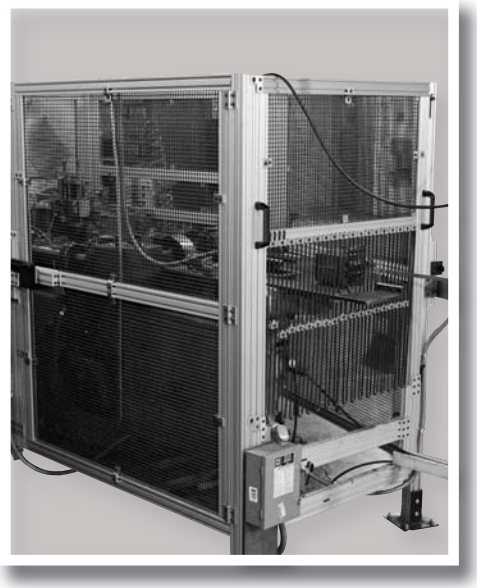
ROCKFORD SYSTEMS, LLC

INSTALLATION MANUAL FOR EX-AL™ GUARDING SYSTEMS



IMPORTANT: PLEASE REVIEW THIS ENTIRE PUBLICATION BEFORE INSTALLING, ADJUSTING OR MAINTAINING THESE EX-AL™ GUARDS.

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Manual No. KSL210

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EX-AL™ Guarding Systems

Safety Precautions

⚠ DANGER **DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

⚠ **This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury, and carefully read the message that follows.**

CAUTION **CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.**

Efficient and safe machine operation depends on the development, implementation and enforcement of a safety program. This program requires, among other things, the proper selection of point-of-operation guards and safety devices for each particular job or operation, a thorough safety training program for all machine personnel, that includes instruction on the proper operation of the machine, the point-of-operation guards and safety devices on the machine, and a regularly scheduled inspection and maintenance program.

Rules and procedures covering each aspect of your safety program should be developed and published both in an operator's safety manual, as well as in prominent places throughout the plant and on each machine. Some rules or instructions which must be conveyed to your personnel and incorporated into your program include:

⚠ DANGER **Never place your hands or any part of your body in this machine.**

⚠ DANGER **Never operate this machine without proper eye, face and body protection.**

⚠ **Never operate this machine unless you are fully trained, instructed, and have read the instruction manual.**

⚠ **Never operate this machine if it is not working properly – stop operating and advise your supervisor immediately.**

⚠ **Never use a foot switch to operate this machine unless a point-of-operation guard or device is provided and properly maintained.**

⚠ **Never operate this machine unless two-hand trip, two-hand control or presence sensing device is installed at the proper safety distance. Consult your supervisor should you have any questions regarding the proper safety distance.**

⚠ **Never tamper with, rewire or bypass any control or component on this machine.**

A company's safety program must involve everyone in the company, from top management to operators, since only as a group can any operational problems be identified and resolved. It is everyone's responsibility to implement and communicate the information and material contained in catalogs and instruction manuals to all persons involved in machine operation. If a language barrier or insufficient education would prevent a person from reading and understanding various literature available, it should be translated, read or interpreted to the person, with assurance that it is understood.

⚠ **FOR MAINTENANCE AND INSPECTION ALWAYS REFER TO THE OEM's (ORIGINAL MACHINE MANUFACTURER'S) MAINTENANCE MANUAL OR OWNER'S MANUAL. If you do not have an owner's manual, please contact the original equipment manufacturer.**

(Continued on next page.)

Safety References

OSHA'S ACT AND FEDERAL REGULATIONS

Since the enclosed equipment can never overcome a mechanical deficiency, defect or malfunction in the machine itself, OSHA (Occupational Safety and Health Administration) has established certain safety regulations that the employers (users) must comply with so that the machines used in their plants, factories or facilities are thoroughly inspected and are in first-class operating condition before any of the enclosed equipment is installed.

1. An Act – Public Law 91 - 596, 91st Congress, S. 2193, December 29, 1970

Duties:

Sec. 5. (a) Each employer —

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

2. OSHA's Code of Federal Regulations, Subpart O, that an employer (user) must comply with include:

Section 1910.211 Definitions

Section 1910.212 (a) General Requirements for all Machines

Section 1910.217 Mechanical Power Presses

Section 1910.219 (b)(1) Mechanical Power-Transmission Apparatus (Flywheel and Gear Covers)

3. OSHA's 29 Code of Federal Regulations, Subpart J 1910.147 The Control of Hazardous Energy (Lockout / Tagout)

4. OSHA's Publications

a. "General Industry Safety and Health Regulations Part 1910," Code of Federal Regulations, Subpart O

b. "Concepts and Techniques of Machine Safeguarding," OSHA 3067, Revised 1992

These publications can be obtained by contacting:

US Department of Labor
Occupational Safety and Health Administration
Washington, DC 20210

ANSI SAFETY STANDARDS FOR MACHINES

The most complete safety standards for machine tools are published in the ANSI (American National Standards Institute) B11 series. The following is a list of each ANSI B11 Standard available at the printing of this publication.

B11.0	Safety on Machinery
B11.1	Mechanical Power Presses
B11.2	Hydraulic & Pneumatic Power Presses
B11.3	Power Press Brakes
B11.4	Shears
B11.5	Ironworkers
B11.6	Manual Turning Machines (Lathes) with or without Auto Control
B11.7	Cold Headers and Cold Formers
B11.8	Manual Milling, Drilling, & Boring Machines
B11.9	Grinding Machines
B11.10	Sawing Machines
B11.11	(Gear and Spline Cutting Machines; use B11.0 and B11.19) To be Withdrawn
B11.12	Roll Forming and Roll Bending Machines
B11.13	Single & Multiple-Spindle Automatic Bar and Chucking Machines
B11.14	Withdrawn; See B11.18
B11.15	Pipe, Tube and Shape Bending Machines
B11.16	Powder/Metal Compacting Presses
B11.17	Horizontal Hydraulic Extrusion Presses
B11.18	Machines Processing or Slitting Coiled or Non-Coiled Metal
B11.19	Performance Requirements for Risk Reduction Measures (Safeguarding)
B11.20	Integration of Machinery into a System
B11.21	Machine Tools Using Lasers for Processing Materials
B11.22	Turning Centers and Automatic Numerically Controlled Turning Machines
B11.23	Machining Centers & CNC Milling, Drilling & Boring Machines
B11.24	Transfer Machines
B11.25	Large Machines
B11.26	Functional Safety for Equipment / Machine Control Systems
B11.27	Electro-Discharge Machines
B11.TR1	Ergonomics
B11.TR2	Metal Working Fluids
B11.TR3	Withdrawn; See B11.0
B11.TR4	Selection of Programmable Electronic Systems (PES/PLC)
B11.TR5	Noise Measurement
B11.TR6	Withdrawn; See B11.26
B11.TR7	Integration of Lean and Safety
B11.TR8	Guide to Inspection of Risk Reduction Measures
B11.TR9	Cybersecurity
B11.TR10	Guidance on Artificial Intelligence into Machinery Safety Applications
ANSI/ISO 12100	Safety of machinery (identical adoption of ISO 12100-2010
R15.06	Robotic Safeguarding

These standards can be purchased by contacting:

American National Standards Institute, Inc.
11 West 42nd St, New York, New York 10036
Phone: (212) 642-4900
OR
AMT-The Association of Manufacturing Technology
7901 Westpark Drive, McLean, Virginia 22102-4269
Phone: (703) 827-5211

(Continued on next page.)

Safety References for Guards

Guards are usually the first point-of-operation safeguard considered for machines. They consist of three basic components: 1) Panels, 2) Panel Segments, and 3) Mounts. The guards detailed in this manual are intended and designed to meet the requirements of OSHA (Occupational Safety and Health Act) Regulations and ANSI (American National Standards Institute) Standards. Guards are not necessarily furnished as a complete barrier guard as so defined. Additional construction or adaptation by the user may be necessary. When reviewing this manual, note that these guards are mounted on many different types of machines. These guards are not limited to fabricating equipment; they can be applied to any metalworking or metal fabricating machine that requires point-of-operation guarding or for areas which create a pinch point.

Before installing your machine guard, please read this entire manual. Lay out the guard on a work bench or on the floor to assemble. If your guard does not meet the following OSHA requirements, it must be modified. Please call the factory for any additional components such as roof sections, side guards, hairpins, etc.

Photos in this manual are for illustrative purposes only.

Never place your hands or any part of your body in a machine. Guards should always be in place before operating the machine.

OSHA'S CODE OF FEDERAL REGULATIONS SUBPART O, 1910.217 SECTION (C) METHODS OF SAFEGUARDING THE POINT OF OPERATION

General Requirements

(i) It shall be the responsibility of the employer to provide and insure the usage of point-of-operation guards or properly applied and adjusted point-of-operation devices on every operation performed on a mechanical power press. See Table O-10.

(ii) The requirements of subdivision (i) of this subparagraph shall not apply when point-of-operation opening is one-fourth inch or less. See Table O-10.

***(c)(2)* POINT-OF-OPERATION GUARDS**

(i) Every point-of-operation guard shall meet the following design, construction, application, and adjustment requirements:

(a) It shall prevent entry of hands or fingers into the point of operation by reaching through, over, under or around the guard;

(b) It shall conform to the maximum permissible openings of Table O-10;

(c) It shall, in itself, create no pinch point between the guard and moving machine parts;

(d) It shall utilize fasteners not readily removable by operator, so as to minimize the possibility of misuse or removal of essential parts.

(e) It shall facilitate its inspection, and

(f) It shall offer maximum visibility of the point of operation consistent with the other requirements.

(ii) A die enclosure guard shall be attached to the die shoe or stripper in a fixed position.

(iii) A fixed barrier guard shall be attached securely to the frame of the press or to the bolster plate.

TABLE O-10

Distance of opening from point-of-operation hazard (inches)	Maximum width of opening (inches)
½ to 1½	¼
1½ to 2½	⅜
2½ to 3½	½
3½ to 5½	⅝
5½ to 6½	¾
6½ to 7½	⅞
7½ to 12½	1¼
12½ to 15½	1½
15½ to 17½	1⅞
17½ to 31½	2⅛

Note: The standard mesh that is furnished has ½" openings. The minimum distance the panels can be mounted from the point of operation is 2 ½".

(iv) An interlocked press barrier guard shall be attached to the press frame or bolster and shall be interlocked with the press clutch control so that the clutch cannot be activated unless the guard itself, or the hinged or movable sections of the guard are in position to conform to the requirements of Table O-10.

(v) The hinged or movable sections of an interlocked press barrier guard shall not be used for manual feeding. The guard shall prevent opening of the interlocked section and reaching into the point of operation prior to die closure or prior to the cessation of the slide motion. See paragraph (c)(3)(ii) of this section regarding manual feeding through interlocked press barrier devices.

(vi) The adjustable barrier guard shall be securely attached to the press bed, bolster plate, or die shoe and shall be adjusted and operated in conformity with Table O-10 and the requirements of this subparagraph. Adjustments shall be made only by authorized personnel whose qualifications include a knowledge of the provisions of Table O-10 and this subparagraph.

(Continued on next page.)

NATIONAL SAFETY COUNCIL SAFETY MANUALS AND DATA SHEETS

Other good references for safety on machine tools are the National Safety Council's Safety Manuals and Data Sheets. These manuals and data sheets are written by various committees including the Power Press, Forging and Fabricating Executive Committee. Copies of the following publications are available from their library:

Manuals

Power Press Safety Manual - 4th Edition
Safeguarding Concept Illustrations - 6th Edition
Forging Safety Manual

Data Sheets

Bench and Pedestal Grinding Wheel Operations 12304-0705
Boring Mills, Horizontal Metal 12304-0269
Boring Mills, Vertical 12304-0347
Coated Abrasives 12304-0452
Cold Shearing Billets and Bars in the Forging Industry 12304-0739
Degreasing (Liquid), Small Metal Parts 12304-0537
Dies, Setup and Removal of Forging Hammer 12304-0716
Drill Presses, Metalworking 12304-0335
Drills, Portable Reamer 12304-0497
Drop Hammers, Steam 12304-0720
Electrical Controls for Mechanical Power Presses 12304-0624
Forging Hammer Dies, Setup and Removal of 12304-0716
Forging Presses, Mechanical 12304-0728
Gear-Hobbing Machines 12304-0362
Handling Materials in the Forging Industry 12304-0551
Kick (Foot) Presses 12304-0363
Lathes, Engine 12304-0264
Milling Machines, Metalworking 12304-0364
Planers, Metal 12304-0383
Power Press (Mechanical) Point-of-Operation Safeguarding, Concepts of 12304-0710
Power Press Point-of-Operation Safeguarding: Two-Hand Control and Two-Hand Tripping Devices 12304-0714
Power Press Point-of-Operation Safeguarding: Type A and B Movable Barrier Devices 12304-0712
Power Press Point-of-Operation Safeguarding: Point-of-Operation Guards 12304-0715
Power Press Point-of-Operation Safeguarding: Presence Sensing Devices 12304-0711
Power Press Point-of-Operation Safeguarding: Pullbacks and Restraint Devices 12304-0713
Power Presses (Mechanical), Inspection and Maintenance of 12304-0603
Power Presses (Mechanical), Removing Pieceparts from Dies in 12304-0534
Power Press, Setting Up and Removing Dies 12304-0211
Press Brakes 12304-0419
Robots 12304-0717
Saws, Metal (Cold Working) 12304-0584
Shapers, Metal 12304-0216
Shears, Alligator 12304-0213
Shears, Squaring, Metal 12304-0328
Upsetters, 12304-0721

These manuals and data sheets can be purchased by contacting:

National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
1-800-621-7615 • www.nsc.org

OTHER SAFETY SOURCES

National Institute for Occupational Safety and Health (NIOSH)
4676 Columbia Parkway
Cincinnati, OH 45226
www.cdc.gov/niosh

Robotic Industries Association (RIA)
P.O. Box 3724
Ann Arbor, MI 48106
www.roboticsonline.com

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.

Warranty, Disclaimer and Limitation of Liability

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 repairing or replacing such products which are returned to it within the warranty period with shipping charges prepaid and which will be disclosed as defective upon examination by Rockford Systems, LLC. This warranty will not apply to any product which will have been subject to misuse, negligence, accident, restriction and 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.

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.

LIMITATION OF LIABILITY

Under no circumstances, including any claim of negligence, strict liability, or otherwise, shall Rockford Systems, LLC be liable for any incidental or consequential damages, or any loss or damage resulting from a defect in the product of Rockford Systems, LLC.

(Continued on next page.)

Danger Sign(s) to be Mounted on Machine

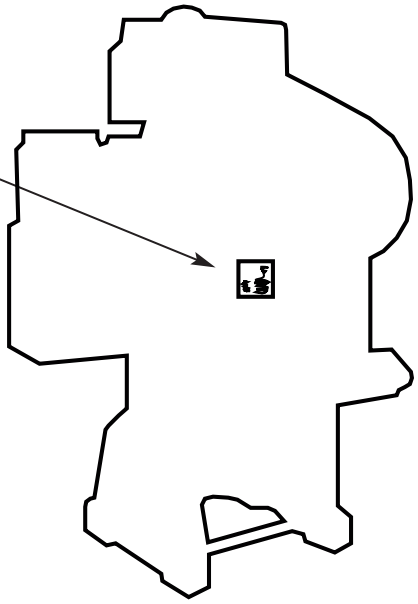
Accompanying this equipment is a 5" x 6" polyethylene danger sign, Part No. KSC-061. This sign MUST BE PERMANENTLY MOUNTED IN A PROMINENT LOCATION on the machine where this equipment is installed. This sign must be in a LOCATION THAT IS EASILY VISIBLE to the operator, setup person, or other personnel who work on or around this machine. ALWAYS mount this sign with screws or rivets when installing the enclosed equipment.

If any danger sign becomes destroyed or unreadable, the sign must be replaced immediately. Contact factory for replacement danger sign(s).

Never operate this machine unless the danger sign(s) is in place.

Front Side

Part No. KSC061 Danger Sign - Standard
Part No. KSC061S - Spanish



SUGGESTED PROCEDURE FOR MOUNTING THIS SIGN

THE PURPOSE OF THIS SIGN IS TO ADEQUATELY WARN ALL PERSONNEL OF THE DANGER OF BODILY INJURY OR DEATH.

To accomplish this purpose - ALWAYS mount this sign in the following manner:

(1) Clearly visible to the operator and other personnel
(2) At or near eye level
(3) PERMANENTLY fastened with bolts or rivets

NEVER OPERATE MACHINE WITHOUT THIS DANGER SIGN VISIBLE TO ALL PERSONNEL.

Reverse Side

Panels

The standard panel frame is constructed of 1" x 2" extruded aluminum. The nonadjustable area of the panel is made of black or yellow mesh (½" sq. 16-gauge or 1" sq. 12-gauge), or 3⁄16"-thick clear polycarbonate which is fastened in place for a permanent assembly. A panel can also be furnished with adjustable ¼" diameter, black-oxidized steel hairpins in any portion of the panel. This provides adjustability for strip or coil feeding, or for obstructions on the machine. The hairpins are secured to the panel frame with clips, T-nuts, and socket-head cap screws.

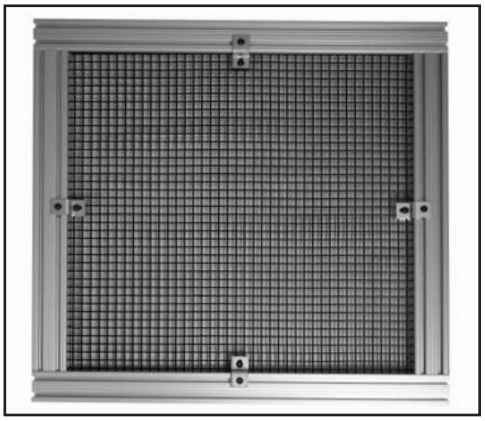
Various types of panel segments can also be furnished in the nonadjustable area of the panel to accommodate required features. A panel with adjustable hairpins does not have a panel segment unless the operator requires visibility into the point of operation. Panels can be attached to the machine using the mounts shown on pages 10 and 11.

PANEL FRAME CONSTRUCTION

NAP—Nonadjustable Panels

The NAP panel is fastened in place for a permanent assembly. It can be furnished with ½" or 1" black or yellow mesh, or 3⁄16"-thick clear polycarbonate.

1/2" Mesh Panel



Polycarbonate

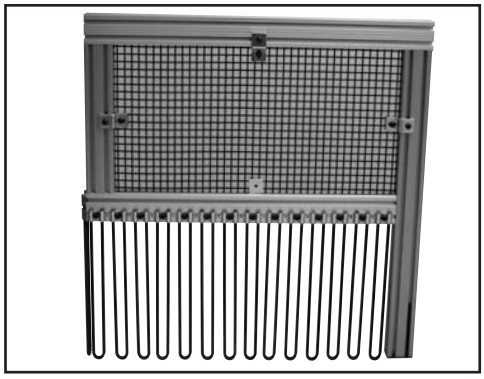
AP—ADJUSTABLE PANELS

AP1–Lower Section (½ Frame)

The AP1 panel has a sturdy frame around the top half of the nonadjustable panel area. Steel hairpins are on the lower portion of the panel to allow for adjustability.

AP2–Lower Section (⅝ Frame)

The AP2 panel has adjustability on the lower section, with one side of the frame extending to the bottom of the panel for an extended mounting surface.



AP3–Lower Section (¾ Frame)

The AP3 panel has adjustability on the lower section, with both sides of the frame extending to the bottom of the panel for an extended mounting surface on both sides.

(Continued on next page.)

PANEL FRAME CONSTRUCTION (continued)

AP4–Interior Section (Full Frame)

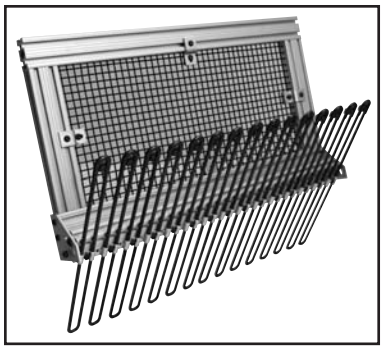
The AP4 panel has steel hairpins located in the interior section of the panel for adjustability. This can be used when the material is fed through the center portion of the panel.

AP5–Lower Section (Full Frame)

The AP5 panel has adjustability in the lower section, with full-frame availability for mounting.

API–Lower Section (Inclinable)

The API panel has inclinable steel hairpins located in the lower section. The inclinable section slants the hairpins inward for effective feeding of material and accommodation of various size dies while providing point-of-operation safeguarding. When inclining these guards, refer to the requirements of Table O-10 (see page 5) for the proper size opening.



Panel Segments

Various types of panel segments can be positioned into the nonadjustable area of the framed panel to accommodate required features. A panel with adjustable hairpins does not have a panel segment unless the operator requires visibility into the point of operation.

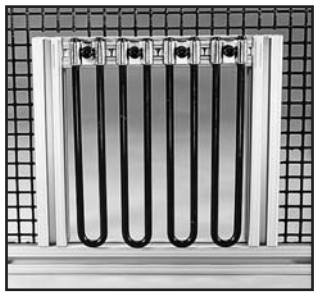
Feeding (FS)

The feeding segment is used for strip or coil feeding through a nonadjustable area of the panel. This segment can accommodate various feedline heights.

Polycarbonate (PCS)

Polycarbonate (3⁄16"-thick) segments are furnished when greater visibility into the point of operation is required.

Adjustable (AS)



The adjustable segment is used for strip or coil feeding through an adjustable area. This segment can accommodate various feedline heights. When using this adjustable segment, refer to the requirements of Table O-10 (see page 5).

Empty (ES)

An empty segment can be furnished to allow the user to exchange custom-built panel segments based on production requirements. When using this type of segment, refer to the requirements of Table O-10 (see page 5).

Mounts

Various mounts are available which attach the barrier guards to the machine. (Please see illustrations throughout this section of the manual.) The mounts on pages 10-13 are furnished with all required components to mount and fasten the barrier guard to the machine.

SINGLE PANEL BARRIER GUARD MOUNTS

DFM (Direct Frame Mount) Assembly
Part No. FKT-683

The DFM (direct frame mount) assembly (set of four with fasteners) attaches a guard panel to a flat surface on the machine. The slotted hook-mount allows the guard panel to be lifted off the machine without removing the fastener.

Part No. FKT-683 consists of the following:

Qty.	Part No.	Description
4	FKT563	2-Hole Bayonet Plate
8	FSC072	¼-20 x ½" Button-Head Cap Screw
8	FSY028	T Nut

EM (Extended Mount) Assembly
Part No. FKT-608–3"
Part No. FKT-609–5"
Part No. FKT-610–7"

The EM (extended mount) assembly (set of four with fasteners) connects a panel up to 3", 5", or 7" out from the machine frame. The extended mount is ideal for machines that have obstructions, an irregular mounting surface, or requirements for the panel to be mounted at a specific location.

Part No. FKT-609 (5") consists of the following:

Qty.	Part No.	Description
4	FSC079	⅜-16 x 5½" Bolt
4	FKT582	⅝" x ⅜" Pipe
4	FKT580	⅝" Pipe Clamp
4	FSY002	¼-20 Nut
4	FSC082	¼-20 x 1½" Carriage Bolt
4	FST005	¼" Washer

Part No. FKT-608 (3") consists of the following:

Qty.	Part No.	Description
4	FSC097	⅜ x 3¾" Bolt
4	FKT581	⅝" x ⅜" Pipe
4	FKT580	⅝" Pipe Clamp
4	FSY002	¼-20 Nut
4	FSC082	¼-20 x 1½" Carriage Bolt
4	FST005	¼" Washer

Part No. FKT-610 (7") consists of the following:

Qty.	Part No.	Description
4	FSC080	⅜-16 x 7½" Bolt
4	FKT583	⅝" x ⅜" Pipe
4	FKT580	⅝" Pipe Clamp
4	FSY002	¼-20 Nut
4	FSC082	¼-20 x 1½" Carriage Bolt
4	FST005	¼" Washer

EM-24 (Extended Mount) Assembly
Part No. FKT-695

This assembly consists of a set of four with fasteners. It connects a panel 8" to 24" out from the machine frame. The EM-24 mount is ideal for mounting a panel to machines with obstructions that require a panel to be mounted at a greater distance than the EM described above. DFM (direct frame mounts) are included with this assembly. IFM (inside frame mounts) or HM (hinged mounts) may also be used.

Part No. FKT-695 consists of the following:

Qty.	Part No.	Description
4	EXT1010	1" x 1" Extrusion (up to 24" each)
8	FKT598	3-Hole Foot Mount
16	FSC072	¼-20 x ½" Button-Head Cap Screw
16	FSY028	T Nut

(Continued on next page.)

SINGLE PANEL BARRIER GUARD MOUNTS (continued)

IFM (Inside Frame Mount) Assembly
Part No. FKT-684–Two Hole
Part No. FKT-690–Four Hole

The IFM (inside frame mount) assembly (set of four with fasteners) has a right angle bracket that fastens a guard panel to the inside column or frame of the machine. The IFM assembly is used when there are obstructions on the outside frame (face) of the machine, or for conveniently locating the guard between the machine frame, closer to the hazard. Depending on the size of the panel, either a two-hole (under 10" square) or four-hole (over 10" square) IFM assembly will be provided.

Part No. FKT-684 (two-hole) consists of the following:

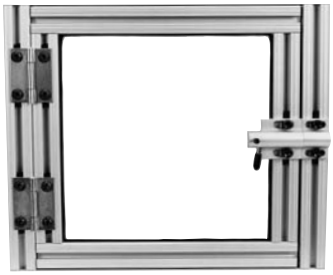
Qty.	Part No.	Description
4	FSC072	¼-20 x ½" Button-Head Cap Screw
4	FSY028	T Nut
4	FKT607	2-Hole Inside Corner Bracket

Part No. FKT-690 (four-hole) consists of the following:

Qty.	Part No.	Description
8	FSC072	¼-20 x ½" Button-Head Cap Screw
8	FSY028	T Nut
4	FKT642	4-Hole Inside Corner Bracket

HM (Hinged Mount) Assembly
Part No. FKT-686

The HM (hinged mount) assembly consists of two hinges, one latch, two 1" x 1" pieces of extrusion (length determined by dimensions furnished), and fasteners. DFM (direct frame mount), IFM (inside frame mount), or EM (extended mount) assemblies must be used with this assembly to connect the hinged hardware and panel to the frame of the machine.



Part No. FKT-686 consists of the following:

Qty.	Part No.	Description
2	EXT1010	1" x 1" Extrusion x Height of Panel
4	FKT607	2-Hole Inside Corner Bracket
8	FSC083	¼-20 x ⅜" Button-Head Cap Screw
12	FSY028	T Nut
4	FSC072	¼-20 x ½" Button-Head Cap Screw
2	FKT584	Hinge
1	FKT620	Deadbolt Latch

MULTI-PANEL BARRIER GUARD MOUNTS

The following assemblies are usually applied to gap-type machines. They are used when the side panels of XL-2 through XL-6 guards need to be hinged to the left and right. This feature may be necessary when changing dies, making tooling adjustments, or freeing jammed pieceparts.

SFM-3, -5, or -7 (Side Frame Mount) Assembly
Part No. FKT677 SFM-3
Part No. FKT678 SFM-5
Part No. FKT679 SFM-7

The SFM-3, -5, or -7 (side frame mount) assembly includes four extended mount assemblies that can be 3", 5", or 7" long. This mount is ideal for mounting a guard to a machine with an irregular surface, or to avoid obstructions at the mounting point. Additional parts for the assembly include four hinges, two 1" x 2" extrusions, fasteners, and hardware.

Part No. FKT-677 (SFM-3) consists of the following:

Qty.	Part No.	Description
4	FSC097	⅜ x 3¾" Bolt
4	FKT581	3" x ⅝" OD x ⅜" ID Pipe
2	EXT1020	1" x 2" Extrusion x Height of Panel
4	FKT584	Hinge
12	FSC072	¼-20 Screw x ½"
16	FSC073	¼-20 Screw x ⅜"
28	FSY028	T Nut
4	FKT580	⅝" Pipe Clamp
4	FKT638	¼" x 20 Flanged Hex Nut
4	FSC082	¼-20 x 1½" Carriage Bolt
2	FKT591	2-Hole Slotted Locking Plate
2	FKT600	1" x 2" End Cap
2	FSC089	¼-20 x ½" Flanged BHC Screws

Part No. FKT678 (SFM-5) consists of the following:

Qty.	Part No.	Description
4	FSC079	⅜-16 x 5½" Bolt
4	FKT582	5" x ⅝" OD x ⅜" ID Pipe
2	EXT1020	1" x 2" Extrusion x Height of Panel
4	FKT584	Hinge
12	FSC072	¼-20 Screw x ½"
16	FSC073	¼-20 Screw x ⅜"
28	FSY028	T Nut
4	FKT580	⅝" Pipe Clamp
4	FKT638	¼" x 20 Flanged Hex Nut
4	FSC082	¼-20 x 1½" Carriage Bolt
2	FKT591	2-Hole Slotted Locking Plate
2	FKT600	1" x 2" End Cap
2	FSC089	¼-20 x ½" Flanged BHC Screws

Part No. FKT679 (SFM-7) consists of the following:

Qty.	Part No.	Description
4	FSC080	⅜-16 x 7½" Bolt
4	FKT583	7" x ⅝" OD x ⅜" ID Pipe
2	EXT1020	1" x 2" Extrusion x Height of Panel
4	FKT584	Hinge
12	FSC072	¼-20 Screw x ½"
16	FSC073	¼-20 Screw x ⅜"
28	FSY028	T Nut
4	FKT580	⅝" Pipe Clamp
4	FKT638	¼" x 20 Flanged Hex Nut
4	FSC082	¼-20 x 1½" Carriage Bolt
2	FKT591	2-Hole Slotted Locking Plate
2	FKT600	1" x 2" End Cap
2	FSC089	¼-20 x ½" Flanged BHC Screws

SFM (Side Frame Mount) Assembly
Part No. FKT682

The SFM (side frame mount) assembly includes four right-angle brackets (either two-hole or four-hole brackets depending on the size of the panel) that connect a guard to a smooth, upright surface of a machine. Additional parts for the assembly include four hinges, two 1" x 2" extrusions, fasteners, and hardware.

Part No. FKT682 consists of the following:

Qty.	Part No.	Description
2	EXT1020	1" x 2" Extrusion x Height of Panel
4	FKT584	Hinge
16	FSC073	¼-20 Screw x ⅜"
36	FSY028	T Nut
4	FKT616	4-Hole Inside Corner Bracket
2	FKT591	2-Hole Slotted Locking Plate
2	FKT600	1" x 2" End Cap
6	FSC089	¼-20 x ½" Flanged BHC Screws
20	FSC072	¼-20 x ½" Button-Head Cap Screws

(Continued on next page.)

MULTI-PANEL BARRIER GUARD MOUNTS (continued)

SFM-24 (Side Frame Mount) Assembly
Part No. FKT680

The SFM-24 (side frame mount) assembly connects a barrier guard 8" to 24" out from the sides of the machine. This SFM-24 mount is ideal for mounting a guard to a machine when the guard must extend out from the machine frame. Additional parts for the assembly include four hinges, two 1" x 2" extrusions, fasteners, and hardware.

Part No. FKT-680 consists of the following:

Qty.	Part No.	Description
2	EXT1020	1" x 2" Extrusion x Height of Panel
4	EXT1010	1" x 1" Extrusion (up to 24")
8	FKT596	3-Hole L-Bracket
8	FKT598	3-Hole Floor Mount
4	FKT584	Hinge
54	FSC072	¼-20 Screw x ½"
16	FSC073	¼-20 Screw x ⅜"
50	FSY028	T Nut
2	FKT591	2-Hole Slotted Locking Plate
4	FKT615	1" x 1" End Cap
2	FKT600	1" x 2" End Cap
2	FSC089	¼-20 x ½" Flanged BHC Screws

FFM (Front Frame Mount) Assembly
Part No. FKT681

The FFM (front frame mount) assembly connects a barrier guard to the throat portion of a C-frame machine using right-angle brackets. This mount is applied when a multi-panel guard cannot be attached to the side of the machine using the SFM, SFM-3, -5 or -7, or the SFM-24 mounts described previously. Additional parts for the assembly include four hinges, two 1" x 2" extrusions, fasteners, and hardware.

Part No. FKT-681 consists of the following:

Qty.	Part No.	Description
4	EXT1010	1" x 1" Extrusion x 12" Long
16	FKT607	3/16" Inside Corner Bracket
24	FSC072	¼-20 Screw x ½"
32	FSY028	T Nut
4	FKT656	2-Hole Inside Bayonet Connector
8	FKT555	L-Shaped Pivot Arm
4	FKT600	1" x 2" End Cap
4	FKT615	1" x 1" End Cap
4	FKT606	90° Universal Hub
8	FKT585	Stripper Bolt
4	FSC089	¼-20 x ½" Flanged BHC Screws

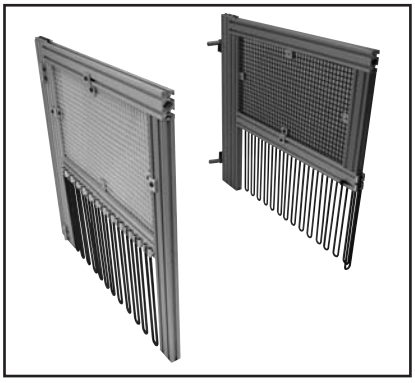
Multi-Panel Guards

The previous pages describe the components that make up a barrier guard. The multi-panel barrier guards, shown here, are the most popular guard. The panel construction, optional features (panel segments), and mountings on these guards may vary, but they always have the following design characteristics:

- The panels can be fabricated of any material as described on pages 8 and 9. They can interconnect to form a barrier or guard.
- The front panel (if required) is attached with slotted bayonet connectors and is removable.
- The guard fastens to the machine with any of the mounts shown on pages 12 and 13.

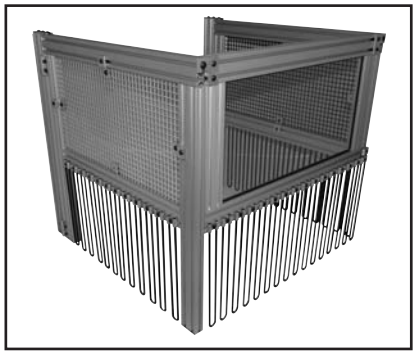
MODEL XL-2

The two-panel barrier guard **cannot** be considered a safeguard. The guard is to be used with safeguarding devices such as two-hand trips or controls, presence-sensing devices, pullbacks, or restraints. It is designed to protect the sides of the point of operation while the front is open for feeding and removing of workpieces.



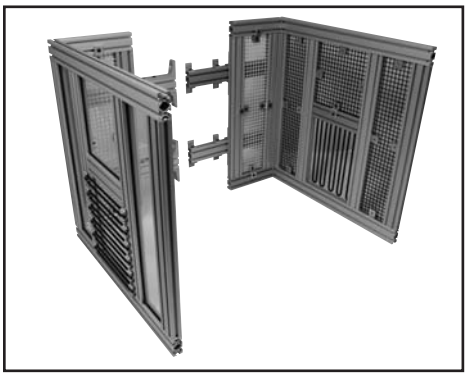
MODEL XL-3

The three-panel guard can be used as a point-of-operation safeguard. It is designed to protect the sides and front of the point of operation. The front panel is removable for die changing and maintenance. A roof and/or floor section is required if this guard is designed and applied where someone could reach over or under it. The rear of the machine must also be guarded.



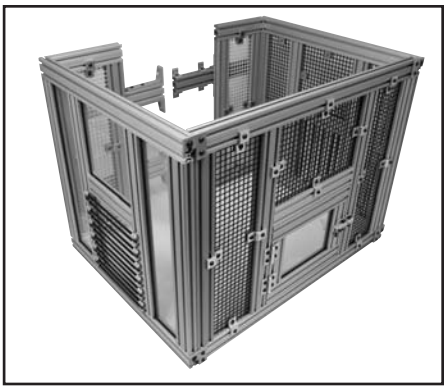
MODEL XL-4

The four-panel barrier guard is similar to the Model XL-2 with the addition of right rear and left rear panels. The Model XL-4 barrier guard is used when the guard must extend out from the machine frame to provide clearance for the machine bed or tooling. This guard **cannot** be considered a safeguard. It is to be used with safeguarding devices such as two-hand trips or controls, presence-sensing devices, pullbacks, or restraints. This guard is designed to protect the sides of the point of operation while the front is open for feeding and removing of workpieces.



MODEL XL-5

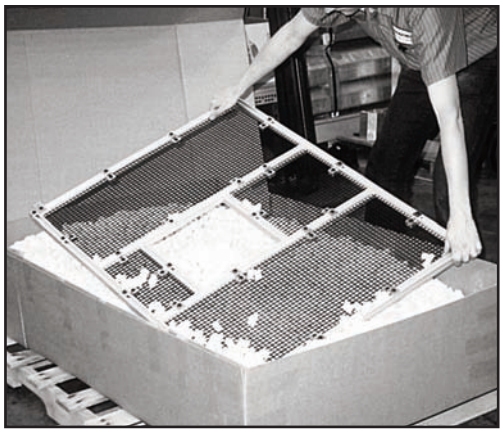
This five-panel guard has the same four panels as the Model XL-4 and an additional front panel. The front panel is removable for die changing and maintenance. A roof and/or floor section is required if this guard is designed and applied where someone could reach over or under it. The rear of the machine must also be guarded.



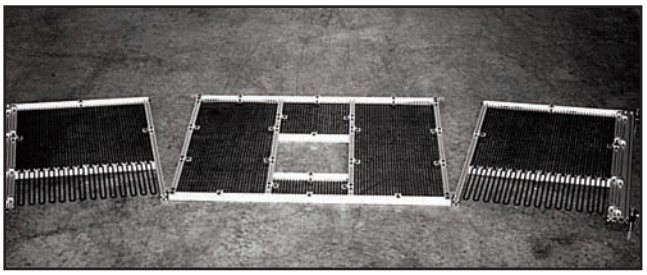
MODEL XL-6 (not shown)

The Model XL-6 consists of two Model XL-3 barrier guards placed on top of each other with a gap in between them to allow for sheet feeding. A roof and/or floor section is required if this guard is designed and applied where someone could reach over or under it. The rear of the machine must also be guarded.

Multi-Panel Guard Installation

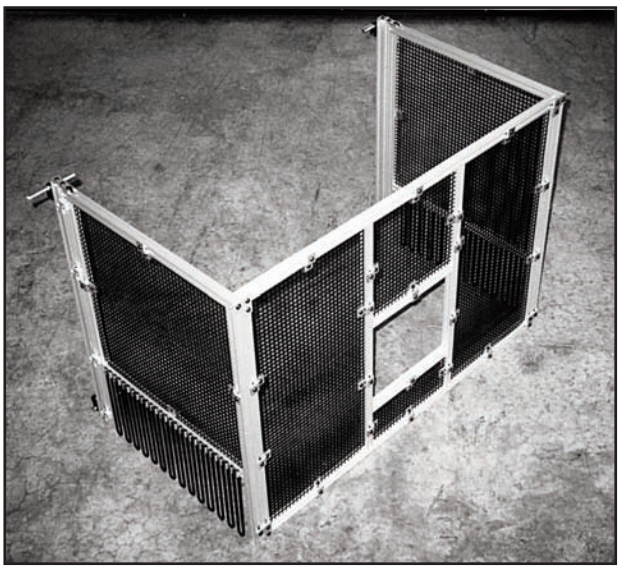


1. **Unpack the multi-panel guard(s) shipment.**
   - Open all component packages before proceeding.
   - Make sure all panels, segments (if furnished), and mounting hardware are included according to the drawing and measurement form included with your shipment. The multi-panels have been broken down for shipping.



2. **Lay out the multi-panel guarding system on a work bench or the floor.**
   - Use the measurement form and drawing included with your shipment for reference.
   - Verify the dimensions of each panel to determine where each panel belongs in the guard assembly.

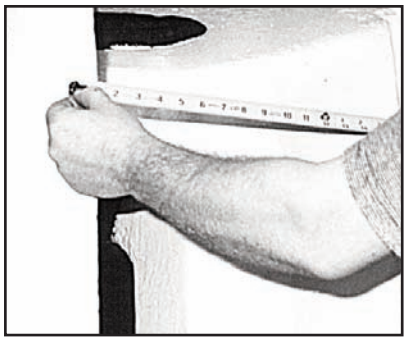
*Note the measurement form has the dimensions of each panel, and has each panel identified by letters **LR** (Left Rear), **L** (Left), **F** (Front), **R** (Right), and **RR** (Right Rear).*



3. **Completely assemble the guard on a work bench or the floor before installing the guard on the machine.**
   - Make sure the panels line up as shown in the drawing included with your shipment.
   - Make sure the panels with hairpins (if furnished) are mounted with the clips facing out. This allows access to the cap screws for adjusting the hairpins.
   - Tighten fasteners and connections as needed.

(Continued on next page.)

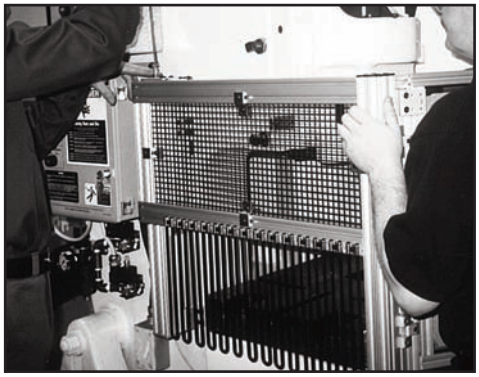
Multi-Panel Guard Installation (continued)



4. Select the mounting location and measure or spot holes on the machine.

- Measure the mounting distance on the guard, or hold the guard up to its location on the machine and mark the holes. This may require more than one person.
- Make sure the holes do not interfere with any obstructions, gears, shafts, etc., on the machine.

5. Drill and tap holes for the type of mount required. (Customer to furnish hardware.)



6. Install the guard on the machine using the furnished mounts. This may require more than one person.

- Each panel can be mounted individually or, for smaller guards, the entire guard can be installed all at once.
- Make sure all fasteners are tight so the guard does not vibrate loose.

7. Permanently attach Danger Sign No. KSC061. Make sure it is readily visible to all personnel who work on or around the machine.

Note: Always make sure the guarding system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards. See page 5 of this manual for safety compliance. If your guard doesn't comply, contact the factory for additional guarding materials that may be required.

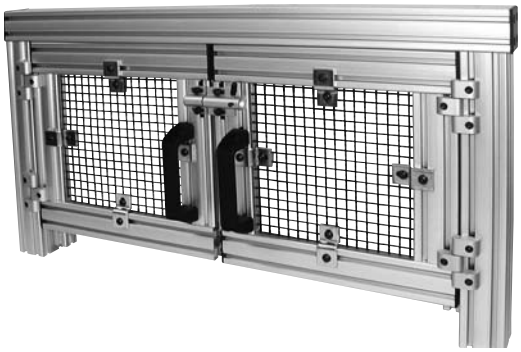
Introduction

The single-panel barrier guard can be furnished for any machine that requires simple, one-sided guarding. The panel can be custom designed for each application. In some applications, it is more convenient to have a double panel (split guard) with two panels in line with each other that are hinged and latched. Applications include areas of the machine not protected by a light curtain—front, rear, or sides of the machine, or for auxiliary guarding.

The framework of the panel is usually constructed of 1" x 2" square extruded aluminum. The fixed area of the panel is made of black or yellow mesh (½" sq. 16-gauge or 1" sq. 12-gauge), or 3⁄16"-thick clear polycarbonate. It is fastened in place for permanent assembly. Adjustable, black-oxidized steel hairpins are available for the lower portion of the panel. These hairpins provide adjustability for strip or coil feeding, or for going around obstructions on the machine. The adjustable hairpins are secured to the panel frame with clips, T-nuts, and socket-head cap screws. Various panel segments can also be positioned into a framed panel to meet specific requirements. Panels with adjustable hairpins normally do not have a panel segment unless the operator requires visibility into the point of operation.

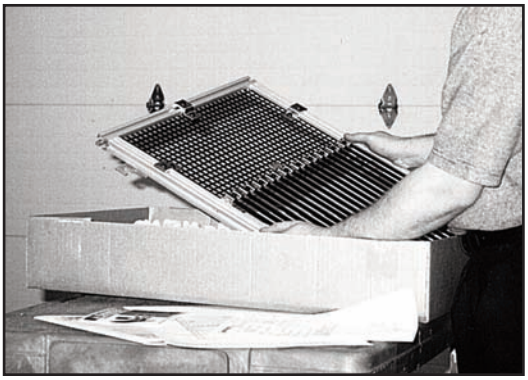
A single panel can be attached to the machine using any of the mounts described on pages 10 & 11.

Single Panel Model XL-1 With Mesh Material and Direct Frame Mounts

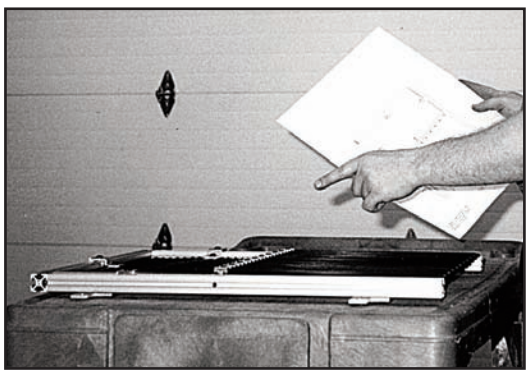


Double Panel Model XL-2 With Black Mesh, Heavy Hinge Assembly, and Door Handles

Single or Double Panel Installation



1. **Unpack the single or double panel guard(s) shipment.**
   - Open all component packages before proceeding.
   - Make sure all panels, segments (if furnished), and mounting hardware are included according to the measurement form and drawing included with your shipment.



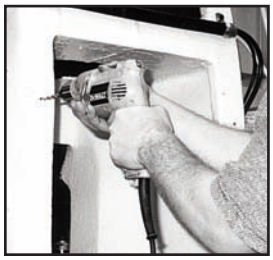
2. **Lay out the single panel or double panel guarding system on a work bench or the floor.**
   - Use the measurement form and drawing included with your shipment for reference.
   - Hairpins (if furnished) should be mounted with the clips facing out. This allows access to the cap screws for adjusting the hairpins.

(Continued on next page.)

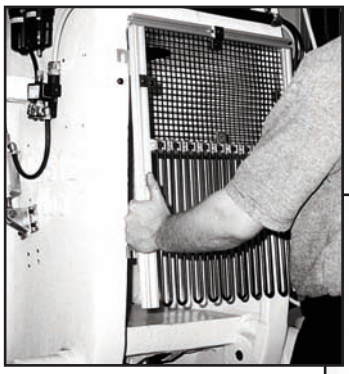
Single or Double Panel Installation (continued)

3. Select the mounting location and measure or spot holes on the machine.

- Measure the mounting distance on the guard, or hold the guard up to its location on the machine and mark the holes. This may require more than one person.
- Make sure the holes do not interfere with any obstructions, gears, shafts, etc., on the machine.



4. Drill and tap holes for the type of mount required. (Customer to furnish hardware.)



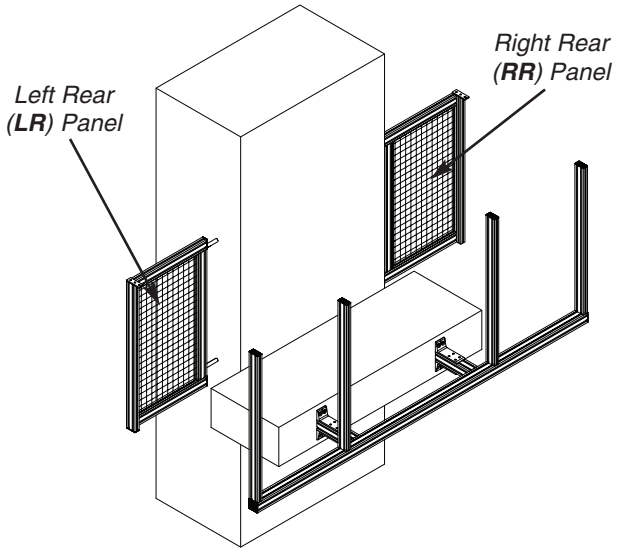
5. Install the guard on the machine using the furnished mounts. This may require more than one person.

- Tighten all fasteners to secure the panel to the machine.

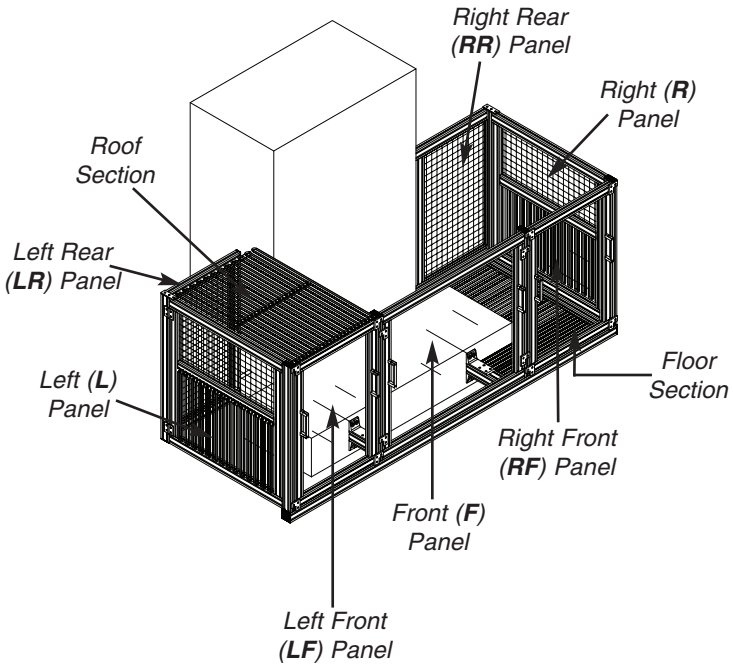
6. Permanently attach Danger Sign No. KSC061. Make sure it is readily visible to all personnel who work on or around the machine.

Note: Always make sure the guarding system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards. See page 5 of this manual for safety compliance. If your guard doesn't comply, contact the factory for additional guarding materials that may be required.

Front Mount Installation (continued)



5. **Select the mounting location for the left rear (LR) and right rear (RR) panels. Measure or spot holes on the machine.**
   - Measure the mounting distance on each panel, or hold each panel up to its location on the machine and mark the holes. This may require more than one person.
   - Make sure the holes do not interfere with any obstructions, gears, shafts, etc., on the machine.
6. **Drill and tap holes for the furnished mounts.**
7. **Install the left rear (LR) and right rear (RR) panels on the machine. This may require more than one person.**



8. **Attach the left panel (L) to the left rear (LR) panel with the furnished connectors.**
9. **Attach the right panel (R) to the right rear (RR) panel with the furnished connectors.**
10. **If provided, attach the left front (LF) panel to the left upright extrusion with the T nuts.**
11. **If provided, attach the right front (RF) panel to the right upright extrusion with the T nuts.**
12. **Attach the front (F) panel to the upright extrusions with the furnished connectors.**
    - Make sure panels line up as shown in the drawing included with your shipment.
    - Panels with hairpins (if furnished) should be mounted with the clips facing out. This allows access to the cap screws for adjusting the hairpins.
    - Make sure all the guard's fasteners are tight so the guard does not vibrate loose.

13. **Permanently attach Danger Sign No. KSC061. Make sure it is readily visible to all personnel who work on or around the machine.**

Note: Always make sure the guarding system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards. See page 5 of this manual for safety compliance. If your guard doesn't comply, contact the factory for additional guarding materials that may be required.

Introduction

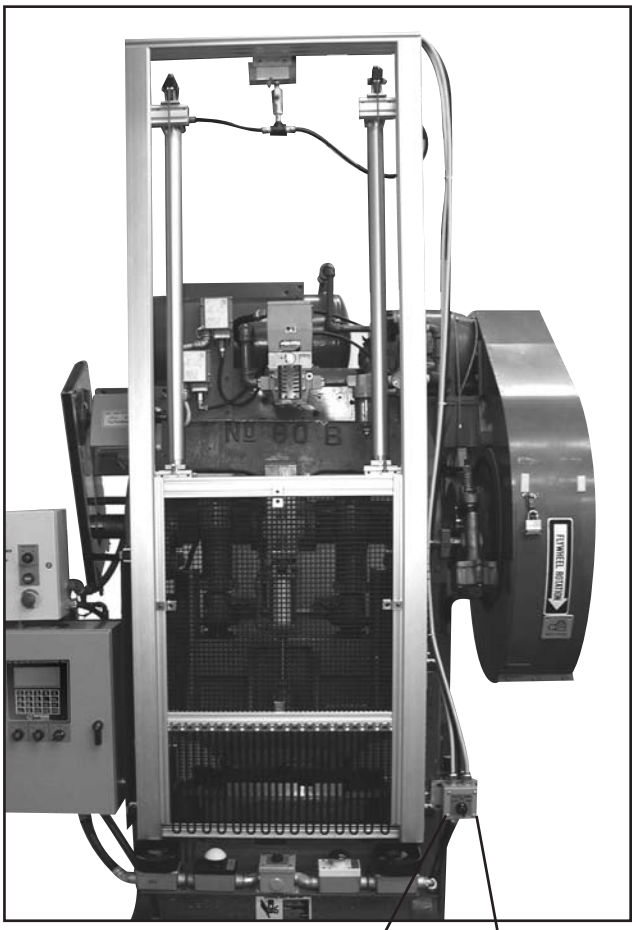
Lift-type guards, either spring lift or air lift, can be furnished on machines where guards need to be quickly and easily positioned up out of the way for die setup and maintenance.

The spring-lift and air-lift guards are usually applied to a machine that has straight vertical sides with openings that need to be guarded. The mechanical motor springs on the spring-lift guard provide a counterbalance for the weight of the guard. This allows the guard to move upward from the guarding position to access the point of operation.

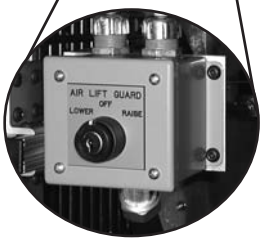
The air-lift guard can be used for most applications; however, they are usually applied in larger guarding applications. With this system, the guards are raised and lowered by air cylinders (2) and operating cables that are attached to the guard.

A separate key-operated selector switch station controls the movement of the air-lift guard. This selector switch operates a solenoid which controls the air cylinders. The solenoid has a built-in check valve to keep the guard from dropping if air pressure is lost.

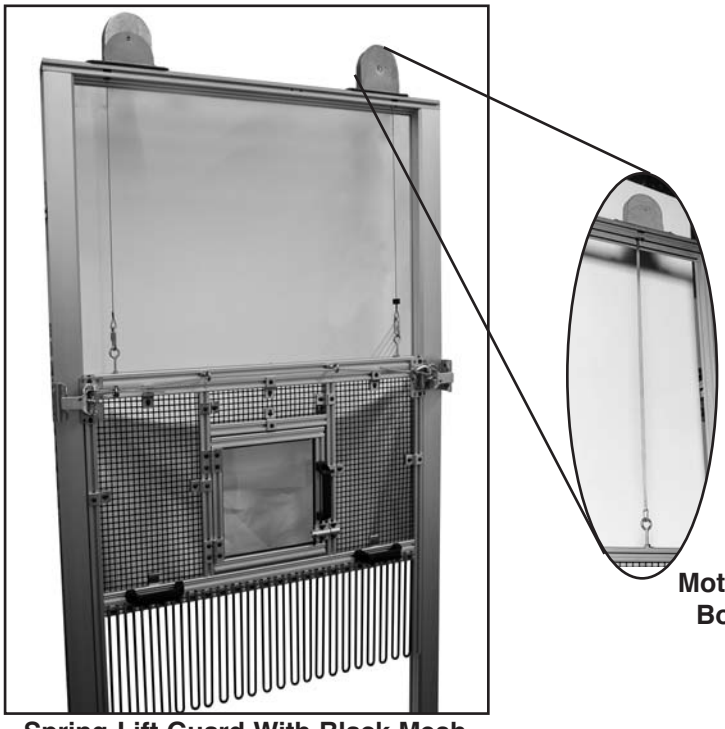
The spring-lift and air-lift guards are *not* designed for manual feeding operations. For manual feeding operations using gates, please consult factory.



Air-Lift Guard Mounted on a Press



Key-Operated Control Station for Air-Lift Guard



Spring-Lift Guard With Black Mesh, Polycarbonate Hinged Segment, and Adjustable Hairpins

Motor Springs Connect to Eye Bolts Attached to the Panel Framework

Measurement Form for Spring-Lift Model XL-1 SL and Air-Lift Model XL-1 AL

ROCKFORD SYSTEMS, LLC

5795 Logistics Parkway • Rockford, IL 61109
Toll-Free: 1-800-922-7533 • Phone: (815) 874-7891 • Fax: (815) 874-6144
Web site: www.rockfordsystems.com • E-mail: customerservice@rockfordsystems.com

If more than one machine is to be measured, please make copies of this page.

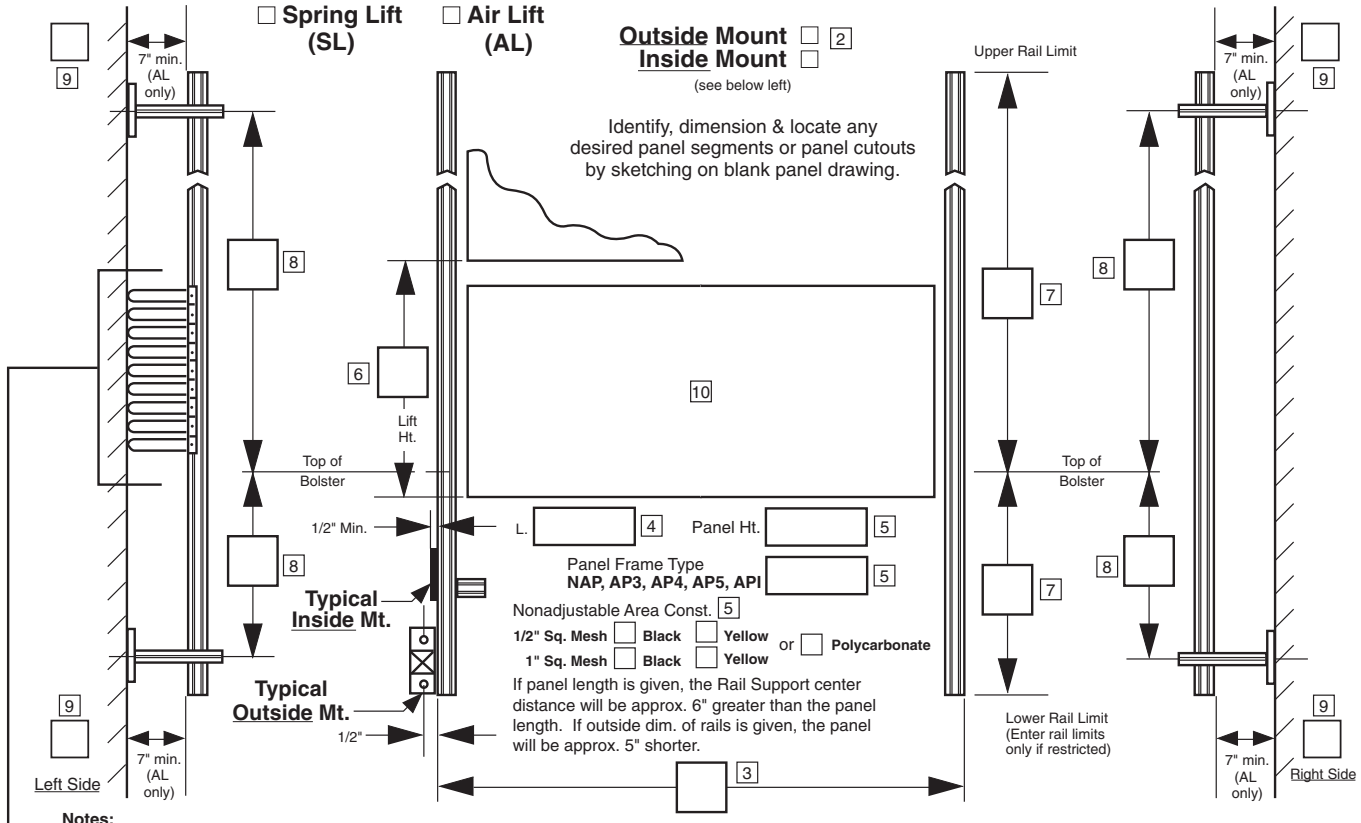
1 Company _____ Address _____

City _____ State _____ Zip _____

Attention _____ Rep. _____

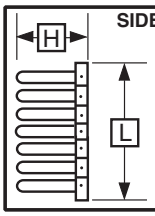
Machine Mfr. and Model No. _____ Machine No. _____

Measured By: _____



Notes:

SIDE GUARDS:



10

	H	L
Left Side		
Right Side		

11 **ELECTRICAL INTERLOCK**
☐ **Locking**
☐ **Nonlocking**
☐ **None**

MEASURING INSTRUCTIONS

The lift guard measurement form is designed to be used for the XL-1 SL and XL-1 AL guards.

1. Fill in the complete heading as indicated.
2. Check whether an **Outside** or **Inside** mount is required. (See lower left side of front view drawing for examples.)
3. Enter outside rail dimension;
   or
4. Enter panel length. If outside rail dimension is specified, it will dictate the panel length and vice versa. (See note.)
5. Enter panel height, frame type, and construction of nonadjustable area.
6. Enter lift height. This will usually be the same as panel height.
7. Enter upper and lower rail limits, if any.
8. If outside mounted, enter the appropriate location of upper and lower mounting point for each rail. These dimensions plus the panel height and lift height will help determine the length of the rails.
9. Enter the desired length of the four rail supports. Allow for any obstructions.
10. Enter dimensions and information for panel segments and/or side guards as required.
11. Check type of electrical interlock switch, if any.

Spring Lift Installation

1. Unpack the spring-lift guard(s) shipment.

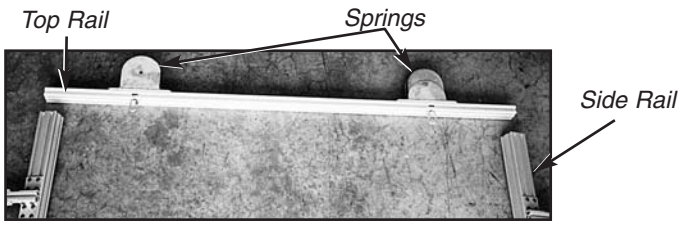
- Open all component packages.
- Make sure all panels, segments (if furnished), and mounting hardware are included according to the measurement form and drawing included with your shipment.

Right Side Rail With Inside Mount Facing Out

Right Side Rail With Outside Mount Facing Down

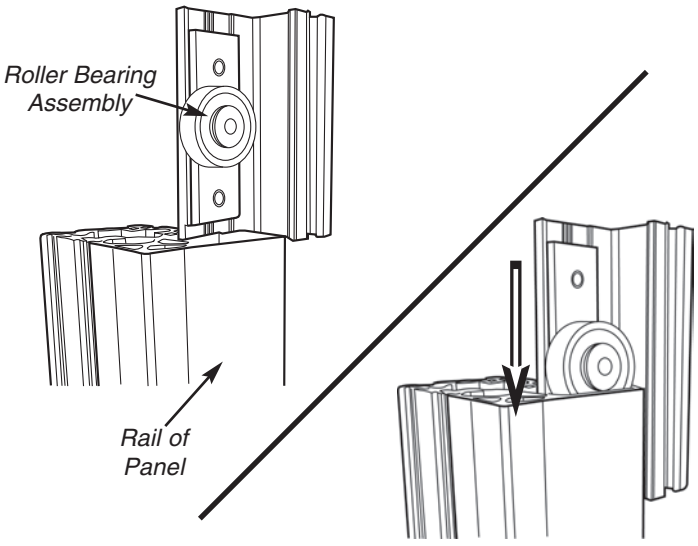
2. Locate the left and right side rails and lay them out on a work bench or the floor.

- Use the measurement form and drawing included with your shipment for reference.
- For **inside** mounting to the machine, lay the side rails with the mounts facing out. For **outside** mounting to the machine, lay the side rails with the mounts facing down.



3. Lay the top rail above the side rails.

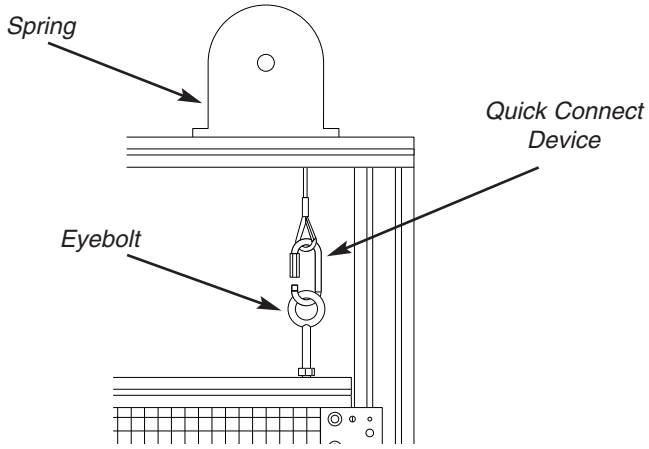
- The springs should be on the top channel of the top rail.



4. Align bearings and slide panels into rails.

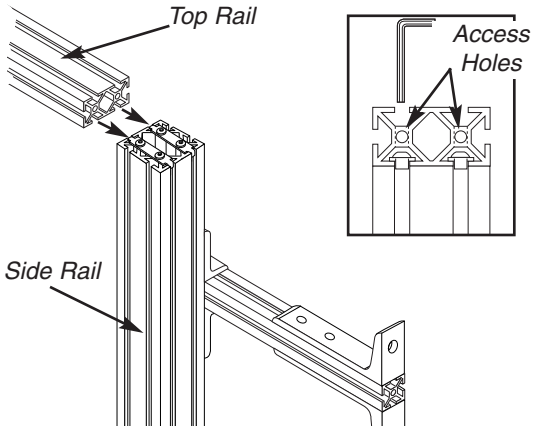
(Continued on next page.)

Spring Lift Installation (continued)



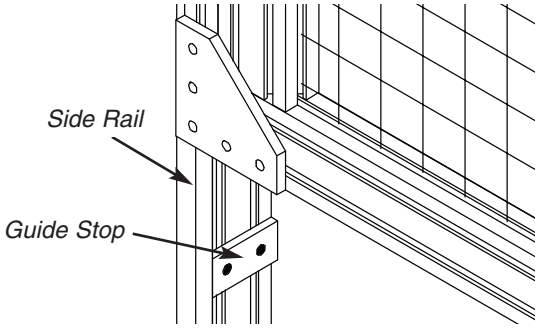
6. Attach the panel to the springs.

- Hook the quick connect device hanging from the springs to the eyebolts located on the top of the panel.
- Close the quick connect device.



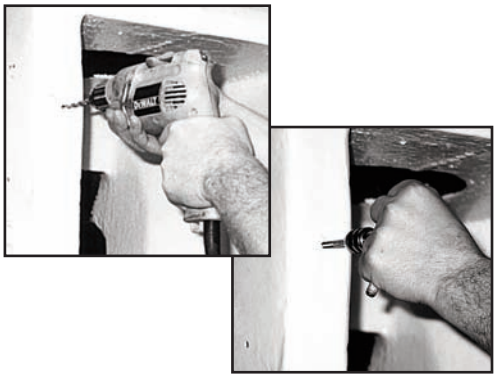
7. Attach the top rail to the side rails with the fasteners provided.

- Tighten all button-head cap screws through the access holes on the top rail.



8. Slide the guide stops into the inside channel of the side rails all the way to the bottom of the side rail.

- Tighten the button-head cap screws.



9. Select the mounting location and measure or spot the holes on the machine.

- Either use Dimension 8 found on the measurement form or measure by holding the spring lift up to its location on the machine. This may require more than one person, a lift truck, or overhead crane.

10. Drill and tap two (2) holes at each mounting location. There should be a total of eight (8) holes.

(Continued on next page.)

Spring Lift Installation (continued)

11. Attach the assembled spring lift to the machine with the bolts provided. This may require more than one person, a lift truck, or overhead crane.

- Reposition the guide rail stops to allow the panel to come to rest at the proper height for compliance to OSHA or ANSI safeguarding requirements.

12. Permanently attach Danger Sign No. KSC-061 to the machine where it is readily visible to all personnel who work on or around the machine.

Note: Always make sure the guarding system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards. See page 5 of this manual for safety compliance. If your guard doesn't comply, contact the factory for additional guarding materials that may be required.

Replacement Springs and Parts for Spring-Lift Model XL-1 SL

Different weight springs are used in sets of two or four to accommodate a variety of panel weights. To get the proper replacement spring(s), refer to the original order number or contact factory.

REPLACEMENT SPRINGS

Part No.	Lift Capacity
FKT673	20 lb
FKT674	30 lb
FKT675	40 lb
FKT676	50 lb

Note: When ordering a replacement spring unit, specify one or two springs. See page 29 for a drawing of a spring.

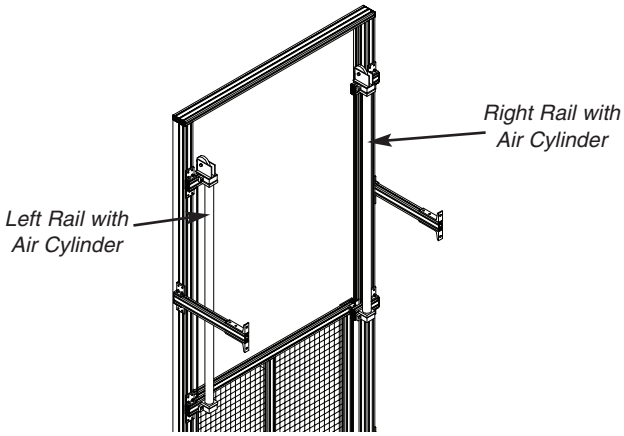
REPLACEMENT PARTS

Part No.	Description
FKT724	Eye Bolt
FKT595	Guide Stop
FKT837	Roller Bearing Assembly
KTS519	Quick Connect Device

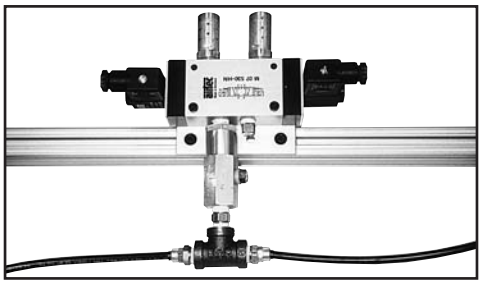
Note: See page 28 for a drawing of a roller bearing assembly.

Air Lift Installation

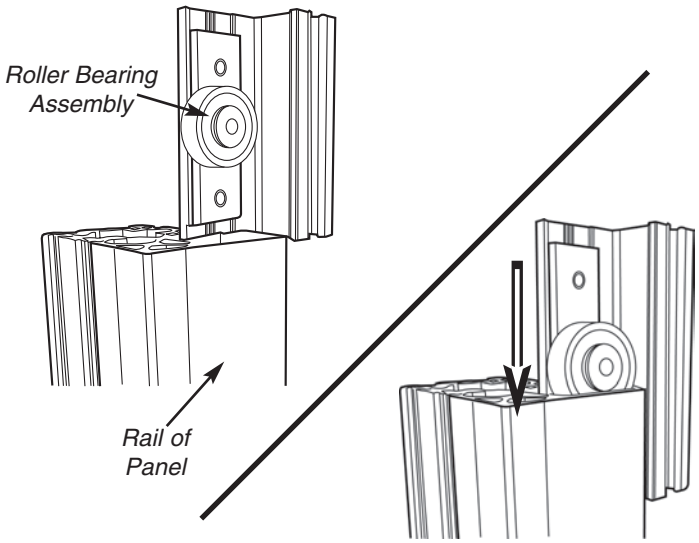
1. **Unpack the air-lift guard(s) shipment.**
   - Open all component packages.
   - Make sure all panels, segments (if furnished), and mounting hardware are included according to the measurement form and drawing included with your shipment.



2. **Locate the left and right side rails and lay them out on a work bench or the floor. These rails have the air cylinders attached to them.**
   - Make sure the air cylinders are facing each other.
   - Use the measurement form and drawing for reference.



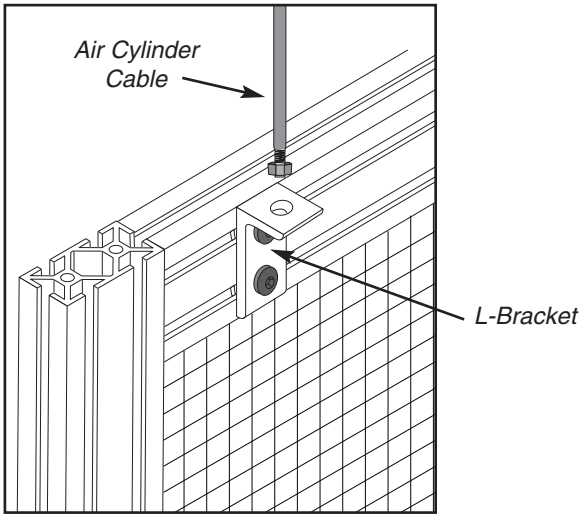
3. **Lay the top rail above the side rails.**
   - The solenoid valve should be facing up.



4. **Align bearings and slide panels into rails.**

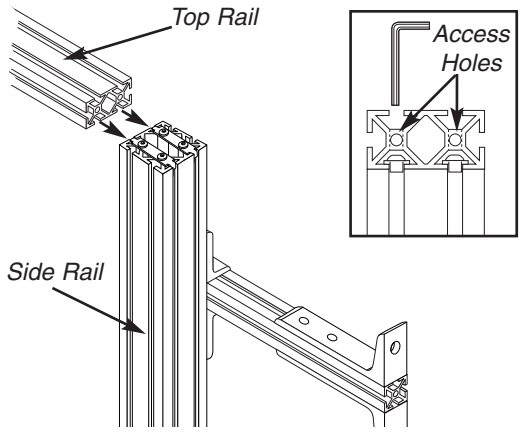
(Continued on next page.)

Air Lift Installation (continued)



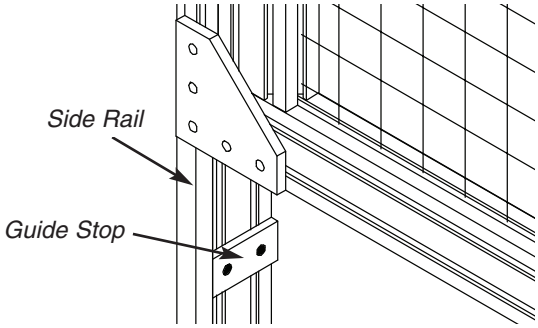
5. Attach the cable to the air cylinder.

- Locate the L-bracket attached to the mesh panel. Pull the air cylinder cable through the top hole of the L-bracket and tighten the bolt. Repeat this step with the second L-bracket and air cylinder cable.



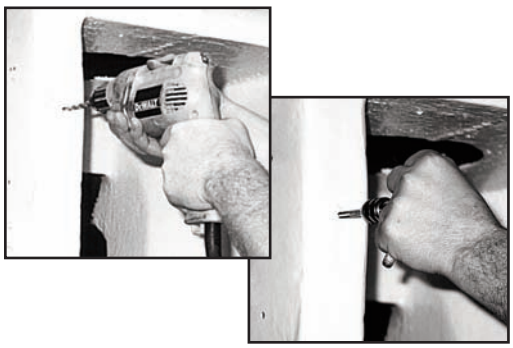
6. Attach the top rail to the side rails.

- With the solenoid facing up, attach the top rail to the side rails with the fasteners provided.
- Tighten all button-head cap screws through the access holes on the top rail.



7. Slide the guide stops into the inside channel of the side rails all the way to the bottom of the side rail.

- Tighten the button-head cap screws.



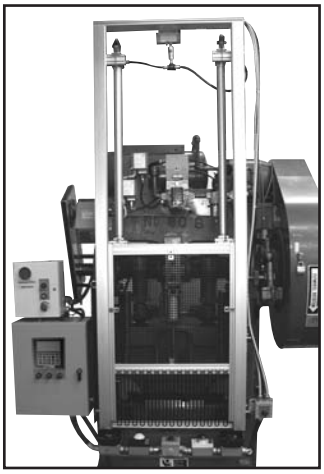
8. Select the mounting location and measure or spot the holes on the machine.

- Either use Dimension 8 found on the measurement form or measure by holding the air lift up to its location on the machine. This may require more than one person, a lift truck, or overhead crane.

9. Drill and tap two (2) holes at each mounting location. There should be a total of eight (8) holes.

(Continued on next page.)

Air Lift Installation (continued)



10. Attach the assembled air lift to the machine with the bolts provided. This may require more than one person, a lift truck, or overhead crane.

- Reposition the guide rail stops to allow the panel to come to rest at the proper height for compliance to OSHA or ANSI safeguarding requirements.

11. Connect the polyflow tubing from the solenoid to the left and right air cylinders.

- Allow enough tubing to reach each air cylinder. Cut the tubing to the exact length.

12. Permanently attach Danger Sign No. KSC061 to the machine where it is readily visible to all personnel that work on or around the machine.

Note: Always make sure the guarding system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards. See page 5 of this manual for safety compliance. If your guard doesn't comply, contact the factory for additional guarding materials that may be required.

Air Lift Components

PART NO. LLD240 KEY-OPERATED CONTROL STATION

A key-operated control station controls the up and down movement of the air-lift guard. This control station has three switch positions: **LOWER, OFF**, and **RAISE**. The key must be held in the **RAISE** position to lift the gate. Once the key is released, an interior spring returns the selector to the **OFF** position. The guard will stay in this raised position. To lower the gate, turn the key to the lower position.

Mount the key-operated control station to the machine in a convenient location for the operator. Please refer to the electrical diagrams furnished with your order for wiring instructions for each control station.

PART NO. RCR219 AIR REGULATOR/GAUGE

The air regulator/gauge is used to adjust the air pressure to the proper setting needed for operation of the air cylinders. **Do not exceed 50 PSI.**

Attach the regulator/gauge mounting bracket to the machine in a location convenient to the operator. Place the regulator/gauge in the mounting bracket and tighten with the lock nut.

Locate the polyflow tubing. It is supplied loose. Connect this tubing from the regulator/gauge to the back of the solenoid.

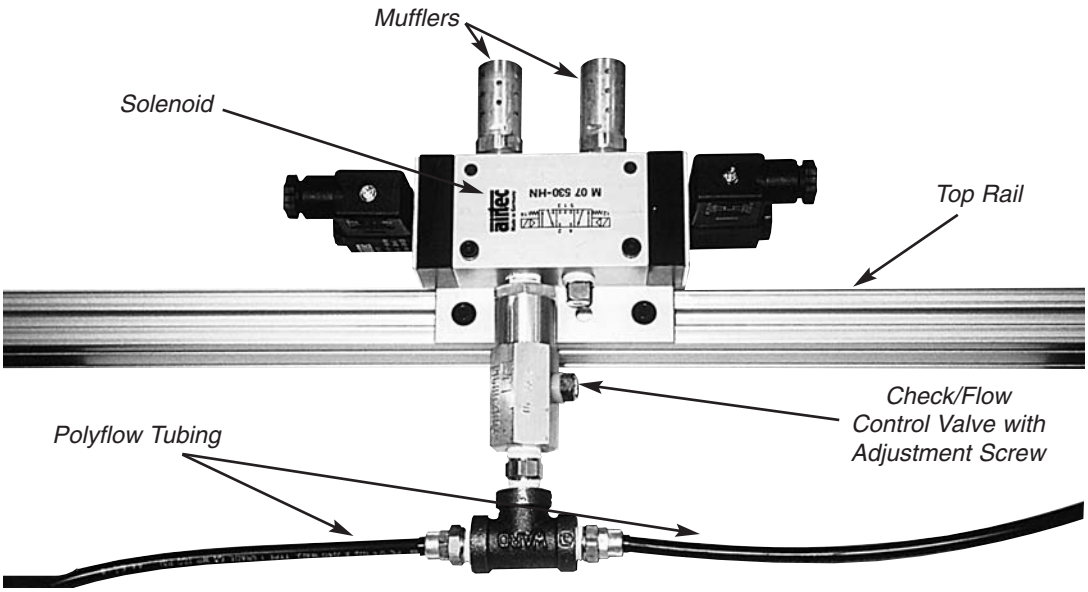
Refer to the pneumatic diagrams furnished with your order for proper connection of the incoming air supply to the air regulator/gauge assembly. Plug the unused port.

(Continued on next page.)

Air Lift Components (continued)

SOLENOID AIR VALVE ASSEMBLY

The solenoid air valve assembly is mounted at the factory to the top rail of the air-lift guard. It consists of a solenoid, two mufflers, an adjustable check/flow control valve, and polyflow tubing for connection to the left and right air cylinders.



AIR CYLINDER

Left and right air cylinders are furnished with the air-lift guard. These air cylinders are attached to the side rails. After mounting the air-lift guard to the machine, connect the left and right air lines coming from the solenoid to the air cylinders. Standard air cylinder sizes are 24", 36", or 48". Please consult factory for other sizes.

AIR-LIFT GUARD REPLACEMENT PARTS LIST

QUANTITY	PART NUMBER	DESCRIPTION
1	RCR219	Air Regulator/Gauge
1	RCC073	Mounting Bracket for Air Regulator
1	RCD059	Solenoid Air Valve
1	RCS028	Check/Flow Control Valve
2	RCS040	Mufflers for Valves
2	FKT795	24" Air Cylinder
2	FKT796	36" Air Cylinder
2	FKT797	48" Air Cylinder
4	FKT837	Roller Bearing Assembly
Per Foot	FKT042	⅜" Polyflow Tubing for Air Lines
1	LLD240	Remote Station
2	FKT595	Guide Stop

Floor Stand

PART NO. KTR-077

Floor Stand With Light Curtain Transmitter

When light bars (transmitter or receiver) cannot be conveniently mounted to the machine in a point-of-operation safeguarding application, a floor stand can be furnished. Floor stands can also be used when safeguarding large work envelope or perimeter areas. Mirrors or single beam devices can be attached to the floor stand when the application requires multiple-sided safeguarding. Light bars, single beam devices, or mirrors can easily be adjusted up or down on any side of the upright extruded aluminum stand.

This floor stand assembly consists of a 6' length of 2" square extruded aluminum, one base, and two right angle brackets with fasteners. Each floor stand is shipped completely assembled. The floor stand can be free-standing, or it can be permanently attached to the floor with four bolts (not furnished).

Part No. KTR-077 consists of the following:

Qty.	Part No.	Description
1	FKT529	2" x 2" Extrusion x 6' Long
1	FKT728	Base Plate
1	FKT551	2" x 2" End Cap

Stationary Mounting Brackets

3-Section (OBI) Stationary Light Curtain Mounting Bracket (Barrier guards have been removed from machine for photo)

These stationary light curtain mounting brackets are heavy-duty and versatile. Their design allows them to be tailored to each individual machine. They are available in two-, three-, or five-section assemblies. They are ideal for applications where side barriers (guards) will be fabricated by the user or provided separately. Two of the stationary light curtain mounting brackets can also be furnished with integral guarding material. (See next page.)

The two-section and three-section (SS) brackets can be used whenever mounting brackets can be installed on the front surface of the machine. The three-section (OBI) should be used when the brackets must be mounted to the sides of the machine (see photo). The five-section can also be mounted on the sides of the machine, at both the top and the bottom for greater stability. All of these brackets are designed for use on C-frame presses or press brakes.

Stationary Mounting Bracket Specifications for Models: SB-2, SB-3 OBI, SB-3 SS, SB-3 SSG, SB-5, and SB-5 G

ROCKFORD SYSTEMS, LLC

5795 Logistics Parkway • Rockford, IL 61109
Toll-Free: 1-800-922-7533 • Phone: (815) 874-7891 • Fax: (815) 874-6144
Web site: www.rockfordsystems.com • E-mail: customerservice@rockfordsystems.com

If more than one machine is to be measured, please make copies of this page.

Company _____ Address _____

City _____ State _____ Zip _____

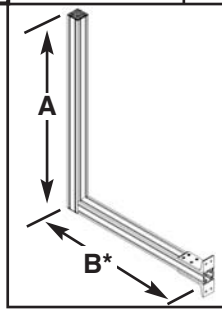
Attention _____ Rep. _____

Machine Mfr. and Model No. _____ Machine No. _____

Measured By: _____

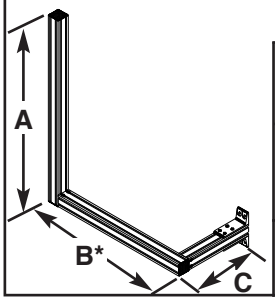
Check the required stationary bracket. If the standard dimensions specified here do not fit your application, indicate the dimensions required. The A dimension for all brackets should be a minimum of 8" more than the light curtain field-of-coverage height.

☐ **SB-2** 2-Section Mounting Bracket (2-Dimensional)



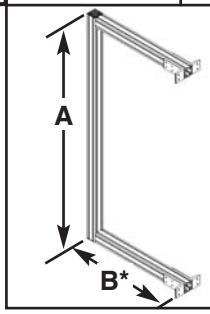
	Std	Req'd
A	32"	
B*	20"	

☐ **SB-3 OBI** 3-Section Mounting Bracket (3-Dimensional)



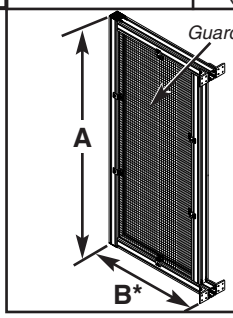
	Std	Req'd
A	32"	
B*	24"	
C	12"	(3" Min.)

☐ **SB-3 SS** 3-Section Mounting Bracket (2-Dimensional)



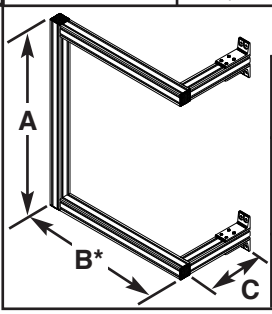
	Std	Req'd
A	44"	
B*	12"	

☐ **SB-3 SSG** 3-Section Mounting Bracket (2-Dimensional) With Guards



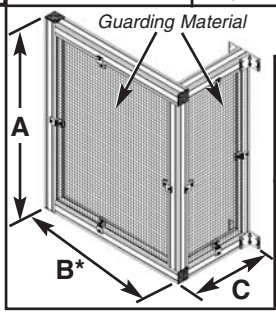
	Std	Req'd
A	44"	
B*	12"	
Guard Mat'l **	Blk	

☐ **SB-5** 5-Section Mounting Bracket (3-Dimensional)



	Std	Req'd
A	36"	
B*	24"	
C	12"	(3" Min.)

☐ **SB-5 G** 5-Section Mounting Bracket (2-Dimensional) With Guards

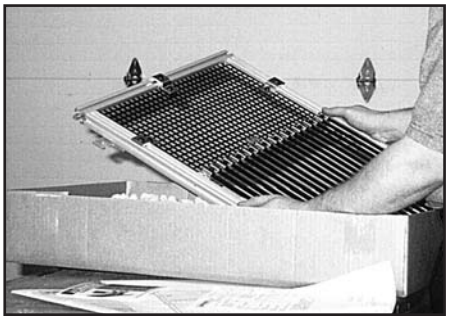


	Std	Req'd
A	36"	
B*	24"	
C	12"	(3" Min.)
Guard Mat'l **	Blk	

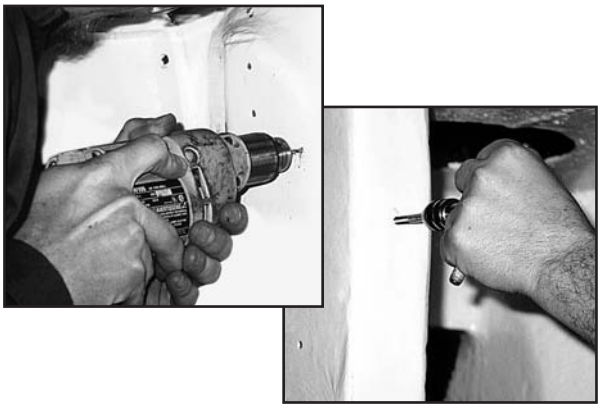
*B dimension must include safety distance. Stopping time of the machine must be determined to establish the safety distance. Please consult factory if assistance is needed.

****CHOICES OF GUARDING MATERIAL**: ½" square or 1" square black (Blk) or yellow (Y) mesh, or polycarbonate (PC). ½" square black mesh is furnished as standard guarding material unless otherwise specified.

Mounting Bracket Installation



1. **Unpack the mounting bracket guard(s) shipment.**
   - Open all component packages.
   - Make sure all panels and mounting hardware are included according to the measurement form and drawing included with your shipment.



2. **Select the mounting location and measure or spot holes on the machine.**
   - Measure the mounting distance on the bracket, or hold the bracket up to its location on the machine and spot the holes.
   - Make sure the holes do not interfere with any obstructions, gears, shafts, etc., on the machine.

Note: The brackets must be mounted so they meet the OSHA or ANSI safety distance requirements. See page 4 for a list of ANSI Standards available for reference.

3. **Drill and tap holes for the type of mount required.**

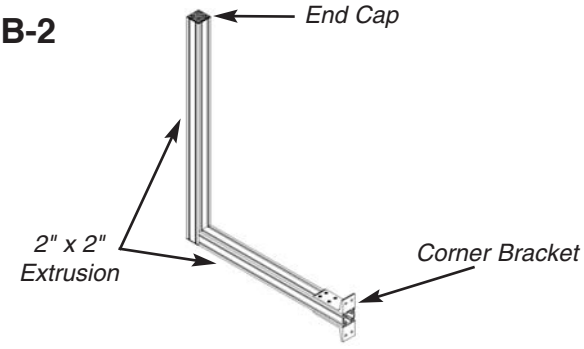
4. **Install the mounting bracket on the machine using the furnished mounts.**

5. **Permanently attach Danger Sign No. KSC-061 to the machine where it is readily visible to all personnel that work on or around the machine.**

Note: Always make sure the bracketing system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards.

Replacement Parts

SB-2

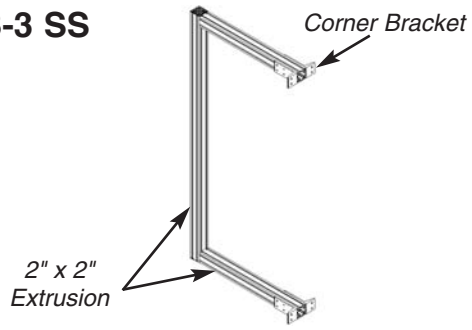


Part No. SB-2 consists of the following:

Qty.	Part No.	Description
4	FKT551	2" x 2" End Cap
4	FKT613	Double End Fastener
24	FSC072	¼-20 x ½" Button-Head Cap Screw
16	FSY028	T-Nut
2	FKT529	2" x 2" Extrusion (32" x 18" each)
4	FKT557	6-Hole Corner Bracket

Replacement Parts (continued)

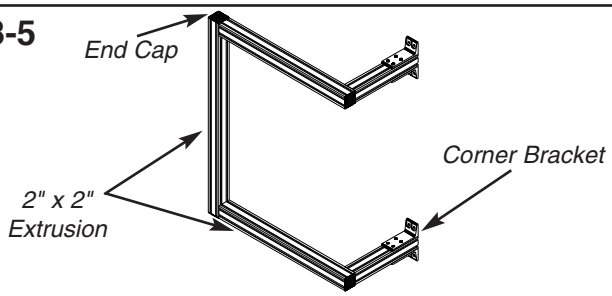
SB-3 SS



Part No. SB-3 SS consists of the following:

Qty.	Part No.	Description
4	FKT551	2" x 2" End Cap
8	FKT613	Double End Fastener
48	FSC072	¼-20 x ½" Button-Head Cap Screw
32	FSY028	T-Nut
2	FKT529	2" x 2" Extrusion (44")
4	FKT529	2" x 2" Extrusion (10")
8	FKT557	6-Hole Corner Bracket

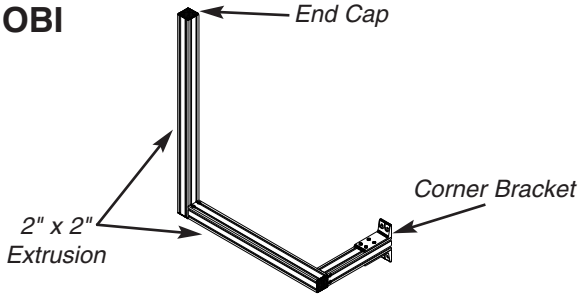
SB-5



Part No. SB-5 consists of the following:

Qty.	Part No.	Description
4	FKT551	2" x 2" End Cap
16	FKT613	Double End Fastener
48	FSC072	¼-20 x ½" Button-Head Cap Screw
16	FSY028	T-Nut
2	FKT529	2" x 2" Extrusion (36" x 22" x 10")
8	FKT557	6-Hole Corner Bracket

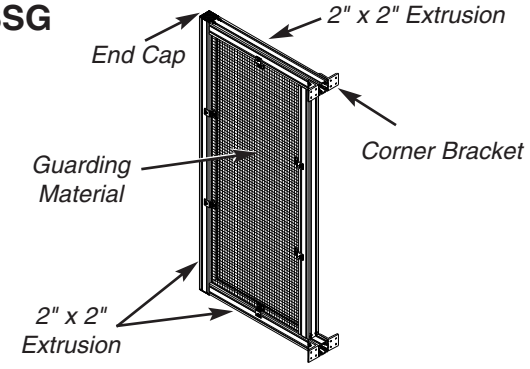
SB-3 OBI



Part No. SB-3 OBI consists of the following:

Qty.	Part No.	Description
6	FKT551	2" x 2" End Cap
8	FKT613	Double End Fastener
32	FSC072	¼-20 x ½" Button-Head Cap Screw
16	FSY028	T-Nut
2	FKT529	2" x 2" Extrusion (32" x 22" x 10")
4	FKT557	6-Hole Corner Bracket

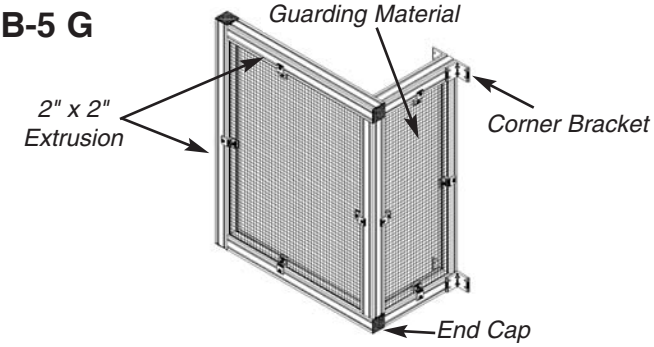
SB-3 SSG



Part No. SB-3 SSG consists of the following:

Qty.	Part No.	Description
4	FKT551	2" x 2" End Cap
8	FKT613	Double End Fastener
48	FSC072	¼-20 x ½" Button-Head Cap Screw
32	FSY028	T-Nut
2	FKT529	2" x 2" Extrusion (44" x 10")
8	FKT557	6-Hole Corner Bracket
2	FKT567	½" Square Black Mesh Panel
8	FKT560	Panel Retainer

SB-5 G



Part No. SB-5 G consists of the following:

Qty.	Part No.	Description
4	FKT551	2" x 2" End Cap
16	FKT613	Double End Fastener
64	FSC072	¼-20 x ½" Button-Head Cap Screw
32	FSY028	T-Nut
2	FKT529	2" x 2" Extrusion (44" x 10")
8	FKT557	6-Hole Corner Bracket
4	FKT567	½" Square Black Mesh Panel
8	FKT560	Panel Retainer

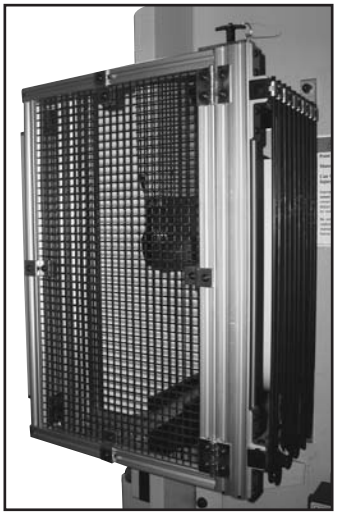
SAB-A (Swing-Away Adjustable Guards) and SAB-NA (Swing-Away Nonadjustable Guards) Mounting Brackets

Swing-away light curtain mounting brackets with guards are ideal for many machines, including C-frame presses and press brakes, when the light curtain must be swung out of the way for setup, die changes, or maintenance. The light curtain transmitter and receiver are easily aligned when they are swung back into the machine operating position. The 2" square extruded aluminum brackets include side barrier guards as shown. The nonadjustable portion of these guards can be constructed of black or yellow mesh (½" sq. 16- gauge or 1" sq. 12-gauge), or 3⁄16"-thick clear polycarbonate. The lower portion of the barrier guard can be constructed of adjustable, black oxidized steel hairpins. This allows for feeding of stock, location of chutes, etc., on the sides of the point of operation.

These guards incorporate a hinge assembly on the corner to allow the light curtain to be swung out. This assembly can also be used to adjust the light curtain panel forward and backward to adjust for safety distance. A built-in latch in this assembly holds the panel in place.

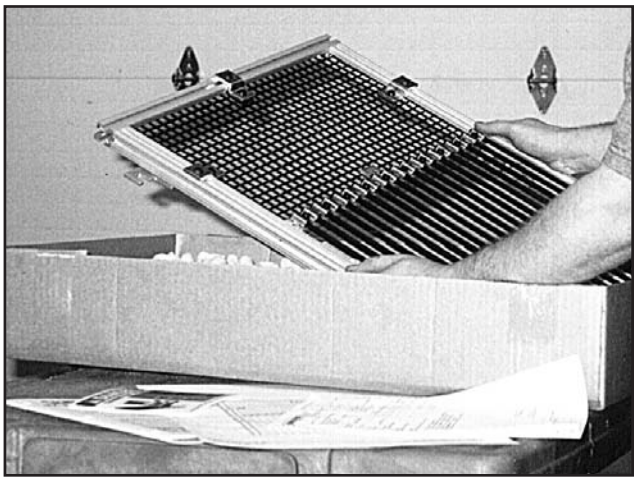
Swing-away brackets and barrier guards are built to specifications and measurements provided. See the appropriate SAB-A or SAB-NA measurement form on pages 41 - 43.

SAB-A Swing-Away Light Curtain Mounting Bracket With Adjustable Guards for Power Presses



SAB-NA Swing-Away Light Curtain Mounting Bracket With Nonadjustable Guards for Press Brakes

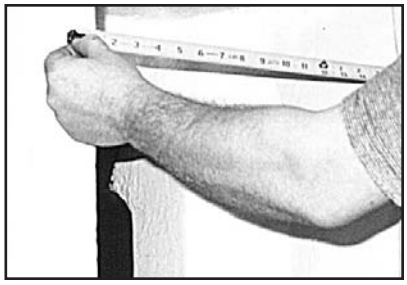
SAB-A and SAB-NA Bracket Installation



1. **Unpack the mounting brackets shipment.**
   - Open all component packages**.**
   - Make sure all panels and mounting hardware are included according to the measurements and drawing included with your shipment.
2. **Lay out the mounting brackets on a work bench or the floor.**
   - Use the measurements and drawing included with your shipment for reference.

(Continued on next page.)

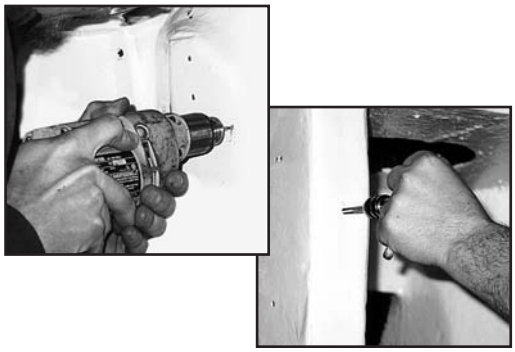
SAB-A and SAB-NA Bracket Installation (continued)



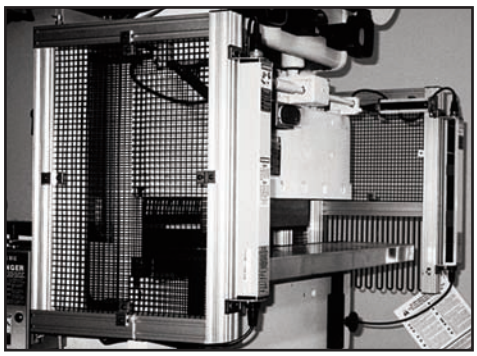
3. Select the mounting location and measure or spot holes on the machine.

- Measure the mounting distance on the bracket, or hold the bracket up to its location on the machine and mark the holes.
- Make sure the holes do not interfere with any obstructions, gears, shafts, etc., on the machine.

Note: The brackets must be mounted so they meet the OSHA or ANSI safety distance requirements. See page 4 for a list of ANSI Standards available for reference.



4. Drill and tap holes for the type of mount required.



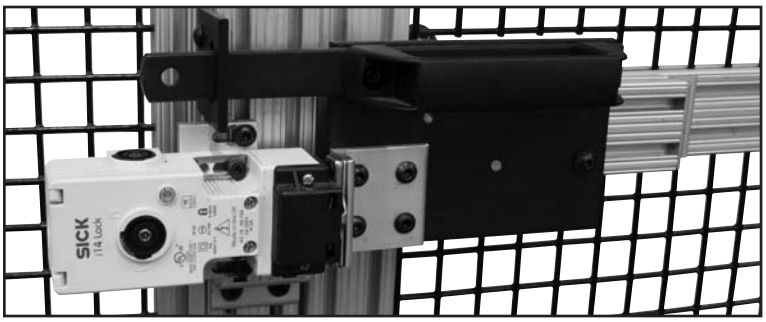
5. Install the bracket and guard on the machine using the mounts furnished. This may require more than one person.

6. Repeat steps 1-5 for the second bracket.

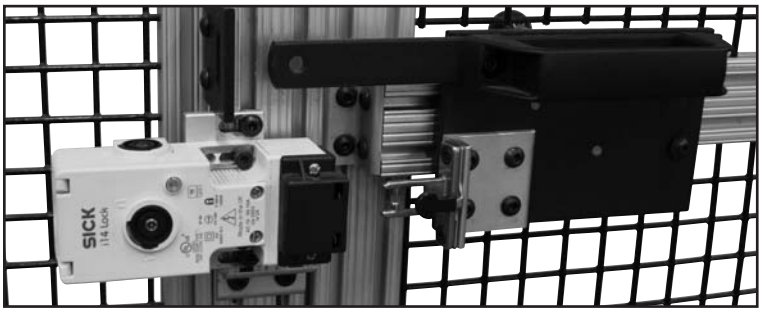
7. Permanently attach Danger Sign No. KSC061. Make sure it is readily visible to all personnel who work on or around the machine.

Note: Always make sure the bracket system is installed and maintained in first-class condition to meet the applicable OSHA Regulations or ANSI Standards.

Interlocking Door Bolts



Closed



Open

Above photos shown with safety switch Part No. 6025060

Interlocking door bolts are made of steel and aluminum components. The sliding type slides back and forth to latch the door closed and provides a guide for the interlock switch. The back side of the assembly has a knob to slide the bolt open if someone is inside the guard and the bolt is latched. It is available for both hinged and lift-off doors. The fixed type is available for sliding doors. Special latch hardware for other interlock switches is available upon request.

Note: These interlocking door bolts do not include a safety interlock switch. Refer to Catalog SS *which can be downloaded at:*

http://www.rockfordsystems.com/catalogs.html

or call Rockford Systems at 1-800-922-7533 and request Catalog SS.

For Use With Safety Switches 6025060, 6022580, 6025067, and 6025073

Part No.	Description
FKT1014	Sliding Type for a Hinged-**Left** or Lift-Off Door
FKT1017	Sliding Type for a Hinged-**Right** or Lift-Off Door
FKT1019	Fixed Type for a Sliding Door That Opens Left to Right
FKT1020	Fixed Type for a Sliding Door That Opens Right to Left

For Use With Safety Switch Part No. 6025059

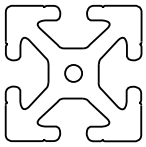
Part No.	Description
FKT1025	Sliding Type for a Hinged-**Left** or Lift-Off Door
FKT1026	Sliding Type for a Hinged-**Right** or Lift-Off Door
FKT1027	Fixed Type for a Sliding Door That Opens Left to Right
FKT1028	Fixed Type for a Sliding Door That Opens Right to Left

Extrusions

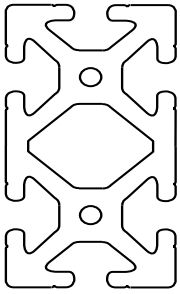
This page illustrates cross sections of the various extruded aluminum sizes that are available. Most of the guards and barriers illustrated in this manual use the 1" square, 1" x 2", 1½" square, or 2" square sizes. Larger sizes are available for guards, fixtures, mounting brackets, machine bases, furniture, or anything that requires this type of material for its design and construction. Extrusions are in stock in 12-foot lengths; however, longer lengths are available up to 20 feet. The extrusions are made of strong, lightweight 6105-T5, clear anodized, #204-R1 aluminum.

MATERIAL SPECIFICATIONS

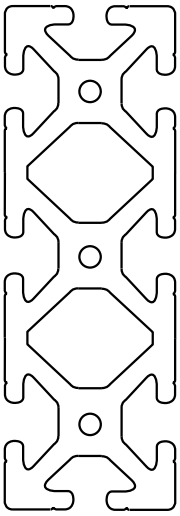
- Yield strength 35,000 lb/in^2 minimum
- Tensile strength 38,000 lb/in^2 minimum
- Elongation A5 minimum 10%
- Elongation A10 minimum 8%
- Rockwell hardness approximately E-88
- Extrusion conforming to DIN 17 615 specifications
- Twist per foot of length not to exceed .25 degree and total twist over 20 feet of length not to exceed 1.5 degrees
- Flatness .004" per inch of width
- Straightness 0.0125" per foot of length, not to exceed .120" over 20 feet of length
- All extrusions have etch and clear (204-R1) anodizing with depth of .004" and surface hardness of approximately 250 HV



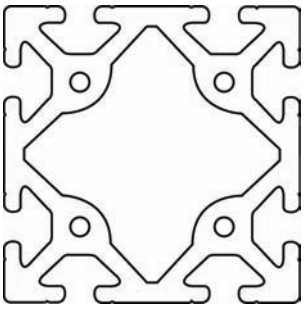
Part No. EXT1010
1" x 1"



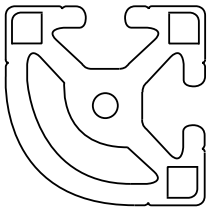
Part No. EXT1020
1" x 2"



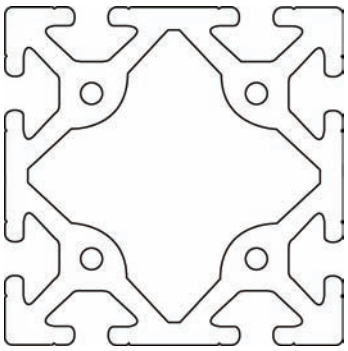
Part No. FKT528
1" x 3"



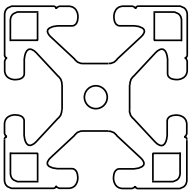
Part No. FKT529
2" x 2"



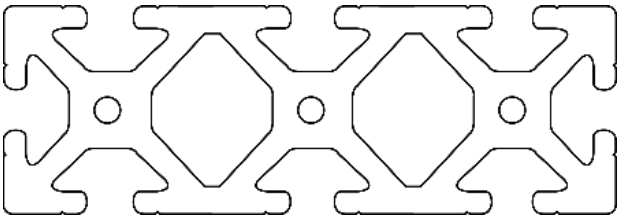
Part No. FKT537
1½" x Quarter Round



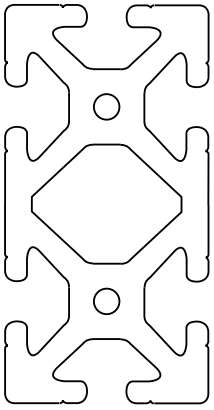
Part No. FKT534
3" x 3"



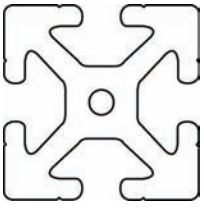
Part No. FKT531
1½" x 1½" Light



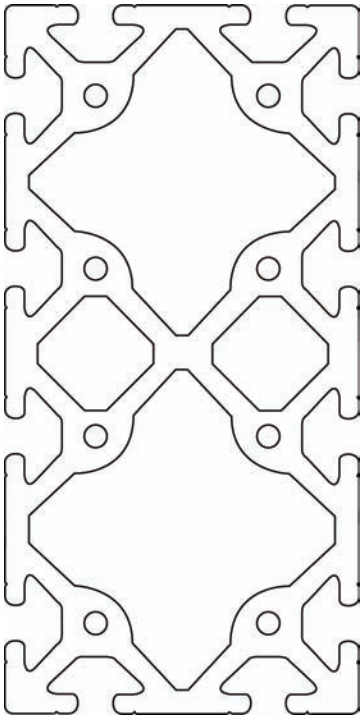
Part No. FKT533
1½" x 4½"



Part No. FKT532
1½" x 3"



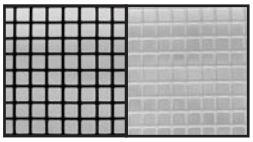
Part No. FKT536
1½" x 1½"



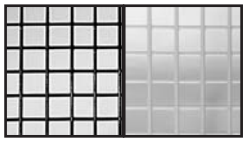
Part No. FKT535
3" x 6"

Mesh

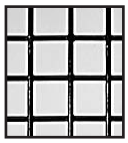
The nonadjustable area of a panel can be constructed of black or yellow mesh (½" square 16-gauge, 1" square 12-gauge, or 2" square 16-gauge). Usually, the ½" square mesh is used for point-of-operation guards and the 1" square mesh is used for large work envelope (perimeter) safeguarding. The mesh is made of PVC coated carbon steel which is rust resistant. Black mesh provides better visibility into the point of operation. Mesh can be ordered in separate sizes up to 48 x 96 inches. Please provide dimensions when ordering.



½" Square Black or Yellow Mesh



1" Square Black or Yellow Mesh



2" Square Black Mesh

ORDERING INFORMATION	
Part No.	**Description**
FKT567	Black ½" Sq. per in²
FKT1049	Black ½" Sq. 4' x 8'
FKT568	Black 1" Sq. per in²
FKT1031	Black 1" Sq. 4' x 8'
FKT1015	Black 2" Sq. per in²
FKT1033	Black 2" Sq. 4' x 8'
FKT569	Yellow ½" Sq. per in²
FKT1050	Yellow ½" Sq. 4' x 8'
FKT570	Yellow 1" Sq. per in²
FKT1032	Yellow 1" Sq. 4' x 8'

Polycarbonate

Part No. FKT617 (per sq. inch)
Part No. FKT1035 (4' x 8')

The nonadjustable area of a panel can be constructed of clear polycarbonate. Polycarbonate is ideal when high visibility is required. It is also useful for containing chips, sparks, and coolant.

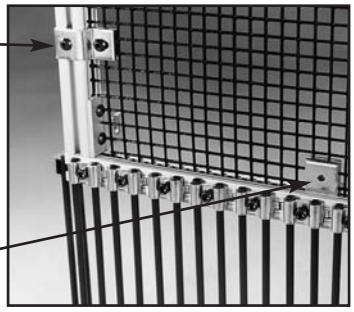
The polycarbonate is 3⁄16"-thick and can be mounted in extruded aluminum frames with rubber gaskets (see below). Please provide dimensions when ordering; sizes up to 48 x 96 inches.

3⁄16"-Thick Polycarbonate

Panel Retainer

Part No. FKT560

The panel retainer holds mesh in the extruded aluminum framework of the guard. This retainer prevents panel push out and is the strongest way to hold panels in place.



Rubber Gasket for Polycarbonate Panels

Part No. FKT590

The rubber gasket tightly holds the polycarbonate panels in the T-slot of the extruded aluminum. This gasket is made of high-grip rubber and is easily inserted into the T-slot after the panel is assembled in the frame. Polycarbonate panels (3⁄16"-thick) are secured with the gasket on one side of the panel. The gasket material can be ordered by the inch.

Rubber Gasket

Gasket Shown Inserted Into T-Slot With Polycarbonate Panel

T-Slot Covers

Part No. FKT726 Gray
Part No. FKT839 Yellow

These T-slot covers snap into the T-slots of the extruded aluminum. They keep dust and dirt out and wires in place.

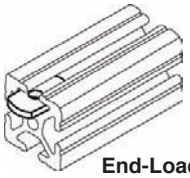
Gray or Yellow T-Slot Cover

T-Nuts

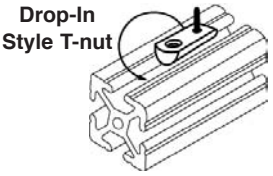
T-nuts allow joining plates, panels, hinges and other accessories to be bolted into the T-slot of any of the extrusions. They are made of hardened steel and are coated with corrosion-resistant black oxide. Standard T- nuts slide into the T-slot from the end.

The drop-in style allows the T-nut to be dropped into the slot after the extrusions have already been fastened together. T-nuts are usually fastened to button-head cap screws.

ORDERING INFORMATION	
Part No.	**Description**
FSY028	End Load T-nut
FKT586	Drop-In Style T-nut
FSC072	Button-Head Cap Screw (¼-20 x ½")



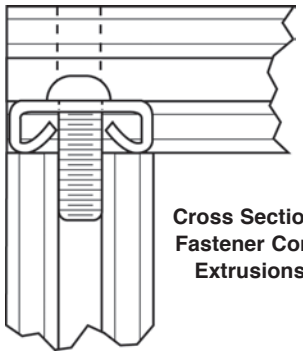
End-Load T-nut



Button-Head Cap Screw

End Fasteners

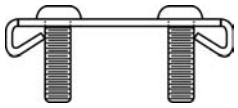
The end fastener provides a concealed method for connecting extrusions at 90° without external joining plates. The end fastener creates a tight, square joint. These fasteners consist of a stamping that aligns the T-slots and a button-head cap screw that threads into the tapped extrusion end. The end fastener is ideal for tight space restrictions. Connected extrusions glide smoothly over end fasteners. When connecting extrusions, ¼" drilled access holes are required to allow a hex wrench to reach the button-head cap screws. Access holes are drilled ½" from the end of the extrusion. Additional holes are drilled at 1" centers from the first hole.



Cross Section of End Fastener Connecting Extrusions at 90°

ORDERING INFORMATION	
Part No.	**Description**
FKT562	End Fastener
FKT613	Double End Fastener
FSC072	Button-Head Cap Screw (¼-20 x ½")

Part No. FKT562 End Fastener With Button-Head Screw for 1" Square Extrusions



Part No. FKT613 Double End Fastener With Button-Head Screw for 1" x 2" and 2" x 2" Extrusions

Hairpins and Fasteners

The adjustable area of a panel consists of individual black-oxidized steel hairpins. These hairpins are ¼" round rods on ¾" centers (1" wide from outside to outside) which create a ½" opening between hairpins. Hairpins provide adjustability of the guard for going around conveyors, chutes, or other obstructions on the machine or robot.

The clip that secures the hairpin in place uses 1" of the total hairpin length, and the rounded tip uses ½". For this reason, add 1½" to the adjustability required on the hairpin to obtain the proper hairpin length. Example: An 11" hairpin will have 9½" of adjustability; a 20" hairpin will have 18½" of adjustability, etc.

Clips and Fasteners

Each hairpin is secured to the panel frame with one clip, one socket-head cap screw, and one T-nut.

Part No. FKT753 Hairpin Clip Assembly

(Continued on next page.)

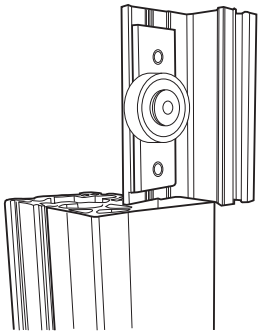
Hairpins and Fasteners (continued)

ORDERING INFORMATION							
Length	**Part No.**	**Length**	**Part No.**	**Length**	**Part No.**	**Length**	**Part No.**
3"	**FKT701**	10"	**FKT706**	17"	**FKT627**	24"	**FKT714**
4"	**FKT702**	11"	**FKT565**	18"	**FKT710**	25"	**FKT715**
5"	**FKT703**	12"	**FKT707**	19"	**FKT628**	26"	**FKT716**
6"	**FKT704**	13"	**FKT625**	20"	**FKT566**	27"	**FKT717**
7"	**FKT623**	14"	**FKT708**	21"	**FKT711**	28"	**FKT718**
8"	**FKT705**	15"	**FKT626**	22"	**FKT712**	29"	**FKT719**
9"	**FKT624**	16"	**FKT709**	23"	**FKT713**	30"	**FKT629**

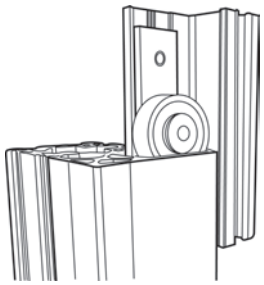
Roller Bearing Assembly

Part No. FKT837

The roller bearing assembly is used on the spring- and air-lift guards shown on pages 30 and 31 of this manual, and on gate assemblies. These bearings are available for guiding guards up and down or back and forth. The roller bearing assembly consists of a roller bearing, bearing plate, collar, and necessary hardware.



Roller Bearing Assembly



Roller Bearing Entering Extrusion

Hinges

Part No. FKT687 (Standard)
Part No. FKT671 (Lift-Off Right)
Part No. FKT670 (Lift-Off Left)

Hinges are used to swing guard panels and segments to the right or left. They are attached to the aluminum extrusion anywhere along the T-slot with button-head or socket-head cap screws and T-nuts (furnished). Standard aluminum hinges and lift-off hinges are available.

Part No. FKT687 One (1) Standard Hinge with Fasteners

Part No. FKT671 Lift-Off Assembly (Right)

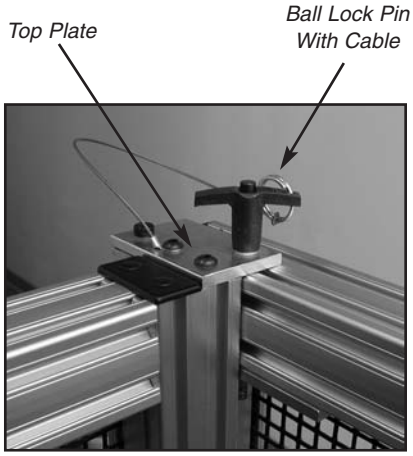
Part No. FKT670 Lift-Off Assembly (Left)

Note: Both lift-off assemblies consist of five hinge parts plus fasteners

Swing-Away Hinge Assembly

Part No. FKT655

This specially designed hinge assembly is used on the light curtain swing-away mounting brackets shown on page 41 of this manual. The assembly consists of two plates with fasteners for the top and bottom of the swing-away bracket. The top plate has a spring-loaded drop pin that holds the side guard in position. These hinges are designed to allow the side panel to move forward or backward for light curtain adjustment. Please use **Part No. FKT655** for ordering one right or left swing-away hinge assembly.



Deadbolt Latch

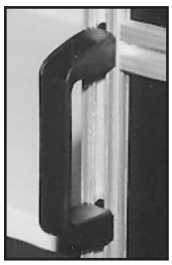
Part No. FKT620

A deadbolt latch is ideal for holding guard doors closed. This spring-loaded deadbolt is made of anodized aluminum. A socket-head locking set-screw located towards the end of the latch requires the use of a tool to open the guard. This feature complies with OSHA 29 CFR 1910.217 (c)(2)(*d*). This deadbolt with side latch includes all mounting hardware.

Door Handle

Part No. TXS101

This plastic door handle is ideal for T-slot frame doors on guards or shields. Handles bolt directly to doors and panels with two ¼-20 screws and two T-nuts (sold separately, see chart). The handle is made of high-strength black polycarbonate and is corrosion resistant.



ORDERING INFORMATION	
Part No.	**Description**
TXS101	Door Handle
FSC072	(¼-20 Screw x ½")
FSY028	T-Nut

End Caps

End caps are made of black high-impact styrene. They fit easily onto the end of extrusions to present a finished look. Push in fasteners (sold separately) are used to secure the end caps to the extrusion. Other sizes are available—please consult the factory.

ORDERING INFORMATION	
Part No.	**Description**
FKT615	1" x 1" End Cap
FKT600	1" x 2" End Cap
FKT551	2" x 2" End Cap
FKT653	Push-In fastener

T-Handle Hex Wrenches

The T-handle hex wrench is an ideal way to tighten and loosen button-head cap screws and socket-head cap screws. The handle has a cushion grip and the long arm provides access to hard to reach areas. The end of the hex wrench is ball-shaped which allows for angle entry up to 25°. Two sizes are available.

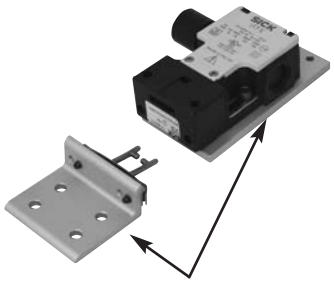
ORDERING INFORMATION	
Part No.	**Description**
FKT658	3/16" Hex Wrench
FKT657	5/32" Hex Wrench

Brackets for Interlock Switches

Interlock switches 6025067 and 6025060 can be mounted on extrusions with the appropriate bracket.

These switches are used with **Part No. FKT618** to mount on spring- or air-lift guards. **Part No. FKT621** can be used with these switches to mount on multi-panels. They are ideal for larger guard applications.

Interlock switches with brackets are mounted at the factory to your guard or barrier. Refer to the switch manuals furnished with your order for proper electrical connection.

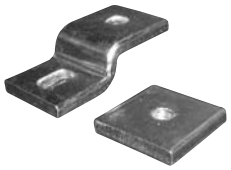


Bracket Part No. FKT618

Bracket Part No. FKT621

Brackets and Plates

A variety of brackets, plates, clamps, bolts, bearings, rollers, etc. are available for attaching guards to machines and for guard assemblies. Joining plates are used to connect extruded panels without additional machining.



Part No. FKT560
Mesh Clamp Assembly

Part No. FKT604
1" Mesh Clamp

Part No. FKT647
2" Mesh Clamp

Part No. FKT562
Single End Fastener

Part No. FKT613
Double End Fastener

Part No. FKT586
¼-20 Drop-In T-Nut

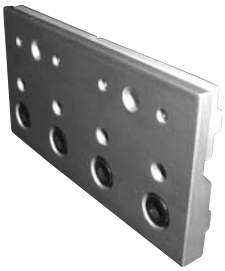
Part No. FKT587
¼-20 Drop-In T-Nut W/Set Screw

Part No. FKT630
Channel Guide

Part No. FKT589
Roller Wheel

Part No. FKT37
Roller Bearing Assembly

Part No. FKT636
Linear Bearing



Part No. FKT649
Double-Wide Linear Bearing

Part No. FKT585
Stripper Bolt Assembly

Part No. FSC081
¾" ¼-20 Carriage Bolt

Part No. FSC082
1½" ¼-20 Carriage Bolt

Part No. FSC086
¾" ¼-20 Flanged Button Cap Screw

Part No. FST005 & FSY-002 ¼" Zinc Washer & Nut

Part No. FSY028
¼-20 Standard T-Nut

Part No. FSC072
Button-Head Cap Screw (¼-20 x ½")

Part No. FKT753
Hairpin Clip Assembly

Part No. FKT754
End Cap for Hairpins

Part No. FKT558
90° SAB Hinge Nub

Part No. FKT606
180° Living Nub

Part No. FKT555
L-Bracket W/Brass Insert

Part No. FKT559
Flat Pivot Arm W/Brass Insert

Part No. FKT656
Inside Bayonet Connector

Part No. FKT591
Locking Plate

Part No. FKT654
SAB Top Locking Plate

(Continued on next page.)

Brackets and Plates (continued)

Part No. FKT563
Bayonet Plate

Part No. FKT572
Joining Strip

Part No. FKT588
Joining Strip

Part No. FKT573
Joining Plate

Part No. FKT574
Joining Plate

Part No. FKT645
8-Hole Flat Joining Bracket

Part No. FKT554
90° Joining Plate

Part No. FKT575
90° Joining Plate

Part No. FKT576
90° Joining Plate

Part No. FKT577
Tee Joining Plate

Part No. FKT578
Tee Joining Plate

Part No. FKT596
Inside Corner Bracket

Part No. FKT597
Slotted Corner Bracket

Part No. FKT598
Single Floor-Mount Bracket

Part No. FKT557
Double Floor-Mount Bracket

Part No. FKT607
3/16" Inside Corner Bracket

Part No. FKT642
Inside Corner Bracket

Part No. FKT561
Inside Corner Bracket

Part No. FKT619
Inside Corner Bracket

Part No. FKT700 SSA
Mounting Bracket

Part No. FKT616
Inside Corner Gusset

Part No. FKT631
90° Rotating Corner Bracket (Left)

Part No. FKT632
90° Rotating Corner Bracket (Right)

Part No. FKT691
45° Heavy-Duty Bracket

Part No. FKT1021 Ball
Lock Pin With Cable

SECTION 10—ORDER FORM FOR SIGNS AND LITERATURE

EX-AL™ Guarding Systems

This instruction manual references signs and literature available for your machines. This order form is for your convenience to order additional signs and/or literature as needed. (This order form is part of your installation manual so please make a copy of it when ordering.)

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Name _____ Purchase Order No. _____ Date _____

Part No.	Description	Quantity Required
KSL210	Installation Manual for EX-AL™ Guarding Systems	_____
KSC061	Danger Sign - 5" x 6" (English)	_____
KSC061S	Danger Sign - 5" x 6" (Spanish)	_____
KSL051	Booklet - “Mechanical Power Press Safety” (MPPS)	_____
EX-AL	Catalog - “EX-AL™ Barrier and Perimeter Guarding Systems”	_____
SFM	Catalog - “Shields For Machinery”	_____

For prices and delivery, please use address, phone or fax number listed on the front cover of this manual.

Your Signature _____ Date _____

SECTION 11—RETURN MATERIALS AUTHORIZATION REQUEST FORM

EX-AL™ Guarding Systems

To return material for any reason contact our sales department at 1-800-922-7533 for an RMA Number. All returned mate-rials shipments must be prepaid. Complete this form and send with material to Rockford Systems, LLC, 5795 Logistics Parkway, Rockford, IL 61109. Make sure the RMA Number is plainly identified on the outside of the shipping container.

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Contact Name _____ Representative _____

Items Authorized To Return on RMA No. _____ Original Invoice No. _____ Date _____

Part No. _____ Serial No. _____ Description _____

Service Requested ☐ Full Credit ☐ 25% Restocking ☐ Repair & Return ☐ Warranty Replacement

Reason for return (describe in detail): _____

_____

_____

Return Materials Authorized By _____ Date _____