

HIGH SPEED STEEL BLANKS

AVAILABLE IN ANY DIAMETER .005" - 3.500"

GROUND TO .0002 TOLERANCE

LENGTH TO 78" TO SUIT YOUR REQUIREMENTS

The following standard size M2 High Speed Steel Blanks

Hardness Rockwell "C" 62-64 or M42 "C" 65-67

Available for immediate delivery from our plant.

Size	Decimal Equivalent	Length Overall Inches	M2 Net Price Each	M42 Net Price Each
1/64	.015625	1 1/2	2.45	3.53
1/32	.03125	1 1/2	1.51	2.15
3/64	.046875	1 3/4	1.29	1.89
1/16	.0625	1 7/8	1.22	1.84
5/64	.078125	2	1.28	1.84
3/32	.09375	2 1/4	1.32	2.00
7/64	.109375	2 3/4	1.35	2.07
1/8	.1250	2 3/4	1.38	2.12
9/64	.140625	3	1.45	2.20
5/32	.15625	3 1/4	1.63	2.48
11/64	.171875	3 1/4	1.68	2.52
3/16	.1875	3 1/2	1.85	2.84
13/64	.203125	3 5/8	2.20	3.55
7/32	.21875	3 3/4	2.45	3.75
15/64	.234375	3 7/8	2.65	4.05
1/4	.2500	4	2.85	4.45
17/64	.265625	4 1/8	3.20	5.02
9/32	.28125	4 1/4	3.45	5.43
19/64	.296875	4 3/8	3.75	5.95
5/16	.3125	4 1/2	4.10	6.45
21/64	.328125	4 5/8	4.45	6.97
11/32	.34375	4 3/4	4.90	7.68
23/64	.359375	4 7/8	5.30	8.35
3/8	.3750	5	5.85	9.39
25/64	.390625	5 1/8	6.45	10.06
13/32	.40625	5 1/4	7.10	11.08
27/64	.421875	5 3/8	7.85	12.23
7/16	.4375	5 1/2	8.40	13.10
29/64	.453125	5 5/8	8.95	13.88
15/32	.46875	5 3/4	9.46	14.51
31/64	.484375	5 7/8	10.23	15.68
1/2	.5000	6	10.70	16.76

Size	Decimal Equivalent	Length Overall Inches	M2 Net Price Each	M42 Net Price Each
A	.234	3 7/8	2.70	4.13
B	.238	4	2.70	4.13
C	.242	4	2.71	4.13
D	.246	4	2.85	4.45
E	.250	4	2.85	4.45
F	.257	4 1/8	3.21	5.03
G	.261	4 1/8	3.21	5.03
H	.266	4 1/8	3.21	5.03
I	.272	4 1/8	3.40	5.35
J	.277	4 1/4	3.45	5.43
K	.281	4 1/4	3.46	5.43
L	.290	4 1/4	3.53	5.54
M	.295	4 3/8	3.75	5.97
N	.302	4 3/8	3.75	5.97
O	.316	4 1/2	4.16	6.45
P	.323	4 5/8	4.46	6.93
Q	.332	4 3/4	4.50	6.93
R	.339	4 3/4	4.91	7.63
S	.348	4 7/8	5.29	8.34
T	.358	4 7/8	5.29	8.34
U	.368	5	5.88	9.45
V	.377	5	5.88	9.45
W	.386	5 1/8	6.25	9.90
X	.397	5 1/8	6.25	9.90
Y	.404	5 1/4	6.88	10.89
Z	.413	5 1/4	6.98	10.90

CHOICE OF TOLERANCE

+ .0002 OR + .0000 OR + .0001
 - .0000 - .0002 - .0001

A NOTE TO REMEMBER

WE CAN GRIND BLANKS TO A .00005 TOLERANCE

SIZES 33/64" THRU 1"
M2 HSS BLANKS
M42 SUPER HSS BLANKS



Size	Decimal Equivalent	Length Overall Inches	M2 Net Price Each	M42 Net Price Each
33/64	.515625	6	13.50	20.40
		9	22.75	35.03
		12	30.25	46.81
17/32	.53125	6	13.89	20.97
		9	24.05	37.08
		12	31.63	48.74
35/64	.546875	6	14.27	21.59
		9	24.65	37.99
		12	32.76	50.47
9/16	.5625	6	15.42	22.88
		9	25.30	40.55
		12	34.25	52.80
37/64	.578125	6	15.86	23.93
		9	27.08	41.72
		12	36.57	56.18
19/32	.59375	6	16.87	25.50
		9	28.50	43.98
		12	38.35	58.85
39/64	.609375	6	17.87	26.57
		9	30.12	47.32
		12	39.79	62.41
5/8	.6250	6	18.35	28.26
		9	31.00	48.71
		12	41.16	64.59
41/64	.640625	6	19.66	29.20
		9	33.94	51.50
		12	44.59	65.18
21/32	.65625	6	20.25	30.10
		9	34.74	52.75
		12	45.65	69.15
43/64	.671875	6	21.43	31.74
		9	35.64	53.97
		12	47.40	71.78
11/16	.6875	6	21.66	32.20
		9	37.17	56.36
		12	49.20	74.55
45/64	.703125	6	22.68	33.70
		9	38.46	58.29
		12	51.40	77.93
23/32	.71875	6	23.88	35.49
		9	39.85	60.40
		12	53.09	80.46
47/64	.734375	6	24.49	36.40
		9	40.35	61.15
		12	54.20	82.15
3/4	.7500	6	25.07	37.30
		9	42.03	63.70
		12	54.65	82.78

Size	Decimal Equivalent	Length Overall Inches	M2 Net Price Each	M42 Net Price Each
49/64	.765625	6	26.68	38.90
		9	43.35	64.49
		12	57.10	84.90
25/32	.78125	6	27.09	40.25
		9	44.74	66.57
		12	58.20	86.56
51/64	.796875	6	28.55	41.62
		9	46.00	68.35
		12	62.25	89.57
13/16	.8125	6	29.76	43.43
		9	47.20	70.16
		12	62.28	92.55
53/64	.828125	6	30.78	44.91
		9	47.90	71.75
		12	63.50	94.35
27/32	.84375	6	31.11	46.75
		9	49.45	73.48
		12	65.79	97.80
55/64	.859375	6	32.55	48.90
		9	50.87	75.55
		12	67.25	99.91
7/8	.8750	6	33.20	48.70
		9	52.57	78.14
		12	68.99	102.46
57/64	.890625	6	33.70	50.60
		9	54.40	80.80
		12	73.44	109.02
29/32	.90625	6	34.66	52.00
		9	55.54	82.47
		12	74.90	111.25
59/64	.921875	6	35.44	53.25
		9	57.19	84.61
		12	77.01	114.38
15/16	.9375	6	36.70	55.09
		9	58.30	86.67
		12	78.35	116.35
61/64	.953125	6	37.47	56.20
		9	59.60	88.50
		12	80.35	119.36
31/32	.96875	6	38.75	60.13
		9	61.22	90.85
		12	82.50	122.53
63/64	.984375	6	40.83	61.10
		9	63.15	93.77
		12	84.95	126.20
1"	1.0000	6	41.91	61.90
		9	65.00	96.60
		12	87.60	130.21

CHOICE OF TOLERANCE $\begin{matrix} +.0002 \\ -.0000 \end{matrix}$ **OR** $\begin{matrix} +.0000 \\ -.0002 \end{matrix}$ **OR** $\begin{matrix} +.0001 \\ -.0001 \end{matrix}$

QUICK DELIVERY
DIRECT FROM OUR PLANT

Wire Size	Decimal Equivalent	Length Overall Inches	M2 Net Price Each	M42 Net Price Each
1	.2280	3 7/8	2.45	3.73
2	.2210	3 7/8	2.45	3.73
3	.2130	3 3/4	2.45	3.73
4	.2090	3 3/4	2.45	3.73
5	.2055	3 3/4	2.45	3.73
6	.2040	3 3/4	2.20	3.33
7	.2010	3 5/8	2.20	3.33
8	.1990	3 5/8	2.20	3.33
9	.1960	3 5/8	2.20	3.33
10	.1935	3 5/8	2.20	3.33
11	.1910	3 1/2	1.89	2.90
12	.1890	3 1/2	1.89	2.90
13	.1850	3 1/2	1.84	2.84
14	.1820	3 1/2	1.84	2.84
15	.1800	3 1/2	1.84	2.84
16	.1770	3 3/8	1.65	2.55
17	.1730	3 3/8	1.65	2.55
18	.1695	3 1/4	1.65	2.55
19	.1660	3 1/4	1.63	2.50
20	.1610	3 1/4	1.63	2.50
21	.1590	3 1/4	1.63	2.50
22	.1570	3 1/4	1.63	2.50
23	.1540	3	1.63	2.50
24	.1520	3	1.63	2.50
25	.1495	3	1.63	2.50
26	.1470	3	1.45	2.21
27	.1440	3	1.45	2.21
28	.1405	3	1.45	2.21
29	.1360	3	1.45	2.21
30	.1285	2 3/4	1.45	2.21

Wire Size	Decimal Equivalent	Length Overall Inches	M2 Net Price Each	M42 Net Price Each
31	.1200	2 3/4	1.35	2.14
32	.1160	2 3/4	1.35	2.10
33	.1130	2 3/4	1.35	2.10
34	.1110	2 3/4	1.35	2.10
35	.1100	2 3/4	1.35	2.10
36	.1065	2 1/2	1.35	2.10
37	.1040	2 1/2	1.35	2.10
38	.1015	2 1/2	1.35	2.10
39	.0995	2 1/2	1.35	2.10
40	.0980	2 1/2	1.35	2.10
41	.0960	2 1/2	1.31	2.02
42	.0935	2 1/4	1.31	2.02
43	.0890	2 1/4	1.31	2.02
44	.0860	2 1/4	1.31	2.02
45	.0820	2 1/4	1.31	2.02
46	.0810	2 1/4	1.31	2.02
47	.0785	2	1.29	2.02
48	.0760	2	1.29	2.02
49	.0730	2	1.29	2.02
50	.0700	2	1.29	2.02
51	.0670	2	1.29	2.02
52	.0635	1 7/8	1.24	1.86
53	.0595	1 7/8	1.24	1.86
54	.0550	1 7/8	1.24	1.86
55	.0520	1 7/8	1.29	1.86
56	.0465	1 3/4	1.29	1.86
57	.0430	1 3/4	1.29	1.86
58	.0420	1 5/8	1.29	1.86
59	.0410	1 5/8	1.29	1.86
60	.0400	1 5/8	1.29	1.86

CHOICE OF TOLERANCE +.0002 **OR** +.0000 **OR** +.0001
 -.0000 -.0002 -.0001

No Minimum Order

M-2 HIGH SPEED STEEL HARDENED & GROUND BLANKS

ALL HARDENED BLANKS ARE 62 – 64 R/C

36 INCH HARDENED & GROUND WIRE SIZE HSS LENGTHS TOLERANCE $\pm .0003$

Wire Size	Decimal Equivalent	Price Each
61	.0390	24.60
62	.0380	24.60
63	.0370	24.60
64	.0360	24.60
65	.0350	24.93
66	.0330	24.93
67	.0320	24.93
68	.0310	25.17
69	.0292	25.17
70	.0280	25.17
71	.0260	25.85
72	.0250	25.85
73	.0240	25.85
74	.0225	26.53
75	.0210	26.53
76	.0200	26.53
77	.0180	27.03
78	.0160	27.03
79	.0145	27.64
80	.0135	27.64

36 INCH HSS LENGTHS TOLERANCE $\pm .001$

Fractional Size	Decimal Equivalent	Annealed M2 High Speed Blanks	Hardened Ground
1/16	.0625	7.75	22.43
5/64	.078125	8.25	24.14
3/32	.09375	8.71	24.24
7/64	.109375	9.27	25.55
1/8	.1250	9.90	27.79
9/64	.140625	10.45	27.95
5/32	.15625	11.67	28.12
11/64	.171875	12.61	29.44
3/16	.1875	13.81	29.64
13/64	.203125	14.98	30.84
7/32	.21875	16.38	31.08
15/64	.234375	17.98	32.34
1/4	.2500	18.89	32.62
17/64	.265625	20.58	37.25
9/32	.28125	22.23	37.57
19/64	.296875	24.07	39.35
5/16	.3125	25.99	39.71
21/64	.328125	27.93	44.92
11/32	.343875	30.09	45.31
23/64	.359375	32.03	50.02
3/8	.3750	33.60	50.44
25/64	.390625	36.66	55.42
13/32	.40625	39.00	55.89
27/64	.421875	41.60	59.28
7/16	.4375	44.31	59.78
29/64	.453125	46.90	62.69
15/32	.46875	49.85	63.33
31/64	.484375	51.91	67.32
1/2	.5000	53.77	67.88
17/32	.53125	59.82	154.57
9/16	.5625	66.52	156.61
19/32	.59375	74.63	162.94
5/8	.6250	79.89	166.39
21/32	.65625	89.03	176.08
11/16	.6875	95.58	198.31
23/32	.71875	103.81	210.63
3/4	.7500	112.40	273.05
7/8	.8750	150.69	263.77
1	1.0000	192.82	305.93

24 INCH HARDENED & GROUND TOLERANCE $\pm .001$

Fractional Size	Decimal Equivalent	Hardened Ground
17/32	.5312	97.00
9/16	.5625	111.74
5/8	.6250	116.50
11/16	.6875	140.73
23/32	.7188	148.50
3/4	.7500	156.48
13/16	.8125	176.99
7/8	.8750	182.00
1	1.0000	208.00
1-1/16	1.0620	237.70
1-1/8	1.1250	268.09
1-3/16	1.1870	291.48
1-1/4	1.2500	310.15
1-5/16	1.3125	334.18
1-3/8	1.3750	351.12
1-7/16	1.4375	357.96
1-1/2	1.5000	392.95

Additional sizes and tolerances available.

M42 HIGH SPEED STEEL HARDENED & GROUND BLANKS

36 INCH HSS LENGTHS TOLERANCE $\pm .001$

- **HARDENED**
- **TEMPERED**
- **PRECISION GROUND....**

Hardness: Rockwell C 65-67
DIAM.: TOLERANCE: $\pm .001$

24 INCH HARDENED & GROUND TOLERANCE $\pm .001$

Fractional Size	Decimal Equivalent	Price Each
9/16	.5625	131.02
5/8	.6250	154.03
11/16	.6875	158.06
3/4	.7500	153.24
13/16	.8125	181.63
7/8	.8750	208.54
1	1.0000	227.93
1-1/16	1.0620	340.98
1-1/8	1.1250	375.77
1-3/16	1.1875	388.11
1-1/4	1.2500	411.18
1-5/16	1.3125	437.03
1-3/8	1.3750	461.11
1-7/16	1.4375	516.99
1-1/2	1.5000	540.75

Fractional Size	Decimal Equivalent	Price Each
1/16	.0625	38.50
5/64	.078125	41.50
3/32	.09375	41.67
7/64	.109375	45.71
1/8	.1250	47.88
9/64	.140625	48.16
5/32	.15625	48.45
11/64	.171875	50.76
3/16	.1875	51.12
13/64	.203125	53.21
7/32	.21875	53.65
15/64	.234375	55.85
1/4	.2500	56.33
17/64	.265625	64.45
9/32	.28125	65.00
19/64	.296875	68.09
5/16	.3125	68.72
21/64	.328125	77.86
11/32	.343875	78.55
23/64	.359375	86.79
3/8	.3750	87.52
25/64	.390625	96.23
13/32	.40625	97.04
27/64	.421875	103.00
7/16	.4375	103.86
29/64	.453125	108.96
15/32	.46875	109.88
31/64	.484375	117.05
1/2	.5000	118.03

METRIC BLANKS

.35 mm - 4.70 mm DIAMETER

M2 HIGH SPEED STEEL - ROCKWELL "C" 62-64

M42 HIGH SPEED STEEL - ROCKWELL "C" 65-67

Diameter mm	Length Overall mm	M2 Net Price Each	M42 Net Price Each
.35	38	3.30	4.70
.40	38	3.30	4.70
.45	38	3.30	4.70
.50	38	3.30	4.70
.55	38	2.70	3.80
.60	38	2.70	3.80
.65	38	2.70	3.80
.70	38	2.30	3.26
.75	38	2.30	3.26
.80	38	2.06	2.89
.85	38	2.06	2.89
.90	38	2.06	2.89
.95	38	1.90	2.62
1.00	38	1.90	2.62
1.05	41	1.74	2.49
1.10	44	1.74	2.49
1.15	44	1.74	2.49
1.20	48	1.74	2.49
1.25	48	1.74	2.49
1.30	48	1.74	2.49
1.35	48	1.67	2.41
1.40	48	1.67	2.41
1.45	48	1.67	2.41
1.50	48	1.67	2.41
1.55	48	1.67	2.41
1.60	48	1.67	2.41
1.65	51	1.67	2.41
1.70	51	1.67	2.41
1.75	51	1.52	2.40
1.80	51	1.52	2.40
1.85	51	1.52	2.40
1.90	51	1.52	2.40
1.95	51	1.52	2.40
2.00	51	1.52	2.50
2.05	57	1.52	2.50

Diameter mm	Length Overall mm	M2 Net Price Each	M42 Net Price Each
2.10	57	1.52	2.50
2.15	57	1.52	2.50
2.20	57	1.52	2.50
2.25	57	1.52	2.50
2.30	57	1.52	2.50
2.35	57	1.52	2.50
2.40	57	1.57	2.60
2.45	64	1.57	2.60
2.50	64	1.57	2.60
2.60	64	1.57	2.60
2.70	64	1.57	2.60
2.75	70	1.57	2.62
2.80	70	1.57	2.62
2.90	70	1.57	2.62
3.00	70	1.62	2.67
3.10	70	1.62	2.67
3.20	70	1.65	2.72
3.25	70	1.65	2.72
3.30	76	1.65	2.72
3.40	76	1.65	2.72
3.50	76	1.65	2.73
3.60	76	1.65	2.73
3.70	76	1.65	2.73
3.75	76	1.76	2.93
3.80	76	1.76	2.93
3.90	76	1.76	2.93
4.00	83	1.76	2.93
4.10	83	1.76	2.93
4.20	83	1.76	2.93
4.25	83	1.79	3.04
4.30	83	1.79	3.04
4.40	86	1.79	3.05
4.50	86	1.79	3.05
4.60	89	2.07	3.49
4.70	89	2.07	3.49

CHOICE OF TOLERANCE $+0.0051\text{mm}$ -0.0000mm **OR** $+0.0000\text{mm}$ -0.0051mm **OR** $+0.0025\text{mm}$ -0.0025mm

METRIC BLANKS AVAILABLE .13 mm - 89 mm DIAMETER
LENGTHS UP TO 1981 mm TO SUIT YOUR REQUIREMENTS

METRIC BLANKS

4.75 mm - 13.0 mm DIAMETER
M2 HIGH SPEED STEEL - ROCKWELL "C" 62-64
M42 HIGH SPEED STEEL - ROCKWELL "C" 65-67

Diameter mm	Length Overall mm	M2 Net Price Each	M42 Net Price Each
4.75	89	2.07	3.49
4.80	89	2.10	3.57
4.90	92	2.41	4.08
5.00	92	2.41	4.08
5.10	92	2.41	4.08
5.20	95	2.41	4.08
5.25	95	2.67	4.50
5.30	95	2.67	4.50
5.40	95	2.67	4.50
5.50	95	2.67	4.50
5.60	98	2.67	4.50
5.70	98	2.67	4.50
5.75	98	2.67	4.50
5.80	98	2.97	4.97
5.90	98	2.97	4.97
6.00	102	2.97	4.97
6.10	102	2.97	4.97
6.20	102	3.13	5.26
6.25	102	3.13	5.26
6.30	102	3.13	5.26
6.40	105	3.55	6.08
6.50	105	3.55	6.08
6.60	105	3.55	5.43
6.70	105	3.55	6.08
6.75	105	3.55	6.08
6.80	105	3.82	6.53
6.90	105	3.82	6.53
7.00	108	3.82	6.53
7.10	108	3.82	6.53
7.20	108	3.82	6.57
7.25	108	3.82	6.57
7.30	108	3.82	6.57
7.40	111	4.09	7.03
7.50	111	4.09	7.03
7.60	111	4.09	7.03

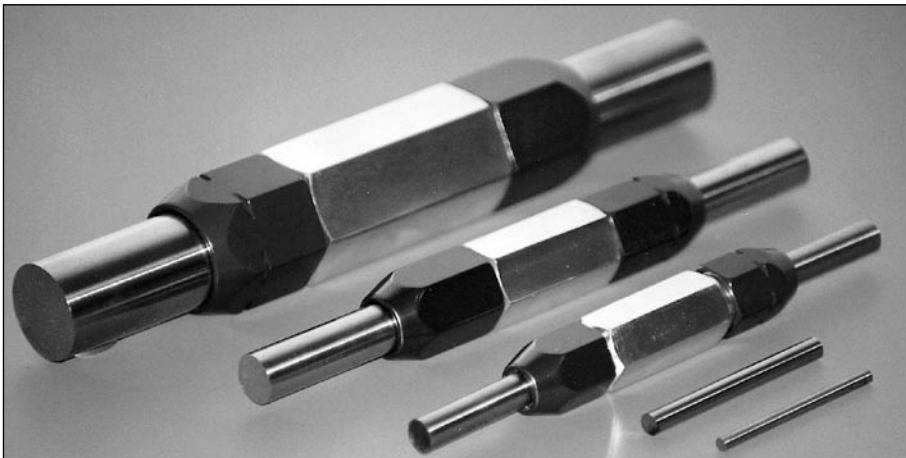
Diameter mm	Length Overall mm	M2 Net Price Each	M42 Net Price Each
7.70	114	4.52	7.77
7.75	114	4.52	7.77
7.80	114	4.52	7.77
7.90	114	4.52	7.77
8.00	114	4.52	7.77
8.10	117	4.87	8.39
8.20	117	4.87	8.39
8.25	117	4.87	8.39
8.30	117	4.87	8.39
8.40	121	4.87	8.39
8.50	121	5.38	9.26
8.60	121	5.38	9.26
8.70	121	5.82	10.09
8.75	124	5.82	10.09
8.80	124	5.82	10.09
8.90	124	5.82	10.09
9.00	124	5.82	10.09
9.10	124	5.82	10.09
9.20	127	6.28	10.88
9.25	127	6.28	10.88
9.30	127	6.28	10.88
9.40	127	6.28	10.88
9.50	127	6.28	10.88
9.60	130	6.83	11.86
9.70	130	6.83	11.86
9.75	130	6.83	11.86
9.80	130	6.83	11.86
9.90	130	6.83	11.86
10.00	130	6.83	11.86
10.50	133	7.54	13.07
11.00	140	8.67	15.02
11.50	142	9.56	16.04
12.00	149	10.07	16.77
12.50	152	12.14	18.60
13.00	152	14.00	23.50

CHOICE OF TOLERANCE $+0.0051\text{mm}$ -0.0000mm **OR** $+0.0000\text{mm}$ -0.0051mm **OR** $+0.0025\text{mm}$ -0.0025mm

METRIC BLANKS AVAILABLE .13 mm - 89 mm DIAMETER
LENGTHS UP TO 1981 mm TO SUIT YOUR REQUIREMENTS

GAGE MEMBERS

ALL GAGE MEMBERS ARE MADE OF M2 HIGH SPEED STEEL
HARDNESS ROCKWELL "C" 62-64



**HSS GAGE MEMBER
DISCOUNTS
ASSORTED SIZES**

25 pieces - 5%
50 pieces - 10%
100 pieces - 25%

**YOUR CHOICE OF
THREE TOLERANCES**

+ .0002 + .0000 + .0001
- .0000 OR - .0002 OR - .0001

2" LONG HSS GAGE MEMBER PRICES

.0100 - .0200\$4.06	.3751 - .4375\$6.81	.9376 - 1.000 16.30
.0201 - .03123.85	.4376 - .5000 6.95	1.0001 - 1.0625 20.38
.0313 - .06253.67	.5001 - .5625 8.24	1.0626 - 1.1250 22.70
.0626 - .09383.67	.5626 - .6250 8.81	1.1251 - 1.1875 24.57
.0939 - .1250 4.00	.6251 - .6875 9.83	1.1876 - 1.2500 26.89
.1251 - .1875 5.19	.6876 - .7500 10.55	1.2501 - 1.3125 28.64
.1876 - .2500 5.64	.7501 - .8125 11.78	1.3126 - 1.3750 31.23
.2501 - .3125 6.09	.8126 - .8750 12.59	1.3751 - 1.4375 34.74
.3126 - .3750 6.36	.8751 - .9375 14.99	1.4376 - 1.5010 38.53

50.8 MM LONG METRIC HSS GAGE MEMBER PRICES

.2540 - .5080\$4.06	9.5275 - 11.1125 \$6.81	23.8150 - 25.4000 16.30
.5105 - .7925 3.85	11.1150 - 12.7000 6.95	25.4025 - 26.9875 20.38
.7950 - 1.5875 3.67	12.7025 - 14.2875 8.24	26.9900 - 28.5750 22.70
1.5900 - 2.3825 3.67	14.2900 - 15.8750 8.81	28.5775 - 30.1625 24.57
2.3850 - 3.1750 4.00	15.8775 - 17.4625 9.83	30.1650 - 31.7500 26.89
3.1775 - 4.7625 5.19	17.4650 - 19.0500 10.55	31.7525 - 33.3375 28.64
4.7650 - 6.3500 5.64	19.0525 - 20.6375 11.78	33.3400 - 34.9250 31.23
6.3525 - 7.9375 6.09	20.6400 - 22.2250 12.59	34.9275 - 36.5125 34.74
7.9400 - 9.5250 6.36	22.2275 - 23.8125 14.99	36.5150 - 38.1254 38.53

**OTHER SIZES AND MATERIALS AVAILABLE
CALL FOR PRICING!**

HANDLES FOR ABOVE MEMBERS UP TO 1" CAN BE SUPPLIED

411 Business Park Lane • Allentown, PA 18109 • 610-434-5740 • FAX 610-434-7301

Visit us on the web at www.cencogrinding.com or www.drillblanks.com

Comparative Properties of High Speed Steels

AISI	Wear Resistance	Toughness	Hot Hardness	Maximum Working Hardness	Machinability	Grindability
M1				65		
M2				65		
M3				65		
M4				66		 Stark M-4PM
M7				65		
M42				68		
T15				67		 Dynavan T-15PM

Comparative Properties of Cold Work Steels

AISI	Wear Resistance	Toughness	Size Stability in Heat Treat	Maximum Working Hardness	Machinability	Grindability
O1				64		
A1				62		
D2				63		
S7				58		

(High Speed Steels)

CHEMICAL ANALYSIS AND TREATMENT

AISI TYPE	CHEMICAL								TYPICAL HARDNESS LEVEL RC
	C	Si	Mn	W	Cr	V	Mo	Co	
M2	.85	.30	.30	6.30	4.15	1.85	5.00		62-65
M4	1.37	.25	.25	5.50	4.25	4.00	4.50		63-66
T15	1.57	.25	.25	12.25	4.00	5.00		5.00	64-67
M42	1.08	.50	.25	1.50	3.85	1.20	9.50	8.00	66-69

(Cold Work Steels)

CHEMICAL ANALYSIS AND TREATMENT

AISI TYPE	CHEMICAL									TYPICAL HARDNESS LEVEL RC
	C	Si	Mn	W	Cr	V	Mo	Co	Ni	
O1	.94	.30	1.20	.50	.50					57-62
S7	.50	.25	.75		3.25		1.40			50-58
A2	1.00	.30	.75		5.00	.25	1.00			57-62
D2	1.50	.30	.30		12.00	.90	.75			58-62

What makes **CENCO** *better than the Competition?*
GRINDING CORP.

- 1.) Excellent quality & workmanship.
- 2.) 100% American made.
- 3.) American made raw H.S.S. bars.
- 4.) All blanks are abrasively cut to length.
- 5.) HSS blanks are heat treated to over 2200° in salt baths.
- 6.) Blanks are triple tempered for the longest possible life.
- 7.) All heat treated blanks are straightened & stress relieved.
- 8.) All blanks have an 8 Micro finish or better.
- 9.) Standard blanks are shipped within 24 hrs. and most non-standard orders within 48 hrs.
- 10.) The widest assortment of materials available such as high speed steels, S.S., tool steels, drill rods and many other types of material.

Cenco Grinding has been in business for over 40 years and is one of the leading drill blank manufacturers in the United States. Blanks produced by Cenco Grinding are made from the finest materials available and are second to none.

Tolerances of .0001 are held everyday and finishes of 8 micro are standard.

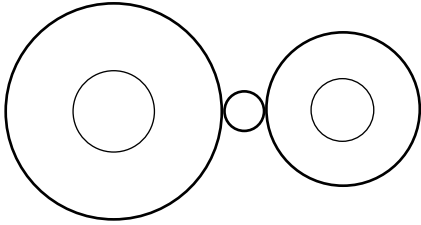
Sizes range from .004 up to 3.500 and lengths to 78” for fully hardened blanks.



TERMS AND CONDITIONS

- Minimal Order:** There is NEVER a minimal order or charge at Cenco.
- Product:** Prices and charges in this catalog are effective upon publication and are subject to change without notice. All prices are quoted in US dollars. We reserve the right to pass on any surcharges or impose purchase restrictions or limits at any time.
- Shipping:** All shipments are made by U.P.S. or Federal Express unless we are advised otherwise. All orders are subject to applicable shipping, freight, taxes and processing fees.
- Quotations:** Our quotes are valid for 30 days. We reserve the right upon receipt of an order to make corrections on errors in quotation.
- Cancellations:** Charges will be made for material and labor on work in progress at time of cancellation.
- Returns:** Only Standards can be returned for credit or replacement. Except as otherwise provided, no material will be accepted for return after 15 days from date of shipment. To return merchandise, you must call Cenco at 1-610-434-5740 for a Return Authorization number. No returns will be accepted without a Return Authorization number. Include with your return a copy of your invoice or packing slip. All merchandise must be returned in its original packaging and condition. Any claims for discrepancies in shipment must be made within 7 days of receipt of merchandise. C.O.D. returns will not be accepted. Shipping charges for returned items must be prepaid. Please insure any returns for its value. No returns on any Specials (meaning different materials, lengths, diameters or tolerances from standard), altered or etched items. A re-stocking charge of 25% may be applied.
- Payment:** In addition to open accounts, we also accept cash, C.O.D. and most major credit cards. There is a \$45.00 fee on all returned checks.
- Terms:** Approved open accounts are Net 15 days or a pre-agreement term. Any overdue balance is subject to a finance charge of 22% annually. Other terms and conditions do apply. Please ask for a copy.
- Warranty:** Due to the variety of applications and conditions involved, Cenco does not guarantee tool performance but, only to the conformance of physical specifications and workmanship.
- It is agreed by the buyer in purchasing the material sold hereunder, that the liability of Seller shall be limited solely to the repair or replacement of the material sold hereunder. The Seller shall otherwise incur no liability for any direct, indirect, special or consequential damages or expenses.

WE ALSO DO CENTERLESS, O.D. & I.D. GRINDING



CAPACITIES OF MACHINES

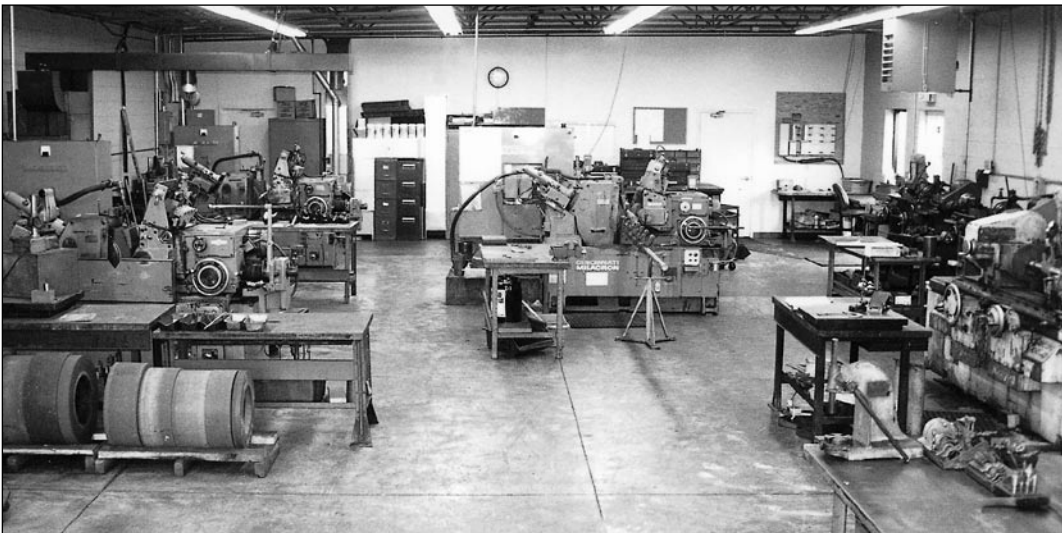
CENTERLESS: .005" to 3.500" dia. x 15 ft. long
O.D.: .125" to 14" dia. x 50" long
I.D.: .500" to 8" dia. x 8" long

CENTERLESS GRINDING IS A VERY EFFECTIVE WAY OF SAVING TIME AND MONEY ON FINISHING PARTS. TOLERANCE OF .0001 OR LESS CAN BE HELD ON DIAMETERS RANGING FROM .005" TO 3.500" AND LENGTHS FROM 1/4" TO 15 FT. LONG.

THERE ARE TWO TYPES OF CENTERLESS GRINDING, THRU-FEED & INFEEED. WHEN THRU-FEED GRINDING, THE WORK GOES IN ONE SIDE OF THE MACHINE AND COMES OUT THE OTHER. THE INFEEED METHOD IS USED WHEN WORK HAS A SHOULDER, HEAD OR SOME PORTION LARGER THAN THE GROUND DIAMETER.

CYLINDRICAL OR O.D. GRINDING ARE DONE ON SHAFTS THAT HAVE BEEN CENTER DRILLED AT EACH END, ENABLING THE SHAFT TO BE HELD BETWEEN TWO CENTERS AND GROUND. STRAIGHT OR STEPPED SHAFTS CAN BE GROUND CONCENTRIC TO THE CENTER LINE OF THE PART.

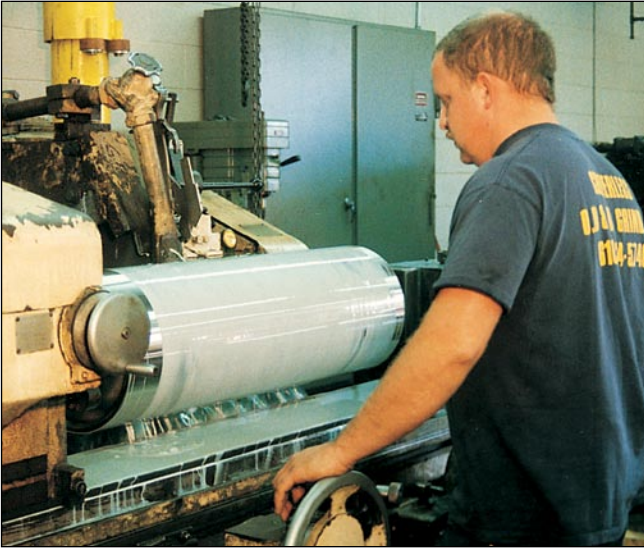
I.D. GRINDING IS PERFORMED IN HOLES OF ROUND PARTS THAT HAVE TOO MUCH MATERIAL LEFT ON FOR LAPPING. PARTS ARE CHUCKED, INDICATED AND THEN GROUND TO SIZE.



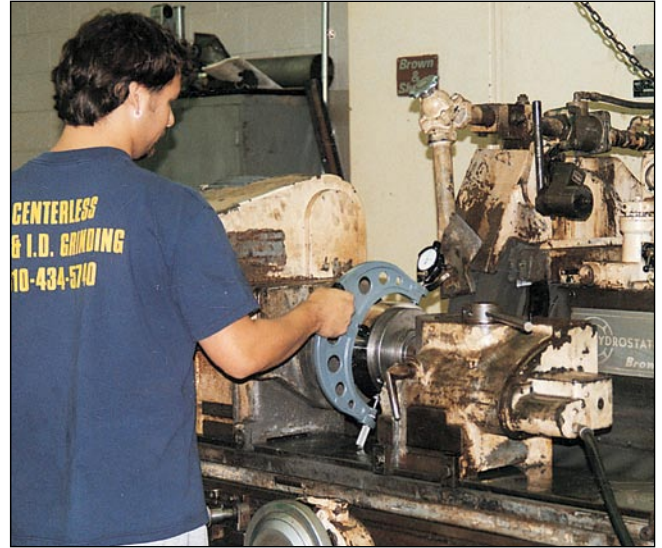
IN OUR 3600 SQ. FT. FACILITY WE ARE ABLE TO GRIND AS LITTLE AS ONE PART AND AS MANY AS A MILLION.

WE HAVE:
5 CENTERLESS
3 CYLINDRICAL
1 I.D. GRINDER
1 SURFACE GRINDER
AND 1 ABRASIVE
CUT-OFF MACHINE.

WE CAN HANDLE ALMOST ANY DIAMETER, LENGTH OR TOLERANCE



MIKE'S O.D. GRINDING A 12" DIAMETER ROLLER
MATERIAL IS 304 SS X 46"



STEVE IS CHECKING FINISH SIZE ON SOME
HIGH SPEED STEEL SLITTING KNIVES.



O.D. GRINDING A
CAST IRON SHAFT
WITH AN 11"
DIAMETER HUB
ON ONE END.

THIS MACHINE CAN
HANDLE UP TO A 14"
DIAMETER SHAFT
50" LONG.

CENTERLESS
GRINDING A 2.500"
DIAMETER BAR.

FINISH SIZE:
2.495 +/- .0002 X 72"
WITH A 10 RMS
FINISH.

