1500 rpm; viscosity = 210 S.U.S

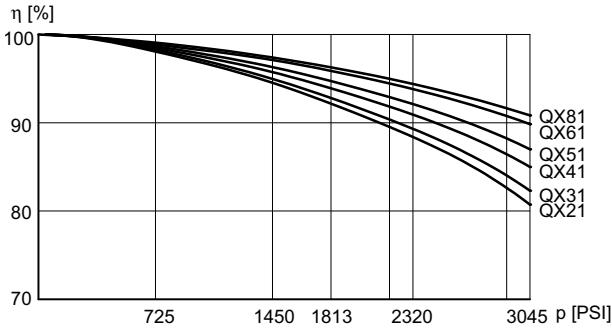


3.2 Efficiency (η)

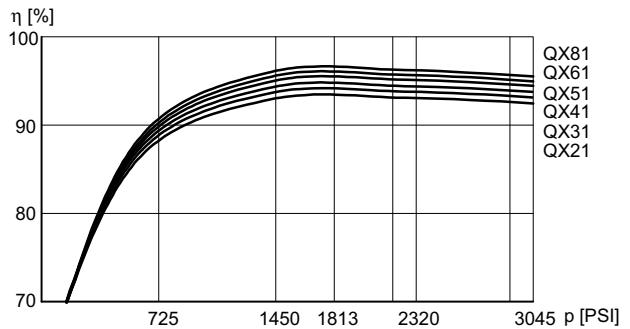
measured at speed 1450 rpm, viscosity 210 S.U.S

3.2.1 Pressure range 1

Volumetric efficiency

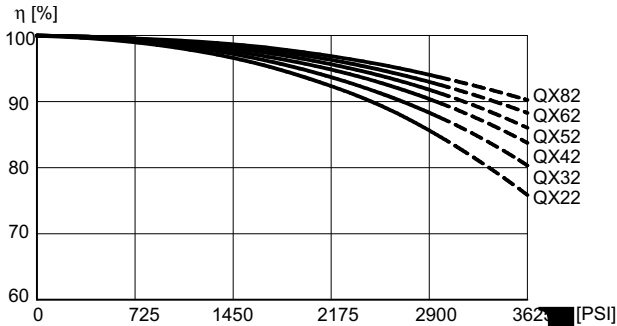


Overall efficiency

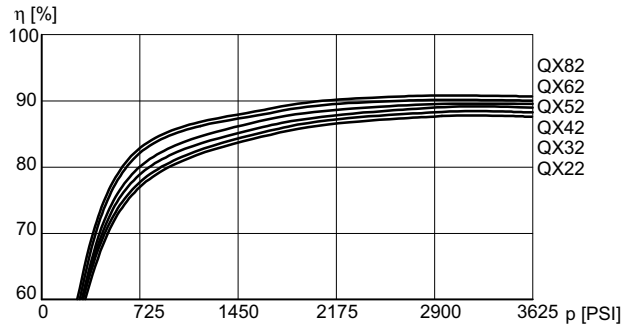


3.2.2 Pressure range 2

Volumetric efficiency

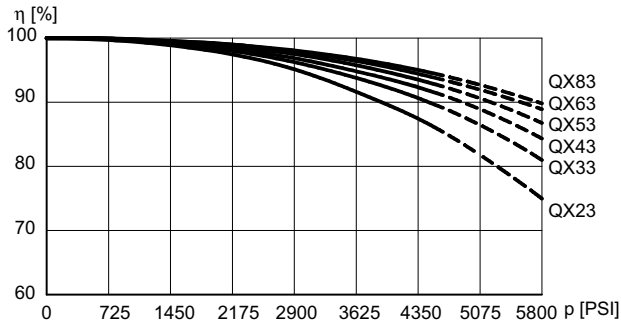


Overall efficiency

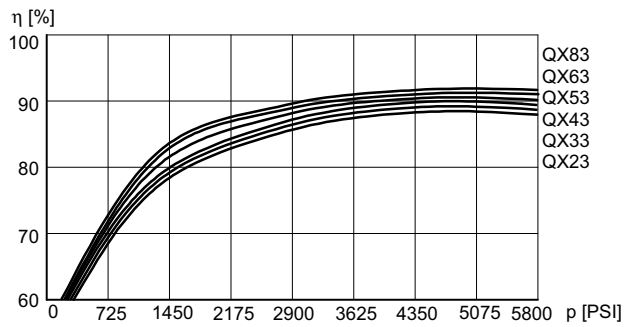


3.2.3 Pressure range 3

Volumetric efficiency



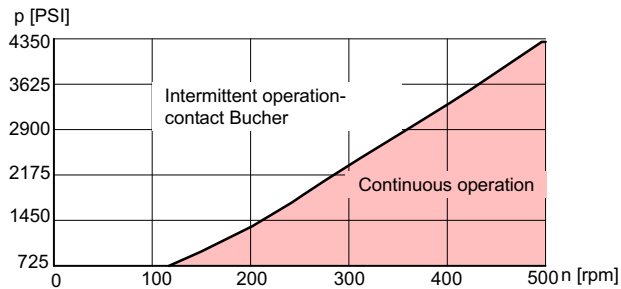
Overall efficiency



3.3 Operation with variable-speed drives

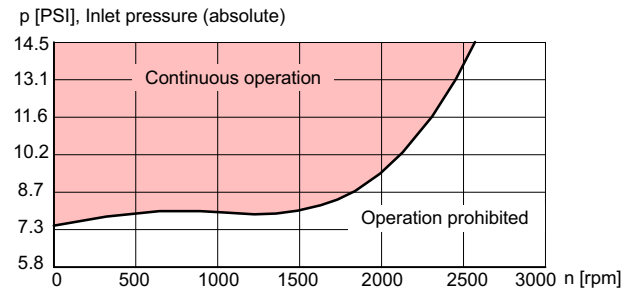
3.3.1 Minimum speed as a function of pressure

Pump QX52-063 measured: with viscosity 210 S.U.S



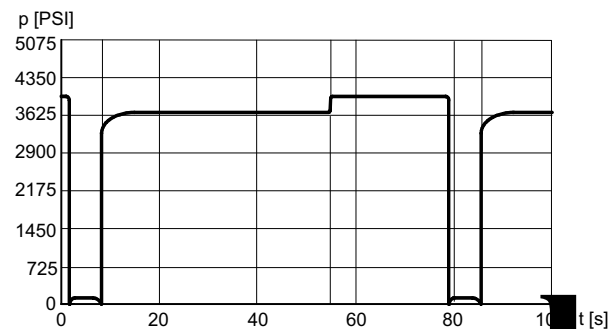
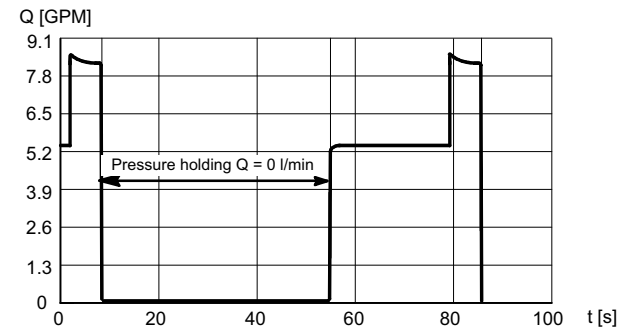
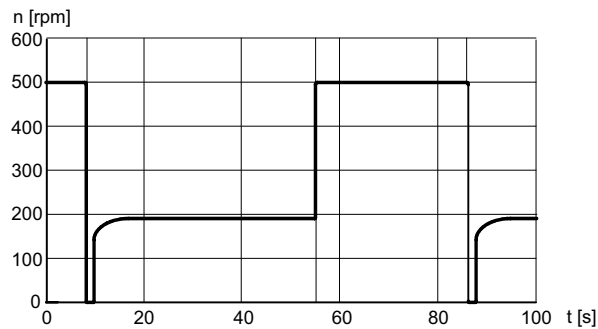
3.3.2 Minimum pressure at suction port as a function of speed

Pump QX52-063 measured: with viscosity 210 S.U.S



3.3.3 Typical loading cycle for a QX pump with variable-speed drive

Pump QX53-063 with separate drain connection measured with: viscosity 100 S.U.S



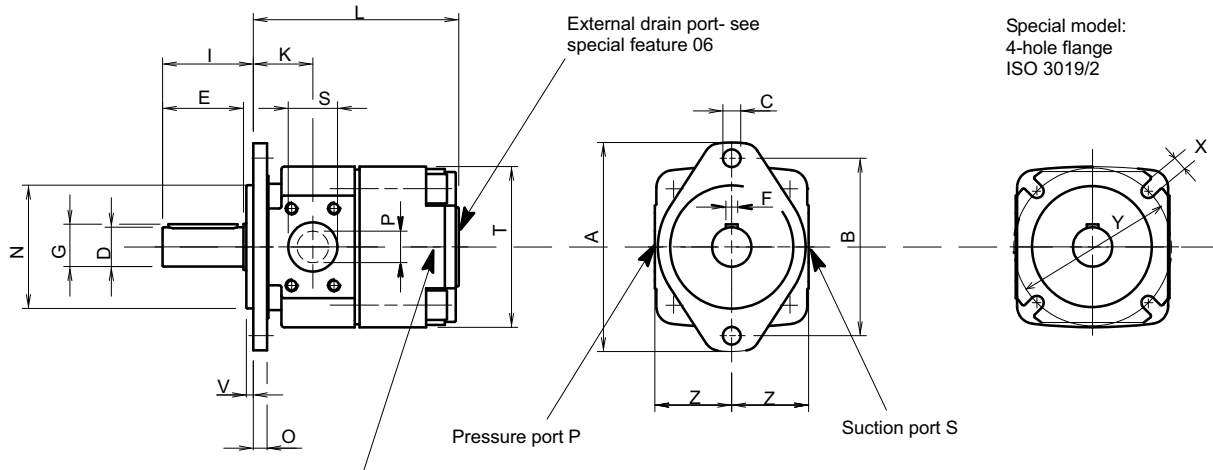
4 Single pumps

4.1 Dimensions (inch)

Frame size		2			3			4			5			6			8		
Pressure range		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Suction port: to standard SAE J518 ¹⁾	S	G1" ³⁾ thread			G1 1/4" ³⁾ thread			1 1/2"			2"			2 1/2"			3"		
Pressure port: to standard SAE J518 ¹⁾	P	G1/2" ³⁾ ⁴⁾ thread			G3/4" ³⁾ ⁴⁾ thread			1"			1 1/4"			1 1/2"			2"		
Mounting: oval 2-hole- flange to ISO 3019/1 (SAE) ISO 3019/2 (metric)	A	7.15			5.20			6.70			8.35			10.51			12.99		
	B (SAE)	-			4.17			5.75			7.13			9.02			-		
	B (Metr.)	3.93			4.29			5.51			7.09			8.82			11.02		
	C	0.35			0.43			0.55			0.71			0.87			1.02		
	N (SAE)	-			3.25 - 0.002			4 - 0.002			5 - 0.002			6 - 0.002			-		
	N (Metr.)	2.48 (h8)			3.15 (h8)			3.93 (h8)			4.92 (h8)			6.30 (h8)			7.87 (h8)		
	O	0.33			0.33			0.41			0.49			0.65			0.79		
V	0.24			0.24			0.28			0.28			0.28			0.35			
4-hole flange ISO 3019/2	X (Metr.)	0.35			0.35			0.47			0.55			0.71			0.87		
	Y (Metr.)	3.35			4.06			4.92			6.30			7.87			9.84		
Shaft end: parallel. to ISO/R775 ²⁾	D	0.79 (j6)			0.98 (j6)			1.26 (j6)			1.57 (j6)			1.97 (j6)			2.48 (j6)		
	E	1.42			1.65			2.28			3.23			3.23			4.13		
	F	0.24			0.31			0.39			0.47			0.55			0.71		
	G	0.89			1.10			1.38			1.69			2.10			2.64		
	I	1.77			1.97			2.68			3.62			3.62			4.61		
Housing	K	1.48			1.73			2.07			2.38			2.91			3.54		
	L	5.4	4.6	6.0	6.5	5.7	7.4	7.9	6.9	9.1	9.5	8.3	11.0	11	9.8	13	14	13	17
	M	-	2.2	3.4	-	2.7	4.5	-	3.4	5.6	-	4.0	6.8	-	4.7	8.2	-	5.9	10
	T	3.3			4.2			5.2			6.9			8.4	8.7	8.7	10	11	11
	Z	1.9			2.4			2.5			3.1			3.8			4.9		
Weight	lbs	11	11	14	22	21	27.6	40	37	48	73	68	88	141	132	168	287	265	353

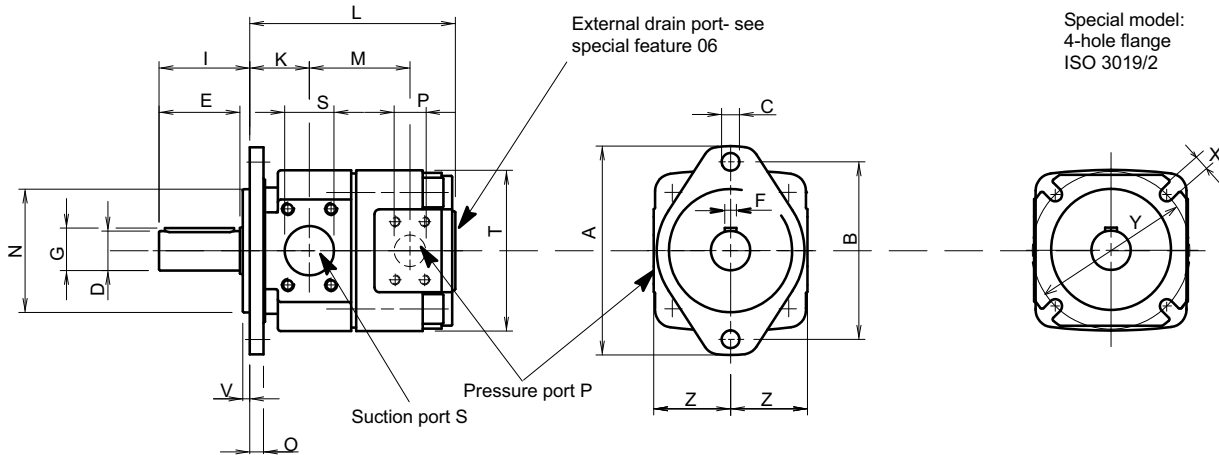
- 1) For SAE 3000 pipe flange dimensions.
High pressure type up to 6090 PSI (see section 10.2)
Low pressure type for up to 232 PSI (see section 10.3)
- 2) For other shaft ends. contact Bucher Hydraulics
- 3) Threaded port to DIN 3852. Part 2
- 4) Pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

4.2 Pressure range 1

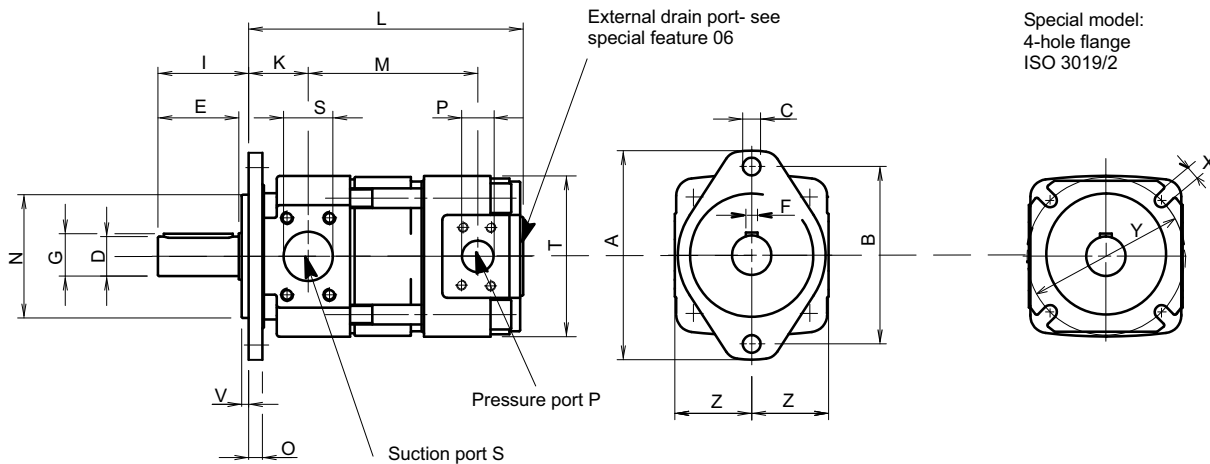


Depending on operating conditions, a second suction port may be required on QX61 (SAE 2") and QX81 (SAE 2-1/2") - see section 2.2.1. page 4

4.3 Pressure range 2



4.4 Pressure range 3



4.5 Ordering code for single pumps

Series	= QX	Q	X	5	3	-	0	4	0	R	*	*
Frame size	= 2 / 3 / 4 / 5 / 6 / 8											
Pressure range	= 1 / 2 / 3											
Displacement in cm ³ /rev	= 005 - 500											
Rotation viewed from shaft end	CW (right) = R CCW (left) = L											
Variants / special features (to be inserted by the factory. see section 4.7 for a selection)												

Ordering example:

Required: single pump
 Displacement: 39.3 cm³/rev (2.40 in³/rev)
 Continuous pressure: 4350 PSI
 for use with mineral oil
 Ordering code: QX53-040R

4.6 Standard configuration

- Direction of rotation - CW (right)
- 2-hole mounting flange to ISO 3019/1 (SAE): sizes QX 3 to 6
- 2-hole mounting flange to ISO 3019/2 (metric): sizes QX 2 and 8
- Nitrile seals
- Parallel shaft end to ISO/R775

4.7 Special features

06 = separate drain port in the pump rear cover

QX 2 to 5 G1/4"

QX 6 G3/8"

QX 8 G1/2"

09 = Viton seals

12 = 2-hole mounting flange to ISO 3019/2 (metric): size QX3-6

66 = 4-hole mounting flange to ISO 3019/2 (metric)

14 = operating temperatures to 320°F

29 = for HFB and HFC fluids. frame sizes 2-5

86 = for HFB and HFC fluids. frame sizes 6 and 8

83 = second suction port on:

QX61 = SAE 2"

QX81 = SAE 2 1/2"

5 Double pumps

QX double pumps consist of two single pumps mounted on a common drive shaft. Hydraulically, the two pumps operate independently of one another but they share a common suction port in the pump's centre section. The larger pump of the combination is situated at the shaft end (the drive side) and is referred to as Pump I. With equal frame sizes, the pump with the larger displacement is situated at the drive side.

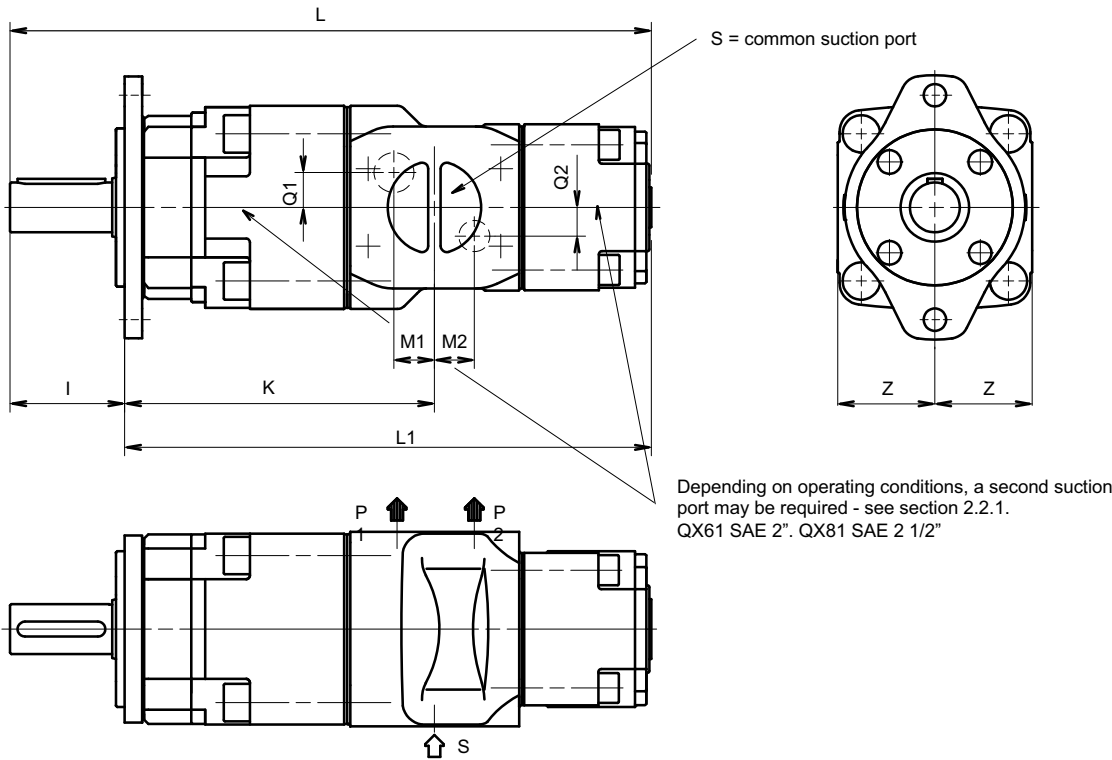
Double pumps can be combined as shown in the following table. If a letter is shown at the intersection point of the two pumps, the letter identifies the page in section 5.2 that contains the relevant dimensional drawing. If there is no letter at the intersection point, then that pump combination is not possible.

5.1 Selection table

		Pump 2																Maximum permissible drive shaft torque (lb-in)							
		Displacement in in ³ /rev																							
		0.3	0.6	1.2	2.4	4.9	9.8	19.2	0.4	0.7	1.5	3	6.1	12.2	24.4	0.5	1		2	3.8	7.6	15.3	30.5		
		Maximum intermittent pressure in PSI																							
		3625	5800	1813/2320/3045	3625	5800	1813/2320/3045	3625	5800	1813/2320/3045	3625	5800	1813/2320/3045	3625	5800	1813/2320/3045	3625	5800	1813/2320/3045	3625	5800	1813/2320/3045			
		QX22..	QX23..	QX21..	QX32..	QX33..	QX31..	QX42..	QX43..	QX41..	QX52..	QX53..	QX51..	QX62..	QX63..	QX61..	QX82..	QX83..	QX81..						
Pump 1	Displacement in in ³ /rev	0.3/0.4/0.5	3625	QX22..	E																			575	
		5800	QX23..	H	I																				
	0.6/0.7/1	1813/2320/3045	QX21..	B	C	A																			
		3625	QX32..	E	F	D	E																		
	5800	QX33..	H	I	G	H	I																		1151
	1.2/1.5/2	1813/2320/3045	QX31..	B	C	A	B	C	A																
		3625	QX42..	E	F	D	E	F	D	E															
	5800	QX43..	H	I	G	H	I	G	H	I															2301
	2.4/3/3.8	1813/2320/3045	QX41..	B	C	A	B	C	A	B	C	A													
		3625	QX52..	E	F	D	E	F	D	E	F	D	E												
	5800	QX53..	H	I	G	H	I	G	H	I	G	H	I												4603
	4.9/6.1/7.6	1813/2320/3045	QX51..	B	C	A	B	C	A	B	C	A	B	C	A										
3625		QX62..				E	F	D	E	F	D	E	F	D	E										
5800	QX63..				H	I	G	H	I	G	H	I	G	H	I									9394	
9.8/12.2/15.3	1813/2320/3045	QX61..				B	C	A	B	C	A	B	C	A	B	C	A								
	3625	QX82..							E	F	D	E	F	D	E	F	D	E							
5800	QX83..								H	I	G	H	I	G	H	I	G	H	I					18587	
9.2	4.4	0.5	1813/2320/3045	QX81..					B	C	A	B	C	A	B	C	A	B	C	A					

5.2 Dimensions (inch)

A Double pumps QX.1/1.1



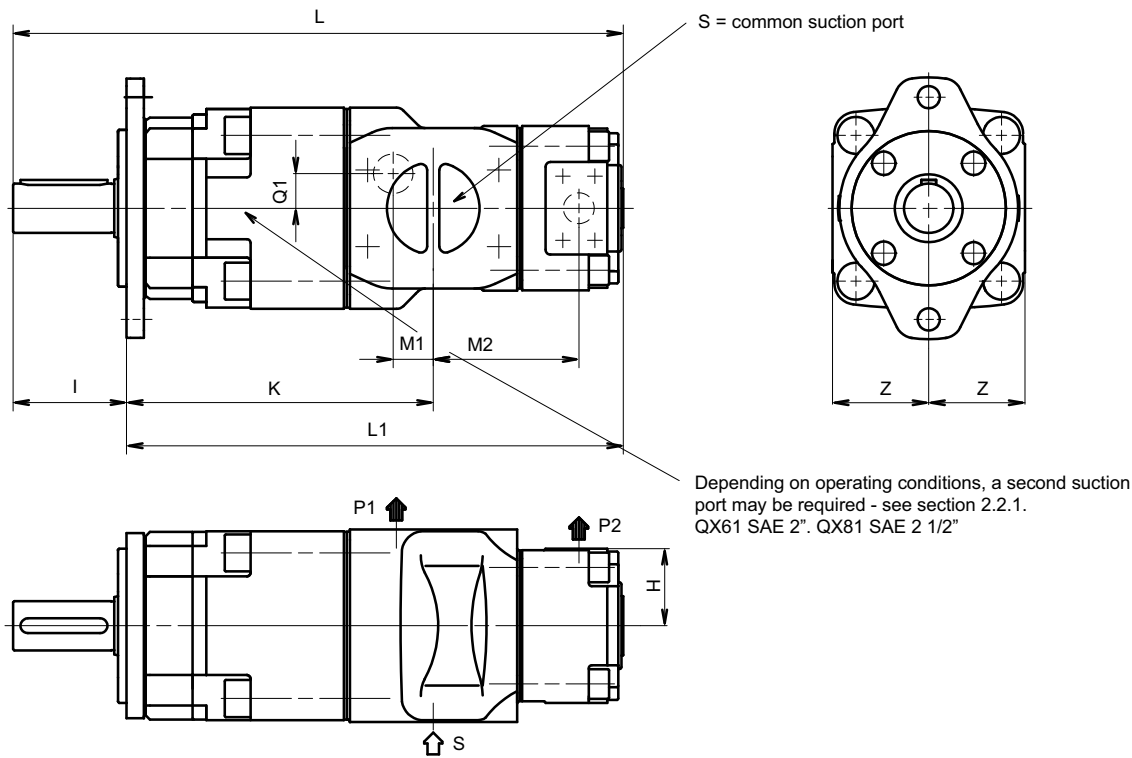
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	Q1	Q2	I	Z	S	P1	P2	
QX21/21	11.7	9.88	5.55	0.71	0.71	-	-	1.77	1.97	G 1 1/4" 1)	G 1/2" 1) 2)	G 1/2" 1) 2)	
QX31/21	13.5	11.5	6.73	1.02	1.18			1.97	2.36	G 1 1/2" 1)	G 3/4" 1) 2)		G 3/4" 1) 2)
QX31/31	14.1	12.1			1.02	0.59	0.59	2.68	2.48	SAE 2"	SAE 1"	G 1/2" 1) 2)	
QX41/21	15.6	12.9	7.97	0.75	1.37	0.91	0.91	3.62	3.07	SAE 2 1/2"	SAE 1 1/4"	G 3/4" 1) 2)	
QX41/31	16.2	13.5			1.30							1.10	1.10
QX41/41	17.7	15.0	8.19	1.02	1.02	0.91	0.91	3.62	3.86	SAE 3"	SAE 1 1/2"	1" SAE	
QX51/21	18.4	14.8	9.49	0.90	1.69	-	-					G 1/2" 1) 2)	
QX51/31	19.0	15.4			1.54	0.59	0.59	G 3/4" 1) 2)					
QX51/41	20.5	16.9	9.80	1.18	1.26	0.91	0.91	3.62	3.86	SAE 3"	SAE 1 1/2"	SAE 1"	
QX51/51	21.5	17.9			1.18	1.10	1.10					SAE 1 1/4"	
QX61/31	21.3	17.7	11.3	0.94	1.85	0.67	0.55	3.62	3.86	SAE 3 1/2"	SAE 2"	G 3/4" 1) 2)	
QX61/41	22.2	18.6			1.06	1.02	1.06					SAE 1"	
QX61/51	23.7	20.0	11.5	1.26	1.57	1.37	1.10	3.62	3.86	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	
QX61/61	24.7	21.1			1.26	1.37	1.37					SAE 1 1/2"	
QX81/41	26.7	22.1	14.1	1.38	2.00	0.98	0.98	4.61	4.92	SAE 4"	SAE 2"	SAE 1"	
QX81/51	27.8	23.1			1.85	0.98	1.18					SAE 1 1/4"	
QX81/61	28.8	24.2		1.49	1.77	1.77	1.57	1.37	4.61	4.92	SAE 4"	SAE 2"	SAE 1 1/2"
QX81/81	30.5	25.9				1.49	1.57	1.57					SAE 2"

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

B Double pumps QX.1/2



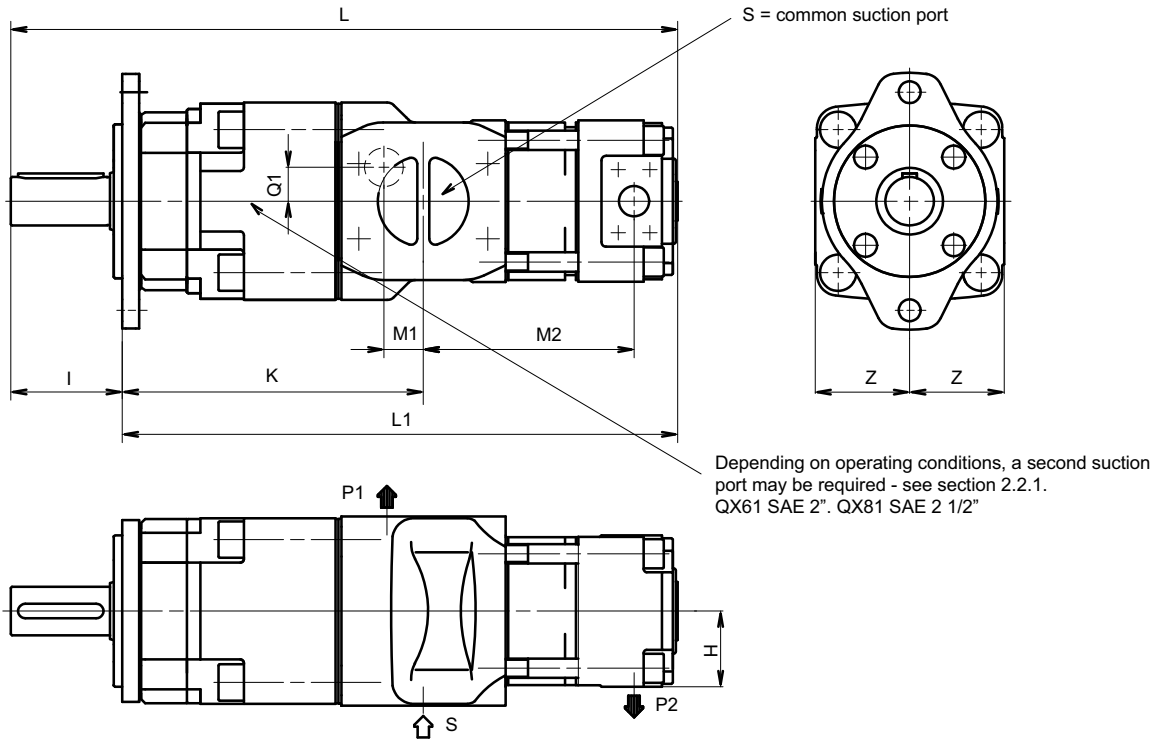
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	Q1	I	Z	H	S	P1	P2				
QX21/22	10.9	9.2	5.6	0.7	2.6	-	1.8	2.0	2.0	G 1 1/4" 1)	G 1/2" 1) 2)	G 1/2" 1) 2)				
QX31/22	12.8	10.8	6.7	1.0	3.1		2.0	2.4	2.4	G 1 1/2" 1)	G 3/4" 1) 2)					
QX31/32	13.3	11.3			3.4											
QX41/22	14.9	12.2	7.9	0.75	3.3	0.6	2.7	2.5	2.0	SAE 2"	SAE 1"	G 1/2" 1) 2)				
QX41/32	15.4	12.7			3.6				2.4			G 3/4" 1) 2)				
QX41/42	16.7	14.0			4.4				2.5			SAE 1"				
QX51/22	17.7	14.1	9.5	0.9	3.6	0.6	3.6	3.1	2.0	SAE 2 1/2"	SAE 1 1/4"	G 1/2" 1) 2)				
QX51/32	18.2	14.6			3.9				2.4			G 3/4" 1) 2)				
QX51/42	19.5	15.9			4.6				2.5			SAE 1"				
QX51/52	20.3	16.7	9.8	1.2	5.0	1.1	3.6	3.9	3.1	SAE 3"	SAE 1 1/4"	SAE 1 1/4"				
QX61/32	20.5	16.9			11.3				0.9			4.4	0.7	2.4	SAE 1 1/2"	G 3/4" 1) 2)
QX61/42	21.2	17.6							1.1			4.8	0.8	2.5		SAE 1"
QX61/52	22.4	18.8	11.5	1.3	5.4	1.4	3.6	3.9	3.1	SAE 3 1/2"	SAE 1 1/2"	SAE 1 1/4"				
QX61/62	23.1	19.5			5.9				3.9			SAE 1 1/2"				
QX81/42	25.7	21.1			14.1				1.4			5.6	1.0	4.6	4.9	2.5
QX81/52	26.5	21.9	5.9	3.1		SAE 1 1/4"										
QX81/62	27.2	22.6	6.4	3.9		SAE 1 1/2"										
QX81/82	28.5	24.0	1.5	7.0		1.6	4.9	SAE 4"		SAE 2"						

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

C Double pumps QX.1/3



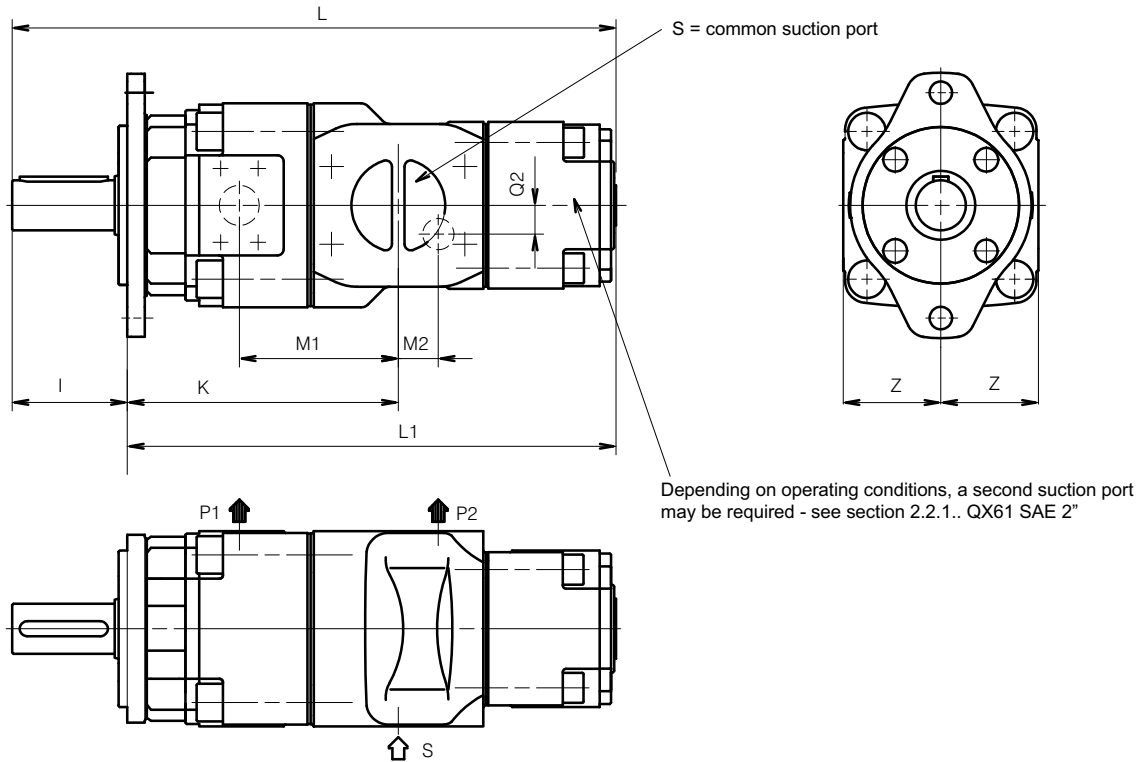
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	Q1	I	Z	H	S	P1	P2
QX21/23	12.3	10.6	5.6	0.7	4.0	-	1.8	2.0	2.0	G 1 1/4" 1)	G 1/2" 1) 2)	G 1/2" 1) 2)
QX31/23	14.2	12.2	6.7	1.0	4.5		2.0	2.4	2.4	G 1 1/2" 1)	G 3/4" 1) 2)	G 3/4" 1) 2)
QX31/33	15.1	13.1			5.2	0.6	2.7	2.5	2.5	2.0	SAE 2"	SAE 1"
QX41/23	16.3	13.6	7.9	0.75	4.7							
QX41/33	17.2	14.5	8.2	1.02	5.4	0.9	3.6	3.1	2.0	SAE 2 1/2"	SAE 1 1/4"	G 1/2" 1) 2)
QX41/43	18.9	16.2			6.6							5.0
QX51/23	19.1	15.5	9.5	0.9	5.7	0.6	3.6	3.1	2.0	SAE 2 1/2"	SAE 1 1/4"	G 1/2" 1) 2)
QX51/33	20.0	16.4			6.9							5.4
QX51/43	21.7	18.1	9.8	1.2	7.8	1.1	3.6	3.1	2.0	SAE 3"	SAE 1 1/4"	SAE 1"
QX51/53	23.0	19.4			6.9							5.4
QX61/33	22.3	18.7	11.3	0.9	6.2	0.7	3.6	3.9	2.4	SAE 3"	SAE 1 1/2"	G 3/4" 1) 2)
QX61/43	23.4	19.8			7.0							0.8
QX61/53	25.1	21.5	11.5	1.3	8.1	1.4	3.6	3.9	2.4	SAE 3 1/2"	SAE 1 1/2"	SAE 1 1/4"
QX61/63	26.7	23.1			9.4							0.8
QX81/43	27.9	23.3	14.1	1.4	7.8	1.0	4.6	4.9	2.5	SAE 3 1/2"	SAE 2"	SAE 1"
QX81/53	29.3	24.6			8.7							0.8
QX81/63	30.8	26.2	1.5	1.5	9.9	1.6	4.6	4.9	2.5	SAE 4"	SAE 2"	SAE 1 1/2"
QX81/83	33.0	28.4			11.6							1.6

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

D Double pumps QX.2/.1



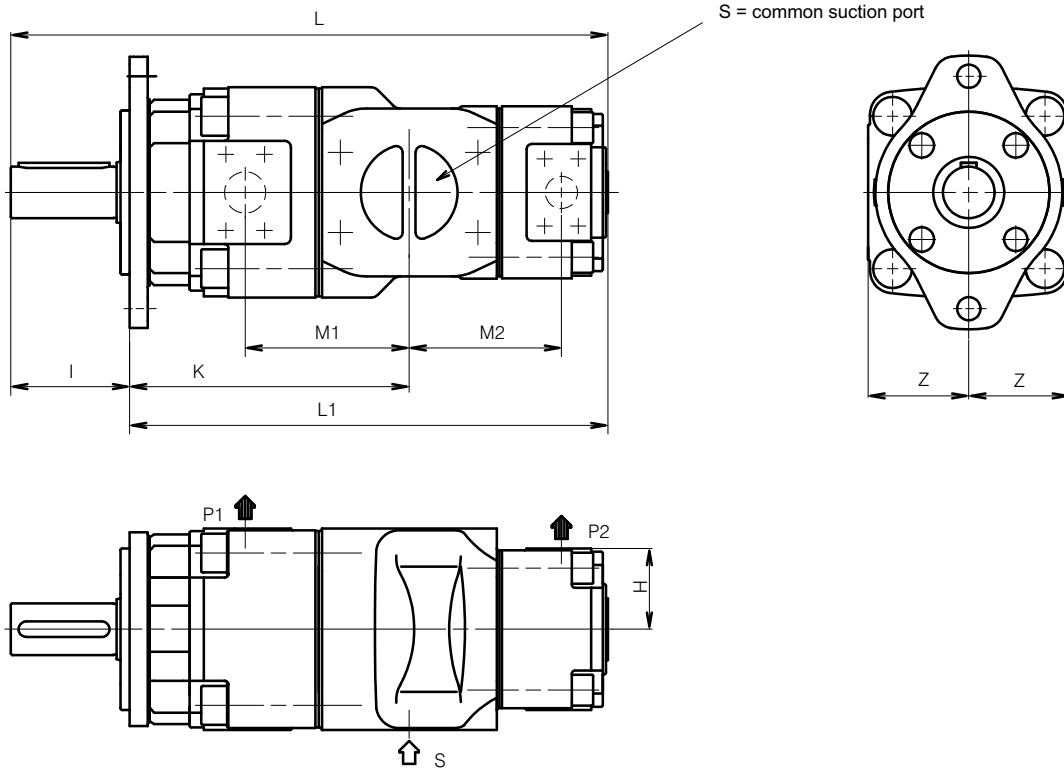
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	Q2	I	Z	S	P1	P2		
QX32/21	12.7	10.7	5.9	3.4	1.2	-	2.0	2.4	G 1 1/2" 1)	G 3/4" 1) 2)	G 1/2" 1) 2)		
QX42/21	14.6	11.9	6.9	4.1	1.4	0.6	2.7	2.5	SAE 2"	SAE 1"	G 3/4" 1) 2)		
QX42/31	15.2	12.5			1.3								
QX52/21	17.2	13.5	8.2	4.7	1.7	-	3.6	3.1	SAE 2 1/2"	SAE 1 1/4"	G 1/2" 1) 2)		
QX52/31	17.8	14.1			1.5						0.6	G 3/4" 1) 2)	
QX52/41	19.3	15.6			1.3						0.9	SAE 1"	
QX62/31	19.7	16.1	9.7	5.7	1.9	0.5	3.6	3.9	SAE 3"	SAE 1 1/2"	G 3/4" 1) 2)		
QX62/41	20.6	17.0			1.5						1.1	SAE 1"	
QX62/51	22.1	18.5			1.6						1.1	SAE 1 1/4"	
QX82/41	24.8	20.2	12.2	7.0	2.0	1.0	4.6	4.9	SAE 3 1/2"	SAE 2"	SAE 1"		
QX82/51	25.8	21.2			1.9						1.2	SAE 1 1/4"	
QX82/61	26.9	22.2			1.8						1.4	SAE 4"	SAE 1 1/2"

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

E Double pumps QX.2/2



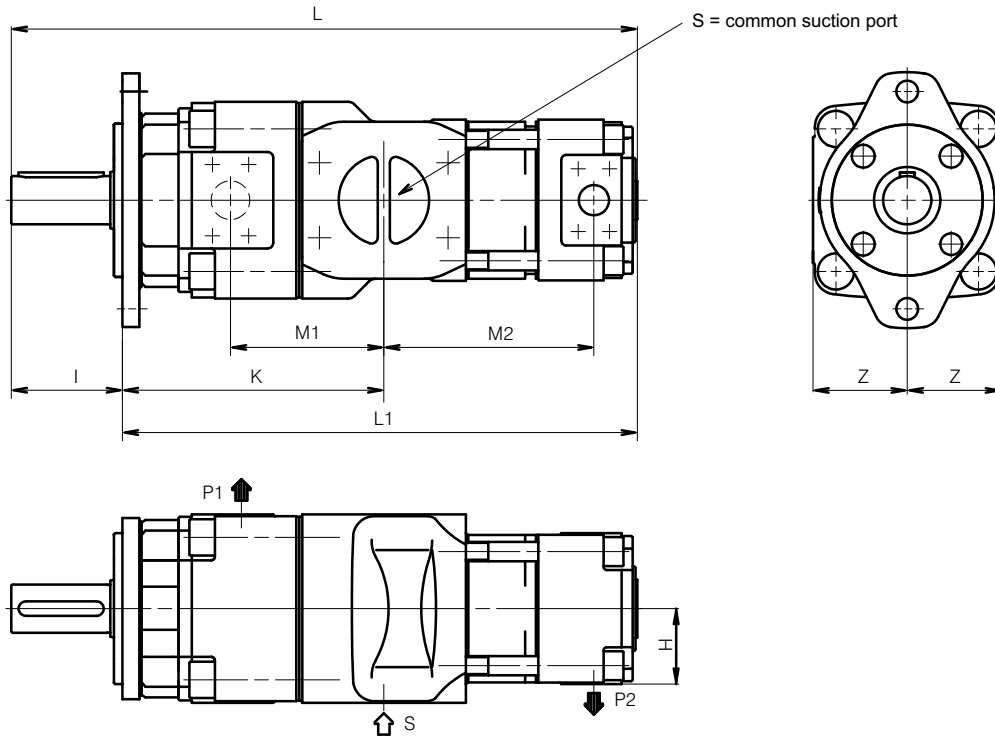
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	I	Z	H	S	P1	P2
QX22/22	10.2	8.5	4.8	2.6	2.6	1.8	2.0	2.0	G 1 1/4" 1)	G 1/2" 1) 2)	G 1/2" 1) 2)
QX32/22	12.0	10.0	5.9	3.4	3.1	2.0	2.4		G 1 1/2" 1)	G 3/4" 1) 2)	G 3/4" 1) 2)
QX32/32	12.5	10.6			3.4			2.7	2.5		
QX42/22	13.9	11.2	6.9	4.1	3.3	2.7	2.5			SAE 2"	SAE 1"
QX42/32	14.4	11.7			3.6			2.0	2.4		
QX42/42	15.6	13.0	7.2	4.4	4.4	3.6	3.1			SAE 3"	SAE 1 1/4"
QX52/22	16.5	12.8	8.2	4.7	3.6			3.6	3.1		
QX52/32	16.9	13.3			3.9	3.6	3.9			3.1	SAE 3"
QX52/42	18.2	14.6	8.5	5.0	4.6			3.6	3.9		
QX52/52	19.0	15.4			5.0	3.6	4.4			3.6	3.9
QX62/32	18.9	15.3	9.7	5.7	4.4			3.6	3.9		
QX62/42	19.6	16.0			4.8	3.6	5.4			3.6	3.9
QX62/52	20.8	17.2	9.9	5.9	5.4			3.6	4.9		
QX62/62	21.6	18.0			5.9	3.6	5.9			3.6	4.9
QX82/42	23.7	19.1	12.2	7.0	5.6			4.6	4.9		
QX82/52	24.5	19.9			5.9	3.1	SAE 1 1/4"				
QX82/62	25.3	20.7			6.4	3.9	SAE 1 1/2"				
QX82/82	26.5	21.9			7.0	4.9	SAE 2"				

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

F Double pumps QX.2/3



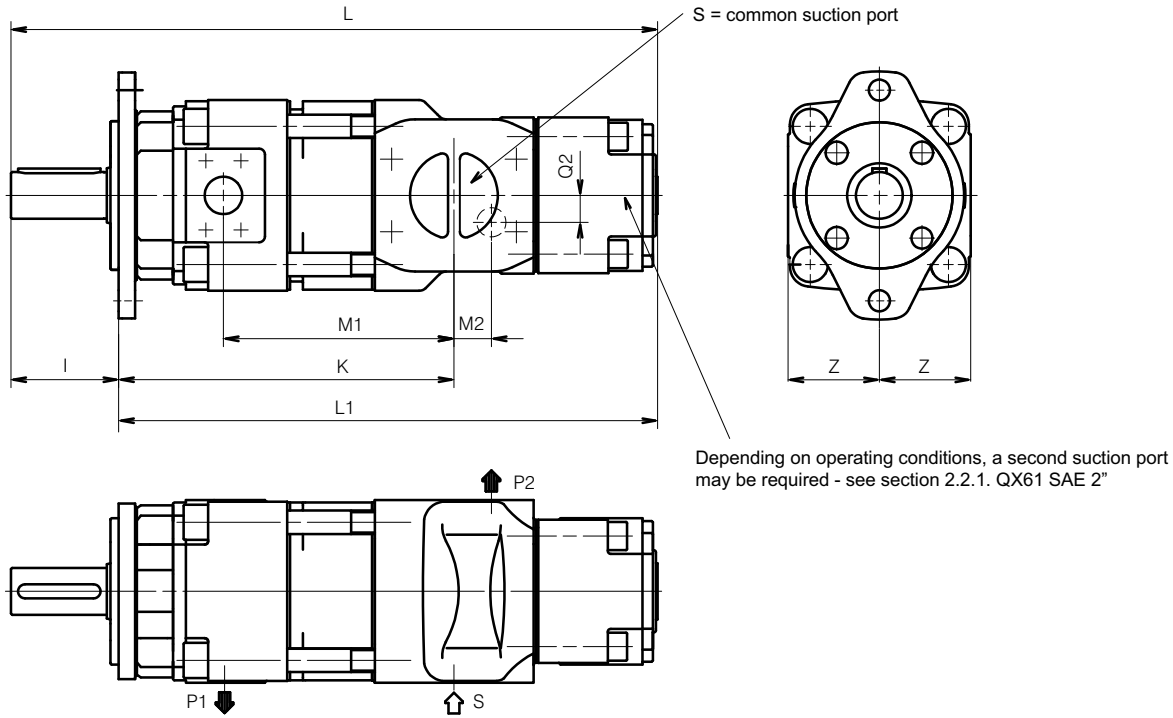
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	I	Z	H	S	P1	P2
QX32/23	13.4	11.4	5.9	3.4	4.5	2.0	2.4	2.0	G 1 1/2" 1)	G 3/4" 1) 2)	G 1/2" 1) 2)
QX42/23	15.2	12.6	6.9	4.1	4.7	2.7	2.5		SAE 2"	SAE 1"	G 3/4" 1) 2)
QX42/33	16.1	13.5			5.4			3.6	3.1		2.4
QX52/23	17.8	14.2	8.2	4.7	5.0	3.6	3.1			2.0	SAE 1 1/4"
QX52/33	18.7	15.1			5.7			2.4	3.9	3.9	
QX52/43	20.4	16.8	8.5	5.0	6.9	3.6	3.9	2.4			SAE 1 1/2"
QX62/33	20.7	17.0	9.7	5.7	6.2			3.6	3.9	2.5	
QX62/43	21.8	18.2			7.0	4.6	4.9			4.9	3.1
QX62/53	23.6	20.0	9.9	5.9	8.1			4.6	4.9		3.1
QX82/43	25.9	21.3	12.2	7.0	7.8	4.6	4.9			2.5	SAE 3 1/2"
QX82/53	27.3	22.7			8.7			4.6	4.9	4.9	
QX82/63	28.8	24.2	9.9	9.9	9.9	4.6	4.9				3.9

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

G Double pumps QX.3/1



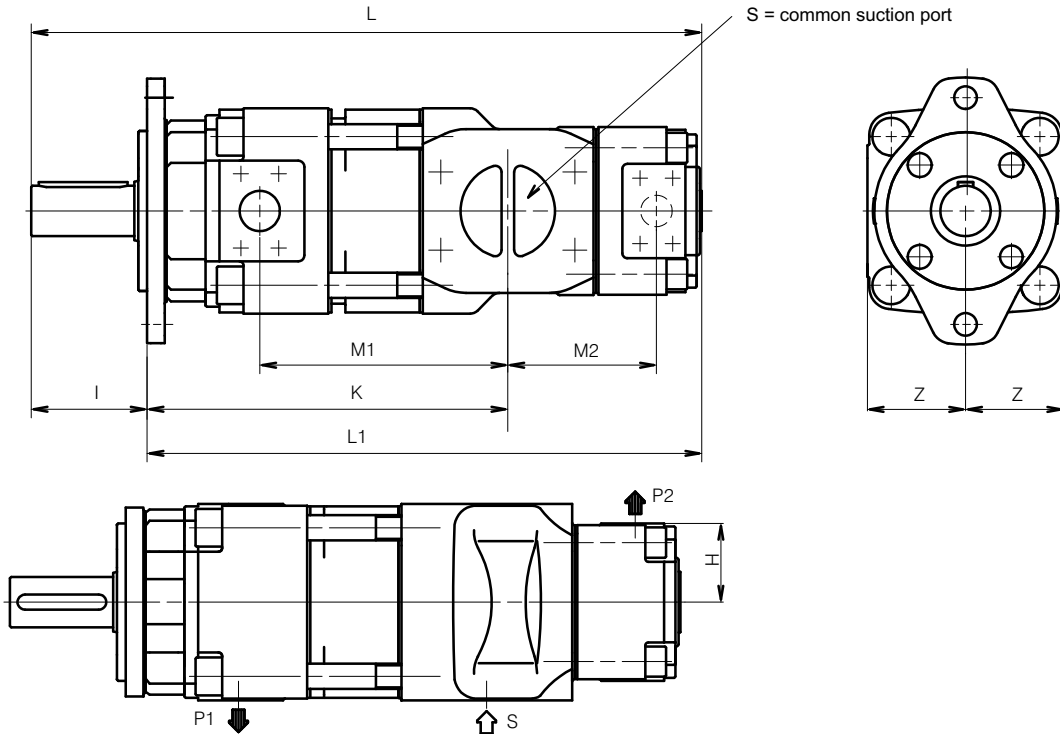
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	Q2	I	Z	S	P1	P2
QX33/21	14.5	12.5	7.7	5.2	1.2	-	2.0	2.4	G 1 1/2" 1)	G 3/4" 1) 2)	G 1/2" 1) 2)
QX43/21	16.8	14.1	9.1	6.3	1.4		2.7	2.5	SAE 2"	SAE 1"	
QX43/31	17.4	14.7			1.3	0.6					
QX53/21	19.9	16.3	11.0	7.5	1.7	-	3.6	3.1	SAE 2 1/2"	SAE 1 1/4"	G 1/2" 1) 2)
QX53/31	20.5	16.9			1.5						
QX53/41	22.0	18.4	11.3	7.8	1.3	0.9	3.6	3.9	SAE 3"	SAE 1 1/2"	SAE 1"
QX63/31	23.3	19.6	13.3	9.2	1.9	0.5					SAE 3 1/2"
QX63/41	24.2	20.6			1.5	1.1	SAE 2"	SAE 1 1/4"			
QX63/51	25.6	22.0	13.5	9.4	1.6	1.1			4.6	4.9	SAE 2"
QX83/41	29.3	24.7	16.7	11.6	2.0	1.0	SAE 4"	SAE 1 1/2"			
QX83/51	30.3	25.7			1.9	1.2			SAE 1"		
QX83/61	31.4	26.8	1.8	1.4	SAE 1 1/4"						

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

H Double pumps QX.3/.2



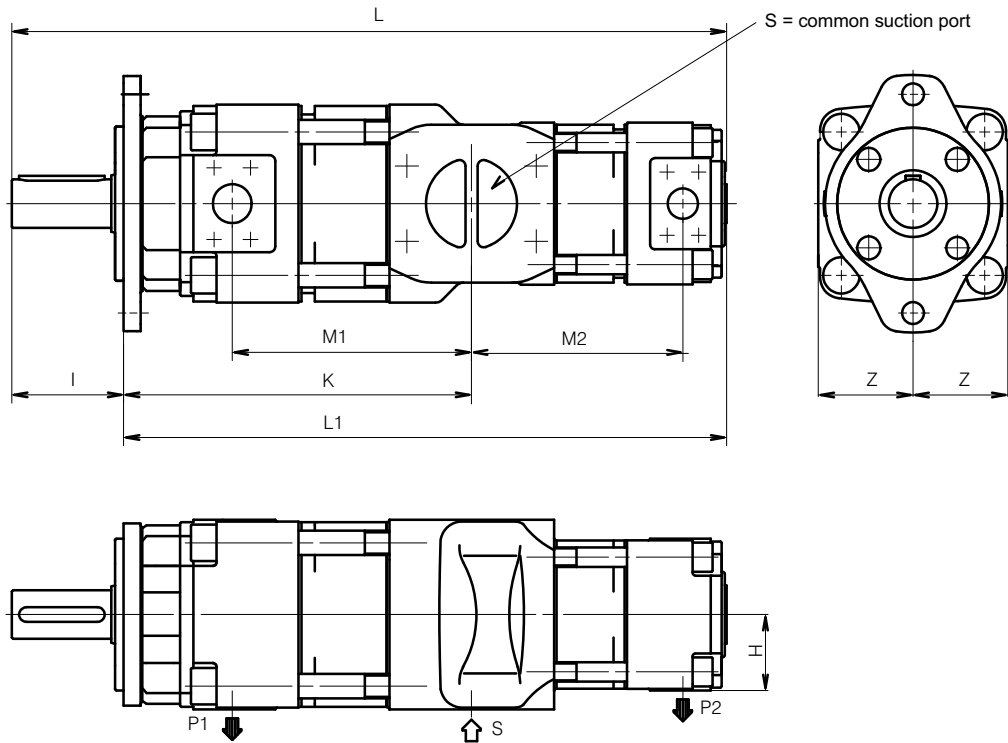
Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	I	Z	H	S	P1	P2
QX23/22	11.6	9.8	6.2	4.0	2.6	1.8	2.0	2.0	G 1 1/4" 1)	G 1/2" 1) 2)	G 1/2" 1) 2)
QX33/22	13.8	11.8	7.7	5.2	3.1	2.0	2.4		G 1 1/2" 1)	G 3/4" 1) 2)	G 3/4" 1) 2)
QX33/32	14.3	12.3			3.4			2.7	2.5		
QX43/22	16.1	13.4	9.1	6.3	3.3	2.4	2.0			SAE 2"	SAE 1"
QX43/32	16.6	13.9			3.6			2.5	2.5		
QX43/42	17.8	15.2	9.4	6.6	4.4	3.6	3.1			SAE 2 1/2"	SAE 1 1/4"
QX53/22	19.2	15.6	11.0	7.5	3.6			2.0	2.4		
QX53/32	19.7	16.1			3.9	2.5	3.1			2.0	SAE 3"
QX53/42	21.0	17.4	11.3	7.8	4.6			2.4	SAE 3"		
QX53/52	21.8	18.1			5.0	3.6	3.9			2.4	SAE 3 1/2"
QX63/32	22.5	18.9	13.3	9.2	4.4			2.4	SAE 3 1/2"		
QX63/42	23.1	19.5			4.8	4.6	4.9			2.5	SAE 4"
QX63/52	24.4	20.7	13.5	9.4	5.4			3.1	SAE 3 1/2"		
QX63/62	25.1	21.5			5.9	4.6	4.9			3.9	SAE 4"
QX83/42	28.3	23.7	16.7	11.2	5.6			2.4	SAE 4"		
QX83/52	29.1	24.4			5.9	4.6	4.9			3.1	SAE 4"
QX83/62	29.8	25.2	6.4	4.6	4.9			3.9	SAE 4"		
QX83/82	31.1	26.5	7.0			4.6	4.9			4.9	SAE 4"

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

I Double pumps QX.3/3



Shaft and mounting dimensions - see section 4

Type	L	L1	K	M1	M2	I	Z	H	S	P1	P2
QX23/23	330	285	6.2	4.0	1.0	1.8	2.0	2.0	G 1 1/4" 1) 2)	G 1/2" 1) 2)	G 1/2" 1) 2)
QX33/23	385	335	7.7	5.2	4.5	2.0	2.4		G 1 1/2" 1) 2)	G 3/4" 1) 2)	
QX33/33	408	358			5.2			2.4	G 3/4" 1) 2)		
QX43/23	442	374	9.1	6.3	4.7	2.7	2.5	2.0	SAE 2"	SAE 1"	G 1/2" 1) 2)
QX43/33	466	398			5.4						2.4
QX43/43	509	441	9.4	6.6	6.6		2.5			SAE 1"	
QX53/23	523	431	11.0	7.5	5.0	3.6	3.1	2.0	SAE 2 1/2"	SAE 1 1/4"	G 1/2" 1) 2)
QX53/33	546	454			5.7			2.4			G 3/4" 1) 2)
QX53/43	589	497	11.3	7.8	6.9			2.5	SAE 3"	SAE 1 1/4"	SAE 1"
QX53/53	623	531			7.8	3.1	SAE 1 1/4"				
QX63/33	616	524	13.3	9.2	6.2	3.6	3.9	2.4	SAE 1 1/2"	SAE 1 1/2"	G 3/4" 1) 2)
QX63/43	644	552			7.0			2.5			SAE 1"
QX63/53	689	597	13.5	9.4	8.1			3.1	SAE 3 1/2"	SAE 1 1/4"	SAE 1 1/4"
QX63/63	728	636			9.4	3.9	SAE 1 1/2"				
QX83/43	774	657	16.7	11.2	7.8	4.6	4.9	2.5	SAE 3 1/2"	SAE 2"	SAE 1"
QX83/53	808	691			8.7			3.1			SAE 1 1/4"
QX83/63	847	730			9.9			3.9	SAE 1 1/2"		
QX83/83	904	787			11.6			4.9	SAE 2"		

1) threaded port to DIN 3852. Part 2

2) pressure port to SAE J 518 can be supplied for pressure ranges 2 and 3

6 Triple pumps

The following table shows the triple-pump combinations that can be supplied. Other triple-pump combinations can be assembled after consultation with the factory. The individual pumps 1, 2 and 3 must be specified in accordance with the main characteristics shown in section 2.

The largest pump of the combination is situated at the shaft end and is referred to as Pump 1. For equal frame sizes, the pump with the larger displacement is situated at the drive side, Pumps 2 and 3 have a common suction port.

6.1 Selection table

Frame size of Pump 1						
QX2.	QX3.	QX4.	QX5.	QX5.	QX6.	QX8.
QX21/21/21	QX31/21/21	QX41/21/21	QX51/22/23	QX52/52/31	QX61/31/33	QX81/42/23
QX21/21/22	QX31/21/22	QX41/21/23	QX51/23/23	QX52/52/42	QX61/41/21	QX82/42/43
QX21/21/23	QX31/21/23	QX41/22/22	QX52/23/23	QX52/52/43	QX61/41/42	QX82/51/53
QX21/22/22	QX31/22/22	QX41/23/23	QX53/22/22	QX52/52/52	QX61/42/23	QX83/51/53
QX21/22/23	QX31/22/23	QX42/22/22	QX51/31/33	QX52/52/53	QX61/42/43	QX81/61/61
QX21/23/23	QX31/23/22	QX43/22/22	QX51/33/33	QX52/53/31	QX61/43/43	QX81/62/63
QX22/22/22	QX31/23/23	QX43/23/22	QX51/41/23	QX52/53/53	QX62/41/22	QX81/63/33
QX23/23/23	QX32/22/22	QX43/23/23	QX51/41/42	QX53/53/23	QX62/42/42	QX82/61/61
	QX32/22/23	QX41/31/33	QX51/41/43	QX53/53/33	QX62/43/43	QX82/62/52
	QX32/23/23	QX41/33/22	QX51/42/22		QX63/43/22	QX82/62/62
	QX33/21/22	QX41/33/33	QX51/42/43		QX61/52/53	QX82/63/31
	QX33/21/23	QX42/31/32	QX51/43/21		QX61/53/23	QX83/61/61
	QX33/23/23	QX42/32/32	QX51/43/22		QX61/53/31	QX83/63/61
	QX31/31/21	QX42/33/32	QX51/43/23		QX62/52/32	QX81/81/61
	QX31/31/22	QX43/31/31	QX51/43/43		QX62/52/52	QX81/81/81
	QX31/31/23	QX43/33/33	QX52/42/23		QX62/53/22	QX82/82/52
	QX31/31/31	QX41/41/33	QX52/42/42		QX62/53/23	QX82/82/62
	QX31/31/33	QX41/42/21	QX52/43/22		QX62/53/31	QX82/82/63
	QX31/32/22	QX41/42/23	QX52/43/23		QX62/53/33	QX83/83/53
	QX31/33/33	QX41/42/42	QX52/43/43		QX63/51/51	
	QX32/32/22	QX41/43/21	QX53/41/22		QX63/53/53	
	QX32/32/23	QX41/43/22	QX53/41/23		QX61/61/31	
	QX32/32/32	QX41/43/23	QX53/42/22		QX61/61/33	
	QX32/32/33	QX42/42/22	QX53/42/43		QX61/61/41	
	QX33/33/23	QX42/42/23	QX53/43/23		QX61/61/53	
	QX33/33/33	QX42/42/31	QX51/51/21*		QX61/62/42	
		QX42/42/32	QX51/51/32		QX61/62/63	
		QX42/42/33	QX51/51/33		QX61/63/32	
		QX42/42/42	QX51/52/32		QX61/63/33	
		QX42/42/43	QX51/52/33		QX61/63/41	
		QX43/43/43	QX51/52/42		QX61/63/42	
			QX51/52/43		QX62/62/33	
			QX51/53/22		QX62/62/43	
			QX51/53/23		QX62/62/53	
			QX51/53/31		QX62/62/62	
			QX51/53/33		QX62/62/63	
			QX51/53/41		QX62/63/63	
			QX51/53/43		QX63/63/32	
			QX51/53/52		QX63/63/43	
			QX52/52/23		QX63/63/53	
575	1151	2301	4603	4603	9294	18587

Maximum permissible drive shaft torque in lb-in

6.2 Ordering code for triple pumps

Tripel pumps can only be supplied after consultation with the factory.

		Q	X	5	1	-	1	2	5	/	5	1	-	0	8	0	/	2	1	-	0	1	2	R	*	*	
Series	= QX																										
Frame size	= 2 / 3 / 4 / 5 / 6 / 8																										
Pressure range	= 1 / 2 / 3																										
Displacement in cm ³ /rev	= 005 - 500																										
Frame size	= 2 / 3 / 4 / 5 / 6 / 8																										
Pressure range	= 1 / 2 / 3																										
Displacement in cm ³ /rev	= 005 - 500																										
Frame size	= 2 / 3 / 4 / 5 / 6 / 8																										
Pressure range	= 1 / 2 / 3																										
Displacement in cm ³ /rev	= 005 - 500																										
Rotation (viewed from shaft end)	CW (right) = R CCW (left) = L																										
Variants / special features (to be inserted by the factory. see section 4.7 for a selection)																											

Ordering example:

Required:	triple pump	Pump 3	
Pump 1		Displacement:	12 cm ³ /rev (0.49 in ³ /rev)
Displacement:	127.3 cm ³ /rev (7.77 in ³ /rev)	Continuous pressure:	125 bar
Continuous pressure:	1160 PSI	Type:	21-012
Type:	51-125	For use with mineral oil	
Pump 2		Referring to the selection table in sect. 6.1. QX51/51/21 is an obtainable combination.	
Displacement:	78.6 cm ³ /rev (4.80 in ³ /rev)	Ordering code: QX51-125/51-080/21-012R	
Continuous pressure:	2175 bar		
Type:	51-080		

7 Low-flow capability pumps

7.1 Generals

The QX24 internal gear pump is a further development of the Bucher internal gear pump, which has proven itself in more than 30 years of service around the world. With dis-

placements of 0,2 to 0,31 in³/rev, it extends the low-flow capability of the QX range.

7.2 Technical date

Mounting attitude	unrestricted
Mounting method (standard)	oval 2-hole flange to ISO 3019/2 (metric)
Direction of rotation	right. alternatively left (but not reversible)
Pump drive method	in-line. by flexible coupling
Fluids	HLP mineral oils to DIN 51524. Part 2 HFC fluids to VDMA 24317 other fluids - consult Bucher Hydraulics
Minimum fluid cleanliness	NAS 1638. class 9 or ISO 4406. code 20/18/15
Operating viscosity	100 - 750 S.U.S
Starting viscosity	100 -1500 S.U.S (for values outside this range. consult Bucher Hydraulics)
Fluid temperature	HLP mineral oils 176 °F max. HFC 122 °F max.
Minimum inlet pressure	12.33 PSI absolute
Maximum pressure at drain port	21.75 PSI absolute
External drain port	is always provided

7.3 Main characteristics

Effective displacement	Flow rate 1)	Maximum speed	Type	Mineral oil to	HFC to	Torque 3)	Power requirement 4)
				DIN 51524	VDMA 24317		
cm ³ /rev (in ³ /rev)	GPM	rpm		Cont./Max. interm. pressure 2)		lb-in	HP
3.3 (0.2)	1.3	3600	QX24-003	4640/5800	4060/5075	150	3.5
4.2 (0.26)	1.6	3600	QX24-004	4640/5800	4060/5075	186	4.3
5.1 (0.31)	1.9	3600	QX24-005	4640/5800	4060/5075	230	5.4

This operating data is valid for hydraulic oils as well as fire-resistant and environmentally-friendly fluids with a viscosity of 100 to 250 S.U.S

1) at speed n = 1450 rpm (theoretical)

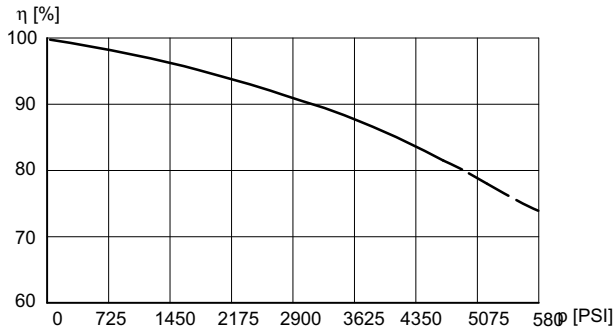
2) maximum intermittent pressure for max. 20 sec. but not more than 10% of the duty cycle

3) theoretical value at the max. permitted continuous pressure for mineral oil

4) theoretical value at the max. permitted continuous pressure for mineral oil at n = 1450 rpm

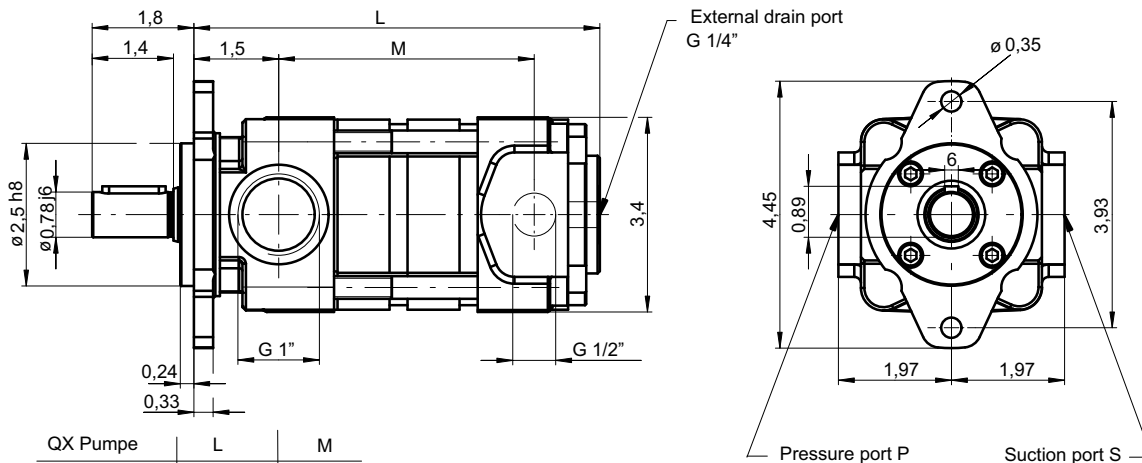
7.4 Efficiency (η)

Measured at speed $n = 1450$ rpm Viscosity $42 \text{ mm}^2/\text{s}$



7.5 Single pump

7.5.1 Dimensions (inch)



QX Pumpe	L	M
QX24-003	7.1	4.4
QX24-004	7.1	4.4
QX24-005	7.5	4.9

7.5.2 Ordering code

		Q	X	2	4	-	0	0	4	R	*	*	
Series	= QX												
Size	= 2												
Pressure range	= 4												
Displacement in cm ³ /rev	= 003, 004 and 005												
Direction of rotation (viewed from shaft end)	CW (right) = R CCW (left) = L												
Variants / special features (to be inserted by the factory, see section 7.5.4 for a selection)													

7.5.3 Standard configuration

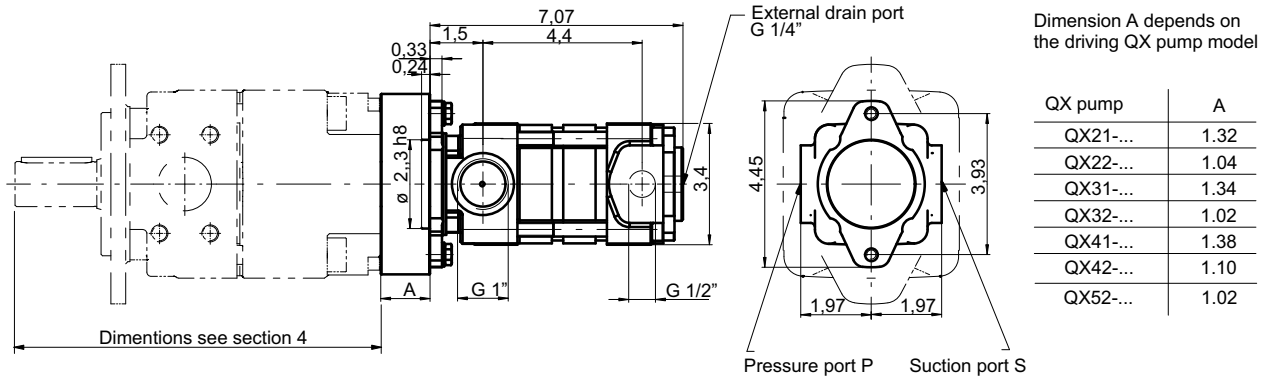
- direction of rotation CW (right)
- 2- hole mounting flange to ISO 3019/2 (metric)
- Nitrile seals
- cylindrical shaft end to ISO R775
- separate drain port G 1/4" in rear cover of the pump

7.5.4 Special features

09 = Viton seals

7.6 QX24 pump combined also QX-pumps

7.6.1 Dimensions (inch)



7.6.2 Ordering code

		Q	X	4	1	-	0	4	0	//	2	4	-	0	0	4	R	3	2	4	
Series	= QX																				
Size	= 2 / 3 / 4 / 5 / 6 / 8																				
Pressure range	= 1 / 2 / 3																				
Displacement in cm ³ /rev	= 005 - 500																				
	Size = 2																				
	Pressure range = 4																				
	Displacement in cm ³ /rev = 003 - 005																				
Direction of rotation (viewed from shaft end)	CW (right) = R CCW (left) = L																				
Variants / special features (the code 324 ist always necessary)																					

Ordering example:

Required: Double pump

Pump 1

Displacement: 40.7 cm³/rev (2.48 in³/rev)

Continuous pressure: 2320 PSI

Type: 41 - 040

Pump 2

Displacement: 3.3 cm³/rev (0.2 in³/rev)

Continuous pressure: 3625 PSI

Type: 24 - 004

For use with mineral oil:

Ordering code: QX41-040//24-004R 324

8 Fluid cleanliness

QX pumps require fluid with a minimum cleanliness level of NAS 1638, Class 9 or ISO 4406. code 20/18/15.

HLP hydraulic oils to DIN 51524, Part 2, can be used without any special restriction as long as they remain within the specified temperature and viscosity ranges. HFC fire-resistant fluids to DIN 51502 can be used with the QR, QT, QX and QXM series. Note that all fire-resistant fluids require special versions of the pumps or motors and must be approved by

Bucher Hydraulics. We recommend the use of fluids that contain anti-wear additives for mixed-friction operating conditions. Fluids without appropriate additives can reduce the service life of pumps and motors. The user is responsible for maintaining, and regularly checking, the fluid quality. Bucher Hydraulics recommends a load capacity of ≥ 4.4 PSI to Brugger DIN 51347-2.

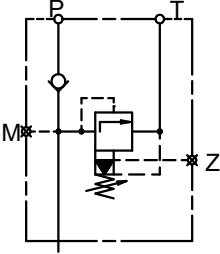
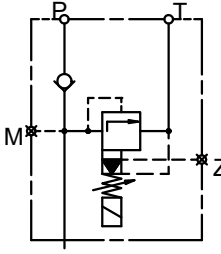
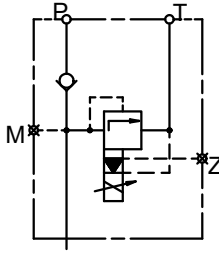
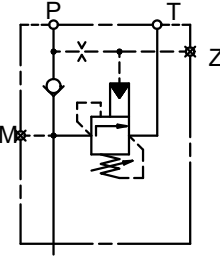
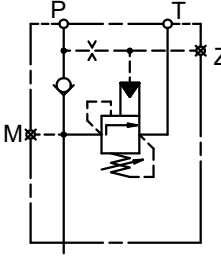
9 Note

This catalogue is intended for users with specialist knowledge. The user must check the suitability of the equipment described herein in order to ensure that all of the conditions necessary for the safety and proper functioning of the sys-

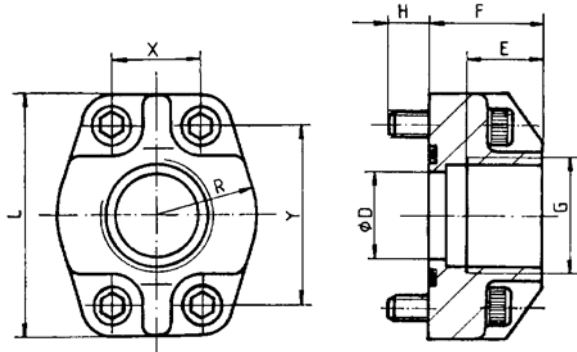
tem are fulfilled. If you have any doubts or questions concerning the use of these pumps, please consult Bucher Hydraulics.

10 Accessories

10.1 Bolt-on valves - SAE 3000 pattern

Ordering details	Pressure relief $A_G^S DF / A_G^S DH$	Pressure relief solenoid control $A_G^S DA / ASDM$	Pressure relief proportional solenoid control $A_G^S DP$
Symbols			
Ordering details	Unloading valve $A_G^S AF$	Accumulator charging valve $A_G^S SF$	S = for pipe flange SAE 3000 pattern G = with threaded port (G) (only size QX2, 3 and 4)
Symbols			

10.2 Pipe flange - high pressure type



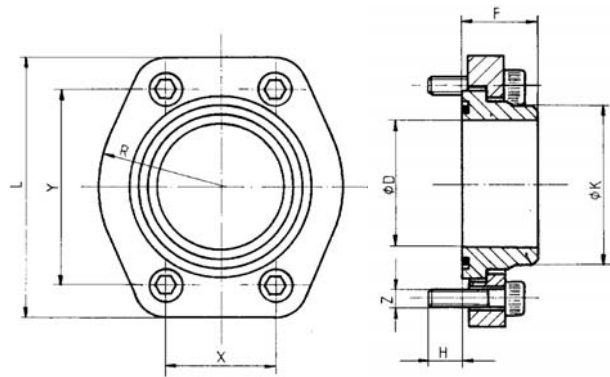
- Max. operating pressure 6090 PSI
- SAE flange size PSI 3000

Material: ST37 / For Viton seals, contact Bucher Hydraulics
 Threaded pipe flanges are spot-faced for DIN 2353 pipe fittings

Ordering-number	Ordering code	Size	DØ	E	F	H	L	R	X	Y	Viton seal 90 Shore 'A'	Retaining screws DIN912-12.9	Torque lb-in
037000	RF 01-R08	G 1/2"	0.5	0.6	1.1	0.5	2.1	0.9	0.69	1.49	0.79x0.10	M8 x 30	266
037010	RF 02-R10	G 3/4"	0.8	0.7	1.2	0.47	2.6	1.0	0.87	1.87	1.05x0.10	M10 x 30	531
037020	RF 03-R11	G 1"	1.0	0.8	1.3	0.5	2.7	1.1	1.03	2.06	1.29x0.10	M10 x 35	531
037030	RF 04-R12	G 1 1/4"	1.3	1.0	1.5	0.6	3.1	1.4	1.19	2.31	1.61x0.14	M10 x 40	531
037040	RF 05-R13	G 1 1/2"	1.5	0.9	1.6	0.7	3.7	1.6	1.41	2.76	1.73x0.14	M12 x 45	1062
037050	RF 06-R14	G 2"	1.9	1.1	1.8	0.8	4.0	1.9	1.69	3.06	2.36x0.14	M12 x 50	1062
055470 *	RF 07-R16	G 2 1/2"	2.5	1.2	1.9	0.7	4.5	2.2	1.99	3.50	2.86x0.14	M12 x 45	1062

* at RF07 only to 3045 PSI be allowed

10.3 Low pressure type



- Max. operating pressure 232 PSI
- SAE flange size PSI 3000

Material: ST37 / For Viton seals, contact Bucher Hydraulics

Ordering number	Ordering code	SAE flange Size	D	K	F	H	L	R	X	Y	Viton seal 90 Shore 'A'	Retaining screws DIN 912-8.8	Torque lb-in	pipe ¹⁾ O/dia.approx.
062450	RN 07-S	2 1/2"	2.5	2.9	1.3	0.6	4.7	2.5	2.0	3.5	2.73 x 0.14	M12 x 30	620	2.95
063880	RN 08-S	3"	3.0	3.5			5.53	2.7	2.4	4.19	3.36 x 0.14	M16 x 40	1593	3.46
063890	RN 09-S	3 1/2"	3.5	3.9	1.6	0.7	6.23	2.9	2.8	4.74	3.86 x 0.14	M16 x 40	1593	3.93
063900	RN 10-S	4"	4.1	4.5			6.6	3.1	3.1	5.1	4.36 x 0.14	M16 x 40	1593	4.53

1) We recommend the use of seamless precision steel tube to DIN 17179 with wallthick. max 0.24 in

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to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.

Classification: 410 100 10 100

32/32

1001-00121-0S-06702.03

Internal Gear Pump QX

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