

Terms & conditions for Procurements of carbon dioxide fire-extinguisher of capacity (4.5Kg):

SCOPE:

This standard covers the requirements of carbon dioxide fire-extinguisher.

COMPLIANCE WITH STANDARDS:

- Vendor/bidder to furnish authorization letter from the Principal/OEM against the enquiry quoted.
- Fire-extinguhers shall conform to IS 2878-2004 amendment no-4/08/2007 & reaffirmed in 2010.
- The testing of Fire-extinguhers and its content shall confirm to the scheme of testing and inspection for certification fire extinguisher performance and construction as per IS 15683:2006(Doc: STI/15683/2 May 2013) (from OEMs, National Accredited Test laboratories eg BIS.)
- Test certificate duly mentioning the batch no of the Fire-Extinguhers shall be furnished along with sample and supply.
- Carbon-dioxide type fire-extinguisher 4.5kg capacity with screw down valve ,initial gas charge ,1 mtr long high pressure discharge braided hose,PVC Horn with complete accessory as per IS:2878 Mark and approval from Chief controller of explosive certificate for the sample & dispatch lot.

TECHNICAL REQUIREMENT:

- The extinguisher shall be of following capacities:
A) Trolley mounted:
Aluminum body – 4.5Kg.
- Operating temperatures:
Fire-Extinguishers shall be capable of operating reliably between the following temperature ranges t: - 30°C to 55°C.(Note-The temperature range shall be marked on the fire-extinguisher)
- The minimum effective discharge time of extinguishers and fire rating shall be no less than the appropriate value as given below:

Sl No	Carbon-dioxide content in Kg	Discharge time(s)	Class B Fire Rating	Fire Size /Fuel n-Heptane
1	4.5	10-18	34B	1.00m ² (34 l)

- Material for construction:

Sl No	Component	Material	Conforming relevant standard
1	Discharge valve	----	IS 3224 (Squeeze grip valve as shown in fig
2	Safety devices		IS 5903
3	Syphon tube	a) Brass b) Copper c) Aluminum	Alloy No2 of IS 407 IS 1545 IS 738
4	Hose	The minimum bursting pressure shall be 275 Kgf/cm ² in control discharge and 140 Kgf/cm ² without control discharge.	
5	Discharge horn	Non-conductor of electricity like polyethylene, fiber glass and similar materials.	

- Contents:-

The carbon dioxide gas shall conform to IS 15222 and duly confirm the purity specified their in. The quantity shall be determined by weighing.

- Construction:-

The typical shape showing the cylinder with other components is shown in fig-1, 2&3 .The extinguishers shall have concave base.

In case of aluminum, seamless container shall be made of materials whose composition & mechanical properties are given below:-

Sl.No	Type of Alloy AA Designation		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Zr	Pb			Aluminum
														Each	Total	
1	6061 A	Min Max	.4 8	- 7	.15 .40	-- 0.40	.8 1.2	.04 .35	- - -	- - 2 5	-- .1 5	-- --	-- .003	-- .15	-- .15	Remainder

Sl.No	Mechanical properties	Requirements
1	Tensile strength (T)	325 N/mm ² ,Min
2	Specified minimum 0.2 percentage proof stress	280 N/mm ² ,Min

3	Elongation percentage	12,Min
4	Bend test former radius	3 ta maximum (ta is actual thickness of specimen)
5	Hardness. Brinell Rockwell B	90,Min 45,Min

IS 2878 : 2004

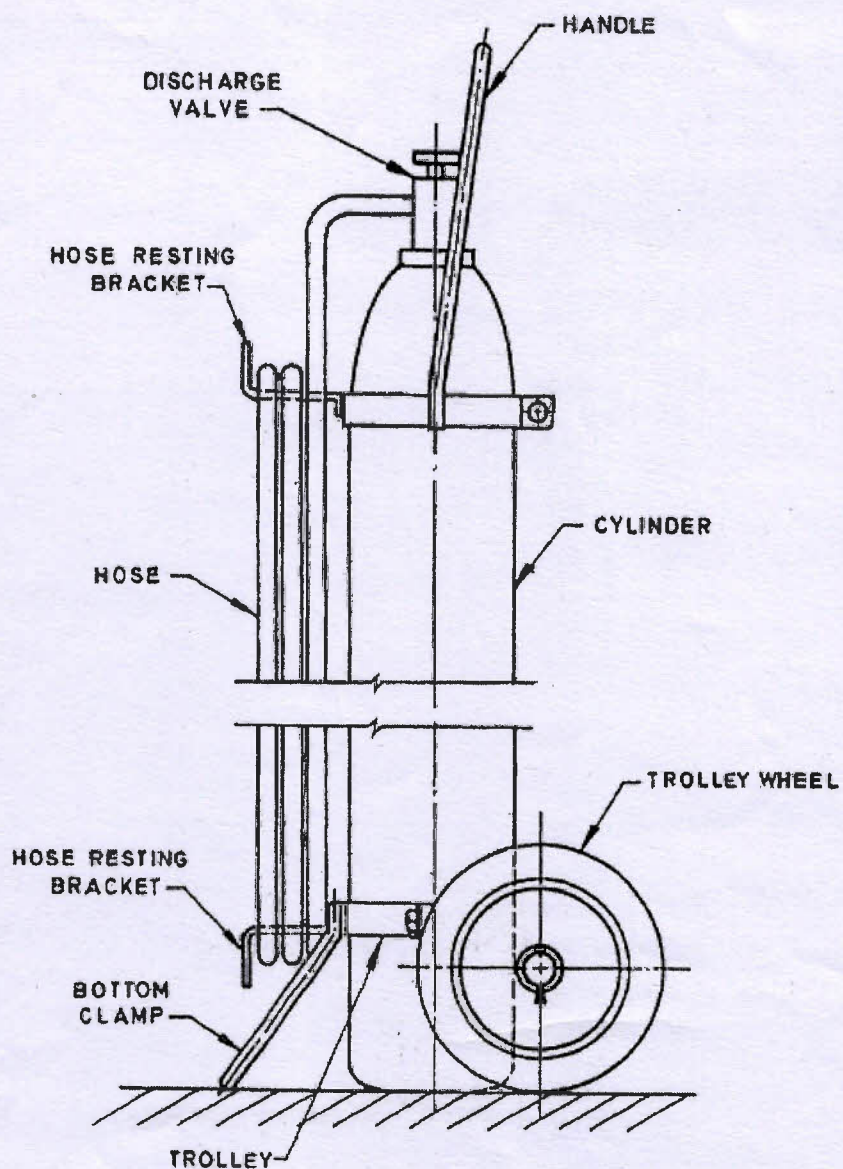
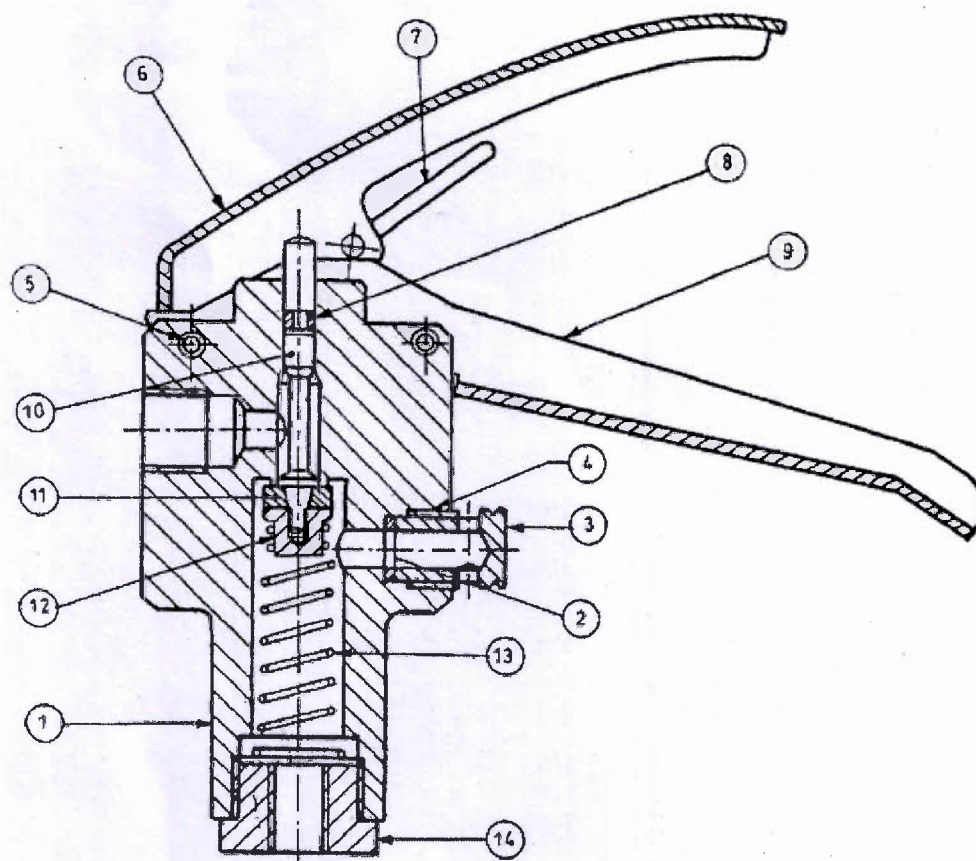
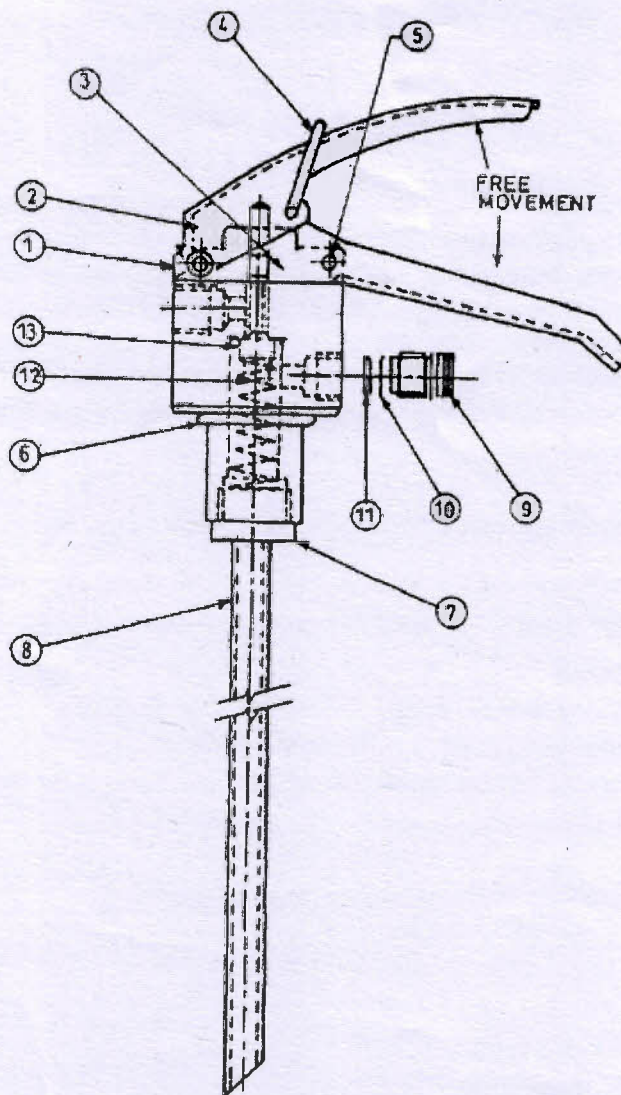
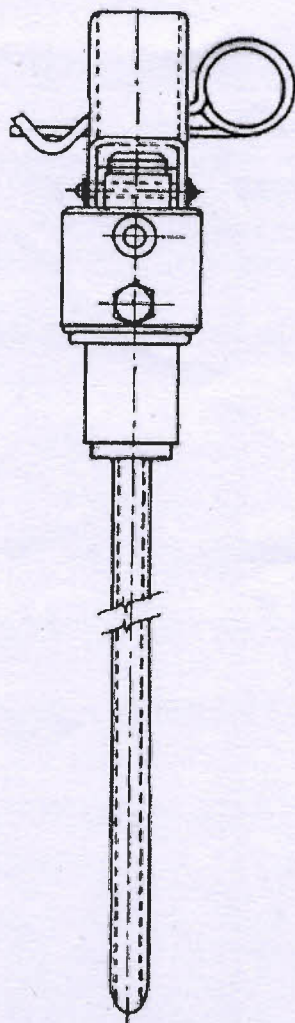


FIG. 1. GENERAL FEATURES OF CARBON DIOXIDE TYPE FIRE EXTINGUISHER. TROLLEY MOUNTED



- | | |
|--|----------------------------|
| 1 — Head | 8 — O-ring-stem |
| 2 — Burst disc | 9 — Handle |
| 3 — Safety plug | 10 — Valve stem |
| 4 — Sealing washer | 11 — Valve stem seal |
| 5 — Spring pin $\varnothing 4 \times 30$ | 12 — Seat-valve stem |
| 6 — Trigger | 13 — Spring |
| 7 — Pull pin | 14 — Adaptor — Syphon tube |

FIG. 2 SQUEEZE GRIP VALVE — GENERAL ARRANGEMENT



- 1 — Head
- 2 — Trigger
- 3 — Handle
- 4 — Pull pin
- 5 — Spring pin $\varnothing 4 \times 30$
- 6 — Seal O-ring
- 7 — Syphon tube adapter

- 8 — Syphon tube
- 9 — Safety plug
- 10 — Burst disc
- 11 — Sealing washer
- 12 — Spring — compression
- 13 — Valve stem assembly

SAMPLE:

- Sample shall be supplied along with offer for approval and the same sample CARBON-DIOXIDE fire extinguisher 4.5Kg Capacity, Fire rating 34 B ,Fully charged ,Wheel type operation approved by Chief Controller of explosive,ISI Marked complete construction conforming the to IS 15683:2006(Doc: STI/15683/2 May 2013)(Catalog with technical specification required with offer, Sample to be approved before supply)(Test certificates of the sample to be submitted for approval)
- Operating, recharging, inspection & maintenance instruction are to be provided along with sample & supply.

TEST CERTIFICATE:

- The test certificate shall also indicate Batch No & Date.
- The Vendor/bidder shall be licensed from BIS for supplying of trolley mounted fire extinguishers.
- The Vendor/bidder shall be licensed from BIS for Performance & Construction of portable fire extinguishers as per IS 15683:2006.
- The Vendor/bidder shall submit the GA drawing for the fire-extinguishers and provide the details as mention below:-

Sl. No	Specification as per IS :2878	To be filled by Vendor/bidder
1	Capacity	
2	Diameter	
3	Thickness	
4	Hydro test	
5	Jet range	
6	Min period for which jet to be maintained	
7	Min discharge Qty in percentage	
8	Empty weight	
9	Full weight	
10	Height	
11	Fire rating	

- The Vendor/bidder shall submit the user manual and service manual for the fire-extinguishers.

PACKING:

- The fire extinguisher shall be supplied, packed individually for protection from dust & damage.

MARKING:

- A) The following information shall be marked on the fire-extinguisher :-

1. Manufacturer's name or trade mark.
 2. Method of operation in prominent letter
 3. The word 'CARBON DIOXIDE TYPE' in prominent letter.
 4. Capacity
 5. Year of manufacture & date of refilling
 6. Source, Year of manufacturing of cylinder and its test pressure..
- The following information to facilitate filling or recharging shall be also marked on the head of the extinguisher or on neck of extinguisher:-
 1. Empty weight of extinguisher (to include operating head, internal discharge tube & carrying handle but not any hose or discharge horn assembly) shown as EW.
 2. Filled weighting –gas filled content but not any hose or discharge horn assembly shown as FW.

INSPECTION:

- Inspection will be carried out at our works with reference to the acceptable sample and test reports. BHEL will inspect at works where ever required.

PAINTING:

- Each extinguisher shall be painted fire red or post office red conforming to shade no 536 or 537,
- A picture showing operation of the extinguisher in correct manner shall be provided on the body of extinguisher.
- The extinguisher shall be marked with letter B&C indicating their suitability for B&C and shall be 2.5cm size printed in white color centrally in square of 4cm size and circle of 2cm radius colored in black paint shall conform to IS 2932.

GUARANTEE CERTIFICATE:

- Guarantee certificate to be given for any manufacturing defects along with the consignment for free replacement within six months from the date of receipt at BHEL.

DELIVERY:

- The delivery should be made within the fifteen days of placing of purchase-order.
- Please quote the FIRM price "on FOR destination "basis inclusive of P&F, Freight and Insurance.
- CONSIGNEE ADDRESS: The Fire-extinguisher are to be delivered to address as given below:-
 Bharat Heavy Electricals limited,
 Power Sector-Southern Region,
 690, Anna Salai, Chennai-600035
- Quantity required are- Eighteen(18) Nos

- The Quantity indicated are tentative. If the requirements exceed Eighteen (18) nos. The vendor shall supply the Fire-extinguisher on the same price as supplied for the first consignment.
- The Vendor/bidder shall quarterly inspect the healthiness of all the fire-extinguishers and submit the report of non-conformity to the BHEL-PSSR, Chennai for taking the appropriate action.