Drill and Router Guides
Value From UNITED!

Pressure Foot Drilling Systems

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Pressure Foot System
With Drill Guide Bushings

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

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

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

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

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

FASTER — BETTER AT LOWER COST!

Enjoy Pressure Foot Economy!
**Quick— Cool And Critical**

*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.

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**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.*

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**CRITICAL HOLE**

*Twisfit Bushings are used to hold alignment and location in critical holes.*

**NON CRITICAL**

*Unbushed holes are non-critical.*
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

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.
**Instructional Procedure**

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.

**DRILL GUIDE NOSEPICE**

![Diagram of Drill Guide Nosepiece]

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.

**UNITED DRILL GUIDE NOSEPICE FIT THE FOLLOWING DRILL MOTORS**

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

<table>
<thead>
<tr>
<th>MFG.</th>
<th>MODEL</th>
<th>CHUCK DIA.</th>
<th>NOSEPICE DASH NO.</th>
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Drill Guides

**DGNP-32-XX NOSEPICE 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.

**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.

The 2 inch travel PFA-32-22 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**

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.

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.

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

Pressure Foot Accessories

PART RELATIONSHIPS

PRESSURE FOOT ADAPTERS

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>TYPE</th>
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<td>1-1/4</td>
<td>DGNP-40-XX</td>
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* 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.

AIR MIST ASSEMBLY

Nylon reinforced Coolant Line
AMU-22 16-1/2" STRAIGHT
AMU-23 18" STRAIGHT
AMU-24 21" 45°

Coolant Line is supplied with Nozzle. Order Holder separately.

AMB-16

AIR MIST BAIL
Needed to secure the spray mist nozzle to the drill guide.
**Drill Guide Assemblies**

### DRILL GUIDE BUSHING ADAPTERS

Use with PFA-40-12.

### ORDERING EXAMPLE

**BASIC PART NO.**
- **PB-24-20**
- **PB-32-22**
- **PB-40-22**

**PART NO.**
- **DBA-40-32-24**
- **DBA-40-32-32**
- **DBA-40-32-40**
- **DBA-40-42-24**
- **DBA-40-42-32**
- **DBA-40-42-40**

**BASIC PART NO.**
- **DBA**
- **-40**
- **-42**
- **-24**

**A I.D. SIZE IN 64ths**
- .375
- .500
- .625

**BORE DEPTH IN 64ths**
- .375
- .500
- .625

**C LENGTH IN 16ths**
- 2.00
- 2.00
- 2.62

**USE BUSHING INSERT**
- PB-24-20
- PB-32-22
- PB-40-22

**DRILL GUIDE PILOT BUSHING**

### ORDERING EXAMPLE

**PART NO.**
- **#40**
- **PB-24-14-thru**
- **#9**

**B SHANK**
- .098

**LENGTH**
- .3750
- .87
- 1.250
- .3750

**OAL**
- .6250
- .87
- 1.500
- .6250

**FITS ADAPTER**
- DBA-40-32-24
- DBA-40-42-24

**PB**
- 24
- 14
- #40

**TELESCOPIC PRESSURE FOOT ASSEMBLY**

**PART NO.**
- **#40**
- **PB-24-14-thru**
- **#9**

**THRU**
- .3750
- .87
- 1.250
- .3750

**PB**
- 24
- 14
- #40

**PILOT INSERT**

**INSERT SHANK**

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

**REF SP-13609**

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.