

# Gear-Lobe-Shuttle Block Pumps

## Product Catalog

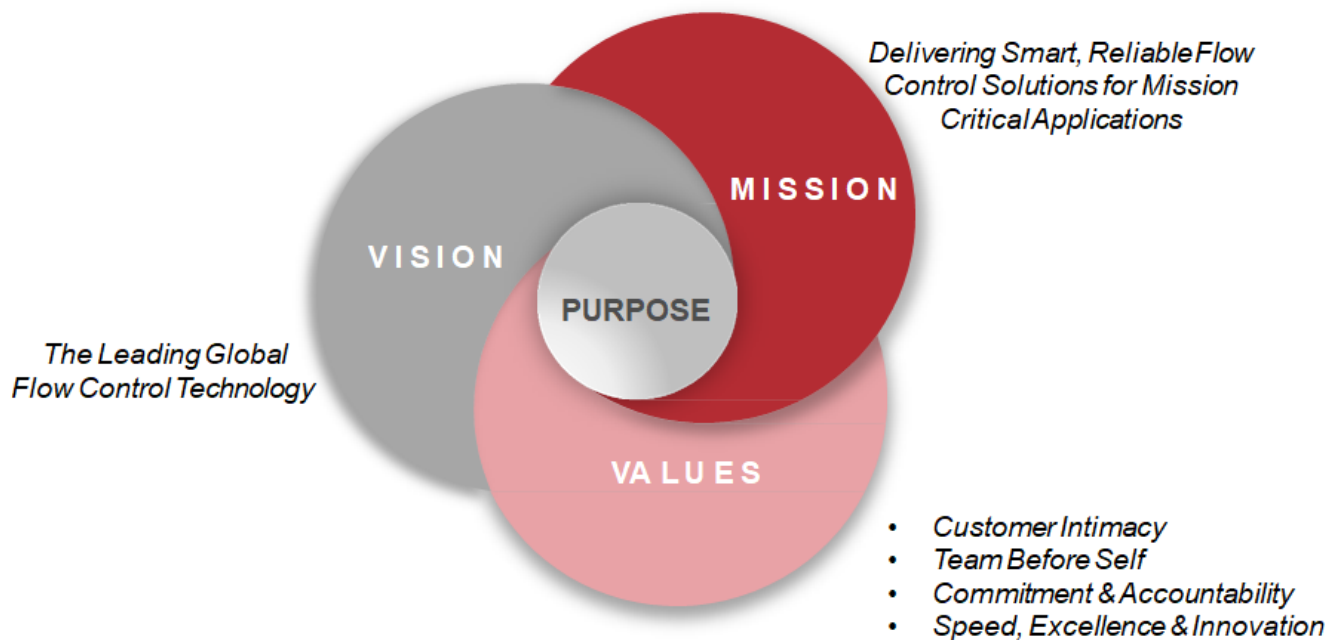


TUSHACO®



# 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.

# EXTERNAL GEAR PUMPS - EG Series

## WORKING PRINCIPLE:

The External gear pump employs two identical gears rotating against each other - one gear is driven by a motor and it in turn drives the other gear. As the gears come out of mesh, they create expanding volume on the inlet side of the pump. Liquid flows into the cavity and is trapped by the gear teeth as they rotate. Liquid travels around the interior of the casing in the pockets between the teeth and the casing.

## MAIN APPLICATIONS:

- Transfer, booster and Process pumping for general industry needs
- Unloading of tank lorries and rail car
- Loading of rail cars, tank lorries and barrel filling

## LIQUIDS:

- All grade of fuel oils, Lube oil, Paints, Varnish, Resins, Grease and similar high/low viscous products having some lubricating value



**EXTERNAL GEAR PUMP**

## PRODUCT SPECIFICATIONS AND FEATURES:

Casing	Cast Iron
Cover	Cast Iron
Gears	Carbon Steel - Nitrided
Shaft	SS 410
Seal	Non Asbestos Gland Pack / Mechanical seal
Capacity	125 - 850 lpm
Outlet Pressure	Up to 10 bar
Viscosity	6 - 5000 cSt
Temperature	Up to 140°C
Speed	Up to 1450 rpm
Drive	Direct Only
Rotation	Anti-clockwise facing pump drive shaft

## VALUE PROPOSITION:

- High speed
- No overhung bearing loads
- Protected by a relief valve
- Relatively quiet operation
- Single sealing, external bearing
- Low noise and pulsation
- Reversibility
- Easy maintenance

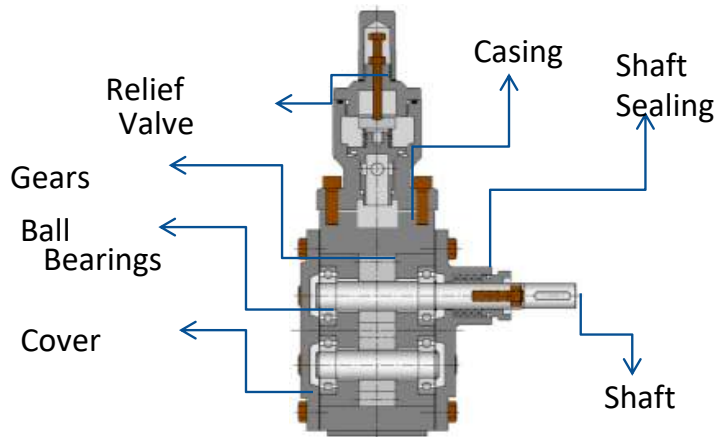
## MARKET SEGMENTS:

- Power Generation
- Steel
- Paint
- Chemical
- Oil Depots



CONSTRUCTION:

Each gear is supported by shaft with bearings on both the sides of the gear. Because the gears are supported on both the sides, external gear pumps are quiet - running and are routinely used for low and medium applications. With no overhung bearing loads, the rotor shaft can not deflect and cause premature wear. Comes with a Built-in Relief valve



PERFORMANCE DATA :

Pump Model	Capacity / Power	Pressure (bar)				Suction & Discharge
		0	2	4	6	
R-25-EG (35)	Capacity (lpm)	150	145	141	136	2" BSP
	Power (kW)	1.38	1.77	2.18	2.72	
R-50-EG (55)	Capacity (lpm)	234	225	220	215	2" BSP
	Power (kW)	1.92	2.74	3.37	4.25	
R-75-EG (80)	Capacity (lpm)	420	410	405	400	3" ANSI, B16.5, 125#
	Power (kW)	5.35	6.45	7.74	8.21	
R-100-EG (125)	Capacity (lpm)	655	649	645	638	3" ANSI, B16.5, 125#
	Power (kW)	7.21	9.92	11.95	12.98	

Testing Medium: Lube Oil      Viscosity: 75 cSt      Speed: 1450      \* For special requirements, contact CIRCOR Sales Team

# INTERNAL GEAR PUMPS - IG Series

## WORKING PRINCIPLE:

The Internal gear pump employs proven Internal gearing (Gear within gear) principle for pumping. As the gears come out of mesh, a partial vacuum is created, forcing the fluid to rush into the pump casing and fill in voids between teeth. Both gears rotating in the same direction of rotation gently transfer the fluid to the delivery port.

## MAIN APPLICATIONS:

- Loading, unloading, transfer, circulation and process pumping of a very wide range of products typically as thin as diesel oil to extremely high viscous substances
- Unloading of tank lorries and rail car
- Loading of rail cars, tank lorries and barrel filling

## LIQUIDS:

- Bitumen, coal, tar, crude oil, fuel oil, lacquer, linseed oil, lubricating oils, molasses, paint, etc.



**INTERNAL GEAR PUMP**

## PRODUCT SPECIFICATIONS AND FEATURES:

Rotors	Carbon Steel
Casing	Cast Iron
Pinion	Carbon Steel
Shaft	SS 410
Seal	Non Asbestos Gland Pack / Mechanical Seal
Capacity	70 - 800 lpm
Outlet Pressure	Up to 7 bar
Viscosity	40 - 1,00,000 cSt
Temperature	Up to 200°C
Speed	Up to 1450 rpm
Drive	Direct Only
Rotation	Anti-clockwise facing pump drive shaft

## VALUE PROPOSITIONS:

- Smooth quiet flow
- Excellent self priming
- Insensitive to viscosities
- Single sealing, external bearing
- Low noise and pulsation
- Reversibility
- Easy maintenance

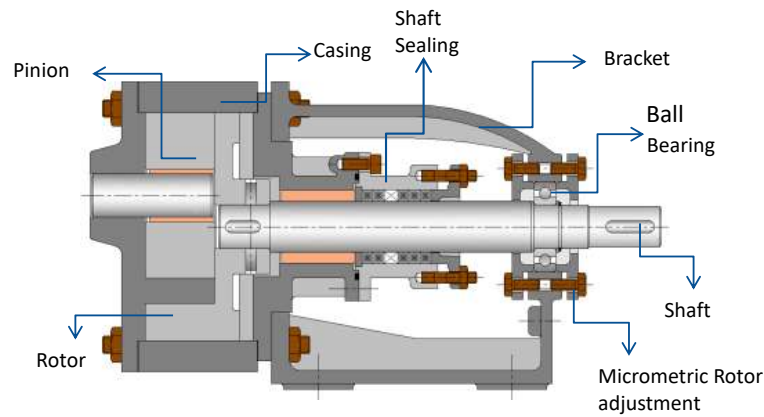
## MARKET SEGMENTS:

- Food & Beverages
- Pharmaceutical
- Chemical



CONSTRUCTION:

Single shaft design well supported on outboard bearing enables to pump products even with poor lubricating value. The main gear is keyed to the drive shaft and rotates concentric in the pump casing. Idler is located on an eccentric pin on the front cover to rotate freely and meshes with main gear when assembled. A crescent shaped partition precision machined on the front cover, maintains a small but positive clearance to achieve perfect sealing between parts.



PERFORMANCE DATA:

Pump Model	Speed (rpm)	Capacity / Power	Pressure (bar)				Suction & Discharge
			0	2	4	6	
R-20-DG	1450	Capacity (lpm)	83	80	77	74	1-1/2" BSP
		Power (kW)	0.8	1.12	1.32	1.52	
TIG-100	960	Capacity (lpm)	230	224	220	217	2" ANSI,B16.5, 150#
		Power (kW)	2.9	3.45	5.20	6.1	
TIG-150	750	Capacity (lpm)	360	352	340	300	2-1/2" SAE
		Power (kW)	1.9	3.1	4.85	6.72	
TIG-200	480	Capacity (lpm)	368	362	352	342	3" ANSI,B16.5, 150#
		Power (kW)	3.1	3.15	5.52	8.19	

Testing medium: Lube Oil      Viscosity: 75 cSt      \* For special requirements, contact CIRCOR Sales Team

# SHUTTLE BLOCK PUMPS - SL Series

## WORKING PRINCIPLE:

The E-SL (Shuttle Block) pump employs an unique pumping principle - a combination of Rotary and Piston pump. Two double acting pistons in their respective slots at right angles to each other, accomplish this, while the rotor turns without the need for any valving. The Shuttle block pump is a self priming rotary pump. There are only three pumping elements - Rotor, Piston and Shuttle. Rotor is keyed to a single shaft and runs concentric in pump casing. It has a rectangular slot across its face. The channel-shaped piston reciprocates within this slot. A rectangular block, shuttle, fits liquid tight in piston slot and reciprocates. The rotary action of rotor combined with the eccentrically mounted shuttle creates reciprocating motion among the pumping elements.

## MAIN APPLICATIONS:

- Loading, unloading, transfer, circulation and process pumping of a very wide range of products typically as thin as diesel oil to extremely high viscous substances
- Unloading of tank lorries and rail car
- Loading of rail cars, tank lorries and barrel filling

## LIQUIDS:

- Pump can handle highly viscous liquids or thin volatile material



**SHUTTLE BLOCK PUMP**

## PRODUCT SPECIFICATIONS AND FEATURES:

Rotors	Cast Iron
Casing	Cast Iron
Cover	Cast Iron
Piston	Carbon Steel
Shaft	SS410
Seal	Gland Packing / Mechanical seal
Capacity	220 - 970 lpm
Outlet Pressure	Up to 6 bar
Viscosity	3 - 5000 cSt
Temperature	Up to 140°C
Speed	Up to 1450 rpm
Drive	Direct / V-belt
Rotation	Anti-clockwise facing pump drive shaft

## VALUE PROPOSITIONS:

- Handle highly viscous liquids
- Low noise and vibrations
- Smooth, pulsation-free flow
- Front pull out design, rotor removal without dismantling the pump and motor
- High reliability and excellent service life
- High volumetric efficiency, low power requirements
- Long stuffing box construction with external bearing reduces leakages to minimum

## MARKET SEGMENTS:

- Oil & Gas
- Food Processing
- Petrochemical
- Chemical

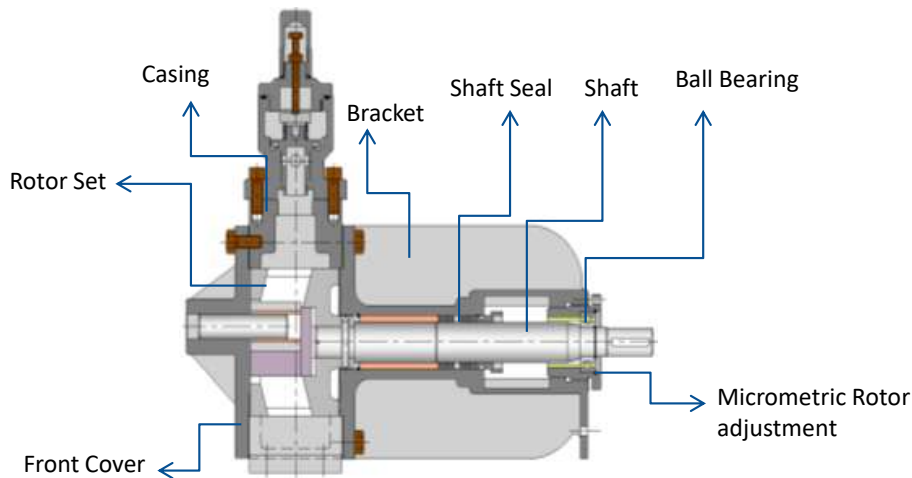


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CONSTRUCTION:

There are three pumping elements - Rotor, Piston and Shuttle. Rotor is keyed to a single shaft and runs concentric in pump casing. It has a rectangular slot across its face. The channel-shaped piston reciprocates within this slot. A rectangular block, shuttle, fits liquid tight in piston slot and reciprocates. The reciprocating action of piston in rotor and shuttle in piston is due to an eccentric pin fixed on the pump cover and engaging the shuttle bore as the rotor turns in the pump casing.



PERFORMANCE DATA:

Pump Model	Speed (rpm)	Capacity / Power	Pressure (bar)				Suction & Discharge
			0	2	4	6	
R-50-SL	1000	Capacity (lpm)	240	235	230	220	2" ANSI,B16.5, 125#
		Power (kW)	1.3	1.8	2.7	3.5	
R-100-SL	720	Capacity (lpm)	452	444	431	415	3" ANSI,B16.5, 125#
		Power (kW)	1.8	2.4	4.9	6.2	
R-200-SL	400	Capacity (lpm)	970	940	918	851	4" ANSI,B16.5, 150#
		Power (kW)	4.85	8.31	13.02	18.00	

Testing medium: Lube Oil    Viscosity: 50 cSt    \* For special requirements, contact CIRCOR Sales Team

# LOBE (TROCHOIDAL) PUMPS - RT Series

## WORKING PRINCIPLE:

An internal lobe pump unit consists of an inner and outer rotor. The inner rotor has one teeth lesser than the outer rotor. RT series uses a trochoidal inner rotor and an outer rotor formed by a circle with intersecting circular arcs. The inner rotor is located off-center and both rotors rotate. During part of the assembly's rotation cycle, the area between the inner and outer rotor increases thus creates a vacuum. This vacuum creates suction, and hence, this part of the cycle is where the intake is located. Then, the area between the rotors decreases, causing compression. During this compression period, fluids can be pumped, or compressed (if they are gaseous fluids).

Smooth rolling action of the rotors results in minimum noise, vibration and pulsation - less flow.

## MAIN APPLICATIONS:

- Transfer of lubricating oils
- Pressure lubrication and cooling of bearings
- Oil circulation through cooler, gear lubrications, etc.
- Transfer of fuel oils
- Boosting of fuel oil pressure for oil burner service and fuel injection pumps

## LIQUIDS:

- Pump has been designed to handle fuel and lubricating oil as well as other fluids with similar properties



**ROTARY TROCHOIDAL PUMP**

## PRODUCT SPECIFICATIONS AND FEATURES:

Rotors	Sintered Iron, Cast Iron
Casing	Cast Iron
Shaft	SS 410
Seal	Oil Seal (Nitrile) / Gland / Mechanical Seal
Capacity Outlet	03 - 200 lpm
Pressure	Up to 8 bar
Viscosity	6 - 1500 cSt
Temperature	Up to 80°C
Speed	Up to 1450 rpm
Drive	Direct only
Rotation	Anti-clockwise facing pump drive shaft

## VALUE PROPOSITIONS:

- High speed operation and vibration free running
- Smooth, pulsation free flow
- Negligible maintenance
- High suction lifts and low noise level
- High volumetric efficiency and overall efficiency
- Compact and light weight design
- Ease of dismantling and assembly

## MARKET SEGMENTS:

- Power Generation
- Oil & Gas
- Machine Tool
- Cement
- Steel

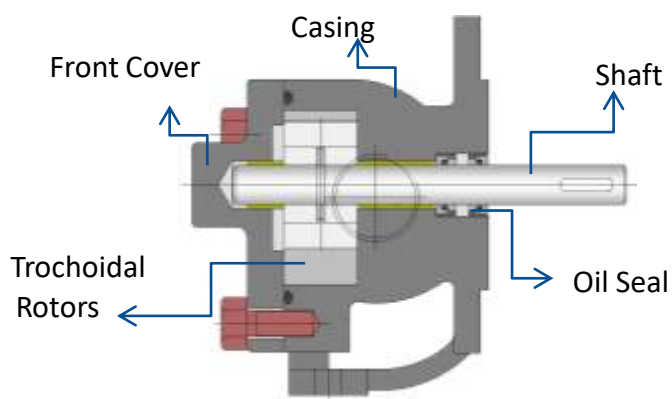


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**CONSTRUCTION:**

There are only two pumping elements in a Rotary Trochoidal pump. The flow of liquid is axial through elements. Also there is only one shaft, well supported at both ends of rotor for smooth, vibration-free running and eliminating bearing problems normally found in conventional gear pumps. The pumps has a very low noise level.

**PERFORMANCE DATA:**

Pump Model	Capacity / Power	Pressure (bar)					Suction & Discharge
		0	2	4	6	8	
RT-03	Capacity (lpm)	3.85	3.72	3.60	3.45	3.00	1/4" BSP
	Power (kW)	0.09	0.12	0.17	0.20	0.24	
RT-10	Capacity (lpm)	11.8	11.54	11.11	10.71	10	1/2" BSP
	Power (kW)	0.16	0.22	0.28	0.34	0.45	
RT-15	Capacity (lpm)	17.6	17	16	15.5	15	1/2" BSP
	Power (kW)	0.24	0.3	0.38	0.48	0.58	
RT-20	Capacity (lpm)	25	24	22	21	19	1/2" BSP
	Power (kW)	0.26	0.36	0.45	0.55	0.7	
RT-40	Capacity (lpm)	45	44	43	41	40	1" BSP
	Power (kW)	0.21	0.3	0.5	0.7	0.85	
RT-80	Capacity (lpm)	86	84	82	81	76	1-1/2" BSP
	Power (kW)	0.6	0.7	1.1	1.5	1.9	
RT-125/32	Capacity (lpm)	131	129	126	123	120	2" BSP
	Power (kW)	1.24	1.59	2.03	2.58	3.18	

Testing medium: Lube Oil    Viscosity: 75 cSt    Speed: 1450

\* For special requirements, contact CIRCOR Sales Team

# LOBE (TROCHOIDAL) PUMPS - MONOBLOCK - RTBP Series

## WORKING PRINCIPLE:

An internal lobe pump unit consists of an inner and outer rotor. The inner rotor has one teeth lesser than the outer rotor. RTBP series uses a trochoidal inner rotor and an outer rotor formed by a circle with intersecting circular arcs. The inner rotor is located off-center and both rotors rotate. During part of the assembly's rotation cycle, the area between the inner and outer rotor increases thus creates a vacuum. This vacuum creates suction, and hence, this part of the cycle is where the intake is located. Then, the area between the rotors decreases, causing compression. During this compression period, fluids can be pumped, or compressed (if they are gaseous fluids). Smooth rolling action of the rotors results in minimum noise, vibration and pulsation - less flow.

## MAIN APPLICATIONS:

- Transfer of lubricating oils
- Pressure lubrication and cooling of bearings
- Oil circulation through cooler, gear lubrications, etc.
- Transfer of fuel oils

## LIQUIDS:

- Pump is well suitable for operation on clean liquid and for low pressure lubrication services



**ROTARY TROCHOIDAL PUMP**

## PRODUCT SPECIFICATIONS AND FEATURES:

Rotors	Sintered Iron
Casing	Cast Iron
Shaft	20MnCr5
Seal	Oil Seal (Nitrile)
Capacity	10 - 40 lpm
Outlet Pressure	Up to 6 bar
Viscosity	6 - 750 cSt
Temperature	Up to 80°C
Speed	Up to 1450 rpm
Drive	Direct only
Rotation	Anti-clockwise facing pump drive shaft

## VALUE PROPOSITIONS:

- Capable of running at direct motor speed
- Considerable saving in power
- Low noise and vibrations
- Smooth, pulsation free flow
- Very compact installation
- High suction lift
- Negligible maintenance
- Ease of dismantling and assembly
- Elimination of bearings
- Compact design

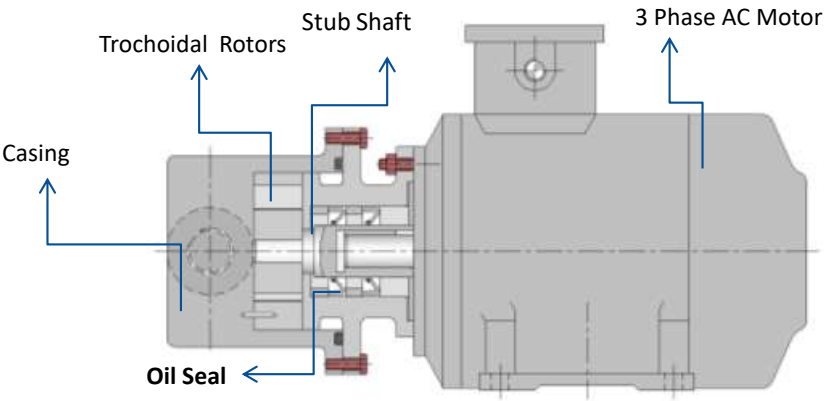
## MARKET SEGMENTS:

- Power Generation
- Oil & Gas
- Machine Tool
- Cement
- Steel



CONSTRUCTION:

There are only two pumping elements in a Rotary Trochoidal pump. The flow of liquid is axial through elements. Also there is only one shaft, well supported at both ends of rotor for smooth, vibration-free running and eliminating bearing problems normally found in conventional gear pumps. The pumps has a very low noise level.



PERFORMANCE DATA:

Pump Model	Capacity / Power	Pressure (bar)				Suction & Discharge
		0	2	4	6	
RTBP-10	Capacity (lpm)	11.8	11.54	11.11	10.71	1/2" BSP
	Power (kW)	0.16	0.22	0.28	0.34	
RTBP-20	Capacity (lpm)	25	24	22	21	3/4" BSP
	Power (kW)	0.26	0.36	0.45	0.55	
RTBP-40	Capacity (lpm)	45	44	43	41	3/4" BSP
	Power (kW)	0.21	0.3	0.5	0.7	

Testing medium: Lube Oil    Viscosity: 75 cSt    Speed: 1450

\* For special requirements, contact CIRCOR Sales Team

# CIRCOR India Footprint

## Head Office & Western Region

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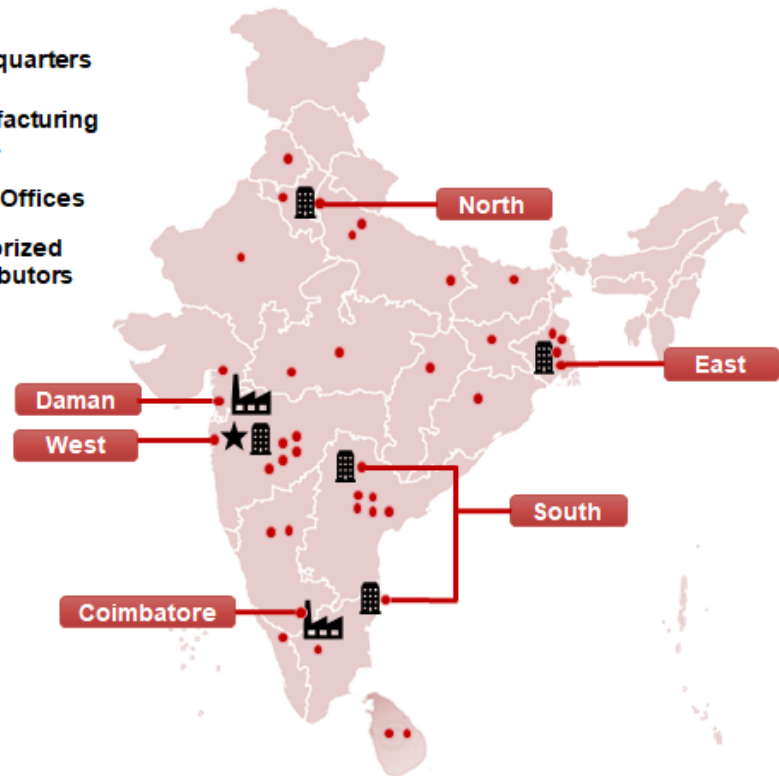
## Eastern Region

Trinity Plaza, 4B, 4th floor, 84/1A,  
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- ★ Headquarters
- Manufacturing Plants
- Sales Offices
- Authorized Distributors



### Daman Plant

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Road, Ponnandampalayam,  
Coimbatore - 641659, Tamil Nadu  
India. Tel. +91-421-2321600

## 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

### ■ Global Engineering

## CIRCOR Flow Technologies Valve Division



### Products:

- Industrial Valves
- Refinery Valves
- Aerospace & Defense Vales
- 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

### Authorized Distributors Contact Details



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