

HD PROCESS PUMPS



- Heavy Duty Pumps for Tough Applications



TUTHILL
Pump Group

Engineered Solutions

HD PROCESS PUMPS

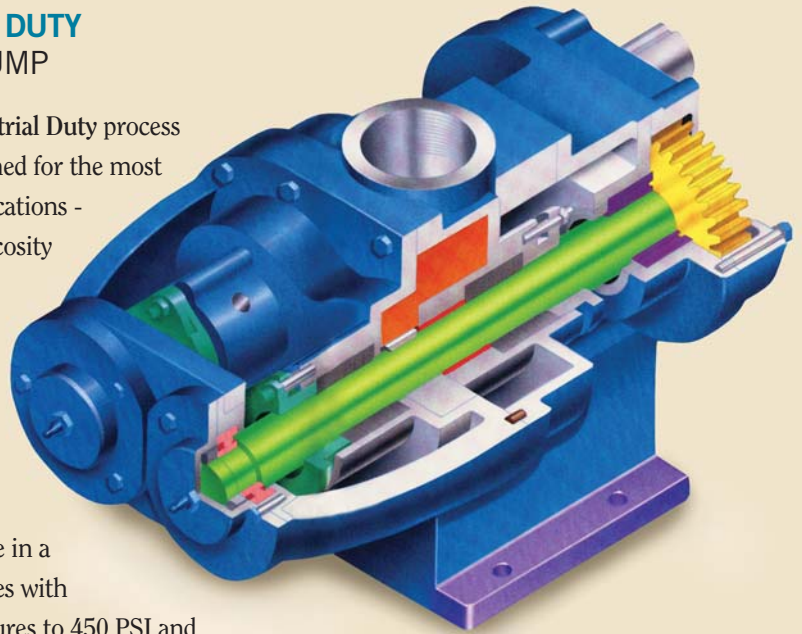
Tuthill offers the HD series for the most demanding applications – slurries, high viscosity products, suspended solids, concentrated acids, chemicals, high temperature liquids, sludge, resins, sewage and scum, paints, polymers, plastics, pharmaceuticals, foods, and shear sensitive fluids.

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.

TUTHILL INDUSTRIAL DUTY PROCESS PUMP

Tuthill HD Industrial Duty process pumps are designed for the most demanding applications - slurries, high viscosity fluids, suspended solids, chemicals, polymers, pharmaceuticals, foods, and shear sensitive fluids.

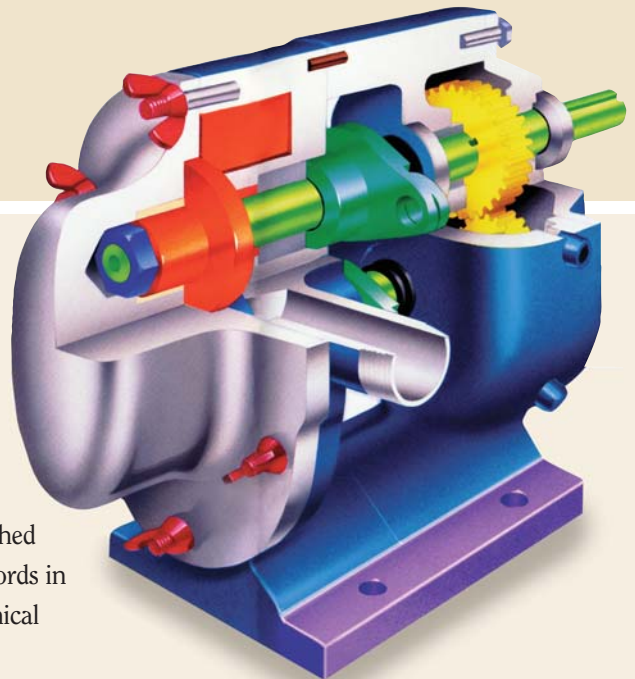
They are available in a wide range of sizes with differential pressures to 450 PSI and viscosities to 4,400,000 cst.



TUTHILL STANDARD DUTY PROCESS PUMP

Tuthill Standard Duty HD process pumps were developed particularly for sanitary applications and have established outstanding performance records in the food processing and chemical processing markets.

The faceplate and impellers of Tuthill's Standard Duty HD process pumps may be quickly removed for easy cleaning and inspection without removal of the process piping. Since the bearing surfaces are located within the pump faceplate, there are only two stuffing boxes, fitted with Teflon® impregnated graphite packing, pure Teflon® packing, or mechanical seal. All materials used in 316 stainless steel pumps are compatible with food products and are USDA approved.

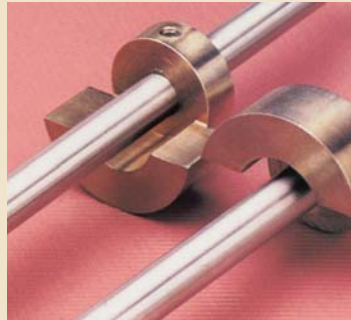


- External timing gears in separate oil filled reservoir provide safe, non-contact synchronous impeller action.
- Oil lubricated roller bearings provide support for maximum radial loading in models 70A, 120A, 330 and 600.
- Constant diameter shafts (no steps in torque transmission areas) for maximum strength and minimum deflection.
- Housing bushing, positioned under maximum radial load, assuring minimum shaft deflection.
- Packing and stuffing box is standard construction. Packing gland is split and constructed in 316SS. Pumps can also be outfitted with mechanical seals.
- Impellers provided in single lobe or double lobe design.
- No metal to metal contact in fluid chamber.
- Housing and gearcase 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 gearcase are precision machined and dowel pin aligned. Procedure results in full interchangeability should field replacement be required.



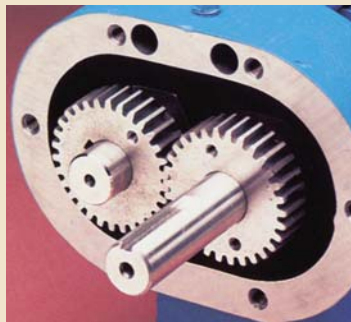
DOUBLE LOBE IMPELLERS

Available for higher operating speeds.



SINGLE LOBE IMPELLERS

Single lobe impellers provide maximum strength for highly viscous fluids and slurries, and high discharge pressure as well as minimal shear characteristics on the fluids.



EXTERNAL TIMING GEARS

Timing gears are separated from the fluid chamber, thus eliminating a source of agitation and breakdown of the material being pumped.

- External timing gears in separate oil filled reservoir provide safe, synchronous impeller action.
- 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.
- Packing and stuffing box is standard construction. Packing gland is split and constructed in 316SS. Pumps can also be outfitted with mechanical seals.
- Single lobe impellers provide maximum strength and minimum shear contact in fluid chamber.
- No metal to metal contact in the fluid chamber.
- Housing and gearcase are foot mounted to minimize distortion and vibration.
- Casings and gearcase are precision machined and dowel pin aligned. Procedure results in full interchangeability should field replacement be required.
- Faceplate (cover) accessible and easily removable for easy cleaning and inspection.
- Wingnuts allow easy removal of impeller for cleaning and inspection.
- Faceplate bushings provide simple bearing supports for the impellers - no cantilevered shafts as in some competitive designs.



STANDARD DUTY SHAFT/IMPELLER



STANDARD DUTY PUMP FLUID CHAMBER

Faceplate and impellers may be quickly removed for easy cleaning and inspection. An obvious requirement for sanitary applications, this feature also makes Tuthill's Standard Duty process pumps valuable in industrial applications involving color changes, or where products are being processed in batches.

INDUSTRIAL & STANDARD DUTY PROCESS PUMPS

HIGH VISCOSITY Tuthill HD pumps can handle materials with viscosities to 4,400,000 cst...including silicones, adhesives, pastes, slurries, suspended solids, semi-solids, etc.

HIGH PRESSURE Some models can be furnished suitable to operate at differential pressures to 450 psi.

RUN DRY WITHOUT DAMAGE The slow positive movement of the impellers and the lack of contact between rotating and stationary elements in the fluid chamber allows HD pumps to run dry without damage. They can operate efficiently where other positive displacement pumps may fail.

HIGH TEMPERATURE Pumps can be furnished suitable for use with fluid temperatures to 525°F.

HIGH VACUUM Tuthill HD pumps are self-priming and able to operate under high vacuum/low NPSH conditions as well as pressurized inlet conditions.

EXTERNAL BEARING CHAMBER Material being pumped through the fluid chamber is separated from lubricated bearings or gear lubricant chambers, eliminating contamination.

SHAFT SEALS Standard shaft sealing is Teflon® impregnated graphite packing. Pumps are also available with lantern rings, special packings, and triple lip cartridge or mechanical seals.

EXTERNALLY TIMED GEARS Timing gears are separated from the fluid chamber, thus eliminating a source of agitation and breakdown of the material being pumped as well as providing a clean source of gear lubrication.

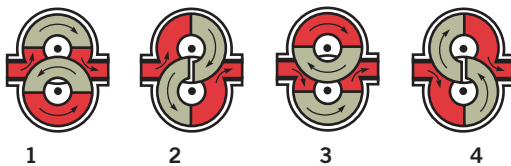
SLOW SPEED FOR LONGER WEAR AND LOWER SHEAR Slow speed operation of these pumps creates slow internal velocities which result in increased wear life, impart less shear to the product, and enable the pump to handle high viscosity fluids.

REVERSIBLE The direction of flow may be reversed simply by changing the direction of rotation.

MATERIALS OF CONSTRUCTION HD Process pumps are provided as standard in 316 stainless steel or ductile iron. Exotic alloys are also available on a special order basis.

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

STANDARD MATERIALS OF CONSTRUCTION

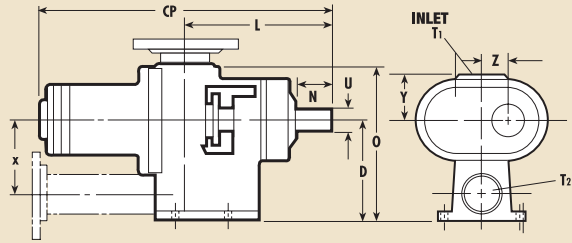


1. Top impeller has started suction cycle and is completing the discharge cycle. Lower impeller is transferring liquid from the suction to the discharge side of the pump.
2. Top impeller completes suction cycle. Lower impeller starting to discharge.
3. Top impeller is transferring liquid from suction to discharge. Lower impeller has started the suction cycle and is finishing the discharge cycle.
4. Top impeller starting discharge cycle. Lower impeller finishing suction cycle.

	Industrial	Standard
Housing	Ductile Iron	Ductile Iron
	316 Stainless Steel	316 Stainless Steel
Housing Bearing	DU*	Bronze
	Carbon	Carbon
Faceplate	Ductile Iron	Ductile Iron
	316 Stainless Steel	316 Stainless Steel
Faceplate Bearing	Outboard Ball Bearing	Ductile Iron
		Carbon
Impellers	Ductile Iron	Ductile Iron
	316 Stainless Steel	316 Stainless Steel
Shafts	Hardened 1141 Carbon Steel	Hardened 1141 Carbon Steel
	316 Stainless Steel	316 Stainless Steel
Gearcase	Gray Iron	Gray Iron

*BRONZE IN MODEL 330

MODELS 30A, 2A, 3A, 70A, 120A & 330

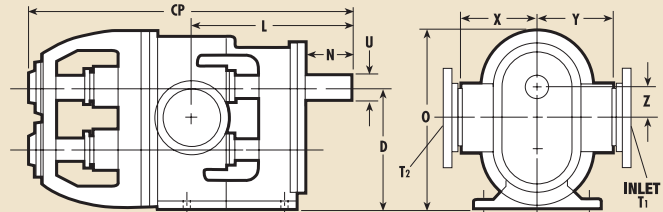


MODEL	PORT SIZE		PER 100 REV. GAL. LTR.	MAX. DIFF. PRESSURE ▲		MAX. RPM PUMPING ELEMENT ▲	CP		D		L		N		O		U		X		Y		Z		WEIGHT				
	T1 IN. MM	T2 IN. MM		PSI	BAR		IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	LBS.	KG.	
30A ♦	1½	38	1½	38	5.5	21	150	10.3	450	18¾	476	5¾	146	10⅞	270	2½	54	8⅞	225	1	25	4	102	3⅞	79	1¼	32	100	45
2A ♦	2	51	2	51	15.0	57	150	10.3	450	24¾	629	8¼	210	14⅝	371	3⅞	79	12⅝	321	1⅜	35	5¾	146	4⅞	111	2	51	250	113
3A ♦	3	76	3	76	30.0	114	150	10.3	450	24¾	629	8¼	210	13¾	349	3⅞	79	12⅝	321	1⅜	35	5¾	146	4⅞	111	2	51	270	122
70A ♦	3	76	2	51	15.0	57	450	31.0	450	24⅞	619	8½	216	12⅝	321	3½	89	13¼	337	1⅞	48	6¼	159	4¼	121	2½	64	280	127
120A ♦	4	102	3	76	30.0	114	450	31.0	450	24⅞	619	8½	216	12⅝	314	3½	89	13¼	337	1⅞	48	6¼	159	4¼	121	2½	64	300	136
330	5	127	4	102	70.0	265	450	31.0	450	29⅞	745	10¾	273	14¼	362	4	102	16⅞	429	2¼	57	7⅞	200	6⅞	156	3½	81	550	249

▲ 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.

♦ AVAILABLE WITH BUILT-IN BY-PASS
★ SUCTION AND DISCHARGE PORTS CAN BE REVERSED BY CHANGING SHAFT ROTATION

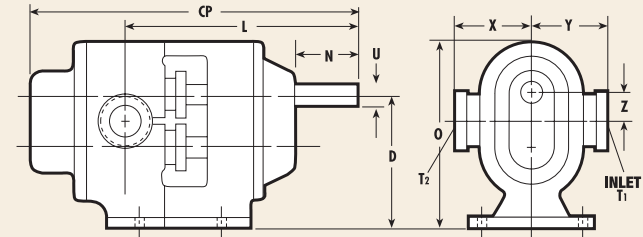
MODEL 600



MODEL	PORT SIZE		PER 100 REV. GAL. LTR.	MAX. DIFF. PRESSURE ▲		MAX. RPM PUMPING ELEMENT ▲	CP		D		L		N		O		U		X		Y		Z		WEIGHT				
	T1 IN. MM	T2 IN. MM		PSI	BAR		IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	LBS.	KG.	
600	6	152	6	152	148.0	560	450	31.0	450	36⅞	929	13¾	349	18⅞	471	5⅞	138	20¼	514	2½	64	9	229	9	229	3½	89	900	408

▲ 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.

MODELS 5A, 10, 16, 25A, 65, 125A



MODEL	PORT SIZE		PER 100 REV. GAL. LTR.	MAX. DIFF. PRESSURE ▲		MAX. RPM PUMPING ELEMENT ▲	CP		D		L		N		O		U		X		Y		Z		WEIGHT				
	T1 IN. MM	T2 IN. MM		PSI	BAR		IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	LBS.	KG.	
5A ♦	1	25	1	25	0.8	3	200	13.8	600	11⅜	300	5⅞	132	8⅝	227	2½	52	7⅝	186	¾	19	3⅞	84	3⅞	84	1	25	35	16
10 ♦	1	25	1	25	1.3	5	200	13.8	600	11⅜	300	5⅞	132	8⅝	227	2½	52	7⅝	186	¾	19	3⅞	84	3⅞	84	1	25	40	18
16 ♦	1½	38	1½	38	2.8	11	200	13.8	600	12⅞	327	5⅞	132	9¼	235	2½	64	7⅝	186	¾	19	3⅞	84	3⅞	84	1	25	45	20
25A	1½	38	1½	38	5.5	21	200	13.8	450	14¼	362	6	152	10⅞	264	3	76	8¾	222	1	25	4	102	4	102	1¼	32	65	29
65	2	51	2	51	15.0	57	200	13.8	450	20⅞	530	9½	241	15½	394	4⅞	125	13½	343	1⅞	35	5⅞	143	5⅞	143	2	51	180	81
125A	2½	64	2½	64	25.0	95	200	13.8	450	21⅞	551	9½	241	15⅞	389	4⅞	125	13	330	1⅞	35	5⅞	143	5⅞	143	2	51	215	97

CAUTION: THE FLUID BEING PUMPED MUST ALWAYS BE SPECIFIED

♦ AVAILABLE WITH BUILT-IN 3:1 GEAR REDUCTION.
ALL MODELS AVAILABLE WITH BUILT-IN BYPASS.