ASME B73

Centrifugal Pump Data Sheet

Rev No.:_____ Rev Date:_____

ASME Centrifugal Pumps (US Customary Units)
ASME B73.1, ASME B73.2

Issue Date
November 2019

Usage key - data provided by: ○ Purchaser ☐ Supplier △ Supplier if not by purchaser

Issued for: ☐ Proposal ☐ Purchase ☐ As built

Facility name / location: _____ P&ID number: _____
Item name: _____ Purchaser / location: _____
Item tag number: _____ Job number: _____
Service: _____ Purchaser order number: _____
Unit: _____ Supplier / location: _____
Number of pumps required: _____ Supplier order / serial numbers: _____ /

○ GENERAL

△ Pump size: _____ Driver item number: _____
△ Pump model: _____ Driver provided by: _____
△ Pump type: ☐ Horizontal End Suction ☐ Vertical In-line ☐ Repeller Driver mounted by: _____
☐ Recessed Impeller ☐ Self Priming ☐ Low Flow Variable speed operation ☐ YES ☐ NO

○ Operating Conditions

	Rated	Maximum	Normal	Minimum	Other	
Flow:						(gpm)
[1] *At flow designated above*						
Head[1]:						(ft)
NPSHA[1]:						(ft)
Suct pres[1]:						(psig)

System design:
Suction pressure: min. / max.: _____ / _____ (psig)
Suction temperature: min. / max.: _____ / _____ (°F)
☐ Stand alone operation
☐ Parallel operation with item no.: _____
☐ Series operation with item no.: _____
Service:
☐ Continuous ☐ Intermittent: _____ starts/day
System control method:
☐ Speed ☐ Throttle ☐ System Resistance Only

○ Pumped Fluid

Pumped fluid: _____

	Rated	Maximum	Normal	Minimum	
Pumping temperature:					(°F)
[2] *At pumping temperatures designated above*					
Specific gravity[2]:					
Vapor pressure[2]:					(psia)
Viscosity[2]:					(cP)
Specific heat[2]:					(Btu/lb °F)

Atm pressure boiling point: _____ (°F) @ _____ (psia)
Liquid: ☐ Hazardous ☐ Flammable pH _____
☐ Other: _____
Fluid Rating System: ☐ NFPA 704 ☐ HMIS
Health: _____ Flammability: _____ Instability: _____
Corrosion / erosion caused by: _____
% solids: _____ ☐ % Volume ☐ % Weight
Max. particle size: _____ (in)
Other:

☐ Performance

Performance curve number: _____
△ Speed: _____ (rpm) ☐ B73 curve speed ☐ Job driver nameplate
Maximum differential head @ rated impeller: _____ (ft)

[3] *at specified flow*	Rated	Maximum	Normal	Minimum	Other	
Head[3]:						(ft)
NPSHR[3]:						(ft)
Speed(if variable)[3]:						(rpm)

Minimum continuous stable flow: _____ (gpm)
Allowable operating region: _____ to: _____ (gpm)
Best efficiency point for rated impeller: _____ (gpm)
Suction specific speed: _____
Impeller diameter Rated: _____ Max: _____ Min: _____ (in)
Pump rated power: _____ (BHP) Efficiency: _____ (%)
Maximum power with rated impeller: _____ (BHP)

Case pressure rating:
Maximum allowable working pressure: _____ (psig) @ _____ (°F)
Hydrostatic test pressure: _____ (psig)

○ Site Conditions and Utilities

Location: ☐ Indoor ☐ Outdoor Altitude: _____ (ft)
Range of ambient temperatures: min. / max.: _____ / _____ (°F)
Area classification: ☐ Nonhazardous
Cl: _____ Div or Zone: _____ Gr: _____ T Code: _____

Electricity	Voltage	Phase	Hertz
Drivers			
Heating			

Cooling water: Source: _____
Supply temp.: _____ (°F) Max. return temp.: _____ (°F)
Supply pressure: _____ (psig) Design press.: _____ (psig)
Min. return press. _____ (psig) Max. allow. D.P. _____ (psi)
Chloride concentration: _____ (ppm)

○ General Remarks

Number	Date	Data Revision Description	By	Approved

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Mechanical Data

△ **Impeller Type:**
☐ Closed ☐ Open ☐ Semi-open

△ **Casing Mounting:**
☐ Foot ☐ Centerline ☐ Vertical

☐ **Bearings:**
△ Bearing manufacturer: _____
Radial bearing type: _____ No.: _____
Thrust bearing type: _____ No.: _____
△ Bearing isolators: ☐ Labyrinth (standard) ☐ Magnetic seal
Manufacturer: _____

△ **Lubrication:**
☐ Oil bath ☐ Pure mist ☐ Shielded (grease)
☐ Grease ☐ Purge mist ☐ Sealed (grease)
☐ Magnetic drain plug in housing △ ☐ Oil cooler
☐ ☐ Oil viscosity: ISO grade: _____ Other: _____

Nozzle Connections:

	△ Size	△ Rating	△ Facing
Suction:			
Discharge:			

○ **Aux. case connection:** ☐ Drain
△ Size: _____ NPT / NPS
☐ Threaded ☐ Welded and flanged

△ **MATERIALS**

Material class code: _____
Casing: _____
Impeller: _____
Cover: _____
Shaft: _____
Shaft sleeve: _____
Baseplate: _____
Casing gasket: _____
Impeller o-ring / gasket: _____
Casing fasteners: _____
Gland fasteners: _____
Bearing housing: _____
Bearing housing adapter: _____
Bearing isolators: _____
Coupling guard: _____
Mechanical seal materials - see page 3

△ **Coupling Between Pump and Driver**

Specification: _____
Manufacturer: _____
Type: _____
Model / Size: _____
Spacer length: _____ (in)
☐ Coupling balanced to ISO 21940-11, grade G6.3
☐ Straight bore hub with interference fit
Coupling guard type:
☐ Pump supplier's standard ASME B73 Guard
☐ Purchaser Specification: _____
☐ Non-spark coupling guard
Remarks: _____

△ **Driver**

Power rating: _____ (HP) Speed: _____ (rpm)
Drive HP selected for max. S.G. _____ & max. visc.: _____ (cP)
Driver specification: _____
Driver manufacturer: _____
Driver enclosure: _____ Driver frame: _____
Remarks: _____

○ **Baseplate**

Type: ☐ Grouted
☐ Concrete filled (non-metallic pedestal baseplate)
☐ Free standing △ Pump CL to foundation _____ (in)
☐ Vertical in-line pump case support bracket
Design: ☐ Purchaser specification _____
☐ ASME B73 standard
☐ Industrial duty grouted fabricated steel
☐ Non-metallic
☐ Cast iron
Remarks: _____

○ **Paint, Shipment, and Storage Preparation**

Paint:
☐ Pump supplier's standard
☐ Other: _____
Shipment:
☐ Domestic ☐ Export ☐ Export boxing
Storage:
☐ Outside ☐ Under roof ☐ Environmentally controlled
☐ Short term ☐ Long term (>3 months)
Environment: _____
☐ Supplier's standard preservation specification
Purchaser storage specification: _____
☐ Unit shipping weight: (lbs)

○ **Tests and Inspections**

Test:	Non-witnessed	Witnessed	Certificate
Hydrostatic:	☐	☐	☐
Leak:	☐	☐	☐
NPSHR:	☐	☐	☐
Performance:	☐	☐	☐

Opt perf acceptance criteria: ☐ Power ☐ Efficiency ☐ Neither
Additonal data: ☐ Vibration ☐ Brg temp
☐ Other perf. data: _____
☐ Final inspection Days notification required: _____
☐ Dismantle and inspect after test
☐ Casting repair procedure approval required
☐ Statement of Compliance
☐ Certified Mill Test Reports:
☐ Casing ☐ Cover ☐ Impeller ☐ Shaft
☐ Other: _____
Inspection required for connection welds and castings:
☐ Manufacturer's standard ☐ Level 1 ☐ Level 2 ☐ Level 3
☐ Other: _____
Remarks: _____

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△ **Shaft Sealing** ☐ Mechanical seal ☐ Packing
Furnished by ☐ Supplier ☐ Purchaser
Installed by ☐ Supplier ☐ Purchaser

△ **Seal Chamber** ☐ Taper bore ☐ Large cylindrical bore
☐ Universal cover ☐ Packing box
Throat bushing ☐ None ☐ Fixed bushing
☐ Floating bushing
Throat bushing material _____
Jacketed seal chamber/packing box ☐ Yes ☐ No
For ☐ Heating ☐ Cooling
Remarks _____

△ **Mechanical Seal** ☐ Cartridge ☐ Component
(ref. Annex ii) ☐ Arrangement 1 (single seal)
☐ Arrangement 2 (dual unpressurized seal)
☐ Arrangement 3 (dual pressurized seal)
Flexible element ☐ Rotating ☐ Stationary
B73.1 or B73.2 Mand. App. II configuration code: _____
API 682 Category 1 ☐ Yes ☐ No
Manufacturer _____
Model _____
Manufacturer code _____
Drawing number _____
Remarks _____

△ **Seal Materials - Single or Inner Seal**
Seal faces Rotating face _____
Stationary face _____
Secondary seals Rotating face _____
Stationary face _____
Sleeve _____
Springs _____ Bellows _____
Metal parts _____
Remarks _____

△ **Seal Materials - Outer Seal**
Seal faces Rotating face _____
Stationary face _____
Secondary seals Rotating face _____
Stationary face _____
Sleeve _____
Springs _____ Bellows _____
Metal parts _____
Remarks _____

△ **Seal Gland** Material _____
Ports ☐ Flush ☐ Drain ☐ Vent ☐ Quench
☐ Buffer/barrier fluid inlet ☐ Buffer/barrier fluid outlet
Throttle bushing ☐ Yes ☐ No
Throttle bushing material _____
Remarks _____

△ **Flush Plan - Single or Inner Seal**
Piping plan number(s): _____
External flush fluid _____
Supply temperature Min _____ Max _____ (°F)
Specific gravity _____ Specific heat _____ (Btu/lb °F)
Vapor pressure _____ psia @ _____ (°F)
Flow rate required Min _____ Max _____ (gpm)
Maximum flow rate allowed by process _____ (gpm)
Pressure required Min _____ Max _____ (psig)
Maximum pressure allowed by process _____ (psig)
Temperature required Min _____ Max _____ (°F)
Inner seal flush plan piping ☐ Tube ☐ Pipe
☐ Other _____
Tube/pipe size _____
Tube/pipe material ☐ 316 SS ☐ Other _____
Tube/pipe specification _____
Tube/pipe connections ☐ Threaded ☐ Socket weld
☐ Unions ☐ Butt weld ☐ Tube fitting
☐ Other _____
Furnished by ☐ Supplier ☐ Purchaser
Remarks _____

△ **Flush Plan - Outer Seal**
Piping plan number(s): _____
External flush fluid _____
Supply temperature Min _____ Max _____ (°F)
Specific gravity _____ Specific heat _____ (Btu/lb °F)
Vapor pressure _____ psia @ _____ (°F)
Flow rate required Min _____ Max _____ (gpm)
Maximum flow rate allowed by process _____ (gpm)
Pressure required Min _____ Max _____ (psig)
Maximum pressure allowed by process _____ (psig)
Temperature required Min _____ Max _____ (°F)
MAWP Flush plan _____ psig @ min temp _____ (°F)
_____ psig @ max temp _____ (°F)
Outer seal flush plan piping ☐ Tube ☐ Pipe
☐ Other _____
Tube/pipe size _____
Tube/pipe material ☐ 316 SS ☐ Other _____
Tube/pipe specification _____
Tube/pipe connections ☐ Threaded ☐ Socket weld
☐ Unions ☐ Butt weld ☐ Tube fitting
☐ Other _____
Furnished by ☐ Supplier ☐ Purchaser
Remarks _____

△ **Quench** ☐ Yes ☐ No
Quench fluid _____
Flow rate _____
Remarks _____

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△ Auxiliary Equipment

Reservoir ☐ Yes ☐ No
Furnished by ☐ Supplier ☐ Purchaser
Drawing number
Material ☐ 316 SS ☐ Other
Operating pressure (psig)
Operating temperature (°F)
MAWP of reservoir psig @ min temp (°F)
psig @ max temp (°F)
Code specification
Code stamped ☐ Yes ☐ No
Size ☐ 3 gallon ☐ 5 gallon ☐ Other
Internal cooling coils ☐ Yes ☐ No
Stand required ☐ Yes ☐ No
Baseplate mounted ☐ Yes ☐ No
Seal cooler ☐ Yes ☐ No
☐ Water cooled ☐ Air cooled
Manufacturer
Model
API 682 design ☐ Yes ☐ No
Spray guard ☐ Yes ☐ No
Remarks:

△ Instrumentation

Inner seal	Indicator	Switch	Transmitter
Flow rate	☐	☐	☐
Temperature	☐	☐	☐
Pressure	☐	☐	☐

Remarks

Outer seal	Indicator	Switch	Transmitter
Flow rate	☐	☐	☐
Temperature	☐	☐	☐
Pressure	☐	☐	☐
Level	☐	☐	☐

Remarks

Heating or cooling	Indicator	Switch	Transmitter
Flow rate	☐	☐	☐
Temperature	☐	☐	☐

Remarks

△ Packing

Packing code (P1 - P4) Number of Rings
Material
Manufacturer
Manufacturer style number
Packing Construction
Sleeve hard surfacing ☐ Yes ☐ No
Lantern ring ☐ Yes ☐ No
Lantern ring port ☐ Yes ☐ No
Remarks

△ Heating and Cooling

☐ Heating required ☐ Cooling required
Piping plan designation:
Piping plan furnished by ☐ Supplier ☐ Purchaser
Fluid
Temperature Inlet Outlet (°F)
Maximum allowable differential temperature (°F)
Rated flow rate (gpm)
Supply pressure (psig)
Type ☐ Tube ☐ Pipe ☐ Other
Tube/pipe size
Tube/pipe material ☐ 316 SS ☐ Galvanized carbon steel
☐ Other
Tube/pipe specification
Tube/pipe connections ☐ Threaded ☐ Socket weld
☐ Unions ☐ Butt weld ☐ Tube fittings
☐ Other
Remarks

○ Manufacturer Documentation Required

For supplier data requirements refer to:
Remarks:

△ Remarks