

HARDINGE WORKHOLDING

Collets, Bushings & Tool Holders



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Hardinge. Solid Since 1890.



When it comes to tool holding, value is all about precision and reliability. Hardinge® toolholder collets, bushings and toolholders are designed and engineered for quality and durability. Hardinge's standard of performance level is high to help you achieve the level of accuracy required for automotive, medical, aerospace and the electronic industries. Hardinge is committed to being your SINGLE SOURCE for all of your workholding and industrial products. Well known for high accuracy and precision, Hardinge can provide any gripping solution needed...

- Spindle tooling for manual & CNC lathes, automatics, turret lathes and rotary transfer machines
- Tooling for grinding machines
- Swiss-type collets, guide bushings & bar loader collets
- FlexC™ collet systems for lathes
- HQC® quick-change collet systems for automatics
- Sure-grip® expanding collet systems
- HCAC® collet adaptation chucks
- Sure-grip® 3-jaw power chucks
- Precision CNC tooling for mills
- Collet blocks
- Custom workholding

Hardinge is unique as a workholding product manufacturer. They have over a century of experience in manufacturing machine tools as well as the tooling they use. Hardinge tool holding systems are used in the production of their machine components as well as in their workholding production cells, putting Hardinge products to the test around the clock. Hardinge is an ISO certified facility with a Total Quality Program focusing on continuous improvement to meet the demanding needs of their customers.

Phone: 800.843.8801
Fax: 607.734.3886
Email: orders@hardinge.com
Web: www.shophardinge.com



Table of Contents

Product Families Overview	4 – 9
ER-Style Collets and Tap Collets	
ER-Series Collets (Interchangeable w/ DR- and ESX-type Collets)	10 – 11
Concentricity Specifications	12
ERNC-Style Collets (sealed for thru-coolant applications).....	12
ERTCSP-Style Tap Collets, Split-Style with Square for Shank.....	13
ERQC Quick-Change Floating Solid Tap Collets (PCM Style)	14
Collet Racks for ER-Style Collets	14
ERTC Solid-Style Floating Tap Collets	15
"Cool Stop" Coolant Seals for ER & TG Collets.....	16
ER-Style Collet Holders	
ER-Style Round Shank Tool Holders	17 – 18
ER-Style Rigid Tap Holder for Floating Tap Collets.....	17 – 18
ER-Style Floating Tap Holder for Split Collets.....	17 – 18
ER Straight-Shank Stepped Tool holders.....	19
ER Straight-Shank Tool holders.....	20
ER Straight-Shank Tool holders, thru-coolant style	21
Caps & Wrenches for Straight-Shank and Stepped Tool Holders	21
ER-Style Collet Holders for Mills and Knee Mills	22
Double-Angle Collets	
DA300, DA200, DA100 and DA180 Collets.....	23 - 24
DA Collet Racks.....	24
Double-Angle (DA) Collet Holders	25
Miscellaneous Collets and Collet Holders	
TG-Style Collets	26 – 27
TG-Style Collet Racks and Collet Sets	27
HDO-Style Collets (Interchangeable w/ Ortlieb-Type {RDO} Collets)	28 – 29
HF-Style Collets (Interchangeable w/ Universal {AF} Acura-Flex Collets)	30 – 31
Cincinnati Monoset Collets	31
1C Collets and Holders	32
Hardinge TT Tap Collets and Holders	33
GK Self-Feeding Tap Collets, Drivers and Holders.....	34
Bilz-Style Quick-Change Tap Collets	
Tension/Compression-Style.....	35
Torque Control with Compression	36
Bilz-Style Quick-Change Tap Collet Holder	37
Adapter to use ER Collets in Bilz-Style Tapping Heads.....	37
Metric Tap Shank Comparison Chart	37
Bushings	
HDB Series—Split, Precision-Machined	
HDB2 1/2" OD	38
HDB5 5/8" OD.....	39
HDB6 3/4" OD.....	40
HDB8 1" OD.....	41
HDB9 1 1/8" OD.....	42
HDB10 1 1/4" OD and HDB12 1 1/2" OD	43
Bushing Sets.....	43
HDC Series—Solid with Slots	
HDC10 1 1/4" OD and HDC12 1 1/2" OD	44
HDC10-Style for Hardinge® TwinTurn® 65.....	45
HDC10-Style for Hardinge -EMAG	45
HDZ Series—Solid with Slots & Preset Feature	
HDZ10 1 1/4" OD and HDZ12 1 1/2" OD.....	46
HDZ10-Style for Hardinge -EMAG.....	46
Frequently Asked Questions	47

Overview: ER and DA Toolholder Collets



ER-Style—pages 10-11



ERNC-Style—page 12



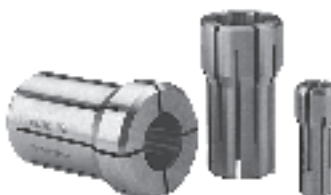
ERTCSP Tap
—page 13



ERQC Tap
—page 14



ERTC Tap—page 15



DA-Style—pages 23-24

Single- and double-angle collets feature a multi-slot design to provide maximum gripping force for efficient "push-back" control. This control helps prolong tool life which reduces machine downtime to produce more pieces-per-hour. All locating surfaces are precision ground to assure extremely close tolerances. Most of these collets feature a compression range of up to $\frac{1}{64}$ " (.3968mm). Refer to the chart on page 12 for concentricity specifications.

ER-Style Single-Angle Collets

Standard ER-Style Collets are used on Swiss-type lathes and in tool holders for mills and CNC lathes. They are used to grip drills, taps, reamers, end mills, boring bars and special round shank end-working tools.

ERNC-Style Collets are sealed for coolant use of up to 1000 psi. Exact sizes are available in metric, decimal inch and fractional inch. This series collet has fewer slots, resulting in less flexibility.

ER-Style Single-Angle Tapping Collets

ERTCSP Tap Collets are designed to be used in a floating tap holder. They are multi-split with a square hole in the back of the collet to keep the tap from slipping in the collet.

ERQC Quick-Change Solid Floating Tap Collets have a Bilz-style quick-change feature, eliminating the need to remove the collet to change taps. There is a square in the collet assembly to keep the tap from turning in the collet. This system fits in the same tool holders that use ER-style collets. Each collet is made for a specific tap shank size. The collet has a floating spindle, eliminating the need for a special floating tap holder.

ERTC Solid Floating Tap Collets fit in the same tool holders that use the ER-style collets. Each collet is made for a specific tap shank size. The collet has a floating spindle, eliminating the need for a floating tap holder. The tap is held in the collet with set screws which grip on the square of the tap.

DA-Style Double-Angle Toolholder Collets

The **Double-Angle Collet** is noted for its parallel gripping capability due to the two angles and the opposed split configuration. This places the parallel bearing on the tool shank, as well as the full diameter of the tool.

Overview: TG, HDO and HF-Style Toolholder Collets



TG-Style—pages 26-27



HDO-Style—pages 28-29



HF-Style—pages 30-31

TG-Style Single-Angle Toolholder Collets

TG Collets (tremendous grip) are used on CNC lathes and machining centers to grip round shank tools such as drills, taps, reamers, boring bars, end mills and other end-working tools.

HDO-Style Single-Angle Toolholder Collets

The **HDO Collet** is a rigid, high precision system recommended for milling applications and is interchangeable with the Ortlieb-type collets. The collapse range of the collet is 0.5mm (.0196").

HF-Style Single-Angle Toolholder Collets

The **HF Collet** is interchangeable with Universal Acura-Flex style collets. The collapse range of the collet is $1/64$ " (.3968mm).

Overview: Standard Collets for Tool Holders



Cincinnati—page 31



1C—page 32

All standard-style toolholder collets are manufactured from special alloy steels. They are precision-machined to extremely close tolerances to assure superior concentricity.

Cincinnati Monoset Toolholder Collets

Cincinnati Monoset Collets are used in Cincinnati tool and cutter grinders. The collets are precision machined to exacting tolerances to assure concentricity between the OD of the collet and its bore.

Hardinge® 1C Toolholder Collets

The **1C Collet** is used in the Hardinge T17 $5/8$ " and $3/4$ " 1C tool holders. This holder is mounted in round tool holders and turrets to place the tool on the spindle centerline for precision drilling. This collet is manufactured to hold drills as small as .005" in diameter.



TT Floating—page 33

Hardinge® TT Floating Tap Holder Collets

TT Tap Holder Collets are used exclusively in the Hardinge TT Tap Holders – $\frac{5}{8}$ " and $\frac{3}{4}$ " round shanks. Each collet is made for a specific tap size. A square broached hole securely holds the shank of the tap, eliminating tap slippage and misalignment.



TT Holder—page 33

TT- $\frac{5}{8}$ & - $\frac{3}{4}$ Collet-Type Releasing Tap Holder

The Collet-Type Releasing Tap Holder is used to provide thread length control on either right- or left-hand taps by switching a lever inside the body of the tap holder. The tap holder mounts directly into a round shank tool holder. TT-style tap holder collets are used for accurate holding and centering of taps. To provide a positive drive for the taps, the collets have a square slot in the back to accommodate the square on the tap shank and a notch in the back bearing of the collet that fits over a hardened pin in the bottom of the holder.



GK Holder—page 34

GK Self-Feeding, Length-Control Tap Holder

The Self-Feeding (Pafix) Tap Holder provides automatic thread length control. The tap holder eliminates the need to match feed rate to thread pitch, minimizing tool breakage. The holder has a $\frac{5}{8}$ " shank diameter. Thread length is controlled internally with an adjusting ring in .01" (.25 mm) increments. A driver is used in the holder to accommodate the square of the tap shank, providing a positive drive. A collet is used to centralize and hold the tap in the holder.

"Cool Stop" Coolant Seals

Maximize coolant flow through your drills with the "Cool Stop" system. "Cool Stop" Seals are designed to seal around the shank of the drill and ID of the ER and TG holders. The gauge length of the holder does not change. The collet stays flush with the cap because the "Cool Stop" seal locates at the back of the collet. Each "Cool Stop" has a range from rated size down to .020" (5.0 mm), resulting in a small seal inventory for each collet style. You can keep the coolant running through the drill (rather than out the collet) at pressures up to 1500 psi.



page 16

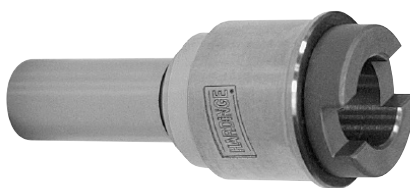
Quick-Change Tap Collets are used throughout the industry for mounting into Bilz-style and other popular tapping holders. Many taper-flange milling machine tap holders use these collets. The quick-change feature allows changing the tap without removing the collet from its holder. This feature ensures precise length control from one tap to another of the same length.



QC Tap—page 35



QC Torque Tap—page 36



QC Tap Holder—page 37

Quick-Change Style Straight-Shank Tap Collets

The **Quick-Change Tap Collet** is a quick-releasing style. The collet does not have to be removed from the holder to change the tap. The nose piece pushes in, releasing the tap while no wrenches are required. The Quick-Change collet can only be used in holders specifically designed for it.

Torque-Release Quick-Change Straight-Shank Tap Collets

The **Torque-Release Quick-Change Tap Collet** unit allows the collet to release at a predetermined torque. This unit can only be used in tension/compression Bilz-style tap holders, specifically designed for these straight-shank tap collets.

Tool Holder for Quick-Change Straight-Shank Tap Collets

The **Straight-Shank Tool Holder** is used with Quick-Change style straight-shank tap collets. It can be mounted in round shank tool holders with either $\frac{3}{4}$ " or 1" bores. The holder can be used on CNC lathes and milling machines.

Overview: Precision Machined HD-Style Bushings

HD-Style bushings are precision machined inside and out. The hardness and resiliency manufactured into Hardinge bushings make them the longest lasting and most accurate bushings in the industry. Hardinge offers three bushing styles – HDB, HDC and HDZ.



HDB-Style—pages 38-43



HDC-Style—pages 44-45



HDZ-Style—page 46

HDB-Style Split Bushings

The **HDB-Style Bushing** has a knurled shoulder for easy installation and removal. A flat is milled on the OD of the bushing where the toolholder or turret set screws clamp on the bushing. This style bushing is available in fractional, decimal, metric, letter, and number sizes for the ½" OD (HDB2), ⅝" OD (HDB5) and ¾" OD (HDB6) sizes. The 1" OD (HDB8), 1 ⅛" OD (HDB9), 1 ¼" / 32mm OD (HDB10) and 1 ½" / 40mm OD (HDB12) bushings are available in fractional and metric sizes. The HDB9 is also available as a solid bushing with either a #2 or #3 female Morse taper.

HDC-Style Slotted Solid Bushings

The **HDC-Style Solid Bushing** features either one or two longitudinal slots, depending on the size of the bore. The slot allows the set screw from the tool holder to locate directly on the body of the tool. This style bushing is available in 1 ¼" / 32mm OD (HDC10) and 1 ½" / 40mm OD (HDC12) with fractional or metric size bores. The HDC10 and HDC12 are also available with female Morse tapers.

HDZ-Style Slotted Solid Pre-Set Bushings

The **HDZ-Style Solid Bushing** features either one or two longitudinal slots, depending on the size of the bore. The slot allows the set screws from the tool holder to locate directly on the body of the tool. The bushing has a flange with two set screws positioned 90° apart. The tool can be placed in the bushing and set to a specific dimension from the locating shoulder and locked in place. This style is available in 1 ¼" / 32mm OD (HDC10) and 1 ½" / 40mm OD (HDC12) with fractional or metric size bores.

Overview: ER-Style and Double-Angle Extension Tool Holders



Standard ER Holders

—pages 17-18



Rigid Holders for Floating Tap Collets

—pages 17-18



Floating Tap Holders for Standard ER Collets

—pages 17-18



Straight-Shank ER Holders for CNC Lathes

—page 20

for Thru-Coolant Applications

—page 21

Straight-Shank ER Holder Extensions for Mill Tool Holders

—page 22



R8, ER Collet Tool Holders for Bridgeport and other Knee Mills

—page 22



Quick-Change Adapter converts Quick-Change Straight-Shank Tap Holder or Bilz-Style Holder to ER Collets

—page 37

ER-Style Collet Holders

ER-Style Collet Holders accept various versions of ER Collets. The holders for Swiss-type lathes and other CNC lathes are categorized by three styles:

- **ER Solid Shank Holder** can use the standard ER collet, as well as the ERNC split collets and the ERQC and ERTC floating tap collets.
- **Rigid Tap Holders** only use the ERQC and the ERTC floating tap collets.
- **Floating Tap Holders** use the standard ER collet and the ERTCSP collet that has a square hole for the tap shank.



Stepped Holder for ER-Style collets
—page 19

Straight-Shank Holders are used for other CNC lathes and in mill tool holders as extensions. These holders come with adjustable stops for the drill or round shank tools.



Double-Angle Extension-Style—page 25

The **Double-Angle Collet Extension Tool Holder** mounts directly into a round shank tool holder to grip small diameter tools securely. Double-angle collets are used to provide a positive grip on the tool. Optional Qualifying Collars and Chuck Stops are available. The Collars can be positioned and locked on the holder shank to qualify the tool position in a holder.

Chuck Stops position inside the holder body to provide a qualified locating surface for tooling and to help prevent tool "push back".

SB and SG Double-Angle Holders are available for CNC lathe work. The SB has a 1 1/8" shank and the SG has a 1 1/4" shank.



SB/SG Holders—page 25

ER8 through ER50 Collets – Metric

ER8, ER11, ER12 Collets—Metric

Size Range mm Inch	ER8 Collet Part Number	ER11 Collet Part Number	ER12 Collet Part Number
0.5 - .25 .019" - .010"	2093-00-17-005000	—	—
1.0 - 0.5 .039" - .019"	2093-00-17-010000	1911-00-17-010000	2091-00-17-010000
1.5 - 1.0 .059" - .039"	2093-00-17-015000	1911-00-17-015000	2091-00-17-015000
2.0 - 1.5 .079" - .059"	2093-00-17-020000	1911-00-17-020000	2091-00-17-020000
2.5 - 2.0 .098" - .079"	2093-00-17-025000	1911-00-17-025000	2091-00-17-025000
3.0 - 2.5 .118" - .098"	2093-00-17-030000	1911-00-17-030000	2091-00-17-030000
3.5 - 3.0 .138" - .118"	2093-00-17-035000	1911-00-17-035000	2091-00-17-035000
4.0 - 3.5 .157" - .138"	2093-00-17-040000	1911-00-17-040000	2091-00-17-040000
4.5 - 4.0 .177" - .157"	2093-00-17-045000	1911-00-17-045000	2091-00-17-045000
5.0 - 4.5 .197" - .177"	2093-00-17-050000	1911-00-17-050000	2091-00-17-050000
5.5 - 5.0 .217" - .197"		1911-00-17-055000	2091-00-17-055000
6.0 - 5.5 .236" - .217"		1911-00-17-060000	2091-00-17-060000
6.5 - 6.0 .255" - .236"		1911-00-17-065000	2091-00-17-065000
7.0 - 6.5 .276" - .255"		1911-00-17-070000	2091-00-17-070000
Standard Collet Sets	0947-08-17-000009 9 Collets	0947-11-17-000013 13 Collets	0947-12-17-000013 13 Collets
Special Accuracy Sets	0947-08-17-00S009 9 Collets	0947-11-17-00S013 13 Collets	0947-12-17-00S013 13 Collets

ER50 Collets—Metric

Size Range mm Inch	ER50 Collet Part Number
12.0 - 10.0 .472" - .394"	2131-00-17-120000
14.0 - 12.0 .551" - .472"	2131-00-17-140000
16.0 - 14.0 .630" - .551"	2131-00-17-160000
18.0 - 16.0 .709" - .630"	2131-00-17-180000
20.0 - 18.0 .787" - .709"	2131-00-17-200000
22.0 - 20.0 .866" - .787"	2131-00-17-220000
24.0 - 22.0 .945" - .866"	2131-00-17-240000
26.0 - 24.0 1.024" - 0.945"	2131-00-17-260000
28.0 - 26.0 1.102" - 1.024"	2131-00-17-280000
30.0 - 28.0 1.181" - 1.102"	2131-00-17-300000
32.0 - 30.0 1.260" - 1.181"	2131-00-17-320000
34.0 - 32.0 1.339" - 1.260"	2131-00-17-340000
Standard Collet Sets	0947-50-17-000012 12 Collets
Special Accuracy Sets	0947-50-17-00S012 12 Collets

ER16, ER20, ER32, ER40 Collets – Metric Sizes

Size Range mm Inch	ER16 Collet Part Number	ER20 Collet Part Number	ER25 Collet Part Number	ER32 Collet Part Number	ER40 Collet Part Number
1.0 - 0.5 .039" - .019"	1913-00-17-010000	—	—	—	—
2.0 - 1.0 .079" - .039"	1913-00-17-020000	1915-00-17-020000	2095-00-17-020000	—	—
3.0 - 2.0 .118" - .079"	1913-00-17-030000	1915-00-17-030000	2095-00-17-030000	1917-00-17-030000	—
4.0 - 3.0 .157" - .118"	1913-00-17-040000	1915-00-17-040000	2095-00-17-040000	1917-00-17-040000	2129-00-17-040000
5.0 - 4.0 .197" - .157"	1913-00-17-050000	1915-00-17-050000	2095-00-17-050000	1917-00-17-050000	2129-00-17-050000
6.0 - 5.0 .236" - .197"	1913-00-17-060000	1915-00-17-060000	2095-00-17-060000	1917-00-17-060000	2129-00-17-060000
7.0 - 6.0 .276" - .136"	1913-00-17-070000	1915-00-17-070000	2095-00-17-070000	1917-00-17-070000	2129-00-17-070000
8.0 - 7.0 .315" - .276"	1913-00-17-080000	1915-00-17-080000	2095-00-17-080000	1917-00-17-080000	2129-00-17-080000
9.0 - 8.0 .354" - .315"	1913-00-17-090000	1915-00-17-090000	2095-00-17-090000	1917-00-17-090000	2129-00-17-090000
10.0 - 9.0 .394" - .354"	1913-00-17-100000	1915-00-17-100000	2095-00-17-100000	1917-00-17-100000	2129-00-17-100000
11.0 - 10.0 .433" - .394"		1915-00-17-110000	2095-00-17-110000	1917-00-17-110000	2129-00-17-110000
12.0 - 11.0 .472" - .433"		1915-00-17-120000	2095-00-17-120000	1917-00-17-120000	2129-00-17-120000
13.0 - 12.0 .511" - .472"		1915-00-17-130000	2095-00-17-130000	1917-00-17-130000	2129-00-17-130000
14.0 - 13.0 .551" - .511"			2095-00-17-140000	1917-00-17-140000	2129-00-17-140000
15.0 - 14.0 .590" - .551"			2095-00-17-150000	1917-00-17-150000	2129-00-17-150000
16.0 - 15.0 .629" - .590"			2095-00-17-160000	1917-00-17-160000	2129-00-17-160000
17.0 - 16.0 .669" - .629"				1917-00-17-170000	2129-00-17-170000
18.0 - 17.0 .708" - .669"				1917-00-17-180000	2129-00-17-180000
19.0 - 18.0 .748" - .708"				1917-00-17-190000	2129-00-17-190000
20.0 - 19.0 .787" - .748"				1917-00-17-200000	2129-00-17-200000
21.0 - 20.0 .827" - .787"					2129-00-17-210000
22.0 - 21.0 .866" - .827"					2129-00-17-220000
23.0 - 22.0 .906" - .866"					2129-00-17-230000
24.0 - 23.0 .945" - .906"					2129-00-17-240000
25.0 - 24.0 .984" - .945"					2129-00-17-250000
26.0 - 25.0 1.024" - .984"					2129-00-17-260000
Standard Collet Sets	0947-16-17-000010 10 Collets	0947-20-17-000012 12 Collets	0947-25-17-000015 15 Collets	0947-32-17-000018 18 Collets	0947-40-17-000023 23 Collets
Special Accuracy Sets	0947-16-17-00S010 10 Collets	0947-20-17-00S012 12 Collets	0947-25-17-00S015 15 Collets	0947-32-17-00S018 18 Collets	0947-40-17-00S023 23 Collets

ER Series collets have enough flex to hold a large range of tool shanks, eliminating the need for separate collets for each tool. Refer to page 12 for concentricity specifications. (ER-series collets are interchangeable with DR- and ESX-type collets)



ER8 through ER40 Collets – Inch

ER-8 through ER12 Collets – Inch

Size		ER8 Collet	ER11 Collet	ER12 Collet
Inch	mm	Part Number	Part Number	Part Number
1/16"	1.58	—	1911-00-19-000625	—
3/32"	2.38	—	1911-00-19-000937	—
1/8"	3.17	—	1911-00-19-001250	—
5/32"	3.96	—	1911-00-19-001562	—
3/16"	4.76	—	1911-00-19-001875	—
7/32"	5.55	—	1911-00-19-002187	—
1/4"	6.35	—	1911-00-19-002500	—
Standard Collet Sets		—	0947-11-19-000007 7 Collets	—
Special Accuracy Sets		—	0947-11-19-00S007 7 Collets	—

Collet Dimensions

ER Style	A - Diameter		B - Length	
	mm	Inch	mm	Inch
8	8.5	.335"	13.5	.531"
11	11.5	.453"	18.0	.709"
12	12.0	.472"	19.5	.768"
16	17.0	.669"	27.0	1.063"
20	21.0	.827"	31.0	1.220"
25	26.0	1.024"	35.0	1.378"
32	33.0	1.299"	40.0	1.575"
40	41.0	1.614"	46.0	1.811"
50	52.0	2.047"	60.0	2.362"



ER16 through ER40 Collets – Inch

Size Range		ER16 Collet	ER20 Collet	ER25 Collet	ER32 Collet	ER40 Collet
Inch	mm	Part Number	Part Number	Part Number	Part Number	Part Number
1/16"	1.58	1913-00-19-000625	1915-00-19-000625	2095-00-19-000625	—	—
3/32"	2.38	1913-00-19-000937	1915-00-19-000937	2095-00-19-000937	1917-00-19-000937	—
1/8"	3.17	1913-00-19-001250	1915-00-19-001250	2095-00-19-001250	1917-00-19-001250	2129-00-19-001250
5/32"	3.96	1913-00-19-001562	1915-00-19-001562	2095-00-19-001562	1917-00-19-001562	2129-00-19-001562
3/16"	4.76	1913-00-19-001875	1915-00-19-001875	2095-00-19-001875	1917-00-19-001875	2129-00-19-001875
7/32"	5.55	1913-00-19-002187	1915-00-19-002187	2095-00-19-002187	1917-00-19-002187	2129-00-19-002187
1/4"	6.35	1913-00-19-002500	1915-00-19-002500	2095-00-19-002500	1917-00-19-002500	2129-00-19-002500
9/32"	7.14	1913-00-19-002812	1915-00-19-002812	2095-00-19-002812	1917-00-19-002812	2129-00-19-002812
5/16"	7.93	1913-00-19-003125	1915-00-19-003125	2095-00-19-003125	1917-00-19-003125	2129-00-19-003125
11/32"	8.72	1913-00-19-003437	1915-00-19-003437	2095-00-19-003437	1917-00-19-003437	2129-00-19-003437
3/8"	9.52	1913-00-19-003750	1915-00-19-003750	2095-00-19-003750	1917-00-19-003750	2129-00-19-003750
13/32"	10.31	1913-00-19-004062	1915-00-19-004062	2095-00-19-004062	1917-00-19-004062	2129-00-19-004062
7/16"	11.11	—	1915-00-19-004375	2095-00-19-004375	1917-00-19-004375	2129-00-19-004375
15/32"	11.90	—	1915-00-19-004687	2095-00-19-004687	1917-00-19-004687	2129-00-19-004687
1/2"	12.70	—	1915-00-19-005000	2095-00-19-005000	1917-00-19-005000	2129-00-19-005000
17/32"	13.49	—	—	2095-00-19-005312	1917-00-19-005312	2129-00-19-005312
9/16"	14.28	—	—	2095-00-19-005625	1917-00-19-005625	2129-00-19-005625
19/32"	15.08	—	—	2095-00-19-005937	1917-00-19-005937	2129-00-19-005937
5/8"	15.87	—	—	2095-00-19-006250	1917-00-19-006250	2129-00-19-006250
21/32"	16.66	—	—	—	1917-00-19-006562	2129-00-19-006562
11/16"	17.46	—	—	—	1917-00-19-006875	2129-00-19-006875
23/32"	18.25	—	—	—	1917-00-19-007187	2129-00-19-007187
3/4"	19.05	—	—	—	1917-00-19-007500	2129-00-19-007500
25/32"	19.84	—	—	—	—	2129-00-19-007812
13/16"	20.63	—	—	—	—	2129-00-19-008125
27/32"	21.43	—	—	—	—	2129-00-19-008437
7/8"	22.22	—	—	—	—	2129-00-19-008750
29/32"	23.01	—	—	—	—	2129-00-19-009062
15/16"	23.81	—	—	—	—	2129-00-19-009375
31/32"	24.60	—	—	—	—	2129-00-19-009687
1"	25.40	—	—	—	—	2129-00-19-010000
Standard Collet Sets		0947-16-19-000012 12 Collets	0947-20-19-000015 15 Collets	0947-25-19-000019 19 Collets	0947-32-19-000022 22 Collets	0947-40-19-000029 20 Collets
Special Accuracy Sets		0947-16-19-00S012 12 Collets	0947-20-19-00S015 15 Collets	0947-25-19-00S019 19 Collets	0947-32-19-00S022 22 Collets	0947-40-19-00S029 29 Collets

ER Series collets have enough flex to hold a large range of tool shanks, eliminating the need for separate collets for each tool. Refer to page 12 for concentricity specifications. (ER-series collets are interchangeable with DR- and ESX-type collets)



ERNC-Style Collets for thru-coolant applications



The head-angle of the **ERNC-Style Collet** is sealed for thru-coolant applications and pressure-resistance tested to 1000 psi. Exact metric sizes are shown in millimeter and decimal inch equivalent.

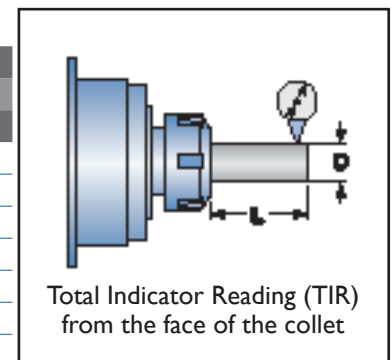
ERNC Collets — Metric

Size Range		ERNC16 Collet	ERNC20 Collet	ERNC25 Collet	ERNC32 Collet	ERNC40 Collet
mm	Inch	Part Number	Part Number	Part Number	Part Number	Part Number
3.0	.118"	2133-00-17-030000	2135-00-17-030000	2137-00-17-030000	2139-00-17-030000	
4.0	.157"	2133-00-17-040000	2135-00-17-040000	2137-00-17-040000	2139-00-17-040000	2141-00-17-040000
5.0	.197"	2133-00-17-050000	2135-00-17-050000	2137-00-17-050000	2139-00-17-050000	2141-00-17-050000
6.0	.236"	2133-00-17-060000	2135-00-17-060000	2137-00-17-060000	2139-00-17-060000	2141-00-17-060000
7.0	.276"	2133-00-17-070000	2135-00-17-070000	2137-00-17-070000	2139-00-17-070000	2141-00-17-070000
8.0	.315"	2133-00-17-080000	2135-00-17-080000	2137-00-17-080000	2139-00-17-080000	2141-00-17-080000
9.0	.354"	2133-00-17-090000	2135-00-17-090000	2137-00-17-090000	2139-00-17-090000	2141-00-17-090000
10.0	.394"	2133-00-17-100000	2135-00-17-100000	2137-00-17-100000	2139-00-17-100000	2141-00-17-100000
11.0	.433"		2135-00-17-110000	2137-00-17-110000	2139-00-17-110000	2141-00-17-110000
12.0	.472"		2135-00-17-120000	2137-00-17-120000	2139-00-17-120000	2141-00-17-120000
13.0	.512"		2135-00-17-130000	2137-00-17-130000	2139-00-17-130000	2141-00-17-130000
14.0	.551"			2137-00-17-140000	2139-00-17-140000	2141-00-17-140000
15.0	.590"			2137-00-17-150000	2139-00-17-150000	2141-00-17-150000
16.0	.629"			2137-00-17-160000	2139-00-17-160000	2141-00-17-160000
17.0	.669"				2139-00-17-170000	2141-00-17-170000
18.0	.708"				2139-00-17-180000	2141-00-17-180000
19.0	.748"				2139-00-17-190000	2141-00-17-190000
20.0	.787"				2139-00-17-200000	2141-00-17-200000
21.0	.827"					2141-00-17-210000
22.0	.866"					2141-00-17-220000
23.0	.906"					2141-00-17-230000
24.0	.945"					2141-00-17-240000
25.0	.984"					2141-00-17-250000
26.0	1.024"					2141-00-17-260000

Note: Inch sizes from 1/8" to 1" by 1/32" increments available on request. ERNC50 Collets can be manufactured to order.

Hardinge ER Collet Concentricity Specifications

Dimension – D		Dimension – L		Maximum TIR			
Clamping Range		Distance from Face		Precision DIN 6499		High Precision DIN 6499	
mm	Inch	mm	Inch	mm	Inch	mm	Inch
1.0 - 1.6	.039" - .063"	6.0	.236"	.015	.0006"	.008	.0003"
1.6 - 3.0	.063" - .118"	10.0	.394"	.015	.0006"	.008	.0003"
3.0 - 6.0	.118" - .236"	16.0	.630"	.015	.0006"	.008	.0003"
6.0 - 10.0	.236" - .394"	25.0	.984"	.015	.0006"	.008	.0003"
10.0 - 18.0	.394" - .709"	40.0	1.575"	.020	.0008"	.010	.0004"
18.0 - 26.0	.709" - 1.024"	50.0	1.969"	.020	.0008"	.010	.0004"
26.0 - 34.0	1.024" - 1.339"	60.0	2.363"	.025	.0010"	—	—



ERTCSP-Style Tap Collets

The **ERTCSP-Style Rigid Tap Collet** with square drive are multi-split with more shank bearing surface than ER/DR collets. The bore is the exact size of the shank with a square broached hole to eliminate tap slippage. Available for thru-coolant applications.

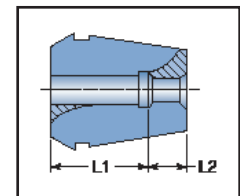


ERTCSP-Style Tap Collets

Size Range	ERTCSP16 Tap	ERTCSP20 Tap	ERTCSP25 Tap	ERTCSP32 Collet	ERTCSP40 Collet
Tap Size	Shank Part Number	Part Number	Part Number	Part Number	Part Number
#0 - 6	.141"	1913-19-18-001410	1915-19-18-001410	—	—
#8	.168"	1913-19-18-001680	1915-19-18-001680	2095-19-18-001680	1917-19-18-001680
#10	.194"	1913-19-18-001940	1915-19-18-001940	2095-19-18-001940	1917-19-18-001940
#12	.220"	1913-19-18-002200	1915-19-18-002200	2095-19-18-002200	1917-19-18-002200
1/4"	.255"	1913-19-18-002550	1915-19-18-002550	2095-19-18-002550	1917-19-18-002550
5/16"	.318"		1915-19-18-003180	2095-19-18-003180	1917-19-18-003180
3/8"	.381"		1915-19-18-003810	2095-19-18-003810	1917-19-18-003810
7/16"	.323"		1915-19-18-003230	2095-19-18-003230	1917-19-18-003230
1/2"	.367"		1915-19-18-003670	2095-19-18-003670	1917-19-18-003670
9/16"	.429"			2095-19-18-004290	1917-19-18-004290
5/8"	.480"			2095-19-18-004800	1917-19-18-004800
11/16"	.542"				1917-19-18-005420
3/4"	.590"				1917-19-18-005900
13/16"	.652"				1917-19-18-006520
7/8"	.697"				
15/16"	.760"				
1"	.800"				
Tap Kits	0949-16-18-000005 5 Tap Collets	0949-20-18-000009 9 Tap Collets	0949-25-18-000010 10 Tap Collets	0949-32-18-000013 13 Tap Collets	0949-40-18-000013 13 Tap Collets

Collet Dimensions

Tap Size	L1	L2				
		ERTCSP16	ERTCSP20	ERTCSP25	ERTCSP32	ERTCSP40
0-6 - 1/4"	0.709"	0.374"	0.531"	0.630"	0.866"	1.102"
5/16" - 1/2"	0.866"	—	0.374"	0.472"	0.709"	0.945"
9/16" - 7/8"	0.984"	—	—	0.374"	0.591"	0.827"
1"	1.102"	—	—	—	—	0.709"



ANSI Metric Taps — Shank Sizes

ANSI Metric Taps	M1 to M3.5	M4	M4.5 & M5	M6 & M6.3	M7 & M8	M10	M12	M14
Shank Size	.141"	.168"	.194"	.255"	.318"	.381"	.367"	.429"

Note: Metric (DIN), Japanese (JIS) and Chinese (CIC) standard sizes on request - see page 37 for shank sizes

ERQC Quick-Change Floating Solid Tap Collets



ERQC Quick-Change Tap Collets can be used in any standard ER-, DR- or ESX-style collet holder used on lathes and milling machines. The ERQC collets allow taps to be quickly changed without removing the collet, maintaining gauge lengths from one tap to the next. The collet has a ball bearing tension compensating float and a solid square drive that eliminates tap slippage. Tap breakage is reduced when using synchronous (rigid) feed or machines requiring axial tension compensation.

ERQC-Style Tap Collets

Size Range	ERQC16 Tap	ERQC20 Tap	ERQC25 Tap	ERQC32 Collet	ERQC40 Collet	
Tap Size	Shank	Part Number	Part Number	Part Number	Part Number	
#0 - 6	.141"	2143-00-18-001410	2145-00-18-001410	2147-00-18-001410	2149-00-18-001410	2151-00-18-001410
#8	.168"	2143-00-18-001680	2145-00-18-001680	2147-00-18-001680	2149-00-18-001680	2151-00-18-001680
#10	.194"	2143-00-18-001940	2145-00-18-001940	2147-00-18-001940	2149-00-18-001940	2151-00-18-001940
#12	.220"		2145-00-18-002200	2147-00-18-002200	2149-00-18-002200	2151-00-18-002200
1/4"	.255"		2145-00-18-002550	2147-00-18-002550	2149-00-18-002550	2151-00-18-002550
5/16"	.318"		2147-00-18-003180	2149-00-18-003180	2151-00-18-003180	
3/8"	.381"		2147-00-18-003810	2149-00-18-003810	2151-00-18-003810	
7/16"	.323"		2147-00-18-003230	2149-00-18-003230	2151-00-18-003230	
1/2"	.367"		2147-00-18-003670	2149-00-18-003670	2151-00-18-003670	
9/16"	.429"			2149-00-18-004290	2151-00-18-004290	
5/8"	.480"				2151-00-18-004800	
1 1/16"	.542"				2151-00-18-005420	
Tap Kits	0948-16-18-000003 3 Tap Collets	0948-20-18-000005 5 Tap Collets	0948-25-18-000009 9 Tap Collets	0948-32-18-000010 10 Tap Collets	0948-40-18-000012 12 Tap Collets	

ER Collet Racks will help minimize damage to the precision surfaces and critical diameters of your collet. Collets which are loosely put in a drawer are subject to damage. Damaged collets may result in your cutting tools not being on the tool holder's or spindle's centerline, resulting in inaccurate machining.

ER Collet Racks

	ER11 Rack	ER16 Rack	ER20 Rack	ER25 Rack	ER32 Rack	Combination Rack
Part Number	0946-11-00-000036	0946-16-00-000036	0946-20-00-000036	0946-25-00-000036	0946-32-00-000036	0946-00-00-000069
Collet Capacity	36 ER11 Collets	36 ER16 Collets	36 ER20 Collets	30 ER25 Collets	30 ER32 Collets	16 ER11 Collets 16 ER16 Collets 16 ER20 Collets 21 ER32 Collets

ERTC Floating Solid Tap Collets — PCM-Style



The **Floating Solid Tap Collet** reduces tap breakage because of its tension compensation feature. This feature is needed when using synchronous (rigid) feed or machines requiring axial tension compensation. The collet is removed to change taps. The tap is secured with set screws which go through the sides of the square drive hole in the collet.

ERTC Floating Solid Tap Collets

Size Range	ERTC11/12 Tap Collet	ERTC16 Tap Collet	ERTC20 Tap Collet	ERTC25 Tap Collet	ERTC32 Tap Collet
Tap Size	Shank	Part Number	Part Number	Part Number	Part Number
#0 - 6	.141"	1919-00-18-001410	1921-00-18-001410	1923-00-18-001410	2097-00-18-001410
#8	.168"		1921-00-18-001680	1923-00-18-001680	2097-00-18-001680
#10	.194"		1921-00-18-001940	1923-00-18-001940	2097-00-18-001940
#12	.220"			1923-00-18-002200	2097-00-18-002200
1/4"	.255"			1923-00-18-002550	2097-00-18-002550
5/16"	.318"				2097-00-18-003180
3/8"	.381"				2097-00-18-003810
7/16"	.323"				2097-00-18-003230
1/2"	.367"				2097-00-18-003670
9/16"	.429"				2095-19-18-004290
5/8"	.480"				2095-19-18-004800
1/8" NPT	.437"				2099-00-18-004370

ANSI Metric Taps — Shank Sizes

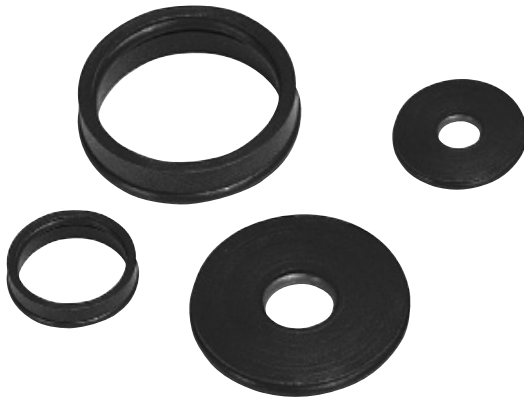
ANSI Metric Taps	M1 to M3.5	M4	M4.5 & M5	M6 & M6.3	M7 & M8	M10	M12	M14
Shank Size	.141"	.168"	.194"	.255"	.318"	.381"	.367"	.429"

Note: Metric (DIN), Japanese (JIS) and Chinese (CIC) standard sizes on request - see page 37 for shank sizes

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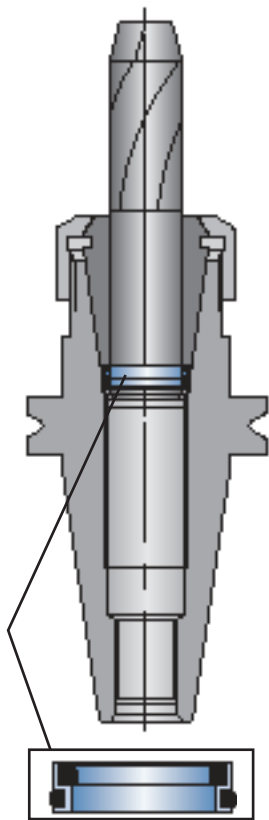
"Cool Stop" Coolant Seals for ER & TG Collets



Maximize coolant flow through your drills with the "Cool Stop" system. The "Cool Stop" seals around the shank of the drill and the ID of the ER and TG holders. The gauge length of the holder does not change. The collet stays flush with the cap because the "Cool Stop" seal locates at the back of the collet. Each "Cool Stop" has a range from rated size down to .020" (5.0 mm), resulting in a small seal inventory for each collet style. You can keep the coolant running through the drill, rather than of the collet, at pressures up to 1500 psi.

ER16, ER20, ER25, ER32 "Cool Stop" Seals – Metric

Size Range	ER16 Seal	ER20 Seal	ER25 Seal	ER32 Seal	
mm Inch	Part Number	Part Number	Part Number	Part Number	
5.5 - 5.0	.217" - .197"	7988-01-16-055000	7988-01-20-055000	7988-01-25-055000	7988-01-32-055000
6.0 - 5.5	.236" - .217"	7988-01-16-060000	7988-01-20-060000	7988-01-25-060000	7988-01-32-060000
6.5 - 6.0	.256" - .236"	7988-01-16-065000	7988-01-20-065000	7988-01-25-065000	7988-01-32-065000
7.0 - 6.5	.276" - .256"	7988-01-16-070000	7988-01-20-070000	7988-01-25-070000	7988-01-32-070000
7.5 - 7.0	.295" - .276"	7988-01-16-075000	7988-01-20-075000	7988-01-25-075000	7988-01-32-075000
8.0 - 7.5	.315" - .295"	7988-01-16-080000	7988-01-20-080000	7988-01-25-080000	7988-01-32-080000
8.5 - 8.0	.335" - .315"		7988-01-20-085000	7988-01-25-085000	7988-01-32-085000
9.0 - 8.5	.354" - .335"		7988-01-20-090000	7988-01-25-090000	7988-01-32-090000
9.5 - 9.0	.374" - .354"		7988-01-20-095000	7988-01-25-095000	7988-01-32-095000
10.0 - 9.5	.394" - .374"		7988-01-20-100000	7988-01-25-100000	7988-01-32-100000
10.5 - 10.0	.413" - .394"			7988-01-25-105000	7988-01-32-105000
11.0 - 10.5	.433" - .413"			7988-01-25-110000	7988-01-32-110000
11.5 - 11.0	.453" - .433"			7988-01-25-115000	7988-01-32-115000
12.0 - 11.5	.472" - .453"			7988-01-25-120000	7988-01-32-120000
12.5 - 12.0	.492" - .472"			7988-01-25-125000	7988-01-32-125000
13.0 - 12.5	.512" - .492"			7988-01-25-130000	7988-01-32-130000
13.5 - 13.0	.531" - .512"			7988-01-25-135000	7988-01-32-135000
14.0 - 13.5	.551" - .531"			7988-01-25-140000	7988-01-32-140000
14.5 - 14.0	.571" - .551"			7988-01-25-145000	7988-01-32-145000
15.0 - 14.5	.591" - .571"				7988-01-32-150000
15.5 - 15.0	.610" - .591"				7988-01-32-155000
16.0 - 15.5	.630" - .610"				7988-01-32-160000
16.5 - 16.0	.650" - .630"				7988-01-32-165000
17.0 - 16.5	.669" - .650"				7988-01-32-170000
17.5 - 17.0	.689" - .669"				7988-01-32-175000
18.0 - 17.5	.709" - .689"				7988-01-32-180000
18.5 - 18.0	.728" - .709"				7988-01-32-185000
19.0 - 18.5	.748" - .728"				7988-01-32-190000
19.5 - 19.0	.768" - .748"				7988-01-32-195000
20.0 - 19.5	.787" - .768"				7988-01-32-200000



Seal Cross Section

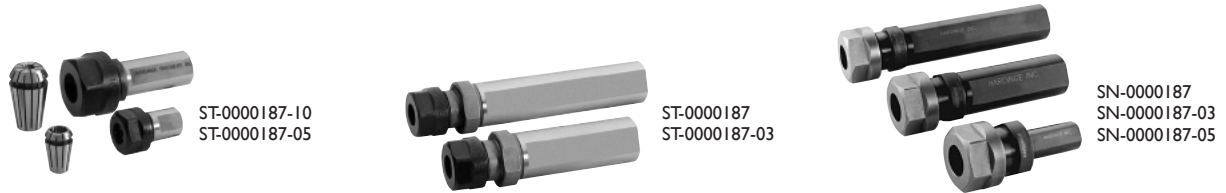
Quick Assembly:

Put the collet in the cap, the drill through the collet, the "Cool Stop" seal on the drill shank and insert the assembly into the holder. Adjust the drill to the proper length and lock the cap. You are now ready to increase your productivity.

TG100 "Cool Stop" Seals – Inch

Size Range	TG100 Seal		
Inch mm	Part Number		
3/4" - .734"	19.1 - 18.6	7988-02-10-007500	7988-01-32-180000
49/64" - .750"	19.4 - 19.1	7988-02-10-007656	7988-01-32-185000
25/32" - .765"	19.8 - 19.4	7988-02-10-007812	7988-01-32-190000
51/64" - .781"	20.2 - 19.8	7988-02-10-007968	7988-01-32-195000
13/16" - .796"	20.6 - 20.2	7988-02-10-008125	7988-01-32-200000
53/64" - .812"	21.0 - 20.6	7988-02-10-008281	
27/32" - .828"	21.4 - 21.0	7988-02-10-008437	
55/64" - .843"	21.8 - 21.4	7988-02-10-008593	
7/8" - .859"	22.2 - 21.8	7988-02-10-008750	
57/64" - .875"	22.6 - 22.2	7988-02-10-008906	
29/32" - .890"	23.0 - 22.6	7988-02-10-009062	
59/64" - .906"	23.4 - 23.0	7988-02-10-009218	
15/16" - .921"	23.8 - 23.4	7988-02-10-009375	
61/64" - .937"	24.2 - 23.8	7988-02-10-009531	
31/32" - .953"	24.6 - 24.2	7988-02-10-009687	
63/64" - .968"	25.0 - 24.6	7988-02-10-009843	
1.0" - .984"	25.4 - 25.0	7988-02-10-010000	

ER-Style Collet Holders for Swiss-type & CNC Lathes — Inch



Standard Round Shank Tool Holders — one-piece nose cap — Inch

Shank Dia.	Tool Holder Part Number	Collet Style	Shank Length	Total Length	Cap Dia.	Cap Hex	Cap Part Number	Wrench Part Number	Collets / Tap Collets				
									ER	ERNC	ERTCSP	ERQC	ERTC
1/2"	ST-0000187-10	ER11	.578"	1.000"	.750"	17 mm	ST-0000187-09	Use Standard Open End Wrench	X				X
5/8"	ST-0000187-05	ER16	1.378"	2.187"	1.100"	25 mm	ST-0000187-02		X	X	X	X	X
5/8"	SN-0000187-05	ER20	1.378"	3.010"	1.335"	30 mm	SN-0000187-20		X	X	X	X	X
1"	ST-0000187	ER16	4.134"	5.875"	1.100"	25 mm	ST-0000187-02		X	X	X	X	X
1"	ST-0000187-03	ER16	2.756"	4.312"	1.100"	25 mm	ST-0000187-02		X	X	X	X	X
1"	SN-0000187	ER20	4.134"	5.775"	1.335"	30 mm	SN-0000187-20		X	X	X	X	X
1"	SN-0000187-03	ER20	2.756"	4.395"	1.335"	30 mm	SN-0000187-20		X	X	X	X	X



Rigid Tap Holders for Floating Tap Collets — one-piece and ball-bearing nose cap — Inch

Shank Dia.	Tool Holder Part Number	Collet Style	Shank Length	Total Length	Cap Dia.	Cap Hex	Cap Part Number	Wrench Part Number	Collets / Tap Collets				
									ER	ERNC	ERTCSP	ERQC	ERTC
5/8"	ST-0011202-25B	ER20	1.378"	3.100"	1.335"	30 mm	—	Standard Open End				X	X
5/8"	SN-0011202-25B	ER20	1.378"	3.100"	1.375"	Slots	SN-0000187-07	SN-0009189-01				X	X
1"	SN-0011202-02B	ER20	4.134"	5.875"	1.375"	Slots	SN-0000187-07	SN-0009189-01				X	X



Floating Tap Holder for Flexible Split Collets — one-piece nose cap — Inch

Shank Dia.	Tool Holder Part Number	Collet Style	Shank Length	Total Length	Cap Dia.	Cap Hex	Cap Part Number	Wrench Part Number	Collets / Tap Collets				
									ER	ERNC	ERTCSP	ERQC	ERTC
1"	ST-0011202-02 B	ER16	2.756"	4.070"	1.100"	25 mm	—	Standard Open End	X		X		

ER-Style Collet Holders for Swiss-type and CNC Lathes — Metric



ST-0000187-5M
ST-0000187-10M



ST-0000187-7M
ST-0000187-M



SN-0000187-M
SN-0000187-3M
SN-0000187-5M

Standard Round Shank Tool Holders — one-piece nose cap — Metric

Shank Dia.	Tool Holder Part Number	Collet Style	Shank Length	Total Length	Cap Dia.	Cap Hex	Cap Part Number	Wrench Part Number	Collets		Tap Collets		
									ER	ERNC	ERTCSP	ERQC	ERTC
14 mm	ST-0000187-10 M	ER11	14.7 mm	25.0 mm	19 mm	17 mm	ST-0000187-09	Use Standard Open End Wrench	X		X		
16 mm	ST-0000187-5M	ER16	35.0 mm	55.5 mm	28 mm	25 mm	ST-0000187-02		X	X	X	X	X
16 mm	SN-0000187-5M	ER20	35.0 mm	76.4 mm	34 mm	30 mm	SN-0000187-20		X	X	X	X	X
25 mm	ST-0000187-7M	ER11	85.0 mm	104.5 mm	19 mm	17 mm	ST-0000187-09		X				X
25 mm	ST-0000187-M	ER16	105.0 mm	149.0 mm	28 mm	25 mm	ST-0000187-02		X	X	X	X	X
25 mm	ST-0000187-3M	ER16	70.0 mm	109.5 mm	28 mm	25 mm	ST-0000187-02		X	X	X	X	X
25 mm	SN-0000187-M	ER20	105.0 mm	145.5 mm	34 mm	30 mm	SN-0000187-20		X	X	X	X	X
25 mm	SN-0000187-3M	ER20	70.0 mm	111.5 mm	34 mm	30 mm	SN-0000187-20		X	X	X	X	X



ST-0011202-25MB
(one-piece nose cap)



SN-0011202-25MB
(ball-bearing nose cap)



SN-0011202-2MB
(ball-bearing nose cap)

Rigid Tap Holders for Floating Tap Collets — one-piece and ball-bearing nose cap — Metric

Shank Dia.	Tool Holder Part Number	Collet Style	Shank Length	Total Length	Cap Dia.	Cap Hex	Cap Part Number	Wrench Part Number	Collets		Tap Collets		
									ER	ERNC	ERTCSP	ERQC	ERTC
16 mm	ST-0011202-25MB	ER20	35.0 mm	79.0 mm	34 mm	30 mm	—	Standard Open End				X	X
16 mm	SN-0011202-25MB	ER20	35.0 mm	79.0 mm	35 mm	Slots	SN-0000187-07	SN-0009189-01				X	X
25 mm	SN-0011202-2MB	ER20	105.0 mm	149.0 mm	35 mm	Slots	SN-0000187-07	SN-0009189-01				X	X

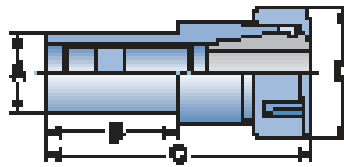


ST-0011202-2M B

Floating Tap Holder for Flexible Split Collets — one-piece nose cap — Metric

Shank Dia.	Tool Holder Part Number	Collet Style	Shank Length	Total Length	Cap Dia.	Cap Hex	Cap Part Number	Wrench Part Number	Collets		Tap Collets		
									ER	ERNC	ERTCSP	ERQC	ERTC
25 mm	ST-0011202-2M B	ER16	75.0 mm	103.0 mm	28 mm	25 mm	—	Standard Open End	X		X		

ER-Style Collet Tool Holders — Straight Shank, Stepped



ER-Style Collet Tool Holders — Straight Shank, Stepped — Metric

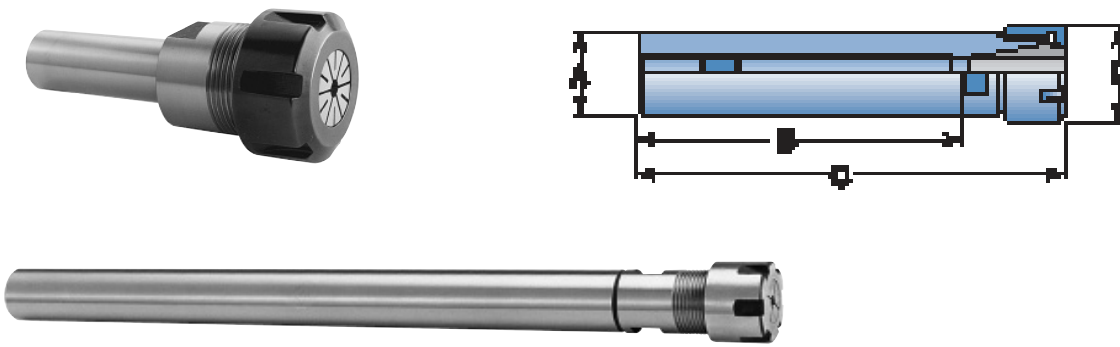
Tool Holder		A Shank Dia.		B Shank Length		C Total Length		D Cap		Nut (Cap)	Wrench (Not Included)
ER Collet	Part Number	mm	Inch	mm	Inch	mm	Inch	mm	Inch	Part Number	Part Number
ER11	7997-60-08-070000	7	0.28"	45	1.77"	58	2.28"	16	0.63"	7991-01-11-000020	7992-01-11-000020
ER11	7997-60-08-080000	8	0.31"	56	2.20"	70	2.76"	16	0.63"	7991-01-11-000020	7992-01-11-000020
ER16	7997-60-16-100000	10	0.39"	44	1.73"	70	2.76"	22	0.87"	7991-01-16-000020	7992-01-16-000020
ER16	7997-70-16-100000	10	0.39"	60	2.36"	86	3.39"	22	0.87"	7991-01-16-000020	7992-01-16-000020
ER16	7997-80-16-100000	10	0.39"	80	3.15"	120	4.72"	22	0.87"	7991-01-16-000020	7992-01-16-000020
ER16	7997-80-16-120000	12	0.47"	80	3.15"	105	4.13"	22	0.87"	7991-01-16-000020	7992-01-16-000020
ER16	7997-81-16-120000	12	0.47"	80	3.15"	105	4.13"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-61-16-140000	14	0.55"	30	1.18"	55	2.17"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-71-16-140000	14	0.55"	60	2.36"	97	3.82"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-71-16-160000	16	0.63"	60	2.36"	90	3.55"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER20	7997-80-20-120000	12	0.47"	100	3.94"	142	5.60"	28	1.10"	7991-01-20-000020	7992-01-20-000020
ER20	7997-80-20-150000	15	0.59"	100	3.94"	142	5.60"	28	1.10"	7991-01-20-000020	7992-01-20-000020
ER20	7997-80-20-160000	16	0.63"	100	3.94"	142	5.60"	28	1.10"	7991-01-20-000020	7992-01-20-000020
ER20	7997-61-20-200000	20	0.79"	30	1.18"	55	2.17"	34	1.34"	7991-01-20-000021 ^H	7992-01-20-000021 ^H
ER25	7997-72-25-200000	20	0.79"	50	1.97"	85	3.35"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER25	7997-82-25-200000	20	0.79"	100	3.94"	135	5.31"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER25	7997-72-25-250000	25	0.98"	50	1.97"	85	3.35"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER32	7997-72-32-200000	20	0.79"	35	1.38"	83	3.27"	50	1.97"	7991-01-32-000220 ^E	7992-01-32-000220 ^E
ER32	7997-62-32-200000	20	0.79"	50	1.97"	75	2.95"	50	1.97"	7991-01-32-000220 ^E	7992-01-32-000220 ^E
ER32	7997-72-32-250000	25	0.98"	50	1.97"	95	3.74"	50	1.97"	7991-01-32-000220 ^E	7992-01-32-000220 ^E
ER40	7997-72-40-250000	25	0.98"	50	1.97"	95	3.74"	63	2.48"	7991-01-40-000220 ^E	7992-01-40-000220 ^E

ER-Style Collet Tool Holders — Straight Shank, Stepped — Inch

Tool Holder		A Shank Dia.		B Shank Length		C Total Length		D Cap		Nut (Cap)	Wrench (Not Included)
ER Collet	Part Number	mm	Inch	mm	Inch	mm	Inch	mm	Inch	Part Number	Part Number
ER11	7997-60-08-002500	—	1/4"	45	1.77"	58	2.28"	16	0.63"	7991-01-11-000020	7992-01-11-000020
ER16	7997-60-16-003750	—	3/8"	44	1.73"	70	2.76"	22	0.87"	7991-01-16-000020	7992-01-16-000020
ER16	7997-90-16-005000	—	1/2"	154	6.06"	168	6.61"	22	0.87"	7991-01-16-000020	7992-01-16-000020
ER16	7997-71-16-006250	—	5/8"	60	2.36"	85	3.35"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-81-16-006250	—	5/8"	80	3.15"	105	4.13"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-71-16-007500	—	3/4"	50	1.97"	79	3.11"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-81-16-007500	—	3/4"	80	3.15"	110	4.33"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-91-16-007500	—	3/4"	100	3.94"	125	4.92"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER16	7997-71-16-012500	—	1 1/4"	60	2.36"	85	3.35"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H
ER20	7997-80-20-006250	—	5/8"	100	3.94"	142	5.60"	28	1.10"	7991-01-20-000020	7992-01-20-000020
ER25	7997-72-25-006250	—	5/8"	50	1.97"	85	3.35"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER25	7997-72-25-007500	—	3/4"	50	1.97"	85	3.35"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER25	7997-82-25-007500	—	3/4"	100	3.94"	135	5.31"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER25	7997-72-25-008750	—	7/8"	140	5.51"	100	3.94"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E
ER32	7997-72-32-010000	—	1"	50	1.97"	95	3.74"	50	1.97"	7991-01-32-000220 ^E	7992-01-32-000220 ^E
ER32	7997-92-32-012500	—	1 1/4"	50	1.97"	110	4.33"	50	1.97"	7991-01-32-000220 ^E	7992-01-32-000220 ^E
ER32	7997-82-32-012500	—	1 1/4"	60	2.36"	105	4.13"	50	1.97"	7991-01-32-000220 ^E	7992-01-32-000220 ^E
ER40	7997-72-40-010000	—	1"	50	1.97"	95	3.74"	63	2.48"	7991-01-40-000220 ^E	7992-01-40-000220 ^E
ER40	7997-82-40-010000	—	1"	—	2.375"	110	4.33"	63	2.48"	7991-01-40-000220 ^E	7992-01-40-000220 ^E
ER40	7997-82-40-012500	—	1 1/4"	60	2.36"	105	4.13"	63	2.48"	7991-01-40-000220 ^E	7992-01-40-000220 ^E

Note: Tool holders in gray shading can be used on Hardinge machines. E = E-Style; H = Hex-Style
See page 21 for additional information on Caps and Wrenches.

ER Collet Tool Holders — Straight Shank



ER-Style Collet Tool Holders — Straight Shank, Stepped — Metric

ER Collet	Tool Holder		A Shank Dia.		B Shank Length		C Total Length		D Cap		Nut (Cap)	Wrench (Not Included)
	Part Number	mm	Inch	mm	Inch	mm	Inch	mm	Inch	Part Number	Part Number	
ER8	7996-60-08-080000	8	0.31"	56	2.20"	70	2.76"	12	0.47"	7991-01-08-000020	7992-01-08-000020	
ER8	7996-70-08-080000	8	0.31"	80	3.15"	100	3.94"	12	0.47"	7991-01-08-000020	7992-01-08-000020	
ER8	7996-60-08-100000	10	0.39"	56	2.20"	70	2.76"	12	0.47"	7991-01-08-000020	7992-01-08-000020	
ER8	7996-70-08-100000	10	0.39"	80	3.15"	100	3.94"	12	0.47"	7991-01-08-000020	7992-01-08-000020	
ER8	7996-60-08-120000	12	0.47"	80	3.15"	95	3.74"	12	0.47"	7991-01-08-000020	7992-01-08-000020	
ER11	7996-81-11-200000	20	0.79"	115	4.53"	145	5.71"	19	0.75"	7991-01-11-000021 ^H	7992-01-11-000021 ^H	
ER11	7996-81-11-220000	22	0.88"	100	3.94"	130	5.12"	19	0.75"	7991-01-11-000021 ^H	7992-01-11-000021 ^H	
ER12	7996-60-12-140000	14	0.55"	25	0.98"	38	1.50"	19	0.75"	7991-01-12-000021 ^H	7992-01-12-000021 ^H	
ER16	7996-61-16-200000	20	0.79"	30	1.18"	55	2.17"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H	
ER16	7996-71-16-200000	20	0.79"	50	1.97"	79	3.10"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H	
ER16	7996-81-16-200000	20	0.79"	100	3.94"	125	4.92"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H	
ER16	7996-90-16-200000	20	0.79"	100	3.94"	135	5.31"	22	0.87"	7991-01-16-000020	7992-01-16-000020	
ER16	7996-81-16-220000	22	0.87"	80	3.15"	103	4.06"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H	
ER16	7996-91-16-220000	22	0.87"	134	5.28"	160	6.30"	28	1.10"	7991-01-16-000021 ^H	7992-01-16-000021 ^H	
ER20	7996-80-20-200000	20	0.79"	100	3.94"	142	5.60"	28	1.10"	7991-01-20-000020	7992-01-20-000020	
ER20	7996-81-20-200000	20	0.79"	100	3.94"	142	5.60"	34	1.34"	7991-01-20-000021 ^H	7992-01-20-000021 ^H	
ER20	7996-81-20-220000	22	0.87"	100	3.94"	142	5.60"	34	1.34"	7991-01-20-000021 ^H	7992-01-20-000021 ^H	
ER20	7996-91-20-220000	22	0.87"	120	4.72"	160	6.30"	34	1.34"	7991-01-20-000021 ^H	7992-01-20-000021 ^H	
ER20	7996-71-20-220000	22	0.87"	80	3.15"	120	4.72"	34	1.34"	7991-01-20-000021 ^H	7992-01-20-000021 ^H	
ER25	7996-82-25-250000	25	0.98"	100	3.94"	135	5.31"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E	

ER-Style Collet Tool Holders — Straight Shank, Stepped — Inch

ER Collet	Tool Holder		A Shank Dia.		B Shank Length		C Total Length		D Cap		Nut (Cap)	Wrench (Not Included)
	Part Number	mm	Inch	mm	Inch	mm	Inch	mm	Inch	Part Number	Part Number	
ER8	7996-70-08-005000	—	½"	80	3.15"	95	3.74"	12	0.47"	7991-01-08-000020	7992-01-08-000020	
ER11	7996-90-11-005000	—	½"	154	6.06"	168	6.61"	16	0.63"	7991-01-11-000020	7992-01-11-000020	
ER11	7996-70-11-005000	—	½"	80	3.15"	100	3.94"	16	0.63"	7991-01-11-000020	7992-01-11-000020	
ER11	7996-71-11-005000	—	½"	80	3.15"	100	3.94"	19	0.75"	7991-01-11-000021 ^H	7992-01-11-000021 ^H	
ER11	7996-91-11-006250	—	⅝"	140	5.51"	155	6.10"	19	0.75"	7991-01-11-000021 ^H	7992-01-11-000021 ^H	
ER11	7996-60-11-006250	—	⅝"	—	2.00"	—	2.50"	16	0.63"	7991-01-11-000020	7992-01-11-000020	
ER11	7996-90-11-006250	—	⅝"	154	6.06"	168	6.61"	16	0.63"	7991-01-11-000020	7992-01-11-000020	
ER11	7996-92-11-006250	—	⅝"	154	6.06"	168	6.61"	19	0.75"	7991-01-11-000021 ^H	7992-01-11-000021 ^H	
ER20	7996-91-20-010000	—	1"	134	5.28"	160	6.30"	28	1.10"	7991-01-20-000020	7992-01-20-000020	
ER25	7996-72-25-010000	—	1"	50	1.97"	85	3.35"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E	
ER25	7996-82-25-010000	—	1"	100	3.94"	135	5.31"	42	1.65"	7991-01-25-000220 ^E	7992-01-25-000220 ^E	
ER25	7996-70-25-010000	—	1"	50	1.97"	85	3.35"	35	1.38"	7991-01-25-000020	7992-01-25-000020	
ER25	7996-80-25-010000	—	1"	100	3.94"	135	5.31"	35	1.38"	7991-01-25-000020	7992-01-25-000020	

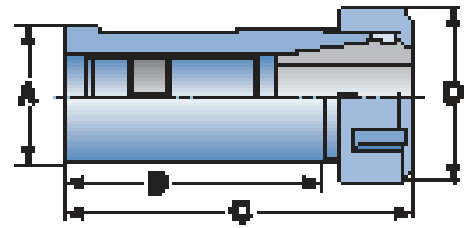
Note: Tool holders in gray shading can be used on Hardinge machines. Additional information on Caps and Wrenches.

E = E-Style; H = Hex-Style

See page 21 for addi-

ER Collet Tool Holders — Straight-Shank, Coolant Style

Straight-Shank Coolant-Style ER Collet Tool holders are designed to be used with NC/CNC lathes that have coolant delivery systems built into their tool blocks.

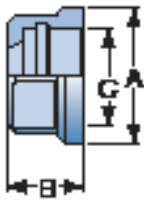


ER Collet Tool Holders — Straight Shank, Coolant Style — Metric

ER Collet	Tool Holder		A Shank Dia.		B Shank Length		C Total Length		D Cap		E-Style Nut (Cap)	E-Style Wrench (Not Included)
	Part Number		mm	Inch	mm	Inch	mm	Inch	mm	Inch	Part Number	Part Number
ER32	7996-01-32-140000		40	1.57"	80	3.15"	160	6.30"	50	1.97"	7991-01-32-000220	7992-01-32-000220

Caps & Wrenches for Straight & Stepped ER Collet Tool Holders

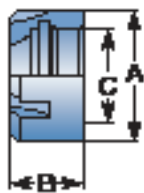
Hex Caps and Wrenches



Cap Part Number	Collet Style	A		B		C	Wrench Part Number
		mm	Inch	mm	Inch	Thread	
7991-01-11-000021	ER11	19	0.75"	11.3	.44"	M14 X .75	7992-01-11-000021
7991-01-12-000021	ER12	19	0.75"	12.5	.49"	M14 x .75	7992-01-12-000021
7991-01-16-000021	ER16	28	1.10"	17.0	.67"	M22 x 1.5	7992-01-16-000021
7991-01-20-000021	ER20	34	1.34"	19.0	.75"	M25 x 1.5	7992-01-20-000021



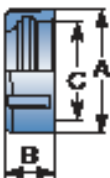
Mini Caps and Wrenches



Cap Part Number	Collet Style	A		B		C	Wrench Part Number
		mm	Inch	mm	Inch	Thread	
7991-01-08-000020	ER8	12	0.47"	10.8	.42"	M10 x .75	7992-01-08-000020
7991-01-11-000020	ER11	16	0.63"	11.3	.44"	M13 X .75	7992-01-11-000020
7991-01-16-000020	ER16	22	0.87"	17.0	.67"	M19 x 1	7992-01-16-000020
7991-01-20-000020	ER20	28	1.10"	19.0	.75"	M24 x 1	7992-01-20-000020
7991-01-25-000020	ER25	35	1.38"	20.0	.79"	M30 x 1	7992-01-25-000020



"E" Style Caps and Wrenches



Cap Part Number	Collet Style	A		B		C	Wrench Part Number
		mm	Inch	mm	Inch	Thread	
7991-01-25-000220	ER25	42	1.65"	20.0	.79"	M32 x 1.5	7992-01-25-000220
7991-01-32-000220	ER32	50	1.97"	22.0	.87"	M40 x 1.5	7992-01-32-000220
7991-01-40-000220	ER40	63	2.48"	25.0	.98"	M50 x 1.5	7992-01-40-000220



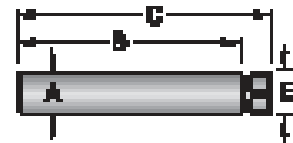
Note: Mini and "E" Style Wrenches are designed to break if over torqued.

ER-Style Collet Holders for Mills and Knee Mills

ER-Style Collet Tool Holders for Vertical Machining Centers



Collet Style	Part Number	Shank A	B	C	E	Standard Cap Part No. (included)
ER11	7996-01-11-005000	.500"	5.8"	6.6"	.63"	7991-01-11-000001
ER16	7996-01-16-007500	.750"	5.9"	7.0"	1.08"	7991-01-16-000001
ER20	7996-01-20-010000	1.000"	5.8"	7.0"	1.375"	7991-01-20-000001
ER25	7996-01-25-010000	1.000"	5.5"	7.5"	1.65"	7991-01-25-000001
ER32	7996-01-32-012500	1.250"	5.5"	7.5"	1.88"	7991-01-32-000001



Optional Caps, Wrenches, Screws and Extractors



Style	Dia. C	Wrench for Std. Cap and Ball Bearing Cap Part Number	Ball Bearing Cap Part Number	Fine Tune Cap Part Number	U-Balance Cap Part Number	Wrench for Fine Tune U-Balance Caps Part Number
ER11	.63"	7992-01-11-000003	—	—	—	—
ER16	1.08"	7992-01-16-000003	—	7991-01-16-000009	7991-01-16-000010	7992-01-16-000009
ER20	1.375"	7992-01-20-000003	7991-01-20-000008	7991-01-20-000009	7991-01-20-000010	7992-01-20-000009
ER25	1.65"	7992-01-25-000003	7991-01-25-000008	7991-01-25-000009	7991-01-25-000010	7992-01-25-000009
ER32	1.88"	7992-01-32-000003	7991-01-32-000008	7991-01-32-000009	7991-01-32-000010	7992-01-32-000009



Style	ER Stop Screw Standard Part Number	ER Stop Screw Standard Coolant Part Number	Thread	Extractor Clip
ER11	—	—	—	None
ER16	7990-01-16-000004	7990-01-16-000006	7/16"-20	7993-01-16-000007
ER20	7990-01-20-000004	7990-01-20-000006	M14-1.5	7993-01-20-000007
ER25	7990-01-25-000004	7990-01-25-000006	M18-1.5	7993-01-25-000007
ER32	7990-01-32-000004	7990-01-32-000006	M22-1.5	7993-01-32-000007

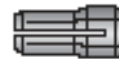


R8, ER-Style Tool Holders for Bridgeport and other brand Knee Mills

Collet Style	Collet Holder	Taper	L	D	Range of Collets	Replacement Cap Part Number	Optional Wrench Part Number
ER16	1757-00-00-00ER16	R8	5.414" (137.51)	1.102" (28.00)	1/64 to 3/8"	7991-01-16-000021	7992-01-16-000021
ER32	1757-00-00-00ER32	R8	5.450" (138.43)	1.969" (50.00)	1/16 to 25/32"	7991-01-32-000220	7992-01-32-000220
ER40	1757-00-00-00ER40	R8	6.705" (170.30)	2.480" (63.00)	3/32 - 1"	7991-01-40-000220	7992-01-40-000220

DA Double-Angle Collets – Inch

DA Collets – Inch



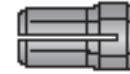
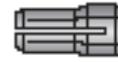
Size Range		DA300 Collet	DA200 Collet	DA100 Collet	DA 180 Collet
Inch	Inch Dec.	Part Number	Part Number	Part Number	Part Number
1/32"	.0312"	1891-00-19-000312	—	—	—
3/64"	.0468"	1891-00-19-000468	1889-00-19-000468	1887-00-19-000468	1885-00-19-000468
1/16"	.0625"	1891-00-19-000625	1889-00-19-000625	1887-00-19-000625	1885-00-19-000625
5/64"	.0781"	1891-00-19-000781	1889-00-19-000781	1887-00-19-000781	1885-00-19-000781
3/32"	.0937"	1891-00-19-000937	1889-00-19-000937	1887-00-19-000937	1885-00-19-000937
7/64"	.1093"	1891-00-19-001093	1889-00-19-001093	1887-00-19-001093	1885-00-19-001093
1/8"	.1250"	1891-00-19-001250	1889-00-19-001250	1887-00-19-001250	1885-00-19-001250
9/64"	.1406"	1891-00-19-001406	1889-00-19-001406	1887-00-19-001406	1885-00-19-001406
5/32"	.1562"	1891-00-19-001562	1889-00-19-001562	1887-00-19-001562	1885-00-19-001562
11/64"	.1718"	1891-00-19-001718	1889-00-19-001718	1887-00-19-001718	1885-00-19-001718
3/16"	.1875"	1891-00-19-001875	1889-00-19-001875	1887-00-19-001875	1885-00-19-001875
13/64"	.2031"	1891-00-19-002031	1889-00-19-002031	1887-00-19-002031	1885-00-19-002031
7/32"	.2187"	1891-00-19-002187	1889-00-19-002187	1887-00-19-002187	1885-00-19-002187
15/64"	.2343"	1891-00-19-002343	1889-00-19-002343	1887-00-19-002343	1885-00-19-002343
1/4"	.2500"	1891-00-19-002500	1889-00-19-002500	1887-00-19-002500	1885-00-19-002500
17/64"	.2656"	—	1889-00-19-002656	1887-00-19-002656	1885-00-19-002656
9/32"	.2812"	—	1889-00-19-002812	1887-00-19-002812	1885-00-19-002812
19/64"	.2968"	—	1889-00-19-002968	1887-00-19-002968	1885-00-19-002968
5/16"	.3125"	—	1889-00-19-003125	1887-00-19-003125	1885-00-19-003125
21/64"	.3281"	—	1889-00-19-003281	1887-00-19-003281	1885-00-19-003281
11/32"	.3437"	—	1889-00-19-003437	1887-00-19-003437	1885-00-19-003437
23/64"	.3593"	—	1889-00-19-003593	1887-00-19-003593	1885-00-19-003593
3/8"	.3750"	—	1889-00-19-003750	1887-00-19-003750	1885-00-19-003750
25/64"	.3906"	—	1889-00-19-003906	1887-00-19-003906	1885-00-19-003906
13/32"	.4062"	—	—	1887-00-19-004062	1885-00-19-004062
27/64"	.4218"	—	—	1887-00-19-004218	1885-00-19-004218
7/16"	.4375"	—	—	1887-00-19-004375	1885-00-19-004375
29/64"	.4531"	—	—	1887-00-19-004531	1885-00-19-004531
15/32"	.4687"	—	—	1887-00-19-004687	1885-00-19-004687
31/64"	.4843"	—	—	1887-00-19-004843	1885-00-19-004843
1/2"	.5000"	—	—	1887-00-19-005000	1885-00-19-005000
33/64"	.5156"	—	—	1887-00-19-005156	1885-00-19-005156
17/32"	.5312"	—	—	1887-00-19-005312	1885-00-19-005312
35/64"	.5468"	—	—	1887-00-19-005468	1885-00-19-005468
9/16"	.5625"	—	—	1887-00-19-005625	1885-00-19-005625
37/64"	.5781"	—	—	—	1885-00-19-005781
19/32"	.5937"	—	—	—	1885-00-19-005937
39/64"	.6093"	—	—	—	1885-00-19-006093
5/8"	.6250"	—	—	—	1885-00-19-006250
41/64"	.6406"	—	—	—	1885-00-19-006406
21/32"	.6562"	—	—	—	1885-00-19-006562
43/64"	.6718"	—	—	—	1885-00-19-006718
11/16"	.6875"	—	—	—	1885-00-19-006875
45/64"	.7031"	—	—	—	1885-00-19-007031
23/32"	.7187"	—	—	—	1885-00-19-007187
47/64"	.7343"	—	—	—	1885-00-19-007343
3/4"	.7500"	—	—	—	1885-00-19-007500
DA Collet Sets		9 Collets 1/8" to 1/4" (1/64" Incr.)	17 Collets 1/8" to 3/8" (1/64" Incr.)	34 Collets 3/64" to 3/16" (1/64" Incr.)	40 Collets 3/64" to 3/4" (1/64" Incr.)
DA Collet Sets		0931-00-19-300005 5 Collets 1/8" to 1/4" (1/32" Incr.)	0931-00-19-200009 9 Collets 1/8" to 3/8" (1/32" Incr.)	10-19-200017 9 Collets 10-19-200017	0931-00-19-000000 34 Collets 0931-00-19-000000



Double-Angle Collets are held in the proper size DAH holders shown on the following pages. The double-angle collet is noted for its parallel gripping capability due to the two angles and the opposed split configuration which places the parallel bearing on the tool shank as well as the full diameter of the tool. Collet range is -.05 mm (-0.0196").

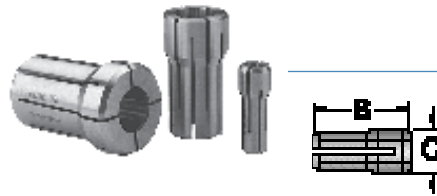
Style	B	C
DA300	1.08"	.375"
DA200	1.18"	.539"
DA100	1.44"	.769"
DA180	1.62"	1.035"

DA Double-Angle Collets — Metric



DA Collets — Metric Sizes

Size Range mm	DA300 Collet Part Number	DA200 Collet Part Number	DA100 Collet Part Number	DA180 Collet Part Number
1.0	1891-00-17-010000	1889-00-17-010000	1887-00-17-010000	1885-00-17-010000
1.5	1891-00-17-015000	1889-00-17-015000	1887-00-17-015000	1885-00-17-015000
2.0	1891-00-17-020000	1889-00-17-020000	1887-00-17-020000	1885-00-17-020000
2.5	1891-00-17-025000	1889-00-17-025000	1887-00-17-025000	1885-00-17-025000
3.0	1891-00-17-030000	1889-00-17-030000	1887-00-17-030000	1885-00-17-030000
3.5	1891-00-17-035000	1889-00-17-035000	1887-00-17-035000	1885-00-17-035000
4.0	1891-00-17-040000	1889-00-17-040000	1887-00-17-040000	1885-00-17-040000
4.5	1891-00-17-045000	1889-00-17-045000	1887-00-17-045000	1885-00-17-045000
5.0	1891-00-17-050000	1889-00-17-050000	1887-00-17-050000	1885-00-17-050000
5.5	1891-00-17-055000	1889-00-17-055000	1887-00-17-055000	1885-00-17-055000
6.0	1891-00-17-060000	1889-00-17-060000	1887-00-17-060000	1885-00-17-060000
6.5	1891-00-17-065000	1889-00-17-065000	1887-00-17-065000	1885-00-17-065000
7.0		1889-00-17-070000	1887-00-17-070000	1885-00-17-070000
7.5		1889-00-17-075000	1887-00-17-075000	1885-00-17-075000
8.0		1889-00-17-080000	1887-00-17-080000	1885-00-17-080000
8.5		1889-00-17-085000	1887-00-17-085000	1885-00-17-085000
9.0		1889-00-17-090000	1887-00-17-090000	1885-00-17-090000
9.5		1889-00-17-095000	1887-00-17-095000	1885-00-17-095000
10.0			1887-00-17-100000	1885-00-17-100000
10.5			1887-00-17-105000	1885-00-17-105000
11.0			1887-00-17-110000	1885-00-17-110000
11.5			1887-00-17-115000	1885-00-17-115000
12.0			1887-00-17-120000	1885-00-17-120000
12.5			1887-00-17-125000	1885-00-17-125000
13.0			1887-00-17-130000	1885-00-17-130000
13.5			1887-00-17-135000	1885-00-17-135000
14.0			1887-00-17-140000	1885-00-17-140000
14.5			1887-00-17-145000	1885-00-17-145000
15.0			1887-00-17-150000	1885-00-17-150000
15.5				1885-00-17-155000
16.0				1885-00-17-160000
16.5				1885-00-17-165000
17.0				1885-00-17-170000
17.5				1885-00-17-175000
18.0				1885-00-17-180000
18.5				1885-00-17-185000
19.0				1885-00-17-190000
19.5				1885-00-17-195000
20.0				1885-00-17-200000
DA Collet Sets			0931-00-17-000000 4 Collets 4.5, 6, 7, 8 (.5mm Incr.)	0933-00-17-000000 32 Collets 4.5 to 19 (.5mm Incr.)



Double-Angle Collets are held in the proper size DAH holders shown on the following pages. The double-angle collet is noted for its parallel gripping capability due to the two angles and the opposed split configuration which places the parallel bearing on the tool shank as well as the full diameter of the tool. Collet range is $-0.5 \text{ mm } (-0.0196\text{'})$.

Dimensions

Style	B	C
DA300	1.08"	.375"
DA200	1.18"	.539"
DA100	1.44"	.769"
DA180	1.62"	1.035"

DA Collet Racks

	DA100	DA180 Rack	DA/ER Combination
Part Number	0946-10-00-000036	0946-18-00-000045	0946-00-00-000054
Collet Capacity	36 DA100 Collets	45 DA180 Collets	18 DA300, 27 DA200 and 9 ER16 Collets

Collet racks will help minimize damage to the precision surfaces and critical diameters of your collet. Collets which are loosely put in a drawer are subject to damage. Damaged collets may result in your cutting tools not being on the toolholder or spindle's centerline, resulting in inaccurate machining.

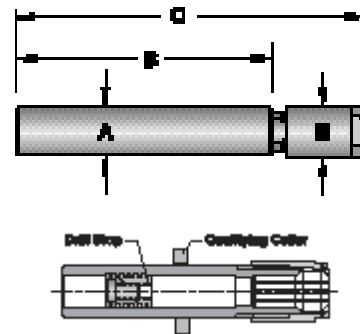
DA Double-Angle Collet Tool Holders



Shown with optional collet.

Double-Angle (DA) Collet Extension Tool Holders mount directly into a round shank tool holder on both mills and lathes. The DAH model holders will accept DA100, DA180, DA200 or DA300 collets.

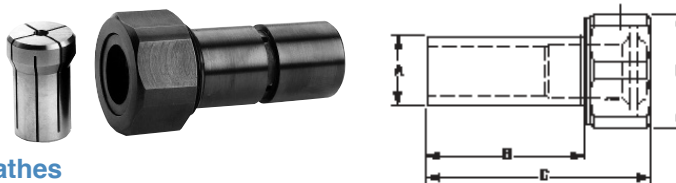
Optional qualifying collars and chuck stops are available. The collars position and lock on the holder shank to qualify the tool's position in the DAH holder. Chuck stops are positioned inside the holder body to provide a qualified locating stop for tooling and to help prevent tool "push back".



DA Double-Angle Collet Extension Tool Holders

Collet Style	Model Number	Tool Holder Part Number	Shank A	B	Length C	Cap E	Cap (included) Part Number	Hex	Qualifying Collar Opt. Part Number	Drill Stop Opt. Part Number
DA300	DAH330	1925-00-00-000000	.500"	2.188"	3.50"	.560"	1933-00-00-000000 ** 1935 - 1937	1/2"	1941-00-00-000000	1939-00-00-000000
DA300	DAH350	1927-00-00-000000	.500"	4.188"	5.50"	.560"	1933-00-00-000000 ** 1935 - 1937	1/2"	1941-00-00-000000	1939-00-00-000000
DA300	—	7996-03-30-005000	.500"	5.500"	6.79"	.560"	7991-03-30-000001 ** 1935 - 1937	1/2"	—	7990-03-30-000004
DA300	DAH335	1943-00-00-000000	.625"	2.188"	3.50"	.680"	1951-00-00-000000 ** 1935 - 1937	5/8"	1957-00-00-000000	1939-00-00-000000
DA300	DAH355	1945-00-00-000000	.625"	4.188"	5.50"	.680"	1951-00-00-000000 ** 1935 - 1937	5/8"	1957-00-00-000000	1939-00-00-000000
DA200	DAH255	1959-00-00-000000	.750"	1.875"	3.50"	.812"	1967-00-00-000000 ** 1969 - 1971	1 1/16"	1975-00-00-000000	1973-00-00-000000
DA200	DAH235	1961-00-00-000000	.750"	3.875"	5.50"	.812"	1967-00-00-000000 ** 1969 - 1971	1 1/16"	1975-00-00-000000	1973-00-00-000000
DA200	—	7996-03-20-007500	.750"	5.500"	7.23"	.860"	7991-03-20-000001 ** 1969 - 1971	3/4"	—	7990-03-20-000004
DA100	DAH135	1977-00-00-000000	1.000"	1.875"	3.50"	1.062"	1985-00-00-000000 ** 1987 - 1989	1 5/16"	1993-00-00-000000	1991-00-00-000000
DA100	DAH155	1979-00-00-000000	1.000"	3.875"	5.50"	1.062"	1985-00-00-000000 ** 1987 - 1989	1 5/16"	1993-00-00-000000	1991-00-00-000000
DA100	—	7996-03-10-010000	1.000"	5.500"	7.47"	1.062"	7991-03-10-000001 ** 1987 - 1989	3 1/32"	—	7990-03-10-000004
DA180	—	7996-03-18-012500	1.250"	5.500"	7.37"	1.440"	7991-03-18-000001 ** none required	1 1/4"	—	7990-03-18-000004

** Bushing and Retaining Wire required when reordering Cap.






SB- and SG-Style DA180 Tool Holders for CNC Lathes

Collet Style	Model Number	Tool Holder Part Number	Shank A	B	Length C	Cap E	Cap (included) Part Number	Hex	Qualifying Collar Opt. Part Number	Drill Stop Opt. Part Number
DA180	SG-180	SG 0000187	1.250"	2.500"	3.469"	1.747"	SG -0000187-02	1 3/4"	Not Required	SB -0000187-05 & 06
DA180	SG-180M	SG 0000187 M	32 mm	2.500"	3.469"	1.747"	SG -0000187-02	1 3/4"	Not Required	SB -0000187-05 & 06
DA180	SB-180	SBA0000187	1.125"	2.500"	3.560"	1.750"	SBA-0000187-02	Pin	Not Required	SB -0000187-05 & 06

Spanner Wrench Part Number 4550009189.

TG-Style Collets – Inch

TG75 and TG100 Collets – Inch

Size Range		TG75 Collet	TG100 Collet
Inch	Inch Dec.	Part Number	Part Number
3/32"	.0937"	1907-00-19-000937	1905-00-19-000937
7/64"	.1093"	1907-00-19-001093	1905-00-19-001093
1/8"	.1250"	1907-00-19-001250	1905-00-19-001250
9/64"	.1406"	1907-00-19-001406	1905-00-19-001406
5/32"	.1562"	1907-00-19-001562	1905-00-19-001562
11/64"	.1718"	1907-00-19-001718	1905-00-19-001718
3/16"	.1875"	1907-00-19-001875	1905-00-19-001875
13/64"	.2031"	1907-00-19-002037	1905-00-19-002031
7/32"	.2187"	1907-00-19-002187	1905-00-19-002187
15/64"	.2343"	1907-00-19-002343	1905-00-19-002343
1/4"	.2500"	1907-00-19-002500	1905-00-19-002500
17/64"	.2656"	1907-00-19-002656	1905-00-19-002656
9/32"	.2812"	1907-00-19-002812	1905-00-19-002812
19/64"	.2968"	1907-00-19-002968	1905-00-19-002968
5/16"	.3125"	1907-00-19-003125	1905-00-19-003125
21/64"	.3281"	1907-00-19-003281	1905-00-19-003281
11/32"	.3437"	1907-00-19-003437	1905-00-19-003437
23/64"	.3593"	1907-00-19-003593	1905-00-19-003593
3/8"	.3750"	1907-00-19-003750	1905-00-19-003750
25/64"	.3906"	1907-00-19-003906	1905-00-19-003906
13/32"	.4062"	1907-00-19-004062	1905-00-19-004062
27/64"	.4218"	1907-00-19-004218	1905-00-19-004218
7/16"	.4375"	1907-00-19-004375	1905-00-19-004375
29/64"	.4531"	1907-00-19-004531	1905-00-19-004531
15/32"	.4687"	1907-00-19-004687	1905-00-19-004687
31/64"	.4843"	1907-00-19-004843	1905-00-19-004843
1/2"	.5000"	1907-00-19-005000	1905-00-19-005000
33/64"	.5156"	1907-00-19-005156	1905-00-19-005156
17/32"	.5312"	1907-00-19-005312	1905-00-19-005312
35/64"	.5468"	1907-00-19-005468	1905-00-19-005468
9/16"	.5625"	1907-00-19-005625	1905-00-19-005625
37/64"	.5781"	1907-00-19-005781	1905-00-19-005781
19/32"	.5937"	1907-00-19-005937	1905-00-19-005937
39/64"	.6093"	1907-00-19-006093	1905-00-19-006093
5/8"	.6250"	1907-00-19-006250	1905-00-19-006250
41/64"	.6406"	1907-00-19-006406	1905-00-19-006406
21/32"	.6562"	1907-00-19-006562	1905-00-19-006562
43/64"	.6718"	1907-00-19-006718	1905-00-19-006718
11/16"	.6875"	1907-00-19-006875	1905-00-19-006875
45/64"	.7031"	1907-00-19-007031	1905-00-19-007031
23/32"	.7187"	1907-00-19-007187	1905-00-19-007187
47/64"	.7343"	1907-00-19-007343	1905-00-19-007343
3/4"	.7500"	1907-00-19-007500	1905-00-19-007500
49/64"	.7656"		1905-00-19-007656
25/32"	.7812"		1905-00-19-007812
51/64"	.7968"		1905-00-19-007968
13/16"	.8125"		1905-00-19-008125
53/64"	.8281"		1905-00-19-008281
27/32"	.8437"		1905-00-19-008437
55/64"	.8593"		1905-00-19-008593
7/8"	.8750"		1905-00-19-008750
57/64"	.8906"		1905-00-19-008906
29/32"	.9062"		1905-00-19-009062
59/64"	.9218"		1905-00-19-009218
15/16"	.9375"		1905-00-19-009375
61/64"	.9531"		1905-00-19-009531
31/32"	.9687"		1905-00-19-009687
63/64"	.9843"		1905-00-19-009843
1"	1.000"		1905-00-19-010000

Sealed Collets are available. TG-style Tap Collets are also available for 1/4" to 1" taps (no metric sizes).

TG150 Collets – Inch

Size Range		TG150 Collet
Inch	Inch Dec.	Part Number
1/2"	.5000"	1909-00-19-005000
33/64"	.5156"	1909-00-19-005156
17/32"	.5312"	1909-00-19-005312
35/64"	.5468"	1909-00-19-005468
9/16"	.5625"	1909-00-19-005625
37/64"	.5781"	1909-00-19-005781
19/32"	.5937"	1909-00-19-005937
39/64"	.6093"	1909-00-19-006093
5/8"	.6250"	1909-00-19-006250
41/64"	.6406"	1909-00-19-006406
21/32"	.6562"	1909-00-19-006562
43/64"	.6718"	1909-00-19-006718
11/16"	.6875"	1909-00-19-006875
45/64"	.7031"	1909-00-19-007031
23/32"	.7187"	1909-00-19-007187
47/64"	.7343"	1909-00-19-007343
3/4"	.7500"	1909-00-19-007500
49/64"	.7656"	1909-00-19-007656
51/64"	.7812"	1909-00-19-007812
25/32"	.7968"	1909-00-19-007968
13/16"	.8125"	1909-00-19-008125
53/64"	.8281"	1909-00-19-008281
27/32"	.8437"	1909-00-19-008437
55/64"	.8593"	1909-00-19-008593
7/8"	.8750"	1909-00-19-008750
57/64"	.8906"	1909-00-19-008906
29/32"	.9062"	1909-00-19-009062
59/64"	.9218"	1909-00-19-009218
15/16"	.9375"	1909-00-19-009375
61/64"	.9531"	1909-00-19-009531
31/32"	.9687"	1909-00-19-009687
63/64"	.9843"	1909-00-19-009843
1"	1.000"	1909-00-19-010000
1 1/64"	1.0156"	1909-00-19-010156
1 1/32"	1.0312"	1909-00-19-010312
1 1/64"	1.0468"	1909-00-19-010468
1 1/16"	1.0625"	1909-00-19-010625
1 3/64"	1.0781"	1909-00-19-010781
1 3/32"	1.0937"	1909-00-19-010937
1 7/64"	1.1093"	1909-00-19-011093
1 1/8"	1.1250"	1909-00-19-011250
1 9/64"	1.1406"	1909-00-19-011406
1 3/16"	1.1562"	1909-00-19-011562
1 11/64"	1.1718"	1909-00-19-011718
1 3/16"	1.1875"	1909-00-19-011875
1 13/64"	1.2031"	1909-00-19-012031
1 7/32"	1.2187"	1909-00-19-012187
1 15/64"	1.2343"	1909-00-19-012343
1 1/4"	1.2500"	1909-00-19-012500
1 17/64"	1.2656"	1909-00-19-012656
1 9/32"	1.2812"	1909-00-19-012812
1 19/64"	1.2968"	1909-00-19-012968
1 5/16"	1.3125"	1909-00-19-013125
1 21/64"	1.3281"	1909-00-19-013281
1 11/32"	1.3437"	1909-00-19-013437
1 23/64"	1.3593"	1909-00-19-013593
1 3/8"	1.3750"	1909-00-19-013750
1 25/64"	1.3906"	1909-00-19-013906
1 13/32"	1.4062"	1909-00-19-014062
1 27/64"	1.4218"	1909-00-19-014218
1 7/16"	1.4375"	1909-00-19-014375
1 29/64"	1.4531"	1909-00-19-014531
1 15/32"	1.4687"	1909-00-19-014687
1 31/64"	1.4843"	1909-00-19-014843
1 1/2"	1.5000"	1909-00-19-015000

TG-Style Collets — Metric

TG100 and TG150 Collets — Metric

Size Range mm	TG100 Collet Part Number	TG150 Collet Part Number
6.0	1905-00-17-060000	—
6.5	1905-00-17-065000	—
7.0	1905-00-17-070000	—
7.5	1905-00-17-075000	—
8.0	1905-00-17-080000	—
8.5	1905-00-17-085000	—
9.0	1905-00-17-090000	—
9.5	1905-00-17-095000	—
10.0	1905-00-17-100000	—
10.5	1905-00-17-105000	—
11.0	1905-00-17-110000	—
11.5	1905-00-17-115000	—
12.0	1905-00-17-120000	1909-00-17-120000
12.5	1905-00-17-125000	1909-00-17-125000
13.0	1905-00-17-130000	1909-00-17-130000
13.5	1905-00-17-135000	1909-00-17-135000
14.0	1905-00-17-140000	1909-00-17-140000
14.5	1905-00-17-145000	1909-00-17-145000
15.0	1905-00-17-150000	1909-00-17-150000
15.5	1905-00-17-155000	1909-00-17-155000
16.0	1905-00-17-160000	1909-00-17-160000
16.5	1905-00-17-165000	1909-00-17-165000
17.0	1905-00-17-170000	1909-00-17-170000
17.5	1905-00-17-175000	1909-00-17-175000
18.0	1905-00-17-180000	1909-00-17-180000
18.5	1905-00-17-185000	1909-00-17-185000
19.0	1905-00-17-190000	1909-00-17-190000
19.5	1905-00-17-195000	1909-00-17-195000
20.0	1905-00-17-200000	1909-00-17-200000
20.5	1905-00-17-205000	1909-00-17-205000
21.0	1905-00-17-210000	1909-00-17-210000
21.5	1905-00-17-215000	1909-00-17-215000
22.0	1905-00-17-220000	1909-00-17-220000
22.5	1905-00-17-225000	1909-00-17-225000
23.0	1905-00-17-230000	1909-00-17-230000
23.5	1905-00-17-235000	1909-00-17-235000
24.0	1905-00-17-240000	1909-00-17-240000
24.5	1905-00-17-245000	1909-00-17-245000
25.0	1905-00-17-250000	1909-00-17-250000
25.5	1905-00-17-255000	1909-00-17-255000
26.0		1909-00-17-260000
26.5		1909-00-17-265000
27.0		1909-00-17-270000
27.5		1909-00-17-275000
28.0		1909-00-17-280000
28.5		1909-00-17-285000
29.0		1909-00-17-290000
29.5		1909-00-17-295000
30.0		1909-00-17-300000
30.5		1909-00-17-305000
31.0		1909-00-17-310000
31.5		1909-00-17-315000
32.0		1909-00-17-320000
32.5		1909-00-17-325000
33.0		1909-00-17-330000
33.5		1909-00-17-335000
34.0		1909-00-17-340000
34.5		1909-00-17-345000
35.0		1909-00-17-350000
35.5		1909-00-17-355000
36.0		1909-00-17-360000
36.5		1909-00-17-365000
37.0		1909-00-17-370000
37.5		1909-00-17-375000
38.0		1909-00-17-380000



TG-Style Single-Angle High-Precision (tremendous grip) Collets are a shallow, single-angle collet used to ensure precise concentricity between the collet, the holder and the tool. The nose cap incorporates a rotating ball assembly with a radial float. The standard precision is per DIN 6341: $\frac{3}{32}$ " to $1\frac{1}{2}$ ", 0.0005" TIR. The collet collapse range is $\frac{1}{64}$ ". Collets with seals are available for thru-coolant applications.

TG Collet Sets — Inch and Metric

TG75 Collet Set Part Numbers	Qty.	Range & Increment
0930-00-19-000043	43	$\frac{3}{32}$ " to $\frac{3}{4}$ " ($\frac{1}{64}$ " Incr.)
0930-00-19-000025	25	$\frac{3}{8}$ " to $\frac{3}{4}$ " ($\frac{1}{64}$ " Incr.)
0930-00-19-000022	22	$\frac{3}{32}$ " to $\frac{3}{4}$ " ($\frac{1}{32}$ " Incr.)
0930-00-19-000013	13	$\frac{3}{8}$ " to $\frac{3}{4}$ " ($\frac{1}{32}$ " Incr.)
0930-00-19-000011	11	$\frac{1}{8}$ " to $\frac{3}{4}$ " ($\frac{1}{16}$ " Incr.)
TG100 Collet Set Part Numbers	Qty.	Range & Increment
0932-00-19-000059	59	$\frac{3}{32}$ " to 1" ($\frac{1}{64}$ " Incr.)
0932-00-19-000041	41	$\frac{3}{8}$ " to 1" ($\frac{1}{64}$ " Incr.)
0932-00-19-000030	30	$\frac{3}{32}$ " to 1" ($\frac{1}{32}$ " Incr.)
0932-00-19-000021	21	$\frac{3}{8}$ " to 1" ($\frac{1}{32}$ " Incr.)
TG150 Collet Set Part Numbers	Qty.	Range & Increment
0934-00-19-000065	65	$\frac{1}{2}$ " to $1\frac{1}{2}$ " ($\frac{1}{64}$ " Incr.)
0934-00-19-000033	33	$\frac{1}{2}$ " to $1\frac{1}{2}$ " ($\frac{1}{32}$ " Incr.)
0934-00-19-000017	17	$\frac{1}{2}$ " to $1\frac{1}{2}$ " ($\frac{1}{16}$ " Incr.)

TG Collet Racks

	TG100	TG150
Part Number	0946-10-00-000035	0946-15-00-000025
Collet Capacity	35 TG100 Collets (or #2 Tap Collets)	25 TG150 Collets (or #3 Tap Collets)

Collet Racks help minimize damage to the precision surfaces and critical diameters of your collet. Collets which are loosely put in a drawer are subject to damage. Damaged collets may result in your cutting tools not being on the toolholder or spindle's centerline, resulting in inaccurate machining.

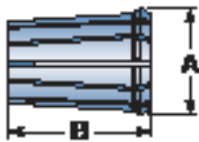
HDO-Style (RDO) Collets — Metric

HDO25, HDO35 and HDO44 Collets — Metric



HDO Collets are interchangeable with Ortlieb-type (RDO) collets. These rigid, high precision collets are recommended for milling. Standard size HDO collets are manufactured per DIN Form B specifications. They are available in inch and metric sizes from stock. The working range of the collet is 0.5mm (.019"). Refer to the chart on page 29 for concentricity specifications.

HDO collets are also used for high speed woodworking applications up to 30,000 RPM (Perske Routers). Collets are available with seals for thru-coolant applications. HDO16 and HDO20 collets are available on request.



Dimensions

Style	A - Dia.		B - Length	
	mm	Inch	mm	Inch
25	25.5	1.00"	40	1.57"
35	35.3	1.39"	52	2.05"
44	44.0	1.73"	60	2.36"

Size Range	HDO25 Collet	HDO35 Collet	HDO44 Collet	
mm	Part Number	Part Number	Part Number	
2.0 - 1.5	.079" - .059"	2535-00-17-020000	2537-00-17-020000	—
2.5 - 2.0	.098" - .079"	2535-00-17-025000	2537-00-17-025000	—
3.0 - 2.5	.118" - .098"	2535-00-17-030000	2537-00-17-030000	—
3.5 - 3.0	.138" - .118"	2535-00-17-035000	2537-00-17-035000	—
4.0 - 3.5	.157" - .138"	2535-00-17-040000	2537-00-17-040000	2539-00-17-040000
4.5 - 4.0	.177" - .157"	2535-00-17-045000	2537-00-17-045000	2539-00-17-045000
5.0 - 4.5	.197" - .177"	2535-00-17-050000	2537-00-17-050000	2539-00-17-050000
5.5 - 5.0	.217" - .197"	2535-00-17-055000	2537-00-17-055000	2539-00-17-055000
6.0 - 5.5	.236" - .217"	2535-00-17-060000	2537-00-17-060000	2539-00-17-060000
6.5 - 6.0	.256" - .236"	2535-00-17-065000	2537-00-17-065000	2539-00-17-065000
7.0 - 6.5	.276" - .256"	2535-00-17-070000	2537-00-17-070000	2539-00-17-070000
7.5 - 7.0	.295" - .276"	2535-00-17-075000	2537-00-17-075000	2539-00-17-075000
8.0 - 7.5	.315" - .295"	2535-00-17-080000	2537-00-17-080000	2539-00-17-080000
8.5 - 8.0	.335" - .315"	2535-00-17-085000	2537-00-17-085000	2539-00-17-085000
9.0 - 8.5	.354" - .335"	2535-00-17-090000	2537-00-17-090000	2539-00-17-090000
9.5 - 9.0	.374" - .354"	2535-00-17-095000	2537-00-17-095000	2539-00-17-095000
10.0 - 9.5	.394" - .374"	2535-00-17-100000	2537-00-17-100000	2539-00-17-100000
10.5 - 10.0	.413" - .394"	2535-00-17-105000	2537-00-17-105000	2539-00-17-105000
11.0 - 10.5	.433" - .413"	2535-00-17-110000	2537-00-17-110000	2539-00-17-110000
11.5 - 11.0	.453" - .433"	2535-00-17-115000	2537-00-17-115000	2539-00-17-115000
12.0 - 11.5	.472" - .453"	2535-00-17-120000	2537-00-17-120000	2539-00-17-120000
12.5 - 12.0	.492" - .472"	2535-00-17-125000	2537-00-17-125000	2539-00-17-125000
13.0 - 12.5	.512" - .492"	2535-00-17-130000	2537-00-17-130000	2539-00-17-130000
13.5 - 13.0	.531" - .512"	2535-00-17-135000	2537-00-17-135000	2539-00-17-135000
14.0 - 13.5	.551" - .531"	2535-00-17-140000	2537-00-17-140000	2539-00-17-140000
14.5 - 14.0	.571" - .551"	2535-00-17-145000	2537-00-17-145000	2539-00-17-145000
15.0 - 14.5	.591" - .571"	2535-00-17-150000	2537-00-17-150000	2539-00-17-150000
15.5 - 15.0	.610" - .591"	2535-00-17-155000	2537-00-17-155000	2539-00-17-155000
16.0 - 15.5	.630" - .610"	2535-00-17-160000	2537-00-17-160000	2539-00-17-160000
16.5 - 16.0	.650" - .630"		2537-00-17-165000	2539-00-17-165000
17.0 - 16.5	.669" - .650"		2537-00-17-170000	2539-00-17-170000
17.5 - 17.0	.689" - .669"		2537-00-17-175000	2539-00-17-175000
18.0 - 17.5	.709" - .689"		2537-00-17-180000	2539-00-17-180000
18.5 - 18.0	.728" - .709"		2537-00-17-185000	2539-00-17-185000
19.0 - 18.5	.748" - .728"		2 537-00-17-190000	2539-00-17-190000
19.5 - 19.0	.768" - .748"		2537-00-17-195000	2539-00-17-195000
20.0 - 19.5	.787" - .768"		2537-00-17-200000	2539-00-17-200000
20.5 - 20.0	.807" - .787"		2537-00-17-205000	2539-00-17-205000
21.0 - 19.5	.827" - .807"		2537-00-17-210000	2539-00-17-210000
21.5 - 21.0	.846" - .827"		2537-00-17-215000	2539-00-17-215000
22.0 - 21.5	.866" - .846"		2537-00-17-220000	2539-00-17-220000
22.5 - 22.0	.885" - .866"		2537-00-17-225000	2539-00-17-225000
23.0 - 22.5	.906" - .885"		2537-00-17-230000	2539-00-17-230000
23.5 - 23.0	.925" - .906"		2537-00-17-235000	2539-00-17-235000
24.0 - 23.5	.945" - .925"		2537-00-17-240000	2539-00-17-240000
24.5 - 24.0	.964" - .945"		2537-00-17-245000	2539-00-17-245000
25.0 - 24.5	.984" - .964"		2537-00-17-250000	2539-00-17-250000
25.5 - 25.0	1.003" - .984"			2539-00-17-255000
26.0 - 25.5	1.024" - 1.003"			2539-00-17-260000
26.5 - 26.0	1.043" - 1.024"			2539-00-17-265000
27.0 - 26.5	1.062" - 1.043"			2539-00-17-270000
27.5 - 27.0	1.082" - 1.062"			2539-00-17-275000
28.0 - 27.5	1.102" - 1.082"			2539-00-17-280000
28.5 - 28.0	1.122" - 1.102"			2539-00-17-285000
29.0 - 28.5	1.141" - 1.122"			2539-00-17-290000
29.5 - 29.0	1.161" - 1.141"			2539-00-17-295000
30.0 - 29.5	1.181" - 1.161"			2539-00-17-300000
30.5 - 30.0	1.200" - 1.181"			2539-00-17-305000
31.0 - 30.5	1.220" - 1.200"			2539-00-17-310000
31.5 - 31.0	1.240" - 1.220"			2539-00-17-315000
32.0 - 31.5	1.260" - 1.240"			2539-00-17-320000
Collet Sets	0951-25-17-000029 29 Collets	0951-35-17-000047 47 Collets	0951-44-17-000057 57 Collets	
	1.5 - 16 mm (.5mm Incr.)	1.5 - 25 mm (.5mm Incr.)	3.5 - 32mm (.5mm Incr.)	

HDO-Style (RDO) Collets — Fractional

HDO25, HDO35 and HDO44 Collets — Inch

Size Range		HDO25 Collet	HDO35 Collet	HDO44 Collet
Inch	mm	Part Number	Part Number	Part Number
1/8"	3.17	2535-00-19-001250	2537-00-19-001250	2539-00-19-001250
9/16"	4.76	2535-00-19-001875	2537-00-19-001875	2539-00-19-001875
1/4"	6.35	2535-00-19-002500	2537-00-19-002500	2539-00-19-002500
5/16"	7.93	2535-00-19-003125	2537-00-19-003125	2539-00-19-003125
3/8"	9.52	2535-00-19-003750	2537-00-19-003750	2539-00-19-003750
7/16"	11.11	2535-00-19-004375	2537-00-19-004375	2539-00-19-004375
1/2"	12.70	2535-00-19-005000	2537-00-19-005000	2539-00-19-005000
9/16"	14.28	2535-00-19-005625	2537-00-19-005625	2539-00-19-005625
5/8"	15.87	2535-00-19-006250	2537-00-19-006250	2539-00-19-006250
11/16"	17.40		2537-00-19-006875	2539-00-19-006875
3/4"	19.05		2537-00-19-007500	2539-00-19-007500
13/16"	20.63		2537-00-19-008125	2539-00-19-008125
7/8"	22.22		2537-00-19-008750	2539-00-19-008750
15/16"	23.81		2537-00-19-009375	2539-00-19-009375
1"	25.40		2537-00-19-010000	2539-00-19-010000
1 1/16"	26.98			2539-00-19-010625
1 1/8"	28.57			2539-00-19-011250
1 3/16"	30.16			2539-00-19-011875
1 1/4"	31.75			2539-00-19-012500
Collet Sets		0951-25-19-000009 9 Collets 1/8" to 5/8" (1/16" Incr.)	0951-35-19-000015 15 Collets 1/8" to 1" (1/16" Incr.)	0951-44-19-000019 19 Collets 1/8" to 1 1/4" (1/16" Incr.)

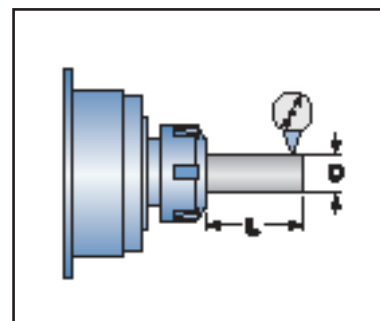


Dimensions

Style	A - Dia.		B - Length	
	mm	Inch	mm	Inch
25	25.5	1.00"	40	1.57"
35	35.3	1.39"	52	2.05"
44	44.0	1.73"	60	2.36"

TIR Precision per DIN 6388B

L - Length		D - Diameter		Normal		High-Precision	
mm	Inch	mm	Inch	mm	Inch	mm	Inch
6	.236"	1.0 - 1.5	.0397" - .0590"	0.015	.00059"	0.008	.00031"
10	.394"	1.6 - 2.9	.0629" - .1141"	0.015	.00059"	0.008	.00031"
16	.630"	3.0 - 5.9	.1181" - .2322"	0.015	.00059"	0.008	.00031"
25	.984"	6.0 - 9.9	.2362" - .3897"	0.015	.00059"	0.008	.00031"
40	1.574"	10.0 - 17.9	.3937" - .6929"	0.020	.00078"	0.010	.00039"
50	1.968"	18.0 - 23.9	.7086" - .9409"	0.020	.00078"	0.010	.00039"
60	2.362"	24.0 - 29.9	.9448" - 1.1771"	0.020	.00078"	0.010	.00039"
80	3.149"	30.0 - 50.0	1.1811" - 1.9685"	0.030	.00118"	0.015	.00059"



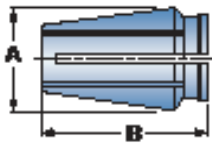
HF-Style (AF) Collets — Inch & Metric

HF25, HF38 and HF50 (AF) Collets — Inch



HF Collets are considered one of the most accurate style collets available and interchangeable with Universal Acura-Flex style (AF) collets. The collets will collapse $\frac{1}{64}$ ". Sealed collets are available for thru-coolant applications.

Size Range Inch	Inch Dec.	HF25 Collet Part Number	HF38 Collet Part Number	HF50 Collet Part Number
$\frac{5}{64}$ "	.0781"	2541-00-19-000781	2543-00-19-000781	—
$\frac{3}{32}$ "	.0937"	2541-00-19-000937	2543-00-19-000937	—
$\frac{7}{64}$ "	.1093"	2541-00-19-001093	2543-00-19-001093	—
$\frac{1}{8}$ "	.1250"	2541-00-19-001250	2543-00-19-001250	2545-00-19-001250
$\frac{9}{64}$ "	.1406"	2541-00-19-001406	2543-00-19-001406	2545-00-19-001406
$\frac{5}{32}$ "	.1562"	2541-00-19-001562	2543-00-19-001562	2545-00-19-001562
$\frac{11}{64}$ "	.1718"	2541-00-19-001718	2543-00-19-001718	2545-00-19-001718
$\frac{3}{16}$ "	.1875"	2541-00-19-001875	2543-00-19-001875	2545-00-19-001875
$\frac{13}{64}$ "	.2031"	2541-00-19-002031	2543-00-19-002031	2545-00-19-002031
$\frac{7}{32}$ "	.2187"	2541-00-19-002187	2543-00-19-002187	2545-00-19-002187
$\frac{15}{64}$ "	.2343"	2541-00-19-002343	2543-00-19-002343	2545-00-19-002343
$\frac{1}{4}$ "	.2500"	2541-00-19-002500	2543-00-19-002500	2545-00-19-002500
$\frac{17}{64}$ "	.2656"		2543-00-19-002656	2545-00-19-002656
$\frac{9}{32}$ "	.2812"		2543-00-19-002812	2545-00-19-002812
$\frac{19}{64}$ "	.2968"		2543-00-19-002968	2545-00-19-002968
$\frac{5}{16}$ "	.3125"		2543-00-19-003125	2545-00-19-003125
$\frac{21}{64}$ "	.3281"		2543-00-19-003281	2545-00-19-003281
$\frac{11}{32}$ "	.3437"		2543-00-19-003437	2545-00-19-003437
$\frac{23}{64}$ "	.3593"		2543-00-19-003593	2545-00-19-003593
$\frac{3}{8}$ "	.3750"		2543-00-19-003750	2545-00-19-003750
$\frac{25}{64}$ "	.3906"			2545-00-19-003906
$\frac{13}{32}$ "	.4062"			2545-00-19-004062
$\frac{27}{64}$ "	.4218"			2545-00-19-004218
$\frac{7}{16}$ "	.4375"			2545-00-19-004375
$\frac{29}{64}$ "	.4531"			2545-00-19-004531
$\frac{15}{32}$ "	.4687"			2545-00-19-004687
$\frac{31}{64}$ "	.4843"			2545-00-19-004843
$\frac{1}{2}$ "	.5000"			2545-00-19-005000
HF Collet Sets		0952-25-19-000012 12 Collets $\frac{5}{64}$ " to $\frac{1}{4}$ " ($\frac{1}{64}$ " Incr.)	0952-38-19-000020 20 Collets $\frac{5}{64}$ " to $\frac{3}{8}$ " ($\frac{1}{64}$ " Incr.)	0952-50-19-000025 25 Collets $\frac{1}{8}$ " to $\frac{1}{2}$ " ($\frac{1}{64}$ " Incr.)



Dimensions

Style	A - Dia.		B - Length	
	Inch	mm	Inch	mm
HF25	.483"	12.27	1.000"	25.41
HF38	.563"	14.31	1.030"	26.18
HF50	.720"	18.30	1.160"	29.48

HF25, HF38 and HF50 (AF) Collets — Metric

Size Range mm	Inch	HF25 Collet Part Number	HF38 Collet Part Number	HF50 Collet Part Number
3.0	.118"	2541-00-17-030000	2543-00-17-030000	—
5.0	.197"	2541-00-17-050000	2543-00-17-050000	2545-00-17-050000
7.0	.276"		2543-00-17-070000	2545-00-17-070000
9.0	.354"		2543-00-17-090000	2545-00-17-090000

HF75 and HF100 Collet Sets

	HF75 Collet Part Number	HF100 Collet Part Number
Collet Set	0952-75-19-000042 41 Collets $\frac{1}{8}$ " to $\frac{3}{4}$ " ($\frac{1}{64}$ " Incr.)	0952-10-19-000050 50 Collets $\frac{15}{64}$ " to 1" ($\frac{1}{64}$ " Incr.)
Collet Set	0952-75-19-000021 21 Collets $\frac{1}{8}$ " to $\frac{3}{4}$ " ($\frac{1}{32}$ " Incr.)	0952-10-19-000025 25 Collets $\frac{1}{4}$ " to 1" ($\frac{1}{32}$ " Incr.)
Collet Set	0952-75-19-000011 11 Collets $\frac{1}{8}$ " to $\frac{3}{4}$ " ($\frac{1}{16}$ " Incr.)	0952-10-19-000013 13 Collets $\frac{1}{4}$ " to 1" ($\frac{1}{16}$ " Incr.)

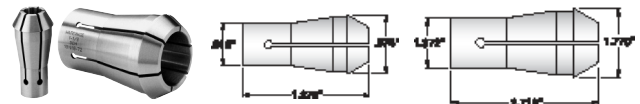
HF-Style (AF) Collets and Cincinnati Monoset Collets

HF75 and HF100 Collets — Inch

Size Range		HF75 Collet	HF100 Collet
Inch	Inch Dec.	Part Number	Part Number
1/8"	.1250"	2571-00-19-001250	—
9/64"	.1406"	2571-00-19-001406	—
5/32"	.1562"	2571-00-19-001562	—
11/64"	.1718"	2571-00-19-001718	—
3/16"	.1875"	2571-00-19-001875	—
13/64"	.2031"	2571-00-19-002031	—
7/32"	.2187"	2571-00-19-002187	—
15/64"	.2343"	2571-00-19-002343	2573-00-19-002343
17/64"	.2656"	2571-00-19-002656	2573-00-19-002656
9/32"	.2812"	2571-00-19-002812	2573-00-19-002812
19/64"	.2968"	2571-00-19-002968	2573-00-19-002968
5/16"	.3125"	2571-00-19-003125	2573-00-19-003125
21/64"	.3281"	2571-00-19-003281	2573-00-19-003281
11/32"	.3437"	2571-00-19-003437	2573-00-19-003437
23/64"	.3593"	2571-00-19-003593	2573-00-19-003593
3/8"	.3750"	2571-00-19-003750	2573-00-19-003750
25/64"	.3906"	2571-00-19-003906	2573-00-19-003906
13/32"	.4062"	2571-00-19-004062	2573-00-19-004062
27/64"	.4218"	2571-00-19-004218	2573-00-19-004218
7/16"	.4375"	2571-00-19-004375	2573-00-19-004375
29/64"	.4531"	2571-00-19-004531	2573-00-19-004531
15/32"	.4687"	2571-00-19-004687	2573-00-19-004687
31/64"	.4843"	2571-00-19-004843	2573-00-19-004843
1/2"	.5000"	2571-00-19-005000	2573-00-19-005000
33/64"	.5156"	2571-00-19-005156	2573-00-19-005156
17/32"	.5312"	2571-00-19-005312	2573-00-19-005312
35/64"	.5468"	2571-00-19-005468	2573-00-19-005468
9/16"	.5625"	2571-00-19-005625	2573-00-19-005625
37/64"	.5781"	2571-00-19-005781	2573-00-19-005781
19/32"	.5937"	2571-00-19-005937	2573-00-19-005937
39/64"	.6093"	2571-00-19-006093	2573-00-19-006093
5/8"	.6250"	2571-00-19-006250	2573-00-19-006250
41/64"	.6406"	2571-00-19-006406	2573-00-19-006406
21/32"	.6562"	2571-00-19-006562	2573-00-19-006562
43/64"	.6718"	2571-00-19-006718	2573-00-19-006718
11/16"	.6875"	2571-00-19-006875	2573-00-19-006875
45/64"	.7031"	2571-00-19-007031	2573-00-19-007031
23/32"	.7187"	2571-00-19-007187	2573-00-19-007187
47/64"	.7343"	2571-00-19-007343	2573-00-19-007343
3/4"	.7500"	2571-00-19-007500	2573-00-19-007500
49/64"	.7656"	2571-00-19-007656	2573-00-19-007656
25/32"	.7812"	2571-00-19-007812	2573-00-19-007812
51/64"	.7968"	2571-00-19-007968	2573-00-19-007968
13/16"	.8125"	2571-00-19-008125	2573-00-19-008125
53/64"	.8281"	2571-00-19-008281	2573-00-19-008281
27/32"	.8437"	2571-00-19-008437	2573-00-19-008437
55/64"	.8593"	2571-00-19-008593	2573-00-19-008593
7/8"	.8750"	2571-00-19-008750	2573-00-19-008750
57/64"	.8906"	2571-00-19-008906	2573-00-19-008906
29/32"	.9062"	2571-00-19-009062	2573-00-19-009062
59/64"	.9218"	2571-00-19-009218	2573-00-19-009218
15/16"	.9375"	2571-00-19-009375	2573-00-19-009375
61/64"	.9531"	2571-00-19-009531	2573-00-19-009531
31/32"	.9687"	2571-00-19-009687	2573-00-19-009687
63/64"	.9843"	2571-00-19-009843	2573-00-19-009843
1"	1.000"	2571-00-19-010000	2573-00-19-010000

HF75 and HF100 (AF) Collets — Metric

Size Range		HF75 Collet	HF100 Collet
mm	Inch	Part Number	Part Number
5.0	.197"	2571-00-17-050000	—
7.0	.276"	2571-00-17-070000	2573-00-17-070000
9.0	.354"	2571-00-17-090000	2573-00-17-090000



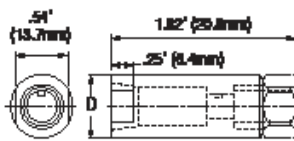
Cincinnati Monoset 1CH and 3CH Collets

Size		1CH	3CH
Inch	mm	Part Number	Part Number
3/32"	.0937"	8859-00-19-000937	—
1/8"	.1250"	8859-00-19-001250	—
5/32"	.1562"	8859-00-19-001562	—
11/64"	.1718"	8859-00-19-001718	—
3/16"	.1875"	8859-00-19-001875	—
13/64"	.2031"	8859-00-19-002031	—
7/32"	.2187"	8859-00-19-002187	—
15/64"	.2343"	8859-00-19-002343	—
1/4"	.2500"	8859-00-19-002500	8737-00-19-002500
17/64"	.2656"	8859-00-19-002656	—
9/32"	.2812"	8859-00-19-002812	—
5/16"	.3125"	8859-00-19-003125	8737-00-19-003125
11/32"	.3437"	8859-00-19-003437	—
29/64"	.3592"	8859-00-19-003593	—
3/8"	.3750"	8859-00-19-003750	8737-00-19-003750
13/32"	.4062"	8859-00-19-004062	8737-00-19-004062
7/16"	.4375"	8859-00-19-004375	8737-00-19-004375
15/32"	.4687"	8859-00-19-004687	8737-00-19-004687
31/64"	.4843"	—	8737-00-19-004843
1/2"	.5000"	8859-00-19-005000	8737-00-19-005000
9/16"	.5625"	—	8737-00-19-005625
5/8"	.6250"	—	8737-00-19-006250
41/64"	.6406"	—	8737-00-19-006406
11/16"	.6875"	—	8737-00-19-006875
3/4"	.7500"	—	8737-00-19-007500
13/16"	.8125"	—	8737-00-19-008125
7/8"	.8750"	—	8737-00-19-008750
15/16"	.9375"	—	8737-00-19-009375
1"	1.0000"	—	8737-00-19-010000
1 1/16"	1.0625"	—	8737-00-19-010625
1 1/8"	1.1250"	2CH fractional Collets available on request. Part Number 1619	8737-00-19-011250
1 3/16"	1.1875"	—	8737-00-19-011875
1 17/32"	1.2187"	—	8737-00-19-012187
1 1/4"	1.2500"	—	8737-00-19-012500

1C Tool Holders and Collets



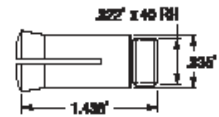
Drill and collet sold separately



1C Collets and tool holders are an accurate method of holding drills, center drills, round shank boring bars, round shank turning tools and reamers. The **T17 Holder** is precision-machined and mounts directly into a round shank tool holder. Turning a nut at the rear of the assembly draws the collet into the assembly, where the matching angles of the collet and holder cause the collet to close down on the tool.

Clean-out Tap for 1C Draw Plug — Part Number 37 -0000546-AA

1C Collets listed are round. Hex, square and decimal are available on request. Hex maximum hole is $7/32$ "; square maximum hole is $11/64$ ". Metric decimal collets available from 0.5mm to 6mm in 0.1mm increments.



1C Collet Tool Holder

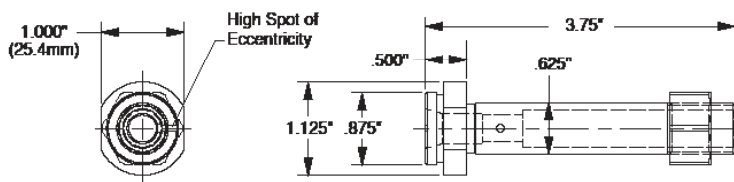
1C Tool Holder Model Number	1C Tool Holder Part Number	D - Shank Diameter	
		Inch	mm
T17-5/8	37 -0000102	.625"	15.87
T17-3/4	37 -0000102-01	.750"	19.05

1C Collets — Inch

Size		1C Collet Part Number
Inch	mm	
$1/64$ "	.0156"	1511-00-19-000156
$1/32$ "	.0312"	1511-00-19-000312
$3/64$ "	.0468"	1511-00-19-000468
$1/16$ "	.0625"	1511-00-19-000625
$5/64$ "	.0781"	1511-00-19-000781
$3/32$ "	.0937"	1511-00-19-000937
$7/64$ "	.1093"	1511-00-19-001093
$1/8$ "	.1250"	1511-00-19-001250
$9/64$ "	.1406"	1511-00-19-001406
$5/32$ "	.1562"	1511-00-19-001562
$11/64$ "	.1718"	1511-00-19-001718
$3/16$ "	.1875"	1511-00-19-001875
$13/64$ "	.2031"	1511-00-19-002031
$7/32$ "	.2187"	1511-00-19-002187
$15/64$ "	.2343"	1511-00-19-002343
$1/4$ "	.2500"	1511-00-19-002500



The **1C Collet Eccentric Tool Holder** provides an ideal solution for indicating and centering your small drills in the X and Y axes, eliminating costly tool breakage due to misaligned drills. The .005" off-center tool holder enables you to rotate and sweep your drill to center line position. The tool holder is then secured by tightening the back locking nut.



1C Collet Eccentric Tool Holder and Tool Holder / Collet Kit

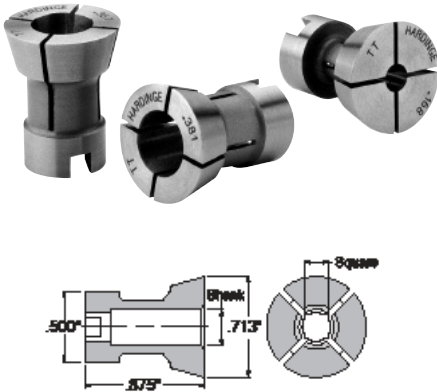
1C Eccentric Tool Holder	Part Number
Tool Holder Assembly (without collets)	7381-0000000000
- Eccentric Body for Drive Holder	7381-0000000001
- 1C Draw Nut	7381-0000000002
- Hex Nut	7381-0000000003
- Dowel Pin Key	7381-0000000004
- $15/16$ " Machinable Spacer	7381-0000000005
- $21/4$ " Machinable Spacer	7381-0000000006
Tool Holder / Collet Kit - Assembly with (4) round smooth 1C Collets	7381-0000000KIT $1/16$, $1/8$, $3/16$, and $1/4$ "



1C Collets — Metric

Size		1C Collet Part Number
mm	Inch	
.50	.0196"	1511-00-17-005000
.75	.0295"	1511-00-17-007500
1.0	.0393"	1511-00-17-010000
1.5	.0590"	1511-00-17-015000
2.0	.0787"	1511-00-17-020000
2.5	.0984"	1511-00-17-025000
3.0	.1181"	1511-00-17-030000
3.5	.1377"	1511-00-17-035000
4.0	.1574"	1511-00-17-040000
4.5	.1771"	1511-00-17-045000
5.0	.1968"	1511-00-17-050000
5.5	.2165"	1511-00-17-055000
6.0	.2362"	1511-00-17-060000
6.2	.2440"	1511-00-17-062000

TT Tap Holders and Collets



TT Tap Collets are used in the Hardinge® TT-5/8 and TT-3/4 Tap Holders. These collets are stocked in ANSI (USA) and ISO (England) standards. The ANSI Inch-series tap collets relate to taps manufactured in the United States. Metric collets manufactured in the United States have the same shank sizes as those used for the inch series. The metric collets manufactured to the ISO standard have different shank sizes than the ANSI series metric collets. Both styles are stock items ready for immediate delivery.

NOTE: Always check the size of your tap shank and then match it to the shank size in the charts below. Imported metric taps may not have the same shank size as other taps you have been using. The chart on page 37 indicates the different shank sizes for the same metric tap depending on the country of origin.

TT Tap Collets ANSI (USA) — Inch

TT Tap Collet Part Number	Shank Dia.	Collet Square	Tap Size
1761-00-18-001410	0.141"	0.114"	# 0-6
1761-00-18-001680	0.168"	0.135"	# 8
1761-00-18-001940	0.194"	0.156"	# 10
1761-00-18-002200	0.220"	0.169"	# 12
1761-00-18-002550	0.255"	0.195"	1/4"
1761-00-18-003180	0.318"	0.242"	5/16"
1761-00-18-003810	0.381"	0.290"	3/8"
1761-00-18-003230	0.323"	0.246"	7/16"
1761-00-18-003670	0.367"	0.279"	1/2"
1761-00-18-003125	0.3125"	0.238"	1/8" P.
0935-00-00-000000	Set of 10 Collets		

ANSI (USA) — Metric

Shank Size	Tap Size
0.141"	M1 to M3.5
0.168"	M4
0.194"	M4.5 , M5
0.255"	M6, M6.3
0.318"	M7, M8
0.381"	M10
0.367"	M12
0.429"	M14

Note: See page 37 for shank sizes of Metric taps in ANSI, ISO, JIS, CIC & DIN specifications.

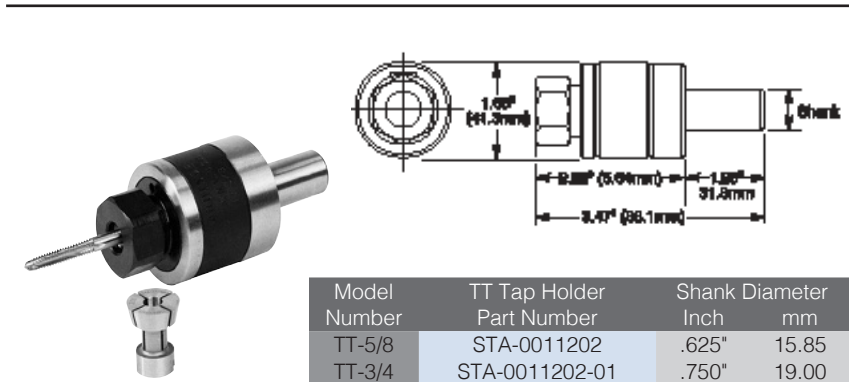
TT Tap Collets ISO (England) — Metric / Inch

TT Tap Collet Part Number	Shank mm	Shank Inch	Collet Square	Tap Size
1761-00-17-025020	2.5	.098"	.083"	M2
1761-00-17-028022	2.8	.110"	.092"	M2.5
1761-00-17-031025	3.15	.124"	.102"	M3
1761-00-17-035028	3.55	.140"	.114"	M3.5
1761-00-17-040031	4.0	.157"	.122"	M4
1761-00-17-045035	4.5	.177"	.144"	M4.5
1761-00-17-050040	5.0	.197"	.157"	M5
1761-00-17-056045	5.6	.221"	.181"	—
1761-00-17-060049	6.0	.236"	.197"	—
1761-00-17-063050	6.3	.248"	.201"	M6
1761-00-17-071056	7.1	.280"	.225"	M7
1761-00-17-080063	8.0	.315"	.248"	M8
1761-00-17-090071	9.0	.354"	.284"	M9
1761-00-17-100080	10.0	.394"	.319"	M10

TT Tap Collets JIS (Japanese) - Metric

TT Tap Collet Part Number	Shank Metric	Shank Square	Tap Size
1761-00-17-030000	4 mm	0.1260"	M3
1761-00-17-040000	5 mm	0.1575"	M4
1761-00-17-055000	5.5 mm	0.2165"	M5
1761-00-17-060000	6 mm	0.2362"	M6
1761-00-17-080000	8 mm	—	M8
1761-00-17-100000	7 mm	0.2165"	M10
1761-00-17-120000	8.5mm	0.2559"	M12

Note: JIS part number relates to tap size not shank.



Model Number	TT Tap Holder Part Number	Shank Diameter Inch	Shank Diameter mm
TT-5/8	STA-0011202	.625"	15.85
TT-3/4	STA-0011202-01	.750"	19.00

Collet-Style Releasing Tap Holders are used to provide thread length control on either right- or left-hand taps by switching a lever inside the body of the tap holder. The tap holders are available in 5/8" and 3/4" shank size and mount directly into a round shank tool holder. TT-style tap holder collets are used for accurate holding and centering of taps. To provide a positive drive for the taps, the collets have a square slot in the back to accommodate the square of the top shank and a notch in the back bearing of the collet that fits over a hardened pin in the bottom of the holder.

GK Self-Feeding Tap Holder, Collets and Drivers

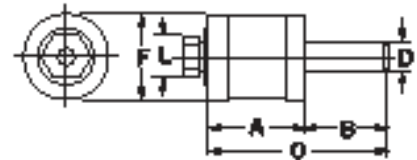


GK Self-Feeding (Pafix) Tap Holders provide automatic thread-length control. The tap holder eliminates the need to perfectly match the feed rate to the thread pitch, minimizing tool breakage and "pulled" or "squeezed" threads.

The holders have a $\frac{5}{8}$ " (15.87mm) shank diameter that allows it to be mounted into a round shank tool holder. Thread length is controlled internally with an adjusting ring in .01" (.25mm) increments. A driver is used in the holder to accommodate the square of the tap shank, providing a positive drive. A collet is used to centralize and hold the tap in the holder. Tap holders are supplied standard with the necessary collets and drivers. Replacement tap collets and drivers are sold separately. The same unit is used for left- and right-hand taps. The GK11 and GK12 models come with 3 tap collets and 4 drivers. The GK21 and GK22 come with (6) tap collets and (6) drivers.

Capacity

Model Number	Max. Tap Size Inch	Max. Tap Size mm	Max. Thrd Length Adj. Inch	Max. Thrd Length Adj. mm
GK11	$\frac{1}{4}$ "	6.35 mm	$\frac{19}{32}$ "	15.08 mm
GK12	$\frac{1}{4}$ "	6.35 mm	$\frac{19}{32}$ "	15.08 mm
GK21	$\frac{9}{16}$ "	14.29 mm	$\frac{27}{32}$ "	21.43 mm
GK22	$\frac{9}{16}$ "	14.29 mm	$\frac{19}{32}$ "	15.08 mm



GK Self-Feeding (Pafix) Tap Holders with Collet and Driver

Model Number	Part Number	A		B		C		D-Shank		F		L	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
GK11	K11-0011202-K	2.17"	55.10	1.25"	31.80	3.42"	86.90	.625"	15.880	1.58"	40.10	.77"	19.60
GK12	S12-0011202-K	1.89"	48.00	1.25"	31.80	3.14"	79.80	.625"	15.880	1.58"	40.10	.77"	19.60
GK21	K21-0011202-K	2.17"	55.10	1.25"	31.80	3.42"	86.90	.625"	15.880	1.58"	40.10	.77"	19.60
GK22	S22-0011202-K	1.89"	48.00	1.25"	31.80	3.14"	79.80	.625"	15.880	1.58"	40.10	.77"	19.60

NOTE: Collets and Drivers are included with each Tap Holder.
See page 37 for shank sizes of Metric taps in ANSI, ISO, JIS, CIC & DIN specifications.

Replacement Tap Collets and Drivers



Model Number	Tap English	Tap Size mm	Shank Dia.	Collet Number	Tap Square	Driver Number	Collet Part Number	Driver Part Number
GK11/12	#6	1.6	.141"	4 - 3.5	.110"	2.8	1T-0011831-C1	1T-0011831-D1
GK11/12	#8	4	.168"	5 - 4	.131"	3.55	1T-0011831-C2	1T-0011831-D2
GK11/12	#10	4.5 - 5	.194"	5 - 4	.152"	4	1T-0011831-C2	1T-0011831-D2
GK11/12	#12	—	.220"	6.5 - 5.5	.165"	4	1T-0011831-C3	1T-0011831-D3
GK11/12	#14	6	.255"	6.5 - 5.5	.191"	5	1T-0011831-C3	1T-0011831-D4
GK11/12	$\frac{1}{4}$ "	—	.255"	6.5 - 5.5	.191"	5	1T-0011831-C3	1T-0011831-D4
GK21/22	#8	4	.168"	5 - 4	.131"	3.55	2T-0011831-C1	2T-0011831-D1
GK21/22	#10	4.5 - 5	.194"	5 - 4	.152"	4	2T-0011831-C2	2T-0011831-D2
GK21/22	#12	—	.220"	6 - 5	.165"	4	2T-0011831-C2	2T-0011831-D2
GK21/22	#14	6	.255"	7 - 6	.191"	5	2T-0011831-C3	2T-0011831-D3
GK21/22	$\frac{1}{4}$ "	6.3	.255"	7 - 6	.191"	5	2T-0011831-C3	2T-0011831-D3
GK21/22	$\frac{5}{16}$ "	7 - 8	.318"	9 - 8	.238"	6.3	2T-0011831-C4	2T-0011831-D4
GK21/22	$\frac{3}{8}$ "	10	.381"	10 - 9	.286"	7.1	2T-0011831-C5	2T-0011831-D6
GK21/22	$\frac{7}{16}$ "	—	.323"	9 - 8	.242"	6.3	2T-0011831-C4	2T-0011831-D4
GK21/22	$\frac{1}{2}$ "	12 - 12.5	.367"	10 - 9	.274"	7.1	2T-0011831-C5	2T-0011831-D6
GK21/22	$\frac{9}{16}$ "	14	.429"	11 - 10	.322"	8	2T-0011831-C6	2T-0011831-D7

Quick-Change Tap Collets for Bilz-Style Holders

#0 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#0 Collet Size Part Number
# 0-6	0.141"	0.110"	7989-51-10-001410
# 8	0.168"	0.131"	7989-51-10-001680
# 10	0.194"	0.152"	7989-51-10-001940
# 12	0.220"	0.165"	7989-51-10-002200
¼"	0.255"	0.191"	7989-51-10-002550
Set of 5 Collets			7989-51-10-000000



Dimensions

Style	D - Diameter		L - Length	
	Inch	mm	Inch	mm
0	0.51"	13.00	—	—
1	0.75"	19.00	1.12"	28.44
2	1.22"	31.00	1.81"	45.97
3	1.89"	48.00	2.74"	70.00
4	2.37"	60.00	—	—

This **Quick-Change Tap Collet** is commonly used with CAT-V or BT rigid or tension compensating tap holders. The collet allows changing of the tap very quickly and maintains gauge lengths between new taps.

#1 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#1 Collet Size Part Number
# 0 - #6	0.141"	0.110"	7989-51-11-001410
# 8	0.168"	0.131"	7989-51-11-001680
# 10	0.194"	0.152"	7989-51-11-001940
# 12	0.220"	0.165"	7989-51-11-002200
¼"	0.255"	0.191"	7989-51-11-002550
⅝"	0.318"	0.238"	7989-51-11-003180
¾"	0.381"	0.286"	7989-51-11-003810
7/16"	0.323"	0.242"	7989-51-11-003230
½"	0.367"	0.275"	7989-51-11-003670
9/16"	0.429"	0.322"	7989-51-11-004290
⅝" Pipe	0.313"	0.234"	7989-51-11-003130
⅞" Pipe	0.437"	0.328"	7989-51-11-004370
Set of 12 Collets			7989-51-11-004370

#3 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#3 Collet Size Part Number
1⅜"	0.652"	0.489"	7989-51-13-006520
7/8"	0.697"	0.523"	7989-51-13-006970
1⅝"	0.760"	0.570"	7989-51-13-007600
1"	0.800"	0.600"	7989-51-13-008000
1⅞"	0.896"	0.672"	7989-51-13-008960
1¼"	1.021"	0.766"	7989-51-13-010210
1⅜"	1.108"	0.831"	7989-51-13-011080
Set of 7 Collets			7989-51-12-000000
¾" Pipe	0.700"	0.531"	7989-51-13-007000
½" Pipe	0.687"	0.515"	7989-51-13-006870
¾" Pipe	0.906"	0.679"	7989-51-13-009060
1" Pipe	1.125"	0.843"	7989-51-13-011250
Set of 4 Collets			7989-51-13-000001

#4 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#4 Collet Size Part Number
1"	0.800"	0.600"	7989-51-14-008000
1⅝"	0.896"	0.672"	7989-51-14-008960
1¼"	1.021"	0.766"	7989-51-14-010210
1⅜"	1.108"	0.831"	7989-51-14-011080
1½"	1.233"	0.925"	7989-51-14-012330
1⅝"	1.305"	0.979"	7989-51-14-013050
1¾"	1.430"	1.072"	7989-51-14-014300
1⅞"	1.519"	1.139"	7989-51-14-015190
Set of 8 Collets			7989-51-14-000000
¾" Pipe	0.906"	0.679"	7989-51-14-009060
1" Pipe	1.125"	0.843"	7989-51-14-011250
1¼" Pipe	1.312"	0.984"	7989-51-14-013120
1½" Pipe	1.500"	1.125"	7989-51-14-015000
Set of 4 Collets			7989-51-14-000001

#2 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#2 Collet Size Part Number
# 0 - #6	0.141"	0.110"	7989-51-12-001410
# 8	0.168"	0.131"	7989-51-12-001680
# 10	0.194"	0.152"	7989-51-12-001940
# 12	0.220"	0.165"	7989-51-12-002200
¼"	0.255"	0.191"	7989-51-12-002550
⅝"	0.318"	0.238"	7989-51-12-003180
¾"	0.381"	0.286"	7989-51-12-003810
7/16"	0.323"	0.242"	7989-51-12-003230
½"	0.367"	0.275"	7989-51-12-003670
9/16"	0.429"	0.322"	7989-51-12-004290
⅝"	0.480"	0.360"	7989-51-12-004800
1⅜"	0.542"	0.406"	7989-51-12-005420
¾"	0.590"	0.442"	7989-51-12-005900
1⅜"	0.652"	0.489"	7989-51-12-006520
7/8"	0.697"	0.523"	7989-51-12-006970
Set of 15 Collets			7989-51-12-000000
⅝" Pipe	0.313"	0.234"	7989-51-12-003130
⅞" Pipe	0.437"	0.328"	7989-51-12-004370
¼" Pipe	0.562"	0.421"	7989-51-12-005620
¾" Pipe	0.700"	0.531"	7989-51-12-007000
½" Pipe	0.687"	0.515"	7989-51-12-006870
Set of 5 Collets			7989-51-12-000001

Currently there are five standards for Metric taps, each having a different shank size. There are the ANSI (USA), DIN (Europe), ISO (England), JIS (Japanese), and CIC (Chinese) standards. Because of the variety, you need to check the shank diameter of your metric tap. Compare the dimension with the chart on page 37. We stock popular sizes of these different standards, even though they may not be listed.

#1, #2, #3 Quick-Change Tap Collets — Metric DIN Standard

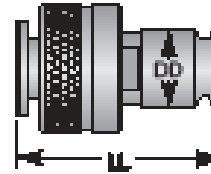
Tap Size	Shank Dia.	Collet Square	#1 Collet Size Part Number	#2 Collet Size Part Number	#3 Collet Size Part Number
M3	3.5mm	2.7mm	7989-51-21-035000	—	—
M4	4.5mm	3.4mm	7989-51-21-045000	—	—
M5,6,8	6.0mm	4.9mm	7989-51-21-060000	7989-51-22-060000	—
M8	8.0mm	6.2mm	7989-51-21-080000	7989-51-22-080000	—
M10	10.0mm	8.0mm	7989-51-21-100000	7989-51-22-100000	—
M10	7.0mm	5.5mm	7989-51-21-070000	7989-51-22-070000	—
M12	9.0mm	7.0mm	7989-51-21-090000	7989-51-22-090000	—
M14	11.0mm	9.0mm	7989-51-21-110000	7989-51-22-110000	7989-51-23-110000
M16	12.0mm	9.0mm	7989-51-21-120000	7989-51-22-120000	7989-51-23-120000
M18	14.0mm	11.0mm	—	7989-51-22-140000	7989-51-23-140000
M20	16.0mm	12.0mm	—	7989-51-22-160000	7989-51-23-160000
M22,M24	18.0mm	14.5mm	—	—	7989-51-23-180000
M27	20.0mm	16.0mm	—	—	7989-51-23-200000
M30	22.0mm	18.0mm	—	—	7989-51-23-220000
M33	25.0mm	20.0mm	—	—	7989-51-23-250000

Note: ANSI standard metric taps (the standard common in the United States) cannot be used in the Metric DIN collets shown above.

Torque Control Tap Collets — Quick-Change

#0 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#0 Collet Size Part Number
# 0-6	0.141"	0.110"	7989-52-10-001410
# 8	0.168"	0.131"	7989-52-10-001680
# 10	0.194"	0.152"	7989-52-10-001940
# 12	0.220"	0.165"	7989-52-10-002200
¼"	0.255"	0.191"	7989-52-10-002550



Dimensions

Style	DD - Diameter		LL - Length	
	Inch	mm	Inch	mm
0	0.51"	13.00	—	—
1	0.75"	19.00	1.83"	46.48
2	1.22"	31.00	2.72"	69.08
3	1.89"	48.00	3.96"	100.58
4	2.37"	60.00	—	—

Torque Control Tap Collets can only be used in Tension/Compression Tap Holders. These collets slip when the torque is exceeded.

#1 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#1 Collet Size Part Number
# 0 - #6	0.141"	0.110"	7989-52-11-001410
# 8	0.168"	0.131"	7989-52-11-001680
# 10	0.194"	0.152"	7989-52-11-001940
# 12	0.220"	0.165"	7989-52-11-002200
¼"	0.255"	0.191"	7989-52-11-002550
⅝"	0.318"	0.238"	7989-52-11-003180
¾"	0.381"	0.286"	7989-52-11-003810
7/16"	0.323"	0.242"	7989-52-11-003230
½"	0.367"	0.275"	7989-52-11-003670
9/16"	0.429"	0.322"	7989-52-11-004290
⅝" Pipe	0.313"	0.234"	7989-52-11-003130
⅞" Pipe	0.437"	0.328"	7989-52-11-004370

#3 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#3 Collet Size Part Number
13/16"	0.652"	0.489"	7989-52-13-006520
7/8"	0.697"	0.523"	7989-52-13-006970
15/16"	0.760"	0.570"	7989-52-13-007600
1"	0.800"	0.600"	7989-52-13-008000
1 1/8"	0.896"	0.672"	7989-52-13-008960
1 1/4"	1.021"	0.766"	7989-52-13-010210
1 3/8"	1.108"	0.831"	7989-52-13-011080
3/8" Pipe	0.700"	0.531"	7989-52-13-007000
1/2" Pipe	0.687"	0.515"	7989-52-13-006870
3/4" Pipe	0.906"	0.679"	7989-52-13-009060
1" Pipe	1.125"	0.843"	7989-52-13-011250

#4 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#4 Collet Size Part Number
1"	0.800"	0.600"	7989-52-14-008000
1 1/8"	0.896"	0.672"	7989-52-14-008960
1 1/4"	1.021"	0.766"	7989-52-14-010210
1 3/8"	1.108"	0.831"	7989-52-14-011080
1 1/2"	1.233"	0.925"	7989-52-14-012330
1 5/8"	1.305"	0.979"	7989-52-14-013050
1 3/4"	1.430"	1.072"	7989-52-14-014300
1 7/8"	1.519"	1.139"	7989-52-14-015190
3/4" Pipe	0.906"	0.679"	7989-52-14-009060
1" Pipe	1.125"	0.843"	7989-52-14-011240
1 1/4" Pipe	1.312"	0.984"	7989-52-14-013120
1 1/2" Pipe	1.500"	1.125"	7989-52-14-015000

Currently there are five standards for Metric taps, each having a different shank size. There are the ANSI (USA), DIN (Europe), ISO (England), JIS (Japanese), and CIC (Chinese) standards. Because of the variety, you need to check the shank diameter of your metric tap. Compare the dimension with the chart on page 37. We stock popular sizes of these different standards, even though they may not be listed.

#2 Tap Collets — Inch

Tap Size	Shank Dia.	Collet Square	#2 Collet Size Part Number
5/16"	0.318"	0.238"	7989-52-12-003180
3/8"	0.381"	0.286"	7989-52-12-003810
7/16"	0.323"	0.242"	7989-52-12-003230
½"	0.367"	0.275"	7989-52-12-003670
9/16"	0.429"	0.322"	7989-52-12-004290
5/8"	0.480"	0.360"	7989-52-12-004800
11/16"	0.542"	0.406"	7989-52-12-005420
¾"	0.590"	0.442"	7989-52-12-005900
13/16"	0.652"	0.489"	7989-52-12-006520
7/8"	0.697"	0.523"	7989-52-12-006970
⅝" Pipe	0.313"	0.234"	7989-52-12-003130
⅞" Pipe	0.437"	0.328"	7989-52-12-004370
¼" Pipe	0.562"	0.421"	7989-52-12-005620
3/8" Pipe	0.700"	0.531"	7989-52-12-007000
½" Pipe	0.687"	0.515"	7989-52-12-006870

#1, #2, #3 Torque Control Tap Collets — Metric DIN Standard

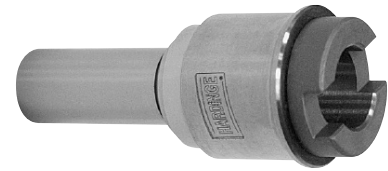
Tap Size	Shank Dia.	Collet Square	#1 Collet Size Part Number	#2 Collet Size Part Number	#3 Collet Size Part Number
M3	3.5mm	2.7mm	7989-52-21-035000	—	—
M4	4.5mm	3.4mm	7989-52-21-045000	—	—
M5,6,8	6.0mm	4.9mm	7989-52-21-060000	7989-52-22-060000	—
M8	8.0mm	6.2mm	7989-52-21-080000	7989-52-22-080000	—
M10	10.0mm	8.0mm	7989-52-21-100000	7989-52-22-100000	—
M10	7.0mm	5.5mm	7989-52-21-070000	7989-52-22-070000	—
M12	9.0mm	7.0mm	7989-52-21-090000	7989-52-22-090000	—
M14	11.0mm	9.0mm	7989-52-21-110000	7989-52-22-110000	7989-52-23-110000
M16	12.0mm	9.0mm	—	7989-52-22-120000	7989-52-23-120000
M18	14.0mm	11.0mm	—	7989-52-22-140000	7989-52-23-140000
M20	16.0mm	12.0mm	—	7989-52-22-160000	7989-52-23-160000
M22,M24	18.0mm	14.5mm	—	—	7989-52-23-180000
M27	20.0mm	16.0mm	—	—	7989-52-23-200000
M30	22.0mm	18.0mm	—	—	7989-52-23-220000
M33	25.0mm	20.0mm	—	—	7989-52-23-250000

Note: ANSI standard metric taps (the standard common in the United States) cannot be used in the Metric DIN collets shown above.

Bilz-Style Tap Holder for Quick-Change Tap Collets

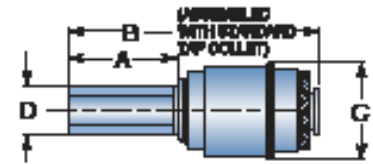
Straight-Shank Tension/Compression Tap Holders

Head Number	Part Number	A		B		C		D - Shank	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm
#1	2547-00-00-000001	6.00"	152.4	8.50"	215.9	1.50"	38.1	1.00"	25.40
#2	2547-00-00-000002	6.00"	152.4	9.25"	234.9	1.88"	47.7	1.00"	25.40



Straight-Shank Rigid Tap Holders

Head Number	Part Number	A		B		C		D - Shank	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm
#1	2549-00-00-000001	1.72"	43.6	3.92"	99.5	1.50"	38.1	.75"	25.40
#2	2549-00-00-000002	1.72"	43.6	4.70"	119.3	1.88"	47.7	.75"	25.40



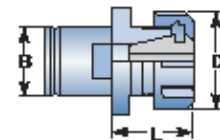
Note: Smaller sizes can be special ordered.

Adapter for using ER & ERTCSP Collets in Bilz-Style or other popular tapping systems

Adapter with ER Collet system can be used for tapping, drilling, reaming, etc. This quick-change adapter fits Bilz-Style and other popular tapping systems to hold ER and ERTCSP collets. Collets permit holding ANSI and metric sizes. Fits in holder shown above.



Head Number	Adapter Part Number	Collet Series	Tap Range	B		L		D	
				Inch	mm	Inch	mm	Inch	mm
—	2153-00-00-000011	ER11	0-6 - 1/4"	0.51"	13	1.10"	28	0.75"	19
#1	2153-00-00-000016	ER16	0-6 - 1/2"	0.75"	19	0.98"	25	1.10"	28
#2	2153-00-00-000025	ER25	0-6 - 3/4"	1.22"	31	1.34"	34	1.65"	42
#3	2153-00-00-000032	ER32	0-6 - 15/16"	1.89"	48	1.89"	48	1.97"	50
#3	2153-00-00-000040	ER40	0-6 - 1 1/8"	1.89"	48	—	—	2.48"	63



Metric Tap Shanks — International Standards

Tap Thread	ISO England Metric			JIS Japanese Metric			CIC Chinese Metric			DIN Europe Metric			ANSI USA Metric	
	Shank Inch	Shank mm	Square Inch	Shank Inch	Shank mm	Square Inch	Shank Inch	Shank mm	Square Inch	Shank mm	Square mm	Square Inch	Inch Shank	Inch Square
M2	.098"	2.50	.083"	—	—	—	.0984"	2.500	.083"	—	—	—	.141"	.114"
M2.5	.110"	2.80	.092"	—	—	—	—	—	—	—	—	—	.141"	.114"
M3	.124"	3.15	.102"	.1575"	4.0	.1260"	.0881"	2.238	.075"	.1378"	3.5	2.7	.1063"	.114"
M3.5	.140"	3.55	.114"	—	—	—	—	—	—	—	—	—	.141"	.114"
M4	.157"	4.00	.122"	.1969"	5.0	.1575"	.1240"	3.150	.102"	.1772"	4.5	3.4	.1339"	.168"
M4.5	.177"	4.50	.144"	—	—	—	—	—	—	—	—	—	.194"	.156"
M5	.197"	5.00	.157"	.2165"	5.5	.1772"	.1574"	4.000	.128"	.2362"	6.0	4.9	.1929"	.194"
—	.221"	5.60	.181"	—	—	—	—	—	—	—	—	—	—	—
—	.236"	6.00	.197"	—	—	—	—	—	—	—	—	—	—	—
M6	.248"	6.30	.201"	.2362"	6.0	.1772"	.1771"	4.000	.144"	.2362"	6.0	4.9	.1929"	.255"
M7	.280"	7.10	.255"	—	—	—	—	—	—	—	—	—	.318"	.242"
M8	—	—	—	—	—	—	—	—	—	.2362"	6.0	4.9	.1929"	—
M8	.315"	8.00	.248"	.2441"	6.2	.1969"	.2480"	6.300	.201"	.3150"	8.0	6.2	.2441"	.318"
M9	.354"	9.00	.284"	—	—	—	—	—	—	—	—	—	—	—
M10	—	—	—	—	—	—	—	—	—	.2756"	7.0	5.5	.2165"	—
M10	.394"	10.00	.319"	.2756"	7.0	.2165"	.3143"	8.000	.252"	.3150"	8.0	8.0	.3150"	.381"
M12	—	—	—	.3346"	8.5	.2559"	.3543"	9.000	.284"	.3543"	9.0	7.0	.2756"	.367"

The bore of a tap collet should be the same size as the shank of the tap. Metric tap threads are consistent throughout the world; unfortunately the shanks are not, as you can see by the chart shown above. Because of the number of imported taps on the market, use a micrometer and check the actual size of the tap shank. Look it up on the chart and then order your tap collet accordingly.

HDB2 Split Bushings — 1/2" OD

Inch Fractional

Size	Part Number
1/32"	.0312" 1763-00-19-000312
3/64"	.0468" 1763-00-19-000468
1/16"	.0625" 1763-00-19-000625
5/64"	.0781" 1763-00-19-000781
3/32"	.0937" 1763-00-19-000937
7/64"	.1093" 1763-00-19-001093
1/8"	.1250" 1763-00-19-001250
9/64"	.1406" 1763-00-19-001406
5/32"	.1562" 1763-00-19-001562
11/64"	.1718" 1763-00-19-001718
3/16"	.1875" 1763-00-19-001875
13/64"	.2031" 1763-00-19-002031
7/32"	.2187" 1763-00-19-002187
15/64"	.2343" 1763-00-19-002343
1/4"	.2500" 1763-00-19-002500
17/64"	.2656" 1763-00-19-002656
9/32"	.2812" 1763-00-19-002812
19/64"	.2968" 1763-00-19-002968
5/16"	.3125" 1763-00-19-003125
21/64"	.3281" 1763-00-19-003281
11/32"	.3437" 1763-00-19-003437
23/64"	.3593" 1763-00-19-003593
3/8"	.3750" 1763-00-19-003750

Letter

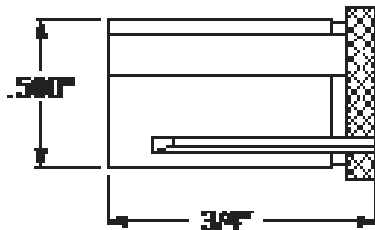
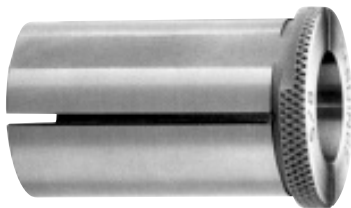
Size	Part Number
A	.2340" 1763-00-16-002340
B	.2380" 1763-00-16-002380
C	.2420" 1763-00-16-002420
D	.2460" 1763-00-16-002460
E	.2500" 1763-00-16-002500
F	.2570" 1763-00-16-002570
G	.2610" 1763-00-16-002610
H	.2660" 1763-00-16-002660
I	.2720" 1763-00-16-002720
J	.2770" 1763-00-16-002770
K	.2810" 1763-00-16-002810
L	.2900" 1763-00-16-002900
M	.2950" 1763-00-16-002950
N	.3020" 1763-00-16-003020
O	.3160" 1763-00-16-003160
P	.3230" 1763-00-16-003230
Q	.3320" 1763-00-16-003320
R	.3390" 1763-00-16-003390
S	.3480" 1763-00-16-003480
T	.3580" 1763-00-16-003580
U	.3680" 1763-00-16-003680
V	.3770" 1763-00-16-003770

Number

Size	Part Number
67	.0320" 1763-00-15-000320
66	.0330" 1763-00-15-000330
65	.0350" 1763-00-15-000350
64	.0360" 1763-00-15-000360
63	.0370" 1763-00-15-000370
62	.0380" 1763-00-15-000380
61	.0390" 1763-00-15-000390
60	.0400" 1763-00-15-000400
59	.0410" 1763-00-15-000410
58	.0420" 1763-00-15-000420
57	.0430" 1763-00-15-000430
56	.0465" 1763-00-15-000465
55	.0520" 1763-00-15-000520
54	.0550" 1763-00-15-000550
53	.0595" 1763-00-15-000595
52	.0635" 1763-00-15-000635
51	.0670" 1763-00-15-000670
50	.0700" 1763-00-15-000700
49	.0730" 1763-00-15-000730
48	.0760" 1763-00-15-000760
47	.0785" 1763-00-15-000785
46	.0810" 1763-00-15-000810
45	.0820" 1763-00-15-000820
44	.0860" 1763-00-15-000860
43	.0890" 1763-00-15-000890
42	.0935" 1763-00-15-000935
41	.0960" 1763-00-15-000960
40	.0980" 1763-00-15-000980
39	.0995" 1763-00-15-000995
38	.1015" 1763-00-15-001015
37	.1040" 1763-00-15-001040
36	.1065" 1763-00-15-001065
35	.1100" 1763-00-15-001100
34	.1110" 1763-00-15-001110
33	.1130" 1763-00-15-001130
32	.1160" 1763-00-15-001160
31	.1200" 1763-00-15-001200
30	.1285" 1763-00-15-001285
29	.1360" 1763-00-15-001360
28	.1405" 1763-00-15-001405
27	.1440" 1763-00-15-001440
26	.1470" 1763-00-15-001470
25	.1495" 1763-00-15-001495
24	.1520" 1763-00-15-001520
23	.1540" 1763-00-15-001540
22	.1570" 1763-00-15-001570
21	.1590" 1763-00-15-001590
20	.1610" 1763-00-15-001610
19	.1660" 1763-00-15-001660
18	.1695" 1763-00-15-001695
17	.1730" 1763-00-15-001730
16	.1770" 1763-00-15-001770
15	.1800" 1763-00-15-001800
14	.1820" 1763-00-15-001820
13	.1850" 1763-00-15-001850
12	.1890" 1763-00-15-001890
11	.1910" 1763-00-15-001910
10	.1935" 1763-00-15-001935
9	.1960" 1763-00-15-001960
8	.1990" 1763-00-15-001990
7	.2010" 1763-00-15-002010
6	.2040" 1763-00-15-002040
5	.2055" 1763-00-15-002055
4	.2090" 1763-00-15-002090
3	.2130" 1763-00-15-002130
2	.2210" 1763-00-15-002210
1	.2280" 1763-00-15-002280

Metric

mm	Inch	Part Number
1.0	.0393"	1763-00-17-010000
1.2	.0472"	1763-00-17-012000
1.4	.0551"	1763-00-17-014000
1.6	.0629"	1763-00-17-016000
1.8	.0590"	1763-00-17-018000
2.0	.0787"	1763-00-17-020000
2.2	.0866"	1763-00-17-022000
2.4	.0944"	1763-00-17-024000
2.5	.0984"	1763-00-17-025000
2.6	.1023"	1763-00-17-026000
2.8	.1102"	1763-00-17-028000
3.0	.1181"	1763-00-17-030000
3.2	.1259"	1763-00-17-032000
3.4	.1338"	1763-00-17-034000
3.5	.1377"	1763-00-17-035000
3.6	.1417"	1763-00-17-036000
3.8	.1496"	1763-00-17-038000
4.0	.1574"	1763-00-17-040000
4.2	.1653"	1763-00-17-042000
4.4	.1732"	1763-00-17-044000
4.5	.1771"	1763-00-17-045000
4.6	.1811"	1763-00-17-046000
4.8	.1889"	1763-00-17-048000
5.0	.1968"	1763-00-17-050000
5.5	.2165"	1763-00-17-055000
6.0	.2362"	1763-00-17-060000
6.5	.2559"	1763-00-17-065000
7.0	.2755"	1763-00-17-070000
7.5	.2952"	1763-00-17-075000
8.0	.3149"	1763-00-17-080000
8.5	.3346"	1763-00-17-085000
9.0	.3543"	1763-00-17-090000
9.5	.3740"	1763-00-17-095000
10.0	.3937"	1763-00-17-100000



Tap — No Square

Bore	Tap	Part Number
#0-6	.141"	1763-00-18-001410
#8	.168"	1763-00-18-001680
#10	.194"	1763-00-18-001940
#12	.220"	1763-00-18-002200
1/4"	.255"	1763-00-18-002550
5/16"	.318"	1763-00-18-003180
7/16"	.323"	1763-00-18-003230
1/2"	.367"	1763-00-18-003670
3/8"	.381"	1763-00-18-003810

HDB5 Split Bushings — 5/8" OD

Inch Fractional

Size	Part Number	
1/32"	.0312"	1765-00-19-000312
3/64"	.0468"	1765-00-19-000468
1/16"	.0625"	1765-00-19-000625
5/64"	.0781"	1765-00-19-000781
3/32"	.0937"	1765-00-19-000937
7/64"	.1093"	1765-00-19-001093
1/8"	.1250"	1765-00-19-001250
9/64"	.1406"	1765-00-19-001406
5/32"	.1562"	1765-00-19-001562
11/64"	.1718"	1765-00-19-001718
3/16"	.1875"	1765-00-19-001875
13/64"	.2031"	1765-00-19-002031
7/32"	.2187"	1765-00-19-002187
15/64"	.2343"	1765-00-19-002343
1/4"	.2500"	1765-00-19-002500
17/64"	.2656"	1765-00-19-002656
9/32"	.2812"	1765-00-19-002812
19/64"	.2968"	1765-00-19-002968
5/16"	.3125"	1765-00-19-003125
21/64"	.3281"	1765-00-19-003281
11/32"	.3437"	1765-00-19-003437
23/64"	.3593"	1765-00-19-003593
3/8"	.3750"	1765-00-19-003750
25/64"	.3906"	1765-00-19-003906
13/32"	.4062"	1765-00-19-004062
27/64"	.4218"	1765-00-19-004218
7/16"	.4375"	1765-00-19-004375
29/64"	.4531"	1765-00-19-004531
15/32"	.4687"	1765-00-19-004687
31/64"	.4843"	1765-00-19-004843
1/2"	.5000"	1765-00-19-005000

Letter

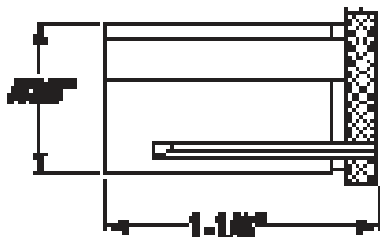
Size	Part Number	
A	.2340"	1765-00-16-002340
B	.2380"	1765-00-16-002380
C	.2420"	1765-00-16-002420
D	.2460"	1765-00-16-002460
E	.2500"	1765-00-16-002500
F	.2570"	1765-00-16-002570
G	.2610"	1765-00-16-002610
H	.2660"	1765-00-16-002660
I	.2720"	1765-00-16-002720
J	.2770"	1765-00-16-002770
K	.2810"	1765-00-16-002810
L	.2900"	1765-00-16-002900
M	.2950"	1765-00-16-002950
N	.3020"	1765-00-16-003020
O	.3160"	1765-00-16-003160
P	.3230"	1765-00-16-003230
Q	.3320"	1765-00-16-003320
R	.3390"	1765-00-16-003390
S	.3480"	1765-00-16-003480
T	.3580"	1765-00-16-003580
U	.3680"	1765-00-16-003680
V	.3770"	1765-00-16-003770
W	.3860"	1765-00-16-003860
X	.3970"	1765-00-16-003970
Y	.4040"	1765-00-16-004040
Z	.4130"	1765-00-16-004130

Number

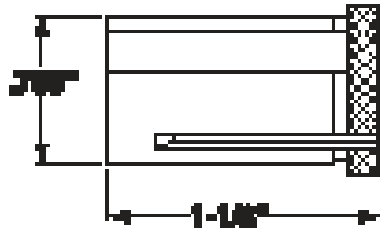
Size	Part Number	
67	.0320"	1765-00-15-000320
66	.0330"	1765-00-15-000330
65	.0350"	1765-00-15-000350
64	.0360"	1765-00-15-000360
63	.0370"	1765-00-15-000370
62	.0380"	1765-00-15-000380
61	.0390"	1765-00-15-000390
60	.0400"	1765-00-15-000400
59	.0410"	1765-00-15-000410
58	.0420"	1765-00-15-000420
57	.0430"	1765-00-15-000430
56	.0465"	1765-00-15-000465
55	.0520"	1765-00-15-000520
54	.0550"	1765-00-15-000550
53	.0595"	1765-00-15-000595
52	.0635"	1765-00-15-000635
51	.0670"	1765-00-15-000670
50	.0700"	1765-00-15-000700
49	.0730"	1765-00-15-000730
48	.0760"	1765-00-15-000760
47	.0785"	1765-00-15-000785
46	.0810"	1765-00-15-000810
45	.0820"	1765-00-15-000820
44	.0860"	1765-00-15-000860
43	.0890"	1765-00-15-000890
42	.0935"	1765-00-15-000935
41	.0960"	1765-00-15-000960
40	.0980"	1765-00-15-000980
39	.0995"	1765-00-15-000995
38	.1015"	1765-00-15-001015
37	.1040"	1765-00-15-001040
36	.1065"	1765-00-15-001065
35	.1100"	1765-00-15-001100
34	.1110"	1765-00-15-001110
33	.1130"	1765-00-15-001130
32	.1160"	1765-00-15-001160
31	.1200"	1765-00-15-001200
30	.1285"	1765-00-15-001285
29	.1360"	1765-00-15-001360
28	.1405"	1765-00-15-001405
27	.1440"	1765-00-15-001440
26	.1470"	1765-00-15-001470
25	.1495"	1765-00-15-001495
24	.1520"	1765-00-15-001520
23	.1540"	1765-00-15-001540
22	.1570"	1765-00-15-001570
21	.1590"	1765-00-15-001590
20	.1610"	1765-00-15-001610
19	.1660"	1765-00-15-001660
18	.1695"	1765-00-15-001695
17	.1730"	1765-00-15-001730
16	.1770"	1765-00-15-001770
15	.1800"	1765-00-15-001800
14	.1820"	1765-00-15-001820
13	.1850"	1765-00-15-001850
12	.1890"	1765-00-15-001890
11	.1910"	1765-00-15-001910
10	.1935"	1765-00-15-001935
9	.1960"	1765-00-15-001960
8	.1990"	1765-00-15-001990
7	.2010"	1765-00-15-002010
6	.2040"	1765-00-15-002040
5	.2055"	1765-00-15-002055
4	.2090"	1765-00-15-002090
3	.2130"	1765-00-15-002130
2	.2210"	1765-00-15-002210
1	.2280"	1765-00-15-002280

Metric

Size	Part Number	
1.0	.0393"	1765-00-17-010000
1.5	.0590"	1765-00-17-015000
2.0	.0787"	1765-00-17-020000
2.5	.0984"	1765-00-17-025000
3.0	.1181"	1765-00-17-030000
3.5	.1377"	1765-00-17-035000
4.0	.1574"	1765-00-17-040000
4.5	.1771"	1765-00-17-045000
5.0	.1968"	1765-00-17-050000
5.5	.2165"	1765-00-17-055000
6.0	.2362"	1765-00-17-060000
6.1	.2402"	1765-00-17-061000
6.5	.2559"	1765-00-17-065000
7.0	.2756"	1765-00-17-070000
7.5	.2952"	1765-00-17-075000
8.0	.3150"	1765-00-17-080000
8.5	.3346"	1765-00-17-085000
9.0	.3543"	1765-00-17-090000
9.5	.3740"	1765-00-17-095000
10.0	.3937"	1765-00-17-100000
10.5	.4133"	1765-00-17-105000
11.0	.4330"	1765-00-17-110000
11.5	.4527"	1765-00-17-115000
12.0	.4724"	1765-00-17-120000
12.5	.4921"	1765-00-17-125000
13.0	.5118"	1765-00-17-130000



HDB6 Split Bushings — 3/4" OD



Inch Fractional

Size	Part Number
1/16"	.0625" 1881-00-19-000625
5/64"	.0781" 1881-00-19-000781
9/32"	.0937" 1881-00-19-000937
7/64"	.1093" 1881-00-19-001093
1/8"	.1250" 1881-00-19-001250
9/64"	.1406" 1881-00-19-001406
5/32"	.1562" 1881-00-19-001562
11/64"	.1718" 1881-00-19-001718
3/16"	.1875" 1881-00-19-001875
13/64"	.2031" 1881-00-19-002031
7/32"	.2187" 1881-00-19-002187
15/64"	.2343" 1881-00-19-002343
1/4"	.2500" 1881-00-19-002500
17/64"	.2656" 1881-00-19-002656
9/32"	.2812" 1881-00-19-002812
19/64"	.2968" 1881-00-19-002968
5/16"	.3125" 1881-00-19-003125
21/64"	.3281" 1881-00-19-003281
11/32"	.3437" 1881-00-19-003437
23/64"	.3593" 1881-00-19-003593
3/8"	.3750" 1881-00-19-003750
25/64"	.3906" 1881-00-19-003906
13/32"	.4062" 1881-00-19-004062
27/64"	.4218" 1881-00-19-004218
7/16"	.4375" 1881-00-19-004375
29/64"	.4531" 1881-00-19-004531
15/32"	.4687" 1881-00-19-004687
31/64"	.4843" 1881-00-19-004843
1/2"	.5000" 1881-00-19-005000
33/64"	.5156" 1881-00-19-005156
17/32"	.5312" 1881-00-19-005312
35/64"	.5468" 1881-00-19-005468
9/16"	.5625" 1881-00-19-005625
37/64"	.5781" 1881-00-19-005781
19/32"	.5937" 1881-00-19-005937
39/64"	.6093" 1881-00-19-006093
5/8"	.6250" 1881-00-19-006250

Letter

Size	Part Number
A	.2340" 1881-00-16-002340
B	.2380" 1881-00-16-002380
C	.2420" 1881-00-16-002420
D	.2460" 1881-00-16-002460
E	.2500" 1881-00-16-002500
F	.2570" 1881-00-16-002570
G	.2610" 1881-00-16-002610
H	.2660" 1881-00-16-002660
I	.2720" 1881-00-16-002720
J	.2770" 1881-00-16-002770
K	.2810" 1881-00-16-002810
L	.2900" 1881-00-16-002900
M	.2950" 1881-00-16-002950
N	.3020" 1881-00-16-003020
O	.3160" 1881-00-16-003160
P	.3230" 1881-00-16-003230
Q	.3320" 1881-00-16-003320
R	.3390" 1881-00-16-003390
S	.3480" 1881-00-16-003480
T	.3580" 1881-00-16-003580
U	.3680" 1881-00-16-003680
V	.3770" 1881-00-16-003770
W	.3860" 1881-00-16-003860
X	.3970" 1881-00-16-003970
Y	.4040" 1881-00-16-004040
Z	.4130" 1881-00-16-004130

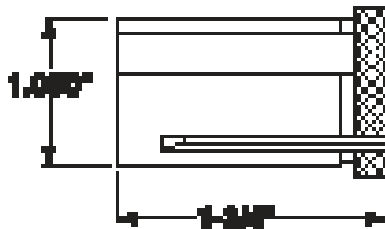
Number

Size	Part Number
52	.0635" 1881-00-15-000635
51	.0670" 1881-00-15-000670
50	.0700" 1881-00-15-000700
49	.0730" 1881-00-15-000730
48	.0760" 1881-00-15-000760
47	.0785" 1881-00-15-000785
46	.0810" 1881-00-15-000810
45	.0820" 1881-00-15-000820
44	.0860" 1881-00-15-000860
43	.0890" 1881-00-15-000890
42	.0935" 1881-00-15-000935
41	.0960" 1881-00-15-000960
40	.0980" 1881-00-15-000980
39	.0995" 1881-00-15-000995
38	.1015" 1881-00-15-001015
37	.1040" 1881-00-15-001040
36	.1065" 1881-00-15-001065
35	.1100" 1881-00-15-001100
34	.1110" 1881-00-15-001110
33	.1130" 1881-00-15-001130
32	.1160" 1881-00-15-001160
31	.1200" 1881-00-15-001200
30	.1285" 1881-00-15-001285
29	.1360" 1881-00-15-001360
28	.1405" 1881-00-15-001405
27	.1440" 1881-00-15-001440
26	.1470" 1881-00-15-001470
25	.1495" 1881-00-15-001495
24	.1520" 1881-00-15-001520
23	.1540" 1881-00-15-001540
22	.1570" 1881-00-15-001570
21	.1590" 1881-00-15-001590
20	.1610" 1881-00-15-001610
19	.1660" 1881-00-15-001660
18	.1695" 1881-00-15-001695
17	.1730" 1881-00-15-001730
16	.1770" 1881-00-15-001770
15	.1800" 1881-00-15-001800
14	.1820" 1881-00-15-001820
13	.1850" 1881-00-15-001850
12	.1890" 1881-00-15-001890
11	.1910" 1881-00-15-001910
10	.1935" 1881-00-15-001935
9	.1960" 1881-00-15-001960
8	.1990" 1881-00-15-001990
7	.2010" 1881-00-15-002010
6	.2040" 1881-00-15-002040
5	.2055" 1881-00-15-002055
4	.2090" 1881-00-15-002090
3	.2130" 1881-00-15-002130
2	.2210" 1881-00-15-002210
1	.2280" 1881-00-15-002280

Metric

mm	Inch	Part Number
1.0	.0393"	1881-00-17-010000
1.5	.0590"	1881-00-17-015000
2.0	.0787"	1881-00-17-020000
2.5	.0984"	1881-00-17-025000
3.0	.1181"	1881-00-17-030000
3.5	.1377"	1881-00-17-035000
4.0	.1574"	1881-00-17-040000
4.5	.1771"	1881-00-17-045000
5.0	.1968"	1881-00-17-050000
5.5	.2165"	1881-00-17-055000
6.0	.2362"	1881-00-17-060000
6.5	.2559"	1881-00-17-065000
7.0	.2756"	1881-00-17-070000
7.5	.2952"	1881-00-17-075000
8.0	.3150"	1881-00-17-080000
8.5	.3346"	1881-00-17-085000
9.0	.3543"	1881-00-17-090000
9.5	.3740"	1881-00-17-095000
10.0	.3937"	1881-00-17-100000
10.5	.4133"	1881-00-17-105000
11.0	.4330"	1881-00-17-110000
11.5	.4527"	1881-00-17-115000
12.0	.4724"	1881-00-17-120000
12.5	.4921"	1881-00-17-125000
13.0	.5118"	1881-00-17-130000
13.5	.5314"	1881-00-17-135000
14.0	.5511"	1881-00-17-140000
14.5	.5708"	1881-00-17-145000
15.0	.5905"	1881-00-17-150000
15.5	.6102"	1881-00-17-155000
16.0	.6299"	1881-00-17-160000

HDB8 Split Bushings — 1" / 25mm OD



Inch Fractional Dimensions



Metric Dimensions

Inch Fractional

Size		Part Number
1/32"	.0312"	1893-00-19-000312
3/64"	.0468"	1893-00-19-000468
1/16"	.0625"	1893-00-19-000625
5/64"	.0781"	1893-00-19-000781
3/32"	.0937"	1893-00-19-000937
7/64"	.1093"	1893-00-19-001093
1/8"	.1250"	1893-00-19-001250
9/64"	.1406"	1893-00-19-001406
5/32"	.1562"	1893-00-19-001562
11/64"	.1718"	1893-00-19-001718
3/16"	.1875"	1893-00-19-001875
13/64"	.2031"	1893-00-19-002031
7/32"	.2187"	1893-00-19-002187
15/64"	.2343"	1893-00-19-002343
1/4"	.2500"	1893-00-19-002500
17/64"	.2656"	1893-00-19-002656
9/32"	.2812"	1893-00-19-002812
19/64"	.2968"	1893-00-19-002968
5/16"	.3125"	1893-00-19-003125
21/64"	.3281"	1893-00-19-003281
11/32"	.3437"	1893-00-19-003437
23/64"	.3593"	1893-00-19-003593
3/8"	.3750"	1893-00-19-003750
25/64"	.3906"	1893-00-19-003906
13/32"	.4062"	1893-00-19-004062
27/64"	.4218"	1893-00-19-004218
7/16"	.4375"	1893-00-19-004375
29/64"	.4531"	1893-00-19-004531
15/32"	.4687"	1893-00-19-004687
31/64"	.4843"	1893-00-19-004843
1/2"	.5000"	1893-00-19-005000
33/64"	.5156"	1893-00-19-005156
17/32"	.5312"	1893-00-19-005312
35/64"	.5468"	1893-00-19-005468
9/16"	.5625"	1893-00-19-005625
37/64"	.5781"	1893-00-19-005781
19/32"	.5937"	1893-00-19-005937
39/64"	.6093"	1893-00-19-006093
5/8"	.6250"	1893-00-19-006250
41/64"	.6406"	1893-00-19-006406
21/32"	.6562"	1893-00-19-006562
43/64"	.6718"	1893-00-19-006718
11/16"	.6875"	1893-00-19-006875
45/64"	.7031"	1893-00-19-007031
23/32"	.7187"	1893-00-19-007187
47/64"	.7343"	1893-00-19-007343
3/4"	.7500"	1893-00-19-007500
49/64"	.7656"	1893-00-19-007656
25/32"	.7812"	1893-00-19-007812
51/64"	.7968"	1893-00-19-007968
13/16"	.8125"	1893-00-19-008125
53/64"	.8281"	1893-00-19-008281
27/32"	.8437"	1893-00-19-008437
55/64"	.8593"	1893-00-19-008593
7/8"	.8750"	1893-00-19-008750

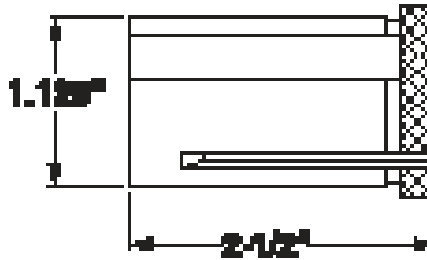
Metric

mm	Inch	Part Number
1.0	.0393"	1893-00-17-010000
1.5	.0590"	1893-00-17-015000
2.0	.0787"	1893-00-17-020000
2.5	.0984"	1893-00-17-025000
3.0	.1181"	1893-00-17-030000
3.5	.1377"	1893-00-17-035000
4.0	.1574"	1893-00-17-040000
4.5	.1771"	1893-00-17-045000
5.0	.1968"	1893-00-17-050000
5.5	.2165"	1893-00-17-055000
6.0	.2362"	1893-00-17-060000
6.5	.2559"	1893-00-17-065000
7.0	.2756"	1893-00-17-070000
7.5	.2952"	1893-00-17-075000
8.0	.3150"	1893-00-17-080000
8.5	.3346"	1893-00-17-085000
9.0	.3543"	1893-00-17-090000
9.5	.3740"	1893-00-17-095000
10.0	.3937"	1893-00-17-100000
10.5	.4133"	1893-00-17-105000
11.0	.4330"	1893-00-17-110000
11.5	.4527"	1893-00-17-115000
12.0	.4724"	1893-00-17-120000
12.5	.4921"	1893-00-17-125000
13.0	.5118"	1893-00-17-130000
13.5	.5314"	1893-00-17-135000
14.0	.5511"	1893-00-17-140000
14.5	.5708"	1893-00-17-145000
15.0	.5905"	1893-00-17-150000
15.5	.6102"	1893-00-17-155000
16.0	.6299"	1893-00-17-160000
16.5	.6496"	1893-00-17-165000
17.0	.6692"	1893-00-17-170000
17.5	.6889"	1893-00-17-175000
18.0	.7086"	1893-00-17-180000
18.5	.7283"	1893-00-17-185000
19.0	.7480"	1893-00-17-190000
19.5	.7677"	1893-00-17-195000
20.0	.7874"	1893-00-17-200000

Metric OD & ID

mm	Inch	Part Number
2.0	.0787"	2051-00-17-020000
2.5	.0984"	2051-00-17-025000
3.0	.1181"	2051-00-17-030000
3.5	.1377"	2051-00-17-035000
4.0	.1574"	2051-00-17-040000
4.5	.1771"	2051-00-17-045000
5.0	.1968"	2051-00-17-050000
5.5	.2165"	2051-00-17-055000
6.0	.2362"	2051-00-17-060000
6.5	.2559"	2051-00-17-065000
7.0	.2756"	2051-00-17-070000
7.5	.2952"	2051-00-17-075000
8.0	.3150"	2051-00-17-080000
8.5	.3346"	2051-00-17-085000
9.0	.3543"	2051-00-17-090000
9.5	.3740"	2051-00-17-095000
10.0	.3937"	2051-00-17-100000
10.5	.4133"	2051-00-17-105000
11.0	.4330"	2051-00-17-110000
11.5	.4527"	2051-00-17-115000
12.0	.4724"	2051-00-17-120000
12.5	.4921"	2051-00-17-125000
13.0	.5118"	2051-00-17-130000
13.5	.5314"	2051-00-17-135000
14.0	.5511"	2051-00-17-140000
14.5	.5708"	2051-00-17-145000
15.0	.5905"	2051-00-17-150000
15.5	.6102"	2051-00-17-155000
16.0	.6299"	2051-00-17-160000
16.5	.6496"	2051-00-17-165000
17.0	.6692"	2051-00-17-170000
17.5	.6889"	2051-00-17-175000
18.0	.7086"	2051-00-17-180000
18.5	.7283"	2051-00-17-185000
19.0	.7480"	2051-00-17-190000
19.5	.7677"	2051-00-17-195000
20.0	.7874"	2051-00-17-200000

HDB9 Split Bushings — 1 1/8" OD



Inch Fractional

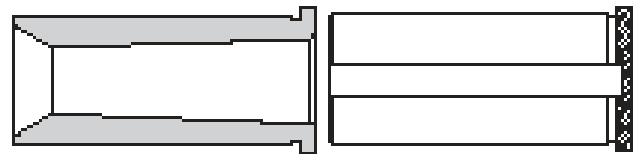
Size	Part Number
3/8"	1883-00-19-003750
25/64"	1883-00-19-003906
13/32"	1883-00-19-004062
27/64"	1883-00-19-004218
7/16"	1883-00-19-004375
29/64"	1883-00-19-004531
15/32"	1883-00-19-004687
31/64"	1883-00-19-004843
1/2"	1883-00-19-005000
33/64"	1883-00-19-005156
17/32"	1883-00-19-005312
35/64"	1883-00-19-005468
9/16"	1883-00-19-005625
37/64"	1883-00-19-005781
19/32"	1883-00-19-005937
39/64"	1883-00-19-006093
5/8"	1883-00-19-006250
41/64"	1883-00-19-006406
21/32"	1883-00-19-006562
43/64"	1883-00-19-006718
11/16"	1883-00-19-006875
45/64"	1883-00-19-007031
23/32"	1883-00-19-007187
47/64"	1883-00-19-007343
3/4"	1883-00-19-007500
49/64"	1883-00-19-007656
25/32"	1883-00-19-007812
51/64"	1883-00-19-007968
13/16"	1883-00-19-008125
53/64"	1883-00-19-008281
27/32"	1883-00-19-008437
55/64"	1883-00-19-008593
7/8"	1883-00-19-008750
57/64"	1883-00-19-008906
29/32"	1883-00-19-009062
59/64"	1883-00-19-009218
15/16"	1883-00-19-009375
61/64"	1883-00-19-009531
31/32"	1883-00-19-009687
63/64"	1883-00-19-009843
1"	1883-00-19-010000

Metric

mm	Inch	Part Number
9.0	.3543"	1883-00-17-090000
9.5	.3740"	1883-00-17-095000
10.0	.3937"	1883-00-17-100000
10.5	.4133"	1883-00-17-105000
11.0	.4330"	1883-00-17-110000
11.5	.4527"	1883-00-17-115000
12.0	.4724"	1883-00-17-120000
12.5	.4921"	1883-00-17-125000
13.0	.5118"	1883-00-17-130000
13.5	.5314"	1883-00-17-135000
14.0	.5511"	1883-00-17-140000
14.5	.5708"	1883-00-17-145000
15.0	.5905"	1883-00-17-150000
15.5	.6102"	1883-00-17-155000
16.0	.6299"	1883-00-17-160000
16.5	.6496"	1883-00-17-165000
17.0	.6692"	1883-00-17-170000
17.5	.6889"	1883-00-17-175000
18.0	.7086"	1883-00-17-180000
18.5	.7283"	1883-00-17-185000
19.0	.7480"	1883-00-17-190000
19.5	.7677"	1883-00-17-195000
20.0	.7874"	1883-00-17-200000
20.5	.8070"	1883-00-17-205000
21.0	.8267"	1883-00-17-210000
21.5	.8464"	1883-00-17-215000
22.0	.8661"	1883-00-17-220000
22.5	.8858"	1883-00-17-225000
23.0	.9055"	1883-00-17-230000
23.5	.9251"	1883-00-17-235000
24.0	.9448"	1883-00-17-240000
24.5	.9645"	1883-00-17-245000
25.0	.9842"	1883-00-17-250000

Taper Hole — ID

Size	Taper	OD	Length	Part Number
#2	Morse	1 1/8"	2.50"	1883-08-00-020000
#3	Morse	1 1/8"	2.50"	1883-08-00-030000



HDB10 & HDB12 Split Bushings — 1¼", 1½" OD



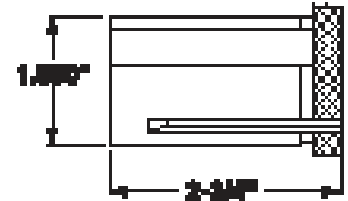
HDB10 Inch Fractional

Size	Inch	Part Number
3/8"	.3750"	2043-00-19-003750
1/2"	.5000"	2043-00-19-005000
5/8"	.6250"	2043-00-19-006250
3/4"	.7500"	2043-00-19-007500
7/8"	.8750"	2043-00-19-008750
1"	1.0000"	2043-00-19-010000



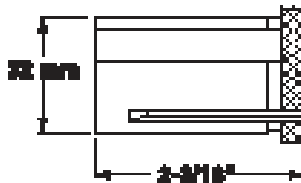
HDB12 Inch Fractional

Size	Inch	Part Number
3/8"	.3750"	2047-00-19-003750
1/2"	.5000"	2047-00-19-005000
5/8"	.6250"	2047-00-19-006250
3/4"	.7500"	2047-00-19-007500
7/8"	.8750"	2047-00-19-008750
1"	1.0000"	2047-00-19-010000
1¼"	1.2500"	2047-00-19-012500



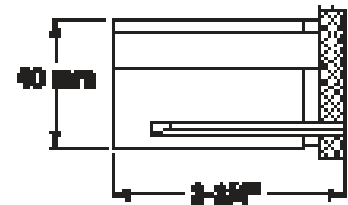
HDB10 Metric OD & ID

mm	Inch	Part Number
10.0	.3937"	2045-00-17-100000
12.0	.4724"	2045-00-17-120000
16.0	.6299"	2045-00-17-160000
20.0	.7874"	2045-00-17-200000
25.0	.9842"	2045-00-17-250000



HDB12 Metric OD & ID

mm	Inch	Part Number
10.0	.3937"	2049-00-17-100000
12.0	.4724"	2049-00-17-120000
16.0	.6299"	2049-00-17-160000
20.0	.7874"	2049-00-17-200000
25.0	.9842"	2049-00-17-250000
32.0	1.2598"	2049-00-17-320000



HDB Bushing Sets

Style	Type	Qty.	Range	Increment	Part Number
HDB2	Fractional	23	1/32" to 3/8"	1/64"	0937-00-19-000000
HDB2	Letter	22	A to V	—	0937-00-16-000000
HDB2	Number	67	#1 thru #67	—	0937-00-15-000000
HDB5	Fractional	31	1/32" to 1/2"	1/64"	0938-00-19-000000
HDB5	Letter	26	A to Z	—	0938-00-16-000000
HDB5	Number	52	#1 thru #52	—	0938-00-15-000000
HDB6	Fractional	37	1/16" to 5/8"	1/64"	0939-00-19-000000
HDB6	Letter	26	A to Z	—	0939-00-16-000000
HDB6	Number	52	#1 thru #52	—	0939-00-15-000000
HDB8	Fractional	14	1/16" to 7/8"	1/16"	0940-00-19-000000
HDB9	Fractional	41	3/8" to 1"	1/64"	0941-00-19-000000

HDC-Style Slotted Bushings

HDC10 BMT — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/4"	.3750"	2.375"	2267-00-19-003750
1/2"	1 1/4"	.5000"	2.375"	2267-00-19-005000
5/8"	1 1/4"	.6250"	2.375"	2267-00-19-006250
3/4"	1 1/4"	.7500"	2.375"	2267-00-19-007500
7/8"	1 1/4"	.8750"	2.375"	2267-00-19-008750
1"	1 1/4"	1.000"	2.375"	2267-00-19-010000

HDC10 — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/4"	.3750"	3.38"	1829-00-19-003750
1/2"	1 1/4"	.5000"	3.38"	1829-00-19-005000
5/8"	1 1/4"	.6250"	3.38"	1829-00-19-006250
3/4"	1 1/4"	.7500"	3.38"	1829-00-19-007500
7/8"	1 1/4"	.8750"	3.38"	1829-00-19-008750
1"	1 1/4"	1.000"	3.38"	1829-00-19-010000
1 1/8"	1 1/4"	1.125"	3.38"	1829-00-19-011250

HDC10 — Taper Hole ID

Size	OD	Taper	Length	Part Number
#3	1 1/4"	Morse	3.38"	1829-08-80-000003

HDC10 BMT — Metric

Bore	OD	Decimal	Length	Part Number
8	1 1/4"	.3149"	2.375"	2267-00-17-080000
10	1 1/4"	.3937"	2.375"	2267-00-17-100000
12	1 1/4"	.4724"	2.375"	2267-00-17-120000
16	1 1/4"	.6299"	2.375"	2267-00-17-160000
20	1 1/4"	.7874"	2.375"	2267-00-17-200000
25	1 1/4"	.9842"	2.375"	2267-00-17-250000

HDC10M — Metric OD & ID

Bore	OD	Decimal	Length	Part Number
8	32 mm	.3149"	3.38"	1831-00-17-080000
10	32 mm	.3937"	3.38"	1831-00-17-100000
12	32 mm	.4724"	3.38"	1831-00-17-120000
16	32 mm	.6299"	3.38"	1831-00-17-160000
20	32 mm	.7874"	3.38"	1831-00-17-200000
25	32 mm	.9842"	3.38"	1831-00-17-250000

HDC10M — Taper Hole ID Metric

Size	OD	Taper	Length	Part Number
#2	32mm	Morse	3.38"	1831-08-80-000002
#3	32mm	Morse	3.38"	1831-08-80-000003

HDC10M — Metric OD / Inch ID

Bore	OD	Decimal	Length	Part Number
3/8"	32 mm	.3870"	3.38"	1831-00-19-003750
1/2"	32 mm	.5000"	3.38"	1831-00-19-005000
5/8"	32 mm	.6250"	3.38"	1831-00-19-006250
3/4"	32 mm	.7500"	3.38"	1831-00-19-007500
7/8"	32 mm	.8750"	3.38"	1831-00-19-008750
1"	32 mm	1.0000"	3.38"	1831-00-19-010000



HDC-Style Solid Bushings have one or two longitudinal slots, depending on the size of the bore. The slot allows the set screw from the tool holder to locate directly on the body of the tool. The HDC10 has a 1 1/4" or a 32mm OD. The HDC12 has a 1 1/2" or a 40mm OD. Both styles are available with fractional or metric size bores and with female Morse tapers.

HDC12 — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/2"	.3750"	3.56"	1895-00-19-003750
1/2"	1 1/2"	.5000"	3.56"	1895-00-19-005000
5/8"	1 1/2"	.6250"	3.56"	1895-00-19-006250
3/4"	1 1/2"	.7500"	3.56"	1895-00-19-007500
7/8"	1 1/2"	.8750"	3.56"	1895-00-19-008750
1"	1 1/2"	1.0000"	3.56"	1895-00-19-010000
1 1/8"	1 1/2"	1.1250"	3.56"	1895-00-19-011250
1 1/4"	1 1/2"	1.2500"	3.56"	1895-00-19-012500

HDC12 — Taper Hole ID

Size	OD	Taper	Length	Part Number
#3	1 1/2"	Morse	3.56"	9189526001652L
#4	1 1/2"	Morse	3.56"	1895-08-80-000004

HDC12M — Metric OD & ID

Bore	OD	Decimal	Length	Part Number
10	40 mm	.3937"	3.56"	1897-00-17-100000
12	40 mm	.4724"	3.56"	1897-00-17-120000
16	40 mm	.6299"	3.56"	1897-00-17-160000
20	40 mm	.7874"	3.56"	1897-00-17-200000
25	40 mm	.9842"	3.56"	1897-00-17-250000
30	40 mm	1.1811"	3.56"	1897-00-17-300000
32	40 mm	1.2598"	3.56"	1897-00-17-320000

HDC12M — Taper Hole ID Metric

Bore	OD	Taper	Length	Part Number
#2	40 mm	Morse	3.56"	1897-08-80-000002
#3	40 mm	Morse	3.56"	1897-08-80-000003
#4	40 mm	Morse	3.56"	1897-08-80-000004

HDC12M — Metric OD / Inch ID

Bore	OD	Decimal	Length	Part Number
1/2"	40 mm	.5000"	3.56"	1897-00-19-005000
5/8"	40 mm	.6250"	3.56"	1897-00-19-006250
3/4"	40 mm	.7500"	3.56"	1897-00-19-007500
7/8"	40 mm	.8750"	3.56"	1897-00-19-008750
1"	40 mm	1.0000"	3.56"	1897-00-19-010000
1 1/8"	40 mm	1.1250"	3.56"	1897-00-19-011250
1 1/4"	40 mm	1.2500"	3.56"	1897-00-19-012500

HDC-Style Slotted Bushings



Slotted bushings designed for the Hardinge Quest TwinTurn CNC Turning Centers. The HDC10TT series have a 1 1/4" or a 32mm OD.

HDC10TT – Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/4"	.3750"	2.95"	2053-00-19-003750
1/2"	1 1/4"	.5000"	2.95"	2053-00-19-005000
5/8"	1 1/4"	.6250"	2.95"	2053-00-19-006250
3/4"	1 1/4"	.7500"	2.95"	2053-00-19-007500
7/8"	1 1/4"	.8750"	2.95"	2053-00-19-008750
1"	1 1/4"	1.000"	2.95"	2053-00-19-010000

HDC10TTL – Inch Fractional for offset holders

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/4"	.3750"	2.55"	2067-00-19-003750
1/2"	1 1/4"	.5000"	2.55"	2067-00-19-005000
5/8"	1 1/4"	.6250"	2.55"	2067-00-19-006250
3/4"	1 1/4"	.7500"	2.55"	2067-00-19-007500
7/8"	1 1/4"	.8750"	2.55"	2067-00-19-008750
1"	1 1/4"	1.0000"	2.55"	2067-00-19-010000

HDC10MTT – Metric

Bore	OD	Decimal	Length	Part Number
8	32 mm	.3149"	2.95"	2055-00-17-080000
10	32 mm	.3937"	2.95"	2055-00-17-100000
12	32 mm	.4724"	2.95"	2055-00-17-120000
16	32 mm	.6299"	2.95"	2055-00-17-160000
20	32 mm	.7874"	2.95"	2055-00-17-200000
25	32 mm	.9842"	2.95"	2055-00-17-250000

HDC10MTTL – Metric for offset holders

Bore	OD	Decimal	Length	Part Number
8 mm	32 mm	.3149"	2.55"	2069-00-17-080000
10 mm	32 mm	.3937"	2.55"	2069-00-17-100000
12 mm	32 mm	.4724"	2.55"	2069-00-17-120000
16 mm	32 mm	.6299"	2.55"	2069-00-17-160000
20 mm	32 mm	.7874"	2.55"	2069-00-17-200000
25 mm	32 mm	.9842"	2.55"	2069-00-17-250000

Designed for Hardinge -EMAG Vertical CNC Lathes

The HDC10VL series have a 1 1/4" or a 32mm OD, while the HDC12VL series have a 1 1/2" or a 40mm OD.

HDC10-VL – Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/4"	.3750"	2.63"	2251-00-19-003750
1/2"	1 1/4"	.5000"	2.63"	2251-00-19-005000
5/8"	1 1/4"	.6250"	2.63"	2251-00-19-006250
3/4"	1 1/4"	.7500"	2.63"	2251-00-19-007500
7/8"	1 1/4"	.8750"	2.63"	2251-00-19-008750
1"	1 1/4"	1.000"	2.63"	2251-00-19-010000
1 1/8"	1 1/4"	1.125"	2.63"	2251-00-19-011250

HDC12-VL – Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1 1/2"	.3750"	3.15"	2255-00-19-003750
1/2"	1 1/2"	.5000"	3.15"	2255-00-19-005000
5/8"	1 1/2"	.6250"	3.15"	2255-00-19-006250
3/4"	1 1/2"	.7500"	3.15"	2255-00-19-007500
7/8"	1 1/2"	.8750"	3.15"	2255-00-19-008750
1"	1 1/2"	1.0000"	3.15"	2255-00-19-010000
1 1/8"	1 1/2"	1.1250"	3.15"	2255-00-19-011250
1 1/4"	1 1/2"	1.2500"	3.15"	2255-00-19-012500

HDC10M-VL – Metric

Bore	OD	Decimal	Length	Part Number
8	32 mm	.3149"	2.63"	2253-00-17-080000
10	32 mm	.3937"	2.63"	2253-00-17-100000
12	32 mm	.4724"	2.63"	2253-00-17-120000
16	32 mm	.6299"	2.63"	2253-00-17-160000
20	32 mm	.7874"	2.63"	2253-00-17-200000
25	32 mm	.9842"	2.63"	2253-00-17-250000

HDC12M-VL – Metric

Bore	OD	Decimal	Length	Part Number
10	40 mm	.3937"	3.15"	2257-00-17-100000
12	40 mm	.4724"	3.15"	2257-00-17-120000
16	40 mm	.6299"	3.15"	2257-00-17-160000
20	40 mm	.7874"	3.15"	2257-00-17-200000
25	40 mm	.9842"	3.15"	2257-00-17-250000
30	40 mm	1.1811"	3.15"	2257-00-17-300000
32	40 mm	1.2598"	3.15"	2257-00-17-320000

HDC10M-VL – Metric OD / Inch ID

Bore	OD	Decimal	Length	Part Number
3/8"	32 mm	.3750"	2.63"	2253-00-19-003750
1/2"	32 mm	.5000"	2.63"	2253-00-19-005000
5/8"	32 mm	.6250"	2.63"	2253-00-19-006250
3/4"	32 mm	.7500"	2.63"	2253-00-19-007500
1"	32 mm	1.0000"	2.63"	2253-00-19-010000

HDC12M-VL – Metric OD / Inch ID

Bore	OD	Decimal	Length	Part Number
1/2"	40 mm	.5000"	3.15"	2257-00-19-005000
5/8"	40 mm	.6250"	3.15"	2257-00-19-006250
3/4"	40 mm	.7500"	3.15"	2257-00-19-007500
1"	40 mm	1.0000"	3.15"	2257-00-19-010000
1 1/8"	40 mm	1.1250"	3.15"	2257-00-19-011250
1 1/4"	40 mm	1.2500"	3.15"	2257-00-19-012500

HDZ-Style Slotted Bushings — Preset



HDZ-Style Solid Bushings feature one or two longitudinal slots, depending on the size of the bore. The slot allows the set screws from the tool holder to locate directly on the body of the tool. The bushing has a flange with two set screws 90° apart. The tool can be put in the bushing and set to a specific dimension from the locating shoulder and locked in place. The HDZ10 bushing has a 1¼" or a 32mm OD. The HDZ12 bushing has a 1½" or a 40mm OD. Both bushings are available in metric or inch ODs and/or IDs.

HDZ10 — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1¼"	.3750"	3.56"	2059-00-19-003750
1/2"	1¼"	.5000"	3.56"	2059-00-19-005000
5/8"	1¼"	.6250"	3.56"	2059-00-19-006250
3/4"	1¼"	.7500"	3.56"	2059-00-19-007500
7/8"	1¼"	.8750"	3.56"	2059-00-19-008750
1"	1¼"	1.000"	3.56"	2059-00-19-010000

HDZ12 — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1½"	.3750"	3.87"	2063-00-19-003750
1/2"	1½"	.5000"	3.87"	2063-00-19-005000
5/8"	1½"	.6250"	3.87"	2063-00-19-006250
3/4"	1½"	.7500"	3.87"	2063-00-19-007500
7/8"	1½"	.8750"	3.87"	2063-00-19-008750
1"	1½"	1.0000"	3.87"	2063-00-19-010000
1¼"	1½"	1.2500"	3.87"	2063-00-19-012500

HDZ10M — Metric

Bore	OD	Decimal	Length	Part Number
10 mm	32 mm	.3937"	3.56"	2061-00-17-100000
12 mm	32 mm	.4724"	3.56"	2061-00-17-120000
16 mm	32 mm	.6299"	3.56"	2061-00-17-160000
20 mm	32 mm	.7874"	3.56"	2061-00-17-200000
25 mm	32 mm	.9842"	3.56"	2061-00-17-250000

HDZ12M — Metric

Bore	OD	Decimal	Length	Part Number
10 mm	40 mm	.3937"	3.87"	2065-00-17-100000
12 mm	40 mm	.4724"	3.87"	2065-00-17-120000
16 mm	40 mm	.6299"	3.87"	2065-00-17-160000
20 mm	40 mm	.7874"	3.87"	2065-00-17-200000
25 mm	40 mm	.9842"	3.87"	2065-00-17-250000
32 mm	40 mm	1.2598"	3.87"	2065-00-17-320000

Designed for Hardinge -EMAG Vertical CNC Lathes

The HDZ10-VL series have a 1¼" or a 32mm OD, while the HDZ12-VL series have a 1½" or a 40mm OD.

HDZ10-VL — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1¼"	.3750"	2.94"	2259-00-19-003750
1/2"	1¼"	.5000"	2.94"	2259-00-19-005000
5/8"	1¼"	.6250"	2.94"	2259-00-19-006250
3/4"	1¼"	.7500"	2.94"	2259-00-19-007500
7/8"	1¼"	.8750"	2.94"	2259-00-19-008750
1"	1¼"	1.000"	2.94"	2259-00-19-010000

HDZ12-VL — Inch Fractional

Bore	OD	Decimal	Length	Part Number
3/8"	1½"	.3750"	3.46"	2263-00-19-003750
1/2"	1½"	.5000"	3.46"	2263-00-19-005000
5/8"	1½"	.6250"	3.46"	2263-00-19-006250
3/4"	1½"	.7500"	3.46"	2263-00-19-007500
7/8"	1½"	.8750"	3.46"	2263-00-19-008750
1"	1½"	1.0000"	3.46"	2263-00-19-010000
1¼"	1½"	1.1250"	3.46"	2263-00-19-011250
1½"	1½"	1.2500"	3.46"	2263-00-19-012500

HDZ10M-VL — Metric

Bore	OD	Decimal	Length	Part Number
10 mm	32 mm	.3937"	2.94"	2261-00-17-100000
12 mm	32 mm	.4724"	2.94"	2261-00-17-120000
16 mm	32 mm	.6299"	2.94"	2261-00-17-160000
20 mm	32 mm	.7874"	2.94"	2261-00-17-200000
25 mm	32 mm	.9842"	2.94"	2261-00-17-250000

HDZ12M-VL — Metric

Bore	OD	Decimal	Length	Part Number
10 mm	40 mm	.3937"	3.46"	2265-00-17-100000
12 mm	40 mm	.4724"	3.46"	2265-00-17-120000
16 mm	40 mm	.6299"	3.46"	2265-00-17-160000
20 mm	40 mm	.7874"	3.46"	2265-00-17-200000
25 mm	40 mm	.9842"	3.46"	2265-00-17-250000
32 mm	40 mm	1.2598"	3.46"	2265-00-17-320000

Frequently Asked Questions



"I'm using a small diameter split drill bushing and I can't seem to get the drill parallel to the centerline of the spindle. Why?"

- A common cause for this problem is locking the second set screw on the bushing. The holes for small diameter drills do not extend the full length of the bushing. The back end of the bushing usually has a large internal chamfer or a counterbore. This cleared area is under the second lock screw. When you tighten this screw, the bushing may distort, shifting the drill's position. There may be line contact on which the drill will pivot. The solution is to use the front locking screw only.
- A second cause is that the bushing is too short. The first set screw is locking on the back of the bushing, causing it to collapse instead of gripping the shank of the tool.

"I am trying to drill a very accurate hole using a DA-style collet system without any success. Any suggestions?"

- Extremely accurate drilling requires a very good holder and collet. With the considerable flexibility of the DA, TG and ER collets, we tend to forget the cardinal rule for collets – the bore of the collet should be the exact size of the diameter being gripped for the best TIR and gripping force. Therefore, for extremely accurate drilling, the collet bore should be the same size as the shank of the drill.
- Second, if you have a choice of holders, it is best to use the ER collet holder over the DA collet holder. The DA holder is a double-angle holder with a closing angle on the front and back of the collet. The theory is that the collet will close parallel to the centerline of the holder. Unfortunately, it is very difficult to manufacture a holder and collet that accurately mate. For standard drilling tolerances, this usually is not a problem, but can be when doing extremely close tolerance drilling.

The ER is considered a single-angle collet because the major closing angle is long and shallow. This results in better concentricity than the double-angle system.

The TG collet system is better than the ER system because it has an even shallower closing angle. Unfortunately, this system is usually for larger shanks and most holders that use these collets are for vertical machining centers.

- For extremely accurate drilling, the bore of the collet should be the exact size of the shank of the drill.

"I've tried rigid tapping using standard ER collets in my non-floating holders and I'm breaking taps. Why is this happening and is there a reasonably-priced solution?"

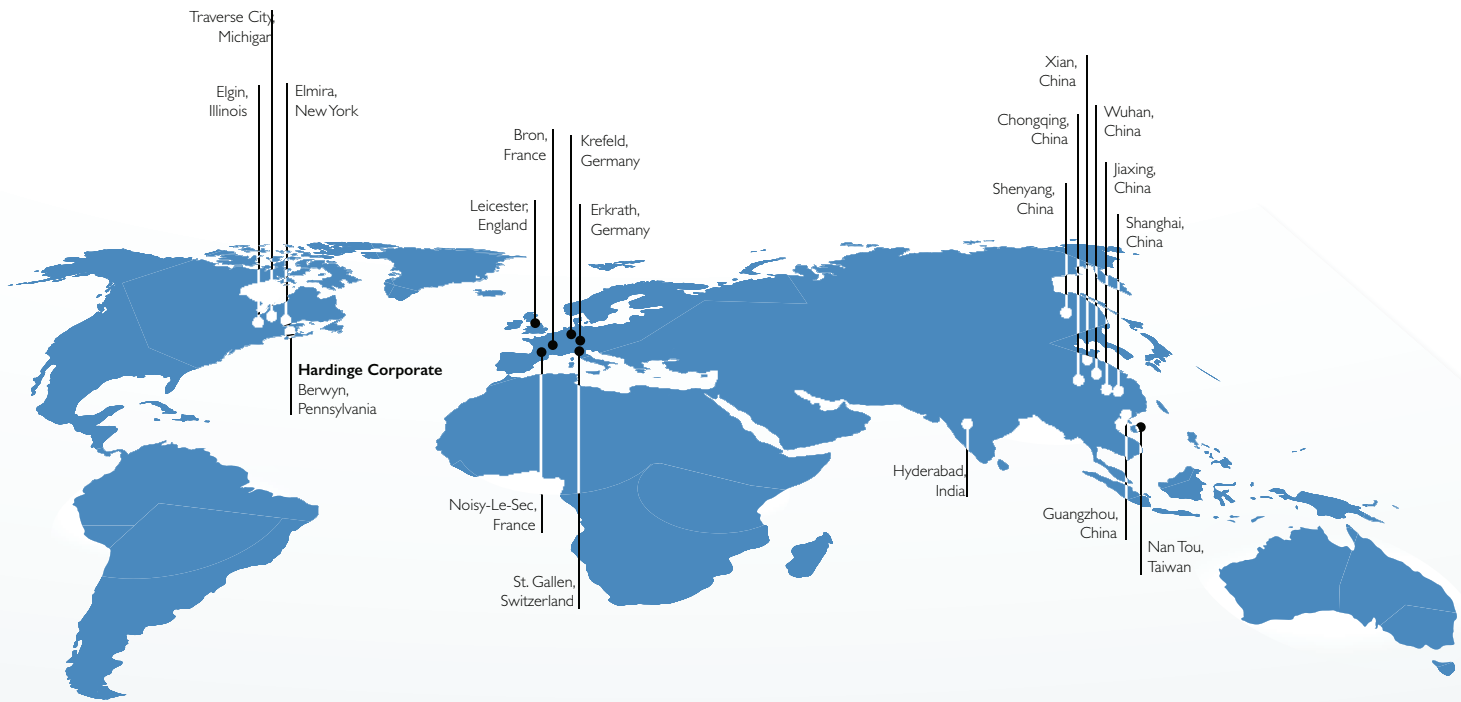
- Taps may be breaking because your machine tool may not be designed for rigid tapping, you did not buy that option, or there is a small error between the spindle reversal and slide reversal. These are machine tool problems that you can work around without disassembling the machine. Use a floating tap collet such as the ERQC or the ERTC. These collets fit in the standard rigid holder and will float longitudinally.
- If you want to continue to use your current collets, floating tap holders are available. These holders are longer than the standard holders and more expensive than the floating tap collets.

"The TIR of the drill being held in my ER collet is excessive. What TIR can I expect from a standard ER collet?"

- Quick fix — if you are using a ball bearing cap on your ER holder, change it to a one-piece cap. The ball bearing cap allows you to use more torque when gripping solid floating tap collets, but when used for drilling, the TIR is not as accurate as the one-piece cap.
- All of our ER collets are made to the DIN 6499 specification. Refer to page 12 for the acceptable TIR for your collet. When checking the collet and holder, use a certified gauge plug. First, indicate the seat of the holder, then assemble collet and gauge plug and indicate the plug at the "L" dimension. Make corrections for holder seat runout (the most accurate check is to use a coordinate measuring system – most indicators do not give a true reading when rotating 360° from the lathe spindle). If this checks out within specifications, check the gauge pin at the actual drill length, which may be longer than the "L" dimension. If the TIR at this point is too great, you will have to acquire a higher precision collet such as the ERNC. If you're using a metric bushing to hold a fractional drill, a more reasonable solution would be to acquire an inch series collet for the exact shank of your drill.

"I am using an ER Collet in a high-speed spindle and am getting vibration that I don't get with my other holders. What's wrong?"

- You're probably using a standard one-piece cap. Acquire a one-piece cap that has a ring to hold the collet instead of the standard cap that has an eccentric slot. The eccentricity of the groove will cause an out-of-balance condition at high rpm. If this does not eliminate the vibration, the complete assembly will have to be precision balanced in relation to the RPM you're running.



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AMERICAS

Hardinge Corporate
1235 Westlakes Drive
Suite 410
Berwyn, PA 19312

Hardinge
One Hardinge Drive
Elmira, NY 14903
P. 800-843-8801
E. info@hardinge.com
www.hardinge.com

Hardinge
1524 Davis Road
Elgin, IL 60123
P. 800.843.880

ASIA

China
Hardinge Machine
(Shanghai) Co. Ltd.
1388 East Kangqiao Road
Pudong, Shanghai 201319
P. 0086 21 3810 8686

Taiwan
Hardinge Taiwan Precision Machinery Limited
4Tzu Chiang 3rd Road
Nan Tou City 540
Taiwan
P. 886 49 2260 536
E. cs@hardinge.com.tw

EUROPE

Germany
Hardinge GmbH
Fichtenhain A 13c
47807 Krefeld
P. 49 2151 49649 10
E. info@hardinge-gmbh.de

Switzerland
L. Kellenberger & Co. AG
Heiligkreuzstrasse 28
CH 9008 St. Gallen
Switzerland
P. 41 71 2429111
E. info@kellenberger.net

United Kingdom
Jones & Shipman
Hardinge Ltd.
Murray Field Road
Leicester LE3 1UW
P. 44 116 201 3000
E. info@jonesshipman.com

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800-843-8801 • info@hardinge.com • parts@hardinge.com • service@hardinge.com

WWW.HARDINGE.COM • WWW.SHOPHARDINGE.COM