भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

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कार्यवृत्त

हमारा संदर्भ : सीईडी 22:3/ए-2.15 **11 अगस्त 2023**

विषय : अग्निशमन इकाइयाँ उपसमिति, सीईडी 22:3 की पंद्रहवीं बैठक की कार्यवृत्त

सीईडी 22:3 के सभी सदस्य

प्रिय महोदय/ महोदया,

अग्निशमन इकाइयाँ उपसमिति, सीईडी 22:3 की पंद्रहवीं बैठक जो बुधवार, 28 जून 2023 को संपन्न हुई, के कार्यवृत्त भेजते हुए प्रसन्नता हो रही है। कार्यवृत्त की पुष्टि श्री एस के ढेरी, अध्यक्ष, सीईडी 22:3 द्वारा की जा चुकी है।

सम्मतियाँ भेजने की अंतिम तिथि: 22 अगस्त 2023

आपसे अनुरोध है की कृपया कार्यवृत्त का अवलोकन करें और हमें बताये की इसकी यथार्थता पर आप सहमत है। अगर उपरोक्त तिथि तक कोई सम्मति प्राप्त नहीं होती है तो आपकी सुविधा के लिए समझा जायेगा की आपने कार्यवृत्त का अनुमोदन कर दिया है।

धन्यवाद।

भवदीय,

ह०
(राजेश चौधरी)
सहायक निदेशक/ वैज्ञानिक 'बी'
(सिविल अभियांत्रिकी विभाग)
ईमेल: ced22@bis.gov.in
दूरभाष: 011-23608590, extn 8590

संलग्न: उपरलिखित

भारतीय मानक ब्यूरो
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MINUTES

Our Ref : CED 22:3/A-2.15 **11 August 2023**

Subject : Minutes of the 15th Meeting of Fire Fighting Units Subcommittee, CED 22:3

ALL MEMBERS OF CED 22:3

Dear Members,

Please find enclosed the Minutes of the 15th meeting of Fire Fighting Units Subcommittee, CED 22:3, held on Wednesday, 28 June 2023. The Minutes have been duly approved by the Convener, CED 22:3, Shri S K Dheri.

Last date for comments: 22 August 2023

Comments if any, confined to the accuracy of recording, may please be mailed to the undersigned preferably by the last date for comments. If no reply received by this date, kindly allow us to presume your approval of the minutes as recorded.

Thanking you,

Yours faithfully,

Sd/-
(Rajesh Choudhary)
Assistant Director/ Scientist 'B'
Civil Engineering Department
Email: ced22@bis.gov.in
Ph: 011–23608590, extn 8590

Encl: As Above

BUREAU OF INDIAN STANDARDS

MINUTES

Our Ref: CED 22:3/A-2.15 **11 August 2023**

Fire Fighting Units Subcommittee, CED 22:3 : 15th Meeting

Wednesday, 28 June 2023 : 1430 h to 1545 h

Held in hybrid mode (physically at BIS HQ and virtually through WebEx)

Convener: Shri Satish K Dheri **Member Secretary:** Shri Rajesh Choudhary

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MEMBERS PRESENT

Member Name	Member Organization
Shri Abhay Purandare	In Personal Capacity, Vadodara
CQAFE	Directorate General of Quality Assurance, Ministry of Defence, New Delhi
Shri Abhijit Pandey	Fire and Emergency Services, Kolkata
Rep. Shri Samir Misri	Gunnebo India Private Limited, Thane
Shri Rajesh Sabadra	K. V. Chemical India Private Limited, Mumbai
Rep. Shri Rushikesh Deshmukh	
Shri Ashok Shah	NewAge Industries, Fire Protection Engineers, Surendranagar
Rep. Shri Shetul Shah	
Shri Rohit Shah	RESQ Technologies, Ahmedabad

INVITEE

Shri Santosh Warick, Maharashtra Fire Services, Mumbai
Shri Mukesh Shah, Shah Bhogilal Jethalal & Bros., Ahmedabad

Item 0 OPENING REMARKS BY THE CONVENER

The Convener, Shri S K Dheri, cordially welcomed the members to the 15th meeting of the Fire Fighting Units Subcommittee, CED 22:3. He suggested that considering the importance of the Subcommittee, there is need of holding meetings more frequently. He also requested the members to complete the assigned work in given timeline, so the work do not carry over in the next meeting. For this, he sought active participation of the members. With the above opening remarks, the Convener suggested to take up the Agenda item-wise.

Item 1 CONFIRMATOIN OF THE MINUTES OF THE LAST MEETING

1.1 The Subcommittee considered the Minutes of the last meeting of the Subcommittee and confirmed the same.

Item 2 COMPOSITION OF THE SUBCOMMITTEE

2.1 The Subcommittee considered the composition as given under Annex 1 of the Agenda and decided the following:

- To write to Airport Authority of India for their revised nomination, since the current members have been superannuated.
- To write to Brijbasi Hitech Udyog Limited, New Delhi for their revised nomination.
- To write to Wadia Body Builders, Ahmedabad for their revised nomination.
- To write to Chennai Petroleum Corporation Limited, Chennai for revised nomination.
- To withdraw the nomination of Shri S. N. Kundu due to non participation in last three meetings.
- To withdraw the nomination of S & P Safety Products Private Limited, Kolkata as the company has been sold, as informed by the Subcommittee members.
- Gunnebo India Private Limited, Thane shall be represented by:
    - Shri Johnson Mathew, Business Head as Principal Member
    - Shri Samir Misri, Dy. General Manager as Alternate Member
- K. V. Fire Chemicals India Private Limited, Navi Mumbai shall be represented by:
    - Shri Rajesh Sabadra, Managing Director, as Principal Member
    - Shri Rushikesh Deshmukh as Alternate Member

2.2 As there were no co-option requests were received and the considerable time has elapsed since the last Subcommittee meeting, the Subcommittee decided to co-opt the following in order to ensure representation from various stakeholders:

- Firefly Fire Pumps Pvt Ltd, Kolhapur.
- Maharashtra Fire Services, Mumbai and represented by:
    - Shri Santosh S. Warick, Director as Principal Member
    - Shri Kiran Hatyal, Assistant Director as Alternate Member
- Shah Bhogilal Jethalal & Bros., Ahmedabad and represented by:
    - Shri Mukesh M. Shah, CEO as Principal Member

2.3 The Subcommittee noted the extracts from the guidelines of participation of members in the Technical Committee work as given under item **2.3** of the Agenda.

2.4 Balance in Composition, Effective Nominations, and Involvement of New Talent and Young Professionals

2.4.1 The Subcommittee noted the guidelines for Balance in Composition, Effective Nominations, and Involvement of New Talent and Young Professionals as given under item **2.4** of the Agenda.

2.5 Gender Balance in Committees

2.5.1 The Subcommittee noted that BIS aims to work towards gender balance at all levels (including leadership positions) in all Committees in line with the UN Sustainable Development Goal 5 and UN Declaration on Gender Responsive Standards. Organizations are encouraged to nominate woman representatives as Principal/Alternate Members. The provision of a second alternate member is also available to organizations subject to the condition that the additional alternate member is a young professional below 37 years of age or a woman representative.

Item 3 ISSUES ARRISED OUT OF PREVIOUS MEETING

3.1 Draft Indian Standard on Functional Requirements for Water Tender — Type B For Fire Brigade Use, CED 22 (16322)P

3.1.1 The Subcommittee considered the above draft which was issued as Preliminary draft via email dated 28 September 2020 till 19 October 2020 to elicit public comments. The main Committee had discussed the comments received on P-draft and had decided to include an Annex C on Performance Test for Pumps. The following inputs have been received from Shri Rohit Shah, RESQ Technologies, Ahmedabad:

Annex A

Suction line for tests

A.1 Apparatus

Construct a suction line (see Figure A.1) consisting of hard rubber / PVC suction hose pipe of nominal diameter as specified, adjusted to fit the pump. Connect the suction line using a standard suction spanner.

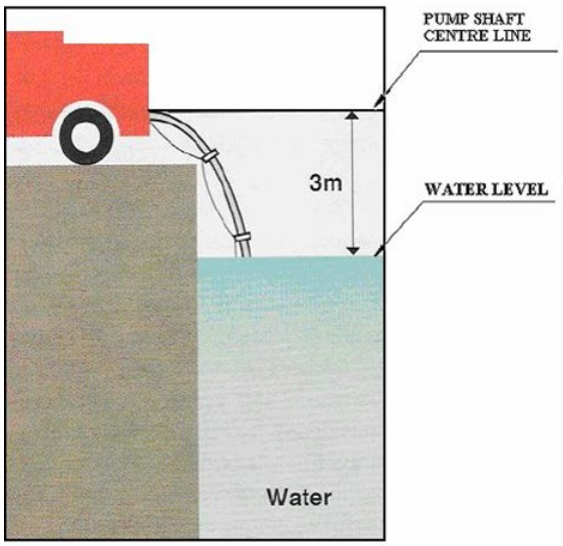


Figure A.1

The internal diameter of the pipe shall be selected in accordance with the nominal delivery rate Q_n as specified in Table A.1.

Table A.1 - Pipe dimensions

Nominal delivery rate Q_n l/min	Internal diameter d mm
2000	100
3000	140
4000	140
6000	150

A2. It has been advised to keep suction lift (vertical distance between centre line of the pump shaft and water level) of 3 meters to take all performance trials of pump.

A.2 Permissible deviations of measurements

The permissible deviation of test measurements shall be within the following limits:

Sr. No.	Parameter	Required Value for Test	Deviation Allowed
1	Geodetic suction height	3 meters	± 5 cm
2	Local air pressure	760 mmHg	± 3 mbar
3	Water temperature	27	± 1 °C

Values shown in the table can only be attended at sea level. So as altitude increases, correction (deduction) should be done in these values as said below,

A) Allowances for output:

a) One percent for every 2.5 °C rise in water temperature.

b) Four percent for every 300 m above mean sea level.

c) No allowances shall be made for humidity up to 75 percent. However an allowance at the rate of 1 percent for every 3 percent change in humidity shall be made when humidity ranges from 75 to 90 percent.

B) allowances for lift:

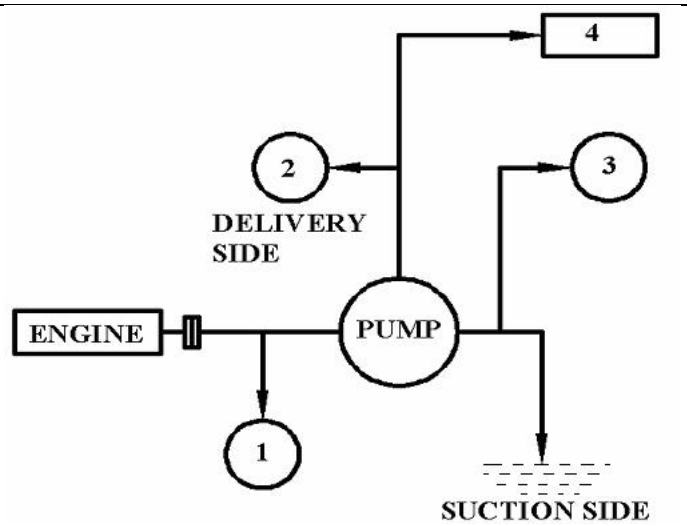
a) 300 mm for every 300 m above mean sea level, and

b) One percent for 2.5 °C rises in water temperature.

Annex B

Pressure measurements

B.1 Fit measuring instruments to measure pump RPM, pressure on delivery side, pressure in suction side and flow, in accordance with Figure B.1



1. Tachometer
2. Pressure gauge to measure discharge pressure
3. Pressure gauge to measure suction pressure
4. Flow measurement unit to measure flow

Figure B.1

B.2

1. The pressure measurement points shall be the connection points for the pressure gauges on the pump as specified by the manufacturer.

2. Pressure gauges must have been calibrated and manufacturer shall carry a valid calibration certificate of the same.

Annex C

Measurement of Delivery Rates

1. Measure the delivery rate with a flow meter or V-Notch at measurement point shown in fig B.1.

2. For measurement, the pump manufacturer shall equip the pump with connection couplings and design of which shall be mutually agreed.

3. Measurement instrument must have been calibrated and manufacturer shall carry a valid calibration certificate of the same.

(Note: For V-Notch measurement refer IS 9108)

Annex D

Dry suction test

D.1 Carry out the test using the following apparatus:

- Prime Mover (Driving motor/Engine),
- Pressure gauge;
- Blank cap/shut off device
- Timing device with seconds display
- Set up the apparatus for the test as shown in Figure D.1. NOTE: The primer and driving motor / Engine are not shown in Figure D.1

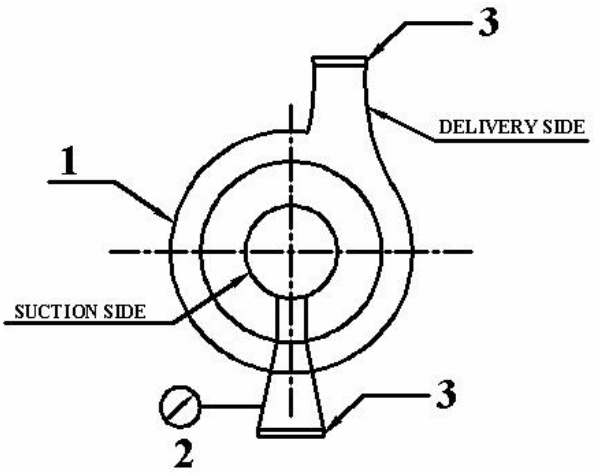


Fig – D.1

1 pump
2 Pressure gauges to measure suction side pressure
3 Shut off device / blank cap

PROCEDURE FOR DRY SUCTION TEST:

Close all pump inlets and outlets. Prime (evacuate) the pump for 30 s in accordance with the manufacturer's instructions. Measure and record the pressure attained in the inlet section after priming is completed, the primer shall be capable of generating a maximum vacuum of not less than - 0.8 kg/cm^2 (600 mm of Hg) in the inlet section within thirty seconds. Stop the pump & check for next sixty seconds for fluctuations in vacuum gauge/compound gauge. The deviation of the attained pressure shall not exceed 0.1 kg/cm^2 (75.0 mm of Hg) within a period of sixty seconds.

The primer and the pump mechanical seal shall be able to withstand a run of FOUR minutes at 2400 RPM with the pump running without water.

Annex E

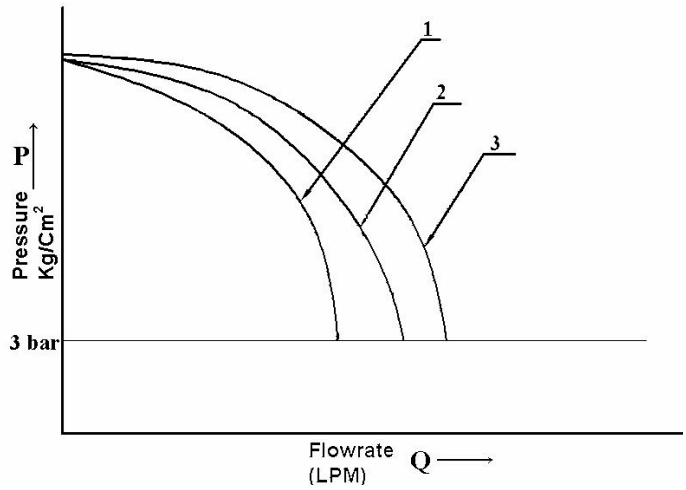
Performance test

E.1 Carry out a performance test using the following apparatus:

- Prime Mover (Driving motor/Engine),
- Pressure gauge;

- Flow meter;
- Tachometer;
- Throttle
- Suction line conforming to annex A.

Set up the test apparatus as shown in Figure B.1. The number and location of the measuring points shall allow the determination of a characteristic curve as shown in Figure E.1.



P – Delivery pressure

Q – Delivery rate

Figure E.1 - Pump characteristic curves at different suction heights

1- Characteristic curve for nominal geostatic suction height of 4.5 m

2- Characteristic curve for nominal geostatic suction height of 3.0 m

3- Characteristic curve for nominal geostatic suction height of 1.5 m

Measure the range p-Q beginning with the closing pressure.

E.2 Check the guarantee points specified below and record together with the corresponding pressures in the inlet section.

Guarantee points

1) At a geodetic nominal suction height of 3 m, the nominal delivery pressure and nominal delivery rate shall conform to following Table.

Nominal Delivery Pressure (bar)	**Nominal Delivery Rate (l/min)**	**Limit Pressure (bar)**	**Closing Pressure (bar)**
7	2000	14	10 to 17
7	3000	14	10 to 17
7	4000	14	10 to 17
7	6000	14	10 to 17

The measured speed shall not deviate from the nominal speed by more than ± 5 %.

2) At a geodetic suction height of 7 m, and nominal delivery pressure, the delivery rate shall be at least 0.5 x nominal delivery rate.

3) At a geodetic suction height of 3 m, a delivery pressure of 1.2 x nominal delivery pressure and speed under the maximum speed the delivery rate shall be at least 0.5 x nominal delivery rate.

E.3.The pump shall be deemed to pass the performance test if the measured values of delivery pressure and delivery rate conform to the values specified in above table.

The guarantee points described in above table shall be included in Figure E.1

Annex F

Endurance Test

F.1 Carry out an Endurance Test with the following apparatus:

- Prime Mover (Driving motor/Engine),
- Pressure gauges;
- Tachometer;
- Flow meter;
- Throttle
- Suction line as described in annex A;
- Working hour meter;
- Thermometer.
- Set up the apparatus as shown in Figure B.1.

F.2 Carry out the endurance test at 3 meter suction height.

F.3 The test duration shall be as follows:

a) For High-Low Pressure pumps (multi-pressure pumps): Run low pressure pump for three hours without any interruption and high pressure pump for one hour without any interruption.

The test parameters at an interval of 30 minutes shall be recorded as per Table F1

TABLE – F-1

Time	Flow	Pressure	Ambient Temperature	Pump rpm	Engine rpm	Engine Cooling Water Temperature	Engine Oil Pressure

Annex G

Pressure Tests

G.1 Carry out a static pressure test using the following apparatus:

- Prime Mover (Driving motor/Engine),
- Pressure pump;
- Pressure gauges;
- Tachometer;
- Timing device (display in seconds);
- Shut off device.

Set up the apparatus as shown in Figures B.1 and D.1.

G.2 Static pressure test: Fill the pump with water. Fully vent the pump, close the shut off device, and increase the pressure to the static test pressure up to 21 kg/cm^2.

Keep the static test pressure 21kg/cm^2 constant for next 10 minutes without operating pump.

G.3 Check for leakage or damage during the test.

Annex H

Primer test

1.1 Carry out a primer test using the following apparatus: - Prime Mover (Driving motor/Engine),

- Pressure gauges; - Tachometer;
- Timing device (display in seconds);
- Suction line as described in annex A.

- Set up the apparatus as shown in Figures A.1 and B.1.

1.2 Carry out a 4 minute run with the primer at suction speed (suggested 2000-2500 RPM) and the pump running with its inlet section open.

1.3 Determine the priming time three times in succession at suction height 7 meter and record the average. Do not perform any manual readjustment or refilling operations on the primer during the measurements. Priming time should be as specified in clause no 5.7.1

NOTE For priming time see also annex D.

1.5 For automatic primers (e.g. pressure-responsive primers), measure the cut-off and reengagement pressure in the outlet section (Pa). Cut of primer pressure should not exceed by 2.5 kg/cm^2.

5.6 Suction Inlet and Delivery Valves

5.6.1 The Pump shall have suction inlet(s) having 100 - 150 mm standard suction connection (*see* IS: 902) with internal strainer(s) and blank cap(s). The strainer(s) shall be retained firmly when in use but shall be easily removable. **The mesh size of the pump inlet screen shall be smaller than the outlet size of the impeller.**

This is necessary because when the pump is drafting from an open well the screen will avoid any large sized particle to enter into the pump impeller and get clogged in it thus reducing the pump efficiency.

5.6.2 The pump shall be provided with two delivery valves for the 2000 LPM pump and 4 delivery valves for 3000 / 4000 LPM pump having 63 mm standard hose couplings (*see* IS : 903) with screwed wheel type quick closing clack valve (*see* IS : 4928). Blank caps fastened with chains and incorporating means to relieve pressure between the valve and the cap shall be provided one for each delivery valve. In the case of midship mounted pump, two / four delivery valves shall be provided at each panel.

5.6.3. High-pressure Filter:

In case of regenerative impeller, the water going to high-pressure impeller suction shall be filtered before entering in to the high-pressure impeller. A filter capable of filtering particle size upto 0.75 mm or less shall be used . This filter shall be of stainless steel & shall be easily accessible for cleaning.

This filter is necessary in case of regenerative impeller because the high pressure impeller operates in very tight tolerances , and there is no place to accommodate any large size particle coming from the water, if this happens by any chance ,a major strip down of the pump will be mandatory.

5.7 Primer

5.7.1 The primer shall be capable of lifting water at least 7.0 m (measured from water level to the centre of pump) in not more than **24 seconds when connected with 100 mm suction hose and 36 seconds when connected with 140 mm suction hose** and shall be preferably fully automatic. The allowance shall be 300 mm for every 300 m elevation above mean sea level and 1 percent for 2.5°C rise in water temperature

(A bigger size of suction hose will naturally accommodate more air which needs to be evacuated , for e.g a full 7.0 mtrs. length of 100 mm suction hose will contain water of @ 55 ltrs. As against a full 7.0 mtrs length of 140 mm suction hose will contain water of @107 ltrs.- hence the difference in priming time is recommended.

5.7.2 In the case of water ring type primer, means shall be provided to automatically disengage the primer when the pump is primed. Where required header tank complete with isolating valve enabling antifreeze solution to be used in the circuit. If the primer is of the reciprocating type, means shall be provided to automatically limit the speed of engine while the primer is engaged.

5.7.3 The primer shall be constructed of Gun Metal / light alloy casting, shall have stainless steel shaft and shall be fitted with suitable lubricated bearing depending upon the type of primer.

5.7.4 In the case of reciprocating type primer, the selection of materials shall be made with a view that no major part is required to be replaced in course of service and the material used for these parts shall be phosphor bronze and stainless steel depending upon their respective strength and use. The caps of primer and springs shall be properly secured. The primer lever ***if provided*** shall be easily accessible from the operator(s) position.

5.7.5 In the case of reciprocating type, the primer shall be preferably designed with a view to prime when the pump is running at speed of 1000 to 2500 rpm.

5.7.6 In the case of Exhaust type, the primer shall be preferably designed with a view to prime when the pump is running at speed of 1 000 to 1 500 rpm.

7.1 General Instructions:

The following description of the pump shall be included in the instruction handbook

a) A general description.

b) The range of usable ambient temperature.

c) The design & function of the pump, including important data (e.g. number of stages, shaft seal, primer materials, drainage, lubrication points)

d) The range of usable fluid temperatures.

e) The maximum operating pressure.

f) Information of operating controls.

g) Design, function & use of safety protection devices.

h) Shut off valves & pump connections.

i) Additional descriptions for accessories.

j) Additional Descriptions for accessories.

k) Cross-sectional drawing of the pump, or exploded diagram.

The maximum angle of inclination of operation.

A) Installation / Assembling:

The following instructions for installation / assembling shall be included in the installation handbook.

a) Instructions for installer/ fabricator to make a complete risk assessment for the final fire tender.

b) Initial installation instructions.

c) Data on installation site including

I. Space requirements for operation & maintenance.

II. Inspection instruction before start of installation.

III. Details of base / foundation.

IV. Installation of pump assembly

V. Correct installation of safety devices & control system.

Warning on risks arising from removing the pump inlet screen. Tightening of fasteners.

VI. Correct installation of pressure relief valve, thermal relief valve or other devices in accordance with pressure containing parts & components of the pump if not supplied the pump manufacturer.

VII. Adjustable safety devices shall be contained in enclosures that can only be opened by use of tools.

B) Maintenance & servicing

The following instruction for maintenance & servicing of the pump shall be included in the instruction handbook.

a) Maintenance intervals & scope.

b) Maintenance procedures & inspections, including

I. Consumable items list of spare parts & special tools.

II. Monitoring during operations

III. Dry preventive action to be taken, (e.g. - regarding parts subject to wear

lubrication, sealing medium.)

IV. Warning on risks arising from incorrect adjustment of safety devices.

V.

VI.

8. Marking

Pumps shall be fitted with a metallic identification plate, or shall be permanently marked on the pump body with the following information

a) The name or trademark of the manufactured authorized representative.

b) Serial number of the pump body & year of construction.

c) Nominal speed in revolutions per minute.

d) The transmission ratio of the pump gear.

e) Working pressure in Kg/cm^2.

f) The direction of rotation of the pump shall be indicated by an arrow & this shall be permanently marked on the pump body.

g) Lubrication Points, drainage devices, etc. shall be colour-coded.

APPENDIX - A

Summary of Formulae and Other Data

I. Approximate fire ground calculation

Loss of pressure due to height = 0.1 bar for each meter rise

Capacity of pond or lake (m^3) = [surface area (m^2) x average depth (m)]

Capacity of circular tank (liters) = 800 □ Diameter of tank (meter) □ Depth (meter)

2. Hydraulic formulae

$$\text{Capacity of Hose } \left(\text{litre}/\text{m}\right) = \frac{8}{10000} \times \text{nozzle diameter in mm} \quad \text{(approx)}$$

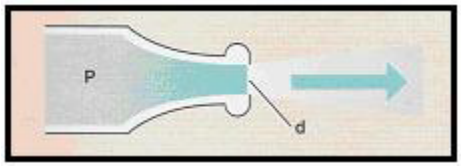
$$\text{Head, H (mitre)} = \text{Pressure in bar} \times 10 \quad \text{(approx)}$$

$$\text{Water Power (WP), watt} = \frac{100 \times \text{Discharge (lpm)} \times \text{Pressure (bar)}}{60}$$

$$\text{Brake Power (BP), watt} = \frac{\text{WP}}{\text{E}} \times 100$$

$$\text{Percentage Efficiency (E)} = \frac{WP}{BP} \times 100$$

$$\text{Nozzle Descharge (L)} = \frac{2\,d^2\sqrt{P}}{3}$$



$$\text{Horse Power (H.P.)} = \frac{\text{Discharge (lps)} \times \text{Head (metre)}}{75\,\eta}$$

(Ref: FIRE SERVICE MANUAL-VOL-1, Fire & Emergency Planning Directorate, London)

3. Hydraulic data:

1 liter of water has a mass of = 1 kg

1 liter of water exerts a downward force of approx. 10 Newton

1 cubic meter of water exerts a downward force of approx. 10 kN

1 meter head of water equals approx. 0.1 bar

1 bar pressure of water equals approx. 10 metre head

4. Constants:

g (acceleration due to gravity) = 9.81 m/s^2

Normal atmospheric pressure at 20°C = 1.013 bar

Normal atmospheric pressure at 20°C = 10.3 metre head of water

π (Pi) .= 3.1416

π/4 = 0.7854

Circumference of a circle = πd

5. Areas

Circle = $[\pi/d^2]/4$

6. Volumes

Circular tank (cylinder) = $\frac{\pi \,.\, \text{depth} \,.\, d^2}{4}$

7. Capacity measured in liters

Capacity of a container in liters = Volume (in cubic metres) × 1000

(Ref: FIRE SERVICE MANUAL-VOL-1, Fire & Emergency Planning Directorate, London)

APPENDIX – B

Metrication

List of SI units for use in the fire service

Quantity and basic or derived SI unit and symbol	**Approved unit of measurement**	**Conversion factor**
Length meter (m)	kilometre (km) meter (m) millimetre (mm)	I mile = 1.609km I yard = 0.914m I foot = 0.305m I inch = 25.4 mm
Area square meter (m^2)	square kilometre (km^2) square meter (m^2) square millimetre (mm^2)	I $mile^2$ = 2.590 km^2 I $yard^2$ = 0.836 m^2 1 $foot^2$ = 0.093m^2 1 $inch^2$ = 645.2 mm^2
Volume cubic meter (m^3)	cubic meter (m^3) litre (1)	I cubic foot = 0.028 m^3 I gallon = 4.546 litres 1m^3 = 1000 litre
Flow cubic meter per second (m^3/s)	cubic meter per second (m^3/s) litres per minute (l/min)	1 $foot^3$/s= 0.028 m^3/s 1 gallon/min = 4.546 l/min 1m^3/min = 1000 l/min
Mass kilogram (kg)	kilogram (kg) ton (t) Pounds (lb)	lb = 0.454 kg 1 ton = 1000kg
Power watt (W) (= 1 J/s = 1 Nm/s)	kilowatt (W) watt (kW)	1 horsepower = 0.746 kW 1 foot lb force/second = 1.356W
Pressure newton/$metre^2$(N/m^2)	bar millibar (m bar) Meter head	1 atmosphere =1.013 bar 1 inch Hg = 33.86 m bar 1 meter head = 0.0981 bar 1 foot head = 0.305 metre hea

(Ref: FIRE SERVICE MANUAL-VOL-1, Fire & Emergency Planning Directorate, London)

The Subcommittee also recommended that the above draft also supersedes IS 948: 1983 ‘Functional Requirements for Water Tender Type 'A' for Fire Brigade Use (*second revision*)’ and IS 6067: 1983 ‘Functional Requirements for Water Tender Type

'X' for Fire Brigade Use (*first revision*)' therefore, these standards should be withdrawn after the publication of this standard. The Subcommittee decided to peruse the draft along with the above inputs before recommending for wide circulation.

Item 4 COMMENTS ON THE PRINTED STANDARDS

4.1 IS 951 : 2003 Functional requirements for crash fire tender for air fields (*Fourth Revision*)

4.1.1 The Subcommittee considered the draft specifications provided by Shri Ashok Kumar, General Manager (Tech.), Airport Authority of India as given under Annex 3 of Agenda. The Subcommittee proposed the circulation of the draft to Shri Subash Kumar, Former General Manager, AAI, for necessary updates. Subsequently, the draft was forwarded to Shri Subash via an email dated 17 July 2023.

Item 5 PROGRAMME OF WORK

5.1 The Subcommittee noted the present position of work programme under the Committee CED 22 as given under Annex 4 of Agenda. The Subcommittee also noted the standards which come under the purview of this Subcommittee as given under Annex 5 of Agenda.

5.2 The Subcommittee considered the standard highlighted in Annex 5 of the Agenda which are due for periodic review before March 2024 and assigned as follows:

Sl No	IS No	Title	Assigned to
1.	IS 944: 1979 *(A5)*	Functional requirements for 1800-l/min trailer pump for fire brigades use (*second revision*)	Newage Industries (Initial draft to be provided in 45 days)
2.	IS 949:2012	Functional requirements for emergency (rescue) tender for fire brigades use (*second revision*)	Newage Industries (Initial draft to be provided in 2 months)
3.	IS 10460: 1983 *(A5)*	Functional requirements for small foam tender for fire brigade	Newage Industries (Initial draft to be provided in 2 months)

5.3 Comprehensive Exercise of Review of Old Indian Standards

5.3.1 The Subcommittee considered the standard which were published before 2000 and assigned as given under item 5.2 of these Minutes. The Subcommittee also recommended to CED 22 to withdraw the following standards:

Sl No	IS No	Title	Remark
1.	IS 955: 1980 *(A5)*	Functional requirements for dry powder tender for fire brigade use (150 kg capacity) (*first revision*)	150 kg capacity dry powder tenders are not being used.
2.	IS 6026: 1985 *(A5)*	Specification for hand operated sirens (*first revision*)	The hand operated sirens are not being used nowadays.

5.4 Action Research Project

5.4.1 The Subcommittee noted that the management of the BIS has issued a directive stating that any revision or reaffirmation of standards must be preceded by an Action Research Project (ARP) and assigned as given under item **5.2** of these Minutes.

5.5 Archiving the Indian Standards

5.5.1 The Subcommittee noted that the BIS is currently undertaking efforts towards the development of an archiving platform. This platform will be utilized to archive standards that do not require revision, based on a conscious decision-making process. The Subcommittee recommended CED 22 to archive the following standards due to very limited use:

Sl No	IS No	Title
1.	IS 943: 1979 *(A5)*	Functional requirements for 680-l/min trailer pump for fire fighting brigade use (*second revision*)
2.	IS 947: 1985 *(A5)*	Functional requirements for towing tender for trailer fire pump for fire brigades use (*first revision*)
3.	IS 2696: 1974 *(A5)*	Functional requirements for 1125 l/min light fire engine (*first revision*) (*Superseding IS 938*)
4.	IS 942: 1982 *(A5)*	Functional requirements for 275-l/min portable pump set for fire fighting (*second revision*)

Item 6 LIST OF ISO STANDARDS

6.1 The Subcommittee noted that India is an Observer 'O' member in ISO Technical Committee ISO/TC 21 'Equipment for fire protection and fire fighting' and its subcommittees namely,

1) ISO/TC 21/SC 2 'Manual transportable fire extinguishers'
2) ISO/TC 21/SC 3 'Fire detection and alarm systems'
3) ISO/TC 21/SC 5 'Fixed firefighting system using water'
4) ISO/TC 21/SC 6 'Foam and powder media and fire fighting system using foam and powder'
5) ISO/TC 21/SC 8 'Gaseous media and firefighting systems using gas'
6) ISO/TC 21/SC 11 Smoke and heat control systems and components.

6.2 The Subcommittee also noted the list of the standards that have been developed by the ISO/TC 21 as given under Annex 6 of Agenda.

Item 7 e-SALE OF INDIAN STANDARDS

7.1 The Subcommittee noted that all the published Indian Standards are available at https://standardsbis.bsbedge.com/. All the indigenous Indian Standards can be downloaded for free.

Item 8 ANY OTHER BUSINESS

There being no other business the meeting ended with heartly thanks to each other.

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