TRAVAINI PUMPS USA

Liquid Ring & Rotary Vane Vacuum Pumps and Systems

DynaSeal™ Liquid Ring Vacuum Systems

www.travaini.com

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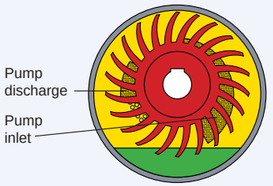

Figure 1

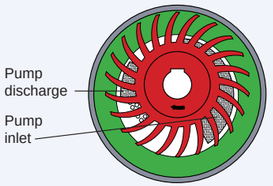

Figure 2

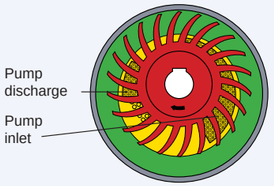

Figure 3

Principle of Operation

A multi-bladed impeller mounted on a shaft is positioned eccentrically in a cylindrical housing, partially filled with liquid. Portplates with inlet and discharge openings are positioned on each side of the impeller (Figure 1). As the impeller rotates, centrifugal force pushes the liquid outward, forming a liquid ring (Figure 2). Looking at the YELLOW area of the impeller chambers (Figure 3), we see that on the right hand side, from the top down, the chamber volume increases as the liquid ring moves outward, creating a vacuum in the impeller chamber. on the left hand side, the volume decreases as the liquid moves inward, increasing the pressure in the chambers until the discharge takes place through the discharge opening. A continuous flow of fresh sealing liquid is supplied to the pump.

Seal Fluid Technology

In our ongoing search for better solutions, we can offer alternative sealing fluids that are environmentally friendly. Unlike other types of vacuum pumps, our liquid ring design requires no internal lubrication because there is no metal to metal contact between rotating and stationary parts and the bearings are located external to the pumping chamber. This allows for more diversity when choosing the sealing fluid because the lubricating properties of the fluid are not critical.

The Travaini **DynaSeal**™ system offers a simple, low maintenance design with low noise and vibration levels, as well as reduced operating costs.

Count on Travaini for in-depth experience, technology and innovation. Our extensive inventory of pumps and replacement parts can, in most instances, be shipped the same day. Superior service is our #1 goal.

DynaSeal™, you can't beat the system.

DynaSeal™ Benefits

DynaSeal™ Standard Specifications:

≥ 15" Hg Vacuum; 60-120° F Ambient Temperatures; 180° F Inlet Gas Temperature Max; 180° F Discharge Gas/Oil Temperature; If conditions differ, consult factory for recommended design modifications.

200° F Inlet Gas – Consult factory.

Capacity Range Standards

15-1000 ACFM. Larger systems available **upon request**.

Low Noise Level.

Unlike rotary screw vacuum pumps, which run at rotor speeds as high as 9000-rpm, **DynaSeal™** systems operate at conservative speeds (1750-rpm) resulting in low noise levels (75-80 dBA at 3-ft.) acceptable to the environment without the need for sound enclosures.

Minimal Maintenance.

DynaSeal™ systems typically only require an oil change and replacement of discharge filter every 10,000 hours under normal operating conditions. No other maintenance is required except for periodic greasing of bearings.

Not affected by carry-over of soft solids or liquids.

DynaSeal™ systems can handle carry-over of soft solids and liquids without damage to the system components. We do however recommend to install an inlet filter/strainer or knock-out pot in those applications where a high carry-over of either solids or liquids is expected.

Designed for continuous operation.

DynaSeal™ systems are designed for continuous operation over the full vacuum range without overheating.

Automatic Temperature Control.

Prevents low temperature operation, reduces accumulation of water and other liquids in the reservoir and decreases the risk of bacteria growth. This optional feature is very important in hospital and other intermittent duty applications.

Low Vibration.

DynaSeal™ systems require no special foundations or anti-vibration mountings as a standard.

High-Quality Manufacturing Standards.

Travaini pumps are manufactured under ISO 9001 quality control standards.

Quality Control

DynaSeal™ systems are a "proven design". Combine this with our inline quality procedures and outgoing inspection, this provides you with the leading quality in the industry.

Custom Solutions

DynaSeal™ systems can be provided in single or multiple system configurations with programmable controllers to meet your specific requirements. Explosion proof designs for those stringent environments. Wide range of materials including stainless steel, copper, etc.

DynaSeal™

Air-cooled Liquid Ring Vacuum Systems

Made in the USA. DynaSeal™ systems are designed, built, and tested at our facility in Yorktown, Virginia.

Typical System Features & Options

1 ADVANCED LIQUID RING VACUUM PUMP DESIGN Offers high efficiency, reliability and minimum maintenance. External bearings and ample clearance between rotating parts eliminate the need for internal lubrication.

2 ELECTRIC CONTROL PANEL Each system includes a NEMA 12 electrical control panel complete with magnetic starter and overload protection, 110-volt control circuit and hour meter as standard. Wiring to motor and control switches is completed at the factory.

3 HIGH TEMPERATURE SWITCH Shuts unit down at 225˚F in case oil flow to unit is interrupted.

4 BACK PRESSURE GAUGE Shows condition of demister element and if element requires service. It also indicates back pressure from piping system.

5 AIR/OIL SEPARATOR Includes a highly efficient demister element to remove oil mist from discharge air. Exhaust is 99.9% oil-free.

6 OIL RESERVOIR Mounted overhead for positive oil flow pressure and sized for adequate oil capacity, cooling and efficient separation by internal baffles. A sight gauge complete with temperature gauge is included.

7 INLET CHECK VALVE Properly sized and suitable for vacuum.

8 HIGH EFFICIENCY AIR-COOLED HEAT EXCHANGER Allows system to operate at moderate temperatures with ambient temperatures as high as 110˚. Water-cooled units are available.

9 PUMP OR MOTOR-MOUNTED COOLING FAN Provides high air flow for maximum cooling without the need for a separate fan motor, except for units of 50-hp and larger which have electric-drive fan units.

10 SOLENOID VALVE Shuts down oil flow to pump when unit is stopped.

11 MONOBLOCK MOTOR MOUNTING DESIGN Standard up to 25-hp, eliminates misalignment problems by flange mounting to a standard NEMA C-face motor. (TEFC motors with a 1.15 service factor are standard) a heavy-duty flexible coupling ensures trouble-free service.

12 MANUAL UNLOADER VALVE WITH FILTER SILENCER Aids in vacuum unloading and/or relief of the pump prior to start-up and shutdown. (Electric unloading–optional)

13 VACUUM RELIEF VALVE WITH SILENCER (OPTIONAL) Field adjustable to control maximum vacuum level.

14 TEMPERATURE CONTROL VALVE (OPTIONAL) Allowing the system to reach operating temperature very quickly which is important especially for outdoor installations and intermittent duties.

15 HIGH AND LOW OIL LEVEL SWITCH (OPTIONAL) To protect pump from loss of oil.

EXPLOSION PROOF DESIGN (Optional)

DynaSeal™ Systems are used extensively in industries such as:

- Hospitals, healthcare and pharmaceutical
- Solvent and vapor recovery
- Soil remediation
- Wood working and wood impregnation
- Electronics and semi-conductors
- Printing and paper converting
- Food and meat processing
- Plastics, automotive and aircraft
- Sterilization and impregnation
- Plus numerous others

The "Mini" Series

Models – TRO-075VM, TRO-110VM AND TRO-160VM

Latest concept of our patented DynaSeal™ System

Features:

- Space Saving
- Vastly Improved Mist Elimination
- Cost Savings
- 3 Models Available

1

Using our 3 monoblock vari-ported pump designs, models TRM 40-110, 40-150, and 40-200, we offer these three systems, 5, 7.5, and 10 hp, configured to incorporate the above features.

2

The traditional oil sealed systems has a footprint almost twice the length and 50% wider than the "MINI" Series. By incorporating the monoblock pump design, we have developed the "MINI" package to fit within equipment or locations that require economies of space.

3

Traditional oil-sealed packages have been designed to handle vacuums beyond 15" HgV, as the majority of applications require. Below 15" HgV, the coalescing filters are not designed to fully handle the oil mist. The new "MINI" Series was designed to coalesce from 0-30" Hg vacuum through our unique filter element and specially formulated synthetic oil.

4

The simplicity of the "MINI" design has resulted in reduced costs which allow us to pass the savings on to you, our customers. Cost is always a priority without sacrificing the quality you've come to expect from Travaini products.

Standard DynaSeal™ Models

System Model	Nominal Capacity ACFM	Motor HP	Maximum End Vacuum in. Hg	Approximate Dimensions (in) L x W x H	Approximate Weight (Lbs)
TRO015H	15	2	29	38 x 17 x 40	340
TRO015S	15	1.5	26	38 x 17 x 40	340
TRO035S	35	3	26	38 x 17 x 40	340
TRO035H	35	3	29	38 x 17 x 40	340
TRO050H	50	5	29.5	38 x 17 x 40	435
TRO075S	75	5	27	43 x 17 x 40	530
TRO075-VM**	75	5	29	32 X 25 X 43	500
TRO110V	110	7.5	29.5	55 x 25 x 51	920
TRO110-VM**	110	7.5	29	32 X 25 X 43	540
TRO140H	140	10	29.5	55 x 25 x 51	1005
TRO160V	160	10	29.5	65 x 26 x 51	1070
TRO160-VM**	160	10	29	32 X 25 X 43	570
TRO200V	200	15	29.5	65 x 26 x 56	1300
TRO200H	200	15	29.5	65 x 26 x 56	1325
TRO250H	250	20	29.5	65 x 26 x 56	1350
TRO300V	300	20	29.5	65 x 26 x 56	1355
TRO300H	300	25	29.5	65 x 26 x 56	1430
TRO400S	380	25	28	83 x 35 x 64	1900
TRO425H	425	40	29.5	83 x 35 X 64	2250
TRO500S	500	40	28	83 x 35 x 64	2150
TRO700S*	700	50	26	80 X 63 X 58	3550
TRO750H*	750	50	29.5	80 X 63 X 58	3750
TRO900S*	900	60	26	80 X 63 X 58	3650
TRO950H*	950	60	29.5	80 X 63 X 58	4016
TRO1000S*	1000	75	26	80 X 63 X 58	3750
TRO1000H*	1050	100	29.5	80 X 63 X 58	4302

**VM = Mini Series
*PUMPS ARE V-belt driven.

DynaSeal™ Standard Specifications:

≥ 15" Hg Vacuum; 60-120° F Ambient Temperatures; 180° F Inlet Gas Temperature Max; 180° F Discharge Gas/Oil Temperature; If conditions differ, consult factory for recommended design modifications.

- Explosion proof designs are available upon request.
- **Larger capacity systems are available upon request.**
- **DynaSeal™** systems are available in multiple pump configurations with a wide range of optional accessories.
- **DynaSeal™** systems can be customized per O.E.M. specification and for special applications.
- **DynaSeal™** systems are sold and serviced through a nation-wide distributor network.