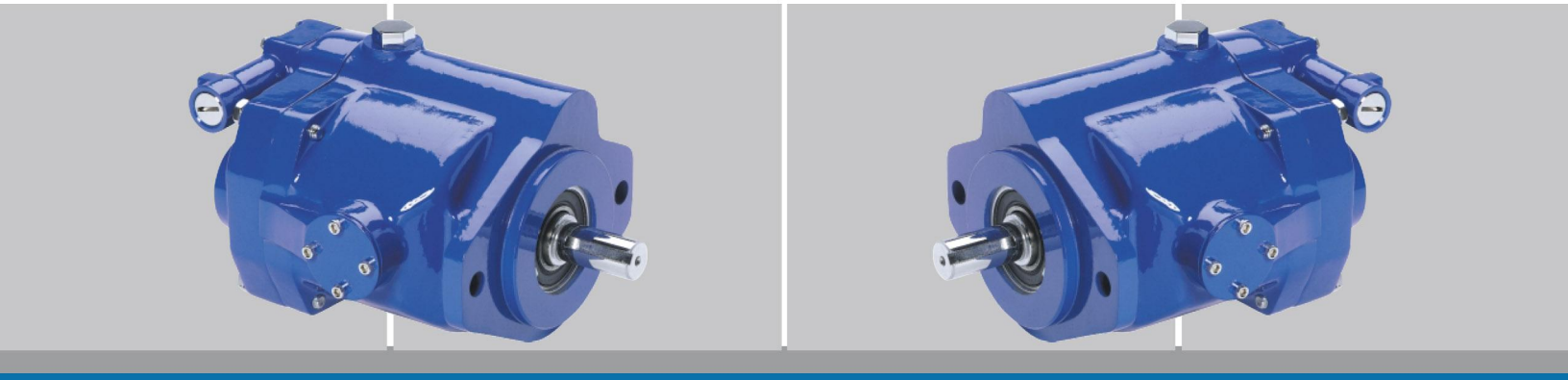
Itahydraulic
Power Tecnology



PVQ Series Piston Pumps

Itahydraulic
Power Tecnology

PVQ - Variable Displacement Piston Pump

PVQ	13	A2	R	SE	1	S	20	C-11	D
1	2	3	4	5	6	7	8	9	10

1 Model Series
PVQ –Inline Piston Pump
Variable Volume Quiet Series

2 Displacement
10 – 10,5 cc/rev (0.64 cir)
210 bar (3000 psi)
13 – 13,8 cc/rev (0.84 cir)
140 bar (2000 psi)
20 – 20 cc/rev (1.28 cir)
210 bar (3000 psi
32 – 32 cc/rev (2.01 cir)
140 bar (2000 psi)

3 Mounting Flange
A2 – Flange SAE "A"
B2 – SAE "B" 2-bolt

4 Rotation Viewed from shaft end
R – Right hand, standard
L – Left hand, optional

5 Ports, Type and Location
SE – SAE O-ring rear port
SS – SAE O-ring side port

6 Shaft, Inputs
1 – Straight keyed SAE "A" modified
(.75" dia. X 1.75" long)
3 – Splined SAE "A" modified
(9T 16/32 DP major dia. Fit)

7 Seals
S – Buna N, standard
F – Fluorocarbon, optional

8 Pump Design Series
20

9 Control Type
C-11 – Pressure Compensator
CM-11 – Low Pressure Compensator
CV**B-12** – Load Sensing
with bleed down orifice
CV**P-12** – Load sensing
without bleed orifice
CG-20 – pressure compensator
modified for hydraulic remote control

10 Control Option
Blank – Without adjustable Max.
displacement stop (standard)
D – Max. adjustable displacement
stop (optional)

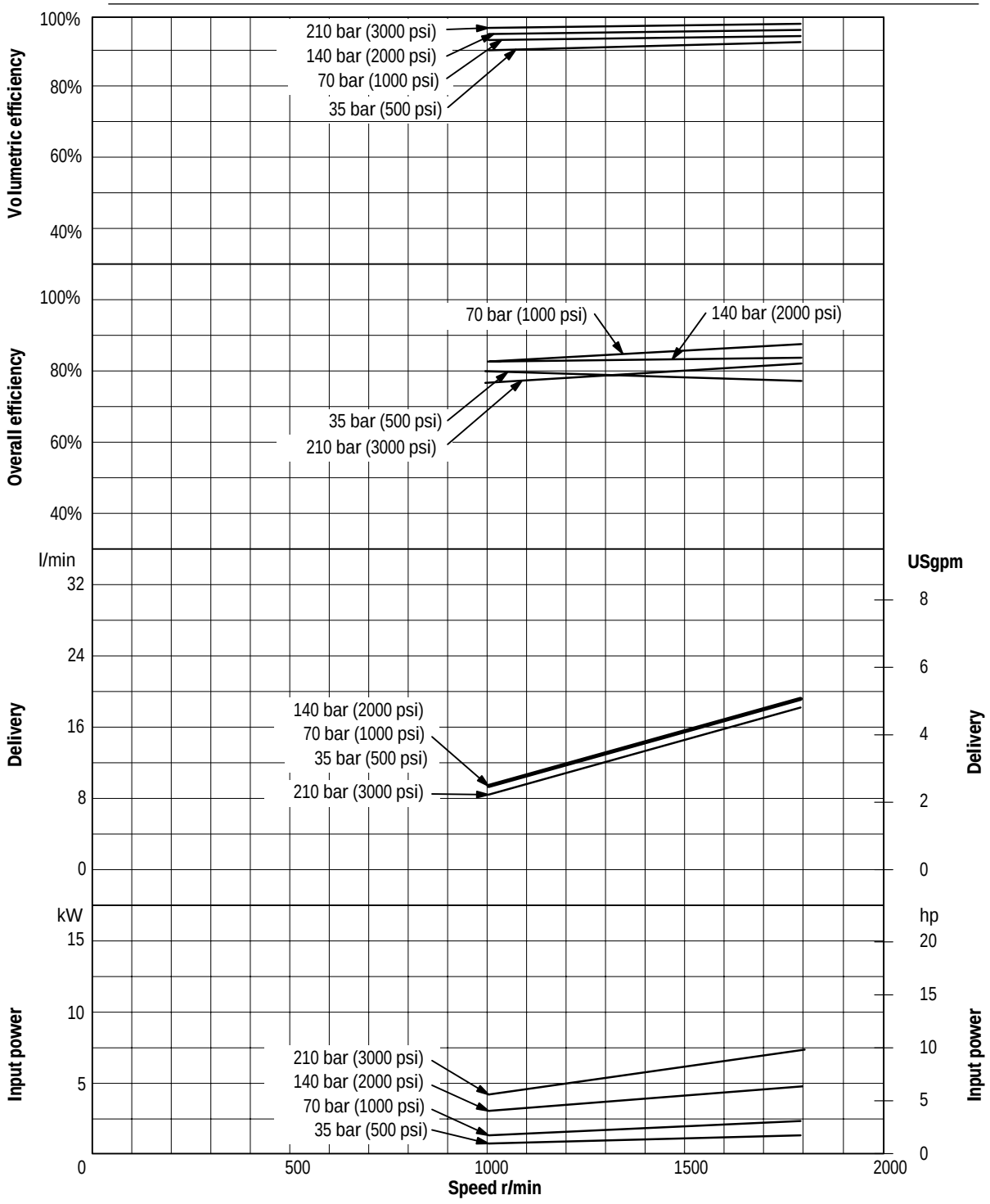
*All manufactures names and part numbers are used for reference only.

Itahydraulic
Power Tecnology

Performance Curves
PVQ10

Oil type: SAE 10W
Oil temperature: 49°C (120°F)
Inlet: 0.2 bar (5 in. Hg)

Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 210 bar (3000 psi) max. rated pressure.

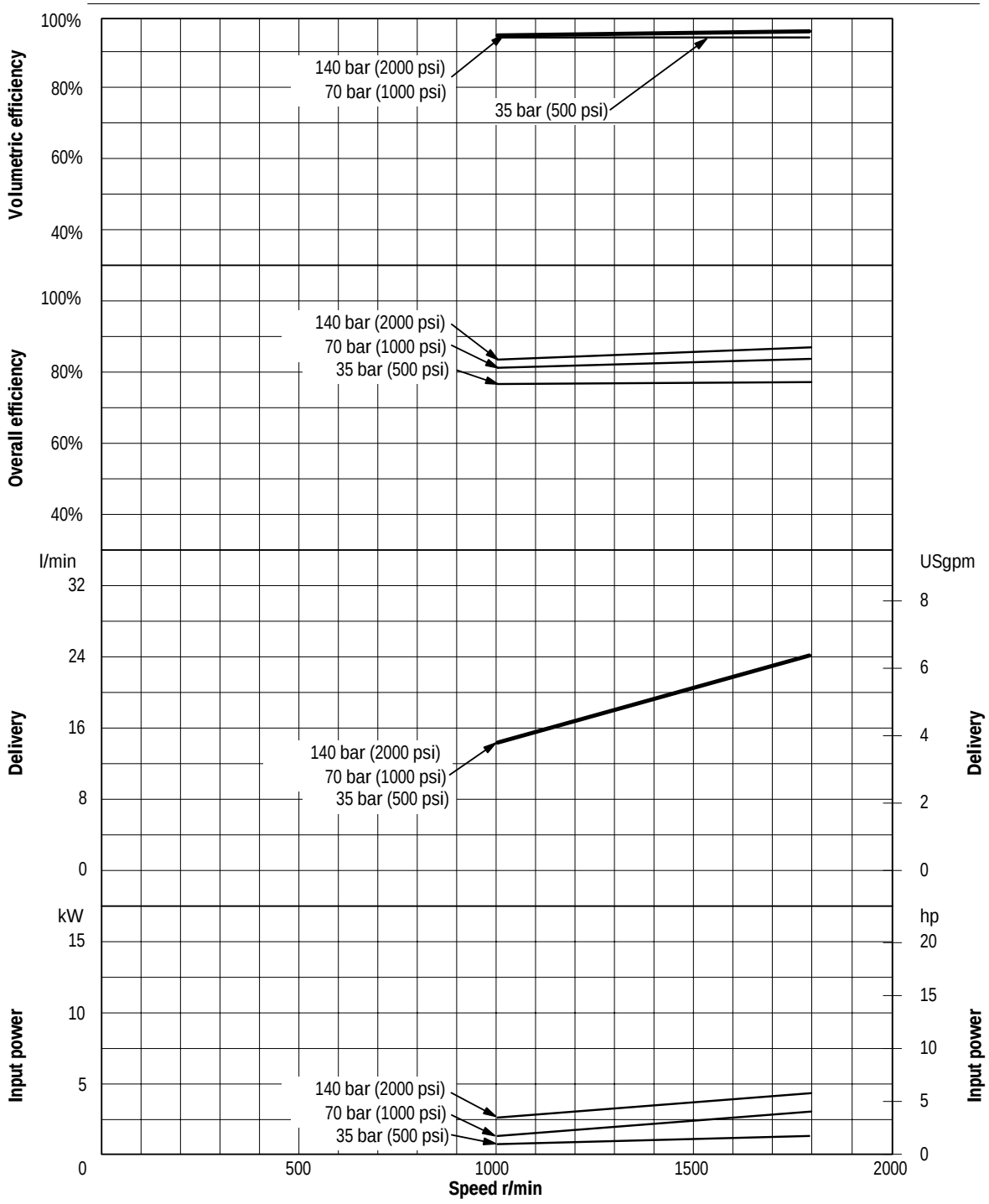


Itahydraulic
Power Tecnology

Performance Curves PVQ13

Oil type: SAE 10W
Oil temperature: 49°C (120°F)
Inlet: 0.2 bar (5 in. Hg)

Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 210 bar (3000 psi) max. rated pressure.

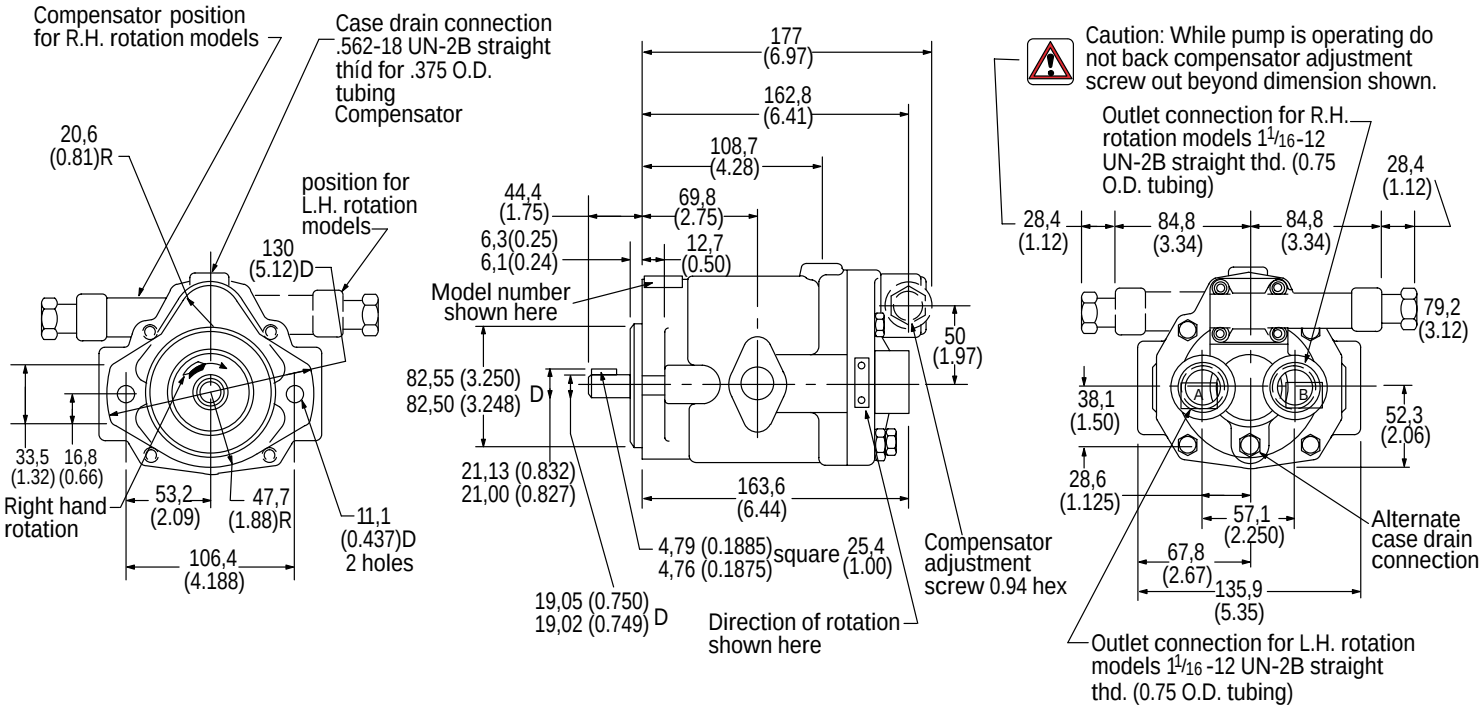


Itahydraulic
Power Tecnology

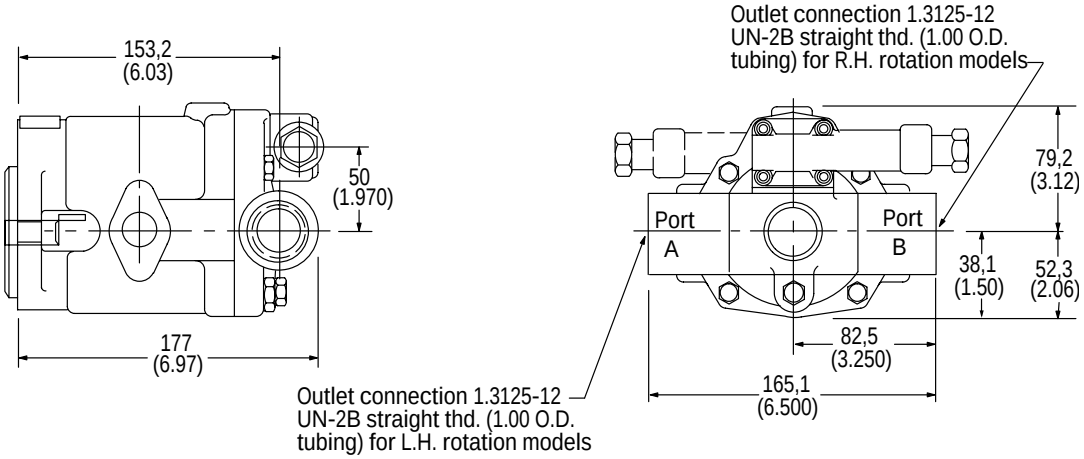
Installation Dimensions

PVQ10 and PVQ13 with Rear Ports

Millimeters (inches)



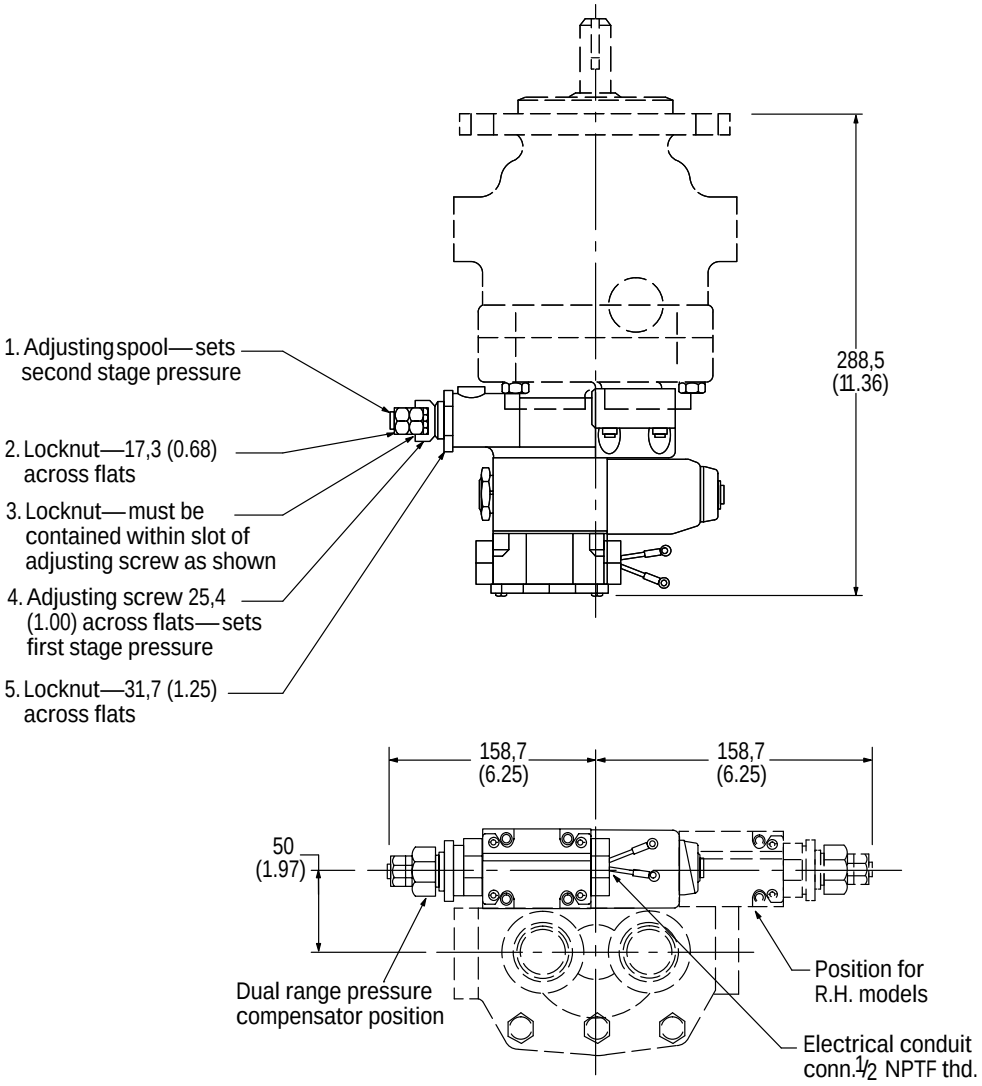
PVQ10 and PVQ13 with Side Ports



Controls
Electric Dual Range Pressure Compensator Control

Adjustment

1. With the directional valve de-energized, loosen locknut "5" and turn the adjusting screw "4" to the desired first stage pressure setting, then tighten locknut "5."
2. With solenoid de-energized, turn adjusting spool "1" counterclockwise (CCW) until nut "3" is bottomed in adjusting screw slot. (Second stage setting is now equal to first stage pressure setting.) Turn adjusting spool clockwise (CW) to desired second stage pressure requirements. One complete turn of adjusting spool equals approximately 41 bar (600 psi). Energize solenoid and check pressure setting. De-energize solenoid and re-adjust if necessary. Secure this setting by tightening locknut "2."



Solenoid Data (110V AC 50 Hz and 115/120V AC 60 Hz)

Solenoid current	Inrush amps (R.M.S.)	Holding amps
115/120V AC 60 Hz - 110V AC 50 Hz	2.0	.54 .64*

*Maximum peak inrush amps approximately 1.4 x R.M.S. value shown.

Refer to catalog GB-C-2015B for additional solenoid valve data.

Itahydraulic
Power Tecnology

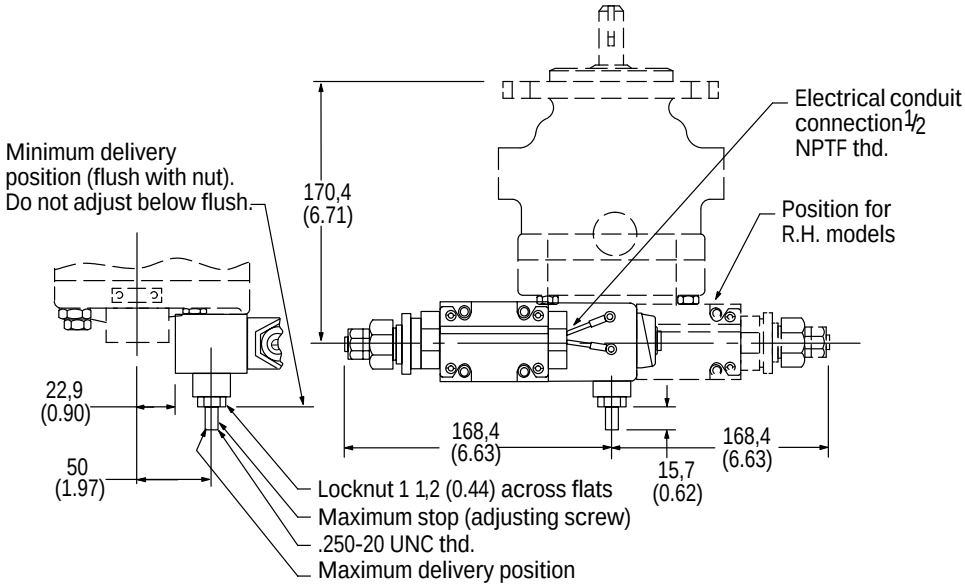
Controls Electric Dual Range Pressure Compensator with Maximum Displacement Stop

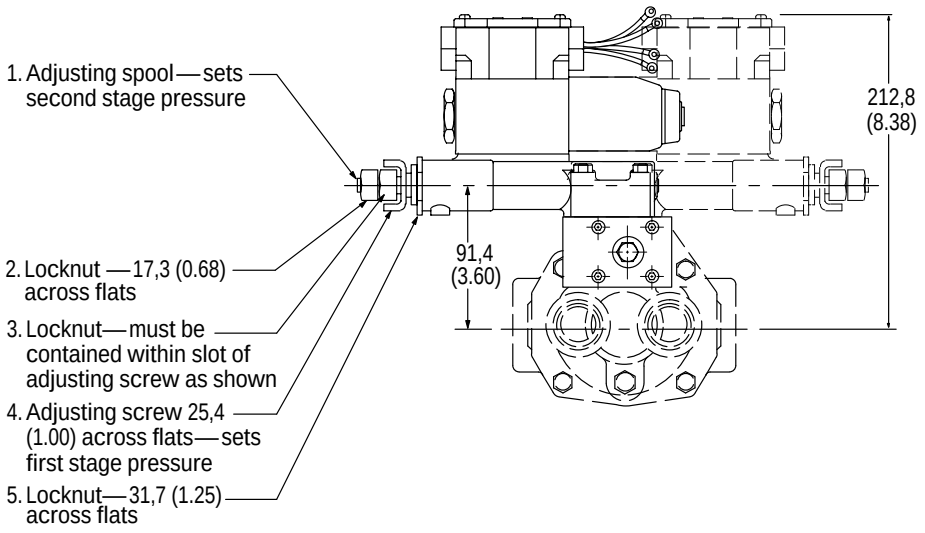
Maximum Flow Adjustment

With the system pressure below both compensator settings, loosen maximum stop adjusting screw locknut and adjust screw to desired flow position (turning screw clockwise decreases flow and turning screw counterclockwise increases flow). To lock screw in position tighten locknut. To assist initial priming, adjust control setting to at least 40% of maximum flow position.

Compensator Control

1. With the directional valve de-energized, loosen locknut "5" and turn the adjusting screw "4" to the desired first stage pressure setting, then tighten locknut "5".
2. With directional valve de-energized, turn adjusting spool "1" counterclockwise until nut "3" is bottomed in adjusting screw slot. (Second stage setting is now equal to first stage pressure setting.) Turn adjusting spool clockwise to desired second stage pressure requirements. One complete turn of adjusting spool equals approximately 41 bar (600 psi). Energize solenoid and check pressure setting. De-energize solenoid and re-adjust if necessary. Secure this setting by tightening locknut "2".





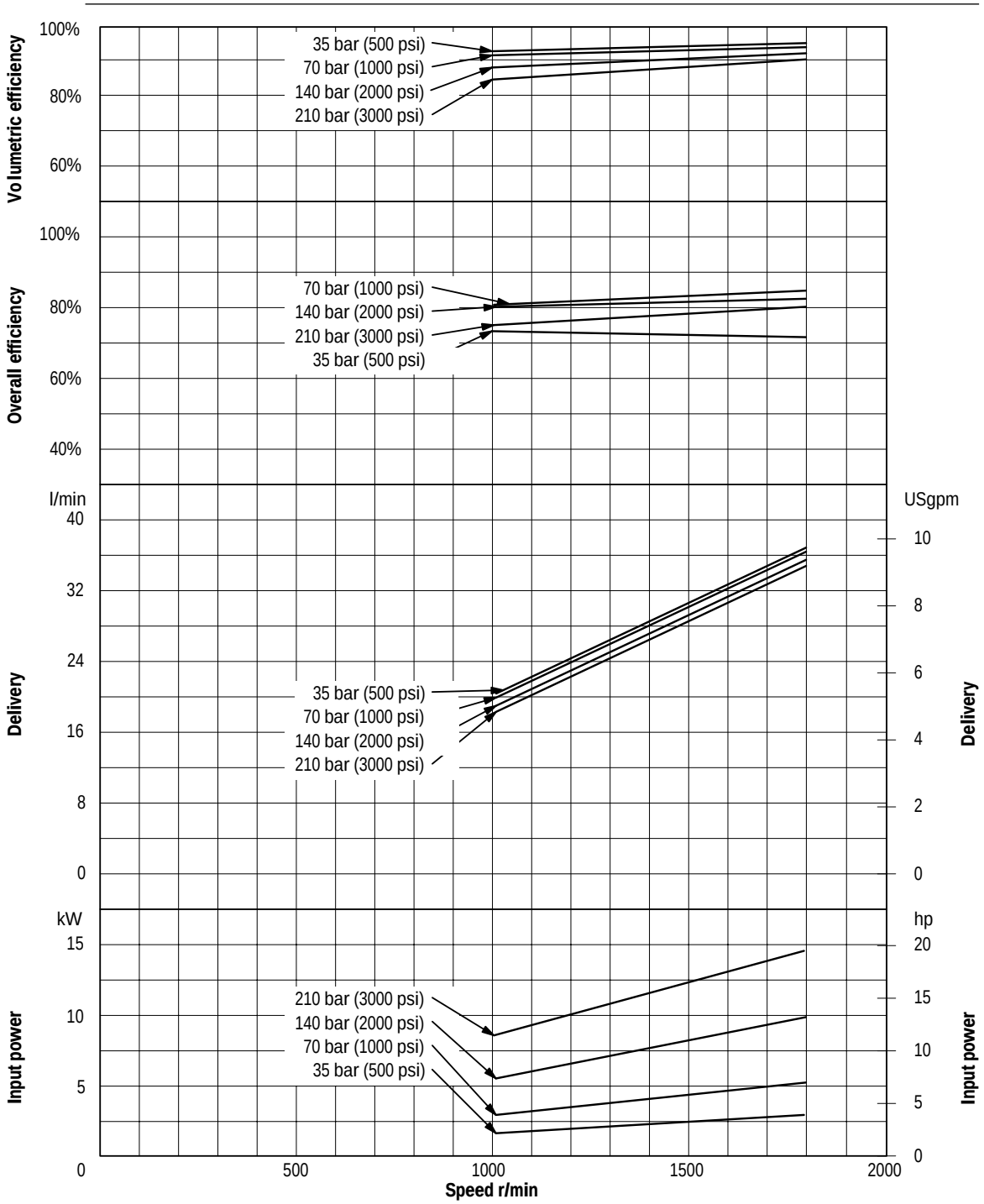
Itahydraulic
Power Tecnology

Performance Curves

PVQ20

Oil type: SAE 10W
Oil temperature: 49°C (120°F)
Inlet: 0.2 bar (5 in. Hg)

Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 210 bar (3000 psi) max. rated pressure.

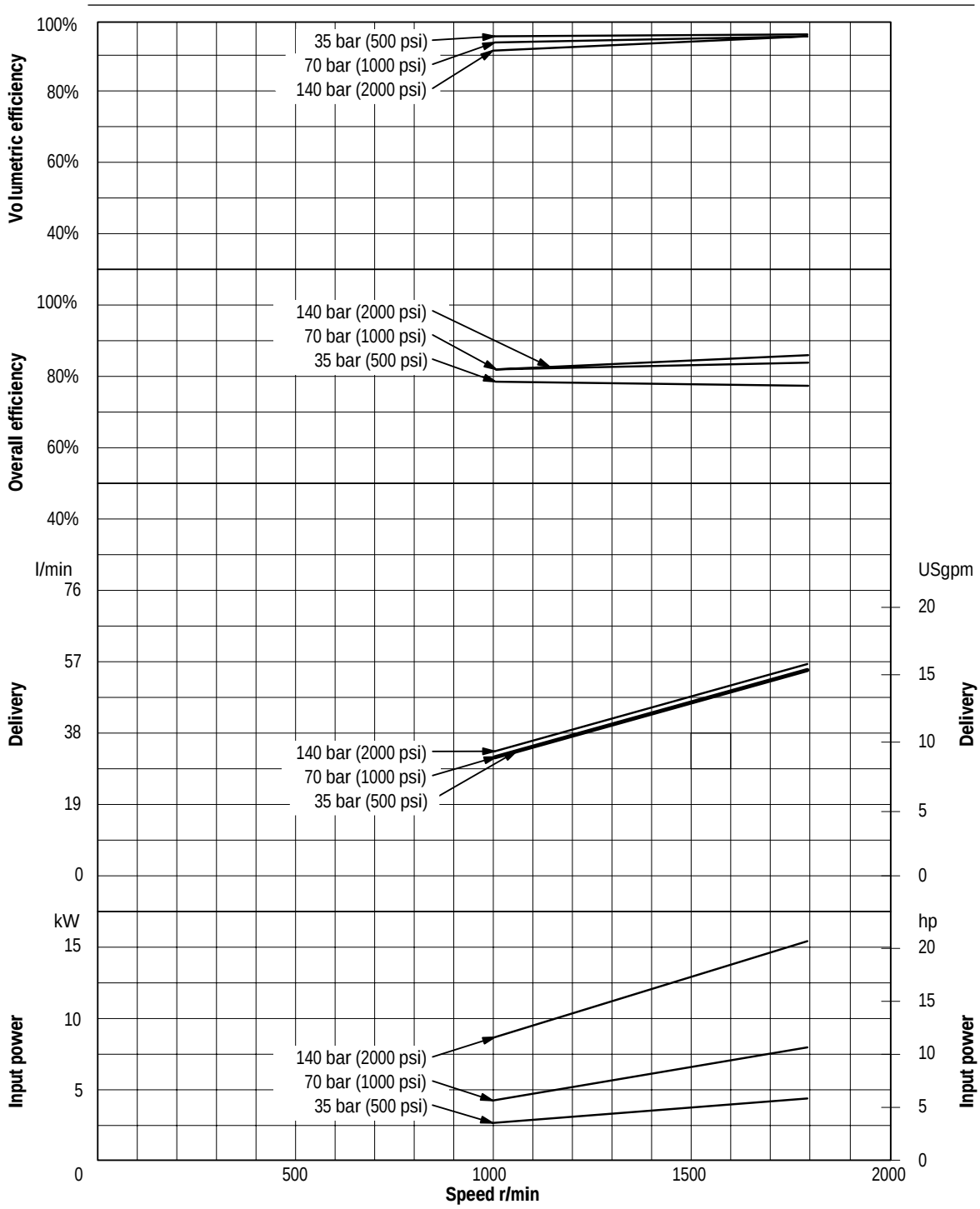


Itahydraulic
Power Tecnology

Performance Curves
PVQ32

Oil type: SAE 10W
Oil temperature: 49°C (120°F)
Inlet: 0.2 bar (5 in. Hg)

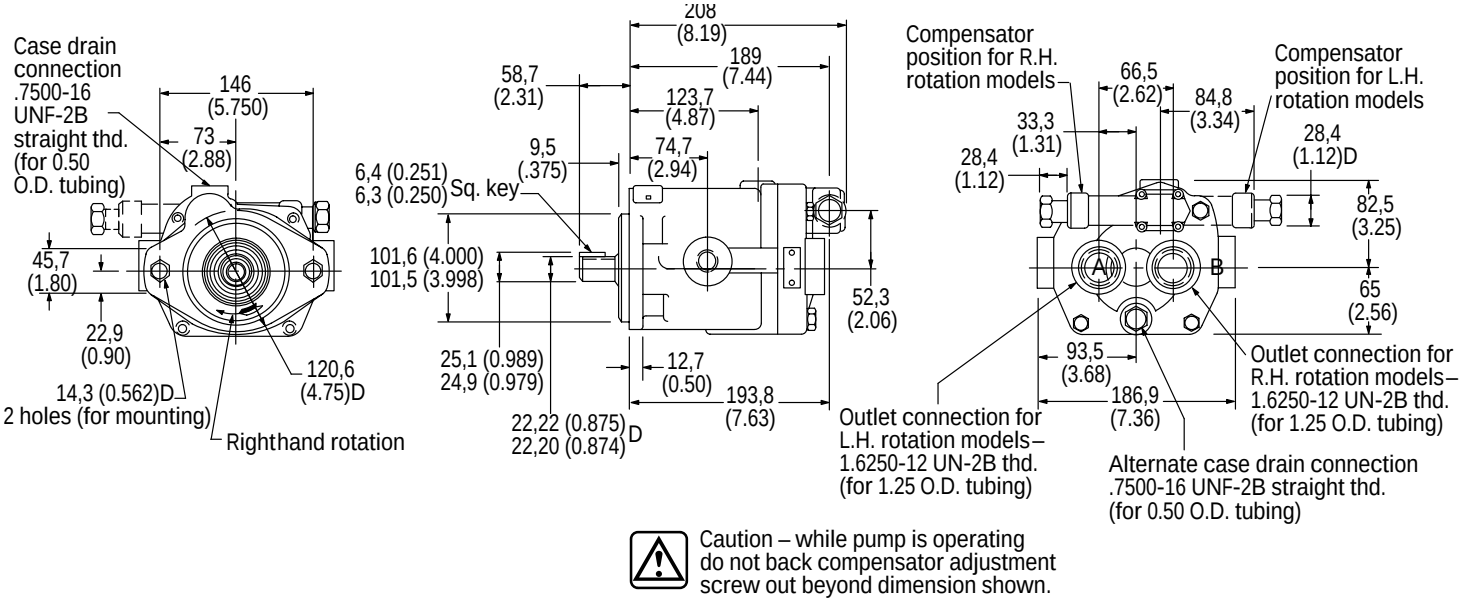
Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 140 bar (2000 psi) max. rated pressure.



Itahydraulic
Power Tecnology

Installation Dimensions

Rear Ports, “C” and “CM” Controls, No. 1 Shaft

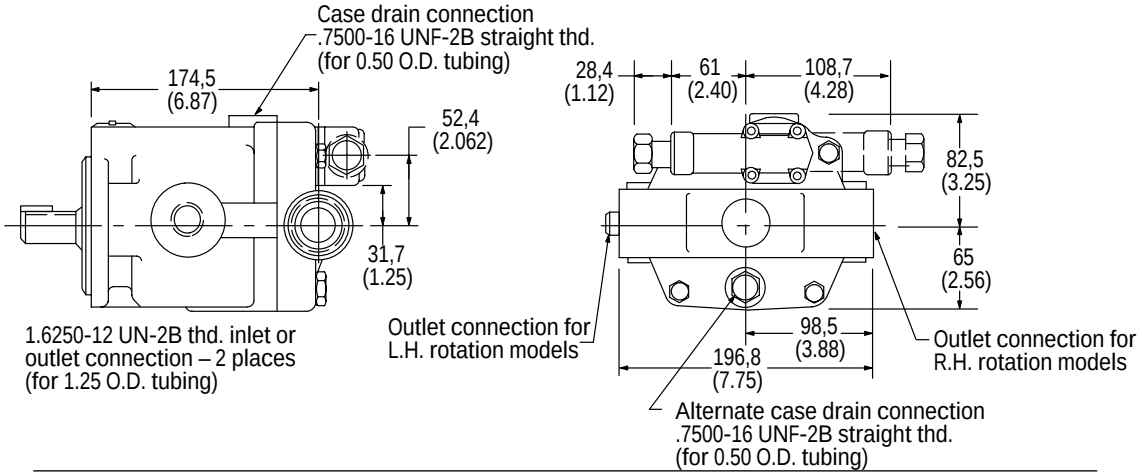


Caution – while pump is operating do not back compensator adjustment screw out beyond dimension shown.

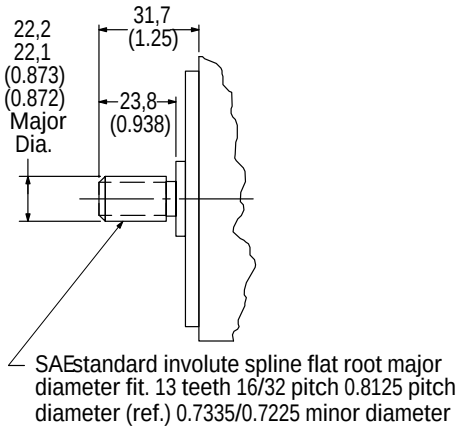
Itahydraulic
Power Tecnology

Installation Dimensions

Side Ports

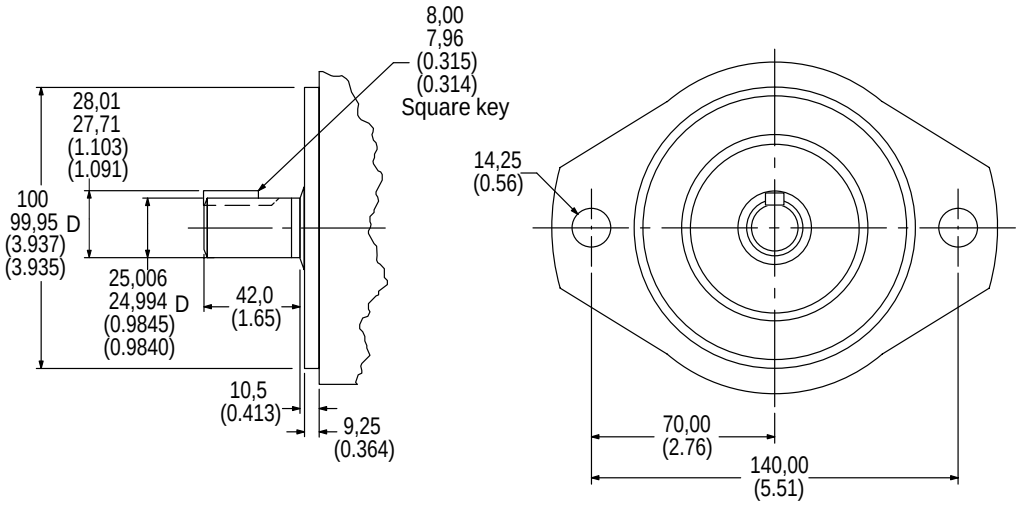


No. 3 Shaft



"N" Shaft with "MB" Flange

(Flange and shaft end ISO 3019/21000A2HW-E25N)



Itahydraulic
Power Tecnology

Controls

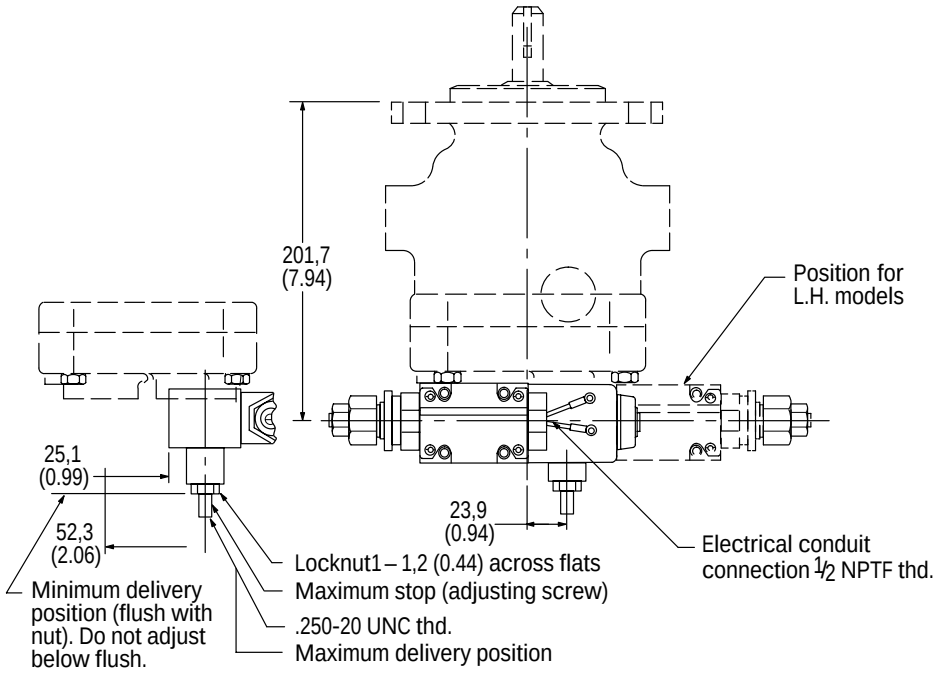
Electric Dual Range Pressure Compensator with Maximum Displacement Stop

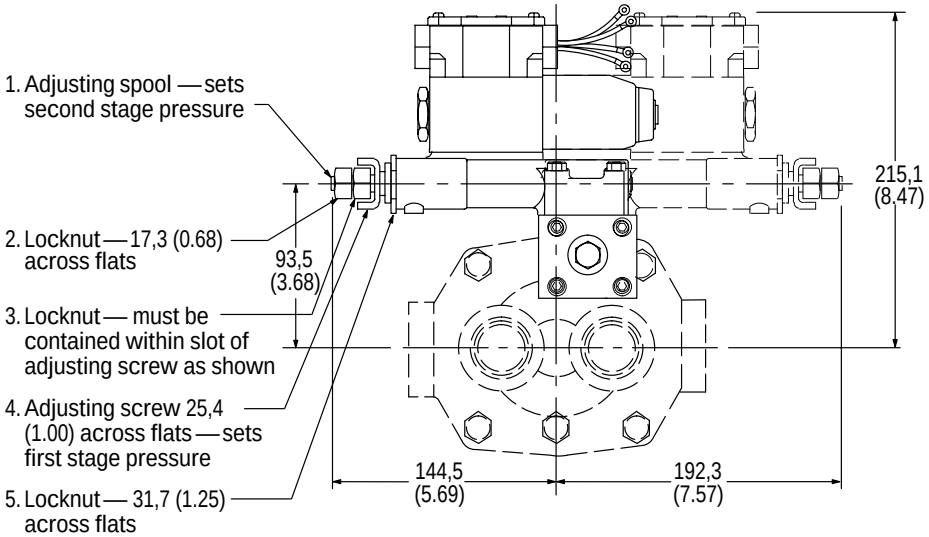
Maximum Flow Adjustment

With the system pressure below both compensator settings, loosen maximum stop adjusting screw locknut and adjust screw to desired flow position (turning screw clockwise decreases flow and turning screw counterclockwise increases flow). To lock screw in position, tighten locknut. To assist initial priming, adjust control setting to at least 40% of maximum flow position.

Compensator Control

1. With the directional valve de-energized, loosen locknut "5" and turn the adjusting screw "4" to the desired first stage pressure setting, then tighten locknut "5".
2. With directional valve de-energized, turn adjusting spool "1" counterclockwise until nut "3" is bottomed in adjusting screw slot. (Second stage setting is now equal to first stage pressure setting.) Turn adjusting spool clockwise to desired second stage pressure requirements. One complete turn of adjusting spool equals approximately 41 bar (600 psi). Energize solenoid and check pressure setting. De-energize solenoid and re-adjust if necessary. Secure this setting by tightening locknut "2".

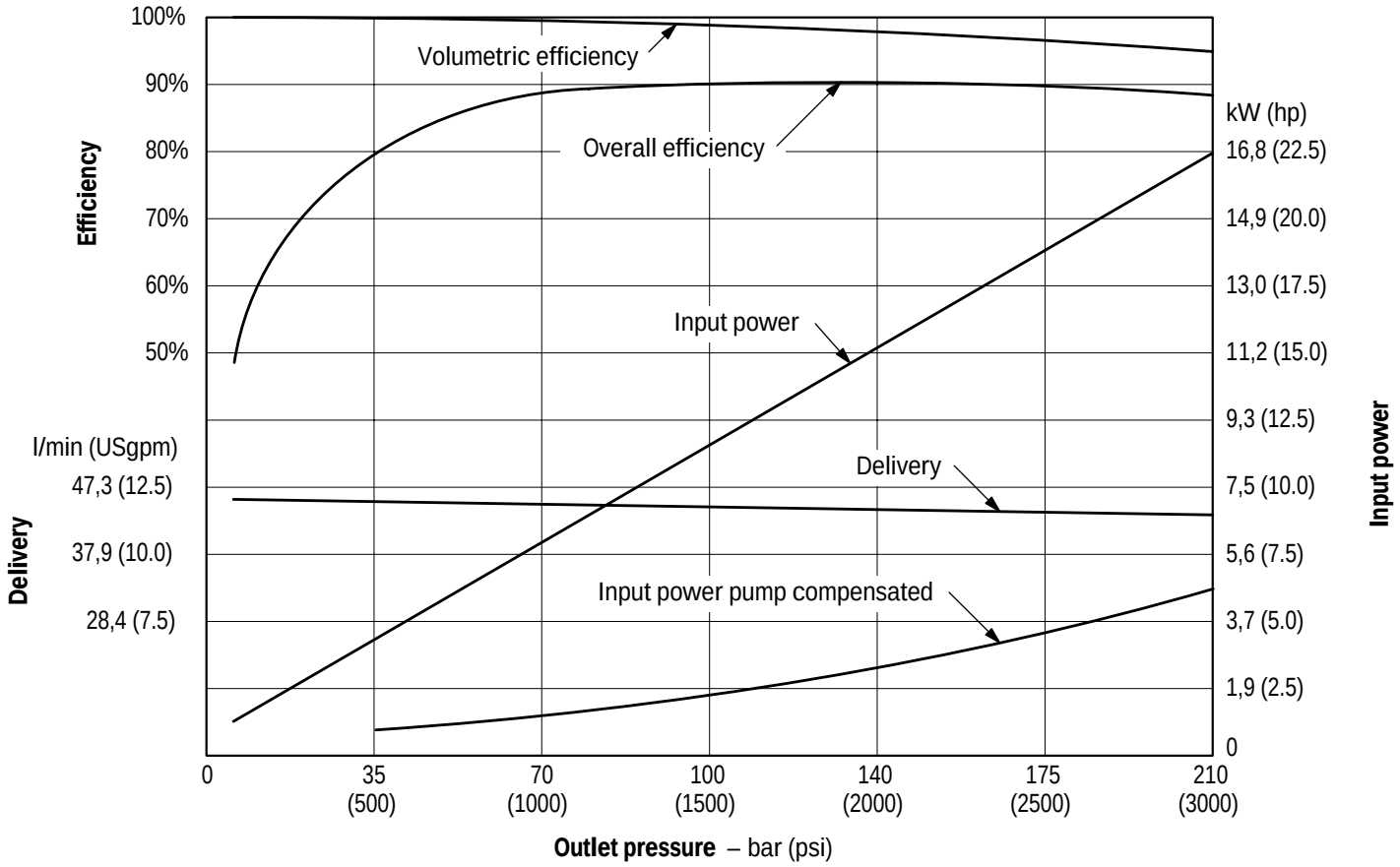




Itahydraulic
Power Tecnology

PVQ25 Performance Curves

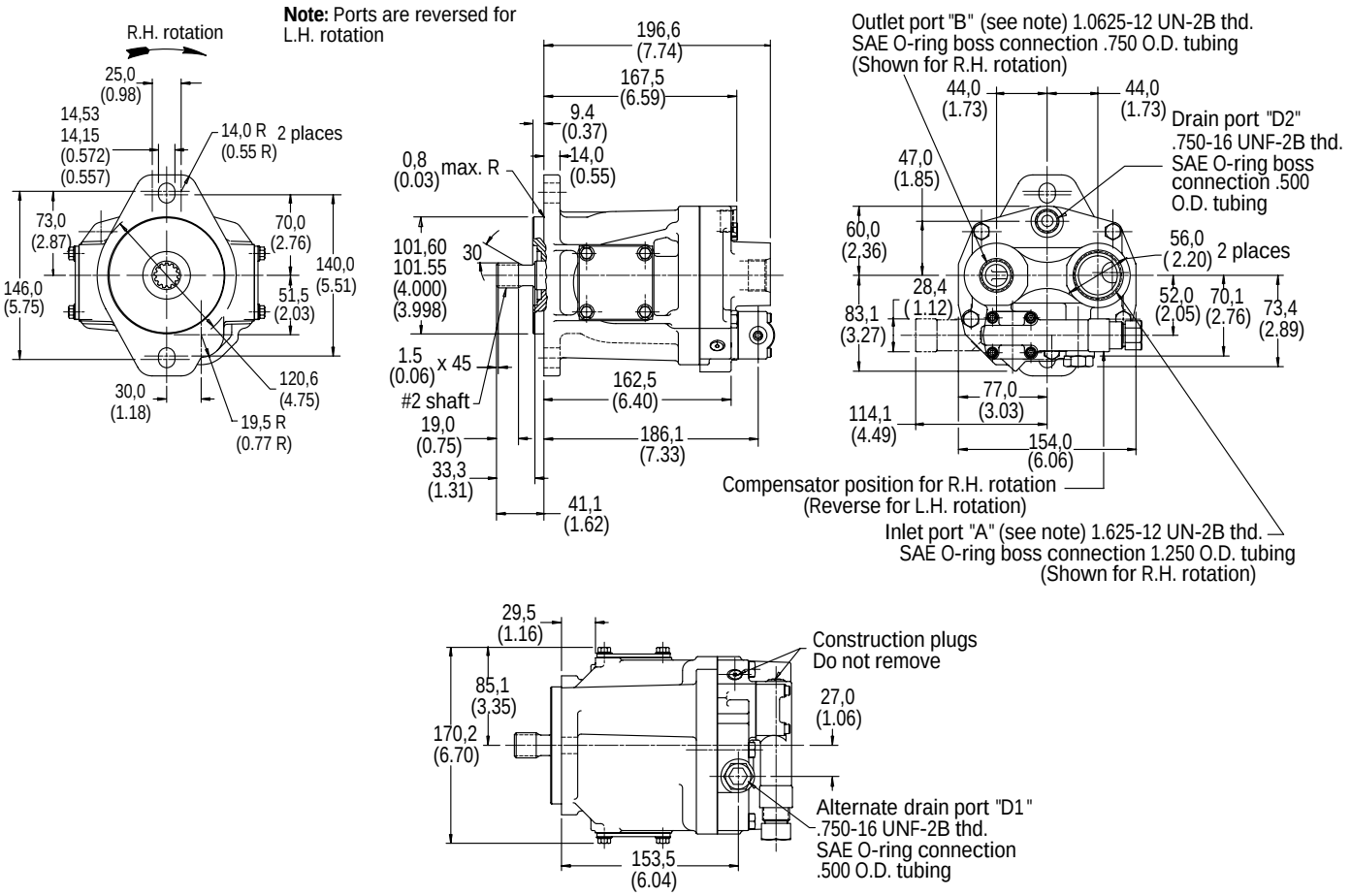
Performance at 1800 r/min
Oil type: SAE 10W
Oil temp: 50° C (120° F)
Inlet pressure: 0 psi



Itahydraulic
Power Tecnology

Installation Drawings

PVQ25 with Pressure Compensator Control

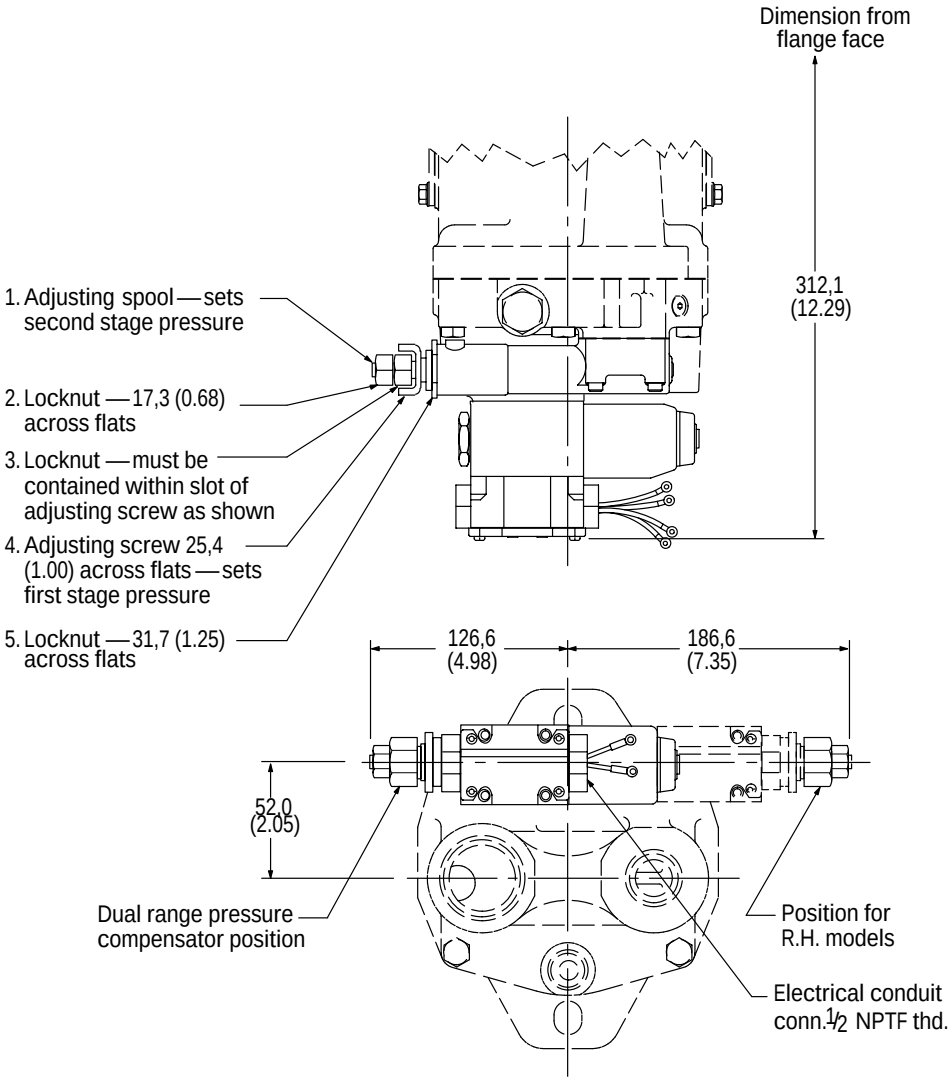


Controls

Electric Dual Range Pressure Compensator Control

Adjustment

1. With the directional valve de-energized, loosen locknut "5" and turn the adjusting screw "4" to the desired first stage pressure setting, then tighten locknut "5".
2. With solenoid de-energized, turn adjusting spool "1" counterclockwise (CCW) until nut "3" is bottomed in adjusting screw slot. (Second stage setting is now equal to first stage pressure setting.) Turn adjusting spool clockwise (CW) to desired second stage pressure requirements. One complete turn of adjusting spool equals approximately 41 bar (600 psi). Energize solenoid and check pressure setting. De-energize solenoid and re-adjust if necessary. Secure this setting by tightening locknut "2".



Solenoid Data (110V AC 50 Hz and 115/120V AC 60 Hz)

Solenoid current	Inrush amps (R.M.S.)	Holding amps
115/120V AC 60 Hz – 110V AC 50 Hz	2.0	.54 .64*

*Maximum peak inrush amps approximately 1.4 x R.M.S. value shown.

Refer to catalog GB-C-2015B for additional solenoid valve data.

Itahydraulic
Power Tecnology

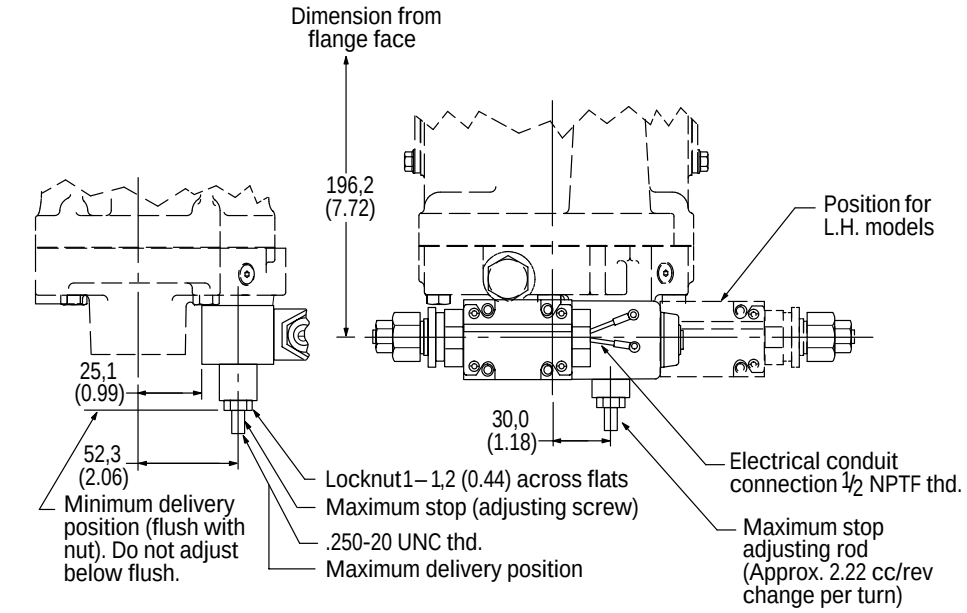
Controls Electric Dual Range Pressure Compensator with Maximum Displacement Stop

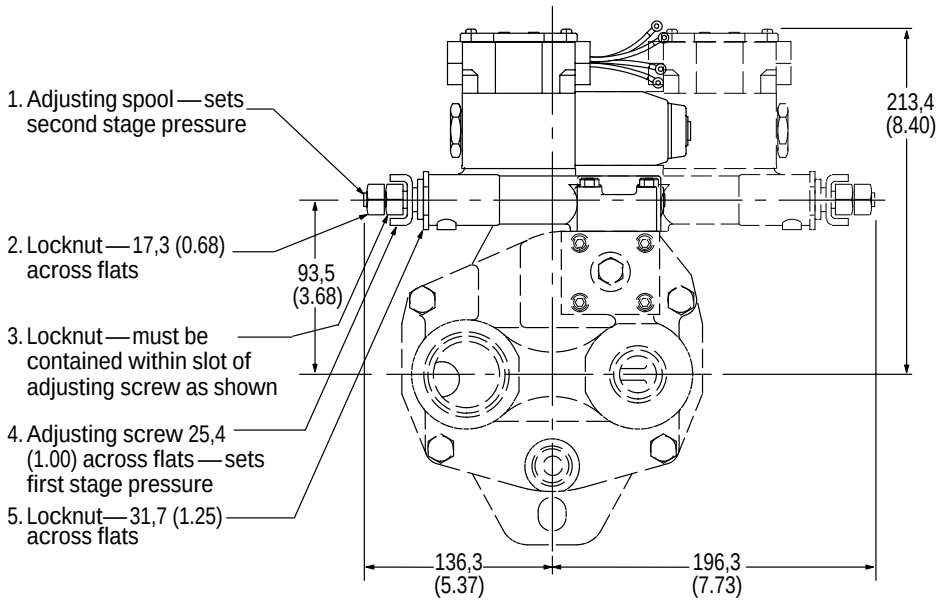
Maximum Flow Adjustment

With the system pressure below both compensator settings, loosen maximum stop adjusting screw locknut and adjust screw to desired flow position (turning screw clockwise decreases flow and turning screw counterclockwise increases flow). To lock screw in position, tighten locknut. To assist initial priming, adjust control setting to at least 40% of maximum flow position.

Compensator Control

1. With the directional valve de-energized, loosen locknut "5" and turn the adjusting screw "4" to the desired first stage pressure setting, then tighten locknut "5".
2. With directional valve de-energized, turn adjusting spool "1" counterclockwise until nut "3" is bottomed in adjusting screw slot. (Second stage setting is now equal to first stage pressure setting.) Turn adjusting spool clockwise to desired second stage pressure requirements. One complete turn of adjusting spool equals approximately 41 bar (600 psi). Energize solenoid and check pressure setting. De-energize solenoid and re-adjust if necessary. Secure this setting by tightening locknut "2".



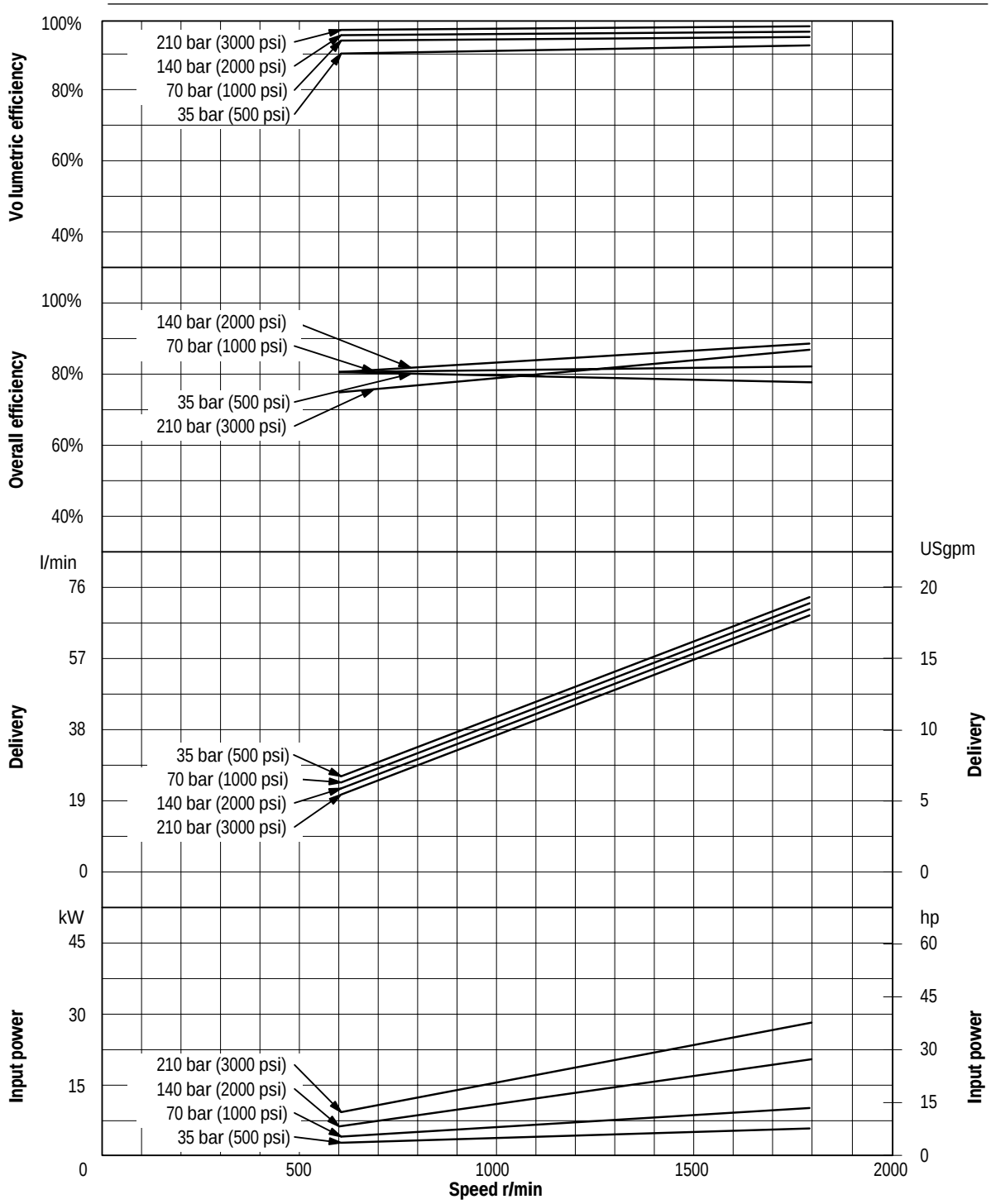


Itahydraulic
Power Tecnology

Performance Curves PVQ40

Oil type: SAE 10W
Oil temperature: 82°C (180°F)
Inlet: 0 psi

Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 210 bar (3000 psi) max. rated pressure.

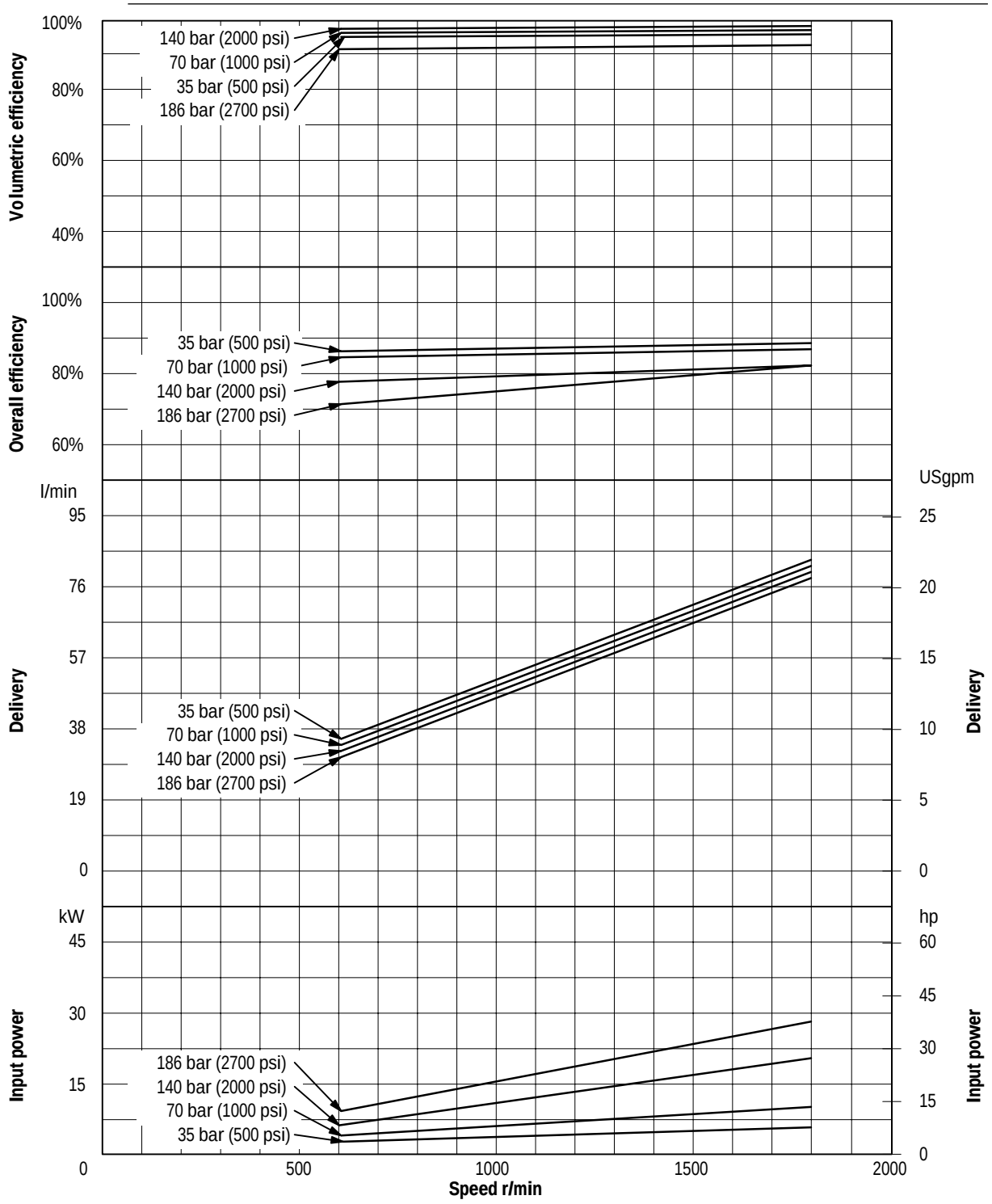


Itahydraulic
Power Tecnology

Model Series
PVQ45

Oil type: SAE 10W
Oil temperature: 82°C (180°F)
Inlet: 0 psi

Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 186 bar (2700 psi) max. rated pressure.

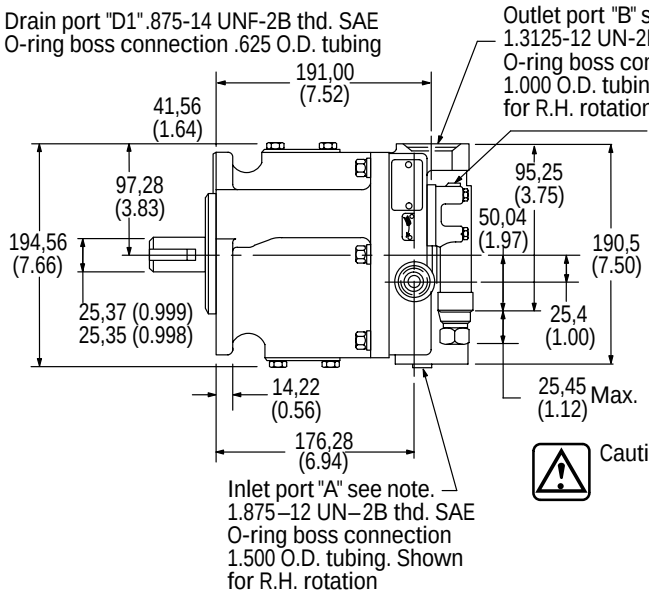


Itahydraulic
Power Tecnology

Controls

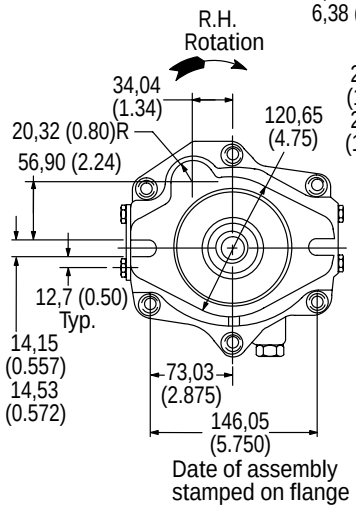
Side Port Controls, No. 2 Mounting and Input Shaft

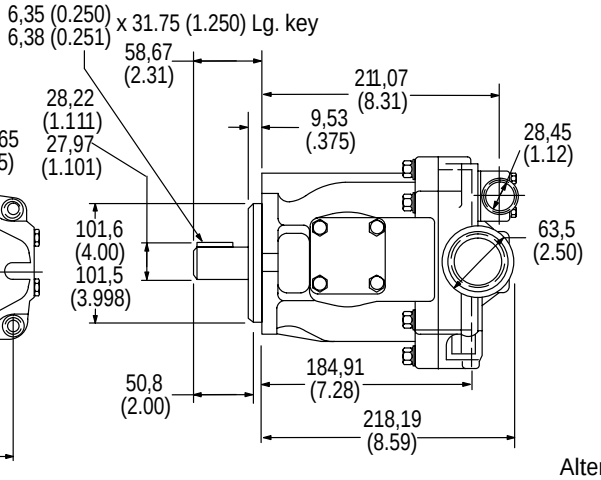
Millimeters (inches)

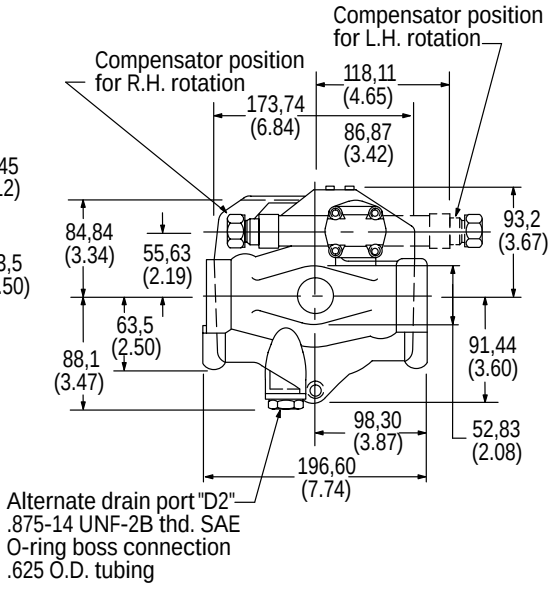


Note: Ports are reversed for L.H. rotation

Caution– While pump is operating do not back compensator adjustment screw out beyond dimension shown. Plug shown for industrial models.





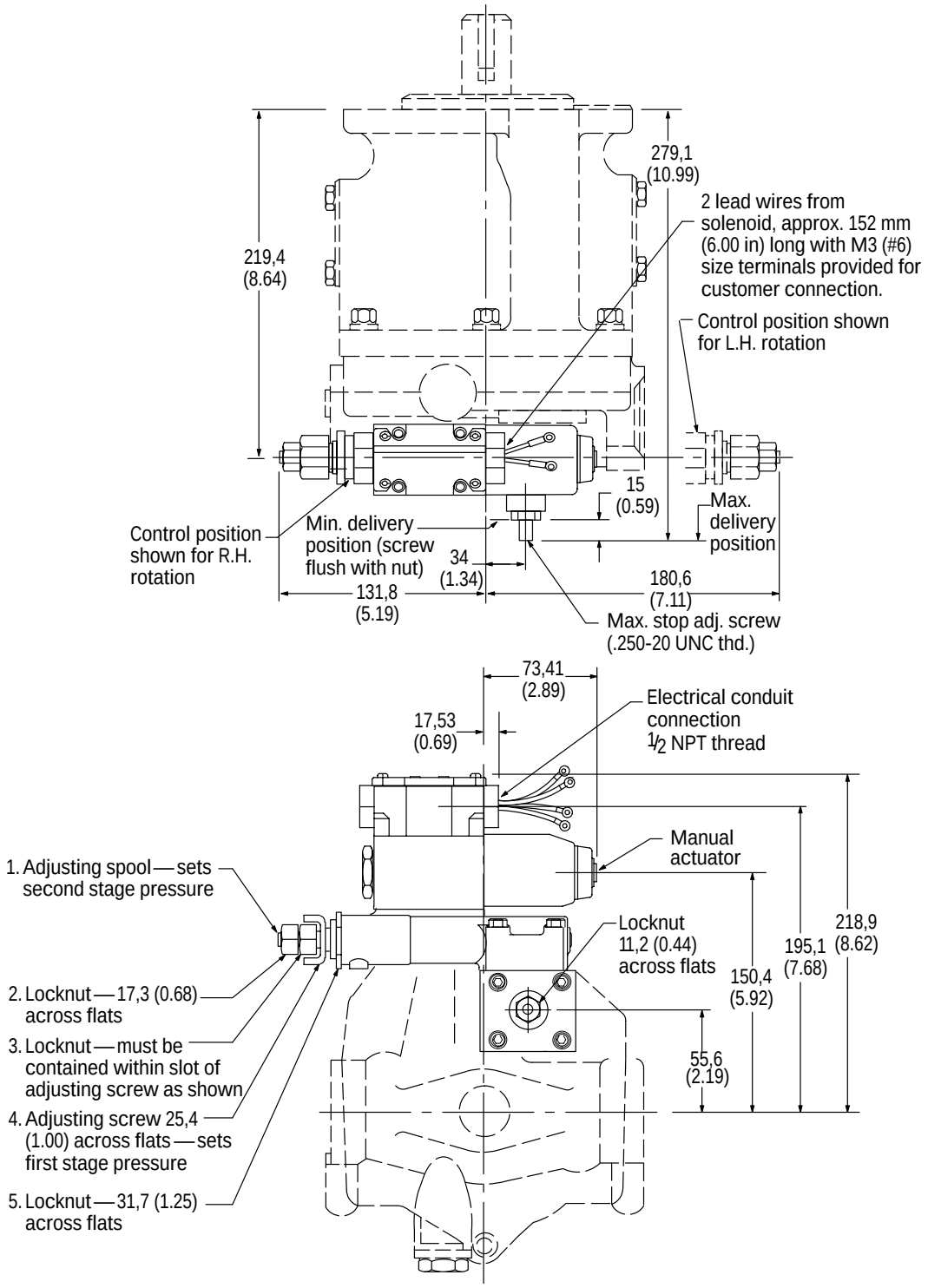


Itahydraulic
Power Tecnology

Controls

Electric Dual Range Pressure Compensator with Maximum Displacement Stop

See preceding page and following page for adjustment procedures.



Solenoid Data[u] (110V AC 50 Hz and 115/120V AC 60 Hz)

Solenoid current	Inrush amps (R.M.S.)	Holding amps
115/120V AC 60 Hz - 110V AC 50 Hz	2.0	.54 .64*

*Maximum peak inrush amps approximately 1.4 x R.M.S. value shown.

Refer to catalog GB-C-2015B for additional solenoid valve data.

[u]**Note:** Any sliding spool valve, if held shifted under pressure for long periods of time, may stick and not spring return due to fluid residue formation and, therefore, should be cycled periodically to prevent this from happening.

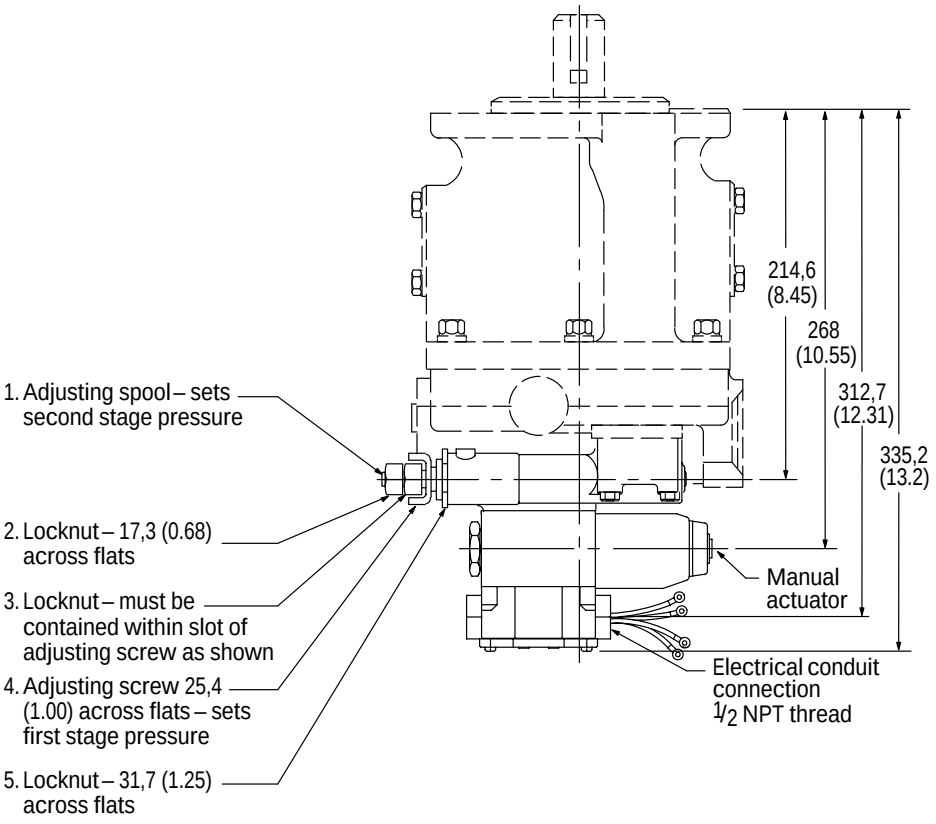
Itahydraulic
Power Tecnology

Controls

Electric Dual Range Pressure Compensator Control

Adjustment

1. With the directional valve de-energized, loosen locknut "5" and turn the adjusting screw "4" to the desired first stage pressure setting, then tighten locknut "5".
2. With solenoid de-energized, turn adjusting spool "1" counterclockwise (CCW) until nut "3" is bottomed in adjusting screw slot. (Second stage setting is now equal to first stage pressure setting.) Turn adjusting spool clockwise (CW) to desired second stage pressure requirements. One complete turn of adjusting spool equals approximately 41 bar (600 psi). Energize solenoid and check pressure setting.
   De-energize solenoid and readjust if necessary. Secure this setting by tightening locknut "2".



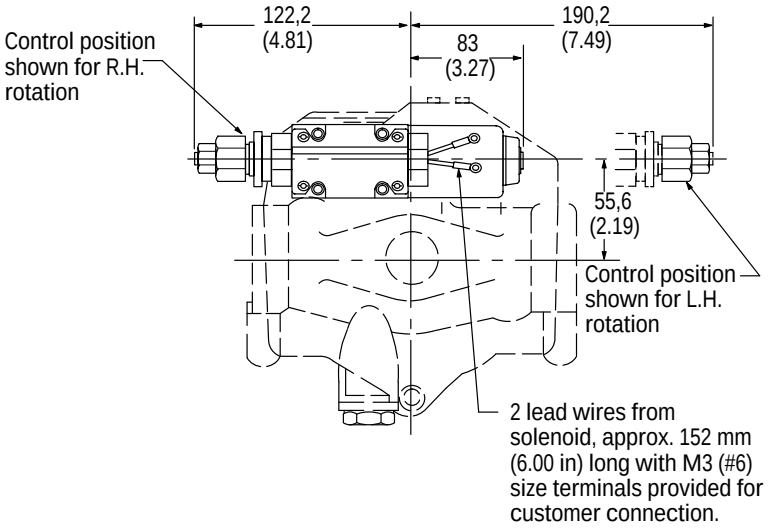
Solenoid Data[u] (110V AC 50 Hz and 115/120V AC 60 Hz)

Solenoid current	Inrush amps (R.M.S.)	Holding amps
115/120V AC 60 Hz - 110V AC 50 Hz	2.0	.54 .64*

*Maximum peak inrush amps approximately 1.4 x R.M.S. value shown.

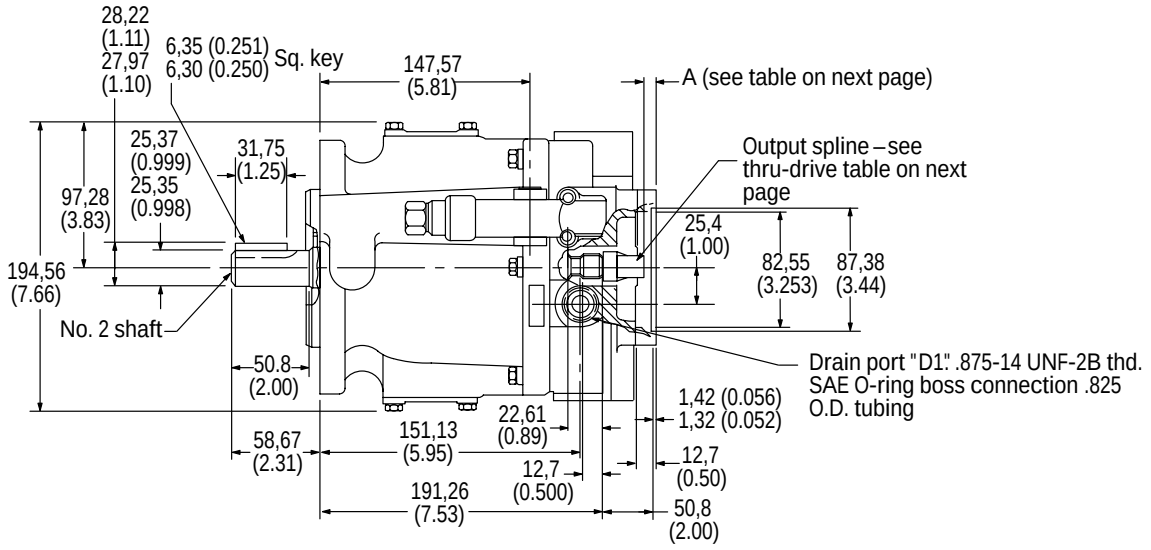
Refer to catalog GB-C-2015B for additional solenoid valve data.

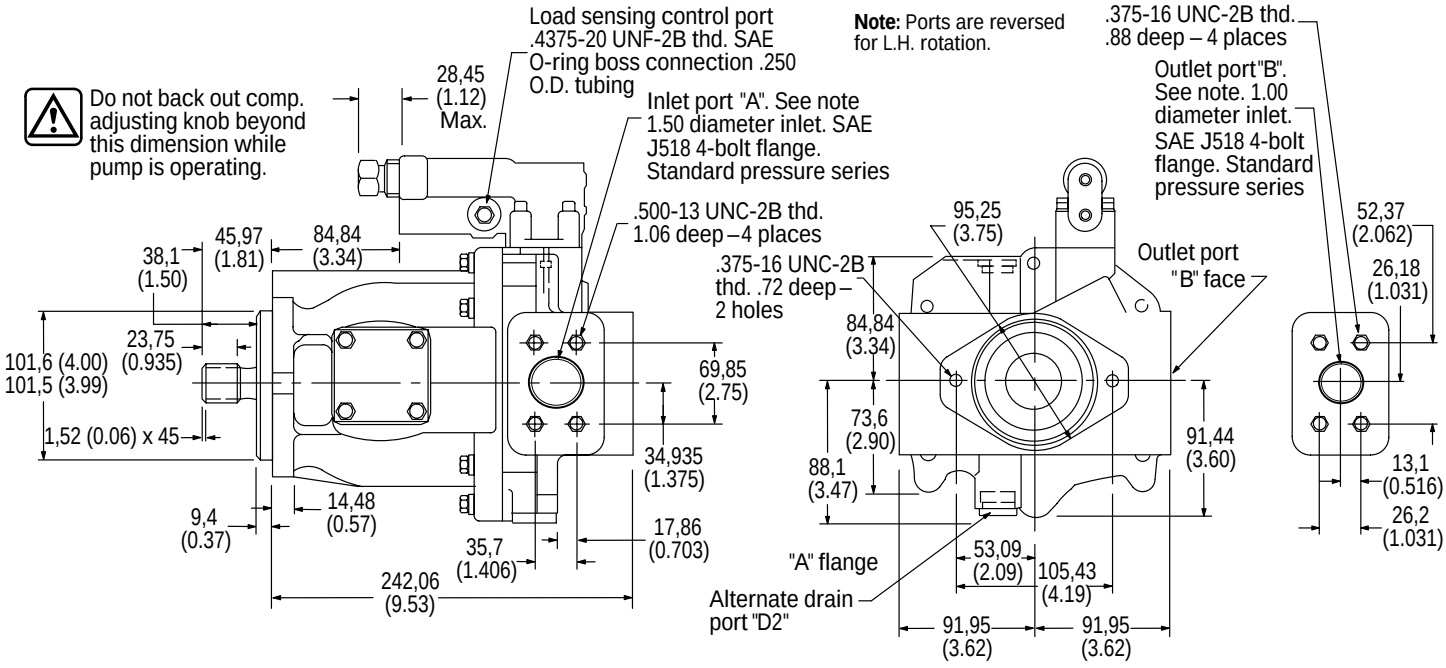
[u] **Note:** Any sliding spool valve, if held shifted under pressure for long periods of time, may stick and not spring return due to fluid residue formation and, therefore, should be cycled periodically to prevent this from happening.



Itahydraulic
Power Tecnology

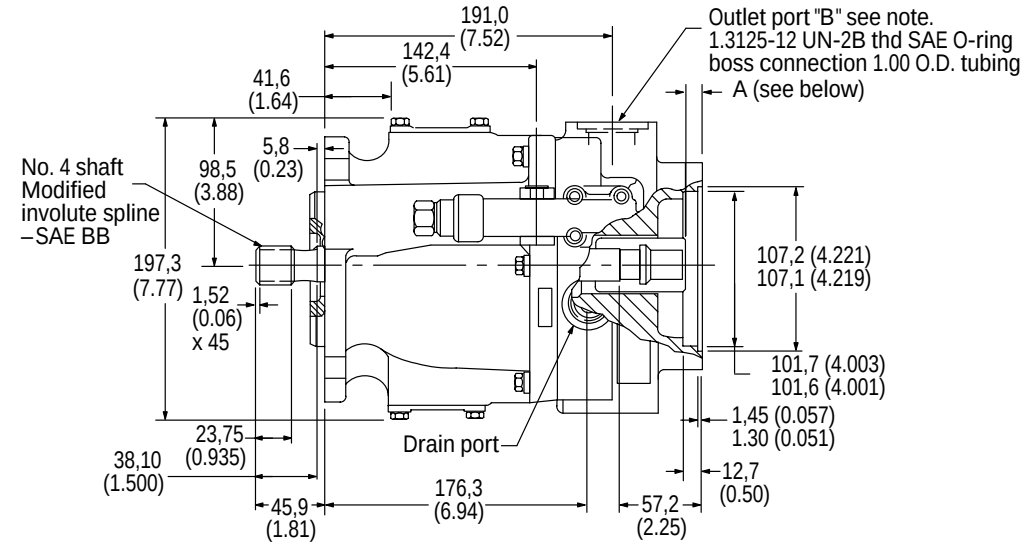
Thru-drives
PVQ40 and PVQ45 SAE “A”



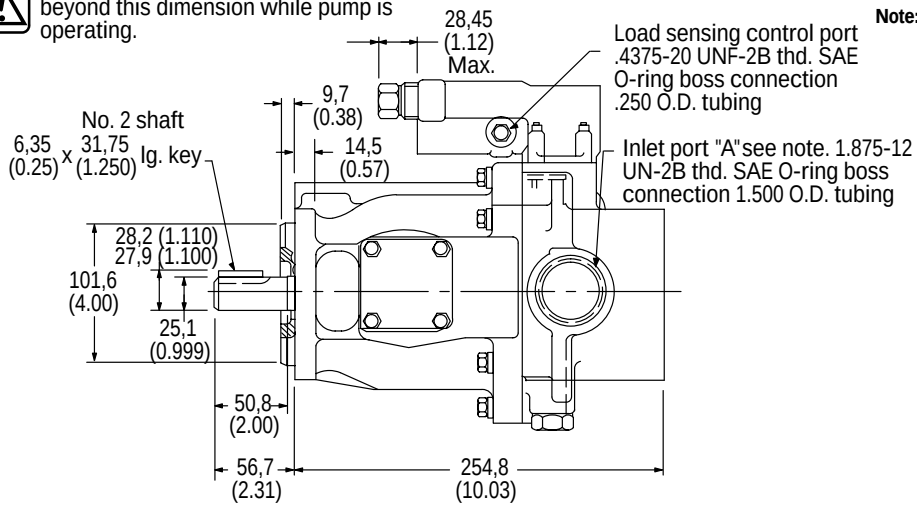


Itahydraulic
Power Tecnology

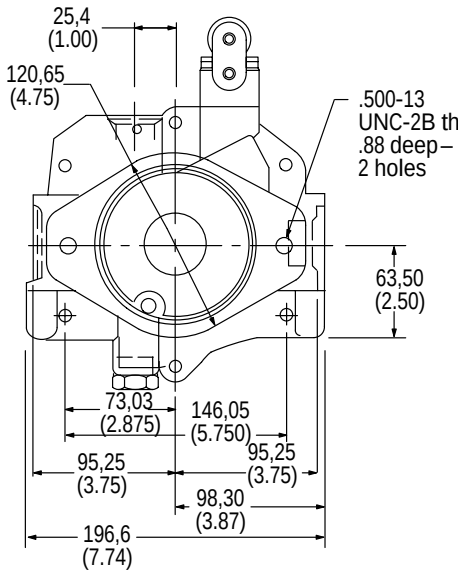
Thru-drives
PVQ40 and PVQ45 SAE “B”



Donot back out comp. adjusting knob beyond this dimension while pump is operating.



Note: Ports are reversed for L.H. rotation.



Thru-drive Shaft	Spline Data	Max. Torque Nm (in. lb.)	Dimension A mm (in.)	Coupling Type	Thru-drive Coupling
AA	ASA B5.15-1960 9 teeth 16/32 DP Flat root side fit	58 (517)	10,92 (0.43)	9T/9T	864224
AB	ANS B92.1-1970 11 teeth 16/32 DP Flat root side fit	118 (1050)	12,57 (0.495)	11T/11T	864325
AE	Special Eaton 26 teeth 32/64 DP Flat root side fit	179 (1587)	24,89 (0.98)	26T/26T	627168
			10,92 (0.43)	26T/13T	864307
			20,56 (0.81)	26T/15T	475134

Note: Coupling, screws, and washers must be ordered separately to mount rear pump. “A” O-ring (AS568-042) and “B” O-ring (AS568-155) are included with each thru-drive pump. Couplings for “B26” are step type for 13 and 15 tooth as shown.