W900 SERIES HYDRAULIC PUMP

W900

Hydraulic Gear Pump

Featuring Integrated Valve Packages

Pressure
(P1) 276 BAR (4000 PSI)
(P2) 300 BAR (4400 PSI)

Speed
4000 RPM
Min. 500 RPM at
4000 PSI (276 BAR) Continuous

Efficiency
Overall > 90%
Volumetric 98%
Mechanical 92%

Noise
13 Tooth Design
Superior trapping configuration
Optimum gear profile

Flexibility
SAE, ISO & DIN shafts
Mounting flanges, Port styles, Integrated valves, Multiple pumps

Quality
ISO 9001 Registered

The W 900 is one family in the W Series of high performance gear pumps. It is a through bore bushing type design constructed of high strength aluminum housings. The W Series is suitable for a wide range of equipment applications from material handling, agricultural, construction and paving to aerial lifts, winch and turf care.

The hydraulic performance, flexibility, high efficiency, low and high speed operation, low noise performance and the variety of options have established the W Series as the standard by which other pump performance is measured.

This catalog illustrates the options available for the W 900 family as well as performance and dimensional information. An easy to follow ordering guide is also included.

Concentric continuous improvement efforts have produced the WQ900 pump which is ideally suited to low noise applications. Contact your local Concentric representative for information about how the WQ900 can meet your specific needs.

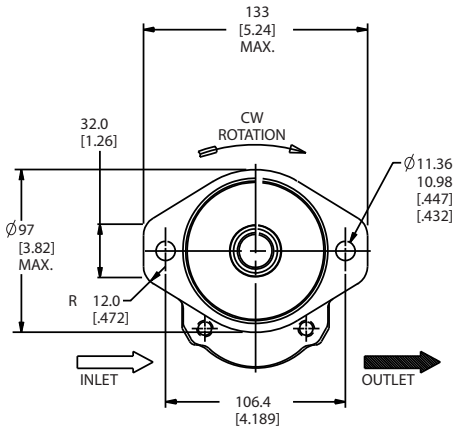
Performance Information

Model Code		060	080	100	110	140	160	190	230	270	280
Displacement	cm^3/rev	6	8	10	11	14	16	19	23	27	28
	in^3/rev	.366	.488	.610	.671	.854	.976	1.159	1.403	1.647	1.709
Inlet Pressure	BAR (PSI)	min. 0.2 BAR below atmospheric (6 IN.HG)max. 2.0 BAR (29 PSI)									
Max. Continous Pressure (P1)	(BAR	276 BAR							221	185	180
	PSI)	4000 PSI							3200	2700	2600
Max. Intermittent Pressure (P2)	(BAR	300 BAR							241	203	197
	PSI)	4400 PSI							3500	2950	2850
Min. Rotational Speed At (P1)		500									
Max. Rotational Speed At (P1)		4000		3600		3300	3000		2800	2400	2300
Input Power	KW	3.01	4.02	5.02	5.52	7.03	8.03	9.54	9.24	9.15	9.14
@ P1 @ 1000 RPM	HP	4.0	5.4	6.7	7.4	9.4	10.8	12.8	12.4	12.3	12.3

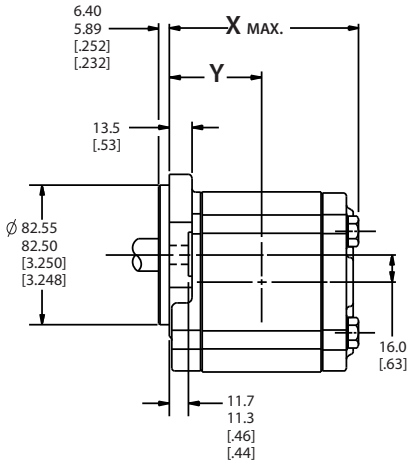
DIMENSIONS & MOUNTING FLANGE OPTIONS

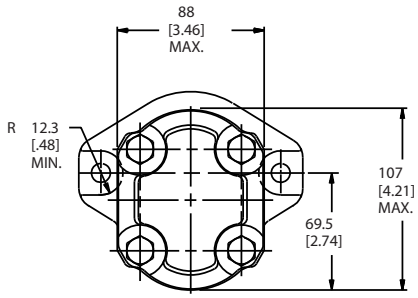
For its displacement and pressure range, the W 900 family features one of the most compact envelopes available from any manufacturer. Standard international mounting flange options are outlined below. Dimensions shown outside of brackets are metric units. (See bottom of page 4 for dimensional chart showing "X" and "Y" dimensions.

SAE "A" 2-BOLT ORDER CODE 03

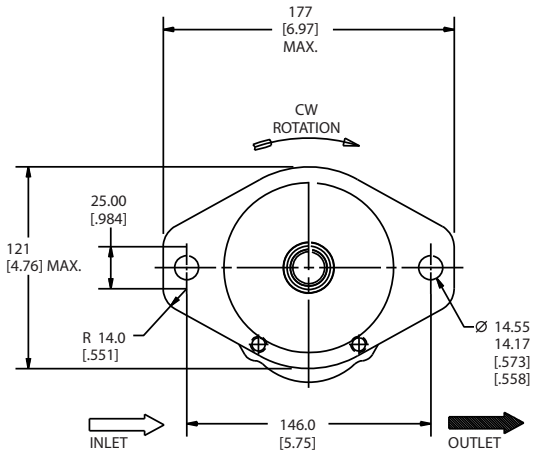


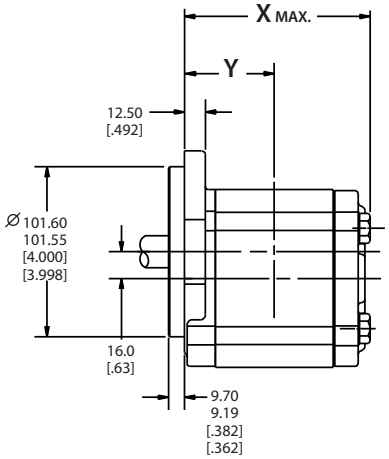
(For counterclockwise rotation inlet and outlet are reversed.)

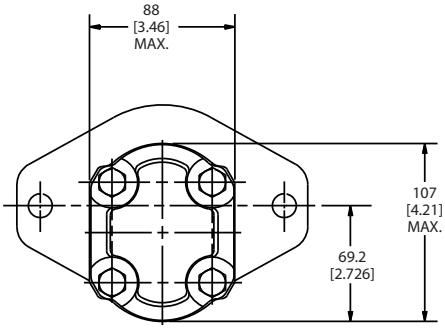




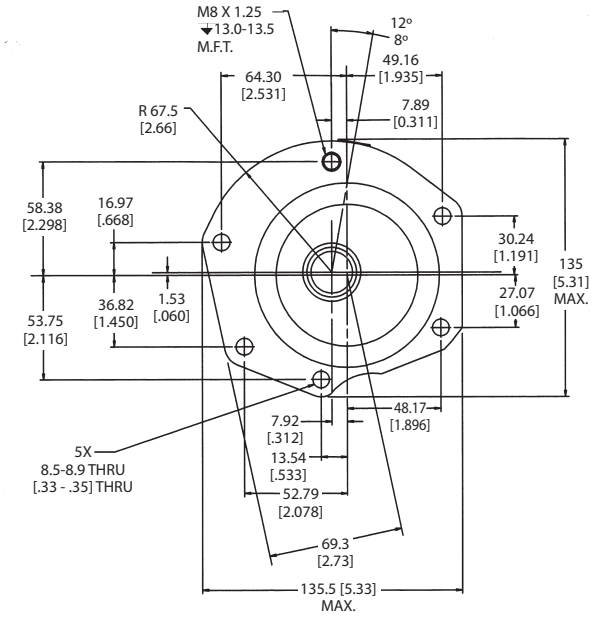
SAE "B" 2-BOLT ORDER CODE 05

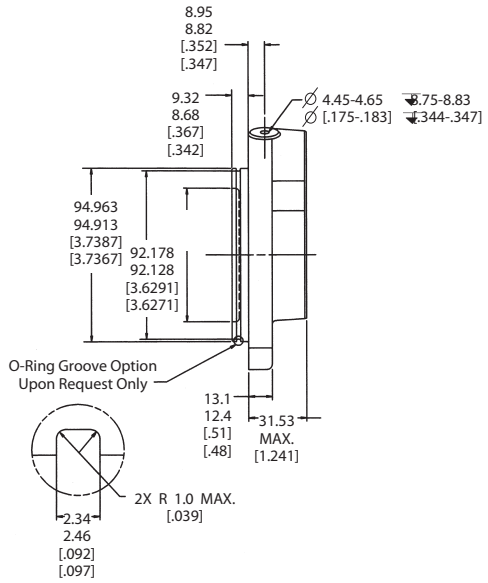






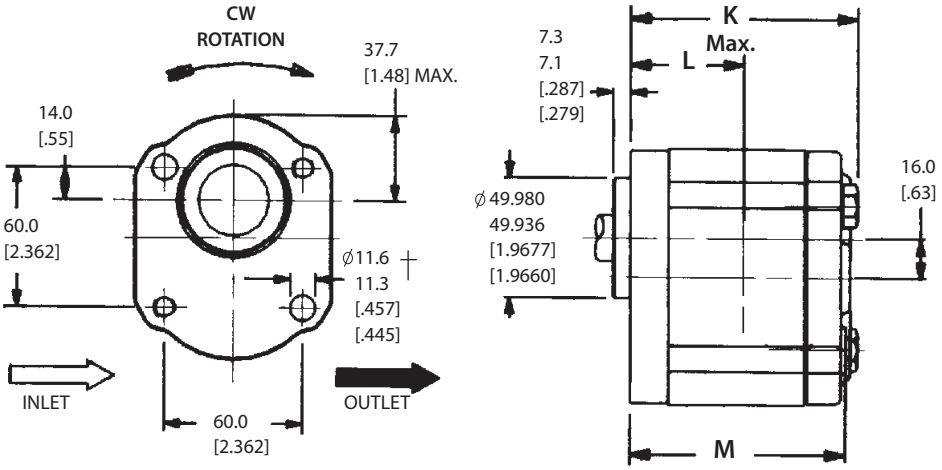
STANDARD PERKINS 5-BOLT FLANGE ORDER CODE 50

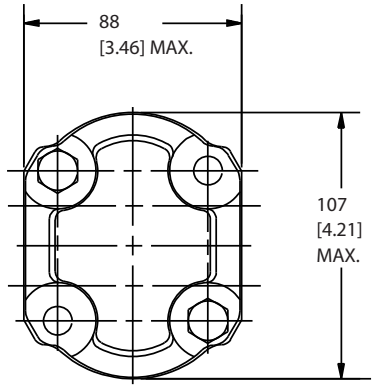




DIMENSIONS & MOUNTING FLANGE OPTIONS

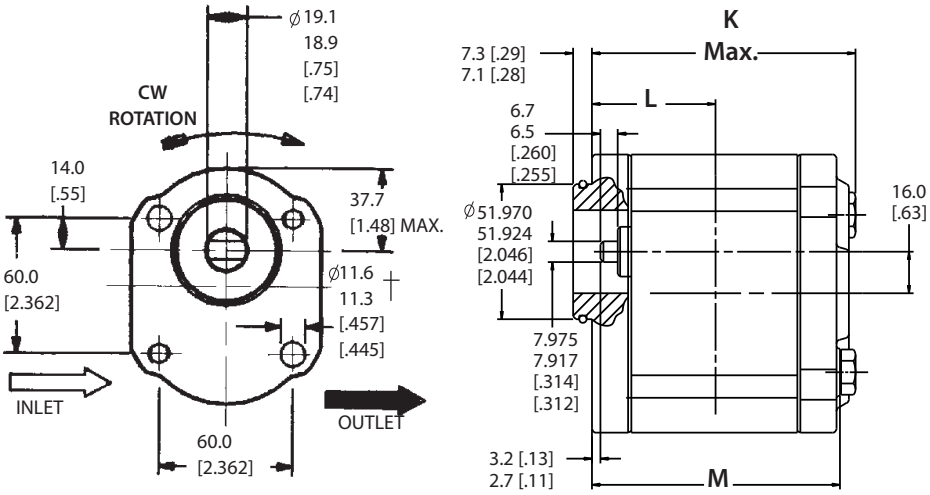
THROUGH BOLT (50.0 mm Pilot) ORDER CODES 10 & 11 *

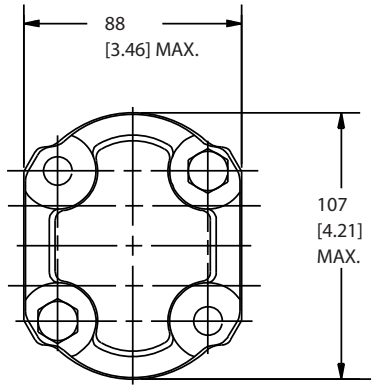




View A

THROUGH BOLT (52.0 mm Pilot) ORDER CODES 12 & 13 **





View B

View A shows mounting bolt orientation for Order Codes 10 & 12.

View B shows orientation for Order Codes 11 & 13.

* Cannot be used with Shaft Order Code QB.

** Only available with a wet tang drive (Shaft Order Code QB).

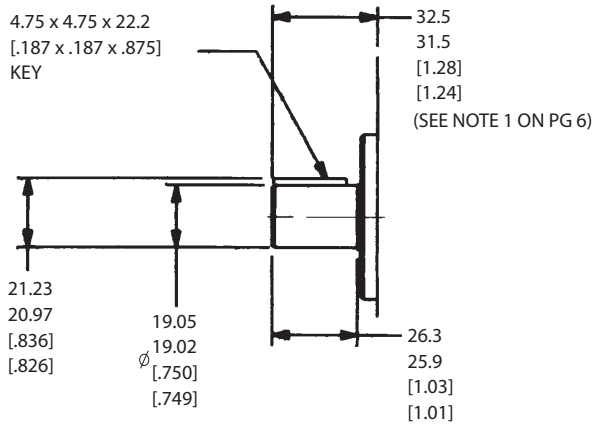
† Use M10-10.9 screws with lockwashers. Torque screws to 60 +10 Nm [528 +88 lb. in.]

			Dims. & Weights with Flange Options 03 & 05			Dims. & Weights with Flange Options 10 thru 13			
Order Code	Displacement cm³	Displacement in³	X Max.	Y (To Port Centerline)	Approx. Wt./ kg. [lbs.]	K Max.	L (To Port Centerline)	M ± 0.28 [± .011]	Approx. Wt. kg. [lbs.]
060	6.0	.370	92.7 [3.65]	44.0 [1.732]	3.6 [7.9]	90.2 [3.55]	41.5 [1.634]	82.6 [3.252]	3.2 [7.0]
080	8.0	.490	95.0 [3.74]	45.5 [1.791]	3.7 [8.1]	92.5 [3.64]	43.0 [1.693]	85.6 [3.370]	3.3 [7.2]
100	10.0	.610	97.9 [3.85]	47.0 [1.850]	3.78 [8.3]	95.4 [3.75]	44.5 [1.752]	88.5 [3.484]	3.4 [7.4]
110	11.0	.670	100.1 [3.94]	47.7 [1.866]	3.82 [8.4]	97.6 [3.84]	45.2 [1.780]	90.0 [3.543]	3.45 [7.6]
140	14.0	.850	103.9 [4.09]	50.0 [1.969]	4.0 [8.8]	101.4 [3.99]	47.5 [1.870]	94.5 [3.720]	3.6 [7.9]
160	16.0	.980	107.5 [4.23]	51.4 [2.02]	4.1 [9.0]	105.0 [4.13]	48.9 [1.925]	97.4 [3.835]	3.7 [8.1]
190	19.0	1.16	111.3 [4.38]	53.7 [2.114]	4.2 [9.2]	108.8 [4.28]	51.2 [2.016]	101.9 [4.012]	3.8 [8.3]
230	23.0	1.40	117.2 [4.61]	56.6 [2.228]	4.4 [9.6]	114.7 [4.52]	54.1 [2.130]	107.8 [4.244]	4.0 [8.8]
270	27.0	1.65	123.8 [4.88]	59.6 [2.346]	4.6 [10.1]	121.3 [4.78]	57.1 [2.248]	113.7 [4.476]	4.2 [9.2]
280	28.0	1.71	124.6 [4.9]	60.4 [2.37]	4.7 [10.3]	122.1 [4.8]	57.9 [2.27]	115.2 [4.53]	4.3 [9.4]

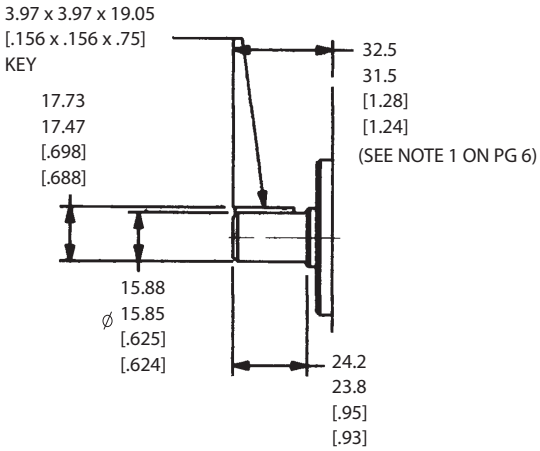
SHAFT OPTIONS

A critical element which must be considered when specifying a W 900 pump for your application is the shaft drive system. Concentric has both the product and the application experience to insure that your W 900 pump incorporates the correct shaft for your application. The following depict the 10 standard shaft options for the W 900 family. Our flexible manufacturing capabilities can accommodate a wide variety of shaft configurations.

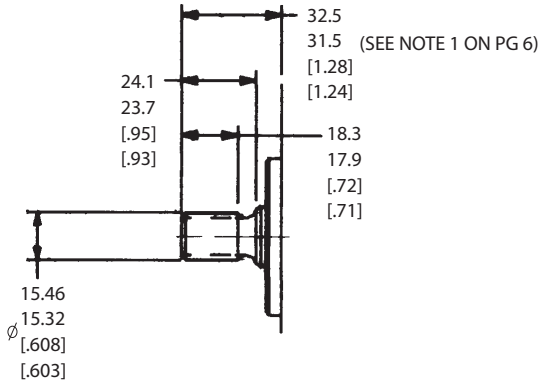
STRAIGHT SHAFT SAE "A" ORDER CODE BA



STRAIGHT SHAFT SAE "A" ORDER CODE CA

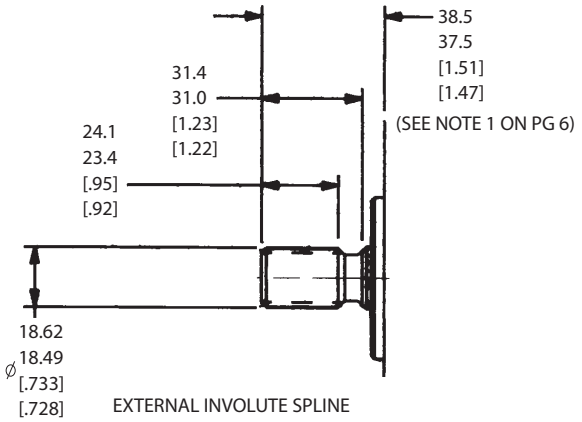


SAE "A" SPLINE ORDER CODE FA



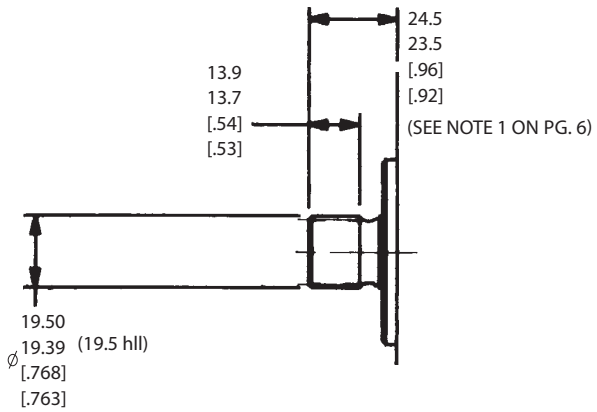
EXTERNAL INVOLUTE SPLINE
16/32 DP, 9 TEETH,
FLAT ROOT, SIDE FIT

SAE "A" SPLINE ORDER CODE GA



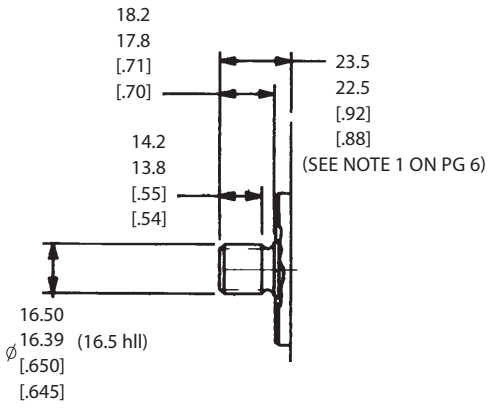
EXTERNAL INVOLUTE SPLINE
16/32 DP, 11 TEETH,
FLAT ROOT, SIDE FIT

DIN 5480 SPLINE SHAFT ORDER CODE HA



EXTERNAL INVOLUTE SPLINE
W20 x 1.25 x 9g, DIN 5480, 14 TEETH
FLAT ROOT, SIDE FIT

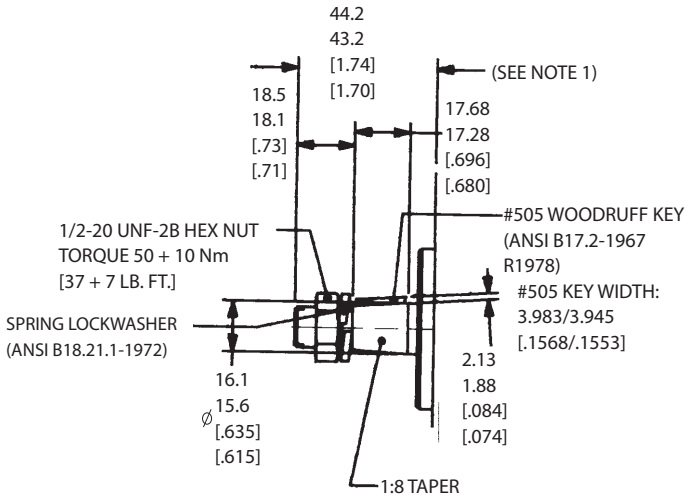
DIN 5482 SPLINE SHAFT ORDER CODE JA



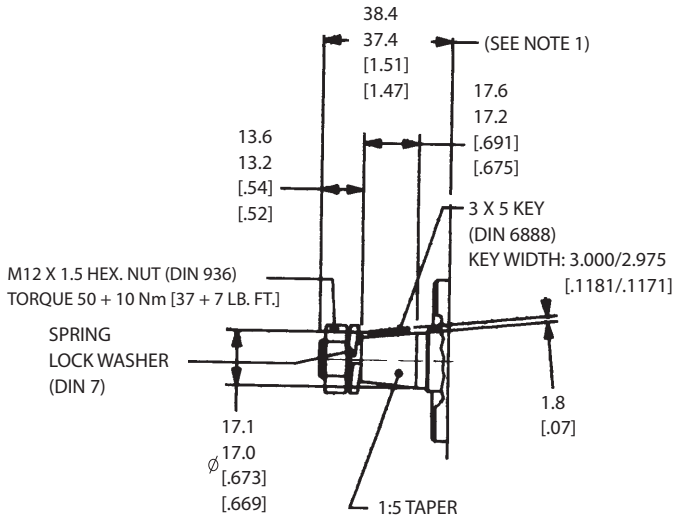
EXTERNAL INVOLUTE SPLINE
B17 x 14, DIN 5482, 9 TEETH
FLAT ROOT, SIDE FIT

SHAFT OPTIONS

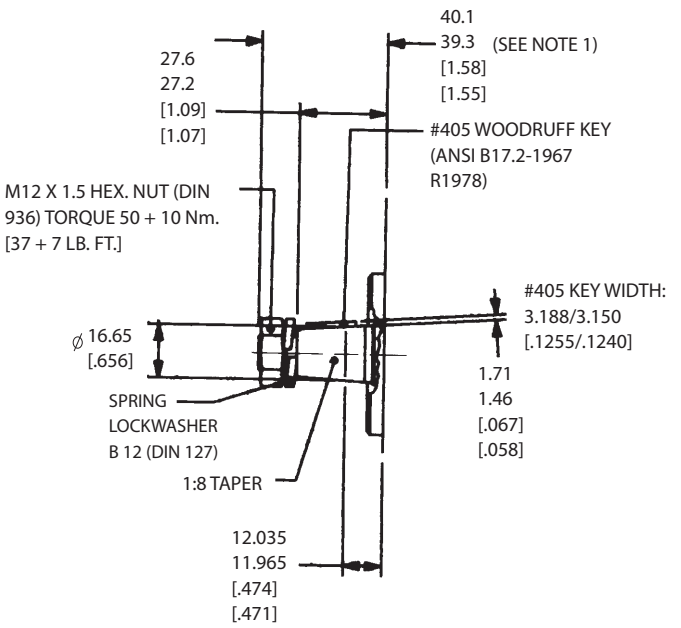
SAE "A" TAPERED ORDER CODE LA



EUROPEAN TAPERED ORDER CODE MB



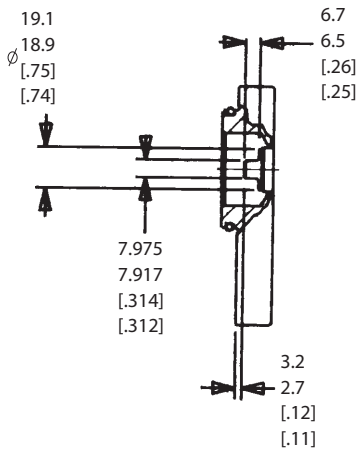
EUROPEAN TAPERED ORDER CODE NB



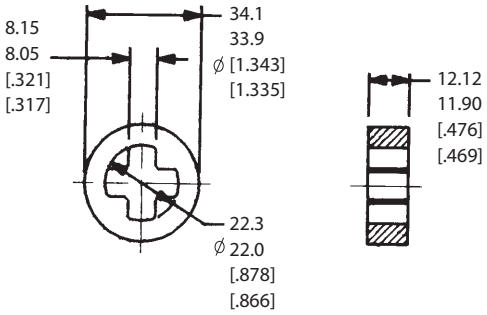
Key, washer and nut included with pump, where applicable.

TANG ORDER CODE QB

WET TANG DRIVE (SEE MOUNTING FLANGE OPTIONS 12 & 13 FOR SHAFT DIMENSIONS)



STANDARD COUPLING INCLUDED WITH SHAFT OPTION Q



SINGLE SECTION SHAFT LOADING

P1 x V ≤ MAX PERMITTED VALUE IN TABLE BELOW

WHERE:
P1 = PRESSURE (BAR)
V = DISPLACEMENT (CM^3/REV)

WHERE:
P1 = PRESSURE (PSI)
V = DISPLACEMENT (IN^3/REV)

CALCULATIONS USING METRIC UNITS	
SHAFT OPTION	MAX. PERMITTED VALUE
BA	10488
CA	5500
FA	5240
GA	9608
HA	11304
JA	6215
LA	8082
MB	10488
NB	10488
QB	4917

CALCULATIONS USING ENGLISH UNITS	
SHAFT OPTION	MAX. PERMITTED VALUE
BA	9257
CA	5005
FA	4640
GA	8505
HA	10010
JA	5505
LA	7506
MB	9257
NB	9257
QB	4353

Note 1: Dimension represents shaft extension for flange Options 03 & 05.

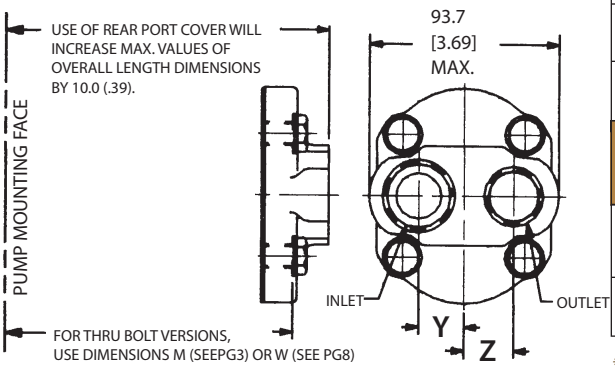
For Through Bolt Options 10 and 11, add 2.5 mm (.098 in.) to the min. & max. shaft extension shown.

PORT OPTIONS

SEE PAGES 2, 3, 7 & 8 FOR DIMENSIONS FROM FLANGE MOUNTING FACE TO PORT CENTERLINE.

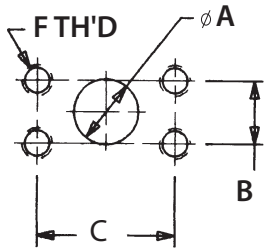
The standard size for each type of port is outlined below.

S.A.E. STRAIGHT THREAD PORT PER S.A.E. j514b					INLET	OUTLET
DISP. ORDER CODE	SIDE PORT CODE	REAR PORT CODE	PORT SIZE INLET / OUTLET	COUNTERBORE DIAMETER MIN.	Y ±0.3 [±.012]	Z ±0.3 [±.012]
060	101	501*	7/8-14 / 3/4-16	34.14 [1.344] / 30.18 [1.188]	20.2 [.795]	20.2 [.795]
080-160	102	502*	1-1/16-12 / 7/8-14	41.28 [1.625] / 34.14 [1.344]	20.2 [.795]	20.2 [.795]
190-280	103	503*	1-5/16-12 / 1-1/16-12	48.51 [1.910] / 41.28 [1.625]	24.2 [.950]	22.2 [.870]
BSPP STRAIGHT THREAD PORT PER DIN 3852, PART 2						
060-190	121	521*	G 3/4 / G 1/2	33.0 [1.29] / 28.0 [1.10]	20.2 [.795]	20.2 [.795]
230-280	122	522*	G 1 / G 3/4	41.0 [1.61] / 33.0 [1.29]	24.2 [.950]	22.2 [.870]



* 501, 502, and 503 previously 111, 112, and 113, respectively.
521 and 522 previously 131 and 132, respectively.

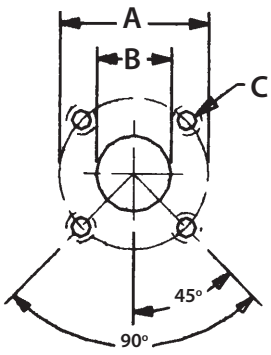
PERFORMANCE ON PAGE 1 REPRESENTS THAT WHICH CAN BE EXPECTED FROM UNITS INCORPORATING FLANGE PORTS.



S.A.E. SPLIT FLANGE PER S.A.E. j518c (STANDARD PRESSURE SERIES)						
DISP. ORDER CODE	SIDE PORT CODE	PORT SIZE INLET / OUTLET	ø A	B	C	F TH'D X MIN. FULL TH'D DEPTH
160-190	140	[3/4] / [1/2]	19.05 [.750] / 12.7 [.500]	22.22 [.875] / 17.47 [.688]	47.63 [1.875] / 38.1 [1.50]	3/8-16 X 22 [.88] / 5/16-18 X 24 [.94]
230-280	141	[1.0] / [3/4]	25.4 [1.00] / 19.05 [.750]	26.19 [1.031] / 22.22 [.875]	52.37 [2.062] / 47.63 [1.875]	3/8-16 X 22 [.88] / 3/8-16 X 22 [.88]

METRIC SPLIT FLANGE PER ISO/DIS 6162 (35 to 350 BAR SERIES)						
DISP. ORDER CODE	SIDE PORT CODE	PORT SIZE INLET / OUTLET	ø A	B	C	F TH'D X MIN. FULL TH'D DEPTH
160-190	145	19 / 13	19.05 [.750] / 12.7 [.500]	22.22 [.875] / 17.47 [.688]	47.63 [1.875] / 38.1 [1.50]	M10 X 25 [.984] / M8 X 21 [.823]
230-280	146	25 / 19	25.4 [1.00] / 19.05 [.750]	26.19 [1.031] / 22.22 [.875]	52.37 [2.062] / 47.63 [1.875]	M10 X 23 [.906] / M10 X 25 [.984]

SEE PAGES 2, 3, 7 & 8 FOR DIMENSIONS FROM FLANGE MOUNTING FACE TO PORT CENTERLINE.



SEE PAGES 2, 3, 7 & 8 FOR DIMENSIONS FROM FLANGE MOUNTING FACE TO PORT CENTERLINE.

EUROPEAN 4-BOLT FLANGE					
DISP. ORDER CODE	SIDE PORT CODE	PORT SIZE INLET / OUTLET	ø A	ø B	C TH'D X MIN. FULL TH'D DEPTH
060-190	150	20 / 15	40.0 [1.575] / 35.0 [1.378]	20 [.78] / 15 [.59]	M6 X 13 [.51] / M6 X 13 [.51]
230-280	151	26 / 18	55.0 [2.165] / 55.0 [2.165]	26 [1.02] / 18 [.71]	M8 X 13 [.51] / M8 X 13 [.51]

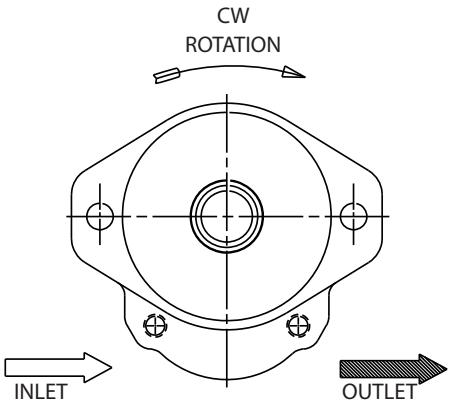
W900 MULTIPLE PUMPS

The W900 offers multiple pump configurations up to 4 sections. Multiple pumps provide multiple hydraulic functions from one power source at a significantly lower cost than separate pumps.

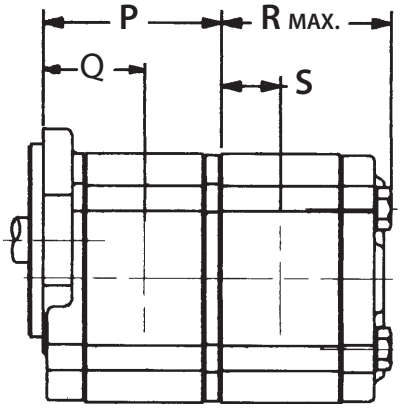
The drawings and charts provide dimensional information as well as shaft and coupling load information for W900 two and three section pumps. If the shaft loading, coupling, and section sequence requirements outlined on page 9 are met, W900 multiple pumps will exhibit the same performance as W900 single section pumps outlined on page 2 of this catalog.

Please contact Concentric for assistance with your W900 pump applications.

DOUBLE SECTION / DUAL INLET

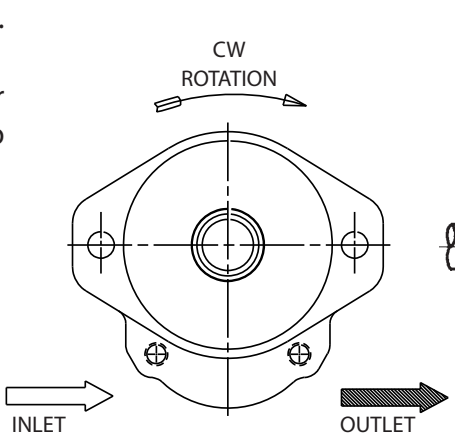


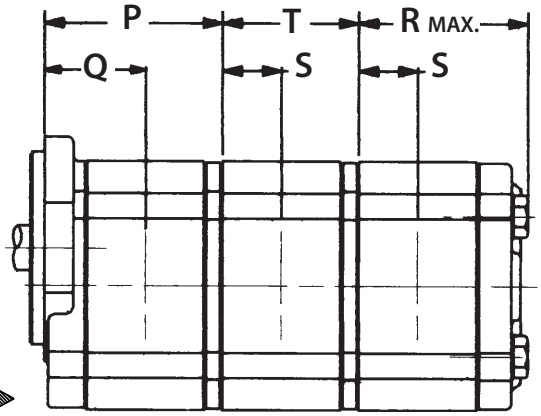
(For counterclockwise rotation, inlet and outlet are reversed.)



Dimensions P & Q are for use with Flange Options 3, 6 & 7.

TRIPLE SECTION / TRIPLE INLET

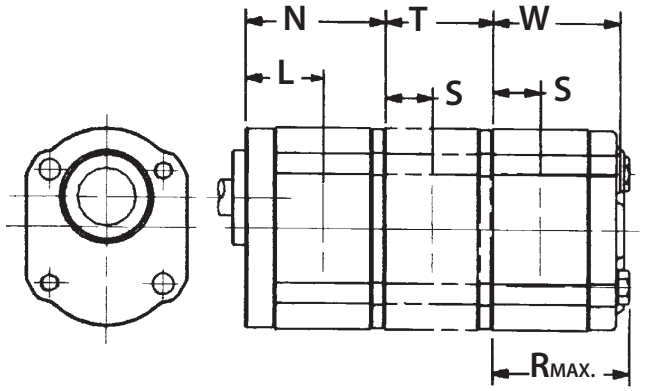




Order Code	Displacement		P ± 0.26 [± .010]	Q (To Port Centerline)	Approx. Wt. P Section kg. [lbs.]	R Max.	S (To Port Centerline)	Approx. Wt. R Section kg. [lbs.]	T ± 0.26 [± .010]	Approx. Wt. T Section [kg. [lbs.]	N ± 0.26 [± .010]	L (To Port Centerline)	Approx. Wt. N Section [kg [lbs.]	W ± 0.15 [± .006]
	cm^3	in^3												
060	6.0	.370	77.6 [3.055]	44.0 [1.73]	3.1 [6.9]	73.4 [2.88]	25.6 [1.01]	2.7 [6.1]	59.1 [2.327]	1.8 [4.1]	75.1 [2.957]	41.5 [1.63]	2.7 [6.1]	66.6 [2.622]
080	8.0	.490	80.6 [3.173]	45.6 [1.79]	3.2 [7.1]	76.4 [3.01]	27.0 [1.06]	2.8 [6.3]	62.1 [2.445]	1.9 [4.3]	78.1 [3.075]	43.0 [1.69]	2.8 [6.3]	69.6 [2.740]
100	10.0	.610	83.5 [3.287]	47.0 [1.85]	3.31 [7.3]	79.3 [3.12]	28.5 [1.12]	2.95 [6.5]	65.0 [2.559]	2.0 [4.5]	81.0 [3.189]	44.5 [1.75]	2.95 [6.5]	72.5 [2.855]
110	11.0	.670	85.0 [3.346]	47.8 [1.88]	3.36 [7.4]	80.8 [3.18]	29.2 [1.14]	2.99 [6.6]	66.5 [2.618]	2.1 [4.6]	82.5 [3.248]	45.2 [1.77]	2.99 [6.6]	74.0 [2.914]
140	14.0	.850	89.5 [3.524]	50.0 [1.96]	3.5 [7.7]	85.2 [3.35]	31.5 [1.24]	3.1 [6.9]	71.0 [2.795]	2.2 [4.9]	87.0 [3.425]	47.5 [1.87]	3.1 [6.9]	78.5 [3.091]
160	16.0	.980	92.4 [3.638]	51.4 [2.02]	3.6 [7.9]	88.1 [3.46]	33.0 [1.29]	3.2 [7.1]	73.9 [2.909]	2.3 [5.1]	89.9 [3.53]	48.9 [1.92]	3.2 [7.1]	81.4 [3.205]
190	19.0	1.16	96.9 [3.815]	53.7 [2.11]	3.7 [8.2]	92.7 [3.64]	35.2 [1.38]	3.4 [7.4]	78.4 [3.087]	2.4 [5.4]	94.4 [3.717]	51.2 [2.01]	3.4 [7.4]	85.9 [3.382]
230	23.0	1.40	102.8 [4.047]	56.6 [2.22]	3.9 [8.6]	98.6 [3.88]	38.2 [1.50]	3.5 [7.8]	[84.3 [3.319]	2.6 [5.8]	100.3 [3.949]	57.1 [2.24]	3.5 [7.8]	91.8 [3.614]
270	27.0	1.65	108.7 [4.27]	59.6 [2.34]	4.1 [9.0]	104.5 [4.11]	41.1 [1.61]	3.7 [8.2]	90.2 [3.551]	2.8 [6.2]	106.2 [4.181]	57.9 [2.27]	3.7 [8.2]	97.7 [3.847]
280	28.0	1.71	110.2 [4.34]	60.4 [2.37]	4.2 [9.2]	106.6 [4.20]	41.9 [1.65]	3.8 [8.4]	91.7 [3.61]	2.9 [6.4]	107.7 [4.24]	57.8 [2.28]	3.8 [8.3]	99.2 [3.905]

W900 MULTIPLE PUMPS

Dimensions N & L are for use with Flange Options 10 thru 13.



REDUCED INLET MULTIPLE PUMPS

Based on your application requirements the W900 multiple pump may be supplied with a single inlet on two section pump applications, dual inlets on three section pump applications and 3 inlets on four section applications. Reduced inlets provide overall system savings by reducing the cost of redundant inlet hose and fittings. Contact Concentric regarding your reduced inlet multiple pump application.

MULTIPLE SECTION SHAFT LOADING

TWO SECTION:
(P1 x V1) + (P2 x V2) ≤ MAX. PERMITTED VALUE IN TABLE BELOW

THREE SECTION:
(P1 x V1) + (P2 x V2) + (P3 xV3) ≤ MAX. PERMITTED VALUE IN TABLE BELOW

CONTACT JSB FOR FOUR SECTION PUMPS.

WHERE:
P1 = PRESSURE (BAR)
V = DISPLACEMENT (CM^3/REV)

CALCULATIONS USING METRIC UNITS	
SHAFT OPTION	MAX.PERMITTED VALUE
BA	10488
CA	5500
FA	5240
GA	9608
HA	11304
JA	6215
LA	8082
MB	10488
NB	10488
QB	4917

WHERE:
P1 = PRESSURE (PSI)
V = DISPLACEMENT (IN^3/REV)

CALCULATIONS USING ENGLISH UNITS	
SHAFT OPTION	MAX.PERMITTED VALUE
BA	9257
CA	5005
FA	4640
GA	8505
HA	10010
JA	5505
LA	7506
MB	9257
NB	9257
QB	4353

COUPLING LOADING

TWO SECTION:
(P2 x V2) ≤ 4849 (METRIC) 4293 (ENGLISH)

THREE SECTION:
(P2 x V2) + (P3 xV3) ≤ 4849 (METRIC) 4293 (ENGLISH)

In multiple pumps, shaft end section must have largest displacement. Each consecutive section must have displacement equal to or smaller than section preceding.

VALVE OPTIONS

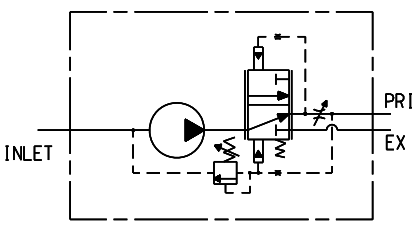
An optional rear cover provides multiple valve options for the W900 family.

OPTIONS	DESCRIPTION
AA*	Priority Flow Control, Relief on Priority - Side Ports
BA	Dynamic Load Sense, Relief on Priority - Side Ports
CA*	Priority Flow Control, Relief on Priority - Rear Ports
DA	Dynamic Load Sense, Relief on Priority - Rear Ports
EA	Relief Valve, External To Tank - Side Ports

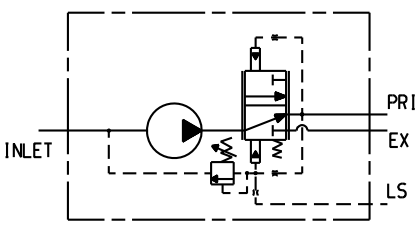
* Must specify flow control setting. See page 13, Option 10.

NOTE: Internal drain available, contact factory.

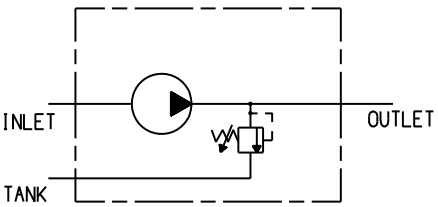
SCHEMATICS



OPTIONS AA & CA



OPTIONS BA & DA

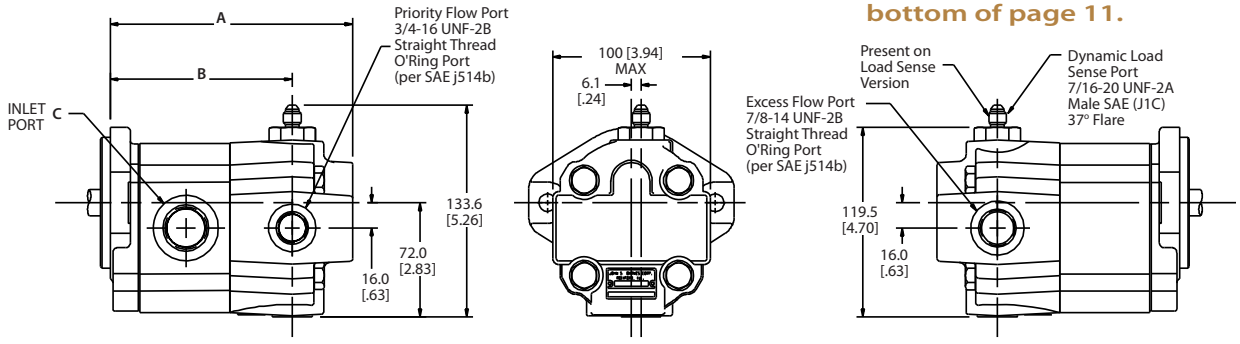


OPTION EA

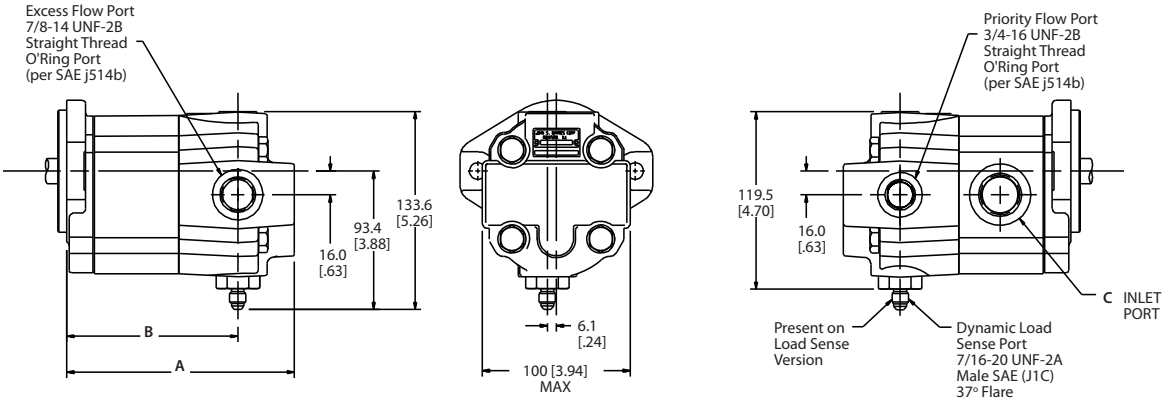
VALVE OPTION DIMENSIONS

Priority Flow Control / Dynamic Load Sense - Side Ports - CCW Rotation (as viewed from shaft end) - ORDER CODES AA & BA

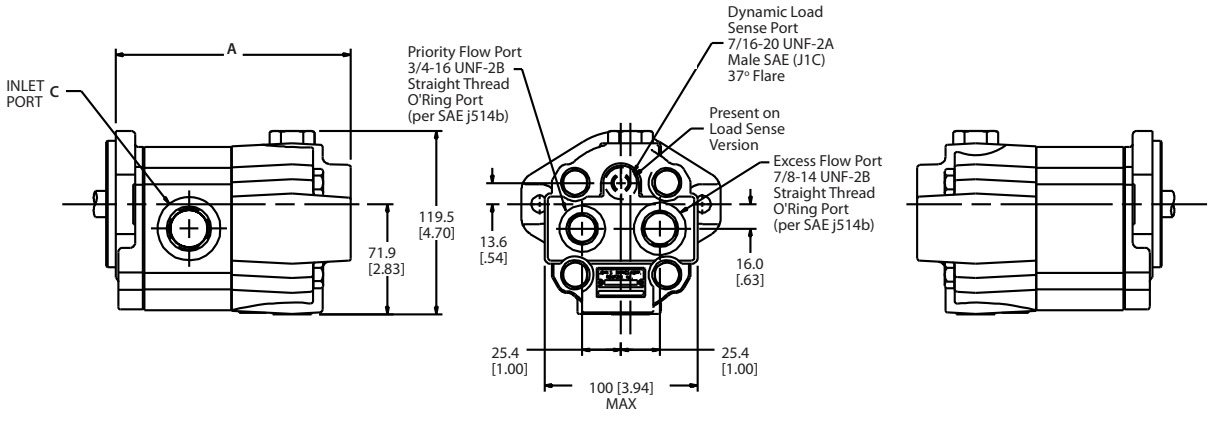
NOTE: Dimensions A, B, and C can be found in chart located on bottom of page 11.



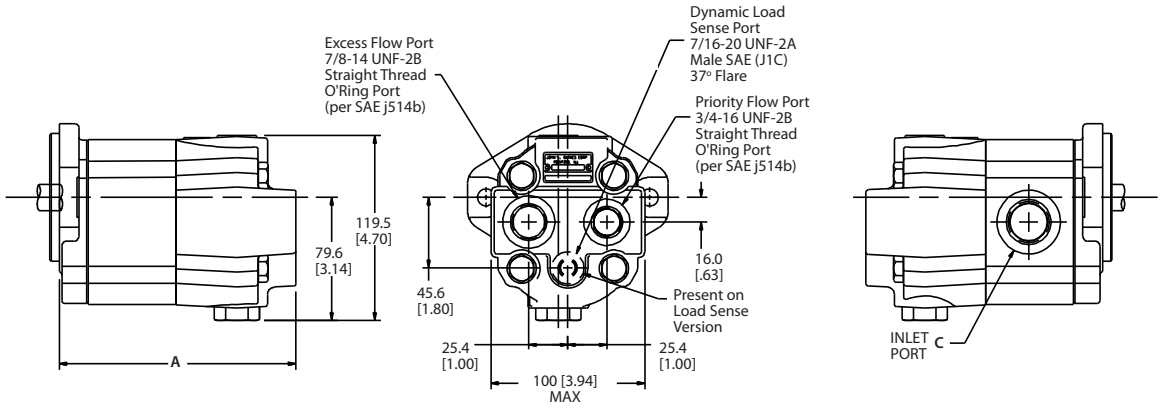
Priority Flow Control / Dynamic Load Sense - Side Ports - CW Rotation (as viewed from shaft end) - ORDER CODES AA & BA



Priority Flow Control / Dynamic Load Sense - Rear Ports - CCW Rotation (as viewed from shaft end) - ORDER CODES CA & DA



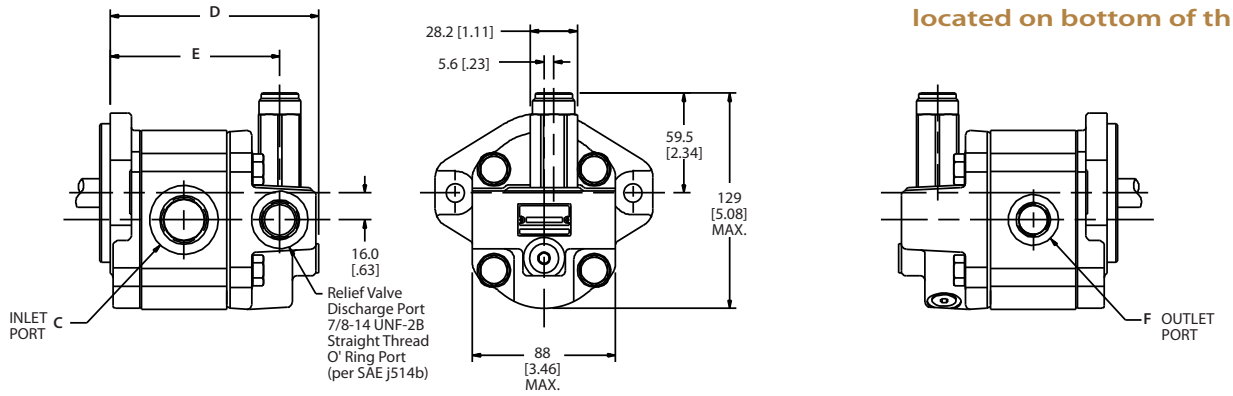
Priority Flow Control / Dynamic Load Sense - Rear Ports - CW Rotation (as viewed from shaft end) - ORDER CODES CA & DA



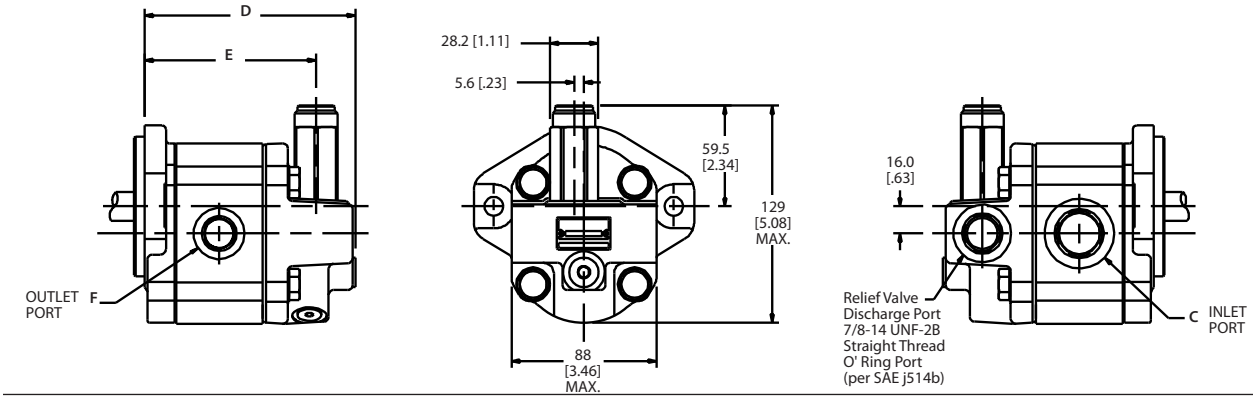
VALVE OPTION DIMENSIONS
(Cont.)

Cartridge Relief Valve - Side Ports - CCW Rotation (as viewed from shaft end) - ORDER CODE EA

NOTE: Dimensions D, E, and F can be found in chart located on bottom of this page.



Cartridge Relief Valve - Side Ports - CW Rotation (as viewed from shaft end) - ORDER CODE EA



Tabulated Chart for Valve Option Dimensions

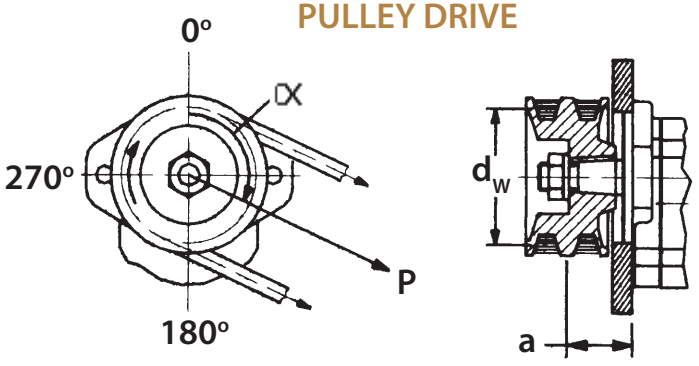
(See dimensional drawings on page 10 and above.)

DISPLACEMENT		A MAX.		B (TO PORT CENTERLINE)		C	D MAX.		E (TO PORT CENTERLINE)		F
		FLANGE	FLANGE	FLANGE	FLANGE		FLANGE	FLANGE	FLANGE	FLANGE	
		OPTIONS	OPTIONS	OPTIONS	OPTIONS	INLET	OPTIONS	OPTIONS	OPTIONS	OPTIONS	OUTLET
CM^3	IN^3	3, 6 & 7	10 THRU 13	3, 6 & 7	10 THRU 13	PORT	3, 6 & 7	10 THRU 13	3, 6 & 7	10 THRU 13	PORT
6.0	.37	147.7 [5.81]	145.2 [5.71]	109.7 [4.32]	107.2 [4.22]	7/8-14	125.5 [4.94]	123.0 [4.84]	101.8 [4.01]	99.3 [3.91]	3/4-16
8.0	.49	150.7 [5.93]	148.2 [5.83]	112.7 [4.44]	110.2 [4.34]	1-1/16-12	128.5 [5.06]	126.0 [4.96]	104.8 [4.12]	102.3 [4.03]	7/8-14
10.0	.61	153.6 [6.05]	151.1 [5.95]	115.6 [4.55]	113.1 [4.45]	1-1/16-12	131.4 [5.17]	128.9 [5.07]	107.7 [4.24]	105.2 [4.14]	7/8-14
11.0	.67	155.1 [6.10]	152.6 [6.01]	117.1 [4.61]	114.6 [4.51]	1-1/16-12	132.9 [5.23]	130.4 [5.13]	109.2 [4.30]	106.7 [4.20]	7/8-14
14.0	.85	159.6 [6.28]	157.1 [6.18]	121.6 [4.79]	119.1 [4.69]	1-1/16-12	137.4 [5.41]	134.9 [5.31]	113.7 [4.47]	111.2 [4.38]	7/8-14
16.0	.98	162.5 [6.40]	160.0 [6.30]	124.5 [4.90]	122.0 [4.80]	1-1/16-12	140.3 [5.52]	137.8 [5.43]	116.6 [4.59]	114.1 [4.49]	7/8-14
19.0	1.16	167.0 [6.57]	164.5 [6.47]	129.0 [5.08]	126.5 [4.98]	1-5/16-12	144.8 [5.70]	142.3 [5.60]	121.1 [4.77]	118.6 [4.67]	1-1/16-12
23.0	1.40	172.9 [6.81]	170.4 [6.71]	134.9 [5.31]	132.4 [5.21]	1-5/16-12	150.7 [5.93]	148.2 [5.83]	127.0 [5.00]	124.5 [4.90]	1-1/16-12
27.0	1.65	178.8 [7.04]	176.3 [6.94]	140.8 [5.54]	138.3 [5.44]	1-5/16-12	156.6 [6.17]	154.1 [6.07]	132.9 [5.23]	130.4 [5.13]	1-1/16-12
28.0	1.71	180.3 [7.10]	177.8 [7.00]	142.3 [5.60]	139.8 [5.50]	1-5/16-12	158.1 [6.22]	155.6 [6.13]	134.4 [5.29]	131.9 [5.19]	1-1/16-12

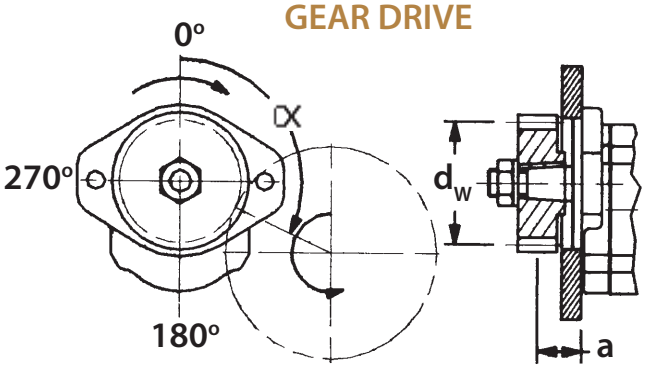
EXTERNAL SIDE & THRUST LOAD OPTIONS

The W900 pump is recommended for direct axial drive. If your application incorporates a drive imposing radial and/or thrust loads, submit the application information requested below to your Concentric representative.

PULLEY DRIVE



GEAR DRIVE



WHERE:

- **a** = DISTANCE TO GEAR OR PULLEY CENTER FROM PUMP MOUNTING FACE
- d_w = PITCH DIA. OF GEAR OR PULLEY
- α = ANGLE OF DRIVING GEAR OR PULLEY CENTER RELATIVE TO THE PUMPS VERTICAL CENTERLINE
- **P** = TENSION LOAD BELT(S) ARE TIGHTENED TO

NOTE: ABOVE SKETCHES DEPICT CLOCKWISE ROTATION. FOR COUNTERCLOCKWISE ROTATION, 90° AND 270° POSITIONS ARE REVERSED.

INSTALLATION INFORMATION

DIMENSIONS

Dimensions shown in brackets are in English units. Dimensions shown outside of brackets are metric units.

FLUIDS

Most premium grade petroleum base fluids can be used with W900 pumps. Optimum operating viscosity is 16-40 cSt (80-185 SSU). Minimum operating viscosity is 10 cSt (59 SSU) at maximum rated pressure and maximum rated speed. Maximum operating viscosity is 750 cSt (3409 SSU). Maximum cold start viscosity is 2000 cSt (9091 SSU). Contact Concentric for additional information regarding the W900 performance using other fluids.

OPERATING TEMPERATURES

Fluid temperature range:

Mineral Oil	Max. 93°C (200°F) continuous Max. 105°C (221°F) intermittent

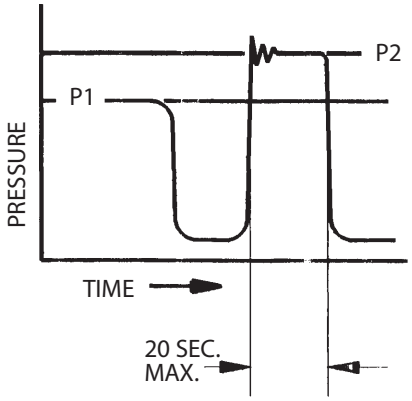
FILTRATION

Proper filtration is critical to the trouble free operation of any hydraulic system. For optimum pump life ISO 4406/1986 (Code 18/14) is recommended.

INLET CONDITIONS

Inlet vacuum should not exceed 0.35 Bar below atmospheric pressure (10 In.Hg.). Continuous operation at vacuums in excess of 0.2 Bar below atmospheric pressure (6 In.Hg.) are not recommended. Max. gauge pressure for pressurized inlet is 2.0 Bar (29 PSI).

PRESSURE RATINGS



P1 - Continuous
P2 - Intermittent

Total cycle for P2 is 30 seconds.

Above represents performance which can be expected from units incorporating flange port styles.

W900 DISTRIBUTOR STOCK PUMPS

W900 SERIES PUMPS WITH SAE "A" 2-BOLT MOUNT, 3/4" DIA. SAE "A" STRAIGHT SHAFT, AND SAE STRAIGHT THREAD SIDE PORTS

DISPLACEMENT			SAE SIDE PORTS	MODEL	CATALOG	
IN.³	CC	ROTATION	IN	OUT		NUMBER X-REF
.366	6	CW	7/8-14	3/4-16	1303191	WP09A1B060R03BA101N
.366	6	CCW	7/8-14	3/4-16	1303192	WP09A1B060L03BA101N
.488	8	CW	1-1/16-12	7/8-14	1303193	WP09A1B080R03BA102N
.488	8	CCW	1-1/16-12	7/8-14	1303194	WP09A1B080L03BA102N
.610	10	CW	1-1/16-12	7/8-14	1303195	WP09A1B100R03BA102N
.610	10	CCW	1-1/16-12	7/8-14	1303196	WP09A1B100L03BA102N
.671	11	CW	1-1/16-12	7/8-14	1303197	WP09A1B110R03BA102N
.671	11	CCW	1-1/16-12	7/8-14	1303198	WP09A1B110L03BA102N
.854	14	CW	1-1/16-12	7/8-14	1303199	WP09A1B140R03BA102N
.854	14	CCW	1-1/16-12	7/8-14	1303200	WP09A1B140L03BA102N
.976	16	CW	1-1/16-12	7/8-14	1303201	WP09A1B160R03BA102N
.976	16	CCW	1-1/16-12	7/8-14	1303202	WP09A1B160L03BA102N
1.159	19	CW	1-5/16-12	1-1/16-12	1303203	WP09A1B190R03BA103N
1.159	19	CCW	1-5/16-12	1-1/16-12	1303204	WP09A1B190L03BA103N
1.403	23	CW	1-5/16-12	1-1/16-12	1303205	WP09A1B230R03BA103N
1.403	23	CCW	1-5/16-12	1-1/16-12	1303206	WP09A1B230L03BA103N
1.647	27	CW	1-5/16-12	1-1/16-12	1303207	WP09A1B270R03BA103N
1.647	27	CCW	1-5/16-12	1-1/16-12	1303208	WP09A1B270L03BA103N

W900 SERIES PUMPS WITH SAE "A" 2-BOLT MOUNT, 9 TOOTH SAE "A" SPLINE SHAFT, AND SAE STRAIGHT THREAD SIDE PORTS

DISPLACEMENT			SAE SIDE PORTS	MODEL	CATALOG	
IN.³	CC	ROTATION	IN	OUT	NUMBER	X-REF
.366	6	CW	7/8-14	3/4-16	1303209	WP09A1B060R03FA101N
.366	6	CCW	7/8-14	3/4-16	1303210	WP09A1B060L03FA101N
.488	8	CW	1-1/16-12	7/8-14	1303211	WP09A1B080R03FA102N
.488	8	CCW	1-1/16-12	7/8-14	1303212	WP09A1B080L03FA102N
.610	10	CW	1-1/16-12	7/8-14	1303213	WP09A1B100R03FA102N
.610	10	CCW	1-1/16-12	7/8-14	1303214	WP09A1B100L03FA102N
.671	11	CW	1-1/16-12	7/8-14	1303215	WP09A1B110R03FA102N
.671	11	CCW	1-1/16-12	7/8-14	1303216	WP09A1B110L03FA102N
.854	14	CW	1-1/16-12	7/8-14	1303217	WP09A1B140R03FA102N
.854	14	CCW	1-1/16-12	7/8-14	1303218	WP09A1B140L03FA102N
.976	16	CW	1-1/16-12	7/8-14	1303219	WP09A1B160R03FA102N
.976	16	CCW	1-1/16-12	7/8-14	1303220	WP09A1B160L03FA102N
1.159	19	CW	1-5/16-12	1-1/16-12	1303221	WP09A1B190R03FA103N
1.159	19	CCW	1-5/16-12	1-1/16-12	1303222	WP09A1B190L03FA103N
1.403	23	CW	1-5/16-12	1-1/16-12	1303223	WP09A1B230R03FA103N
1.403	23	CCW	1-5/16-12	1-1/16-12	1303224	WP09A1B230L03FA103N
1.647	27	CW	1-5/16-12	1-1/16-12	1303225	WP09A1B270R03FA103N
1.647	27	CCW	1-5/16-12	1-1/16-12	1303226	WP09A1B270L03FA103N

W900 SERIES PUMPS WITH SAE "A" 2-BOLT MOUNT, 11 TOOTH SAE "A" SPLINE SHAFT, AND SAE STRAIGHT THREAD SIDE PORTS

DISPLACEMENT			SAE SIDE PORTS	MODEL	CATALOG	
IN.³	CC	ROTATION	IN	OUT	NUMBER	X-REF
.976	16	CW	1-1/16-12	7/8-14	1303227	WP09A1B160R03GA103N
.976	16	CCW	1-1/16-12	7/8-14	1303228	WP09A1B160L03GA102N
1.159	19	CW	1-5/16-12	1-1/16-12	1303229	WP09A1B190R03GA103N
1.159	19	CCW	1-5/16-12	1-1/16-12	1303230	WP09A1B190L03GA103N
1.403	23	CW	1-5/16-12	1-1/16-12	1303231	WP09A1B230R03GA103N
1.403	23	CCW	1-5/16-12	1-1/16-12	1303232	WP09A1B230L03GA103N
1.647	27	CW	1-5/16-12	1-1/16-12	1303233	WP09A1B270R03GA103N
1.647	27	CCW	1-5/16-12	1-1/16-12	1303234	WP09A1B270L03GA103N
1.709	28	CW	1-5/16-12	1-1/16-12	1303235	WP09A1B280R03GA103N
1.709	28	CCW	1-5/16-12	1-1/16-12	1303236	WP09A1B280L03GA103N

ORDERING INFORMATION

	STANDARD PUMP												VALVE OPTIONS		
	1	2	3	3	3	4	5	6	7	7	7	8	9	10	11
	DESIGN CODE	SEAL MATERIAL	DISPLACEMENT 1	DISPLACEMENT 2	DISPLACEMENT 3	ROTATION	FLANGE	SHAFT	PORT 1	PORT 2	PORT 3	VALVE OPTION	VALVE TYPE	FLOW SETTING	RELIEF VALVE SETTING
EXAMPLE	WP09A3	B	060	080	100	R	02	BA	101	101	101	A	AA	12	R34
Your Options	WP09A3												A*		

1. **DESIGN CODE**

WP09A1 - Single Pump	WP09A2 - Double Pump	WP09A3 - Triple Pump	WP09A4 - Quadruple Pump

2. **SEAL MATERIAL**

B	Buna
V	Viton
C	Combination of Both

3. **DISPLACEMENT**

Order Code	Cm.³	In.³
060	6	.366
080	8	.488
100	10	.610
110	11	.671
140	14	.854
160	16	.976
190	19	1.159
230	23	1.403
270	27	1.647
280	28	1.709

4. **ROTATION**

R	Clockwise
L	Counter Clockwise
B	Bi-Rotational (Case Drain)
C	Bi-Rotational (Check Valves)

5. **MOUNTING FLANGES**

03	SAE "A" 2-Bolt
05	SAE "B" 2-Bolt
10	Through Bolt (50 mm pilot, 60 x 60 mm bolt pattern) (Non-Tang) +
11	Same as Order Code 10, but with opposite mounting bolt orientation +
12	Through Bolt (52 mm pilot, 60 x 60 mm bolt pattern) (Wet Tang Only) +
13	Same as Order Code 12, but with opposite mounting bolt orientation +
50	Standard Perkins 5-Bolt Flange

6. **DRIVE SHAFTS**

BA	SAE "A" Straight Shaft 3/4" Dia.
CA	SAE Straight Shaft 5/8" dia.
FA	SAE "A" Spline (9 Tooth)
GA	SAE "A" Spline (11 Tooth)
HA	DIN 5480 Spline Shaft (W20 x 1.25 x 9g - 14T) +
JA	DIN 5482 Spline Shaft (B17 x 14 - 9T) +
LA	SAE "A" Tapered (1:8)
MB	European Tapered (1:5) +
NB	European Tapered (1:8) +
QB	Tang (Wet Tang Only) +

7. **STANDARD PORTING**

DISP. ORDER CODE	SIDE PORT CODE	REAR PORT CODE	DESCRIPTION
060	101	501*	SAE Straight Thread (7/8-14,3/4-16)
080-160	102	502*	SAE Straight Thread (1-1/16-12,7/8-14)
190-280	103	503*	SAE Straight Thread (1-5/16-12,1-1/16-12)
060-190	121	521*	BSPP Straight Thread (G3/4,G1/2)
230-280	122	522*	BSPP Straight Thread (G1,G3/4)
160-190	140	N/A	SAE Split Flange (3/4,1/2)
230-280	141	N/A	SAE Split Flange (1.0,3/4)
160-190	145	N/A	Metric Split Flange (19,23)
230-280	146	N/A	Metric Split Flange (25,19)
060-190	150	N/A	European 4-Bolt Flange (20,15)
230-280	151	N/A	European 4-Bolt Flange (26,18)

* 501, 502, and 503 previously 111, 112, and 113, respectively.
521 and 522 previously 131 and 132, respectively.

Note: Above are standard offerings. For other porting options, please contact factory. Rear inlet port is not available with any valve option. Side inlet must be used on all valve options.

8. **VALVE OPTIONS**

A	Priority Flow Control, Relief on Priority/Side Ports
B	Priority Flow Control with Dynamic Load Sense, Relief on Priority/Side Ports
C	Priority Flow Control, Relief on Priority/Rear Ports
D	Priority Flow Control with Dynamic Load Sense, Relief on Priority/Rear Ports
E	Relief Valve with External Drain
N	Not Applicable

9. **VALVE TYPE DESIGNATION**

AA	Priority Flow Control, Relief on Priority/Side Ports
BA*	Priority Flow Control with Dynamic Load Sense, Relief on Priority/Side Ports
CA	Priority Flow Control, Relief on Priority/Rear Ports
DA*	Priority Flow Control with Dynamic Load Sense, Relief on Priority/Rear Ports
EA	Relief Valve with External Drain
NN	Not Applicable

* Cannot specify flow control for valve type options BA and DA (above). Note: internal drain available, contact factory.

10. **FLOW CONTROL SETTINGS**

03	3 LTR (.79 GPM)
06	6 LTR (1.58 GPM)
09	9 LTR (2.37 GPM)
12	12 LTR (3.17 GPM)
15	15 LTR (3.96 GPM)
18	18 LTR (4.75 GPM)
21	21 LTR (5.54 GPM)
24	24 LTR (6.34 GPM)
NN	Not Applicable

11. **RELIEF VALVE SETTINGS**

R**	
**	Relief pressure divided by 100. Available in 100 PSI increments to 4000 PSI. Example: R35 = 3500 PSI
NN	Not Applicable

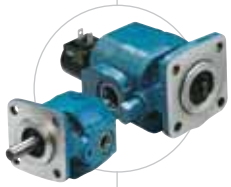
Note: Relief valve setting is defined at .25 GPM full bypass.

All pumps require a minimum 25-piece order with the exception of those options designated with "+" (100-piece minimum). A selected number of distributor stock pumps are available with no minimum order quantity.

The right to modification for technical improvements is reserved.

PUMPS & MOTORS

Cast Iron Pumps — Heavy Duty

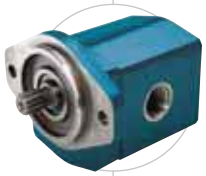


GC Series Pumps

Displacements
0.065 to 0.711 cu. In. (1.06 to 11.65 cc)

GC Series High/Low Pumps

High Pressure Displacements
0.065 to 0.258 cu. In. (1.06 to 4.22 cc)
Low Pressure Displacements
0.258 to 0.776 cu. In. (4.22 to 12.71 cc)
Maximum Pressure
4,000 psi (276 bar)
Maximum Speed
4,000 rpm



F12 & F15 Ferra Series Pumps

F12 Displacements
0.976 to 2.502 cu. In. (16 – 41 cc)
F15 Displacements
1.159 to 3.051 cu. In. (19 to 50 cc)
Maximum Pressure
4,000 psi (276 bar)
Maximum Speed
3,600 rpm

F20/F30 Pumps & F20-LS/F30-LS Load Sense Ferra Series Pumps

Displacements
1.41 to 9.82 cu. In. (23 to 161 cc)
Maximum Pressure
4,000 psi (276 bar)
Maximum Speed
3,600 rpm

D Series Pumps

Displacements
0.232 to 1.395 cu. In. (3.80 to 22.85 cc)

D Series High/Low Pumps

High Pressure Displacements
0.465 cu. In. (7.62 cc)
Low Pressure Displacements
0.930 to 1.395 cu. In. (15.24 to 22.86 cc)
Maximum Pressure
3,000 – 4,000 psi (207 – 276 bar)
Maximum Speed
3,600 – 4,000 rpm

Aluminum Pumps — Medium/Light Duty

W-Series Pumps

W100 Displacements
0.031 to 0.122 cu. In. (0.50 to 2.00 cc)
W300 Displacements
0.049 to 0.347 cu. In. (0.80 to 5.70 cc)
W600 Displacements
0.244 to 0.732 cu. In. (4 to 12 cc)
W900 Displacements
0.305 to 1.891 cu. In. (5 to 31 cc)
W1200 Displacements
1.526 to 2.014 cu. In. (25 to 33 cc)
W1500 Displacements
1.159 to 3.051 cu. In. (19 to 50 cc)
Maximum Pressure
4,000 psi (276 bar)
Maximum Speed
500 to 4,000 rpm

WK900 CALMA Pumps

Displacements
0.305 to 1.648 cu. In. (5 to 27 cc)
Maximum Pressure
3,336 psi (230 bar)
Maximum Speed
4,000 rpm

Fluid Motors

Cast Iron

Displacements
0.065 to 9.82 cu. In. (1.06 to 161 cc)
Speed
Up to 10,000 rpm

Aluminum

Displacements
0.244 to 3.050 cu. In. (4 to 50 cc)
Speed
Up to 4,000 rpm

Flow Dividers

GC & D Series

GC Displacements
0.097 to 0.517 cu. In. (1.58 to 8.47 cc)
D Displacements
0.232 to 0.813 cu. in. (3.8 to 13.32 cc)
Maximum Pressure
4,500 psi (310 bar)
Maximum Input Flow Per Section
14 gpm (53 lpm)

CONCENTRIC

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For application assistance or detailed literature on any Concentric product line, call us toll-free: 1-800-572-7867.
Visit our web site: http://www.concentricAB.com
E-mail us: info.hydraulics.us@concentricAB.com

PRODUCT RANGE

HE Powerpacks
12/24/48 VDC 0.3 – 4.5 kW and
0.75 – 3 kW AC modular power packs

HE Box Powerpacks
12/24/48 VDC modular powerpacks
in weatherproof boxes

Pressure Switches
5 - 350 bar, connecting/disconnecting

W100 Hydraulic pumps
0,5 - 2,0 cc 227 bar

W300 Hydraulic pumps
0,8 – 5,7 cc 230 bar

W600 Hydraulic pumps / motors
3 – 12 cc 276 bar

W900 Hydraulic pumps / motors
5 – 31 cc/section 276 bar

Calma The new quiet pumps
6,2 - 23,7 cc/section 250 bar

WQ900 The quiet pumps
5 - 23 cc/section 230 bar

WP900X Hydraulic pumps
16 - 31 cc/section 276 bar

W1500 Hydraulic pumps / motors
19 - 50 cc/section 276 bar

F12 FERRA Heavy duty pumps
16 - 41 cc/section 276 bar

F15 FERRA Heavy duty pumps
19 - 50 cc/section 276 bar

F20/F30 (LS) Hydraulic pumps / motors
23 – 161 cc/section 276 bar

GPA Internal Gear pumps
1,7 – 63 cc/section 100 bar

GC Hydraulic pumps / motors
1,06 – 11,65 cc/section 276 bar

D Hydraulic pumps
3,8 – 22,9 cc/section 207 bar

H Hydraulic pumps
9,8 – 39,4 cc/section 207 bar

II-Stage Hydraulic pumps
4,2 – 22,8 cc/section 276 bar

Rotary Flow Dividers
3,8 – 13,3 cc/section 300 bar

Transmission pumps

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Concentric is an innovator in flow control and fluid power, supplying proprietary systems and components for trucks, buses and industrial vehicles, worldwide. With 1,156 employees and sales of 1,977 million Swedish Kronor, Concentric AB is listed on the Stockholm Stock Exchange (www.concentricAB.com).

Concentric AB-W900 PUMPS-US-2011-7