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June 27, 1974
Ref. RTC 74:106

Mr. Wilbur T. C. Shyeh
General Factory Manager
Tou Fen Factory
1-56 HWA-HSIA Road
Tou-Fen, Miaoli Hsien, Taiwan
Republic of China

Dear Mr. Shyeh:

I am very pleased with the completeness and speed which you have shown following my recommendations concerning industrial hygiene aspects of China Gulf Plastics Plants.

Following are some comments which you may want to consider when completing your program.

Electrolytic Cell Building:

1. Wall fans vs removal of windows: I would think that the installation of six wall fans should provide more air exchange to the Electrolytic Cell Building than the removal of windows and expanding the roof to keep the rain from getting into the cell room. Besides, with wall fans we have more flexibility in the control of ventilation capacity.
2. Exhaust system for end box of cells: Based on the blower capacity (900 M³/min) and number of cells (36), the exhaust capacity for each cell (head and end boxes together) will be 880 cfm. The resulting friction loss in the very long 2" and 3" pipelines would be too large for the blower to handle. Since mercury vapor concentrations were much lower at the head boxes than at the end boxes, and since the head boxes are near the windows, it may be adequate to just exhaust the end boxes only, thereby eliminating the long pipelines leading to the head boxes. Also, it is suggested to use 4" to 6" pipelines to reduce friction loss. Size the exhaust capacity based on slot velocity of 1500 to 2000 feet per minute.

Instead of a 2" diameter VP pipe loop, you may try to use a slotted suction pipe on one side of the end box. This would provide equally

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effective control because the end boxes are only about 1 foot wide. Do not use the 100 Horsepower, 900 M³/min (32000 cfm), 230 mm Aq blower unless you really need that kind of exhaust capacity. You may be able to size a much smaller but adequate blower and save 1/2 to 3/4 of the electricity bill.

PVC Leather and Film Plants:

The solvent control system as shown on your Drawing No. 2 for single color print machine is not clear. I wonder what the driving force is to move air through the galvanized iron sheet suction loops and through the flexible steel pipes to the existing canopy hood. It appears that the moving air through those suction holes and small pipes would create a very large pressure drop, say 3" water, yet the suction pressure available at the top of the canopy hood (as shown on your Figure 2) could not be more than 0.5" water.

Six & Four-Color Printer:

A complicated solvent vapor control system as shown on your Drawing No. 3 needs very detailed calculation on the system pressure loss and system balance before any sheet metal construction. Since solvent vapors are evaporated from ink troughs, rollers, and the travelling fabrics, essentially the whole space occupied by the printers can be considered as vapor producing source. Therefore, what counts most is the total ventilation capacity of the exhaust system. Try to avoid the use of small suction pipes and pick-up slots which tend to limit the exhaust capacity and increase the system pressure drops.

Showers & Eye Wash Fountains:

Relating to your decision on not to purchase emergency showers and eye-wash fountains, but to design them in plant by the Utilities and Maintenance Department, I have attached some drawings of this type of equipment for your design reference.

R. T. Cheng
R. T. Cheng

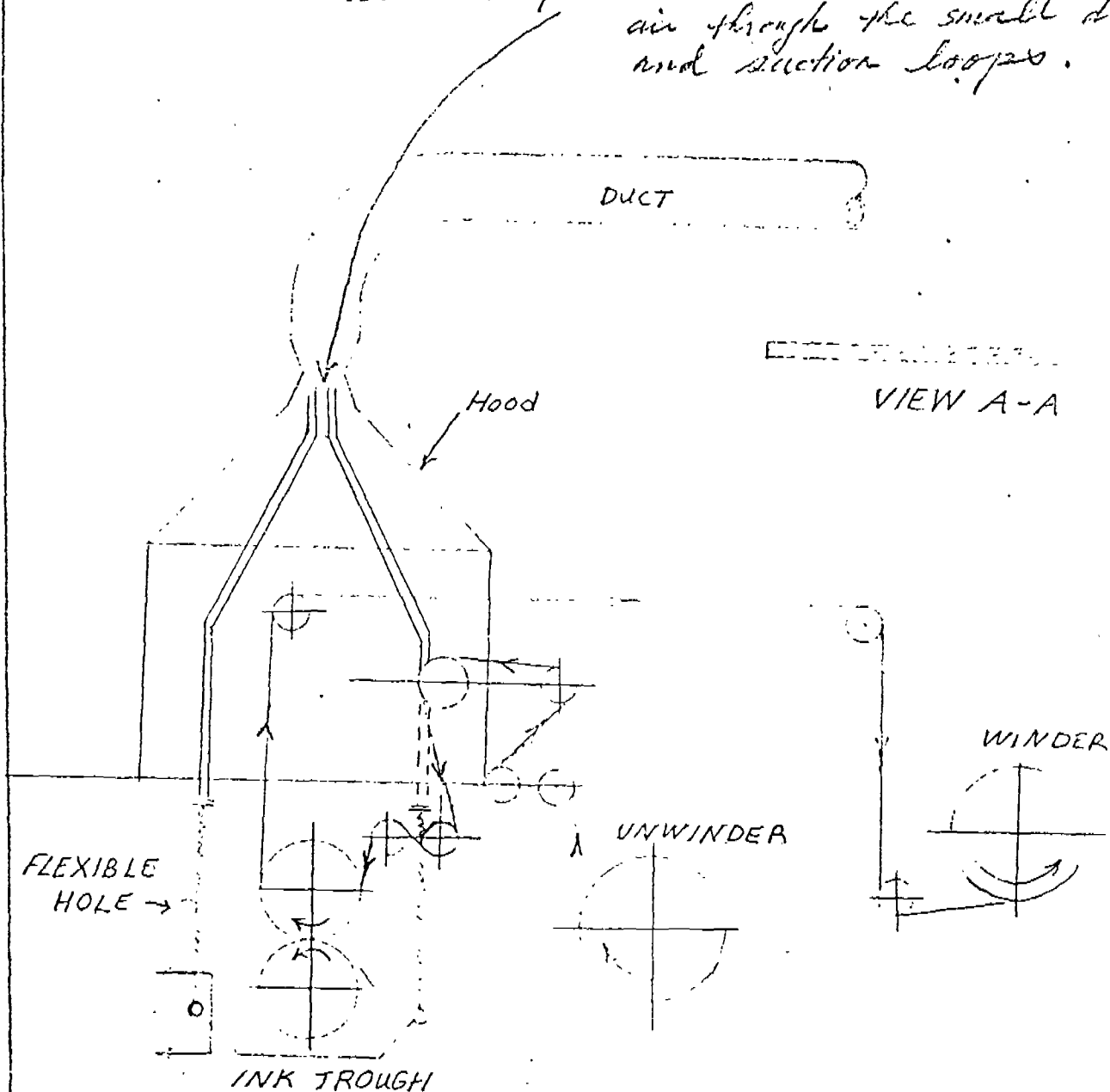
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Attachments

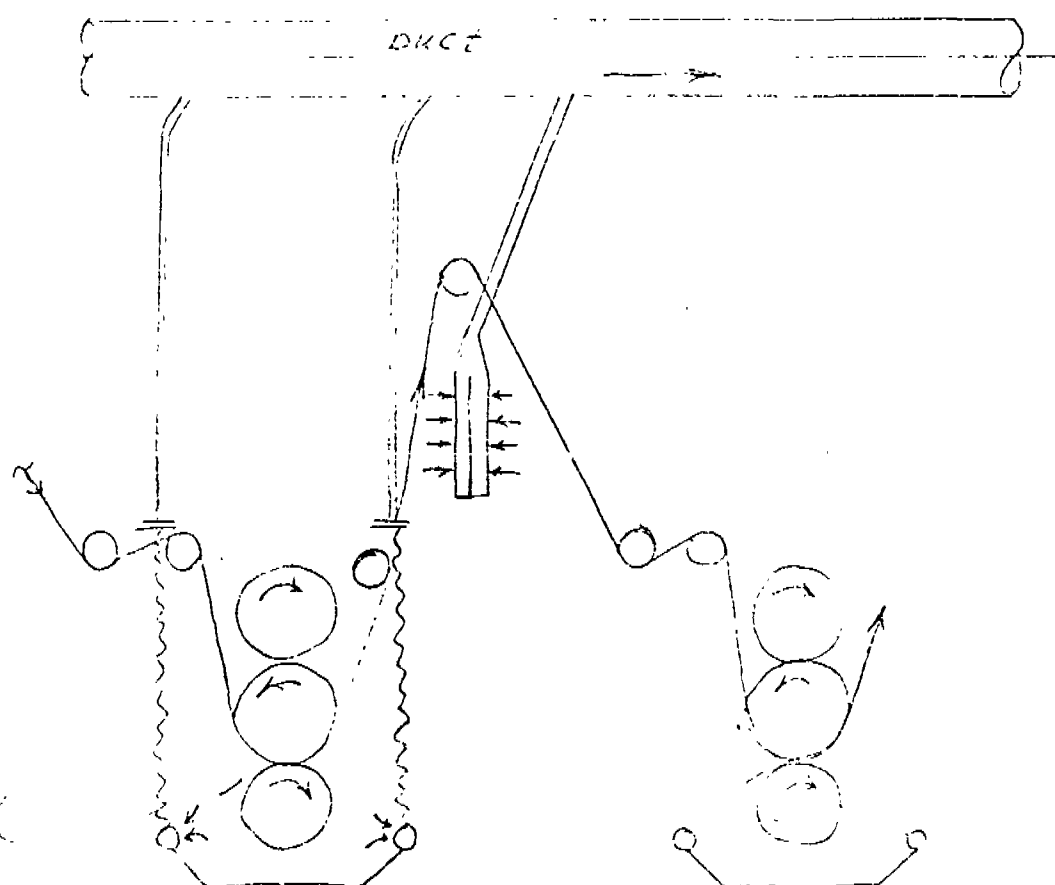
cc: Dr. R. L. Gibson
S. P. Lo
H. E. Runion

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Comment: The pressure head available at this point would not move enough air through the small ducts and suction loops.



Drawing No. 2 schematic drawing - solvent control for SINGLE COLOR PRINT MACHINE



DRAWING NO. 2

SOLVENT CONTROL FOR GSA COLOR PRINT

Over 50 years of experience

Bradley has the know-how you need when you're looking for safety fixtures. They've been putting Washfountains and showers in washrooms for more than fifty years. And experience like that pays off for you in the safety field.

Choose the safety station for your plant from the complete line of Bradley Safety Fixtures shown here. Emergency drench showers that provide an even flood of water for complete body coverage. Instant rinsing action. Eyewash fountains that bathe eyes and face with a soft stream of aerated water. Or combination

drench shower/eyewash units. You'll find a unit to match your work-area needs.

Safety Fixtures from Bradley provide a dependable way to quickly eliminate harmful chemicals and particles from the face or body. Prevent costly disabilities and satisfy OSHA requirements for drenching and flushing facilities.

When your work-area requires instant availability of safety equipment, choose the name you can depend on. Bradley. Contact your Bradley representative. (See back page for the one nearest you.) He'll help you select the right safety fixture for your plant.

Bradley 1000 Series Emergency Drench Showers

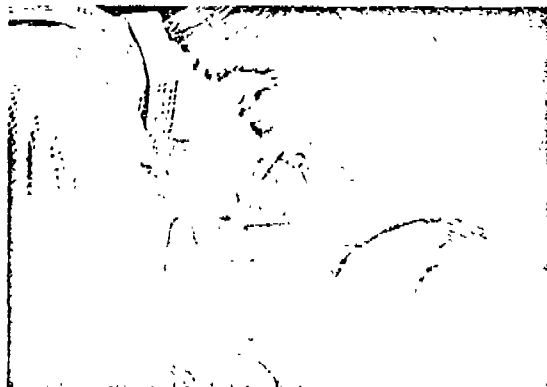
	Shower Head	Valve	Standard	Supply	Waste	Shipping Weight
Model S1000-F Free Standing	Yellow ABS plastic 8" diameter with interior helical coil and diffuser	Chrome plated brass 1" ball valve pull — open push — close Optional self-closing valve — Suffix SC	1½" schedule 80 galvanized steel pipe with 9" dia floor flange Standard includes fittings which allow addition of eye-wash fountain at later date. Provision for vertical or horizontal supply	1½" IPS Minimum inlet pressure for adequate water cone, 15 PSI	1½"	Approximately 45 lbs.
Model S1100-H Horizontal supply	same as S1000-F arranged for horizontal 1" supply	Same as S1000-F		same as S1000-F	same as S1000-F	Approximately 10 lbs
Model S1200-V Vertical supply	Same as S1000-F arranged for vertical 1" supply	Same as S1000-F		same as S1000-F	same as S1000-F	Approximately 8 lbs

Bradley 2000 Series Emergency Eye-Wash Fountains

	Receptor	Heads	Valve	Stream Control	Supply	Waste	Wall Bracket	Shipping Weight
Model S2000 (Unmounted)	heavy gauge type 302 satin finish stainless steel	twin aerated eye-wash heads	½" stay-open ball valve manually operated by stainless steel push-flag handle Valve and fittings chrome plated.	3 g p m	½ IPS	Flat grid strainer, spud and nut for 1½" tail-piece provided. Tailpiece and trap to conform to local codes by others.	none	Approximately 10 lbs
Model S2100-W Wall mounted	Same as S2000	Same as S2000	Same as S2000	Same as S2000	Same as S2000	Same as S2000	Heavy gauge satin finish stainless steel with two 5/16 x 1½" clearance slots for mounting bolts by others	Approximately 12 lbs.
Model S2200-F Free Standing	Same as S2000	Same as S2000	Same as S2000	Same as S2000	Same as S2000	Same as S2000	1½" galvanized steel pipe with 9" diameter floor flange. 1½" waste tee.	Approximately 25 lbs

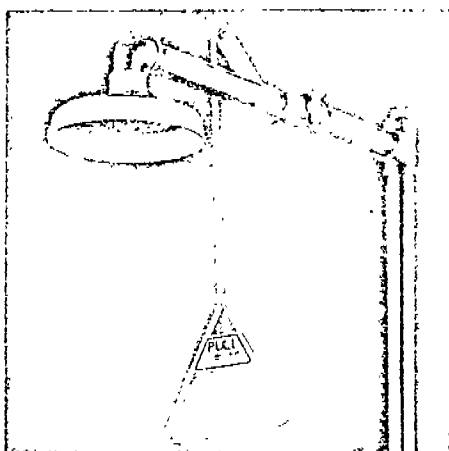
Bradley 3000 Series Combination Eye-Wash/Drench Shower

	Shower Head	Drench Column	Valve	Standard	Supply	Waste	Shipping Weight
Drench Shower unit	Yellow ABS plastic, 8" dia with interior helical coil and diffuser.	12" to 14"	Chrome plated brass 1" ball valve pull — open push — close Optional self-closing valve Suffix SC available	1½" schedule 80 galvanized steel pipe with 9" dia floor flange.	1½" IPS Minimum inlet pressure for adequate water cone, 15 PSI	1½"	Approximately 60 lbs
Eyewash unit	Heavy gauge type 302 satin finish stainless steel	twin aerated eye-wash heads	½" stay-open ball valve manually operated by stainless steel push-flag handle. Valve and fittings chrome plated	Standard includes fittings which allow for vertical or horizontal supply			
	Receptor	Heads	Valves	Stream Control			



goes to work for you in seconds.

Bradley 1000 Series Emergency Drench Showers

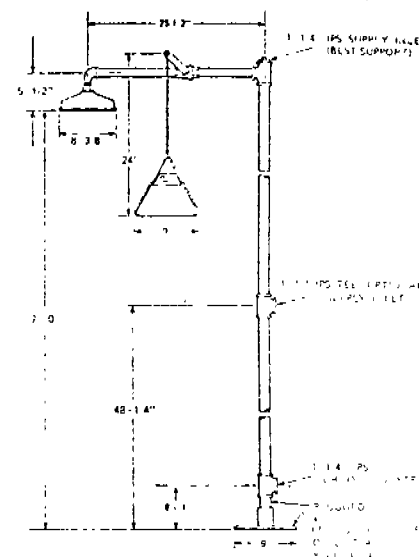


Model S1000-F Emergency
Drench Shower—Free Standing

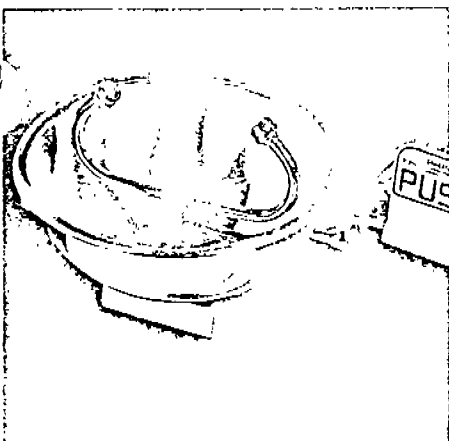
Model S1000-F Emergency Drench Shower—Free Standing
Bradley Drench Showers provide an instant, continuous source of water in emergency situations. High visibility, yellow ABS plastic shower head delivers drench column of water 12 to 14 inches in diameter—meets federal specifications for spread of water cone.

Chrome plated brass 1" ball valve, operated by rigid pull-rod, stays open for continuous supply during panic use. Optional self-closing valve available for use in high vandalism areas.

Standard includes fittings for addition of eye-wash fountain at later date. And provides for vertical or horizontal supply.



Bradley 2000 Series Emergency Eye-Wash Fountains



Model S2100-W (Wall mounted)

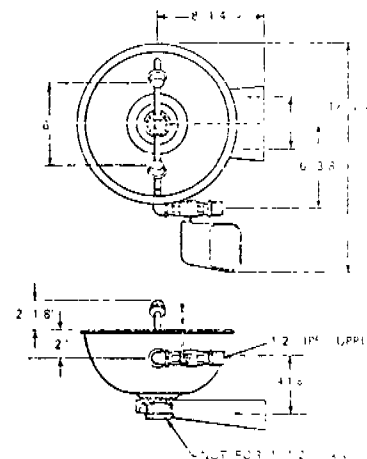
Model S2100-W (Wall mounted)

With the touch of a handle, Bradley's Eye-Wash Fountains direct twin streams of soft aerated water to the eyes. Irritants are flushed out in seconds.

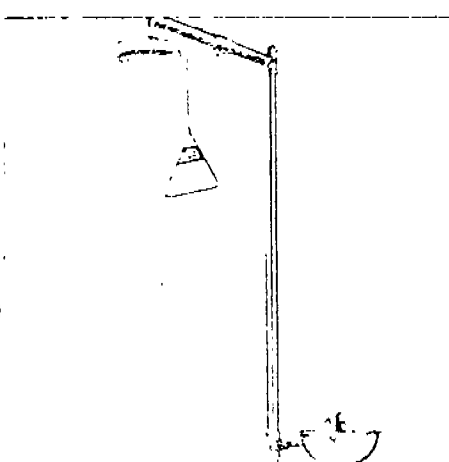
Stream flow control assures safe, steady flow under varying water supply conditions.

Receptor is heavy gauge satin finish stainless steel. Valve and fittings are chrome plated.

Available in wall mounted or free standing models.



Bradley 3000 Series Combination Eye-Wash/Drench Shower



Model S3000
Combination Eye-Wash-Drench Shower

Model S3000 Combination Eye-Wash-Drench Shower

Bradley's most complete safety station. Provides the dual benefit of eyewash and drench shower—all in a single location. Each unit operates separately. Both provide emergency aid. Drench Shower gives immediate, total body coverage. Delivers drench column 12 to 14 inches in diameter—meets federal requirements for spread of water cone.

Chrome plated brass 1" ball valve is operated by rigid pull-rod. Stays open for continuous supply during panic use. Optional self-closing valve available.

Stainless steel receptor bowl contains twin aerated eyewash fountains. Stay-open ball valve is manually operated by easily accessible stainless steel pusher. Provides twin streams of soft, aerated water flush out irritants such as acids, chemicals.

Stream flow control assures safe, steady flow under varying water supply conditions.

Standard includes fittings for vertical or horizontal supply.

