INTRODUCTION TO SOLID DOWELS

This specification sheet serves as an introduction to Plain Pins, Ground Dowels and Vent Dowels, to provide a base understanding of the various fastening options available. To identify the ideal fastening strategy for your need, contact DRIV-LOK. Our Enginomics team will craft a custom solution designed to maximize performance, safety, quality and savings.

PLAIN PINS AND GROUND DOWELS

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 +.000/-.001 in. and diameters 1/8" and over have a tolerance of +.000/-.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.

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

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.

DIMENSIONS OF CHAMFERED AND SQUARE END PINS.

Nominal size or basic pin diameter		A		C
		Pin diameter		Chamfer length
		Max.	Min.	Min.
3/64	.046	.0469	.0454	.005
1/16	.062	.0625	.0605	.005
3/32	.094	.0937	.0917	.005
7/64	.109	.1094	.1074	.005
1/8	.125	.1250	.1230	.005
5/32	.156	.1562	.1542	.005
3/16	.188	.1875	.1855	.005
7/32	.219	.2187	.2167	.005
1/4	.250	.2500	.2480	.005
5/16	.312	.3125	.3105	.020
3/8	.375	.3750	.3730	.020
7/16	.438	.4375	.4355	.020
1/2	.500	.5000	.4980	.020
5/8	.625	.6250	.6230	.035
3/4	.750	.7500	.7480	.035
7/8	.875	.8750	.8730	.035
1	1.000	1.0000	.9980	.035

LENGTHS FOR PLAIN PINS AND GROUND DOWELS.

Nominal Length	Diameter															
	3/64	1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
3/16	x	x														
1/4	x	x	x	x	x	x	x	x								
5/16	x	x	x	x	x	x	x	x								
3/8	x	x	x	x	x	x	x	x								
7/16	x	x	x	x	x	x	x	x	x							
1/2	x	x	x	x	x	x	x	x	x	x						
9/16	x	x	x	x	x	x	x	x	x	x	x					
5/8		x	x	x	x	x	x	x	x	x	x	x				
3/4		x	x	x	x	x	x	x	x	x	x	x	x			
7/8			x	x	x	x	x	x	x	x	x	x	x	x		
1			x	x	x	x	x	x	x	x	x	x	x	x	x	
1 1/4			x	x	x	x	x	x	x	x	x	x	x	x	x	x
1 1/2			x	x	x	x	x	x	x	x	x	x	x	x	x	x
1 3/4			x	x	x	x	x	x	x	x	x	x	x	x	x	x
2			x	x	x	x	x	x	x	x	x	x	x	x	x	x
2 1/4			x	x	x	x	x	x	x	x	x	x	x	x	x	x
2 1/2			x	x	x	x	x	x	x	x	x	x	x	x	x	x
3			x	x	x	x	x	x	x	x	x	x	x	x	x	x
3 1/2							x	x	x	x	x	x	x	x	x	x
4								x	x	x	x	x	x	x	x	x
4 1/2									x	x	x	x	x	x	x	x
5										x	x	x	x	x	x	x
5 1/2										x	x	x	x	x	x	x
6												x	x	x	x	x

Length versus diameter chart reflect general capabilities. Actual capability varies for harden and unharden dowels, production dowels and straight pins. Call to determine if your particular part requirements are available.

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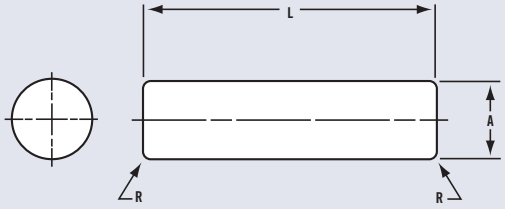
DIMENSIONS OF HARDENED GROUND PRODUCTION DOWEL PINS.

Nominal size or nominal pin diameter		A Pin diameter						Suggested Hole Diameter for Standard Series Pins	
		Standard Series Pins			Oversize Series Pins				
		Basic	Max.	Min.	Basic	Max.	Min.	Max.	Min.
1/16	0.0625	0.0627	0.0628	0.0626	0.0635	0.0628	0.0626	0.0625	0.0620
5/64	0.0781	0.0783	0.0784	0.0782	0.0791	0.0784	0.0782	0.0781	0.0776
3/32	0.0938	0.0940	0.0941	0.0939	0.0948	0.0941	0.0939	0.0937	0.0932
1/8	0.1250	0.1252	0.1253	0.1251	0.1260	0.1253	0.1251	0.1250	0.1245
*5/32	0.1562	0.1564	0.1565	0.1563	0.1572	0.1565	0.1563	0.1562	0.1557
3/16	0.1875	0.1877	0.1877	0.1876	0.1885	0.1877	0.1876	0.1875	0.1870
1/4	0.2500	0.2502	0.2503	0.2501	0.2510	0.2503	0.2501	0.2500	0.2495
5/16	0.3125	0.3127	0.3128	0.3126	0.3135	0.3128	0.3126	0.3125	0.3120
3/8	0.3750	0.3752	0.3753	0.3751	0.3760	0.3753	0.3751	0.3750	0.3745
7/16	0.4375	0.4377	0.4378	0.4376	0.4385	0.4378	0.4376	0.4375	0.4370
1/2	0.5000	0.5002	0.5003	0.5001	0.5010	0.5003	0.5001	0.5000	0.4995
5/8	0.6250	0.6252	0.6253	0.6251	0.6260	0.6253	0.6251	0.6250	0.6245
3/4	0.7500	0.7502	0.7503	0.7501	0.7510	0.7503	0.7501	0.7500	0.7495
7/8	0.8750	0.8752	0.8753	0.8751	0.8760	0.8753	0.8751	0.8750	0.8745
1	1.0000	1.0002	1.0003	1.0001	1.0010	1.0003	1.0001	1.0000	0.9995

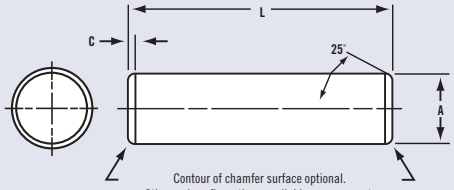
Holes for oversize series machine dowel pins may best be determined by the user to suit the particular application.



DIMENSIONS OF UNHARDENED GROUND DOWEL PINS.

Nominal size or basic pin diameter		A Pin Diameter		0.C Chamfer Length		Suggested Hole Diameter*	
		Max.	Min.	Max.	Min.	Max.	Min.
1/16	0.0625	0.0600	0.0595	0.025	0.005	0.0595	0.0580
3/32	0.0938	0.0912	0.0907	0.025	0.005	0.0907	0.0892
*7/64	0.1094	0.1068	0.1063	0.025	0.005	0.1062	0.1047
1/8	0.1250	0.1223	0.1218	0.025	0.005	0.1217	0.1202
5/32	0.1562	0.1535	0.1530	0.025	0.005	0.1528	0.1513
3/16	0.1875	0.1847	0.1842	0.025	0.005	0.1840	0.1825
7/32	0.2188	0.2159	0.2154	0.025	0.005	0.2151	0.2136
1/4	0.2500	0.2470	0.2465	0.025	0.005	0.2462	0.2447
5/16	0.3125	0.3094	0.3089	0.040	0.020	0.3085	0.3070
3/8	0.3750	0.3717	0.3712	0.040	0.020	0.3708	0.3693
7/16	0.4375	0.4341	0.4336	0.040	0.020	0.4331	0.4316
1/2	0.5000	0.4964	0.4959	0.040	0.020	0.4954	0.4939
5/8	0.6250	0.6211	0.6206	0.055	0.035	0.6200	0.6185
3/4	0.7500	0.7548	0.7453	0.055	0.035	0.7446	0.7431
7/8	0.8750	0.8705	0.8700	0.070	0.050	0.8692	0.8677
1	1.0000	0.9952	0.9947	0.070	0.050	0.9938	0.9923

*Hole Sizes: Because of the wide variety of materials in which dowel pins are used and the many design requirements which must be considered, it is not possible to provide hole size recommendations that will be suitable for all applications. However, the suggested hole sizes tabulated have been commonly used for press-fitting ground dowel pins into materials such as mild steels and cast iron. In soft materials such as aluminum or zinc die castings, hole size limits are usually decreased by 0.0005 in. to increase the press fit.

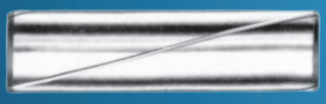


Contour of chamfer surface optional.
Other end configurations available upon request.

VENT DOWELS®

DESCRIPTION.

The Vent Dowel® has three helical grooves on its diameter as shown below. 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.

SPC assures high quality | .0005 total tolerance | Optional end configurations | Helical groove | Microfinish 32 RMS | Rc 60-64 surface hardness

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