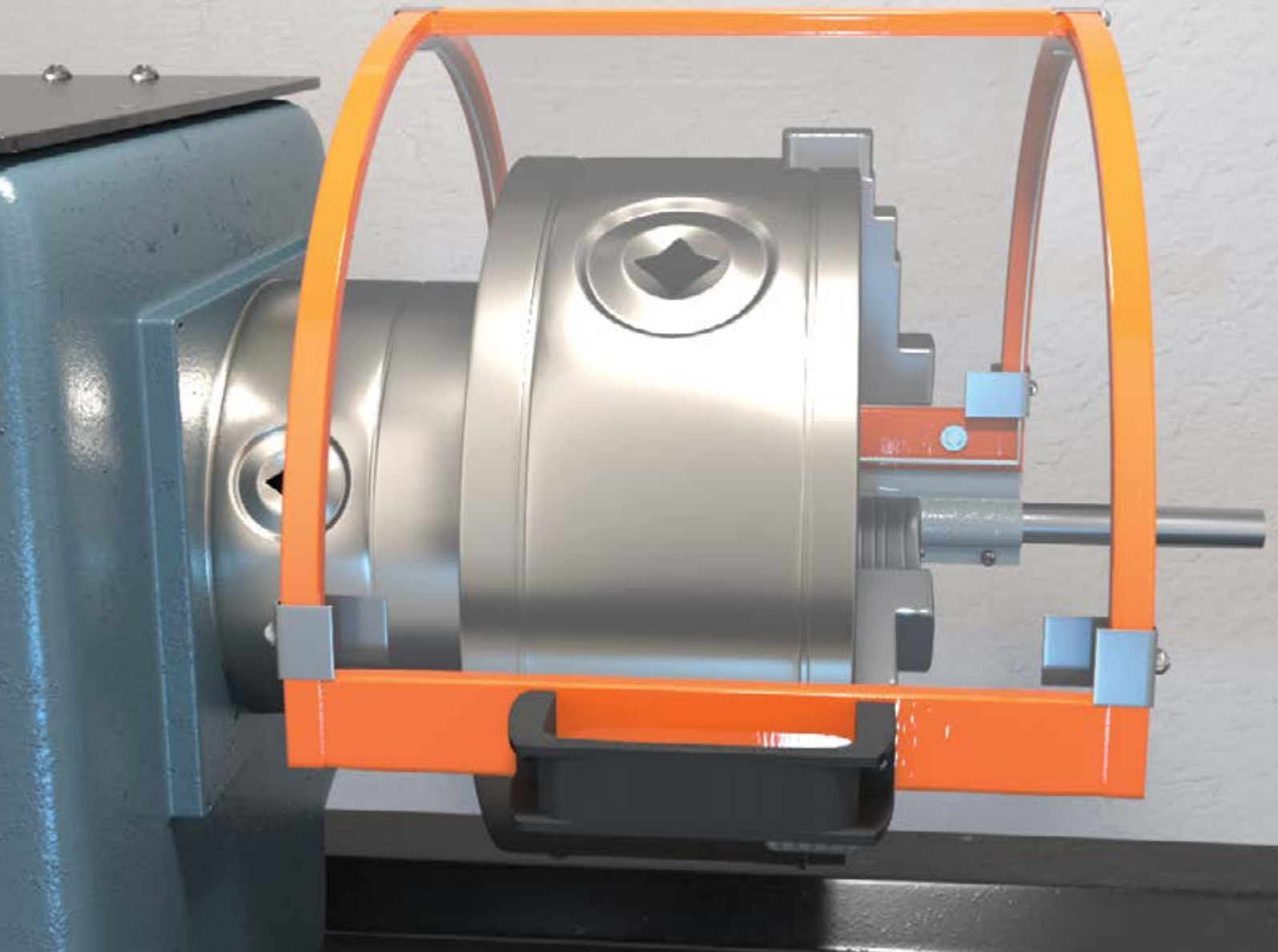




Safety Shields

For Cutting and Turning Machines

DELIVERING TRUSTED MACHINE SAFEGUARDING SOLUTIONS FOR ORGANIZATIONS WORKING WITH INDUSTRIAL MACHINERY

WHY SAFEGUARD?

According to Occupational Safety and Health Administration (OSHA) statistics, nearly 18,000 workers in metal fabricating plants suffer non-fatal injuries annually in the United States. Even with strict machine and operator safety regulations in place, unguarded hazardous machinery remains a major source of fatalities, amputations and other traumatic injuries in manufacturing plants. A recent survey showed an alarming 50 percent or more of metal fabricating machinery in the United States are not in compliance with the critical safety requirements for guarding outlined by OSHA and the American National Standards Institute (ANSI).

Since 1971, the Fortune 500 and many of North America's largest manufacturers have depended upon Rockford Systems for customized machine safeguarding solutions to bring their operations into compliance with today's OSHA regulations, ANSI, RIA and NFPA standards to ensure they are prepared for tomorrow's safety challenges.

MACHINE SAFETY SOLUTIONS



Training and Education

Recommended For

Personnel in EH&S, Production/ Operations/ Maintenance, and Risk Management roles that need safeguarding training

Description

Seminars and webinars that teach people how to safeguard industrial machinery to be in compliance with OSHA regulations, and ANSI/RIA/NFPA standards

Output / Result

Safeguarding Seminar Certificate

Machine Risk Assessment

Recommended For

Organizations with new and/or relocated metal working machines or automation cells that need hazard identification and risk scoring

Description

Identifies the task and associated hazards on machinery
Scores the risk level using the ANSI B11.0-2015 safety standard methods

Output / Result

Hazard Analysis Report

Machine Safeguarding Assessment

Recommended For

Organizations with new, old, refurbished and/or relocated metal working machines, robots or automation cells that need safeguarding solutions and associated costs

Description

Identifies the task and associated hazards on machinery
Recommends safeguarding solutions using the current OSHA regulations, and ANSI/RIA/NFPA standards (or Corporate Standards where applicable)

Output / Result

Machine Safeguarding Assessment & Proposal

Customized, Engineered Integration Solutions

Recommended For

Included with Machine Safeguarding Assessment

Description

Delivers customized engineered and automated safety device interfaces or specialized controls for machines or robots

Output / Result

Machine Safeguarding Assessment & Proposal

OUR MISSION

Our aim is to enhance the long-term health and quality of life of workers in high-risk occupations, while improving the bottom line of the organizations we serve by increasing compliance, reducing risk, lowering costs, and improving productivity.

ROCKFORD SYSTEMS CAN HELP

At Rockford Systems, we are experts at machine guarding because it has been our sole focus for over 45 years. We stand committed to the prevention of injuries and fatalities. We are here to help insurance agencies, academic institutions, and businesses, large and small, address machine safety challenges and to remove the burden of managing the growing legal complexity of OSHA and ANSI requirements from simple turnkey solutions, to more complex customized solutions.



Over 10,000 Safeguarding Products

Recommended For

Included with Machine
Safeguarding Assessment

Description

Ensures that industrial machines and automation cells are fully safeguarded to OSHA regulations, and ANSI/RIA/NFPA standards

Includes shields, guards, presence sensing devices, controls, disconnects, starters, covers and more for all metal working machines

Output / Result

Machine Safeguarding
Assessment & Proposal

Expert Installation Services

Recommended For

Included with Machine
Safeguarding Assessment

Description

OSHA trained installers safely integrate safeguarding products into sophisticated machine controls and train operators on proper use

Output / Result

Machine Safeguarding
Assessment & Proposal

Technical Support and In-Field Support

Recommended For

Included with all purchases
and installations

Description

Every purchase is backed up with a professional, highly-trained team of Technical Support Advisers

In-Field Service Technicians are available for more complex troubleshooting and repairs

Output / Result

Post purchase support via phone, fax, online or onsite

Ongoing Compliance Validation

Recommended For

Organizations who have completed a guarding installation that seek ongoing compliance validation

Description

Ensures that safeguarding products are in place, working at optimal performance, and operators are using safeguarding solutions as designed and trained

Output / Result

Included with all Machine
Safeguarding Assessment

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The applications described in this catalog are for instructional and informational purposes only; the photos in this catalog are for illustrative purposes only. They may not represent actual usage. This catalog has been carefully checked for accuracy and is thought to be fully consistent with the products described herein. However, Rockford Systems, LLC does not assume liability for the contents of this publication or for the use of any products described herein. Rockford Systems, LLC reserves the right to make changes to the products and documentation without further notice.

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INTRODUCTION

There are basic requirements for safeguarding cutting and turning machines. These basic safety requirements include safeguarding, controls, disconnects, starters, covers, and other considerations. We have explained the basic safety requirements below and have arranged this catalog so you can make your safeguarding choices quickly and easily.

1. SAFEGUARDING: When safeguarding the point of operation on a cutting or turning machine, shields (barriers) can be installed between the hazard and the operator. These shields can deflect chips, sparks, and coolant that are generated at the point of operation.

2. CONTROLS: Most cutting and turning machines are directly driven by a motor. When the motor is turned on, the tool or workpiece rotates causing a point-of-operation hazard. When the motor is turned off, the tool or workpiece coasts to a stop and the hazard is eliminated. The basic requirement, for controls, is that all cutting and turning machines must have an emergency-stop device located within reach of the operator. Some of the motor stop/start operator stations offered in this catalog are equipped with an emergency-stop push button to meet this requirement. These emergency-stop buttons can also be supplied separately.

3. DISCONNECTS: All cutting and turning machines must have a disconnecting means to shut off all pneumatic, electrical, and hydraulic power sources coming to the machine. It must be capable of being locked only in the off position to comply with OSHA 1910.306 (j) (4), applicable ANSI standards, and OSHA 29 CFR 1910.147 (lockout/tagout).

4. STARTERS: All cutting and turning machines must have a starter that will automatically drop out when the control voltage is lost to the machine. To restart the machine when power is restored, someone must start the motor with some type of overt action, for example, pressing the start push button. This prevents the machine from automatically restarting when the voltage is restored.

5. COVERS: All cutting and turning machines must have the mechanical power-transmission apparatuses covered (guarded) if below a 7' level from the floor or working platform. This includes motor shafts, belts, pulleys, chains, sprockets, gears, etc. This catalog offers a pulley and belt cover for Bridgeport mills as shown on page 42. If special covers are required, visit www.rockfordsystems.com for our Mechanical Motions Cover (CVR) catalog, or contact the OEM or a local fabricator to satisfy this requirement.

6. OTHER CONSIDERATIONS: Other auxiliary safeguarding equipment may be required to make cutting and turning machines as safe as possible. This equipment includes safety switches which can be used to interlock the shield or guard to the machine's starter. Electronic motor brakes are available for machines that have a long coastdown time. These brakes are used to decrease the long coasting time after the motor is turned off. This increases productivity because the operator does not have to wait for the machine components to coast to a stop. Signs are used to warn of the hazards on a machine.

INTRODUCTION (CONTINUED)

When safeguarding cutting and turning machines, the general requirements that apply to these types of machines are in OSHA (Occupational Safety and Health Administration) Title 29 of the Code of Federal Regulations. The following is a list:

1. **An Act—Public Law 91-596, 91st Congress, S. 2193, December 29, 1970, Duties, Section 5(a)(1)(2)(b)**
2. **OSHA 29 CFR sections that an employer (user) must comply with include:**

- 1910.211 Definitions
- 1910.212 General requirements for all machines
- 1910.213 Woodworking machinery requirements
- 1910.215 Abrasive wheel machinery
- 1910.219 Mechanical power-transmission apparatus

3. **OSHA 29 CFR 1910.147 The control of hazardous energy (lockout/tagout).**

4. **OSHA 29 CFR 1910.301-1910.399 Electrical**

These publications can be acquired by contacting:

U.S. Government Printing Office
P.O. Box 371954
Pittsburgh, PA 15250-7954
(202) 512-1800 • <http://bookstore.gpo.gov>

The basic OSHA standard, 29 CFR 1910.212, states that any machine that creates a hazard must be safeguarded to protect the operator and other employees. OSHA can also cite violations using other standards such as the ANSI (American National Standards Institute) B11 series. The following is a list of applicable and related ANSI standards available at the printing of this publication.

ANSI Publications

- B11—2008 General Safety Requirements
Common to ANSI B11 Machines
- B11.1 Mechanical Power Presses
- B11.2 Hydraulic Power Presses
- B11.3 Power Press Brakes
- B11.4 Shears
- B11.5 Iron Workers
- B11.6* Lathes
- B11.7 Cold Headers and Cold Formers
- B11.8* Drilling, Milling, and Boring Machines
- B11.9* Grinding Machines
- B11.10* Metal Sawing Machines
- B11.11* Gear and Spline Cutting Machines
- B11.12 Roll Forming and Roll Bending Machines
- B11.13 Automatic Screw/Bar and Chucking Machines
- B11.14 Withdrawn (now see ANSI B11.18)
- B11.15 Pipe, Tube, and Shape Bending Machines
- B11.16 Metal Powder Compacting Presses
- B11.17 Horizontal Hydraulic Extrusion Presses
- B11.18 Coil Processing Systems
- B11.19* Performance Criteria for Safeguarding
- B11.20 Integrated Manufacturing Systems

- B11.21 Machine Tools Using Lasers for Processing Materials
- B11.22* Turning Centers and CNC Turning Machines
- B11.23* Machining Centers and CNC Milling, Drilling, and Boring Machines
- B11.24 Transfer Machines
- B11.TR1 Ergonomic Guidelines
- B11.TR2 Mist Control Considerations
- B11.TR3* Risk Assessment and Risk Reduction
- B11.TR4 Selection of Programmable Electronic Systems (PES/PLC) for Machine Tools
- B11.TR5 Sound Level Measurement Guidelines
- B11.TR7 Design For Safety and Lean Manufacturing
- R15.06 Robotic Safeguarding
- B15.1 Mechanical Power Transmission Apparatus
- B56.5 Guide Industrial Vehicles and Automated Function of Manned Industrial Vehicles
- B65.1 Printing Press Systems
- B65.2 Binding and Finishing Systems
- B65.5 Stand-Alone Platen Presses
- B151.1 Horizontal (Plastic) Injection Molding Machines
- B152.1 Hydraulic Die Casting Presses
- B155.1 Packaging and Packaging-Related Machinery
- 01.1* Woodworking Machinery

**ANSI Standards for Cutting and Turning Machines*

These standards can be purchased by contacting:

ANSI (American National Standards Institute, Inc.)
25 West 43rd Street, 4th Floor
New York, New York 10036
(212) 642-4900 • www.ansi.org

Another good reference for safety on machine tools is the following publication from the National Safety Council:

Safeguarding Concepts Illustrated—7th Edition

This publication can be purchased by contacting:

National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
1-800-621-7619, ext. 2199 • www.nsc.org

Other sources that can be used for reference include:

1. **NFPA 79, Electrical Standard for Industrial Machinery**
2. **NEC (National Electrical Code) Handbook**
3. **NEMA (National Electrical Manufacturers Association)**

For additional safety information and assistance in devising, implementing or revising your safety program, please contact the machine manufacturer, your state and local safety councils, insurance carriers, national trade associations, and your state's occupational safety and health administration.

INTRODUCTION (CONTINUED)

This catalog offers a variety of equipment including a line of shields (barriers), cord and plug lockouts, fused disconnect switches, magnetic motor starters, self-latching emergency stops, and accessories which are available to meet the electrical energy source portion of these standards. If a shield is not represented within this catalog, please contact us for an alternative solution.

The shields (barriers) offered in this catalog are usually installed on drilling machines, lathes, milling machines, grinding machines, band saws, belt sanders, and disc sanders. Many of the shields can be used on other types of equipment including woodworking machines. Most of these shields are intended to deflect chips (swarf), sparks, splashing coolant, or lubricant away from the operator and other employees in the machine area. Shields will provide visibility to the point of operation.

Although these shields provide some degree of guarding for the operator, they cannot be considered guards. When using these shields, and before any of the shields illustrated in this catalog are moved from their normally applied position, power must always be turned off.

In some cases, more than one type of shield per machine may be necessary to provide protection. For example, on lathes, a chuck shield may be required along with a magnetic-base shield where the tool comes into contact with the workpiece.

This catalog offers several different types of shields. When considering shielding for your machines, be sure to choose the shield that fits your machining applications and still maintains current levels of productivity.

DRILLING MACHINES

As with other cutting machines, the operator must be shielded from the rotating chuck and swarf that is produced by the drill bit. A wide variety of shields can be attached to the machine and used to protect this area. The ANSI standard for drilling machines is ANSI B11.8.

LATHES

There are three main safety considerations for lathes (engine, turret, etc.). One is the rotating chuck that could catch the operator's clothing, jewelry, hair, or hand and pull it into the machine. The second is the hazardous flying chips and splashing coolant that are generated at the point of operation (where the tool contacts the workpiece being machined). To protect these areas, two shields can be applied—one around a portion of the chuck and the other at the point of operation. See the photo on page 28. Larger sliding shields can protect both areas, providing the workpiece is not too long. The third is the rotating transmission components that must be covered to prevent entanglement. On VTLs (vertical turret lathes), the safety concern is the rotating table and the point-of-operation swarf. Special barriers may have to be fabricated around the tables of these machines; shields can be provided at the point of operation.

If railings are used to keep operators away from hazard areas, these railings must be 42" above the floor or platform.

The ANSI standard for lathes is ANSI B11.6.

MILLING MACHINES

The main safety consideration for milling machines is the swarf that is generated at the point of operation. Another safety concern is the tool cutter, which could catch operator's clothing, jewelry, hair, or any other part of the body. Usually on smaller mills, the operator and other employees in the machine area are protected by shields. These shields can be applied around the perimeter of the table or bed area or close to the cutter, depending on the size of the workpiece and the application. On larger milling machines, operators are sometimes protected by location; however, when working close to a cutting tool, operators must be protected from swarf.

The ANSI standard for milling machines is ANSI B11.8.

GRINDING MACHINES

Shields are usually applied to grinding machines to protect the operator from chips (swarf), sparks, splashing coolant, or lubricant.

Other safety concerns for grinders are the adjustment of the work rests and the adjustable tongues or ends of the peripheral members at the top of each wheel. Work rests shall be kept adjusted closely to the wheel with a maximum opening of 1/8". The distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed 1/4".

Grinding machines are covered by OSHA in 29 CFR 1910.215. The ANSI standards for grinding machines are B11.9 and B7.1.

BAND AND TABLE SAWS

Shields are applied to band saws and table saws to protect the operator from flying chips, splinters, and dust. As with other cutting machines, care must be taken around the moving blade of the machine. Avoid wearing loose clothing and jewelry; properly restrain long hair.

Band saws and table saws for woodworking are covered by OSHA in 29 CFR 1910.212 and 1910.213. The ANSI standard for metal sawing machines is ANSI B11.10.

DISC/BELT SANDERS/GRINDERS

Shields can be applied to disc/belt sanders/grinders to protect the operator from flying chips, splinters, and dust. As with other machines with rotating parts, care must be taken around the point of operation. Avoid wearing loose clothing and jewelry; properly restrain long hair.

Disc and belt sanders for woodworking are covered by OSHA in 29 CFR 1910.212 and 1910.213. The ANSI standards for grinding machines are B11.9 and B7.1.

LOCKOUT/TAGOUT

As stated in OSHA 29 CFR 1910.147 The control of hazardous energy (lockout/tagout): "(a)(1)(i) This standard covers the servicing and maintenance of machines and equipment in which the unexpected

INTRODUCTION (CONTINUED)

energizing or start-up of the machines or equipment, or release of stored energy could cause injury to employees. This standard establishes minimum performance requirements for the control of such hazardous energy.”

One source of energy to be locked out is the electrical energy sources:

1. Unplug the machine and use an electrical plug lockout or use a disconnect switch with padlocks, lockouts, and tags.
2. Disconnect and ensure that all power sources are locked and tagged out.
3. Stored electrical energy must be bled to obtain zero energy state.
4. Use a volt meter to make sure all circuits are dead.

ELECTRICAL REQUIREMENTS

NFPA 79, ELECTRICAL STANDARD FOR INDUSTRIAL MACHINERY

INCOMING SUPPLY CIRCUIT CONDUCTOR TERMINATIONS

Under 5.1.1, it states that “where practicable, the electrical equipment of a machine shall be connected to a single power supply circuit.”

SUPPLY CIRCUIT DISCONNECTING (ISOLATING) MEANS

In 5.3.1.1, it states that a supply circuit disconnecting means shall be provided for each incoming supply circuit to a machine. According to 5.3.1.1.1, each disconnecting means shall be legibly marked to indicate its purpose. Under 5.3.1.3, “The supply circuit disconnecting means other than attachment plugs and receptacles shall be mounted within the control enclosure or immediately adjacent thereto. Exception: Externally mounted supply circuit disconnecting means, whether interlocked or not interlocked with the control enclosure, supplying machines totaling 2 hp or less shall be permitted to be mounted up to 6 m (20 ft) away from the enclosure providing that the disconnecting means is in sight from and readily accessible to the operator.” Under 5.3.3, the disconnecting means shall be provided with permanent means for locking in the off position only (for other than attachment plugs). In accordance with 5.3.4.1, “The center of the grip of the operating handle of the disconnecting means, when in its highest position, shall not be more than 2.0 m (6 ft 7 in) above the floor. A permanent operating platform, readily accessible by means of a permanent stair or ladder, shall be considered as the floor for the purpose of this requirement.” According to 5.3.2 (6), the supply circuit disconnecting means can be an attachment plug and receptacle (plug/socket combination) for cord connection to motor loads totaling 2 hp or less.

CONTROL CIRCUIT SUPPLY, VOLTAGE, AND PROTECTION

In 9.1.1.1, it states that “Control transformers shall be used for supplying the control circuits.” According to 9.1.1.3, “Transformers shall not be required if the supply voltage does not exceed 120 volts ac.”

In accordance with 9.1.2.1, “The ac voltage for control circuits shall not exceed 120 volts, ac single phase.”

According to 9.1.3, control circuits shall be provided with overcurrent protection.

OVERLOAD PROTECTION OF MOTORS

According to 7.3.1, “Overload devices shall be provided to protect each motor, motor controller, and branch-circuit conductor against excessive heating due to motor overloads or failure to start.”

STOP FUNCTIONS

According to 9.2.2, “The three categories of stop functions shall be as follows:

- (1) Category 0 is an uncontrolled stop by immediately removing power to the machine actuators.
- (2) Category 1 is a controlled stop with power to the machine actuators available to achieve the stop then remove power when the stop is achieved.
- (3) Category 2 is a controlled stop with power left available to the machine actuators.”

In 9.2.5.3.1, it states that “Each machine shall be equipped with a Category 0 stop.” According to 9.2.5.3.2, “Category 0, Category 1, and/or Category 2 stops shall be provided where indicated by an analysis of the risk assessment and the functional requirements of the machine. Category 0 and Category 1 stops shall be operational regardless of operating modes, and Category 0 shall take priority. Stop function shall operate by de-energizing that relevant circuit and shall override related start functions.”

EMERGENCY STOP FUNCTIONS

In accordance with 9.2.5.4.1, emergency stop functions shall be designed to be initiated by a single human action. In addition to the requirements for stop, 9.2.5.4.1.1 states that “the emergency stop shall have the following requirements:

- (1) It shall override all other functions and operations in all modes.
- (2) Power to the machine actuators, which causes a hazardous condition(s), shall be removed as quickly as possible without creating other hazards (e.g., by the provision of mechanical means of stopping requiring no external power, by reverse current braking for a Category 1 stop).
- (3) The reset of the command shall not restart the machinery but only permit restarting.”

In 9.2.5.4.1.2, it states that “Where required, provisions to connect additional emergency stop devices shall be provided.” According to 9.2.5.4.1.3, “The emergency stop shall function as either a Category 0 or a Category 1 stop. The choice of the category of the emergency stop shall be determined by the risk assessment of the machine.” In accordance with 9.2.5.4.1.4, “Where a Category 0 or Category 1 stop is used for the emergency stop function, it shall have a circuitry design (including sensors, logic, and actuators) according to the relevant risk as required by Section 4.1 and 9.4.1. Final removal of power to the machine actuators shall be ensured and shall be by means of electromechanical components. Where relays are used to accomplish a Category 0 emergency stop function, they shall be nonretentive relays. *Exception: Drivers, or solid state output devices, designed for safety-related functions shall be allowed to be the final switching element, when designed according to relevant safety standards.*”

INTRODUCTION (CONTINUED)

DEVICES FOR STOP AND EMERGENCY STOP

In accordance with **10.7.1.1**, “Stop and emergency stop pushbuttons shall be continuously operable and readily accessible.” According to **10.7.1.2**, “Stop or emergency stop pushbuttons shall be located at each operator control station and at other locations where emergency stop is required.”

In **10.7.2.1**, it states that “The types of devices for emergency stop shall include, but are not limited to, the following:

- (1) Pushbutton-operated switches
- (2) Pull-cord-operated switches
- (3) Foot-operated switches without a mechanical guard
- (4) Push-bar-operated switches
- (5) Rod-operated switches”

According to **10.7.2.2**, “Pushbutton-type devices for emergency stop shall be of the self-latching type and shall have direct opening operation.” In accordance with **10.7.2.3**, “Emergency stop switches shall not be flat switches or graphic representations based on software applications.” For restoration of normal function after emergency switching off, **10.8.3** says that “It shall not be possible to restore an emergency switching off circuit until the emergency switching off circuit has been manually reset.” According to **10.7.3**, “Actuators of emergency stop devices shall be colored RED. The background immediately around pushbuttons and disconnect switch actuators used as emergency stop devices shall be colored YELLOW. The actuator of a pushbutton-operated device shall be of the palm or mushroom-head type and shall effect an emergency stop when depressed. The RED/YELLOW color combination shall be reserved exclusively for emergency stop applications. *Exception: The RED/YELLOW color combination shall be permitted for emergency stop actuators in accordance with 10.8.4.*”

Under **10.8.5**, “Where the supply disconnecting means is to be locally operated for emergency switching off, it shall be readily accessible and shall meet the color requirements of **10.8.4.1**.” According to **10.8.4.1**, “Actuators of emergency switching off devices shall be colored RED. The background immediately around the device actuator shall be permitted to be colored YELLOW.”

PUSHBUTTON ACTUATORS

According to **10.2.1**, “Pushbutton actuators used to initiate a stop function shall be of the extended operator or mushroom-head type.” As stated in **10.2.2.1**, “The preferred color of start or on shall be GREEN, except that BLACK, WHITE, or GRAY shall be permitted. RED shall not be used for start or on.” In **10.2.2.2**, it states that “the preferred color for stop or off shall be RED, except that BLACK, WHITE, or GRAY shall be permitted. GREEN shall not be used for stop or off.” According to **10.2.2.6**, “Pushbuttons that cause movement when pressed and stop movement when they are released (e.g., jogging) shall be BLACK, WHITE, GRAY, or BLUE, with a preference for BLACK.” In accordance with **10.2.3.1**, “A legend shall be provided for each operator interface device to identify its function and shall be located so that it can be easily read by the machine operator from the normal operator position. The legends shall be durable and suitable for the operating environment.”

START DEVICES

According to **10.6**, “Actuators used to initiate a start function or the movement of machine elements (e.g., slides, spindles, carriers) shall be constructed and mounted to minimize inadvertent operation.”

Protection Against Supply Interruption or Voltage Reduction and Subsequent Restoration

Under **7.5.1**, “Where a supply interruption or a voltage reduction can cause a hazardous condition or damage to the machine or to the work in progress, undervoltage protection shall be provided (e.g., to switch off the machine) at a predetermined voltage level.” For restarting, **7.5.3** states that “Upon restoration of the voltage or upon switching on the incoming supply, automatic or unintentional restarting of the machine shall be prevented when such a restart causes a hazardous condition.”

PROTECTIVE INTERLOCKS

In **9.3.6**, it states that “Where doors or guards have interlocked switches used in circuits with safety related functions, the interlocking devices shall be listed, have either positive (direct) opening operation, or provide similar reliability and prevent the operation of the equipment when the doors or guards are open (difficult to defeat or bypass).” Under **9.3.1**, “The reclosing or resetting of an interlocking safeguard shall not initiate machine motion or operation that results in a hazardous condition.”

OTHER SAFETY CONSIDERATIONS

Each machine should be surveyed as an individual system. This includes, but is not limited to, the proper shield(s), controls, drives, tooling, feeding methods, material handling methods, configuration and weight of workpiece, rotating and reciprocating parts, machine production requirements, and future machine needs. The proper disconnect switch, motor starter, lockout equipment and covers for machine rotating components must also be considered. See pages 69 and 70 for a survey report.

When operating the various machines to which shields can be applied, the operator must wear proper personal protective safety equipment and be properly trained. The operator must not wear loose clothing, have unrestrained long hair, and must not wear jewelry.



When operating any cutting or turning machine, the hands or any part of a person's body must never be put into the point of operation or any other hazard area of the machine. Hand tools, fixtures, and other methods must be used so that operators are not exposed to hazards. If the hands or any part of a person's body is put into the hazard, it could cause serious physical injury or death.

ELECTRICALLY INTERLOCKED DRILL PRESS SHIELDS



DRILL PRESS SHIELDS
(PAGES 9–12)



LATHE CHUCK SHIELDS
(PAGES 12–14)



**CROSSLIDE/CARRIAGE
TRAVEL LATHE SHIELDS**
(PAGE 15)



MILLING MACHINE SHIELDS
(PAGES 16-18)



GRINDER & TOOL GRINDER SHIELDS
(PAGE 19)



SURFACE GRINDER SHIELDS
(PAGES 20)



**SLOTTING & BROACHING TYPE
MACHINE SHIELDS**
(PAGE 21)

ELECTRICALLY INTERLOCKED DRILL PRESS SHIELDS (CONTINUED)

GOES BEYOND OSHA AND ANSI SAFETY REQUIREMENTS

PTR 04/140

This electrically interlocked heavy-duty shield is ideal for small to medium size drill presses and similar machines. When the shield is swung out of position, the positive contacts on the microswitch open, sending a stop signal to the machine control. The shield is furnished with an IP 67 rated safety microswitch.

The shield consists of a high impact-resistant, transparent polycarbonate semi-octagonal front shield that provides operator protection from flying chips and coolant. The adjustable shield clamps to a steel support rod that rotates 180° and operates the shield safety microswitch. The shield mounts to the left side of the machine using a steel mounting bracket.



Electrically interlocked shield for small to medium size drill presses.

PTR 02/130, PTR 02/180, PTR 20/300, PTR 20/350

These electrically interlocked heavy-duty shields are ideal for larger drill presses and radial drill presses. When the shields are swung out of position, the positive contacts on the microswitch open, sending a stop signal to the machine control. The safety microswitch electrical wires are furnished with a protective cover and connect to the safety circuit of the machine that switches off the control to the movement of the spindle. The shields are furnished with an IP 67 rated safety microswitch.

The shields consist of a high impact-resistant, transparent polycarbonate semi-octagonal front shield that provides operator protection from flying chips and coolant. The adjustable shields clamp to a steel support rod that rotates 180° and operates the shield safety microswitch. The shields mount to the left side of the machine using a steel mounting bracket.

These shields are available in different sizes and provide double vertical adjustment. The PTR 20-series shields have a tubular steel telescopic shield support rod.



Electrically interlocked shield for larger drill presses and radial drill presses.

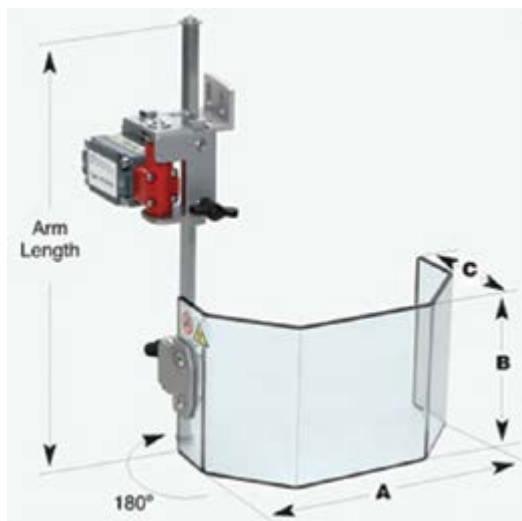
MADE FROM DURABLE PRESSED STEEL

INTERLOCK SWITCH SPECIFICATIONS

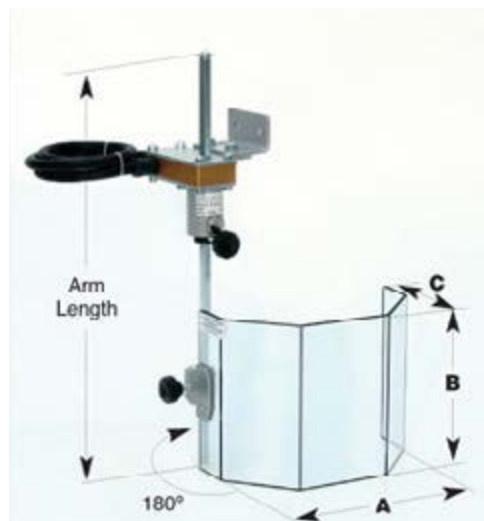


- Contact Arrangement2 NC
- Operating Temperature.....23° to 113° F (-5° to 45° C)
- Switching Ability.....4 A @ 24 V AC, 4 A @ 120/250 V AC
2 A @ 24 V DC, .4 A @ 120 V DC, .
3 A @ 250 V DC
- Mechanical Life1 Million Switching Cycles
- Enclosure Rating.....IP 67

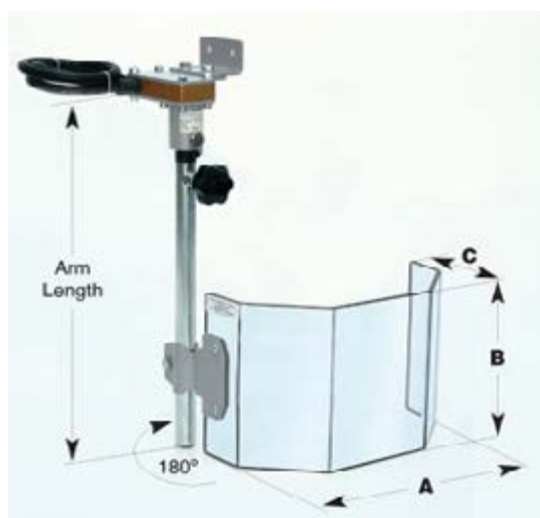
ELECTRICALLY INTERLOCKED DRILL PRESS SHIELDS (CONTINUED)



PTR 04/140



PTR 02/130 & PTR 02/180

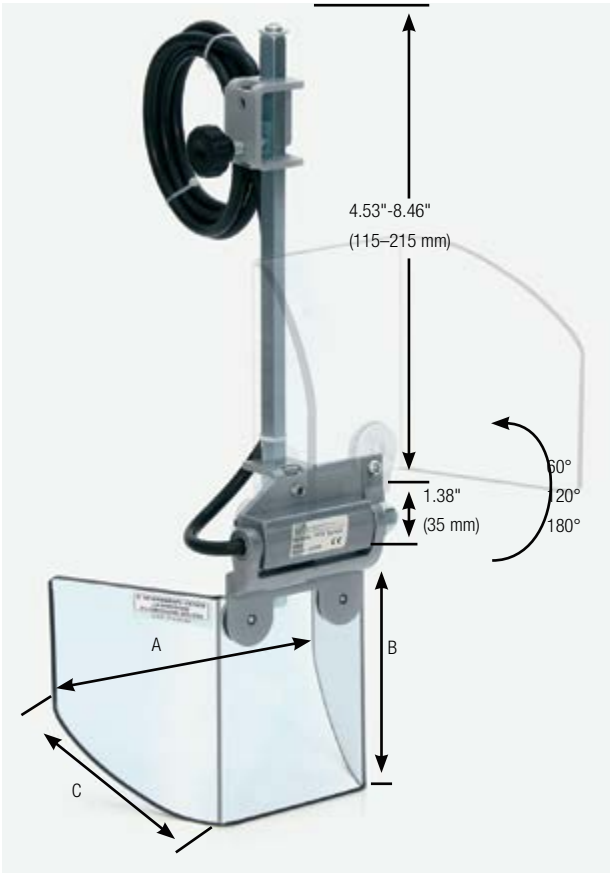


PTR 20/300 & PTR 20/350

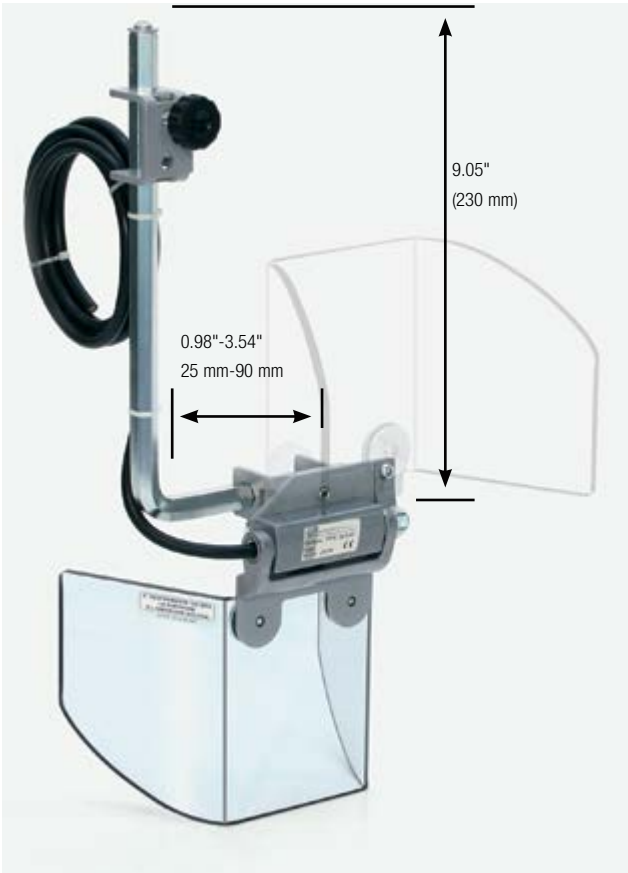
Ordering Information

PART NO.	ARM LENGTH	A	B	C	REPLACEMENT SHIELD
PTR 04/140	13.77" (350 mm)	7.87" (200 mm)	5.51" (140 mm)	3.93" (100 mm)	PTR 04/140SS
PTR 02/130	17.71" (450 mm)	9.05" (230 mm)	5.11" (130 mm)	4.52" (115 mm)	PTR 02/130SS
PTR 02/180	17.71" (450 mm)	9.05" (230 mm)	7.08" (180 mm)	4.52" (115 mm)	PTR 02/180SS
PTR 20/300	17.32"-27.55" (440-700 mm)	11.81" (300 mm)	7.87" (200 mm)	5.90" (150 mm)	PTR 20/300SS
PTR 20/350	17.32"-27.55" (440-700 mm)	13.77" (350 mm)	9.44" (240 mm)	6.88" (175 mm)	PTR 20/350SS

ELECTRICALLY INTERLOCKED DRILL PRESS SHIELDS (CONTINUED)



PTR 10/140 & PTR 10/180



PTR 11/140 & PTR 11/180

Ordering Information

PART NO.	A	B	C
PTR 10/140 - PTR 11/140	7.87" (200 mm)	5.51" (140 mm)	4.33" (110 mm)
PTR 10/180 - PTR 11/180	7.87" (200 mm)	7.08" (180 mm)	4.33" (110 mm)

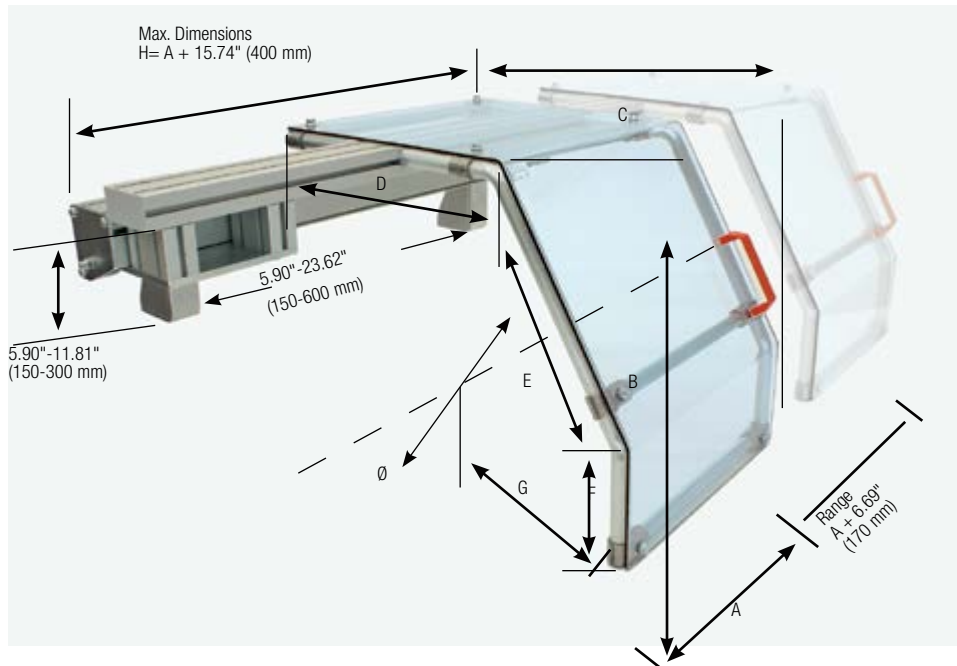
ELECTRICALLY INTERLOCKED LATHE CHUCK SHIELDS (CONTINUED)

These electrically interlocked heavy-duty shields are for lathe chucks. When the lathe chuck shield is lifted up, the positive contacts on the microswitch open, sending a stop signal to the machine control. The safety microswitch electrical wires are furnished with a protective sheath and connect to the safety circuit of the machine that switches off the control to the movement of the chuck. The shield is furnished with an IP 67 rated safety microswitch.

They have a thermo-formed shield made from high impact-resistant, transparent polycarbonate that protects operators from direct contact with the upper portion of the rotating chuck. The shields, in tubular-steel frames, are attached with a steel clamp to a support arm that rotates 90° and operates the safety microswitch.

These electrically interlocked lathe chuck shields are available in several sizes. A handle is furnished for lifting the shield up and out of the way for easy access to the workpiece and for changing chucks.

Note: May be purchased without safety microswitch

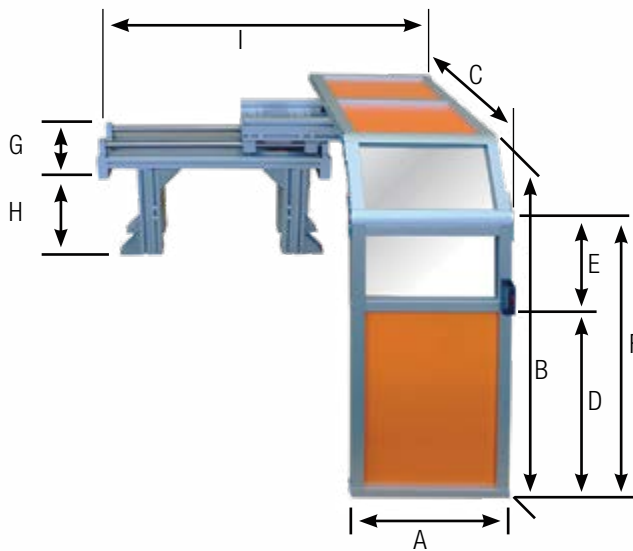


PTO 20/400, PTO 20/600, & PTO 20/800

Ordering Information

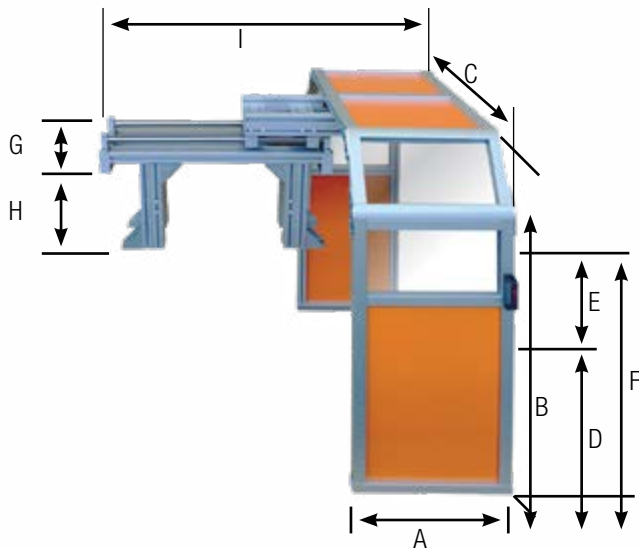
PART NO.	Ø	A	B	C	D	E	F	G
PTO 20/400	15.74"-19.68" (400-500 mm)	17.71" (450 mm)	16.92" (430 mm)	25.78" (655 mm)	18.89" (480 mm)	13.77" (350 mm)	4.92" (125 mm)	11.02"-21.26" (280-540 mm)
PTO 20/600	23.62"-27.55" (600-700 mm)	17.71" (450 mm)	20.47" (520 mm)	33.66" (855 mm)	25.19" (640 mm)	16.92" (430 mm)	5.90" (150 mm)	12.59"-29.13" (320-740 mm)
PTO 20/800	31.49"-35.43" (800-900 mm)	17.71" (450 mm)	25.19" (640 mm)	41.93" (1,065 mm)	31.49" (800 mm)	20.86" (530 mm)	7.08" (180 mm)	14.56"-37.40" (370-950 mm)

ELECTRICALLY INTERLOCKED LATHE CHUCK SHIELDS (CONTINUED)



Ordering Information

PART NO.	A	B	C	D	E	F	G	H	I
PTO 21/080	21.65" (550 mm)	39.37" (1,000 mm)	39.37" (1,000 mm)	20.39" (518 mm)	11.10" (282 mm)	31.49" (800 mm)	11.81" (300 mm)	15.35"-23.22" (390-590 mm)	36.61"-58.66" (930-1,490 mm)
PTO 21/120	21.65" (550 mm)	59.05" (1,500 mm)	55.11" (1,400 mm)	36.14" (918 mm)	11.10" (282 mm)	47.24" (1,200 mm)	11.81" (300 mm)	15.35"-23.22" (390-590 mm)	36.61"-58.66" (930-1,490 mm)



Ordering Information

PART NO.	A	B	C	D	E	F	G	H	I
PTO 22/080	21.65" (550 mm)	39.37" (1,000 mm)	39.37" (1,000 mm)	20.39" (518 mm)	11.10" (282 mm)	31.49" (800 mm)	11.81" (300 mm)	15.35"-23.22" (390-590 mm)	36.61"-58.66" (930-1,490 mm)
PTO 22/120	21.65" (550 mm)	59.05" (1,500 mm)	55.11" (1,400 mm)	36.14" (918 mm)	11.10" (282 mm)	47.24" (1,200 mm)	11.81" (300 mm)	15.35"-23.22" (390-590 mm)	36.61"-58.66" (930-1,490 mm)

ELECTRICALLY INTERLOCKED MILLING MACHINE SHIELDS

GOES BEYOND OSHA AND ANSI SAFETY REQUIREMENTS



SEMICIRCULAR SHIELD

These are electrically interlocked heavy-duty shields for vertical milling machines with two (2) safety microswitch locations. When the shield is swung out of position at either safety microswitch location, the positive contacts on the microswitch open, sending a stop signal to the machine control. The safety microswitch electrical wires are furnished with a protective sheath and connect to the safety circuit of the machine that switches off the control to the movement of the spindle. Shields are furnished with IP 67 rated safety microswitches.

These have a thermo-formed shield made from high impact-resistant, transparent polycarbonate that provides operator protection from flying chips and coolant. The shields, in tubular-steel frames, clamp to a support rod that rotates 180° and operates the shield safety microswitch. Tubular-steel arms provide additional adjustability at the joint and steel base. The steel base, which houses a second safety microswitch, can be laterally adjusted from .59" to 7.87" (15 to 200 mm).

These electrically interlocked milling machine shields are available in different sizes and are available as left-mount or right-mount models. Because the shield, arms, and base are adjustable, the shield can be positioned for maximum protection during operation and can be swung out of the way for easy access to the workpiece and tooling.

Note: May be purchased without safety microswitch

INTERLOCK SWITCH SPECIFICATIONS 

Contact Arrangement Two safety switches—2 NC contacts per switch

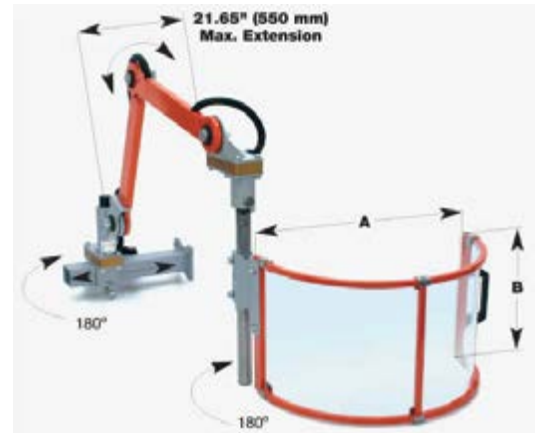
Operating Temperature 23° to 113° F (-5° to 45° C)

Switching Ability 4 A @ 24 V AC, 4 A @ 120/250 V AC
2 A @ 24 V DC, .4 A @ 120 V DC,
.3 A @ 250 V DC

Mechanical Life 1 Million Switching Cycles

Enclosure Rating IP 67

DIMENSIONS



MADE FROM DURABLE PRESSED STEEL

Ordering Information

LEFT MOUNT PART NO.	RIGHT MOUNT PART NO.	A	B	REPLACEMENT SHIELD ONLY	REPLACEMENT SHIELD W/ FRAME
PFR 01/300/SX	PFR 01/300/DX	11.81" (300 mm)	7.87" (200 mm)	PFR 01/300SS	PFR 01/300SC
PFR 01/400/SX	PFR 01/400/DX	15.74" (400 mm)	9.25" (235 mm)	PFR 01/400SS	PFR 01/400SC
PFR 01/500/SX	PFR 01/500/DX	19.68" (500 mm)	9.25" (235 mm)	PFR 01/500SS	PFR 01/500SC
PFR 01/600/SX	PFR 01/600/DX	23.62" (600 mm)	9.25" (235 mm)	PFR 01/600SS	PFR 01/600SC

ELECTRICALLY INTERLOCKED MILLING MACHINE SHIELDS (CONTINUED)

GOES BEYOND OSHA AND ANSI SAFETY REQUIREMENTS



INTERLOCK SWITCH SPECIFICATIONS

Contact Arrangement	Two safety switches—2 NC contacts per switch
Operating Temperature	23° to 113° F (-5° to 45° C)
Switching Ability	4 A @ 24 V AC, 4 A @ 120/250 V AC 2 A @ 24 V DC, .4 A @ 120 V DC, . 3 A @ 250 V DC
Mechanical Life	1 Million Switching Cycles
Enclosure Rating	IP 67

ANGLED SHIELD

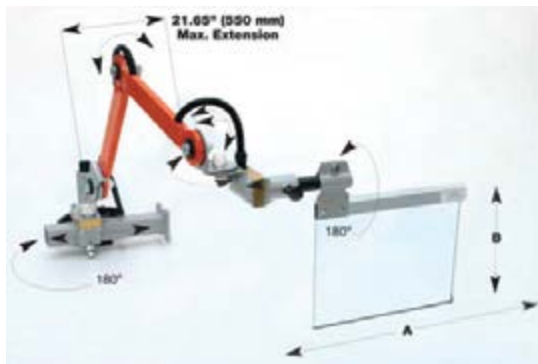
These electrically interlocked heavy-duty shields are for vertical milling machines. They have two (2) safety microswitch locations. When the shield is swung out of position at either safety microswitch location, the positive contacts on the microswitch open, sending a stop signal to the machine control. The safety microswitch electrical wires are furnished with a protective sheath and connect to the safety circuit of the machine that switches off the control to the movement of the spindle. Shields are furnished with IP 67 rated safety microswitches.

These have a thermo-formed shield made from high impact-resistant, transparent polycarbonate that provides operator protection from flying chips and coolant. The shield has an aluminum upper frame and clamps to a support rod that rotates 180° and operates the shield safety microswitch. Tubular-steel arms provide additional adjustability at the joint and steel base. The steel base, which houses a second safety microswitch, can be laterally adjusted from .59" to 7.87" (15 to 200 mm).

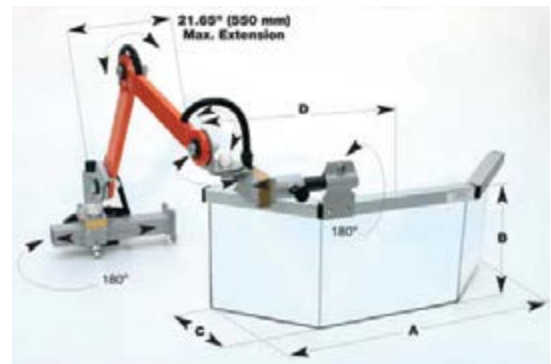
These electrically interlocked milling machine shields are available in different sizes and are available as left-mount or right-mount models. Because the shield, arms, and base are adjustable, the shield can be positioned for maximum protection during operation and can be swung out of the way for easy access to the workpiece and tooling.

Note: May be purchased without safety microswitch

DIMENSIONS



Flat Shield Made From Durable Pressed Steel

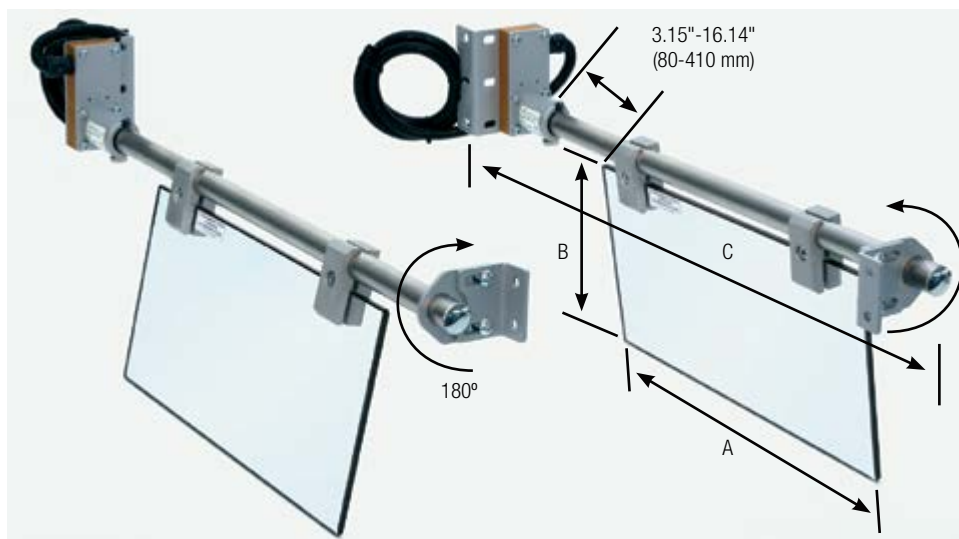


Angled Shield Made From Durable Pressed Steel

Ordering Information

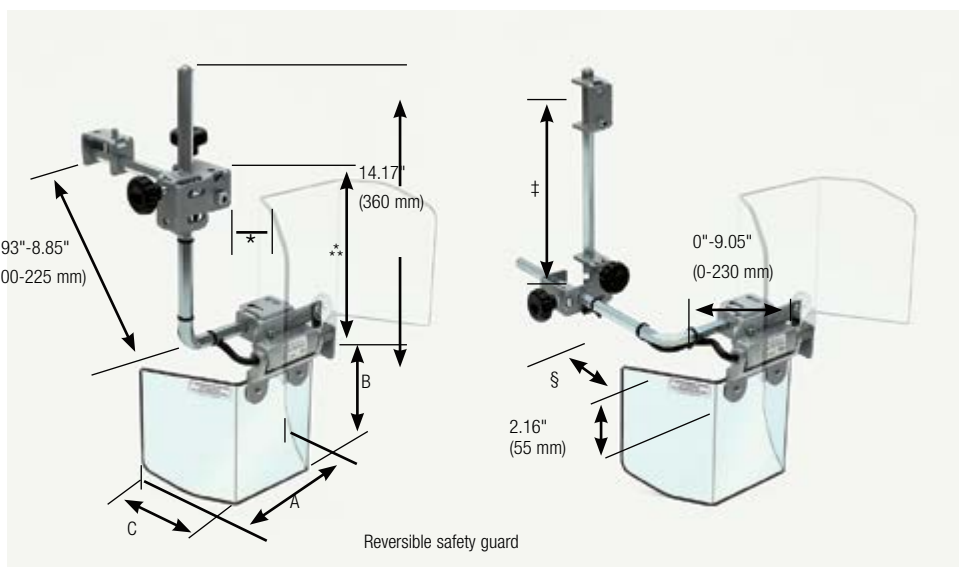
Shield Type	Left Mount Part No.	Right Mount Part No.	A	B	C	D	Replacement Shield Only	Replacement Shield W/ Frame
Angled	PFR 02/625/SX	PFR 02/625/DX	24.41" (620 mm)	7.87" (200 mm)	6.69" (170 mm)	15.94" (405 mm)	PFR 02/625SS	PFR 02/625SC
Angled	PFR 02/725/SX	PFR 02/725/DX	28.54" (725 mm)	11.81" (300 mm)	7.87" (200 mm)	16.92" (430 mm)	PFR 02/725SS	PFR 02/725SC
Flat	PFR 02/625/SPL001	PFR 02/625/SPL001	13.78" (350 mm)	11.81" (300 mm)	NA	NA	NA	PBF 10/435SC
Flat	PFR 02/625/SPL002	PFR 02/625/SPL002	15.75" (400 mm)	13.78" (350 mm)	NA	NA	NA	PBF 10/435SC

ELECTRICALLY INTERLOCKED MILLING MACHINE SHIELDS (CONTINUED)



Ordering Information

PART NO.	A	B	C	REPLACEMENT SHIELD ONLY (EACH)
PFR 10/420	15.74" (400 mm)	7.87" (200 mm)	32.67" (830 mm)	??
PFR 10/430	15.74" (400 mm)	11.81" (300 mm)	32.67" (830 mm)	??
PFR 10/530	19.68" (500 mm)	11.81" (300 mm)	36.61" (930 mm)	??



* 0"-9.05" (0-230 mm)

** 4.33"-12.79" (110-325 mm)

§ 1.18"-8.85" (30-225 mm)

‡ 3.93"-8.66" (100-220 mm)

Ordering Information

PART NO.	A	B	C
PFR 20/218	9.84" (250 mm)	7.08" (180 mm)	4.33" (110 mm)
PFR 20/320	11.81" (300 mm)	7.87" (200 mm)	4.92" (125 mm)

ELECTRICALLY INTERLOCKED GRINDER AND TOOL GRINDER SHIELDS

GOES BEYOND OSHA AND ANSI SAFETY REQUIREMENTS

These electrically interlocked heavy-duty shields for grinder and tool grinders are ideal for single- and double-wheel grinders. When the shield is swung out of position, the positive contacts on the microswitch open, sending a stop signal to the machine control. The safety microswitch electrical wires are furnished with a protective sheath and connect to the safety circuit of the machine that switches off the control to the movement of the grinding wheel. The shield is furnished with an IP 67 rated safety microswitch.

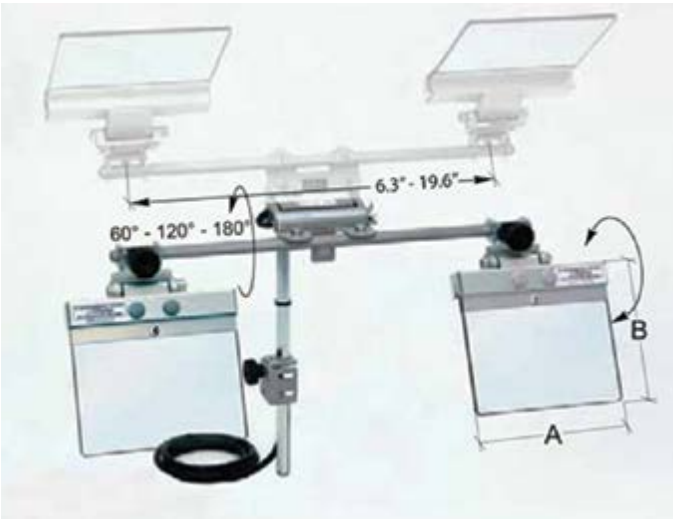
The multi-adjustable, hexagonal steel arm structure allows easy mounting on the most diverse grinders. A versatile clamp allows horizontal and vertical adjustment of the shield.

Each shield consists of a high impact-resistant, transparent polycarbonate shield with an aluminum profile support and provides operator protection from flying chips and coolant.

SINGLE SHIELD



DOUBLE SHIELD



MADE FROM DURABLE PRESSED STEEL

INTERLOCK SWITCH SPECIFICATIONS



- Contact Arrangement2 NC
- Operating Temperature.....23° to 113° F (-5° to 45° C)
- Switching Ability.....4 A @ 24 V AC, 4 A @ 120/250 V AC
2 A @ 24 V DC, .4 A @ 120 V DC, .
3 A @ 250 V DC
- Mechanical Life1 Million Switching Cycles
- Enclosure RatingIP 67

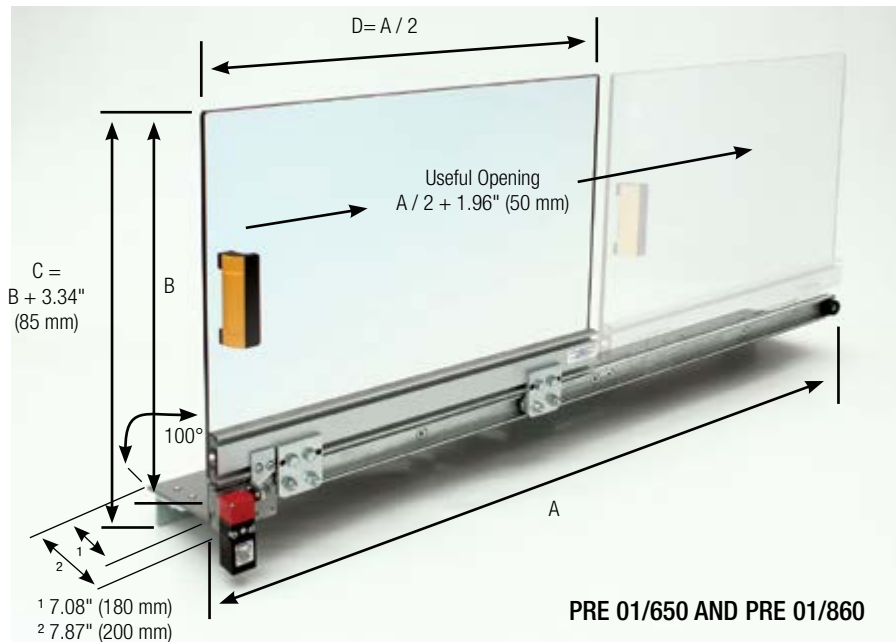
Single (Right/Left Reversible) Shield

PART NO.	A	B	REPLACEMENT SHIELD ONLY (EACH)
PMA 10/112	6.29" (160 mm)	5.70" (145 mm)	PMA 02/112SC
PMA 10/216	7.87" (200 mm)	7.28" (185 mm)	PMA 02/216SC

Double Shield

PART NO.	A	B	REPLACEMENT SHIELD ONLY (EACH)
PMA 11/112	6.29" (160 mm)	5.70" (145 mm)	PMA 02/112SC
PMA 1½16	7.87" (200 mm)	7.28" (185 mm)	PMA 02/216SC

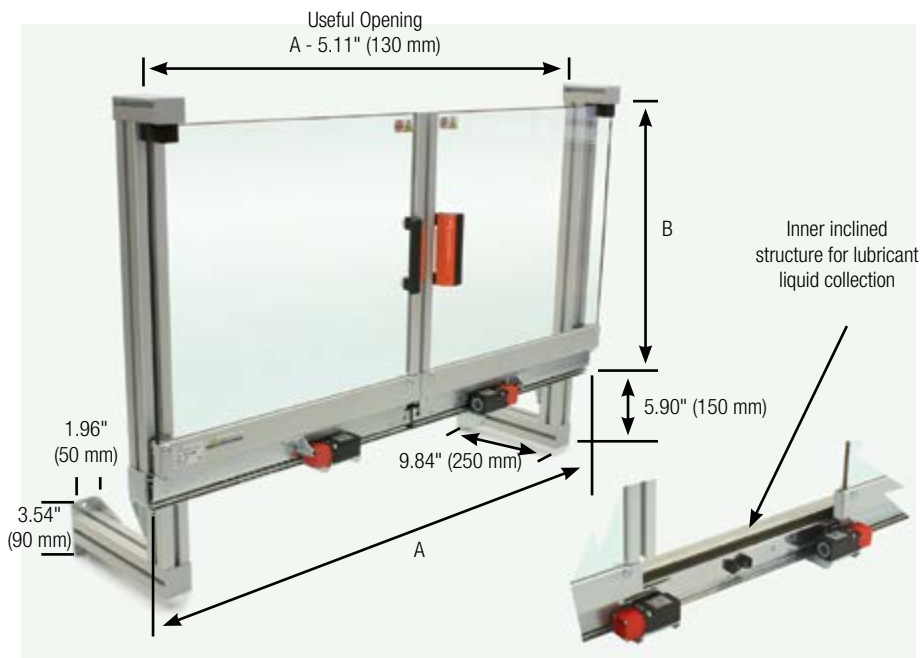
ELECTRICALLY INTERLOCKED SURFACE GRINDER SHIELDS



Ordering Information

PART NO.	A	B
PRE 01/650	47.24" (1,200 mm)	19.68" (500 mm)
PRE 01/860	62.99" (1,600 mm)	23.62" (600 mm)

Note: May be purchased without safety microswitch



Ordering Information

PART NO.	A	B
PRE 10/550	39.37" (1,000 mm)	20.07" (510 mm)
PRE 10/655	47.24" (1,200 mm)	22.04" (560 mm)
PRE 10/860	62.99" (1,600 mm)	25.98" (660 mm)

Note: May be purchased without safety microswitch

ELECTRICALLY INTERLOCKED SLOTTING AND BROACHING TYPE MACHINE SHIELDS

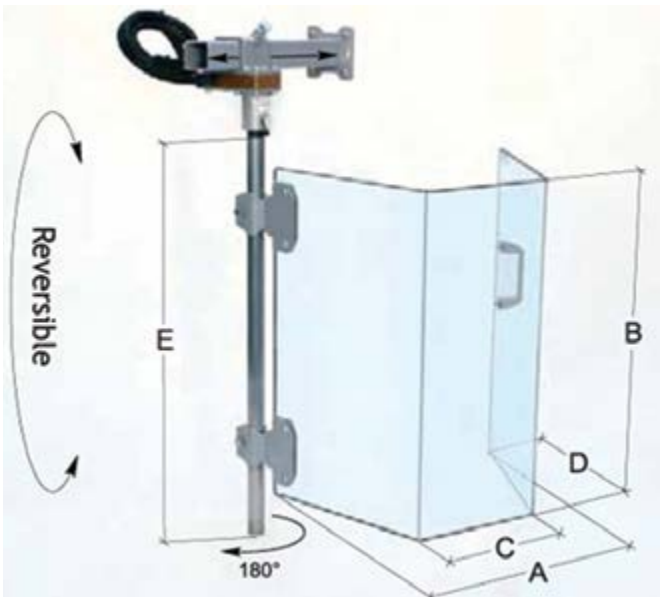
GOES BEYOND OSHA AND ANSI SAFETY REQUIREMENTS

These electrically interlocked heavy-duty shields are designed for slotting and broaching type machines. When the shield is swung out of position, the positive contacts on the microswitch open, sending a stop signal to the machine control. The safety microswitch electrical wires are furnished with a protective sheath and connect to the safety circuit of the machine that switches off the control to the movement of the slide or broach. The shield is furnished with an IP 67 rated safety microswitch.

The vertical shield support arm made of tubular stainless steel is attached to a depth-adjustable mounting bracket which provides easy mounting on the most diverse machines. The adjustable shield-arm fixing clamps made of pressed steel allow horizontal and vertical adjustment of the shield.

Each shield consists of a high impact-resistant, oil-resistant, transparent polycarbonate shield that protects operators from flying chips and coolant, and hinders access to the alternate moving parts of the vertical slide or broach. The shield can be mounted on the left or right side of the machine base.

Note: May be purchased without safety microswitch



MADE FROM DURABLE PRESSED STEEL

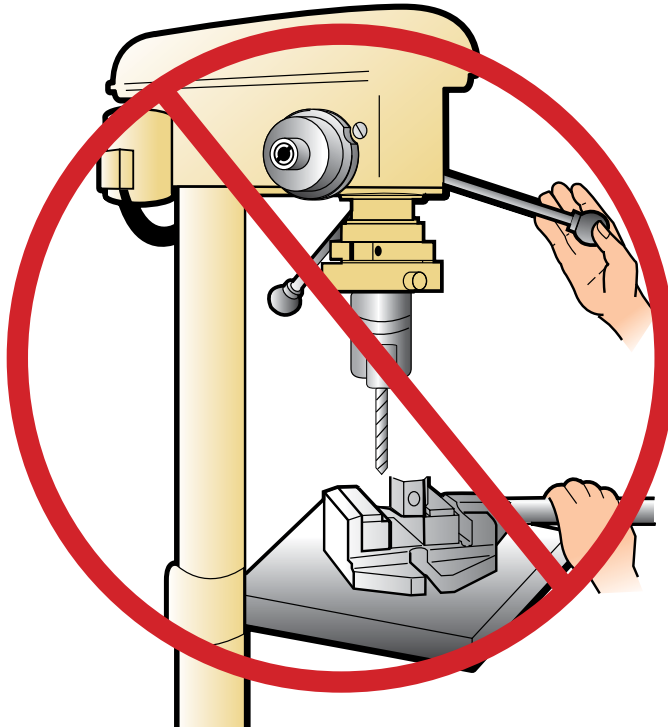
INTERLOCK SWITCH SPECIFICATIONS

- Contact Arrangement2 NC
- Operating Temperature.....23° to 113° F (-5° to 45° C)
- Switching Ability.....4 A @ 24 V AC, 4 A @ 120/250 V AC
2 A @ 24 V DC, .4 A @ 120 V DC,
.3 A @ 250 V DC
- Mechanical Life1 Million Switching Cycles
- Enclosure Rating.....IP 67

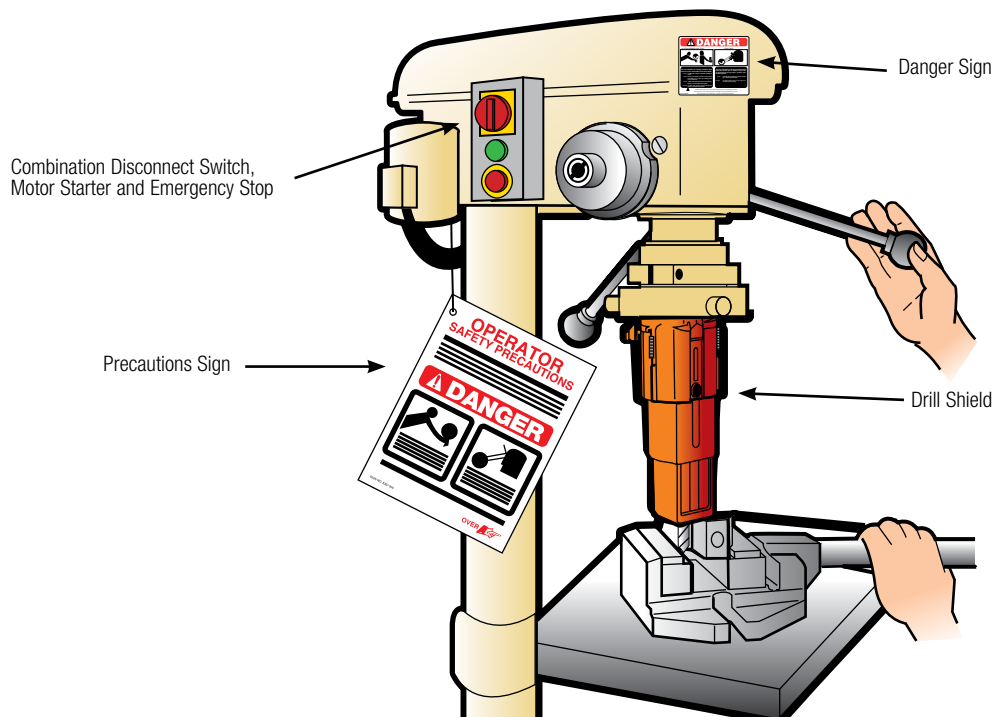
Ordering Information

LEFT MOUNT PART NO.	RIGHT MOUNT PART NO.	A	B	C	D	E	REPLACEMENT SHIELD ONLY
PST 0½40/SX	PST 0½40/DX	15.74" (400 mm)	15.74" (400 mm)	7.87" (200 mm)	9.84" (250 mm)	23.62" (600 mm)	PST 0½40SS
PST 0½60/SX	PST 0½60/DX	15.74" (400 mm)	15.74" (400 mm)	7.87" (200 mm)	9.84" (250 mm)	31.49" (800 mm)	PST 0½60SS

UNGUARDED DRILL PRESS



SAFEGUARDED DRILL PRESS



SAFETY ON DRILL PRESSES



**ELECTRICALLY
INTERLOCKED HEAVY-
DUTY DRILL
PRESS SHIELDS**
(PAGES 9-12)



SAFETY CHIP SHIELDS
(PAGE 24)



**HEAVY-DUTY
ALUMINUM DRILL
PRESS SHIELDS**
(PAGE 25)



DRILL PRESS CHUCK KEYS
(PAGE 25)
(www.rockfordsystems.com/online/safeguarding/drill-press-chuck-keys.cfm)



**RIGID-ARM MAGNETIC-BASE
SHIELDS**
(PAGE 50)



**FLEXIBLE SPRING-STEEL
ARM SHIELDS**
(PAGES 54-57)



**UNIVERSAL BALL &
SOCKET SHIELDS**
(PAGES 51-53)



**ON/OFF MAGNETIC-BASE
SHIELDS**
(PAGE 58)



ADJUSTABLE SLIDE SHIELDS
(PAGE 49)



SENSING SAF-START®
(PAGE 62)



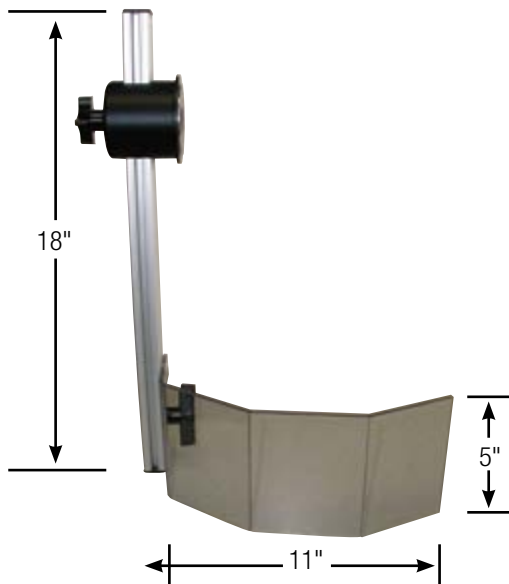
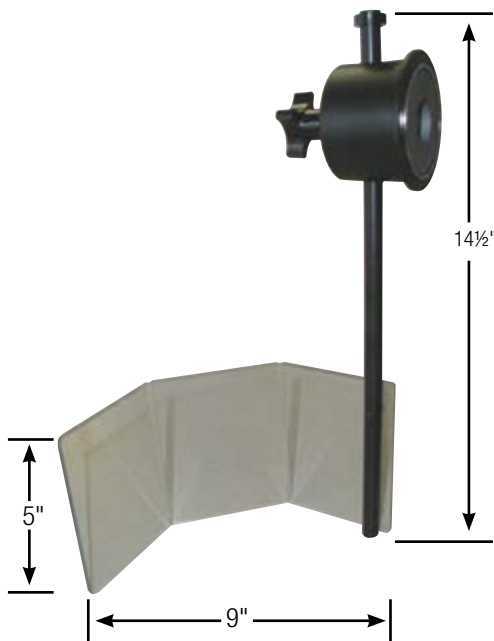
**DISCONNECT SWITCHES,
MOTOR STARTERS &
ACCESSORIES**
(PAGES 63)

SAFETY CHIP SHIELDS

These sturdy safety chip shields provide protection from flying chips, coolant, and rotating parts. They are usually applied to small drill presses, milling machines, etc., and can be magnetically or permanently mounted.

The shield can be attached to any smooth ferrous surface on the machine by an 80-lb pull, 3¼" diameter magnetic base. If a smooth, ferrous surface is not available, a 3¼" x 5¼" mounting plate is also furnished with each shield.

The impact-resistant, 3/16"-thick clear polycarbonate shield provides visibility to the point of operation. It adjusts and locks in any vertical position.



Ordering Information

PART NO.	DESCRIPTION
KYL-001	5" x 9" Shield With ½" Diameter Black PVC Arm 14½" High
KYM-001	5" x 9" Replacement Shield Only

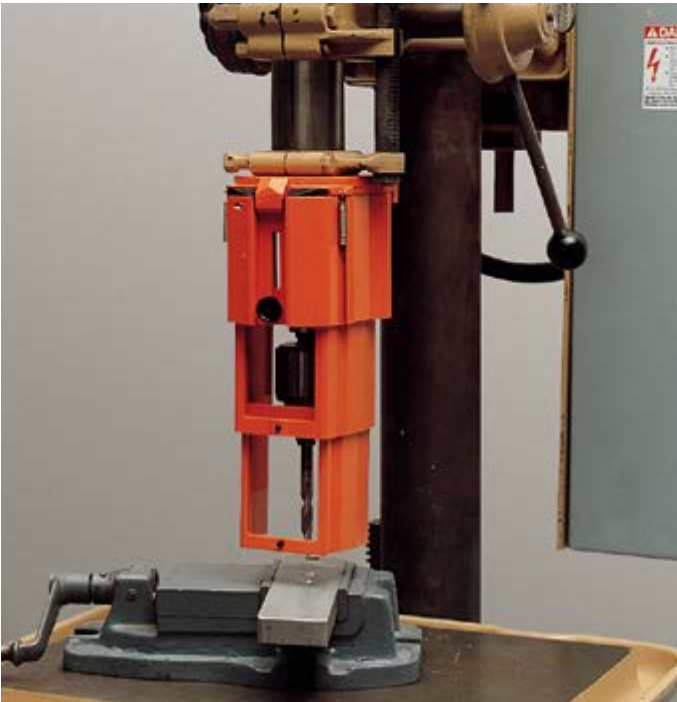
Ordering Information

PART NO.	DESCRIPTION
KYL-055	5" x 11" Shield With 1" Square Extruded Aluminum Arm 18" High
KYL-044	5" x 11" Replacement Shield Only



3 ¼" x 5 ¼" Mounting Plate Furnished With Each Type of Shield For Mounting to a Rough, Nonferrous Surface

HEAVY-DUTY ALUMINUM DRILL PRESS SHIELDS



3-tier shield shown in machining position.

These cast-aluminum drill press shields are furnished with a standard 1¼" bore. The **user can bore this shield to a size up to 3½"** for attaching to the quill of a machine.

This shield is available in 2-tier or 3-tier models which provides 3" to 6" travel of the drill press.

The top of the holder attaches to the quill of the drill press. The shields are open in the back. The bottom section has a clear panel for visibility.

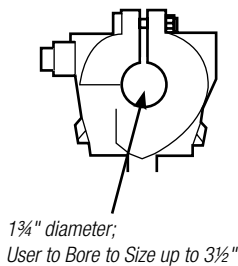
For changing chucks or drill bits, the 2- or 3-tier section can be swung forward and upward out of the way. Also available are shields with a side hinge that swing to the left side.

Ordering Information

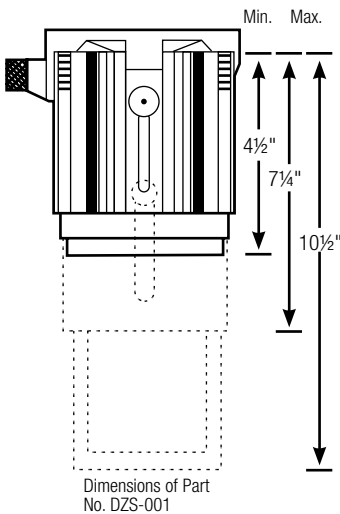
PART NO.	DESCRIPTION
DZS-001	3-Tier Front Hinge 4½" Min; 10½" Max; 6" Stroke; Max Chuck Diameter 2½"
DZS-003	2-Tier Front Hinge 4⅝" Min; 7" Max; 2⅞" Stroke; Max Chuck Diameter 2¾"
DZS-004	2-Tier Front Hinge 6" Min; 10½" Max; 4½" Stroke; Max Chuck Diameter 2¾"
DZS-005	2-Tier Side Hinge 6" Min; 10½" Max; 4½" Stroke; Max Chuck Diameter 2¾"
DZS-006	3-Tier Side Hinge 4½" Min; 10½" Max; 6" Stroke; Max Chuck Diameter 2½"
DZS-002	Replacement Polycarbonate Window



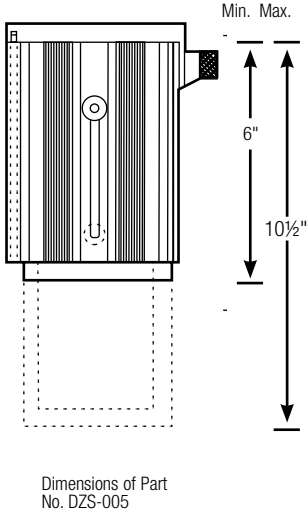
Front hinge shield shown open for tool change.



1¼" diameter;
User to Bore to Size up to 3½"



Dimensions of Part
No. DZS-001



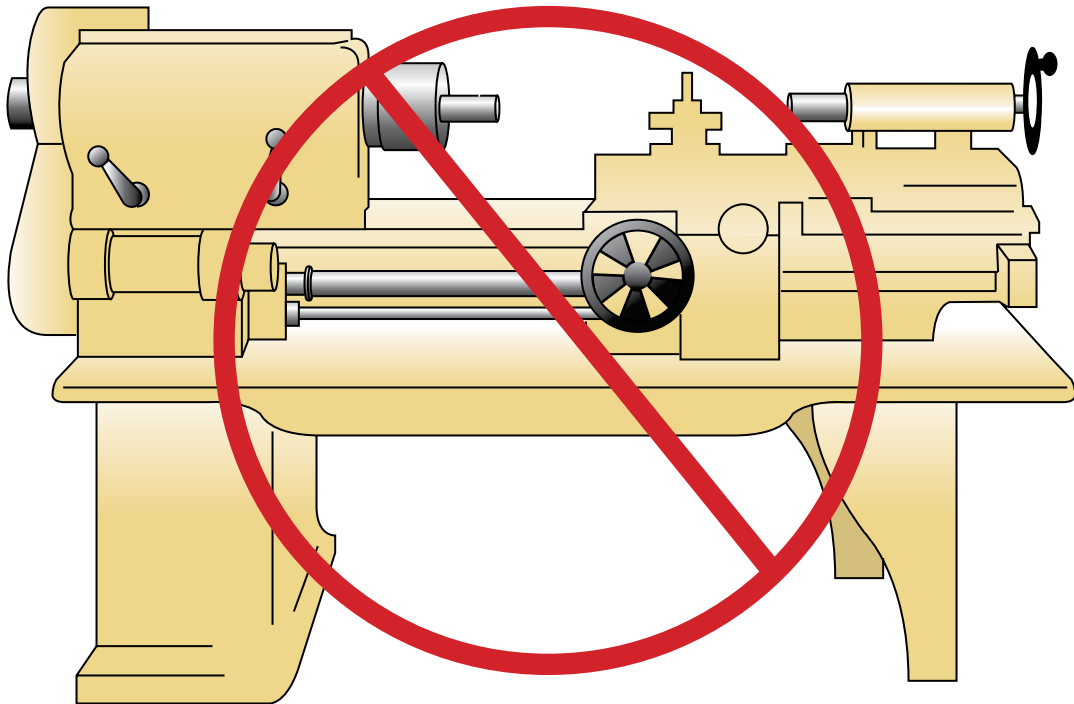
Dimensions of Part
No. DZS-005

SPRING-LOADED/SELF-EJECTING DRILL PRESS CHUCK KEYS

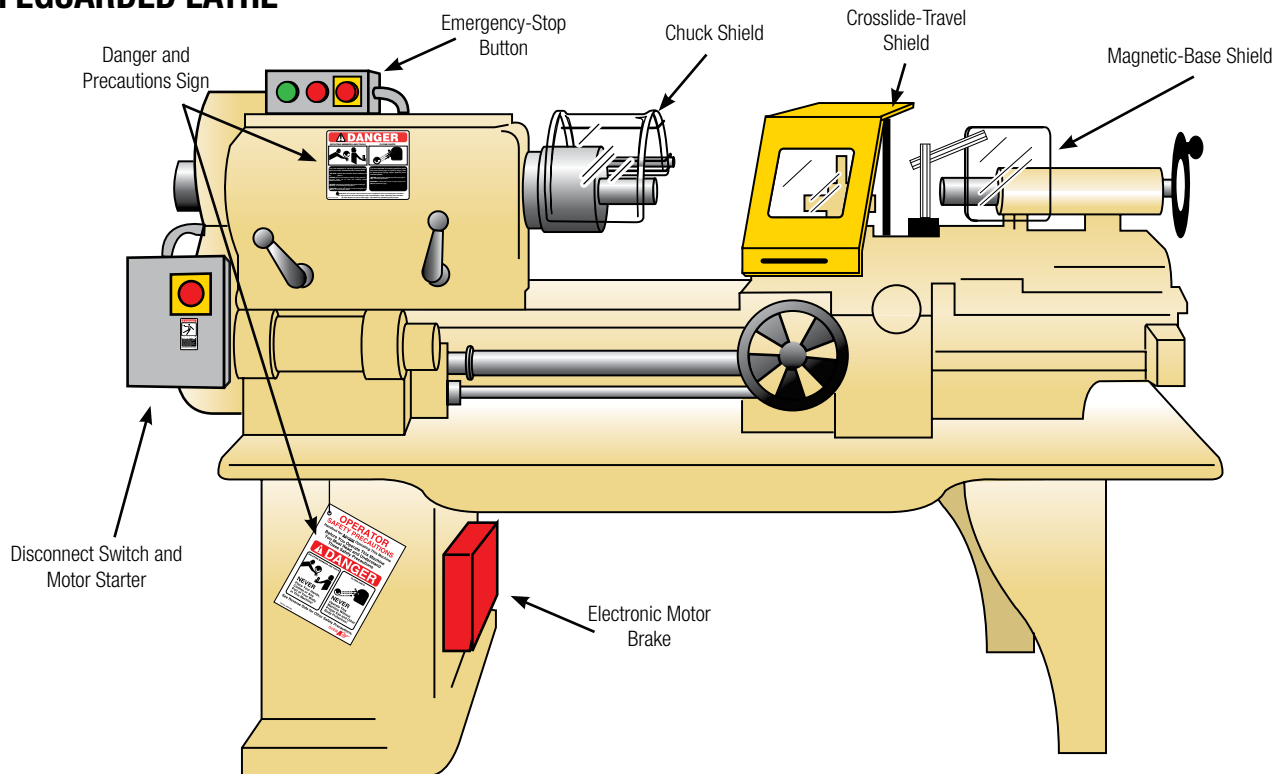


Spring-loaded/self-ejecting drill press chuck keys are available to fit a wide variety of chucks. Visit www.rockfordsystems.com/keys

UNGUARDED LATHE



SAFEGUARDED LATHE



SAFETY ON LATHES



**ELECTRICALLY INTERLOCKED
HEAVY-DUTY LATHE SHIELDS**
(PAGES 8-21)



**ELECTRICALLY
INTERLOCKED HEAVY-DUTY
CROSSLIDE/CARRIAGE
TRAVEL LATHE SHIELDS**
(PAGE 15)



SLIDING LATHE SHIELDS
(PAGE 28)



**CROSSLIDE-TRAVEL
LATHE SHIELDS**
(PAGE 29)



**SMALL STEEL LATHE
CHUCK SHIELDS**
(PAGE 30)



**LARGE STEEL LATHE
CHUCK SHIELDS**
(PAGE 31)



**TRANSPARENT LATHE
CHUCK SHIELDS**
(PAGE 32)



**RIGID-ARM
MAGNETIC-BASE
SHIELDS**
(PAGE 50)



**FLEXIBLE SPRING-
STEEL ARM SHIELDS**
(PAGES 54-57)



**UNIVERSAL BALL &
SOCKET SHIELDS**
(PAGES 52-53)



**ON/OFF MAGNETIC-BASE
SHIELDS**
(PAGE 58)



**LATHE MOUNTING
BRACKETS**
(PAGE 33)



LATHE CHUCK WRENCHES
(PAGES 34-35)



SENSING SAF-START®
(PAGE 62)



**DISCONNECT SWITCHES, MOTOR
STARTERS & ACCESSORIES**
(PAGES 63)

SLIDING LATHE SHIELDS



Shield slid into position. Machine is ready for machining workpiece.

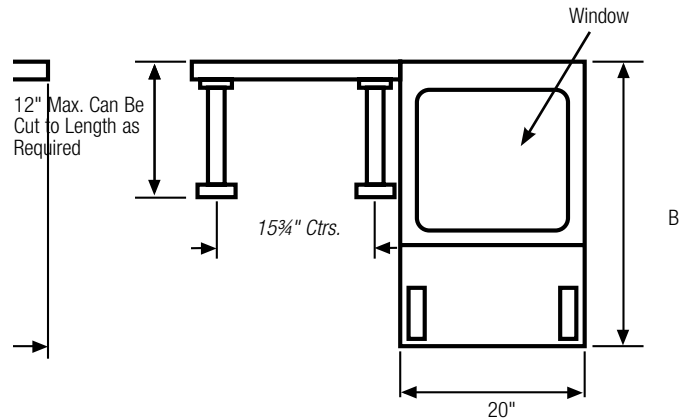
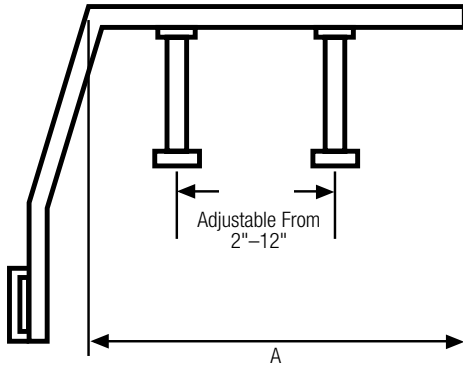
These heavy-duty sliding lathe shields are furnished in four different sizes. They are constructed of high quality, 12-gauge reinforced steel with a polycarbonate window. These shields are available for operator protection on large standard lathes, CNC machines, and OD grinders.

The shields are designed to fit lathes with chucks up to 48" in diameter. Four adjustable flanged mounting posts are provided for easy mounting. These posts are used to securely mount the shield's ball-bearing carriage to the top of the headstock, as illustrated (mounting hardware not included). This means the posts can be attached without interfering with any part of the equipment housed within the headstock.

These sliding shields slide out-of-the-way over the headstock, allowing the operator access to the point of operation for loading and unloading workpieces, changing tooling, changing chucks, removing swarf, etc. Each shield has approximately 22" of travel.

When ordering these sliding shields, check lathe dimensions and reference drawings. Special sizes are available on request.

DIMENSIONS



Ordering Information

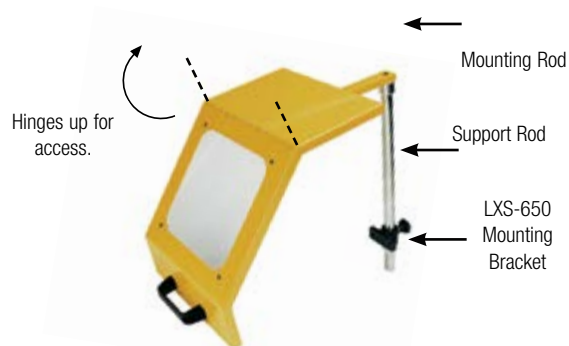
PART NO.	A	B	CHUCK DIAMETER	REPLACEMENT POLYCARBONATE WINDOW
MAJ-700	26"	21"	28"	MAW-001
MAJ-800	27 1/4"	23"	32"	MAW-002
MAJ-100	29 1/2"	27"	40"	MAW-003
MAJ-120	33 1/4"	30 3/4"	48"	MAW-004

CROSSLIDE-TRAVEL LATHE SHIELDS



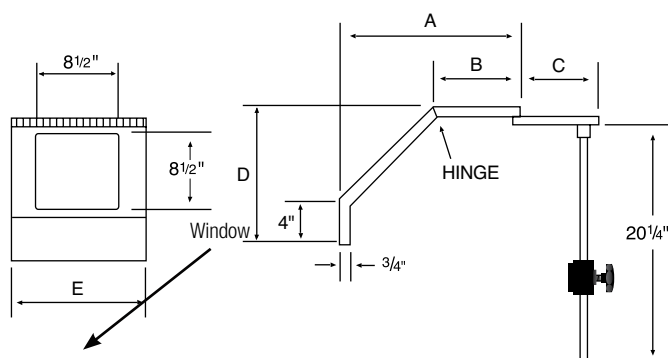
Shield travels with the crossslide for operator protection.

These lathe shields mount on and travel with the crossslide for protection when machining long workpieces. The 18-gauge reinforced steel structure provides protection from flying chips and coolant. The high-impact-resistant polycarbonate window permits visibility into the point of operation. The front portion of the shield hinges up for access. These shields are ideal for lathes with long beds. Special sizes are available on request.



MOUNTING BRACKETS ARE SOLD SEPARATELY—SEE PAGE 33

DIMENSIONS



Ordering Information

PART NO.	A	B	C	D	E
TXS-100	17"	8"	10"	12"	12"
TXS-200	23"	11"	12"	14½"	13¾"
TXW-000	Replacement Polycarbonate Window				

SMALL STEEL LATHE CHUCK SHIELDS



Shield in position. Machine is ready for machining workpiece.

These sturdily constructed steel chuck shields are fabricated of 18-gauge steel with reinforced sides and can be used on smaller lathes that have up to 18½" diameter chucks.

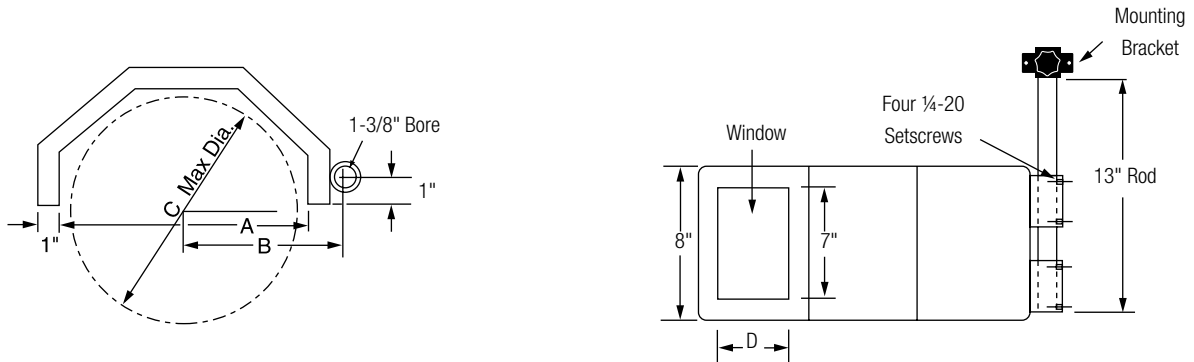
Each shield is furnished with a 1" x 13" mounting rod which can be cut to length if required. This mounting rod is fastened to the headstock of the lathe. The mounting rod is also used to hinge the entire shield. The shield can be lifted and swung up for quick and easy access to the chuck and the part being machined. This shield includes a high-impact-resistant polycarbonate window which permits visibility into the point of operation. Various types of mounting brackets are available and are sold separately—see page 33.

If shields for larger lathes are required, please see the next page.



MOUNTING BRACKETS ARE SOLD SEPARATELY—SEE PAGE 33

DIMENSIONS



Ordering Information

PART NO.	A	B	C	D	REPLACEMENT POLYCARBONATE WINDOW
TPS-300	12"	7½"	11"	4¾"	TPW-003
TPS-400	15½"	9¼"	14½"	6¼"	TPW-004
TPS-500	19¼"	11½"	18¼"	8"	TPW-005

LARGE STEEL LATHE CHUCK SHIELDS

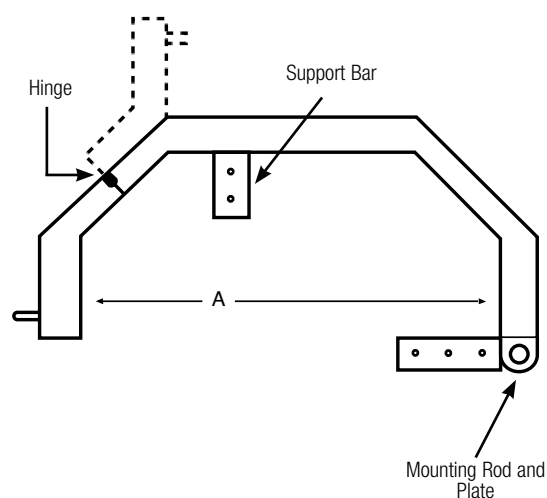


The hinged portion can swing up for workpiece changes.



These fabricated 18-gauge steel chuck shields with reinforced sides can be used on large lathes that have chucks up to 47" in diameter. They are double hinged for access to the chuck, workpiece, and tool. The front hinged portion can be swung up for workpiece changes, and the entire shield can be hinged back for changing chucks.

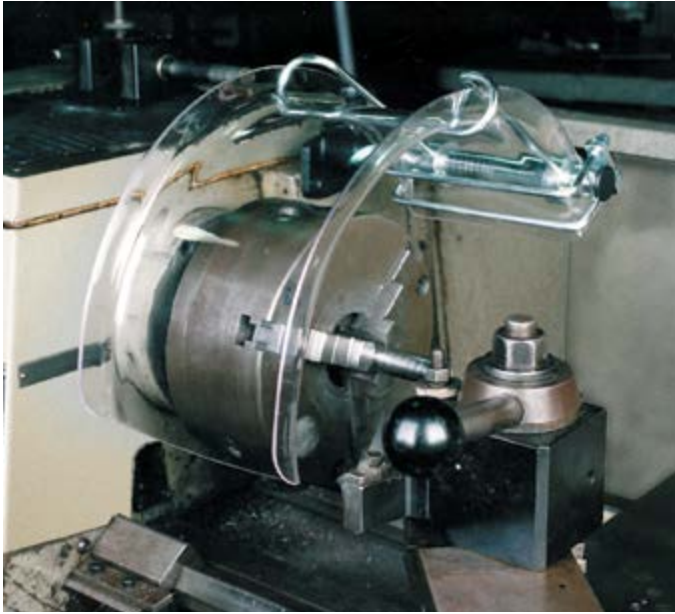
Each shield is furnished with a mounting rod, plate and support bar for mounting the shield to the face of the headstock. The rear mounting bracket hinges the entire shield, and the side mounting bracket supports the shield in its normal operating position.



Ordering Information

PART NO.	DIMENSION A
TPS-600	24"
TPS-800	32"
TPS-100	40"
TPS-120	47½"

TRANSPARENT LATHE CHUCK SHIELDS



3-jaw chuck lathe with shield held in position by bracket Type B.

These quality-constructed lathe chuck shields have a semicircular shape made from high-impact-resistant transparent polycarbonate. The shields themselves are attached to a 1" zinc-plated extension tube. This tube is inserted into one of the mounting brackets described on the next page. The shield assembly does not include the mounting bracket.

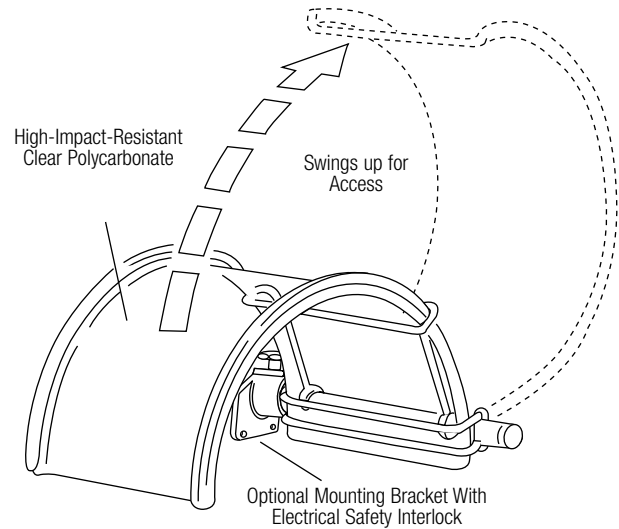
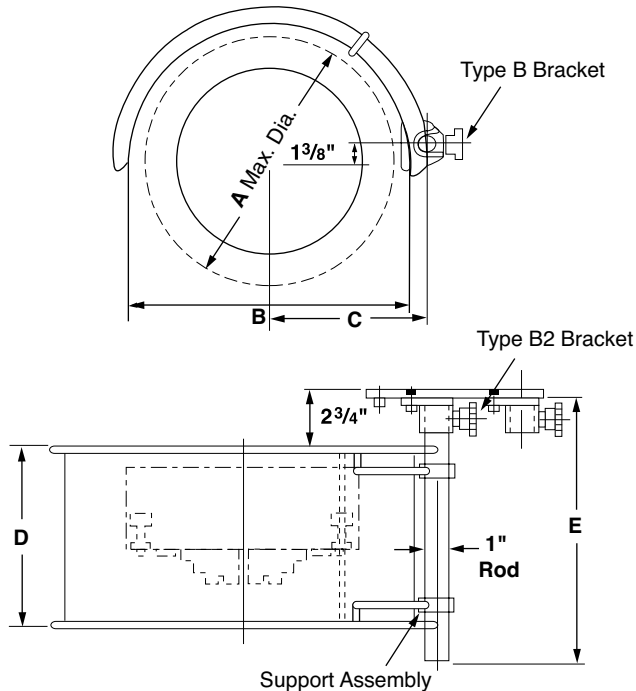
The semicircular shield covers half the circumference of the lathe chuck because it is mounted an equal distance from the chuck center.

Access to the chuck and workpiece is quick and easy. The shield is lifted up and out of the way for the operator.

The shield size depends on the center height of the lathe and the diameter of the chuck. On lathes with a center height up to 7", there is a small variation in diameter between the 3- and 4-jaw chucks; therefore, one size shield will do the job.

On lathes with a center height in excess of 7", there is a greater variation in diameter between the chucks; therefore, it is advisable to use two different size shields to provide adequate protection.

DIMENSIONS



MOUNTING BRACKETS ARE SOLD SEPARATELY—SEE FOLLOWING PAGE.

Ordering Information

PART NO.	A	B	C	D	E	REPLACEMENT SHIELD
LXS-300	10"	12"	7"	6 ¹ / ₈ "	10"	LXS-301
LXS-400	14"	15 ¹ / ₂ "	8 ¹ / ₂ "	7 ³ / ₄ "	13"	LXS-401
LXS-500	18"	19 ¹ / ₂ "	10 ¹ / ₂ "	7 ³ / ₄ "	13"	LXS-501
LXS-600	23 ³ / ₈ "	24 ¹ / ₄ "	12 ³ / ₄ "	7 ³ / ₄ "	13"	LXS-601
LXS-700	26"	28"	14 ³ / ₄ "	7 ³ / ₄ "	13"	LXS-701

LATHE MOUNTING BRACKETS

The zinc-plated extension tube, to which the polycarbonate and steel shields are fastened, is mounted to the headstock of the lathe by a mounting bracket.

There are two principal types of mounting brackets available. Type A is used for mounting to the top or the side of the headstock. Type B is used for mounting to the inside face of the headstock.

For difficult mounting conditions, bracket Type A1 may be used. This bracket incorporates a telescopic height adjustment (up to 2") and can be swiveled up to an angle of 90° as required.



BRACKET TYPE A
PART NO. LXS-650

For mounting to the top or side of the headstock.



BRACKET TYPE A1
PART NO. LXS-651

For extended mounting to the top or side of the headstock.



BRACKET TYPE B2
PART NO. LXS-653

For mounting to the face of the headstock when two different sized shields are used.



BRACKET TYPE B
PART NO. LXS-652

For mounting to the face of the headstock.

Bracket Type B2 is a two-socket mounting. It can be fastened to the face of the headstock where shields with different diameters may be used. It accommodates 3-jaw and 4-jaw chucks. The inner socket is used for the 3-jaw chuck shield. When changing over to a 4-jaw chuck, the shield is removed from the inner socket and replaced by a larger diameter shield inserted into the outer socket. This accommodates the 4-jaw chuck.

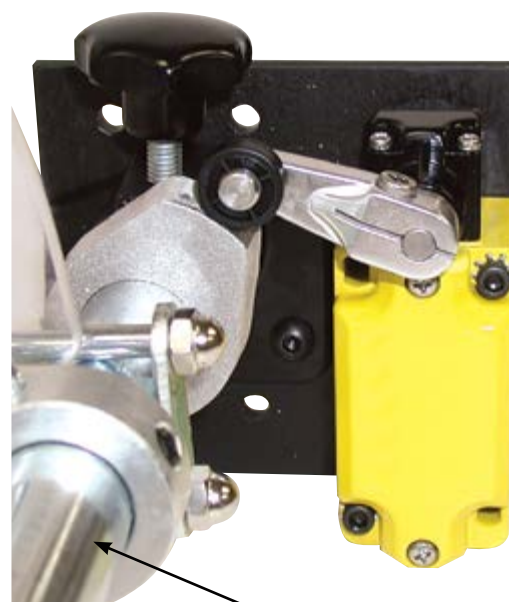
Full dimensions, showing the transparent shield in relation to the chuck, are illustrated on page 32.

The small steel (page 30) and transparent (page 32) lathe chuck shields can be interlocked to the motor starter. When the chuck shield is lifted up, the contact on the switch is opened. This causes the machine to stop. The switch is attached to a heavy-duty mounting bracket.

Part number FKT-781 interlocking bracket assembly shown below includes mounting bracket LXS-652.

PART NO. FKT-781 INTERLOCKING BRACKET

Assembly shown with rod of shield.



Rod of Shield

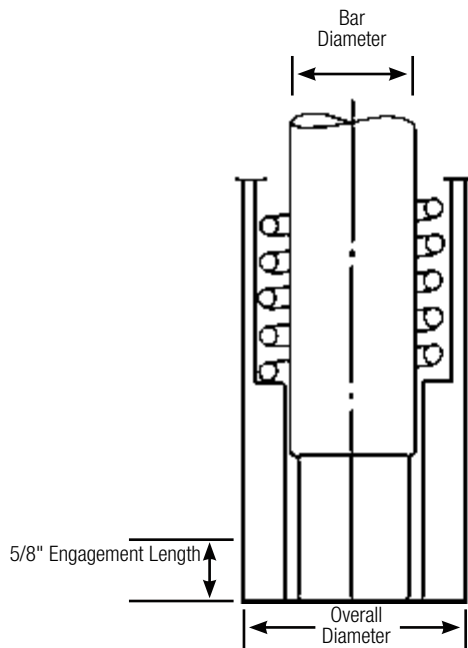
INTERLOCK SWITCH SPECIFICATIONS

Contact Arrangement 2 NO and 2 NC
Operating Temperature -13° to 176° F (-25° to 80° C)
Switching Ability 3 A @ 230 V AC,
0.27 A @ 230 V DC
Actuating Directions 4
Conduit Adapter M20 to ½"

STANDARD SIZE LATHE CHUCK WRENCHES

One of the most common accidents on lathes or other machines involves a chuck wrench or key which is thrown from the chuck. This happens when someone forgets to remove the wrench from the chuck before the machine is turned on.

The spring-loaded or self-ejecting chuck wrenches on pages 34 and 35 can be used on lathes or other machines equipped with manually adjusted chucks. The spring-loaded sleeve ejects the wrench from the chuck after each use. These wrenches are engineered and designed to provide proper loads for self-removal of the wrench weight.



Ordering Information

PART NO.	NOMINAL SIZE	ACTUAL SIZE	BAR DIAMETER	OVERALL DIAMETER	HANDLE LENGTH
CW-SM0281-S	3/32" SQ	.271"	3/4"	1.050"	5 1/2"
CW-SM0312-S	5/16" SQ	.303"	3/4"	1.050"	5 1/2"
CW-SM0375-S	3/8" SQ	.365"	3/4"	1.050"	5 1/2"
CW-SM0438-S	7/16" SQ	.427"	3/4"	1.050"	5 1/2"
CW-SM0500-S	1/2" SQ	.490"	3/4"	1.050"	5 1/2"
CW-SM0563-S	9/16" SQ	.552"	15/16"	1.315"	9 1/2"
CW-SM0625-S	5/8" SQ	.615"	15/16"	1.315"	9 1/2"
CW-SM0688-S	11/16" SQ	.678"	15/16"	1.315"	9 1/2"
CW-SM0750-S	3/4" SQ	.740"	15/16"	1.315"	9 1/2"
CW-HM0500-S	1/2" HEX	.490"	3/4"	1.050"	5 1/2"
CW-HM0625-S	5/8" HEX	.615"	3/4"	1.050"	9 1/2"
CW-HM0750-S	3/4" HEX	.740"	15/16"	1.315"	9 1/2"

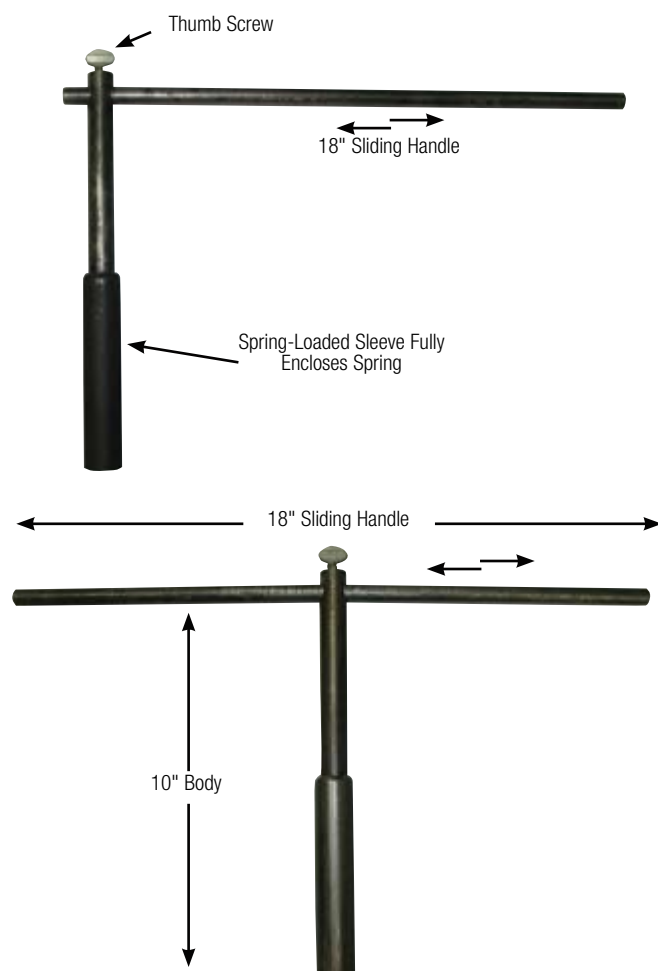


Adjusting the chuck using a spring-loaded chuck wrench.

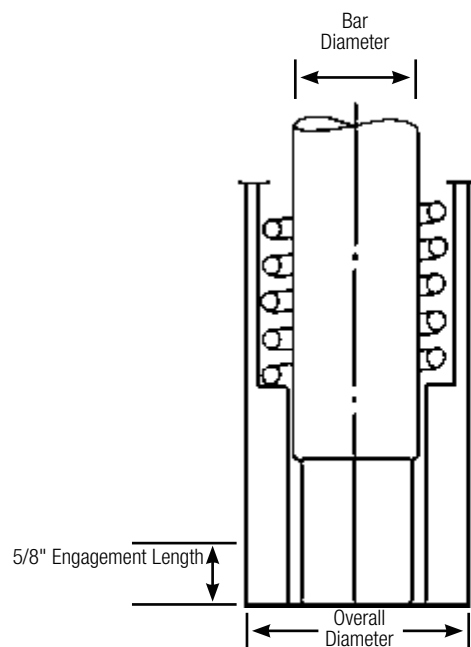
ALL PARTS BLACK OXIDE COATED



LONGER LATHE CHUCK WRENCHES



The 18" handle can be slid into position and locked in place with the thumb screw.



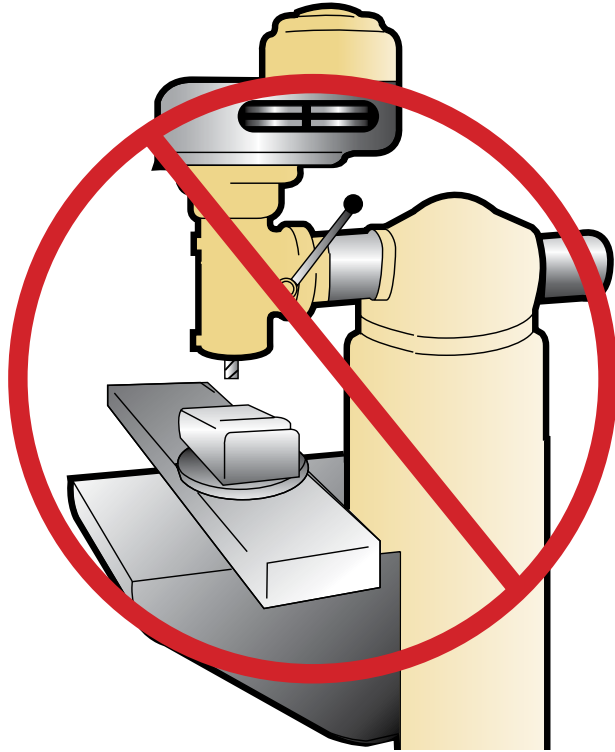
Adjusting the chuck using a long-handed spring-loaded chuck wrench.

ALL PARTS BLACK OXIDE COATED

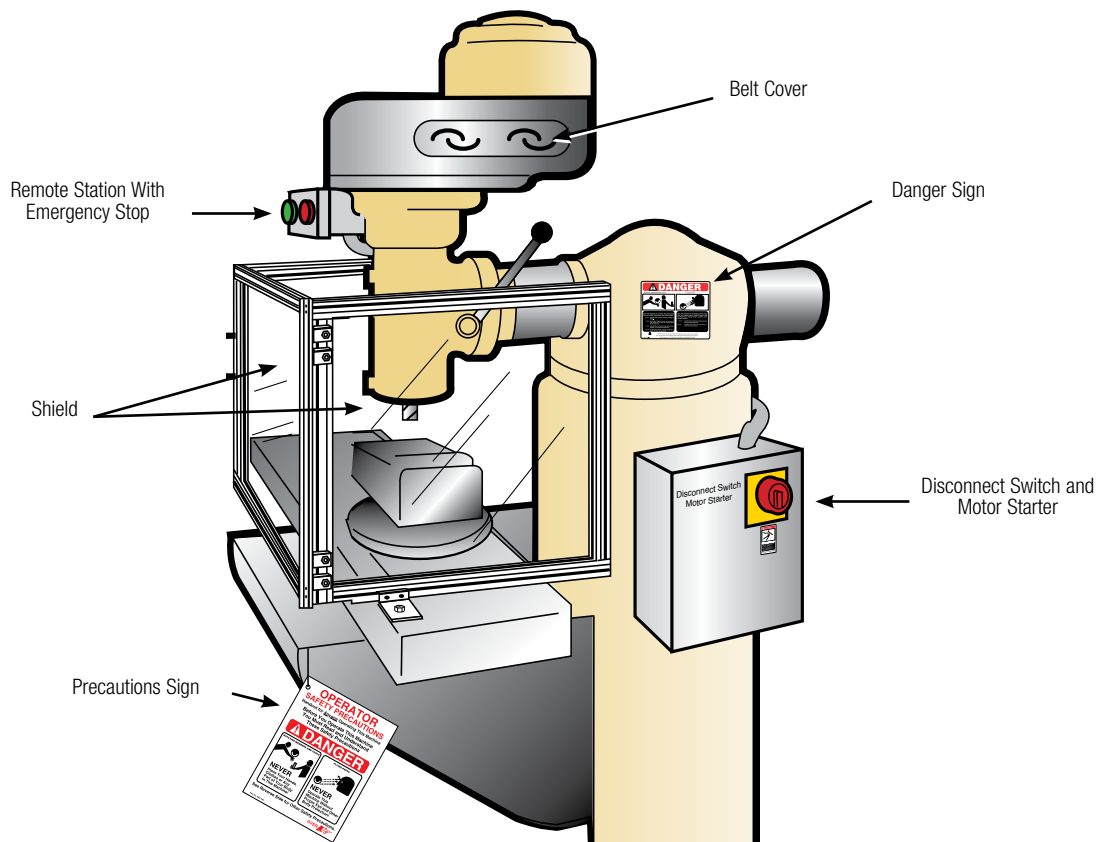
Ordering Information

PART NO.	NOMINAL SIZE	ACTUAL SIZE	BAR DIAMETER	OVERALL DIAMETER
CW-SM0281-L	$\frac{9}{32}$ " SQ	.271"	$\frac{3}{4}$ "	1.050"
CW-SM0312-L	$\frac{5}{16}$ " SQ	.303"	$\frac{3}{4}$ "	1.050"
CW-SM0375-L	$\frac{3}{8}$ " SQ	.365"	$\frac{3}{4}$ "	1.050"
CW-SM0438-L	$\frac{7}{16}$ " SQ	.427"	$\frac{3}{4}$ "	1.050"
CW-SM0500-L	$\frac{1}{2}$ " SQ	.490"	$\frac{3}{4}$ "	1.050"
CW-SM0563-L	$\frac{9}{16}$ " SQ	.552"	$\frac{15}{16}$ "	1.315"
CW-SM0625-L	$\frac{5}{8}$ " SQ	.615"	$\frac{15}{16}$ "	1.315"
CW-SM0688-L	$1\frac{1}{16}$ " SQ	.678"	$\frac{15}{16}$ "	1.315"
CW-SM0750-L	$\frac{3}{4}$ " SQ	.740"	$\frac{15}{16}$ "	1.315"
CW-HM0500-L	$\frac{1}{2}$ " HEX	.490"	$\frac{3}{4}$ "	1.050"
CW-HM0625-L	$\frac{5}{8}$ " HEX	.615"	$\frac{3}{4}$ "	1.050"
CW-HM0750-L	$\frac{3}{4}$ " HEX	.740"	$\frac{15}{16}$ "	1.315"

UNGUARDED MILLING MACHINES



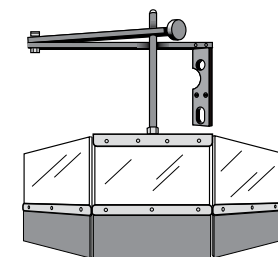
SAFEGUARDED MILLING MACHINE



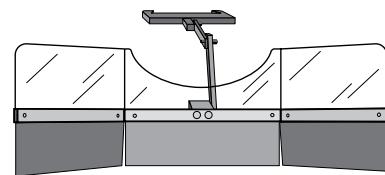
SAFETY ON MILLING MACHINES



**ELECTRICALLY INTERLOCKED HEAVY-DUTY
MILLING MACHINE SHIELDS (PAGES 16-18)**



**BRIDGEPORT MILLING
MACHINE SHIELDS—FRONT
(PAGE 38)**



**BRIDGEPORT MILLING MACHINE
SHIELDS—REAR (PAGE 39)**



**SLIDE AND SWING-ASIDE SHIELDS
(PAGES 40-41)**



**RIGID-ARM MAGNETIC-
BASE SHIELDS
(PAGE 50)**



**FLEXIBLE SPRING-
STEEL ARM SHIELDS
(PAGES 54-57)**



**UNIVERSAL BALL &
SOCKET SHIELDS
(PAGES 51-53)**



**ON/OFF MAGNETIC-
BASE SHIELDS
(PAGE 58)**



**ADJUSTABLE SLIDE SHIELDS
(PAGE 49)**



**MILLING MACHINE
BELT COVERS
(PAGE 42)**



**DRAW BAR COVER
(SEE ROCKFORDSYSTEMS.COM)**



**ELECTRICAL
INTERLOCK
ASSEMBLY
(PAGE 42)**



**BRIDGEPORT MILLING
MACHINE CONTROLS
(PAGE 39)**



**SENSING
SAF-START®
(PAGE 62)**



**DISCONNECT SWITCHES,
MOTOR STARTERS &
ACCESSORIES
(PAGES 63)**

CHIP SHIELDS FOR BRIDGEPORT MILLING MACHINES

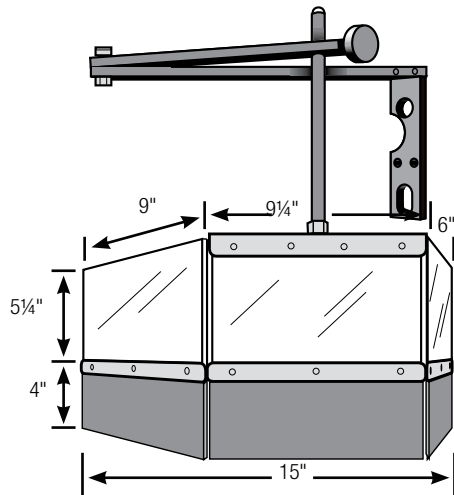
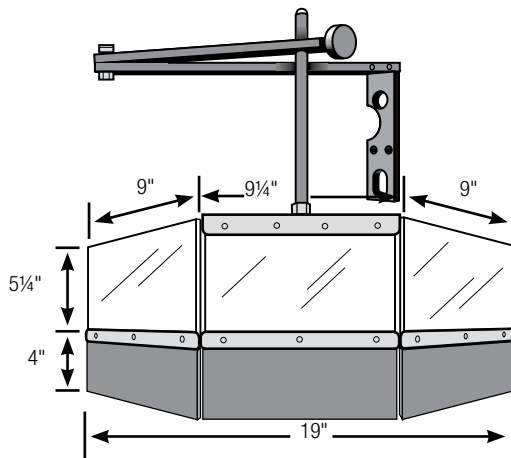
These specially designed, quality-constructed shields are ideal for Bridgeport milling machines. They place a barrier between flying chips (swarf), sparks, coolant from the machine, and the operators or other employees in the area. They can be easily moved in or out of position to provide quick tool and part changes.

These shields are quick and easy to install. They attach directly to existing head machine bolts so no additional drilling or tapping is required.

These shields are constructed of high-impact-resistant polycarbonate material. Attached at the bottom of each section of the shield is durable, flexible neoprene material to keep flying chips and swarf contained as the bed moves up and down.

FRONT SHIELDS

The front shield is mounted on a heavy-duty universal steel arm which is used to swing it back into the exact position it was before tool or workpiece changes. The arm is 29" long and has an adjusting knob for raising and lowering the shield. The shield itself can also be used to hold a print.



KYL-019 front chip shield.

Ordering Information

PART NO.	DESCRIPTION
KYL-019	9 1/4" H x 19" W Front Shield With Two 45° Bends
KYL-065	9 1/4" x 19" Front Replacement Shield Only

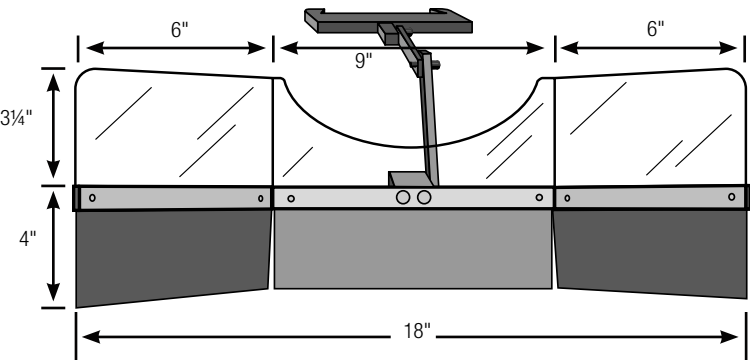
Ordering Information

KYL-059	9 1/4" H x 15" W Front Shield With One 45° Bend and One 90° Bend
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CHIP SHIELDS FOR BRIDGEPORT MILLING MACHINES (CONTINUED)

REAR SHIELD

A rear shield is also available to protect the back area of the milling machine. This shield is easy to install and mounts directly onto the machine frame with a setscrew to hold it in place.



Rear shield only (front shield not shown).

Ordering Information

PART NO.	DESCRIPTION
KYL-020	7 1/4" H x 18" W Rear Shield With Two 45° Bends
KYL-065	7 1/4" x 18" Rear Replacement Shield Only

BRIDGEPORT VERTICAL MILLING MACHINE CONTROLS

This control is designed for Bridgeport vertical milling machines that have a table motor. Each milling machine control is housed in a NEMA 12 enclosure that includes a disconnect switch, reversing magnetic main drive motor starter, a control relay for the table motor, and a 100 VA transformer that is generically numbered and wired to terminals. A remote station provides the operator controls consisting of a self-latching red emergency-stop palm button, an illuminated green table motor reset push button, and a main motor reverse/off/forward selector switch. These Bridgeport vertical milling machine controls are available for machines with 230 or 460 V AC and 1 to 3 HP.



Ordering Information

PART NO.	DESCRIPTION
BVM-230-1	For 1 HP, 230-V AC Machines
BVM-230-15	For 1.5 HP, 230-V AC Machines
BVM-230-2	For 2 HP, 230-V AC Machines
BVM-230-3	For 3 HP, 230-V AC Machines
BVM-460-1	For 1 HP, 460-V AC Machines
BVM-460-15	For 1.5 HP, 460-V AC Machines
BVM-460-2	For 2 HP, 460-V AC Machines
BVM-460-3	For 3 HP, 460-V AC Machines

SLIDE AND SWING-ASIDE SHIELDS



Part No. SSA-000 with door closed.



Part No. SSA-000 with door open.

INTRODUCTION

These shields protect operators when machining either small workpieces or large castings that sometimes overhang the milling machine table. At the same time, they can provide immediate and complete access to the workpiece or casting being machined by sliding or swinging aside the door(s), as illustrated.

THE SHIELD

The transparent portion of the shield is constructed of impact-resistant polycarbonate. The frame of the shield is made of 1" x 2" extruded aluminum. The shield has front sliding panel(s) and two side fixed panels. The side panels are attached at both ends of the table.

These assemblies can be mounted or removed in a matter of minutes by using two locking T-bolts with nuts.

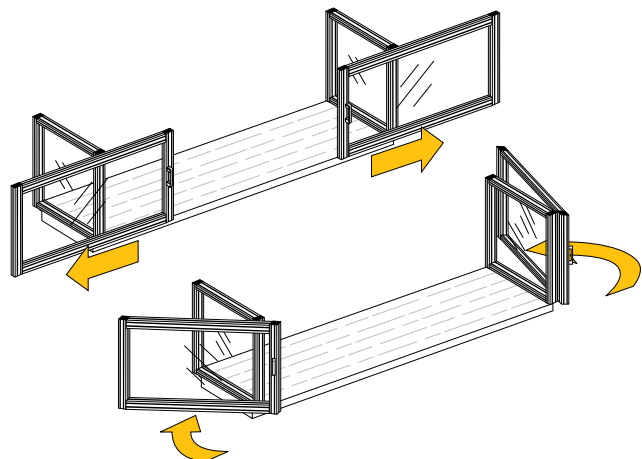
Each of the front panels can slide to the right or left and swing aside on their own axis out of the way (see drawings).

The advantage of the slide and swing-aside movement is that you can obtain immediate access to the whole length of the table for loading and unloading large workpieces. Although the panels slide aside, they will not take up any more room than the actual length of the table itself, because the sliding and swing-aside action takes place in one movement by simply lifting a latch.

THE SHIELD CONSTRUCTION

The parallel sliding bars enable the shield to be adjusted to the distance required from the front of the table to the shield. The adjustment on these bars caters to castings or large components which overhang the table. This adjustment is achieved by loosening the two socket cap screws at either end of the table. This permits the complete shield assembly to be moved backwards or forwards to the position required.

A safety latch is provided where the two front panels or the front and side panels come together which holds the panels in place. The latch has to be released manually prior to opening the panels.



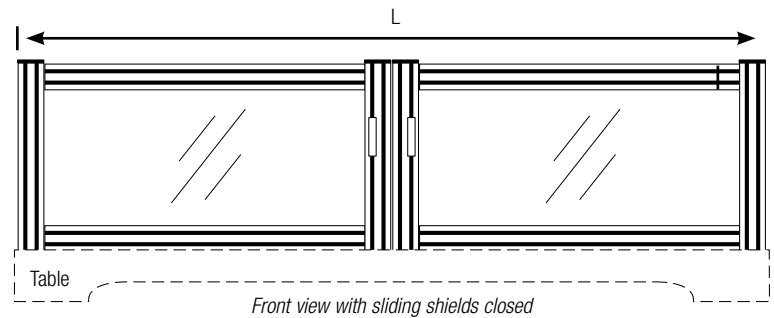
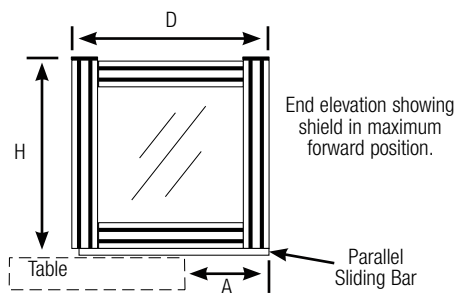
The unique construction allows the front panels to slide and swing aside exposing the entire table.

SLIDE AND SWING-ASIDE SHIELDS (CONTINUED)

There are three sizes of shields available which cover table sizes up to a maximum length of 76". On bed-type milling machines, where the table length is well in excess of 76", it is still possible to use the SSA-300 shield. In many instances, only part of the maximum length of the table is used. If this is the case, the SSA-300 shield would be suitable as long as the longitudinal traverse used does not exceed the maximum length of the shield. For a table length of less than 36", the SSA-000 shield may be used.

These shields have been generously designed to give protection to the operator; this will be noted in dimension H, which gives the height of the shields. Special height panels are available upon request.

The standard shield does not provide protection on the back of the table. The rear shields (below) are used to minimize coolant splash and flying chips that may fly out of the back of the machine.



Ordering Information

PART NO.	L-LENGTH OF TABLE WORK SURFACE	H HEIGHT	D DEPTH	A MAXIMUM ADJUSTMENT
SSA-000*	24"-36"	20"	20"	13"
SSA-200**	36"-56"	20"	20"	13"
SSA-300**	56"-76"	20"	20"	13"

*Has one sliding and swing front door

**Has two sliding and swing front panels.

REAR SHIELD ASSEMBLIES

These shield assemblies can be used to protect personnel from swarf and chips at the rear of the table on both sides of the machine column. They can be used on milling machines or other equipment that require these types of shields. The two ¼"-thick polycarbonate panels are mounted to the frame of the machine with mounts (see photo). Each panel has extruded aluminum framing to hold the polycarbonate in place. The mounts are also attached to this frame. The assembly is available in two sizes and includes two shields, one set of mounts, and connectors. Special sizes are available upon request.

Ordering Information

PART NO.	DESCRIPTION
SSA-420	24" x 24" Rear Shields With Mounts (Set)
SSA-430	24" x 36" Rear Shields With Mounts (Set)



Rear shield assembly on left side of machine column.

MILLING MACHINE BELT COVERS

OSHA requires under 29 CFR 1910.219 that all mechanical power-transmission apparatuses on machinery that create a hazard be covered if below a 7-foot level from the floor or working platform. The sheaves and belts on milling machines must be covered to meet this requirement.

These unique patented belt covers are made of durable cast aluminum. The hinged covers are sold in pairs for the right and left sides and are permanently attached to the machine. Spindle speed changes are done quickly and efficiently by simply pulling down the belt cover.

This belt cover is made for Bridgeport model J.

Ordering Information

KYL-021J	Model J Belt Cover With Hinges—11" W x 2 ³ / ₄ " H x ³ / ₈ " Thick
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Cover closed.



Cover open on model J Bridgeport milling machine.

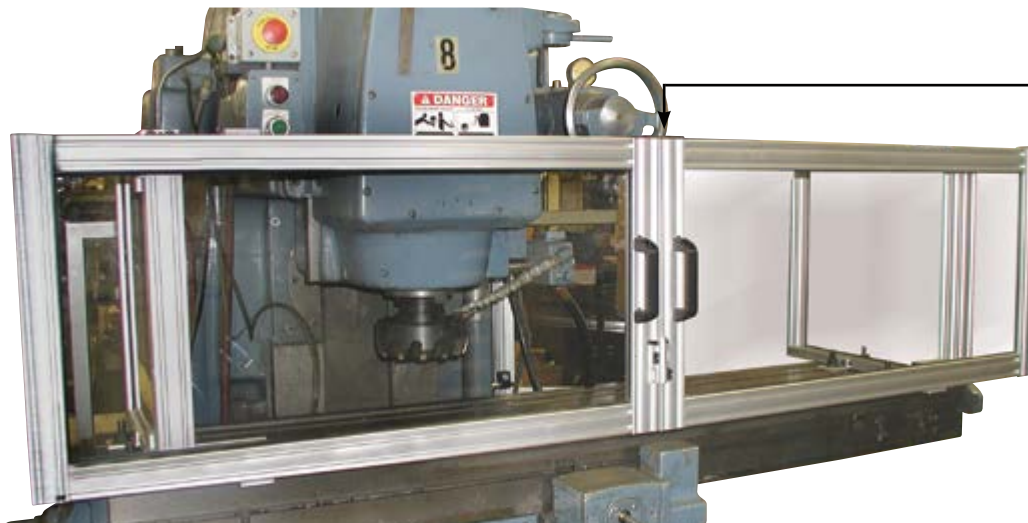
ELECTRICAL INTERLOCK ASSEMBLY

MAGNETIC SAFETY SWITCH AND BRACKET ASSEMBLY PART NO. FKT-876

Additional operator safety can be provided by the installation of this magnetic safety switch and bracket assembly.

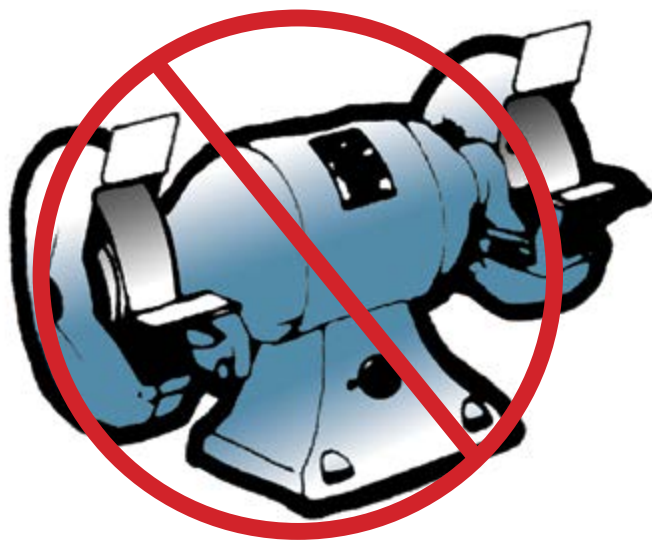
INTERLOCK SWITCH SPECIFICATIONS

Contacts.....	1 NO
Operating Temperature.....	14° to 149° F (-10° to 65° C)
Rated Current	2 A, fuse externally 1.6 A quick acting
Rated Voltage	250 V AC
Cable	13 ft of prewired 2-conductor flexible cable

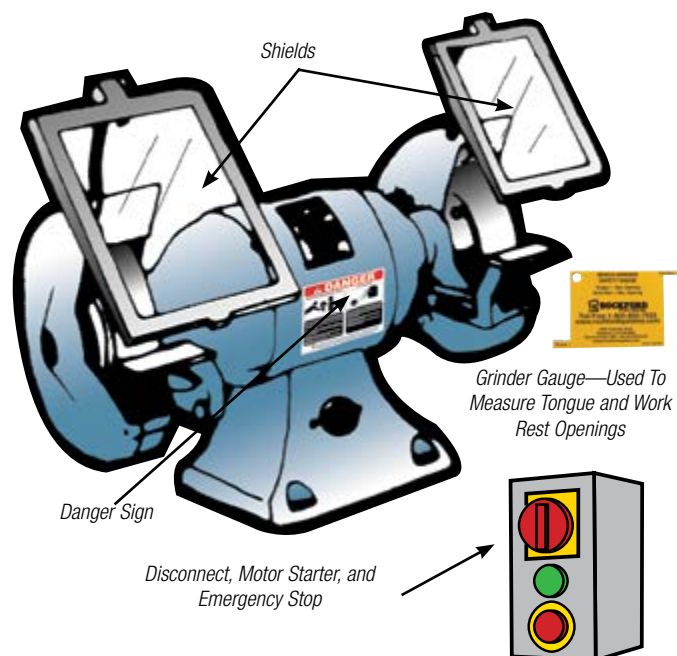


(Mounted on inside of front panels.)

UNGUARDED GRINDER



SAFEGUARDED GRINDER



SAFETY ON BENCH GRINDERS



RIGID-ARM MAGNETIC-BASE SHIELDS
(PAGE 50)



ELECTRICALLY INTERLOCKED HEAVY-DUTY BENCH BUFFER SHIELDS
(PAGE 19)



DOUBLE-WHEEL FLEXIBLE-ARM SHIELDS
(PAGE 44)



SINGLE-WHEEL FLEXIBLE-ARM SHIELDS
(PAGE 44)



STANDARD-MOUNT GRINDER SHIELDS
(PAGE 45)



UNIVERSAL BALL & SOCKET SHIELDS
(PAGES 51-53)



HEAVY-DUTY SINGLE BUFFER SHIELDS
(PAGE 45)



BENCH GRINDER SAFETY GAUGE
(PAGE 46)



SENSING SAF-START®
(PAGE 62)



DISCONNECT SWITCHES, MOTOR STARTERS, AND ACCESSORIES
(PAGES 63)

DOUBLE- AND SINGLE-WHEEL FLEXIBLE-ARM GRINDER SHIELDS



Double-Wheel Grinder Shield

Bench grinder shields are designed to minimize the debris and hazards associated with bench grinders and buffers. Both double- and single-wheel grinder shields are available.

The double-wheel grinder shield provides protection for both wheels of the grinder with one continuous shield. The durable shield is made of clear, 3/16"-thick polycarbonate and measures 18" x 6". A special shield bracket adds stability to the top of the shield.

The single-wheel grinder shield is made of clear, 3/16"-thick polycarbonate and measures 6" x 6". This sturdy, impact-resistant shield is designed for use when a single wheel needs safeguarding.

The flexible spring-steel arms come in three lengths: 12", 18" and 24".

MOUNTING OPTIONS

There are two mounting options for the double- and single-wheel grinder shields.

- Direct-mount base—attaches directly to the grinder table or pedestal
- Magnetic base—3" diameter magnet

If an adequate flat, smooth, ferrous mounting surface is not available, an optional steel mounting plate is available that can be permanently attached to the machine to hold the magnetic base.



*Part No. FKT-1106
Steel Mounting Plate*

DOUBLE-WHEEL GRINDER SHIELDS— 18" X 6" FLAT SHIELD

PART NO.	DESCRIPTION
KYL-183	12" Direct-Mount Flexible Spring-Steel Arm
KYL-184	18" Direct-Mount Flexible Spring-Steel Arm
KYL-185	24" Direct-Mount Flexible Spring-Steel Arm
KYL-186	12" Magnetic-Mount Flexible Spring-Steel Arm
KYL-187	18" Magnetic-Mount Flexible Spring-Steel Arm
KYL-188	24" Magnetic-Mount Flexible Spring-Steel Arm
KYL-177	18" x 6" Flat Replacement Shield Only
FKT-1072	Flat Mounting Bracket for 18" x 6" Shield
FKT-1106	3½" x 4¾" Steel Mounting Plate for Magnetic Base

SINGLE-WHEEL GRINDER SHIELDS— 6" X 6" FLAT SHIELD

PART NO.	DESCRIPTION
KYL-178	18" Direct-Mount Flexible Spring-Steel Arm
KYL-179	24" Direct-Mount Flexible Spring-Steel Arm
KYL-180	12" Magnetic-Mount Flexible Spring-Steel Arm
KYL-181	18" Magnetic-Mount Flexible Spring-Steel Arm
KYL-182	24" Magnetic-Mount Flexible Spring-Steel Arm
KYL-176	6" x 6" Flat Replacement Shield Only
FKT-1106	3½" x 4¾" Steel Mounting Plate for Magnetic Base



Single-Wheel Grinder Shield

STANDARD-MOUNT GRINDER SHIELDS

These grinder shields are available in various sizes for protection from the swarf of bench or pedestal grinders. The frames are constructed of reinforced fiber nylon or heavy cast aluminum. Each shield is furnished with a threaded support rod. The transparent shield is high-impact-resistant polycarbonate to minimize scratching and provide durability.



Ordering Information

PART NO.	DESCRIPTION (EACH SOLD SEPARATELY)	REPLACEMENT POLYCARBONATE WINDOW
GWG-201	6 ¹ / ₄ " H x 5 ¹ / ₂ " W Shield—Nylon Frame	GWV-001
GWG-202	8 ¹ / ₂ " H x 6" W Shield—Nylon Frame	GWV-002
GWG-203	12 ³ / ₄ " H x 12" W Shield—Aluminum Frame	GWV-003

HEAVY-DUTY SINGLE BUFFER SHIELDS

These buffer shields are available in various sizes for protection from the swarf of bench or pedestal grinders. The frames are constructed of reinforced fiber nylon or heavy cast aluminum. Each shield is furnished with a threaded support rod. The transparent shield is high-impact-resistant polycarbonate to minimize scratching and provide durability.

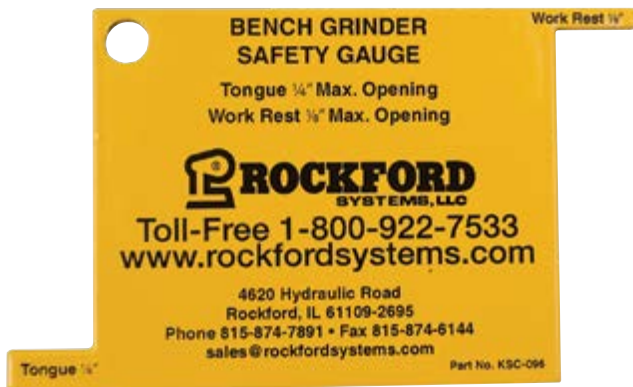


¹ 1.18" (30 mm) ² 0.98" (25 mm)

Ordering Information

PART NO.	A	B
PMA 02/112	6.3" (160 mm)	5.71" (145 mm)
PMA 02/216	7.87" (200 mm)	7.28" (185 mm)

BENCH GRINDER SAFETY GAUGE—PART NO. KSC-096



Front



Back

The bench grinder safety gauge is laser-cut, Grade 5052 aluminum with H32 hardness. The safety yellow, durable powder-coated gauge has silk-screened text and graphics. It measures 2¾" wide by 2¼" high by .1000" thick and has a ¼" hole for attachment to the bench grinder.

OSHA 29 CFR 1910.215 specifies that work rests must be kept adjusted closely to the wheel with a maximum opening of 1/8" to prevent the workpiece from being jammed between the wheel and the rest. OSHA also states that the distance between the grinding wheel and the adjustable tongue must never exceed ¼".



Checking tongue opening.



Checking work rest opening.

BAND SAW SHIELD ASSEMBLIES

These high-quality band saw shields place a barrier between an operator and flying debris generated at the point of operation. The transparent, L-shaped portion of the band saw shield is constructed of high-impact-resistant, 3/16"- thick clear polycarbonate.

Flexible spring-steel arms come in standard lengths of 12", 18", and 24" for attaching the shield.

The band saw shield assemblies are offered with a direct-mount base that is attached directly to the band saw. Mounting hardware is included.



DIMENSIONS



Ordering Information

PART NO.	DESCRIPTION
KYL-189	12" Direct-Mount Arm With 6" H x 6" W L-Shaped Shield (4" D)
KYL-190	18" Direct-Mount Arm With 6" H x 6" W L-Shaped Shield (4" D)
KYL-191	24" Direct-Mount Arm With 6" H x 6" W L-Shaped Shield (4" D)
KYL-175	6" x 6" L-Shaped Replacement Shield Only

DISC AND BELT SANDER SHIELD ASSEMBLIES

These high-quality, adjustable disc and belt sander shields place a barrier between an operator and flying debris generated at the point of operation. They fasten directly to the machine using 1" x 2" extruded aluminum with mounting hardware included. The transparent portion of the shield is constructed of high-impact-resistant, 3/16"-thick clear polycarbonate. Easy vertical adjustment of the shields is achieved simply by loosening and tightening the black knobs.

These shields can also be used on a combination belt sander & disc sander.



Upper Shield

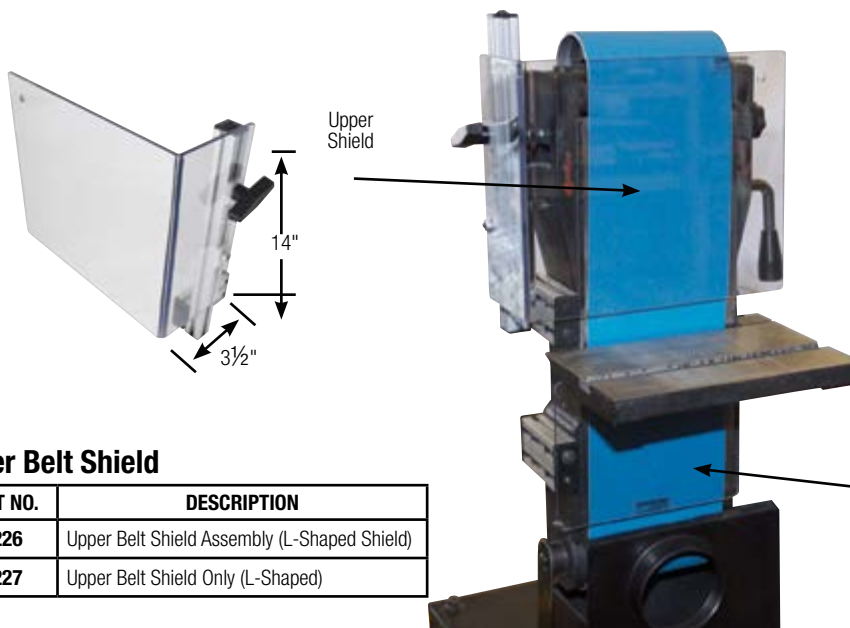


Disc sander shield assembly.

Disc Sander Shield

PART NO.	DESCRIPTION	REPLACEMENT SHIELD
KYL-228	9" Disc Sander Shield Assembly (6" x 13" Shield)	KYL-229
KYL-230	12" Disc Sander Shield Assembly (7" x 16" Shield)	KYL-231
KYL-232	16" Disc Sander Shield Assembly (9" x 20" Shield)	KYL-233
KYL-234	20" Disc Sander Shield Assembly (11" x 24" Shield)	KYL-235
KYL-236	24" Disc Sander Shield Assembly (13" x 28" Shield)	KYL-237

BELT SANDER SHIELD ASSEMBLIES

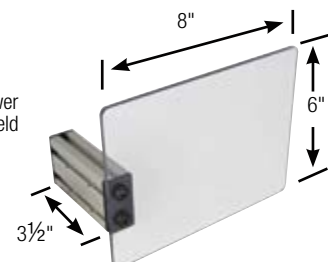


Upper Belt Shield

PART NO.	DESCRIPTION
KYL-226	Upper Belt Shield Assembly (L-Shaped Shield)
KYL-227	Upper Belt Shield Only (L-Shaped)

Lower Belt Shield

PART NO.	DESCRIPTION
KYL-224	Lower Belt Shield Assembly (6" x 8" Shield)
KYL-225	Lower Belt Shield Only (6" x 8")



Belt sander shield assembly.

ADJUSTABLE SLIDE SHIELDS

These high-quality adjustable slide shields can be used on drills, mills, saws, or special machine applications. The transparent portion of these shields is constructed of durable, clear 3/16"-thick polycarbonate. The shield places a barrier between an operator and the flying chips (swarf), sparks, and coolant generated at the point of operation.

These shields can be mounted vertically or horizontally on the flat surface of any machine. The transparent portion of the shield attaches to the mounting brackets and offers a slide adjustment of 3½". Two standard size shields with 30° sides are available: 7¾" x 11" and 9½" x 19". Contact Rockford Systems for other shield sizes or longer adjustments.

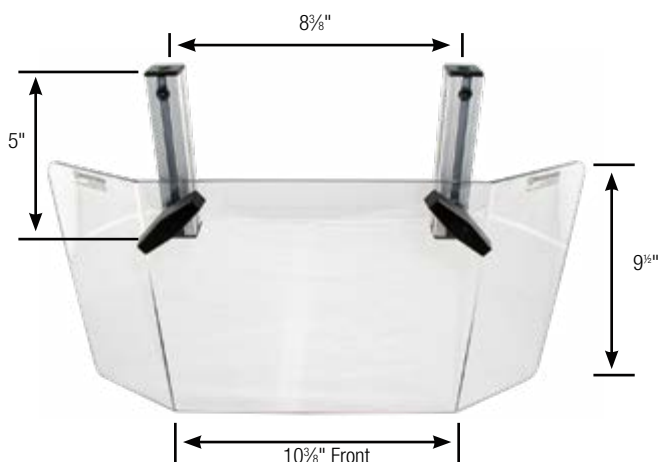


Adjustable slide shield on front column of machine.



Adjustable Slide Shield—7" Front

PART NO.	DESCRIPTION
KYL-192	Adjustable Slide Shield With 30° Angle and 7" Front
KYL-012	Replacement Shield—7" Front



Adjustable Slide Shield—10⅜" Front

PART NO.	DESCRIPTION
KYL-193	Adjustable Slide Shield With 30° Angle and 10⅜" Front
KYL-017	Replacement Shield—10⅜" Front

RIGID-ARM MAGNETIC-BASE SHIELDS



Magnetic-base flat shield shown on a lathe



Magnetic-base concave shield shown on a lathe

These rugged magnetic-base shields can be used on lathes, small milling machines, drills, grinders, band saws, etc. These shields can be attached to any ferrous surface on the machine by an 80-lb pull magnetic base. If a flat, smooth, ferrous surface is not available, a mounting plate (3½" x 4-5/8") is also furnished. Large polypropylene plastic handles are used for easy positioning and locking.

The transparent portion of the chip shield is constructed of high-impact-resistant, 3/16"-thick clear polycarbonate material. It is furnished with a circular base which measures 3¼" in diameter. An 8" aluminum base extrusion is provided and attaches to the magnetic base. Also available is a 12" extruded-aluminum arm extension. This arm can be cut to a shorter length if required for your application.



PART NO.	DESCRIPTION	REPLACEMENT SHIELD ONLY
CBS-1C1	Base With 6" x 8" Flat Shield	CSAA-3
CBS-2C1	Base With 10" x 12" Flat Shield	CSAA-5
CBS-3C1	Base With 14" x 16" Flat Shield	CSAA-7

PART NO.	DESCRIPTION	REPLACEMENT SHIELD ONLY
CBS-1C1B	6" x 8" Flat Shield With 12" Arm Extension	CSAA-3
CBS-2C1B	10" x 12" Flat Shield With 12" Arm Extension	CSAA-5
CBS-3C1B	14" x 16" Flat Shield With 12" Arm Extension	CSAA-7

PART NO.	DESCRIPTION	REPLACEMENT SHIELD ONLY
CBS-6C1	Base With 8" x 10" Concave Shield	CSAD-2
CBS-7C1	Base With 10" x 12" Concave Shield	CSAD-3

PART NO.	DESCRIPTION	REPLACEMENT SHIELD ONLY
CBS-6C1B	8" x 10" Concave Shield With 12" Arm Extension	CSAD-2
CBS-7C1B	10" x 12" Concave Shield With 12" Arm Extension	CSAD-3

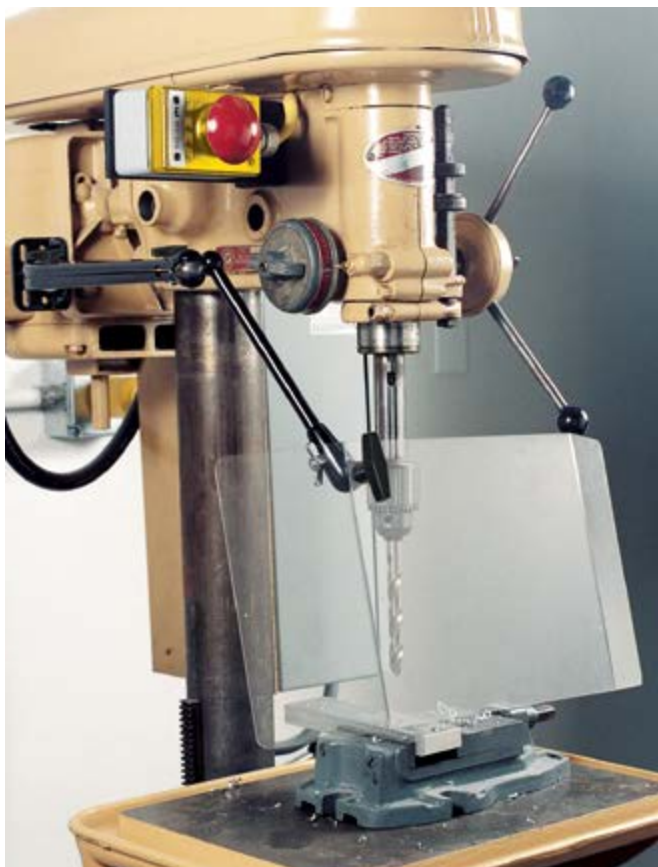
UNIVERSAL BALL & SOCKET SHIELDS

A variety of these quality-constructed, very versatile shields are available. They are ideal for mills, drills, lathes, grinders, band saws, or similar equipment including woodworking machines. The shield places a barrier between operators or other employees in the area and the flying chips (swarf), sparks, and coolant generated from the tool. These shields are furnished with heavy universal steel ball-and-socket arms to provide simple movement and adjustment. Large polypropylene plastic handles are used for positioning and locking. Arms mount easily to the frame or column of the machine and include standard mounting hardware.

The shields offered are made of high-impact-resistant 3/16"-thick clear polycarbonate, selected for its toughness under impact to protect the operator. Each shield, except for the flat shield, has a hole in the left and right corners so the arm can be conveniently mounted on either side of the machine. Special size shields are available upon request.



Universal ball & socket shield on a milling machine.



Universal ball & socket shield shown on a drill press.



Universal ball & socket shield shown on a band saw.

UNIVERSAL BALL & SOCKET SHIELDS (CONTINUED)

All Steel Pivot Balls Are Hardened For Longevity



PART NO.	DESCRIPTION
KYL-104	6" x 8" Flat Shield With 21" Universal Arm
KYL-105	6" x 8" Flat Shield With 31" Universal Arm
KYL-106	6" x 8" Flat Shield With 44" Universal Arm
CSAA-3	6" x 8" Flat Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge



PART NO.	DESCRIPTION
KYL-107	10" x 12" Flat Shield With 21" Universal Arm
KYL-108	10" x 12" Flat Shield With 31" Universal Arm
KYL-109	10" x 12" Flat Shield With 44" Universal Arm
CSAA-5	10" x 12" Flat Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge



PART NO.	DESCRIPTION
KYL-110	30° Angle Shield 8" H (7" Front) With 21" Universal Arm
KYL-111	30° Angle Shield 8" H (7" Front) With 31" Universal Arm
KYL-112	30° Angle Shield 8" H (7" Front) With 44" Universal Arm
KYL-012	30° Angle 8" H (7" Front) Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge



PART NO.	DESCRIPTION
KYL-113	30° Angle Shield 9 5/8" H (10 3/8" Front) With 21" Universal Arm
KYL-114	30° Angle Shield 9 5/8" H (10 3/8" Front) With 31" Universal Arm
KYL-115	30° Angle Shield 9 5/8" H (10 3/8" Front) With 44" Universal Arm
KYL-017	30° Angle 9 5/8" H (10 3/8" Front) Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge

UNIVERSAL BALL & SOCKET SHIELDS (CONTINUED)

THE 90° SIDE PREVENTS INTERFERENCE WITH A DRILL PRESS HANDLE



PART NO.	DESCRIPTION
KYL-127	30° & 90° Angle Shield 9½" H (10⅜" Front) With 21" Universal Arm
KYL-128	30° & 90° Angle Shield 9½" H (10⅜" Front) With 31" Universal Arm
KYL-129	30° & 90° Angle Shield 9½" H (10⅜" Front) With 44" Universal Arm
KYL-126	30° & 90° Angle 9½" H (10⅜" Front) Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge

PART NO.	DESCRIPTION
KYL-116	90° Angle Shield 9½" H (11" Front) With 21" Universal Arm
KYL-117	90° Angle Shield 9½" H (11" Front) With 31" Universal Arm
KYL-118	90° Angle Shield 9½" H (11" Front) With 44" Universal Arm
KYL-018	90° Angle 9½" H (11" Front) Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge

PART NO.	DESCRIPTION
KYL-119	8" x 10" Concave Shield With 21" Universal Arm
KYL-120	8" x 10" Concave Shield With 31" Universal Arm
KYL-121	8" x 10" Concave Shield With 44" Universal Arm
CSAD-2	8" x 10" Concave Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge

PART NO.	DESCRIPTION
KYL-122	10" x 12" Concave Shield With 21" Universal Arm
KYL-123	10" x 12" Concave Shield With 31" Universal Arm
KYL-124	10" x 12" Concave Shield With 44" Universal Arm
CSAD-3	10" x 12" Concave Replacement Shield Only
CYF-016	Clamp Kit for Attaching to Table or Ledge



CYF-016—Clamp kit attaches to table or ledge.

FLEXIBLE SPRING-STEEL ARM SHIELDS

These flexible arms are made of high-quality, heavy-duty $\frac{3}{4}$ "-diameter spring steel covered with vinyl to protect from grease, oil, and contaminants that could weaken their holding power. They offer virtually unlimited adjustment possibilities and long-term holding power.

The shield can be used on lathes, drill presses, milling machines, grinders, band saws, woodworking machines, and similar equipment. It places a barrier between an operator and flying chips (swarf), sparks, and splashing coolant generated at the point of operation. The transparent portion of these flexible-arm shields is constructed of high-impact-resistant, $\frac{3}{16}$ "-thick polycarbonate. Special shield sizes are available up to 12" x 12"; please call our sales department at 1-800-922-7533 for more information.

The flexible-arm shields have two mounting options: direct or magnetic. The direct-mount base can be fastened directly to a machine with two $\frac{1}{4}$ " fasteners (included). The magnetic base consists of a 3"-diameter magnet with **100-lb holding force**. If an adequate flat, smooth, ferrous mounting surface is not available, an optional steel mounting plate can be permanently attached to the machine to hold the magnetic base.



Flexible spring-steel arm shield on milling machine.



Flexible spring-steel arm shield on milling machine.



Flexible spring-steel arm shield on lathe.

FLEXIBLE SPRING-STEEL ARM SHIELDS (CONTINUED)

MADE OF 3/4"-DIAMETER VINYL-COVERED SPRING STEEL



PART NO.	DESCRIPTION
KYL-096	6" x 8" Flat Shield and 12" Arm With Direct-Mount Base
KYL-097	6" x 8" Flat Shield and 18" Arm With Direct-Mount Base
KYL-132	6" x 8" Flat Shield and 24" Arm With Direct-Mount Base
CSAA-3	6" x 8" Flat Replacement Shield Only



PART NO.	DESCRIPTION
KYL-100	6" x 8" Flat Shield and 12" Arm With Magnetic Base
KYL-101	6" x 8" Flat Shield and 18" Arm With Magnetic Base
KYL-133	6" x 8" Flat Shield and 24" Arm With Magnetic Base
CSAA-3	6" x 8" Flat Replacement Shield Only
FKT-1106	Optional 3½" x 4½" Steel Mounting Plate (Fasteners Not Included)



PART NO.	DESCRIPTION
KYL-098	10" x 12" Flat Shield and 12" Arm With Direct-Mount Base
KYL-099	10" x 12" Flat Shield and 18" Arm With Direct-Mount Base
KYL-134	10" x 12" Flat Shield and 24" Arm With Direct-Mount Base
CSAA-5	10" x 12" Flat Replacement Shield Only



PART NO.	DESCRIPTION
KYL-102	10" x 12" Flat Shield and 12" Arm With Magnetic Base
KYL-103	10" x 12" Flat Shield and 18" Arm With Magnetic Base
KYL-135	10" x 12" Flat Shield and 24" Arm With Magnetic Base
CSAA-5	10" x 12" Flat Replacement Shield Only
FKT-1106	Optional 3½" x 4½" Steel Mounting Plate (Fasteners Not Included)

← Optional Mounting Plate

FLEXIBLE SPRING-STEEL ARM SHIELDS (CONTINUED)



PART NO.	DESCRIPTION
KYL-136	30° Angle Shield 8" H (7" Front) and 12" Arm With Direct-Mount Base
KYL-137	30° Angle Shield 8" H (7" Front) and 18" Arm With Direct-Mount Base
KYL-138	30° Angle Shield 8" H (7" Front) and 24" Arm With Direct-Mount Base
KYL-012	30° Angle 8" H (7" Front) Replacement Shield Only



PART NO.	DESCRIPTION
KYL-139	30° Angle Shield 8" H (7" Front) and 12" Arm With Magnetic Base
KYL-140	30° Angle Shield 8" H (7" Front) and 18" Arm With Magnetic Base
KYL-141	30° Angle Shield 8" H (7" Front) and 24" Arm With Magnetic Base
KYL-012	30° Angle 8" H (7" Front) Replacement Shield Only
FKT-1106	Optional 3 ^{5⁄8} " x 4 ^{5⁄8} " Steel Mounting Plate (Fasteners Not Included)



PART NO.	DESCRIPTION
KYL-142	30° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 12" Arm With Direct-Mount Base
KYL-143	30° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 18" Arm With Direct-Mount Base
KYL-144	30° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 24" Arm With Direct-Mount Base
KYL-017	30° Angle 9 1⁄2" H (10 3⁄8" Front) Replacement Shield Only



PART NO.	DESCRIPTION
KYL-145	30° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 12" Arm With Magnetic Base
KYL-146	30° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 18" Arm With Magnetic Base
KYL-147	30° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 24" Arm With Magnetic Base
KYL-017	30° Angle 9 1⁄2" H (10 3⁄8" Front) Replacement Shield Only
FKT-1106	Optional 3 ^{5⁄8} " x 4 ^{5⁄8} " Steel Mounting Plate (Fasteners Not Included)



PART NO.	DESCRIPTION
KYL-148	30° & 90° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 12" Arm With Direct-Mount Base
KYL-149	30° & 90° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 18" Arm With Direct-Mount Base
KYL-150	30° & 90° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 24" Arm With Direct-Mount Base
KYL-126	30° & 90° Angle 9 1⁄2" H (10 3⁄8" Front) Replacement Shield Only



PART NO.	DESCRIPTION
KYL-151	30° & 90° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 12" Arm With Magnetic Base
KYL-152	30° & 90° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 18" Arm With Magnetic Base
KYL-153	30° & 90° Angle Shield 9 1⁄2" H (10 3⁄8" Front) and 24" Arm With Magnetic Base
KYL-126	30° & 90° Angle 9 1⁄2" H (10 3⁄8" Front) Replacement Shield Only
FKT-1106	Optional 3 ^{5⁄8} " x 4 ^{5⁄8} " Steel Mounting Plate (Fasteners Not Included)

FLEXIBLE SPRING-STEEL ARM SHIELDS (CONTINUED)



PART NO.	DESCRIPTION
KYL-154	90° Angle Shield 9 $\frac{1}{2}$ " H (11" Front) and 12" Arm With Direct-Mount Base
KYL-155	90° Angle Shield 9 $\frac{1}{2}$ " H (11" Front) and 18" Arm With Direct-Mount Base
KYL-156	90° Angle Shield 9 $\frac{1}{2}$ " H (11" Front) and 24" Arm With Direct-Mount Base
KYL-018	90° Angle 9 $\frac{1}{2}$ " H (11" Front) Replacement Shield Only



PART NO.	DESCRIPTION
KYL-157	90° Angle Shield 9 $\frac{1}{2}$ " H (11" Front) and 12" Arm With Magnetic Base
KYL-158	90° Angle Shield 9 $\frac{1}{2}$ " H (11" Front) and 18" Arm With Magnetic Base
KYL-159	90° Angle Shield 9 $\frac{1}{2}$ " H (11" Front) and 24" Arm With Magnetic Base
KYL-018	90° Angle 9 $\frac{1}{2}$ " H (11" Front) Replacement Shield Only
KYL-1106	Optional 3 $\frac{1}{2}$ " x 4 $\frac{5}{8}$ " Steel Mounting Plate (Fasteners Not Included)



PART NO.	DESCRIPTION
KYL-160	8" x 10" Concave Shield and 12" Arm With Direct-Mount Base
KYL-161	8" x 10" Concave Shield and 18" Arm With Direct-Mount Base
KYL-162	8" x 10" Concave Shield and 24" Arm With Direct-Mount Base
CSAD-2	8" x 10" Concave Replacement Shield Only



PART NO.	DESCRIPTION
KYL-163	8" x 10" Concave Shield and 12" Arm With Magnetic Base
KYL-164	8" x 10" Concave Shield and 18" Arm With Magnetic Base
KYL-165	8" x 10" Concave Shield and 24" Arm With Magnetic Base
CSAD-2	8" x 10" Concave Replacement Shield Only
FKT-1106	Optional 3 $\frac{1}{2}$ " x 4 $\frac{5}{8}$ " Steel Mounting Plate (Fasteners Not Included)



PART NO.	DESCRIPTION
KYL-166	10" x 12" Concave Shield and 12" Arm With Direct-Mount Base
KYL-167	10" x 12" Concave Shield and 18" Arm With Direct-Mount Base
KYL-168	10" x 12" Concave Shield and 24" Arm With Direct-Mount Base
CSAD-3	10" x 12" Concave Replacement Shield Only



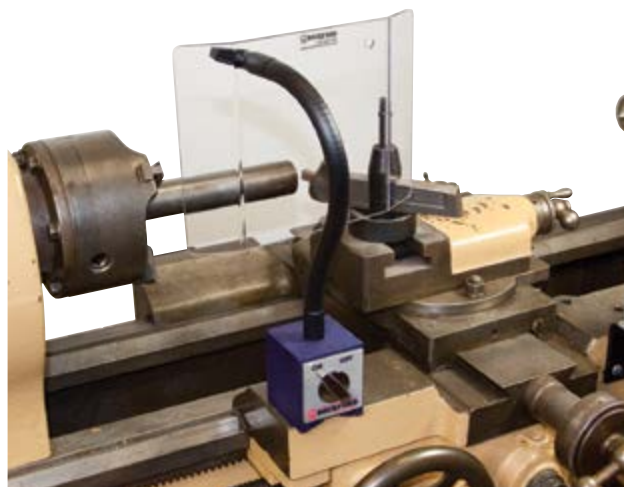
PART NO.	DESCRIPTION
KYL-169	10" x 12" Concave Shield and 12" Arm With Magnetic Base
KYL-170	10" x 12" Concave Shield and 18" Arm With Magnetic Base
KYL-171	10" x 12" Concave Shield and 24" Arm With Magnetic Base
CSAD-3	10" x 12" Concave Replacement Shield Only
FKT-1106	Optional 3 $\frac{1}{2}$ " x 4 $\frac{5}{8}$ " Steel Mounting Plate (Fasteners Not Included)

ON/OFF MAGNETIC-BASE SHIELDS

These versatile on/off magnetic-base shields can be used on lathes, drills, mills, grinders, or any equipment that has a flat, ferrous mounting surface. The heavy-duty magnetic base is 2¾" square with a V-groove and measures 3" high. The **200-lb holding force** keeps the shield in place when the magnet is on. If an adequate flat, smooth, ferrous mounting surface is not available, an optional steel mounting plate (Part No. FKT-1106) can be used.

The 12", 18", and 24" flexible spring-steel arms are covered with vinyl to protect them from grease, oil, and contaminants that would weaken their holding power. They offer virtually unlimited adjustment possibilities and have long-term holding power.

The transparent portion of these shields is constructed of high-impact-resistant, 3/16"-thick clear polycarbonate. The shield places a barrier between an operator and the flying chips (swarf), sparks, and coolant generated at the point of operation. A variety of flat, angled, and concave shields are available.



On/Off magnetic-base shield on a lathe.



Ordering Information

PART NO.	DESCRIPTION	REPLACEMENT SHIELD
KYL-197	6" x 8" Flat Shield With 12" Arm	CSAA-3
KYL-198	6" x 8" Flat Shield With 18" Arm	CSAA-3
KYL-199	6" x 8" Flat Shield With 24" Arm	CSAA-3
KYL-200	30° Angle Shield 7" Front With 12" Arm	KYL-012
KYL-201	30° Angle Shield 7" Front With 18" Arm	KYL-012
KYL-202	30° Angle Shield 7" Front With 24" Arm	KYL-012
KYL-203	10" x 12" Flat Shield With 12" Arm	CSAA-5
KYL-204	10" x 12" Flat Shield With 18" Arm	CSAA-5
KYL-205	10" x 12" Flat Shield With 24" Arm	CSAA-5
KYL-206	30° Angle Shield 10 3/8" Front With 12" Arm	KYL-017
KYL-207	30° Angle Shield 10 3/8" Front With 18" Arm	KYL-017
KYL-208	30° Angle Shield 10 3/8" Front With 24" Arm	KYL-017
KYL-209	30° & 90° Angle Shield 10 3/8" Front With 12" Arm	KYL-126
KYL-210	30° & 90° Angle Shield 10 3/8" Front With 18" Arm	KYL-126
KYL-211	30° & 90° Angle Shield 10 3/8" Front With 24" Arm	KYL-126
KYL-212	90° Angle Shield 11" Front With 12" Arm	KYL-018
KYL-213	90° Angle Shield 11" Front With 18" Arm	KYL-018
KYL-214	90° Angle Shield 11" Front With 24" Arm	KYL-018
KYL-215	8" x 10" Concave Shield With 12" Arm	CSAD-2
KYL-216	8" x 10" Concave Shield With 18" Arm	CSAD-2
KYL-217	8" x 10" Concave Shield With 24" Arm	CSAD-2
KYL-218	10" x 12" Concave Shield With 12" Arm	CSAD-3
KYL-219	10" x 12" Concave Shield With 18" Arm	CSAD-3
KYL-220	10" x 12" Concave Shield With 24" Arm	CSAD-3
FKT-1106	Optional 3 1/2" x 4 3/4" Steel Mounting Plate (Fasteners Not Included)	

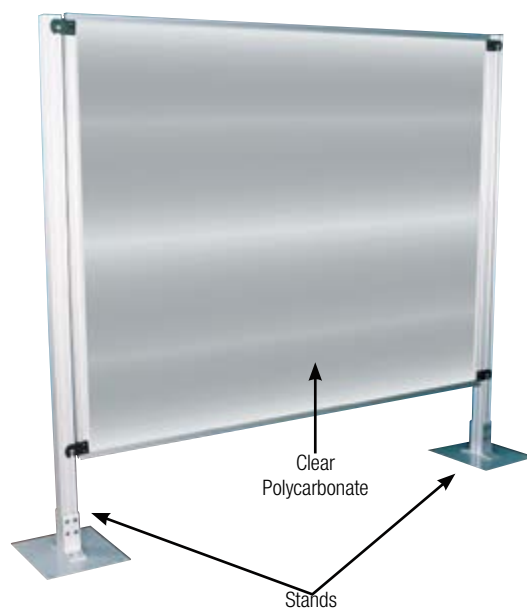
FREE-STANDING SHIELD ASSEMBLY



Free-standing shield used to protect the area around a milling machine from flying chips.

These shields can be used to protect the area between machines, the backside of machines, along aisles, etc.

These free-standing adjustable shield assemblies are available in a wide range of sizes. They are constructed of 3/16"-thick polycarbonate material surrounded by aluminum framing. The shield can easily be adjusted up or down on the stands. The stands are constructed of 2"-square extruded aluminum. Each base includes four holes for permanent mounting to the floor. Four standard sizes are available. Special size shield assemblies are available upon request.



Ordering Information

PART NO.	DESCRIPTION
KYL-026	48" H x 48" L Shield Size
KYL-027	48" H x 60" L Shield Size
KYL-028	48" H x 72" L Shield Size
KYL-029	48" H x 96" L Shield Size

LOCKOUTS



ELECTRICAL PLUG LOCKOUT

PART NO. KYM-088

This lockout container can lockout plugs up to 3" wide and 5½" long with a maximum cord diameter of 1¼".

The lockout consists of a round container and two cover plates made of a durable and chemically resistant thermoplastic. The cover plates, when used singularly or combined, are locked to produce a universally fitting electrical plug lockout device.

This lockout is bright yellow so it can also serve as a visual warning to other plant personnel.

LOCK-A-PLUGS



These lockout devices accommodate a large variety of electrical plugs. The large device (KYM-987) also locks out necked-down pneumatic male fittings commonly attached to compressed air hoses. These devices accommodate up to four padlocks with 9/32" maximum shackle diameter.

PART NO. KYM-984

For plugs up to 1½" wide, 1½" high, and 3" long with a maximum cord diameter of ½"

PART NO. KYM-987

For plugs up to 3½" wide, 3½" high, and 6" long with a maximum cord diameter of ¾"

PLUGOUT

PART NO. KYM-983

This lockout container accepts lockout plugs up to 2¾" wide and 4¾" long with a maximum cord diameter of 2¾". It is constructed of high-impact, yellow UV-stabilized polymer.



It has an easy to use two-step close and slide assembly. It allows the use of four individual padlocks (up to 3/8" shackle diameter). A lockout hasp can be used if more locks are required. An advantage to this plug lockout is that it can be stored on the cord when not in use. This device is 4¼" wide and 7¼" long.

PLUG HUGGER—PART NO. KYM-199

This device is ideal for frequently locked-out cords. It slides over the plug's blades and locks with a key. It can only be used on standard 125-V, 15-A plugs (polarized or nonpolarized) with a hole on both blades.



LOCKOUT HASPS

These lockout hasps are made from 12-gauge steel that is epoxy-coated for superior rust resistance and added dielectric strength. The yellow plastic coating on the lock area is for visibility. These devices accept up to six padlocks with 9/32" maximum shackle diameter.

PART NO. KYM-988 1" Diameter Lockout Hasp

PART NO. KYM-989 1½" Diameter Lockout Hasp



ELECTRICAL POWER CUTOFF SYSTEM (INTERLOCK)

This interlock assembly can be interfaced into the control system so when the plug is pulled, the machine or equipment becomes inoperable. It includes a two-prong plug, a 24" chain, a receptacle, and an electrical mounting box.

PART NO. KTS-518

One-Contact Interlock System With 24" Chain

PART NO. KTS-533

Two-Contact Interlock System With 24" Chain



TAGOUTS

These tagouts are 2-7/8" x 5½" x .055" thick, and made of a polyethylene material. They meet the requirements of OSHA 29 CFR 1910.147 for lockout/tagout. The reverse side of each tagout is the same.



LOCKOUT VALVES

SLIDE-OPERATED VALVE

This three-way valve is operated with the manual movement of a slide that opens and closes the valve. This valve shuts off air at the machine and then bleeds off downstream air. It can be locked only in the off position.



PART NO.	PORT SIZE
	IN-OUT
RCD-113	1/2"
RCD-114	3/4"

EEZ-ON VALVE

This valve shuts off air supply to the machine and bleeds downstream air when the valve is closed. When the valve is open, it gradually allows air into the air system to prevent damage to air components. It can be locked only in the off position. This valve is furnished with a muffler.



PART NO.	PORT SIZE	
	IN-OUT	EXHAUST
RCD-121	1/2"	3/4"
RCD-122	3/4"	3/4"

SINGLE-PHASE DISCONNECT SWITCH WITH MAGNETIC MOTOR STARTER AND SELF-LATCHING EMERGENCY-STOP BUTTON

This single-phase unit is designed for motors that have built-in overloads. Typical applications for these combinations include smaller crimping machines, grinders, drill presses, and all types of saws.

PART NO. CSS-055 (115 V, 1/2 HP MAX.)

The 115-V, 15-A disconnect switch and nonreversing magnetic motor starter are housed in a NEMA 12 enclosure. Enclosure size is 8" x 6" x 3 1/2". It includes a self-latching red emergency-stop palm button and a green motor control on push button. It can be used on machines with 115-V power and is rated up to 1/2 HP maximum.

The disconnect switch has a rotary operating handle which is lockable in the off position only. This meets OSHA regulations and ANSI standards.

For machines with 230-V AC single-phase motors, a transformer is required to reduce the control circuit voltage to 115-V AC in order to comply with NFPA 79. See the RSD series disconnect switches, motor starters, and combinations on pages 64-65.



SINGLE-PHASE STARTER WITH SELF-LATCHING EMERGENCY-STOP BUTTON

PART NO. CSF-082 (115 V, 1/2 HP MAX.)

The 115-V, 15-A nonreversing magnetic motor starter, self-latching red emergency-stop palm button, and green motor control on push button are housed in a NEMA 4 polycarbonate enclosure. Enclosure size is 5" x 5" x 4". It can be used for machines with 115-V power and is rated up to 1/2 HP maximum.

For machines with 230-V AC single-phase motors, a transformer is required to reduce the control circuit voltage to 115-V AC in order to comply with NFPA 79. See the RSD series disconnect switches, motor starters, and combinations on pages 63-64.



PART NO. CSF-301 (115 V, 2 HP MAX.)

The 115-V, 30-A nonreversing magnetic motor starter, self-latching red emergency-stop palm button, and green motor control on push button are housed in a NEMA 12 enclosure. Enclosure size is 8" x 6" x 6". It can be used for machines with 115-V power and is rated up to 2 HP maximum.

For machines with 230-V AC single-phase motors, a transformer is required to reduce the control circuit voltage to 115-V AC in order to comply with NFPA 79. See the RSD series disconnect switches, motor starters, and combinations on pages 63-64.



SENSING-SAF-START® PACKAGES

This Sensing-Saf-Start® package is designed for installation on 120-V (15-A maximum) machines. When installed correctly, the Saf-Start® package will prevent the machine from automatically or unintentionally restarting when a power interruption occurs. The machine cannot restart until power has been restored, the machine has been turned off, and the reset button pushed.

FOR USE ON 120-V MACHINES

- Drill Presses
- Tool Grinders
- Milling Machines
- Lathes
- Band Saws
- Radial Arm Saws
- Scroll Saws
- Table Saws
- Cut-Off Machines
- Belt Sanders
- Disc Sanders
- Polishing Machines



SAFS-300 Sensing-Saf-Start® package on a table saw.

SAFS-300 PACKAGE

This one-box SAFS-300 package is housed in a NEMA 4 polycarbonate enclosure (5" x 5" x 4") that includes a reset button and E-stop. The Saf-Start® complies with OSHA requirements and the NFPA 79 electrical standard.



SAFS-300 Package

SAFS-200 PACKAGE

The SAFS-200 package includes a 120-V AC Sensing-Saf-Start® with a 20' cord for the machine end and an 8' cord with molded plug on the power end, plus an E-stop in a NEMA 4 polycarbonate enclosure (5" x 5" x 4"). The Saf-Start® complies with OSHA requirements and the NFPA 79 electrical standard.



SAFS-200 Package

Ordering Information

PART NO.	DESCRIPTION
SAFS-200	Combination Sensing-Saf-Start® and E-Stop Package
SAFS-300	One-Box Sensing-Saf-Start® With Reset Button and E-Stop Package

ENCLOSED TRANSFORMERS

These transformers comply with OSHA regulations and ANSI standards and are available for use when the motor start/stop station is remotely located from the starter enclosure, and voltage to these buttons must be 115 V or less. These transformers mount directly to the frame of the machine. If the existing motor starter operating coils are a higher voltage (208, 230, 460, 575 V), they must be replaced with a 115-V coil when furnishing these transformers. A replaceable fuse is accessible from the outside of the transformer housing.



Ordering Information

PART NO.	DESCRIPTION
RSF-021	100-VA, 230/460-V Primary and 115-V Fused Secondary with a 1 A, 230-V Fuse
RSF-030	150-VA, 230/460-V Primary and 115-V Fused Secondary with a 1.5 A, 230-V Fuse

IEC FUSED DISCONNECT SWITCHES, MAGNETIC MOTOR STARTERS, AND COMBINATIONS

These three-phase disconnect/starters are housed in a NEMA 12 metal enclosure. The enclosure size will vary depending on the motor starter required. These units can be used on machines with 208, 230, 460, or 575 V. They are furnished with an overload relay and have operating coils of 115 V, 60 Hz. The disconnect operating handle is lockable in the off position only. These combination units meet OSHA regulations, ANSI standards, and NFPA 79.

To obtain the part number of the motor starter required, please refer to the part numbering chart on the next page.

A remote station is required when using any **plain-door** starter. To obtain the part number of the remote operator station required, please refer to the part numbering chart on the page 65.



PART NO. RSD-1230-F



PART NO.
VOS-2100



PART NO.
RSD-2210-P-1

Note: Please furnish the exact motor horsepower, voltage, and full-load amps when ordering any of the disconnects or starters on page 64. This information is usually on the motor nameplate. Voltage can be 208, 230, 460, or 575 V. If other sizes are required, please consult Rockford Systems.

SELECTING A DISCONNECT, STARTER, OR COMBINATION DISCONNECT/STARTER(S)

To determine the 9-digit configured part number for a disconnect, starter, or combination disconnect/starter(s) required, follow directions 1-7 below and use the information in the **PART NUMBERING SYSTEM CHART** below.

The first 3 digits for all disconnects, starters, or combination disconnect/starter(s) are RSD.

The 4th digit determines the size of the disconnect switch, if required. Zero (0) indicates no disconnect switch provided.

The 5th digit determines the type of the main motor starter and/or 2nd motor starter. Zero (0) indicates no starters.

The 6th digit determines the size of the main motor starter. Zero (0) indicates no main motor starter.

The 7th digit determines the size of the 2nd motor starter. Zero (0) indicates no 2nd motor starter.

The 8th digit (if required) determines the configuration and location of the operator controls.

The 9th digit determines if a transformer and/or wiring is required.

DISCONNECT AND STARTER(S) PART NUMBERING SYSTEM CHART									
DISCONNECT AND STARTER(S)				MODIFIER					
RSD —Separate or Combination				- —Blank—No Specific Configuration, Terminals, Transformer, or Wiring					
DISCONNECT SWITCH SIZE (IEC) (PLUS MAXIMUM MAIN MOTOR FLA)				1 —Generically Numbered and Wired to Terminals —Includes Transformer					
0 —No Disconnect Switch				2 —Generically Numbered and Wired to Terminals —Without Transformer					
1 —30-A CC Disconnect—1- to 17-FLA Total Motor Current				CONFIGURATION & OPERATOR LOCATION					
2 —30-A J Disconnect—1- to 20-FLA Total Motor Current				- —Blank—No Specific Configuration					
3 —60-A J Disconnect—21- to 40-FLA Total Motor Current				P —All Operators Remote (Plain Door)					
4 —100-A J Disconnect—41- to 66-FLA Total Motor Current				F —All Motor Operators on Door of Enclosure					
5 —200-A J Disconnect—67- to 133-FLA Total Motor Current				X —F Configuration With E-Stop in Place of Single-Motor Stop					
6 —400-A J Disconnect—134- to 266-FLA Total Motor Current				Y —F Configuration With Addition of E-Stop					
REVERSING/NONREVERSING MOTOR STARTER				2nd MOTOR STARTER SIZE					
0 —No Starters				0 —No Main Motor Starter					
1 —Nonreversing Main Motor Starter				Motor Horsepower Chart					
2 —Reversing Main Motor Starter				1-Phase					
3 —Nonreversing Main Motor Starter & Nonreversing 2nd Motor				3-Phase					
4 —Nonreversing Main Motor Starter & Reversing 2nd Motor				115 V 230 V 208 V 230 V 460 V 575 V					
5 —Reversing Main Motor Starter & Nonreversing 2nd Motor				IEC 1 1/2 2 3 7.5 7.5					
6 —Reversing Main Motor Starter & Reversing 2nd Motor				2 3 5 10 15 10					
7 —Nonreversing 2-Speed Main Motor Starter				3 5 7.5 15 30 30					
8 —Reversing 2-Speed Main Motor Starter				4 5 7.5 10 20 20					
9 —Nonreversing 2-Speed Main Motor Starter & Nonrev. 2nd Motor				5 7.5 10 10 30 30					
A —Nonreversing 2-Speed Main Motor Starter & Reversing 2nd Motor				6 10 15 15 30 40					
B —Reversing 2-Speed Main Motor Starter & Nonreversing 2nd Motor				7 10 20 20 50 50					
C —Reversing 2-Speed Main Motor Starter & Reversing 2nd Motor				8 15 25 30 60 75					
MAIN MOTOR STARTER SIZE				9 20 30 30 60 75					
0 —No Main Motor Starter				A 25 30 40 75 100					
Motor Horsepower Chart				B 30 50 60 125 150					
1-Phase				C 75 100 200 200					
IEC									
115 V 230 V 208 V 230 V 460 V 575 V									
1 —12 A 1/2 1 2 3 7.5 7.5									
2 —18 A 3/4 2 5 5 10 10									
3 —25 A 2 3 5 7.5 15 15									
4 —32 A 2 5 7.5 10 20 20									
5 —40 A 3 7.5 10 10 30 30									
6 —50 A 3 10 15 15 30 40									
7 —65 A 5 10 20 20 50 50									
8 —80 A 7.5 15 25 30 60 75									
9 —95 A 7.5 20 30 30 60 75									
A —115 A 10 25 30 40 75 100									
B —185 A 15 30 50 60 125 150									
C —265 A — — 75 100 200 200									

Please see page 65 for an example of a disconnect and starter(s) part number.

SELECTING A REMOTE OPERATOR STATION

To determine the 8-digit configured part number for a remote operator station required, follow directions 1-3 below and use the information in the **PART NUMBERING SYSTEM CHART** below.

The first 3 digits determine the orientation of the remote operator station.

Digits 4 through 7 determine motor operators. Zero (0) indicates no operator(s).

The 8th digit (if required) determines the 2nd motor operators.

REMOTE OPERATOR STATION PART NUMBERING SYSTEM CHART	
XXX - XXXX - X	
REMOTE OPERATOR STATION ORIENTATION HOS —Horizontal Operator Station VOS —Vertical Operator Station	2nd MOTOR OPERATORS - —Blank—No 2nd Motor 1 —Start/Stop Push Buttons 2 —Start/Stop Push Buttons & Forward/Reverse Selector Switch
MAIN MOTOR START/STOP/E-STOP OPERATORS 1 —Start/Stop Push Buttons 2 —Start/E-Stop Push Buttons 3 —Start/Stop/E-Stop Buttons 4 —E-Stop Button Only	MAIN MOTOR JOG 0 —No Jog 1 —Jog/Run Selector Switch
MAIN MOTOR FORWARD/REVERSE OPERATORS 0 —No Forward/Reverse Operators 1 —Forward/Reverse Selector Switch* 2 —Forward/Reverse Push Buttons	MAIN MOTOR SPEED CHANGE 0 —No Speed Change 1 —Fast/Slow Selector Switch 2 —Fast/Slow Push Buttons
* Must be configured with a start push button	

DISCONNECT AND STARTERS PART NUMBER EXAMPLE

1 2 3 4 5 6 7
R S D - 3 5 2 1 - P - 1

The example shown above, RSD-3521-P-1, indicates that the enclosure containing the combination disconnect/starter(s) has a 60-A disconnect switch, a 17-A reversing main motor starter, and a 12-A nonreversing 2nd motor starter. All motor controls will be in a remote station. This disconnect/starter(s) will be generically numbered and wired to terminals and will include a transformer.

REMOTE OPERATOR PART NUMBER EXAMPLE

1 2 3
V O S - 3 1 0 - 1

The example shown above, VOS-3100-1, indicates that it is a vertical-oriented remote operator station which includes main motor start/stop/E-stop buttons, main motor forward/reverse selector switch, and start/stop push buttons for the 2nd motor starter.



REMOTE OPERATOR STATIONS

PART NO. HOS-4000

This 4½" x 3½" x 3" station has a self-latching red emergency-stop palm button in a NEMA 12 metal enclosure. To reset this button, turn it to the right.



PART NO. HOS-4000

PART NO. VOS-2000

(FOR USE WITH NONREVERSING MOTOR STARTERS)

This 6¾" x 3½" x 3" station has a motor on push button and a self-latching red emergency-stop palm button in a NEMA 12 metal enclosure.



PART NO. VOS-2000

PART NO. HOS-4201

(FOR USE WITH REVERSING MOTOR STARTERS)

This 3½" x 10½" x 3" station has a motor jog/run selector switch, forward and reverse push buttons, and a self-latching emergency-stop palm button in a NEMA 12 metal enclosure.



PART NO. HOS-4201

PART NO. VOS-1000

(FOR USE WITH NONREVERSING MOTOR STARTERS)

This 6¾" x 3½" x 3" station has motor on and stop push buttons in a NEMA 12 metal enclosure.



PART NO. VOS-1000

PART NO. HOS-4200

(FOR USE WITH REVERSING MOTOR STARTERS)

This 3½" x 8¾" x 3" station has motor forward and reverse push buttons and a self-latching emergency-stop palm button in a NEMA 12 metal enclosure.



PART NO. HOS-4200

PART NO. VOS-1100

(FOR USE WITH REVERSING MOTOR STARTERS)

This 8¾" x 3½" x 3" station has motor on and stop push buttons and a motor forward/reverse selector switch in a NEMA 12 metal enclosure.



PART NO. VOS-1100

PART NO. VOS-2100

(FOR USE WITH REVERSING MOTOR STARTERS)

This 8¾" x 3½" x 3" station has a motor forward/reverse selector switch, a motor on push button, and a self-latching red emergency-stop palm button in a NEMA 12 metal enclosure.



PART NO. VOS-2100

PART NO. PB5R00-01—

Self-Latching Emergency-Stop Mushroom-Head Push Button



PART NO. CTM-506—

Yellow Emergency-Stop Nameplate (22.5 mm hole)



PART NO. CTC-550—

Push/Pull to Release Emergency-Stop Push Button



PART NO. CTM-548—

Yellow Emergency-Stop Nameplate (30 mm hole)



DANGER SIGNS AND LABELS

The signs offered in this catalog are .055" thick linear polyethylene. They are semi-rigid plastic and are capable of withstanding a temperature range of -60° to 130° F. They are resistant to tears and may be mounted with nails, rivets, screws, bolts, nylon lock-straps, double-face adhesive tape, etc. Each sign is protected from fading, chipping, scratching, weather extremes, physical abuse, grease, oil, moisture, chemicals and acids. These signs do not rust, dent, or corrode. They do not curl up or rip and are lightweight and easy to handle.

OPERATOR SAFETY PRECAUTIONS FOR METAL-CUTTING MACHINERY—8½" X 11" X .055" THICK

PART NO. KSC-048—ENGLISH

PART NO. KSC-048S—SPANISH

PART NO. KSC-048F—FRENCH

**OPERATOR
SAFETY PRECAUTIONS**
Handout for Anyone Operating This Machine
Before You Operate This Machine
You Must Read and Understand
These Safety Precautions

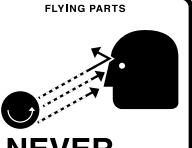
! DANGER

ROTATING MEMBERS AND TOOLS



NEVER
Place Your Hands,
Clothes or Any
Part of Your Body
in This Machine!

FLYING PARTS



NEVER
Operate This
Machine Without
Proper Eye and Other
Body Protection!

See Reverse Side for Other Safety Precautions.

OVER 

Part No. KSC-048

KSC-048 FRONT (ENGLISH)

**! Do Not Operate This Machine
Until You Read and Understand the
Following Safety Precautions.**

- 1 **Never** operate this machine unless you understand that this machine is dangerous. Never place your hands or any part of your body in this machine which could result in loss of fingers, limbs or even death.
- 2 **Never** operate this machine without the use of a point-of-operation* guard, shield, or safety device that will protect you from bodily injury.
- 3 **Always** wear safety glasses, face protection or both and any other personal protection equipment needed when operating this machine.
- 4 **Never** operate this machine with loose clothing, jewelry, or unrestrained hair styles that are hazardous to your own personal safety. When there are moving parts present such as cutters, chucks, and tables, pay particular attention to loose clothing and hair, neckties, finger rings, necklaces, watch bands, etc.
- 5 **Always** use hand tools for feeding or retrieving material from the point of operation or any other hazardous part of the machine. Never reach through or into a hazardous area of a machine for any reason.
- 6 **Never** operate this machine unless you have been fully trained and have received and understand all operating instructions. Make sure you know how the machine works and how it is controlled.
- 7 **Never** operate this machine unless you are sure the safeguarding is adjusted properly and working correctly. If you are not sure, notify your supervisor.
- 8 **Never** operate this machine if it is not working properly or if you notice any unusual noises or change in the performance of the machine. Stop operating the machine immediately and advise your supervisor.
- 9 **Always** notify your supervisor immediately if you observe an unsafe practice or condition.
- 10 **Always** maintain an orderly work area. Pay particular attention to the storage of tools or parts that could be dislodged and cause a hazardous condition.
- 11 **Never** start the machine with the wrench in the chuck. The chuck wrench should be removed from the chuck immediately after using it or a spring-loaded chuck wrench should be used.
- 12 **Never** tamper with, alter, remove, or disable any component or safeguard on this machine.
- 13 **All employees** who adjust, position, or install safety equipment, devices, guards, or shields should follow instructions from the employer.
- 14 **Always** check the setup during each shift and between each job to ensure all safeguarding is working and the operation will be performed in a safe manner. Severe hazardous operating conditions may require more frequent checking.
- 15 **Be sure** everyone is clear of the machine before it is cycled, especially when multiple operators are present. Do not operate the machine unless you and every operator and helper are protected from injury by a guard or safety device.
- 16 **Always** stay alert (don't daydream) and never operate this machine while under the influence of alcohol or any drug, including prescription medications.
- 17 **Maintenance and Set-Up Personnel:** Never work on this machine unless power is off and locked out, rotating members are at rest, and all energy (electrical, air, hydraulic, etc.) is at a zero state.
- 18 **Always** be prepared for an emergency situation. You should know how to stop and shut down the machine if required.
- 19 **Never** operate this machine unless all mechanical power-transmission apparatus covers (for shafts, gears, etc.) and auxiliary equipment are free from hazards.

* Point of Operation—"The location in the machine where the material or workpiece is positioned and work is performed." (ANSI B11.19)

NOTICE TO EMPLOYER: These Operator Safety Precautions must be given to all operators (including set-up people, maintenance personnel, and supervisors) of this machine. These precautions should also be hung on the machine readily accessible and visible to the operator. Additional precautions are available upon request.

IMPORTANT: If a language barrier or insufficient schooling prevents a person from reading and understanding these precautions, you should either translate this information or have it read or interpreted to the person. Make sure that it is understood. If Spanish or French safety precautions are required, please consult the factory.

THESE PRECAUTIONS MUST BE REVIEWED DAILY.

KSC-048 BACK (ENGLISH)

**PRECAUCIONES PARA LA SEGURIDAD DEL
OPERADOR**
Información Para Toda Persona Que Opere Esta Máquina
Antes de Operar Esta Máquina
Usted Debe Leer y Comprender
Estas Precauciones Para Su Seguridad

! PELIGRO !

PIEZAS Y HERRAMIENTAS GIRATORIAS



NUNCA
Ponga Las Manos,
Ropa, ni Ninguna
Parte de Su Cuerpo
en Esta Máquina!

TROZOS QUE VUELAN



NUNCA
Opere esta Máquina Sin
La Debida Protección
Para los Ojos y Otras
Partes del Cuerpo!

Ver Otras Precauciones Al Dorso

LEER AL DORSO 

Part No. KSC-048S

KSC-048S FRONT (SPANISH)

**! No Opere Esta Máquina
Hasta Haber Leído y Comprendido las
Sigüientes Medidas de Precaución y Seguridad. !**

- 1 **Nunca** opere esta máquina hasta haber comprendido que es peligrosa. Nunca ponga las manos ni ninguna parte del cuerpo en esta máquina, pues podría perder dedos, miembros o hasta morir.
- 2 **Nunca** opere esta máquina sin usar la defensa, protección o dispositivo de seguridad correspondiente a ese "lugar de operación" el cual le protegerá, en todo momento evitando que sufra lesiones.
- 3 **Siempre** use lentes de seguridad, protección para la cara, o ambos, así como cualquier otro equipo de protección y seguridad personal, cuando opere esta máquina.
- 4 **Nunca** use ropa suelta, joyas, ni el cabello suelto, pues pueden ser peligrosos para su seguridad personal. Cuando hay piezas en movimiento, tales como correa, poleas, engranes y mesas, preste especial atención a la ropa y cabellos sueltos, corbata, aretes, collares, pulseras de reloj, etc.
- 5 **Siempre** use herramientas de mano para colocar o retirar material del lugar de trabajo, o cualquier otra parte peligrosa de la máquina. Si necesita alcanzar algo no lo haga sobre ni a través de la máquina.
- 6 **Nunca** opere esta máquina a menos que haya sido debidamente entrenado y haya recibido y comprenda todas las instrucciones de operación y seguridad de la máquina, como funciona la máquina y cómo es controlada.
- 7 **Nunca** opere esta máquina a menos que esté seguro que la protección está colocada correctamente y en perfecto funcionamiento. Si tiene dudas, llame a su supervisor.
- 8 **Nunca** opere esta máquina si no está funcionando correctamente, o si usted nota cualquier ruido inusual o cambio en el funcionamiento de la misma. Suspenda la operación inmediatamente y avise a su supervisor.
- 9 **Siempre** notifique inmediatamente a su supervisor si observa una acción o condición peligrosa.
- 10 **Siempre** mantenga ordenada la zona de trabajo. Especialmente, guarde las herramientas o piezas que pudieran solarse y provocar una situación de peligro.
- 11 **Nunca** ponga la máquina en funcionamiento con la llave para llaves en el mandril. Se debe retirar del mandril la llave para mandril inmediatamente después de usarla, o de lo contrario, usar una llave para mandril con resorte.
- 12 **Nunca** usar ningún componente de esta máquina sin dispositivo de seguridad para asegurar, ni tampoco alterarlos, retirarlos o romperlos.
- 13 **Todos los empleados** encargados de ajustar, poner en posición o instalar el equipo, seguridad, defensa o protección de seguridad deben seguir las instrucciones del empleador.
- 14 **Siempre** verifique la instalación durante cada turno y entre un trabajo y otro, para asegurarse de que todos los dispositivos de seguridad estén en funcionamiento y que la operación se realice de una manera segura. Cuando las condiciones de operación son extremadamente peligrosas, puede ser necesario verificar con más frecuencia.
- 15 **Es importante** que de todas las personas estén lejos de la máquina antes de comenzar el ciclo, especialmente cuando hay varios operadores presentes. No opere la máquina a menos que usted y todos los operadores y/o ayudantes estén protegidos contra lesiones por una defensa o dispositivo de seguridad.
- 16 **Siempre** esté alerta (no se distraiga) y nunca opere esta máquina bajo la influencia del alcohol, cualquier droga, incluyendo medicamentos recetados por el médico.
- 17 **Personal encargado del mantenimiento o instalación:** Nunca trabaje en esta máquina a menos que haya recibido y comprenda que los componentes giratorios están detenidos y que toda la energía (eléctrica, aérea, hidráulica, etc.) está en cero.
- 18 **Siempre** esté preparado para una situación de emergencia. Usted debe saber cómo detener y apagar la máquina si es necesario.
- 19 **Nunca** opere esta máquina a menos que todos los aparatos mecánicos de transmisión de energía (ejes, engranes, etc.) y equipo auxiliar, estén libres de riesgos.

* Lugar de Operación—"El lugar de la máquina-herramienta donde se coloca el material y se realiza el proceso." (ANSI B11.19)

NOTIFICACIÓN AL EMPLEADOR: Se debe dar estas "Precauciones Para la Seguridad del Operador" a todos los operadores (incluyendo al personal que realiza la instalación, el mantenimiento y los supervisores) de esta máquina. Además, se debe colgar esta cartilla sobre la máquina, en lugar accesible y visible al operador. Si lo solicita, puede obtener cartillas adicionales.

IMPORTANT: Cuando por desconocimiento del idioma o instrucción insuficiente una persona está impedida de leer y comprender el contenido de estas Precauciones Para la Seguridad del Operador, usted debe traducir esta información, o hacerla leer o interpretar para esa persona. Asegúrese de que la haya comprendido. Si se requiere cartillas en inglés o en francés, sírvase consultar a la fábrica.

SE DEBE REVISAR ESTAS PRECAUCIONES DIARIAMENTE.

COPPOXXX0000

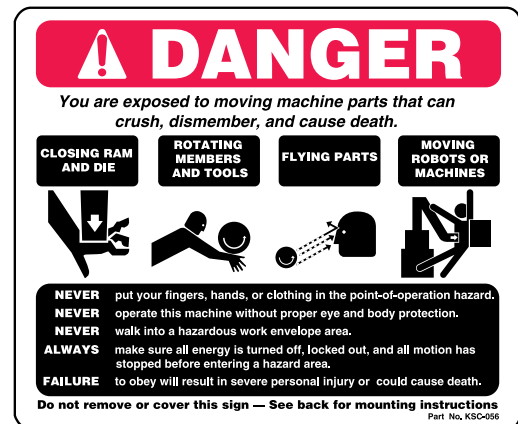
KSC-048S BACK (SPANISH)

SHIELD SIGN—5" X 6" X .055" THICK



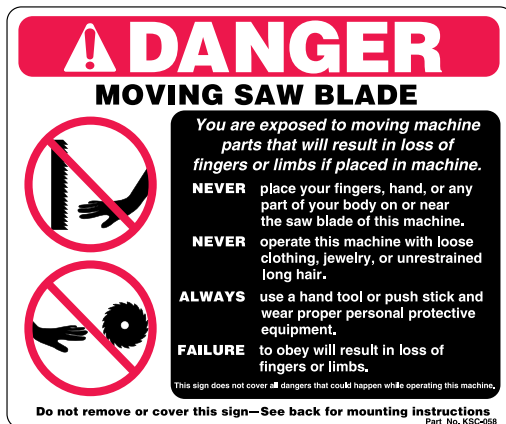
PART NO. KSC-046—ENGLISH
 PART NO. KSC-046S—SPANISH
 PART NO. KSC-046F—FRENCH

GENERAL MACHINE SIGN—10" X 12" X .055" THICK



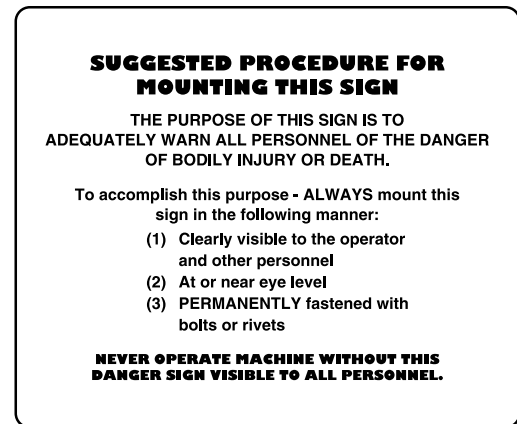
PART NO. KSC-056—ENGLISH
 PART NO. KSC-056S—SPANISH
 PART NO. KSC-056F—FRENCH

SAW BLADE SIGN—5" X 6" X .055" THICK



PART NO. KSC-058—ENGLISH
 PART NO. KSC-058S—SPANISH
 PART NO. KSC-058F—FRENCH

REVERSE SIDE OF SIGNS



ELECTRICAL LABEL: WARNING—HAZARDOUS VOLTAGE



PART NO. KST-152—2½" X 1½" X .002" THICK
 PART NO. KST-153—3" X 5" X .002" THICK

ELECTRICAL LABEL: DANGER—HIGH VOLTAGE



PART NO. KST-194—2-7/8" X 5-7/8" X .003" THICK

Company _____ Address _____
City, State, Zip _____ Attention _____
Telephone No. _____ Date _____ Representative _____
Fax No. _____ Surveyed By _____

When filling out this form, be sure the information is filled in for satisfying the basic areas of safety.

Basic Areas—1. **Safeguarding** 2. **Control** 3. **Disconnect** 4. **Starter** 5. **Cover** 6. **Other Considerations**

For identification and reference, please fill in this area first. Machine No. _____ Dept. _____

Manufacturer _____ Model No. _____ Serial No. _____

INSTALLATION ☐ N ☐ Y Is machine presently out of service? ☐ N ☐ Y

1. Safeguarding: ☐ Has ☐ Provide ☐ Contact Manufacturer	
☐ Drill: ☐ Press ☐ Gang: No. of Heads: _____ ☐ Radial ☐ Other _____	
Is a drill shield required? ☐ N ☐ Y If Y, what style? (circle one) Aluminum—Telescoping—Chip: Sm. or Lg.—Universal—Flexible If aluminum: Is front hinge required? ☐ N ☐ Y If Y, ☐ 2-Tier: Sm or Lg ☐ 3-Tier Is side hinge required? ☐ N ☐ Y If Y, ☐ 2-Tier ☐ 3-Tier If telescoping: (check one) ☐ 2-Tier ☐ 3-Tier ☐ Quill Dia. _____" ☐ Lug Type If universal: What is the arm length? (circle one) 21" 31" 44" What style is required? (circle one) Sm. 30° Lg. 30° 90° 30°/90° Sm. Flat Lg. Flat Sm. Concave Lg. Concave If flexible: What is the arm length? (circle one) 12" 18" 24" What style? DM MB What size shield?(circle one) 6" x 8" 10" x 12" (circle one)	
☐ Lathe: ☐ Engine ☐ Turret ☐ VTL ☐ Other _____	
Is a lathe chuck shield required? ☐ N ☐ Y If Y, what is the chuck diameter when jaws are extended? _____" Style: (circle one) Transparent Steel: Sm or Lg. Sliding	
Is a mounting bracket required? (required with transparent and small steel) ☐ N ☐ Y If Y, what type? (circle one) A A1 B B2	
Is an electrical interlocking bracket assembly required? ☐ N ☐ Y	
Is a spring-loaded chuck wrench required? ☐ N ☐ Y If Y, what size _____"? What style? Standard Longer What shape? Square Hex	
Is a crossslide-travel shield required? ☐ N ☐ Y (circle style and shape) If Y, what model? (circle one) Small Large	
Are supplemental shields required? ☐ N ☐ Y If Y, what style(s)? _____	
☐ Mill: ☐ Vertical ☐ Horizontal ☐ Jig ☐ Bridge Size: ☐ Small ☐ Med. ☐ Large	
Is a milling machine shield required? ☐ N ☐ Y If Y, what style? (circle one) Slide/Swing Aside—Bridgeport—Chip: Sm. or Lg.—Universal—Flexible If slide and swing aside: What is the length of the bed? _____" Are rear shields required? ☐ N ☐ Y Is an electrical interlocking bracket assembly required? ☐ N ☐ Y If Bridgeport: (circle one) Front Shield Rear Shield If universal or flexible: See drill section above. If chip: See drill section above.	
Are supplemental shields required? ☐ N ☐ Y If Y, what style(s)? _____	
Are Bridgeport belt covers required? ☐ N ☐ Y (Model J)	
☐ Grinder: ☐ Bench/Pedestal ☐ Surface ☐ OD ☐ ID ☐ Other _____	
Is a grinder shield required? ☐ N ☐ Y If Y, what style? ☐ Double-Wheel Shield (6" x 18") ☐ Single-Wheel Shield (6" x 6") ☐ Pivot Mount (6" x 6 3/8") ☐ Standard Mount: 6 1/4" x 5 1/4" 8 1/2" x 6" 12 3/4" x 12" Quantity _____ (circle size)	
☐ Saw: ☐ Table ☐ Cutoff ☐ Radial Arm ☐ Band ☐ Other _____	
Is a shield for a saw required? ☐ N ☐ Y If Y, use other machine specs for furnishing shield.	

☐ **Other:** ☐ Borer ☐ Broach ☐ Planer ☐ Machining Center ☐ Other_____

Is a **free-standing shield** required? ☐ N ☐ Y
If Y, what size? ☐ 48" x 48" ☐ 48" x 60" ☐ 48" x 72" ☐ 48" x 96"

1 Is a **magnetic-base shield** required? ☐ N ☐ Y
If Y, what size? ☐ Small Flat ☐ Medium Flat ☐ Large Flat ☐ Small Concave
☐ Large Concave ☐ With Arm Extension

Is a **special shield or guard** required? ☐ N ☐ Y If Y, what style?_____

2. Control:

A. Is a **transformer for 115-V power supply** required? ☐ N/A ☐ N ☐ Y

2 B. Is a **red emergency-stop button or cable** required? ☐ N ☐ Y
If Y, check one: ☐ Small Button W/Twist Reset ☐ Large Button With Latch & Mntg. Box
☐ Cable & Switch Assembly **PLUS** ☐ KSC-056 Sign

3. Disconnect:

A. Is an **electrical disconnect** switch required? ☐ N ☐ Y If Y, furnish HP, FLA and Voltage in **4A**.

3 B. How is the disconnect to be furnished (if required)? ☐ Separate ☐ Combo W/Starter

C. **Plug lockout?** ☐ N/A ☐ N ☐ Y

D. **Air lockout valve?** ☐ N/A ☐ N ☐ Y If Y: (circle one) $\frac{1}{4}$ " $\frac{1}{2}$ " $\frac{3}{4}$ "

4. Starter:

A. Is a **magnetic motor starter** required? ☐ N ☐ Y
If Y provide: _____ Horsepower _____ RPM
_____ Full-Load Amps _____ Voltage
_____ Hz ☐ 1 Phase ☐ 3 Phase

B. How is starter to be furnished (if required)? ☐ Separate ☐ Combo W/Disconnect

C. What **type** of main drive **starter** is required? Nonreversing ☐ N ☐ Y Reversing ☐ N ☐ Y

D. Is a **remote push-button station** required? ☐ N ☐ Y

4 E. Is the motor two-speed? ☐ N ☐ Y If Y, provide motor nameplate data.

F. Is the motor jogged or reversed frequently? ☐ N ☐ Y

G. Is a table motor starter required? ☐ N ☐ Y

	Estimate	Actual
If Y, provide:	_____ Horsepower	_____
	_____ Full-Load Amps	_____
	_____ Voltage	_____

H. Is a coolant pump motor starter required? ☐ N ☐ Y

	Estimate	Actual
If Y, provide:	_____ Horsepower	_____
	_____ Full-Load Amps	_____
	_____ Voltage	_____

Note: If other motor starters are required, please provide appropriate information.

5. Cover:

5 Do any **mechanical power-transmission apparatuses** need to be covered up to 7 feet above floor or platform? ☐ N ☐ Y If Y, what needs to be covered?

Gears ☐ N ☐ Y	Leadscrew ☐ N ☐ Y	Pulley and Belts ☐ N ☐ Y
Sprockets and Chain ☐ N ☐ Y	Horizontal Shaft ☐ N ☐ Y	Other _____
Shaft End ☐ N ☐ Y	Vertical Shaft ☐ N ☐ Y	

6. Other Considerations:

A. Does the shield require an **electrical interlock switch**? ☐ N/A ☐ N ☐ Y
Is a mounting bracket required? ☐ N ☐ Y

B. Does the interlock require a **timer or stop-motion detector**? ☐ N/A ☐ N ☐ Y
If Y: ☐ Timer ☐ Stop-Motion Detector **PLUS** ☐ Proximity Switch Set

C. Is a **safety relay** required? ☐ N ☐ Y If Y: ☐ 24 V DC ☐ 115 V AC

6 D. Is an **electrical power cutoff system w/chain** required? ☐ N/A ☐ N ☐ Y

E. Is an **electronic motor brake** required? ☐ N ☐ Y
If Y, be sure that all of **4A** is completed.
Start-Up Time _____ sec Coastdown Time _____ sec No. of Braking Stops/Hr _____

Does the electronic motor brake require:
☐ Zero-Speed Sensing ☐ Extended Braking Time ☐ Mechanical Brake Release
☐ High Brake Torque ☐ Other _____

Does the machine have:
☐ Manual Brake ☐ Variable-Speed Drive ☐ Forward/Reversing Starter
☐ Single-Speed Motor ☐ High-Inertia Loads ☐ Mechanical-Holding Brake

F. Are **danger signs** required? ☐ N ☐ Y

OSHA STANDARDS

OSHA 29 CFR 1910.212 and a portion of 1910.219 are included in this catalog for use as a reference when determining safety requirements for bringing cutting and turning machines into compliance. Please note that 29 CFR 1910.147 (lockout/tagout) is not included here but it is an OSHA standard an employer must comply with for all machines and equipment.

29 CFR 1910.212 GENERAL REQUIREMENTS FOR ALL MACHINES

(a) Machine guarding — (1) Types of guarding. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are barrier guards, two-hand tripping devices, electronic safety devices, etc.

(2) General requirements for machine guards. Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible. The guard shall be such that it does not offer an accident hazard in itself.

(3) Point of operation guarding. (i) Point of operation is the area on the machine where work is actually performed upon the material being processed.

(ii) The point of operation of machines whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards therefor; or, in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle.

(iii) Special hand tools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required by this section, but can only be used to supplement protection provided.

(iv) The following are some of the machines which usually require point-of-operation guarding:

- (a) Guillotine cutters.
- (b) Shears.
- (c) Alligator shears.
- (d) Power presses.
- (e) Milling machines.
- (f) Power saws.
- (g) Jointers.
- (h) Portable power tools.
- (i) Forming rolls and calenders.

(4) Barrels, containers, and drums. Revolving drums, barrels and containers shall be guarded by an enclosure which is interlocked with the drive mechanism, so that the barrel, drum or container cannot revolve unless the guard enclosure is in place.

(5) Exposure of blades. When the periphery of the blades of a fan is less than seven (7) feet above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than one-half (½) inch.

(b) Anchoring fixed machinery. Machines designed for a fixed location shall be securely anchored to prevent walking or moving.

29 CFR 1910.219 MECHANICAL POWER-TRANSMISSION APPARATUS

(b) Prime-mover guards—(1) Flywheels. Flywheels located so that any part is seven (7) feet or less above floor or platform shall be guarded in accordance with the requirements of this subparagraph:

(i) With an enclosure of sheet, perforated, or expanded metal, or woven wire;

(ii) With guard rails placed not less than fifteen (15) inches nor more than twenty (20) inches from rim. When flywheel extends into pit or is within 12 inches of floor, a standard toeboard shall also be provided;

(iii) When the upper rim of flywheel protrudes through a working floor, it shall be entirely enclosed or surrounded by a guardrail and toeboard.

(iv) For flywheels with smooth rims five (5) feet or less in diameter, where the preceding methods cannot be applied, the following may be used: a disk attached to the flywheel in such manner as to cover the spokes of the wheel on the exposed side and present a smooth surface and edge, at the same time providing means for periodic inspection. An open space, not exceeding four (4) inches in width, may be left between the outside edge of the disk and the rim of the wheel if desired, to facilitate turning the wheel over. Where a disk is used, the keys or other dangerous projections not covered by disk shall be cut off or covered. This subdivision does not apply to flywheels with solid web centers.

(v) Adjustable guard to be used for starting engine or for running adjustment may be provided at the flywheel of gas or oil engines. A slot opening for jack bar will be permitted.

(vi) Wherever flywheels are above working areas, guards shall be installed having sufficient strength to hold the weight of the flywheel in the event of a shaft or wheel mounting failure.

Note: This is not the entire content of 29 CFR 1910.219.

This catalog does not cover all aspects of a safety program. There are many publications on the subject of safety. Please see page 4 for a listing of safety sources.

TERMS AND CONDITIONS OF SALE

PRICES	A. Prices specified include no federal, state, local, use, occupational, foreign, or other tax. Taxes, if applicable, will be added to the invoice. Unless otherwise stated, all prices are in U.S. dollars. B. The prices specified include our regular packaging only. Any special packaging requested by the customer, including special protection for export shipment, will be at the customer's expense, and the cost of such special packaging shall be in addition to the prices quoted.
PAYMENT TERMS	Net in 30 days for equipment and net in 10 days for installation, service, and machine surveys (with approved credit). Machine safeguarding seminar fees are due at the time of service. A 1½% monthly service charge (18% a year) will be added to past-due accounts.
CREDIT POLICY	Customers with established credit may purchase for immediate processing of orders. Customers not previously established with us or suitably rated by D&B must apply for open-account status. Orders received without suitable credit information must be prepaid in full before shipment. MasterCard, Visa, and American Express credit cards are accepted.
MINIMUM ORDER	Our minimum order is \$25.00. Orders received for less than \$25.00 will be subject to a service charge to bring the total to \$25.00.
CANCELLATION FEE	Orders that are canceled prior to shipment may be subject to a cancellation fee if the products are nonstock, custom, special, or built to order.
SHIPPING AND HANDLING	Parcels are normally shipped prepaid via our carrier of choice with the charges added to the invoice, but they can also be sent collect or via consignee billing against the customer's account. Truck shipments are normally shipped collect, but they can also be shipped prepaid with the charges added to the invoice via our carrier of choice. A handling charge will be added to all invoices except for customer-pickup orders.
INSURANCE	All shipments are insured for the standard amount provided by the carrier. Additional insurance may be purchased at the customer's expense.
RISK OF LOSS	Unless otherwise agreed upon, all equipment will be shipped FOB shipping point. Title and risk of loss will pass to the customer upon delivery to the carrier at the point of shipment. Transportation will be at the customer's risk and expense, and any claim for loss or damage in transit must be made directly against the carrier.
RETURNED MERCHANDISE	Returned merchandise must be authorized by Rockford Systems in advance, at which time an RMA (return materials authorization) number will be issued. No returned merchandise will be accepted unless accompanied by an RMA number and this RMA number plainly identified on the outside of the shipping container. Material returned without this RMA number will be refused by our receiving department. All returned shipments must be prepaid. The minimum restocking charge will be 25% for any material not found to be defective. Such merchandise must be in original condition and unused in order to qualify for credit. Custom, special, or built-to-order items may not qualify for any credit; however, they may be returned for modification, if needed, which may be at an additional cost. No returns for credit will be considered more than 30 days from the date of shipment.
LIMITED WARRANTY	Rockford Systems, LLC, warrants that this product will be free from defects in material and workmanship for a period of 12 months from the date of shipment thereof. ROCKFORD SYSTEMS LLC'S OBLIGATION UNDER THIS WARRANTY IS EXPRESSLY AND EXCLUSIVELY LIMITED to, at the sole discretion of Rockford Systems, LLC, providing a refund or credit for the amount paid for such Product or repairing or replacing such products, in each case solely for Products which are returned to it within the warranty period with shipping charges prepaid and which are found by Rockford Systems, LLC to be defective upon examination. This warranty will not apply to products damaged in natural disasters, including, but not limited to, earthquakes, fires and floods, or any product which will have been subject to misuse, negligence, accident, restriction, or use not in accordance with Rockford Systems, LLC's instructions or which will have been altered or repaired by persons other than the authorized agent or employees of Rockford Systems, LLC. Rockford Systems, LLC's warranties as to any component part is expressly limited to that of the manufacturer of the component part. This warranty only extends to the original Customer and cannot be transferred or assigned.
DISCLAIMER	THE FOREGOING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND OF ALL OTHER LIABILITIES AND OBLIGATIONS ON THE PART OF ROCKFORD SYSTEMS, LLC, INCLUDING ANY LIABILITY FOR NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY DISCLAIMED. PRODUCTS ARE SOLD BUSINESS TO BUSINESS AND NOT TO CONSUMERS, RENDERING ANY CONSUMER LAW INAPPLICABLE. THE FOREGOING WARRANTY CONTAINS AND REPRESENTS THE ONLY WARRANTY EXTENDED BY ROCKFORD SYSTEMS, LLC FOR THE PRODUCTS. NO EMPLOYEE OR AGENT OF ROCKFORD SYSTEMS, LLC IS AUTHORIZED TO MAKE AVAILABLE TO CUSTOMER ANY OTHER WARRANTY IN ADDITION TO THE FOREGOING WARRANTY.
LIMITATION OF LIABILITY	UNDER NO CIRCUMSTANCES, INCLUDING ANY CLAIM OF NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, WILL ROCKFORD SYSTEMS, LLC, BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, OR ANY LOSS OR DAMAGE RESULTING FROM A DEFECT IN THE PRODUCT OF ROCKFORD SYSTEMS, LLC, IN EACH CASE WHETHER INCURRED BY CUSTOMER OR OTHERS DIRECTLY OR INDIRECTLY ARISING FROM THE SALE, HANDLING OR USE OF THE PRODUCTS OR FROM ANY OTHER CAUSE WITH RESPECT TO THE PRODUCTS, WHETHER SUCH CLAIM IS BASED UPON BREACH OF CONTRACT, BREACH OF WARRANTY, STRICT LIABILITY IN TORT, NEGLIGENCE OR ANY OTHER LEGAL THEORY (INCLUDING LOST BUSINESS OPPORTUNITIES BUSINESS INTERRUPTION OR OTHER INJURY OR DAMAGE. IN NO EVENT SHALL ROCKFORD SYSTEM'S LIABILITY WITH REGARD TO THE SALE OF PRODUCT EXCEED THE ORIGINAL PURCHASE PRICE PAID BY CUSTOMER.
GOVERNING LAW	These terms and conditions, and use of this website, shall be governed by and construed in accordance with the laws of the State of Illinois, without reference to principles of conflicts of laws. The rights and obligations of the parties hereunder shall not be governed by the 1980 U.N. Convention on Contracts for the International Sale of Goods. Any provision which is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability of such provision in any other jurisdiction.

Quotes from Past Participants

- *The seminar has a lot of information on the safety of presses. Anyone with a press operation needs to attend*
- *It was what I expected*
— *very informative*
- *Instructors are very knowledgeable*
- *I thoroughly enjoyed the seminar and picked up a lot of very valuable information*
- *Excellent presentation*
- *Best training I've had in years*
- *The hands-on experience was great*
- *This seminar is, perhaps, the most comprehensive coverage that I have heard on this subject. The course is a "must" for anyone involved in machinery guarding or operational set-up*

ROCKFORD SYSTEMS' QUALIFICATIONS

For many years Rockford Systems has been educating corporations throughout the world on machine safeguarding. Every year, hundreds of people attend these seminars. Participants come from a variety of areas including manufacturing, distribution, aerospace, insurance, government, and consulting. They include safety directors, plant managers, maintenance and engineering personnel, setup people, safety specialists, loss-control engineers, and safety consultants. Seminar instructors are very knowledgeable and have many years of experience in the machine tool industry.

MACHINE SAFEGUARDING SEMINAR OVERVIEW

According to safety standards, when a machine creates a hazard to operators and other employees in the machine area, it must be safeguarded. Rockford Systems offers a machine safeguarding seminar to teach people in positions of responsibility how to safeguard the point of operation and other machine hazards to meet these safety standards.

This 2½-day seminar explains how to interpret the performance language of both OSHA (Occupational Safety and Health Administration) and ANSI (American National Standards Institute) standards. Specific machine safeguarding situations are also discussed. Another section of the machine safeguarding seminar provides basic safeguarding guidelines for other metalworking machines using the ANSI B11-series safety standards.

Seminars combine classroom discussion with demonstrations of machines under power. Hands-on experience with these machines and visual aids, including slides and videos, are also used. These teaching methods enable the participants to interpret the OSHA and ANSI standards as they relate to their specific machine applications and production requirements.

DAY-TO-DAY OUTLINE OF SAFEGUARDING SEMINAR

Day 1 8:00 a.m. to 5:00 p.m.

- Welcome, Introduction, and Objectives of Seminar
- Brief History of ANSI, OSHA, and NFPA-79
- Risk Reduction
- OSHA 29 CFR 1910.211, Definitions
- OSHA 29 CFR 1910.212, General Requirements for All Machines and Auxiliary Equipment
- OSHA 29 CFR 1910.217 Mechanical Power Presses
- ANSI B11.1-2009 Mechanical Power Presses
- Full-Revolution-Clutch Identification and Control Requirements
- Part-Revolution-Clutch Identification and Control Requirements
- Control Reliability and Brake Monitoring
- Electrical Component Requirements (NFPA-79)
- Hand-Feeding Tools
- Point-Of-Operation Safeguarding—Guards, Devices, Methods
- Design, Construction, Setting, and Feeding of Dies
- Inspection and Maintenance Records
- Instruction to Operators
- Reports of Injuries
- Mechanical Power-Transmission Apparatus (OSHA 1910.219)

Day 2 8:00 a.m. to 5:00 p.m.

- ANSI B11.2 Hydraulic Power Presses
- ANSI B11.3 Power Press Brakes
- ANSI B11.4 Shears
- ANSI B11.5 Iron Workers
- ANSI B11.6 Lathes (Manually Operated)
- ANSI B11.7 Cold Header and Cold Formers
- ANSI B11.8 Drilling, Milling, and Boring Machines
- ANSI B11.9 Grinding Machines
- ANSI B11.10 Metal Sawing Machines
- ANSI B11.11 Gear Cutting Machines
- ANSI B11.12 Roll Forming and Roll Bending Machines
- ANSI B11.13 Automatic Screw/Bar and Chucking Machines
- ANSI B11.14 Coil Slitting Machines/Systems Withdrawn—See ANSI B11.18
- ANSI B11.15 Pipe, Tube, and Shape Bending Machines
- ANSI B11.16 Metal Powder Compacting Presses
- ANSI B11.17 Horizontal Hydraulic Extrusion Presses
- ANSI B11.18 Coil Processing Systems
- ANSI B11.19 Safeguarding Methods (Criteria)
- ANSI B11.20 Integrated Manufacturing (Cells)
- ANSI B11.21 Machine Tools Using Laser Processing (Cutting)
- ANSI B11.22 CNC Turning Centers and Lathes
- ANSI B11.23 Machining Centers—CNC Mills, Drills, Boring
- ANSI B11.24 Transfer Machines
- ANSI/SPI B151.1 Horizontal (Plastic Injection Molding Machines)

Day 2 (Continued)

- BS ISO 14137 and JIS B6360 Electrical Discharge (EDM) Machines
- ANSI B152.1 Hydraulic Die Casting Presses
- ANSI/RIA R15.06—1999 & 2012 Robots and Large Work Envelopes
- OSHA 1910.147 Control of Hazardous Energy Lockout/Tagout

Day 3 8:00 a.m. to 10:00 a.m.

- Machine Demonstrations

SEMINAR MATERIALS

Each person attending this seminar receives a variety of information regarding machine safeguarding which includes reprints of the following:

- OSHA 29 CFR 1910.211, 1910.212, 1910.217, and 1910.219
- Charts and graphs for future reference
- Safeguarding product catalogs
- U.S. Department of Labor memorandums
- Mechanical Power Press Safety Information Card
- Safety Distance Guide Slide Chart
- Folding, Acrylic Copolymer OSHA and ANSI Guard-Opening Scales
- Laminated function-testing checklists for safeguards

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4620 Hydraulic Road, Rockford, Illinois 61109 United States
1-800-922-7533 | 815-874-7891
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