

CHEMETRON
Fire Systems™

CARDOX

CO₂

**Application
Bulletin**

CHEMETRON
Fire Systems™
A World of Protection



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Carbon Dioxide Fire Suppression —

Newspaper Printing Presses

The protection of an offset type newspaper printing press by the local application of carbon dioxide is shown on the accompanying drawing.

Many such systems have been installed in a variety of printing plants covering letter presses, offset presses, and just recently, portions of flexographic lines. (See Printing Industry Bulletin #0205, ...Protection of Folders and Newspaper Flexographic Presses). The combustibles are the paper, lint, and accumulated oil and grease in the drive areas, as well as, of course, the ink when oil based inks are used. The protection coverage includes the press units, color decks or half decks, and the folders.

A popular high production newspaper press is the modern offset unit as represented by the Goss Metro Offset or Headliner Offset. Similar presses are offered by TKS, MAN, and others. The drawing shows an offset press as viewed from the drive side.

The express purpose of the protection as offered by Chemetron is to quickly extinguish a fire, which may be rare, but can occur during operation or clean up. The system is designed to extinguish the fire before it can cause anything but a brief interruption to production.

The prevention of even a relatively short fire outage justifies the system. Insurance interests concerned with the business interruption loss potential of the modern printing plant encourage this type of protection.

The arrangement of the protection system shown is an evolutionary design developed by Chemetron and proven by testing at a number of installations. In earlier installations, piping was run down both sides of the press and local application nozzles covered the units (roll stack, etc.) from both sides. Small nozzles were piped behind the mist guards from down below; other nozzles covered the drive areas or flooded the drive motor air ducts as needed. This arrangement worked just fine.

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Then, presses appeared on the market with water wash systems and designs that make it almost impossible to run CO₂ fire system piping on the operator's side of the press. Revised coverage by the local application nozzles — moving them out and up a bit, plus a recalculation of the CO₂ resulted in a design with piping on only one side. A number of installations and extensive testing proved that the CO₂ coverage was more than adequate and resulted in a more cost effective system.

The placement of the nozzles is such that they are not in the way of the pressmen, a distinct advantage. Nozzles are directed at the roll stacks, plus a nozzle is directed into the press arch to assure flooding of that area. Coverage in the drive areas is as needed.

The fire hazard area of the folders, by their very nature, is not well defined. Flat surfaces tend to accumulate paper lint, so nozzles are placed at two levels on both sides of the folder to cover the deck at the rollers (above) and drive equipment slitters (below). Again, see Printing Industry Bulletin #0205 for more information on protecting folders.

CO₂ for each press unit is calculated for the roll stack and the color decks/half decks using the rate-by-area method, with the projected area about 4.5 ft. by 7 ft. It is treated as a coated surface. The arch of the press is treated as rate-by-volume

CO₂ for the folder is rate-by-area on the upper portion and rate-by-volume on the lower portion.

A 30 second liquid discharge is used, and the system is sized and arranged to protect a complete press row as a single hazard, even when it is broken down into several hazard sub-units. A long press row can be broken down into groups, with controls arranged to cover just the press units and folders in that group. But in case the fire spreads to another group or someone in the press area operates the wrong manual control, adjacent groups can be discharged simultaneously.

Any ink mist elimination system present is included in the protection. Dust collectors at the folders are totally flooded with CO₂.

Detection throughout is by rate compensated, heat-type fire detectors.

Safety Concerns: When the carbon dioxide system is designed, the provision for personnel safety must be considered as strongly as the fire protection. A safe system includes provision for:

- Alarms that absolutely, positively indicate that the system is about to discharge.
- Analysis of the CO₂ gas flow to identify where the CO₂ will be after a discharge. (Provision for odorizing the CO₂ may be appropriate.)
- Adequate instructions and training, including warning and instructional signs.

NFPA Standard No. 12 provides good information in this regard.

Hosereels

Almost every low pressure CO₂ system installed for press room fire protection includes hand hose lines served from hosereels located on the perimeter of the press room and in the reel room, as shown on the drawing. These units supplement the fixed protection by extending the capability of the system to fight fires external to the press line itself. They have high CO₂ discharge capacity and a projection of 30 to 35 feet, giving them unique first aid protection capability. The entire contents of the storage unit is available, affording the opportunity to discharge for a long time if this should ever be needed for fire control. The projection of the discharge allows the operator to be remote from the press in the reel room and still direct the discharge at the drive areas. Extinguishing fires in the areas of the press drives is the most common use of these hand lines. See Industrial Facilities Bulletin #0760 covering hosereel protection for more details.

Other Areas of Concern

Other areas within the printing complex for which CO₂ protection is a logical choice include the transformer and switchgear areas, ink rooms, dust collectors, and co-generation facilities.

The accompanying diagram shows the system header of the storage unit set up for extension of protection to other areas. Future protection of added presses can be accommodated in initial design.

It should be noted that protection can still be provided for many of these areas that do not justify fixed protection when the basic system has hose line coverage. This is done by providing an access to the room through which the hose line playpipe nozzle can be inserted to flood the room manually. The high flow rate permits flooding within minutes.

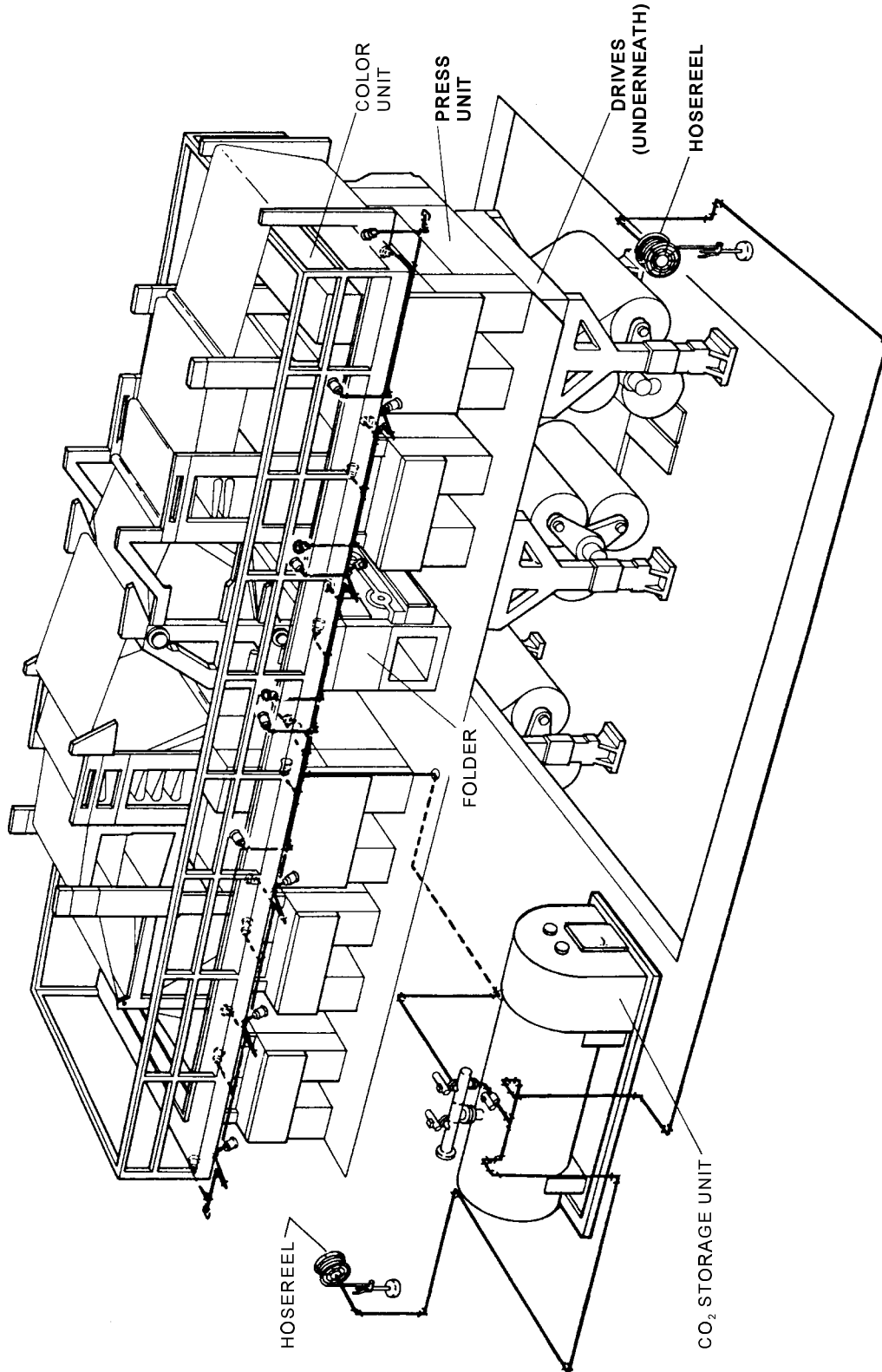
Chemetr on can provide detailed design information on newspaper printing plant protection, as well as a list of typical installations including a variety of press sizes and configurations.



IMPORTANT

IT'S IMPORTANT THAT THE FIRE PROTECTION PIPING AND DISCHARGE NOZZLES BE PLACED SO THAT THEY WILL DO THE INTENDED JOB WITHOUT INTERFERING WITH THE OPERATION OR MAINTENANCE OF THE PRESS, OR BE IN THE PRESSMEN'S WAY. CHEMETRON STRONGLY SUGGESTS A PRECONSTRUCTION MEETING TO INSURE THAT OUR DESIGN AND INSTALLATION REQUIREMENTS ARE COMPATIBLE WITH OTHER PRESS NEEDS.

Carbon Dioxide Fire Protection for a Newspaper Press
(shown from drive side)



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