



Skoda Heavy Duty Live Centres - CSN 243324/CSN 243324M

Features

- The rotating spindle is extended right through the tapered shank
- Two specially designed adjustable needle-roller bearings carry all radial loads
- A heavy duty ball thrust bearing takes all axial thrust
- Complete protection of bearings from the ingress of coolant, dirt or swarf is provided by the built-in oil-seal, which also prevents loss of lubricant



| Morse Taper | Maximum RPM | Weight of Work Piece | Code No. | Reg. Price \$ | SALE \$ |
|-------------|-------------|----------------------|----------|---------------|---------------|
| 1 | 6,000 | 200 lb | 310105 | 185.19 | 114.82 |
| 2 | 6,000 | 750 lb | 310110 | 278.33 | 172.56 |
| 3 | 5,000 | 880 lb | 310115 | 331.54 | 205.55 |
| 4 | 4,000 | 2860 lb | 310120 | 421.56 | 261.37 |
| 5 | 3,500 | 4400 lb | 310125 | 608.39 | 377.20 |
| 6 | 2,500 | 8800 lb | 310130 | 1,003.55 | 622.20 |

Fast Drill Re-Sharpener



Starting At

\$1,312⁰⁶

See page 3

Premium HSS Jobber Length Drills



Starting At

\$1⁸⁶

See page 2

GS-ADX-160G Precision Milling Machine Vise



NEW AND IMPROVED

\$716²²

See page 9

Outside Micrometers Individual & Sets

ASIMETO



Starting At **\$35⁰¹**

See page 6

Warehouse Overstock

Wide Range Of Products Marked Down To Move



See pages 10-11

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Square Tool Bits



| Square Size | Overall Length (in.) | HSS Code No. | Reg. Price \$ | SALE \$ | 5% Cobalt Code No. | Reg. Price \$ | SALE \$ |
|-------------|----------------------|--------------|---------------|--------------|--------------------|---------------|--------------|
| 1/8 | 2-1/2 | 159002 | 4.24 | 3.39 | 160103 | 7.14 | 5.71 |
| 3/16 | 2-1/2 | 159004 | 10.76 | 8.61 | 160105 | 12.60 | 10.08 |
| 1/4 | 2-1/2 | 159006 | 11.39 | 9.11 | 160110 | 14.10 | 11.28 |
| 5/16 | 2-1/2 | 159008 | 12.21 | 9.77 | 160115 | 16.50 | 13.20 |
| 5/16 | 3 | 159010 | 13.46 | 10.77 | 160117 | 17.80 | 14.24 |
| 3/8 | 3 | 159012 | 17.28 | 13.82 | 160120 | 19.30 | 15.44 |
| 7/16 | 4 | 159014 | 13.66 | 10.93 | - | - | - |
| 1/4 | 4 | 159016 | 15.11 | 12.09 | 160127 | 18.94 | 15.15 |
| 1/2 | 4 | 159018 | 27.32 | 21.86 | 160130 | 33.70 | 26.96 |
| 5/8 | 5 | 159020 | 30.02 | 24.02 | 160135 | 62.20 | 49.76 |
| 3/4 | 5 | 159022 | 58.58 | 46.86 | 160140 | 90.70 | 72.56 |
| 1/4 | 6 | 159024 | 22.77 | 18.22 | - | - | - |
| 5/16 | 6 | 159026 | 23.60 | 18.88 | - | - | - |
| 3/8 | 6 | 159028 | 31.57 | 25.26 | - | - | - |
| 1/2 | 6 | 159030 | 40.47 | 32.38 | - | - | - |

Premium HSS Jobber Length Drills

These Premium HSS drills can be used in a variety of applications. Their surface treatment increases abrasion resistance, which reduces the amount of chip welding and improves chip flow.



| Size | Decimal Equivalent | Flute Length | Overall Length | Code No. | Reg. Price \$ | SALE \$ |
|--------|--------------------|--------------|----------------|----------|---------------|--------------|
| 1/8" | 0.1250" | 1-5/8" | 2-3/4" | 128005 | 2.48 | 1.86 |
| 3/16" | 0.1875" | 2-5/16" | 3-1/2" | 128009 | 2.90 | 2.18 |
| 13/64" | 0.2031" | 2-7/16" | 3-5/8" | 128010 | 3.21 | 2.41 |
| 1/4" | 0.2500" | 2-3/4" | 4" | 128013 | 4.24 | 3.18 |
| 17/64" | 0.2656" | 2-7/8" | 4-1/8" | 128014 | 5.38 | 4.04 |
| 3/8" | 0.3750" | 3-5/8" | 5" | 128021 | 9.21 | 6.91 |
| 1/2" | 0.5000" | 4-1/2" | 6" | 128029 | 15.94 | 11.96 |

29pc Set 1/16 - 1/2" x 64ths Fractional Set 128119 217.20 **162.90**

Full size range on promotion. See page B11 of our Catalogue

Noga The Set - SP7700

The most popular deburring tools you need to carry for any deburring application. Packed in one handy box.



Contains:

Countersink NG3100, Mini Scraper NG3700, Noga V Cut NG3200, Adjustable Scraper SC8000, Keyway-Burr NG3300, Internal Scraper NG3710, Super Burr NG3003



| Model | Code No. | Reg. Price \$ | SALE \$ |
|--------|----------|---------------|---------------|
| SP7700 | 165482 | 223.25 | 178.60 |

NC/CNC Spotting Drills HSS

These drills are used for perfect alignment of the follow-on tool.

- Standard length
- 90° point
- Right hand cut
- 120° point



| Size (in.) | Decimal Equiv. (in.) | Overall Length (in.) | 90° Flute Length | HSS Code No. | Reg. Price \$ | SALE Price \$ | 120° Flute Length | HSS Code No. | Reg. Price \$ | SALE \$ |
|------------|----------------------|----------------------|------------------|--------------|---------------|---------------|-------------------|--------------|---------------|--------------|
| 1/4 | 0.2500 | 2-1/2 | 3/4 | 116346 | 33.74 | 26.99 | 21/32 | 116352 | 34.16 | 27.33 |
| 3/8 | 0.3750 | 3-1/8 | 1-1/8 | 116347 | 36.23 | 28.98 | 1 | 116353 | 36.85 | 29.48 |
| 1/2 | 0.5000 | 3-3/4 | 1-3/8 | 116348 | 46.47 | 37.18 | 1-3/16 | 116354 | 47.09 | 37.67 |
| 5/8 | 0.6250 | 4-3/8 | 1-5/8 | 116349 | 61.38 | 49.10 | 1-15/32 | 116355 | 60.86 | 48.69 |
| 3/4 | 0.7500 | 5 | 1-7/8 | 116350 | 77.42 | 61.94 | - | - | - | - |

Taper Length Drills - Fractional Sizes

Taper length drills are designed for general purpose drilling where longer length is required.



| Size (in.) | Decimal Equiv. (in.) | Flute Length | Overall Length | HSS Code No. | Reg. Price \$ | SALE \$ |
|------------|----------------------|--------------|----------------|--------------|---------------|-------------|
| 1/64 | 0.0156 | 5/16 | 1-1/2 | 116792 | 9.63 | 7.70 |
| 1/32 | 0.0312 | 3/4 | 2 | 116793 | 7.66 | 6.13 |
| 3/64 | 0.0469 | 1-1/8 | 2-1/4 | 116794 | 3.62 | 2.90 |
| 1/16 | 0.0625 | 1-3/4 | 3 | 116795 | 3.83 | 3.06 |
| 5/64 | 0.0781 | 2 | 3-3/4 | 116796 | 5.28 | 4.22 |
| 3/32 | 0.0938 | 2-1/4 | 4-1/4 | 116797 | 5.38 | 4.30 |
| 7/64 | 0.1094 | 2-1/2 | 4-5/8 | 116798 | 6.62 | 5.30 |
| 1/8 | 0.1250 | 2-3/4 | 5-1/8 | 116799 | 6.73 | 5.38 |
| 9/64 | 0.1406 | 3 | 5-3/8 | 116800 | 9.00 | 7.20 |
| 5/32 | 0.1562 | 3 | 5-3/8 | 116801 | 8.18 | 6.54 |
| 11/64 | 0.1719 | 3-3/8 | 5-3/4 | 116802 | 9.63 | 7.70 |
| 3/16 | 0.1875 | 3-3/8 | 5-3/4 | 116803 | 8.18 | 6.54 |
| 13/64 | 0.2031 | 3-5/8 | 6 | 116804 | 10.97 | 8.78 |
| 7/32 | 0.2188 | 3-5/8 | 6 | 116805 | 11.70 | 9.36 |

Full size range on promotion. See page B26 of our Catalogue

CUTTING TOOLS



2 Flute Regular Length Carbide End Mills



A general purpose carbide end mill with maximum chip clearance added.

For: End Milling Slotting Sinking

On: Variety of Steels, Cast Iron, Non-Ferrous metals, Plastics, Abrasive type materials



| Cutting Dia. | Shank Dia. | Flute Length | Overall Length | Bright Code No. | Reg. Price \$ | SALE \$ | TiAlN Code No. | Reg. Price \$ | SALE \$ |
|--------------|------------|--------------|----------------|-----------------|---------------|---------|----------------|---------------|---------|
| 1/32 | 1/8 | 1/8 | 1-1/2 | 103770 | 12.97 | 10.38 | 102677 | 16.09 | 12.87 |
| 3/64 | 1/8 | 9/64 | 1-1/2 | 103772 | 12.97 | 10.38 | 102799 | 16.09 | 12.87 |
| 1/16 | 1/8 | 3/16 | 1-1/2 | 103848 | 12.03 | 9.62 | 102800 | 15.16 | 12.13 |
| 5/64 | 1/8 | 1/4 | 1-1/2 | 103773 | 12.03 | 9.62 | 102801 | 15.16 | 12.13 |
| 3/32 | 1/8 | 5/16 | 1-1/2 | 103849 | 11.38 | 9.10 | 102802 | 14.50 | 11.60 |
| 7/64 | 1/8 | 3/8 | 1-1/2 | - | - | - | 102803 | 14.50 | 11.60 |
| 1/8 | 1/8 | 1/2 | 1-1/2 | 103850 | 10.51 | 8.41 | 102804 | 13.62 | 10.90 |
| 9/64 | 3/16 | 1/2 | 2 | 103776 | 15.52 | 12.42 | - | - | - |
| 5/32 | 3/16 | 9/16 | 2 | 103851 | 15.52 | 12.42 | 102806 | 18.64 | 14.91 |
| 11/64 | 3/16 | 9/16 | 2 | 103777 | 15.52 | 12.42 | 102807 | 18.64 | 14.91 |
| 3/16 | 3/16 | 5/8 | 2 | 103852 | 14.73 | 11.78 | - | - | - |
| 7/32 | 1/4 | 5/8 | 2-1/2 | 103853 | 19.51 | 15.61 | 102811 | 25.97 | 20.78 |
| 1/4 | 1/4 | 3/4 | 2-1/2 | 103854 | 17.75 | 14.20 | 102810 | 24.20 | 19.36 |
| 9/32 | 5/16 | 3/4 | 2-1/2 | 103855 | 31.14 | 24.91 | 102813 | 40.79 | 32.63 |
| 5/16 | 5/16 | 13/16 | 2-1/2 | 103856 | 24.91 | 19.93 | 102812 | 34.55 | 27.64 |
| 11/32 | 3/8 | 7/8 | 2-1/2 | 103779 | 36.90 | 29.52 | - | - | - |
| 3/8 | 3/8 | 1 | 2-1/2 | 103857 | 31.03 | 24.82 | 102814 | 40.65 | 32.52 |
| 13/32 | 7/16 | 1 | 2-3/4 | 103780 | 44.12 | 35.30 | - | - | - |
| 7/16 | 7/16 | 1 | 2-3/4 | 103858 | 37.85 | 30.28 | 102816 | 48.83 | 39.06 |
| 1/2 | 1/2 | 1 | 3 | 103859 | 49.69 | 39.75 | 102818 | 60.65 | 48.52 |
| 9/16 | 9/16 | 1-1/8 | 3-1/2 | 103886 | 84.88 | 67.90 | 102820 | 100.71 | 80.57 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 103887 | 95.81 | 76.65 | 102822 | 111.68 | 89.34 |
| 11/16 | 3/4 | 1-3/8 | 4 | 103888 | 159.57 | 127.66 | 102824 | 178.28 | 142.62 |
| 3/4 | 3/4 | 1-1/2 | 4 | 103889 | 140.48 | 112.38 | 102826 | 159.20 | 127.36 |
| 7/8 | 7/8 | 1-1/2 | 4 | 103890 | 202.18 | 161.74 | 102828 | 229.80 | 183.84 |
| 1 | 1 | 1-1/2 | 4 | 103891 | 210.17 | 168.14 | 102830 | 237.78 | 190.22 |

4 Flute Regular Length Carbide End Mills



The industry standard. Wear resistance and minimal deflection for excellent size control.

For: Slotting, Production Milling, Profiling

On: Variety of Steels



| Cutting Dia. | Shank Dia. | Flute Length | Overall Length | Bright Code No. | Reg. Price \$ | SALE \$ | TiAlN Code No. | Reg. Price \$ | SALE \$ |
|--------------|------------|--------------|----------------|-----------------|---------------|---------|----------------|---------------|---------|
| 1/32 | 1/8 | 1/8 | 1-1/2 | 103781 | 12.97 | 10.38 | 102899 | 16.09 | 12.87 |
| 3/64 | 1/8 | 9/64 | 1-1/2 | 103782 | 12.97 | 10.38 | 102831 | 16.09 | 12.87 |
| 1/16 | 1/8 | 3/16 | 1-1/2 | 103870 | 12.03 | 9.62 | 102832 | 15.16 | 12.13 |
| 5/64 | 1/8 | 1/4 | 1-1/2 | 103783 | 12.03 | 9.62 | 102833 | 15.16 | 12.13 |
| 3/32 | 1/8 | 5/16 | 1-1/2 | 103871 | 11.38 | 9.10 | 102834 | 14.50 | 11.60 |
| 7/64 | 1/8 | 3/8 | 1-1/2 | 103784 | 11.38 | 9.10 | 102835 | 14.50 | 11.60 |
| 1/8 | 1/8 | 1/2 | 1-1/2 | 103860 | 10.51 | 8.41 | 102836 | 13.62 | 10.90 |
| 9/64 | 3/16 | 1/2 | 2 | 103785 | 15.52 | 12.42 | 102837 | 18.64 | 14.91 |
| 5/32 | 3/16 | 9/16 | 2 | 103861 | 15.52 | 12.42 | 102839 | 18.64 | 14.91 |
| 11/64 | 3/16 | 9/16 | 2 | 103786 | 15.52 | 12.42 | 102841 | 18.64 | 14.91 |
| 3/16 | 3/16 | 5/8 | 2 | 103862 | 14.73 | 11.78 | 102838 | 17.84 | 14.27 |
| 13/64 | 1/4 | 5/8 | 2-1/2 | 103787 | 19.51 | 15.61 | 102843 | 25.97 | 20.78 |
| 7/32 | 1/4 | 5/8 | 2-1/2 | 103863 | 19.51 | 15.61 | 102845 | 25.97 | 20.78 |
| 1/4 | 1/4 | 3/4 | 2-1/2 | 103864 | 17.75 | 14.20 | 102840 | 24.20 | 19.36 |
| 9/32 | 5/16 | 3/4 | 2-1/2 | 103865 | 31.14 | 24.91 | 102847 | 40.79 | 32.63 |
| 5/16 | 5/16 | 13/16 | 2-1/2 | 103866 | 24.91 | 19.93 | 102842 | 34.55 | 27.64 |
| 11/32 | 3/8 | 7/8 | 2-1/2 | 103789 | 36.90 | 29.52 | 102849 | 46.53 | 37.22 |
| 3/8 | 3/8 | 1 | 2-1/2 | 103867 | 31.03 | 24.82 | 102844 | 40.65 | 32.52 |
| 13/32 | 7/16 | 1 | 2-3/4 | 103790 | 44.12 | 35.30 | 102851 | 55.08 | 44.06 |
| 7/16 | 7/16 | 1 | 2-3/4 | 103868 | 37.85 | 30.28 | 102846 | 48.83 | 39.06 |
| 1/2 | 1/2 | 1 | 3 | 103869 | 49.69 | 39.75 | 102848 | 60.65 | 48.52 |
| 9/16 | 9/16 | 1-1/8 | 3-1/2 | 103933 | 84.88 | 67.90 | 102850 | 100.71 | 80.57 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 103934 | 95.81 | 76.65 | 102852 | 111.68 | 89.34 |
| 11/16 | 3/4 | 1-3/8 | 4 | 103935 | 159.57 | 127.66 | 102854 | 178.28 | 142.62 |
| 3/4 | 3/4 | 1-1/2 | 4 | 103936 | 140.48 | 112.38 | 102856 | 159.20 | 127.36 |
| 7/8 | 7/8 | 1-1/2 | 4 | 103937 | 202.18 | 161.74 | - | - | - |
| 1 | 1 | 1-1/2 | 4 | 103938 | 210.17 | 168.14 | 102860 | 237.78 | 190.22 |

Fast Drill Re-Sharpener

Model DM213

Drill Diameter: Ø2mm - Ø13mm
 Point Angle: 85° ~ 140°
 R.P.M: 6000 rpm
 Weight: 10 kg

Standard Accessories

- ER20 Collets, ranged from 2.5mm-13mm (12pcs).
- CBN Diamond wheel #200x1pc (for High Speed drill).
- 4mm and 5mm hexagon wrench x 1 pc each.



Code No.: 326130
 Reg. Price: \$1,543.60

\$1,312.06



Model DM1226

Drill Diameter: Ø8mm - Ø30mm
 Point Angle: 85° ~ 140°
 R.P.M: 4000 rpm
 Weight: 25 kg

Standard Accessories

- ER 40 Collets, ranged from 12mm-26mm (15pcs).
 Optional Collets 8~11mm, 27~30mm
- CBN Diamond wheel #200x1pc (for High Speed drill).
- 4mm and 6mm hexagon wrench x 1 pc each.



Code No.: 326134
 Reg. Price: \$3,533.80

\$3,003.73



CUTTING TOOLS

Solid Carbide Double Cut Burrs



CYLINDRICAL-SQUARE END-END NOT CUT

| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SA-1 | 1/4 | 5/8 | 1/4 | 2 | 170014 | 16.25 | 13.81 |
| SA-3 | 3/8 | 3/4 | 1/4 | 2-1/2 | 170022 | 21.74 | 18.48 |
| SA-5 | 1/2 | 1 | 1/4 | 2-3/4 | 170026 | 34.26 | 29.12 |



CYLINDRICAL- END CUT

| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SB-12 | 1/8 | 5/8 | 1/4 | 2 | 170035 | 18.84 | 16.01 |
| SB-1 | 1/4 | 5/8 | 1/4 | 2 | 170037 | 17.39 | 14.78 |
| SB-5 | 1/2 | 1 | 1/4 | 2-3/4 | 170041 | 42.75 | 36.34 |
| SB-6 | 5/8 | 1 | 1/4 | 2-3/4 | 170045 | 47.30 | 40.21 |



OVAL SHAPE

| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SE-41 | 1/8 | 7/32 | 1/8 | 1-1/2 | 170160 | 8.59 | 7.30 |
| SE-3 | 3/8 | 5/8 | 1/4 | 2-3/8 | 170168 | 26.81 | 22.79 |
| SE-6 | 5/8 | 1 | 1/4 | 2-3/4 | 170172 | 53.41 | 45.40 |



CYLINDRICAL- RADIUS END

| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SC-42 | 1/8 | 9/16 | 1/8 | 1-1/2 | 170052 | 8.59 | 7.30 |
| SC-1 | 1/4 | 5/8 | 1/4 | 2 | 170060 | 18.22 | 15.49 |
| SC-3 | 3/8 | 3/4 | 1/4 | 2-1/2 | 170066 | 24.12 | 20.50 |
| SC-4 | 7/16 | 1 | 1/4 | 2-3/4 | 170068 | 35.09 | 29.83 |
| SC-5 | 1/2 | 1 | 1/4 | 2-3/4 | 170070 | 37.88 | 32.20 |



TREE-RADIUS END

| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SF-1 | 1/4 | 5/8 | 1/4 | 2 | 170108 | 19.67 | 16.72 |
| SF-51 | 1/4 | 1/2 | 1/8 | 2 | 170110 | 14.70 | 12.50 |
| SF-3 | 3/8 | 3/4 | 1/4 | 2-1/2 | 170112 | 24.84 | 21.11 |
| SF-5 | 1/2 | 1 | 1/4 | 2-3/4 | 170116 | 35.09 | 29.83 |



BALL SHAPE

| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SD-42 | 1/8 | - | 1/8 | 1-1/2 | 170202 | 8.59 | 7.30 |
| SD-14 | 3/16 | - | 1/4 | 2 | 170206 | 20.70 | 17.60 |
| SD-51 | 1/4 | - | 1/8 | 2 | 170212 | 14.70 | 12.50 |
| SD-5 | 1/2 | - | 1/4 | 2-1/4 | 170218 | 27.74 | 23.58 |
| SD-6 | 5/8 | - | 1/4 | 2-3/8 | 170220 | 34.57 | 29.38 |



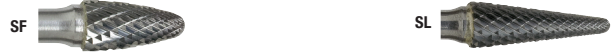
8PC SOLID CARBIDE DOUBLE CUT BURR SETS

- Solid carbide
- Double cut
- Comes in fitted case



| Shank Contents | Shank | Code No. | Reg. Price \$ | SALE \$ |
|---|-------|----------|---------------|---------------|
| SA-51, SB-51, SC-51, SD-1, SD-52, SF-53, SG-51, SL-51 | 1/8" | 172984 | 156.08 | 109.26 |
| SA-3, SA-5, SC-1, SC-3, SD-3, SD-5 SF-3, SF-5 | 1/4" | 172986 | 287.11 | 200.98 |

6" O.A.L. CARBIDE BURRS



| E.D.P. | Cutter Dia. (in.) | Length of Cut (in.) | Shank Dia. (in.) | Overall Length (in.) | Double Cut Code No. | Reg. Price \$ | SALE \$ |
|--------|-------------------|---------------------|------------------|----------------------|---------------------|---------------|--------------|
| SF-5L6 | 1/2 | 1 | 1/4 | 6" | 170379 | 63.34 | 53.84 |
| SL-3L6 | 3/8 | 1-1/16 | 1/4 | 6" | 170382 | 54.75 | 46.54 |

90° Cobalt 3 Flute Countersinks



- M35 Cobalt - Bright or TiN coated
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points) virtually eliminates vibration



| Diameter | O.A.L. | Shank Diameter | Bright | | TiN | |
|----------------|--------|----------------|----------|-----------------------|----------|-----------------------|
| | | | Code No. | Reg. Price \$ SALE \$ | Code No. | Reg. Price \$ SALE \$ |
| 1/4" | 45mm | 1/4" | 121899 | 29.30 23.44 | 121857 | 38.40 30.72 |
| 5/16" | 45mm | 1/4" | 121900 | 33.80 27.04 | 121858 | 44.60 35.68 |
| 3/8" | 50mm | 1/4" | 121901 | 38.40 30.72 | - | - |
| 1/2" | 50mm | 1/4" | 121902 | 47.60 38.08 | 121862 | 59.80 47.84 |
| 5/8" | 60mm | 3/8" | 121903 | 55.20 44.16 | 121863 | 70.50 56.40 |
| 3/4" | 60mm | 3/8" | 121904 | 64.40 51.52 | 121864 | 81.20 64.96 |
| 1" | 70mm | 3/8" | 121905 | 78.20 62.56 | 121867 | 96.50 77.20 |
| 7pc Set | | | - | - | 121856 | 439.30 351.44 |

82° Cobalt 3 Flute Countersinks



- M35 Cobalt - Bright
- Wide flutes provide good chip evacuation
- Positive cut
- Constant profile aids regrinding of the tool
- Self-centering of the cutting mill (three bearing points) virtually eliminates vibration

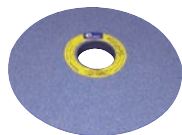
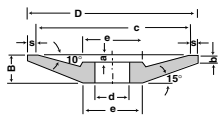


| Diameter | O.A.L. | Shank Diameter | Bright | |
|----------------|--------|----------------|----------|-----------------------|
| | | | Code No. | Reg. Price \$ SALE \$ |
| 5/16" | 45mm | 1/4" | 121876 | 33.80 27.04 |
| 3/8" | 50mm | 1/4" | 121877 | 38.40 30.72 |
| 1/2" | 50mm | 1/4" | 121878 | 47.60 38.08 |
| 5/8" | 60mm | 3/8" | 121879 | 55.20 44.16 |
| 3/4" | 60mm | 3/8" | 121880 | 64.40 51.52 |
| 1" | 70mm | 3/8" | 121881 | 78.20 62.56 |
| 7pc Set | | | 121861 | 345.90 276.72 |

ABRASIVES

SHOP SUPPLIES

Ceramic Shape B Saucer Type Grinding Wheel



| D | B | d | a | b | c | e | s | CSKG60K Code No. | Reg. Price \$ | SALE \$ |
|---|-----|-------|-----|-----|-------|---|------|------------------|---------------|--------------|
| 6 | 5/8 | 1-1/4 | 1/4 | 1/8 | 5-3/8 | 2 | 5/16 | 635095 | 76.80 | 61.44 |

1/4" Die Grinder - TP-9001

Specifications

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



| Horse Power | RPM | Collet Size | Air Pressure (psi) | O.A.L. (in.) | Net Weight (lb) | Code No. | Reg. Price \$ | SALE \$ |
|-------------|--------|-------------|--------------------|--------------|-----------------|----------|---------------|---------------|
| 0.9 | 18,000 | 1/4"(6mm) | 90 | 7-5/16" | 1.56 | 174052 | 217.10 | 151.97 |

5" Extended H.D. Die Grinder - TP-1104

Specifications

- Air Inlet (N.P.T.): 1/4"
- Air Consumption (Loading): 13 cfm
- Exhaust System: Rear
- Aluminum Alloy Housing



| Horse Power | RPM | Collet Size | Air Pressure (psi) | O.A.L. (in.) | Net Weight (lb) | Code No. | Reg. Price \$ | SALE \$ |
|-------------|--------|-------------|--------------------|--------------|-----------------|----------|---------------|---------------|
| 0.3 | 25,000 | 1/4"(6mm) | 90 | 11-1/4" | 1.45 | 174032 | 252.70 | 176.89 |

Air Micro Die Grinder

Contains:

- 1 pc. TP-501-1 Grinder
- 1 pc. 3 mm collet
- 10 pcs. 1/8" (3 mm) grinding stones
- 2 pcs. spanners
- 1 pc. blow case



| Description | Code No. | Reg. Price \$ | SALE \$ |
|----------------------|----------|---------------|---------------|
| 1/8" die grinder kit | 174002 | 234.90 | 164.43 |

Pot Magnets

Unique combination of a strong magnet with nickel chrome plated insulating ring gives these magnets the superior holding power of larger ones

- 1/4"-20 threaded



| Model | Diameter (in.) | Height (in.) | Magnetic Pull (kg) | Code No. | Reg. Price \$ | SALE \$ |
|------------|----------------|--------------|--------------------|----------|---------------|--------------|
| PMG/11-16 | 11/16" | 5/8" | 2.7 | 231420 | 9.99 | 6.99 |
| PMG/13-16 | 13/16" | 3/4" | 4.5 | 231422 | 12.56 | 8.79 |
| PMG/1-1-16 | 1-1/16" | 1" | 6.0 | 231424 | 19.95 | 13.97 |
| PMG/1-3-8 | 1-3/8" | 1-3/16" | 13 | 231426 | 28.85 | 20.20 |

10 Piece Needle File Set

| Description | Code No. | Reg. Price \$ | SALE \$ |
|--------------------------|----------|---------------|-------------|
| 10 Piece Needle File Set | 200761 | 10.00 | 8.00 |



10 Piece Diamond File Set

| Description | Code No. | Reg. Price \$ | SALE \$ |
|---------------------------|----------|---------------|--------------|
| 10 Piece Diamond File Set | 200763 | 15.90 | 12.72 |



Engineers Black Book - 3rd Edition

The all new 3rd Edition has been released with 40% more page content. Full Colour - Pocket Sized - Lay Flat Format - Highly Durable - Anti-Glare

Easy to use **Pocket Book** contains a wealth of up to date, useful, practical, and hard to find information.

- Tables
- Grind Wheels
- Bolts & Nuts
- Tapers
- Tapping Drill Sizes
- Tolerances
- Spur Gear Calculations
- Hardening and Tempering
- Sharpening Information
- Illustrations
- Lubricants-Coolants
- Plastics
- Weights of Metals
- Equivalent Charts
- Tungsten Carbide
- Standards
- Conversion Factors
- Formulae
- Keys and Keyways
- Speeds and Feeds
- G Codes
- Engineering Drawing Standards
- Geometrical Construction
- Free set of self-adhesive bookmarking tabs included



Code No.: 180151
Reg. Price: \$61.10

\$51.94

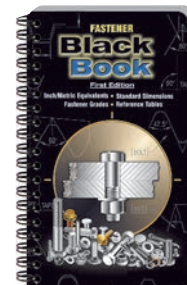
Fastener Black Book

- Inch
- ISO & DIN Specifications
- Fastener Platings & Finishes
- Pre-Loads & Tightening Torques
- Thread Terminology & Classifications
- Standard Grades, Tolerances & Markings
- Thread Forms, Heads, Points, Materials and Coatings

Includes a Free Thread Gauge!

Code No.: 180156
Reg. Price: \$53.80

\$45.73



IP67 Coolant Proof Digital Calipers

ASIMETO

Features:

- Absolute function, there is no need to set the zero
- Hold function for easy reading
- Absolute or incremental measuring modes
- Inch/Metric conversion
- Metal Housing, the design will allow the caliper to be used in normal workshop conditions and is resistant to coolant, water, dust or oil
- Auto power on/off
- Power: 3V lithium battery



| Range | Resolution | Accuracy | Code No. | Reg. Price \$ | SALE \$ |
|-----------------|------------------|----------|----------|---------------|---------------|
| 0-6" / 0-150mm | 0.0005" / 0.01mm | ±0.001" | 7305062 | 221.23 | 165.92 |
| 0-8" / 0-200mm | 0.0005" / 0.01mm | ±0.0015" | 7305082 | 339.04 | 254.28 |
| 0-12" / 0-300mm | 0.0005" / 0.01mm | ±0.0015" | 7305122 | 408.27 | 306.20 |

Thread Measuring Wire Set

ASIMETO

Features:

- 48 wires - 16 different sizes
- Measures all threads from 3 - 48 threads per inch
- Measures all metric threads from 0.5mm to 6mm
- Also measures ACME threads
- Laminated chart included



| Description | Code No. | Reg. Price \$ | SALE Price \$ |
|-----------------|----------|---------------|---------------|
| Thread Wire Set | 7697300 | 28.95 | 21.71 |

Articulating Arm Magnetic Bases

ASIMETO

Features:

- Accepts test indicators with dovetail clamping mechanism
- Dial gauges can be held by the 3/8" or 8mm diameter stem or by the lug backing plate
- Arm has 3 articulating joints that can be locked with the single hand knob
- The rotary knob switches natural magnet on or off
- The precision surfaces and the bottom V are securely fastened to the ferrous work piece or machine table when the rotary knob is in the on position
- Slot: 6.5mm
- Working Angle 150°
- 7602011 does not have fine adjustment



| Magnetic Power | Magnetic Base (L x W x H) | Height | Type | Code No. | Reg. Price \$ | SALE \$ |
|----------------|---------------------------|--------|------|----------|---------------|---------------|
| 30 kg | 36 x 30 x 35mm | 195mm | I | 7602011 | 61.16 | 45.87 |
| 80 kg | 60 x 50 x 55mm | 350mm | II | 7602021 | 147.70 | 110.78 |
| 80 kg | 60 x 50 x 55mm | 440mm | III | 7602031 | 194.27 | 145.70 |

IP65 Digital Outside Micrometers w/ SPC

ASIMETO

Features:

- Resolution Digital: 0.00005"/ 0.001mm Scale: 0.0001"
- Dual Ratchet combines both the Ratchet Stop and Friction Thimble
- Protection level IP65
- Carbide tipped measuring faces
- Upon switch-on the display will read the actual absolute measuring position
- Automatic On/Off to maximize battery life
- Inch/Metric conversion
- Absolute or incremental measuring modes



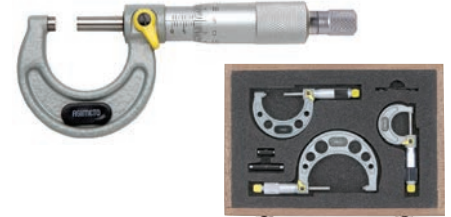
| Range | Accuracy | Code No. | Reg. Price \$ | SALE \$ |
|--------------|------------------|----------|---------------|---------------|
| 0-1"/0-25mm | ±0.0001"/0.002mm | 7105015 | 227.00 | 170.25 |
| 1-2"/25-50mm | ±0.0002"/0.002mm | 7105025 | 279.24 | 209.43 |
| 2-3"/50-75mm | ±0.0002"/0.003mm | 7105035 | 312.18 | 234.14 |

Outside Micrometers

ASIMETO

Features:

- Flatness: 0.000024" / 0.6µm
- Carbide tipped measuring faces
- Grey painted steel frame
- Graduation: 0.0001"
- Ratchet Stop



| Range | Accuracy | Code No. | Reg. Price \$ | SALE \$ |
|-------|----------|----------|---------------|--------------|
| 0-1" | ±0.0001" | 7101013 | 46.68 | 35.01 |
| 1-2" | ±0.0002" | 7101023 | 52.03 | 39.02 |
| 2-3" | ±0.0002" | 7101033 | 57.90 | 43.43 |

SETS

| Range | Code No. | Reg. Price \$ | SALE \$ |
|-------|----------|---------------|---------------|
| 0-3" | 7101637 | 136.79 | 102.59 |
| 0-6" | 7101667 | 456.42 | 342.32 |

AGD2 Dial Indicators

ASIMETO

Features:

- Dial face dia.: 2.20"/ 58mm
- Internal tolerance marker
- Flat back (attached) and lug back supplied
- With counter pointer
- Dial Reading: 0-100
- Range/Rev: 0.1"
- Accuracy: ±0.002"



| Range | Graduation | Code No. | Reg. Price \$ | SALE \$ |
|-------|------------|----------|---------------|--------------|
| 0-1" | 0.001" | 7402261 | 43.22 | 32.42 |
| 0-1" | 0.001" | 7402263 | 52.03 | 39.02 |
| 0-1" | 0.0005" | 7402265 | 52.03 | 39.02 |
| 0-2" | 0.001" | 7402511 | 100.39 | 75.29 |

Double Beam Digit Counter Height Gauges

Features:

- Graduation: Inch: 0.001"/Metric: 0.01mm
- Dial & digit counter reading
- Hand wheel for easier travel
- Carbide tipped scriber
- The digit counter provides bi-directional positioning and the capability of setting zero at any position



ASIMETO

| Range | Dial Grad. | Counter Grad. | Accuracy | Code No. | Reg. Price \$ | SALE \$ |
|---------------|------------|----------------------|----------|----------|---------------|-----------------|
| Inch | | | | | | |
| 0-18" | 0.001" | 0.1" (Dual Reading) | ±0.002" | 7623181 | 535.20 | 401.40 |
| 0-24" | 0.001" | 0.1" (Dual Reading) | ±0.002" | 7623241 | 800.39 | 600.29 |
| Metric | | | | | | |
| 0-300mm | .01mm | 1.0mm (Dual Reading) | ±0.04mm | 7623120 | 527.44 | 395.58 |
| 0-1000mm | .01mm | 1.0mm (Dual Reading) | ±0.07mm | 7623400 | 4,729.94 | 3,547.46 |

Rectangular Gauge Block Sets - Inch

Features:

- Individual serial numbers on each block, regardless of grade
- A complete certificate of calibration traceable to the N.I.S.T showing the deviation of each block.
- All sets are supplied in deluxe fitted wooden case
- Mirror polished surfaces provide superior wringing characteristics.



ASIMETO

| Blocks per Set | Blocks In Set | Former Grade | Former Grade | Code No. | Reg. Price \$ | SALE \$ |
|----------------|--|--------------|--------------|----------|---------------|---------------|
| 81 | 1 Block: 0.050" | 0 | (2) | 7650010 | 1,069.46 | 802.10 |
| | 10 Blocks: 0.1000"-0.1009" x 0.0001" steps | | | | | |
| | 49 Blocks: 0.101"-0.149" x 0.001" steps | | | | | |
| | 17 Blocks: 0.150"-0.950" x 0.050" steps | | | | | |
| 36 | 4 Blocks: 1.000"-4.000" x 1.000" steps | AS-1 | (3) | 7650011 | 683.21 | 512.41 |
| | 1 Block: 0.050" | | | | | |
| | 10 Blocks: 0.1000"-0.1009" x 0.0001" steps | | | | | |
| | 9 Blocks: 0.101"-0.109" x 0.001" steps | | | | | |
| | 9 Blocks: 0.110"-0.190" x 0.010" steps | AS-2 | (B) | 7650012 | 552.40 | 414.30 |
| | 4 Blocks: 1.000"-4.000" x 1.000" steps | | | | | |
| | 1 Block: 0.050" | | | | | |
| | 10 Blocks: 0.1000"-0.1009" x 0.0001" steps | | | | | |
| | 9 Blocks: 0.110"-0.190" x 0.010" steps | AS-1 | (3) | 7650020 | 632.23 | 474.17 |
| | 4 Blocks: 1.000"-4.000" x 1.000" steps | | | | | |
| | 1 Block: 0.050" | | | | | |
| | 10 Blocks: 0.1000"-0.1009" x 0.0001" steps | | | | | |
| | 9 Blocks: 0.110"-0.190" x 0.010" steps | AS-2 | (B) | 7650021 | 471.00 | 353.25 |
| | 4 Blocks: 1.000"-4.000" x 1.000" steps | | | | | |
| | 1 Block: 0.050" | | | | | |
| | 10 Blocks: 0.1000"-0.1009" x 0.0001" steps | | | | | |
| | 9 Blocks: 0.110"-0.190" x 0.010" steps | AS-2 | (B) | 7650022 | 354.46 | 265.85 |
| | 4 Blocks: 1.000"-4.000" x 1.000" steps | | | | | |
| | 1 Block: 0.050" | | | | | |
| | 10 Blocks: 0.1000"-0.1009" x 0.0001" steps | | | | | |

Multi-tasking 5-Axis Modular Vises



The MULTITASKING range of vises has been specially designed for 5-axis machines. Working on 5 sides of the workpiece, it allows the best optimization of the machining cycle. Thanks to the compact design this kind of vise can be installed on all machining centers. The use of GRIP jaws is strongly recommended with multitasking vises.

- Self-centering or eccentric
- Eccentric jaw adjustment in steps of 2mm
- Highest accuracy in positioning and alignment (±0.02mm) due to ground rack teeth on both the base and the fixed jaws
- Minimum deflection
- Solid, rigid construction and maximum clamping ratio to the total length
- Positioning through ground holes or keyways
- All case hardened to HRC60 for durability

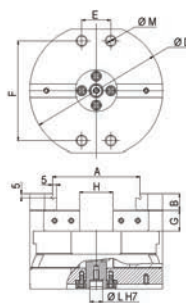
Type 1 & 2



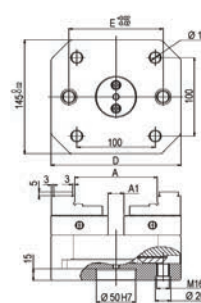
Type 3



Vise shown with riser



Type 1 & 2



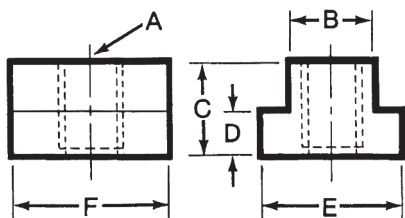
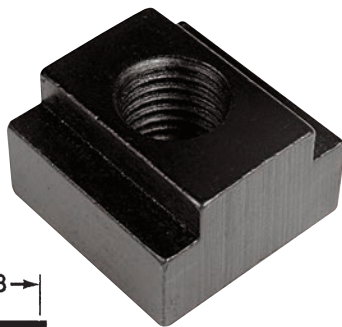
Type 3

| | Type 1 | Type 2 | Type 3x166 | Type 3x266 |
|---------------------|-----------------|-----------------|-----------------|-----------------|
| Code No. | 382520 | 382522 | 382524 | 382526 |
| Reg Price \$ | 2,516.10 | 3,354.70 | 3,858.00 | 4,025.80 |
| SALE \$ | 2,138.69 | 2,851.50 | 3,279.30 | 3,421.93 |
| A | 74 | 104 | 108 | 208 |
| A1 | - | - | 20 | 60 |
| W | 74 | 99 | 138 | 138 |
| B | 15 | 20 | 30 | 30 |
| C | 50 | 70 | 58 | 58 |
| ØD/D | 120 | 160 | 166 | 266 |
| E | 5 | 35 | 120 | 200 |
| F | 92 | 120 | - | - |
| G | 20 | 25 | - | - |
| H | 20 | 40 | - | - |
| Ø L H7 | 20 | 20 | - | - |
| M | 9 | 11 | - | - |
| kg | 4.9 | 11 | 13 | 20 |
| kN | 16 | 20 | 30 | 30 |

T-SLOT NUTS

Last thread incomplete to prevent stud from turning through bottom of nut into machine table.

- Case hardened
- Black oxide finish



Inch

| Model No. | Table Slot | Thread A | Code No. | Reg. Price \$ | SALE \$ |
|-----------|------------|----------|----------|---------------|--------------|
| 373 | 5/16 | 1/4-20 | 607100 | 4.10 | 3.90 |
| 374 | 3/8 | 1/4-20 | 607102 | 4.20 | 3.99 |
| 375 | 3/8 | 5/16-18 | 607104 | 3.50 | 3.33 |
| 437 | 7/16 | 3/8-16 | 607106 | 3.50 | 3.33 |
| 500 | 1/2 | 3/8-16 | 607108 | 3.50 | 3.33 |
| 562 | 9/16 | 3/8-16 | 607110 | 4.00 | 3.80 |
| 502 | 1/2 | 7/16-14 | 607114 | 4.70 | 4.47 |
| 563 | 9/16 | 1/2-13 | 607116 | 3.90 | 3.71 |
| 625 | 5/8 | 1/2-13 | 607118 | 4.40 | 4.18 |
| 626 | 5/8 | 1/2-13 | 607120 | 5.90 | 5.61 |
| 687 | 11/16 | 1/2-13 | 607122 | 4.80 | 4.56 |
| 750 | 3/4 | 1/2-13 | 607124 | 6.50 | 6.18 |
| 688 | 11/16 | 5/8-11 | 607128 | 5.00 | 4.75 |
| 751 | 3/4 | 5/8-11 | 607130 | 5.30 | 5.04 |
| 812 | 13/16 | 5/8-11 | 607132 | 7.60 | 7.22 |
| 813 | 13/16 | 3/4-10 | 607134 | 8.40 | 7.98 |
| 875 | 7/8 | 3/4-10 | 607136 | 9.10 | 8.65 |
| 1000 | 1 | 3/4-10 | 607138 | 10.30 | 9.79 |
| 1000-34 | 1 | 3/4-10 | 607140 | 15.50 | 14.73 |
| 1010 | 1-1/16 | 3/4-10 | 607142 | 12.10 | 11.50 |
| 1001 | 1 | 7/8-9 | 607144 | 11.00 | 10.45 |
| 1125 | 1-1/8 | 7/8-9 | 607148 | 18.60 | 17.67 |
| 1063 | 1-1/16 | 1-8 | 607150 | 26.60 | 25.27 |
| 1126 | 1-1/8 | 1-8 | 607152 | 26.60 | 25.27 |
| 1250 | 1-1/4 | 1-8 | 607154 | 26.90 | 25.56 |

Metric

| Model No. | Table Slot | Thread A (mm) | Code No. | Reg. Price \$ | SALE \$ |
|-----------|------------|---------------|----------|---------------|--------------|
| 61401 | 8 | M6 x 1.0 | 608750 | 5.10 | 4.85 |
| 61402 | 10 | M6 x 1.0 | 608751 | 5.90 | 5.61 |
| 61403 | 10 | M8 x 1.25 | 608752 | 5.90 | 5.61 |
| 61404 | 12 | M10 x 1.5 | 608753 | 5.90 | 5.61 |
| 61405 | 14 | M10 x 1.5 | 608754 | 6.90 | 6.56 |
| 61406 | 14 | M12 x 1.75 | 608755 | 6.90 | 6.56 |
| 61407 | 16 | M12 x 1.75 | 608756 | 6.90 | 6.56 |
| 61408 | 17 | M12 x 1.75 | 608757 | 8.30 | 7.89 |
| 61409 | 18 | M16 x 2.0 | 608758 | 8.30 | 7.89 |
| 61410 | 21 | M16 x 2.0 | 608759 | 9.10 | 8.65 |
| 61411 | 22 | M20 x 2.5 | 608760 | 10.10 | 9.60 |
| 61412 | 27 | M24 x 3.0 | 608761 | 14.80 | 14.06 |

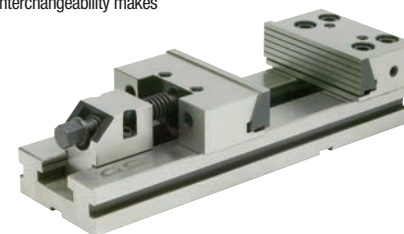
GS Plain Base Modular Vises



Manufactured under rigid quality control. As a result of the high standard construction, GS Vises can be depended upon to maintain their accuracy under the most severe operating conditions. The modular design and the concept of interchangeability makes possible a wide variety of set up combinations.

Features/Benefits:

- High accuracy
- Unlimited clamping range
- High quality alloy steel
- High clamping pressure
- No jaw lift
- All vises are matched



| Model | Code No. | Price \$ | Reg. SALE \$ |
|-------|----------|----------|-----------------|
| 2 | 382010 | 1,144.81 | 915.85 |
| 3 | 382015 | 1,248.31 | 998.65 |
| 3 | 382017 | 1,457.28 | 1,165.82 |
| 4 | 382020 | 1,771.71 | 1,417.37 |
| 4 | 382025 | 1,873.45 | 1,498.76 |
| 4 | 382030 | 2,082.42 | 1,665.94 |
| 4 | 382032 | 2,498.49 | 1,998.79 |
| 5 | 382040 | 2,709.22 | 2,167.38 |
| 5 | 382045 | 3,125.39 | 2,500.31 |
| 5 | 382050 | 3,750.43 | 3,000.34 |
| 5 | 382052 | 4,375.46 | 3,500.37 |
| 6 | 382075 | 6,461.51 | 5,169.21 |

Standard ER Collets



Our ER collet system is made of special alloy steel material under excellent heat treatment and precise grinding process, so it has precise accuracy, powerful clamping ability, and is durable. This collet can clamp for a specific standard size and its next size. It can be widely used for boring, milling, drilling, and tapping as well as for grinding operation, and is available for all sizes.

- ER 16 collets collapse approximately 1/32" with full accuracy



ER 16 Collets

| Size | Code No. | Reg. Price \$ | SALE \$ |
|-------|----------|---------------|--------------|
| 1/16" | 337531 | 41.25 | 28.88 |
| 1/8" | 337533 | 30.60 | 21.42 |
| 3/16" | 337535 | 30.60 | 21.42 |
| 1/4" | 337537 | 30.60 | 21.42 |
| 5/16" | 337540 | 30.60 | 21.42 |
| 3/8" | 337542 | 30.60 | 21.42 |

ER 32 Collets

| Size | Code No. | Reg. Price \$ | SALE \$ |
|------|----------|---------------|--------------|
| 1/8" | 337703 | 35.93 | 25.15 |
| 1/4" | 337708 | 35.93 | 25.15 |
| 3/8" | 337713 | 35.93 | 25.15 |
| 1/2" | 337718 | 35.93 | 25.15 |
| 5/8" | 337723 | 35.93 | 25.15 |
| 3/4" | 337727 | 35.93 | 25.15 |

Full size range on promotion. See page G25-31 of our Catalogue

5 Micron AA High Precision ER Collets



- Alloy Steel
- AA Collets have a runout of only 5 microns (0.005mm) compared to standard precision collets with up to 20 microns.



ER 16 Collets

| Size | Code No. | Reg. Price \$ | SALE \$ |
|-------|----------|---------------|--------------|
| 1/16" | 336731 | 61.21 | 42.85 |
| 1/8" | 336736 | 50.56 | 35.39 |
| 3/16" | 336742 | 50.56 | 35.39 |
| 1/4" | 336747 | 50.56 | 35.39 |
| 5/16" | 336752 | 50.56 | 35.39 |
| 3/8" | 336758 | 50.56 | 35.39 |

ER 32 Collets

| Size | Code No. | Reg. Price \$ | SALE \$ |
|-------|----------|---------------|--------------|
| 1/8" | 336854 | 55.88 | 39.12 |
| 9/32" | 336867 | 55.88 | 39.12 |
| 3/8" | 336875 | 55.88 | 39.12 |
| 1/2" | 336885 | 55.88 | 39.12 |
| 5/8" | 336895 | 55.88 | 39.12 |
| 3/4" | 336906 | 55.88 | 39.12 |

Full size range on promotion. Visit SowaTool.com

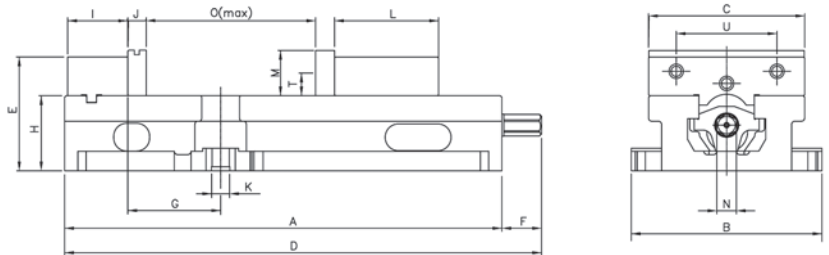
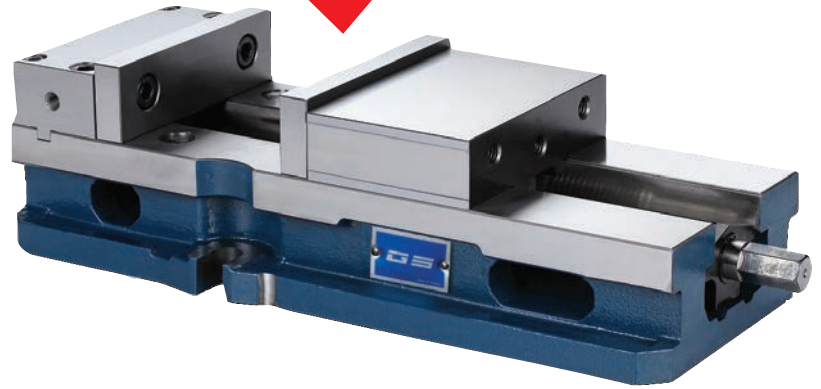
GS-ADX-160G Precision Milling Machine Vise



The GS-ADX-160G replaces our very popular 327290M vise. It has been redesigned with new state-of-the-art workholding features.

- Jaw opening increased from 8.8" to 9.13"
- Same bed height as our 327290M: 2.875" ±0.0005"
- Narrower body style to allow more vises on a machine table
- The bearing pack has been relocated to help reduce oil / water / chip leakage into the vise body, thus improving the life time
- The thrust bearings have been replaced with ball bearings to make the pack stronger and more stable
- Same distance from the keyway to stationary as the 327290M
- ADX-160G weighs 68 lbs. vs. 80 lbs for the 327290M
- Spindle does not protrude past the end of the body
- Spherical segment creates all-directional alignment and reduces jaw lift for improved performance
- New brush seal design
- Perpendicularity (running face and jaw plate): 0.0004"
- Parallelism (running face to bottom of bed): 0.0006"
- Material: FCD-60 (80,000psi)
- New stationary jaw: 4 bolt stationary design reduces lift
- Pull-Type design: Reduces stress on body during clamping
- Chip evacuation: Straight through the body on sides and ends. Locations strategically chosen to not reduce body strength

NEW AND IMPROVED



Code No.: 327320 **\$716.22**
Reg. Price: \$795.80

| COMPARE | GS-ADX-160G DIMENSIONS | | | | | | | | | | | | | | | | | | mm/kg |
|-------------|------------------------|--------|-----|-----|---------|----|-------|--------|------|-------|-------|-------|-------|----|-------|------|------|--------|-------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | T | U | Weight | |
| GS-ADX-160G | 427 | 186 | 151 | 466 | 111.025 | 39 | 90.53 | 73.025 | 58.7 | 18.42 | 17.46 | 101.6 | 44.5 | 19 | 231 | 23.8 | 98.4 | 31kg | |
| Competitor | 427 | 187.73 | 151 | 466 | 110.74 | 39 | 91.74 | 73.025 | 58.7 | 18.42 | 16.66 | 101.6 | 44.07 | 19 | 230.6 | 23.9 | 98.4 | 35.5kg | |

GS High Performance Live Centres

- Each GS live centre uses either a 3, 4, or 5 bearing system providing superior performance and tool life
- A special coating process for the lip seal contact area offers a higher sealing ability and reduces rotational friction
- Designed to prevent excessive heat even when rotating at maximum RPM, extending tool life
- Every GS centre has passed at least 4 different accuracy tests to ensure the highest quality

NEW

CNC HIGH SPEED LIVE CENTRES



| MT | Max RPM | Weight | Max Runout | Code No. | Reg. Price \$ | SALE \$ |
|----|---------|---------|------------|----------|---------------|---------------|
| 2 | 5,000 | 1.54 lb | 0.0001" | 311011 | 358.43 | 304.67 |
| 3 | 5,000 | 1.73 lb | 0.0001" | 311012 | 436.07 | 370.66 |
| 4 | 3,800 | 4.06 lb | 0.0001" | 311013 | 498.83 | 424.01 |
| 5 | 3,000 | 9.30 lb | 0.0001" | 311014 | 723.47 | 614.95 |

INTERCHANGEABLE POINTS LIVE CENTRES

Every centre comes with "H" insert



| MT | Max RPM | Weight | Max Runout | Code No. | Reg. Price \$ | SALE \$ |
|----|---------|---------|------------|----------|---------------|---------------|
| 3 | 5,000 | 1.76 lb | 0.0002" | 311020 | 491.57 | 417.83 |
| 4 | 3,800 | 3.74 lb | 0.0002" | 311021 | 572.99 | 487.04 |
| 5 | 3,000 | 8.58 lb | 0.0002" | 311022 | 816.30 | 693.86 |



Call for other available points

Lever Type Oil Cans

This series of oil cans have a modern and contemporary design with a dome shaped body. Most popularly used oil can style all over the world. Manufactured with a steel pump, powder coated red body, and a flexible wire braided extension.



| Model | Capacity | Spout Length | Code No. | Reg. Price \$ | SALE \$ |
|-------|----------|--------------|----------|---------------|--------------|
| MP21F | 200 ml | 6" | 231392 | 15.60 | 10.92 |
| MP22F | 300 ml | 6" | 231394 | 16.40 | 11.48 |

ANSI Inch Thread Plug Gauges

Features:

- Gold aluminum handles
- ANSI Standard



ASIMETO

| Size | Double End Plug Gauge Code No. | Reg. Price \$ | SALE \$ |
|-----------|--------------------------------|---------------|---------------|
| 0 - 80 | 7695012 | 93.15 | 69.86 |
| 1 - 64 | 7695022 | 95.98 | 71.99 |
| 1 - 72 | 7695032 | 95.98 | 71.99 |
| 2 - 64 | 7695052 | 95.98 | 71.99 |
| 3 - 48 | 7695062 | 88.54 | 66.41 |
| 5 - 40 | 7695102 | 83.50 | 62.63 |
| 5 - 44 | 7695112 | 83.50 | 62.63 |
| 6 - 40 | 7695132 | 83.50 | 62.63 |
| 12 - 24 | 7695182 | 83.50 | 62.63 |
| 12 - 28 | 7695192 | 83.50 | 62.63 |
| 1/4 - 32 | 7695222 | 100.39 | 75.29 |
| 5/16 - 18 | 7695232 | 98.61 | 73.96 |
| 5/16 - 24 | 7695242 | 75.32 | 56.49 |
| 5/16 - 32 | 7695252 | 100.39 | 75.29 |
| 3/8 - 24 | 7695272 | 79.09 | 59.32 |
| 3/8 - 32 | 7695282 | 104.17 | 78.13 |
| 7/16 - 14 | 7695292 | 79.09 | 59.32 |
| 7/16 - 28 | 7695312 | 104.17 | 78.13 |
| 1/2 - 20 | 7695332 | 83.50 | 62.63 |
| 9/16 - 12 | 7695352 | 100.39 | 75.29 |
| 5/8 - 24 | 7695402 | 116.75 | 87.56 |
| 3/4 - 20 | 7695432 | 133.01 | 99.76 |
| 7/8 - 20 | 7695462 | 139.31 | 104.48 |

3pc Aviation Tin Snips Set

- Size: 245mm
- Chrome Vanadium Blade with polish
- Self opening action
- Left Cut, Straight Cut, Right Cut



Code No.: 505003

Reg. Price: \$43.00

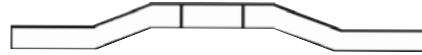
\$32.25

Reinforced Depressed Center Discs For Steel

TAILIN

A. (Type 27)

- Approved by CNS standard No. 2551
- German DSA standard No. 2335



| Dimensions | Specification | RPM | Code No. | Reg. Price \$ | SALE \$ |
|--------------------|---------------|-------|----------|---------------|-------------|
| 4 x 1/8 x 5/8" | A24R2G | 15300 | 635600 | 2.40 | 1.80 |
| 4 x 1/8 x 5/8" | A24S2G | 15300 | 635602 | 2.40 | 1.80 |
| 4 x 1/4 x 5/8" | A24R2G | 15300 | 635604 | 2.70 | 2.03 |
| 4 x 1/4 x 5/8" | A24S2G | 15300 | 635606 | 2.70 | 2.03 |
| 4-1/2 x 1/8 x 7/8" | A24R2G | 13300 | 635608 | 3.50 | 2.63 |
| 4-1/2 x 1/8 x 7/8" | A24S2G | 13300 | 635610 | 3.50 | 2.63 |
| 4-1/2 x 1/4 x 7/8" | A24S2G | 13300 | 635612 | 3.80 | 2.85 |
| 7 x 1/8 x 7/8" | A24R2G | 8500 | 635622 | 5.50 | 4.13 |
| 7 x 1/8 x 7/8" | A24S2G | 8500 | 635624 | 5.50 | 4.13 |

Carbide Drill Mills

- Drill/Mills can be used for drilling, slotting, profile milling
- 2 Flute - 60° & 90° included point angle
- Made from submicron grain carbide
- Cutting diameter tolerance: +0.000/-0.002



| Cutting Dia. | Shank Dia. | Flute Length | Overall Length | 60° Code No. | Reg. Price \$ | SALE Price \$ | 90° Code No. | Reg. Price \$ | SALE \$ |
|--------------|------------|--------------|----------------|--------------|---------------|---------------|--------------|---------------|---------------|
| 1/16" | 1/8" | 3/16" | 1-1/2" | 153187 | 13.47 | 12.12 | 153186 | 13.47 | 12.12 |
| 3/32" | 1/8" | 3/8" | 1-1/2" | 153189 | 13.47 | 12.12 | 153188 | 13.47 | 12.12 |
| 1/8" | 1/8" | 1/2" | 1-1/2" | 153191 | 13.47 | 12.12 | 153190 | 13.47 | 12.12 |
| 3/16" | 3/16" | 5/8" | 2" | 153193 | 17.75 | 15.98 | 153192 | 17.75 | 15.98 |
| 1/4" | 1/4" | 3/4" | 2-1/2" | 153195 | 22.05 | 19.85 | 153194 | 22.05 | 19.85 |
| 5/16" | 5/16" | 13/16" | 2-1/2" | 153197 | 28.91 | 26.02 | 153196 | 28.91 | 26.02 |
| 3/8" | 3/8" | 1" | 2-1/2" | 153199 | 35.38 | 31.84 | 153198 | 35.38 | 31.84 |
| 7/16" | 7/16" | 1" | 2-3/4" | - | - | - | 153200 | 43.55 | 39.20 |
| 1/2" | 1/2" | 1" | 3" | 153203 | 65.86 | 59.27 | 153202 | 65.86 | 59.27 |
| 5/8" | 5/8" | 1-1/4" | 3-1/2" | 153205 | 106.53 | 95.88 | 153204 | 106.53 | 95.88 |
| 3/4" | 3/4" | 1-1/2" | 4" | 153207 | 156.77 | 141.09 | 153206 | 156.77 | 141.09 |

HSS Straight Flute Chucking Reamers

For general purpose reaming of almost any metal, in drill presses, turret lathes or screw machines.

- Cutting ends are ground with a 45° chamfer for easy hole entry
- Built for machine use, with shorter, deeper flutes than hand reamers
- Right Hand Spiral
- Right Hand Cut
- H7 Tolerance



| Flute Dia. (in.) | Decimal Equiv. (in.) | Flute Length | Overall Length | Code No. | Reg. Price \$ | SALE \$ |
|------------------|----------------------|--------------|----------------|----------|---------------|---------------|
| 9/64 | 0.1460 | 1 | 4 | 110112 | 16.04 | 11.23 |
| 11/64 | 0.1719 | 1-1/8 | 4-1/2 | 110122 | 16.04 | 11.23 |
| 13/64 | 0.2031 | 1-1/4 | 5 | 110132 | 19.15 | 13.41 |
| 7/32 | 0.2187 | 1-1/4 | 5 | 110137 | 18.63 | 13.04 |
| 15/64 | 0.2344 | 1-1/2 | 6 | 110142 | 19.15 | 13.41 |
| 9/32 | 0.2812 | 1-1/2 | 6 | 110157 | 21.53 | 15.07 |
| 19/64 | 0.2969 | 1-1/2 | 6 | 110162 | 14.08 | 9.86 |
| 5/16 | 0.3125 | 1-1/2 | 6 | 110167 | 20.08 | 14.06 |
| 21/64 | 0.3281 | 1-1/2 | 6 | 110172 | 24.43 | 17.10 |
| 11/32 | 0.3437 | 1-1/2 | 6 | 110177 | 24.43 | 17.10 |
| 23/64 | 0.3594 | 1-3/4 | 7 | 110182 | 24.43 | 17.10 |
| 3/8 | 0.3750 | 1-3/4 | 7 | 110187 | 21.53 | 15.07 |
| 25/64 | 0.3906 | 1-3/4 | 7 | 110192 | 25.46 | 17.82 |
| 13/32 | 0.4062 | 1-3/4 | 7 | 110197 | 26.29 | 18.40 |
| 27/64 | 0.4219 | 1-3/4 | 7 | 110202 | 27.74 | 19.42 |
| 11/16 | 0.6875 | 2-1/4 | 9 | 110282 | 44.40 | 31.08 |
| 3/4 | 0.7500 | 2-1/2 | 9-1/2 | 110292 | 49.37 | 34.56 |
| 7/8 | 0.8750 | 2-5/8 | 10 | 110312 | 64.07 | 44.85 |
| 15/16 | 0.9375 | 2-5/8 | 10 | 110322 | 71.93 | 50.35 |
| 1 | 1.0000 | 2-3/4 | 10-1/2 | 110332 | 79.49 | 55.64 |
| 1-1/8 | 1.1250 | 2-7/8 | 11 | 110342 | 99.77 | 69.84 |
| 1-1/4 | 1.2500 | 3 | 11-1/2 | 110352 | 123.68 | 86.58 |
| 1-3/8 | 1.3750 | 3-1/4 | 12 | 110362 | 148.42 | 103.89 |

CAT Taper End Mill Holders

- 100% forged construction
- Certified balanced @G2.5 up to 30,000 rpm
- Precision ground throughout
- DIN coolant thru the flange - standard



| Taper | Hole Dia. | Gage Length | Spigot Dia. | Set Screw | Code No. | Reg. Price \$ | SALE \$ |
|-------|-----------|-------------|-------------|-----------|----------|---------------|---------------|
| CT40 | 1/4" | 1.38" | 0.79" | 1/4-28 | 531000 | 145.03 | 94.27 |
| CT40 | 1/4" | 2.50" | 0.79" | 1/4-28 | 531002 | 145.03 | 94.27 |
| CT40 | 1/4" | 4.00" | 0.79" | 1/4-28 | 531004 | 159.28 | 103.53 |
| CT40 | 5/16" | 1.38" | 0.87" | 5/16-24 | 531006 | 157.98 | 102.69 |
| CT40 | 5/16" | 4.00" | 0.87" | 5/16-24 | 531010 | 139.13 | 90.43 |
| CT40 | 5/16" | 9.00" | 0.87" | 5/16-24 | 531011 | 292.51 | 190.13 |
| CT40 | 3/8" | 2.50" | 1.00" | 3/8-24 | 531014 | 157.98 | 102.69 |
| CT40 | 3/8" | 4.00" | 1.00" | 3/8-24 | 531016 | 159.28 | 103.53 |
| CT40 | 3/8" | 5.00" | 1.00" | 3/8-24 | 531018 | 176.11 | 114.47 |
| CT40 | 7/16" | 2.50" | 1.38" | 7/16-20 | 531020 | 139.13 | 90.43 |
| CT50 | 3/8" | 2.50" | 1.00" | 3/8-24 | 531100 | 194.24 | 126.26 |
| CT50 | 3/8" | 4.00" | 1.00" | 3/8-24 | 531102 | 216.25 | 140.56 |
| CT50 | 1/2" | 2.63" | 1.38" | 7/16-20 | 531118 | 183.88 | 119.52 |
| CT50 | 1/2" | 4.00" | 1.38" | 7/16-20 | 531120 | 216.25 | 140.56 |
| CT50 | 5/8" | 4.00" | 1.65" | 9/16-18 | 531130 | 212.65 | 138.22 |
| CT50 | 3/4" | 3.00" | 1.89" | 5/8-18 | 531138 | 185.17 | 120.36 |
| CT50 | 1" | 4.00" | 2.36" | 3/4-16 | 531154 | 216.25 | 140.56 |
| CT50 | 1" | 6.00" | 2.36" | 3/4-16 | 531156 | 220.71 | 143.46 |

* Stubby Length

Carbide Jobber Drills



- 118° 4-facet point
- 20° helix angle
- Bright finish
- Sub-micrograin carbide



For use on:

- Aluminum
- Titanium Alloy
- Low & Medium Carbon Steel
- Copper
- High Carbon Steel
- Glass, Plastics, Composite Materials
- Cast Iron
- Alloys Steel

| Size (in.) | Decimal Equivalent | Flute Length (in.) | Overall Length (in.) | Code No. | Reg. Price \$ | SALE \$ |
|------------|--------------------|--------------------|----------------------|----------|---------------|---------------|
| 3/64 | 0.0469 | 3/4 | 1-1/2 | 170600 | 17.60 | 14.08 |
| 1/16 | 0.0625 | 3/4 | 1-1/2 | 170602 | 18.73 | 14.98 |
| 5/64 | 0.0781 | 7/8 | 1-3/4 | 170604 | 18.73 | 14.98 |
| 3/32 | 0.0938 | 1 | 2 | 170606 | 20.60 | 16.48 |
| 7/64 | 0.1094 | 1-1/4 | 2-1/4 | 170608 | 23.39 | 18.71 |
| 1/8 | 0.1250 | 1-1/4 | 2-1/4 | 170610 | 24.94 | 19.95 |
| 5/32 | 0.1562 | 1-3/8 | 2-1/2 | 170614 | 30.84 | 24.67 |
| 3/16 | 0.1875 | 1-5/8 | 2-3/4 | 170618 | 37.47 | 29.98 |
| 1/4 | 0.2500 | 2 | 3-1/4 | 170626 | 56.82 | 45.46 |
| 5/16 | 0.3125 | 2-1/8 | 3-1/2 | 170634 | 78.45 | 62.76 |
| 3/8 | 0.3750 | 2-3/4 | 4-1/4 | 170642 | 110.75 | 88.60 |
| 7/16 | 0.4375 | 2-7/8 | 4-1/2 | 170650 | 161.56 | 129.25 |

Individual Rectangular Gage Blocks



ASIMETO

| Size (in.) | Code No. | Reg. Price \$ | SALE \$ |
|------------|----------|---------------|--------------|
| 0.050 | 7651010 | 21.82 | 16.37 |
| 0.1004 | 7651200 | 20.77 | 15.58 |
| 0.1006 | 7651220 | 20.77 | 15.58 |
| 0.1008 | 7651240 | 20.77 | 15.58 |
| 0.1009 | 7651250 | 39.13 | 29.35 |
| 0.101 | 7651260 | 39.13 | 29.35 |
| 0.105 | 7651300 | 20.77 | 15.58 |
| 0.110 | 7651350 | 39.13 | 29.35 |
| 0.113 | 7651380 | 39.13 | 29.35 |
| 0.115 | 7651400 | 39.13 | 29.35 |
| 0.118 | 7651430 | 39.13 | 29.35 |
| 0.120 | 7651450 | 39.13 | 29.35 |
| 0.121 | 7651460 | 39.13 | 29.35 |
| 0.123 | 7651480 | 39.13 | 29.35 |
| 0.124 | 7651490 | 39.13 | 29.35 |
| 0.126 | 7651510 | 39.13 | 29.35 |
| 0.130 | 7651550 | 20.77 | 15.58 |
| 0.131 | 7651560 | 39.13 | 29.35 |
| 0.132 | 7651570 | 20.77 | 15.58 |
| 0.133 | 7651580 | 39.13 | 29.35 |
| 0.134 | 7651590 | 39.13 | 29.35 |
| 0.137 | 7651620 | 39.13 | 29.35 |
| 0.140 | 7651650 | 20.77 | 15.58 |
| 0.143 | 7651680 | 39.13 | 29.35 |
| 0.147 | 7651720 | 39.13 | 29.35 |
| 0.149 | 7651740 | 39.13 | 29.35 |
| 0.150 | 7651750 | 39.13 | 29.35 |
| 0.160 | 7651760 | 39.13 | 29.35 |
| 0.200 | 7651800 | 22.34 | 16.76 |
| 0.250 | 7651820 | 39.13 | 29.35 |
| 0.450 | 7651860 | 23.29 | 17.47 |
| 0.650 | 7651900 | 23.29 | 17.47 |
| 0.750 | 7651920 | 43.53 | 32.65 |
| 0.800 | 7651930 | 43.53 | 32.65 |
| 1.000 | 7651970 | 43.53 | 32.65 |

SHRINK FIT TOOLING



CAT Taper Shrink Fit Tooling with 4 Coolant Ports

4 COOLANT PORTS:

- Positioned in nose and angled 1° which concentrates coolant towards the cutting edge.

BALANCE:

- Pre-balanced to G2.5 up to 30,000 rpm.
- Machine balanceable.
- 4 Threaded holes for balancing screws.

MATERIAL:

- HSS-H13 for fast and proper heat induction increases life of shrink machine and spindle.
- 100% Forged construction (not turned down bar stock).

MAX GRIPPING TORQUE:

- Tool is gripped 360° along the entire length of bore, resulting in an evenly distributed clamping force.

UNSURPASSED ACCURACY:

- 0.0001 / 3µm with tool in holder.
- Traverse ground throughout.

NEW HOT DEAL!



CAT40

| Taper | Hole Diameter | Gauge Length | Code No. | Reg. Price \$ | SALE \$ |
|-------|---------------|--------------|----------|---------------|---------------|
| CAT40 | 1/8" | 3.15" | 541838 | 424.59 | 275.98 |
| CAT40 | 3/16" | 3.15" | 541840 | 424.59 | 275.98 |
| CAT40 | 1/4" | 3.15" | 541842 | 424.59 | 275.98 |
| CAT40 | 1/4" | 6.30" | 541844 | 500.13 | 325.08 |
| CAT40 | 5/16" | 3.15" | 541846 | 424.59 | 275.98 |
| CAT40 | 5/16" | 6.30" | 541848 | 500.13 | 325.08 |
| CAT40 | 3/8" | 3.15" | 541850 | 424.59 | 275.98 |
| CAT40 | 3/8" | 6.30" | 541852 | 500.13 | 325.08 |
| CAT40 | 1/2" | 3.15" | 541854 | 424.59 | 275.98 |
| CAT40 | 1/2" | 6.30" | 541856 | 500.13 | 325.08 |
| CAT40 | 5/8" | 3.15" | 541858 | 424.59 | 275.98 |
| CAT40 | 3/4" | 3.15" | 541862 | 424.59 | 275.98 |
| CAT40 | 3/4" | 6.30" | 541864 | 500.13 | 325.08 |
| CAT40 | 1" | 3.94" | 541866 | 424.59 | 275.98 |
| CAT40 | 1" | 6.30" | 541868 | 500.13 | 325.08 |
| CAT40 | 1-1/4" | 3.94" | 541870 | 424.59 | 275.98 |
| CAT40 | 1-1/4" | 6.30" | 541872 | 619.40 | 402.61 |

Metric sizes also on promotion. See www.sowatool.com



CAT50

| Taper | Hole Diameter | Gauge Length | Code No. | Reg. Price \$ | SALE \$ |
|-------|---------------|--------------|----------|---------------|---------------|
| CAT50 | 1/4" | 3.15" | 541932 | 395.81 | 257.28 |
| CAT50 | 1/4" | 6.30" | 541934 | 619.40 | 402.61 |
| CAT50 | 5/16" | 3.15" | 541936 | 395.81 | 257.28 |
| CAT50 | 3/8" | 3.15" | 541940 | 462.29 | 300.49 |
| CAT50 | 3/8" | 6.30" | 541942 | 619.40 | 402.61 |
| CAT50 | 1/2" | 3.15" | 541944 | 462.29 | 300.49 |
| CAT50 | 1/2" | 6.30" | 541946 | 619.40 | 402.61 |
| CAT50 | 5/8" | 3.15" | 541948 | 462.29 | 300.49 |
| CAT50 | 5/8" | 6.30" | 541950 | 719.11 | 467.42 |
| CAT50 | 3/4" | 3.15" | 541952 | 530.34 | 344.72 |
| CAT50 | 3/4" | 6.30" | 541954 | 661.70 | 430.11 |
| CAT50 | 1" | 3.94" | 541956 | 530.34 | 344.72 |
| CAT50 | 1" | 6.30" | 541958 | 676.81 | 439.93 |
| CAT50 | 1-1/4" | 3.94" | 541960 | 530.34 | 344.72 |

Metric sizes also on promotion. See www.sowatool.com

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