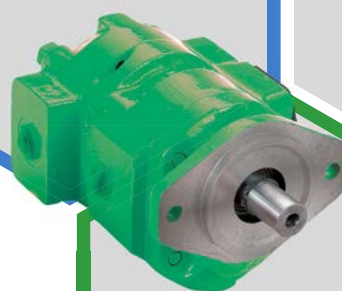


QX5 SERIES

HYDRAULIC
GEAR PUMPS



TECHNICAL CATALOGUE

QX5 SERIES TECHNICAL DATA

OPERATING PARAMETERS

QX pumps use helical gears and are designed to reduce the amount of fluid borne noise generated by the pump and hence transmitted into the hydraulic system. This results in a reduction in the amount of airborne noise emitted from the machine.

QX pumps are highly efficient and are designed to provide high performance levels and long life when operated within the parameters shown below. For operation outside these parameters please consult your Hydreco Hydraulics representative.

Max outlet port pressures	see page 3	
Inlet port pressures	see below.	
Speed Range	All models	450 - 3000 rev/min
Temperature	Minimum at start-up	-40°C (-40°F)
	Maximum continuous	+80°C (+176°F)
	Maximum intermittent	+100°C (+212°F)
Viscosity	Maximum at start-up	2000 mm ² /sec (9,000 SSU)
	Maximum continuous	250 mm ² /sec (1150 SSU)
	Minimum continuous	10 mm ² /sec (60 SSU)
	Optimum	15-25 mm ² /sec (78-124 SSU)
Fluid Cleanliness	To ISO4406 solid contaminant	
	Start-up period	21/17
	Maximum in service	19/15
	Optimum	16/11
	Maximum water	0.1%
Fluid Velocity	Maximum in INLET line	2.5 m/sec (8 ft/sec)
	Recommended in INLET line	1.5 m/sec (5 ft/sec)
Shaft Loads	Maximum axial load	250 N (56 lb)
	Maximum radial load	500 N (112 lb)
Fluids	All data is quoted for mineral oils HM and HV. For fire resistant and environmentally aware fluids please contact your Hydreco Hydraulics representative.	
Rotation	Clockwise or Anti-clockwise viewed from shaft end (not reversible).	

INLET CONDITIONS

It is essential that pumps are installed so that they can always fill with fluid.

'X5' Series pump inlet porting is designed to facilitate full volume fill but the following machine design recommendations should be followed.

- Never run pumps dry - particular care should be taken to open any shut-off valves.
- Use large diameter pipes and fittings and avoid sharp bends and long lengths.

Inlet fluid velocity should not exceed 2.5 m/sec (8.0 ft/sec) calculated by:

$V = \frac{21.22Q}{D^2}$ m/sec where	V = velocity (m/sec) Q = flow rate (l/min) D = bore diameter (mm)	$V = \frac{0.408Q}{D^2}$ ft/sec where	V = velocity (ft/sec) Q = flow rate (US gal/min) D = bore diameter (inches)
--------------------------------------	---	---------------------------------------	---

- If possible mount the pump below the lowest level of fluid in the tank. If necessary prime the pump on start-up.
- Ensure that inlet lines are airtight.
- Particular care should be taken where high speeds and/or high fluid viscosities are involved.

As a general rule pressure at the pump inlet should not be less than 0.8 bar absolute (6" Hg depression) at normal viscosity of 23 mm²/sec (110 SSU) at maximum operating speed.

Hydreco Hydraulics' engineers will be pleased to advise on any installation

QX5 SERIES INTRODUCTION

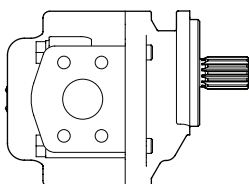
SUPER QUIET, HIGH PERFORMANCE HYDRAULIC PUMPS

QX5 pumps incorporate Hydreco Hydraulics' unique patented helical gear technology to give the highest performance with lowest noise levels.

The helical gears reduce flow and pressure ripple effects to significantly reduce generated noise while large diameter shafts and bearings combined with rigidly aligned cast iron housings ensure long life in arduous applications.

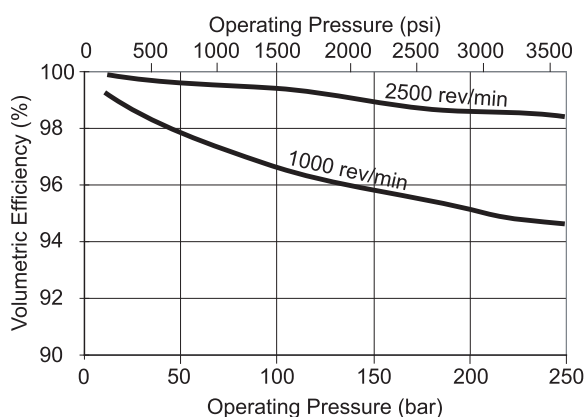
Accuracy of components and pressure compensated side plates ensure that high performance levels are maintained.

SINGLE PUMPS



MODEL	DISPLACEMENT cm ³ /rev (in ³ /rev)	OUTLET PRESSURE	
		Rated bar (psi)	Peak bar (psi)
X5023	23.0 (1.40)	250 (3625)	280 (4060)
X5026	26.0 (1.59)	250 (3625)	280 (4060)
X5027	27.0 (1.65)	250 (3625)	280 (4060)
X5029	28.5 (1.77)	250 (3625)	280 (4060)
X5033	32.3 (2.01)	250 (3625)	280 (4060)
X5036	36.0 (2.20)	250 (3625)	280 (4060)
X5037	37.0 (2.26)	250 (3625)	280 (4060)
X5041	41.0 (2.50)	250 (3625)	280 (4060)
X5046	46.0 (2.81)	250 (3625)	280 (4060)
X5051	51.0 (3.11)	250 (3625)	280 (4060)
X5056	56.0 (3.42)	230 (3335)	255 (3700)
X5063	63.0 (3.84)	210 (3045)	235 (3400)
X5068	68.0 (4.15)	190 (2755)	215 (3120)

PUMP EFFICIENCIES

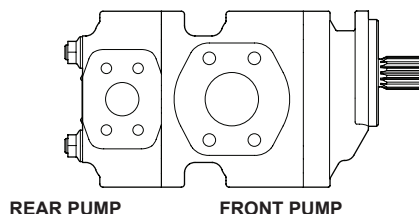


A RANGE OF SINGLE AND MULTIPLE PUMPS

Pump elements are available with displacements from 23 to 68 cm³/rev (1.4 to 4.15 in³/rev) for maximum continuous operating pressures of 250 bar and maximum intermittent operating pressures of 280 bar.

Pumps can be supplied as single, double, triple or quadruple units. There is a limit on the combinations that are available in doubles, triples and quadruples. Please see the data below.

DOUBLE PUMPS

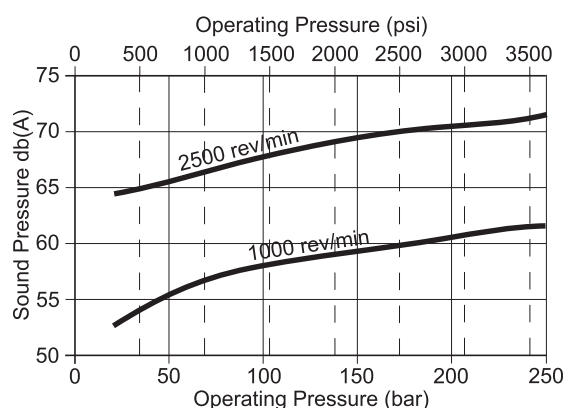


All pump displacements listed in the 'Single Pump' table are available for double pumps, but not every combination of pump assembly can be accommodated.

Please discuss your specific requirements with your local Hydreco Hydraulics representative.

For triple and quad pumps, please discuss your requirements with your local Hydreco Hydraulics representative.

NOISE LEVELS



Sound pressure levels when measured at 1 metre from the pump obtained in accordance with ISO 9614-4 on a pump model QX5041.

QX5 SERIES MODEL NUMBERS

X 1 A 5 0 3 3 B 2 1 A 1 H 1 D C

Series

Design Mark

Shaft Seals

- A** - seal and wiper
- C** - seal and wiper seal with tell-tale

Displacements

SINGLE PUMPS

Code	DISPLACEMENT	
	cm ³ /rev	in ³ /rev
5023	23.0	1.40
5026	26.0	1.59
5027	27.0	1.65
5029	29.0	1.77
5033	33.0	2.01
5036	36.0	2.20
5037	37.0	2.26
5041	41.0	2.50
5046	46.0	2.81
5051	51.0	3.11
5056	56.0	3.42
5063	63.0	3.84
5068	68.0	4.15

DUAL PUMPS

FRONT PUMPS		
Code	DISPLACEMENT	
	cm ³ /rev	in ³ /rev
5023	23.0	1.40
5026	26.0	1.59
5027	27.0	1.65
5029	29.0	1.77
5033	33.0	2.01
5036	36.0	2.20
5037	37.0	2.26
5041	41.0	2.50
5046	46.0	2.81
5051	51.0	3.11
5056	56.0	3.42
5063	63.0	3.84
5068	68.0	4.15

REAR PUMPS		
Code	DISPLACEMENT	
	cm ³ /rev	in ³ /rev
5023	23.0	1.40
5026	26.0	1.59
5027	27.0	1.65
5029	29.0	1.77
5033	33.0	2.01
5036	36.0	2.20
5037	37.0	2.26
5041	41.0	2.50
5046	46.0	2.81
5051	51.0	3.11
5056	56.0	3.42
5063	63.0	3.84
5068	68.0	4.15

Drive Shaft

Code	Description
B	SAE 22-4 (B) 7/8" spline
Q	SAE 25-4 (BB) 1" spline
C	SAE 32-4 (C) 1.1/4" spline
F	SAE 22-1 (B) 7/8" parallel
H	SAE 25-1 (BB) 1" parallel
G	SAE 32-1 (C) 1.1/4" parallel

Mounting Flanges

Code	Description
2	SAE 101-2 (B - 2 bolt)
3	SAE 101-4 (B - 4 bolt)
4	SAE 127-2 (C - 2 bolt)
5	SAE 127-4 (C - 4 bolt)

Before ordering please check that the pump will be operated within quoted parameters and that drive shaft "pD" factors are not exceeded.

Rotation

viewed on shaft

- A** - anti-clockwise
- C** - clockwise

Outlet port sizes

Port Code	Port Size
A	1/2
B	3/4
C	7/8
D	1
F	1.1/4
G	1.5/16

Outlet port type

Code	Description
1	SAE split fl ange - metric bolts
2	SAE split fl ange - UNC bolts
3	BSP.P thread
4	SAE UNF o-ring thread

Inlet port sizes

Port Code	Port Size
D	1
F	1.1/4
G	1.5/16
H	1.1/2
J	1.5/8
K	2

Inlet port type

Code	Description
1	SAE split fl ange - metric bolts
2	SAE split fl ange - UNC bolts
3	BSP.P thread
4	SAE UNF o-ring thread

Inlet port positions

Code	Description
A	In front pump for single/double
B	Inlet in both sections of double
	For triple/quad ask your Hydrex representative

Number of pump elements

Code	Description
1	1 pump element
2	2 pump elements
3	3 pump elements
4	4 pump elements

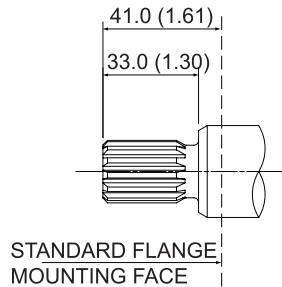
QX5 SERIES TECHNICAL DETAILS

DRIVE SHAFTS

Code **B** SAE 22-4 (B) 7/8" spline

INVOLUTE SPLINE
13 TEETH
16/32 DP
FLAT ROOT, SIDE FIT
30 DEG PRESSURE ANGLE
MAJR DIA 21.79/21.69
(0.858/0.854)

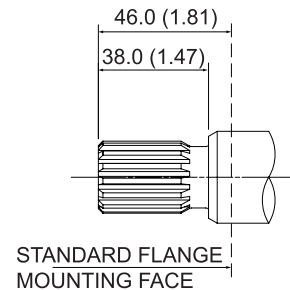
$p \times D = 14226 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$
 $p \times D = 12590 \text{ (psi} \times \text{cu.in/rev)}^*$



Code **Q** SAE 25-4 (BB) 1" SPLINE

INVOLUTE SPLINE
15 TEETH
16/32 DP
FLAT ROOT, SIDE FIT
30 DEG PRESSURE ANGLE
MAJR DIA 24.87/24.97
(0.983/0.979)

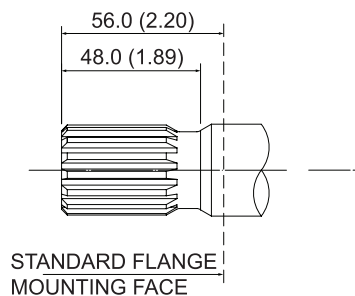
$p \times D = 22450 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$
 $p \times D = 19869 \text{ (psi} \times \text{cu.in/rev)}^*$



Code **C** SAE 32-4 (C) 1.1/4" SPLINE

INVOLUTE SPLINE
14 TEETH
12/24 DP
FLAT ROOT, SIDE FIT
30 DEG PRESSURE ANGLE
MAJR DIA 31.22/31.12
(1.229/1.225)

$p \times D = 45565 \text{ (bar} \times \text{cm}^3/\text{rev)}^*$
 $p \times D = 40325 \text{ (psi} \times \text{cu.in/rev)}^*$



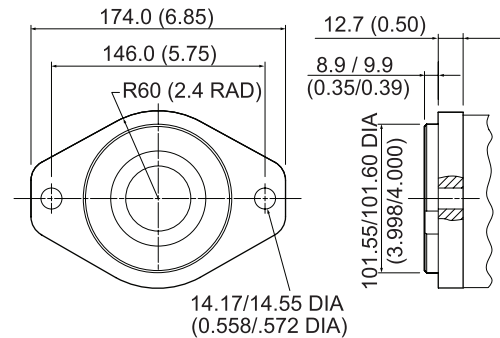
PARALLEL SHAFTS ARE ALSO AVAILABLE:

CODE F SAE22-1 (B) 7/8" PARALLEL
CODE H SAE25-1 (BB) 1" PARALLEL
CODE G SAE32-1 (C) 1.1/4" PARALLEL

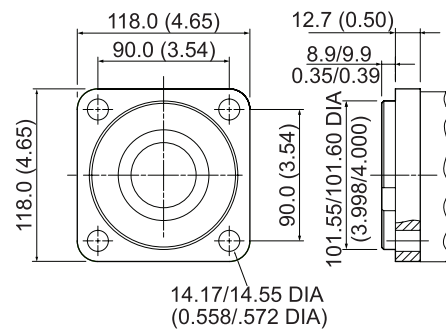
Consult your local Hydreco Hydraulics representative for details

MOUNTING FLANGES

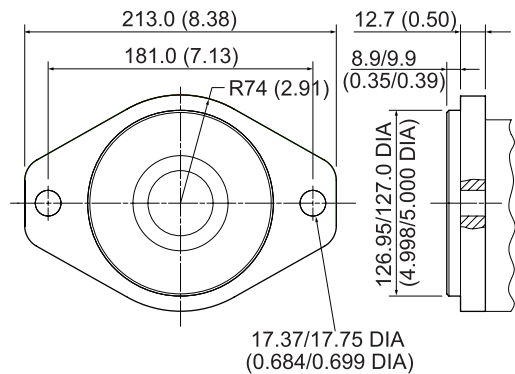
Code **2** SAE 101-2 (B - 2 bolt)



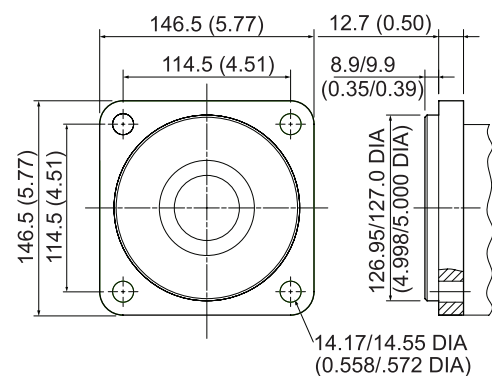
Code **3** SAE 101-4 (B - 4 bolt)



Code **4** SAE 127-2 (C - 2 bolt)



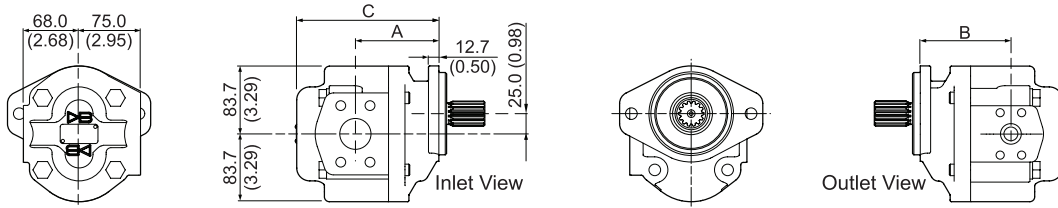
Code **5** SAE 127-4 (C - 4 bolt)



QX5 SERIES INSTALLATION DATA

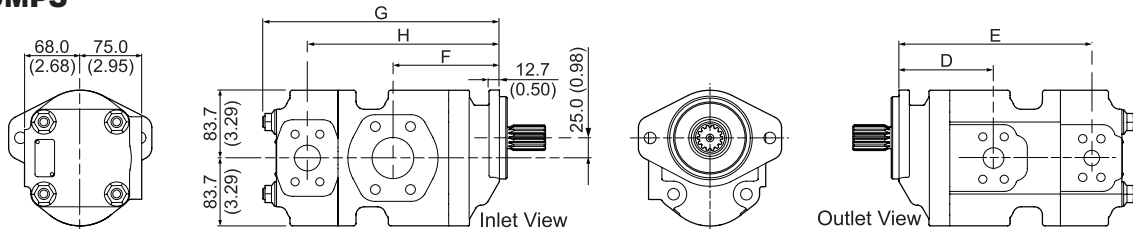
SINGLE PUMPS

All dimensions are in mm (inches)



DIM ^N	PUMP DISPLACEMENT cm ³ /rev (in ³ /rev)												
	23 (1.404)	26 (1.587)	27 (1.648)	29 (1.770)	33 (2.014)	36 (2.197)	37 (2.258)	41 (2.502)	46 (2.807)	51 (3.112)	56 (3.417)	63 (3.844)	68 (4.150)
A	98.93 (3.89)	98.93 (3.89)	98.93 (3.89)	98.93 (3.89)	100.23 (3.95)	100.23 (3.95)	100.23 (3.95)	100.23 (3.95)	102.38 (4.03)	102.38 (4.03)	103.93 (4.09)	103.93 (4.09)	103.93 (4.09)
B	100.38 (3.95)	100.38 (3.95)	100.38 (3.95)	100.38 (3.95)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)	111.13 (4.37)
C	150.11 (5.91)	150.11 (5.91)	150.11 (5.91)	150.11 (5.91)	164.73 (6.49)	164.73 (6.49)	164.73 (6.49)	164.73 (6.49)	173.33 (6.82)	173.33 (6.82)	187.68 (7.39)	187.68 (7.39)	187.68 (7.39)

DUAL PUMPS



Dimension to Front Outlet - D

Rear Pump	X5068	X5063	X5056	X5051	X5046	X5041	X5037	X5036	X5033	X5029	X5027	X5026	X5023
Front Pump	X5068	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)
	X5063		129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)
	X5056			129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)
	X5051				129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)	129.9 (5.114)
	X5046					115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)
	X5041						115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)	115.4 (4.542)
	X5037							107.7 (4.239)	107.7 (4.239)	107.7 (4.239)	107.7 (4.239)	107.7 (4.239)	107.7 (4.239)
	X5036								107.7 (4.239)	107.7 (4.239)	107.7 (4.239)	107.7 (4.239)	107.7 (4.239)
	X5033									107.7 (4.239)	107.7 (4.239)	107.7 (4.239)	107.7 (4.239)
	X5029										100.4 (3.952)	100.4 (3.952)	100.4 (3.952)
	X5027											100.4 (3.952)	100.4 (3.952)
	X5026												100.4 (3.952)
	X5023												100.4 (3.952)

Dimension to Rear Outlet - E

Rear Pump	X5068	X5063	X5056	X5051	X5046	X5041	X5037	X5036	X5033	X5029	X5027	X5026	X5023
Front Pump	X5068	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)
	X5063		265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)
	X5056			265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)
	X5051				265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	265.0 (10.435)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)	254.3 (10.012)
	X5046					246.2 (9.694)	246.2 (9.694)	246.2 (9.694)	246.2 (9.694)	220.5 (8.680)	220.5 (8.680)	220.5 (8.680)	220.5 (8.680)
	X5041						246.2 (9.694)	246.2 (9.694)	246.2 (9.694)	220.5 (8.680)	220.5 (8.680)	220.5 (8.680)	220.5 (8.680)
	X5037							238.5 (9.390)	238.5 (9.390)	212.8 (8.377)	212.8 (8.377)	212.8 (8.377)	212.8 (8.377)
	X5036								238.5 (9.390)	212.8 (8.377)	212.8 (8.377)	212.8 (8.377)	212.8 (8.377)
	X5033									212.8 (8.377)	212.8 (8.377)	212.8 (8.377)	212.8 (8.377)
	X5029										190.5 (7.499)	190.5 (7.499)	190.5 (7.499)
	X5027											190.5 (7.499)	190.5 (7.499)
	X5026												190.5 (7.499)
	X5023												190.5 (7.499)

QX5 SERIES INSTALLATION DATA

SINGLE AND DUAL PUMPS

Dimension to Front Inlet - F

Rear Pump	X5068	X5063	X5056	X5051	X5046	X5041	X5037	X5036	X5033	X5029	X5027	X5026	X5023
Front Pump	X5068	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)
	X5063		144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)
	X5056			144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)
	X5051				144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)	144.3 (5.683)
	X5046					130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)
	X5041						130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)	130.0 (5.117)
	X5037							122.3 (4.814)	122.3 (4.814)	122.3 (4.814)	122.3 (4.814)	122.3 (4.814)	122.3 (4.814)
	X5036								122.3 (4.814)	122.3 (4.814)	122.3 (4.814)	122.3 (4.814)	122.3 (4.814)
	X5033									122.3 (4.814)	122.3 (4.814)	122.3 (4.814)	122.3 (4.814)
	X5029										107.0 (4.212)	107.0 (4.212)	107.0 (4.212)
	X5027											107.0 (4.212)	107.0 (4.212)
	X5026												107.0 (4.212)
	X5023												107.0 (4.212)

Dimension to Rear Inlet - H

Rear Pump	X5068	X5063	X5056	X5051	X5046	X5041	X5037	X5036	X5033	X5029	X5027	X5026	X5023
Front Pump	X5068	257.8 (10.151)	257.8 (10.151)	257.8 (10.151)	256.3 (10.090)	256.3 (10.090)	254.1 (10.005)	254.1 (10.005)	254.1 (10.005)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)
	X5063		257.8 (10.151)	257.8 (10.151)	256.3 (10.090)	256.3 (10.090)	254.1 (10.005)	254.1 (10.005)	254.1 (10.005)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)
	X5056			257.8 (10.151)	256.3 (10.090)	256.3 (10.090)	254.1 (10.005)	254.1 (10.005)	254.1 (10.005)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)
	X5051				256.3 (10.090)	256.3 (10.090)	254.1 (10.005)	254.1 (10.005)	254.1 (10.005)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)	252.8 (9.953)
	X5046					237.5 (9.349)	235.3 (9.264)	235.3 (9.264)	235.3 (9.264)	219.0 (8.623)	219.0 (8.623)	219.0 (8.623)	219.0 (8.623)
	X5041						235.3 (9.264)	235.3 (9.264)	235.3 (9.264)	219.0 (8.623)	219.0 (8.623)	219.0 (8.623)	219.0 (8.623)
	X5037							227.6 (8.961)	227.6 (8.961)	211.3 (8.319)	211.3 (8.319)	211.3 (8.319)	211.3 (8.319)
	X5036								227.6 (8.961)	211.3 (8.319)	211.3 (8.319)	211.3 (8.319)	211.3 (8.319)
	X5033									226.3 (8.910)	226.3 (8.910)	226.3 (8.910)	226.3 (8.910)
	X5029										189.0 (7.442)	189.0 (7.442)	189.0 (7.442)
	X5027											189.0 (7.442)	189.0 (7.442)
	X5026												189.0 (7.442)
	X5023												189.0 (7.442)

Dimension Overall - G

Rear Pump	X5068	X5063	X5056	X5051	X5046	X5041	X5037	X5036	X5033	X5029	X5027	X5026	X5023
Front Pump	X5068	341.6 (12.448)	341.6 (12.448)	341.6 (12.448)	327.2 (12.883)	327.2 (12.883)	333.9 (13.147)	333.9 (13.147)	333.9 (13.147)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)
	X5063		341.6 (12.448)	341.6 (12.448)	327.2 (12.883)	327.2 (12.883)	333.9 (13.147)	333.9 (13.147)	333.9 (13.147)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)
	X5056			341.6 (12.448)	327.2 (12.883)	327.2 (12.883)	333.9 (13.147)	333.9 (13.147)	333.9 (13.147)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)
	X5051				327.2 (12.883)	327.2 (12.883)	333.9 (13.147)	333.9 (13.147)	333.9 (13.147)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)	308.9 (12.161)
	X5046					308.4 (12.142)	315.9 (12.438)	315.9 (12.438)	315.9 (12.438)	273.9 (10.784)	273.9 (10.784)	273.9 (10.784)	273.9 (10.784)
	X5041						315.9 (12.438)	315.9 (12.438)	315.9 (12.438)	273.9 (10.784)	273.9 (10.784)	273.9 (10.784)	273.9 (10.784)
	X5037							308.9 (12.162)	308.9 (12.162)	267.9 (10.548)	267.9 (10.548)	267.9 (10.548)	267.9 (10.548)
	X5036								308.9 (12.162)	267.9 (10.548)	267.9 (10.548)	267.9 (10.548)	267.9 (10.548)
	X5033									267.9 (10.548)	267.9 (10.548)	267.9 (10.548)	267.9 (10.548)
	X5029										243.9 (9.603)	243.9 (9.603)	243.9 (9.603)
	X5027											243.9 (9.603)	243.9 (9.603)
	X5026												243.9 (9.603)
	X5023												243.9 (9.603)

For installation details on Triple and Quadruple pumps, please contact your Hydreco Hydraulics representative.