

Taper Lock Cutters

FOR FREEHAND TOOLS and POSITIVE FEED EQUIPMENT
FOR HOLE PRODUCTION and HOLE REWORK
NEW and RETROFIT APPLICATIONS

UNITED
Taper Lock System

UCC-875073 - PILOTED CORE DRILLS  Pg R2-R3	UTLD-2030A - TL DRILL 10° HELIX - COOLANT - 100° FLUSH HEAD  Pg R4
UTLD-2030B - TL DRILL - 10° HELIX - COOLANT - PROTRUDING HEAD  Pg R5	UTLD-2030AR - TL DRILL REAMER - COOLANT - 10° HELIX 100° FLUSH HEAD  Pg R6-R7
UTLD-2030BR - TL DRILL REAMER - 15° HELIX - COOLANT - PROTRUDING HD  Pg R8-R9	UTLD-2040A - TL DRILL - 35° HELIX - FLUSH HD FOR TL100/300  Pg R10
UTLD-2040B - 35° HELIX TL DRILL - FOR TL200/400 PROTRUDING HEAD  Pg R11	UTLD-2040AR - TL DRILL REAMER 20° HELIX FOR TL100/300 FLUSH HD  Pg R12-R13
UTLD-2040BR - TL DRILL REAMER 20° HELIX FOR TL200/400 PROTRUD. HD  Pg R14-R15	UTLD-2060AR - TL MACHINE REAMER STRAIGHT FLUTE 100° FLUSH HD  Pg R16-R17
UTLD-2060BR - SIX FLUTE STRAIGHT TL REAMER PROTRUD. HD FOR 16 RMS  Pg R18-R19	UTLR-254200 TAPER PIN REAMER - 5 LH HELICAL FLUTES RH CUT COBALT  Pg R20
UTLR-257200 CARBIDE TAPER PIN REAMER - STRAIGHT MULTIPLE FLUTES  Pg R22	UDB-975596 - PILOTED TAPER PIN REAMER STRAIGHT FLUTE RH CUT  Pg R23
UDB-975597 - MODIFIED TAPER PIN REAMER LH HELICAL FLUTES RH CUT  Pg R24	UDB-755750 - 'TAPER SCRAPER' - SINGLE FLUTE FINISHING REAMER  Pg R25
UDB-975923 - COUNTERSINK 60° THREADED SHANK - REMOVABLE PILOTS  Pg R26	UDB-975924 - COUNTERSINK 6 FLUTES 100° PILOTED - REMOVABLE PILOTS  Pg R27

UCC-875073 Series

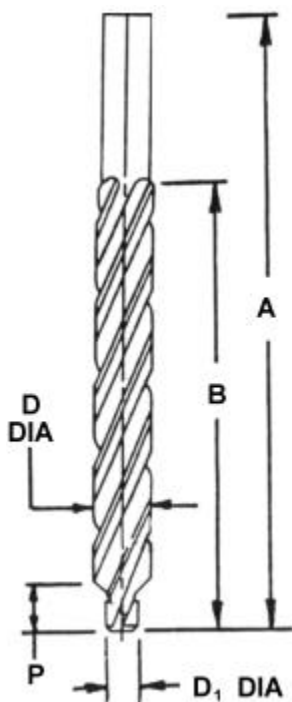
Piloted Core Drills

.1205 thru .2450 Diameters

Used for Pre-Drilling Taper Lock Holes

-.1205 THRU -.1710A

-.1725 THRU -.2450



UCC-875073 Series
UCC-875073-.1205
thru
UCC-875073-.2450

Practical and economical method for enlarging previously drilled or cored holes.

Core Drills give greater tolerance control and better guide support.

UNITED Core Drills with heavier cross sections provide stronger more rigid construction.

UNITED PART NO.	D DRILL DIA	D ₁ PILOT DIA	P POINT LEN
UCC-875073-.1205	.1205	.1080	.37
UCC-875073-.1217	.1217	.1080	.37
UCC-875073-.1217A	.1217	.0970	.37
UCC-875073-.1235	.1235	.1080	.37
UCC-875073-.1237	.1237	.0970	.37
UCC-875073-.1240	.1240	.0970	.37
UCC-875073-.1245	.1245	.1080	.37
UCC-875073-.1245A	.1245	.0970	.37
UCC-875073-.1250	.1250	.1080	.37
UCC-875073-.1285	.1285	.0970	.37
UCC-875073-.1290	.1290	.0930	.37
UCC-875073-.1295	.1295	.1080	.37
UCC-875073-.1295A	.1295	.0970	.37
UCC-875073-.1360	.1360	.1270	.37
UCC-875073-.1375	.1375	.1275	.37
UCC-875073-.1375A	.1375	.1320	.37
UCC-875073-.1395	.1395	.1210	.37
UCC-875073-.1406	.1406	.1230	.37
UCC-875073-.1406A	.1406	.1270	.37
UCC-875073-.1416	.1416	.1230	.37
UCC-875073-.1440	.1440	.0930	.37
UCC-875073-.1440A	.1440	.0970	.37
UCC-875073-.1450	.1450	.1340	.37
UCC-875073-.1455	.1455	.1270	.37
UCC-875073-.1530	.1530	.1270	.37
UCC-875073-.1540	.1540	.1270	.37
UCC-875073-.1545	.1545	.1270	.37
UCC-875073-.1550	.1550	.1270	.37
UCC-875073-.1555	.1555	.1270	.37
UCC-875073-.1557	.1557	.1270	.37
UCC-875073-.1560	.1560	.1270	.37
UCC-875073-.1565	.1565	.1270	.37
UCC-875073-.1610	.1610	.0970	.37
UCC-875073-.1610A	.1610	.1460	.37
UCC-875073-.1610B	.1610	.1270	.37
UCC-875073-.1645	.1645	.1270	.37
UCC-875073-.1660	.1660	.1270	.37
UCC-875073-.1710	.1710	.1590	.37
UCC-875073-.1710A	.1710	.1270	.37

UNITED PART NO.	D DRILL DIA	D ₁ PILOT DIA	P POINT LEN
UCC-875073-.1725	.1725	.1590	.37
UCC-875073-.1770	.1770	.1640	.37
UCC-875073-.1770A	.1770	.1660	.37
UCC-875073-.1780	.1780	.1590	.37
UCC-875073-.1850	.1850	.1590	.37
UCC-875073-.1852	.1852	.1680	.37
UCC-875073-.1875	.1875	.1590	.37
UCC-875073-.1895	.1895	.1560	.37
UCC-875073-.1895A	.1895	.1700	.37
UCC-875073-.1895B	.1895	.1590	.37
UCC-875073-.1900	.1900	.1275	.37
UCC-875073-.1905	.1905	.1700	.37
UCC-875073-.1910	.1910	.1700	.37
UCC-875073-.1920	.1920	.1510	.37
UCC-875073-.1920A	.1920	.1600	.37
UCC-875073-.1920B	.1920	.1270	.37
UCC-875073-.1970	.1970	.1590	.37
UCC-875073-.1990	.1990	.1600	.37
UCC-875073-.1990A	.1990	.1790	.37
UCC-875073-.2020	.2020	.1860	.37
UCC-875073-.2020A	.2020	.1900	.37
UCC-875073-.2030	.2030	.1900	.37
UCC-875073-.2040	.2040	.1960	.37
UCC-875073-.2050	.2050	.1510	.37
UCC-875073-.2050A	.2050	.1910	.37
UCC-875073-.2050B	.2050	.1960	.37
UCC-875073-.2165	.2165	.2000	.37
UCC-875073-.2190	.2190	.2020	.37
UCC-875073-.2210	.2210	.1980	.37
UCC-875073-.2210A	.2210	.2090	.37
UCC-875073-.2235	.2235	.1650	.37
UCC-875073-.2235A	.2235	.2120	.37
UCC-875073-.2240	.2240	.1910	.37
UCC-875073-.2240A	.2240	.1980	.37
UCC-875073-.2280	.2280	.1900	.37
UCC-875073-.2344	.2344	.1830	.37
UCC-875073-.2344A	.2344	.2167	.37
UCC-875073-.2344B	.2344	.1900	.37
UCC-875073-.2450	.2450	.1900	.37

TOOL CODE FORMAT:

UCC-875073-.1710-110

BASIC TOOL NUMBER

BODY DIAMETER

LENGTH CODE See Chart →

2ND DASH NUMBER	A OVERALL LENGTH	B FLUTE LENGTH
106	6.0	4.0
108	8.0	6.0
110	10.0	6.0
112	12.0	6.0
114	14.0	6.0

Piloted Core Drills

.2450A thru .9602 Diameters
Used for Pre-Drilling Taper Lock Holes

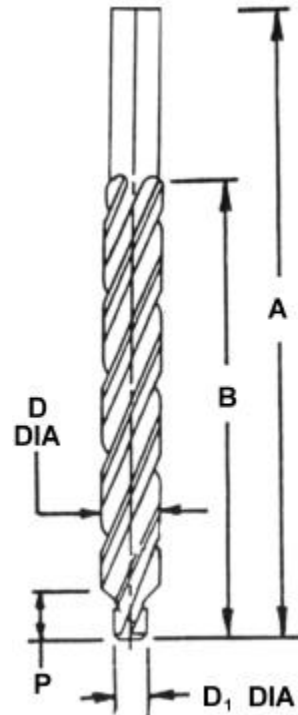
UCC-875073 Series

- .2450A THRU - .3320

- .3415 THRU - .9602

UNITED PART NO.	D DRILL DIA	D ₁ PILOT DIA	P POINT LEN
UCC-875073-.2450A	.2450	.2260	.37
UCC-875073-.2452	.2452	.2270	.37
UCC-875073-.2475	.2475	.1900	.37
UCC-875073-.2490	.2490	.1900	.37
UCC-875073-.2495	.2495	.2320	.37
UCC-875073-.2500	.2500	.1900	.50
UCC-875073-.2500A	.2500	.2045	.50
UCC-875073-.2500B	.2500	.2175	.50
UCC-875073-.2500C	.2500	.2270	.50
UCC-875073-.2550	.2550	.1900	.50
UCC-875073-.2570	.2570	.1900	.50
UCC-875073-.2600	.2600	.2450	.50
UCC-875073-.2640	.2640	.2460	.50
UCC-875073-.2650	.2650	.1900	.50
UCC-875073-.2660	.2660	.2570	.50
UCC-875073-.2710	.2710	.2640	.50
UCC-875073-.2795	.2795	.2630	.50
UCC-875073-.2810	.2810	.2650	.50
UCC-875073-.2855	.2855	.2560	.50
UCC-875073-.2860	.2860	.2540	.50
UCC-875073-.2860A	.2860	.2630	.50
UCC-875073-.2940	.2940	.2485	.50
UCC-875073-.2969	.2969	.1830	.50
UCC-875073-.2969A	.2969	.2485	.50
UCC-875073-.3080	.3080	.2790	.50
UCC-875073-.3080A	.3080	.2880	.50
UCC-875073-.3095	.3095	.2485	.50
UCC-875073-.3120	.3120	.2790	.50
UCC-875073-.3120A	.3120	.2485	.50
UCC-875073-.3120B	.3120	.2890	.50
UCC-875073-.3125	.3125	.2800	.50
UCC-875073-.3125A	.3125	.2890	.50
UCC-875073-.3150	.3150	.2485	.50
UCC-875073-.3170	.3170	.3010	.50
UCC-875073-.3260	.3260	.3080	.50
UCC-875073-.3290	.3290	.3120	.50
UCC-875073-.3320	.3320	.2890	.50

UNITED PART NO.	D DRILL DIA	D ₁ PILOT DIA	P POINT LEN
UCC-875073-.3415	.3415	.3250	.50
UCC-875073-.3490	.3490	.3160	.50
UCC-875073-.3594	.3594	.2500	.50
UCC-875073-.3594A	.3594	.2940	.50
UCC-875073-.3594B	.3594	.3110	.50
UCC-875073-.3594C	.3594	.3427	.50
UCC-875073-.3712	.3712	.3427	.50
UCC-875073-.3730	.3730	.3110	.50
UCC-875073-.3740	.3740	.3110	.50
UCC-875073-.3750	.3750	.2485	.50
UCC-875073-.3750A	.3750	.3425	.50
UCC-875073-.3810	.3810	.3425	.50
UCC-875073-.3895	.3895	.3710	.50
UCC-875073-.3910	.3910	.3110	.50
UCC-875073-.4060	.4060	.3885	.50
UCC-875073-.4110	.4110	.3790	.50
UCC-875073-.4140	.4140	.3890	.50
UCC-875073-.4219	.4219	.3740	.50
UCC-875073-.4370	.4370	.3740	.50
UCC-875073-.4375	.4375	.3740	.50
UCC-875073-.4688	.4688	.4365	.50
UCC-875073-.4720	.4720	.4365	.50
UCC-875073-.4843	.4843	.4670	.50
UCC-875073-.4900	.4900	.3890	.50
UCC-875073-.5000	.5000	.4365	.62
UCC-875073-.5312	.5312	.4990	.62
UCC-875073-.5350	.5350	.4990	.62
UCC-875073-.5460	.5460	.5100	.62
UCC-875073-.5625	.5625	.4990	.62
UCC-875073-.5938	.5938	.5615	.62
UCC-875073-.6250	.6250	.5610	.62
UCC-875073-.6562	.6562	.6235	.62
UCC-875073-.7180	.7180	.6865	.62
UCC-875073-.7187	.7187	.6865	.62
UCC-875073-.7812	.7812	.7490	.75
UCC-875073-.8437	.8437	.8115	.75
UCC-875073-.9062	.9062	.8740	.75



UCC-875073 Series
UCC-875073-.2405A
thru
UCC-875073-.9602

Core Drills have greater chip capacity.

Core Drills are ideal when non-critical tolerances exist.

To enlarge holes prior to reaming, choose *UNITED* Core Drills.

When stock removal or cavity depth is excessive, Core Drill construction should be considered.

2ND DASH NUMBER	A OVERALL LENGTH	B FLUTE LENGTH
106	6.0	4.0
108	8.0	6.0
110	10.0	6.0
112	12.0	6.0
114	14.0	6.0

TOOL CODE FORMAT:

UCC-875073-.1710-110

BASIC TOOL NUMBER

BODY DIAMETER

LENGTH CODE See Chart

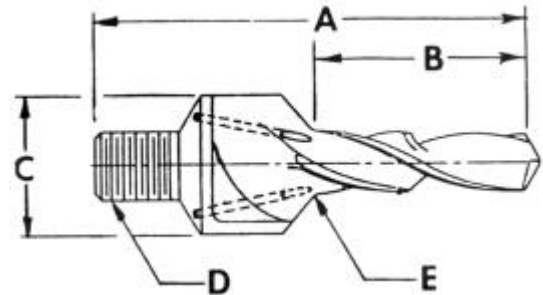
**UTLD-2030A
Series-Groups 1-2**

Taper Lock Drill for 100° Flush Head One Shot Application

UTLD-2030A SERIES



Taper Lock Drill 10° Helix with Coolant Holes

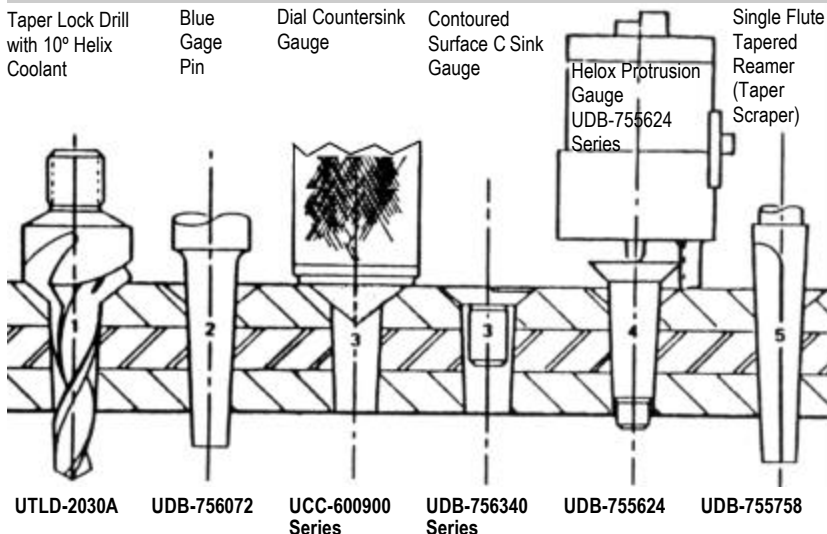


Produces a finished Taper Lock hole and does not require a pilot hole.

Use with power positive feed drill motors, including Spacematic, Quackenbush, Rockwell and Drivematic.

GROUP 1 & NOM FAST R SIZE	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THREAD	E FILLET RADIUS	GROUP 2 & NOM FAST R SIZE	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THREAD	E FILLET RADIUS
1/8	UTLD-2030A-1-04	1.625	.750	.490	1/4-28	.025	1/8	UTLD-2030A-2-04	1.937	1.062	.490	1/4-28	.025
5/32	UTLD-2030A-1-05	1.718	.843	.490	1/4-28	.025	5/32	UTLD-2030A-2-05	2.093	1.218	.490	1/4-28	.025
3/16	UTLD-2030A-1-3	1.843	.968	.490	1/4-28	.030	3/16	UTLD-2030A-2-3	2.312	1.437	.490	1/4-28	.030
7/32	UTLD-2030A-1-07	1.968	1.093	.490	1/4-28	.030	7/32	UTLD-2030A-2-07	2.531	1.656	.490	1/4-28	.030
1/4	UTLD-2030A-1-4	2.500	1.187	.677	7/16-20	.030	1/4	UTLD-2030A-2-4	3.062	1.750	.677	7/16-20	.030
5/16	UTLD-2030A-1-5	2.625	1.312	.740	7/16-20	.040	5/16	UTLD-2030A-2-5	3.250	1.937	.740	7/16-20	.040
3/8	UTLD-2030A-1-6	2.687	1.375	.865	7/16-20	.040	3/8	UTLD-2030A-2-6	3.437	2.125	.865	7/16-20	.040
7/16	UTLD-2030A-1-7	3.250	1.750	.990	7/16-20	.050	7/16	UTLD-2030A-2-7	4.125	2.625	.990	7/16-20	.050
1/2	UTLD-2030A-1-8	3.500	2.000	1.115	7/16-20	.050	1/2	UTLD-2030A-2-8	4.500	3.000	1.115	7/16-20	.050
9/16	UTLD-2030A-1-9	5.062	2.812	1.290	5/8-18	.070	9/16	UTLD-2030A-2-9	6.687	4.437	1.290	5/8-18	.070
5/8	UTLD-2030A-1-10	5.437	3.062	1.420	5/8-18	.070	5/8	UTLD-2030A-2-10	7.250	4.875	1.420	5/8-18	.070
3/4	UTLD-2030A-1-12	6.500	3.500	1.600	1"-14	.080	3/4	UTLD-2030A-2-12	8.562	5.562	1.600	1"-14	.080
7/8	UTLD-2030A-1-14	7.187	4.062	1.850	1"-14	.080	7/8	UTLD-2030A-2-14	9.812	6.687	1.850	1"-14	.080
1"	UTLD-2030A-1-16	7.875	4.625	2.100	1"-14	.080	1"	UTLD-2030A-2-16	10.625	7.375	2.100	1"-14	.080

TAPER LOCK HOLE PREPARATION



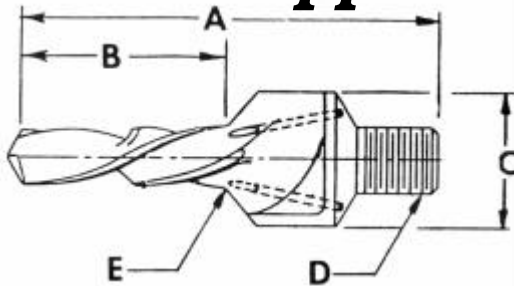
SEQUENCE FOR USING ONE SHOT POSITIVE FEED EQUIPMENT AND DRILL BARS for FLUSH HEAD TAPER LOCKS:

- STEP 1. DRILL/COUNTERSINK:** Select proper tools from Taper Lock Equipment pictorial page section.
- STEP 2. BEARING/PROBE:** Use UDB 756072 Series. See Bearing Check section for applicable probe.
- STEP 3. COUNTERSINK DIAMETER CHECK:** For normal surfaces use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for appropriate Taper Ream Equipment and countersink diameters.
- STEP 4. PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces or values listed in Protrusion Gage section.
- STEP 5. TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series. See Re-Work of Straight Holes for appropriate Taper Scraper. Protrusion and bearing check must be made after this operation

Taper Lock Drill for Protruding Head With Coolant One Shot Drilling Application

UTLD-2030B
Series-Groups 1-2

UTLD-2030B
SERIES



Taper Lock Drill 10° Helix with Coolant Holes

Taper Lock Features

- Intended for drilling Titanium, Heat Treated Hard Alloys.
- Does not require a pilot hole.
- Designed for easy installation on Protruding Head Fasteners.
- Manufactured from Cobalt for High Speed Tool Steel.
- Cutter contains oil holes providing cutter fluid.
- Has a special 10° helix for 100° Fastener Bolts.

GROUP 1 & NOM FAST R SIZE	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THREAD	E FILLET RADIUS
1/8	UTLD-2030B-1-04	1.625	.750	.490	1/4-28	.025
5/32	UTLD-2030B-1-05	1.718	.843	.490	1/4-28	.025
3/16	UTLD-2030B-1-3	1.843	.968	.490	1/4-28	.030
7/32	UTLD-2030B-1-07	1.968	1.093	.490	1/4-28	.030
1/4	UTLD-2030B-1-4	2.500	1.187	.677	7/16-20	.030
5/16	UTLD-2030B-1-5	2.625	1.312	.740	7/16-20	.040
3/8	UTLD-2030B-1-6	2.687	1.375	.865	7/16-20	.040
7/16	UTLD-2030B-1-7	3.250	1.750	.990	7/16-20	.050
1/2	UTLD-2030B-1-8	3.500	2.000	1.115	7/16-20	.050
9/16	UTLD-2030B-1-9	5.062	2.812	1.290	5/8-18	.070
5/8	UTLD-2030B-1-10	5.437	3.062	1.420	5/8-18	.070
3/4	UTLD-2030B-1-12	6.500	3.500	1.600	1"-14	.080
7/8	UTLD-2030B-1-14	7.187	4.062	1.850	1"-14	.080
1"	UTLD-2030B-1-16	7.875	4.625	2.100	1"-14	.080

GROUP 2 & NOM FAST R SIZE	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THREAD	E FILLET RADIUS
1/8	UTLD-2030B-2-04	1.937	1.062	.490	1/4-28	.025
5/32	UTLD-2030B-2-05	2.093	1.218	.490	1/4-28	.025
3/16	UTLD-2030B-2-3	2.312	1.437	.490	1/4-28	.030
7/32	UTLD-2030B-2-07	2.531	1.656	.490	1/4-28	.030
1/4	UTLD-2030B-2-4	3.062	1.750	.677	7/16-20	.030
5/16	UTLD-2030B-2-5	3.250	1.937	.740	7/16-20	.040
3/8	UTLD-2030B-2-6	3.437	2.125	.865	7/16-20	.040
7/16	UTLD-2030B-2-7	4.125	2.625	.990	7/16-20	.050
1/2	UTLD-2030B-2-8	4.500	3.000	1.115	7/16-20	.050
9/16	UTLD-2030B-2-9	6.687	4.437	1.290	5/8-18	.070
5/8	UTLD-2030B-2-10	7.250	4.875	1.420	5/8-18	.070
3/4	UTLD-2030B-2-12	8.562	5.562	1.600	1"-14	.080
7/8	UTLD-2030B-2-14	9.812	6.687	1.850	1"-14	.080
1"	UTLD-2030B-2-16	10.625	7.375	2.100	1"-14	.080

SEQUENCE FOR ONE SHOT TAPER DRILL USING POSITIVE FEED EQUIPMENT AND DRILL BARS; PROTRUDING FASTENER

- STEP 1. **TAPER DRILL:** Select proper equipment from Taper Lock Equipment pictorial page section.
- STEP 2. **BEARING PROBE:** Use UDB 756072 Series. See Gage section for applicable probe, based on fastener size and group.
- STEP 3. **PROTRUSION CHECK:** For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in Protrusion Gage section.
- STEP 4. **TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series single flute scraper. Protrusion and bearing check must be made after this operation.

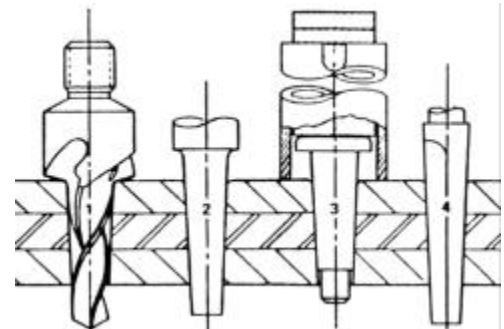
TAPER LOCK HOLE PREPARATION

Taper Lock Cutter for Protruding Head for TL200-TL400 Fasteners

Blue Gage Pin

Protrusion Gauge UDB-755820 Series for TL200-400

Single Flute Tapered Reamer

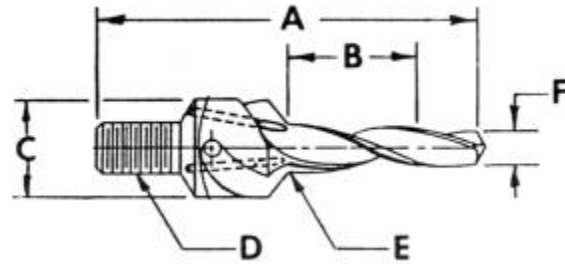


UTLD-2030B UDB-756072 Series UDB-755820 GAGE UDB-755758

**UTLD-2030AR
Series-Groups 1-2-3**

Drill Reamers with Coolant Holes for 100° Angle Flush Head in Titanium and Hard Materials

UTLD-2030AR SERIES



Taper Lock Flush Head Drill Reamer with 10° Helix Angle

For 100° Angle Head Flush Taper Locks. .250 Taper per foot.
Special 10° Helix angle. Predrilled hole required for 'F' Pilot Diameter.

Manufactured from High Speed Cobalt.
Similar to 110C213 and TFIM is 25.0042.

GROUP 1 & NOM FAST R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030AR-1-04	1.625	.500	.490	1/4-28	.025	#30
5/32	UTLD-2030AR-1-05	1.687	.562	.490	1/4-28	.025	#23
3/16	UTLD-2030AR-1-3	2.062	.750	.490	1/4-28	.030	11/64
7/32	UTLD-2030AR-1-07	2.125	.812	.490	1/4-28	.030	13/64
1/4	UTLD-2030AR-1-4	2.687	.875	.677	7/16-20	.030	15/64
5/16	UTLD-2030AR-1-5	2.875	.937	.740	7/16-20	.040	19/64
3/8	UTLD-2030AR-1-6	3.062	1.000	.865	7/16-20	.040	23/64
7/16	UTLD-2030AR-1-7	3.500	1.125	.990	7/16-20	.050	27/64
1/2	UTLD-2030AR-1-8	3.687	1.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2030AR-1-9	5.187	2.000	1.290	5/8-18	.070	17/32
5/8	UTLD-2030AR-1-10	5.500	2.125	1.420	5/8-18	.070	19/32
3/4	UTLD-2030AR-1-12	6.687	2.500	1.600	1"-14	.080	23/32
7/8	UTLD-2030AR-1-14	7.500	3.000	1.850	1"-14	.080	27/32
1"	UTLD-2030AR-1-16	8.062	3.250	2.100	1"-14	.080	31/32

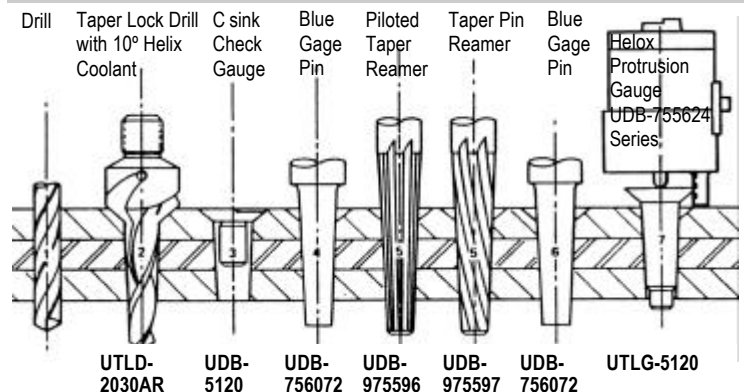
GROUP 2 & NOM FAST R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030AR-2-04	1.937	.812	.490	1/4-28	.025	#30
5/32	UTLD-2030AR-2-05	2.062	.937	.490	1/4-28	.025	#23
3/16	UTLD-2030AR-2-3	2.562	1.250	.490	1/4-28	.030	11/64
7/32	UTLD-2030AR-2-07	2.687	1.375	.490	1/4-28	.030	13/64
1/4	UTLD-2030AR-2-4	3.312	1.500	.677	7/16-20	.030	15/64
5/16	UTLD-2030AR-2-5	3.562	1.625	.740	7/16-20	.040	19/64
3/8	UTLD-2030AR-2-6	3.818	1.750	.865	7/16-20	.040	23/64
7/16	UTLD-2030AR-2-7	4.375	2.000	.990	7/16-20	.050	27/64
1/2	UTLD-2030AR-2-8	4.687	2.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2030AR-2-9	6.687	3.500	1.290	5/8-18	.070	17/32
5/8	UTLD-2030AR-2-10	7.125	3.750	1.420	5/8-18	.070	19/32
3/4	UTLD-2030AR-2-12	8.562	4.375	1.600	1"-14	.080	23/32
7/8	UTLD-2030AR-2-14	9.750	5.250	1.850	1"-14	.080	27/32
1"	UTLD-2030AR-2-16	10.562	5.750	2.100	1"-14	.080	31/32

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR IN TITANIUM FOR FLUSH FASTENERS.

- STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.
- STEP 2. **TAPER REAM AND COUNTERSINK:** See Taper Lock Equipment pictorial page for cutter selection.
- STEP 3. **COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for gage. See appropriate Taper Ream Equipment section for countersink diameters.
- STEP 4. **BEARING PROBE:** Use UDB 756072 Series. See Bearing Check section for applicable values, based on fastener size and group.
- STEP 5. **HAND REAMING:** Finish ream tapered holes by hand reaming with multi-fluted tapered reamer. When hand reaming, alternate straight and spiral fluted reamers to prevent rifling.
- STEP 6. **BEARING PROBE:** See Step 4.
- STEP 7. **PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in Protrusion Gage section.

GROUP 3 & NOM FAST R	UNITED PART NO. GROUP 3	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030AR-3-04	2.250	1.125	.490	1/4-28	.025	#30
5/32	UTLD-2030AR-3-05	2.437	1.312	.490	1/4-28	.025	#23
3/16	UTLD-2030AR-3-3	3.062	1.750	.490	1/4-28	.030	11/64
7/32	UTLD-2030AR-3-07	3.250	1.937	.490	1/4-28	.030	13/64
1/4	UTLD-2030AR-3-4	3.937	2.125	.677	7/16-20	.030	15/64
5/16	UTLD-2030AR-3-5	4.250	2.312	.740	7/16-20	.040	19/64
3/8	UTLD-2030AR-3-6	4.562	2.500	.865	7/16-20	.040	23/64
7/16	UTLD-2030AR-3-7	5.250	2.875	.990	7/16-20	.050	27/64
1/2	UTLD-2030AR-3-8	5.687	3.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2030AR-3-9	8.187	5.000	1.290	5/8-18	.070	17/32
5/8	UTLD-2030AR-3-10	8.750	5.375	1.420	5/8-18	.070	19/32
3/4	UTLD-2030AR-3-12	10.437	6.250	1.600	1"-14	.080	23/32
7/8	UTLD-2030AR-3-14	12.000	7.500	1.850	1"-14	.080	27/32
1"	UTLD-2030AR-3-16	13.062	8.250	2.100	1"-14	.080	31/32

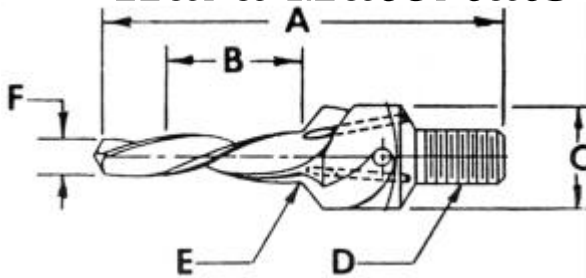
TAPER LOCK HOLE PREPARATION



Drill Reamers with Coolant Holes for 100° Angle Flush Head in Titanium and Hard Materials

**UTLD-2030AR
Series-Groups 4-5-6**

UTLD-2030AR SERIES



Manufactured from High Speed Cobalt.
Similar to 110C213 and TFIM is 25.0042.



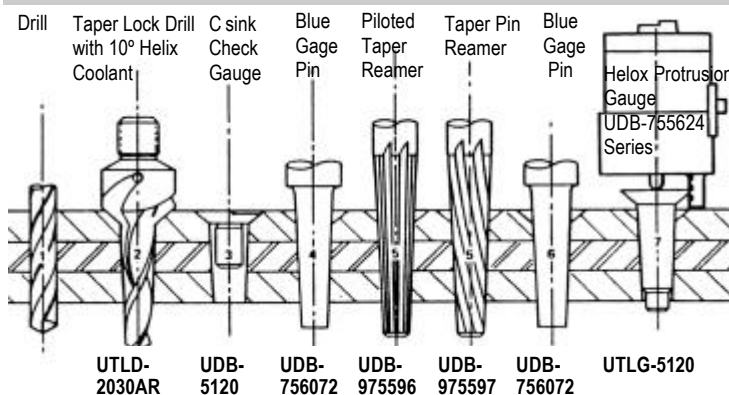
Taper Lock Flush Head Drill Reamer

For 100° Angle Head Flush Taper Locks. .250 Taper per foot.
Special 10° Helix angle. Predrilled hole required for 'F' Pilot
Diameter. Coolant Ports provided. Produces excellent finish!

GROUP 4 & NOM FAST R	UNITED PART NO. GROUP 4	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030AR-4-04	2.250	1.125	.490	1/4-28	.025	#30
5/32	UTLD-2030AR-4-05	2.437	1.312	.490	1/4-28	.025	#23
3/16	UTLD-2030AR-4-3	3.062	1.750	.490	1/4-28	.030	3/16
7/32	UTLD-2030AR-4-07	3.250	1.937	.490	1/4-28	.030	13/64
1/4	UTLD-2030AR-4-4	3.937	2.125	.677	7/16-20	.030	15/64
5/16	UTLD-2030AR-4-5	4.250	2.312	.740	7/16-20	.040	19/64
3/8	UTLD-2030AR-4-6	4.562	2.500	.865	7/16-20	.040	23/64
7/16	UTLD-2030AR-4-7	5.250	2.875	.990	7/16-20	.050	27/64
1/2	UTLD-2030AR-4-8	5.687	3.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2030AR-4-9	8.187	5.000	1.290	5/8-18	.070	9/16
5/8	UTLD-2030AR-4-10	8.750	5.375	1.420	5/8-18	.070	5/8
3/4	UTLD-2030AR-4-12	10.437	6.250	1.600	1"-14	.080	3/4
7/8	UTLD-2030AR-4-14	12.000	7.500	1.850	1"-14	.080	7/8
1"	UTLD-2030AR-4-16	13.062	8.250	2.100	1"-14	.080	1"

GROUP 6 & NOM FAST R	UNITED PART NO. GROUP 6	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2030AR-6-3	3.062	1.750	.490	1/4-28	.030	3/16
1/4	UTLD-2030AR-6-4	3.937	2.125	.677	7/16-20	.030	1/4
5/16	UTLD-2030AR-6-5	4.250	2.312	.740	7/16-20	.040	21/64
3/8	UTLD-2030AR-6-6	4.562	2.500	.865	7/16-20	.040	25/64
7/16	UTLD-2030AR-6-7	5.250	2.875	.990	7/16-20	.050	27/64
1/2	UTLD-2030AR-6-8	5.687	3.250	1.115	7/16-20	.050	33/64
9/16	UTLD-2030AR-6-9	8.187	5.000	1.290	5/8-18	.070	5/8
5/8	UTLD-2030AR-6-10	8.750	5.375	1.420	5/8-18	.070	11/16
3/4	UTLD-2030AR-6-12	10.437	6.250	1.600	1"-14	.080	53/64
7/8	UTLD-2030AR-6-14	12.000	7.500	1.850	1"-14	.080	31/32
1"	UTLD-2030AR-6-16	13.062	8.250	2.100	1"-14	.080	1-1/8

TAPER LOCK HOLE PREPARATION



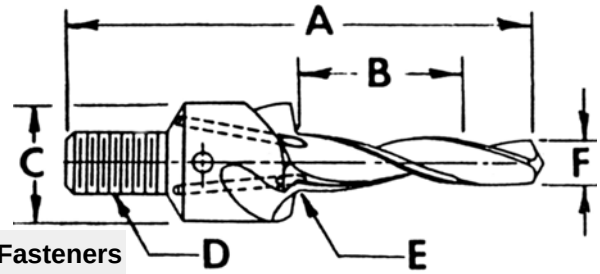
SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; FLUSH FASTENER, TITANIUM OR ALUMINUM/TITANIUM STRUCTURE

- STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.
- STEP 2. **TAPER REAM AND COUNTERSINK:** See Taper Lock Equipment in this section for cutter selection.
- STEP 3. **COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for gage. See appropriate Taper Lock Equipment in this section for countersink diameters.
- STEP 4. **BEARING PROBE:** Use UDB 756072 Series. See Bearing Check section for applicable values, based on fastener size and group.
- STEP 5. **HAND REAMING:** Finish ream tapered holes by hand reaming with multi-fluted tapered reamer. When hand reaming, alternate straight and spiral fluted reamers to prevent rifling.
- STEP 6. **BEARING PROBE:** See Step 4.
- STEP 7. **PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in Protrusion Gage section.

**UTLD-2030BR
Series-Groups 1-2-3**

Drill Reamers with Coolant Hole for Protruding Head and Standard Hole Fasteners

UTLD-2030BR SERIES



Taper Lock Drill Reamer With Coolant Hole for Protruding Head Fasteners

15° Helix. - For Reaming Titanium and Hard Alloys. - Coolant Ports provided. - For Protruding Head Taper Locks. - Pilot Holes required.

GROUP 1 & NOM FAST'R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030BR-1-04	1.625	.500	.490	1/4-28	.020	#30
5/32	UTLD-2030BR-1-05	1.687	.562	.490	1/4-28	.020	#23
3/16	UTLD-2030BR-1-3	2.062	.750	.490	1/4-28	.025	11/64
7/32	UTLD-2030BR-1-07	2.125	.812	.490	1/4-28	.025	13/64
1/4	UTLD-2030BR-1-4	2.687	.875	.677	7/16-20	.025	15/64
5/16	UTLD-2030BR-1-5	2.875	.937	.740	7/16-20	.030	19/64
3/8	UTLD-2030BR-1-6	3.062	1.000	.865	7/16-20	.030	23/64
7/16	UTLD-2030BR-1-7	3.500	1.125	.890	7/16-20	.040	27/64
1/2	UTLD-2030BR-1-8	3.687	1.250	1.115	7/16-20	.040	31/64
9/16	UTLD-2030BR-1-9	5.187	2.000	1.290	5/8-18	.073	17/32
5/8	UTLD-2030BR-1-10	5.500	2.125	1.290	5/8-18	.073	19/32
3/4	UTLD-2030BR-1-12	6.687	2.500	1.420	1"-14	.073	23/32
7/8	UTLD-2030BR-1-14	7.500	3.000	1.420	1"-14	.073	27/32
1"	UTLD-2030BR-1-16	8.062	3.250	1.600	1"-14	.073	31/32

GROUP 2 & NOM FAST'R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030BR-2-04	1.937	.812	.490	1/4-28	.020	#30
5/32	UTLD-2030BR-2-05	2.062	.937	.490	1/4-28	.020	#23
3/16	UTLD-2030BR-2-3	2.562	1.250	.490	1/4-28	.025	11/64
7/32	UTLD-2030BR-2-07	2.687	1.375	.490	1/4-28	.025	13/64
1/4	UTLD-2030BR-2-4	3.312	1.500	.677	7/16-20	.025	15/64
5/16	UTLD-2030BR-2-5	3.562	1.625	.740	7/16-20	.030	19/64
3/8	UTLD-2030BR-2-6	3.818	1.750	.865	7/16-20	.030	23/64
7/16	UTLD-2030BR-2-7	4.375	2.000	.990	7/16-20	.040	27/64
1/2	UTLD-2030BR-2-8	4.687	2.250	1.115	7/16-20	.040	31/64
9/16	UTLD-2030BR-2-9	6.687	3.500	1.290	5/8-18	.073	17/32
5/8	UTLD-2030BR-2-10	7.125	3.750	1.290	5/8-18	.073	19/32
3/4	UTLD-2030BR-2-12	8.562	4.375	1.420	1"-14	.073	23/32
7/8	UTLD-2030BR-2-14	9.750	5.250	1.420	1"-14	.073	27/32
1"	UTLD-2030BR-2-16	10.562	5.750	1.600	1"-14	.073	31/32

**SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE
FEED EQUIPMENT AND DRILL BAR; PROTRUDING
FASTENER, TITANIUM OR ALUMINUM/TITANIUM STRUCTURE**

STEP 1. PRE-DRILL: Select drill size from 'Pre-Drill' section.

STEP 2. TAPER REAM AND COUNTERSINK: See 'Taper Lock
Equipment' in this section for cutter selection.

STEP 3. BEARING PROBE: Use UDB 756072 Series. See
'Bearing Check' section for applicable values, based on fastener
size and group.

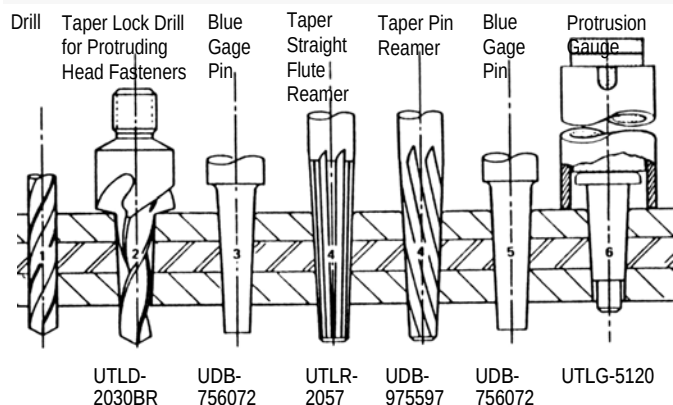
STEP 4. HAND REAMING: Finish ream tapered holes by hand
reaming with multi-fluted tapered reamer. When hand reaming,
alternate straight and spiral fluted reamers to prevent rifling.

STEP 5. BEARING PROBE: See Step 3.

STEP 6. PROTRUSION CHECK: For TL200 Series, use UDB
755620 Series for inclined surface. For normal surface, use UDB
755820 Series, or scale using values listed in 'Protrusion Gage'
section.

GROUP 3 & NOM FAST'R	UNITED PART NO. GROUP 3	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030BR-3-04	2.250	1.125	.490	1/4-28	.020	#30
5/32	UTLD-2030BR-3-05	2.437	1.312	.490	1/4-28	.020	#23
3/16	UTLD-2030BR-3-3	3.062	1.750	.490	1/4-28	.025	11/64
7/32	UTLD-2030BR-3-07	3.250	1.937	.490	1/4-28	.025	13/64
1/4	UTLD-2030BR-3-4	3.937	2.125	.677	7/16-20	.025	15/64
5/16	UTLD-2030BR-3-5	4.250	2.312	.740	7/16-20	.030	19/64
3/8	UTLD-2030BR-3-6	4.562	2.500	.865	7/16-20	.030	23/64
7/16	UTLD-2030BR-3-7	5.250	2.875	.990	7/16-20	.040	27/64
1/2	UTLD-2030BR-3-8	5.687	3.250	1.115	7/16-20	.040	31/64
9/16	UTLD-2030BR-3-9	8.187	5.000	1.290	5/8-18	.073	17/32
5/8	UTLD-2030BR-3-10	8.750	5.375	1.290	5/8-18	.073	19/32
3/4	UTLD-2030BR-3-12	10.437	6.250	1.420	1"-14	.073	23/32
7/8	UTLD-2030BR-3-14	12.000	7.500	1.420	1"-14	.073	27/32
1"	UTLD-2030BR-3-16	13.062	8.250	1.600	1"-14	.073	31/32

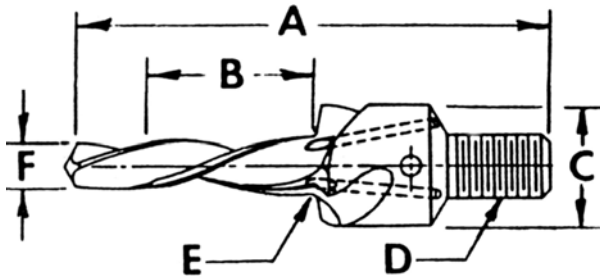
TAPER LOCK HOLE PREPARATION



Drill Reamer for Protruding Head Angle and Slant Hole Taper Lock Fastener

**UTLD-2030BR
Series-Groups 4-5-6**

UTLD-2030BR SERIES



Taper Lock Drill Reamer for Protruding Head 100° Angle Fasteners

Has 15° Helix Angle. — Designed with Coolant Hole.

Predrilled hole is required to suit 'F' Pilot Diameter — Protruding (Button) Head for drilling/reaming Titanium and Hard Metals.

GROUP 4 & NOM FAST'R	UNITED PART NO. GROUP 4	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2030BR-4-04	2.250	1.125	.490	1/4-28	.025	#30
5/32	UTLD-2030BR-4-05	2.437	1.312	.490	1/4-28	.025	#23
3/16	UTLD-2030BR-4-3	3.062	1.750	.490	1/4-28	.025	3/16
7/32	UTLD-2030BR-4-07	3.250	1.937	.490	1/4-28	.030	13/64
1/4	UTLD-2030BR-4-4	3.937	2.125	.677	7/16-20	.030	15/64
5/16	UTLD-2030BR-4-5	4.250	2.312	.740	7/16-20	.030	19/64
3/8	UTLD-2030BR-4-6	4.562	2.500	.865	7/16-20	.030	23/64
7/16	UTLD-2030BR-4-7	5.250	2.875	.990	7/16-20	.040	27/64
1/2	UTLD-2030BR-4-8	5.687	3.250	1.115	7/16-20	.040	31/64
9/16	UTLD-2030BR-4-9	8.187	5.000	1.290	5/8-18	.073	9/16
5/8	UTLD-2030BR-4-10	8.750	5.375	1.290	5/8-18	.073	5/8
3/4	UTLD-2030BR-4-12	10.437	6.250	1.420	1"-14	.073	3/4
7/8	UTLD-2030BR-4-14	12.000	7.500	1.420	1"-14	.073	7/8
1"	UTLD-2030BR-4-16	13.062	8.250	1.600	1"-14	.073	1"

GROUP 5 & NOM FAST'R	UNITED PART NO. GROUP 5	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2030BR-5-3	3.062	1.750	.553	1/4-28	.025	3/16
1/4	UTLD-2030BR-5-4	3.937	2.125	.677	7/16-20	.025	1/4
5/16	UTLD-2030BR-5-5	4.250	2.312	.740	7/16-20	.030	21/64
3/8	UTLD-2030BR-5-6	4.562	2.500	.865	7/16-20	.030	25/64
7/16	UTLD-2030BR-5-7	5.250	2.875	.990	7/16-20	.040	27/64
1/2	UTLD-2030BR-5-8	5.687	3.250	1.115	7/16-20	.040	33/64
9/16	UTLD-2030BR-5-9	8.187	5.000	1.290	5/8-18	.073	19/32
5/8	UTLD-2030BR-5-10	8.750	5.375	1.290	5/8-18	.073	21/32
3/4	UTLD-2030BR-5-12	10.437	6.250	1.420	1"-14	.073	51/64
7/8	UTLD-2030BR-5-14	12.000	7.500	1.420	1"-14	.073	59/64
1"	UTLD-2030BR-5-16	13.062	8.250	1.600	1"-14	.073	1-1/16

GROUP 6 & NOM FAST'R	UNITED PART NO. GROUP 6	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2030BR-6-3	3.062	1.750	.553	1/4-28	.025	3/16
1/4	UTLD-2030BR-6-4	3.937	2.125	.677	7/16-20	.025	1/4
5/16	UTLD-2030BR-6-5	4.250	2.312	.740	7/16-20	.030	21/64
3/8	UTLD-2030BR-6-6	4.562	2.500	.865	7/16-20	.030	25/64
7/16	UTLD-2030BR-6-7	5.250	2.875	.990	7/16-20	.040	27/64
1/2	UTLD-2030BR-6-8	5.687	3.250	1.115	7/16-20	.040	33/64
9/16	UTLD-2030BR-6-9	8.187	5.000	1.290	5/8-18	.073	5/8
5/8	UTLD-2030BR-6-10	8.750	5.375	1.290	5/8-18	.073	11/16
3/4	UTLD-2030BR-6-12	10.437	6.250	1.420	1"-14	.073	53/64
7/8	UTLD-2030BR-6-14	12.000	7.500	1.420	1"-14	.073	31/32
1"	UTLD-2030BR-6-16	13.062	8.250	1.600	1"-14	.073	1-1/8

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; PROTRUDING FASTENER, TITANIUM OR ALUMINUM/TITANIUM STRUCTURE

STEP 1. PRE-DRILL: Select drill size from 'Pre-Drill' section.

STEP 2. TAPER REAM AND COUNTERSINK: See 'Taper Lock Equipment' in this section for cutter selection.

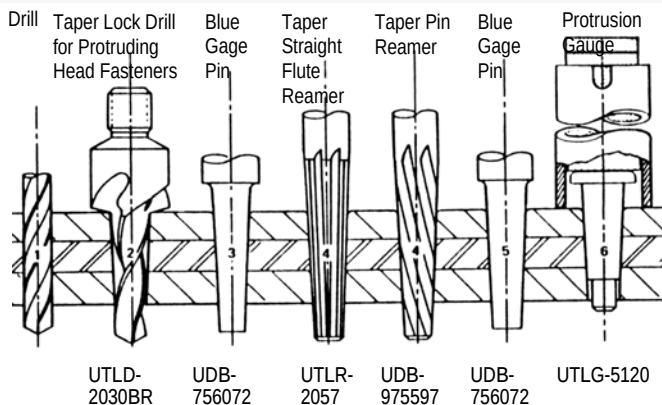
STEP 3. BEARING PROBE: Use UDB 756072 Series. See 'Bearing Check' section for applicable values, based on fastener size and group.

STEP 4. HAND REAMING: Finish ream tapered holes by hand reaming with multi-fluted tapered reamer. When hand reaming, alternate straight and spiral fluted reamers to prevent rifling.

STEP 5. BEARING PROBE: See Step 3.

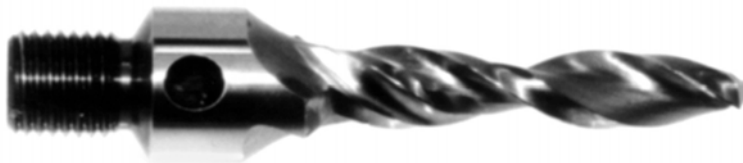
STEP 6. PROTRUSION CHECK: For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in 'Protrusion Gage' section.

TAPER LOCK HOLE PREPARATION



**UTLD-2040A
Series-Groups 1-2**

**UTLD-2040A
SERIES**

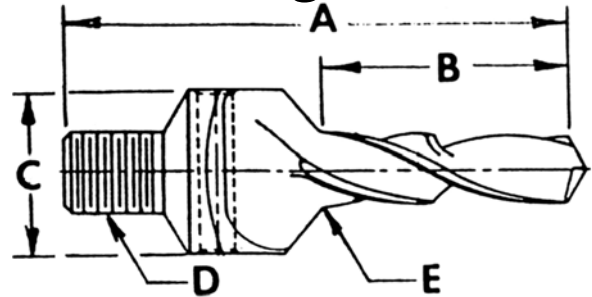


Taper Lock for drilling Aluminum and Soft Materials

For drilling Flush Head Fasteners.
"Envelop Dimensions Only" charted.
.250" Taper per foot.
"One Shot" Application.
No Pilot Holes required.

For TL100 and TL300 angle head flush Taper Locks.
For Drilling Aluminum Alloys

Drill for Installation of TL100 & TL300 Flush Head for Holes in Aluminum 35° Helix Angle



Material is M-7 HS Tool Steel.

Does not have coolant holes.

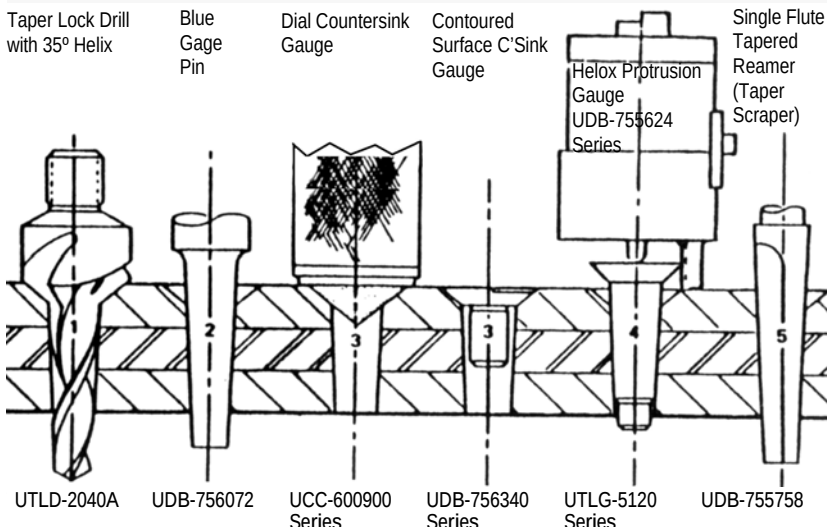
Used with Positive Feed Drill Units, Drivematic
Drill Presses and Countersink Micro Stops.

Use with UDB-122023 - 122018 Series Micro
Countersink Super Stops.
35° Helix Angle

GROUP 1 & NOM FAST'R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2040A-1-04	1.593	.718	.365	1/4-28	.025
5/32	UTLD-2040A-1-05	1.605	.731	.365	1/4-28	.025
3/16	UTLD-2040A-1-3	1.781	.906	.490	1/4-28	.030
7/32	UTLD-2040A-1-07	1.906	1.031	.490	1/4-28	.030
1/4	UTLD-2040A-1-4	2.000	1.125	.553	1/4-28	.030
5/16	UTLD-2040A-1-5	2.562	1.250	.740	7/16-20	.040
3/8	UTLD-2040A-1-6	2.625	1.312	.865	7/16-20	.040
7/16	UTLD-2040A-1-7	3.250	1.750	.990	7/16-20	.050
1/2	UTLD-2040A-1-8	3.500	2.000	1.115	7/16-20	.050
9/16	UTLD-2040A-1-9	5.062	2.812	1.290	5/8-18	.070
5/8	UTLD-2040A-1-10	5.437	3.062	1.420	5/8-18	.070
3/4	UTLD-2040A-1-12	6.500	3.500	1.600	1"-14	.080
7/8	UTLD-2040A-1-14	7.187	4.062	1.850	1"-14	.080
1"	UTLD-2040A-1-16	7.875	4.625	2.100	1"-14	.080

GROUP 2 & NOM FAST'R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2040A-2-04	1.968	1.093	.365	1/4-28	.025
5/32	UTLD-2040A-2-05	1.980	1.106	.365	1/4-28	.025
3/16	UTLD-2040A-2-3	2.250	1.375	.490	1/4-28	.030
7/32	UTLD-2040A-2-07	2.467	1.593	.490	1/4-28	.030
1/4	UTLD-2040A-2-4	3.000	1.687	.615	7/16-20	.030
5/16	UTLD-2040A-2-5	3.187	1.875	.740	7/16-20	.040
3/8	UTLD-2040A-2-6	3.375	2.062	.865	7/16-20	.040
7/16	UTLD-2040A-2-7	4.125	2.625	.990	7/16-20	.050
1/2	UTLD-2040A-2-8	4.500	3.000	1.115	7/16-20	.050
9/16	UTLD-2040A-2-9	6.687	4.437	1.290	5/8-18	.070
5/8	UTLD-2040A-2-10	7.250	4.875	1.420	5/8-18	.070
3/4	UTLD-2040A-2-12	8.562	5.562	1.600	1"-14	.080
7/8	UTLD-2040A-2-14	9.812	6.687	1.850	1"-14	.080
1"	UTLD-2040A-2-16	10.625	7.375	2.100	1"-14	.080

TAPER LOCK HOLE PREPARATION



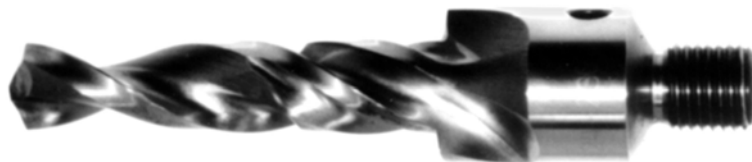
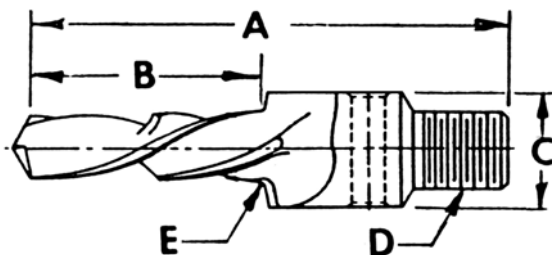
**SEQUENCE FOR USING ONE SHOT POSITIVE FEED EQUIPMENT AND
DRILL BARS—for FLUSH HEAD TAPER LOCKS:**

- STEP 1. DRILL/COUNTERSINK:** Select proper tools from 'Taper Lock Equipment' in this section.
- STEP 2. BEARING/PROBE:** Use UDB 756072 Series. See 'Bearing Check' section for applicable probe.
- STEP 3. COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gauge, and for normal or inclined surfaces, use UDB 756340 Series. See 'Gage Selection' chart for appropriate 'Taper Lock Equipment' and countersink diameters.
- STEP 4. PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces or values listed in 'Protrusion Gage' section.
- STEP 5. TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series. See 'Re-Work of Straight Holes' for appropriate Taper Scraper. Protrusion and bearing check must be made after this operation.

Drill for Installation of TL200 & TL400 Protruding Head Bolts

**UTLD-2040B
Series-Groups 1-2**

**UTLD-2040B
SERIES**



For drilling Protruding (Button) Head Fasteners.

"Envelop Dimensions Only" charted.

.250" Taper per foot.

"One Shot" Application.

No Pilot Holes required.

For TL200 and TL400 angle protruding head Taper Locks.

For Drilling Aluminum Alloys.

Material is M-7 HS Tool Steel.

Does not have coolant holes.

Used with Positive Feed Drill Units, Drivematic Drill
parts, Drill Presses and Countersink Micro Stops.

Use with UDB-122023 - 122018 Series Micro

Countersink Super Stops.

35° Helix Angle.

GROUP 1 & NOM FAST'R SIZE	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2040B-1-04	1.593	.718	.365	1/4-28	.020
5/32	UTLD-2040B-1-05	1.605	.731	.365	1/4-28	.020
3/16	UTLD-2040B-1-3	1.812	.937	.490	1/4-28	.025
7/32	UTLD-2040B-1-07	1.906	1.031	.490	1/4-28	.025
1/4	UTLD-2040B-1-4	2.000	1.125	.553	1/4-28	.025
5/16	UTLD-2040B-1-5	2.562	1.250	.615	7/16-20	.030
3/8	UTLD-2040B-1-6	2.625	1.312	.615	7/16-20	.030
7/16	UTLD-2040B-1-7	3.250	1.750	.615	7/16-20	.040
1/2	UTLD-2040B-1-8	3.500	2.000	.678	7/16-20	.040
9/16	UTLD-2040B-1-9	5.062	2.812	.980	5/8-18	.073
5/8	UTLD-2040B-1-10	5.437	3.062	1.100	5/8-18	.073
3/4	UTLD-2040B-1-12	6.500	3.500	1.420	1"-14	.073
7/8	UTLD-2040B-1-14	7.187	4.062	1.420	1"-14	.073
1"	UTLD-2040B-1-16	7.875	4.625	1.600	1"-14	.073

GROUP 2 & NOM FAST'R SIZE	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2040B-2-04	1.968	1.093	.365	1/4-28	.020
5/32	UTLD-2040B-2-05	1.980	1.106	.365	1/4-28	.020
3/16	UTLD-2040B-2-3	2.250	1.375	.490	1/4-28	.025
7/32	UTLD-2040B-2-07	2.467	1.593	.490	1/4-28	.025
1/4	UTLD-2040B-2-4	3.000	1.687	.553	1/4-28	.025
5/16	UTLD-2040B-2-5	3.187	1.875	.615	7/16-20	.030
3/8	UTLD-2040B-2-6	3.375	2.062	.615	7/16-20	.030
7/16	UTLD-2040B-2-7	4.125	2.625	.615	7/16-20	.040
1/2	UTLD-2040B-2-8	4.500	3.000	.678	7/16-20	.040
9/16	UTLD-2040B-2-9	6.687	4.437	.980	5/8-18	.073
5/8	UTLD-2040B-2-10	7.250	4.875	1.100	5/8-18	.073
3/4	UTLD-2040B-2-12	8.562	5.562	1.420	1"-14	.073
7/8	UTLD-2040B-2-14	9.812	6.687	1.420	1"-14	.073
1"	UTLD-2040B-2-16	10.625	7.375	1.600	1"-14	.073

SEQUENCE FOR ONE SHOT TAPER DRILL USING POSITIVE FEED EQUIPMENT AND DRILL BARS; PROTRUDING FASTENER

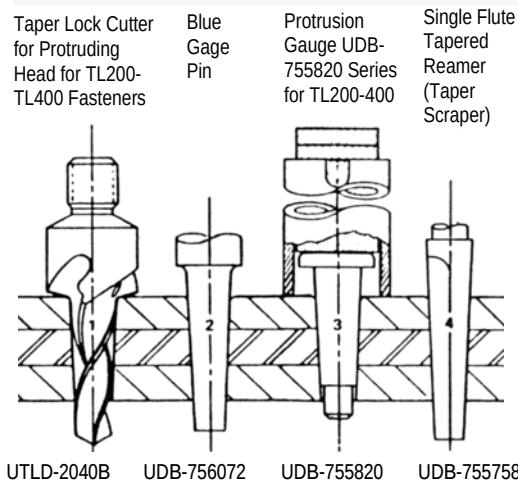
STEP 1. TAPER DRILL: Select proper equipment from 'Taper Lock Equipment' in this section.

STEP 2. BEARING PROBE: Use UDB 756072 Series. See 'Gage' section for applicable probe, based on fastener size and group.

STEP 3. PROTRUSION CHECK: For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in 'Protrusion Gage' section.

STEP 4. TAPER SCRAPE HOLE: If necessary, use UDB 755758 Series single flute scraper. Protrusion and bearing check must be made after this operation.

TAPER LOCK HOLE PREPARATION

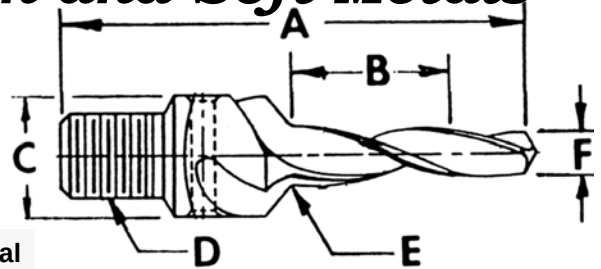


UTLD-2040AR
Series-Groups 1-2-3

UTLD-2040AR
SERIES



Drill Reamer for Installation of TL100 & TL300 Flush Angle Head for Holes in Aluminum and Soft Metals



Taper Lock Drill Reamer for Flush Head Fasteners in Soft Material

Produces a finer finish than UTLD-2040A. Pilot hole required. 20° Helix Angle. Mfg'd from M-7 High Speed Tool Steel. Has no oil holes.

GROUP 1 & NOM FAST'R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040AR-1-04	1.625	.500	.365	1/4-28	.025	#30
5/32	UTLD-2040AR-1-05	1.687	.562	.365	1/4-28	.025	#23
3/16	UTLD-2040AR-1-3	2.062	.750	.490	1/4-28	.030	11/64
7/32	UTLD-2040AR-1-07	2.125	.812	.490	1/4-28	.030	13/64
1/4	UTLD-2040AR-1-4	2.250	.875	.553	1/4-28	.030	15/64
5/16	UTLD-2040AR-1-5	2.875	.937	.740	7/16-20	.040	19/64
3/8	UTLD-2040AR-1-6	3.062	1.000	.865	7/16-20	.040	23/64
7/16	UTLD-2040AR-1-7	3.500	1.125	.990	7/16-20	.050	27/64
1/2	UTLD-2040AR-1-8	3.687	1.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2040AR-1-9	4.937	1.750	1.290	5/8-18	.070	35/64
5/8	UTLD-2040AR-1-10	5.250	1.875	1.420	5/8-18	.070	39/64
3/4	UTLD-2040AR-1-12	6.312	2.125	1.600	1"-14	.080	47/64
7/8	UTLD-2040AR-1-14	7.000	2.500	1.850	1"-14	.080	55/64
1"	UTLD-2040AR-1-16	7.562	2.750	2.100	1"-14	.080	63/64

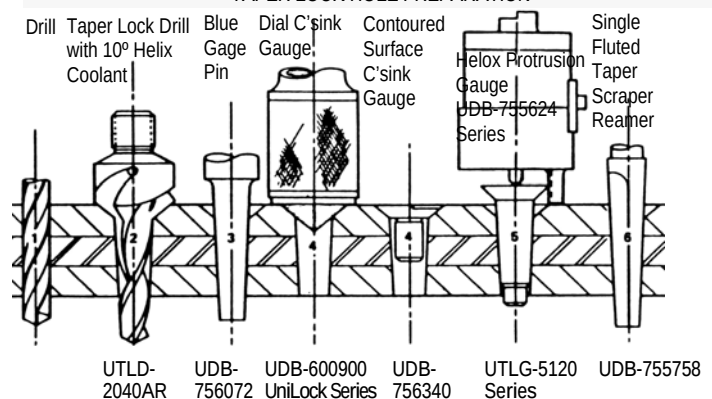
GROUP 2 & NOM FAST'R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040AR-2-04	1.937	.812	.365	1/4-28	.025	#30
5/32	UTLD-2040AR-2-05	2.062	.937	.365	1/4-28	.025	#23
3/16	UTLD-2040AR-2-3	2.562	1.250	.490	1/4-28	.030	11/64
7/32	UTLD-2040AR-2-07	2.687	1.375	.490	1/4-28	.030	13/64
1/4	UTLD-2040AR-2-4	3.312	1.500	.615	7/16-20	.030	15/64
5/16	UTLD-2040AR-2-5	3.562	1.625	.740	7/16-20	.040	19/64
3/8	UTLD-2040AR-2-6	3.812	1.750	.865	7/16-20	.040	23/64
7/16	UTLD-2040AR-2-7	4.375	2.000	.990	7/16-20	.050	27/64
1/2	UTLD-2040AR-2-8	4.687	2.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2040AR-2-9	6.437	3.250	1.290	5/8-18	.070	35/64
5/8	UTLD-2040AR-2-10	6.875	3.500	1.420	5/8-18	.070	39/64
3/4	UTLD-2040AR-2-12	8.187	4.000	1.600	1"-14	.080	47/64
7/8	UTLD-2040AR-2-14	9.250	4.750	1.850	1"-14	.080	55/64
1"	UTLD-2040AR-2-16	10.062	5.250	2.100	1"-14	.080	63/64

**SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT
AND DRILL BAR; FLUSH FASTENER, ALUMINUM STRUCTURE**

- STEP 1. PRE-DRILL:** Select drill size from 'Pre-Drill' section.
- STEP 2. TAPER REAM:** See 'Taper Lock Equipment' in this section for cutter selection.
- STEP 3. BEARING PROBE:** See 'Bearing Check' section for applicable probe.
- STEP 4. COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See 'Gage Selection' chart for proper gage. See 'Taper Lock Equipment' section for countersink diameters.
- STEP 5. PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in 'Protrusion Gage' section.
- STEP 6. TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series. See section for 'Re-Work of Straight Holes to Taper Lock' for appropriate Taper Scraper. Protrusion and bearing check must be made after this operation.

GROUP 3 & NOM FAST'R	UNITED PART NO. GROUP 3	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040AR-3-04	2.250	1.125	.365	1/4-28	.025	#30
5/32	UTLD-2040AR-3-05	2.437	1.312	.365	1/4-28	.025	#23
3/16	UTLD-2040AR-3-3	3.062	1.750	.490	1/4-28	.030	11/64
7/32	UTLD-2040AR-3-07	3.250	1.937	.490	1/4-28	.030	13/64
1/4	UTLD-2040AR-3-4	3.937	2.125	.615	7/16-20	.030	15/64
5/16	UTLD-2040AR-3-5	4.250	2.312	.740	7/16-20	.040	19/64
3/8	UTLD-2040AR-3-6	4.562	2.500	.865	7/16-20	.040	23/64
7/16	UTLD-2040AR-3-7	5.250	2.875	.990	7/16-20	.050	27/64
1/2	UTLD-2040AR-3-8	5.687	3.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2040AR-3-9	7.937	4.750	1.290	5/8-18	.070	35/64
5/8	UTLD-2040AR-3-10	8.500	5.125	1.420	5/8-18	.070	39/64
3/4	UTLD-2040AR-3-12	10.062	5.875	1.600	1"-14	.080	47/64
7/8	UTLD-2040AR-3-14	11.500	7.000	1.850	1"-14	.080	55/64
1"	UTLD-2040AR-3-16	12.562	7.750	2.100	1"-14	.080	63/64

TAPER LOCK HOLE PREPARATION



Drill Reamer for Installation on TL100 & TL300 Flush Head for Holes in Aluminum and Soft Metals

**UTLD-2040AR
Series-Groups 4-5-6**

UTLD-2040AR SERIES



Taper Lock Drill Reamer Flush Head Fasteners in Soft Material

Produces a finer finish than UTLD-2040A. Tool has a 20° Helix Angle. Pilot hole required and a standard finished Taper Lock hole is produced. Manufactured from M-7 High Speed Tool Steel. Does not have oil holes.

GROUP 4 & NOM FAST'R	UNITED PART NO. GROUP 4	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040AR-4-04	2.250	1.125	.365	1/4-28	.025	#30
5/32	UTLD-2040AR-4-05	2.437	1.312	.365	1/4-28	.025	#23
3/16	UTLD-2040AR-4-3	3.062	1.750	.490	1/4-28	.030	3/16
7/32	UTLD-2040AR-4-07	3.250	1.937	.490	1/4-28	.030	13/64
1/4	UTLD-2040AR-4-4	3.937	2.125	.615	7/16-20	.030	15/64
5/16	UTLD-2040AR-4-5	4.250	2.312	.740	7/16-20	.040	19/64
3/8	UTLD-2040AR-4-6	4.562	2.500	.865	7/16-20	.040	23/64
7/16	UTLD-2040AR-4-7	5.250	2.875	.990	7/16-20	.050	27/64
1/2	UTLD-2040AR-4-8	5.687	3.250	1.115	7/16-20	.050	31/64
9/16	UTLD-2040AR-4-9	7.937	4.750	1.290	5/8-18	.070	9/16
5/8	UTLD-2040AR-4-10	8.500	5.125	1.420	5/8-18	.070	41/64
3/4	UTLD-2040AR-4-12	10.062	5.875	1.600	1"-14	.080	43/64
7/8	UTLD-2040AR-4-14	11.500	7.000	1.850	1"-14	.080	29/32
1"	UTLD-2040AR-4-16	12.562	7.750	2.100	1"-14	.080	1-1/32

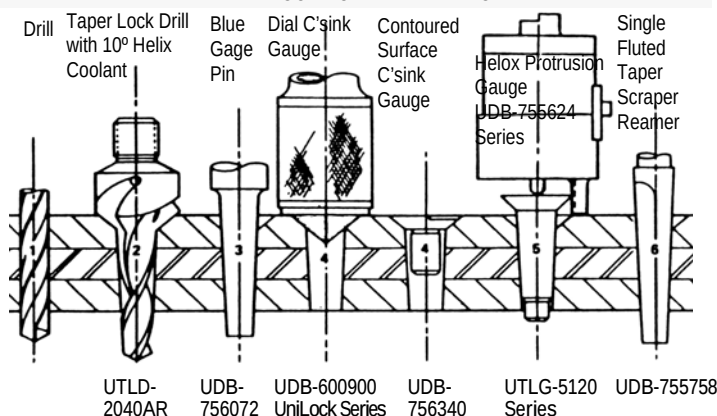
GROUP 5 & NOM FAST'R	UNITED PART NO. GROUP 5	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2040AR-5-3	3.500	1.750	.615	7/16-20	.030	3/16
1/4	UTLD-2040AR-5-4	3.937	2.125	.615	7/16-20	.030	1/4
5/16	UTLD-2040AR-5-5	4.250	2.312	.740	7/16-20	.040	21/64
3/8	UTLD-2040AR-5-6	4.562	2.500	.865	7/16-20	.040	25/64
7/16	UTLD-2040AR-5-7	5.250	2.875	1.050	7/16-20	.050	27/64
1/2	UTLD-2040AR-5-8	5.687	3.250	1.150	7/16-20	.050	33/64
9/16	UTLD-2040AR-5-9	7.937	4.750	1.375	5/8-18	.070	39/64
5/8	UTLD-2040AR-5-10	8.500	5.125	1.500	5/8-18	.070	43/64
3/4	UTLD-2040AR-5-12	10.062	5.875	1.715	1"-14	.080	51/64
7/8	UTLD-2040AR-5-14	11.500	7.000	1.950	1"-14	.080	15/16
1"	UTLD-2040AR-5-16	12.562	7.750	2.160	1"-14	.080	1-5/64

GROUP 6 & NOM FAST'R	UNITED PART NO. GROUP 6	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2040AR-6-3	3.500	1.750	.615	7/16-20	.030	3/16
1/4	UTLD-2040AR-6-4	3.937	2.125	.615	7/16-20	.030	1/4
5/16	UTLD-2040AR-6-5	4.250	2.312	.740	7/16-20	.040	21/64
3/8	UTLD-2040AR-6-6	4.562	2.500	.865	7/16-20	.040	25/64
7/16	UTLD-2040AR-6-7	5.250	2.875	1.050	7/16-20	.050	27/64
1/2	UTLD-2040AR-6-8	5.687	3.250	1.150	7/16-20	.050	33/64
9/16	UTLD-2040AR-6-9	7.937	4.750	1.375	5/8-18	.070	41/64
5/8	UTLD-2040AR-6-10	8.500	5.125	1.500	5/8-18	.070	45/64
3/4	UTLD-2040AR-6-12	10.062	5.875	1.715	1"-14	.080	27/32
7/8	UTLD-2040AR-6-14	11.500	7.000	1.950	1"-14	.080	63/64
1"	UTLD-2040AR-6-16	12.562	7.750	2.160	1"-14	.080	1-1/8

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; FLUSH FASTENER, ALUMINUM STRUCTURE

- STEP 1. PRE-DRILL:** Select drill size from 'Pre-Drill' section.
- STEP 2. TAPER REAM:** See 'Taper Lock Equipment' in this section for cutter selection.
- STEP 3. BEARING PROBE:** See 'Bearing Check' section for applicable probe.
- STEP 4. COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See 'Gage Selection' chart for proper gage. See 'Taper Lock Equipment' section for countersink diameters.
- STEP 5. PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in 'Protrusion Gage' section.
- STEP 6. TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series. See section for 'Re-Work of Straight Holes to Taper Lock' for appropriate Taper Scraper. Protrusion and bearing check must be made after this operation.

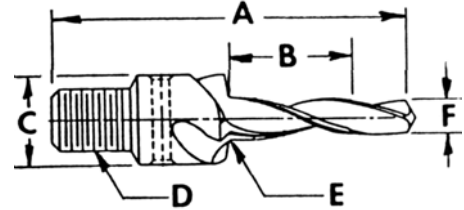
TAPER LOCK HOLE PREPARATION



**UTLD-2040BR
Series-Groups 1-2-3**

**UTLD-2040BR
SERIES**

Drill Reamer for Installation of TL200 & TL400 Protruding Head for Holes in Aluminum and Soft Metals



Taper Lock Drill Reamer for Protruding Head Fasteners in Soft Material

Produces a finer finish than UTLD-2040B. Pilot hole required. — 20° Helix Angle. — Manufactured from M-7 High Speed Tool Steel.

GROUP 1 & NOM FAST'R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040BR-1-04	1.625	.500	.365	1/4-28	.020	#30
5/32	UTLD-2040BR-1-05	1.687	.562	.365	1/4-28	.020	#23
3/16	UTLD-2040BR-1-3	2.062	.750	.490	1/4-28	.025	11/64
7/32	UTLD-2040BR-1-07	2.125	.812	.490	1/4-28	.025	13/64
1/4	UTLD-2040BR-1-4	2.250	.875	.553	1/4-28	.025	15/64
5/16	UTLD-2040BR-1-5	2.875	.937	.615	7/16-20	.030	19/64
3/8	UTLD-2040BR-1-6	3.062	1.000	.615	7/16-20	.030	23/64
7/16	UTLD-2040BR-1-7	3.500	1.125	.615	7/16-20	.040	27/64
1/2	UTLD-2040BR-1-8	3.687	1.250	.678	7/16-20	.040	31/64
9/16	UTLD-2040BR-1-9	4.937	1.750	.980	5/8-18	.073	35/64
5/8	UTLD-2040BR-1-10	5.250	1.875	1.100	5/8-18	.073	39/64
3/4	UTLD-2040BR-1-12	6.312	2.125	1.420	1"-14	.073	47/64
7/8	UTLD-2040BR-1-14	7.000	2.500	1.420	1"-14	.073	55/64
1"	UTLD-2040BR-1-16	7.562	2.750	1.600	1"-14	.073	63/64

GROUP 2 & NOM FAST'R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040BR-2-04	1.937	.812	.365	1/4-28	.020	#30
5/32	UTLD-2040BR-2-05	2.062	.937	.365	1/4-28	.020	#23
3/16	UTLD-2040BR-2-3	2.562	1.250	.490	1/4-28	.025	11/64
7/32	UTLD-2040BR-2-07	2.687	1.375	.490	1/4-28	.025	13/64
1/4	UTLD-2040BR-2-4	3.312	1.500	.615	7/16-20	.025	15/64
5/16	UTLD-2040BR-2-5	3.562	1.625	.615	7/16-20	.030	19/64
3/8	UTLD-2040BR-2-6	3.812	1.750	.615	7/16-20	.030	23/64
7/16	UTLD-2040BR-2-7	4.375	2.000	.615	7/16-20	.040	27/64
1/2	UTLD-2040BR-2-8	4.687	2.250	.678	7/16-20	.040	31/64
9/16	UTLD-2040BR-2-9	6.437	3.250	.980	5/8-18	.073	35/64
5/8	UTLD-2040BR-2-10	6.875	3.500	1.100	5/8-18	.073	39/64
3/4	UTLD-2040BR-2-12	8.187	4.000	1.420	1"-14	.073	47/64
7/8	UTLD-2040BR-2-14	9.250	4.750	1.420	1"-14	.073	55/64
1"	UTLD-2040BR-2-16	10.062	5.250	1.600	1"-14	.073	63/64

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED
EQUIPMENT AND DRILL BAR; PROTRUDING FASTENER, ALUMINUM
STRUCTURE

STEP 1. PRE-DRILL: Select drill size from 'Pre-Drill' section.

STEP 2. TAPER REAM: See 'Taper Lock Equipment' in this section for
cutter selection.

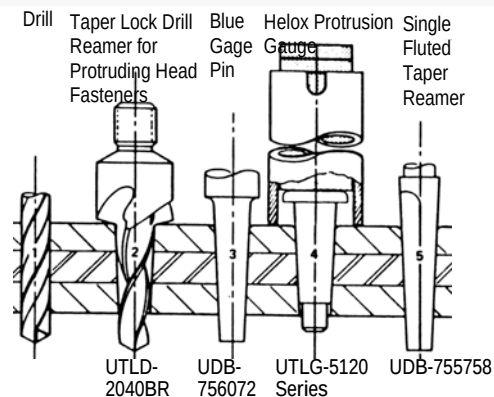
STEP 3. BEARING PROBE: Use UDB 756072 Series, or select applicable
tool from 'Gage' section, based on fastener size and group.

STEP 4. PROTRUSION CHECK: For TL200 Series, use UDB 755620
Series for inclined surface. For normal surface, use UDB 755820 Series, or
scale using values listed in 'Protrusion Gage' section.

STEP 5. TAPER SCRAPE HOLE: If necessary, use UDB 755758 Series
single flute scraper. Protrusion and bearing check must be made after this
operation.

GROUP 3 & NOM FAST'R	UNITED PART NO. GROUP 3	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040BR-3-04	2.250	1.125	.365	1/4-28	.020	#30
5/32	UTLD-2040BR-3-05	2.437	1.312	.365	1/4-28	.020	#23
3/16	UTLD-2040BR-3-3	3.062	1.750	.490	1/4-28	.025	11/64
7/32	UTLD-2040BR-3-07	3.250	1.937	.490	1/4-28	.025	13/64
1/4	UTLD-2040BR-3-4	3.937	2.125	.615	7/16-20	.025	15/64
5/16	UTLD-2040BR-3-5	4.250	2.312	.615	7/16-20	.030	19/64
3/8	UTLD-2040BR-3-6	4.562	2.500	.615	7/16-20	.030	23/64
7/16	UTLD-2040BR-3-7	5.250	2.875	.615	7/16-20	.040	27/64
1/2	UTLD-2040BR-3-8	5.687	3.250	.678	7/16-20	.040	31/64
9/16	UTLD-2040BR-3-9	7.937	4.750	.980	5/8-18	.073	35/64
5/8	UTLD-2040BR-3-10	8.500	5.125	1.100	5/8-18	.073	39/64
3/4	UTLD-2040BR-3-12	10.062	5.875	1.420	1"-14	.073	47/64
7/8	UTLD-2040BR-3-14	11.500	7.000	1.420	1"-14	.073	55/64
1"	UTLD-2040BR-3-16	12.562	7.750	1.600	1"-14	.073	63/64

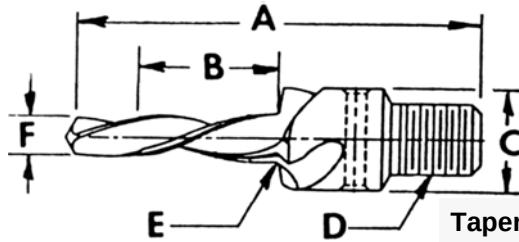
TAPER LOCK HOLE PREPARATION



Drill Reamer for Installation on TL200 & TL400 Protruding Head for Holes in Aluminum and Soft Metals

**UTLD-2040BR
Series-Groups 4-5-6**

**UTLD-2040BR
SERIES**



Taper Lock Drill Reamer for Protruding Head Fasteners in Soft Material

Produces a finer finish than UTLD-2040B. Tool has a 20° Helix Angle.
Pilot hole required and a standard finished Taper Lock hole is produced.
Manufactured from M-7 High Speed Tool Steel. .250 Taper per foot.

GROUP 4 & NOM FAST'R	UNITED PART NO. GROUP 4	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
1/8	UTLD-2040BR-4-04	2.250	1.125	.365	1/4-28	.020	#30
5/32	UTLD-2040BR-4-05	2.437	1.312	.365	1/4-28	.020	#23
3/16	UTLD-2040BR-4-3	3.062	1.750	.490	1/4-28	.025	3/16
7/32	UTLD-2040BR-4-07	3.250	1.937	.490	1/4-28	.025	13/64
1/4	UTLD-2040BR-4-4	3.937	2.125	.553	7/16-20	.025	15/64
5/16	UTLD-2040BR-4-5	4.250	2.312	.615	7/16-20	.030	19/64
3/8	UTLD-2040BR-4-6	4.562	2.500	.615	7/16-20	.030	23/64
7/16	UTLD-2040BR-4-7	5.250	2.875	.615	7/16-20	.040	27/64
1/2	UTLD-2040BR-4-8	5.687	3.250	.678	7/16-20	.040	31/64
9/16	UTLD-2040BR-4-9	7.937	4.750	.980	5/8-18	.073	9/16
5/8	UTLD-2040BR-4-10	8.500	5.125	1.100	5/8-18	.073	41/64
3/4	UTLD-2040BR-4-12	10.062	5.875	1.420	1"-14	.073	49/64
7/8	UTLD-2040BR-4-14	11.500	7.000	1.420	1"-14	.073	29/32
1"	UTLD-2040BR-4-16	12.562	7.750	1.600	1"-14	.073	1-1/32

GROUP 5 & NOM FAST'R	UNITED PART NO. GROUP 5	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2040BR-5-3	3.500	1.750	.615	7/16-20	.025	3/16
1/4	UTLD-2040BR-5-4	3.937	2.125	.615	7/16-20	.025	1/4
5/16	UTLD-2040BR-5-5	4.250	2.312	.615	7/16-20	.030	21/64
3/8	UTLD-2040BR-5-6	4.562	2.500	.615	7/16-20	.030	25/64
7/16	UTLD-2040BR-5-7	5.250	2.875	.615	7/16-20	.040	27/64
1/2	UTLD-2040BR-5-8	5.687	3.250	.678	7/16-20	.040	33/64
9/16	UTLD-2040BR-5-9	7.937	4.750	1.100	5/8-18	.073	39/64
5/8	UTLD-2040BR-5-10	8.500	5.125	1.420	5/8-18	.073	43/64
3/4	UTLD-2040BR-5-12	10.062	5.875	1.600	1"-14	.073	51/64
7/8	UTLD-2040BR-5-14	11.500	7.000	1.600	1"-14	.073	15/16
1"	UTLD-2040BR-5-16	12.562	7.750	1.850	1"-14	.073	1-5/64

GROUP 6 & NOM FAST'R	UNITED PART NO. GROUP 6	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS	F PILOT DIA
3/16	UTLD-2040BR-6-3	3.500	1.750	.615	7/16-20	.025	3/16
1/4	UTLD-2040BR-6-4	3.937	2.125	.615	7/16-20	.025	1/4
5/16	UTLD-2040BR-6-5	4.250	2.312	.615	7/16-20	.030	21/64
3/8	UTLD-2040BR-6-6	4.562	2.500	.615	7/16-20	.030	25/64
7/16	UTLD-2040BR-6-7	5.250	2.875	.615	7/16-20	.040	27/64
1/2	UTLD-2040BR-6-8	5.687	3.250	.678	7/16-20	.040	33/64
9/16	UTLD-2040BR-6-9	7.937	4.750	1.100	5/8-18	.073	41/64
5/8	UTLD-2040BR-6-10	8.500	5.125	1.420	5/8-18	.073	45/64
3/4	UTLD-2040BR-6-12	10.062	5.875	1.600	1"-14	.073	27/32
7/8	UTLD-2040BR-6-14	11.500	7.000	1.600	1"-14	.073	63/64
1"	UTLD-2040BR-6-16	12.562	7.750	1.850	1"-14	.073	1-1/8

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; PROTRUDING FASTENER, ALUMINUM STRUCTURE

STEP 1. PRE-DRILL: Select drill size from 'Pre-Drill' section.

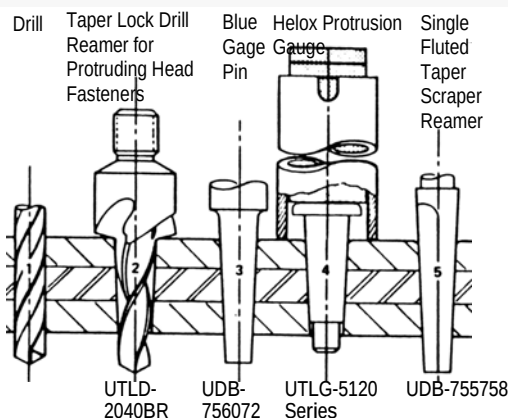
STEP 2. TAPER REAM: See 'Taper Lock Equipment' in this section for cutter selection.

STEP 3. BEARING PROBE: Use UDB 756072 Series, or select applicable tool from 'Gage' section, based on fastener size and group.

STEP 4. PROTRUSION CHECK: For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in 'Protrusion Gage' section.

STEP 5. TAPER SCRAPE HOLE: If necessary, use UDB 755758 Series single flute scraper. Protrusion and bearing check must be made after this operation.

TAPER LOCK HOLE PREPARATION

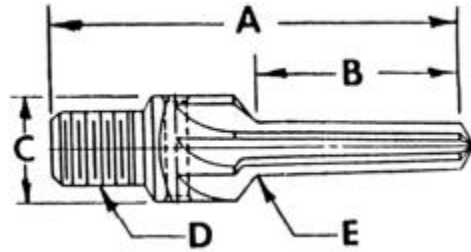


**UTLD-2060AR
Series-Groups 1-2-3**

UTLD-2060AR SERIES



Six Flute Flush Head Taper Lock Machine Reamer for 16 RMS Finishes



6 Flute Flush Head Machine Reamer for Excellent Finishes

For 100° Angle Head Flush Fasteners. - Straight Flutes - Cleans up Holes.
Use with correct feeds, speeds and cutting fluids.

GROUP 1 & NOM FAST R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060AR-1-04	1.562	.625	.365	1/4-28	.025
5/32	UTLD-2060AR-1-05	1.687	.750	.365	1/4-28	.025
3/16	UTLD-2060AR-1-3	1.812	.875	.490	1/4-28	.030
7/32	UTLD-2060AR-1-07	1.937	1.000	.490	1/4-28	.030
1/4	UTLD-2060AR-1-4	2.062	1.125	.553	1/4-28	.030
5/16	UTLD-2060AR-1-5	2.625	1.250	.740	7/16-20	.040
3/8	UTLD-2060AR-1-6	2.750	1.375	.865	7/16-20	.040
7/16	UTLD-2060AR-1-7	3.187	1.625	.990	7/16-20	.050
1/2	UTLD-2060AR-1-8	3.375	1.812	1.115	7/16-20	.050
9/16	UTLD-2060AR-1-9	4.750	2.437	1.290	5/8-18	.070
5/8	UTLD-2060AR-1-10	5.062	2.625	1.420	5/8-18	.070
3/4	UTLD-2060AR-1-12	5.875	2.812	1.600	1"-14	.080
7/8	UTLD-2060AR-1-14	6.500	3.312	1.850	1"-14	.080
1"	UTLD-2060AR-1-16	7.000	3.687	2.100	1"-14	.080

GROUP 2 & NOM FAST R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060AR-2-04	1.875	.937	.365	1/4-28	.025
5/32	UTLD-2060AR-2-05	2.062	1.125	.365	1/4-28	.025
3/16	UTLD-2060AR-2-3	2.312	1.375	.490	1/4-28	.030
7/32	UTLD-2060AR-2-07	2.500	1.562	.490	1/4-28	.030
1/4	UTLD-2060AR-2-4	3.125	1.750	.615	7/16-20	.030
5/16	UTLD-2060AR-2-5	3.312	1.937	.740	7/16-20	.040
3/8	UTLD-2060AR-2-6	3.500	2.125	.865	7/16-20	.040
7/16	UTLD-2060AR-2-7	4.062	2.500	.990	7/16-20	.050
1/2	UTLD-2060AR-2-8	4.375	2.812	1.115	7/16-20	.050
9/16	UTLD-2060AR-2-9	6.250	3.937	1.290	5/8-18	.070
5/8	UTLD-2060AR-2-10	6.687	4.250	1.420	5/8-18	.070
3/4	UTLD-2060AR-2-12	7.750	4.687	1.600	1"-14	.080
7/8	UTLD-2060AR-2-14	8.750	5.562	1.850	1"-14	.080
1"	UTLD-2060AR-2-16	9.500	6.187	2.100	1"-14	.080

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; FLUSH FASTENER, ALUMINUM STRUCTURE

STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.

STEP 2. **TAPER REAM:** Use UTLD-2060AR for excellent finish or see Taper Lock Equipment in this section for cutter selection.

STEP 3. **BEARING PROBE:** See Bearing Check section for applicable probe.

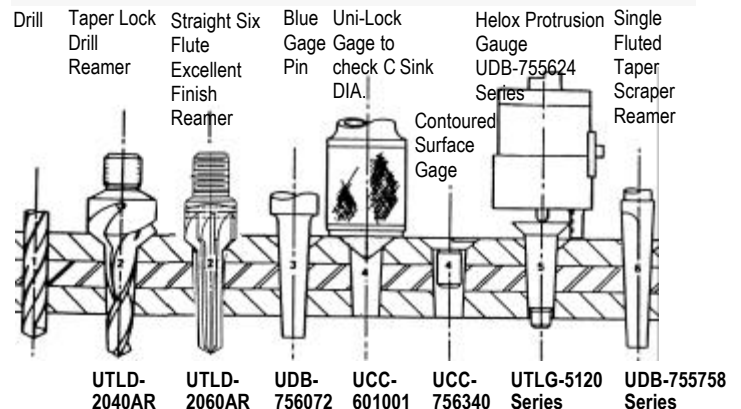
STEP 4. **COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for proper gage. See Taper Lock Equipment section for countersink diameters.

STEP 5. **PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in Protrusion Gage section.

STEP 6. **TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series. See section for Re-Work of Straight Holes to Taper Lock for appropriate Taper Scraper. Protrusion and bearing check must be made after this operation.

GROUP 3 & NOM FAST R	UNITED PART NO. GROUP 3	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060AR-3-04	2.187	1.250	.365	1/4-28	.025
5/32	UTLD-2060AR-3-05	2.437	1.500	.365	1/4-28	.025
3/16	UTLD-2060AR-3-3	2.812	1.850	.490	1/4-28	.030
7/32	UTLD-2060AR-3-07	3.000	2.062	.490	1/4-28	.030
1/4	UTLD-2060AR-3-4	3.750	2.375	.615	7/16-20	.030
5/16	UTLD-2060AR-3-5	4.000	2.625	.740	7/16-20	.040
3/8	UTLD-2060AR-3-6	4.250	2.875	.865	7/16-20	.040
7/16	UTLD-2060AR-3-7	4.937	3.375	.990	7/16-20	.050
1/2	UTLD-2060AR-3-8	5.375	3.812	1.115	7/16-20	.050
9/16	UTLD-2060AR-3-9	7.750	5.437	1.290	5/8-18	.070
5/8	UTLD-2060AR-3-10	8.312	5.875	1.420	5/8-18	.070
3/4	UTLD-2060AR-3-12	9.625	6.562	1.600	1"-14	.080
7/8	UTLD-2060AR-3-14	11.000	7.812	1.850	1"-14	.080
1"	UTLD-2060AR-3-16	12.000	8.687	2.100	1"-14	.080

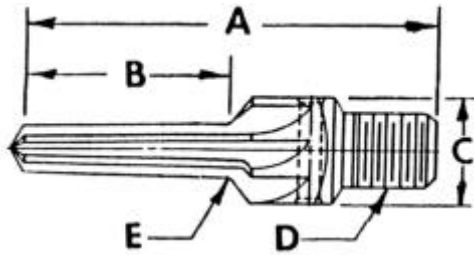
TAPER LOCK HOLE PREPARATION



Six Flute Flush Head Taper Lock Machine Reamer for 16 RMS Finishes

**UTLD-2060AR
Series-Groups 4-5-6**

UTLD-2060AR SERIES



Available in M-7 HSS, Cobalt and Carbide with oil holes Specify. **6 Flute Flush Head Machine Reamer for Excellent Finishes**

GROUP 4 & NOM FAST R	UNITED PART NO. GROUP 4	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060AR-4-04	2.187	1.250	.365	1/4-28	.025
5/32	UTLD-2060AR-4-05	2.437	1.500	.365	1/4-28	.025
3/16	UTLD-2060AR-4-3	2.812	1.875	.490	1/4-28	.030
7/32	UTLD-2060AR-4-07	3.000	2.062	.490	1/4-28	.030
1/4	UTLD-2060AR-4-4	3.750	2.375	.615	7/16-20	.030
5/16	UTLD-2060AR-4-5	4.000	2.625	.740	7/16-20	.040
3/8	UTLD-2060AR-4-6	4.250	2.875	.865	7/16-20	.040
7/16	UTLD-2060AR-4-7	4.937	3.375	.990	7/16-20	.050
1/2	UTLD-2060AR-4-8	5.375	3.812	1.115	7/16-20	.050
9/16	UTLD-2060AR-4-9	7.750	5.437	1.290	5/8-18	.070
5/8	UTLD-2060AR-4-10	8.312	5.875	1.420	5/8-18	.070
3/4	UTLD-2060AR-4-12	9.625	6.562	1.600	1"-14	.080
7/8	UTLD-2060AR-4-14	11.000	7.812	1.850	1"-14	.080
1"	UTLD-2060AR-4-16	12.000	8.867	2.100	1"-14	.080

GROUP 5 & NOM FAST R	UNITED PART NO. GROUP 5	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
3/16	UTLD-2060AR-5-3	3.250	1.875	.615	7/16-20	.030
1/4	UTLD-2060AR-5-4	3.750	2.375	.615	7/16-20	.030
5/16	UTLD-2060AR-5-5	4.000	2.625	.740	7/16-20	.040
3/8	UTLD-2060AR-5-6	4.250	2.875	.865	7/16-20	.040
7/16	UTLD-2060AR-5-7	4.937	3.375	1.050	7/16-20	.050
1/2	UTLD-2060AR-5-8	5.375	3.812	1.150	7/16-20	.050
9/16	UTLD-2060AR-5-9	7.750	5.437	1.290	5/8-18	.070
5/8	UTLD-2060AR-5-10	8.312	5.875	1.420	5/8-18	.070
3/4	UTLD-2060AR-5-12	9.625	6.562	1.600	1"-14	.080
7/8	UTLD-2060AR-5-14	11.000	7.812	1.850	1"-14	.080
1"	UTLD-2060AR-5-16	12.000	8.687	2.100	1"-14	.080

GROUP 6 & NOM FAST R	UNITED PART NO. GROUP 6	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
3/16	UTLD-2060AR-6-3	3.250	1.875	.615	7/16-20	.030
1/4	UTLD-2060AR-6-4	3.750	2.375	.615	7/16-20	.030
5/16	UTLD-2060AR-6-5	4.000	2.625	.740	7/16-20	.040
3/8	UTLD-2060AR-6-6	4.250	2.875	.865	7/16-20	.040
7/16	UTLD-2060AR-6-7	4.937	3.375	1.050	7/16-20	.050
1/2	UTLD-2060AR-6-8	5.375	3.812	1.150	7/16-20	.050
9/16	UTLD-2060AR-6-9	7.750	5.437	1.290	5/8-18	.070
5/8	UTLD-2060AR-6-10	8.312	5.875	1.420	5/8-18	.070
3/4	UTLD-2060AR-6-12	9.625	6.562	1.600	1"-14	.080
7/8	UTLD-2060AR-6-14	11.000	7.812	1.850	1"-14	.080
1"	UTLD-2060AR-6-16	12.000	8.687	2.100	1"-14	.080

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; FLUSH FASTENER, ALUMINUM STRUCTURE

STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.

STEP 2. **TAPER REAM:** Use UTLD-2060AR for excellent finish or see Taper Lock Equipment in this section for cutter selection.

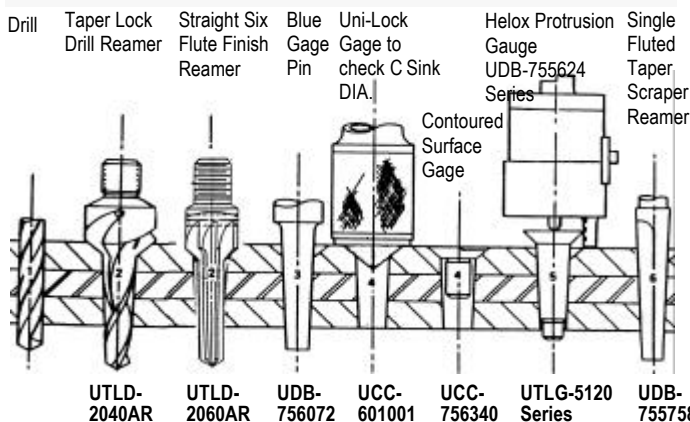
STEP 3. **BEARING PROBE:** See Bearing Check section for applicable probe.

STEP 4. **COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for proper gage. See Taper Lock Equipment section for countersink diameters.

STEP 5. **PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in Protrusion Gage section.

STEP 6. **TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series. See section for Re-Work of Straight Holes to Taper Lock for appropriate Taper Scraper. Protrusion and bearing check must be made after this operation.

TAPER LOCK HOLE PREPARATION

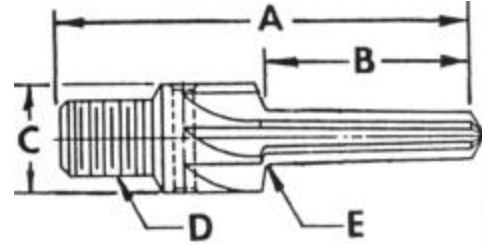


**UTLD-2060BR
Series-Groups 1-2-3**

UTLD-2060BR SERIES



Six Straight Flutes for Protruding Head Machine Reamer for 16 RMS Finishes



6 Straight Flutes Machine Reamer for Protruding Head for Excellent Finishes

Used for clean up of critical areas.

GROUP 1 & NOM FAST R	UNITED PART NO. GROUP 1	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060BR-1-04	1.562	.625	.365	1/4-28	.025
5/32	UTLD-2060BR-1-05	1.687	.750	.365	1/4-28	.025
3/16	UTLD-2060BR-1-3	1.812	.875	.490	1/4-28	.025
7/32	UTLD-2060BR-1-07	1.937	1.000	.490	1/4-28	.025
1/4	UTLD-2060BR-1-4	2.062	1.125	.553	7/16-20	.025
5/16	UTLD-2060BR-1-5	2.625	1.250	.615	7/16-20	.030
3/8	UTLD-2060BR-1-6	2.750	1.375	.615	7/16-20	.030
7/16	UTLD-2060BR-1-7	3.187	1.625	.615	7/16-20	.040
1/2	UTLD-2060BR-1-8	3.375	1.812	.678	7/16-20	.040
9/16	UTLD-2060BR-1-9	4.750	2.437	.980	5/8-18	.073
5/8	UTLD-2060BR-1-10	5.062	2.625	1.100	5/8-18	.073
3/4	UTLD-2060BR-1-12	5.875	2.812	1.420	1"-14	.073
7/8	UTLD-2060BR-1-14	6.500	3.312	1.420	1"-14	.073
1"	UTLD-2060BR-1-16	7.000	3.687	1.600	1"-14	.073

GROUP 2 & NOM FAST R	UNITED PART NO. GROUP 2	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060BR-2-04	1.875	.937	.365	1/4-28	.025
5/32	UTLD-2060BR-2-05	2.062	1.125	.365	1/4-28	.025
3/16	UTLD-2060BR-2-3	2.312	1.375	.490	1/4-28	.025
7/32	UTLD-2060BR-2-07	2.500	1.562	.490	1/4-28	.025
1/4	UTLD-2060BR-2-4	3.125	1.750	.615	7/16-20	.025
5/16	UTLD-2060BR-2-5	3.312	1.937	.615	7/16-20	.030
3/8	UTLD-2060BR-2-6	3.500	2.125	.615	7/16-20	.030
7/16	UTLD-2060BR-2-7	4.062	2.500	.615	7/16-20	.040
1/2	UTLD-2060BR-2-8	4.375	2.812	.678	7/16-20	.040
9/16	UTLD-2060BR-2-9	6.250	3.937	.980	5/8-18	.073
5/8	UTLD-2060BR-2-10	6.687	4.250	1.100	5/8-18	.073
3/4	UTLD-2060BR-2-12	7.750	4.687	1.420	1"-14	.073
7/8	UTLD-2060BR-2-14	8.750	5.562	1.420	1"-14	.073
1"	UTLD-2060BR-2-16	9.500	6.187	1.600	1"-14	.073

**SEQUENCE FOR ONE SHOT TAPER DRILL USING POSITIVE FEED
EQUIPMENT AND DRILL BARS; PROTRUDING FASTENER**

STEP 1. **TAPER DRILL:** Select proper equipment from Taper Lock Equipment in this section.

STEP 2. **BEARING PROBE:** Use UDB 756072 Series. See Gage section for applicable probe, based on fastener size and group.

STEP 3. **PROTRUSION CHECK:** For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in Protrusion Gage section.

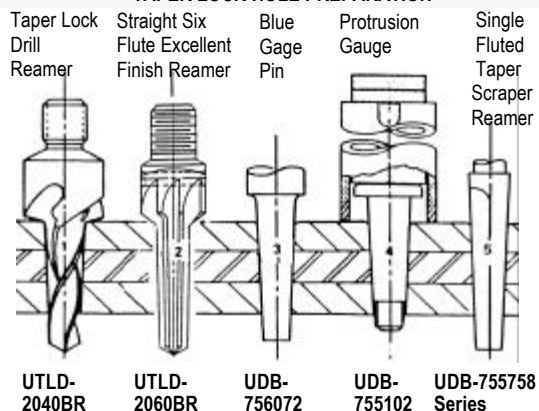
STEP 4. **TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series single flute scraper. Protrusion and bearing check must be made after this operation.

GROUP 3 & NOM FAST R	UNITED PART NO. GROUP 3	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060BR-3-04	2.187	1.250	.365	1/4-28	.025
5/32	UTLD-2060BR-3-05	2.437	1.500	.365	1/4-28	.025
3/16	UTLD-2060BR-3-3	2.812	1.875	.490	1/4-28	.025
7/32	UTLD-2060BR-3-07	3.000	2.062	.490	1/4-28	.025
1/4	UTLD-2060BR-3-4	3.750	2.375	.615	7/16-20	.025
5/16	UTLD-2060BR-3-5	4.000	2.625	.615	7/16-20	.030
3/8	UTLD-2060BR-3-6	4.250	2.875	.615	7/16-20	.030
7/16	UTLD-2060BR-3-7	4.937	3.375	.615	7/16-20	.040
1/2	UTLD-2060BR-3-8	5.375	3.812	.678	7/16-20	.040
9/16	UTLD-2060BR-3-9	7.750	5.437	.980	5/8-18	.073
5/8	UTLD-2060BR-3-10	8.312	5.875	1.100	5/8-18	.073
3/4	UTLD-2060BR-3-12	9.625	6.562	1.420	1"-14	.073
7/8	UTLD-2060BR-3-14	11.000	7.812	1.420	1"-14	.073
1"	UTLD-2060BR-3-16	12.000	8.687	1.600	1"-14	.073

TAPER LOCK HOLE PREPARATION

Use with correct speeds, feeds and cutting fluids for maximum smoothness and excellent finish.

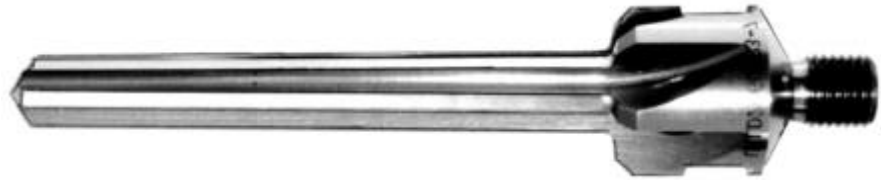
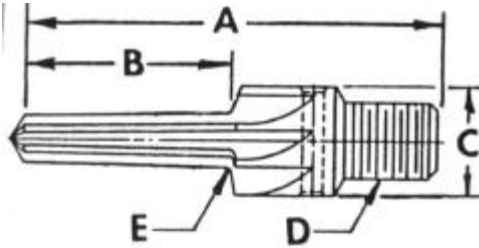
Available with coolant holes if specified.



Six Straight Flutes for Protruding Head Machine Reamer for 16 RMS Finishes

**UTLD-2060BR
Series-Groups 4-5-6**

UTLD-2060BR SERIES



Available with coolant ports on request.

6 Straight Flutes Machine Reamer for Protruding Head for Excellent Finishes

GROUP 4 & NOM FAST R	UNITED PART NO. GROUP 4	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
1/8	UTLD-2060BR-4-04	2.187	1.250	.490	1/4-28	.025
5/32	UTLD-2060BR-4-05	2.437	1.500	.490	1/4-28	.025
3/16	UTLD-2060BR-4-3	2.812	1.875	.490	1/4-28	.025
7/32	UTLD-2060BR-4-07	3.000	2.062	.490	1/4-28	.025
1/4	UTLD-2060BR-4-4	3.750	2.375	.615	7/16-20	.025
5/16	UTLD-2060BR-4-5	4.000	2.625	.615	7/16-20	.030
3/8	UTLD-2060BR-4-6	4.250	2.875	.615	7/16-20	.030
7/16	UTLD-2060BR-4-7	4.937	3.375	.615	7/16-20	.040
1/2	UTLD-2060BR-4-8	5.375	3.812	.678	7/16-20	.040
9/16	UTLD-2060BR-4-9	7.750	5.437	.980	5/8-18	.073
5/8	UTLD-2060BR-4-10	8.312	5.875	1.100	5/8-18	.073
3/4	UTLD-2060BR-4-12	9.625	6.562	1.420	1"-14	.073
7/8	UTLD-2060BR-4-14	11.000	7.812	1.420	1"-14	.073
1"	UTLD-2060BR-4-16	12.000	8.867	1.600	1"-14	.073

GROUP 5 & NOM FAST R	UNITED PART NO. GROUP 5	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
3/16	UTLD-2060BR-5-3	3.250	1.875	.615	7/16-20	.025
1/4	UTLD-2060BR-5-4	3.750	2.375	.615	7/16-20	.025
5/16	UTLD-2060BR-5-5	4.000	2.625	.615	7/16-20	.030
3/8	UTLD-2060BR-5-6	4.250	2.875	.615	7/16-20	.030
7/16	UTLD-2060BR-5-7	4.937	3.375	.615	7/16-20	.040
1/2	UTLD-2060BR-5-8	5.375	3.812	.678	7/16-20	.040
9/16	UTLD-2060BR-5-9	7.750	5.437	.980	5/8-18	.073
5/8	UTLD-2060BR-5-10	8.312	5.875	1.100	5/8-18	.073
3/4	UTLD-2060BR-5-12	9.625	6.562	1.420	1"-14	.073
7/8	UTLD-2060BR-5-14	11.000	7.812	1.420	1"-14	.073
1"	UTLD-2060BR-5-16	12.000	8.687	1.600	1"-14	.073

GROUP 6 & NOM FAST R	UNITED PART NO. GROUP 6	A OVERALL LENGTH	B FLUTE LENGTH	C BODY DIA	D THD	E FILLET RADIUS
3/16	UTLD-2060BR-6-3	3.250	1.875	.615	7/16-20	.025
1/4	UTLD-2060BR-6-4	3.750	2.375	.615	7/16-20	.025
5/16	UTLD-2060BR-6-5	4.000	2.625	.615	7/16-20	.030
3/8	UTLD-2060BR-6-6	4.250	2.875	.615	7/16-20	.030
7/16	UTLD-2060BR-6-7	4.937	3.375	.615	7/16-20	.040
1/2	UTLD-2060BR-6-8	5.375	3.812	.678	7/16-20	.040
9/16	UTLD-2060BR-6-9	7.750	5.437	.980	5/8-18	.073
5/8	UTLD-2060BR-6-10	8.312	5.875	1.100	5/8-18	.073
3/4	UTLD-2060BR-6-12	9.625	6.562	1.420	1"-14	.073
7/8	UTLD-2060BR-6-14	11.000	7.812	1.420	1"-14	.073
1"	UTLD-2060BR-6-16	12.000	8.687	1.600	1"-14	.073

SEQUENCE FOR ONE SHOT TAPER DRILL USING POSITIVE FEED EQUIPMENT AND DRILL BARS; PROTRUDING FASTENER

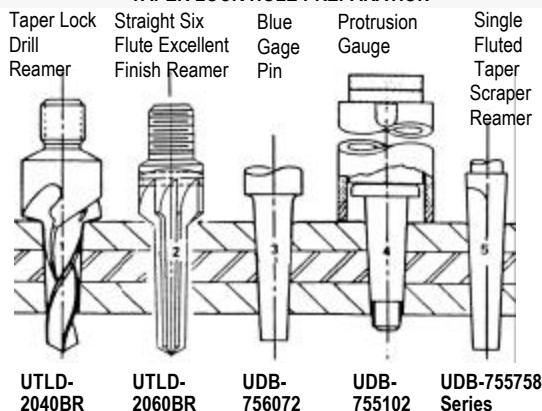
STEP 1. **TAPER DRILL:** Select proper equipment from Taper Lock Equipment in this section.

STEP 2. **BEARING PROBE:** Use UDB 756072 Series. See Gage section for applicable probe, based on fastener size and group.

STEP 3. **PROTRUSION CHECK:** For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in Protrusion Gage section.

STEP 4. **TAPER SCRAPE HOLE:** If necessary, use UDB 755758 Series single flute scraper. Protrusion and bearing check must be made after this operation.

TAPER LOCK HOLE PREPARATION

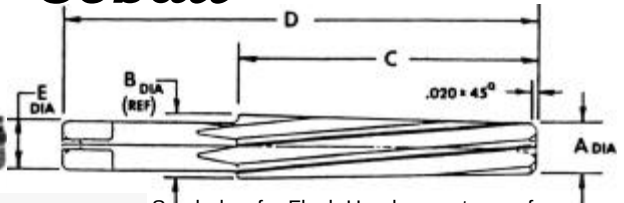


Available in
M7 for
Aluminum
Alloys, M33
for Titanium
and Alloy
Steels and
C2 Carbide
for Titanium
and Hard
Alloy Steels.

UTLR-254200 Series Groups 1-2-3-4-5-6

Reamer Taper Pin 5 L.H. Helical Flutes R.H. Cut Cobalt

UTLR-254200 SERIES



5 Flutes Cobalt Reamer Taper Pin for Flush or Protruding Head Fasteners.

See below for Flush Head or next page for Protruding Head Fasteners and Hole Preparations.

UNITED Taper Pin Reamers ream holes for standard taper pin fits. Left hand Spiral and Straight flutes are primarily for hand reaming. Best results are obtained if hole is pre-drilled a few thousandths smaller than the small diameter of the finished reamed hole. Left hand Helix RH cut pushes chips forward in thru hole reaming and is used in production reaming.

Ream two-thirds the speed of drilling and Feed at 200%-300% higher than drilling to prevent chatter and reamer wear.

Allow .010 on 1/4 dia. hole, .015 on 1/2 dia. hole, and .015 up to .025 on a 1-1/2 hole.

Aim for perfect alignment of the Spindle, Reamer, Bushing and hole to be machined. Use **UNITED's** Flex Driver Reamer Handles.

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 1-2 & NOM FAST R	UNITED PART NO. GROUPS 1-2	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
5/32	UTLR-254201	.153	.188	1.73	2.50	.156
3/16	UTLR-254202	.179	.220	1.98	2.70	.187
1/4	UTLR-254204	.238	.284	2.83	3.20	.250
5/16	UTLR-254205	.300	.349	2.35	3.60	.312
3/8	UTLR-254206	.362	.413	2.48	4.00	.375
7/16	UTLR-254207	.424	.481	2.73	4.20	.437
1/2	UTLR-254208	.491	.553	2.98	4.50	.437
9/16	UTLR-254209	.555	.637	3.98	5.50	.437
5/8	UTLR-254210	.618	.705	4.23	5.80	.437

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 3-4 & NOM FAST R	UNITED PART NO. GROUPS 3-4	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
5/32	UTLR-254401	.153	.204	2.48	3.20	.156
3/16	UTLR-254402	.179	.240	2.98	3.70	.187
1/4	UTLR-254404	.238	.310	3.48	4.50	.250
5/16	UTLR-254405	.300	.377	3.73	5.00	.312
3/8	UTLR-254406	.362	.445	3.98	5.50	.375
7/16	UTLR-254407	.424	.517	4.48	6.00	.437
1/2	UTLR-254408	.491	.595	4.98	6.50	.437
9/16	UTLR-254409	.555	.699	6.98	8.50	.437
5/8	UTLR-254410	.618	.773	7.48	9.00	.437

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR IN TITANIUM FOR FLUSH FASTENERS.

STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.

STEP 2. **TAPER REAM AND COUNTERSINK:** See Taper Lock Equipment in this section for cutter selection.

STEP 3. **COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for gage. See appropriate Taper Lock Equipment section for countersink diameters.

STEP 4. **BEARING PROBE:** Use UDB 756072 Series. See Bearing Check section for applicable values, based on fastener size and group.

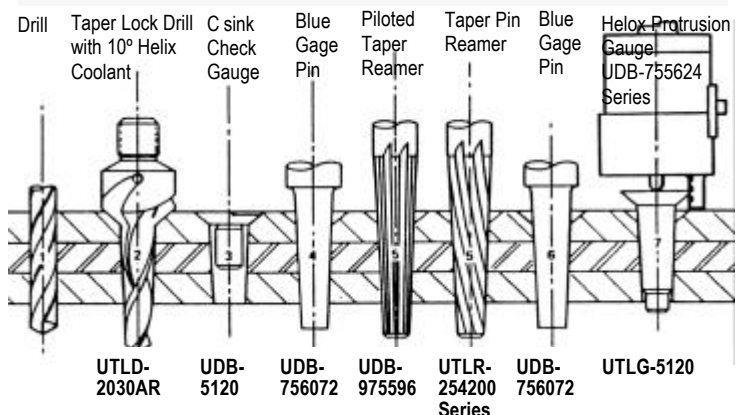
STEP 5. **HAND REAMING:** Finish ream tapered holes by hand reaming with multi-fluted tapered reamer. When hand reaming, alternate straight and spiral fluted reamers to prevent rifling.

STEP 6. **BEARING PROBE:** See Step 4.

STEP 7. **PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in Protrusion Gage section.

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 5-6 & NOM FAST R SIZE	UNITED PART NO. GROUPS 5-6	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
3/16	UTLR-254602	.200	.261	2.98	3.70	.250
1/4	UTLR-254604	.264	.336	3.48	4.50	.312
5/16	UTLR-254605	.329	.406	3.74	5.00	.312
3/8	UTLR-254606	.393	.476	3.98	5.50	.437
7/16	UTLR-254607	.461	.553	4.48	6.00	.437
1/2	UTLR-254608	.533	.636	4.98	6.50	.437
9/16	UTLR-254609	.617	.762	6.98	8.50	.437

TAPER LOCK FLUSH HEAD HOLE PREPARATION

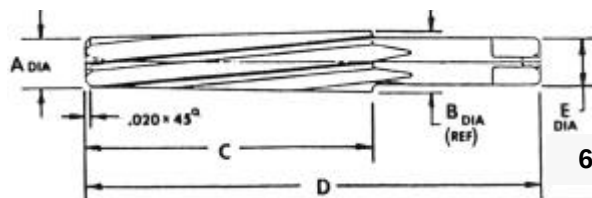


Reamer Taper Pin 6 L.H. Helical Flutes R.H. Cut Cobalt

UTLR-255200 Series
Groups 1-2-3-4-5-6

Aim for perfect alignment of the Spindle, Reamer, Bushing and hole to be machined.

UTLR-255200 SERIES



6 Flutes Reamer Taper Pin for Flush or Protruding Head Fasteners

See below for Protruding Head or previous page for Flush Head Fasteners and Hole Preparations.

Best results are obtained if hole is pre-drilled a few thousandths smaller than the small diameter of the finished reamed hole. Left hand Helix RH cut pushes chips forward in thru hole reaming and is used in production reaming.

Ream two-thirds the speed of drilling and Feed at 200%-300% higher than drilling to prevent chatter and reamer wear. Allow .010 on 1/4 dia. hole, .015 on 1/2 dia. hole, and up to .025 on a 1-1/2 hole. Keep reamer chamfers ground accurately.

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 1-2 & NOM FAST R	UNITED PART NO. GROUPS 1-2	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
5/32	UTLR-255201	.153	.188	1.73	2.50	.156
3/16	UTLR-255202	.179	.220	1.98	2.70	.187
1/4	UTLR-255204	.238	.284	2.83	3.20	.250
5/16	UTLR-255205	.300	.349	2.35	3.60	.312
3/8	UTLR-255206	.362	.413	2.48	4.00	.375
7/16	UTLR-255207	.424	.481	2.73	4.20	.437
1/2	UTLR-255208	.491	.553	2.98	4.50	.437
9/16	UTLR-255209	.555	.637	3.98	5.50	.437
5/8	UTLR-255210	.618	.705	4.23	5.80	.437

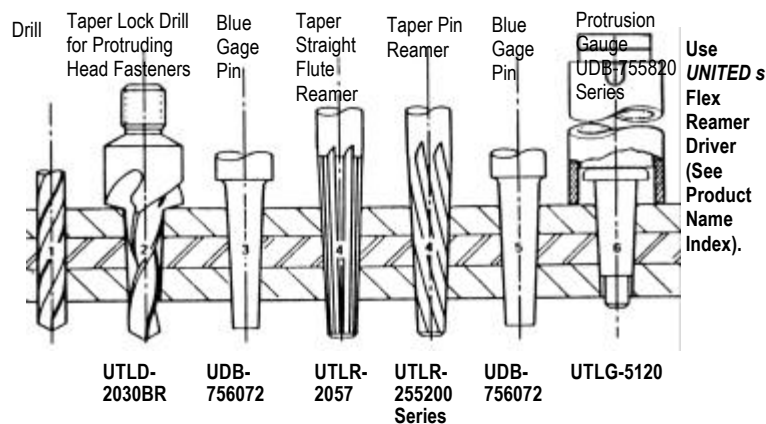
	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 3-4 & NOM FAST R	UNITED PART NO. GROUPS 3-4	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
5/32	UTLR-255401	.153	.204	2.48	3.20	.156
3/16	UTLR-255402	.179	.240	2.98	3.70	.187
1/4	UTLR-255404	.238	.310	3.48	4.50	.250
5/16	UTLR-255405	.300	.377	3.73	5.00	.312
3/8	UTLR-255406	.362	.445	3.98	5.50	.375
7/16	UTLR-255407	.424	.517	4.48	6.00	.437
1/2	UTLR-255408	.491	.595	4.98	6.50	.437
9/16	UTLR-255409	.555	.699	6.98	8.50	.437
5/8	UTLR-255410	.618	.773	7.48	9.00	.437

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 5-6 & NOM FAST R SIZE	UNITED PART NO. GROUPS 5-6	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
3/16	UTLR-255602	.200	.261	2.98	3.70	.250
1/4	UTLR-255604	.264	.336	3.48	4.50	.312
5/16	UTLR-255605	.329	.406	3.74	5.00	.312
3/8	UTLR-255606	.393	.476	3.98	5.50	.437
7/16	UTLR-255607	.461	.553	4.48	6.00	.437
1/2	UTLR-255608	.533	.636	4.98	6.50	.437
9/16	UTLR-255609	.617	.762	6.98	8.50	.437

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR; PROTRUDING FASTENER

- STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.
- STEP 2. **TAPER REAM AND COUNTERSINK:** See Taper Lock Equipment in this section for cutter selection.
- STEP 3. **BEARING PROBE:** Use UDB 756072 Series. See Bearing Check section for applicable values, based on fastener size and group.
- STEP 4. **HAND REAMING:** Finish ream tapered holes by hand reaming with multi-fluted tapered reamer. When hand reaming, alternate straight and spiral fluted reamers to prevent rifling.
- STEP 5. **BEARING PROBE:** See Step 3.
- STEP 6. **PROTRUSION CHECK:** For TL200 Series, use UDB 755620 Series for inclined surface. For normal surface, use UDB 755820 Series, or scale using values listed in Protrusion Gage section.

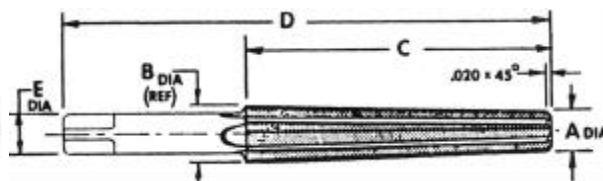
TAPER LOCK PROTRUDING HEAD HOLE PREPARATION



UTLR-257200 Series Groups 1-2-3-4-5-6

Carbide Reamer Taper Pin Straight Multiple Flutes

UTLR-257200 SERIES



Carbide Reamer Taper Pin for Flush or Protruding Head Fasteners.

For hand reaming or production reaming. Square handle grip provided. Ideal for excellent finish and thru hole applications. Best results are obtained if hole is pre-drilled a few thousandths smaller than the small diameter of finished reamed hole. Carbide Reamers have great abrasive resistance, provide consistent cuts and smoother finishes than other tools.

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 1-2 & NOM FAST R	UNITED PART NO. GROUPS 1-2	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
5/32	UTLR-257201	.156	.186	1.50	2.25	.156
3/16	UTLR-257202	.182	.218	1.75	2.75	.187
1/4	UTLR-257204	.238	.284	2.23	3.25	.250
5/16	UTLR-257205	.300	.349	2.35	3.50	.312
3/8	UTLR-257206	.362	.413	2.48	3.50	.375
7/16	UTLR-257207	.424	.481	2.73	3.75	.437
1/2	UTLR-257208	.491	.553	2.98	4.00	.437
9/16	UTLR-257209	.555	.637	3.98	5.00	.437
5/8	UTLR-257210	.618	.705	4.23	5.50	.437

Ream two-thirds the speed of drilling and Feed at 200%-300% higher than drilling to prevent chatter and reamer wear.

Allow .010 on 1/4 dia. hole, .015 on 1/2 dia. hole, and .015 up to .025 on a 1-1/2 hole.

Aim for perfect alignment of the Spindle, Reamer, Bushing and hole to be machined. Use our Flex Reamer Driver (See Index).

See below for Flush Head and next page for Protruding Head Fasteners Hole Preparations.

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 3-4 & NOM FAST R	UNITED PART NO. GROUPS 3-4	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
5/32	UTLR-257401	.157	.198	1.97	2.00	.156
3/16	UTLR-257402	.183	.235	2.50	3.50	.187
1/4	UTLR-257404	.243	.305	2.98	4.00	.250
5/16	UTLR-257405	.304	.372	3.86	4.25	.312
3/8	UTLR-257406	.362	.445	3.98	5.00	.375
7/16	UTLR-257407	.429	.511	3.94	5.00	.437
1/2	UTLR-257408	.491	.595	4.98	6.00	.437
9/16	UTLR-257409	.555	.699	6.98	8.00	.437
5/8	UTLR-257410	.618	.773	7.48	8.50	.437

SEQUENCE FOR TWO STEP DRILL/REAM USING POSITIVE FEED EQUIPMENT AND DRILL BAR FOR FLUSH FASTENERS.

STEP 1. **PRE-DRILL:** Select drill size from Pre-Drill section.

STEP 2. **TAPER REAM AND COUNTERSINK:** See Taper Lock Equipment in this section for cutter selection.

STEP 3. **COUNTERSINK DIAMETER CHECK:** For normal surfaces, use Uni-Lock Countersink Gage, and for normal or inclined surfaces, use UDB 756340 Series. See Gage Selection chart for gage. See appropriate Taper Ream Equipment section for countersink diameters.

STEP 4. **BEARING PROBE:** Use UDB 756072 Series. See Bearing Check section for applicable values, based on fastener size and group.

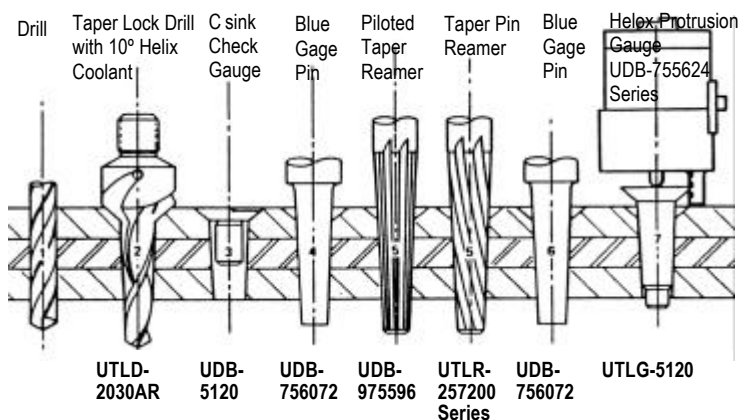
STEP 5. **HAND REAMING:** Finish ream tapered holes by hand reaming with multi-fluted tapered reamer. When hand reaming, alternate straight and spiral fluted reamers to prevent rifling.

STEP 6. **BEARING PROBE:** See Step 4.

STEP 7. **PROTRUSION CHECK:** For TL100 Series, use UDB 755624 Series for inclined surfaces, or scale according to values listed in Protrusion Gage section.

	TOLERANCE:	± .001	REF.	+ .12 .00	+ .12 .00	+ .000 .004
GROUP 5-6 & NOM FAST R	UNITED PART NO. GROUPS 5-6	A DIA	B DIA	C FLUTE LENGTH	D OAL	E DIA
3/16	UTLR-257602	.200	.261	2.98	4.00	.250
1/4	UTLR-257604	.264	.336	3.48	4.50	.312
5/16	UTLR-257605	.329	.406	3.74	4.75	.312
3/8	UTLR-257606	.393	.476	3.98	5.00	.437
7/16	UTLR-257607	.462	.551	4.27	5.25	.437
1/2	UTLR-257608	.533	.636	4.98	6.00	.437
9/16	UTLR-257609	.617	.762	6.98	8.00	.437

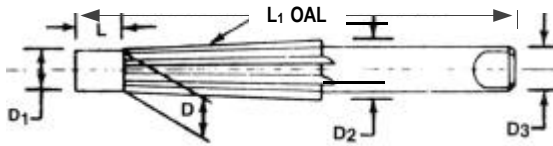
TAPER LOCK FLUSH HEAD HOLE PREPARATION



Piloted Taper Pin Reamer for Aluminum, Titanium and Hard Alloys

UDB-975596 Series
Groups 4-5-6-7-8-9

UDB-975596 SERIES



.250 Taper per foot H.S.S. STRAIGHT FLUTE R.H. CUT

Best results are obtained if hole is pre-drilled a few thousandths smaller than the small diameter of the finished reamed hole.

Straight Flute RH cut pushes chips forward in thru hole reaming and is used in production reaming.

Piloted Tapered Reamers for Hard Materials

Ream two-thirds the speed of drilling and Feed at 200%-300% higher than drilling to prevent chatter and reamer wear.

Allow .010 on 1/4 dia. hole, .015 on 1/2 dia. hole, .015 and up to .025 on a 1-1/2 hole.

UNITED PART NO. & DASH	D +.001 -.001	D1 +.000 -.001	D2 REF.	D3	L STD. BUSH	L1 OAL	TR# REAMER	BOLT SIZE & TYPE	EXISTING HOLE DIAMETER
UDB-975596-4-.234	.232	.234	.260	.31	.37	3.24	#4	1/4 T.L.	.2344
UDB-975596-4-.244	.244	.246	.299	.31	.37	4.31	#5	1/4 H.L. LB.	.247 / .245
UDB-975596-4-.252	.250	.252	.299	.31	.37	4.25	#5	1/4 GC.	.253 / .256
UDB-975596-4-.260	.258	.260	.299	.31	.37	3.86	#5	1/4 HL LB 1st Oversize	.261 / .263
UDB-975596-4-.277	.275	.277	.299	.31	.37	4.50	Ref. ALT	1/4 Group 3	.277 / .279
UDB-975596-4-.277A	.275	.277	.330	.35	.37	4.50	Ref. ALT	1/4 Group 4 & 5	.277 / .279
UDB-975596-5-.296	.294	.296	.330	.35	.50	5.14	#6	5/16 T.L.	.2969
UDB-975596-5-.306	.304	.306	.330	.35	.50	5.66	#6	5/16 H.L. L.B.	.307 / .309
UDB-975596-5-.313	.311	.313	.330	.35	.50	4.32	#6	5/16 GC.	.315 / .318
UDB-975596-5-.322	.320	.322	.330	.35	.50	3.89	#6	5/16 HL LB 1st Oversize	.323 / .325
UDB-975596-5-.339	.339	.339	.422	.40	.50	6.31	#7	5/16 Group 3, 4, 5, 2nd OS	.340 / .342
UDB-975596-6-.358	.356	.358	.422	.40	.50	5.55	#7	3/8 T.L.	.3594
UDB-975596-6-.369	.367	.369	.422	.40	.50	5.02	#7	3/8 H.L. L.B.	.370 / .372
UDB-975596-6-.377	.375	.377	.422	.40	.50	4.64	#7	3/8 GC.	.381 / .378
UDB-975596-6-.385	.383	.385	.422	.40	.50	4.25	#7	3/8 HL LB 1st Oversize	.386 / .388
UDB-975596-6-.401	.402	.401	.505	.43	.50	7.19	#8	3/8 Group 3, 4, 5, 2nd OS	.402 / .404
UDB-975596-7-.421	.419	.421	.505	.43	.50	6.64	#8	7/16 T.L.	.4219
UDB-975596-8-.483	.481	.483	.606	.50	.50	8.31	#9	1/2 T.L.	.4844
UDB-975596-9-.545	.543	.545	.606	.50	.50	5.81	#9	9/16 T.L.	.5456
UDB-975596-9-.561	.599	.561	.606	.50	.50	3.12	#9	9/16 Fastener	.562 / .567

To order, specify Part Number plus Dash Number.

Example: UDB-975596-6-.369

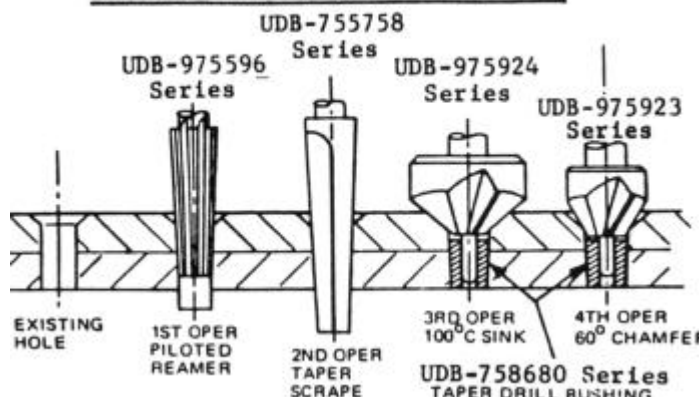
For Aluminum, Hard Alloys
and Titanium

Use for Taper Lock Bolts,
Hi-Lok, Hi-Tigue, Lock Bolts
and Rivets.

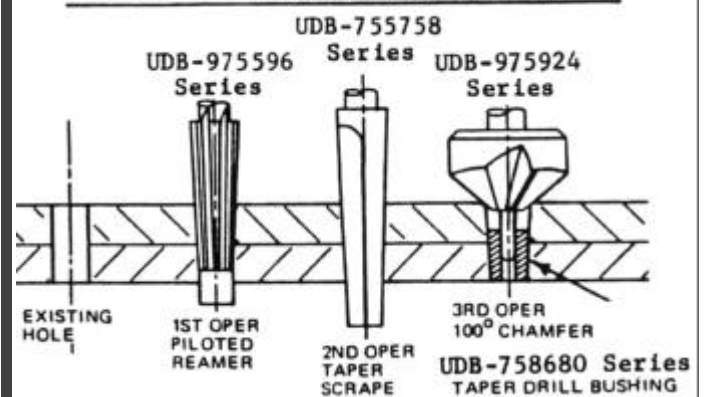
1. 160 RPM Motor may be
used with Piloted Reamer,
Taper Scraper and 100°
Countersink Cutter. Use Flex
Drive UDB-74910 Series.

2. See Gage Section for
proper Probe, Countersink
Check Tool and Protrusion
Check Tool.

CUTTER SEQUENCE FOR FLUSH FASTENERS



CUTTER SEQUENCE FOR PROTRUDING FASTENERS



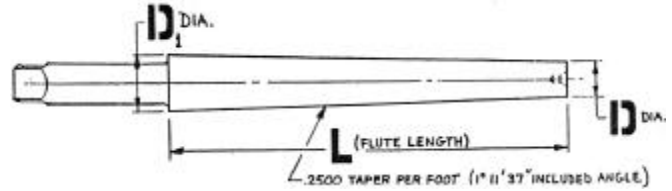
**UDB-975597 Series
Groups 5-6-7-8-9**

Modified Tapered Pin Reamers L.H. Helical Flutes

UDB-975597 SERIES



Modified Tapered Pin Reamer with 6 L.H. Helical Flutes



Ream two-thirds the speed of drilling and Feed at 200%-300% higher than drilling to prevent chatter and reamer wear.

Allow .010 on 1/4 dia. hole, .015 on 1/2 dia. hole, and .015 to .025 on a 1-1/2 hole.

Aim for perfect alignment of the Spindle, Reamer, Bushing and Hole to be modified.

NOM. SIZES →		3/16					1/4					5/16					3/8					7/16					1/2					9/16					5/8					D REAMER	D ₁ DIA.	L LEN	
GROUP NO. →		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	SMALL END	LARG E END	OVER ALL	
COMMERCIAL	No.3																																									.1813	.2294		
	No.4																																										.2071	.2604	
	No.5																																										.2409	.2994	
TAPER	No.6																																										.2773	.3540	
PIN	No.7																																										.3297	.4220	
REAMER	No.8																																										.3971	.5050	
SIZES	No.9																																										.4805	.6066	
	No.10																																										.5799	.7216	

NOM. SIZES →	3/16					1/4					5/16					3/8					7/16					1/2					9/16					5/8					REAMER DIAMETER		LEN
UNITED PART NO.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	D	D ₁	L					
UDB-975597-5.5						UNITED S										UNITED TAPER PIN REAMERS ARE ALL L/H HELIX R/H CUT UDB-975597 SERIES																									.2500	.3267	3.68
UDB-975597-6.5											MOST POPULAR																									.3125	.4048	4.44					
UDB-975597-7.5																INDUSTRIAL USE																					.3750	.4829	5.19				
UDB-975597-8.5																						TAPER PIN REAMER																.4375	.5636	6.06			
UDB-975597-9.5																												SIZES										.5312	.6727	6.81			

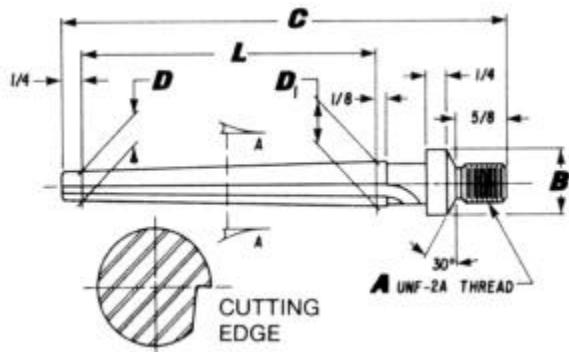
The ill effects of mis-aligned reamers to holes can be reduced by using **UNITED** Flexible Reamer Drivers, which are floating or adjustable drivers. Inspect our Flexible Drivers listed in the Product Name Index.

These tools, used properly, will eliminate chatter and increase reamer life. Do not allow your drills and reamers to become dull. Re-grind your reamer chamfer before it exhibits excessive wear. Grind each flute carefully to the exact same even size for best results and longest wear.

Single Flute Tapered Reamer The Taper Scraper

UDB-755750 Series
Groups 1-2-3-4-5

UDB-755750 SERIES



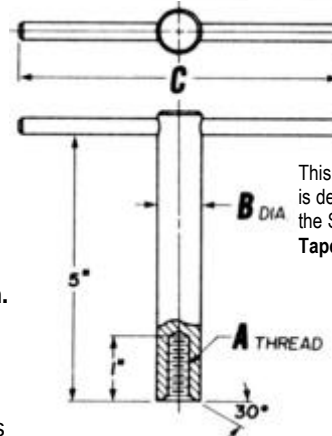
Single Flute Tapered Reamer — The 'Taper Scraper'



Taper Lock holes drilled in sandwiched materials and checked with UNITED Taper Hole Gauges may be slightly irregular in shape, size or finish. The Single Flute Taper Reamer is used to correct those conditions.

This Reamer removes irregularities and leaves a fine hole finish. Continue to check the hole with a UNITED Taper Hole Gauge and if found to be accurate, proceed with the installation of the fastener.

The Single Flute Taper Reamer is best used with a T-Handle. Designed to remove only a few thousandths of material. These tools should not be used where an actual hole enlargement is needed. UNITED provides a re-sharpening service for these critical reamers.



This T-Handle is designed for the Single Flute Taper Scraper.

FITS REAMER THREADS
Select by Thread Size

T-Handle

TAPER SCRAPER	TAPER LOCK SIZE	GROUP	A THD	B	C	D	D ₁	L	T-Handle used
UDB-755758	5/32	1-5	5/16-24	3/8	3.70	.162	.205	2.064	755750
UDB-755762	3/16	1-5			4.18	.189	.242	2.543	
UDB-755764	1/4	1-5			4.85	.248	.315	3.215	
UDB-755766	5/16	1-5	7/16-20	1/2	5.27	.310	.383	3.503	755760
UDB-755768	3/8	1-4			4.84	.372	.436	3.071	
UDB-755772	3/8	5			4.07	.404	.452	2.303	
UDB-755774	7/16	1-4			5.37	.434	.509	3.599	
UDB-755776	7/16	5		5/8	4.45	.471	.527	2.687	
UDB-755778	1/2	1-4			5.93	.496	.582	4.127	
UDB-755782	1/2	5			4.88	.538	.602	3.071	
UDB-755784	9/16	1-3	5/8-18	7/8	6.48	.559	.656	4.655	755770
UDB-755786	9/16	4			6.48	.590	.687	4.655	
UDB-755788	9/16	5			6.48	.621	.718	4.655	
UDB-755792	5/8	1-3			6.86	.621	.726	5.039	
UDB-755794	5/8	4			6.86	.655	.760	5.039	
UDB-755796	5/8	5			6.86	.688	.793	5.039	
UDB-755798	3/4	1-3		1"	7.58	.746	.866	5.758	
UDB-755800	3/4	4			7.58	.786	.906	5.758	
UDB-755802	3/4	5			7.58	.825	.945	5.758	
UDB-755804	7/8	1-3			8.58	.875	1.014	6.700	
UDB-755806	7/8	4			8.58	.921	1.061	6.700	
UDB-755808	7/8	5			8.58	.969	1.109	6.700	
UDB-755810	1"	1-3		1-1/4	9.38	1.001	1.157	7.500	
UDB-755812	1"	4			9.38	1.053	1.209	7.500	
UDB-755814	1"	5			9.38	1.105	1.261	7.500	

Do not remove cutting edge burr—it cuts!

TAPER SCRAPER IS THE TOOL TO FINISH THE JOB!

Return to UNITED for Sharpening

The Most Used Taper Lock Tool!

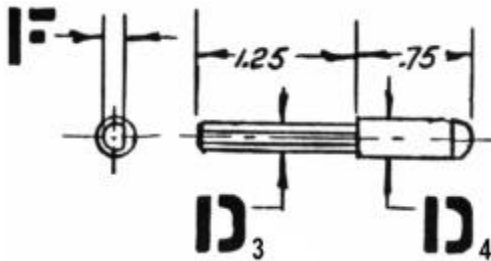
UDB-975923 Series Groups 1-2-3-4-5

UDB-975923 SERIES



Countersink Threaded Shank — 60° Cutter

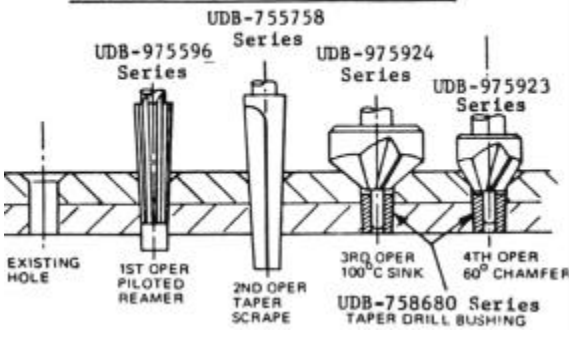
Two Flutes 4° Spiral Lip Relief — Threaded Shank Countersinks with Removable Pilots.



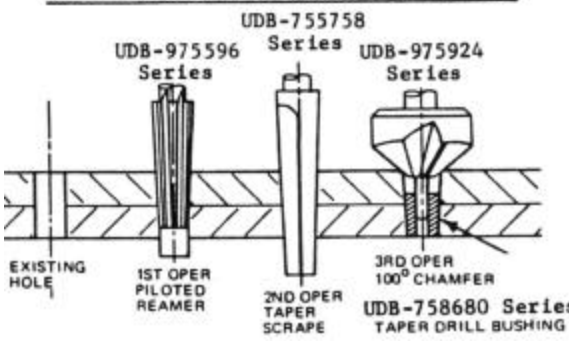
COUNTERSINK PILOTS Ground and Hardened

D ₃ SHANK	D ₄ PILOT	F DIA. FLAT
7/16 = .1085	1/8 = .1245	3/32 = .093
7/16 = .1085	3/16 = .1870	3/32 = .093
1/4 = .2495	1/4 = .2495	7/32 = .218
1/4 = .2495	5/16 = .3120	7/32 = .218
1/4 = .2495	3/8 = .3745	7/32 = .218

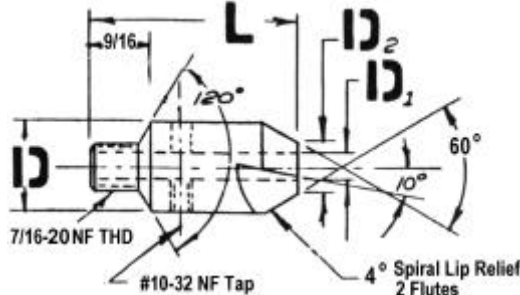
CUTTER SEQUENCE FOR FLUSH FASTENERS



CUTTER SEQUENCE FOR PROTRUDING FASTENERS



Countersinks- Threaded Shanks with Removable Pilots - 60° Cutter

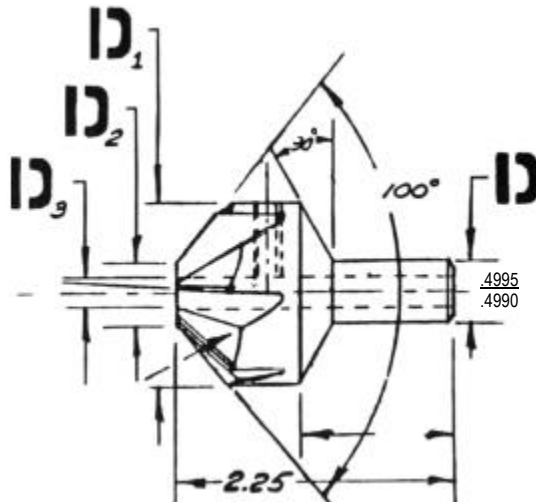


PART NO. and FASTENER SIZE	Group No.	D	D ₁ +.000 -.001	D ₂ +.002 -.002	D ₃ +.0000 -.0002 PILOT SHANK	D ₄ +.0002 -.0000 PILOT	F FLAT	L LEN
UDB-975923- 3/16-1	1	.62	.109	.169	.1085	.1245	.093	1.62
UDB-975923- 3/16-2	2	.62	.109	.181	.1085	.1245	.093	1.62
UDB-975923- 3/16-3	3	.62	.109	.190	.1085	.1245	.093	1.62
UDB-975923- 3/16-4	4	.62	.109	.206	.1085	.1245	.093	1.62
UDB-975923- 3/16-5	5	.62	.109	.215	.1085	.1245	.093	1.62
UDB-975923- 1/4-1	1	.62	.109	.234	.1085	.1870	.093	1.62
UDB-975923- 1/4-2	2	.62	.109	.240	.1085	.1870	.093	1.62
UDB-975923- 1/4-3	3	.62	.109	.256	.1085	.1870	.093	1.62
UDB-975923- 1/4-4	4	.62	.109	.268	.1085	.1870	.093	1.62
UDB-975923- 1/4-5	5	.62	.109	.281	.1085	.1870	.093	1.62
UDB-975923- 5/16-1	1	.62	.109	.300	.1085	.1870	.093	1.62
UDB-975923- 5/16-2	2	.62	.109	.312	.1085	.1870	.093	1.62
UDB-975923- 5/16-3	3	.62	.109	.325	.1085	.1870	.093	1.62
UDB-975923- 5/16-4	4	.62	.109	.343	.1085	.1870	.093	1.62
UDB-975923- 5/16-5	5	.62	.109	.356	.1085	.1870	.093	1.62
UDB-975923- 3/8-1	1	.87	.250	.362	.2495	.2495	.218	1.62
UDB-975923- 3/8-2	2	.87	.250	.381	.2495	.2495	.218	1.62
UDB-975923- 3/8-3	3	.87	.250	.393	.2495	.2495	.218	1.62
UDB-975923- 3/8-4	4	.87	.250	.415	.2495	.2495	.218	1.62
UDB-975923- 3/8-5	5	.87	.250	.425	.2495	.2495	.218	1.62
UDB-975923- 7/16-1	1	.87	.250	.430	.2495	.3120	.218	1.62
UDB-975923- 7/16-2	2	.87	.250	.440	.2495	.3120	.218	1.62
UDB-975923- 7/16-3	3	.87	.250	.460	.2495	.3120	.218	1.62
UDB-975923- 7/16-4	4	.87	.250	.481	.2495	.3120	.218	1.62
UDB-975923- 7/16-5	5	.87	.250	.497	.2495	.3120	.218	1.62
UDB-975923- 1/2-1	1	.87	.250	.487	.2495	.3120	.218	1.62
UDB-975923- 1/2-2	2	.87	.250	.512	.2495	.3120	.218	1.62
UDB-975923- 1/2-3	3	.87	.250	.525	.2495	.3120	.218	1.62
UDB-975923- 1/2-4	4	.87	.250	.550	.2495	.3120	.218	1.62
UDB-975923- 1/2-5	5	.87	.250	.575	.2495	.3120	.218	1.62
UDB-975923- 9/16-1	1	.87	.250	.543	.2495	.3745	.218	1.62
UDB-975923- 9/16-2	2	.87	.250	.581	.2495	.3745	.218	1.62
UDB-975923- 9/16-3	3	.87	.250	.612	.2495	.3745	.218	1.62
UDB-975923- 9/16-4	4	.87	.250	.643	.2495	.3745	.218	1.62
UDB-975923- 9/16-5	5	.87	.250	.675	.2495	.3745	.218	1.62
UDB-975923- 5/8-1	1	1.12	.250	.625	.2495	.3745	.218	1.62
UDB-975923- 5/8-2	2	1.12	.250	.656	.2495	.3745	.218	1.62
UDB-975923- 5/8-3	3	1.12	.250	.687	.2495	.3745	.218	1.62
UDB-975923- 5/8-4	4	1.12	.250	.725	.2495	.3745	.218	1.62
UDB-975923- 5/8-5	5	1.12	.250	.762	.2495	.3745	.218	1.62
UDB-975923- 3/4-1	1	1.12	.250	.737	.2495	.3745	.218	1.62
UDB-975923- 3/4-2	2	1.12	.250	.768	.2495	.3745	.218	1.62
UDB-975923- 3/4-3	3	1.12	.250	.806	.2495	.3745	.218	1.62
UDB-975923- 3/4-4	4	1.12	.250	.850	.2495	.3745	.218	1.62
UDB-975923- 3/4-5	5	1.12	.250	.887	.2495	.3745	.218	1.62

Countersinks Six Flutes 100° Piloted Removable Pilots

UDB-975924 Series
Groups 1-2-3-4-5

UDB-975924 SERIES



HIGH SPEED CUTTER

Spherical Radius

Shanks Flatted One Side

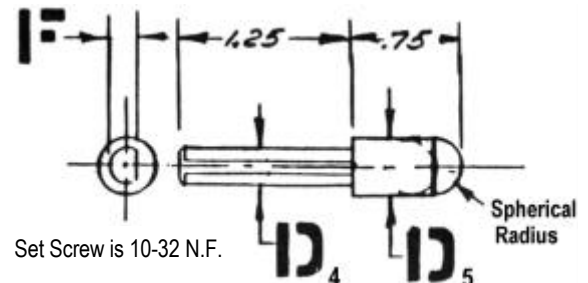
100° — 5° to 7° Primary Relief on 6 Flutes

H.S.S. — Hardened and Precision Ground

3° — +1° - 0° Axial Rake

Plain Concentric Shank

Countersink with Removable Pilots



Set Screw is 10-32 N.F.

COUNTERSINK PILOTS Ground and Hardened

PART NO. and FASTENER SIZE	Group	D +.0000 -.0005 SHANK	D ₁	D ₂ +.000 -.001 NOSE	D ₃ +.001 -.000 PILOT HOLE	D ₄ +.0000 -.0002 PILOT SHANK	D ₅ +.0002 -.0000 PILOT	F FLAT
UDB-975924- 3/16-1	1 - 5	.4995	.875	.1979	.109	.1085	.1245	.093
UDB-975924- 1/4-1	1 - 5	.4995	.875	.2596	.109	.1085	.1870	.093
UDB-975924- 5/16-1	1 - 5	.4995	.875	.3227	.109	.1085	.1870	.093
UDB-975924- 3/8-1	1 - 5	.4995	1.000	.3858	.250	.2495	.2495	.218
UDB-975924- 7/16-1	1 - 5	.4995	1.250	.4500	.250	.2495	.3120	.218
UDB-975924- 1/2-1	1 - 5	.4995	1.250	.5141	.250	.2495	.3120	.218
UDB-975924- 9/16-1	1 - 5	.4995	1.375	.5864	.250	.2495	.3745	.218
UDB-975924- 5/8-1	1 - 5	.4995	1.625	.6512	.250	.2495	.3745	.218
UDB-975924- 3/4-1	1 - 5	.4995	1.750	.7809	.250	.2495	.3745	.218

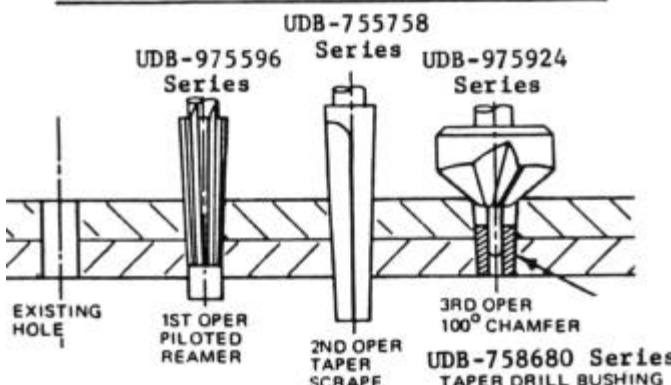
D ₃ SHANK	D ₄ PILOT	F DIA. FLAT
7/16 = .1085	1/8 = .1245	3/32 = .093
7/16 = .1085	3/16 = .1870	3/32 = .093
1/4 = .2495	1/4 = .2495	7/32 = .218
1/4 = .2495	5/16 = .3120	7/32 = .218
1/4 = .2495	3/8 = .3745	7/32 = .218

D3 Internal Diameter is precision ground.

Locate on arbor or centers to re-grind.

Has minimum center on both ends of I.D.
for re-grind.

CUTTER SEQUENCE FOR PROTRUDING FASTENERS



CUTTER SEQUENCE FOR FLUSH FASTENERS

