TOBEE

Always do your best pump®

Series TH, THH, TM and TL Slurry Pumps

Tobee Products

Horizontal Pumps

The Tobee horizontal pump provide a comprehensive range of centrifugal slurry pumps for use in mining, chemical and industrial applications.

Vertical Pumps

The Tobee Vertical pumps provide a simple yet rugged range of sump pumps specially developed for rugged cleanup and abrasive slurry applications.

Submersible Pumps

The Tobee Submersible pumps provide heavy duty all chrome wet end coupled with a submersible motor designed for the most demanding applications.

Metal Parts

Rubber Parts

Polyurethane Parts

The Tobee Slurry Pump Spare Parts namely the pump parts have direct connection with slurries, They are very crucial to the service life of slurry pumps. The wetted parts include impeller, liner, throatbush, frame plate liner insert, casing etc., These parts are very easily worn-out components because they work under longtime impact of abrasive and corrosive slurries in the high speed. For the long service life of pump parts, the material plays an important role here.

Always do your best pump

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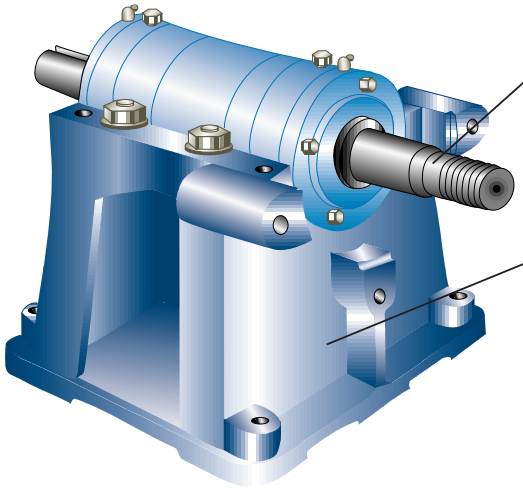
Tobee Series TH Pumps: Design Features

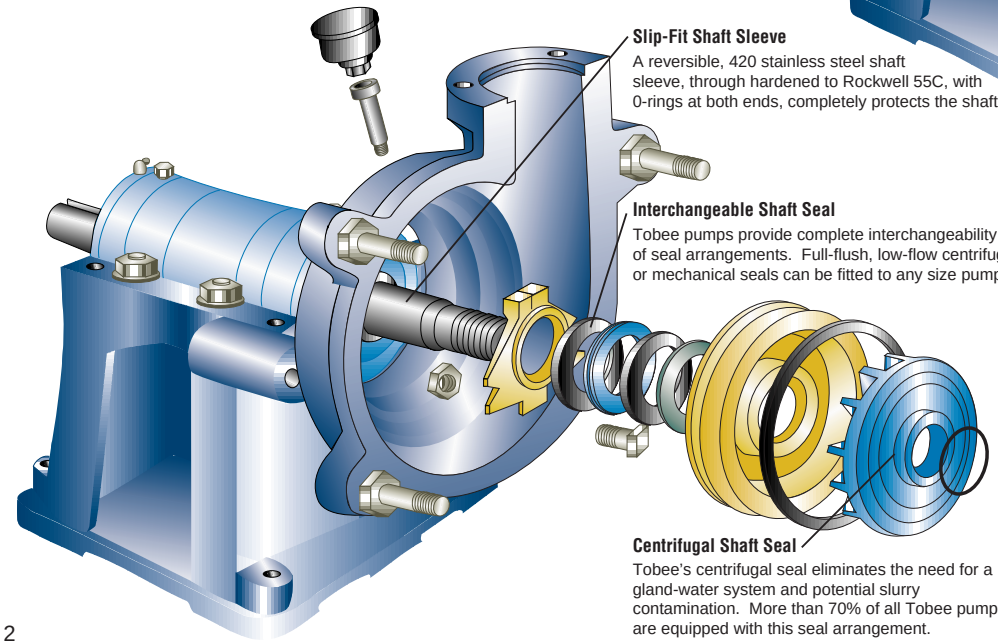


Cartridge-type Shaft and Bearing Assembly

A large diameter shaft with a short overhang minimizes deflection and vibration. Heavy-duty, grease-lubricated cylindrical and/or taper roller bearings are enclosed in a cartridge-type housing protected at both ends by a rotating labyrinth with double piston ring and patented -10 grease purged lip seal (see Figure 1 on page 6). Only four through bolts are required to hold the "cartridge" assembly in the frame.

Pump Frame

A rigid, one-piece casting cradles the "cartridge" shaft and bearing assembly. A minimal number of through bolts hold the pump casing to the frame. An easy means of external impeller adjustment is provided in a convenient position below the bearing housing.



Slip-Fit Shaft Sleeve

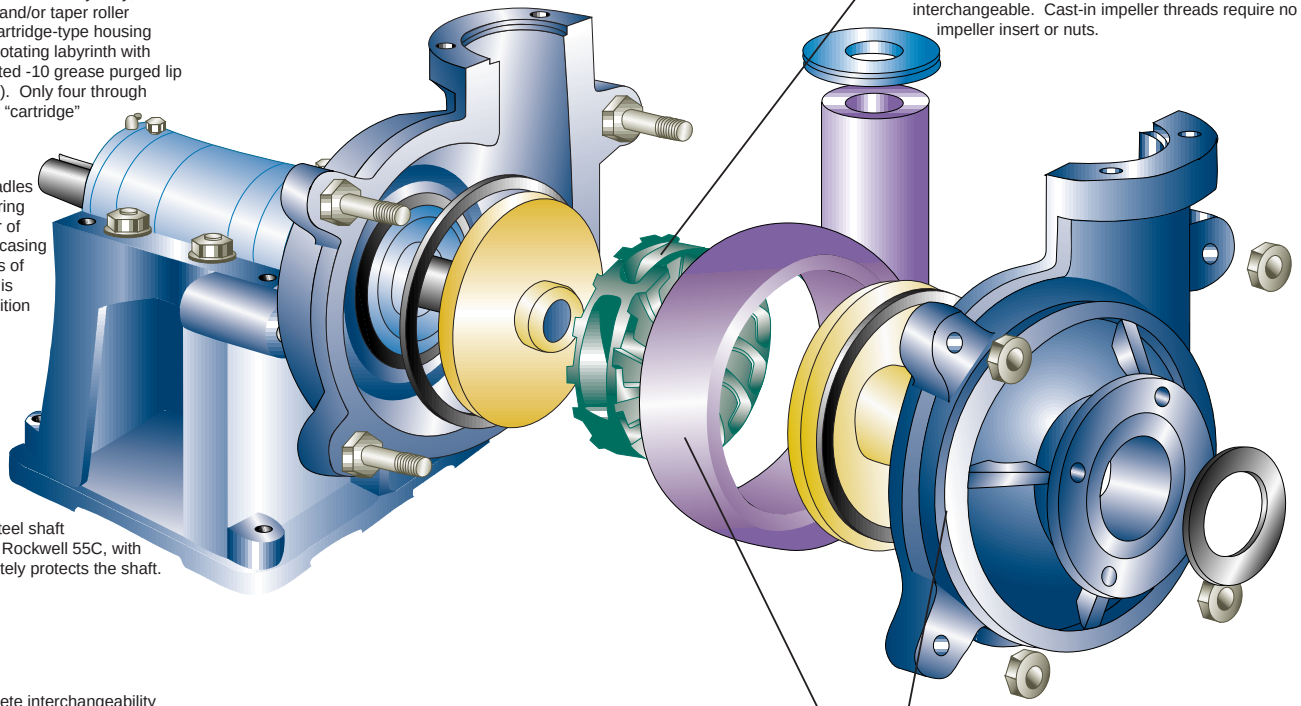
A reversible, 420 stainless steel shaft sleeve, through hardened to Rockwell 55C, with 0-rings at both ends, completely protects the shaft.

Interchangeable Shaft Seal

Tobee pumps provide complete interchangeability of seal arrangements. Full-flush, low-flow centrifugal, or mechanical seals can be fitted to any size pump.

Centrifugal Shaft Seal

Tobee's centrifugal seal eliminates the need for a gland-water system and potential slurry contamination. More than 70% of all Tobee pumps are equipped with this seal arrangement.



Impeller

Front and rear shrouds have pump-out vanes. This design reduces recirculation and seal contamination. Hard metal and molded elastomer impellers are interchangeable. Cast-in impeller threads require no impeller insert or nuts.

Outer Casing

Casing halves of cast or ductile iron with external reinforcing ribs contain the wear liners and provide high operating pressure capabilities.

Positively Attached Liner

Hard metal liners are interchangeable with pressure molded elastomers. The elastomer liners are bolted, not bonded, to the outer casing. Elastomer seal rings back all liner joints.

EASE OF MAINTENANCE FEATURES:

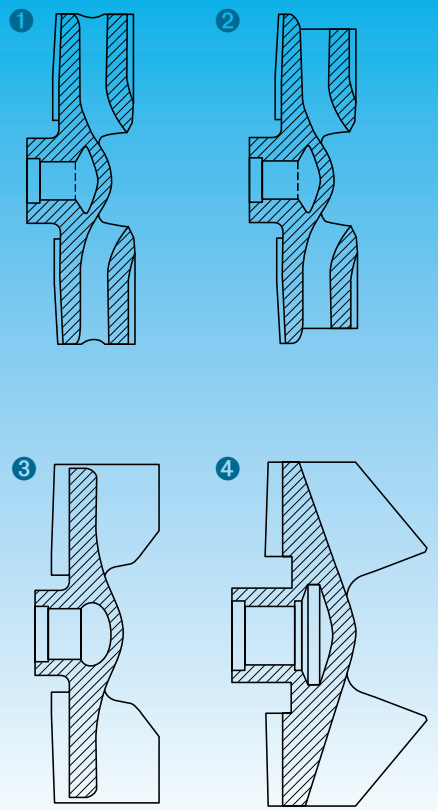
- Through-Bolt Design
- Minimum Number of Casing Bolts
- Zinc Chromate and Stainless Steel Nuts and Bolts
- Slip-Fit Shaft Sleeve
- Cartridge-Type Shaft and Bearing Assembly
- Cast-In Impeller Threads
- Impeller-Release Collar on Large Models
- Liners Positively Attached

Impeller Designs

A leader in manufacturing heavy-duty slurry pumps

Tobee's leadership in slurry pump design and performance assures you the highest possible return on your investment. Throughout the world, Tobee pumps have established records for minimal maintenance. Awide selection of sizes, with several liner and impeller materials, permits Tobee pumps to be tailored to meet your specific requirements. This means maximum pump efficiency and productivity for your particular application.

Tobee's investment in slurry pump development is your assurance of continued efficiency, dependability and profitability.



1

4, 5, & 6 Vane Enclosed Impellers

- **4 Vane Enclosed Impeller** – For coarser particle slurry handling
- **5 Vane Enclosed Impeller –** Standard for heavy-duty slurry applications
- **6 Vane Enclosed Impeller –** For higher efficiency slurry pumping

2

4, 5, & 6 Vane Differential Impellers

For effective dry shaft sealing in high suction head slurry duties

3 and 4

4, 5, & 6 Vane Semi Open Impellers

For larger particle clearances and wood tramp handling capabilities in slurries

Typical Applications

Abrasion, Erosion and Chemical Resistant Polymers

All wear materials are produced in Tobee's own metal, rubber shop and foundries. Various grades of high chrome alloys, natural rubbers, synthetic elastomers, and polyurethanes have been developed to yield optimum service lives in Tobee pumps for a wide range of applications. The operating range for polymeric materials is being expanded by continuous research and development programs.

Clockwise from upper left: Tobee TH14/12 ST Pump in heavy media service at a coal preparation plant. Tobee TL550 TU Pump in absorber recycle service in a FGD scrubber system. Tobee TH20/18 TU in granular slag transportation service. Tobee 14/12G first stage with five 12/10G pumps in series for shiploading at an iron sand mine (two systems shown).

Tobee Typical Cross-Section

Elastomer Lined, Gland Sealed

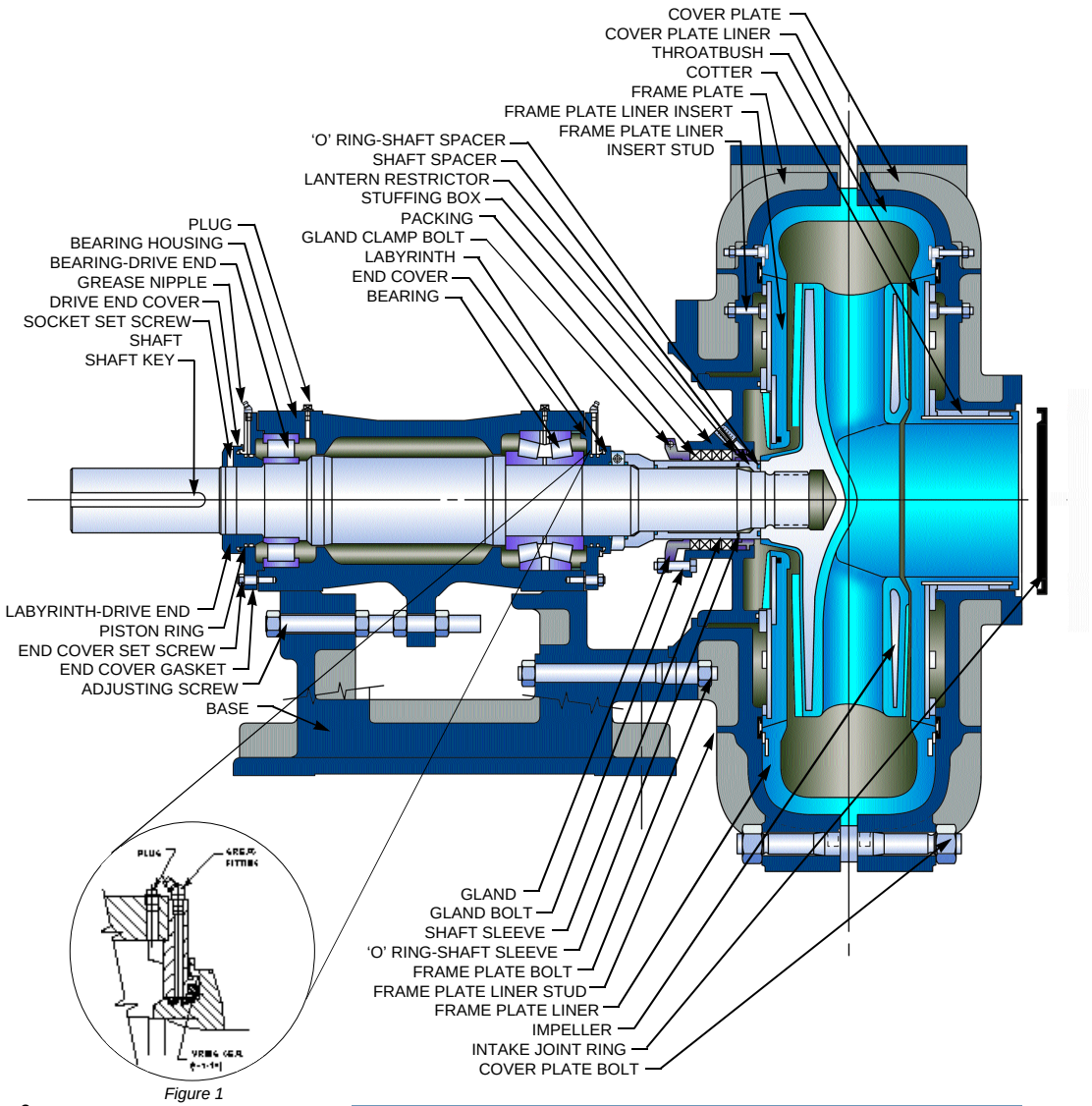
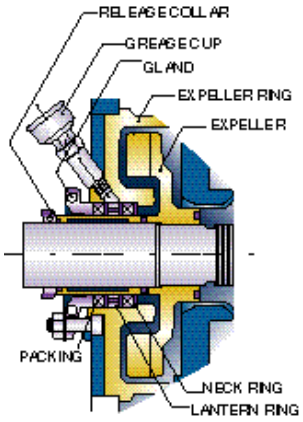


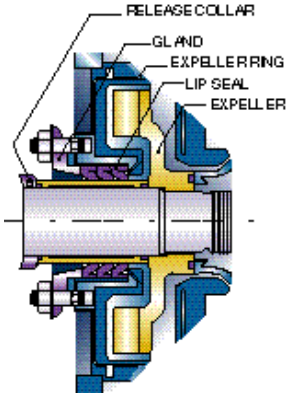
Figure 1
Standard -10 Bearing Seal
(Retrofitable to older models)

All impellers and liners are available in alloy or elastomer materials.

VARIATIONS OF THE TOBEE CENTRIFUGAL SHAFT SEAL

AVAILABLE WITH STANDARD OR OPTIONAL CENTRIFUGAL SEALS



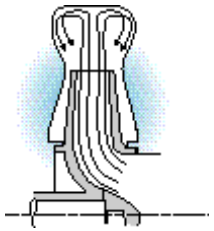


METAL LINED

The expeller ring is interchangeable with a gland sealed stuffing box. The expeller and expeller rings are made of 650 BHN high chrome iron as a standard but can be provided in other materials suitable for specific applications.

ELASTOMER LINED

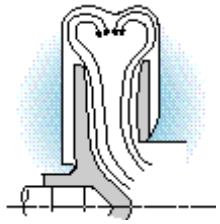
RULE OF THUMB: If the suction pressure of the pump is no greater than 10% of the discharge pressure, the application is suitable for a centrifugal shaft seal. For variations from this general rule, consult Tobee pump.



CONVENTIONAL DESIGN

UNIQUE TOBEE IMPELLER DESIGN

Outward spiral of slurry in conventional pumps causes serious recirculation and consequent wear at the close impeller clearances.
The pump-out vanes and concave impeller vane of a Tobee pump force the slurry to form a double inward spiral. This results in uniform wear, a greater utilization of wearing parts, an increased shaft seal life, and sustained high efficiency.



TOBEE DESIGN

Tobee Pumps: Outline Dimensions

Series “TH”

PUMP SIZE	A	B	C	D	U mm	Key Size	E	F	G	H	J	K	L	M	N	WT/LBS METAL	WT/LBS RUBBER
TH1.5/1B	22.95	11.61	9.76	7.76	28	8x7	3.11	8.11	7.13	3.86	6.73	1.81		4.17	.74	195	170
THH1.5/1C	29.88	15.98	12.24	10.00	42	12x8	4.76	10.59	10.63	7.64	10.00		.43	4.76	2.61	700	
TH2/1.5B	23.31	11.61	9.76	7.76	28	8x7	3.11	8.54	7.99	4.49	7.24	1.31		4.49	.86	345	260
TH3/2C	30.24	15.98	12.24	10.00	42	12x8	4.76	11.02	9.37	5.43	8.27	2.81		5.94	1.56	435	340
THH3/2D	38.82	19.37	14.33	12.99	65	18x11	6.46	15.28	15.12	10.00	14.49		2.00	7.99	3.28	1550	
THH3/2Q	40.16	21.26	18.11	11.81	60	18x11	5.91	15.31	15.12	10.00	14.40		3.19	7.99	2.22	1735	
TH4/3C	33.19	15.98	12.24	10.00	42	12x8	4.76	13.90	11.50	5.87	10.31	.93		7.36	2.11	550	520
TH4/3D	37.13	19.37	14.33	12.99	65	18x11	6.46	13.90	11.50	5.87	10.31	3.94		7.36	2.04	700	640
THH4/3E	48.82	24.49	17.64	17.99	80	22x14	8.74	19.37	19.37	12.99	17.00			9.76	3.12	2750	
THH4/3R	50.98	26.77	23.23	13.78	85	22x14	8.46	19.29	19.29	12.99	17.00		4.09	9.76	1.83	3090	
TH6/4D	40.20	19.37	14.33	12.99	65	18x11	6.46	16.69	15.98	9.02	13.31	.43		8.62	2.57	1475	1000
TH6/4E	46.38	24.49	17.64	17.99	80	22x14	8.74	17.05	15.98	9.02	13.31	5.43		8.62	2.96	1950	1400
THH6/4F	61.26	33.74	24.96	24.02	100	28x16	10.98	23.03	24.25	16.26	21.50	1.00		12.01	2.96	5575	
THH6/4S	65.67	36.22	30.71	17.72	120	32x18	11.02	23.15	24.25	16.26	21.50		5.28	12.01	3.04	6335	
THH8/6E	51.26	24.49	17.64	17.99	80	22x14	8.74	21.93	21.69	12.52	18.11		2.44	11.50	3.23	3300	2165
TH8/6F	59.33	33.74	25.00	24.02	100	28x16	10.98	21.22	21.69	12.52	18.11	3.54		11.50	2.56	4000	3065
THH8/6T	89.57	45.28	40.94	25.59	150	36x20	13.78	33.54	32.87	22.99	32.01		6.30	15.51	6.93	14490	
TH10/8F	64.80	39.02	27.76	24.02	100	28x16	10.98	26.89	26.50	16.50	25.00		.47	13.11	5.28	7040	5690
TH10/8ST	68.82	45.28	30.71	25.59	120	32x18	11.02	27.24	26.50	16.50	25.00	1.06		13.11	5.63	8250	6900
TH12/10F	67.76	39.02	27.76	24.02	100	28x16	10.98	29.65	29.76	18.27	26.50		4.09	15.00	4.25	8290	6190
TH12/10ST	71.50	45.28	30.71	25.59	120	32x18	11.02	30.00	29.72	18.27	26.50		2.56	15.00	4.60	9500	7400
TH14/12F	69.76	39.02	27.76	24.02	100	28x16	10.98	31.61	36.89	24.76	32.76		10.35	15.98	4.13	12890	9090
TH14/12ST	73.74	45.28	30.71	25.59	120	32x18	11.02	31.97	36.89	24.76	32.76		8.82	15.98	4.48	14100	10300
TH16/14TU	91.34	57.48	41.34	35.43	150	36x20	13.78	37.52	41.26	25.98	35.00		3.31	17.76	6.56	22000	
TH20/18 TU																	

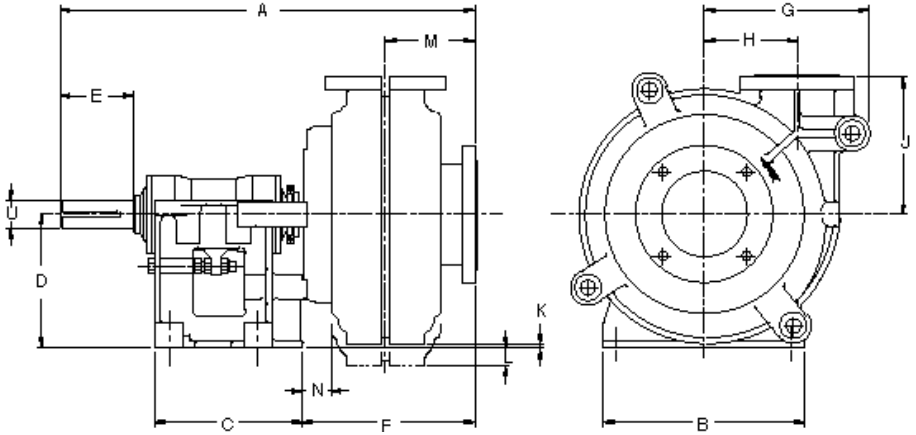
Note: U dimensions and key sizes are in millimeters. All others are in inches.

For installation, refer to certified drawings.

Series “TL”

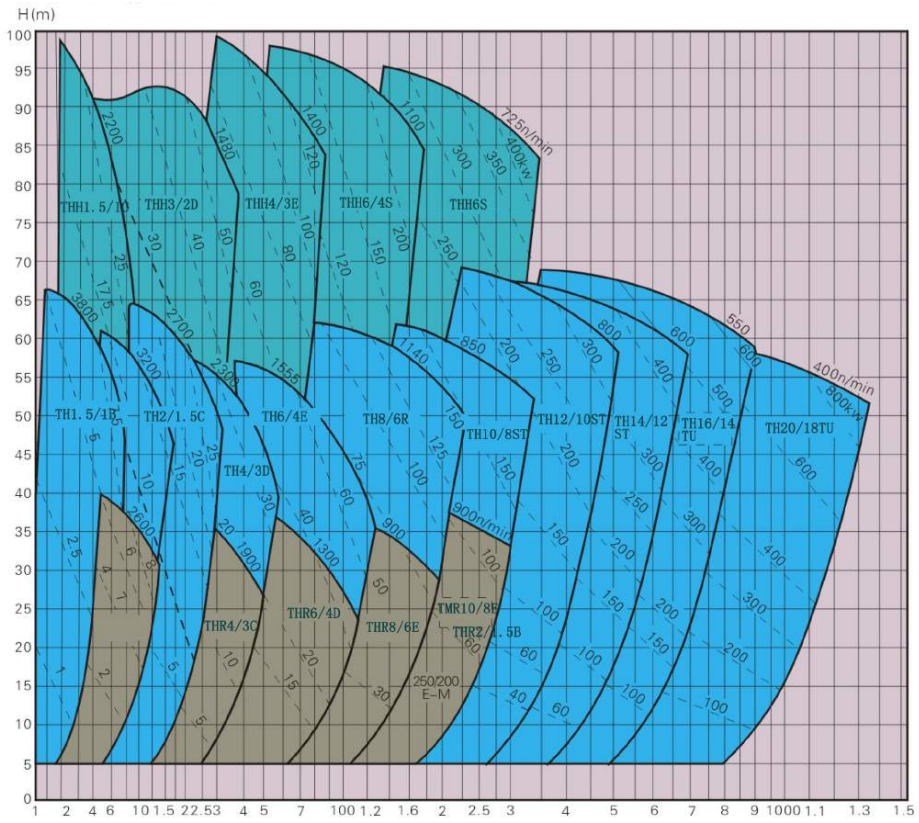
PUMP SIZE	A	B	C	D	U mm	Key Size	E	F	G	H	J	K	L	M	N	WT/LBS METAL	WT/LBS RUBBER
TL20 A	18.15	11.26	8.27	5.75	20	6x6	2.24	6.06	5.67	3.39	5.04	1.22		3.54	.72	80	60
TL50 B	24.57	11.61	9.76	7.76	28	8x7	3.15	9.69	7.64	4.49	6.42	1.81		5.35	1.13	248	200
TL75 C	32.01	15.98	12.24	10.00	42	12x8	4.72	12.28	9.76	5.75	8.03	2.40		6.42	1.87	408	360
TL100 D	37.40	19.37	14.33	12.99	65	18x11	6.42	13.94	12.13	7.52	10.28	3.27		7.36	2.07	784	754
TL150 E	47.95	24.49	17.64	17.99	80	22x14	8.74	18.74	15.87	9.76	12.76	5.24		9.33	.71	1630	1580
TM200 E	52.64	24.49	17.64	17.99	80	22x14	8.74	22.99	24.13	15.00	18.50		3.27	12.52	1.97	3700	2650
TM200 F	60.67	33.74	25.00	24.02	100	28x16	11.02	22.52	24.13	15.00	18.50	2.76		12.52	1.54	4300	3250
TL250 E	53.07	24.49	17.64	17.99	80	22x14	8.74	23.54	27.36	17.24	18.50		5.75	12.76	1.29	4100	3050
TL250 F	60.98	33.74	25.00	24.02	100	22x14	11.02	23.03	27.36	17.24	18.50	.31		12.76	.78	4400	3350
TL300 R	57.48	36.22	23.23	17.72	85	22x14	8.46	25.83	29.13	18.70	22.44		7.28	11.81	3.62	5800	4500
TL300 S	67.72	36.22	30.71	17.72	120	32x18	11.02	25.39	29.13	18.70	22.44		7.28	11.81	3.18	6300	5000
TL350 S	69.92	36.22	30.71	17.72	120	32x18	11.02	27.36	32.48	20.87	24.41		9.72	13.38	2.38	7845	6100
TL400 ST	72.44	45.28	30.71	25.59	120	32x18	11.02	30.51	37.13	23.62	29.13		6.26	14.76	2.25	10225	7800
TL450 ST	73.82	45.28	30.71	25.59	120	32x18	11.02	32.28	40.75	25.98	31.50		8.74	15.75	1.94	12325	9275
TL500 ST	74.80	45.28	30.71	25.59	120	32x18	11.02	33.27	49.25	30.71	38.39		18.03	17.13	5.12	16000	12000
TL500 T	89.49	45.28	40.94	25.59	150	36x20	13.78	33.27	49.25	30.71	38.39		18.03	17.13	5.12	18000	14000
TL550 TU	94.49	57.48	41.34	35.43	150	36x20	13.78	40.55	51.69	33.86	38.39		9.53	19.69	3.17	24300	18200
TL650 TU	98.74	57.48	41.34	35.43	150	36x20	13.78	44.33	61.14	40.16	46.25		18.11	22.83	5.12	41365	30650
TL650 U	121.10	56.69	54.13	35.43	240	56x32	18.50	45.87	61.14	40.16	46.25		18.11	22.83	6.66	47740	36825

Note: U dimensions and key sizes are in millimeters. All others are in inches.



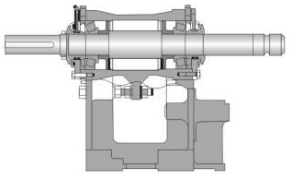
Tobee Pumps: Selection Charts

Series “TH” Use this coverage chart as a first guide only.

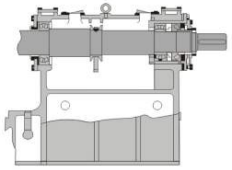


The Series “TH” slurry pumps are designed for continuous pumping of highly abrasive, high-density slurries at maximum heads.

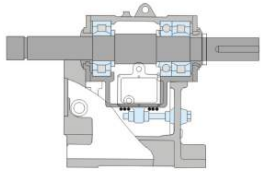
DRIVE MODULE DESIGN



Cylindrical bearing assembly using oil lubrication

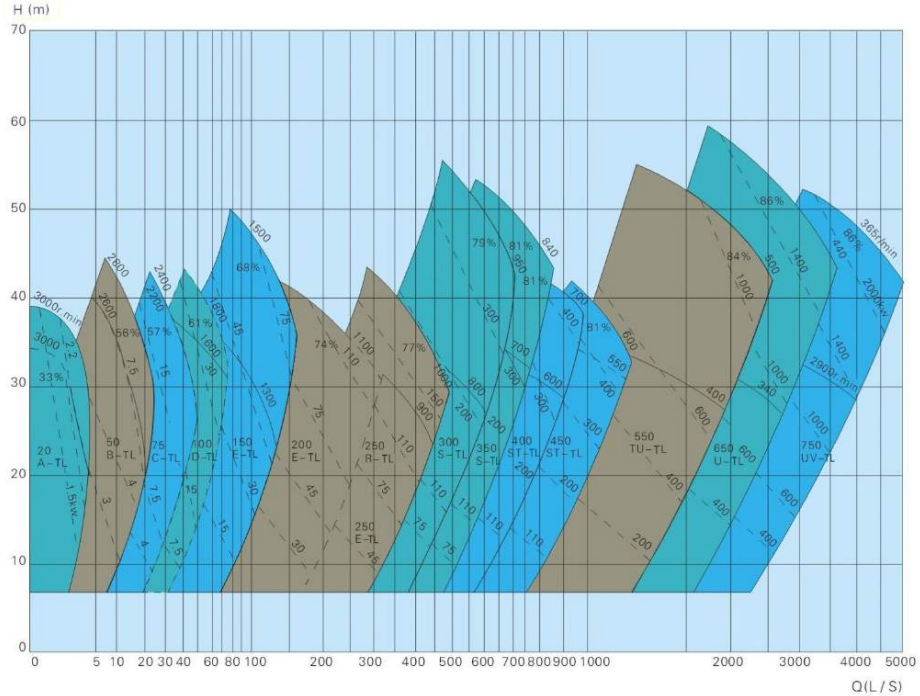


Bearing assembly using oil lubrication with horizontally split casing



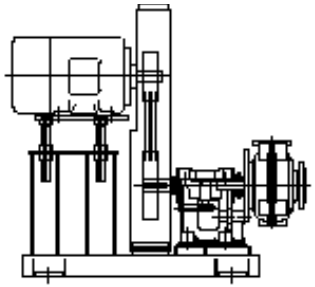
Innovative cylindrical bearing assembly using oil lubrication

Series “TL” Use this coverage chart as a first guide only.

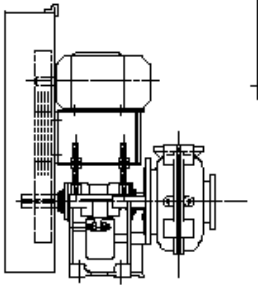


The Series “TL” pumps are designed for continuous pumping of highly abrasive, medium-density slurries at medium heads.

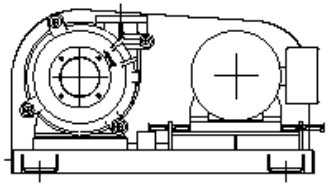
DRIVE ARRANGEMENTS



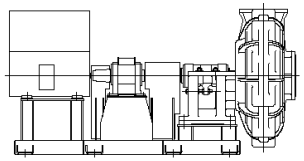
Reverse Overhead Mounted Motor V-Belt Drive (ZV)



Overhead Mounted Motor V-Belt Drive (CV)



Horizontal V-Belt Drive (CR or CL)



Direct Coupled Gear Reducer Drive (DC)