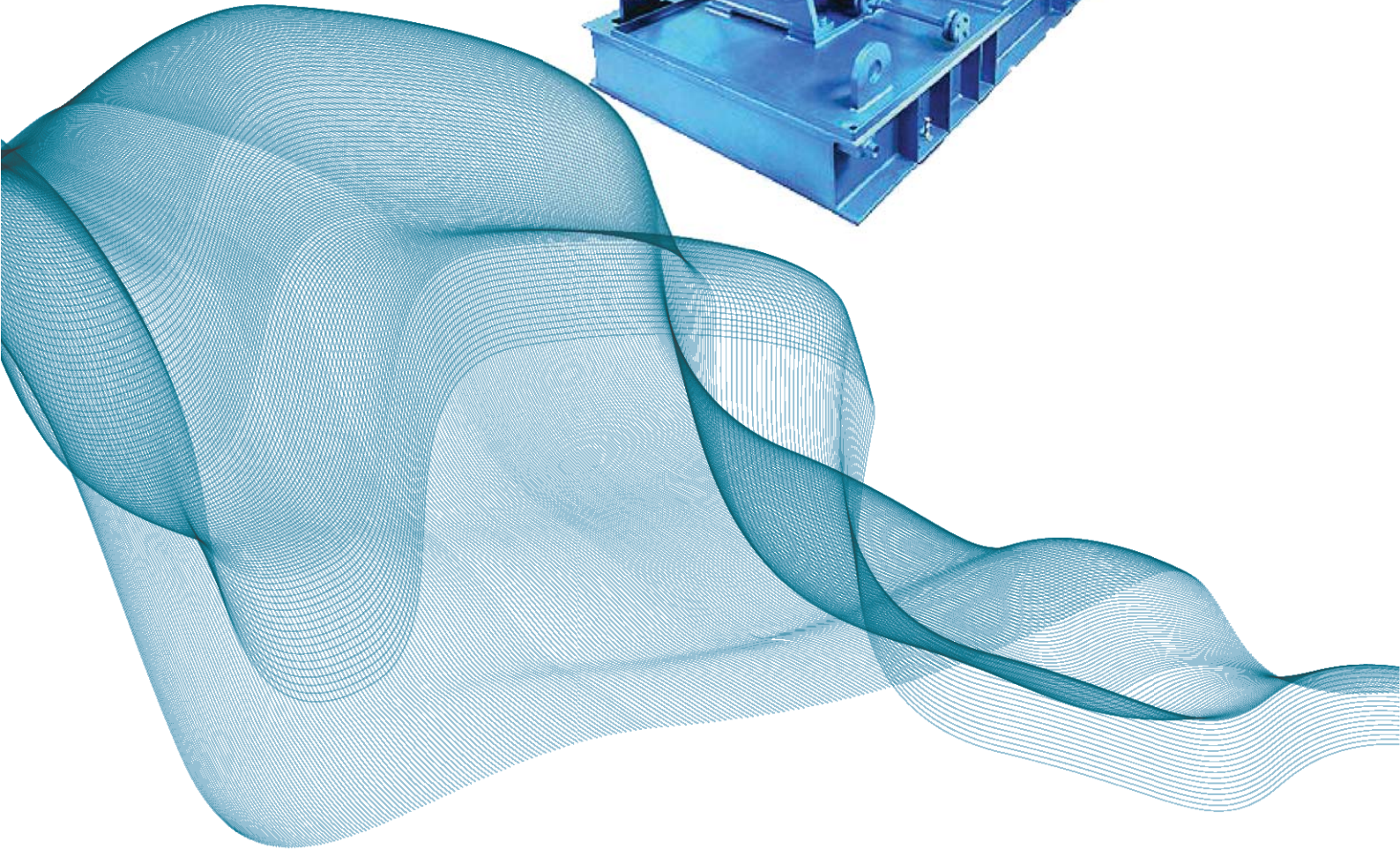


TSP Series Twin Screw Pumps



Technical Catalogue 2015



Our Vision

ASK's vision is to be a recognized leader in innovative, sustainable, engineered, and customer-focused solutions for performance critical applications in the oil and gas, hydrocarbon processing, power generation, pulp and paper, and other selected industries.



Our mission

ASK aims to be a multi-industry company with a strong brand, which provides solutions that combine products, services, engineering, and customer-application expertise. The corporation is close to the customer by being direct-sales driven.

Engineering, innovation, and technology are cornerstones. ASK strives to be an attractive employer and to create an environment where employees can excel. The company focuses on creating value for its customers.



ASK Innotec

The research and development unit of ASK supports the other divisions of the company and industrial companies in their development projects by providing a contract including research and special technical services like diagnostics and certified testing as well as one-off production and engineering. ASK innotec has expertise in materials and surface engineering, fluid technology, as well as in mechanics. Its core competencies in research contract also lie in these classical disciplines.



Product Description

Using modern computer aided design methods, the pumps are specially designed as heavy duty, minimal wear, long life pumps which have been designed in a modular way, with a number of options available, to ensure full compliance to the customers' exact requirements and specifications. A fully compliant API 676 heavy duty baseplate helps achieve low vibration and noise levels which in turn extends the pump's life and ensures maximum running time. A 'space saving' reduced footprint is also available for use where space is at a premium.

The pumps can be fitted with a variety of proprietary components (i.e. seals, motors & couplings) from all the major manufacturers to cater for customers site preferences. Double mechanical seal arrangements can be fitted with an attached seal support system. This can be supplied by Seal Support System which is designed and manufactured by ASK, or another manufacturer's seal support system can be fitted.

To complete the package a full range of standard material options from SG iron and stainless steel, to duplex are available to match your process fluid. NACE compliant materials are also available. Standard documentation packs including manufacturing data books, material certification, and installation & operating manuals are available to suit the application. Performance testing to API 676 and various NDE (nondestructive examination) & NDT (nondestructive testing) options are offered to ensure full compliance to our customers' applications. Alternative bespoke package can be tailored to fit your exact requirements.

Field of Application

ASK pumps, TSP series, twin screw pumps can be used for transferring various fluids without solid particles, even viscous soaps. This pumps have high reliability regardless of lubricating or non-lubricating, corrosive or multi-phase media.

W/V series can be used for various applications like:

- Oil Fields:
Transferring various oil goods and crude oil and etc.
- Oil refineries:
Transferring heating oil, asphalt oil, tar, emulsion, asphalt, and also loading and unloading various oil goods for oil tanker and oil pool.
- Power plants:
Heavy and crude oil transfer pump, heavy oil burning pump
- Chemical industries:
Transferring acids, alkali solutions, resin, color, printing ink, paint glycerin and paraffin wax.
- Food industries:
Used for food products factory, sugar refinery, tin factory to transfer for alcohol, honey, sugar juice, toothpaste, milk, cream, soy sauce, vegetable oil and animal oil.

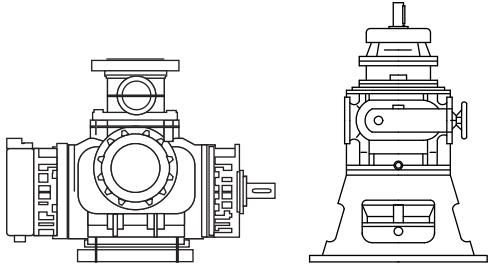


Key Features

- Delivery various medium smoothly without any disturbing and pulsation. There are medium to be pumped through out in the working elements as sealing liquid which guaranteed by the construction of pump casing. All of the pumps possess high self priming ability and can deliver the liquid mixed with gas or air.
- The high suction performance, i.e. very low NPSHr was guaranteed by the special design of pump.
- Adopted the external bearing which lubricated individually, so can deliver various non-lubrication medium.
- Adopted synchronous gear, there is no metallic contact between rotating parts, there is no dangerous even dry running in a short time.
- Various construction completely such as horizontal, vertical and casing with liner, and so on. The pump can handle various clean liquid without solid grain, low or high viscosity medium, even can deliver some corrosive medium with a correct material selection.

Product Overview

General description	TSP series are twin spindle, horizontal or vertical screw pumps	
Construction	Heavy duty modular design, maximizing flexibility to meet rigorous customer requirements	
Design methodology	Advanced computer techniques including 3D modeling, FEA & CFD	
Design standards	API 676, 3rd	
Design pressure rating	Up to 4 MPa @ 20°C	
Suction pressure rating	Up to 10 bar g (Standard construction)	
	Up to 20 bar g (Heavy duty construction)	
Operating temperature	-15°C to 280°C (Standard construction)	
	-50°C to 350°C (With heating system)	
Flow rate	Up to 2000m ³ /h	
Viscosity	Up to 3x10 ⁶ mm ² /s	
Speed	Up to 3000 rpm	
Configuration	Long coupled pump	
	Bare shaft pump	
	Rotating assembly	
Discharge Sizes	Up to DN 300	
Design life	20 years (3 years uninterrupted operation)	



Designation

Example: TSP/H100-43 / 55 2 A8 D115261 CD / EXT4

TSP	H	100	43	55	2	A8	D	115261*	CD	EXT4
Pump type	Pump Configuration	Discharge nominal dia. in millimeters	Screw pitch	Nominal power of installed driver in kW	No. of poles	Material code	Seal type	Seal plan code acc. to API682	Options	Area classification
TSP: Twin spindle screw pumps	H: Horizontal V: Vertical	Up to 300mm	Up to 150mm	up to 1800kW	2: 3000rpm 4: 1500rpm 6: 1000rpm	I1 I2 S4 S5 S6 S8 A8 D1	P: Packing S: Single mechanical seal D: Double mechanical seal	Each two digits stands for a plan: For example "115261" means plans 11, 52, and 61 have been utilized together.	A: No option B: Oil mist lubrication C: Vibration sensors D: Temp. Sensors E: Heating jacket F: Special bearing arrangement	SA: Safe area EX: Explosion proof T1~T6: Temperature class

* Other seal arrangements are available on request.

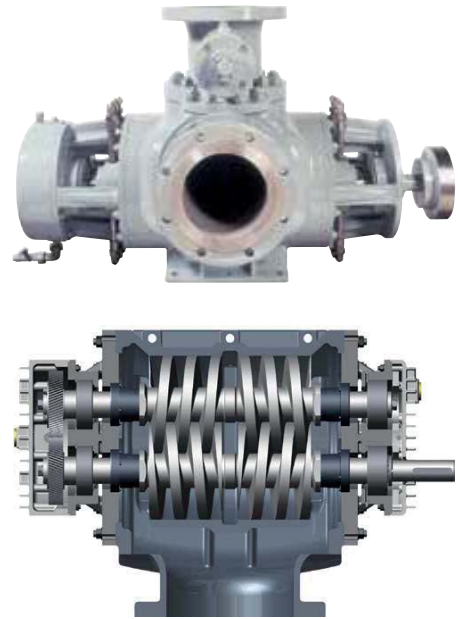
Material Options*

Material Code	Casing	Shaft	Screw
I1	ASTM 48 Class 40B	ASTM A 576 Gr. 1045	ASTM A 576 Gr. 1045
I2	ASTM 48 Class 40B	ASTM A 576 Gr. 1045	C92200
S4	ASTM A 216 WCB	ASTM A 576 Gr. 1045	ASTM A 576 Gr. 1045
S5	ASTM A 216 WCB	ASTM A 276 Type 420	ASTM A 576 Gr. 1045
S6	ASTM A 216 WCB	ASTM A 276 Type 420	ASTM A 276 Type 420
S8	ASTM A 216 WCB	AISI 316	AISI 316
A8	ASTM A744 CF-8M	AISI 316	AISI 316
D1	EN10213-4 / 1.4517	ASTM A 240-SS31803	ASTM A 240-SS31803

* Other materials are available on request.

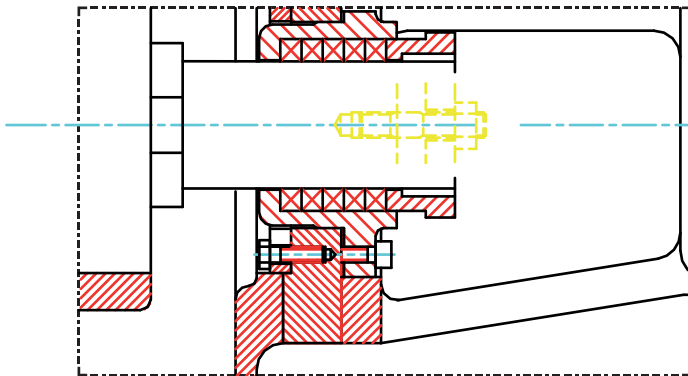
Product Benefits

- Loading and unloading with wide range of capacity
- Circulation from tank to tank
- Stripping of tank and pipes
- Operation with wide range of product viscosity
- Operation at high or low pressure
- Full Control in all kind of operation modes
- Reduced installation costs for pipes and valves
- High safety due to variable operation
- In-Line Suction and Discharge Simplifies piping design and construction
- Low Pulsation
- No fixed duty points
- This pumps are self priming, have excellent NPSH value & ideally suited for low and high viscous media
- Overall efficiency with different working points
- Compact design ensures space-saving set-up
- Functional principle ensures low-pulsation and low-noise operation
- Short-term dry run operation possible
- High suction lift
- Constant flow at varying pressures and volumes
- In conformity with API 676

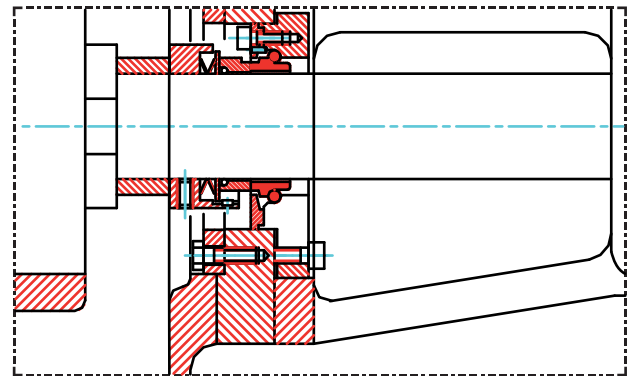


Shaft Sealing Options

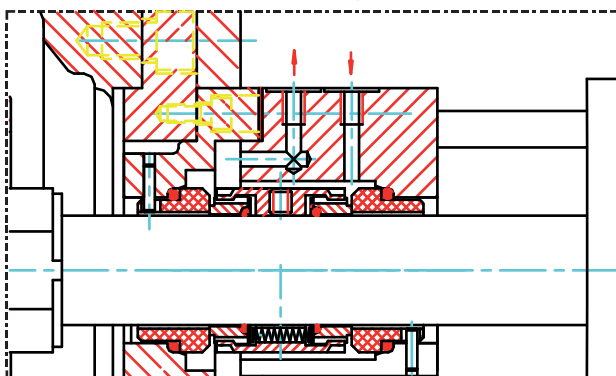
Packing Seal, Operating Temp. < 200°C



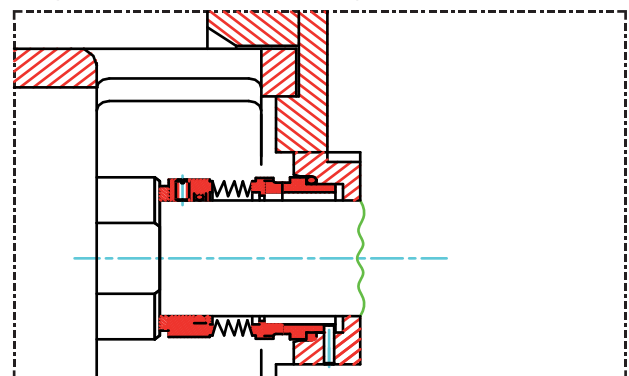
Single Mech. Seal, Operating Temp. < 120°C



Double Mech. Seal, Operating Temp. < 200°C

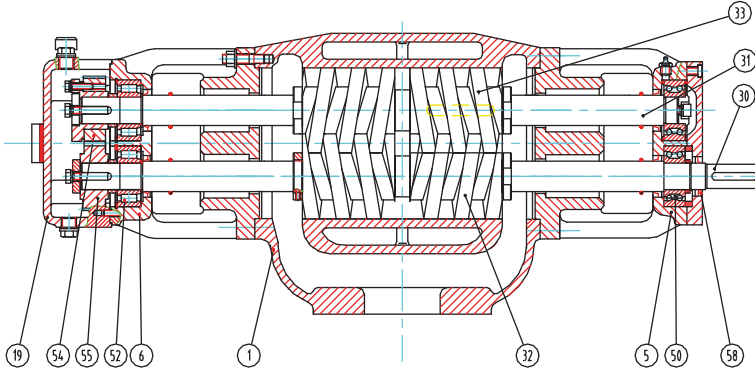


Single Mech. Seal, Operating Temp. < 320°C

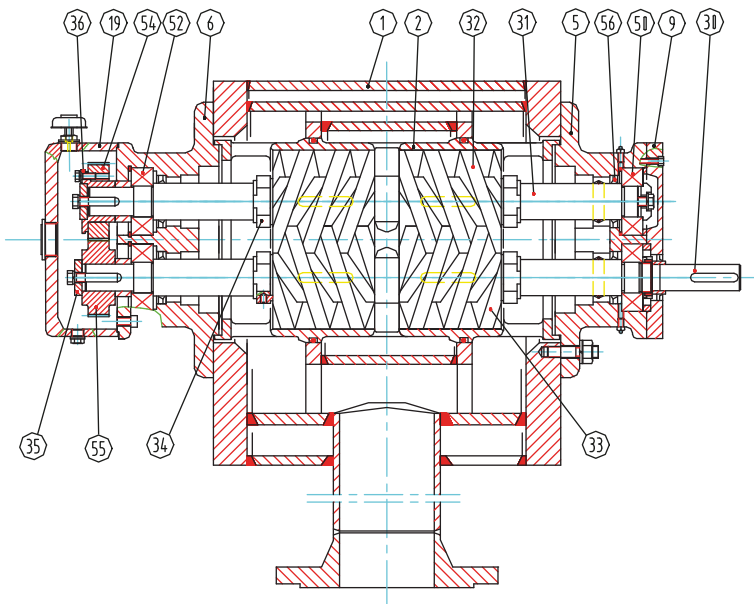


General Sectional Drawings, Horizontal Configuration

Long shaft design

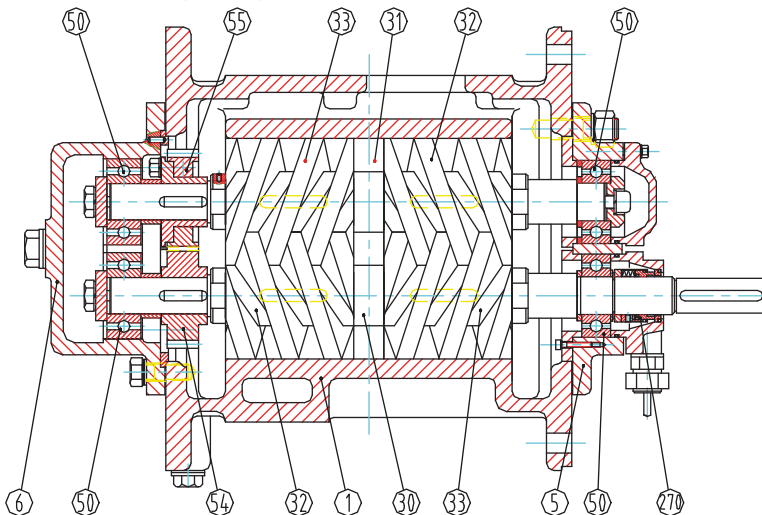


Short shaft design



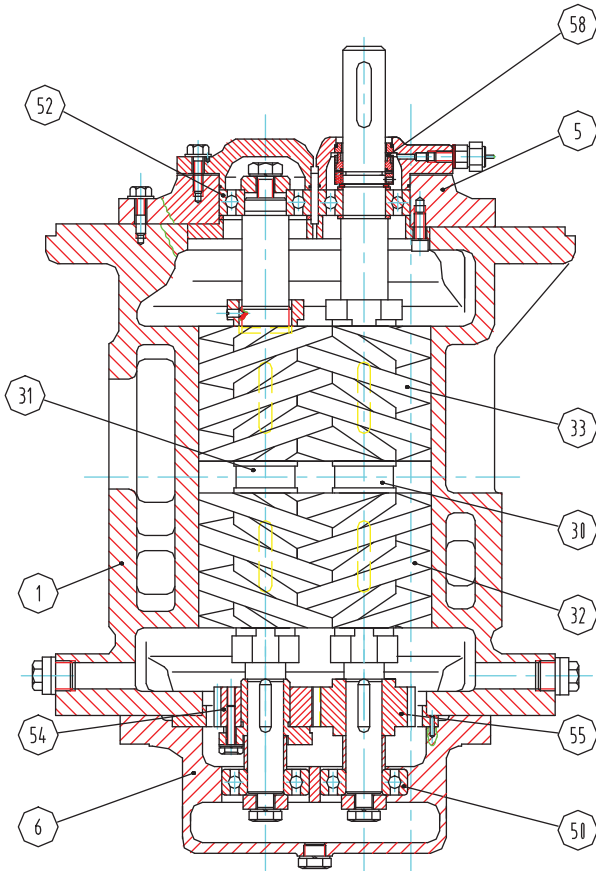
Part no.	Part name
1	Casing
2	Insert
5	Front bearing frame
6	Back bearing frame
9	Bearing cover
19	Gear box
30	Driving screw-spindle
31	Driven screw-spindle
32	screw sleeve
33	screw sleeve
34	Locking nut
35	Gear retainer ring
36	Gear tension push
50	Bearing
52	Bearing
55	Driving gear
56	Lip Seal
58	Lip Seal
270	mechanical seal

Internal bearing design

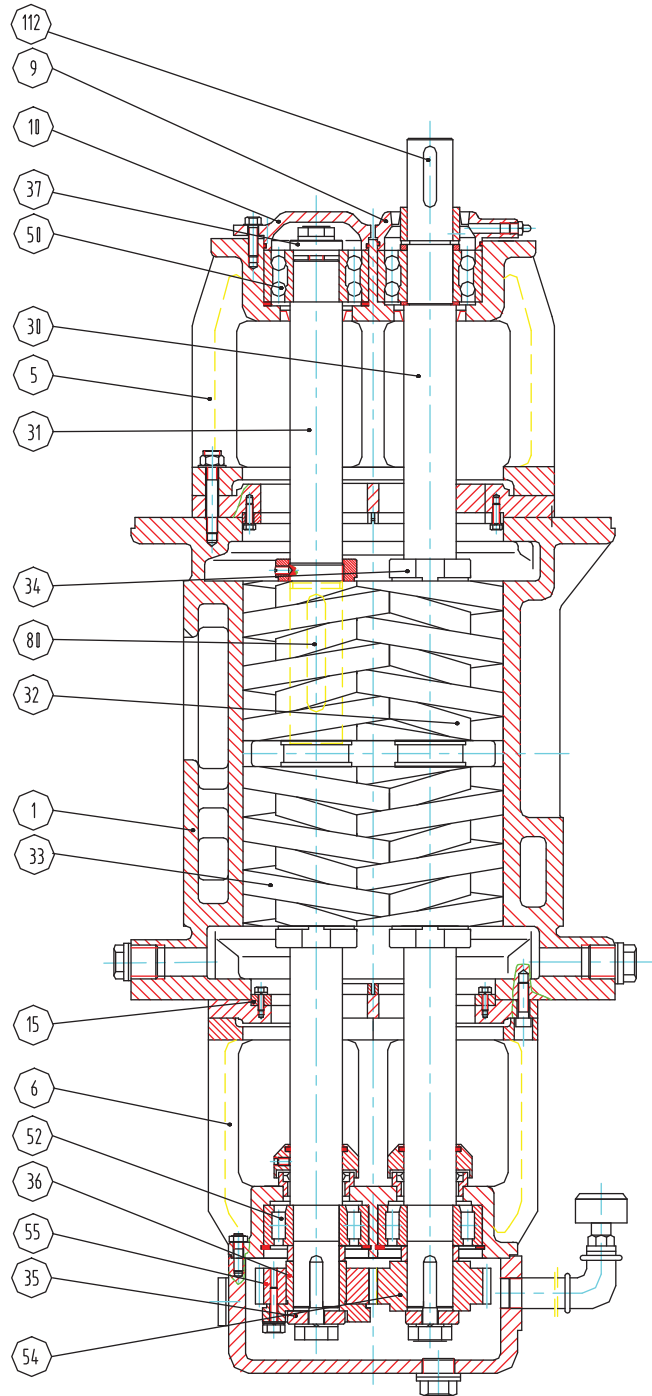


General Sectional Drawings, Vertical Configuration

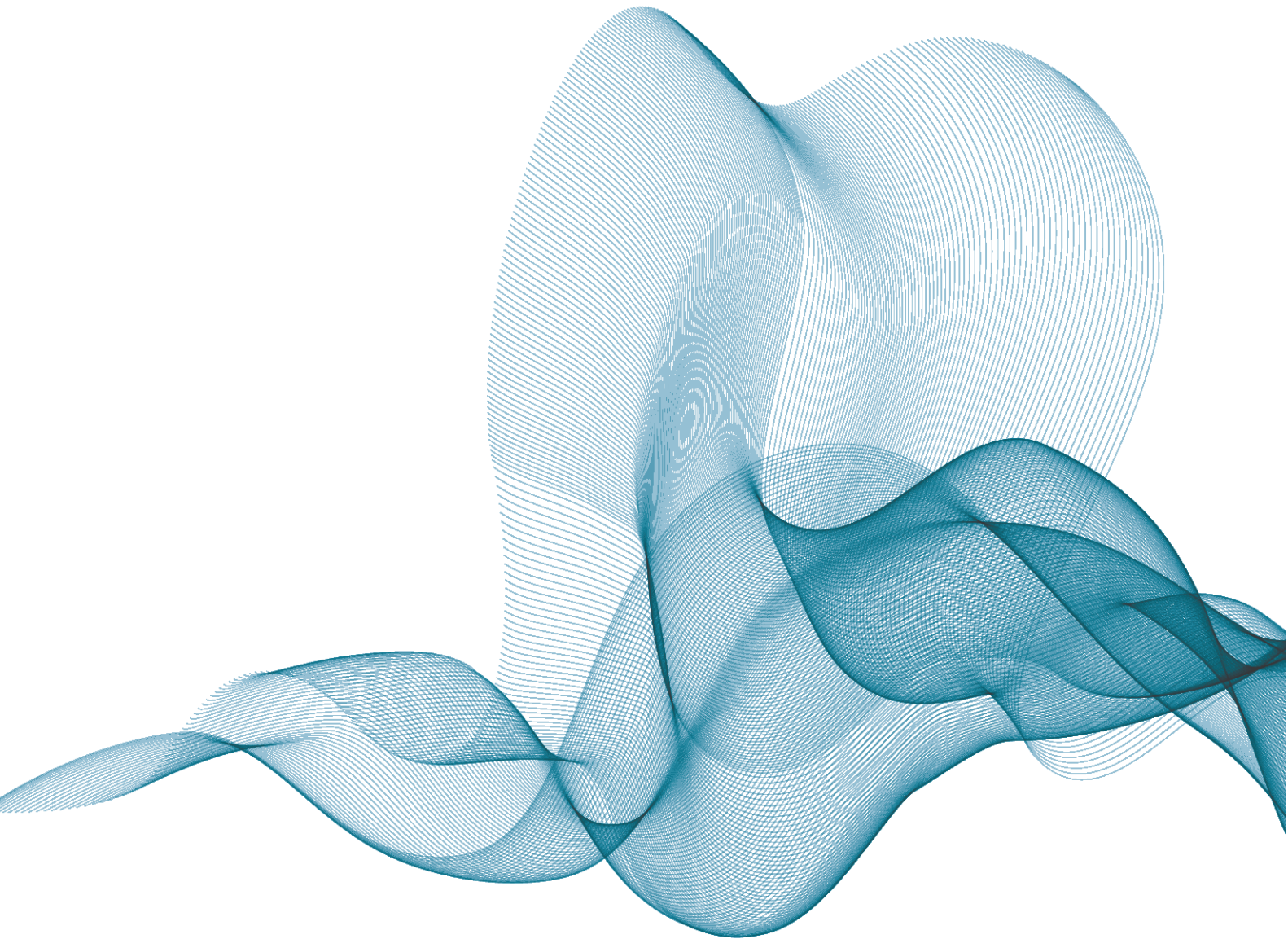
Internal bearing design



Long shaft design



Part no.	Part name
1	Casing
5	Front bearing frame
6	Back bearing frame
9	Driving bearing cover
10	Driven bearing cover
15	Centering flange
30	Driving screw-spindle
31	Driven screw-spindle
32	Screw sleeve
33	Screw sleeve
34	Locking nut
35	Gear retainer ring
36	Gear tension push
50	Bearing
52	Bearing
54	Driving gear
55	Driving gear
56	Lip Seal
58	mechanical seal
80	Key
112	Key



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