

# American National Standard

*for Plastics Machinery –  
Robots Used with Horizontal  
Injection Molding Machines – Safety  
Requirements for the Integration,  
Care, and Use*

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**American National Standards Institute**

11 West 42nd Street  
New York, New York

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**ANSI/SPI B151.27-1994**

Revision and redesignation of  
ANSI B151.27-1994

American National Standard  
for Plastics Machinery –

**Robots Used with  
Horizontal Injection Molding Machines –  
Safety Requirements for  
the Integration, Care, and Use**

Sponsor

**Society of the Plastics Industry, Inc.**

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**Foreword** (This foreword is not part of American National Standard ANSI/SPI B151.27-1994.)

The project on Safety Requirements for the Integration, Care and Use of Robots Used with Horizontal Injection Molding Machines was initiated under the auspices of the Auxiliary Section of the Society of the Plastics Industry (SPI) Machinery Division and the Safety Committee of the SPI Molders Division.

Both divisions have long been concerned with operator safety on plastics processing machinery and auxiliary equipment. Accordingly, each section of the Machinery Division has established a standards committee charged with the task of establishing safety standards.

A standard addressing the integration, care, and use of robots used with horizontal injection molding machines is complicated by the variety and sizes of machines and robots manufactured and in use and by virtually infinite combinations of parts being produced, production methods used, and operating conditions existing in industry today.

The primary objective of this standard is to minimize hazards associated with machine and robot activity by establishing requirements for the integration, care, and use of these machines.

To accomplish this objective, the committee decided to approach the problem of integration safety from two different directions:

- eliminate, by design criteria, recognized hazards, and establish standard approaches to design so that robot integration from competitive manufacturers will have similar operational characteristics;
- safeguard the point of operation to protect the operator from recognized hazards.

To assist in the interpretation of these requirements, responsibilities have been assigned to the manufacturer, the remanufacturer, the modifier, and the employer.

Suggestions for improvement of this standard will be welcome. They should be sent to the Society of the Plastics Industry, 1275 K Street, NW, #400, Washington, DC 20005.

Consensus for this standard was achieved by use of the Canvass Method.

The following organizations recognized as having an interest in the standardization of horizontal injection molding machines were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

Aerospace Industries Association  
Alliance of American Insurers  
American Insurers Safety Group  
American Standards Testing Bureau  
Dana Molded Products  
Factory Mutual Research  
Grinding Wheel Institute  
Industrial Safety Equipment Association  
The American Automotive Manufacturers Association  
National Institute of Standards and Technology  
Rubber Manufacturers  
Robotics Industries Association

Society of the Plastic Industry  
Machinery Manufacturers Division  
Molders Division  
Mold Makers Division

The Robotics Section, Standards Development Committee of the Machinery Division, The Society of the Plastics Industry, Inc., which was responsible for this standard, had the following members:

M. Dulchinos, Chairman (Wittmann Robots)	R. Arnott (Husky Injection Molding Systems)
	R. Blodgett (Automated Assemblies)
	M. Jamroz (DTG Inc.)
	L. Mills (Van Dorn Demag)
	B. Osbourne (Star Automation)
	I. Schmitz (DTG)
	F. Strohmeier (Engel)
	D. Winsted (Cincinnati Milacron)

## Explanation of Standard Format

American National Standard ANSI/SPI B151.27-1994 uses a two-column format to provide both specific requirements and supporting information.

The left column, designated "Standard Requirements," is confined solely to these requirements and is printed in bold type.

The right column, designated "Explanatory Information," contains only information that is intended to clarify the standard. This column is not part of the standard. Where supplementary photographs or sketches are required, they are designated as "Illustrations."

Operating rules (safe practices) are not included in either column unless they are of such a nature as to be vital safety requirements that are equal in weight to other requirements, or unless they are guides to assist in compliance with the standard.



American National Standard  
for Plastics Machinery –

# Robots Used With Horizontal Injection Molding Machines – Safety Requirements for the Integration, Care, and Use

## STANDARD REQUIREMENTS

## EXPLANATORY INFORMATION

(Not part of *American National Standard for plastics machinery – Robots used with horizontal injection molding machines – Safety requirements for the integration, care, and use, ANSI/SPI B151.27-1994*)

### 1 Scope, purpose, and application

#### 1.1 Scope

This standard was developed by the Robotics Committee of the SPI Machinery Division to address certain hazards arising from the installation and operation of robots used on or in conjunction with horizontal plastic injection molding machines. The recommendations offered herein are provided in good faith but are made without warranty, expressed or implied, as to merchantability, fitness for a particular purpose, or any other matter.

#### 1.2 Purpose

The purpose of this standard is to establish recommended safe practices and procedures for the integration, care, and use of robots entering the mold area of horizontal plastics injection molding machines. Procedures for automatic mold changers are not included in this standard.

#### 1.3 Application

Recognizing the impossibility of updating systems and changing operation methods allied with existing systems immediately after approval date of this standard, a 3-year period has been provided to employers for updating systems.