



Master™ Dowels

These dowels are made from selected hardwood, carefully turned from seasoned, straight-grained lumber and kiln-dried to prevent shrinkage. They are slightly oversize for a tight fit.

Tight fit wood dowels are available from stock in standard three-foot lengths in diameters shown below. Other diameters and lengths are available upon request.

Three Foot Lengths

Diameter (Inches)	Catalog Number	Diameter (Inches)	Catalog Number
1/8	900-T02	1-1/4	900-T20
3/16	900-T03	1-3/8	900-T22
1/4	900-T04	1-1/2	900-T24
5/16	900-T05	1-3/4	900-T28
3/8	900-T06	2	900-T32
7/16	900-T07	2-1/4	900-T36
1/2	900-T08	2-1/2	900-T40
9/16	900-T09	2-3/4	900-T44
5/8	900-T10	3	900-T48
3/4	900-T12	3-1/2	900-T56
7/8	900-T14	4	900-T64
1	900-T16	5	900-T80
1-1/8	900-T18		



LOOSE-FIT MASTER WOOD DOWELS

Available by special order in any length or diameter. If length is not specified, three-foot lengths will be supplied.

To order please specify catalog number and quantity desired.

Malleable Iron Dowels

Malleable Iron Dowels are used on larger split patterns and core boxes.

The dowel pin is accurately turned; the bushing is drilled and then reamed for a close fit. Pins and bushing of malleable iron dowels are sold separately.

Master™ Special Dowels

Our many years in the design and production of dowels give us the experience necessary to aid you with your dowel requirements.

Please call toll free 1-800-321-3170 or write for any assistance you might need.

To order please specify catalog number and quantity desired.



Diameter (Inches)		Catalog Numbers	
Pin	Base	Pin	Bushing
1/2	2	662-02P	662-02B
3/4	2-1/2	662-03P	662-03B
1	2-7/8	662-04P	662-04B



Master™ Brass Dowels

For Wood Patterns and Core Boxes

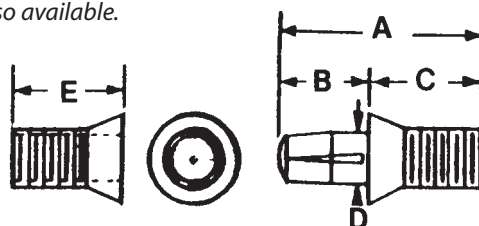
MASTER Brass Dowels are designed to meet the pattern-maker's need for stronger holding power and easier insertion in both hardwood and softwood patterns. The broached pin provides more bearing surface and assures a more accurate draw.

MASTER Brass Dowels offer the following advantages:

- Threads are deep and sharp giving a tighter hold, especially in softwood
- Precision made to close tolerances
- Easy and positive insertion (they do not twist off in hardwood)
- Easy removal for replacement if required

A complete dowel set consists of one pin and one bushing. Standard packages are:

- Sizes 1, 2 and 3 – 100 complete dowels per box
 - Sizes 4, 5 and 6 – 50 complete dowels per box
 - Size 7 – 20 complete dowels per box
- Individual pins and bushings are also available.*



Master™ Brass Dowel Dimensions

Dowel Size	Pin			Bushing	Pin and Bushing	
	A	B	C	D	E	Drill Size (Inches)
1	5/8	9/32	5/32	11/32	9/32	3/16
2	49/64	11/32	3/16	27/64	23/64	1/4
3	15/64	27/64	13/64	33/64	27/64	5/16
4	1-9/64	17/32	19/64	39/64	39/64	7/16
5	1-3/8	21/32	13/32	23/32	47/64	9/16
6	1-47/64	51/64	9/16	15/16	1	3/4
7	2-1/8	15/16	13/16	1-3/16	1-5/16	1

How to Order Master™ Brass Dowels, Wrenches

Dowel Size	Catalog Numbers			
	Complete Set (1 Pin, 1 Bushing)	Pin Only	Bushing Only	Wrench
0	935-0S	935-0P	935-0B	661-BS0
1	935-1S	935-1P	935-1B	661-BS1
2	935-2S	935-2P	935-2B	661-BS2
3	935-3S	935-3P	935-3B	661-BS3
4	935-4S	935-4P	935-4B	661-BS4
5	935-5S	935-5P	935-5B	661-BS5
6	935-6S	935-6P	935-6B	661-BS6
7	935-7S	935-7P	935-7B	661-BS7



Master™ Sure-Lock Dowels

Sure-Lock Universal and Sure-Lock Special Long Pin

MASTER Sure-Lock Dowels are available in standard and special long sizes. Standard Sure-Lock Dowels are universal (they are broached as well as flange-slotted). **Special long dowels are flange-slotted only.**

MASTER Sure-Lock Dowels have proved their value in thousands of pattern shops all over the world. Designed for use with metal patterns, core boxes, blow molds and roto molds, they offer the following advantages:

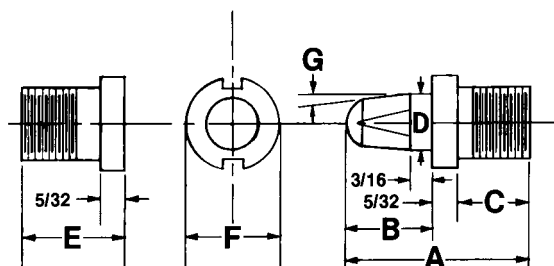
- They are inserted easily, quickly and accurately
- Universal dowels can be inserted with either flange-slotted or broach type wrenches
- The slotted flange enables the body to be removed if the pin is broken

- The square shoulder assures accurate seating
- The precision-tapered fit of the body keeps the dowel anchored tightly
- Dowels are accurately machined from special alloy steel, hardened and black-penetrated to inhibit rusting
- Special long sizes provide a more accurate draw
- The bodies of the special long sizes can be assembled with nuts for a more secure installation

A dowel consists of one pin and one bushing. MASTER Sure-Lock Dowels are sold individually or in packages of 50. Pins, bushings and jam nuts may also be purchased individually.



Universal



Dimensions (Inches and Degrees)

Dowel Size	No. 1	No. 2	No. 3	No. 4
Thread	3/8-24	7/16-20	1/2-20	5/8-18
A	1-1/4	1-11/32	1-1/2	1-19/32
B	17/32	5/8	11/16	25/32
C	9/16	9/16	21/32	21/32
D	1/4	5/16	3/8	1/2
E	23/32	23/32	13/16	13/16
F	9/16	5/8	11/16	13/16
G	3-1/2°	3°	2-1/4°	4°

Sure-Lock Universal Dowels

Dowel Size	Catalog Numbers		
	Complete Set (1 Pin, 1 Bushing)	Pin Only	Bushing Only
1	930-1S	930-1P	930-1B
2	930-2S	930-2P	930-2B
3	930-3S	930-3P	930-3B
4	930-4S	930-4P	930-4B



Flange-Slotted Special Long Pin



Dimensions (Inches)

Dowel Size	No. 2SL	No. 3SL	No. 4 SL
Thread	7/16-20	1/2-20	5/8-18
A	2-7/32	2-1/2	2-11/16
B	1-1/4	1-3/8	1-9/16
C	31/32	31/32	31/32
D	5/16	3/8	1/2
E	23/32	13/16	13/16
F	5/8	11/16	13/16

Flange-Slotted Special Long Pin

Dowel Size	Catalog Numbers			
	Complete Set (1 Pin, 1 Bushing)	Pin Only	Bushing Only	Jam Nut
2-SL	930-2SL	930-2PL	930-2B	930-N2
3-SL	930-3SL	930-3PL	930-3B	930-N3
4-SL	930-4SL	930-4PL	930-4B	930-N4

See Page 48 for installation tools.



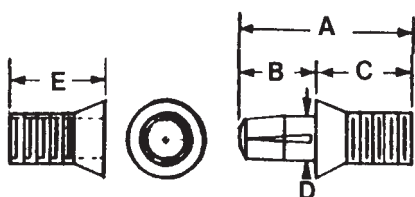
Master™ Metal Dowels

Metal Dowels

MASTER Metal Dowels are designed for use with metal patterns, core boxes, blow molds and roto molds. The shoulders on both the pin and the bushing are tapered to form a wedge that accurately centers both parts of the dowel and prevents the dowel from coming loose.

These quality dowels are precision machined from special alloy steel, hardened and black penetrated to inhibit rust. They are constructed to withstand the continuous use found in high production foundries.

The No. 1 and No. 2 MASTER Metal Dowels are designed with a broached head; the No. 3 and No. 4 dowels are of universal design (having a head that is both square and broached). The broach design makes it possible to screw the dowel into the pattern or core box tighter, decreasing the chance of the dowel becoming loose in the foundry.



Metal Dowel Dimensions (Inches)

Dowel	Thread	A	B	C	D	E
1	3/8-24	1-1/4	17/32	23/32	1/4	23/32
2	7/16-20	1-11/32	5/8	23/32	5/16	23/32
3	1/2-20	1-1/2	11/16	13/16	3/8	13/16
4	5/8-18	1-19/32	25/32	13/16	1/2	13/16

How To Order Metal Dowels

Dowel Size	Catalog Numbers		
	Complete Set (1 Pin, 1 Bushing)	Pin Only	Bushing Only
1*	931-1S	931-1P	931-1B
2*	931-2S	931-2P	931-2B
3†	931-3S	931-3P	931-3B
4†	931-4S	931-4P	931-4B

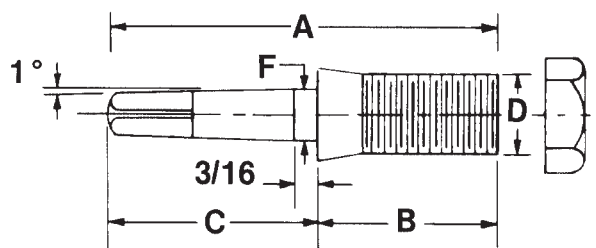
* Broached only

† Universal (broached and square head)

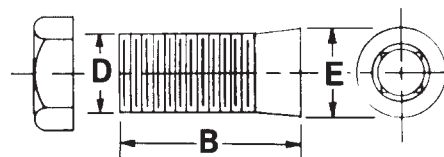
MASTER Metal Dowels including Long Type are sold in sets (consisting of one pin and one bushing) in any quantity, or pins and bushings can also be ordered individually.

Long Type – Square Head

MASTER Metal Dowels–Long Type with Square Heads are designed for those applications where a long pin and/or long bushing is required.



Styles A and B Pins with Long Thread



Style C Bushing with Long Thread

Pin Style	Pin Size	Dimensions (Inches)					Thread Size
		A	B	C	D	F	
A	1	2-1/4	1	1-1/4	3/8	1/4	3/8-24
	2	2-1/4	1	1-1/4	7/16	5/16	7/16-20
	3	2-1/4	1	1-1/4	1/2	3/8	1/2-20

B	1	1-17/32	1	17/32	3/8	1/4	3/8-24
	2	1-5/8	1	5/8	7/16	5/16	7/16-20
	3	1-11/16	1	11/16	1/2	3/8	1/2-20

Bushing Style	Bushing Size	Dimensions (Inches)			Thread Size
		B	D	E	
C	1	1	3/8	1/2	3/8-24
	2	1	7/16	9/16	7/16-20
	3	1	1/2	5/8	1/2-20

Metal Long Type Dowels

Dowel Size	1	2	3
Pin "A" Only	932-1PA	932-2PA	932-3PA
Pin "B" Only	932-1PB	932-2PB	932-3PB
Bushing "C" Only	932-1BC	932-2BC	932-3BC
Pin "A" & Bushing "C"	932-1SAC	932-2SAC	932-3SAC
Pin "B" & Bushing "C"	932-1SBC	932-2SBC	932-3SBC

Pattern Shop/Foundry Supplies



Master™ Sure-Lock Installation Tools

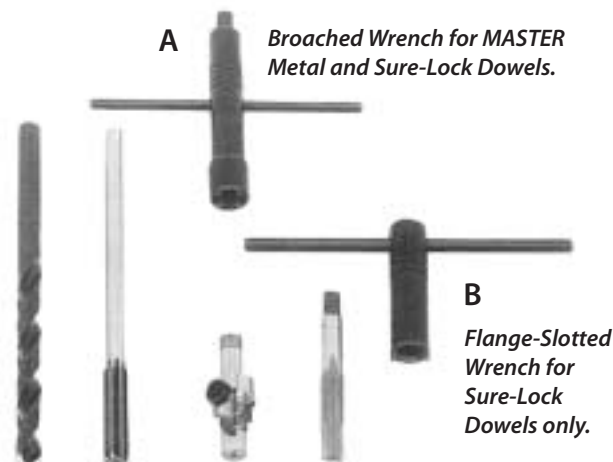
Drills, Reamers, Counterbores, Taps, Wrenches

Master™ Sure-Lock Universal Dowels and Master™ Sure-Lock Flange-Slotted Dowels with Special Long Pin

The tools required for inserting MASTER Sure-Lock Dowels, broached and flange-slotted, consist of a drill, reamer, counter bore, tap and wrench for each size.

A The Broached Wrench can be used with Sure-Lock or MASTER Metal Dowels. It cannot be used to remove a pin that has been broken completely off.

B The Flange-Slotted Wrench can be used only with Sure-Lock Dowels. The advantage of this wrench is that it may be used to remove the threaded body of a pin that has been broken completely off.



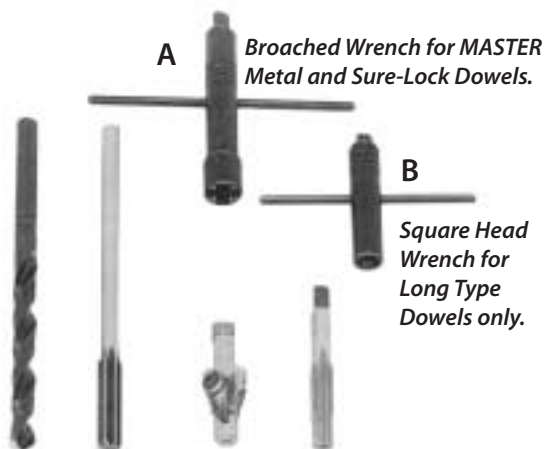
Dowel Size	Catalog Numbers					
	Drill	Reamer	Counterbore	Tap	Wrenches	
					Flange-Slotted	Broached
1	937-D1	937-R21	937-CSL1	937-T1	661-FS1	661-BD1
2 or 2-S	937-D2	937-R24	937-CSL2	937-T2	661-FS2	661-BD2
3 or 3-S	937-D3	937-R28	937-CSL3	937-T3	661-FS3	661-BD3
4 or 4-S	937-D4	937-R36	937-CSL4	937-T4	661-FS4	661-BD4

Master™ Metal Dowels and Long Type-Square Head Dowels

The tools required for inserting MASTER Metal Dowels, broached, universal and square head, consist of a drill, reamer, counter bore, tap and wrench for each size.

A The Broached Wrench can be used with Sure-Lock or MASTER Metal Dowels. It cannot be used to remove a pin that has been broken completely off. This wrench cannot be used for Long Type Dowels.

B The Square Head Wrench is used for the Long Type pins and can be used for the No. 3 and No. 4 MASTER Metal Dowels. (No. 1 and No. 2 MASTER Metal Dowels require the Broached Wrench.)



Dowel Size	Catalog Numbers					
	Drill	Reamer	Counterbore	Tap	Wrenches	
					Broached	Square Head
1	937-D1	937-R21	937-CMM1	937-T1	661-BD1	661-SH1*
2	937-D2	937-R24	937-CMM2	937-T2	661-BD2	661-SH2*
3	937-D3	937-R28	937-CMM3	937-T3	661-BD3	661-SH3
4	937-D4	937-R36	937-CMM4	937-T4	661-BD4	661-SH4

*Special long pin only.