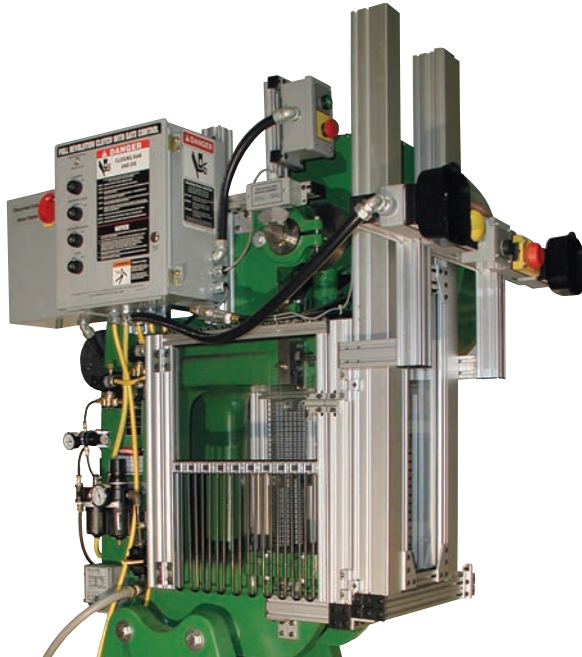


GATE OR MOVABLE BARRIER DEVICE



Example of a Type A Gate Package

INTRODUCTION

Why use a gate device? According to the OSHA and ANSI standards, "operators must be prevented from inadvertently placing their hands or any other body parts in the point of operation during the die-closing portion of the press stroke." The movable gate device uses a proven method of placing a physical barrier between the operator and the point-of-operation hazard during the die-closing portion of the press stroke.

Other advantages of gate devices include the following:

1. Operators are not physically attached with wristlets to the machine as they are when using a pullback or restraint device. This means operator resistance is minimized because of the nonrestrictive design allowing more freedom of movement.
2. These devices protect other employees in the machine area.
3. A foot switch can be used to actuate the press. This minimizes stress to the hands and arms which can be caused by palm buttons.

Two types of gates are available. The first is a type A gate. It protects the operator during the entire machine cycle. This means the gate will not open until after the machine's cycle is complete and stopped (usually in the up position). Type A gates are the only gates that should be used on full-revolution-clutch presses.

The second is a type B gate. It protects the operator during the downstroke only. The gate can open after the hazardous portion of the cycle has passed. Both type A and B gates can be used on part-revolution-clutch machines, hydraulic presses, and other cyclic machines where material is being manually fed.

TYPE A GATE SEQUENCE OF OPERATION

When the actuating means (palm buttons or foot switch) is operated, air pressure is released from the bottom of the gate-operating cylinder. This allows the gate to descend by gravity. Once the gate is fully down, a gate-down proximity switch senses this and the machine is allowed to make a cycle. If the gate cannot complete its downward travel, this gate-down proximity switch will not sense the gate and will prevent a machine cycle.

If the actuating means is released before the machine starts its cycle, the gate returns to the full open position with a type A gate. When the machine is actually making a cycle, air pressure is applied to the top of the gate-operating cylinder which holds the gate down and prevents it from being raised until the machine has completed its cycle. If the machine malfunctions and does not stop at the end of a normal cycle, the gate remains in the closed position.

According to ANSI (see next page), the gate must open after every cycle in order to reset the antirepeat system. If this does not happen, the machine will not make another stroke. To accomplish this, the gate control requires a signal from the machine at the open position. This signal is normally obtained from a photo-sensor or limit switch operated by a cam. Actuation of the limit switch is accomplished by the rotation of the crankshaft or any other member of the machine which makes one cycle or oscillates along one axis every stroke.

When a type A gate package (see page 82) is furnished for a full-revolution-clutch machine, the top-dead-center signal is provided by the dual photoelectric sensor.

TYPE B GATE SEQUENCE OF OPERATION

The type B gate operates in a similar manner as the type A gate. When the actuating means (palm buttons or foot switch) is operated, air pressure is released from the bottom of the gate-operating cylinder. This allows the gate to descend by gravity. Once the gate is fully down, a gate-down proximity switch senses this and the machine is allowed to begin the cycle. If the gate cannot complete its downward travel, this gate-down proximity switch will not sense the gate and will prevent a machine cycle.

(Continued on next page.)

TYPE B GATE SEQUENCE OF OPERATION (continued)

If the actuating means is released before the machine starts its cycle, the gate returns to the full open position. When the machine is actually making a cycle, air pressure is applied to the top of the gate-operating cylinder which holds the gate down and prevents it from being raised until the hazardous portion of the cycle has passed.

The gate must open every cycle in order to reset the antirepeat system. The sequence for this is the same as for the A gate described on the previous page.

OSHA AND ANSI REQUIREMENTS FOR POWER PRESSES

The OSHA requirements for gate or movable barrier devices are located in 29 CFR 1910.217(c)(3)(i) as follows:

(c)(3)(i) Point-of-operation devices shall protect the operator by:

- (f) Enclosing the point of operation before a press stroke can be initiated, and maintaining this closed condition until the motion of the slide has ceased; or
- (g) Enclosing the point of operation before a press stroke can be initiated, so as to prevent an operator from reaching into the point of operation prior to die closure or prior to cessation of slide motion during the downward stroke.

(c)(3)(ii) A gate or movable barrier device shall protect the operator as follows:

- (a) A Type A gate or movable barrier device shall protect the operator in the manner specified in paragraph (c)(3)(i)(f) (above) of this section, and
- (b) A Type B gate or movable barrier device shall protect the operator in the manner specified in paragraph (c)(3)(i)(g) (above) of this section.

Note: OSHA states that the gate must enclose the point of operation. The gates illustrated are furnished as a single panel only, allowing access to the point of operation. Other guarding material is required to safeguard the sides and back of the point of operation. Complete the proper measurement form (page 83 or 85) if these need to be supplied with the gate.

The ANSI requirements for gates or movable barrier devices are located in 8.5.6 of ANSI B11.1.

8.5.6 Movable Barrier Device

1. A movable barrier device, when used, shall enclose the point of operation before a press cycle (stroke) can be initiated.

2. The device shall prevent the individual from reaching the hazards associated with the point of operation by reaching over, under, around, or through the device when in the closed position.
3. In conjunction with the press control, the device shall actuate the clutch and initiate the press cycle (stroke).
4. The barrier shall be capable of being returned to the open position should it encounter an obstruction prior to enclosing the point of operation.
5. The device shall require opening of the barrier to reset the antirepeat system of the press production system every time the press stops before a successive cycle (stroke) can be initiated.
6. The device shall be in compliance with 6.8 (and 8.7).
7. The device shall provide visibility to the point of operation when necessary for safe operation of the press production system.
8. The device in and of itself shall not create a hazard to the operator or others.

8.5.6.1 Type A movable barrier device

- 8.5.6.1.1 A type A movable barrier device, when used, shall protect the individuals as specified in 8.5.1 (e).
- 8.5.6.1.2 The type A movable barrier device shall, in normal single-stroke operation, be designed to hold in the closed position until the slide has completed its cycle (stroke) and has stopped at top of cycle (stroke).

8.5.6.2 Type B movable barrier device

- 8.5.6.2.1 A type B movable barrier device shall protect the individuals as specified in 8.5.1 (f).
- 8.5.6.2.2 The device shall not be used on full-revolution-clutch presses.
- 8.5.6.2.3 The device shall, in normal, single-stroke operation, be designed to hold in a closed position during the closing portion of the cycle (stroke), or until cessation of slide motion during the closing portion of the cycle (stroke).
- 8.5.6.2.4 When the device is used in the single-stroke mode and when the protection of the operator is dependent upon the stopping action of the press, a stopping-performance monitor shall be required.

GATE ASSEMBLIES



Basic Gate Assembly (without side or rear safeguarding)

GATE CONSTRUCTION

The panel framework of these gates is constructed of 1" x 1" extruded aluminum which slides up and down on roller bearings in a rail extrusion. The panel of the gate is furnished with either clear polycarbonate ($\frac{3}{16}$ " thick) or an adjustable lower section.

The standard gate assembly is furnished with hinges allowing it to swing open. A button-head cap screw on a locking plate holds the gate in place. This feature is useful when changing dies or working on dies in the machine.

The gate assembly can be furnished with side guards. The gate and side panel can be swung open to the left when changing dies. A deadbolt latch is located on the right extrusion. When side guards are furnished, this latch releases the gate so it can be swung completely open.

The gate assemblies listed are designed for a variety of machines, including full-revolution-clutch presses. Side guards are also required when using a gate. Gates are made according to the measurements submitted. Please complete the appropriate measurement form on pages 83, 85, or 86 for a complete assembly.

These gates are easily mounted on the bolster of the machine or on a special plate or bracket on the front of the machine.

GATE ASSEMBLY COMPONENTS

- Gate frame assembly
- Gate panel
- Proximity switch
- Air cylinder(s)
- Quick dump valves
- Air flow control valves
- Solenoid air valve assemblies
- $\frac{1}{8}$ " air regulator-gauge and mounting bracket
- 2" x 2" extrusion, hinge assembly, and mounting hardware

PRICING/ORDERING INFORMATION

The following information is required to price or order a gate assembly:

1. Choose a gate lift height of either 12"* or 18"*
2. Provide gate's **outside dimensions** in height and width

OR

Provide gate's **inside opening dimensions** in height and width

**Other lift heights are available. Please complete the measurement form on page 83, 85, or 86.*

For full-revolution-clutch presses, see page 94, and for part-revolution-clutch presses or hydraulic presses with an A or B gate interface, please consult the factory.

Rockford Systems, Inc.

Call Toll-Free 1-800-922-7533

Fax 815-874-6144

GATE (MOVABLE BARRIER) DEVICES

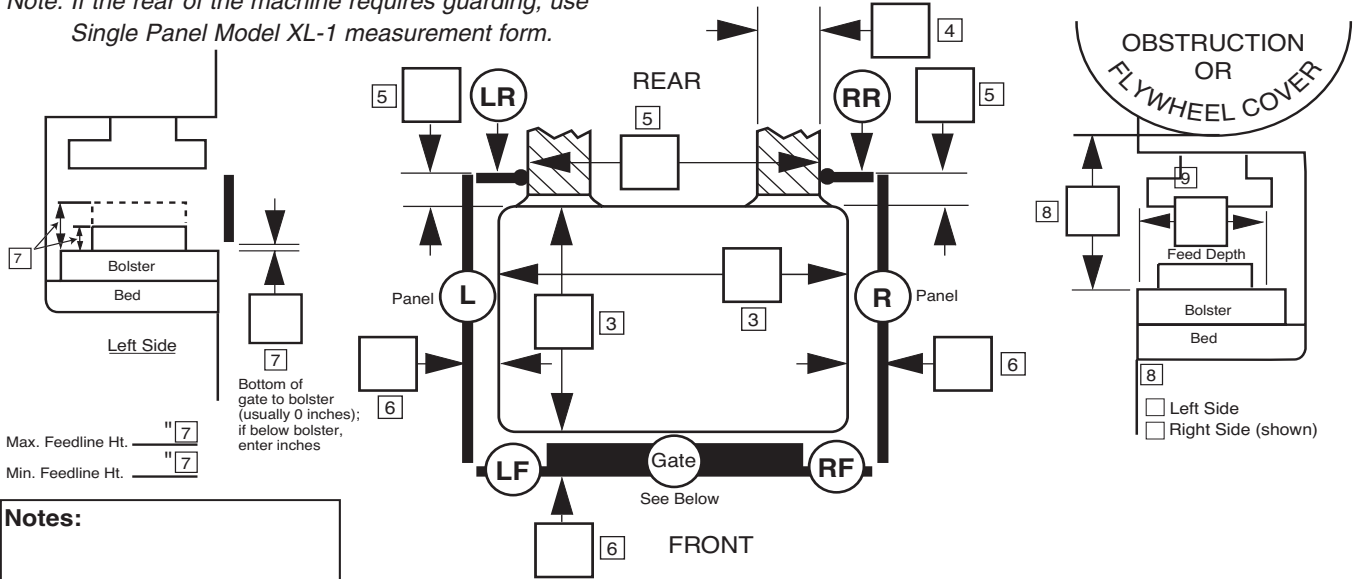
GATE ASSEMBLY & BARRIER GUARD MEASUREMENT FORM—GAP OR C-FRAME MACHINES

GATE ASSEMBLY WITH MULTI-PANEL GUARDS—XL-2G, XL-3G, XL-4G, XL-5G, XL-6G

If more than one machine is to be measured, please make copies of this page. (See next page for instructions.)

1 Company _____ Address _____
 City _____ State _____ ZIP _____
 Attention _____ Rep. _____
 Mach. Mfr. & Model No. _____ Mach. No. _____ Measured By _____

Note: If the rear of the machine requires guarding, use Single Panel Model XL-1 measurement form.



Notes:

Max. Feedline Ht. " 7
 Min. Feedline Ht. " 7

Bottom of gate to bolster (usually 0 inches); if below bolster, enter inches

2 **MODEL**

XL-2G XL-3G
 XL-4G XL-5G
 XL-6G

10 **GATE LIFT HEIGHT**

12" Other _____"
 18"

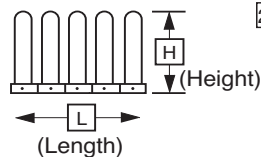
11 **MOUNTS**

SFM SFM-3, 5, 7
 (Circle one)
 SFM-24 FFM

PANEL CHART							
Panel	LR	L	LF	Gate	RF	R	RR
Frame Type NAP, AP1, AP2, AP3, AP4, AP5, API	12	12	12	12	12	12	12
Nonadjust. Area Const. B Y PC	13	13	13	13	13	13	13
H (Height)	14	14	14	14	14	14	14
L RSI To (Length) Complete	15	15	15	15	15	15	15
Panel Segment Type FS, AS, PCS, ES	16	16	16	X	16	16	16
H (Height)							
L (Length)							
H (Hinged) NH (Nonhinged)	X						X
Electrical Interlock Y (Yes) N (No)	X	17	17	Y	17	17	X
Hinged L or R	X	18	18	L	18	18	X
Hairpins (In place of LR or RR)	19	X	X	X	X	X	19

20 **ROOF SECTION**

Panel	H	L
L		
LF		
Gate		
RF		
R		



21 **FLOOR SECTION**

Panel	H	L
L		
LF		
Gate		
RF		
R		

*Indicate in the Notes section above if a vertical section of hairpins is required above the L or R panel.

MEASURING INSTRUCTIONS FOR GATE ASSEMBLY MODELS XL-2G THROUGH XL-6G

The following instructions are for measuring XL-2G through XL-6G gate assemblies and barrier guards. The basic information necessary to quote or fabricate any of the listed gates and barrier guards is the size of the gate, the frame type, nonadjustable area construction, height of panel(s), panel segments (if required), and mounts to attach the gate and guards to the machine. **The length of all panels will be determined by Rockford Systems.**

The following instructions are purposely kept as simple as possible to avoid long explanations of the many variations available.

- 1 Fill in the complete heading as indicated.
- 2 Check appropriate gate model number.
 - XL-2G** = 2 panel and gate
 - XL-3G** = 3 panel and gate
 - XL-4G** = 4 panel and gate
 - XL-5G** = 5 panel and gate
 - XL-6G** = 6 panel and gate(If any panels are not required, cross them out in the panel chart.)
- 3 Measure and record the bolster width and depth.
- 4 Measure web width of frame, if the barrier guard is to be mounted to the front of the frame behind the bolster plate.
- 5 Measure and record the distance from the mounting point of the guard on the frame of the machine to the rear of the bolster. Measure and record the outside width of the press frame behind the bolster plate.
- 6 Indicate desired position of **L** and **R** panels and gate relative to the bolster. Drawing shows panels and gate outbound of the bolster. If panels or gate should be inbound, enter minus (-) dimensions, or on the bolster, enter zero.
- 7 Enter the minimum and maximum feedline heights. Enter distance from the bottom of the gate to bolster (usually 0 inches). If below bolster, enter inches.
- 8 Measure and record the clearance from the flywheel cover or obstruction to the top of the bolster. This dimension could affect the panel height if the panel is to be swung underneath. Indicate if view is from left or right side of the machine.

When measuring, be sure the gate will lift completely without hitting any obstruction.
- 9 Measure and record the feedline depth.
- 10 Indicate the gate lift height required, normally 12" or 18" is sufficient.
- 11 Indicate mounts required for **LR**, **L**, **R**, or **RR** panels.
 - SFM** Side Frame Mount
 - SFM-7** Side Frame Mount (3", 5", or 7")
 - SFM-24** Side Frame Mount up to 24"
 - FFM** Front Frame Mount

Note: The panel will begin approximately 2½" from the mounting point with the SFM, SFM-7, or SFM-24 mount. The panel will begin approximately 1" from the mounting point with the FFM mount.
- 12 Indicate frame type for each panel and gate.
 - NAP** Nonadjustable Panel
 - AP1** Adjustable Panel (½ frame)
 - AP2** Adjustable Panel (⅝ frame)
 - AP3** Adjustable Panel (¾ frame)
 - AP4** Adjustable Panel (Center—Full frame)
 - AP5** Adjustable Panel (Lower—Full frame)
 - API** Adjustable Panel (Inclinable)

The gate can ONLY be NAP or AP3.
- 13 Indicate the construction of the nonadjustable area for each panel.
 - B** ½" Square Black Mesh (16 gauge)
 - Y** ½" Square Yellow Mesh (16 gauge)
 - PC** Polycarbonate (⅜" thick)

The gate is normally polycarbonate.
- 14 Indicate height of each panel.
- 15 Indicate length of each panel. **Rockford Systems will determine length(s) based on other dimensions provided.**
- 16 Indicate panel segment type, height, length, and if hinged or nonhinged, if required.
 - FS** Feeder Segment
 - AS** Adjustable Segment
 - PCS** Polycarbonate Segment
 - ES** Empty Segment
- 17 Indicate if **L**, **LF**, **F**, **RF**, or **R** panels require an interlock switch.
- 18 Indicate if **L**, **LF**, **F**, **RF**, or **R** panels need to be hinged (L or R).

The gate ALWAYS hinges left.
- 19 Indicate if hairpins are required in place of **LR** or **RR** panel. The number of hairpins supplied will be determined by the height of the **L** or **R** panel. Indicate the height of hairpins required in the box.
- 20 Indicate if roof section(s) are required. Provide height and length.
- 21 Indicate if floor section(s) are required. Provide height and length.

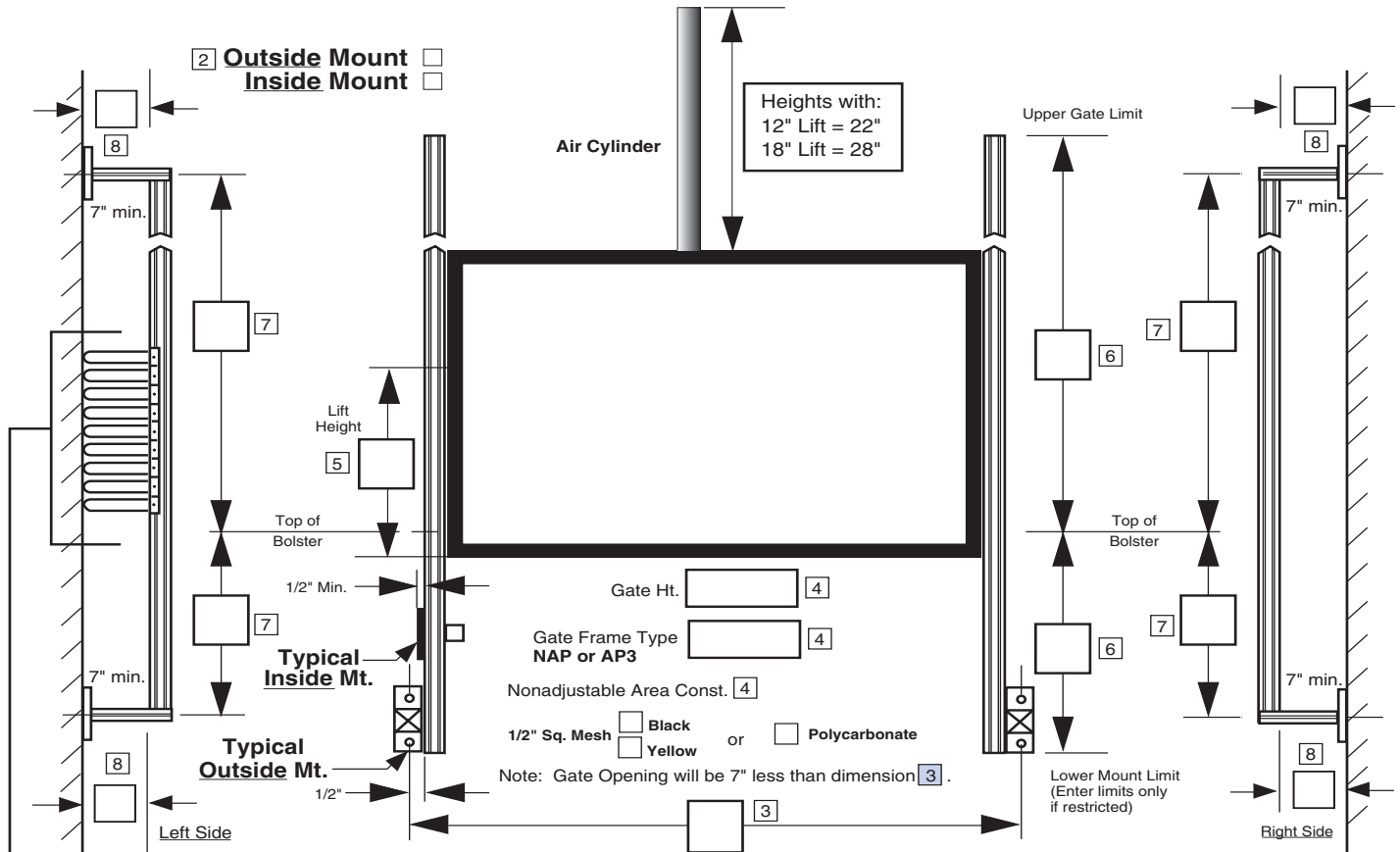
GATE (MOVABLE BARRIER) DEVICES

GATE ASSEMBLY & BARRIER GUARD MEASUREMENT FOR STRAIGHT-SIDE, HYDRAULIC, OR COLUMN-TYPE MACHINES

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

Company _____ Address _____
 City _____ State _____ ZIP _____
 Attention _____ Rep. _____
 Mach. Mfr. & Model No. _____ Mach. No. _____ Measured By _____

Check Type of Machine: Straight Side (SSG) Hydraulic (HG) Column (CG)



5 GATE LIFT HEIGHT
 12" 18" Other _____"

8 MOUNTS: FMG EMG

9 SIDE GUARDS

	H	L
Left Side		
Right Side		

10 FLOOR SECTION

Gate	H	L

MEASURING INSTRUCTIONS

The gate assembly measurement form is designed to be used for the XL-1SSG, XL-1HG, or the XL-1CG.

- 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 center mounting dimension. The gate opening will be approximately 7" smaller than this dimension.

4 Enter gate height, frame type, and construction of nonadjustable area.

5 Enter gate lift height: 12", 18", or other.
- 6** Enter upper and lower gate mount limits, if any.

7 If outside mounted, enter the appropriate location of upper and lower mounting point for each mount.

8 Enter the desired length and type of mount supports; either FMG for direct or EMG for extended. Allow for any obstructions (7" minimum).

9 Enter dimensions for side guards if required.

10 Indicate if floor section is required for the gate frame. Provide height and length.

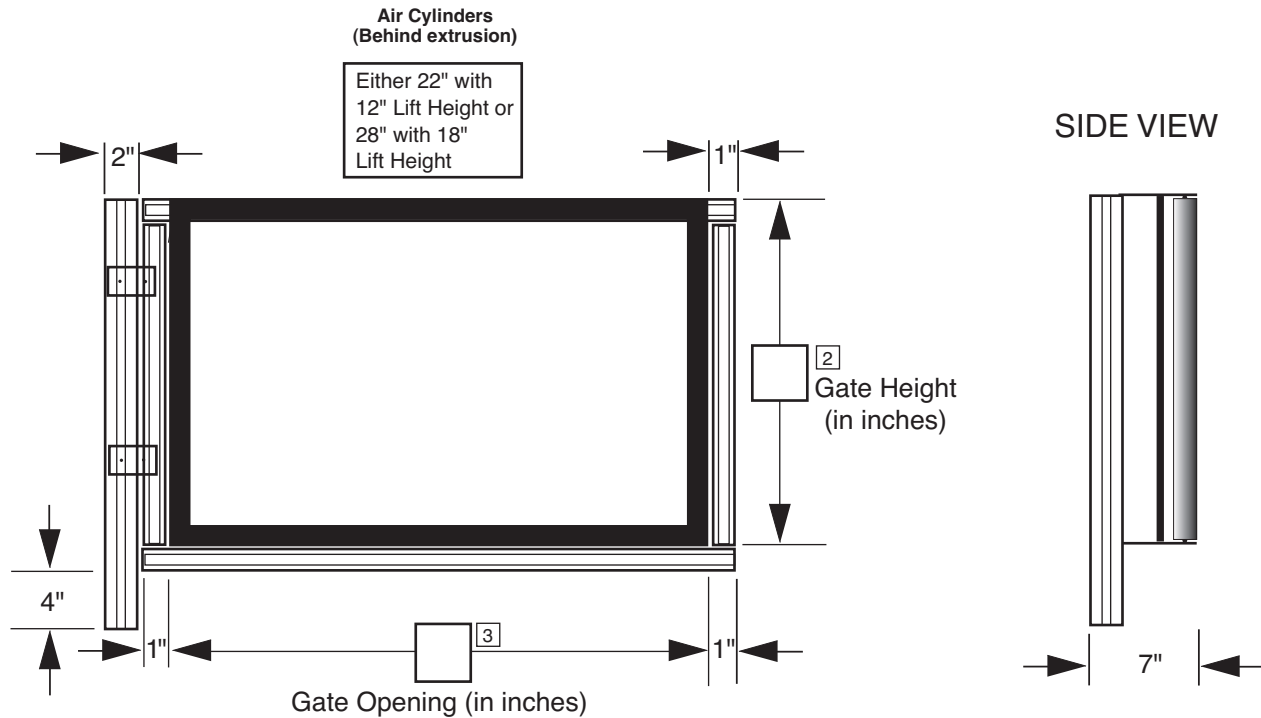
GATE (MOVABLE BARRIER) DEVICES

SWING-AWAY GATE ASSEMBLY & BARRIER GUARD MEASUREMENT FOR STRAIGHT-SIDE, HYDRAULIC, OR COLUMN-TYPE MACHINES

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

Company _____ Address _____
 City _____ State _____ ZIP _____
 Attention _____ Rep. _____
 Mach. Mfr. & Model No. _____ Mach. No. _____ Measured By _____

FRONT VIEW



Instructions for Completing Form:

- 1 Provide complete information.
- 2 Determine Gate Height required.
- 3 Determine Gate Opening required.
- 4 Determine Gate Lift Height required.
- 5 Choose Gate Panel Construction required.

GATE ASSEMBLY COMPONENTS

Gate frame assembly
 Gate panel
 Proximity switch
 Air cylinders
 Air control valves
 Quick dump valves
 Solenoid air valve assemblies
 1/8" air regulator-gauge and mounting bracket
 2" x 2" extrusion, hinge assembly, and mounting hardware

4 GATE LIFT HEIGHT

(Choose One)

- 12" 18" Other _____"

5 GATE PANEL CONSTRUCTION

Check Box 1 or 2 below:

1. NAP (Nonadjustable Panel)—Choose from the following:

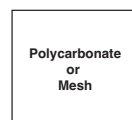
Nonadjustable Area

Polycarbonate **OR**

Wire Mesh

1/2" Square **or** 1" Square

Black **or** Yellow



Gate Panel

2. AP3 (Adjustable Panel)—Choose from the following:

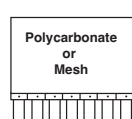
Nonadjustable Area

Polycarbonate **OR**

Wire Mesh

1/2" Square **or** 1" Square

Black **or** Yellow



Gate Panel

Adjustable Area—Hairpin will be 4" maximum.