

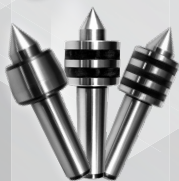


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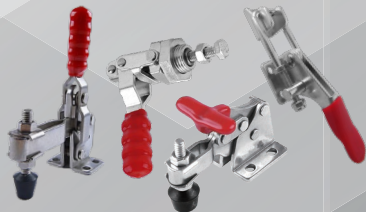
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# COVID-19 WORKPLACE SAFETY

## FDA/CE CERTIFIED 3 LAYER MASKS 00001



- FDA/CE certified
- Single use, disposable
- Non woven fabric, high density filter layer, skin-friendly composite fiber.

## FDA/CE CERTIFIED KN95 MASKS 00002



- 5 Layers of protection
- Up to 95% filtration
- Elastic ear loops. No pressure to the ears.
- Comfortable to wear. Provides safety seal.

## INFRARED THERMOMETER GUN 00003



- Distance: 0.39"-2"
- Time: <1 Second
- Range 93.3°F - 109.2°F (34°C-42.9°C)
- Auto shutdown <18 seconds
- 3 color display

## HAND SANITIZER GEL HSG001 GAL HSG055 DRUM HSG005 PAIL HSG275 TOTE



## HAND SANITIZER LIQUID HSL001 GAL HSL055 DRUM HSL005 PAIL HSL275 TOTE



- 80% ethanol antiseptic topical solution

## X BLEACH



## BLEACH1 GAL BLEACH55 DRUM BLEACH5 PAIL BLEACH275 TOTE

- 5x concentration bleach
- Can be used in its present state or diluted

## HP DISINFECTANT

## HP001 GAL BLEACH55 DRUM HP005 PAIL BLEACH275 TOTE

- Hydrogen peroxide 255 concentrated multi-surface cleaner
- Used extensively in second phase cleaning
- Immediate kill on viruses and biological matter

## LIBERTY-FOAM™ DISINFECTING SOAP 00004



- 9oz. hand sanitizing foam made from all-natural ingredients. No alcohol and no fragrance.
- Can be left on like sanitizer or washed away like traditional soap.

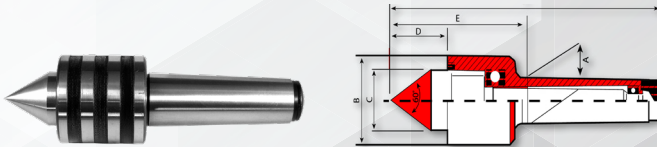
## QC SURFACE

## QC001 GAL QC055 DRUM QC005 PAIL QC275 TOTE

- Quant amine-chloride multi-surface spray cleaner
- Used in disinfecting all surfaces.
- Ready to use, applied via spray bottle or fogged in hard to reach areas.
- Used aggressively in mold remediation and water damage.

# Super-Precision Low-Profile Live Centers

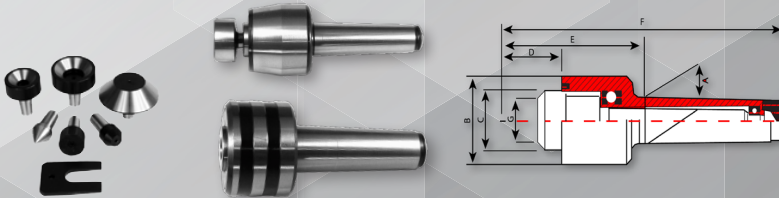
- High-precision & high-speed design
- Designed for easy lubrication for long life
- One-piece body & spindle made of high-quality forged alloy steel, hardened to 60 HRC and precisely ground
  - Front bearings are protected by a special steel/elastomer ring
- Thrust bearings with hardened frame provide excellent rigidity and accuracy
  - Rear bearings strengthen and support for radial load



Order No	Description	Morse Taper Size	A	B	C	D	E	F	T.I.R.	Max RPM	Max Load
L0005	1MT PRECISION LIVE CENTER	1	0.475"	1.339"	0.709"	0.787"	2.402"	4.528"	0.0004"	5000	900N
L0004	2MT PRECISION LIVE CENTER	2	0.7"	1.772"	0.984"	1.024"	3.15"	5.709"	0.0004"	5000	1500N
L0003	3MT PRECISION LIVE CENTER	3	0.938"	2.047"	1.102"	1.181"	3.503"	6.693"	0.0004"	4200	2000N
L0001	4MT PRECISION LIVE CENTER	4	1.231"	2.362"	1.26"	1.366"	4.102"	8.098"	0.0004"	3200	3200N
L0002	5MT PRECISION LIVE CENTER	5	1.748"	3.031"	1.772"	1.772"	4.843"	10"	0.0004"	2400	6300N
L0006	6MT PRECISION LIVE CENTER	6	2.494"	4.921"	2.953"	2.697"	7.221"	14.252"	0.0004"	1600	10000N

# Super-Precision Live Centers Kits

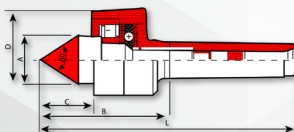
- Triple bearing, heavy-duty, high-speed design
- All centers are provided with high-precision bearings
- One-piece body is made of high-quality forged alloy steel, hardened to 60 HRC and precisely ground
  - Bearings are protected by a special steel ring
- Every set includes: the main body, seven inserts and an ejecting wedge
  - Set comes with a strong metal or plastic case



Order No	Description	Morse Taper Size	A	B	C	D	E	F	T.I.R.	Max RPM	Max Load
L0010	2MT PRECISION LIVE CENTER SET	2	0.7"	1.732"	0.787"	1.024"	2.953"	5.512"	0.0004"	5000	1500N
L0008	3MT PRECISION LIVE CENTER SET	3	0.938"	1.969"	1.378"	1.122"	3.03"	6.22"	0.0004"	4200	2000N
L0007	4MT PRECISION LIVE CENTER SET	4	1.231"	2.598"	2.165"	1.378"	3.94"	7.933"	0.0004"	3200	3200N
L0009	5MT PRECISION LIVE CENTER SET	5	1.748"	3.543"	2.756"	1.772"	4.528"	9.685"	0.0004"	2400	6300N

# Super-Precision Live Centers

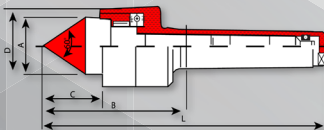
- High-precision, light-duty design
- One-piece body & spindle made of high-quality forged alloy steel hardened to 60 HRC and precisely ground
- Front bearings are protected by a special steel/elastomer ring
- Front ball bearings support the high-speed rotation with excellent accuracy under medium load
- Thrust ball bearings with hardened frame provide excellent rigidity and accuracy
- Rear needle bearings fit design and help counteract heat displacement when running



Order No	Description	Morse Taper Size	A	B	C	D	E	F	T.I.R.	Max RPM	Max Load
L0018	1MT SUPER PRECISION LIVE CENTER	1	0.475"	1.339"	0.709"	0.779"	2.402"	4.528"	0.0002"	5000	320N
L0012	2MT SUPER PRECISION LIVE CENTER	2	0.7"	1.772"	0.984"	1.126"	2.543"	5.102"	0.0002"	5000	400N
L0011	3MT SUPER PRECISION LIVE CENTER	3	0.938"	2.047"	1.102"	1.26"	3.117"	6.307"	0.0002"	4500	800N
L0013	4MT SUPER PRECISION LIVE CENTER	4	1.231"	2.362"	1.26"	1.437"	3.551"	7.547"	0.0002"	3500	1250N
L0014	5MT SUPER PRECISION LIVE CENTER	5	1.748"	3.15"	1.772"	2"	4.469"	9.626"	0.0002"	3000	1500N
L0019	6MT PRECISION LIVE CENTER	6	2.494"	5.118"	2.953"	2.945"	6.749"	13.78"	0.0002"	2500	1800N

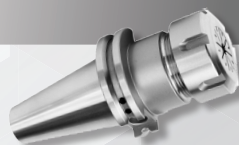
# Super-Precision High RPM Medium-Duty Live Centers

- High-precision, high-speed, medium-duty design
- Provided with adjustable ultra-precision, high-speed radial bearing
- One-piece body & spindle made of high-quality forged alloy steel, hardened to 60 HRC and precisely ground.
- Front bearings are protected by a special steel/elastomer ring
- Perfect for all kinds of machining operations on manual and CNC lathes

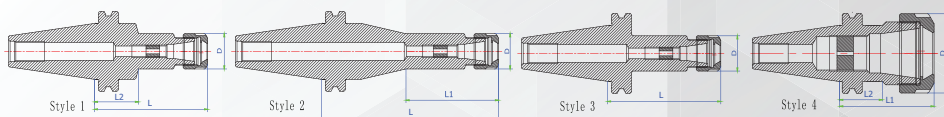


Order No.	Description	Morse Taper Size	A	B	C	D	E	F	T.I.R.	Max RPM	Max Load
L0020	2MT SUPER PREC. ADJ. HS LIVE CENTER	2	0.7"	1.772"	0.984"	1.024"	3.15"	5.709"	0.0004"	5000	4200N
L0015	3MT SUPER PREC. ADJ. HS LIVE CENTER	3	0.938"	2.047"	1.102"	1.181"	3.503"	6.693"	0.0004"	4200	2000N
L0016	4MT SUPER PREC. ADJ. HS LIVE CENTER	4	1.231"	2.362"	1.26"	1.366"	4.102"	8.098"	0.0004"	3200	3200N
L0017	5MT SUPER PREC. ADJ. HS LIVE CENTER	5	1.748"	3.031"	1.772"	1.772"	4.843"	10"	0.0004"	2400	6300N
L0021	6MT SUPER PREC. ADJ. HS LIVE CENTER	6	2.494"	4.921"	2.953"	2.697"	7.221"	14.252"	0.0004"	1600	10000N

# ER Collet Chucks



- Taper-to-Taper Runout < 0.0001"
- AD+B coolant thru the spindle & flange
- Balanced G2.5 @ 30,000 RPM Hardened to 58-62 HRC
- Taper Shank ground to AT3 accuracy (or better) • Stop Screw included
- CAT40 Draw Bar Threads: 5/8"-11



## CAT40

Order No.	Collet Series	Collet Cap	Nut	L	L1	L2	D	Locknut	Wrench	Style
T0325	11ER	0.04"-0.276"	Hex	2.5"	-	1.38"	0.748"	T0090	T0062	1
T0498	11ER	0.04"-0.276"	Hex	3"	-	1.38"	0.748"	T0090	T0062	1
T0322	11ER	0.04"-0.276"	Hex	4"	-	1.38"	0.748"	T0090	T0062	1
T0326	11ER	0.04"-0.276"	Hex	6"	-	1.38"	0.748"	T0090	T0062	1
T0310	16ER	0.04"-0.394"	Hex	2.5"	-	1.38"	1.102"	T0087	T0066	1
T0499	16ER	0.04"-0.394"	Hex	2.76"	-	1.38"	1.102"	T0087	T0066	1
T0500	16ER	0.04"-0.394"	Hex	3"	-	1.38"	1.102"	T0087	T0066	1
T0501	16ER	0.04"-0.394"	Hex	3.5"	-	1.38"	1.102"	T0087	T0066	1
T0317	16ER	0.04"-0.394"	Hex	4"	-	1.38"	1.102"	T0087	T0066	1
T0321	16ER	0.04"-0.394"	Hex	5"	-	1.38"	1.102"	T0087	T0066	1
T0329	16ER	0.04"-0.394"	Hex	6"	-	1.38"	1.102"	T0087	T0066	1
T0327	16ER	0.04"-0.394"	Hex	8"	-	1.38"	1.102"	T0087	T0066	1
T0502	16ER	0.04"-0.394"	Hex	9"	-	1.38"	1.102"	T0087	T0066	1
T0503	16ER	0.04"-0.394"	Hex	10"	-	1.38"	1.102"	T0087	T0066	1
T0314	20ER	0.04"-0.512"	Hex	2.5"	-	1.38"	1.377"	T0088	T0072	1
T0504	20ER	0.04"-0.512"	Hex	2.76"	-	1.38"	1.377"	T0088	T0072	1
T0505	20ER	0.04"-0.512"	Hex	3"	-	1.38"	1.377"	T0088	T0072	1
T0318	20ER	0.04"-0.512"	Hex	4"	-	1.38"	1.377"	T0088	T0072	1
T0320	20ER	0.04"-0.512"	Hex	6"	-	1.38"	1.377"	T0088	T0072	1
T0330	20ER	0.04"-0.512"	Hex	8"	-	1.38"	1.377"	T0088	T0072	1
T0506	20ER	0.04"-0.512"	Hex	9"	-	1.38"	1.377"	T0088	T0072	1
T0507	20ER	0.04"-0.512"	Hex	10"	-	1.38"	1.377"	T0088	T0072	1
T0313	25ER	0.04"-0.63"	Round	2.5"	-	-	1.654"	T0085	T0059	3
T0508	25ER	0.04"-0.63"	Round	2.76"	-	-	1.654"	T0085	T0059	3
T0316	25ER	0.04"-0.63"	Round	4"	-	-	1.654"	T0085	T0059	3
T0323	25ER	0.04"-0.63"	Round	6"	-	-	1.654"	T0085	T0059	3
T0332	25ER	0.04"-0.63"	Round	8"	-	-	1.654"	T0085	T0059	3
T0533	32ER	0.04"-0.810"	Round	2"	-	-	1.97"	T0082	T0054	3
T0510	32ER	0.04"-0.810"	Round	2.36"	-	-	1.97"	T0082	T0054	3
T0353	32ER	0.04"-0.810"	Round	2.5"	-	-	1.97"	T0082	T0054	3
T0309	32ER	0.04"-0.810"	Round	2.75"	-	-	1.97"	T0082	T0054	3
T0511	32ER	0.04"-0.810"	Round	3"	-	-	1.97"	T0082	T0054	3
T0512	32ER	0.04"-0.810"	Round	3.13"	-	-	1.97"	T0082	T0054	3
T0311	32ER	0.04"-0.810"	Round	4"	-	-	1.97"	T0082	T0054	3
T0513	32ER	0.04"-0.810"	Round	5"	-	-	1.97"	T0082	T0054	3
T0319	32ER	0.04"-0.810"	Round	6"	-	-	1.97"	T0082	T0054	3
T0328	32ER	0.04"-0.810"	Round	8"	-	-	1.97"	T0082	T0054	3
T0514	32ER	0.04"-0.810"	Round	9"	-	-	1.97"	T0082	T0054	3



# ER Collet Chucks

Continued

## CAT40

Order No.	Collet Series	Collet Cap	Nut	L	L1	L2	D	Locknut	Wrench	Style
T0515	32ER	0.04"-0.810"	Round	10"	-	-	1.97"	T0082	T0054	3
T0516	40ER	0.118"-1.024"	Round	2.5"	-	1.38"	2.48"	T0086	T0055	4
T0312	40ER	0.118"-1.024"	Round	3"	-	1.38"	2.48"	T0086	T0055	4
T0517	40ER	0.118"-1.024"	Round	3.15"	-	1.38"	2.48"	T0086	T0055	4
T0518	40ER	0.118"-1.024"	Round	4"	-	1.38"	2.48"	T0086	T0055	4
T0519	40ER	0.118"-1.024"	Round	5"	-	1.38"	2.48"	T0086	T0055	4
T0324	40ER	0.118"-1.024"	Round	6"	-	1.38"	2.48"	T0086	T0055	4
T0331	40ER	0.118"-1.024"	Round	8"	-	1.38"	2.48"	T0086	T0055	4

## CAT50

• Balanced G2.5 @ 25,000 RPM • CAT50 Draw Bar Threads: 1"- 8

Order No.	Collet Series	Collet Cap	Nut	L	L1	L2	D	Locknut	Wrench	Style
T0339	16ER	0.04"-0.394"	Hex	4"	-	1.38"	1.102"	T0087	T0066	1
T0343	16ER	0.04"-0.394"	Hex	6"	-	1.38"	1.102"	T0087	T0066	1
T0348	16ER	0.04"-0.394"	Hex	8"	-	1.38"	1.102"	T0087	T0066	1
T0520	16ER	0.04"-0.394"	Hex	10"	-	1.38"	1.102"	T0087	T0066	1
T0521	16ER	0.04"-0.394"	Hex	12"	-	1.38"	1.102"	T0087	T0066	1
T5022	20ER	0.04"-0.512"	Hex	2.5"	-	-	1.377"	T0088	T0072	1
T0341	20ER	0.04"-0.512"	Hex	4"	-	1.38"	1.377"	T0088	T0072	1
T0337	20ER	0.04"-0.512"	Hex	6"	-	1.38"	1.377"	T0088	T0072	1
T0347	20ER	0.04"-0.512"	Hex	8"	-	1.38"	1.377"	T0088	T0072	1
T0523	20ER	0.04"-0.512"	Hex	10"	-	1.38"	1.377"	T0088	T0072	1
T0524	20ER	0.04"-0.512"	Hex	12"	-	1.38"	1.377"	T0088	T0072	1
T0525	25ER	0.04"-0.63"	Round	2.5"	-	-	1.654"	T0085	T0059	3
T0342	25ER	0.04"-0.63"	Round	4"	-	1.38"	1.654"	T0085	T0059	1
T0345	25ER	0.04"-0.63"	Round	6"	-	1.38"	1.654"	T0085	T0059	1
T0350	25ER	0.04"-0.63"	Round	8"	-	1.38"	1.654"	T0085	T0059	1
T0526	25ER	0.04"-0.63"	Round	9"	-	1.38"	1.654"	T0085	T0059	1
T5027	25ER	0.04"-0.63"	Round	10"	-	1.38"	1.654"	T0085	T0059	1
T0346	32ER	0.04"-0.810"	Round	1.69"	-	1.38"	1.97"	T0082	T0054	1
T0335	32ER	0.04"-0.810"	Round	4"	-	1.38"	1.97"	T0082	T0054	1
T0336	32ER	0.04"-0.810"	Round	6"	-	1.38"	1.97"	T0082	T0054	1
T0344	32ER	0.04"-0.810"	Round	8"	-	1.38"	1.97"	T0082	T0054	1
T0528	32ER	0.04"-0.810"	Round	10"	-	1.38"	1.97"	T0082	T0054	1
T0351	32ER	0.04"-0.810"	Round	12"	-	1.38"	1.97"	T0082	T0054	2
T0338	40ER	0.118"-1.024"	Round	4"	-	1.38"	2.48"	T0086	T0055	1
T0340	40ER	0.118"-1.025"	Round	6"	-	1.38"	2.48"	T0086	T0055	1
T0349	40ER	0.118"-1.026"	Round	8"	-	1.38"	2.48"	T0086	T0055	1
T0529	40ER	0.118"-1.027"	Round	10"	-	1.38"	2.48"	T0086	T0055	1
T0530	50ER	0.118"-1.024"	Round	4"	-	1.38"	2.48"	T0086	T0055	1
T0531	50ER	0.118"-1.024"	Round	6"	-	1.38"	2.48"	T0086	T0055	1
T0532	50ER	0.118"-1.024"	Round	8"	-	1.38"	2.48"	T0086	T0055	1

## Universal H/V CNC Tool Tightening Fixtures

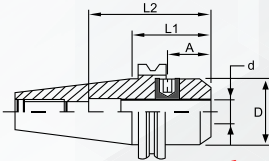
Order No.	Description
T0102	CAT/BT 30 CNC TIGHTENING FIXTURE
T0100	CAT/BT 40 CNC TIGHTENING FIXTURE
T0101	CAT/BT 50 CNC TIGHTENING FIXTURE



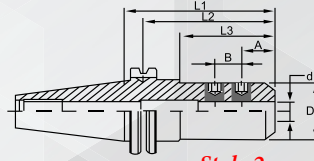
# End Mill Holders



- Taper-to-Bore Runout < 0.0002" • H5 Bore Tolerance
  - AD+B Coolant thru the spindle & flange
  - CAT40 balanced G2.5 @ 30,000 RPM
- Taper Shank ground to AT3 accuracy (or better)
  - CAT40 Draw Bar Threads: 5/8" - 11



Style 1



Style 2

## CAT40

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0187	1/8"	1.38"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0354	1/8"	1.75"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0355	1/8"	2"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0356	1/8"	2.37"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0357	1/8"	2.5"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0358	1/8"	3"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0359	1/8"	4"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0177	1/8"	4.5"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0360	1/8"	5"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0361	1/8"	6"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0185	3/16"	1.38"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0362	3/16"	1.75"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0182	3/16"	2.5"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0363	3/16"	3"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0364	3/16"	4"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0179	3/16"	4.5"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0365	3/16"	4.72"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0197	3/16"	6"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0181	1/4"	1.38"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0366	1/4"	1.75"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0174	1/4"	2.5"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0367	1/4"	3"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0368	1/4"	4"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0369	1/4"	4.72"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0169	1/4"	4.5"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0194	1/4"	6"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0370	1/4"	9"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0189	5/16"	1.38"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0371	5/16"	1.75"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0372	5/16"	2.5"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0373	5/16"	3"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0374	5/16"	4"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0190	5/16"	4.5"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0375	5/16"	4.72"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1





# End Mill Holders

Continued

## CAT40

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0376	5/16"	6"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0377	5/16"	9"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0178	3/8"	1.38"	1"	-	0.61"	-	5/16"-24	1	5/32"	1
T0378	3/8"	1.75"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0170	3/8"	2.5"	1"	-	0.37"	-	3/8"-24	1	3/16"	1
T0379	3/8"	3"	1"	-	0.37"	-	3/8"-24	1	3/16"	1
T0380	3/8"	4"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0381	3/8"	4.72"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0183	3/8"	4.5"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0382	3/8"	5"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0383	3/8"	6"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0203	3/8"	6.5"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0207	3/8"	8"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0384	3/8"	9"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0196	7/16"	1.75"	1.25"	-	0.875"	-	5/16"-24	1	3/16"	1
T0385	7/16"	2.5"	1.25"	-	0.875"	-	5/16"-24	1	3/16"	1
T0386	7/16"	2.62"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0387	7/16"	4"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0200	7/16"	4.5"	1.25"	-	1.25"	-	5/16"-24	1	5/32"	1
T0388	7/16"	9"	1.25"	-	0.63"	-	5/16"-24	1	5/32"	1
T0173	1/2"	1.75"	1.38"	-	0.875"	-	7/16"-20	1	5/32"	1
T0352	1/2"	2.5"	1.38"	-	0.63"	-	7/16"-20	1	5/32"	1
T0164	1/2"	2.62"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0389	1/2"	3"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0390	1/2"	4"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0172	1/2"	4.62"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0391	1/2"	5"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0392	1/2"	6"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0193	1/2"	6.92"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0202	1/2"	8"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0393	1/2"	9"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0394	9/16"	1.75"	1.5"	2.362"	0.937"	-	7/16"-20	1	7/32"	1
T0395	9/16"	2.62"	1.5"	-	0.937"	-	7/16"-20	1	7/32"	1
T0175	5/8"	1.75"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0396	5/8"	2.75"	1.5"	2.362"	0.937"	-	1/2"-20	1	1/4"	1
T0397	5/8"	3"	1.5"	2.362"	0.937"	-	1/2"-20	1	1/4"	1
T0171	5/8"	3.75"	1.5"	2.362"	0.937"	-	1/2"-21	1	1/4"	1
T0398	5/8"	4"	1.5"	2.362"	0.937"	-	1/2"-22	1	1/4"	1
T0399	5/8"	5.5"	1.5"	2.362"	0.937"	-	1/2"-22	1	1/4"	1
T0195	5/8"	5.75"	1.5"	2.362"	0.937"	-	1/2"-23	1	1/4"	1
T0400	5/8"	6"	1.5"	2.56"	0.937"	-	1/2"-23	1	1/4"	1
T0205	5/8"	8"	1.5"	2.362"	0.937"	-	1/2"-24	1	1/4"	1
T0401	5/8"	9"	1.5"	2.362"	0.937"	-	1/2"-24	1	1/4"	1
T0165	3/4"	1.75"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0402	3/4"	3"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0403	3/4"	3.5"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0168	3/4"	3.75"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1

# End Mill Holders

Continued

## CAT40

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0404	3/4"	4"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0405	3/4"	5"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0406	3/4"	5.5"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0186	3/4"	5.75"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0407	3/4"	6"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0408	3/4"	6.5"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0198	3/4"	8"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0409	3/4"	9"	1.75"	2.61"	0.965"	-	5/8"-18	1	5/16"	1
T0188	7/8"	1.75"	1.75"	2.56"	1.063"	-	5/8"-18	1	5/16"	1
T0410	7/8"	3.5"	1.75"	3.15"	1.063"	-	5/8"-18	1	5/16"	1
T0411	7/8"	4.75"	1.75"	3.15"	1.063"	-	5/8"-18	1	5/16"	1
T0191	7/8"	3"	1.75"	3.15"	1.063"	-	5/8"-18	1	5/16"	1
T0201	7/8"	6"	1.75"	3.15"	1.063"	-	5/8"-18	1	3/8"	1
T0412	7/8"	9"	1.75"	3.15"	1.063"	-	5/8"-18	1	3/8"	1
T0166	1"	1.75"	2.28"	2.323"	0.945"	-	3/4"-16	1	3/8"	1
T0413	1"	2"	2.28"	2.323"	0.945"	-	3/4"-16	1	3/8"	1
T0414	1"	3"	2.28"	2.953"	0.945"	-	3/4"-16	1	3/8"	1
T0180	1"	4"	2.28"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0192	1"	6"	2.28"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0206	1"	8"	2.28"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0415	1"	9"	2.28"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0167	1-1/4"	2"	2.5"	2.323"	1.125"	-	3/4"-16	1	3/8"	1
T0416	1-1/4"	4"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0176	1-1/4"	4.25"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0417	1-1/4"	4.6"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0418	1-1/4"	6"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0204	1-1/4"	6.25"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0208	1-1/4"	8"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0419	1-1/2"	4"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0420	1-1/2"	4.5"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0184	1-1/2"	4.62"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0421	1-1/2"	6"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0199	1-1/2"	6.62"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0209	1-1/2"	8"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2

## CAT50

CAT50 Draw Bar Threads: 1"- 8

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0422	1/8"	2.5"	0.69"	-	0.37"	-	3/16"-24	1	3/32"	1
T0244	3/16"	2.5"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0233	3/16"	4.5"	0.69"	-	0.562"	-	1/4"-28	1	1/8"	1
T0423	1/4"	1.38"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0245	1/4"	2.5"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0424	1/4"	4"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0229	1/4"	4.5"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0239	1/4"	6"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0425	1/4"	6.5"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0426	1/4"	8"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1



# End Mill Holders

Continued

## CAT50

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0427	1/4"	10"	0.81"	-	0.63"	-	1/4"-28	1	1/8"	1
T0428	5/16"	1.38"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0429	5/16"	2.5"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0430	5/16"	4"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0231	5/16"	4.5"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0431	5/16"	6"	0.88"	-	0.63"	-	5/16"-24	1	5/32"	1
T0432	3/8"	1.38"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0226	3/8"	2.5"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0433	3/8"	4"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0221	3/8"	4.5"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0434	3/8"	6"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0227	3/8"	6.5"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0248	3/8"	8"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0435	3/8"	10"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0436	3/8"	14"	1"	-	0.61"	-	3/8"-24	1	3/16"	1
T0247	7/16"	1.75"	1.25"	-	0.71"	-	5/16"-24	1	5/32"	1
T0437	7/16"	2.5"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0438	7/16"	4"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0237	7/16"	4.5"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0439	7/16"	6"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0440	7/16"	8"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0441	7/16"	14"	1.25"	-	0.875"	-	5/16"-24	1	5/32"	1
T0442	1/2"	1.75"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0230	1/2"	2.62"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0443	1/2"	4"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0219	1/2"	4.62"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0444	1/2"	5"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0445	1/2"	6"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0224	1/2"	6.62"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0235	1/2"	8"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0446	1/2"	10"	1.38"	-	0.875"	-	7/16"-20	1	7/32"	1
T0447	1/2"	14"	1.38"	-	0.875"	-	7/16"-20	2	7/32"	2
T0448	9/16"	1.44"	1.5"	-	0.875"	-	-	1	7/32"	1
T0449	9/16"	2.62"	1.5"	-	0.875"	-	-	1	7/32"	1
T0450	9/16"	3"	1.5"	-	0.875"	-	-	1	7/32"	1
T0451	9/16"	6"	1.5"	-	0.875"	-	-	1	7/32"	1
T0452	5/8"	1.44"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0453	5/8"	1.75"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0454	5/8"	3"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0220	5/8"	3.75"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0455	5/8"	4"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0222	5/8"	5.75"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0456	5/8"	6"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0457	5/8"	7.5"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0458	5/8"	7.75"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0236	5/8"	8"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0459	5/8"	10"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1
T0460	5/8"	14"	1.5"	-	0.937"	-	1/2"-20	1	1/4"	1

# End Mill Holders

Continued

## CAT50

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0461	3/4"	1.44"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0462	3/4"	1.62"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0463	3/4"	1.75"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0464	3/4"	3"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0215	3/4"	3.75"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0465	3/4"	4"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0217	3/4"	5.75"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0466	3/4"	6"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0467	3/4"	7.75"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0228	3/4"	8"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0468	3/4"	14"	1.75"	-	0.965"	-	5/8"-18	1	5/16"	1
T0469	7/8"	1.75"	1.75"	2.56"	1.063"	-	5/8"-18	1	5/16"	1
T0470	7/8"	3.75"	1.75"	2.56"	1.06"	-	5/8"-18	1	5/16"	1
T0234	7/8"	4"	1.75"	2.56"	1.06"	-	5/8"-18	1	5/16"	1
T0471	7/8"	5.75"	1.75"	2.56"	1.06"	-	5/8"-18	1	5/16"	1
T0238	7/8"	6"	1.75"	2.56"	1.06"	-	5/8"-18	1	5/16"	1
T0472	7/8"	7.75"	1.75"	2.56"	1.06"	-	5/8"-18	1	5/16"	1
T0473	7/8"	8"	1.75"	2.56"	1.06"	-	5/8"-18	1	5/16"	1
T0474	1"	1.62"	2.48"	2.323"	0.945"	-	3/4"-16	1	3/8"	1
T0475	1"	2"	2.48"	2.323"	0.945"	-	3/4"-16	1	3/8"	1
T0476	1"	2.62"	2.48"	2.323"	0.945"	-	3/4"-16	1	3/8"	1
T0214	1"	4"	2.48"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0218	1"	6"	2.48"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0240	1"	8"	2.48"	2.953"	1.125"	1"	3/4"-16	2	3/8"	2
T0477	1"	14"	2.48"	2.953"	1.127v1"	1"	3/4"-16	2	3/8"	2
T0478	1-1/4"	2"	2.5"	2.5"	1.125"	-	3/4"-16	1	3/8"	1
T0479	1-1/4"	2.62"	2.5"	2.5"	1.125"	-	3/4"-16	1	3/8"	1
T0480	1-1/4"	4"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0216	1-1/4"	4.25"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0481	1-1/4"	4.6"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0482	1-1/4"	6"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0225	1-1/4"	6.25"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0241	1-1/4"	8"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0484	1-1/2"	2"	2.5"	2.5"	1.125"	1"	3/4"-16	1	3/8"	1
T0485	1-1/2"	2.25"	2.5"	2.5"	1.125"	1"	3/4"-16	1	3/8"	1
T0486	1-1/2"	2.62"	2.5"	2.5"	1.125"	1"	3/4"-16	1	3/8"	1
T0487	1-1/2"	4"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0223	1-1/2"	4.62"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0488	1-1/2"	6"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0246	1-1/2"	6.62"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0489	1-1/2"	7"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0242	1-1/2"	8"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0490	1-1/2"	9"	2.5"	3"	1.125"	1"	3/4"-16	2	3/8"	2
T0491	2"	3.63"	3.75"	3	1.335"	-	3/4"-16	1	3/8"	1
T0492	2"	5.37"	3.75"	3.74"	1.335"	1.41"	3/4"-16	2	3/8"	2
T0232	2"	5.62"	3.75"	3.74"	1.335"	1.41"	3/4"-16	2	3/8"	2
T0493	2"	6"	3.75"	3.74"	1.335"	1.41"	3/4"-16	2	3/8"	2

# End Mill Holders

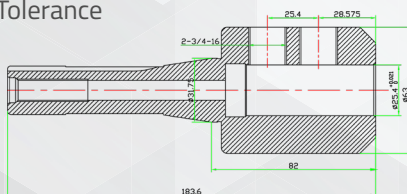
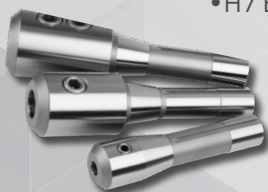
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## CAT50

Order No.	d	L1	D	L2	A	B	Clamp Screw Size	# of Clamp Screw	Allen Key Size	Style
T0494	2"	7.62"	3.75"	3.74"	1.335"	1.41"	3/4"-16	2	3/8"	2
T0249	2"	8"	3.75"	3.74"	1.335"	1.41"	3/4"-16	2	3/8"	2
T0497	2-1/2"	6.5"	4.921"	3.66"	1.575"	1.575"	3/4"-16	2	3/8"	2

## R8 Shank End Mill Holders

- R8 shank to bore runout < 0.0001"
- Draw bar thread 7/16" - 20
- H7 Bore Tolerance

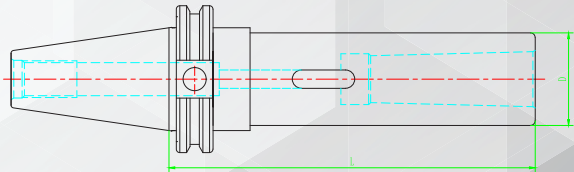
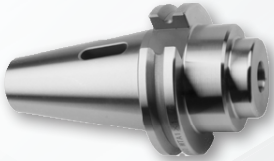


Order No.	D1	D2	L1	L2	L3	Lock Screw
T0307	3/16"	0.69"	1.2"	0.562"	-	1/4"-28
T0305	3/8"	1"	1.2"	0.61"	-	3/8"-24
T0303	1/2"	1.378"	2"	0.875"	-	7/16"-20
T0306	5/8"	1.5"	2"	0.937"	-	1/2"-20
T0304	3/4"	1.75"	2"	0.965"	-	5/8"-18
T0308	7/8"	1.75"	2.5"	1.06"	0.874"	5/8"-18
T0302	1"	2.48"	3.23"	1.125"	1"	3/4"-16



# Morse Taper Adapters

- Coolant thru the Spindle
- Balanced G2.5 @ 30,000 RPM
- Taper Shank ground to AT3 accuracy (or better)
  - MT - CAT Form A
- CAT40 Draw Bar Threads: 5/8"-11    • CAT50 Draw Bar Threads: 1"-8



## CAT40

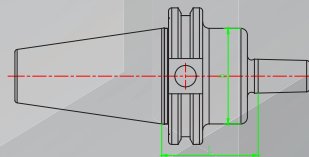
Order No.	Taper size	D	L
T0110	1	0.984"	2.205"
T0109	2	1.260"	2.638"
T0108	3	1.575"	3.307"
T0107	4	1.89"	4.213"

## CAT50

Order No.	Taper size	D	L
T0113	2	1.260"	2.638"
T0114	3	1.575"	3.307"
T0111	4	1.89"	4.213"
T0112	5	2.48"	5.236"

# Jacobs Taper Adapters

- Designed to use with Keyless Jacobs Chucks
  - Non-coolant
- Taper Shank ground to AT3 accuracy (or better)
  - Balanced by design
- CAT40 Draw Bar Threads: 5/8"- 11
- CAT50 Draw Bar Threads: 1"- 8



## CAT40

Order No.	Taper size	D	L	L2
T0116	JT2	1.75"	1.57"	0.875"
T0117	JT2	1.75"	2.44	0.875"
T0115	JT3	1.75"	1.57"	1.21"
T0118	JT3	1.75"	2.78"	1.21"
T0119	JT33	1.75"	1.57"	1.015"
T0122	JT33	1.75"	2.56"	1.015"
T0121	JT4	1.75"	1.57"	1.665"
T0123	JT4	1.75"	2.44"	1.665"
T0120	JT6	1.75"	1.57"	1.025"
T0124	JT6	1.75"	2.44"	1.025"

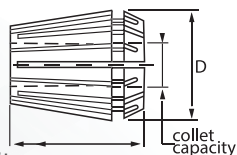
## CAT50

Order No.	Taper size	D	L	L2T
T0130	JT2	2.75"	1.57"	0.875"
T0127	JT3	2.75"	1.57"	1.21"
T0125	JT3	2.75"	2.78"	1.21"
T0131	JT33	2.75"	1.57"	1.015"
T0126	JT33	2.75"	2.56"	1.015"
T0128	JT4	2.75"	1.57"	1.6"
T0133	JT4	2.75"	3.25"	1.6"
T0129	JT5	2.75"	1.57"	1.86"
T0132	JT6	2.75"	1.57"	0.975"



# Precision ER Collets

- Precision collets
- Collet accuracy: 0.0003" - 0.0004" T.I.R.
- Wide clamping ranges: 0.02" - 0.039" collapsibility
- Made of high-quality steel

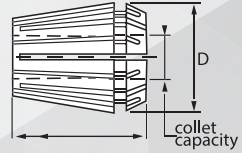


Order No	Collet Series	Collet Nominal Size	Collet Capacity Max-Min inch	Collet Capacity Max-Min mm
CS001	ER11	1/16"	.0625-.0225	1.588-1.00
CS002	ER11	3/32"	.0938-.0538	2.383-1.382
CS003	ER11	1/8"	.1250-.0850	3.175-2.174
CS004	ER11	5/32"	.1563-.1163	3.970-2.969
CS005	ER11	3/16"	.2188-.1788	4.763-3.762
CS006	ER11	7/32"	.2188-.1788	5.558-4.557
CS007	ER11	1/4"	.2500-.2100	6.350-5.349
CS008	ER16	1/16"	.0625-.0225	1.588-1.080
CS009	ER16	3/32"	.0938-.0538	2.383-1.382
CS010	ER16	1/8"	.1250-.0850	3.175-2.174
CS011	ER16	5/32"	.1563-.1163	3.970-2.969
CS012	ER16	3/16"	.2188-.1788	4.763-3.762
CS013	ER16	7/32"	.2188-.1788	5.558-4.557
CS014	ER16	1/4"	.2500-.2100	6.350-5.349
CS015	ER16	9/32"	.2813-.2413	7.145-6.144
CS016	ER16	5/16"	.3125-.2725	7.938-6.937
CS017	ER16	11/32"	.3438-.3038	8.733-7.732
CS018	ER16	3/8"	.3750-.3350	9.525-8.524
CS019	ER16	13/32"	.4063-.3663	10.320-9.319
CS020	ER20	3/32"	.0938-.0538	2.383-1.382
CS021	ER20	1/8"	.1250-.0850	3.175-2.174
CS022	ER20	5/32"	.1563-.1163	3.970-2.969
CS023	ER20	3/16"	.2188-.1788	4.763-3.762
CS024	ER20	7/32"	.2188-.1788	5.558-4.557
CS025	ER20	1/4"	.2500-.2100	6.350-5.349
CS026	ER20	9/32"	.2813-.2413	7.145-6.144
CS027	ER20	5/16"	.3125-.2725	7.938-6.937
CS028	ER20	11/32"	.3438-.3038	8.733-7.732
CS029	ER20	3/8"	.3750-.3350	9.525-8.524
CS030	ER20	13/32"	.4063-.3663	10.320-9.319
CS031	ER20	7/16"	.4375-.3975	11.113-10.112
CS032	ER20	15/32"	.4688-.4288	11.908-10.907
CS033	ER20	1/2"	.5000-.4600	12.700-11.836
CS034	ER25	1/16"	.0625-.0225	1.588-1.080
CS035	ER25	3/32"	.0938-.0538	2.383-1.382
CS036	ER25	1/8"	.1250-.0850	3.175-2.174
CS037	ER25	5/32"	.1563-.1163	3.970-2.969
CS038	ER25	3/16"	.2188-.1788	4.763-3.762
CS039	ER25	7/32"	.2188-.1788	5.558-4.557
CS040	ER25	1/4"	.2500-.2100	6.350-5.349
CS041	ER25	9/32"	.2813-.2413	7.145-6.144
CS042	ER25	5/16"	.3125-.2725	7.938-6.937
CS043	ER25	11/32"	.3438-.3038	8.733-7.732



# Precision ER Collets

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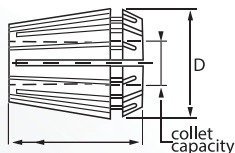
Order No	Collet Series	Collet Nominal Size	Collet Capacity Max-Min inch	Collet Capacity Max-Min mm
CS044	ER25	3/8"	.3750-.3350	9.525-8.524
CS045	ER25	13/32"	.4063-.3663	10.320-9.319
CS046	ER25	7/16"	.4375-.3975	11.113-10.112
CS047	ER25	15/32"	.4688-.4288	11.908-10.907
CS048	ER25	1/2"	.5000-.4600	12.700-11.836
CS049	ER25	17/32"	.5313-.4913	13.495-12.494
CS050	ER25	9/16"	.5625-.5225	14.288-13.287
CS051	ER25	19/32"	.5938-.5538	15.083-14.082
CS052	ER25	5/8"	.6250-.5850	15.875-14.874
CS053	ER32	1/8"	.1250-.0850	3.175-2.174
CS054	ER32	5/32"	.1563-.1163	3.970-2.969
CS055	ER32	3/16"	.2188-.1788	4.763-3.762
CS056	ER32	7/32"	.2188-.1788	5.558-4.557
CS057	ER32	1/4"	.2500-.2100	6.350-5.349
CS058	ER32	9/32"	.2813-.2413	7.145-6.144
CS059	ER32	5/16"	.3125-.2725	7.938-6.937
CS060	ER32	11/32"	.3438-.3038	8.733-7.732
CS061	ER32	3/8"	.3750-.3350	9.525-8.524
CS062	ER32	13/32"	.4063-.3663	10.320-9.319
CS063	ER32	7/16"	.4375-.3975	11.113-10.112
CS064	ER32	15/32"	.4688-.4288	11.908-10.907
CS065	ER32	1/2"	.5000-.4600	12.700-11.836
CS066	ER32	17/32"	.5313-.4913	13.495-12.494
CS067	ER32	9/16"	.5625-.5225	14.288-13.287
CS068	ER32	19/32"	.5938-.5538	15.083-14.082
CS069	ER32	5/8"	.6250-.5850	15.875-14.874
CS070	ER32	21/32"	.6563-.6163	16.670-15.669
CS071	ER32	11/16"	.6875-.6475	17.463-16.462
CS072	ER32	23/32"	.7188-.6788	18.258-17.257
CS073	ER32	3/4"	.7500-.7413	19.050-18.049
CS074	ER32	25/32"	.7813-.7413	19.845-18.844
CS075	ER32	13/16"	.8125-.7725	20.638-19.637
CS076	ER40	1/8"	.1250-.0850	3.175-2.174
CS077	ER40	5/32"	.1563-.1163	3.970-2.969
CS078	ER40	3/16"	.2188-.1788	4.763-3.762
CS079	ER40	7/32"	.2188-.1788	5.558-4.557
CS080	ER40	1/4"	.2500-.2100	6.350-5.349
CS081	ER40	9/32"	.2813-.2413	7.145-6.144
CS082	ER40	5/16"	.3125-.2725	7.938-6.937
CS083	ER40	11/32"	.3438-.3038	8.733-7.732
CS084	ER40	3/8"	.3750-.3350	9.525-8.524
CS085	ER40	13/32"	.4063-.3663	10.320-9.319
CS086	ER40	7/16"	.4375-.3975	11.113-10.112
CS087	ER40	15/32"	.4688-.4288	11.908-10.907
CS088	ER40	1/2"	.5000-.4600	12.700-11.836
CS089	ER40	17/32"	.5313-.4913	13.495-12.494





# Precision ER Collets

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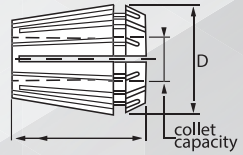


Order No	Collet Series	Collet Nominal Size	Collet Capacity Max-Min inch	Collet Capacity Max-Min mm
CS090	ER40	9/16"	.5625-.5225	14.288-13.287
CS091	ER40	19/32"	.5938-.5538	15.083-14.082
CS092	ER40	5/8"	.6250-.5850	15.875-14.874
CS093	ER40	21/32"	.6563-.6163	16.670-15.669
CS094	ER40	11/16"	.6875-.6475	17.463-16.462
CS095	ER40	23/32"	.7188-.6788	18.258-17.257
CS096	ER40	3/4"	.7500-.7113	19.050-18.049
CS097	ER40	25/32"	.7813-.7413	19.845-18.844
CS098	ER40	13/16"	.8125-.7725	20.638-19.637
CS099	ER40	27/32"	.8438-.8038	21.433-20.432
CS100	ER40	7/8"	.8750-.8350	22.225-21.224
CS101	ER40	29/32"	.9063-.8663	23.020-22.013
CS102	ER40	15/16"	.9375-.8975	23.813-22.812
CS103	ER40	31/32"	.9688-.9288	24.608-23.607
CS104	ER40	1"	1.000-.9600	25.400-24.399
CS105	ER11	1.0mm	.3940-.0197	1.0-0.5
CS106	ER11	1.5mm	.0590-.0394	1.5-1.0
CS107	ER11	2.0mm	.0787-.0390	2.0-1.0
CS108	ER11	2.5mm	.0984-.0590	2.5-1.5
CS109	ER11	3.0mm	.1181-.0787	3.0-2.0
CS110	ER11	3.5mm	.1378-.0980	3.5-2.5
CS111	ER11	4.0mm	.1575-.1181	4.0-3.0
CS112	ER11	4.5mm	.1772-.1575	4.5-3.5
CS113	ER11	5.0mm	.1969-.1575	5.0-4.0
CS114	ER11	5.5mm	.2165-.1770	5.5-4.5
CS115	ER11	6.0mm	.2362-.1969	6.0-5.0
CS116	ER11	6.5mm	.2559-.2170	6.5-5.5
CS117	ER11	7.0mm	.2756-.2362	7.0-6.0
CS118	ER16	1.0mm	.3940-.0197	1.0-0.5
CS119	ER16	1.5mm	.0590-.0394	1.5-1.0
CS120	ER16	2.0mm	.0787-.0390	2.0-1.0
CS121	ER16	2.5mm	.0984-.0590	2.5-1.5
CS122	ER16	3.0mm	.1181-.0787	3.0-2.0
CS123	ER16	3.5mm	.1378-.0980	3.5-2.5
CS124	ER16	4.0mm	.1575-.1181	4.0-3.0
CS125	ER16	4.5mm	.1772-.1575	4.5-3.5
CS126	ER16	5.0mm	.1969-.1575	5.0-4.0
CS127	ER16	5.5mm	.2165-.1770	5.5-4.5
CS128	ER16	6.0mm	.2362-.1969	6.0-5.0
CS129	ER16	6.5mm	.2559-.2170	6.5-5.5
CS130	ER16	7.0mm	.2756-.2362	7.0-6.0
CS131	ER16	7.5mm	.2953-.2559	7.5-6.5
CS132	ER16	8.0mm	.3150-.2756	8.0-7.0
CS133	ER16	8.5mm	.3346-.2953	8.5-7.5
CS134	ER16	9.0mm	.3543-.3150	9.0-8.0
CS135	ER16	9.5mm	.3740-.3346	9.5-8.5
CS136	ER16	10.0mm	.3937-.3543	10.0-9.0
CS137	ER20	1.0mm	.3940-.0197	1.0-0.5



# Precision ER Collets

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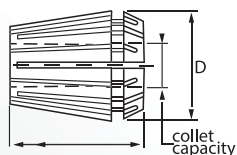


Order No	Collet Series	Collet Nominal Size	Collet Capacity <i>Max-Min inch</i>	Collet Capacity <i>Max-Min mm</i>
CS138	ER20	2.0mm	.0787-.0390	2.0-1.0
CS139	ER20	3.0mm	.1181-.0787	3.0-2.0
CS140	ER20	4.0mm	.1575-.1181	4.0-3.0
CS141	ER20	5.0mm	.1969-.1575	5.0-4.0
CS142	ER20	6.0mm	.2362-.1969	6.0-5.0
CS143	ER20	7.0mm	.2756-.2362	7.0-6.0
CS144	ER20	8.0mm	.3150-.2756	8.0-7.0
CS145	ER20	9.0mm	.3543-.3150	9.0-8.0
CS146	ER20	10.0mm	.3937-.3543	10.0-9.0
CS147	ER20	11.0mm	.4330-.3937	11.0-10.0
CS148	ER20	12.0mm	.4724-.4330	12.0-11.0
CS149	ER20	13.0mm	.5118-.4724	13.0-12.0
CS150	ER25	2.0mm	.0787-.0390	2.0-1.0
CS151	ER25	3.0mm	.1181-.0787	3.0-2.0
CS152	ER25	4.0mm	.1575-.1181	4.0-3.0
CS153	ER25	5.0mm	.1969-.1575	5.0-4.0
CS154	ER25	6.0mm	.2362-.1969	6.0-5.0
CS155	ER25	7.0mm	.2756-.2362	7.0-6.0
CS156	ER25	8.0mm	.3150-.2756	8.0-7.0
CS157	ER25	9.0mm	.3543-.3150	9.0-8.0
CS158	ER25	10.0mm	.3937-.3543	10.0-9.0
CS159	ER25	11.0mm	.4330-.3937	11.0-10.0
CS160	ER25	12.0mm	.4724-.4330	12.0-11.0
CS161	ER25	13.0mm	.5118-.4724	13.0-12.0
CS162	ER25	14.0mm	.5512-.5118	14.0-13.0
CS163	ER25	15.0mm	.5906-.5512	15.0-14.0
CS164	ER25	16.0mm	.6299-.5906	16.0-15.0
CS165	ER32	3.0mm	.1181-.0787	3.0-2.0
CS166	ER32	4.0mm	.1575-.1181	4.0-3.0
CS167	ER32	5.0mm	.1969-.1575	5.0-4.0
CS168	ER32	6.0mm	.2362-.1969	6.0-5.0
CS169	ER32	7.0mm	.2756-.2362	7.0-6.0
CS170	ER32	8.0mm	.3150-.2756	8.0-7.0
CS171	ER32	9.0mm	.3543-.3150	9.0-8.0
CS172	ER32	10.0mm	.3937-.3543	10.0-9.0
CS173	ER32	11.0mm	.4330-.3937	11.0-10.0
CS174	ER32	12.0mm	.4724-.4330	12.0-11.0
CS175	ER32	13.0mm	.5118-.4724	13.0-12.0
CS176	ER32	14.0mm	.5512-.5118	14.0-13.0
CS177	ER32	15.0mm	.5906-.5512	15.0-14.0
CS178	ER32	16.0mm	.6299-.5906	16.0-15.0
CS179	ER32	17.0mm	.6693-.6299	17.0-16.0
CS180	ER32	18.0mm	.7087-.6693	18.0-17.0
CS181	ER32	19.0mm	.7480-.7087	19.0-18.0
CS182	ER32	20.0mm	.7874-.7480	20.0-19.0
CS183	ER40	4.0mm	.1575-.1181	4.0-3.0
CS184	ER40	5.0mm	.1969-.1575	5.0 - 4.0
CS185	ER40	6.0mm	.2362-.1969	6.0-5.0



# Precision ER Collets

*Continued*



Order No	Collet Series	Collet Nominal Size	Collet Capacity <i>Max-Min inch</i>	Collet Capacity <i>Max-Min mm</i>
CS186	ER40	7.0mm	.2756-.2362	7.0-6.0
CS187	ER40	8.0mm	.3150-.2756	8.0-7.0
CS188	ER40	9.0mm	.3543-.3150	9.0-8.0
CS189	ER40	10.0mm	.3937-.3543	10.0-9.0
CS190	ER40	11.0mm	.4330-.3937	11.0-10.0
CS191	ER40	12.0mm	.4724-.4330	12.0-11.0
CS192	ER40	13.0mm	.5118-.4724	13.0-12.0
CS193	ER40	14.0mm	.5512-.5118	14.0-13.0
CS194	ER40	15.0mm	.5906-.5512	15.0-14.0
CS195	ER40	16.0mm	.6299-.5906	16.0-15.0
CS196	ER40	17.0mm	.6693-.6299	17.0-16.0
CS197	ER40	18.0mm	.7087-.6693	18.0-17.0
CS198	ER40	19.0mm	.7480-.7087	19.0-18.0
CS199	ER40	20.0mm	.7874-.7480	20.0-19.0
CS200	ER40	21.0mm	.8270-.7874	21.0-20.0
CS201	ER40	22.0mm	.8661-.8270	22.0-21.0
CS202	ER40	23.0mm	.9055-.8661	23.0-22.0
CS203	ER40	24.0mm	.9449-.9055	24.0-23.0
CS204	ER40	25.0mm	.9843-.9449	25.0-24.0
CS205	ER40	26.0mm	1.0236-.9843	26.0-25.0



# ER Collets - Precision Sets

- Precision collets
- Collet accuracy: 0.0001 - 0.0002" T.I.R.
- Wide clamping ranges: 0.02"-0.039" collapsibility
- Made of high-quality steel



## Inch

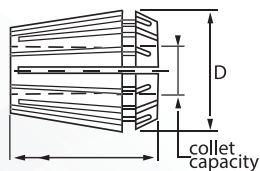
Order No.	Collet Series	Number of Pieces	Increments	Set Includes
CS206	ER11	7	1/32"	1/16", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4"
CS208	ER16	12	1/32"	1/16", 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 13/32"
CS210	ER20	8	1/16"	3/32", 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2"
CS212	ER25	10	1/16"	3/32", 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8"
CS214	ER32	12	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16"
CS216	ER40	15	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1"

## Metric

Order No.	Collet Series	Number of Pieces	Increments	Set Includes
CS207	ER11	13	.50mm	1mm, 1.5mm, 2mm, 2.5mm, 3mm, 3.5mm, 4mm, 4.5mm, 5mm, 5.5mm, 6mm, 6.5mm, 7mm
CS209	ER16	10	1.0mm	1mm, 2mm, 3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm
CS211	ER20	12	1.0mm	2mm, 3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm
CS213	ER25	15	1.0mm	2mm, 3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 16mm
CS215	ER32	18	1.0mm	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 16mm, 17mm, 18mm, 19mm, 20mm
CS217	ER40	23	1.0mm	4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 16mm, 17mm, 18mm, 19mm, 20mm, 21mm, 22mm, 23mm, 24mm, 25mm, 26mm



# ER Collets Ultra Precision (0.0002" T.I.R.)

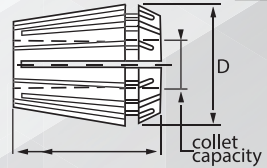


- Ultra-precision collets
- Collet accuracy: 0.0002"
- (0.005mm-5 microns)
- Wide clamping ranges: 0.02"-0.039" collapsibility
- Made of high-quality steel

Order No	Collet Series	Collet Nominal Size	Collet Capacity Max-Min inch	Collet Capacity Max-Min mm
CP001	ER16	1/16"	0.0625-0.0225	1.588-1.080
CP002	ER16	3/32"	0.0938-0.0538	2.383-1.382
CP003	ER16	1/8"	0.1250-0.0850	3.175-2.174
CP004	ER16	5/32"	0.1563-0.1163	3.970-2.969
CP005	ER16	3/16"	0.1875-0.1475	4.763-3.762
CP006	ER16	7/32"	0.2188-0.1788	5.558-4.557
CP007	ER16	1/4"	0.2500-0.2100	6.350-5.349
CP008	ER16	9/32"	0.2813-0.2413	7.145-6.144
CP009	ER16	5/16"	0.3125-0.2725	7.938-6.937
CP010	ER16	11/32"	0.3438-0.3038	8.733-7.732
CP011	ER16	3/8"	0.3750-0.3350	9.525-8.524
CP012	ER16	13/32"	0.4063-0.3663	10.320-9.319
CP013	ER20	3/32"	0.0938-0.0538	2.383-1.382
CP014	ER20	1/8"	0.1250-0.0850	3.175-2.174
CP015	ER20	5/32"	0.1563-0.1163	3.970-2.969
CP016	ER20	3/16"	0.1875-0.1475	4.763-3.762
CP017	ER20	7/32"	0.2188-0.1788	5.558-4.557
CP018	ER20	1/4"	0.2500-0.2100	6.350-5.349
CP019	ER20	9/32"	0.2813-0.2413	7.145-6.144
CP020	ER20	5/16"	0.3125-0.2725	7.938-6.937
CP021	ER20	11/32"	0.3438-0.3038	8.733-7.732
CP022	ER20	3/8"	0.3750-0.3350	9.525-8.524
CP023	ER20	13/32"	0.4063-0.3663	10.320-9.319
CP024	ER20	7/16"	0.4375-0.3975	11.113-10.112
CP025	ER20	15/32"	0.4688-0.4288	11.908-10.907
CP026	ER20	1/2"	0.5000-0.4600	12.700-11.836
CP027	ER25	1/16"	0.0625-0.0225	1.588-1.080
CP028	ER25	3/32"	0.0938-0.0538	2.383-1.382
CP029	ER25	1/8"	0.1250-0.0850	3.175-2.174
CP030	ER25	5/32"	0.1563-0.1163	3.970-2.969
CP031	ER25	3/16"	0.1875-0.1475	4.763-3.762
CP032	ER25	7/32"	0.2188-0.1788	5.558-4.557
CP033	ER25	1/4"	0.2500-0.2100	6.350-5.349
CP034	ER25	9/32"	0.2813-0.2413	7.145-6.144
CP035	ER25	5/16"	0.3125-0.2725	7.938-6.937
CP036	ER25	11/32"	0.3438-0.3038	8.733-7.732
CP037	ER25	3/8"	0.3750-0.3350	9.525-8.524



# ER Collets Ultra Precision (0.0002" T.I.R.)

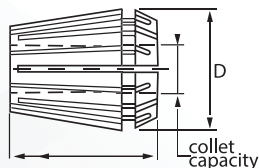


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Order No	Collet Series	Collet Nominal Size	Collet Capacity Max-Min inch	Collet Capacity Max-Min mm
CP038	ER25	13/32"	0.4063-0.3663	10.320-9.319
CP039	ER25	7/16"	0.4375-0.3975	11.113-10.112
CP040	ER25	15/32"	0.4688-0.4288	11.908-10.907
CP041	ER25	1/2"	0.5000-0.4600	12.700-11.836
CP042	ER25	17/32"	0.5313-0.4913	13.495-12.494
CP043	ER25	9/16"	0.5625-0.5225	14.288-13.287
CP044	ER25	19/32"	0.5938-0.5538	15.083-14.082
CP045	ER25	5/8"	0.6250-0.5850	15.875-14.874
CP046	ER32	1/8"	0.1250-0.0850	3.175-2.174
CP047	ER32	5/32"	0.1563-0.1163	3.970-2.969
CP048	ER32	3/16"	0.1875-0.1475	4.763-3.762
CP049	ER32	7/32"	0.2188-0.1788	5.558-4.557
CP050	ER32	1/4"	0.2500-0.2100	6.350-5.349
CP051	ER32	9/32"	0.2813-0.2413	7.145-6.144
CP052	ER32	5/16"	0.3125-0.2725	7.938-6.937
CP053	ER32	11/32"	0.3438-0.3038	8.733-7.732
CP054	ER32	3/8"	0.3750-0.3350	9.525-8.524
CP055	ER32	13/32"	0.4063-0.3663	10.320-9.319
CP056	ER32	7/16"	0.4375-0.3975	11.113-10.112
CP057	ER32	15/32"	0.4688-0.4288	11.908-10.907
CP058	ER32	1/2"	0.5000-0.4600	12.700-11.836
CP059	ER32	17/32"	0.5313-0.4913	13.495-12.494
CP060	ER32	9/16"	0.5625-0.5225	14.288-13.287
CP061	ER32	19/32"	0.5938-0.5538	15.083-14.082
CP062	ER32	5/8"	0.6250-0.5850	15.875-14.874
CP063	ER32	21/32"	0.6563-0.6163	16.670-15.669
CP064	ER32	11/16"	0.6875-0.6475	17.463-16.462
CP065	ER32	23/32"	0.7188-0.6788	18.258-17.257
CP066	ER32	3/4"	0.7500-0.7100	19.050-18.049
CP067	ER32	25/32"	0.7813-0.7413	19.845-18.844
CP068	ER32	13/16"	0.8125-0.7725	20.638-19.637
CP069	ER40	1/8"	0.1250-0.0850	3.175-2.174
CP070	ER40	5/32"	0.1563-0.1163	3.970-2.969
CP071	ER40	3/16"	0.1875-0.1475	4.763-3.762
CP072	ER40	7/32"	0.2188-0.1788	5.558-4.557
CP073	ER40	1/4"	0.2500-0.2100	6.350-5.349
CP074	ER40	9/32"	0.2813-0.2413	7.145-6.144
CP075	ER40	5/16"	0.3125-0.2725	7.938-6.937
CP076	ER40	11/32"	0.3438-0.3038	8.733-7.732
CP077	ER40	3/8"	0.3750-0.3350	9.525-8.524
CP078	ER40	13/32"	0.4063-0.3663	10.320-9.319
CP079	ER40	7/16"	0.4375-0.3975	11.113-10.112
CP080	ER40	15/32"	0.4688-0.4288	11.908-10.907



# ER Collets Ultra Precision (0.0002" T.I.R.)



Continued

Order No	Collet Series	Collet Nominal Size	Collet Capacity Max-Min inch	Collet Capacity Max-Min mm
CP081	ER40	1/2"	0.5000-0.4600	12.700-11.836
CP082	ER40	17/32"	0.5313-0.4913	13.495-12.494
CP083	ER40	9/16"	0.5625-0.5225	14.288-13.287
CP084	ER40	19/32"	0.5938-0.5538	15.083-14.082
CP085	ER40	5/8"	0.6250-0.5850	15.875-14.874
CP086	ER40	21/32"	0.6563-0.6163	16.670-15.669
CP087	ER40	11/16"	0.6875-0.6475	17.463-16.462
CP088	ER40	23/32"	0.7188-0.6788	18.258-17.257
CP089	ER40	3/4"	0.7500-0.7100	19.050-18.049
CP090	ER40	25/32"	0.7813-0.7413	19.845-18.844
CP091	ER40	13/16"	0.8125-0.7725	20.638-19.637
CP092	ER40	27/32"	0.8438-0.8038	21.433-20.432
CP093	ER40	7/8"	0.8750-0.8350	22.225-21.224
CP094	ER40	29/32"	0.9063-0.8663	23.020-22.019
CP095	ER40	15/16"	0.9375-0.8975	23.813-22.812
CP096	ER40	13/32"	0.9688-0.9288	24.608-23.607
CP097	ER40	1"	1.0000-0.9600	25.400-24.399

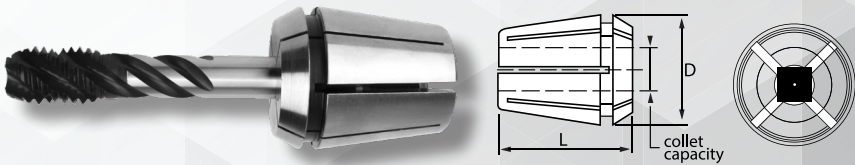
Inch

## Ultra Precision Sets

Order No.	Collet Series	Number of Pieces	Increments	Set Includes
CP098	ER16	12	1/32"	1/16, 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 13/32"
CP099	ER20	8	1/16"	3/32", 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2"
CP100	ER25	10	1/16"	3/32", 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8"
CP101	ER32	12	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16"
CP102	ER40	15	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1"

# ER Rigid Tap Collets

- Collet accuracy: 0.0003" - 0.0004" T.I.R.
- Special design locks tap square in slots
  - Tap Shanks ASME B94.9 - 1999
- Collet holes made for tool shanks with H6 tolerance
- Collets do not "collapse" to the same degree as standard ER collets
- "Slotted" ER tap collets are designed to clamp both the round and the square shank on the tap, providing greater rigidity and better tapping performance
  - Made of high-quality steel



Order No.	Collet Series	Tap Size Inch	Metric ANSI Shank Tap	Tap Shank Dia.	Drive Square Size
CT001	ER16	#6	M1.6-M3.5	.141"	.110"
CT002	ER16	#8	M4	.168"	.131"
CT003	ER16	#10	M4.5, M5	.194"	.152"
CT004	ER16	#12	-	.220"	.165"
CT005	ER16	1/4"	M6, M6.3	.225"	.191"
CT006	ER20	#6	M1.6-M3.5	.141"	.110"
CT007	ER20	#8	M4	.168"	.131"
CT008	ER20	#10	M4.5, M5	.194"	.152"
CT009	ER20	#12	-	.220"	.165"
CT010	ER20	1/4"	M6, M6.3	.225"	.191"
CT011	ER20	5/16"	M7, M8	.318"	.238"
CT012	ER20	3/8"	M10	.381"	.286"
CT013	ER20	7/16"	M11	.323"	.242"
CT014	ER20	1/2"	M12, M12.5	.367"	.275"
CT015	ER25	#6	M1.6-M3.5	.141"	.110"
CT016	ER25	#8	M4	.168"	.131"
CT017	ER25	#10	M4.5, M5	.194"	.152"
CT018	ER25	#12	-	.220"	.165"
CT019	ER25	1/8" NPT	-	.437"	.328"
CT020	ER25	1/4"	M6, M6.3	.255"	.191"
CT021	ER25	5/16"	M7, M8	.318"	.238"
CT022	ER25	3/8"	M10	.381"	.286"
CT023	ER25	7/16"	M11	.323"	.242"
CT024	ER25	1/2"	M12, M12.5	.367"	.275"
CT025	ER25	9/16"	M14	.429"	.322"
CT026	ER25	5/8"	M16	.480"	.360"
CT027	ER32	#6	M1.6-M3.5	.141"	.110"
CT028	ER32	#8	M4	.168"	.131"
CT029	ER32	#10	M4.5, M5	.194"	.152"



# ER Rigid Tap Collets

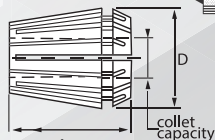
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Order No.	Collet Series	Tap Size Inch	Metric ANSI Shank Tap	Tap Shank Dia.	Drive Square Size
CT030	ER32	#12	-	.220"	.165"
CT031	ER32	1/8" NPT	-	.437"	.328"
CT032	ER32	1/4" NPT	-	.562"	.421"
CT033	ER32	1/4"	M6, M6.3	.255"	.191"
CT034	ER32	5/16"	M7, M8	.318"	.238"
CT035	ER32	3/8"	M10	.381"	.286"
CT036	ER32	7/16"	M11	.323"	.242"
CT037	ER32	1/2"	M12, M12.5	.367"	.275"
CT038	ER32	9/16"	M14	.429"	.322"
CT039	ER32	5/8"	M16	.480"	.360"
CT040	ER32	11/16"	M18	.542"	.421"
CT041	ER32	3/4"	-	.590"	.442"
CT042	ER32	13/16"	M20	.652"	.489"
CT043	ER40	#6	M1.6-M3.5	.141"	.110"
CT044	ER40	#8	M4	.168"	.131"
CT045	ER40	#10	M4.5, M5	.194"	.152"
CT046	ER40	#12	-	.220"	.165"
CT047	ER40	1/8" NPT	-	.437"	.328"
CT048	ER40	1/4" NPT	-	.562"	.421"
CT049	ER40	1/4"	M6, M6.3	.255"	.191"
CT050	ER40	5/16"	M7, M8	.318"	.238"
CT051	ER40	3/8" NPT	-	.700"	.531"
CT052	ER40	3/8"	M10	.381"	.286"
CT053	ER40	7/16"	M11	.323"	.242"
CT054	ER40	1/2" NPT	-	.687"	.515"
CT055	ER40	1/2"	M12, M12.5	.367"	.275"
CT056	ER40	9/16"	M14	.429"	.322"
CT057	ER40	5/8"	M16	.480"	.360"
CT058	ER40	11/16"	M18	.542"	.421"
CT059	ER40	3/4"	-	.590"	.442"
CT060	ER40	13/16"	M20	.652"	.489"
CT061	ER40	7/8"	-	.697"	.523"
CT062	ER40	15/16"	M24	.760"	.570"
CT063	ER40	1"	M25	.800"	.600"





# ER Collets Steel Sealed



• Collet accuracy: 0.0003" - 0.0004" T.I.R. (3mm - 6mm)

## Inch

Order No.	Collet Series	Nominal Collet Size
CSS01	ER16	1/8"
CSS02	ER16	5/32"
CSS03	ER16	3/16"
CSS04	ER16	7/32"
CSS05	ER16	1/4"
CSS06	ER16	9/32"
CSS07	ER16	5/16"
CSS08	ER16	11/32"
CSS09	ER16	3/8"
CSS10	ER16	13/32"
CSS26	ER20	1/8"
CSS27	ER20	5/32"
CSS28	ER20	3/16"
CSS29	ER20	7/32"
CSS30	ER20	1/4"
CSS31	ER20	9/32"
CSS32	ER20	5/16"
CSS33	ER20	11/32"
CSS34	ER20	3/8"
CSS35	ER20	13/32"
CSS36	ER20	7/16"
CSS37	ER20	15/32"
CSS38	ER20	1/2"
CSS50	ER25	1/8"
CSS51	ER25	5/32"
CSS52	ER25	3/16"
CSS53	ER25	7/32"
CSS54	ER25	1/4"
CSS55	ER25	9/32"
CSS56	ER25	5/16"

Order No.	Collet Series	Nominal Collet Size
CSS57	ER25	11/32"
CSS58	ER25	3/8"
CSS59	ER25	13/32"
CSS60	ER25	7/16"
CSS61	ER25	15/32"
CSS62	ER25	1/2"
CSS63	ER25	17/32"
CSS64	ER25	9/16"
CSS65	ER25	19/32"
CSS66	ER25	5/8"
CSS81	ER32	1/8"
CSS82	ER32	5/32"
CSS83	ER32	3/16"
CSS84	ER32	7/32"
CSS85	ER32	1/4"
CSS86	ER32	9/32"
CSS87	ER32	5/16"
CSS88	ER32	11/32"
CSS89	ER32	3/8"
CSS90	ER32	13/32"
CSS91	ER32	7/16"
CSS92	ER32	15/32"
CSS93	ER32	1/2"
CSS94	ER32	17/32"
CSS95	ER32	9/16"
CSS96	ER32	19/32"
CSS97	ER32	5/8"
CSS98	ER32	21/32"
CSS99	ER32	11/16"
CSS100	ER32	23/32"
CSS101	ER32	3/4"

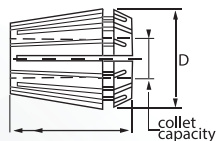
Order No.	Collet Series	Nominal Collet Size
CSS102	ER32	25/32"
CSS103	ER32	13/16"
CSS122	ER40	1/8"
CSS123	ER40	5/32"
CSS124	ER40	3/16"
CSS125	ER40	7/32"
CSS126	ER40	1/4"
CSS127	ER40	9/32"
CSS128	ER40	5/16"
CSS129	ER40	11/32"
CSS130	ER40	3/8"
CSS131	ER40	13/32"
CSS132	ER40	7/16"
CSS133	ER40	15/32"
CSS134	ER40	1/2"
CSS135	ER40	17/32"
CSS136	ER40	9/16"
CSS137	ER40	19/32"
CSS138	ER40	5/8"
CSS139	ER40	21/32"
CSS140	ER40	11/16"
CSS141	ER40	23/32"
CSS142	ER40	3/4"
CSS143	ER40	25/32"
CSS144	ER40	13/16"
CSS145	ER40	27/32"
CSS146	ER40	7/8"
CSS147	ER40	29/32"
CSS148	ER40	15/16"
CSS149	ER40	31/32"
CSS150	ER40	1"

## Inch Sets

Order No.	Collet Series	Number of Pieces	Increments	Set Includes
CSS174	ER16	10	1/32"	1/8", 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 13/32"
CSS175	ER20	7	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2"
CSS176	ER25	9	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8"
CSS177	ER32	12	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16"
CSS178	ER32	18	1/32"	17/32", 1/4", 9/32", 5/16", 11/32", 3/8", 13/32", 7/16", 15/32", 1/2", 17/32", 9/16", 19/32", 5/8", 21/32", 11/16", 23/32", 3/4"
CSS179	ER40	15	1/16"	1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1"



# ER Collets Steel Sealed



- For optimal collet performance, use tools with shank diameter equal to the collet nominal size
- Coolant allowable pressure: 1,500 PSI Wide clamping ranges: 0.118"-0.236"
- Made of high-quality steel

## Metric

Order No.	Collet Series	Nominal Collet Size
CSS11	ER16	3.0mm
CSS12	ER16	3.5mm
CSS13	ER16	4.0mm
CSS14	ER16	4.5mm
CSS15	ER16	5.0mm
CSS16	ER16	5.5mm
CSS17	ER16	6.0mm
CSS18	ER16	6.5mm
CSS19	ER16	7.0mm
CSS20	ER16	7.5mm
CSS21	ER16	8.0mm
CSS22	ER16	8.5mm
CSS23	ER16	9.0mm
CSS24	ER16	9.5mm
CSS25	ER16	10.0mm
CSS39	ER20	3.0mm
CSS40	ER20	4.0mm
CSS41	ER20	5.0mm
CSS42	ER20	6.0mm
CSS43	ER20	7.0mm
CSS44	ER20	8.0mm
CSS45	ER20	9.0mm
CSS46	ER20	10.0mm
CSS47	ER20	11.0mm
CSS48	ER20	12.0mm
CSS49	ER20	13.0mm
CSS67	ER25	3.0mm

Order No.	Collet Series	Nominal Collet Size
CSS68	ER25	4.0mm
CSS69	ER25	5.0mm
CSS70	ER25	6.0mm
CSS71	ER25	7.0mm
CSS72	ER25	8.0mm
CSS73	ER25	9.0mm
CSS74	ER25	10.0mm
CSS75	ER25	11.0mm
CSS76	ER25	12.0mm
CSS77	ER25	13.0mm
CSS78	ER25	14.0mm
CSS79	ER25	15.0mm
CSS80	ER25	16.0mm
CSS104	ER32	3.0mm
CSS105	ER32	4.0mm
CSS106	ER32	5.0mm
CSS107	ER32	6.0mm
CSS108	ER32	7.0mm
CSS109	ER32	8.0mm
CSS110	ER32	9.0mm
CSS111	ER32	10.0mm
CSS112	ER32	11.0mm
CSS113	ER32	12.0mm
CSS114	ER32	13.0mm
CSS115	ER32	14.0mm
CSS116	ER32	15.0mm
CSS117	ER32	16.0mm

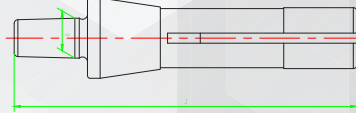
Order No.	Collet Series	Nominal Collet Size
CSS118	ER32	17.0mm
CSS119	ER32	18.0mm
CSS120	ER32	19.0mm
CSS121	ER32	20.0mm
CSS151	ER40	4.0mm
CSS152	ER40	5.0mm
CSS153	ER40	6.0mm
CSS154	ER40	7.0mm
CSS155	ER40	8.0mm
CSS156	ER40	9.0mm
CSS157	ER40	10.0mm
CSS158	ER40	11.0mm
CSS159	ER40	12.0mm
CSS160	ER40	13.0mm
CSS161	ER40	14.0mm
CSS162	ER40	15.0mm
CSS163	ER40	16.0mm
CSS164	ER40	17.0mm
CSS165	ER40	18.0mm
CSS166	ER40	19.0mm
CSS167	ER40	20.0mm
CSS168	ER40	21.0mm
CSS169	ER40	22.0mm
CSS170	ER40	23.0mm
CSS171	ER40	24.0mm
CSS172	ER40	25.0mm
CSS173	ER40	26.0mm

## Metric Sets

Order No.	Collet Series	Number of Pieces	Increments	Set Includes
CSS180	ER16	8	1.00mm	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm
CSS181	ER20	11	1.00mm	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm
CSS182	ER25	14	1.00mm	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 16mm
CSS183	ER32	18	1.00mm	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 16mm, 17mm, 18mm, 19mm, 20mm
CSS184	ER40	23	1.00mm	4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 16mm, 17mm, 18mm, 19mm, 20mm, 21mm, 22mm, 23mm, 24mm, 25mm, 26mm

# R8 Shank Drill Chuck Arbors

• Shank to taper runout < 0.0001"



Order No.	Shank Size	Jacobs Taper Size	L	D
A0054	R8	1JT	4.80"	0.384"
A0051	R8	2JT	5.04"	0.559"
A0052	R8	33JT	5.2"	0.624"
A0049	R8	3JT	5.39"	0.858"
A0053	R8	4JT	5.83"	1.124"
A0050	R8	6JT	5.39"	0.676"

# Straight Shank Drill Chuck Arbors

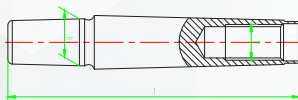
• Shank to taper runout < 0.0001"



Order No.	Description	Shank Diameter D	Jacobs Taper Size	L Inch	D1 Inch
A0031	1/2" TO JT0 SS DRL CHUCK ARBOR	1/2"	0JT	3.09"	0.25"
A0029	1/2" TO JT1 SS DRL CHUCK ARBOR	1/2"	1JT	3.31"	0.384"
A0028	1/2" TO JT2 SS DRL CHUCK ARBOR	1/2"	2JT	3.54"	0.559"
A0034	1/2" TO JT33 SS DRL CHUCK ARBOR	1/2"	33JT	3.66"	0.624"
A0035	1/2" TO JT3 SS DRL CHUCK ARBOR	1/2"	3JT	3.66"	0.811"
A0048	1/2" TO JT4 SS DRL CHUCK ARBOR	1/2"	4JT	4.31"	1.124"
A0043	1/2" TO JT6 SS DRL CHUCK ARBOR	1/2"	6JT	3.66"	0.676"
A0046	5/8" TO JT1 SS DRL CHUCK ARBOR	5/8"	1JT	3.31"	0.384"
A0045	5/8" TO JT2 SS DRL CHUCK ARBOR	5/8"	2JT	3.54"	0.559"
A0039	5/8" TO JT33 SS DRL CHUCK ARBOR	5/8"	33JT	3.66"	0.624"
A0044	5/8" TO JT3 SS DRL CHUCK ARBOR	5/8"	3JT	3.88"	0.811"
A0037	5/8" TO JT6 SS DRL CHUCK ARBOR	5/8"	6JT	3.66"	0.676"
A0036	3/4" TO JT2 SS DRL CHUCK ARBOR	3/4"	2JT	3.54"	0.559"
A0033	3/4" TO JT33 SS DRL CHUCK ARBOR	3/4"	33JT	3.66"	0.624"
A0030	3/4" TO JT3 SS DRL CHUCK ARBOR	3/4"	3JT	3.88"	0.811"
A0047	3/4" TO JT4 SS DRL CHUCK ARBOR	3/4"	4JT	4.31"	1.124"
A0032	3/4" TO JT6 SS DRL CHUCK ARBOR	3/4"	6JT	3.66"	0.676"
A0041	1" TO JT33 SS DRL CHUCK ARBOR	1"	33JT	3.66"	0.624"
A0038	1" TO JT3 SS DRL CHUCK ARBOR	1"	3JT	3.88"	0.811"
A0042	1" TO JT4 SS DRL CHUCK ARBOR	1"	4JT	4.31"	1.124"
A0040	1" TO JT6 SS DRL CHUCK ARBOR	1"	6JT	3.66"	0.676"

# Morse Taper Drill Chuck Arbor *Threaded*

• Shank to threaded pilot runout < 0.0001"



Order No	MT Shank Size	M Thread Size	L Inch	L1 Inch
A0056	2	3/8"-24	3.819"	0.531"
A0055	2	1/2"-20	3.937"	0.610"
A0057	2	5/8"-16	4.055"	0.689"

# Morse Taper Drill Chuck Arbors *with Tang*

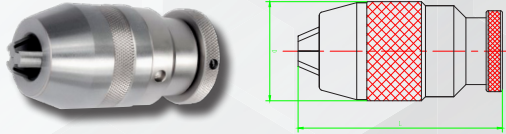
• Shank to taper runout < 0.0001"



Order No.	MT Shank Size	Jacobs Taper Size	L	d
A0024	1	0JT	3.11"	0.25"
A0022	1	1JT	3.346"	0.384"
A0020	1	2JT	3.543"	0.559"
A0018	1	33JT	3.700"	0.624"
A0026	1	6JT	3.701"	0.676"
A0027	2	0JT	3.701"	0.25"
A0023	2	1JT	3.937"	0.384"
A0010	2	2JT	4.134"	0.559"
A0006	2	33JT	4.252"	0.624"
A0003	2	3JT	4.488"	0.811"
A0021	2	4JT	4.921"	1.124"
A0012	2	6JT	4.252"	0.676"
A0025	3	1JT	4.646"	0.384"
A0008	3	2JT	4.882"	0.559"
A0005	3	33JT	5"	0.624"
A0001	3	3JT	5.236"	0.811"
A0009	3	4JT	5.669"	1.124"
A0017	3	5JT	5.866"	1.413"
A0013	3	6JT	5"	0.676"
A0015	4	2JT	5.866"	0.559"
A0019	4	33JT	5.984"	0.624"
A0002	4	3JT	6.22"	0.811"
A0004	4	4JT	6.654"	1.124"
A0016	4	5JT	6.850"	1.413"
A0011	4	6JT	5.984"	0.676"
A0007	5	3JT	7.480"	0.811"
A0014	5	4JT	7.913"	1.124"

# High Precision Heavy Duty Industrial Keyless Drill Chucks 10,000 RPM

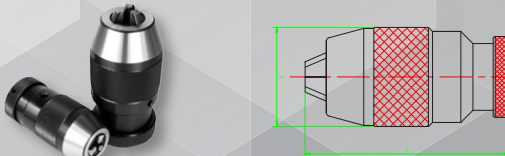
- Self-tightening • High precision accuracy
- +/-0.0003" - 0.0006" Run out • Heat treated • Nickel plated



Order No.	Capacity <i>Inch</i>	Capacity <i>Metric</i>	Taper Size	Run Out	D	L
D0042	1/64"-1/4"	0.2mm- 6mm	JT1	0.003"	1.339"	2.780"
D0038	1/64"-5/16"	0.2mm- 8mm	JT2	0.003"	1.535"	3.165"
D0043	1/64"-3/8"	0.2mm- 8mm	JT2	0.003"	1.732"	3.551"
D0044	1/64"-3/8"	0.2mm-10mm	JT33	0.003"	1.732"	3.551"
D0034	1/64"-1/2"	0.2mm-10mm	JT2	0.003"	1.929"	3.551"
D0037	1/64"-1/2"	0.2mm-13mm	JT33	0.003"	1.929"	3.961"
D0039	1/64"-1/2"	0.2mm-13mm	JT6	0.003"	1.929"	3.961"
D0040	1/64"-5/8"	0.2mm-16mm	JT6	0.003"	2.126"	4.417"
D0035	1/64"-3/4"	0.2mm-20mm	JT3	0.003"	2.323"	5.177"

# High Precision Heavy Duty Industrial Keyless Drill Chucks 4,000 RPM

- Self-tightening • Extremely high accuracy
- High Precision +/- 0.0003" - 0.0006"
- All parts are heat treated and ground within very tight limits

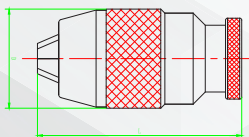


Order No.	Capacity <i>Inch</i>	Capacity <i>Metric</i>	Taper Size	Run Out	D	L
D0026	1/64-1/4	0.2mm- 6mm	JT1	0.003"	1.339"	2.780"
D0027	1/64-3/8	0.2mm-10mm	JT2	0.003"	1.732"	3.551"
D0032	1/64-3/8	0.2mm-10mm	JT33	0.003"	1.732"	3.551"
D0028	1/64-1/2	0.2mm-13mm	JT2	0.003"	1.829"	3.961"
D0029	1/64-1/2	0.2mm-13mm	JT33	0.003"	1.829"	3.961"
D0030	1/64-5/8	0.2mm-16mm	JT6	0.004"	1.829"	3.961"
D0031	1/64-1/2	0.2mm-13mm	JT6	0.004"	2.126"	4.417"
D0033	1/64-3/4	0.2mm-19mm	JT3	0.006"	2.323"	5.177"



# Standard Accuracy Heavy Duty Industrial Keyless Drill Chucks 4,000 RPM

- Self-tightening
- Extremely high accuracy  $\pm 0.005'' - 0.006''$  Run out
- All parts are heat treated and ground within very high tolerances



Order No.	Capacity <i>Inch</i>	Capacity <i>Metric</i>	Taper Size	Run Out	D	L
D0023	1/64-1/4	0.2mm- 6mm	JT1	0.005"	1.339"	2.780"
D0024	1/64-3/8	0.2mm-10mm	JT2	0.004"	1.732"	3.551"
D0021	1/64"-1/2"	0.2mm-13mm	JT2	0.005"	1.929"	3.961"
D0022	1/64"-1/2"	0.2mm-13mm	JT33	0.005"	1.929"	3.961"
D0019	1/64"-1/2"	0.2mm-13mm	JT6	0.005"	1.929"	3.961"
D0020	1/64-5/8	0.2mm-16mm	JT6	0.005"	2.126"	4.417"
D0025	1/64-3/4	0.2mm-20mm	JT3	0.006"	2.323"	5.177"



# Coolant Saver

## Cut the cost of cutting fluid by up to 50%

The Wogaard Coolant Saver collects the cutting fluid that is normally wasted through the machine tool's automatic chip conveyor. The cutting fluid is reclaimed for the chip-container and returned to the machine tool's main tank for re-use.

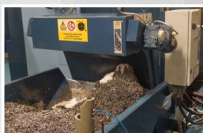
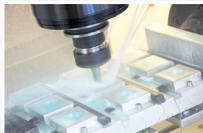


### Coolant Saver

#144-1000



- Save up to 50% on cutting fluid
- Save up to 90% on fluid waste cost
- Save time & money on fluid handling



**Compact and easy to install** The Wogaard coolant saver is easy to install and virtually maintenance free. It is driven by the machine's onboard coolant pump, so no external energy source.

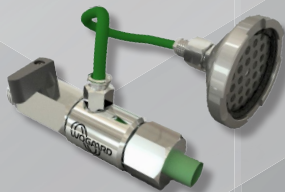
**Savings** The Wogaard Coolant Saver can save up to 90% on the cost of waste coolant disposal. Furthermore, it saves the considerable time spent by employees handling the cutting fluids. The chip-containers are dry when emptied, which prevents any spillage.

**Increasing cost?** Considering the long term developments in the price levels of oil, water, energy and disposal, it pays to invest in a better utilization of cutting fluids. The instability of many oil producing nations can cause sudden and significant changes to the cost of oil-based products, including cutting oils and coolants.

# Oil Saver

Similar in operation to the coolant saver • Powered by machine on-board pumps  
 Minimum amount flow through Venturi to achieve suction • Designed to vacuum  
 High Viscosity oil up to 32cs with low rated pumps (eg sliding head)

Check-Valve on vacuum to ensure no loss • Minimum maintenance • Easy clean out mechanism if small debris in oil from sliding head



### Oil Saver

#145-1000





# WOGARD USA

## VERTICAL & HORIZONTAL INSTALLATION

Vertical sump pipe would be in downwards direction

