

► The power of proven technology

TSP



Horizontal process pumps  
Acc. ISO 13709 (API 610) Type OH2



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**TSP is a series of horizontal centreline supported centrifugal pumps. The design of TSP is based on the 10th edition of the American Petroleum Institute standard 'Centrifugal Pumps For General Refinery Services', also known as API 610. Satisfying this standard, the TSP meets the high level performance requested by refineries and petrochemical industries.**

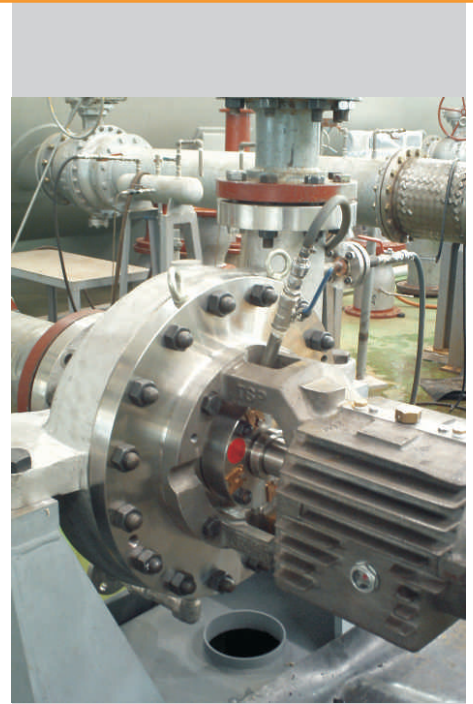
The TSP is part of a modular concept of single stage end-top centrifugal pump families, all sharing the same basic hydraulic design with a high degree of interchange ability between parts and sub-assemblies.

The seal chamber is designed to fit all types of seals, especially API 682 cartridge seals.

The multifunctional pump cover and the integrated design of pump, base plate and accessories enable the use of standard constructions for all API 610 seal plans.

Each TSP pump is mounted on a sturdy welded steel base plate with reinforced pedestals and bracket support, according to API 610 Standard.

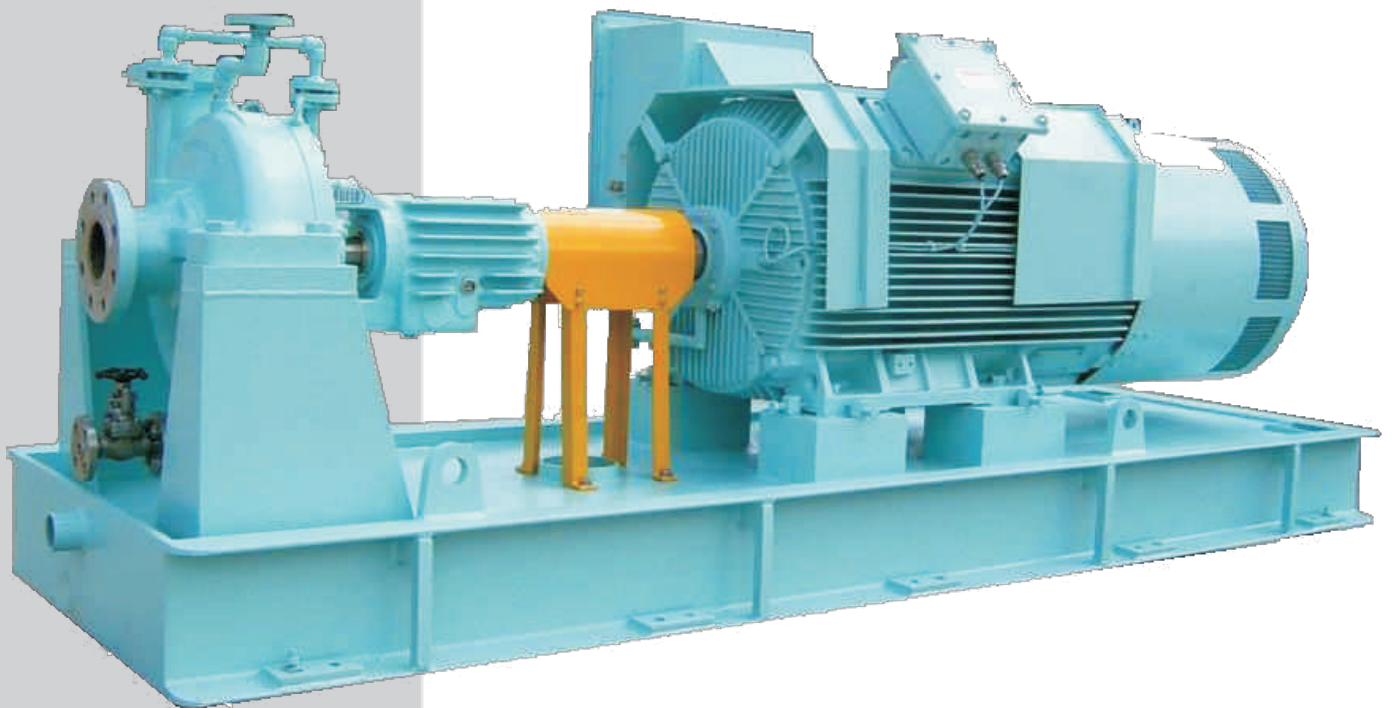
This reliable rigid construction extends the duty life of bearings and seal enables trouble-free operation under severe process conditions.



**API 610**

# 10th Edition Process Pump

API 610 10th Edition Process Pump (Single Stage)  
27 Sizes (Single Stage Only)  
Maximum Capacity: 1900m<sup>3</sup>/hr  
Maximum Head: 320m  
Enclosed Impeller (Investment Casting)  
Excellent Interchangeability



## 1. Casing

- Designed to meet API 610 10th edition.
- Standard 300# RF flanges
- Tangential discharge for hydraulic efficiency
- Standard dual volute design for 3 inch discharge or larger.

## 2. Casing and Centerline Mount Support

- Designed to meet API nozzle load criteria.

## 3. Renewable Wear Rings

## 4. Impeller

- Standard enclosed impeller for high efficiency
- Investment casting for better efficiency and low NPSH characteristic.
- Balance grade: ISO G1.0.



## 5. Seal Chamber

- Designed to meet API 610 & API 682 standards.

## 6. Deflector & Labyrinth Oil Seal

- Standard deflector & labyrinth oil seal applied with non-sparking material.

## 7. Oil Ring

- Standard oil ring provides better bearing lubricating condition.

## 8. Bearing Frame

- Rigid design provides better vibration characteristics.
- 3 bearing frames cover all TSP models.
- Metal to metal fits provide runouts and concentricities well within limits specified in API 610.

## 9. Finned Frame

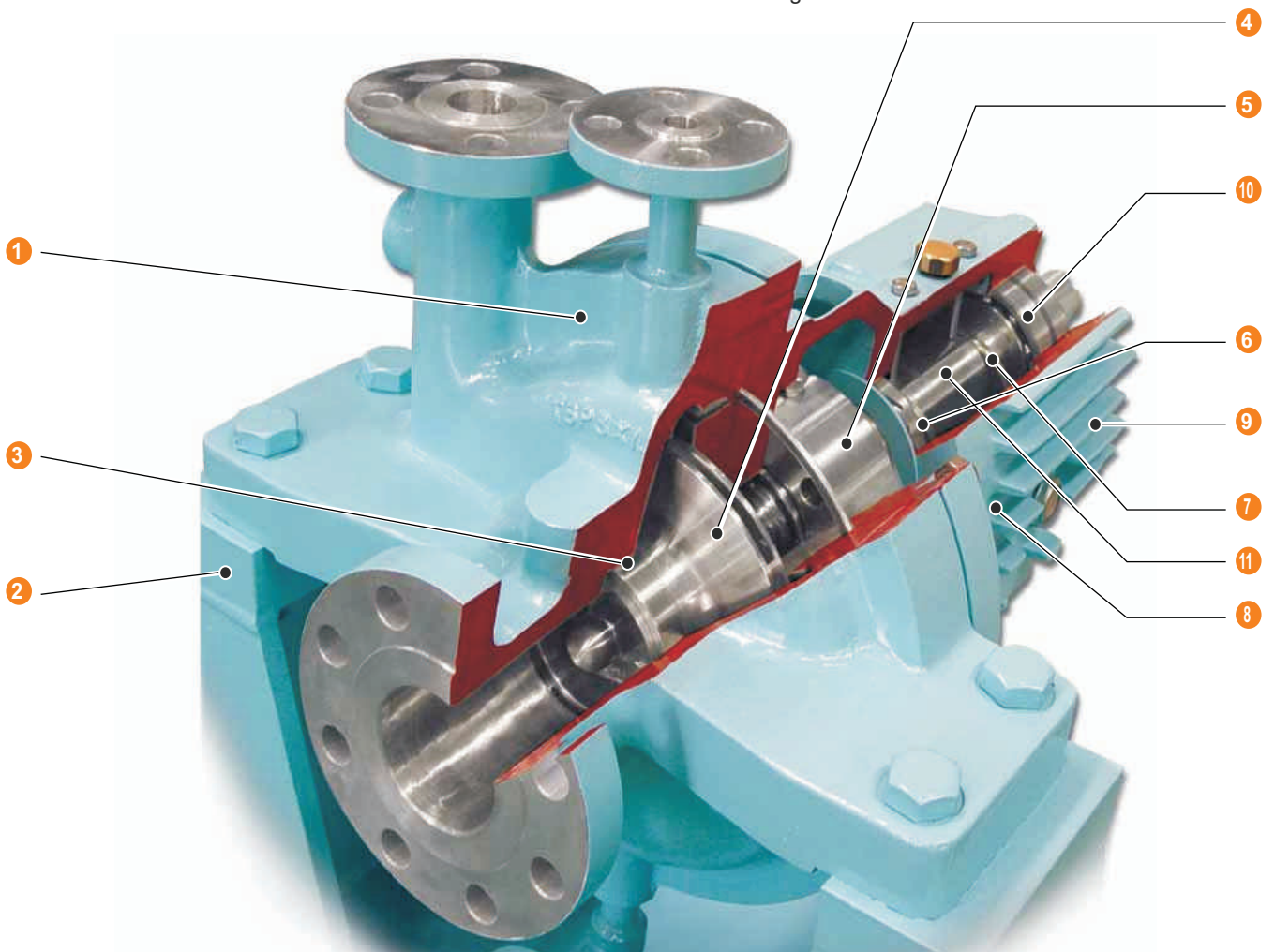
- Standard cast finned frame provides natural air cooling.
- Optional cooling fan improves the cooling condition.

## 10. Bearing

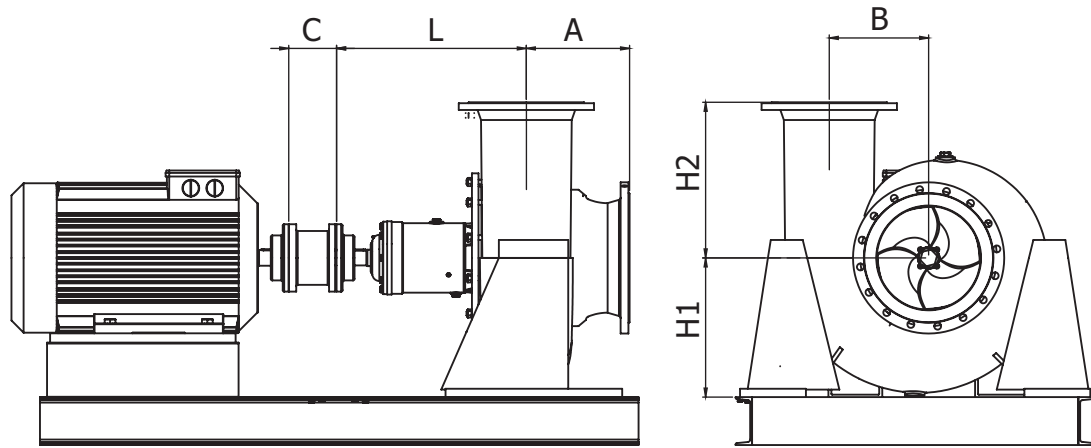
- Duplex angular contact thrust bearings and deep-groove radial bearings to meet API 610 requirements.

## 11. Shaft

- Heavy duty shaft design guarantees minimum shaft deflection and maximum bearing and mechanical seal life.



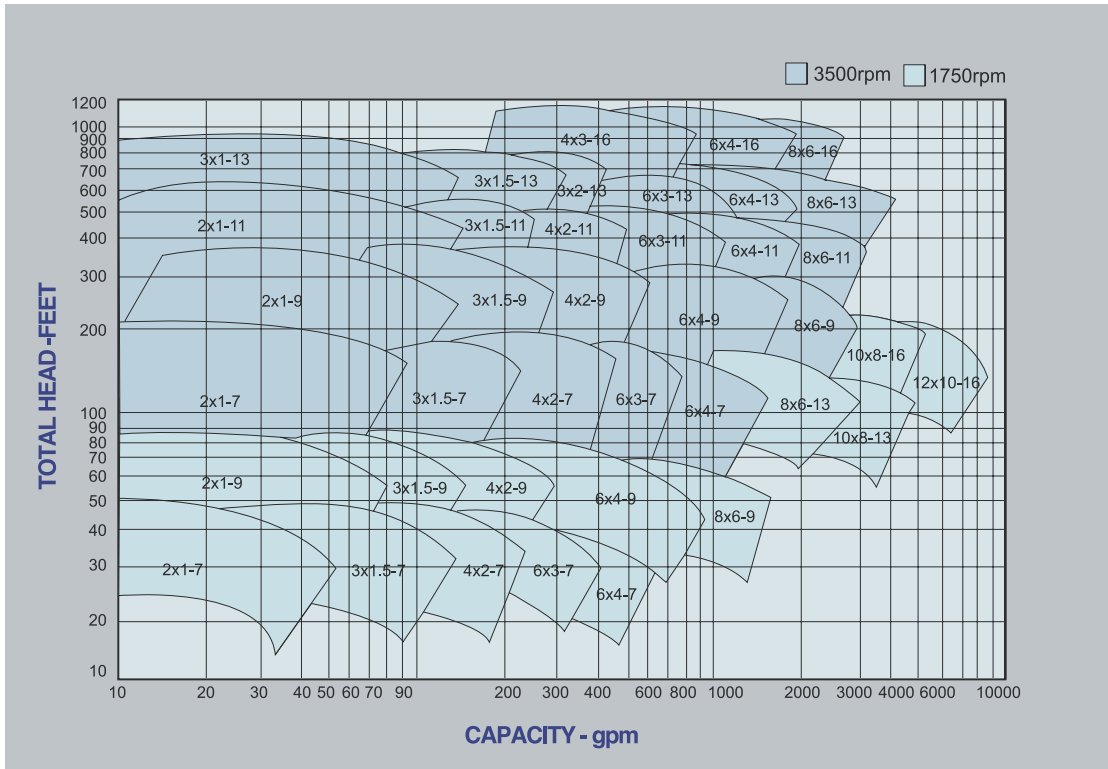
## Dimensions



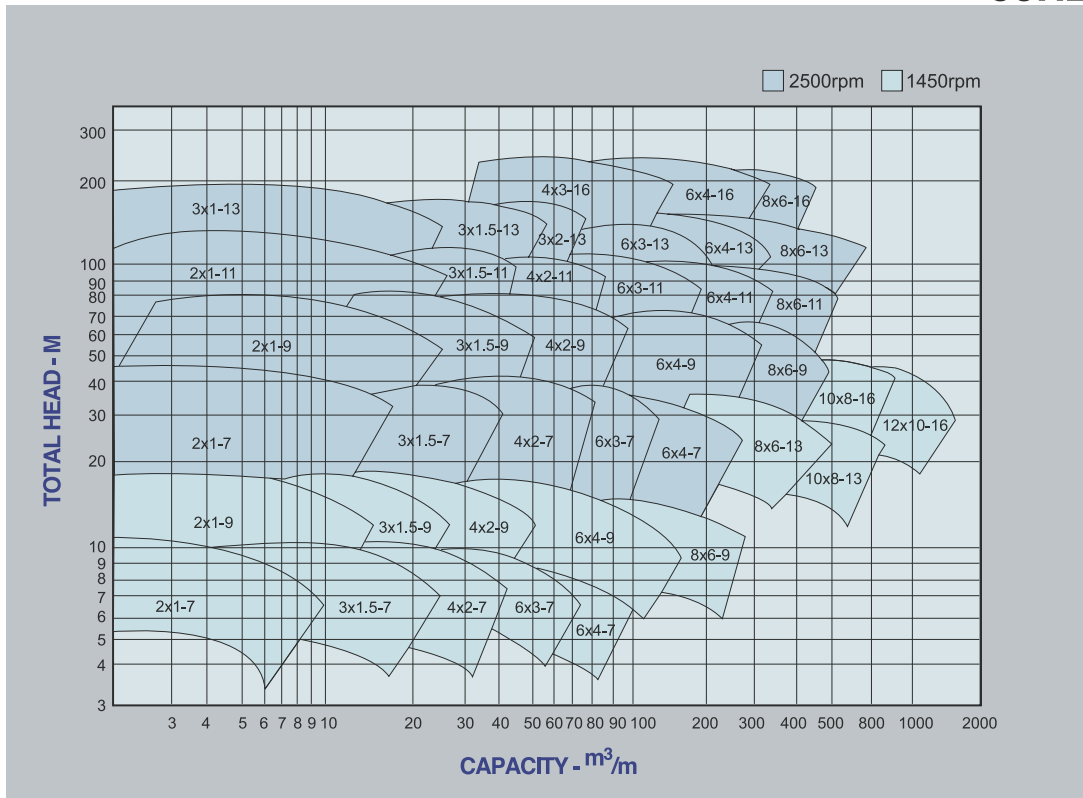
Group	Pump size	Nozzle Size		A	L	C	H1	H2	B
		SUC	DIS						
S	2x1-7	2	1	151	603	127	330	254	97
	3x1.5-7	3	1.5	165	615	127	330	254	116
	4x2-7	4	2	167	620	127	330	279	127
	6x3-7	6	3	180	625	127	330	286	141
	6x4-7	6	4	184	619	127	330	267	151
	2x1-9	2	1	174	610	127	330	254	128
	3x1.5-9	3	1.5	181	613	127	330	260	139
	4x2-9	4	2	190	612	127	330	286	148
6x4-9	6	4	197	615	127	362	273	186	
T	8x6-9	8	6	215	693	127	394	330	206
	2x1-11	2	1	173	609	127	330	279	145
	4x2-11	4	2	190	680	127	362	318	167
	6x3-11	6	3	181	687	127	362	324	193
	6x4-11	6	4	199	690	127	394	305	209
	8x6-11	8	6	215	689	127	394	330	224
	3x1-13	3	1	204	683	127	362	311	162
	3x1.5-13	3	1.5	209	684	127	362	311	162
	3x2-13	3	2	213	688	127	362	337	184
	6x3-13	6	3	225	621	127	394	343	217
	6x4-13	6	4	223	694	127	394	330	227
	8x6-13	8	6	261	701	178	457	457	264
10x8-13	10	8	229	698	178	508	343	284	
L	4x3-16	4	3	225	783	127	457	457	227
	6x4-16	6	4	251	787	127	457	457	253
	8x6-16	8	6	284	787	178	457	457	297
	10x8-16	10	8	286	795	178	508	508	318
	12x10-16	12	10	304	804	178	584	584	347

# Curves

## 60HZ



## 50HZ



\* These diagrams are for reference only and subject to change without prior notice.  
 \* Please contact us for details.

## Applications



- Offshore applications
- Hydrocarbon storage facilities
- Liquid gas plants

- Energy and general industry



- Crude oil refining
- Petrochemical processing
- Chemical processing





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