

Screw Pumps

Product Catalog

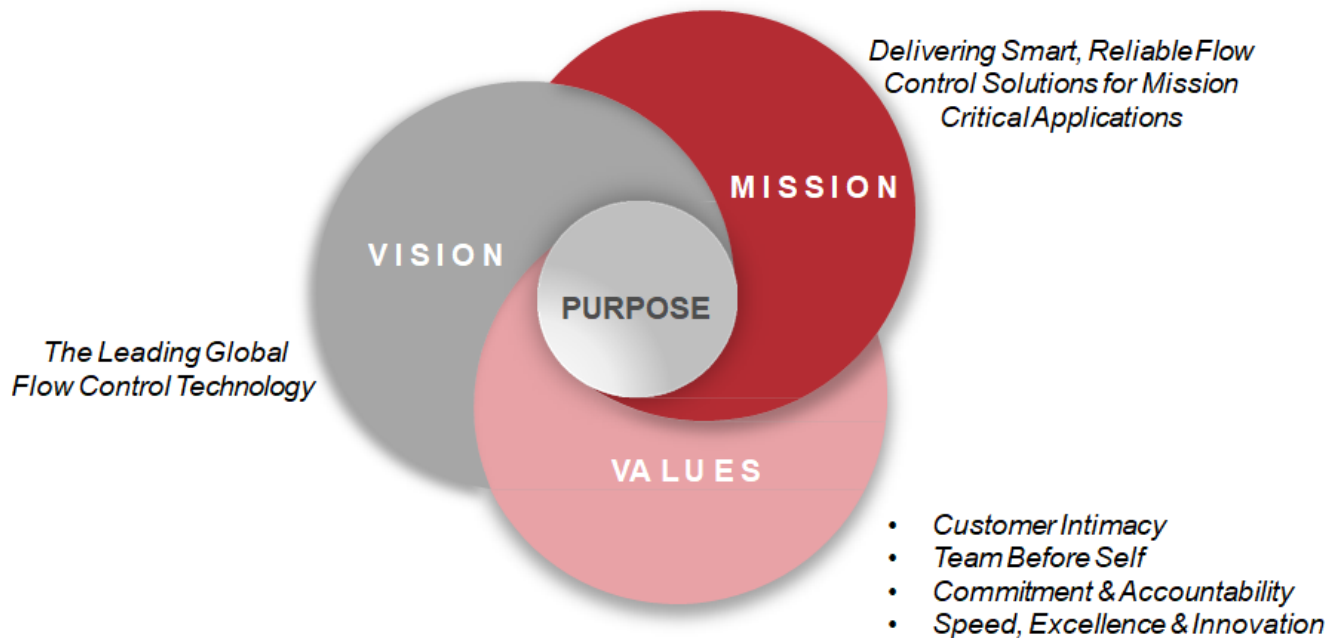


ALLWEILER®
HOUTTUIN™
TUSHACO®



CIRCOR Purpose, Mission, Vision & Values

Keeping Society Safe, Productive and Moving



ABSOLUTES: SAFETY, ETHICS & CONTROLS

CIRCOR serves an ever increasing range of markets on a local, national and global level including :



Power
Generation



General
Industry



Processing



WasteWater



Midstream
Oil and Gas



Downstream
Oil & Gas



Mining &
Construction



Ports &
Yards



Defense





CHEMICAL PROCESSING – MINING & CONSTRUCTION – PULP & PAPER – WASTEWATER – FOOD & BEVERAGE – TEXTILES – HYDEL POWER – THERMAL POWER – SOLAR POWER – WIND POWER – OIL & GAS – STEEL – SUGAR

REDEFINING WHAT'S POSSIBLE

CIRCOR is redefining what's possible in the oil and gas, power generation, industry and commercial marine markets, collaborating with engineers and operators like you to develop the best fluid-handling solutions for your application.

Your toughest challenges are addressed with more than just an off-the-shelf product when you partner with CIRCOR. You get 160+ years of application experience, technology that's relied on to support numerous power and industrial plants every day worldwide, and a team of product and service specialists tasked with maximizing the efficiency of your operation – from the very start to the finish of your project.

All of this is enabled by a broad portfolio of pumps and engineered systems from brands you and your clients know and trust — Allweiler, Houttuin, IMO, Tushaco, Warren and Zenith — ensuring that you get the reliability your operations demand and expert levels of service that you require during design, commissioning and throughout operations.

As your single-source global supplier, we call this 'Total Savings of Ownership (TSO)' reducing the overall costs of your operation and increasing your profitability.

Note:

Please note that performance data and construction characteristics of our products may change due to continuous optimization and development.

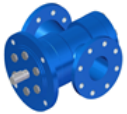
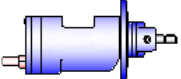

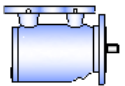
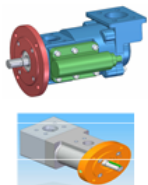
Product Overview

TUSHACO Three-screw pumps are rotary, self-priming Positive Displacement Pumps. The pumping elements consist of three moving parts: the power rotor (main screw) and two symmetrically opposed idler rotors, all operating within close fitting housing bores. The incoming process fluid is conveyed by the rotating power rotor by means of the cavity formed with the inter-meshing idler rotors.

From suction to discharge, the fluid is transferred by means of a series of constantly forming and re-forming chambers until it reaches the casing outlet. Symmetrical pressure loading on the power rotor eliminates the need for radial bearings to absorb radial forces. The idler rotors generate a hydrodynamic film, which provides radial support similar to journal bearings. Axial loads on the power rotor and idler rotors, created by differential pressure, are hydro-statically balanced. With this design arrangement, high differential pressures can be managed.

Main Applications

Utilized in all segments of industry where lubricating liquids are pumped that do not contain abrasive components, and which will not chemically attack the pump materials, e. g. heavy and diesel oil, circulation of lubricating and hydraulic oils.

Series	Product	Performance Data			
		Capacity	Diff. Pressure	Viscosity Range	Temp.
T3SI		0.9 - 25.8 m³/h	12 bar	15 to 760 cSt	80 °C
		16.5 - 430 lpm			
T3SZ		9.3 m³/h	12 bar	15 to 760 cSt	125 °C
		155 lpm			
T3ST		1.8 - 170 m³/h	40 bar	12 to 760 cSt	200 °C
		30 - 2835 lpm			
T3SFP		0.31 - 3.39 m³/h	40 bar	15 to 760 cSt	125 °C
		5.1 - 56 lpm			
TUSET		1.8 - 3.3 m³/h	40 bar	3 to 760 cSt	125 °C
		30 - 55 lpm			
		12 - 15 m³/h			
		200 - 250 lpm			

* For special requirements, contact CIRCOR Sales Team

Strengths of the technology:

- High pressure boost capabilities even when handling low viscosity fluids
- Pump with one of the highest overall efficiencies when aligned with only three rotating parts
- Virtually pulse-free flow with extremely low vibration and noise levels

General advantages of the three-screw pumps at a glance:

- Self-priming
- Virtually no pulsation
- Wide viscosity range
- High thermal resistance
- Low operating noise
- Very good efficiency
- Low wear
- Reliable during operation

Three-Screw Pumps

Brands

- > ALLWEILER®
- > IMO AB®
- > IMO®
- > TUSHACO®

Value Propositions:

Long service life

Hardened and ground screws; hydraulically driven idler spindles that are not subject to any wear.

Reliable operation

As overload protection a built-on-pressure relief valve is possible.

Low maintenance

Internal bearing lubricated by pumped liquid or external bearing grease lubricated.

Easy maintenance

Complete insert unit dismountable. The pump casing remains in the piping.

Flexible configuration










Shaft sealing alternatively by shaft seal rings, mechanical seal or magnetic coupling according to the operating conditions.

Product Overview

Manufactured under the brand name Houttuin, this technology utilizes two inter-meshing screws synchronized by a set of external timing gears, which are assembled into a close fit figure-eight-shaped housing. The operating principle employed is based on the non-contacting concept of positive displacement (PD) pumps, which means a combination of timing gears are used to prevent the screws from touching each other. In addition, radial bearings orienting the screws position in the bores permits this technology to defy the capabilities of many PD pumps offered in the industry for non-lubricating fluids. With no need for contacting surfaces and no dependence on fluid film support, twin-screw pumps can be made using many different materials. They operate at a wide range of speeds while dealing with conventional and unconventional fluids with properties like ultra-low and ultra-high viscosity, gas entrainment, contamination and corrosives. This technology is particularly suitable for industries, where fluids are non-Newtonian, shear sensitive, have high vapor pressures, varying viscosities, and where processes are solvent flushed, heated, batched or drained.

Main Applications

The Houttuin, Tushaco and Warren Pumps are used worldwide in the chemical and petrochemical industry, tank farms, power plants, offshore, refineries, shipbuilding and defense, soap, food, beverage, plastics and sugar industries.

Series	Product	Capacity	Performance Data			
			Inlet Pressure	Outlet Pressure	Viscosity Range	Temp.
136		Upto 20 m3/h	Up to 1 bar	Up to 10 bar	0.6 to 1500 cSt	Up to 120 °C
		Upto 330 lpm				
211 (TDSV*)		Upto 300 m3/h	Up to 10 bar	Up to 16 bar	0.6 to 1500 cSt	-5 °C to 100 °C
		Upto 5000 lpm				
215		Upto 490 m3/h	N.A.	Up to 10 bar	20 to 760 cSt	Up to 80°C
		Upto 8165 lpm				
216 (TDSH*)		Upto 1100 m3/h	Up to 10 bar	Up to 16 bar	0.6 to 1500 cSt	-5 °C to 100 °C
		Upto 18335 lpm				
231 (TDLV*)		Upto 300 m3/h	Up to 10 bar	Up to 16 bar	0.6 to 1500 cSt	-5 °C to 100 °C
		Upto 5000 lpm				
236 (TDLH*)		Upto 6000 m3/h	Up to 40 bar	Up to 40 bar	0.6 to 5000 cSt	-5 °C to 140 °C
		Upto 10000 lpm				
249		Upto 2500 m3/h	Up to 10 bar	Up to 16 bar	0.6 to 5000 cSt	Up to 140 °C
		Upto 41675 lpm				
MR		Upto 4175 m3/h	Up to 40 bar	Up to 40 bar	1 to 5000 cSt	5°C to 150 °C
		Upto 69595 lpm				
TT		Upto 3400 m3/h	-	Up to 20 bar	1 to 5000 cSt	Up to 140 °C
		Upto 56675 lpm				

(# Former Series) * For special requirements, contact CIRCOR Sales Team

Strengths of the technology:

- Tolerates contamination
- Large range of viscosity
- Runs dry
- Low shear
- Variable speed

General advantages of the twin-screw pumps at a glance:

- Wide range of materials
- High temperature up to 698°F / 370°C High
- Flows up to 22,000 gpm / 5,000 m³/h
- Low NPSHr value
- Easy maintenance

Twin-Screw Pumps

Brands

- > **HOUTTUIN™**
- > **TUSHACO®**
- > **WARREN®**

Value Propositions:

Long service life

Precision gears prevent screw contact by maintaining a constant space between the screws, resulting in less wear on the screws.

Insensitive to impurities

Insensitive to impurities because there is no metal contact between the screw-shafts and the cylinder bore.

High performance

High suction capability due to good sealing of inter-meshing screw profiles.

API Compliant Pump

API 676 3rd edition compliance

Customization

Custom rotor pitches & profiles, seal types and suction / discharge orientation

Product Overview

The TUSHACO single-screw pumps / progressive cavity is positive displacement rotary pump and the actual elements of the pump are the rotor and the stator. The single helical rotor rolls eccentrically in a double threaded helix stator of twice the pitch length. A series of sealed cavities 180° are created that progress from suction to discharge. The opposing cavities fill and empty simultaneously resulting in pulsation less flow. The fluid travels axially with relatively low velocity and minimal agitation. The stator is made of resilient elastomeric material and vulcanized to the stator tube providing a slight radial interference of the tool steel chrome plated rotor in the stator.

The important feature of the pumping principle is the ability to handle slurries and solid particles. The elastomer stator adds abrasion resistance beyond that of conventional rotary pumps. The particle tends to imbed rather than abrade the elastomer stator also allowing deformation to partially accommodate the solid particles. The compression fit of the rotor and stator enables the pump to handle gaseous liquids and low viscosity liquids. The pressure capabilities of the pump are a function of the number of times the progressive seal lines are repeated.

Main Applications

Utilized in all segments of chemical and petrochemical industries, but also for wastewater and environmental engineering, food and pharmaceutical industry, pulp and paper industry.



WASTEWATER



PULP & PAPER



ENVIRONMENTAL



INDUSTRIAL

Performance Data

Series	T1S, T1SB
Model	25, 50, 100, 200, 380, 550, 750, 1450, 2700, SMP2
Capacity	25 to 2700 lpm
Mounting	Horizontal, Vertical
Sealing	Gland Packing and Mechanical Sealing
Viscosity Range	1 to 100,000 cSt
Temperature	Up to 150°C
Rotor and Stator Stage	Single & Double Stage
Differential Pressure	Single Stage Std. Stator: 6 bar Single Stage EW Stator: 12 bar Double Stage Std. Stator: 12 bar Double Stage EW Stator: 24 bar

* For special requirements, contact CIRCOR Sales Team

Strengths of the technology:

- Continuous, extremely gentle, low pulsation pumping
- Excellent self-priming features
- Dry substance content up to 45 %

General advantages of Single-screw pumps at glance:

- No deposits inside the casing
- No bridge forming
- Vibration-free, higher operating speeds, longer service lives
- Cavity lines can be constructed with stainless steel & 10 standard elastomer materials
- Easy disassembly
- Easy to maintain
- Shaft sealing variable

Single-Screw Pumps

Brands

> ALLWEILER® > TUSHACO®

Value Propositions:

Low maintenance and spare part costs

Patented, zero-play stub shaft connection, internal bearing, removable bearing bracket, high-quality joint design, joints are protected against overpressure, solids and are lifetime-lubricated with oil.

Maximum Efficiency

Greater power density with innovative 1/2-screw pumping elements, stators with uniform clamping and special scaled, facet-like surface.

Low Energy Requirements

Rotors with lower friction, shaft seal with very small diameter and up to 50% lower friction loss.

Handle Solid Particles

Can handle solid particles with liquid



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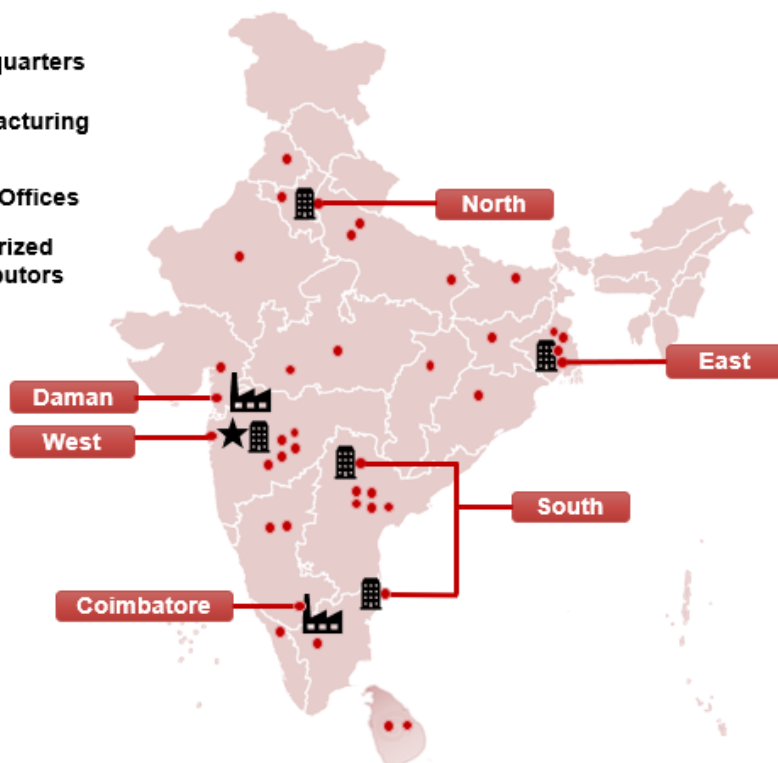
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Allweiler India Pump Division



Products:

- 3-Screw Pumps
- 2-Screw Pumps
- Single Screw - PC Pumps
- Gear-Lobe-Shuttle Block Pumps
- Lube Oil and Fuel Oil Skids / Alignments

■ Global Engineering

CIRCOR Flow Technologies Valve Division



Products:

- Industrial Valves
- Refinery Valves
- Aerospace & Defense Valves
- Systems

■ Global Engineering

■ Global Sourcing

Fully Integrated Manufacturing Facilities



CIRCOR is a market-leading, global provider of integrated flow control solutions, specializing in the manufacture of highly engineered valves, instrumentation, pumps, pipeline products and services, and associated products, for critical and severe service applications in the oil and gas, power generation, process, aerospace and defense industries.

Excellence In Flow Control

Asia | Europe | Middle East | North America | South America

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