

Retrofits Required To Comply With ANSI / SPI B151.21 2000

Injection Blow Molding Machines - Safety Requirements for Manufacture, Care, and Use

In order to assess the appropriate package of retrofits for your IBS machine, please provide your local Uniloy Parts Sales Representative with the following information:

- Machine Serial Number
- Machine Model Number
- Type of Existing Safety Cage (2 door, 5 door (Gull wing) or other)
- Type of Existing Mechanical Safety Stops (above table, below table, or none)
- Diameter of Existing 4 Tie Bars (2 blow clamp and 2 injection clamp)
- Existing Control Voltage (24V or 110V)
- Type of Existing Hydraulic System (flat tank or dual manifold)

1. Extruded Aluminum Safety Cage Assembly

This item is required for all machines built prior to 1979 because it replaces the previous one piece, air operated cage. This new style cage is designed to have a high strength to weight ratio because it is fabricated with an extruded aluminum frame and lexan panels. There are 6 doors on this enclosure which are hinged and swing out from the machine.

Features include:

- The main cage surrounds the clamp area with 2 doors for access to the blow mold and 2 doors for access to the injection mold
- The operator access cage, located at the stripper station, has 2 access doors
- Non-Contact and Coded safety switches come with this complete assembly

2. Air Operated Safety Shoes

This mechanical safety retrofit adds an air cylinder to each re-designed shoe for Option A and a second proximity switch for Options B and C. The position of each shoe is monitored (retract or engage). When the cylinder is energized it retracts the shoe and when it is de-energized the shoe is engaged for safe access. The shoes have been redesigned so that they can engage in an increased range of the mold close portion.

Option A1. For machines with 4 shoes mounted on top of the table.

Actuated mechanically

Includes:

- Cylinders (4)
- Redesigned Safety Shoes (4)
- Pivot Blocks, Pads, and Pins (4 each)
- Proximity Switches (8)
- Solenoid Valve & Regulator
- Fittings and Fasteners

**Option A2. For machines with 4 shoes mounted on top of the table.
Actuated mechanically - without new shoes**

Includes:

- Cylinders (4)
- Pivot Pads (4)
- Proximity Switches (8)
- Solenoid Valve & Regulator
- Fittings and Fasteners

Note: The existing shoes will have to be modified.
The cost of actually modifying the shoes is not included.

**Option B. For machines with 4 shoes mounted on top of the table.
Actuated with air cylinders**

Includes:

- Shoe Modification Drawing
- Proximity Switches (8)
- Brackets (4)
- Fittings and Fasteners

Note: The cost of actually modifying the shoes is not included.

Option C. For machines with 2 shoes mounted below the table

Includes:

- Shoe Modification Drawing
- Proximity Switches (4)
- Brackets (2)
- Fittings and Fasteners

Note: The cost of actually modifying the shoes is not included.

3. Electrical Interlock

This electrical safety retrofit adds Non-Contact and Coded safety switches (2 switches per door) to both the main cage/doors and operator access cage. These switches provide the inputs required to electrically and hydraulically interlock and monitor the status of these doors.

Option A. For machines with two piece safety gate (main & operator)

Includes:

- Safety Switches (4)
- Spring Loaded Keys (4)
- Mounting Clamp
- Key Mount
- Wire, Fittings and Fasteners
- Guide tube modification drawing

Note: The cost of actually modifying the (2) tubes is not included.

Option B. For machines with five doors (4 around the clamp area and operator gate) equipped with Honeywell limit switches

Includes:

- Safety Switches
- Safety Switch Brackets
- Spring Loaded Keys (2)
- Mounting Clamp and hardware
- Key Mount
- Wire, Fittings and Fasteners
- Guide tube modification drawing

Note: The cost of actually modifying the (2) tubes is not included.

Option C. For machines with five doors (4 around the clamp area and operator gate) equipped with Keyed limit switches

Includes:

- Safety Switches (10)
- Wire

4. Spool Monitored Hydraulic Blocking Valve

The blocking spool is monitored for correct positioning when one or both of the access doors are opened and closed. Should the spool not move to the "blocked" position when an access door is opened, an electrical signal is sent to the control outputs and shuts off the hydraulic pump motor preventing further clamp movement. This condition will present an alarm indication and will not permit restarting of the hydraulic pump until the hydraulic safety valve is functioning properly.

Includes:

- Spool Monitored Hydraulic Blocking Valve
- Hose, Wire, Fittings and Fasteners (as needed)

5. Electrical Interface

This assembly provides for the interface of the above defined mechanical, electrical, and hydraulic safeties to the machine controller.

Option A. Logic box for machines equipped with GE PM 1000, SCI, Maco IV, Maco 4000, and Maco 8000

Includes:

- Electrical Enclosure
- Sub Panel
- Safety Relays (2)
- S7 200 PLC
- Power Supply
- E Stops (2) (to replace momentary E Stops if present)
- Reset Button
- Wire, Fittings and Fasteners

Option B. Program Change for machines equipped with Siemens 505

Includes:

- Program software change
- Wire, Fittings and Fasteners