TORO
WATER SOLUTIONS

Experiencia, Conocimiento y Soluciones en Sistemas HVAC

DRAINAGE, SEWAGE, GRINDER & PROPELLER PUMPS 60 HZ

TCSP, TMSP, TAP, TFP, TBP, THP, TGP, TLP & TAS Series

Contents

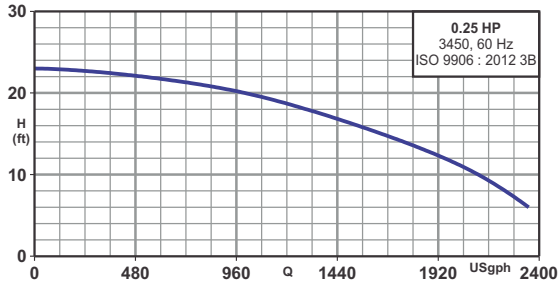
TORO WATER SOLUTIONS
A SHIN BRAND

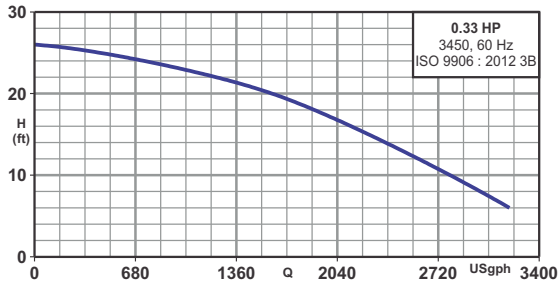
Cast Iron Submersible Drainage Pump

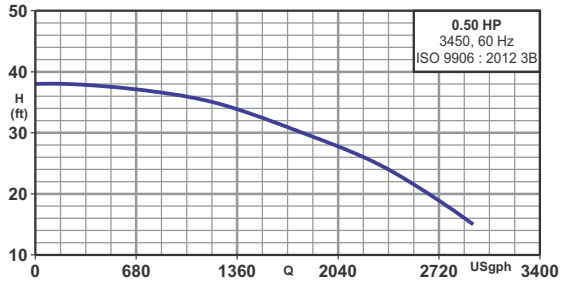
TCSP

Submersible drainage pump with Wide angle float switch

Performance Curve







Performance Range

- Flow rate up to 3200 Usgph.
- Dynamic head up to 38 feet.

Direction of rotation

- Clockwise as seen from the motor rear end.

Applications

- For clean water containing solids up to 3/8" grain size.
- As a sump pump for household applications.
- For draining flooded rooms or tanks.
- Extractions of water from ponds, flowing water or pits for collection of rain water.

Features

- Rugged cast iron construction.
- Complete cast iron pump casing & impeller against plastic material used in cast iron pump by some competitors.
- The rotating assembly is supported by ball bearings which provides longer life.
- High quality mechanical seal.
- Float control switch is completely enclosed preventing any damage during transit & operation.
- Semi open cast iron impeller which can pass solids up to 3/8" diameter.
- Long 10 feet power cord (20 feet & 30 feet are optional).
- Energy efficient permanent split capacitor motor design which saves electricity resulting into lower cost of operation against shaded pole motors.
- Class-F motor insulation which can handle higher motor temperature.
- Thermally protected motors which prevents motor from burn out.

Motor Specifications

- 115 V, 60 Hz, 1 Phase, 3450 RPM
  Oil Filled ; Thermally Protected

Operating Conditions

- Ambient temperature : Max. +122°F
- Liquid temperature : +32°F to +122°F
- Duty Rating :
  S1 - When pump is completely submerged.
  S3 - When pump is partially submerged.

Minimum sump pit diameter

MODEL			MINIMUM SUMP PIT DIA.(inch)
0.25 HP	0.33 HP	0.5 HP	
TCSP 021T	*	*	15
*	TCSP 031T	*	16
*	*	TCSP 051T	16

Factory switch settings

MODEL	FACTORY SWITCH SETTING (inch)	
	TURN ON	TURN OFF
TCSP 021T / 031T	11	4
TCSP 051T	13	4

Model Designation

AUTOMATIC SUMP PUMP WITH	MODEL		
	0.25 HP	0.33 HP	0.50 HP
Wide - angle float switch	TCSP 021T	TCSP 031T	TCSP 051T
Discharge Size : 1½" FNPT			

Performance Table

MODEL	HP	kW	AMP	l/min	25	50	76	101	126	151	177	202	Max. lift (no flow) (feet)	Max.Solid passage size (inch)	Dimensions and weight			Cable data
				Usgph	400	800	1200	1600	2000	2400	2800	3200			Major width (inch)	Height (inch)	Gross weight (lbs)	Cable x core x size (AWG) x length (ft) x Material
TCSP 021T	0.25	0.18	4.5	H ft.	22.4	21.0	18.8	15.5	11.4	-	-	-	23.0	3/8	9.0	12.0	26.4	1 x 3 x 17 x 16 x PVC
TCSP 031T	0.33	0.25	5.0		25.1	23.8	22.0	20.0	17.0	13.7	10.0	6.0	26.0	3/8	9.0	12.0	27.5	1 x 3 x 17 x 16 x PVC
TCSP 051T	0.50	0.37	5.6		37.9	36.7	35.0	31.9	28.0	23.7	17.5	-	38.0	3/8	10.0	12.5	36.3	1 x 3 x 17 x 16 x PVC

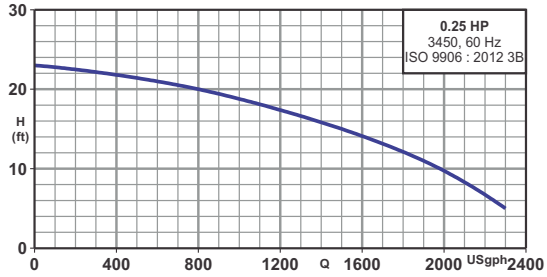
Note : The above shown performance is nominal performance and may vary from pump to pump.

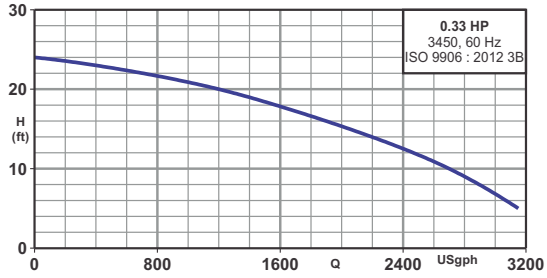
Corrosion Proof Submersible Drainage Pump

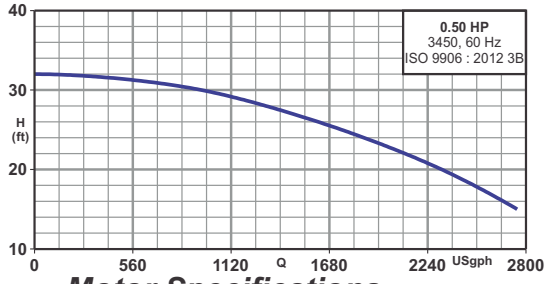
TMSP

Submersible drainage pump with Wide angle float switch

Performance Curve







Performance Range

- Flow rate up to 3150 Usgph.
- Dynamic head up to 32 feet.

Direction of rotation

- Clockwise as seen from the motor rear end.

Applications

- For clean water containing solids up to 3/8" grain size.
- As a sump pump for household applications.
- For draining flooded rooms or tanks.
- Extractions of water from ponds, flowing water or pits for collection of rain water.

Features

- Corrosion free engineering thermoplastic construction.
- Attractive appearance.
- The rotating assembly is supported by ball bearings which provides longer life.
- High quality mechanical seal.
- Float control switch is completely enclosed preventing any damage during transit & operation.
- Long 10 feet power cord (20 feet & 30 feet are optional).
- Energy efficient permanent split capacitor motor design which saves electricity resulting into lower cost of operation against shaded pole motors.
- Class-F motor insulation which can handle higher motor temperature.
- Thermally protected motors which prevents motor from burn out.

Motor Specifications

- 115 V, 60 Hz, 1 Phase, 3450 RPM
  Oil Filled ; Thermally Protected

Operating Conditions

- Ambient temperature : Max. +113°F
- Liquid temperature : +41°F to +113°F
- Duty Rating :
  S1 - When pump is completely submerged.
  S3 - When pump is partially submerged.

Minimum sump pit diameter

MODEL			MINIMUM SUMP PIT DIA.(inch)
0.25 HP	0.33 HP	0.50 HP	
TMSP 021T	*	*	15
*	MSP 032T	*	16
*	*	TMSP 051T	17

Factory switch settings

MODEL	FACTORY SWITCH SETTING(inch)	
	TURN ON	TURN OFF
TMSP 021T / 032T	11	4
TMSP 051T	13	4

Model Designation

AUTOMATIC SUMP PUMP WITH	MODEL		
	0.25 HP	0.33 HP	0.50 HP
Wide - angle float switch	TMSP 021T	TMSP 032T	TMSP 051T
Discharge Size : 1½" FNPT			

Performance Table

MODEL	HP	kW	AMP	l/min	25	50	76	101	126	151	177	Max. lift (no flow) (feet)	Max.Solid passage size (inch)	Dimensions and weight			Cable data
				Usgph	400	800	1200	1600	2000	2400	2800			Major width (inch)	Height (inch)	Gross weight (lbs)	Cable x core x size (AWG) x length (ft) x Material
TMSP 021T	0.25	0.18	4.5	H ft.	21.8	20.0	17.3	14.0	9.7	-	-	23.0	3/8	9.5	12.0	13.6	1 x 3 x 17 x 16 x PVC
TMSP 032T	0.33	0.25	5.0		23.0	21.7	20.0	17.9	15.2	12.6	9	24.0	3/8	9.5	13.0	14.3	1 x 3 x 17 x 16 x PVC
TMSP 051T	0.50	0.37	5.6		31.6	30.6	28.8	26.0	23.0	19.2	-	32.0	3/8	10.0	13.0	16.7	1 x 3 x 17 x 16 x PVC

Note : The above shown performance is nominal performance and may vary from pump to pump.

TORO WATER SOLUTIONS
A SHN BRAND

Performance Range

- Flow rate up to 255 USgpm.
- Dynamic head up to 97 feet.

Applications

- Slushy water, waste water without solids, sump drainage.
- Drainage application, flood control.
- Dewatering for fish pond or basement.

Features

- New design for light weight, elegant shape with best quality.
- Unfastening the bolts between the oil casing and the upper pump casing allows the body to be separated for easy maintenance.
- All pumps are furnished with double mechanical seal. All pumps up to 1 HP have carbon/ceramic sealing faces at both water end and motor end. All pumps starting with 2 HP and above have Sic sealing faces at the water end and carbon/ceramic sealing faces at the motor end.
- Available with Sic/Sic mechanical shaft seal for pumping sandy water for 1 HP (optional).

Special Features on Request

- Other voltages.
- Available in 50 Hz.

Direction of Rotation

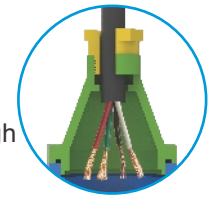
- Clockwise as seen from the motor rear end.

Thermal overload protector

- Equipped with Automatic reset motor protector, prevents motor from burning due to high temperature/phase failure/ voltage drop and lock impeller.

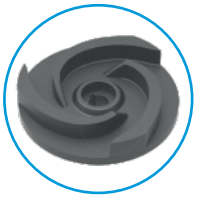
Cable base

- Epoxy resin seal cable base to prevent water intrusion into motor through the cable wire.



U Type Impeller

- This impeller can generate rapid rotating vortex to handle fluid mixed with long fiber, the majority of abrasive solids do not touch impeller to minimize impeller wear.



Float Switch

- Excellent quality float switch Provided with epoxy resin sealed connector.

Motor

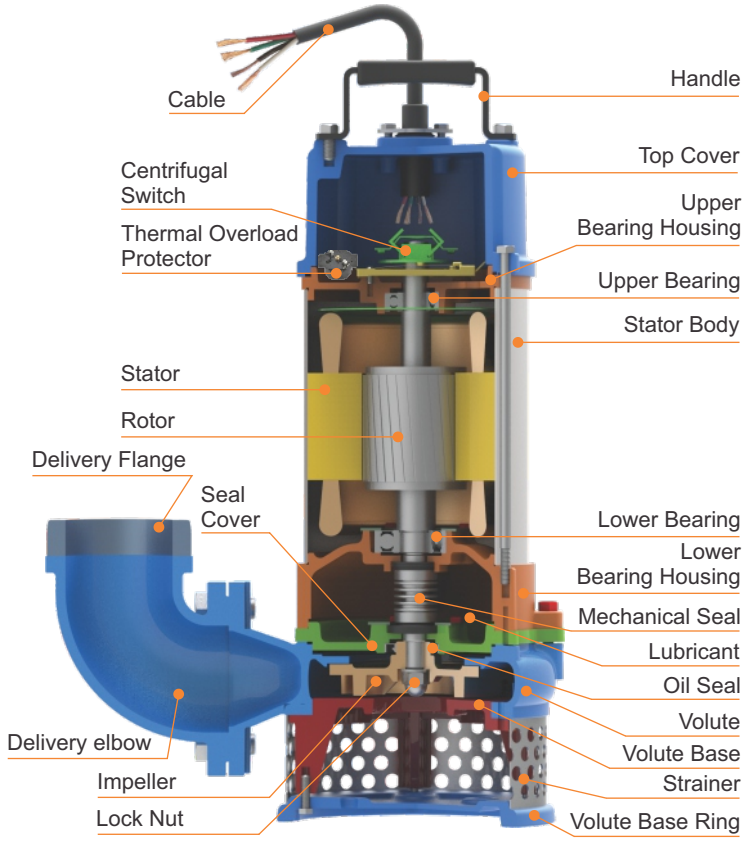
- 2 - pole dry submersible motor
- 60Hz (n = 3450 RPM)
- Single phase : 230 V ±10%
- Three phase : 230 V ±10% (up to 3 H.P.)
  380 V, 460 V ±10%
- Protection IP 68
- Insulation class : F

Operating Conditions

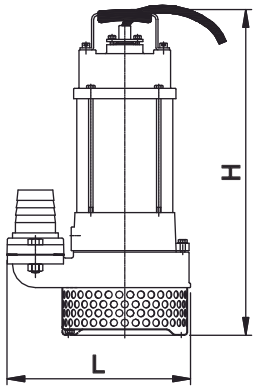
- Ambient temperature : +32°F to +122°F
- Liquid temperature : Max. +122°F
- Max. Starts per hour : 30 at regular intervals.
- Duty rating :
  S1 - When pump is completely submerged.
  S3 - When pump is partially submerged.

Float Switch Pump

- The pumps are equipped with wide angle on/off level control float switch for easy and simple automatic operation.
- Applications : Slushy water, dewatering, drainage application.
- Type : 0.5-2 HP Single-phase pumps.
  0.5-1 HP Three-phase pumps.



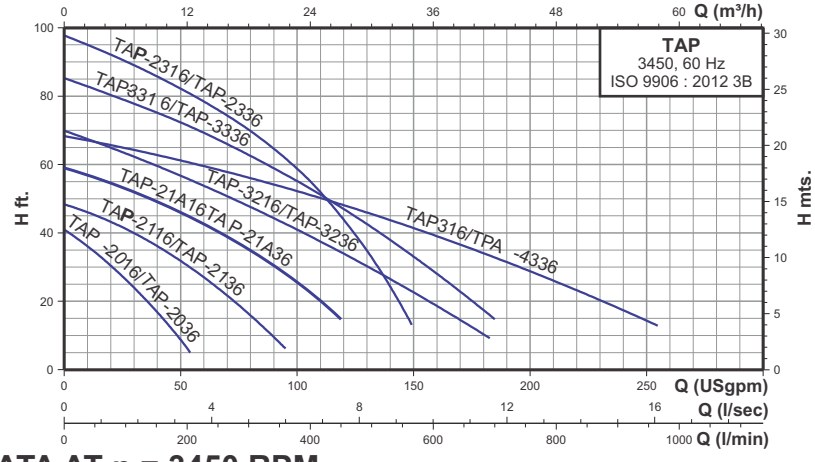
TAP



DIMENSIONS

Model		Disc. Inch (mm)	Dimensions (inch)			Solid Passage (inch)	Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	Cable data cable x core x size (AWG) x length (ft) x Material
Single Phase	Three Phase		Length	Width	Height					
TAP-2016/2016F	-	2 (50)	8.94	6.30	14.30	0.31	33	37	1.30	1 x 3 x 17 x 16 x PVC
-	TAP-2036/2036F		8.94	6.30	14.30		33	37	1.30	1 x 4 x 17 x 16 x PVC
TAP-2116/2116F	-	2 (50)	10.91	7.01	17.32	0.39	42	46	1.59	1 x 3 x 17 x 16 x PVC
-	TAP-2136/2136F		10.91	7.01	17.32		40	44	1.59	1 x 4 x 17 x 16 x PVC
TAP-3216/3216F	-	3 (80)	16.22	8.19	22.40	0.43	97	152	5.16	1 x 3 x 14 x 26 x PVC
-	TAP-3236/3236F		16.22	8.19	18.50		88	143	5.16	1 x 4 x 15 x 26 x PVC
TAP-2316/2316F	-	2 (50)	11.02	8.50	22.52	0.43	101	154	5.16	1 x 3 x 12 x 26 x PVC
-	TAP-2336/2336F		11.02	8.50	19.41		95	145	5.16	1 x 4 x 15 x 26 x PVC
TAP-3316/3316F	-	3 (80)	15.16	8.50	22.64	0.43	104	156	5.16	1 x 3 x 12 x 26 x PVC
-	TAP-3336/3336F		15.16	8.50	19.49		95	147	5.16	1 x 4 x 15 x 26 x PVC
TAP-4316/4316F	-	4 (100)	15.35	8.19	22.99	0.43	104	158	5.16	1 x 3 x 12 x 26 x PVC
-	TAP-4336/4336F		15.35	8.19	19.49		95	150	5.16	1 x 4 x 15 x 26 x PVC
TAP-21A16/21A16F	-	2 (50)	10.91	7.01	18.50	0.39	49	56	1.77	1 x 3 x 16 x 16 x PVC
-	TAP-21A36/21A36F		10.91	7.01	18.50		46	54	1.77	1 x 4 x 17 x 16 x PVC

PERFORMANCE CHART AT n = 3450 RPM FOR DRAINAGE PUMPS



PERFORMANCE DATA AT n = 3450 RPM

Model		Power		Voltage	Start Method	l/min	95	189	284	379	473	568	662	757	946
Single Phase	Three Phase	HP	kW			Usgpm	25	50	75	100	125	150	175	200	250
LAP-2016/2016F	-	0.5	0.37	230V	Capacitor	H ft.	27.5	8.5	-	-	-	-	-	-	-
-	LAP-2036/2036F			460V	Direct										
LAP-2116/2116F	-	1.0	0.75	230V	Capacitor		41.5	32	18.5	-	-	-	-	-	-
-	LAP-2136/2136F			460V	Direct										
LAP-3216/3216F	-	2.0	1.50	230V	Capacitor		63.5	57	49	41	32	22.5	12.5	-	-
-	LAP-3236/3236F			460V	Direct										
LAP-2316/2316F	-	3.0	2.20	230V	Capacitor		90.5	82	72	58.5	39	13	-	-	-
-	LAP-2336/2336F			460V	Direct										
LAP-3316/3316F	-	3.0	2.20	230V	Capacitor		79	72	64	55	45	33	20	-	-
-	LAP-3336/3336F			460V	Direct										
LAP-4316/4316F	-	3.0	2.20	230V	Capacitor		65	61	57	52	47	41.5	35	29.5	14.5
-	LAP-4336/4336F			460V	Direct										
LAP-21A16/21A16F	-	1.5	1.10	230V	Capacitor		53	46	37	26	-	-	-	-	-
-	LAP-21A36/21A36F			460V	Direct										

Note : Subscript "F" pumps will be provided with a float switch. • Pumps are available for 380 V three phase power supply on request.

Performance Range

- Flow rate up to 342 USgpm.
- Dynamic head up to 85 feet.

Applications

- Drainage of sewage from the building basements, hotels, industries, process plant, waste water from factories.
- Emptying septic tanks, cesspits and sewage pump stations.
- Pumping surface and drainage water from garages and sprinkler systems.

Features

- A precision manufactured motor is achieved utilizing a laminated sheet steel production process combined with the highest standard of quality control. The stator and wiring is impregnated with varnish and then heat dried in an industrial oven. This ensures a 100%quality manufactured motor with stable characteristics and a high efficiency.
- Standard accessories include: Thermoplastic rubber cable with an epoxy resin sealed stainless steel cable base, AC thermal motor protector, dual mechanical seal and lip seal.

Special Features on Request

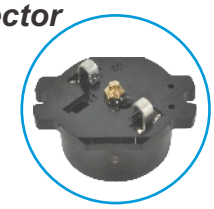
- Other voltages.
- Available in 50 Hz.

Direction of Rotation

- Clockwise as seen from the motor rear end.

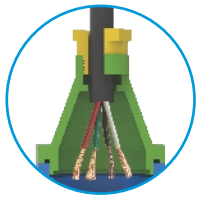
Thermal overload protector

- Equipped with Automatic reset motor protector, prevents motor from burning due to high temperature/phase failure/ voltage drop and locked impeller.



Cable base

- Epoxy resin seal cable base to prevent water intrusion into motor through the cable wire.



P Type Impeller

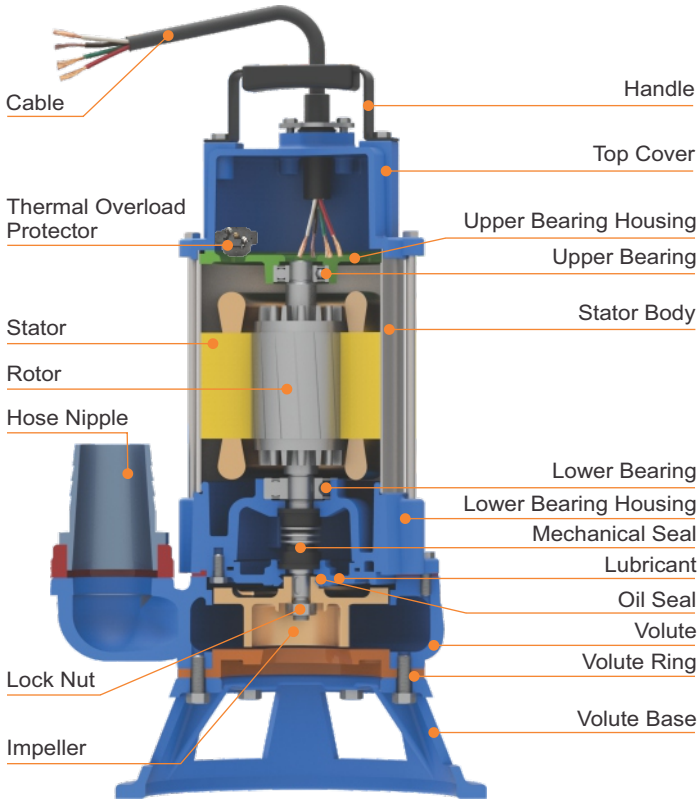
- Semi-open impeller cutting foreign particles, and preventing clog by solid media.

U Type Impeller

- This impeller can generate rapid rotating vortex to handle fluid mixed with long fiber, the majority of abrasive solids do not touch impeller to minimize impeller wear.

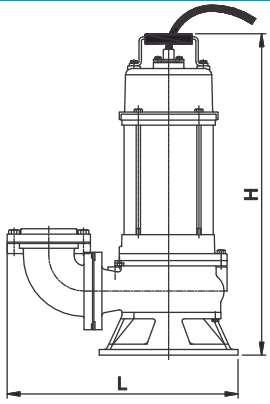
Specification

Diameter (inch)			2" - 3"
Pumping liquid	Ambient temp		Max. +122°F
	Liquid temp		+32°F to +122°F
	Liquid nature		Suitable for sewage waste water (with or without solids) from septic tanks, building basements and waste water form factories.
Pump	Structure	Impeller	Semi - open
		M.seal	Double Mechanical seal
		Bearing	Ball type bearing
	Material	Impeller	Grey Iron
		Volute	Grey Iron
		Upper cover	Grey Iron
		Volute base	Grey Iron
	M.seal	Motor side	Carbon v/s Ceramic (1 - 3 HP)
		Pump side	Carbon v/s Ceramic (1 HP) Silicon Carbide v/s Silicon Carbide (2 - 3 HP)
Motor	Insulation		F Class
	Frequency		60 Hz
	Thermal Protector		Automatic reset motor protector
	Material	Stator body	S.S. AISI 304
		Shaft	S.S. AISI 410
		Cable	PVC
Protection			IP 68
Duty			S1 - When pump is completely submerged. S3 - When pump is partially submerged.
Voltage			1 Ph. 230 V ±10%, 3 Ph. 380 V, 460 V ±10% 3Ph. 230 V ±10% (up to 3.0 H.P.)



Sewage Pumps (1.0 HP to 3.0 HP)

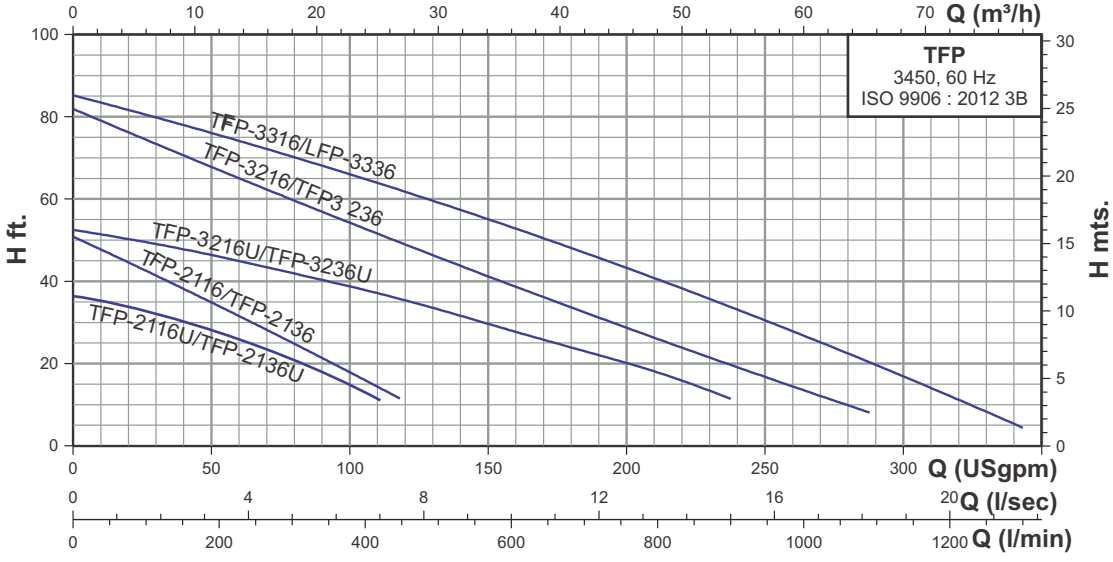
TFP



DIMENSIONS

Model		Disc. Inch (mm)	Impeller Type	Dimensions (inch)			Solid Passage (inch)	Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	Cable data cable x core x size (AWG) x length (ft) x Material
Single Phase	Three Phase			Length	Width	Height					
TFP-2116/2116F	-	2 (50)	P	11.97	9.25	18.70	0.91	46	50	2.54	1 x 3 x 17 x 16 x PVC
-	TFP-2136/2136F			11.97	9.25	18.70		44	48	2.54	1 x 4 x 17 x 16 x PVC
TFP-2116U/2116UF	-	2 (50)	U	10.43	7.55	17.91	1.37	46	50	2.54	1 x 3 x 17 x 16 x PVC
-	TFP-2136U/2136UF			10.43	7.55	17.91		44	48	2.54	1 x 4 x 17 x 16 x PVC
TFP-3216/3216F	-	3 (80)	P	17.01	10.24	23.62	1.26	97	156	6.32	1 x 3 x 14 x 26 x PVC
-	TFP-3236/3236F			17.01	10.24	19.88		88	147	6.32	1 x 4 x 15 x 26 x PVC
TFP-3216U/3216UF	-	3 (80)	U	17.01	10.24	23.62	0.59	97	156	6.32	1 x 3 x 14 x 26 x PVC
-	TFP-3236U/3236UF			17.01	10.24	19.88		88	147	6.32	1 x 4 x 15 x 26 x PVC
TFP-3316/3316F	-	3 (80)	P	17.01	10.24	24.41	1.38	106	161	6.32	1 x 3 x 12 x 26 x PVC
-	TFP-3336/3336F			17.01	10.24	20.87		95	152	6.32	1 x 4 x 15 x 26 x PVC

PERFORMANCE CHART AT n = 3450 RPM FOR SEWAGE PUMPS



PERFORMANCE DATA AT n = 3450 RPM

Model		Power		Voltage	Start	l/min	95	189	284	379	473	568	663	757	852	946	1041	1136	1230
Single Phase	Three Phase	HP	kW		Method	Usgpm	25	50	75	100	125	150	175	200	225	250	275	300	325
TFP-2116/2116F	-	1.0	0.75	230V	Capacitor	H ft.	43.5	34.5	26	17	-	-	-	-	-	-	-	-	-
-	TFP-2136/2136F			460V	Direct														
TFP-2116U/2116UF	-	1.0	0.75	230V	Capacitor		33	28	22	15	-	-	-	-	-	-	-	-	-
-	TFP-2136U/2136UF			460V	Direct														
TFP-3216/3216F	-	2.0	1.50	230V	Capacitor		75	67.5	61.5	54	47.5	41.5	35	28.5	22.5	17	11	-	-
-	TFP-3236/3236F			460V	Direct														
TFP-3216U/3216UF	-	2.0	1.50	230V	Capacitor		50	46.5	42.5	39	35	30	25	20	15	-	-	-	-
-	TFP-3236U/3236UF			460V	Direct														
TFP-3316/3316F	-	3.0	2.20	230V	Capacitor		81	76	71.5	66	60.5	55	49	43	37	30	24	17	10
-	TFP-3336/3336F			460V	Direct														

Note : Subscript "F" pumps will be provided with a float switch.
Pumps are available for 380 V three phase power supply on request.

Performance Range

- Flow rate up to 120 USgpm.
- Dynamic head up to 49 feet.

Applications

- All applications of pumping and draining effluent, civil and industrial sewage with suspended solids.
- Pumping stations with one or more pumps for civil and industrial plants.

Features

- Light weight, portable.
- Made out of stainless steel AISI 304 sheet metal.
- High quality mechanical shaft seal.
- Class-F motor insulation which can handle higher motor temperature.
- Thermally protected motors which prevents motor from burn out.
- Vortex impeller designs to handle solids laden sewage and/or fibrous substance.
- A fully waterproof IP 68 structure, combined with a high grade silicon carbide mechanical seal.
- Permanently lubricated ball bearings.
- Solid passage size up to 40 mm.

Special Features on Request

- Other voltages.
- Available in 50 Hz.

Vortex Impeller

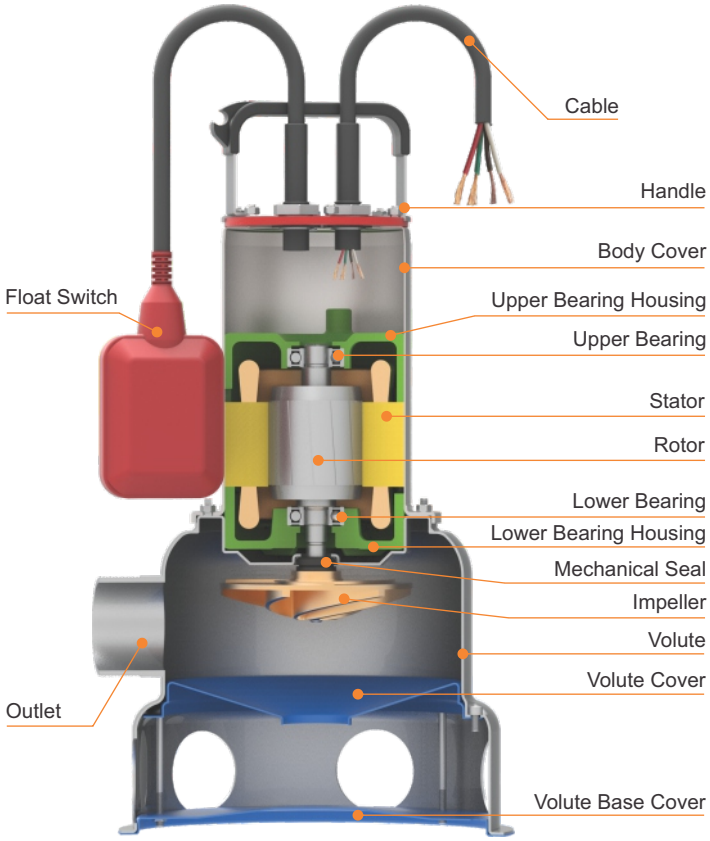
- Vortex impellers create a hydraulic passage, allowing long fibrous materials to pass through without any contact with the impeller.

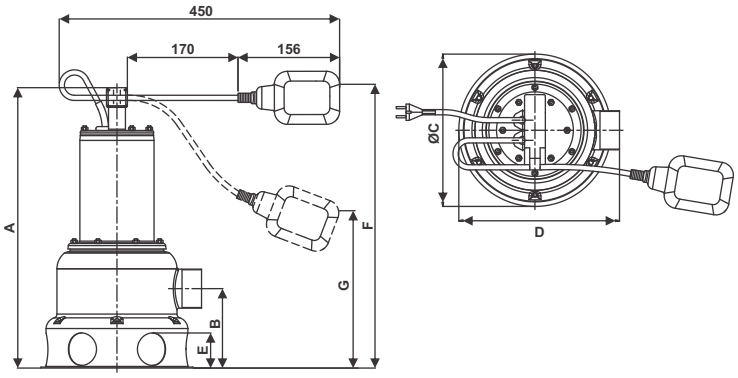
Specification

Pumping liquid	Ambient temp		Max. +122°F
	Liquid temp		+32°F to +122°F
	Liquid nature		Pumps are suitable for drainage waste or sump drainage water with or without solids.
Pump	Structure	Impeller	Vortex
		M.seal	Mechanical seal
		Bearing	Ball type bearing
	Material	Impeller	S.S. AISI 304
		Volute	S.S. AISI 304
		Upper cover	S.S. AISI 304
		M.seal	Sic/Sic
Motor	Type		Dry motor
	Insulation		F Class
	Frequency		50 Hz
	Material	Stator body	S.S. AISI 304
		Shaft	S.S AISI 410
		Cable	PVC
Protection			IP 68
Duty			S1 - When pump is completely submerged S3 - When pump is partially submerged
Voltage			1 Ph. 230 V ±10%, 3 Ph. 230 V, 380 V, 460 V ±10%

Direction of Rotation

- Clockwise as seen from the motor rear end.

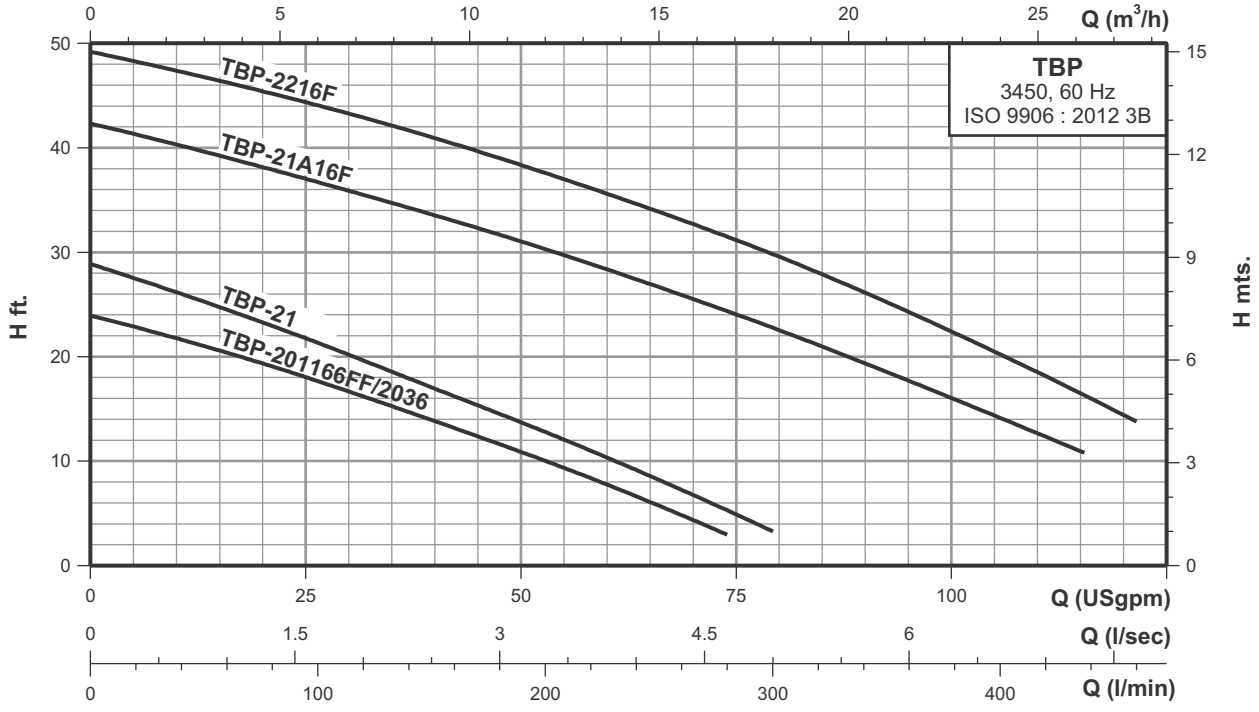




DIMENSIONS

Model		Disc. Inch (mm)	Dimensions (inch)							Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	Cable data cable x core x size (AWG) x length (ft) x Material
Single Phase	Three Phase		A	B	C	D	E	F	G				
TBP 2016F	-	50 (2")	16.93	4.84	9.25	9.49	2.17	21.65	11.42	20.9	26.0	1.589	1 x 3 x 17 x 16 x PVC
-	TBP 2036/2036F	50 (2")	16.93	4.84	9.25	9.49	2.17	21.65	11.42	20.9	26.0	1.589	1 x 4 x 17 x 16 x PVC
TBP 2116F	-	50 (2")	16.93	4.84	9.25	9.49	2.17	21.65	11.42	20.9	26.0	1.589	1 x 3 x 17 x 16 x PVC
TBP 21A16F	-	50 (2")	19.61	4.84	9.25	9.49	2.17	21.65	11.42	30.4	33.7	1.766	1 x 3 x 16 x 16 x PVC
TBP 2216F	-	50 (2")	20.39	4.84	9.25	9.49	2.17	21.65	11.42	33.5	35.9	1.766	1 x 3 x 16 x 26 x PVC

PERFORMANCE CHART AT n = 3450 RPM FOR SEWAGE PUMPS



PERFORMANCE DATA AT n = 3450 RPM

Model		Power		Voltage	Start Method	l/min	76	114	151	189	217	265	303	341	379	416	454
Single Phase	Three Phase	HP	kW			USgpm	20	30	40	50	60	70	80	90	100	110	120
TBP 2016F	-	0.5	0.37	230V	Capacitor	H ft.	19.4	16.7	13.8	10.9	7.8	4.4	-	-	-	-	-
-	TBP 2036/2036F	0.5	0.37	460V	Direct		19.4	16.7	13.8	10.9	7.8	4.4	-	-	-	-	-
TBP 2116F	-	1.0	0.75	230V	Capacitor		23.3	20.2	17	13.7	10.3	6.7	-	-	-	-	-
TBP 21A16F	-	1.5	1.10	230V	Capacitor		38.1	36	33.6	31.1	28.3	25.6	22.6	19.3	16	12.7	-
TBP 2216F	-	2.0	1.50	230V	Capacitor		45.4	43.2	41.1	38.3	35.8	32.7	29.7	26.1	22.4	18.5	14.4

Note : Subscript "F" pumps will be provided with a float switch. • Pumps are available for 380 V three phase power supply on request.

Heavy Duty Sewage Pumps (5 HP to 75 HP) THP

Performance Range

- Flow rate up to 11000 USgpm.
- Dynamic head up to 160 feet.

Applications

- Drainage of waste water from the liberation tank, purifying tank and sewage tank in water treatment plant.
- Drainage of waste water containing fibrous additives from leather factory, dyeing factory and food processing factory.
- Sewage management, accumulated water, septic tank, stock farm.
- Pumping sewage from single and multi family dwellings, schools, hotels, restaurants and public buildings.

Features

- International standard design : Thermoplastic rubber cable, thermal overload protector, silicon carbide mechanical seal, high grade cast iron, good quality and performance.
- A water detector is provided in the seal chamber. In case of seal failure if water enters the seal chamber, a signal can be sent to the control panel so that the pump operator is made aware of a potential seal leakage problem.
- P / E multiple impeller designs to handle solids laden sewage and/or fibrous substance.
- For extra protection, an oil seal ring has been installed under the oil chamber. This lip seal helps prevent the ingress of silt and sand into the lower seal chamber.
- Superior abrasion resistant mechanical shaft seal manufactured with silicon carbide to ensure the best seal effect.
- Full range offering low to high head and flow capabilities, with compact and easy installation. Also available with guide rail system, which allows automatic remote connection and disconnection without entering the pit.

Direction of Rotation

- Clockwise as seen from the motor rear end.

Thermal overload protector

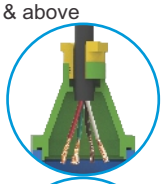
- Equipped with Automatic reset motor protector, prevents motor from burning due to high temperature/phase failure/voltage drop and lock impeller.

Miniature Thermal Protector

- Miniature Thermal Protector (MTP) is embedded in the windings of the motor. The MTP will transmit a signal to a control panel when windings temperature reaches a set point. This feature is available in 11 kW & above models only.

Cable base

- Epoxy resin seal cable base to prevent water intrusion into motor through the cable wire.



P Type Impeller

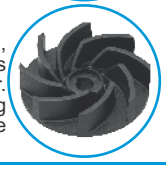
- Semi-open impeller enable cutting of delicate materials to prevent clogging.

E Type Impeller

- Single channel non-clog impeller, allows large solids passage preventing clogging and allowing effective drainage/dewatering for higher head applications with solids laden media (for 7.5 kW to 55 kW).

U Type Impeller

- Vortex impellers create a hydraulic passage, allowing long fibrous materials to pass through without any contact with the impeller. Pump of U type impeller (3 Phase) operating in a higher current when reverse, please adjust into fit directions.

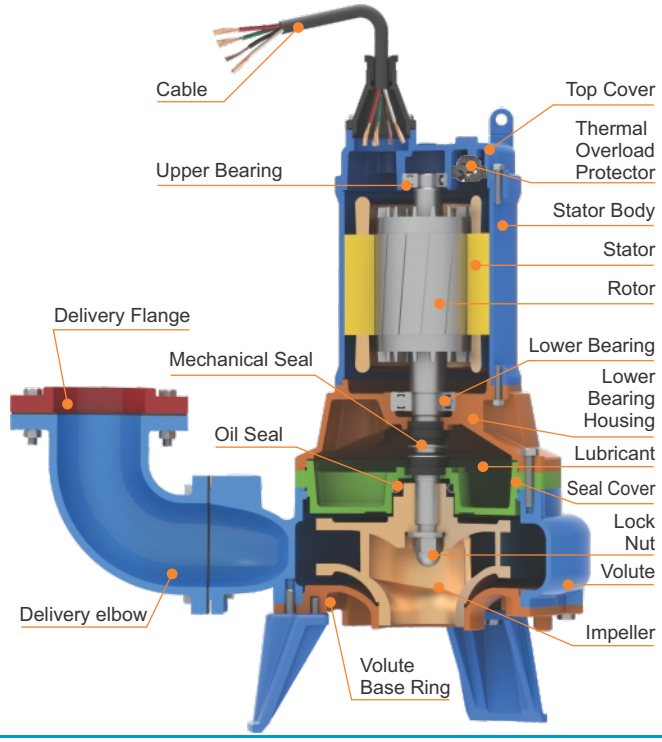


Specification

Diameter(mm)			3”- 4”- 6”
Pumping liquid		Ambient temp	Max. +122°F
		Liquid temp	+32°F to +122°F
		Liquid nature	Suitable for sewage waste water (with or without solids) from septic tanks, building basements and waste water form factories.
Pump	Structure	Impeller	P type : semi - open, Non - clog E type : Enclosed single channel U type : Semi-vortex
		M.seal	Double mechanical seal
		Water detector	Installed in the seal chamber to detect water leakage from water infiltrating (7.5 HP and above)
		Bearing	Ball type bearing
	Material	Impeller	Grey Iron
		Volute	Grey Iron
		Upper cover	Grey Iron
		Volute base ring	Grey Iron
		Mechanical seal	Motor side - Carbon v/s Ceramic Pump side - Silicon carbide v/s Silicon carbide
Motor		Type	Dry motor
		Insulation	F Class
		Frequency	60 Hz
		Thermal Protector	Automatic reset motor protector (up to 10 HP) Miniature Thermal Protector (15 HP & above)
	Material	Stator body	Grey Iron
		Shaft	S.S. AISI 410
		Cable	Thermoplastic rubber/PVC
Protection			IP 68
Duty			S1 - When pump is completely submerged. S3 - When pump is partially submerged.
Voltage			3Ph. 380 V, 460 V ±10% 3Ph. 230 V ±10% (up to 3.0 H.P.)

Special Features on request

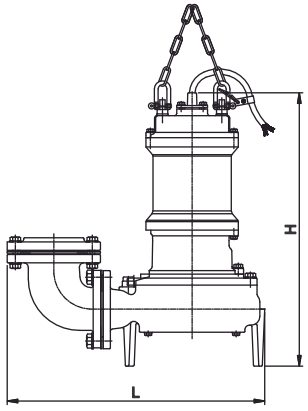
- Other Voltages, Available in 50Hz.



TORO WATER SOLUTIONS
A SHIN BRAND

Heavy Duty Sewage Pumps (5 HP to 10 HP)

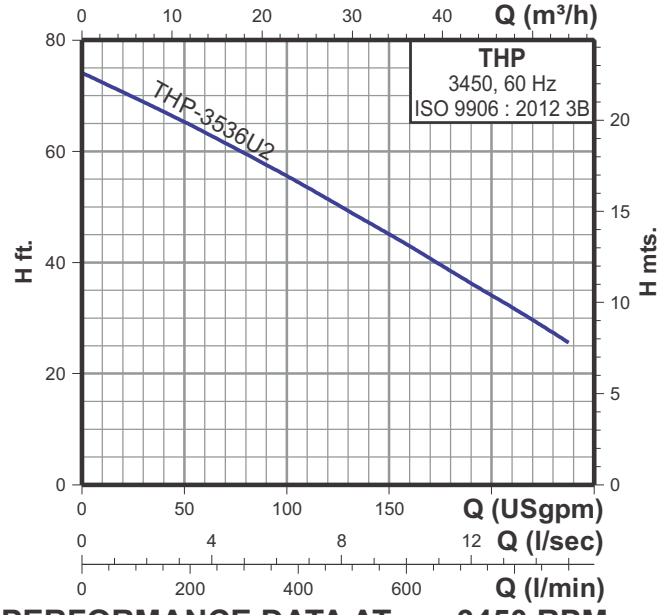
THP



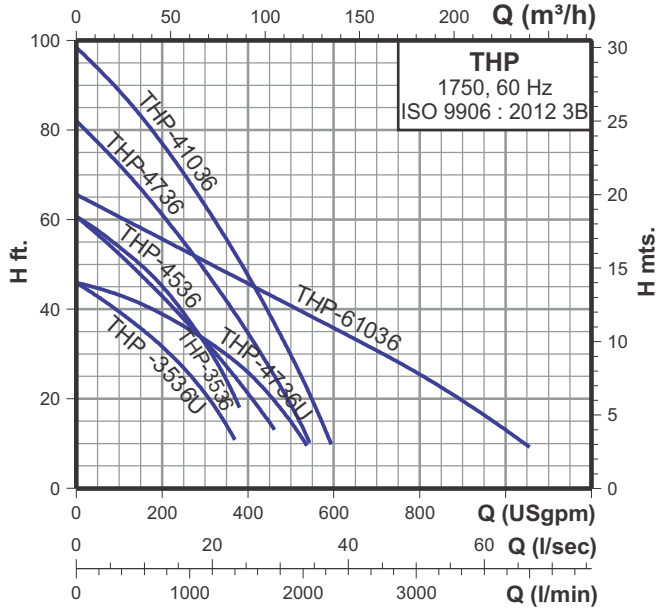
DIMENSIONS

Model	Phase	Disc. Inch (mm)	Impeller Type	Dimensions (inch)			Solid Passage (inch)	Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	Cable data cable x core x size (AWG) x length (ft) x Material
				Length	Width	Height					
THP-3536U2	3Ø	3" (80)	U	18.90	8.66	23.43	2.20	128	205	6.57	1 x 4 x 15 x 26 x PVC
THP-3536	3Ø	3" (80)	P	22.83	12.20	25.59	2.20	180	279	10.17	1 x 4 x 15 x 26 x PVC
THP-3536U	3Ø	3" (80)	U	21.73	11.26	27.36	2.99	176	275	9.71	1 x 4 x 15 x 26 x PVC
THP-4536	3Ø	4" (100)	P	22.83	12.20	25.59	1.97	185	284	10.06	1 x 4 x 15 x 26 x PVC
THP-4736	3Ø	4" (100)	E	27.60	15.91	31.89	1.57	321	453	16.77	1 x 4 x 10 x 26 x PVC + 1 x 1 x 19 x 26 PVC
THP-4736U	3Ø	4" (100)	U	27.60	15.91	31.89	2.56	315	447	16.77	1 x 4 x 10 x 26 x PVC + 1 x 1 x 19 x 26 PVC
THP-41036	3Ø	4" (100)	E	27.60	15.91	33.46	1.57	359	469	17.48	1 x 4 x 10 x 26 x PVC + 1 x 1 x 19 x 26 PVC
THP-61036	3Ø	6" (150)	E	33.46	18.60	35.62	2.76	506	697	23.41	1 x 4 x 10 x 26 x PVC + 1 x 1 x 19 x 26 PVC

PERFORMANCE CHART AT n = 3450 RPM



PERFORMANCE CHART AT n = 1750 RPM



PERFORMANCE DATA AT n = 3450 RPM

Model	Power		Voltage	Start Method	l/min	95	189	284	379	473	568	662	757	852
Three Phase	HP	kW			Usgpm	25	50	75	100	125	150	175	200	225
THP-3536U2	5.0	3.70	460V	Direct	H (ft)	69	65.5	60.5	55.5	50.5	45	39.5	34	28.5

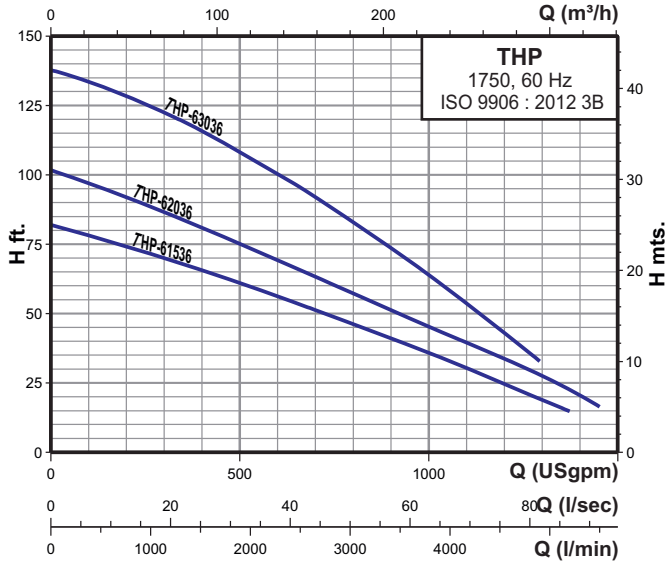
PERFORMANCE DATA AT n = 1750 RPM

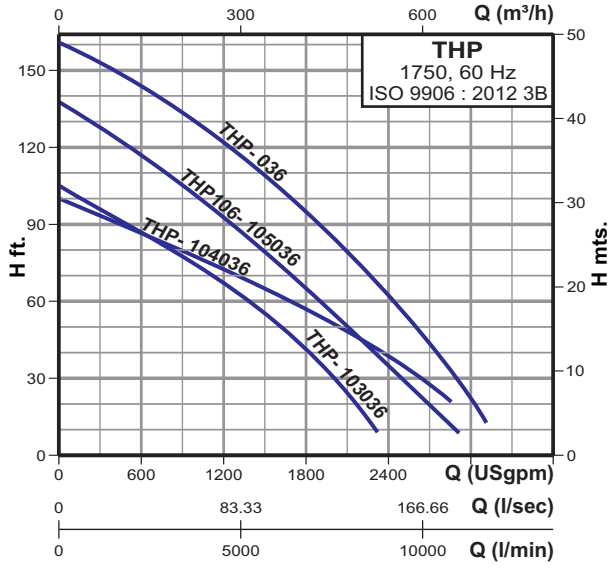
Model	Phase	Power		Voltage	Start Method	l/min	189	379	568	757	852	1136	1514	1893	2271	2650	3028	3407	3785
		HP	kW			Usgpm	50	100	150	200	225	300	400	500	600	700	800	900	1000
THP-3536	3Ø	5.0	3.7	460V	Direct		57.5	53.5	50	45	42.5	32.5	-	-	-	-	-	-	-
THP-3536U	3Ø	5.0	3.7	460V	Direct		42.5	39	36	31.5	30	21.5	-	-	-	-	-	-	-
THP-4536	3Ø	5.0	3.7	460V	Direct		57	52.5	47.5	43	40	33	21	-	-	-	-	-	-
THP-4736	3Ø	7.5	5.5	460V	Direct	H (ft)	77.5	72.5	67	61.5	57.5	48	35	19	-	-	-	-	-
THP-4736U	3Ø	7.5	5.5	460V	Direct		44.5	43	41.5	39	37.5	33	26	15	-	-	-	-	-
THP-41036	3Ø	10.0	7.5	460V	Direct		94	88.5	83	77	73	63	47.5	30	-	-	-	-	-
THP-61036	3Ø	10.0	7.5	460V	Direct		63	61	58	56	54	51	46	40.5	36	31	25.5	19.5	13

Note : Pumps are available for 380 V three phase power supply on request.

TORO WATER SOLUTIONS
A SHN BRAND

PERFORMANCE CHART AT n = 1750 RPM

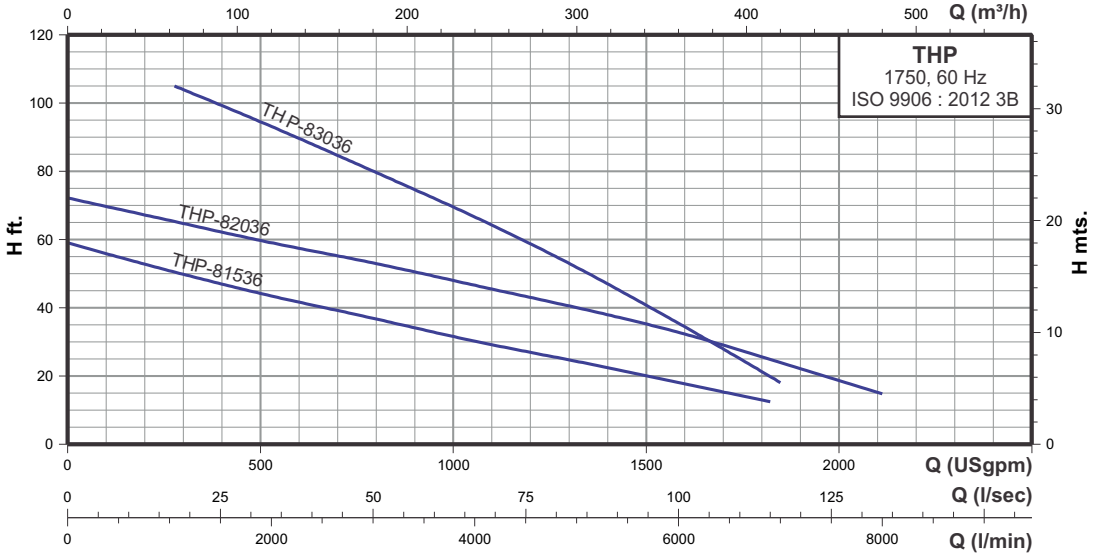




Model	Power		Voltage	Start Method	l/min	379	946	1136	1893	2839	3785	4353	4732
Three Phase	HP	kW			Usgpm	100	250	300	500	750	1000	1150	1250
THP-61536	15.0	11.0	460V	Y - Δ	H ft.	78	72.5	70	61.5	48.5	36	28	22
THP-62036	20.0	15.0	460V	Y - Δ		96.5	89	86.5	75	60	45	36	30
THP-63036	30.0	22.0	460V	Y - Δ		133.5	125	122.5	108	87.5	64	48	37

Model	Power		Voltage	Start Method	l/min	2271	4542	6814	9085	11356
Three Phase	HP	kW			Usgpm	600	1200	1800	2400	3000
THP-103036	30.0	22.0	460V	Y - Δ	H ft.	87	67	41	-	-
THP-104036	40.0	30.0	460V	Y - Δ		86	72.5	56	39	-
THP-105036	50.0	37.0	460V	Y - Δ		117	92.5	65	34.5	-
THP-106036	60.0	45.0	460V	Y - Δ		144	122	94.5	62	22

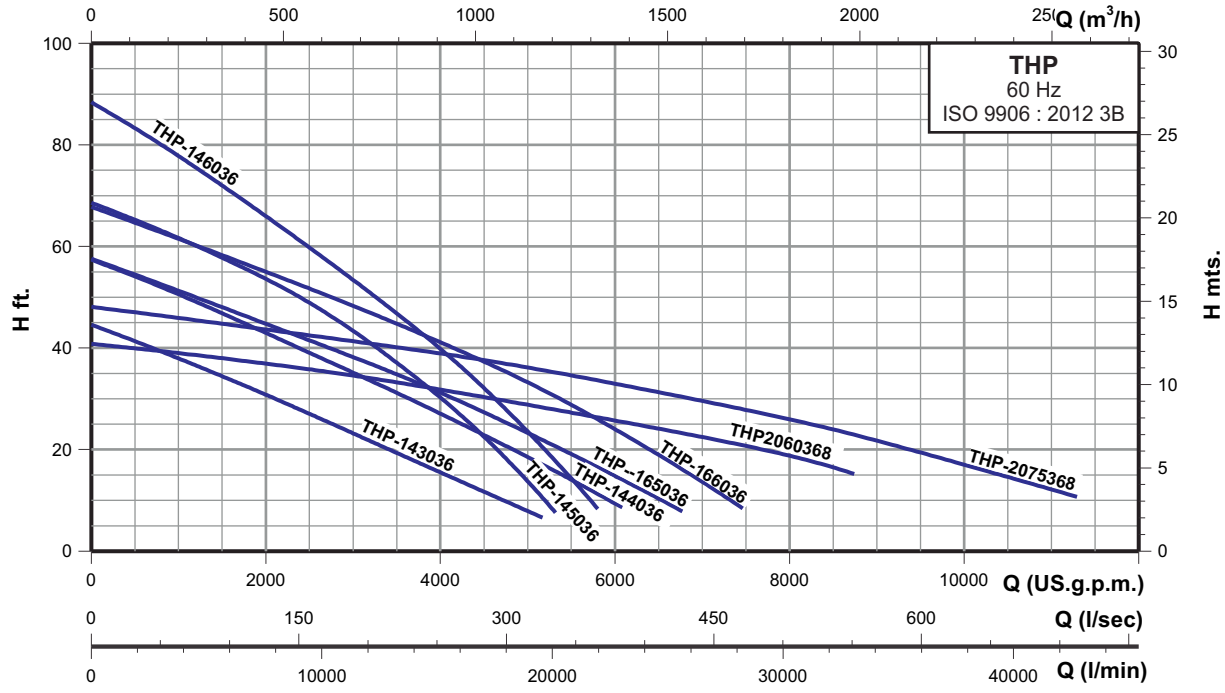
PERFORMANCE CHART AT n = 1750 RPM



Model	Power		Voltage	Start Method	l/min	946	1893	2839	3785	4732	5678	6624	7571
Three Phase	HP	kW			Usgpm	250	500	750	1000	1250	1500	1750	2000
THP-81536	15.0	11.0	460V	Y - Δ	H ft.	51.5	44	38	32	26	20	14	-
THP-82036	20.0	15.0	460V	Y - Δ		66	60	54	48	42	35.5	27.5	18.5
THP-83036	30.0	22.0	460V	Y - Δ		106	95	82	69.5	56	40.5	24.5	-

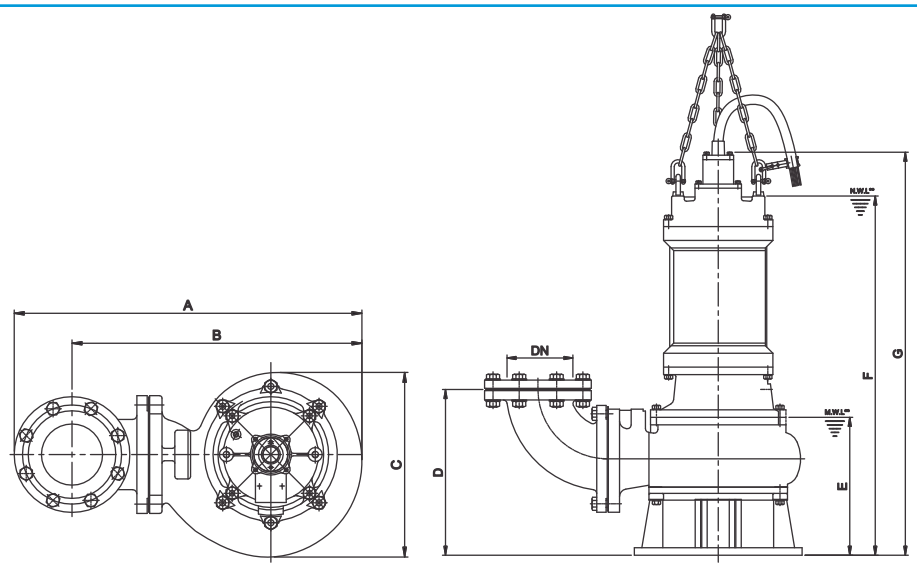
Note : Pumps are available for 380 V three phase power supply on request.

PERFORMANCE CHART AT n = 1150 RPM



Model	Power		Voltage	RPM	Start Method	l/min	3785	7571	11356	15142	18927	22712	26498	30283	34068	37854	41639
Three Phase	HP	kW				Usgpm	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
THP-143036	30.0	22.0	460V	1150	Y - △	H ft.	38	31	23.5	15.5	8	-	-	-	-	-	-
THP-144036	40.0	30.0	460V	1150	Y - △		50.5	43	35	27	18.5	9.5	-	-	-	-	-
THP-145036	50.0	37.0	460V	1150	Y - △		61.5	53.5	43.5	30.5	13.5	-	-	-	-	-	-
THP-146036	60.0	45.0	460V	1150	Y - △		78	66	53.5	40	23.5	-	-	-	-	-	-
THP-165036	50.0	37.0	460V	1150	Y - △		51	44.5	38	31	23	14.5	-	-	-	-	-
THP-166036	60.0	45.0	460V	1150	Y - △		61.5	55	48.5	41	33	23.5	14	-	-	-	-
THP-2060368	60.0	45.0	460V	880	Y - △		39	37	34.5	31.8	28.7	25.7	22.3	19	-	-	-
THP-2075368	75.0	55.0	460V	880	Y - △		45.9	43.5	41.2	39	36.2	33.2	39.6	26	21.8	17	12.3

Figure 1



THP pumps with ring stand. (15 - 75 HP)

Note : (*) Minimum level for pump to operate on a continuous basis (S1 operation).
(**) Minimum acceptable liquid level of the pump. Pump should switch off at this level.

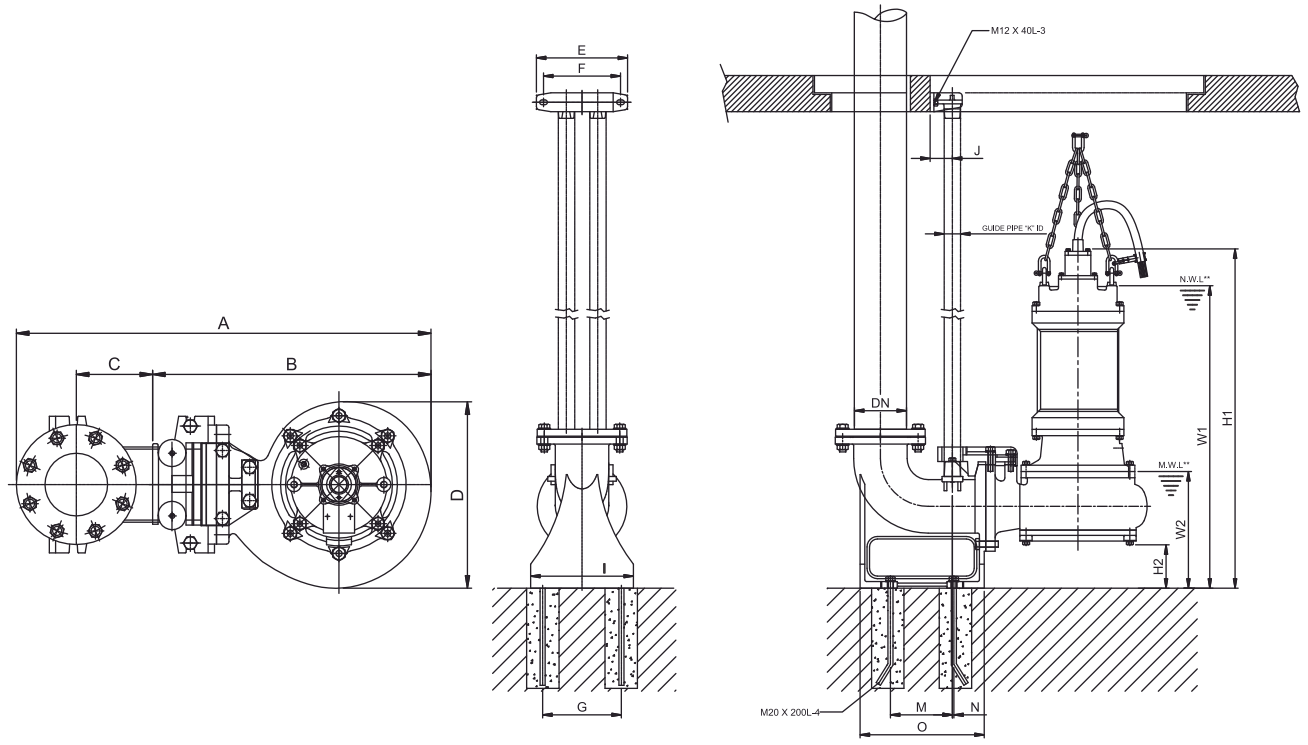
DIMENSIONS Figure 1

Model Three Phase	Disc. Inch (mm)	Dimensions (inch)							Solid Passage (inch)	Net Weight (lbs.)	Gross Weight (lbs.)	Volume (ft^3)
		A	B	C	D	E	F	G				
THP - 61536	6" (150)	33.39	27.76	18.58	17.40	14.45	37.72	42.32	2.76	579	796	29.63
THP - 62036	6" (150)	31.85	26.22	17.72	15.24	12.99	34.84	39.41	2.99	418	636	29.63
THP - 63036	6" (150)	33.46	27.83	19.53	15.75	13.70	34.57	37.20	2.99	510	794	29.10
THP - 81536	8" (200)	37.56	30.91	19.76	18.98	14.76	38.03	42.68	2.95	609	856	35.27
THP - 82036	8" (200)	37.60	30.91	18.50	17.40	14.49	38.03	42.52	2.95	627	873	35.27
THP - 83036	8" (200)	37.01	30.31	20.08	16.46	12.80	33.66	36.38	2.99	682	1001	55.08
THP - 103036	10" (250)	54.65	46.69	25.20	29.13	21.73	52.76	54.92	2.36	1642	2048	78.08
THP - 104036	10" (250)	54.65	46.69	25.20	29.13	21.73	52.76	54.92	2.36	1687	2092	78.08
THP - 105036	10" (250)	54.65	46.69	25.20	29.13	21.73	52.76	54.92	2.36	1698	2103	78.08
THP - 106036	10" (250)	54.65	46.69	25.20	29.13	21.73	52.76	54.92	2.36	1753	2158	78.08
THP - 143036	14" (350)	60.35	49.41	30.91	32.44	24.80	53.23	55.47	4.72	1918	2800	117.24
THP - 144036	14" (350)	60.35	49.41	30.91	32.44	24.80	53.23	55.47	4.72	1940	2822	117.24
THP - 145036	14" (350)	63.03	52.13	31.69	32.44	25.20	53.98	56.22	3.54	2304	3186	117.24
THP - 146036	14" (350)	63.03	52.13	31.69	32.44	25.20	53.98	56.22	3.54	2392	3274	117.24
THP - 165036	16" (400)	67.91	55.71	33.82	34.45	25.79	54.53	56.81	4.72	2480	3494	131.02
THP - 166036	16" (400)	67.91	55.71	33.82	34.45	25.79	54.53	56.81	4.72	2568	3582	131.02
THP - 2060358	20" (500)	92.20	77.83	48.62	44.49	33.70	64.65	70.43	5.51	4400	5280	256.00
THP - 2075358	20" (500)	92.20	77.83	48.62	44.49	33.70	64.65	70.43	5.51	4928	5914	256.00

Model	Cable data cable x core x size (AWG) x length (ft) x Material
THP - 61536	1 x 7 x 10 x 26 x Thermoplastic Rubber + 1 x 3 x 19 x 26 x Thermoplastic Rubber
THP - 62036	1 x 7 x 10 x 26 x Thermoplastic Rubber + 1 x 3 x 19 x 26 x Thermoplastic Rubber
THP - 63036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 81536	1 x 7 x 10 x 26 x Thermoplastic Rubber + 1 x 3 x 19 x 26 x Thermoplastic Rubber
THP - 82036	1 x 7 x 10 x 26 x Thermoplastic Rubber + 1 x 3 x 19 x 26 x Thermoplastic Rubber
THP - 83036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 103036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 104036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 105036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber

Model	Cable data cable x core x size (AWG) x length (ft) x Material
THP - 106036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 143036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 144036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 145036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 146036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 165036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 166036	2 x 4 x 8 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 2060358	2 x 4 x 3 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber
THP - 2075358	2 x 4 x 3 x 26 x Thermoplastic Rubber + 1 x 2 x 16 x 26 x Thermoplastic Rubber

Figure 2



THP pumps on auto-coupling guide rail system (5 to 75 HP)

Note : (*) Minimum level for pump to operate on a continuous basis (S1 operation).
(**) Minimum acceptable liquid level of the pump. Pump should switch off at this level.

DIMENSIONS Figure 2

Model	Disc. Inch	Dimensions (inch)																
Three Phase	(mm)	A	B	C	D	E	F	G	I	J	K***	M	N	O	W1	W2	H1	H2
THP - 3536U2	3" (80)	27.48	17.87	5.91	8.50	11.42	9.65	7.87	9.72	2.76	1.97	6.22	0.87	10.63	23.78	10.20	26.38	2.95
THP - 3536	3" (80)	30.12	20.51	5.91	11.22	11.42	9.65	7.87	9.72	2.76	1.97	6.22	0.87	10.63	25.91	11.61	28.66	1.22
THP - 3536U	3" (80)	30.12	20.51	5.91	11.22	11.42	9.65	7.87	9.72	2.76	1.97	6.22	0.87	10.63	25.91	11.61	28.66	1.22
THP - 4536	4" (100)	31.97	21.10	6.69	12.40	11.42	9.65	7.87	9.72	2.76	1.97	7.01	0.87	11.22	25.59	10.24	28.27	2.95
THP - 4736	4" (100)	35.63	24.80	6.69	15.16	11.42	9.65	7.87	9.72	2.76	1.97	7.01	0.87	11.22	27.36	11.61	31.14	4.88
THP - 4736U	4" (100)	35.63	24.80	6.69	15.16	11.42	9.65	7.87	9.72	2.76	1.97	7.01	0.87	11.22	27.36	11.61	31.14	4.88
THP - 41036	4" (100)	35.63	24.80	6.69	15.16	11.42	9.65	7.87	9.72	2.76	1.97	7.01	0.87	11.22	28.94	11.61	32.72	4.88
THP - 61036	6" (150)	39.06	27.95	5.51	17.56	13.39	11.61	11.02	12.87	3.54	1.97	9.25	1.73	15.75	31.89	14.57	35.71	6.61
THP - 61536	6" (150)	39.06	27.95	5.51	17.56	13.39	11.61	11.02	12.87	3.54	1.97	9.25	1.73	15.75	38.58	14.57	42.13	6.61
THP - 62036	6" (150)	40.24	27.95	6.69	17.72	11.42	9.65	11.02	12.80	2.76	1.97	10.24	0.79	14.57	36.50	13.82	39.96	0.87
THP - 63036	6" (150)	41.73	29.53	6.69	19.53	11.42	9.65	11.02	12.80	2.76	1.97	10.24	0.79	14.57	35.67	14.09	37.28	0.39
THP - 81536	8" (200)	41.89	26.06	9.06	19.76	11.81	6.89	12.60	13.78	3.74	1.97	10.59	1.61	15.75	38.74	15.47	43.39	0.71
THP - 82036	8" (200)	45.71	29.92	9.06	19.57	13.39	11.61	12.60	13.78	3.54	1.97	9.17	1.42	17.56	39.69	15.63	43.23	7.40
THP - 83036	8" (200)	50.39	34.84	9.06	20.08	12.60	11.02	11.02	13.78	3.94	1.57	7.87	3.15	14.57	35.08	14.21	37.80	1.42
THP - 103036	10" (250)	62.64	44.02	10.63	24.57	16.54	13.78	14.17	18.11	4.33	2.56	12.20	2.91	22.05	46.65	17.60	48.23	7.80
THP - 104036	10" (250)	62.64	44.02	10.63	24.57	16.54	13.78	14.17	18.11	4.33	2.56	12.20	2.91	22.05	46.65	17.60	48.23	7.80
THP - 105036	10" (250)	64.96	46.30	10.63	25.20	16.54	13.78	14.17	18.11	4.33	2.56	12.20	2.91	22.05	46.65	17.60	48.23	7.68
THP - 106036	10" (250)	64.96	46.30	10.63	25.20	16.54	13.78	14.17	18.11	4.33	2.56	12.20	2.91	22.05	46.65	17.60	48.23	7.68
THP - 143036	14" (350)	74.49	51.77	12.01	30.91	24.02	20.08	22.83	27.56	8.66	4.49	23.68	3.52	37.40	56.06	27.68	58.31	14.65
THP - 144036	14" (350)	74.49	51.77	12.01	30.91	24.02	20.08	22.83	27.56	8.66	4.49	23.68	3.52	37.40	56.06	27.68	58.31	14.65
THP - 145036	14" (350)	77.20	54.09	12.01	31.69	24.02	20.08	22.83	27.56	8.66	4.49	23.70	3.54	37.40	56.81	28.03	59.06	14.65
THP - 146036	14" (350)	77.20	54.09	12.01	31.69	24.02	20.08	22.83	27.56	8.66	4.49	23.70	3.54	37.40	56.81	28.03	59.06	14.65
THP - 165036	16" (400)	83.31	56.42	14.69	33.82	24.02	20.08	22.83	27.56	8.66	4.49	23.70	3.54	37.40	57.48	28.70	59.72	14.65
THP - 166036	16" (400)	83.31	56.42	14.69	33.82	24.02	20.08	22.83	27.56	8.66	4.49	23.70	3.54	37.40	57.48	28.70	59.72	14.65
THP - 2060358	20" (500)	107.95	64.92	20.00	48.62	24.02	20.08	22.83	27.56	8.66	4.49	23.23	0.26	33.46	37.13	34.06	70.83	15.16
THP - 2075358	20" (500)	107.95	64.92	20.00	48.62	24.02	20.08	22.83	27.56	8.66	4.49	23.23	0.26	33.46	37.13	34.06	70.83	15.16

*** Customer scope of supply as per actual site condition.

Performance Range

- Flow rate up to 85 USgpm.
- Dynamic head up to 117 feet.

Applications

- Used in pressure sewage system.
- Drainage of waste water from individual residences, apartments, buildings, recreational developments, motels.
- Transferring waste water of commercial buildings, industrial plants, waste water sampling, small hospitals.
- Schools, federal, state and local parks' waste water drainage.
- To transfer various waste water and sewage.

Features

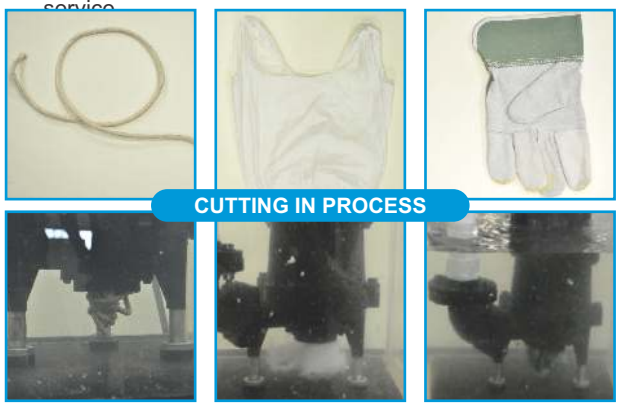
- Durable heavy duty finned cast iron construction.
- Grinder is complete unit, light weight, compact, and portable, easy to be installed.
- Double protection at connection box: barrier grommet, barrier epoxy, prevent water ingress to the motor area, assuring a longterm reliable operation. Additionally, epoxy encapsulation and stripped leads positively eliminate wicking from the cable.
- Two balls bearing construction support shaft and rotor.
- Dry type motor with high efficiency and low current. Equipped with auto reset motor protector, prevent the motor damage from abnormal heat and current.
- The dual silicon carbide mechanical seal system, extra oil seal protection protects the motor from sewage contamination, to provide you exceptionally long pump service life.
- An excellent vortex impeller and casing water cavity housing design. Provide high efficiency and power saving, handling ground slurry and sewage without clogging or binding.
- Radial cutter and cutter ring: corrosion resistant material, hardened to 55 - 60 Rockwell C.

Direction of Rotation

- Clockwise as seen from the motor rear end.

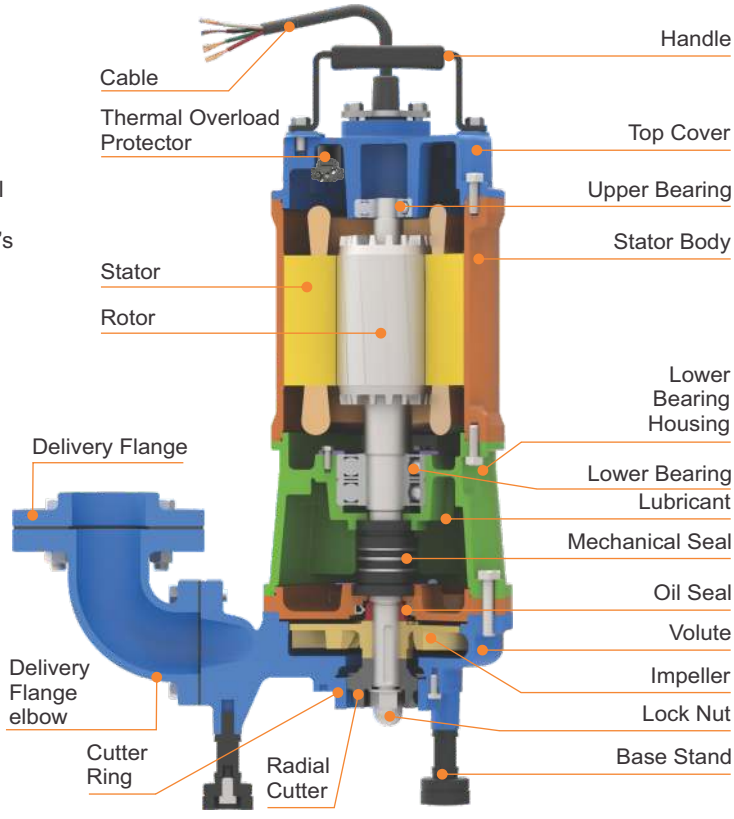
Cutting Ability Demonstration

- Specialized one single strong shaft with impeller and radial cutter, dramatically reduces the torque requirement on the motor, cuts with less horsepower, and increases the pump's efficiency. What's more, it prevents clogging with some troublesome objects such as sanitary napkins, plastic, rubber, disposable diapers and cloth items. The design of **TORO** Pumps grinder prevents clogging, binding and roping. They chop up almost anything and everything in order for you to get a continuous, long - term pumping service.

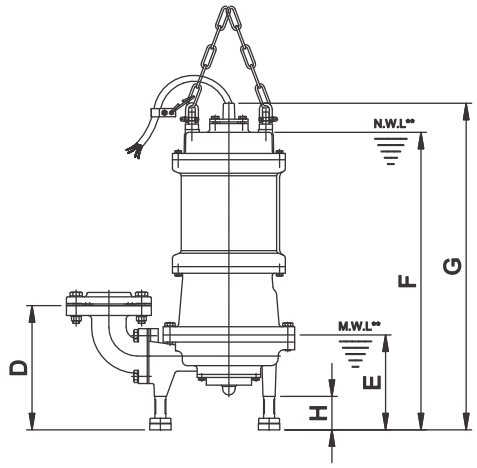


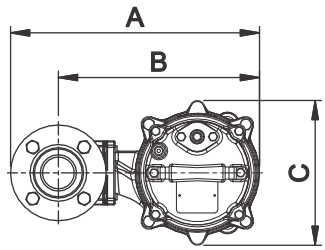
Specification

Horse Power			2, 3, 5 HP
Pumping liquid	Ambient temp		Max. +122°F
	Liquid temp		+32°F to +122°F
	Liquid nature		Suitable for pumping waste water of commercial buildings, hotels & restaurants, hospitals, industrial plants & kitchen waste.
Pump	Construction	Impeller	Vortex
		Cutting Cons.	Grinding
		Mech. seal	Double Mechanical seal
		Upper Bearing	Ball Bearing
		Lower Bearing	Two ball Bearings
	Material	Impeller	Grey Iron
		Volute	Grey Iron
		Radial Cutter	S.S. AISI 440
		Cutter Ring	S.S. AISI 440
		Mechanical seal	Motor side - Carbon v/s Ceramic Pump side - Silicon carbide v/s Silicon carbide
Motor	Type		Dry motor
	Insulation		F Class
	Frequency		50 Hz
	Thermal Protector		Automatic reset motor protector
	Material	Stator body	Grey Iron
		Shaft	S.S. AISI 410
		Cable	PVC
Protection			IP 68
Duty			S1 - When pump is completely submerged. S3 - When pump is partially submerged.
Voltage			1Ph. 230 V ±10%, 3Ph. 380 V, 460 V ±10% 3Ph. 230 V ±10% (up to 3.0 H.P.)



TGP

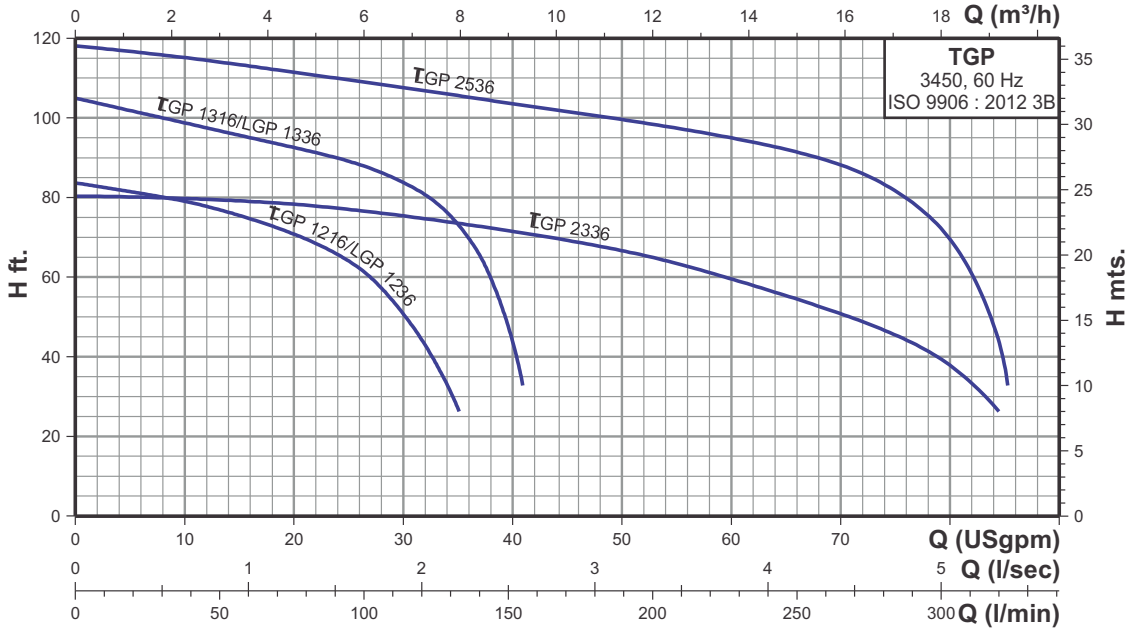




DIMENSIONS

Model	Phase	Disc. Inch (mm)	Dimensions (inch)								Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	CABLE DATA cable x core x size (AWG) x length (ft) x Material
			A	B	C	D	E	F	G	H				
TGP-1216/1216F	1Ø	1¼" (32)	11.26	9.84	7.99	6.14	6.30	21.38	24.02	2.40	84	154	4.45	1 x 3 x 14 x 26 x PVC
TGP-1236/1236F	3Ø							19.37	21.89		75	141	4.13	1 x 4 x 15 x 26 x PVC
TGP-1316/1316F	1Ø	1¼" (32)	11.26	9.84	7.99	6.14	6.30	21.38	24.02	2.40	88	158	4.45	1 x 3 x 12 x 26 x PVC
TGP-1336/1336F	3Ø							19.37	21.89		79	145	4.13	1 x 4 x 15 x 26 x PVC
TGP-2336/2336F	3Ø	2" (50)	16.38	13.35	7.68	8.90	6.30	20.55	23.35	2.40	112	189	5.51	1 x 4 x 15 x 26 x PVC
TGP-2536	3Ø							21.38	24.25		119	196	5.68	1 x 4 x 15 x 26 x PVC

PERFORMANCE CHART AT n = 3450 RPM FOR GRINDER PUMPS



PERFORMANCE DATA AT n = 3450 RPM

Model	Phase	Power		Voltage	Start Method	l/min	38	76	114	152	189	227	265	303
		HP	kW			Usgpm	10	20	30	40	50	60	70	80
TGP-1216/1216F	1Ø	2.0	1.5	230V	Capacitor	H ft.	79	71	51	-	-	-	-	-
TGP-1236/1236F	3Ø			460V	Direct									
TGP-1316/1316F	1Ø	3.0	2.2	230V	Capacitor		99	92.5	84	44	-	-	-	-
TGP-1336/1336F	3Ø			460V	Direct									
TGP-2336/2336F	3Ø	3.0	2.2	460V	Direct		80	78	75	71.5	66.5	59.5	50.5	38
TGP-2536	3Ø	5.0	3.7	460V	Direct		115	111.5	108	103.5	99.5	95	88	70

Note : Subscript "F" pumps will be provided with a float switch. • Pumps are available for 380 V three phase power supply on request.

Performance Range

- Flow rate up to 2376 USgpm.
- Dynamic head up to 20 feet.

Applications

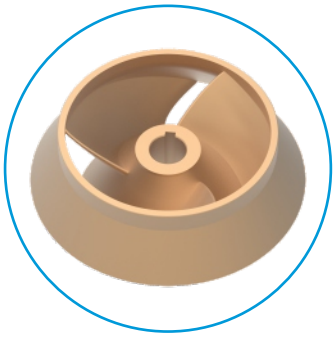
- Suitable for agriculture water and river water.
- Aquaculture water pumping and drainage for large volume water applications.
- Water supply for landscape and water features.
- Water extracting from rivers, lakes and reservoirs.
- Flood control.

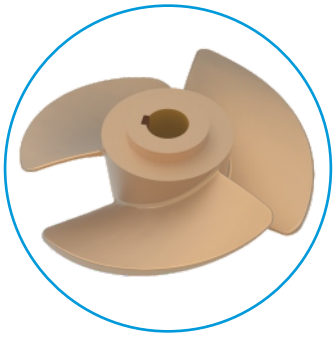
Features

- Large flow capacities achieved with almost no vibration or noise by use of propeller or mix flow design, giving easy operation and energy savings.
- Robust construction and compact design with a dry motor, double mechanical seal and impeller flow guide vane for high efficiency.
- Simple operation and maintenance.

Direction of Rotation

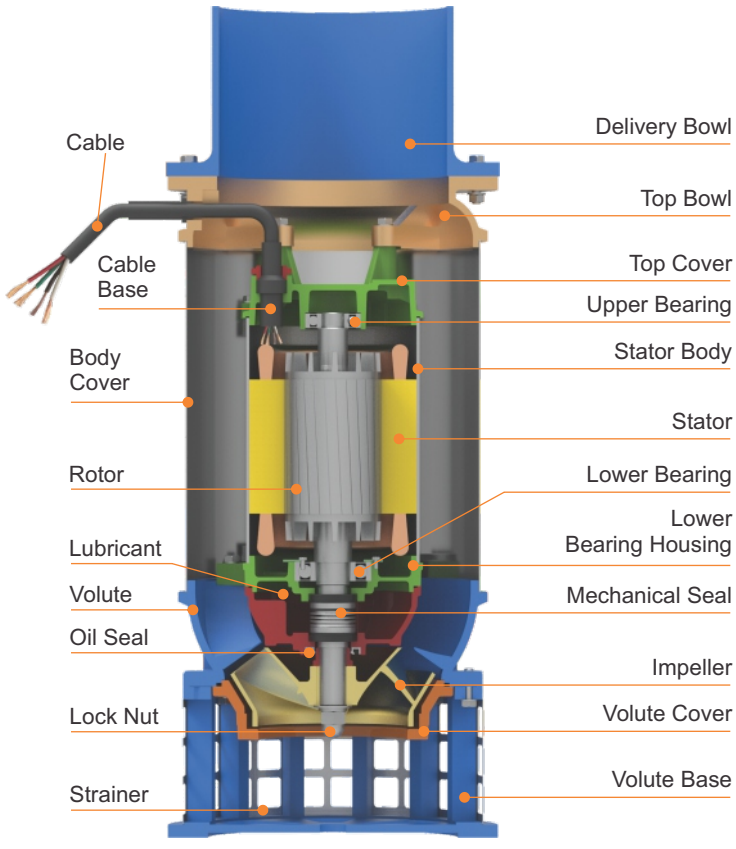
- Clockwise as seen from the motor rear end.

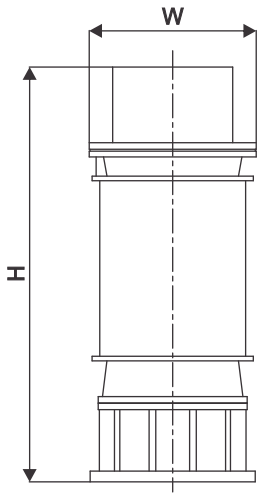




Specification

Diameter (inch)			8" - 10" - 12"
Pumping liquid	Ambient temp		Max. +122°F
	Liquid temp		+32°F to +122°F
	Liquid nature		Suitable for aquaculture water pumping, flood control and water extraction for rivers, lakes & reservoirs.
Pump	Structure	Impeller	Propeller / Mixed Flow
		M.seal	Double Mechanical seal
		Bearing	Ball type bearing
	Material	Body Cover	S.S. AISI 304
		Impeller	Bronze
		Volute	Grey Iron
		Upper cover	Bronze
		M.seal	Carbon v/s Ceramic
Motor	Insulation		F Class
	Frequency		60 Hz
	Material	Stator body	S.S. AISI 304
		Shaft	S.S. AISI 304
		Cable	Thermoplastic rubber/PVC
Protection			IP 68
Duty			S1 - When pump is completely or partially submerged
Voltage			3 Ph. 380 V, 460 V ±10% 3 Ph. 230 V ±10% (up to 3.0 H.P.)

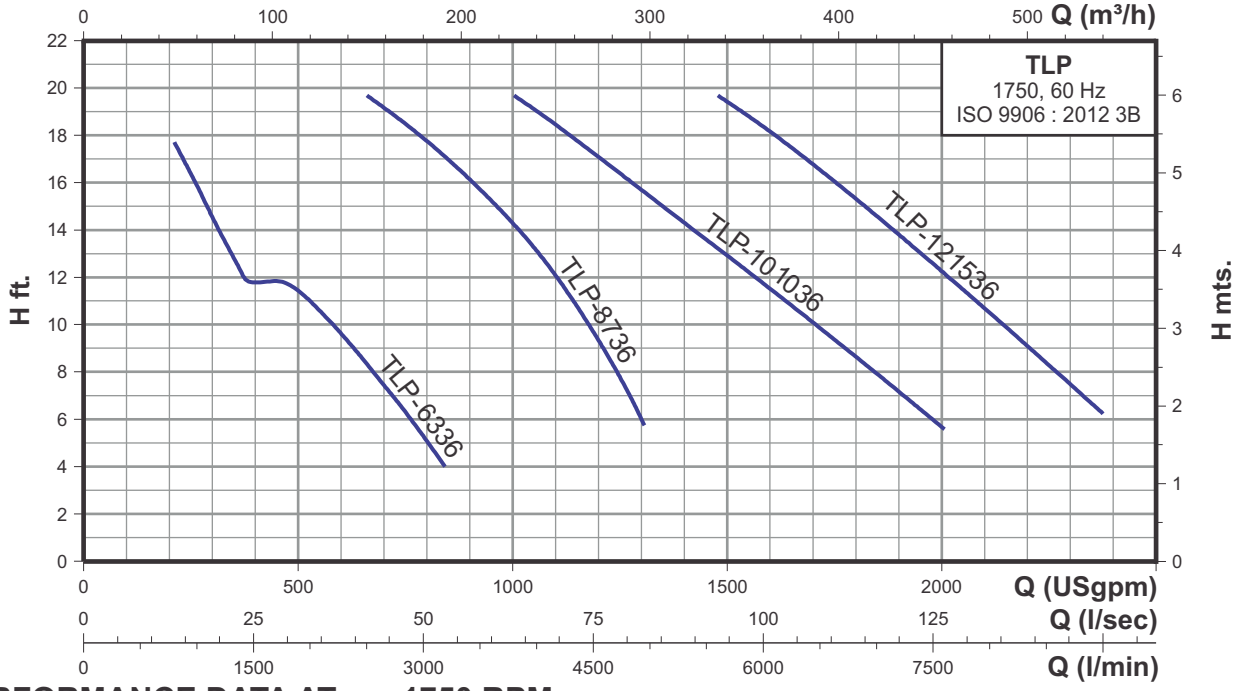




DIMENSIONS

Model	Disc.	Dimensions (inch)		Solid Passage (inch)	Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	Cable data cable x core x size (AWG) x length (ft) x Material
Three Phase	Inch (mm)	Width	Height					
TLP-6336	6"(150)	11.22	25.12	0.79	114	200	5.61	1 x 4 x 17 x 26 x PVC
TLP-8736	8"(200)	13.39	36.34	0.87	268	387	9.60	1 x 4 x 10 x 26 x PVC
TLP-101036	10"(250)	14.96	39.96	0.87	361	502	12.15	1 x 4 x 10 x 26 x PVC
TLP-121536	12"(300)	16.93	42.40	0.91	460	620	15.25	1 x 4 x 8 x 26 x Thermoplastic rubber

PERFORMANCE CHART AT n = 1750 RPM FOR HEAVY DUTY SEWAGE PUMPS



PERFORMANCE DATA AT n = 1750 RPM

Model	Power		Voltage	Start Method	l/min	1136	1514	1893	2271	3028	3785	4542	4921	5678	6435	7571	8328	8706
Three Phase	HP	kW			Usgpm	300	400	500	600	800	1000	1200	1300	1500	1700	2000	2200	2300
TLP-6336	3.0	2.2	460V	Direct	H ft.	14.5	11.8	11.4	9.6	5	-	-	-	-	-	-	-	-
TLP-8736	7.5	5.5	460V	Direct		-	-	-	-	17.7	14.3	9.3	6	-	-	-	-	-
TLP-101036	10.0	7.5	460V	Direct		-	-	-	-	-	19.6	17	15.7	12.9	10	5.7	-	-
TLP-121536	15.0	11.0	460V	Direct		-	-	-	-	-	-	-	-	19.4	16.7	12.2	9.1	7.4

Note : Pumps are available for 380 V three phase power supply on request.

Performance Range

- Flow rate up to 635 USgpm.
- Dynamic head up to 137 feet.

Applications

- Civil engineering dewatering of tunneling and ground works, also for storm water sewers.
- Dewatering of fluids containing solid sediments.

Features

- Specifically designed for civil engineering applications, where a heavy duty, light weight, top discharge design, is required which is easy to handle. The double outer casing, water cooled motor makes it particularly suitable for low water level applications.
- A fully waterproof IP 68 stainless steel structure, combined with a high grade silicon carbide double mechanical seals.
- The LAS range of pumps are compact, strong and easy to operate in any situation.
- Special designed high efficient and wear resistant HCR (High Chrome) impeller.
- Multi impeller design suitable from high head with small capacity to low head with large capacity of application requirement.
- Optional discharge connection(hose, flange and thread connection)

Special Features on Request

- Other voltages.
- Available in 50Hz.

Direction of Rotation

- Clockwise as seen from the motor rear end.

Thermal overload protector

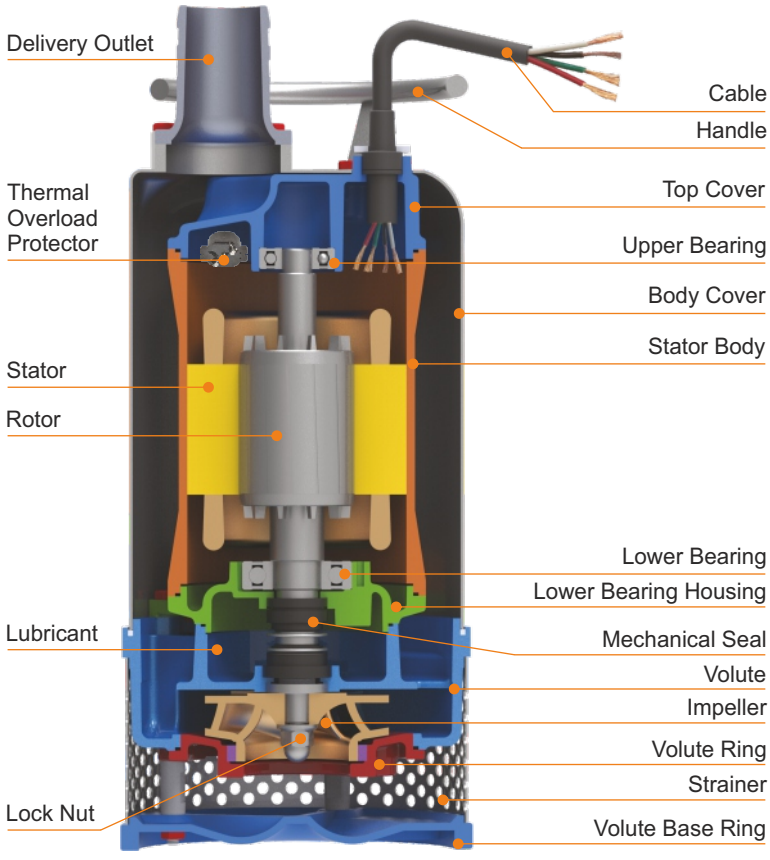
- Equipped with Automatic reset motor protector, prevents motor from burning due to high temperature/phase failure/ voltage drop and locked impeller.

HCR Impeller

- The GAS impeller is manufactured with a high chrome alloy (HCR) steel with a hardness of 55 - 60 Rc., which makes it resistant to prolonged use in abrasive applications.

Specification

HP			1.5 to 5 HP	7.5 to 10 HP	
Diameter (inch)			2" - 3"	3"	4" - 6"
Pumping liquid		Ambient temp	Max. +122°F		
		Liquid temp	+32°F to +122°F		
		Liquid nature	Suitable for dewatering at civil engineering sites and pumping of storm water		
Pump	Structure	Impeller	Open	Open	Enclosed
		Mech. seal	Double Mechanical seal		
		Bearing	Ball type bearing		
	Material	Body Cover	S.S. AISI 304		
		Upper cover	Grey Iron		
		Volute	Grey Iron		
		Impeller	HCR (High Chrome)		
		Wear Ring	-	-	HCR
	M. seal	Motor Side	Carbon v/s Ceramic		
		Pump Side	Silicon Carbide v/s Silicon Carbide		
Motor	Type		Dry motor		
	Insulation		F Class		
	Frequency		60 Hz		
	Thermal Protector		Automatic reset motor protector		
	Material	Stator body	S.S. AISI 304	Grey Iron	
		Shaft	S.S. AISI 410		
		Cable	Thermoplastic rubber/PVC		
Protection			IP 68		
Duty			S1 - When pump is completely or partially submerged.		
Voltage			1 Ph. 230 V ±10%, 3 Ph. 380 V, 460 V ±10% 3 Ph. 230 V ±10% (up to 3.0 H.P.)		



Heavy-Duty Construction Drainage Pumps (15 HP to 20 HP) TAS

Performance Range

- Flow rate up to 687 USgpm.
- Dynamic head up to 187 feet.

Applications

- Civil engineering dewatering of tunneling and ground works, also for storm water sewers.
- Dewatering of fluids containing solid sediments.

Features

- Specifically designed for civil engineering applications, where a heavy duty, light weight, top discharge design, is required which is easy to handle. The double outer casing, water cooled motor makes it particularly suitable for low water level applications.
- A water detector is provided in the seal chamber. In case of seal failure if water enters the seal chamber, a signal can be sent to the control panel so that the pump operator is made aware of a potential seal leakage problem.
- A fully waterproof IP 68 stainless steel structure, combined with a high grade silicon carbide double mechanical seals.
- The LAS range of pumps are compact, strong and easy to operate in any situation.
- Special designed high efficient and wear resistant HCR (High Chrome) impeller.
- Multi impeller design suitable from high head with small capacity to low head with large capacity of application requirement.
- Optional discharge connection (Hose, flange and thread connection)

Special Features on Request

- Other voltages.
- Available in 50Hz.

Direction of Rotation

- Clockwise as seen from the motor rear end.

Miniature Thermal Protector

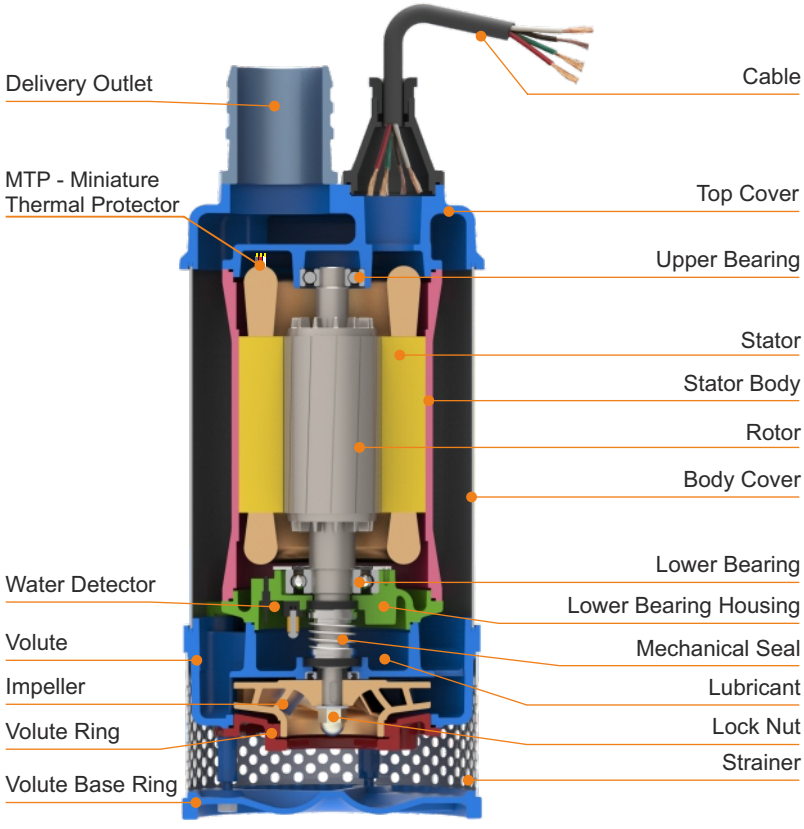
- Miniature Thermal Protector (MTP) is embedded in the windings of the motor. The MTP will transmit a signal to a control panel when windings temperature reaches a set point.

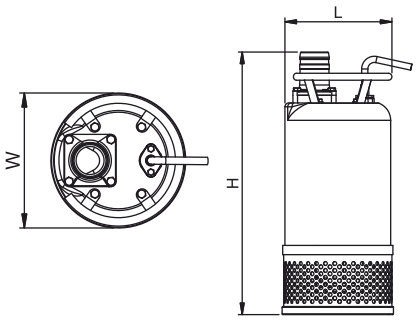
HCR Impeller

- The LAS impeller is manufactured with a high chrome alloy (HCR) steel with a hardness of 55 - 60 Rc., which makes it resistant to prolonged use in abrasive applications.

Specification

HP			15 to 20 HP
Diameter (inch)			4" - 6"
Pumping liquid		Ambient temp	Max. +122°F
		Liquid temp	+32°F to +122°F
		Liquid nature	Suitable for dewatering at civil engineering sites and pumping of storm water
Pump	Structure	Impeller	Enclosed
		Mech. seal	Double Mechanical seal
		Water detector	Installed in the seal chamber to detect water leakage from water infiltrating
		Bearing	Ball type bearing
	Material	Body Cover	S.S. AISI 304
		Upper cover	Grey Iron
		Volute	Grey Iron
		Impeller	HCR
		Wear Ring	HCR
	M. seal	Motor Side	Carbon v/s Ceramic
		Pump Side	Silicon Carbide v/s Silicon Carbide
Motor		Type	Dry motor
		Insulation	F Class
		Frequency	60 Hz
		Thermal Protector	Miniature Thermal Protector
	Material	Stator body	Grey Iron
		Shaft	S.S. AISI 410
		Cable	Thermoplastic rubber/PVC
Protection			IP 68
Duty			S1 - When pump is completely or partially submerged.
Voltage			3 Ph. 380 V, 460 V ±10%

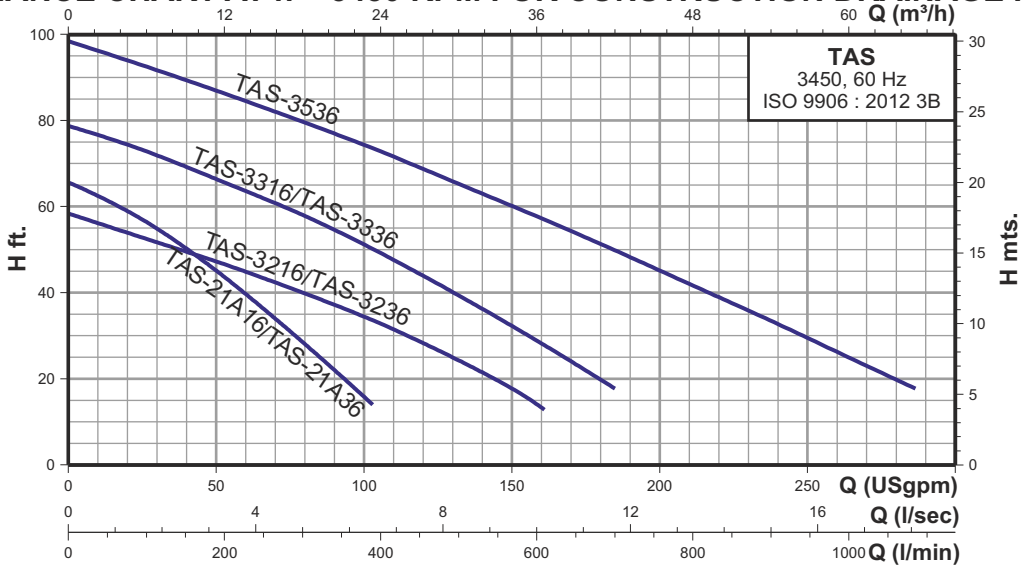




DIMENSIONS

Model		Disc. Inch (mm)	Dimensions (inch)			Solid Passage (inch)	Net Weight (lbs)	Gross Weight (lbs)	Volume (ft^3)	Cable data cable x core x size (AWG) x length (ft) x Material
Single Phase	Three Phase		Length	Width	Height					
TAS-21A16/21A16F	-	2" (50)	8.27	8.27	20.08	0.31	64	108	2.72	1 x 3 x 17 x 16 x PVC
-	TAS-21A36/21A36		8.27	8.27	17.13	0.31	55	99	2.40	1 x 4 x 17 x 16 x PVC
TAS-3216/3216F	-	3" (80)	9.84	9.45	24.80	0.43	95	150	3.92	1 x 3 x 14 x 26 x PVC
-	TAS-3236/3236F		9.84	9.45	21.06	0.43	86	141	3.43	1 x 4 x 15 x 26 x PVC
TAS-3316/3316F	-	3" (80)	9.84	9.45	25.39	0.43	103	158	3.99	1 x 3 x 12 x 26 x PVC
-	TAS-3336/3336F		9.84	9.45	22.05	0.43	92	147	3.57	1 x 4 x 15 x 26 x PVC
-	TAS-3536	3" (80)	9.84	9.45	23.62	0.43	101	156	3.78	1 x 4 x 15 x 26 x PVC
-	TAS-3736	3" (80)	11.42	11.42	27.17	0.39	163	224	5.30	1 x 4 x 12 x 26 x PVC
-	TAS-4736	4" (100)	11.42	11.42	27.17	0.39	167	229	5.30	1 x 4 x 12 x 26 x PVC
-	TAS-6736	6" (150)	11.42	11.42	29.33	0.39	172	233	5.65	1 x 4 x 12 x 26 x PVC
-	TAS-41036	4" (100)	11.42	11.42	27.17	0.39	167	229	5.30	1 x 4 x 12 x 26 x PVC
-	TAS-61036	6" (150)	11.42	11.42	29.33	0.39	176	238	5.65	1 x 4 x 12 x 26 x PVC
-	TAS-41536	4" (100)	11.42	11.42	28.54	0.39	181	247	6.00	1 x 7 x 10 x 26 x Thermoplastic rubber 1 x 3 x 19 x 26 x Thermoplastic rubber
-	TAS-61536	6" (150)	11.42	11.42	30.91	0.39	190	256	6.36	1 x 7 x 10 x 26 x Thermoplastic rubber 1 x 3 x 19 x 26 x Thermoplastic rubber
-	TAS-42036	4" (100)	13.07	13.07	30.31	0.39	313	408	7.06	1 x 7 x 10 x 26 x Thermoplastic rubber 1 x 3 x 19 x 26 x Thermoplastic rubber

PERFORMANCE CHART AT n = 3450 RPM FOR CONSTRUCTION DRAINAGE PUMP

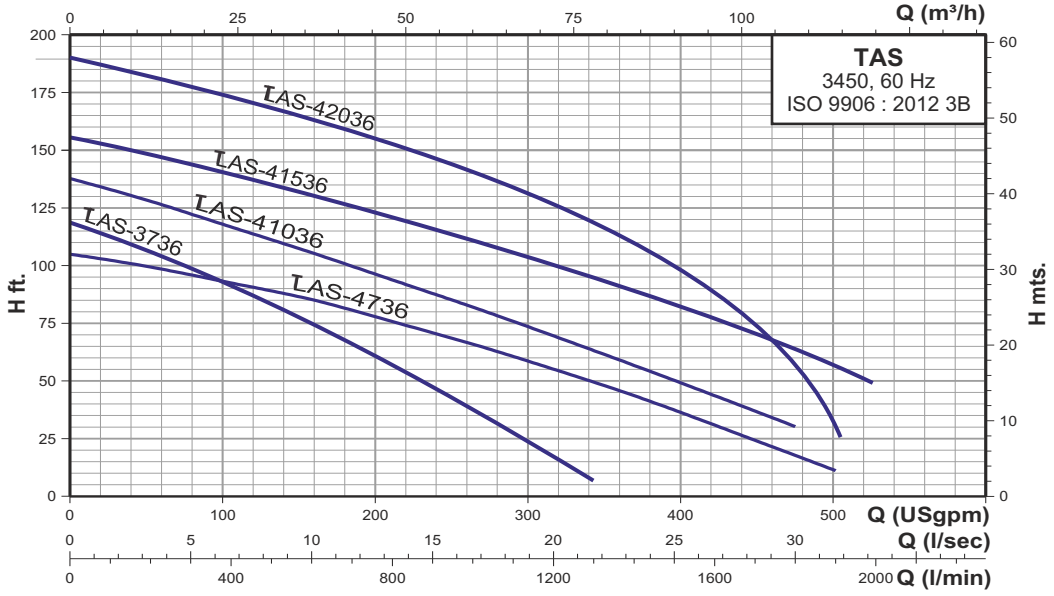


PERFORMANCE DATA AT n = 3450 RPM

Model		Power		Voltage	Start Method	l/min	95	189	284	379	473	568	662	757	852	946	1041
Single Phase	Three Phase	HP	kW			Usgpm	25	50	75	100	125	150	175	200	225	250	275
TAS-21A16/21A16F	-	1.5	1.1	230V	Capacitor	H ft.	57	45	31	15.5	-	-	-	-	-	-	-
-	TAS-21A36/21A36F			460V	Direct												
TAS-3216/3216F	-	2.0	1.5	230V	Capacitor		53	47.5	41	34.5	26.5	17.5	-	-	-	-	-
-	TAS-3236/3236F			460V	Direct												
TAS-3316/3316F	-	3.0	2.2	230V	Capacitor		73	66.5	59	51.5	42	32	22	-	-	-	-
-	TAS-3336/3336F			460V	Direct												
-	TAS-3536	5.0	3.7	460V	Direct		93	87	80.5	74	67	60	53	45	37.5	29.5	22

Note : Subscript "F" pumps will be provided with a float switch.
Pumps are available for 380 V three phase power supply on request.

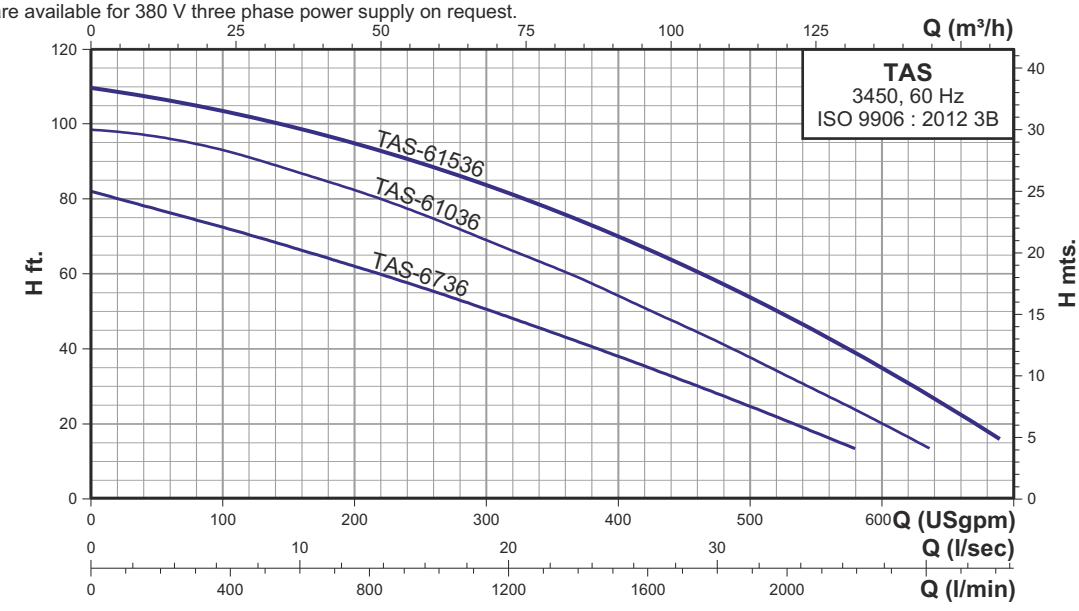
PERFORMANCE CHART AT n = 3450 RPM FOR CONSTRUCTION DRAINAGE PUMP



PERFORMANCE DATA AT n = 3450 RPM

Model	Power		Voltage	Start Method	l/min	189	284	379	473	568	662	757	852	946	1136	1325	1514	1703	1893
Three Phase	HP	kW			Usgpm	50	75	100	125	150	175	200	225	250	300	350	400	450	500
TAS-4736	7.5	5.5	460V	Direct	H ft.	100	96	93	90	87	82	78	73	68.5	59	48	36	24	12
TAS-3736				Direct		107	100	93	85	77.5	68	61	52	42.5	24	-	-	-	-
TAS-41036	10.0	7.5	460V	Direct		128	122	118	113	107.5	102	96	91.5	85	73.5	61	49.5	36	-
TAS-41536	15.0	11.0	460V	Y - Δ		148	145	141	137	132.5	127.5	123	118	113.5	103	93	82	70	57
TAS-42036	20.0	15.0	460V	Y - Δ		182	178	174	169	165	160	155	150	144	131	117	92.5	75	26

Note : Pumps are available for 380 V three phase power supply on request.



PERFORMANCE DATA AT n = 3450 RPM

Model	Power		Voltage	Start Method	l/min	189	379	568	757	1136	1514	1893	2271
Three Phase	HP	kW			Usgpm	50	100	150	200	300	400	500	600
TAS-6736	7.5	5.5	460V	Direct	H ft.	77.5	72.5	67.5	62	50.5	37.5	25	-
TAS-61036	10	7.5	460V	Direct		97	92.5	87.5	82.5	69	54	37.5	20
TAS-61536	15	11	460V	Y - Δ		107.5	103	99	95	83.5	70	53	35

Note : Pumps are available for 380 V three phase power supply on request.

NOTE

NOTE

TORO WATER SOLUTIONS
A SHN BRAND

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