

FOCUS SAFETY BULLETIN

Structural Foam Machines Safety Updates from Clause 6 of ANSI/SPI B151.1

The Society of Plastics Industry (SPI) has been actively involved with the American National Standards Institute (ANSI) for a number of years. As a result, the following safety standard was first developed in 1976, revised in 1984, 1990 and the latest in 1997. Clause 6 of this standard assigns specific responsibilities to you, our customer, for updating the machines that were manufactured before July 1998.

We recommend that you obtain a copy of ANSI/SPI B151.1—1997 by contacting ANSI at:

Telephone: (212) 642-4900

<http://www.ansi.org>

We are providing you with the SPI Audit, FOCUS/May 1998 and the following guide to assist you in your efforts to comply with the electrical and mechanical requirements of this Safety Standard. ALL Structural Foam machines are considered LARGE machines.

Electrical

- 1.** The hardwired electrical interlock provided for the front and rear gates shall prevent the following motion/movement; platen closing and injection.
- 2.** Power-operated gate installed with a pressure-sensitive switch when activated shall cause gate motion to stop or reverse. The pressure-sensitive switch shall be designed and installed into the control circuit such that failure of the switch duplicates actuation of the switch—fails to the safe condition.
- 3.** Closure of the power-operated gate shall not directly initiate cycle start control. Exception: Where a floor-entry-mounted robot is used, disengagement of this safety device and closure of the gate may be initiated by a robot signal.
- 4.** The dump pan/purge guard shall be electrically interlocked so when the pan is remove (out of the protected position) shall prevent screw rotation, screw or plunger forward and, if applicable, electrically actuate injection carriage forward motion.
- 5.** Emergency stop control shall be provided inside the front and rear gates in a location readily accessible from between the gate and adjacent tie bars of the molding area.
- 6.** Manual or power-operated gates shall be install with one of the two safety devices;
 - a.** Double Acknowledgment System—Safety system “reset” control button located on the outside of the front and rear gates with a clear view to the molding area; actuated prior to activating cycle start control button. A monitoring device in the control circuit shall be provided to check proper operation and sequencing.
 - b.** Gate Block—Mechanical device shall be installed to prevent the unintentional return of the

gate(s) to the closed position. Disengagement and full closure of the gate(s) shall only occur by the direct and continuous action of the operator.

7. All machines were originally installed with an approved electrical disconnect to isolate the plant electrical power (main) source from the SF machine. Any additional energy isolating device(s) installed, for an example, to safely isolate power between the extruder and clamp/tooling for set-up, shall be an approved energy disconnect. (Refer to FOCUS / May 1998-Attached)

Mechanical (Note: The point of operation shall be properly guarded)

1. Fixed guarding shall be attached to the bottom of the front and rear gates providing a floor clearance between 12-14".
2. Fixed guarding shall be installed adjacent/behind the front and rear gates providing a floor clearance of 12-14".
3. Fixed guarding shall be installed over and around the catrac and the adjacent opening accessing the rear clamp area.
4. Fixed guarding for all rotating shafts (including motor couplings) shall be installed.
5. Fixed guarding for the heater bands (electrical) and the extruder barrel (thermal) shall be installed.
6. A mechanical device (eg. ratchet bar or a friction-type device) shall be installed to physically obstruct the impending closing motion of the moving platen.
7. A hydraulic interlocking system shall be provided. Note: If the hydraulic interlock is actuated by electrical device rather than mechanical, a monitoring device shall be installed to check and verify the proper operation. If improper operation is detected, cycle shall be inhibited and an alarm shall be activated. Reinitiating cycle start shall not be permitted until the fault/problem has been corrected.
8. All feed openings for plastic materials shall be properly guarded.
9. The current ANSI Safety Signs shall be affixed to the machine when original machine safety signs are replaced.

When requesting a quote for parts and services, please contact your local Uniloy Parts Sales Representative. Should you need further assistance regarding machine safety compliance, please do not hesitate to contact us.