

# Pump Design Standards

The design standards of centrifugal pumps are as follows.

## 1.1 International standard

No.	Standard number	Standard title	Application	
			Pump type	Summary
1	API 610	Centrifugal pumps for petroleum, petrochemical and natural gas industries	Overhung : 6types Between bearings: 5types Vertically suspended 7 types	<p>Relevant industry operating experience suggests pumps produced are cost effective when pumping liquids at conditions exceeding any one of the following:</p> <p>(1) Discharge press.      19 bar</p> <p>(2) Suction press.        5 bar</p> <p>(3) Pumping temp.        150 °C</p> <p>(4) Rotative speed        3600 min<sup>-1</sup></p> <p>(5) Rated total head        120 m</p> <p>(6) Impeller diameter, overhung pumps 330 mm</p>
2	ISO 13709	same as API 610 until January 2021		
3	ANSI B 73.1	Specification for horizontal end suction centrifugal pumps for chemical process	Horizontal, end suction single stage, centerline discharge design	Pump dimensions and approximate performance (capacity and total head) of standard pumps are provided.

# Pump Design Standards

## 1.2 International standard

No.	Standard number	Standard title	Application	
			Pump type	Summary
4	ISO 2858	End-suction centrifugal pumps (rating 16 bar) – Designation, nominal duty point and dimensions	Horizontal, end suction single stage, centerline discharge design	Maximum operating rating of 16 bar. Pump dimensions and nominal duty points are provided.
5	ISO 9905 (JIS B 8307)	Technical specifications for centrifugal pumps– Class I	Single stage, multistage, horizontal, vertical, closed-coupled	It was established for requirements to centrifugal pump class I (the severest), to standardize, to rationalize of production and use and to improve the quality. It may be applied for power generation pumps.
6	ISO 5199 (JIS B 8308)	Technical specifications for centrifugal pumps– Class II	Single stage, multistage, horizontal, vertical, closed-coupled	It was established for requirements to centrifugal pump class II with single stage, horizontal or vertical of general use, and all drives and installed methods, to standardize, to rationalize of production and use and to improve the quality. It may be applied for chemical pumps.
7	ISO 9908 (JIS B 8309)	Technical specifications for centrifugal pumps– Class III	Single stage, multistage, horizontal, vertical, closed-coupled	It was established for requirements to centrifugal pump class III with single stage, multistage, horizontal or vertical (rigidly coupled and closed-coupled) of general use, and all drives and installed methods, to standardize, to rationalize of production and use and to improve the quality. It may be applied for commercialized pumps.

# Pump Design Standards

## 2.1 JIS standard

No.	Standard number	Standard title	Application	
			Pump type	Summary
8	JIS B 8313	End suction centrifugal pumps	Small size, end suction centrifugal pumps	It was established for general use, small centrifugal pumps with single stage and end suction, applied for maximum working pressure 1 MPa and fresh water temperature 0 to 40°C, and coupled with 50Hz/60Hz and 2P/4P three-phase induction motor through flexible coupling on common baseplate.
9	JIS B 8319	Small size multi-stage centrifugal pumps	Small size, single suction multi-stage centrifugal pumps	It was established for general use, small centrifugal pumps with multistage (2–15 stages), applied for maximum working pressure 2.75 MPa and fresh water temperature 0 to 40°C, and coupled with 50Hz/60Hz and 2P/4P three-phase induction motor through flexible coupling on common baseplate.
10	JIS B 8322	Double suction volute pumps	Horizontal, single stage, double suction volute pumps	It was established for general use, centrifugal pumps with single stage and double suction, applied for maximum working pressure 1.4 MPa and fresh water temperature 0 to 40°C, and coupled with 50Hz/60Hz and 4P/6P/8P three-phase induction motor through flexible coupling on common baseplate.



# Pump Design Standards

## 2.2 JIS standard

No.	Standard number	Standard title	Application	
			Pump type	Summary
11	JIS B 8323	Water ring vacuum pumps	Water ring vacuum pumps	It was established for general use, water ring vacuum pumps with suction bore size 20–50mm, and coupled with 50Hz/60Hz three-phase induction motor through flexible coupling or V-belt on common baseplate.
12	JIS B 8324	Submersible motor pumps for deep well	Single suction, centrifugal or mixed flow, submersible motor pumps for deep well	It was established for single suction, centrifugal or mixed flow, submersible motor pumps for deep well with bore size 20–200mm, suspended on well top or under column pipe, applied for water temperature 10 to 25°C, coupled with 50Hz/60Hz and 2P submersible three-phase induction motor through coupling, and submerged within 100m deep.
13	JIS B 8325	Submersible motor pumps for sump	Single suction, single stage, centrifugal, submersible motor pumps for sump	It was established for single suction, centrifugal, submersible motor pumps for sump, applied for sewage temperature 0 to 45°C, pH 5–9 and solids less than 20mm, suspended in the storage tank or set on it, coupled with 50Hz/60Hz and 2P/4P submersible three-phase induction motor through common shaft or coupling.

