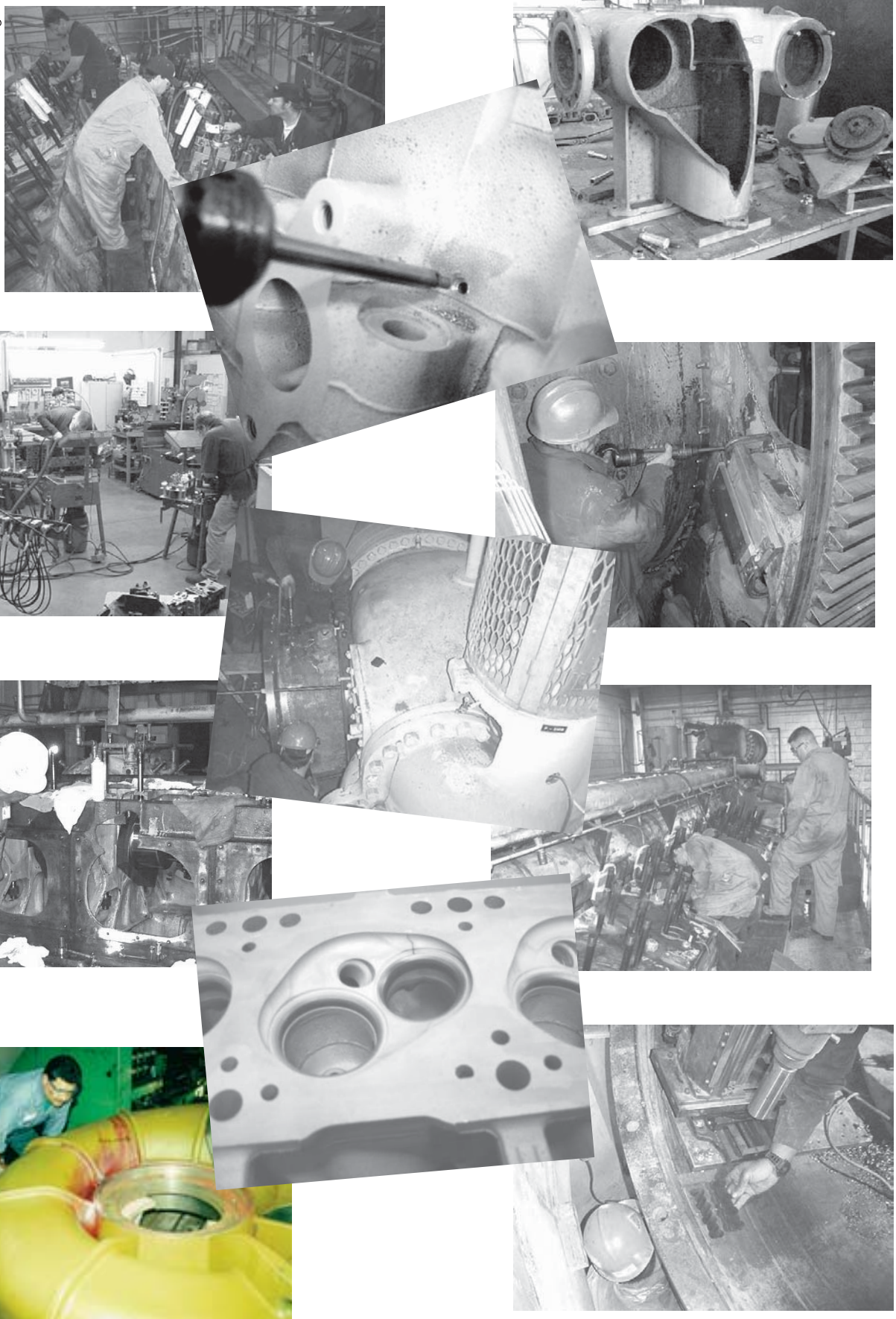
LOCK-N-STITCH®



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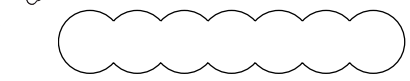
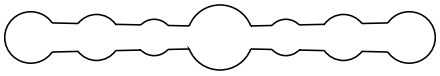
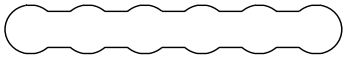
History of Metal Stitching



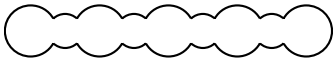
Harmon lock: hole pattern created by drilling. Minimalgrip, low tensile strength. Patented 1940.



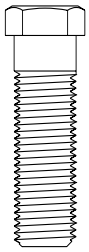
Murphy lock: hole pattern very difficult to create. Low strength. Patented 1950.



Metalock: hole pattern created by drilling and then chiseling to connect the holes. Minimal grip on casting, low tensile strength. Patented 1953.

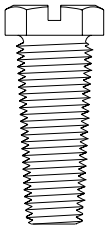


Ironstitch lock: hole pattern created by drilling, excellent grip, medium strength. Patented 1987.



Simple bolts were used by many casting repair companies over the years, especially by those using the old Metalock process. Drilled holes were tapped with a starting or plug style tap and the bolt tightened until it reached an interference in the incomplete threads of the bottom of the hole.

Tapered square head screws often made of cast iron required guess work in drilling and tapping. If over-tightened they would break off below the surface and cause serious spreading of the crack. Patented 1935.

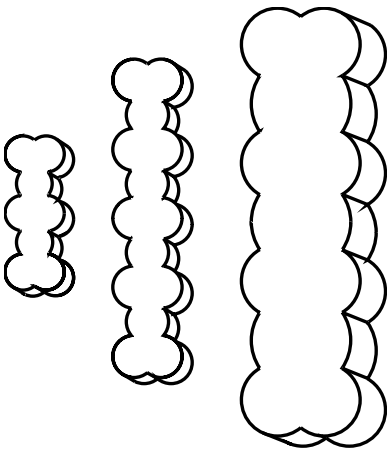


Tapered hex head screws had all of the installation guess work of the square headed screws but were commonly made of steel. With a higher strength than cast iron these screws would exert a greater spreading force on the crack. Patented 1961.

Threaded rods were used in place of bolts by screwing them into a tapped hole until they tightened against the incomplete threaded hole. They were then cut off above the surface and peened down with a hammer.

Out with the old

In with the new

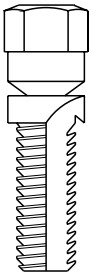


LOCK-N-STITCH locks are cut by wire EDM from high tensile steel heat-treated to 175,000 psi. Hole patterns are created by precision drilling. The grip established by *LNS* locks is so strong the lock will break before the lock slips in the hole pattern.

The design creates a pulling force on the sides of the crack when driven in. This ensures that no spreading force is generated that could cause the crack to extend the way other older lock designs did.

This design incorporates a significantly wider minimum cross section than any other lock ever developed which means much higher strength. Because of the limited installation locations available on the damaged casting, locks must be as strong as possible while remaining machinable. Patented in 1995

L Series Stitching Pins are machined from soft, free-machining steel that has the same thermal expansion rate as cast iron. These pins seal the hole that is drilled and tapped with an interference in the thread diameter.
A break-off groove is provided to cause the head to twist off. Patented in 1995.



CASTMASTER™ (C Series) stitching pins were patented in 1995 and represent the single most important innovation in the history of crack repair. For the first time ever, cracks can be repaired with strength over the entire length of the crack rather than just at intervals where locks are installed. Patented in 1995

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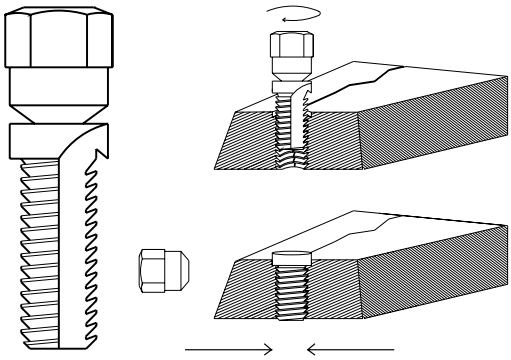
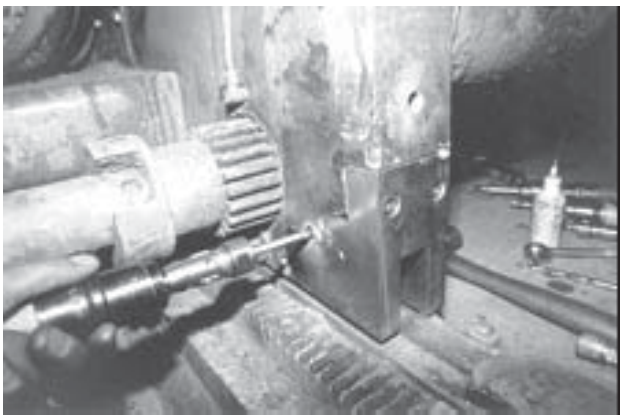
History of Metal Stitching

The strongest metal stitching ever! Structural strength and high-pressure seal over every inch of repair, not just at intervals like all other methods.

CASTMASTER™ stitching pins can repair castings 1/8" to 4" (3mm to 100mm) in thickness. Pins are installed in an overlapping series over the entire length of the crack, creating strength and high-pressure seal.



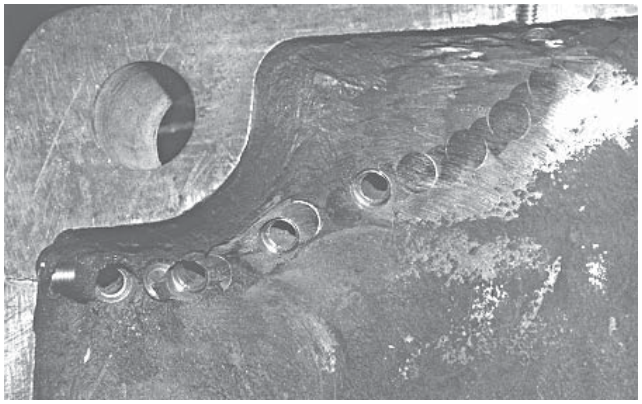
The secret to this very special stitching pin is the patented hook thread with a negative 20° pressure angle on the top side of the threads. The shoulder above the threads has an opposing negative 30° hook angle under it. When the shoulder seats into its counterbore, the pressure angle of the pin comes into contact with the matching pressure angle on the underside of the tapped hole. As the pin is torqued, a radial drawing force is created pulling the two sides of the joint together. The sealing mechanisum of this pin is complex with many metal-to-metal contact surfaces.



A new steel corner is stitched to the side frame of this large corrugated paper box printing machine using only CASTMASTER stitching pins. The new piece was cross drilled to accept the drive gear shaft and roller pin. Total on-site repair time, 10 hours, not including fabrication of the new piece.

It was impractical to metal stitch cracks located near or in corners prior to CASTMASTER technology. Three serious cracks in this 8 ft. diameter blower housing were easily repaired in 8 hrs. using CASTMASTER stitching pins to re-establish strength over the entire length of the crack.

Part of the lower liner seal surface on this large bore MANN 8 cylinder diesel engine on board the USNS Shutgart was broken off when a connecting rod failed. A new section was machined from steel and stitched into place using CASTMASTER stitching pins. The repair was approved by American Bureau of Shipping (ABS).



Pieces that have been completely broken off like the mounting foot on this large vacuum pump can be reattached with CASTMASTER stitching pins.

About L Series Stitching Pins

When considering which stitching pin to choose for a particular repair, you will want to understand the functions of our two types of pins. Read about L Series on this page and about C Series on the next page.

The most important thing to remember about the L Series pins is that when tightened into the casting they seal on the threads because the pin is bigger than the tapped hole. This results in spreading pressure on the crack. If the casting doesn't have enough structural strength to contain the spreading pressure, extension of the crack can occur. REMEMBER, L Series pins create ***spreading*** pressure.

Our L Series pins consist of three different diameters, several different thread lengths, and are made of either steel or aluminum. The L4 pins are very small and have extra fine threads for use in thin material and in tight places. L6 pins are about 1/4" in diameter, have coarser threads, and are the most popular of all pins for many cracks in cylinder heads. Our L8 pins are larger and have the same pitch as the L6 pins. They are used in many casting repairs up to 1" in thickness.

The steel pins are made of a soft machinable steel that has the same expansion rate as cast iron with about the same hardness and corrosion resistance. Our aluminum pins are made of 2024 T4 aluminum. This is a harder, stronger grade of aluminum than most castings are made of.

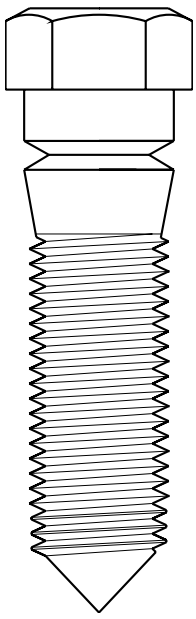
All *LOCK-N-STITCH*® pins are designed to be installed up to the shoulder so the head can twist off while leaving a small amount above the surface to grind or machine off. This means that in order to completely fill the drilled hole without more than 1/8" of the pin protruding on the other side, you will have to inventory an assortment of different lengths to accomodate different thicknesses of castings.

Because these pins seal on the threads, it is possible to install them at steep angles to the surface. This is why they are so popular for repairing cylinder heads. The combustion chambers of cylinder heads are, in most cases, very strong structural shapes. The L Series pins perform extremely well in these applications. There are some specific repairs where the CASTMASTER™ pins are required, but for most cases L Series pins really do a good job.

It is not necessary for the tapered shoulder of the L Series pin to contact the surface evenly. In fact, in most cases it doesn't. In the places a perfect finish is required, such as on a machined surface, the shoulder will crush into the surface and leave a flawless finish when machined. When extra material is to be machined from the repaired surface or when the cast iron is hard (such as exhaust seats), use a countersink to enable the pin to seat deeper.

We recommend that whenever possible you stitch across cast iron intake and exhaust seats and remachine the new seat right over the pin without installing a seat ring. Many repairs can be made to aluminum heads with our L4 aluminum pins without removing the seats. The tap can cut right into the side of the seat.

If your repair doesn't run along an inside or outside corner, or doesn't run into a freeze plug hole or bolt hole, and doesn't require the addition of structural strength, the L Series pins can seal a leak or fill a gap faster and easier than anything else you've ever seen.



US Patent No. 5,417,532 and other US Patents pending

About C Series Stitching Pins

CASTMASTER™ (C Series) stitching pins do not spread the crack! In fact they do the opposite. This pin with its incredible Spiralhook™ threads creates a drawing pressure that actually pulls the sides of a crack together and permanently locks them together. C Series pins exert PULLING pressure.

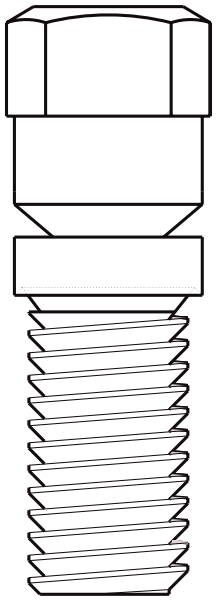
So why not just always use CASTMASTER™ pins? The installation process requires that every drilled hole receive a recessed spotface to assure some of the shoulder of the pin remains below the surface after grinding or machining. The spotfacing is accomplished with a special piloted tool. The reasons not to choose C Series pins for all your repairs are cost, speed and technical requirements. Because of the spotface, installing the pins at steep angles to the surface usually doesn't leave enough material thickness for the threads.

Almost all repairs to cylinder heads that are made below the seat angle are made with L Series pins. C Series pins can be used from the bottom of the seat angle outward to the end of the crack. A new seat can be ground or three-angle cut right on C Series or L Series pins. Cracks that extend back into a port are repaired by drilling through both walls. C Series pins will seal on both ends.

Cracks that run crosswise on the top of cylinder heads are usually repaired with CASTMASTER™ pins in order to add strength instead of spreading pressure, so the repair will not open when the head is torqued to the block. Cracks that extend from threaded holes, freeze plug holes, pipe plug holes and main bearing holes require CASTMASTER™ pins. Cracks that originate from the corner of the cap fit in a main bearing can be repaired with C Series pins.

You should always choose the largest diameter CASTMASTER™ pins that you can. For repairs in thin sections down to 0.100" use C1 pins. For sections starting at 0.200" in thickness, use C2F pins and for sections 0.750" to 2" use C3 pins.

C2 was the first CASTMASTER™ pin introduced and is now is being replaced with C2F pins. Many improvements, including one of the original design features, have been included in this new version. These changes include a single tap process for through holes, same tap drill size as L6 pins, a hook angle under the shoulder with matching spotface, ability to be used in thinner sections and a large increase in strength and seal.



US Patent No.s 5,379,505 and 5,499,892
Australian Patent No. 684525
Russian Patent No. 2137581
and other foreign patents pending

In extreme structural repairs, locks should be used in conjunction with CASTMASTER™ pins. It is often easiest to use L Series pins next to the locks and then continue the repair with C Series pins.

Steel CASTMASTER™ pins can be used in aluminum castings where heat and corrosion are not a factor. Aluminum CASTMASTER™ pins should be used in combustion chambers when cracks extend below valve seat inserts and when the inserts will be replaced. When seat inserts will be replaced after a crack repair it is not necessary to heat the head and freeze the seat prior to installation. You can simply apply LHC623 to both the seat bore and seat and drive the seat in the way you would in a cast iron head. The sealant will lubricate during installation and then cure for retaining strength.

NOTE: The spotface depth for C Series pins is important. Whenever possible you should try for approximately 50% of the shoulder to be left below the surface. In the combustion chamber this will make the repair more heat-resistant. You must pay close attention to the depth of the spotface to make sure there is enough material left for threads.

About Locks

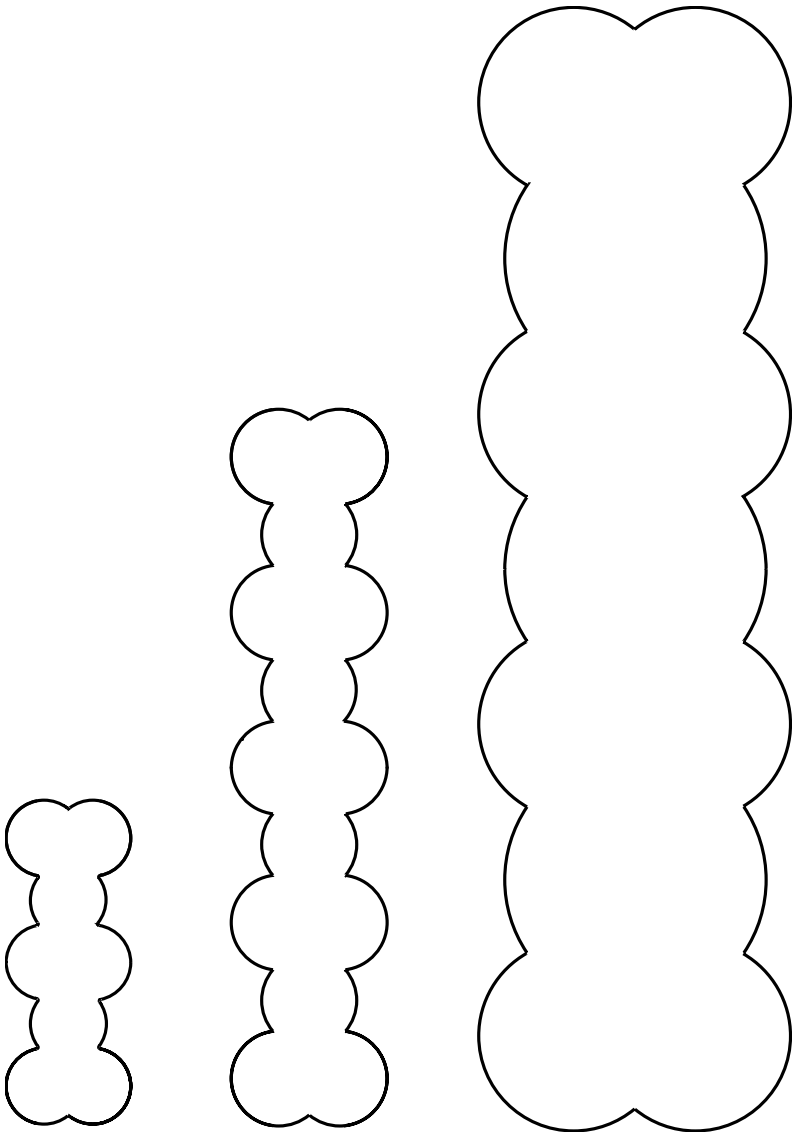
Locks are used to add strength across a crack. Special drill jigs are used to create the precision pattern that locks are driven into.

All of our locks have a unique ability to pull the sides of the crack together. This is not done to close the crack but rather to prevent any spreading pressure from being applied to the repair site.

Our locks are punched or wire EDM cut from aircraft quality 4130 steel plate. The locks are intended to be stacked or laminated to a depth of 80% of the thickness of the material being repaired.

Use locks whenever the utmost strength is required. Always use the largest locks possible. Locks can not be bent around corners or curves. They must be installed flat. Use CASTMASTER™ pins on curves and locks on flat surfaces. The use of locks and CASTMASTER™ pins will produce the strongest repair possible.

Surface locks are available for installation on uneven surfaces. They range in thickness from 0.160" (L10 surface locks) to 1" thick (L60 surface locks.) Surface locks are intended to serve as a final "cap" on top of a stack of bottom locks in the drilled hole pattern. Bottom locks are thin (0.190") for stacking into the casting and creating a laminated effect.



L 15/5 L10 to L50 L60

US Patent No. 5,417,532 and other US Patents pending

L4 Stitching Pins

Steel L Series L4 Stitching Pins

Part #	Thread length	Qty
L4A-50	*1/4" thread*	50
L4A-100		100
L4A-250		250
L4A-500		500
L4A-1000		1000
L4A-2500		2500
L4A-5000		5000

L4A

L4B-50	*1/2" thread*	50
L4B-100		100
L4B-250		250
L4B-500		500
L4B-1000		1000
L4B-2500		2500
L4B-5000		5000

L4B

Aluminum L Series L4 Stitching Pins

Part #	Thread length	Qty
L4AL-50	*1/4" thread*	50
L4AL-100		100
L4AL-250		250
L4AL-500		500
L4AL-1000		1000
L4AL-2500		2500
L4AL-5000		5000

L4AL

L4BL-50	*1/2" thread*	50
L4BL-100		100
L4BL-250		250
L4BL-500		500
L4BL-1000		1000
L4BL-2500		2500
L4BL-5000		5000

L4BL

POWERTAP™ Taps for L4 Stitching Pins

Part #	Style	Qty
L4BT-1	bottoming	1
L4BT-3	bottoming	3
L4BT-6	bottoming	6
L4PT-1	starting	1
L4PT-3	starting	3
L4PT-6	starting	6

see page 26

Tough Duty Taps for L4 Stitching Pins

Part #	Style	Qty
LT4BT-1	bottoming	1
LT4BT-3	bottoming	3
LT4BT-6	bottoming	6
LT4ST-1	starting	1
LT4ST-3	starting	3
LT4ST-6	starting	6
LT4PLT-1	piloted	1
LT4PLT-3	piloted	3
LT4PLT-6	piloted	6

see page 26

Tough Duty Drill bits (wire 29) for L4 & C1 Stitching Pins

Part #	Length	Qty
L4402TD	jobber	2
L4400TD	jobber	6
L4402X	6" extension	2
L4400X	6" extension	6

see page 31

AccuSize™ Tough Duty Drill bits (wire 29) for L4 & C1 Stitching Pins

Part #	Length	Qty
L4402AC	jobber	2
L4400AC	jobber	6

see page 31

Tap Extractor & Fingers
for L4 and C1 Taps
L0040
L0045
see page 28

Drill Guide & Tap Extension
for L4 and C1 Stitching Pins
L4XK
see page 32

Countersink for L4 Stitching Pins

Countersink for L4 pins	L4CS-1	pkg of 1
	L4CS-2	pkg of 2
	L4CS-6	pkg of 6

see page 30

Pin Spacing Drill Jig
for L4 and C1 Stitching Pins
L4500
see page 32

Quick Change Adapter
for L4 and C1 Taps
C1TA
see page 28

Drill stops for L4 drill bits & countersink

Part #	Qty
LDS-29 (use with wire 29 drill bit)	1
LDS-7/32 (use with L4CS & C1PSF)	1

see page 33

for kits containing L4 pins see pages 18, 23, 24, & 25

L6 Stitching Pins

Steel L Series L6 Stitching Pins

Part #	Thread length	Qty
L6AS-50	*1/4" thread*	50
L6AS-100		100
L6AS-250		250
L6AS-500		500
L6AS-1000		1000
L6AS-2500		2500
L6AS-5000		5000
L6A-50	*3/8" thread*	50
L6A-100		100
L6A-250		250
L6A-500		500
L6A-1000		1000
L6A-2500		2500
L6A-5000		5000
L6B-50	*5/8" thread*	50
L6B-100		100
L6B-250		250
L6B-500		500
L6B-1000		1000
L6B-2500		2500
L6B-5000		5000
L6C-50	*1" thread*	50
L6C-100		100
L6C-250		250
L6C-500		500
L6C-1000		1000
L6C-2500		2500
L6C-5000		5000

L6AS

L6A

L6B

L6C

Aluminum L Series L6 Stitching Pins

Part #	Thread length	Qty
L6AL-50	*3/8" thread*	50
L6AL-100		100
L6AL-250		250
L6AL-500		500
L6AL-1000		1000
L6AL-2500		2500
L6AL-5000		5000

L6AL

Tap Extractor & Fingers
for L6 and C2F Taps
L0060
L0065
see page 28

Drill Guide & Tap Extension
for L6 & C2F Stitching Pins
L6XK
see page 32

Pin Spacing Drill Jig
for L6 & C2F Stitching Pins
L6500
see page 32

Quick Change Adapter
for L6 and C2F Taps
C2TA
see page 28

POWERTAP™ Taps for L6 Stitching Pins

Part #	Style	Qty
L6BT-1	bottoming	1
L6BT-3	bottoming	3
L6BT-6	bottoming	6
L6PT-1	starting	1
L6PT-3	starting	3
L6PT-6	starting	6

see page 26

Tough Duty Taps for L6 Stitching Pins

Part #	Style	Qty
LT6BT-1	bottoming	1
LT6BT-3	bottoming	3
LT6BT-6	bottoming	6
LT6ST-1	starting	1
LT6ST-3	starting	3
LT6ST-6	starting	6
LT6PLT-1	piloted	1
LT6PLT-3	piloted	3
LT6PLT-6	piloted	6

see page 26

Tough Duty Drill bits (wire 7) for L6 & C2F Stitching Pins

Part #	Length	Qty
L6402TD	jobber	2
L6400TD	jobber	6
L6402X	6" extension	2
L6400X	6" extension	6

see page 31

AccuSize™ Tough Duty Drill bits (wire 7) for L6 & C2F Stitching Pins

Part #	Length	Qty
L6402AC	jobber	2
L6400AC	jobber	6

see page 31

Countersink for L6 Stitching Pins

Countersink for L6 pins	L6CS-1	pkg of 1
	L6CS-2	pkg of 2
	L6CS-6	pkg of 6

see page 30

Drill stops for L6 drill bits & countersink

Part #	Qty
LDS-7 (use with wire 7 drill bit)	1
LDS-9/32 (use with L6CS & C2FPSF)	1

see page 33

for kits containing L6 pins see pages 18, 23, 24, & 25

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L8 Stitching Pins

Steel L Series L8 Stitching Pins

Part #	Thread length	Qty
L8AS-50	*1/4" thread*	50
L8AS-100		100
L8AS-250		250
L8AS-500		500
L8AS-1000		1000
L8AS-2500		2500
L8AS-5000		5000
L8A-50	*1/2" thread*	50
L8A-100		100
L8A-250		250
L8A-500		500
L8A-1000		1000
L8A-2500		2500
L8A-5000		5000
L8B-50	*1" thread*	50
L8B-100		100
L8B-250		250
L8B-500		500
L8B-1000		1000
L8B-2500		2500
L8B-5000		5000

L8AS

L8A

L8B

Drill stops for L8 drill bits & countersink

Part #	Qty
LDS-L (use with letter L drill bit)	1
LDS-3/8 (use with L8CS)	1

see page 33

Tap Extractor & Fingers
for L8 Taps
L0080
L0085
see page 28

Pin Spacing Drill Jig
for L8 Stitching Pins
L8500
see page 32

POWERTAP™ Taps for L8 Stitching Pins

Part #	Style	Qty
L8BT-1	bottoming	1
L8BT-3	bottoming	3
L8BT-6	bottoming	6
L8PT-1	starting	1
L8PT-3	starting	3
L8PT-6	starting	6
L8PLT-1	piloted	1
L8PLT-3	piloted	3
L8PLT-6	piloted	6

see page 26

Tough Duty Drill bits (letter L) for L8 Stitching Pins

Part #	Length	Qty
L8402TD	jobber	2
L8400TD	jobber	6

see page 31

AccuSize™ Tough Duty Drill bits (letter L) for L8 Stitching Pins

Part #	Length	Qty
L8402AC	jobber	2
L8400AC	jobber	6

see page 31

Countersink for L8 Stitching Pins

Countersink for L8 pins	L8CS-1	pkg of 1
	L8CS-2	pkg of 2
	L8CS-6	pkg of 6

see page 30

for kits containing L8 pins see pages 18 and 25

C1 Stitching Pins

Steel CASTMASTER™ C1 Stitching Pins

Part #	Thread length	Qty
C1A-50	*3/16" thread*	50
C1A-100		100
C1A-250		250
C1A-500		500
C1A-1000		1000
C1B-50	*5/16" thread*	50
C1B-100		100
C1B-250		250
C1B-500		500
C1B-1000		1000
C1C-50	*1/2" thread*	50
C1C-100		100
C1C-250		250
C1C-500		500
C1C-1000		1000

C1A

C1B

C1C

Aluminum CASTMASTER™ C1 Stitching Pins

Part #	Thread length	Qty
C1AL-50	*3/16" thread*	50
C1AL-100		100
C1AL-250		250
C1AL-500		500
C1AL-1000		1000
C1BL-50	*5/16" thread*	50
C1BL-100		100
C1BL-250		250
C1BL-500		500
C1BL-1000		1000
C1CL-50	*1/2" thread*	50
C1CL-100		100
C1CL-250		250
C1CL-500		500
C1CL-1000		1000

C1AL

C1BL

C1CL

Tap Extractor & Fingers
for C1 & L4 Taps
L0040
L0045
see page 28

Pin Spacing Drill Jig
for C1 & L4 Stitching Pins
L4500
see page 32

Drill Guide & Tap Extension
for C1 & L4 Stitching Pins
L4XK
see page 32

Quick Change Adapter
for C1 & L4 Taps
C1TA
see page 28

Taps for C1 Stitching Pins

Finishing Taps for C1 pins	C1FT-1	pkg of 1
	C1FT-3	pkg of 3
	C1FT-6	pkg of 6
Bottoming Taps for C1 pins	C1BT-1	pkg of 1
	C1BT-3	pkg of 3
	C1BT-6	pkg of 6

see page 27

Tough Duty
Drill bits (wire 29) for C1 & L4 Stitching Pins

Part #	Length	Qty
L4402TD	jobber	2
L4400TD	jobber	6
L4402X	6" extension	2
L4400X	6" extension	6

see page 31

AccuSize™ Tough Duty
Drill bits (wire 29) for C1 & L4 Stitching Pins

Part #	Length	Qty
L4402AC	jobber	2
L4400AC	jobber	6

see page 31

Spotfacer for C1 Stitching Pins

Spotfacer for C1 pins	C1PSF-1	pkg of 1
	C1PSF-2	pkg of 2
	C1PSF-6	pkg of 6

see page 30

Drill stops for C1 drill bits & spotfacer

Part #	Qty
LDS-29 (use with C1 drill bit)	1
LDS-7/32 (use with C1PSF & L4CS)	1

see page 33

Dimensions for C1 Stitching Pins

major diameter = 0.165"
shoulder diameter = 0.215"
tap drill size = 0.136" (wire size 29)

for kits containing C1 pins see pages 19, 22, 23, 24, and 25

C2F Stitching Pins

Steel CASTMASTER™ C2F Stitching Pins

Part #	Thread length	Qty
C2FA-50	*1/4" thread*	50
C2FA-100		100
C2FA-250		250
C2FA-500		500
C2FA-1000		1000
C2FB-50	*3/8" thread*	50
C2FB-100		100
C2FB-250		250
C2FB-500		500
C2FB-1000		1000
C2FC-50	*1/2" thread*	50
C2FC-100		100
C2FC-250		250
C2FC-500		500
C2FC-1000		1000
C2FD-50	*3/4" thread*	50
C2FD-100		100
C2FD-250		250
C2FD-500		500
C2FE-50	*1-1/8" thread*	50
C2FE-100		100
C2FE-250		250
C2FE-500		500

Aluminum CASTMASTER™ C2F Stitching Pins

Part #	Thread length	Qty
C2FAL-50	*1/4" thread*	50
C2FAL-100		100
C2FAL-250		250
C2FAL-500		500
C2FAL-1000		1000
C2FCL-50	*1/2" thread*	50
C2FCL-100		100
C2FCL-250		250
C2FCL-500		500
C2FCL-1000		1000
C2FEL-50	*1-1/8" thread*	50
C2FEL-100		100
C2FEL-250		250
C2EFL-500		500

Dimensions for C2F Stitching Pins

major diameter = 0.234"
shoulder diameter = 0.280"
tap drill size = 0.201" (wire size 7)

for kits containing C2F pins see pages 19, 22, 23, 24, and 25

Taps for C2F Stitching Pins

Finishing Taps for C2F pins	C2FFT-1	pkg of 1
	C2FFT-3	pkg of 3
	C2FFT-6	pkg of 6
Bottoming Taps for C2F pins	C2FBT-1	pkg of 1
	C2FBT-3	pkg of 3
	C2FBT-6	pkg of 6

see page 27

Tough Duty
Drill bits (wire 7) for C2F & L6 Stitching Pins

Part #	Length	Qty
L6402TD	jobber	2
L6400TD	6" extension	6
L6402X	6" extension	2
L6400X	jobber	6

see page 31

AccuSize™ Tough Duty
Drill bits (wire 7) for C2F & L6 Stitching Pins

Part #	Length	Qty
L6402AC	jobber	2
L6400AC	jobber	6

see page 31

Spotfacer for C2F Stitching Pins

Spotfacer for C2F pins	C2FPSF-1	pkg of 1
	C2FPSF-2	pkg of 2
	C2FPSF-6	pkg of 6

see page 30

Drill stops for C2F drill bits & spotfacer

Part #	Qty
LDS-7 (use with wire 7 drill bit)	1
LDS-9/32 (use with C2FPSF & L6CS)	1

see page 33

Tap Extractor & Fingers
for C2F & L6 Taps
L0060
L0065
see page 28

Pin Spacing Drill Jig
for C2F & L6 Stitching Pins
L6500
see page 32

Drill Guide & Tap Extension
for C2F & L6 Stitching Pins
L6XK
see page 32

Quick Change Adapter
for C2F & L6 Taps
C2TA
see page 28

C3 Stitching Pins

Steel CASTMASTER™ C3 Stitching Pins

Part #	Thread length	Qty
C3A-25	*5/8" thread*	25
C3A-50		50
C3A-100		100
C3A-250		250
C3B-25	*7/8" thread*	25
C3B-50		50
C3B-100		100
C3B-250		250
C3C-25	*1-3/8" thread*	25
C3C-50		50
C3C-100		100
C3C-250		250
C3D-25	*2" thread*	25
C3D-50		50
C3D-100		100
C3D-250		250

Spotfacer for C3 Stitching Pins

Spotfacer for C3 pins	C3PSF-1	pkg of 1
	C3PSF-2	pkg of 2
	C3PSF-6	pkg of 6

see page 30

Pin Spacing Drill Jig
for C3 Stitching Pins
C3500
see page 32

for kits containing C3 pins see pages 19, 22 and 25

C3A

C3B

C3C

C3D

Taps for C3 Stitching Pins

Roughing Taps for C3 pins	C3RT-1	pkg of 1
	C3RT-3	pkg of 3
	C3RT-6	pkg of 6
Finishing Taps for C3 pins	C3FT-1	pkg of 1
	C3FT-3	pkg of 3
	C3FT-6	pkg of 6
Bottoming Taps for C3 pins	C3BT-1	pkg of 1
	C3BT-3	pkg of 3
	C3BT-6	pkg of 6
Tap Set of one each for C3 pins	C3TS	C3RT-1 C3FT-1 C3BT-1

see page 27

Tough Duty Drill bits (letter O) for C3 Stitching Pins

Part #	Length	Qty
C3DB-2	jobber	2
C3DB-6	jobber	6

see page 31

AccuSize™ Tough Duty Drill bits (letter O) for C3 Stitching Pins

Part #	Length	Qty
C3DBAC-2	jobber	2
C3DBAC-6	jobber	6

see page 31

Drill stops for C3 drill bits & countersink

Part #	Qty
LDS-O (use with letter O drill bit)	1
LDS-31/64 (use with C3PSF)	1

see page 33

Dimensions for C3 Stitching Pins

major diameter = 0.375"
shoulder diameter = 0.480"
tap drill size = 0.316" (letter O)

C4 Stitching Pins

Steel CASTMASTER™ C4 Stitching Pins

Part #	Thread length	Qty
C4A-25	*1" thread*	25
C4A-50		50
C4A-100		100
C4B-25	*2" thread*	25
C4B-50		50
C4B-100		100
C4C-25	*3" thread*	25
C4C-50		50
C4C-100		100

Taps for C4 Stitching Pins

Roughing Taps for C4 pins	C4RT-1	pkg of 1
	C4RT-3	pkg of 3
Finishing Taps for C4 pins	C4FT-1	pkg of 1
	C4FT-3	pkg of 3
Bottoming Taps for C4 pins	C4BT-1	pkg of 1
	C4BT-3	pkg of 3
Tap Set of one each for C4 pins	C4TS	C4RT-1 C4FT-1 C4BT-1

see page 27

Spotfacer for C4 Stitching Pins

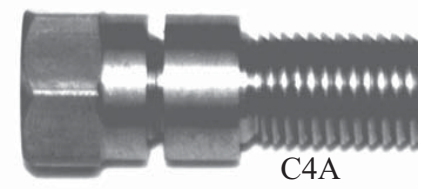
Spotfacer for C4 pins	C4PSF-1	pkg of 1
	C4PSF-2	pkg of 2

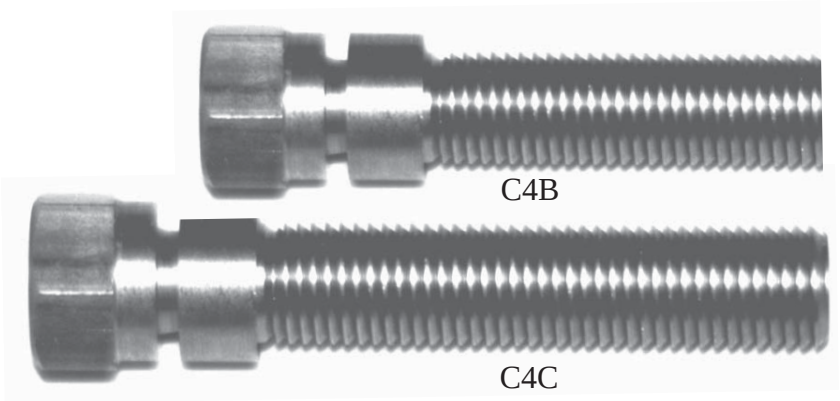
see page 30

AccuSize™ Tough Duty Drill bits (1/2") for C4 Stitching Pins

Part #	Length	Qty
C4DBAC-2	jobber	2
C4DBAC-6	jobber	6

see page 31


C4A


C4B

C4C

Dimensions for C4 Stitching Pins

thread diameter = 0.600"
shoulder diameter = 0.730"
tap drill size = 1/2"

LMK-C4 *C4 Steel Pin Mini-Kit*

Pins: 25 each of: C4A and C4B
10 each of: C4C
Taps: 1 each of C4RT, C4BT, and C4FT
Drill bits: 2 each of drill bits for the C4 pins
Other: 1 each of C4 spotfacer
4 ounces of tapping fluid (L750)
60ml of heat-conductive sealant for steel stitching pins (LHC724)

C4K *C4 Steel Pin Kit*

Pins: 50 each of: C4A, C4B, and C4C
Taps: 1 each of C4RT, C4BT, and C4FT
Drill bits: 6 each of drill bits for the C4 pins
Other: 2 each of C4 spotfacer
5 each of grinding discs with one mandrel
4 ounces of tapping fluid (L750)
60ml of heat-conductive sealant for steel stitching pins (LHC724)

L10 & L15/5 Locks

L10 Lock

The L10 lock is our narrowest lock. With a major width of only 0.204", it can fit into some pretty tight spots. It comes in two thicknesses: L10B, for stacking into a deep hole pattern and L10S, for installation at the surface. When installing locks on a machined surface, leave a small portion (approx 0.040") above the surface to peen and machine down. Use this lock in material ranging from 1/8" to 3/8" in thickness.

Lock dimensions: L10B = 0.080"H x 0.945"L x 0.204"W
L10S = 0.160"H x 0.945"L x 0.204"W
Use drill sizes 1/16" and 1/8"
Tensile strength: L10B = 1,050 pounds each
L10S = 2,100 pounds each
Material: heat treated 4130 steel

L10 Locks

Part #	Style	Qty
L10B-10	bottoming	10
L10B-25	bottoming	25
L10B-50	bottoming	50
L10S-10	surface	10
L10S-25	surface	25
L10S-50	surface	50

Lock Kit
for L10 Locks
L10K
see page 20

Drill Bit Set
for L10 Locks
L10DB
see page 31

Drill Stops
for L10 Lock drill bits
LDS-1/16"
LDS-1/8"
see page 33

L15/5 Lock

The L15/5 lock is a 5-lobe lock. This design allows for the maximum tensile strength in the shortest distance. L15/5 was designed for fast installation with a primary use in repairing automotive and diesel engine blocks. With an overall length of only 0.793" it can be installed across cracks that run close to and parallel to an edge or obstacle. Use this lock in material ranging from 3/16" to 7/16" in thickness.

Lock dimensions: L15/5 = 0.125"H x 0.793"L x 0.304"W
Use drill size wire 15 only
Tensile strength: 1,500 pounds each
Material: heat treated 4130 steel

L15/5 Locks

Part #	Qty
L15/5-10	10
L15/5-25	25
L15/5-50	50

Lock Kit
for L15/5 Locks
L15/5K
see page 20

Drill Bit Set
for L15/5 Locks
L15/5DB
see page 31

Drill Stop
for L15/5 Lock drill bits
LDS-15
see page 33

L15 & L20 Locks

L15 Lock

This lock transfers the grip on the cast iron farther away from the crack than does the L15/5 lock. Use in repairing castings ranging in thickness from 1/4" to 1/2". The most frequent applications for the L15 lock are repairing cracks in automotive, construction, farming, and trucking castings. Remember to stack the locks to a depth of approximately 80% of the casting thickness.

Lock dimensions: L15B = 0.080"H x 1.409"L x 0.320"W
L15S = 0.160"H x 1.409L x 0.320" W
Use drill sizes 3/32" and 3/16"
Tensile strength: L15B = 1,600 PSI each
L15S = 3,200 PSI each
Material: heat treated 4130 steel

Lock Kit
for L15 Locks
L15K
see page 20

Drill Bit Set
for L15 Locks
L15DB
see page 31

L15 Locks

Part #	Style	Qty
L15B-10	bottoming	10
L15B-25	bottoming	25
L15B-50	bottoming	50
L15S-10	surface	10
L15S-25	surface	25
L15S-50	surface	50

Drill Stops
for L15 Lock drill bits
LDS-3/32"
LDS-3/16"
see page 33

L20 Lock

The L20 lock offers a considerable amount of strength for its size. Drilling the hole pattern is fast and easy. Because of its short length, it is very easy to locate installation sites on the casting. While it is often placed in larger castings in the automotive industry, it has many applications in industrial use. Use this lock in castings with a wall thickness of 0.375" to 0.750".

Lock dimensions: L20B = 0.190"H x 1.877"L x 0.418"W
L20S = 0.375"H x 1.877"L x 0.418"W
Use drill sizes 1/8" and 1/4"
Tensile strength: L20B = 6,650 PSI each
L20S = 13,125 PSI each
Material: heat treated 4130 steel

Lock Kit
for L20 Locks
L20K
see page 20

Drill Bit Set
for L20 Locks
L20DB
see page 31

L20 Locks

Part #	Style	Qty
L20B-10	bottoming	10
L20B-25	bottoming	25
L20B-50	bottoming	50
L20S-5	surface	5

Drill Stops
for L20 Lock drill bits
LDS-1/8"
LDS-1/4"
see page 33

L30 & L40 Locks

L30 Lock

The L30 lock is used mostly for industrial repairs. With an overall length of 2.818" and a maximum width of 0.609" it is large enough to be considered an industrial application. This size is intended for casting thicknesses of 3/8" to 1". A drill pilot bushing comes with the kit to make drilling easier. It allows you to pilot drill all of the holes to 3/16" prior to drilling the larger holes of the pattern.

Lock dimensions: L30B = 0.190"H x 2.818"L x 0.609"W
L30S = 0.500"H x 2.818"L x 0.609"W
Use drill sizes 3/16" and 3/8"
Tensile strength: L30B = 9,975 PSI each
L30S = 26,250 PSI each
Material: heat treated 4130 steel

L30 Locks

Part #	Style	Qty
L30B-10	bottoming	10
L30B-25	bottoming	25
L30B-50	bottoming	50
L30S-5	surface	5

Lock Kit
for L30 Locks
L30K
see page 21

Drill Bit Set
for L30 Locks
L30DB
see page 31

Drill Stops
for L30 Lock drill bits
LDS-3/16"
LDS-3/8"
see page 33

L40 Lock

The L40 lock has an overall length of 3.770" and a maximum width of 0.820". It is used in castings with wall thicknesses ranging from 1" to 3". The hole pattern for this lock can be drilled with a hand-held drill. A drill bushing is provided to allow pilot drilling of all holes to make drilling of the 1/2" diameter holes easier. Because of the aggressive design of *LNS* locks these L40 locks hold up extremely well, even under the cyclic stresses generated by punch presses and shears.

Lock dimensions: L40B = 0.190"H x 3.770"L x 0.820"W
L40S = 0.750"H x 3.770"L x 0.820"W
Use drill sizes 1/4" and 1/2"
Tensile strength: L40B = 13,300 PSI each
L40S = 52,500 PSI each
Material: heat treated 4130 steel

L40 Locks

Part #	Style	Qty
L40B-10	bottoming	10
L40B-25	bottoming	25
L40B-50	bottoming	50
L40S-5	surface	5

Lock Kit
for L40 Locks
L40K
see page 21

Drill Bit Set
for L40 Locks
L40DB
see page 31

Drill Stops
for L40 Lock drill bits
LDS-1/4"
LDS-1/2"
see page 33