

**DRILL JIG BUSHINGS - TYPE "P" HEADLESS PRESSFIT**

SERIES 265:



Please inquire for metric sizes as well as other styles of bushings.



Ground Outside Diameters, A.S.A. Specifications

Inside Diameter	Outside Diameter	1/4 Long		3/8 Long		1/2 Long		3/4 Long		1 Long		1-3/8 Long	
		Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price
<b>FRACTIONAL SIZES</b>													
3/64	13/64	1850030		1850031		1850032		1850033					
1/16	13/64	1850040		1850041		1850042		1850043					
5/64	13/64	1850050		1850051		1850052		1850053					
3/32	13/64	1850060		1850061		1850062		1850063					
7/64	1/4	1850070		1850071		1850072		1850073		070704		070720	
1/8	1/4	1850080		1850081		1850082		1850083		070710		9070726	
9/64	5/16	1850090		1850091		1850092		1850093		9070923		070949	
5/32	5/16	1850100		1850101		1850102		1850103		9070929		070955	
11/64	5/16	1850110		1850111		1850112		1850113				070961	
3/16	5/16	1850120		1850121		1850122		1850123				070967	
13/64	13/32	1850130		1850131		1850132		1850133		9071224		071246	
7/32	13/32	1850140		1850141		1850142		1850143		071229			
15/64	13/32	1850150		1850151		1850152		1850153		9071233		071255	
1/4	13/32	1850160		1850161		1850162		1850163					
17/64	1/2	1850170		1850171		1850172		1850173		071608		071643	
9/32	1/2	1850180		1850181		1850182		1850183		071613		071648	
19/64	1/2	1850190		1850191		1850192		1850193		071616		071651	
5/16	1/2	1850200		1850201		1850202		1850203				071653	
21/64	5/8	1850210		1850211		1850212		1850213		071959		9071980	
11/32	5/8	1850220		1850221		1850222		1850223		071962		9071983	
23/64	5/8	1850230		1850231		1850232		1850233		071965		9071986	
3/8	5/8	1850240		1850241		1850242		1850243					
25/64	5/8	1850250		1850251		1850252		1850253		071970		071991	
13/32	5/8	1850260		1850261		1850262		1850263		9071973		071994	
27/64	5/8	1850270		1850271		1850272		1850273		9071975		071996	
7/16	5/8	1850280		1850281		1850282		1850283		9071976		071997	
29/64	3/4	1850290		1850291		1850292		1850293		072265		9072292	
15/32	3/4	1850300		1850301		1850302		1850303		9072266		072293	
31/64	3/4	1850310		1850311		1850312		1850313		072267		9072294	
1/2	3/4	1850320		1850321		1850329		1850323		1850328			
33/64	3/4	1850330		1850331		1850332		1850333		072269		9072296	
17/32	3/4	1850340		1850341		1850342		1850343		9072270		072297	
35/64	7/8			1850351		1850352		1850353		1850354		072513	
9/16	7/8			1850361		1850362		1850363		1850364		072514	
37/64	7/8			1850371		1850372		1850373		1850374		072515	
19/32	7/8			1850381		1850382		1850383		1850384		072516	
39/64	7/8			1850391		1850392		1850393		1850394		072517	
5/8	7/8			1850401		1850402		1850403		1850404		9072518	
41/64	7/8			1850411		1850412		1850413		1850414		072519	
21/32	7/8			1850421		1850422		1850423		1850424		072520	
43/64	1					1850432		1850433		1850434		1850435	
11/16	1					1850442		1850443		1850444		1850445	
45/64	1					1850452		1850453		1850454		1850455	
23/32	1					1850462		1850463		1850464		1850465	
47/64	1					1850472		1850473		1850474		1850475	
3/4	1					1850482		1850483		1850484		1850485	
7/8	1-3/8									1850494		072992	
1	1-3/8									1850644			
<b>WIRE GAUGE SIZES</b>													
1	13/32	1855010		1855011		1855012		1855013		071231		071253	
2	13/32	1855020		1855021		1855022		1855023		071230		071252	
3	13/32	1855030		1855031		1855032		1855033		071228		071250	
4	13/32	1855040		1855041		1855042		1855043		071227		9071249	
5	13/32	1855050		1855051		1855052		1855053		071226		071248	
6	13/32	1855060		1855061		1855062		1855063		9071225		071247	
7	13/32	1855070		1855071		1855072		1855073		9071223		9071245	
8	13/32	1855080		1855081		1855082		1855083		9071222		071244	
9	13/32	1855090		1855091		1855092		1855093		071221		071243	
10	5/16	1855100		1855101		1855102		1855103		9070944		9070970	
11	5/16	1855110		1855111		1855112		1855113		9070943		9070969	
12	5/16	1855120		1855121		1855122		1855123		9070942		070968	
13	5/16	1855130		1855131		1855132		1855133		9070940		070966	
14	5/16	1855140		1855141		1855142		1855143		070939		9070965	
15	5/16	1855150		1855151		1855152		1855153		070938		070964	

**Quantity Discounts**

- 1 - 9 pcs..... Net
- 10 - 24 pcs..... less 10%
- 25 - 49 pcs..... less 20%
- 50 - 99 pcs..... less 25%
- 100 + pcs..... less 30%

**MACHINE SHOP DISCOUNT SUPPLY**

**DRILL JIG BUSHINGS**

## DRILL JIG BUSHINGS - TYPE "P" HEADLESS PRESSFIT

SERIES 265:

WIRE GAGE SIZES (Continued)



Ground Outside Diameters,  
A.S.A. Specifications



Longer lengths  
available;  
please inquire.

Please inquire for metric  
sizes as well as other  
styles of bushings.

### Quantity Discounts

1 - 9 pcs..... Net  
10 - 24 pcs..... less 10%  
25 - 49 pcs..... less 20%  
50 - 99 pcs..... less 25%  
100+ pcs..... less 30%

Inside Dia.	Outside Dia.	1/4 Long		3/8 Long		1/2 Long		3/4 Long	
		Order No.	Price	Order No.	Price	Order No.	Price	Order No.	Price
16	5/16	1855160		1855161		1855162		1855163	
17	5/16	1855170		1855171		1855172		1855173	
18	5/16	1855180		1855181		1855182		1855183	
19	5/16	1855190		1855191		1855192		1855193	
20	5/16	1855200		1855201		1855202		1855203	
21	5/16	1855210		1855211		1855212		1855213	
22	5/16	1855220		1855221		1855222		1855223	
23	5/16	1855230		1855231		1855232		1855233	
24	5/16	1855240		1855241		1855242		1855243	
25	5/16	1855250		1855251		1855252		1855253	
26	5/16	1855260		1855261		1855262		1855263	
27	5/16	1855270		1855271		1855272		1855273	
28	5/16	1855280		1855281		1855282		1855283	
29	1/4	1855290		1855291		1855292		1855293	
30	1/4	1855300		1855301		1855302		1855303	
31	1/4	1855310		1855311		1855312		1855313	
32	1/4	1855320		1855321		1855322		1855323	
33	1/4	1855330		1855331		1855332		1855333	
34	1/4	1855340		1855341		1855342		1855343	
35	1/4	1855350		1855351		1855352		1855353	
36	1/4	1855360		1855361		1855362		1855363	
37	1/4	1855370		1855371		1855372		1855373	
38	1/4	1855380		1855381		1855382		1855383	
39	13/64	1855390		1855391		1855392		1855393	
40	13/64	1855400		1855401		1855402		1855403	
41	13/64	1855410		1855411		1855412		1855413	
42	13/64	1855420		1855421		1855422		1855423	
43	13/64	1855430		1855431		1855432		1855433	
44	13/64	1855440		1855441		1855442		1855443	
45	13/64	1855450		1855451		1855452		1855453	
46	13/64	1855460		1855461		1855462		1855463	
47	13/64	1855470		1855471		1855472		1855473	
48	13/64	1855480		1855481		1855482		1855483	
49	13/64	1855490		1855491		1855492		1855493	
50	13/64	1855500		1855501		1855502		1855503	
51	13/64	1855510		1855511		1855512		1855513	
52	13/64	1855520		1855521		1855522		1855523	
53	13/64	1855530		1855531		1855532		1855533	
54	13/64	1855540		1855541		1855542		1855543	
55	13/64	1855550		1855551		1855552		1855553	
56	13/64	1855560		1855561		1855562		1855563	
57	13/64	1855570		1855571		1855572		1855573	
58	13/64	1855580		1855581		1855582		1855583	
59	13/64	1855590		1855591		1855592		1855593	
60	13/64	1855600		1855601		1855602		1855603	
LETTER SIZES									
A	13/32	1860010		1860011		1860012		1860013	
B	13/32	1860020		1860021		1860022		1860023	
C	13/32	1860030		1860031		1860032		1860033	
D	13/32	1860040		1860041		1860042		1860043	
E	13/32	1860050		1860051		1860052		1860053	
F	13/32	1860060		1860061		1860062		1860063	
G	1/2	1860070		1860071		1860072		1860073	
H	1/2	1860080		1860081		1860082		1860083	
I	1/2	1860090		1860091		1860092		1860093	
J	1/2	1860100		1860101		1860102		1860103	
K	1/2	1860110		1860111		1860112		1860113	
L	1/2	1860120		1860121		1860122		1860123	
M	1/2	1860130		1860131		1860132		1860133	
N	1/2	1860140		1860141		1860142		1860143	
O	1/2	1860150		1860151		1860152		1860153	
P	5/8	1860160		1860161		1860162		1860163	
Q	5/8	1860170		1860171		1860172		1860173	
R	5/8	1860180		1860181		1860182		1860183	
S	5/8	1860190		1860191		1860192		1860193	
T	5/8	1860200		1860201		1860202		1860203	
U	5/8	1860210		1860211		1860212		1860213	
V	5/8	1860220		1860221		1860222		1860223	
W	5/8	1860230		1860231		1860232		1860233	
X	5/8	1860240		1860241		1860242		1860243	
Y	5/8	1860250		1860251		1860252		1860253	
Z	5/8	1860260		1860261		1860262		1860263	

**CENTER PUNCHES**  
SERIES 304:



Made of hardened and tempered tool steel with ground points. Punches have knurled grip. Set consists of 1 each of 5 punches in plastic pouch.



Point Size	Length	Order No.	Price
1/16	3	3040004	
5/64	4	3040005	
3/32	4	3040006	
9/64	4	3040008	
5/32	4	3040010	
5 pc. set		1885000	

**CENTER PUNCH WITH MAGNIFIER**  
SERIES 304:



Made of hardened and tempered tool steel with ground point.

Length: 4"  
Magnifier: 1/2" Diameter, 3x power



Order No. 3042500	Price	
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**OPTICAL CENTER PUNCH**  
SERIES 304:



Precision Centering tool provides extreme accuracy.

- Superior in accuracy to any tool of its kind, including those with cross hairs, because it presents an unobstructed target to be punched.
- Has an exclusive "Dot & Circle" 9x power magnification lens.
- Tolerance of ±.001" can be easily obtained.



Order No. 3045000	Price	
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**AUTOMATIC CENTER PUNCH**  
SERIES 304:



- Hardened and ground punch point.
- Knurled body, 5" long.
- Spring loaded, no hammer required.
- Spring tension cap can be adjusted for light to heavy strokes by rotating cap.

Order No. 3042500	Price	
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**CENTER PUNCHES**  
STARRETT SERIES 117:



- Made of specially selected steel, hardened and properly tempered.
- Well proportioned, nicely finished with knurled finger grip.
- Points are ground at the proper angle to give maximum service.
- Tips are accurately centered.
- 5 Piece set furnished in plastic case.



Length		Dia. at Top of Tapered Point		Catalog No.	EDP No.	Price
mm	Inch	Inch	mm			
75mm	3	1/16"	1.5mm	117AA	50482	
100mm	4	5/64"	2mm	117A	50483	
		3/32"	2.5mm	117B	50484	
		1/8"	3mm	117C	50485	
125mm	5	5/32"	4mm	117D	50486	
		1/4"	6.5mm	117E	50487	
Set of 5, Nos. 117AA, A, B, C, D in Plastic Case.				S117PC	50488	

**CENTER PUNCHES WITH SQUARE SHANK**  
STARRETT SERIES 264:



Punches have a square knurled grip and will not roll when laid down. Special tempering prevents head from fracturing. Tips are accurately centered and ground at the proper angle to give maximum service.



Catalog No.	EDP No.	Dia.. at Top of Tapered Point	Thickness of Square Body	Price
264A	51278	1/16"	3/8"	
264B	51279	5/64"	3/8"	
264C	51280	3/32"	3/8"	
264D	51281	1/8"	3/8"	
264E	51282	5/32"	3/8"	
264F	51283	3/16"	7/16"	
264G	51284	1/4"	7/16"	
S264WB	51285	Set of seven (A,B,C,D,E,F,G) in Round Wood Box		

**AUTOMATIC CENTER PUNCH**  
STARRETT SERIES 818:



Lightweight aluminum handle. No hammer required. Can be adjusted for striking light or heavy indentations by turning knurled cap. Working parts are hardened tool steel. Point may easily be removed for resharpener or replacement. 5" long, 5/8" diameter.

Catalog No.	EDP No.	Price
818	53048	



## ADJUSTABLE AUTOMATIC CENTER PUNCHES

STARRETT SERIES 18, 18B:

When handle is pressed down, built-in mechanism strikes blow, no hammer required. Force of blow is regulated by turning knurled cap. Constant spring tension assures uniform depth and size of center marking for each setting of cap. Point is removable for regrinding. All working parts hardened. Punches strike heavier blows in proportion to sizes as listed.



Left: 18B  
Right: With 18SB Spacing Attachment.  
Range: 1/8 - 1-3/4" (3-44mm)

Length	Diameter	Catalog No.	EDP No.	Price
4"/100mm	7/16"/11mm	18AA	50119	
5" / 125mm	9/16"/14mm	18A	50120	
5-1/4" /130mm	11/16"/17mm	18C*	56757	
Point only for 18AA & 18A		PT02947	70380	
Point only for 18B		PT02948	70381	
Spacing Attachment		18SB	50126	

\* Heavy Duty Model

PUNCHES

## AUTOMATIC CENTER PUNCHES

SERIES 213:

General's automatic center punches are a precise means of punching center holes for drilling in layout work. A single-handed operation with stored energy design eliminates the need for striking the punch with a hammer. Spring tension cap can be adjusted for light to heavy strokes. Punch depth can be set for repetitive work. Replacement points, shafts and moving parts are hardened alloy steel.



### Ball Bearing Automatic Center Punch

- Unique ball bearing action.
- Lightweight aluminum body with long wearing alloy steel parts.
- Body diameter 5/8"; overall length 5".



Model No.	Description	Order No.	Price
77	Punch	310620	

### Steel Automatic Center Punch

- For making lighter marking than our Heavy-Duty Punch No. 78.
- Black oxide finish inhibits rust.
- All-steel 5" body with threaded, replaceable hardened steel point and shaft.
- Body diameter is 1/2".



Model No.	Description	Order No.	Price
79	Punch	310729	
79P	Replacement Point	310781	
79P/2	Replacement Points (2)	310798	

### Solid Point Automatic Center Punch

- One hand operation. No hammer needed.
- Spring tension adjusts for light or heavy marking.
- Black oxide finish inhibits rust.
- All-steel 5" body with hardened steel point and shaft.
- Body diameter is 1/2"



Model No.	Order No.	Price
79X	31084	

### Heavy-Duty Steel Automatic Center Punch

- Heavy-duty center punch.
- Black oxide finish inhibits rust.
- All-steel 6" body with threaded, replaceable hardened steel point and shaft.
- Body diameter is 5/8".



Model No.	Description	Order No.	Price
78	Punch	310668	
78P	Replacement Point	310682	

### Pocket Automatic Center Punch

- Punches, marks, scribes and starts nail or screw holes.
- Lightweight aluminum body with replaceable alloy steel point for long wear.
- Adjusts for light or heavy markings.
- Pencil slim design with pocket clip.



Model No.	Description	Order No.	Price
87	Punch	311085	
87P	Replacement Point	311108	

## DRIVE PIN PUNCHES

STARRETT SERIES 565:

Specially selected tool steel. Well proportioned, hardened, nicely finished with knurled finger grip. Size is stamped on the head of each punch.



Catalog No.	EDP No.	Dia. Punch	Dia. Body	Price
565A	52578	1/16"	19/64"	
565B	52579	3/32"	19/64"	
565C	52580	1/8"	19/64"	
565D	52581	5/32"	19/64"	
565E	52582	3/16"	5/16"	
565F	52583	7/32"	25/64"	
565G	52584	1/4"	25/64"	
565H	52585	5/16"	29/64"	
S565WB	52586	Set of eight drive pin punches in round wood box		
S565PC	52587	Set of eight drive pin punches in attractive, protective case		

## DRIVE PIN PUNCHES

SERIES 305:



Made of heat treated tool steel for extra strength. Punches are centerless ground, 4" long, have knurled bodies, and are stamped with size. All punch diameters are supplied .005" undersize from the dimensions shown. Set consists of 1 each of 8 punches in plastic pouch.



Dia.	Order No.	Price
1/16	3050004	
3/32	3050006	
1/8	3050008	
5/32	3050010	
3/16	3050012	
7/32	3050014	
1/4	3050016	
5/16	3050020	
8 pc. Set	1890000	

## 8" DRIVE PIN PUNCHES

SERIES 305:



Similar to SERIES 305 above However :  
Overall Length : 8"; Length of Driving Pin Section : 3-1/2"  
Set consists of 1 each of 5 punches in a plastic pouch.

Diameter	Order No.	Price
1/8	3050804	
3/16	3050812	
1/4	3050816	
5/16	3050820	
3/8	3050824	
5 pc.set	1895000	

## LONG DRIVE PIN PUNCHES

SERIES 248:



Extra long, 8"/ 200mm. Bodies are 4-1/2"/ 115mm and drive pin sections 3-1/2" long. For machine shop and motor service work. Made from specially selected tool steel, well proportioned and hardened. Knurled grip. Punches follow long cotter pins, etc. into a hole without hinderance. Diameter of punches slightly less than sizes shown below.

Dia. Punch	Dia. Body	Catalog No.	EDP No.	Price
1/8" / 3mm	7/16"	248A	51181	
3/16" / 5mm	1/2"	248B	51182	
1/4" / 6mm	1/2"	248C	51183	
5/16" / 8mm	1/2"	248D	51184	
3/8" / 9.5mm	9/16"	248E	51185	
Set of 5 punches (A-E) protective Vinyl case.		in S248PC	51186	
Set of 5 punches (A-E) in plain box.		S248	51187	

## UNIVERSAL TRANSFER CENTER PUNCHES & ALIGNERS

SERIES 301:



- Perfect center hole alignment for all hole sizes within the range of the punch.
- The spring loaded knurled body is pushed down until its face is in contact with the work. A tap with a hammer marks the workpiece.
- All parts made from hardened steel.

Order Range	No.	Price
3/16 - 5/8"	3010001	
3/16 - 1-3/16"	3010002	

## BENCH BLOCK

SERIES 639:



- For holding work when driving pins, drilling etc.
- V-Groove for holding round or odd shaped work.
- Hardened & ground with a smooth finish - will not mar work.
- 3" Diameter, 1-1/2" Height
- Holes vary in size from 1/8 - 5/8".



Order No.	Price
3042500	

## BRASS PUNCHES - NON SPARKING



## 13 PC COMBINATION DRIVE PIN PUNCH AND CENTER PUNCH SET



### SERIES 305:

- Made from high quality brass hexagonal stock.
- Ideal Punches for working in no mar, no spark situation.
- Punch diameter are undersized approx. .005"(0.127mm)
- 3-1/2"(90mm) long.
- Available in individual sizes and also in a set of 8 punches in attractive plastic pouch.



Order No.	Punch Diameter	Price
3050116	1/16"/1.6mm	
3050332	3/32"/2.4mm	
3050118	1/8"/ 3.2mm	
3050532	5/32"/4.0mm	
3050316	3/16"/4.8mm	
3050732	7/32"/5.5mm	
3050114	1/4"/6.4mm	
3050516	5/16"/8.0mm	
3050800	Set of above 8 brass punches in a plastic pouch	

### SERIES 305:

- Very handy pin punch set in a plastic pouch.
- Consists of eight popular sizes in 4"(100mm) long drive pin punches and five sizes of center punches.
- Very useful set for machinists, tool makers etc.
- Available in attractive plastic pouch



Order No.	Description	Price
3050013	Set consisting of 4" (100mm) long drive pin punches: 1/16"(1.6mm), 3/32" (2.4mm), 1/8" (3.2mm), 5/32" (4.0mm), 3/16" (4.8mm), 7/32" (5.5mm), 1/4"(6.3mm), 5/16"(8.0mm) And Center punches 1/16"(1.6mm), 5/64"(2.0mm), 3/32"(2.4mm), 9/64" (3.6mm), 5/32"(4.0mm)	

PUNCHES

## 17 PC ALL PURPOSE PUNCH SET



## 13 PC DRIVE PIN PUNCH SET



### SERIES 305:

- Very useful set for all punching needs.
- Consists of eight popular sizes of 4" (100mm) long drive pin punches
- Eight non sparking brass punches 3-1/2"(90mm) long and one automatic center punch
- Available in attractive plastic pouch.



### SERIES 305:

- Very handy pin punch set in a plastic pouch.
- Consists of eight popular sizes in 4" (100mm) long and five popular sizes in 8" (200mm) long drive pin punches.
- Very useful set for machinists, hobbyist, automotive and construction industry.
- Available in attractive plastic pouch.



Order No.	Description	Price
3050017	Set consist of 4"(100mm) long drive pin punches: 1/16" (1.6mm), 3/32" (2.4mm), 1/8" (3.2mm), 5/32"(4.0mm), 3/16"(4.8mm), 7/32" (5.5mm) 1/4" (6.3mm) and 5/16"(8.0mm) And 3-1/2"(90mm) long brass pin punches 1/16" (1.6mm), 3/32" (2.4mm), 1/8"(3.2mm), 5/32" (4.0mm), 3/16"(4.8mm), 7/32"(5.5mm), 1/4" (6.3mm)and 5/16"(8.0mm) and automatic (125mm) long	

Order No.	Description	Price
3050513	Set Consisting of 4" (100mm) long: 1/16" (1.6mm), 3/32" (2.4mm), 1/8"(3.2mm), 5/32" (4.0mm), 3/16"(4.8mm), 7/32" (5.5mm),1/4"(6.3mm) and 5/16 (8.0mm) And 8"(200mm) long: 1/8"(3.2mm), 3/16" (4.8mm), 1/4" (6.3mm), 5/16" (8.0mm) and 3/8" (9.5mm).	

## NAIL PUNCHES



## TAPER PUNCHES (ALIGNING PUNCHES)



### SERIES 304:

- Hardened and Tempered for long life.
- Round head with shiny Black Finish.
- Heavy Knurled Body for better grip.



### SERIES 442:

- Hardened and Tempered for long life.
- Heavy Knurled Body for better grip.
- Punches are ground.
- Shiny Black Finish.



Order No.	Size of Tip	Length	Price
3040016	1/16"	4"	
3040332	3/32"	4"	
3040018	1/8"	4"	
3040532	5/32"	4"	
3040316	3/16"	4"	
3040050	Set of above five punches in pouch		
3041132	1/32"	4"	
3041316	3/16"	4-1/2"	
3041140	1/4"	5"	

Order No.	Size of Tip	Length	Price
3041118	1/8"	7"	
3042316	3/16"	9"	
3041114	1/4"	10"	
3041516	5/16"	12"	
3040040	Set of all four Taper Punches in a Display Pouch.		

**PUNCH AND CHISEL SET**   
 SERIES 442:



Order No.	No. of Pcs.	Size		Price
		Inch	mm	
4420007	7	2 Chisels 5/16x4 and 3/8 x 5 1 center punch 5/16 x 4 2 Pin punches 1/8 x 4 and 3/16 x 6 2 Nail Punches 5/32 x 4 and 1/4x6	8x100and 9.5x125 8x100 3.2x100 and 4.8x150 4x100and 6.3x150	
4420015	5	1 Chisel 3/8 x 4 2 Center punches 1/8 x 4 and 5/32 x 4 1 pin punch 5/32 x 4 1 nail punch 3/32 x 4	9.5x100 3.2x100 4x100 4x100 2.4x100	

**COLD CHISELS**  
 SERIES 442:

- Made of tested tool steel.
- Striking surface is tempered for long life.
- Cutting edge is precise ground to exact angle.
- Available in black shiny finish.



Order No.	Size of Cutting edge	Total Length	Price
4420516	5/16"/8.0mm	4"/100mm	
4420538	3/8"/9.5mm	5"/125mm	
4420512	1/2"/12.7mm	6"/150mm	
4420558	5/8"/16.0mm	6"/150mm	
4420534	3/4"/19.00mm	7"/175mm	
4420100	1"/25.00mm	8"/200mm	
4423419	3/4"/19.00mm	12"/300mm	
4421182	1-1/8"/28.00mm	12"/300mm	
4420004	Set of four cold chisels 3/8"(9.5mm), 1/2"(12.7mm), 5/8"(16.00mm) & 3/4"(19.00mm) in a pouch		
4420005	Set of five cold chisel 5/16"(8.0mm), 3/8"(9.5mm), 1/2" (12.7mm) 5/8" (16.00mm) & 3/4" (19.00mm) in a pouch		

**7-PIECE TRANSFER SCREW SETS**

SERIES 574:

More accurate than transfer punches. The fastest and most precise method of transferring threaded holes to mating parts. Great for tool and die work and in lay out. Set consists of 1 handle and 6 screws.



Size	NC Pitch	Order No.	Price	NF Pitch	Order No.	Price
4	40	5740440		48	5740448	
5	40	5740540		44	5740544	
6	32	5740632		40	5740640	
8	32	5740832		36	5740836	
10	24	5741024		32	5741032	
12	24	5741224		28	5741228	
1/4	20	5741620		28	5741628	
5/16	18	5742018		24	5742024	
3/8	16	5742416		24	5742424	
7/16	14	5742814		20	5742820	
1/2	13	5743213		20	5743220	
9/16	12	5743612		18	5743618	
5/8	11	5744011		18	5744018	
3/4	10	5744810		16	5744816	
7/8	9	5745609		14	5745614	
1	8	5746408		14	5746414	

**TRANSFER SCREW SETS**  
 SERIES 675:

- For transferring the exact location of open and blind threaded holes to mating parts. While primarily designed for diemakers it has many other applications -locating fixtures, air cylinders, chucks, repairs etc.
- Set consists of 6 hardened screws nested in a combined holder and wrench.
- Each set is a complete tool; no wrenches or pliers are necessary.



1. Slip screw into end of wrench.



2. Screw in flush with top of hex.



3. One solid blow.



4. Result: the perfect layout.

Size	Pitch	Order No.	Price	Size	Pitch	Order No.	Price
4	40	6750440		3/8	16	6752416	
4	48	6750448		3/8	24	6752424	
5	40	6750540		7/16	14	6752814	
5	44	6750544		7/16	20	6752820	
6	32	6750632		1/2	13	6753213	
6	40	6750640		1/2	20	6753220	
8	32	6750832		9/16	12	6753612	
8	36	6750836		9/16	18	6753618	
10	24	6751024		5/8	11	6754011	
10	32	6751032		5/8	18	6754018	
12	24	6751224		3/4	10	6754810	
12	28	6751228		3/4	16	6754816	
1/4	20	6751620		7/8	9	6755609	
1/4	28	6751628		7/8	14	6755614	
5/16	18	6752018		1	8	6756408	
5/16	24	6752024		1	14	6756414	

Size	Pitch	Order No.	Price
M3	0.50	6750003	
M4	0.70	6750004	
M5	0.80	6750005	
M6	1.00	6750006	
M8	1.25	6750008	
M10	1.50	6750010	
M12	1.75	6750012	
M14	2.00	6750014	
M16	2.00	6750016	
M20	2.50	6750020	
M24	3.00	6750024	

## TRANSFER PUNCHES & SETS

SERIES 301:

- For transferring of threaded, drilled, and reamed holes.
- Punches are made of heat-treated and tempered tool steel, and have a black oxide finish.
- Diameters are .0025" undersize.
- Indexed stand.



Description	Order No.	Price
25pcs 1mm to 13mm by 0.5mm	3010025	
26pcs Letters A-Z	3010026	
28pcs 3/32" to 1/2" by 64ths plus 17/32"	1865000	
33pcs 1/2" to 1 x by 64ths	3010034	
60 pcs Numbers 1 to 60	3010060	

## INDIVIDUAL PUNCHES

Model No.	Dia.	Order No.	Price	Model No.	Dia.	Order No.	Price
TP06	3/32	1865006		TP20	5/16	1865020	
TP07	7/64	1865007		TP21	21/64	1865021	
TP08	1/8	1865008		TP22	11/32	1865022	
TP09	9/64	1865009		TP23	23/64	1865023	
TP10	5/32	1865010		TP24	3/8	1865024	
TP11	11/64	1865011		TP25	25/64	1865025	
TP12	3/16	1865012		TP26	13/32	1865026	
TP13	13/64	1865013		TP27	27/64	1865027	
TP14	7/32	1865014		TP28	7/16	1865028	
TP15	15/64	1865015		TP29	29/64	1865029	
TP16	1/4	1865016		TP30	15/32	1865030	
TP17	17/64	1865017		TP31	31/64	1865031	
TP18	9/32	1865018		TP32	1/2	1865032	
TP19	19/64	1865019		TP34	17/32	1865034	

MARKING PRODUCTS

## LETTER AND FIGURE STAMP SETS

SERIES 208:



- Hand held, hammer struck
- Crowned striking insures full force to the center of stamp
- Packed in durable storage containers
- LETTER SETS contain 27 pieces, A thru Z plus ampersand (&)
- FIGURE SETS contain 9 pieces, 0 thru 8 (the 6 is used as 9)
- Combination LETTER and FIGURE SETS contain 36 pieces

Stamps are made of fine quality steel, carefully hardened for utmost toughness.

Size of Character	Letter Sets		Figure Sets		Combo Sets	
	Order No.	Price	Order No.	Price	Order No.	Price
1/16	1925004		1925104		2080104	
3/32	1925006		1925106		2080106	
1/8	1925008		1925108		2080108	
3/16	1925012		1925112		2080112	
1/4	1925016		1925116		2080116	
3/8	1925024		1925124		2080124	

## STEEL TYPE SETS

SERIES 208:

### Includes: STEEL TYPE & HOLDER

- With one stroke a series of letters and figures may be indented in a product or name plate with uniform legibility.
- Steel type and holders are available as a complete marking kit furnished in a case.
- Complete marking kits include a complete selection of letters, numbers, assorted marks, spacers, and a holder.



Type Size	No. of Pieces	Character Capacity	Order No.	Price
1/16	112	18	3115004	
3/32	112	12	3115006	
1/8	112	9	3115008	
3/16	106	8	3115012	

## LETTER AND FIGURE STAMP SETS

SERIES 311:

To order individual stamps, specify set number plus character. Ex. #5 stamp in 1/8" heavy duty would be No. 3112108-5



## STANDARD GENERAL PURPOSE

High caliber general performance at a lower cost. Recommended for medium to light duty marking. Marked with slash on thumb side.

Size of Character	Letter Sets		Figure Sets		Combo Sets	
	Order No.	Price	Order No.	Price	Order No.	Price
1/16	3110004		3110104		3120622	
3/32	3110006		3110106		3120623	
1/8	3110008		3110108		3120624	
3/16	3110012		3110112		3120625	
1/4	3110016		3110116		3120626	
3/8	3110024		3110124		3120627	

## PREMIER INDUSTRIAL HEAVY DUTY

Large shanks are designed to hold up under continuous hard hammering. Recommended for heavy duty marking. Marked with character designation and size on thumb side.

Size of Character	Letter Sets		Figure Sets	
	Order No.	Price	Order No.	Price
1/16	3112004		3112104	
3/32	3112006		3112106	
1/8	3112008		3112108	
3/16	3112012		3112112	
1/4	3112016		3112116	
3/8	3112024		3112124	

## REVERSED

For use in marking rubber molds, plastic molds, thin metal patterns, forging dies, etc. These stamps produce a reversed impression in the mold which produces a raised character on the molded product.



Size of Character	Letter Sets		Figure Sets	
	Order No.	Price	Order No.	Price
1/16	3101274		3101094	
3/32	3102274		3102094	
1/8	3103274		3103094	
3/16	3105274		3105094	
1/4	3106274		3106094	
3/8	3108274		3108094	



**HAND MODEL  
TYPE HOLDERS**  
SERIES 311:



Available as complete kits and as individual components.

Quickly and easily stamps a series of letters and figures on a product or name plate with uniform legibility.

**FEATURES:**

- All the type you need in one place.
- Holder and type included.
- 40 pc. set includes A-Z, 0-9, dash, 3 blank spacers.
- Sturdy plastic storage box.



**TYPE HOLDER AND TYPE KITS**

Size	Capacity	Model No.	Order No.	Price
1/16	16	27770	1127770	
1/8	15	27774	1127774	
3/16	15	27778	1127778	
1/4	12	27782	1127782	

**TYPE HOLDERS**

Size	Capacity	Model No.	Order No.	Price
1/16	16	27601	1127601	
1/8	15	27624	1127624	
3/16	15	27605	1127605	
1/4	12	27609	1127609	



**STEEL TYPE**

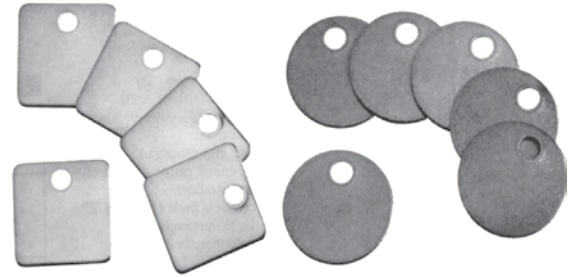
Size	Model No.	Description	Order No.	Price
1/16	27630	A - Z set	1127630	
1/16	27631	0 - 9 set	1127631	
1/16	27630BL	Blank Spacer	2763000	
1/8	27632	A-Z set	1127632	
1/8	27633	0 - 9 set	1127633	
1/8	27632BL	Blank Spacer	2763200	
3/16	27634	A - Z set	1127634	
3/16	27635	0 - 9 set	1127635	
3/16	27634BL	Blank Spacer	2763400	
1/4	27636	A - Z set	1127636	
1/4	27637	0 - 9 set	1127637	
1/4	27636BL	Blank Spacer	2763600	

Loose type available; use size and description to order. (Ex: 1/16-A)

**BLANK METAL TAGS**  
SERIES 311:



IDENTIFY, PROTECT, CONTROL



**FEATURES:**

- 100 per pack.
- Durable brass withstands constant handling.
- Use aluminum for identifying equipment and machines.
- 18 gauge.
- 3/16" hole.
- Stamped checks available; please inquire

Size	Aluminum			Brass		
	Model No.	Order No.	Price	Model No.	Order No.	Price
1" Square	913A	1141421		913B	1141422	
1-1/4" Square	916A	1141431		916B	1141432	
1" Round	1078A	1141821		1078B	1141822	
1-1/4" Round	1090A	1141841		1090B	1141842	
1-3/8" Round	1094A	1141846		1094B	1141847	
1-1/2" Round	1098A	1141856		1098B	1141857	

Price per hundred.

**BRASS INTERLOCKING  
STENCILS**  
SERIES 311:



QUICK LEGIBLE SIGNS  
ON ALL SURFACES

**FEATURES:**

- Gothic style
- Slide together and come apart easily.
- Durable brass for long-lasting service.
- Clean with paint solvent.

**Letters Only  
Single Sets:**

- 33 pieces include:
- A-Z, &
  - 1-Beginner
  - 1-Period Ender
  - 1-Spacer
  - 1-Comma
  - 1-Period
  - 1-Dash

**Numbers Only  
Single Sets:**

- 15 pieces include:
- 12345678900
  - 1-Beginner
  - 1-Plain Ender
  - 1-Dash
  - 1-Period



Size	Letters			Numbers		
	Model No.	Order No.	Price	Model No.	Order No.	Price
1"	10028	9110028		10008	9110008	
2"	10031	1110031		10011	1110011	
3"	10033	1110033		10013	1110013	

## MARKING SYSTEM

SERIES 440:

### Etch-O-Matic



Etch-O-Matic will etch into the surface of almost any metal, including tools, instruments, equipment, or manufactured parts, anything that can be typed, written, drawn or die impressed on a special stencil. This includes names, numbers, designs, trademarks or even your own signature. Using an Electrochemical principle, Etch-O-Matic can etch as deep as .003" of an inch in less than 30 seconds or mark the hardest tool steel or carbides almost instantly. It marks any flat or round metal surface down to 1/16" diameter and any metal thickness from thin foil up to the largest castings easily. Most marks (which look like printing or engraving) take about 5 to 20 seconds and are permanently etched into the tool.



### STARTER KIT

10 Volts - 2 Amps

- 1 Etch-O-Matic (Starter Unit)
- 1 2 oz General Purpose Electrolyte
- 1 10 Pack Stencils, 2-1/4 x 3
- 1 Ground Plate
- 1 Adapter Clip (Regular)
- 1 Powder Pack Neutralizer
- 1 Instruction Sheet

Order No. 4400000	
Price	

MARKING PRODUCTS



### SUPER HEAVY DUTY KIT

15 Volts - 10 Amps

Use on production line for continuous duty fast marking. Able to mark up to 2" x 4". For deep etch marking down to .003".

- 1 Super Etch-O-Matic Unit with Transformer
- 1 Ground Plate
- 1 Super Adapter Clip
- 1 8 oz General Purpose Electrolyte
- 1 8 oz Neutralizer
- 1 Package Felt Pads with Grid (1 Grid & 2 inside)
- 1 100 Pack Regular Stencils 2-1/4 x 3
- 1 Instruction Sheet
- Black carrying case lined with foam

Order No. 4400001	Price	
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### SUPER INDUSTRIAL KIT

Kit Contains:

- 1 Super Etch-O-Matic Unit
- 1 Starter Etch-O-Matic Unit
- 1 Regular Adapter Clip
- 1 Super Adapter Clip
- 1 8 oz Neutralizer
- 1 8 oz General Purpose Electrolyte
- 1 8 oz Stainless Steel Electrolyte
- 1 4 oz Brass, Copper, Bronze Electrolyte
- 1 4 oz Black Oxide Electrolyte
- 1 4 oz Aluminum Electrolyte
- 1 Ground Plate
- 1 Package Felt Pads with Grid (1 Grid & 2 inside)
- 2 100 Pack Regular Stencils
- 1 Instruction Sheet
- 1 Large Grid Kit
- 1 Large Grid (2x4), 2 Extra Screws, Instructions,
- 1 Large Pad Kit (5), 1 Large Stencil Kit (25) in black carrying case lined with foam

Order No. 4400002	Price	
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## KIT REFILLS

### ELECTROLYTE SOLUTION

Size	General Purpose Order No.	Black Oxide Order No.	Stainless Steel Order No.	Brass, Copper, Bronze Order No.	Price Each	Alum. Order No.	Price Each
4 oz.	4401004	4402004	4403004	4404004		4405004	
8 oz.	4401008	4402008	4403008	4404008		4405008	
16 oz.	4401016	4402016	4403016	4404016		4405016	

### STENCILS

Order No.	Etching Area	Pkg Qty	Price
4407850	2-1/4 x 3	50	
4407800	2-1/4 x 3	100	
4402100	3-1/2 x 4-1/4	100	
4402400	4-1/2 x 4-1/2	100	

### PAD REFILL KITS

Order No.	Size	Price
4400019	19 Regular	
4400010	10 Medium	
4400110	10 Large	

### NEUTRALIZER - CLEANER

Order No.	Size	Price
4401600	16 oz Liquid	
4401700	Powder Pack	



While we show only the most popular **ETCH-O-MATIC** items we can supply their entire range of products; please inquire.

**LAYOUT FLUIDS & ACCESSORIES**  
SERIES 608:

Aerosols cannot be shipped by air.



**DYKEM STEEL BLUE®**

is the world's leading and best-known layout fluid. Additional colors provide you with the layout fluid that is most effective for your application.

- Prevents glare with a uniform, deep color
- Dries in two to four minutes
- Lets you scribe sharp, clear precise lines
- Reduces eyestrain
- Translucent



Product	Bottle 5 oz	
	Order No.	Price
Fountain Brush & Bottle	89157	

Product	Aerosol 12 oz.		Felt Tip Applicator 2 oz.		Brush-in-Cap				Bottle 930ml	
	Order No.	Price	Order No.	Price	4oz		8 oz		Order No.	Price
					Order No.	Price	Order No.	Price		
Steel Blue	80000		9980200		80300		80400		80600	
Steel Red	80096		80296		80396		80496		80696	

**REMOVER & THINNER**

Ideal for surface preparation, as well as removing layout fluids and staining colors. May also be used to dilute staining colors.

- Thoroughly cleans and prepares metal surfaces
- Removes dirt, grease & oil from metals, most plastics and glass
- Does not contain 1,1,1-2 trichloroethane



**DYKEM HI-SPOT®**

The ideal way to identify high spots on bearings and gear surfaces.

- Non-drying
- Transfers from one surface to another
- 0.55 oz. Tube

<b>Order No. 83307</b>
<b>Price</b>

Description	Aerosol 16 oz.		Bottle 930 ml	
	Order No.	Price	Order No.	Price
Remover Cleaner Thinner	82038		82638	

**MARKING PENS**



SERIES 608:

- **CONVENIENT** • **FAST-DRYING** • **NON-SKIP**

Unique Valve-Performance Tip prevents drying, leaves a bold mark on any or all surfaces, and resists oil, gas & petroleum solutions.

Permanently identifies:

- Parts Assemblies
- Tools Finished Products
- Inventories Work in Progress
- Stock Safety Cautions

Quality Dykem® Mark & Code Pens write on almost anything:

- Metal Wood
- Rubber Plastic
- Glass Cardboard and many other surfaces

Makes permanent mark, but can be removed with Dykem Remover & Cleaner in Spray or Liquid form.



	Color	Valve Pen 12.0cc	
		Order No.	Price
MEDIUM TIP	Blue	84001	
	Black	84002	
	White	84003	
	Yellow	84004	
	Orange	84005	
	Red	84006	
	Green	84007	
FINE LINE	Black	9941003	
	White	9941008	
	Yellow	9041006	
	Red	9941002	
	Blue	9941001	
	Orange	9941010	
	Green	9941004	

**STAINING COLORS**



SERIES 608:

Ideal for quick identification on a variety of applications:

- Springs, Fasteners, Bolts and Bars,
- Engine and Electrical Components,
- Glass, Plastics, Fiberglass, Urethane,
- Ceramic, Wood, and Much More.



**FEATURES:**

- Vibrant Color Coating
- Fast Drying
- Resists Cracks and Chips
- Resistant in Transmission Oil up to 300°F
- Adheres Without Flaking and Scaling
- Available in Transparent and Opaque Formulations
- Thin coating (.0002") won't interfere with part operation

	Color	8oz. Brush-in-Cap		1 Gallon	
		Order No.	Price	Order No.	Price
OPAQUE	Black	81424		81724	
	Dk. Blue	81478		81778	
	Lt. Blue	9981425		81725	
	Dk. Green	81406		81706	
	Lt. Green	81408		81708	
	Orange	81413		81713	
	Pink	81460		81760	
	Red	81491		81791	
	White	81427		81727	
	Yellow	81405		81705	
	TRANSPARENT	Black	81431		81731
Purple		81404		81704	
Red		81496		81796	
Green		81465		81765	
Yellow		81451		81751	

## SCRIBERS

SERIES 213:



For **MEGA** Superior Import **SCRIBERS** see next page.

MARKING PRODUCTS



88CM



88



84



81



83



380A



80



85

### TUNGSTEN CARBIDE SCRIBER AND MAGNET

- Tungsten carbide tip marks hard materials including hardened steel, ceramics and glass.
- Alnico permanent magnet picks up small parts and retrieves steel chips from hard-to-reach places.
- Scriber point reverses for safety.
- Point is replaceable.
- Overall length 6".

Model No.	Order No.	Price
88CM	31116	
88P Replaceable Tip	9931114	

### THREE POINT SCRIBER

- Finest quality machinist's scriber.
- Aluminum knurled body, with three interchangeable threaded points: short straight, short bent and long bent.
- Overall length of tool with two short points is 9".
- Overall length with one short and one long point is 12".
- Handle and short points are 3" long.

Model No.	Order No.	Price
380A	31400	



While we show only the most popular **GENERAL** items we can supply their entire range of products; please inquire.

### TUNGSTEN CARBIDE TIP SCRIBER

- Tungsten carbide tip marks stainless steel, copper, ceramics and glass.
- Screw chuck for reversing tungsten carbide point when not in use.
- Tip is replaceable.
- Measures 6" overall.

Model No.	Order No.	Price
88	9931112	
88P Replaceable Tip	9931114	

### POCKET SCRIBER

- Replaceable hardened and centerless ground point.
- Point reverses into knurled body for safety.
- Body diameter 3/8".
- Conforms to government specifications GGG-S- 131e.

Model No.	Body Dia.	Blade Length	OAL	Order No.	Price
81	3/8"	2-7/8"	5-7/8"	31092	
81P	Replaceable Point			31094	

### POCKET SCRIBER

- Replaceable hardened and centerless ground point.
- Point reverses into knurled body for safety.
- Body diameter 1/4".
- Conforms to government specifications GGG-S-131e.

Model No.	Body Dia.	Blade Length	OAL	Order No.	Price
83	1/4"	2-3/8"	4-3/4"	931098	
83P	Replaceable Point			31100	

### SINGLE POINT SCRIBER

- Hardened tempered point.
- Overall length 4-1/2".

Model No.	Order No.	Price
85	31106	\$7.10

### FIXED TWO POINT SCRIBER

- Hardened and ground steel needle points are fixed to a knurled body.
- Has one point and one bent point.
- Measures 8-1/2" overall.

Model No.	Order No.	Price
80	9931090	\$2.95

### REPLACEABLE NEEDLEPOINT SCRIBER

- Scribes stainless steel, copper, brass, glass and ceramics.
- Nork pattern scriber measures 5-5/16" overall.
- Four extra points are stored under cap.

Order No.	Model No.	Price
9931102	84	\$4.95
31104	84P Replaceable point	\$5.80

## MACHINISTS SCRIBERS

SERIES 702:



- Points hardened for accurate work.
- Ideal marking tool.
- Moderately priced.

Description	Length	Order No.	Price	
Double end scriber with knurled body	8-1/2"/ 215mm	7020812		
Three Point scriber with replaceable points, knurled aluminum body	8-1/2"/ 215mm & 12"/300mm	7020813		
Two Point scriber with replaceable points, knurled aluminium body	8-1/2"/ 215mm	7020814		
Hook scriber	8-1/2"/ 215mm	7020815		
Right angle scriber	7"/ 175mm	7020816		
Double End scriber with twisted body for firm grip	7"/ 175mm	7020817		
Single Point scriber aluminium body replaceable point	5"/ 125mm	7020818		
Single Point heavy duty scriber with knurled body	7"/ 175mm	7020819		
Double Point heavy duty scriber with knurled body	9"/ 225mm	7020820		
Chisel type scriber with one end sharp point and other knife edge.	6-1/2"/ 165mm	7020821		
Single point scriber	4"/ 100mm	7020822		
3 pc. scriber set consisting of 7020819, 7020820, 7020821	7, 9, 6-1/2"/ 175,225, 165mm	7020823		

MARKING PRODUCTS

## CARBIDE AND DIAMOND TIPPED SCRIBERS

SERIES 702:



- For use on hard surfaces including carbide.
- Fixed points on round plastic body or hexagonal steel body.
- 6" (150mm) long, provided with clip.

Description	Order No.	Price
Carbide scriber in plastic body.	7020824	
Carbide scriber in steel body.	7020825	
Diamond scriber in steel body.	7020826	
3 pc. set (1 each of above)	7020827	

## TOOL WRAP

SERIES 681:



TYPE 321 (For applications up to 2000° F\*)

Perfect for in-plant heat treating. Tool Wrap is ideal for heat treating any air hardening tool steel or machinable carbides. Use of this product eliminates the need for buffing and polishing as well as restricting scale and decarburization build up.

Description	Thickness	Order No.	Price
24" x 50 Foot	.002	6810500	
24" x 100 Foot	.002	6811000	

\*For higher temperature applications; please inquire.

## SHIM STOCK

SERIES 677:

### STEEL SHIM STOCK

A cold rolled, full hard, low carbon steel. Maximum carbon content of 0.15% with a minimum hardness of RB80. This material is not annealed after cold rolling and is intended for flatwork and punching only.



### BLUE TEMPERED STEEL SHIM STOCK

A high carbon, hardened and tempered product. High quality spring steel with a hardness range of RC 48/51. Preferred by tool and die makers for templates and applications where toughness and low fatigue values are required. Recommended for various coiled and flat mechanical springs. 50" Rolls.



Thickness	6"x100" Rolls		12"x120" Rolls	
	Order No.	Price	Order No.	Price
.001	6770010		6771010	
.0015	6770015		-	
.002	6770020		6771020	
.0025	6770025		-	
.003	6770030		6771030	
.004	6770040		6771040	
.005	6770050		6771050	
.006	6770060		6771060	
.007	6770070		6771070	
.008	6770080		6771080	
.009	6770090		6771090	
.010	6770100		6771100	
.012	6770120		6771120	
.015	6770150		6771150	
.018	6770180		6771180	
.020	6770200		6771200	
.025	6770250		6771250	
.031	6770310		6771310	

Thickness	Width	Order No.	Price
.002	3	6774020	
.003	3	6774030	
.004	5	6774040	
.005	6	6774050	
.006	6	6774060	
.007	6	6774070	
.008	6	6774080	
.010	6	6774100	
.012	6	6774112	
.015	6	6774115	
.020	6	6774120	
.025	6	6774125	
.032	6	6774132	

### BRASS SHIM STOCK

A cold rolled, half hard alloy material with a R30 T hardness range of 56/68. Because of accurate thickness and temper, it is used for shimming in explosive atmospheres and where corrosion problems exist.



### STAINLESS STEEL SHIM STOCK

A cold rolled, Type 302, full hard material with a hardness of RC-40/45. It is used where corrosion resistance is required. Excellent for use in nuclear and fossil fueled generating stations as well as oil and gas refineries.



Thickness	6"x100" Rolls		12"x120" Rolls	
	Order No.	Price	Order No.	Price
.001	6772010		6738010	
.0015	6772015		-	
.002	6772020		6738020	
.003	6772030		6738030	
.004	6772040		6738040	
.005	6772050		6738050	
.006	6772060		6738060	
.007	6772070		-	
.008	6772080		6738080	
.009	6772090		-	
.010	6772100		6738100	
.012	6772120		6722012	
.015	6772150		6722015	
.020	6772200		6722020	
.025	6772250		6722025	
.031	6772310		-	

Thickness	6"x 50" Rolls		12"x 50" Rolls	
	Order No.	Price	Order No.	Price
.0005	6775005		-	
.001	6775010		6776010	
.0015	6775015		-	
.002	6775020		6776020	
.003	6775030		6776030	
.004	6775040		6776040	
.005	6775050		6776050	
.006	6775060		6776060	
.007	6775070		6776070	
.008	6775080		6776080	
.009	6775090		-	
.010	6775100		6776100	
.012	6775120		6776120	
.015	6775150		6776150	
.020	6775200		6776200	
.025	6775250		6776250	
.031	6775310		6776310	

**SHIM STOCK**  
SERIES 677:



**Metric Steel**  
150mm x 2.5m



Thickness	Order No.	Price
.05mm	34005	
.10	34010	
.15	34015	
.20	34020	
.25	34025	
.30	34030	
.40	34040	
.50	34050	
.65	34065	
.80	34080	

**Metric Brass**  
150mm x 2.5m



Thickness	Order No.	Price
.05mm	26005	
.10	9926010	
.15	9926015	
.20	9926020	
.25	9926025	
.30	9926030	
.40	9926040	
.50	26050	
.65	26065	
.80	26080	

**Metric Stainless**  
150mm x 1.25m



Thickness	Order No.	Price
.05mm	13005	
.10	13010	
.15	13015	
.20	13020	
.25	13025	
.30	9913030	
.40	13040	
.50	13050	
.65	13065	
.80	13080	

**SHEETS**

**STEEL**

6" X 25" (2 per pkg.)

Thickness	Order No.	Price/Pkg.
.012	6730912	
.015	6730915	
.020	6730920	
.025	6730925	
.031	6730931	



**BRASS**

6" X 25" (2 per pkg.)

Thickness	Order No.	Price/Pkg.
.012	9720912	
.015	9720915	
.020	6720920	
.025	6720925	
.031	6720931	



**BLUE TEMPERED**

6" X 25" (2 per pkg.)

Thickness	Order No.	Price/Pkg.
.008	6777080	
.010	6777100	
.012	6777120	
.015	6777150	
.020	6777200	
.025	6777250	
.032	6777320	



**STAINLESS STEEL**

6" X 25" (2 per pkg.)

Thickness	Order No.	Price/Pkg.
.012	6710912	
.015	9710915	
.020	6710920	
.025	6710925	
.031	6710931	



**STEEL / BRASS SHIM ASSORTMENTS**



Description	Thickness	Steel Shim Assort.		Brass Shim Assort.	
		Order No.	Price	Order No.	Price
4-Pack Dispenser 6" x 50" Coils	.001, .002, .003, .005	6778504		6779504	
6" x 12" Sheets (12 Different Gages)	.001, .0015, .002, .003, .004, .005, .006, .007, .008, .010, .012, .015	6778512		6779512	
6" x 12" Sheets (15 Different Gages)	.001, .0015, .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .031	6778515		6779515	

**STAINLESS SHIM ASSORTMENT**

Description	Thickness	Order No.	Price
6" x 12" Sheets (8 Different Gages)	.001, .002, .003, .005, .008, .010, .015, .020	6776508	

**BLUE TEMPERED SHIM ASSORTMENT**

Description	Thickness	Order No.	Price
6" x 12" Sheets (6 Different Gages)	.005, .010, .015, .020, .025, .032	6774506	

**SHIM PUNCH SET**

SERIES 677:

For punching holes in steel, brass, stainless steel and blue tempered shim stock.

Sizes : 1/8 - 1/2 by 16ths, 5/8, and 3/4.



<b>Order No.</b> 6770009	
<b>Price</b>	



## SLOTTED SHIMS

SERIES 677:

### Stainless

Slotted Shims eliminate hand cutting of shims which can cause sharp corners or burrs. Slotted shims provide a more stable alignment by eliminating stacking of shims. Slotted Shims are made of corrosion resistant stainless steel. Replacement packages also available in any size.



### Standard Assortments

20 pieces of every size from .001" to .125" includes metal case.

### Mini Assortments

10 pieces of every size from .001" to .125" includes metal case.

Size	Dimensions	Std. Asst. Order No.	Price	Mini Asst. Order No.	Price
A	2" x 2" x 5/8"	15200		915300	
B	3" x 3" x 3/4"	9916200		9916300	
C	4" x 4" x 1-1/4"	17200		17300	
D	5" x 5" x 1-5/8"	18200		18300	

Size		A - 2" x 2" x 5/8"		B - 3" x 3" x 13/16"		C - 4" x 4" x 1-1/4"		D - 5" x 5" x 1-5/8"	
Thickness	Pieces Per Package	Order No.	Price/Pkg.	Order No.	Price/Pkg.	Order No.	Price/Pkg.	Order No.	Price/Pkg.
.001	20	15001		16001		9917001		18001	
.002	20	15002		16002		17002		18002	
.003	20	9015003		16003		9917003		18003	
.004	20	15004		16004		17004		9918004	
.005	20	15005		16005		9917005		18005	
.010	20	9915010		16010		9917010		9918010	
.015	20	9915015		16015		17015		18015	
.020	20	9915020		16020		9917020		18020	
.025	20	9915025		16025		17025		18025	
.050	20	15050		16050		17050		18050	
.075	20	15075		16075		17075		18075	
.100	20	9915100		9916100		17100		18100	
.125	20	15125		16125		17125		18125	

## PLASTIC SLOTTED SHIMS

SERIES 677:

An inexpensive alternative to more expensive stainless steel shims. Our color coded plastic shims are resistant to most chemicals and are available in three sizes: 2" x 2" with a 7/16" slot; 3" x 3" with a 9/16" slot and 4" x 4" with a 1" slot. Thicknesses range from .002" to .060" and are available in 20 piece packages or 180 piece assortment in 9 thicknesses.



SHOPAID INCORPORATED



### 20 Piece Packages

Size		2" x 2" x 7/16"		3" x 3" x 9/16"		4" x 4" x 1"	
Thickness	Color	Order No.	Price/Pkg.	Order No.	Price/Pkg.	Order No.	Price/Pkg.
.002	Red	9936102		37102		38102	
.003	Green	9936103		37103		38103	
.004	Tan	9936104		37104		38104	
.005	Blue	36105		37105		38105	
.0075	Natural	36107		37107		38107	
.010	Brown	36110		37110		38110	
.015	Pink	36115		37115		38115	
.020	Yellow	36120		37120		38120	
.025	White	36125		37125		38125	
.030	Coral	9936130		37130		38130	
.060	Clear	36160		37160		38160	

### Assortment

180 Pieces Includes: 20 ea. .002", .003", .004", .005", .010", .015", .020", .030", .060"

Size	Order No.	Price
2" x 2"	36000	
3" x 3"	37000	
4" x 4"	38000	

Quality Stock Materials

MEGA Superior Import



Starrett

SHOPAID INCORPORATED

The Choice Is Yours!!!



## PLASTIC SHIM STOCK

SERIES 677:



Shop-Aid Plastic Shim Stock is color coded for your convenience. It is used where corrosion is a problem. 20 pieces per package. The size of the pieces are 5" x 20", 10" x 20" and 20" x 20". Plastic from .0005" to .030" is packaged 20 pieces per package; from .040" to .060" in our standard 10 piece package.

### 20 Pc. Paks / 5" x 20"

Thickness	Order No.	Color	Price/Pkg.
.0005"	80901	Silver	
.001	80902	Amber	
.0015	80903	Purple	
.002	80904	Red	
.003	80905	Green	
.004	80906	Tan	
.005	80907	Blue	
.0075	80908	Matte	
.010	80909	Brown	
.0125	80910	Black	
.015	80911	Pink	
.020	80912	Yellow	
.025	80913	White	
.030	80914	Coral	



### 10 Pc. Paks / 5" x 20"

Thickness	Order No.	Color	Price/Pkg.
.040"	80915	Clear	
.050	80916	Clear	
.060	80917	Clear	

### Assortment

14 Piece Pak includes: 1 each .0005", .001", .0015", .002", .003", .004", .005", .0075", .010", .0125", .015", .020", .025", .030"

Size	Order No.	Price
5" x 20"	80018	
10" x 20"	80036	
20" x 20"	80055	

## FEELER OR THICKNESS GAGE STOCK

SERIES 678:



While we show only the most popular items we can supply their entire range of products; please inquire.

Manufactured from the highest quality C 1095 high carbon steel, hardened and tempered to RC 48-52. This material is ground carefully, then polished. Both coils and strips are clearly etched with thickness every six inches.

Thickness	1/2"x12" Strips*		1/2"x25 Foot Coils	
	Order No.	Price (each)	Order No.	Price
.001	6780010		6785010	
.0015	6780015		6785015	
.002	6780020		6785020	
.0025	6780025		6785025	
.003	6780030		6785030	
.004	6780040		6785040	
.005	6780050		6785050	
.006	6780060		6785060	
.007	6780070		6785070	
.008	6780080		6785080	
.009	6780090		6785090	
.010	6780100		6785100	
.011	6780110		6785110	
.012	6780120		6785120	
.013	6780130		6785130	
.014	6780140		6785140	
.015	6780150		6785150	
.016	6780160		6785160	
.017	6780170		6785170	
.018	6780180		6785180	
.019	6780190		6785190	
.020	6780200		6785200	
.021	6780210		6785210	
.022	6780220		6785220	
.023	6780230		6785230	
.024	6780240		6785240	
.025	6780250		6785250	
.028	6780280		6785280	
.030	6780300		6785300	

## THICKNESS GAGE OR "FEELER" STOCK HOLDERS

STARRETT SERIES 806



Starrett No. 806 thickness gage holders provide a handy convenient means of rigidly holding single leaves or strips of thickness gage stock of any thickness from .001-.025" (0.03-0.5mm). Stock up to 6" (150mm) long is easily inserted in the holder and firmly gripped in the desired position by a cam lock. This permits all of the stock to be used, because as it wears from use the defective end can be snipped off and new stock pulled out until entirely used up. Size approximately 3/32" thick x 9/16" wide x 5 1/4" long (2.4 x 14 x 19mm). No. 806D clamps have contrasting finish to eliminate the possible confusion on which end holds the thicker or thinner stock.

Catalog No.	EDP No.	Description	Price
806	53039	Holder only - Clamps stock at one end	
806D	53040	Holder only - Clamps stock at both ends	

\*(Rounded Ends) 12 pcs. Per pkg.

## THICKNESS GAGE OR "FEELER" STOCK IN ROLLS

STARRETT SERIES 666:

Starrett



- Made of the finest tempered steel.
- Rolls are furnished in compact, sturdy, plastic rewindable dispenser case or bulk in a box.
- Marked every 6" or 150mm with a line, thickness in thousandths of an inch or hundredths of a mm (exception No. 666 1/2)
- Case provides the ability to snip off the desired length without any waste

## THICKNESS GAGE OR "FEELER" STOCK

STARRETT SERIES 667:

Starrett



Furnished in convenient 12" lengths, 1/2" wide in 32 different thickness ranging from .001" up to .030" thick. Millimeter sizes are furnished in 300mm lengths, 12.7mm wide in 14 different thicknesses ranging from 0.03-0.50mm. Made of finest tempered steel and carefully finished to size. Ends are rounded, no ragged edges. Convenient 3/16" hole punched in end for hanging up. Each piece is marked with thickness and furnished in an individual envelope.

STOCK MATERIALS

### 1/2" x 25' Rolls in Dispenser Case

Thickness	Catalog No.	EDP No.	Price
.0005"	666-1/2	64210*	
.001"	666-1	52796	
.0015"	666-1 1/2	52797	
.002"	666-2	52798	
.0025"	666-2 1/2	52799	
.003"	666-3	52800	
.004"	666-4	52801	
.005"	666-5	52802	
.006"	666-6	52803	
.007"	666-7	52804	
.008"	666-8	52805	
.009"	666-9	52806	
.010"	666-10	52807	
.011"	666-11	52808	
.012"	666-12	52809	
.013"	666-13	52810	
.014"	666-14	52811	
.015"	666-15	52812	

### 1/2" x 20' Rolls in Cardboard Box

.016"	666 -16	9952813	
.017"	666 -17	9952814	
.018"	666 -18	9952815	
.019"	666 -19	52816	
.020"	666 -20	52817	
.021"	666 -21	9952818	
.022"	666 -22	52819	
.023"	666 -23	52820	
.024"	666 -24	9952821	
.025"	666 -25	9952822	

### 12.7 x 7.6m Millimeter reading rolls - Dispenser Case

0.03mm	666M-3	9952823	
0.04mm	666M-4	9952824	
0.05mm	666M-5	52825	
0.06mm	666M-6	52826	
0.08mm	666M-8	52827	
0.10mm	666M-10	52828	
0.15mm	666M-15	52829	
0.20mm	666M-20	52830	
0.25mm	666M-25	52831	
0.30mm	666M-30	52832	
0.35mm	666M-35	52833	

### 12.7 x 6.1m Millimeter reading rolls - Cardboard Box

0.40mm	666M-40	52834	
0.45mm	666M-45	52835	
0.50mm	666M-50	52836	

\*Cardboard Box

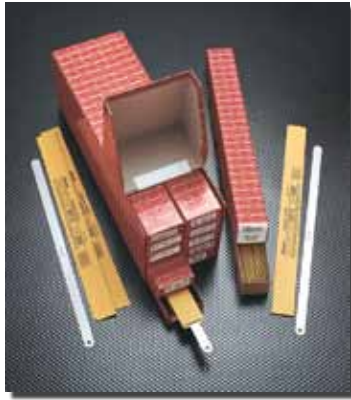
Thickness	Catalog No.	EDP No.	Price
.0005"	667-1/2	64209	
.001"	667-1	52837	
.0015	667-1-1/2	52838	
.002	667-2	52839	
.0025	667-2-1/2	52840	
.003	667-3	52841	
.004	667-4	52842	
.005	667-5	52843	
.006	667-6	52844	
.007	667-7	52845	
.008	667-8	52846	
.009	667-9	52847	
.010	667-10	52848	
.011	667-11	52849	
.012	667-12	52850	
.013	667-13	52851	
.014	667-14	52852	
.015	667-15	52853	
.016	667-16	52854	
.017	667-17	52855	
.018	667-18	52856	
.019	667-19	52857	
.020	667-20	52858	
.021	667-21	52859	
.022	667-22	52860	
.023	667-23	52861	
.024	667-24	52862	
.025	667-25	52863	
.026	667-26	52864	
.027	667-27	52865	
.028	667-28	52866	
.029	667-29	52867	
.030	667-30	52868	
0.03mm	667M-3	52869	
0.04mm	667M-4	52870	
0.05mm	667M-5	52871	
0.06mm	667M-6	52872	
0.08mm	667M-8	52873	
0.10mm	667M-10	52874	
0.15mm	667M-15	52875	
0.20mm	667M-20	52876	
0.25mm	667M-25	52877	
0.30mm	667M-30	52878	
0.35mm	667M-35	52879	
0.40mm	667M-40	52880	
0.45mm	667M-45	52881	
0.50mm	667M-50	52882	

**THICKNESS GAGE  
OR "FEELER"  
STOCK ASSORTMENTS**



STARRETT SERIES 667:

- Made of finest tempered steel, with rounded edges, carefully finished to size.
- Each piece is marked with thickness and furnished in an individual envelope.
- Convenient 3/16" hole punched in end for hanging up.



Order No.	EDP No.	Description	Price
S667A	63274	Complete Starrett Inch Thickness Gage Assortment. One Each, 32 Different Sizes 1/2x12 long from .001-.030" thick.	
S667MA	64949	Complete Starrett Millimeter Thickness Gage Assortment. One each, 14 Different Sizes. 12.5x300mm long from 0.03-0.50mm thick.	
<b>Bulk Assortment</b>			
S667D	52883	Bulk Quantity Assortment: 108 pieces in Nine Thickness Sizes; 12 pieces of a size per box; .0015, .002, .003, .004, .006, .008, .010, .012, .015"	

**MUSIC WIRE**

SERIES 679:

An essential item for in-plant maintenance as well as many other applications. This wire is made to very close tolerance with both high Tensile (stretching) and high Torsional (twisting) strength. Applications include: spring winding, control linkages, guy wires, gage needles, food cutting and armature binding.



One pound dispenser cartons.

Diameter (Decimal)	Order No.	Price
.006	6790006	
.008	6790008	
.010	6790010	
.012	6790012	
.014	6790014	
.016	6790016	
.020	6790020	
.024	6790024	
.026	6790026	
.029	6790029	
.031	6790031	
.033	6790033	
.035	6790035	
.039	6790039	
.041	6790041	
.043	6790043	
.045	6790045	
.047	6790047	
.059	6790059	
.063	6790063	
.071	6790071	
.080	6790080	
.090	6790090	
.125	6790125	

**STOCK MATERIALS**

**KEY STOCK ASSORTMENT - 38 pc.**

SERIES 680:

Includes:

- 6 ea. - 1/8, 3/16, 1/4, 5/16, 3/8
- 4 ea. - 7/16, 1/2



Order No. 6805032	Price \$63.65
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**KEY STOCK SERIES 680**



High quality, low carbon mild steel drawn to oversize tolerance to insure tight fit. Each piece is Electro-Zinc plated for clean handling and clearly imprinted with its size for quick selection

**SQUARE - 12" Lengths**

Size	Lengths per Bundle	Order No.	Price Each
1/8	10	6800008	
5/32	10	6800010	
3/16	6	6800012	
7/32	6	6800014	
1/4	6	6800016	
9/32	6	6800018	
5/16	6	6800020	
3/8	6	6800024	
7/16	4	6800028	
1/2	4	6800032	
9/16	4	6800036	
5/8	4	6800040	
11/16	4	6800044	
3/4	4	6800048	
13/16	4	6800052	
7/8	4	6800056	
1	4	6800064	

**THREADED ROD (STEEL - OIL FINISH)**

SERIES 682:



36" Lengths

Size	Threads per Inch	NC		NF	
		Order No.	Price	Order No.	Price
6	32	6820632		-	
8	32	6820832		-	
10	24-32	6821024		6821032	
1/4	20-28	6821620		6821628	
5/16	18-24	6822018		6822024	
3/8	16-24	6822416		6822424	
7/16	14-20	6822814		6822820	
1/2	13-20	6823213		6823220	
5/8	11-18	6824011		6824018	
3/4	10-16	6824810		6824816	
7/8	9-14	6825609		6825614	
1	8-14	6826408		6826414	

## OIL HARDENING PRECISION GROUND FLAT STOCK (REGULAR SIZE AND OVERSIZED)



STARRETT SERIES 783: 18" Lengths  
STARRETT SERIES 784: 36" Lengths



For Tolerances see page 625.

- Stock is dimensionally stable - use it for the most intricate work
- Deep hardening characteristics and fine grain structure
- Machines freely - fully spheroidized, annealed
- Full length identification - eliminates confusion with other steels

### Specifications

Furnished in 18" and 36" lengths, ground straight and parallel

### Nominal Analysis (AISI 01)

Carbon-.90 Tungsten -.50  
Chromium-.50 Vanadium-.20  
Manganese-1.20

### Hardening

It is recommended that stock be heated uniformly to 1450°-1500° F and quenched in oil. Temperature of the quenching oil should be 120°-140°F for best results. Do not quench in water because this is an oil hardening steel.

Size	Temp	Quench	Rockwell C
All Sizes	1450° 1500°	Oil	63-65

### Tempering

For maximum toughness, a tempering time of one hour at temperature is recommended. Use chart for selecting desired Rockwell C hardness and corresponding tempering temperature. The following table may also be used as a guide depending on type of work.

Cutting Tools - 300°-350°F (Light Straw)

Solid Punches and Dies - 400°-450°F (Straw)

Spring Temper - 750°-800°F (Blue)

STOCK MATERIALS

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
1/64"	1/2"	53924	-	-	-
	3/4"	53925	-	-	-
	1"	53926	-	-	-
	1-1/4"	53927	-	-	-
	1-1/2"	53928	-	-	-
	2"	53929	-	-	-
	2-1/2"	53930	-	-	-
	4"	53932	-	-	-
1/32"	1/2"	53933	-	-	-
	3/4"	53934	-	-	-
	1"	53935	-	-	-
	1-1/4"	53936	-	-	-
	1-1/2"	53937	-	-	-
	2"	53938	-	-	-
	2-1/2"	53939	-	-	-
	6"	53942	-	-	-
3/64"	1/2"	53943	-	-	-
	3/4"	53944	-	-	-
	1"	53945	-	-	-
	1-1/4"	53946	-	-	-
	1-1/2"	53947	-	-	-
	2"	53948	-	-	-
	2-1/2"	53949	-	-	-
	6"	53953	-	-	-
1/16"	1/4"	57226	-	-	-
	3/8"	57227	-	-	-
	1/2"	53954	-	54257	-
	5/8"	610406	-	-	-
	3/4"	53955	-	54258	-
	1"	53956	-	54259	-
	1-1/4"	53957	-	54260	-
	1-1/2"	53958	-	54261	-
	1-3/4"	53959	-	54262	-
	2"	53960	-	54263	-
	2-1/2"	53961	-	54264	-
	3"	53962	-	54265	-
	3-1/2"	53963	-	54266	-
	4"	53964	-	54267	-
	5"	53965	-	54268	-
	6"	53966	-	54269	-
5/64"	1/2"	53969	-	-	-
	3/4"	53970	-	-	-
	1"	53971	-	-	-
	1-1/2"	53972	-	-	-
	2"	53973	-	-	-
	2-1/2"	53974	-	-	-
	3"	53975	-	-	-
	4"	53976	-	-	-
6"	53977	-	-	-	

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
3/32"	1/2"	53978	-	54279	-
	3/4"	53979	-	54280	-
	1"	53980	-	54281	-
	1-1/4"	53981	-	54282	-
	1-1/2"	53982	-	54283	-
	1-3/4"	610617	-	-	-
	2"	53983	-	54284	-
	2-1/2"	53984	-	54285	-
	3"	53985	-	54286	-
	4"	53986	-	54287	-
7/64"	1/2"	53990	-	-	-
	3/4"	53991	-	-	-
	1"	53992	-	-	-
	1-1/4"	53993	-	-	-
	1-1/2"	53994	-	-	-
	2"	53995	-	-	-
	3"	53996	-	-	-
	4"	53997	-	-	-
1/8"	1/8"	53998	-	-	-
	1/4"	57228	-	-	-
	3/8"	57229	-	-	-
	1/2"	53999	-	54298	-
	5/8"	54000	-	54299	-
	3/4"	54001	-	54300	-
	1"	54002	-	54301	-
	1-1/4"	54003	-	54302	-
	1-1/2"	54004	-	54303	-
	1-3/4"	54005	-	54304	-
	2"	54006	-	54305	-
	2-1/2"	54007	-	54306	-
	3"	54008	-	54307	-
	3-1/2"	54009	-	54308	-
4"	54010	-	54309	-	
9/64"	9/64"	54011	-	54310	-
	1/2"	54012	-	54311	-
	3/4"	54013	-	54312	-
	1"	54014	-	54313	-
	1-1/2"	54015	-	54314	-
	2"	54016	-	54315	-
	3"	54017	-	54316	-
	4"	54018	-	57238	-
	8"	610950	-	-	-

(Continued)

**OIL HARDENING PRECISION  
GROUND FLAT STOCK** (Continued)  
(REGULAR SIZE AND OVERSIZE)



SERIES 783: 18" Lengths  
SERIES 784: 36" Lengths

For Tolerances see page 625.



Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
5/32"	5/32"	54027		-	
	1/2"	54028		54324	
	3/4"	54029		54325	
	1"	54030		54326	
	1-1/4"	54031		54327	
	1-1/2"	54032		54328	
	1-3/4"	54033		54329	
	2"	54034		54330	
	2-1/2"	54035		54331	
	3"	54036		54332	
	3-1/2"	54037		54333	
	4"	54038		54334	
	5"	54039		54335	
	6"	54040		54336	
8"	54041		54337		
3/16"	3/16"	54042		-	
	1/4"	57230		-	
	3/8"	57231		-	
	1/2"	54043		54338	
	3/4"	54044		54339	
	1"	54045		54340	
	1-1/4"	54046		54341	
	1-1/2"	54047		54342	
	1-3/4"	54048		54343	
	2"	54049		54344	
	2-1/2"	54050		54345	
	3"	54051		54346	
	3-1/2"	54052		54347	
	4"	54053		54348	
5"	54054		54349		
6"	54055		54350		
8"	54056		54351		
10"	54057		-		
12"	611295		54352		
7/32"	7/32"	54058		-	
	1/2"	54059		54353	
	3/4"	54060		54354	
	1"	54061		54355	
	1-1/4"	54062		54356	
	1-1/2"	54063		54357	
	2"	54064		54358	
	3"	54065		54359	
4"	54066		54360		
6"	54067		-		
1/4"	1/4"	54068		56517	
	3/8"	54069		-	
	1/2"	54070		54362	
	3/4"	54071		54363	
	1"	54072		54364	
	1-1/4"	54073		54365	
	1-1/2"	54074		54366	
	1-3/4"	54075		54367	
	2"	54076		54368	
	2-1/2"	54077		54369	
	3"	54078		54370	
	3-1/2"	54079		54371	
	4"	54080		54372	
	4-1/2"	54081		54373	
5"	54082		54374		
5-1/2"	54083		54375		
6"	54084		54376		
7"	54085		54377		
8"	54086		54378		
10"	54087		54379		
12"	54088		54380		
14"	54089		57239		

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
9/32"	9/32"	54090		-	
	1/2"	54091		-	
	3/4"	54092		-	
	1"	54093		-	
	1-1/4"	54094		-	
	1-1/2"	54095		-	
	2"	54096		-	
	2-1/2"	54097		-	
	3"	54098		-	
	4"	54099		-	
6"	54100		-		
5/16"	5/16"	54101		54391	
	3/8"	57232		-	
	1/2"	54102		54392	
	3/4"	54103		54393	
	1"	54104		54394	
	1-1/4"	54105		54395	
	1-1/2"	54106		54396	
	1-3/4"	57233		57240	
	2"	54107		54397	
	2-1/2"	54108		54398	
	3"	54109		54399	
	3-1/2"	54110		54400	
	4"	54111		54401	
	4-1/2"	54112		54402	
5"	54113		54403		
6"	54114		54404		
8"	54115		54405		
3/8"	3/8"	54116		54406	
	1/2"	54117		54407	
	3/4"	54118		54408	
	1"	54119		54409	
	1-1/4"	54120		54410	
	1-1/2"	54121		54411	
	1-3/4"	54122		54412	
	2"	54123		54413	
	2-1/2"	54124		54414	
	3"	54125		54415	
	3-1/2"	54126		54416	
	4"	54127		54417	
	4-1/2"	54128		54418	
	5"	54129		54419	
5-1/2"	54130		54420		
6"	54131		54421		
7"	54132		54422		
8"	54133		54423		
10"	54134		54424		
12"	54135		54425		
7/16"	7/16"	54136		54426	
	1/2"	54137		54427	
	3/4"	54138		54428	
	1"	54139		54429	
	1-1/4"	54140		54430	
	1-1/2"	54141		54431	
	2"	54142		54432	
	2-1/2"	54143		54433	
3"	54144		54434		
4"	54145		54435		
6"	54146		54436		
1/2"	1/2"	54147		54437	
	5/8"	54148		54438	
	3/4"	54149		54439	
	1"	54150		54440	
	1-1/4"	54151		54441	
	1-1/2"	54152		54442	
	1-3/4"	57234		57241	
	2"	54153		54443	
	2-1/2"	54154		54444	
	3"	54155		54445	
	3-1/2"	54156		54446	
	4"	54157		54447	
	4-1/2"	54158		54448	
	5"	54159		54449	
6"	54160		54450		
7"	54161		54451		
8"	54162		54452		
10"	54163		54453		
12"	54164		-		
14"	54165		-		

(Continued)

## OIL HARDENING PRECISION GROUND FLAT STOCK (Continued)

SERIES 783: 18" Lengths  
SERIES 784: 36" Lengths



For Tolerances see page 625.

OIL HARDENING

STOCK MATERIALS

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
9/16"	9/16"	54166		54455	
	3/4"	54167		54456	
	1"	54168		54457	
	1-1/4"	54169		54458	
	1-1/2"	54170		54459	
5/8"	2"	54171		54460	
	5/8"	54172		54461	
	3/4"	54173		54462	
	1"	54174		54463	
	1-1/4"	54175		54464	
	1-1/2"	54176		54465	
	1-3/4"	614017			
	2"	54177		54466	
	2-1/2"	54178		54467	
	3"	54179		54468	
	3-1/2"	54180		54469	
	4"	54181		54470	
5"	54182		54471		
6"	54183		54472		
8"	54185		54474		
10"	54186		54475		
12"	57235		57242		
3/4"	3/4"	54187		54476	
	1"	54188		54477	
	1-1/4"	54189		54478	
	1-1/2"	54190		54479	
	2"	54191		54480	
	2-1/2"	54192		54481	
	3"	54193		54482	
	3-1/2"	54194		54483	
	4"	54195		54484	
	4-1/2"	54196		54485	
	5"	54197		54486	
	6"	54198		54487	
8"	54199		54488		
10"	54200		54489		
12"	54201		54490		
7/8"	7/8"	54202		54491	
	1"	54203		54492	
	1-1/4"	54204		54493	
	1-1/2"	54205		54494	
	1-3/4"	615617			
	2"	54206		54495	
	2-1/2"	54207		54496	
	3"	54208		54497	
	4"	54209		54498	
6"	54210		54499		
1"	1"	54211		54500	
	1-1/4"	54212		54501	
	1-1/2"	54213		54502	
	2"	54214		54503	
	2-1/2"	54215		54504	
	3"	54216		54505	
	3-1/2"	54217		54506	
	4"	54218		54507	
	4-1/2"	54219		54508	
	5"	54220		54509	
	6"	54221		54510	
	8"	54222		54511	
10"	54223		54512		
12"	54224		54513		

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
1-1/8"	1-1/2"	54225		54514	
	2"	54226		54515	
	3"	54227		54516	
	4"	54228		54517	
	6"	54229		54518	
1-1/4"	1-1/4"	54230		54519	
	1-1/2"	54231		54520	
	2"	54232		54521	
	2-1/2"	54233		54522	
	3"	54234		54523	
	4"	54235		54524	
	4-1/2"	617445		-	
	5"	54236		54525	
	6"	54237		54526	
	8"	54238		54527	
10"	54239		54528		
1-1/2"	1-1/2"	54240		54529	
	1-3/4"	618217		-	
	2"	54241		54530	
	2-1/2"	54242		54531	
	3"	54243		54532	
	3-1/2"	54244		54533	
	4"	54245		54534	
	5"	54246		54535	
	6"	54247		54536	
	8"	54248		54537	
10"	54249		54538		
2"	2"	54250		54539	
	3"	54251		54540	
	4"	54252		54541	
	6"	54253		54542	
	10"	619690		-	
Oversized Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
3/16"	3/16"	56957		-	
	1/2"	56958		56813	
	3/4"	56959		56814	
	1"	56960		56815	
	1-1/4"	56961		56816	
	1-1/2"	56962		56817	
	2"	56963		56818	
	2-1/2"	56964		56819	
	3"	56965		56820	
	4"	56966		56821	
5"	56967		-		
6"	56968		56822		
8"	56969		-		
10"	56970		-		
1/4"	1/4"	56971		-	
	1/2"	56972		56823	
	3/4"	56973		56824	
	1"	56974		56825	
	1-1/4"	56975		56826	
	1-1/2"	56976		56827	
	1-3/4"	56977		-	
	2"	56978		56828	
	2-1/2"	56979		56829	
	3"	56980		56830	
	3-1/2"	56981		56831	
	4"	56982		56832	
4-1/2"	56983		-		
5"	56984		56833		
6"	56985		56834		
8"	56986		-		
5/16"	5/16"	56987		-	
	1/2"	56988		56835	
	3/4"	56989		56836	
	1"	56990		56837	
	1-1/4"	56991		56838	
	1-1/2"	56992		56839	
	2"	56993		56840	
	2-1/2"	56994		56841	
	3"	56995		56842	
	4"	56996		56843	
5"	56997		56844		
6"	-		56845		

(Continued)

## OIL HARDENING PRECISION GROUND FLAT STOCK

(Continued)

(REGULAR SIZE AND OVERSIZED)  
 SERIES 783: 18" Lengths  
 SERIES 784: 36" Lengths



## AIR-HARDENING PRECISION GROUND FLAT STOCK

(REGULAR AND OVERSIZED)

SERIES 684: 18" Lengths  
 SERIES 686: 36" Lengths



For Tolerances see page 625.



For Tolerances see page 625.



Oversized Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
3/8"	3/8"	56998		-	
	1/2"	56999		56846	
	3/4"	57000		56847	
	1"	57001		56848	
	1-1/4"	57002		56849	
	1-1/2"	57003		56850	
	2"	57004		56851	
	2-1/2"	57005		56852	
	3"	57006		56853	
	3-1/2"	57007		-	
	4"	57008		56854	
	4-1/2"	57009		-	
	5"	57010		56855	
	6"	57011		56856	
8"	57012		56857		
12"	57013		-		
1/2"	1/2"	57014		56858	
	3/4"	57015		56859	
	1"	57016		56860	
	1-1/4"	57017		56861	
	1-1/2"	57018		56862	
	2"	57019		56863	
	2-1/2"	57020		56864	
	3"	57021		56865	
	3-1/2"	57022		-	
	4"	57023		56866	
	4-1/2"	57024		-	
	5"	57025		56867	
	6"	57026		56868	
	8"	57027		56869	
10"	57028		56870		
12"	57029		-		
5/8"	5/8"	57030		56871	
	3/4"	57031		-	
	1"	57032		56872	
	1-1/4"	57033		56873	
	1-1/2"	57034		56874	
	2"	57035		56875	
	2-1/2"	57036		56876	
	3"	57037		56877	
	4"	57039		56878	
	5"	57040		56879	
6"	57041		56880		
3/4"	3/4"	57042		56881	
	1"	57043		56882	
	1-1/4"	57044		-	
	1-1/2"	57045		56883	
	2"	57046		56884	
	2-1/2"	57047		56885	
	3"	57048		56886	
	3-1/2"	57049		-	
	4"	57050		56887	
	5"	57051		-	
6"	57052		56888		
1"	1"	57054		56889	
	1-1/4"	57055		626630	
	1-1/2"	57056		56890	
	2"	57057		56891	
	2-1/2"	57058		56892	
	3"	57059		56893	
	3-1/2"	57060		-	
	4"	57061		56894	
6"	57063		56895		

### Dimensionally stable

The 5% chromium content makes this steel especially desirable for punches and dies to be used in long production runs since it gives the tools far longer life. Up to 50% more pieces per sharpening can be produced than with oil hardening steel.

High wear resistance is also ideal for punches and dies to stamp silicon, stainless steels, monel metal and other types of abrasive material.

Maintains close dimensional accuracy throughout the heat treating process. The wide 75° hardening range make this virtually foolproof.

Full-length identification eliminates confusion with other steels.

### Specifications

Furnished in 18" and 36" lengths, ground straight and parallel

### Nominal Analysis (AISI A2)

Carbon -1.00 Molybdenum -1.00

Chromium -5.25 Silicon -.40

Manganese -.60 Vanadium -.25

### Hardening

Air Hardening Precision Ground Flat Stock has a wide hardening range of 1700°F to 1775°F, with 1750°F recommended for most work. For heavier sections use the high side of the range. Heat uniformly throughout but do not soak longer than necessary. Cool in still air. No preheat is required if pack or atmosphere controlled furnace methods are used, but with the open furnace method a preheat of 1450°F is recommended.

Size	Temp	Cool	Rockwell C
All Sizes	1700°F-1775°F	Still Air	63.5-65

### Tempering

A Tempering time of two hours at temperature is recommended. Use chart for selecting the desired Rockwell C hardness and corresponding tempering temperature. For maximum toughness, double temper for two hours at each temperature recommended.

• **Light Blanking Punches and Dies** - 400°-425°F

• **Heavy Blanking Punches and Dies** - 700°F

• **Annealing** - 1525°-1575°F Furnace cool at no more than 50° per hour to 800° for maximum softness

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
1/16"	1/2"	57489		57301	
	3/4"	57490		57302	
	1"	57491		57303	
	1-1/4"	57492		57304	
	1-1/2"	57493		57305	
	2"	57494		57306	
	2-1/2"	57495		57307	
	3"	57496		57308	
3/32"	1/2"	57498		57310	
	3/4"	57499		57311	
	1"	57500		57312	
	1-1/4"	57501		57313	
	1-1/2"	57502		57314	
	2"	57503		57315	
	2-1/2"	57504		57316	
	3"	57505		57317	
4"	57506		57318		

(Continued)

STOCK MATERIALS

## AIR-HARDENING PRECISION GROUND FLAT STOCK (Continued)

(REGULAR AND OVERSIZED)

SERIES 684: 18" Lengths

SERIES 686: 36" Lengths



For Tolerances  
see page 625.

AIR HARDENING

STOCK MATERIALS

Regular Size Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
1/8"	1/2"	57243		57245	
	5/8"	57507		57319	
	3/4"	57244		57246	
	1"	54589		54546	
	1-1/4"	54590		54547	
	1-1/2"	54591		54548	
	1-3/4"	57508		57320	
	2"	54592		54549	
	2-1/2"	54593		54550	
	3"	54594		54551	
	3-1/2"	54595		54552	
	4"	54596		54553	
	5"	54598		54555	
6"	54599		54556		
7"	57509		57321		
8"	57510		57322		
10"	57511		57323		
12"	57512		57324		
5/32"	1/2"	57513		57325	
	3/4"	57514		57326	
	1"	54600		54557	
	1-1/4"	54601		54558	
	1-1/2"	54602		54559	
	1-3/4"	57515		57327	
	2"	54603		54560	
	2-1/2"	54604		54561	
	3"	54605		54562	
	3-1/2"	54606		54563	
	4"	54607		54564	
	5"	54608		54565	
	6"	54609		54566	
8"	57516		57328		
3/16"	3/16"	57517		57329	
	1/2"	57518		57330	
	3/4"	57519		57331	
	1"	54610		54567	
	1-1/4"	54611		54568	
	1-1/2"	54612		54569	
	1-3/4"	57520		57332	
	2"	54613		54570	
	2-1/2"	54614		54571	
	3"	54615		54572	
	3-1/2"	54616		54573	
	4"	54617		54574	
	5"	54618		54575	
6"	54619		54576		
7"	57521		57333		
8"	57522		57334		
1/4"	1/4"	57523		57335	
	1/2"	57524		57336	
	3/4"	57525		57337	
	1"	54620		54577	
	1-1/4"	54621		54578	
	1-1/2"	54622		54579	
	1-3/4"	57526		57338	
	2"	54623		54580	
	2-1/2"	54624		54581	
	3"	54625		54582	
	3-1/2"	54626		54583	
	4"	54627		54584	
	5"	54629		54586	
6"	54631		54588		

Regular Size Specifications						
Thickness	Width	18" Length		36" Length		
		EDP No.	Price	EDP No.	Price	
5/16"	5/16"	57527		57339		
	1/2"	57528		57340		
	3/4"	57529		57341		
	1"	54717		54632		
	1-1/4"	54718		54633		
	1-1/2"	54719		54634		
	1-3/4"	57530		57342		
	2"	54720		54635		
	2-1/2"	54721		54636		
	3"	54722		54637		
	3-1/2"	54723		54638		
	4"	54724		54639		
	5"	54726		54641		
6"	54727		54642			
3/8"	3/8"	57531		57343		
	1/2"	57532		57344		
	3/4"	57533		57345		
	1"	54728		54643		
	1-1/4"	54729		54644		
	1-1/2"	54730		54645		
	1-3/4"	57534		57346		
	2"	54731		54646		
	2-1/2"	54732		54647		
	3"	54733		54648		
	3-1/2"	54734		54649		
	4"	54735		54650		
	5"	54737		54652		
6"	54739		54654			
1/2"	1/2"	56495		56505		
	5/8"	57535		57347		
	3/4"	56494		56506		
	1"	56493		56507		
	1-1/4"	57536		57348		
	1-1/2"	57537		57349		
	1-3/4"	57538		57350		
	2"	54748		54663		
	2-1/2"	54749		54664		
	3"	54750		54665		
	3-1/2"	54751		54666		
	4"	54752		54667		
	5"	54754		54669		
6"	54755		54670			
8"	54757		54672			
5/8"	5/8"	56499		56508		
	3/4"	56498		56509		
	1"	56497		56510		
	1-1/2"	56496		56511		
	2"	54760		54675		
	2-1/2"	54761		54676		
	3"	54762		54677		
	3-1/2"	54763		54678		
	4"	54764		54679		
	5"	54765		54680		
	6"	54766		54681		
	3/4"	3/4"	54770		54685	
		1"	56501		56512	
1-1/4"		57539		57351		
1-1/2"		56500		56513		
2"		54771		54686		
2-1/2"		54772		54687		
3"		54773		54688		
4"		54775		54690		
5"		54777		54692		
6"		54778		54693		
7/8"		7/8"	54781		54696	
		1"	56503		56514	
		1-1/2"	56502		56515	
	2"	54782		54697		
	3"	54784		54699		
	4"	54785		54700		
1"	6"	54786		54701		
	1"	54787		54702		
	1-1/4"	57540		57352		
	1-1/2"	56504		56516		
	2"	54788		54703		
	2-1/2"	54789		54704		
	3"	54790		54705		
4"	54792		54707			
5"	54794		54709			
6"	54795		54710			

(Continued)



**AIR-HARDENING PRECISION GROUND**

**FLAT STOCK (Continued)**

(REGULAR AND OVERSIZED)

SERIES 684: 18" Lengths

SERIES 686: 36" Lengths



For Tolerances see page 625.

AIR HARDENING

Oversized Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
1/8"	1/2"	57541		57353	
	5/8"	57542		57354	
	3/4"	57543		57355	
	1"	57544		57356	
	1-1/4"	57545		57357	
	1-1/2"	57546		57358	
	1-3/4"	57547		57359	
	2"	57548		57360	
	2-1/2"	57549		57361	
	3"	57550		57362	
	3-1/2"	57551		57363	
	4"	57552		57364	
5"	57553		57365		
6"	57554		57366		
7"	57555		57367		
8"	57556		57368		
10"	57557		57369		
12"	57558		57370		
5/32"	1/2"	57559		57371	
	3/4"	57560		57372	
	1"	57561		57373	
	1-1/4"	57562		57374	
	1-1/2"	57563		57375	
	2"	57564		57376	
	2-1/2"	57565		57377	
	3"	57566		57378	
4"	57567		57379		
5"	57568		57380		
6"	57569		57381		
8"	57570		57382		
3/16"	3/16"	57571		57383	
	1/2"	57572		57384	
	3/4"	57573		57385	
	1"	57162	56896	57386	56897
	1-1/4"	57163	56897	57387	56898
	1-1/2"	57164	56898	57388	56899
	1-3/4"	57574	56900	57389	56901
	2"	57165	56901	57390	56902
	2-1/2"	57166	56902	57391	56903
	3"	57167	56903	57392	56904
3-1/2"	57575	56904	57393	56905	
4"	57168	56905	57394	56906	
5"	57576	56906	57395	56907	
6"	57577	56907	57396	56908	
8"	57578	56908	57397	56909	
10"	57579	56909	57398	56910	
1/4"	1/4"	57580		57392	
	1/2"	57581		57393	
	3/4"	57582		57394	
	1"	57169	56903	57395	56904
	1-1/4"	57170	56904	57396	56905
	1-1/2"	57171	56905	57397	56906
	1-3/4"	57583	56906	57398	56907
	2"	57172	56907	57399	56908
	2-1/2"	57173	56908	57400	56909
	3"	57174	56909		56910
	3-1/2"	57584	56910		56911
	4"	57175	56911		56912
5"	57176	56912		56913	
6"	57177	56913		56914	
7"	57585	56914		56915	
8"	57586	56915		56916	
10"	57587	56916		56917	
12"	57588	56917		56918	

Oversized Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
5/16"	5/16"	57589		57401	
	1/2"	57590		57402	
	3/4"	57591		57403	
	1"	57178	56912	57404	56913
	1-1/4"	57179	56913	57405	56914
	1-1/2"	57180	56914	57406	56915
	1-3/4"	57592	56915	57407	56916
	2"	57181	56916	57408	56917
	2-1/2"	57593	56917		56918
	3"	57182	56918		56919
	3-1/2"	57594	56919		56920
	4"	57183	56920		56921
5"	57184	56921		56922	
6"	57595	56922		56923	
8"	57596	56923		56924	
3/8"	3/8"	57597		57409	
	1/2"	57598		57410	
	3/4"	57599		57411	
	1"	57185	56919	57412	56920
	1-1/4"	57186	56920	57413	56921
	1-1/2"	57187	56921	57414	56922
	1-3/4"	57600	56922	57415	56923
	2"	57188	56923	57416	56924
	2-1/2"	57189	56924	57417	56925
	3"	57190	56925	57418	56926
	3-1/2"	57191	56926	57419	56927
	4"	57192	56927	57420	56928
4-1/2"	57601	56928	57421	56929	
5"	57193	56929	57422	56930	
6"	57194	56930	57423	56931	
7"	57602	56931	57424	56932	
8"	57603	56932	57425	56933	
10"	57604	56933	57426	56934	
12"	57605	56934	57427	56935	
1/2"	1/2"	57195		56929	
	5/8"	57606		57418	
	3/4"	57196	56930	57419	56931
	1"	57197	56931	57420	56932
	1-1/4"	57607	56932	57421	56933
	1-1/2"	57608	56933	57422	56934
	1-3/4"	57609	56934	57423	56935
	2"	57198	56935	57424	56936
	2-1/2"	57199	56936	57425	56937
	3"	57200	56937	57426	56938
	3-1/2"	57201	56938	57427	56939
	4"	57202	56939	57428	56940
4-1/2"	57610	56940	57429	56941	
5"	57203	56941	57430	56942	
6"	57204	56942	57431	56943	
7"	57611	56943	57432	56944	
8"	57612	56944	57433	56945	
10"	57613	56945	57434	56946	
12"	57614	56946	57435	56947	
9/16"	2"	57615		57427	
	2-1/2"	57616		57428	
	3"	57617		57429	
	4"	57618		57430	
5/8"	5/8"	57205		56939	
	3/4"	57206		56940	
	1"	57207		56941	
	1-1/4"	57619		57431	
	1-1/2"	57208		56942	
	2"	57209		56943	
	2-1/2"	57210		56944	
	3"	57211		56945	
	3-1/2"	57212		56946	
	4"	57620		57432	
5"	57621		57433		
6"	57622		57434		
8"	57623		57435		
10"	57624		57436		

(Continued)

STOCK MATERIALS

## AIR-HARDENING PRECISION GROUND FLAT STOCK (Continued)

(REGULAR AND OVERSIZED)

SERIES 684: 18" Lengths

SERIES 686: 36" Lengths



## LOW-CARBON PRECISION GROUND FLAT STOCK

SERIES 683: 24" Lengths



For Tolerances see page 625.

AIR HARDENING

For Tolerances see page 625.

LOW CARBON

STOCK MATERIALS

Oversized Specifications					
Thickness	Width	18" Length		36" Length	
		EDP No.	Price	EDP No.	Price
3/4"	3/4"	57213		56947	
	1"	57214		56948	
	1-1/4"	57625		57437	
	1-1/2"	57215		56949	
	1-3/4"	57626		57438	
	2"	57216		56950	
	2-1/2"	57627		57439	
	3"	57217		56951	
	3-1/2"	57628		57440	
	4"	57218		56952	
	4-1/2"	57629		57441	
	5"	57630		57442	
	6"	57631		57443	
7/8"	7/8"	57635		57447	
	1"	57636		57448	
	1-1/4"	57637		57449	
	1-1/2"	57638		57450	
	2"	57639		57451	
	2-1/2"	57640		57452	
	3"	57641		57453	
	3-1/2"	57642		57454	
	4"	57643		57455	
	5"	57644		57456	
1"	1"	57219		56953	
	1-1/4"	57646		57458	
	1-1/2"	57220		56954	
	1-3/4"	57647		57459	
	2"	57221		56955	
	2-1/2"	57648		57460	
	3"	57222		56956	
	3-1/2"	57649		57461	
	4"	57650		57462	
	4-1/2"	57651		57463	
	5"	57652		57464	
	6"	57653		57465	
1-1/4"	1-1/4"	57656		57468	
	1-1/2"	57657		57469	
	2"	57658		57470	
	2-1/2"	57659		57471	
	3"	57660		57472	
	4"	57661		57473	
	5"	57662		57474	
1-1/2"	1-1/2"	57664		57476	
	2"	57665		57477	
	2-1/2"	57666		57478	
	3"	57667		57479	
	3-1/2"	57668		57480	
	4"	57669		57481	
2"	2"	57671		57483	
	2-1/2"	57672		57484	
	3"	57673		57485	
	4"	57674		57486	
2-1/2"	2-1/2"	57675		57487	
3"	3"	57676		57488	

Our No. 498 Low Carbon Ground Flat Stock is a true free machining steel with the **best machinability** of any ground flat stock.

On a relative machinability rating of 100 for AISI 1018 steel, our No. 498 low carbon ground flat stock has a machinability rating of 137. Because of its free machining characteristics, you get longer cutting tool life, better finish, faster production and lower machining costs.

- **Substantial cost reductions over tool steel ground flat stock.** There are savings up to 60% because this a low carbon steel and furnished in 24" lengths. This means that you get one-third more steel at less cost.
- **Ideal for a wide variety of parts that don't require more expensive heat treated steels,** such as stripper plates, jigs, fixtures, machine and component parts, templates, etc.
- **This free machining steel can be carburized or case hardened.** After hardening, its physical properties, especially tensile strength, yield point, and Brinell hardness, are substantially higher
- **Note:** Thickness of 1/8" and under are made from AISI 1010 material.

### Specifications

Furnished in 24" (610mm) lengths, ground straight and parallel

### Analysis

Starrett No. 498 Free Machining Low Carbon Precision Ground Flat Stock is a .17 carbon fine-grained, killed steel of forging quality which can be carburized or case hardened. Very similar to AISI 1117.

### Heat Treatment

For many applications, stock can be used unhardened. However, if surface hardening is desired, it can be carburized or case hardened. If carburized, a case of 1/32" will be obtained if the steel is held in carburizing salt at 1700 °F for three hours.

Regular Size Specifications			
Thickness	Width	EDP No.	Price
1/16"	1/2"	54866	
	3/4"	54867	
	1"	54868	
	1-1/4"	54869	
	1-1/2"	54870	
	2"	54871	
	2-1/2"	54872	
	3"	54873	
	3-1/2"	54874	
	4"	54875	
	5"	54876	
	6"	54877	
3/32"	1/2"	54881	
	3/4"	54882	
	1"	54883	
	1-1/4"	54884	
	1-1/2"	54885	
	2"	54886	
	2-1/2"	54887	
	3"	54888	
	4"	54889	
	5"	54890	
	6"	54891	
	8"	54892	

(Continued)

**LOW-CARBON PRECISION  
GROUND FLAT STOCK** (Continued)  
SERIES 683: 24" Lengths



Regular Size Specifications			
Thickness	Width	EDP No.	Price
<b>1/8"</b>	1/2"	54893	
	3/4"	54894	
	1"	54895	
	1-1/4"	54896	
	1-1/2"	54897	
	2"	54898	
	2-1/2"	54899	
	3"	54900	
	3-1/2"	54901	
	4"	54902	
	5"	54903	
	6"	54904	
<b>5/32"</b>	8"	54905	
	10"	54906	
	12"	54907	
	1/2"	54908	
	3/4"	54909	
	1"	54910	
	1-1/4"	54911	
	1-1/2"	54912	
	2"	54913	
	2-1/2"	54914	
	3"	54915	
	<b>3/16"</b>	4"	54917
5"		54918	
6"		54919	
3/16"		57247	
1/2"		54921	
3/4"		54922	
1"		54923	
1-1/4"		54924	
1-1/2"		54925	
2"		54926	
2-1/2"		54927	
<b>1/4"</b>		3"	54928
	3-1/2"	54929	
	4"	54930	
	5"	54931	
	6"	54932	
	8"	54933	
	10"	54934	
	12"	57248	
	1/4"	57249	
	1/2"	54935	
	3/4"	54936	
	1"	54937	
1-1/4"	54938		
1-1/2"	54939		
2"	54940		
2-1/2"	54941		
<b>5/16"</b>	3"	54942	
	3-1/2"	54943	
	4"	54944	
	5"	54945	
	6"	54946	
	8"	54947	
	10"	54948	
	12"	54949	
	5/16"	57250	
	1/2"	54950	
	3/4"	54951	
	1"	54952	
1-1/4"	54953		
1-1/2"	54954		
2"	54955		
2-1/2"	54956		
3"	54957		
3-1/2"	54958		
4"	54959		
5"	54960		
6"	54961		
8"	54962		
10"	57251		
12"	57252		

Regular Size Specifications				
Thickness	Width	EDP No.	Price	
<b>3/8"</b>	3/8"	54964		
	1/2"	54965		
	3/4"	54966		
	1"	54967		
	1-1/4"	54968		
	1-1/2"	54969		
	2"	54970		
	2-1/2"	54971		
	3"	54972		
	3-1/2"	54973		
	4"	54974		
	<b>7/16"</b>	5"	54975	
6"		54976		
7"		54977		
8"		54978		
9"		54979		
10"		54980		
12"		54981		
7/16"		7/16"	54982	
<b>1/2"</b>		1/2"	54983	
		3/4"	54984	
		1"	54985	
		1-1/4"	54986	
	1-1/2"	54987		
	2"	54988		
	2-1/2"	54989		
	3"	54990		
	3-1/2"	54991		
	4"	54992		
	5"	54993		
	<b>9/16"</b>	6"	54994	
7"		54995		
8"		54996		
9"		54997		
10"		54998		
12"		54999		
9/16"		9/16"	55000	
<b>5/8"</b>		5/8"	55001	
		3/4"	55002	
		1"	55003	
		1-1/4"	55004	
		1-1/2"	55005	
	2"	55006		
	2-1/2"	55007		
	3"	55008		
	3-1/2"	55009		
	4"	55010		
	5"	55011		
	<b>3/4"</b>	6"	55012	
7"		55013		
8"		55014		
9"		55015		
10"		55016		
12"		57253		
3/4"		55017		
1"		55018		
1-1/4"		55019		
1-1/2"		55020		
2"		55021		
2-1/2"		55022		
3"	55023			
3-1/2"	55024			
4"	55025			
5"	55026			
6"	55027			
7"	57254			
8"	55028			
9"	55029			
10"	55030			
12"	55031			

Regular Size Specifications				
Thickness	Width	EDP No.	Price	
<b>7/8"</b>	7/8"	55032		
	1"	55033		
	1-1/4"	55034		
	1-1/2"	55035		
	2"	55036		
	2-1/2"	55037		
	3"	55038		
	3-1/2"	57255		
	4"	55039		
	6"	55040		
	<b>1"</b>	1"	55041	
		1-1/4"	55042	
1-1/2"		55043		
2"		55044		
2-1/2"		55045		
3"		55046		
3-1/2"		55047		
4"		55048		
5"		55049		
6"		55050		
7"		57256		
<b>1-1/4"</b>		8"	55051	
	9"	55052		
	10"	55053		
	12"	55054		
	1-1/4"	55055		
	1-1/2"	55056		
	2"	55057		
	2-1/2"	55058		
	3"	55059		
	4"	55060		
	5"	55061		
	6"	55062		
8"	55063			
10"	55065			
12"	57257			
<b>1-1/2"</b>	1-1/2"	55066		
	2"	55067		
	2-1/2"	55068		
	3"	55069		
	3-1/2"	55070		
	4"	55071		
	5"	55072		
	6"	55073		
	8"	55074		
	10"	55075		
	<b>2"</b>	2"	55076	

TOLERANCES	
<b>Regular:</b>	Thickness $\pm .001"$ Width up to 8", $+.000/.005"$ 9" and over, $+.000/.015"$ Squares, $\pm .001"$
<b>Oversize:</b>	Thickness, $+.010/.015"$ Width, $+.010/.015"$ Squares, $+.010/.015"$
<b>Length:</b> Saw cut oversize to allow for finish cutting	18", $+1/4"$ 24", $+1/2"$ 36", $+5/8"$
<b>Squareness Edge All:</b>	.003 per inch
<b>Finish:</b>	35 microinch or finer

STOCK MATERIALS



## PRECISION GROUND AND POLISHED DRILL ROD (TOOL STEEL)



### O-1 OIL HARDENING DRILL ROD - 36" LENGTH SERIES 453:

**Typical Analysis: C 1.00, Mn .40, Si .20**  
O-1 Tool Steel is a general purpose oil-hardening tool and die steel. Normal care in treatment gives good results in hardening and produces small dimensional changes. It has good abrasion resistance, and sufficient toughness for normal tool and die applications. When compared to a 1 percent carbon steel, O-1 has a machinability rating of 90.

Tempering Temp. °F	Hardness Rockwell C
none	65
300	63
350	61
400	60.5
450	59
500	58
600	56
800	48-49

Preheat: 1200°F until thoroughly soaked. Harden at 1475°F. Hold 20 minutes per inch of greatest cross section after tool reaches furnace temperature (minimum holding time - 20 minutes). Quench in warm oil to 150° F. Temper immediately 2 hours per inch of greatest cross-section at temperatures shown to achieve the desired hardness.

### W-1 WATER HARDENING DRILL ROD - 36" LENGTH SERIES 628:

**Typical Analysis: C 1.00, Mn .40, Si .20**  
W-1 Tool Steel is a general purpose water-hardening tool steel with a 1.00% Carbon content. It offers an excellent combination of physical properties with an outer case that is abrasion resistant in the 60 Rockwell "C" range with a soft, ductile inner core. W-1 is the easiest of all steels to machine with a machinability rating of 100 as a basis for comparison with other tool steels.

Tempering Temp. °F	Hardness Rockwell C
none	67
300	64
400	61
500	59
600	55
800	46

Heat slowly to 1450° F. Hold 20 minutes per inch of greatest cross-section after tool reaches furnace temperature (minimum holding time-20 minutes). Quench in water or 10% brine solution to 150/200°F. Temper immediately 2 hours per inch of greatest cross-section at temperatures shown to achieve the desired hardness.

### A-2 AIR HARDENING DRILL ROD - 36" LENGTH SERIES 629:

**Typical Analysis: C 1.00, Mn .70, Cr 5.00, Mo 1.10, V .25**  
A-2 Tool Steel is a general purpose, 5% chrome air hardening tool steel. A-2 is popular because it has better wear resistance compared to S-7, A-6 and A-8 Tool Steel. A-2 is tougher and more ductile than D-2 Tool Steel. A-2 is also a very safe grade of tool steel to harden, and can be heat treated in most tool room furnaces without problem. When compared to a 1% carbon steel, A-2 has a machinability rating of 65.

Tempering Temp. °F	Hardness Rockwell C
none	64.5
300	63
350	62
400	61
450	60
500	59
600	58
800	57

Preheat: 1200°F until thoroughly soaked. Harden at 1775°F. Hold 20 minutes/inch of greatest cross-section after tool reaches furnace temperature (min. holder time-30 mins). Air quench to 150°F. Temper immediately 2 hrs./inch of greatest cross-section at temps. shown to achieve the desired hardness.

STOCK MATERIALS

Dia.	Oil Hardening		Water Hardening		Air Hardening	
	Order No.	Price	Order No.	Price	Order No.	Price
1/16	2535004		6280004		6290004	
5/64	2535005		6280005		6290005	
3/32	2535006		6280006		6290006	
7/64	2535007		6280007		6290007	
1/8	2535008		6280008		6290008	
9/64	2535009		6280009		6290009	
5/32	2535010		6280010		6290010	
11/64	2535011		6280011		6290011	
3/16	2535012		6280012		6290012	
13/64	2535013		6280013		6290013	
7/32	2535014		6280014		6290014	
15/64	2535015		6280015		6290015	
1/4	2535016		6280016		6290016	
17/64	2535017		6280017		6290017	
9/32	2535018		6280018		6290018	
19/64	2535019		6280019		6290019	
5/16	2535020		6280020		6290020	
21/64	2535021		6280021		6290021	
11/32	2535022		6280022		6290022	
23/64	2535023		6280023		6290023	
3/8	2535024		6280024		6290024	
25/64	2535025		6280025		6290025	
13/32	2535026		6280026		6290026	
27/64	2535027		6280027		6290027	
7/16	2535028		6280028		6290028	
29/64	2535029		6280029		6290029	
15/32	2535030		6280030		6290030	
31/64	2535031		6280031		6290031	
1/2	2535032		6280032		6290032	
33/64	2535033		6280033		-	
17/32	2535034		6280034		6290034	
35/64	2535035		6280035		-	
9/16	2535036		6280036		6290036	
37/64	2535037		6280037		-	
19/32	2535038		6280038		6290038	
39/64	2535039		6280039		-	
5/8	2535040		6280040		6290040	
41/64	2535041		6280041		-	

Dia.	Oil Hardening		Water Hardening		Air Hardening	
	Order No.	Price	Order No.	Price	Order No.	Price
21/32	2535042		6280042		6290042	
43/64	2535043		6280043		-	
11/16	2535044		6280044		6290044	
45/64	2535045		6280045		-	
23/32	2535046		6280046		6290046	
47/64	2535047		6280047		-	
3/4	2535048		6280048		6290048	
49/64	2535049		6280049		-	
25/32	2535050		6280050		-	
51/64	2535051		6280051		-	
13/16	2535052		6280052		6290052	
53/64	2535053		6280053		-	
27/32	2535054		6280054		-	
55/64	2535055		6280055		-	
7/8	2535056		6280056		6290056	
57/64	2535057		6280057		-	
29/32	2535058		6280058		-	
59/64	2535059		6280059		-	
15/16	2535060		6280060		6290060	
61/64	2535061		6280061		-	
31/32	2535062		6280062		-	
63/64	2535063		6280063		-	
1	2535064		6280064		6290064	
1-1/16	2535068		6280068		6290068	
1-1/8	2535072		6280072		6290072	
1-3/16	2535076		6280076		-	
1-1/4	2535080		6280080		6290080	
1-5/16	2535084		6280084		-	
1-3/8	2535088		6280088		6290088	
1-7/16	2535092		6280092		-	
1-1/2	2535096		6280096		6290096	
1-9/16	2535136		6280136		-	
1-5/8	2535140		6280140		-	
1-11/16	2535144		6280144		-	
1-3/4	2535148		6280148		6290148	
1-13/16	2535152		6280152		-	
1-7/8	2535156		6280156		-	
1-15/16	2535160		6280160		-	
2	2535200		6280200		6290200	

(Continued)



**PRECISION GROUND AND POLISHED DRILL ROD  
(TOOL STEEL) - 36" LENGTH**



SERIES 453: O-1, OIL HARDENING; SERIES 629: A-2, AIR HARDENING

Size	Decimal Equiv. Inches	Oil Hardening	
		Order No.	Price
1	0.227	2535301	
2	0.219	2535302	
3	0.212	2535303	
4	0.207	2535304	
5	0.204	2535305	
6	0.201	2535306	
7	0.199	2535307	
8	0.197	2535308	
9	0.194	2535309	
10	0.191	2535310	
11	0.188	2535311	
12	0.185	2535312	
13	0.182	2535313	
14	0.180	2535314	
15	0.178	2535315	
16	0.175	2535316	
17	0.172	2535317	
18	0.168	2535318	
19	0.164	2535319	
20	0.161	2535320	
21	0.157	2535321	
22	0.155	2535322	
23	0.153	2535323	
24	0.151	2535324	
25	0.148	2535325	
26	0.146	2535326	
27	0.143	2535327	
28	0.139	2535328	
29	0.134	2535329	
30	0.127	2535330	
31	0.120	2535331	
32	0.115	2535332	
33	0.112	2535333	
34	0.110	2535334	
35	0.108	2535335	
36	0.106	2535336	
37	0.103	2535337	
38	0.101	2535338	
39	0.099	2535339	
40	0.097	2535340	
41	0.095	2535341	
42	0.092	2535342	
43	0.088	2535343	
44	0.085	2535344	
45	0.081	2535345	
46	0.079	2535346	
47	0.077	2535347	
48	0.075	2535348	
49	0.072	2535349	
50	0.069	2535350	
51	0.066	2535351	
52	0.063	2535352	

Size	Decimal Equiv. Inches	Oil Hardening		Air Hardening	
		Order No.	Price	Order No.	Price
2mm	0.0787	2535502		6290502	
3mm	0.1181	2535503		6290503	
4mm	0.1575	2535504		6290504	
5mm	0.1969	2535505		6290505	
6mm	0.2362	2535506		6290506	
7mm	0.2756	2535507		6290507	
8mm	0.3150	2535508		6290508	
9mm	0.3543	2535509		6290509	
10mm	0.3937	2535510		6290510	
11mm	0.4331	2535511		6290511	
12mm	0.4724	2535512		6290512	
13mm	0.5118	2535513		6290513	
14mm	0.5512	2535514		6290514	
15mm	0.5906	2535515		6290515	
16mm	0.6299	2535516		6290516	
17mm	0.6693	2535517		6290517	
18mm	0.7087	2535518		6290518	
19mm	0.7480	2535519		6290519	
20mm	0.7874	2535520		6290520	
21mm	0.8268	2535521		6290521	
22mm	0.8661	2535522		6290522	
23mm	0.9055	2535523		6290523	
24mm	0.9449	2535524		6290524	
25mm	0.9843	2535525		6290525	
30mm	1.1811	2535530		-	

Size	Decimal Equiv. Inches	Oil Hardening	
		Order No.	Price
A	0.234	2535801	
B	0.238	2535802	
C	0.242	2535803	
D	0.246	2535804	
E	0.250	2535805	
F	0.257	2535806	
G	0.261	2535807	
H	0.266	2535808	
I	0.272	2535809	
J	0.277	2535810	
K	0.281	2535811	
L	0.290	2535812	
M	0.295	2535813	
N	0.302	2535814	
O	0.316	2535815	
P	0.323	2535816	
Q	0.332	2535817	
R	0.339	2535818	
S	0.348	2535819	
T	0.358	2535820	
U	0.368	2535821	
V	0.377	2535822	
W	0.386	2535823	
X	0.397	2535824	
Y	0.404	2535825	
Z	0.413	2535826	



**Please Inquire for:**

- Other Grades
- 12 Foot Lengths
- Special Sizes

**STOCK MATERIALS**