

Heavy Duty Series



Circumferential Piston Process Pumps

Pump Your Heart Into It



»» PROBLEM SOLVED!

Tuthill offers the Heavy Duty (HD) Series for the most demanding applications – slurries, high viscosity products, suspended solids, concentrated acids, chemicals, high temperature liquids, sludge, resins, sewage and scum, paints, polymers, plastics, pharmaceuticals, foods, and shear sensitive fluids. This rotary positive displacement, circumferential piston pump is Tuthill's severe-duty problem solver. Heavy-duty construction provides longer life in the toughest pumping applications.

»» A CLASSIC DESIGN WITH LEGENDARY PERFORMANCE

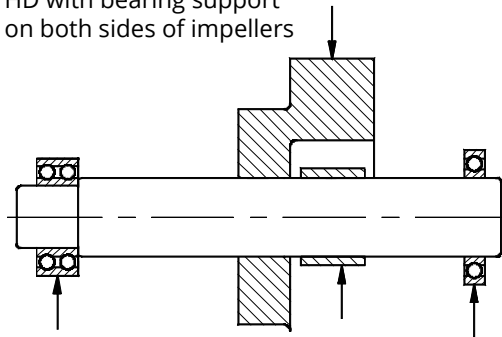
The secret behind the HD Series success is external bearing support on both sides of the impellers which enables the pump to handle high pressure and pressure spikes associated with sudden surges of viscous mass. The load diagrams below show the rigid HD design compared to cantilevered designs with shaft deflections that can result in galling and seizing of the pump.

PERFORMANCE RANGES

- Flow Range to 520 GPM (118 M³/Hr)
- Differential Pressure to 450 PSI (31.0 BAR)
- Viscosity to **4,400,000** cts
- Temperature to 600 °F (315 °C)
- Self Priming to 14 Feet

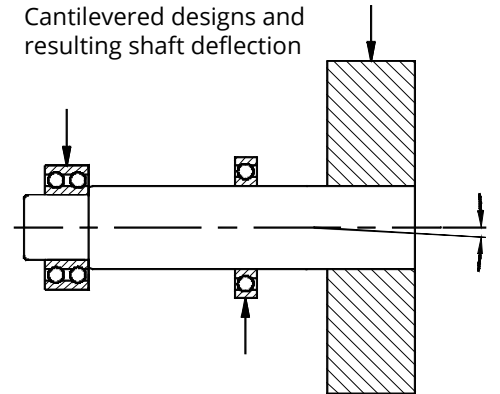
TUTHILL

HD with bearing support on both sides of impellers



COMPETITORS

Cantilevered designs and resulting shaft deflection

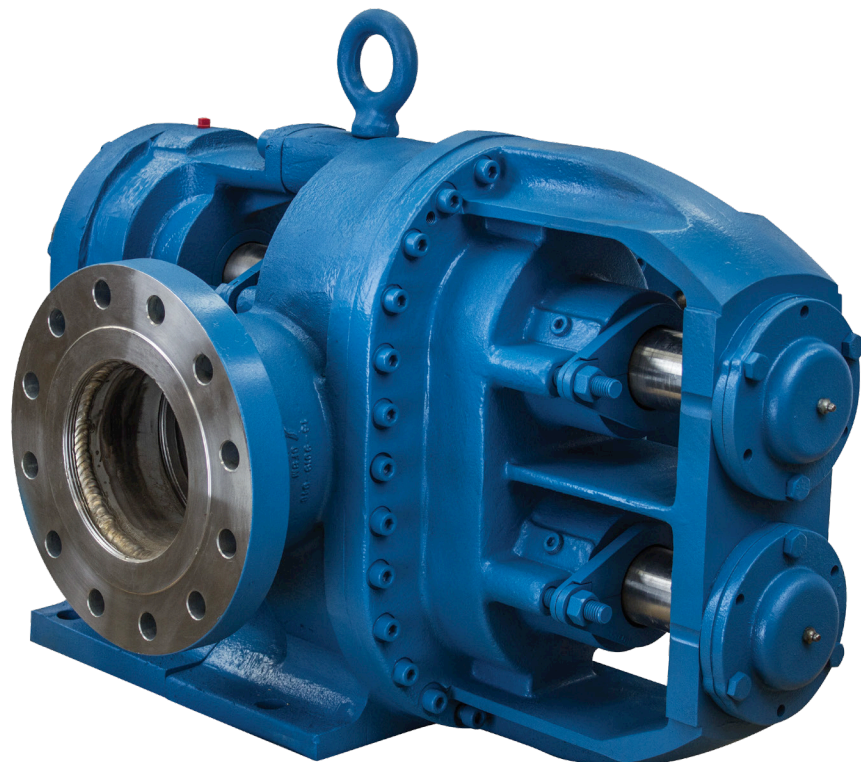


»» CUSTOMIZING YOUR HD PUMP

HD Pumps are very versatile and can be customized to meet the requirements of specific applications. Suction and discharge ports can be reversed by changing shaft rotation.

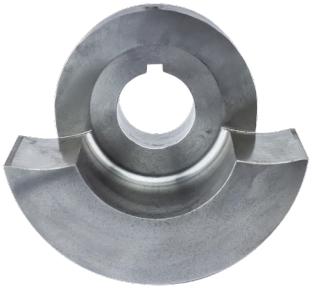
OPTIONAL FEATURES

- Heat Jackets
- Relief Valves
- Special Clearances
- High Pressure Flanges
- Special Construction
 - Abrasive Fluid
 - High Temperatures



»» THE HD ADVANTAGE

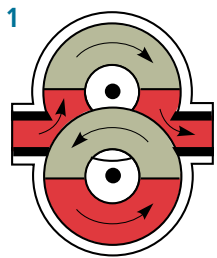
SINGLE LOBE IMPELLERS



Single lobe impellers provide maximum strength for highly viscous fluids and slurries, along with high discharge pressure and minimal shear characteristics on fluids

- External timing gears in separate oil filled reservoir provides no metal to metal contact synchronous impeller action that reduces shear and allows intermittent run dry without damage to the pump
- Oil lubricated roller bearings provide support for maximum radial loading in models 70A, 120A, 330, and 600.
- Constant diameter shafts (no steps in torque transmission areas) for maximum strength and minimum deflection.
- Housing bushing, positioned under maximum radial load, assuring minimum shaft deflection.
- A selection of sealing solutions is offered including TUFFSEALL™ heavy duty mechanical seals, and packing.
- Housing and gear case are foot mounted to minimize distortion and vibration.
- Heavy duty, grease lubricated, double-row ball bearings for combined radial loading and axial positioning.
- Casings and gear case are precision machined and dowel pin aligned. Procedure results in full interchangeability should field replacement be required.

»» NO METAL-TO-METAL CONTACT IN THE COMPLETELY ISOLATED FLUID CHAMBER



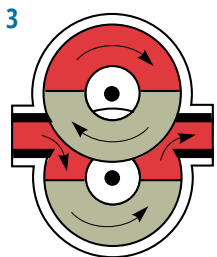
1 Top impeller has started suction cycle and is completing the discharge cycle.

Lower impeller is transferring liquid from the suction to the discharge side of the pump.



2 The top impeller completes suction cycle.

Lower impeller starts to discharge.



3 The top impeller is transferring liquid from suction to discharge.

Lower impeller has started the suction cycle and is finishing the discharge cycle.



4 The top impeller is starting discharge cycle.

Lower impeller is finishing suction cycle.

»» SEALING SOLUTIONS

Cartridge Lip Seal Technology has been successfully applied to a number of HD pump applications to address the requirements of leak free performance with intermittent run dry conditions. Optional power monitors are offered as run dry protection and are recommended for use with single mechanical seals where run dry conditions are possible.

SEALING OPTIONS

- TUFFSEALL™ (Triple Lip Cartridge Seal)
- Food Grade Packing
- Packing with Flush Arrangements
- Standard PTFE / Graphite Packing
- Single or Double Slurry Seals
- Solvent Compatible O-Rings
- Engineered Packing

» SPECIFICATION DATA

MODEL	FLOW RATE		MAXIMUM DIFFERENTIAL		MAXIMUM SPEED	WEIGHT	
	GPM	M ³ /HR	PSI	BAR	RPM	LBS	KG
70A	52	12	450	31.0	350	280	127
120A	105	24	450	31.0	350	300	136
330	265	60	450	31.0	350	550	249
600	520	118	450	31.0	350	900	408

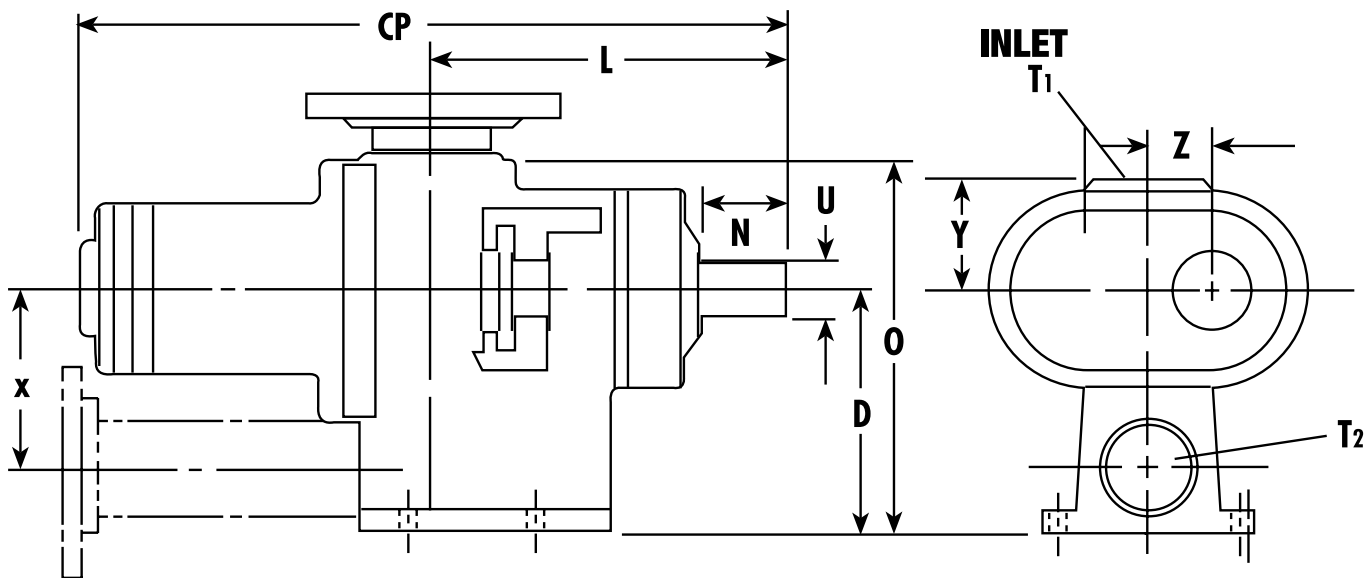
STANDARD MATERIALS OF CONSTRUCTION

HOUSING:	Ductile Iron, 316 Stainless Steel
HOUSING BEARING:	DU/Bronze in Model 330, Carbon
FACEPLATE:	Ductile Iron, 316 Stainless Steel
FACEPLATE BEARING:	Outboard Ball Bearing
IMPELLERS:	Ductile Iron, 316 Stainless Steel
SHAFTS:	17-4 Stainless Steel
GEAR CASE:	Gray Iron

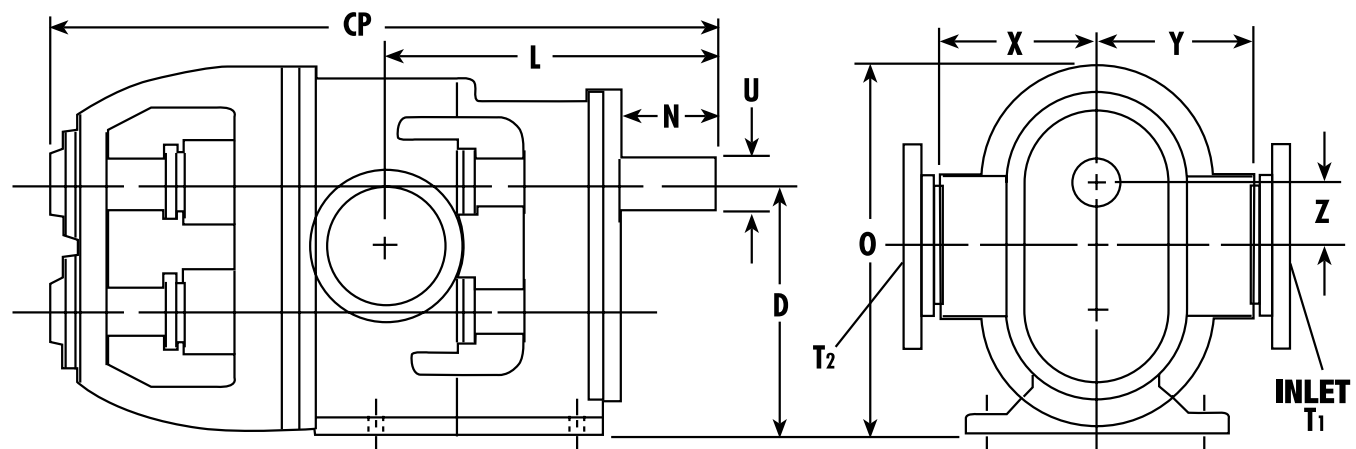
CAUTION: The fluid being pumped must always be specified. Applications above 200 PSI (13.8 BAR), 350 °F (177 °C), or 200 RPM must be reviewed by Tuthill to insure proper pump selection.

MODEL	T1		T2		CP		D		L		N		O		U		X		Y		Z	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
70A	3	76	2	51	24 ⁷ / ₁₆	620	8 ¹ / ₂	216	12 ⁷ / ₈	327	3 ¹ / ₂	89	13 ³ / ₄	337	1 ⁷ / ₈	48	6 ¹ / ₄	159	4 ³ / ₄	121	2 ¹ / ₂	64
120A	4	102	3	76	24 ⁷ / ₁₆	620	8 ¹ / ₂	216	12 ³ / ₈	314	3 ¹ / ₂	89	13 ³ / ₄	337	1 ⁷ / ₈	48	6 ¹ / ₄	159	4 ³ / ₄	121	2 ¹ / ₂	64
330	5	127	4	102	29 ¹ / ₂	748	10 ³ / ₄	273	14 ⁵ / ₃₂	363	4	102	16 ⁷ / ₈	429	2 ¹ / ₄	57	8	203	6 ⁷ / ₈	156	3 ³ / ₁₆	81
600	6	152	6	152	36 ⁷ / ₁₆	929	13 ³ / ₄	349	18 ⁹ / ₁₆	471	5 ⁷ / ₁₆	138	20 ¹ / ₄	514	2 ¹ / ₂	64	9	229	9	229	3 ¹ / ₂	89

MODELS 70A, 120A, & 330



MODEL 600





Tuthill's Heavy Duty Series has established itself as a proven problem solver for candy manufacturers all over the world.

»» INDUSTRIES AND APPLICATIONS

PULP & PAPER

- BLACK LIQUOR SOAP
- PINE TAR
- SKIMMING
- TALL OIL
- WOOD PULP & LYE

ADHESIVES & SEALANTS

- CAULKING MASTIC
- COATING
- GLUES
- RUBBER CEMENT
- SILICONE
- TAPING COMPOUND
- TAR

CONSTRUCTION MATERIAL

- ASPHALT & BITUMEN
- ASPHALTIC BASE LUBRICANT
- CONCRETE CURRING COMPOUND
- LIMESTONE
- MUD, CLAY, & SLURRY
- ROOFING PRODUCTS
- VINYL LAMINATE

WATER WASTEWATER

- EFFLUENT
- SCUM & SLURRY
- SECONDARY SLUDGE

ENERGY & POWER

- ALTERNATIVE FUEL
- COAL SLURRY
- CRUDE COKE TAR
- TURBINE WASTE OIL

PERSONAL PRODUCTS

- ABS LATEX
- AQUEOUS POLYMER
- DENTAL PASTE
- DETERGENT
- OINTMENT CREAM
- SOAP & SHAMPOO
- SURFACTANT

CHEMICAL PROCESSING

- CELLULOSE ACETATE
- PIGMENTS
- POLYMERS
- POLYSTYRENE
- RESIN
 - ALKYD
 - EPOXY
 - MELAMINE
 - PHENOLIC
 - POLYESTER
 - POLYOL
 - SMC
- TRIETHANOLAMINE
- WASTE SLUDGE

FOOD & BEVERAGE

- ADDITIVES & FLAVORING
- ANIMAL FOOD
- BEER & STILLAGE
- BUTTER & CREAMS
- COFFEE EXTRACT
- CONFECTIONERY PROCESSING
 - CANDY MASS
 - CHOCOLATE
 - LICORICE
- COOKED PROTEIN
- CORN STARCH
- FISH & BRINE SLURRY
- FRUIT & VEGETABLE PROCESSING
- GREASE, LARD, & FAT
- MEAT PROCESSING
- SUGAR PROCESSING
- SYRUP & MOLASSES
- VEGETABLE OILS

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»» LOCATIONS

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THE HEART IS THE ORIGINAL PUMP

All of us are born with a pump inside – our hearts. At Tuthill, we don't just make pumps, blowers, and vacuum systems & blowers, we make an invitation for the original pump – the heart – to come alive.

We've always been a company with heart. From our beginnings as a brick maker, we made the bricks that made Chicago. As the horses hauled clay from the quarry, it was too much for their hearts to bear. So Tuthill created an oil pump to power a truck, an innovation that saved horses and led to our first manufactured pump – made from the heart.

Today, we pump our hearts into everything we do: every cut, drill, and cycle, and everything we bring to you. We invite you to join us and find what makes your heart beat a little faster. Because when we all come alive, the world comes along.

