

VTM42 Power Steering Pumps



High Efficiency

Optimum running clearances and hydraulic balance provide sustained high efficiency throughout pump life.

Hydraulic Balance

Vickers' design eliminates pressure-induced bearing loads to provide longer life and reduced maintenance.

Integral Valves

Flow control and relief eliminate the need for separate valves. Vickers pumps supply, in one package, a complete power source for steering.

Operating Specifications

Model Series	Delivery USgpm @ 1200 r/min 7 bar (100 psi)	Displ. cm ³ /r (in ³ /r)	Maximum speed – r/min			Maximum pressure bar (psi)	Approx. weight kg (lbs.)
			@ 7 bar (100 psi)	@ 100 bar (1500 psi)	@ 140 bar (2000 psi)		
VTM42	1	3,4 (.21)	7000	5000	4250	140 (2000)	6,4 (14)
	1.5	5,1 (.31)	7000	4500	4000		
	2	6,2 (.38)	7000	4200	3800		
	4	12,9 (.79)	7000	2800	2800		
	5	15,7 (.96)	6000	2600	2300		
	6	19,3 (1.18)	5000	2500	2000		

Model Codes

VTM - 42 (A) - 20 - 15 - 20 - F 11 - R 1 - 14

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1 Vane type mobile pump

2 Series

3 Mounting flange

A – SAE A mounting flange
(Omit if not required)

4 Ring size - delivery

(SAE rating - 1200 rpm & 7 bar (100 psi))

10 – 1.0 USgpm	40 – 4.0 USgpm
15 – 1.5 USgpm	50 – 5.0 USgpm
20 – 2.0 USgpm	60 – 6.0 USgpm

5 Controlled flow rate

(at 1500 rpm & 7 bar (100 psi))

15 – 6 L/min (1.5 USgpm)
20 – 8 L/min (2 USgpm)
25 – 9,5 L/min (2.5 USgpm)
30 – 11 L/min (3 USgpm)
35 – 13 L/min (3.5 USgpm)
40 – 15 L/min (4 USgpm)
45 – 17 L/min (4.5 USgpm)
50 – 19 L/min (5 USgpm)
55 – 21 L/min (5.5 USgpm)
60 – 23 L/min (6 USgpm)
65 – 25 L/min (6.5 USgpm)
70 – 26,5 L/min (7 USgpm)
75 – 28 L/min (7.5 USgpm)

6 Relief valve setting (cracking pressure)

05 – 35 bar (500 psi)
07 – 52 bar (750 psi)
10 – 70 bar (1000 psi)
12 – 86 bar (1250 psi)
15 – 100 bar (1500 psi)
17 – 120 bar (1750 psi)
20 – 140 bar (2000 psi)

7 Reservoir filter

F – Filter instead of standard baffle.
Omit if not required.

8 Reservoir or manifold

07 – 1147 mL (70 in³) reservoir
(Omit for VTM42A)
11 – 1884 mL (115 in³) reservoir
(Omit for VTM42A)
MA – Manifold without bypass tube
MB – Manifold with bypass tube
MD – Manifold with 90° tank connection
ME – Cast manifold without bypass tube
MF – Cast manifold with bypass tube
NO – None (shipping closure only)

9 Shaft rotation

R – Right hand (clockwise)
L – Left hand (counterclockwise)

10 Shaft type

1 – Threaded (VTM42 only)
38 – Splined (VTM42A only)

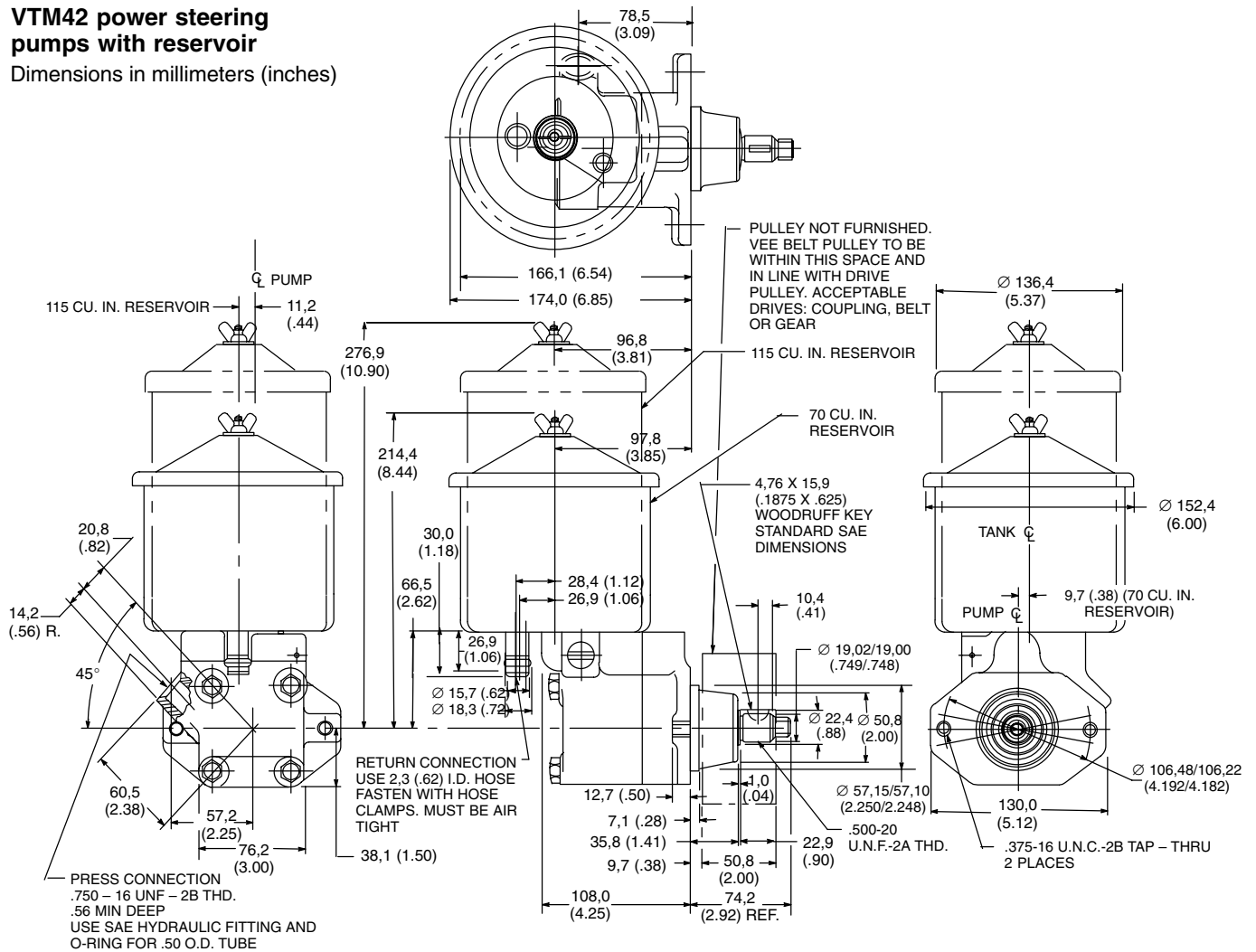
11 Design

Subject to change. Installation dimensions remain the same for designs –10 through –19.

Installation Dimensions

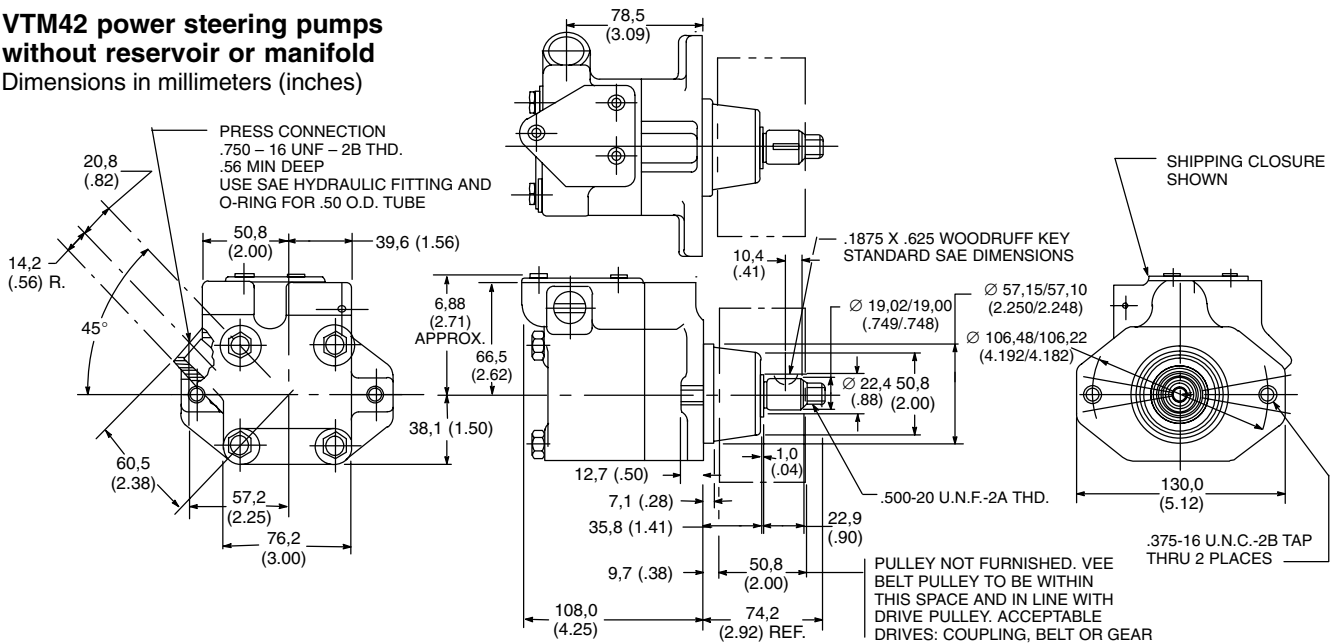
VTM42 power steering pumps with reservoir

Dimensions in millimeters (inches)



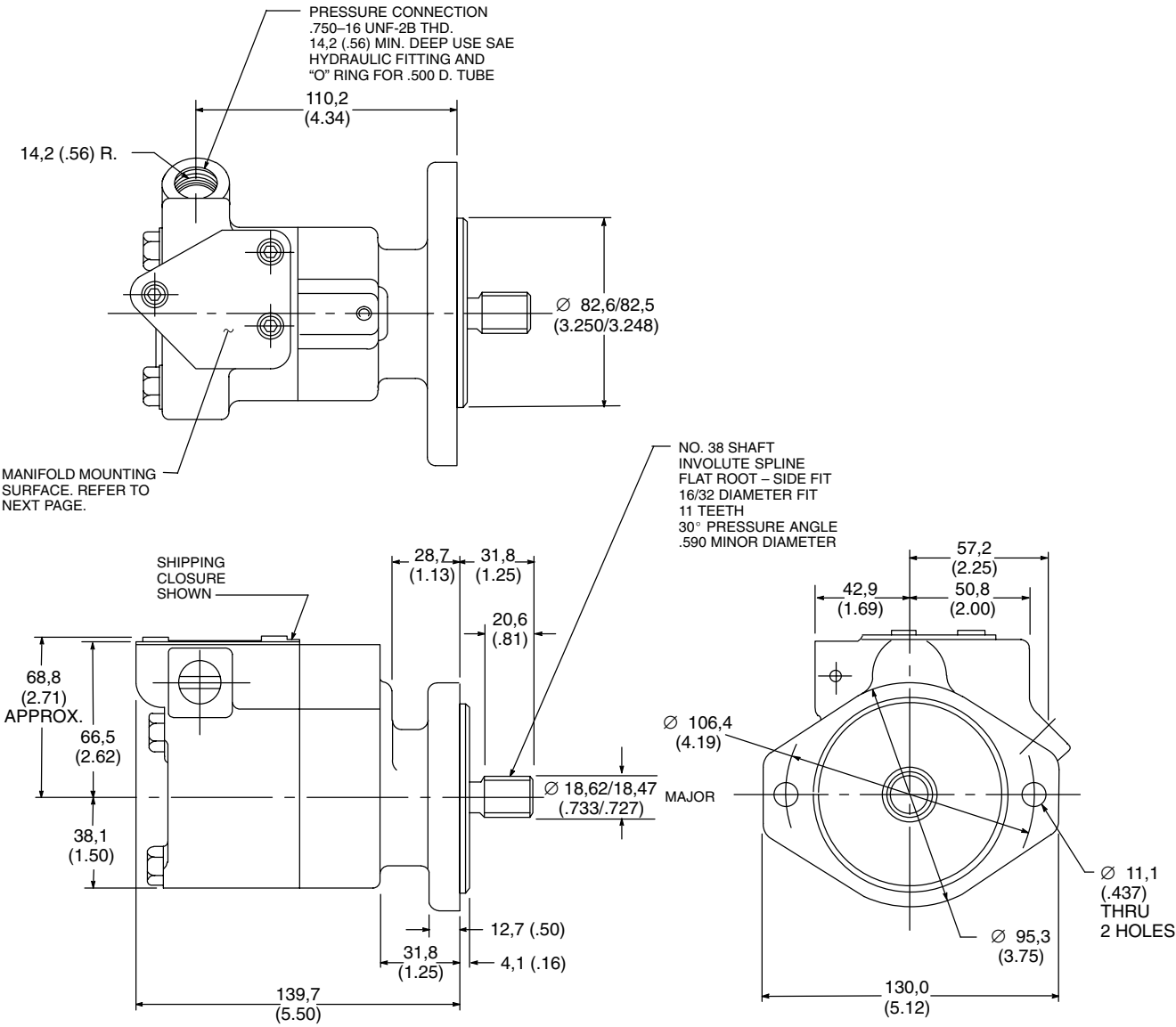
VTM42 power steering pumps without reservoir or manifold

Dimensions in millimeters (inches)



**VTM42A power steering
pumps without manifold**

Dimensions in millimeters (inches)

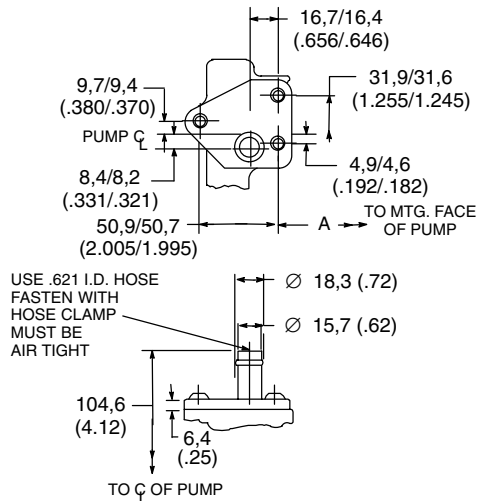


Installation Dimensions

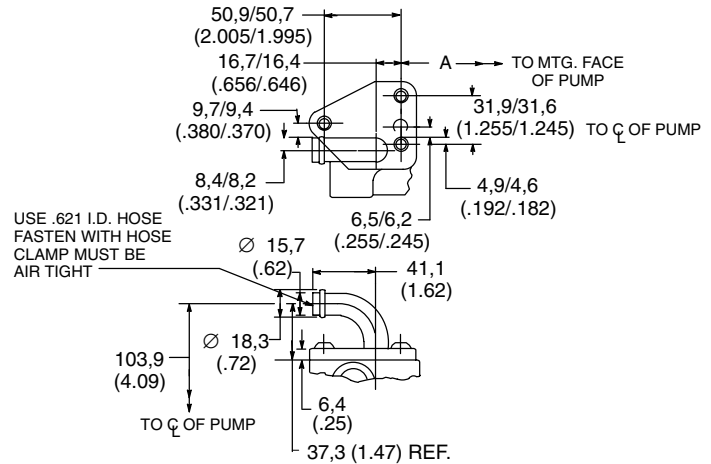
Manifolds for power steering pumps

Dimensions in millimeters (inches)

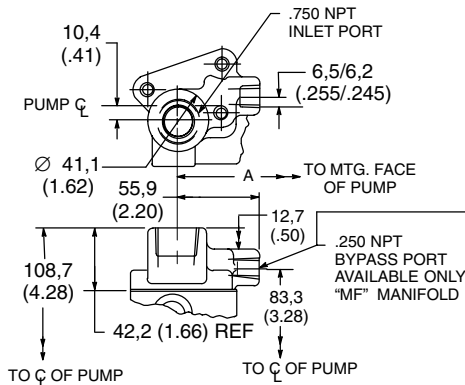
“MA” MANIFOLD



“MD” MANIFOLD

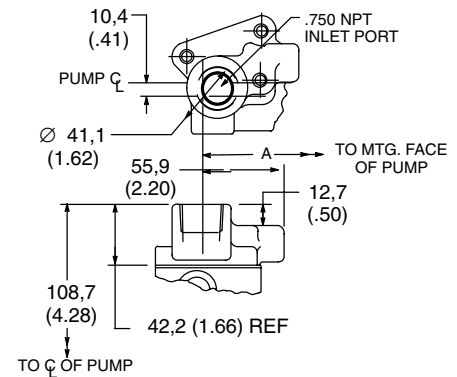


“MF” MANIFOLD

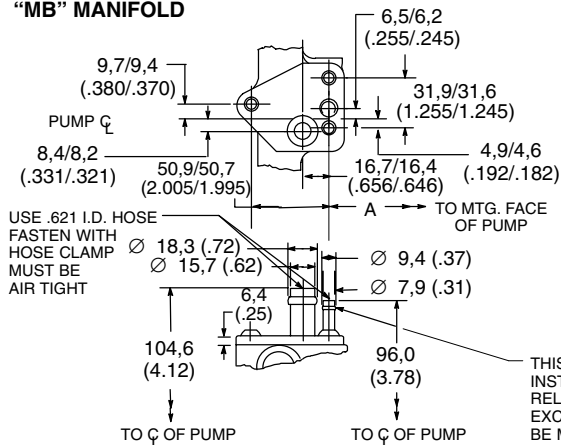


THIS TANK BYPASS CONN. IS REQUIRED FOR INSTALLATIONS WHICH OPERATE AT PUMP RELIEF VALVE PRESSURES FOR PERIODS EXCEEDING 15 SECONDS. CONNECTION MUST BE MADE BELOW OIL LEVEL IN RESERVOIR.

“ME” MANIFOLD



“MB” MANIFOLD

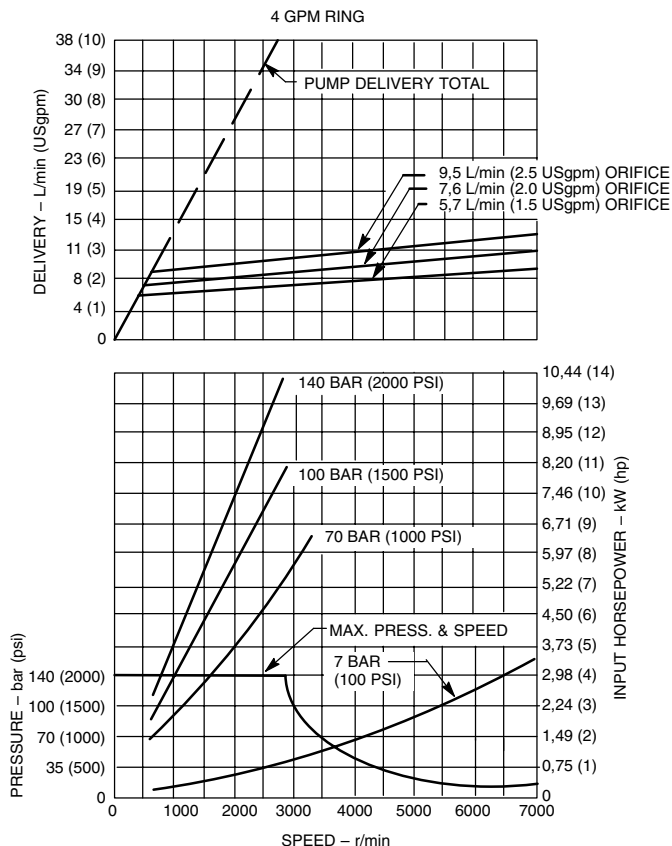
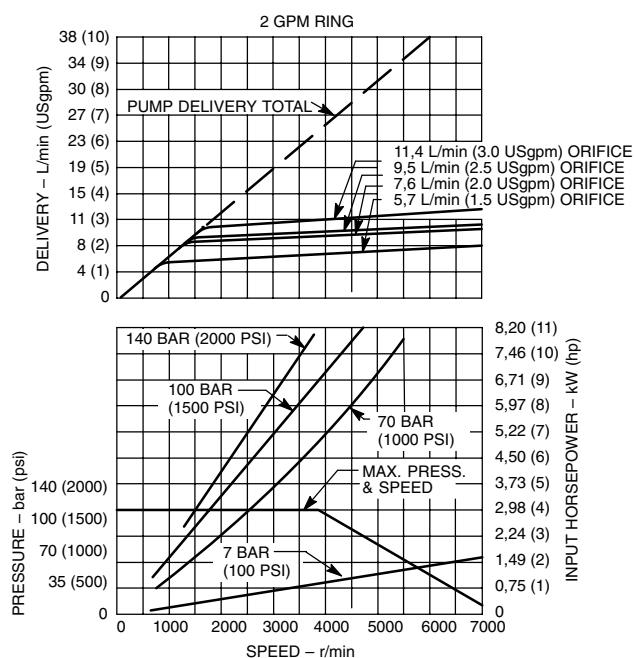
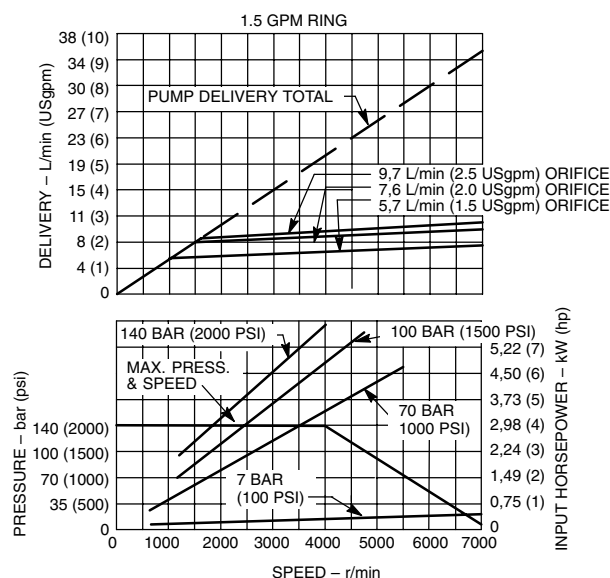
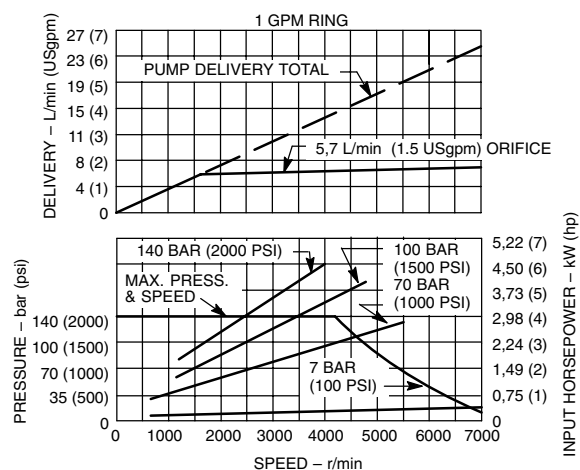


THIS TANK BYPASS CONN. IS REQUIRED FOR INSTALLATIONS WHICH OPERATE AT PUMP RELIEF VALVE PRESSURES FOR PERIODS EXCEEDING 15 SECONDS. CONNECTION MUST BE MADE BELOW OIL LEVEL IN RESERVOIR.

Manifold Code	Dimension A	
	VTM42	VTM42A
MA	47,0 (1.85)	78,7 (3.10)
MB		
MD		
ME	75,9 (2.99)	107,7 (4.24)
MF		

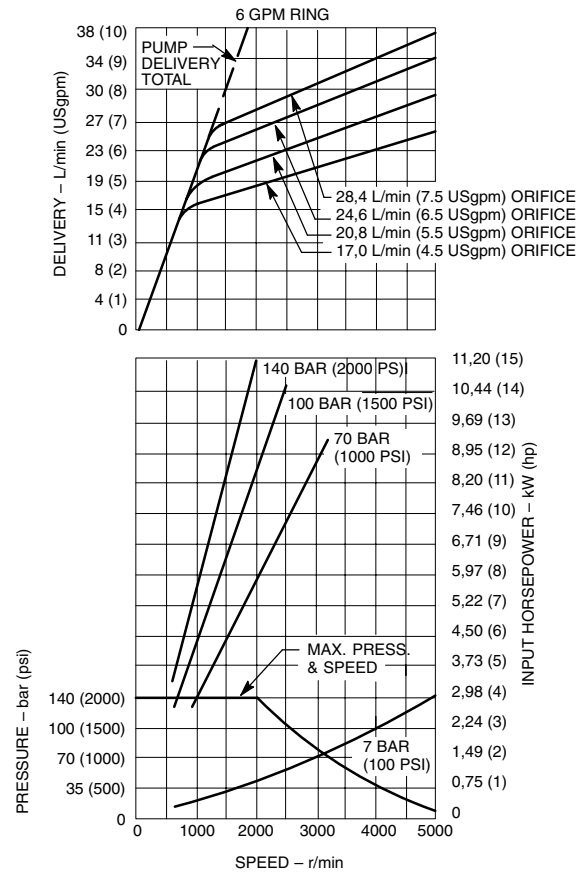
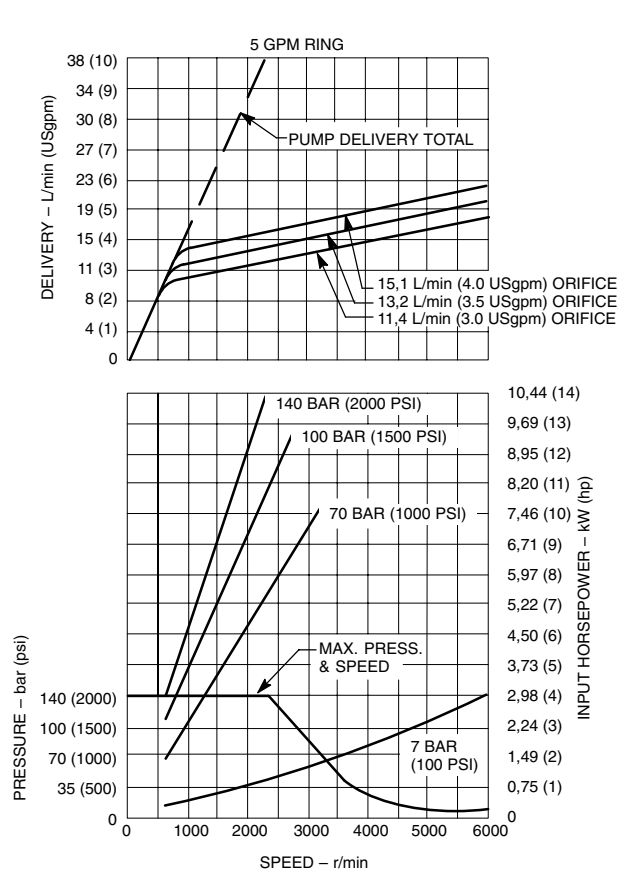
Typical Performance

VTM42(A) power steering pumps



Typical Performance

VTM42(A) Power Steering Pumps



Service Data

Vickers®

Steering



Power Steering Pump

VTM27/28/42 Series -14 Design



Revised 04/01/97

M-2052-S

Gasket	Cover S/A	Wing Nut	Lock Washer	Washer	Model
291439	314269	109609	294050	233037	VTM**-**-**-07**-**-14
142521	375095			308075	VTM**-**-**-11**-**-14

Inlet Strainer

(Optional parts used when "S" is indicated in model number)

199144 Screw
(2 req'd) Torque to 90-100 lb. ft.
(Replaces 315934)

363014 Screen S/A
(Replaces 222029)

381948 Plate

Filter Parts

(Optional)

Used in place of 279804
Return Line Baffle

(When indicated in Model Number)

1866 Cotter Pin
1586 Washer
212683 Spring
213982 Retainer
213984 Filter Element

Model Designation	Stud
VTM**-**-**-07**-**-14	280956
VTM**-**-**-11**-**-14	229678

315934 Screw
(2 req'd)
Torque to 7.5-8 lb. ft.

289283 Nut
Torque to 6-8 lb. ft.

279804 Return Line Baffle

381948 Reinforcing Plate
(07 Reservoir only)

Note

Assemble rotor with counterbore toward body.

▲ ▲ 213998 "O" Ring
(See table)

▲ ▲ 174619 "O" Ring
(See table)

Spring
(See table)

Pressure Plate
(See table)

Ring
(See table)

Vane Kit
(10 Vanes)
(See table)

Rotor (See table)

Pin (2 req'd) (See table)

▲ ▲ 199390 "O" Ring (See table)

375094 Plug

Model	Reservoir S/A Kit		
	Cu. In.	With Filter	Without Filter
VTM**-**-**-07**-**-14	70	923839	923837
VTM**-**-**-11**-**-14	115	923840	823838

▲ ▲ 291667 Gasket

32559 Pin

171523 Screw
(4 req'd) Torque to 25-30 lb. ft.

Model Designation	Cover Sub. Assy.
VTM**-**-07**-**-14	574347
VTM**-**-15**-**-14	377547
VTM**-**-20**-**-14	377552
VTM**-**-25**-**-14	377548
VTM**-**-30**-**-14	377549
VTM**-**-35**-**-14	377555
VTM**-**-40**-**-14	377553
VTM**-**-45**-**-14	377550
VTM**-**-50**-**-14	379063
VTM**-**-55**-**-14	377554
VTM**-**-60**-**-14	379064
VTM**-**-65**-**-14	377551
VTM**-**-75**-**-14	379062

170072 Spring

Model	Control Valve S/A
VTM**-**-02	229613
VTM**-**-03	255515
VTM**-**-05	233018
VTM**-**-06	247615
VTM**-**-07	232794
VTM**-**-08	397339
VTM**-**-10	232795
VTM**-**-12	232796
VTM**-**-15	232797
VTM**-**-17	232798
VTM**-**-20	232799
VTM**-**-35	284220

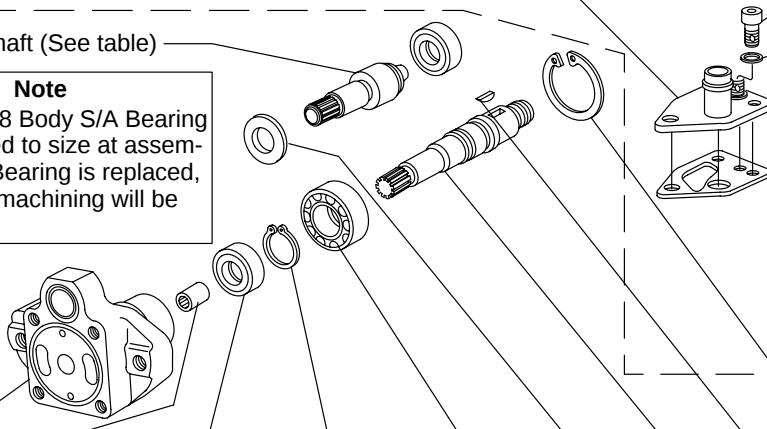
Manifold Parts

Model	Manifold Kit	Manifold S/A	Plug	Screw (3) Torque to 90-100 lb. in.	Washer	Gasket
VTM**-**-**-MA**-14	923844	280955	———	199144	28931	275260
VTM**-**-**-MB**-14	923845	280954				
VTM**-**-**-MD**-14	923846	281409				
VTM**-**-**-ME**-14	923847	275276	7075	315939		
VTM**-**-**-MF**-14	———					
VTM**-**-**-MG**-14						
VTM**-**-**-MH**-14		293026				
VTM**-**-**-MJ**-14		292457	———	315939		292458
VTM**-**-**-MR**-14	344082	344086				
VTM**-**-**-MS**-14	413689	199144		275260		
VTM**-**-**-NO**-14	———	———	———	———	———	283556

VTM 28 Shaft (See table)

Note

The VTM28 Body S/A Bearing is machined to size at assembly. If the Bearing is replaced, additional machining will be necessary.



- MA** - No Bypass Tube
- MB** - With Bypass Tube
- MD** - 90° Bend on Inlet Tube
- ME** - Casting W/Out Bypass Tube
- MF** - Casting with Bypass Tube
- MG** - No Bypass Swivel Coupling
- MH** - 90° Bend on Inlet Tube
- MJ** - Casting w/Out Bypass Tube
- MR** - 90° Bend on Inlet & Bypass Tube
- MS** - 90° Bend on Inlet Tube
- NO** - No Manifold

Body S/A Kit (Includes Ball & Bearing)	Bearing	Shaft Seal	Retaining Ring	Bearing	Washer	#1 Shaft	Key	Retaining Ring	Model
923951	222440	▲ 263585	193732	148423	—	250455	1606	172376	VTM27/42 Series
308048	184408	△ 188323	—	—	307569	307597	—	—	VTM28 Series

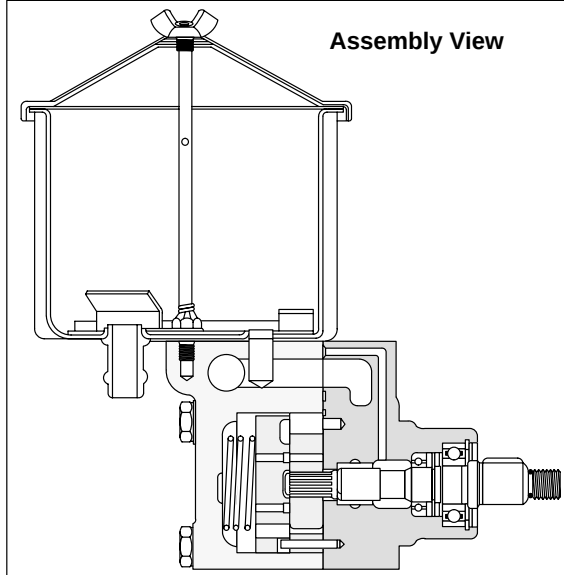
Spring	Pressure Plate	Pin (2 req'd)	Ring	Vane Kit (10 Vanes)	Rotor	Cartridge Kit	Model Designation
289281	276396	217308	296594	912139	213860	923087	VTM**-10**-**-**-14
			296595			923088	VTM**-15**-**-**-14
			296596			923089	VTM**-20**-**-**-14
245507		154364	296597	922594	213859	923090	VTM**-40**-**-**-14
			296598			923091	VTM**-50**-**-**-14
			296599			923092	VTM**-60**-**-**-14

△ Included in 923086 VTM28 Seal Kit

▲ Included in VTM27 & VTM42 Seal Kit 922904

See Overhaul Manual M-2050-S for maintenance information.

Assembly View



Model Code

VT M ** - ** - ** - ** - (F) (S) ** - *1 - 14 - S**

1 2 3 4 5 6 7 8 9 10 11 12

1 Vane Type

2 Mobil Application

Series

27
28
42

3 Capacity

10 - 1.0 US GPM
15 - 1.5 US GPM
20 - 2.0 US GPM
40 - 4.0 US GPM
50 - 5.0 US GPM
60 - 6.0 US GPM

**4 Controlled Flow
(1500 RPM @ 100 PSI)**

07 - 0.7 US GPM
15 - 1.5 US GPM
20 - 2.0 US GPM
25 - 2.5 US GPM
30 - 3.0 US GPM
35 - 3.5 US GPM
40 - 4.0 US GPM
45 - 4.5 US GPM
50 - 5.0 US GPM
55 - 5.5 US GPM
60 - 6.0 US GPM
65 - 6.5 US GPM
75 - 7.5 US GPM

5 Relief Valve Setting

02 - 250 PSI
03 - 300 PSI
05 - 500 PSI
07 - 750 PSI
08 - 850 PSI
10 - 1000 PSI
12 - 1250 PSI
15 - 1500 PSI
17 - 1750 PSI
20 - 2000 PSI
35 - 3500 PSI

6 Filter Parts

7 Inlet Screen

8 Reservoir or Manifold

07 - 70 Cu. In. Reservoir
11 - 115 Cu. In. Reservoir
MA - Manifold with no bypass tube
MB - Manifold with bypass tube
MD - Manifold - 90° bend on inlet tube
ME - Cast manifold with no bypass tube
MF - Cast manifold with bypass tube
MG - Manifold - no bypass swivel coupling
MH - Manifold - 90° bend on inlet tube
MJ - Cast manifold with no bypass tube
MR - Manifold - 90° bend on inlet and bypass tube
MS - Manifold - 90° bend on inlet tube
NO - Shipping closure

9 Pump Rotation
(Viewed from Shaft End)

R - Clockwise
L - Counterclockwise

10 Shaft No. 1

11 Design

12 Special Features

For satisfactory service life of these components in industrial applications, use full flow filtration to provide fluid which meets ISO cleanliness code 18/15 or cleaner. Selections from Eaton OFP, OFR, and OFRS series are recommended.