



TWIN SCREW PUMPS TYPE TVP





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THE MAIN FEATURES OF TWIN SCREW PUMP

Twin screw pumps are delivering various medium smoothly without any disturbing and pulsation. There are different mediums to be pumped through out in the working elements as sealing liquid which guaranteed by the construction of pump casing. All of the pump 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 in dry running in a short time.

Various constructions completely such as horizontal, vertical and casing with liner, and etc. 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.

PERFORMANCE RANGE

Twin screw pumps are handling various medium without solids.

With kinematic viscosity: 1-1500 mm²/s;

Pressure range: 4.0 MPa;

Capacity range: 1-2000 m³/h;

Temperature range: -15 °C / 280 °C.

APPLICATION

They found application in ship building, they are used in marine industry as cargo and stripping pump, ballast pump, lubricating oil pump, fuel oil and transfer pump, load or unload oil pump.

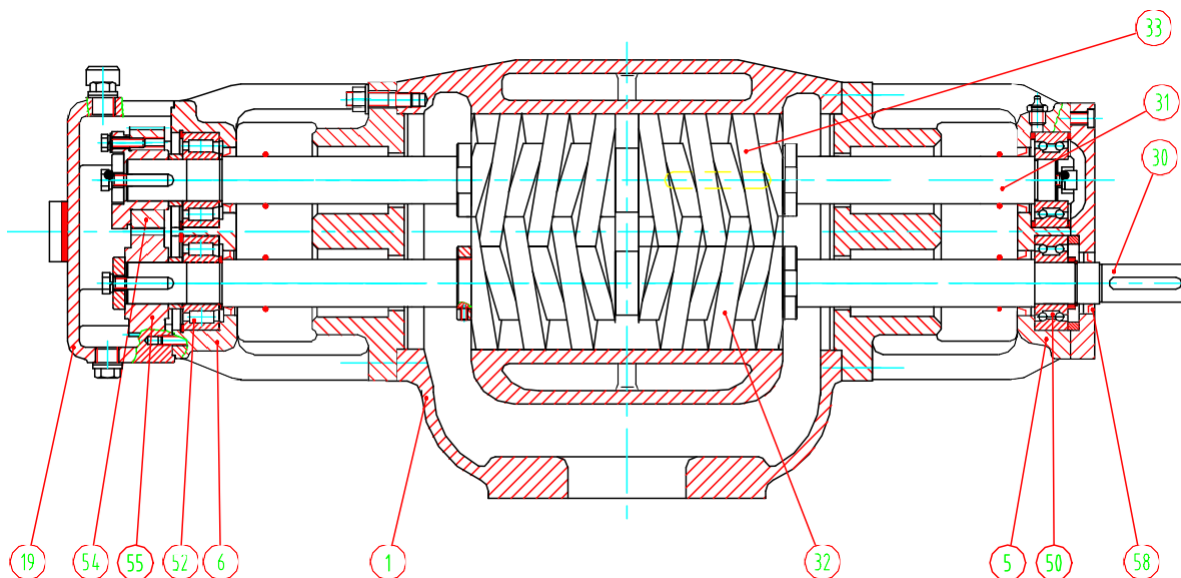
Also they found application in power industry, heavy and crude oil transfer pump, heavy oil burning pump.

In chemical industry as transfer pump for various acid, alkali solution, resin, color, printing ink, paint, glycerin, paraffin and wax.

In oil industry as refinery transfer pump for various heating oil, asphalt oil, tar, emulsion, for loading and unloading various oil goods for oil tankers.

In food industry they are used for brewery, food products, sugar refinery, alcohol, honey, juice, toothpaste, milk, cream, vegetable oil, animal oil and wine.

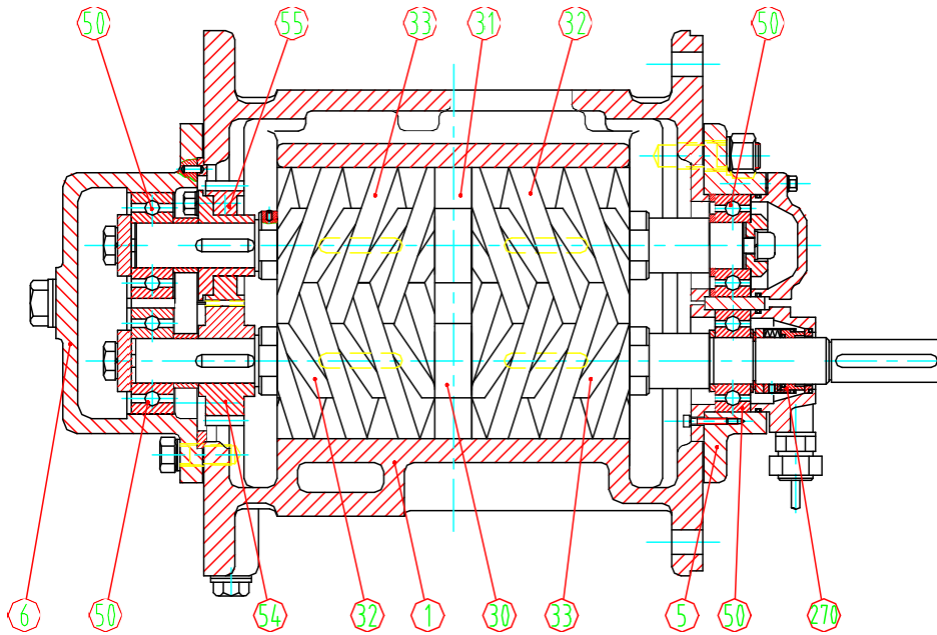
HORIZONTAL TWIN SCREW PUMP TYPE TVP





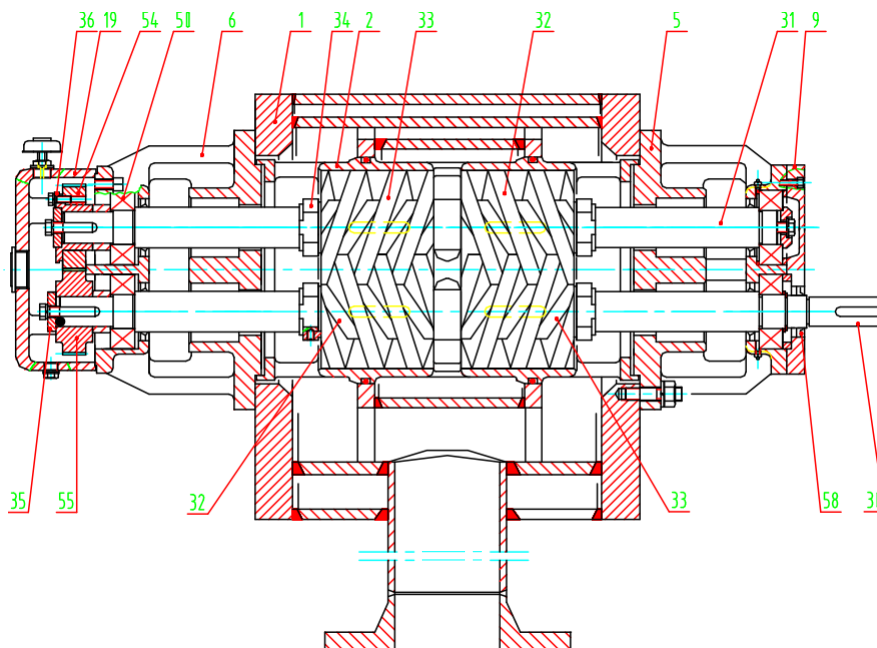
1	CASING	33	SCREW SLEEVE
5	FRONT BEARING FRAME	50	BEARING
6	BACK BEARING FRAME	52	BEARING
19	GEAR BOX	54	DRIVEN GEAR
30	DRIVING SCREW SPINDLE	55	DRIVING GEAR
31	DRIVEN SCREW SPINDLE	58	SEAL
32	SCREW SLEEVE		

HORIZONTAL TWIN SCREW PUMP TYPE TVPI



1	CASING	50	BEARING
5	FRONT BEARING FRAME	54	DRIVING GEAR
6	BACK BEARING FRAME	55	DRIVEN GEAR
30	DRIVING SCREW SPINDLE	270	SEAL
31	DRIVEN SCREW SPINDLE		
32	SCREW SLEEVE		
33	SCREW SLEEVE		

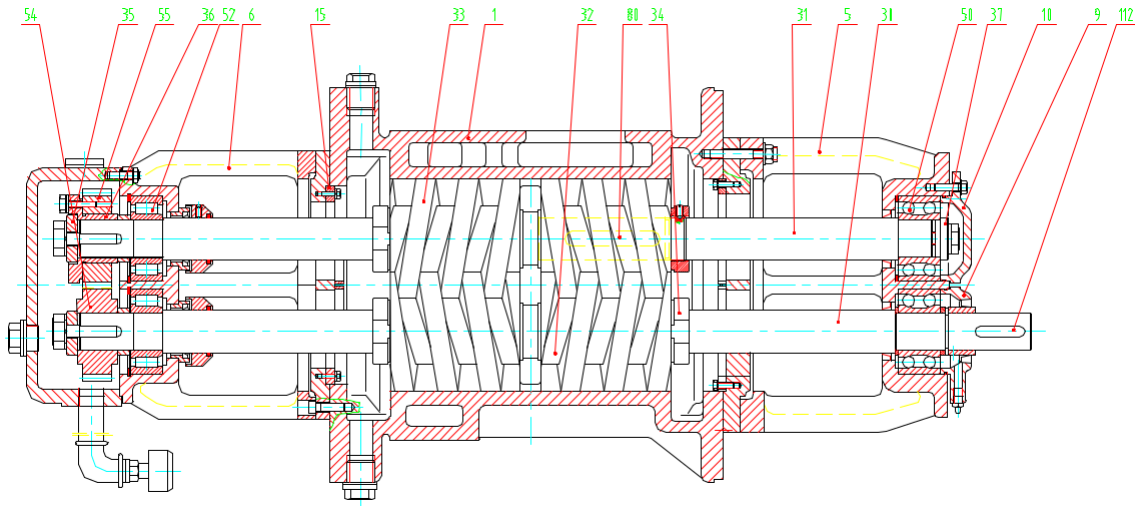
HORIZONTAL DOUBLE TWIN SCREW PUMP TYPE TVPD





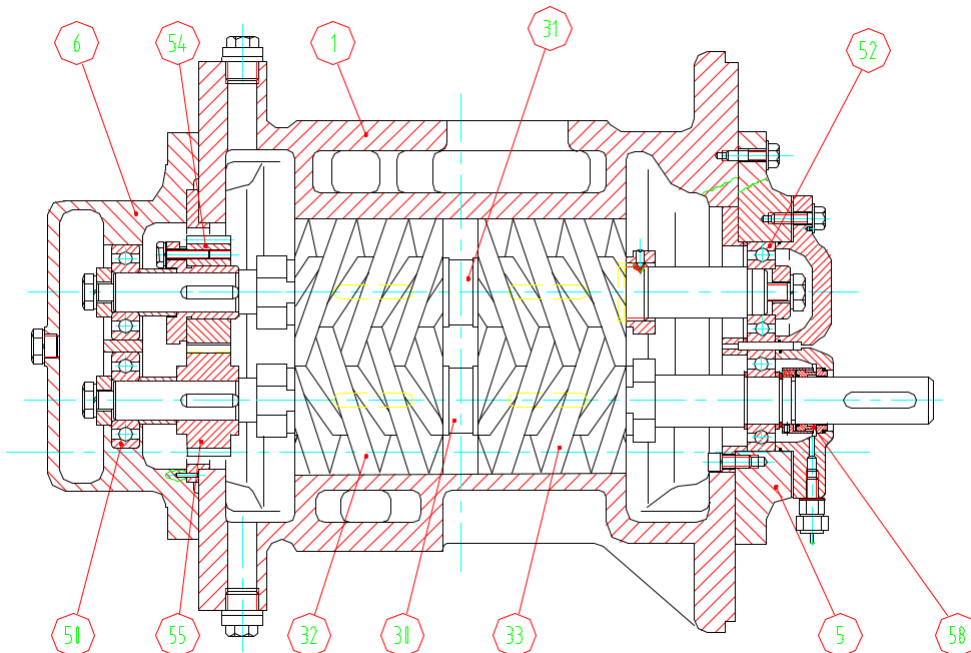
1	CASING	33	SCREW SLEEVE
2	INSERT	34	LOCKING NUT
5	FRONT BEARING FRAME	35	GEAR RETAINING RING
6	BACK BEARING FRAME	36	GEAR TENSION PUSH
9	BEARING COVER	50	BEARING
19	GEAR BOX	54	DRIVING GEAR
30	DRIVING SCREW SPINDLE	55	DRIVEN GEAR
31	DRIVEN SCREW SPINDLE	58	SEAL
32	SCREW SLEEVE		

VERTICAL TWIN SCREW PUMP TYPE TVPV:



1	CASING	34	LOCKING NUT
5	FRONT BEARING FRAME	35	GEAR RETAINING RING
6	BACK BEARING FRAME	36	GEAR TENSION PUSH
9	DRIVING BEARING COVER	37	GEAR RETAINING RING
10	DRIVEN BEARING COVER	50	BEARING
15	CENTERING FLANGE	52	BEARING
30	DRIVING SCREW SPINDLE	54	DRIVING GEAR
31	DRIVEN SCREW SPINDLE	55	DRIVEN GEAR
32	SCREW SLEEVE	80	KEY
33	SCREW SLEEVE	112	KEY

VERTICAL DOUBLE TWIN SCREW PUMP TYPE TVPVD

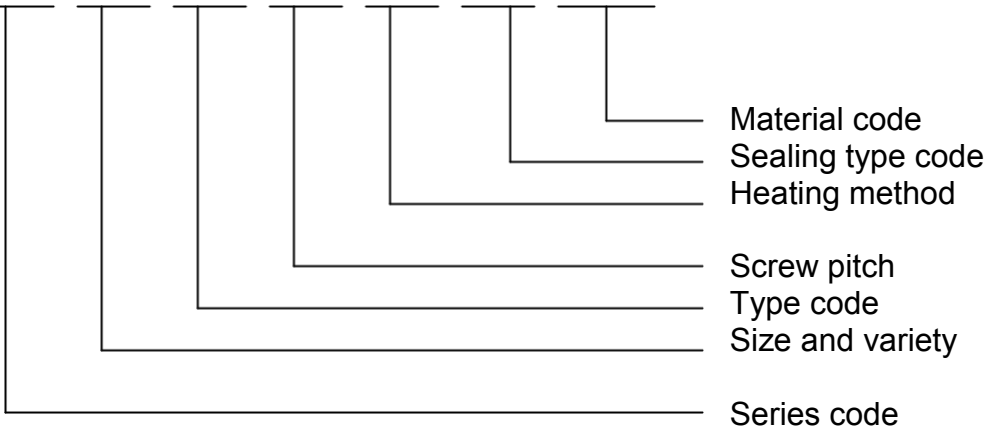




1	CASING	33	SCREW SLEEVE
5	FRONT BEARING FRAME	50	BEARING
6	BACK BEARING FRAME	52	BEARING
30	DRIVING SCREW SPINDLE	54	DRIVING GEAR
31	DRIVEN SCREW SPINDLE	55	DRIVEN GEAR
32	SCREW SLEEVE	58	MECHANICAL SEAL

TWIN SCREW PUMP CODE:

TVP 6.4(5) TVPI 100 N₁ K₁ W₇₃



1. Series code specification:

TVP-horizontal pump TVPV-vertical pump

2. Size and variety code specification:

The pumps imported from MZT Pumpi are divided into two constructions: horizontal and vertical, there are 10 sizes. The combination of sizes and variety is showed as following table:

Construction type		2	3	4	5	6	7	7T	8	9	10
TVP	Different combinations	2.1	3.1	4.1	5.1	6.4	7.2	7T.2	8.4	9.2	
			3.2	4.2	5.2	6.5	7.3	7T.3	8.5	9.3	10.1
TVPV	Different combinations			4.1	5.1	6.4	7.2	7T.2	8.4		
				4.2	5.2	6.5	7.3	7T.3	8.5	9.3	

3. Type code specification:

MZT Pumpi twin screw pump has 2 main constructions: TVP and TVPI.

TVP—long shaft design: Packing seal, double end seal or metal seal is required in design, when the medium temperature exceed 150-200⁰C.

TVPI—Internal bearing design adopt mechanical seal, medium temperature <80⁰C, only used for delivery lubricant medium.

Welded pump can deliver the high-temperature medium reach to 280⁰C.

4. Heating method of pump casing specification:

The different pump casing heating methods of MZT Pumpi twin screw pump depend on whether the pump casing is cast or welded.

Adopt heating to the middle section of the pump casing for all pump casing which is welded. Adopt different heating method with different size, all cast pump casing is showed as following table:



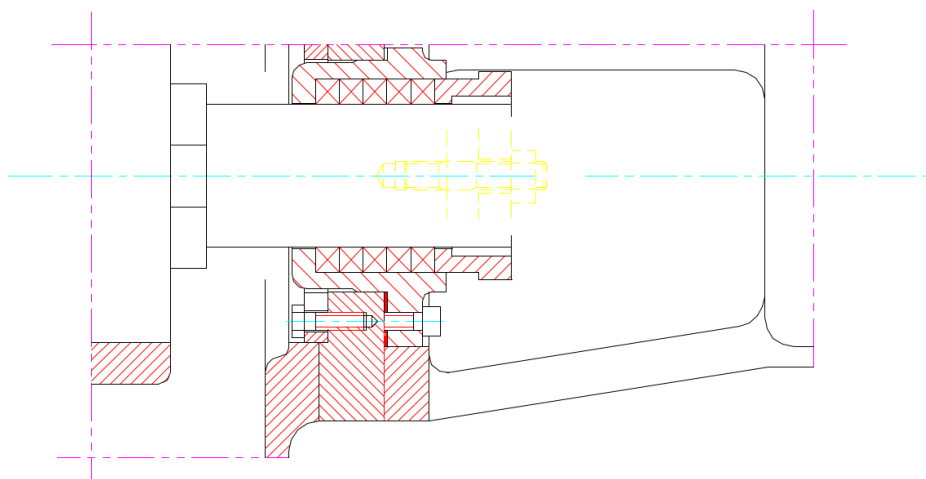
code	Heating method of pump casing	Pump type
N0	The middle section of the pump casing for all pump	TVP 3.2 / TVPI 3.2 / TVP 4.2 / TVPI 4.2 / TVP 5.2 / TVPI 5.2 / TVP 6.5 / TVPI 6.5 / TVP 7.3 / TVPI 7.3 / TVPI 7T.2 / TVPI 8.5 / TVPI 9.3 / TVP 10.1
N1	Low half part of pump casing with heating jacket	TVP 4.1 / TVP 5.1 / TVP7T.2 / TVPI 4.1 / TVPI 7T.2 / TVPI 5.1
N2	Low half part of pump casing with diffuse heating jacket	TVP 2.1 / TVP 3.1 / TVP 7.2 / TVPI 7.2 / TVPI 2.1
N3	Insert snakelike heating tube into pump casing	TVP 6.4 / TVP 8.4 / TVP 9.2 / TVPI 6.4 / TVPI 8.4 / TVPI 9.2

5. Specification of seal code:

The different type of seal is depended on the different pump design.

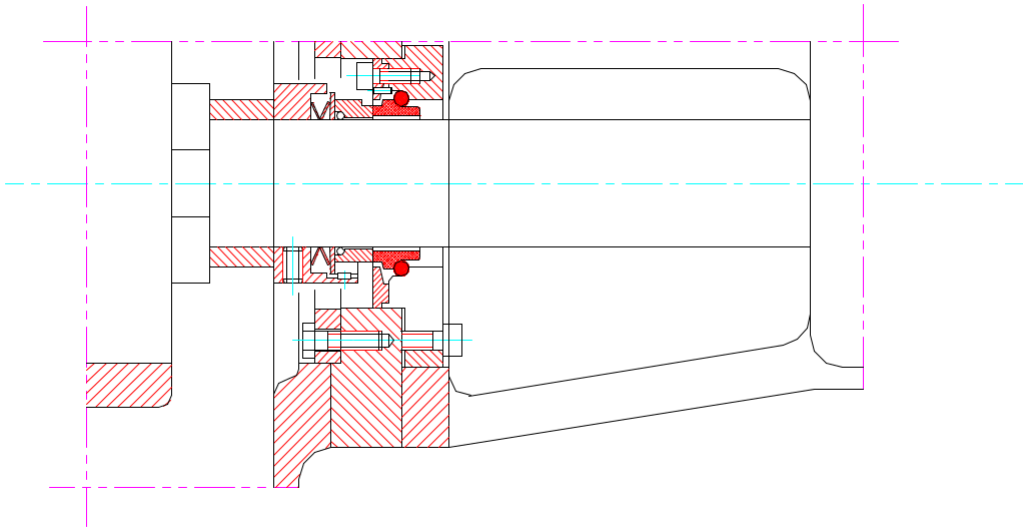
Design	Seal type	Seal code	Remarks
TVP	Packing seal	K0	temperature <200
	Single end mechanical	K1	temperature <180
	Double end mechanical	K2	temperature <200
	Metal seal	Kb	temperature <320
TVPI	Single end mechanical	K1	temperature <120

Packing seal

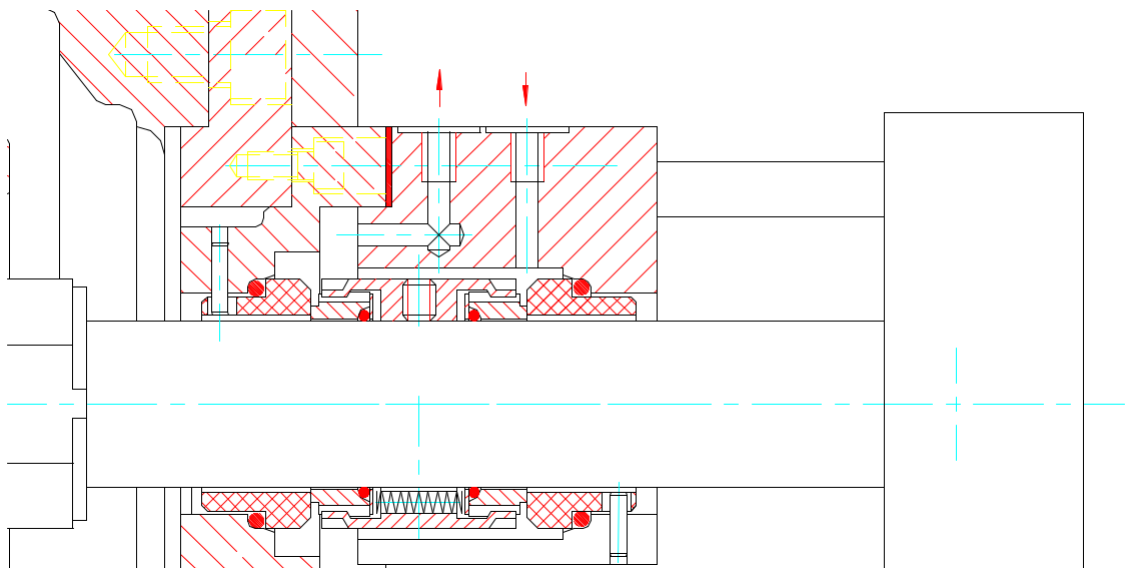




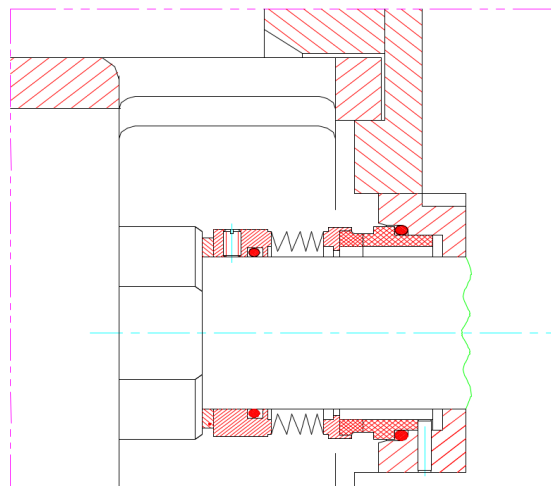
Single end mechanical seal M1



Double end mechanical seal

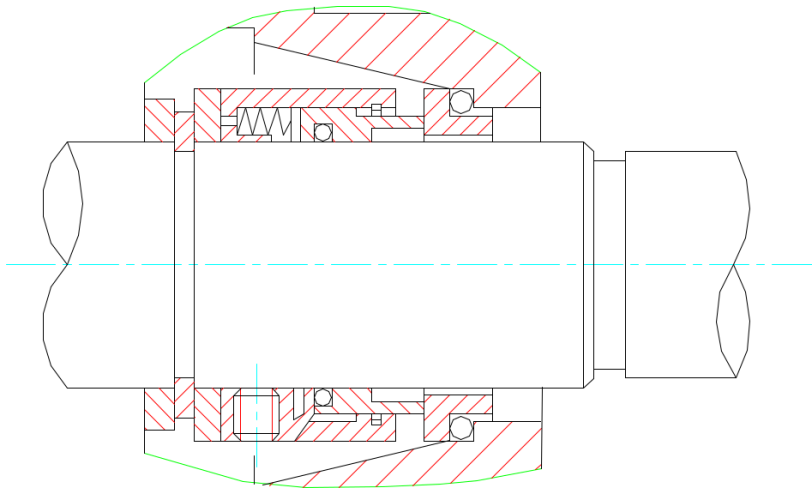


Single end mechanical seal K1, variant A





Single end mechanical seal K1, variant B



6. Material code:

The table 1 is combination code of cast pump, the table 2 is combination code of welded pump.

Table 1:

Material code	Material of pump casing	Material of shaft	Material of screws
W72	ZG35	AISI 630	AISI 630
W73	HT250	AISI 630	16MnCrS5
W74	HT250	AISI 630	ZQSn10-1
W75	QT400-15	AISI 630	16MnCrS5
W76	ZQSn3-7-5-1	AISI 630	AISI 630
W77	AISI 316 L	AISI 630	AISI 630
W78	HT250	AISI 630	HT250
W79	HT250	AISI 630	AISI 630

Table 2:

Material code	Material of pump casing	Material of insert	Material of shaft	Material of screws
W80	20	HT250	AISI 630	16MnCrS5
W81	20	ZQSn10-1	AISI 630	16MnCrS5
W82	AISI 317	Z1Cr18Ni9Ti	AISI 630	AISI 630
W83	AISI 316 L	AISI 316 L	AISI 316 L	AISI 316 L

7. Features of welded twin screw pump:

Welded twin screw pump has features as follows:

- 1 Excellent heated and the pumping temperature: -50°C $+320^{\circ}\text{C}$
- 2 In pump the materials of different sections can be different combination. So the pump can pump mixture and corrosive medium.
- 3 Especially suitable for high-temperature system and some special condition, for example high viscosity, high temperatures, such as oil, residue oil, etc. the highest viscosity can reach $10^6 \text{ mm}^2/\text{s}$.



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