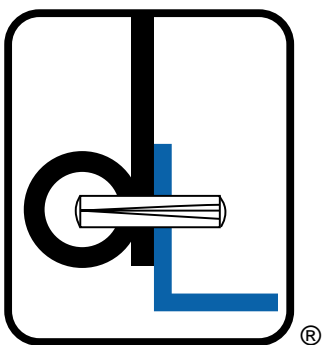
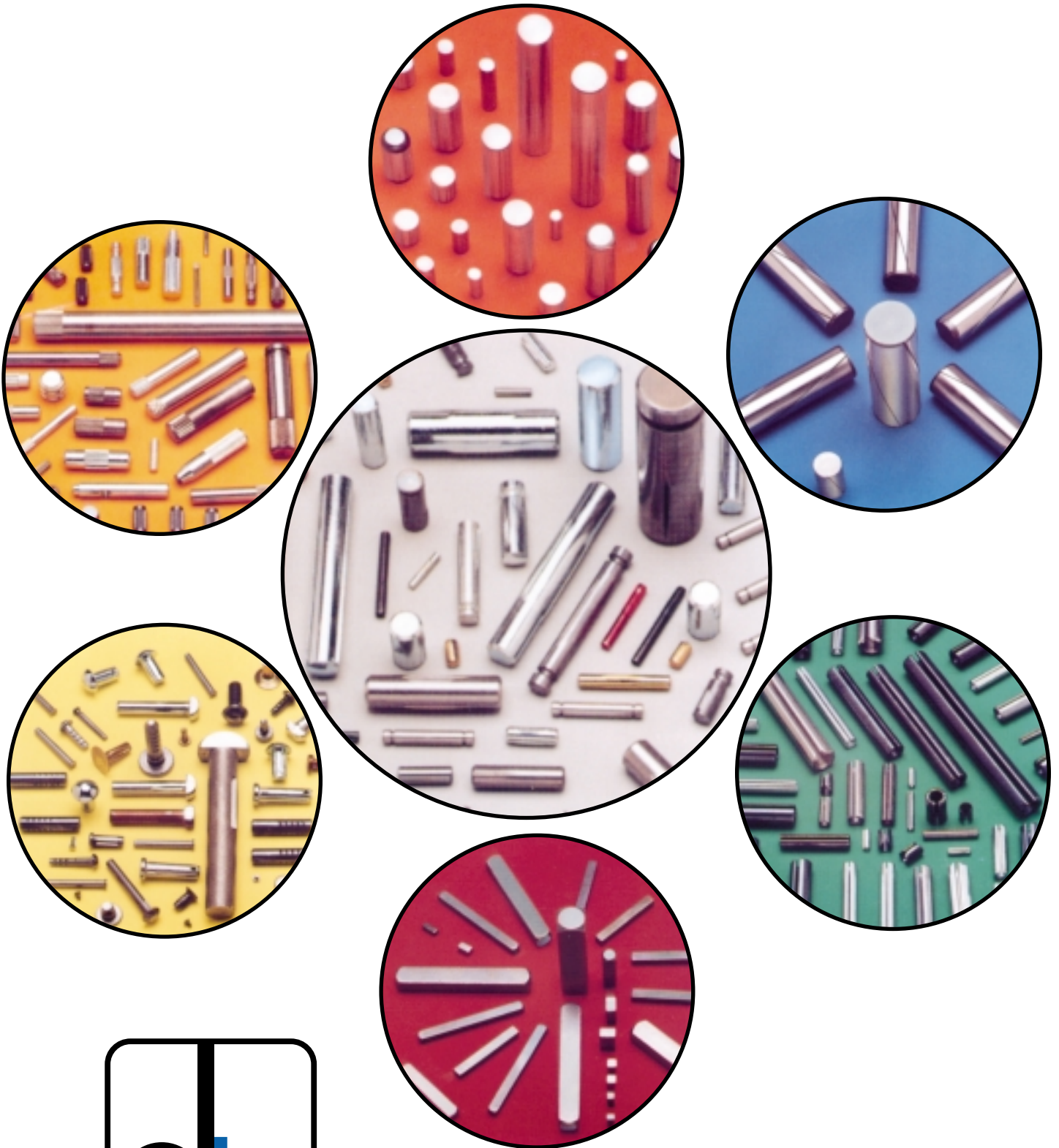


DRIV-LOK[®], Inc.

A Complete Line of Press Fit Fasteners

Metric sizes also available



QS9000/ISO9002

CERTIFIED

www.driv-lok.com

Special Press Fit Fasteners

DRIV-LOK has extensive machining capabilities to produce a wide range of special press fit fastening and joining products to solve many problems. The special fasteners on these pages are a small sampling of these



“Holding The Future Together”

Fasteners shown at actual size

broad capabilities. If you do not see the type of fastener to meet your requirements, please send a sketch of the fastener or a description of the application to the DRIV-LOK Sales Department

Phone: 815/895-8161

Fax: 815/895-6909

Website: www.driv-lok.com

Email: driv-lok@driv-lok.com



DRIV-LOK[®], Inc.

Mission Statement

DRIV-LOK is the preferred source of innovative, cost effective solutions for our customers who need press fit fastening, joining and special component applications. DRIV-LOK provides the highest quality, superior customer service, shortest lead times, and unequaled technical assistance through a team of dedicated professionals.

CORE VALUES

1. *Uncompromising integrity and pride in everything we do.*
2. *Nurture an environment of harmony and teamwork throughout the corporation.*
3. *Commitment to helping all team members strive to be the best they can be.*
4. *Dedication to provide our customers the highest quality workmanship and value.*
5. *Intense desire for continuous improvement and elimination of waste.*
6. *A resolve to create a safe, friendly, and fun atmosphere where teamwork and creativity are valued.*

OVER 60 YEARS OF SOLUTION RESOLUTION IN THE PRESS FIT FASTENER INDUSTRY

Whatever we call the major DRIV-LOK products, grooved pins, knurled pins, or drive studs, they fall in the general category of manufacturer of press fit fastening and joining products. Manufacturing *customer solutions* in the press fit fastener market is our forte.

The grooving process, applied to cylindrical pins or the cylindrical shanks of headed pins, involves precisely displacing a predetermined amount of material. This displaced material creates interference between the pin and the drilled hole, which locks the pin in place.

Our customers are the life of our business. You provide the market for our products. We are dedicated to supplying you a reliable, cost efficient, quality product at a fair price with best possible delivery. We seek to develop partnership relationships with you our customer to create open communications and continuous improvement. We believe that such relationships are the best way to insure superior customer service and satisfaction.

While we take a great deal of pride in being a high quality manufacturer of press-fit fasteners, we stay focused on doing whatever we can to help you provide the best product you can. In serving the agriculture, appliance, automotive, electrical, diesel engine, hardware, medical, sporting goods, industrial and fastener distribution markets, we have been rated above industry average in delivery performance, product line, lead times as well as providing engineering technical assistance.

We have and continue to develop the systems and procedures necessary to provide quality required by the toughest of situations. We recognize that an increasing number of your assembly applications require 100% good parts that statistical sampling methods cannot insure. We can continually check all parts to insure 100% quality product if your assembly process requires it.

Product Guide Index

The product information contained in this Comprehensive Guide to DRIV-LOK's press fit fastening and joining products includes:

- APPLICATION
- DESCRIPTION
- FUNCTION
- STANDARD TYPES
- SPECIAL TYPES
- SIZES & DIMENSIONS
- SPECIAL ORDERS & OPTIONS
- TECHNICAL DATA
- WEIGHTS & MEASURES
- ORDERING INFORMATION

In addition to the standard and special fasteners described in this Product Guide, DRIV-LOK's engineers are creating custom fasteners to solve new application needs every day. If you don't find the answer to your specific press fit fastening and joining products requirements herein, call DRIV-LOK. With us, today's special may be tomorrow's standard.

Phone: 815/895-8161

FAX: 815/895-6909

Website: www.driv-lok.com

Email: driv-lok@driv-lok.com



- DRIV-LOK "FAST FREIGHT SERVICE"
- VISA & MASTERCARD ACCEPTED

1. Functionality and performance of Driv-Lok fasteners in applications is the sole responsibility of our customers. Driv-Lok's role is to assist customers in finding fastener solutions for their application needs.
2. Driv-Lok does not authorize the sale or use of our fasteners in aircraft or aerospace applications.
3. Driv-Lok standard press fit fasteners are manufactured to ASME B18.8.2 standards. Testing methods and gauges recommended are derived from the ASME standards.
4. **NOTHING IN THIS CATALOG CONSTITUTES ANY WARRANTY OR REPRESENTATION AS TO APPLICATION. ALL PRODUCTS ARE SUBJECT TO DRIV-LOK, INC. TERMS AND CONDITIONS.**



**QS9000/ISO9002
CERTIFIED**

QS-9000 ★ ISO 9002

Certificate Number: 31637

<i>Special Pins</i>	1
<i>History - Mission Statement</i>	2
<i>Product Guide Index</i>	3
<i>Grooved Pins</i>	4, 5 & 6
<i>High Alloy SHEAR-PROOF™ Pins</i>	7
<i>Hardened Lok-Dowels™</i>	8
<i>Vent Dowels®</i>	8
<i>Knurled Pins</i>	9
<i>Grooved Studs</i>	10
<i>BARB-LOK™ Pins and Studs</i>	11
<i>Ferrol Pin and Studs</i>	11
<i>Slotted & Coiled Spring Pins</i>	12 & 13
<i>Split Hollow Dowels</i>	13
<i>Plain Pins and Dowels</i>	13
<i>Parallel Keys</i>	15
<i>Grooved Keys</i>	16
<i>Weights & Measures</i>	17 & 18
<i>Technical Data</i>	19
<i>Ordering Information</i>	20 & 21
<i>Quality "Plus"</i>	22
<i>Technical Assistance</i>	23

Dimensions, availability, and data contained herein are subject to change without notice.

Grooved Pins

APPLICATION

Grooved pins are non-threaded press fit fasteners. A **PRESS FIT** fastener is a fastener which is **PRESSED** into an appropriate size hole which will provide the proper interference **FIT** to lock the fastener in place. Grooved pins differ from many conventional press fit fasteners, such as dowel pins, in that the holes into which the grooved pins are inserted do not have to be reamed prior to insertion. This gives the grooved pin an important economic advantage over other types of press fit fasteners.

Grooved pins are commonly used as locking devices, pivots, bearing faces, or locating elements. They are used where there is not a high degree of end load. Basically, grooved pins are shear-resistant type fasteners. **For high shear applications, see High Alloy SHEAR-PROOF™ Pins on page 7.**

DESCRIPTION

The groove of a grooved pin is formed by a swaging operation in which three tools penetrate the nominal diameter of the metal at 120° intervals. This penetration displaces a controlled amount of metal to each side of the grooving tool, forming a raised portion along the side of each groove.

The crest of these raised portions forms the expanded diameter or "Dx" dimension which is shown in Figure 1. The Dx is a few thousandths larger than the nominal diameter "D" of the pin. The amount of expansion varies with the diameter of the pin, the material being grooved, and the style of groove.

FUNCTION

When a grooved pin is used, the hole into which the pin is to be inserted is drilled a few thousandths larger than the nominal diameter of the pin. The hole must never be smaller than the nominal diameter of the pin. (See Grooved Pin Drilling Procedures and Hole Tolerances on page 6.)

When the expanded portion of the pin is compressed by insertion into the hole, radial holding forces are generated as shown in Figure 2. These radial forces lock the pin securely into the drilled hole.

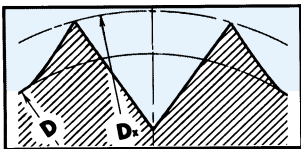


Figure 1

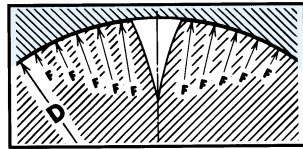
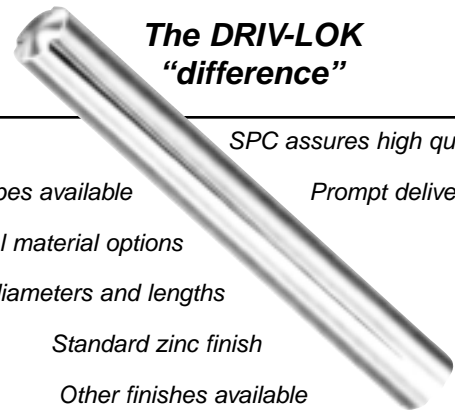


Figure 2

STANDARD TYPES

Standard grooved pins are manufactured to ASME B18.8.2. DRIV-LOK manufactures six standard types of grooved pins: Type A, Type C, Type E, Type G, Type H, and Type U. Standard grooved pins are manufactured from unhardened, low carbon steel with plain finish or commercial zinc plate. Groove and end configurations may

The DRIV-LOK "difference"



SPC assures high quality

Many groove types available

Prompt delivery

Several material options

Wide range of diameters and lengths

Standard zinc finish

Other finishes available

Optional end configurations

STANDARD TYPES (cont.)

vary depending upon diameter and length of the pin. These standard types are shown below with examples of typical applications.

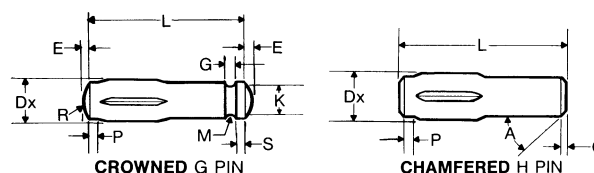
<p style="text-align: center;">Type A</p> <p>The Type A Pin has three full-length tapered grooves. This popular type is used in applications requiring excellent locking effect and ease of assembly. It is widely used in place of taper pins, rivets, set screws and keys. Typical applications include keying sprockets, gears, collars, knobs, handles, levers and wheels to shafts.</p>	<p style="text-align: center;">Type C</p> <p>The Type C Pin has three parallel grooves extending one-quarter its overall length. It is ideally suited for linkage or pivot applications, especially where a relatively short locking section and longer free length are required. Widely used in certain types of hinge applications. The long lead permits easy insertion.</p>	<p style="text-align: center;">Type E</p> <p>Type E has three parallel half-length grooves located equidistant from each end. Widely used as T handle on valves and tools. Also used as a cross pin, cotter pin, pivot pin, etc., where center locking is required.</p>
<p style="text-align: center;">Type G</p> <p>Type G has three parallel half-length grooves including pilot. It is a very versatile pin, suitable for use in both blind and through holes as a spring anchor pin. The annular groove opposite the locking end is used to anchor the end loop of a tension spring. If snap or retainer rings are to be used, special section annular grooves can be machined to order.</p>	<p style="text-align: center;">Type H</p> <p>Type H grooved pin has three parallel grooves for half the length of the pin. This type of pin may be used as a pivot, stop or hinge pin. When pressed in place, the grooved portion locks in one part while the ungrooved section remains free to serve as the locator, hinge, etc.</p>	<p style="text-align: center;">Type U</p> <p>Type U has three parallel grooves extending the full length of the pin. A short pilot at each end permits hopper or automatic feeding. Identical ends speed manual insertion as operator need not examine pin to determine proper end to start. Full length parallel grooves provide maximum locking effect. Typical applications include keying gears, collars, knobs, handles, etc., to shafts.</p>

Grooved Pins (cont.)

STANDARD GROOVED PIN DIMENSIONS

Dimension		Nominal Diameters										
		1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
Nominal Diameter	Max. Min.	.0625 .0610	.0938 .0923	.1250 .1230	.1563 .1543	.1875 .1855	.2188 .2168	.2500 .2480	.3125 .3105	.3750 .3730	.4375 .4355	.5000 .4980
Crown Height "E"		.0065	.0091	.0130	.0170	.0180	.0220	.0260	.0340	.0390	.0470	.0520
Crown Radius "R" ±.010		5/64	1/8	5/32	3/16	1/4	9/32	5/16	3/8	15/32	17/32	5/8
Pilot Length "P" (Ref.)		1/32	1/32	1/32	1/16	1/16	1/16	1/16	3/32	3/32	3/32	3/32
Chamfer Length "C" min.		.005	.005	.005	.005	.016	.016	.016	.031	.031	.031	.031
Chamfer Angle "A" ±5°		35°	35°	35°	35°	35°	35°	35°	35°	35°	35°	35°
Neck Radius "M" (Ref.)		—	1/64	1/32	1/32	1/32	3/64	3/64	1/16	1/16	3/32	3/32
Neck Width "G" ±.005		—	.033	.064	.064	.064	.096	.096	.127	.127	.190	.190
Neck Diameter "K" ±.005		—	.062	.083	.104	.125	.146	.167	.209	.250	.293	.312
Shoulder Width "S" +.010/-.000		—	1/32	1/32	3/64	3/64	1/16	1/16	3/32	1/8	1/8	1/8
Lengths* "L" ±.010	to	1/4	1/4	1/4	3/8	3/8	1/2	1/2	5/8	3/4	7/8	1
	to	1	1 1/4	1 1/2	2	2	2 1/4	2 3/4	2 3/4	3 1/2	3 1/2	3 1/2

* Length increments are by 1/8 inch up to 1 inch, and by 1/4 inch over 1 inch. Standard availability may vary depending upon groove type. The length of chamfered pins is measured overall from end to end. The overall length of crowned pins is measured at L + 2E. End configuration may vary depending upon pin length and groove type. All dimensions apply prior to plating.



STANDARD EXPANDED DIAMETERS (Dx)

Length	Nominal Diameter											
	1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2	
Expanded Diameter	Expanded Diameter											
	±.0015	±.002	±.0025				±.003					
1/8	.068	.101	.134	.166	.198	.230	.263	.329				
3/16	.068	.101	.134	.166	.198	.230	.263	.329				
1/4	.068	.101	.134	.166	.198	.230	.263	.329				
5/16	.068	.101	.134	.166	.198	.230	.263	.329	.394	.459	.525	
3/8	.068	.101	.134	.166	.198	.230	.263	.329	.394	.459	.525	
7/16	.068	.101	.134	.166	.198	.230	.263	.329	.394	.459	.525	
1/2	.068	.101	.134	.166	.198	.230	.263	.329	.394	.459	.525	
9/16	.068	.101	.134	.166	.198	.230	.263	.329	.394	.459	.525	
5/8	.068	.101	.134	.166	.198	.230	.263	.329	.394	.459	.525	
3/4	.067	.100	.134	.166	.198	.230	.263	.329	.394	.459	.525	
7/8	.067	.100	.133	.165	.198	.230	.263	.329	.394	.459	.525	
1	.067	.100	.133	.165	.198	.230	.263	.329	.394	.459	.525	
1 1/4		.100	.132	.164	.197	.229	.262	.329	.394	.459	.525	
1 1/2			.132	.164	.197	.229	.262	.329	.394	.459	.525	
1 3/4				.163	.197	.229	.262	.328	.393	.459	.525	
2				.163	.196	.229	.262	.328	.393	.458	.525	
2 1/4						.229	.262	.328	.393	.458	.524	
2 1/2							.261	.327	.393	.458	.524	
2 3/4							.261	.327	.393	.458	.524	
3								.327	.392	.457	.523	
3 1/4									.392	.457	.523	
3 1/2									.391	.456	.522	

Nom. Diam. (D)	Exp. Diam. (Dx) reduced by
1/16	.002
3/32	.002
1/8	.002
5/32	.002
3/16	.003
7/32	.003
1/4	.003
5/16	.004
3/8	.005
7/16	.006
1/2	.006

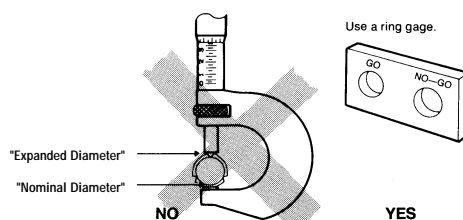
TOLERANCES:
 On Nominal Diameter "D":
 +.000/-.0015 up to 7/64" diameter
 +.000/-.002 7/64" diameters and over
 On overall Length "L":
 ±.010 for all diameters

For stainless steels and other special materials, the expanded diameters shown in above table are reduced by amounts shown at left.

Note: Intermediate pin lengths, pin diameters up to 3/4", groove lengths, and special groove positions are ordered as specials. See pages 20 and 21 for ordering information.

CHECKING EXPANDED DIAMETERS

As shown, expanded diameters cannot be accurately measured using a micrometer. For accurate measurement of expanded diameters, a ring gage must be used.



Grooved Pins (cont.)

STANDARD SIZES FOR TYPES A, C, E, H & U

Lengths	Diameters										
	1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
1/4	■	■	■								
3/8	■	■	■	■	■						
1/2	■	■	■	■	■	■	■				
5/8	■	■	■	■	■	■	■	■			
3/4	■	■	■	■	■	■	■	■	■		
7/8	■	■	■	■	■	■	■	■	■	■	
1	■	■	■	■	■	■	■	■	■	■	■
1 1/4		■	■	■	■	■	■	■	■	■	■
1 1/2			■	■	■	■	■	■	■	■	■
1 3/4				■	■	■	■	■	■	■	■
2				■	■	■	■	■	■	■	■
2 1/4					■	■	■	■	■	■	■
2 1/2						■	■	■	■	■	■
2 3/4						■	■	■	■	■	■
3								■	■	■	■
3 1/4								■	■	■	■
3 1/2								■	■	■	■

STANDARD SIZES FOR TYPE G (Formerly F & G)

Lengths	Diameters										
	1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
3/8	■	■	■	■	■						
1/2	■	■	■	■	■	■	■				
5/8	■	■	■	■	■	■	■	■			
3/4	■	■	■	■	■	■	■	■	■		
7/8	■	■	■	■	■	■	■	■	■	■	
1	■	■	■	■	■	■	■	■	■	■	■
1 1/4		■	■	■	■	■	■	■	■	■	■
1 1/2			■	■	■	■	■	■	■	■	■
1 3/4				■	■	■	■	■	■	■	■
2				■	■	■	■	■	■	■	■
2 1/4					■	■	■	■	■	■	■
2 1/2						■	■	■	■	■	■
2 3/4						■	■	■	■	■	■
3								■	■	■	■
3 1/4								■	■	■	■
3 1/2								■	■	■	■

GROOVED PIN DRILLING PROCEDURES AND HOLE TOLERANCES

Pin Diameter	Decimal Equivalent	Recommended Drill Size	Hole Tolerances ADD To Nominal Diameter
1/16"	.0625	1/16"	.002"
3/32	.0938	3/32	.003"
1/8	.1250	1/8	.003"
5/32	.1563	5/32	.003"
3/16	.1875	3/16	.004"
7/32	.2188	7/32	.004"
1/4	.2500	1/4	.004"
5/16	.3125	5/16	.005"
3/8	.3750	3/8	.005"
7/16	.4375	7/16	.006"
1/2	.5000	1/2	.006"




Insertion and holding forces vary with hole size and groove length. Recommended hole size tolerances are based on a groove length to hole diameter ratio of approximately 5 to 1. A higher ratio than 5 to 1 may require adjustment in hole size. If the ratio is 1 to 1 or less then the hole tolerance should be reduced approximately 60%. Smaller hole size variation should result in more consistent insertion forces. These factors should be considered when designing press fit fasteners for your application.

Hole sizes should never be smaller than the nominal diameter of the grooved pin. Minimum hole size equals nominal grooved pin diameter. Maximum hole size equals minimum hole size plus recommended hole tolerance from the chart.

Example: 1/8 diameter pin: Min. hole = .125
Max. hole = .125 + .003 = .128

A slight chamfer on the hole is recommended particularly with holes in hardened steel, cast iron, and with hardened grooved pins.

TYPICAL OPTIONAL GROOVE TYPES

<p>TYPE D</p>  <p>Type D has three reverse taper grooves extending one-half the length of the pin. Recommended for use in blind holes as a top pin, roller pivot, dowel, or for certain hinge or linkage applications. Reverse taper grooves permit easy insertion in blind holes.</p>	<p>TYPE B</p>  <p>Type B Pins have three tapered grooves extending one-half the length of the pin. This type is widely used as a hinge or pivot pin. Driven or pressed into a straight drilled hole, the grooved portion locks in one part, while the ungrooved portion will remain free. Also excellent for dowel and locating applications.</p>	<p>TYPE A3</p>  <p>Type A3 Pins have three full-length parallel grooves with a short pilot to insure easy starting. They are recommended for applications requiring maximum locking effect where severe vibration and/or shock loading are present.</p>
--	---	---

SPECIAL ORDERS AND OPTIONS

DRIV-LOK's engineering department will work with customers to provide technical assistance for special orders. Shown at left are a few of the groove types and configuration options available. Special materials, diameters, lengths, and finishes are also available as special orders. See **ORDERING INFORMATION** on page 20 for options available.

WEIGHTS & MEASURES

See page 17.


TECHNICAL DATA

See page 19.

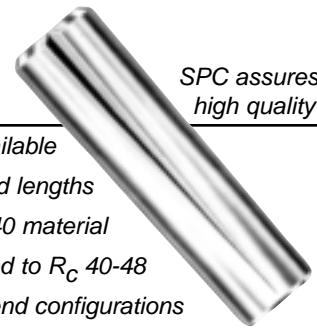
ORDERING INFORMATION

See pages 20 & 21.

OPTIONAL GROOVE CONFIGURATIONS

			
SQUARE	OVAL	DIAMOND	TAPERED

High Alloy *SHEAR-PROOF™ Pins



SPC assures high quality

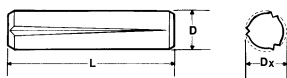
APPLICATION

DRIV-LOK SHEAR-PROOF™ pins replace standard low carbon grooved pins and spring pins in high shear applications. See the Technical Section on page 19 for shear strength comparisons of SHEAR-PROOF™, low carbon, coiled spring pins and slotted spring pins. Notice the much higher shear values provided by SHEAR-PROOF™ pins.

DESCRIPTION

Standard SHEAR-PROOF™ pins have the Type A groove configuration as shown. This groove configuration provides tapered expansion beginning at one end of the pin and expanding to the maximum at the opposite end of the pin. Insertion of the Type A pin is allowed in one direction only.

STANDARD TYPE A



SHEAR-PROOF™ pins are manufactured from 4140 or 6150 alloy steel in the same manner as grooved pins and are heat treated by austempering to a Rockwell “C” 40-48 hardness. Austempering provides a bainitic microstructure which is tougher than a martensitic microstructure produced by standard oil quenches. SHEAR-PROOF™ pins are furnished with a light oil finish for corrosion-resistance.

FUNCTION

SHEAR-PROOF™ pins lock in place in the same manner as grooved pins. The materials and the strength or hardness level to which SHEAR-PROOF™ pins are heat treated provide ideal shear resistance.

STANDARD SIZES FOR SHEAR-PROOF™ PINS (TYPE A)

Lengths	Diameters									
	3/32	1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	
1/4	■	■								
3/8	■	■	■	■						
1/2	■	■	■	■	■					
5/8	■	■	■	■	■	■				
3/4	■	■	■	■	■	■	■			
7/8	■	■	■	■	■	■	■	■		
1	■	■	■	■	■	■	■	■	■	
1 1/4	■	■	■	■	■	■	■	■	■	■
1 1/2		■	■	■	■	■	■	■	■	■
1 3/4			■	■	■	■	■	■	■	■
2			■	■	■	■	■	■	■	■
2 1/4				■	■	■	■	■	■	■
2 1/2					■	■	■	■	■	■
2 3/4						■	■	■	■	■
3							■	■	■	■
3 1/4								■	■	■
3 1/2									■	■

Tolerances:
 Length: ±.010
 Nominal Diameter: +.000/- .0015 up to 7/16" diameter
 +.000/- .002 7/16" diameter and over
 Expanded Diameter: See table on page 5.

*NOTE: "SHEAR-PROOF" is a registered trademark of DRIV-LOK, Inc. The name "SHEAR-PROOF" refers only to a product manufactured from alloy steel and heat treated to obtain a higher shear resistance than standard low carbon grooved pins-type A. The name "SHEAR-PROOF" does not imply the pins will not shear. "SHEAR-PROOF" pins will meet the performance (minimum shear) detailed on Page 18 of this catalog when tested in a properly designed test fixture.

Standard Type A—others available

Wide range of diameters and lengths

6150 and 4140 material

Through hardened to R_C 40-48

Optional end configurations

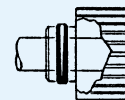
Light oil finish standard

Other finishes available

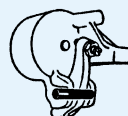
TYPICAL APPLICATIONS



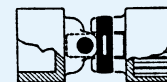
Material Handling Equipment – The Type E pin provides positive locking with a half-length groove in the center of the pin. Extreme shear is exerted in this application, yet the SHEAR-PROOF™ Pin is used with complete safety for both men and materials. Type E SHEAR-PROOF™ is a special pin.



Heavy-Duty Gear and Shaft Assembly – Type A SHEAR-PROOF™ Pin as specified for this application to give maximum locking power over the entire pin and gear hub area. The Type A Pin, with grooves the full length of the pin, is the standard stock pin which meets most application.



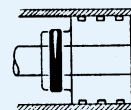
Automatic Transmission in Automobiles – Special Type C SHEAR-PROOF™ was selected as a shaft in this transmission servo to replace a cross drilled shaft with a cross pin for holding shaft in position. This eliminated a costly drilling operation and the cross pin.



Universal Joints in Hand Tools – Special Type E SHEAR-PROOF™ Pin with center grooves eliminates costly staking and grinding operations and improves product appearance. This pin is easily installed, fits flush and permits plating before assembly.



Eye Bolt Hinge Pin – Type C pin, with quarter-length grooves, provides maximum ease of assembly. There is no interference until three-fourths of the pin is in position. The high safety factor inherent in SHEAR-PROOF™ Pins makes them practical and efficient for such constant shear applications. Type C SHEAR-PROOF™ is a special pin.



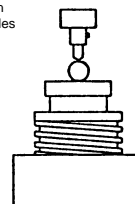
High Pressure Piston and Rod Assembly – Type B Pin was used here because the half-length grooves simplified the job of starting the pin into the hole. Ease of assembly was matched with sufficient locking power even when subjected to continuous, strong reciprocating forces. Type B SHEAR-PROOF™ is a special pin.

HARDNESS TESTING OF SOLID THROUGH-HARDENED PINS

1. Grind two parallel flats each .0015" deep on curved sides of pins.



2. Enter surfaced flat with Penetrator C Brale 150 Kg for pins 3/16" in diameter and above. Smaller pins must be checked with 15 Kg load and N Penetrator.



Note: Parts that are case hardened must be mounted and checked superficially with lighter loads.

SPECIAL ORDERS AND OPTIONS

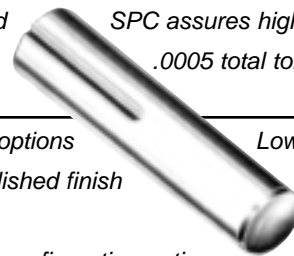
DRIV-LOK's engineering department will work with customers to provide technical assistance for special orders. SHEAR-PROOF™ pins with special materials, diameters, lengths, groove types, end configurations, and finishes are available by request as special orders. See **ORDERING INFORMATION on page 20 for options available for special SHEAR-PROOF™ pins.**

ORDERING INFORMATION

See pages 20 & 21

Hardened Lok-Dowels™

Case hardened SPC assures high quality
.0005 total tolerance

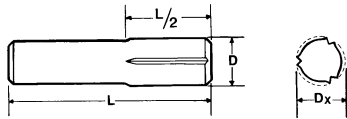


APPLICATION

DRIV-LOK Lok-Dowels™ provide a simplified method of establishing and maintaining precise alignment between component parts.

DESCRIPTION

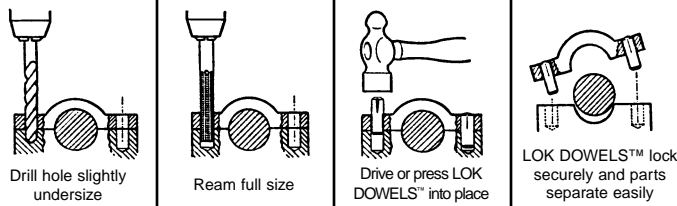
Standard Lok-Dowels™ are made from cold finished low carbon steel and have a special groove configuration as shown. They are centerless ground, polished, and case hardened to provide good wear resistance.



FUNCTION

Lok-Dowels™ are pressed or driven into a drilled and reamed hole. The grooved portion of the Lok-Dowel remains in place while the ungrooved end of the pin is easily removed from the mating part. The expanded diameter allows a greater hole tolerance to be used with a Lok-Dowel™ than can be used with a regular dowel pin.

INSTALLATION PROCEDURE



ORDERING INFORMATION

See pages 20 & 21.

Diameter/length options

Low carbon steel

Ground and polished finish

Groove type and end configuration options

LOK-DOWEL™ DIMENSIONS

Nominal Diameters	1/8	3/16	1/4	5/16	3/8	1/2
Decimal	.1245	.1870	.2495	.3120	.3745	.4995
Specification	.1250	.1875	.2500	.3125	.3750	.5000
Expanded Diameter	.130	.194	.257	.321	.384	.511
	.133	.197	.260	.324	.387	.514
Length ±.010 in.						
3/8	■					
1/2	■	■	■	■		
5/8	■	■	■	■		
3/4	■	■	■	■	■	
7/8	■	■	■	■	■	
1	■	■	■	■	■	■
1 1/4		■	■	■	■	■
1 1/2			■	■	■	■
1 3/4				■	■	■
2					■	■

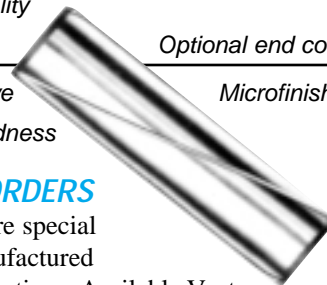
SPECIAL ORDERS AND OPTIONS

DRIV-LOK's engineering department will work with customers to provide technical design assistance for special orders. Special materials, diameters, lengths, groove types, end configurations, and finishes are available by request as special orders. See ORDERING INFORMATION on page 20 for options available for special Lok-Dowels™.

Vent Dowels®

SPC assures high quality
.0005 total tolerance

Optional end configurations



APPLICATION

Vent Dowels® are most commonly used in blind hole applications because they eliminate the need for costly machining which would be necessary to prevent air locks. The Vent Dowel® is interchangeable with most standard machine dowels.

DESCRIPTION

The Vent Dowel® has three helical grooves on its diameter as shown above. The diameter is ground to a total tolerance of .0005 in. with a surface roughness of 32 RMS maximum. Vent Dowels® may be made from a variety of steels.

FUNCTION

The three helical grooves on a DRIV-LOK Vent Dowel® function as vents to relieve air locks that may occur when standard dowels are inserted into blind holes. The helical grooves provide a width and depth sufficient to relieve the air lock without disturbing the .0005 in. total diameter tolerance of the pin.

Helical groove

Microfinish 32 RMS

R_C 60-64 surface hardness

SPECIAL ORDERS

All Vent Dowels® are special orders and are manufactured to customer specifications. Available Vent Dowel® diameters range from 1/4" through 3/4" and lengths from 1/2" through 6".

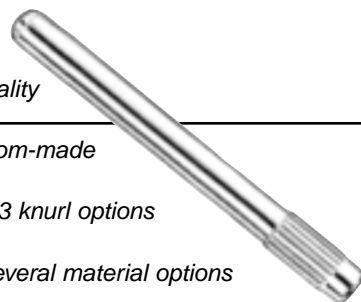
DRIV-LOK's engineering department will work with customers to provide technical assistance for special orders. Special materials, diameters, lengths, end configurations, and finishes are available by request as special orders. See ORDERING INFORMATION on page 20 for options available for special Vent Dowels®.

ORDERING INFORMATION

See pages 20 & 21.

Knurled Pins

SPC assures high quality



APPLICATION

Knurled pins are often the best fastener for die casting and plastic applications. Knurled pins also provide superior fastening in the assembly of components which have thin cross sections. This is because of the many points of contact provided by the serrations on a knurled pin. Formed sheet metal hinges and similar product are another excellent application for knurled pins.

DESCRIPTION

Knurled pins are similar to grooved pins because they have serration around the nominal diameter of the pin. The knurled pin differs from the grooved pin while there are many serrations on a knurled pin. Also, knurled pins are typically roll formed whereas grooved pins are swaged. A knurled section may have either a straight knurl, a helical knurl, or a diamond knurl configuration. Knurled pins are available with nominal diameters from $\frac{3}{32}$ " through $\frac{1}{2}$ " and lengths from $\frac{1}{4}$ " through 6".

FUNCTION

The serrations on a knurled pin, when compressed by insertion into a hole, result in forces which hold the fastener in place. Radial forces are more evenly distributed around the diameter of a hole for knurled pins than for grooved pins. This is because a knurled pin has more points of contact with a hole than a grooved pin.

SPECIAL ORDERS

All knurled pins are special orders and are made to customer design specifications. DRIV-LOK's engineering staff will work with customers to provide technical assistance. Special materials, diameters, lengths, end configurations, and finishes are available by request as special orders. See **ORDERING INFORMATION** on page 20 for options available for special knurled pins.

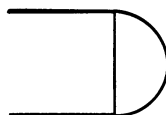
Custom-made

3 knurl options

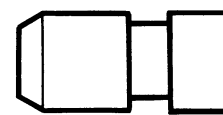
Several material options

Various end configuration options

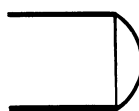
CHOICE OF END CONFIGURATION



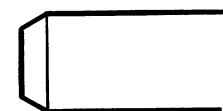
Spherical End



Annular Groove



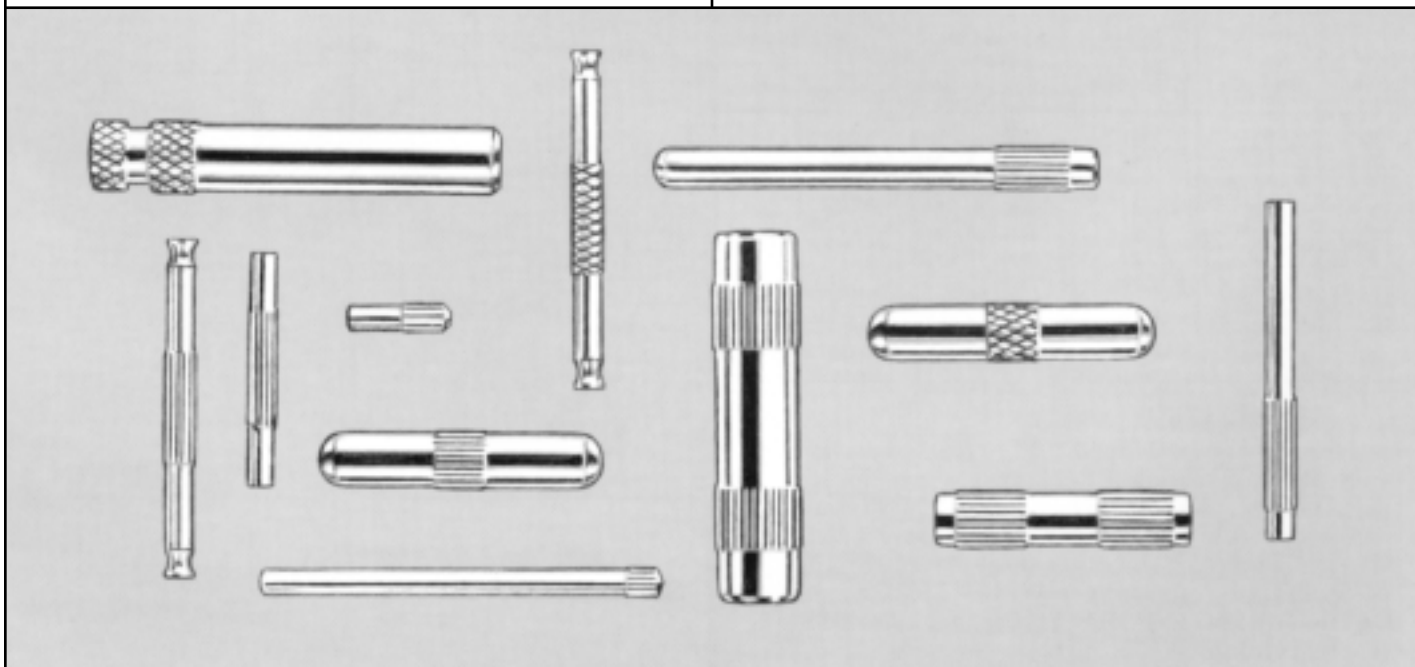
Crowned End



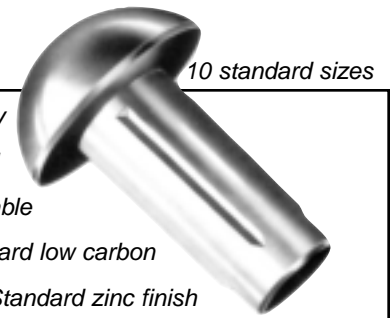
Chamfered End

ORDERING INFORMATION

See pages 20 & 21.



Grooved Studs



APPLICATION

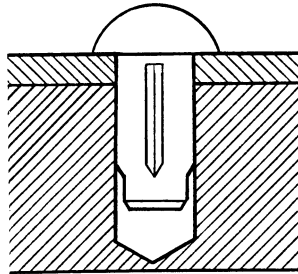
Grooved studs are commonly used for a variety of applications including fastening brackets, control arms, knobs, handles, instruction panels, and nameplates.

DESCRIPTION

Grooved studs have three parallel grooves spaced at 120° intervals around the diameter of the shank. Standard grooved studs are manufactured from low carbon steel and are zinc plated for corrosion resistance.

FUNCTION

Grooved studs function in the same manner as grooved pins. They provide the same positive holding features as grooved pins plus additional end loading resistance provided by the head of the stud.



STANDARD STUDS

Standard studs are manufactured to ASME B18.2 specifications. Standard stud sizes available are from #0 through #16 and lengths from 1/8" through 1/2" as shown in the table below.

STANDARD GROOVED STUD SIZES

	Stud Number/Nominal Diameter									
	#0	#2	#4	#6	#7	#8	#10	#12	#14	#16
	.067	.086	.104	.120	.136	.144	.161	.196	.221	.250
Lengths	Expanded Diameter									
1/8	.074	.096								
3/16	.074	.096	.115							
1/4	.074	.095	.113	.132						
5/16			.113	.130	.147					
3/8				.130	.147	.155	.173			
1/2					.144	.153	.171	.206	.234	.263

Tolerances: Shank Length: ±0.10,
Nominal Diameter: +.000/-0.002,
Expanded Diameter: ±.002

STANDARD SIZES AND SPECIFICATIONS

Stud Number	Nominal Shank Diameter	Recommended Drill Size	Head Dia.		Head Height	
			Max.	Min.	Max.	Min.
0	.067	51	.130	.120	.050	.040
2	.086	44	.162	.146	.070	.059
4	.104	37	.211	.193	.086	.075
6	.120	31	.260	.240	.103	.091
7	.136	29	.309	.287	.119	.107
8	.144	27	.309	.287	.119	.107
10	.161	20	.359	.334	.136	.124
12	.196	9	.408	.382	.152	.140
14	.221	2	.457	.429	.169	.156
16	.250	1/4"	.472	.443	.174	.161

SPECIAL STUDS

In addition to standard round head grooved studs, flat heads, button heads, and T heads are also available a special orders. DRIV-LOK's engineering staff will work with customers to provide technical assistance. Special materials, diameters, shank lengths, end configurations, and finishes are available by request as special orders. See **ORDERING INFORMATION** on page 20 for options available.

SPC assures high quality

Standard round head

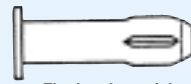
Special head types available

Standard low carbon

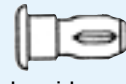
Standard zinc finish

Other finishes available

SPECIAL STUDS (CONT.)



Flat head special stud with one-third length groove at lead end. Groove length can be varied.



Flat head special grooved stud with shoulder. Often hardened to provide wear surface in shoulder area.



Flat head grooved stud.



Round head reverse taper groove stud.



Stud with conical head and parallel grooves.



Round head stud with parallel grooves of special length.

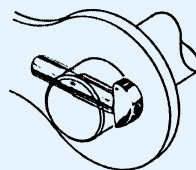


Countersunk head grooved stud.

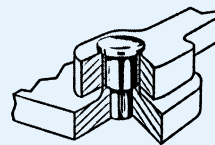


"T" head cotter used extensively in chain industry in place of cotter pins.

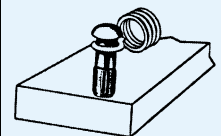
APPLICATIONS



"T" head cotter in chain.



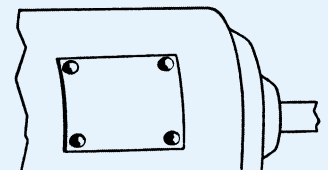
Linkage assembly.



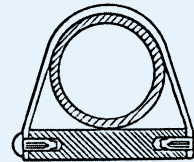
Spring anchor.



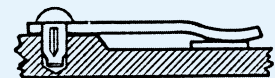
Fastening knobs, handles, etc.



Attaching nameplates, instruction panels.



Widely used for fastening brackets.

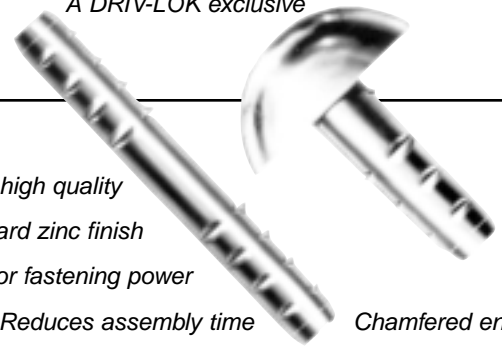


Fastening spring assemblies or control arms.

ORDERING INFORMATION

See pages 20 & 21.

BARB-LOK™ Pins & Studs



APPLICATION

The special designed barbs on DRIV-LOK BARB-LOK™ Pins and Studs provide positive fastening for plastics and some metals. These barbed fasteners can replace conventional screws, barbed nails, and other fasteners to gain permanent holding power plus faster assembly.

SPC assures high quality

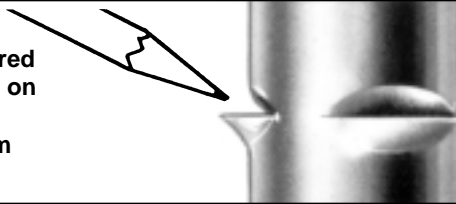
Standard zinc finish

Superior fastening power

Reduces assembly time

Chamfered end

Specially contoured barbs impressed on pins and studs provide maximum gripping.

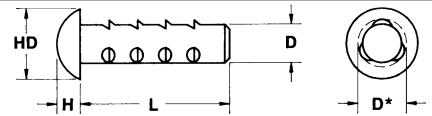


SPECIAL TYPE 2 BARB-LOK™ PIN

Standard BARB-LOK™ studs are available in stud sizes from #2 through #16 and lengths from 3/16" through 3/4" as shown in the table below.

DESCRIPTION

The barbs are located at 120° intervals on the diameter of the pin. The number of barbs along the length of the pin, customer requirements, and the distance between the barbs. The crests of the barbs constitute the expanded diameter which is a few thousandths larger than the nominal diameter. The expanded diameter of the barbed pin is measured on the second barb from the end of the pin and is measured with a ring gage. (See page 5 for proper expanded diameter measurement methods.)



*Expanded diameter

BARB-LOK™ STUD DIMENSIONS

Stud No.	Nom. Shank Dia.	Head Dia.		Head Height		Available Lengths					Expanded Dia.	
		Max.	Min.	Max.	Min.	3/16"	1/4"	5/16"	3/8"	1/2"		3/4"
2	.086	.162	.146	.070	.059	■	■	■				.088/.095
4	.104	.211	.193	.086	.075	■	■	■				.107/.115
6	.120	.260	.240	.103	.091		■	■	■			.124/.134
8	.144	.309	.287	.119	.107				■	■	■	.149/.159
10	.161	.359	.334	.136	.124				■	■	■	.166/.177
12	.196	.408	.382	.152	.140					■	■	.202/.213
14	.221	.457	.429	.169	.156						■	.227/.239
16	.250	.472	.443	.174	.161						■	.258/.270

BARB-LOK™ Pins and Studs are made from low carbon steel or aluminum. Low carbon BARB-LOK™ Pins and Studs are zinc plated for corrosion resistance. Other finishes are available upon request.

FUNCTION

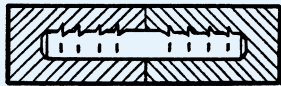
Barbed pin holding power is affected by the pin diameter relative to the hole diameter and material hardness. **The recommended hole size for most soft plastic applications is .001 to .005 below the nominal pin diameter.** Hole sizes for hard plastic and aluminum applications should be greater than the nominal pin diameter. Specific hole sizes should be determined for each individual application.

SPECIAL ORDER BARB-LOK™ PINS AND STUDS

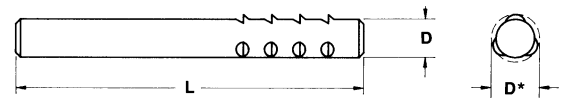
All Barb-LOK™ pins are special orders and are manufactured to customer specifications. Special BARB-LOK™ Studs can also be ordered to customer specifications. DRIV-LOK's engineering staff will work with customers to provide technical assistance. Special materials, diameters, lengths, end configurations, and finishes are available by request as special orders.

Following are just a few "idea starter" suggestions for saving fastening time and money, and improving products with DRIV-LOK barbed pins and barbed studs. Ask for samples to test in your applications.

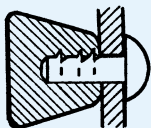
SPECIAL TYPE 1 BARB-LOK™ PIN



1. Two plastic parts are securely fastened with a Type 2 barbed pin. Positive holding is provided in both parts.

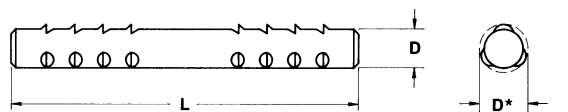


*Expanded diameter

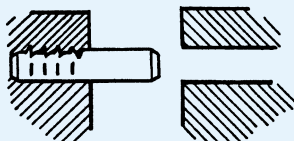


2. DRIV-LOK barbed studs effectively secure handles and knobs, other plastic parts. Reduce assembly time.

SPECIAL TYPE 2 BARB-LOK™ PIN



*Expanded diameter



3. Type 1 barbed pins are particularly useful where secure locking is required in one surface, and the unbarbed portion of the pin aligns with a hole in a second surface.

FERROL PINS & STUDS

Another option for plastic or ductile metals.

Call Driv-Lok for details.



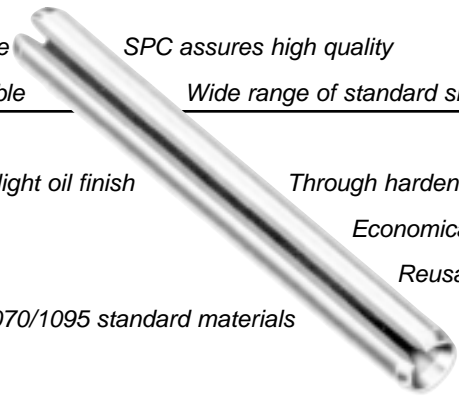
Slotted & Coiled Spring Pins

Style 1 also available

SPC assures high quality

Other finishes available

Wide range of standard sizes



APPLICATION

Spring pins are very economical and universally used shear type fasteners. These rugged self-locking pins will meet thousands of demanding industrial applications. Spring pins are an excellent choice when a non-precision, hollow, self-locking fastener is acceptable. Common uses for spring pins include: dowels, spacers, stop pins and hinge pins.

DESCRIPTION

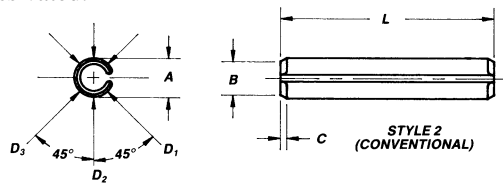
Tubular slotted spring pins are manufactured by progressive roll forming flat strips of high carbon steel or heat treatable 420 stainless steel. After forming, the pins are deburred to remove sharp edges, then heat treated to a spring temper. High carbon (1070-1095) steel spring pins are hardened to R_c 46-53 and 420 stainless steel spring pins are hardened to R_c 43-52.

FUNCTION

Spring pins are manufactured to an oversize dimension so that when the pin is inserted into a hole, radial forces are generated against the hole wall holding the spring pin securely in place.

STANDARD SPRING PINS

Standard spring pins are manufactured to ASME B18.8.2. Standard finishes for high carbon steel spring pins are either light oil or zinc. Standard stainless steel spring pins are passivated.



SPRING PIN STANDARD SIZES

Lengths	Diameters														
	1/16	5/64	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2			
3/16	■	■													
1/4	■	■	■												
5/16	■	■	■	■											
3/8	■	■	■	■	■										
7/16	■	■	■	■	■	■									
1/2	■	■	■	■	■	■	■								
9/16	■	■	■	■	■	■	■	■							
5/8	■	■	■	■	■	■	■	■	■						
11/16	■	■	■	■	■	■	■	■	■	■					
3/4	■	■	■	■	■	■	■	■	■	■	■				
13/16	■	■	■	■	■	■	■	■	■	■	■	■			
7/8	■	■	■	■	■	■	■	■	■	■	■	■	■		
15/16	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1 1/8		■	■	■	■	■	■	■	■	■	■	■	■	■	■
1 1/4			■	■	■	■	■	■	■	■	■	■	■	■	■
1 3/8				■	■	■	■	■	■	■	■	■	■	■	■
1 1/2					■	■	■	■	■	■	■	■	■	■	■
1 5/8						■	■	■	■	■	■	■	■	■	■
1 3/4							■	■	■	■	■	■	■	■	■
1 7/8								■	■	■	■	■	■	■	■
2									■	■	■	■	■	■	■
2 1/4										■	■	■	■	■	■
2 1/2											■	■	■	■	■
2 3/4												■	■	■	■
3													■	■	■
3 1/4														■	■
3 1/2															■

Standard zinc or light oil finish

Through hardened

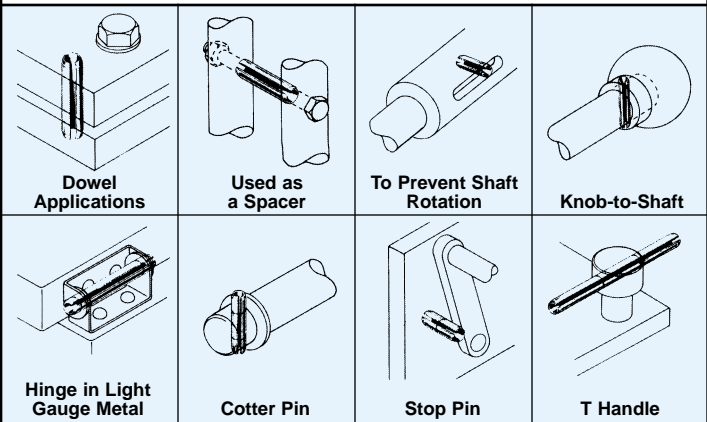
Economical

Reusable

420 SS and 1070/1095 standard materials

STANDARD SPRING PINS (CONT.)

Spring pins will meet thousands of demanding industrial applications. Shown below are just a few of the possible uses for these rugged, self-locking pins. Be sure to contact DRIV-LOK, Inc. if you require engineering assistance for your application.

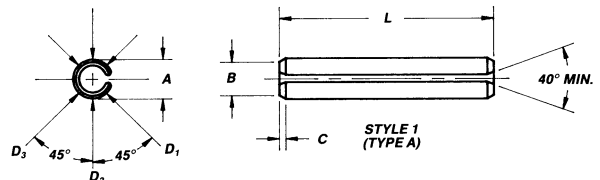


SPRING PIN HARDNESS TESTING

- Grind a flat surface approximately .0015" deep on curved surface of the pin (opposite the gap) on pins 3/16" diameter and above, and .001" deep on pins below 3/16" diameter.
- Grind a flat surface approximately .004" deep opposite and parallel to the first grinding—at the gap section.
- Place surfaced pin gap side down on face plate arvil of Rockwell Tester.
- Enter surfaced section opposite gap and use: a Superficial Tester 15N with N Brale Penetrator for diameters up to 1/8", a Penetrator C Brale 60 Kg for 1/8" to 3/16", and a Penetrator C Brale 150 Kg for pins 3/16" and over.

SPECIAL SPRING PINS

DRIV-LOK manufactures special spring pins to customer specifications. Special spring pins are defined as those that have lengths other than the listed standards or finishes other than clean and oil or zinc. Physical characteristics are shown in the table on page 13.



ORDERING INFORMATION

See pages 20 & 21.

Slotted & Coiled Spring Pins (cont.)

SPRING PIN STANDARD DIMENSIONS

A			B Max	C		STOCK THICKNESS	RECOMMENDED HOLE SIZE		MINIMUM DOUBLE SHEAR STRENGTH POUNDS Carbon Steel and 420 Stainless Steel
Nominal	Minimum $\frac{1}{3}(D_1+D_2+D_3)$	Maximum (Go Ring Gage)		Min.	Max.		Min.	Max.	
$\frac{1}{16}$ (.062)	.066	.069	.059	.007	.028	.015	.063	.065	430
$\frac{5}{64}$ (.078)	.083	.086	.075	.008	.032	.018	.079	.081	800
$\frac{3}{32}$ (.094)	.099	.103	.091	.008	.038	.022	.095	.097	1,150
$\frac{1}{8}$ (.125)	.131	.135	.122	.008	.044	.028	.125	.129	1,875
$\frac{5}{32}$ (.156)	.162	.167	.151	.010	.048	.032	.157	.160	2,750
$\frac{3}{16}$ (.187)	.194	.199	.182	.011	.055	.040	.188	.192	4,150
$\frac{7}{32}$ (.219)	.226	.232	.214	.011	.065	.048	.219	.224	5,850
$\frac{1}{4}$ (.250)	.258	.264	.245	.012	.065	.048	.250	.256	7,050
$\frac{5}{16}$ (.312)	.321	.330	.306	.014	.080	.062	.313	.318	10,800
$\frac{3}{8}$ (.375)	.385	.395	.368	.016	.095	.077	.375	.382	16,300
$\frac{7}{16}$ (.437)	.448	.459	.430	.017	.095	.077	.438	.445	19,800
$\frac{1}{2}$ (.500)	.513	.524	.485	.025	.110	.094	.500	.510	27,100

Minimum hole sizes are rounded up to 3 decimal places.

Spring Pin Length up to and including 1 in. over 1 in. through 2 in. over 2 in. through 3 in.	Tolerance ±.015 ±.020 ±.030	Spring Pin Length over 3 in. through 4 in. over 4 in.	Tolerance ±.035 ±.040
---	---	--	------------------------------------

Coiled Pins

ASME B18.8.2-1995

CARBON STEEL AND OTHER MATERIALS AVAILABLE

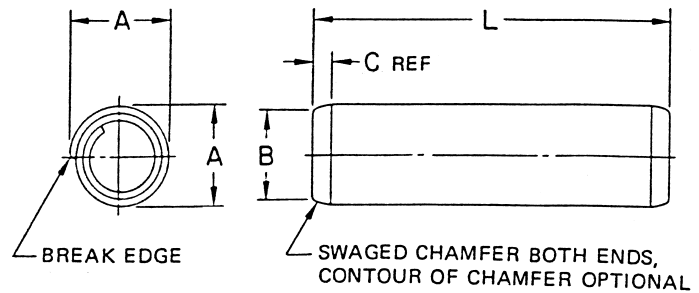
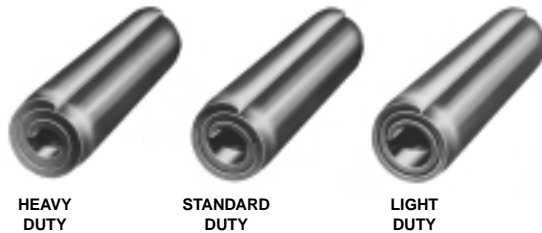


TABLE 11 DIMENSIONS OF COILED TYPE SPRING PINS

Nominal Size or Basic Pin Diameter [Note (1)]	A						B	C	Double Shear Load, Min, lb					
	Pin Diameter						Chamfer		Recom- mended Hole Size	Standard Duty	Heavy Duty	Light Duty		
	Standard Duty		Heavy Duty		Light Duty		Dia.	Length		Material				
	Max [Note (2)]	Min [Note (3)]	Max [Note (2)]	Min [Note (3)]	Max [Note (2)]	Min [Note (3)]			Carbon Steel	Carbon Steel	Carbon Steel			
$\frac{1}{8}$	0.125	0.138	0.131	0.136	0.130	0.139	0.131	0.121	0.044	0.129	0.124	1,400	2,000	825
$\frac{5}{32}$	0.156	0.171	0.163	0.168	0.161	0.172	0.163	0.152	0.048	0.160	0.155	2,200	3,100	1,300
$\frac{3}{16}$	0.188	0.205	0.196	0.202	0.194	0.207	0.196	0.182	0.055	0.192	0.185	3,150	4,500	1,900
$\frac{7}{32}$	0.121	0.238	0.228	0.235	0.226	0.240	0.228	0.214	0.065	0.224	0.217	4,200	5,900	2,600
$\frac{1}{4}$	0.250	0.271	0.260	0.268	0.258	0.273	0.260	0.243	0.065	0.256	0.247	5,500	7,800	3,300
$\frac{5}{16}$	0.312	0.337	0.324	0.334	0.322	0.339	0.324	0.304	0.080	0.319	0.308	8,700	12,000	5,200

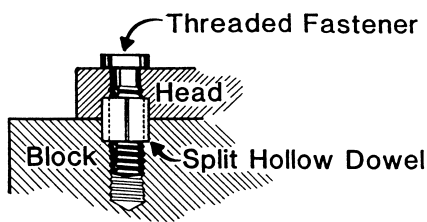
NOTES:

- (1) Where specifying nominal size in decimals, zeros preceding the decimal shall be omitted.
- (2) Maximum diameter shall be checked by GO ring gage.
- (3) Minimum diameter shall be checked by NO GO ring gage.

Split Hollow Dowels

DRIV-LOK's split hollow dowels are designed and manufactured to provide excellent retention forces and ease of assembly. They can also be auto-inserted.

Split hollow dowels are ideal for use in conjunction with bolts that pass through the center of the dowel after it has been installed. This offers a weight savings over conventional locating dowels, which require separate drilled and reamed holes. The expense and labor involved in providing separate locating dowels and their holes in assemblies is eliminated. The bolt hole is counterbored on both halves of the assembly. The dowel is then installed into one of the counterbores and used to locate the other half of the assembly. "Split" hollow dowels offer additional cost savings over hollow dowels machined from tube or bar stock.

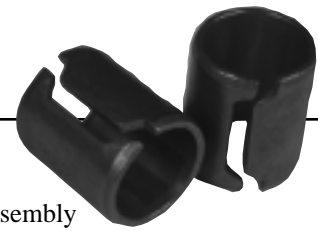


A typical application of the split hollow dowel is where two halves of an assembly are located and bolted together (cylinder heads to a block, valve bodies to a housing, clam shell assemblies, etc.)

FEATURES

Split Dowels are available in a variety of materials, heat treat and finishes. A Split Dowel allows for a larger hole tolerance. Our application engineers will assist you in designing the right pin for your application.

DRIV-LOK's design engineering staff will work with you and provide technical assistance to develop the right fastener for your application.



*Seamless Hollow Dowels also available in quantities - per customer design.
Call Driv-Lok's Customer Service Department for details.*



Plain Pins and Dowels

APPLICATION

Plain pins and dowels are used in the same manner as grooved pins when highly accurate location is required. Plain pins and dowels may be used as locking devices, pivots, bearing faces, or locating elements. Use of plain pins and dowels generally requires a drilled and reamed hole. They are used where there is not a high degree of end load and are basically shear resistant type fasteners.

DESCRIPTION

Plain pins are solid cylindrical pins which have a cold drawn finish. Plain pins with diameters up to $1/8$ " have a tolerance of $+0.000/-0.001$ in. and diameters $1/8$ " and over have a tolerance of $+0.000/-0.002$ in.

Dowels are solid cylindrical pins which have a centerless ground finish with total precision tolerances.

All plain pins and dowels are special order items. Various materials, diameters, lengths, end configurations, heat treatment, and finishes are available. See ORDERING INFORMATION on page 20 for options available on plain pins and dowels.

DRIV-LOK'S engineering department will work with customers to provide technical assistance.

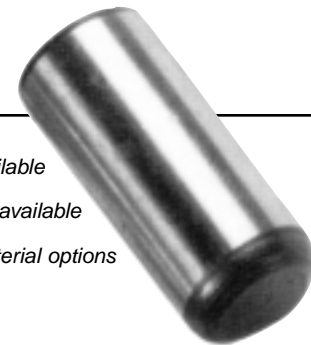
SPC assures high quality

Heat treatment available

Precision tolerances available

Wide variety of material options

Various end configuration options



FUNCTION

Plain and dowel pins are held in place by interference created around the entire pin circumference when it is pressed into a hole. The insertion, holding, and radial forces generated by these pins are very sensitive to hole diameter variation and usually require the use of a reamed hole.

ORDERING INFORMATION

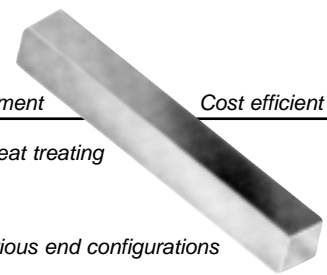
See pages 20 & 21.

Parallel Machine Keys

SPC assures high quality

Unique production equipment

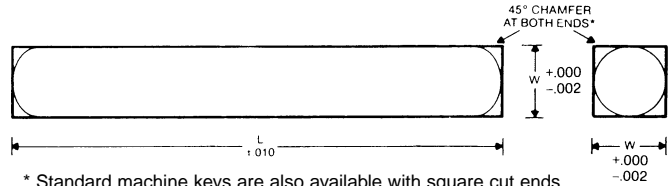
Cost efficient



Optional heat treating

Various end configurations

STANDARD SQUARE MACHINE KEYS

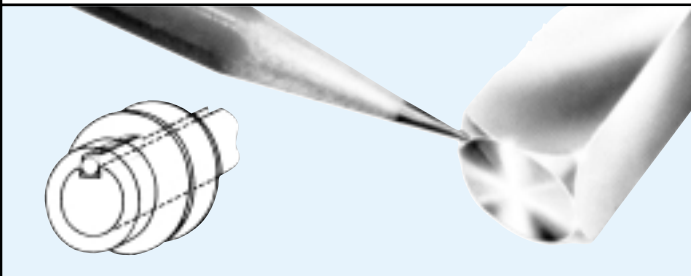


APPLICATION

Machine keys are pressed into keyways which are cut into a shaft and hub assembly parallel to the axis of the shaft. Machine keys are most commonly used in this manner to lock shaft and hub assemblies together to transmit torque.

DESCRIPTION

The complete line of DRIV-LOK high quality parallel machine keys includes square and rectangular keys with chamfered, square cut, or rounded ends. Most square keys are available with 45° chamfers at both ends for easy insertion and elimination of damage to keyways in shafts and hubs.



SQUARE MACHINE KEY STANDARDS

Lengths	Width						
	1/8	3/16	1/4	5/16	3/8	7/16	1/2
1/2	■	■	■	■	■	■	■
3/4	■	■	■	■	■	■	■
1	■	■	■	■	■	■	■
1 1/4	■	■	■	■	■	■	■
1 1/2	■	■	■	■	■	■	■
1 3/4	■	■	■	■	■	■	■
2	■	■	■	■	■	■	■
2 1/4		■	■	■	■	■	■
2 1/2		■	■	■	■	■	■
2 3/4			■	■	■	■	■
3			■	■	■	■	■
3 1/2					■	■	■
4						■	■
4 1/2						■	■

FUNCTION

Machine keys are well suited to transmit torque because of the large cross-sectional area which is utilized. The torque is efficiently transmitted between the shaft and the hub through the machine key.

STANDARD MACHINE KEYS

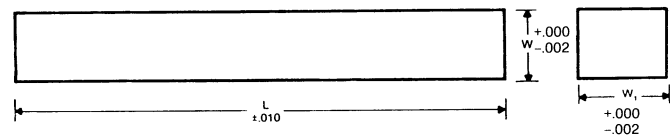
Standard square machine keys are manufactured from low carbon steel and have either square cut or chamfered ends. Standard square machine keys are available in widths from 1/8" through 1/2" and lengths from 1/2" through 4 1/2" as shown in the table.

SPECIAL MACHINE KEYS

Rectangular machine keys are available as special orders. Keys may also be grooved for increased holding power. DRIV-LOK's engineering department will work with customers to provide technical assistance for special orders. Special materials, diameters, lengths, end configurations, and finishes are available by request as special orders. See ORDERING INFORMATION on page 20 for options available for special keys.



RECTANGULAR KEYS



WEIGHTS & MEASURES

See page 17.

ORDERING INFORMATION

See pages 20 & 21.

Grooved Machine Keys

APPLICATION

Grooved machine keys are used in the same applications as standard parallel machine keys where reduced backlash and increased holding power is required. Machine keys are pressed into keyways which are cut into a shaft and hub assembly parallel to the axis of the shaft. Machine keys are most commonly used in this manner to lock shaft and hub assemblies together to transmit torque.

DESCRIPTION

Type 1 grooved machine keys have grooves on one surface where permanent assembly is not required. Type 2 grooved machine keys have grooves on two opposite surfaces for permanent or semi-permanent assembly. The grooves impressed in the key displace metal which expands the width to provide positive holding action. This eliminates costly drilling and tapping for set screws or other additional processes which would be required to hold the pin in place.

Most square keys are available with 45° chamfers at both ends for easy insertion and elimination of damage to keyways in shafts and hubs. Available widths for grooved machine keys range from 1/8" through 1/2" and lengths from 1" through 4 1/2". Special lengths of up to 8" available with groove length appropriate to the application.

FUNCTION

The expanded width "Wx" of the key formed by the grooves (Figure 1) provides interference between the key and the keyway which reduces backlash and holds the key in place. When the widened surface engages a standard keyway, a moderate press fit results. The displaced material is partially forced back into the groove, but the inherent resiliency of the metal creates outward forces "F" against the sides of the keyway (Figure 2). The expanded width of Type 1 grooved machine keys retain the key in position in the keyway of either the shaft or mating part. When Type 2 keys are used, the same retaining forces are generated in both parts.

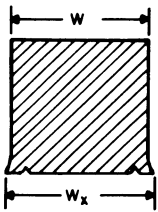


Figure 1

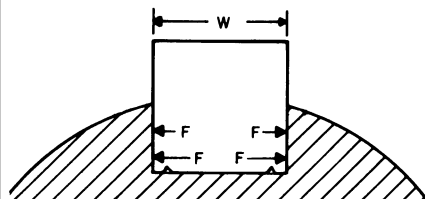


Figure 2

SPECIAL GROOVED MACHINE KEYS

All grooved machine keys are special orders and are made to customer specifications. DRIV-LOK's engineering staff will work with customers to provide technical assistance. Special materials, widths, lengths, grooves, end configurations, heat treatment and finishes are available by request as special orders.

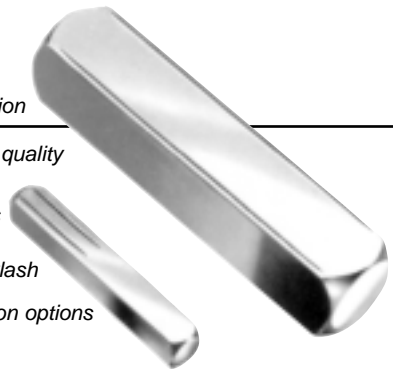
Positive holding action

SPC assures high quality

One or two grooved sides

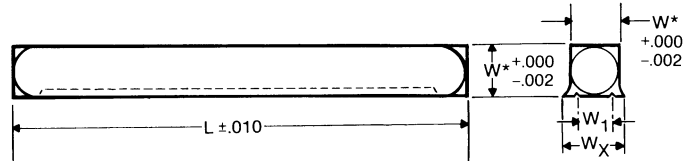
Reduces backlash

Various end configuration options



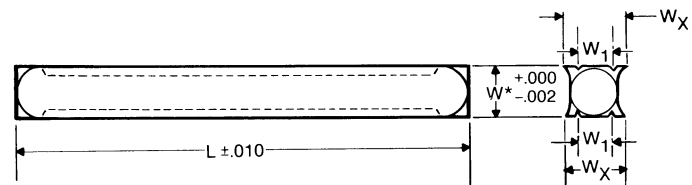
DRIV-LOK GROOVED MACHINE KEY DIMENSIONS

Type 1



* Width tolerances apply to standard low carbon steel only. Chamfered ends shown. Square cut ends also available.

Type 2

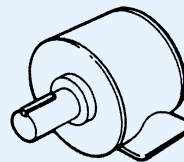


* Width tolerances apply to standard low carbon steel only.

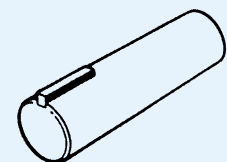
Nominal Width (inches)	1/8	3/16	1/4	5/16	3/8	7/16	1/2
W	.123 .125	.1855 .1875	.248 .250	.3105 .3125	.373 .375	.4355 .4375	.498 .500
Wx	.128 .132	.191 .195	.253 .257	.315 .319	.378 .382	.440 .444	.503 .507
W1	**	1/8	1/8	1/8	1/4	5/16	5/16
L	1" through 4 1/2" at inch 1/2" increments						

**1/8" wide keys have one parallel groove centered on surface.

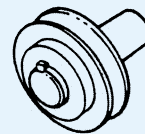
APPLICATIONS



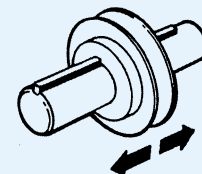
Type 1 grooved key holds firm in keyway during shipment and prior to putting motor in service. Key will not work loose in service with possible loss of key and damage to keyway.



Type 1 grooved key in shaft eliminates need for screws or time-consuming hand fitting normally needed for retaining key in keyway.



Type 2 grooved keys have grooves on two opposite surfaces to provide a press fit in both shaft and gear or pulley for permanent or semi-permanent assemblies. No need for set screws. Also eliminates backlash in gears.



Positive retention for a sliding pulley on a shaft is assured by using a Type 1 grooved key.

Weights & Measures

Grooved, Shear-Proof, Knurled, Barbed and Plain Pins, Lok-Dowels, Vent Dowels and Plain Dowels
WEIGHTS (lbs.) per 1000 Pieces (Steel)

LENGTH	DIAMETER	1/16	5/64	3/32	7/64	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
	1/4	.22	.34	.49	.67	.87								
3/8	.33	.51	.73	1.00	1.30	2.04	2.94							
1/2	.43	.68	.98	1.33	1.74	2.72	3.91	5.33	6.96					
5/8	.54	.85	1.22	1.66	2.17	3.40	4.89	6.66	8.70	13.59				
3/4	.65	1.02	1.47	2.00	2.61	4.08	5.87	7.99	10.44	16.31	23.48			
7/8	.76	1.19	1.71	2.33	3.04	4.76	6.85	9.32	12.18	19.03	27.40	37.29		
1	.87	1.36	1.96	2.66	3.48	5.44	7.83	10.65	13.92	21.74	31.31	42.62	55.67	
1 1/4			2.45	3.33	4.35	6.80	9.78	13.32	17.40	27.18	39.14	53.27	69.58	
1 1/2					5.22	8.15	11.74	15.98	20.87	32.62	46.97	63.93	83.50	
1 3/4						9.51	13.70	18.65	24.35	38.05	54.80	74.58	97.41	
2							10.87	15.66	21.31	27.83	43.49	62.62	85.24	111.33
2 1/4								17.61	23.97	31.31	48.92	70.45	95.89	125.25
2 1/2								19.57	26.64	34.79	54.36	78.28	106.55	139.16
2 3/4									29.30	38.27	59.80	86.11	117.20	153.08
3									31.96	41.75	65.23	93.94	127.86	167.00
3 1/4										45.23	70.67	101.76	138.51	180.91
3 1/2											76.10	109.59	149.17	194.83
3 3/4												117.42	159.82	208.74
4												125.25	170.47	222.66
4 1/4		Add 10% for Brass or Bronze										133.07	181.13	236.58
4 1/2												191.78	250.49	

Square Keys
WEIGHTS (lbs.) per 1000 Pieces

LENGTH	SQUARE DIMENSION						
	1/8	3/16	1/4	5/16	3/8	7/16	1/2
1/2	2.21	4.98	8.86	13.84			
3/4	3.32	7.48	13.29	20.76	29.90	40.70	
1	4.43	9.97	17.72	27.69	39.87	54.26	70.88
1 1/4	5.54	12.46	22.15	34.61	49.83	67.83	88.59
1 1/2	6.64	14.95	26.58	41.53	59.80	81.40	106.31
1 3/4	7.75	17.44	31.01	48.45	69.77	94.96	124.03
2	8.86	19.93	35.44	55.37	79.73	108.53	141.75
2 1/4		22.43	39.87	62.29	89.70	122.09	159.47
2 1/2		24.92	44.30	69.21	99.67	135.66	177.19
2 3/4			48.73	76.14	109.63	149.23	194.91
3			53.16	83.06	119.60	162.79	212.63
3 1/2					139.54	189.92	248.06
4					139.54	189.92	248.06
4 1/2							318.94

Notes:

Weights & Measures (cont.)

Spring Pins WEIGHTS (lbs.) per 1000 Pieces

LENGTH	NOM. DIA.	1/16	5/64	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2	
	3/16	0.12	0.18											
	1/4	0.16	0.25	0.36										
	5/16	0.20	0.31	0.45										
	3/8	0.24	0.37	0.54	0.91									
	7/16	0.28	0.43	0.63	1.06	1.56								
	1/2	0.32	0.49	0.73	1.21	1.78	2.72							
	9/16	0.36	0.55	0.82	1.36	2.00	3.06	4.25						
	5/8	0.40	0.61	0.91	1.52	2.23	3.40	4.72	5.58					
	11/16	0.44	0.68	1.00	1.67	2.45	3.75	5.19	6.13					
	3/4	0.48	0.74	1.09	1.82	2.67	4.09	5.66	6.69	10.38	15.27			
	13/16	0.52	0.80	1.18	1.97	2.89	4.43	6.13	7.25	11.25	16.54			
	7/8	0.56	0.86	1.27	2.12	3.12	4.77	6.60	7.81	12.11	17.81			
	15/16	0.60	0.92	1.36	2.27	3.34	5.11	7.08	8.37	12.98	19.08			
	1	0.64	0.98	1.45	2.43	3.56	5.45	7.55	8.92	13.84	20.36	24.29		
1 1/8		1.11	1.63	2.73	4.01	6.13	8.49	10.04	15.57	22.90	27.32			
1 1/4		1.23	1.81	3.03	4.45	6.81	9.44	11.15	17.30	25.45	30.36	41.47		
1 3/8		1.35	1.99	3.33	4.90	7.49	10.38	12.27	19.03	27.99	33.39	45.62		
1 1/2		1.47	2.18	3.64	5.34	8.17	11.32	13.38	20.76	30.53	36.43	49.77		
1 5/8				3.94	5.79	8.85	12.27	14.50	22.49	33.08	39.46	53.91		
1 3/4				4.24	6.23	9.53	13.21	15.62	24.22	35.62	42.50	58.06		
1 7/8				4.55	6.68	10.21	14.15	16.73	25.95	38.17	45.53	62.21		
2				4.85	7.12	10.89	15.10	17.85	27.68	40.71	48.57	66.36		
2 1/4					8.01	12.26	16.98	20.08	31.14	45.80	54.64	74.65		
2 1/2					8.90	13.62	18.87	22.31	34.60	50.89	60.71	82.95		
2 3/4							20.76	24.54	38.07	55.98	66.78	91.24		
3								22.64	26.77	41.53	61.07	72.86	99.53	
3 1/4									29.00	44.99	66.16	78.93	107.83	
3 1/2									31.23	48.45	71.25	85.00	116.12	
3 3/4										51.91	76.34	91.07	124.42	
4										55.37	81.42	97.14	132.71	

Round Head Steel Studs WEIGHTS (lbs.) per 1000 Pieces

LENGTH	STUD NUMBER	#0	#2	#4	#6	#7	#8	#10	#12	#14	#16	
	1/8	.23	.43									
	13/16	.29	.53	.92								
	1/4	.35	.64	1.07	1.64							
	5/16			1.22	1.84	2.66						
	3/8				2.04	2.91	3.11	4.34				
1/2					3.43	3.68	5.06	7.44	9.83	11.74		

All weight figures shown in these tables are approximate and should not be used in verifying quantities. Variations within dimensional tolerances account for slight variations in weights.

Technical Data

Grooved Pin Diameter / Shaft Size / Torque Relationships

This table is a guide in selecting the proper size DRIV-LOK Grooved Pin to use for fastening machine members to shafts of given sizes and for specific load requirements. Torque and horsepower ratings are based on pins made of cold finished, low carbon steel and a safety factor of 8 is assumed.

RECOMMENDED PIN DIAMETER FOR VARIOUS SHAFT SIZES AND TORQUE TRANSMITTED BY PIN IN DOUBLE SHEAR

Shaft Size	Pin Diameter	Torque Inch Lbs.	H.P. at 100 R.P.M.	Shaft Size	Pin Diameter	Torque Inch Lbs.	H.P. at 100 R.P.M.
$\frac{3}{16}$	$\frac{1}{16}$	4.8	.007	$\frac{7}{8}$	$\frac{1}{4}$	322	.510
$\frac{7}{32}$	$\frac{5}{64}$	8.5	.013	$\frac{15}{16}$	$\frac{9}{16}$	449	.712
$\frac{1}{4}$	$\frac{3}{32}$	13.9	.022	1	$\frac{5}{16}$	479	.759
$\frac{5}{16}$	$\frac{7}{64}$	23.8	.038	$1\frac{1}{16}$	$\frac{9}{16}$	509	.807
$\frac{3}{8}$	$\frac{1}{8}$	37.5	.060	$1\frac{1}{8}$	$\frac{3}{8}$	773	1.23
$\frac{7}{16}$	$\frac{5}{32}$	62.9	.100	$1\frac{3}{16}$	$\frac{3}{8}$	816	1.30
$\frac{1}{2}$	$\frac{5}{32}$	71.9	.114	$1\frac{1}{4}$	$\frac{3}{8}$	859	1.36
$\frac{9}{16}$	$\frac{3}{16}$	116.4	.185	$1\frac{5}{16}$	$\frac{7}{16}$	1230	1.95
$\frac{11}{16}$	$\frac{7}{32}$	193.8	.307	$1\frac{3}{8}$	$\frac{7}{16}$	1289	2.05
$\frac{3}{4}$	$\frac{1}{4}$	275.6	.437	$1\frac{7}{16}$	$\frac{7}{16}$	1348	2.14
$\frac{13}{16}$	$\frac{1}{4}$	298.6	.474	$1\frac{1}{2}$	$\frac{1}{2}$	1838	2.92

Minimum Double Shear Values (lbs.) of DRIV-LOK Pins of Various Materials

Pin Diameter	GROOVED PINS				SLOTTED SPRING PINS
	Low Carbon	Shear-Proof Alloy Steel (RC 40-48)	Corrosion Resistant Steel	Brass	1074 Steel AND 420 SS
$\frac{1}{16}$	410	720	540	250	430
$\frac{3}{32}$	890	1,600	1,240	560	1,150
$\frac{1}{8}$	1,600	2,820	2,200	990	1,875
$\frac{9}{32}$	2,300	4,520	3,310	1,540	2,750
$\frac{3}{16}$	3,310	6,440	4,760	2,200	4,150
$\frac{7}{32}$	4,510	8,770	6,480	3,020	5,850
$\frac{1}{4}$	5,880	11,500	8,460	3,950	7,050
$\frac{9}{16}$	7,660	17,900	12,700	6,170	10,800
$\frac{3}{8}$	11,000	26,000	18,200	9,050	16,300
$\frac{7}{16}$	15,000	35,200	24,800	12,100	19,800
$\frac{1}{2}$	19,600	46,000	32,400	15,800	27,100

Notes:

Ordering Information

STANDARD AND SPECIAL OPTIONS

The table below indicates various characteristics which are standard or available as options.

If you do not see the option you desire, call DRIV-LOK's Sales Department for assistance.

KEY: A — Available on special orders
 E — Engineering evaluation required
 NA — Not Available
 S — Standard
 S/A — Standard or Available depending upon diameter length, or material (inquire for specific details).

Options	Fastener Type										
	Grooved Pins	Grooved Studs	SHEAR-PROOF Pins	Lok-Dowels	Vent Dowels	Knurled Pins	Spring Pins	BARB-LOK Studs	BARB-LOK Pins	Square Keys	Rectangular Keys
Dimensions*											
Nominal Diameter/Width	S	S	S	S	A	A	S	S	A	S	A
Expanded Diameter	S	S	S	S	NA	A	S	S	A	A	A
Pin/Shank Length	S	S	S	S	A	A	S	A	A	S	A
Groove Length	S	S	S	S	A	NA	NA	NA	NA	A	A
Groove Location	S	S	S	S	A	NA	NA	NA	NA	A	A
Knurl Length	NA	NA	NA	NA	NA	A	NA	NA	NA	NA	NA
Knurl Location	NA	NA	NA	NA	NA	A	NA	NA	NA	NA	NA
Barb Location		NA	NA	NA	NA	NA	NA	S	A	NA	NA
Characteristics											
Groove Type											
A	S	NA	S	A	NA	NA	NA	NA	NA	NA	NA
A3	A	NA	A	A	NA	NA	NA	NA	NA	NA	NA
B	A	NA	A	A	NA	NA	NA	NA	NA	NA	NA
C	S	NA	A	A	NA	NA	NA	NA	NA	NA	NA
D	A	NA	A	A	NA	NA	NA	NA	NA	NA	NA
E	S	NA	A	A	NA	NA	NA	NA	NA	NA	NA
G	S	NA	A	A	NA	NA	NA	NA	NA	NA	NA
H	S	NA	A	A	NA	NA	NA	NA	NA	NA	NA
U	S	NA	A	A	NA	NA	NA	NA	NA	NA	NA
Other Special	E	E	E	S	NA	NA	NA	NA	NA	A	A
Groove Configuration											
Diamond	S/A	A	A	A	NA	NA	NA	NA	NA	E	E
Oval	S/A	NA	A	A	NA	NA	NA	NA	NA	S	A
Square	S/A	S	A	S	NA	NA	NA	NA	NA	E	E
Tapered	S/A	A	S	A	NA	NA	NA	NA	NA	E	E
Material											
1000 Series Steel	A	S	NA	A	A	A	S	S	A	A	A
Low Carbon	S	NA	NA	S	A	A	NA	NA	A	A	E
12L14	A	NA	NA	A	A	A	NA	NA	A	S	E
4140/6150	A	NA	S	A	A	A	NA	NA	NA	A	E
300 Series Stainless	A	A	NA	A	A	A	A	NA	NA	E	E
400 Series Stainless	A	A	NA	A	A	A	S	NA	NA	E	E
Aluminum	A	A	NA	A	E	A	NA	A	A	A	E
Brass	E	E	NA	E	E	E	NA	E	E	NA	NA
Bronze	E	E	NA	E	E	E	NA	E	E	NA	NA
Beryllium Copper	NA	NA	NA	NA	NA	NA	A	NA	NA	NA	NA
End Configurations											
Chamfered	S/A	S	S	S	A	A	S	S	A	S	NA
Crowned	S/A	E	A	A	A	A	NA	E	A	NA	NA
Radiused	A	E	A	A	A	A	NA	E	A	E	E
Square Cut	S/A	A	A	A	A	A	NA	A	A	S	A
Spherical	E	E	E	E	E	E	NA	E	E	NA	NA
Combination	E	NA	E	E	E	E	NA	NA	E	E	NA
Finishes											
Zinc	S	S	A	A	E	A	S	S	A	A	A
Phosphate	A	A	A	A	E	A	A	A	A	A	A
Nickel	A	A	A	A	E	A	A	A	A	A	A
Black Oxide	A	A	A	A	E	A	A	A	A	A	A
Plain	A	A	A	A	A	A	A	A	A	A	A
Light Oil	A	A	S	S	A	A	S	A	A	S	A
Wax	A	A	A	A	E	A	A	A	A	A	A
Passivated (SS Only)	A	A	NA	A	E	A	S	A	NA	A	A
Other	E	E	E	E	E	E	E	E	E	E	E
Head Type											
Round	NA	S	NA	NA	NA	NA	NA	S	NA	NA	NA
Flat	NA	A	NA	NA	NA	NA	NA	A	NA	NA	NA
"T"	NA	A	NA	NA	NA	NA	NA	A	NA	NA	NA
Special	NA	E	NA	NA	NA	NA	NA	E	NA	NA	NA
Heat Treatment											
Unhardened	S	S	NA	A	A	A	A	S	A	S	A
Through Hardened	A	A	S	A	A	A	S	NA	NA	A	A
Case Hardened	A	A	NA	S	A	A	NA	E	NA	A	A

*See table of pin desired for specific standard dimensions available. Not all standard items are stocked. Call DRIV-LOK's Sales Department for availability.

"Holding The Future Together"

Ordering Information (cont.)

STANDARD PIN ORDERING INFORMATION

When ordering, please specify using the following format to expedite processing:

STANDARD SHEAR-PROOF™ PINS:

Nominal Diameter x Length, Shear-Proof Pin
Example: Standard, 1/4 x 1, Shear-Proof Pin

STANDARD LOK-DOWELS™:

Nominal Diameter x Length, Lok-Dowel
Example: Standard, 1/4 x 1, Lok-Dowel

STANDARD ROUND HEAD GROOVED STUDS:

Stud Size x Shank Length, Low Carbon, Zinc Plated,
 Round Head Grooved Stud
Example: Standard #6 x 1/2, Low Carbon, Zinc Plated,
 Round Head Grooved Stud

STANDARD ROUND HEAD BARBED STUDS:

Stud Size x Shank Length, Low Carbon, Zinc Plated,
 Round Head Barbed Stud
Example: Standard #6 x 1/2, Low Carbon, Zinc Plated,
 Round Head Barbed Stud

STANDARD SQUARE KEYS:

Square Dimension x Length, Low Carbon, Square Key
Example: Standard 1/4 x 1/4, Low Carbon, Square Key

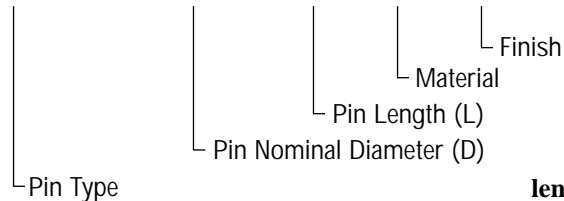
STANDARD GROOVED PINS:

*Please use the following format to expedite processing:

EXAMPLE:

groove-pin Type A 1/8"x1 1/4" steel zinc

GPA 125 1250

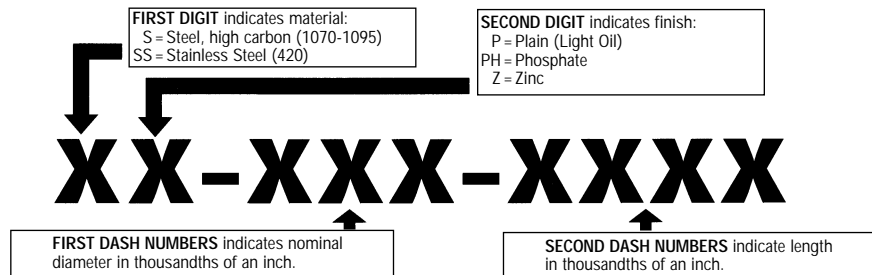


See pages 5, 6
 & 20 for standard pin
 types, diameters,
 lengths, material & finish.

STANDARD SPRING PINS:

Please use the following format to expedite processing:

EXAMPLE:



SPECIAL ORDER INFORMATION

Please specify the following information when ordering:

SPECIAL PINS:

- Nominal Diameter
Expanded Diameter
- Overall Pin Length
- Groove Type (A, C, E, G, H, Special)
Groove Configuration
- End Configuration
- Material
- Heat Treatment
- Finish
- Quantity

SPECIAL STUDS:

- Stud Size or Nominal Shank Diameter
Expanded Diameter
- Shank Length
- Head Type
- End Configuration
- Material
- Heat Treatment
- Finish
- Quantity

DRIV-LOK Stands For "Quality PLUS"

DRIV-LOK's Quality Operating System has earned us numerous awards and certifications, including QS9000/ISO9002 certification, the Ford "Q1" and General Motors "Mark of Excellence" quality awards.

The following "PLUSes" are the reasons behind this quality recognition...and your assurance of getting the very finest fastener products when you order from DRIV-LOK.

DRIV-LOK's Quality Operating System

utilizes SPC and SPC auditing to assure high quality pins are manufactured and decreases reliance on in-process and final inspections to cull out poor quality. Effective implementation of SPC "tools" improves quality and increases productivity.

"PLUS" our revised SPC Program has improved DRIV-LOK's ability to show capability over an extended time frame. Machine and process capabilities are shown rather than individual part characteristic capability. DRIV-LOK's Short Run SPC training has enhanced operator awareness of potential problems **before** they occur.

"PLUS" a Quality Control Manual describes DRIV-LOK's Quality Operating System and its functions. Quality procedures are documented within the Manual which is updated annually.

Inspection procedures are written for all significant functions. Procedures are "living" documents and new procedures are routinely written and revised as needed. Quality procedure books are conveniently located in the QC Lab and at the final inspection station. All procedures are controlled documents.

"PLUS" Productivity and Quality

Improvement Plans are submitted annually by all department managers. These plans are reviewed, prioritized, and approved by DRIV-LOK's upper management. Revisions and/or corrective actions are implemented as necessary.

"PLUS" DRIV-LOK's World Class

Production Team is a cross-departmental force that includes hourly and salaried employees meeting weekly to address problems, and opportunities, within the organization. This team has had a significant impact on improvements to quality and manufacturing processes.

All of these "PLUSes" add up to make DRIV-LOK's Quality Operating System tops in the industry.

...The important DRIV-LOK "Difference."

These Manufacturing and Service Capabilities Contribute to the DRIV-LOK "Difference"

- *YOUR BUSINESS PARTNER*
- *LOT CONTROL FOR TRACEABILITY*
- *COMPUTERIZED BAR CODING*
- *MRP*
- *EDI*
- *CAD / CAM*
- *STOCKING PROGRAMS OF STANDARD ITEMS*
- *JUST-IN-TIME DELIVERIES*
- *METALLOGRAPHIC ANALYSIS*
- *SALT SPRAY AND HUMIDITY TESTING*
- *IN-HOUSE PLATING & BAKING CAPABILITIES USING CONTROLLED PROCESSES*
- *FULL-TIME APPLICATIONS ENGINEERS*

Phone: 815/895-8161

FAX: 815/895-6909

Website: www.driv-lok.com

Email: driv-lok@driv-lok.com

Technical Assistance / Application Questions

Please use this page for technical assistance/application questions or to draw/sketch your application needs.

To help us assist you in your needs request, please fill out the information below
Tear along perforated line and fax to:
815-895-6909 – ATTN: ENGINEERING ASSISTANCE REQUESTED

Brief Description of Objective/Application: _____

Identify System Requirements:
(Examples: shear requirements, torque loads, minimum removal forces, maximum insertion forces)

Define any Constraints: _____

Automatic Assembly: **Hand Assembly:** (Please check one)

Estimated Annual Usage (EAU): _____

Component Material Requirements: _____

Component Physical Requirements (such as hardness): _____

End Configuration Requirements: _____

Finish Requirements: _____

Mating Part Information – (such as material, hardness): _____

Are there any SPECIAL REQUIREMENTS: (i.e. testing, packaging, safety issue, spec, certs, etc.) _____

CUSTOMER INFORMATION

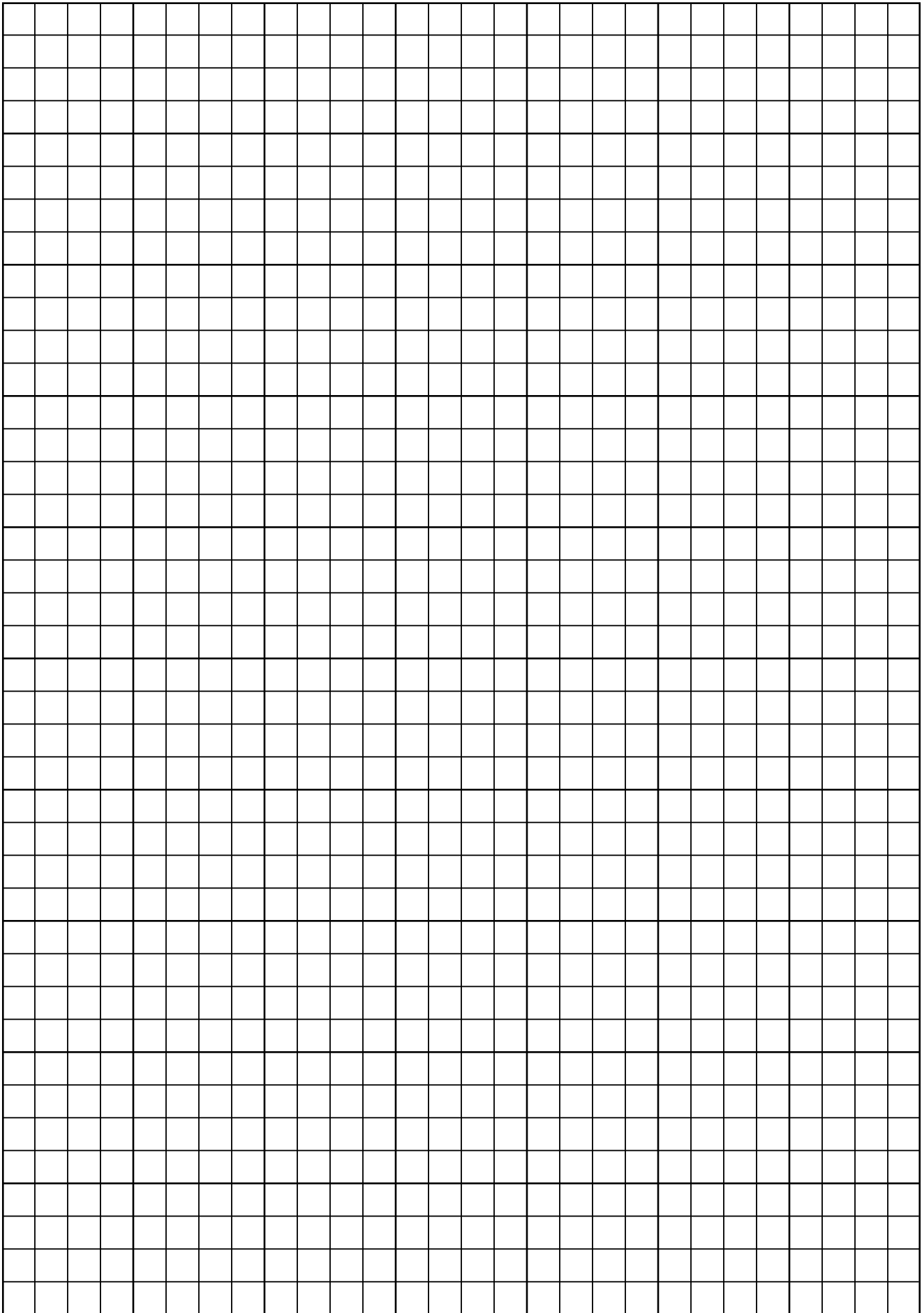
Customer Contact Name: _____ Phone: _____
Company Name: _____ Fax: _____
Address: _____ E-mail: _____
City/State/Zip: _____

Please check the industry this application is used in:

___ *Automotive* ___ *Industrial* ___ *Agricultural* ___ *Distribution* ___ *Hardware*
___ *Medical* ___ *Sports* ___ *Aero* ___ *Other* _____

PLEASE USE THE BACK SIDE OF THIS PAGE TO SKETCH PART CONCEPT WITH TOLERANCES
THANK YOU FOR ALLOWING DRIV-LOK TO ASSIST YOU IN YOUR FASTENER APPLICATION NEEDS

SKETCH PART CONCEPT WITH TOLERANCES



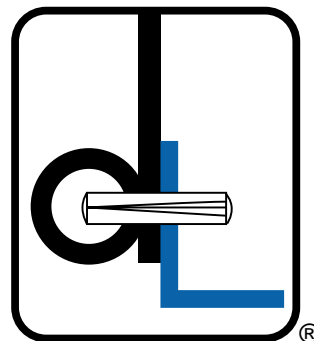
4 squares = 1"

NOTES



Reasons why fastener users choose “Driv-Lok” above the rest!

- ✓ Driv-Lok’s technical engineering assistance provides “Solution Resolution” for our customers’ needs.
- ✓ Driv-Lok’s customer service hours provide full coverage for our global customers.
- ✓ Driv-Lok’s delivery performance exceeds all industry standards.
- ✓ Driv-Lok led the industry in carrying a full line of press fit fasteners for over 60 years.
- ✓ Driv-Lok exceeds industry standards at customer responsiveness.
- ✓ Driv-Lok has been QS9000/ISO 9002 certified since 1996.



DRIV-LOK[®], Inc.

1140 Park Avenue, Sycamore, IL 60178

Phone: 815/895-8161

FAX: 815/895-6909

Website: www.driv-lok.com

Email: driv-lok@driv-lok.com