



# **NATIONAL CODES ON PUMPSETS**

---

By D K Das  
Bureau of Indian Standards, New Delhi



- 
- BIS is National Standard body engaged in formulation of Indian Standards.
  - Standard formulation activity of Bureau is functioning under Standards Advisory Committee.
  - There are 14 **Technical Sectors** under SAC and each of these sectors has a Division Council (MEDC, CHDC etc).
-



- 
- Sectional Committees function under Division Council and consists of members from manufacturers side, user side, technologists, R&D organizations, regulators, government, scientists, experts and testing laboratories.
  - The committee looks after the work for formulation of Indian standards. It also reviews and revises the existing published Indian standards based on feedback from stake holders either through an amendment or, through revision of the standard.
  - Pump sectional committee is functioning under MEDC. There are 26 sectional committees under MEDC.
-



# Scope of Pumps Committee

---

- Formulation of standards on components, equipment, methods of tests and code of practices for different type of pumps, excluding handpumps.
  - Co-ordination of work with ISO/TC 115 Pumps.
-



# **BASIC CONSIDERATIONS IN EVOLVING NATIONAL STANDARDS**

---

- Consensus Principle
  - Access to International Technology
  - Research & Development
  - Co-ordination with other Levels of Standardization
-



# FORMULATION PROCESS

---

- RECEIPT OF PROPOSAL
  - ESTABLISHMENT OF NEED
  - PREPARATION OF WORKING/PRELIMINARY DRAFT STANDARD
  - WIDE CIRCULATION OF THE DRAFT
  - FINALIZATION OF THE DRAFT
  - PRINTED STANDARD
  - GAZETTE NOTIFICATION OF STANDARD
  - REVIEW OF STANDARD (every 5 years)
-



- 
- Pumps sectional committee has developed 43 standards in this field.
  - Since our Country is agriculture based, committee has developed number of pump standards for agriculture sector.
  - The most important and widely used standard is IS 10804: 1994 "Recommended pumping system for agricultural purposes".
  - The purpose of this specification is to select a most efficient pumping system for given installation. The correct procedure and guidelines are given for proper selection of pumping system. If these guidelines are followed system would be most energy efficient.
-



# Indian Standards for Pumping System

---

- Centrifugal pump IS 6595 (Part 1) or IS 9079 or IS 11501(coupled or monoset)
    - The pump shall be selected in such a way that it shall operate at near maximum pump efficiency during peak demand period in the ranges of discharge and head. It should also be capable to discharge in summer season.
-



- 
- Submersible pumpset IS 8034 : 2002
    - The pump shall be selected in such a way that it shall operate at near maximum pump efficiency during peak demand period in the ranges of discharge and head. It should also be capable to discharge in summer season.
  - Prime mover or spark ignition engine or electric motor IS 11170 or IS 7347 or IS 7538
    - The prime-mover rating shall be as per IS 6595 (Part 1): 2002 recommendation.
-



- 
- Suction and delivery lines of piping system IS 1239 (Part 1) or IS 4984 or IS 4985 or IS 12231
    - The sizes of pipes shall be selected in such a way that the friction head shall not exceed 10 percent total equivalent length of piping system up to delivery point. If the delivery offset distance is more than 3 m, then larger pipe sizes shall be used to reduce the friction losses.
  
  - Foot valve, reflux valve or bore valve IS 10805: 1986
    - Size of valve shall be equal to the size of suction pipe.
-



- 
- Pipe fittings (bends) IS 1239 (P-2) or, IS 10124(P-8) or, IS 13593
    - sizes of bend and other fittings shall be matching with the sizes of M.S. Pipes or, HDPE Pipes or, RPVC Pipes to be used in the piping system.
  
  - IS 14263:1995 Tapers for agricultural pumping systems – Specification
    - The standard lays down the requirements for the tapers used in agricultural pumping systems. It covers the cast iron tapers used both in the suction and delivery sides.
  
  - If, all the components selected in the piping system are as per recommended criteria given in IS 10804 than the system performs efficiently with minimum energy losses and therefore the system is energy efficient.
-



# Pumpset standards for agriculture and domestic sector.

---

- 8418 : 1999 Pumps — Centrifugal selfpriming— Specification ( first revision )
  - IS 8472:1998 Centrifugal regenerative pump for clear, cold water – Specification (first revision)
  - IS 9694 Code of practice for the selection, installation, operation and maintenance of horizontal centrifugal pumps for agricultural applications
-



- 
- (PT 1) Selection,
  - (PT 2) Installation,
  - (PT 3) Operation &
  - (PT 4) Maintenance
- 
- 12225 : 1997 Centrifugal jet pump — Specification ( first revision )
-



- 
- IS 12699:1989 Selection, installation, operation and maintenance of centrifugal jet pump - Code of practice
  - 14220 : 1994 Open well submersible pumpsets — Specification
  - IS 14536:1998 Selection, installation, operation and maintenance of submersible pump set - Code of practice
-



# Standard on test of Pumpsets

---

- IS 10981:1983 Code of acceptance test for centrifugal, mixed flow and axial pumps-class B
  - IS 11346:2002 Tests for agricultural and water supply pumps – Code of acceptance
  - IS 10572:1983 Methods of sampling for pumps; prescribes process control requirements to ensure a uniform product quality and the methods of sampling and the criteria for conformity for acceptance of the lot offered for inspection
-



# Pumpset standard for Industrial sector

---

- IS 1710:1989 Specification for pumps - Vertical turbine mixed and axial flow, for clear cold water (second revision) which covers the requirements for vertical turbine (radial and francis) mixed and axial flow type pumps for clear cold water.
  - IS 10596 Code of practice for selection, installation, operation and maintenance of pumps for industrial applications
    - Part 1 Selection
    - (PT 2) Installation,
    - (PT 3) Operation &
    - (PT 4) Maintenance
-



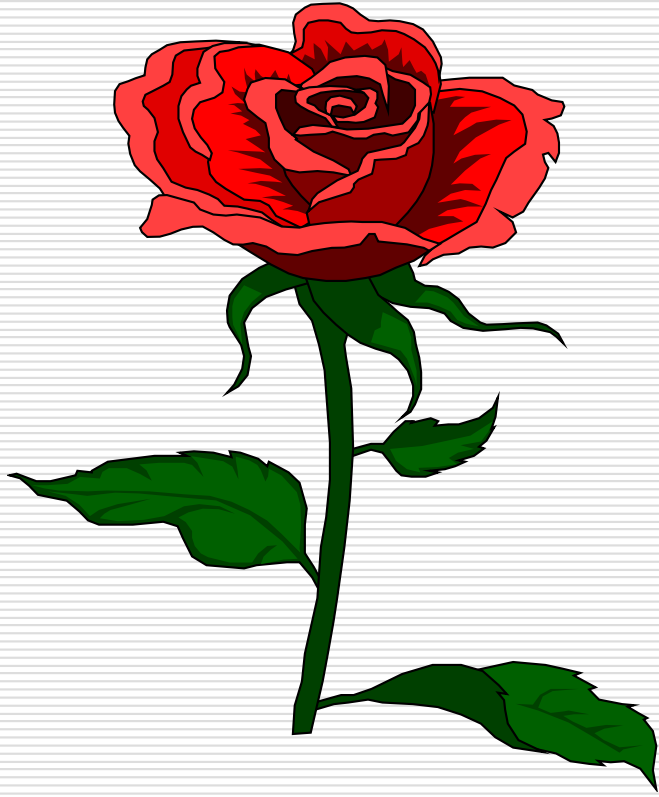
- 
- IS 15657:2006/ISO 13709:2003 Centrifugal pumps for petroleum, petrochemical and natural gas industries
  - This standard specifies requirement for Centrifugal pumps, including pumps running in reverse as hydraulic power recovery turbine, for use in petroleum, petrochemical and gas industry process services.
-



# Conclusion

---

- From the above it can be said that Standardization work of the committee has tried to fulfill requirement of the Country by developing various standards in the field of pumpsets for the benefit of the society.
  - The vision of the committee is to bring most efficient pumpsets
    - by reduction of loses in pumping system
    - by selection of compatible efficient components
-



---

THANK YOU