

**PHOENIX  
MINING & TRANSIT SYSTEMS**



**MINING SYSTEMS CATALOG**

**2009**

*All specifications in this catalog are subject to change without notice.*

**PHOENIX MINING & TRANSIT SYSTEMS**

P.O. Box 14179

Cincinnati, Ohio 45250

(513) 651-0300

FAX (513) 651-0270

[www.phoenixmining.net](http://www.phoenixmining.net)

E-mail: [BILLpme@fuse.net](mailto:BILLpme@fuse.net)

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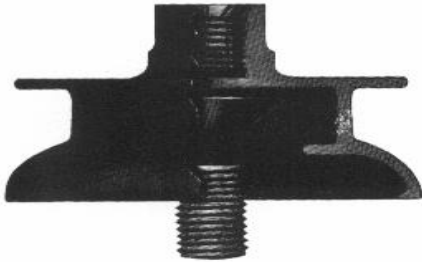
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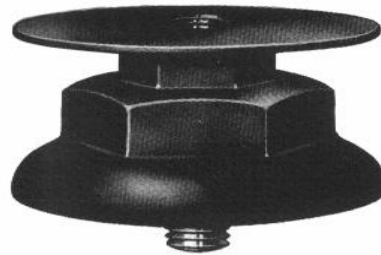
## INSULATED MINE HANGERS

All PHOENIX Insulated Mine Hangers are encased in a malleable iron, HDG, shell. Insulating material is non-asbestos phenolic. Each insulator is tested to 7,500 volts di-electric and rated to 10,000 pounds pull strength.



PHOENIX P/N 7316

For attachment by expansion bolt. Upper boss is designed to recess into hole in mine roof where head-room is critical.



PHOENIX P/N 7326

For attachment by expansion bolt, lag screw or pipe adapter.



PHOENIX P/N 7312

For attachment by lag screw to mine header.

Part Number	Description	Std. Pkg.	Wt./Pkg.
7312	Insulated Mine Hanger	25	39#
7316	Insulated Mine Hanger	25	46#
7326	Insulated Mine Hanger	25	47 1/2#

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## UNIVERSAL SPOOL INSULATOR

The steel boss (tapped 5/8"-11 X 7/8") and stud (tapped 5/8" - 11) make this insulator highly adaptable for use with roof bolts, lag screws, dead end fittings, turnbuckles and strain fittings. Manufactured using high strength Genal Phenolic, each insulator is tested to 15,000 volts di-electric and rated for 10,000 pounds pull and 3,000 pound cantilever strength.



Part Number	Description	Stud Length	Std. Pkg.	Wt./Ea.
8525	Spool Insulator	11/16"	25	1.0#
8525 LS	Spool Insulator-Long Stud	1 1/4"	25	1.0#

## AIR-GAP INSULATED MINE HANGER

For attachment to either 1 1/4" vertical pipe or 5/8"-11 threaded rod. Malleable iron bell casting, HDG, is provided with three 3/8" set screws for attachment to vertical 1 1/4" pipe, and 5/8"-11 X 11/16" boss for use with threaded rod. A drain hole directs water away. Insulator is PHOENIX P/N 8525.



Part Number	Description	Std. Pkg.	Wt./Pkg.
8239	Air Gap Insulated Mine Hanger	25	72 1/2#

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## VERTICAL PIPE ADAPTERS



Part Number 8212

Manufactured of malleable iron, hot dip galvanized. Clamp is designed to be used with unthreaded 3/4" pipe in mines in which roof height varies. Part Number 8211 has a 5/8"-11 X 11/16" boss and part Number 8212 has a 5/8"-11 stud for attachment of insulator, feeder clamp or other fixture.

Part Number	Description	Std. Pkg.	Wt./Pkg.
8211	Hinge Type Adapter with Boss	25	46#
8212	Hinge Type Adapter with Stud	25	51#



Part Number 8210

Manufactured of malleable iron, hot dip galvanized and designed for attachment to 1 1/4" pipe. Adapter is provided with three 3/8" set screws for clamping the pipe and a 5/8"-11 stud.

Part Number	Description	Std. Pkg.	Wt./Pkg.
8208	Adapter with Boss	25	59#
8210	Adapter with Stud	25	61 1/2#

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## HORIZONTAL PIPE ADAPTER



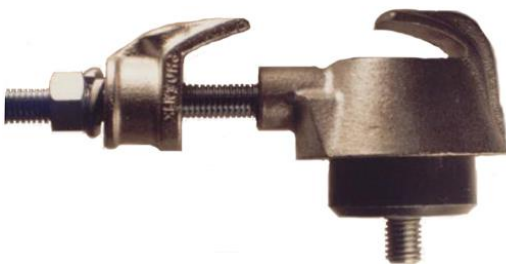
Part 7811

Shown in Bronze

For mounting insulators, clamps and all support fixtures to 1 ¼", 1 ½" and 2" pipe. Made of hot dip galvanized, malleable iron. A 3/8" set screw secures the pipe and a 5/8"-11 X 1" machine bolt provides an attachment point for insulators, and clamps. Also available in bronze – consult factory.

Part Number	Description	Pipe Size	Std. Pkg.	Wt./Pkg.
8209	Horizontal Pipe Adapter	1 ¼"	25	55 ½#
7732	Horizontal Pipe Adapter	1 ½"	25	41 ¼#
7811	Horizontal Pipe Adapter	2"	25	51 ¼#

## INSULATED I-BEAM ADAPTERS



For mounting trolley wire clamps, and all other mine fixtures to a standard I-beam. Manufactured of hot dip galvanized, malleable iron clamping pieces and incorporating PHOENIX P/N 8525 for electrical insulation.

Part Number	Description	Flange Width	Wt.Ea.
8544-1	Insulated I-Beam Adapter	3" to 6 ½"	3.1#
8546-1	Insulated I-Beam Adapter	6" to 10 ½"	3.3#
8548-1	Insulated I-Beam Adapter	8" to 13 ½"	3.9#

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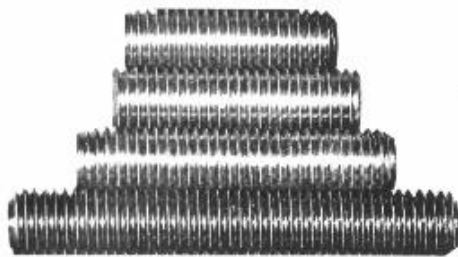
### EXPANSION BOLTS



PHOENIX Expansion Bolts consist of three parts: malleable iron expansion shell, expander plug, and a 5/8"-11 all thread, zinc plated, steel rod.

Part Number	Description	Height	Dia.	Std.Pkg.	Wt./Pkg.
7758	Expansion Bolt	6"	1 1/4"	50	64#

### ALL THREAD STUDS AND RODS



PHOENIX All Thread Studs and Rod are manufactured of machine steel and zinc plated. Lengths up to 12 feet are available – consult factory.

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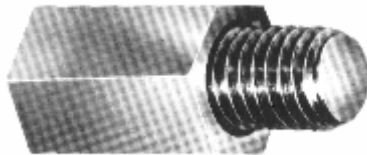
**THREADED ROD ADAPTERS**



**ADJUSTABLE STUD JOINT**

Manufactured of malleable iron, HDG. Castings are knurled for 270 degree adjustment. Boss and stud are tapped 5/8"-11.

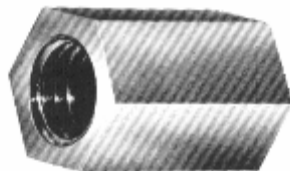
Part Number	Description	Wt./Ea.
10624	Adjustable Stud Joint	1.06#



**BOSS AND STUD ADAPTER**

For joining two 5/8"-11 threaded rods or studs together. Machine steel, zinc plated.

Part Number	Description	Std. Pkg.
58-BS-58	Boss and Stud Adapter – 5/8"-11 x 1 1/4"	25



**CONNECTOR NUT ADAPTER**

For connecting two 5/8"-11 threaded rods.

Part Number	Description	Std. Pkg.
58-N-125	Connector Nut Adapter – 5/8"-11	25

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**TROLLEY WIRE CLAMPS**

**LOCKTITE TROLLEY CLAMPS**



Clamp consists of two malleable iron, HDG, jaws and headnut, hinged to a machined steel center bolt. Tightening the headnut closes the jaws on the wire. Jaws are held apart by a steel spring to ease installation. Boss tapped 5/8"-11.

Part Number	Wire Sizes	Wt./Ea.
8240	2/0 to 6/0 Grooved, Figure 8 and No. 9 Section	1.1#
8453	2/0 to 3/0 Round	1.1#

**THRU-BOLT TROLLEY CLAMP**

Two malleable iron, HDG, jaws are held firmly on the wire by a 2" carriage bolt, lockwasher and hex nut. A steel spring holds jaws apart for easy installation. Boss is tapped 5/8"-11



Part Number	Wire Sizes	Wt./Ea.
10601	2/0 to 6/0 Grooved, Figure 8 and No. 9 Section	1.1#



**TYPE HS BRONZE TROLLEY CLAMP**

Made of high strength bronze allow, clamping grip is provided by two hollow bronze screws.

Part Number	Wire Size	Wt./Ea.
5476	2/0 to 6/0 Grooved, Figure 8 and No. 9 Section	0.8#

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## CURRENT TAPS FOR TROLLEY WIRE



### TROLLEY CLAMP WITH FEEDER LUG

Identical to PHOENIX P/N 8240 with the addition of a bronze alloy 4/0 feeder lug and a set screw to secure the feeder and/or tap wire.

Part Number	Description	Wt./Ea.
8459	Trolley Clamp with 4/0 Feeder Lug	1.2#

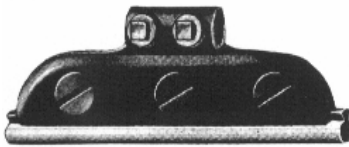
### BRONZE CURRENT TAP

Manufactured of high strength bronze alloy. Clamping grip provided by a single flat head machine screw. Tap wire secured by a round head machine screw.



Part Number	Trolley Wire Size	Tap Size
8138	2/0 to 6/0 Grooved, Figure 8 and No. 9 section	#14

### THREE SCREW BRONZE FEEDER TAP



Manufactured of high strength bronze alloy. Screws are 1/4"-20 X 5/8" flat head. Feeder lug has two 5/16" set screws to secure tap wire.

Part Number	Trolley Wire Size	Wt./Ea.
8819	1/0 to 6/0 Grooved and Figure 8	0.85#

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## TROLLEY WIRE SPLICERS

### TYPE SU TROLLEY WIRE SPLICER



Made of high strength bronze alloy. Four ½” set screws located at an angle to the wire provide tension grip. Under run length is 9 inches.

Part Number	Description	Trolley Wire Size	Wt./Ea.
9141	SU Splicer	6/0 Figure 8	1.2#
9142	SU Splicer	4/0 to 6/0 Grooved and No. 9 Section	1.2#
9143	SU Splicer	4/0 Figure 8	1.2#

### UNIVERSAL TROLLEY WIRE SPLICER



Encircling style splicer manufactured of bronze alloy with tension grip provided by six ½” set screws. Under run length is 12.75 inches.

Catalog No.	Trolley Wire Size	Wt./Ea.
8199	6/0 Round, Grooved, Figure 8 and No.9 Section	2.85#
8012	3/0 to 4/0 Round, Grooved and Figure 8	1.4#
8013	1/0 to 2/0 Round, Grooved and Figure 8	1.2#

### TYPE SSU TROLLEY WIRE SPLICER



Made of bronze alloy, the two halves are held by four hollow bronze screws and two 3/8” set screws provide vertical tension.

Part Number	Trolley Wire Size	Wt./Ea.
9147	2/0 to 6/0 Grooved, Figure 8 and No.9 Section	1.5#

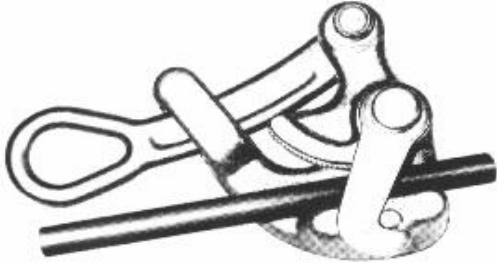
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## TROLLEY WIRE DEAD END CLAMPS



### HAVEN'S WIRE ECCENTRIC

For use with turnbuckles and dead-end hooks to tie off trolley wire, and span and messenger cables.

Part Number	Trolley Wire Size	Wt. Ea.
7541	2/0 to 6/0 Round, Grooved, Figure 8 & No.9 Section	4.0#

### BRONZE DEAD-END CLAMP

Made of bronze alloy. Clamping force provided by three hollow bronze screws, and vertical tension supplied by two 3/8" set screws.



Part Number	Trolley Wire Size	Wt./Ea.
7540	2/0 to 6/0 Grooved, Figure 8 and No.9 Section	1.4#

### TROLLEY WIRE DEAD END CLAMP



Made of malleable iron, HDG. Clamping force provided by two 1/2" carriage bolts, lockwashers and hex nuts. Clevis style end designed for use with eye fitted turnbuckles.

Part Number	Trolley Wire Size	Wt./Ea.
8236	2/0 to 6/0 Round, Grooved and No.9 Section	2.6#

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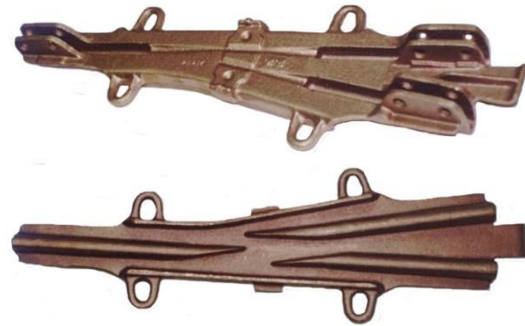
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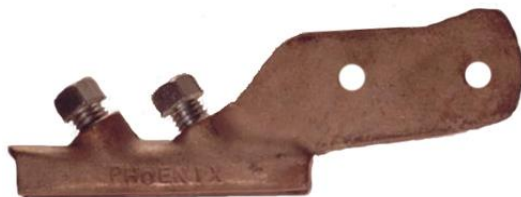
## OVERHEAD TROLLEY FROGS AND TIPS

### OVERHEAD SOLID BODY FROGS

Manufactured of high strength bronze alloy for maximum service life. Frogs are designed to accommodate a variety of tips to permit attachment of all popular trolley wires. Frogs are sold **without** tips, which must be ordered separately.



Part Number	Description	Direction	Degree	Wt./Ea.
9012	Overhead Trolley Frog	Right	15	11#
9013	Overhead Trolley Frog	Left	15	11#
9121	Overhead Trolley Frog	Right	10	11#
9122	Overhead Trolley Frog	Left	10	11#



### FROG TIPS FOR OVERHEAD FROGS

Made of high strength bronze alloy. Tension force provided by two 1/2" set screws set at an angle.

Part Number		Trolley Wire Size	Wt./Ea.
9123	Frog Tip	6/0 to 350 MCM Grooved and No.9 Section	0.85#
9124	Frog Tip	4/0 Grooved	0.85#
9125	Frog Tip	6/0 Figure 8	1.0#
9271	Frog Tip	4/0 Figure 8	0.85#

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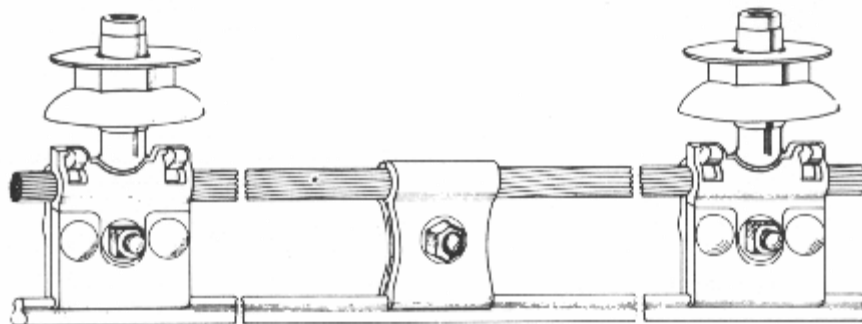
**VERTICAL MOUNT FEEDER-TROLLEY CLAMPS**

**TYPE F FEEDER TROLLEY CLAMPS**

Manufactured of malleable iron, HDG. Boss is tapped 5/8"-11. Clamped is designed such that feeder cable and trolley wire may be installed, repaired, replaced or removed separately from one another. All Type F Clamps will accommodate 2/0 to 6/0 Grooved, Figure 8 and No. 9 Section trolley wires.



Part Number	Feeder Cable Size	Std. Pkg.	Wt./Ea.
8030	250 to 350 MCM	25	1.8#
8031	400 to 500 MCM	25	1.8#
8032	750 to 1000 MCM	25	2.1#
8033	1250 to 1590 MCM	25	2.2#



Recommended method of suspension.

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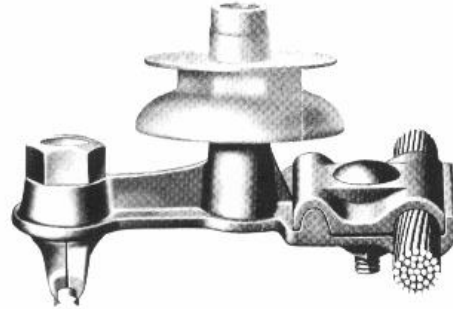
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## HORIZONTAL MOUNT FEEDER TROLLEY CLAMP

Designed to allow supporting both feeder cable and trolley wire from a single insulated hanger. Made of malleable iron, HDG.



Part Number	Trolley Wire Size	Feeder Size	Wt./Ea.
8204	2/0 to 6/0 Grooved, Figure 8 and No.9 Section	300 to 1590 MCM	2.5#

## DUPLEX SPACER CLAMPS

Used to maintain proper spacing between feeder cable and trolley wire. Manufactured of malleable iron, HDG, they are also available in high strength bronze alloy with bronze carriage bolt, lockwasher and hex nut. All duplex clamps will accommodate 2/0 to 6/0 Grooved, Figure 8, and No. 9 Section Trolley wires.



Part Number	Description	Feeder Size	Std. Pkg.	Wt./Pkg.
8000	Iron Duplex	350 to 500 MCM	50	43#
8004	Iron Duplex	750 to 1000 MCM	50	56#
8201	Iron Duplex	1590 MCM	50	76#
8001	Bronze Duplex	4/0 to 6/0	50	60#

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## THRU-BOLT FEEDER CABLE SUSPENSION CLAMP

Manufactured of malleable iron, HDG. Feeder cable may be installed in clamp without taking it apart. Boss is tapped 5/8"-11 X 11/16".



Part Number	Description	Feeder Size	Std. Pkg.	Wt./Pkg.
9260	Feeder Clamp	500 to 1590 MCM	50	51#

## FEEDER CABLE DEAD-END CLAMP



Manufactured of high strength bronze alloy and cadmium plated to assure maximum service life. Cable is securely held in place by eight 1/2" square head machine bolts, lockwashers and hex nuts. Clevis end allows attachment to eye fitting, turnbuckle or wire rope.

Part Number	Description	Feeder Cable Size	Wt./Ea.
8629	Feeder Cable Dead-End	750 to 1000 MCM	8.75#
8628	Feeder cable Dead-End	500 MCM	8.75#

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## FEEDER CABLE STRAIN CLAMPS

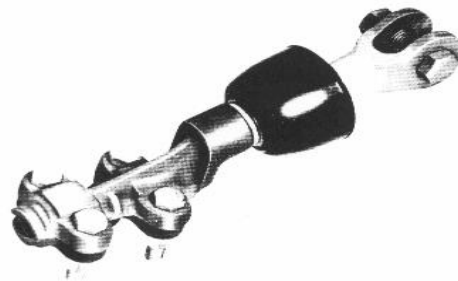
Used to relieve strain or terminate feeder cables. Manufactured of high strength bronze alloy. Available with either an eye or clevis end fitting,



Part Number	Description	Feeder Cable Size	Wt./Ea.
5860	Feeder Cable Clamp w/ Eye	4/0 to 400 MCM	1.65#
8762	Feeder Cable Clamp w/ Eye	500 to 1000 MCM	2.60#
8481	Feeder Cable Clamp w/ Eye	1000 to 1590 MCM	4.40#
8482	Feeder Cable Clamp w/ Clevis	4/0 to 400 MCM	2.00#
8483	Feeder Cable Clamp w/ Clevis	500 to 1000 MCM	2.90#

## INSULATED STRAIN CLAMP

For terminating trolley wire and light duty feeder wires and relieving strain from feeder wire. Manufactured of high strength bronze alloy and utilizing PHOENIX Part Number 8525 for an insulator. Available with a clevis or eye end fitting.



Part Number 8887

Part Number	Description	Feeder Size	Wt./Ea.
8887	Insulated Strain Clamp w/ Clevis	1/0 to 500MCM	3.28#
8887-1	Insulated Strain Clamp w/Eye	1/0 to 500MCM	3.25#

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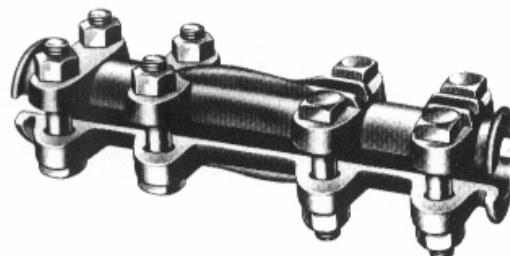
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## FEEDER CABLE SPLICERS

### TYPE EB FEEDER CABLE SPLICERS

Rated for both bare stranded copper or aluminum feeder cables. Splicers are manufactured of high strength bronze alloy. Eight ½"-13 machine bolts, lockwashers and hex nuts assure the splicer is secured to the cable.



Part Number	Description	Feeder Cable Size	Wt./Ea.
8623	Type EB Splicer	400 to 550 MCM	5.0#
8625	Type EB Splicer	800 to 1000 MCM	6.4#
8626	Type EB Splicer	1590 MCM	8.6#

### TYPE BG FEEDER CABLE SPLICERS



Type BG Splicers are manufactured of high strength bronze alloy and are dual rated for both stranded copper and aluminum cables. All fasteners are socket head cap screws.

Part Number	Description	Feeder Cable Size	Wt./Ea.
7770	Type BG Splicer	4/0 to 250 MCM	2.5#
7772	Type BG Splicer	500 to 600 MCM	4.8#
7774	Type BG Splicer	1000 to 1192.5 MCM	6.8#
7775	Type BG Splicer	1590 MCM	9.8#

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**FEEDER CABLE TERMINALS AND TEE CONNECTORS**



TERMINAL



TEE CONNECTOR

PHOENIX Feeder Cable Terminals and Tee Connectors are manufactured of high strength bronze alloy and zinc clear chromate plated. They are dual rated for stranded bare copper and aluminum feeder cables.

The design of these parts permits the user to field assemble any combination of terminals and tees to create a custom splicer or tee branch.

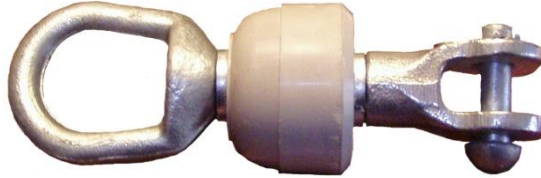
Part Number TERMINAL	Part Number TEE CONNECTOR	Feeder Cable Size	Wt./Ea.
7764	7764T	4/0 to 250 MCM	1.3#
7766	7766T	500 to 600 MCM	2.4#
7768	7768T	1000 to 1192.5 MCM	3.4#
7769	7769T	1590 MCM	4.9#

# PHOENIX MINING & TRANSIT SYSTEMS

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(513) 651-0300 Fax (513) 651-0270 E-mail: BILLpme@fuse.net

## STRAIN INSULATORS



Used to dead-end guy and span wire. Manufactured with any combination of eye, clevis, 5/5"-11 boss and 5/8"-11 stud. All end fittings are malleable iron, HDG. The Insulator is PHOENIX Part Number 8525 tested to 15,000 volts di-electric strength and 10,000 pounds pull (tensile) strength.

Catalog No.	End Fittings	Wt./ea.
9243	Stud and Stud	1.06#
9244	Eye and Boss	1.25#
9245	Eye and Stud	1.41#
9246	Eye and Eye	1.65#
9247	Eye and Clevis	1.90#
9248	Clevis and Boss	1.50#
9249	Clevis and Stud	1.68#
9250	Clevis and Clevis	2.10#
9253	Boss and Boss	1.23#

## INSULATED DEAD-ENDS



Part Number	Fittings	Rod Length	Wt./Ea.
9261	5/8"-11 Stud	6"	1.75#
9262	Clevis	10"	2.75#
9264	Clevis	7"	2.61#
9265	Clevis	5"	2.51#
9266	Eye	10"	2.51#
9268	Eye	7"	2.36#
9269	Eye	5"	2.26#

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## TURNBUCKLES

### INSULATED TURNBUCKLES

Used for dead-ending trolley wire and feeder cable and insulating messenger, guy and span wires. Incorporating PHOENIX Spool Insulator, Part Number 8525, and various combinations of eye, clevis, hook and stud fittings. All fittings are threaded 5/8"-11.



Part Number	Description	End Fittings	Wt./Ea.
7578	12" Insulated Turnbuckle	Eye and Eye	4.92#
8910	12" Insulated Turnbuckle	Hook and Eye	4.68#
9242	12" Insulated Turnbuckle	Eye and Clevis	4.72#
10050	12" Insulated Turnbuckle	Eye and Stud	4.75#
10057	12" Insulated Turnbuckle	Hook and Clevis	4.93#
10060	12" Insulated Turnbuckle	Hook and stud	4.80#

### STANDARD TURNBUCKLES

Manufactured of steel, HDG, and available in all common thread sizes. Standard turnbuckles are 5/8"-11 with 12" bodies.



Part Number	Description	End Fittings	Wt./Ea.
10315	12" Turnbuckle	Clevis and Clevis	3.78#
10316	12" Turnbuckle	Eye and Clevis	3.78#
10317	12" Turnbuckle	Hook and Eye	3.78#
10318	12" Turnbuckle	Hook and Hook	3.78#
10319	12" Turnbuckle	Eye and Eye	3.78#

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## END FITTINGS



P/N 9054

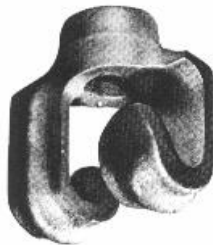


P/N 9055-R

PHOENIX End Fittings are manufactured of malleable iron, HDG. All have a boss tapped 5/8"-11 for ready attachment to standard mine hardware.

Part Number	Description	Std. Pkg.	Wt./Pkg.
9053	5/8"-11 X 13/8" Stud	100	1.1#
9054	Eye w/ 5/8"-11 Boss	25	7.5#
9055-R	Clevis w/ 5/8"-11 Boss and Rivet	25	7.5#

## CABLE SUPPORT PRODUCTS



### SISTER HOOK

Manufactured of malleable iron, HDG, Center hole is tapped 5/8"-11.

Part Number	Description	Std. Pkg.	Wt./Pkg.
10611	Sister Hook w/ 5/8"-11 Boss	100	62#

### DEAD-END HOOK

Manufactured of malleable iron, HDG. Boss is tapped 5/8" – 11.



Part Number	Description	Wt./Ea.
8235	Dead-End Hook w/ 5/8"-11 Boss	1.48#

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**CURRENT COLLECTORS FOR MINE TROLLEY  
LOCOMOTIVES**



**TYPE D TROLLEY HARPS**

For use on mine jitneys, portal busses and light duty haulage locomotives. Manufactured of malleable iron, HDG. Complete units are furnished with iron shoe (P/N 9117), a single 4/0 copper shunt (P/N 9120) and bronze dual clamp plate (P/N 9118).

Part Number	Description	Wt./Ea.
9115	Type D Trolley Harp - Complete	12.07#
9117	Type D Iron Shoe - Only	2.84#
9133	Type D Bronze Shoe - Only	2.88#
18012	Pole Head Casting - Malleable Iron, HDG - Only	4.20#
18028	Harp Casting - Malleable Iron, HDG - Only	2.00#
9118	Bronze Clamp Plate - Only	0.40#
9135	King Bolt Assembly - Only	0.50#
9114	Steel Retaining Pin with Cotters - Only	0.42#
9120	4/0 Copper shunt Cable - Only	0.82#
8944	Coil Spring - Only	0.03#

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**CURRENT COLLECTORS FOR MINE TROLLEY  
LOCOMOTIVES**



**TYPE H HEAVY DUTY  
TROLLEY HARPS**

For heavy duty mainline haulage locomotives. Manufactured of malleable iron, HDG. Complete units are furnished with heavy duty iron shoe (P/N 9137), and a dual 444.4 MCM copper shunt (P/N 9139).

Part Number	Description	Wt./Ea.
9138	Type H Trolley Harp - Complete	13.0#
9137	Type H Iron Shoe - Only	3.00#
18012	Pole Head Casting - Malleable Iron, HDG - Only	4.20#
18028	Harp Casting - Malleable Iron, HDG - Only	2.00#
9135	King Bolt Assembly - Only	0.5#
9114	Steel Retaining Pin with Cotters - Only	0.42#
9139	444.4 MCM Dual Copper Shunt Cable - Only	2.50#
8944	Coil Spring - Only	0.03#

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## CURRENT COLLECTORS FOR MINE TROLLEY LOCOMOTIVES

### TYPE CI CARBON INSERT TROLLEY HARPS



For use on mine jitneys, portal busses and light duty haulage locomotives. Manufactured of malleable iron, HDG. Type CI Harps are furnished with a bronze shoe which holds a replaceable carbon insert. The carbon insert eliminates the need to lubricate the trolley wire. Complete units are furnished with bronze shoe ( P/N 18020), carbon insert (P/N 18021), a single 4/0 copper shunt (P/N 9120) and bronze dual clamp plate (P/N 9118).

Part Number	Description	Wt./Ea.
9128	Type CI Trolley Harp - Complete	12.07#
18020	Type CI Shoe with Carbon Insert - Only	2.84#
18021	Carbon Insert - Only	2.88#
18022	Type CI Saddle - Only	1.40#
18012	Pole Head Casting - Malleable Iron, HDG - Only	4.20#
18028	Harp Casting - Malleable Iron, HDG - Only	2.00#
9118	Bronze Clamp Plate - Only	0.40#
9135	King Bolt Assembly - Only	0.50#
9114	Steel Retaining Pin with Cotters - Only	0.42#
9120	4/0 Copper shunt Cable - Only	0.83#
8944	Coil Spring - Only	0.03#

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# PHOENIX MINING & TRANSIT SYSTEMS

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## CURRENT COLLECTORS FOR MINE TROLLEY LOCOMOTIVES



### TYPE M WHEEL TROLLEY HARPS

For use on mine jitneys, portal busses and light duty haulage locomotives. Pole head is manufactured of malleable iron, HDG, and the harp is bronze alloy. PHOENIX Type M Harps are furnished **without** wheels – wheels must be ordered separately.

Part Number	Description	Wt./Ea.
9025	Type M Harp – 1/2" Axle	9.0#
9026	Type M Harp – 5/8" Axle	9.0#
9027	Type M Harp – 3/4" Axle	9.0#
9035	Harp Casting Only – 1/2" Axle	3.4#
9036	Harp Casting Only – 5/8" Axle	3.4#
9037	Harp Casting Only – 3/4" Axle	3.4#
8941	Thru-Bolt for Pole Head	0.12#
9118	Bronze Clamp Plate - Only	0.50#
9136	King Bolt Assembly - Only	0.50#
8944	Coil Spring - Only	0.03#

Collector wheels are available in 4", 5" and 6" diameters with 1/2", 5/8" and 3/4" bores. For complete information contact factory.

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## SECTION INSULATORS, DEAD BLOCKS & SWITCHES

All PHOENIX Section Insulators, Dead Blocks and Switches will accommodate 2/0 to 6/0 Grooved, Figure 8 and No. 9 Section trolley wires. The unique unitized design incorporates separate interchangeable parts. This enables the user to change worn or pitted parts in-line without removing and replacing the entire unit and servicing it in the shop.

Rib-grip feeder lugs are available for 2/0 to 1590 MCM stranded copper or aluminum cable. Switch handles are designed for right to left operation but may be reversed and can be locked in the open position. 22 1/2" on center mounts are standard, but a single center mount is optional, consult factory.



P/N 1980 – Section Insulator Switch

Part Number	Description	Lugs	Amperage	Wt./Ea.
1980	Section Insulator Switch	2	1000	36#
1981	Section Insulator Switch	2	1500	38#
1988	Section Insulator Switch	2	2000	40#
1985	Dead Block with Two Feeder Lugs	2	N/A	22#
1986	Dead Block with Four Feeder Lugs	4	N/A	27#
1987	Dead Block - Trolley Wire Only	0	N/A	11#
1982	Insulator Switch - Trolley Wire Only	0	1000	26#
1983	Insulator Switch for Feeder - Only	2	1000	27#
1984	Insulator Switch for Feeder - Only	2	1500	29#
1989	Insulator Switch for Feeder - Only	2	2000	31#

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## **DISCONNECT SWITCHES**



Part Number 8679

PHOENIX Disconnect Switches are available from 400 to 2000 Amps and can accommodate stranded copper or aluminum feeder cables from 1/0 to 1590 MCM. Mounted on a fiber-reinforced plastic panel these switches incorporate the same unitized design as used for PHOENIX Section Insulator Switches.

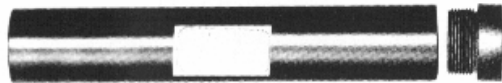
Part Number	Description	Amperage	Wt./Ea.
8677	Disconnect Switch	400 to 1000	22.0#
8679	Disconnect Switch	1200 to 1500	28.5#
8680	Disconnect Switch	1600 to 2000	36.5#

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**FUSE HOLDERS**

**IN-LINE FUSE HOLDERS**

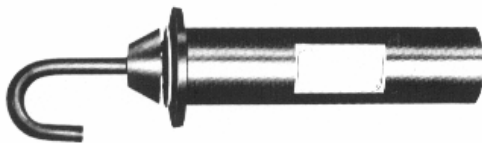


Fuse holders consist of two bronze connectors machined to fit dual element fuses, housed in a moisture resistant, non-conductive, case. Clear cases are available.

Part Number	Description	Voltage	Amperage	Wt./Ea.
17002	In-Line Fuse Holder	600	0-30	1.18#
17005	In-Line Fuse Holder	600	31-60	1.99#
17008	In-Line Fuse Holder	600	61-100	3.68#
17011	In-Line Fuse Holder	600	101-200	3.86#
17014	In-Line Fuse Holder	600	201-400	8.31#

To order fuse holder with a clear case add “-C ” to Part Number.

**HOOK STYLE FUSE HOLDERS**



Constructed the same as PHOENIX In-Line Fuse Holders except the power contact terminal is a round, hard drawn copper hook.

Part Number	Description	Voltage	Amperage	Wt./Ea.
17001	Hook Style Fuse Holder	600	0-30	1.64#
17004	Hook Style Fuse Holder	600	31-60	3.01#
17007	Hook Style Fuse Holder	600	61-100	3.41#
17010	Hook Style Fuse Holder	600	101-200	3.86#
17013	Hook Style Fuse Holder	600	201-400	9.45#

To order fuse holder with a clear case add “-C ” to Part Number.

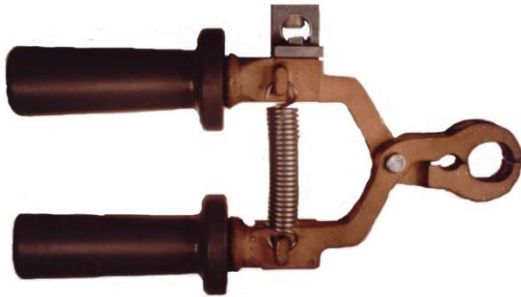
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## GROUND CLAMPS



### HEAVY DUTY PLIER TYPE GROUND CLAMP

Constructed of bronze alloy with solid PVC handles, and heavy gauge steel spring. Feeder lug can accommodate #2 to 500 MCM stranded copper or aluminum cable.

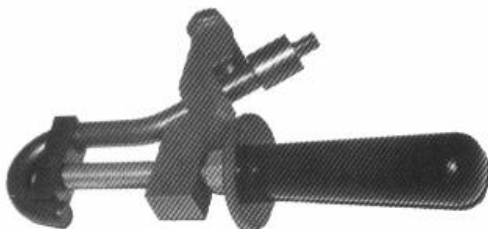
Part Number	Description	Wt./Ea.
17505	Heavy Duty Plier Type Ground Clamp	5.0#

### LIGHT DUTY PLIER TYPE GROUND CLAMP

Constructed the same as PHOENIX P/N 17505, except handles are PVC coated bronze alloy.



Part Number	Description	Wt./Ea.
17512	Light Duty Plier Type Ground Clamp	4.5#



### SCREW TYPE GROUND CLAMP AND FEEDER TAP

Round hard drawn copper hook which is held firmly in place by a bronze keeper. Keeper is secured by rotating the solid PVC handle.

Part Number	Description	Wt./Ea.
17517	Screw Type Ground Clamp	2.5#

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## RAILBONDS AND CROSSBONDS

Manufactured from the best quality 61 strand, soft drawn, 4/0 copper wire. Terminals are crimped by hydraulic press and welded to assure maximum strength. All railbonds and crossbonds are designed to be spot welded to the rail and may be reclaimed.

To order, please specify the terminal part number and the overall length in inches.



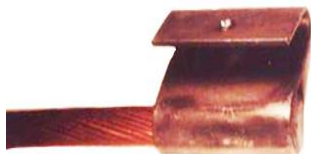
4059



4061



4062



4063



4064



4065

Part Number	Description
4059	Type DB Railbond
4061	Type CC Crossbond
4062	Type CR Railbond
4063	Universal Rail and/or Cross Bond
4064	Type R Horseshoe Bond
4065	Type F Horseshoe Bond

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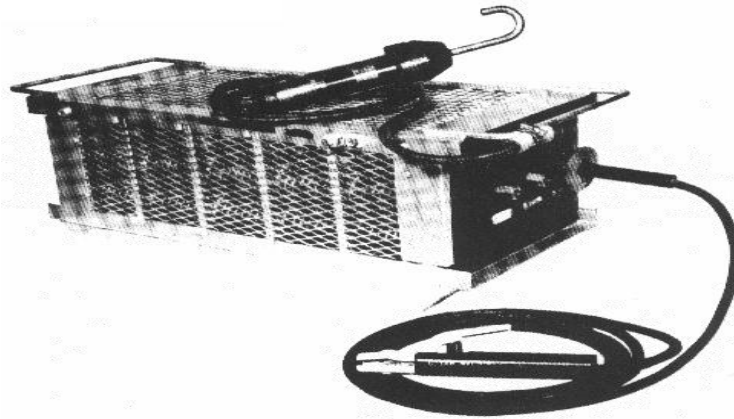
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## RAILBOND WELDER

Used to weld railbonds in areas where DC electric power is conveniently available and ventilation conditions prevent the use of diesel-powered equipment. PHOENIX Railbond Welders are resistor type arc welders with tapered plug and socket type taps. The helical resistance elements are fully protected on all sides by metal guards. Each unit comes complete with an eight (8) foot trolley lead and a 15 foot electrode lead with tapered plug and electrode holder.



Part Number	Voltage	Amperage Range	Wt./Ea.
30050	275	100-125-150-175-200	120#
30051	275	75-100-125-150-175-200	120#
30052	275	140-170-200	90#
30053	275	100-125-150	90#
30054	275	100-150-200-250-300	250#
30055	600	200	250#

## RAILBOND WELDERS FOR OFF BATTERY OPERATION

Part Number	Voltage	Amperage Range	Wt./Ea.
30056	48	100-150-200	35#
30057	64	90-120-150-200	35#
30058	128	200	35#

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## **PHOENIX MINING EQUIPMENT, INC. TERMS OF SALE AND WARRANTY**

**ACCEPTANCE:** This document supersedes all other agreements, oral or written, and all other communications between parties suggesting additional or different terms. This represents the final and complete understanding of the parties and may be amended or cancelled only by written agreement signed by both parties. This agreement expressly limits acceptance to these terms; no order shall have any force or until acknowledged in writing by SELLER; and any proposal for different terms or any attempt by BUYER to vary the terms herein is hereby deemed material and rejected. BUYER's receipt of any portion of the goods shall constitute acceptance of this Agreement and all the terms and conditions.

**TERMS OF PAYMENT:** Net payment is due thirty (30) days from date of invoice. A late charge of 1% per month will be added to unpaid balances. BUYER shall reimburse seller for any and all costs incurred in collecting amounts past due.

**INSECURITY:** If SELLER shall have any reasonable grounds for insecurity with respect to BUYER's ability to make payments when due, SELLER may decline to provide goods to BUYER except upon full payment in advance.

**RISK OF LOSS:** All risk of loss or damage to goods shipped hereunder shall pass to BUYER upon delivery of goods to BUYER, to BUYER's designated agent, or to a carrier for delivery to BUYER whichever occurs first.

**DELIVERY:** All delivery dates are estimates. SELLER shall not be liable for any claim, loss, or expense of any kind whatsoever brought about by delays in delivery. BUYER shall inspect goods within ten calendar days following delivery and promptly notify SELLER in writing of any claim that goods are defective or that BUYER is rejecting goods.

**IMPROVEMENT IN GOODS:** Seller reserves the right, at any time, to make any changes or changes in the design or specifications of the goods, or any part thereof, which SELLER, in its sole discretion, believes will constitute an improvement in such goods or part thereof.

**INDEMNIFICATION:** If goods are manufactured in accordance with specifications, designs or other directions provided by BUYER, BUYER shall indemnify, defend and hold harmless SELLER against all claims, losses, liabilities, attorney's fees which SELLER may incur or become liable to pay with respect to such goods, including (without limitation) claims relating to noncompliance with any federal, state or local regulations and any and all third party claims relating to said goods. BUYER shall also indemnify and hold harmless SELLER against all claims, expenses, attorney's fees and expenses which SELLER may incur or become liable to pay which arise because of (1) Improper installation or storage (2) accident, damage, abuse or misuse (3) abnormal operating conditions or applications (4) applications or operating conditions above rated capacity of the goods (5) applications or operating conditions not made known or contemplated by SELLER at the time of sale or (6) use of goods varying in any degree from that for which the goods were designed.

**FORCE MAJEURE:** SELLER shall not be liable for any delay in or failure of performance due to any contingency beyond which SELLER has no reasonable control, including without limitation; an act of God: civil commotion; sabotage; labor dispute; fire or explosion; accident; inability to obtain suitable or sufficient labor, power or materials; delay of carrier; embargo; or any law, ordinance, rule or regulation whether valid or not.

**TERMINATION AND RE-STOCKING CHARGES:** Should BUYER cancel or terminate an order, for any reason, prior to shipment, BUYER shall pay to seller a Cancellation Charge equal to (1) all costs and expenses incurred by SELLER in regards to the cancelled order up to the date of cancellation plus (2) as liquidated damages and not as a penalty, an amount equal to 10% of the cancelled order. If BUYER wishes to return goods which have been received and accepted, BUYER must first receive written authorization to return the goods, and if approved will be charged a re-stocking fee of 25% of the sale price of the goods to the BUYER. All monies received for the order in excess of the 25% re-stocking charge will be returned to the BUYER in the form of a credit to be applied against future purchases, but must be exercised within one calendar year from date of issue.

**ASSIGNMENT:** This agreement is NOT assignable.

**JURISDICTION:** The laws of the State of Ohio shall be used to interpret this agreement.

## **WARRANTY AND LIMITATIONS**

SELLER warrants to BUYER that (1) it has good title to the goods, (2) that goods will conform to all descriptions and specifications incorporated herein, and (3) the goods will be free of defects in materials and workmanship for a period of one year from the date of Seller's shipment of goods to BUYER. THESE ARE SELLER'S ONLY WARRANTIES. SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED. SELLER'S liability to BUYER, or anyone claiming through BUYER, with respect to any claim or loss arising out a transaction with SELLER or alleged to have resulted from an act or omission of SELLER, whether in tort, contract, or otherwise, shall be limited to the repair or replacement of the goods or part thereof by SELLER. In no case will SELLER be liable for any bodily injury, death, or property damage resulting from or in any way arising out of the goods or their sale, use or manufacture. IN NO EVENT SHALL SELLER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES OR EXPENSES ARISING OUT OF ANY TRANSACTION WITH BUYER. If BUYER modifies or repaired goods, or if goods are not installed or used as SELLER intended, this WARRANTY is void.

# PHOENIX MINING & TRANSIT SYSTEMS

## OHIO BRASS TO PHOENIX CROSS REFERENCE

OHIO BRASS P/N	PHOENIX P/N
1799	7541
7554	10319
7558	10317
8675	9243
10073	7758
10571	5860
10572	8762
11553	7312
11554	7316
11907	7326
12810	8210
12811	7732
13684	8138
14231	10611
14356	8209
14363	8240
14390	8459
14497-3001	8629
14629	8239
14630	8235
14635	8000
14846	9260
14850	8030
14851	8031
14941	8239
15276	8629
15556	8944
15573	9055-R
15575	9054
15600	8032
15602	8004
15978	8204
16076	9025
16077	9026
16078	9027
16079	9025
16080	9026
16081	9027
16089	9035
16090	9036
16091	9037
16092	9035
16093	9036
16094	9037
16410	16000
16485	18012

OHIO BRASS P/N	PHOENIX P/N
16512	9114
16515	9142
16516	9143
16711	9141
16713	8236
16835	8525
16875	8677
16876	8677
16878	8677
16907	7540
16982	9127
17012	9260
18234	8012
18234	8013
18606	8199
18802	7811
18810	18028
18812	9135
18980	9118
19383	17512
19398	9117
19399	9115
19417	9120
19644	18020
19656-4003	9133
20012	9271
20292	9260
20446	10601
20473	9123
20474	9123
20484	9124
20489	9121
20490	9122
20556	8481
20560	8525 LS
21827	5476
21849	8623
21850	8625
21870	7541
21895	9128
22080	18022
22130	9137
22131	9139
22270	9147
22296	8201
22297	8033

OHIO BRASS P/N	PHOENIX P/N
22298	8626
22387	8208
22409	8626
22455	9260
22465	8031
22466	8032
22467	8033
22478	9247
22479	9244
22480	9246
22481	9248
22482	9250
22483	9053
22486	7770
22488	7772
22490	7774
22564	7766 T
22566	7768 T
22570	18021
22718	7769 T
22720	7775
22764	8625
22781	10624
22798	8482
22799	8483
22810	8887
22819	17505
52110-3001	10050
52111-3001	10060
52112-3001	9261
53545-3001	1980
53545-3002	1981
53547-3001	1980
53547-3002	1982
53548-3001	1981
53549-3004	1985
53720-3001	1980
53720-3002	1981
53736-3001	1983
53736-3002	1984
53824-3002	8544-1
53824-3003	8546-1
53824-2004	8548-1