Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

HYDRAULIC COMPONENTS

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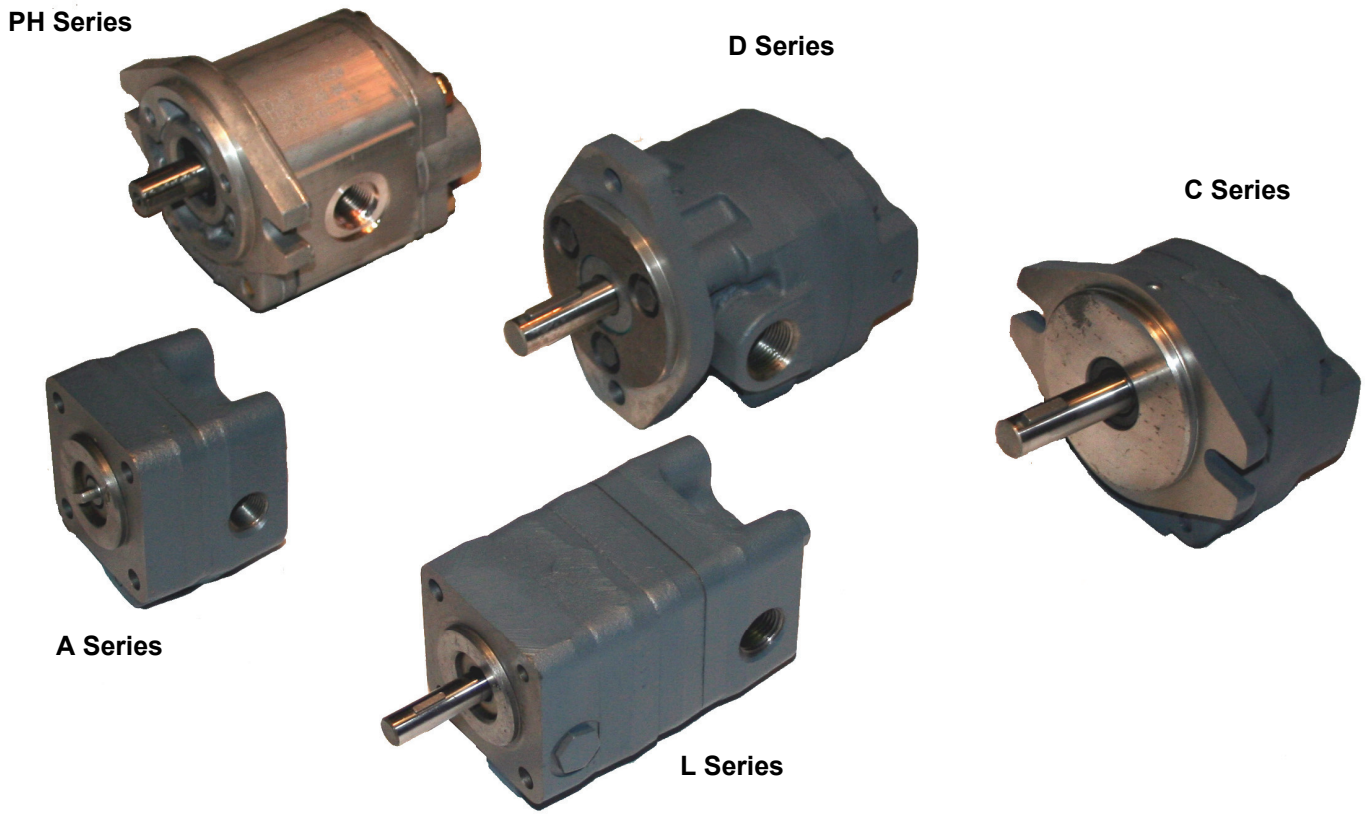
Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

Delta Power Company
4484 Boeing Drive - Rockford, IL 61109



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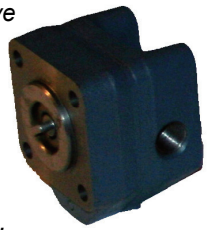
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

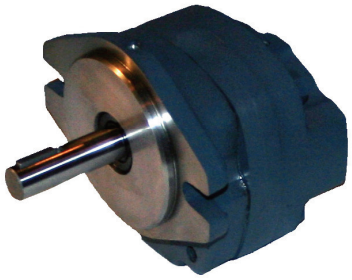
A Series, C Series, and D Series Fixed Clearance Pumps

A Series
Tang Drive



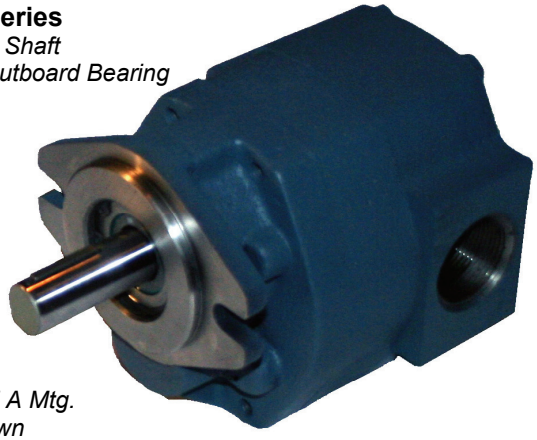
4F17 Mtg. Shown

C Series
Extened Shaft



SAE A Mtg. Shown

D Series
Ext. Shaft w/Outboard Bearing



SAE A Mtg. Shown

Delta's fixed clearance gear pumps are offered in three series A, C, and D with flows ranging from 0.5 GPM to 35 GPM. Delta pumps are designed to provide greater torque efficiencies – especially at high speeds. Numerous shaft, bearing, mounting and seal options are available. Each model is designed to operate as either a single rotation or bi-rotational pump, depending on the application.

A Series, C Series, and D Series hydraulic pumps are designed with long term performance in mind, including: high-strength cast iron bodies, hardened alloy gears and shafts, bronze bearings, and Buna-N sealing members. Integral check valves permit bi-directional rotation to simplify plumbing. The D Series pumps incorporate drive shaft thrust ball bearings to facilitate thrust and radial shaft loads.

Because of their long proven construction, these pumps are found in every type of mobile and industrial applications. They can be expected to perform for the life expectancy of the equipment on which installed.

Installation Notes
On models A1-A8, C1-C8, and D1-D8 be especially careful since these units require that the mounting bolts are installed to complete the assembly. The two shipping bolts are not sufficient to make the assembly intact and care should be exercised while handling in that condition. Bolt torque requirements are 13 to 17 ft-lbs.

	MODEL	GPM AT 1750 RPM	DISPLACEMENT GAL./REV	DISPLACEMENT IN³/REV	SLIP GPM PER 100 PSI	MAX. PSI INT. DUTY	MAX. PSI CONT. DUTY	MAX. RPM	Page
TANG DRIVE	A1	0.49	0.00028	0.065	0.015	2500	1500	5000	5
	A2	0.82	0.00047	0.108	0.017	2500	1500	5000	5
	A4	1.41	0.00081	0.187	0.020	2250	1500	4000	5
	A6	2.39	0.00137	0.316	0.025	1650	950	3600	5
	A8	3.53	0.00202	0.468	0.030	1250	650	2500	5
	A21	3.10	0.00178	0.411	0.040	2000	1500	5000	7
	A23	5.30	0.00304	0.702	0.045	1600	1200	4000	7
	A25	7.42	0.00425	0.981	0.055	1000	850	3500	7
	A27	11.10	0.00633	1.460	0.075	750	550	2400	7
EXTENED SHAFT	C1	0.49	0.00028	0.065	0.015	2500	1500	5000	9
	C2	0.82	0.00047	0.108	0.017	2500	1500	5000	9
	C4	1.41	0.00081	0.187	0.020	2500	1500	4000	9
	C6	2.39	0.00137	0.316	0.025	1850	1100	3000	9
	C8	3.53	0.00202	0.468	0.030	1500	750	1800	9
	C21	3.10	0.00178	0.411	0.040	2500	1500	5000	11
	C23	5.30	0.00304	0.702	0.045	2350	1500	4000	11
	C25	7.42	0.00425	0.981	0.055	1500	1500	3000	11
	C27	11.10	0.00633	1.460	0.075	1200	1100	1800	11
	C41	11.90	0.0068	1.570	0.070	2500	1500	4000	13
	C43	17.80	0.0102	2.350	0.090	2450	1500	3000	13
	C45	23.10	0.0132	3.040	0.110	1850	1500	2300	13
	C47	29.50	0.0169	3.900	0.140	1500	1200	1800	13
	C49	33.60	0.0192	4.430	0.180	1000	700	1800	13
EXT. SHAFT W/OUTBOARD BEARING	D1	0.49	0.00028	0.065	0.015	2500	1500	5000	15
	D2	0.82	0.00047	0.108	0.017	2500	1500	5000	15
	D4	1.41	0.00081	0.187	0.020	2500	1500	4000	15
	D6	2.39	0.00137	0.316	0.025	1850	1100	3000	15
	D8	3.53	0.00202	0.468	0.030	1500	750	1800	15
	D21	3.10	0.00178	0.411	0.040	2500	1500	5000	17
	D23	5.30	0.00304	0.702	0.045	2350	1500	4000	17
	D25	7.42	0.00425	0.981	0.055	1500	1500	3000	17
	D27	11.10	0.00633	1.460	0.075	1200	1100	1800	17
	D41	11.90	0.0068	1.570	0.070	2500	1500	4000	19
	D43	17.80	0.0102	2.350	0.090	2450	1500	3000	19
	D45	23.10	0.0132	3.040	0.110	1850	1500	2300	19
	D47	29.50	0.0169	3.900	0.140	1500	1200	1800	19
	D49	33.60	0.0192	4.430	0.180	1000	700	1800	19

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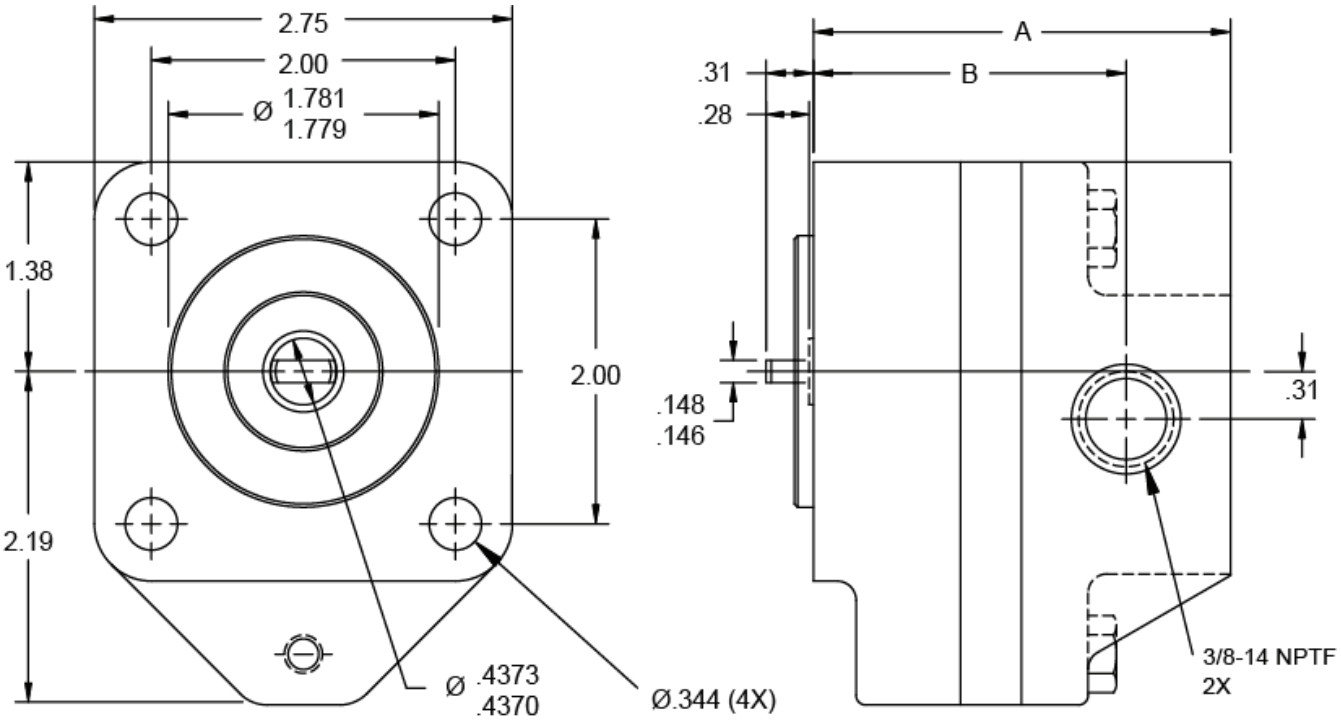
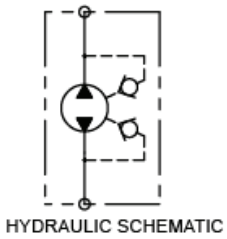
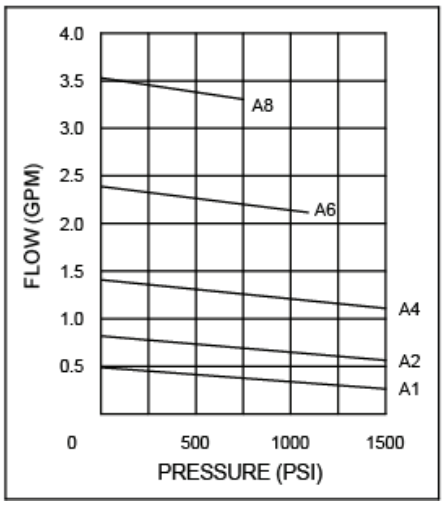
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

A1-A8 Pump, Bi-Directional



For best performance: Inlet pressure should not exceed 10 PSI and vacuum should be limited to 8 inches of mercury at the pump. Inlet lines always must be large, straight, short and absolutely leak-proof, even more so as RPM increases. Suggested maximum inlet velocity is 6 feet per second.


HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. RPM	PRESS. MAX. CONTINOUS	A	B
A1	0.49	0.00028	0.065	0.015	5000	1500	2.48	1.79
A2	0.82	0.00047	0.108	0.017	5000	1500	2.57	1.88
A4	1.41	0.00081	0.187	0.020	4000	1500	2.74	2.05
A6	2.39	0.00137	0.316	0.025	3600	1100	3.02	2.33
A8	3.53	0.00202	0.468	0.030	2500	750	3.34	2.65

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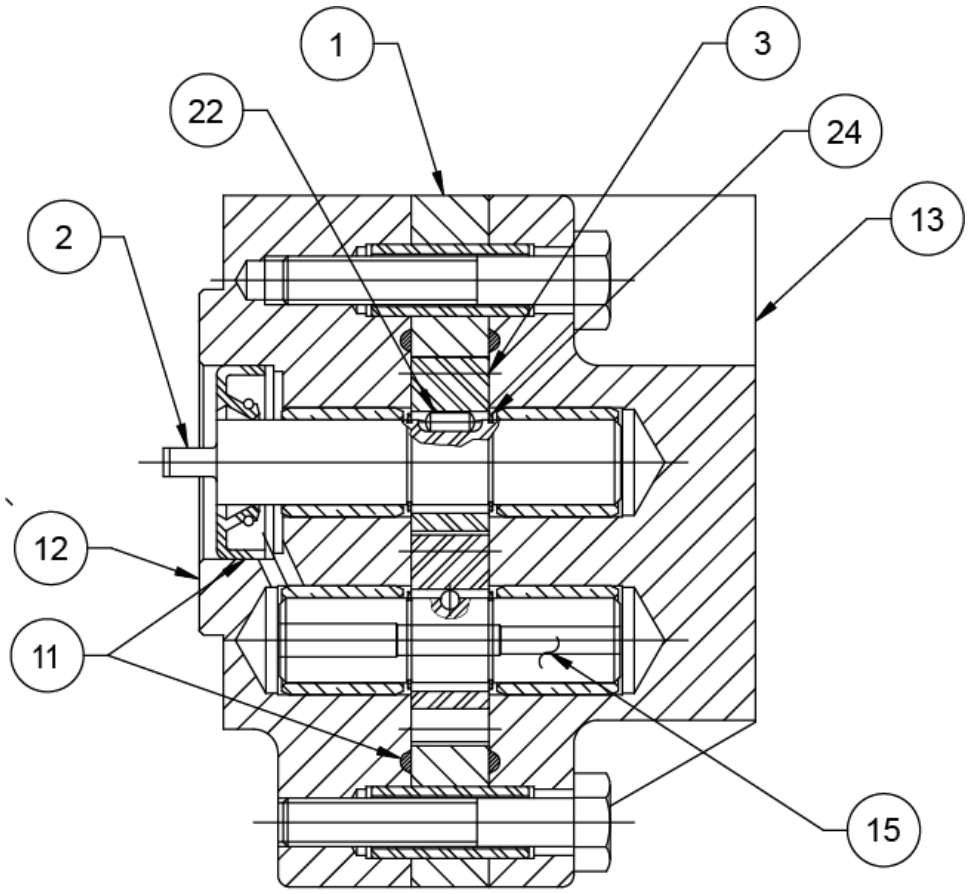
A1-A8 Pump, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2

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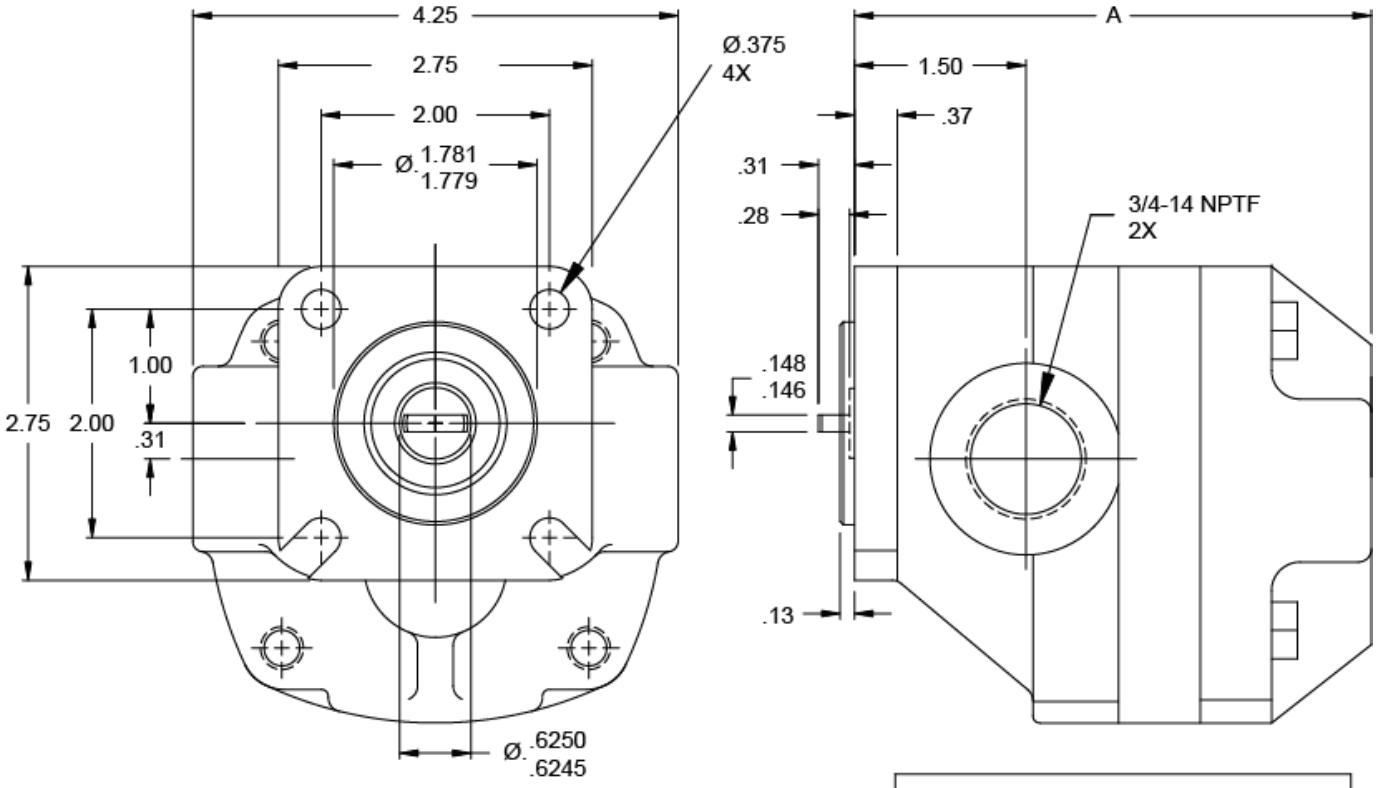
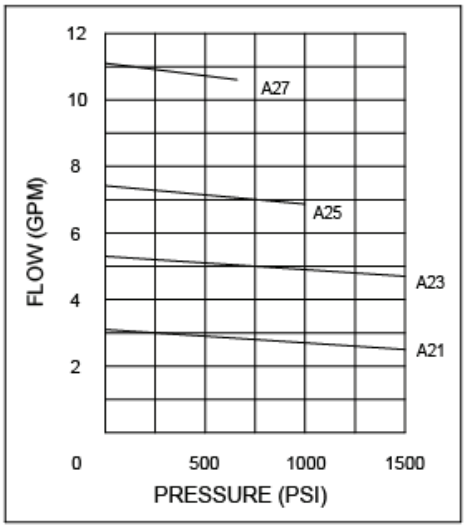
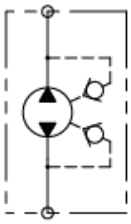
A21-A27 Pump, Bi-Directional



For best performance: Inlet pressure should not exceed 10 PSI and vacuum should be limited to 8 inches of mercury at the pump. Inlet lines always must be large, straight, short and absolutely leak-proof, even more so as RPM increases. Suggested maximum inlet velocity is 6 feet per second.





HYDRAULIC SCHEMATIC

MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. RPM	PRESS. MAX. CONTINOUS	A
A21	3.10	0.00178	0.411	0.040	5000	1500	4.24
A23	5.30	0.00304	0.702	0.045	4000	1500	4.54
A25	7.42	0.00425	0.981	0.055	3500	1000	4.76
A27	11.10	0.00633	1.460	0.075	2400	700	5.32

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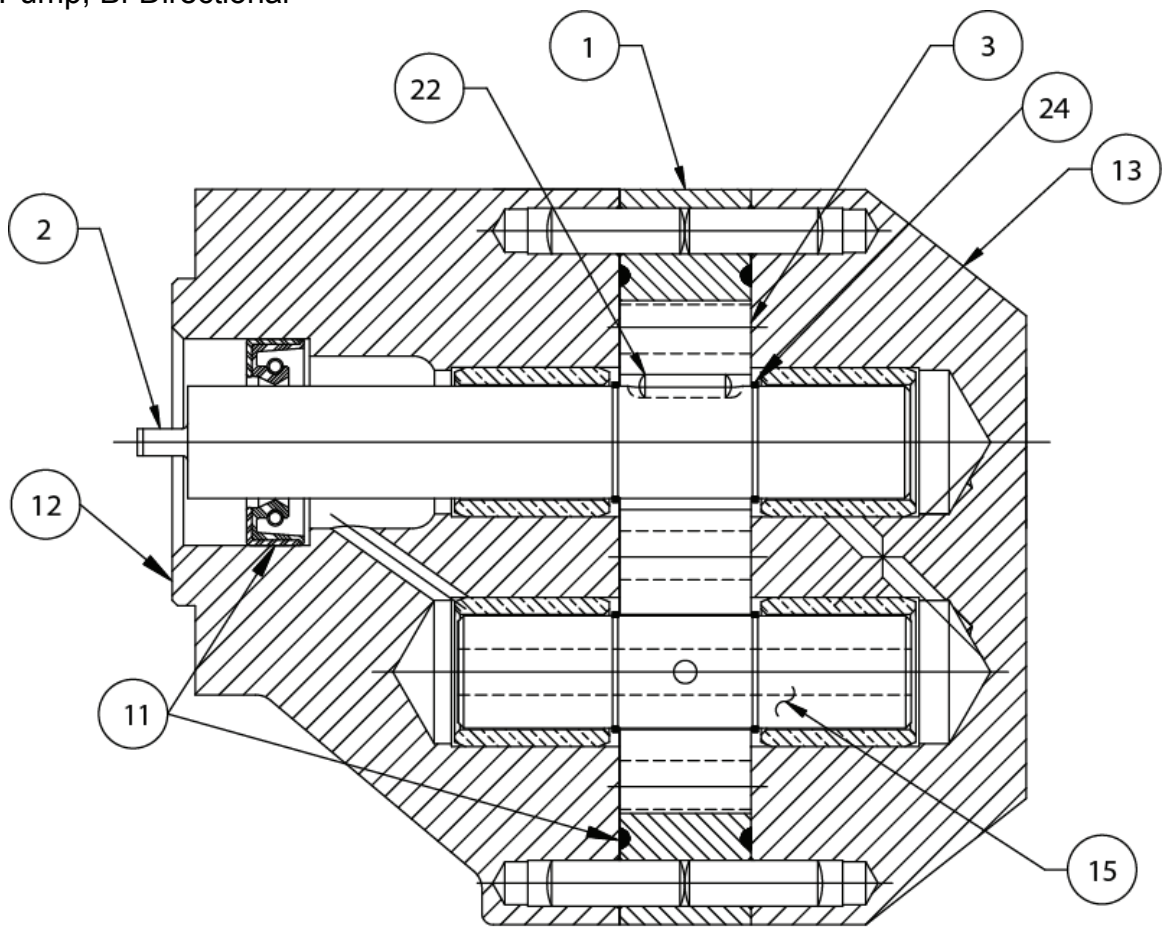
A21-A27 Pump, Bi-Directional



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ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2

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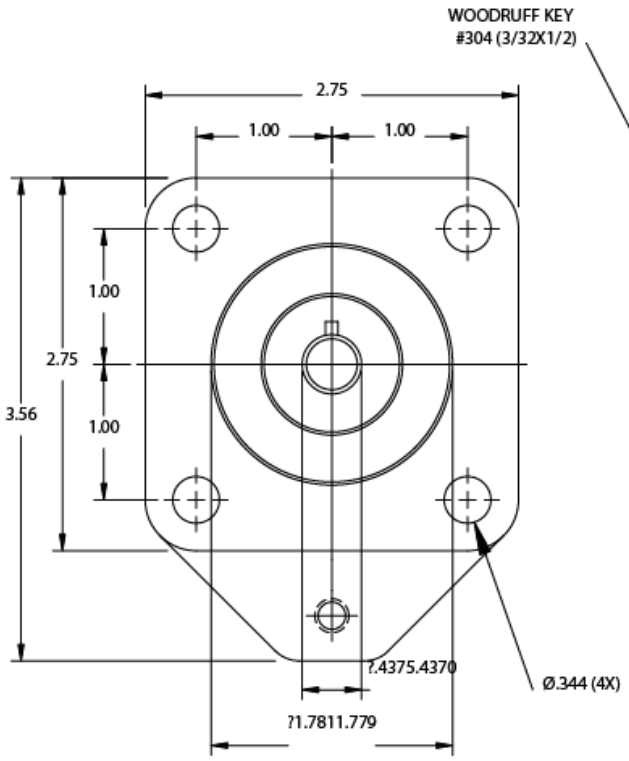
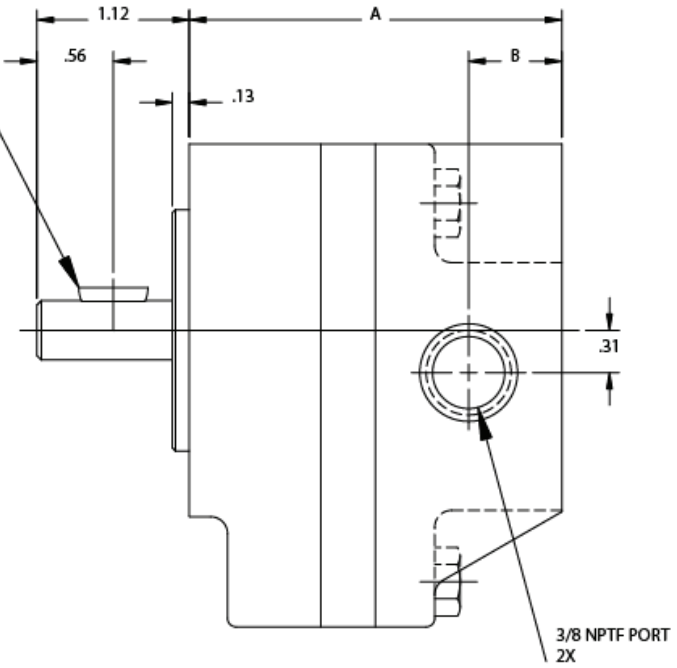
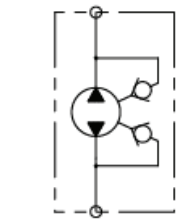
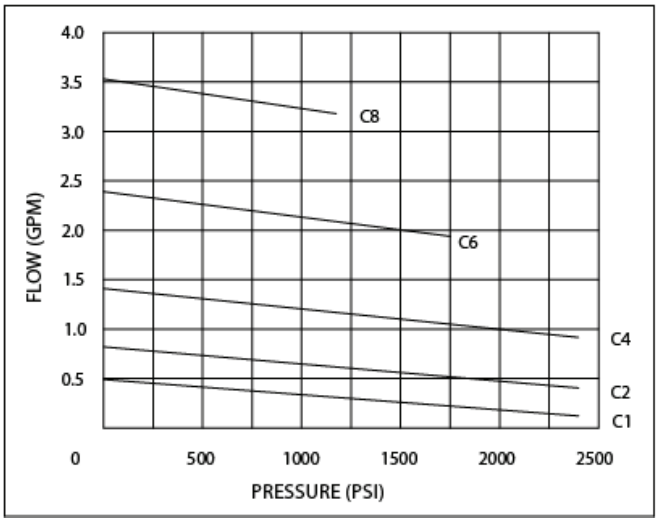
C1-C8 Pump, Bi-Directional






HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. PUMP PRESSURE INTERMITTENT DUTY	MAX. PUMP PRESSURE CONTINUOUS DUTY	SPEED MAX. RPM	A	B
C1	0.49	0.00028	0.065	0.015	2400	1500	5000	2.48	0.69
C2	0.82	0.00047	0.108	0.017	2400	1500	5000	2.57	0.69
C4	1.41	0.00081	0.187	0.020	2400	1500	4000	2.74	0.69
C6	2.39	0.00137	0.316	0.025	1750	1100	3000	3.02	0.69
C8	3.53	0.00202	0.468	0.030	1200	750	1800	3.34	0.69

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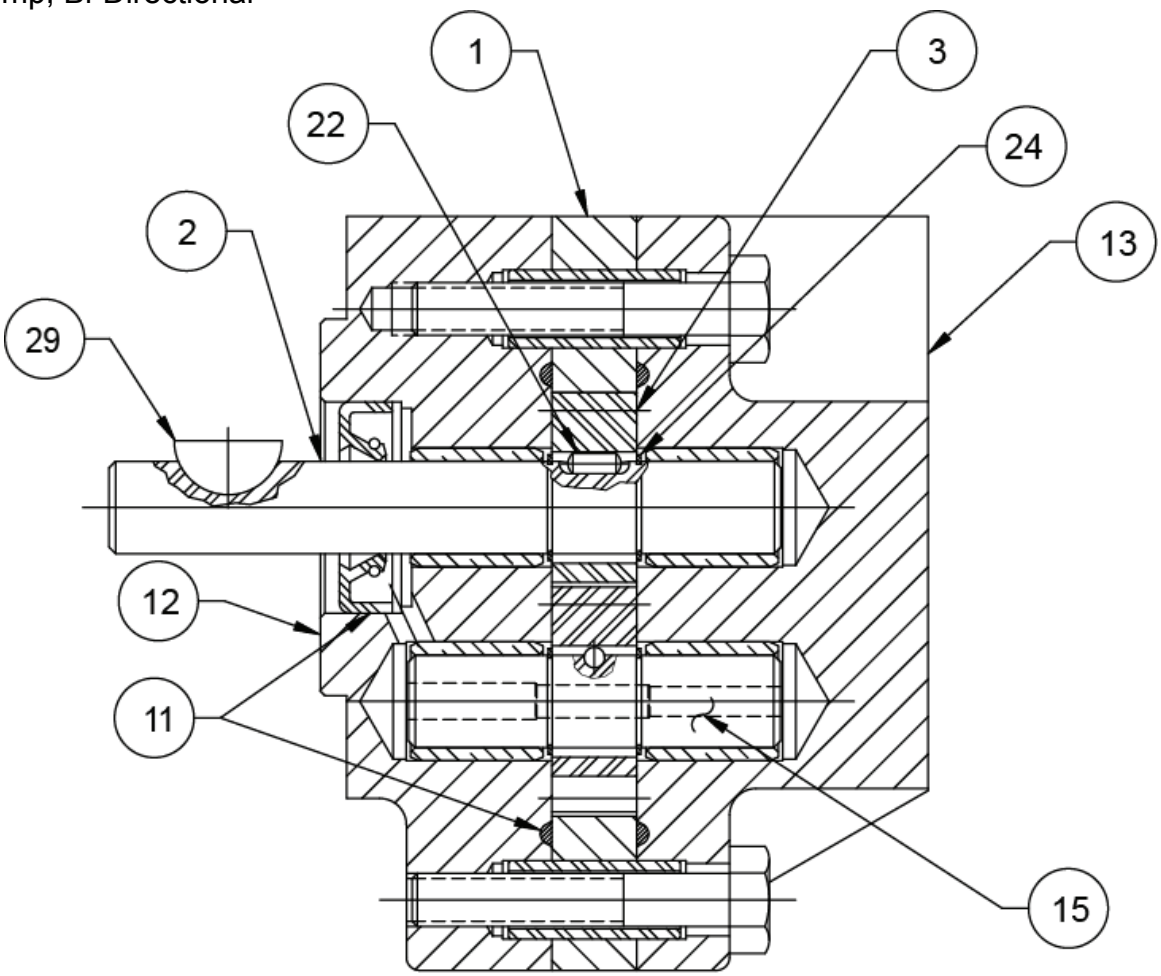
C1-C8 Pump, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2
29	DRIVE KEY	1

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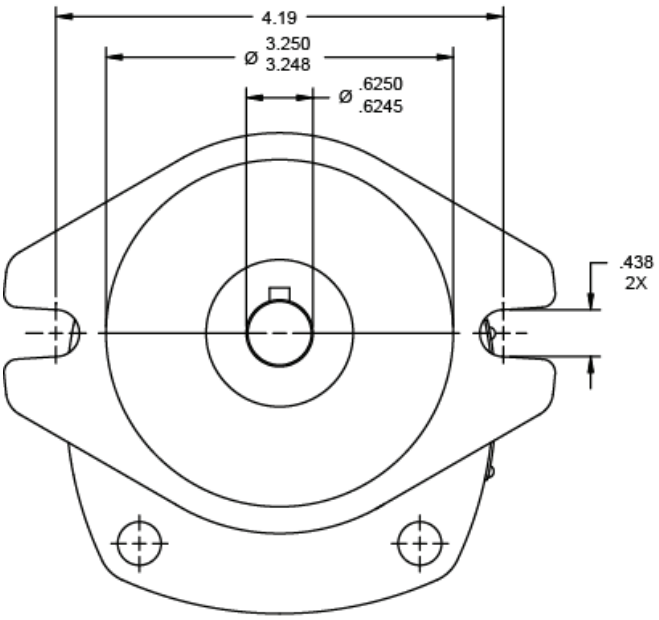
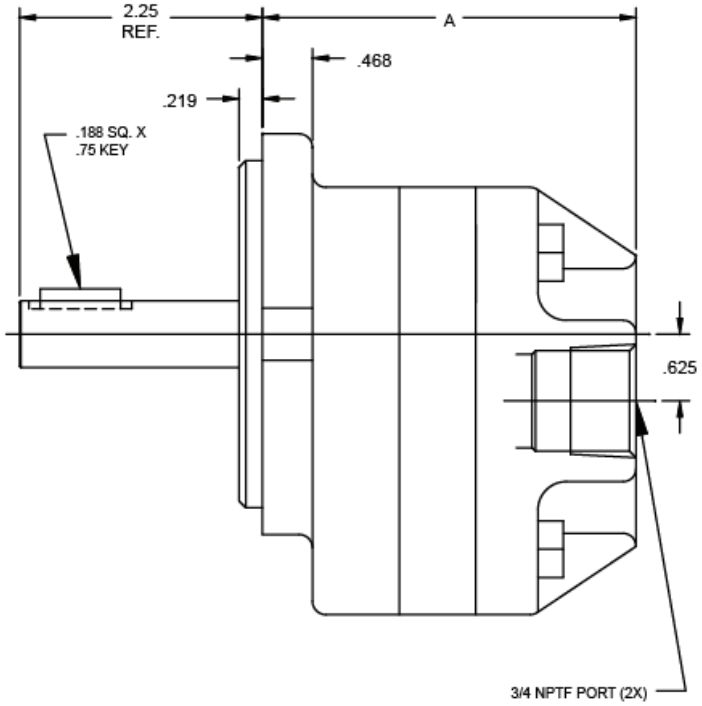
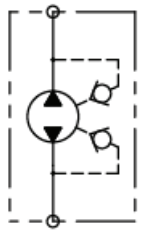
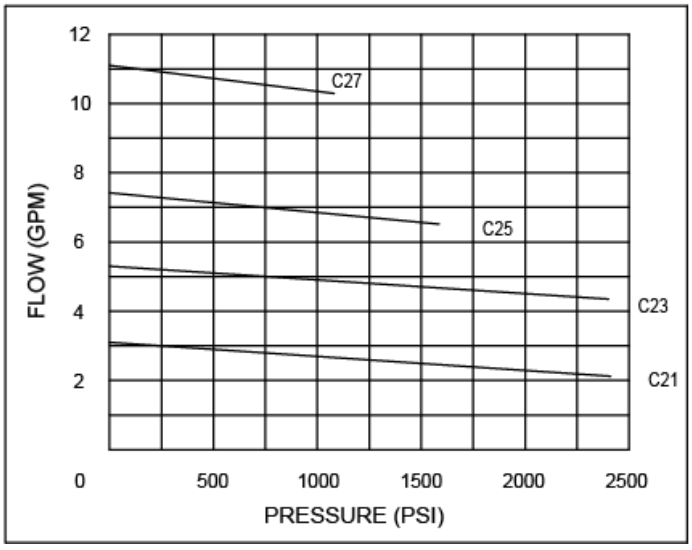
C21-C27 Pump, Bi-Directional







HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. PUMP PRESSURE INTERMITTENT DUTY	MAX. PUMP PRESSURE CONTINUOUS DUTY	SPEED MAX. RPM	A
C21	3.10	0.00178	0.411	0.040	2400	1500	5000	3.21
C23	5.30	0.00304	0.702	0.045	2400	1500	4000	3.56
C25	7.42	0.00425	0.981	0.055	1600	1000	3000	3.78
C27	11.10	0.00633	1.460	0.075	1100	700	1800	4.21

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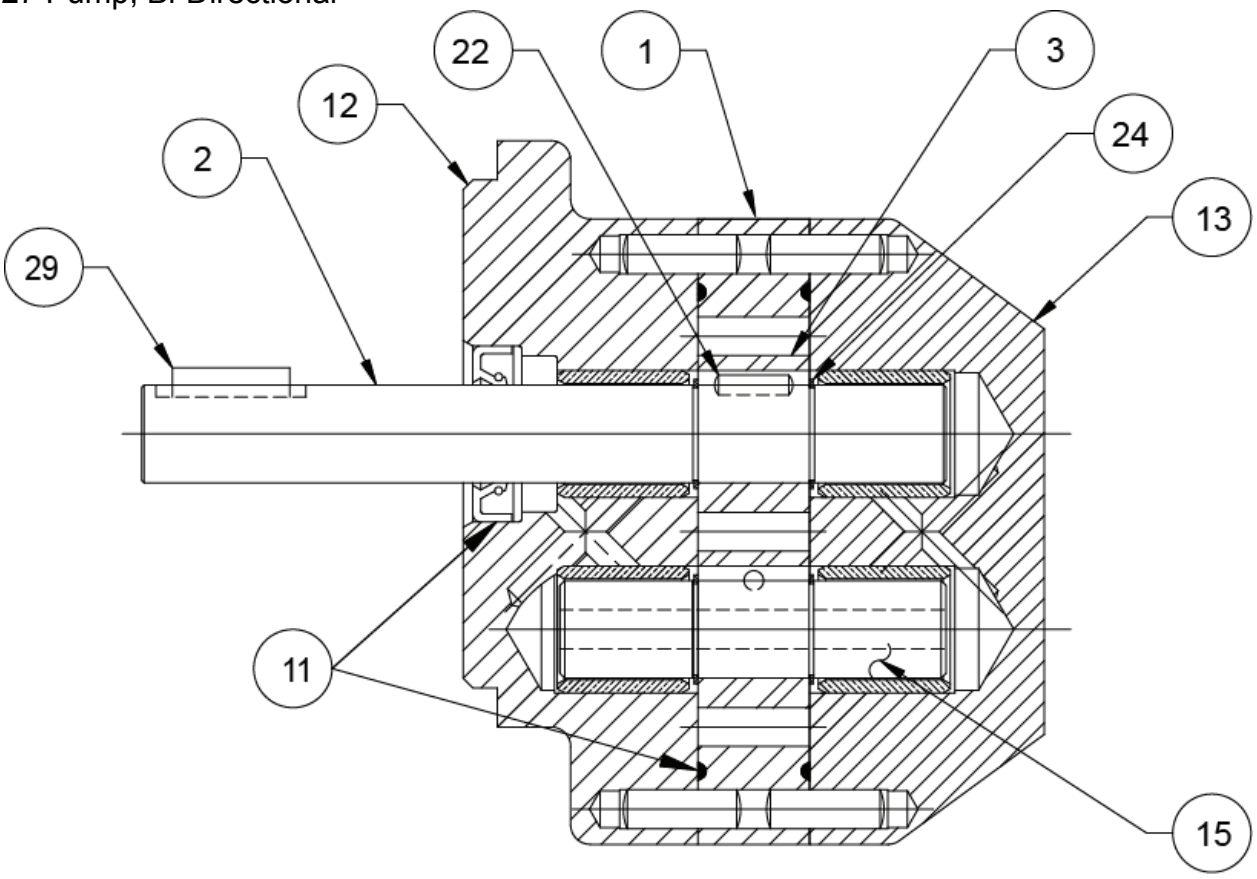
C21-C27 Pump, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2
29	DRIVE KEY	1

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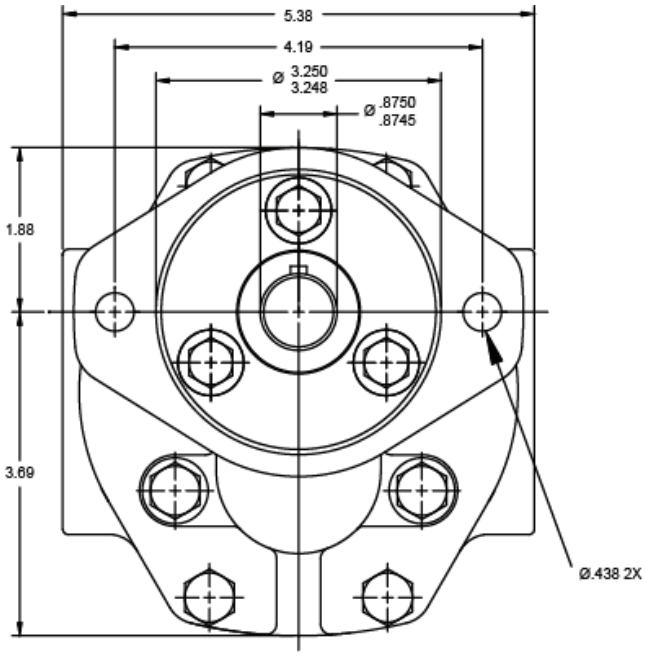
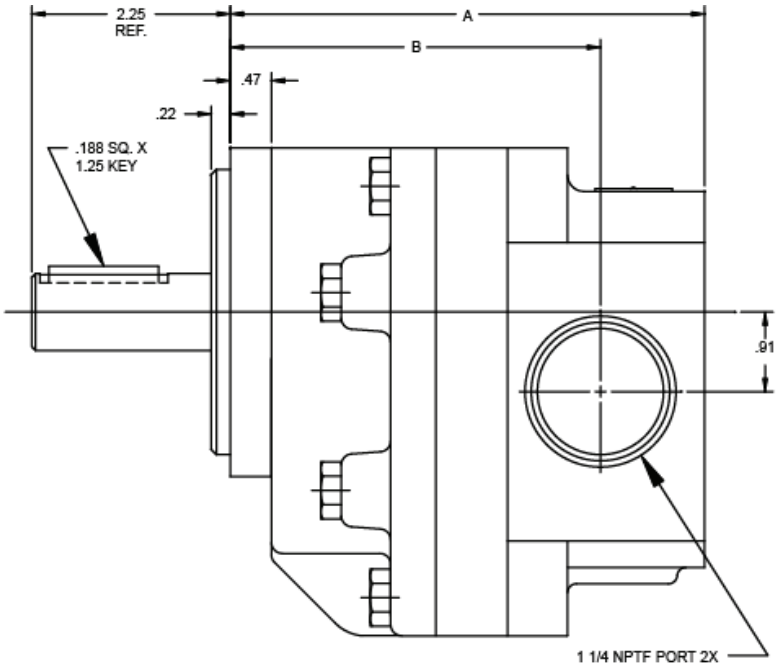
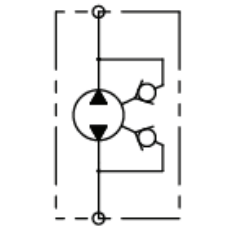
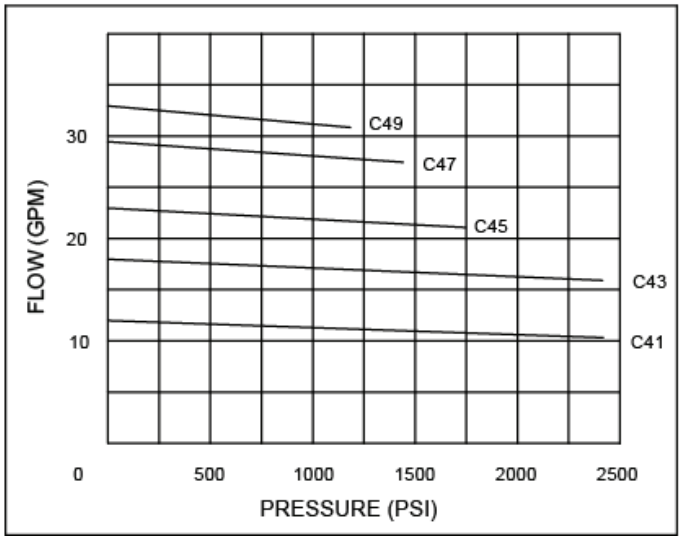
C41-C49 Pump, Bi-Directional







HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. PUMP PRESSURE INTERMITTENT DUTY	MAX. PUMP PRESSURE CONTINUOUS DUTY	SPEED MAX. RPM	A	B
C41	11.90	0.0068	1.570	0.070	2400	1500	4000	5.41	4.22
C43	17.80	0.0102	2.350	0.090	2400	1500	3000	5.72	4.59
C45	23.10	0.0132	3.040	0.110	1750	1100	2300	6.06	4.94
C47	29.50	0.0169	3.900	0.140	1450	900	1800	6.47	5.41
C49	33.60	0.0192	4.430	0.180	1200	750	1800	6.72	5.59

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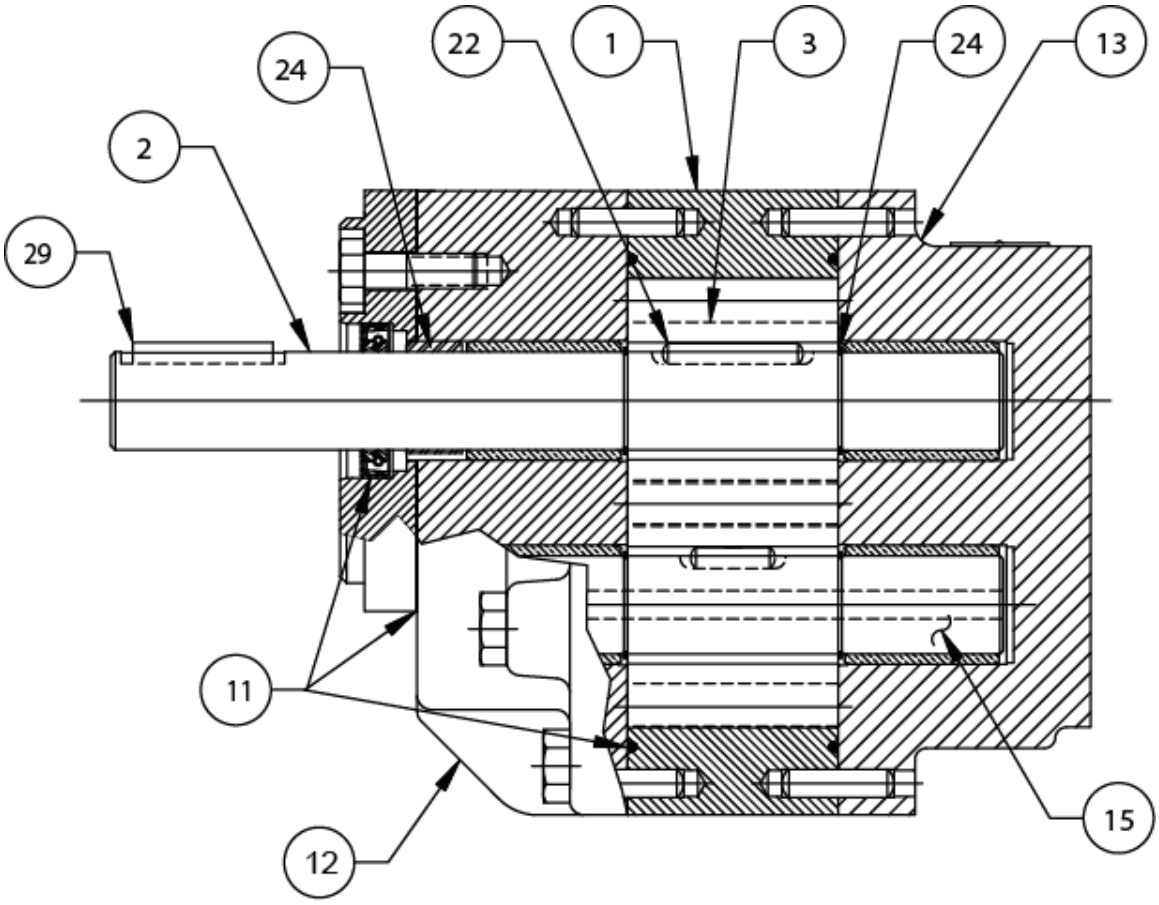
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

C41-C49 Pump, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2
29	DRIVE KEY	1

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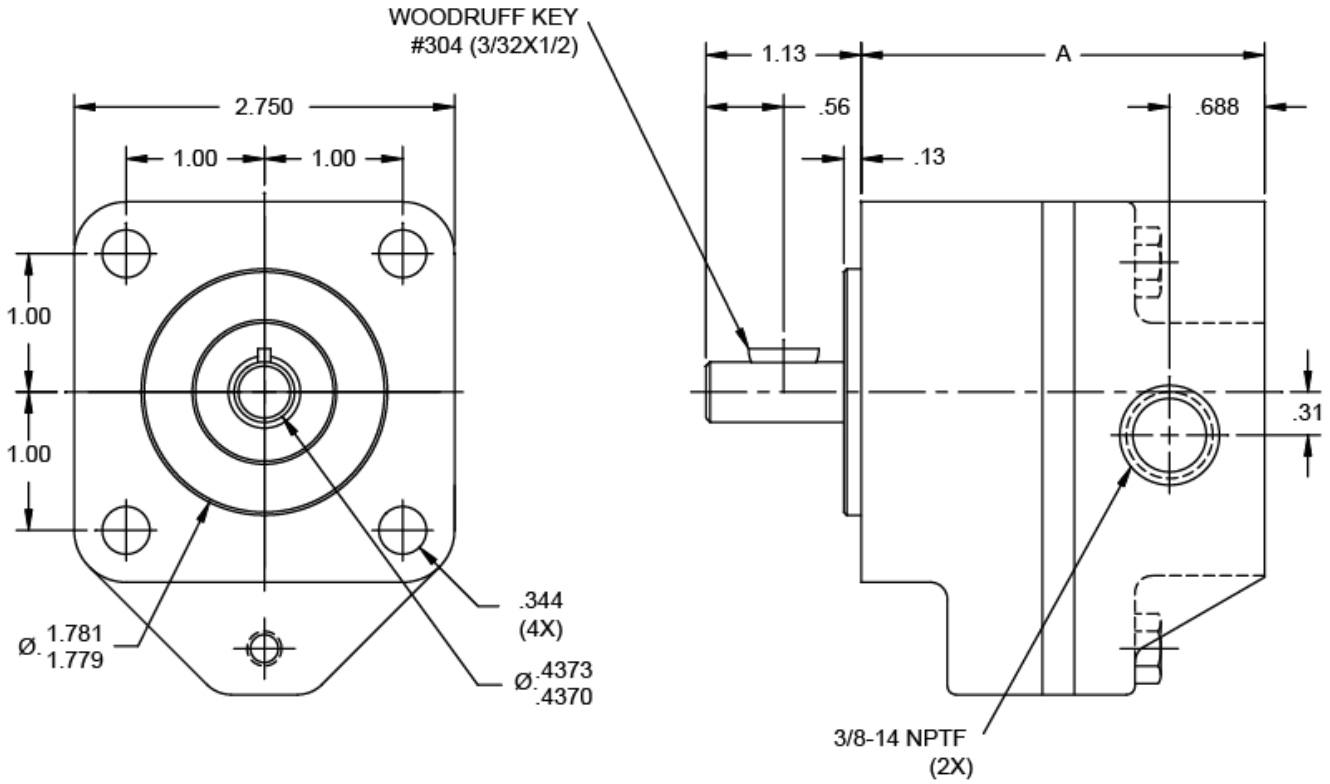
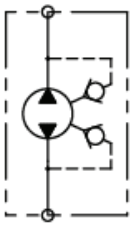
Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

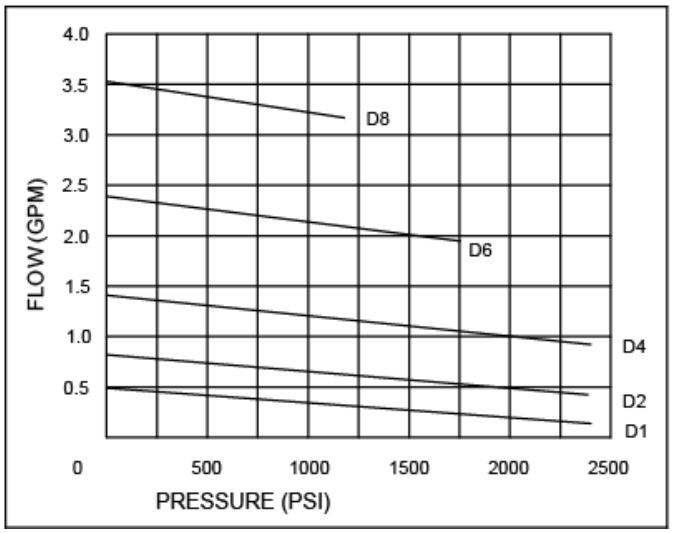
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

D1-D8 Pump, Bi-Directional





HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. PUMP PRESSURE INTERMITTENT DUTY	MAX. PUMP PRESSURE CONTINUOUS DUTY	SPEED MAX. RPM	A
D1	0.49	0.00028	0.065	0.015	2400	1500	5000	2.82
D2	0.82	0.00047	0.108	0.017	2400	1500	5000	2.91
D4	1.41	0.00081	0.187	0.020	2400	1500	4000	3.08
D6	2.39	0.00137	0.316	0.025	1750	1100	3000	3.36
D8	3.53	0.00202	0.468	0.030	1200	750	1800	3.68

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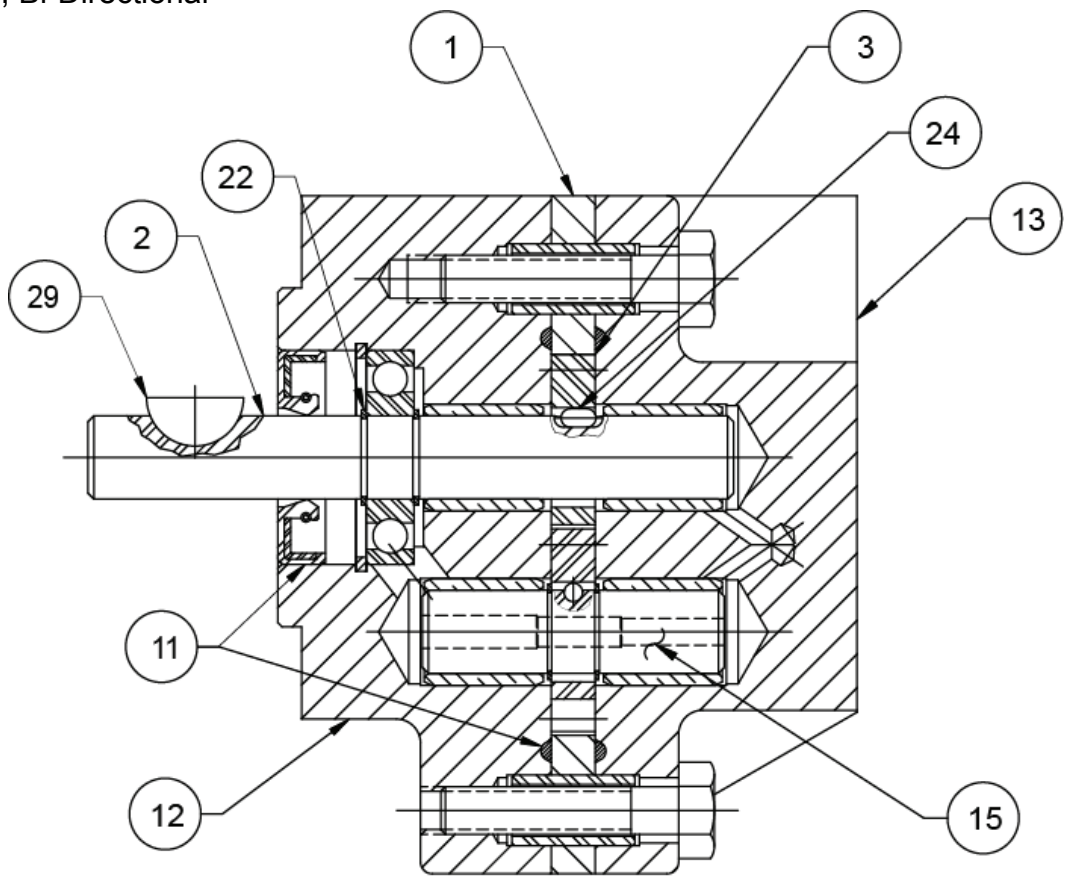
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

D1-D8 Pump, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2
28	OUTBOARD BEARING	1
29	DRIVE KEY	1
31	SNAP RING	1

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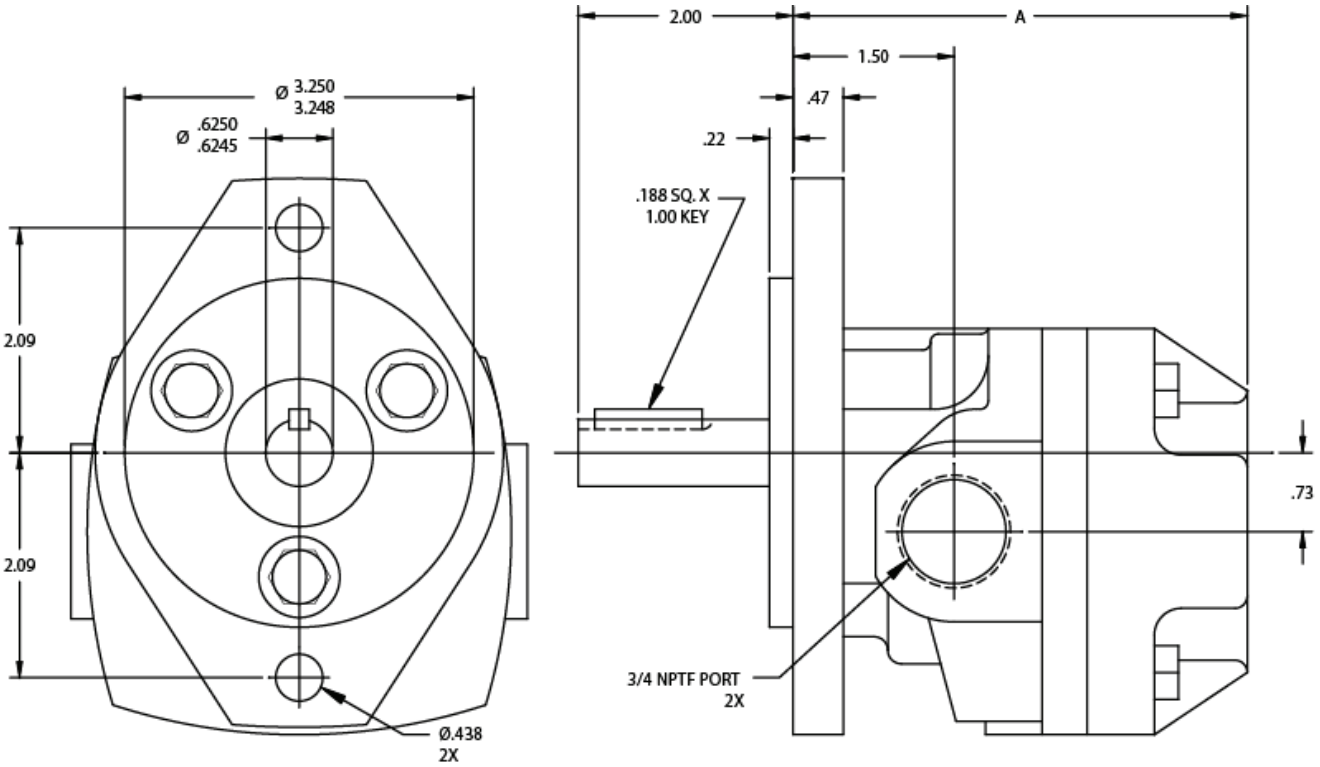
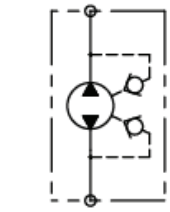
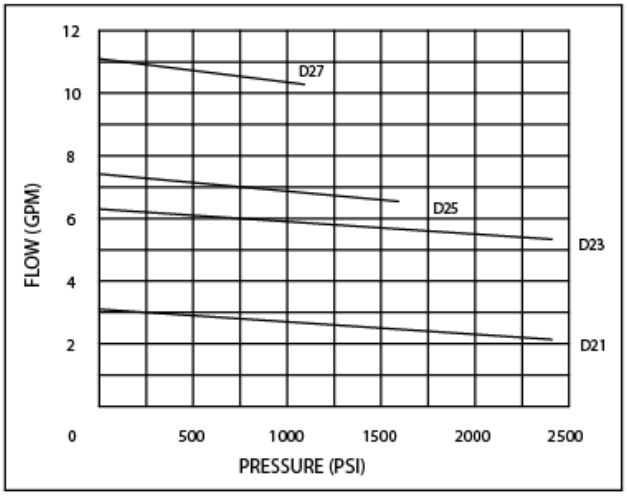
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

D21-D27 Pump, Bi-Directional





HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. PUMP PRESSURE INTERMITTENT DUTY	MAX. PUMP PRESSURE CONTINUOUS DUTY	SPEED MAX. RPM	A
D21	3.10	0.00178	0.411	0.040	2400	1500	5000	3.21
D23	5.30	0.00304	0.702	0.045	2400	1500	4000	3.56
D25	7.42	0.00425	0.981	0.055	1600	1000	3000	3.78
D27	11.10	0.00633	1.460	0.075	1100	700	1800	4.21

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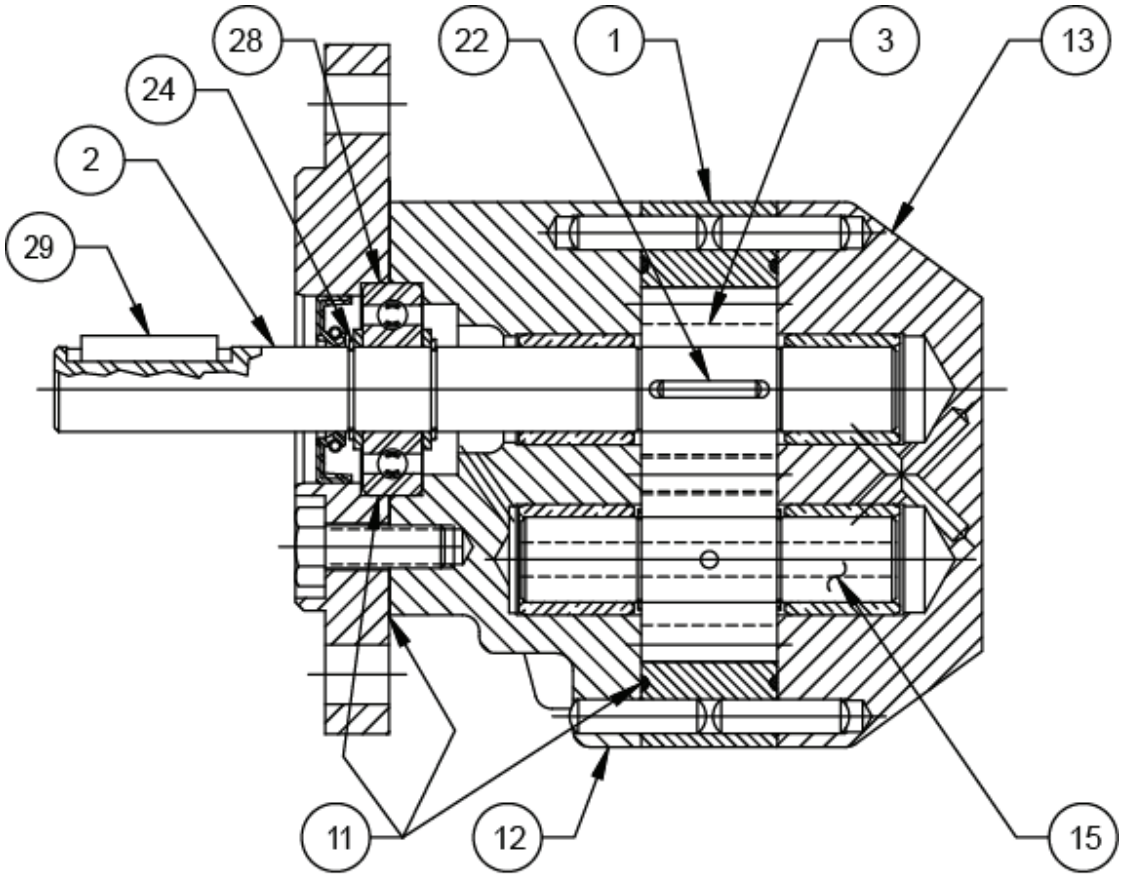
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

D21-D27 Pump, Bi-Directional



SECTION A-A

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2	DRIVE SHAFT	1
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22	GEAR PIN	1
24	RETAINING RING	2
28	OUTBOARD BEARING	1
29	DRIVE KEY	1

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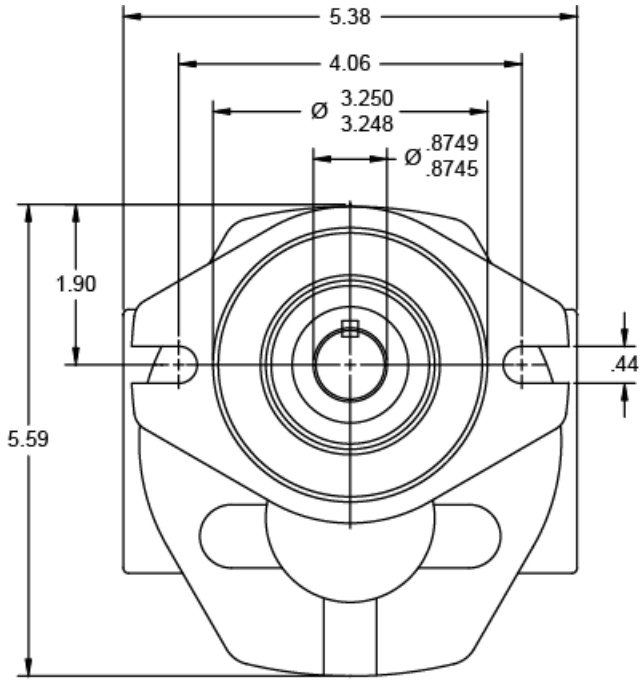
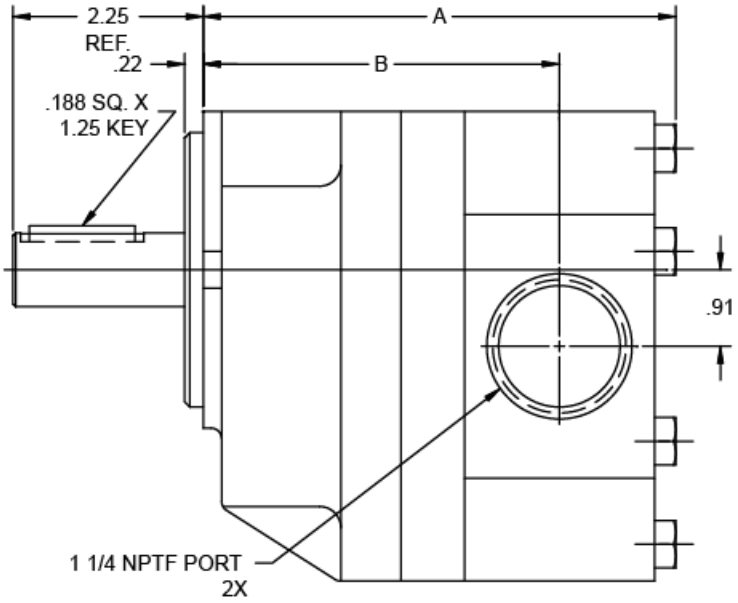
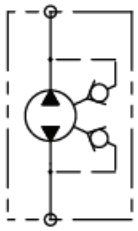
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

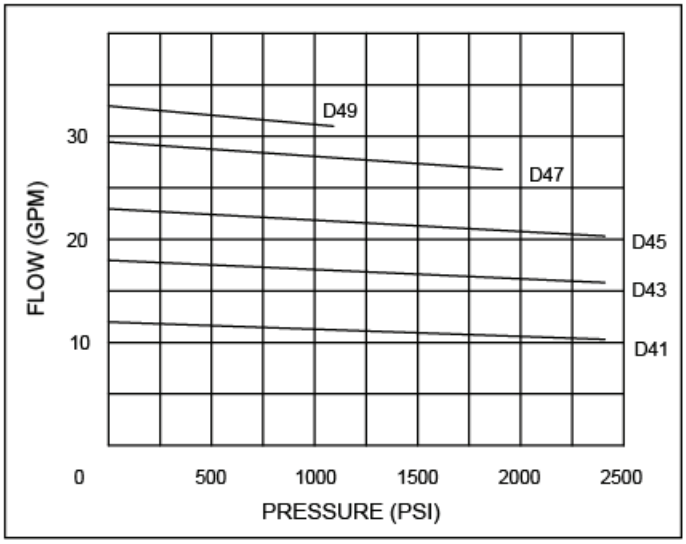
D41-D49 Pump, Bi-Directional







HYDRAULIC SCHEMATIC



MODEL	GPM AT 1750 RPM	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	MAX. PUMP PRESSURE INTERMITTENT DUTY	MAX. PUMP PRESSURE CONTINUOUS DUTY	SPEED MAX. RPM	A	B
D41	11.90	0.0068	1.570	0.070	2400	1500	4000	5.34	4.22
D43	17.80	0.0102	2.350	0.090	2400	1500	3000	5.72	4.59
D45	23.10	0.0132	3.040	0.110	2400	1500	2300	6.06	4.94
D47	29.50	0.0169	3.900	0.140	1900	1200	1800	6.47	5.34
D49	33.60	0.0192	4.430	0.180	1100	700	1800	6.72	5.59

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Delta Power Company
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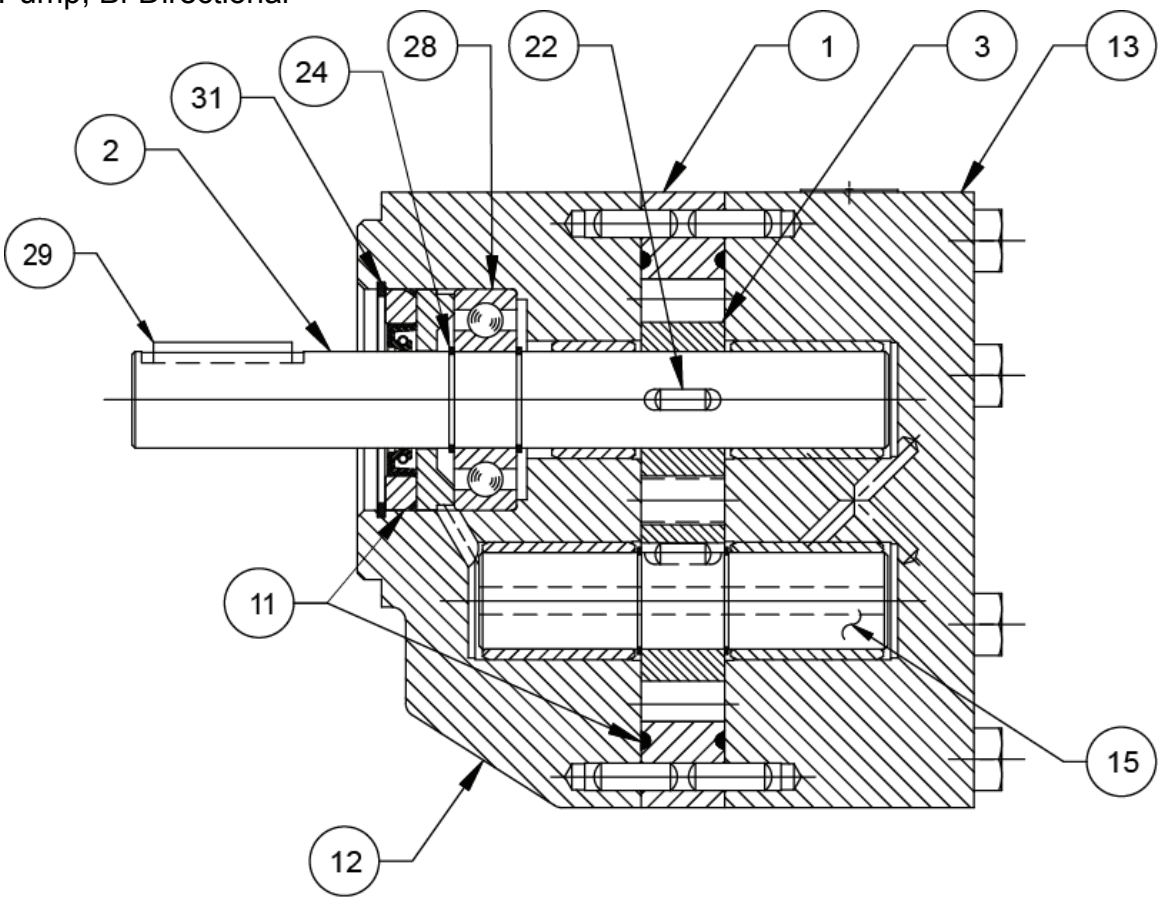
D41-D49 Pump, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
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28	OUTBOARD BEARING	1
29	DRIVE KEY	1
31	SNAP RING	1

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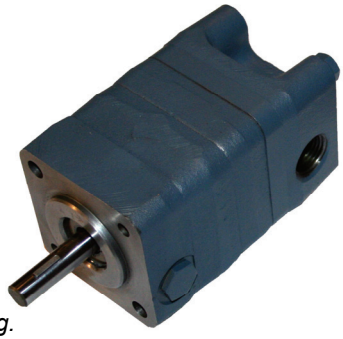
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

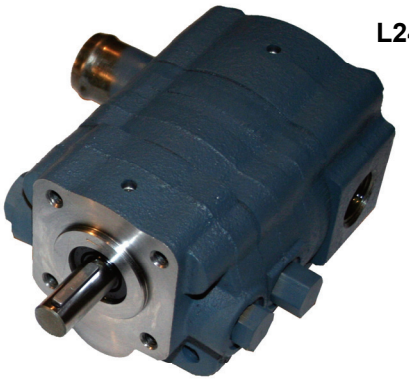
L Series 2 Stage HI-LO Pumps

L6 and L8 Series



4F17 Mtg. Shown

L24 and L26 Series



4F17 Mtg. Shown

While originally designed for log splitters, our enterprising distributors have found other unique applications.

Two pump sections with different size gear sets in a single housing that provides, high speed positioning capabilities with efficient working pressures.
With multi circuit integration through internal valving to provide low pressure, high volume flow in the first stage and high pressure, low volume flow in the second stage.

- Direct couple to gas engines or AC electric motors at approx (3600 RPM).
- Require only a fraction of the engine horsepower that would be necessary with single stage pumps while providing much higher overall efficiency.

To adapt to a variety of applications, all pumps have an SAE 4F17 mounting flange plus an optional K4 mounting bracket for foot mounting.

MODEL	0 PSI DISP. IN³/REV	MAX. PSI	MAX. RPM	~GPM AT 3450 RPM	HP REQUIRED	INLET	OUTLET	PAGE
L6-2	.316 +.108	3000	3600	6.0\1.0	4	3/4 NPTF	1/2 NPTF	23
L8-4	.468 + .187	3000	3600	9.0\2.0	6	3/4 NPTF	1/2 NPTF	23
L24-2	.880 + .222	3000	3600	16\2.5	10	1" TUBE	3/4 NPTF	25
L26-2	1.000 + .416	3000	3600	20\5.0	12	1.25 " TUBE	3/4 NPTF	25

Note: Displacement given as larger gear set + smaller gear set.
~ GPM given as combined flow\sequenced flow.
Operation @1725 RPM will give ~ 50% of combined flow and ~ 40% of sequenced flow.

Unloading Valve Settings: Factory set at 500 PSI for L6 and L8 models; 600 PSI for L24 and L26 models.
Rotation: All models rotate clockwise facing pump shaft.
Mounting: 4F17 four bolt all models.

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Delta Power Company
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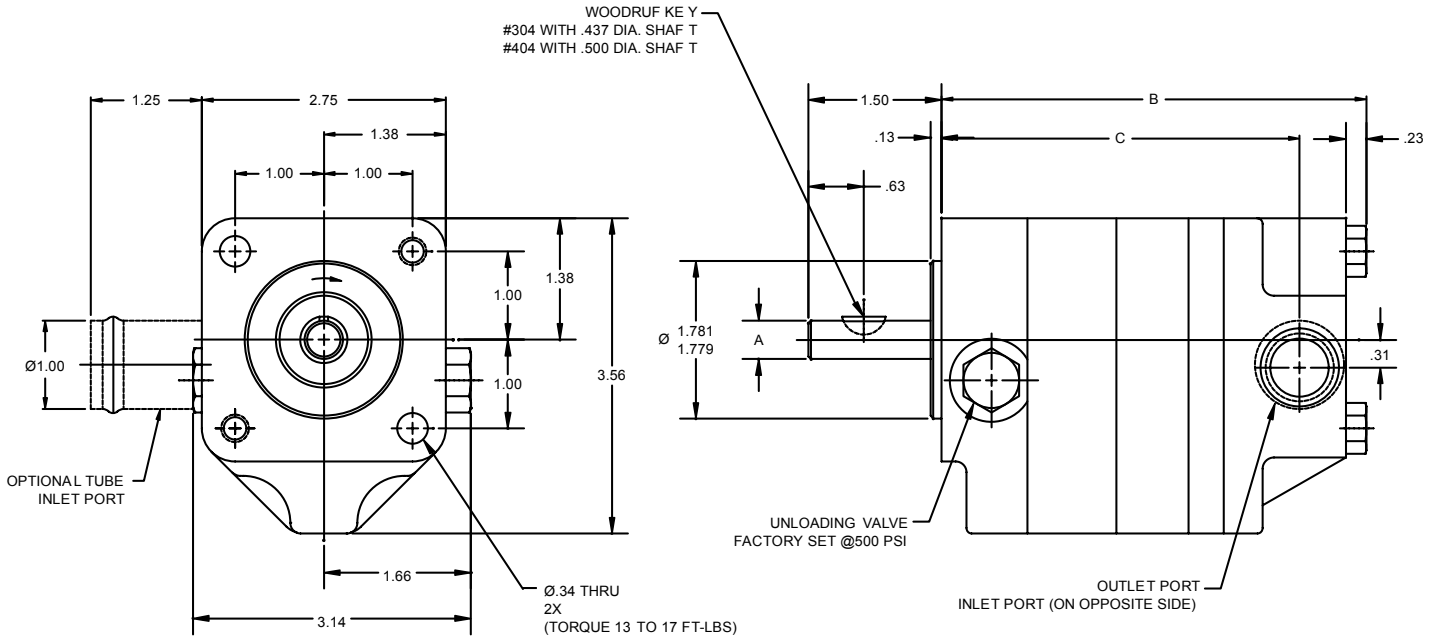
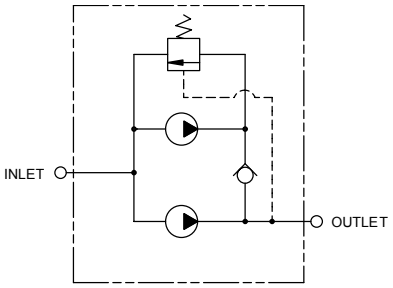
L6 and L8 Series 2 Stage HI-LO Pumps





HYDRAULIC SCHEM ATIC

Unloading Valve is factory set at 500 PSI.
Rotation: All models rotate clockwise facing pump shaft or drive end (CWDE).
Mounting: 4F17 four bolt all models.

MODEL	0 PSI DISP. IN³/REV	MAX. PSI	MAX. RPM	~GPM AT 3450 RPM	HP REQUIRED	INLET	OUTLET	A	B	C
L6-2	.316 +.108	3000	3600	6.0\1.0	4	3/4 NPTF	1/2 NPTF	0.437	4.29	3.37
L8-4	.468 + .187	3000	3600	9.0\2.0	6	3/4 NPTF	1/2 NPTF	0.437	4.79	3.87

Note: Displacement given as larger gear set + smaller gear set.
~ GPM given as combined flow\sequenced flow.
Operation @1725 RPM will give ~ 50% of combined flow and ~ 40% of sequenced flow.

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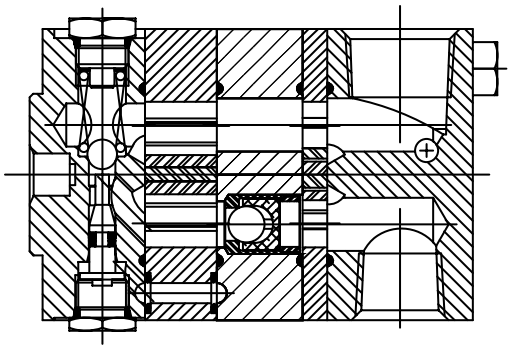
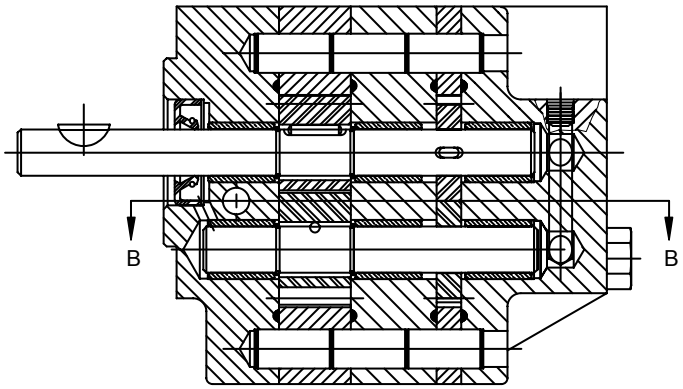
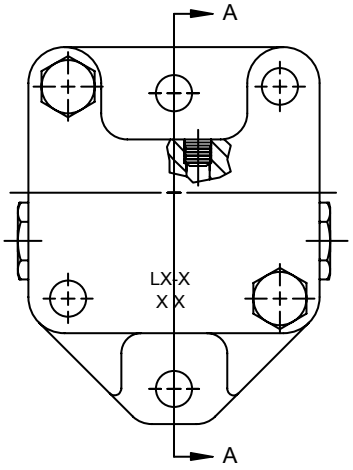
L6 and L8 Series 2 Stage HI-LO Pumps



SECTION B-B



SECTION A-A



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Delta Power Company
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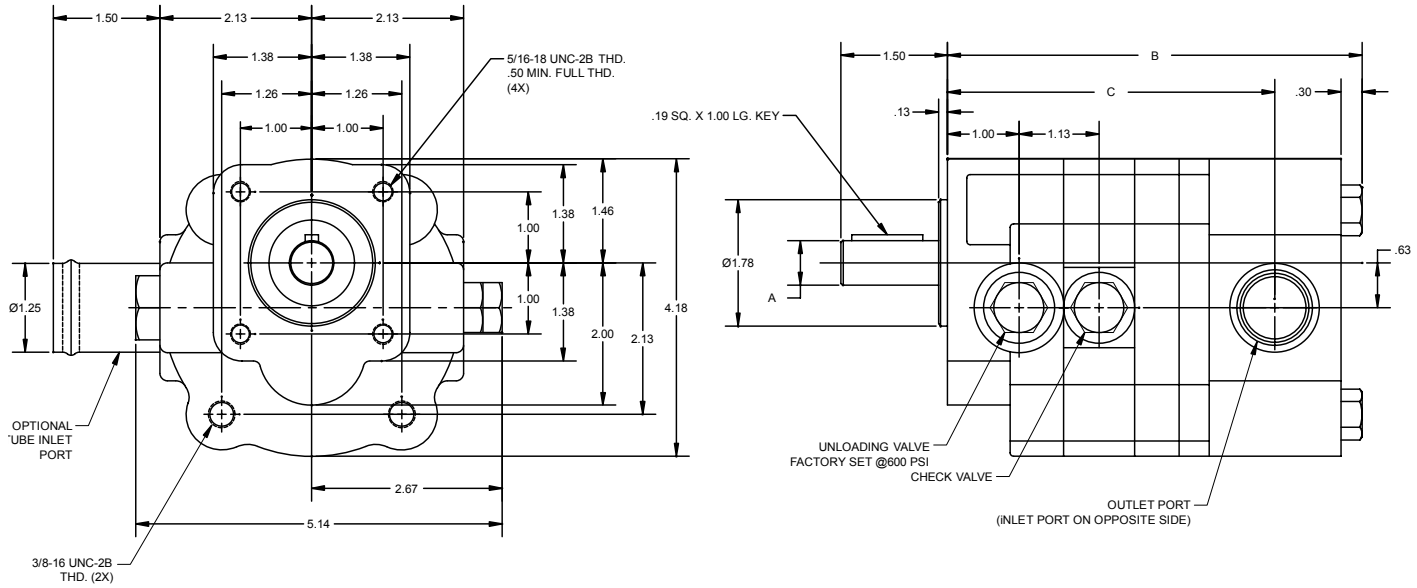
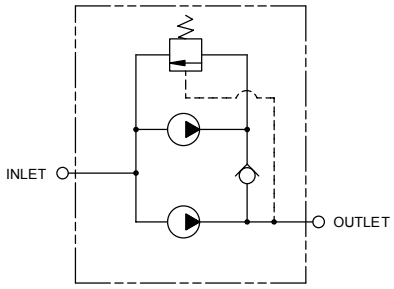
L24 and L26 Series 2 Stage HI-LO Pumps





HYDRAULIC SCHEMATIC

Unloading Valve is factory set at 600 PSI.
Rotation: All models rotate clockwise facing pump shaft or drive end (CWDE).
Mounting: 4F17 four bolt all models.

MODEL	0 PSI DISP. IN³/REV	MAX. PSI	MAX. RPM	~GPM AT 3450 RPM	HP REQUIRED	INLET	OUTLET	A	B	C
L24-2	.880 + .222	3000	3600	16\2.5	10	1 NPTF	3/4 NPTF	0.625	5.52	4.30
L26-2	1.000 + .416	3000	3600	20\5.0	12	1.25 " TUBE	3/4 NPTF	0.625	5.82	4.59

Note: Displacement given as larger gear set + smaller gear set.
~ GPM given as combined flow\sequenced flow.
Operation @1725 RPM will give ~ 50% of combined flow and ~ 40% of sequenced flow.

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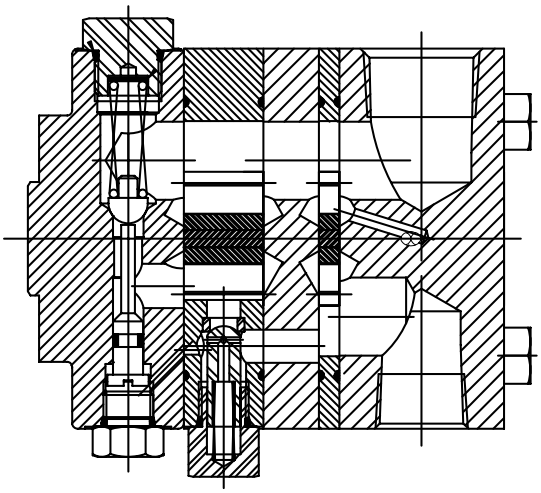
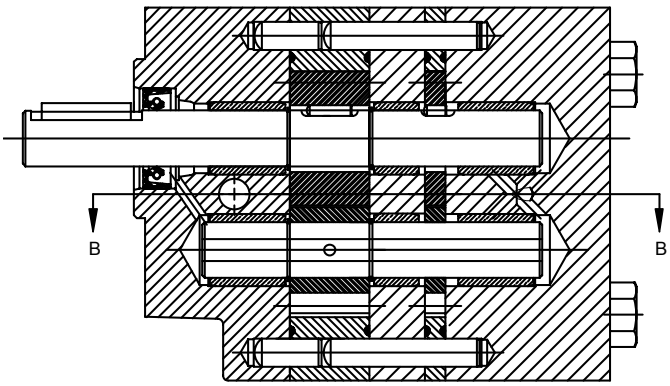
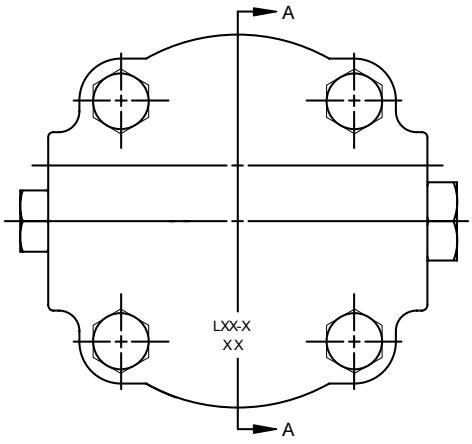
L24 and L26 Series 2 Stage HI-LO Pumps



SECTION B-B



SECTION A-A



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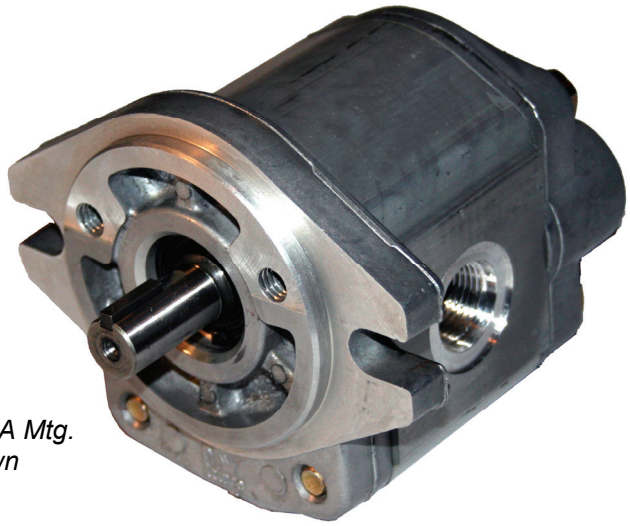
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

PH Series HIGH PERFORMANCE Hydraulic Gear Pumps

Displacements .499 to 1.403 in³/rev



SAE A Mtg. Shown

FEATURES

- Pressure Balanced Design
- High quality diecast aluminum drive and rear sides.
- Extruded aluminum body.
- Volumetric Efficiencies to 98%.
- Low noise levels.
- Used in BCV Power Units.

HIGH VOLUMETRIC AND OVERALL EFFECIENCY

Delta pumps produce exceptionally high efficiencies. Zero tip clearances developed during factory run-in, maintained parallelism between sealing surfaces under all pressure conditions, and low pressure lubrication produce exceptional volumetric efficiency.

Delta assures maximum mechanical efficiency with PTFE composite bearings in pressure balanced carriers fitted to the main gear bores, thus maintaining proper alignment and concentricity under all operating conditions

The high mechanical and volumetric efficiencies combine to produce unequaled flow/pressure performance for Delta pumps

DESIGN LIFE/DURABILITY

PTFE bearings support the journals on a hydrodynamic film of oil. The low pressure lubrication system provides a constant flow of oil to cool and lubricate the bearings and journals whenever rotation occurs, regardless of system pressure. This design provides trouble free service when operated within parameters established for speed, pressure, temperature, oil type and cleanliness.

RECOMMENDED OPERATING PARAMETERS

Inlet Vacuum: 10 inches Hg maxmum.

Hydraulic Fluid: Must be chosen based on operating temperature. Use oil with viscosity of 45 SSU (6 cSt) minimum and 250 SSU (54 cSt) maximum continuous.

Fluid Temperature: 14° to 176°F (-10° to 80°C)

Fluid Velocity: Inlet, 5 ft/sec maximum; Outlet, 20 ft/sec maximum.

Filtration: 10 micron.

Shaft Loads: Radial or axial forces on the pump driveshaft are not normally recommended. Contact Factory for special application considerations.

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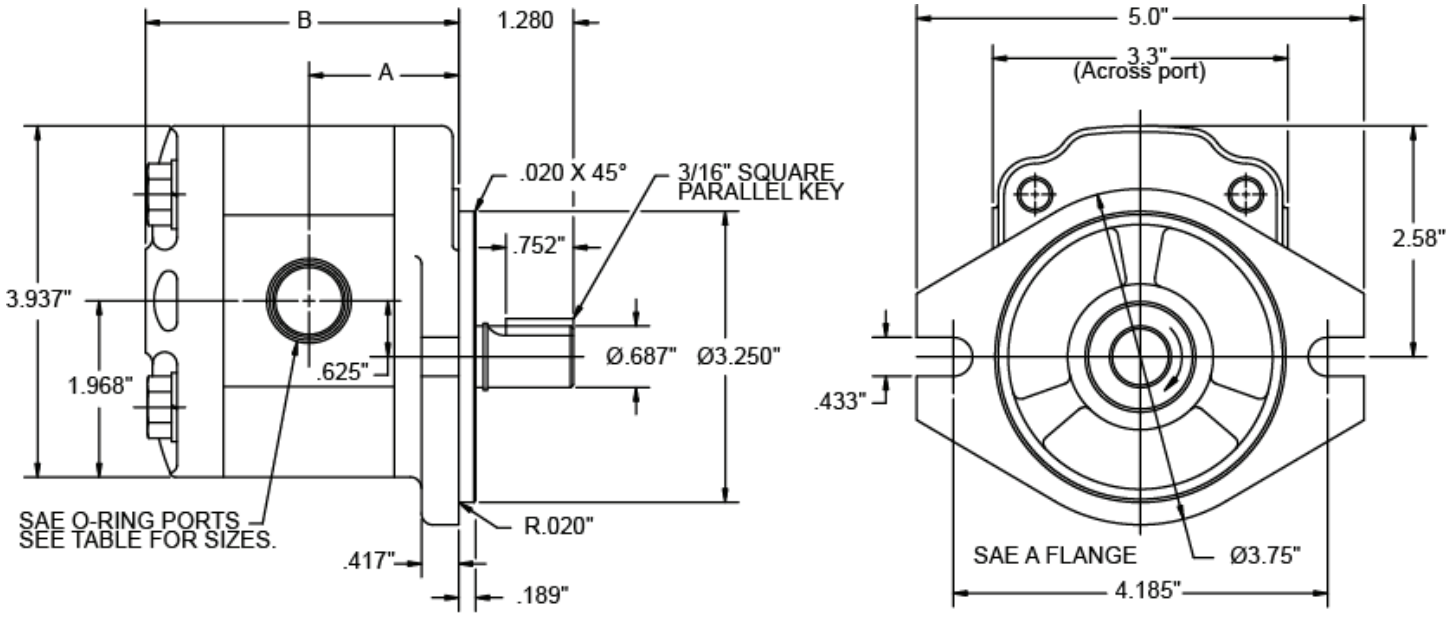
PH Series HIGH PERFORMANCE Hydraulic Gear Pumps



NOTE: ALL DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

MODEL	0 PSI DISP. CU.IN./REV,	DISP. GPM @1725 RPM	MAX. WORK PRESSURE (PSI)	SPEED MAX. RPM	APPROX. WEIGHT lbs	INLET PORT	OUTLET PORT	A +/- .4	B
PH402-A8	0.499	3.7	3000	4000	5.1	1 1/16-12UN	7/8-14 UN	1.834	4.301
PH403-A9	0.589	4.4	3000	4000	5.3	1 1/16-12UN	7/8-14 UN	1.873	4.380
PH404-A11	0.677	5.1	3000	4000	5.5	1 1/16-12UN	7/8-14 UN	1.913	4.458
PH405-A14	0.860	6.4	3000	4000	5.7	1 1/16-12UN	7/8-14 UN	1.992	4.616
PH407-A20	1.220	9.1	3000	3500	6.2	1 5/16-12UN	1 1/16-12UN	2.149	4.931
PH408-123	1.403	10.5	2500	3500	6.4	1 5/16-12UN	1 1/16-12UN	2.228	5.088

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Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

DM1 thru DM8 Series

DM21 thru DM27 Series

INDEX

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Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

DM Series Hydraulic Motor

DM1 thru DM8 Series

4F17 Mtg. Shown

DM21 thru DM27 Series

4F17 Mtg. Shown

DM Series hydraulic motors are designed with performance in mind, including: High-strength cast iron bodies with precision machined filling and trapping grooves, and hardened alloy gears and shafts to run smoothly, special Buna-N o-ring and shaft seals to withstand up to 200 PSI return line back pressure, antifriction bearings for 60-70% starting torque, ball thrust bearings to withstand thrust and radial shaft loads, and integral check valves to permit bi-directional rotation (to eliminate the need for external case drains). And, they will turn as slow as 300 rpm…or lower on low-torque applications.

DM Series motors are found in material handling equipment, agricultural implements, snow removal equipment, marine gear and numerous industrial equipment and machine tools…as drives for pumps, fans, compressors, mowers and other applications where moderate starting torque and moderate to high speed efficiency is needed.

And, because of their design and manufacturing quality, they can be expected to add to the overall performance and life expectancy of the equipment.

Installation Notes:
Hydraulic motor controls should be placed on the pressure side of the motor in order to preclude high seal or case pressures. Return line should be straight to tank.

On DM1 thru DM8 series, be especially careful since these units require that the mounting bolts are installed to complete the assembly. The two shipping bolts are not sufficient to make the assembly intact and care should be exercised while handling in this condition. Bolt torque requirements are 13 to 17 ft-lbs.

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Delta Power Company
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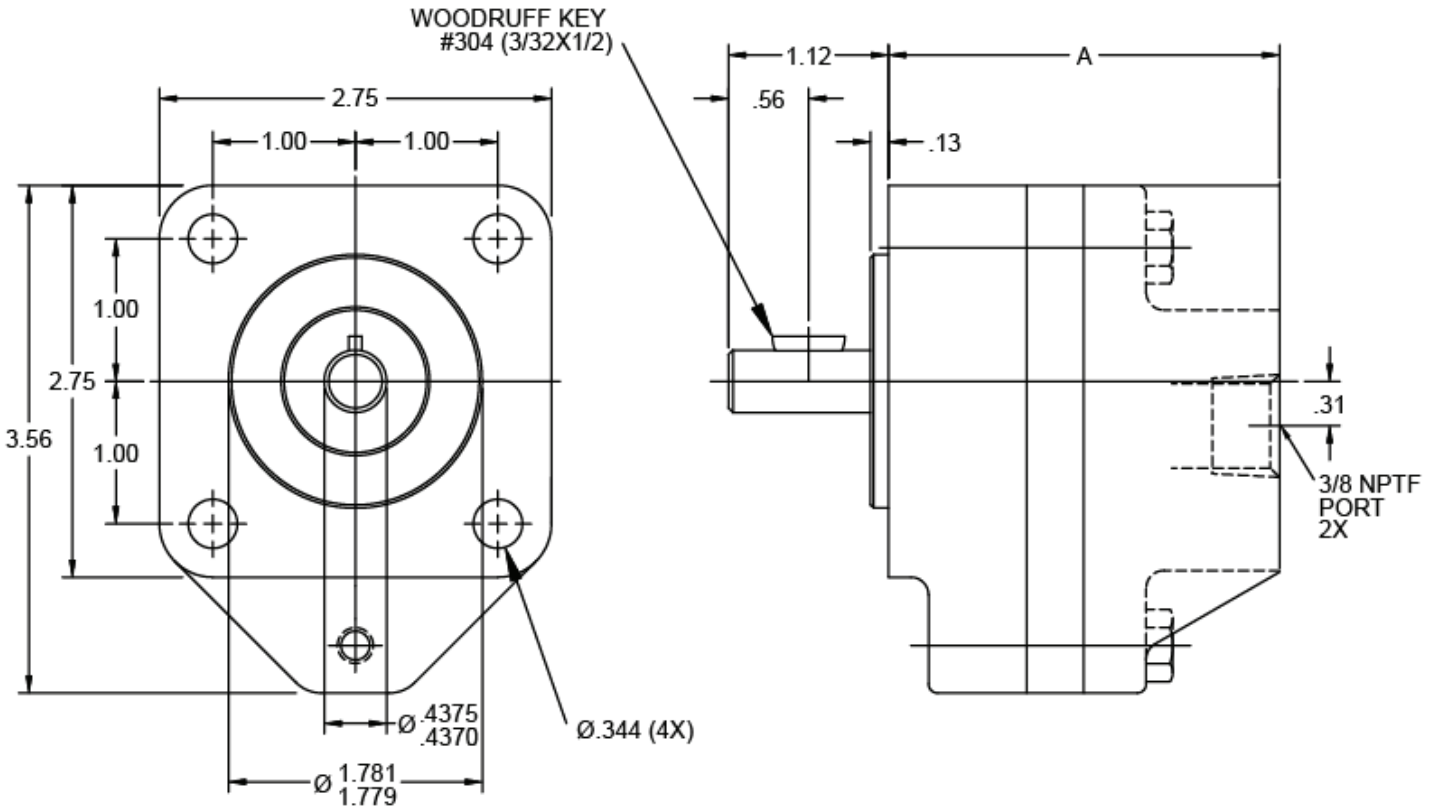
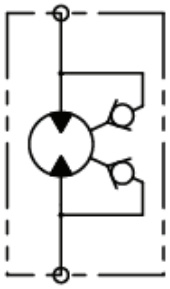
DM1-DM8 Hydraulic Motor, Bi-Directional





HYDRAULIC SCHEMATIC

MODEL	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM PER 100 PSI	THEORETICAL TORQUE IN.LBS./100 PSI	APPROX. TORQUE LOSS IN.LBS./1000 RPM	MAX. CONT PSI	MAX. SPEED RPM	A
DM1	0.00028	0.065	0.015	1.05	0.37	1500	4000	2.82
DM2	0.00047	0.108	0.017	1.75	0.61	1500	4000	2.91
DM4	0.00081	0.187	0.020	2.00	1.00	1500	4000	3.08
DM6	0.00137	0.316	0.025	5.10	1.80	950	3000	3.36
DM8	0.00202	0.468	0.030	7.50	2.60	650	3000	3.68

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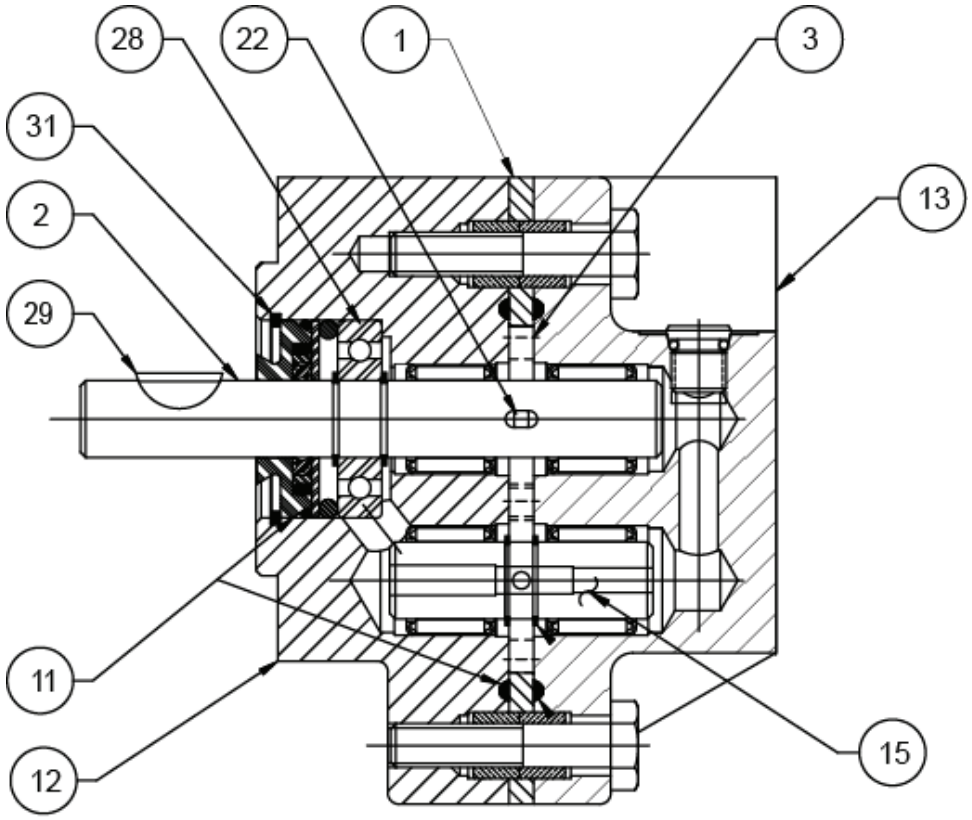
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

DM1-DM8 Hydraulic Motor, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
28	OUTBOARD BEARING	1
29	DRIVE KEY	1
31	SNAP RING	1

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Delta Power Company
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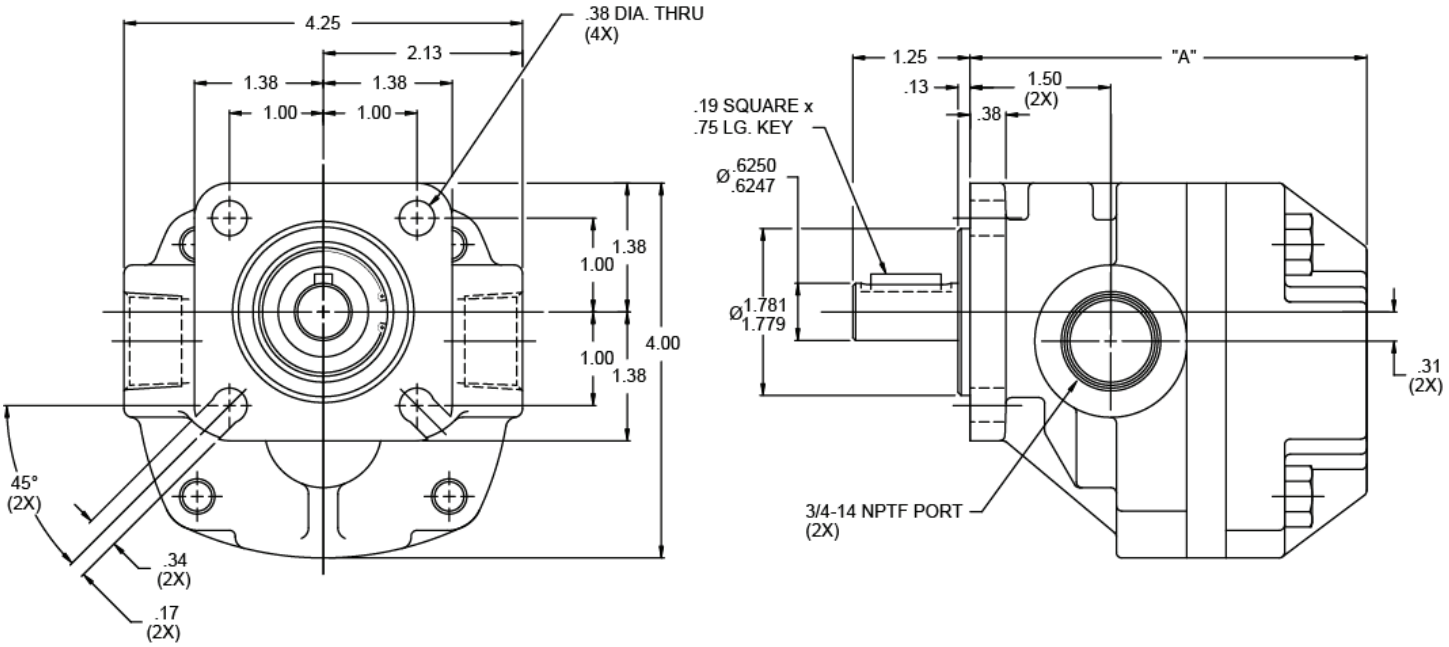
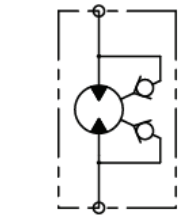
DM21-DM27 Hydraulic Motor, Bi-Directional





HYDRAULIC SCHEMATIC

MODEL	0 PSI DISP. GAL./REV,	DISP. CU. IN./REV.	SLIP GPM/100 PSI	THEORETICAL TORQUE IN.LBS./100 PSI	APPROX. TORQUE LOSS IN.LBS./1000 RPM	MAX. CONT. PSI	MAX. SPEED RPM	A
DM21	0.00178	0.411	0.060	6.5	2.3	1500	3000	4.25
DM23	0.00304	0.702	0.068	11.1	3.9	1200	3000	4.53
DM25	0.00425	0.981	0.083	15.6	5.5	850	2500	4.81
DM27	0.00633	1.460	0.113	23.2	8.1	550	2000	5.31

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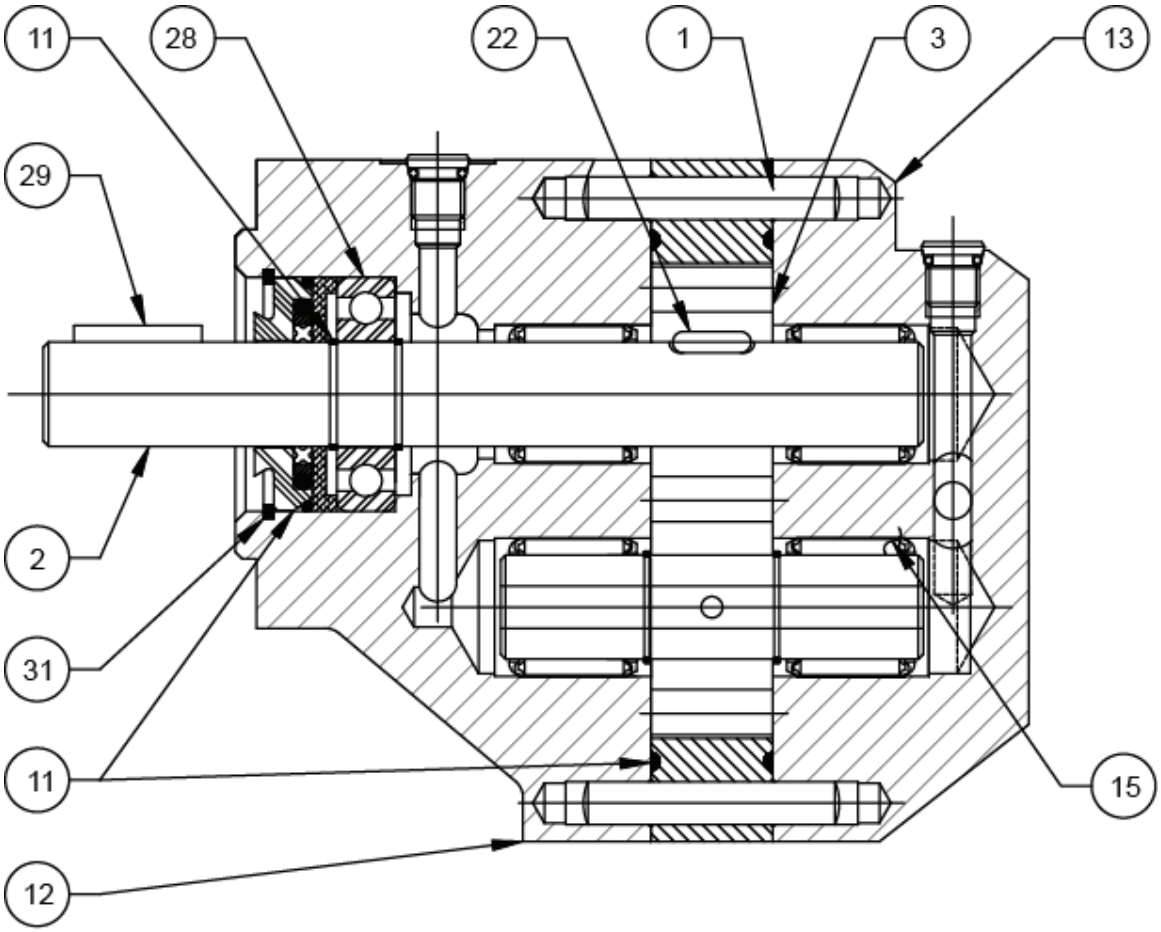
DM21-DM27 Hydraulic Motor, Bi-Directional



SECTION A-A

ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEAR	1
11	SEAL KIT	1
12	DRIVE PLATE ASS'Y	1
13	END PLATE ASS'Y	1
15	IDLER SHAFT ASS'Y	1
22	GEAR PIN	1
24	RETAINING RING	2
28	OUTBOARD BEARING	1
29	DRIVE KEY	1
31	SNAP RING	1

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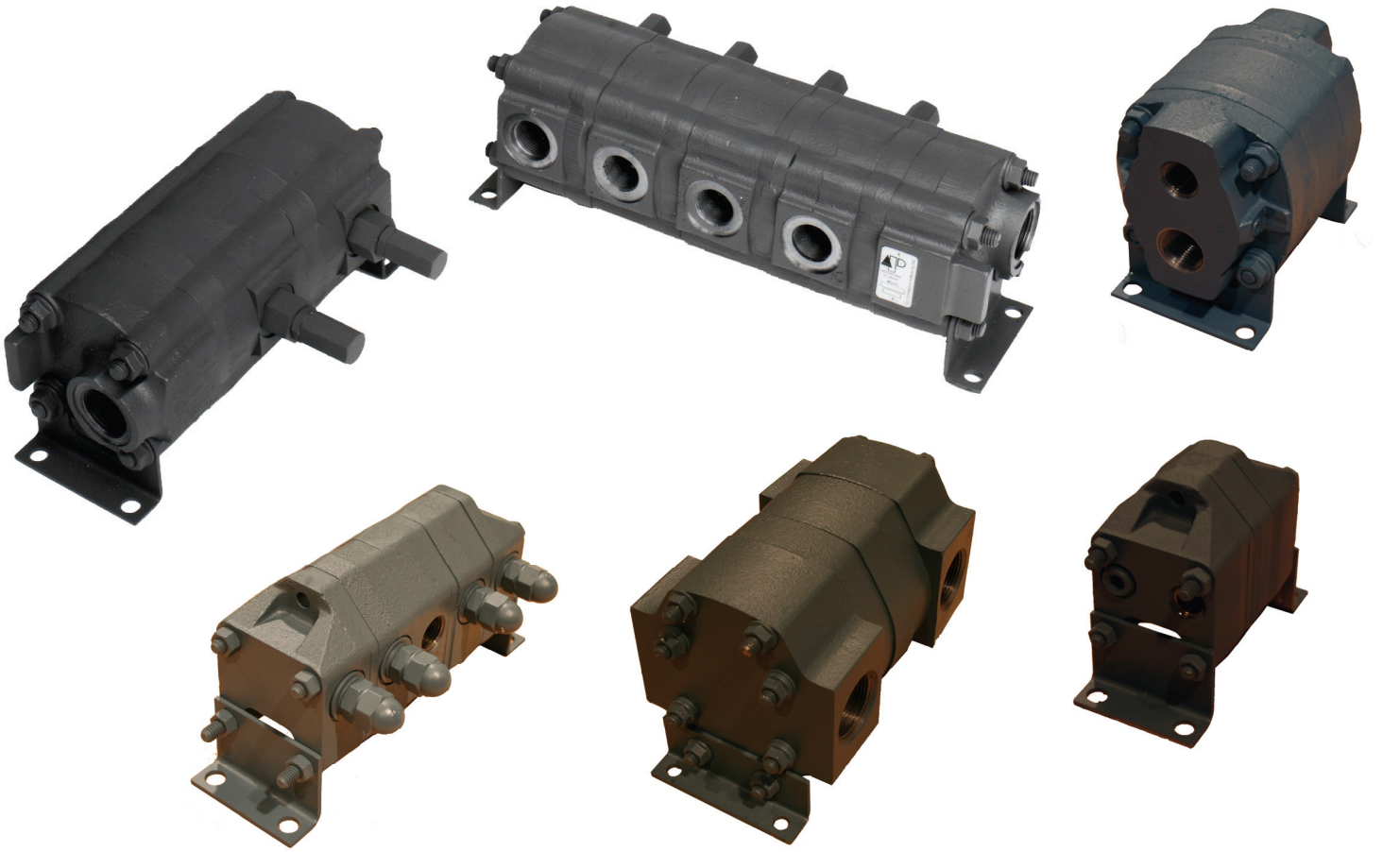

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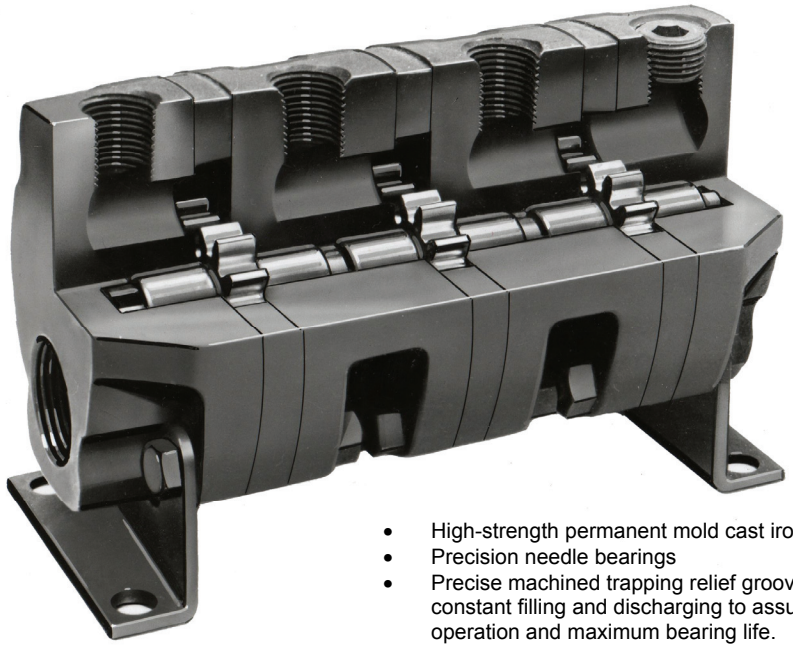
Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

Delta Power Rotary Flow Divider, Positive Displacement



- High-strength permanent mold cast iron housing
- Precision needle bearings
- Precise machined trapping relief grooves provide constant filling and discharging to assure quiet operation and maximum bearing life.
- O-ring seals between sections (Buna-N)

Delta Series P geared flow dividers, accurately divide flow from a single hydraulic source into two or more equal or *proportionate* circuits. In like manner, the input pressure required will be proportional to levels of flow/pressure out of the flow divider, rather than at the highest pressure level, thereby saving what would normally be wasted energy. Proven design, stable material selection and precision machining are the Delta keys to reliable performance you can depend on in a variety of applications.

Application Suggestions

1. For greatest efficiency and accuracy, flow dividers should be used at near maximum rated inlet gallonage. For quieter operations, lowered RPM should be considered.

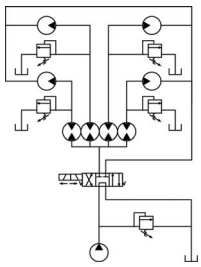
2. Maximum (3500) and minimum 500 RPM; inlet pressure ratings and differential pressure ratings should be followed.

3. Provide over-pressure protection (relief valves) in each circuit.

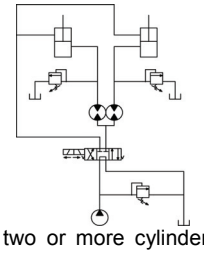
4. When designing flow dividers into a static circuit, remember that they are *dynamic* devices which do nothing while static.

5. Use SAE 10 through SAE 30 industrial petroleum-based hydraulic oil with 200 SSU viscosity; filter to 25 microns.

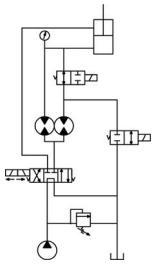
6. Do not use teflon tape in installation. Use plastic pipe sealant with NPTF ports.



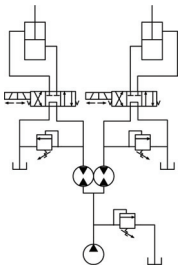
Where one pump operates a number of hydraulic motors: car wash systems lubrication systems (multiple point), hydraulic motor driven machines, (harvesting machinery, etc.)



Where two or more cylinders must be synchronized: lift platforms, scaffolds, presses.



Where main pump pressure must be intensified in one circuit of multiple circuit machinery, such as waste compactors and other hi-lo applications.



Where two or more circuits must be controlled independently at different pressures: presses, machine tools, etc.

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Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

Application Data

The Delta flow divider is a positive displacement flow dividing or proportioning apparatus. It will divide the flow from one source into two or more equal or proportionate circuits, and intensify or reduce the pressure level as required. Note that these flow dividers will operate in reverse in a combine mode, but in that mode, the accuracy likely would be significantly reduced.

In its basic configuration, the unit consists of a number of inter coupled gear type hydraulic pump motors. Each section must be capable of performing the pumping or motoring function. The section have a common inlet and separate outlets. Fluid from a prime source, such as pump, supplies the motive power to the flow divider. No energy is added to the fluid in the device, although each outlet may have an energy level difference than any other section. When the sections are of like size, the function is to divide the total flow into equal increments of flow, and when the sections are of unlike size, the function is to divide the flow into proportionate increments relative to the chosen geometric displacements.

Since the flow divider is a positive displacement machine, it will accomplish its function over a wide range of pressure of viscosity differentials. Nevertheless, certain limits are imposed due to slip characteristics and torque losses in the machine. Therefore, the performance criteria in this paper will be developed around a unit of average tolerance allowance. The data, so derived, will be averaged. Be aware that these units can require a certain amount of break-away pressure. It is recommended that operation at low pressures (< 100 PSI) is not attempted without consultation with the factory.

General Relationships

In any unit, neglecting any losses, there exists the relationship that

$$Q_i = Q_1 + Q_2 + \ldots. Q_n;$$

Where Q_i is the flow into the unit and Q_1, Q_2 and Q_n are the displacements out of each section. Since no energy is added and if none were lost, it follows that

$$P_iQ_i = P_1Q_1 + P_2Q_2 + \ldots. P_nQ_n;$$

Where P_i is the pressure into the unit and P_1, P_2 and P_n are the pressure levels out of each section.

In a unit consisting of any number of/or sizes of sections

$$P_i = \frac{P_1Q_1 + P_2Q_2 + \ldots. P_nQ_n}{Q_i}$$

In any actual case, the above theoretical observations must be corrected to encompass the pressure drop and slip losses in the flow divider. The pressure drop is primarily a function of the amount of fluid and viscosity. At the usual viscosities (100 to 300 SSU) encountered in hydraulic systems, the pressure drop ΔP_p, can be approximated by the relationship, where n is the number of sections,

$$\Delta P_P \cong \frac{6Q_i}{n} + 25$$

Since the flow divider itself is a parallel circuit, the actual pressure P_{ia} into the unit is

$$P_{ia} \cong \frac{P_1Q_1 + P_2Q_2 + \ldots. P_nQ_n}{Q_i} + \Delta P_P$$

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Slip is a function of the viscosity, pressure differential and clearance and can be estimated from the following chart:

Model	Displacement Gal./Rev./Sect.	Slip/100 PSI (GPM)	Max. Flow/Sect. (GPM)
PM2	.00047	.03	2.0
PM6	.00137	.04	5.5
P21	.00178	.06	7.6
P23	.00304	.07	12
P25	.00425	.08	17
P26	.00531	.10	20
P27	.00633	.11	25
P43	.01020	.15	35
P47	.01690	.22	50

The slip function increases or decreases the flow from a section, dependent on whether the pressure differential is positive or negative across that section.

The performance of a system would be determined in the following manner.

1. Determine the size of the sections that will best give the required flow and pressure. The displacement from each section will be the fractional proportion of the sectional displacement versus the sum of the displacements of all the sections. That fraction multiplied by the input flow gives output displaced by each section.

2. Determine ΔP_p from $\Delta P_P \cong \frac{6Q_i}{n} + 25$

3. Determine P_{ia} from $P_{ia} \cong \frac{P_1 Q_1 + P_2 Q_2 \ldots . P_n Q_n}{Q_1} + \Delta P_P$

4. Determine the pressure differential ΔP_1, ΔP_2, ΔP_n across the individual section where $\Delta P_1 = \Delta P_{ia} - \Delta P_1$, etc., and from this value, determine the slips S_1, S_2, S_n.

5. Determine Q_{1a}, Q_{2a}, Q_{na} from $Q_{1a} = Q_1 + S_1$, etc.

The foregoing description is intended as an aid in determining the results of a flow divider system. Any specific application should not be undertaken without independent study, evaluation and testing for suitability. Exceeding the specifications could result in equipment malfunction, property damage, serious injury or death.

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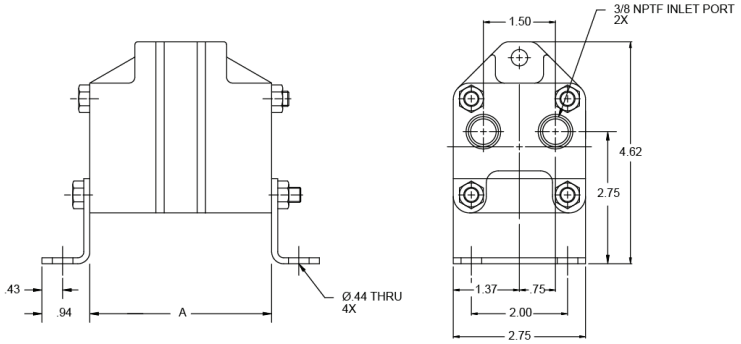
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

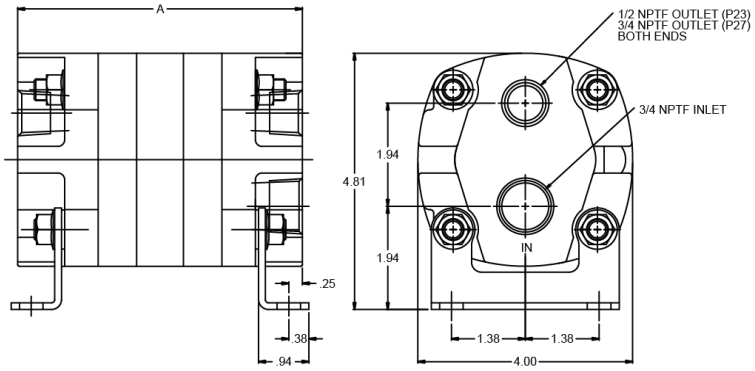
P Series, Equal Flow Two Sections

Equal flow two-section units divide flow from a common pump source into separate flows of equal proportion. Both gear sets are assembled to a common shaft.

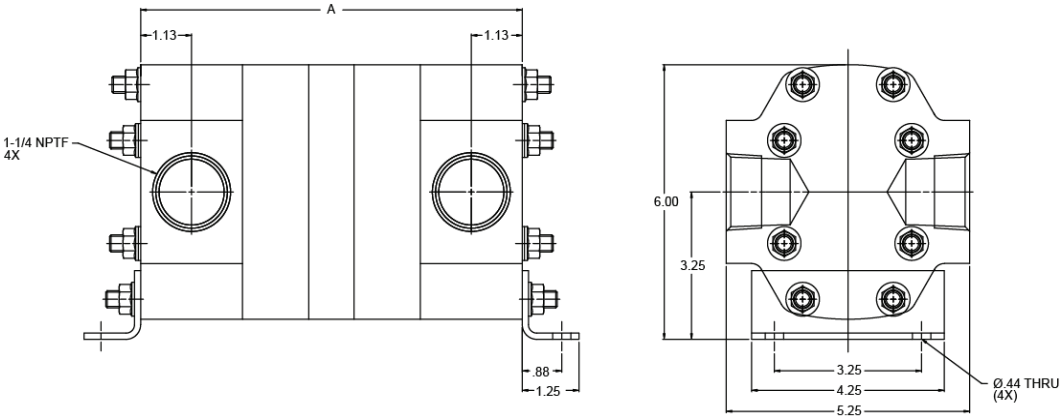
PM2 & PM6



P23 & P27



P43 & P47



MODEL	NUMBER OF SECTIONS	TOTAL MAX. INLET (GPM)	0 PSI DISP. PER SECT. GAL./REV,	SLIP GPM/100 PSI	MAXIMUM INTERMITTENT PSI	MAXIMUM CONTINUOUS PSI	BOLT TORQUE Ft. Lb.	A	MAX. DIFF. BETWEEN SECT. (PSI)
PM2	2	3.5	0.00047	0.026	2500	2000	13-17	3.83	1500
PM6	2	9.5	0.00137	0.038	2000	1500	13-17	4.72	1000
P23	2	21.0	0.00304	0.068	2000	1500	24-31	5.32	1000
P27	2	44.0	0.00633	0.113	2000	1500	24-31	6.86	1000
P43	2	70.0	0.01020	0.135	2000	1500	24-31	7.75	1000
P47	2	100.0	0.01690	0.210	2000	1500	24-31	9.25	1000

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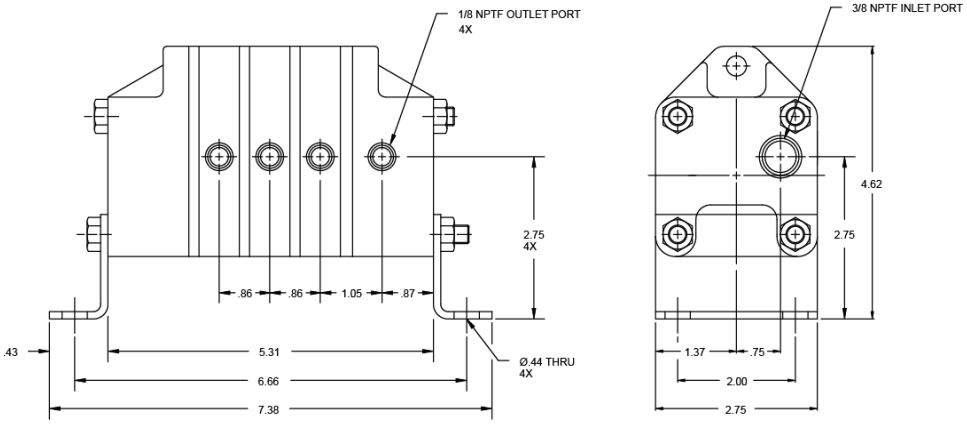
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

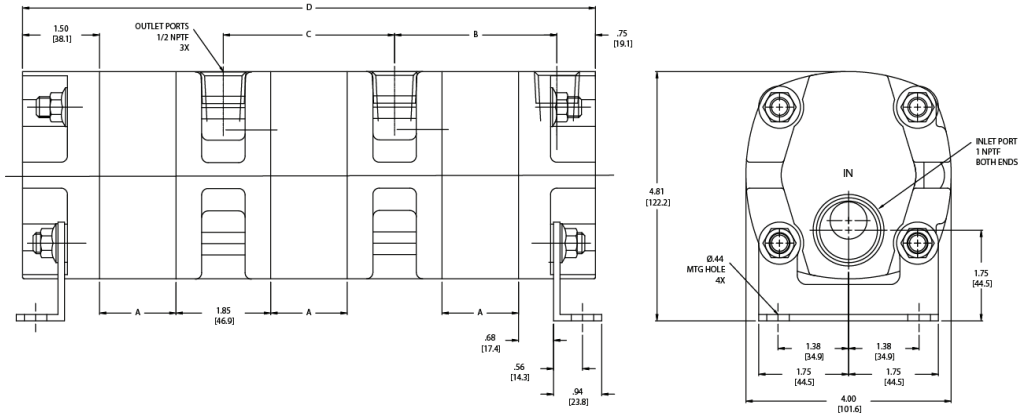
P Series, Equal Flow Multi-Sections

Equal flow multi-section units consist of several identical, individual sections coupled together to divide a flow from a common pump source into three or more equal flows. Each set of gear and shaft assemblies are individually supported in needle bearings.

PPM2



P23-(57-60) & P27-(57-60)



MODEL	NUMBER OF SECTIONS	TOTAL MAX. INLET (GPM)	0 PSI DISP. PER SECT. GAL./REV,	SLIP GPM/100 PSI	MAXIMUM INTERMITTENT PSI	MAXIMUM CONTINUOUS PSI	BOLT TORQUE Ft. Lb.	A	B	C	D	MAX. DIFF. BETWEEN SECT. (PSI)
PPM2	4	7.0	0.00047	0.026	2000	1500	13-17	-	-	-	-	1000
P23-60	3	31.5	0.00304	0.068	2000	1500	24-31	0.715	2.39	2.56	8.83	1000
P23-59	4	42.0	0.00304	0.068	2000	1500	24-31	0.715	2.39	2.56	11.39	1000
P23-58	5	52.5	0.00304	0.068	2000	1500	24-31	0.715	2.39	2.56	13.95	1000
P23-57	6	63.0	0.00304	0.068	2000	1500	24-31	0.715	2.39	2.56	16.51	1000
P27-60	3	66.0	0.00633	0.113	2000	1500	24-31	1.490	3.16	3.33	11.16	1000
P27-59	4	88.0	0.00633	0.113	2000	1500	24-31	1.490	3.16	3.33	14.49	1000
P27-58	5	110.0	0.00633	0.113	2000	1500	24-31	1.490	3.16	3.33	17.82	1000
P27-57	6	132.0	0.00633	0.113	2000	1500	24-31	1.490	3.16	3.33	21.15	1000

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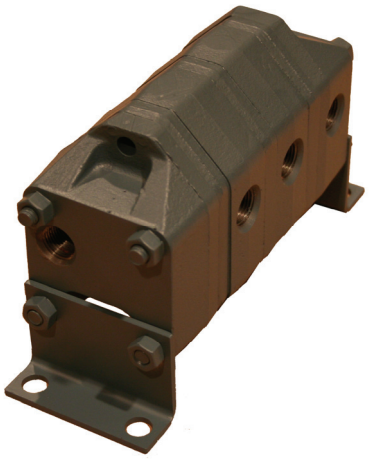
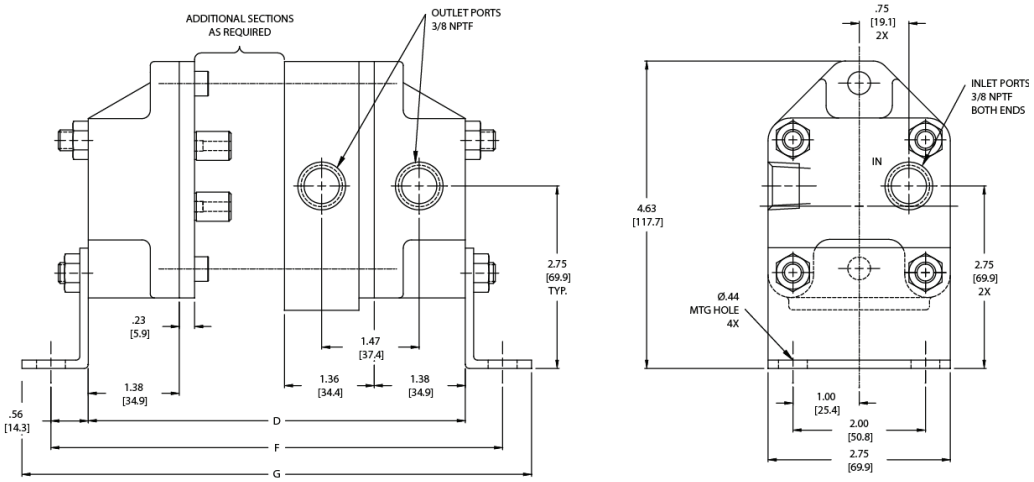
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

PM Series, Equal Flow Multi-Sections

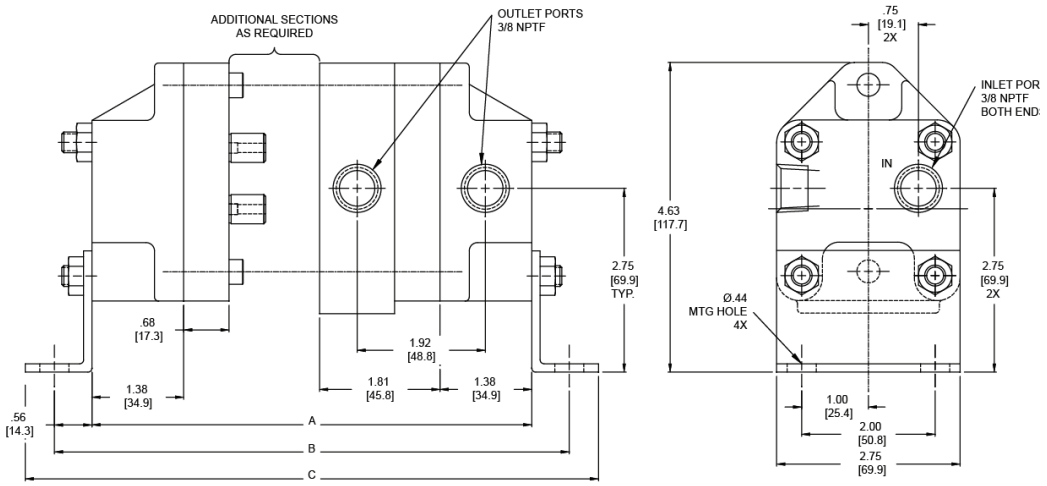
Equal flow multi-section units consist of several identical, individual sections coupled together to divide a flow from a common pump source into three or more equal flows. Each set of gear and shaft assemblies are individually supported in needle bearings.

PM2





PM6



MODEL	NUMBER OF SECTIONS	TOTAL MAX. INLET (GPM)	0 PSI DISP. PER SECT. GAL./REV,	SLIP GPM/100 PSI	MAXIMUM INTERMITTENT PSI	MAXIMUM CONTINUOUS PSI	BOLT TORQUE Ft. Lb.	A	B	C	MAX. DIFF. BETWEEN SECT. (PSI)
PM2-60	3	5.3	0.00047	0.017	2500	2000	24-31	5.71	6.83	7.71	1000
PM2-59	4	7.0	0.00047	0.017	2500	2000	24-31	7.07	8.19	9.07	1000
PM2-58	5	8.8	0.00047	0.017	2500	2000	24-31	8.43	9.55	10.43	1000
PM2-57	6	10.5	0.00047	0.017	2500	2000	24-31	9.79	10.91	11.79	1000
PM6-60	3	14.3	0.00137	0.025	2000	1500	24-31	7.06	8.18	9.06	1000
PM6-59	4	19.0	0.00137	0.025	2000	1500	24-31	8.87	9.99	10.87	1000
PM6-58	5	23.8	0.00137	0.025	2000	1500	24-31	10.68	11.80	12.68	1000
PM6-57	6	28.5	0.00137	0.025	2000	1500	24-31	12.49	13.51	14.49	1000

Additional equal-flow units (up tp 6 sections) may be built up using several of the same section as shown in the Mixed Flow Chart.
Note: When computing slip loss, above figures should be applied to reflect differential pressure between inlet and outlet of each section. Due to normal manufacturing tolerances, accuracies can be assumed to be no greater than +/- 1% between sections under balanced load conditions.

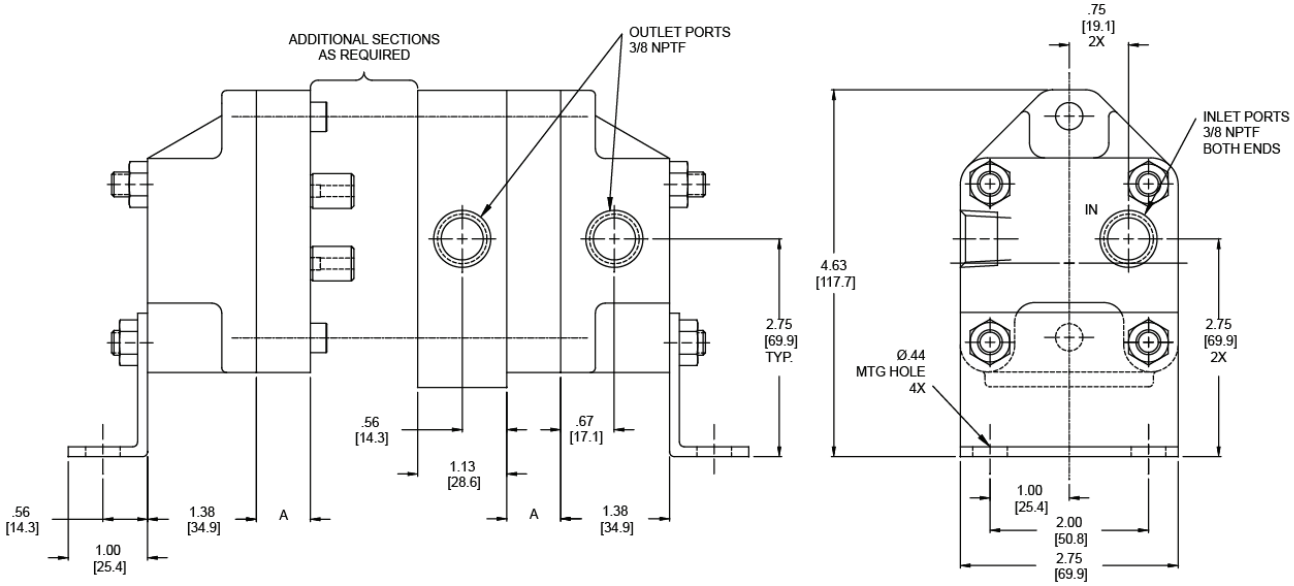
WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

PM Series, Mixed Flow Buildable

Mixed flow dividers are “built-up” in any combination (up to 8) from the individual sections shown in the following chart to divide flow from a common pump source into a variety of proportionate flows. Each set of gear and shaft assemblies are individually supported in needle bearings.



MODEL	NUMBER OF SECTIONS	TOTAL MAX. INLET (GPM)	0 PSI DISP. PER SECT. GAL./REV,	SLIP GPM/100 PSI	MAXIMUM INTERMITTENT PSI	MAXIMUM CONTINUOUS PSI	BOLT TORQUE Ft.-Lb.	MAX. DIFF. BETWEEN SECT. (PSI)	MAXIMUM RPM	MINIMUM RPM	A
PM1	1	1.0	0.00028	0.015	2500	2000	24-31	1000	3500	500	0.14
PM2	1	1.8	0.00047	0.017	2500	2000	24-31	1000	3500	500	0.23
PM4	1	3.0	0.00081	0.020	2000	1500	24-31	1000	3500	500	0.31
PM6	1	4.8	0.00137	0.025	2000	1500	24-31	1000	3500	500	0.40
PM8	1	3.6	0.00202	0.030	2000	1500	24-31	1000	3500	500	0.53

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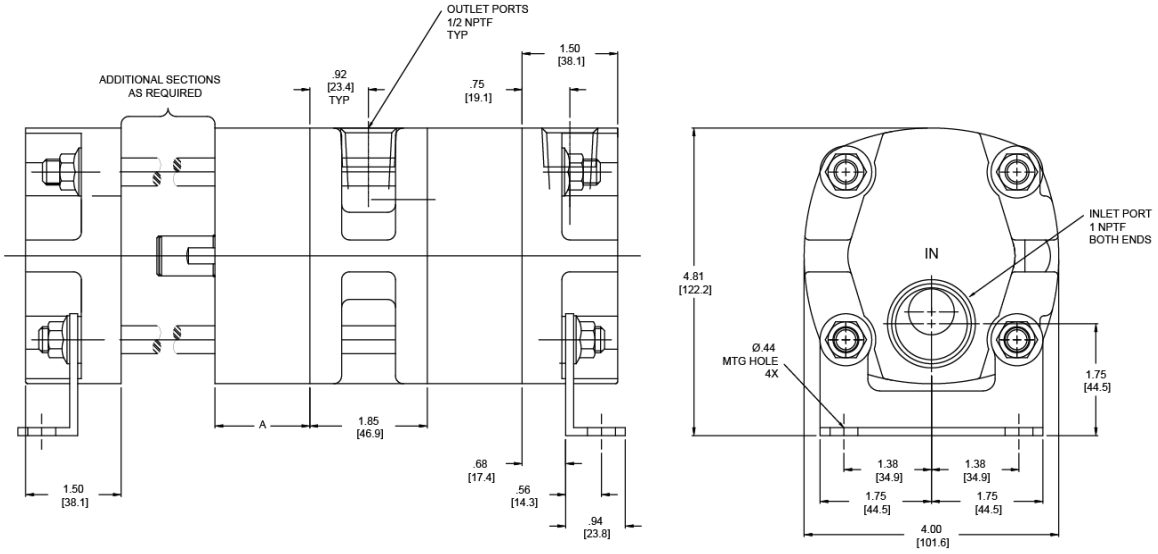
P Series, Mixed Flow Buildable

Mixed flow dividers are “built-up” in any combination (up to 8) from the individual sections shown in the following chart to divide flow from a common pump source into a variety of proportionate flows. Each set of gear and shaft assemblies are individually supported in needle bearings.

Typical Multi-Section P21-P27



MODEL	NUMBER OF SECTIONS	TOTAL MAX. INLET (GPM)	0 PSI DISP. PER SECT. GAL./REV,	SLIP GPM/100 PSI	MAXIMUM INTERMITTENT PSI	MAXIMUM CONTINUOUS PSI	BOLT TORQUE Ft.-Lb.	MAX. DIFF. BETWEEN SECT. (PSI)	MAXIMUM RPM	MINIMUM RPM	A
P21	1	6.2	0.00178	0.060	2000	1500	24-31	1000	3500	500	0.418
P23	1	10.5	0.00304	0.068	2000	1500	24-31	1000	3500	500	0.715
P25	1	15.0	0.00425	0.083	2000	1500	24-31	1000	3500	500	1.000
P26	1	18.5	0.00531	0.098	2000	1500	24-31	1000	3500	500	1.250
P27	1	22.0	0.00633	0.113	2000	1500	24-31	1000	3500	500	1.490

For ordering purposes, a divider with two PM1 sections, one PM6 section and one PM8 secton would be part number PM1-1-6-8 or a 3 section PM4 flow divider would be part number PM4-4-4

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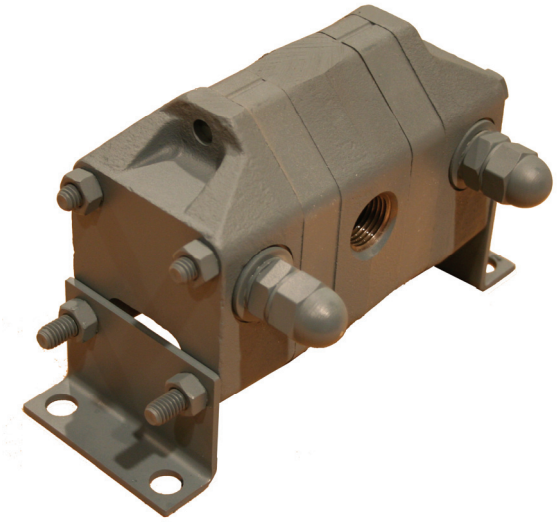
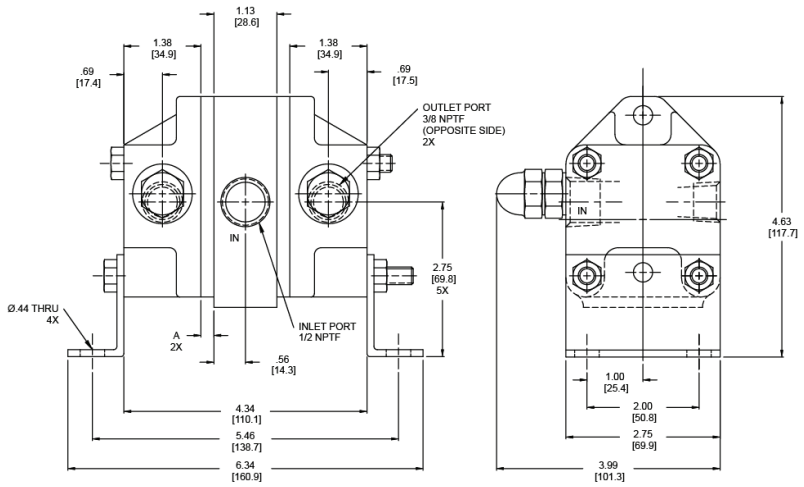
PM Series, Equal Flow Multi-Sections with Relief Valves

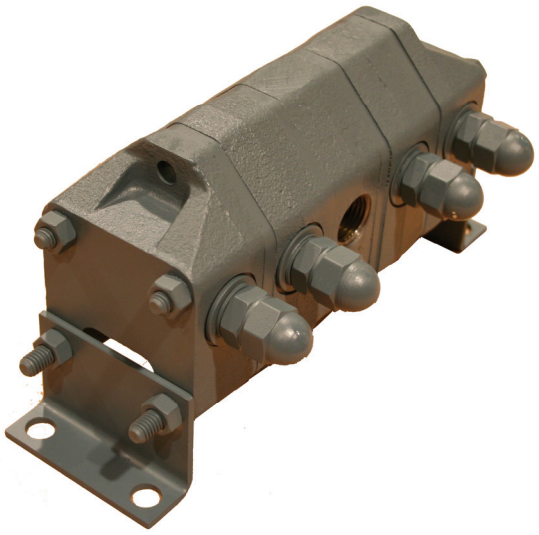
Equal flow multi-section units consist of several identical, individual sections coupled together to divide a flow from a common pump source into two or more equal flows. Each set of gear and shaft assemblies are individually supported in needle bearings.

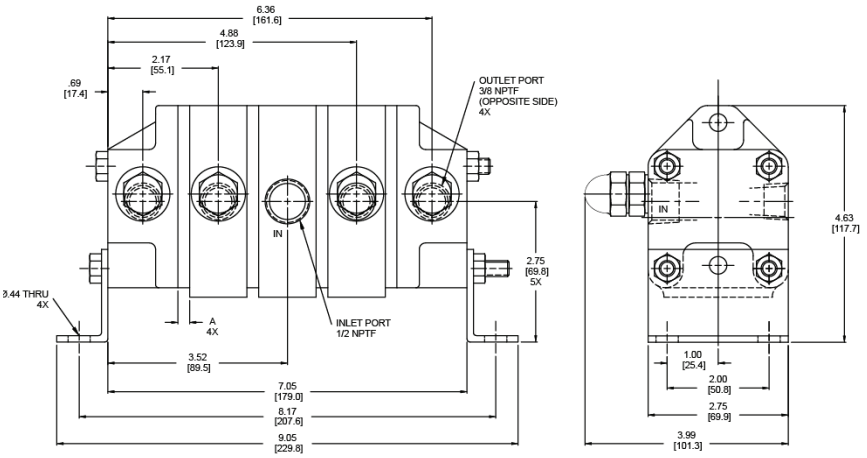
PM2RV & PM6RV





PPM2RV





MODEL	NUMBER OF SECTIONS	TOTAL MAX. INLET (GPM)	0 PSI DISP. PER SECT. GAL./REV,	SLIP GPM/100 PSI	MAXIMUM INTERMITTENT PSI	MAXIMUM CONTINUOUS PSI	BOLT TORQUE Ft.-Lb.	MAX. DIFF. BETWEEN SECT. (PSI)	MAXIMUM RPM	MINIMUM RPM	A
PM2RV	2	3.5	0.00047	0.026	2500	2000	13-17	1500	3500	500	0.23
PM6RV	2	9.5	0.00137	0.038	2000	1500	13-17	1000	3500	500	0.40
PPM2RV	4	7.0	0.00047	0.026	2000	1500	13-17	1000	3500	500	0.53

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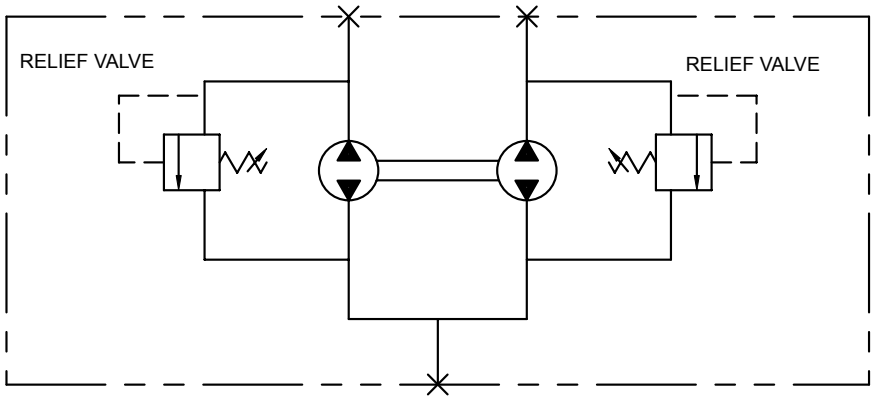
HPR Series, Heavy Duty with Relief Valves



HYDRAULIC SCHEMATIC
(TWO SECTION SHOWN)

5000 PSI (345 Bar) Intermittent Duty
3000 PSI (206 Bar) Continuous Duty *Note: HPR26-XX and HPR27-XX are 2000 PSI (137 Bar)*
3000 PSI Delta P between Sections, Intermittently
Standard Setting on Relief Valves – 750 PSI Differential between Outlet and Inlet Pressure
Note that these relief valves do not offer system relief protection. They simply limit the pressure between the outlet and inlet of the flow divider, and will aid in re-phasing whenever as section runs against a stop.
Standard Ports – 1 5/16 12 SAE Inlet, 1 1/16-12 SAE Outlet

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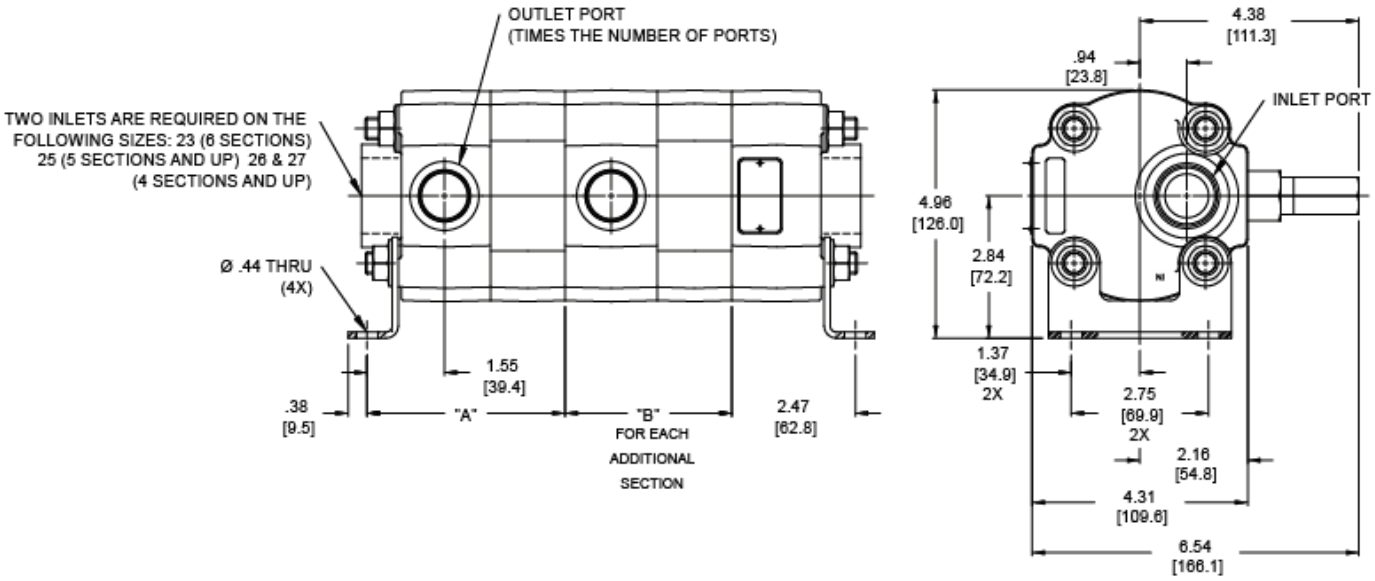

EQUAL FLOW TWO SECTION				
(2) SECTION MODEL	0 PSI DISPLACEMENT PER SECTION GAL./REV,	DIMENSION		MAX. INLET @3500 RPM GPM [LPM]
		A	B	
HPR23	0.00304	3.19 [81.0]	2.56 [65.0]	21 GPM [79 LPM]
HPR27	0.06330	3.96 [100.6]	3.34 [84.8]	44 GPM [166 LPM]

Note: Dimensions in [XX.X] are mm

EQUAL FLOW MULTI-SECTION (MIXED FLOW BUILDABLE ARE ALSO AVAILABLE)				
(4) SECTION MODEL	0 PSI DISPLACEMENT PER SECTION GAL./REV,	DIMENSION		MAX. INLET @3500 RPM GPM [LPM]
		A	B	
HPR21-59	0.00178	2.89 [73.4]	2.26 [57.4]	25 GPM [95 LPM]
HPR23-59	0.00304	3.19 [81.0]	2.56 [65.0]	42 GPM [160 LPM]
HPR25-59	0.00425	3.47 [88.1]	2.85 [72.4]	59 GPM 223 LPM]
HPR26-59	0.00531	3.72 [94.5]	3.10 [78.7]	74 GPM [280 LPM]
HPR27-59	0.00633	3.96 [100.6]	3.34 [84.8]	88 GPM [333 LPM]

Note: Dimensions in [XX.X] are mm

FOR QUIETER OPERATION LIMIT SPEED TO 2000 RPM

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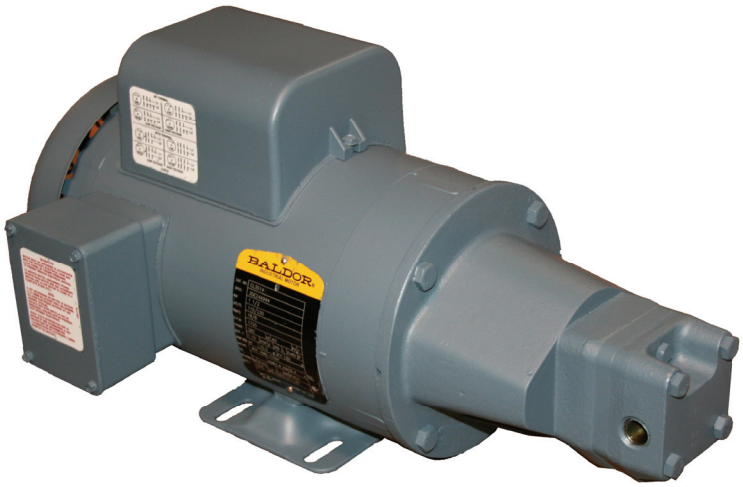
A Series

CW Series

C Series



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Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

A Series Units

A1 thru A8 Pump/Motor

A21 thru A27 Pump/Motor

"A" Series pump/motor combinations are high quality pre-engineered packages designed to satisfy medium service, steady load and/or intermittent duty applications: hi-flow, low pressure, lube transfer, recirculation, scavenge and filtration.

As shown below, a variety of performance characteristics are available through the combination of several pump configurations with single and/or three phase TEFC heavy-duty ball bearing motors. All combinations are bi-directional.

The pumps, also available separately, feature high strength cast iron bodies with precision machined internal trapping grooves, hardened alloy gears and shafts, leaded bronze sleeve bearings and Buna-N seals and o-rings to provide long, quiet, trouble-free performance.

Pump / Motor Specifications

Data shown is for continuous duty. For intermittent peaking duty, 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.

Pump / Motor	A1 .00028 GPR	A2 .00047 GPR	A4 .00081 GPR	A6 .00137 GPR	A8 .00202 GPR	A21 .00178 GPR	A23 .00304 GPR	A25 .00425 GPR	A27 .00633 GPR
A154 ½ HP .1725 RPM 1 PHASE TEFC	.31 GPM 1500 PSI A1+A154	.70 GPM 900 PSI A2+A154	1.33 GPM 525 PSI A4+A154	2.32 GPM 300 PSI A6+A154	3.46 GPM 200 PSI A8+A154	3.0 GPM 225 PSI A21+A154	5.3 GPM 150 PSI A23+A154	7.4 GPM 100 PSI A25+A154	10.9 GPM 75 PSI A27+A154
A354 ½ HP .1725 RPM 3 PHASE TEFC	.31 GPM 1500 PSI A1+A354	.70 GPM 900 PSI A2+A354	1.33 GPM 525 PSI A4+A354	2.32 GPM 300 PSI A6+A354	3.46 GPM 200 PSI A8+A354	3.0 GPM 225 PSI A21+A354	5.3 GPM 150 PSI A23+A354	7.4 GPM 100 PSI A25+A354	10.9 75 PSI A27+A354
A174 ¾ HP .1725 RPM 1 PHASE TEFC	.25 GPM 2250 PSI A1+A174	.65 GPM 1350 PSI A2+A174	1.28 GPM 775 PSI A4+A174	2.28 GPM 450 PSI A6+A174	3.44 GPM 300 PSI A8+A174	3.0 GPM 350 PSI A21+A174	5.2 GPM 200 PSI A23+A174	7.3 GPM 150 PSI A25+A174	11.0 GPM 100 PSI A27+A174
A374 ¾ HP .1725 RPM 3 PHASE TEFC	.25 GPM 2250 PSI A1+A374	.65 GPM 1350 PSI A2+A374	1.28 GPM 775 PSI A4+A374	2.28 GPM 450 PSI A6+A374	3.44 GPM 300 PSI A8+A374	3.0 GPM 350 PSI A21+A374	5.2 GPM 200 PSI A23+A374	7.3 GPM 150 PSI A25+A374	11.0 GPM 100 PSI A27+A374
A1104 1 HP .1725 RPM 1 PHASE TEFC	.25 GPM 2250 PSI A1+A1104	.58 GPM 1800 PSI A2+A1104	1.25 GPM 1050 PSI A4+A1104	2.25 GPM 625 PSI A6+A1104	3.40 GPM 425 PSI A8+A1104	2.9 GPM 475 PSI A21+A1104	5.2 GPM 275 PSI A23+A1104	7.3 GPM 200 PSI A25+A1104	11.0 GPM 125 PSI A27+A1104
A3104 1 HP .1725 RPM 3 PHASE TEFC	.25 GPM 2250 PSI A1+A3104	.58 GPM 1800 PSI A2+A3104	1.25 GPM 1050 PSI A4+A3104	2.25 GPM 625 PSI A6+A3104	3.40 GPM 425 PSI A8+A3104	2.9 GPM 475 PSI A21+A3104	5.2 GPM 275 PSI A23+A3104	7.3 GPM 200 PSI A25+A3104	11.0 GPM 125 PSI A27+A3104
A1154 1½ HP .1725 RPM 1 PHASE TEFC			1.17 GPM 1550 PSI A4+A1154	2.18 GPM 925 PSI A6+A1154	3.34 GPM 625 PSI A8+A1154	2.8 GPM 70 PSI A21+A1154	5.1 GPM 425 PSI A23+A1154	7.2 GPM 300 PSI A25+A1154	10.9 GPM 200 PSI A27+A1154
A3154 1½ HP .1725 RPM 3 PHASE TEFC			1.17 GPM 1550 PSI A4+A3154	2.18 GPM 925 PSI A6+A3154	3.34 GPM 625 PSI A8+A3154	2.8 GPM 700 PSI A21+A3154	5.1 GPM 425 PSI A23+A3154	7.2 GPM 300 PSI A25+A3154	10.9 GPM 200 PSI A27+A3154

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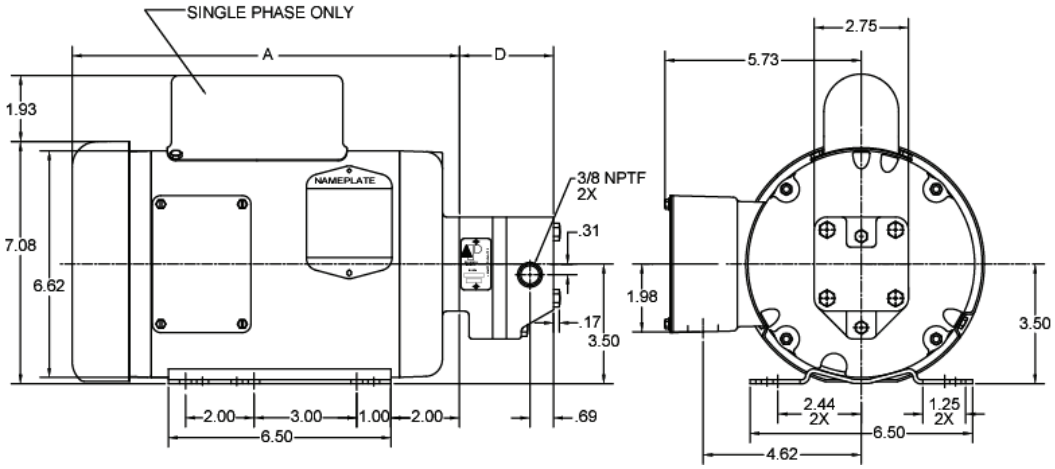
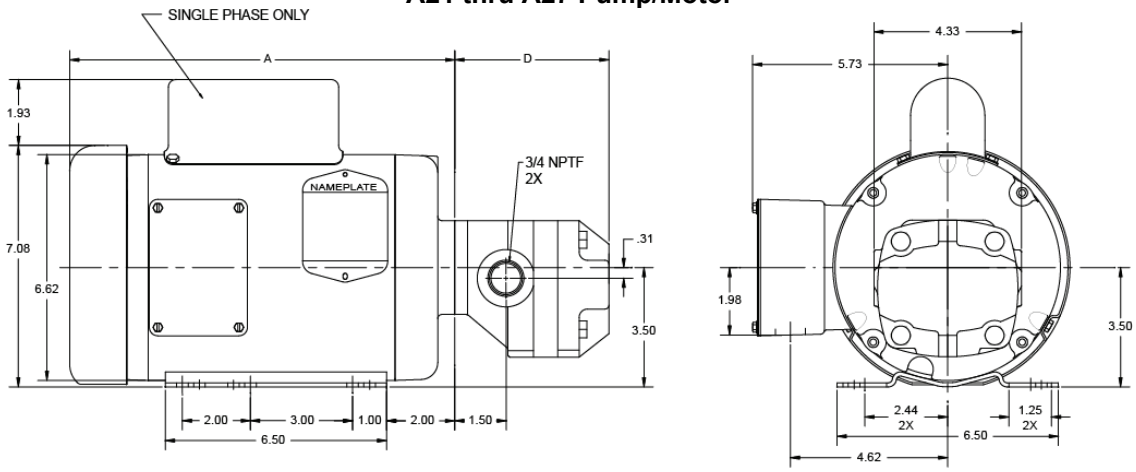
A1 thru A8 Pump/Motor



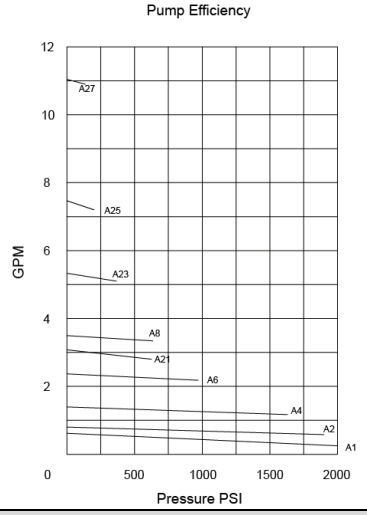
A21 thru A27 Pump/Motor

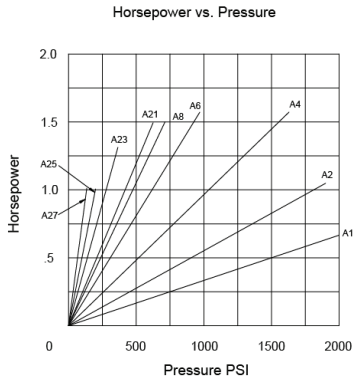


Pump Part No.	A1	A2	A4	A6	A8	A21	A23	A25	A27
Dim. "D"	2.48	2.57	2.74	3.02	3.34	4.24	4.54	4.76	5.32
Motor Part No.	A154	A354	A174	A374	A1104	A3104	A1154	A3154	
Dim. "A"	9.62	9.00	1.62	10.50	11.25	10.00	12.25	10.00	

Note: Motor and Bracket dimensions subject to change due to availability of inventory.

Performance Data





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Delta Power Company
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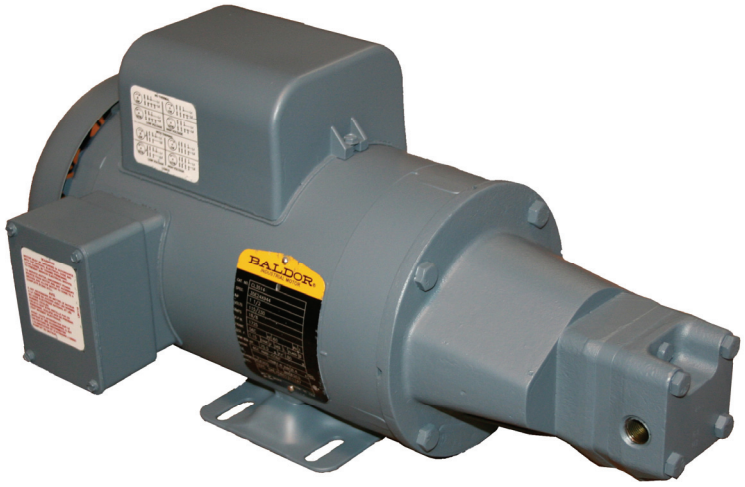
C Series Units

C1 thru C8 Pump/Motor Combinations



All “C” Series pump/motor units are bi-directional. The precision alignment of the motor to “C” Series is assured by a machined adaptor bracket. The ½ to 1 ½ H.P. electric motors are frame 56, continuous duty, ball-bearing, totally enclosed, fan cooled units of the highest quality. The motors are offered as standard in either single phase 115, 230 volt, 1750 RPM, or 208 , 230, 460 volt, 1750 RPM, 50/60 cycle.

Pump / Motor Specifications
Data shown is for continuous duty. For intermittent peaking duty 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.

Pump Motor	C1 .00028 GPR	C2 .00047 GPR	C4 .00081 GPR	C6 .00137 GPR	C8 .00202 GPR
C154 ½ HP .1725 RPM 1 PHASE TEFC	.31 GPM 1500 PSI C1+C154	.70 GPM 900 PSI C2+C154	1.33 GPM 525 PSI C4+C154	2.32 GPM 300 PSI C6+C154	3.46 GPM 200 PSI C8+C154
C354 ½ HP .1725 RPM 3 PHASE TEFC	.31 GPM 1500 PSI C1+C354	.70 GPM 900 PSI C2+C354	1.33 GPM 525 PSI C4+C354	2.32 GPM 300 PSI C6+C354	3.46 GPM 200 PSI C8+C354
C174 ¾ HP .1725 RPM 1 PHASE TEFC	.25 GPM 2250 PSI C1+C174	.65 GPM 1350 PSI C2+C174	1.28 GPM 775 PSI C4+C174	2.28 GPM 450 PSI C6+C174	3.44 GPM 300 PSI C8+C174
C374 ¾ HP .1725 RPM 3 PHASE TEFC	.25 GPM 2250 PSI C1+C374	.65 GPM 1350 PSI C2+C374	1.28 GPM 775 PSI C4+C374	2.28 GPM 450 PSI C6+C374	3.44 GPM 300 PSI C8+C374
C1104 1 HP .1725 RPM 1 PHASE TEFC	.25 GPM 2250 PSI C1+C1104	.58 GPM 1800 PSI C2+C1104	1.25 GPM 1050 PSI C4+C1104	2.25 GPM 625 PSI C6+C1104	3.40 GPM 425 PSI C8+C1104
C3104 1 HP .1725 RPM 3 PHASE TEFC	.25 GPM 2250 PSI C1+C3104	.58 GPM 1800 PSI C2+C3104	1.25 GPM 1050 PSI C4+C3104	2.25 GPM 625 PSI C6+C3104	3.40 GPM 425 PSI C8+C3104
C1154 1½ HP .1725 RPM 1 PHASE TEFC			1.17 GPM 1550 PSI C4+C1154	2.18 GPM 925 PSI C6+C1154	3.34 GPM 625 PSI C8+C1154
C3154 1½ HP .1725 RPM 3 PHASE TEFC			1.17 GPM 1550 PSI C4+C3154	2.18 GPM 925 PSI C6+C3154	3.34 GPM 625 PSI C8+C3154

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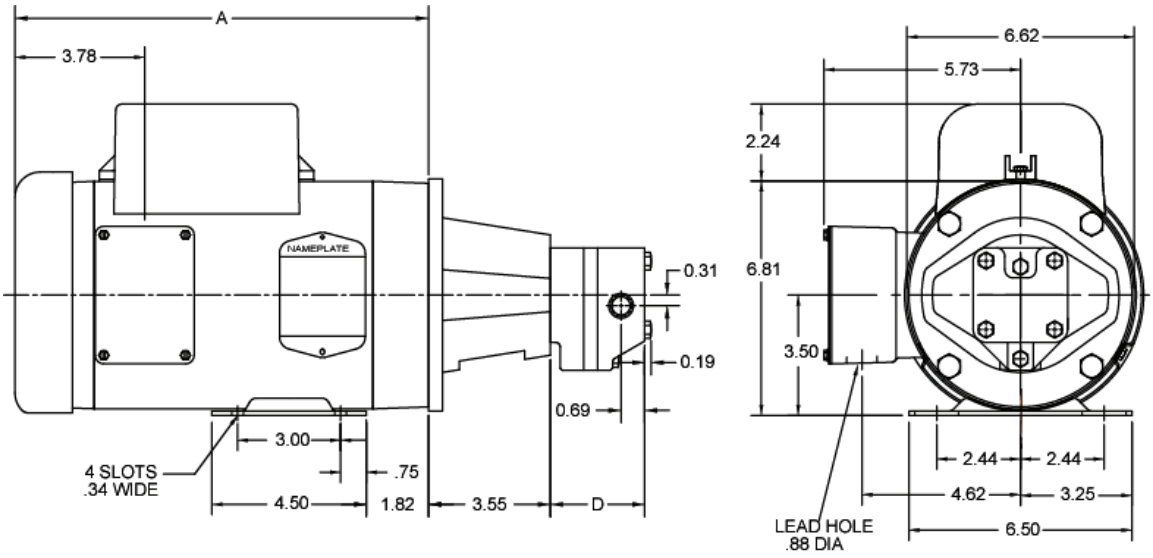
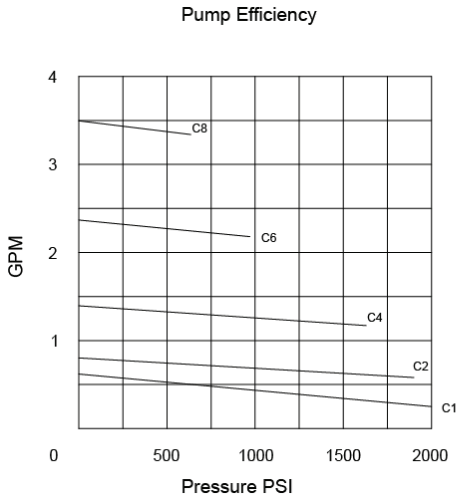
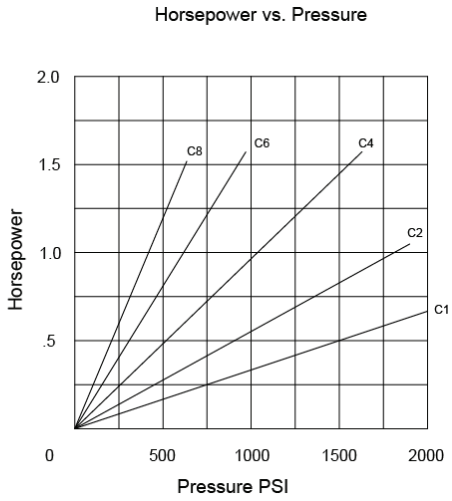


Pump Part	C1	C2	C4	C6	C8			
Dim. "D"	2.48	2.57	2.74	3.02	3.34			
Motor Part	C154	C354	C174	C374	C1104	C3104	C1154	C3154
Dim. "A"	9.62	9.25	10.62	10.50	11.25	10.00	12.25	10.25

Note: Motor and Bracket dimensions subject to change due to availability of inventory.

Performance Data





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Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

CW Series Units

CW21 thru CW27 Pump/Motor Combination

CW41 thru CW49 Pump/Motor Combination

All “CW” Series pump/motor units are bi-directional. The precision alignment of the motor to “CW” Series is assured by a machined adaptor bracket. The 3 to 20 H.P. electric motors are frame 182TC to 256TC, continuous duty, ball-bearing, totally enclosed, fan cooled units of the highest quality. The motors are offered as standard in either three phase 115, 230 volt, 1750 RPM, or 208, 230, 460 volt, 1750 RPM, 50/60 cycle.

Pump / Motor Specifications

Data shown is for continuous duty. For intermittent peaking duty, 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.

Motor	**Pump**								
(All 1750 RPM, 3 Phase, TEFC)	**CW21** .00178 GPR	**CW23** .00304 GPR	**CW25** .00425 GPR	**CW27** .00633 GPR	**CW41** .0068 GPR	**CW43** .0102 GPR	**CW45** .0132 GPR	**CW47** .0169 GPR	**CW49** .0192 GPR
3304 3 HP 182TC Frame	**CW21-3304** 2.4 GPM 1400 PSI	**CW23-3304** 4.8 GPM 825 PSI	**CW25-3304** 7.1 GPM 600 PSI	**CW27-3304** 10.8 GPM 400 PSI	**CW41-3304** 11.4 GPM 375 PSI	**CW43-3304** 17.2 GPM 250 PSI	**CW45-3304** 22.5 GPM 200 PSI	**CW47-3304** 28.8 GPM 150 PSI	**CW49-3304** 32.8 GPM 125 PSI
3504 5 HP 184TC Frame	**CW21-3504** 2.1 GPM 2350 PSI	**CW23-3504** 4.5 GPM 1375 PSI	**CW25-3504** 6.6 GPM 1000 PSI	**CW27-3504** 10.3 GPM 650 PSI	**CW41-3504** 11.2 GPM 625 PSI	**CW43-3504** 17.0 GPM 400 PSI	**CW45-3504** 22.2 GPM 325 PSI	**CW47-3504** 28.4 GPM 250 PSI	**CW49-3504** 32.5 GPM 225 PSI
3754 7 ½ HP 213TC Frame		**CW23-3754** 4.1 GPM 2050 PSI	**CW25-3754** 6.2 GPM 1475 PSI	**CW27-3754** 10.2 GPM 1000 PSI	**CW41-3754** 11.0 GPM 925 PSI	**CW43-3754** 16.9 GPM 625 PSI	**CW45-3754** 22.0 GPM 475 PSI	**CW47-3754** 28.2 GPM 375 PSI	**CW49-3754** 32.3 GPM 325 PSI
31004 10 HP 215TC Frame			**CW25-31004** 6.0 GPM 1875 PSI	**CW27-31004** 9.9 GPM 1325 PSI	**CW41-31004** 10.9 GPM 1225 PSI	**CW43-31004** 16.8 GPM 825 PSI	**CW45-31004** 21.8 GPM 625 PSI	**CW47-31004** 28.0 GPM 500 PSI	**CW49-31004** 32.0 GPM 425 PSI
31504 15 HP 254TC Frame					**CW41-31504** 9.7 GPM 1850 PSI	**CW43-31504** 16.5 GPM 1225 PSI	**CW45-31504** 21.0 GPM 950 PSI	**CW47-31504** 27.9 GPM 750 PSI	**CW49-31504** 31.8 GPM 650 PSI
32004 20 HP 256TC Frame						**CW43-32004** 16.25 GPM 1650 PSI	**CW45-32004** 19.8 GPM 1275 PSI	**CW47-32004** 27.8 GPM 1000 PSI	**CW49-32004** 31.6 GPM 875 PSI

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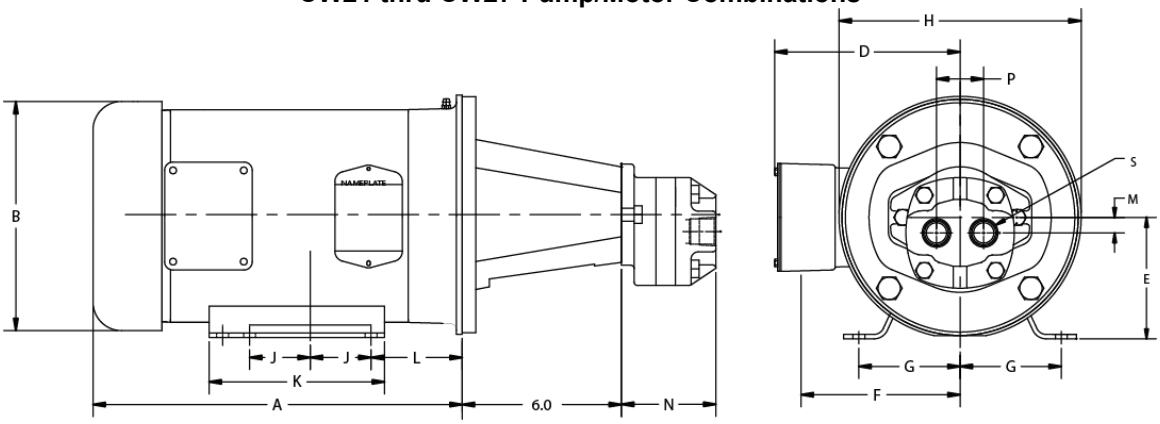
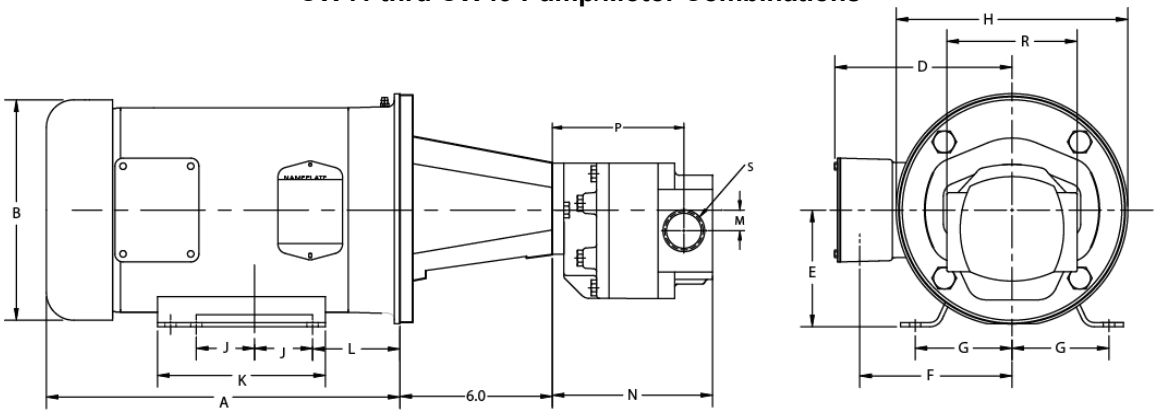
CW21 thru CW27 Pump/Motor Combinations



CW41 thru CW49 Pump/Motor Combinations

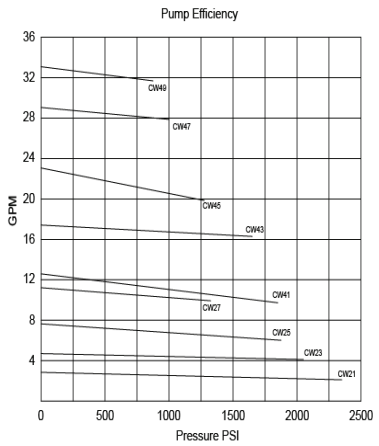


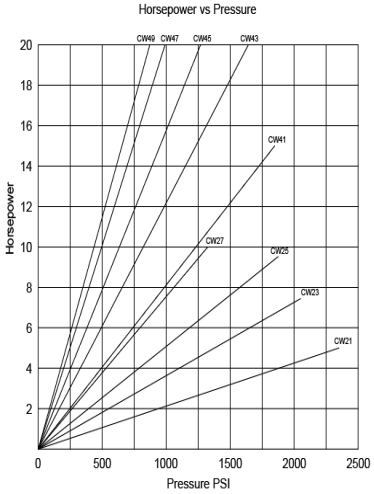
MOTOR MODEL	Dimensions												
	A	B	C	D	E	F	G	H	I	J	K	L	M
3304	13.13	9.47	-	7.19	4.73	5.69	3.75	9.23	7.25	2.25	5.50	3.38	3.87
3504	14.13	9.47	-	7.19	4.73	5.69	3.75	9.23	7.75	2.75	6.50	3.38	3.87
3754	15.81	10.86	-	8.66	5.43	6.66	4.25	10.69	8.56	2.75	6.50	4.00	4.34
31004	17.31	10.86	-	8.66	5.43	6.66	4.25	10.69	9.31	3.25	8.00	4.00	4.34
31504	18.91	12.56	1.56	9.44	6.28	7.44	5.00	12.56	9.78	4.13	9.50	4.50	5.09
32004	20.66	12.56	1.56	9.44	6.28	7.44	5.00	12.56	10.66	5.00	11.25	4.50	5.09

Pump Model	Dimensions				
	M	N	P	R	S
CW21	0.63	3.2	1.75	-	3/4 NPTF (2)
CW23	0.63	3.5	1.75	-	3/4 NPTF (2)
CW25	0.63	3.78	1.75	-	3/4 NPTF (2)
CW27	0.63	4.27	1.75	-	3/4 NPTF (2)
CW41	0.91	5.41	4.22	5.38	1 1/4 NPTF (2)
CW43	0.91	5.72	4.59	5.38	1 1/4 NPTF (2)
CW45	0.91	6.06	4.94	5.38	1 1/4 NPTF (2)
CW47	0.91	6.47	5.41	5.38	1 1/4 NPTF (2)
CW49	0.91	6.72	5.59	5.38	1 1/4 NPTF (2)

Note: Motor and Bracket dimensions subject to change due to availability of inventory.

Performance Data





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B Series

CT Series

BCV Series

INDEX

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Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

B Series Power Packages

B Series Power Unit with 1 Gallon Tank

B Series Power Unit with 5 Gallon Tank

·Caution: Relief valves must be set prior to installation. They are not factory preset. Relief valves will include springs which will allow relief valves settings to the pressures indicated on the chart.

With the 1, 1 ½ or 2 ½ gallon tank and TEFC 56 frame motors, B models are one of the most compact, utilized power packages available today. The 1 and 1 ½ gallon tank unit includes a custom heat dissipating aluminum tank and an externally adjustable relief valve. Units can be mounted horizontally (foot down) or vertically (tank down). TEFC motors are 56 frame specially configured for Delta Power B units, 4 pole motors run at the highly desirable speed of 1725 RPM rather than the 3450 version normally used on competitor's units.

While each unit is a complete power unit, their scope is radically increased by adapting to valve accessories like 85005677 found in section 9 of this catalog. Please refer to Section 9 for other adaptations.

Pump / Motor Specifications

Data shown is for continuous duty. For intermittent peaking duty, 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.

Note: 3 phase motors can run on 50/60 cycles but flow at 50 cycles will be reduced to 5/6 of noted flow since the motor will run at 5/6 of the RPM.

Pump	B1	B2	B4	B6	B8
Motor	.00028 GPR	.00047 GPR	.0081 GPR	.00137 GPR	.00202 GPR
B154	.31 GPM	.70 GPM	1.33 GPM	2.32 GPM	3.46 GPM
1/2 H.P. 1725 RPM	1500 PSI	900 PSI	525 PSI	300 PSI	200 PSI
1 Phase TEFC	B1+B154	B2+B154	B4+B154	B6+B154	B8+B154
B354	.31 GPM	.70 GPM	1.33 GPM	2.32 GPM	3.46 GPM
1/2 H.P. 1725 RPM	1500 PSI	900 PSI	525 PSI	300 PSI	200 PSI
3 Phase TEFC	B1+B354	B2+B354	B4+B354	B6+B354	B8+B354
B174	.25 GPM	.65 GPM	1.28 GPM	2.28 GPM	3.44 GPM
3/4 H.P. 1725 RPM	2250 PSI	1350 PSI	775 PSI	450 PSI	300 PSI
1 Phase TEFC	B1+B174	B2+B174	B4+B174	B6+B174	B8+B174
B374	.25 GPM	.65 GPM	1.28 GPM	2.28 GPM	3.44 GPM
3/4 H.P. 1725 RPM	2250 PSI	1350 PSI	775 PSI	450 PSI	300 PSI
3 Phase TEFC	B1+B374	B2+B374	B4+B374	B6+B374	B8+B374
B1104	.25 GPM	.58 GPM	1.25 GPM	2.25 GPM	3.40 GPM
1 H.P. 1725 RPM	2250 PSI	1800 PSI	1050 PSI	625 PSI	425 PSI
1 Phase TEFC	B1+B1104	B2+B1104	B4+B1104	B6+B1104	B8+B1104
B3104	.25 GPM	.58 GPM	1.25 GPM	2.25 GPM	3.40 GPM
1 H.P. 1725 RPM	2250 PSI	1800 PSI	1050 PSI	625 PSI	425 PSI
3 Phase TEFC	B1+B3104	B2+B3104	B4+B3104	B6+B3104	B8+B3104
B1154			1.17 GPM	2.18 GPM	3.34 GPM
1-1/2 H.P. 1725 RPM			1550 PSI	925 PSI	625 PSI
1 Phase TEFC			B4+B1154	B6+B1154	B8+B1154
B3154			1.17 GPM	2.18 GPM	3.34 GPM
1-1/2 H.P. 1725 RPM			1550 PSI	925 PSI	625 PSI
3 Phase TEFC			B4+B3154	B6+B3154	B8+B3154
B3204				2.06 GPM	3.26 GPM
2 H.P. 1725 RPM				1225 PSI	850 PSI
3 Phase TEFC				B6+B3204	B8+B3204
B3304				1.90 GPM	3.12 GPM
3 H.P. 1725 RPM				1850 PSI	1250 PSI
3 Phase TEFC				B6+B3304	B8+B3304
Intermittent Duty					

B6+B174	**Pump/Motor/1 Gal. Tank**
To order Power unit with 1-1/2 gallon tank, specify as follows	
B6+B174-1-1/2 TK	**Pump/Motor/1-1/2 Gal. Tank**
To order Power unit with 2-1/2 gallon tank, specify as follows	
B6+B174-2-1/2 TK	**Pump/Motor/2-1/2 Gal. Tank**
To order Power unit with 5 gallon tank, (add letter T), as follows	
BT6+B174	**Pump/Motor/5 Gal. Tank**
To order Power unit with 5 gallon tank, (add letter X), as follows	
BX6+B174	**Pump/Motor/10 Gal. Tank**

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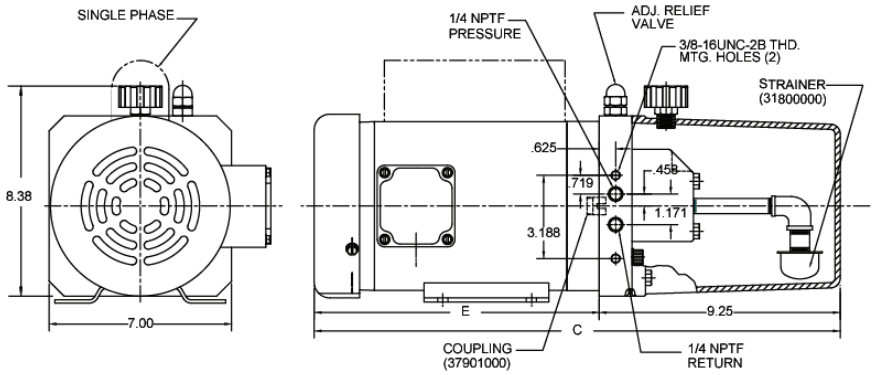
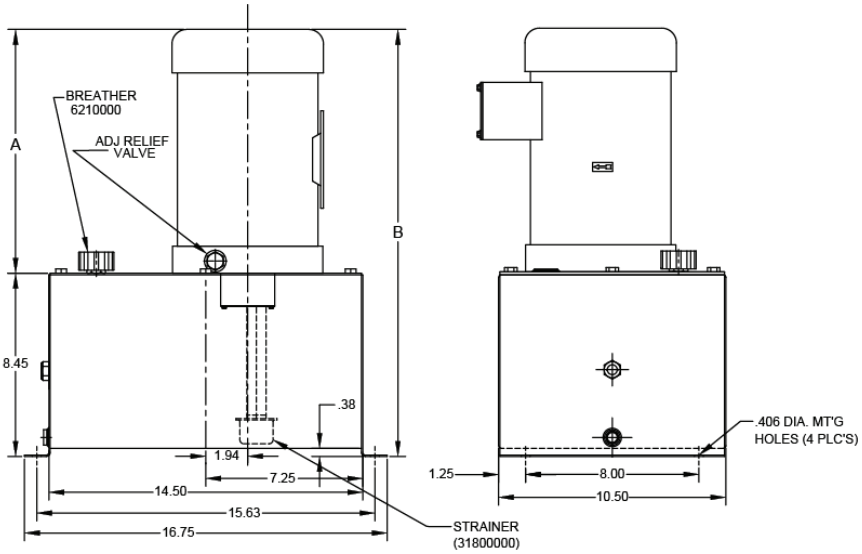
B Series Power Unit with 1 Gallon Tank



MOTOR	Dimension			
	A	B	C	E
B154	11.13	19.69	19.38	9.88
B354	10.50	19.06	18.75	9.25
B174	12.00	19.06	18.75	10.75
B374	10.50	19.06	18.75	9.25
B1104	12.13	20.69	20.38	10.88
B3104	11.13	19.56	19.25	9.88
B1154	13.01	21.06	20.75	11.76
B3154	11.00	19.56	19.25	9.75
B3204	12.13	20.69	20.38	10.88
B3304	13.00	21.44	21.13	11.75

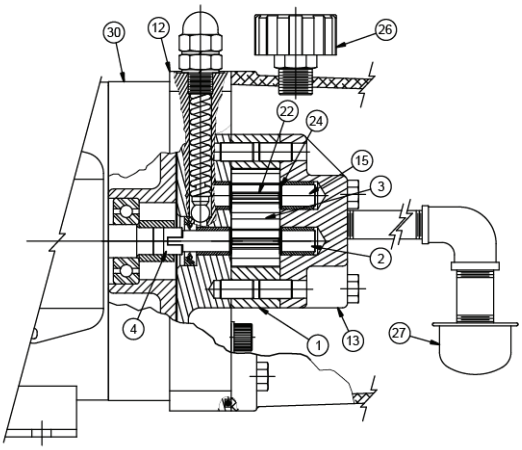
Note: Motor dimensions are approximate dependent on current availability

B Series Power Unit with 5 Gallon Tank



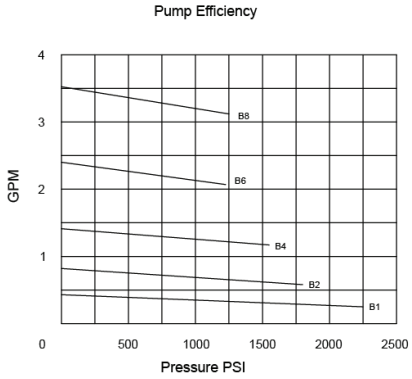
Ordering - Service Parts

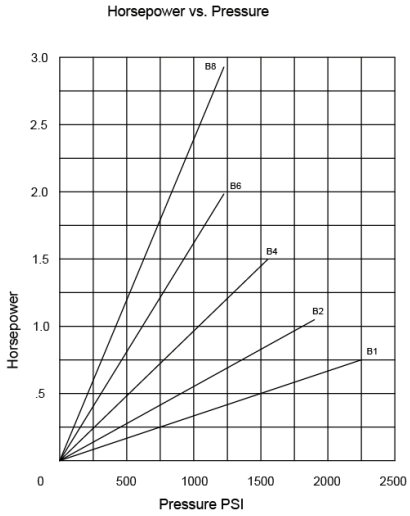
ITEM #	DESCRIPTION	QTY.
1	GEAR CASE	1
2	DRIVE SHAFT	1
3	GEARS	2
4	COUPLING	1
5	RESERVOIR	1
12	DRIVE PLATE	1
13	END PLATE	1
15	IDLER SHAFT	1
17	INLET STRAINER	1
22	GEAR PIN	2
24	RETAINING RING	4
26	BREATHER	1
30	MOTOR	1



NOTE: WHEN ORDERING PARTS, PLEASE SPECIFY COMPLETE MODEL NUMBER

Performance Data





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Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

CT and CX Series Power Packages

Pump motor combinations are offered with 5 or 10 gallon tanks to form complete hydraulic power packages. When ordering, specify pump, motor, and tank sizes. Adding a “T” to the model numbers of pump and motor in the chart designates a 5 gallon tank. Using an “X” in the number instead of the “T”, designates a 10 gallon tank. For example, CT6 + C354 would specify a complete unit: pump C6, motor size C354, 5 gallon tank “T”. To order a 10 gallon tank combination, the number would be CX6 + C354.

All tanks include the following: suction strainer (100 mesh); breather (40 micron); oil sight level glass; motor mounting holes drilled and tapped. Pump-motor-tank combinations include piping to the suction side of the pump.

The precision alignment of the motor to the “C” Series pump is assured by a machined adaptor bracket. The ½ to 1 ½ H.P. electric motors are frame 56C, continuous duty, ball-bearing, totally enclosed, fan cooled units of the highest quality. The motors are offered as standard in either single phase, 115 and 230 volt, 1750 RPM or three phase, 208, 230 and 460 volt, 1750 RPM, 50/60 cycle current.

Pump / Motor Specifications
Data shown is for continuous duty. For intermittent peaking duty, 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.
Note: 3 phase motors can run on 50/60 cycles but flow at 50 cycles will be reduced to 5/6 of noted flow since the motor will run at 5/6 of the RPM.

Pump	C1	C2	C4	C6	C8
Motor	.00028 GPR	.00047 GPR	.0081 GPR	.00137 GPR	.00202 GPR
C154	.31 GPM	.70 GPM	1.33 GPM	2.32 GPM	3.46 GPM
1/2 H.P. 1725 RPM	1500 PSI	900 PSI	525 PSI	300 PSI	200 PSI
1 Phase TEFC	C1+C154	C2+C154	C4+C154	C6+C154	C8+C154
C354	.31 GPM	.70 GPM	1.33 GPM	2.32 GPM	3.46 GPM
1/2 H.P. 1725 RPM	1500 PSI	900 PSI	525 PSI	300 PSI	200 PSI
3 Phase TEFC	C1+C354	C2+C354	C4+C354	C6+C354	C8+C354
C174	.25 GPM	.65 GPM	1.28 GPM	2.28 GPM	3.44 GPM
3/4 H.P. 1725 RPM	2250 PSI	1350 PSI	775 PSI	450 PSI	300 PSI
1 Phase TEFC	C1+C174	C2+C174	C4+C174	C6+C174	C8+C174
C374	.25 GPM	.65 GPM	1.28 GPM	2.28 GPM	3.44 GPM
3/4 H.P. 1725 RPM	2250 PSI	1350 PSI	775 PSI	450 PSI	300 PSI
3 Phase TEFC	C1+C374	C2+C374	C4+C374	C6+C374	C8+C374
C1104	.25 GPM	.58 GPM	1.25 GPM	2.25 GPM	3.40 GPM
1 H.P. 1725 RPM	2250 PSI	1800 PSI	1050 PSI	625 PSI	425 PSI
1 Phase TEFC	C1+C1104	C2+C1104	C4+C1104	C6+C1104	C8+C1104
C3104	.25 GPM	.58 GPM	1.25 GPM	2.25 GPM	3.40 GPM
1 H.P. 1725 RPM	2250 PSI	1800 PSI	1050 PSI	625 PSI	425 PSI
3 Phase TEFC	C1+C3104	C2+C3104	C4+C3104	C6+C3104	C8+C3104
C1154			1.17 GPM	2.18 GPM	3.34 GPM
1-1/2 H.P. 1725 RPM			1550 PSI	925 PSI	625 PSI
1 Phase TEFC			C4+C1154	C6+C1154	C8+C1154
C3154			1.17 GPM	2.18 GPM	3.34 GPM
1-1/2 H.P. 1725 RPM			1550 PSI	925 PSI	625 PSI
3 Phase TEFC			C4+C3154	C6+C3154	C8+C3154

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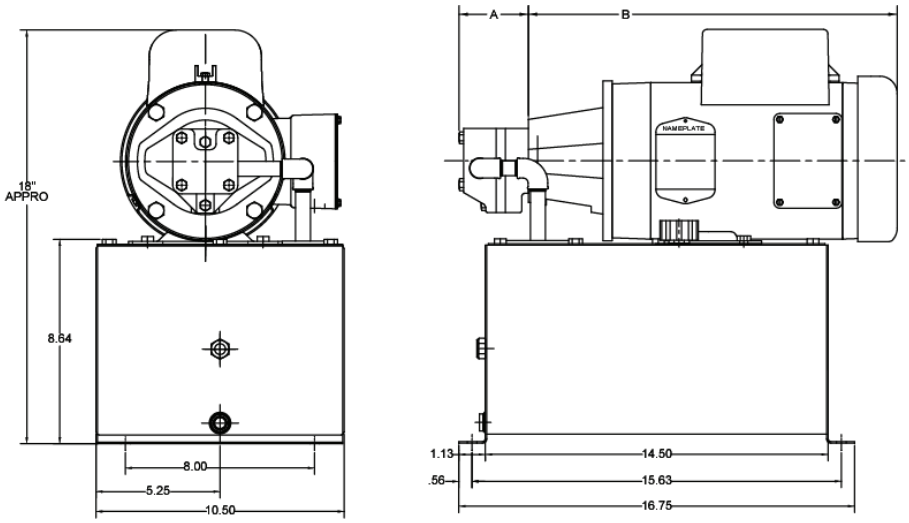
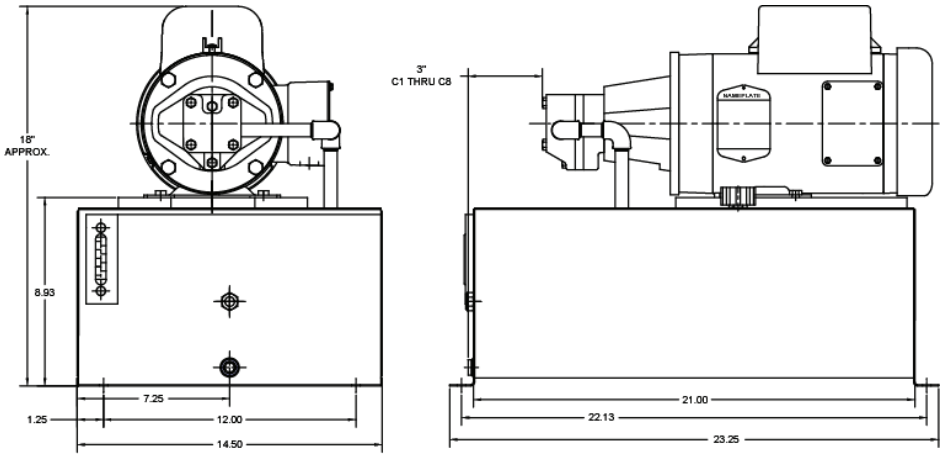
CT Series Power Unit with 5 Gallon Tank



CX Series Power Unit with 10 Gallon Tank

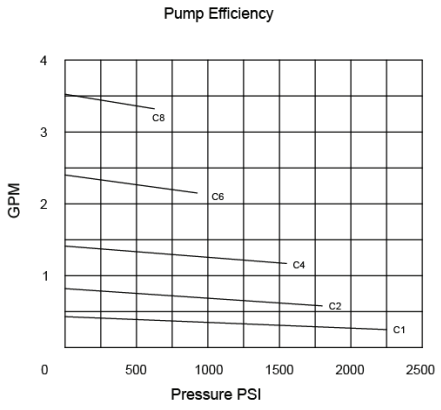


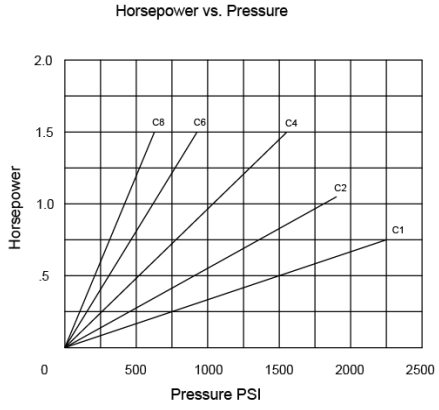
MOTOR	C154	C354	C174	C374	C1104	C3104	C31154	C3154
DIMENSION	13.38	12.75	14.25	12.75	14.43	13.43	15.25	13.38

PUMP	C1	C2	C4	C6	C8
DIMENSION	2.48	2.57	2.74	3.02	3.34

Note: Motor and bracket dimensions subject to change due to availability of inventory.

Performance Data





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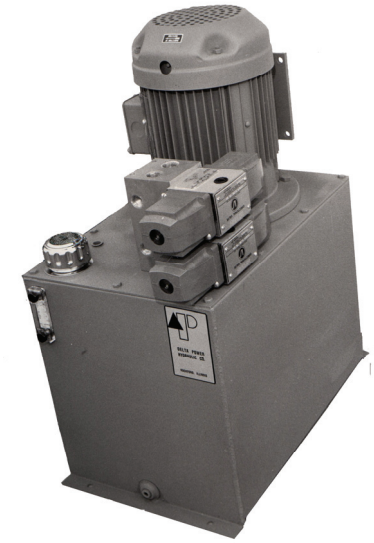
BCV Series Power Packages



Vertical Pump Motor, combinations 3.5 to 10.5GPM with 3 to 20 HP, C face, TEFC motors (Pressures to 3000 PSI). Available on 15, 20 and 30 gallon non JIC reservoirs. Each unit features a fixed displacement gear pump submerged below oil level for assured pump filling and quiet operation. Filler breather assembly, suction strainer, sight level and temperature gauge standard. Optional valve systems result in a complete custom hydraulic Power Unit. These units use the PH series pumps noted in the pump section of the catalog.

Accessories/Options

- Relief valve
- Pressure gauge and shutoff
- Return line filter
- Directional control valves
- Single-phase motors
- Explosion-proof motors
- Custom manifolds
- Pressure switch

Pump / Motor Specifications

Data shown is for continuous duty. For intermittent peaking duty 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.

Pump	BCV312	BCV313	BCV314	BCV315	BCV318	BCV319
Motor	.499 CIR	.589 CIR	.677 CIR	.860 CIR	1.220 CIR	1.403 CIR
3304						
3 H.P. 1725 RPM	1225 PSI	1000 PSI	900 PSI	700 PSI	500 PSI	425 PSI
182TC Frame	3.7 GPM	4.4 GPM	5.0 GPM	6.4 GPM	9.1 GPM	10.4 GPM
3 Phase TEFC	BCV312-3304	BCV313-3304	BCV314-3304	BCV315-3304	BCV318-3304	BCV319-3304
3504						
5 H.P. 1725 RPM	2050 PSI	1725 PSI	1500 PSI	1200 PSI	825 PSI	725 PSI
184TC Frame	3.7 GPM	4.4 GPM	5.0 GPM	6.4 GPM	9.1 GPM	10.4 GPM
3 Phase TEFC	BCV312-3504	BCV313-3504	BCV314-3504	BCV315-3504	BCV318-3504	BCV319-3504
3754						
7.5 H.P. 1725 RPM	3000 PSI	2600 PSI	2250 PSI	1725 PSI	1250 PSI	1100 PSI
213TC Frame	3.6 GPM	4.3 GPM	4.9 GPM	6.4 GPM	9.1 GPM	10.3 GPM
3 Phase TEFC	BCV312-3754	BCV313-3754	BCV314-3754	BCV315-3754	BCV318-3754	BCV319-3754
31004						
10 H.P. 1725 RPM		3000 PSI	3000 PSI	2325 PSI	1675 PSI	1450 PSI
215TC Frame		4.3 GPM	4.9 GPM	6.3 GPM	9.0 GPM	10.3 GPM
1 Phase TEFC		BCV313-31004	BCV314-31004	BCV315-31004	BCV318-31004	BCV319-31004
31504						
15 H.P. 1725 RPM				3000 PSI	2500 PSI	2200 PSI
254TC Frame				6.3 GPM	9.0 GPM	10.2 GPM
3 Phase TEFC				BCV315-31504	BCV318-31504	BCV319-31504
32004						
20 H.P. 1725 RPM					2850 PSI	2500 PSI
256TC Frame					9.0 GPM	10.2 GPM
3 Phase TEFC					BCV318-32004	BCV319-32004

Note: 3 phase motors can run on 50/60 cycles but flow at 50 cycles will be reduced to 5/6 of noted flow since the motor will run at 5/6 of the RPM.

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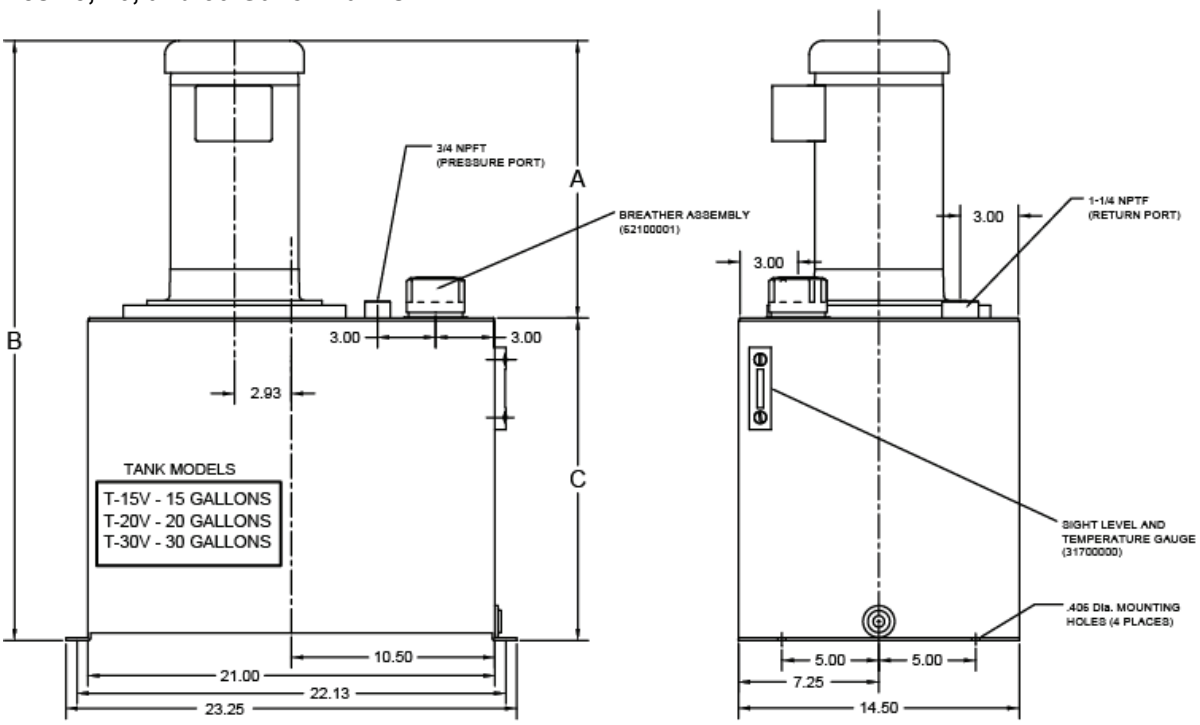
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

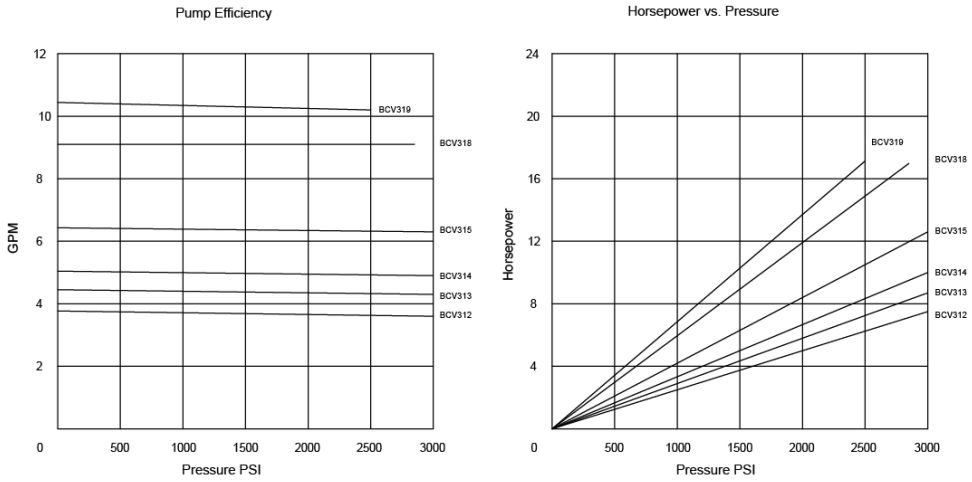
BCV Series 15, 20, and 30 Gallon Tanks



TANK / MOTOR	"A"	T-15V "B"	T-20V "B"	T-30V "B"
3304	12.96	25.52	29.52	37.52
3504	13.96	26.52	30.52	38.52
3754	13.99	26.92	29.92	38.92
31004	16.49	29.05	33.05	41.05
31504	17.87	30.43	34.43	42.43
32004	19.63	32.19	36.19	44.19
"C"		12.56	16.56	24.56

Note: Motor and Flange dimensions are approximate dependent on current availability

Performance Data



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BV Series

INDEX

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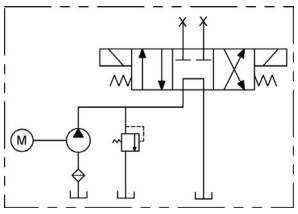
Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

BV Series Power Packages

BV Series with Valve and 1 Gallon Tank



Caution: Relief valves must be set prior to installation. They are not factory preset. Relief valves will include springs which will allow relief valves settings to the pressures indicated on the chart.

BV Series with Valve and 10 Gallon Tank

Delta BV models provide increased flexibility by incorporating a standard 4way 3position valve directly to the power unit. In all, over 100 standard model and combinations to choose from.

Satisfy many custom circuit requirements through use of standard Delta valves, manifolds and stack modules illustrated.

Pump / Motor Specifications

Data shown is for continuous duty. For intermittent peaking duty, 30 seconds at peak load, pressure as high as 150% is attainable, limited to 3000 PSI maximum.

Note: 3 phase motors can run on 50/60 cycles but flow at 50 cycles will be reduced to 5/6 of noted flow since the motor will run at 5/6 of the RPM.

Pump	BV1	BV2	BV4	BV6	BV8
Motor	.00028 GPR	.00047 GPR	.0081 GPR	.00137 GPR	.00202 GPR
B154	.31 GPM	.70 GPM	1.33 GPM	2.32 GPM	3.46 GPM
1/2 H.P. 1725 RPM	1500 PSI	900 PSI	525 PSI	300 PSI	200 PSI
1 Phase TEFC	BV1+B154	BV2+B154	BV4+B154	BV6+B154	BV8+B154
B354	.31 GPM	.70 GPM	1.33 GPM	2.32 GPM	3.46 GPM
1/2 H.P. 1725 RPM	1500 PSI	900 PSI	525 PSI	300 PSI	200 PSI
3 Phase TEFC	BV1+B354	BV2+B354	BV4+B354	BV6+B354	BV8+B354
B174	.25 GPM	.65 GPM	1.28 GPM	2.28 GPM	3.44 GPM
3/4 H.P. 1725 RPM	2250 PSI	1350 PSI	775 PSI	450 PSI	300 PSI
1 Phase TEFC	BV1+B174	BV2+B174	BV4+B174	BV6+B174	BV8+B174
B374	.25 GPM	.65 GPM	1.28 GPM	2.28 GPM	3.44 GPM
3/4 H.P. 1725 RPM	2250 PSI	1350 PSI	775 PSI	450 PSI	300 PSI
3 Phase TEFC	BV1+A374	BV2+B374	BV4+B374	BV6+B374	BV8+B374
B1104	.25 GPM	.58 GPM	1.25 GPM	2.25 GPM	3.40 GPM
1 H.P. 1725 RPM	2250 PSI	1800 PSI	1050 PSI	625 PSI	425 PSI
1 Phase TEFC	BV1+B1104	BV2+B1104	BV4+B1104	BV6+B1104	BV8+B1104
B3104	.25 GPM	.58 GPM	1.25 GPM	2.25 GPM	3.40 GPM
1 H.P. 1725 RPM	2250 PSI	1800 PSI	1050 PSI	625 PSI	425 PSI
3 Phase TEFC	BV1+B3104	BV2+B3104	BV4+B3104	BV6+B3104	BV8+B3104
B1154			1.17 GPM	2.18 GPM	3.34 GPM
1-1/2 H.P. 1725 RPM			1550 PSI	925 PSI	625 PSI
1 Phase TEFC			BV4+B1154	BV6+B1154	BV8+B1154
B3154			1.17 GPM	2.18 GPM	3.34 GPM
1-1/2 H.P. 1725 RPM			1550 PSI	925 PSI	625 PSI
3 Phase TEFC			BV4+B3154	BV6+B3154	BV8+B3154
B3204				2.06 GPM	3.26 GPM
2 H.P. 1725 RPM				1225 PSI	850 PSI
3 Phase TEFC				BV6+B3204	BV8+B3204
B3304				1.90 GPM	3.12 GPM
3 H.P. 1725 RPM				1850 PSI	1250 PSI
3 Phase TEFC				BV6+B3304	BV8+B3304
Intermittent Duty					

BV6+B174	**Pump/Motor/Valve/1 Gal. Tank**
To order Power unit with 1-1/2 gallon tank, specify as follows	
BV6+B174-1-1/2 TK	**Pump/Motor/Valve/1-1/2 Gal. Tank**
To order Power unit with 2-1/2 gallon tank, specify as follows	
BV6+B174-2-1/2 TK	**Pump/Motor/Valve/2-1/2 Gal. Tank**
To order Power unit with 5 gallon tank, (add letter T), as follows	
BVT6+B174	**Pump/Motor/Valve/5 Gal. Tank**
To order Power unit with 5 gallon tank, (add letter X), as follows	
BVX6+B174	**Pump/Motor/Valve/10 Gal. Tank**

Pump No.	Slip GPM / 100 PSI	GPM @ 0.PSI 1725 RPM
B1	0.015	0.48
B2	0.017	0.81
B4	0.020	1.40
B6	0.025	2.36
B8	0.030	3.49

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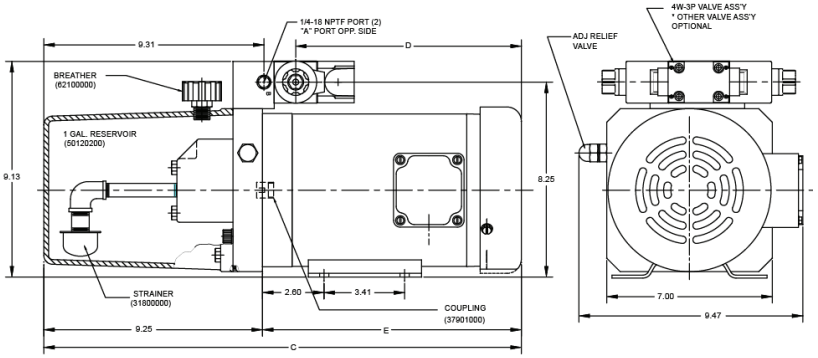
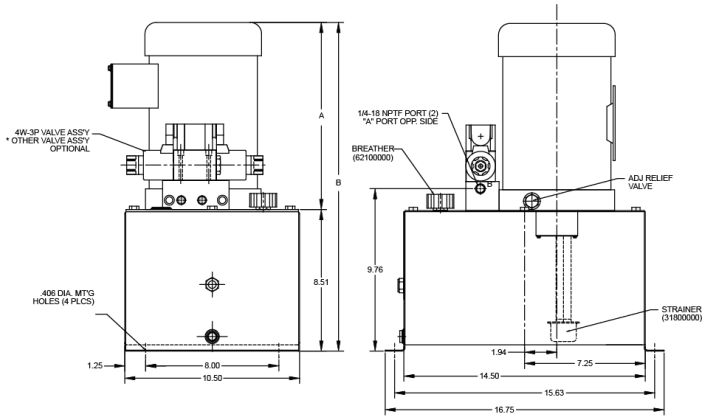
BV Series Power Unit with 1 Gallon Tank

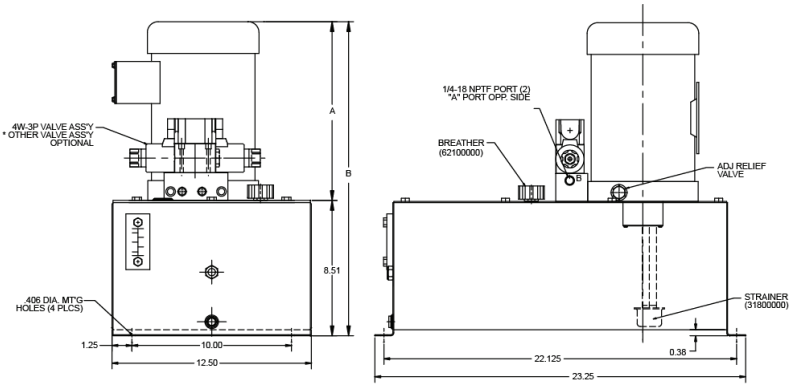


Motor	A	B	C	D	E
B154	11.13	19.69	19.38	9.75	9.88
B354	10.50	19.06	18.75	9.13	9.25
B174	10.50	19.06	18.75	9.13	9.25
B374	10.50	19.06	18.75	9.13	9.25
B1104	12.13	20.69	20.38	10.75	10.88
B3104	11.00	19.56	19.25	9.63	9.75
B1154	12.50	21.06	20.75	11.13	11.25
B3154	11.00	19.56	19.25	9.63	9.75
B3204	12.13	20.69	20.38	10.75	10.88
B3304	12.88	21.44	21.13	11.50	11.63

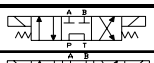
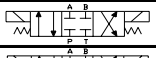
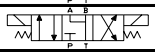
BVT Series with Valve and 5 Gallon Tank



BVX Series with Valve and 10 Gallon Tank



Directional Control Valves and Stack Modules

SYMBOL	DESCRIPTION	Part Number	
		110 VAC	220 VAC
	4W3P Tandem Center	22020116	22020117
	4W3P Open Center	22020118	22020119
	4W3P Closed Center	22020120	22020121
	4W3P Figure Four	22020122	22020123

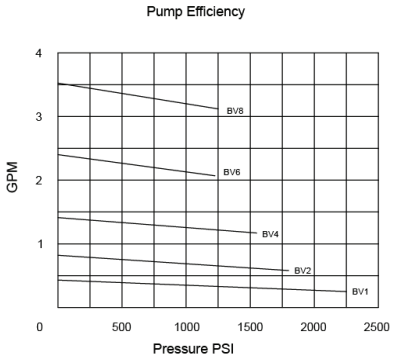
Accessory Options

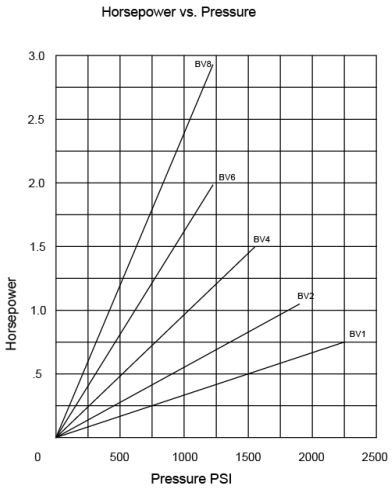
Pressure gauge & shut off including installation with B or BV power units	2 1/2" Dia. Std.	21001003
	2 1/2" Dia.Glyc.	21001007
Pressure switch including installation		21002001
Return line filter including installation (10 micron) nominal; 20 GPM maximum		21004001

Stack Modules

SYMBOL	DESCRIPTION	Part No.	Bolt Kit No.
	Flow Control Meter In/Out	3000 PSI 85004206	BK-7
	Dual Pilot Operated Check (4:1 Ratio)	3000 PSI 85004025	BK-7

Performance Data





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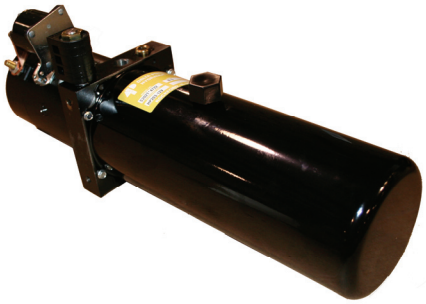
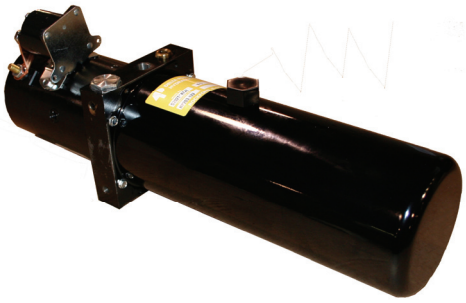
HP200 Series

HP203 Series

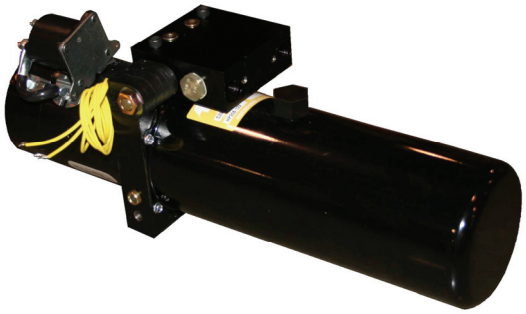


HP204 Series



HP205 Series

HP208 Series



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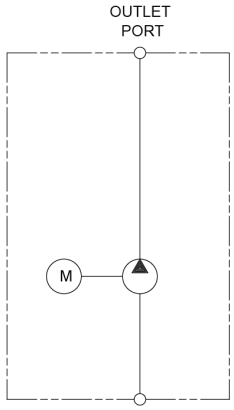
HP200 Series - Pump/Motor

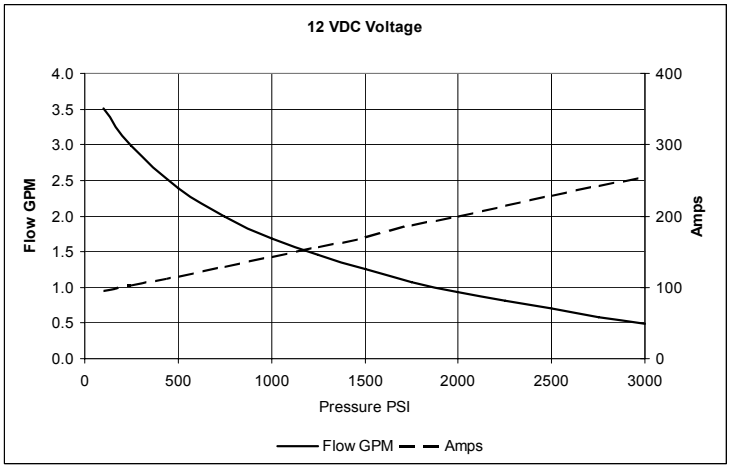


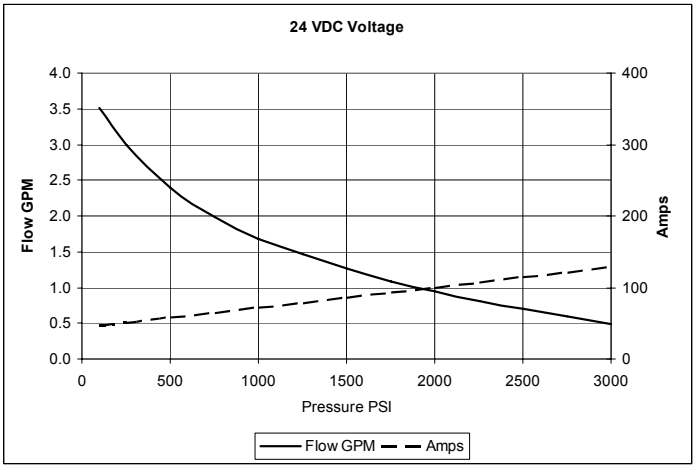
HYDRAULIC SCHEMATIC

High Performance 12 or 24 VDC Power Packages
Combining basic engineering principles with application proven components brings together several standard DC power units.

Delta HP series provides many advantages; compactness, integrated circuitry, cast iron pumps with anti-friction bearings and matched energy efficient DC Motors.

Pump / Motor Specifications
Duty Cycle - Intermittent. Typically, 1 minute on time requires 4 minutes off time. Loads above 150 amps require shorter run times/or longer off times.





300-400 SSU Hydraulic oil @100° F

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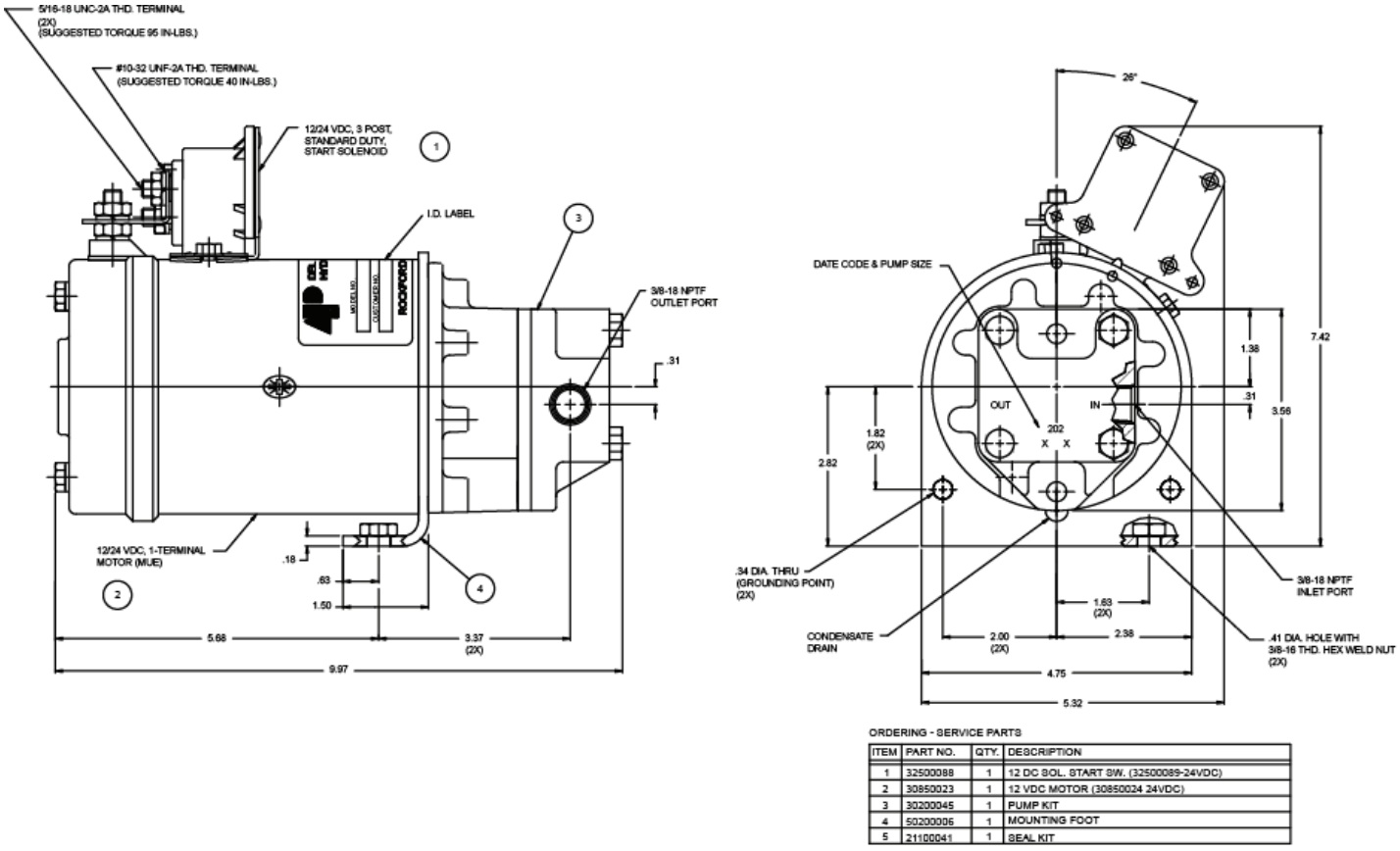
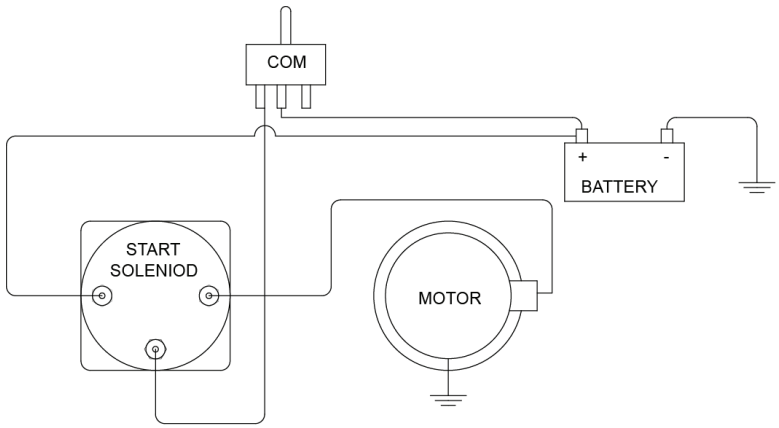
HP200 Series Pump/Motor Unit



ORDERING - SERVICE PARTS

ITEM	PART NO.	QTY.	DESCRIPTION
1	32500088	1	12 DC SOL. START SW. (32500089-24VDC)
2	30850023	1	12 VDC MOTOR (30850024 24VDC)
3	30200045	1	PUMP KIT
4	50200006	1	MOUNTING FOOT
5	21100041	1	SEAL KIT



WIRING SCHEMATIC

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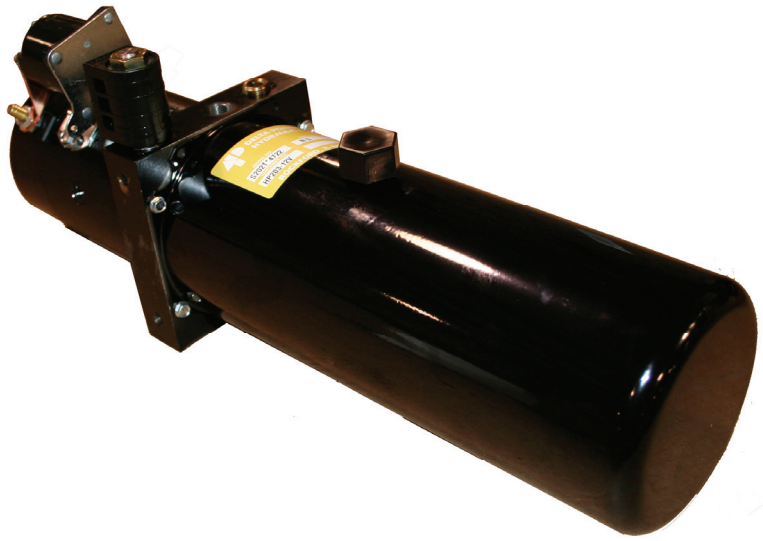
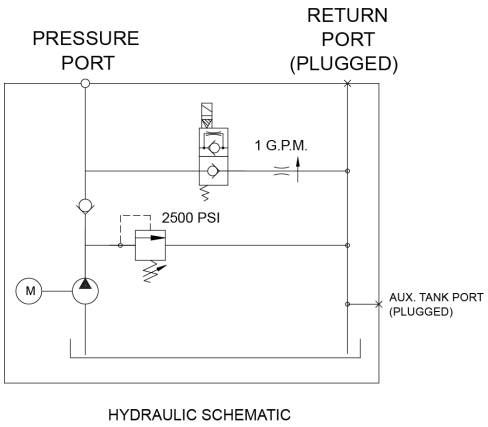
HP203 Series – Lift, Check and Dump



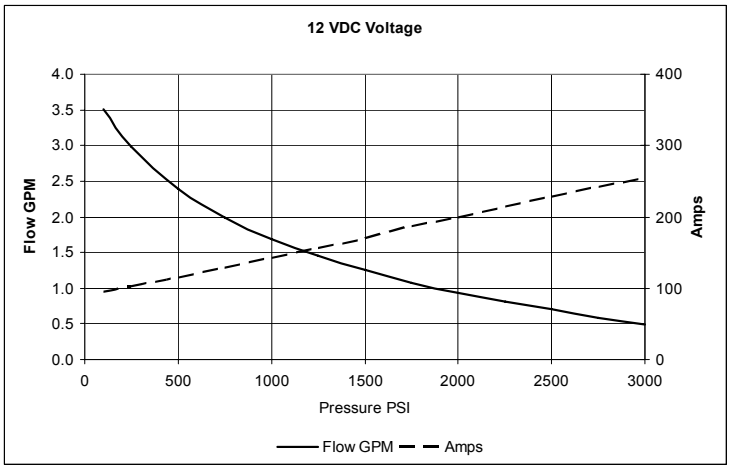


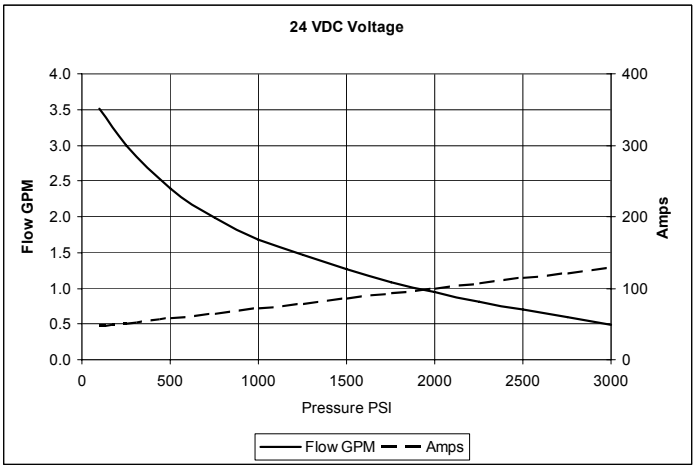
HYDRAULIC SCHEMATIC

High Performance 12 or 24 VDC Power Packages
Combining basic engineering principles with application proven components brings together several standard DC power units.

Delta HP series provides many advantages; compactness, integrated circuitry, cast iron pumps with anti-friction bearings and matched energy efficient DC Motors.

Pump / Motor Specifications
Duty Cycle - Intermittent. Typically, 1 minute on time requires 4 minutes off time. Loads above 150 amps require shorter run times/or longer off times.





300-400 SSU Hydraulic oil @100° F

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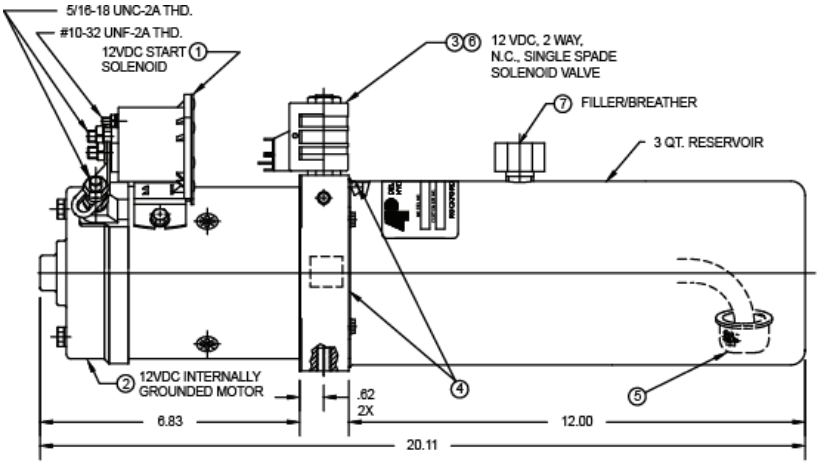
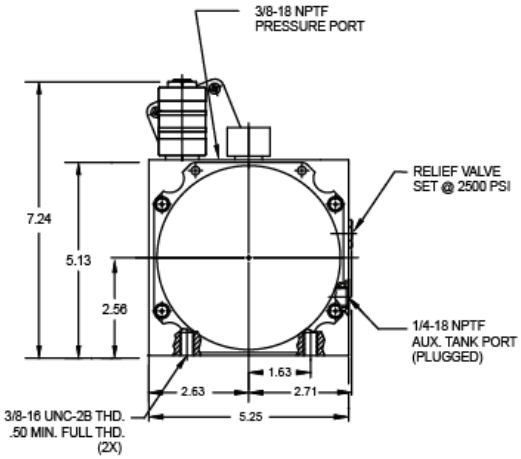
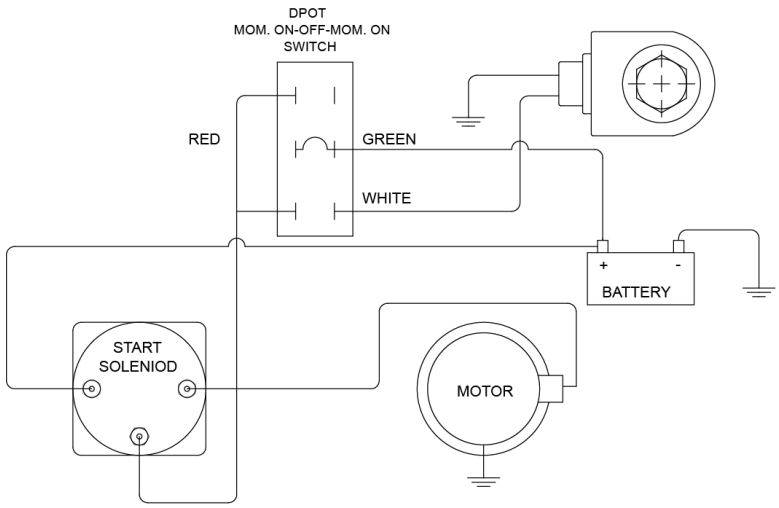
HP203 Series Power Unit





ORDERING - SERVICE PARTS

ITEM	PART NO.	QTY.	DESCRIPTION
1	32500088	1	12VDC SOL. START SW. (32500089 24VDC)
2	30850023	1	12 VDC MOTOR (30850024 - 24VDC)
3	86020189	1	2W2P NC VALVE
4	21100014	1	SEAL KIT
5	31800000	1	STRAINER
6	38020013	1	12VDC VLV. COIL (38020014 24VDC)
7	62100004	1	FILLER/BREATHER



WIRING SCHEMATIC

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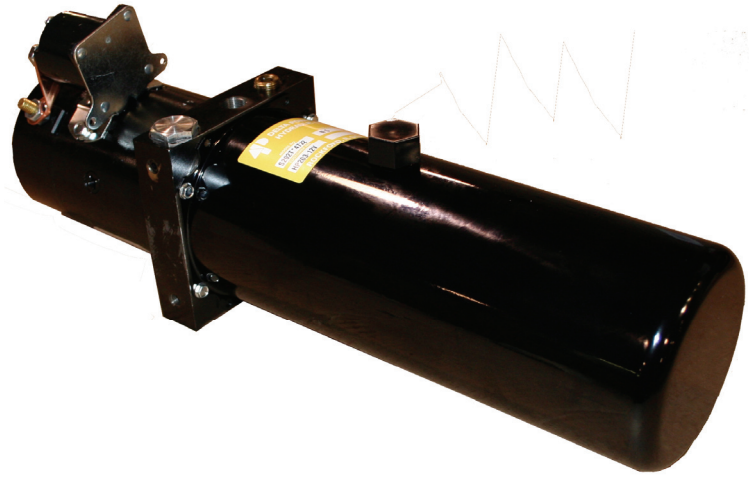
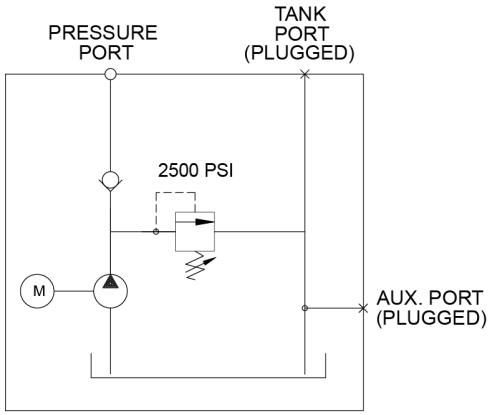
4484 Boeing Drive - Rockford, IL 61109

HP204 Series - Check and Relief



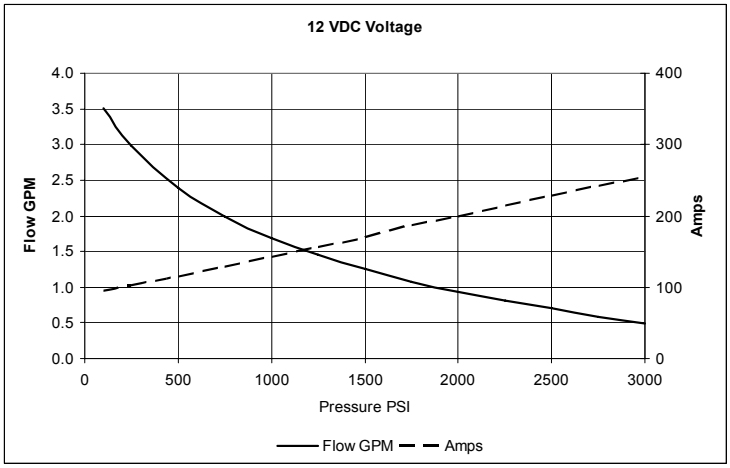


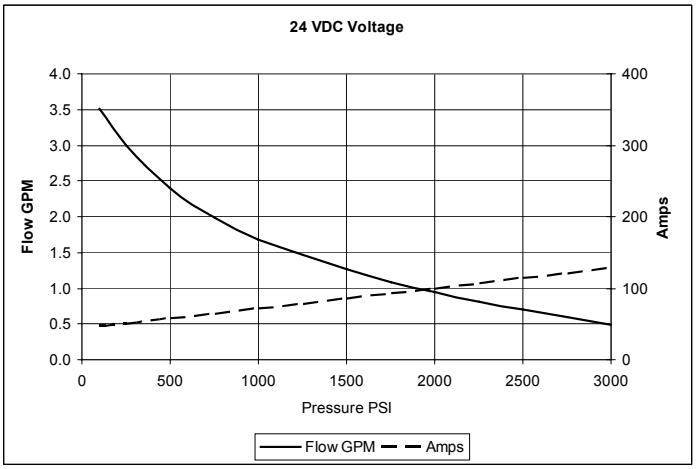
HYDRAULIC SCHEMATIC

High Performance 12 or 24 VDC Power Packages
Combining basic engineering principles with application proven components brings together several standard DC power units.

Delta HP series provides many advantages; compactness, integrated circuitry, cast iron pumps with anti-friction bearings and matched energy efficient DC Motors.

Pump / Motor Specifications
Duty Cycle - Intermittent. Typically, 1 minute on time requires 4 minutes off time. Loads above 150 amps require shorter run times/or longer off times.





300-400 SSU Hydraulic oil @100° F

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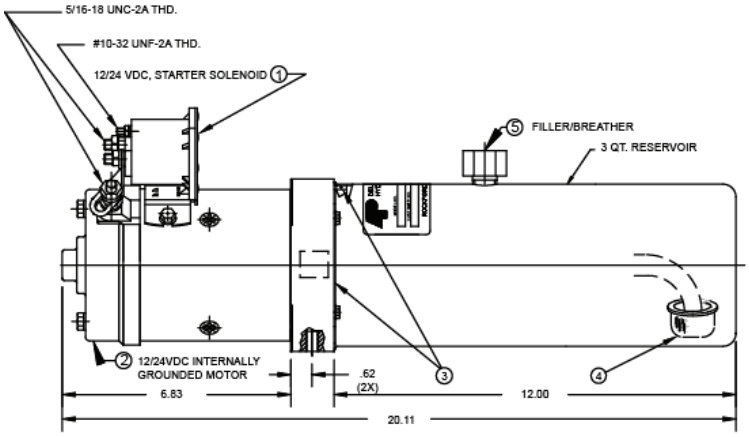
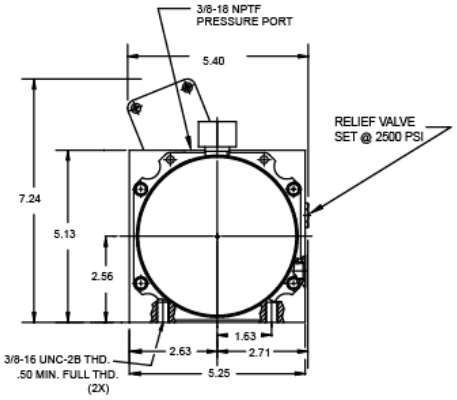
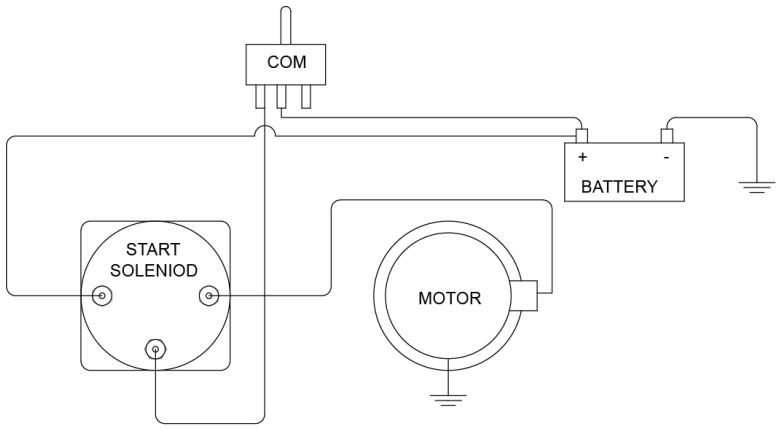
HP204 Series Power Unit





ITEM	PART NO.	QTY.	DESCRIPTION
1	32500088	1	12V SOL START SW(24V-32500089)
2	30850023	1	12 VDC MOTOR (24V-30850024)
3	21120034	1	SEAL KIT, POWER UINT
4	31800000	1	STRAINER
5	62100004	1	FILLER/BREATHER



WIRING SCHEMATIC

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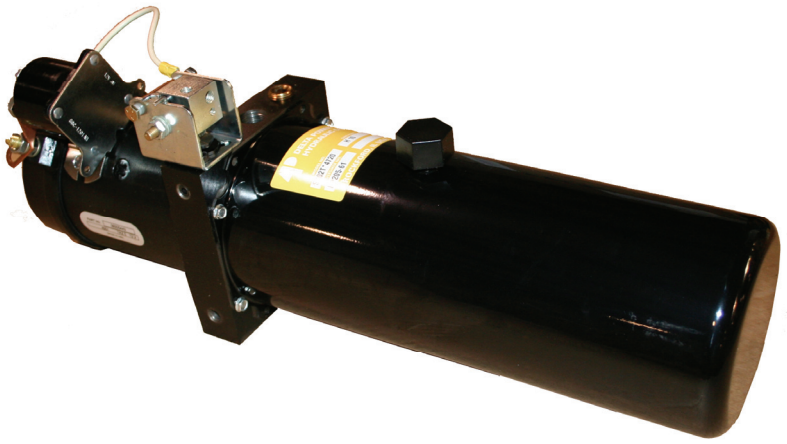
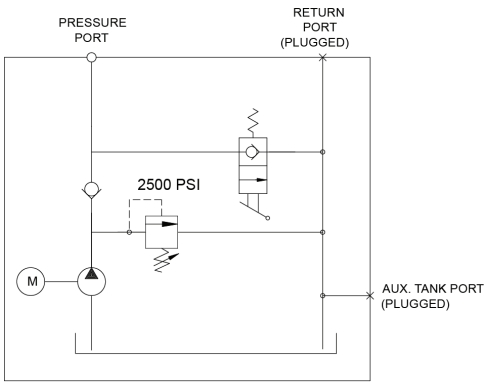
HP205 Series – Lift, Check and Manual Lower





HYDRAULIC SCHEMATIC

High Performance 12 or 24 VDC Power Packages
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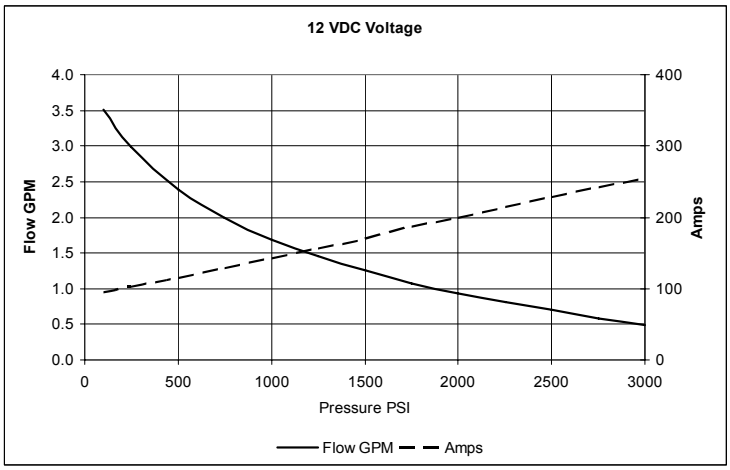
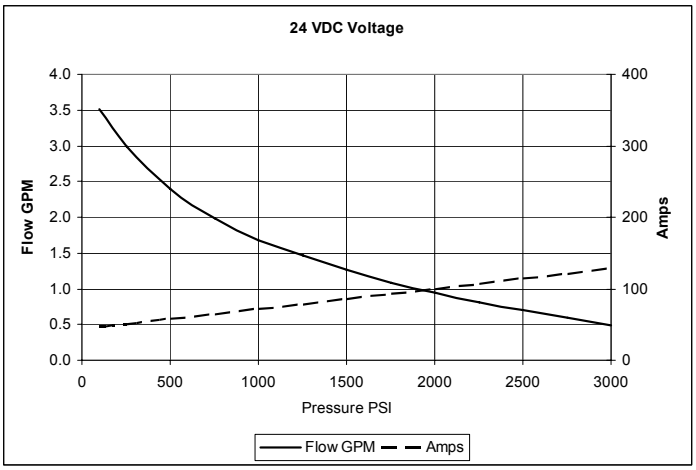
Pump / Motor Specifications
Duty Cycle - Intermittent. Typically, 1 minute on time requires 4 minutes off time. Loads above 150 amps require shorter run times/or longer off times.





300-400 SSU Hydraulic oil @100° F

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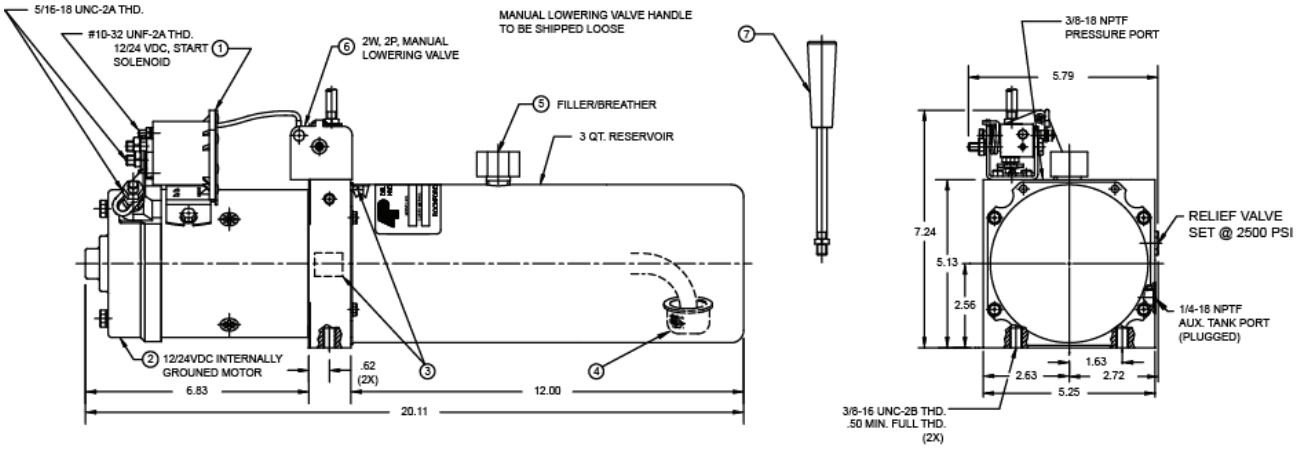
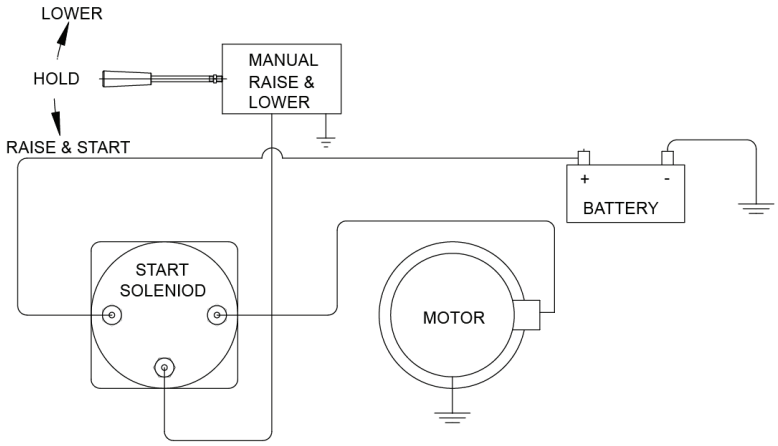
HP205 Series Power Unit



ITEM	PART NO.	QTY.	DESCRIPTION
1	32500088	1	12V SOL START SW (12V-32500089
2	30850023	1	12 V MOTOR (24V-30850024)
3	21120034	1	SEAL KIT, POWER UINT
4	31800000	1	STRAINER
5	62100004	1	FILLER/BREATHER
6	32000064	1	VALVE, LOWERING
7	34200008	1	HANDLE



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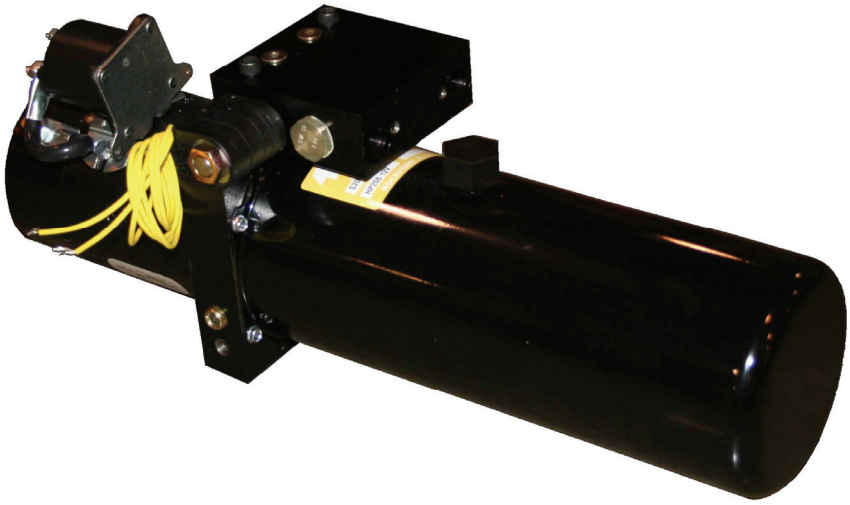
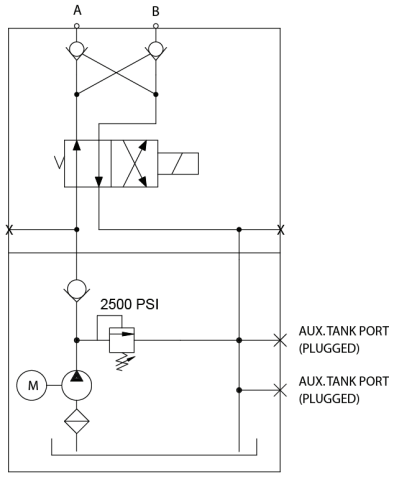
HP208 Series – Power Up/Down





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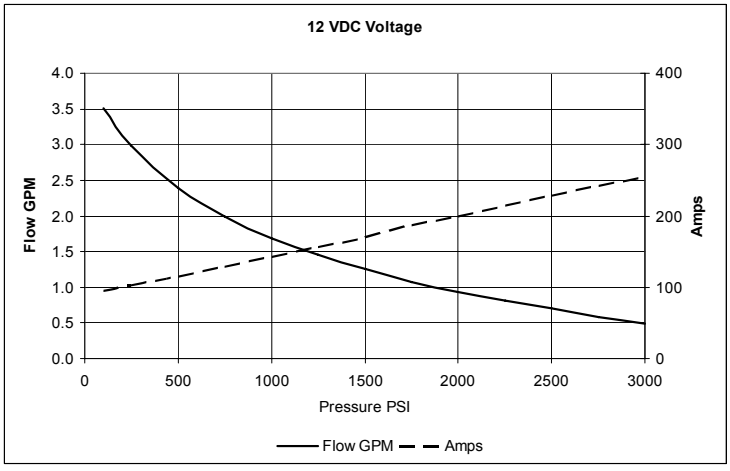

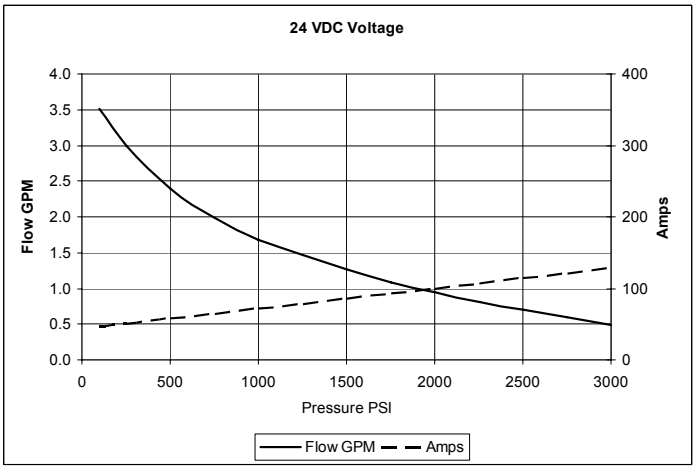

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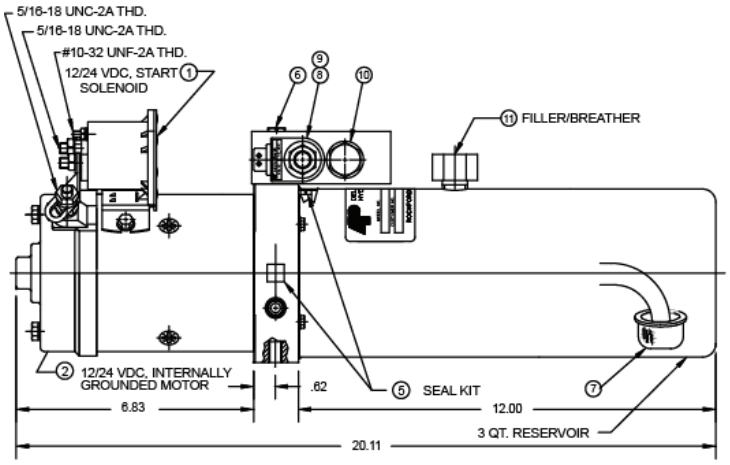
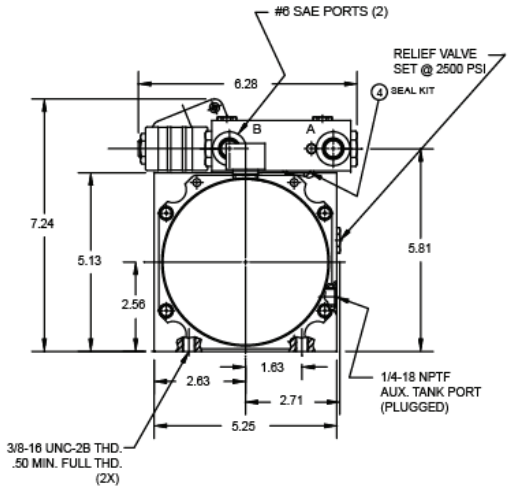
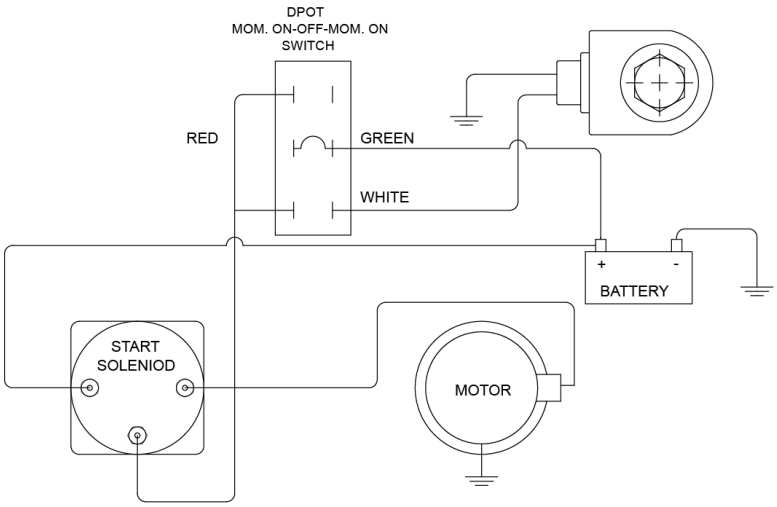
HP208 Series Power Unit





ITEM	PART NO.	QTY.	DESCRIPTION
1	32500088	1	12V SOL START SW(24V-32500089)
2	30850023	1	12V MOTOR (24V-30850024)
3	86060087	1	MANIFOLD
4	21120033	1	SEAL KIT, MANIFOLD
5	21120034	1	SEAL KIT, POWER UINT
6	66620004	2	BOLT, 6/16-18 X 2.0'
7	31800000	1	STRAINER
8	38000013	1	COIL 12VDC
9	86020196	1	VALVE, 4W2P
10	86020028	2	VALVE, CHECK
11	62100004	1	FILLER/BREATHER



WIRING SCHEMATIC

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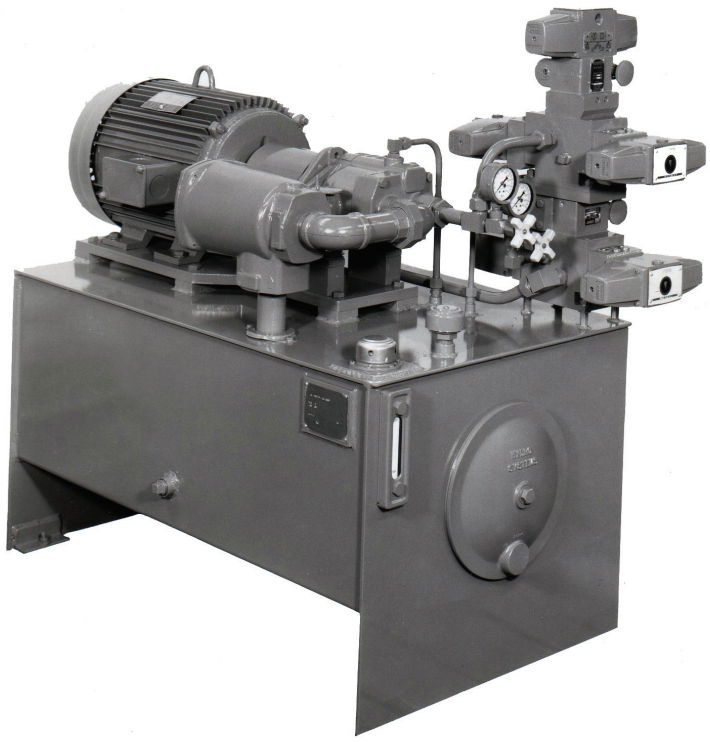
Specials

Delta Power packages… designed to meet a variety of applications
Delta Power Packages combine a variety of hydraulic pumps, electric motors, special tanks and JIC style reservoirs in pre-engineered package to provide maximum efficiency and dependability in most any application where specials are derived from standard size packages are needed. They deliver from 2.4 GPM at 1600 PSI to 29 GPM at 2000 PSI. The key to their versatility lies in their "CW", 3 through 20 HP TEFC motors with NEMA "C" face design with reservoirs up to 120 gallon JIC style reservoirs. Each is selected and balanced to perform best with the others. Combined with precisely machined pump-motor connecting brackets to assure positive shaft alignment and quiet operation, Delta power packages deliver performance that you can depend on in your system.

Quality at its best…
Delta Power quality comes from experience and dedication to accurate, meaningful design, quality materials and manufacturing excellence… to the smallest detail. All to provide our customers with the assurance that they will get products they and their customers can rely on.

Plus design assistance…
We are willing to share our experience in any way it can be useful to you… including help in custom circuit design incorporating Delta Power products (valve, pumps, motors and power packages). Call on Delta Power for assistance in selecting circuit components for your requirements. We'll respond.



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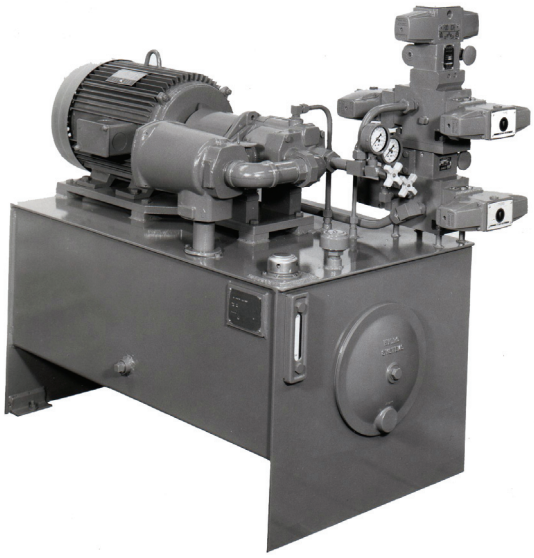

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INDEX

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Delta Power Company
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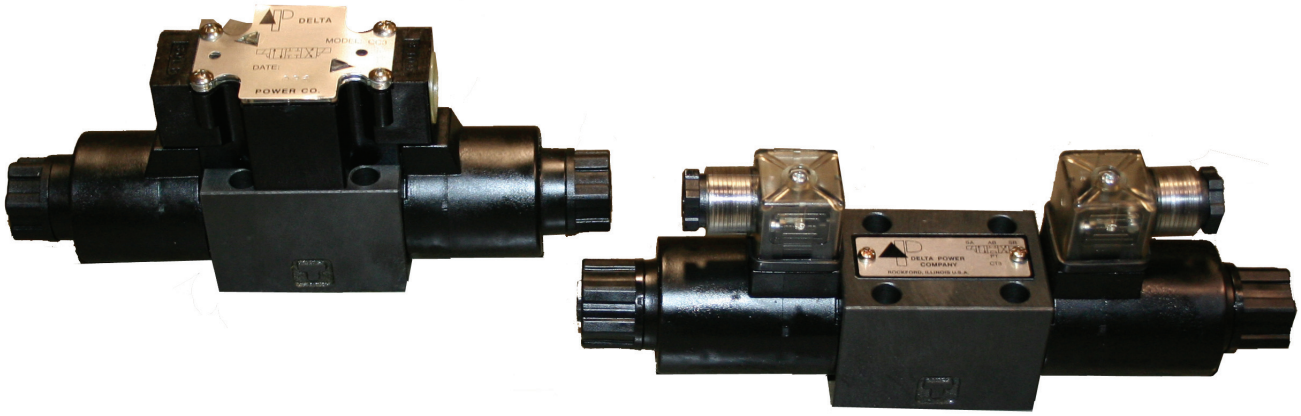
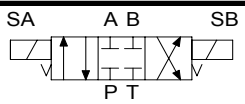
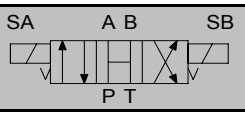
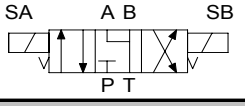
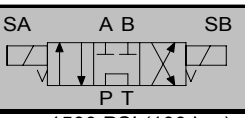
DO3 Valves

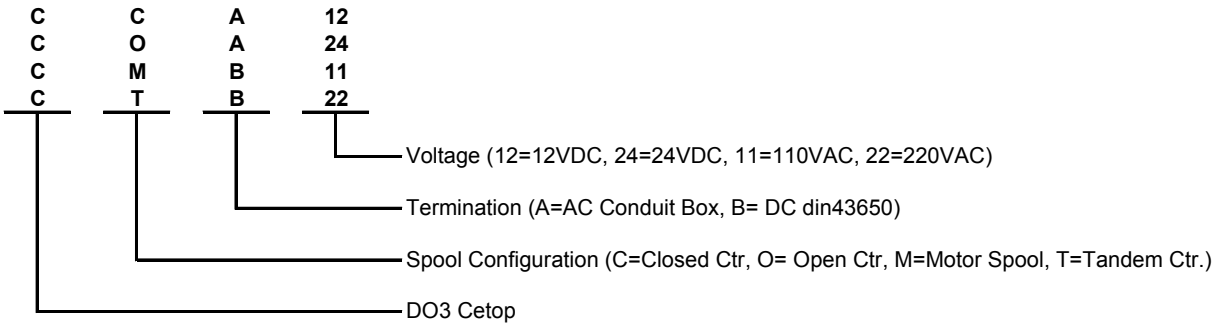


Specifications

Spool Configuration	Graphic Symbol	Description	Max. Flow GPM	Max. Pressure PSI
CC3		4W3P Closed Center	25 GPM	5000 PSI
CO3		4W3P Open Center	12.5 GPM	5000 PSI
CM3		4W3P Motor Spool	15 GPM	5000 PSI
CT3		4W3P Tandem Center	12.5 GPM	3500 PSI

Acceptable back pressure - 1500 PSI (100 bar)
Volts/Current 110 VAC/2.2, 220 VAC/1.4, 12 VDC/2.5, 24 VDC/ 1.25
Indicating light are standard
Weight: 4 lbs. (1.8 Kg)

Ordering Codes



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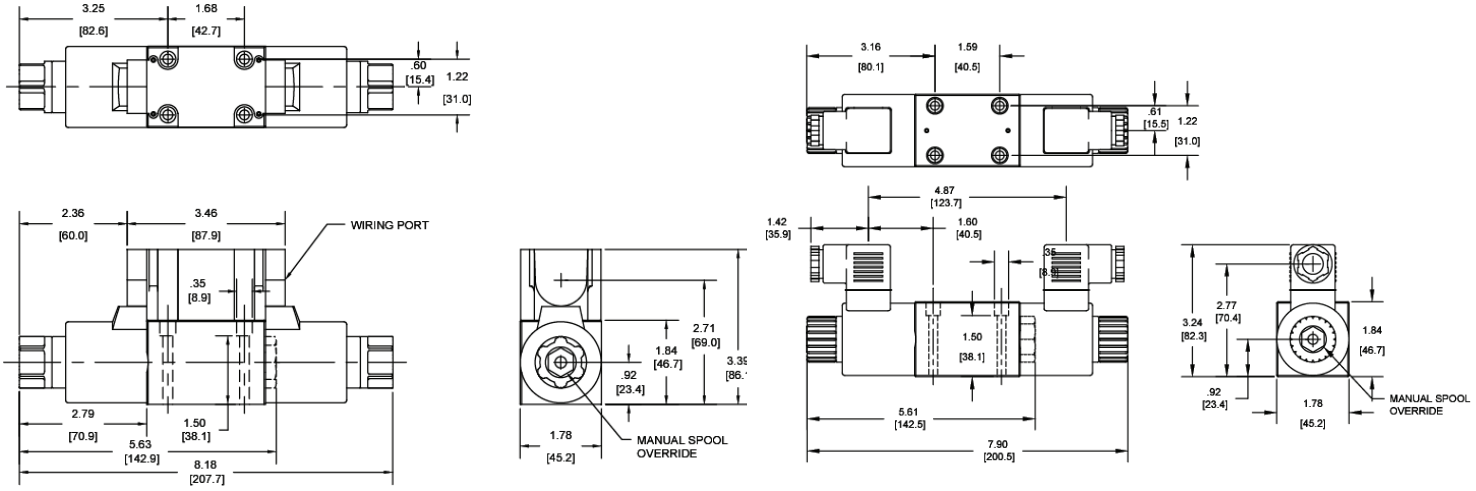
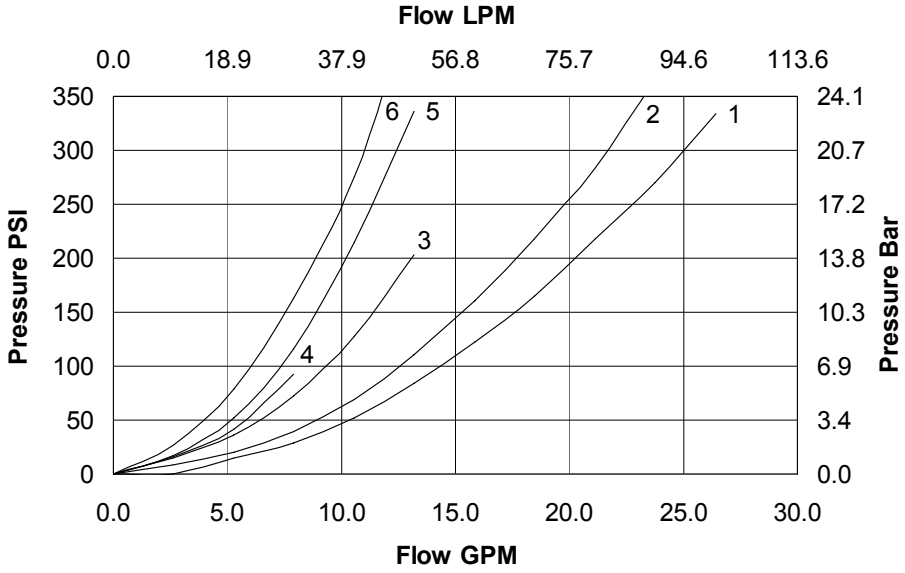
Drawings



Performance Data

Pressure Drop Characteristics



ABOVE CURVE IS WITH HYDRAULIC OIL 150 SSU AT 100° F.

Model	Valve Spool Type	P → A	P → B	A → T	B → T	P → T
CO3XXX	Open Center	1	1	1	1	1
CC3XXX	Closed Center	2	2	2	2	-
CM3XXX	Motor Spool	2	2	1	2	-
CT3XXX	Tandem Center	6	6	5	5	3

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Reservoirs

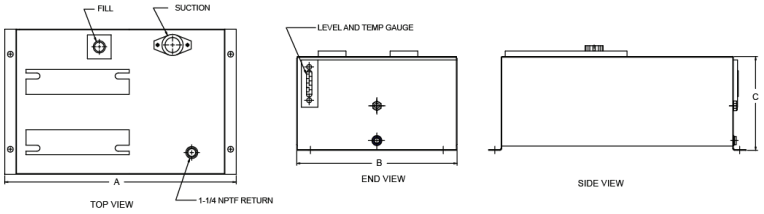
All standard Delta Power Company power packages include a choice of reservoirs, from the smallest non JIC 10 gallon size to the ruggedly constructed 20 through 120 gallon JIC style reservoirs. All 20 through 120 gallon JIC reservoirs have 40 micron filter breather, sight level-temperature gauge, tank baffle, 100 mesh suction strainers, 1 ¼ ” NPTF return line, single-bolt clean out covers at each end easy access drain plug. Generally, the 10 gallon reservoir is used with no larger than the 5 HP motor and the 20 gallon reservoir is used with no larger than a 7 ½ HP motor.

Specifications

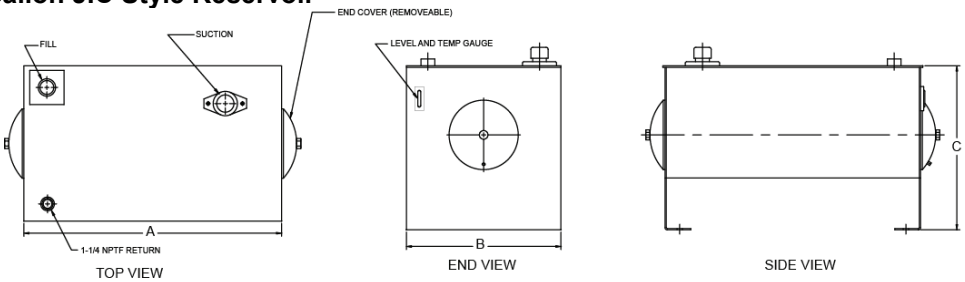
Tank Capacity	10 Gallon	20 Gallon	30 Gallon	40 Gallon	60 Gallon	80 Gallon	100 Gallon	120 Gallon
Model Number*	T10	T20	T30	T40	T60	T80	T100	T120

*Tank model number are added to the pump/motor combination model numbers in the CW specifications charts to complete the total power packaged model number. For example: **CW23+3504+T30**

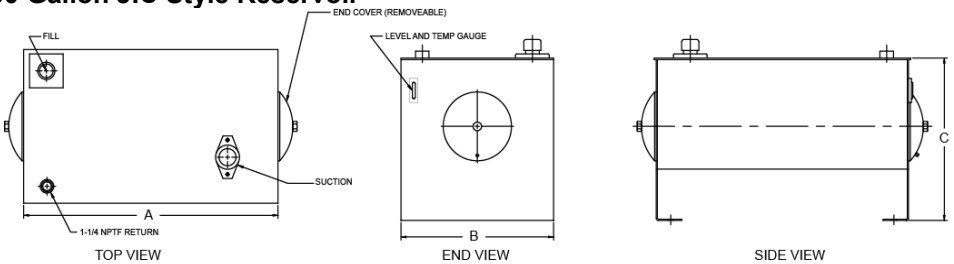
10 Gallon Non JIC Style Reservoir



10, 20, 30 and 40 Gallon JIC Style Reservoir



60, 80, 100 and 1200 Gallon JIC Style Reservoir



Dimensions	Resevoir Model							
	T10	T20	T30	T40	T60	T80	T100	T120
A	23.3	30.0	36.0	36.0	48.0	60.0	60.0	60.0
B	14.5	18.0	24.0	24.0	27.0	27.0	27.0	30.0
C	8.5	19.0	19.4	21.0	20.5	21.5	23.5	27.0

Accessories/Options

- Relief valve
- Pressure gauge and shut-off
- Low level liquid switch
- Directional control valves and cartridge valves, manifolded
- Return line filter

As a special service to satisfy our customer’s needs Delta Power Company will also install as part of the power package other components provided by our customers.

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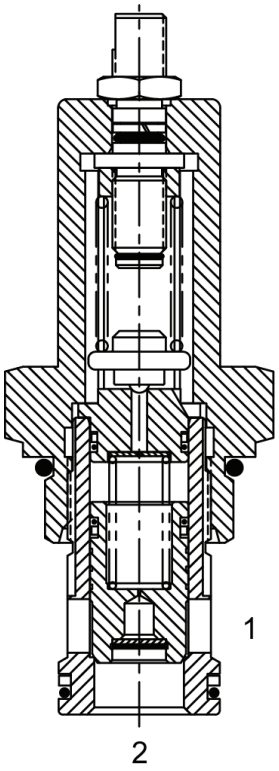
4484 Boeing Drive - Rockford, IL 61109

SJ-RVR Pilot Operated Relief Valve, with Reverse Flow



DESCRIPTION

16 size, 1 5/16-12 thread, “Super” series, pilot operated relief valve with reverse flow.

OPERATION

The SJ-RVR blocks flow from (2) to (1) until sufficient pressure is present at (2) to force the pilot stage off its seat, allowing the main stage spool to shift, opening (2) to (1).

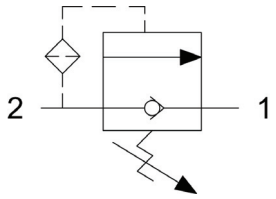
The relief flow path is from (2) to (1). Reverse flow, from (1) to (2), occurs when the pressure at (1) is at least 30 PSI (2.1bar) higher then at port (2).

The Cartridge offers smooth transition in response to load changes in common hydraulic circuits.

FEATURES

- Hardened parts for long life.
- Industry common cavity.

HYDRAULIC SYMBOL

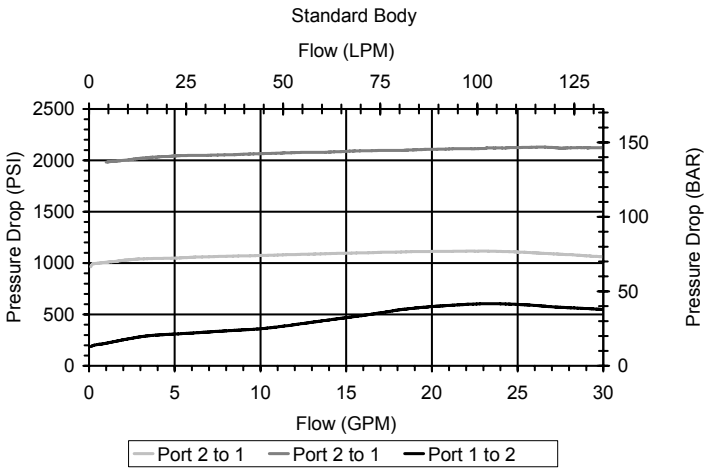


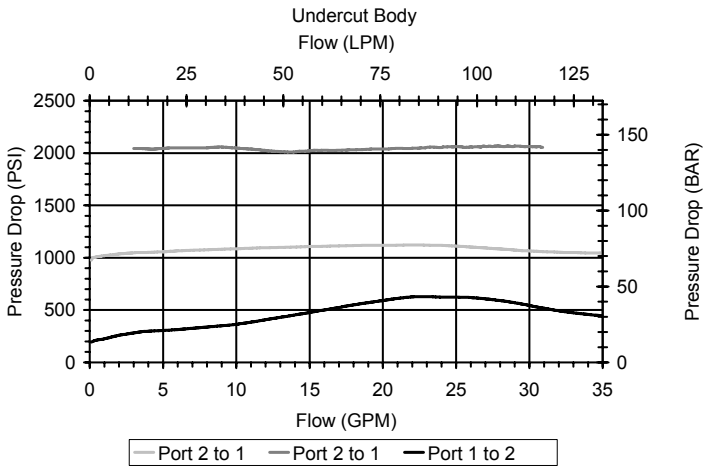
VALVE SPECIFICATIONS

Nominal Flow	40 GPM (151 LPM)
Rated Operating Pressure	3500 PSI (241 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	1.13 lbs. (.51 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	90 ft-lbs (122 Nm)
Cavity	SUPER 2W
Cavity Form Tool (Finishing)	40500017
Seal Kit	21191400

PERFORMANCE

Actual Test Data (Cartridge Only)





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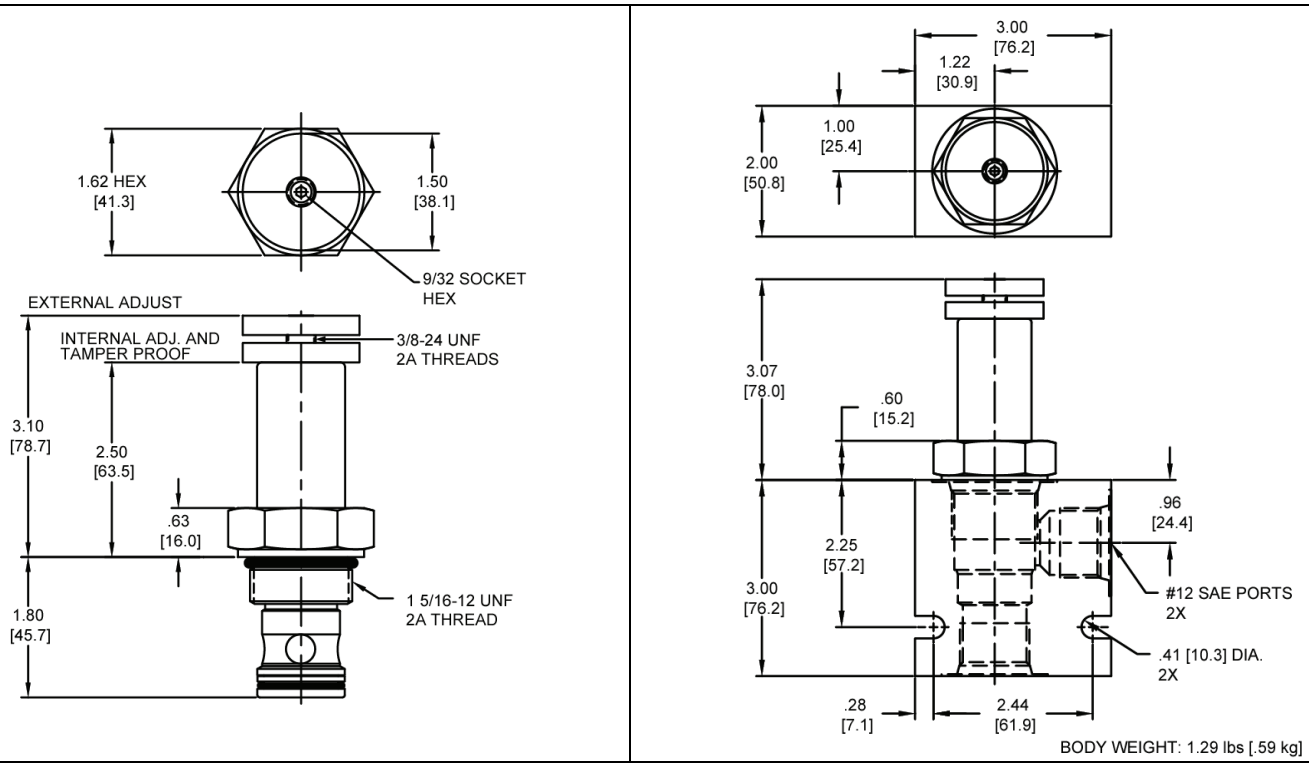
DIMENSIONS



ORDERING INFORMATION

SJ-RVR - ____ - ____ - ____

OPTIONS			BODIES	
Buna Standard	**00**		Blank	Without Body
Viton Standard	**V0**		**N**	3/4 NPTF Ports
Buna, Knob	**0K**		**S**	#12 SAE Ports
Viton, Knob	**VK**			
Buna, Internal Adjust	**0I**		**PRESSURE SETTING**	
Viton, Internal Adjust	**VI**	**3500**	500 - 3500 PSI	
Buna, Tamper Proof	**0T**			
Viton, Tamper Proof	**VT**		TAMPER PROOF (fill in 4 digit pressure setting)	
		Example	**0500** = 500 PSI	

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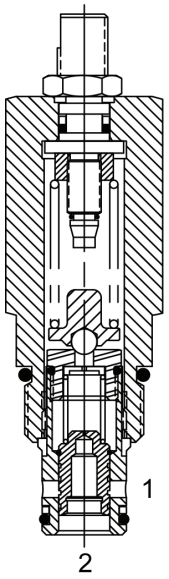
DE-RWP Pilot Operated Relief Valve



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, pilot operated relief valve.

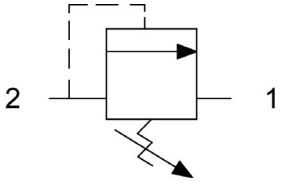
OPERATION

The DE-RWP blocks flow from (2) to (1) until sufficient pressure is present at (2) to force the pilot stage open, allowing the main stage to shift, opening (2) to (1).

FEATURES

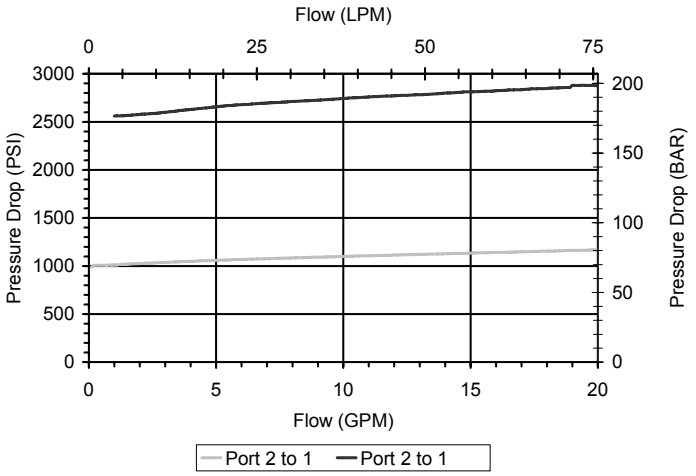
- Hardened parts for long life.
- Industry common cavity.

HYDRAULIC SYMBOL



PERFORMANCE

Actual Test Data (Cartridge Only)



VALVE SPECIFICATIONS

Nominal Flow	15 GPM (57 LPM)
Rated Operating Pressure	4000 PSI (276 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	.53 lbs. (.24 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Cavity	DELTA 2W
Cavity Form Tool (Finishing)	40500000
Seal Kit	21191200

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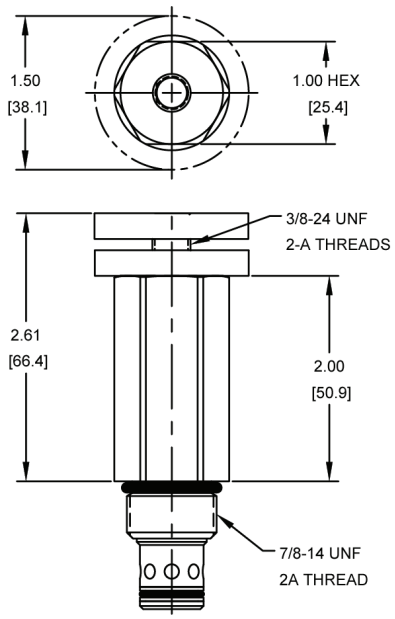
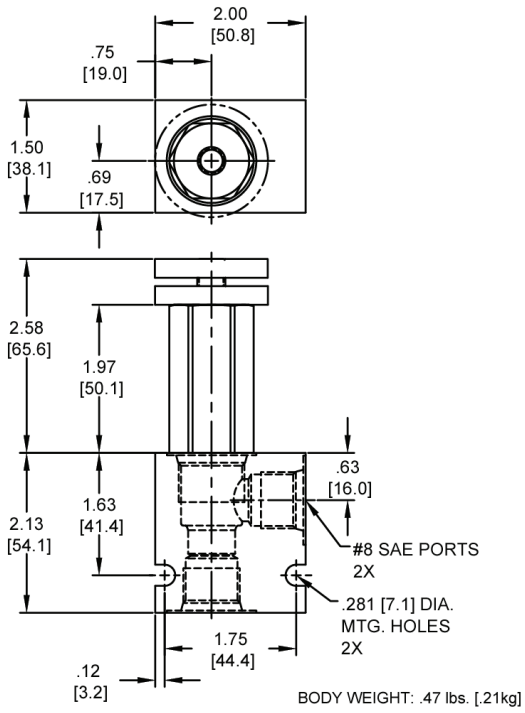
DIMENSIONS





ORDERING INFORMATION

DE-RWP - ____ - ____ - ____

OPTIONS			BODIES	
Buna Standard	**00**		Blank	Without Body
Viton Standard	**V0**		**N**	3/8 NPTF Ports
Buna, Knob	**0K**		**S**	#8 SAE Ports
Viton, Knob	**VK**			
Internally Adj. Buna	**0I**			
Internally Adj. Viton	**VI**			
Tamper Proof Buna	**0T**	**4000**	**PRESSURE RANGE/SETTING**	
Tamper Proof Viton	**VT**		1000 – 4000 PSI	

Tamper Proof
Fill in 4 Digit Pressure Setting
Example: 0500 – 500 PSI

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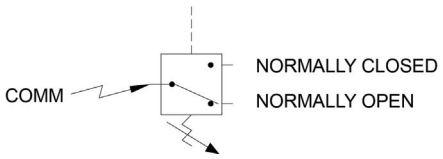
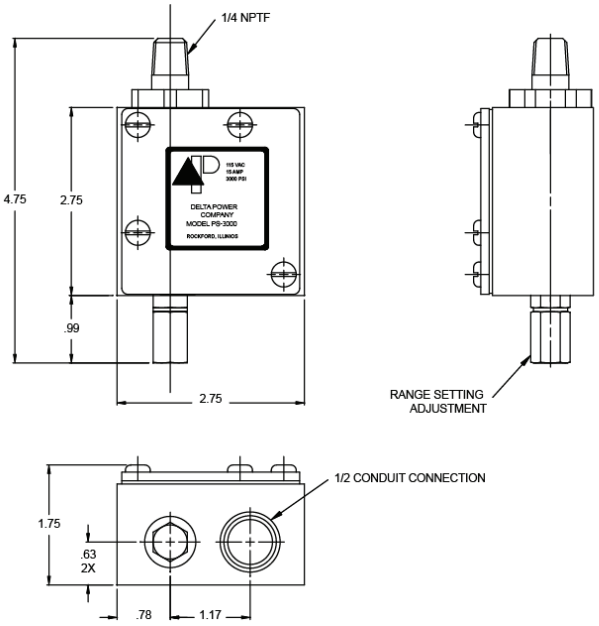
Pressure Switch



Model	Range
PS1500	150-1500 PSI Adjustable
PS3000	500-3000 PSI Adjustable

This compact, rugged pressure switch is designed to meet today's need for an inexpensive, yet dependable control. Although housed in an oil-tight, aluminum body, the assembly weighs only 1 lbs. 4 oz. and can be easily included into new or existing circuitry.

Micro Switch Electrical Data UL and CSA Listed:
15 Amps and ½ HP, 125 or 250 VAC
½ Amp, 125VDC
¼ Amp, 250 VDC
5 Amps, 12 VAC "L"



Features Include:

- A micro switch rated for 2 million cycles
- A specially designed actuator consisting of a dampened piston and positive stop striker plate
- Externally adjustable pressure range
- ½ Conduit connector
- ¼ NPTF male pipe thread
- Common, normally open, and normally closed terminals
- Gasket, removable cover for ease of wire assembly

Pressure reset characteristics: 250-350 PSI differential

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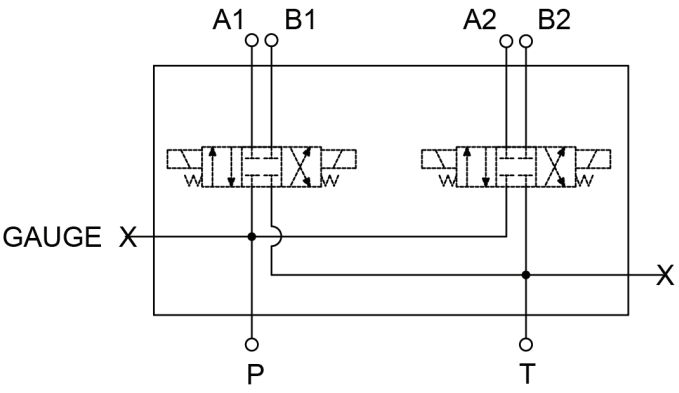
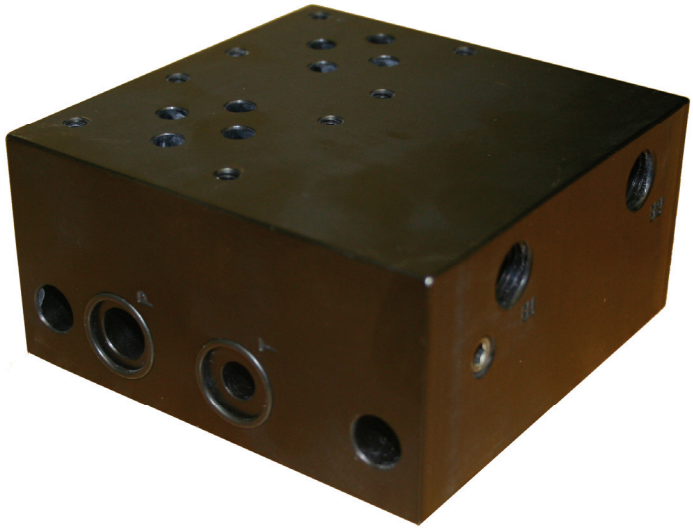
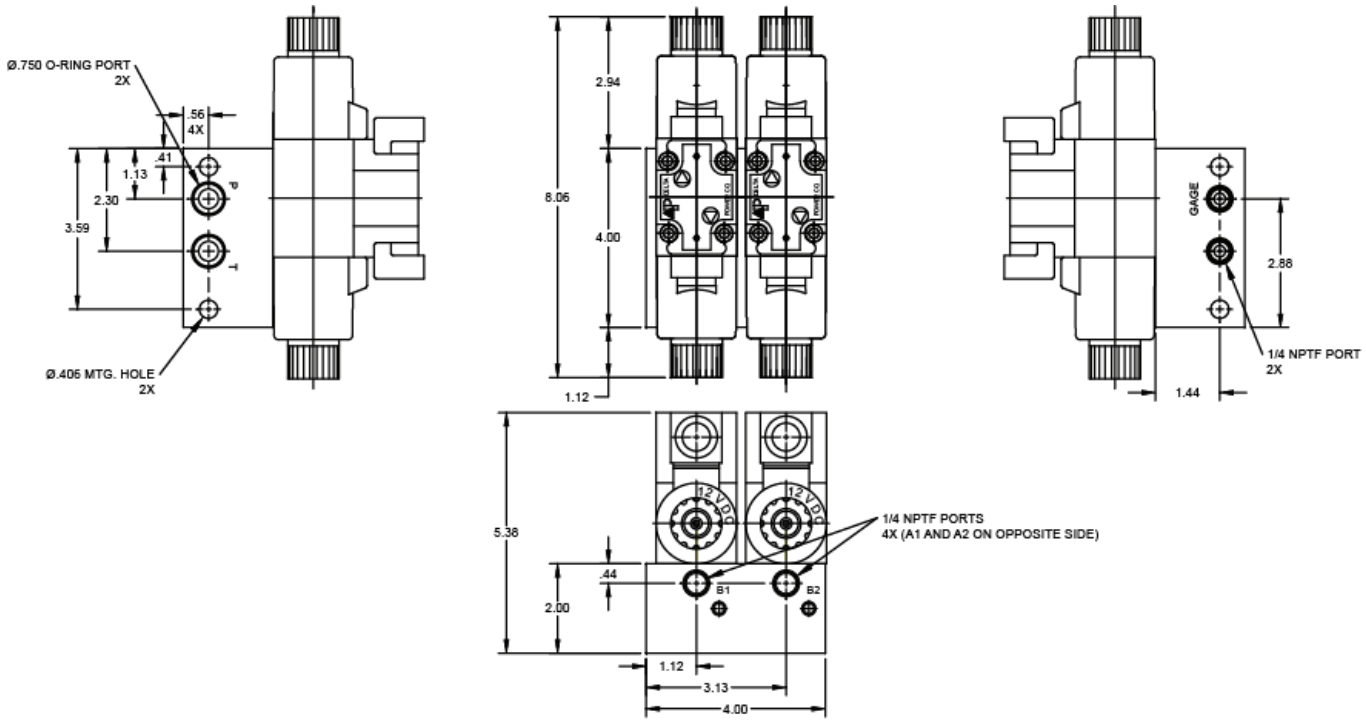
B Series 2 Station Parallel Manifold Assembly



HYDRAULIC SCHEMATIC



Note: DO3 Valve shown for reference only.



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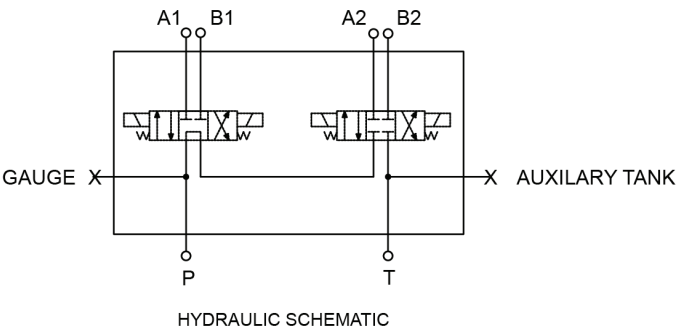
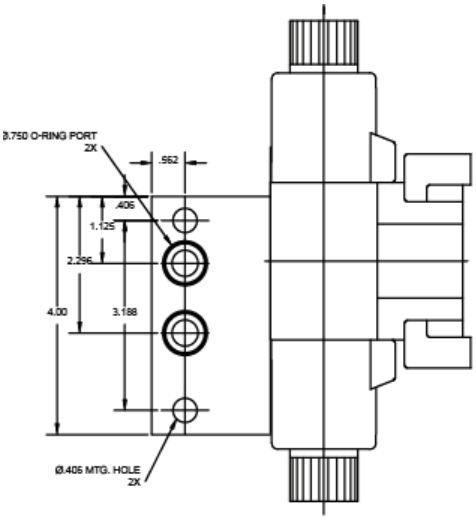
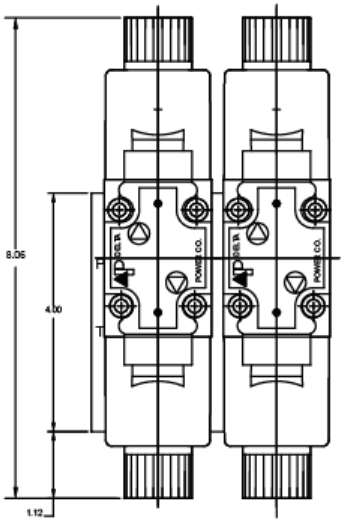
B Series 2 Station Series Manifold Assembly

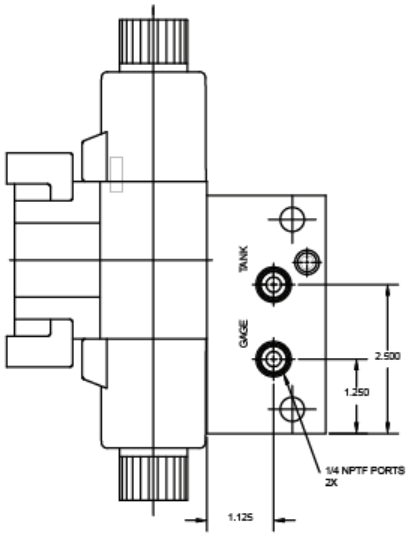


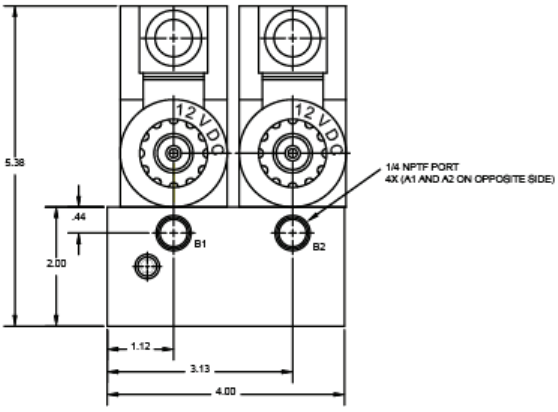
HYDRAULIC SCHEMATIC

Note: DO3 Valve shown for reference only.









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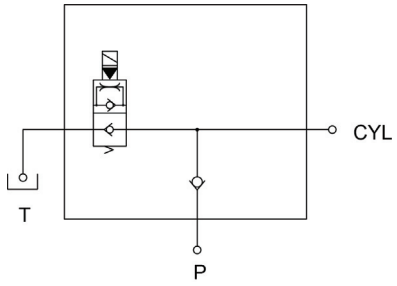
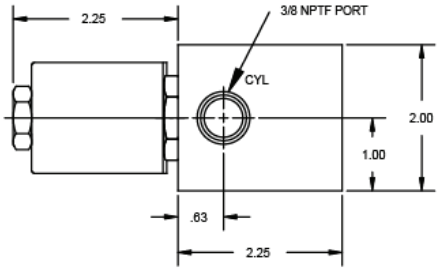
B Series Lift-Check-Dump Manifold Assembly



HYDRAULIC SCHEMATIC

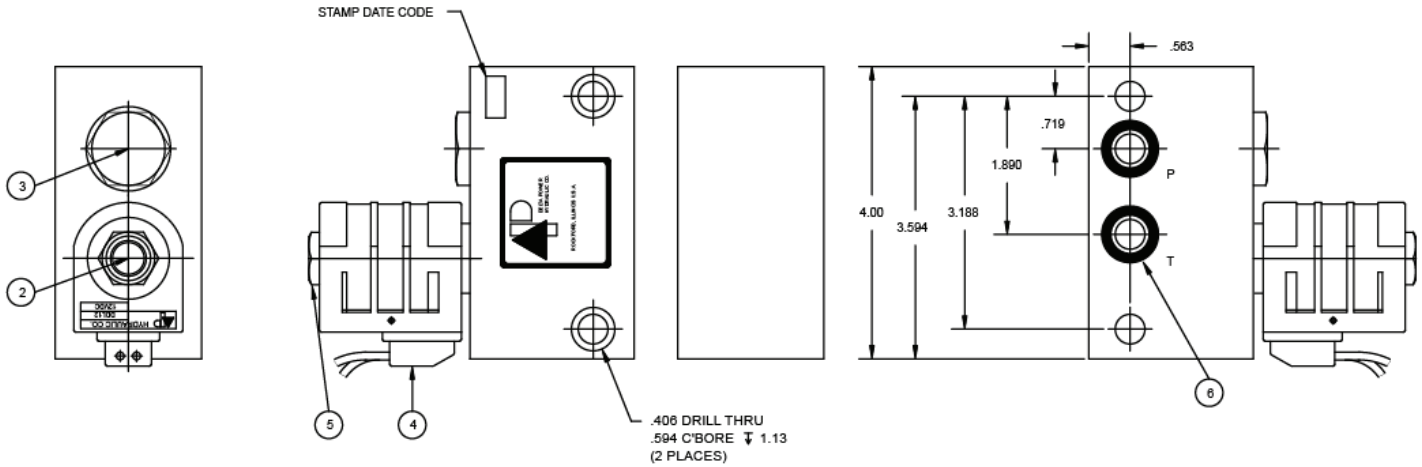
LIFT, CHECK AND DUMP MANIFOLD
FOR B-SERIES POWER UNITS

ASSEMBLY NO.	COIL NO.
85005304	39610030 12VDC DL
85005676	39610032 24VDC DL
85005423	39610035 110VAC DL



SERVICE PARTS

ITEM	MNEMONIC	PART NO.	QTY.	DESCRIPTION
2	DE-S2A-00	85002355	1	N.C. VALVE
3	DE-CVA-00	85002004	1	CHECK VALVE
4		396100XX	1	SEE CHART
5		36202020	1	HEX NUT
6		60108016	2	O-RING
		66730000	2	MOUNTING BOLT



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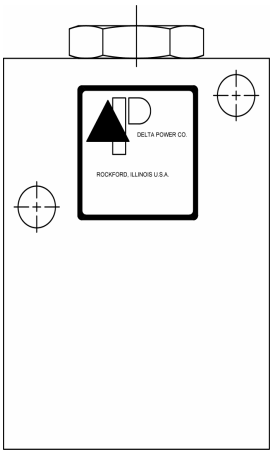
MS-POC Single Pilot Operated Check Valve



DESCRIPTION

7 size, 5/8-18 thread, “Mini” series, pilot operated check valve.

OPERATION

The MS-POC allows flow to pass from (V) to (C) and blocks flow from (C) to (V). When pilot pressure is applied to pilot port the valve allows flow from (C) to (V).

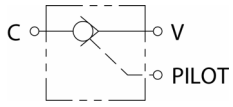
The valve has a 6.7:1 pilot ratio, so at least .149 of the load pressure is required at the (PILOT) port to open the flow passage to allow flow from ports (C).

The check is spring-biased at 50 psi (3.4 bar) to assure holding in static or no-load conditions.

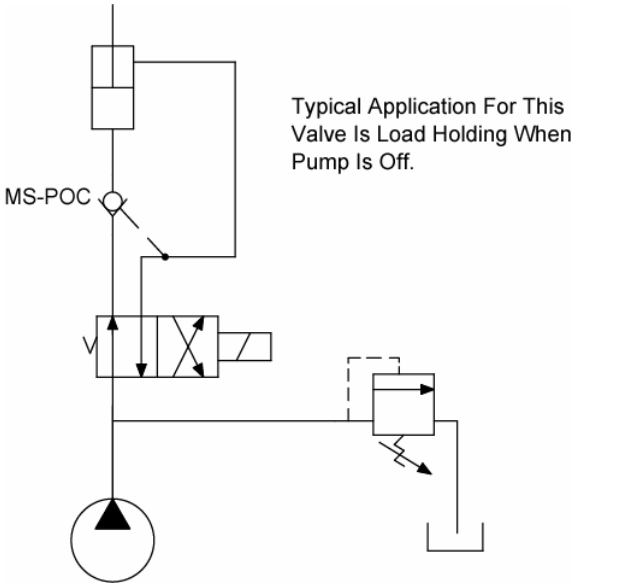
FEATURES

- Hardened internal parts for long life.
- Anodized aluminum body for corrosion protection.

HYDRAULIC SYMBOL



TYPICAL SCHEMATIC



VALVE SPECIFICATIONS

Nominal Flow	5 GPM (19 LPM)
Rated Operating Pressure	3000 PSI (207 bar)
Typical Internal Leakage (150 SSU)	0-5 drops/min
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Pilot Ratio	6.7:1
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	.7 lbs. (.30 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	15 ft-lbs (20.3 Nm)
Cartridge Crack Pressure	50 PSI (3.4 bar)

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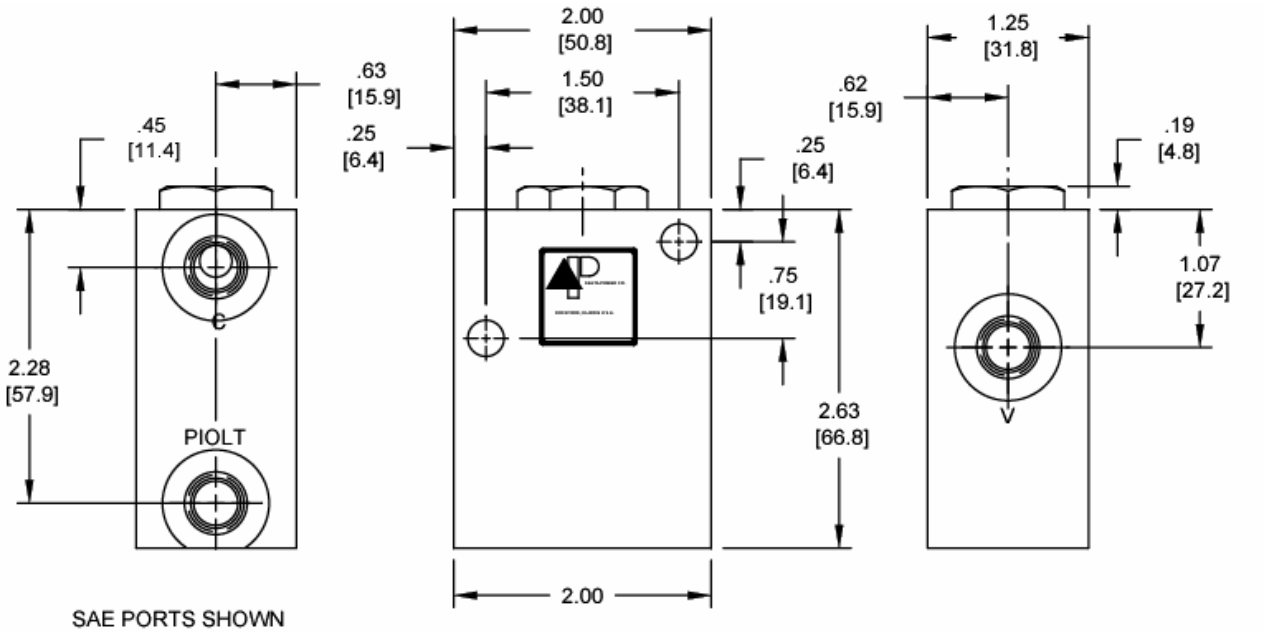
DIMENSIONS



SAE PORTS SHOWN
MTG. HOLES ARE .28 DIA.
O-RINGS ARE STANDARD ON PISTON ASSEMBLY
CHECK VALVE USED IS A MA-CVA

ORDERING INFORMATION

MS-POC - _____ - _____

OPTIONS		BODIES	
Buna Standard	**B**	**N**	1/4 NPTF Ports
Viton Standard	**V**	**S**	#4 SAE Ports

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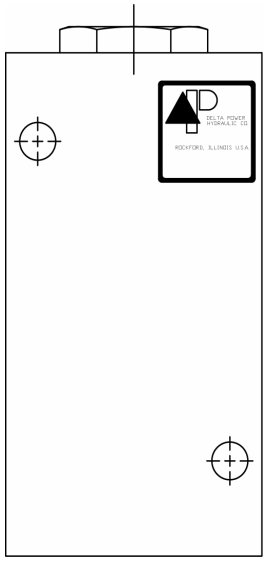
DS-POC Single Pilot Operated Check Valve



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, pilot operated check valve.

OPERATION

The DS-POC allows flow to pass from (V) to (C) and blocks flow from (C) to (V). When pilot pressure is applied to pilot port the valve allows flow from (C) to (V).

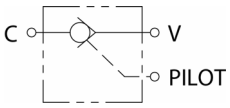
The valve has a 4:1 pilot ratio, so at least .250 of the load pressure is required at the (PILOT) port to open the flow passage to allow flow from ports (C).

The check is spring-biased at 90 psi (6.2 bar) to assure holding in static or no-load conditions.

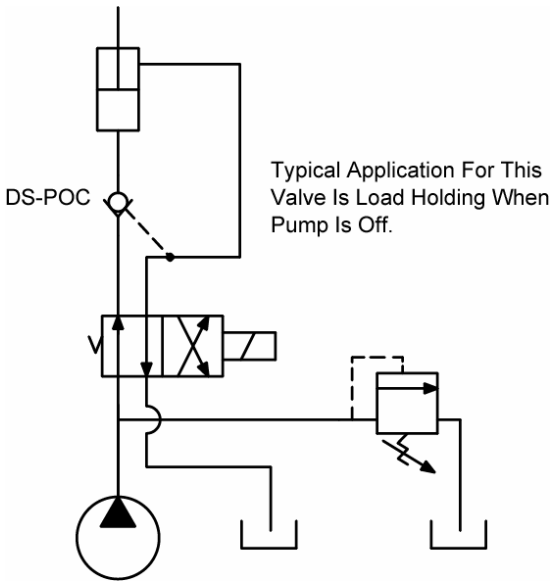
FEATURES

- Hardened internal parts for long life.
- Anodized aluminum body for corrosive protection.

HYDRAULIC SYMBOL



TYPICAL SCHEMATIC



VALVE SPECIFICATIONS

Nominal Flow	15 GPM (57 LPM)
Rated Operating Pressure	3500 PSI (241 bar)
Typical Internal Leakage (150 SSU)	0-5 drops/min
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Pilot Ratio	4:1
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	1.1 lbs. (.50 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Cartridge Crack Pressure	90 PSI (6.2 bar)

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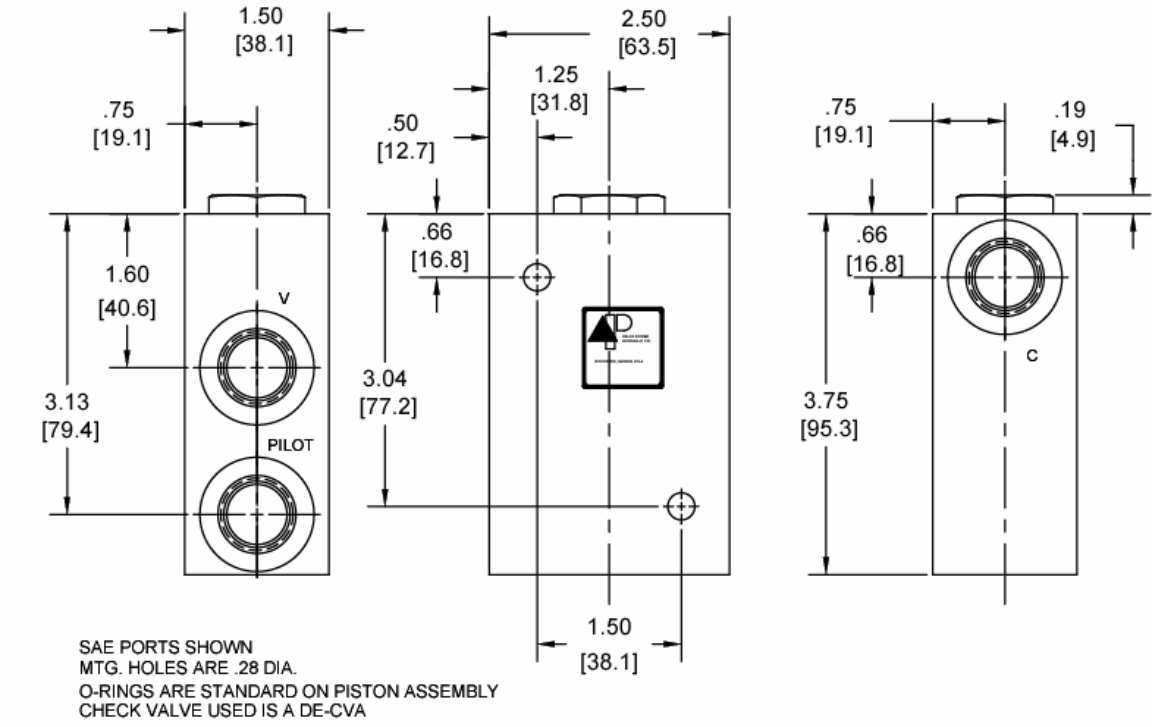
DIMENSIONS



ORDERING INFORMATION

DS-POC - ____ - ____

OPTIONS			**BODIES**
Buna Standard	**B**	**N**	3/8 NPTF Ports
Viton Standard	**V**	**S**	#8 SAE Ports

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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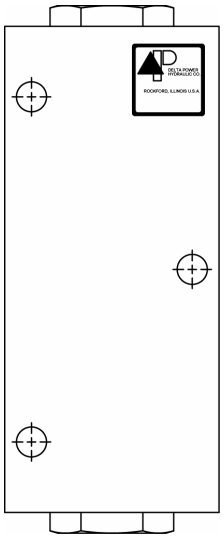
DD-POC Double Pilot Operated Check Valve



DESCRIPTION

10 size, 7/8-14 thread, “Delta” series, double pilot operated check valve.

OPERATION

The DD-POC allows flow to pass from (V1) to (C1) and (V2) to (C2). The valve blocks flow from (C1) to (V1) and from (C2) to (V2). Blocked flow is released when pilot pressure is applied to port opposite valve (V1) and/or port (V2) accordingly.

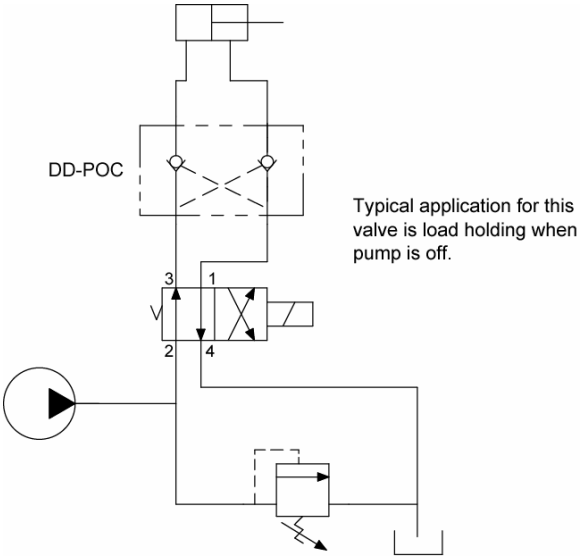
The valve has a 4:1 pilot ratio, so at least .250 of the load pressure at port (C1) or (C2) is required at the pilot lines (ports (V2) or (V1) respectively to open the flow passage to allow flow from ports (C1) or (C2) respectively.

The check is spring-biased at 90 psi (6.2 bar) to assure holding in static or no-load conditions.

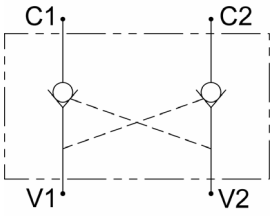
FEATURES

- Hardened internal parts for long life.
- Anodized aluminum body for corrosive protection.

TYPICAL SCHEMATIC



HYDRAULIC SYMBOL



VALVE SPECIFICATIONS

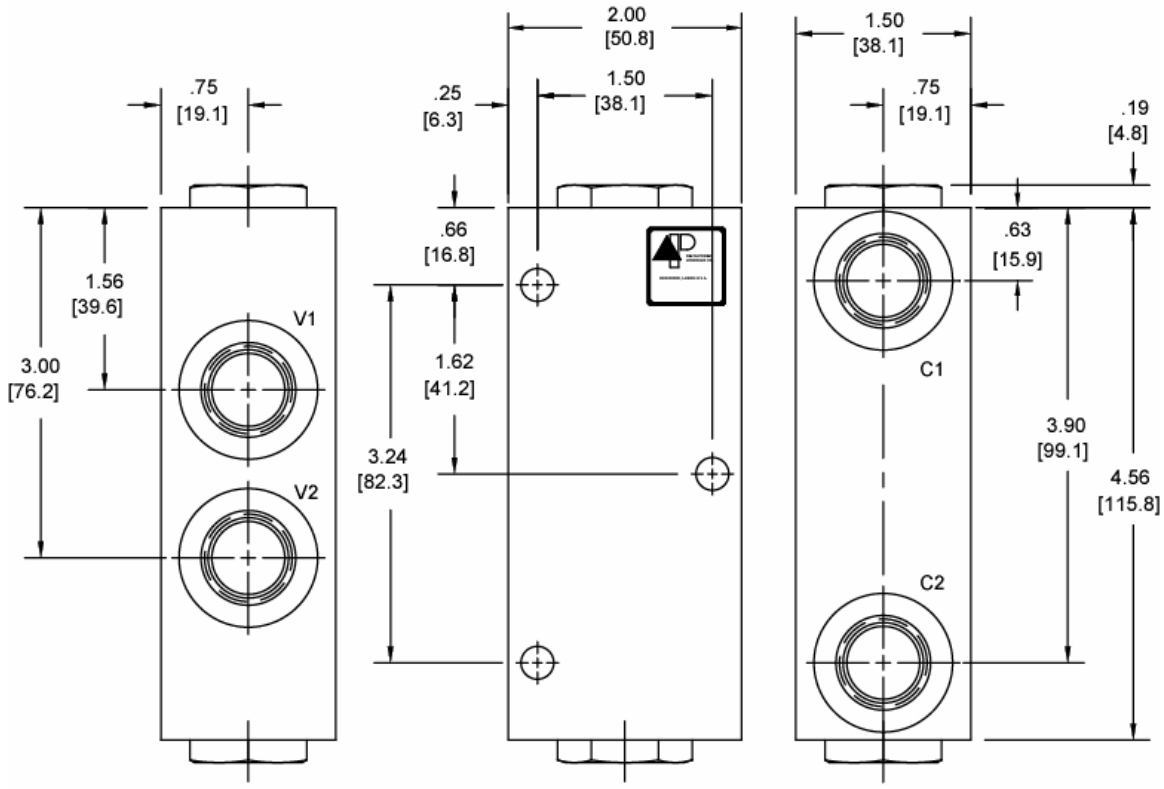
Nominal Flow	15 GPM (57 LPM)
Rated Operating Pressure	3500 PSI (241 bar)
Typical Internal Leakage (150 SSU)	0-5 drops/min
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Pilot Ratio	4 : 1
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	1.5 lbs. (.63 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Cartridge Crack Pressure	90 PSI (6.2 bar)

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

Phone: (815) 397-6628 Fax: (815) 397-2526 E-mail: delta@delta-power.com

Delta Power Company
4484 Boeing Drive - Rockford, IL 61109

DIMENSIONS



SAE PORTS SHOWN
MTG. HOLES ARE .28 DIA.
O-RINGS ARE STANDARD ON PISTON ASSEMBLY
CHECK VALVE USED IS A DE-CVA

ORDERING INFORMATION

DD-POC - ____ - ____

OPTIONS			BODIES
Buna Standard	**B**	**N**	3/8 NPTF Ports
Viton Standard	**V**	**S**	#8 SAE Ports

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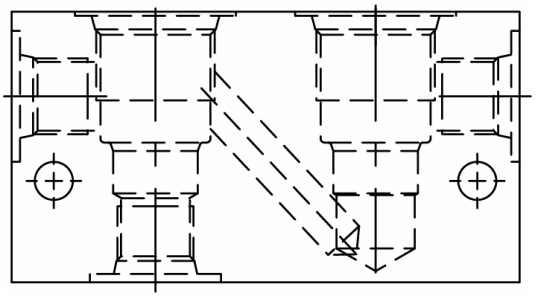
*Pre-Engineered Circuit, Option Model A**

BASE BODY - 20200001 = #6 SAE



BODY WEIGHT: .83 lbs. [.37 kg.]

DESCRIPTION

Pre-engineered circuit, option model A*

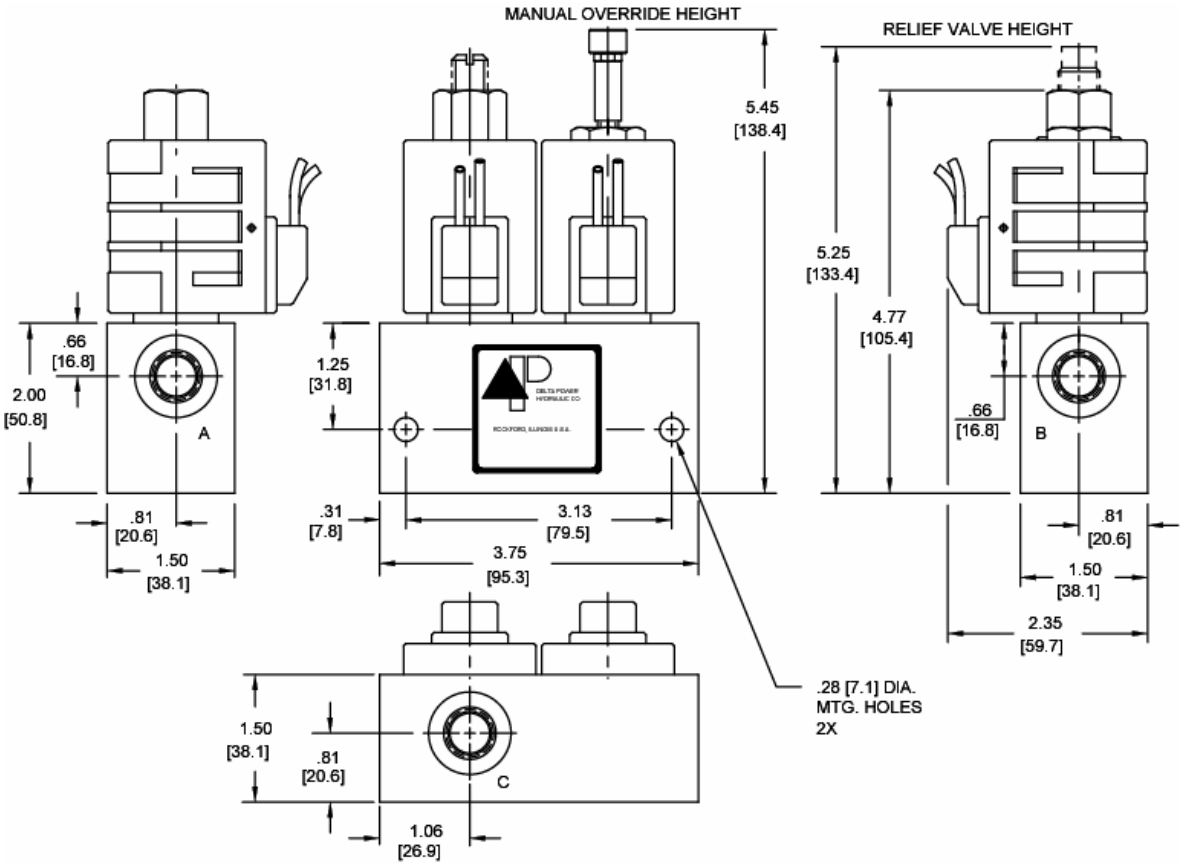
OPERATION

See options chart for specific operation

VALVE SPECIFICATIONS

Nominal Flow	See Options Chart for Flow Range
Rated Operating Pressure	See Options Chart for Pressure Range
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS



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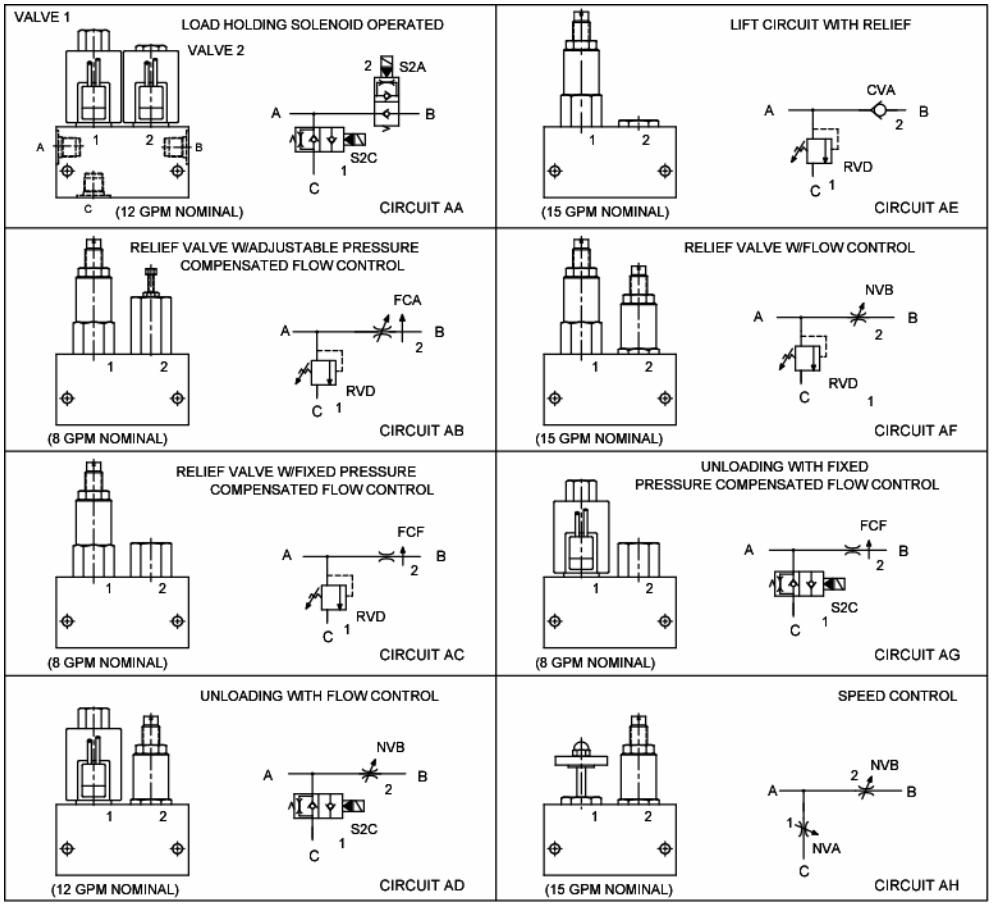
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS

AA	
AB	
AC	
AD	
AE	
AF	
AG	
AH	

OPTIONS

Buna Standard	**00**
Viton Standard	**V0**
Manual Override	**0M**

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 2

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4/8 GPM	**40**	2500-4000 PSI
FLOW CONTROL		**RELIEF VALVE**	

VALVE 1

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4-8 GPM	**40**	2500-4000 PSI
FLOW CONTROL		**RELIEF VALVE**	

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade

HC	DIN 43650 (Hirschman) – *(AC & DC)*
CL	Conduit Lead – *(AC Only)*
DI	Deutsch – Integral DT04-2P
	IMMERSION PROOF " D" TYPE
IA	"I" Coil AMP Superseal - Integral
ID	"I" Coil Deutsch – Integral DT04-2P
IJ	"I" Coil AMP Jr. Timer - Integral
IM	"I" Coil Metri-Pack – Integral

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

Approximate Coil Weight: .74 lbs (.33 kg.)

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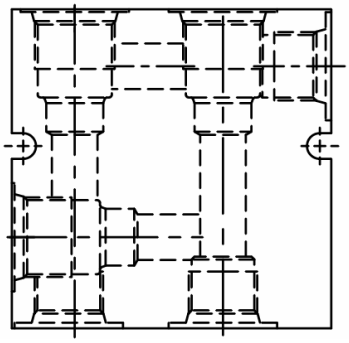
*Pre-Engineered Circuit, Option Model B**

BASE BODY - 20200002 = #8 SAE



BODY WEIGHT: 1.2 lbs. [.54 kg.]

DESCRIPTION

Pre-engineered circuit, option model B*

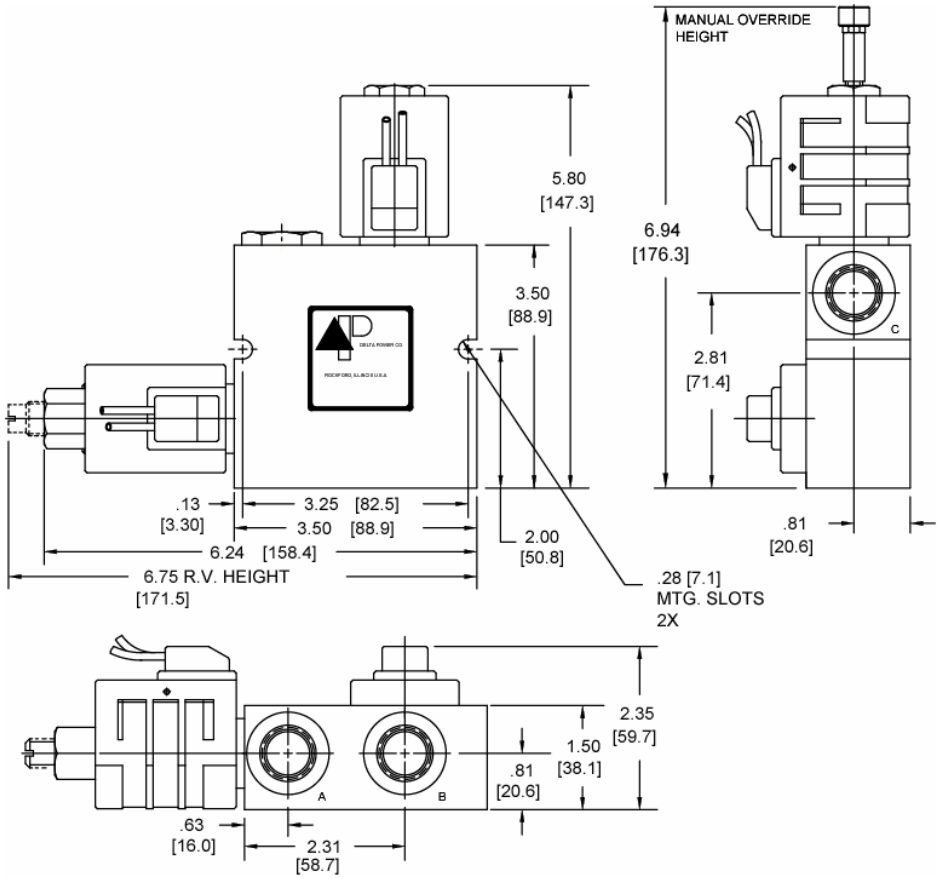
OPERATION

See options chart for specific operation

VALVE SPECIFICATIONS

Nominal Flow	12 GPM (48 LPM)
Rated Operating Pressure	3500 PSI (241 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS



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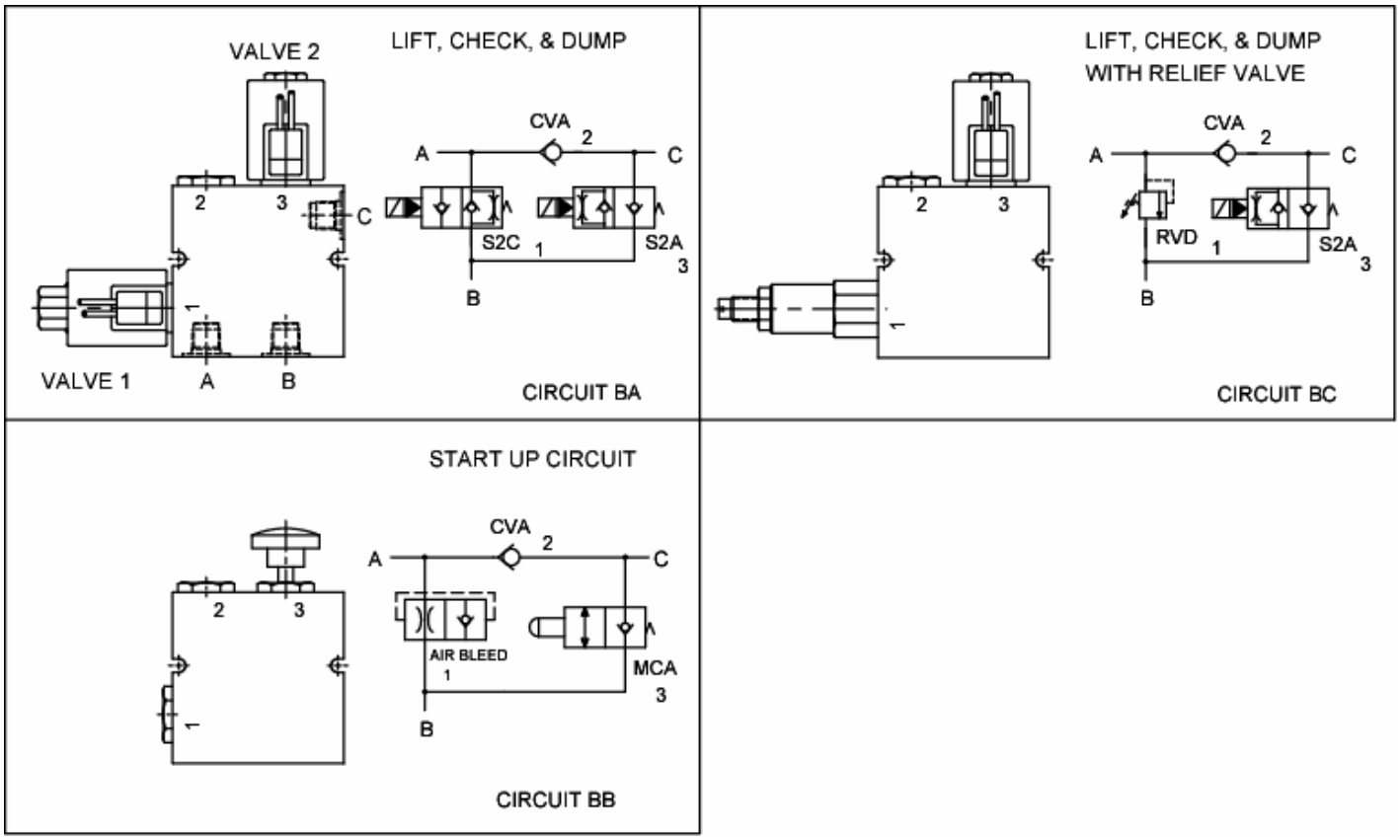
OPTIONS CHART



ORDERING INFORMATION

- - - - - -

CIRCUITS

BA	
BB	
BC	

OPTIONS

Buna Standard	**00**
Viton Standard	**V0**
Manual Override	**0M**

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 2

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4/8 GPM	**40**	2500-4000 PSI
	FLOW CONTROL		**RELIEF VALVE**

VALVE 1

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4-8 GPM	**40**	2500-4000 PSI
	FLOW CONTROL		**RELIEF VALVE**

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschman) – *(AC & DC)*
CL	Conduit Lead – *(AC Only)*
DI	Deutsch – Integral DT04-2P

IMMERSION PROOF "D" TYPE

IA	"I" Coil AMP Superseal - Integral
ID	"I" Coil Deutsch – Integral DT04-2P
IJ	"I" Coil AMP Jr. Timer - Integral
IM	"I" Coil Metri-Pack – Integral

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

Approximate Coil Weight: .74 lbs (.33 kg.)

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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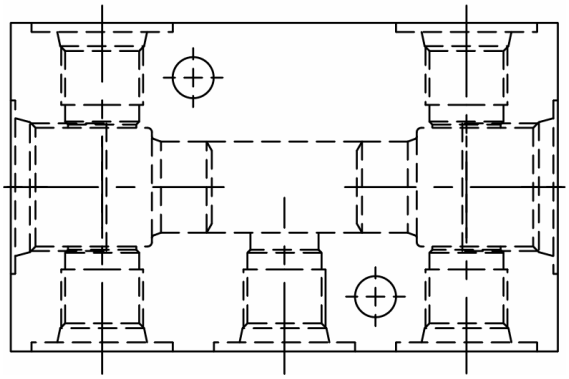
*Pre-Engineered Circuit, Option Model C**

BASE BODY - 20200003 = #6 SAE



BODY WEIGHT: .83 lbs. [.37 kg.]

DESCRIPTION

Pre-engineered circuit, option model C*

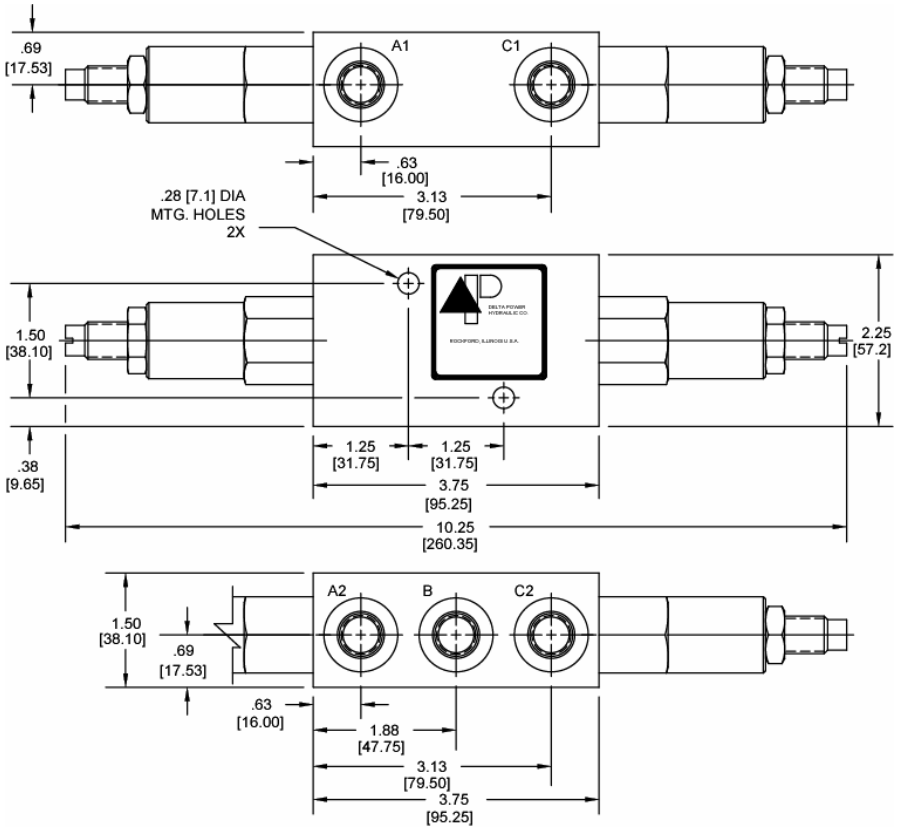
OPERATION

See options chart for specific operation

VALVE SPECIFICATIONS

Nominal Flow	See Options Chart for Flow Range
Rated Operating Pressure	See Options Chart for Pressure Ranges
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS



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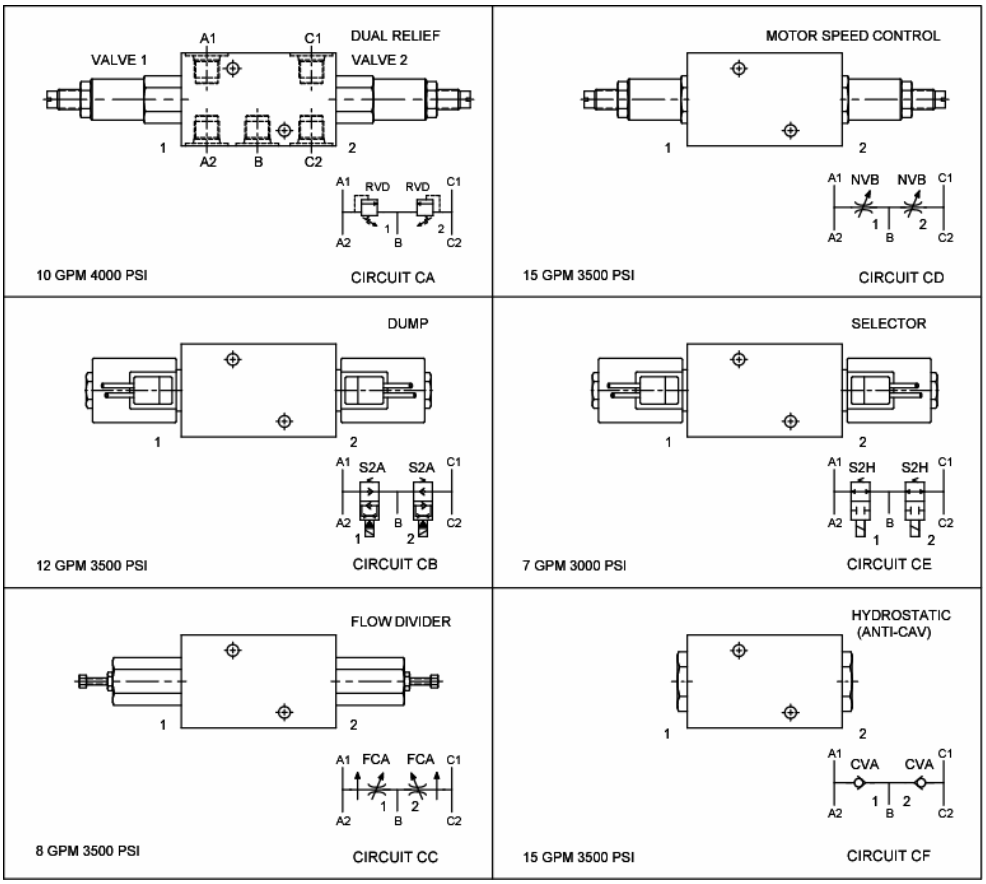
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS

CA	
CB	
CC	
CD	
CE	
CF	

OPTIONS

Buna Standard	**00**
Viton Standard	**V0**
Manual Override	**0M**

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 2

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4/8 GPM	**40**	2500-4000 PSI
FLOW CONTROL		**RELIEF VALVE**	

VALVE 1

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4-8 GPM	**40**	2500-4000 PSI
FLOW CONTROL		**RELIEF VALVE**	

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschman) – *(AC & DC)*
CL	Conduit Lead – *(AC Only)*
DI	Deutsch – Integral DT04-2P

IMMERSION PROOF "D" TYPE

IA	"I" Coil AMP Superseal - Integral
ID	"I" Coil Deutsch – Integral DT04-2P
IJ	"I" Coil AMP Jr. Timer - Integral
IM	"I" Coil Metri-Pack – Integral

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

Approximate Coil Weight: .74 lbs (.33 kg.)

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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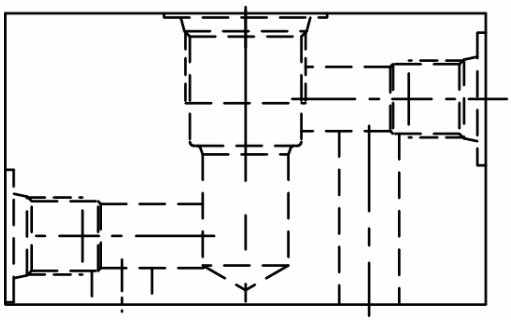
*Pre-Engineered Circuit, Option Model D**

BASE BODY - 20200004 = #6 SAE



BODY WEIGHT: .83 lbs. [.37 kg.]

DESCRIPTION

Pre-engineered circuit, option model D*

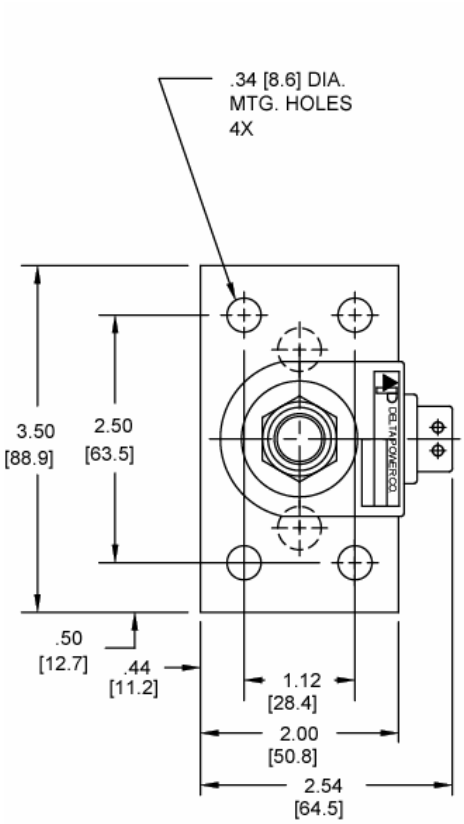
OPERATION

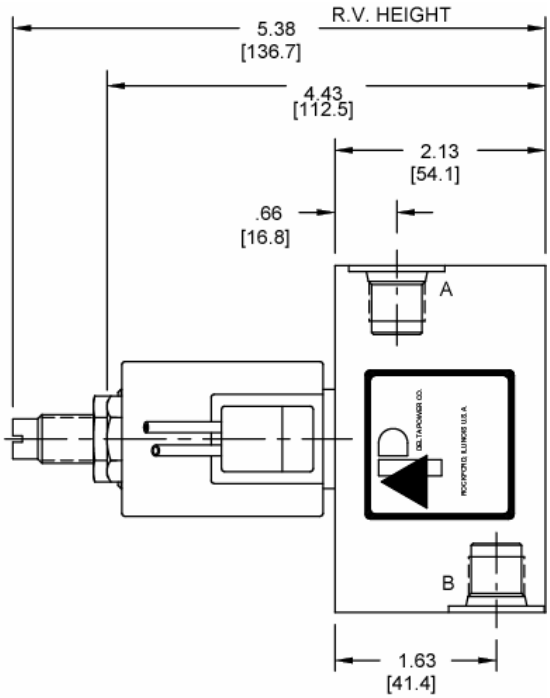
See options chart for specific operation

VALVE SPECIFICATIONS

Nominal Flow	See Options Chart for Flow Range
Rated Operating Pressure	See Options Chart for Pressure Ranges
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS





NOTE:
THIS ASSEMBLY WILL MOUNT ON
WHITE "RS"; EATON "H,S,& T"; SAUER DANFOSS
"DH & DS"; AND PARKER "TC" "MOTORS"

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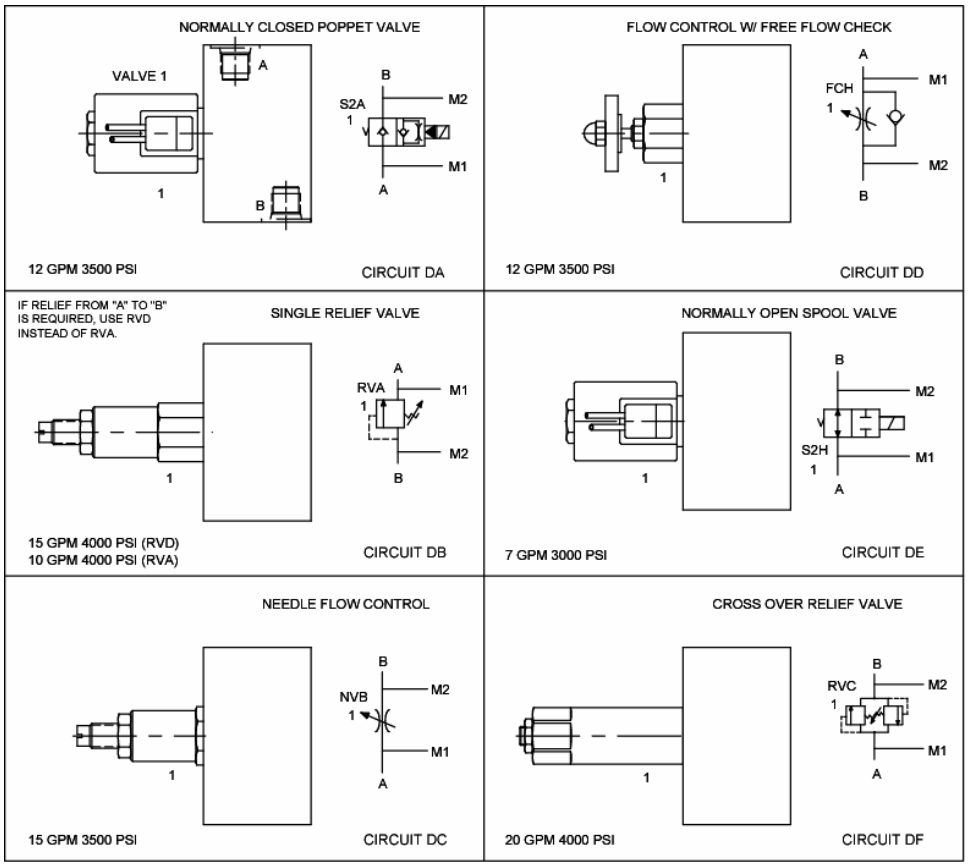
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS

DA	
DB	
DC	
DD	
DE	
DF	

OPTIONS

00	Buna Standard
V0	Viton Standard
0M	Manual Override

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 1

FLOW

01	.5-1 GPM
02	1-2 GPM
04	2-4 GPM
08	4-8 GPM

FLOW CONTROL

PRESSURE

02	20-500 PSI
15	200-1500 PSI
30	1500-3000 PSI
40	2500-4000 PSI

RELIEF VALVE

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschman) – *(AC & DC)*
CL	Conduit Lead – *(AC Only)*
DI	Deutsch – Integral DT04-2P

IMMERSION PROOF "D" TYPE

IA	"I" Coil AMP Superseal - Integral
ID	"I" Coil Deutsch – Integral DT04-2P
IJ	"I" Coil AMP Jr. Timer - Integral
IM	"I" Coil Metri-Pack – Integral

Approximate Coil Weight: .74 lbs (.33 kg.)

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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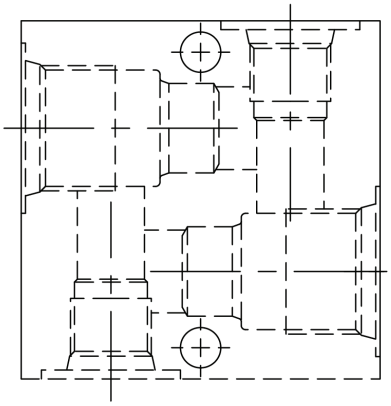
*Pre-Engineered Circuit, Option Model E**

BASE BODY - 20200005 = #6 SAE



BODY WEIGHT: .75 lbs. [.34 kg.]

DESCRIPTION

Pre-engineered circuit, option model E*

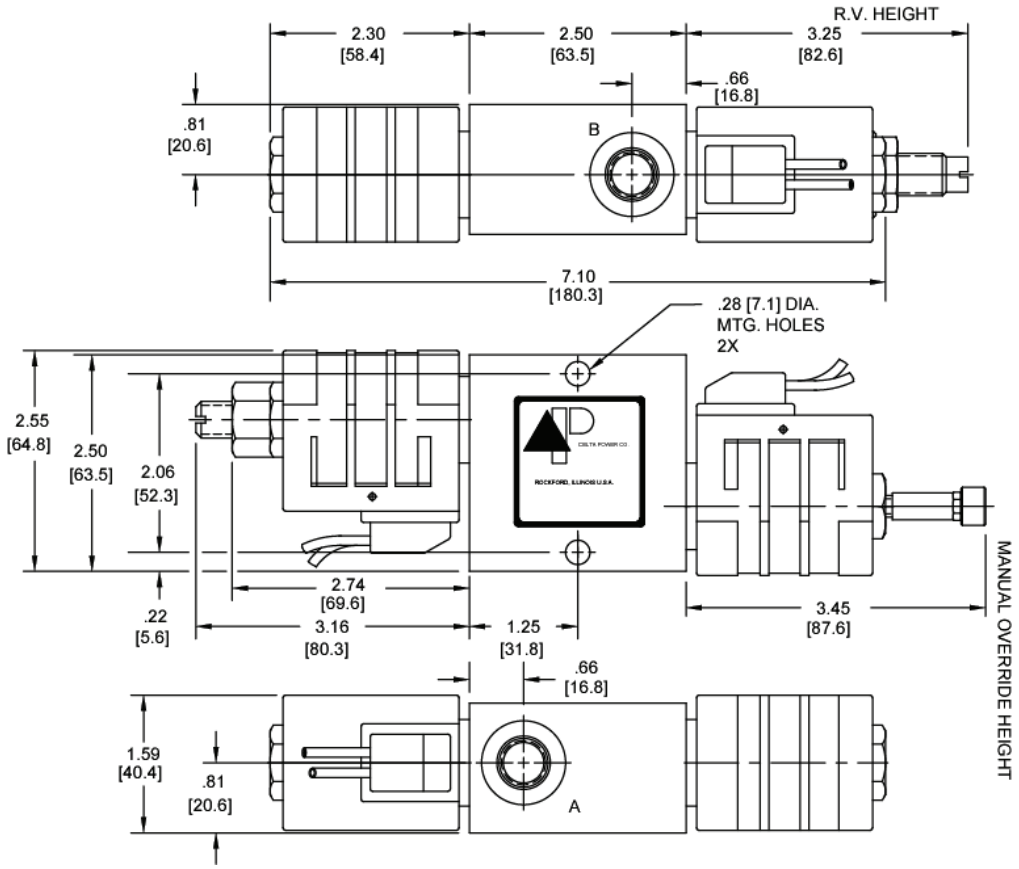
OPERATION

See options chart for specific operation

VALVE SPECIFICATIONS

Nominal Flow	See Options Chart for Flow Range
Rated Operating Pressure	3500 PSI (241 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS



WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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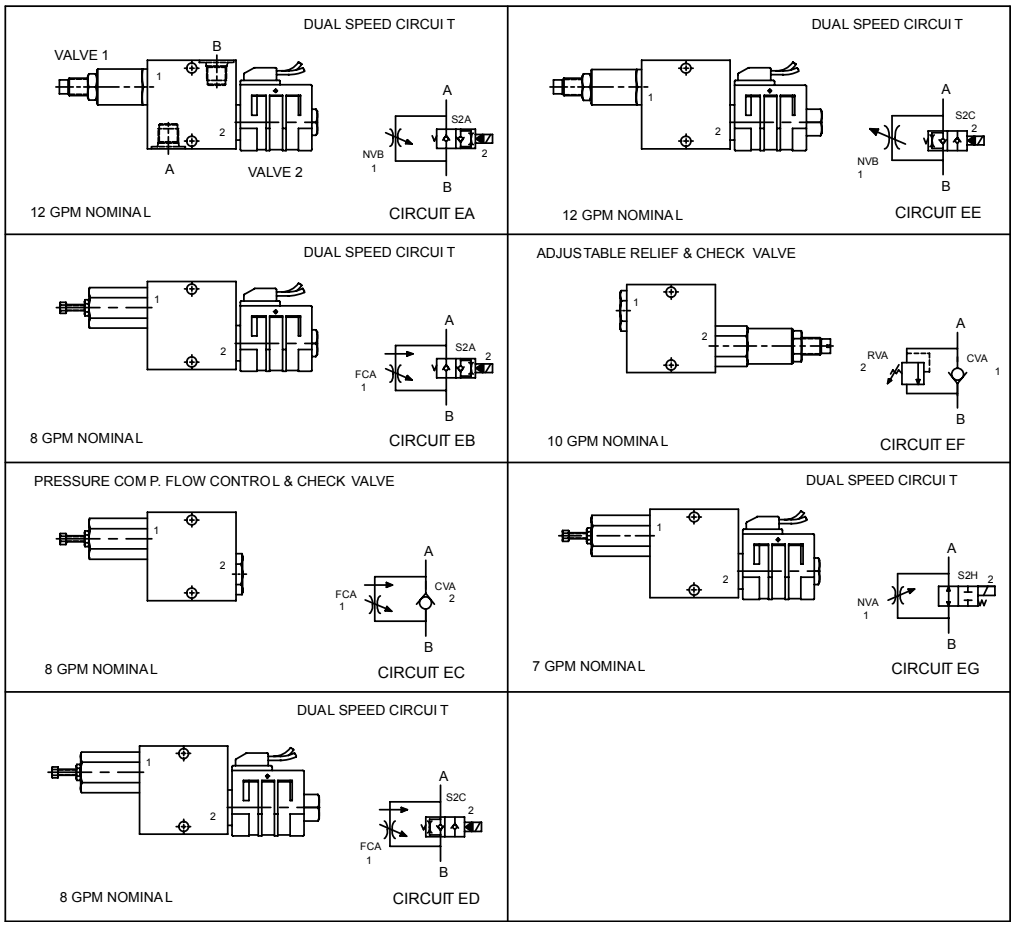
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS

EA	
EB	
EC	
ED	
EE	
EF	
EG	

OPTIONS

00	Buna Standard
V0	Viton Standard
0M	Manual Override

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 2

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4/8 GPM	**40**	2500-4000 PSI
	FLOW CONTROL		**RELIEF VALVE**

VALVE 1

FLOW		PRESSURE	
01	.5-1 GPM	**02**	20-500 PSI
02	1-2 GPM	**15**	200-1500 PSI
04	2-4 GPM	**30**	1500-3000 PSI
08	4-8 GPM	**40**	2500-4000 PSI
	FLOW CONTROL		**RELIEF VALVE**

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade
HC	DIN 43650 (Hirschman) – *(AC & DC)*
CL	Conduit Lead – *(AC Only)*
DI	Deutsch – Integral DT04-2P

IMMERSION PROOF "D" TYPE

IA	"I" Coil AMP Superseal - Integral
ID	"I" Coil Deutsch – Integral DT04-2P
IJ	"I" Coil AMP Jr. Timer - Integral
IM	"I" Coil Metri-Pack – Integral

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

Approximate Coil Weight: .74 lbs (.33 kg.)

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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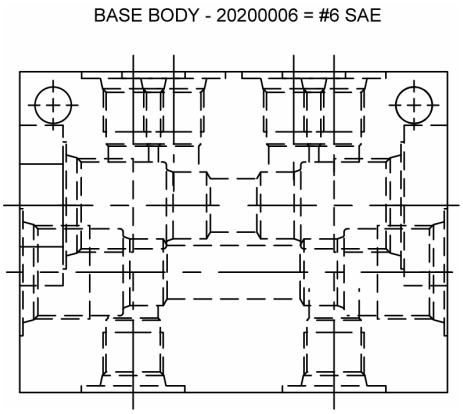
*Pre-Engineered Circuit, Option Model F**



BODY WEIGHT: 1.5 lbs. [.68 kg.]

DESCRIPTION

Pre-engineered circuit, option model F*

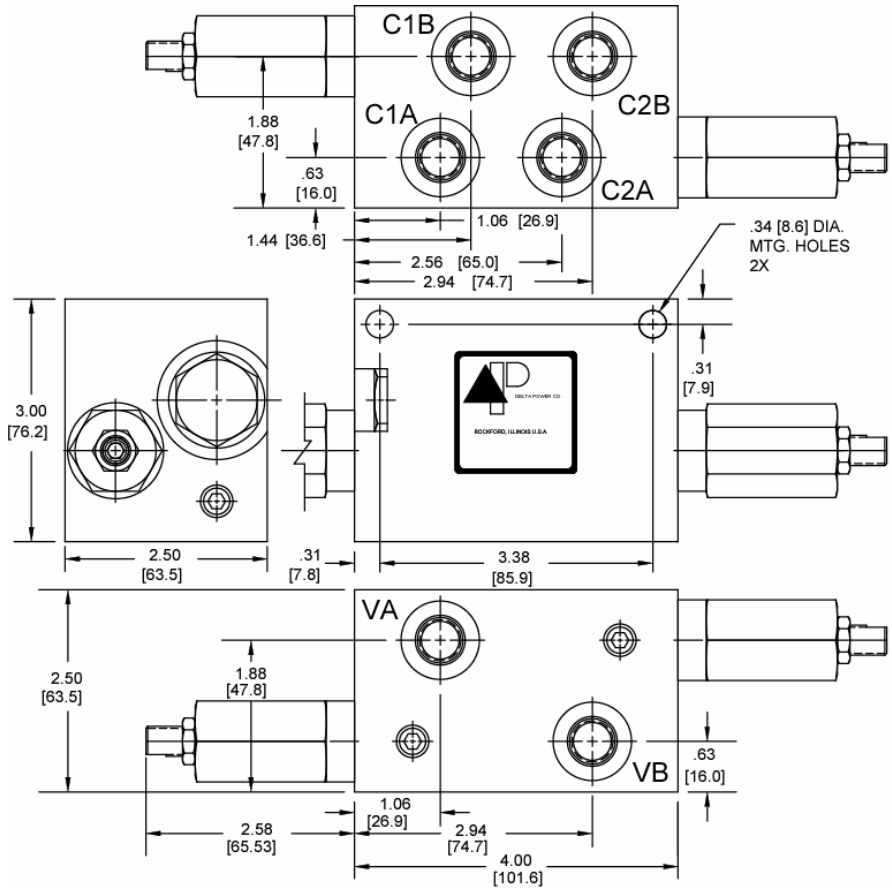
OPERATION

See typical schematic for specific operation.

VALVE SPECIFICATIONS

Nominal Flow	9 GPM (34 LPM)
Rated Operating Pressure	50-3000 PSI (4-207 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)

DIMENSIONS



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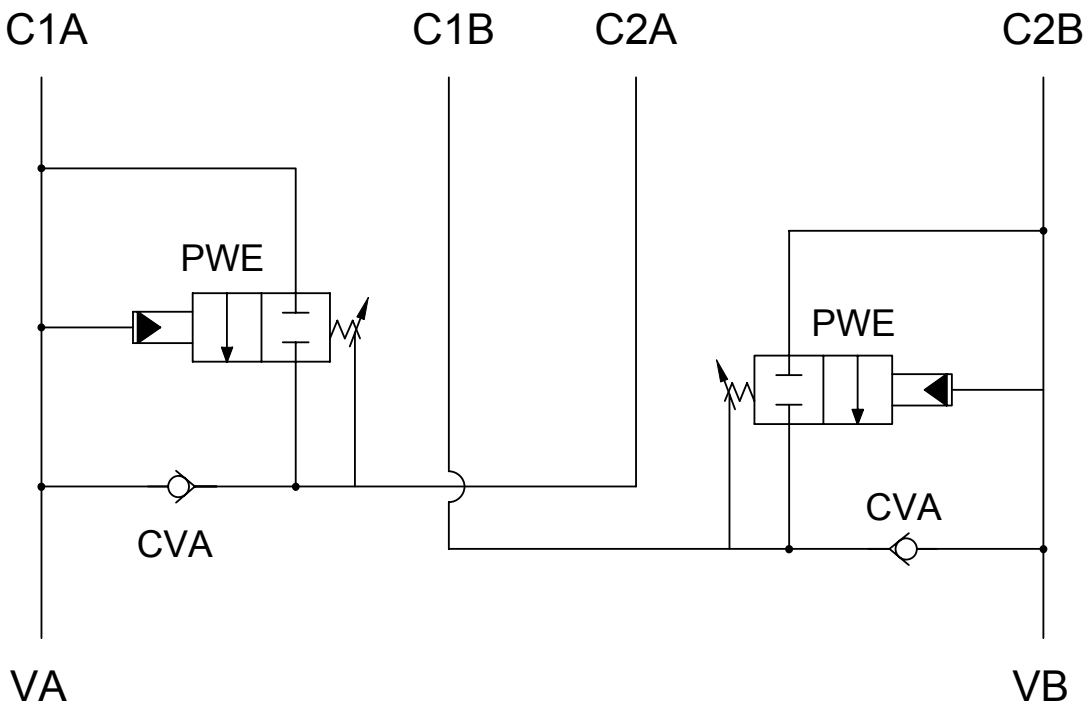
TYPICAL SCHEMATIC



DUAL SEQUENCE VALVE MANIFOLD
AUTOMATICALLY CONTROLS THE
SEQUENCING OF TWO CYLINDERS.

CIRCUIT FA

ORDERING INFORMATION

CIRCUITS **FA** - **OPTIONS** - **VALVE 1 PRESSURE** - **VALVE 2 PRESSURE**

OPTIONS		VALVE 1 PRESSURE		VALVE 2 PRESSURE	
Buna Standard	**00**	**04**	50-425	**04**	50-425 PSI
Viton Standard	**V0**	**15**	400-1500 PSI	15	400-1500 PSI
		30	1500-3000 PSI	30	1500-3000 PSI

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

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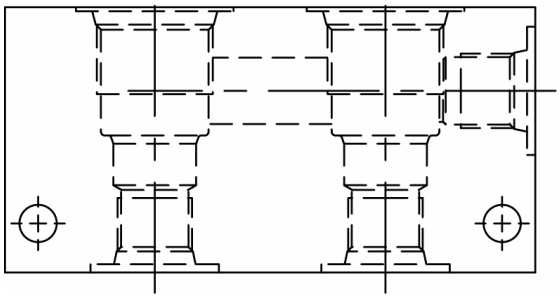
*Pre-Engineered Circuit, Option Model I**

BASE BODY - 20200009 = #6 SAE



BODY WEIGHT: .83 lbs. [.37 kg.]

DESCRIPTION

Pre-engineered circuit, option model I*

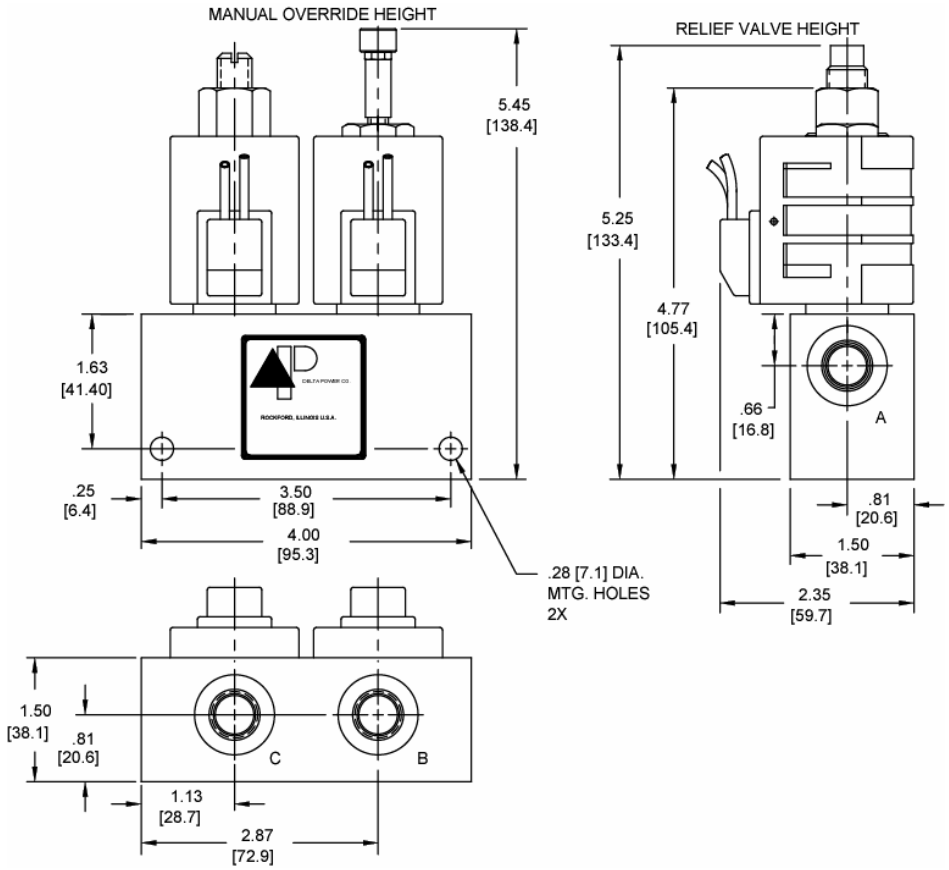
OPERATION

See model options for specific operation (back)

VALVE SPECIFICATIONS

Nominal Flow	12 GPM (45 LPM)
Rated Operating Pressure	3500 PSI (241 bar)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS



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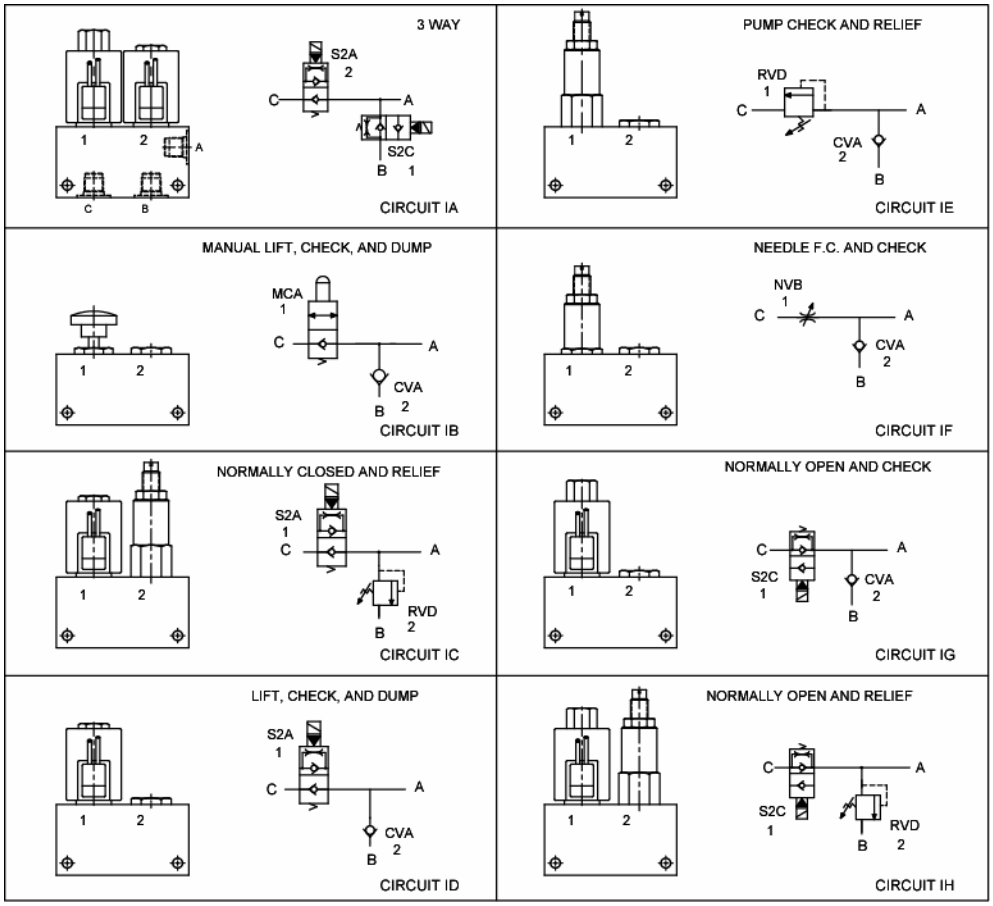
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS		OPTIONS		VOLTAGE		VALVE 2 FLOW		VALVE 2 PRESSURE	
	IA					**FLOW**		**PRESSURE**	
	IB	Buna Standard	00			01	.5-1 GPM	02	20-500 PSI
	IC	Viton Standard	V0			02	1-2 GPM	15	200-1500 PSI
	ID	Manual Override	0M	06	6 VDC	04	2-4 GPM	30	1500-3000 PSI
	IE			12	12 VDC	08	4-8 GPM	40	2500-4000 PSI
	IF			24	24 VDC		**FLOW CONTROL**		**RELIEF VALVE**
	IG			36	36 VDC				
	IH			48	48 VDC				
				25	25 VAC				
				11	120 VAC				
				22	220 VAC				
				44	440 VAC				

VALVE 1

	FLOW		PRESSURE
01	.5-1 GPM	02	20-500 PSI
02	1-2 GPM	15	200-1500 PSI
04	2-4 GPM	30	1500-3000 PSI
08	4-8 GPM	40	2500-4000 PSI
	FLOW CONTROL		**RELIEF VALVE**

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead	HC	DIN 43650 (Hirschman) – *(AC & DC)*
DT	Deutsch on Leads DT04-2P	CL	Conduit Lead – *(AC Only)*
ML	Metri-Pack on Leads	DI	Deutsch – Integral DT04-2P
PL	Packard on Leads		IMMERSION PROOF "D" TYPE
WL	Weatherpack on Leads	IA	"I" Coil AMP Superseal - Integral
SS	Single Spade	ID	"I" Coil Deutsch – Integral DT04-2P
DS	Double Spade	IJ	"I" Coil AMP Jr. Timer - Integral
		IM	"I" Coil Metri-Pack – Integral

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

Approximate Coil Weight: .74 lbs (.33 kg.)

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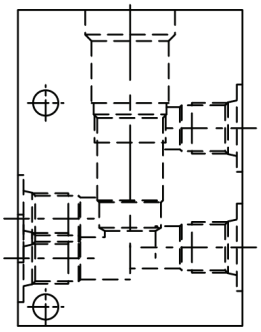
*Pre-Engineered Circuit, Option Model L**

BASE BODY - 20200012 = #6 SAE



BODY WEIGHT: 1.80 lbs. [.82 kg.]

DESCRIPTION

Pre-engineered circuit, option model L*

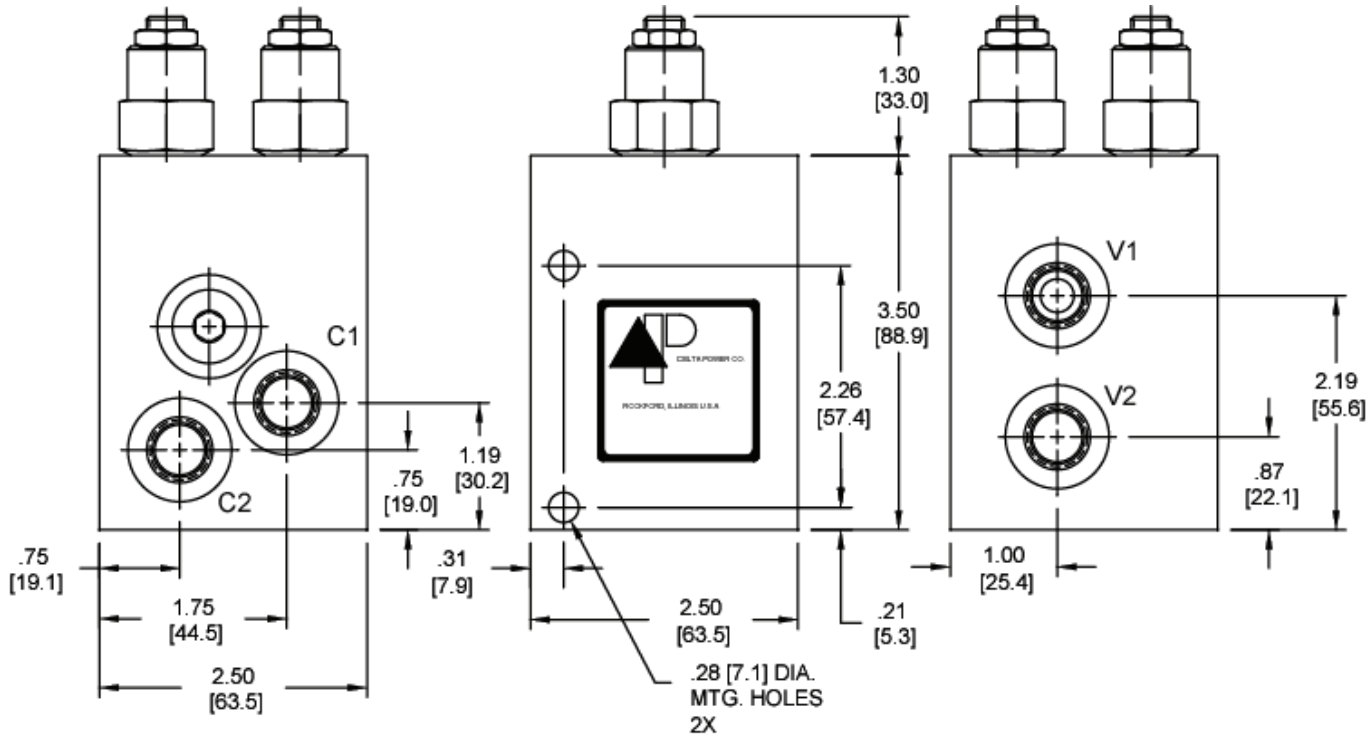
OPERATION

See typical schematic for specific operation.

VALVE SPECIFICATIONS

Nominal Flow	15 GPM (60 LPM)
Rated Operating Pressure	See Options Chart for Pressure Range
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)

DIMENSIONS



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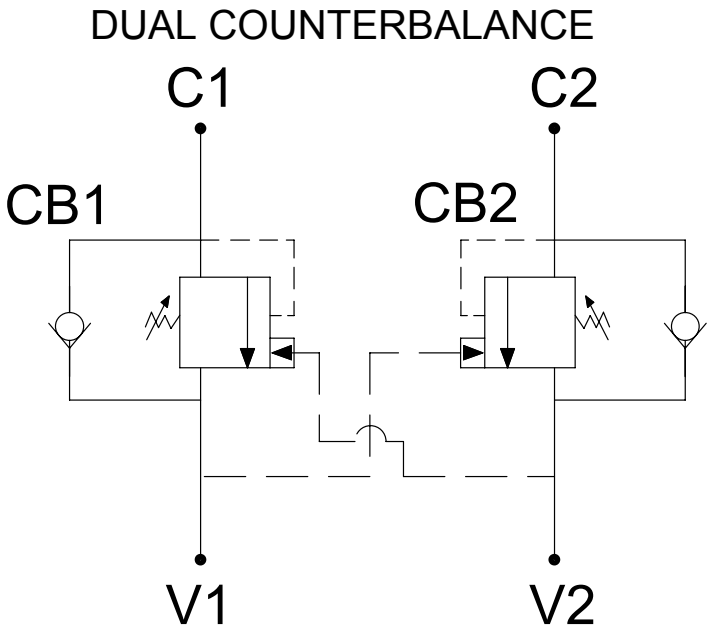
TYPICAL SCHEMATIC



CIRCUIT LA

ORDERING INFORMATION

- - -

CIRCUITS **LA**

OPTIONS
Buna Standard **00**

VALVE 2 PRESSURE RANGE
15 400-1500 PSI
40 1500-4000 PSI

VALVE 1 PRESSURE RANGE
15 400-1500 PSI
40 1500-4000 PSI

Note: Aluminum Bodies are NOT durability rated for 4000 PSI (276 bar). Consult factory for body options.

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

Approximate Coil Weight: .74 lbs (.33 kg.)

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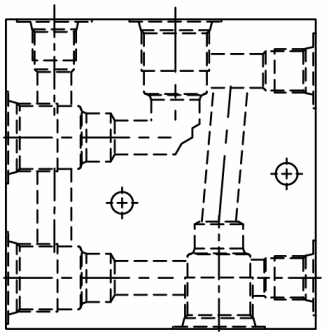
*Pre-Engineered Circuit, Option Model P**

BASE BODY - 20200017 = #6 SAE



BODY WEIGHT: 1.5 lbs. [.68 kg.]

DESCRIPTION

Pre-engineered circuit, option model P*

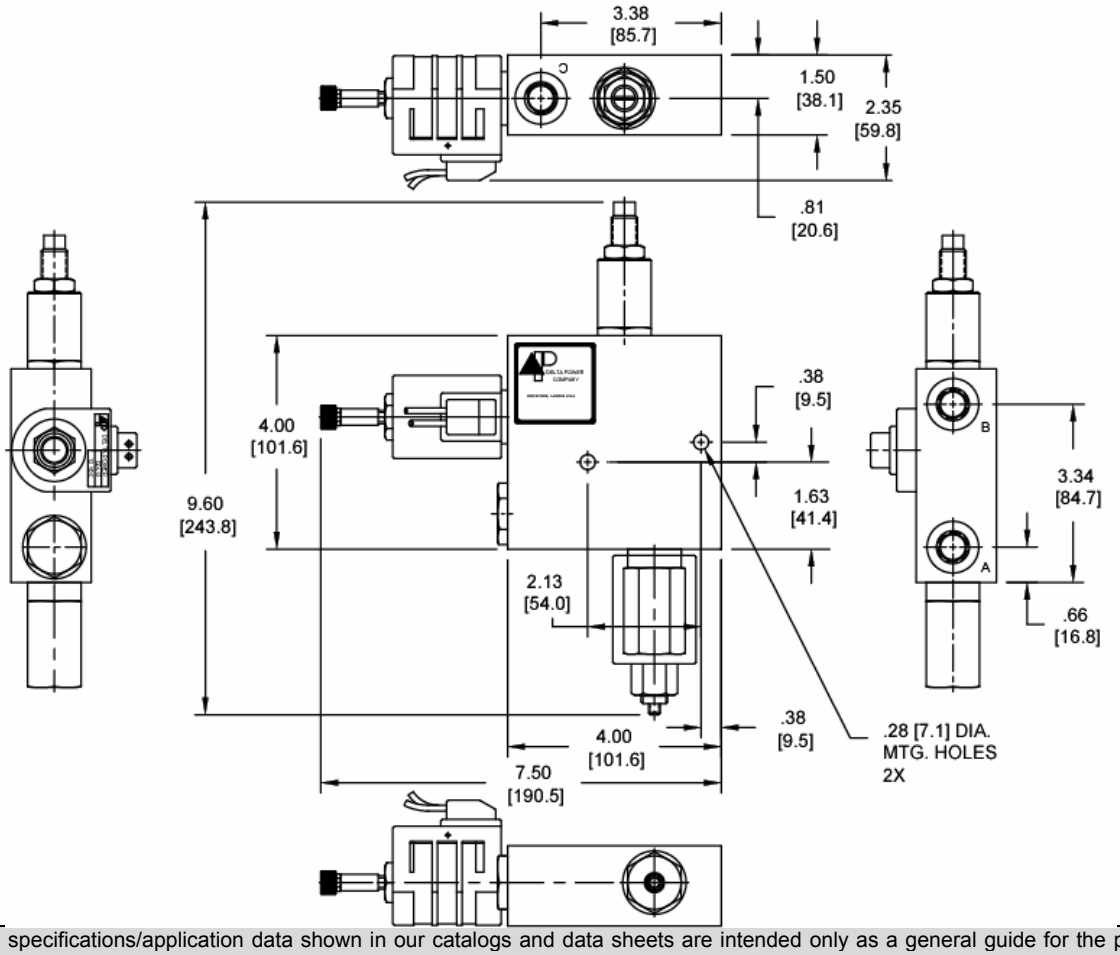
OPERATION

See options chart for specific operation (back)

VALVE SPECIFICATIONS

Nominal Flow	See Options Chart for Flow Range
Rated Operating Pressure	See Options Chart for Pressure Range
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	4-6 ft-lbs. (5.4-8.1 Nm)

DIMENSIONS



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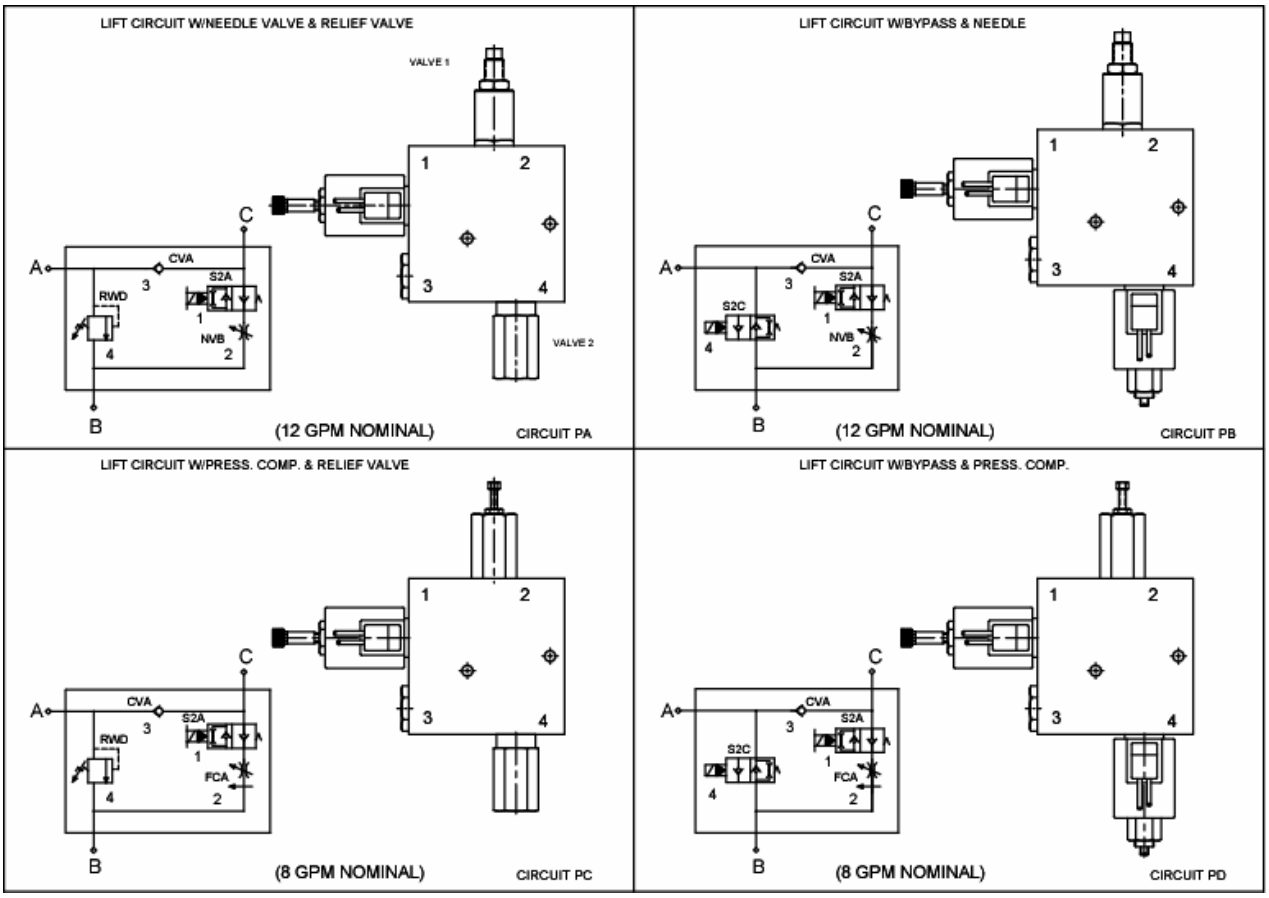
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS

PA	**OPTIONS**	
PB	Buna Standard	**00**
PC	Viton Standard	**V0**
PD	Manual Override	**0M**

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 2

FLOW		PRESSURE	
01	.5-1 GPM	**07**	100-700 PSI
02	1-2 GPM	**30**	100-3000 PSI
04	2-4 GPM	**40**	3000-4000 PSI
08	4-8 GPM		**RELIEF VALVE**
	FLOW CONTROL		

VALVE 1

FLOW		PRESSURE	
01	.5-1 GPM	**07**	100-700 PSI
02	1-2 GPM	**30**	100-3000 PSI
04	2-4 GPM	**40**	3000-4000 PSI
08	4-8 GPM		**RELIEF VALVE**
	FLOW CONTROL		

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead	**HC**	DIN 43650 (Hirschman) – *(AC & DC)*
DT	Deutsch on Leads DT04-2P	**CL**	Conduit Lead – *(AC Only)*
ML	Metri-Pack on Leads	**DI**	Deutsch – Integral DT04-2P
PL	Packard on Leads		**IMMERSION PROOF "D" TYPE**
WL	Weatherpack on Leads	**IA**	"I" Coil AMP Superseal - Integral
SS	Single Spade	**ID**	"I" Coil Deutsch – Integral DT04-2P
DS	Double Spade	**IJ**	"I" Coil AMP Jr. Timer - Integral
		IM	"I" Coil Metri-Pack – Integral

Approximate Coil Weight: .74 lbs (.33 kg.)

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

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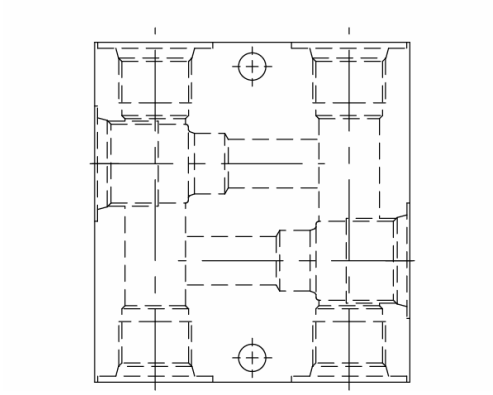
*Pre-Engineered Circuit, Option Model S**

BASE BODY - 20200020 = #8 SAE



BODY WEIGHT: 1.2 lbs. [.54 kg.]

DESCRIPTION

Pre-engineered circuit, option model S*

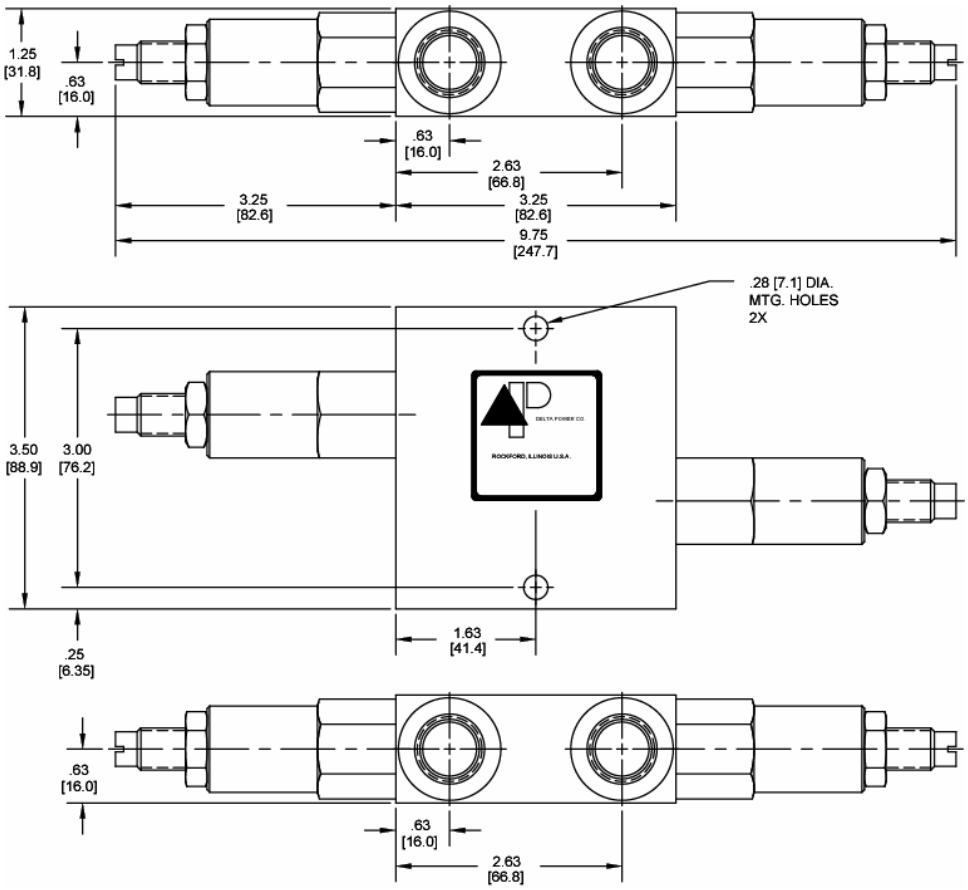
OPERATION

See options chart for specific operation

VALVE SPECIFICATIONS

Nominal Flow	See Option Chart for Flow Range
Rated Operating Pressure	See Option Chart for Pressure Range
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	30 micron nominal
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Operating Fluid Media	General Purpose Hydraulic Fluid
Cartridge Size	Delta Series 7/8-14 Thread.
Cartridge Torque Requirements	30 ft-lbs (40.6 Nm)
Coil Torque Nut Requirements	6 ft-lbs. (8.1 Nm)

DIMENSIONS



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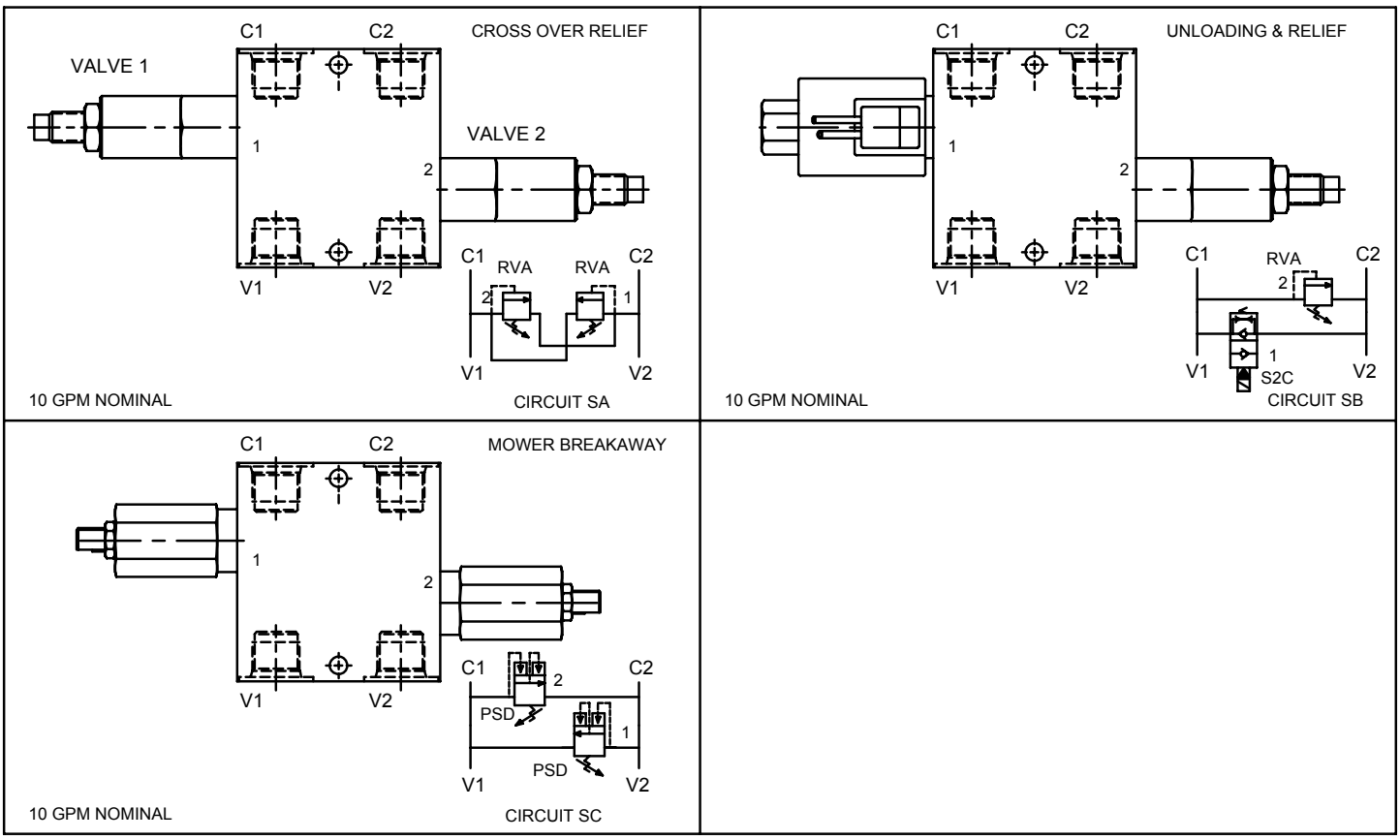
OPTIONS CHART



ORDERING INFORMATION

CIRCUITS

SA	
SB	Buna Standard
SC	Viton Standard

OPTIONS

00	
V0	

VOLTAGE

06	6 VDC
12	12 VDC
24	24 VDC
36	36 VDC
48	48 VDC
25	25 VAC
11	120 VAC
22	220 VAC
44	440 VAC

VALVE 2

FLOW		PRESSURE	
01	.5-1 GPM	**15**	150-1500PSI
02	1-2 GPM	**30**	1500-3000 PSI
04	2-4 GPM	**40**	2500-4000 PSI
08	4/8 GPM		**RELIEF VALVE**
	FLOW CONTROL		

VALVE 1

FLOW		PRESSURE	
01	.5-1 GPM	**15**	150-1500 PSI
02	1-2 GPM	**30**	1500-3000 PSI
04	2-4 GPM	**40**	2500-4000 PSI
08	4-8 GPM		**RELIEF VALVE**
	FLOW CONTROL		

"D" COIL TERMINATION
(All DC Except as Noted)

DL	Double Lead
DT	Deutsch on Leads DT04-2P
ML	Metri-Pack on Leads
PL	Packard on Leads
WL	Weatherpack on Leads
SS	Single Spade
DS	Double Spade

HC	DIN 43650 (Hirschman) – *(AC & DC)*
CL	Conduit Lead – *(AC Only)*
DI	Deutsch – Integral DT04-2P
	IMMERSION PROOF "D" TYPE
IA	"I" Coil AMP Superseal - Integral
ID	"I" Coil Deutsch – Integral DT04-2P
IJ	"I" Coil AMP Jr. Timer - Integral
IM	"I" Coil Metri-Pack – Integral

Approximate Coil Weight: .74 lbs (.33 kg.)

FOR SPECIAL PRESET VALUES ON VALVES, CONSULT FACTORY

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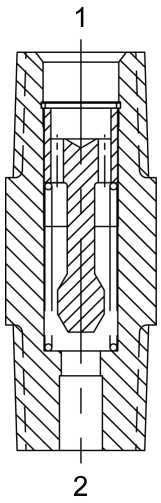
IM-CVF-11 Inline Velocity Fuse



DESCRIPTION

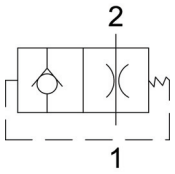
3/8 NPTF thread, inline velocity fuse.

OPERATION

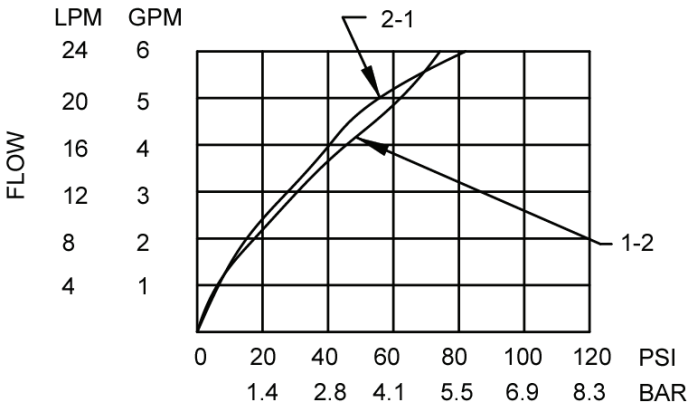
The IM-CVF-11 allows flow to pass between (1) and (2). When oil velocity from (1) to (2) exceeds the flow setting, the valve shifts and blocks flow from (1) to (2).

FEATURES

HYDRAULIC SYMBOL



PERFORMANCE



PRESSURE DROP
ABOVE CURVE IS WITH
HYDRAULIC OIL 150 SSU AT 100° F.

VALVE SPECIFICATIONS

Nominal Flow Max.	6 GPM (23 LPM)
Rated Operating Pressure	3000 PSI (207 bar)
Typical Internal Leakage (150 SSU)	0 – 5 drops/min
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	.18 lbs. (.08 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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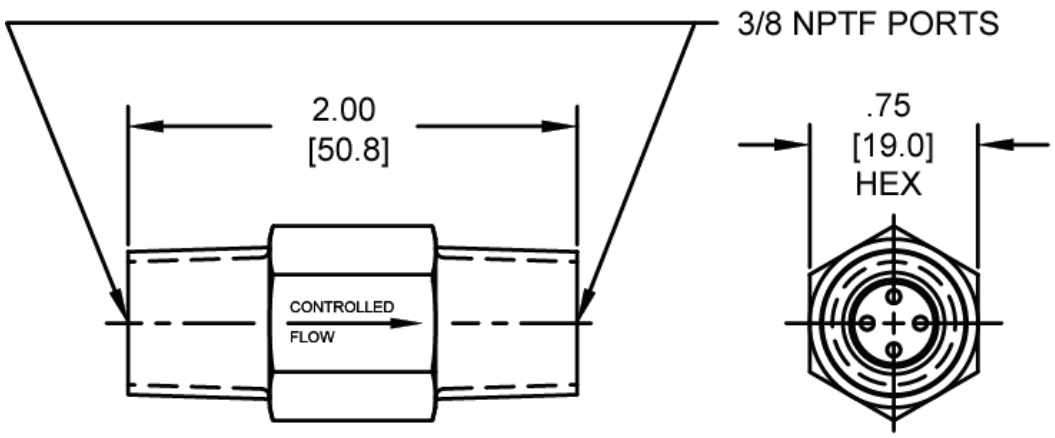
DIMENSIONS



ORDERING INFORMATION

IM-CVF - 11 - ____

FLOW SETTINGS	
01.0	1 GPM
02.0	2 GPM
03.0	3 GPM
04.0	4 GPM
05.0	5 GPM
06.0	6 GPM

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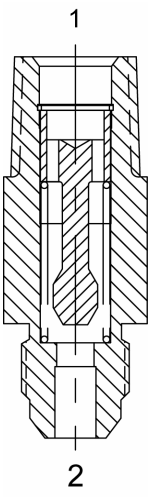
IM-CVF-13 Inline Velocity Fuse



DESCRIPTION

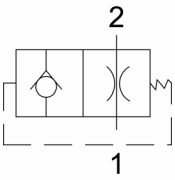
3/8 NPTF (1) and #6 3/8 JIC (2) thread, inline velocity fuse.

OPERATION

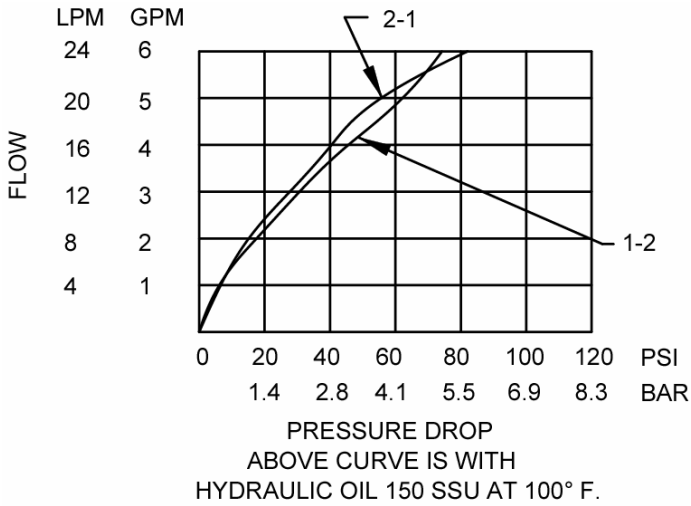
The IM-CVF-13 allows flow to pass between (1) and (2). When oil velocity from (1) to (2) exceeds the flow setting, the valve shifts and blocks flow from (1) to (2).

FEATURES

HYDRAULIC SYMBOL



PERFORMANCE



PRESSURE DROP
ABOVE CURVE IS WITH
HYDRAULIC OIL 150 SSU AT 100° F.

VALVE SPECIFICATIONS

Nominal Flow Max.	6 GPM (23 LPM)
Rated Operating Pressure	3000 PSI (207 bar)
Typical Internal Leakage (150 SSU)	0 – 5 drops/min
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	.16 lbs. (.07 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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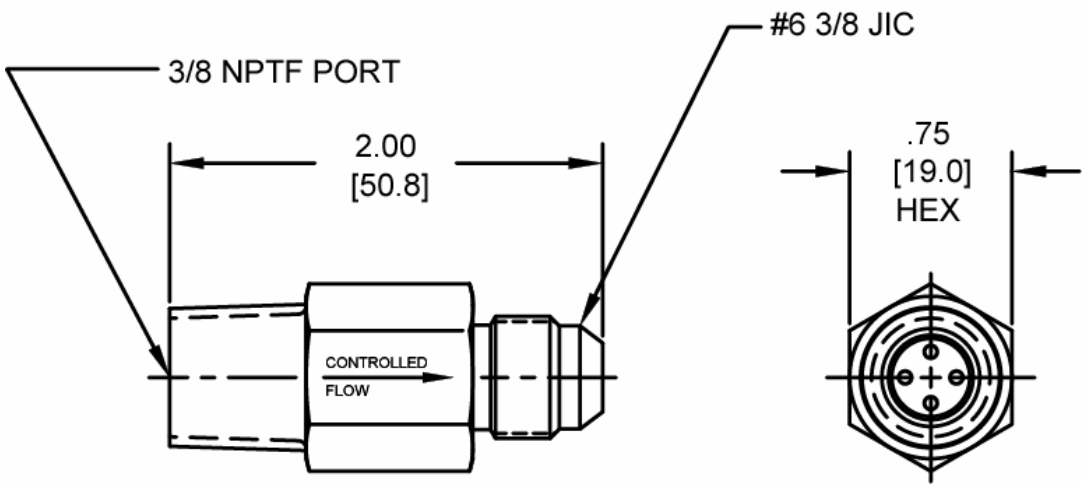
DIMENSIONS



ORDERING INFORMATION

IM-CVF - 13 - ____

	FLOW SETTINGS
01.0	1 GPM
02.0	2 GPM
03.0	3 GPM
04.0	4 GPM
05.0	5 GPM
06.0	6 GPM

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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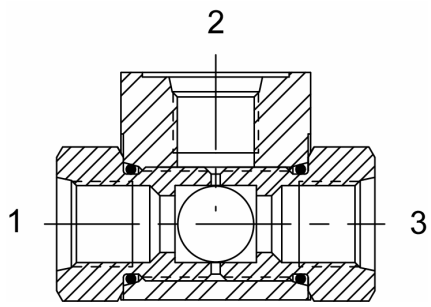
4484 Boeing Drive - Rockford, IL 61109

IM-CSB Inline Shuttle Valve



DESCRIPTION

#6 SAE, inline shuttle valve.

OPERATION

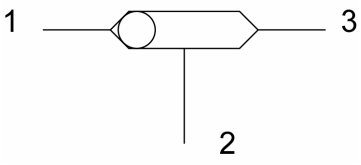
The IM-CSB allows flow from the higher pressure of (1) or (3) to (2).

The valve is commonly used as a load sense to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure released hydraulic brake.

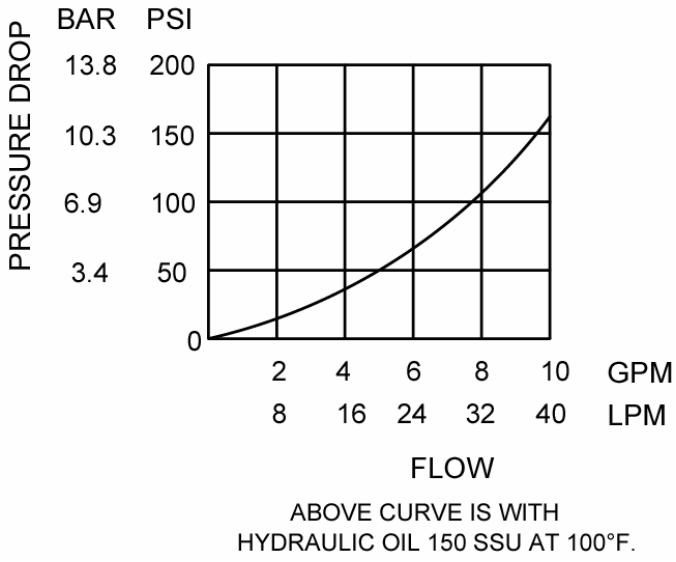
FEATURES

- Hardened parts for long life.

HYDRAULIC SYMBOL



PERFORMANCE



VALVE SPECIFICATIONS

Nominal Flow	10 GPM (38 LPM)
Rated Operating Pressure	3500 PSI (241 bar)
Typical Internal Leakage (150 SSU)	1 cu in/min (16 ml/min)
Viscosity Range	36 to 3000 SSU (3 to 647 cSt)
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40° to 250° F (-40° to 120° C)
Weight	.28 lbs. (.13 kg)
Operating Fluid Media	General Purpose Hydraulic Fluid

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described (herein). Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

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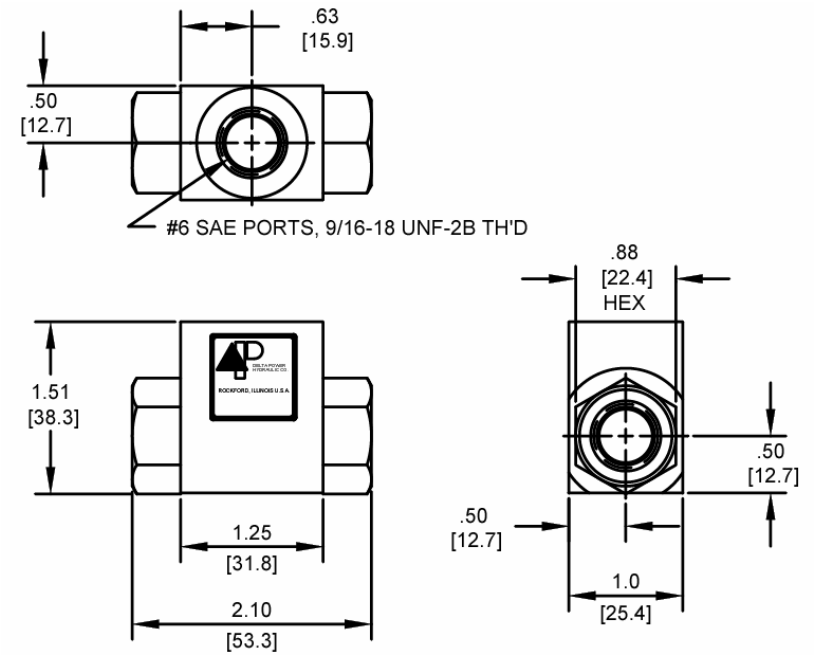
DIMENSIONS



ORDERING INFORMATION

IM-CSB - ____

Buna Standard	**00**
Viton Standard	**V0**

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Key to Power Unit Details

Item	Part No.	Description
1	3340XXXX	Gear Case
2	3311XXXX	Drive Shaft
3	3364XXXX	Gear
4	379XXXXX	Coupling
5	5012XXXX	Reservoir
6		Gasket
11	2112XXXX 2113XXXX	Seal Kit
12	3320XXXX	Drive Plate Assembly
13	3330XXXX	End Plate Assembly
14		Ball Check R.V. Assembly (Ball, Spring, & Guide)
15	3313XXXX	Idler Shaft Assembly
21	6030XXXX	Shaft Seal (In Item #11)
22	3350XXXX	Gear Pin
23	3350XXXX	Ball Pin
24	3355XXXX	Retaining Ring
25	6010XXXX	Body Seal (In Item #11)
26	6210XXXX	Breather
27	3180XXXX	Strainer
28	6140XXXX	Roller Bearing
29	3250XXXX	Drive Key
30	308XXXXX	Motor
31	3356XXXX	Snap Ring

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Pump List

	Seal Kit 11		Drive Plate Assy. 12	End Plate Assy. 13	Retaining Rings 24	Outboard Bearing 28	Drive Key 29	Snap Ring 29	Seal Snap Ring
	Buna	Viton							
A1, 2, 4, 6, 8	21220001	33550001	33200001	33300001	33200005				
A 21, 23, 25, 27	33300002	33550000	33200005	33300004	33200002		N/A		
B 1, 2, 4, 6, 8	21120002	33550001	33200002	33300002	33550000		32500024		
C 1, 2, 4, 6, 8	21120001	21130001	33200001	33300001	33550000		32500024		
C 21, 23, 25, 27	21120004	21130004	33200006	33300005	33550001		32500068		
C 41, 43, 45, 47, 49	21120006	21130006	33200009	33300007	33550002	N/A	32500069	N/A	
D 1, 2, 4, 6, 8	21120003	N/A	33200003	33300001	33550000	32500002	32500024	33560000	
D 21, 23, 25, 27	21120005	21130006	33200007	33300004	33550001	32500003	32500073	33560001	
D 41, 43, 45, 47, 49	21120007	21130007	33200010	33300008	33550002	32500004	32500069	33560002	N/A
DM 1, 2, 4, 6, 8	21120022	21160001	33200004	33300003	33550000	32500002	32500024	33560000	33570000
DM 21, 23, 25, 27	21120023	21160002	33200008	33300006	33550001	32500003	32500068	33560001	33570001
DM 41, 43, 45, 47, 49	21120024	21160003	33200011	33300009	33550002	32500004	32500069	33560002	33570002

	Gear Case 1	Drive Shaft 2				Gear 3	Idler Shaft Assy. 15	Gear Pin 22
A, B, C, D, DM 1	33400001	A, B1 33110001	C1 33111001	D, DM1 33112001		33640001	33130001	33500001
A, B, C, D, DM 2	33400002	A, B2 33110002	C2 33111002	D, DM2 33112002		33640002	33130002	33500001
A, B, C, D, DM 4	33400004	A. B4 33110004	C4 33111004	D, DM4 33112004		33640004	33130004	33500004
A, B, C, D, DM 6	33400006	A, B6 33110006	C6 33111006	D, DM6 33112006		33640006	33130006	33500006
A, B, C, D, DM 8	33400008	A, B8 33110008	C8 33111008	D, DM8 33112008	N/A	33640008	33130008	33500008
A, C, D, DM 21	33400021	A21 33113021	C21 33114021	D21 33115021	DM21 33116021	33640021	33130021	33500021
A, C, D, DM 23	33400023	A23 33113023	C23 33114023	D23 33115023	DM23 33116023	33640023	33130023	33500023
A, C, D, DM 25	33400025	A25 33113025	C25 33114025	D25 33115025	DM25 33116025	33640025	33130025	33500027
A, C, D, DM 27	33400027	A27 33113027	C27 33114027	D27 33115027	DM27 33116027	33640027	33130027	33500027
C, D, DM 41	33400041		C41 33118041	D41 33119041	DM41 3319141	33640041	33130041	33500041
C, D, DM 43	33400043		C43 33118043	D43 33119043	DM43 3319143	33640043	33130043	33500043
C, D, DM 45	33400045		C45 33118045	D45 33119045	DM45 3319145	33640045	33130045	33500045
C, D, DM 47	33400047		C47 33118047	D47 33119047	DM47 3319147	33640047	33130047	33500045
C, D, DM 49	33400049	N/A	C49 33118049	D49 33119049	N/A	33640049	33130049	33500049

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