

BACKSPOTFACING



The Automatic Money Maker:

Application Information.....3

NEW 7000 Series:

Air or Coolant Pressure Activated4

6000 Series Extended Range:

*Torque Bar Type & Coolant Pressure
Activated5-10*

NEW 3900 Heavy-Duty:

Rotary Pilot Model11

2900 Bearing Guided:

Precision Back Boring12-13

Models 1600 & 1700 / 2500 & 2600:

Torque Bar Activated14-15

Models 5100 & 5200 / 5500 & 5600:

Inertia Activated16-17

Models 2100 & 2400:

Activating Pad Type.....18-19

Models 1800 & 1900 / 2200 & 2300:

*Activating Cone or
Bump Type20-21*

Technical Information:

Torque Bar Drivers22

Basic Data23

Brazed Type Cutter Blades24

Holders For Indexable Inserts.....25

Indexable Inserts.....26

Feeds & Speeds.....27

Quotation Request Sheet.....28

Demanding applications don't have to be a hassle. Our Autofacer® tools perform manual or automatic backspotfacing and counterboring operations on any type of CNC, automatic or manual machine tools.

Wide Selection:

Indexable-type cutter blades available for most applications.

Reliability:

Positive cutter blade action ensures reliability, even in horizontal applications.

Easy-to-Replace:

Simple cutter replacement with set screw and pull-out pivot pin.

Versatility:

Semi-standard tools available for bores and spotfaces of .250" diameter and larger.

Full Range:

Depth of backfeed (cut) is unlimited. Variations of cutter configuration available.



With "chip-to-chip" time lowered as much as 80%, Autofacer is designed to take advantage of feeds and speeds used with carbide tooling.

The Automatic Money Maker Backspotfacing & Back Counterboring Tools

For ordering information, please refer to the Autofacer Quotation Request Sheet (page 28).



Technical

Rotating Tools

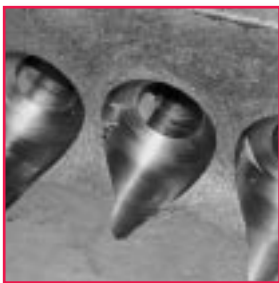
Boring

Tapping

Backspotfacing

Workholding

Presetting



Master Holders with Indexable Carbide Inserts.

AUTOMATIC OR MANUAL PERFORMANCE

- The AUTOFACER's Pilot Diameter Range = .248" (6.3mm) or larger.
- The AUTOFACER is available in several different configurations, engineered for use on all types of machine tools: CNC, Transfer lines, or Manual.
- Chip-to-chip time is lowered as much as 80% over other methods.
- The AUTOFACER simplifies machining processes and lowers tooling costs by eliminating secondary operations.
- The AUTOFACER is designed to run at high surface speeds and relatively low feed rates.
- The AUTOFACER is engineered to perform difficult interrupted cuts, for example in turbine and generator cases as shown.
- The AUTOFACER is positively actuated by an internal friction clutch, not by centrifugal force. While the tool is rotating, the cutter blade is held tightly against its seat in the cutter head. This feature insures smooth cutting action without excessive chatter or frequent chipping and breaking of the cutting edge.
- The larger size AUTOFACERS are equipped with a bearing type rotary pilot that remains stationary in the work hole to allow high surface speeds and to prevent gulling.
- Most AUTOFACER are now available with Indexable Carbide Cutter Blades.
- AUTOFACERS can be configured for:
 - Front and back countersinking.
 - Cutting spherical radii in automotive differential cases.
 - Combination back facing and grooving.

Solid Pilot 7100 & 7200 / Rotary Pilot 7500 & 7600 *Air or Coolant Pressure Activated*



7200 Series with a Weldon Style Shank shown here.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

SOLID PILOT AUTOFACERS 7100 & 7200

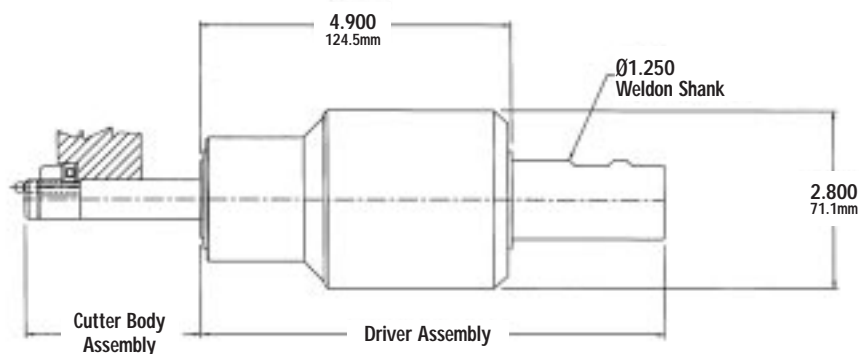
- Pilot diameter "A" range from 1/4"

ROTARY PILOT AUTOFACERS 7500 & 7600

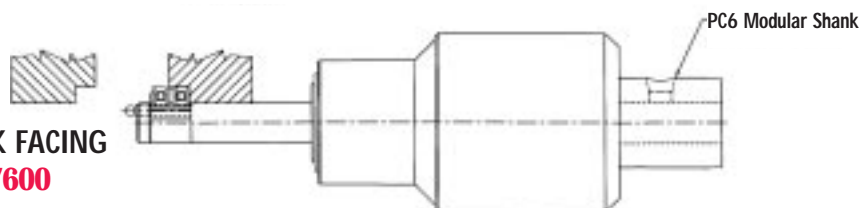
- Pilot diameter "A" range from .615" (15.62mm).

- **No spindle reversal required.** Activated simply by turning on coolant-through or air-through spindle (minimum 200 PSI coolant, minimum 80 PSI air pressure).
- **The cutter blade is positively held open** enabling the tool to perform difficult interrupted cuts.
- Short, compact design is **ideal for transfer lines and CNC Machines.**
- Available from 1/4" minimum hole diameter.

BACK FACING ONLY MODEL 7100 & 7500



FRONT AND BACK FACING MODEL 7200 & 7600



6000 Series Extended Range Torque Bar Type (Patented) & Coolant Pressure Activated (Patented)



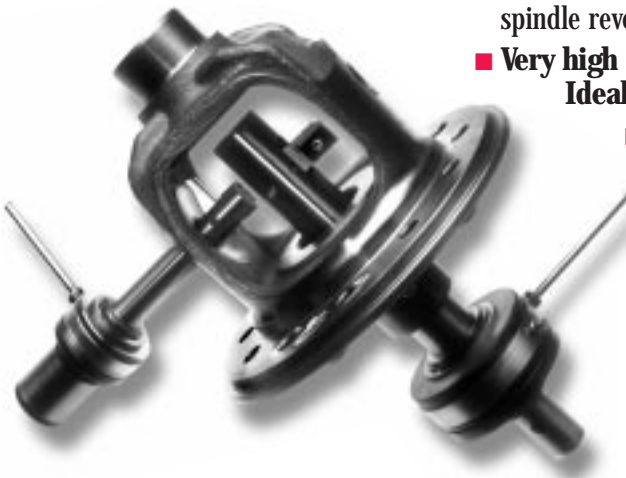
IDEAL FOR MACHINING INTERIOR SURFACES IN AUTOMOTIVE TYPE DIFFERENTIAL GEARCASES



The modular design of the Series 6000 Autofacer allows interchangeability between different tools and actuators.

- **“Unlimited” spotface diameter range.** Maximum spotface diameter is not totally dependent on pilot hole size.
- **Ease-of-operation,** simple to setup and program.
- Tools are supported in the pilot hole **ensuring excellent size and flatness control efficiently and repeatedly.**
- **Fast machining cycle.** Activation is instantaneous with either spindle reversal or turning on **coolant-through-spindle.**
- **Very high reliability.** Simple and advanced design. **Ideal for modern CNC machines.**

- Equipped for **coolant-through-spindle** or by using optional toolholder mounted rotary coolant inducers.
- **Coolant through feature allows higher cutting speed,** longer cutting life and greatly increased reliability by clearing chips out of the cutting head before folding cutter blade in for tool retraction.



Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



6000 Series Extended Range Torque Bar Type (Patented)



*6000 Series Torque Bar type
Autofacer shown here with
attached torque bar driver:*

Technical

Rotating Tools

Boring

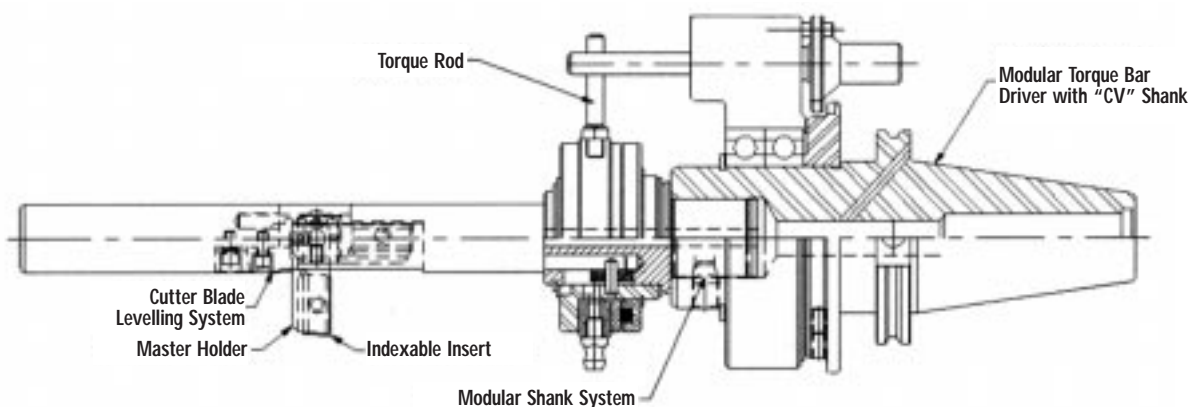
Tapping

Backspotfacing

Workholding

Presetting

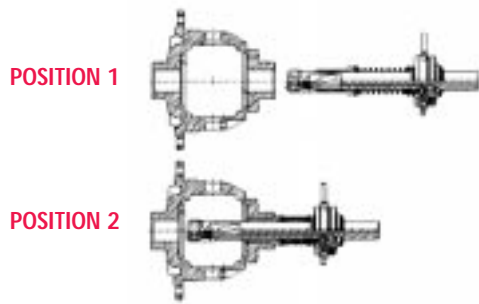
- Torque bar driver is **required** for use on **CNC Machining Center with automatic tool changer.**
- Torque bar driver is **not required** for use on **transfer line type equipment.**
- Tools are available with brazed carbide or indexable insert type cutter blades depending on cutter blade size and configuration.
- 100 PSI minimum coolant pressure is required for proper flushing of the cutter head.
- All tools have through-the-tool coolant journal.
- **Activated simply by reversing spindle rotation,** internal friction clutch will flip out or fold in the cutter blade.
- **The cutter blade is positively held open** by the internal friction clutch enabling the tool to perform difficult interrupted cuts.



6000 Series Extended Range Torque Bar Type – Operating Sequence

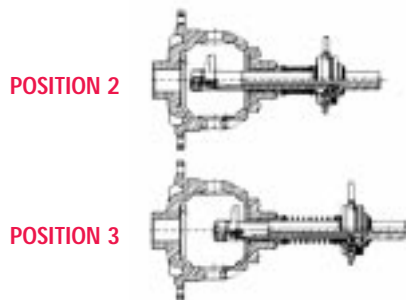
All 6000 Series AUTOFACERS are equipped with coolant-through feature. For best results use high grade filtered coolant. Coolant pressure of 100 PSI minimum is required to flush cutter head free of chips and contamination. Do not operate this tool without coolant! Cutter blade will fail to open and close!

OPERATING SEQUENCE:



Turn on coolant. Enter workhole with dead or forward rotating spindle.
100 - 200 RPM 100 IPM (2.5 MPM)

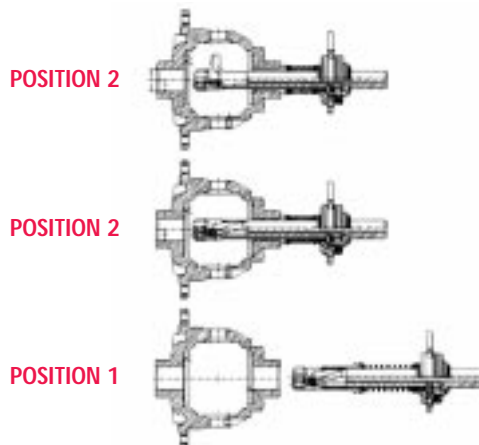
Autofacer is fed through until the cutter blade clears all obstructions and is free to flip open.



Spindle is now reversed to ccw rotation to flip cutter blade open. Spindle speed is determined by proper surface speed. (see recommended feeds and speeds.)

Fast feed 100 ipm. To approach work surface. Feed to depth (see recommended feeds and speeds.)

A brief dwell is recommended to clean-up the cut.



Fast feed forward to Position 2. Cutter blade must clear all obstructions and have ample space to flip closed.

Reverse spindle rotation to flip cutter blade closed.

Fast feed out to Position 1.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



6000 Series Extended Range Coolant Pressure Activated (Patented)



6000 Series Coolant Pressure Activated Autofacer shown here.

Technical

Rotating Tools

Boring

Tapping

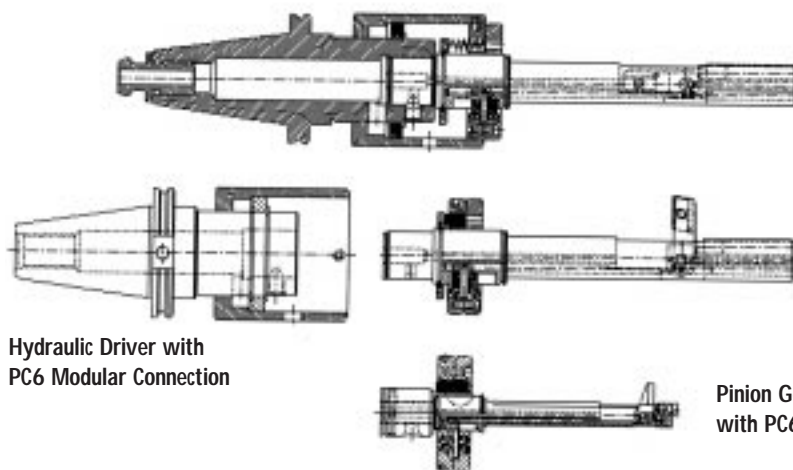
Backspotfacing

Workholding

Presetting



- **“Unlimited” spotface diameter range.** Maximum spotface diameter is not totally dependent on pilot hole size.
- **Ease of operation,** simple to setup and program.
- **Activated by simply turning on the spindle-through-coolant** to flip out the cutter blade. *(Note: 200 PSI minimum coolant pressure and a 20 micron filter is required).*
- **The cutter blade is positively held open** enabling the tool to perform difficult interrupted cuts.
- Cutter blade is folded in by an internal return spring system after coolant is turned off.
- **Fast machining cycle.** No spindle reversal is required.
- **Very high reliability.** Simple and advanced design.
- **Ideal for modern CNC based transfer lines.**
- **Coolant-through feature allows higher cutting speed,** longer cutter life and greatly increased reliability by clearing chips out of the cutting head before folding cutter blade in for tool retraction.
- **Modular design** allows interchangeability between different tools and actuators.
- Available with **indexable insert or brazed carbide special forms.**



Hydraulic Driver with PC6 Modular Connection

Side Gear Seat Tool with PC6 Modular Connection

Pinion Gear Spherical Seat Tool with PC6 Modular Connection

6000 Series Extended Range Coolant Pressure Activated – Operating Sequence

This tool is activated by through-the-spindle coolant pressure, minimum of 200 PSI is required. A built in spring return folds in the cutter blade when the through-the-spindle coolant is turned off.

RECOMMENDED OPERATING PARAMETERS UP TO 2.00" DIAMETER SPOTFACE

Differential Case Pinion Gear Spherical Seat Machining

Technical

Rotating Tools

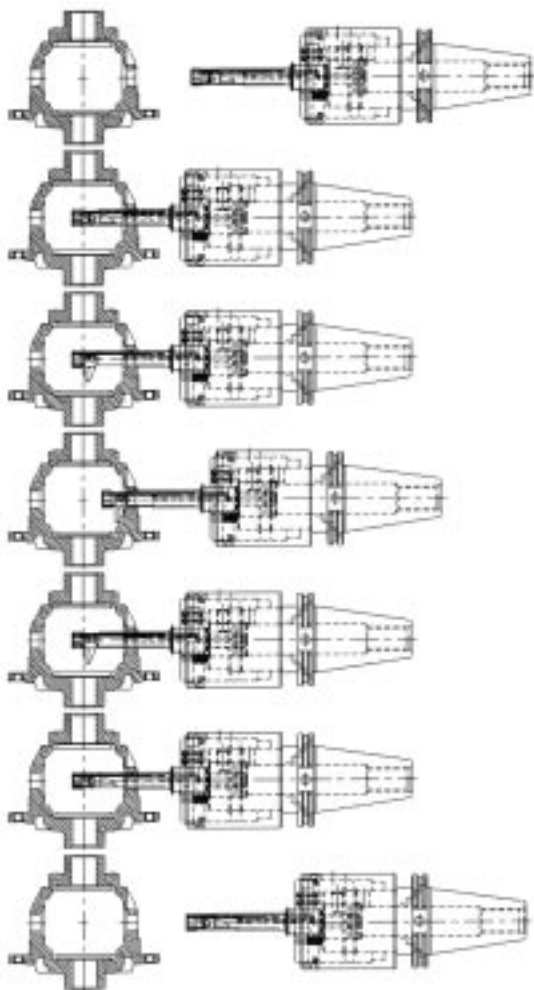
Boring

Tapping

Backspotfacing

Workholding

Presetting



Spindle OFF, **Flood Coolant On**. Enter work hole @ 100 IMP.

Feed through the work until the cutter blade clears all the obstructions and is free to flip open.

Turn on the **through-the-spindle coolant** to flip cutter blade open. Start spindle ccw. 500-600 RPM.

Fast feed @ 100 IMP. to approach work surface.

Feed to within .020 of finish depth @ 500-600 RPM and .002-.003 IPR.

Slow down to 100 RPM and .002 IPR and feed to final depth.

Dwell for 1-2 seconds to clean-up the cut.

Fast feed away from the cut until the cutter blade has ample space to flip closed.

Stop spindle.

Turn off the **through-the-spindle coolant** to flip cutter blade closed.

Dwell for 2 seconds before retracting.

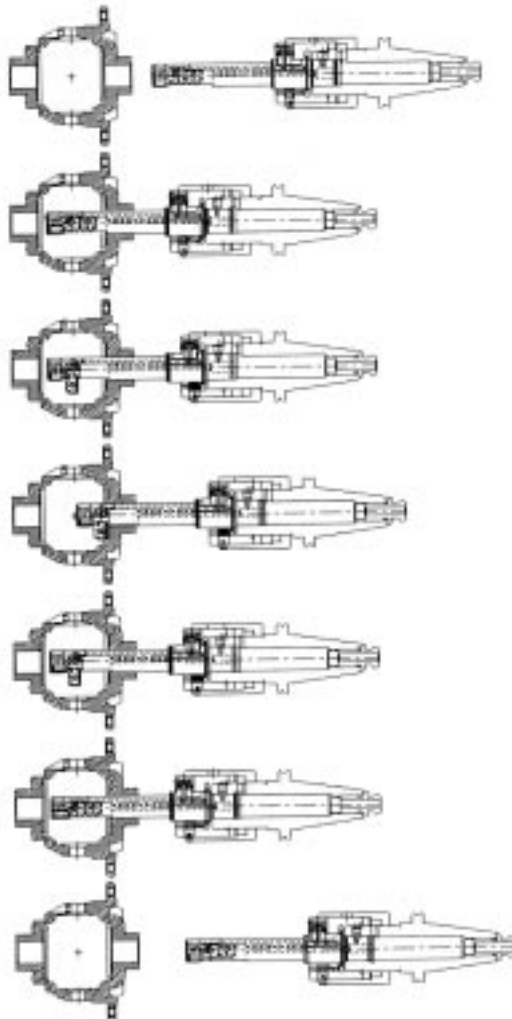
Fast feed out of the work piece. *Note:* Should clear work piece by 4" minimum before any X or Y movement takes place.

6000 Series Extended Range Coolant Pressure Activated – Operating Sequence

This tool is activated by through-the-spindle coolant pressure, minimum of 200 PSI is required. A built in spring return folds in the cutter blade when the through-the-spindle coolant is turned off.

RECOMMENDED OPERATING
PARAMETERS UP TO 3.00 - 4.00"
DIAMETER SPOTFACE

Differential Case Side Gear
Spherical Seat Machining



Spindle OFF, **Flood Coolant On**. Enter work hole @ 100 IPM.

Feed through the work until the cutter blade clears all the obstructions and is free to flip open.

Turn on the **through-the-spindle coolant** to flip cutter blade open.

Start spindle ccw. 300-400 RPM. Fast feed @ 100 IPM. to approach work surface.

Feed to within .020 of finish depth @ 300-400 RPM and .003-.005 IPR.

Slow down to 100 RPM and .002 IPR and feed to final depth.

Dwell for 1-2 seconds to clean-up the cut.

Fast feed away from the cut until the cutter blade has ample space to flip closed.

Stop spindle.

Turn off the **through-the-spindle coolant** to flip cutter blade closed.

Dwell for 2 seconds before retracting.

Fast feed out of the work piece.

Note: Must clear work piece by 4" minimum before any X or Y movement takes place.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Rotary Pilot Model 3900 Manual Front and Back Spotfacer

High performance heavy-duty balanced cut back spotfacing and counter boring tools.



Model 3900 Heavy-Duty Autofacer shown here with indexable carbide insert.



- Equipped with replaceable bearing type rotary pilots allowing easy change over for a variation of hole sizes.
- Rotary pilot increases performance allowing higher surface speeds by eliminating galling between the bar and the workpiece and it reduces heat build-up from high cutting pressures.
- Indexable or brazed-replaceable and resharpenable carbide inserts are available depending on tool size and the diameter of cut.
- Simple loading and removal of cutter blade by using a large tapered lock screw.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Model 2900 Bearing Guided Precision Back Boring Tools

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



Model 2900 Bearing Guided Roughing and Adjustable Finishing Autofacers shown here.



- Model 2900 AUTOFACER is engineered to produce **super precision back boring** at speeds in excess of 1500 RPM to $\pm .00010$ " (0.000254mm) diameter tolerance.
- A high precision bearing type spring loaded tapered pilot supports the tool in the work hole providing repeatability within less than $.00010$ ".
- Designed for CNC Machining Systems and conventional transfer lines.
- **Tools are torque bar driven.** Activation is instantaneous by spindle reversal.
- Coolant-through tool feature on all tools.
- Excellent for eliminating long length-to-diameter ratios and in difficult boring applications.



Model 2900 Bearing Guided Autofacer shown here with fixed combination rough boring inserts.

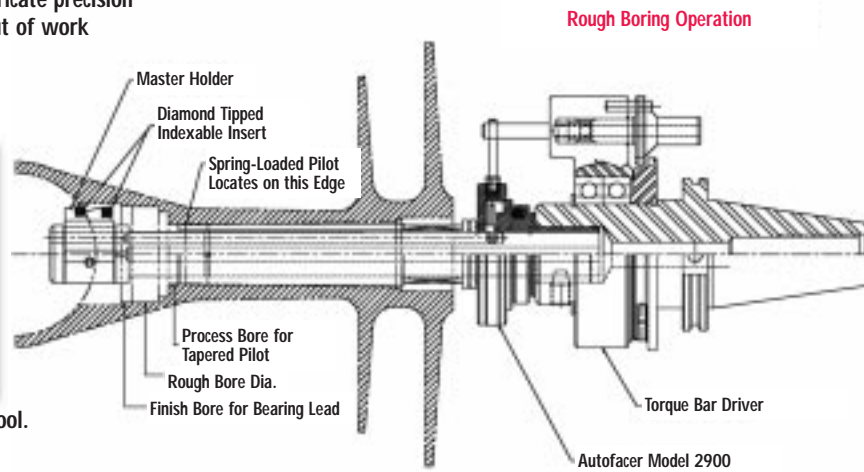
Model 2900 Bearing Guided Autofacer shown here with a finish boring insert.

Model 2900 Operating Sequence

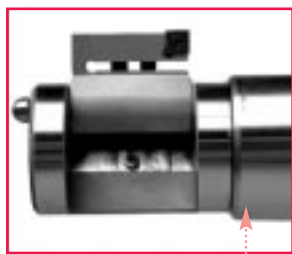
High pressure (1000 PSI minimum) spindle through-coolant is required to lubricate precision pilot bearing and to flush chips out of work hole and cutter head.



Fixed combination rough boring tool.

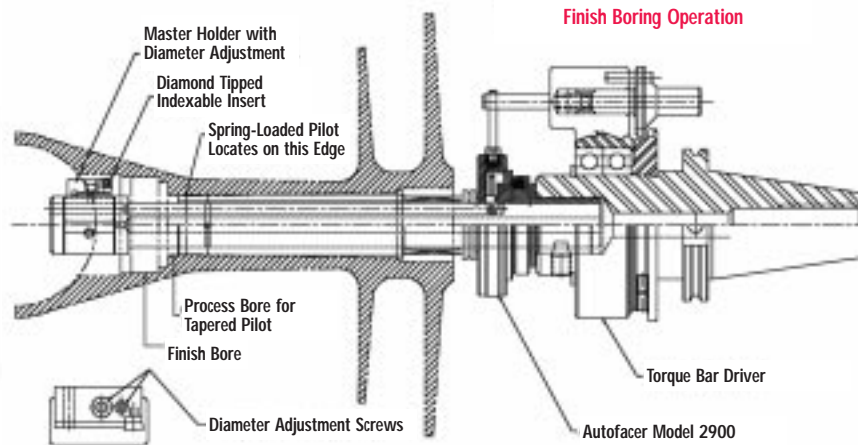


Rough Boring Operation



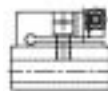
Finish boring tool with diameter adjustment.

Conical Pilot



Finish Boring Operation

Adjustable Master Holder Layout



Reference Surface



Presetting Dimension

OPERATING SEQUENCE:

1. **With Low Pressure Coolant on, start spindle @100 RPM CW to close cutter blade before entering work hole.** AUTOFACER enters work hole in a CW spindle rotation. The tool is fed through @ 100 IPM. until the cutter blade completely clears the part. **Turn High Pressure Coolant On.**
2. **Reverse spindle rotation to 100 RPM CCW** After 1 second dwell increase RPM for proper cutting speed (1500+ RPM), the cutter blade flips out into cutting position and is positively held open for immediate cutting.
3. Back feed to counterbore depth. .002 IPR. A one second dwell is recommended to clean up the cut.
4. **Turn off high pressure coolant. Reduce spindle speed to 100 RPM. Now reverse spindle rotation to 100 RPM CCW, this will fold cutter blade into cutter head.** Dwell for one second before withdrawing tool from work piece. Fast feed out of the part @ 100 IPM while the spindle continues to rotate to complete machining cycle.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Solid Pilot 1600 & 1700 / Rotary Pilot 2500 & 2600 Torque Bar Activated

See "Autofacer Basic Data" (page 23) for Coded Dimensions.



Assortment of Torque Bar Activated Solid Pilot and Rotary Pilot Autofacers shown here with a torque bar driver.

SOLID PILOT AUTOFACERS 1600 & 1700

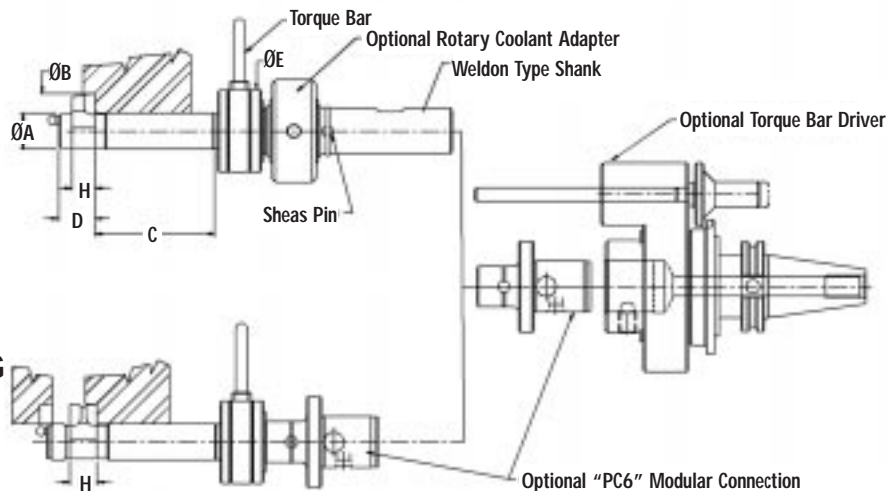
- Pilot diameter "A" range from .248" (6.3mm) to .614" (15.6mm)
- Standard pilot length is 2.00" (50.80mm). Longer pilots available.

ROTARY PILOT AUTOFACERS 2500 & 2600

- Pilot diameter "A" range from .615" (15.62mm) to 2.00" (50.80mm).
- Standard pilot lengths "C" are: 3.00" (65.1mm) for basic sizes 62 through 68. Longer pilots available.
- Standard pilot lengths "C" are 4.00" (101.6) for basic size 68 and larger. Longer pilots available.

For best performance the pilot hole diameter must be held within less than .5% of the pilot diameter and the entry side of the work hole must be chamfered.

BACK FACING ONLY MODEL 1600 & 2500



FRONT AND BACK FACING MODEL 1700 & 2600

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

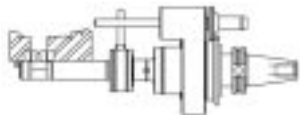
Solid Pilot 1600 & 1700 / Rotary Pilot 2500 & 2600 Torque Bar Activated

The AUTOFACER is designed to be run at high RPM and moderate feed rate. This assures tremendous metal removal capabilities. Historical savings have been 60 to 80 percent over conventional methods.

- **Ease of operation**, simple to set up and program. Activated simply by reversing spindle rotation, internal friction clutch will flip out or fold in the cutter blade.
- **The cutter blade is positively held open** by the internal friction clutch enabling the tool to perform difficult interrupted cuts.
- **Faster machining cycle**. No bumping or contacting the workpiece is required. Activation is instantaneous with spindle reversal.
- **Not sensitive to minor hole size or part variations**.
- **Very high reliability**. Simple and advanced design.
Ideal for modern CNC machines and transfer lines in high production environment.
- **Model 1600 and 1700 AUTOFACERS have a solid pilot** equipped with an oil groove to allow coolant to cool and lubricate the pilot and the cutting edge, reducing heat buildup and wear.
- **Model 2500 and 2600 AUTOFACERS have a bearing type rotating pilot** and are equipped with a coolant hole to be used with spindle-through-coolant or by using toolholder mounted rotary coolant inducers.
- **Coolant feature will allow higher cutting speed**, longer cutter life, and greatly increased reliability by clearing chips out of the cutting head before folding cutter blade in for tool retraction.
- **Reduced tool breakage**. AUTOFACERS up to “basic tool size 11” are equipped with a calibrated brass shear pin to provide protection from radial or axial overload.

OPERATING SEQUENCE:

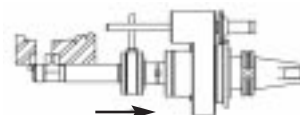
(Note: Cutter blade must clear all obstructions prior to activation! Turn coolant-through-spindle off when entering or exiting workpiece, flood coolant to stay on continuously!)



1. AUTOFACER enters workhole in a right hand spindle rotation (maximum 100 RPM and 100 IPM). The tool is fed through until the cutter blade completely clears the part.



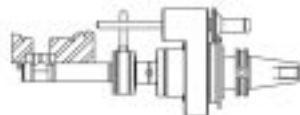
2. Spindle rotation is reversed, cutter blade swings out into cutting position and is positively held open for immediate cutting.



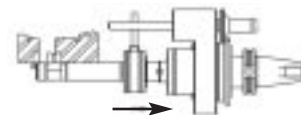
3. Set feeds and speeds to recommended cutting specifications per page 27. Back feed to counterbore depth.



4. A brief dwell is recommended to clean up the cut. Fast feed forward to approach front face (Model 2600 only), feed to depth and dwell.



5. Fast feed out of the counter bore to clear part.



6. Reverse spindle rotation. This will fold cutter blade into cutter head. Fast feed out to complete machining cycle.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Solid Pilot 5100 & 5200 / Rotary Pilot 5500 & 5600 Inertia Activated

See "Autofacer Basic Data" (page 23) for Coded Dimensions.



Different length Inertia Activated Solid Pilot and Rotary Pilot Autofacers shown here.

SOLID PILOT AUTOFACERS 5100 & 5200

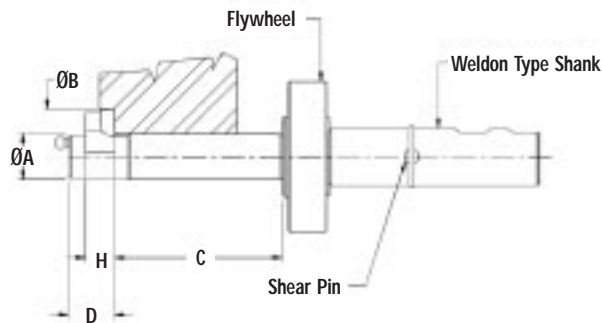
- Pilot diameter "A" range from .248" (6.3mm) to .614" (15.6mm).
- Standard pilot length is 2.00" (50.80mm).

ROTARY PILOT AUTOFACERS 5500 & 5600

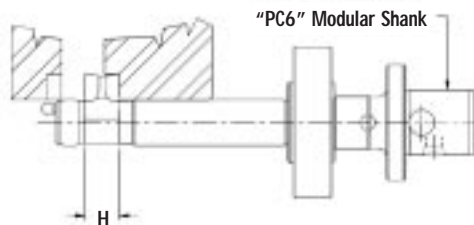
- Pilot diameter "A" range from .615" (15.62mm) to 2.00" (50.80mm).
- Standard pilot lengths "C" are: 4.00" (101.6mm) for basic sizes 62 and larger.

For best performance the pilot hole diameter must be held within less than .5% of the pilot diameter and the entry side of the work hole must be chamfered.

BACK FACING ONLY MODEL 5100 & 5500



FRONT AND BACK FACING MODEL 5200 & 5600



Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Solid Pilot 5100 & 5200 / Rotary Pilot 5500 & 5600 Inertia Activated

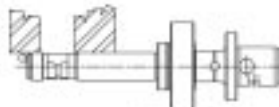
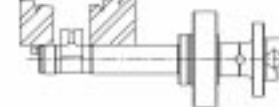
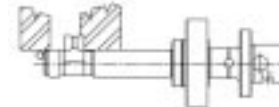
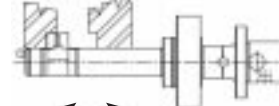
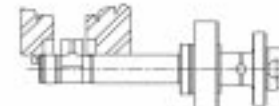
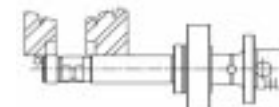
Cutter blade must clear all obstructions prior to activation! Turn spindle-through coolant off as instructed, flood coolant to stay on continuously!

- **Ease of operation**, simple to set up and program. Activated simply by reversing spindle rotation, inertia of the flywheel will flip out or fold in the cutter blade.
- **The cutter blade is positively held open** by the internal friction clutch enabling the tool to perform difficult interrupted cuts.
- **Faster machining cycle**. No bumping or contacting the workpiece is required. Activation is instantaneous with spindle reversal.
- **Not sensitive to minor hole size or part thickness variations**.
- **Very high reliability**. Simple and advanced design. Ideal for modern CNC machines.
- **Model 5100 and 5200 AUTOFACERS have a solid pilot** equipped with an oil groove to allow coolant to cool and lubricate the pilot and the cutting edge, reducing heat buildup and wear.
- **Model 5500 and 5600 AUTOFACERS have a bearing type rotating pilot** and are equipped with a coolant hole to be used with spindle-through-coolant or by using toolholder mounted rotary coolant inducers.
- **Coolant feature will allow higher cutting speed**, longer cutter life, and greatly increased reliability by clearing chips out of the cutting head before folding cutter blade in for tool retraction.
- **Reduced tool breakage**. AUTOFACERS up to “basic tool size 11” are equipped with a calibrated brass shear pin to provide protection from radial or axial overload.

The AUTOFACER cutter blade may open and close by starting or stopping spindle only. This is normal to inertia activated AUTOFACER. Always start up spindle in clockwise rotation before entering work piece.

OPERATING SEQUENCE:

(Note: Cutter blade must clear all obstructions prior to activation! Turn coolant-through-spindle off when entering or exiting workpiece, flood coolant to stay on continuously!)

- 
1. With coolant-through-spindle off, start spindle CW to close cutter blade before entering work hole. (Spindle speed must be set sufficiently high (300-800 RPM) to fold in or out the cutter blade. AUTOFACER enters work-hole in a CW spindle rotation. The tool is fed through until the cutter blade completely clears the part.
- 
2. Spindle rotation is reversed to 300 to 800 RPM. After a 1 second dwell, increase RPM to proper cutting speed (see feeds and speeds chart). Cutter blade flips out and into cutting position and is positively held open for immediate cutting. Turn spindle through-coolant on.
- 
3. Back feed to counterbore depth (see speeds and chart). A brief dwell is recommended to clean up the cut.
- 
4. (Model 5200 and 5400 only) Fast feed forward to approach front face, feed to depth and dwell to clean up the cut.
- 
5. Fast feed out of the counter bore to clear part. Turn spindle through-coolant off.
- 
6. Now reverse spindle rotation. This will fold cutter blade into cutter head. Spindle speed must be set sufficiently high to fold in the cutter blade (300-800). Fast feed out to complete the machining cycle.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



Rotary Pilot 2100 & 2400 Activating Pad Type

See "Autofacer Basic Data" (page 23) for Coded Dimensions.



Activating Pad Rotary Pilot Autofacer shown here.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

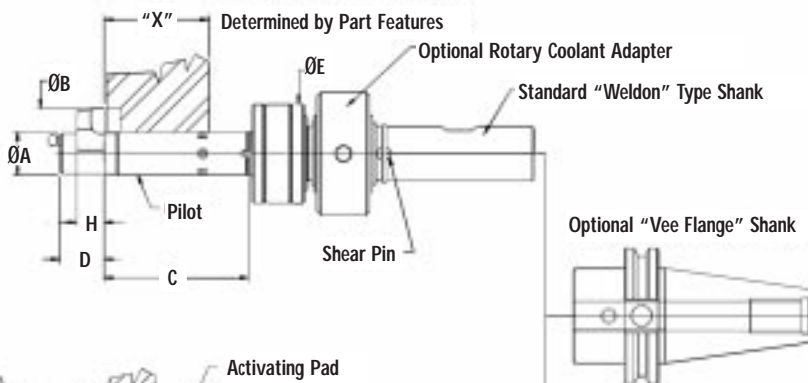
Presetting

ROTARY PILOT AUTOFACERS 2100 & 2400

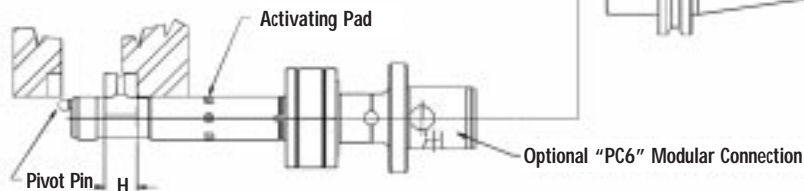
- Pilot diameter "A" range from 2.25" (51.75mm).
- Standard pilot lengths "C" are 4.00" (101.6mm). Longer pilots available.

For best performance the pilot hole diameter must be held $\pm .002$ of the pilot diameter and the entry side of the work hole must be chamfered.

BACK FACING ONLY MODEL 2100



FRONT AND BACK FACING MODEL 2400



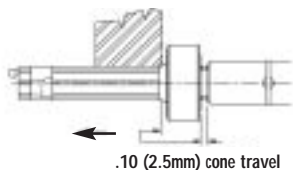
Rotary Pilot 2100 & 2400 Activating Pad Type

See "Autofacer Basic Data" (page 23) for Coded Dimensions.

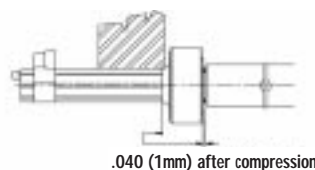
- **Ease of operation**, simple to set up and program.
- **Activated simply by reversing spindle rotation**, activating pads grip inside of work hole and internal friction clutch will flip out or fold in the cutter blade.
- **The cutter blade is positively held open** by the internal friction clutch enabling the tool to perform difficult interrupted cuts.
- **Faster machining cycle**. Activation is instantaneous with spindle reversal.
- **This tool is sensitive to minor hole size or part thickness variations**.
Work hole size must be held within $\pm .002$
- **Adaptable to large hole sizes 2.25" (51.75mm) and larger** when inertia or torque bar activated tools become too heavy or too long
- **Model 2100 and 2400 AUTOFACERS have a bearing type rotating pilot** and are equipped with a coolant hole to be used with spindle-through coolant or by using toolholder mounted rotary coolant inducers.
- **Coolant feature will allow higher cutting speed**, longer cutter life, and greatly increased reliability by clearing chips out of the cutting head before folding cutter blade in for tool retraction.
- **Large activating pad type AUTOFACERS are extensively used in the heavy equipment and power generating equipment manufacturing industry.**

OPERATING SEQUENCE:

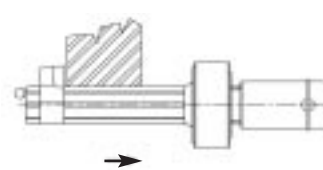
(Note: Cutter blade must clear all obstructions prior to activation! Turn coolant-through-spindle off when entering or exiting workpiece, flood coolant to stay on continuously!)



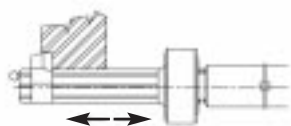
1. AUTOFACER enters work hole in a right hand spindle rotation (approximately 100 RPM and 100 IMP). The tool is fed through until the activating ring stops rotating. (Note: Holding hole size tolerance is very important; activating ring has limited compression range).



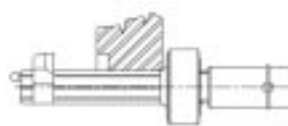
2. Spindle rotation is reversed, cutter blade swings out into cutting position, positively held open for immediate cutting.



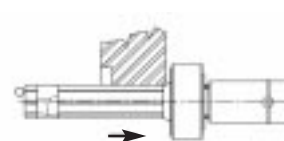
3. Fast back feed to approach surface to be machined. Note: AUTOFACER is designed to be run at high RPM and low feed rate. This assures tremendous metal removal capabilities. Historical savings have been 60 to 80 percent over conventional methods.



4. Set feeds and speeds to recommended cutting specifications per page 27. Back feed to counterbore depth. A brief dwell is recommended to clean up the cut. Fast feed forward to approach front face (Model 2400 only), feed to depth and dwell.



5. Fast feed out of the counter bore to clear part and to engage activating ring.



6. Reverse spindle rotation. This will fold cutter blade into cutter head. Fast feed out to complete machining cycle.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Solid Pilot 1800 & 1900 / Rotary Pilot 2200 & 2300 Activating Cone or Bump Type

See "Autofacer Basic Data" (page 23) for Coded Dimensions.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



*Standard Activating Cone
Autofacer shown here.*



*Extended Activating Cone
Autofacer shown here.*

SOLID PILOT AUTOFACERS 1800 & 1900

- Pilot diameter "A" range from .248" (6.3mm) to .614 (15.6mm)
- Standard pilot length is 2.00" (50.80mm). Longer pilots available.

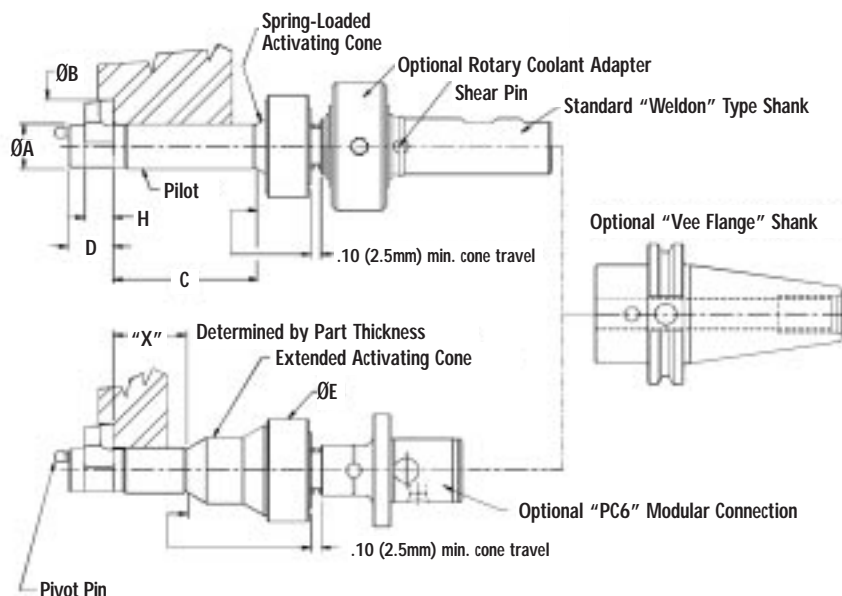
ROTARY PILOT AUTOFACERS 2200 & 2300

- Pilot diameter "A" range from .615 (15.62mm) and larger.
- Standard pilot lengths "C" are: 4.00" (101.6mm) for basic size 62 and larger. Longer pilots available.

For best performance the pilot hole diameter must be held within .5% of the pilot diameter and the entry side of the work hole must be chamfered.

STANDARD ACTIVATING CONE TYPE MODEL 1800 & 2200

EXTENDED ACTIVATING CONE TYPE MODEL 1900 & 2300



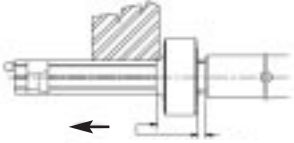
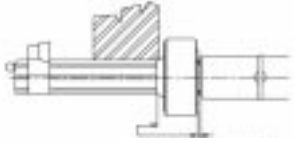
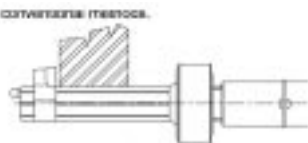
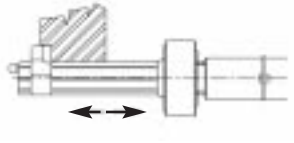
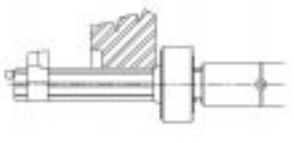
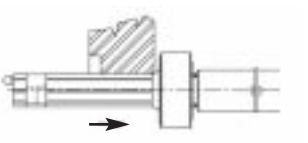
Solid Pilot 1800 & 1900 / Rotary Pilot 2200 & 2300 Activating Cone or Bump Type

The AUTOFACER is designed to be run at high RPM and moderate feed rate. This assures tremendous metal removal capabilities. Historical savings have been 60 to 80 percent over conventional methods.

- **Simple and functional design. High degree of reliability.**
- **The cutter blade is positively held open** by the internal friction clutch enabling the tool to perform difficult interrupted cuts.
- **Versatility: adaptable to CNC and manual machines.**
- **Model 1800 and 1900 AUTOFACERS have standard pilot** equipped with oil grooves to allow coolant to cool and lubricate the pilot and the cutting edge, reducing heat buildup and wear.
- **Model 2200 and 2300 AUTOFACERS have a bearing type rotating pilot** and are equipped with a coolant hole to be used with spindle-through coolant or by using toolholder mounted rotary coolant inducers.
- **Coolant feature will allow higher cutting speed**, longer cutter life, and greatly increased reliability by clearing chips out of the cutting head before folding cutter blade in or tool retraction.
- **Reduced tool breakage.** AUTOFACERS up to "basic tool size 11" are equipped with a calibrated brass shear pin to provide protection from radial or axial overload.
- Model 1800 and 2200 AUTOFACERS have standard pilot lengths and are highly adaptable to a variety of workpiece thicknesses.
- Model 1900 and 2300 have an extended activating cone for reducing cycle time when used on a thinner.
- **Large activating pad type AUTOFACERS are extensively used in the heavy equipment and power generating equipment manufacturing industry.**

OPERATING SEQUENCE:

(Note: Cutter blade must clear all obstructions prior to activation! Turn coolant-through-spindle off when entering or exiting workpiece, flood coolant to stay on continuously!)

- 
1. AUTOFACER enters workhole in a right hand spindle rotation (maximum 100 RPM and 100 IPM). The tool is fed through until the cutter blade completely clears the part.
- 
2. Cone is compressed .060 (1.5mm) and spindle rotation is reversed, cutter blade swings out into cutting position, positively held open for immediate cutting.
- 
3. Fast back feed to approach surface to be machined. (Note: AUTOFACER is designed to be run at high RPM and low feed rate. This assures tremendous metal removal capabilities.) Historical savings have been 60 to 80 percent over conventional methods.
- 
4. Set feeds and speeds to recommended cutting specifications per page 27. Back feed to counterbore depth. A brief dwell is recommended to clean up the cut.
- 
5. Fast feed forward to touch activating cone and reverse spindle rotation.
- 
6. Compress activating cone .060 (1.5mm). This will fold cutter blade into cutter head. Now fast feed out to complete machining cycle.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

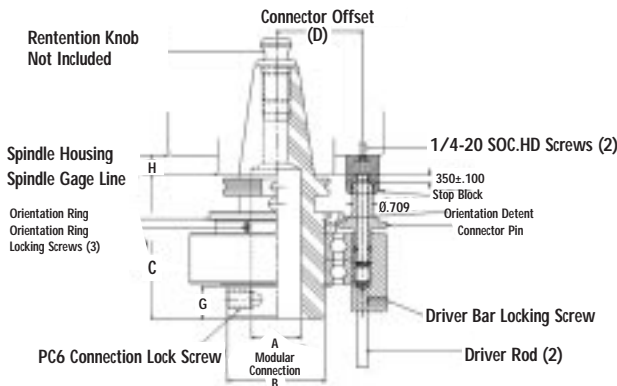
Workholding

Presetting

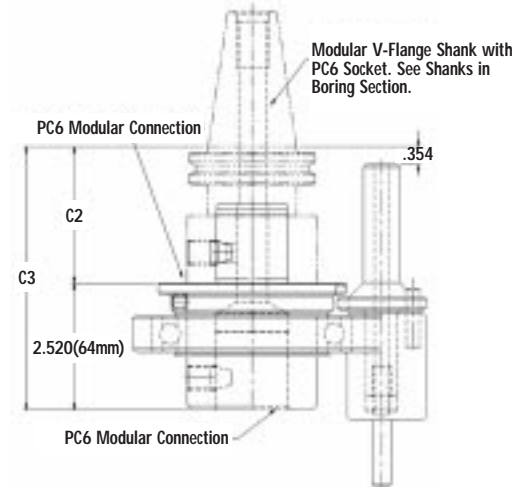
Technical Information Torque Bar Drivers

► If your machine is currently fixed with a stop block or coolant port that does not match the sketch below, fill out the bottom section of the tapping quote request sheet and mark it "Autofacer."

**Type TB – Torque Bar Driver
With Spindle-Through Coolant**



**Type TBS – Torque Bar Driver
With Spindle-Through Coolant**



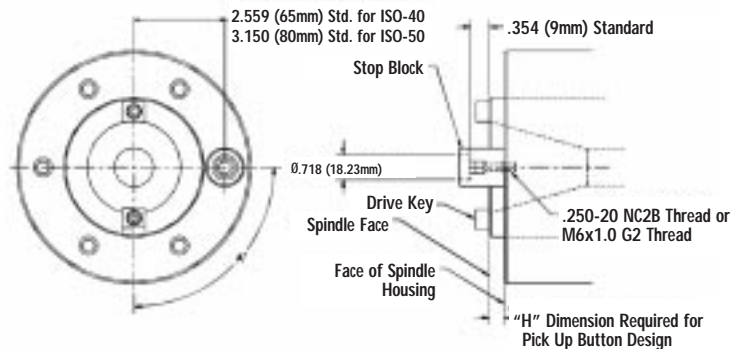
TORQUE BAR DRIVERS

Part No./Weight		Shank	A in. (mm)	B in. (mm)	C in. (mm)	C2 in. (mm)	C3 in. (mm)	D in. (mm)	E in. (mm)	G in. (mm)
Type TB	Type TBS*									
Not Available	PC6TBS 6.44#	Modular C40-PC6-4	PC6	2.559 (65.00)	N/A	2.716	5.236 (133.0)	2.559 (65.00)	4.750 (120.6)	1.100 (28.0)
Not Available	PC6TBS 6.44#	Modular BT40-PC6-4	PC6	2.559 (65.00)	N/A	2.402	4.922 (125.0)	2.559 (65.00)	4.750 (120.6)	1.100 (28.0)
Not Available	PC6TBS 6.44#	Modular BT45-PC6-4	PC6	2.559 (65.00)	N/A	2.638	5.158 (131.0)	3.150 (80.00)	4.750 (120.6)	1.100 (28.0)
Not Available	PC6TBS 6.44#	Modular BT50-PC6-4	PC6	2.559 (65.00)	N/A	2.835	5.355 (136.0)	3.150 (80.00)	4.750 (120.6)	1.100 (28.0)
Not Available	PC6TBS 6.44#	Modular C50-PC6-4	PC6	2.559 (65.00)	N/A	2.835	5.355 (136.0)	3.150 (80.00)	4.750 (120.6)	1.100 (28.0)
TB1506 15.5 lbs.(7.0 kg)	Not Available	Integral CV50	PC6	2.559 (65.00)	4.500 (114.3)	2.716	5.236 (133.0)	3.150 (80.0)	4.750 (120.6)	1.100 (28.0)

*Less Shank

PICKUP BUTTON DESIGN:

1. The pickup button for the connector pin must be mounted on the face of the spindle housing that does not rotate.
2. "H" dimension must be measured from the spindle face to the housing to establish proper height.
3. "A" to be established to allow torque bar driver clearance in the tool changer.
4. Drilling and tapping into the spindle housing may be required.



Technical Information

Basic Data

For larger spotface diameters than shown in column "B" refer to information on the new "Series 6000 Autofacer."

MODELS

1600, 1700, 1800, 1900, 2100, 2200, 2300, 2400,
2500, 2600, 5100, 5200, 5500, 5600

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

BASIC DATA

Basic Tool Size	A Min. Pilot Diameter	B* Max. Spotface Dia.*	C Nominal ** Pilot Length Model in (mm)	D Head Length Single (Old Style) in (mm)	H Cutter Blade Width Single (Old Style) in (mm)	D Head Length*** in (mm)	H Cutter Blade*** in (mm)	Standard Shank Dia. in. (mm)	Shear Pin Used
25	.248 (6.30)	.435 (11.05)	2.00 (50.8)	.50 (12.7)	.30 (7.6)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
28	.278 (7.06)	.535 (13.59)	2.00 (50.8)	.50 (12.7)	.30 (7.6)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
31	.308 (7.82)	.620 (15.90)	2.00 (50.8)	.50 (12.7)	.30 (7.6)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
34	.338 (8.59)	.710 (18.03)	2.00 (50.8)	.50 (12.7)	.30 (7.6)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
38	.370 (9.40)	.700 (17.80)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
40	.401 (10.19)	.790 (20.07)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
44	.432 (10.97)	.870 (22.10)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
47	.463 (11.76)	.940 (23.88)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.50 (12.7)	.750 (20.0)	Yes
50	.490 (12.45)	1.070 (27.18)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.62 (15.9)	.750 (20.0)	Yes
53	.521 (13.23)	1.140 (28.96)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.62 (15.9)	.750 (20.0)	Yes
56	.562 (14.08)	1.210 (30.73)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.62 (15.9)	.750 (20.0)	Yes
59	.583 (14.81)	1.300 (33.02)	2.00 (50.8)	.58 (14.6)	.38 (9.5)	.83 (21)	.62 (15.9)	.750 (20.0)	Yes
62	.610 (15.49)	1.350 (34.30)	4.00 (101.6)	.80 (20.3)	.38 (9.5)	.85 (21.6)	.62 (15.9)	1.000 (25.0)	Yes
66	.646 (16.41)	1.437 (36.50)	4.00 (101.6)	.80 (20.3)	.38 (9.5)	.85 (21.6)	.62 (15.9)	1.000 (25.0)	Yes
68	.682 (17.32)	1.522 (38.66)	4.00 (101.6)	.80 (20.3)	.38 (9.5)	.85 (21.6)	.62 (15.9)	1.000 (25.0)	Yes
75	.740 (18.80)	1.630 (41.40)	4.00 (101.6)	.80 (20.3)	.38 (9.5)	.85 (21.6)	.62 (15.9)	1.000 (25.0)	Yes
81	.800 (20.32)	1.750 (44.45)	4.00 (101.6)	.80 (20.3)	.38 (9.5)	.85 (21.6)	.62 (15.9)	1.000 (25.0)	Yes
88	.865 (21.97)	1.950 (49.53)	4.00 (101.6)	1.00 (25.4)	.38 (9.5)	.85 (21.6)	.62 (15.9)	1.000 (25.0)	Yes
94	.930 (23.62)	2.030 (51.16)	4.00 (101.6)	1.00 (25.4)	.50 (12.7)	1.25 (31.8)	1.00 (25.4)	1.250 (32.0)	Yes
10	.990 (25.15)	2.172 (55.17)	4.00 (101.6)	1.00 (25.4)	.50 (12.7)	1.25 (31.8)	1.00 (25.4)	1.250 (32.0)	Yes
11	1.115 (28.32)	2.440 (62.00)	4.00 (101.6)	1.13 (28.7)	.56 (14.2)	1.25 (31.8)	1.00 (25.4)	1.250 (32.0)	Yes
12	1.240 (31.50)	2.766 (70.25)	4.00 (101.6)	1.13 (28.7)	.62 (15.9)	1.25 (31.8)	1.00 (25.4)	1.000 (25.0)	No
13	1.365 (34.67)	3.000 (76.20)	4.00 (101.6)	1.50 (38.1)	.75 (19.1)	1.63 (41.3)	1.25 (31.8)	1.000 (25.0)	No
15	1.490 (37.85)	3.258 (82.75)	4.00 (101.6)	1.50 (38.1)	.75 (19.1)	1.63 (41.3)	1.25 (31.8)	1.250 (32.0)	No
16	1.615 (41.02)	3.625 (92.07)	4.00 (101.6)	1.50 (38.1)	.75 (19.1)	1.63 (41.3)	1.25 (31.8)	1.250 (32.0)	No
17	1.740 (44.20)	3.880 (98.55)	4.00 (101.6)	2.00 (50.8)	1.00 (25.4)	2.25 (57.2)	1.75 (44.5)	1.250 (32.0)	No
20	1.990 (50.55)	4.440 (112.70)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	2.50 (63.5)	1.75 (44.5)	1.500 (40.0)	No
21	2.110 (53.59)	4.808 (122.10)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	2.50 (63.5)	1.75 (44.5)	1.500 (40.0)	No
22	2.240 (56.90)	5.040 (128.00)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	2.50 (63.5)	1.75 (44.5)	1.500 (40.0)	No
25	2.490 (63.25)	5.391 (136.90)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	3.00 (76.2)	2.25 (57.2)	1.500 (40.0)	No
27	2.740 (69.60)	6.070 (154.10)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	3.00 (76.2)	2.25 (57.2)	1.500 (40.0)	No
30	2.990 (75.95)	6.516 (165.50)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	3.00 (76.2)	2.25 (57.2)	2.000 (50.0)	No
35	3.490 (88.65)	7.678 (195.00)	4.00 (101.6)	3.00 (76.2)	1.75 (44.5)	3.00 (76.2)	2.25 (57.2)	2.000 (50.0)	No
40	3.990 (101.3)	8.778 (222.90)	4.00 (101.6)	3.50 (88.9)	2.25 (57.2)	3.50 (88.9)	2.75 (69.9)	2.000 (50.0)	No

*Based on minimum pilot diameter.

**Larger pilot diameters and longer lengths are available.

***Double or single wide.



Technical Information

Brazed Type Cutter Blades

When ordering standard cutter blades, please specify the corner radius and the model and serial number of the AUTOFACER. Otherwise it will be shipped with .005 corner radius.



- The activating mechanism is the heart of the AUTOFACER, the **cutter blades are its muscle.**
- Precision steel cutter blades with brazed carbide inserts **allow feeds and speeds previously unheard of** in many back spotfacing and counterboring operations.
- All cutter blades **feature precision ground cutting angles** for maximum chip removal and lowest possible cutting force.
- **Two standard grades of carbide are available** to suit your application requirements.
- The cutter blades **may be resharpened** to provide continuing performance at lowest cost.
- Special contour form cutter blades are available on request.

Technical

Rotating Tools

Boring

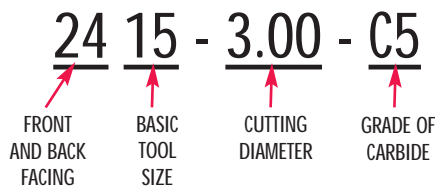
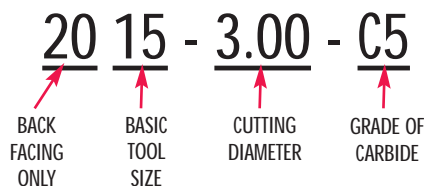
Tapping

Backspotfacing

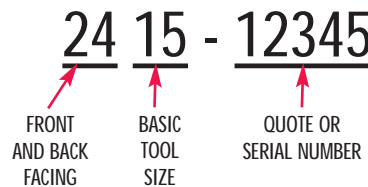
Workholding

Presetting

STANDARD BRAZED CUTTER SYSTEM NUMBERING SYSTEM



SPECIAL BRAZED CUTTER BLADE NUMBERING SYSTEM



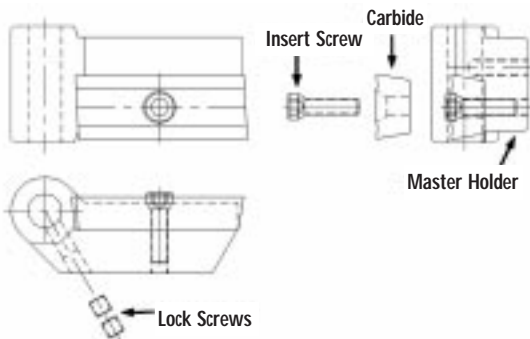


Technical Information Holders For Indexable Inserts

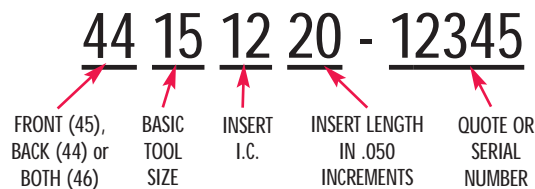
Indexable insert type master holders and indexable inserts are available for back facing as shown or as combination front and back facing. These items can replace most existing master holder and brazed insert combinations and standard brazed-carbide cutter blades currently in use.

MASTER HOLDERS USED WITH INDEXABLE CARBIDE INSERTS FOR AUTOFACERS BASIC SIZE " 62" AND LARGER

- Indexable insert type cutter blades are now available for AUTOFACER size 62 and larger.
- Width of cut is available from .240 (6mm) to 2.400 (60mm).
- Inserts are stocked in .050 (1.25mm) incremental lengths, and in C2 and C5 grade of carbide.
- Cutting diameters are custom designed per end-user's requirements.
- Tool nose radius is custom ground to end-user's requirements.



MASTER HOLDER NUMBERING SYSTEM



INDEXABLE INSERTS AND HOLDERS

Basic Tool Size	A Min. Pilot Dia. in. (mm)	B* Max. Spotface Dia. in. (mm)	I.C. Max. Indexable Insert Size Size/I.C.	L Max. Indexable Insert Length Length/L	Min. Spotface Dia. Available w/Indexable Insert
62	.610 (15.49)	1.375 (34.92)	06/.250	08/.400	1.090
66	.646 (16.41)	1.443 (36.65)	06/.250	08/.400	1.122
68	.682 (17.32)	1.500 (38.10)	06/.250	08/.400	1.154
75	.740 (18.80)	1.630 (41.40)	06/.250	08/.400	1.250
81	.800 (20.32)	1.750 (44.45)	06/.250	09/.450	1.300
88	.865 (21.97)	1.950 (49.53)	06/.250	11/.550	1.350
94	.930 (23.62)	2.030 (51.16)	09/.375	12/.600	1.400
10	.990 (25.15)	2.172 (55.17)	09/.375	13/.650	1.460
11	1.115 (28.32)	2.440 (62.00)	09/.375	14/.700	1.600
12	1.240 (31.50)	2.766 (70.25)	09/.375	15/.750	1.720
13	1.365 (34.67)	3.000 (76.20)	12/.500	17/.850	1.840
15	1.490 (37.85)	3.258 (82.75)	12/.500	18/.900	1.960
16	1.615 (41.02)	3.625 (92.07)	12/.500	20/1.000	2.080
17	1.740 (44.20)	3.880 (98.55)	12/.500	22/1.100	2.200
20	1.990 (50.55)	4.440 (112.78)	16/.625	26/1.300	2.400
21	2.110 (53.59)	4.808 (122.12)	16/.625	28/1.400	2.500
22	2.240 (56.90)	5.040 (128.06)	16/.625	28/1.400	2.625
25	2.490 (63.25)	5.391 (136.93)	20/.750	32/1.600	2.900
27	2.740 (69.60)	6.070 (154.18)	20/.750	34/1.700	3.150
30	2.990 (75.95)	6.516 (165.50)	25/.940	36/1.800	3.400
35	3.490 (88.65)	7.678 (195.02)	25/.940	42/2.100	3.900
40	3.990 (101.30)	8.778 (222.96)	25/.940	48/2.400	4.400

*Based on Minimum Pilot Diameter.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



Technical Information

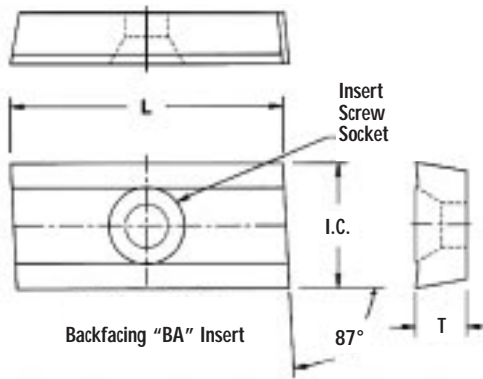
Indexable Inserts

▶ "Two cutting edges for less than the price of one!"

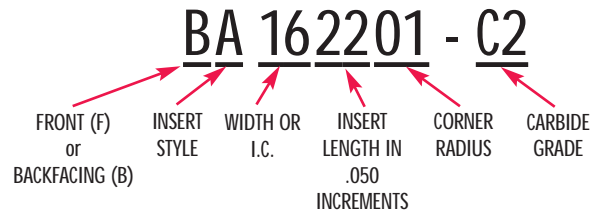
POSITIVE RAKE INDEXABLE CARBIDE INSERTS FOR BACK SPOTFACING AND COUNTER BORING TOOLS



- Indexable insert type cutter blades are now available for AUTOFACER size 62 and larger.
- Width of cut is available from 2.40 (6mm) to 2.400 (60mm).
- Inserts are stocked in .050 (1.25mm) incremental lengths, in C2 and C5 grade of carbide.
- Cutting diameters are custom designed per end-user's requirements.
- Tool nose radius is custom ground to end-user's requirements.



Backfacing "BA" Insert



INDEXABLE INSERTS

Insert Length	Size 06 .250 I.C. .093 Thick	Size 09 .375 I.C. .156 Thick	Size 12 500 I.C. .186 Thick
05	.250	-	-
06	.300	-	-
07	.350	-	-
08	.400	-	-
09	.450	-	-
10	.500	-	-
11	.550	.550	-
12	-	.660	-
13	-	.650	-
14	-	.700	-
15	-	.750	-
16	-	.800	.800
17	-	-	.850
18	-	-	.900
19	-	-	.950
20	-	-	1.000
21	-	-	1.050
22	-	-	1.100
Insert Screw	028-904	028-906	028-907

INDEXABLE INSERTS

Insert Length	Size 16 .625 I.C. .250 Thick	Size 20 .750 I.C. .312 Thick	Size 25 1.000 I.C. .500 Thick
22	1.100	-	-
23	1.150	-	-
24	1.200	-	-
25	1.250	-	-
26	1.300	-	-
27	1.350	-	-
28	1.400	1.400	-
30	-	1.500	-
32	-	1.600	-
34	-	1.700	1.700
36	-	-	1.800
38	-	-	1.900
40	-	-	2.000
42	-	-	2.100
44	-	-	2.200
46	-	-	2.300
48	-	-	2.400
50	-	-	2.500
Insert Screw	028-907	028-950	028-950

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting



Technical Information

Feeds and Speeds

AUTOFACER systems are intended to be run in a manner exactly opposite of conventional back spotfacing tools. It is imperative that they be run at high speeds and low feed rates. The following chart illustrates the recommended feed/speed relationship for a given diameter.

To find appropriate speed in revolutions per minute, use the following formula: **$N = 3.8197 S/D$**
N = RPM **S = Speed in SFM from chart** **D = Spotface diameter**

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

MAXIMUM FEEDS & RECOMMENDED SPEEDS*

Pilot Size (Workhole) Diameter	Feed (IPR) Speed (SFM)	Brass	Aluminum	Cast Iron	Carbon Steel	Stainless Steel
.38 - .48 **	Feed	.003	.003	.0015	.0015	.001
	Speed	800	800	300	200	200
.49 - .79 **	Feed	.005	.005	.002	.002	.0015
	Speed	800	800	300	200	150
.80 - .98	Feed	.006	.006	.003	.003	.002
	Speed	800	800	300	200	150
.99 - 1.1	Feed	.008	.008	.004	.004	.0025
	Speed	800	800	300	200	150
1.2 - 1.5	Feed	.010	.010	.006	.005	.003
	Speed	800	800	300	200	150
1.6 - 2.1	Feed	.015	.015	.008	.006	.0035
	Speed	800	800	300	200	150
2.2 & up	Feed	.020	.020	.012	.010	.004
	Speed	800	800	300	200	150

Feed rates are maximum values and are in inches per revolution.

Speeds are recommended values at the spotface diameter in surface feet per minute.

**Note: Maximum RPM For Solid Pilot Tools is 1200 RPM.

FORMULAS:

N = RPM = revolutions per minute

S = SFM = Speed in surface feet per minute

D = Spotface diameter in inches

F = IPR = Feed in inches per revolution

P = IPM = Feed in inches per minute

T_c = Machining time in minutes

C_d = Depth of cut in inches

$N = 3.8197 \times S/D$

$P = N \times F$

$T_c = C_d/P$

* The maximum feed rate is based on a spotface diameter. The speed and feed calculations would be as follows: to hole diameter ratio of 1.5. For ratios larger than this (1.5 – 2.2) the feed rate should be reduced 30 to 50 percent. The amount of reduction would vary depending on the above ratio and the workpiece material.

SPEED: From chart, 200 SFM for steel at the spotface diameter of 2.125 results in a speed of 360 RPM.

FEED: From chart, a .99 to 1.1 inch pilot tool should be run at .004 IPR max. Since the spotface diameter to hole diameter ratio is greater than 1.5, this maximum feed rate should be reduced. The recommended feed rate in this case would be .002 IPR.



Quotation Request Sheet Backspotfacing

For quick response, just photocopy this page, complete all information (please include Part Print whenever possible) and simply FAX back to Parlec/Autofacer Division at 716-425-5913.

Technical

Rotating Tools

Boring

Tapping

Backspotfacing

Workholding

Presetting

Distributor Name: _____

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Contact Name: _____

Title: _____

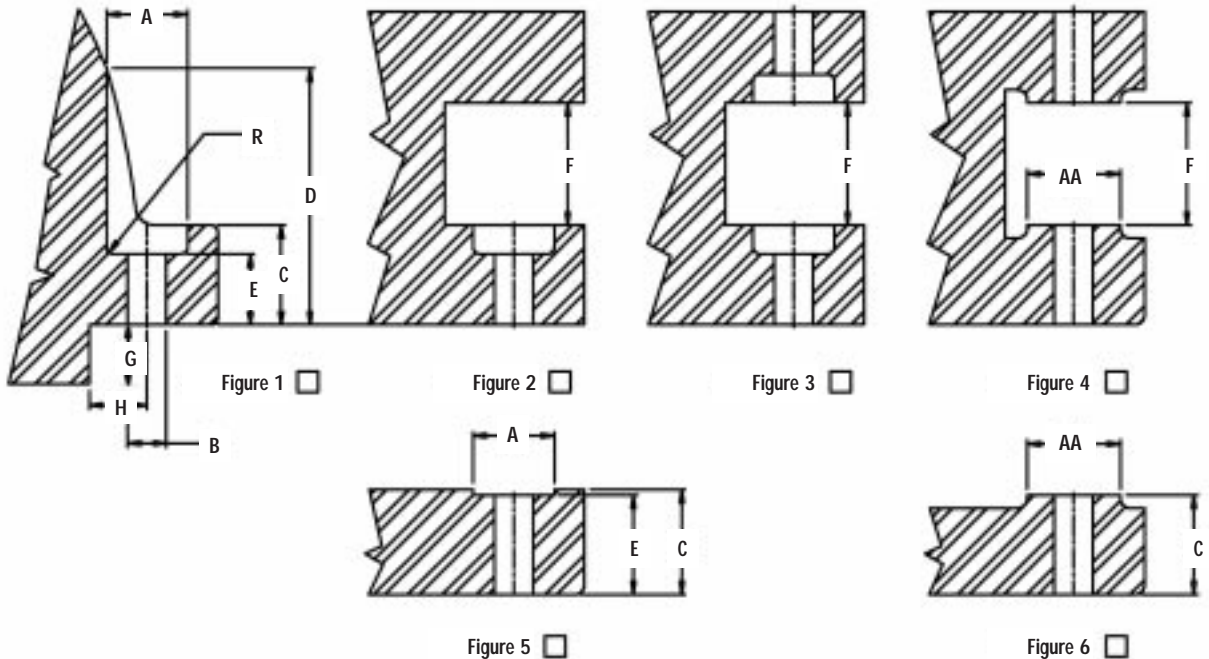
Business Address: _____

City/State/Zip: _____

Phone: _____

Fax: _____

E-Mail: _____



Select the figure that most closely resembles your application. Please include a part print.

A= _____ ± _____

F= _____

B= _____ ± _____

G= _____

C= _____

H= _____

D= _____

R= _____

E= _____

Production Quantities = _____

Machine Make: _____ Machine Model: _____ Is Machine a Quill Type? Yes No

Workpiece Material: _____ Shank Size & Type: _____ Hardness: _____

Coolant-Through Tool? Yes No Coolant PSI: _____