

Overview: ER and DA Toolholder Collets



ER-Style—pages 10-11



ERNC-Style—page 12



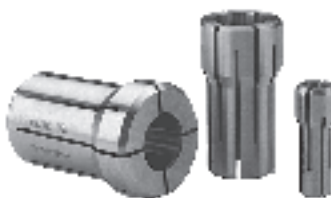
ERTCSP Tap
—page 13



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.

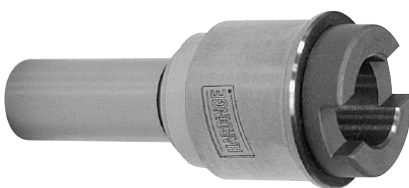
Quick-Change Tap Collets are used throughout the industry for mounting into Bilz-style and other popular tapping holders. Many taper-flange milling machine tap holders use these collets. The quick-change feature allows changing the tap without removing the collet from its holder. This feature ensures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

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—pages 44-45

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—page 46

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.

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

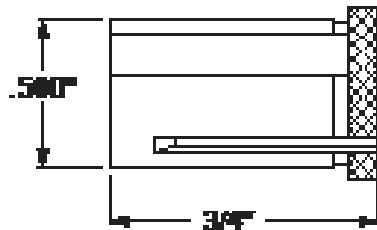
Size	Part Number
A	.2340" 1763-00-16-002340
B	.2380" 1763-00-16-002380
C	.2420" 1763-00-16-002420
D	.2460" 1763-00-16-002460
E	.2500" 1763-00-16-002500
F	.2570" 1763-00-16-002570
G	.2610" 1763-00-16-002610
H	.2660" 1763-00-16-002660
I	.2720" 1763-00-16-002720
J	.2770" 1763-00-16-002770
K	.2810" 1763-00-16-002810
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

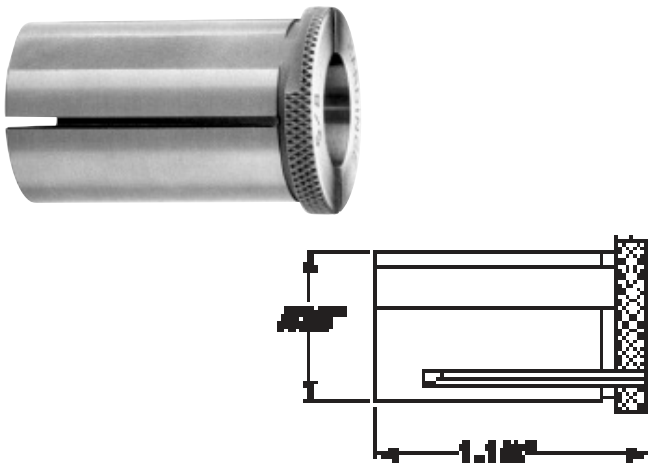
Size	Part Number	
A	.2340"	1765-00-16-002340
B	.2380"	1765-00-16-002380
C	.2420"	1765-00-16-002420
D	.2460"	1765-00-16-002460
E	.2500"	1765-00-16-002500
F	.2570"	1765-00-16-002570
G	.2610"	1765-00-16-002610
H	.2660"	1765-00-16-002660
I	.2720"	1765-00-16-002720
J	.2770"	1765-00-16-002770
K	.2810"	1765-00-16-002810
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

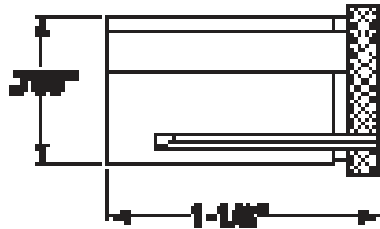
Size	Part Number	
67	.0320"	1765-00-15-000320
66	.0330"	1765-00-15-000330
65	.0350"	1765-00-15-000350
64	.0360"	1765-00-15-000360
63	.0370"	1765-00-15-000370
62	.0380"	1765-00-15-000380
61	.0390"	1765-00-15-000390
60	.0400"	1765-00-15-000400
59	.0410"	1765-00-15-000410
58	.0420"	1765-00-15-000420
57	.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

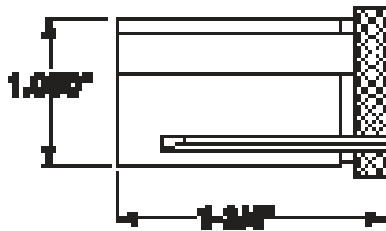
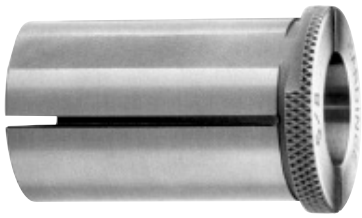
Number

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

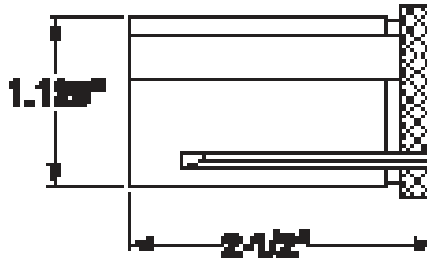
Metric

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

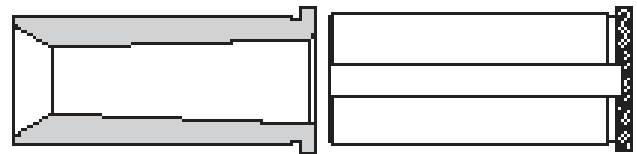
Size	Part Number
3/8"	1883-00-19-003750
25/64"	1883-00-19-003906
13/32"	1883-00-19-004062
27/64"	1883-00-19-004218
7/16"	1883-00-19-004375
29/64"	1883-00-19-004531
15/32"	1883-00-19-004687
31/64"	1883-00-19-004843
1/2"	1883-00-19-005000
33/64"	1883-00-19-005156
17/32"	1883-00-19-005312
35/64"	1883-00-19-005468
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



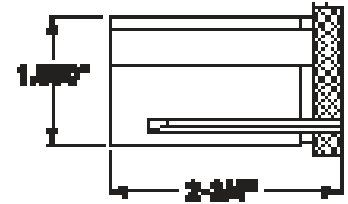
HDB10 Inch Fractional

Size	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



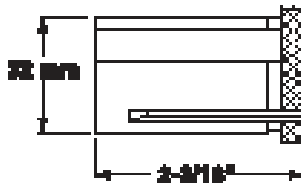
HDB12 Inch Fractional

Size	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



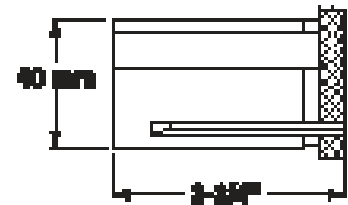
HDB10 Metric OD & ID

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.



HARDINGE COMPANIES WORLDWIDE

Hardinge is a leading international provider of advanced metal-cutting solutions. We provide a full spectrum of highly reliable CNC turning, milling, and grinding machines as well as technologically advanced workholding accessories.

The diverse products we offer enable us to support a variety of market applications in industries including aerospace, agricultural, automotive, construction, consumer products, defense, energy, medical, technology, transportation and more.

We've developed a strong global presence with manufacturing operations in North America, Europe, and Asia. Hardinge applies its engineering and applications expertise to provide your company with the right machine tool solution and support every time.

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
4 Tzu 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
Hyfore Workholding
Unit 3, 67 Blackhorse Rd
Coventry
CV6 6DP
P. 44 024 76 993 153
E. sales@hyfore.com

All specifications subject to change without notice.
All marks indicated by ® and ™ are trademarks of their respective owners. #2351H • Litho in USA
©Hardinge Inc. 2018 • May 2018



02476 993 153 • sales@hyfore.com • info@hyfore.com

WWW.HYFORE.COM • WWW.HYFORE.COM