

To

Owners of All
Coal, Metal and Oil Mines.

Sub Providing flash back arrestors in gas welding/cutting sets.

Investigation into a few serious accidents revealed that while using gas welding set to cut angles or material there had been incidence of back fire which caused burn injuries to the welders. When a back fire occurs, the products on explosion will normally go back to the point where gases of the system get-mixed. The explosion generates sufficient heat to explode the forward flowing gases. The phenomena happens very rapidly and can be detected by a sharp bang followed by a high pitched scream or whistle. Black smoke can be often seen emitting from nozzle. Flash back is actually a back fire where so much energy can be generated that the explosion is forced back along one of the hoses and can even burst it. Then there is the risk of explosion passing through the regulator to cylinders with a possibility of an accident with even fatal consequence.

In some welding sets a non-return valve had been provided as a safe guard. However, provision of non return Valves will only ensure that the gases cannot back feed into the system but will not stop the force generated by a flash back once it has occurred and danger due to explosion can not be eliminated.

It is therefore recommended that flash back arrestor be provided in the gas welding set on the oxygen and fuel gas line in the regulator side as well as Nozzle side.

ISO 5175 of 1987 (E) has dealt with "Equipment used in gas welding, cutting and allied process as _safety devices for fuel gases and oxygen or compressed air _ General specifications, requirements and tests."

It is necessary that the flash back arrestors so provided should conform to ISO 5175 of 1987(E) (or (lie latest version as and when published) in all respect. Such flash back arrestors as per the above standard shall be provided with non return valve, flame arrestor, pressure relief valve, temperature sensitive cut off valve, pressure sensitive cut off valve and excess flow cut off valve.

The above recommendation may be complied henceforth in all gas welding and cutting processes in the interest of safety.

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