



## HALCO PRODUCTS COMPANY

100 N. Gordon St. Elk Grove Village, IL 60007-1193

Phone (847) 956-1600 Fax (847) 956-0595

E-mail: [info@halco-products.com](mailto:info@halco-products.com)

Website: [www.halco-products.com](http://www.halco-products.com)

# INSTALLATION, OPERATION, & MAINTANANCE MANUAL

## PT 2424-24 SS/MI - Pass Thru

### TABLE OF CONTENTS

1)	Pass Thru Brochure	Pgs. 2-3
	Pass Thru Drawing	Pg. 4
2)	Operation Instructions	Pgs. 6-8
	Parts List	Pg. 9
3)	Latch Info	Pgs. 11-12
	Hinge Info	Pgs. 13-14
	Spring Info	Pgs. 15-16
4)	Halco Warranty	Pg. 18

# CHAPTER 1



## HALCO PRODUCTS COMPANY

100 N. Gordon Street - Elk Grove Village, IL 60007-1193

Tel: 847-956-1600 - Fax: 847-956-0595

E-Mail: Info@Halco-Products.com

Website: www.Halco-Products.com

HALCO  
PRODUCT  
INFORMATION

300.1000

# CLEANROOM PASS-THRU



Where contamination control is critically important, a pass-thru system is essential. Models are available in dozens of sizes and in many different materials.

Complete ease of operation is but one of the outstanding features. Designed with simplicity in mind either door is easily actuated with slight hand or thumb pressure.

Either the mechanical or electrical interlock allows for positive latching. Only one door can be opened at a time. This feature guarantees the integrity of the clean room since the room is under positive pressure all air evacuation is

outward. BSL-3/4 seals available as an option.

### CONSTRUCTION MATERIALS AVAILABLE

- Standard laminated
- Steel ( painted or unpainted)
- Stainless 304/316 steel
- Plastic

### DOORS:

The doors are polished Plexiglass. Safety plate or amber (gold color) are also available on special order.

### HARDWARE:

Unit is hinged and framed in anodized aluminum with inserted vinyl bulb seal.

### INTERLOCK:

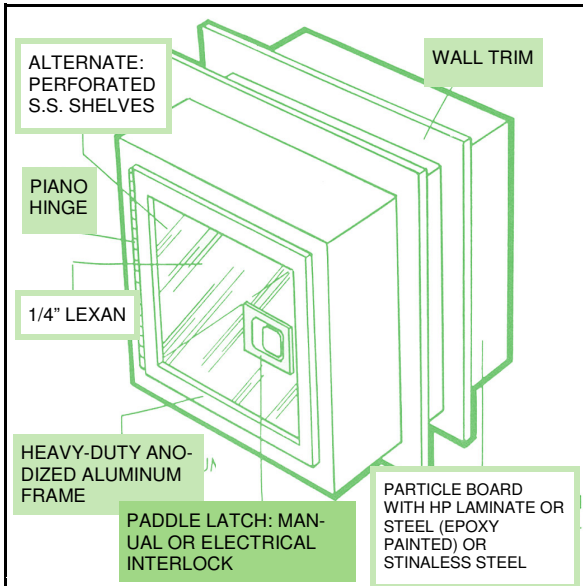
The mechanical or electrically operated interlock system has a specially concealed latch that allows for only one door to be opened at a time. This guarantees the integrity of the clean room.

- Mechanical Interlock
- Electrical Interlock

### INSTALLATION:

The pass-thru is flush to the clean room wall side. Insert the pass-thru into a rough wall opening and hold in place with anodized aluminum or stainless steel angle.

# SPECIFICATIONS



## OPTIONS:

- **Fire Rated**
- Solid 304/316 stainless steel construction
- Adjustable stainless steel shelves (solid or perforated)
- 304/316 stainless steel laminated interior
- Fluorescent/UV lights
- Polypropylene construction (other plastics available)
- Aluminum construction
- Talk-thru installed in doors
- Multiple doors
- Inert gas purge

## Inside Dimensions

Model No.	A	B	C
1818PT	18"	18"	18"
2424PT	24"	24"	24"
2430PT	4"	30"	24"
3024PT	30"	24"	24"

\*Other sizes available upon request

## CART PASS-THRU

Units provide dedicated isolation and decontamination

- Auto Doors
- Interlocks
- Floor and Trays
- Safety Glass
- Exhaust Connection
- UV Lamps
- Wall Bumpers
- Amber Glass

CART PASS-THRUS ALLOW MOVING MATERIALS ROOM TO ROOM AND MINIMIZE CONTAMINATION.



In line with our policy of continual product improvement, Halco Products reserves the right to incorporate and use equipment and material to conform with the latest design of its products, and in keeping with the specifications of this equipment.

## HALCO PRODUCTS COMPANY

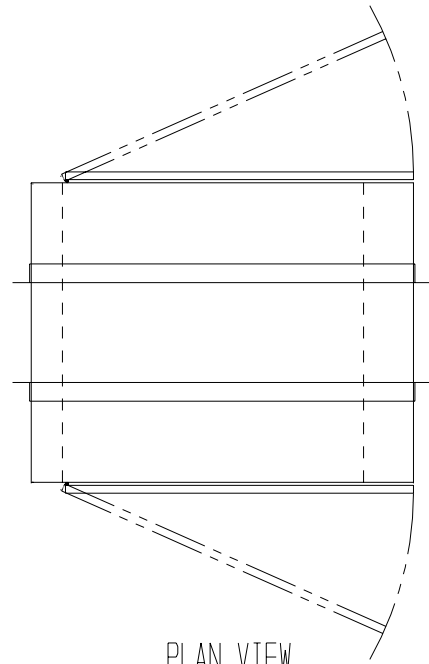
100 N. Gordon Street - Elk Grove Village, IL 60007-1193

Tel: 847-956-1600 - Fax: 847-956-0595

E-Mail: [Info@Halco-Products.com](mailto:Info@Halco-Products.com)

Website: [www.Halco-Products.com](http://www.Halco-Products.com)

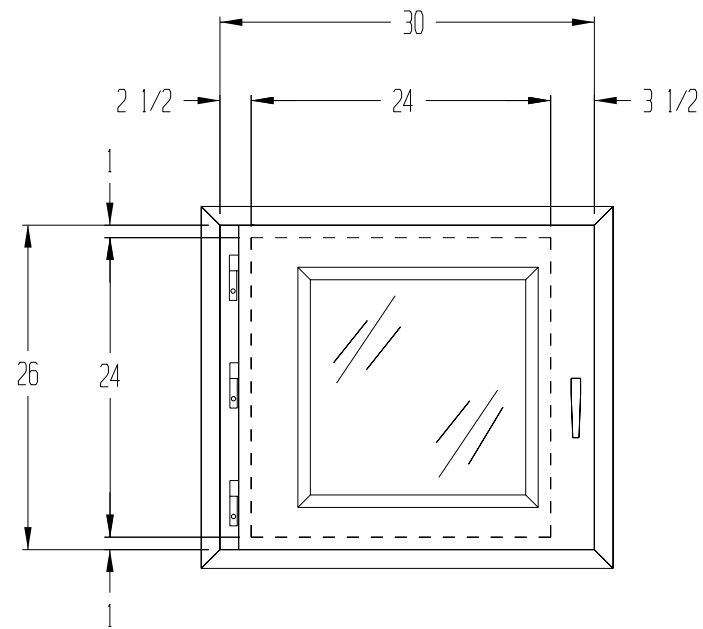
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	AS-BUILT, ADD HINGE	1/27/10	SM



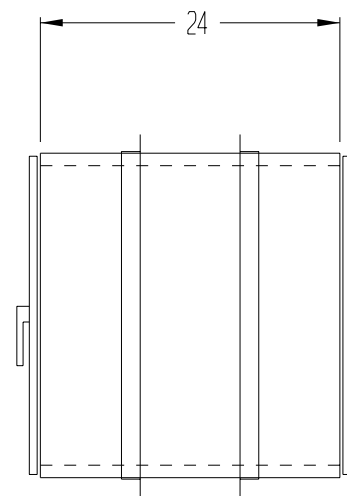
PLAN VIEW

NOTES:

- UNIT FABRICATION TO BE DOUBLE WALL, CONSTRUCTION
- UNIT TO BE CONSTRUCTED OF 20 GA. 304 STAINLESS STEEL WITH #4 FINISH
- DOORS TO BE CONSTRUCTED OF 20 GA. 304 STAINLESS STEEL WITH 1/4" THK. CLEAR ACRYLIC INSERTS, PIVOT HINGE AND QUARTER TURN HANDLES
- UNIT TO BE SUPPLIED WITH 1 1/2" X 1 1/2" X 16 GA. 304 STAINLESS STEEL MOUNTING ANGLE (TO BE FIELD INSTALLED)
- UNIT TO HAVE A MECHANICAL DOOR INTERLOCK SYSTEM
- ROUGH OPENING TO BE 1/4" LARGER THAN OUTSIDE DIMENSIONS OF UNIT



FRONT VIEW



SIDE VIEW

DRAWN FOR		<b>HALCO PRODUCTS CO.</b>			
		100 NO. GORDON STREET ELK GROVE, IL. 60007			
		TITLE PT2424-24 MI/SS			
DRAWN BY	TM	SIZE	JOB NO. 12362	DWG NO. 1515957BA	REV A
APPROVED BY		SCALE	NONE	DATE 11-24-09	SHEET

# CHAPTER

# 2

# TABLE OF CONTENTS

	<b>PAGE</b>
COVER PAGE	
TABLE OF CONTENTS	
PASS-THRU OPERATIONAL PROTOCOL	
PASS THRU W/ MI SPECIFICATIONS:	
GENERAL.....	1
CONSTRUCTION.....	1
INSTALLATION.....	1
SEQUENCE OF OPERATION.....	1
GENERAL MAINTENANCE.....	2
PARTS LIST.....	2
PASS THRU DRAWING #1515957BA	
MANUFACTURER'S PARTS LITERATURE	



## **Pass-thru Operational Protocol**

- 1) With pass-thru at rest and both doors latched either door may be opened.
- 2) Opening of one door is established by turning the handle ¼-turn toward the hinge side of the pass-thru to a horizontal position.
- 3) At this point the door may be pulled open as long as opposite door is closed and latched.
- 4) Once door is opened the opposite door shall be mechanically interlocked.
- 5) **WARNING!! If pin is depressed to by-pass the mechanical interlock, damage may occur to pass-thru and VOIDS ANY WARRANTIES.**
- 6) Materials shall be loaded into pass-thru.
- 7) The door should then be closed making sure the handle is in the horizontal position, slightly compress the gasket & turn the handle down into a vertical position to latch the door closed.
- 8) Opening opposite door is established by turning the handle ¼-turn toward the hinge side of the pass-thru to a horizontal position.
- 9) At this point the door may be pulled open as long as opposite door is closed and latched.
- 10) Once door is opened the opposite door shall be mechanically interlocked.
- 11) Materials should be unloaded from pass-thru.
- 12) The door should then be closed making sure the handle is in the horizontal position; slightly compress the gasket & turn the handle down into a vertical position to latch the door closed.



## PASS THRU W/ MECHANICAL INTERLOCK SPECIFICATIONS

### GENERAL:

The Pass Thru shall provide an air lock for optimum retention and prevention of cross contamination of the controlled atmosphere within the clean room area.

### CONSTRUCTION:

The Pass Thru general construction shall appear architecturally pleasing, and the engineering, workmanship, and materials shall be of the highest quality.

The Pass Thru shall be constructed of 20-ga., type 304, stainless steel with a #4 polished finish, double wall construction. The doors to be constructed of 20-ga., type 304, stainless steel with 1/4" thick clear anti-static acrylic glazing, bullet hinge and quarter turn latching handles. Pass Thru to include a mechanical door interlock system.

### INSTALLATION:

- The opening in the wall should be \*1/4" larger than the O.D. size of the unit.
- Attach the angle trim, (provided) to one side of unit.
- Place the unit into the opening and position as required.
- Shim and square, as needed.
- Attach the angle trim, (provided) to opposite side, sandwiching unit into wall.
- Install gussets/brackets or support legs with hardware, if provided.
- After installation, make sure there are no sharp corners or edges on the angle trim.
- The Pass Thru is now ready for use.

\*Refer to unit drawing to verify.

**Note:** the Pass Thru is shipped with a squaring board inside unit to keep the unit square during shipment. This board should be kept in place, until after unit is installed.

### SEQUENCE OF OPERATION:

- When doors are closed actuator rods are pushed in by door latch, which moves the interlock latch to an open position.
- When a door is opened the actuator rod is released and the spring pulls the latch into the closed position around the opposite door latch not allowing the door to open.
- When the door is then closed the door latch pushes in the actuator rod, which will open the interlock latch.
- Also, refer to Pass-Thru Operational Protocol.

## PASS THRU W/ MECHANICAL INTERLOCK SPECIFICATIONS

### GENERAL MAINTENANCE:

Standard Pass Thru with mechanical interlocks requires virtually **no** maintenance. After years of dependable service customer need only check that all hardware is tightened.

**Note: Any tampering with mechanical interlock may cause damage and will void all warranties.**

### PARTS LIST ▪ MODEL# PT2424-24 MI/SS

PART DESCRIPTION	PART NO.	MFG.	QTY.
L- Latch Handle	92-31-121 (Left)	Southco Inc.	1
L- Latch Handle	92-32-121 (Right)	Southco Inc.	1
Bullet Hinge	96-10-572	Southco Inc.	6
Interlock Spring	MI/VA/93X	Ajax Spring Co	2

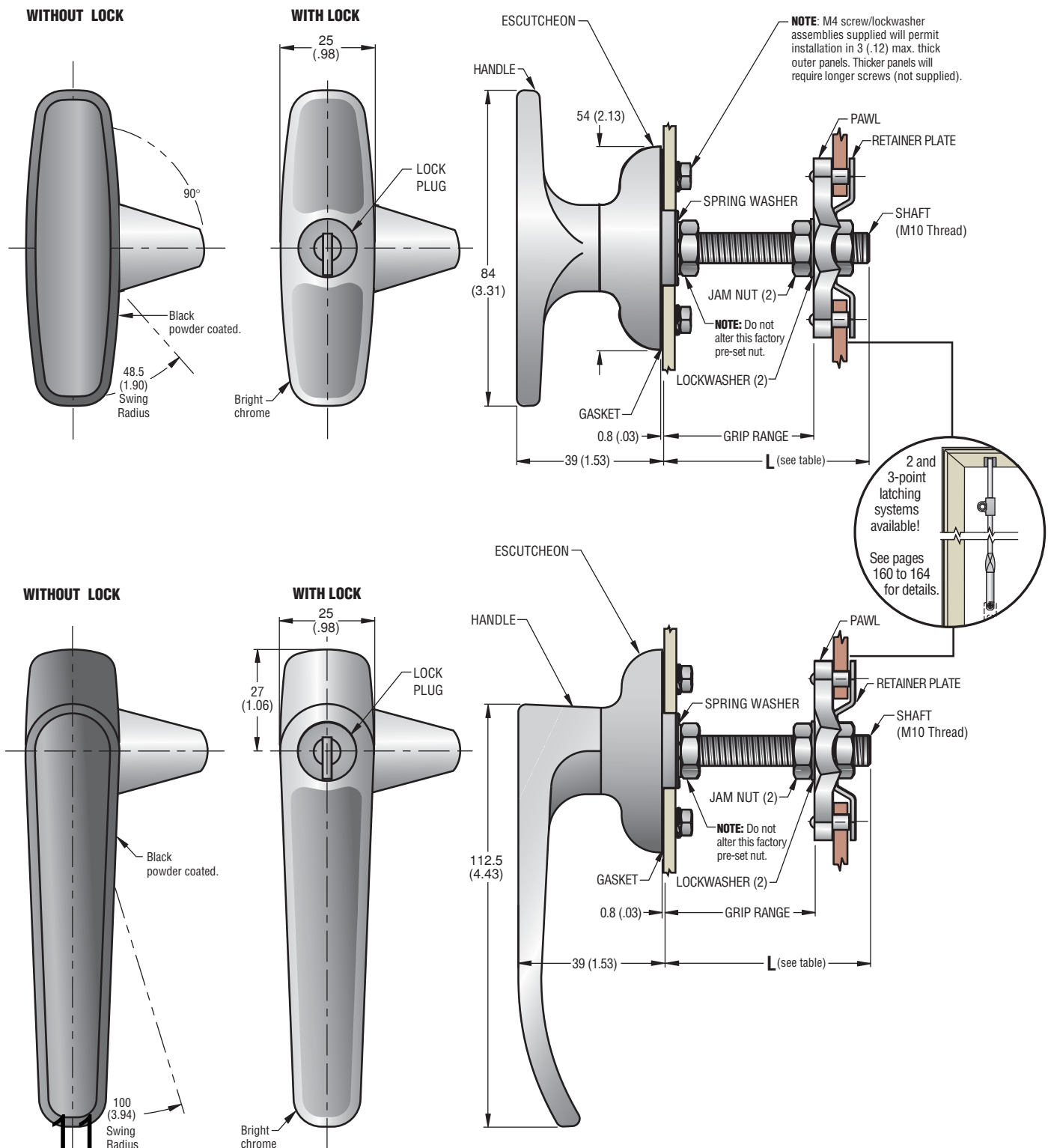
# CHAPTER

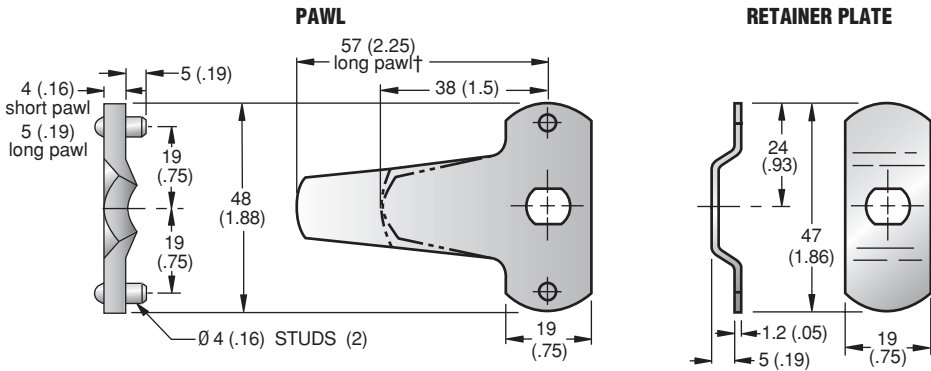
# 3

# Southco® Pawl/Cam Action Latches

## T- and L-handle Style

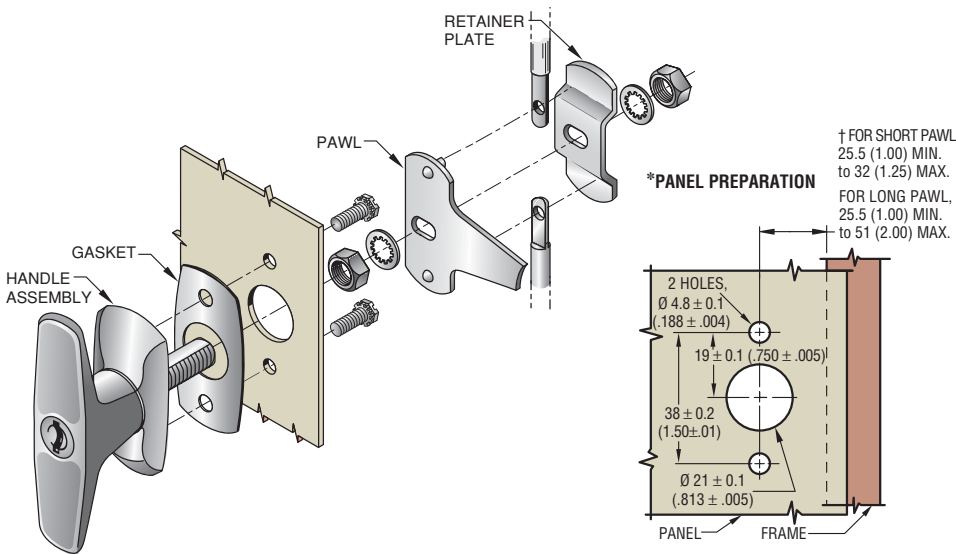
- Detents in full open and closed position
- Use in single, 2- or 3-point latching (See pages 160 to 164)
- Locking/non-locking, left- or right-hand operation available
- Two pawl lengths accommodate different panel/frame configurations





### Material and Finish

**HANDLE AND ESCUTCHEON:** Die cast zinc, bright chrome plated or black powder coated. **SHAFT, NUTS, MOUNTING SCREWS, RETAINER PLATE AND PAWL:** Low carbon steel, zinc plate, chromate plus sealer. **LOCKWASHERS:** Spring steel, zinc plate, chromate plus sealer. **GASKET:** SBR rubber with fiber, natural. **SPRING WASHER:** 300 series stainless steel, passivated. **O-RING:** Buna-N rubber, natural. **PIN:** 1008 steel, zinc plated plus yellow chromate dip. **LOCKSLIDE:** Die cast zinc with chemical protective film. **LOCKPLUG:** Die cast zinc, bright stainless steel scalp or black powder coated on head. **KEYS:** Brass, nickel plated. Latches are shipped one unit per package.



HANDLE	STYLE	L	GRIP RANGE		ASSEMBLY PART NUMBERS (Short Pawl)*	
			MIN.	MAX.	Type "A"	Type "B"

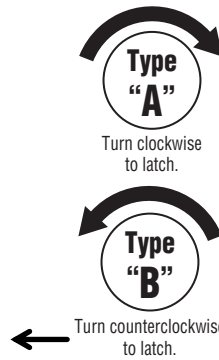
T HANDLE STYLE		Bright chrome					
	With Lock	32 (1.25)	16 (.63)	19 (.75)	92-21-111 •	92-22-111	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-21-121 •	92-22-121 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-21-131 •	92-22-131	
	Without Lock	32 (1.25)	16 (.63)	19 (.75)	92-11-111 •	92-12-111 •	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-11-121 •	92-12-121 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-11-131 •	92-12-131 •	

T HANDLE STYLE		Black powder coated					
	With Lock	32 (1.25)	16 (.63)	19 (.75)	92-21-511 •	92-22-511	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-21-521 •	92-22-521 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-21-531 •	92-22-531 •	
	Without Lock	32 (1.25)	16 (.63)	19 (.75)	92-11-511 •	92-12-511 •	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-11-521 •	92-12-521 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-11-531 •	92-12-531 •	

L HANDLE STYLE		Bright chrome					
	With Lock	32 (1.25)	16 (.63)	19 (.75)	92-41-111 •	92-42-111	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-41-121 •	92-42-121 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-41-131 •	92-42-131 •	
	Without Lock	32 (1.25)	16 (.63)	19 (.75)	92-31-111 •	92-32-111	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-31-121 •	92-32-121 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-31-131 •	92-32-131 •	

L HANDLE STYLE		Black powder coated					
	With Lock	32 (1.25)	16 (.63)	19 (.75)	92-41-511 •	92-42-511 •	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-41-521 •	92-42-521 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-41-531 •	92-42-531 •	
	Without Lock	32 (1.25)	16 (.63)	19 (.75)	92-31-511 •	92-32-511 •	
		44.5 (1.75)	16 (.63)	32 (1.25)	92-31-521 •	92-32-521 •	
		57.5 (2.25)	16 (.63)	44.5 (1.75)	92-31-531 •	92-32-531 •	

\* Latch Assembly part numbers shown are supplied with a short pawl. To order latches with a long pawl, as shown above, change last digit of part number to a 2. Example : 92-21-112



### Installation

1. Prepare panel.
2. Assemble hardware as shown.
3. Move pawl assembly to desired grip position and tighten jam nuts against pawl assembly with 2 wrenches.

**NOTE:** For 3-point latching, install rods on studs before tightening jam nuts.

### Product Strength Guidelines

(To assist in your product selection; samples are available for your evaluation.)

#### Maximum working load:

- Short pawl 400 N (90 lbs.)
- Long pawl 200 N (45 lbs.)

#### Average ultimate load:

- Short pawl 1440 N (325 lbs.)
- Long pawl 840 N (190 lbs.)

millimeter (inch)  
millimeter  
(inch)

Dimensions without tolerances are for reference only.

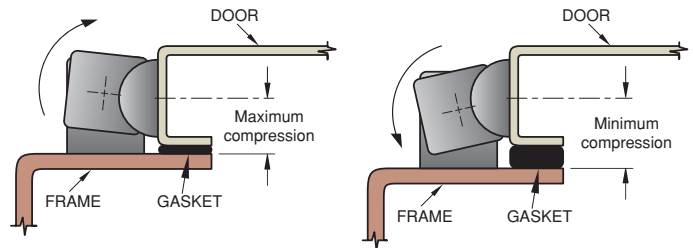
# Southco® Hinges

## Adjustable Compression

- Adjustable compression for the hinge side of the door
- Allows the door to be removed from the hinge side
- Accommodates application and gasket variances
- Front and concealed mounting
- Door can also be permanently installed

### How it works:

These hinges provide 5 mm (.20 in) of total adjustment.

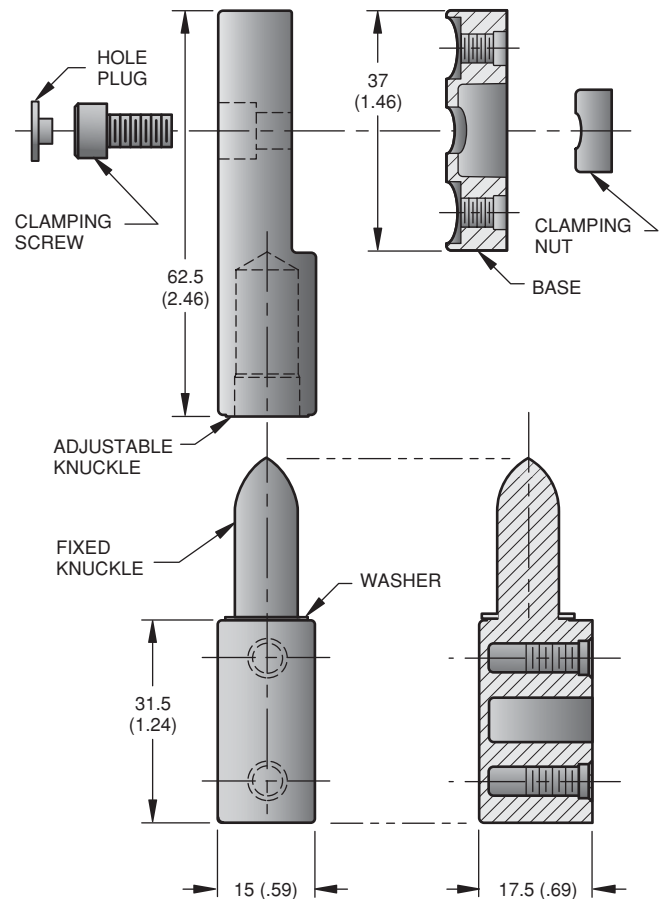
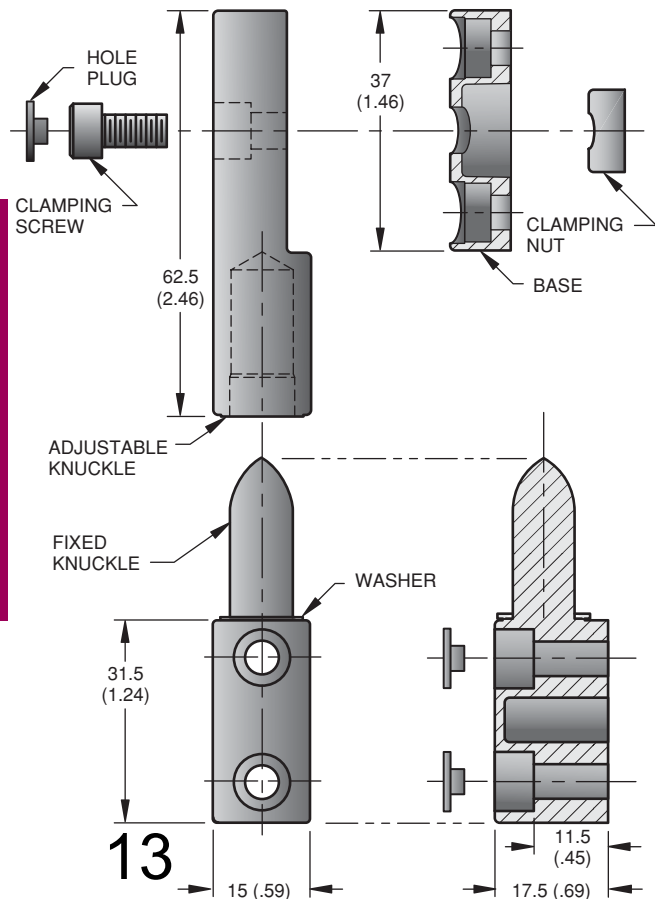


### Front-mount hinge

Thread size	Part number
No. 10 or M5	96-10-572 •

### Concealed-mount hinge

Thread size	Part number
10-32 UNF-2B	96-10-570 •
M5x0.8 6H	96-50-570 •



Hinges  
Lift-off

## Product Strength Guidelines

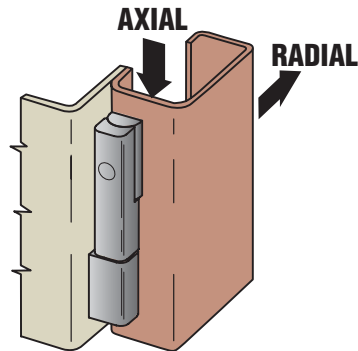
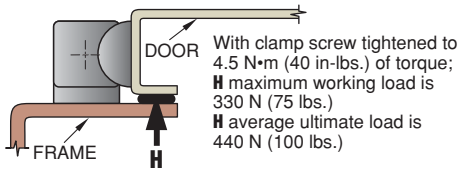
(To assist in your product selection; samples are available for your evaluation.)

### RADIAL

Maximum working load = 1000 N (225 lbs.)  
Average ultimate load = 1550 N (350 lbs.)

### AXIAL

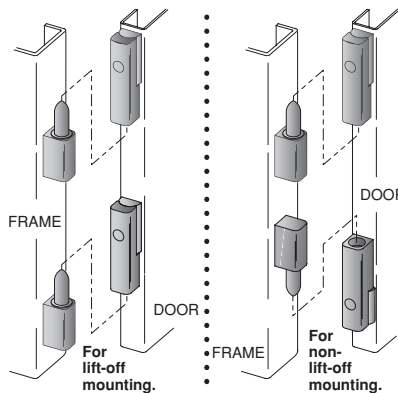
Maximum working load = 2200 N (500 lbs.)  
Average ultimate load = 14,000 N (3200 lbs.)



Maximum recommended tightening torque of mounting screws: 4.5 N•m (40 in.-lbs.)

To assure lift-off capability, the pin of the fixed knuckles must point up when installed on frame.

For non-lift-off mounting, the pin of one fixed knuckle must point in a direction opposite the other(s) when mounted to frame. One of the fixed knuckles must be installed *AFTER* door is hung.



These hinges can be mounted on either side of door.

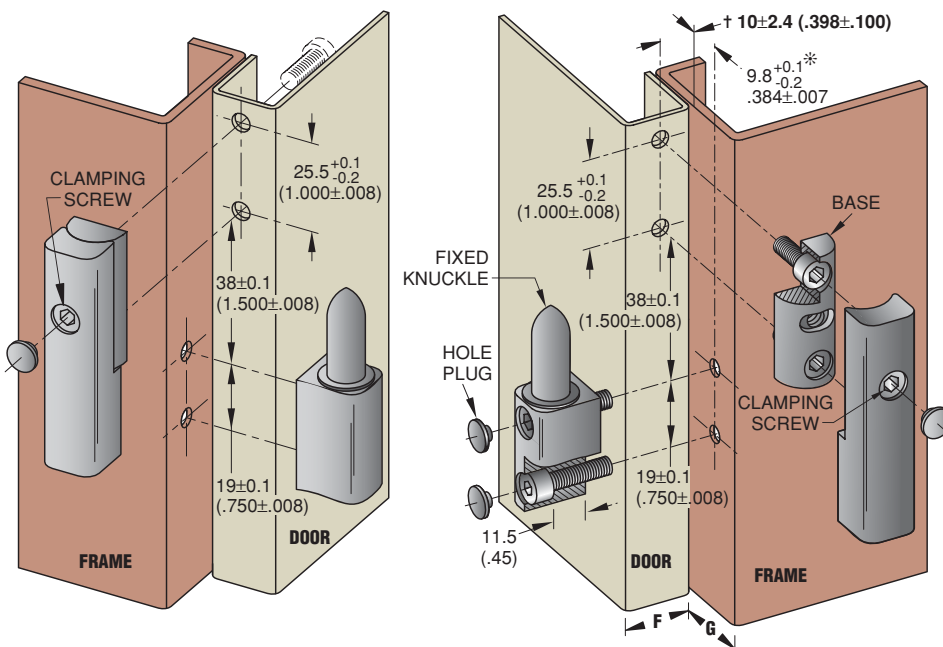
### Concealed-mount hinge

Screw length = frame thickness plus 7.5 mm (.30 in.)

### Front-mount hinge

No. 10 or M5 socket head cap screws must be used to attach front-mount hinge assemblies.

Mounting screws are *not* supplied.



NOTES: Either **F** Dimension or **G** dimension must be less than 19.8 (.78) for the door to open a full 180°. \* Dimension will vary as † dimension is adjusted through its range. The door and frame design must allow for this variation.



## Material and Finish

KNUCKLES and BASE: Die-cast zinc, black powder coated.  
WASHER: Nylon, black.  
HOLE PLUG: Thermoplastic Elastomer, black.  
CLAMPING SCREW: Stainless steel, black oxide.  
CLAMPING NUT: Low carbon steel, zinc plate, chromate plus coricone sealer.

## Installation and Adjustment

- Adjustable knuckles must always be mounted to the door.
- Front mounted adjustable knuckles must be disassembled before installation.
- Use hole plugs to deter unnecessary adjustment and enhance appearance. Hole plugs press into screw sockets with thumb pressure.
- To adjust hinges: Pivot adjustable knuckle with respect to the base to desired position, then tighten knuckle in place with a 4 mm or (5/32) hex wrench. Recommended tightening torque of clamping screw is 4.5 N•m (40 in.-lbs.)

millimeter (inch)  
millimeter (inch)

Dimensions without tolerances are for reference only.



Search    Search

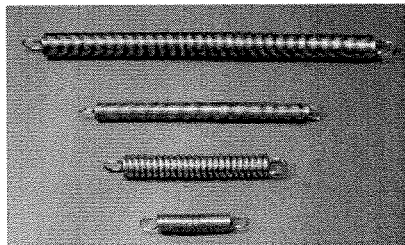
[All Categories](#) / [Keyword Search Results](#) / [Item # Ajax 93X](#)

[Springs](#) • [Custom Springs](#) • [Spring Assortments](#)

### Item Detail

*Click Request Information to send us an email about this item.*

#### Item Information



**Extension Springs**  
Item Number : Ajax 93X

Add  
• Di

[Larger Image](#)

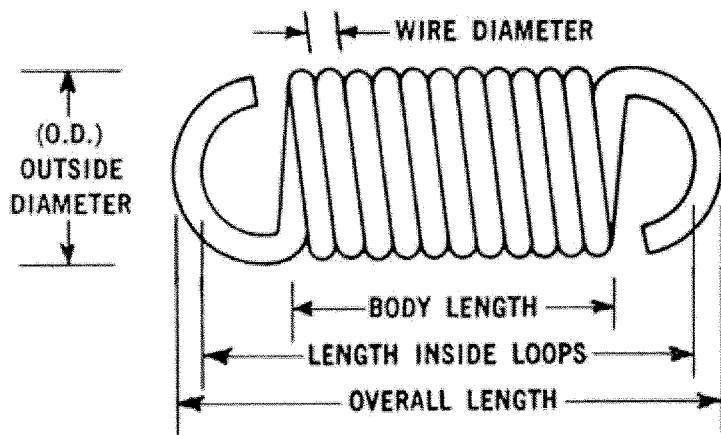
#### Specifications

	Extension
Spring Type	
Wire Diameter (inches)	0.02
Spring Outside Diameter (inches)	0.250
Overall Length (inches)	2.312
Body Length (inches)	1.875
Rate (lbs/in.)	0.279
Maximum Load (pounds)	1.1
Maximum Extended Length (inches)	5.312

119 Bloomingdale Rd - Hicksville, NY 11801 - 516-935-2333 - Fax 516-935-2334 - 1-800-9



CLOSE WINDOW



CLOSE WINDOW

# CHAPTER

# 4



# HALCO PRODUCTS COMPANY

100 N. Gordon St. Elk Grove Village, IL 60007-1193  
Phone (847) 956-1600 Fax (847) 956-0595  
E-mail: info@halco-products.com  
Website: www.halco-products.com

## WARRANTY

**HALCO PRODUCTS COMPANY** warrants that the workmanship, materials, and construction of this item is free of manufacturing defects. This item and its associated systems are such that if operated and maintained in accordance with the manual supplied by **HALCO PRODUCTS COMPANY**, it will meet all contract specifications for a period of one (1) year from date of delivery. This warranty shall not apply to replaceable items such as filters or light bulbs, or if the equipment is subject to misuse, accident, negligence, or lack of proper maintenance. Electrical motors and blowers and pre-manufactured items are subject to manufacturers' guarantees.

CUSTOMER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

P.O. # : \_\_\_\_\_ INVOICE # : \_\_\_\_\_ SERIAL # : \_\_\_\_\_

MODEL #: \_\_\_\_\_ SIZE: \_\_\_\_\_

START-UP DATE: \_\_\_\_\_ INSPECTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

### WARRANTY REGISTRATION CARD

Please return this card within 30 days of delivery

Customer: \_\_\_\_\_

Address: \_\_\_\_\_

P.O.#: \_\_\_\_\_ Invoice #: \_\_\_\_\_ Serial #: \_\_\_\_\_

Model #: \_\_\_\_\_ Start-Up Date: \_\_\_\_\_

Sizes: \_\_\_\_\_ Customer Inspector: \_\_\_\_\_ Date: \_\_\_\_\_