

API
610
2d ed
1957

Historical

API Standard 610
Second Edition
January 1957

**API SPECIFICATIONS
FOR
CENTRIFUGAL PUMPS FOR GENERAL REFINERY
SERVICES**

1957

**LIBRARY
AMERICAN PETROLEUM INSTITUTE**

**COPY PROVIDED FOR
HISTORICAL PURPOSES ONLY**



This publication is distributed "as is" and is no longer a current publication of the American Petroleum Institute. It is furnished solely for historic purposes and some or all of the information may be outdated. API MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, AND SPECIFICALLY THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR ISSUE.

**AMERICAN PETROLEUM INSTITUTE
Division of Refining
50 West 50th Street
New York 20, N. Y.**

Price \$1.50

7

LIBRARY
AMERICAN PETROLEUM INSTITUTE

**API SPECIFICATIONS
FOR
CENTRIFUGAL PUMPS FOR GENERAL REFINERY
SERVICES**

1957

**COPY PROVIDED FOR
HISTORICAL PURPOSES ONLY**

This publication is distributed "as is" and is no longer a current publication of the American Petroleum Institute. It is furnished solely for historic purposes and some or all of the information may be outdated. API MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, AND SPECIFICALLY THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR ISSUE.

AMERICAN PETROLEUM INSTITUTE

Copyright, 1957, American Petroleum Institute, New York 20, N. Y.

TABLE OF CONTENTS

	PAGE
ABBREVIATIONS	4
Section A—GENERAL	
A-1 Scope	5
A-2 Alternate on Manufacturer's Standard Design	5
A-3 Conflicting Requirements	5
Section B—DESIGN	
B-1 General	6
B-2 Motors	6
B-3 Turbines	6
B-4 Static Balance	6
B-5A Dynamic Balance of Horizontal Pumps	6
B-5B Dynamic Balance of Vertical Pumps	6
B-6 Types of Horizontal Pumps	6
B-7A Casings for Horizontal Pumps	7
B-7B Casings for Vertical Pumps	7
B-8 Nozzles, Vents, Drains, Etc.	7
B-9 Suction and Discharge Flanges and Facings	8
B-10 Bolting	8
B-11 Impellers	8
B-12 Wearing Rings	8
B-13 Running Clearances	8
B-14 Shafts and Shaft Sleeves	8
B-15A Bearings for Horizontal Pumps	9
B-15B Bearings for Vertical Pumps	9
B-16 Stuffing Boxes for Conventional Packing	9
B-17 Mechanical Shaft Seals	9
B-18 Couplings	10
B-19A Baseplate for Horizontal Pumps	11
B-19B Baseplate for Vertical Pumps	11
B-20 Liquid Cooling	11
B-21 Miscellaneous	11
Section C—MATERIALS	
C-1 General	12
Section D—INSPECTION AND TEST	
D-1 General	13
D-2 Hydrostatic Tests	13
D-3 Standard Running Test	13
D-4 Net Positive Suction Head (NPSH) Test	14
D-5 Inspection	14
Section E—PREPARATION FOR SHIPMENT	
E-1 General	15
Section F—DRAWINGS AND OTHER DATA REQUIRED	
F-1 Outline Drawings	16
F-2 Intent of Approval	16
F-3 Data Required	16
Section G—PROPOSALS	
G-1 Drawings	17
G-2 Performance Curves	17
G-3 Data Required in Proposals	17
G-4 Exception to Specifications	17
G-5 Mounting of Drivers	17
G-6 Delivery	17
G-7 Guarantees	17
APPENDIX	
Standard Data Sheet for Centrifugal Pumps	18

ABBREVIATIONS USED IN THIS PUBLICATION

ASA	American Standards Association
avail	available
bhp	brake horsepower
ccw	counterclockwise
cplg	coupling
cw	clockwise
diam	diameter
diff	differential
disch	discharge
dwg	drawing
eff	efficiency
enc	enclosed
F	degrees Fahrenheit
FPT	Fahrenheit at pumping temperature
ft	feet
gpm	gallons per minute
guar	guaranteed
hp	horsepower
in.	inches
lb	pounds
max	maximum
mfr	manufacturer
min	minimum
min	minutes
No.	number
NPSH	net positive suction head above vapor pressure referred to the pump centerline in the case of horizontal pumps and to the eye of the first stage impeller in the case of vertical pumps
ped	pedestal
PO	purchase order
press	pressure
psi	pounds per square inch
psia	pounds per square inch, absolute
psig	pounds per square inch, gage
PT	pumping temperature
req'd	required
rpm	revolutions per minute
sp gr	specific gravity
std	standard
suct	suction
temp	temperature
vap pr	vapor pressure
vis Ssu	viscosity—Saybolt seconds universal

NOTE: The nomenclature and part definitions used in this specification are taken from the *Centrifugal Pump Section of the Standards of Hydraulic Institute*, 8th edn.

COPY PROVIDED FOR HISTORICAL PURPOSES ONLY

SPECIFICATIONS FOR CENTRIFUGAL PUMPS FOR GENERAL REFINERY SERVICES

SECTION A—GENERAL

A-1 Scope

This specification is intended to cover the minimum requirements for centrifugal-type pumps for petroleum products, including single-case horizontal and single- and double-case vertical pumps. It is not intended that this specification be used for heavy-duty double-case horizontal pumps or for pumps of a highly specialized nature, such as those used for pumping chemicals, etc.

A-2 Alternate on Manufacturer's Standard Design

A vendor may offer an alternate pumping unit of a manufacturer's standard design, provided the

alternate design covers a construction which is equivalent to, guaranteed, and otherwise submitted in accordance with the requirements herein specified. All deviations in the manufacturer's standard design from the requirements specified herein shall be described fully in the proposal. The alternate design will receive full consideration.

A-3 Conflicting Requirements

Whenever the information included on the purchaser's data sheets, order sheets, or purchase orders conflicts with the provisions of this specification, the purchaser's data sheets, order sheets, and purchase orders shall govern.