Exclusive Advantages

Free Passage : The recessing of the T.F. Pump impeller permits unobstructed passage through the pump casing.

Non-clogging: Solids up to the full diameter size of the discharge connection can pass through the pump without danger of clogging. Also long fibrous materials will cause no problems.

Vibration-free Running: The extreme smooth running of the pump is a direct result of the hydraulic centering of the impeller in the casing recess; there is very little radial loading on the shaft and on the bearings. Therefore the T.F. Pump is ideally suited to be fitted with mechanical seals for process industry application. Even when wear on the impeller occurs this is concentric and does not affect the balance of T.F. Pump impeller.

Reliable: The T.F. Pumps are highly reliable because troublesome sealing rings have been eliminated.

Simple Design: The simple open and concentric design guarantees a trouble free service even under extreme conditions.

Wear Resistant: The new T.F. Pump casing (axiaspiral) ensures that the solids enterained in the flow are quickly discharged from the pump and thereby reducing abrasion.

Low Maintenance: More than 20 years experience in production and application of T.F. Pumps has shown that the Torque Flow. Pumps needs less spares than any comparable solids handling pump.

Long Life: The robust and simple design as well as the correct materials for the job guarantee a long service life.

Standardized Programme: Because of a maximum interchangeability of parts in different pump-size and designs, spares can be reduced to the absolute minimum.

Applications

Automobile Industry: Dye liquor, bonder-emulsion, gridning dust and corrundum slurries.

Building Industry: Gas-concrete slurry, sand, gravel, stone and marble dust in water.

Cellulose Industry: Semi-chemical pulp, sulphite-sulphate pulp, black-liquor, wood chips, pulp with knots, digester emptying pumps, splinters from wood grinder.

Chemical Industry: Crystal suspensions, filter slurries, latex, polystyrene beads in water, caustic soda solutions 50%, hot brine, washing powder slurries, zinc slurry, paint suspensions, bicarbonate slurry etc.

Dredging Industry: Sand, gravel, mountain slip, lake and harbour cleaning.

Fibre Industries: Asbestos-cement slurry, rock wool, leather fibres, glass fibres, textile fibres, nitro-cellulose.

Food Industries: Peas, beans, carrots, turnips, pig food, fruit suspensions, chicken waste with feathers.

Mining: Stone slurries, bentonite, coal washing water, mine drainage pumps.

Paper Industry: Uncleaned wastepaper, rag pulp, defibrator pulp, Kaolin 80%, bagasse, bamboos rejects, pulper rejects.

Petrochemical Industry: Slops, catalytic sludge, carbol oil, drilling sludge, raw tar with coke.

Power Stations: Ash, dust-screen, sludge

Ship Building: Sewage, bilgewater, fish-offal.

Steel Industry: Scale in water, ash-soot slurries, coke and coal water mixtures.

Sugar Industry: Unscreened juice,Imbibition juice, Beet and beet chip mixtures, beet tails, leaves and grass with water, milk of lime at 95^{0} C, lime sludge from the settling tanks, kieselgur.

Textile Industry: Natural and artificial fibres, dyes with slub, fibrous waste water.

Waste Water Treatment: Raw unscreened sewage, raw sludge, digested sludge, abattoir waste water, all municipal and industrial effluents.

SINTECH PUMPS

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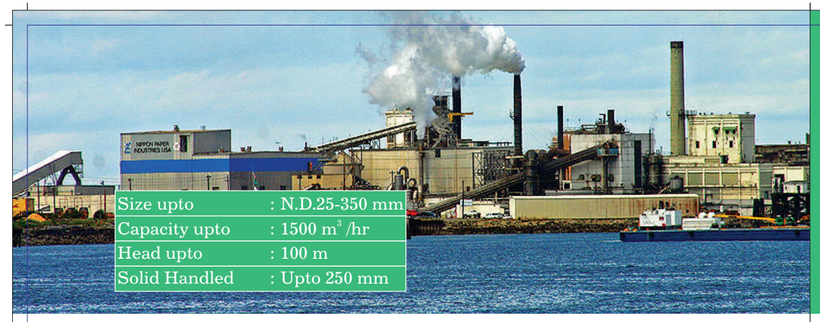
SINTECH PUMPS

Torque Flow Pumps



Size upto	: N.D.25-350 mm
Capacity upto	: 1500 m^3 /hr
Head upto	: 100 m
Solid Handled	: Upto 250 mm

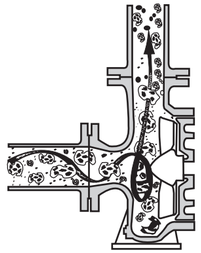
TORQUE FLOW PUMPS

Special Features

- Un-obstructed passage to the discharge size of the pump.
- Handles large solids & long fibres.
- Gentle pumping action, no flocs / crystal damage.
- Low maintenance cost, no sealing rings on impeller, no small clearances to be maintained.
- Handles abrasive slurries.
- Handles vulnerable products like vegetables, fish, crystals etc.
- Vibration free running due to hydraulically balancd construction.
- Low leakage.

Principle Of Torque Flow Pump

The principle of the hydro-dynamic liquid coupling is used for the energy transfer to the pumping liquid. The impeller generates a whirlpool in the casing and the whirlpool now acts as a pumping element (impeller) in the casing.



The one side open impeller is located deep in the pump casing, so the flow cross-section is free. The outer rim of the impeller does not allow water to flow out in the radial direction. After putting the pump into operation, potential vortex (whirlpool) is generated inside the pump casing and inlet stub. In the inter blade canals of the impeller, the conversion of kinetic energy into the pressure energy occurs, owing to liquid circulation. The liquid velocity is equal on the impeller outer rim, as well as in the potential vortex region, so the liquid mass is forced to flow into the direction of low pressure region, i.e. in the direction of the pump axis. In consequence, the stream of pumped liquid is hydrodynamically combined with potential vortex, and with the liquid circulating in the impeller. The liquid stream flowing out and in the impeller region has on its return the direction opposite to that of the potential vortex, so the combined liquid is slightly slowed down. Owing to this fact, the impeller runs faster than the liquid whose particles come in contact with consecutive impeller blades and receive a now energy impulse each time. Therefore, the increase in pressure energy in the T.F. Pumps is doubled as compared to that in conventional centrifugal pumps.

The necked inlet of the pump boosts the circulation of the liquid. In consequence, the contained solid bodies are immediately thrown in the radial direction without touching the impeller. In this way both solid bodies and the impeller are preserved from damage.

As proved by investigation, the acceleration of liquid and relative velocity are slower in the T.F. Pumps. This feature of the T.F. Pumps makes them applicable for delivery of paper, pulp of density up to 12%, viscous liquid and gas containing liquids and mixtures of water and solid bodies etc. Their efficiency is from 32 to 60%, being relatively high, taking into account the simplified construction of the T.F. Pumps.

Constructional Features

Casing: Smooth extra heavy section designed for unobstructed flow. Abrasive or solids-laden flow goes directly into vortex of liquid and out the discharge. No close clearances between casing and impeller (as in conventional pumps) to generate wear. Nothing between suction and discharge to jam, clog, break or bind... a totally non-clog concept in pumping.

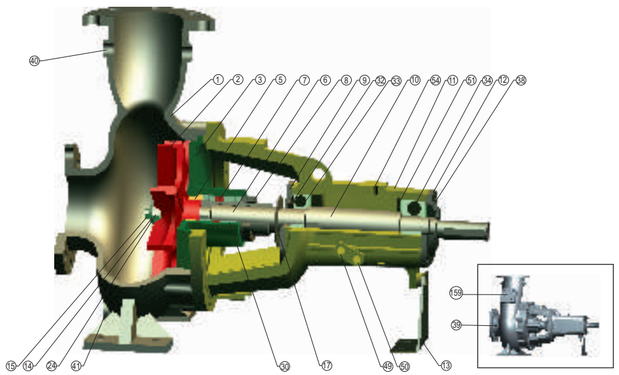
Impeller: Impeller, fully recessed out of flow path, is not subjected to wear by solids or abrasive particles churning in the flow when handling solids or slurries... greatly improving impeller life. Impellers may be threaded to shaft to provide shaft end protection.

Shaft: Heavy duly shafts are designed for maximum operational heads and low deflection and vibration.

Shaft Sleeve: Shaft sleeve is keyed to shaft and gasket sealed to stop leakage under sleeve.

Stuffing Box: Designed for gland packed arrangement fitted with neck bush and has been provided with external fluid sealing connections which enhances life of gland packing. Mechanical seals can also be provided.

Bearings: Angular contact ball thrust bearings carry radial and thrust loads. Thrust bearings are back to back mounted, locked with nuts and lockwashers. Oil lubrication is standard. Constant level oiler maintains proper oil level. Bearings are well protected from dirt. Grease lubrication can also be provided.



P.No.	PART NAME	P.No.	PART NAME
159	HAND HOLE COVER	24	IMPELLER NUT (WITH GRIP SPRING)
54	BREATHER	18	IMPELLER KEY (BOTH END ROUND)
51	INTERNAL CIRCLIP	17	SLINGER
50	OIL DRAIN PLUG	15	BOLT FOR IMPELLER
49	OIL LEVEL WINDOW	14	IMP. WASHER
48	DRAIN PLUG	13	FOOT
45	PLUG	12	OUTER BRG. COVER
41	DRAIN PLUG	11	BEARING HOUSING
40	PLUG	10	SHAFT
38	OIL SEAL	9	INNER BRG. COVER
37	BRG. LOCK NUT	8	GLAND PIECE
36	BRG. LOCK WASHER	7	LANTERN RING
35	`O' RING	6	SLEEVE
34	OUTER BEARING	5	GLAND BUSH
33	INNER BEARING	3	GLAND PLATE
32	OIL SEAL	2	IMPELLER
30	GLAND PACKING	1	BODY