

Trade Introduction

It is required to use an exhaust fan near the welding area along with the exhaust duct and respirator pad in order to prevent oneself from inhaling the poisonous gas and smoke emitted during the welding of non-ferrous alloys like brass.

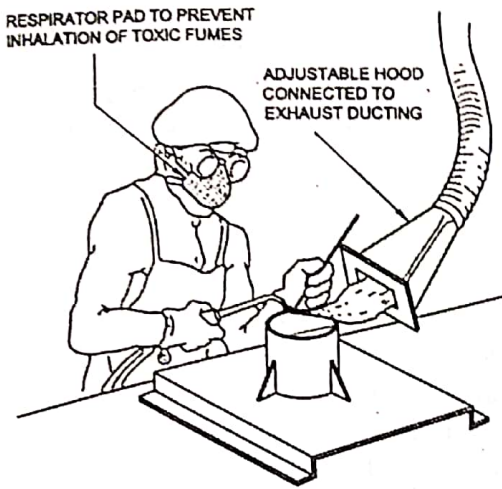


Fig. 23 : Exhaust Duct and Respirator Pad

Portable fireproof canvas screen is used for the protection of those people who are exposed to arc flashes near the welding area.

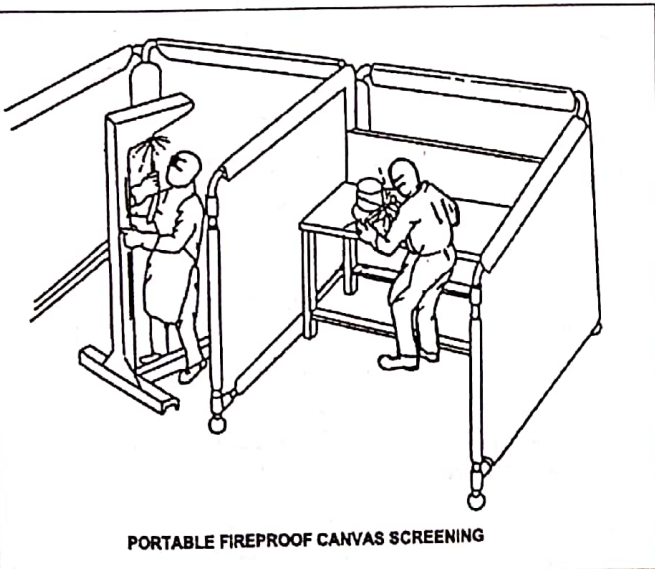


Fig. 24 : Portable Fireproof Canvas Screen

10 | FIRE

The uncontrolled burning of a flammable substance is called fire. This produces light and heat. Oxygen and fuel are necessary elements for fire.

10.1 CAUSES OF FIRE

Fire in a workshop is caused due to the following reasons-

1. Loose electric wires
2. Heavy load on electric wires
3. Short circuit of electricity
4. Smoking in the workshop
5. No oil in fast moving machines
6. Carelessness towards flammable substances

10.2 TYPES OF FIRE

Fire is classified into different categories which are as follows -

1. Class 'A' Type of Fire - Fire caught on wood, paper, clothes and hard metals is classified as 'A' type of fire.

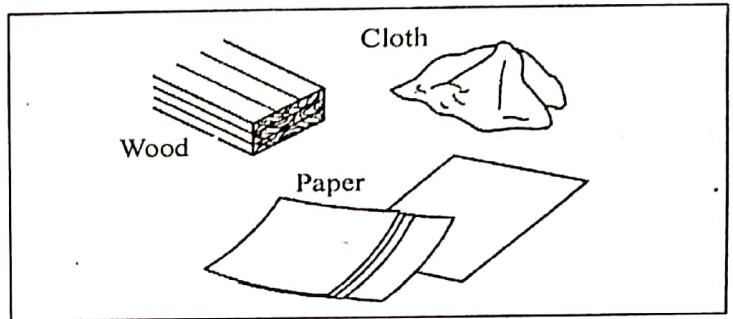


Fig. 25 : Class 'A' Type of Fire

To extinguish this type of fire, we first direct the water-jet on the base of the fire and move it from side to side till the fire is extinguished.

2. Class 'B' Type of Fire - Fire in a flammable fluid or combustible solid is classified as 'B' type of fire. CO₂, foam and dry powder is used to extinguish this type of fire. Don't use water to extinguish this type of fire.

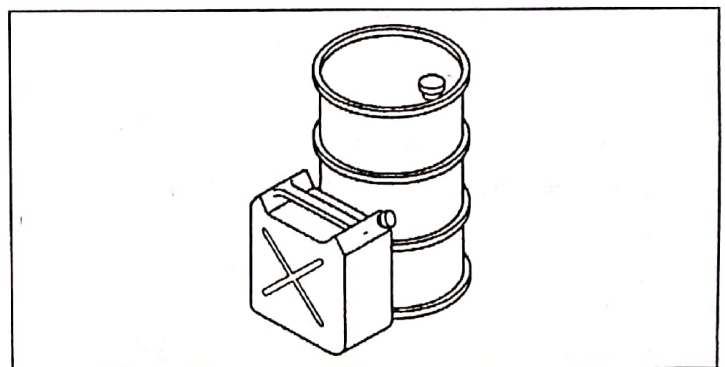


Fig. 26 : Class 'B' Type of Fire

3. Class 'C' Type of Fire - Fire in a gas or a burning gas is classified as 'C' type of fire. This type of fire should be extinguished carefully because there is always a danger of blast or sudden spreading of fire. A dry powder fire extinguisher is used to extinguish this type of fire.

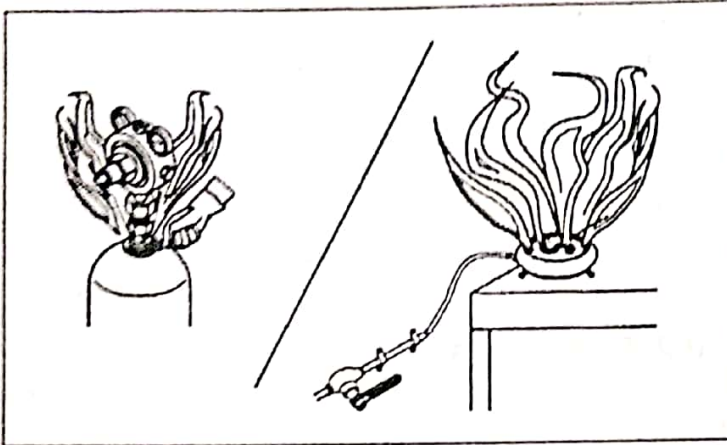


Fig. 27 : Class 'C' Type of Fire

4. **Class 'D' Type of Fire** : A fire caused due to metal or electricity is classified as 'D' type of fire. Carbon dioxide (CO_2), dry powder, CTC extinguisher are used to extinguish this type of fire. This type of fire should only be extinguished by a trained person.

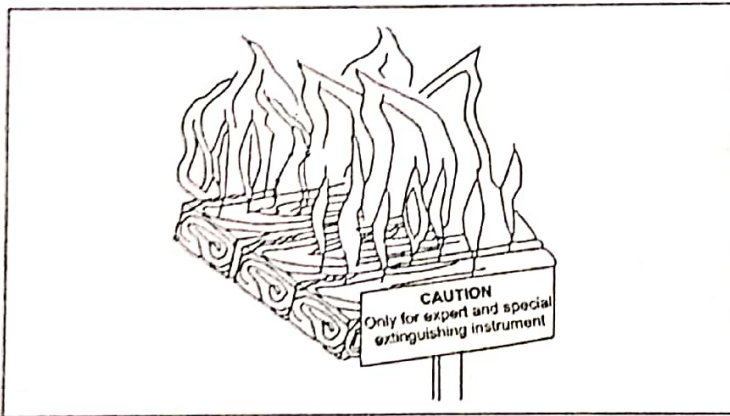


Fig. 28 : Class 'D' Type of Fire

10.3 FIRE FIGHTING EQUIPMENTS

Fire can be put out using the following resources -

1. A bucket full of water
2. A bucket full of sand
3. Canvas sheet
4. Fire extinguisher

Of the given resources, a fire extinguisher is used most commonly. They are of the following types -

1. Water Filled Extinguisher : Fire in coal or wood is extinguished with the help of water. For this purpose, two types of water filled extinguishers are used, which are as follows -

- (i) Stored Pressure Type
- (ii) Gas Cartridge Type

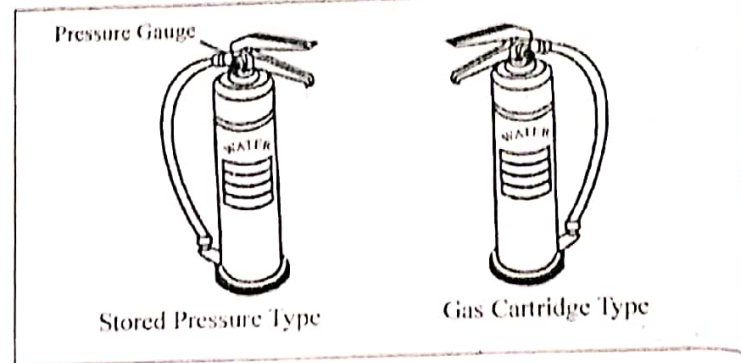


Fig. 29 : Water Filled Extinguisher

This is a special type of equipment which is used to extinguish fire caused due to burning of coal or wood. It is hung in an appropriate place in the workshop. It is available in both small and big sizes.

2. Halon/C.T.C. Fire Extinguisher : This equipment is used to extinguish fire caused due to electricity. A cylinder made of brass is filled with a liquid substance of carbon tetrachloride and Bromochlorodifluoromethane (BCF). A force pump attached on the top of the cylinder is pressed with the help of a special type of handle. This forces the liquid substance out of the cylinder in the form of a foam which is used to extinguish the fire.

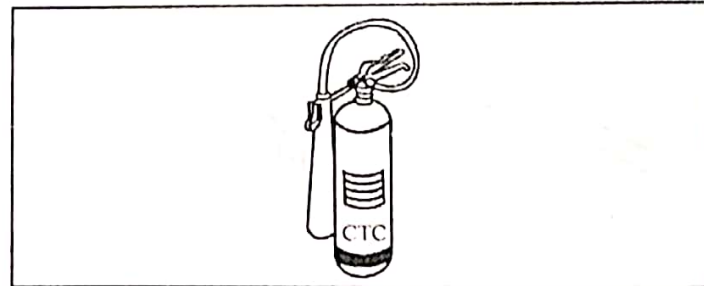


Fig. 30 : Halon/C.T.C. Fire Extinguisher

3. Dry Powder Extinguisher - Dry powder is filled in this type of fire extinguisher. This can be of both types, gas cartridge or stored. Their structure and working procedure is similar to a water filled extinguisher. This type of extinguisher is identified by a fork-shaped nozzle. They are used for putting out B class of fire.

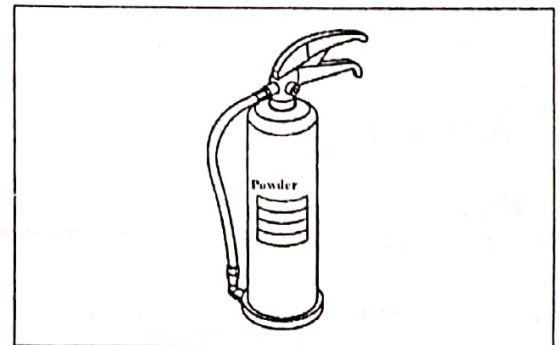


Fig. 31 : Dry Powder Extinguisher

4. Foam Fire Extinguisher : This may be of stored pressure or gas cartridge type. They are used to extinguish flammable liquid fire or a running grease fire. They should not be used for extinguishing the fire in electrical devices.

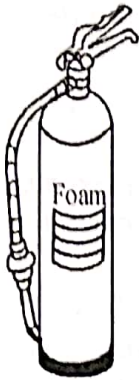


Fig. 32 : Foam Fire Extinguisher

Foam fire extinguisher has two containers, external and internal. The outer container has a soda bicarbonate solution and the inner container has an aluminium sulphate solution. It has a brown coloured hand symbol on its body as a mark of identification.

5. Soda Acid Fire Extinguisher : Soda acid fire extinguisher is used for extinguishing fire caused due to wood, coal, clothes etc. It has a yellow coloured hand symbol on its body as a mark of identification.

6. Carbon dioxide (CO₂) Fire Extinguisher : These extinguishers can be recognised easily due to their distinctive shape. It has CO₂ inscribed on its cylinder. This extinguisher is considered better for removing the accumulated of pollution. They are generally not effective in open air. They are available in the form of a plunger, lever and trigger etc. They are used for extinguishing class B type of fire.

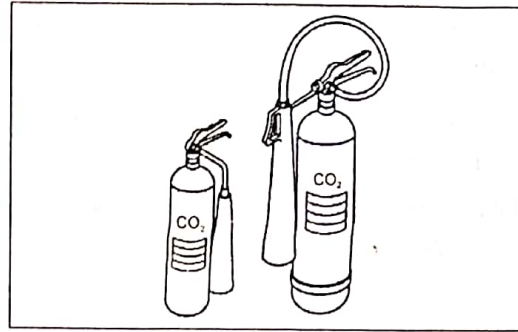


Fig. 33 : Carbon dioxide (CO₂) Fire Extinguisher

11 SAFETY RULES FOR GAS CYLINDERS

The safety rules for gas cylinders are as follows-

1. The cylinders should be kept free from the lubricants such as oil, grease.
2. The valve should be opened slowly.
3. The leakage should be checked before use.
4. Keep the cylinders away from hot areas.
5. The cylinders should neither be dropped from height nor should be tripped.
6. The valve of the cylinders should be closed both in empty or filled status.
7. A safety cap should be placed over the valve during transportation.
8. The cylinder should never be pushed, inclined, rolled.
9. The empty and filled cylinders should be stored at separate places.
10. An appropriate cylinder key should be used closing or opening the cylinder valve. The key should not be removed after the cylinder has been used because it can help in closing the cylinder during emergencies.
11. Smoking should not be done near the cylinders. Besides, exposed lights should not be kept near them.