



W1200 SERIES HYDRAULIC PUMP



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W1200

Hydraulic Gear Pump

PRESSURE

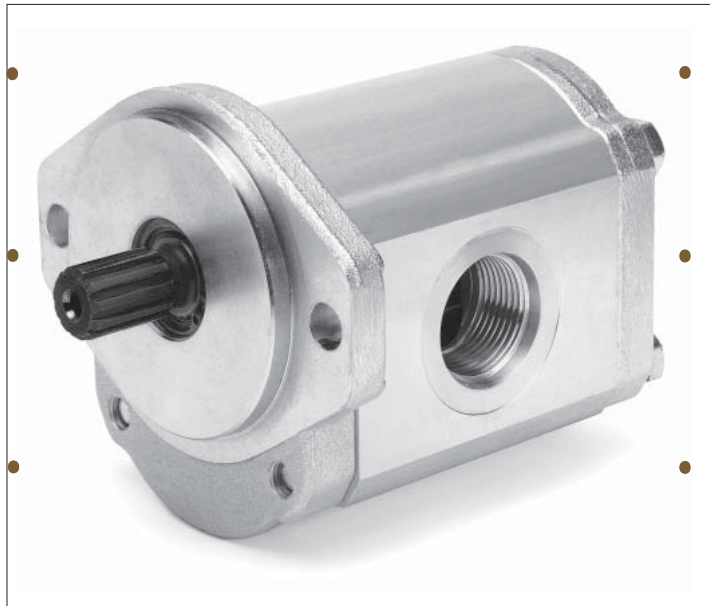
- (P1) 214 BAR (3100 PSI)
- (P2) 235 BAR (3410 PSI)

SPEED

- 3000 RPM
- Min. 700 RPM at 3100 PSI (214 BAR)
- Continuous

EFFICIENCY

- Overall 90%
- Volumetric 98%
- Mechanical 92%



- NOISE**
- Superior Trapping Configuration
- Optimum gear profile

- FLEXIBILITY**
- SAE Shafts
- Mounting Flanges
- Port Styles

- QUALITY**
- ISO 9001 Registered

The W1200 is one family in the W Series of high performance gear pumps produced by Concentric. The product line was designed for optimum performance, low noise and low cost on applications that require a specific displacement range. The W1200 is well suited to internal combustion engine lift truck and compact construction vehicle applications. It is a through bore bushing type design constructed of high strength aluminum housings and rigid

cast iron covers. Low profile valve covers are available for circuits requiring priority flow control and load sense priority flow. These valve configurations exhibit excellent control of flow variation through the operating range.

This catalog illustrates the options available for the W1200 as well as performance and dimensional information. An easy to follow ordering code is also included.

Our W Series gear pump family now includes the following: **W100** (.5cc-2.0cc), **W300** (.8cc-5.7cc), **W600** (3.0cc-12cc), **W900** (6-28cc) **WQ900** low noise (6cc-27cc), **W1200** (25cc-33cc), **W1500** (19cc-50cc). The addition of the W1200 provides an even more focused capability to meet our customer's application requirements.

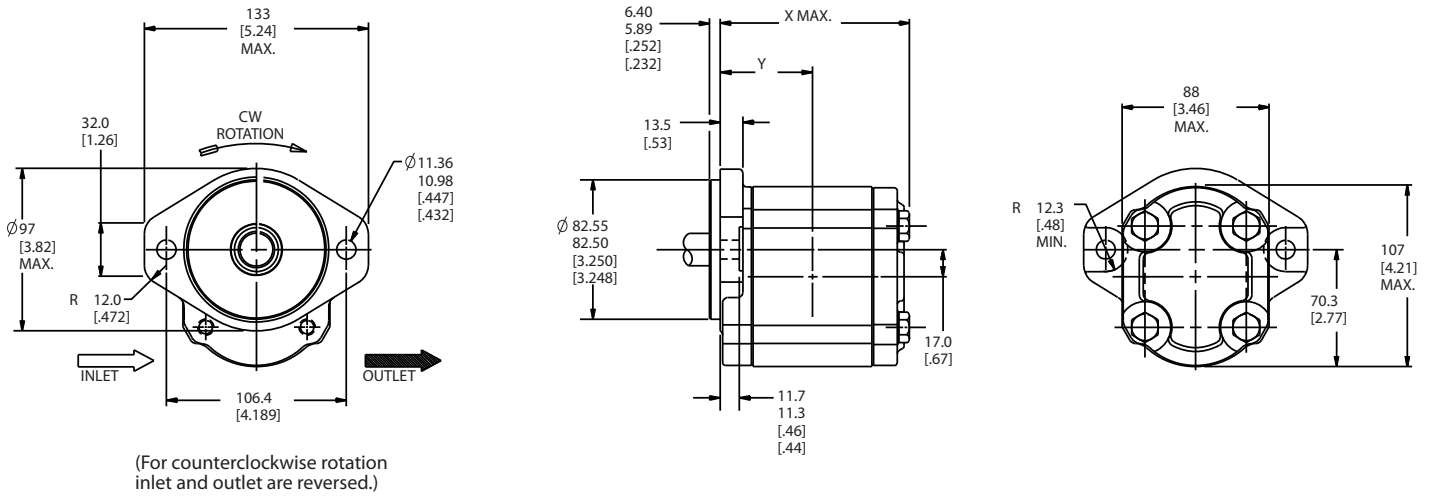
Performance Information

Model Code		250	270	290	310	330
Displacement	cm ³ /rev	25	27	29	31	33
	in ³ /rev	1.526	1.648	1.770	1.892	2.014
Inlet Pressure	min. 0.2 BAR below atmospheric (6 IN.HG)			max. 2.0 BAR (29 PSI)		
Max. Continuous Pressure (P1)	(BAR)	214 BAR				
	(PSI)	3100 PSI				
Max. Intermittent Pressure (P2)	(BAR)	235 BAR				
	(PSI)	3410 PSI				
Min. Rotational Speed At (P1)		700 RPM				
Max. Rotational Speed At (P1)		3000 RPM				
Input Power	KW	9.90	10.69	11.48	12.27	13.06
	HP	13.3	14.3	15.4	16.5	17.5

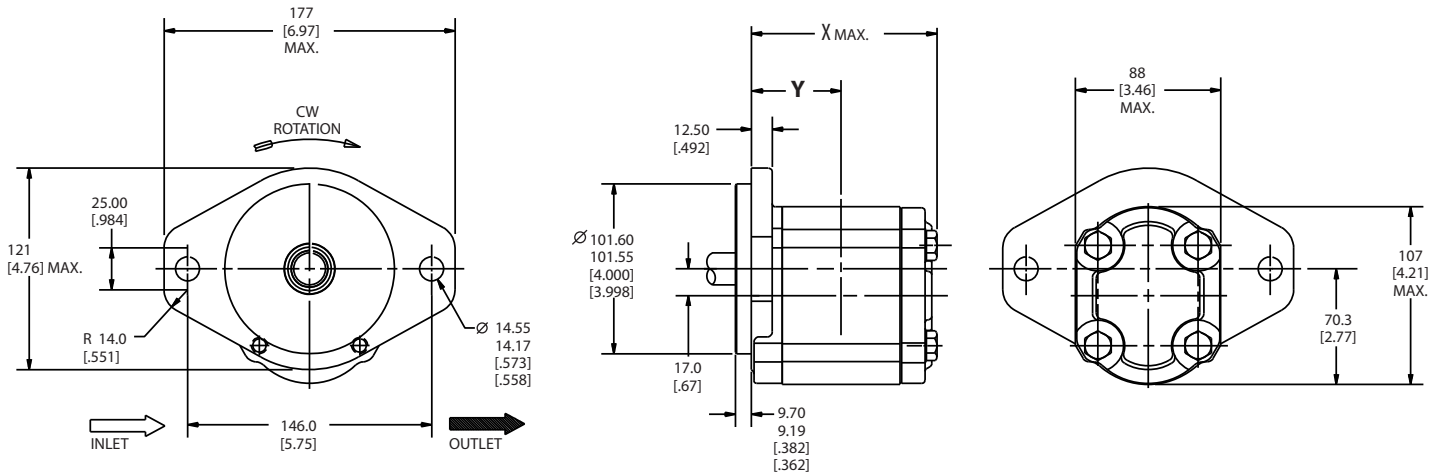
DIMENSIONS & MOUNTING FLANGE OPTIONS

For its displacement and pressure range, the W 1200 family features one of the most compact envelopes available from any manufacturer. Standard mounting flange options are outlined below. Dimensions shown in brackets are in English units. Dimensions shown outside of brackets are metric units. (See bottom of this page for dimensional chart showing "X" and "Y" dimensions.)

SAE "A" 2-BOLT ORDER CODE 03



SAE "B" 2-BOLT ORDER CODE 05

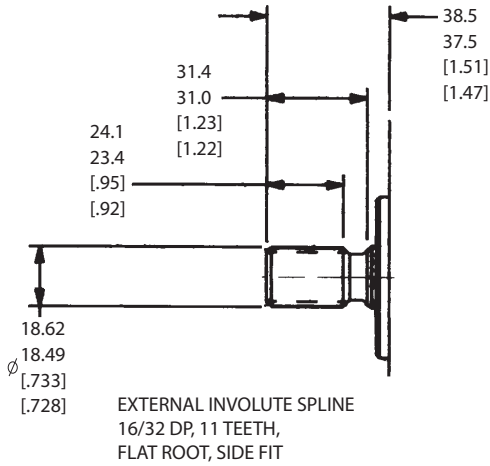


Order Code	Displacement cm ³	in ³	X Max.	Y (To Port Centerline)	Flange Option	
					03	05
					Approx. Wt./ kg. [lbs.]	Approx. Wt. kg. [lbs.]
250	25	1.526	122.3 [4.812]	59.1 [2.329]	4.4 [9.6]	5.2 [11.4]
270	27	1.648	124.7 [4.909]	60.4 [2.377]	4.5 [10.0]	5.3 [11.7]
290	29	1.770	127.2 [5.006]	61.6 [2.426]	4.7 [10.3]	5.5 [12.0]
310	31	1.892	129.7 [5.104]	62.9 [2.475]	4.8 [10.6]	5.6 [12.4]
330	33	2.014	132.1 [5.201]	64.1 [2.523]	5.0 [11.0]	5.8 [12.7]

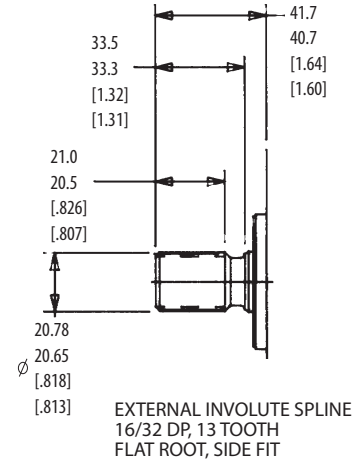
SHAFT OPTIONS

A critical element which must be considered when specifying a W1200 pump for your application is the shaft drive system. Concentric has both the product and the application experience to insure that your W1200 pump incorporates the correct shaft for your application. The following depict the standard shaft options for the W1200 family.

SAE "A" SPLINE ORDER CODE GA



(MODIFIED) SAE "B" SPLINE SHAFT ORDER CODE KA



SINGLE SECTION SHAFT LOADING

$P1 \times V \leq \text{MAX PERMITTED VALUE IN TABLE BELOW}$

WHERE:

P1 = PRESSURE (BAR)
V = DISPLACEMENT (CM³/REV)

CALCULATIONS USING METRIC UNITS	
SHAFT OPTION	MAX. PERMITTED VALUE
GA	9608
KA	10405

WHERE:

P1 = PRESSURE (PSI)
V = DISPLACEMENT (IN³/REV)

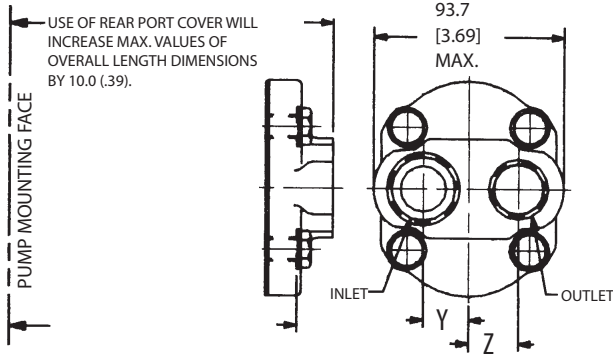
CALCULATIONS USING ENGLISH UNITS	
SHAFT OPTION	MAX. PERMITTED VALUE
GA	8505
KA	9210

PORT OPTIONS



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

SEE PAGE 4 FOR DIMENSIONS FROM FLANGE MOUNTING FACE TO PORT CENTERLINE.



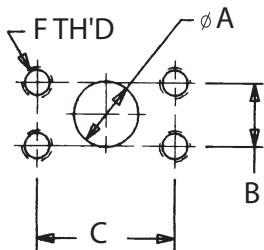
PUMP MAXIMUM SPEED IS REDUCED BELOW VALUES ON PAGE 3 WITH REAR INLET PORT, CONSULT FACTORY.

S.A.E. STRAIGHT THREAD PORT PER S.A.E. j514b				INLET	OUTLET
SIDE PORT CODE	REAR PORT CODE	PORT SIZE INLET OUTLET	COUNTERBORE DIAMETER MIN.	Y ± 0.3 [± .012]	Z ± 0.3 [± .012]
103	503	$\frac{1-5}{16-12}$ $\frac{1-1}{16-12}$	$\frac{48.51 [1.910]}{41.28 [1.625]}$	24.2 [.950]	22.2 [.870]
BSPP STRAIGHT THREAD PORT PER DIN 3852, PART 2					
122	522	G 1 G 3/4	$\frac{41.0 [1.61]}{33.0 [1.29]}$	24.2 [.950]	22.2 [.870]

PERFORMANCE ON PAGE 3 REPRESENTS THAT WHICH CAN BE EXPECTED FROM UNITS INCORPORATING FLANGE PORTS.

S.A.E. SPLIT FLANGE PER S.A.E. j518c (STANDARD PRESSURE SERIES)

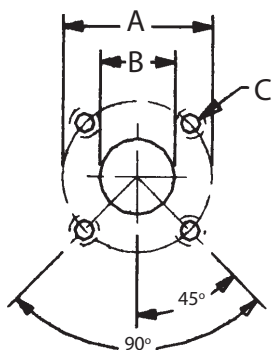
SIDE PORT CODE	PORT SIZE INLET OUTLET	ϕ A	B	C	F TH'D X MIN. FULL TH'D DEPTH
141	$\frac{[1.0]}{[3/4]}$	$\frac{25.4 [1.00]}{19.05 [.750]}$	$\frac{26.19 [1.031]}{22.22 [.875]}$	$\frac{52.37 [2.062]}{47.63 [1.875]}$	$\frac{3/8-16 \times 16 [.63]}{3/8-16 \times 16 [.63]}$



SEE PAGE 4 FOR DIMENSIONS FROM FLANGE MOUNTING FACE TO PORT CENTERLINE.

METRIC SPLIT FLANGE PER ISO/DIS 6162 (35 to 350 BAR SERIES)

SIDE PORT CODE	PORT SIZE INLET OUTLET	ϕ A	B	C	F TH'D X MIN. FULL TH'D DEPTH
146	$\frac{25}{19}$	$\frac{25.4 [1.00]}{19.05 [.750]}$	$\frac{26.19 [1.031]}{22.22 [.875]}$	$\frac{52.37 [2.062]}{47.63 [1.875]}$	$\frac{M10 \times 16 [.63]}{M10 \times 16 [.63]}$



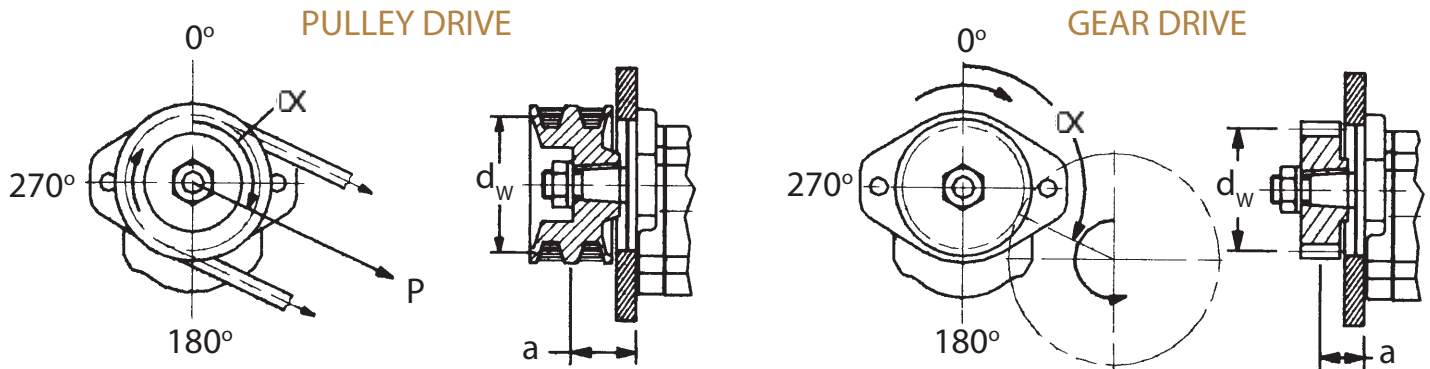
SEE PAGE 4 FOR DIMENSIONS FROM FLANGE MOUNTING FACE TO PORT CENTERLINE.

EUROPEAN 4-BOLT FLANGE

SIDE PORT CODE	PORT SIZE INLET OUTLET	ϕ A	ϕ B	C TH'D X MIN. FULL TH'D DEPTH
151	$\frac{26}{18}$	$\frac{55.0 [2.165]}{55.0 [2.165]}$	$\frac{26 [1.02]}{18 [.71]}$	$\frac{M8 \times 13 [.51]}{M8 \times 13 [.51]}$

EXTERNAL SIDE & THRUST LOAD OPTIONS

The W 1200 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.



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 W1200 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 W1200 performance using other fluids.

OPERATING TEMPERATURES

Fluid temperature range:

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

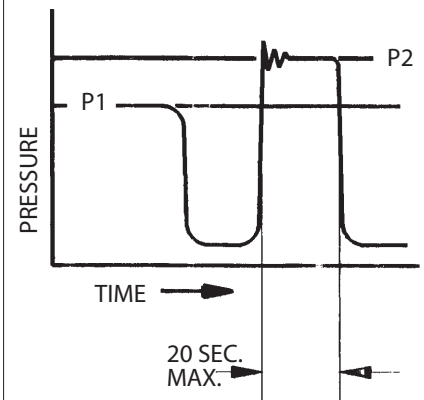
FILTRATION

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.

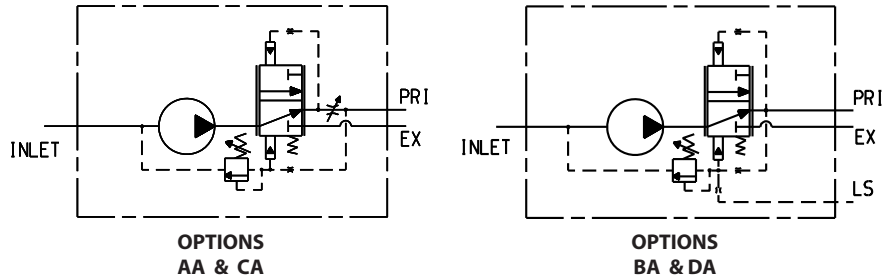
VALVE OPTIONS

An optional rear cover provides multiple valve options for the W1200 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

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

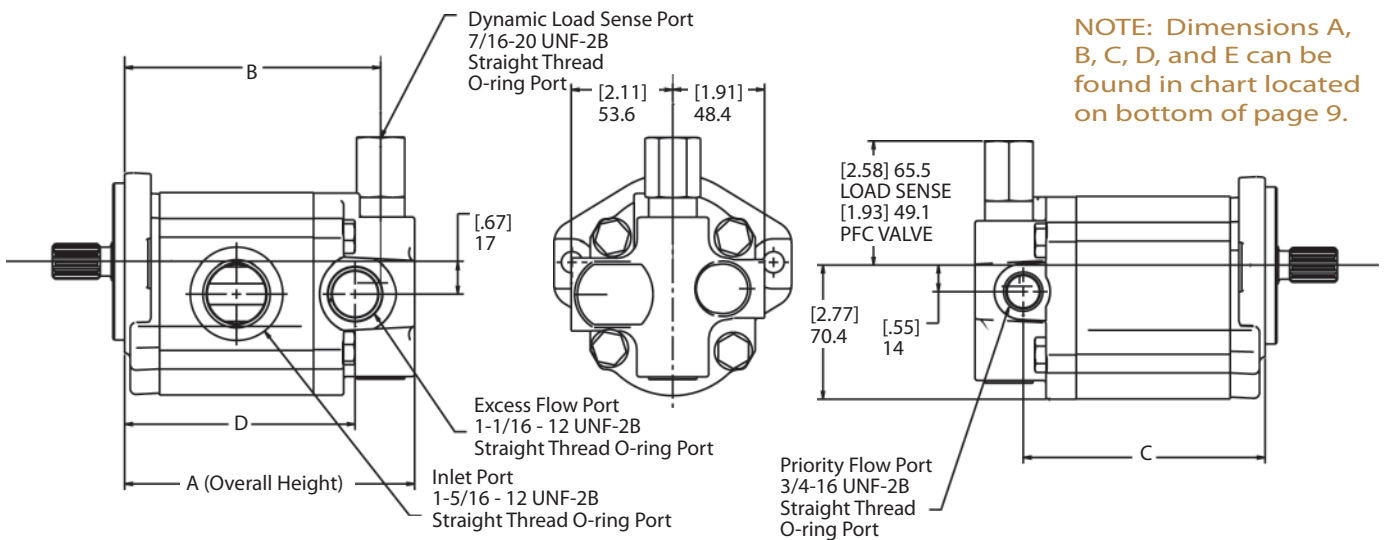
SCHEMATICS



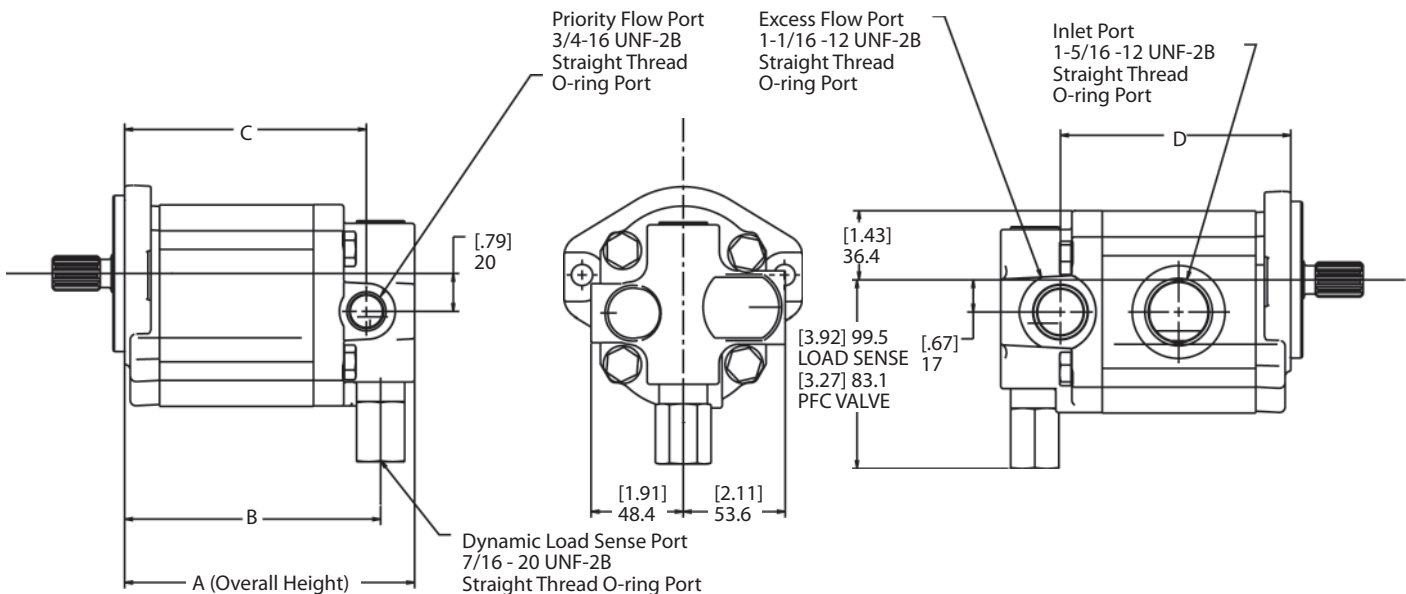
VALVE OPTION DIMENSIONS

NOTE: Dimensions in brackets are in English units.

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



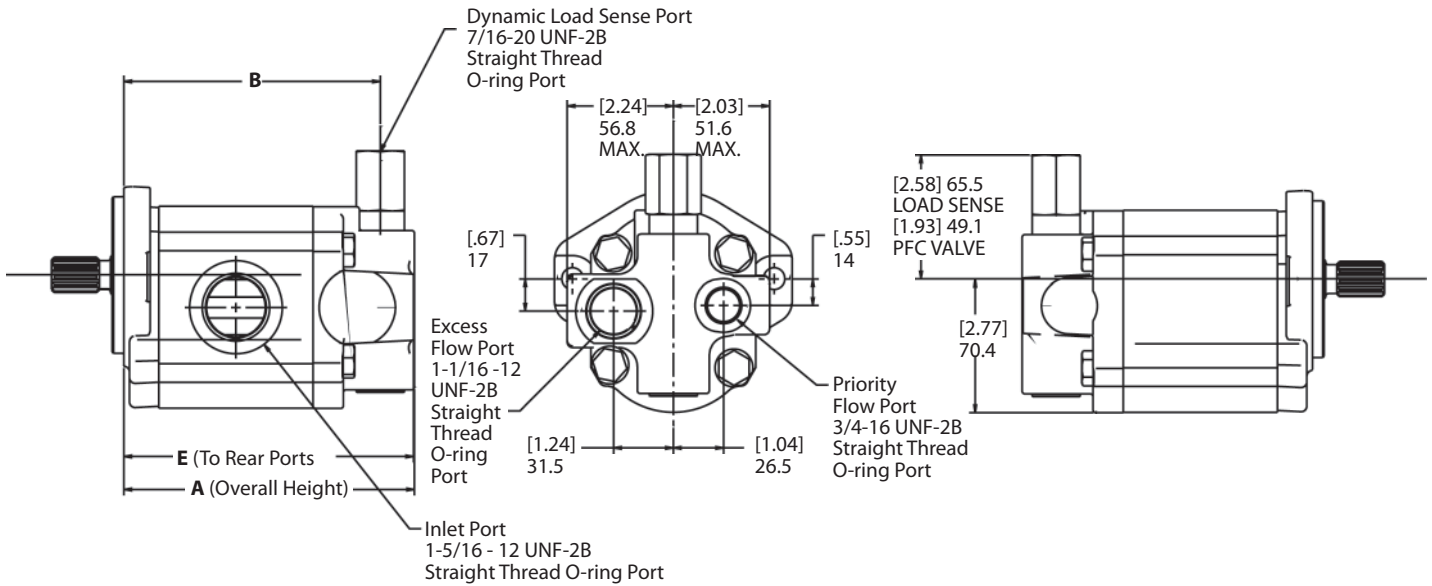
Priority Flow Control / Dynamic Load Sense - Side Ports - CW Rotation (as viewed from shaft end) - ORDER CODES AA & BA



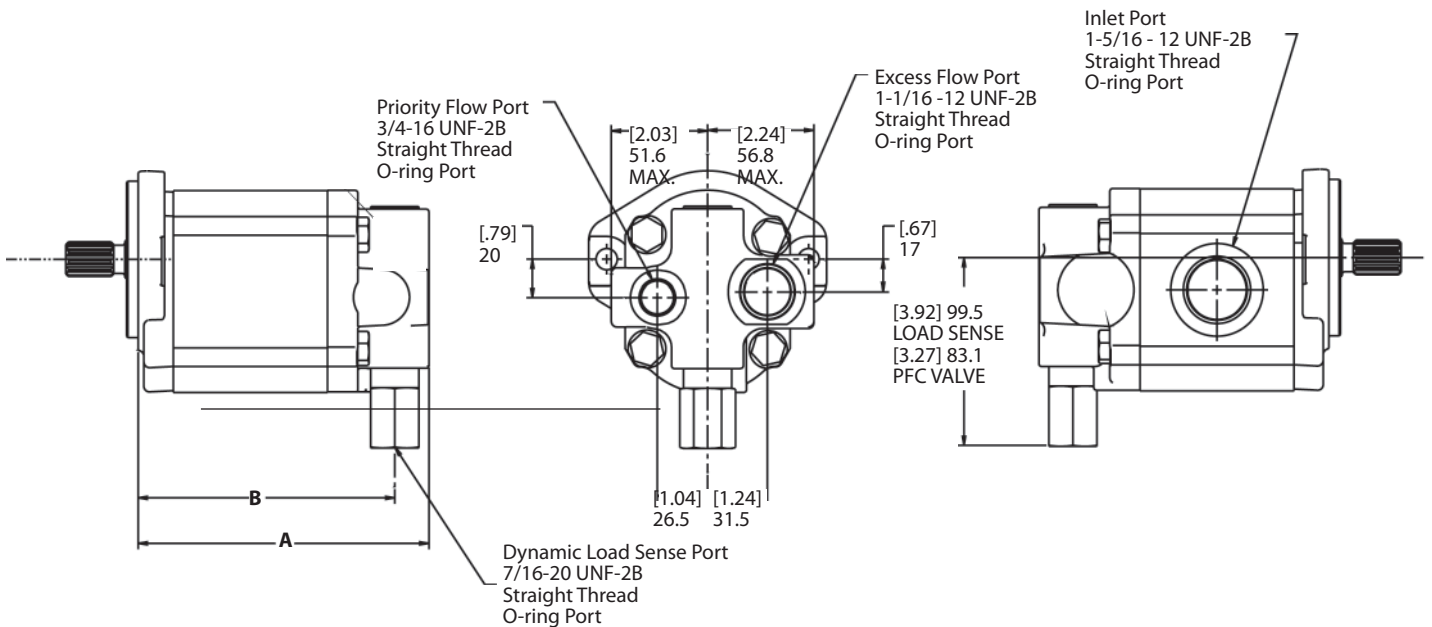
VALVE OPTION DIMENSIONS (Cont.)

NOTE: Dimensions in brackets are in English units.

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



Tabulated Chart for Valve Option Dimensions (See dimensional drawings on page 8 and above.)

DISPLACEMENT		A max.	B	Side Ports		Rear Ports
CM ³	IN ³			C Priority	D Excess	E
25	1.526	154.5 [6.081]	132.3 [5.208]	127.8 [5.031]	121.8 [4.795]	153.3 [6.035]
27	1.648	157.0 [6.178]	134.8 [5.306]	130.3 [5.128]	124.3 [4.892]	155.8 [6.132]
29	1.770	159.4 [6.275]	137.2 [5.403]	132.7 [5.226]	126.7 [4.989]	158.2 [6.230]
31	1.892	161.9 [6.373]	139.7 [5.500]	135.2 [5.323]	129.2 [5.087]	160.7 [6.327]
33	2.014	164.4 [6.470]	142.2 [5.598]	137.7 [5.420]	131.7 [5.184]	163.2 [6.424]

ORDERING INFORMATION

	STANDARD PUMP							
	1	2	3	4	5	6	7	8
	DESIGN CODE	SEAL MATERIAL	DISPLACEMENT	ROTATION	FLANGE	SHAFT	PORT	VALVE OPTION
EXAMPLE	WP12A1	B	290	R	03	GA	103	N
Your Options	WP12A1							

	VALVE OPTIONS		
	9	10	11
	VALVE TYPE	FLOW SETTING	RELIEF VALVE SETTING
	AA	12	R34
	A*		

1. **DESIGN CODE**
WP12A1 - Single Pump

2. **SEAL MATERIAL**
B Buna

3. **DISPLACEMENT**

Order Code	Cm. ³	In. ³
250	25	1.526
270	27	1.648
290	29	1.770
310	31	1.892
330	33	2.014

4. **ROTATION**

R	Clockwise
L	Counter Clockwise

5. **MOUNTING FLANGES**

03	SAE "A" 2-Bolt
05	SAE "B" 2-Bolt

6. **DRIVE SHAFTS**

GA	SAE "A" Spline (11 Tooth)
KA	Modified SAE "B" Spline (13 Tooth)

7. **STANDARD PORTING**

SIDE PORT CODE	REAR PORT CODE	DESCRIPTION
103	503	SAE Straight Thread (1-5/16-12,1-1/16-12)
122	522	BSPP Straight Thread (G1,G3/4)
141	N/A	SAE Split Flange (1.0,3/4)
146	N/A	Metric Split Flange (25,19)
151	N/A	European 4-Bolt Flange (26,18)

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
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
NN	Not Applicable

10. **FLOW CONTROL SETTINGS**

04	3.8 LTR (1 GPM)
08	7.6 LTR (2 GPM)
11	11.4 LTR (3 GPM)
15	15.1 LTR (4 GPM)
19	18.9 LTR (5 GPM)
23	22.7 LTR (6 GPM)
NN	Not Applicable

11. **RELIEF VALVE SETTINGS**

R**	
**	Relief pressure divided by 100. Available in 100 PSI increments to 3200 PSI EXAMPLE: R29 = 2900 PSI
NN	Not Applicable

Note: Relief valve setting is defined at full bypass.

Note: All pumps require a 25 piece minimum order.

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)

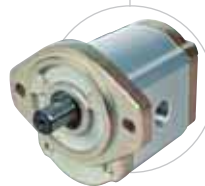
W900 Displacements
0.305 to 1.891 cu. In. (5 to 31 cc)

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)

Call us for more information

For application assistance or detailed literature on any 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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