Hydraulic Power Units

D, H, and V-Pak Series

HY28-2661-CD/US
Effective: July 2024

ENGINEERING YOUR SUCCESS.

⚠ WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

⚠ WARNING

The products described in this catalog can expose you to chemicals, including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker-Hannifin Corporation, its subsidiaries or its authorized distributor. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" elsewhere in this document.

Contents

Quick Reference Data Chart

Pump Model No.	Tank Size Liters (Gallon)	Pump Flow LPM (GPM) @ 1725 RPM	Electrical Motors KW (HP)	Maximum* Bar (PSI)
D-Paks	18.9 (5)	3.4 - 10.2 (0.9 - 2.7)	0.37 (0.5) - 2.24 (3)	207 (3000)
H-Paks	37.9 (10), 75.7 (20), 113.6 (30), 151.4 (40)	3.4 - 39.3 (0.9 - 10.4)	0.37 (0.5) - 14.9 (20)	207 (3000)
V-Paks	37.9 (10), 75.7 (20), 113.6 (30), 151.4 (40)	7.6 - 59.1 (2.0 - 15.6)	1.5 (2) - 14.9 (20)	207 (3000)

*See pump/motor combination, maximum pressure charts.

Parker Hannifin Corporation
Hydraulic Pump and Power Systems Division
United States

Warranty
The hydraulic components on these Parker Power Units are warranteed for one year. This warranty may be extended to two years by using and properly maintaining Parker filters.

Installation Data:
See Installation/Maintenance Manual for specific recommendations pertaining to start-up, system cleanliness, fluids, temperature and other important factors relative to proper installation and use of these power units.

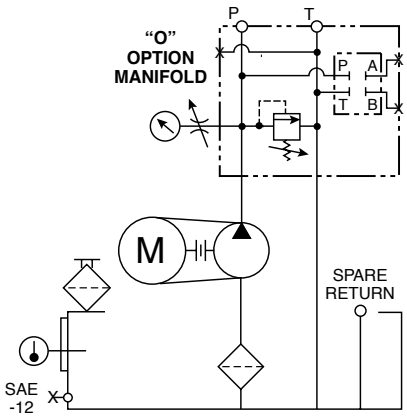
Standard Features

- Vertical Design
- Submerged Pump
- Spare Return Ports
- Precision Pump Mounting Adapters
- Suction Strainer
- Glycerine Filled Pressure Gage with Shut Off
- Oil Level Gage with Thermometer
- Relief Valve
- Breather and Fill Cap
- SAE Drain Plug
- Parker Connector Technology

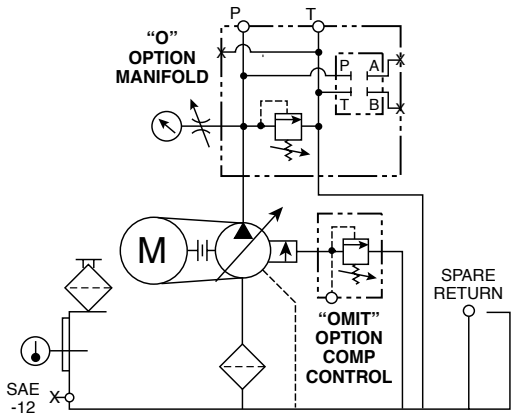
Benefits

- Saves Floor Space
- Quieter Operation, Elimination of Potential Leak Point
- Longer Pump Life
- Protects Pump from Contamination
- Improved Diagnostics
- Helps to Maintain Trouble-Free Performance
- Protects Against System Shock
- Easy To Fill Reservoir
- Prevents Leaks

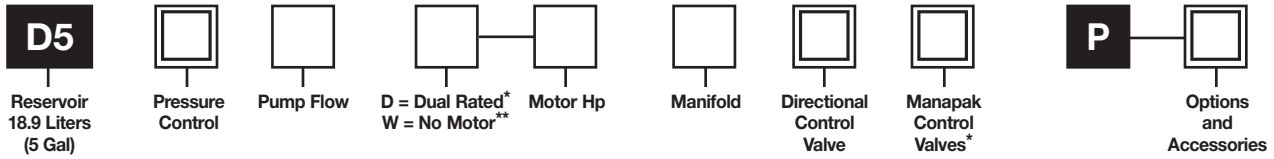
Schematic Symbol
(Hydraulic Schematic - Basic Unit)



D & H-PAK BASIC UNIT
NO OPTIONS OR ACCESSORIES
"O" OPTION MANIFOLD



V-PAK BASIC UNIT
NO OPTIONS OR ACCESSORIES
"OMIT" OPTION PUMP COMPENSATOR
"O" OPTION MANIFOLD



Code	Pressure Control
Omit	System Pressure Relief Valve Only
B	System Pressure Relief Valve with Unloading Valve (2-Way 120VAC) N.O. (Energize coil to close)
J	System Pressure Relief Valve with Unloading Valve (2-Way 24VDC) N.O. (Energize coil to close)

Code	Pump Flow Used
0.9	331-9110-267
1.3	331-9110-011
1.8	331-9110-010
2.7	331-9110-101

If No Motor or Dual Rated	Code	Electric Motor Description HP @ RPM-Frame-Phase
	U1	1/2 @ 1725-56C-1
	T1	1 @ 1725-56C-1
	T3	1 @ 1725-56C-3
W	G	56C (no motor)**
D	G	2 @ 1760 / 2 @ 1450-56C-3 DUAL RATED*
D	K	3 @ 1760 / 3 @ 1455-182TC DUAL RATED*
W	L	182TC/184TC (no motor)**

Single phase electric motors are rated as follows:
115/230V, 1PH, TEFC - 60 Hertz 1800 RPM

Three phase electric motors are rated as follows:
208-230/460V, 3PH, TEFC - 60 Hertz 1800 RPM 1.15 SF.

Dual rated motors include the 60Hz ratings plus 190/380V 50Hz (1.15SF)

*Options G & K are dual rated 60Hz/50Hz as standard.

Use W prefix when no motor is required on unit. When ordering, W must be followed by motor model code equivalent to **frame size of motor to be used.

DO NOT USE "W" and "D" together e.g. 56C frame unit with no motor is called out "WG."

Code	Porting Block/Subplate or Manifold Type	Supply/Return Port or Actuator Port Size	Other
O	Pressure and Return Port Block with Safety Relief Valve	P & T Ports SAE-10 Str. Thr'd	Convertible to S3 Option
S3	D03 Single Station Subplate with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare P & T SAE-10 Ports
M33	D03 Multistation Parallel Circuit Manifold with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare G Port SAE-6

Manifolds are mounted vertically. Bottom station is number 1.

= Omit if not required

Code	Directional Control Valve Model Number	NFPA Mounting Pad	Nominal Flow GPM (LPM)	Description	Circuit Symbol
B	D1VW001CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
C	D1VW004CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
T	D1VW008CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	

Units less valves will be supplied with station cover plates installed.
Valves only available in 120VAC option

Code	Manapak Control Valves Function	Valve Model Number	NFPA Mounting Pad	Nominal Flow GPM (LPM)	Circuit Symbol
1	Flow Control Meter-Out	FM2DDKN	D03	7 (26.5)	
3	Pilot Operator Check	CPOM2DDN	D03	7 (26.5)	

Manapak valves mounted in order of callout.
First valve will be nearest DCV; last valve will be on manifold.

Code	Options and Accessories		
	Function	Model Number	Technical Data
B1*	Exchanger	RM-08-2-2	Air/Oil: 0.7 HP (52 kW) Rej. @ 3 GPM (11.4 LPM)
H	Pressure Filter	15P110QBPSKX1 + indicator 929081	Microglass II Element Vis. Ind. – 50 PSI (3.4 bar) Bypass – 2 PSI (0.14 bar) Diff. @ 3 GPM (11.4 LPM)
K	Check Valve Pump Outlet	DT370MOMF05	5 PSI (0.34 bar) Cracking Pressure 7 PSI (0.48 bar) Diff. @ 3 GPM (11.4 LPM)
L	Bypass Check (on Heat Exch)	C1020S65	65 PSI (4.5 bar) Cracking Pressure
O	Return Filter	12AT110CBPCS12H 45LPM (12 GPM)	Cellulose Element Ind. Gage - 15 PSI (1.03 bar) Bypass Max. Oil Flow
R1	Combination Float/Temp. Switch N.O. Float Up	8767820-1	Close @ Low Level and/or 65°C (149°F) (N.O.)
R2	Combination Float/Temp. Switch Float Up	876782-02	Fixed Temp at 65°C (149°F) Open @ Low Level and/or 65°C (149°F) (N.C.)

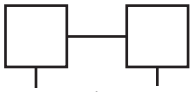
*Heat rejection based on flow given with a 40°F differential between transfer medium.

For more information on motor range ratings, see page 29.


Reservoir


Pressure Control


Pump Flow


D = Dual Rated* W = No Motor** Motor Hp


Manifold

Code	Reservoir Size Gallons (Liters)
H1*	10 (37.9)
H2	20 (75.7)
H3	30 (113.6)
H4	40 (151.4)

*Available up to 7.5 KW (10 HP) motor only.

Code	Pressure Control*
Omit	System Pressure Relief Valve Only
B	System Pressure Relief Valve with Unloading Valve (2-Way 120VAC) N.O. (Energize coil to close)
J	System Pressure Relief Valve with Unloading Valve (2-Way 24VDC) N.O. (Energize coil to close)

Code	Pump Flow Used
0.9	331-9110-267
1.3	331-9110-011
1.8	331-9110-010
2.7	331-9110-101
3.6	334-9111-047
4.5	334-9111-068
5.1	334-9111-067
6.3	334-9111-048
8.6*	334-9116-506
10.4*	334-9111-347

*Do not select a motor smaller than 2 Hp with these flow rates.

If No Motor or Dual Rated	Code	Electric Motor Description HP @ RPM-Frame-Phase
	U1	1/2 @ 1725-56C-1
	T1	1 @ 1725-56C-1
	T3	1 @ 1725-56C-3
W	G	56C (no motor)**
D	G	2 @ 1760 / 2 @ 1450-56C-3 DUAL RATED
D	K	3 @ 1760 / 3 @ 1455-56C-3 DUAL RATED
W	L	182TC/184TC (no motor)**
	L	5 @ 1725 - 184TC - 3
D	L	5 @ 1725 / 3 @ 1450-184TC-3 DUAL RATED
W	M	213TC (no motor)**
	M	7.5 @ 1725-213TC-3
D	M	7.5 @ 1770 / 5 @ 1475-213TC-3 DUAL RATED**
W	N	215TC (no motor)**

Continued: top right.

= Omit if not required

If No Motor or Dual Rated	Code	Electric Motor Description HP (KW) - RPM Frame Phase
	N	10 @ 1725-215TC-3
D	N	10 @ 1770 / 7.5 @ 1475-215TC-3 DUAL RATED*
W	P †	254TC (no motor) **
	P †	15 @ 1725-254TC-3
D	P †	15 @ 1760 / 10 @ 1470-254TC-3 DUAL RATED*
W	S †	256TC (no motor)**
	S †	20 @ 1725-256TC-3
D	S †	20 @ 1760 / 15 @ 1465RPM-256TC-3 DUAL RATED*

Single phase electric motors are rated as follows:
115/230V, 1PH, TEFC - 60 Hertz 1800 RPM

Three phase electric motors are rated as follows:
208-230/460V, 3PH, TEFC - 60 Hertz 1800 RPM 1.15 SF

Dual rated motors include the 60Hz ratings plus 190/380V 50Hz 1.15 SF.

*Dual rated motors except 2Hp and 3Hp may have longer than standard leadtime. Options G and K are dual rated as standard.

Consult factory for other motor speeds (RPM) and voltages.

†Available with H2, H3, and H4 tanks only.

**Use W prefix when no motor is required on unit. When ordering, W must be followed by motor model code equivalent to frame size of motor to be used.

DO NOT USE “W” and “D” together e.g.: 182/184TC unit with no motor is called out “WL.”

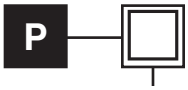
Code	Porting Block/ Subplate or Manifold Type	Supply/Return Port or Actuator Port Size	Other
O	Pressure and Return Port Block with Safety Relief Valve	P & T Ports SAE-12 Str. Thr'd	Convertible to S5 Option
S3	D03 Single Station Subplate with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare P & T SAE-10 Ports
S5	D05 Single Station Subplate with Safety Relief Valve	A & B Ports SAE-10 Str. Thr'd	Spare P & T SAE-12 Ports
M33 M35	D03 Multistation Parallel Circuit Manifold with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare G Port SAE-6
M53 M55	D05 Multistation Parallel Circuit Manifold with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare G Port SAE-6

Manifolds are mounted vertically. Bottom station is number 1.

For more information on motor range ratings, see page 29.

Directional Control Valve

Manapak Control Valves•



Options and Accessories

Code	Valve Model Number	NFPA Mounting Pad	Nominal Flow GPM (LPM)	Description	Circuit Symbol
B	D1VW001CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
C	D1VW004CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
F	D3W1CNYK	D05	20 (75.7)	Double (Spr. Ctr)	
G	D3W4CNYK	D05	15 (56.8)	Double (Spr. Ctr)	
T	D1VW008CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
W	D3W8CNYK	D05	15 (56.8)	Double (Spr. Ctr)	

Units less valves will be supplied with station cover plates installed.
Valves only available in 120VAC option

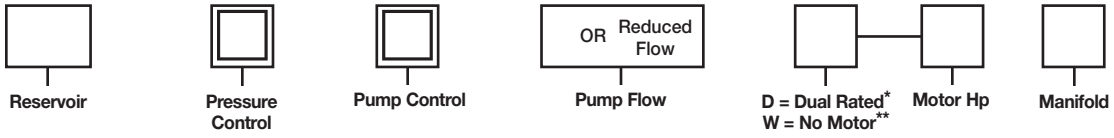
Code	Function	Valve Model Number	NFPA Mounting Pad	Nominal Flow GPM (LPM)	Circuit Symbol
1	Flow Control	FM2DDKN	D03	7 (26.5)	
2	Flow Control	FM3DDKN	D05	12 (45.4)	
3	Pilot Operator Check	CPOM2DDN	D03	7 (26.5)	
4	Pilot Operator Check	CPOM3DDN	D05	12 (45.4)	

*Manapak valves mounted in order of callout.
First valve will be nearest DCV; last valve will be on manifold.

Code	Function	Model Number	Technical Data
B1*	Return Line Heat Exchanger	RM-08-1-2	Air/Oil: .7 HP (0.52 kW), Rej. @ 7 GPM (26.5 LPM) 0.5 - 5 Hp (0.37- 37.7 kW) kW Motors only
B2*	Return Line Heat Exchanger	RM 190-1-2	Air/Oil: 1.5 HP (1.1 kW), Rej. @ 7 GPM (26.5 LPM) 7.5 - 20 Hp (5.6 - 14.9 kW) Motors only
C *^	Return Line Heat Exchanger	BS-401-A4-O-BR	Water/oil: 4hP (3KW)Rej @ 5GPM Oil Flow 1:1 Flow ratio Max oil Flow 10GPM Includes 3/4" weld coupling for customer supplied device
E^	Water Valve/bulbwell	59686 + bulbwell + 3/4" weld coupling	If ordered without option C this option will only include the 3/4" weld coupling.
H	Pressure Filter	15P110QBPSKX1 + indicator 929081	Microglass II Element, Vis. Ind. - 50 PSI (3.49 bar) Bypass - 4 PSI (0.27 bar), Diff. @ 7 GPM (26.5 LPM)
J	2" Weld coupling for customer supplied heater		
K	Check Valve Pump Outlet	"DT" and "C" Series	5 PSI (0.34 bar) Cracking Pressure 25 PSI (1.72 bar) Diff. @ 15 GPM (56.8 LPM)
L	Bypass Check (on Heat Exch)	C1220S65	(65 PSI) 4.5 bar Cracking Pressure
N	Return Filter	40CN110B	MICROGLASS ii Element, Vis 25PSI (1.72Bar) Indicator 3PSI (0.21Bar) Diff. @ 7GPM (26.5LPM)
O	Return Filter	12AT110CBPCS12H 12 GPM (45 LPM)	Cellulose Element, Ind. Gage - 15 PSI (1.03 bar) Bypass
R1	Combination Float/Temp. Switch N.O. Float Up	876782-01	Fixed Temp at 65°C (149°F) Close @ Low Level and/or 65°C (149°F) (N.O.)
R2	Combination Float/Temp. Switch Float Up	876782-02	Fixed Temp at 65°C (149°F) Open @ Low Level and/or 65°C (149°F) (N.C.)

= Omit if not required

*Heat rejection based on flow given with a 40°F differential between transfer medium.
^ May require longer than standard lead time.



Code	Reservoir Size Gallons (Liters)
V1*	10 (37.9)
V2	20 (75.7)
V3	30 (113.6)
V4	40 (151.4)

*Available up to 10 HP (7.5 kW) motor only and with 7gpm or smaller pump

Code	Pressure Control
Omit	Single Pressure Remote Compensator
B	Single Pressure Remote Compensator with Low Pressure Standby
BJ	Single Pressure Remote Compensator with Low Pressure Standby, 24 VDC
C	Bi-Pressure Remote Compensator
CJ	Bi-Pressure Remote Compensator, 24VDC
D	Bi-Pressure Remote Compensator with Low Pressure Standby
DJ	Bi-Pressure Remote Compensator with Low Pressure Standby, 24VDC
F	Provision for Customer Supplied Remote Control Relief Valve

Code	Pump Control
Omit	Std. Remote Compensator
A*	Load Sense Flow Control
H**	Horsepower Limiting

*A_SAE-6 sense port line will be supplied in topplate.

**Horsepower setting will be at max. flow and pressure obtainable with motor selected. Lead time is four weeks for shaded items.

Code	Pump Flow Rate @1800 RPM	Pump Used and Description
7	7 GPM (29.5 LPM)	PVP16 - Std. Remote Compensator
*	Specify in GPM	Destroked Max. Volume – 2 GPM Min.
15	15.6 GPM (59 LPM)	PVP33 - Std. Remote Compensator
**	Specify in GPM	Destroked Max. Volume – 8 GPM Min.

*Unless otherwise specified, units are shipped at max. flow rate 7.8 GPM (29.5 LPM) at 1800 RPM. When reduced flow setting is required, specify pump setting in .5 GPM (1.9 LPM) increments. Example: 5, 5.5, 6, 6.5 with a 2 GPM (7.6 LPM) minimum flow.

**Unless otherwise specified, units are shipped at max. flow rate 15.6 GPM (59 LPM) at 1800 RPM. When reduced flow setting is required, specify pump setting in .5 GPM (1.9 LPM) increments. Example: 11, 11.5, 12, 12.5 with a 8 GPM (30.3 LPM) minimum flow.

Example: V*12**-- = Std. Pump Destroked to 12 GPM (45.4 LPM)
V*A11.5**-- = Load Sense Pump Destroked to 11.5 GPM (43.5 LPM)

For more information on motor range rations, see page 29.

= Omit if not required

If No Motor or Dual Rated	Code	Electric Motor Description HP @ RPM Frame Phase
W	G	56C (no motor)**
D	G	2 @ 1760 / 2 @ 1450-56C-3 DUAL RATED
D	K	3 @ 1760 / 3 @ 1455-182TC DUAL RATED
W	L	182TC/184TC (no motor)**
	L	5 @ 1725-184TC-3
D	L	5 @ 1750 / 3 @ 1450-184TC-3 DUAL RATED*
W	M	213TC (no motor)**
	M	7.5 @ 1725-213TC-3
D	M	7.5 @ 1770 / 5 @ 1475-213TC-3 DUAL RATED*
W	N	215TC (no motor)**
	N	10 @ 1725-215TC-3
D	N	10 @ 1770 / 7.5 @ 1475-215TC-3 DUAL RATED*
W	P †	254TC (no motor)**
	P †	15 @ 1725-254TC-3
D	P †	15 @ 1760 / 10 @ 1470-254TC-3 DUAL RATED*
W	S †	256TC (no motor)**
	S †	20 @ 1725-256TC-3
D	S †	20 @ 1760 / 15 @ 1465RPM-256TC-3 DUAL RATED*

Single phase electric motors are rated as follows:
115/230V, 1PH, TEFC - 60 Hertz 1800 RPM

Three phase electric motors are rated as follows:
208-230/460V, 3PH, TEFC - 60 Hertz 1800 RPM 1.15 SF

Dual rated motors include the 60Hz ratings plus 190/380V 50Hz 1.15SF.

*Dual rated motors except 2Hp and 3Hp may have longer than standard leadtime. Options G and K are dual rated as standard.

Consult factory for other motor speeds (RPM) and voltages.

†Available with V2, V3 and V4 tanks only.

Use W prefix when no motor is required on unit. W must be followed by motor model code equivalent to **frame size of motor to be used.

DO NOT USE “W” and “D” together e.g.: 182/184TC unit with no motor is called out “WL.”

Code	Porting Block/Subplate or Manifold Type	Supply/Return Port or Actuator Port Size	Other
O	Pressure and Return Port Block with Safety Relief Valve	P & T Ports SAE-12 Str. Thr'd	Convertible to S5 Option
S3	D03 Single Station Subplate with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare P & T SAE-10 Ports
S5	D05 Single Station Subplate with Safety Relief Valve	A & B Ports SAE-10 Str. Thr'd	Spare P & T SAE-12 Ports
M33 M35	D03 Multistation Parallel Circuit Manifold with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare G Port SAE-6
M53 M55	D05 Multistation Parallel Circuit Manifold with Safety Relief Valve	A & B Ports SAE-8 Str. Thr'd	Spare G Port SAE-6

Manifolds are mounted vertically. Bottom station is number 1.

Code	Directional Control Valve Model Number	NFPA Mounting Pad	Nominal Flow GPM (LPM)	Description	Circuit Symbol
B	D1VW001CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
C	D1VW004CNYCF	D03	7 (26.5)	Double (Spr. Ctr)	
F	D3W1CNYK	D05	20 (75.7)	Double (Spr. Ctr)	
G	D3W4CNYK	D05	15 (56.8)	Double (Spr. Ctr)	

Units less valves wil be supplied with station cover plates installed. Valves only available in 120VAC option

Code	Manapak Control Valves Function	Valve Model Number	NFPA Mounting Pad	Nominal Flow GPM (LPM)	Circuit Symbol
1	Flow Control	FM2DDKN	D03	7 (26.5)	
2	Flow Control	FM3DDKN	D05	12 (45.4)	
3	Pilot Operator Check	CPOM2DDN	D03	7 (26.5)	
4	Pilot Operator Check	CPOM3DDN	D05	12 (45.4)	

*Manapak valves mounted in order of callout.
First valve will be nearest DCV; last valve will be on manifold.

Code	Options and Accessories		
	Function	Model Number	Technical Data
A*	Pump Case Heat Exchanger	RM-08-4-2	Air/Oil: .7Hp (.52KW) Rej @ .5GPM (1.9LPM) 2-15Hp (1.5 -11.2KW) Motors only
B1*	Return Line Heat Exchanger	RM-08-1-2	Air/Oil: .7Hp (.52KW) Rej @ 7GPM (26.5LPM) 0.5 -5Hp (0.37-3.7 KW) Motors only
B2*	Return Line Heat Exchanger	RM 190-1-2	Air/Oil: 1.5Hp (1.1KW) Rej @ 7GPM (26.5LPM) 7.5 - 20Hp (5.6 - 14.9 KW) Motors only
C*^	Return Line Heat Exchanger	BS-401-A4-O-BR	Water/oil: 4Hp (3KW)Rej @ 5GPM Oil Flow 1:1 Flow ratio Max oil Flow 10GPM Includes 3/4" weld coupling for customer supplied device
D*^	Return Line Heat Exchanger	BS-701-B6-F-BR	Water/oil: 7Hp (5.2KW)Rej @ 15GPM Oil Flow 2:1 Flow ratio Max oil Flow 29GPM Includes 3/4" weld coupling for customer supplied device
E^	Water Valve/bulbwell	59686 + bulbwell + 3/4" weld coupling	If ordered without options C or D this option will only include the 3/4" weld coupling.
H	Pressure Filter	15P110QBPSKX1 + indicator 929081	Microglass II Element, Vis. Ind. - 50 PSI (3.49 bar) Bypass - 4 PSI (0.27 bar), Diff. @ 7 GPM (26.5 LPM)
J	2" Weld coupling for customer supplied heater		
K	Check Valve Pump Outlet	"DT" and "C" Series	5 PSI (0.34 bar) Cracking Pressure 25 PSI (1.72 bar) Diff. @ 15 GPM (56.8 LPM)
L	Bypass Check (on Heat Exch)	C1220S65	(65 PSI) 4.5 bar Cracking Pressure
N	Return Filter	40CN110B	Microglass II Element, Visual 25 PSI (1.72 bar) Indicator 3 PSI (0.21 bar) Diff. @ 7 GPM (26.5 LPM)
O	Return Filter	12AT110CBPCS12H 12 GPM (45 LPM)	Cellulose Element, Ind. Gage - 15 PSI (1.03 bar) Bypass
R1	Combination Float/Temp. Switch N.O. Float Up	876782-01	Fixed Temp at 65°C (149°F) Close @ Low Level and/or 65°C (149°F) (N.O.)
R2	Combination Float/Temp. Switch Float Up	876782-02	Fixed Temp at 65°C (149°F) Open @ Low Level and/or 65°C (149°F) (N.C.)

* Heat rejection based on 40°F differential between transfer medium.
^ May require longer than standard lead time.

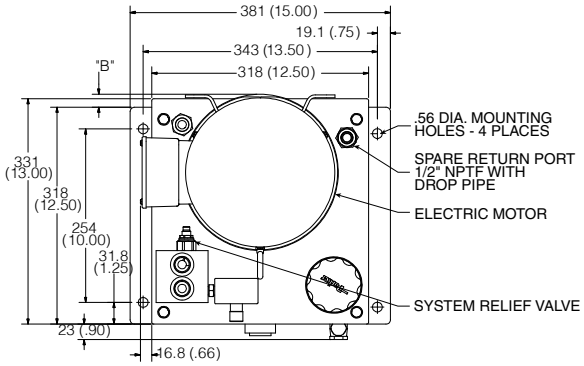
= Omit if not required

Parker Hannifin Corporation
Hydraulic Pump and Power Systems Division
United States

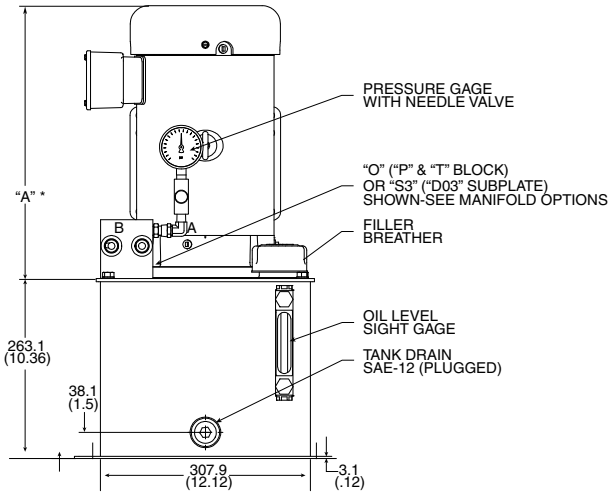
Dimensions – Basic D-Pak (18.9 Liter (5 Gallon) Tank)

Inch equivalents for millimeter dimensions are shown in (**).

Motor Code	Motor Size	Dimension "B"
U1, T1, T3, DG	56C Frame	0"
DK	182TC Frame	19.1 (.75)



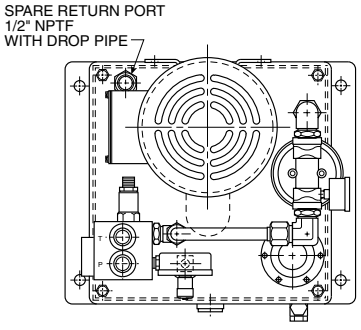
"O" & "S3" OPTION MANIFOLD
(P & T BLOCK & D03 SINGLE STATION)
BASIC UNIT



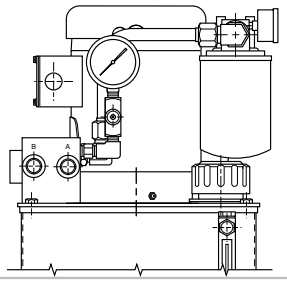
Motor Code	Motor Description KW(HP)-RPM-Frame-Phase	Dimension "A" *
U1	.37 (.5)-1725-56C-1	269.75 (10.62)
C1	.56 (.75)-1725-56C-1	295.15 (11.62)
T1	.75 (1)-1725-56C-1	295.15 (11.62)
T3	.75 (1)-1725-56C-3	258.57 (10.18)
F	1.1 (1.5)-1725-56C-3	283.97 (11.18)
G	1.5 (2)-1725-56C-3	306.32 (12 06)
K	2.2 (3)-1725-56C-3	341.37 (13.44)
DG	2(1.5)-1725-56C-3 DUAL RATED	359 (14.1)
DK	3(2.2)-1725-182TC DUAL RATED	435 (17.1)

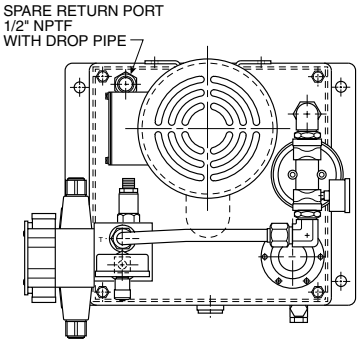
* Reference dimension consult factory if critical to application.

Filter Option Reference

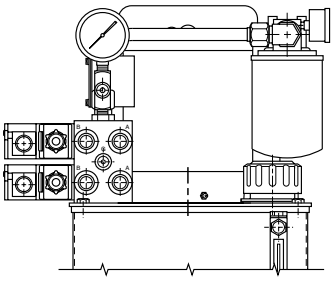


"O" & "S3" OPTION MANIFOLD
(P & T BLOCK & D03 SINGLE STATION)
SHOWN WITH OPTION "O" RETURN FILTER



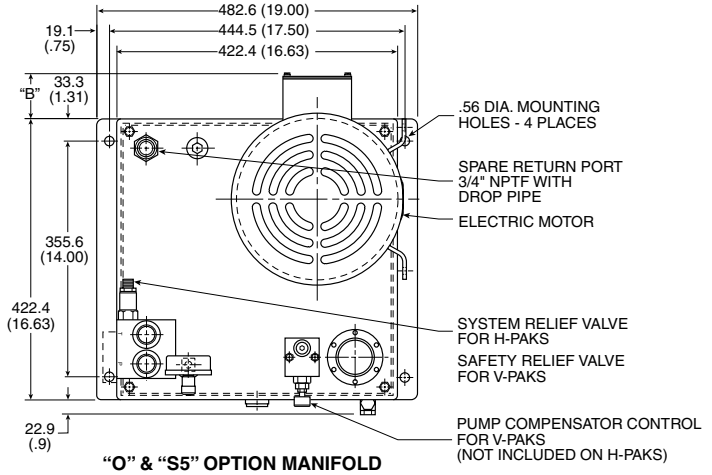


"M3*" & "C3*" OPTION MANIFOLD
(MULTI-STATION D03 MANIFOLD)
SHOWN WITH OPTION "O" RETURN FILTER

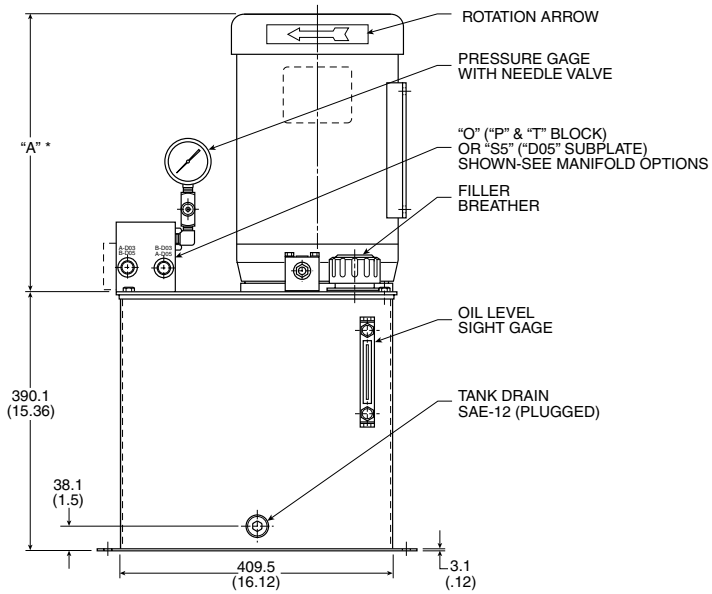


Dimensions – Basic H1 and V1 (10 Gallon Tank)

Inch equivalents for millimeter dimensions are shown in (**).



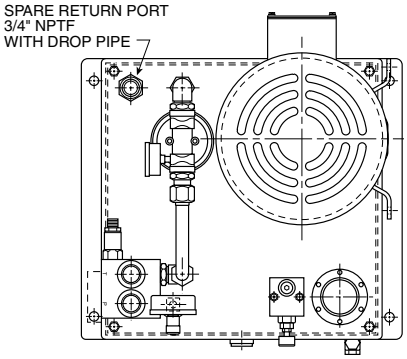
"O" & "S5" OPTION MANIFOLD
(P & T BLOCK & D05 SINGLE STATION)
BASIC UNIT



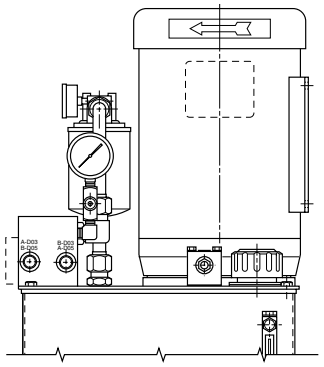
Motor Code	Motor Description KW(HP)-RPM-Frame-Phase	Dimension	
		"A" *	"B"
U1	0.37 (.5)-1725-56C-1	266.70 (10.50)	19.05 (0.75)
C1	0.56 (.75)-1725-56C-1	279.40 (11.00)	19.05 (0.75)
T1	0.75 (1)-1725-56C-1	298.45 (11.75)	19.05 (0.75)
T3	0.75 (1)-1725-56C-3	266.70 (10.50)	19.05 (0.75)
F	1.1 (1.5)-1725-56C-3	273.05 (10.75)	19.05 (0.75)
DG	2 (1.5)-1725 - 56C-3 DUAL RATED	359 (14.1)	19.05 (.75)
DK	3 (2.2) - 1725-182TC DUAL RATED	435 (17.1)	19.05 (.75)
L	3.7 (5)-1725-184TC-3	365.25 (14.38)	28.70 (1.13)
M	5.6 (7.5)-1725-213TC-3	406.40 (16.00)	66.80 (2.63)
N	7.5 (10)-1725-215TC-3	413.51 (16.28)	66.80 (2.63)

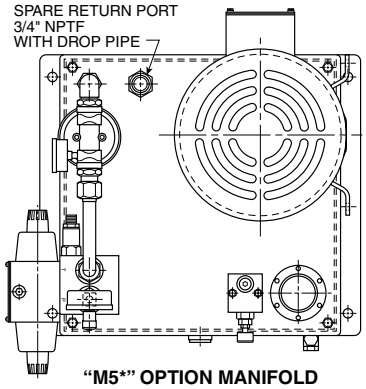
* Reference dimension consult factory if critical to application.

Filter Option Reference

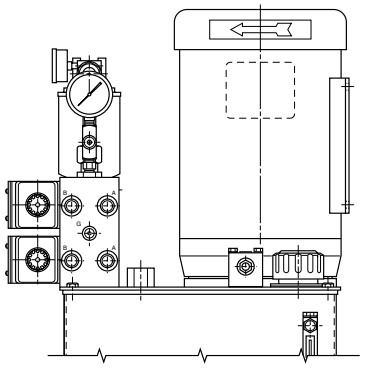


"O" & "S5" OPTION MANIFOLD
(P & T BLOCK & D05 SINGLE STATION)
SHOWN WITH OPTION "O" RETURN FILTER





"M5*" OPTION MANIFOLD
(MULTI-STATION D05 MANIFOLD)
SHOWN WITH OPTION "O" RETURN FILTER



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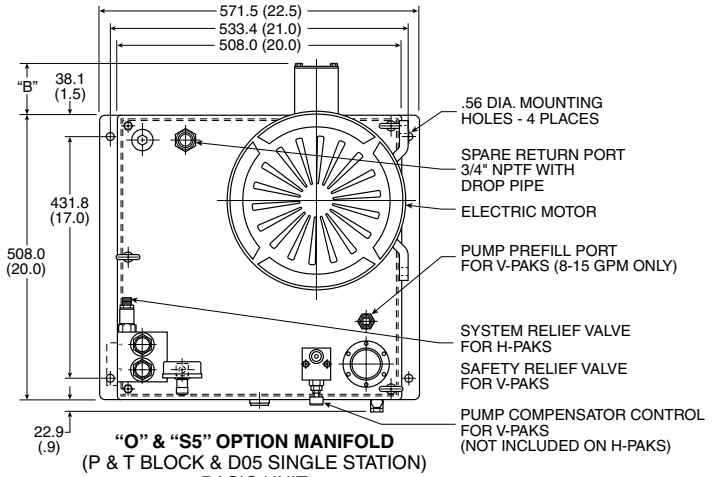
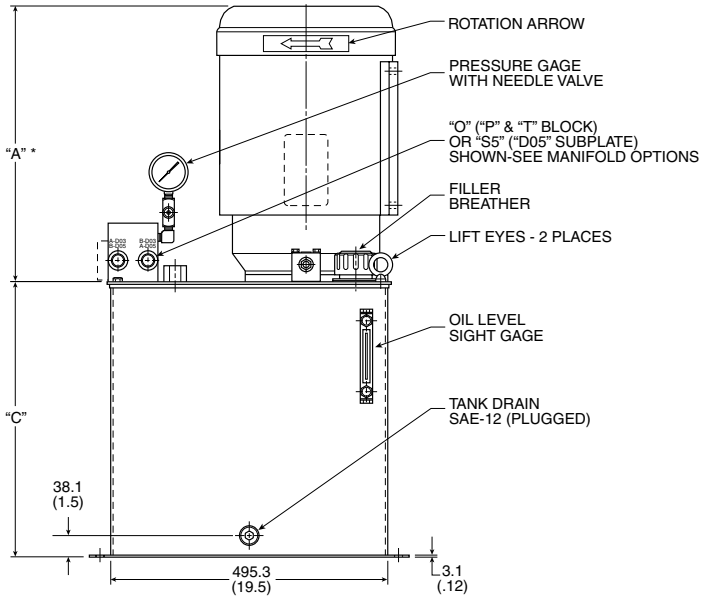
Hydraulic Pump and Power Systems Division
United States

Dimensions – Basic H2, 3, 4, and V2, 3, 4 (20, 30, 40 Gallon Tank)

Inch equivalents for millimeter dimensions are shown in (**).



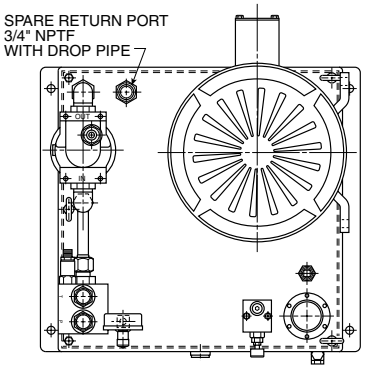
"O" & "S5" OPTION MANIFOLD
(P & T BLOCK & D05 SINGLE STATION)
BASIC UNIT



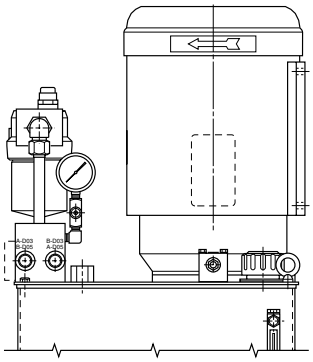
Motor Code	Motor Description KW(HP)-RPM-Frame-Phase	Dimension	
		"A"*	"B"
U1	.37(.5) -1725-56C-1	266.70 (10.50)	19.05 (.75)
C1	.56(.75) -1725-56C-1	279.40 (11.00)	19.05 (.75)
T1	.75(1) -1725-56C-1	298.45 (11.75)	.75 (19.05)
T3	.75(1) -1725-56C-3	266.70 (10.50)	19.05 (.75)
DG	2 (1.5)-1725 - 56C-3 DUAL RATED	359 (14.1)	19.05 (.75)
DK	3 (2.2) - 1725-182TC DUAL RATED	435 (17.1)	19.05 (.75)
L	5 (3.75) - 1725 - 184TC - 3	435 (17.1)	28.70 (1.13)
M	7.5 (5.6) - 1725 - 213TC - 3	458 (18)	35.05 (1.38)
N	10 (7.5) - 1725 - 215TC - 3	473 (18.6)	35.05 (1.38)
P	15 (11.2) - 1725 - 254TC - 3	522 (20.5)	85.09 (3.35)
S	20 (14.9) - 1725 - 256TC - 3 DUAL RATED	522 (20.5)	85.09 (3.35)

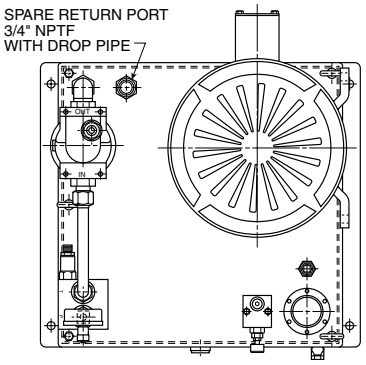
Reservoir Code	Reservoir Code	Dimension "C"
H2 or V2	151.4 Liters (20 Gal)	491.74 (19.36)
H3 or V3	113.6 Liters (30 Gal)	599.95 (23.62)
H4 or V4	75.7 Liters (40 Gal)	733.04 (28.86)

Filter Option Reference

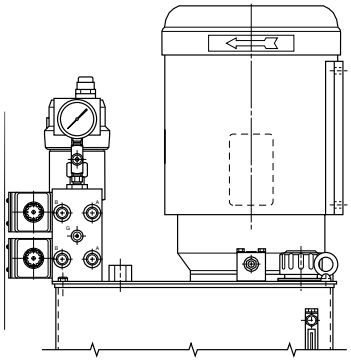


"O" & "S5" OPTION MANIFOLD
(P & T BLOCK & D05 SINGLE STATION)
SHOWN WITH OPTION "N" RETURN FILTER



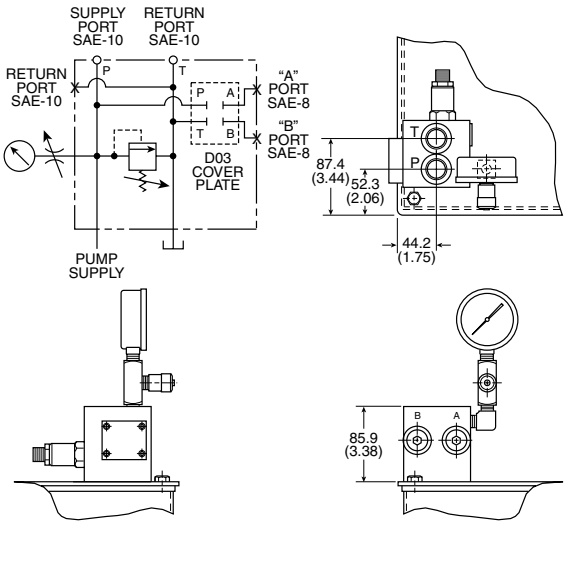


"M5*" OPTION MANIFOLD
(MULTI-STATION D05 MANIFOLD)
SHOWN WITH OPTION "N" RETURN FILTER



Manifold Options

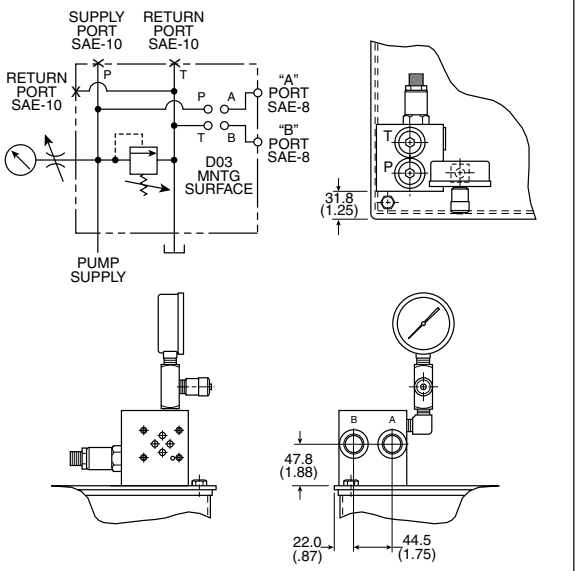
Inch equivalents for millimeter dimensions are shown in (**).



O

MANIFOLD OPTION

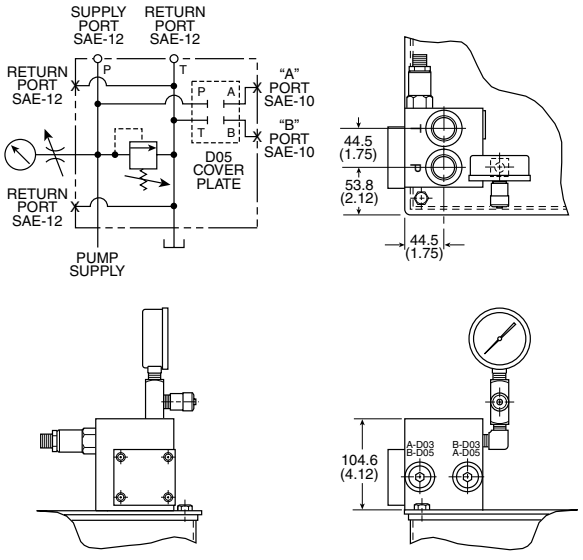
FOR SUPPLY & RETURN CONNECTIONS (18.9 LITER (5 GAL.) RESERVOIR UNITS)



S3

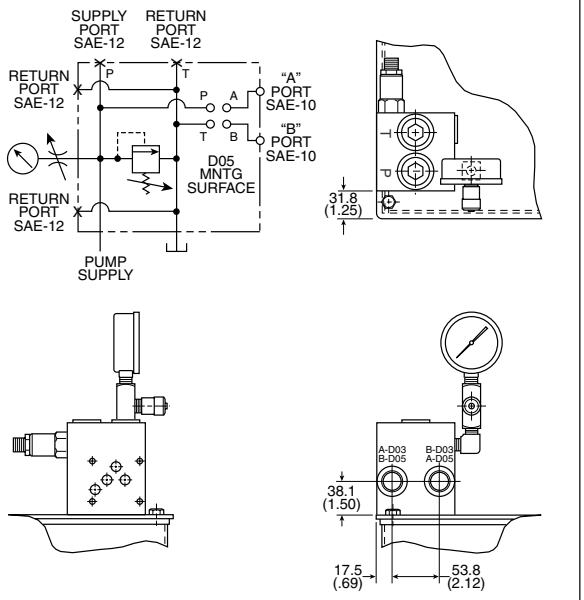
SUBPLATE OPTION

FOR USE WITH D1VW VALVE (NFPA D03)



O
MANIFOLD OPTION

FOR SUPPLY & RETURN CONNECTIONS (37.9, 75.7, 113.6, 115.4 LIT (10, 20, 30, 40 GAL) RESERVOIR UNITS)



S5

SUBPLATE OPTION

FOR USE WITH D3W VALVE (NFPA D05)

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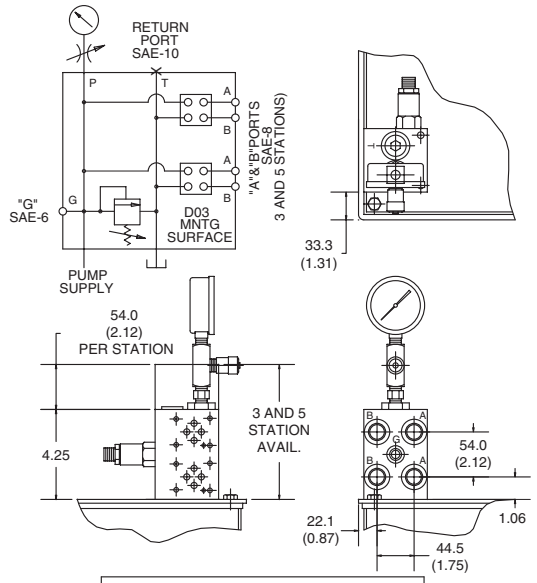
United States

Manifold Options

Inch equivalents for millimeter dimensions are shown in (**).

Option M33/M35

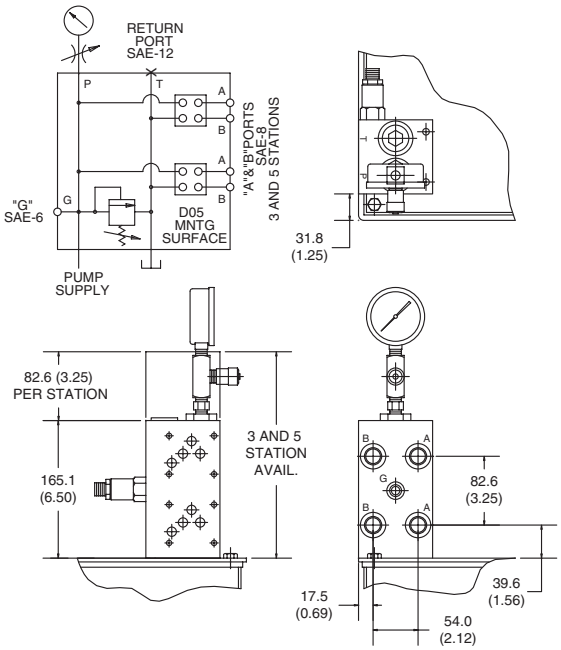


M33 AND M35

3 AND 5 STATION MANIFOLD OPTIONS

FOR USE WITH NFPA D03 VALVES

Option M53/M55

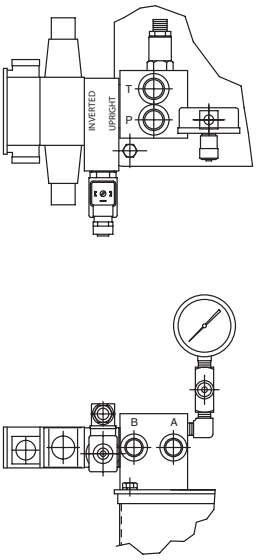


M53 AND M55

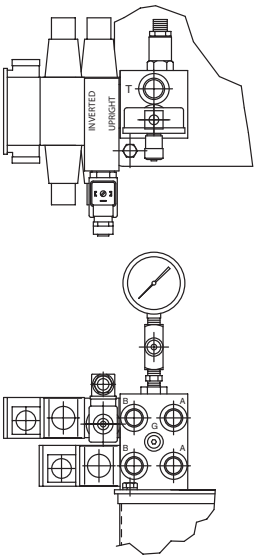
3 AND 5 STATION MANIFOLD OPTIONS

FOR USE WITH NFPA D05 VALVES

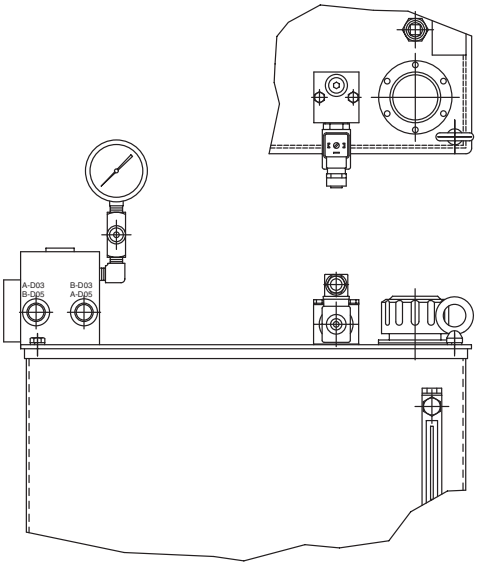
Pressure Control Option "B" – Unloading Valve



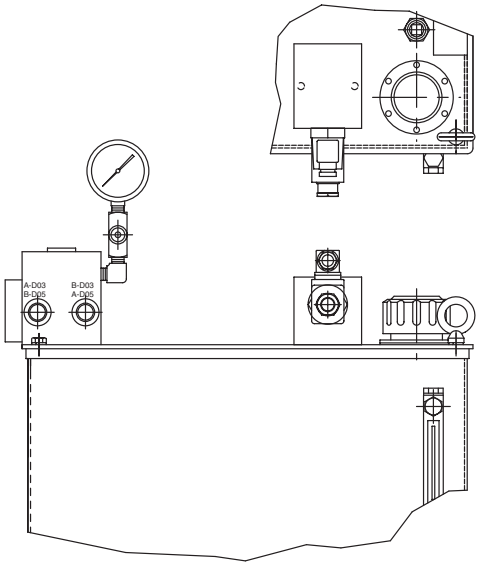
"H"PAK WITH
"S3" MANIFOLD
3.4-19.3 LPM (0.9-5.1 GPM) FLOW RATES ONLY
(CONNECTED TO SYSTEM RETURN LINE)



"H"PAK WITH
"M3*" MANIFOLD
3.4-19.3 LPM (0.9-5.1 GPM) FLOW RATES ONLY
(CONNECTED TO SYSTEM RETURN LINE)

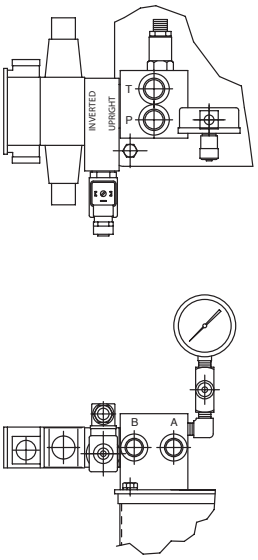


"H"PAK WITH
"OMIT","S5","S6","M5*","M6*" MANIFOLDS
3.4-19.3 LPM (0.9-5.1 GPM) FLOW RATES ONLY
(PLUMBED DIRECTLY BACK TO TANK)

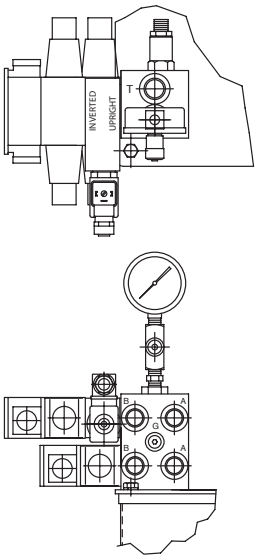


"H"PAK WITH
"OMIT","S3","S5","S6","M3*","M5*","M6*" MANIFOLDS
23.84-46.56 LPM (6.3-12.3 GPM) FLOW RATES ONLY
(PLUMBED DIRECTLY BACK TO TANK)

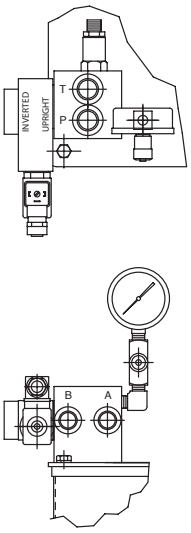
Pressure Control Option "B" – Unloading Valve



"D"PAK WITH
"S3" MANIFOLD
(CONNECTED TO SYSTEM RETURN



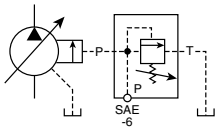
"D"PAK WITH
"M3*" MANIFOLD
(CONNECTED TO SYSTEM RETURN

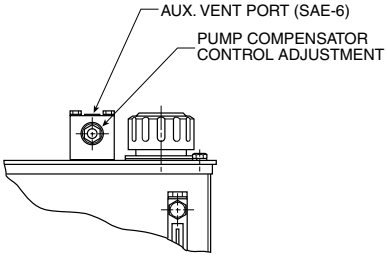


"D"PAK WITH
"OMIT" MANIFOLD
(CONNECTED TO SYSTEM RETURN)

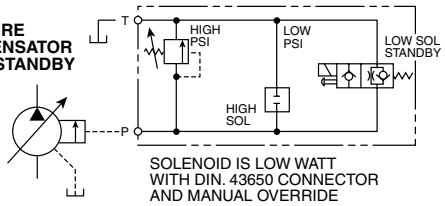
V-Pak – Compensator Options

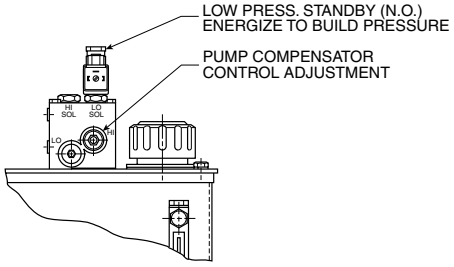
"OMIT" OPTION
SINGLE PRESSURE
REMOTE COMPENSATOR



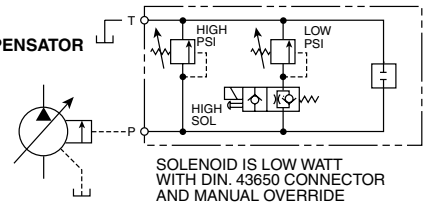


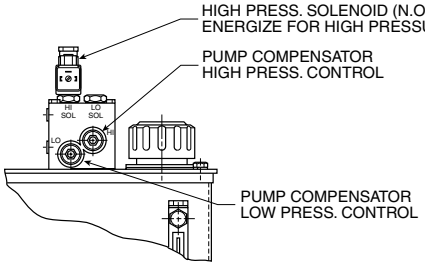
"B" OPTION
SINGLE PRESSURE
REMOTE COMPENSATOR
W/LOW PRESS. STANDBY



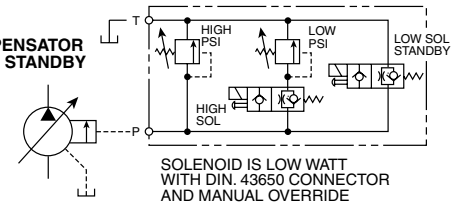


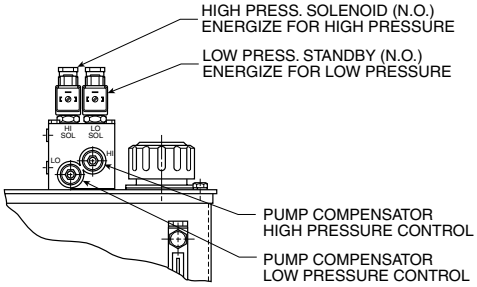
"C" OPTION
BI-PRESSURE
REMOTE COMPENSATOR



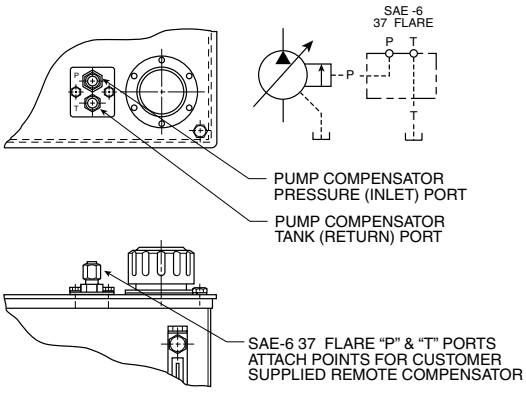


"D" OPTION
BI-PRESSURE
REMOTE COMPENSATOR
W/LOW PRESS. STANDBY





"F" OPTION
PROVISION FOR
CUSTOMER SUPPLIED
REMOTE COMPENSATOR



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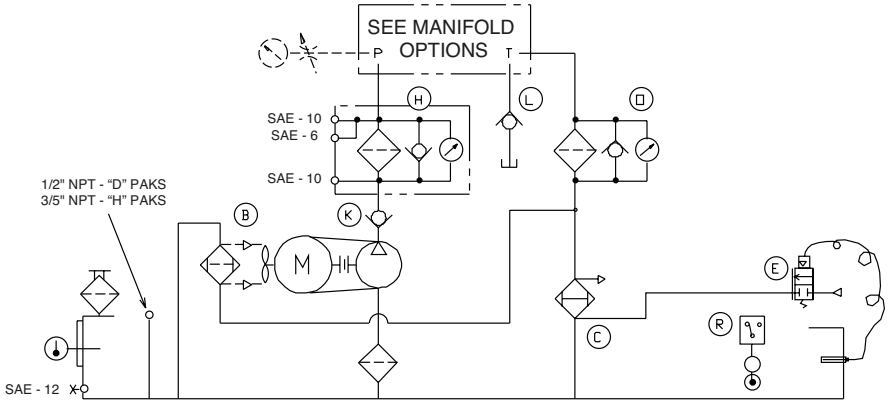
United States

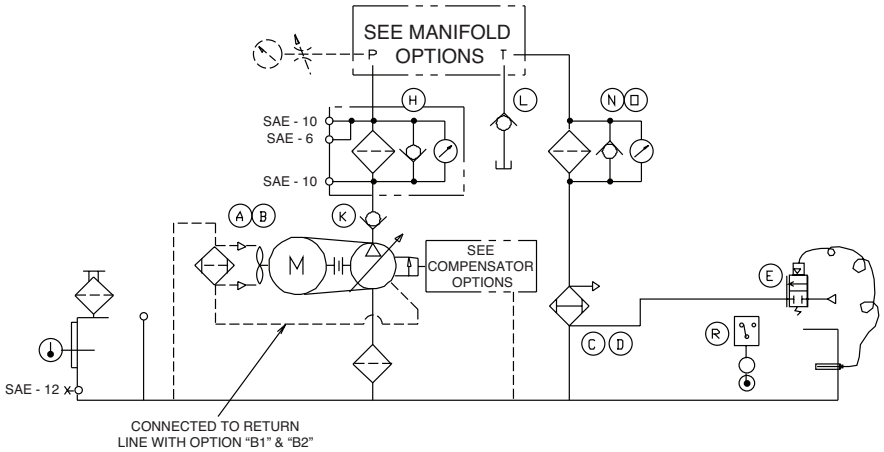
ACCESSORY OPTIONS—D AND H PAKS

OPTION Ⓑ RETURN LINE AIR/OIL HEAT EXCHANGER (B1 OR B2)
OPTION Ⓒ WATER/OIL HEAT EXCHANGER
OPTION Ⓔ SYSTEM COOLING/FILTER LOOP
OPTION Ⓗ PRESSURE FILTER
OPTION Ⓙ WELD COUPLING FOR HEATER
OPTION Ⓚ CHECK VALVE–PUMP OUTLET
OPTION Ⓛ CHECK VALVE–RETURN LINE BYPASS
OPTION Ⓝ RETURN LINE FILTER
OPTION Ⓞ RETURN LINE FILTER
OPTION Ⓡ COMBINATION TEMP/LEVEL SWITCH (R1 OR R2)



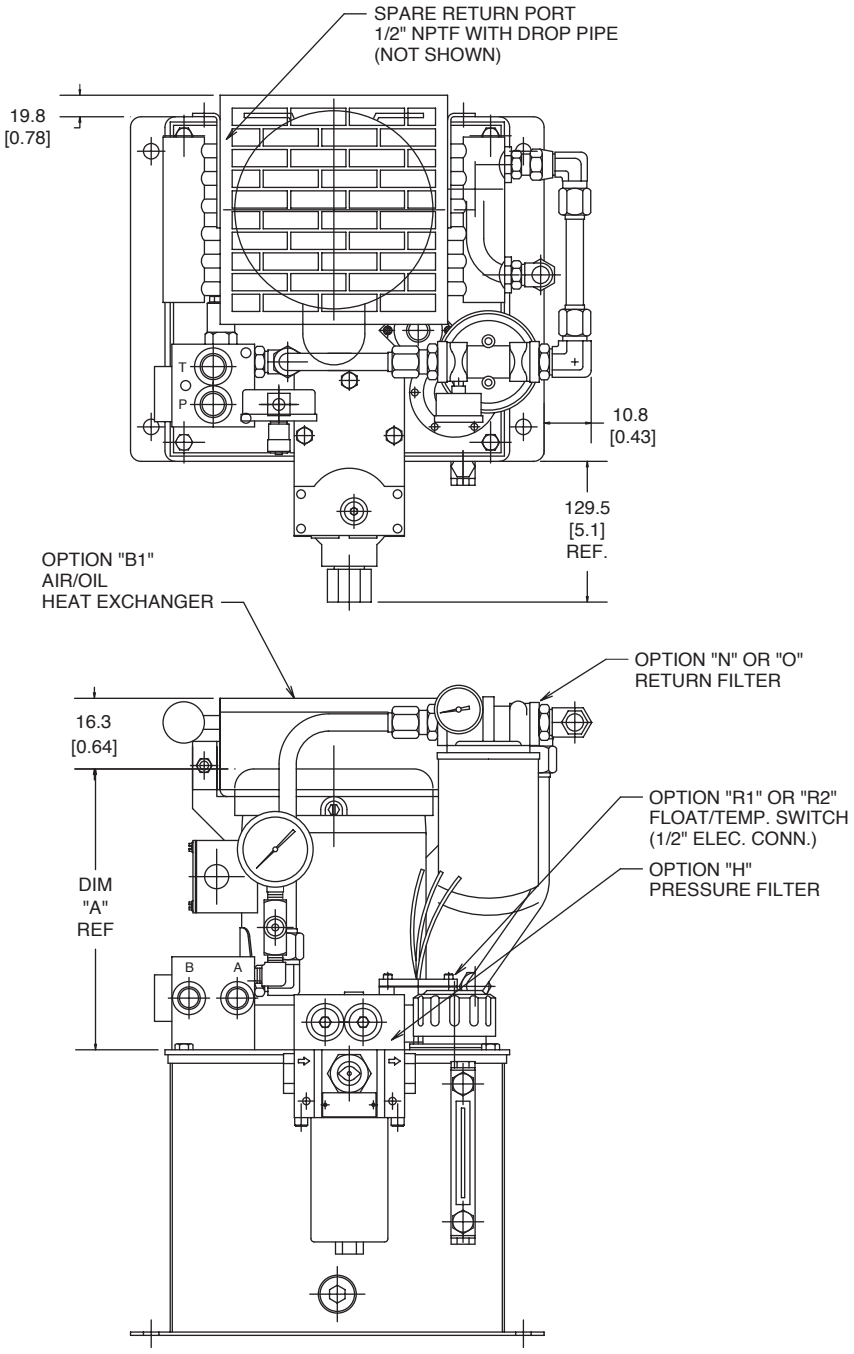
ACCESSORY OPTIONS—V PAKS

OPTION Ⓐ PUMP CASE HEAT EXCHANGER
OPTION Ⓑ RETURN LINE AIR/OIL HEAT EXCHANGER (B1 OR B2)
OPTION Ⓒ WATER/OIL HEAT EXCHANGER
OPTION Ⓓ WATER/OIL HEAT EXCHANGER
OPTION Ⓔ WATER CONTROL VALVE
OPTION Ⓗ PRESSURE FILTER
OPTION Ⓙ WELD COUPLING FOR HEATER
OPTION Ⓚ CHECK VALVE–PUMP OUTLET
OPTION Ⓛ CHECK VALVE–RETURN LINE BYPASS
OPTION Ⓝ RETURN LINE FILTER
OPTION Ⓞ RETURN LINE FILTER
OPTION Ⓡ COMB. TEMP/LEVEL SWITCH (R1 OR R2)



Dimensions – D-Pak (5 Gallon Tank) Accessories

Inch equivalents for millimeter dimensions are shown in (**). Installation information is for reference only. Consult factory or visit Parker's Econfigurator for detailed information.



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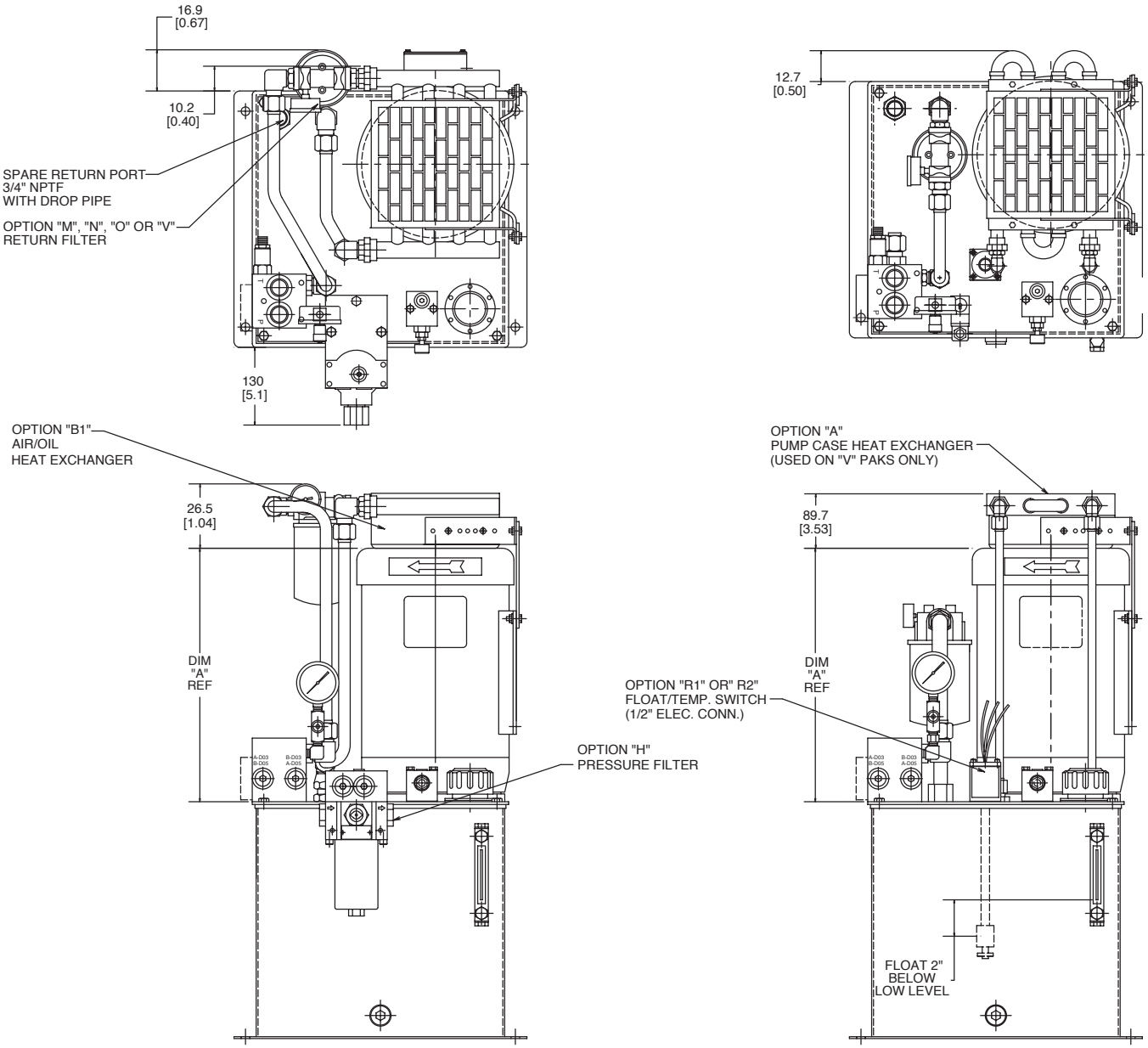
United States

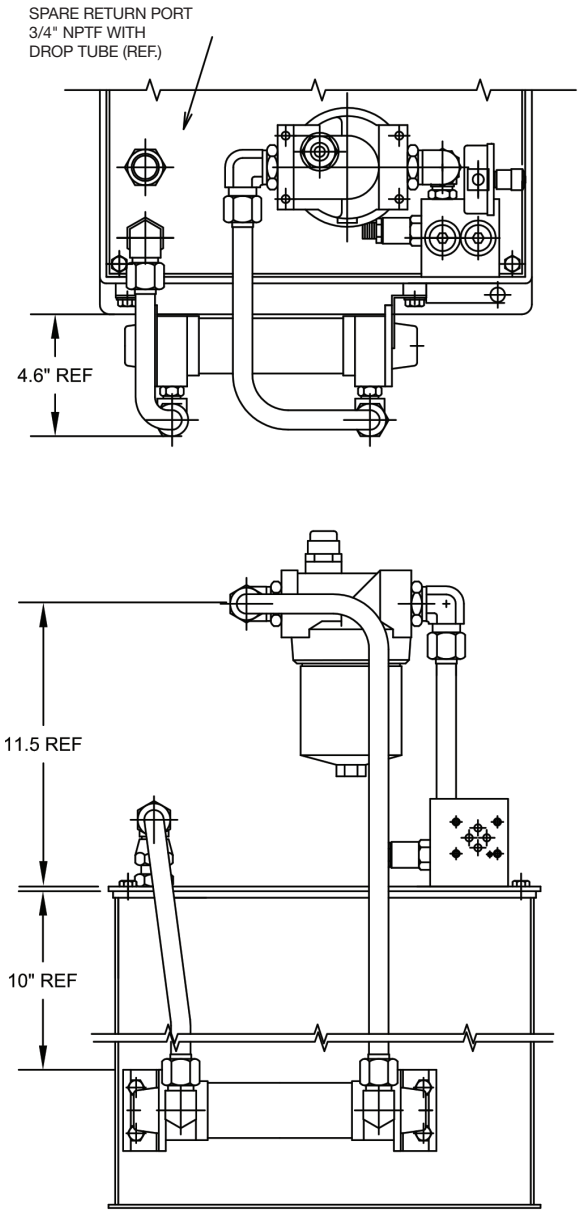
Dimensions – H1 & V1 (10 Gallon Tank) Accessories

Inch equivalents for millimeter dimensions are shown in (**). Installation information is for reference only, consult factory or visit Parker's Econfigurator for detailed information.

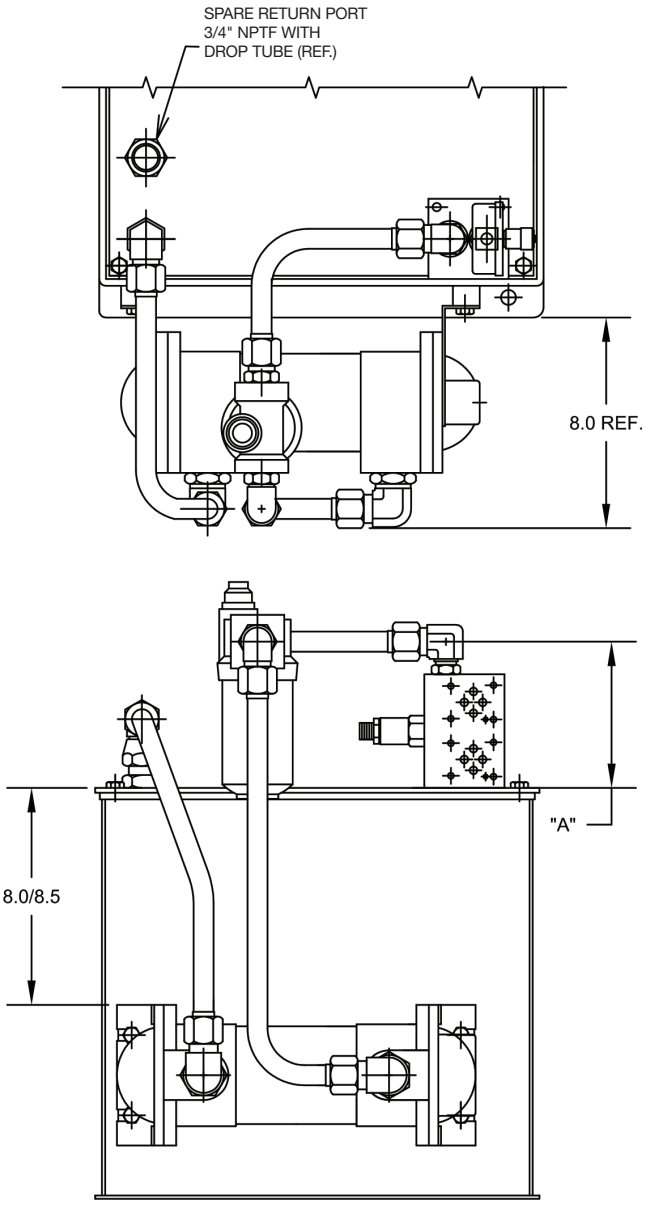


Dimensions – H1 and V1 (10 Gallon tank) Accessories (continued)

NOTE: USE FOR REFERENCE ONLY
EXACT DIMENSIONS MAY VARY DEPENDING
ON COMBINATION OF OTHER OPTIONS



H1/V1 WITH S3 MANIFOLD
OPTION "C" WATER/OIL HEAT EXCHANGER
OPTION "N" 40 CN RETURN FILTER



MANIFOLD	DIMENSION "A"
M33	7.6 REF.
M35	11.8 REF.

H1/V1 WITH M3* MANIFOLD
OPTION "D" WATER/OIL HEAT EXCHANGER
OPTION "M" 15 CN / OPTION "O" 12AT RETURN FILTER
(M32 W /15CN SHOWN)

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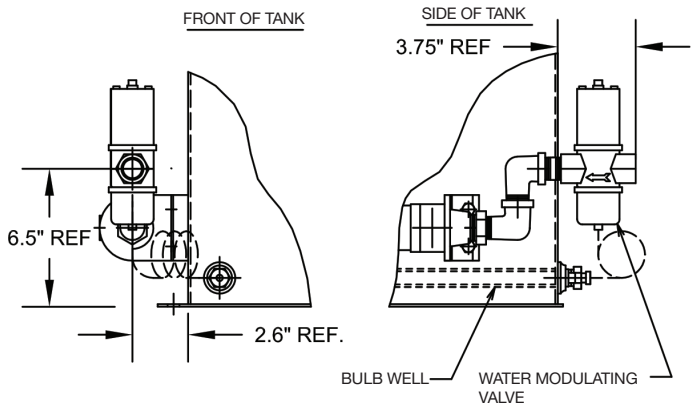
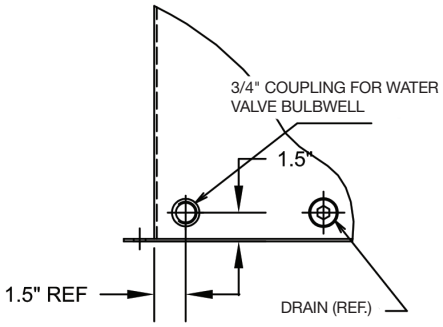
United States

Dimensions – H1 and V1 (10 Gallon tank) Accessories (continued)

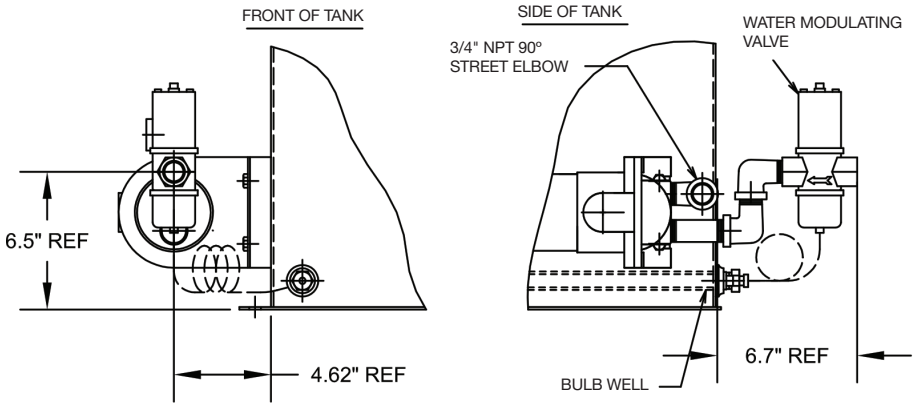
OPTION “E” WATER MODULATING VALVE WITH “C” HEAT EXCHANGER & 10 GALLON TANK



IF OPTION “E” ORDERED WITH NO HEAT EXCHANGER
THE UNIT WILL BE SUPPLIED
WITH 3/4" WELD COUPLING ONLY.

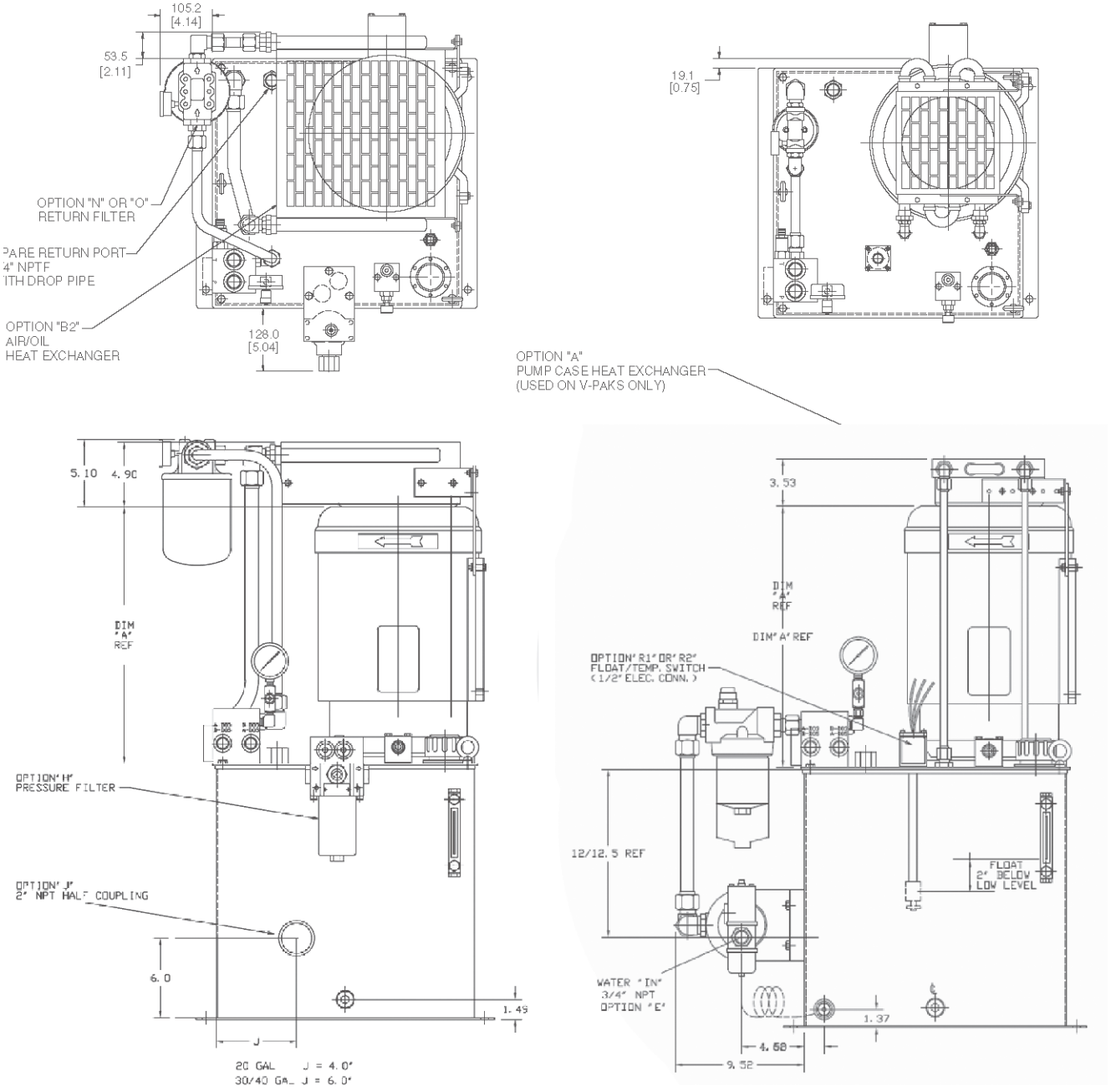


OPTION “E” WATER MODULATING VALVE WITH “D” HEAT EXCHANGER and 10 GALLON TANK



Dimensions – H2, 3, 4, and V2, 3, 4 (20, 30,40 Gallon Tank) Accessories

Inch equivalents for millimeter dimensions are shown in (**). Installation information is for reference only. Consult factory or visit Parker's Econfigurator for detailed information.



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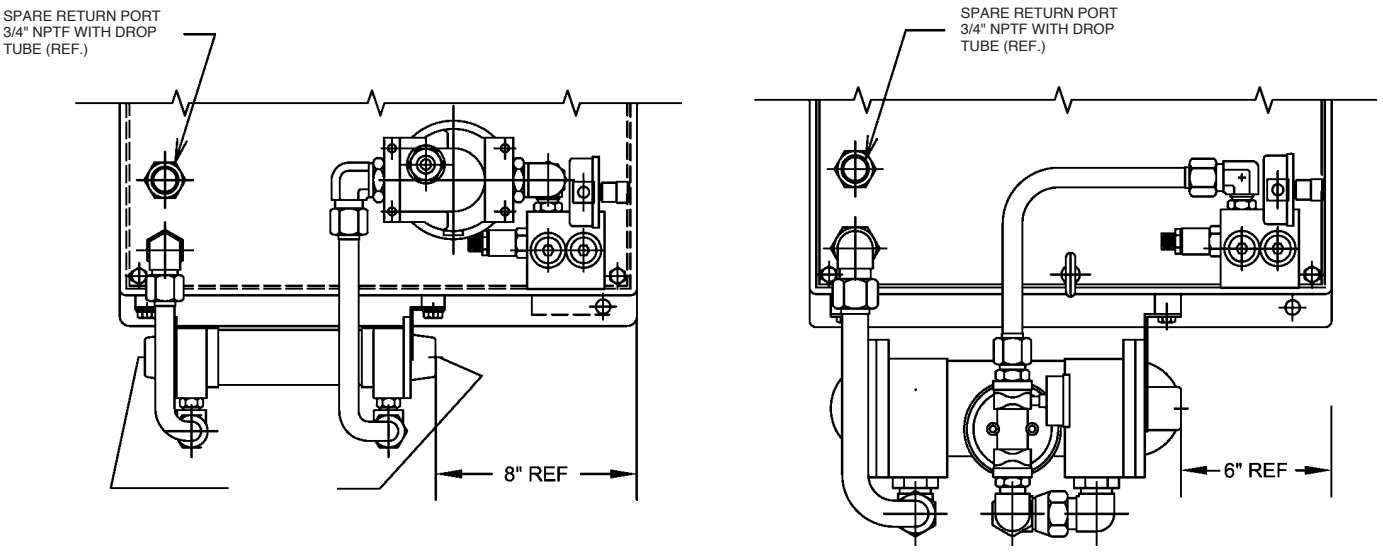
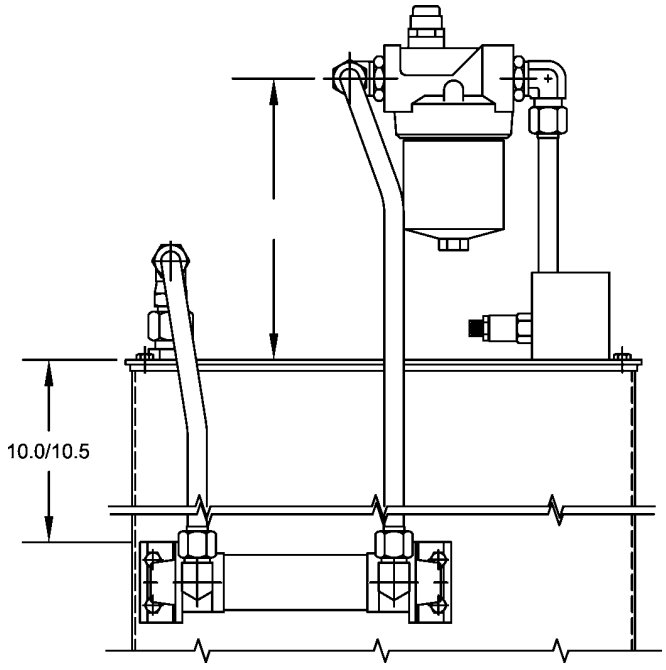
United States

Dimensions – H2, 3, 4, and V2, 3, 4 (20, 30, 40 Gallon Tank) Accessories (continued)

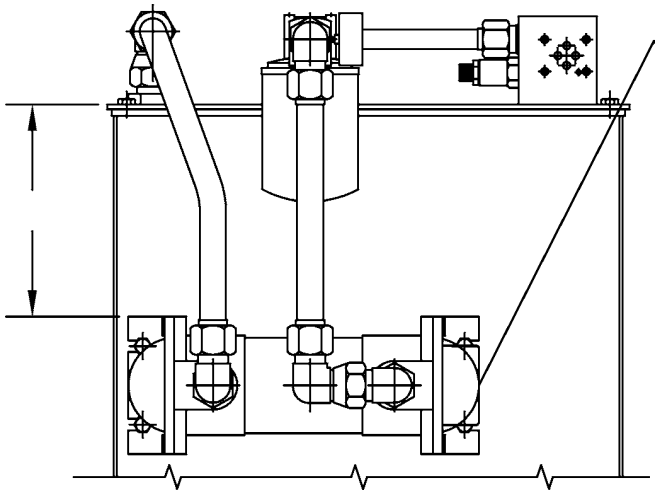
Inch equivalents for millimeter dimensions are shown in (**). Installation information is for reference only. Consult factory or visit Parker's Econfigurator for detailed information.

NOTE: USE FDR REFERENCE ONLY.
EXACT DIMENSIONS MAY VARY DEPENDING
ON COMBINATION OF OTHER OPTIONS.





H/V 2,3,4 WITH S3 MANIFOLD
OPTION "C" WATER/OIL HEAT EXCHANGER
OPTION "N" 40CN RETURN FILTER

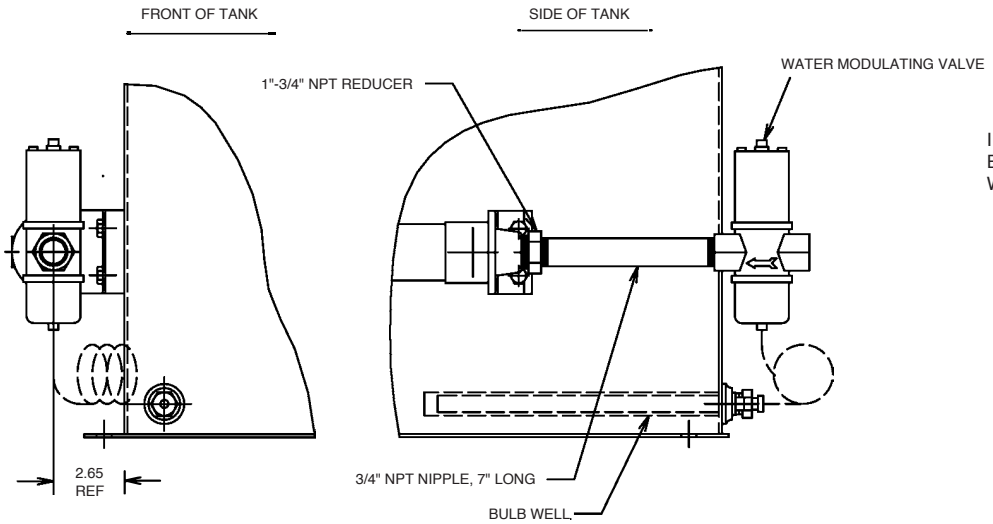


H/V 2,3,4 WITH S3 MANIFOLD
OPTION "D" WATER/OIL HEAT EXCHANGER
OPTION "O" 12AT / OPTION "M" 15CN FILTER
(12AT FILTER SHOWN)

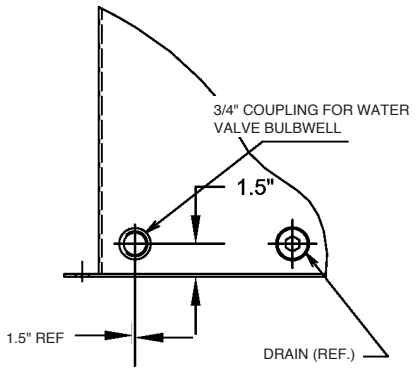
Dimensions – H2, 3, 4, and V2, 3, 4 Accessories (continued)

Inch equivalents for millimeter dimensions are shown in (**). Installation information is for reference only. Consult factory or visit Parker's Econfigurator for detailed information.

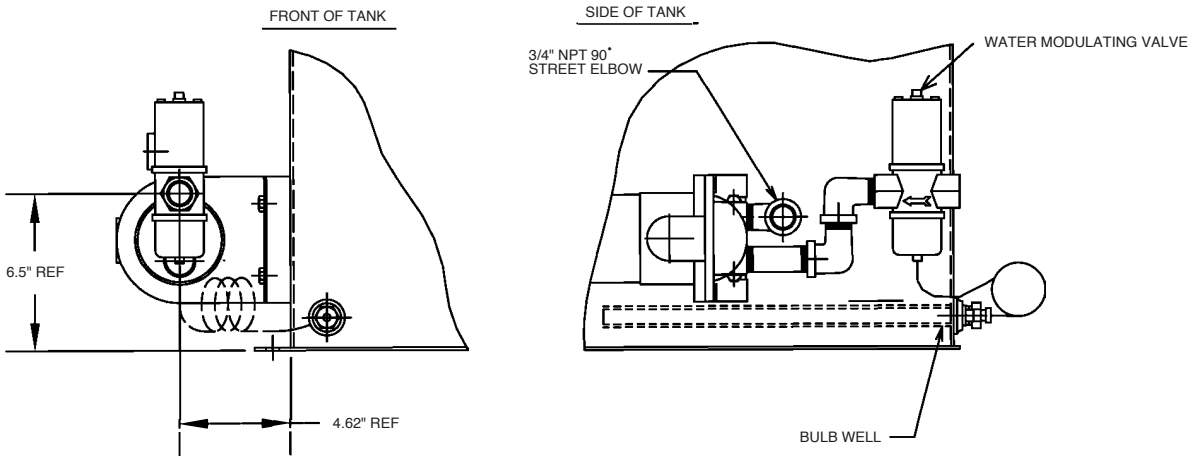
OPTION “E” WATER MODULATING VALVE WITH “C” HEAT EXCHANGER & 20/30/40 GALLON TANK
(20 GALLON TANK SHOWN)



IF OPTION “E” ORDERED WITH NO HEAT EXCHANGER THE UNIT WILL BE SUPPLIED WITH 3/4" WELD COUPLING ONLY.



OPTION “E” WATER MODULATING VALVE WITH “D” HEAT EXCHANGER & 20/30/40 GALLON TANK



Performance Data – Maximum Working Pressures

******** Represents maximum operating pressure with pump/motor combination. This will be the maximum relief valve or compensator setting.

******** Represents maximum operating pressure with pump/motor combination. When used on power unit products, the highest relief valve or compensator setting will be 3000 PSI.

D and H Pak - Pump/Motor Combinations Maximum Operating Pressure Bar (PSI)

Pump Code Flow at 1725 RPM LPM (GPM)	Motor KW (HP)										
	.37 (.5)	.60 (.75)	.75 (1)	1.1 (1.5)	1.5 (2)	2.2 (3)	3.7 (5)	5.6 (7.5)	7.5 (10)	11.2 (15)	14.9 (20)
	Max Operating Pressure (Theoretical)										
3.4 (0.9)	55.8(810)	84.1(1220)	111.7(1620)	167.5(2430)	223.4(3240)						
4.9 (1.3)	40.0(580)	60.0(870)	80.0(1160)	119.3(1730)	159.3(2310)	239.2(3470)					
6.8 (1.8)	29.6(430)	44.1(640)	59.3(860)	88.3(1280)	118.6(1720)	177.2(2570)	275.0(3988)				
8.7 (2.3)	22.8(330)	34.5(500)	46.2(670)	69.0(1000)	92.4(1340)	138.6(2010)	231.0(3350)				
10.2 (2.7)	20.0(290)	30.3(440)	40.0(580)	60.0(870)	80.7(1170)	120.7(1750)	201.3(2920)				
13.7 (3.6)	13.8(200)	21.4(310)	28.3(410)	42.7(620)	57.2(830)	85.5(1240)	142.7(2070)	214.4(3110)			
17.0 (4.5)	11.0(160)	17.2(250)	22.8(330)	33.8(490)	45.5(660)	69.0(1000)	115.1(1670)	172.4(2500)	228.9(3320)		
19.3 (5.1)	10.3(150)	15.2(220)	20.7(300)	30.3(440)	40.7(590)	61.4(890)	102.0(1480)	153.1(2220)	204.1(2960)	275.0(3988)	
23.8 (6.3)	8.3(120)	12.4(180)	16.5(240)	24.8(360)	33.1(480)	49.6(720)	82.7(1200)	124.1(1800)	165.5(2400)	248.2(3600)	
32.7 (8.6)		9.0(130)	11.7(170)	17.2(250)	23.4(340)	35.2(510)	59.3(860)	88.3(1280)	117.9(1710)	176.5(2560)	236.5(3430)
39.5 (10.4)		7.6(110)	9.7(140)	14.5(210)	19.3(280)	29.0(420)	49.0(710)	73.1(1060)	97.9(1420)	146.2(2120)	195.5(2835)
46.6 (12.3)			8.3(120)	11.7(170)	15.9(230)	24.1(350)	40.0(580)	60.0(870)	80.0(1160)	120.0(1740)	160.0(2320)

V-Pak - Pump/Motor Combinations Maximum Operating Pressure Bar (PSI)

		Motor KW (HP)						
Pump	LPM (GPM) @ 1725 RPM	1.5 (2)	2.2 (3)	3.7 (5)	5.6 (7.5)	7.5 (10)	11.2 (15)	14.9 (20)
PVP16	7.6 (2.0)	72.4(1050)	108.2(1570)	179.3(2600)	266.1(3860)			
PVP16	9.5 (2.5)	64.1(930)	94.5(1370)	155.1(2250)	232.4(3370)			
PVP16	11.4 (3.0)	57.2(830)	84.8(1230)	137.9(2000)	206.8(3000)			
PVP16	13.2 (3.5)	51.7(750)	75.8(1100)	124.1(1800)	184.8(2680)	246.1(3570)		
PVP16	15.1 (4.0)	46.9(680)	68.9(1000)	113.8(1650)	168.2(2440)	223.4(3240)		
PVP16	17.0 (4.5)	43.4(630)	63.4(920)	103.4(1500)	153.8(2230)	204.8(2970)	305.4(4430)	
PVP16	18.9 (5.0)	40.0(580)	58.6(850)	96.5(1400)	142.0(2060)	188.9(2740)	281.3(4080)	
PVP16	20.8 (5.5)	37.9(550)	55.2(800)	89.6(1300)	132.4(1920)	175.1(2540)	261.3(3790)	
PVP16	22.7 (6.0)	35.2(510)	51.7(750)	83.4(1210)	123.4(1790)	163.4(2370)	244.1(3540)	
PVP16	24.6 (6.5)	33.1(480)	48.3(700)	77.9(1130)	115.8(1680)	153.0(2220)	228.2(3310)	
PVP16	26.5 (7.0)	31.0(450)	45.5(660)	73.8(1070)	108.9(1580)	144.8(2100)	215.1(3120)	
PVP33	30.3 (8.0)			66.2(960)	97.9(1420)	129.6(1880)	193.1(2800)	255.1(3700)
PVP33	32.2 (8.5)			64.1(930)	93.1(1350)	123.4(1790)	182.7(2650)	242.7(3520)
PVP33	34.1 (9.0)			60.7(880)	88.9(1290)	117.2(1700)	174.4(2530)	231.0(3350)
PVP33	36.0 (9.5)			57.9(840)	84.8(1230)	112.4(1630)	166.2(2410)	220.6(3200)
PVP33	37.9 (10.0)			55.2(800)	81.4(1180)	106.9(1550)	159.3(2310)	206.8(3000)
PVP33	39.7 (10.5)			53.1(770)	77.9(1130)	102.7(1490)	152.4(2210)	202.7(2940)
PVP33	41.6 (11.0)			51.0(740)	75.2(1090)	98.6(1430)	146.9(2130)	194.4(2820)
PVP33	43.5 (11.5)			49.0(710)	72.4(1050)	95.1(1380)	141.3(2050)	186.8(2710)
PVP33	45.4 (12.0)			47.6(690)	69.6(1010)	91.7(1330)	135.8(1970)	180.0(2610)
PVP33	47.3 (12.5)			46.2(670)	66.9(970)	88.3(1280)	131.0(1900)	173.7(2520)
PVP33	49.2 (13.0)			44.8(650)	64.8(940)	85.5(1240)	126.9(1840)	167.5(2430)
PVP33	51.1 (13.5)			43.4(630)	62.7(910)	82.7(1200)	122.7(1780)	162.0(2350)
PVP33	53.0 (14.0)			42.1(610)	60.7(880)	80.0(1160)	118.6(1720)	157.2(2280)
PVP33	54.9 (14.5)			40.7(590)	59.3(860)	77.9(1130)	115.1(1670)	152.4(2210)
PVP33	56.8 (15.0)			39.3(570)	57.2(830)	75.2(1090)	111.7(1620)	147.5(2140)

Additional Notes About Electric Motors

Frequency vs RPM
Incoming frequency determines a motor's speed in RPM. A motor that runs at 1800 RPM at 60Hz will run at 1500 RPM @ 50Hz. The exact speed will vary depending on several variables. For example, an 1800 RPM motor may actually run at 1770 RPM when fully loaded.

Model Code Flow Rates
The model code in the catalog always refers to flow at 1800 RPM. For example, a "3.2" callout means the unit will deliver 3.2 GPM at 60Hz. It will deliver 2.67 GPM at 50Hz.

Efficiency regulations and motor technology are constantly changing. The following information is general in nature and could be affected by future changes in the motor industry.

CE Stamp
Motors that meet the IE3 efficiency standard (as of this writing) will have a CE stamp. The 2Hp, 3Hp and dual-rated motors offered on the power units in this catalog have the CE stamp. Motors larger than 3Hp that are not dual rated may not have a CE stamp.

Horsepower Ratings
The 2Hp and 3Hp motors are capable of delivering their full power rating at 50Hz and 60Hz. This may or may not be the case for larger motors. While most motors can deliver their full rated horsepower at both frequencies, they may not maintain their IE3 efficiency rating at full power at 50Hz, which they must do in order to carry the CE mark. For example, a CE stamped dual-rated motor may be name-plated 10Hp @ 60Hz/7.5Hp @ 50Hz. In most cases this is not an issue because the pump will be flowing less oil at 1500 RPM (50Hz) than it is at 1800 RPM (60Hz). Less flow requires less horsepower for the same pressure. It is something to be aware of in case the full 10Hp is expected at 50Hz. If it is, you may need to specify a 15Hp dual-rated motor in order to get 10Hp at 50Hz. The model code pages show the exact power rating for each motor at both frequencies.

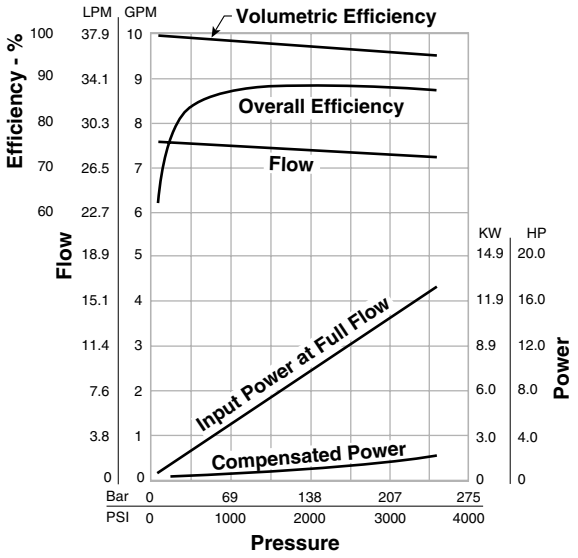
Applications With Inverters
All three-phase motors 2Hp and up are capable of being run with an inverter as long as the minimum speed is above 180 RPM VT (variable torque) or 400 RPM CT (constant torque). Most pumps have minimum RPMs well above 180 RPM so the motors should never be run below these ratings. Typical minimum pump speeds are 500–600 RPM. Since an inverter controls frequency to control speed, the incoming power (50 or 60Hz) doesn't have to match the electric motor. However, if a power unit will be installed in the EU, a dual-rated motor should be used so that it has the CE mark.

The motors do not have grounded motor shafts, so if the inverter output has high harmonic content or if the unit is expected to run a long time at low speeds, it may be advisable to supply or request a motor with a grounded shaft. This grounding prevents arcing across the shaft bearings which leads to pitting.

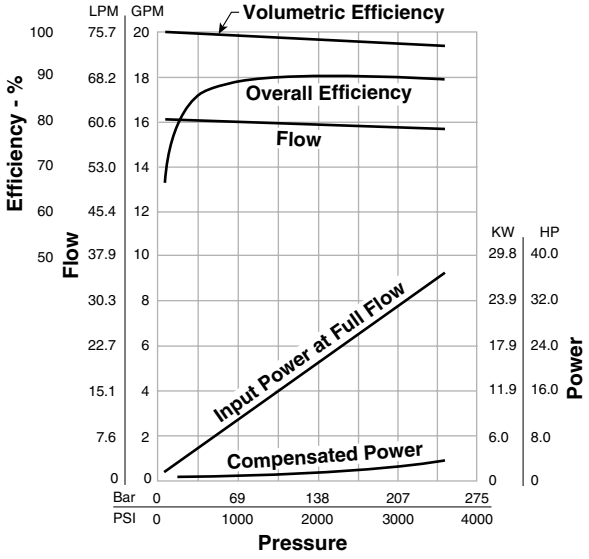
Performance Data – Pumps

Standard Pumps

PVP16 @ 1800 RPM



PVP33 @ 1800 RPM



NOTE: The efficiencies and data in the graph are good only for pumps running at 1800 RPM and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

$$HP = \left[\frac{Q \times (PSI)}{1714}\right] + (CHp) \times \frac{N}{1800}$$

Actual GPM is directly proportional to drive speed and maximum volume setting. Flow loss, however, is a function of pressure only.

WHERE:

Q = Actual Output Flow in GPM

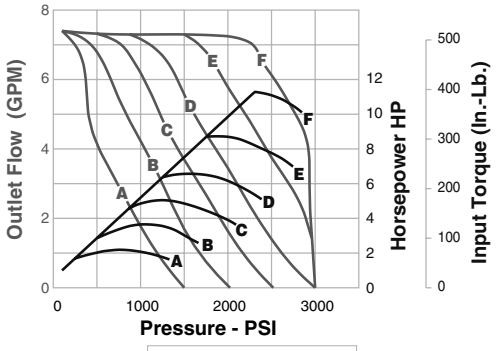
PSI = Pressure At Pump Outlet

CHp = Input Horsepower @ Full compensation @ 1800 RPM (from graph read at operating pressure)

N = Drive Speed in RPM

Horsepower Limited Pumps

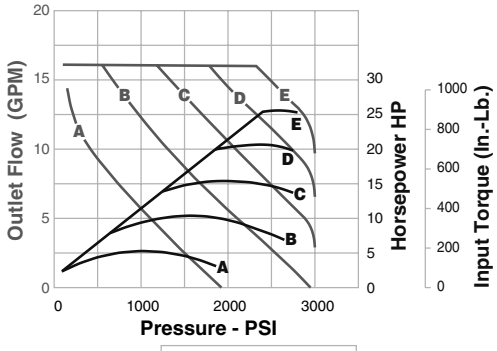
PVP16 @ 1800 RPM



	MOTOR KW (HP)					
	1.5(2)	2.2(3)	3.7(5)	5.6(7.5)	7.5(10)	11.2(15)
	Compensator Setting Bar (PSI)					
PVP16 FULL STROKE	110.3 (1600)	151.7 (2200)	206.8 (3000)	206.8 (3000)	206.8 (3000)	206.8 (3000)

Pump Control Option "H" with PVP16
Horsepower Limiting
Factory Compensator Settings

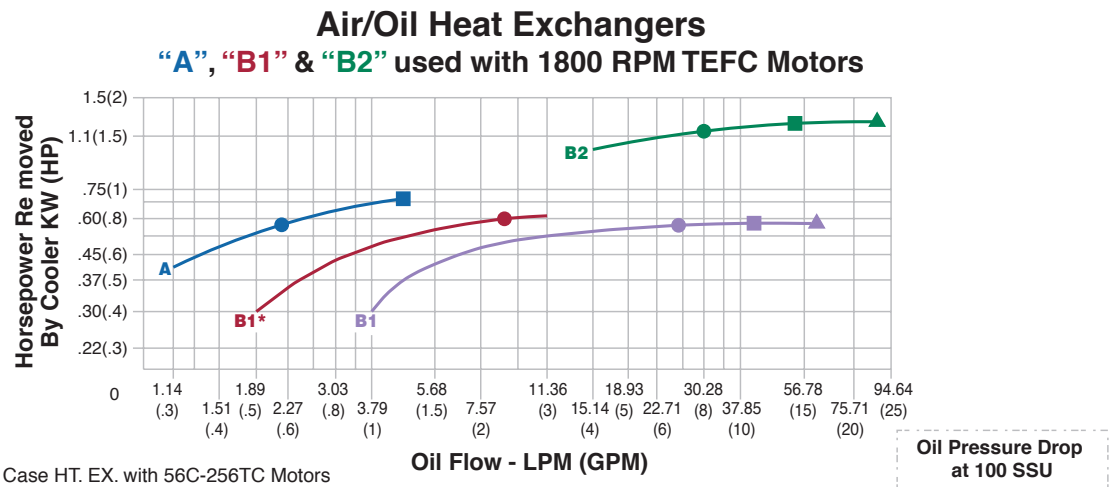
PVP33 @ 1800 RPM



	MOTOR KW (HP)			
	5.6(7.5)	7.5(10)	11.2(15)	14.9(20)
	Compensator Setting Bar (PSI)			
PVP33 FULL STROKE	151.7 (2200)	186.2 (2700)	206.8 (3000)	206.8 (3000)

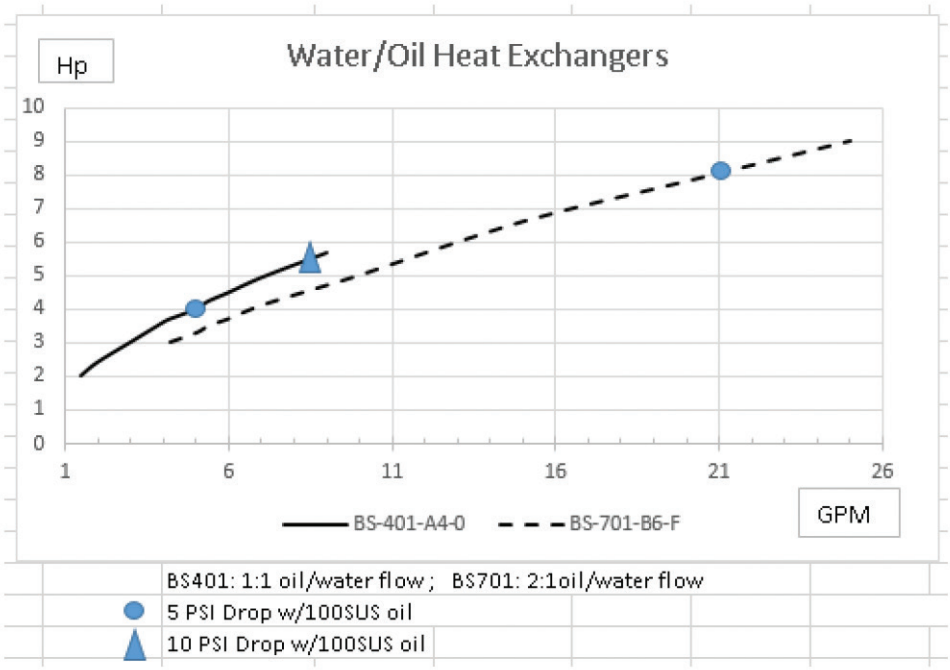
Pump Control Option "H" with PVP33
Horsepower Limiting
Factory Compensator Settings

Performance Data – Heat Exchangers



"A" - Pump Case HT. EX. with 56C-256TC Motors
"B1*" - Return Line HT. EX. (D5 Power Units Only)
"B1" - Return Line HT. EX. with 56C-184TC Motors
"B2" - Return Line HT. EX. with 213TC-256TC Motors

Heat removal is based on 4.4ºC (40ºF) differential between transfer medium.



Horsepower Removed By Reservoir

	RESERVOIR SIZE LITERS (GALLONS)				
	18.9(5)	37.9(10)	75.7(20)	113.6(30)	151.4(40)
KW (HP) REMOVAL	.15(.2)	.28(.38)	.43(.58)	.51(.68)	.60(.81)

Heat removal is based on static ambient air at 29.4ºC (85ºF) and max. oil temperature of 57.2ºC (135ºF).

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Hydraulic Pump and Power Systems Division
United States

Operating Notes

- Jog the electric motor once and verify that the electric motor is rotating in the same direction as the arrow on the electric motor housing. If direction is incorrect, reverse two of the three leads on a 3-phase electric motor.
- D and H-Pak power units are tested and relief valve is set at maximum pressure of the pump/motor combination.
- V-Pak power units are tested and pressure control valves are factory preset. If adjustments are needed, follow the procedure below: Begin adjusting relief valve and pump compensator control valve to increase pressure gradually. (NOTE: Always set relief valve 250 PSI higher than pump compensator pressure control valve or severe overheating will occur.)
- If pump fails to prime, vent pump discharge to atmosphere to establish fluid flow.
- Reservoir temperature should not exceed 66°C (150°F). System reliability and component service life will be reduced when system is operated at higher temperature.
- Clean fluid = improved system reliability and longer component service life, change filter elements whenever filter indicators indicate a dirty element condition.
- It is recommended that every 4,000 operating hours or once a year, whichever occurs first, the filler/breather cap and suction strainer should be replaced.

Fluid Recommendations

Premium quality hydraulic oil with a viscosity range between 150-250 SSU (30-50 cst.) at 100°F (38°C). Normal operating viscosity range between 80-1000 SSU (17-180 cst.). Maximum start-up viscosity is 4000 SSU (1000 cst.).

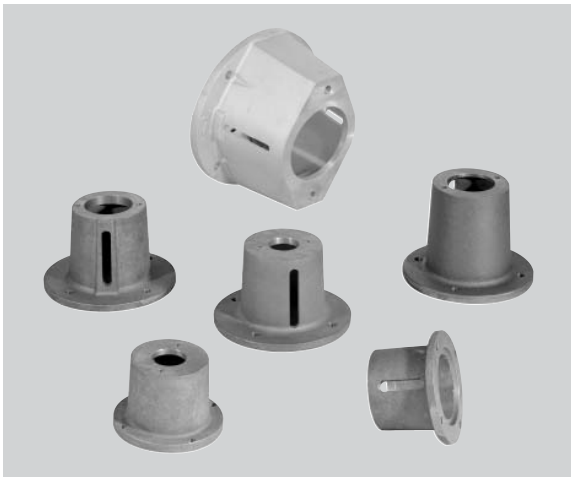
NOTE: Consult Parker when exceeding 160°F (71°C) operation. Oil should have maximum anti-wear properties, rust, and oxidation treatment.

Filtration

For maximum pump and system component life, the system should be protected from contamination at a level not to exceed 125 particles greater than 10 microns per milliliter of fluid. (SAE Class 4 / ISO 16/13.) Due to the nature of variable displacement pumps, variations in pump inlet conditions, fluid acceleration losses, system aeration, and duty cycle must be carefully considered before specifying suction line filtration. Contact your Parker representative for assistance.

NOTE: For additional information refer to latest edition of Bulletin No. HY13-2600-550-001

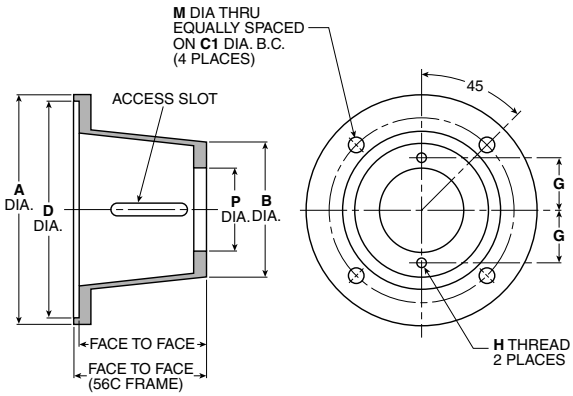
The totally enclosed pump mounting bracket offers precision shaft alignment and safety from the rotating shafts and coupling. The bracket is designed to mount on the motor face with the motor coupling half secure to the shaft. Then the pump, with its coupling half secure on the pump shaft, is mounted and the coupling halves are engaged. This will require proper spacing of the coupling prior to installation and a coupling with an outside diameter less than "P" dimension. If the coupling selected cannot be assembled this way, both coupling halves must be installed on the motor shaft. Next, mount the adapter on the motor. Then the pump can be mounted and the coupling secured to the pump by using the access slot to tighten the pump shaft coupling set screw.



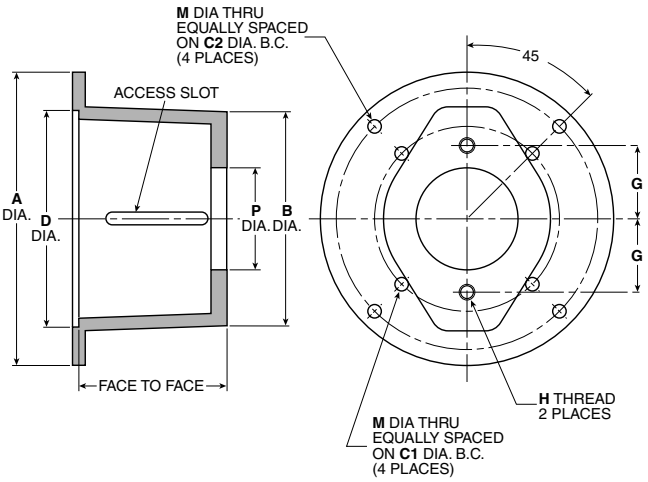
Dimensions*

Pump Mounting Adapter

STYLE 1 ADAPTER
(SEE CHART FOR MOUNTING ORIENTATION)



STYLE 2 ADAPTER
(VERTICAL MOUNT ONLY)



Model Number	Pump Mounting	Motor Mounting	A	B	C1	C2	D	Face to Face	G	H	M	P	Vertical Mounting	Horizontal Mounting	Style	Weight
876631	SAE AA	56C	6.7	5.0	5.88	N/A	4.50	3.50	1.63	3/8-16	0.44	2.00	YES	YES	1	3 lb.
876632	SAE AA	182TC/256TC	9.0	5.3	7.25	N/A	8.50	5.00	1.63	3/8-16	0.56	2.00	YES	YES	1	4 lb.
876633	SAE A	56C	6.7	5.0	5.88	N/A	4.50	4.25	2.10	3/8-16	0.44	3.25	YES	YES	1	4 lb.
876634	SAE A	182TC/256TC	9.0	5.3	7.25	N/A	8.50	5.00	2.10	3/8-16	0.56	3.25	YES	YES	1	4 lb.
876635	SAE A	182TC/256TC	9.0	5.3	7.25	N/A	8.50	5.88	2.10	3/8-16	0.56	3.25	YES	YES	1	5 lb.
875343	SAE B	182TC/256TC	11.4	9.0	7.25	10.25	8.50	5.75	2.88	1/2-13	0.53	4.00	YES	NO	2	7 lb.
875344	SAE B	182TC/256TC	11.4	9.0	7.25	10.25	8.50	6.81	2.88	1/2-13	0.53	4.00	YES	NO	2	8 lb.
876683	SAE B	182TC/256TC	9.0	8.8	7.25	N/A	8.50	6.38	2.88	1/2-13	0.53	4.00	NO	YES	1	7 lb.
876684	SAE C	182TC/256TC	9.0	9.3	7.25	N/A	8.50	6.69	3.56	5/8-11	0.53	5.00	NO	YES	1	20 lb.

*All dimensions are in inches.

NOTE: It is the responsibility of the user to check the listed dimensions to ensure suitability of mounting adapter with pump/coupling/motor combination.

Application Formulas

- 1 GPM at 1500 PSI = 1 HP (General Rule)
- 1 Gallon = 231 Cubic Inches (3.7854 Liters)
- 1 Gallon Oil = 7.08 Lbs.
- 1 bar = 14.5 PSI
- 25.4mm = 1 Inch
- 1 HP = 42.4 BTU/Min.
- 1 Gallon = 3.7854 Liters

$$HP = \frac{GPM \times PSI}{1714 \times \text{Pump Efficiency}}$$

$$PSI = \frac{1714 \times \text{Pump Efficiency} \times HP}{GPM}$$

$$GPM = \frac{1714 \times \text{Pump Efficiency} \times HP}{PSI}$$

$$HP = \frac{\text{Torque (in.-lbs.)} \times RPM}{63025}$$

$$\text{Torque} = \frac{HP \times 63025}{RPM}$$

$$RPM = \frac{HP \times 63025}{\text{Torque}}$$

Motor Information

At 440V — 3-Phase Motor Draws 1.25 AMP/HP
At 220V — 3-Phase Motor Draws 2.5 AMP/HP
At 110V — Single Phase Motor Draws 10 AMP/HP

Notes

Parker Hannifin Corporation
Hydraulic Pump and Power Systems Division
United States

Offer of Sale

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, Hydraulics Group, and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any item described in its document, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer. All goods or work described will be referred to as "Products".

1. Terms and Conditions. Seller's willingness to offer Products, or accept an order for Products, to or from Buyer is expressly conditioned on Buyer's assent to these Terms and Conditions and to the terms and conditions found on-line at www.parker.com/saleterms/. Seller objects to any contrary or additional term or condition of Buyer's order or any other document issued by Buyer.

2. Price Adjustments; Payments. Prices stated on the reverse side or preceding pages of this document are valid for 30 days. After 30 days, Seller may change prices to reflect any increase in its costs resulting from state, federal or local legislation, price increases from its suppliers, or any change in the rate, charge, or classification of any carrier. The prices stated on the reverse or preceding pages of this document do not include any sales, use, or other taxes unless so stated specifically. Unless otherwise specified by Seller, all prices are F.O.B. Seller's facility, and payment is due 30 days from the date of invoice. After 30 days, Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.

3. Delivery Dates; Title and Risk; Shipment. All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon tender to the carrier at Seller's facility (i.e., when it's on the truck, it's yours). Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's changes in shipping, product specifications or in accordance with Section 13, herein.

4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of eighteen months from the date of delivery to Buyer. The prices charged for Seller's products are based upon the exclusive limited warranty stated above, and upon the following disclaimer: DISCLAIMER OF WARRANTY: THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

5. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 60 days after delivery or, in the case of an alleged breach of warranty, within 30 days after the date within the warranty period on which the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for any amount due to Seller from Buyer) must be commenced within thirteen months from the date of tender of delivery by Seller or, for a cause of action based upon an alleged breach of warranty, within thirteen months from the date within the warranty period on which the defect is or should have been discovered by Buyer.

6. LIMITATION OF LIABILITY. UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.

7. Contingencies. Seller shall not be liable for any default or delay in performance if caused by circumstances beyond the reasonable control of Seller.

8. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

9. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

10. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

11. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement shall be deemed a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest. Seller shall have a security interest in, and lien upon, any property of Buyer in Seller's possession as security for the payment of any amounts owed to Seller by Buyer.

12. Improper Use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, improper application or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

13. Cancellations and Changes. Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer.

14. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

15. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of the agreement. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.

16. Waiver and Severability. Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

17. Termination. This agreement may be terminated by Seller for any reason and at any time by giving Buyer thirty (30) days written notice of termination. In addition, Seller may by written notice immediately terminate this agreement for the following: (a) Buyer commits a breach of any provision of this agreement (b) the appointment of a trustee, receiver or custodian for all or any part of Buyer's property (c) the filing of a petition for relief in bankruptcy of the other Party on its own behalf, or by a third party (d) an assignment for the benefit of creditors, or (e) the dissolution or liquidation of the Buyer.

18. Governing Law. This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement. Disputes between the parties shall not be settled by arbitration unless, after a dispute has arisen, both parties expressly agree in writing to arbitrate the dispute.

19. Indemnity for Infringement of Intellectual Property Rights. Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this Agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

20. Taxes. Unless otherwise indicated, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of Products.

21. Equal Opportunity Clause. For the performance of government contracts and where dollar value of the Products exceed $10,000, the equal employment opportunity clauses in Executive Order 11246, VEVRAA, and 41 C.F.R. §§ 60-1.4(a), 60-741.5(a), and 60-250.4, are hereby incorporated.

Catalog HY28-2661-CD/US
Effective: June 2024

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