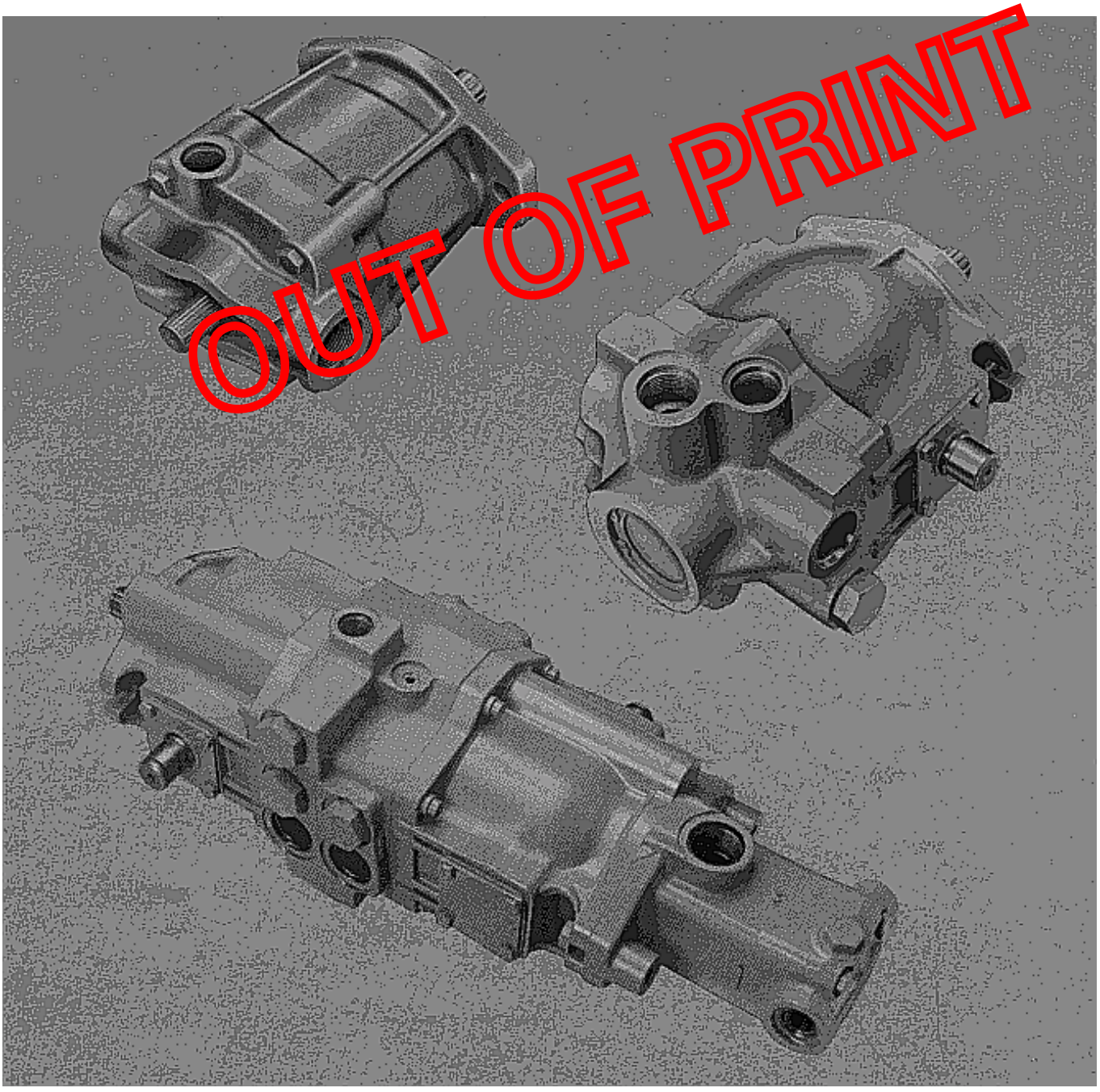
VICKERS®

Transmissions

19 Series Hydrostatic Vehicle Transmissions



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Features, Benefits and Specifications

System Components

The split-system configuration of Vickers 19 Series transmissions provides optimum application and installation freedom for the vehicle designer. The variable displacement, axial piston transmission pump is available as a single unit, or as a double unit designed for use with two independent motors.

The single pump is furnished with an integral supercharge pump, or with a tandem-mounted single or double vane pump which provides high pressure for the vehicle hydraulic system and also supercharges the hydrostatic transmission. The double transmission pump has a tandem-mounted single or double vane pump for these functions.

The piston pump's control shaft position determines the rate and direction of flow to the axial piston motor (fixed or variable displacement), which in turn determines the speed and direction of the motor's output shaft. Displacement of the variable motor is lever or pilot pressure controlled; reducing displacement proportionally increases speed and reduces torque. Minimum stroke of the variable motor is preset by Vickers to fit each application.

Closed-loop replenishing check valves and a supercharge relief valve are built into the transmission pumps. Integral cross-port high pressure relief valves are also included when required. The only components needed to complete the transmission system are a reservoir, filter, heat exchanger and connecting lines. If an auxiliary vane pump is used, depending on its application, an external pressure relief valve may be required for pump protection.

Auxiliary Pump Options

Auxiliary vane pumps (single or double) can be provided with a cover containing either a flow control or priority valve, and a relief valve to protect the pump. From total vane pump delivery, the priority or flow control valve directs a controlled, essentially constant volume of fluid to the auxiliary circuit. From the auxiliary circuit, this flow goes to the supercharge circuit. Delivery in excess of the controlled flow goes directly to the supercharge circuit.

When the relief valve in the priority valve cover opens, controlled flow is diverted to tank. Excess delivery continues directly to the supercharge circuit. When the relief valve in the flow control cover opens, all pump delivery goes to the supercharge circuit. controlled flow rates and relief valve settings are shown in model codes on following pages.

The single auxiliary pump on the TA1919 double transmission pump is available with a flow divider valve in its cover for auxiliary circuits employing single acting cylinders. The valve directs a fixed percentage of pump delivery to the auxiliary circuit. From the auxiliary circuit, this flow goes to the supercharge circuit. The balance of vane pump delivery is continuously directed to the supercharge circuit.

Circuit diagrams of the various main and auxiliary pump combinations are shown on following pages.

Low-Cost, Simplified Installation

The packaging of multiple pumps in a single assembly requiring only one mounting and drive point, e.t. TA19V10 and TA1919V10, greatly reduces the cost of the total vehicle hydraulic installation. In dual path vehicles, for example, the TA1919 double transmission pump eliminates the need for a splitter gear box to distribute engine power to the two transmission pumps. To further facilitate installation, pump and motor controls can be specified for either side of the unit, and auxiliary pump ports can be located in various positions.

Convenient, Easy Control

The vehicle operator can use a single lever to control speed, dynamic braking and reversing. There are no gears to shift, and speed is directly proportional to lever position. Slowing or stopping is not required to change speed or reverse vehicle direction.

Optimum Torque/Speed Ratios

Infinitely variable output speed in forward and reverse, with smooth, stepless acceleration and deceleration throughout the speed range, provides optimum torque/speed ratios. Selected speeds hold essentially constant regardless of vehicle attitude or load, and vehicle traction is maximized on any terrain.

Integral Overload Protection

When required, main relief valves can be included in the transmission pump to limit loading of mechanical and hydraulic members in the power train. Engine overloads can be prevented by controlling pump displacement.

Split-System Configuration

Vickers pumps and motors can be interconnected to form a complete variable speed, reversible hydrostatic transmission, or they can be used separately for a variety of applications.

Specifications

Theo. Max. Displacement
- Pumps, MFE19, MVE19 Motors . . . . . 2.5 cu. in./rev.
- MFE15 Motor . . . . . 2.0 cu. in./rev.

Max. Rated Input Speed . . . . . 3600 rpm*

Max. Rated Output Speed
- Fixed Motor . . . . . 3600 rpm
- Variable Motor – full displacement . . . . . 3600 rpm
  – partial displacement . . . . . 4000 rpm

Max. Intermittent Pressure . . . . . 5000 psi

Max. Continuous Pressure . . . . . 3000 psi

Rated Horsepower . . . . . 22.5 hp per 1000 rpm

Fluid . . . . . Per Fluid Recommendation Sheet M-2950-S

Filtration . . . . . 10 Micron Nominal, 25 Micron Absolute, or Better

*Less than 3600 rpm for units incorporating auxiliary pump. Maximum input speed is limited to maximum vane pump speed shown on installation drawings on following pages.

TA19 Pump

Model Code

TA19 R – 2 A R – 21

1 2 3 4 5 6

1 Transmission Pump
Rated at 72 l/min (19 USgpm) at 1800 rpm

2 Shaft Rotation Viewed From Shaft End
R – Right hand (clockwise)
L – Left hand (counterclockwise)

3 Input Shaft
2 – SAE B-B splined

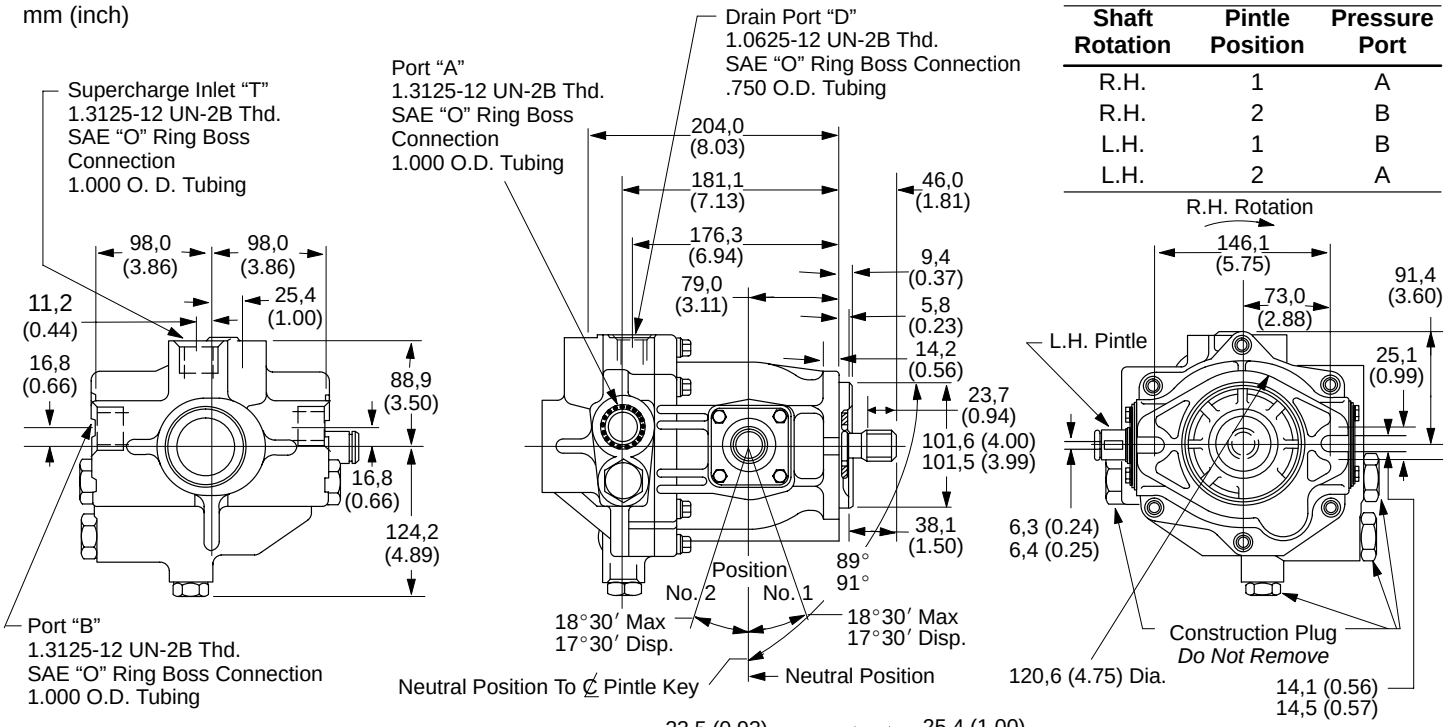
4 Control Pintle Location Viewed From Shaft End With Drain Port Up
A – Right hand side
B – Left hand side

5 Main Relief Valve
R – Relief valve
O – No relief valve

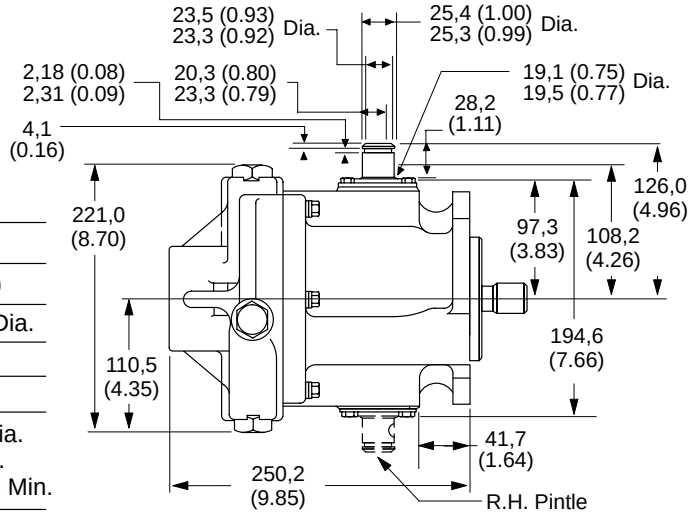
6 Design Number

Dimensions & Circuit Diagram

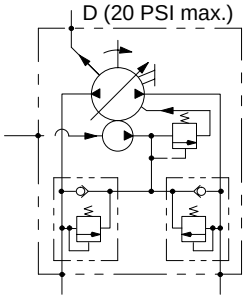
mm (inch)



Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A
R.H.	2	B
L.H.	1	B
L.H.	2	A



SAE B-B Splined Shaft		
External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.



TA 19 Circuit Diagram

TA19V10 Pump

Model Code

TA19 V10 F L – 2 A R – 07 A D 6 H 21

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Transmission Pump
Rated at 72 l/min (19 USgpm) at 1800 rpm

2 Auxiliary Vane Pump

3 Vane Pump Cover Option (Omit if not required)
F – Flow control
P – Priority flow

4 Rotation Viewed From Shaft End
R – Right hand (clockwise)
L – Left hand (counterclockwise)

5 Input Shaft
2 – SAE B-B splined

6 Control Pintle Location Viewed From Shaft End With Drain Port Up
A – Right hand side
B – Left hand side

7 Main Relief Valve
R – Relief valve
O – No relief valve

8 Vane Pump Ring Capacity at 1200 rpm
04 – 15 l/min (4 USgpm)
05 – 18 l/min (5 USgpm)
06 – 22 l/min (6 USgpm)
07 – 26 l/min (7 USgpm)

9 Vane Pump Inlet Position Viewed From Cover End
A – 45°F counterclockwise from case drain
C – 135°F clockwise from case drain

10 Position of Vane Pump Outlet, or Primary Outlet, Viewed From Cover End
A – Opposite inlet
B – 90°F counterclockwise from inlet
C – In line with inlet
D – 90°F clockwise from inlet

11 Flow Rate Through Orifice In "F" Cover
2, 3, 4, 5, 6, 7 or 8 USgpm

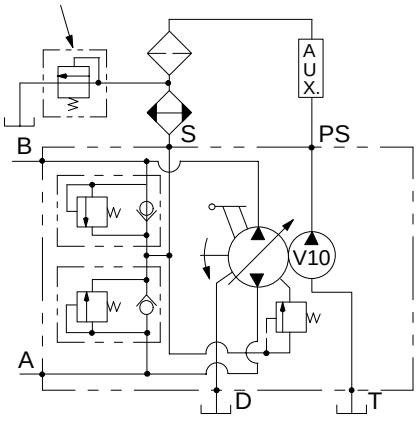
Flow Rate Through Orifice In "P" Cover
1, 2, 3, 4 or 6 USgpm

12 Vane Pump Relief Valve Setting, "F" & "P" Cover
A – 17 bar (250 psi)
B – 35 bar (500 psi)
C – 51 bar (750 psi)
D – 70 bar (1000 psi)
E – 86 bar (1250 psi)
F – 100 bar (1500 psi)
G – 120 bar (1750 psi)
H – 140 bar (2000 psi)
J – 155 bar (2250 psi)
K – 175 bar (2500 psi)

13 Design Number

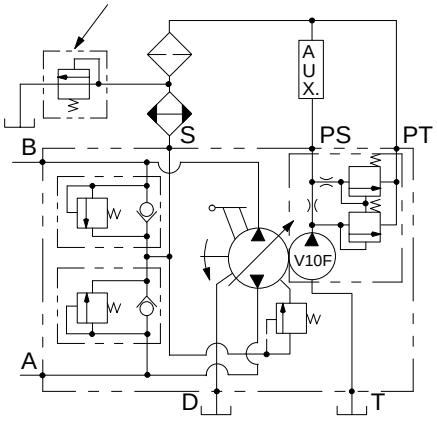
Circuit Diagrams

May be required if surge in aux. circuit flow can occur



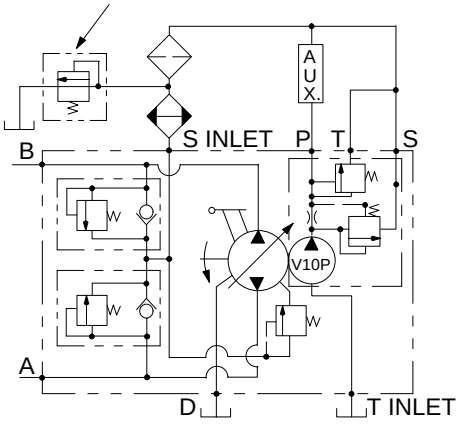
TA19V10 with Main Relief Valves

May be required if surge in aux. circuit flow can occur



TA19V10F with Main Relief Valves

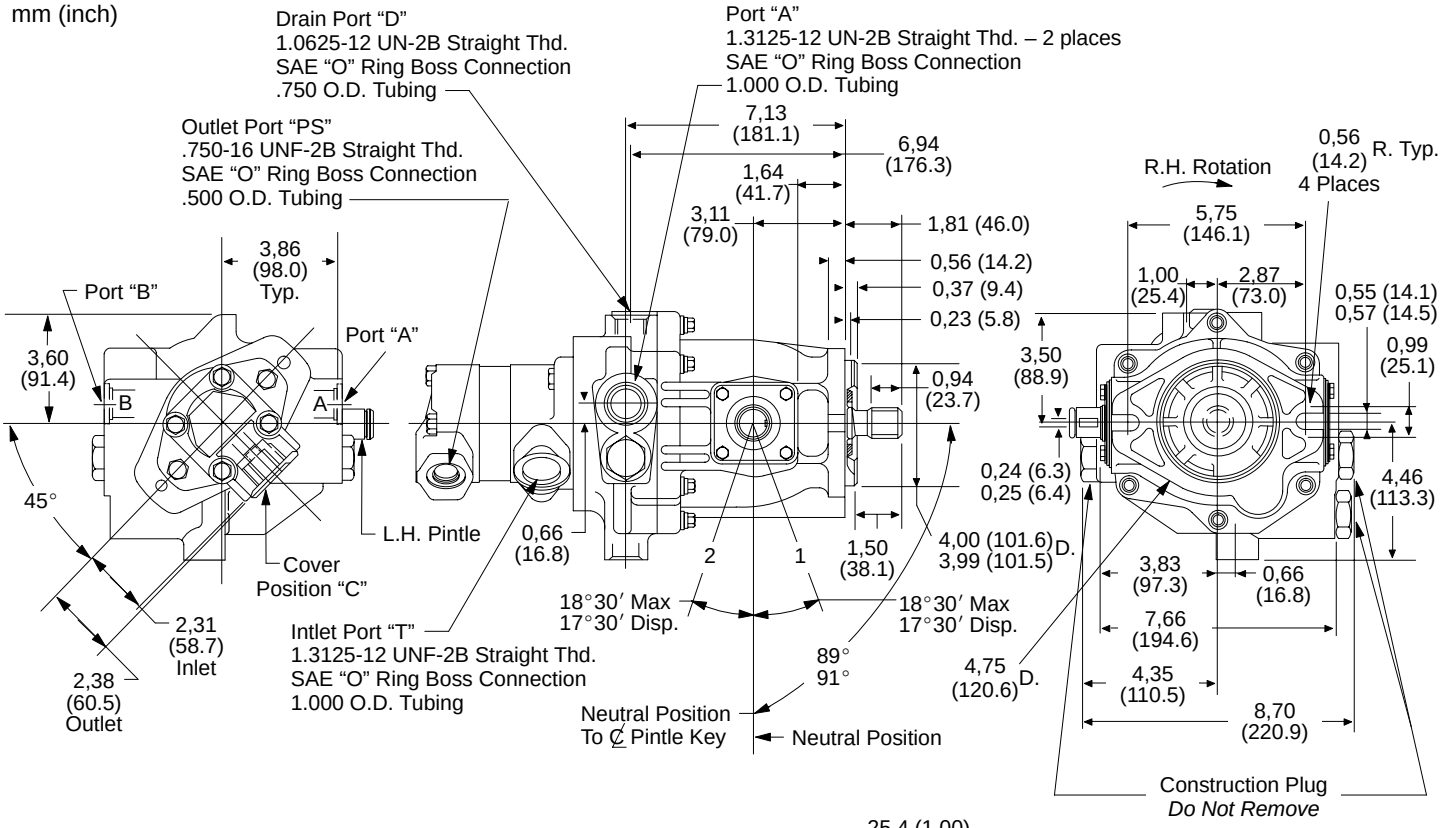
May be required if surge in aux. circuit flow can occur

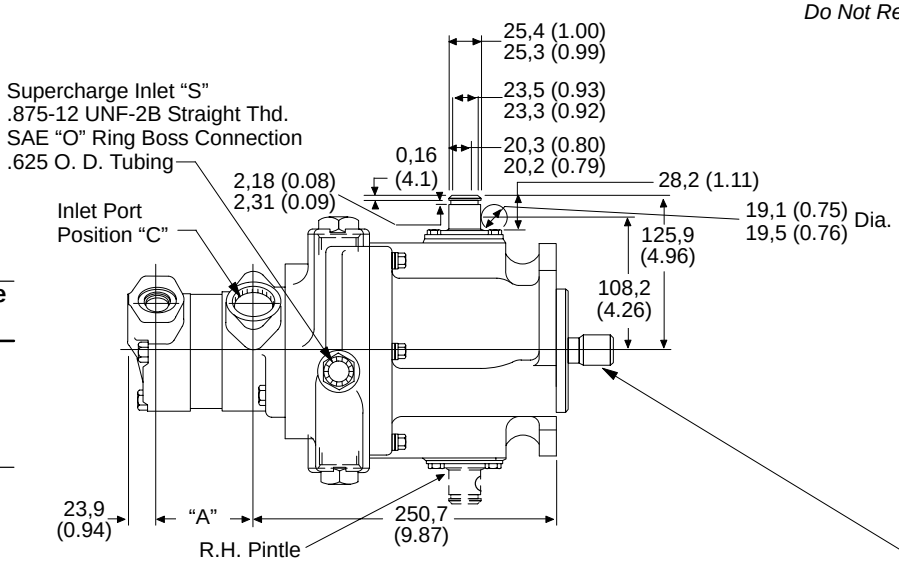


TA19V10P with Main Relief Valves

Dimensions

mm (inch)





Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A
R.H.	2	B
L.H.	1	B
L.H.	2	A

V10 Auxiliary Pump Data

Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
4	3400	2500	73,4 (2.89)
5	3200	2500	73,4 (2.89)
6	3000	2200	78,5 (3.09)
7	2800	2000	78,5 (3.09)

*At 1200 RPM & 100 PSI

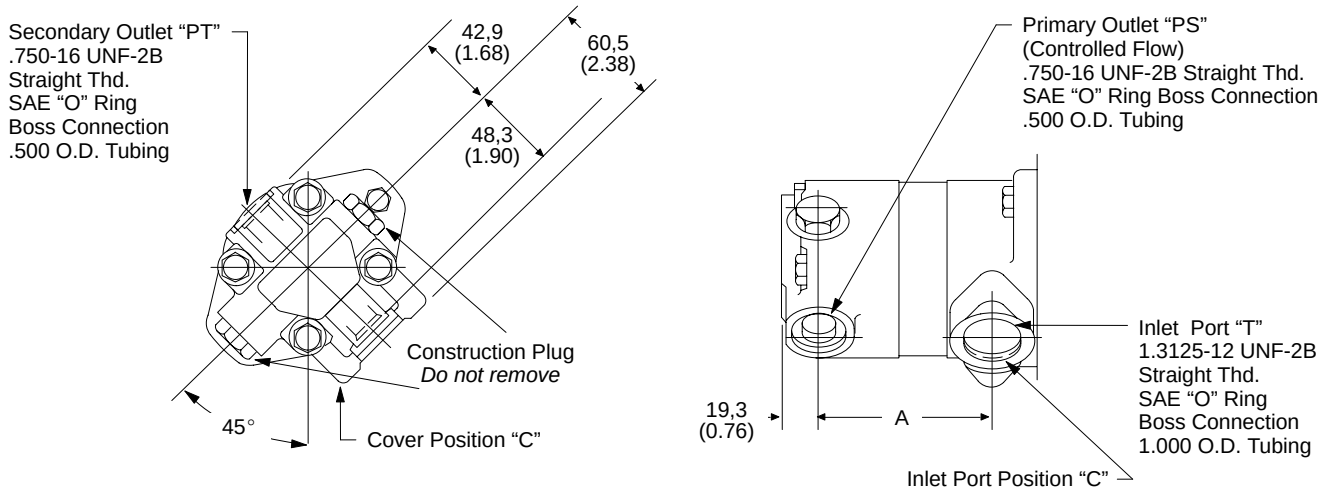
SAE B-B Splined Shaft

External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.

TA19V10 Pump

Optional V10F Auxiliary Pump

mm (inch)

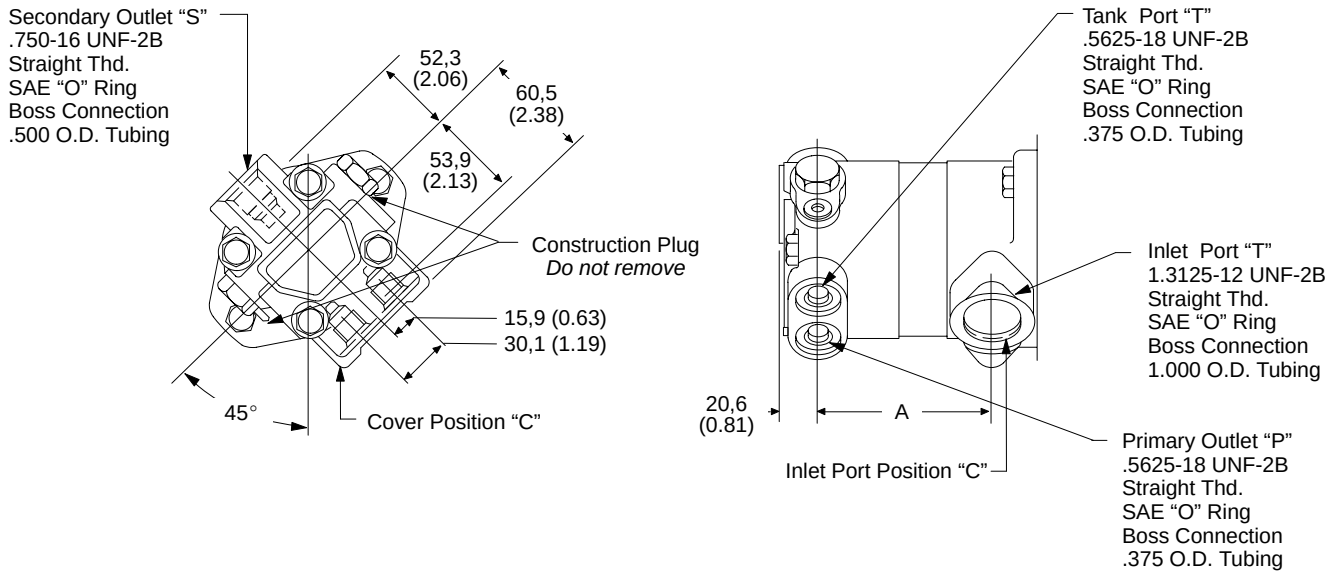


Ring Size GPM*	Max. RPM	Max. PSI	“A” Dimension
4	3400	2500	91,2 (3.59)
5	3200	2500	91,2 (3.59)
6	3000	2200	96,3 (3.79)
7	2800	2000	96,3 (3.79)

*At 1200 RPM & 100 PSI

Optional V10P Auxiliary Pump

mm (inch)



TA19V20 Pump

Model Code

TA19 V20 F L – 2 A R – 07 A D 6 H 21

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Transmission Pump
Rated at 72 l/min (19 USgpm) at 1800 rpm

2 Auxiliary Vane Pump

3 Vane Pump Cover Option (Omit if not required)
F – Flow control
P – Priority flow

4 Rotation Viewed From Shaft End
R – Right hand (clockwise)
L – Left hand (counterclockwise)

5 Input Shaft
2 – SAE B-B splined

6 Control Pintle Location Viewed From Shaft End With Drain Port Up
A – Right hand side
B – Left hand side

7 Main Relief Valve
R – Relief valve
O – No relief valve

8 Vane Pump Ring Capacity at 1200 rpm
07 – 26 l/min (7 USgpm)
08 – 30 l/min (8 USgpm)
09 – 34 l/min (9 USgpm)
10 – 37 l/min (10 USgpm)
11 – 41 l/min (11 USgpm)
12 – 45 l/min (12 USgpm)
13 – 49 l/min (13 USgpm)

9 Vane Pump Inlet Position Viewed From Cover End
A – 45°F counterclockwise from case drain
C – 135°F clockwise from case drain

10 Position of Vane Pump Outlet, or Primary Outlet, Viewed From Cover End
A – Opposite inlet
B – 90°F counterclockwise from inlet
C – In line with inlet
D – 90°F clockwise from inlet

11 Flow Rate Through Orifice In "F" Cover
2, 4, 6, 8 or 10 USgpm

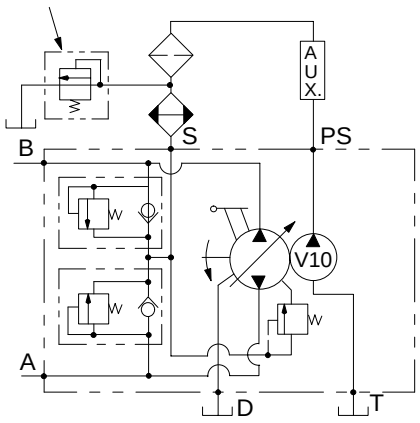
Flow Rate Through Orifice In "P" Cover
2, 2.5, 3, 4, 6 or 8 USgpm

12 Vane Pump Relief Valve Setting, "F" & "P" Cover
A – 17 bar (250 psi) } "P" cover only
B – 35 bar (500 psi) }
C – 51 bar (750 psi)
D – 70 bar (1000 psi)
E – 86 bar (1250 psi)
F – 100 bar (1500 psi)
G – 120 bar (1750 psi)
H – 140 bar (2000 psi)
J – 155 bar (2250 psi)
K – 175 bar (2500 psi)

13 Design Number

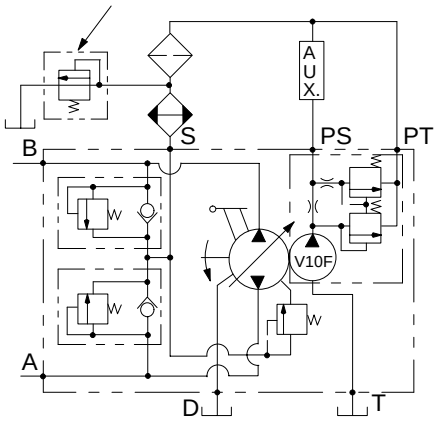
Circuit Diagrams

May be required if surge in aux. circuit flow can occur



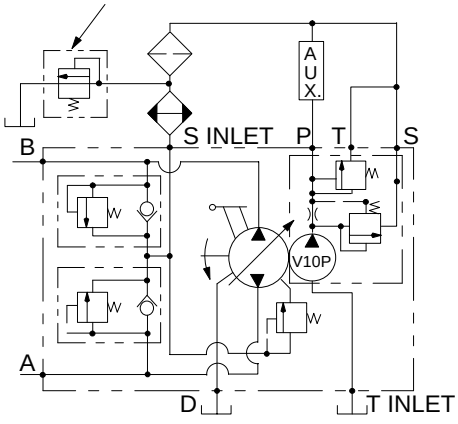
TA19V20 with Main Relief Valves

May be required if surge in aux. circuit flow can occur



TA19V20F with Main Relief Valves

May be required if surge in aux. circuit flow can occur

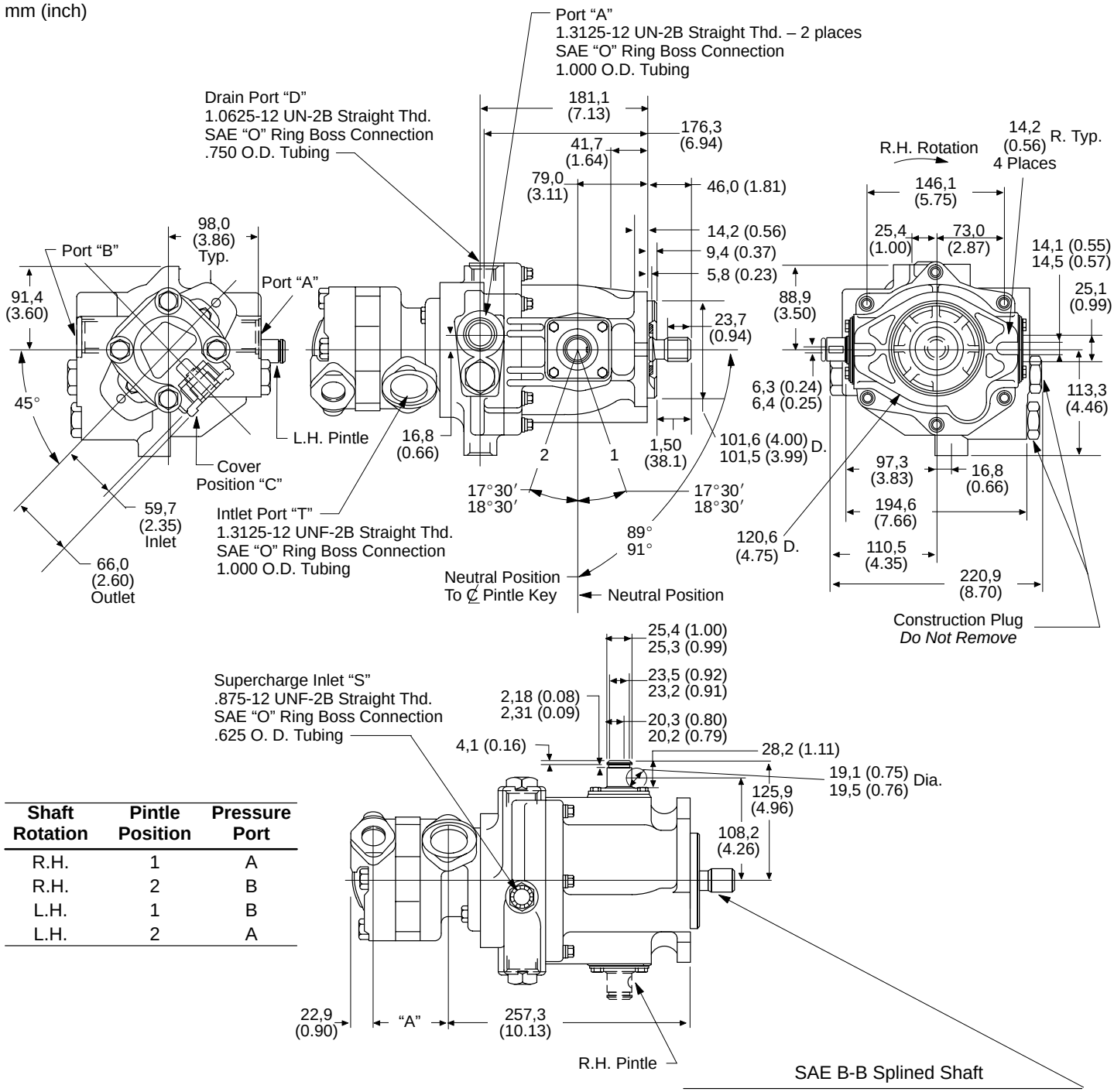


TA19V20P with Main Relief Valves

TA19V20 Pump

Dimensions

mm (inch)



Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A
R.H.	2	B
L.H.	1	B
L.H.	2	A

V20 Auxiliary Pump Data

Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
7	3000	2500	77,5 (3.05)
8 & 9	2800	2500	77,5 (3.05)
10 & 11	2500	2500	82,6 (3.25)
12 & 13	2400	2200	86,1 (3.39)

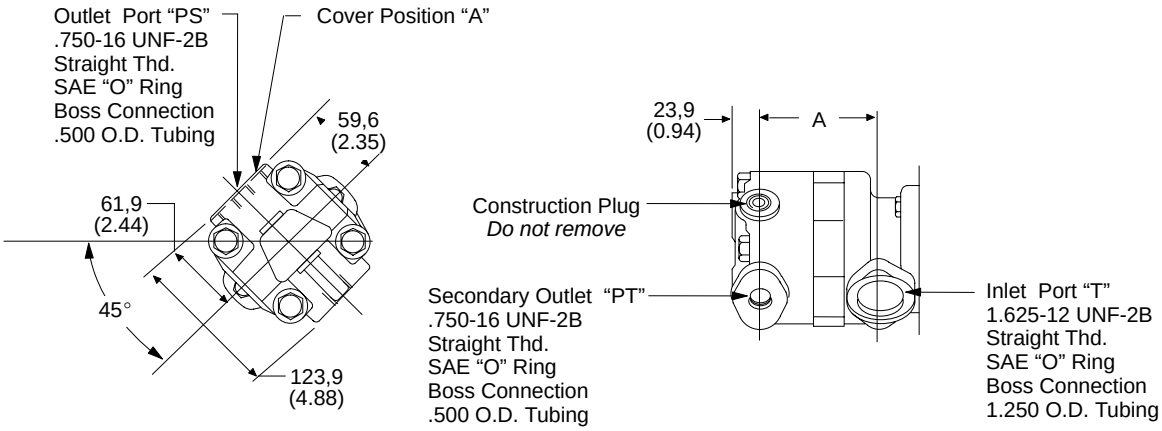
*At 1200 RPM & 100 PSI

SAE B-B Splined Shaft

External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.

Optional V20F Auxiliary Pump

mm (inch)

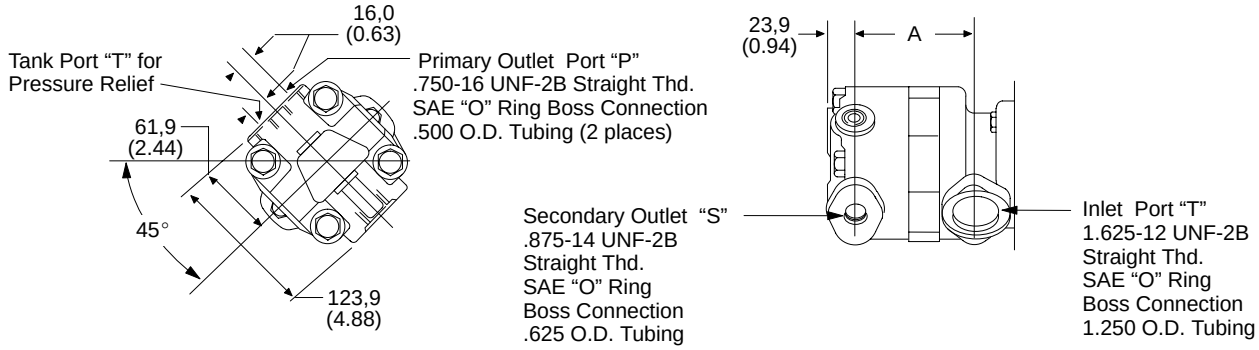


Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
7	3000	2500	100,8 (3.97)
8 & 9	2800	2500	100,8 (3.97)
10 & 11	2500	2500	105,9 (4.17)
12 & 13	2400	2200	109,5 (4.31)

*At 1200 RPM & 100 PSI

Optional V20P Auxiliary Pump

mm (inch)



TA19V2010 Pump

Model Code

TA19 V2010 F L – 2 A R – 11 – 05 C B D 6 H 21

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

1 Transmission Pump
Rated at 72 l/min (19 USgpm) at 1800 rpm

2 Double Auxiliary Vane Pump

3 Vane Pump Cover Option (Omit if not required)
F – Flow control
P – Priority flow

4 Rotation Viewed From Shaft End
R – Right hand (clockwise)
L – Left hand (counterclockwise)

5 Input Shaft
2 – SAE B-B splined

6 Control Pintle Location Viewed From Shaft End With Drain Port Up
A – Right hand side
B – Left hand side

7 Main Relief Valve
R – Relief valve
O – No relief valve

8 Ring Capacity at 1200 rpm (Shaft End Vane Pump)
07 – 26 l/min (7 USgpm)
08 – 30 l/min (8 USgpm)
09 – 34 l/min (9 USgpm)
11 – 41 l/min (11 USgpm)
12 – 45 l/min (12 USgpm)
13 – 49 l/min (13 USgpm)

9 Ring Capacity at 1200 rpm (Cover End Vane Pump)
04 – 15 l/min (4 USgpm)
05 – 18 l/min (5 USgpm)
06 – 22 l/min (6 USgpm)
07 – 26 l/min (7 USgpm)

10 Vane Pump No. 1 Outlet Position Viewed From Cover End
A – 45°F counterclockwise from case drain
C – 135°F clockwise from case drain

11 Vane Pump Inlet Position Viewed From Cover End
A – Opposite no. 1 outlet
B – 90°F counterclockwise from no.1 outlet
C – In line with no. 1 outlet
D – 90°F clockwise from no. 1 outlet

12 Position of Vane Pump Outlet No. 2 or Primary Outlet, Viewed From Cover End
A – 135° counterclockwise from inlet
B – 45° counterclockwise from inlet
C – 45° clockwise from inlet
D – 135° clockwise from inlet

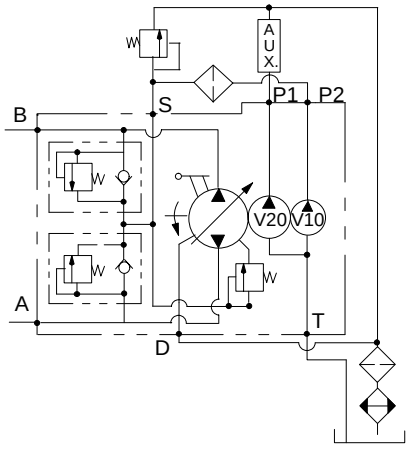
13 Flow Rate Through Orifice In "F" Cover
2, 3, 4, 5, 6, 7 or 8 USgpm

Flow Rate Through Orifice In "P" Cover
1, 2, 3, 4, 5, 6 or 7 USgpm

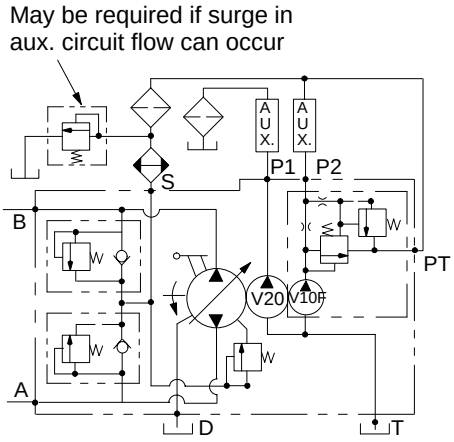
14 Vane Pump Relief Valve Setting, "F" & "P" Cover
A – 17 bar (250 psi)
B – 35 bar (500 psi)
C – 51 bar (750 psi)
D – 70 bar (1000 psi)
E – 86 bar (1250 psi)
F – 100 bar (1500 psi)
G – 120 bar (1750 psi)
H – 140 bar (2000 psi)
J – 155 bar (2250 psi)
K – 175 bar (2500 psi)

15 Design Number

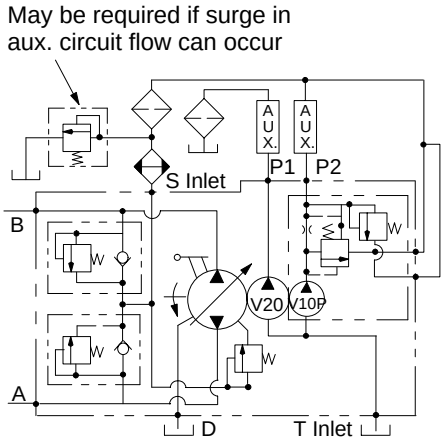
Circuit Diagrams



TA19V2010 with Main Relief Valves



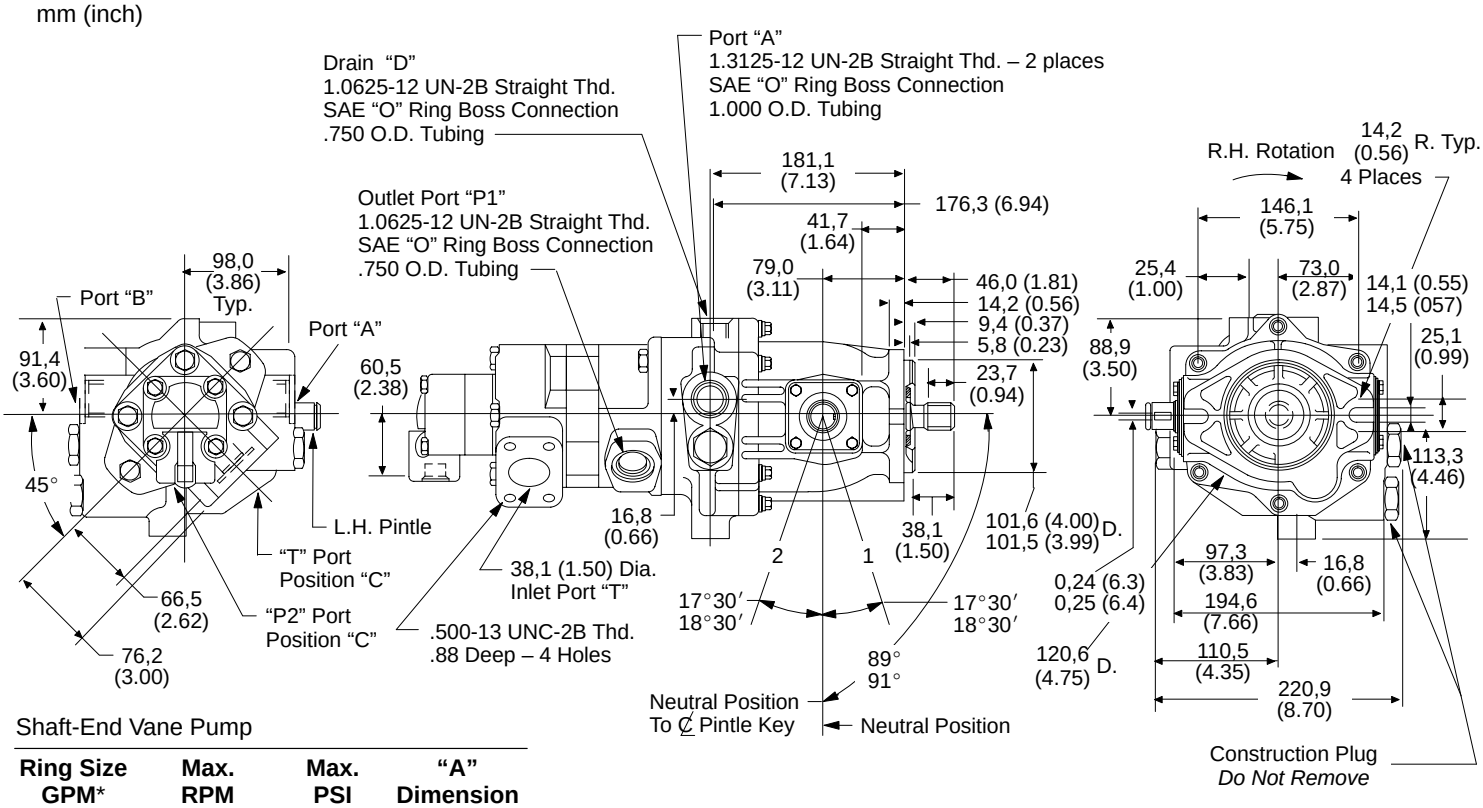
TA19V2010F with Main Relief Valves



TA19V2010P with Main Relief Valves

Dimensions

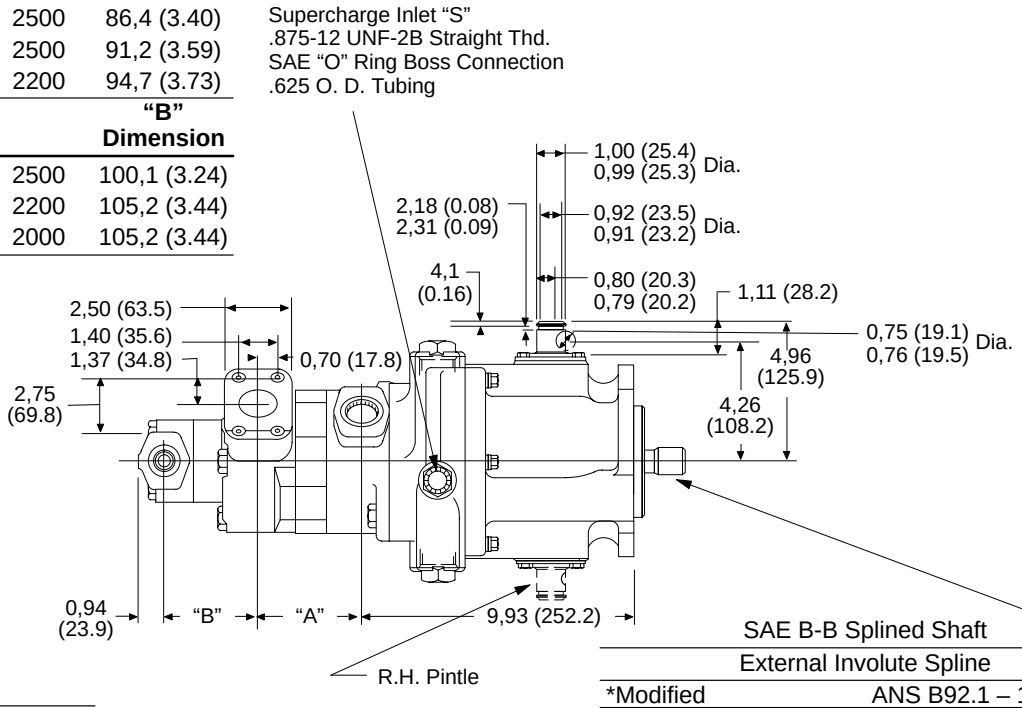
mm (inch)



Shaft-End Vane Pump

Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
7	3000	2500	86,4 (3.40)
8 & 9	2800	2500	86,4 (3.40)
11	2500	2500	91,2 (3.59)
12 & 13	2400	2200	94,7 (3.73)
Cover-End Vane Pump			"B" Dimension
4 & 5	3000	2500	100,1 (3.24)
6	3000	2200	105,2 (3.44)
7	2800	2000	105,2 (3.44)

*At 1200 RPM & 100 PSI



Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A
R.H.	2	B
L.H.	1	B
L.H.	2	A

SAE B-B Splined Shaft

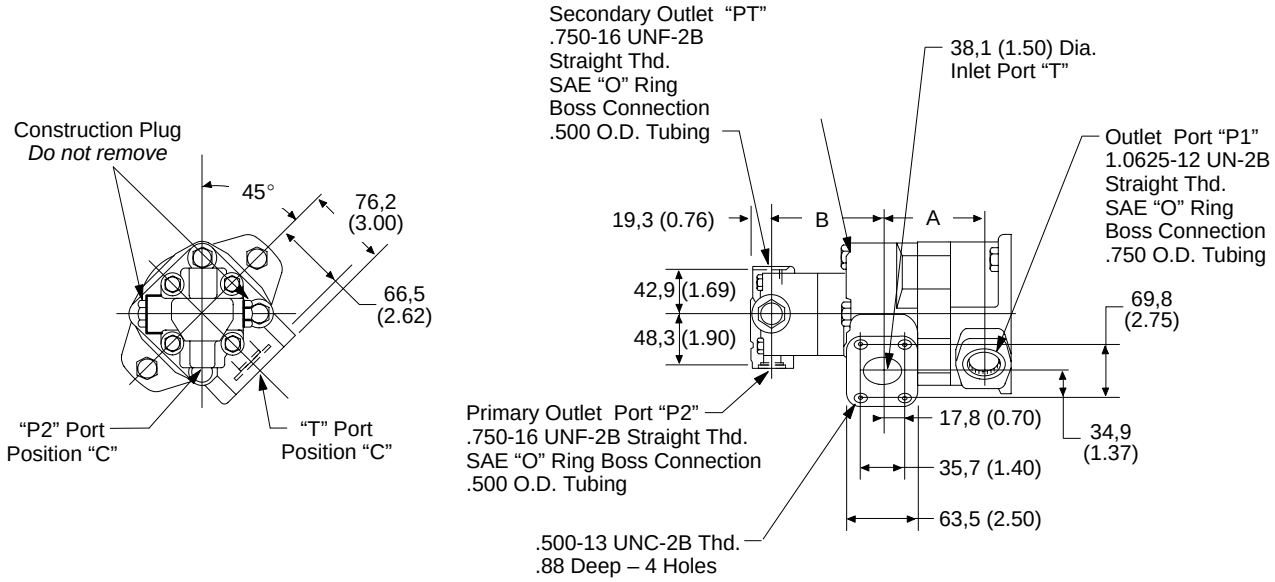
External Involute Spline	
*Modified	ANS B92.1 – 1970
0,94 (23.8) Pitch Dia.	0,81 (20.6) Base Dia.
Flat Root Class 5 Side Fit	
15 Teeth 16/32 Pitch 30° Pr. Angle	

Major	Form Dia.	Minor Dia.
*0,98 (24.9) Max. 0,97 (24.8) Min.	0,87 (22.1)	– Max. 0,84 (21.3) Min.

TA19V2010 Pump

Optional V2010F Auxiliary Pump

mm (inch)



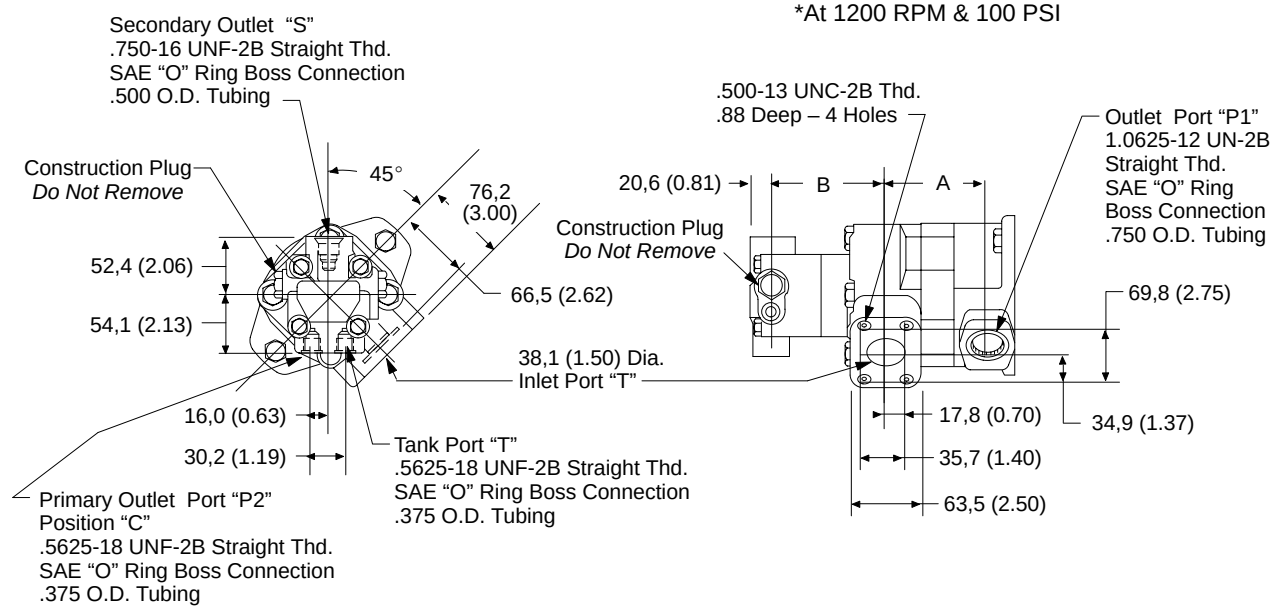
Shaft-End Vane Pump

Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
7	3000	2500	86,4 (3.40)
8 & 9	2800	2500	86,4 (3.40)
11	2500	2500	91,2 (3.59)
12 & 13	2400	2200	94,7 (3,73)
Cover-End Vane Pump			"B" Dimension
4 & 5	3000	2500	100,1 (3.94)
6	3000	2200	105,2 (4.14)
7	2800	2000	105,2 (4.14)

*At 1200 RPM & 100 PSI

Optional V2010P Auxiliary Pump

mm (inch)



TA1919V10 Pump

Model Code

TA1919 V10 F L – 2 A R – 07 A D 62 5 H 21

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1 Double Transmission Pump

Each rated at 72 l/min (19 USgpm) at 1800 rpm

2 Auxiliary Vane Pump

3 Vane Pump Cover Option (Omit if not required)

D – Flow divider
F – Flow control
P – Priority flow

4 Rotation Viewed From Shaft End

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

5 Input Shaft

2 – SAE B-B splined

6 Control Pintle Location Viewed From Shaft End With Drain Port Up

Code	Pump No. 1	Pump No. 2
A	Right hand side	Right hand side
B	Left hand side	Right hand side
C	Right hand side	Left hand side
D	Left hand side	Left hand side

7 Main Relief Valve

R – Relief valve
O – No relief valve

8 Vane Pump Ring Capacity at 1200 rpm

04 – 15 l/min (4 USgpm)
05 – 18 l/min (5 USgpm)
06 – 22 l/min (6 USgpm)
07 – 26 l/min (7 USgpm)

9 Vane Pump Inlet Position Viewed From Cover End

A – 45°F counterclockwise from case drain
C – 135°F clockwise from case drain

10 Position of Vane Pump Outlet, or Primary Outlet, Viewed From Cover End

A – Opposite inlet
B – 90°F counterclockwise from inlet
C – In line with inlet
D – 90°F clockwise from inlet

11 Percent of Secondary Flow (“D” Cover)

12 Flow Rate Through Orifice In “F” Cover

2, 3, 4, 5, 6, 7 or 8 USgpm

Flow Rate Through Orifice In “P” Cover

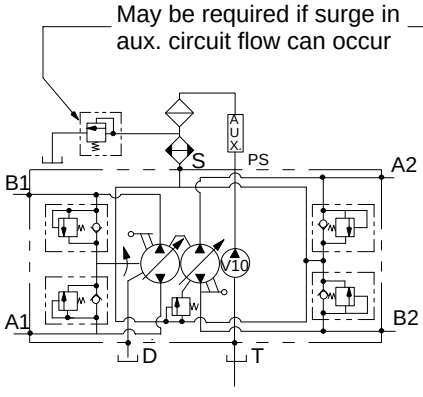
1, 2, 3, 4 or 6 USgpm

13 Vane Pump Relief Valve Setting, “F” & “P” Cover

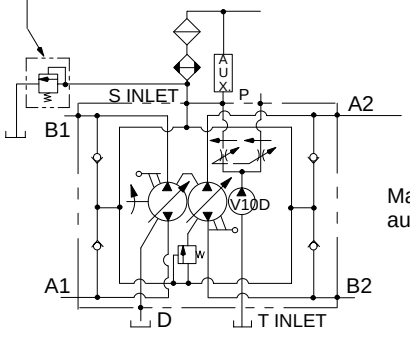
A – 17 bar (250 psi)
B – 35 bar (500 psi)
C – 51 bar (750 psi)
D – 70 bar (1000 psi)
E – 86 bar (1250 psi)
F – 100 bar (1500 psi)
G – 120 bar (1750 psi)
H – 140 bar (2000 psi)
J – 155 bar (2250 psi)
K – 175 bar (2500 psi)
O – No relief valve (“D” cover)

14 Design Number

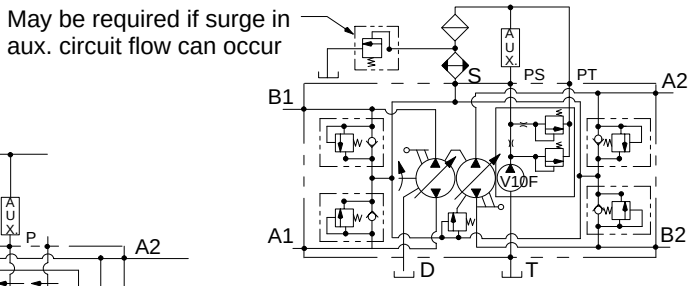
Circuit Diagrams



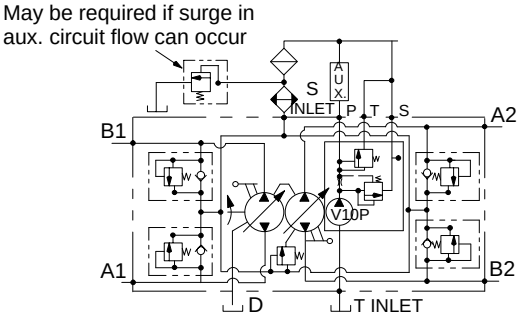
TA1919V10 with Main Relief Valves



TA1919V10F with Replenishing Valves



TA1919V10F with Main Relief Valves

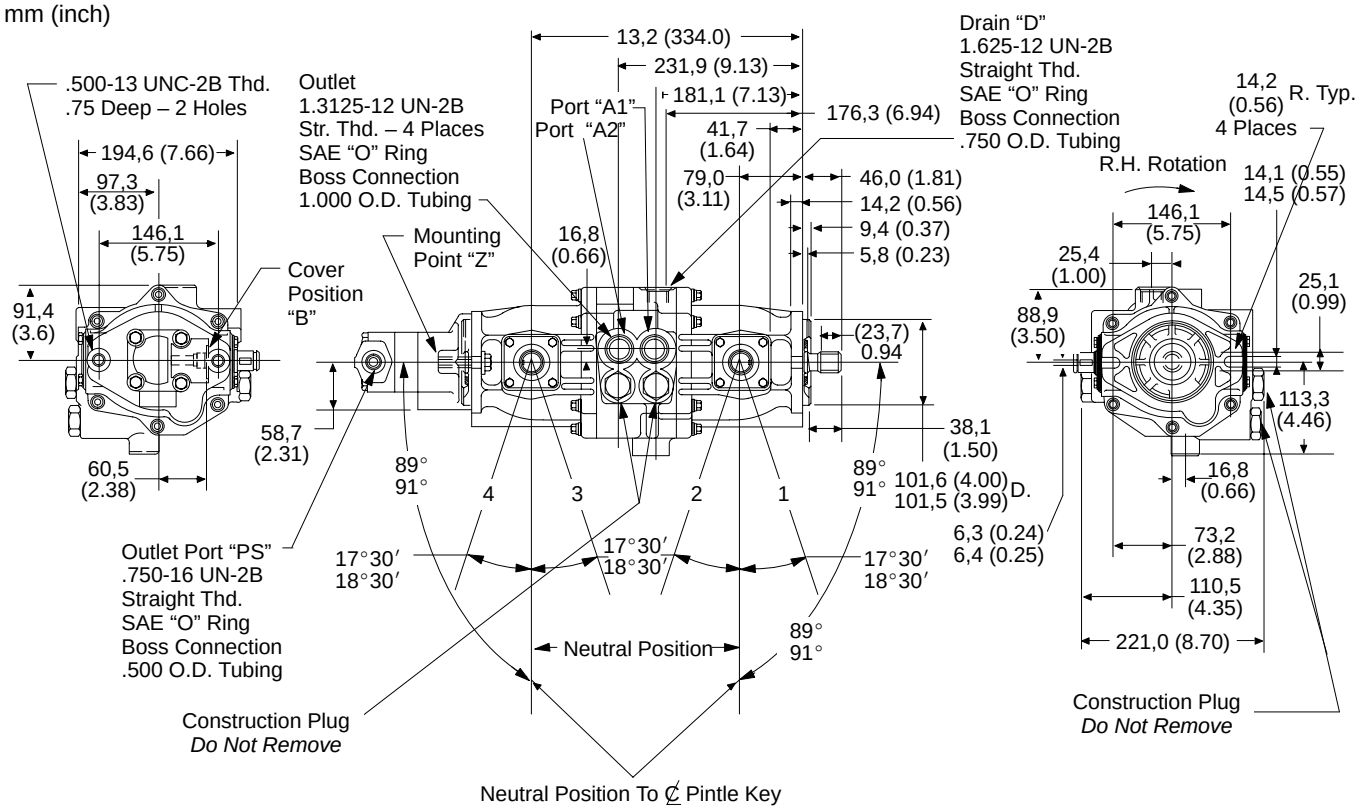


TA1919V10P with Main Relief Valves

TA1919V10 Pump

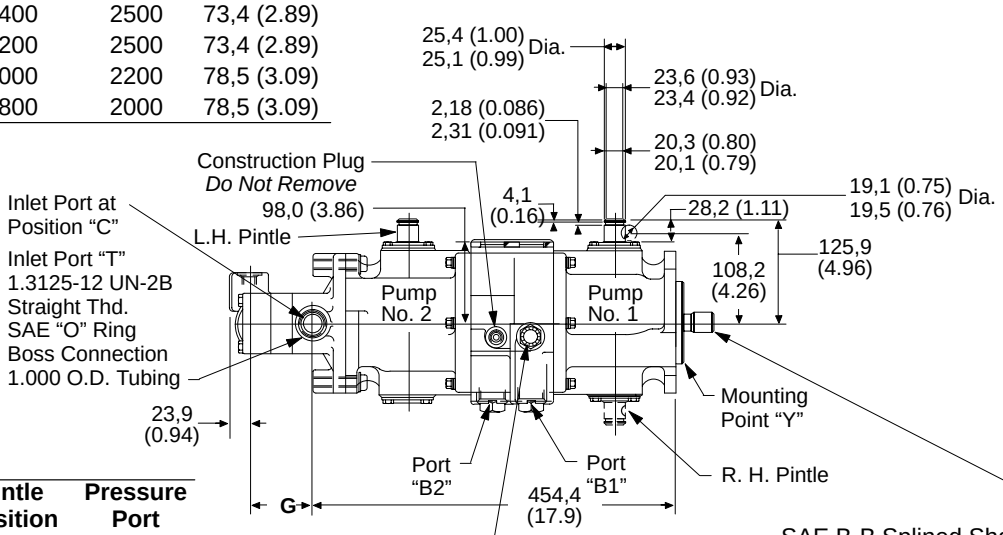
Dimensions

mm (inch)



V10 Aux. Pump Data

Ring Size GPM*	Max. RPM	Max. PSI	"G" Dimension
4	3400	2500	73,4 (2.89)
5	3200	2500	73,4 (2.89)
6	3000	2200	78,5 (3.09)
7	2800	2000	78,5 (3.09)



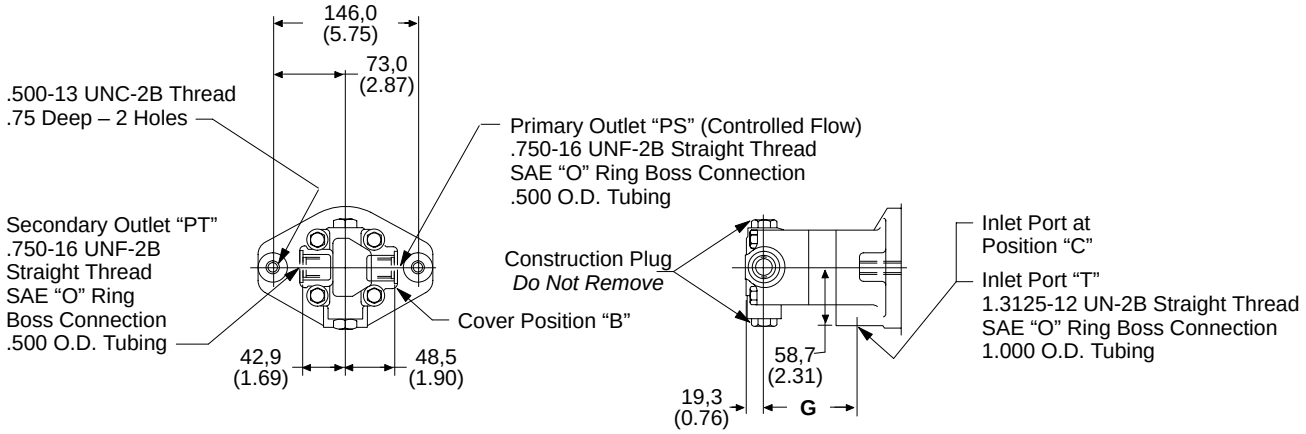
Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A1
R.H.	2	B1
R.H.	3	B2
R.H.	4	A2
L.H.	1	B1
L.H.	2	A1
L.H.	3	A2
L.H.	4	B2

Use of a secondary support of unit is required at mounting points "Y" & "Z" as shown. Outboard support to be such that external loads do not cause stress or deflection of the unit structure.

SAE B-B Splined Shaft		
External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.

Optional V10F Auxiliary Pump

mm (inch)

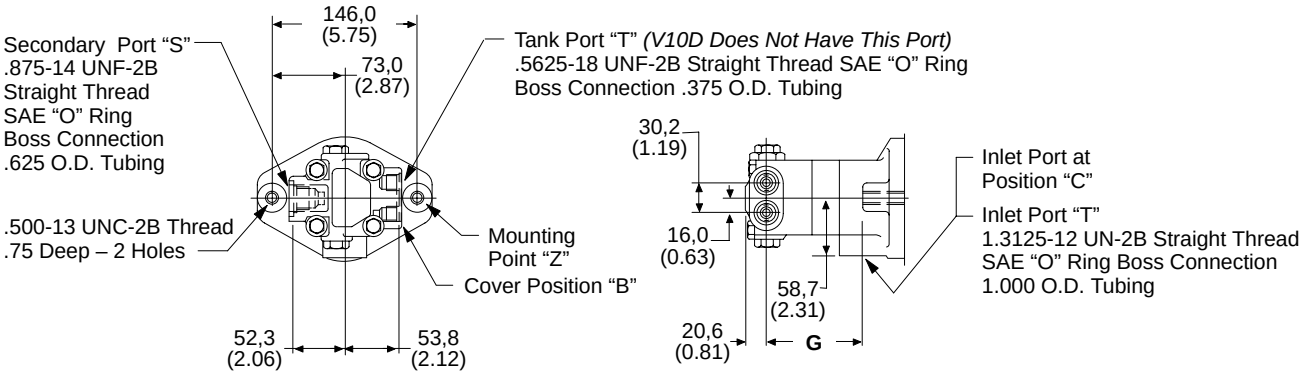


Optional V10P & V10D Auxiliary Pumps

mm (inch)

Ring Size GPM*	Max. RPM	Max. PSI	“G” Dimension
4	3400	2500	91,2 (3.59)
5	3200	2500	91,2 (3.59)
6	3000	2200	96,3 (3.79)
7	2800	2000	96,3 (3.79)

*At 1200 RPM & 100 PSI



TA1919V20 Pump

Model Code

TA1919 V20 F L – 2 A R – 07 A D 6 H 21

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Double Transmission Pump
Each rated at 72 l/min (19 USgpm) at 1800 rpm

2 Auxiliary Vane Pump

3 Vane Pump Cover Option (Omit if not required)
F – Flow control
P – Priority flow

4 Rotation Viewed From Shaft End
R – Right hand (clockwise)
L – Left hand (counterclockwise)

5 Input Shaft
2 – SAE B-B splined

6 Control Pintle Location Viewed From Shaft End With Drain Port Up

Code	Pump No. 1	Pump No. 2
A	Right hand side	Right hand side
B	Left hand side	Right hand side
C	Right hand side	Left hand side
D	Left hand side	Left hand side

7 Main Relief Valve
R – Relief valve
O – No relief valve

8 Vane Pump Ring Capacity at 1200 rpm
07 – 26 l/min (7 USgpm)
08 – 30 l/min (8 USgpm)
09 – 34 l/min (9 USgpm)
10 – 37 l/min (10 USgpm)
11 – 41 l/min (11 USgpm)
12 – 45 l/min (12 USgpm)
13 – 49 l/min (13 USgpm)

9 Vane Pump Inlet Position Viewed From Cover End
A – In line with case drain
C – 180°F opposite case drain

10 Position of Vane Pump Outlet, or Primary Outlet, Viewed From Cover End
A – Opposite inlet
B – 90°F counterclockwise from inlet
C – In line with inlet
D – 90°F clockwise from inlet

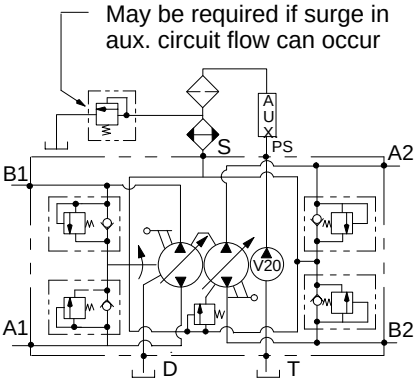
11 Flow Rate Through Orifice In "F" Cover
2, 4, 6, 8 or 10 USgpm

Flow Rate Through Orifice In "P" Cover
2, 2.5, 3, 4, 6 or 8 USgpm

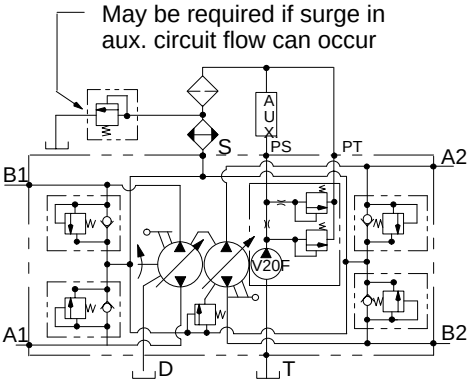
12 Vane Pump Relief Valve Setting, "F" & "P" Cover
A – 17 bar (250 psi)
B – 35 bar (500 psi)
C – 51 bar (750 psi)
D – 70 bar (1000 psi)
E – 86 bar (1250 psi)
F – 100 bar (1500 psi)
G – 120 bar (1750 psi)
H – 140 bar (2000 psi)
J – 155 bar (2250 psi)
K – 175 bar (2500 psi)

13 Design Number

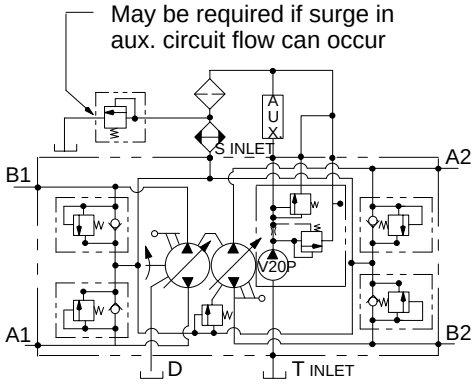
Circuit Diagrams



TA1919V20 with Main Relief Valves



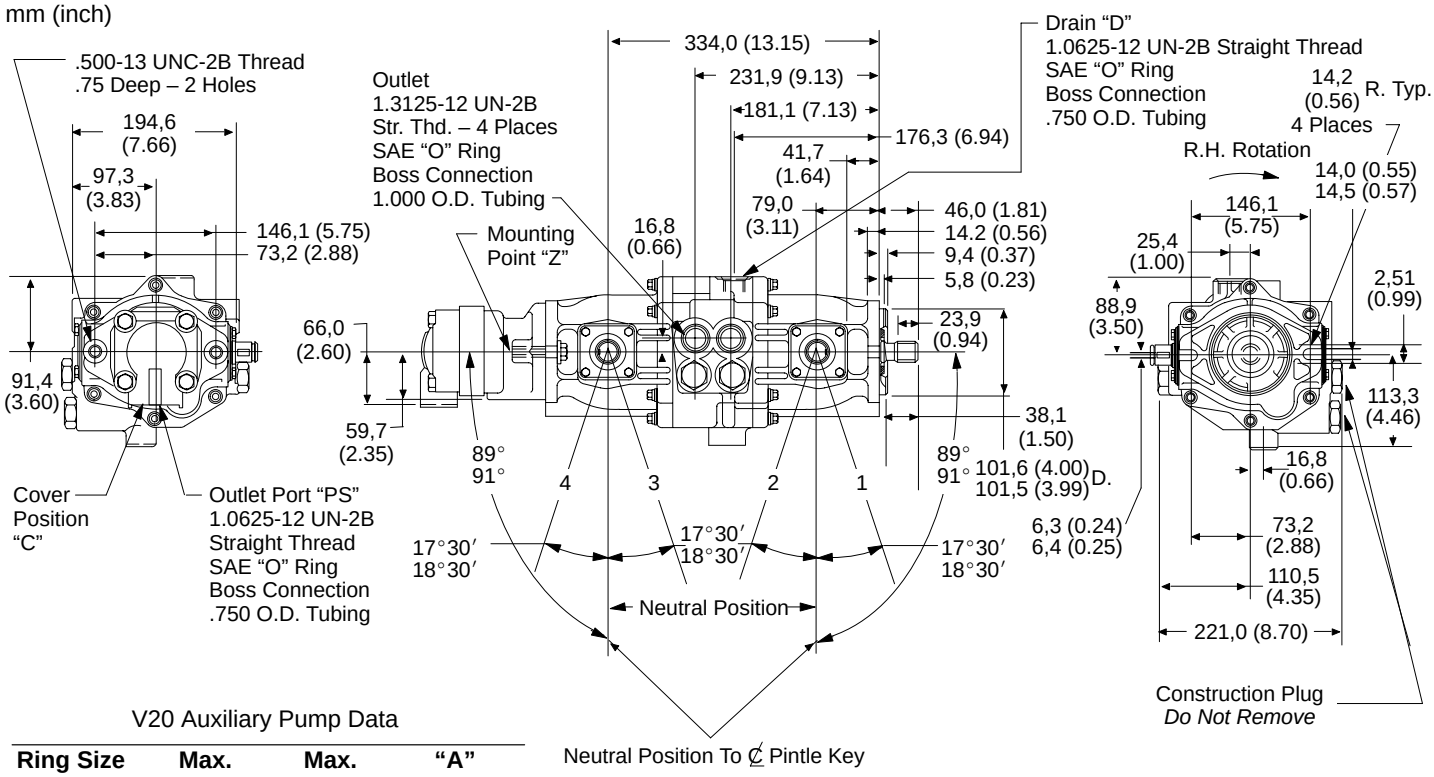
TA1919V20F with Main Relief Valves



TA1919V20P with Main Relief Valves

Dimensions

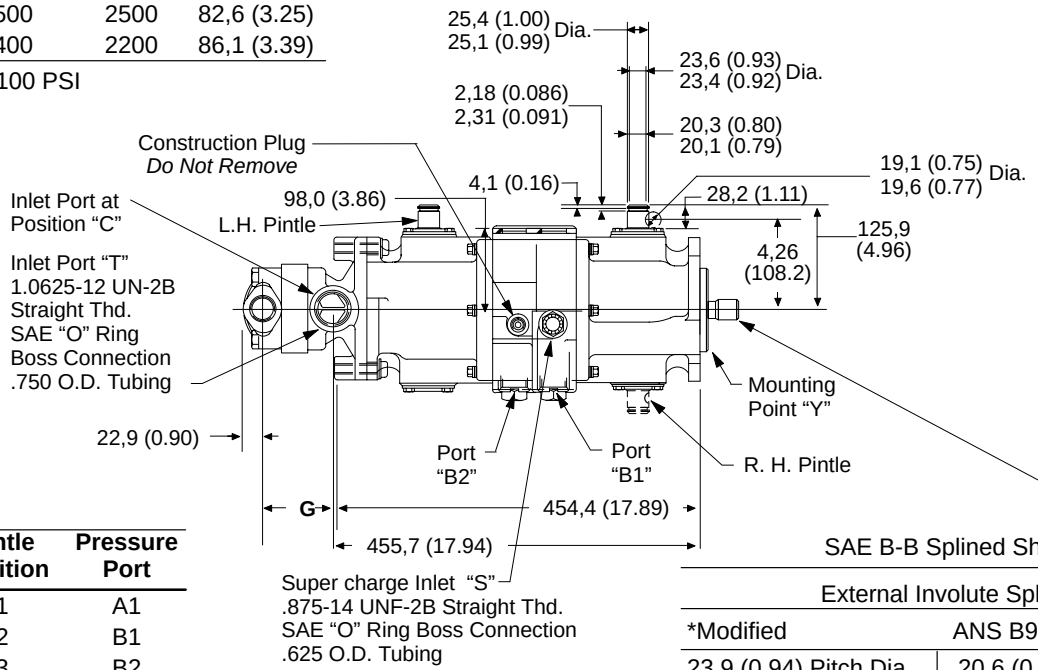
mm (inch)



V20 Auxiliary Pump Data

Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
7	3000	2500	77,7 (3.06)
8 & 9	2800	2500	77,7 (3.06)
10 & 11	2500	2500	82,6 (3.25)
12 & 13	2400	2200	86,1 (3.39)

*At 1200 RPM & 100 PSI



Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A1
R.H.	2	B1
R.H.	3	B2
R.H.	4	A2
L.H.	1	B1
L.H.	2	A1
L.H.	3	A2
L.H.	4	B2

Use of a secondary support of unit is required at mounting points "Y" & "Z" as shown. Outboard support to be such that external loads do not cause stress or deflection of the unit structure.

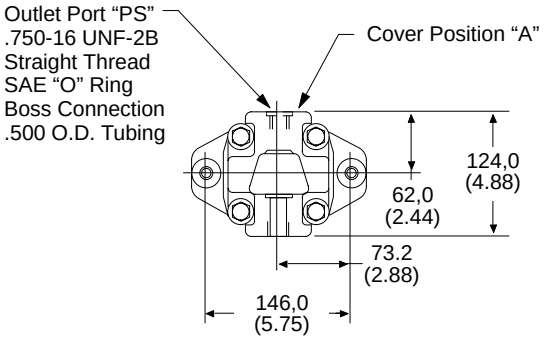
SAE B-B Splined Shaft

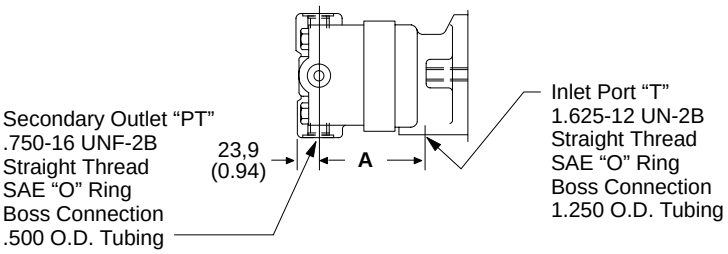
External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.

TA1919V20 Pump

Optional V20F Auxiliary Pump

mm (inch)

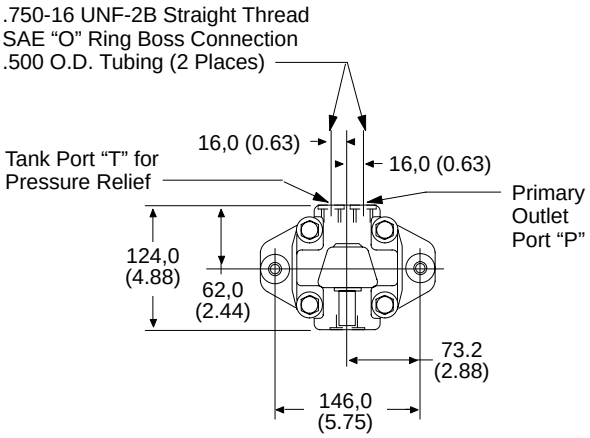


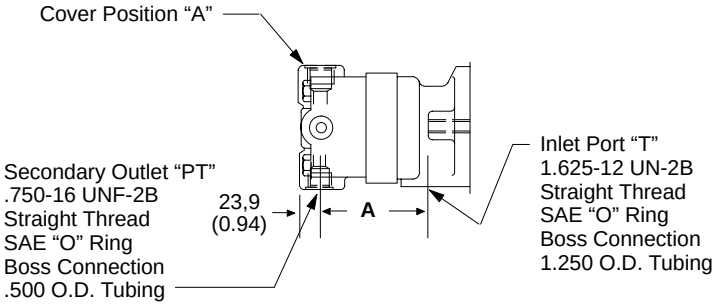


Optional V20P Auxiliary Pump

Ring Size GPM*	Max. RPM	Max. PSI	“G” Dimension
7	3000	2500	101,1 (3.98)
8 & 9	2800	2500	101,1 (3.98)
10 & 11	2500	2500	105.9 (4.17)
12 & 13	2400	2200	109.5 (4.31)

*At 1200 RPM & 100 PSI





TA1919V1010 Pump

Model Code

TA1919 V1010 F R – 2 A R – 06 – 03 C A B 6 H 21

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

1 Double Transmission Pump

Each rated at 72 l/min (19 USgpm) at 1800 rpm

2 Double Auxiliary Vane Pump

3 Vane Pump Cover Option (Omit if not required)

F – Flow control
P – Priority flow

4 Rotation Viewed From Shaft End

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

5 Input Shaft

2 – SAE B-B splined

6 Control Pintle Location Viewed From Shaft End With Drain Port Up

Code	Pump No. 1	Pump No. 2
A	Right hand side	Right hand side
B	Left hand side	Right hand side
C	Right hand side	Left hand side
D	Left hand side	Left hand side

7 Main Relief Valve

R – Relief valve
O – No relief valve

8 Ring Capacity at 1200 rpm (Shaft end vane pump)

04 – 15 l/min (4 USgpm)
05 – 18 l/min (5 USgpm)
06 – 22 l/min (6 USgpm)
07 – 26 l/min (7 USgpm)

9 Ring Capacity at 1200 rpm (Cover end vane pump)

01 – 3 l/min (1 USgpm)
02 – 7 l/min (2 USgpm)
03 – 11 l/min (3 USgpm)
04 – 15 l/min (4 USgpm)
05 – 18 l/min (5 USgpm)
06 – 22 l/min (6 USgpm)
07 – 26 l/min (7 USgpm)

10 Vane Pump No. 1 Outlet Position Viewed From Cover End

A – In line with case drain
C – Opposite case drain

11 Vane Pump Inlet Position Viewed From Cover End

A – Opposite No. 1 inlet
B – 90°F counterclockwise from No. 1 outlet
C – In line with No. 1 outlet
D – 90°F clockwise from No. 1 outlet

12 Position of Vane Pump Outlet No. 2 or Primary Outlet, Viewed From Cover End

A – Opposite inlet
B – 90°F counterclockwise from inlet
C – In line with inlet
D – 90°F clockwise inlet

13 Flow Rate Through Orifice In "F" Cover

2, 3, 4, 5, 6, 7 or 8 USgpm

Flow Rate Through Orifice In "P" Cover

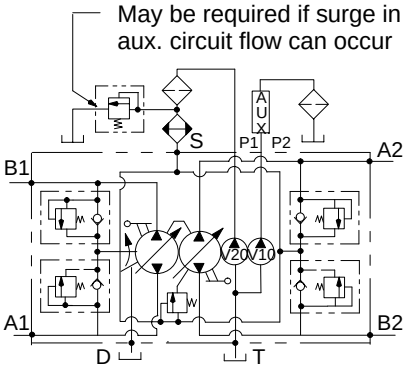
1, 2, 3, 4, 5, 6 or 7 USgpm

14 Vane Pump Relief Valve Setting, "F" & "P" Cover

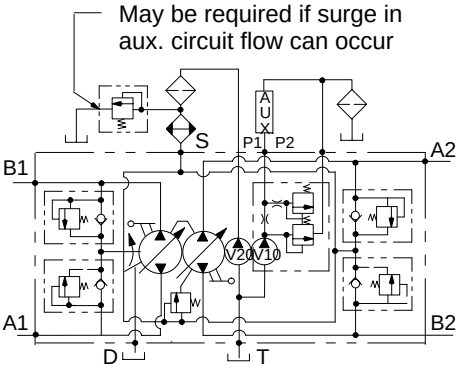
A – 17 bar (250 psi)
B – 35 bar (500 psi)
C – 51 bar (750 psi)
D – 70 bar (1000 psi)
E – 86 bar (1250 psi)
F – 100 bar (1500 psi)
G – 120 bar (1750 psi)
H – 140 bar (2000 psi)
J – 155 bar (2250 psi)
K – 175 bar (2500 psi)

15 Design Number

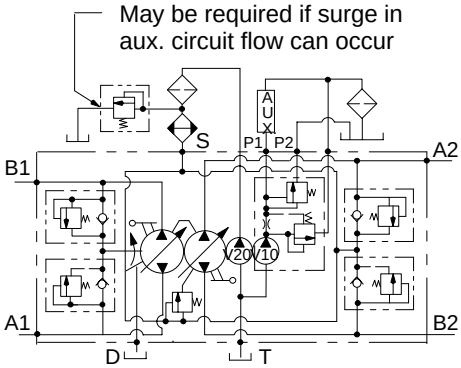
Circuit Diagrams



TA1919V1010 with Main Relief Valves



TA1919V1010F with Main Relief Valves

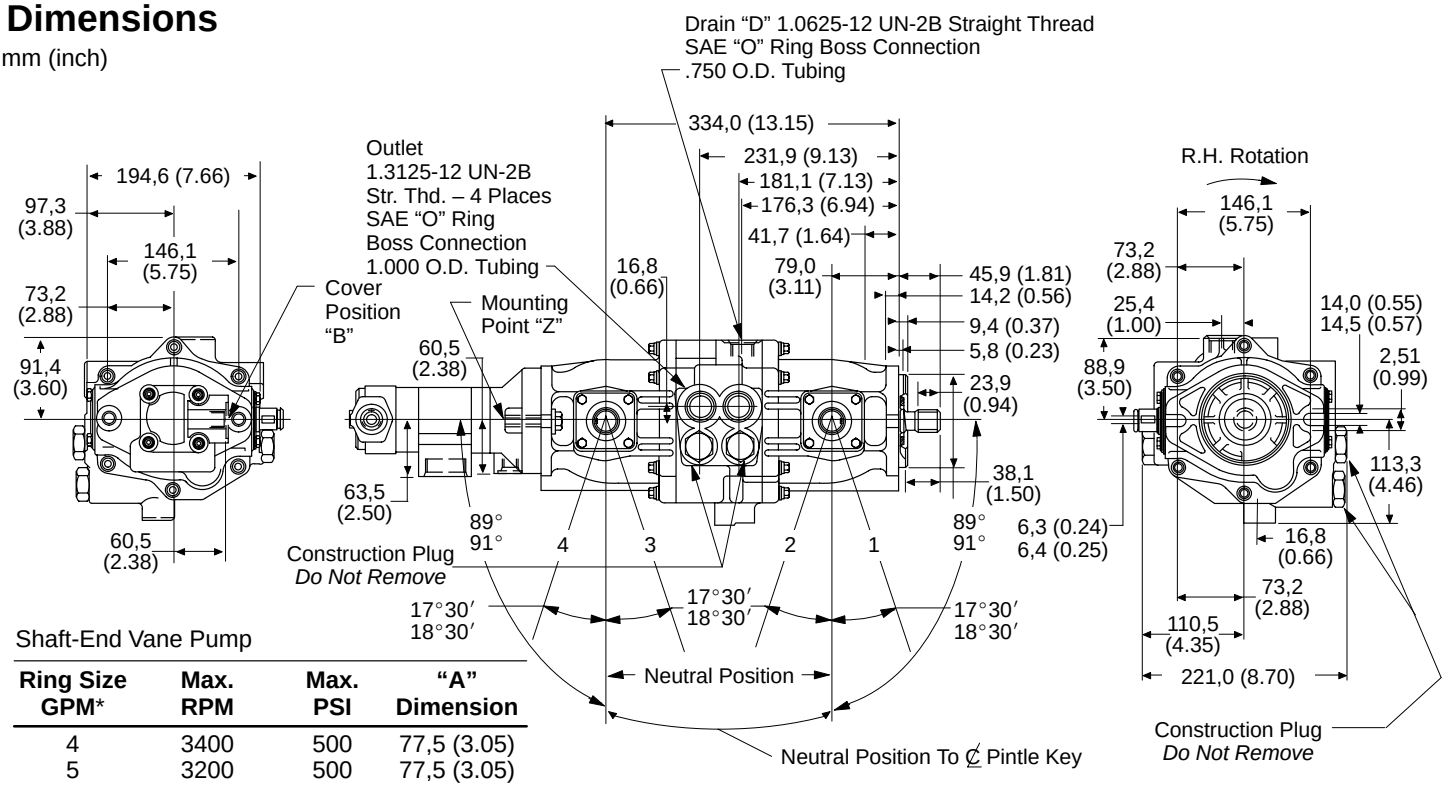


TA1919V1010P with Main Relief Valves

TA1919V1010 Double Pump

Dimensions

mm (inch)



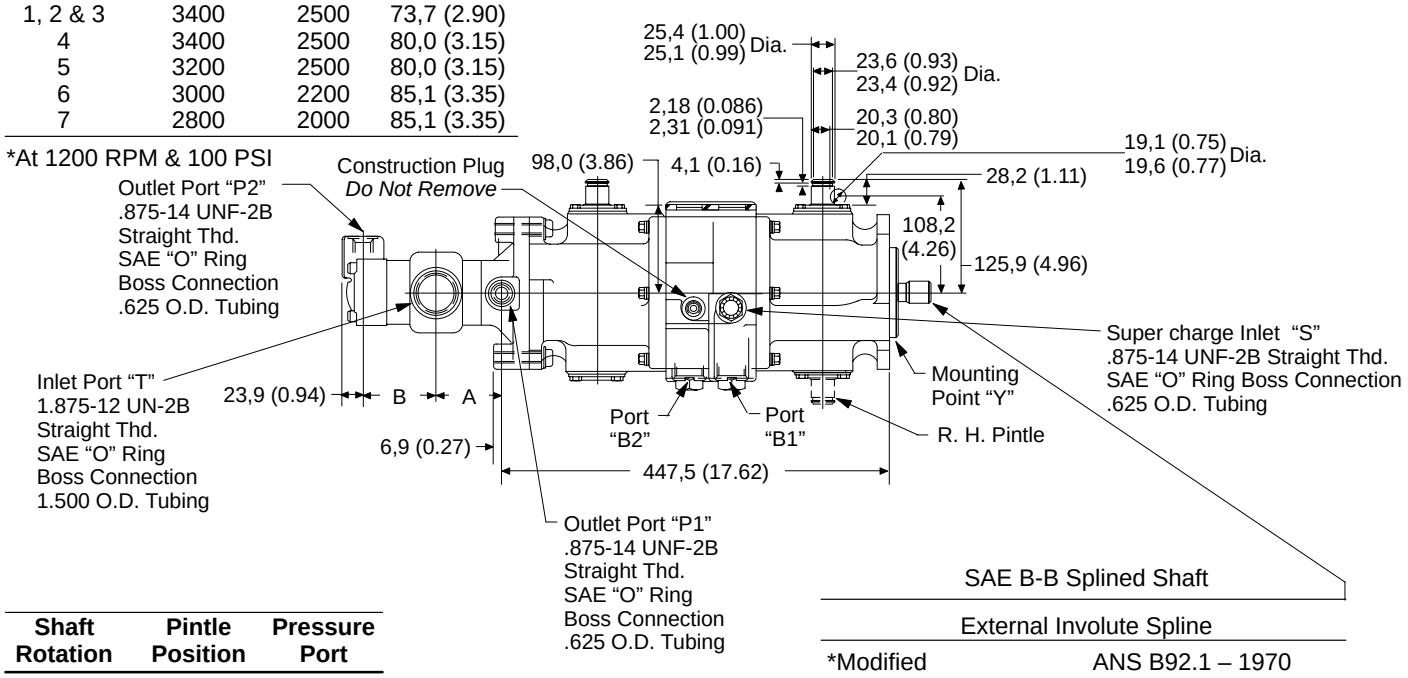
Shaft-End Vane Pump

Ring Size GPM*	Max. RPM	Max. PSI	"A" Dimension
4	3400	500	77,5 (3.05)
5	3200	500	77,5 (3.05)
6	3000	500	82,6 (3.25)
7	2800	500	82,6 (3.25)

Cover-End Vane Pump

			"B" Dimension
1, 2 & 3	3400	2500	73,7 (2.90)
4	3400	2500	80,0 (3.15)
5	3200	2500	80,0 (3.15)
6	3000	2200	85,1 (3.35)
7	2800	2000	85,1 (3.35)

*At 1200 RPM & 100 PSI



Shaft Rotation	Pintle Position	Pressure Port
R.H.	1	A1
R.H.	2	B1
R.H.	3	B2
R.H.	4	A2
L.H.	1	B1
L.H.	2	A1
L.H.	3	A2
L.H.	4	B2

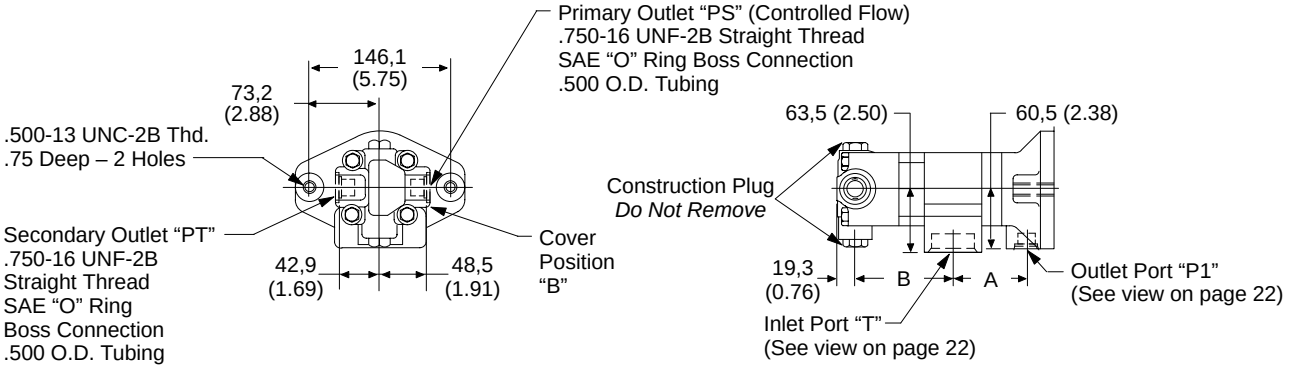
Use of a secondary support of unit is required at mounting points "Y" & "Z" as shown. Outboard support to be such that external loads do not cause stress or deflection of the unit structure.

SAE B-B Splined Shaft

External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.

Optional V1010F Auxiliary Pump

mm (inch)



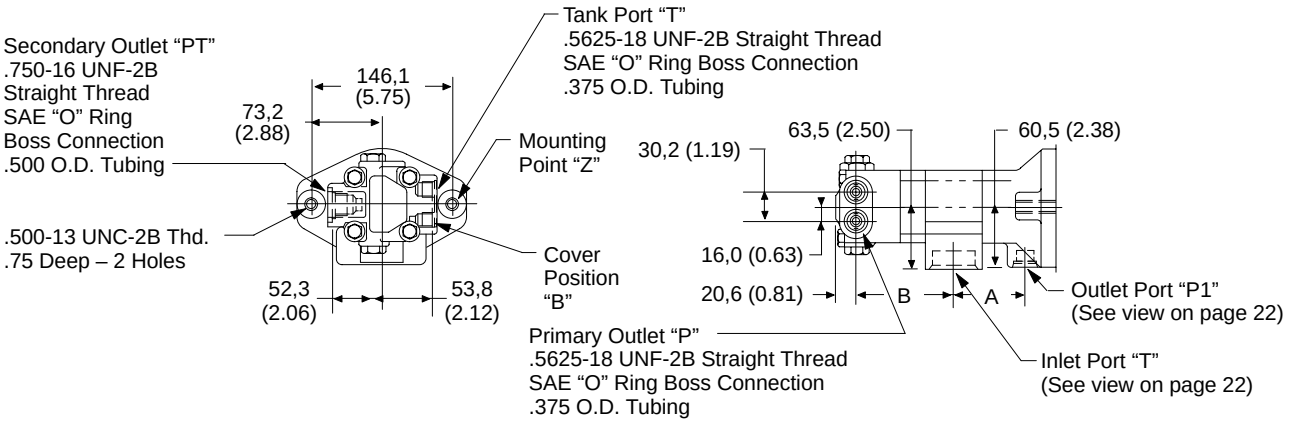
Optional V1010P Auxiliary Pump

Shaft-End Vane Pump

Ring Size GPM*	Max. RPM	Max. PSI	“A” Dimension
4	3400	500	77,5 (3.05)
5	3200	500	77,5 (3.05)
6	3000	500	82,6 (3.25)
7	2800	500	82,6 (3.25)

Cover-End Vane Pump			“B” Dimension
1, 2 & 3	3400	2500	91,2 (3.59)
4	3400	2500	97,5 (3.84)
5	3200	2500	97,5 (3.84)
6	3000	2200	102,6 (4.04)
7	2800	2000	102,6 (4.04)

*At 1200 RPM & 100 PSI



MFE15/19 Motor

Model Code

MFE 19 X – 2 – 30 – 030

1 2 3 4 5 6

1 **Fixed Displacement Motor**

2 **Rated Flow at 1800 rpm**

15 – 56 l/min (15 USgpm)
19 – 72 l/min (19 USgpm)

3 **Thru Shaft**

Available only on side-ported models. Omit if not required.

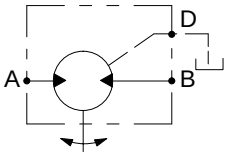
4 **Output Shaft**

2 – SAE B-B splined

5 **Design Number**

6 **End Ports (Omit for side ports)**

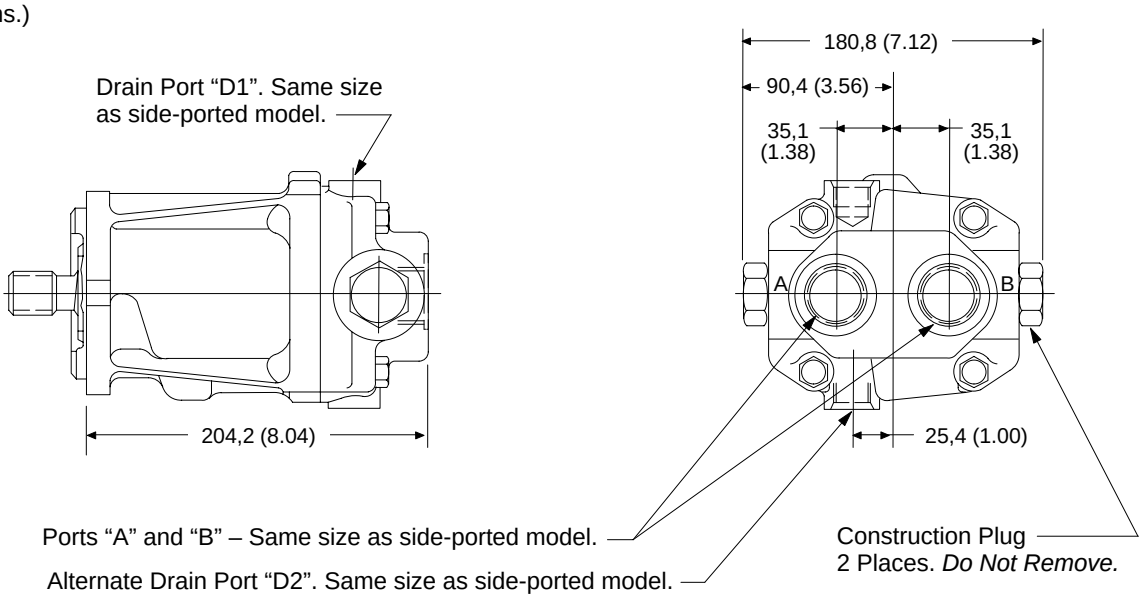
Circuit Diagram



Dimensions

End-Ported Model
(See side-ported models next page for additional dimensions.)

mm (inch)



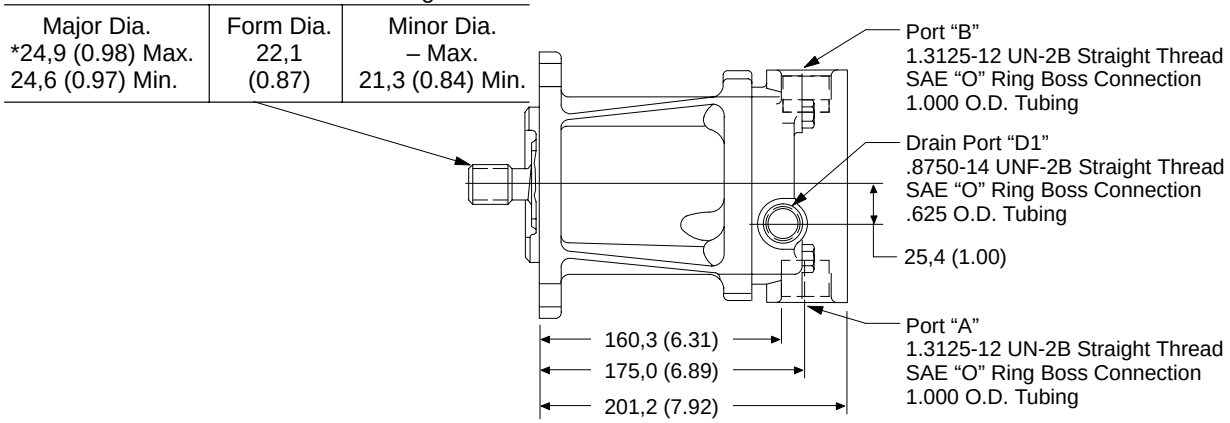
Dimensions

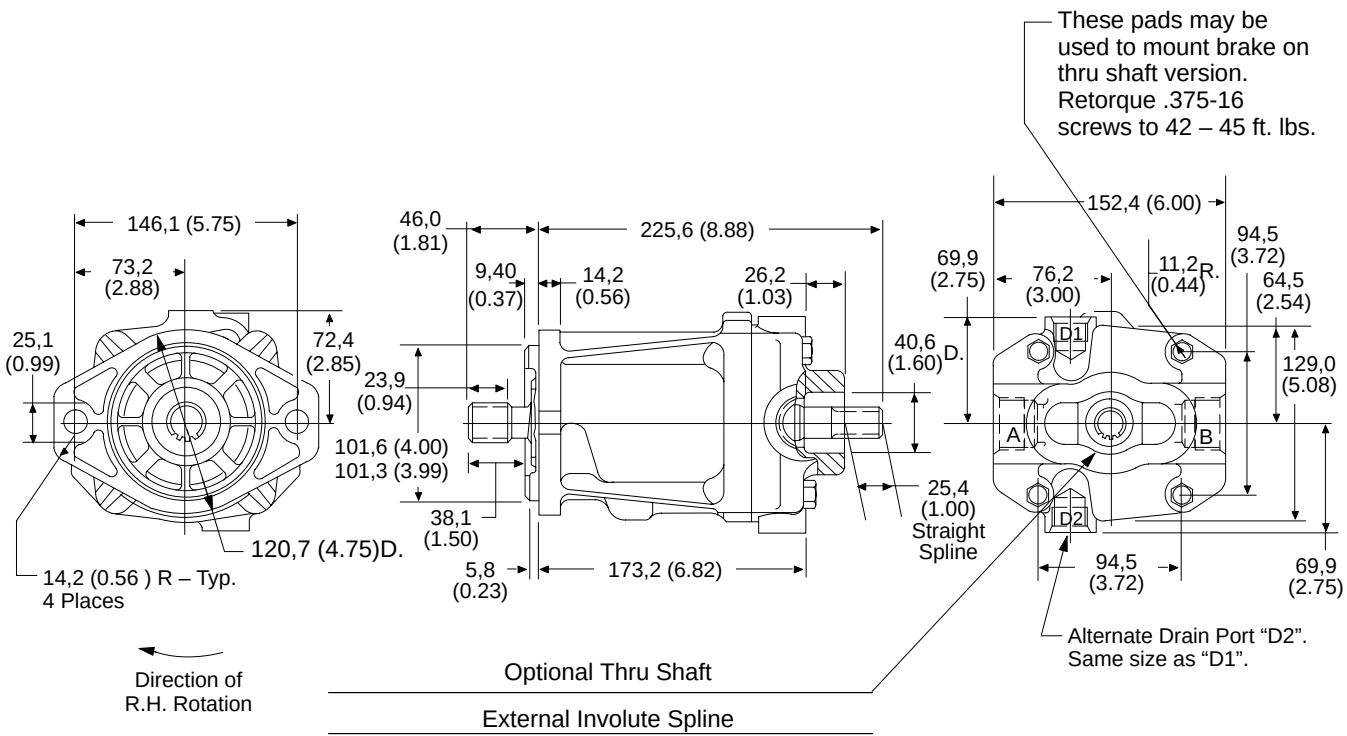
Side-Ported Model

mm (inch)

SAE B-B Splined Shaft	
External Involute Spline	
*Modified	ANS B92.1 – 1970
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.
Flat Root Class 5 Side Fit	
15 Teeth 16/32 Pitch 30° Pr. Angle	

Major Dia.	Form Dia.	Minor Dia.
*24,9 (0.98) Max. 24,6 (0.97) Min.	22,1 (0.87)	– Max. 21,3 (0.84) Min.





Optional Thru Shaft		
External Involute Spline		
ASA B5.15 – 1960		
19,8 (0.78) Pitch Dia.	17,3 (0.68) Base Dia.	
Flat Root Class 1 Side Fit		
25 Teeth 32/64 Pitch 30° Pr. Angle		
Major Dia.	Form Dia.	Minor Dia.
20,3 (0.80) Max. 20,0 (0.79) Min.	19,1 (0.75)	18,8 (0.74) Max. 18,5 (0.73) Min.

Shaft Rotation	Pressure Port
R.H.	"B"
L.H.	"A"

Thru shaft extension is limited to a maximum torque of 2900 in. lbs. with no overhung load. Applications subjecting shaft extension to both bending and torsional loads are subject to engineering approval.

MVE19 Motor

Model Code

MVE19 X – 2 – 30 – A – 7 – 10

1 2 3 4 5 6 7

1 **Rated at 19 gpm at 1800 rpm**

2 **Thru Shaft (Omit if not required)**

3 **Output Shaft**

2 – SAE B-B splined

4 **Motor Design Number**

5 **Control Pintle Location Viewed From Shaft End With Drain Port Up**

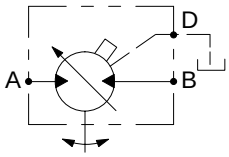
A – Right hand side
B – Left hand side

6 **Minimum Displacement Angle**

Any angle from 7° to 15° in 2° increments

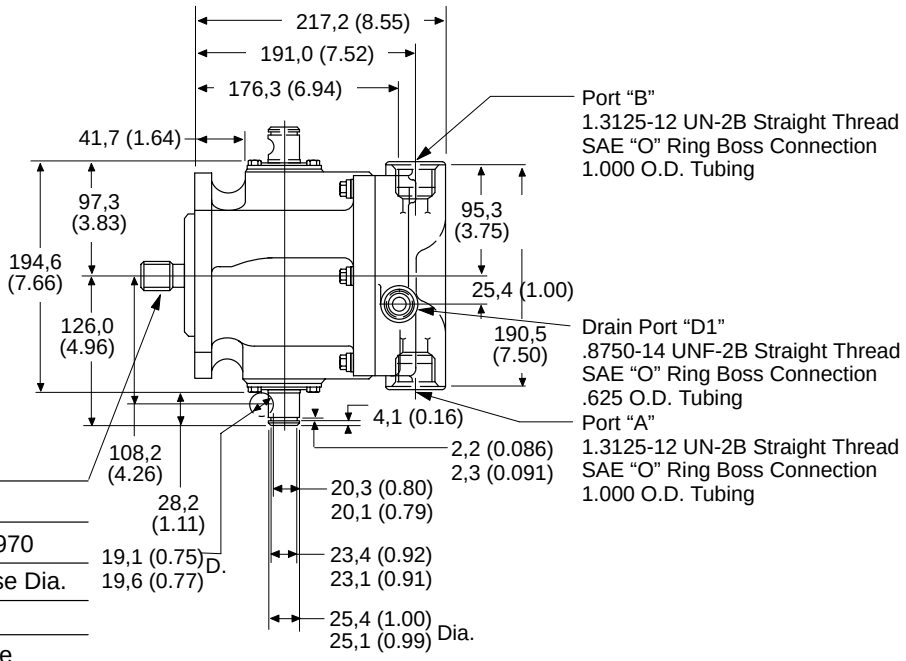
7 **Control Design Number**

Circuit Diagram

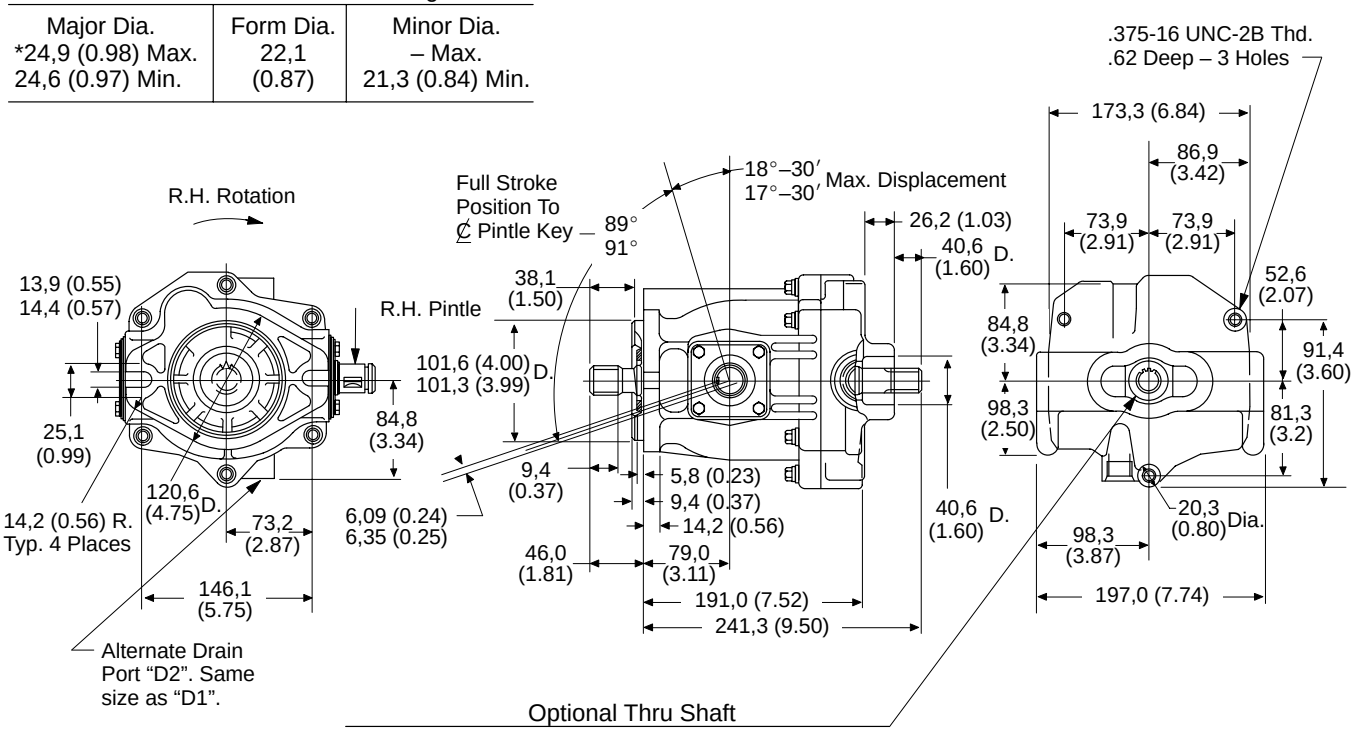


Dimensions

mm (inch)



SAE B-B Splined Shaft		
External Involute Spline		
*Modified	ANS B92.1 – 1970	
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.	
Flat Root Class 5 Side Fit		
15 Teeth 16/32 Pitch 30° Pr. Angle		
Major Dia. *24,9 (0.98) Max. 24,6 (0.97) Min.	Form Dia. 22,1 (0.87)	Minor Dia. – Max. 21,3 (0.84) Min.



Optional Thru Shaft		
External Involute Spline		
ASA B5.15 – 1960		
19,8 (0.78) Pitch Dia.	17,3 (0.68) Base Dia.	
Flat Root Class 1 Side Fit		
25 Teeth 32/64 Pitch 30° Pr. Angle		
Major Dia.	Form Dia.	Minor Dia.
20,3 (0.80) Max. 20,0 (0.79) Min.	19,1 (0.75)	18,8 (0.74) Max. 18,5 (0.73) Min.

Shaft Rotation	Pressure Port
R.H.	"B"
L.H.	"A"

Thru shaft extension is limited to a maximum torque of 2900 in. lbs. with no overhung load. Applications subjecting shaft extension to both bending and torsional loads are subject to engineering approval.

MVE19-M Motor

Model Code

MVE19 X – 2 – 30 – M – 13 – 10 – 030

1 2 3 4 5 6 7 8

1 Variable Displacement Motor
Rated at 19 gpm at 1800 rpm

2 Thru Shaft
Available only on side-ported models. Omit if not required.

3 Output Shaft
2 – SAE B-B splined

4 Motor Design Number

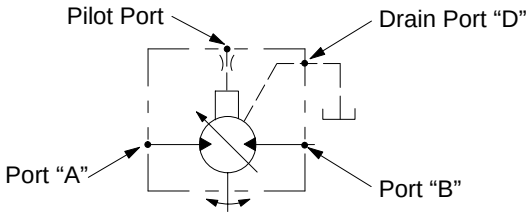
5 External Pilot Pressure Control

6 Minimum Displacement Angle
7 – 7° (.945 CIR)
9 – 9° (1.22 CIR)
11 – 11° (1.49 CIR)
13 – 13° (1.78 CIR)
15 – 15° (2.06 CIR)

7 Control Design Number

8 End Ports (Omit for side ports)

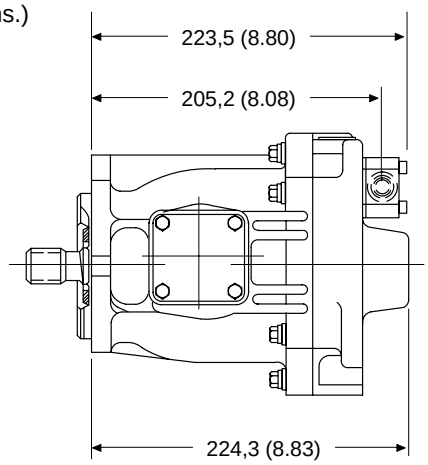
Circuit Diagram

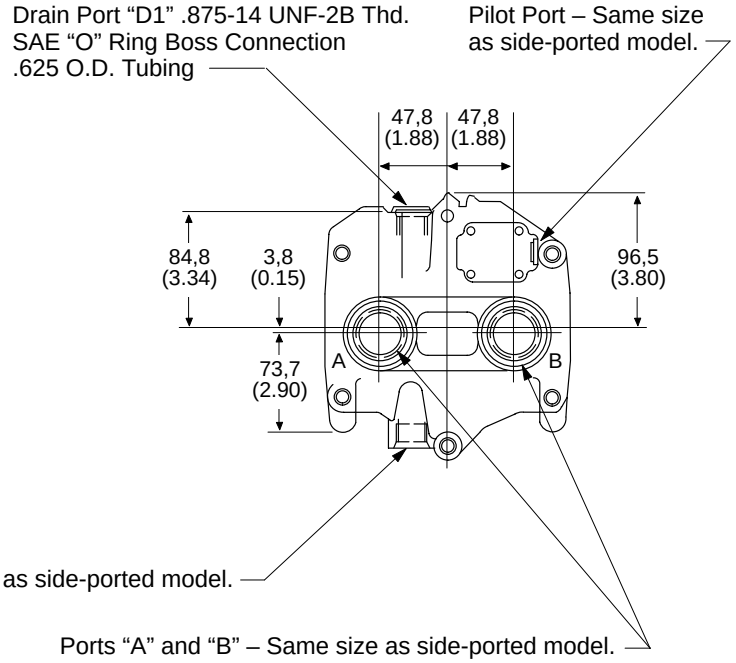


Dimensions

End-Ported Model
(See side-ported models next page for additional dimensions.)

mm (inch)





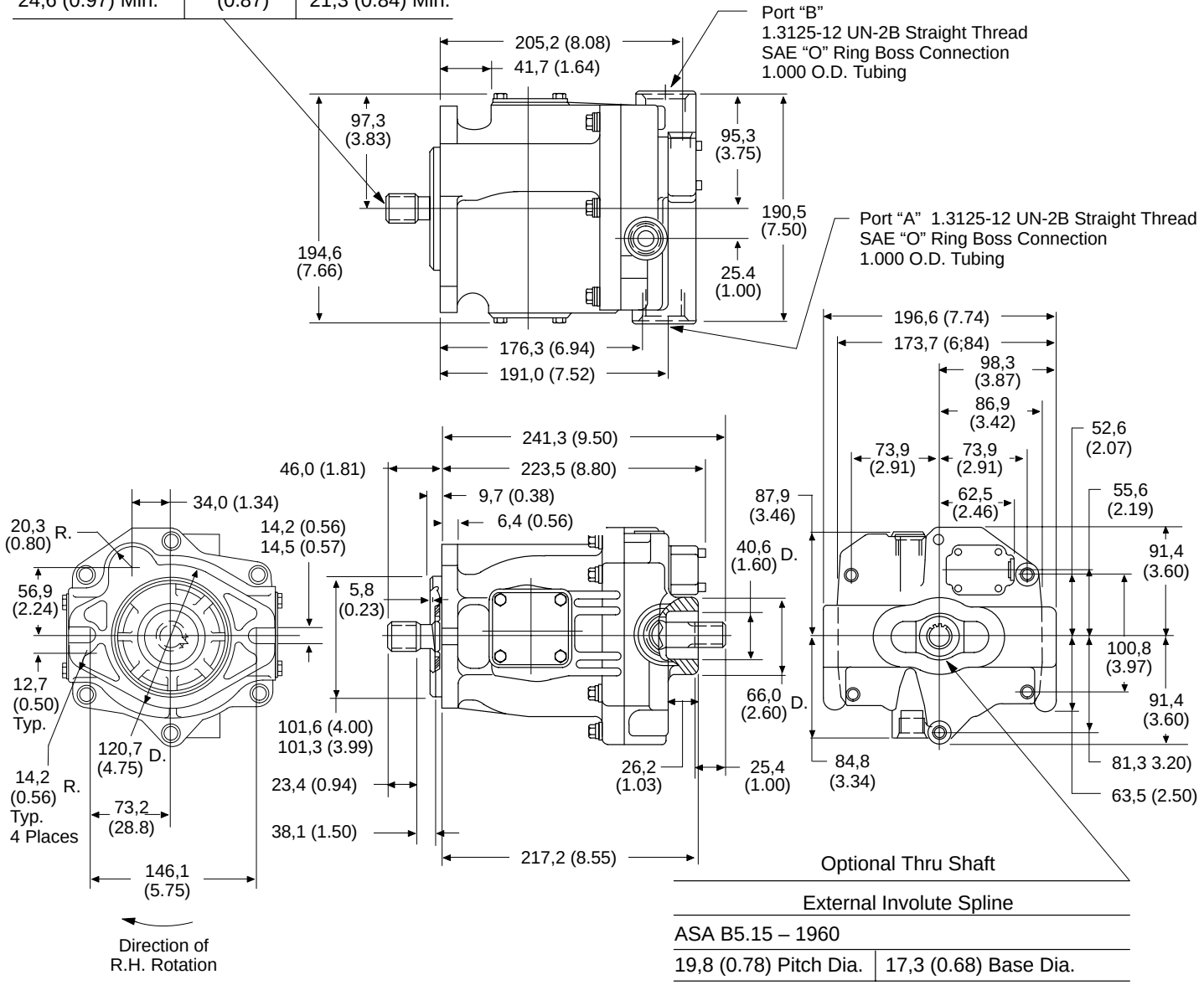
Dimensions

Side-Ported Model

mm (inch)

SAE B-B Splined Shaft	
External Involute Spline	
*Modified	ANS B92.1 – 1970
23,9 (0.94) Pitch Dia.	20,6 (0.81) Base Dia.
Flat Root Class 5 Side Fit	
15 Teeth 16/32 Pitch 30° Pr. Angle	

Major Dia.	Form Dia.	Minor Dia.
*24,9 (0.98) Max. 24,6 (0.97) Min.	22,1 (0.87)	– Max. 21,3 (0.84) Min.



Shaft Rotation	Pressure Port
R.H.	"B"
L.H.	"A"

Optional Thru Shaft

External Involute Spline	
ASA B5.15 – 1960	
19,8 (0.78) Pitch Dia.	17,3 (0.68) Base Dia.
Flat Root Class 1 Side Fit	
25 Teeth 32/64 Pitch 30° Pr. Angle	

Major Dia.	Form Dia.	Minor Dia.
20,3 (0.80) Max. 20,0 (0.79) Min.	19,1 (0.75)	18,8 (0.74) Max. 18,5 (0.73) Min.

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