

Draft Indian Standard

Proforma for Purchase Specification for Positive Displacement Pumps and Motors used in Oil
Hydraulic Systems
(First Revision)

ICS 23.100.10

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Fluid Power Systems Sectional Committee, PGD 36

FOREWORD

This Indian Standard (First Revision) will be adopted by the Bureau of Indian Standards after the draft finalized by the Fluid Power Systems Sectional Committee had been approved by the Production Engineering Division Council.

This standard was first published in 1998. The first revision has been taken up to keep pace with the latest technological developments and international practices. In this revision following major changes have been made:

- a) References have been updated.
- b) Table 1 has been updated.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*).' The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure in a closed circuit. Pumps convert rotary mechanical input power into output fluid power. Motors convert input fluid power into output rotary mechanical power.

The proforma for purchase specification for positive displacement pumps and motors has been prepared to enable a prospective buyer to collect data from various manufacturers/suppliers for the purpose of comparison. This is meant to be sent out along with enquiry by the purchaser so that the manufacturers/suppliers can fill the data and send back to the purchaser to make comparison easier for the purchaser.

1 SCOPE

This standard covers the data to be provided for every type of item separately as per Table 1 by manufacturer for selection of positive displacement pumps and motors used in oil hydraulic systems.

2 REFERENCES

The following Indian Standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS</i>	<i>Title</i>
3688 : 1990/ ISO/R 775 : 1969	Power transmission — Shafts-Dimensions for Cylindrical and 1/10 Conical Shaft Ends (second revision)
10069 : 2017/ ISO 4409 : 2007	Hydraulic Fluid Power — Positive Displacement Pumps, Motors and Integral Transmission — Methods of Testing and Presenting Basic Steady State Performance (second revision)
10129 : 2004/ ISO 3019-2 : 2001	Hydraulic Fluid Power — Dimensions and Identification Code for Mounting Flanges and Shaft Ends of Displacement Pumps and Motors (second revision)
10416 : 2019/ ISO 5598 : 2008	Fluid Power Systems and Components — Vocabulary (second revision)

3 TERMINOLOGY

For the purpose of this standard, definitions of terms given in IS 10416 shall apply.

4 SIZES

4.1 Nominal Capacity

The effective nominal displacement per revolution in cm^3/rev at specified condition.

5 RATING

5.1 Rated Pressure

The maximum continuous operating pressure which is recommended for the positive displacement pump/motor by the manufacturer.

6 TESTING

For testing details of positive displacement pumps reference shall be made to IS 10069.

7 NAME PLATE

The pumps and motors shall be provided with a permanent name plate giving details as given in Sl. No. 9 of Table 1.

8 PROFORMA FOR PURCHASE SPECIFICATION

See Table 1.

Table 1 Proforma for Purchase Specification for Positive Displacement Pumps and Motors Used in Oil Hydraulic Systems (Clause 1, 7 and 8)

Sl. No. (1)	Specification (2)	Reference (3)	Unit (4)	Value (5)	Remarks (6)
1	<i>Classification</i>				
1.1	Pump/Motor				
1.1.1	Gear (external/internal)/Vane /Piston (radial/axial)				
1.1.2	Single/Double tandem/Triple tandem				
1.1.3	Any other details (Details shall be agreed between the purchaser and the manufacturer)				
2	<i>Type</i>				
2.1	Fixed displacement				
2.2	Variable displacement				
3	<i>Fluid</i>				
3.1	Mineral oil/Any other fluid (specify)				
3.2	Viscosity grade of oil				
4	<i>Sizes</i>				
4.1	Nominal displacement		cm ³ /rev		
4.2	Ports				
4.2.1	Delivery port size and details				
4.2.2	Suction port size and details				
4.2.3	Drain port size and details				
4.2.4	Location of port and details				
4.3	Overall dimensional details				
5	<i>Rating</i>				
5.1	Pressure				
5.1.1	Maximum Pressure		bar		
5.1.2	Rated operating pressure		bar		
5.1.3	Case drain pressure		bar		
5.2	Temperature				

Sl. No. (1)	Specification (2)	Reference (3)	Unit (4)	Value (5)	Remarks (6)
5.2.1	Rated temperature		°C		
5.2.2	Working temperature, <i>Min</i>		°C		
5.2.3	Working temperature, <i>Max</i>		°C		
5.2.4	Ambient temperature, <i>Min</i>		°C		
5.2.5	Ambient temperature, <i>Max</i>		°C		
5.3	Speed				
5.3.1	Speed, box		rpm		
5.3.2	Speed Rated		rpm		
5.3.3	Speed, <i>Min</i>		rpm		
5.3.4	Direction of rotation when viewed from shaft end			B/C/AC*	
6	<i>Mounting</i>				
6.1	2/4 Bolts mounting flanges	IS 10129			
6.1.1	2/4 Bolts mounting flanges	Any other type (specify)			
6.2	4 Bolts mounting flanges	IS 10129			
6.2.3	4 Bolts mounting flanges	Any other type (specify)			
6.3	Rectangular mounting flanges	IS 10129			
6.4	Shaft end details — key — splined	do			
6.4.1	Shaft end details — key — splined	Any other type (specify)			
6.5	Shaft end diameter lengths	IS 3688			
6.5.1	Shaft end diameter lengths	Any other type (specify)			
7	<i>Test performance</i>				
7.1	Volumetric displacement at specified condition		cm ³ /rev		
7.2	Volumetric flow at rated/specified speed		l pm		
7.3	Input power at rated/specified pressure and speed (for pump)		kW		
7.4	Torque characteristic		N-m		For motor only
7.5	Any other test (specify)				

Sl. No. (1)	Specification (2)	Reference (3)	Unit (4)	Value (5)	Remarks (6)
8	<i>Weight</i>				
8.1	Weight of pump/motor		kg		
9	<i>Name Plate</i>				
9.1	Manufacturer's reference number				
9.2	Year of manufacture				
9.3	Speed		rpm		
10	<i>Special information</i> (Suction pressure limitations, fluid cleanliness, shaft load etc.)				

*B = Bi-directional, C = Clockwise, AC = Anti clockwise.