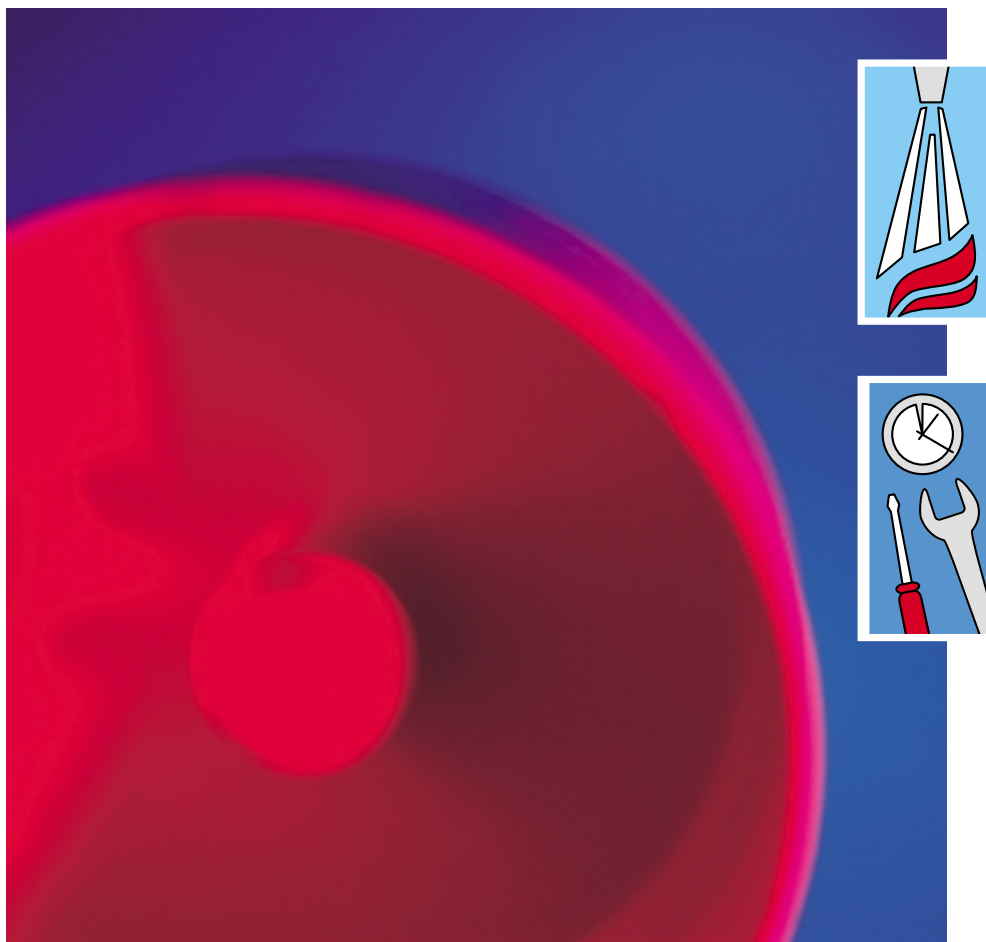


CO₂ EXTINGUISHING SYSTEMS



CO₂ – THE FIRE EXTINGUISHING CLASSIC: CLEAN, FAST AND RELIABLE



A local application nozzle in use

TOTAL WALTHER, the acknowledged specialist in fire protection systems, has been manufacturing CO₂ extinguishing systems for more than 70 years. These systems are developed in accordance with international safety standards, and they are used successfully both in Germany and abroad.

From the natural cycle

CO₂, also known as carbon dioxide, occurs naturally; it is a colourless and odourless gas which does not conduct electricity. Its outstanding characteristic is that it does not react with other substances, nor does it leave any residue. This means that CO₂ is a clean extinguishing agent which is ideally suited to protecting highly sensitive risks against fire.

Carbon dioxide can be discharged into the extinguishing section through total flooding nozzles ...



... or it can be fed directly to the seat of the fire through special nozzles positioned on the equipment.



Stopping the fire from "breathing"

The extinguishing effect of CO₂ is based on the displacement of oxygen, which is needed for the development of the fire. The normal proportion of oxygen in the air is approximately 21% by volume and adding CO₂ reduces this to 15% or less by volume in the protected zone: as a result, any fire is quickly suffocated.

SUCCESSFUL IN TOTAL FLOODING AND LOCAL APPLICATION

TOTAL WALTHER CO₂ extinguishing systems are used to provide special protection of machinery and automated "high-tech" plant.

When CO₂ extinguishing systems are used in areas where people may be at risk, special protective measures are required, since CO₂ endangers human life if it is used at concentrations which are capable of extinguishing.

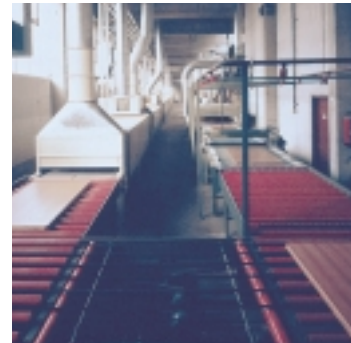
Reliable protection in sensitive areas

We particularly recommend CO₂ extinguishing systems where effective protection is required for water and dirt sensitive areas, leaving no residue. It is used on combustible liquids and gases, for fire protection in data processing installations, and to protect switch areas. CO₂ is also suitable for the protection of printing machines, quench

tanks and rolling mills, as well as special types of machinery such as spark erosion and high-speed grinding machines.

Safety can also save money

TOTAL WALTHER CO₂ extinguishing systems are designed and installed in accordance with the safety rules of German and international insurance companies. The individual components were developed in our own factory, and fully tested in our Test Centre. A single, certified production process is your guarantee of high quality. By installing CO₂ extinguishing systems from TOTAL WALTHER, you will obtain high premium discounts on your fire and business interruption insurance.

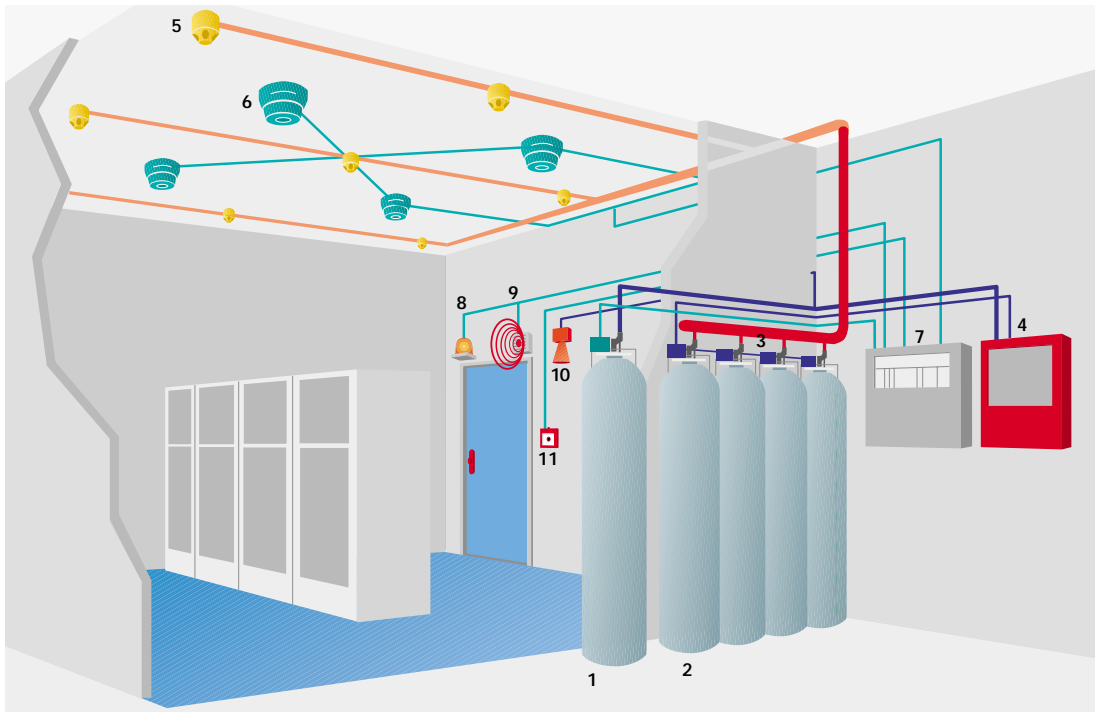


A CO₂ extinguishing system protects a facility.



Discharge test of a rolling mill with CO₂

A FIRST-CLASS EXTINGUISHING SYSTEM FOR ANY VOLUME



Example of a CO₂ high pressure system for one extinguishing zone:

- 1 Alarm bottle with electrical actuator
- 2 CO₂ extinguishing agent bottle with pneumatic actuation
- 3 Manifold
- 4 Delay device
- 5 Extinguishing nozzle
- 6 Automatic fire detector
- 7 Fire detection and control panel
- 8 Visual warning device
- 9 Electrical alarm sounder
- 10 Pneumatic alarm horn
- 11 Manual release

When our engineers design a CO₂ extinguishing system, they make sure that storage is provided for the right amount of extinguishing agent. The amount determines whether the CO₂ is stored at high pressure or low pressure.

High pressure storage

In high pressure systems, the CO₂ is stored in steel bottles at ambient temperature. If necessary, bottles are grouped together to form larger batteries. All the agent bottles are connected to a common manifold via high pressure hoses.

The high pressure method allows up to 50 kg of CO₂ to be stored in each bottle. To ensure constant monitoring of the contents, each bottle is weighed and equipped with limit switches, so that a maximum leakage of 10% of the extinguishing agent gives an automatic signal and alarm.

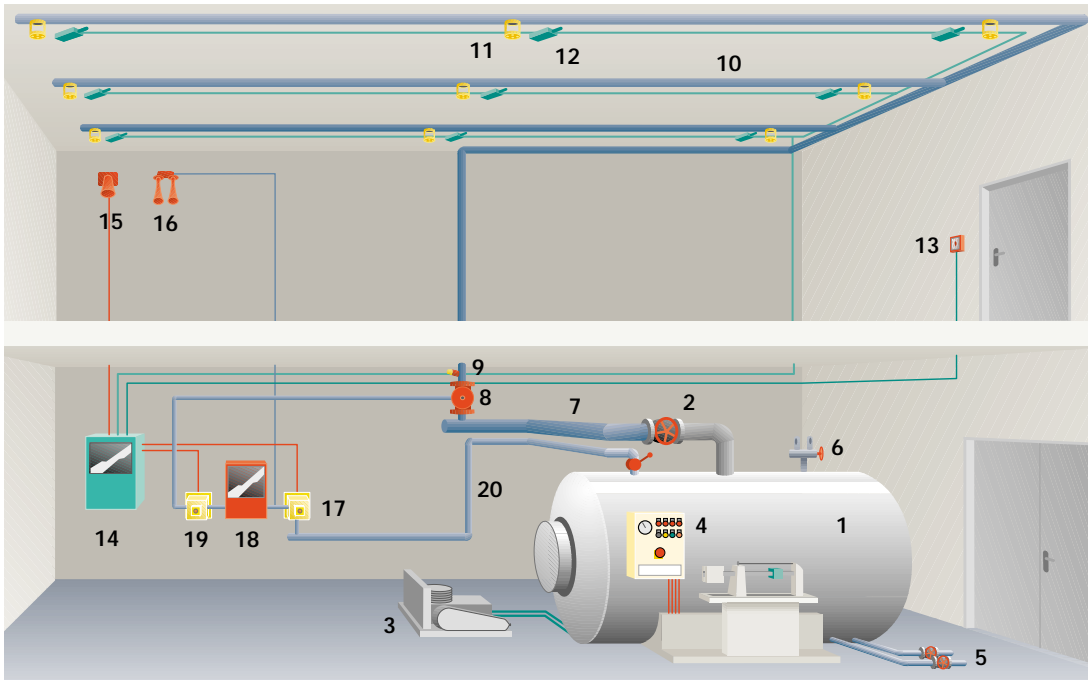
In a system protecting several sections, special sectional valves ensure the supply of extinguishing agent to each protected section. This guarantees flooding just of the only area where extinguishing is required.

AUTOMATIC EXTINGUISHING ON THE SPOT: THE COUNTDOWN HAS STARTED ...

KOTIKA®: low pressure storage for larger extinguishing volumes

TOTAL WALTHER's KOTIKA® extinguishing system also belongs to the family of CO₂ extinguishing systems. KOTIKA® is a German abbreviation for VERY COLD CARBON DIOXIDE: the CO₂ is stored in an insulated tank fitted with a refrigeration unit, at a temperature of -20°C.

This keeps the carbon dioxide at a reduced pressure of 20 bar. The low pressure system is especially suitable for efficient storage of large quantities of extinguishing agent. The KOTIKA® system is the most cost-effective alternative when the volume of CO₂ to be stored exceeds about 2,000 kg. The extinguishing effect is identical for both the high and low pressure method.



- Example of a KOTIKA® extinguishing system:
- | | | |
|---------------------------------------|-------------------------------------|--------------------------------|
| 1 KOTIKA® tank on its weighing device | 10 Extinguishing pipework | 17 Alarm control valve |
| 2 Main shut-off valve | 11 Discharge nozzle | 18 Delay device |
| 3 Cooling unit | 12 Heat detector | 19 Extinguishing control valve |
| 4 Switch cabinet | 13 Manual actuator | 20 Pneumatic control line |
| 5 Filling lines | 14 Fire detection and control panel | |
| 6 Safety fittings | 15 Electrical alarm sounder | |
| 7 Distribution pipe | 16 Pneumatic alarm horn | |
| 8 Sectional valve | | |
| 9 Odourizer cartridge | | |

CO₂ EXTINGUISHING TECHNOLOGY...



FAST 2000:
fire detection and
control panel*

TOTAL WALTHER GmbH's modern CO₂ extinguishing systems are activated and discharged using electrical and electronic fire detection systems.

Modules make it happen

The electronic fire detection and control panels used to ensure perfect actuation of CO₂ extinguishing systems, are built up from a variety of modular components.

The panels evaluate the incoming signals from the automatic fire detectors and give the alarm to the personnel and the fire brigade, as well as activating the release and delay devices on the CO₂ extinguishing system.



*CO₂ storage battery
with alarm control
cylinder and mecha-
nical delay device*



*Switch over unit
between main and
reserve batteries*

... BROUGHT TO THE PEAK OF PERFECTION



TOTAL WALTHER's specialist engineers will advise you on all aspects of modern fire protection, and will offer you committed and competent support from the design and installation phases to the maintenance of your CO₂ extinguishing system.



*Low pressure
CO₂ technology*

*Early detection
of a fire will prevent
disastrous
damage later on.*

Fire risks which can be covered reliably with CO₂:

- Alcohol stores
- Battery rooms
- Printing machines
- Electrical rooms
- Paint manufacturing, storage and processing facilities
- Hazardous material stores
- Generators
- Plastic processing and storage facilities
- Engine test cells
- Oil stores
- Tyre stores
- Computer centres (archives, EDP)
- Process and storage facilities for foamed plastics
- Chipboard presses
- Spinning mills
- Indoor transformers
- Drying ovens
- Rolling mills
- Machine shops

tyco

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