



## Unbrako Hardened Ground Machine Dowel Pins

Unbrako Hardened Ground Machine Dowel Pins are precision heat treated for greater strength and surface hardness and are easier to install, more accurate, and more economical than standard dowel pins. These pins have many applications including uses as plug gauges, guide pins, position locators, feeler gauges, and roller bearings.



### PRODUCT ATTRIBUTES

Chamfered end provides easier insertion in hole.  
Formed ends resist chipping.  
Heat treated alloy steel for strength and toughness.  
Shear strength: 150,000 psi.

### WHERE YOU WILL FIND OPPORTUNITY

Machine Building  
Stamping Presses  
Robotics & Automation  
Mold Making

### THIS PRODUCT IS OFTEN CALLED...

Dowel Pin  
Ground Body Dowel Pin  
Hardened Dowel Pin  
Hardened Pin

### ADDITIONAL UNBRAKO SOCKET PRODUCTS

Socket Head Cap Screws  
Socket Low Head Cap Screws  
Socket Head Shoulder Screws  
Button Head Socket Screws  
Flat Head Countersunk Socket Screws  
Flange Button Head Socket Screws  
Socket Set Screws  
Hexagon Wrenches  
Taper Pressure Plugs  
Pull Out Dowel Pins

### AVAILABLE VALUE ADDED SERVICES

Secondary & rework services including  
drilling and center drilling  
Custom plating services available

BACKED BY THE EARNEST  
**Service**  
GUARANTEE

**The right part.  
The right quantity.  
On-time.  
Everytime.**

## UNBRAKO HARDENED GROUND MACHINE DOWEL PIN - INCH & METRIC

Unbrako Dowel Pins are manufactured in accordance with the latest revision of the following industry standards:

**INCH** ASME B18.3.2

**METRIC** ANSI B18.8.5M  
ISO 8734  
DIN 6325

### PLATING

Plain Finish

Custom plating available

## UNBRAKO HARDENED GROUND MACHINE DOWEL PIN - INCH

### Chemical Composition:

CARBON (C)	PHOSPHORUS (P)	SULFUR (S)
Min	Max	Max
0.33	0.035	0.040

### Alloy

CONTAINS ONE OF THE FOLLOWING ALLOYS
Mn, Cr, Mo, Ni, V

### Core Hardness:

ROCKWELL HARDNESS
HRC 50/58

### Surface Hardness:

ROCKWELL HARDNESS
HRC 60 min

### Shear Strength:

INCH
150,000 psi min

## UNBRAKO HARDENED GROUND MACHINE DOWEL PIN- METRIC

### Chemical Composition:

CARBON (C)		PHOSPHORUS (P)	SULFUR (S)
Max	Min	Max	Max
0.20	0.50	0.035	0.035

### Alloy

CONTAINS ONE OF THE FOLLOWING ALLOYS
Mn, Cr, Mo, Ni, V

### Core Hardness:

ROCKWELL HARDNESS
HRC 50/58

### Surface Hardness:

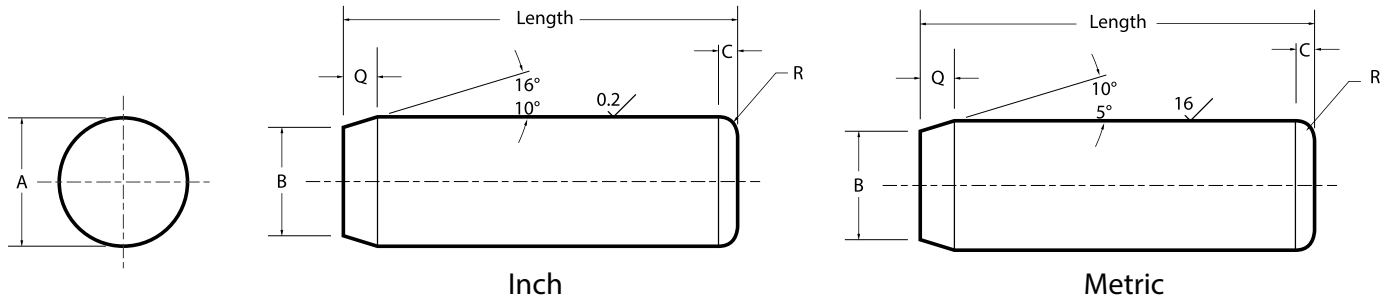
ROCKWELL HARDNESS
HRC 60 min

### Shear Strength:

METRIC
1050 MPa

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**UNBRAKO HARDENED GROUND MACHINE DOWEL PIN - INCH AND METRIC DIMENSIONS**

**INCH DIMENSIONS**

SIZE	PIN DIAMETER (A)		POINT DIAMETER (B)		CROWN HEIGHT (C)		CROWN RADIUS (R)		POINT LENGTH (Q)		SHEAR STRENGTH	RECOMMENDED HOLE SIZE	
	NOM	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	LBS		MAX	MIN
1/16	0.0628	0.0626	0.056	0.048	0.020	0.010	0.056	0.019	465	0.0625	0.0620		
3/32	0.0941	0.0939	0.084	0.079	0.031	0.026	0.074	0.028	1,035	0.0937	0.0932		
1/8	0.1253	0.1251	0.116	0.110	0.041	0.043	0.070	0.026	1,845	0.1250	0.1245		
5/32	0.1565	0.1563	0.147	0.140	0.052	0.043	0.071	0.026	2,880	0.1562	0.1557		
3/16	0.1878	0.1876	0.178	0.170	0.062	0.043	0.073	0.027	4,140	0.1875	0.1870		
1/4	0.2503	0.2501	0.237	0.230	0.083	0.058	0.093	0.037	7,370	0.2500	0.2495		
5/16	0.3128	0.3126	0.298	0.290	0.104	0.058	0.102	0.041	11,500	0.3125	0.3120		
3/8	0.3753	0.3751	0.359	0.350	0.125	0.073	0.110	0.046	16,580	0.3750	0.3745		
7/16	0.4378	0.4376	0.417	0.409	0.146	0.089	0.136	0.058	22,540	0.4375	0.4370		
1/2	0.5003	0.5001	0.480	0.471	0.167	0.104	0.133	0.057	29,460	0.5000	0.4995		
9/16	0.5628	0.5626	0.542	0.534	0.189	0.120	0.136	0.058	37,270	0.5625	0.5620		
5/8	0.6253	0.6251	0.605	0.595	0.208	0.120	0.133	0.057	46,020	0.6250	0.6245		
3/4	0.7503	0.7501	0.725	0.715	0.250	0.120	0.161	0.071	66,270	0.7500	0.7495		
7/8	0.8753	0.8751	0.850	0.840	0.293	0.120	0.161	0.071	90,190	0.8750	0.8745		
1	1.0003	1.0001	0.975	0.960	0.333	0.120	0.161	0.071	117,810	1.0000	0.9995		

**METRIC DIMENSIONS**

SIZE	PIN DIAMETER (A)		POINT DIAMETER (B)		CROWN HEIGHT (C)		CROWN RADIUS (R)		POINT LENGTH (Q)		SHEAR STRENGTH	RECOMMENDED HOLE SIZE	
	NOM	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	kN		MAX	MIN
3	3.008	3.003	0.0600	-	0.8	0.035	1.8	0.7	7.4	3.000	2.987		
4	4.009	4.004	0.0730	0.0692	0.9	0.035	1.8	0.7	13.2	4.000	3.987		
5	5.009	5.004	0.0860	0.0819	1.0	0.035	1.9	0.7	20.6	5.000	4.987		
6	6.010	6.004	0.0990	0.0945	1.1	0.060	2.4	0.9	29.7	6.000	5.987		
8	8.012	8.006	0.1120	0.1069	1.3	0.075	2.6	1.0	52.5	8.000	7.987		
10	10.012	10.006	0.1250	0.1199	1.4	0.075	2.8	1.2	82.5	10.000	9.987		
12	12.013	12.007	0.1380	0.1320	1.6	0.075	3.4	1.5	119.0	12.000	11.985		
16	16.013	16.007	0.1640	0.1580	1.8	0.075	3.3	1.5	211.0	16.000	15.985		
20	20.014	20.008	0.1900	0.1825	2.0	0.105	4.1	1.8	330.0	20.000	19.983		
25	25.014	25.008	0.2500	0.2419	2.3	0.105	4.1	1.8	515.0	25.000	24.983		

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## Unbrako Hardened Ground Machine Dowel Pins - Inch

SIZE	SERIES	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
1/8x3/8	0.0002" OS	Alloy Steel	Plain	116081	961621
1/8x1/2	0.0002" OS	Alloy Steel	Plain	116097	961615
1/8x5/8	0.0002" OS	Alloy Steel	Plain	116113	961624
1/8x3/4	0.0002" OS	Alloy Steel	Plain	116129	961618
1/8x7/8	0.0002" OS	Alloy Steel	Plain	116146	961627
1/8x1	0.0002" OS	Alloy Steel	Plain	116162	961600
1/8x1-1/4	0.0002" OS	Alloy Steel	Plain	116179	961603
1/8x1-1/2	0.0002" OS	Alloy Steel	Plain	116195	961606
1/8x1-3/4	0.0002" OS	Alloy Steel	Plain	110261	961609
1/8x2	0.0002" OS	Alloy Steel	Plain	110277	961612

3/16x1/2	0.0002" OS	Alloy Steel	Plain	110293	961645
3/16x5/8	0.0002" OS	Alloy Steel	Plain	110310	961651
3/16x3/4	0.0002" OS	Alloy Steel	Plain	110327	961648
3/16x7/8	0.0002" OS	Alloy Steel	Plain	110344	961654
3/16x1	0.0002" OS	Alloy Steel	Plain	110360	961630
3/16x1-1/4	0.0002" OS	Alloy Steel	Plain	110376	961633
3/16x1-1/2	0.0002" OS	Alloy Steel	Plain	110393	961636
3/16x1-3/4	0.0002" OS	Alloy Steel	Plain	110410	961639
3/16x2	0.0002" OS	Alloy Steel	Plain	110426	961642

1/4x1/2	0.0002" OS	Alloy Steel	Plain	104185	961678
1/4x5/8	0.0002" OS	Alloy Steel	Plain	115069	961684
1/4x3/4	0.0002" OS	Alloy Steel	Plain	113104	961681
1/4x7/8	0.0002" OS	Alloy Steel	Plain	105237	961687
1/4x1	0.0002" OS	Alloy Steel	Plain	108942	961657
1/4x1-1/4	0.0002" OS	Alloy Steel	Plain	108974	961660
1/4x1-1/2	0.0002" OS	Alloy Steel	Plain	105277	961663
1/4x1-3/4	0.0002" OS	Alloy Steel	Plain	105309	961666
1/4x2	0.0002" OS	Alloy Steel	Plain	105341	961669
1/4x2-1/4	0.0002" OS	Alloy Steel	Plain	118645	961672
1/4x2-1/2	0.0002" OS	Alloy Steel	Plain	120490	961675



## Unbrako Hardened Ground Machine Dowel Pins - Inch

SIZE	SERIES	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
5/16x1/2	0.0002" OS	Alloy Steel	Plain	120557	961714
5/16x5/8	0.0002" OS	Alloy Steel	Plain	120621	961720
5/16x3/4	0.0002" OS	Alloy Steel	Plain	117265	961717
5/16x7/8	0.0002" OS	Alloy Steel	Plain	117298	961723
5/16x1	0.0002" OS	Alloy Steel	Plain	117331	961690
5/16x1-1/4	0.0002" OS	Alloy Steel	Plain	117363	961693
5/16x1-1/2	0.0002" OS	Alloy Steel	Plain	117397	961696
5/16x1-3/4	0.0002" OS	Alloy Steel	Plain	117429	961699
5/16x2	0.0002" OS	Alloy Steel	Plain	117462	961702
5/16x2-1/4	0.0002" OS	Alloy Steel	Plain	117494	961705
5/16x2-1/2	0.0002" OS	Alloy Steel	Plain	117527	961708
5/16x3	0.0002" OS	Alloy Steel	Plain	117561	961711

3/8x1/2	0.0002" OS	Alloy Steel	Plain	117593	961750
3/8x5/8	0.0002" OS	Alloy Steel	Plain	109422	961756
3/8x3/4	0.0002" OS	Alloy Steel	Plain	109454	961753
3/8x7/8	0.0002" OS	Alloy Steel	Plain	109486	961759
3/8x1	0.0002" OS	Alloy Steel	Plain	109520	961726
3/8x1-1/4	0.0002" OS	Alloy Steel	Plain	114998	961729
3/8x1-1/2	0.0002" OS	Alloy Steel	Plain	115030	961732
3/8x1-3/4	0.0002" OS	Alloy Steel	Plain	115062	961735
3/8x2	0.0002" OS	Alloy Steel	Plain	113097	961738
3/8x2-1/4	0.0002" OS	Alloy Steel	Plain	109028	961741
3/8x2-1/2	0.0002" OS	Alloy Steel	Plain	111888	961744
3/8x3	0.0002" OS	Alloy Steel	Plain	107654	961747

7/16x1	0.0002" OS	Alloy Steel	Plain	107686	961762
7/16x1-1/4	0.0002" OS	Alloy Steel	Plain	107718	961765
7/16x1-1/2	0.0002" OS	Alloy Steel	Plain	113240	961768
7/16x1-3/4	0.0002" OS	Alloy Steel	Plain	107457	961771
7/16x2	0.0002" OS	Alloy Steel	Plain	107489	961774
7/16x2-1/2	0.0002" OS	Alloy Steel	Plain	107521	961777
7/16x3	0.0002" OS	Alloy Steel	Plain	107553	961780

## Unbrako Hardened Ground Machine Dowel Pins - Inch

SIZE	SERIES	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
1/2x3/4	0.0002" OS	Alloy Steel	Plain	117073	961813
1/2x1	0.0002" OS	Alloy Steel	Plain	119158	961783
1/2x1-1/4	0.0002" OS	Alloy Steel	Plain	114656	961786
1/2x1-1/2	0.0002" OS	Alloy Steel	Plain	114721	961789
1/2x1-3/4	0.0002" OS	Alloy Steel	Plain	117103	961792
1/2x2	0.0002" OS	Alloy Steel	Plain	106609	961795
1/2x2-1/4	0.0002" OS	Alloy Steel	Plain	119565	961798
1/2x2-1/2	0.0002" OS	Alloy Steel	Plain	119597	961801
1/2x3	0.0002" OS	Alloy Steel	Plain	119631	961804
1/2x3-1/2	0.0002" OS	Alloy Steel	Plain	109023	961807
1/2x4	0.0002" OS	Alloy Steel	Plain	111884	961810

5/8x1	0.0002" OS	Alloy Steel	Plain	107650	961816
5/8x1-1/4	0.0002" OS	Alloy Steel	Plain	107682	961819
5/8x1-1/2	0.0002" OS	Alloy Steel	Plain	107714	961822
5/8x1-3/4	0.0002" OS	Alloy Steel	Plain	121862	961825
5/8x2	0.0002" OS	Alloy Steel	Plain	107453	961828
5/8x2-1/4	0.0002" OS	Alloy Steel	Plain	107485	961831
5/8x2-1/2	0.0002" OS	Alloy Steel	Plain	107517	961834
5/8x3	0.0002" OS	Alloy Steel	Plain	107549	961837
5/8x3-1/2	0.0002" OS	Alloy Steel	Plain	107582	961840
5/8x4	0.0002" OS	Alloy Steel	Plain	107614	961843
5/8x4-1/2	0.0002" OS	Alloy Steel	Plain	113268	961846
5/8x5	0.0002" OS	Alloy Steel	Plain	113300	961849

3/4x2	0.0002" OS	Alloy Steel	Plain	106412	961852
3/4x2-1/2	0.0002" OS	Alloy Steel	Plain	106444	961855
3/4x3	0.0002" OS	Alloy Steel	Plain	106477	961858
3/4x3-1/2	0.0002" OS	Alloy Steel	Plain	106509	961861
3/4x4	0.0002" OS	Alloy Steel	Plain	113456	961864
3/4x5	0.0002" OS	Alloy Steel	Plain	113521	961867
3/4x6	0.0002" OS	Alloy Steel	Plain	111925	961870

7/8x2	0.0002" OS	Alloy Steel	Plain	111958	961873
7/8x3	0.0002" OS	Alloy Steel	Plain	108424	961876
7/8x4	0.0002" OS	Alloy Steel	Plain	108490	961879
7/8x5	0.0002" OS	Alloy Steel	Plain	102900	961882

## Unbrako Hardened Ground Machine Dowel Pins - Inch

SIZE	SERIES	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
1x2	0.0002" OS	Alloy Steel	Plain	102968	961885
1x2-1/2	0.0002" OS	Alloy Steel	Plain	107094	961888
1x3	0.0002" OS	Alloy Steel	Plain	107126	961891
1x3-1/2	0.0002" OS	Alloy Steel	Plain	104251	961894
1x4	0.0002" OS	Alloy Steel	Plain	104317	961897
1x5	0.0002" OS	Alloy Steel	Plain	108138	961900

## Unbrako Hardened Ground Machine Dowel Pins - Metric

SIZE	SERIES	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
2x8	0.005 mm OS	Alloy Steel	Plain	407831	961981
2x10	0.005 mm OS	Alloy Steel	Plain	407832	961984
2x12	0.005 mm OS	Alloy Steel	Plain	407833	961987
2x16	0.005 mm OS	Alloy Steel	Plain	407835	961990
2x18	0.005 mm OS	Alloy Steel	Plain	407836	961993
2x20	0.005 mm OS	Alloy Steel	Plain	407837	961996

3x10	0.005 mm OS	Alloy Steel	Plain	115001	961999
3x12	0.005 mm OS	Alloy Steel	Plain	115002	962002
3x16	0.005 mm OS	Alloy Steel	Plain	115003	962005
3x18	0.005 mm OS	Alloy Steel	Plain	402118	962008
3x20	0.005 mm OS	Alloy Steel	Plain	115004	962011
3x28	0.005 mm OS	Alloy Steel	Plain	402120	962014
3x30	0.005 mm OS	Alloy Steel	Plain	115007	962017
3x32	0.005 mm OS	Alloy Steel	Plain	402121	962020
3x36	0.005 mm OS	Alloy Steel	Plain	406345	962023
3x40	0.005 mm OS	Alloy Steel	Plain	402124	962026

4x10	0.005 mm OS	Alloy Steel	Plain	115010	962029
4x12	0.005 mm OS	Alloy Steel	Plain	115011	962032
4x16	0.005 mm OS	Alloy Steel	Plain	115012	962035
4x20	0.005 mm OS	Alloy Steel	Plain	115015	962038
4x24	0.005 mm OS	Alloy Steel	Plain	407127	962041
4x25	0.005 mm OS	Alloy Steel	Plain	115016	962044
4x28	0.005 mm OS	Alloy Steel	Plain	402128	962047
4x30	0.005 mm OS	Alloy Steel	Plain	115017	962050
4x50	0.005 mm OS	Alloy Steel	Plain	402132	962053

## Unbrako Hardened Ground Machine Dowel Pins - Metric

SIZE	TYPE	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
5x10	0.005 mm OS	Alloy Steel	Plain	402133	962056
5x12	0.005 mm OS	Alloy Steel	Plain	115021	962059
5x14	0.005 mm OS	Alloy Steel	Plain	402134	962062
5x16	0.005 mm OS	Alloy Steel	Plain	115022	962065
5x20	0.005 mm OS	Alloy Steel	Plain	115024	962068
5x24	0.005 mm OS	Alloy Steel	Plain	407128	962071
5x25	0.005 mm OS	Alloy Steel	Plain	115025	962074
5x28	0.005 mm OS	Alloy Steel	Plain	402137	962077
5x30	0.005 mm OS	Alloy Steel	Plain	115026	962080
5x32	0.005 mm OS	Alloy Steel	Plain	402138	962083
5x36	0.005 mm OS	Alloy Steel	Plain	406347	962086
5x40	0.005 mm OS	Alloy Steel	Plain	115028	962089
5x45	0.005 mm OS	Alloy Steel	Plain	115029	962092
5x50	0.005 mm OS	Alloy Steel	Plain	115031	962095

6x12	0.005 mm OS	Alloy Steel	Plain	402141	962098
6x16	0.005 mm OS	Alloy Steel	Plain	115032	962101
6x18	0.005 mm OS	Alloy Steel	Plain	402143	962104
6x20	0.005 mm OS	Alloy Steel	Plain	115034	962107
6x24	0.005 mm OS	Alloy Steel	Plain	115037	962110
6x28	0.005 mm OS	Alloy Steel	Plain	402145	962113
6x30	0.005 mm OS	Alloy Steel	Plain	115038	962116
6x32	0.005 mm OS	Alloy Steel	Plain	402146	962119
6x36	0.005 mm OS	Alloy Steel	Plain	406348	962122
6x40	0.005 mm OS	Alloy Steel	Plain	115043	962125
6x45	0.005 mm OS	Alloy Steel	Plain	115044	962128
6x50	0.005 mm OS	Alloy Steel	Plain	115046	962131
6x60	0.005 mm OS	Alloy Steel	Plain	115047	962134

8x20	0.005 mm OS	Alloy Steel	Plain	115049	962137
8x24	0.005 mm OS	Alloy Steel	Plain	406349	962140
8x28	0.005 mm OS	Alloy Steel	Plain	402150	962143
8x30	0.005 mm OS	Alloy Steel	Plain	115053	962146
8x32	0.005 mm OS	Alloy Steel	Plain	402151	962149
8x36	0.005 mm OS	Alloy Steel	Plain	406350	962152
8x40	0.005 mm OS	Alloy Steel	Plain	115055	962155
8x45	0.005 mm OS	Alloy Steel	Plain	115056	962158
8x50	0.005 mm OS	Alloy Steel	Plain	115057	962161
8x55	0.005 mm OS	Alloy Steel	Plain	402153	962164
8x60	0.005 mm OS	Alloy Steel	Plain	115058	962167



## Unbrako Hardened Ground Machine Dowel Pins - Metric

SIZE	TYPE	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
10x20	0.005 mm OS	Alloy Steel	Plain	115063	961903
10x24	0.005 mm OS	Alloy Steel	Plain	406351	961906
10x30	0.005 mm OS	Alloy Steel	Plain	115066	961909
10x36	0.005 mm OS	Alloy Steel	Plain	406352	961912
10x40	0.005 mm OS	Alloy Steel	Plain	115070	961915
10x45	0.005 mm OS	Alloy Steel	Plain	115071	961918
10x50	0.005 mm OS	Alloy Steel	Plain	402161	961921
10x60	0.005 mm OS	Alloy Steel	Plain	402163	961924
10x70	0.005 mm OS	Alloy Steel	Plain	402164	961927
10x90	0.005 mm OS	Alloy Steel	Plain	402167	961930
10x100	0.005 mm OS	Alloy Steel	Plain	402169	961933

12x24	0.005 mm OS	Alloy Steel	Plain	406353	961936
12x30	0.005 mm OS	Alloy Steel	Plain	402174	961939
12x36	0.005 mm OS	Alloy Steel	Plain	406354	961942
12x40	0.005 mm OS	Alloy Steel	Plain	402178	961945
12x50	0.005 mm OS	Alloy Steel	Plain	402180	961948
12x60	0.005 mm OS	Alloy Steel	Plain	402182	961951
12x70	0.005 mm OS	Alloy Steel	Plain	402183	961954
12x80	0.005 mm OS	Alloy Steel	Plain	402184	961957
12x90	0.005 mm OS	Alloy Steel	Plain	402185	961960
12x100	0.005 mm OS	Alloy Steel	Plain	402186	961963

	0.005 mm OS				
16x32	0.005 mm OS	Alloy Steel	Plain	406218	961966
16x40	0.005 mm OS	Alloy Steel	Plain	406220	961969
16x70	0.005 mm OS	Alloy Steel	Plain	406225	961972
16x80	0.005 mm OS	Alloy Steel	Plain	406226	961975
16x90	0.005 mm OS	Alloy Steel	Plain	406227	961978