



## Roto-Jet® Pump Design and Principles of Operation

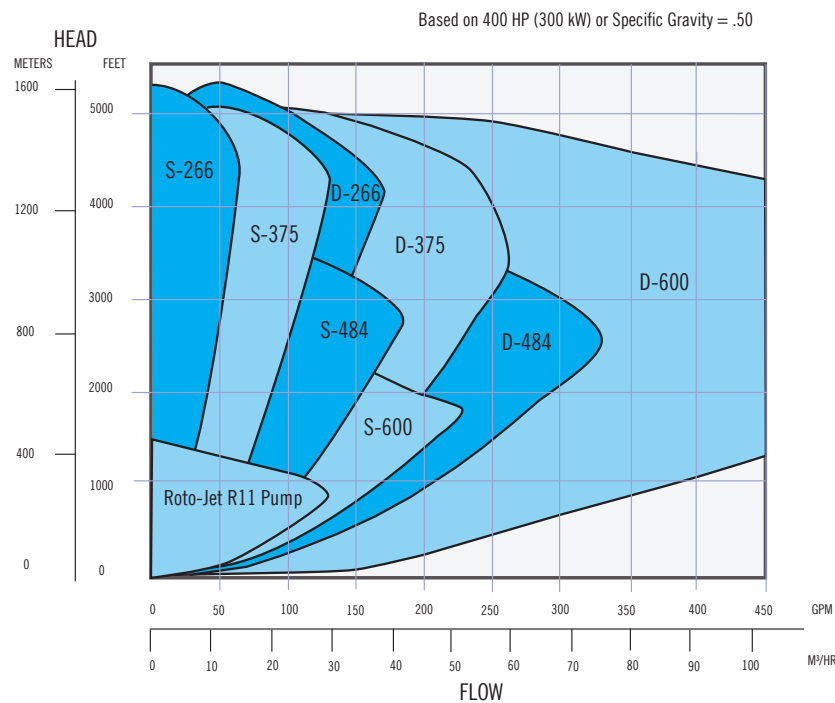
The Roto-Jet pump has earned a global reputation for reliability and robustness by meeting the demanding requirements of API 610 standards. The operating characteristics of the Roto-Jet pump are simple and similar to a conventional centrifugal pump. Energy is added to the fluid via the rotor, and the stationary pitot tube converts the fluid velocity energy into static pressure.

### Benefits:

- API 610 compliant
- Standard API 682 cartridge seals
- No external lube system required
- No wear rings or close running clearances
- Low NPSH3 without the use of an inducer
- Robust design is insensitive to process upsets
- Pulsation free flow over the entire head-flow curve
- Integral gearbox is isolated from process seal leakage
- Reduced life cycle cost by optimizing hydraulic efficiency
- Process seals exposed only to suction pressure for maximum seal life
- Between bearings arrangement minimizes shaft deflection at the seals
- Bearing L10 life exceeds API 610 requirements using rolling element bearings
- Patented rotor eliminates radial and axial thrust as a function of flow rate and suction pressure
- High-heads achieved in a single stage at low operating speeds compared to other low-flow, high-head pumps



These unique attributes make the Roto-Jet RO-FT pump an excellent choice for severe low-flow, high-head process applications to increase mean time between failure objectives.

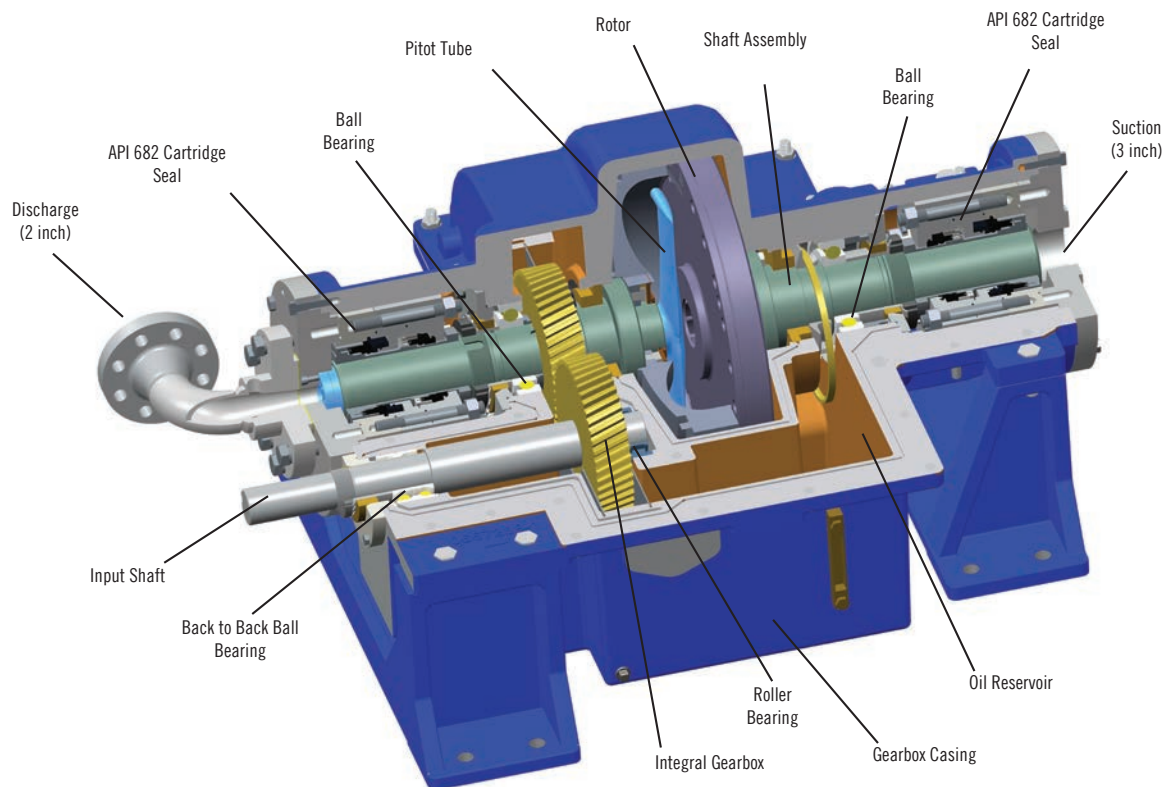


### Roto-Jet Pitot Tube Pump

The Roto-Jet pitot tube pump has been specifically designed and manufactured to achieve a broad operating range without creating damaging hydraulic forces in the pump. The pitot tube is stationary in the 12 o'clock position to facilitate venting of the rotor during start-up.

The efficient conversion of velocity energy into static pressure is critical to maximizing any centrifugal pump's efficiency. After years of research and development in conjunction with state-of-the-art CFD tools, Trillium Specialty Pumps has created a highly advanced pitot tube geometry designed to offer superior performance for low-flow, high-head pumping services.

**The Roto-Jet high-pressure pitot tube pump offers a complete package specifically designed and tested to be compliant with API 610 standards**



**Applications**

- Caustics processing
- Amine treating
- Reflux streams
- Transfer services
- Boiler feed
- Naphtha
- Offshore
- Reactor feed
- Condensate and well injection
- Boiler feed water
- Foul water
- Diesel, gasoline, kerosene
- Sour water
- Depropanizer
- Deethanizer

**Options**

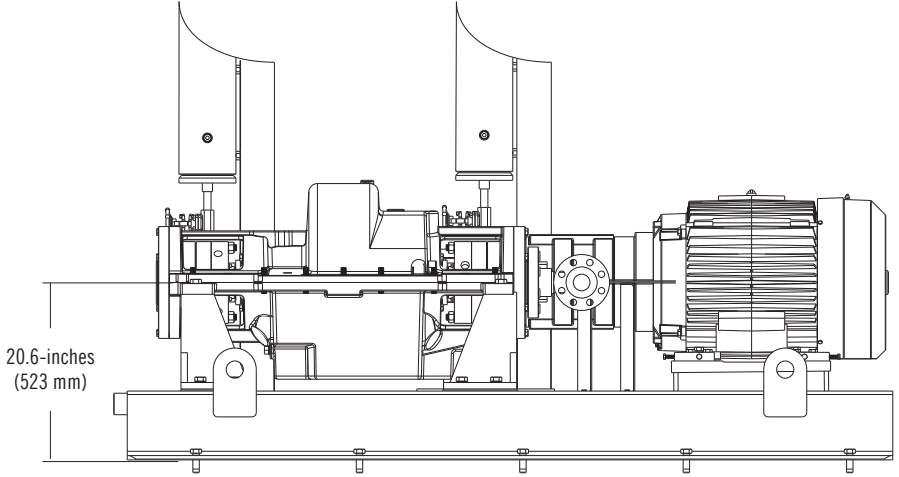
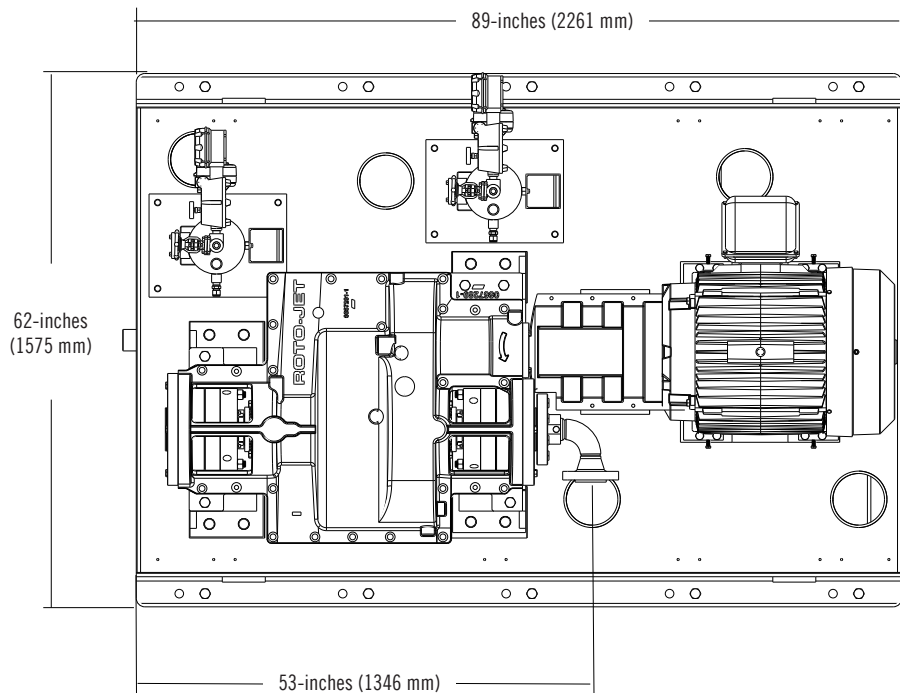
- Mechanical seals: single, double/tandem or gas
- API seal flush plans
- Lubrication: splash oil, purge-oil mist, forced
- Noise abatement systems to achieve 80 – 85 dBA
- Baseplates per API 610
- Vibration monitoring per API 670
- Couplings per API 671
- ASME B16.5 and DIN flanges
- Complete unit and auxiliary testing

**Roto-Jet® R0-FT Pump Performance Capabilities**

Max Flow	450 gpm	102 m <sup>3</sup> /hr
Max Head	6200 ft	1890 m
Max Suction Pressure	800 psig	56 barg
Max Suction Temperature	250° F	121° C
Max Suction Temperature w/Flush	550° F	288° C
Max Speed	6700 rpm	
Max Power	400 HP	300 kW

**Materials of Construction**

	S5	S6	S8	C6	A8	D1
Rotor	Carbon steel (A216 WCB)			12% CR (A743 CA6NM)	316 AUS (A351 CF3M)	Duplex (A351 CD4MCu)
Flanges	Carbon steel (A216 WCB)			12% CR (A743 CA6NM)	316 AUS (A351 CF3M)	Duplex (A351 CD4MCu)
Shaft Assembly	Carbon steel (A216 WCB)			12% CR (A743 CA6NM)	316 AUS (A351 CF3M)	Duplex (A351 CD4MCu)
Input Shaft	4140 Carbon steel (A193)					
Pitot Tube	ASTM A747 Grade CBCu-1 or AMS 5383					
Gearbox Casing	Carbon steel (A216 WCB)					



ISO 9001 - 2015 | ISO 14001 - 2015 | OSHAs 18001 - 2007



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