

Drill and Router Guides

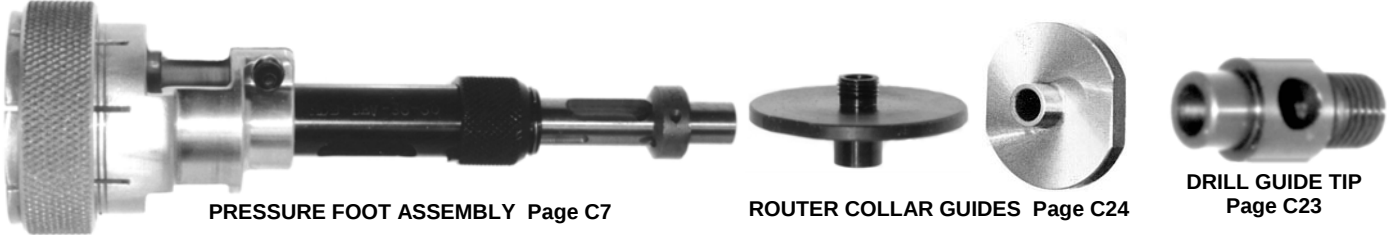
Value From UNITED!

**Pressure Foot
Drilling Systems**



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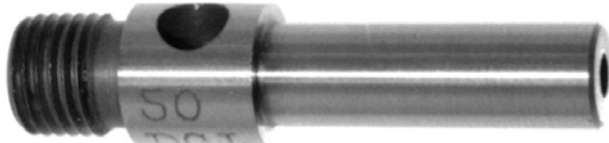
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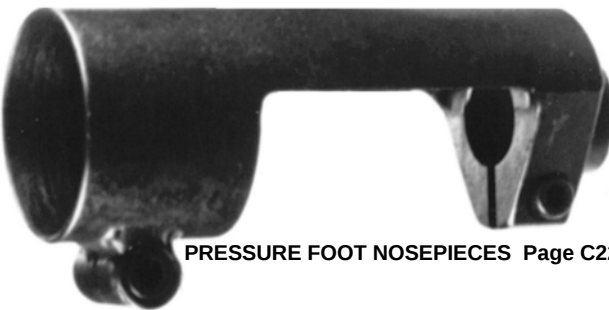
DRILL GUIDE TIP
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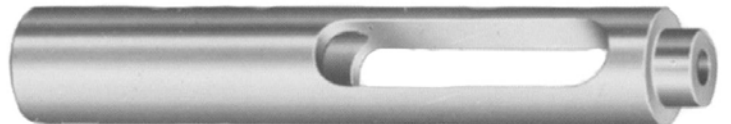
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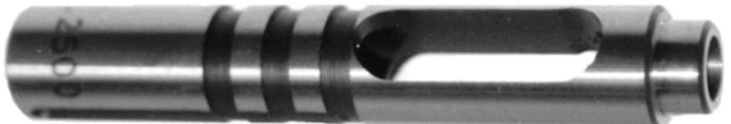
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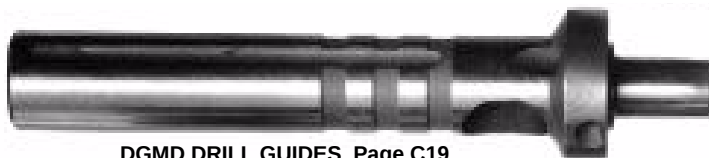
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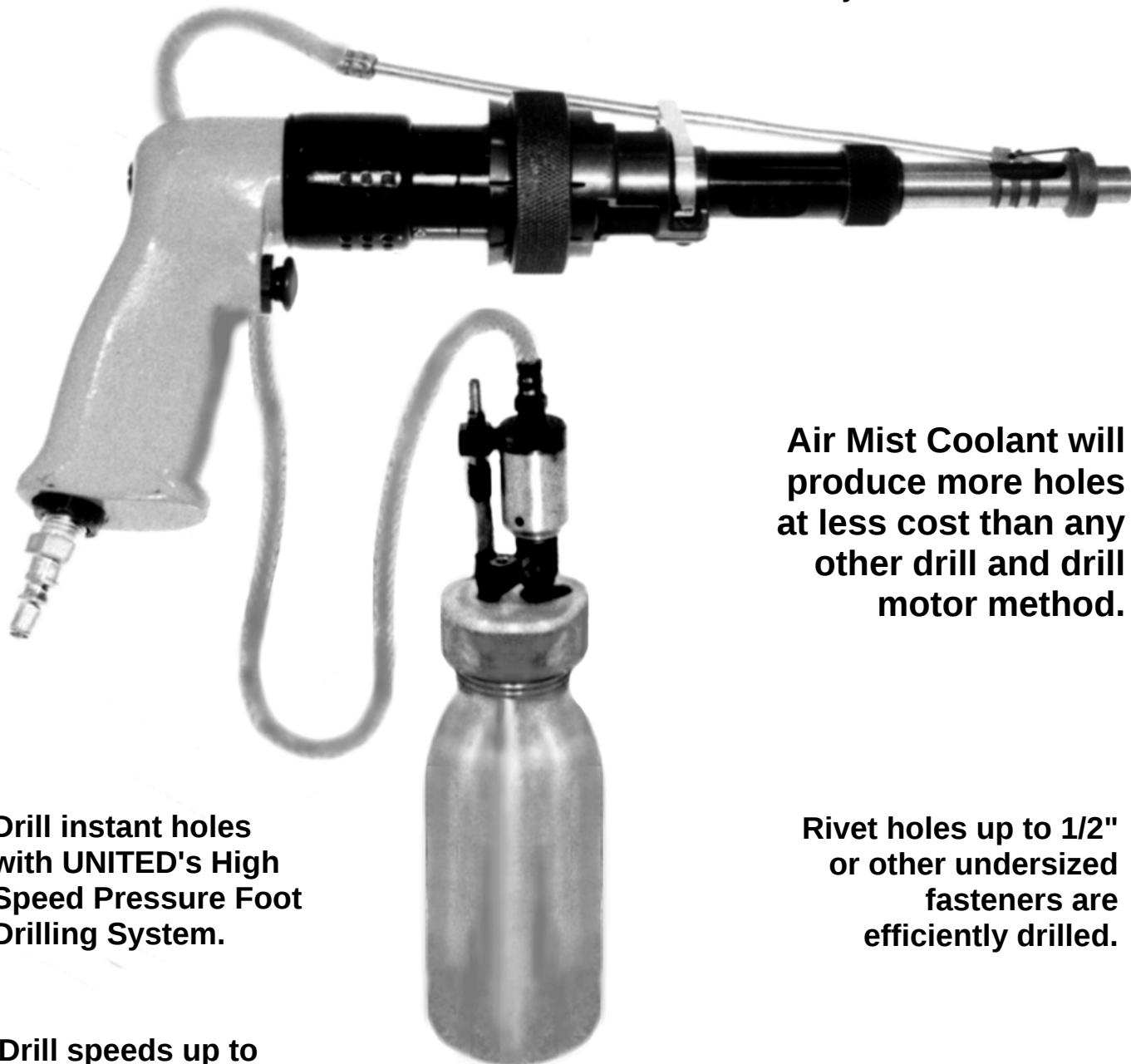


DGMC DRILL GUIDES Page C15

Drill Guide Bushings

Pressure Foot System With Drill Guide Bushings

Drill Details on the next 26 pages
will increase your speed and
decrease your costs.



**Drill instant holes
with UNITED's High
Speed Pressure Foot
Drilling System.**

**Drill speeds up to
22,000 RPM or more
are all available.**

**FASTER — BETTER
AT LOWER COST!**

**Air Mist Coolant will
produce more holes
at less cost than any
other drill and drill
motor method.**

**Rivet holes up to 1/2"
or other undersized
fasteners are
efficiently drilled.**

**Enjoy
Pressure Foot Economy!**

Quick—Cool And Critical

Pressure Foot Drilling Application

APPLICATION

UNITED's Pressure Foot Drilling System should be used for all tooling applications where hand drilling operations are performed.

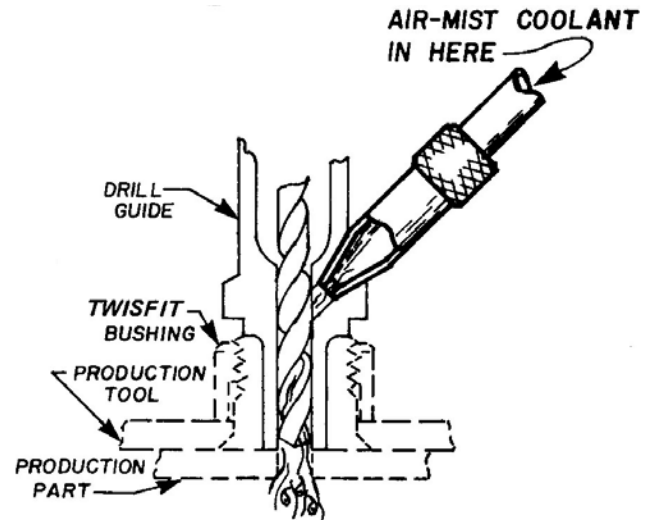
Drill or assembly fixtures of either plastic or metal are ideal for **UNITED's Pressure Foot Drilling System**.

Holes from #58 (.0420) thru 23/64 (.3595) are drilled through **UNITED's Drill Guides**. Pressure foot drilling equipment permits drilling and reaming up through one inch thick material.

Drilling Speeds up to 22,000 rpm or more are attainable using hi-speed air driven motors with built-in cooling features. With hi-speed drilling an air and liquid mist coolant and lubricating unit directs coolant onto the drill or reamer.

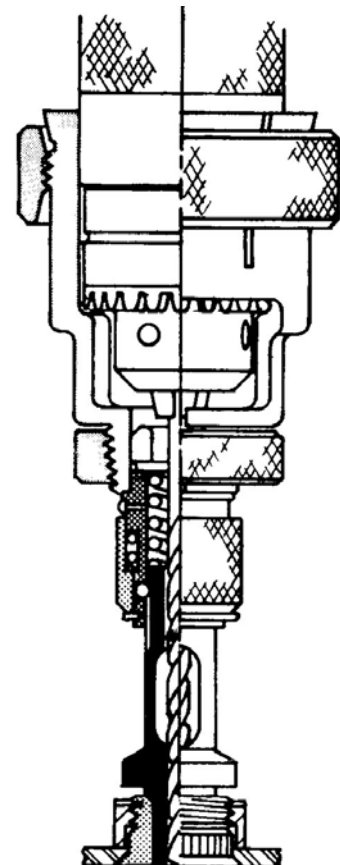
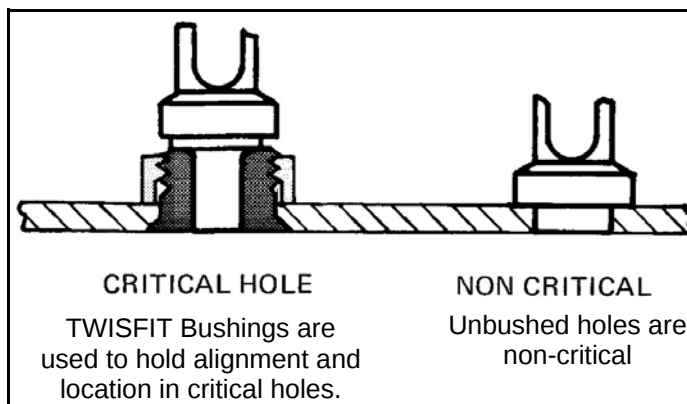
High speed air motors with spray units properly used will produce more holes at less cost than any other drill and drill motor method.

Rivet holes up to 1/2 inch or undersized holes for other types of fasteners are efficiently drilled.



UNITED CRITICAL HOLE STANDARD

1. A hole in a production part is considered critical when the hole has a **tolerance of .010 inch or less**.
2. When the allowable **angularity is 6 degrees or less**, the hole is critical.
3. Pilot size holes drilled through **material thicker than 1/8 (.1250) inch** are considered critical.
4. **All tooling holes** are considered critical.
5. All **critical guide holes should be bushed** with **UNITED's Instant Twisfit** or a more expensive but equally accurate Press or Renewable Bushing.



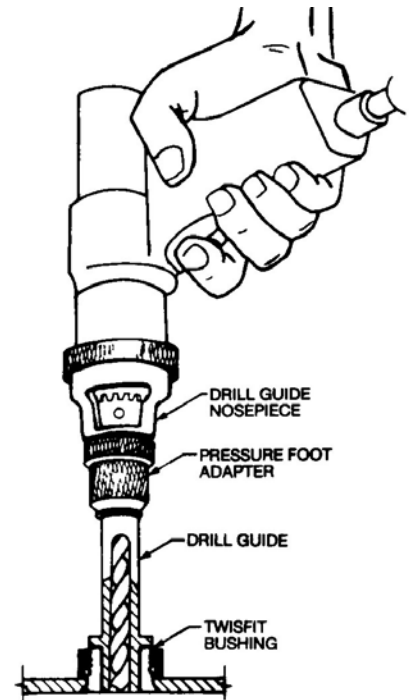
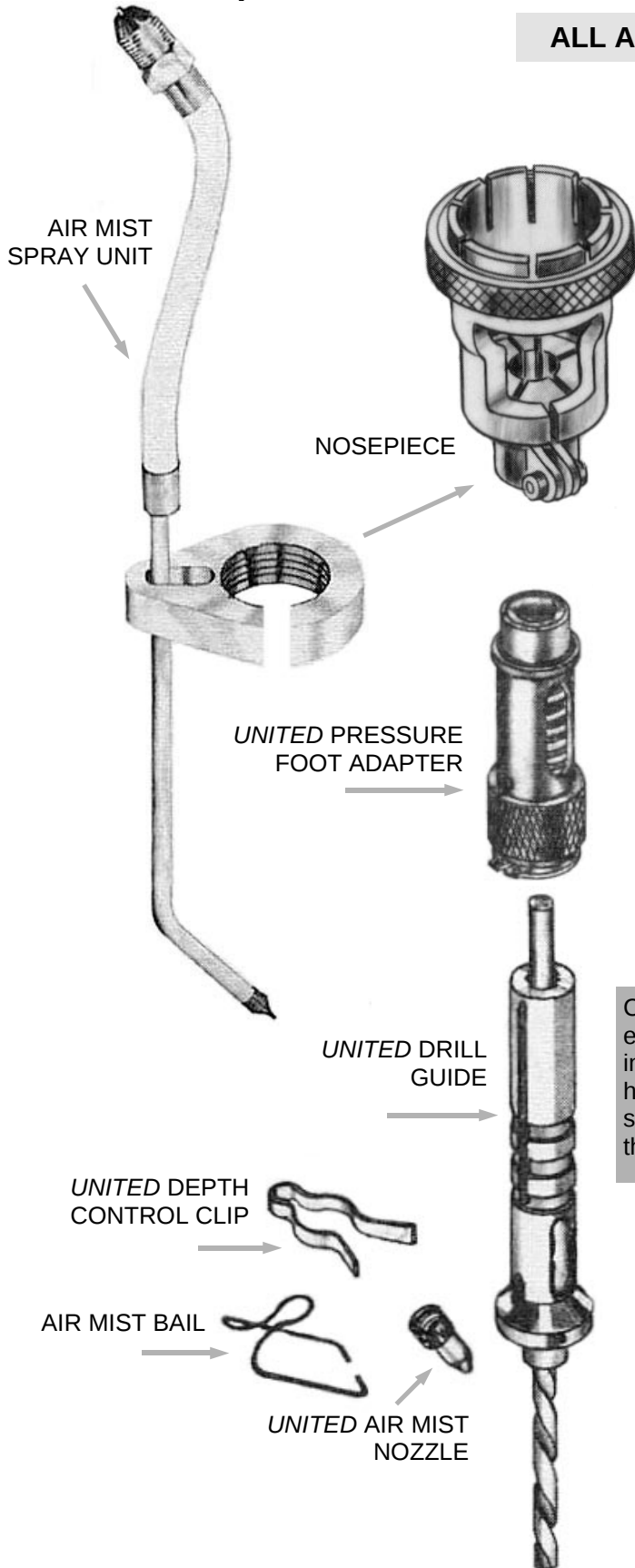
Pressure Foot Drilling System

Our Pressure Foot Drilling System

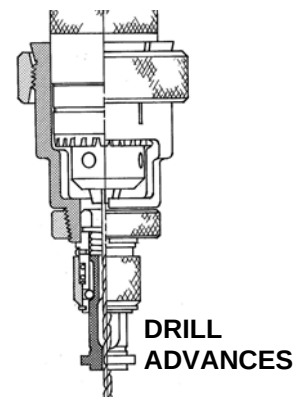
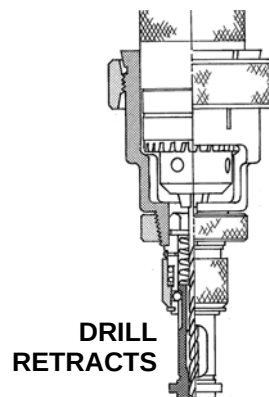
ALL ABOUT PRESSURE FOOT DRILLING

Pressure Foot Drilling eliminates drill bushing wear in production tooling. Bushing life is extended considerably.

The drill guide is a rigid, integral part of the drill motor. Drilling accuracy is inherent to pressure foot drilling. Twisfit Bushings, used with United Pressure Foot Drill Guides, control drilling normal to the contour or surface.



Conventional hand drill motors with standard jobber or extension length drills are used. The drill guide is inserted into the bushing or guide hole in the production tool. Normal hand drilling pressure is applied. The drill retracts into the spring loaded adapter. Thereafter, the drill advances through the bushing into the part.



Pressure Foot Profits

UNITED's Twelve Profitable Pressure Foot Principles For a Definite Cost Reduction

Pressure Foot Drilling

1. No lost or down time due to worn drill bushings in production tooling — a definite cost reduction.

2. No tool maintenance cost for replacing worn drill bushings. The production tool is used only as a means of positioning the drill guide. The drill bit rotates inside the drill guide and not in the production tool. The production tool or fixture is not subject to wear.

3. *UNITED's* Twisfit Bushing in liner sizes can be provided in the critical production tool, eliminating drill size bushings. The Twisfit Bushing is less expensive than conventional Press Fit or Renewable types. The top of the Twisfit provides a support for the drill guide, and the drill guide's outside radius and Twisfit's inside radius are compatible.

4. Twisfit liner size bushings of 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16 and 5/8 are provided for drilling holes from #58 thru 23/64. The number of conventional drill bushings is greatly reduced.

5. The possibility of not having the proper size bushing in stock is reduced by standardization of liner size Twisfit bushings. Potential lost or down time is reduced.

6. The liner size of Twisfit bushings can be purchased in larger quantities at a lower cost.

7. Special tooling pins are not necessary when standard liner sized Twisfit inside diameter are used.

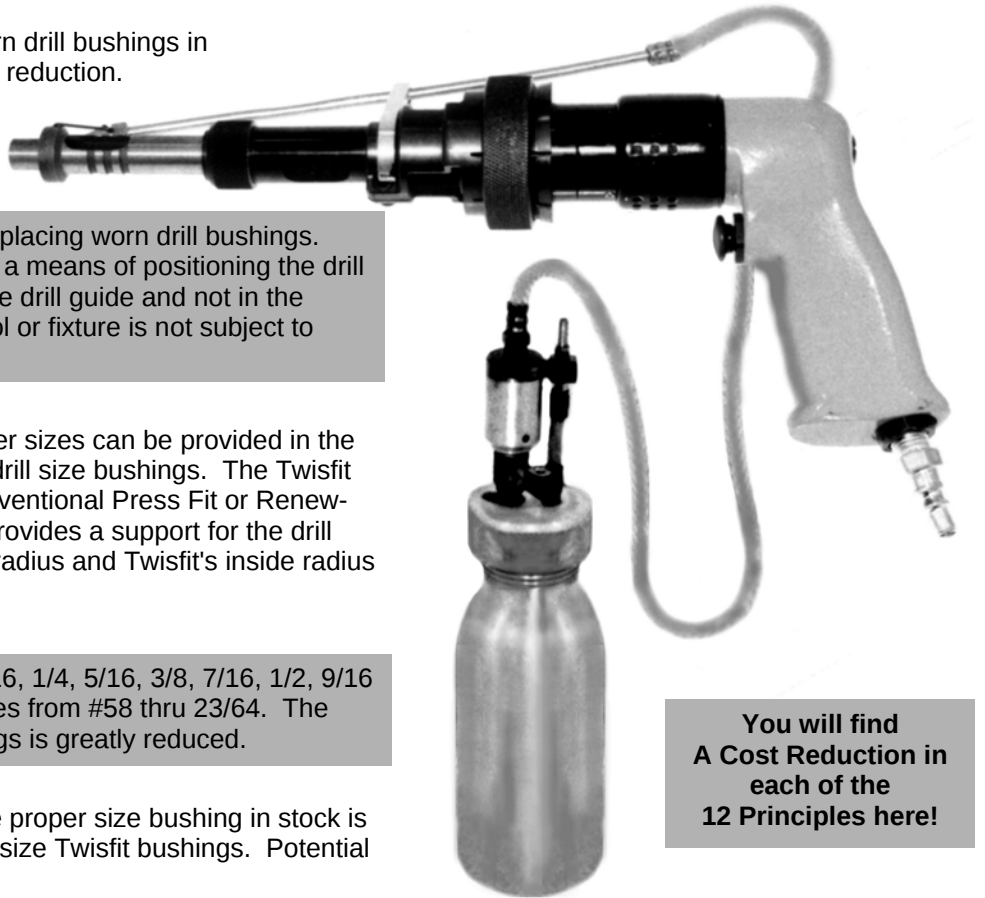
8. Production part hole sizes can be changed by using a different size drill guide. Tooling rework is unnecessary.

9. Drill breakage from misalignment in a drill bushing is eliminated.

10. The 'straight-in-line' restriction of the drill to the production part produces more accurately drilled holes. Part rejection for inaccuracy is eliminated.

11. Pressure Foot Drilling reduces friction heat, generated by the drill, through better alignment of the drill advancing through the guide into the production part. Heat buildup destroys the cutting tools and causes bushing misalignment in plastic tooling fixtures.

12. Pressure Foot Drilling properly applied will produce more holes at less cost than any other standard drill and drill motor method.



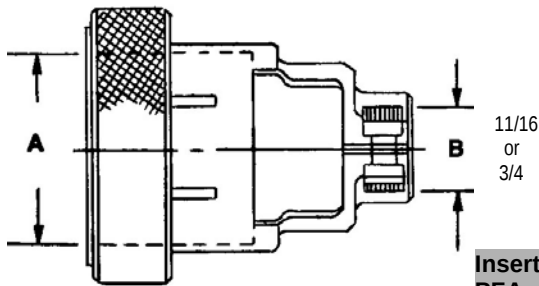
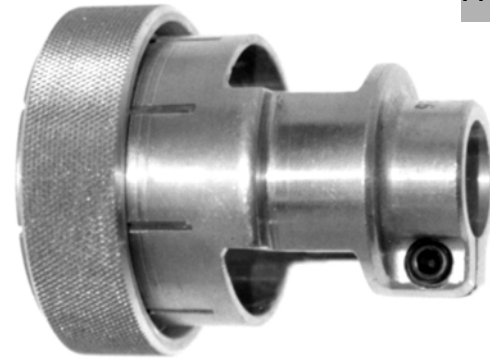
**You will find
A Cost Reduction in
each of the
12 Principles here!**

Pressure Foot Drilling

Instructional Procedure

DRILL GUIDE NOSEPIECE

Drill Guide Nosepieces are hand installed rapidly to the drill motor. Then insert the Pressure Foot Adapter (PFA) into the nosepiece and tighten the socket head screw.



There are many advantages to this inexpensive quick change production method:

- Drill templates may be used with or without bushings.
- The drill guide acts as a support for the drill.
- Drill breakage is nearly eliminated. It is mandatory for the safety of the operator to have the drill guarded at all times. The quick-change pressure foot adapter covers the location of the hole to be drilled and provides safety for the operator.

To order, measure diameter of bearing retainer collar or chuck guard on the drill motor, then select the proper nosepiece. Determine travel required and select pressure foot adapter and size of drill guide to complete the assembly for pressure foot drilling.

Ref SP12607 DRILL GUIDE NOSEPIECES Ref SP12675

FOR 1/2 OD DRILL GUIDES

PART NUMBER	A $\begin{smallmatrix} +.003 \\ -.000 \end{smallmatrix}$	B
DGNP-32-10	1.370	.687
DGNP-32-12	1.435	.687
DGNP-32-14	1.452	.687
DGNP-32-16	1.465	.687
DGNP-32-18	1.475	.687
DGNP-32-20	1.503	.687
DGNP-32-21	1.515	.687
DGNP-32-22	1.554	.687
DGNP-32-24	1.562	.687
DGNP-32-26	1.628	.687
DGNP-32-27	1.675	.687
DGNP-32-28	1.687	.687
DGNP-32-30	1.750	.687

FOR 5/8 OD DRILL GUIDES

PART NUMBER	A $\begin{smallmatrix} +.003 \\ -.000 \end{smallmatrix}$	B
DGNP-40-10	1.370	.750
DGNP-40-12	1.435	.750
DGNP-40-14	1.452	.750
DGNP-40-16	1.465	.750
DGNP-40-18	1.475	.750
DGNP-40-20	1.503	.750
DGNP-40-21	1.515	.750
DGNP-40-22	1.554	.750
DGNP-40-24	1.562	.750
DGNP-40-26	1.628	.750
DGNP-40-27	1.675	.750
DGNP-40-28	1.687	.750
DGNP-40-30	1.750	.750

USE PFA-32 ADAPTERS

USE PFA-40 ADAPTERS

Insert the drill guide by lining up the drill guide groove with the drive pin on the PFA. Sliding the PFA collar towards the motor, insert the drill guide in the barrel and release the collar. The drill guide is now secured. To lock the drill guide in position, rotate the collar in either direction. To release the drill guide, again line up the groove with the drive pin and slide the collar towards the motor. The drill guide is then released.

SP12607 Ref = DGNP-32-10 THRU 30.

SP12675 Ref = DGNP-40-10 THRU 30.

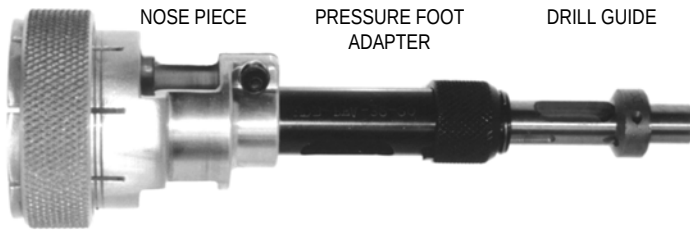
UNITED DRILL GUIDE NOSEPIECES FIT THE FOLLOWING DRILL MOTORS

Measure the drill motor chuck guard or bearing retainer collar. Select corresponding 'A' diameter of DGNP.

MFG.	MODEL	CHUCK DIA.	NOSEPIECE DASH NO.	MFG.	MODEL	CHUCK DIA.	NOSEPIECE DASH NO.
Skill	No. 75 (47)	1.500	—20	Chicago Pneumatic	No. 815	1.625	—26
	No. 161 (45)	1.500	—20		No. 830	1.625	—26
Black & Decker	Holegun - Without Chuck Guard	1.450	—14		No. 806	1.500	—20
	With Chuck Guard	1.500	—20		No. 301	1.554	—22
Aro	No. 7027	1.625	—26		No. 3017	1.625	—26
	No. 7364	1.500	—20		No. 3008	1.500	—20
	No. 7512	1.370	—10	Sioux	No. 1453	1.675	—27
Thor	No. 6639	1.687	—28	Cleco	No. 9DBW28-A	1.625	—26
	No. 7324	1.625	—26	Jiffy	No. 2700 DI	1.500	—20
	No. 2P2700	1.450	—14	Rockwell	No. 31 D	1.500	—20
					No. 41 D	1.625	—26

Drill Guides

Pressure Foot Assemblies



PRESSURE FOOT ASSEMBLIES

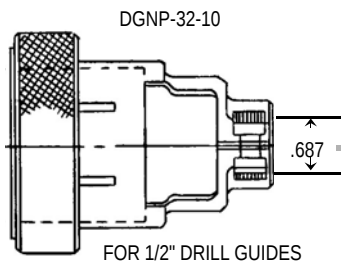
DGNP-32-XX NOSEPIECE CAN ALSO BE USED WITH THE PRESSURE FOOT

UNITED's Pressure Foot Drilling System is comprised of a Pressure Foot Nose Piece, a Pressure Foot Adapter and twenty three Drill Guide styles. We also have depth control clips for the longer travel guides and an air mist unit for hi-speed drilling.

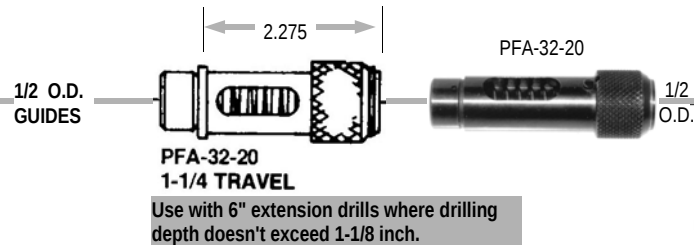
The 'Unitedized' Pressure Foot Drilling components are offered in three ranges to cover varying hole depths.

Use the 9/16 inch travel pressure foot adapters PFA-32-9 or PFA-40-9 for short hole drilling. These drill guides are offered in lengths corresponding to jobber length drills.

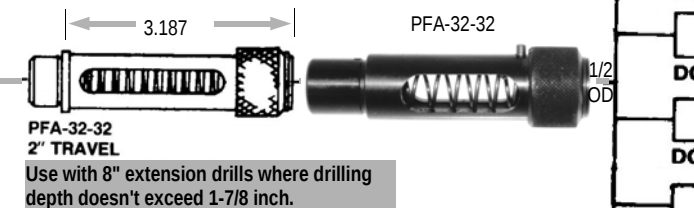
DGNP-32-XX FOR 1/2" O.D. DRILL GUIDES



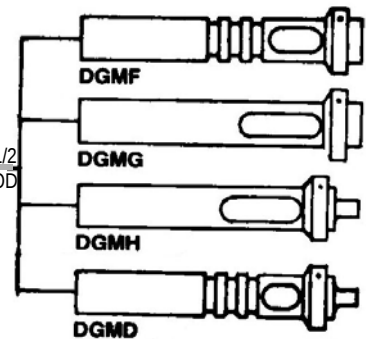
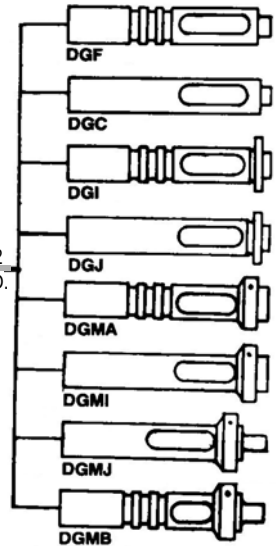
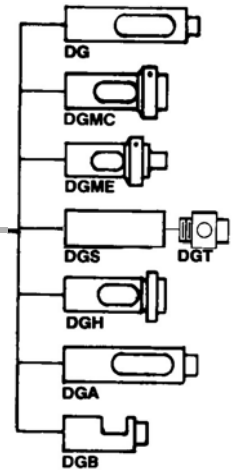
When hi-speed or deep holes are needed, use an air-mist unit in any of the three lengths of drilling systems.



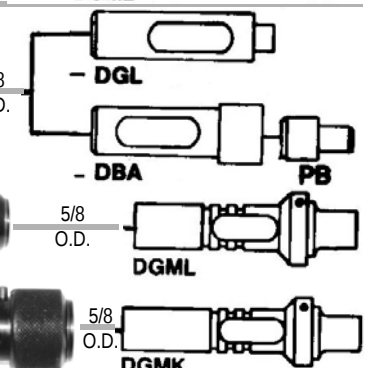
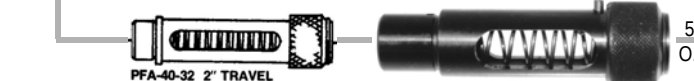
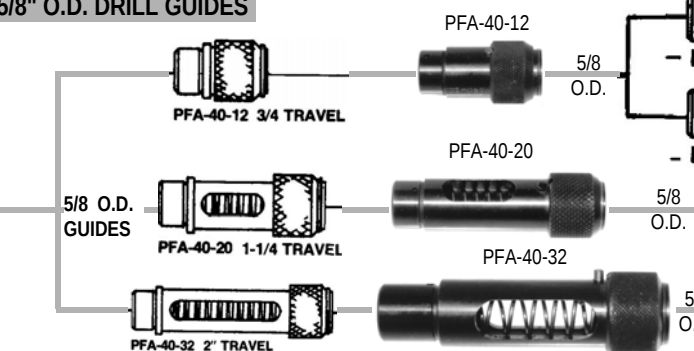
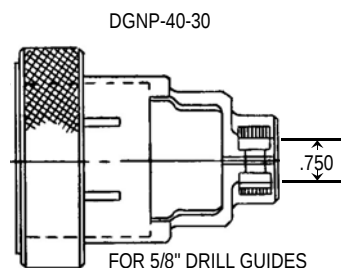
When drilling deeper holes, the 1-1/4 inch travel PFA-32-20 or PFA-40-20 pressure foot adapters are used. Using the depth control clip, depths can be stopped at 1/2, 3/4 and 1 inch. Without the clip 1-3/16 inch deep holes can be drilled. Six inch extension drills are used with 1-1/4 travel pressure foot adapters.



The 2 inch travel PFA-32-32 or PFA-40-32 pressure foot adapters are used with 8 inch extension drills. Depths can be stopped at 1-1/4, 1-1/2 or 1-3/4 inches with the use of the control clip.



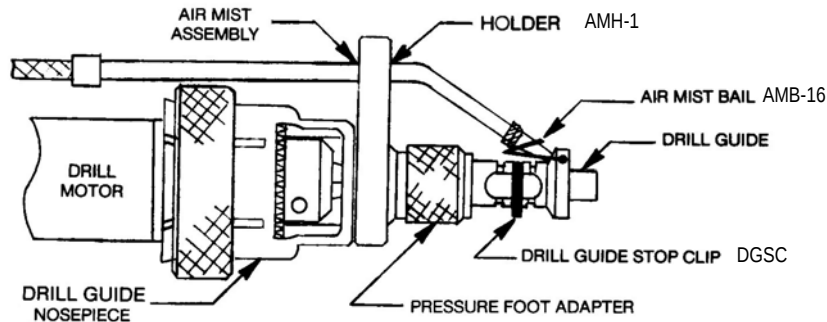
DGNP-40-XX FOR 5/8" O.D. DRILL GUIDES



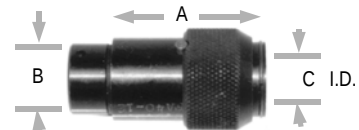
Pressure Foot Accessories

Pressure Foot Accessories

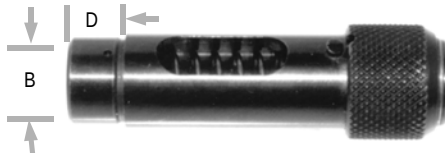
PART RELATIONSHIPS



PRESSURE FOOT ADAPTERS



TYPE I 9/16" and 3/4" Travel



TYPE II 1-1/4" and 2" Travel

PART NO.	A *	B	C	D	TYPE	TRAVEL	FITS NOSEPIECE
PFA-32-9 REF SP-12605-1	.984	.687	1/2	.450	I	9/16	DGNP-32-XX
PFA-32-20 REF SP-12605-2	2.275	.687	1/2	.450	II	1-1/4	DGNP-32-XX
PFA-32-32	3.187	.687	1/2	.450	II	2	DGNP-32-XX
PFA-40-12 REF SP-13607-D	1.550	.750	5/8	.450	I	3/4	DGNP-40-XX
PFA-40-20 REF SP-13607-4	2.275	.750	5/8	.450	II	1-1/4	DGNP-40-XX
PFA-40-32	3.187	.750	5/8	.450	II	2	DGNP-40-XX

* The 5/16" spacer may be removed on all Type II units. This will decrease the 'A' dimension, thereby increasing the effective length of the drill bit as re-sharpening is required.

CLIPS and BAILS

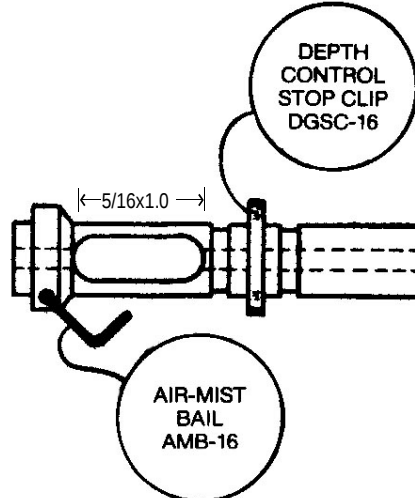
STOP CLIP REF SP-12403



DGSC-20 FOR 5/8 O.D. GUIDES
DGSC-16 FOR 1/2 O.D. GUIDES

DRILL GUIDE STOP CLIP

The depth control clip is used to give varying depths of drilled holes on the 1-1/4" and 2" travel guides.



DEPTH CONTROL STOP CLIP DGSC-16

AIR-MIST BAIL AMB-16

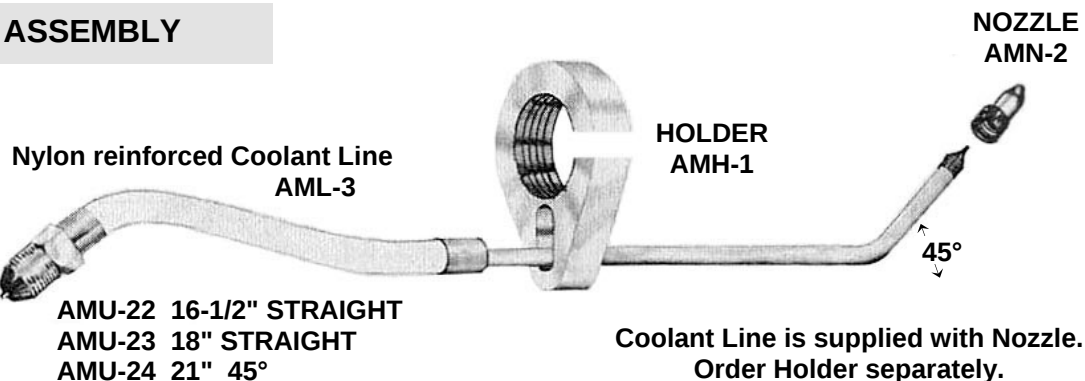


REF SP-13303

AMB-16

AIR MIST BAIL
Needed to secure the spray mist nozzle to the drill guide.

AIR MIST ASSEMBLY



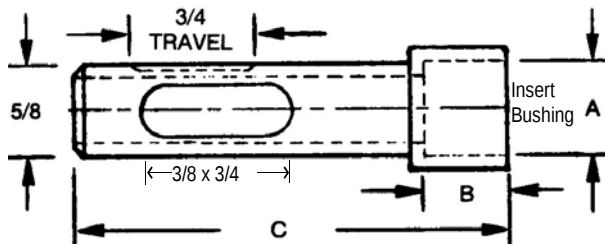
AMU-22 16-1/2" STRAIGHT
AMU-23 18" STRAIGHT
AMU-24 21" 45°

Coolant Line is supplied with Nozzle.
Order Holder separately.

Drill Guide Assemblies

Drill Guide Assemblies

DRILL GUIDE BUSHING ADAPTERS



Use with PFA-40-12.

Chip Slot

ORDERING EXAMPLE

PART NO.	A I.D.	B Bore Depth	C OAL	USE BUSHING INSERT
DBA-40-32-24	.375	.375	2.00	PB-24-20
DBA-40-32-32	.500	.500	2.00	PB-32-22
DBA-40-32-40	.625	.625	2.00	PB-40-22
DBA-40-42-24	.375	.375	2.62	PB-24-20
DBA-40-42-32	.500	.500	2.62	PB-32-22
DBA-40-42-40	.625	.625	2.62	PB-40-22

REF SP-13608
REF SP-13612

DBA - 40 - 42 - 24

BASIC PART NO.

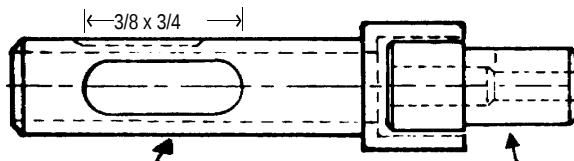
PILOT O.D. IN 64ths

C LENGTH IN 16ths

A I.D. SIZE IN 64ths

Cost reductions can be achieved through *UNITED*'s Interchangeable Drill Guide Assemblies using Pilot Bushings manufactured to ANSI specifications. Replace the PB pilot bushing quickly at lower costs when it wears beyond the tolerances needed for Class 'A' Tooling. ANSI bushings can quickly be converted to fit *UNITED*'s DBA Guide Bushing Adapters. Down-time is eliminated.

ASSEMBLY



ADAPTER

INSERT

PRECISION BUSHING INSERTS PERMIT PRECISION PARTS PRODUCED BY OFF-HAND DRILLING.

LOW COST QUALITY GUIDES



Drill Guide Bushing Adapter

Pilot Bushing

TELESCOPIC PRESSURE FOOT ASSEMBLY

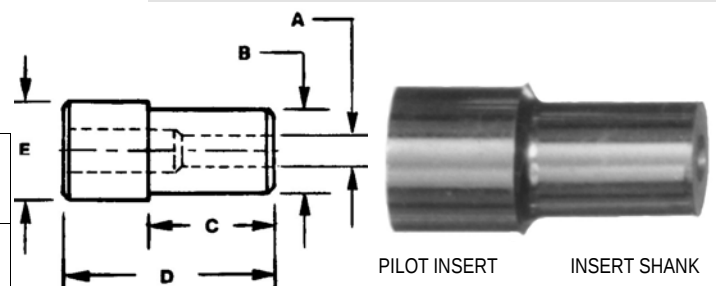
'C' Custom Shank Lengths can be ordered from *UNITED*.

REF SP-13609

DRILL GUIDE PILOT BUSHING

PART NO.	A I.D.	B* Shank	C Length	D OAL	E* O.D.	FITS ADAPTER
#40 PB-24-14-thru #9	#40 (.098) Thru #9 (.196)	.3750	.87	1.250	.3750	DBA-40-32-24 DBA-40-42-24
#8 PB-32-14-thru 5/16	#8 (.199) Thru 5/16 (.312)	.5000	.87	1.375	.5000	DBA-40-32-32 DBA-40-42-32
'O' PB-40-14-thru 13/32	'O' (.316) Thru 13/32 (.406)	.6250	.87	1.500	.6250	DBA-40-32-40 DBA-40-42-40

* E DIAMETER IS .0002 TO .0004 GREATER THAN B DIAMETER.



PILOT INSERT

INSERT SHANK

ORDERING EXAMPLE

PB - 24 - 14 - #40

Pilot Bushing
Shank O.D.
Shank Length
Shank I.D.

BASIC PART NO.

B O.D. IN 64ths

C LENGTH IN 16ths

A I.D. SIZE IN 64ths

DG *

DG Precision Drill Guide

UNITED's 'DG' Drill Guides are used with precision tooling.

DG Guides give the highest quality production through precision I.D. and O.D. tolerances without wear to the production tool.

I.D. and concentricity are to ANSI specifications.

* For 5/8" body O.D. and 3/4" travel, specify 'DGL' (Fits PFA-40-12).

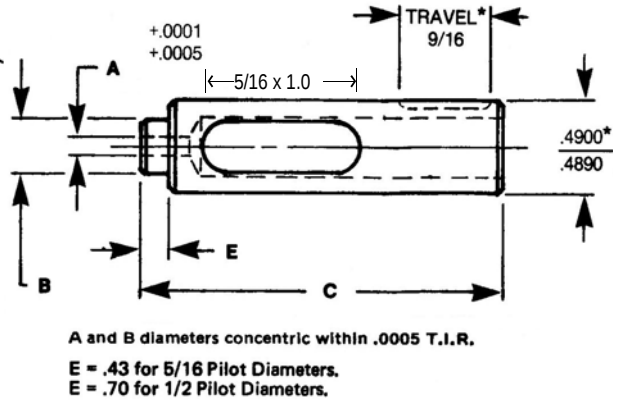
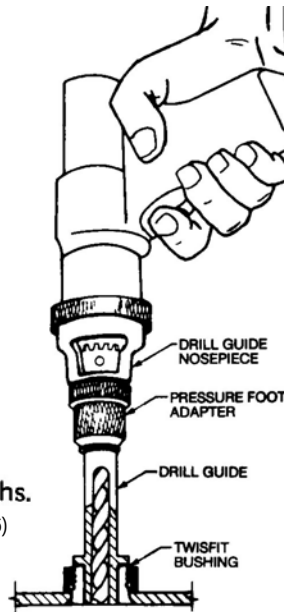
DG-20-24-5/32

I.D.
Overall Length in 16ths.
Pilot Diameter in 64ths. (5/16)
Drill Guide Style 1/2" O.D.



TYPE 2

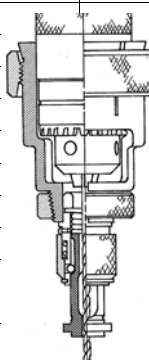
Use with DGNP-32-xx NOSEPIECE



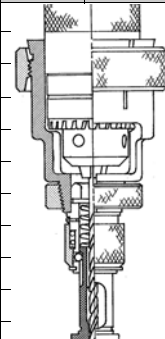
ALLOY STEEL
HEAT TREATED RC-60-65

REF SP-12D

A		B		DASH	C OVERALL LENGTH											
I.D. RANGE	PILOT DIAMETER	NOM.	ACTUAL		-24	-26	-28	-30	-32	-34	-36	-38	-40	-42	-46	-68
NOMINAL	DECIMAL				1-1/2	1-5/8	1-3/4	1-7/8	2"	2-1/8	2-1/4	2-3/8	2-1/2	2-5/8	2-7/8	4-1/4
5/32 thru 11/64	.1562 .1719	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32	DG-20-24										DG-20-46	DG-20-68
#17 thru #14	.1730 .1820	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32		DG-20-26									DG-20-46	DG-20-68
#13 thru #11	.1850 .1910	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32			DG-20-28								DG-20-46	DG-20-68
#10 thru 13/64	.1935 .2031	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32				DG-20-30							DG-20-46	DG-20-68
#6 thru 7/32	.2040 .2187	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32					DG-20-32						DG-20-46	DG-20-68
#2 thru 15/64	.2210 .2344	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32						DG-20-34					DG-20-46	DG-20-68
'B' thru 1/4	.2380 .2500	5/16 1/2	.3122 - .3117 .4995 - .4990	-20 -32							DG-20-36				DG-20-46	DG-20-68
'F' thru 'J'	.2570 .2770	1/2	.4995 - .4990	-32								DG-32-38			DG-32-46	DG-32-68
'K' thru 'L'	.2811 .2900	1/2	.4995 - .4990	-32									DG-32-40		DG-32-46	DG-32-68
'M' thru 'O'	.2950 .3160	1/2	.4995 - .4990	-32										DG-32-42	DG-32-46	DG-32-68



DRILL ADVANCES



DRILL RETRACTS

NOTE: Drill Guides with 9/16 travel use jobber length drills and PFA-32-9 Pressure Foot Adapter (Lengths 1-1/2 thru 2-5/8 guide jobber length drills). Drill Guides with 1-1/4 travel use six inch extension drills and PFA-32-20 Pressure Foot Adapter. Drill Guides with 9/16 travel use six inch extension drills and PFA-32-9 Pressure Foot Adapter. Lengths 2-7/8 and 4-1/4 guide six inch extension drills.

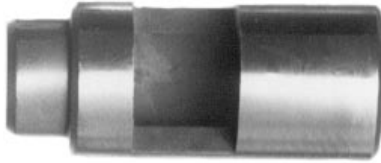
Angularity Controlled

The UNITED Pressure Foot Drilling System

DGB and DGA
Drill Guides

DGB DRILL GUIDES

TYPE I REF SP 127-LC

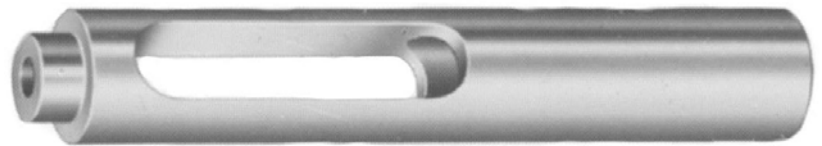


DGB—SHORT LENGTH

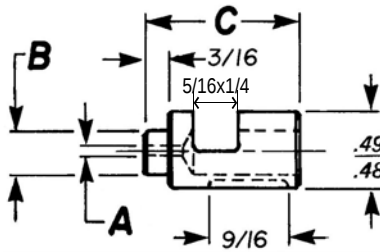
USE WITH DGNP-32-XX NOSEPIECE
USE WITH PFA-32-9

DGA DRILL GUIDES

TYPE II REF SP 127-JC



DGA—REGULAR LENGTH

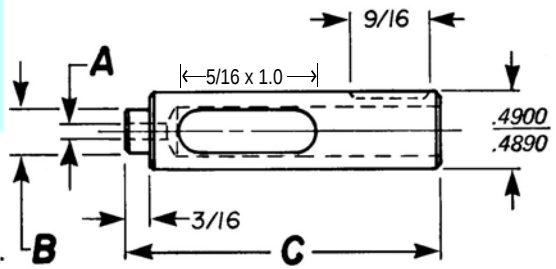


DGA and DGB Drill Guides are
used with standard jobber length
drills for
conventional drilling.
Both Guides have 9/16 travel.

ORDERING EXAMPLE

DGA-16-16-#58

I.D.
Overall Length in 16ths.
Pilot Diameter in 64ths.
Drill Guide Style



DG-16-68 THRU DG-24-68 REF SP127-XC

A		B		C OVERALL LENGTH															
I.D. RANGE		PILOT DIAMETER		-16	-18	-22	-26	-30	-34	-36	-38	-40	-42	-44	-68				
NOMINAL	DECIMAL	NOMINAL	DASH	1"	1-1/8	1-3/8	1-5/8	1-7/8	2-1/8	2-1/4	2-3/8	2-1/2	2-5/8	2-3/4	4-1/4				
#58 thru 3/32	.0420	1/4	-16	DGB-16-16	Chip Slot: $\leftarrow 5/16 \times 1/4 \rightarrow$										DGA-16-68				
	.0937	5/16	-20	DGB-20-16											DGA-24-68				
		3/8	-24	DGB-24-16											DGA-24-68				
#41 thru 9/64	.0960	1/4	-16		DGB-16-18	Chip Slot: $\leftarrow 5/16 \times 1/4 \rightarrow$										DGA-16-68			
	.1406	5/16	-20		DGB-20-18											DGA-24-68			
		3/8	-24		DGB-24-18											DGA-24-68			
#27 thru #22	.1440	1/4	-16			DGA-16-22	Chip Slot: $\leftarrow 5/16 \times 5/8 \rightarrow$										DGA-16-68		
	.1570	5/16	-20			DGA-20-22											DGA-24-68		
		3/8	-24			DGA-24-22											DGA-24-68		
#21 thru #11	.1590	1/4	-16				DGA-16-26	Chip Slot: $\leftarrow 5/16 \times 3/4 \rightarrow$										DGA-16-68	
	.1910	5/16	-20				DGA-20-26											DGA-24-68	
		3/8	-24				DGA-24-26											DGA-24-68	
#10 thru 13/64	.1935														DGA-16-68				
	.2031	5/16	-20					DGA-20-30	Chip Slot: $\leftarrow 5/16 \times 1-3/16 \rightarrow$										DGA-24-68
		3/8	-24					DGA-24-30											DGA-24-68
#6 thru 7/32	.2040														DGA-16-68				
	.2187	5/16	-20						DGA-20-34	DGA-20-36	Chip Slot (& all below) $\leftarrow 5/16 \times 1.0 \rightarrow$				DGA-24-68				
		3/8	-24						DGA-24-34	DGA-24-36					DGA-24-68				
#2 thru 1/4	.2210														DGA-16-68				
	.2500	5/16	-20								DGA-20-38				DGA-24-68				
		3/8	-24									DGA-24-38				DGA-24-68			
'F' thru 'J'	.2570														DGA-16-68				
	.2770	3/8	-24										DGA-24-40		DGA-24-68				
'K' thru 'L'	.2811														DGA-16-68				
	.2900	3/8	-24											DGA-24-42	DGA-24-68				
'M' thru 'O'	.2950														DGA-16-68				
	.3160	3/8	-24											DGA-24-44	DGA-24-68				

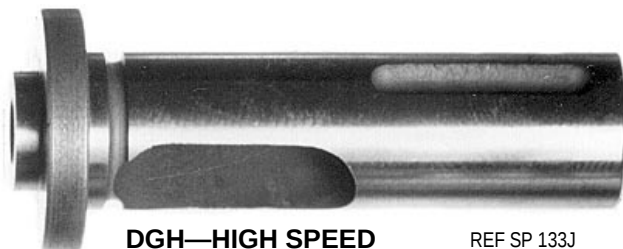
USE DGA AND DGB WITH PFA-32-9 PRESSURE FOOT ADAPTER.

DGH and DGT Drill Guides

Angularity Controlled

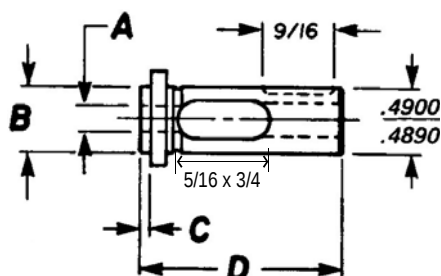
The UNITED Pressure Foot Drilling System

DGH DRILL GUIDES



DGH—HIGH SPEED

REF SP 133J



DGH Drill Guide lengths correspond to jobber drills. DGH is used for hi-speed drilling applications.

The pilot lengths provided correspond to conventional plate thickness for hi-speed drilling.

Coolant should be used for the best results with hi-speed drilling.

ORDERING EXAMPLE

DGH DRILL GUIDE STYLE
B PILOT DIA. IN 64ths
C PILOT LENGTH IN 1000ths
A I.D.

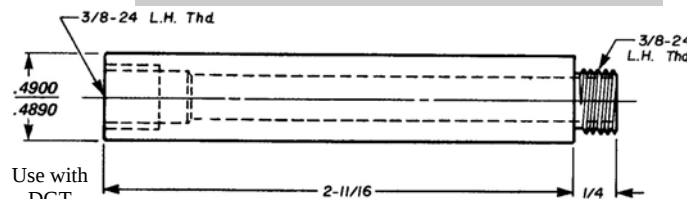
DGH - 24 - 60 - #40

Use DGH with PFA-32-9 Pressure Foot Adapter and DGNP-32-XX Nosepiece.

A		B		C PILOT LENGTH		
I.D. RANGE		PILOT DIAMETER		DGH (OAL in 16Ths)		
NOMINAL	DECIMAL	NOMINAL	DASH	.060 (1/16)	.080 (5/64)	.125 (1/8)
#40 thru #1	.0980 .2280	3/8	-24	DGH-24-60	DGH-24-80	DGH-24-125
#40 thru 'O'	.0980 .3160	1/2	-32	DGH-32-60	DGH-32-80	DGH-32-125
#40 thru 'O'	.0980 .3160	9/16	-36	DGH-36-60	DGH-36-80	DGH-36-125
#40 thru 'O'	.0980 .3160	5/8	-40	DGH-40-60	DGH-40-80	DGH-40-125

A		D LEN	LEN #
I.D. RANGE			
NOMINAL	DECIMAL		
#40 thru 9/64	.0980 .1406	1-1/8	18
#27 thru #22	.1440 .1570	1-3/8	24
#21 thru #11	.1590 .1910	1-5/8	26
#10 thru 13/64	.1935 .2031	1-7/8	28
#6 thru 7/32	.2040 .2187	2-1/8	34
#2 thru 1/4	.2210 .2500	2-3/8	38
'F' thru 'J'	.2570 .2770	2-1/2	40
'K' thru 'L'	.2810 .2900	2-5/8	42
'M' thru 'O'	.2950 .3160	2-3/4	44

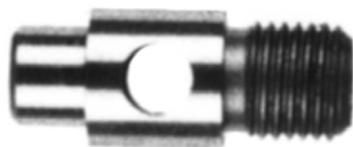
DGE DRILL GUIDE EXTENSIONS



REF SP 12528

DGE-32-43 EXTENSION PART NO.

DGT DRILL GUIDES



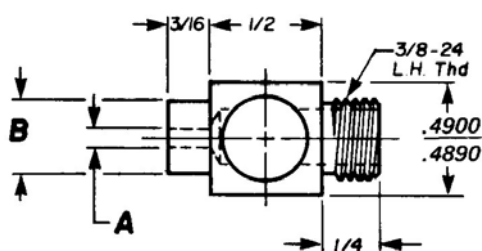
DGT—THREADED TIP
See additional sizes on
Page C25.

REF SP 12523

Use DGS with PFA-32-9 Pressure Foot Adapter and DGNP-32-XX Nosepiece.

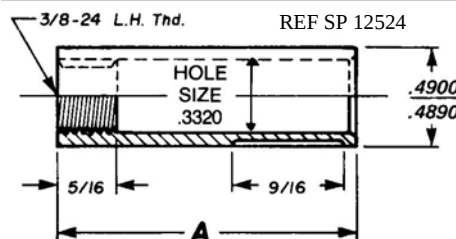
Use Threaded Drill Guide Tips and Threaded Sleeves with standard jobber length drills.

Add the Threaded Drill Guide Extension and use six inch Extension Drills.



A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
#58 thru #10	.0420 .1935	1/4	-16	DGT-16-3
#58 thru 1/4	.0420 .2500	5/16	-20	DGT-20-3
#58 thru 1/4	.0420 .2500	3/8	-24	DGT-24-3

DGS DRILL GUIDE SLEEVES



REF SP 12524

Use DGS with PFA-32-9 Pressure Foot Adapter and DGNP-32-XX Nosepiece.

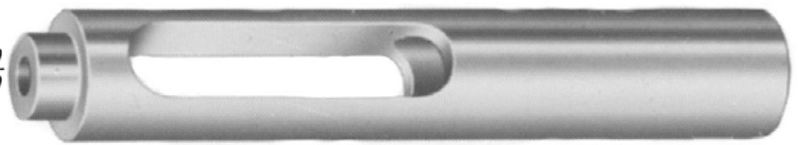
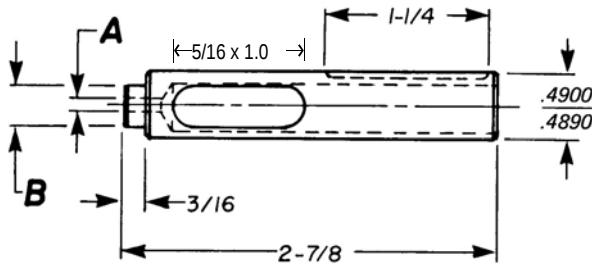
A LENGTH	PART NO.
27/32	DGS-32-27
1-3/32	DGS-32-35
1-17/32	DGS-32-49
3"	DGS-32-96
3-1/2	DGS-32-112

Deep Controlled Holes

The UNITED Pressure Foot Drilling System

DGC and DGF
Drill Guides

DGC DRILL GUIDES



DGC—STANDARD EXTENDED

USE WITH DGNP-32-XX NOSEPIECE, Page C6.

USE DGC WITH PFA-32-20 PRESSURE FOOT ADAPTER. See page C8.

REF: SP127LC

A		B		PART NO.
I.D. RANGE		PILOT DIA.		
NOMINAL	DECIMAL	NOM	DASH	ANSI
#58 - 5/64	.0420 - .0781	1/4	- 16	DGC-16-46
#47 - 7/64	.0785 - .1093	1/4	- 16	DGC-16-46
#35 - #10	.1100 - .1935	1/4	- 16	DGC-16-46
#58 - 5/64	.0420 - .0781	5/16	- 20	DGC-20-46
#47 - 7/64	.0785 - .1093	5/16	- 20	DGC-20-46
#35 - #10	.1100 - .1935	5/16	- 20	DGC-20-46
#9-1/4	.1960 - .2500	5/16	-20	DGC-20-46
#58-5/64	.0420 - .0781	3/8	-24	DGC-24-46
#47-7/64	.0785 - .1093	3/8	-24	DGC-24-46
#35-#10	.1100 - .1935	3/8	-24	DGC-24-46
#9-1/4	.1960 - .2500	3/8	-24	DGC-24-46
F- O	.2570 - .3160	3/8	-24	DGC-24-46

To Order,
ADD LENGTH of
PILOT. See Chart
below and Ordering
Example for format.

ORDERING EXAMPLE

DGC - 16 - 8 - 46 - #58
 DRILL GUIDE STYLE
 PILOT DIA. IN 64ths
 PILOT LENGTH IN 16ths
 LENGTH IN 16ths
 I.D.

LENGTH OF PILOT — ANSI LENGTH IN 1/16 Other Lengths are Special												
1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1"	
1	2	3	4	5	6	7	8	10	12	14	16	

DGF Drill Guides are the same as DGC but with depth control grooves added to allow controlled depths of 7/8, 1-1/8 and 1-3/8.

USE DGF WITH PFA-32-20 PRESSURE FOOT ADAPTER (pg. C8) AND DGNP-32-xx NOSEPIECE.

REF: SP127LC with STOP GROOVES. See page C8.

DGF DRILL GUIDES



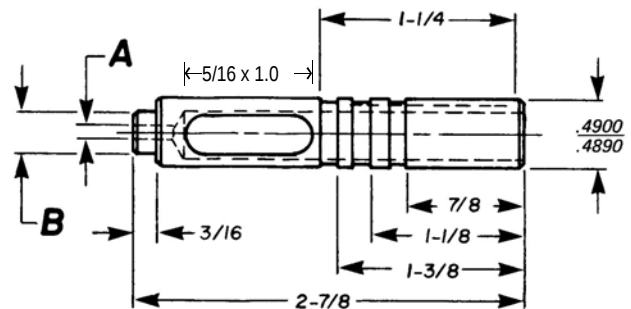
DGF— WITH DEPTH CONTROL GROOVES

A		B		PART NO.
I.D. RANGE		PILOT DIA.		
NOMINAL	DECIMAL	NOM	DASH	ANSI
#58 - 5/64	.0420 - .0781	1/4	- 16	DGF-16-46
#47 - 7/64	.0785 - .1093	1/4	- 16	DGF-16-46
#35 - #10	.1100 - .1935	1/4	- 16	DGF-16-46
#58 - 5/64	.0420 - .0781	5/16	- 20	DGF-20-46
#47 - 7/64	.0785 - .1093	5/16	- 20	DGF-20-46
#35 - #10	.1100 - .1935	5/16	- 20	DGF-20-46
#9-1/4	.1960 - .2500	5/16	-20	DGF-20-46
#58-5/64	.0420 - .0781	3/8	-24	DGF-24-46
#47-7/64	.0785 - .1093	3/8	-24	DGF-24-46
#35-#10	.1100 - .1935	3/8	-24	DGF-24-46
#9-1/4	.1960 - .2500	3/8	-24	DGF-24-46
F- O	.2570 - .3160	3/8	-24	DGF-24-46



Stop Clip for
Grooves.
See page C8.
DGSC-16 fits
1/2 O.D.s

To Order,
ADD LENGTH of
PILOT. See Chart
below and Ordering
Example for format.



ORDERING EXAMPLE

DGF - 16 - 8 - 46 - #58
 DRILL GUIDE STYLE
 PILOT DIA. IN 64ths
 PILOT LENGTH IN 16ths
 LENGTH IN 16ths
 I.D.

LENGTH OF PILOT — ANSI LENGTH IN 1/16 Other Lengths are Special												
1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1"	
1	2	3	4	5	6	7	8	10	12	14	16	

DGJ and DGI Drill Guides

Drill Breakage Eliminated

The UNITED Pressure Foot Drilling System

DGJ DRILL GUIDES

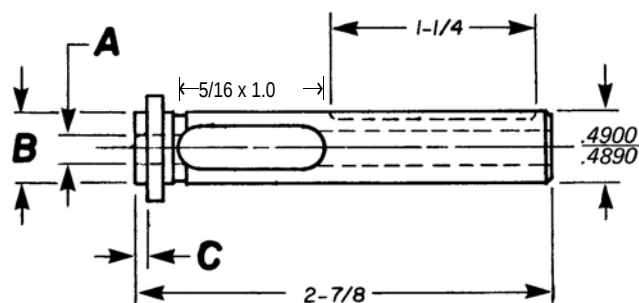


DGJ Drill Guides are used in the higher speed drill motors.

Use with six inch extension drills only.

DGJ—HIGH SPEED FOR EXTENSION DRILLS

Use DGJ with PFA-32-20 Pressure Foot Adapter and DGNP-32-XX Nosepiece.



ORDERING EXAMPLE

DRILL GUIDE STYLE
PILOT DIA. IN 64ths
PILOT LENGTH IN 1000ths
I.D.

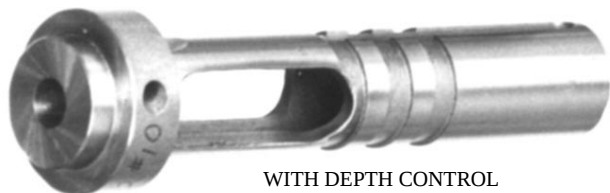
DGJ - 24 - 60 - #40

REF SP-133L

WITHOUT
GROOVES

A		B		C PILOT LENGTH		
I.D. RANGE		PILOT DIAMETER		DGJ (OAL LEN IN 16THs)		
NOMINAL	DECIMAL	NOMINAL	DASH	.060 (1/16)	.080 (5/64)	.125 (1/8)
#40 thru #1	.0980 .2280	3/8	-24	DGJ-24-60	DGJ-24-80	DGJ-24-125
#40 thru 'O'	.0980 .3160	1/2	-32	DGJ-32-60	DGJ-32-80	DGJ-32-125
#40 thru 'O'	.0980 .3160	9/16	-36	DGJ-36-60	DGJ-36-80	DGJ-36-125
#40 thru 'O'	.0980 .3160	5/8	-40	DGJ-40-60	DGJ-40-80	DGJ-40-125

DGI DRILL GUIDES

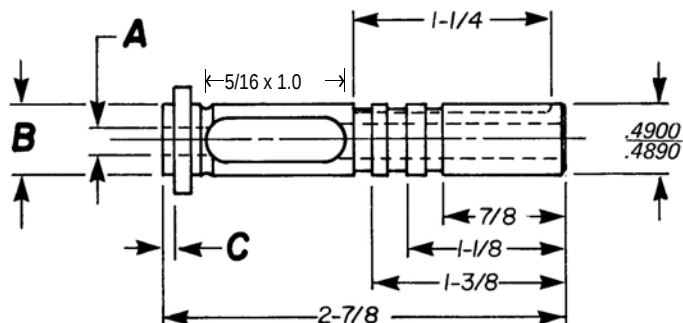


WITH DEPTH CONTROL

DGI—HIGH SPEED DEPTH CONTROL GUIDE

DGI Drill Guides are the same as the DGJ with the addition of Depth Control Grooves.

Use DGI with PFA-32-10 Pressure Foot Adapter and DGNP-32-XX Nosepiece.



ORDERING EXAMPLE

DRILL GUIDE STYLE
PILOT DIA. IN 64ths
PILOT LENGTH IN 1000ths
I.D.

DGI - 24 - 60 - #40

REF SP-138L (WITH GROOVES—DGI)
REF SP-133L (WITHOUT GROOVES—DGJ—SEE

A		B		C PILOT LENGTH		
I.D. RANGE		PILOT DIAMETER		DGI (OAL LEN IN 16THs)		
NOMINAL	DECIMAL	NOMINAL	DASH	.060 (1/16)	.080 (5/64)	.125 (1/8)
#40 thru #1	.0980 .2280	3/8	-24	DGI-24-60	DGI-24-80	DGI-24-125
#40 thru 'O'	.0980 .3160	1/2	-32	DGI-32-60	DGI-32-80	DGI-32-125
#40 thru 'O'	.0980 .3160	9/16	-36	DGI-36-60	DGI-36-80	DGI-36-125
#40 thru 'O'	.0980 .3160	5/8	-40	DGI-40-60	DGI-40-80	DGI-40-125

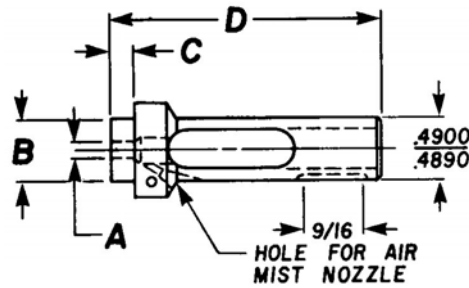
Cutting Hole Protection

The UNITED Pressure Foot Drilling System

DGMC and DGME
Drill Guides

USE WITH DGNP-32-XX
NOSEPIECE

USE DGMC WITH
PFA-32-9 PRESSURE
FOOT ADAPTER



DGMC DRILL GUIDES



DGMC—FLANGED AIR MIST STYLE C
ORDERING EXAMPLE

USE AMU-22-23-24 AIR MIST ASSEMBLY

See Chart below for Chip Slot Length.

USE DGMC WITH JOBBER DRILLS and AIR MIST.

DGMC - 20 - 8 - #28

DRILL GUIDE STYLE
PILOT DIA. IN 64ths
LENGTH IN 16ths
I.D.

A		D LENGTH
I.D. RANGE		
NOMINAL	DECIMAL	
#28 thru #22	.1405 .1570	1-3/8
#21 thru #16	.1590 .1770	1-5/8
#15 thru 3/16	.1800 .1875	1-3/4
#12 thru #10	.1890 .1935	1-7/8
#9 thru #4	.1960 .2090	2-1/8
#3 thru 1/4	.2130 .2500	2-1/4
'F' thru 'J'	.2570 .2770	2-3/8
'K' thru 'L'	.2810 .2900	2-1/2
'M' thru 'O'	.2950 .3160	2-3/4

A		B		C PILOT LENGTH							
I.D. RANGE		PILOT DIAMETER		-1	-2	-3	-4	-5	-6	-7	-8
NOMINAL	DECIMAL	NOMINAL	DASH	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2
#28 thru #11	.1405 .1910	5/16	-20	DGMC-20-1	DGMC-20-2	DGMC-20-3	DGMC-20-4	DGMC-20-5	DGMC-20-6	DGMC-20-7	DGMC-20-8
#10 thru #1	.1935 .2280	3/8	-24	DGMC-24-1	DGMC-24-2	DGMC-24-3	DGMC-24-4	DGMC-24-5	DGMC-24-6	DGMC-24-7	DGMC-24-8
'A' thru 'L'	.2340 .2900	7/16	-28	DGMC-28-1	DGMC-28-2	DGMC-28-3	DGMC-28-4	DGMC-28-5	DGMC-28-6	DGMC-28-7	DGMC-28-8
7/32 thru 'O'	.2187 .3160	1/2	-32	DGMC-32-1	DGMC-32-2	DGMC-32-3	DGMC-32-4	DGMC-32-5	DGMC-32-6	DGMC-32-7	DGMC-32-8
7/32 thru 'O'	.2187 .3160	9/16	-36	DGMC-36-1	DGMC-36-2	DGMC-36-3	DGMC-36-4	DGMC-36-5	DGMC-36-6	DGMC-36-7	DGMC-36-8
7/32 thru 'O'	.2187 .3160	5/8	-40	DGMC-40-1	DGMC-40-2	DGMC-40-3	DGMC-40-4	DGMC-40-5	DGMC-40-6	DGMC-40-7	DGMC-40-8

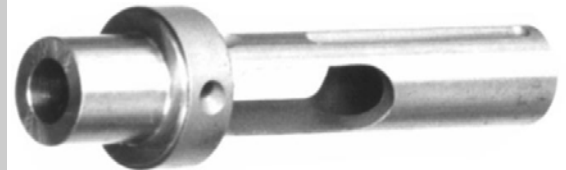
USE DGME WITH PFA-32-9
PRESSURE FOOT
ADAPTER
AND DGNP-32-xx
NOSEPIECE.

DGME Flange Air Mist Drill Guides are used for high speed drilling. The pilot length corresponds with the height of the UNITED Twisfit Bushing.

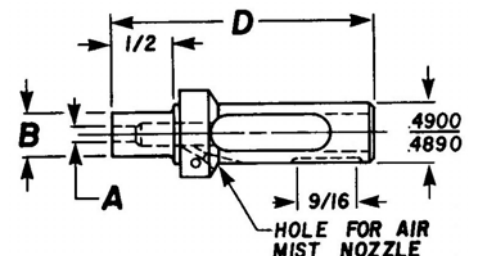
Maximum bearing between the pilot O.D. and the Twisfit I.D. assures accurate hole location and perpendicular drilling.

USE DGME WITH JOBBER DRILLS IN
TWISFIT BUSHINGS.

DGME DRILL GUIDES



DGME— FLANGED AIR MIST STYLE E



USE AMU-22-23-24 AIR MIST ASSEMBLY

ORDERING EXAMPLE

DGME - 20 - 8 - #28

DRILL GUIDE STYLE
PILOT DIA. IN 64ths
LENGTH IN 16ths
I.D.

A		D LEN	Chip Slot Length (5/16 wide)
I.D. RANGE			
NOMINAL	DECIMAL		
#28 thru #22	.1405 .1570	1-3/8	5/8
#21 thru #16	.1590 .1770	1-5/8	5/8
#15 thru 3/16	.1800 .1875	1-3/4	5/8
#12 thru #10	.1890 .1935	1-7/8	3/4
#9 thru #4	.1960 .2090	2-1/8	3/4
#3 thru 1/4	.2130 .2500	2-1/4	7/8
'F' thru 'J'	.2570 .2770	2-3/8	7/8
'K' thru 'L'	.2810 .2900	2-1/2	1.0
'M' thru 'O'	.2950 .3160	2-3/4	1.0

A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
#28 thru #11	.1405 .1910	5/16	-20	DGME-20-8
#10 thru #1	.1935 .2280	3/8	-24	DGME-24-8
'A' thru 'L'	.2340 .2900	7/16	-28	DGME-28-8
7/32 thru 'O'	.2187 .3160	1/2	-32	DGME-32-8

DGMI and DGM A Drill Guides

Bushing Wear Eliminated

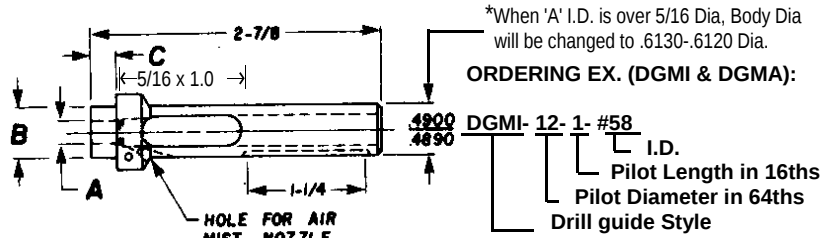
The UNITED Pressure Foot Drilling System

DGMI DRILL GUIDES



DGMI—FLANGE AIR MIST FOR EXTENSION

USE AMU-22-23-24 AIR MIST ASSEMBLY. FOR EXTENSION DRILLS USE PFA-32-20 AND DGNP-32-



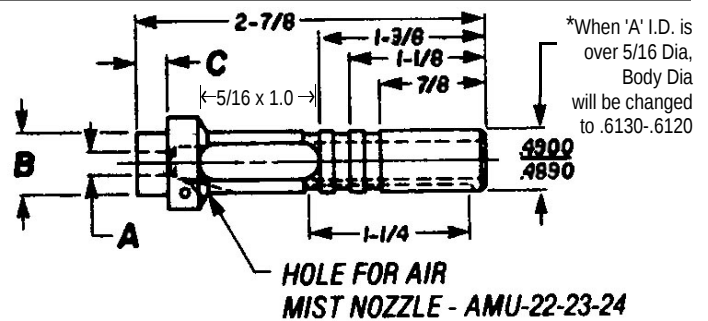
A		B		C PILOT LENGTH							
I.D. RANGE		PILOT DIAMETER		-1	-2	-3	-4	-5	-6	-7	-8
NOMINAL	DECIMAL	NOMINAL	DASH	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2
#58 thru #39	.0420 .0995	3/16	-12	DGMI-12-1	DGMI-12-2	DGMI-12-3	DGMI-12-4	DGMI-12-5	DGMI-12-6	DGMI-12-7	DGMI-12-8
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMI-16-1	DGMI-16-2	DGMI-16-3	DGMI-16-4	DGMI-16-5	DGMI-16-6	DGMI-16-7	DGMI-16-8
1/8 thru #7	.1250 .2010	5/16	-20	DGMI-20-1	DGMI-20-2	DGMI-20-3	DGMI-20-4	DGMI-20-5	DGMI-20-6	DGMI-20-7	DGMI-20-8
3/16 thru 1/4	.1875 .2500	3/8	-24	DGMI-24-1	DGMI-24-2	DGMI-24-3	DGMI-24-4	DGMI-24-5	DGMI-24-6	DGMI-24-7	DGMI-24-8
'F' thru 'L'	.2570 .2900	7/16	-28	DGMI-28-1	DGMI-28-2	DGMI-28-3	DGMI-28-4	DGMI-28-5	DGMI-28-6	DGMI-28-7	DGMI-28-8
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMI-32-1	DGMI-32-2	DGMI-32-3	DGMI-32-4	DGMI-32-5	DGMI-32-6	DGMI-32-7	DGMI-32-8
9/32 thru 'O'	.2812 .3160	9/16	-36	DGMI-36-1	DGMI-36-2	DGMI-36-3	DGMI-36-4	DGMI-36-5	DGMI-36-6	DGMI-36-7	DGMI-36-8
9/32 thru 25/64	.2812 .3906*	5/8	-40	DGMI-40-1	DGMI-40-2	DGMI-40-3	DGMI-40-4	DGMI-40-5	DGMI-40-6	DGMI-40-7	DGMI-40-8

DGMA DRILL GUIDES



DGMA—FLANGE AIR MIST WITH DEPTH CONTROL

USE AMU-22-23-24 AIR MIST ASSEMBLY. FOR EXTENSION DRILLS USE WITH PFA-32-20 AND DGNP-32-XX NOSEPIECE.



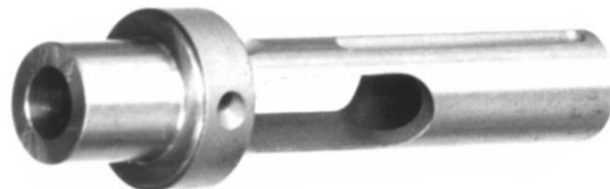
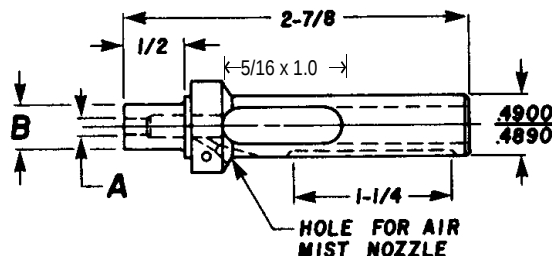
A		B		C PILOT LENGTH							
I.D. RANGE		PILOT DIAMETER		-1	-2	-3	-4	-5	-6	-7	-8
NOMINAL	DECIMAL	NOMINAL	DASH	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2
#58 thru #39	.0420 .0995	3/16	-12	DGMA-12-1	DGMA-12-2	DGMA-12-3	DGMA-12-4	DGMA-12-5	DGMA-12-6	DGMA-12-7	DGMA-12-8
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMA-16-1	DGMA-16-2	DGMA-16-3	DGMA-16-4	DGMA-16-5	DGMA-16-6	DGMA-16-7	DGMA-16-8
1/8 thru #7	.1250 .2010	5/16	-20	DGMA-20-1	DGMA-20-2	DGMA-20-3	DGMA-20-4	DGMA-20-5	DGMA-20-6	DGMA-20-7	DGMA-20-8
3/16 thru 1/4	.1875 .2500	3/8	-24	DGMA-24-1	DGMA-24-2	DGMA-24-3	DGMA-24-4	DGMA-24-5	DGMA-24-6	DGMA-24-7	DGMA-24-8
'F' thru 'L'	.2570 .2900	7/16	-28	DGMA-28-1	DGMA-28-2	DGMA-28-3	DGMA-28-4	DGMA-28-5	DGMA-28-6	DGMA-28-7	DGMA-28-8
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMA-32-1	DGMA-32-2	DGMA-32-3	DGMA-32-4	DGMA-32-5	DGMA-32-6	DGMA-32-7	DGMA-32-8
9/32 thru 'O'	.2812 .3160	9/16	-36	DGMA-36-1	DGMA-36-2	DGMA-36-3	DGMA-36-4	DGMA-36-5	DGMA-36-6	DGMA-36-7	DGMA-36-8
9/32 thru 25/64	.2812 .3906*	5/8	-40	DGMA-40-1	DGMA-40-2	DGMA-40-3	DGMA-40-4	DGMA-40-5	DGMA-40-6	DGMA-40-7	DGMA-40-8

For Twisfit Applications

The UNITED Pressure Foot Drilling System

**DGMJ and DGMB
Drill Guides**

DGMJ DRILL GUIDES



**DGMJ—CRITICAL HOLE,
EXTENDED AIR MIST USED WITH TWISFIT BUSHINGS**

A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
#58 thru #40	.0420 .0980	3/16	-12	DGMJ-12-8
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMJ-16-8
#27 thru #11	.1440 .1910	5/16	-20	DGMJ-20-8
#10 thru #1	.1935 .2280	3/8	-24	DGMJ-24-8
'A' thru 'L'	.2340 .2900	7/16	-28	DGMJ-28-8
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMJ-32-8

USE
AMU-22-23-24
AIR MIST

DGMJ Flange Air Mist Drill Guides for high speed drilling with extension drills without depth control grooves. The pilot length corresponds with the height of Twisfit Bushings.

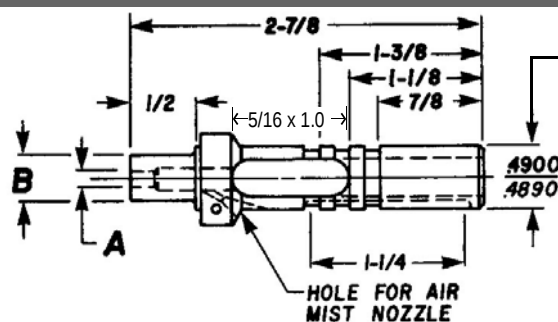
Maximum bearing between the pilot O.D. and the Twisfit I.D. assures accurate hole location and perpendicular drilling.

USE WITH
DGNP-32-XX
NOSEPIECE

USE DGMJ WITH
PFA-32-20 PRESSURE
FOOT ADAPTER

ORDERING EXAMPLE:

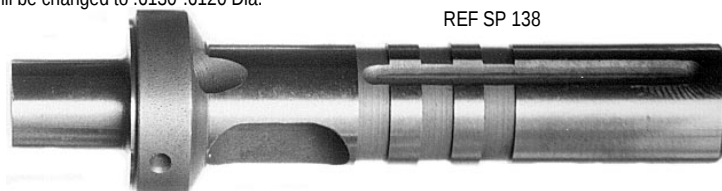
DGMJ - 12 - 8 - #58
DRILL GUIDE STYLE
PILOT DIA. IN 64ths
LENGTH IN 16ths
I.D.



*When 'A' I.D. is over 5/16 Dia, Body Dia will be changed to .6130-.6120 Dia.

DGMB DRILL GUIDES

REF SP 138



**DGMB—CRITICAL HOLE, EXTENDED AIR MIST
WITH DEPTH CONTROL USED WITH TWISFIT BUSHINGS**

A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
#58 thru #40	.0420 .0980	3/16	-12	DGMB-12-8
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMB-16-8
#27 thru #11	.1440 .1910	5/16	-20	DGMB-20-8
#10 thru 'F'	.1935 .2570	3/8	-24	DGMB-24-8
'A' thru 'L'	.2340 .2900	7/16	-28	DGMB-28-8
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMB-32-8
9/32 thru 25/64	.2812 .3906*	5/8	-40	DGMB-40-8

USE WITH DGNP-32-XX
NOSEPIECE

USE DGMB WITH PFA-32-20
PRESSURE FOOT ADAPTER

ORDERING EXAMPLE:

DGMB - 12 - 8 - #58
DRILL GUIDE STYLE
PILOT DIA. IN 64ths
LENGTH IN 16ths
I.D.

DGMG and DGMF Drill Guides

Pressure Foot Drilling With Travel

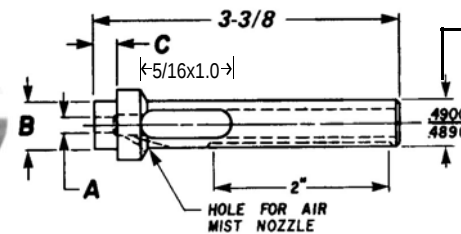
The UNITED Pressure Foot Drilling System

DGMG DRILL GUIDES



DGMG—FLANGE AIR MIST 2" TRAVEL

USE AMU-22-23-24 AIR MIST ASSEMBLY. USE PFA-32-32 AND DGNP-32-XX NOSEPIECE.



*When 'A' I.D. is over 5/16 Dia, Body Dia will be changed to .6130-.6120 Dia.

ORDERING EXAMPLE:

DGMG- 12- 1- #58
I.D.
Pilot Length in 16ths
Pilot Diameter in 64ths
Drill guide Style

DGMG Flange Air Mist Drill Guides have 2" travel and use eight inch extension drill.

They are used in PFA-32-32 Pressure Foot Adapters and make use of the AMU-22 Air Mist Unit.

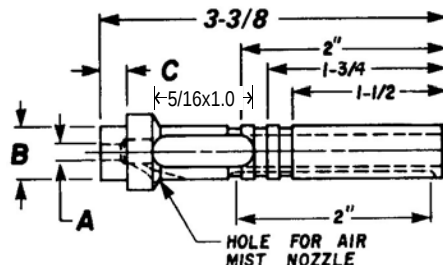
A		B		C PILOT LENGTH								
I.D. RANGE		PILOT DIAMETER		-1	-2	-3	-4	-5	-6	-7	-8	
NOMINAL	DECIMAL	NOMINAL	DASH	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	
#58 thru #40	.0420 .0980	3/16	-12	DGMG-12-1	DGMG-12-2	DGMG-12-3	DGMG-12-4	DGMG-12-5	DGMG-12-6	DGMG-12-7	DGMG-12-8	
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMG-16-1	DGMG-16-2	DGMG-16-3	DGMG-16-4	DGMG-16-5	DGMG-16-6	DGMG-16-7	DGMG-16-8	
#27 thru #11	.1440 .1910	5/16	-20	DGMG-20-1	DGMG-20-2	DGMG-20-3	DGMG-20-4	DGMG-20-5	DGMG-20-6	DGMG-20-7	DGMG-20-8	
#10 thru #1	.1935 .2280	3/8	-24	DGMG-24-1	DGMG-24-2	DGMG-24-3	DGMG-24-4	DGMG-24-5	DGMG-24-6	DGMG-24-7	DGMG-24-8	
'A' thru 'L'	.2340 .2900	7/16	-28	DGMG-28-1	DGMG-28-2	DGMG-28-3	DGMG-28-4	DGMG-28-5	DGMG-28-6	DGMG-28-7	DGMG-28-8	
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMG-32-1	DGMG-32-2	DGMG-32-3	DGMG-32-4	DGMG-32-5	DGMG-32-6	DGMG-32-7	DGMG-32-8	
9/32 thru 'O'	.2812 .3160	9/16	-36	DGMG-36-1	DGMG-36-2	DGMG-36-3	DGMG-36-4	DGMG-36-5	DGMG-36-6	DGMG-36-7	DGMG-36-8	
9/32 thru 25/64	.2812 .3906*	5/8	-40	DGMG-40-1	DGMG-40-2	DGMG-40-3	DGMG-40-4	DGMG-40-5	DGMG-40-6	DGMG-40-7	DGMG-40-8	

DGMF DRILL GUIDES



DGMF—FLANGE AIR MIST WITH DEPTH CONTROL GROOVES—2" TRAVEL

USE AMU-22-23-24 AIR MIST ASSEMBLY. FOR EXTENSION DRILLS USE WITH PFA-32-32 AND DGNP-32-XX NOSEPIECE.



*When 'A' I.D. is over 5/16 Dia, Body Dia will be changed to .6130-.6120 Dia.

ORDERING EXAMPLE:

DGMF- 12- 1- #58
I.D.
Pilot Length in 16ths
Pilot Diameter in 64ths
Drill guide Style

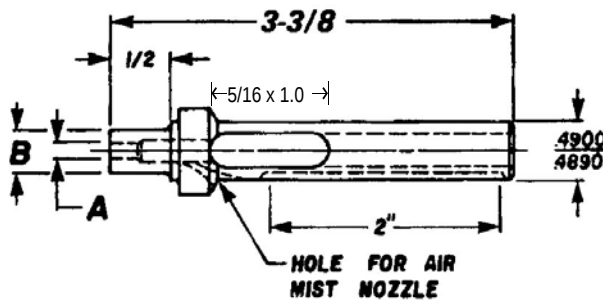
DGMF Flange Air Mist Drill Guides have all the features of the DGMG with the addition of the depth control grooves to give varying drill depths.

A		B		C PILOT LENGTH								
I.D. RANGE		PILOT DIAMETER		-1	-2	-3	-4	-5	-6	-7	-8	
NOMINAL	DECIMAL	NOMINAL	DASH	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	
#58 thru #40	.0420 .0980	3/16	-12	DGMF-12-1	DGMF-12-2	DGMF-12-3	DGMF-12-4	DGMF-12-5	DGMF-12-6	DGMF-12-7	DGMF-12-8	
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMF-16-1	DGMF-16-2	DGMF-16-3	DGMF-16-4	DGMF-16-5	DGMF-16-6	DGMF-16-7	DGMF-16-8	
#27 thru #11	.1440 .1910	5/16	-20	DGMF-20-1	DGMF-20-2	DGMF-20-3	DGMF-20-4	DGMF-20-5	DGMF-20-6	DGMF-20-7	DGMF-20-8	
#10 thru #1	.1935 .2280	3/8	-24	DGMF-24-1	DGMF-24-2	DGMF-24-3	DGMF-24-4	DGMF-24-5	DGMF-24-6	DGMF-24-7	DGMF-24-8	
'A' thru 'L'	.2340 .2900	7/16	-28	DGMF-28-1	DGMF-28-2	DGMF-28-3	DGMF-28-4	DGMF-28-5	DGMF-28-6	DGMF-28-7	DGMF-28-8	
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMF-32-1	DGMF-32-2	DGMF-32-3	DGMF-32-4	DGMF-32-5	DGMF-32-6	DGMF-32-7	DGMF-32-8	
9/32 thru 'O'	.2812 .3160	9/16	-36	DGMF-36-1	DGMF-36-2	DGMF-36-3	DGMF-36-4	DGMF-36-5	DGMF-36-6	DGMF-36-7	DGMF-36-8	
9/32 thru 25/64	.2812 .3906*	5/8	-40	DGMF-40-1	DGMF-40-2	DGMF-40-3	DGMF-40-4	DGMF-40-5	DGMF-40-6	DGMF-40-7	DGMF-40-8	

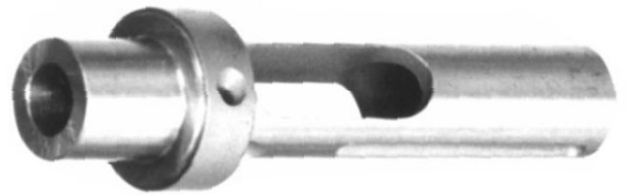
Increase Hole Production

The UNITED Pressure Foot Drilling System

**DGMH and DGMD
Drill Guides**



DGMH DRILL GUIDES



**DGMH—FLANGE AIR MIST 2" TRAVEL FOR USE
WITH 8" EXTENSION DRILLS**

A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
#58 thru #40	.0420 .0980	3/16	-12	DGMH-12-8
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMH-16-8
#27 thru #11	.1440 .1910	5/16	-20	DGMH-20-8
#10 thru #1	.1935 .2280	3/8	-24	DGMH-24-8
'A' thru 'L'	.2340 .2900	7/16	-28	DGMH-28-8
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMH-32-8

USE AMU-22-23-24 AIR MIST ASSEMBLY.

DGMH Drill Guides are used with 8" extension drills and have 2" of travel.

When used in conjunction with UNITED's Twisfit Bushing, the DGMH Drill Guide offers critical hole alignment. The 1/2" pilot hole length corresponds with the height of Twisfit Bushings for maximum bearing between the pilot O.D. and the Twisfit I.D. which assures accurate hole location and perpendicular drilling.

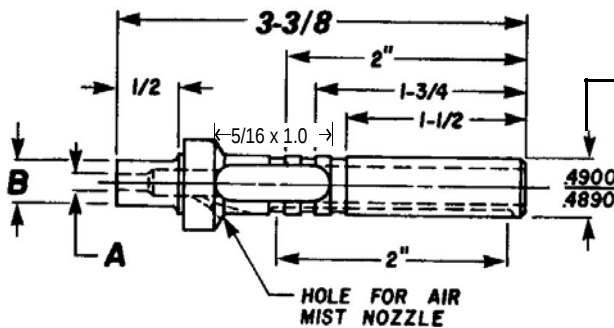
**USE WITH
DGNP-32-XX
NOSEPIECE**

ORDERING EXAMPLE:

**USE DGMH WITH
PFA-32-32 PRESSURE**

DRILL GUIDE STYLE _____
PILOT DIA. IN 64ths _____
LENGTH IN 16ths _____
I.D. _____

DGMH- 12 - 1 - #58



DGMD DRILL GUIDES

*When 'A' I.D. is over 5/16 Dia, Body Dia
will be changed to .6130-.6120 Dia.



**DGMD—FLANGE AIR MIST, 2" TRAVEL
WITH DEPTH CONTROL USE WITH 8" EXTENSION DRILLS**

A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
#58 thru #40	.0420 .0980	3/16	-12	DGMD-12-8
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMD-16-8
#27 thru #11	.1440 .1910	5/16	-20	DGMD-20-8
#10 thru 'F'	.1935 .2570	3/8	-24	DGMD-24-8
'A' thru 'L'	.2340 .2900	7/16	-28	DGMD-28-8
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMD-32-8
9/32 thru 25/64	.2812 .3906*	5/8	-40	DGMD-40-8

DGMD Drill Guides are used with 8" extension drills and have 2" of travel, with the addition of depth control grooves. Drilling depths are controlled to 1-1/2", 1-3/4" and 2".

When used in conjunction with UNITED's Twisfit Bushing, the DGMD Drill Guide offers critical hole alignment. The 1/2" pilot hole length corresponds with the height of Twisfit Bushings for maximum bearing. Maximum bearing between the pilot O.D. and the Twisfit I.D. assures accurate hole location and perpendicular drilling.

**USE WITH DGNP-32-XX
NOSEPIECE**

ORDERING EXAMPLE:

**USE DGMD WITH PFA-32-32
PRESSURE FOOT ADAPTER**

DRILL GUIDE STYLE _____
PILOT DIA. IN 64ths _____
LENGTH IN 16ths _____
I.D. _____

DGMD - 12 - 1 - #58

DGMK and DGML Drill Guides

DGMK DRILL GUIDES



DGMK—FLANGE AIR MIST WITH DEPTH CONTROL
USE WITH 8" EXTENSION DRILLS—2" TRAVEL

USE AMU-22-23-24 AIR MIST ASSEMBLY.
USE PFA-40-32 AND DGMP-40-XX NOSEPIECE.

Flange Air Mist Drill Guides are used with 8" extension drills and have 2" of travel.

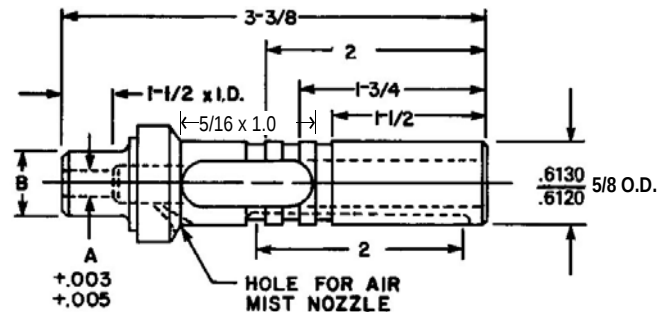
The 1/2" pilot hole length corresponds with the height of TWISFIT bushings for maximum bearing.

The DGMK will accept drills to 25/64 in diameter.

REFS:
SP-135D
SP-139F
SP-139K
SP-139L
SP-139N

ORDERING EXAMPLE:

DGMK- 16- 10- 3/32
I.D.
Pilot Length in 16ths
Pilot Diameter in 64ths
Drill guide Style



A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
3/32 thru 9/64	.0937 .1406	1/4	-16	DGMK-16-10
7/64 thru 11/64	.1094 .1719	9/32	-18	DGMK-18-10
#27 thru #11	.1440 .1910	5/16	-20	DGMK-20-10
#10 thru #1	.1935 .2280	3/8	-24	DGMK-24-10
'A' thru 'L'	.2340 .2900	7/16	-28	DGMK-28-10
9/32 thru 'O'	.2812 .3160	1/2	-32	DGMK-32-10
9/32 thru 3/8	.2812 .3750	9/16	-36	DGMK-36-10
9/32 thru 25/64	.2812 .3906	5/8	-40	DGMK-40-10

DGML DRILL GUIDES



DGML—FLANGE AIR MIST WITH DEPTH CONTROL
USE WITH 6" EXTENSION DRILLS—1-1/4" TRAVEL

USE AMU-22-23-24 AIR MIST ASSEMBLY.
FOR EXTENSION DRILLS USE WITH PFA-40-20 AND DGMP-40-XX NOSEPIECE.

DGML Flange Air Mist Drill Guides are used with 6" extension drills and have 1-1/4 inch of travel.

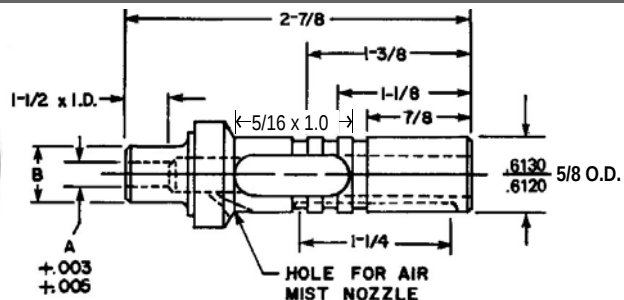
The pilot hole length corresponds with the height of the Twisfit Bushing for maximum bearing.

The DGML will accept drills to 25/64 in diameter.

REFS:
SP-135D
SP-139F
SP-139K
SP-139L
SP-139N

ORDERING EXAMPLE:

DGML- 16- 10- 3/32
I.D.
Pilot Length in 16ths
Pilot Diameter in 64ths
Drill guide Style



A		B		PART NO.
I.D. RANGE		PILOT DIAMETER		
NOMINAL	DECIMAL	NOMINAL	DASH	
3/32 thru 9/64	.0937 .1406	1/4	-16	DGML-16-10
7/64 thru 11/64	.1094 .1719	9/32	-18	DGML-18-10
#27 thru #11	.1440 .1910	5/16	-20	DGML-20-10
#10 thru #1	.1935 .2280	3/8	-24	DGML-24-10
'A' thru 'L'	.2340 .2900	7/16	-28	DGML-28-10
9/32 thru 'O'	.2812 .3160	1/2	-32	DGML-32-10
9/32 thru 3/8	.2812 .3750	9/16	-36	DGML-36-10
9/32 thru 25/64	.2812 .3906	5/8	-40	DGML-40-10

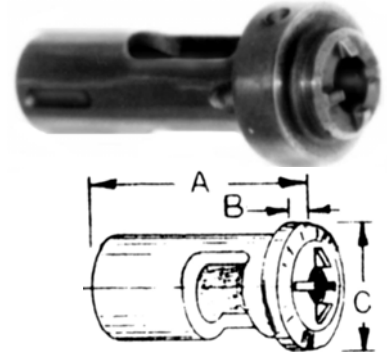
Jo-Bolt & Hi-Shear Drill Out Pressure Foot Quick Change Drill Out Guides

Drill Out Guides Jo-Bolt & Hi-Shear

These **UNITED** Drill Out Guides have four prongs to locate on the head of the Jo-Bolt that prevents the Jo-Bolt turning while drilling. A simple and inexpensive process.

DGDO-0 thru 4 DRILL OUT GUIDES

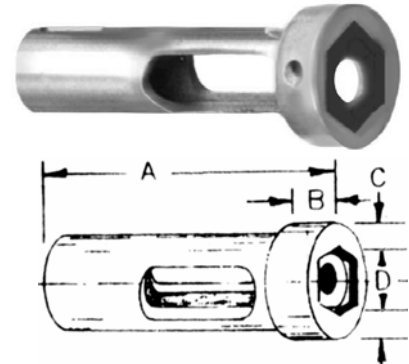
UNITED PART NO.	JO BOLT 'F' TYPE	I.D. DRILL SIZE	A LEN	B FLANGE	C FLANGE DIA	D HEX
DGDO-00F 164 #40	#8 F 164	#40	1-1/8			
DGDO-01F 200 28	#10 F 200	#28	1-1/8			
DGDO-02F 260 3/16	1/4 F 260	3/16	1-3/4			
DGDO-03F 312 7/32	5/16 F 312	7/32	2-1/4	1-7/16	5/8	
DGDO-04F 375 17/64	3/8 F 375	17/64	2-3/8	1-7/8	11/16	



Drill Guides have a socket to locate on the head of the Jo-Bolt that prevents the Jo-Bolt turning while drilling. Quick change adapters are easy and economical.

DGDO-10 thru 14 DRILL OUT GUIDES

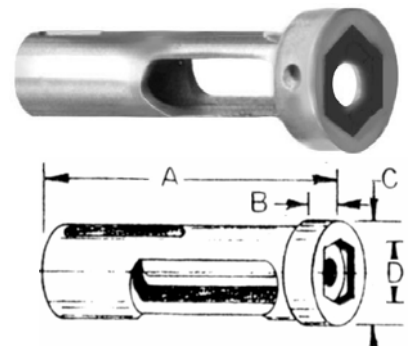
UNITED PART NO.	JO BOLT 'P' TYPE	I.D. DRILL SIZE	A LEN	B FLANGE	C FLANGE DIA	D HEX
DGDO-10P 164 #40	#8 P 164	#40	1-1/8			.251
DGDO-11P 200 28	#10 P 200	#28	1-1/8			.313
DGDO-12P 260 3/16	1/4 P 260	3/16	1-3/4			.378
DGDO-13P 312 7/32	5/16 P 312	7/32	2-1/4	5/16	5/8	.440
DGDO-14P 375 17/64	3/8 P 375	17/64	2-3/8	3/8	3/4	.503



Use Pressure Foot Assemblies consistent with travel required for drilling out length of Jo-Bolts. PFA-32-9 has 9/16 travel; PFA-32-20 has 1-1/4 travel and PFA-32-32 has 2" travel.

DGDO-20 thru 22 DRILL OUT GUIDES

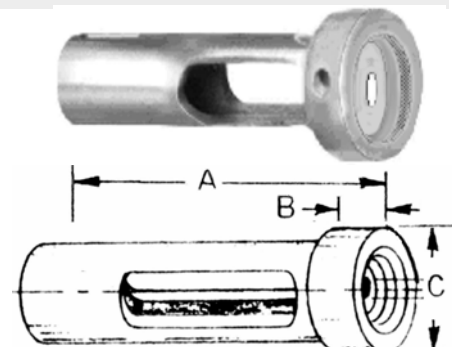
UNITED PART NO.	JO BOLT 'FA' & 'PA' TYPE	I.D. DRILL SIZE	A LEN	B FLANGE	C FLANGE DIA	D HEX
DGDO-20FA&PA 164 #40	#8	#40	1-1/8	—	—	.284
DGDO-21FA&PA 200 28	#10	#28	1-1/8	—	—	.347
DGDO-22FA&PA 260 3/16	1/4	3/16	1-3/4	1/4	3/4	.473



Refer to PFA and Nose Piece specs and dimensions on Nose Piece and Pressure Foot Assemblies.

DGDO-31 thru 34 DRILL OUT GUIDES

UNITED PART NO.	HI-SHEAR SIZE	I.D. DRILL SIZE	A LEN	B FLANGE	C FLANGE DIA	D HEX
DGDO-31	3/16	#30	1-1/8	—	—	—
DGDO-32	1/4	#21	1-1/8	—	—	—
DGDO-33	5/16	#11	2-1/4	5/16	5/8	—
DGDO-34	3/8	15/64	2-3/8	3/8	3/4	—

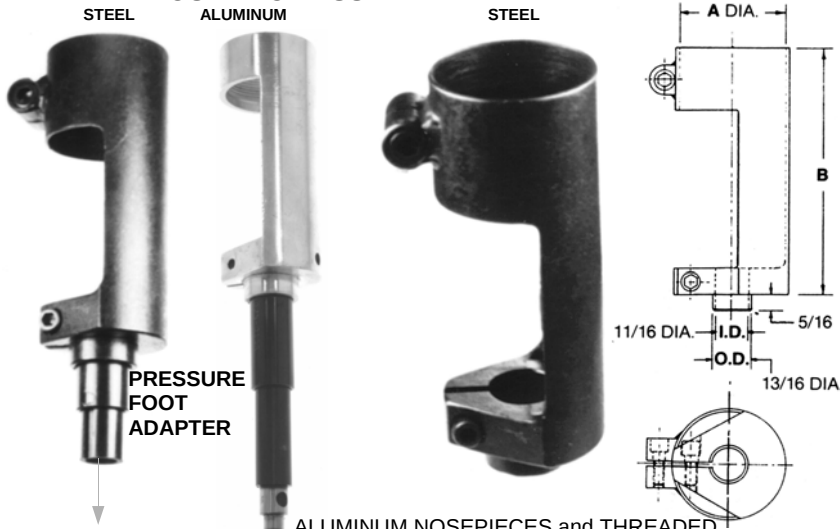


Drill Guide Systems Collapsible Type

Light, Fast and Accurate Drill Guide Systems

EASY TO INSTALL — SIMPLE TO USE — RIGID and ACCURATE

NOSEPIECE ASSEMBLY

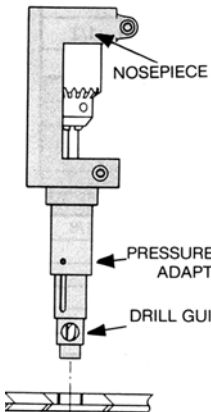


NOSEPIECE

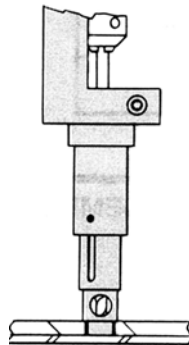
UNITED PART NO.	A I.D.	B LENGTH
DGNP-24-44	1-1/2	4-1/4
DGNP-25-44	1-9/16	4-1/4
DGNP-26-44	1-5/8	4-1/4
DGNP-27-44	1-11/16	4-1/4
DGNP-36-44	2-1/4	5"

TO USE an AIR MOTOR, slip over housing or chuck guard and simply tighten socket screw to hold nosepiece to air motor for a strong and firm assembly.

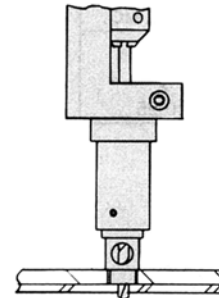
SIMPLE STEPS FOR INSTALLATION and USE



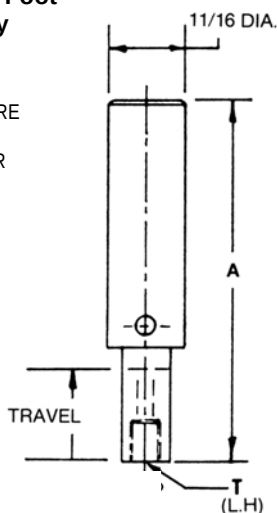
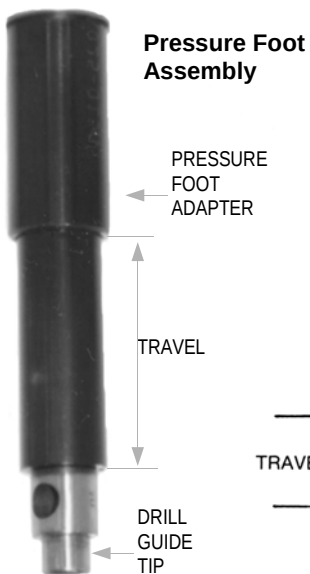
1. The Drill Guide is shown in extended position ready to insert into template hole. Point of the drill is kept protected by the guide.



2. The Drill Guide Tip is seated in template. Rotating drill will not mar template or work.



3. Apply pressure and the Drill Guide retracts as the hole is drilled. Drill centers automatically. Chips are discharged easily through ports in tip.



SELECT OVERALL LENGTH and THREAD REQUIRED.

PRESSURE FOOT ADAPTER

UNITED PART NO.	A LENGTH	TRAVEL	T L.H. THREAD
PFA-44-9	1-15/16	9/16	3/8-24
PFA-44-16	2-13/16	1"	3/8-24
PFA-44-16A	2-13/16	1"	7/16-20
PFA-44-24	3-13/16	1-1/2	3/8-24

TO ATTACH, INSERT INTO NOSEPIECE AND TIGHTEN SOCKET HEAD SCREW.

ADAPTERS ARE SPRING LOADED.

ALLOY STEEL - HEAT TREATED BLACK OXIDE FINISH

For DRILL GUIDE TIPS, see this Section.

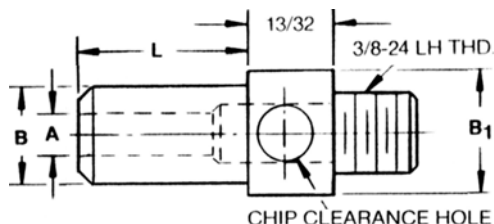
Threaded Drill Guide Tips

Bushings

Threaded Drill Guide Tips accept
both the Handles below
and the Pressure Foot Adapters.

Threaded
Drill Guide Tips

TYPE DGT – DRILL GUIDE TIP



3/8 – 24
LH Thread



DRILL GUIDE TIP



PRESSURE FOOT ADAPTER



DRILL GUIDE TIP

HANDLE

FOR USE WITH MOST PRESSURE FOOT ADAPTERS ON PAGE C24 EXCEPT PFA-44-16A. See below.

To order specify Part No. and I. D. size. Example: DGT-20-8 #10

For Reamer Tolerances add R to Part No. Example: DGT-32-4 1/4R

A* I.D. RANGE	B PILOT DIA. NOM.	B ^{+.000} -.002 PILOT DIA.	B ₁ BODY DIA.	L PILOT LENGTH								
				3/16	1/4	3/8	1/2	5/8	3/4	1	1-1/4	1-1/2
#50 - #30	3/16	.186	7/16		DGT 12-4	DGT 12-6	DGT 12-8	DGT 12-10				
#50 - .1615	1/4	.249	7/16	DGT 16-3	DGT 16-4	DGT 16-6	DGT 16-8	DGT 16-10	DGT 16-12			
#50 - .1995	5/16	.311	7/16	DGT 20-3	DGT 20-4	DGT 20-6	DGT 20-8	DGT 20-10	DGT 20-12	DGT 20-16	DGT 20-20	DGT 20-24
#50 - 9/32	3/8	.374	1/2	DGT 24-3	DGT 24-4	DGT 24-6	DGT 24-8	DGT 24-10	DGT 24-12			
#50 - 19/64	1/2	.499	5/8	DGT 32-3	DGT 32-4	DGT 32-6	DGT 32-8	DGT 32-10	DGT 32-12			
#50 - 19/64	5/8	.623	3/4	DGT 40-3	DGT 40-4	DGT 40-6	DGT 40-8	DGT 40-10	DGT 40-12	DGT 40-16		

FOR USE WITH PFA-44-16A ONLY

To order specify Part No. and I. D. size.

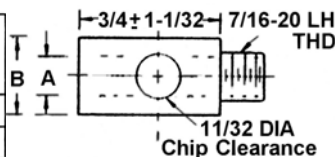
For Reamer Tolerances add 'R' to Part No.

Example: DGTA-40-12 1/4

Example: DGTA-32-12 7/32R

TYPE DGTA – DRILL GUIDE TIP

A* I.D. RANGE	B ^{+.000} -.002 BODY DIA.	PART NO.
.1985-.3125	.499	DGTA 32-12
.1985-.3125	.623	DGTA 40-12

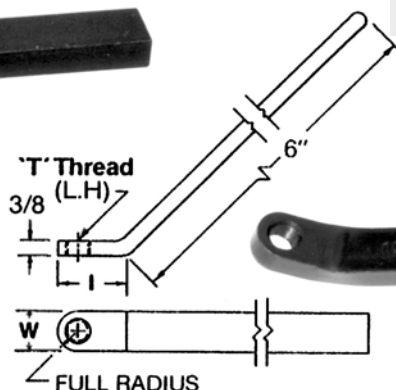


7/16 – 20
LH Thread



Typical Application with
Handle and Drill Guide Tip

PART NO.	T (L.H) Thread	W
UDB-DGTH-1	3/8-24	5/8
UDB-DGTH-2	7/16-20	3/4



HANDLE — DRILL GUIDE TIP

HANDLE TYPE DRILL JIG FOR
USE WITH DRILL GUIDE TIPS.

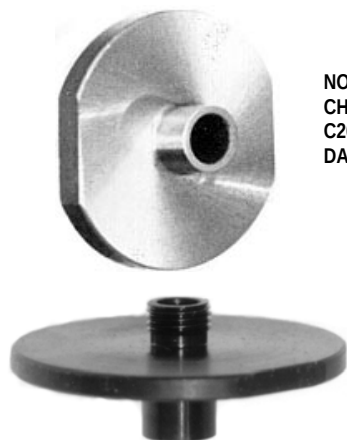


TAPPED HOLE

Router Collar Guides

Router Collar Guides for Clean Controlled Milling

ROUTER COLLAR GUIDES



NOTE:
CHARTS on PAGES C25 and
C26 HAVE DIMENSIONAL
DATA.

Special Guides
are available on
request.

ROUTER
MOTOR

Routing is a name given the operation of milling when the feeding movements of the work are controlled hand.

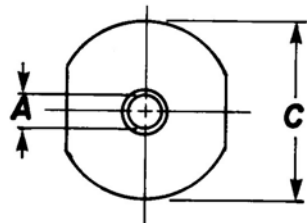
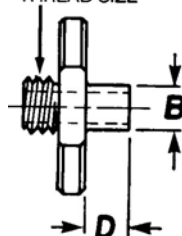
UNITED's Router Collar Guides relate the router template to the router bit and control the setback. Our Router Collar Guides assure you of perpendicular routing, uniform depths and clean controlled milled edges.

See Next Page →

The Setback is the distance from the pilot outside diameter to the router bit.

To determine the setback, subtract the bit diameter from the pilot outside diameter and divide by two. The router will only be cutting from one guided side at a time, therefore the setback is measured for one side only.

THREAD SIZE



TEMPLATE

ROUTER
COLLAR
GUIDE

ROUTER
BIT

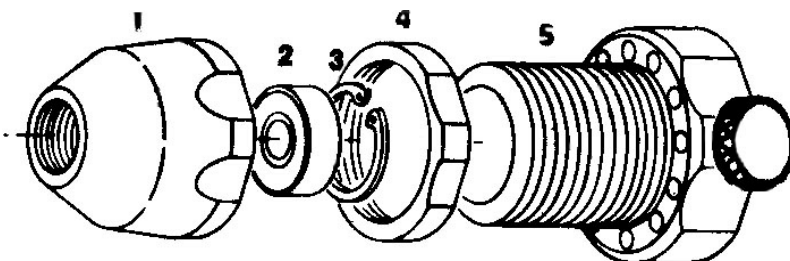
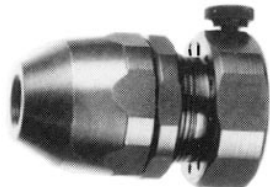
PRODUCTION PART

SET BACK

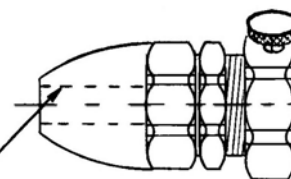
UNITED SETBACK FORMULA:

$$\frac{B(\text{Pilot O.D.}) - \text{Bit Diameter}}{2} = \text{SETBACK}$$

ROUTER NOSEPIECE ASSEMBLY



ROUTER
COLLAR
GUIDE
(REF.)

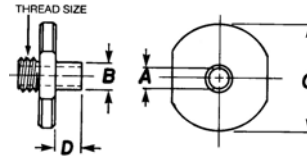


COMPLETE ASSEMBLY	CUTTER SHANK	T THD	1 NOSE	2 BEARING	3 RING	4 LOCK	5 ROUTER	FITS DOTCO TYPE
UDB-142187A	1/4	1/2 — 20	UDB-142176	UDB-140508	UDB-141098	UDB-142082	UDB-141180	10-10
UDB-142180	1/4	1/2 — 20	UDB-142176	UDB-140508	UDB-141098	UDB-142082	UDB-142080	10-20 AND 10-25
UDB-142381	5/16	1/2 — 20	UDB-142379	UDB-140538	UDB-141068	UDB-142082	UDB-142080	
UDB-142429	3/8	5/8 — 18	UDB-142426	UDB-140533	UDB-141068	UDB-142082	UDB-142080	

Router Collar Guides for Clean Controlled Milling

Router Collar Guides

For router bits up to 5/16 diameter 1/2—20 thread on the Router Guide is adequate. Router bits up to 3/8 require Guides with a thread of at least 5/8—18. For 1/2 routers use an 11/16—16 thread.
CHART CONTINUED ON PAGE C26.



NOTE:

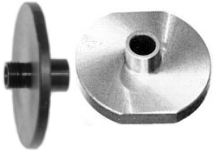
CHART BELOW IS CONTINUED ON PAGE C26.



UNITED'S ROUTER COLLAR GUIDE BUSHINGS are manufactured from tough heavy duty material.

PART NO.	A I.D.	B PILOT O.D.	C FLANGE O.D.	D PILOT LENGTH	ROUTER BIT DIAMETER					
					1/8	3/16	1/4	5/16	3/8	1/2
					SETBACK					
UDB-100002	17/64	5/16	3/4	5/16	3/32	1/16	1/32	1/2—20 THREAD		
UDB-100004			3/4	5/8						
UDB-100006			3/4	3/4						
UDB-100008			1-1/2	5/16						
UDB-100010	9/32	3/8	3/4	1/8	1/8	3/32	1/16	1/2—20 THREAD		
UDB-100012			3/4	1/4						
UDB-100014			3/4	3/8						
UDB-100016			3/4	1/2						
UDB-100018			3/4	3/4						
UDB-100020			3/4	1"						
UDB-100022			1-1/2	1/8						
UDB-100024			1-1/2	1/4						
UDB-100026			1-1/2	3/8						
UDB-100028			1-1/2	1/2						
UDB-100030			2-1/2	1/8						
UDB-100032			2-1/2	1/4						
UDB-100034			2-1/2	3/8						
UDB-100036			2-1/2	1/2						
UDB-100038	21/64	7/16	3/4	1/8		1/8	3/32	1/16	1/2—20 THREAD	
UDB-100040			3/4	1/4						
UDB-100042			3/4	3/8						
UDB-100044			1-1/2	1/2						
UDB-100046			1-1/2	1/8						
UDB-100048			1-1/2	1/4						
UDB-100050			1-1/2	3/8						
UDB-100052			1-1/2	1/2						
UDB-100054			2-1/2	1/8						
UDB-100056			2-1/2	1/4						
UDB-100058			2-1/2	3/8						
UDB-100060			2-1/2	1/2						
UDB-100062	11/32	1/2	1-1/2	1/4		5/32	1/8	3/32	1/2—20 THREAD	
UDB-100064			1-1/2	3/8						
UDB-100066			1-1/2	1/2						
UDB-100068			2-1/2	1/4						
UDB-100070			2-1/2	3/8						
UDB-100072			2-1/2	1/2						
UDB-100074	11/32	9/16	1-1/2	1/4			5/32	1/8	1/2 — 20 THREAD	
UDB-100076			1-1/2	3/8						
UDB-100078			1-1/2	1/2						
UDB-100080			2-1/2	1/4						
UDB-100082			2-1/2	3/8						
UDB-100084			2-1/2	1/2						
UDB-100086	11/32	5/8	1-1/2	1/4			3/16	5/32	1/2 — 20 THREAD	
UDB-100088			1-1/2	3/8						
UDB-100090			1-1/2	1/2						
UDB-100092			2-1/2	1/4						
UDB-100094			2-1/2	3/8						
UDB-100096			2-1/2	1/2						
UDB-100098	11/32	11/16	1-1/2	1/4			7/32	3/16	1/2 — 20 THREAD	
UDB-100100			1-1/2	3/8						
UDB-100102			1-1/2	1/2						
UDB-100104			2-1/2	1/4						
UDB-100106			2-1/2	3/8						
UDB-100108			2-1/2	1/2						

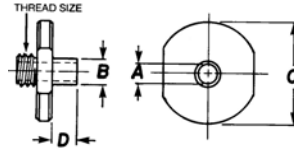
Router Collar Guides



For router bits up to 5/16 diameter 1/2—20 thread on the Router Guide is adequate. Router bits up to 3/8 require Guides with a thread of at least 5/8—18. For 1/2 routers use an 11/16—16 thread.

CHART BEGINS on PREVIOUS PAGE C25.

Router Collar Guides for Clean Controlled

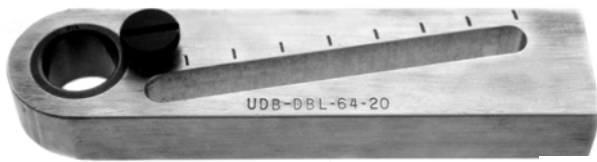


UNITED'S ROUTER COLLAR GUIDE BUSHINGS are manufactured from tough heavy duty material.

PART NO.	A I.D.	B PILOT O.D.	C FLANGE O.D.	D PILOT LENGTH	ROUTER BIT DIAMETER					
					1/8	3/16	1/4	5/16	3/8	1/2
					SETBACK					
UDB-100110	11/32	3/4	1-1/2	1/4			1/4	7/32	1/2 — 20 THREAD	
UDB-100112			1-1/2	3/8						
UDB-100114			1-1/2	1/2						
UDB-100116			2-1/2	1/4						
UDB-100118			2-1/2	3/8						
UDB-100120			2-1/2	1/2						
UDB-100122	11/32	7/8	1-1/2	1/4			5/16	9/32	1/2 — 20 THREAD	
UDB-100124			1-1/2	3/8						
UDB-100126			1-1/2	1/2						
UDB-100128			2-1/2	1/4						
UDB-100130			2-1/2	3/8						
UDB-100132			2-1/2	1/2						
UDB-100134	11/32	1"	1-1/2	1/4			3/8	11/32	1/2 — 20 THREAD	
UDB-100136			1-1/2	3/8						
UDB-100138			1-1/2	1/2						
UDB-100140			2-1/2	1/4						
UDB-100142			2-1/2	3/8						
UDB-100144			2-1/2	1/2						
UDB-100146	13/32	9/16	1-1/2	1/4	5/8 — 18 THREAD			1/8	3/32	
UDB-100148			1-1/2	3/8						
UDB-100150			1-1/2	1/2						
UDB-100152			2-1/2	1/4						
UDB-100154			2-1/2	3/8						
UDB-100156			2-1/2	1/2						
UDB-100158	17/32	5/8	1-1/2	1/4	11/16 — 16 THREAD			5/32	1/8	1/16
UDB-100160			1-1/2	3/8						
UDB-100162			1-1/2	1/2						
UDB-100164			2-1/2	1/4						
UDB-100166			2-1/2	3/8						
UDB-100168			2-1/2	1/2						
UDB-100170	17/32	11/16	1-1/2	1/4	11/16—16 THREAD			3/16	5/32	3/32
UDB-100172			1-1/2	3/8						
UDB-100174			1-1/2	1/2						
UDB-100176			2-1/2	1/4						
UDB-100178			2-1/2	3/8						
UDB-100180			2-1/2	1/2						
UDB-100182	17/32	3/4	1-1/2	1/4	11/16—16 THREAD			7/32	3/16	1/8
UDB-100184			1-1/2	3/8						
UDB-100186			1-1/2	1/2						
UDB-100188			2-1/2	1/4						
UDB-100190			2-1/2	3/8						
UDB-100192			2-1/2	1/2						
UDB-100194	17/32	7/8	1-1/2	1/4	11/16—16 THREAD			9/32	1/4	3/16
UDB-100196			1-1/2	3/8						
UDB-100198			1-1/2	1/2						
UDB-100100			2-1/2	1/4						
UDB-100202			2-1/2	3/8						
UDB-100204			2-1/2	1/2						
UDB-100206	17/32	1"	1-1/2	1/4	11/16—16 THREAD			11/32	5/16	1/4
UDB-100208			1-1/2	3/8						
UDB-100210			1-1/2	1/2						
UDB-100212			2-1/2	1/4						
UDB-100214			2-1/2	3/8						
UDB-100216			2-1/2	1/2						

Drill Bars, Drill Stands, Kits Spotters, Threaded Bushings

Drill Bars, Guides,
Stands, Spotters & Kits



ADJUSTABLE DRILL BARS Page C30



RIGHT ANGLE DRILL BARS
Page C35



DRILL BAR & SPOTTER KITS
Page C31



PRODUCTION/REPAIR KITS Page C32



ADJUSTABLE UNI-SWIVEL DRILL BARS Page C34



MINI UNI-LITE Page C34



SPRING DRILL STANDS Page C28



UNI-MINI DRILL BARS
Page C35



SPOTTERS
Page C30



BUSHING & DRILL STAND KITS Page C28



DRILL STANDS Page C29



THREADED BUSHINGS Page C28



SWIVEL & NURLOCK SINGLE END DRILL BARS Page C38



ALL-PURPOSE DRILL BLOCKS Page C44



DOUBLE END HELOX-SHELOX DRILL BARS Page C39

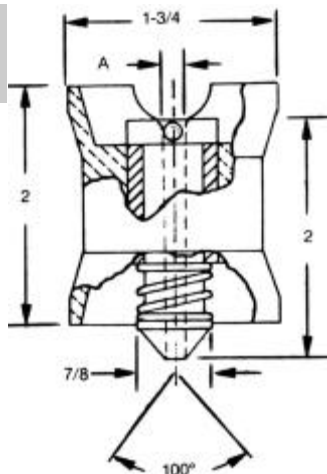


AT ADAPTER TIP & LL LINER DOUBLE END DRILL BARS Page C40

Drill Stands and Kits & Threaded Bushings

UNITED Drill Stands Spring Loaded & Threaded

SPRING LOADED DRILL STANDS



NEW TRANSPARENT BLUE CODAR® MATERIAL HIGH IMPACT STRENGTH RESISTANT TO AIRCRAFT FUELS

Spring Loaded Bushing in a Plastic Drill Stand can be used to transfer countersunk pilot holes into mating blank parts.

Manufactured from tough unbreakable plastic.

See page B10 for
Drill Stands and
Handle Bushing
Kits.

UNITED PART NO.	A I. D. RANGE
DSP-40-32	#40 - 5/16

To order, specify Part Number and I. D.
Example: **DSP-40-32-1/4**



KITS with MATCHING BUSHINGS in a variety of sizes!

Align
Drills and Reamers 90° to surface.

Transparent high impact strength
plastic allows view of work and
prevents skin damage.

Hardened bushings are interchangeable.



UDB-DSTAB-32-12-S DRILL STANDS and BUSHINGS SET

Contents: 2 ea: DSTA-32-12 Drill Stands (Standard)
1 ea: DSTB-32-12 Drill Stand (Short)
1 ea: TB-32-12 Threaded Bushings (1/2-13) in
I.D. Sizes: #40, 30, 5/32, 21, 20, 3/16, 10, 7/32, 1/4, F

UDB-DSTAB-48-16-S DRILL STANDS and BUSHINGS SET

Contents: 2 ea: DSTA-48-16 Drill Stands (Standard)
1 ea: DSTB-48-16 Drill Stand (Short)
1 ea: TB-48-16 Threaded Bushings (3/4-16) in
I.D. Sizes: 9/32, 5/16, 11/32, 3/8, 13/32, 7/16, 15/32, 1/2, 17/32, 9/16

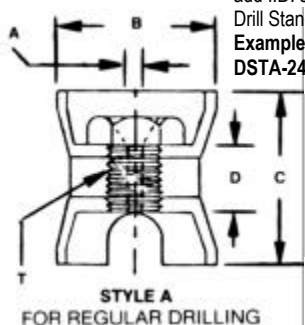
THREADED DRILL STANDS FOR REPLACEABLE BUSHINGS

Specify BUSHINGS by adding I.D. size after Drill Stand Part No.



REGULAR

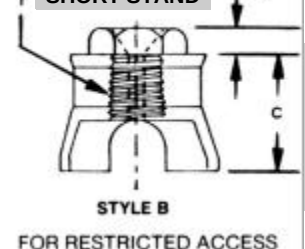
To specify bushings,
add I.D. size after
Drill Stand Part No.
Example:
DSTA-24-12-1/4



STYLE A
DSTA
FOR
REGULAR
DRILLING



SHORT STAND



STYLE B
DSTB
RESTRICTED
ACCESS
DRILLING

THREADED DRILL STANDS

THREADED BUSHINGS

STAND ONLY PART NO.	STYLE	T THREAD	A I.D. RANGE	B	C	D	BUSHING ONLY	ADD I.D.
DSTA-24-12	A	24 = 3/8-16	#80 - #40	1	1-5/8	1/2	TB-24-12	XXX
DSTA-32-12	A	32 = 1/2-13	#28 - 11/32	1-5/8	1-5/8	1/2	TB-32-12	XXX
DSTA-48-16	A	48 = 3/4-16	9/32 - 1/2	1-3/4	2	3/4	TB-48-12	XXX
DSTB-24-12	B	24 = 3/8-16	#80 - #40	1	1-1/4	1/2	TB-24-12	XXX
DSTB-32-12	B	32 = 1/2-13	#28 - 11/32	1-5/8	1-1/8	1/2	TB-32-12	XXX
DSTB-48-16	B	48 = 3/4-16	9/32 - 1/2	1-3/4	1-1/2	3/4	TB-48-12	XXX

FOR STANDS—WITH BUSHINGS—SIMPLY ADD I.D.

DSTA-24-12-#30 (For Style A Regular Stand)

DSTB-24-12-#30 (For Style B Short Stand) See Column A for I.D. sizes available.

FOR BUSHINGS ONLY, 'TB' = THREADED BUSHINGS.

Available lengths under hex
head are 1/2, 3/4 and 1".

Order example:
TB-O.D.-LENGTH-I.D.
TB-3/8-16 3/4 1/4
Or ANSI
TB-24-12-1/4

3/4 Lengths provided
unless specified.



TB-24-12-I.D.
3/8 - 16
I.D. #80 - #40



TB-32-12-I.D.
1/2 - 13
I.D. #28 - 11/32



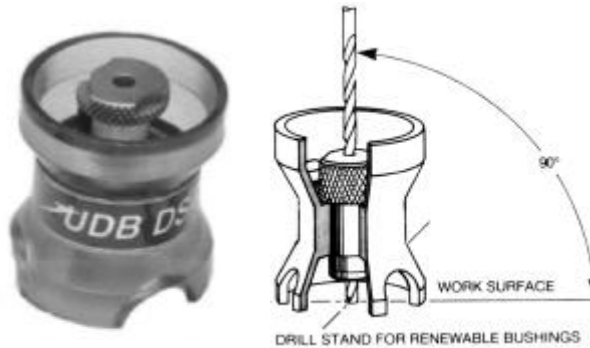
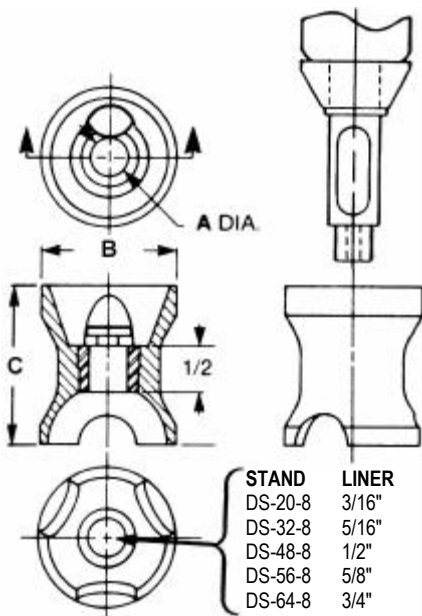
TB-48-16-I.D.
3/4 - 16
I.D. 9/32 - 1/2

Drill Stands Keep It Straight

UNITED's Portable Drill Stands keep your drills, reamers and taps 90° to your flat or curved working surface. Use the Drill Stand with **UNITED's standard Slip Renewable or Slip Fixed Bushings**. Manufactured from tough blue Codar® plastic with a precision hardened steel liner with locking lug for **S or SF Bushings**.

Drill Stands and Uni-Lock Bushings

**STANDARD
DRILL
STANDS**



STAND PART NO.	A LINER I.D.	B STAND O.D.	C STAND LENGTH	FOR USE WITH 'SF' BUSHING	UNI-LOCK LINER
DS-20-8	3/16	1"	1-5/8	SF-12-12- #80 - #40	UL-20-8 3/16
DS-32-8	5/16	1-5/8	1-5/8	SF-20-12- #80 - #10	UL-32-8 5/16
DS-48-8	1/2	1-3/4	2"	SF-32-12- #28 - 11/32	UL-48-8 1/2
DS-56-8	5/8	1-3/4	2"	SF-40-12- S - 7/16	UL-56-8 5/8
DS-64-8	3/4	1-3/4	2"	SF-48-12- 9/32 - 9/16	UL-64-8 3/4

DRILL STANDS WILL ACCOMMODATE BUSHINGS 1/2", 3/4" AND 1" LONG.
TOUGH - DURABLE - HIGH IMPACT PLASTIC - LASTS LONGER



SEE PAGE B10 DRILL STAND KITS.

UDB-DS-654325 DRILL STANDS-LINERS SET

DS-64-8

USE

SF-48-12-I.D.



DS-56-8

USE

SF-40-12-I.D.



DS-48-8

USE

SF-32-12-I.D.



DS-32-8

USE

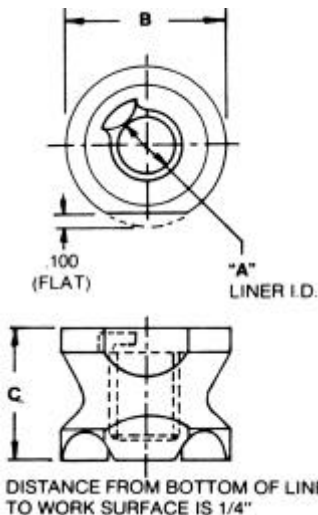
SF-20-12-I.D.



DS-20-8

USE

SF-12-12-I.D.



**GREAT FOR SITUATIONS WHERE
YOU COME UP SHORT!**

**IDEAL FOR RESTRICTED AREAS.
USE WITH SF BUSHINGS — SEE
ABOVE.**

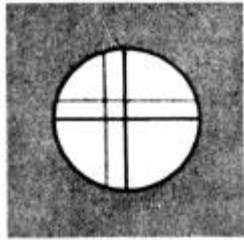
Tough Durable blue PTMT with Alloy
Steel Uni-Lock Liner.
Will accommodate bushings up to 1" long.

STAND PART NO.	A LINER I.D.	B STAND O.D.	C STAND LEN	USE 'SF' BUSHING	DRILL SIZE RANGES
DSS-24-8	3/16	1	1-3/8	SF-12-12	#80 thru #40
DSS-32-8	5/16	1-5/8	1-3/8	SF-20-12	#80 thru #10
DSS-48-8	1/2	1-3/4	1-3/8	SF-32-12	28 thru 11/32
DSS-56-8	5/8	1-3/4	1-3/8	SF-40-12	S thru 7/16
DSS-64-8	3/4	1-3/4	1-7/8	SF-48-12	9/32 thru 9/16

**SHORT
DRILL
STANDS**



Spotters and Adjustable Drill Bars



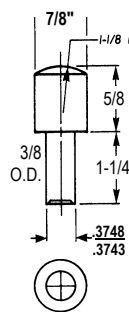
THE SPOTTER KNOWS!

When laying out drill fixtures, templates or dies, proceed in the normal fashion and scribe your location lines. To locate the holes accurately, use **UNITED's** "bombsite" locator the Spotter. This provides you with an accurate and magnified reference point.

Locate and Spot It

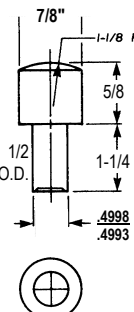
UNITED'S SPOTTER Bombsite Locator

SB-24-20



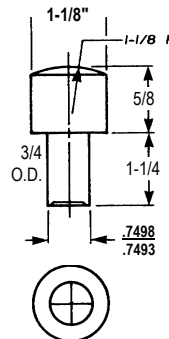
FITS DRILL BAR
DBL-40-12
NEW

SB-32-20



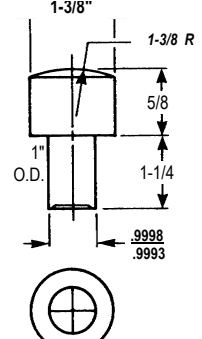
FITS DRILL BAR
DBL-48-12
Most Popular

SB-48-20



FITS DRILL BAR
DBL-64-12
Most Popular

SB-64-20



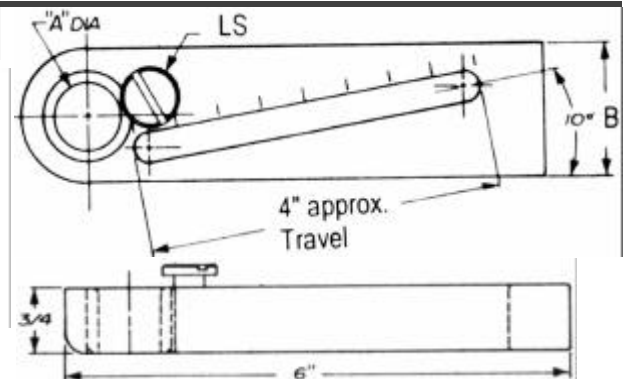
FITS DRILL BAR
DBL-88-12
NEW

Manufactured from tough, clear unbreakable plastic. Crosshairs are centrally located with $\pm .001$. See page C34.

ADJUSTABLE DRILL BARS



Provided with Lock Screw and Liner



UNITED PART NO.	I.D. LINER A $\pm .0003$	BAR WIDTH B	LOCKSCREW LS	USE WITH BUSHING #	I.D. RANGE	USE WITH SPOTTER #
DBL-40-12	3/8" .3751	1-1/4	TW-2	SF-24-12	#10 to #1	SB-24-20
DBL-48-12	1/2" .5002	1-1/2	LS-1	SF-32-12	#28 to 11/32	SB-32-20
DBL-64-12	3/4" .7503	1-1/2	LS-1	SF-48-12	9/32 to 9/16	SB-48-20
DBL-88-12	1" 1.0004	1-3/4	LS-2	SF-64-12	15/32 to 25/32	SB-64-20

UNITED's Adjustable Drill Bars provide accurate placement and alignment of drilled holes. We recommend use of our Spotter, enabling you to locate the Drill Bar centrally within $\pm .001$. Once centered, remove the Spotter and insert Drill Bushing. This provides an accurate and perpendicular hole.

IT'S AS SIMPLE AS 1 - 2 - 3!



1 Scribe your hole location. Loosely secure Drill Bar with a bolt in nearby drilled hole or drill and tap a 3/8 hole and secure with a 3/8 bolt.



2 Insert the Spotter. Locate the Drill Bar over scribed marks. Carefully align the cross hairs of the Spotter and scribed marks. Tighten the bolt.



3 Remove the Spotter. Insert Slip Fixed Bushing with required inside diameter. Drill or Ream.

Handy Adjustable Drill Bar Sets

Double End Adjustable Drill Bar Sets

UDB-DBS-1 TWO DRILL BARS and TWO SPOTTERS

UDB-DBS-1 ADJUSTABLE DRILL BAR SET includes Two Drill Bars and Two corresponding Spotters. The **Adjustable Drill Bars** have hardened steel liners to accommodate **1/2" and 3/4" Spotters**. In addition, appropriate Lock Screws are provided to secure **UNITED's** Slip Fit Renewable Bushings.

The **SET** includes the **Spotter SB-32-20**, the **Spotter SB-48-20**, the **Adjustable Drill Bar DBL-48-12** and the **Adjustable Drill Bar DBL-64-12** packaged with in an attractive compact **Molded Custom Case**.

UNITED OFFERS A LARGE VARIETY OF DRILL BARS AND BUSHING SETS. REFER TO PAGES A16 THRU A19 FOR OTHER STYLES.

UDB-DBS-1



UDB-DBS-2 ADJUSTABLE DRILL BAR and 12 BUSHINGS

UDB-DBS-2 ADJUSTABLE DRILL BAR SET includes a Drill Bar to accept the 1/2" Spotter and Bushings. With the Drill Bar is a Set of **Twelve Fixed Slip Renewable Bushings** in O.D. sizes: 5/32, #20, 3/16, #10, 7/32, 15/64, 1/4, F, 17/64, 9/32, 5/16 and 11/32.

The **SET** includes the **Spotter SB-32-20** and the **Twelve SF-32-12 Bushings** packaged with the **Adjustable Drill Bar DBL-48-12** in a compact **Molded Custom Case**.

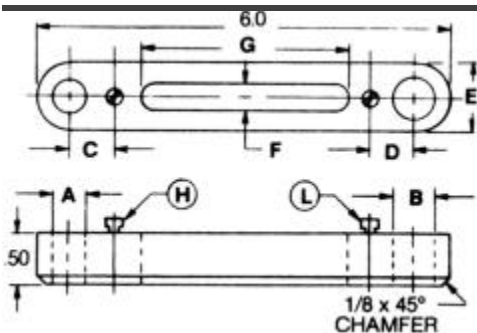
UDB-DBS-3 ADJUSTABLE DRILL BAR and 10 BUSHINGS

UDB-DBS-3 ADJUSTABLE DRILL BAR SET includes a Drill Bar to accept the 3/4" Spotter and Bushings. With the Drill Bar is a Set of **Ten Fixed Slip Renewable Bushings** in O.D. sizes: 9/32, 5/16, 11/32, 3/8, 13/32, 7/16, 15/32, 1/2, 17/32 and 9/16.

The **SET** includes the **Spotter SB-48-20** and the **Ten SF-48-12 Bushings** packaged with the **Adjustable Drill Bar DBL-64-12** in a compact **Molded Custom Case**.



UDB-DBS-2



ADJUSTABLE DOUBLE END DRILL BARS

PROVIDE ACCURATE LOCATION and ALIGNMENT OF DRILLED HOLES



LOCK DRILL BAR DOWN WITH FASTENER IN "G" SLOT.

UNITED PART NO.	A +.0005 -.0000	B +.0005 -.0000	C	D	E	F	G Travel	Lockscrews included H L		Use with Bushings
DBL-16-20	.2501	.3126	.359	.500	3/4	3/8	3-1/8	TW-2	LS-1	SF-16-8/SF20-8
DBL-20-32	.3126	.5002	.500	.625	3/4	3/8	3-1/8	LS-1	LS-1	SF20-8/SF32-8
DBL-28-32	.4377	.5002	.453	.625	3/4	3/8	3-1/8	TW-2	LS-1	SF28-8/SF32-8
DBL-32-40	.5002	.6252	.625	.578	1	3/8	2-7/8	LS-1	TW-2	SF32-8/SF40-8
DBL-32-48	.5002	.7502	.625	.750	1-1/8	3/8	2-5/8	LS-1	LS-1	SF32-8/SF48-8
DBL-40-48	.6252	.7502	.578	.750	1-1/8	3/8	2-5/8	TW-2	LS-1	SF40-8/SF48-8

UCC-HL-1 HiLok Repair Kit

Rib-I
Stacker
Case



UCC-HL-1 PRODUCTION, REPAIR and TRANSFER HOLE KIT

This is a complete Kit for alignment, location, transfer, production and relocation of holes on irregular and straight surfaces using 90° perpendicularity to surfaces. Ideal for installation of HiLoks, Hitigue or Lock Bolts and Rivets.

**Easy to LOCATE - ALIGN - SPOT - CLAMP -
FASTEN IN PLACE - DRILL - REAM and
INSERT NEW FASTENERS.**

KIT CONTENTS



FIVE DRILL BARS—10 LOCK LINERS

See Page C35.

QTY	UNITED PART NO.	DESCRIPTION
1	UDB-DBL-644896	Adjustable Drill Bar - STD 1/2"-3/4"
1	UDB-DBL-644864	Adjustable Drill Bar - Mini 1/2"-3/4"
1	UDB-DBL-6448120	Swivel Drill Bar-Double End 1/2"-3/4"
1	UDB-DBLRA-646464	Drill Bar - Right Angle 3/4"
1	UDB-DBLRA-484864	Drill Bar - Right Angle 1/2"



MIGHTY MINI UNI-LITE

See Page C34.

1	UDB-HL-1-LITE	Bombsite Mini UniLite
1	UDB-HL-1-CASE	Rib-I Stacker Case Assy

Hilok-HiTigue-Lockbolt-Rivet Production and Repair Kit



EIGHT 1/2" OD
SLIP FIT
BUSHINGS
3/4" LONG
I.D.s 3/16 thru M
See pages A6-A9



EIGHT 3/4" OD
SLIP FIT
BUSHINGS
3/4" LONG
I.D.s 5/16" to 3/8"
See pages A6-A9.



1	UDB-SF32-12 .1860	.1860 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 #8	.1990 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 .2140	.2140 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 .2295	.2295 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 D	.2460 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 G	.2610 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 J	.2790 x 1/2" x 3/4" SF Bushing
1	UDB-SF32-12 .2920	.2920 x 1/2" x 3/4" SF Bushing
1	UDB-SF48-12 .3085	.3085 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 P	.3230 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 R	.3390 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 8mm	.3543 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 .3710	.3710 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 W	.3860 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 .4015	.4015 x 3/4" x 3/4" SF Bushing
1	UDB-SF48-12 .4170	.4170 x 3/4" x 3/4" SF Bushing



EIGHT BOMBSITES

See Pages C30, C34.

1	UDB-SB322034 Nominal	Bombsite, 3/16" - 1/4" STD
1	UDB-SB322034-1OS	Bombsite, 3/16" - 1/4" 1st O/S
1	UDB-SB322034-2OS	Bombsite, 3/16" - 1/4" 2nd O/S
1	UDB-SB322034-3OS	Bombsite, 3/16" - 1/4" 3rd O/S
1	UDB-482056 Nominal	Bombsite, 5/16" - 3/8" STD
1	UDB-482056-1OS	Bombsite, 5/16" - 3/8" 1st O/S
1	UDB-482056-2OS	Bombsite, 5/16" - 3/8" 2nd O/S
1	UDB-482056-3OS	Bombsite, 5/16" - 3/8" 3rd O/S



See Page M3.

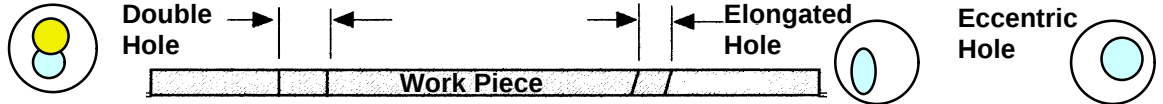
26 PRECISION GROUND LOCATING PINS - CENTER PUNCH POINTS

1	UDB-141860	.1860 Locating Alignment Punch
1	UDB-141990	.1990 Locating Alignment Punch
1	UDB-142140	.2140 Locating Alignment Punch
1	UDB-142295	.2295 Locating Alignment Punch
1	UDB-142460	.2460 Locating Alignment Punch
1	UDB-142610	.2610 Locating Alignment Punch
1	UDB-142770	.2770 Locating Alignment Punch
1	UDB-142920	.2920 Locating Alignment Punch
1	UDB-143085	.3085 Locating Alignment Punch
1	UDB-143230	.3230 Locating Alignment Punch
1	UDB-143390	.3390 Locating Alignment Punch
1	UDB-143543	.3543 Locating Alignment Punch
1	UDB-143710	.3710 Locating Alignment Punch
1	UDB-143860	.3860 Locating Alignment Punch
1	UDB-144015	.4015 Locating Alignment Punch
1	UDB-144170	.4170 Locating Alignment Punch

Align, Locate, Transfer Holes on Level or Irregular Surfaces - Assure Precision Locations and 90° Perpendicularity

Locate or Transfer Holes

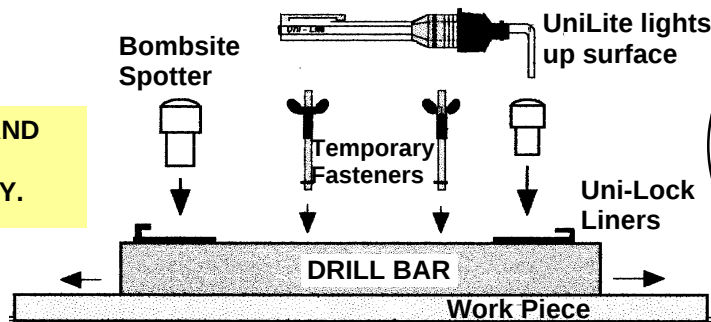
1. IDENTIFY THE TRANSFER OR REWORK and hole diameter. Determine the direction you are installing or moving the hole.



2. SELECT THE CORRECT DRILL BAR which satisfies your hole space and surface conditions. Use standard bars on level surfaces; select swivel bars for irregular or sloped surfaces.

3. CHOOSE THE BOMBSITE, ALIGNMENT PIN AND BUSHING consistent with your new, repaired or transferred hole. Locate and align the hole with the illuminating UniLite.

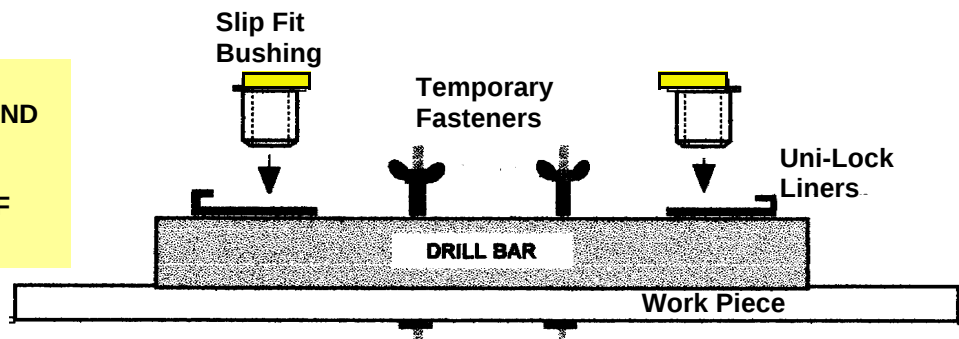
LOCATE AND ALIGN PRECISELY.



4. LIGHT CLAMP YOUR DRILL BAR. Adjust your locations finitely. If surface is irregular remove the BombSite Spotter and use the specific Alignment Pin through a bushing to achieve 90° perpendicularity. You must satisfy the alignment and location. Clamp your Drill Bar to the workpiece or fixture using temporary fasteners from pages F11 and F12.

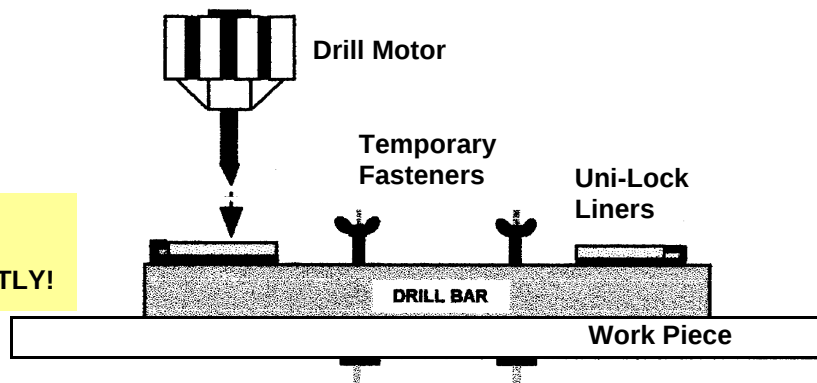
5. CLAMP POSITIVELY, REMOVE THE BOMBSITE SPOTTER AND INSTALL THE EXACT SF DRILL BUSHING by matching the bushing I.D. and/or the Alignment Pin size to the specific bombsite circle you used. Then lock in your SF Bushings. You are now ready.

REMOVE SPOTTER AND INSERT MATCHING SIZES OF SF BUSHINGS.



- 6A. YOUR DRILL BAR IS NOW LOCKED AND LOADED.

DRILL AND REAM CONFIDENTLY!



- 6B. DOUBLE CHECK YOUR NEW HOLE with the Alignment Pin and BombSite Spotter.

INSPECT FOR PERPENDICULARITY.

YOUR HOLE PRODUCTION OR TRANSFER WILL BE A SUCCESS!

**Illuminating Bombsite
to Align Bushings**

Illuminate Your Bombsite Spotter

ALIGNMENT PIN—SF BUSHINGS—NEW ADJUSTABLE UNI-SWIVEL BAR

**USE MIGHTY MINI
UNI-LITE TO LIGHT
UP SPOTTER**



UNITED'S NEW MIGHTY MINI "UNI-LITE"

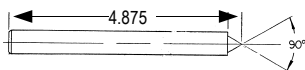
UNITED'S new UniLite offers maximum illumination at minimum expense. Simply attach the Right Angle Illuminator to the front of the UniLite, twist the barrel of the light, and PRESTO!—You have a dramatic illumination.

Position at the top edge of the Spotter without obstructing you view. The location is illuminated and you are assured accuracy. We think you will like adding light to your work!

EIGHT BOMBSITE SPOTTERS ARE AVAILABLE with hole circles two each hole in standard sizes 3/16" - 1/4" - 5/16" - 3/8" and first, second and third oversize holes (Refer to page C30 for 1/2" and 3/4" Bombsite Spotters available with single circles and crosshair bombsites).

SB-322034 STD	SB-322034-1OS 1 O/S	SB-322034-2OS 2 O/S	SB-322034-3OS 3 O/S	See Page 78.	SB-482056 STD	SB-482056-1OS 1 O/S	SB-482056-2OS 2 O/S	SB-482056-3OS 3 O/S
CIRCLES: 3/16-STD-.1860 1/4-STD-.2450	3/16-1 O/S-.1975 1/4-1 O/S-.2600	3/16-2 O/S-.2138 1/4-2 O/S-.2768	3/16-3 O/S-.2285 1/4-3 O/S-.2910		5/16-STD-.3075 3/8-STD-.3700	5/16-1 O/S-.3225 3/8-1 O/S-.3858	5/16-2 O/S-.3380 3/8-2 O/S-.4005	5/16-3 O/S-.3535 3/8-3 O/S-.4160

SIXTEEN CONCENTRIC CENTER PUNCH ALIGNMENT PINS precision ground to nominal minus .0005 in sizes from 3/16" to 27/64" available to locate your holes precisely!

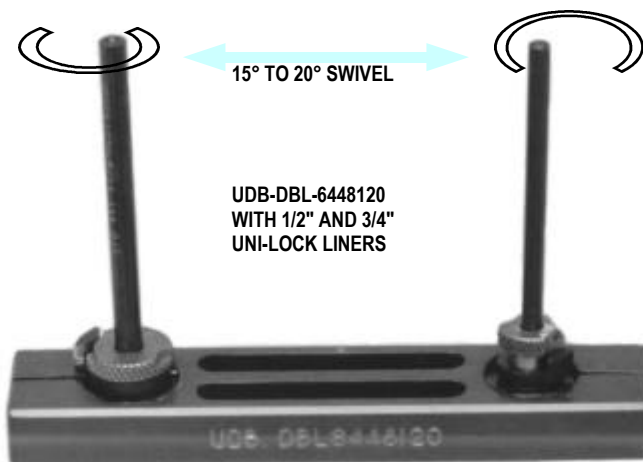


See Page M3.



ADJUSTABLE UNI-SWIVEL DRILL BAR with Alignment Pins will assure your 90° perpendicularity.

**1/2" AND 3/4"
UNILOCK LINER
HOLES TO
INSERT**



UDB-DBL-6448120
WITH 1/2" AND 3/4"
UNILOCK LINERS



See Page C30.

Align, Locate, Produce and Transfer Holes

Hole Production and Repair

RIGHT ANGLE DRILL BARS avoid obstacles and locate around fasteners. The right angle tool for the right job! UDB-DBLRA-484864-1/2.

Manufactured in two hole sizes: 1/2" and 3/4" for Slip-Fixed 1/2" and 3/4" O.D. Bushings. Has two 5/16" wide clamping slots, allowing maximum clamping possibilities.

Offers clamping positions of 90° - 180° - 360°. Use with temporary fasteners shown on pages F11-F12, C-clamps or bolts and nuts.

Hard anodized blue aluminum. Available in steel. Black oxide with swivel. Four inches small. Available with swivel. Rotate 90° for Left Angle!

* UDB-DBLRA-484864
TWO 1/2" UNILOCK LINERS

* UDB-DBLRA-646464
TWO 3/4" UNILOCK LINERS

UDB-DBLRA-486464
ONE 1/2" AND ONE 3/4" UNILOCK LINERS

* Most practical for
Right Angle Drill
Bars.

RIGHT ANGLE DRILL BARS 1/2" AND 3/4"

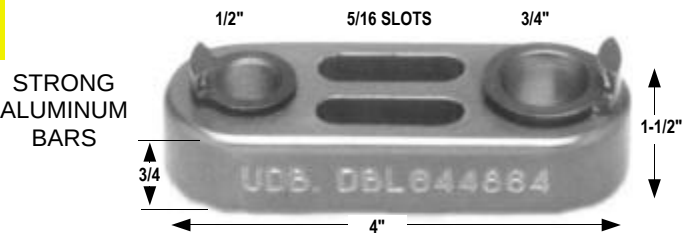


UNI-MINI DRILL BARS 1/2" and 3/4" UniLock Liners. Also available with two 1/2" UL Liners or two 3/4" UL Liners. UDB-DBL-644864-1/2-3/4.

Has two 5/16" wide clamping slots. Hard anodized blue aluminum. Available in steel. Also available with swivel.

UDB-DBL-484864 TWO 1/2" UNILOCK LINERS
UDB-DBL-646464 TWO 3/4" UNILOCK LINERS
UDB-DBL-644864 ONE 1/2" AND ONE 3/4" UNILOCK LINERS

UNI-MINI DRILL BARS 1/2" AND 3/4"



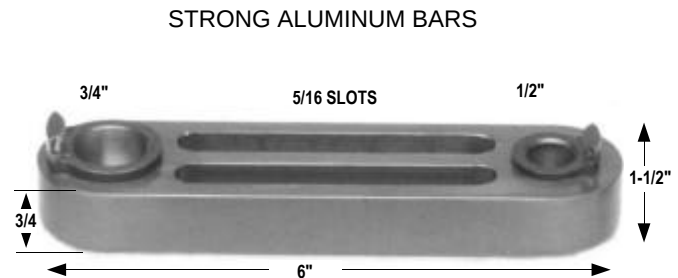
UNITED STANDARD 1/2" & 3/4" DRILL BARS with 1/2" and 3/4" UniLock Liners.

Also available with two 1/2" UL Liners or two 3/4" UL Liners for Slip-Fixed Renewable Bushings. Six inches long, 3/4" thick with radius ends for maximum access to all locations.

Two 5/16" wide clamping slots provide maximum clamping opportunities with minimum interference. Hard anodized blue aluminum. Available in steel. Available with swivel.

UDB-DBL-644896 STD 1/2" & 3/4" UNILOCK LINERS
UDB-DBL-484896 STD BAR with TWO 1/2" UL LINERS
UDB-DBL-646496 STD BAR with TWO 3/4" UL LINERS

STANDARD DRILL BARS 1/2" AND 3/4"



UNITED'S ADJUSTABLE DRILL BARS
This 7-1/2" Hard anodized blue aluminum drill bar has two swivel balls with 3/4" and 1" I.D.s.

We provide 1/2" and 3/4" UniLock Liners pressed into the swivel balls for immediate use with Slip-Fixed Renewable Bushings 1/2" and 3/4" O.D.

The Adjustable Bar allows Liners to rotate 360° and swivel 15°-20° in any direction.

Once loaded and clamped in place, you will achieve repeated holes 90° to your surface. Available in steel.

UNITED'S NEW ADJUSTABLE SWIVEL DRILL BARS With 1/2" & 3/4" UNI-LOCK LINERS



UDB-DBLS-6448120 with 1/2" & 3/4" I.D.
Non-Swivel Bars are also available.

Hole Production Kit

Hole Alignment-Location-Production & Transfer Kit

FOR 747 STRUT PROJECT



Rib-I
Stacker
Case

UTK 994747 HOLE ALIGNMENT-LOCATION- PRODUCTION-TRANSFER KIT

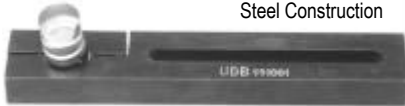
This Kit contains three Drill Bars, two Bombsite Spotters, thirty-six Slip-Fit Renewable Drill Bushings.

The thirty-six Alignment-Center Punches correspond to the Bushing I.D.s from #30 to 5/8 for a total of 78 kit items.

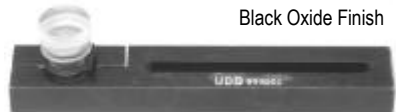
Ideal for fast and simple hole location!

KIT CONTENTS

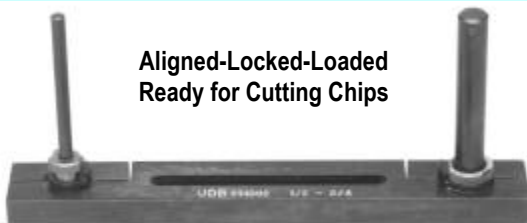
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	UDB-991032	SWIVEL BAR ASSY- SINGLE END-1/2" I.D. UNILOCK LINER Steel Construction



2	1	UDB-991048	SWIVEL BAR ASSY-SINGLE END-3/4" I.D. UNILOCK LINER Black Oxide Finish
---	---	------------	--



3	2	UDB-994832	1/2" AND 3/4" SWIVEL BAR ASSY-DOUBLE END-1/2 & 3/4 UNILOCK LINERS
---	---	------------	---



Aligned-Locked-Loaded
Ready for Cutting Chips

ITEM	QTY	PART NO.	DESCRIPTION
4	1	SB-32-20	UDB-BOMBSITE CENTER SPOTTER -1/2" O.D.
5	1	SB-48-20	UDB-BOMBSITE CENTER SPOTTER -3/4" O.D.



7/8" O.D.

1/2" O.D.



1-1/8" O.D.

3/4" O.D.

See Page C30.

18 SF-32-12(+ I.D.) x 1/2" O. D. x 3/4" LONG SLIP-FIXED RENEWABLE DRILL BUSHINGS WITH THE FOLLOWING I.D.s

ITEM	I.D.	ITEM	I.D.	ITEM	I.D.	ITEM	I.D.
6	#30 = .1285	11	3/16 = .1875	16	1/4 = .2500	21	5/16 = .3125
7	9/64 = .1406	12	#10 = .1935	17	F = .2570	22	21/64 = .3218
8	5/32 = .1562	13	13/64 = .2031	18	17/64 = .2656	23	11/32 = .3451
9	#20 = .1610	14	7/32 = .2187	19	9/32 = .2812		
10	11/64 = .1719	15	15/64 = .2344	20	19/64 = .2968		



SF32-12
1/2" O.D.



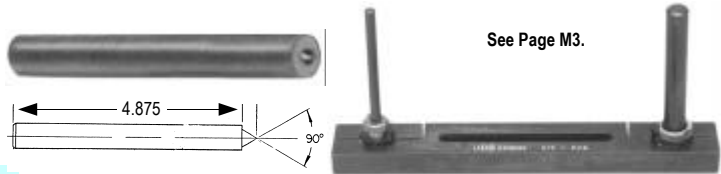
SF48-12
3/4" O.D.

See Pages A6-A7.

18 SF-48-12(+ I.D.) x 3/4" O. D. x 3/4" LONG SLIP-FIXED RENEWABLE DRILL BUSHINGS WITH THE FOLLOWING I.D.s

ITEM	I.D.	ITEM	I.D.	ITEM	I.D.	ITEM	I.D.
24	23/64 = .3594	29	7/16 = .4375	34	33/64 = .5156	39	19/32 = .5937
25	3/8 = .3750	30	29/64 = .4521	35	17/32 = .5312	40	39/64 = .6049
26	25/64 = .3906	31	15/32 = .4688	36	35/64 = .5469	41	5/8 = .6250
27	13/32 = .4062	32	31/64 = .4844	37	9/16 = .5625		
28	27/64 = .4219	33	1/2 = .5000	38	37/64 = .5781		

36 1 EACH--See P/Ns Below ALIGNMENT - CENTER PUNCHES



See Page M3.

ITEM	UNITED PART NO.	ITEM	UNITED PART NO.
42	UDB-141285 #30 .1285	60	UDB-143594 23/64" .3594
43	UDB-141406 9/64" .1406	61	UDB-143750 3/8" .3750
44	UDB-141562 5/32" .1562	62	UDB-143906 25/64" .3906
45	UDB-141610 #20 .1610	63	UDB-144062 13/32" .4062
46	UDB-141719 11/64" .1719	64	UDB-144219 27/64" .4219
47	UDB-141875 3/16" .1875	65	UDB-144375 7/16" .4375
48	UDB-141935 #10 .1935	66	UDB-144531 29/64" .4531
49	UDB-142031 13/64" .2031	67	UDB-144687 15/32" .4687
50	UDB-142187 7/32" .2187	68	UDB-144843 31/64" .4843
51	UDB-142344 15/64" .2344	69	UDB-145000 1/2" .5000
52	UDB-142500 1/4" .2500	70	UDB-145156 33/64" .5156
53	UDB-142570 "F" .2570	71	UDB-145312 17/32" .5312
54	UDB-142656 17/64" .2656	72	UDB-145469 35/64" .5469
55	UDB-142812 9/32" .2812	73	UDB-145625 9/16" .5625
56	UDB-142968 19/64" .2968	74	UDB-145781 37/64" .5781
57	UDB-143125 5/16" .3125	75	UDB-145937 19/32" .5937
58	UDB-143281 21/64" .3281	76	UDB-146094 39/64" .6049
59	UDB-143437 11/32" .3437	77	UDB-146250 5/8" .6250

78 1 UCC-994747-78 RIB-I STACKER CASE WITH FOAM INSERTS

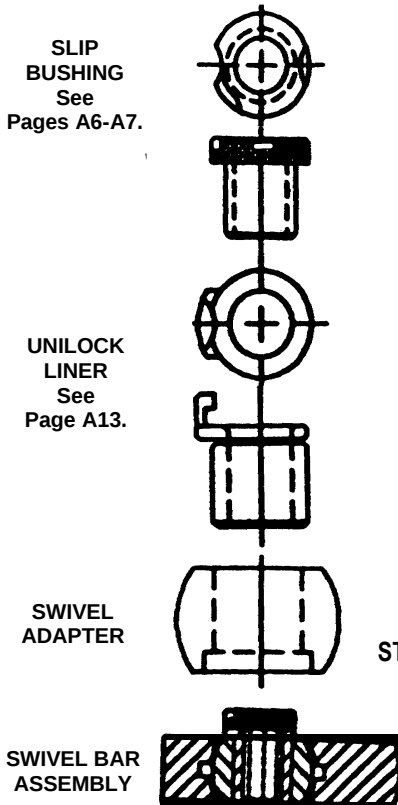
Slip-Fit Renewable Bushing Swivel Bar Assemblies

**SF Bushing Swivel
Bar Assemblies**

FOR 5/16," 1/2" AND 3/4" SF BUSHINGS

SELECT YOUR SINGLE OR DOUBLE END
SWIVEL DRILL BAR ASSEMBLY.

1. Select I.D. required. 2. Determine Slip-Fit Bushing. 3. Find Assembly number 4. You will receive the Swivel Adapters, UniLock Liners, Spotter, Transfer Punch and SF Bushings as a Total Assembly, unless specified otherwise. Items may also be purchased individually.



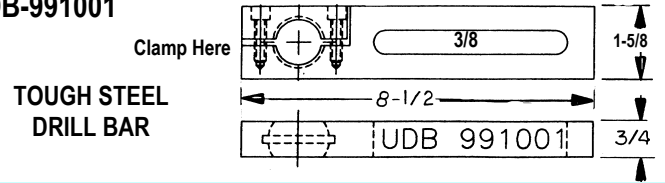
Swivels
15° to 20°
in any
direction.

Rotates
360°

STEEL DRILL BAR

*

SINGLE END BAR WITHOUT SWIVEL ADAPTER UDB-991001

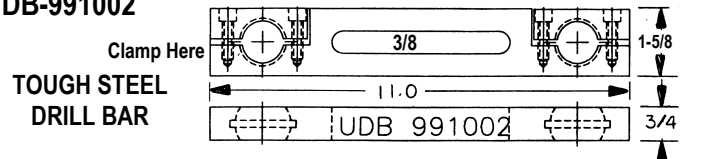


SINGLE END BARS WITH SWIVEL AND UNILOCK

SPECIFY UDB-991020 FOR 5/16" I.D. LINER
SPECIFY UDB-991032 FOR 1/2" I.D. LINER
SPECIFY UDB-991048 FOR 3/4" I.D. LINER



DOUBLE END BAR WITHOUT SWIVEL ADAPTER UDB-991002



DOUBLE END BAR WITH SWIVEL AND UNILOCK LINER

SPECIFY UDB-992020-32 FOR 5/16" AND 1/2" LINERS in SAME BAR
SPECIFY UDB-992032-48 FOR 1/2" AND 3/4" LINERS in SAME BAR

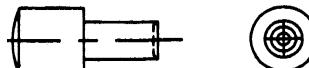
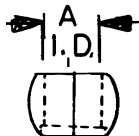


SOCKET HEAD BOLTS ARE PROVIDED.

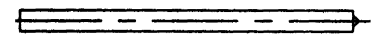
STEEL -- HEAT TREATED -- BLACK OXIDED

SLIP BUSHING SINGLE END BAR ASSY	SLIP BUSHING DOUBLE END BAR ASSY	SWIVEL ADAPTER	SWIVEL I.D.	UNILOCK LINER	CENTER SPOTTER	TRANSFER PUNCH	SLIP RENEW- ABLE BUSH- ING	DRILL RANGE NOM. ACTUAL
UDB-991020	UDB-992020	UDB-993032	1/2	UL-32-12 5/16	UDB-SB-20-20	UDB-143125	UDB-SF-20	#80 - #10 .0135 .1935
UDB-991032	UDB-992032	UDB-993048	3/4	UL-48-12 1/2	UDB-SB-32-20	UDB-145000	UDB-SF-32	#28 - 11/32 .1405 .3437
* UDB-991048	UDB-992048	UDB-993064	1.000	UL-64-16 3/4	UDB-SB-48-20	UDB-147500	UDB-SF-48	9/32 - 9/16 .2812 .5625

* FOR 1.000" I.D.
SWIVEL, BAR IS 2"
WIDE AND 1" HIGH.



See page C30.



See page M3.

SWIVEL ADAPTERS		
PART NUMBER	A NOM.	DIA. ACTUAL
UDB-993032	1/2	.5000
UDB-993048	3/4	.7500
* UDB-993064	1.000	1.0000

BOMBSITE SPOTTERS	
PART NUMBER	B DIA.
SB-20-20	.3125
SB-32-20	.5000
SB-48-20	.7500

CENTER ALIGNMENT PUNCH		
PART NUMBER	A	DIA.
UDB-143125	5/16	.3125
UDB-145000	1/2	.5000
UDB-147500	3/4	.7500

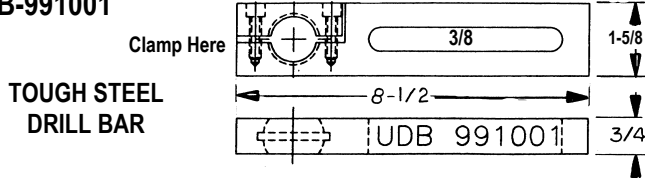
Nurlock Adapter Tip Swivel Bar Assy

Nurlock Adapter Tip Swivel Drill Bar Assemblies

FOR 21000-22000-23000 SHANKS & LOCK SERIES

SINGLE END BAR WITHOUT SWIVEL ADAPTER

UDB-991001



SELECT THE SINGLE OR DOUBLE END SWIVEL DRILL BAR ASSEMBLY NEEDED.

1. Select I.D. required.
2. Determine the Nurlock Shank I. D., O.D. and Lock Series. Add the required length numbers (Refer to Pages P10-P11 and Chart below).
3. Specify the Assembly number.
4. You will receive the selected Swivel Nurlock Liners, Spotter, Transfer Punch and Adapter Tips as a Total Assembly, unless specified otherwise. Items may also be purchased individually.

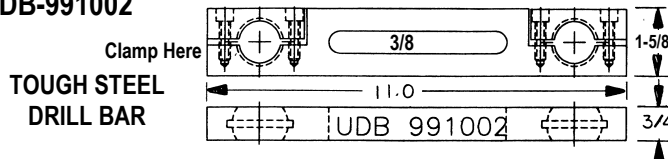
SINGLE END BAR WITH SWIVEL ADAPTER AND HELICAL NURLOCK LINERS

SPECIFY UDB-991124 FOR 3/8" I.D. LINERS. REFER TO CHART.
SPECIFY UDB-991128 FOR 7/16" I.D. LINERS. SEE BELOW.



DOUBLE END BAR WITHOUT SWIVEL ADAPTER

UDB-991002



Swivels
15° to 20°
in any
direction.

Rotates
360°

DOUBLE END BAR WITH SWIVEL ADAPTER AND HELICAL NURLOCK LINERS

SPECIFY UDB-992124-128 FOR 3/8" AND 7/16" LINERS in SAME BAR
SPECIFY UDB-992132-228 FOR 1/2" AND 7/16" LINERS in SAME BAR, ETC.

SOCKET HEAD BOLTS ARE PROVIDED.
STEEL -- HEAT TREATED -- BLACK OXIDED



TOUGH STEEL
DRILL BARS

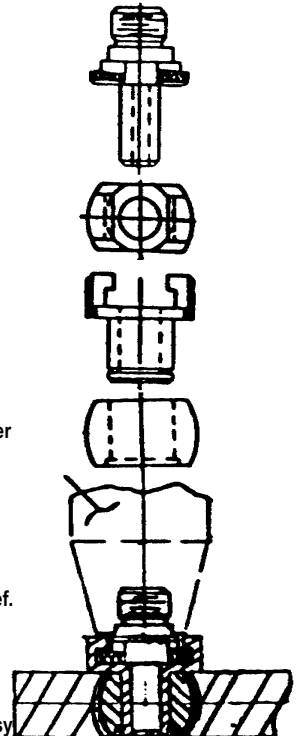
Nurlock
Adapter Tip
See Page P10

Nurlock Liner
See Page P32

Swivel Adapter

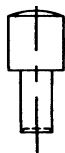
Nosepiece Ref.

Adapter Tip-
Nurlock Liner-
Swivel Bar Assy



NURLOCK SINGLE END BAR ASSY	NURLOCK DOUBLE END BAR ASSY	SWIVEL ADAPTER	SWIVEL I.D.	NURLOCK LINER	CENTER SPOTTER	TRANSFER PUNCH	NURLOCK SERIES ADAPTER TIP	DRILL RANGE	
								NOM.	ACTUAL
UDB-991124	UDB-992124	UDB-993032	1/2	UDB-HNL-213212 3/8	UDB-SB-24-20	UDB-143750	UDB-A211XX 3/8	3/32 - 1/4	.0937 -.2500
UDB-991128	UDB-992128	UDB-993048	3/4	UDB-HNL-214812 7/16	UDB-SB-28-20	UDB-144375	UDB-A212XX 7/16	3/32 - 5/16	.0937 -.3125
UDB-991132	UDB-992132	UDB-993048	3/4	UDB-HNL-214812 1/2	UDB-SB-32-20	UDB-145000	UDB-A213XX 1/2	3/32 - 3/8	.0937 -.3750
UDB-991228	UDB-992228	UDB-993048	3/4	UDB-HNL-224812 7/16	UDB-SB-28-20	UDB-144375	UDB-A221XX 7/16	3/16 - 9/32	.1875 -.2812
UDB-991232	UDB-992232	UDB-993048	3/4	UDB-HNL-224812 1/2	UDB-SB-32-20	UDB-145000	UDB-A222XX 1/2	3/16 - 11/32	.1875 -.3437
UDB-991236	UDB-992236	UDB-993052	13/16	UDB-HNL-225212 9/16	UDB-SB-36-20	UDB-145625	UDB-A223XX 9/16	3/16 - 13/32	.1875 -.4062
UDB-991240	UDB-992240	UDB-993056	7/8	UDB-HNL-225612 5/8	UDB-SB-40-20	UDB-146250	UDB-A224XX 5/8	3/16 - 15/32	.1875 -.4687
UDB-991352	UDB-992352	UDB-993064	1.000	UDB-HNL-236416 13/16	UDB-SB-52-24	UDB-148125	UDB-A232XX 13/16	1/4 - 19/32	.2500 -.5938

* FOR 1.000 I.D. SWIVEL,
BAR IS 2" WIDE AND 1" HIGH.



See page C30.

BOMBSITE SPOTTERS	
PART NUMBER	B DIA.
SB-24-20	.3750
SB-28-20	.4375
SB-32-20	.5000
SB-36-20	.5625
SB-40-20	.6250
SB-52-20	.8125

See page M3.

CENTER ALIGNMENT PUNCH	
PART NUMBER	A DIA.
UDB-143750 3/8	.3750
UDB-144375 7/16	.4375
UDB-145000 1/2	.5000
UDB-145625 9/16	.5625
UDB-146250 5/8	.6250
UDB-148125 13/16	.8125

SWIVEL ADAPTERS		
PART NUMBER	A NOM.	DIA. ACTUAL
UDB-993032	1/2	.5000
UDB-993048	3/4	.7500
UDB-993052	13/16	.8125
UDB-993056	7/8	.8750
UDB-993064	1.000	1.0000

C38

There's Only One More Test With **UNITED** Products: Yours!

6-11-02

Helox Adapter Tip for Shelox Swivel Drill Bars

FOR HOLES TO 3/8" DRILLS

Helox-Shelox Swivel
Drill Bars

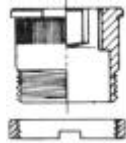
SELECT THE SINGLE OR DOUBLE END
SWIVEL DRILL BAR ASSEMBLY NEEDED.

1. Select I.D. required. 2. Determine the Helox Shank I.D., O.D. on Pages Q27 – Q28. Add the required length numbers to the Helox Adapters. 3. Specify the Assembly number. 4. You will receive the selected Swivel Adapters, Liners, Spotter, Transfer Punch and Helox Adapter Tips as a Total Assembly, unless specified otherwise. Items may also be purchased individually.

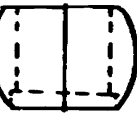
HELOX ADAPTER
TIP
SEE PAGES
Q27-Q28.



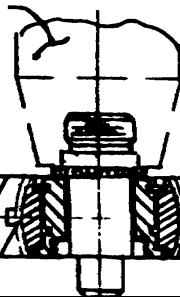
SHELOX LINER
SEE PAGES
Q30, Q35.



RETAINING RING
SEE PAGES
Q30, Q35.

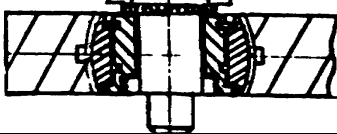


SWIVEL ADAPTER



NOSEPIECE REF.
PAGES O-12 O-19.

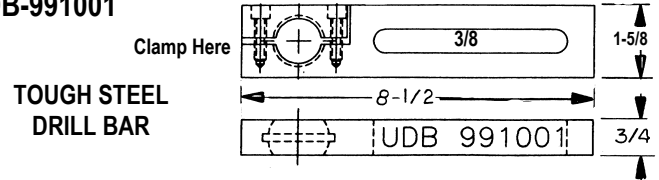
HELOX ADAPTER
TIP ASSEMBLY



Swivels
15° to 20°
in any
direction.

Rotates
360°

SINGLE END BAR WITHOUT SWIVEL ADAPTER UDB-991001

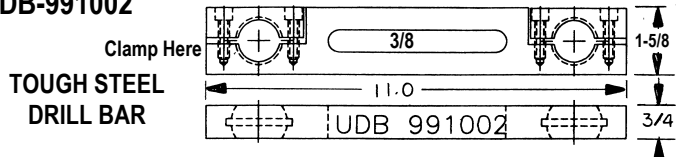


SINGLE END HELOX-SHELOX ADAPTER TIP BAR WITH SWIVEL

SPECIFY UDB-991492 FOR .2860 I.D. LINERS
SPECIFY UDB-991503 FOR .3906 I.D. LINERS
SPECIFY UDB-991515 FOR .5000 I.D. LINERS
SPECIFY UDB-991526 FOR .6250 I.D. LINERS



DOUBLE END BAR WITHOUT SWIVEL ADAPTER UDB-991002



DOUBLE END HELOX-SHELOX ADAPTER TIP BAR WITH SWIVEL

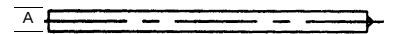
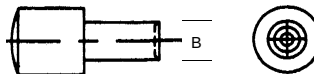
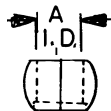
SPECIFY UDB-992492-503 FOR .280 AND .390 LINERS in BAR
SPECIFY UDB-992515-526 FOR .500 AND .625 LINERS in BAR

SOCKET HEAD BOLTS ARE PROVIDED.
STEEL -- HEAT TREATED -- BLACK OXIDED



HELOX-SHELOX SINGLE END BAR ASSY	HELOX-SHELOX DOUBLE END BAR ASSY	SWIVEL ADAPTER	SWIVEL I.D.	SHELOX LINER	CENTER SPOTTER	TRANSFER PUNCH	HELOX ADAPTER TIP	DRILL RANGE	
								NOM.	ACTUAL
UDB-991492	UDB-992492	UDB-993032	1/2	UDB-521349 - .2860	UDB-SB-18-20	UDB-142800	UDB-A4900XX SERIES	1/16 - 7/64	.0625-.1094
UDB-991503	UDB-992503	UDB-993040	5/8	UDB-521350 - .3906	UDB-SB-25-20	UDB-143900	UDB-A5000XX SERIES	1/16 - 13/64	.0625-.2031
UDB-991515	UDB-992515	UDB-993050	7/8	UDB-521351 - .5000	UDB-SB-32-20	UDB-145000	UDB-A5100XX SERIES	1/16 - 5/16	.0625-.3125
* UDB-991526	UDB-992526	UDB-993064	1.00	UDB-521352 - .6250	UDB-SB-40-20	UDB-146250	UDB-A5200XX SERIES	1/16 - 23/64	.0625-.3594

* FOR 1.000 I.D. SWIVEL,
BAR IS 2" WIDE AND
1" HIGH



SWIVEL ADAPTERS		
PART NUMBER	A NOM.	DIA. ACTUAL
UDB-993032	1/2	.5000
UDB-993040	5/8	.6250
UDB-993050	7/8	.8750
* UDB-993064	1.000	1.0000

See page C30.

BOMBSITE SPOTTERS	
PART NUMBER	B DIA.
SB-18-20	.2860
SB-25-20	.3906
SB-32-20	.5000
SB-40-20	.6250

See page M3.

CENTER ALIGNMENT PUNCH		
PART NUMBER	A	DIA.
UDB-142800	.280	.2860
UDB-143900	.390	.3906
UDB-145000	1/2	.5000
UDB-146250	5/8	.6250

12-03-03

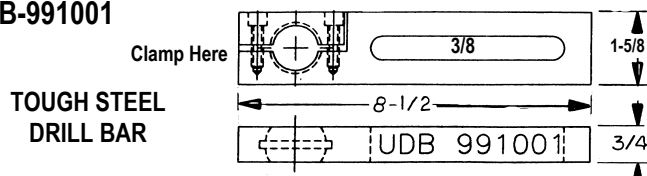
12200 WOODRUFF AVE. DOWNEY, CA 90241-5608 TELEPHONE (562) 803-1521 / (800) 421-3466 IN CA / 800-486-3466 FAX (562) 803-6898 / (800) 486-3465

C39

AT Adapter Tip Series Drill Bars

AT Adapter Tip & LL Lock Liner Series Drill Bar Assy

SINGLE END BAR WITHOUT SWIVEL ADAPTER UDB-991001



**TOUGH STEEL
DRILL BAR**

**SELECT THE SINGLE OR DOUBLE END
SWIVEL DRILL BAR ASSEMBLY.**

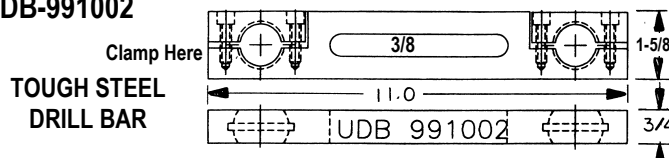
1. Select I.D. required. 2. Determine the AT Shank I. D. and O.D. Adapter Tip. See Page P45. Add the required length numbers to the AT Adapters. 3. Specify the Assembly number. 4. You will receive the selected Swivel Adapters, Lock Liners, Spotter, Transfer Punch and AT Adapter Tips as a Total Assembly, unless specified otherwise. Items may also be purchased individually.

SINGLE END AT ADAPTER TIP DRILLBAR WITH LOCK LINER

SPECIFY UDB-991622 FOR 11/32 I.D. LINER
SPECIFY UDB-991628 FOR 7/16 I.D. LINER
SPECIFY UDB-991636 FOR 9/16 I.D. LINER
SPECIFY UDB-991648 FOR 3/4 I.D. LINER



DOUBLE END BAR WITHOUT SWIVEL ADAPTER UDB-991002



**TOUGH STEEL
DRILL BAR**

**Swivels
15° to 20°
in any
direction.**

**Rotates
360°**

AT SERIES
ADAPTER TIP
SEE PAGE P41.

LL SERIES
LINER
SEE PAGE P41.

SWIVEL
ADAPTER

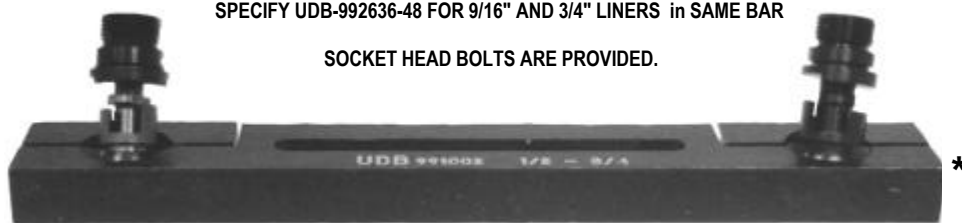
NOSEPIECE
REF.
SEE PAGES
O-12 O-19.

AT ADAPTER
ASSEMBLY

DOUBLE END AT ADAPTER TIP DRILLBAR WITH TWO LOCK LINERS OF YOUR CHOICE.

SPECIFY UDB-992622-28 FOR 11/32" AND 7/16" LINERS in SAME BAR
SPECIFY UDB-992636-48 FOR 9/16" AND 3/4" LINERS in SAME BAR

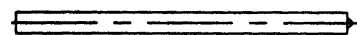
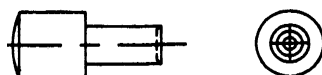
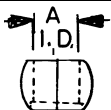
SOCKET HEAD BOLTS ARE PROVIDED.



STEEL -- HEAT TREATED -- BLACK OXIDED

AT SERIES SINGLE END BAR ASSY	AT SERIES DOUBLE END BAR ASSY	SWIVEL ADAPTER	SWIVEL I.D.	LL LOCKING LINER	CENTER SPOTTER	TRANSFER PUNCH	AT TYPE ADAPTER TIP	DRILL RANGE	
								NOM.	ACTUAL
UDB-991622	UDB-992622	UDB-993036	9/16	UDB-LL-36-12P 11/32	UDB-SB-22-20	UDB-143437	UDB-AT-22-XX I.D.	3/16 - #5	.1875-.2055
UDB-991628	UDB-992628	UDB-993044	11/16	UDB-LL-44-12P 7/16	UDB-SB-28-20	UDB-144375	UDB-AT-28-XX I.D.	#11 - 9/32	.1910-.2812
UDB-991636	UDB-992636	UDB-993052	13/16	UDB-LL-52-12P 9/16	UDB-SB-36-20	UDB-145625	UDB-AT-36-XX I.D.	9/32 - Z	.2812-.4130
* UDB-991648	UDB-992648	UDB-993064	1.000	UDB-LL-64-14P 3/4	UDB-SB-48-20	UDB-147500	UDB-AT-48-XX I.D.	9/32 - 5/8	.2812-.6250

* FOR 1.000 I.D.
SWIVEL, BAR IS 2"
WIDE AND 1" HIGH.



SWIVEL ADAPTERS		
PART NUMBER	A NOM.	DIA. ACTUAL
UDB-993036	9/16	.5625
UDB-993044	11/16	.6875
UDB-993052	13/16	.8125
* UDB-993064	1.000	1.0000

See page C30

BOMBSITE SPOTTERS	
PART NUMBER	B DIA.
SB-22-20	.3437
SB-28-20	.4375
SB-36-20	.5625
SB-48-20	.7500

See page M3.

CENTER ALIGNMENT PUNCH		
PART NUMBER	A DIA.	
UDB-143437	11/32	.3437
UDB-144375	7/16	.4375
UDB-145625	9/16	.5625
UDB-147500	3/4	.7500

Precision Layout Tools

Be Precise!

SCRIBE LAYOUT LINES AND PUNCH HOLE CENTERS ACCURATELY

You can **SCRIBE REFERENCE LINES** for metalworking layout within .001 inch accuracy. The machined aluminum **SCRIBE-RITE LAYOUT TOOL** is easy to operate. The Layout Tool has a removable **OPTICAL CENTERING GAUGE** with a plastic optical column. It is ground and polished to a 6 power magnification without distortion or parallax. The Optical Centering Gauge collects and concentrates room light to the surface to be viewed, avoiding use of an accessory light. Crosshairs in the viewer provide precise location of any reference point. The scribing edge of the Layout Tool is aligned with the crosshairs of the vertical Optical Centering Gauge. **UNITED's** Scribe-Rite Layout Tool has two holes. Two Optical Centering Gauges may be used to pick up the original line and simultaneously extend it to the previous line.

UNITED's 3-STEPS to Use the OPTICAL CENTERING GAUGE

1. Place the Center-Rite body over the crossed lines on your layout, and insert the Centering Gauge in the hole of the Center-Rite body.
2. Look into the Centering Gauge and move the unit until the crosshairs line up with your layout's crossed lines. A magnetic action provides resistance to slipping and locks the unit in place when center is located.
3. Remove the Optical Centering Gauge and insert the Precision Center Punch, tapping lightly with a hammer. The walls of the hole in the unit hold the punch in a straight perpendicular position to insure an accurate straight punch directly on center.

UNITED's STEPS To USE TWO (2) CENTERING GAUGES

When it is necessary to accurately extend a straight line, two centering gauges may be used to precisely line up on the original line and extend it without deviation.

The lower centering gauge is used to pick up the previously scribed line. Using the top centering gauge, the rule can be reset to a previous reference point, so the layout may be inspected or re-worked.

Complete Center-Rite Kits consist of:

- 1 Center-Rite Body Unit
- 1 Optical Centering Gauge
- 1 Precision Center Punch.

Complete Scribe-Rite Sets consist of:

- 1 Scribe-Rite Layout Tool
- 1 or 2 Optical Centering Gauges

Items may be purchased separately.



SCRIBE-RITE LAYOUT TOOL WITH OPTICAL CENTERING GAUGE



OPTICAL CENTERING GAUGE INSERTED IN CENTER-RITE BODY



VIEW THRU THE VERTICAL OPTICAL CENTERING GAUGE



PRECISION CENTER PUNCH INSERTED IN CENTER-RITE BODY



TAPPING HOLE WITH PRECISION CENTER PUNCH THRU

UNITED PART NO.	DESCRIPTION
UDB-350500	Optical Centering Gauge with Crosshairs, Only
UDB-350100	Scribe-Rite Layout Tool, Only
UDB-350150	Scribe-Rite Tool, 1 Optical Centering Gauge <i>SHOWN ABOVE</i>
UDB-350200	Scribe-Rite Tool, 2 Optical Centering Gauges
UDB-350250	Center-Rite Body Unit, Only
UDB-350300	Precision Center Punch
UDB-350350	Center-Rite Body Unit, Centering Gauge & Punch <i>SHOWN BELOW</i>



Precision
UDB-350500



Point Location

Optical Centering Gauge

**Your Drill Blocks and
Bars By UNITED**

**TEAM UNITED Serves as Your
Tool Makers' Tool Maker!**



F-4 F-15 CONTOUR DRILL BAR



LOCKHEED-GELAC DRILL/REAM BAR



NORTHROP DRILL BAR



LOCK SCREW LOCATOR DRILL BAR



F-4 F-15 CONTOUR DRILL BAR



LOCKHEED-GELAC DRILL/REAM FIXTURE



F-15 F-18 SWIVEL FIXTURE



GELAC DRILL/REAM BAR

**Send Us Your Ideas, Specs,
Sketches, Photos or Prints.**

**Your Drill Bars
& Blocks By UNITED**



GELAC DRILL BLOCK



F-4 F-15 DRILL BAR



BOEING MCAIR DRILL BAR



LOCKHEED SIDE BLOCK



BOEING SEATTLE
HAND DRILL
ALIGNMENT
FIXTURE



BOEING COMMERCIAL DRILL BR



GELAC DRILL/REAM BAR

Versatile Drill Blocks

All-Purpose Drill Blocks

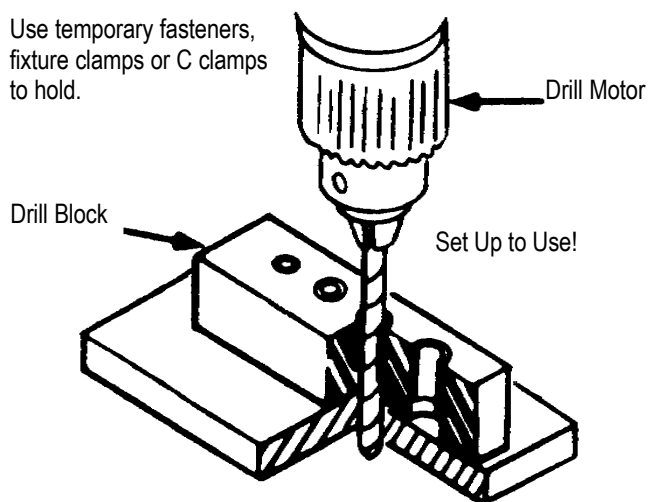
ALUMINUM ALL PURPOSE DRILL BLOCKS



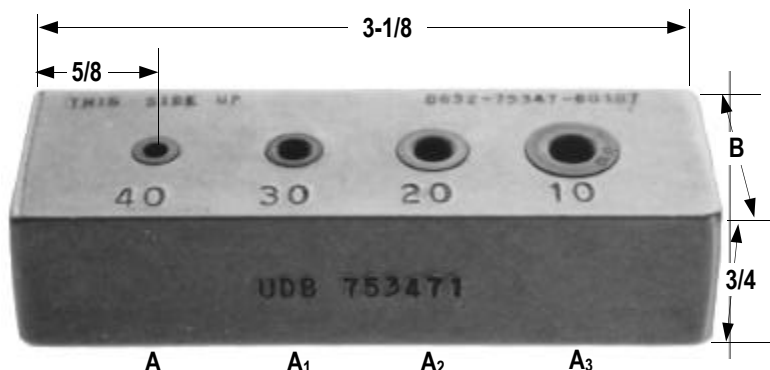
UDB-753473

Ask and **UNITED** will provide the sizes you require in these blocks!

Use temporary fasteners, fixture clamps or C clamps to hold.



UDB-753472



UDB-753471

ALUMINUM BLOCKS

Aluminum Blocks are square to work piece.

Drill Bushings are all 1/2" long allowing chip relief between block and work piece.

Blocks are all 3/4" high and polished.

Face of blocks are all 1" wide except UDB-753474, which is 5/8" wide.

All bushings are located central and spaced 5/8."

Bushings are held to ANSI Tolerances up to 1/4" +.0001 +.0004 over 1/4 +.0001 +.0005 after pressing.

UNITED PART NO.	A	A ₁	A ₂	A ₃	B
UDB-753471	.0980 #40	.1285 #30	.1610 #20	.1935 #10	1
UDB-753472	.2501 1/4	.3125 5/16	.3750 3/8	.4375 7/16	1
UDB-753473	.1695 #18	.2280 #1	.2900 L	.3437 11/32	1
UDB-753474	.1285 #30	.1610 #20	.1935 #W	.2500 1/4	5/8
UDB-753475	.1285 #30	.1660 #19	.1935 #10	.2500 1/4	1