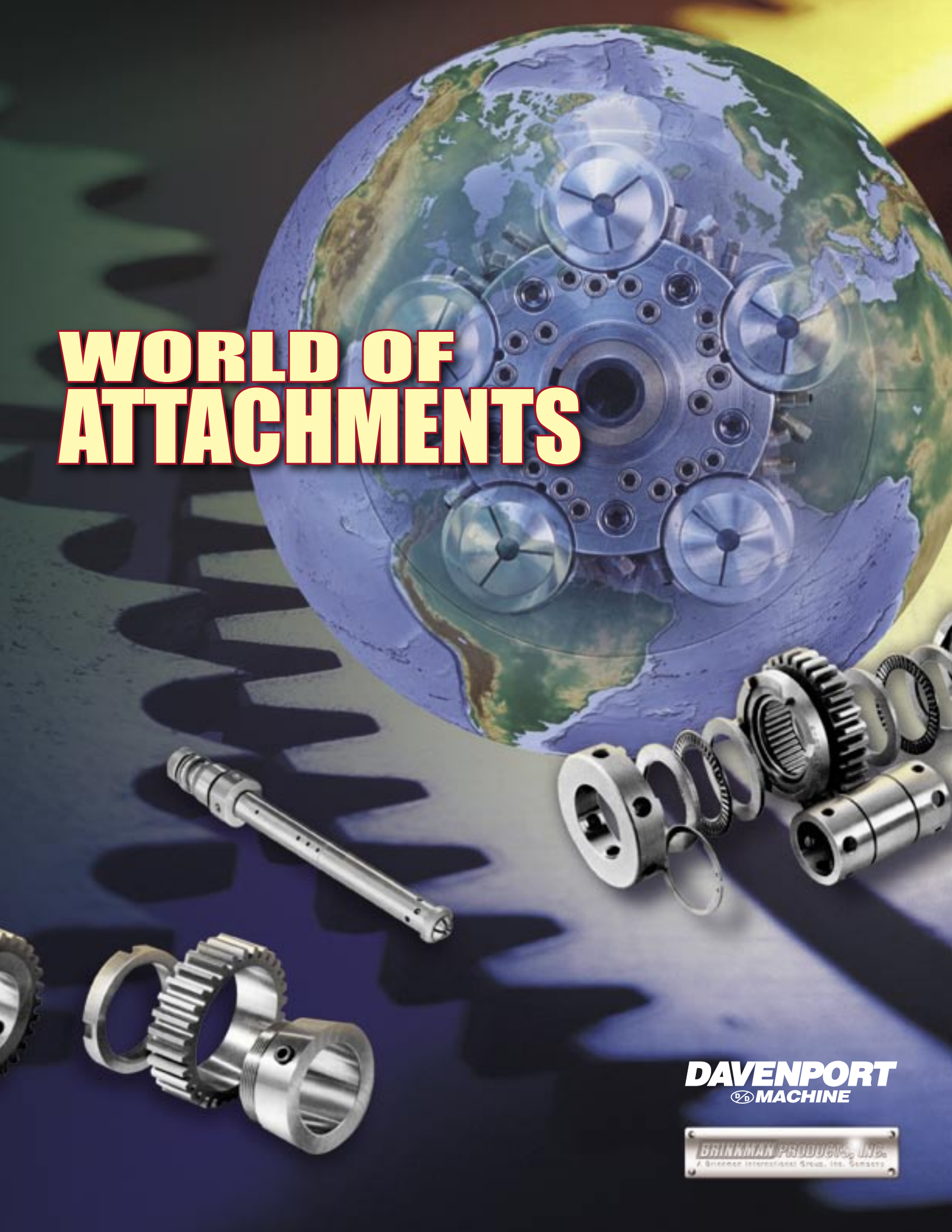
WORLD OF
ATTACHMENTS
DAVENPORT
MACHINE
BRINKMAN PRODUCTS, INC.

Table of Contents

MEMBER
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International Manufacturing Technology Show
AMT
The Association For Manufacturing Technology
100 Years of Building Global Productivity

New Davenport Servo B. The Best Productivity in Small Parts Manufacturing.

The Davenport Servo B machine is the machine of choice for hundreds of customers worldwide who require increased productivity in small parts manufacturing. Davenport Servo B owners can now meet digital-age, global production level demands with speed, accuracy and flexibility.

The Servo B provides significant improvements in operational speed, user interface, part throughput, and cost efficiency. One of the key enhancements of the machine is the new DC Servo Drive for the main machine drive motor. The Servo Drive eliminates numerous gears, pulleys and up to 150 other parts associated with the mechanical Model B machine.

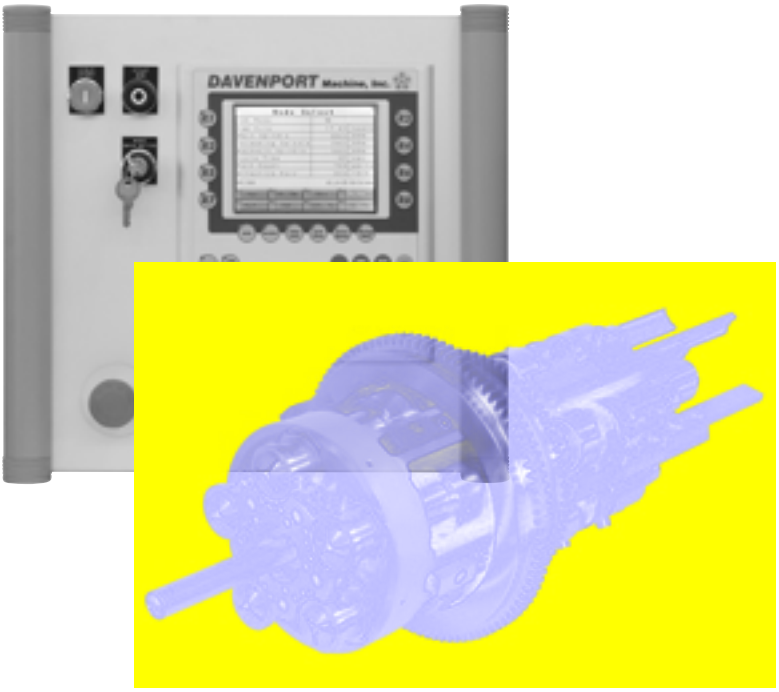
The Servo B is the ideal machine for long or short runs of small parts. A simple, PLC-based man-machine interface (MMI) means reduced set-up times and adjustments. It allows operators to concentrate more on producing parts rather than fine-tuning adjustments. Its operator-friendly programming cuts training time from months to days, an advantage that will have new operators running machines in no time.

The New Servo Provides the Following Benefits:

- Reduced following error, cutting current 3% variations in earlier models to under 0.2% in the new Servo B, thus maximizing part accuracy and improving configuration integrity in applications such as threading
- The industry's fastest index time at 0.3 seconds
- Eliminates numerous mechanical parts, thereby increasing up-time and reducing maintenance and the cost of replacement parts
- Faster return on investment due to low machine cost
- Easy set-up with full enclosure front and back sliding doors
- Spindle speeds and feeds infinitely variable from 0-3850 RPM
- High Precision HP Head standard
- Servo Threading attachment standard
- Simple Servo motion controller has up to 6 axes of control and stores 100 job summaries on board with the ability to import/export to a USB Memory Card - Functions such as job status, operational parameters, error reporting, tool breakage, and more can be viewed from a remote location or signal messages can be automatically sent
- Operator training reduced to a matter of days
- Optional web server card provides remote machine monitoring
- Optional Servo Burring and 2-Position Back Working attachments eliminate many secondary operations

Full Servo Upgrade Packages are Available

Full Servo upgrade packages will convert existing Model B machines into Servo units, allowing them to operate with the same productivity as a new machine.



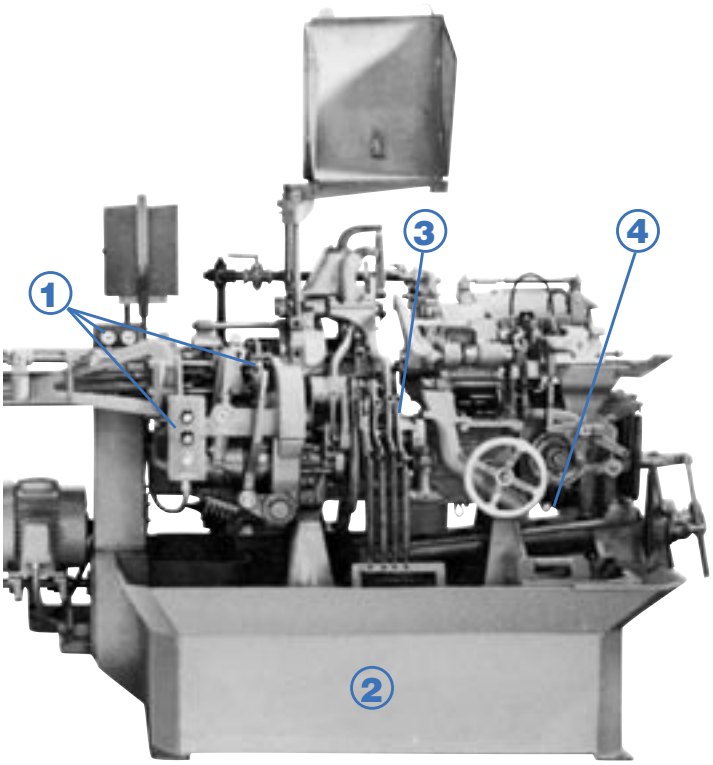
The Servo B has a dramatic impact on customers' shop productivity. New machines have proven they can pay for themselves in as little as six months!

The Model B Davenport – Production and Precision

Since 1900 the Model B has been the most profitable multi spindle automatic screw machine available. You've heard it a thousand times – time is money. This is especially true in the screw machine parts business. That's why so many successful managers turn to Davenport Machine to increase their company's profit.

With a Davenport:

- It takes less time to make a part
- Set-up is simplified and operating time is minimal
- Stock feed length is changed with a crank
- Non-cutting time of tools is as little as two-fifths second
- Adjustments for cross slides and tool arms are at the front of the machine
- When changing from one feed to another only one gear requires changing
- Extra sleeves can be provided to carry all cross slide and "turret" cams for the next job
- A simple, high speed loading attachment is operated from the regular working position
- Part chute delivers finished work
- Compensating stop screw is rigidly mounted on the cross slides and rear tool arm
- All levers for feeding and operating are at the front of the machine and an extra starting lever is located at the rear



1. *All controls are at the front of the machine within easy reach of the operator*
2. *Large coolant tank*
3. *Separate cam and lever for each tool. All cross slides operated from the front end of the machine.*
4. *Finished work delivered to the front of the machine*

It's More Universal

The Davenport lets you do more. A vast array of precision attachments gives the Davenport the flexibility you want. Plus, an overall know-how built on experience unmatched in the industry means proven design, precision parts and rugged construction. This is why the Davenport is on the job, running year after year.

Job Work and Short Runs are More Profitable

- Either steel or brass work can be threaded on the same machine with the Davenport high speed threading clutch
- Special equipment is available for threading in any position
- If desired, four revolving drilling spindles can be used while operating the threading equipment
- Attachments for slotting, burring, drilling; also fourth position cross slide, and chip conveyor are also available

Greater Smoothness in Operation and Longer Life

- Single plate clutches are easily adjustable for wear
- Worm wheels, larger in diameter than the cams, have coarse pitch worms
- Ball bearing worm shafts have Timken thrusts
- Each of two worm wheels carries one-half of the load
- A Geneva disc indexes the head without a shock
- One-piece chuck and feed cam is of hardened alloy steel
- Deep and long cross slides in renewable seats are securely attached to bed
- Tool spindles are hardened and ground
- A roller outer bearing supports the revolving head and wire case carrier
- Wide face, coarse pitch gears are used through-out the feed train
- Heavy cams, rolls and cam levers are used throughout

Production and Precision In Davenport Operation

- Davenport creates better finished work and longer life for tools. There is a separate feed for each tool and an adjustment for the length the tool must feed for finishing.
- Either steel or brass pieces can be produced with equal efficiency on the same machine. Eight threads - any pitch - can be cut on brass work at the rate of 75 pieces per minute.
- A wide range of spindle speeds adapts the Davenport for the most efficient cutting speed for any class of work.
- There are five "turret" tools and four cross slide tools, each having its own independent movement, and a fourth position cross slide can be added.
- All operations are performed simultaneously; the actual time for a piece of work is the time of the longest operation plus two-fifths of a second. A long operation can be divided into two or more short operations by doing the work on different spindles.
- Tolerances as close as .001 or less can be maintained with the right tool equipment.

Machine Specifications

Specifications for Model B Five-Spindle Automatic Screw Machine Equipped with Threading Attachment

Capacity

- Regular capacity of feed tubes – 9/16" round, 1/2" hexagon and 3/8" square
- Special feed tubes with feed fingers soldered in can be furnished to take stock up to 5/8" round, 9/16" hexagon and 7/16" square
- Longest length of feed – 3"
- Longest length turned – 2 1/2"
- Number of changes of spindle speeds – 27
- Range of spindle speeds – 500 to 4500 R.P.M.
- Number of changes of feeds – 60
- Range of feed gears - .8 to 18.4 seconds

Speeds

- Speed of driving shaft – 1500 R.P.M.
- Handwheel shaft – 750 R.P.M.
- Indexing head, feeding stock, etc. – 2/5 second constant
- When cutting steel, the threading spindle revolves in the same direction as the work spindle – at a ratio of 3 to 4 while threading tool is running on to work, and at 3 to 2 while running off
- When threading on brass work, the threading spindle is stopped when tool is running on, but revolves twice the speed of work spindle to run off
- First feed change gear shift – 200 R.P.M.
- Ratio of work and wheel – 60 to 6

Size of Equipment

- Diameter of circular tools – 2"
- Diameter of hole in tool spindle – 3/4"
- Outside diameter of tool spindle – 1 3/8"
- Least distance between chuck and tool spindle – 2 1/8"
- Greatest distance between chuck and tool spindle – 4 13/16"
- Diameter of long feed cams – 7 1/2"
- Diameter of cross feed cams – 6"
- Thickness of cams – 3/8"

Motor drive

- Machined designed for motor drive (10 H.P., 1,800 R.P.M.)

Floor Space

- 39" x 177", Distance from top spindle to floor – 44-1/2"

Model B – Oversize

Same as above, but with oversize spindles and feed tubes to take stock up to 13/16" round, 11/16" hexagon and 9/16" square. Special one-piece feed tube and feed finger can be furnished to take stock up to 7/8" round, 3/4" hexagon and 19/32" square.

Dimensions and Weight

Size crate – machine – 46" W x 96" L x 72" H

Size crate – wire case carrier – 124" x 12" x 12"

Net weight – machine – 3,600 lbs. (Domestic or Foreign)

Net weight – wire case carrier – 200 lbs. (Domestic or Foreign)

Gross weight – machine – 3,800 lbs. (Domestic) (Crated)

Gross weight – wire case carrier – 225 lbs. (Domestic) (Crated)

Gross weight – machine – 4,000 lbs. (Foreign) (Boxed)

Gross weight – wire case carrier – 225 lbs. (Foreign) (Boxed)

All dimensions and weights are approximate

Color

Putty Gray

Specifications for Servo B Five-Spindle Automatic Screw Machine Equipped with Threading Attachment

Capacity

- Regular capacity of feed tubes – 9/16" round, 1/2" hexagon and 3/8" square
- Special feed tubes with feed fingers soldered in can be furnished to take stock up to 5/8" round, 9/16" hexagon and 7/16" square
- Longest length of feed – 3"
- Longest length turned – 2 1/2"
- Indexing head, 0.3 sec. – 10 sec.
- Range of spindle speeds – 50 to 3850 R.P.M.
- Number of changes of feeds – 0.3 sec. – 60 sec. O.D.I. Inc.

Speeds

- Servo Threading standard feature. Servo thread motor speeds adjustable to meet thread requirement

Size of Equipment

- Diameter of circular tools – 2"
- Diameter of hole in tool spindle – 3/4"
- Outside diameter of tool spindle – 1 3/8"
- Least distance between chuck and tool spindle – 2 1/8"
- Greatest distance between chuck and tool spindle – 4 13/16"
- Diameter of long feed cams – 7 1/2"
- Diameter of cross feed cams – 6"
- Thickness of cams – 3/8"

Equipment

- Chucks and feed fingers, 5 each
- Cams – 10
- Spindle direct drive
- Feed direct drive
- Threading direct drive
- Set of wrenches and oil gun
- Motor drive
- Machined designed for motor drive

Floor Space

39" x 177", Distance from top spindle to floor – 44-1/2"

Servo B – Oversize

Same as above, but with oversize spindles and feed tubes to take stock up to 13/16" round, 11/16" hexagon and 9/16" square. Special one-piece feed tube and feed finger can be furnished to take stock up to 7/8" round, 3/4" hexagon and 19/32" square

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Gross weight – wire case carrier – 225 lbs. (Domestic) (Crated)

Gross weight – machine – 4,000 lbs. (Foreign) (Boxed)

Gross weight – wire case carrier – 225 lbs. (Foreign) (Boxed)

All dimensions and weights are approximate

Color

Putty Gray

Made in USA

AREA REQUIREMENTS

The minimum installation area requirement for the Servo Drive is:

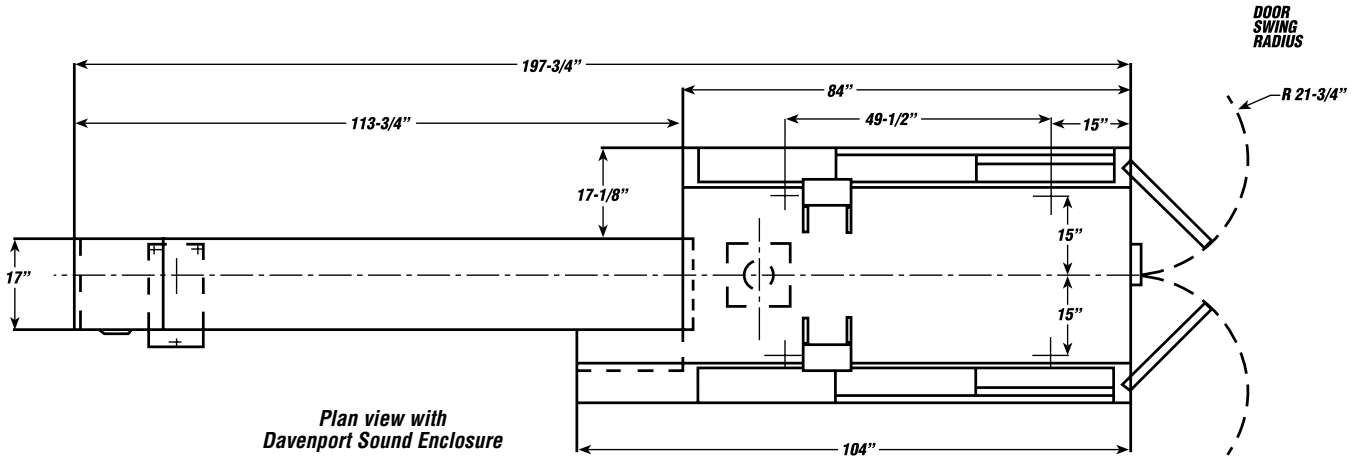
22’ 5-3/4” (685.17 cm) x 10’ 0” (304.80 cm).

If machine is configured for Cucchi Bar Loader the area is:

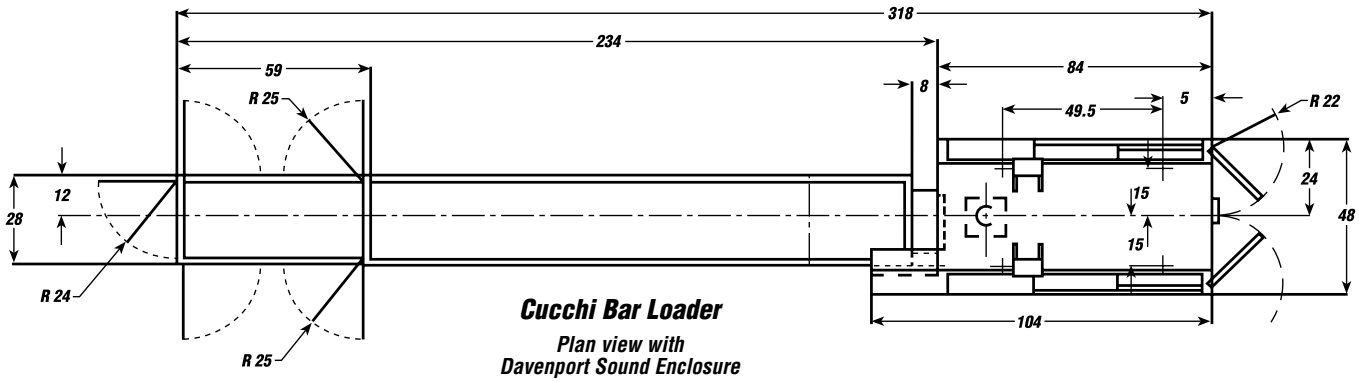
32’ 6” (990.6 cm) x 10’ 0” (304.80 cm).

This includes the minimum recommended 3’ aisles around the installed machine.

To ensure a smooth installation, personnel inspecting the installation site should clear a distance on either side of the Servo Drive for maneuvering the machine into position. Once in position, the minimum area required may be adhered to.



Servo Drive *configured for stock reel*



Servo Drive *configured for stock reel*

INTRODUCTION

This manual has been designed to provide Davenport users with a comprehensive look at the standard attachments adaptable to their machines. With the use of these attachments the full potential of “The Davenport Five Spindle Automatic Screw Machine” can be appreciated. Send your print to info@davenportmachine.com for a machining evaluation.

Significant Attachments

Attachments are what give Davenport an advantage over any other machine tool in the world. The use of attachments for procedures such as cross drilling, slotting, thread rolling, and flat generation, allow Davenport to perform a wide variety of machine operations while maintaining the fastest cycle times in the industry.

Parts shown have all been machined using special attachments.

BURRING ATTACHMENTS

1263-200-SA
Servo Burring Attachment

This attachment is available only on Davenport Servo B CE®

This attachment allows the burring spindle (pick off spindle) to be driven completely independent of the rest of the machine. When the part is being cut off, the burring Servo motor is electronically geared to the main spindle Servo motor for exact speed matching for picking off the part. Once the part has been cut off from the main spindles, the burring spindle can be driven at any speed or direction within limits of the Servo motor. This allows for back tapping, back drilling and other operations at optimal speeds and reduced tool costs.

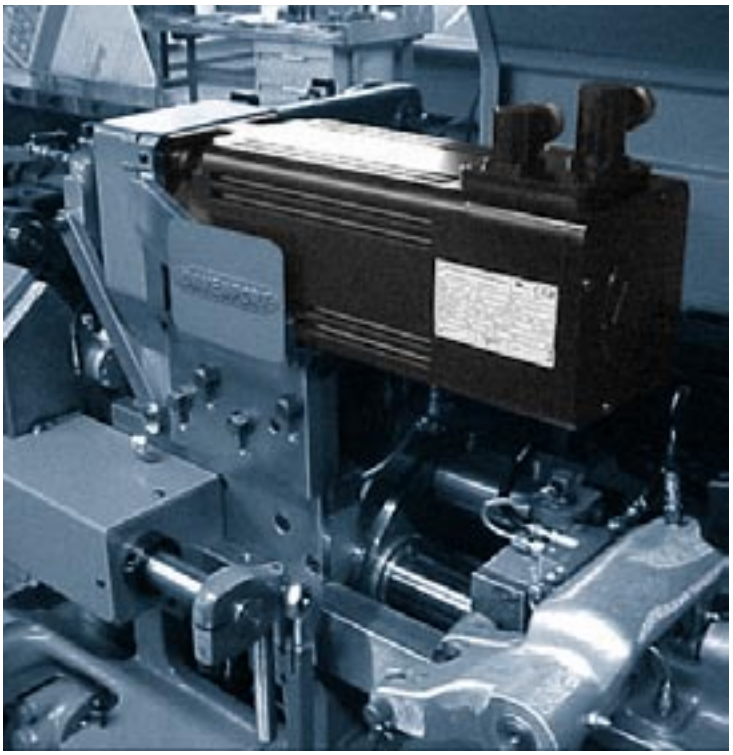
Servo Burring Attachment Features:

- Direct (Belt) spindle drive off Servo motor
- Splined spindle design
- Drives 5th position burring spindles
- All spindle speeds are programmable per cam positions
- Simple to program
- New two-station backworking attachment available
- Infinite number of speeds and shift points
- Simple Servo motion design

Benefits:

- Backtapping
- Wide range of backworking speeds
- Exact backworking speeds per application
- Longer strokes attainable for ease of long ejection and deep back drilling
- Zero speed for predictable part ejection
- Accurate and predictable spindle speeds
- Much crisper speed changes for more accurate thread depths

Full Servo drive machine required for this attachment.

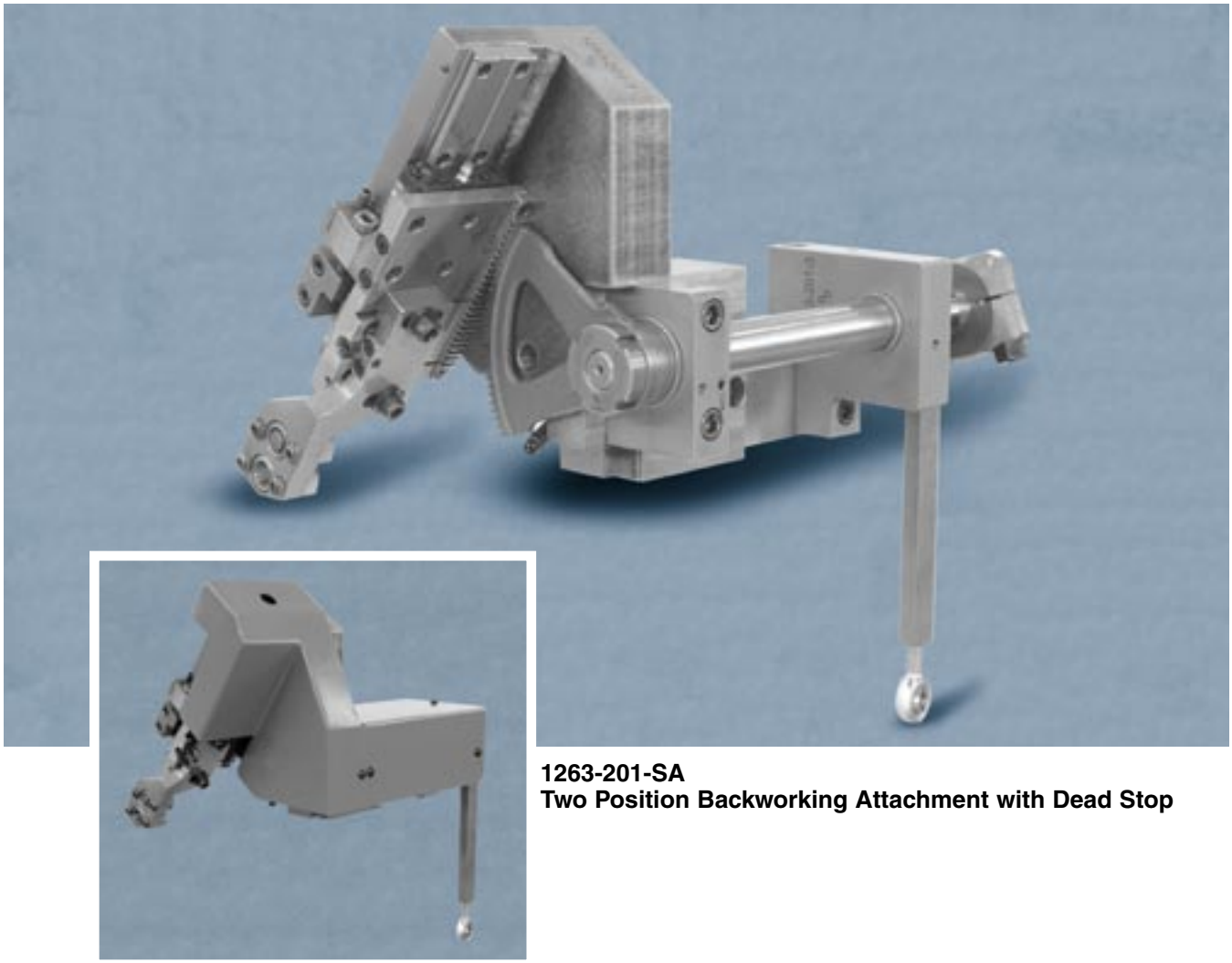


1263-200-SA
Servo Burring Attachment

1263-201-SA
Two Position Backworking Attachment with Dead Stop

This attachment can be easily fit to any Servo B or Model B Davenport. It can be retrofit on a Model B machine with special positive stop assembly. Consult the factory to review application requirements.

When used on a Servo B CE® machine, this backworking attachment will accommodate two tools. If used in conjunction with Servo burring, these tools can be either left hand cut or right hand cut. The attachment has a positive stop for both tool positions. It can also be used to back drill and back tap.



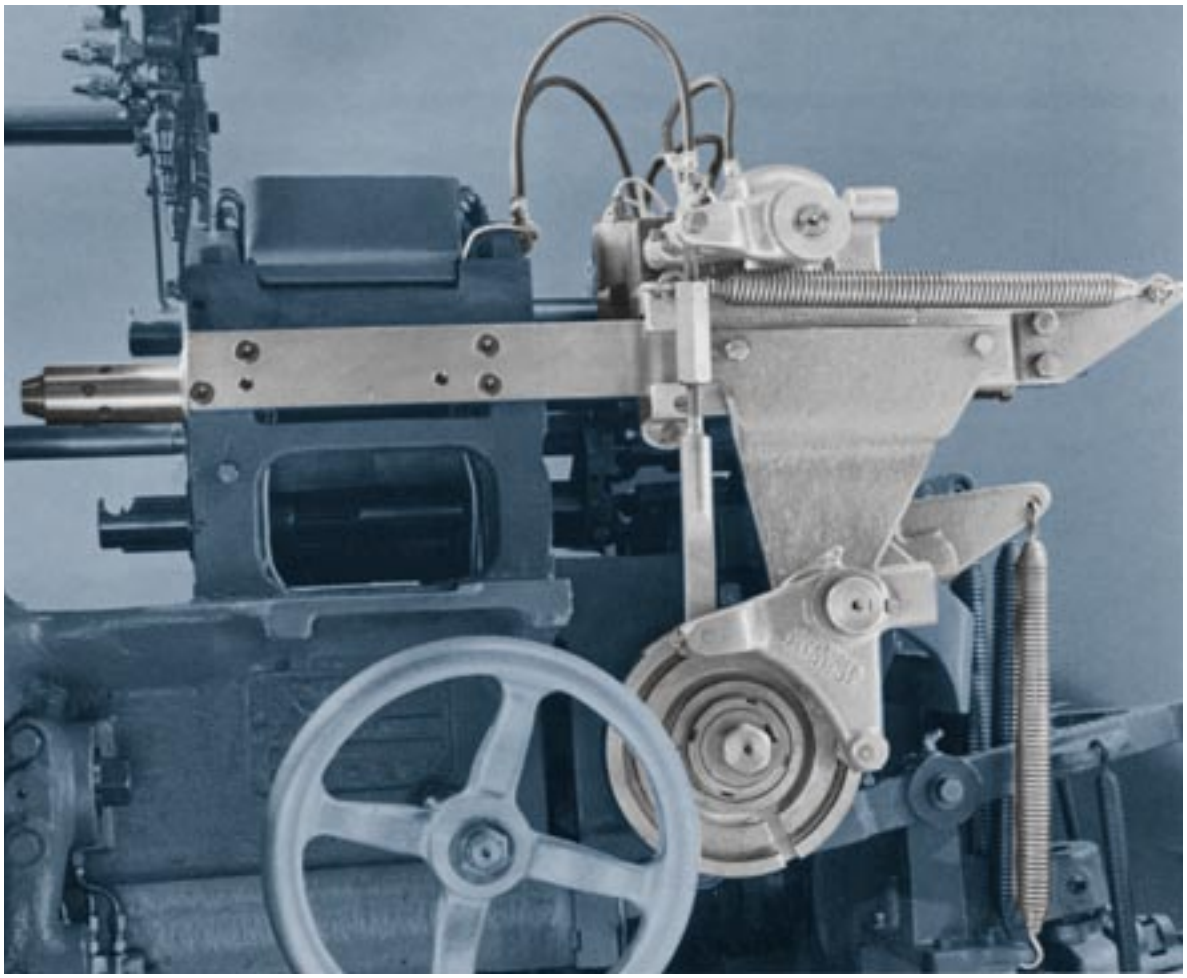
1263-201-SA
Two Position Backworking Attachment with Dead Stop

BURRING ATTACHMENTS

1263-5-10-SA
Fifth Position Stationary Head Burring Attachment

The burring spindle is equipped with a chucking mechanism that can be actuated at any time during the cycle. The chucking mechanism facilitates the use of a countersink attachment (see pages 11 through 14).

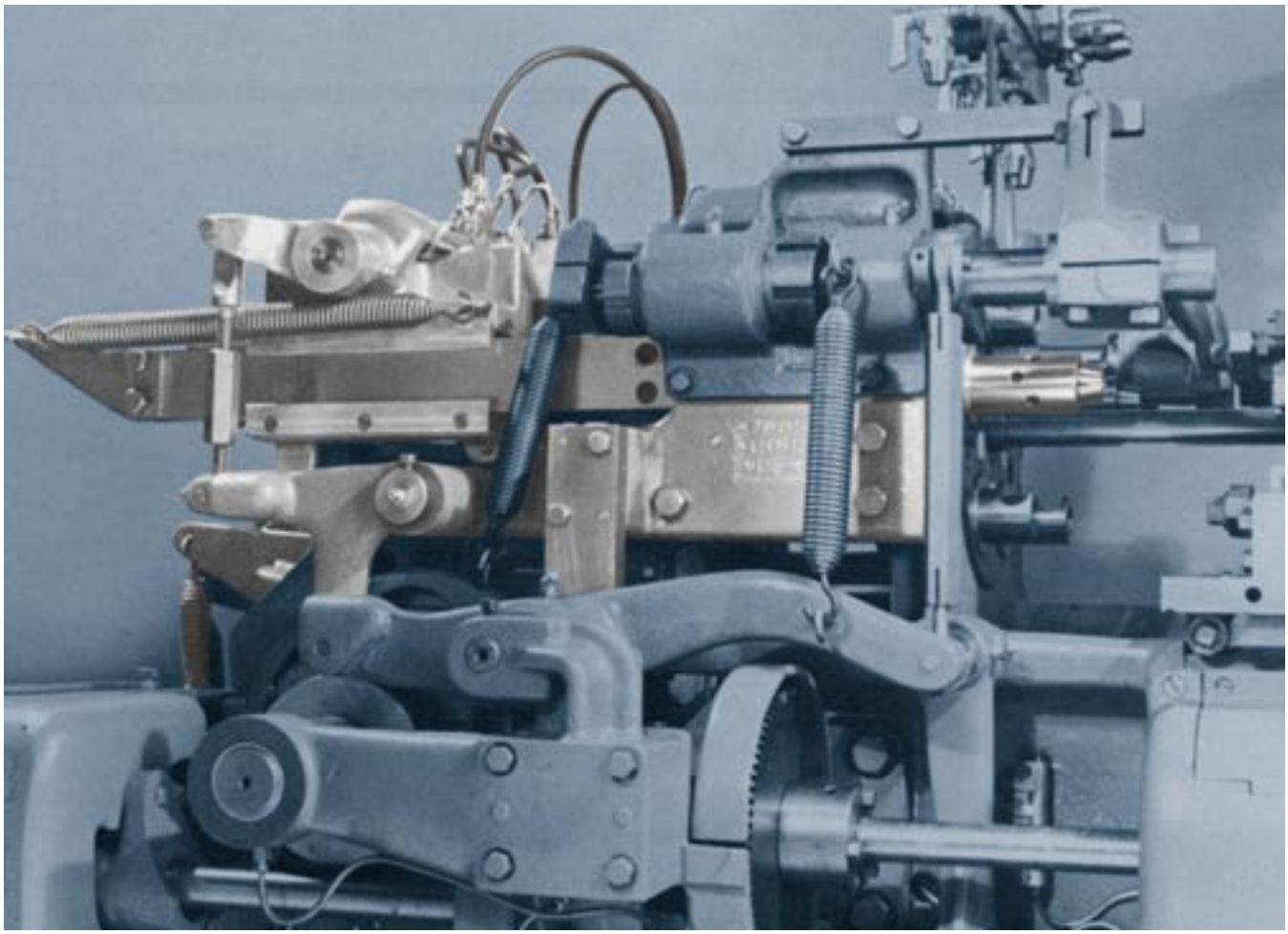
Burring attachments are available for use in the third, fourth, and fifth positions.



1263-5-10-SA
Fifth Position Stationary Head Burring Attachment

1263-122-SA
Third Position Stationary Head Burring Attachment

The stationary head burring attachment is driven by the center drive at the same speed and in the same direction as the work spindles. The primary use of the burring spindle is to support the work piece during the cutoff operation. This allows the cutoff tool to be fed past the center of the work piece, eliminating an undesirable burr.

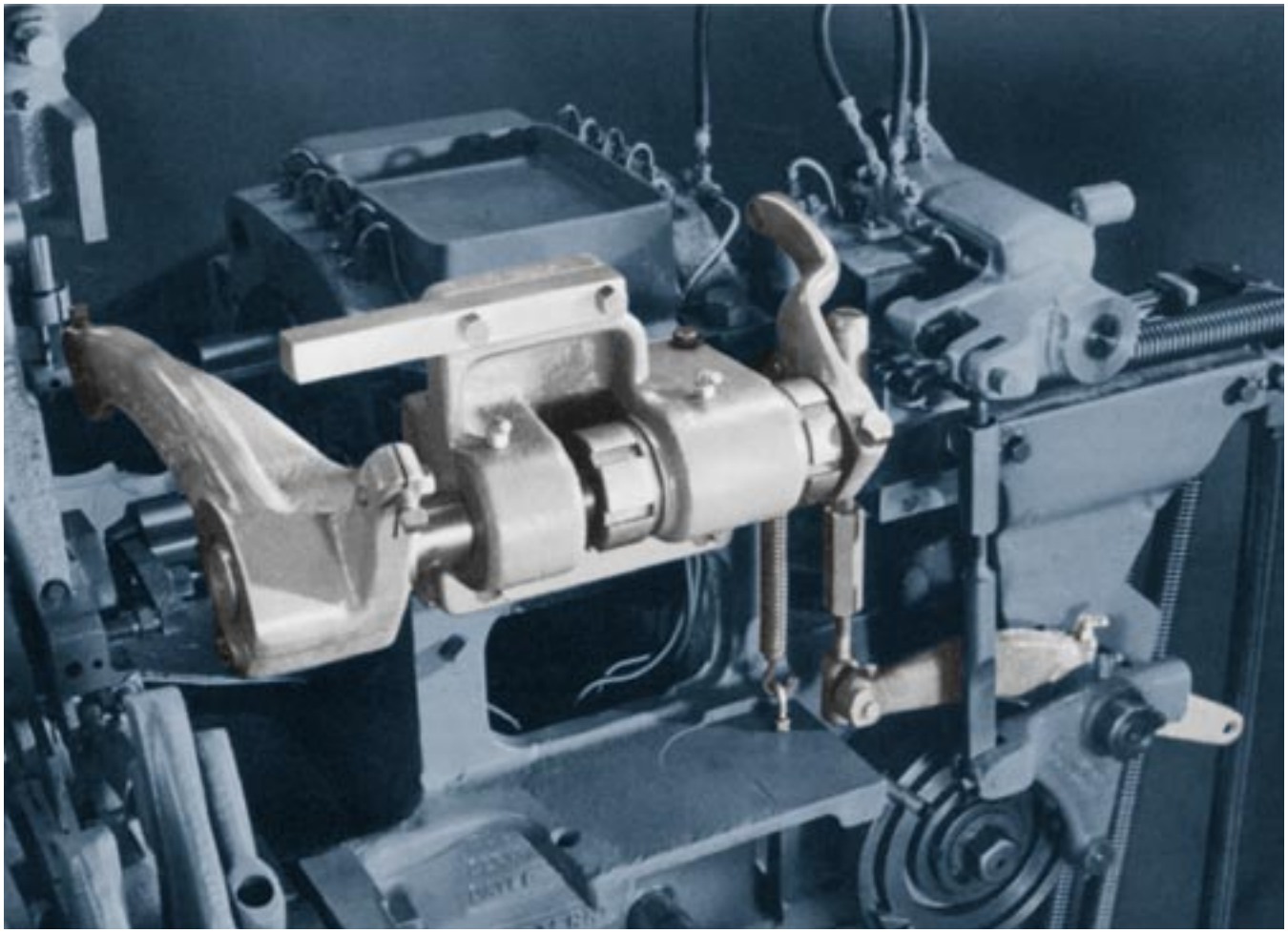


1263-122-SA
Third Position Stationary Head Burring Attachment

COUNTERSINK ATTACHMENTS

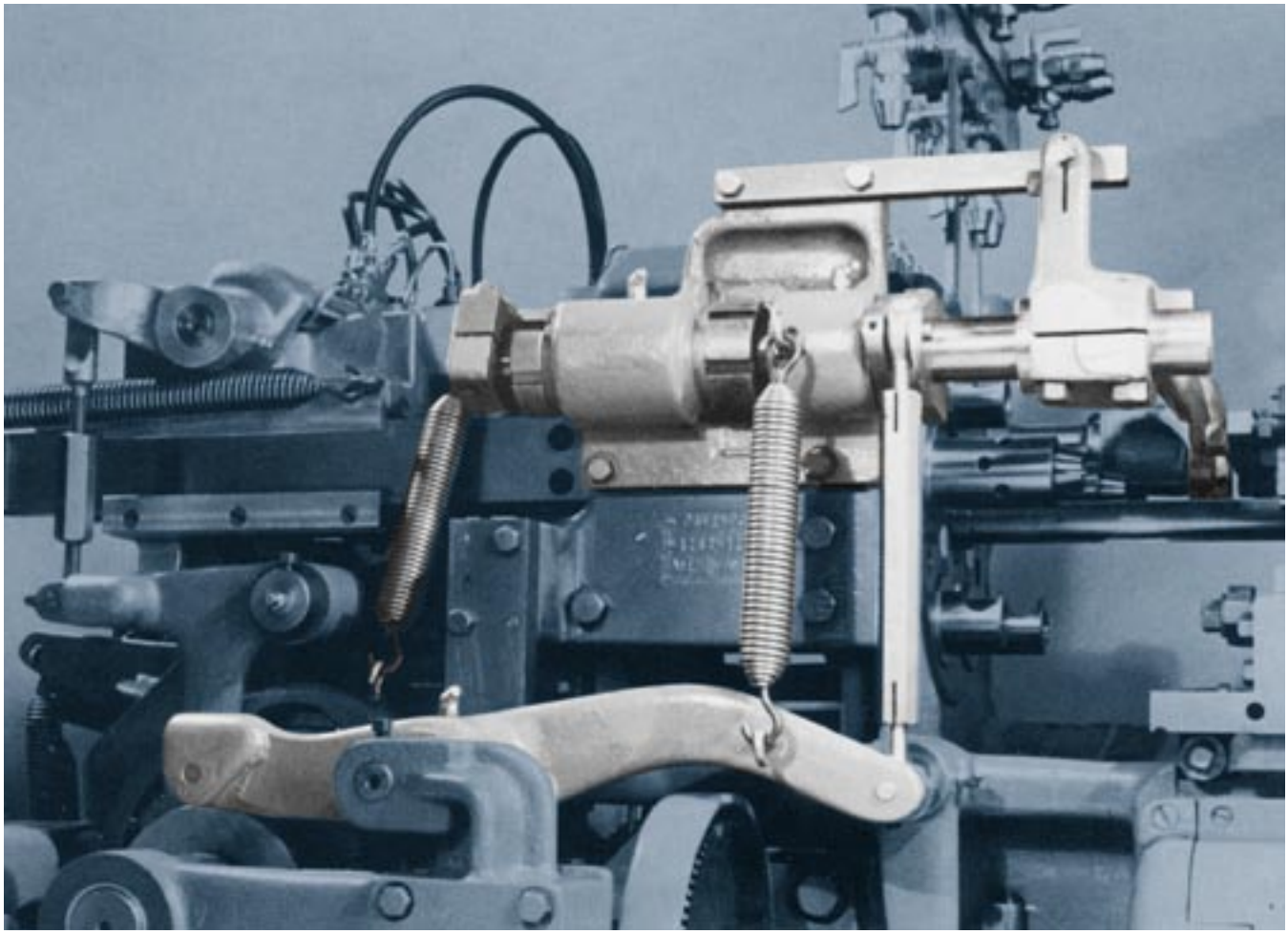
1263-119-1-SA
Fifth Position Countersink Attachment

Countersink attachments are available to complement burring attachments in the third and fifth positions. The countersink attachment consists of a cam operated arm that can be mounted with any kind of left hand end working tool, such as drills, countersinks, reamers and even turning tools. After cutoff, the countersink arm is positioned in front of the burring spindle. The work piece can then be fed into the desired tool.



1263-119-1-SA
Fifth Position Countersink Attachment

1263-127-SA
Third Position Countersink Attachment

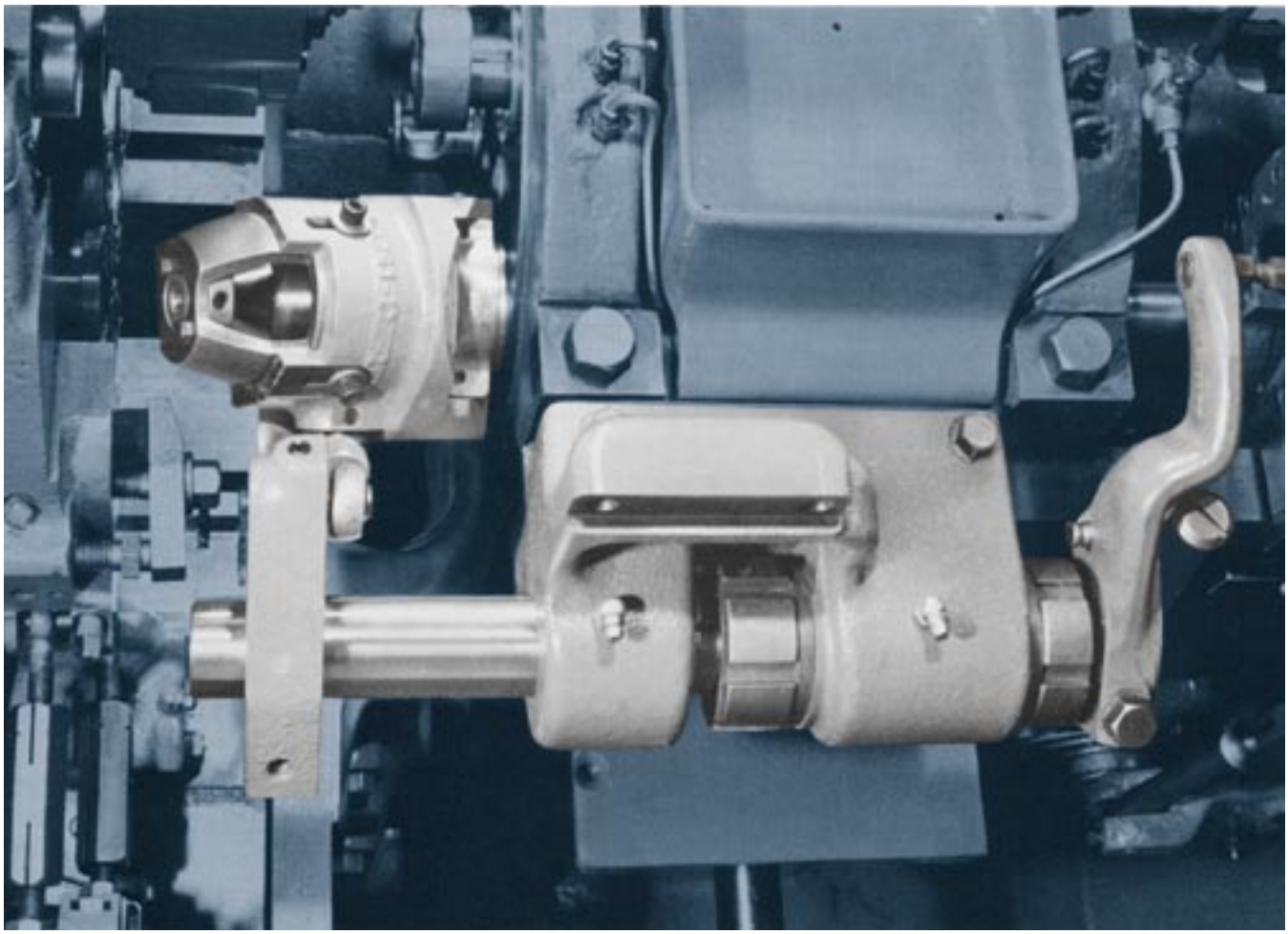


1263-127-SA
Third Position Countersink Attachment

COUNTERSINK ATTACHMENTS

1263-119-23-SA
Fifth Position Self Centering Countersink Attachment

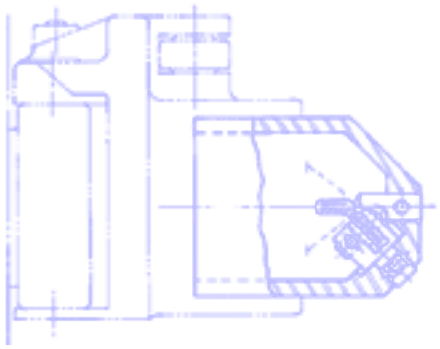
Rigidly mounted on a special front box, the self-centering countersink attachment is capable of heavier feeds than the standard countersink attachment. Although actuated by the same cam mechanism as the standard countersink attachment, the countersink arm is replaced with a basket type arm. The basket type arm is equipped with a cast iron bearing that rides directly on the burring spindle, insuring concentricity between the work piece and the end working tool.



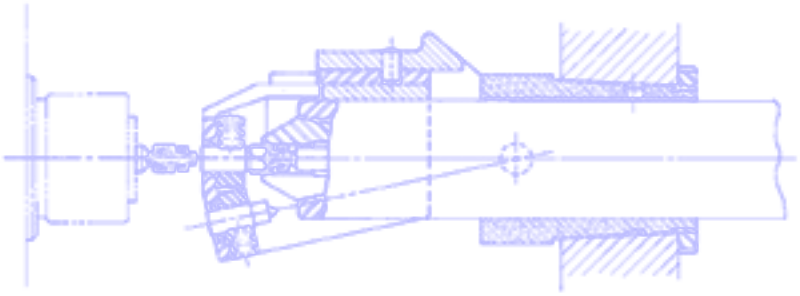
1263-119-23-SA
Fifth Position Self Centering Countersink Attachment

1263-143-SA
Third Position Self Centering Countersink Attachment

Self centering countersink attachments are available for use with the third and/or the fifth position burring attachment. Conversion kits are available to convert from a standard to a self centering countersink attachment or vice versa.



E-3056-16-SA Self Centering Countersink Arm for Knurling



1263-119-36-SA Optional Double Station Arm

Parts machined using Self Centering Countersink Attachment

SPINDLE STOPPING

2496-57-SA
Spindle Stopping Attachment

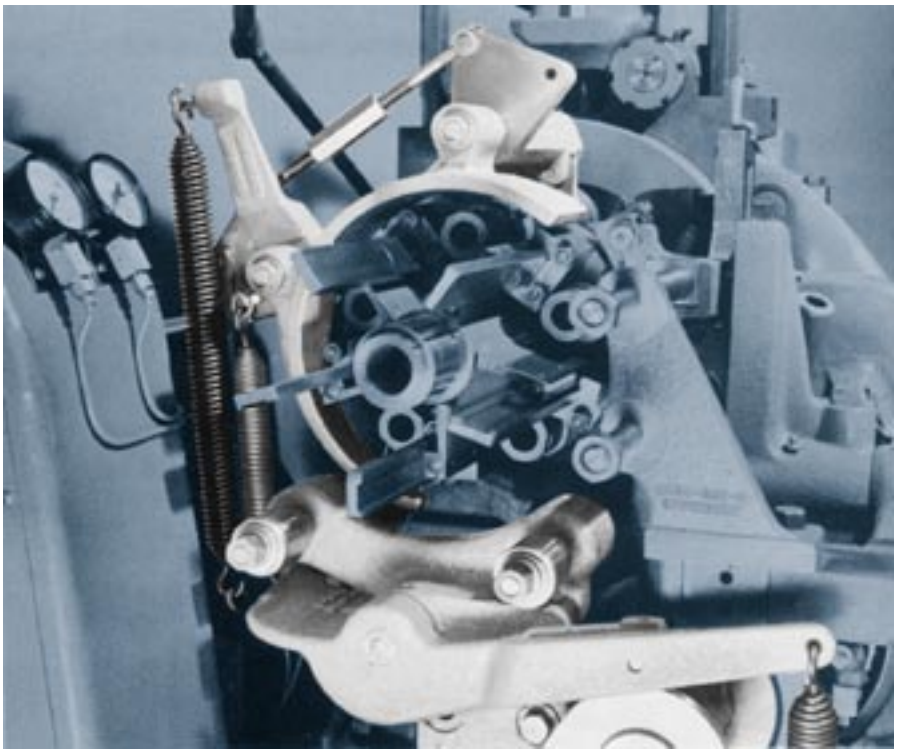
The spindle stopping attachment is used to stop revolving work spindles. It consists of five cam operated cone type clutches that can be actuated in any position. The clutches are disengaged by a plate cam during index of the work spindle carrier, and the spindle is stopped. Spindles can be stopped in multiple positions when desired. This attachment is a necessity when performing such operations as cross drilling, cross tapping, offside milling, straddle milling, keyway milling and spindle locating.

2496-40-SA
Spindle Stopping Brake

Designed for use with the spindle stopping attachment, the spindle stopping brake provides faster stopping action while it helps to retain the work spindle in a stopped position. The brake is cam operated and can be used in the third and/or fourth position.

These parts required the use of the Spindle Stopping Attachment

2496-57-SA
Spindle Stopping Clutch

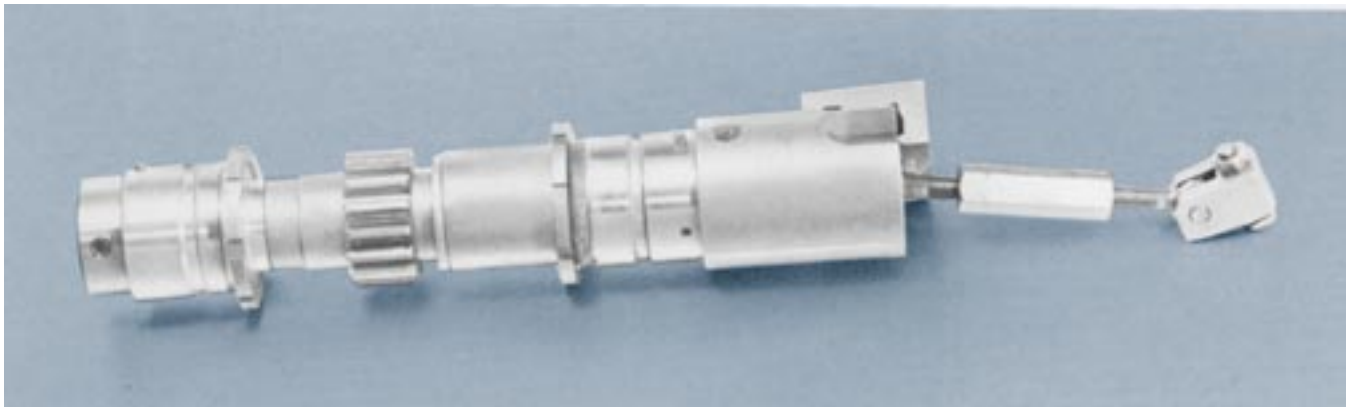


2496-40-SA
Spindle Stopping Brake

REVOLVING SPINDLES

MB-226-54-2-1-SA
Threading Spindle Assembly

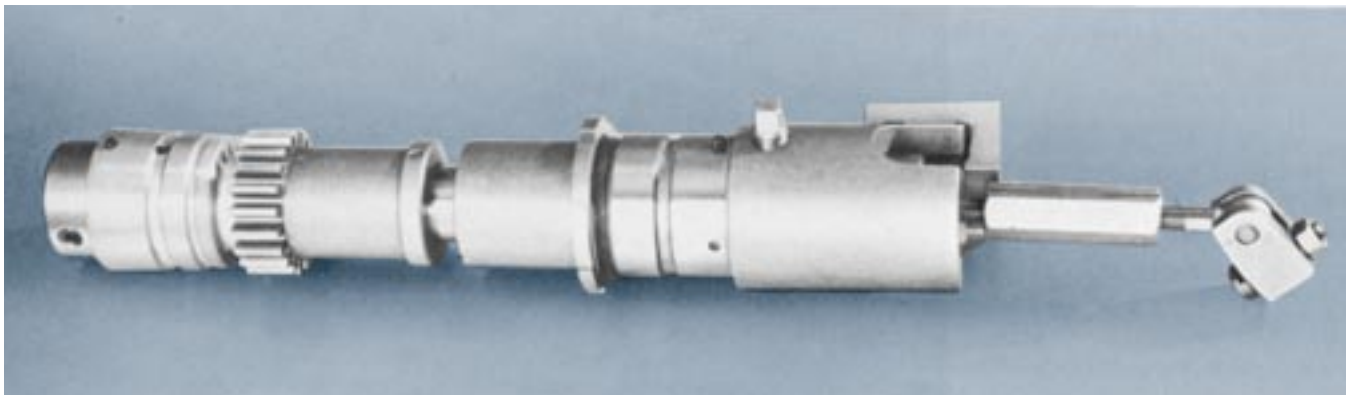
The threading spindle is supplied with an eight pitch sixteen tooth gear that is designed to run off the threading clutch.



MB-226-54-2-1-SA
Threading Spindle

MB-226-54-2-2-SA
Revolving Drill Spindle Assembly

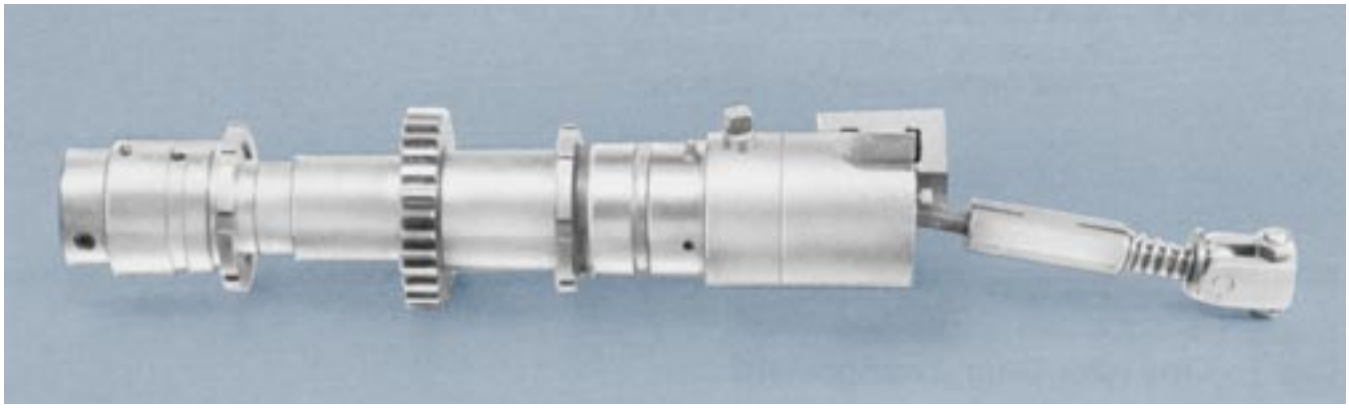
The revolving drill spindle is driven by the center drive through one of the idler gear arrangements mentioned on page 19. It is supplied with a ten pitch twenty tooth gear.



MB-226-54-2-2-SA
Revolving Drill Spindle

MB-226-54-2-3-SA
Revolving Support Spindle

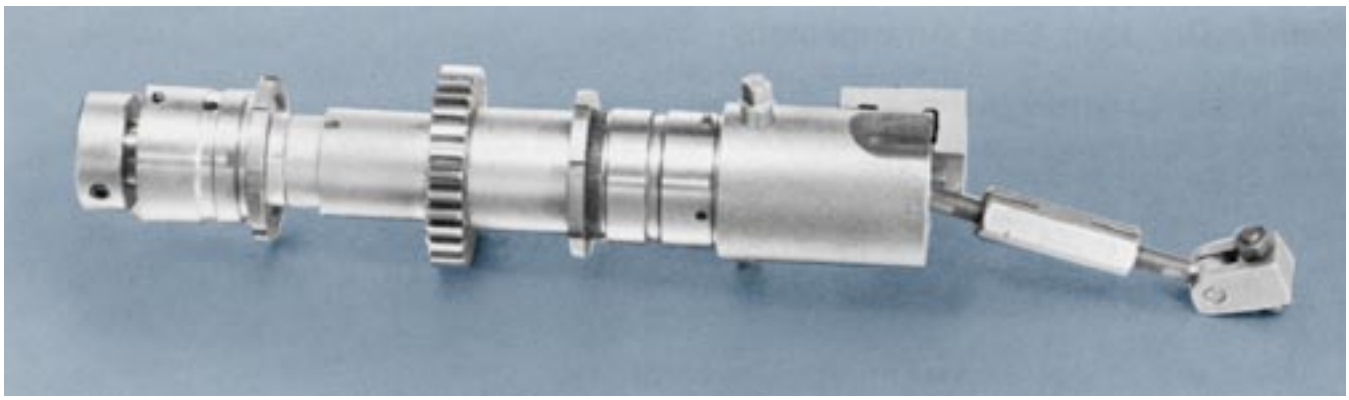
The revolving support spindle is driven directly off the center drive at the same speed and direction as the work spindles. It is supplied with a ten pitch thirty tooth gear. A spring loaded turnbuckle provides pressure on the end of the work piece while supporting it.



MB-226-54-2-3-SA
Revolving Support Spindle

MB-226-54-2-4-SA
Revolving Broaching Spindle

The broaching spindle uses a standard turnbuckle and is otherwise identical to a revolving support spindle. Angular contact ball bearings enable this spindle to withstand substantial thrust loads in either direction, making it ideal for broaching.



MB-226-54-2-4-SA
Revolving Broaching Spindle

IDLER GEAR ARRANGEMENTS

1232-98-3-SA
One To One Idler Gear Arrangement

The one to one idler gear arrangement is used to revolve drill spindles at the same speed, but in the opposite direction as the work spindles. The result is a drill speed twice that of the work spindles.

EXAMPLE:
Work Spindle Speed – 1000 R.P.M.
Drill Spindle Speed – 1000 R.P.M.
Actual Drilling Speed – 2000 R.P.M.

1232-98-5-1-SA
Two To One Idler Gear Arrangement

The two to one idler arrangement is used to revolve drill spindles approximately two times the speed of the work spindles, in the opposite direction. The result is a drill speed three times that of the work spindles.

EXAMPLE:
Work Spindle Speed – 1000 R.P.M.
Drill Spindle Speed – 2000 R.P.M.
Actual Drilling Speed – 3000 R.P.M.

1232-98-70-SA
Half To One Idler Gear Arrangement

The half to one idler gear arrangement drives the drill spindle half the speed of the work spindles, in the opposite direction. The result is a drill speed approximately one and one half the speed of the work spindles.

EXAMPLE:
Work Spindle Speed – 1000 R.P.M.
Drill Spindle Speed – 500 R.P.M.
Actual Drilling Speed – 1500 R.P.M.

Note:

1. All idler gear arrangements are driven off the center drive.

2. When using either the half to one or the two to one idler gear arrangement, an adjacent drill spindle can be driven off the compound gear in a one to one ratio with the work spindles.

1232-98-3-SA
One to One Idler Gear Arrangement

1232-98-5-1-SA
Two to One Idler Gear Arrangement

1232-98-70-SA
Half to One Idler Gear Arrangement

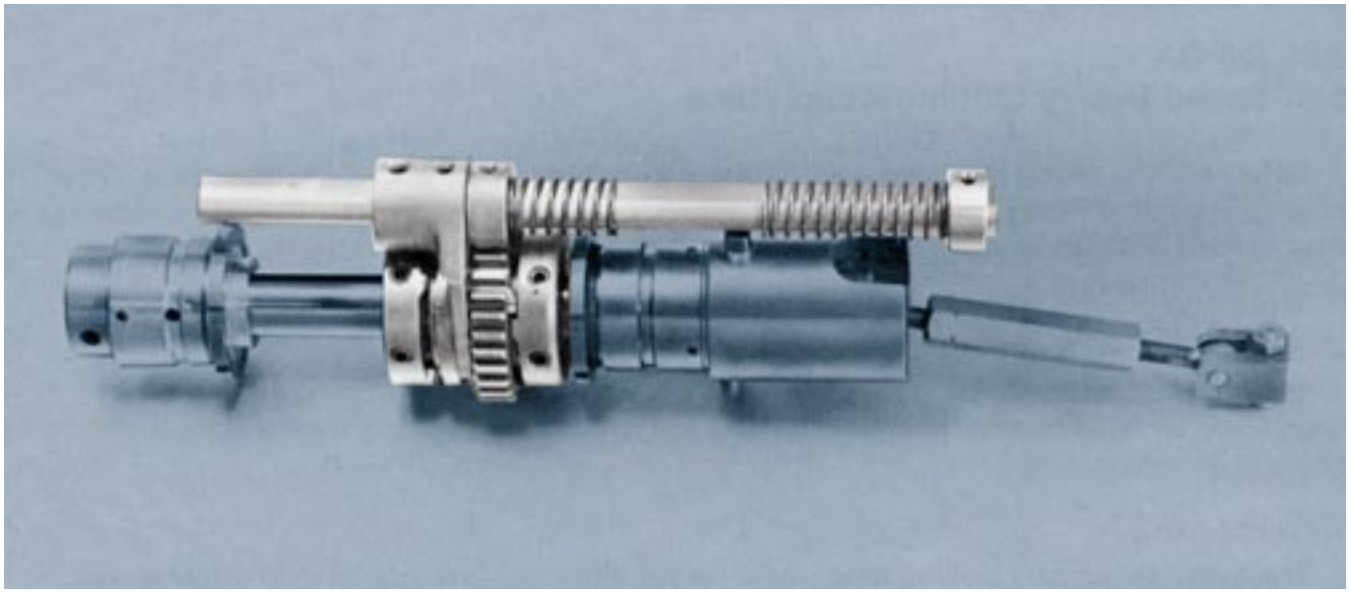
REVINLOC FOR BROACHING

1381-38-SA-4
Revinloc Attachment For Broaching

1381-38-SA-6
Revinloc Attachment For Broaching

The revinloc attachment is used to index a revolving broaching spindle in relation to a revolving work spindle. Standard revinloc clutches are available with four teeth for broaching squares and six teeth for broaching hexagons. By breaking the broaching operation up into two or three passes, larger areas can be broached at greater depths.

Parts manufactured using Six Tooth Revinloc Attachment and a Broaching Spindle Assembly



1381-38-SA
Revinloc Attachment for Broaching

Revinloc Clutch (Exploded View)

ROTARY SLOTTERS

Rotary slotting attachments are used to saw slots or flats on the end of the work piece. They can revolve with the work spindles or be held stationary. The center drive attachment provides the power to each of the three types of rotary slotters.

1232-101-75-SA
Rotary Slotting Attachment

The standard rotary slotter is the most moderately priced of all the slotting attachments. It carries a two and one quarter inch diameter saw and is capable of slotting depths of up to five eighths of an inch.

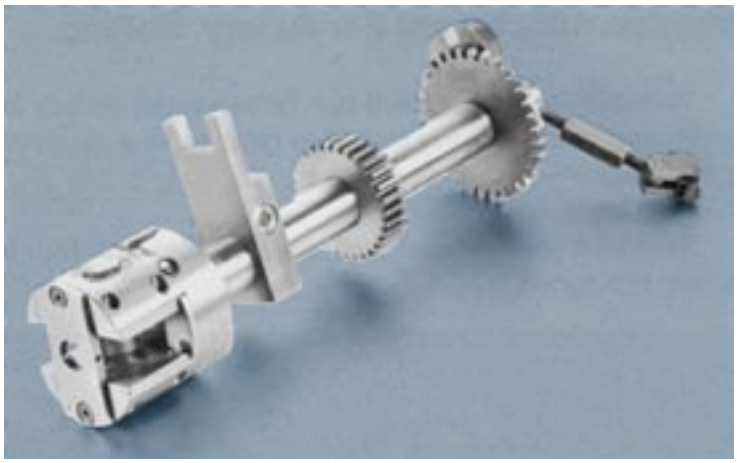
1232-132-50-SA
Heavy Duty Rotary Slotting Attachment

The heavy duty rotary slotting attachment carries a two and one quarter inch diameter saw and is capable of slotting depths of up to five eighths of an inch. This slotter is heavier in construction than the standard slotter and is the workhorse in our line of slotting attachments. Heavy cuts can be taken with this attachment. Oil flows through the inner spindle and onto the saw while cutting.

1232-156-SA
High Speed Rotary Slotting Attachment

The high speed rotary slotter has the most compact head assembly of all the slotting attachments. This allows it to be revolved at higher speeds. The inner and outer spindles are the same as the heavy duty slotter. A steady flow of cutting oil flows through the inner spindle and onto the saw. The maximum saw diameter is one and three quarter inches. The maximum depth of cut is three eighths of an inch.

These slots were machined with a Rotary Slotting Attachment



1232-101-75-SA
Rotary Slotting Attachment

1232-132-50-SA
Heavy Duty Slotting Attachment

1232-156-SA
High Speed Rotary Slotting Attachment

REVINLOC AND OFFSIDE MILLING

1380-SA-4-13 and 1380-SA-6-13
Revinloc Attachment For Rotary Slotting

The revinloc attachment can be mounted on any one of the rotary slotters. It is used to index a revolving slotter in relation to a revolving work spindle. Revinloc attachments can be mounted in any position.

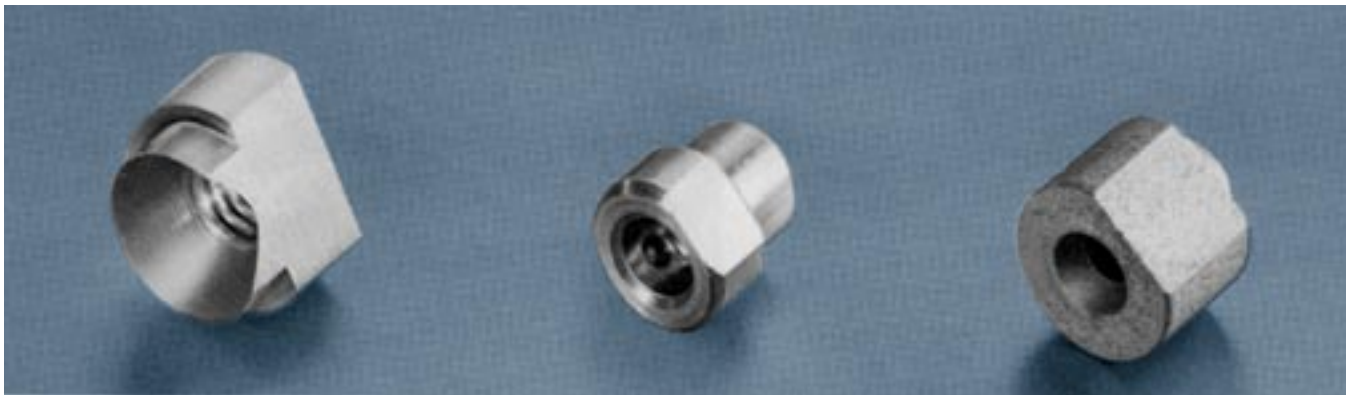
Standard revinloc clutches are available with four teeth for slotting squares and six teeth for slotting hexagons.

Parts produced using Rotary Slotter and a Revinloc Clutch

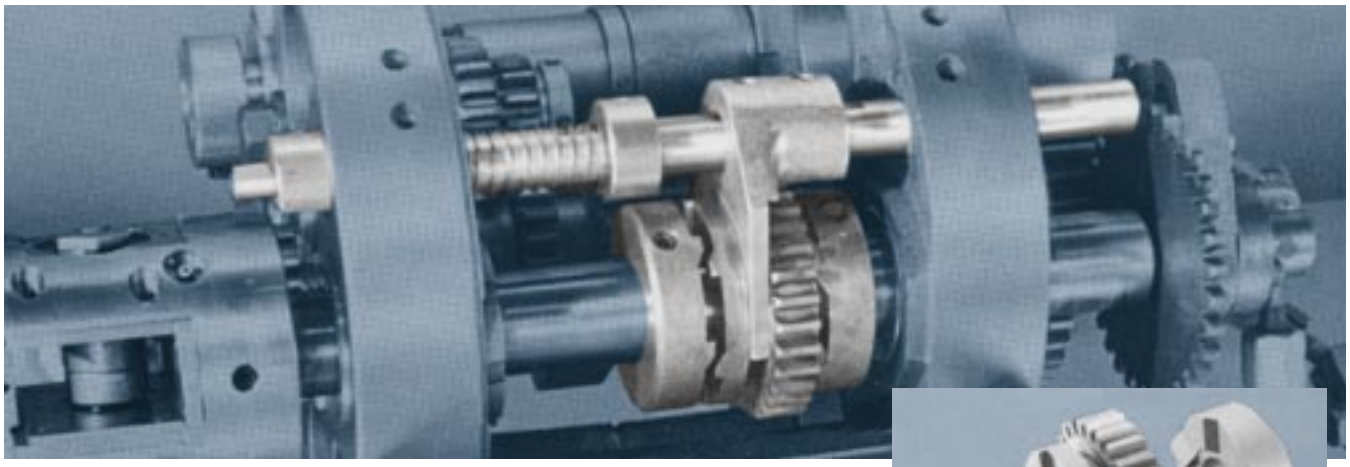
1232-107-SA
Offside Milling Attachment

With the work spindle stopped, the offside milling attachment is used to mill a flat on one side of the work piece. Mounted similar to a rotary slotter, this attachment can be used in any position. The outer spindle is held stationary while the inner spindle is driven by the center drive.

As shown below, half the milling head has been cut away to permit simultaneous cross drilling or tapping.

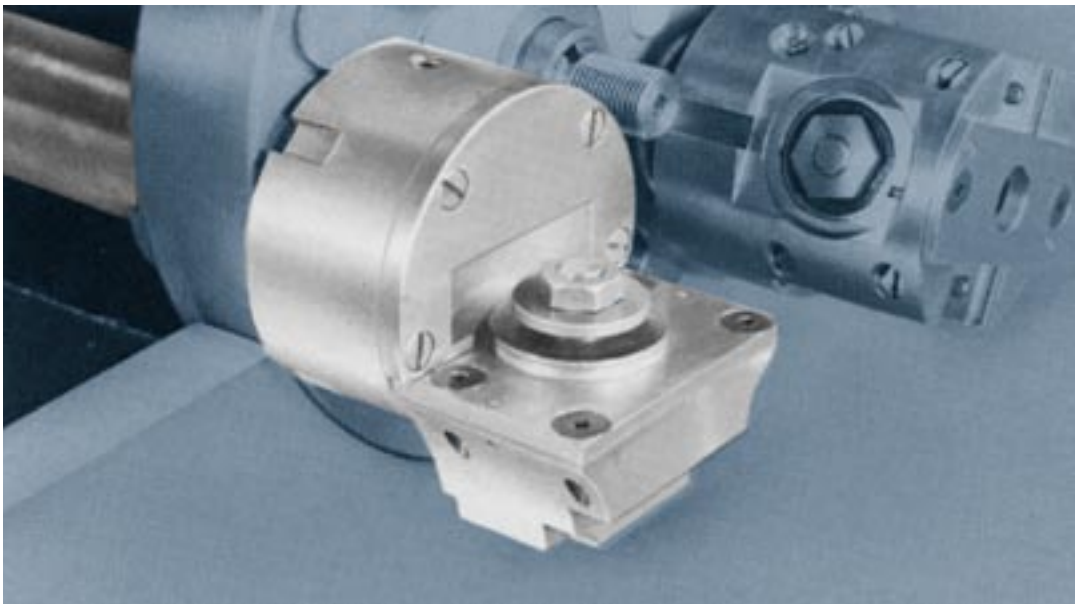


Parts machined using Offside Milling Attachment



1380-SA
Revinloc Attachment

Revinloc Clutch
(Exploded View)



1232-107-SA
Offside Milling Attachment

KEYWAY MILLING

1232-140-SA
High Speed Keyway Milling Attachment

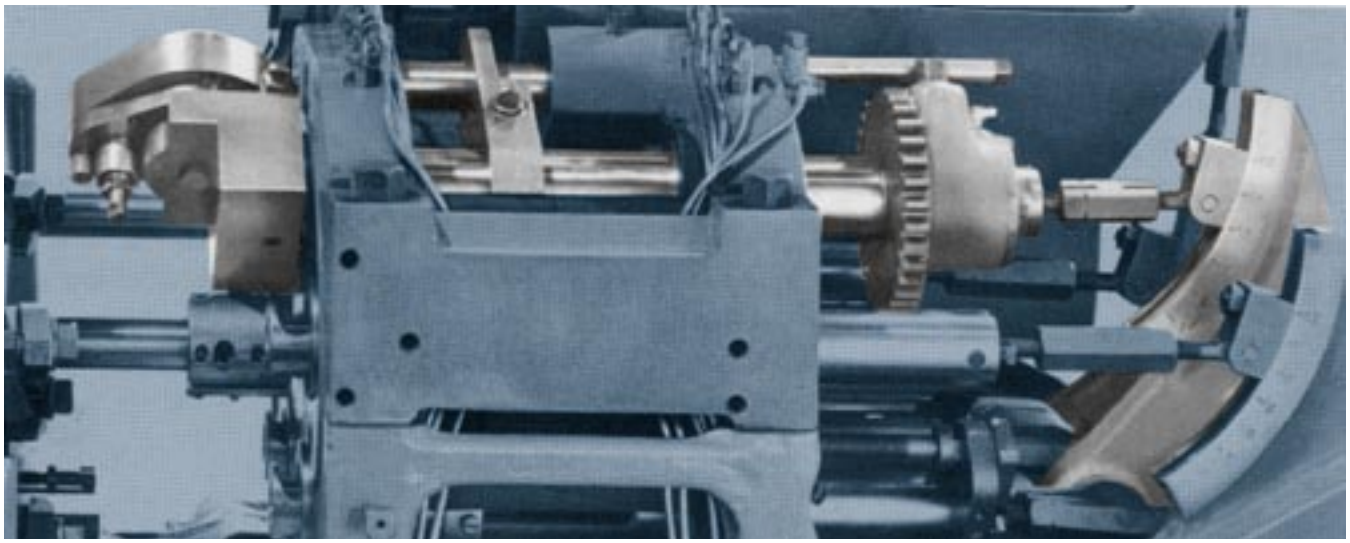
1232-141-SA
Low Speed Keyway Milling Attachment

With the work spindles stopped, keyways can be cut along the axis of the work, using a keyway milling attachment. Woodruff keys can be plunge cut, or with a profile guide, contours can be milled along the axis of the work.

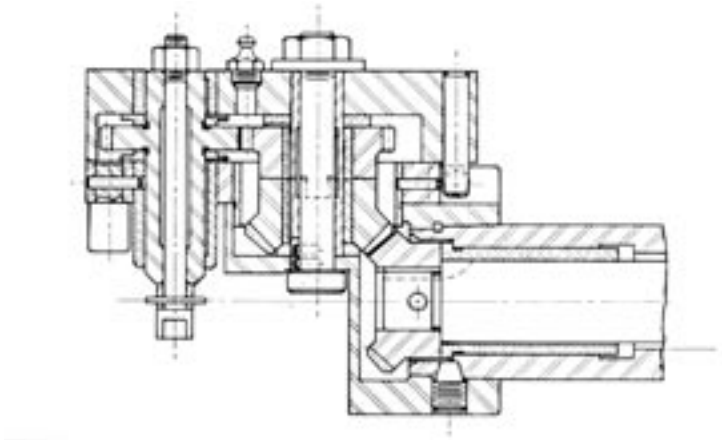
Keyway milling attachments can be mounted in any position. However, a cross working position as well as a tool spindle position may be required to actuate the milling attachment. The outer spindle is held stationary while the inner spindle is driven by the center drive.

This attachment is available with a high speed milling head providing a cutter speed 1.56 times (42-54 gears) that of the work spindles, and a low speed milling head with the cutter running the same speed as the work spindles.

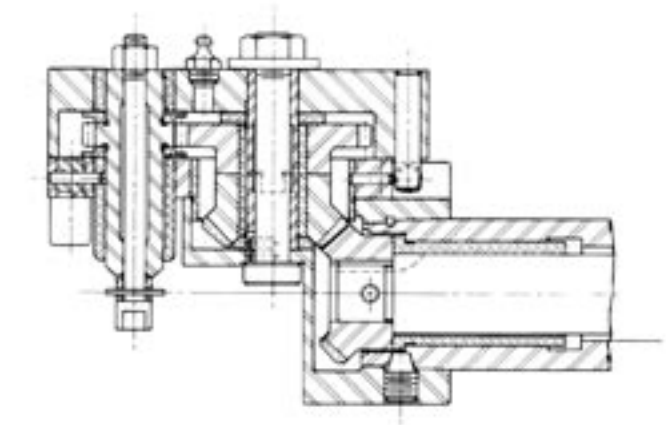
Parts made using a Keyway Milling Attachment



1232-140-SA
Keyway Milling Attachment



1232-141-SA Section Through Low Speed Keyway Milling Head



1232-140-SA Section Through High Speed Keyway Milling Head

STRADDLE MILLING

1390-50-SA
Straddle Mill Attachment

Mounted in the fourth position, the straddle mill attachment features a pair of two inch diameter milling cutters. The cutters can be adjusted to mill flats any desired depth on the work piece. Cutter position can be adjusted one and one half inches along the axis of the work. This attachment is independently motor driven and must be accompanied by a spindle stopping attachment.

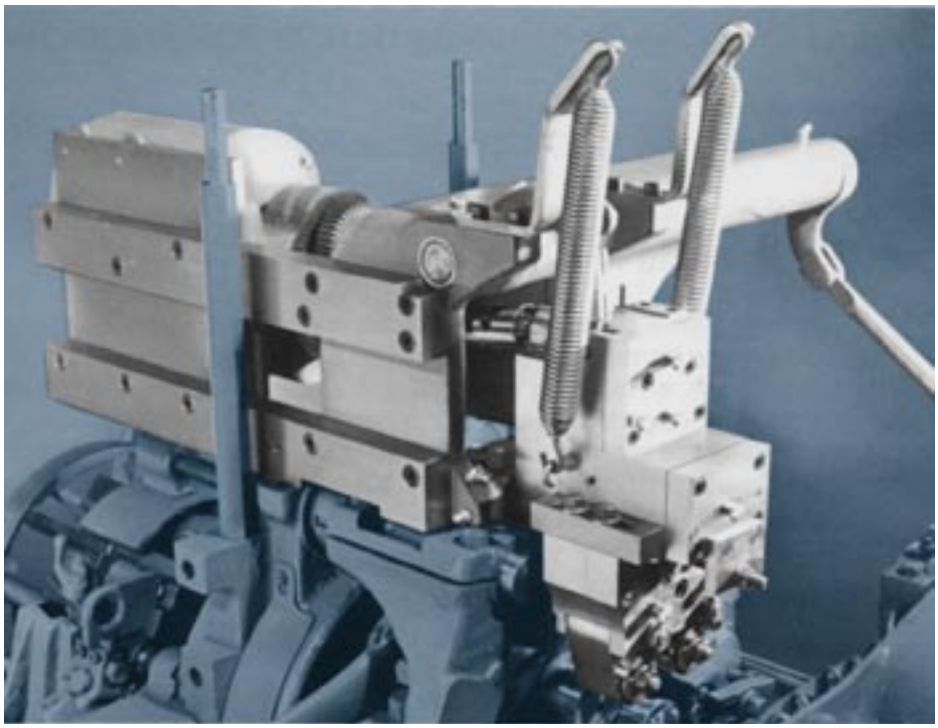
1390-117-SA
Straddle Mill Change Gear Arrangement

An optional change gear arrangement is available for use with the straddle mill attachment. This change gear arrangement provides a cutter speed range of 380 R.P.M. to 1725 R.P.M. Standard feed change gears are used to arrive at the desired cutter speed.

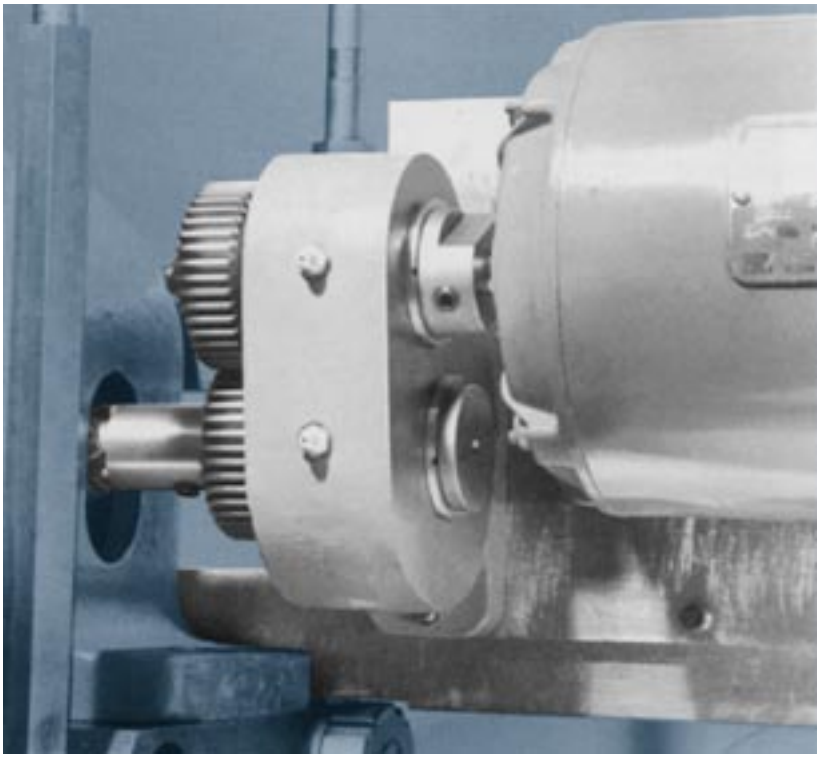
1270-8-SA
Auxiliary Spindle Stop Brake 4th Position

Used in conjunction with the Spindle Stopping brake on page 15 for additional tension when straddle milling. When a job requires more torque to hold parts in place.

These flats were milled by a Straddle Mill Attachment



1390-50-SA
Straddle Mill Attachment



1390-117-SA
Straddle Mill Change Gear Arrangement

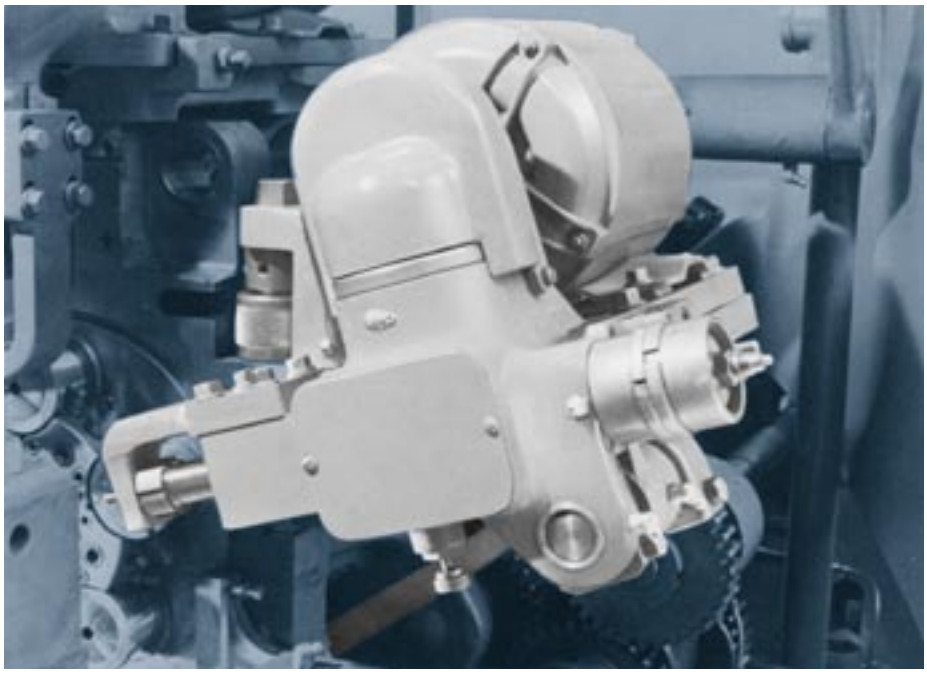
CROSS DRILLERS

1321-SA
Third Position Cross Drill Attachment

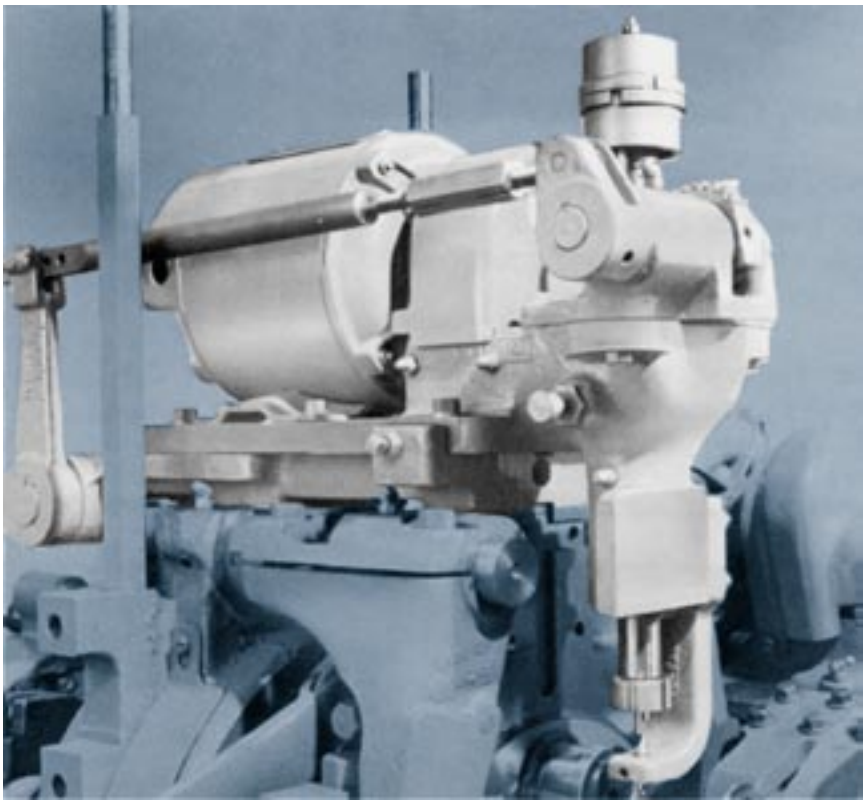
1374-SA
Fourth Position Cross Drill Attachment

Cross drill attachments are available for use in the third and fourth positions. Each attachment is independently motor driven and must be used with the work spindle stopped. Cross drill attachments are adjustable along the axis of the work and can drill through parts within the capacity of the machine. Both the third and the fourth position cross drills are independently cam operated.

Some examples of work that requires the Cross Drill Attachment



1321-SA
Third Position Cross Drill Attachment



1374-SA
Fourth Position Cross Drill Attachment

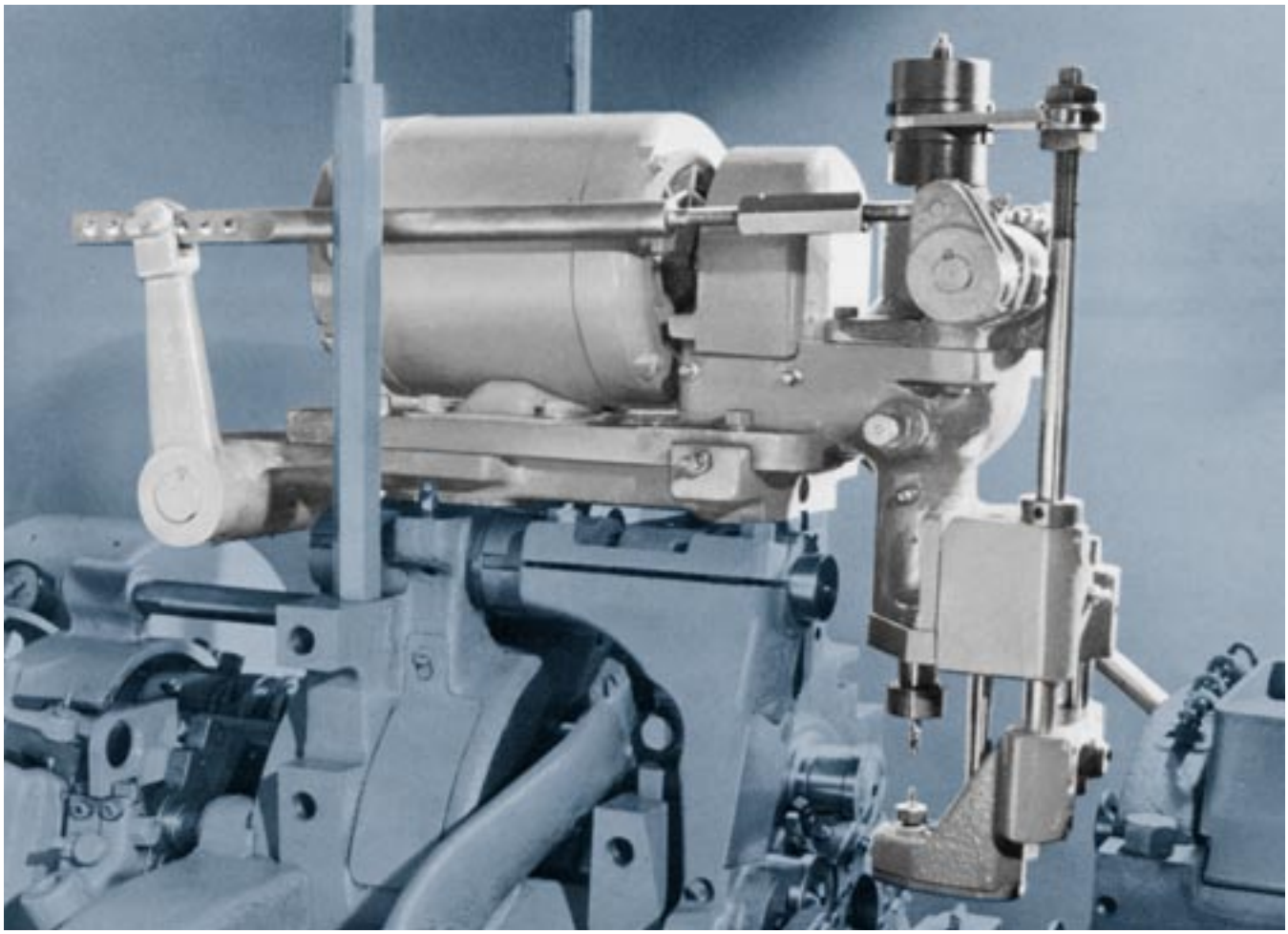
CROSS DRILLERS

1439-SA
Third Position Cross Drill with Inside Countersink Attachment

1440-SA
Fourth Position Cross Drill with Inside Countersink Attachment

Cross drill attachments mounted with inside countersink are available for use in the third (1439-SA) or the fourth (1440-SA) position. They can be used to drill a hole and then countersink or counterbore the opposite side of the hole. Cross drilling and countersinking are both actuated by the same cam.

Both the third and fourth position cross drill and countersink attachments are independently motor driven and can be adjusted along the axis of the work. The work spindle must be stopped when using either of these attachments.

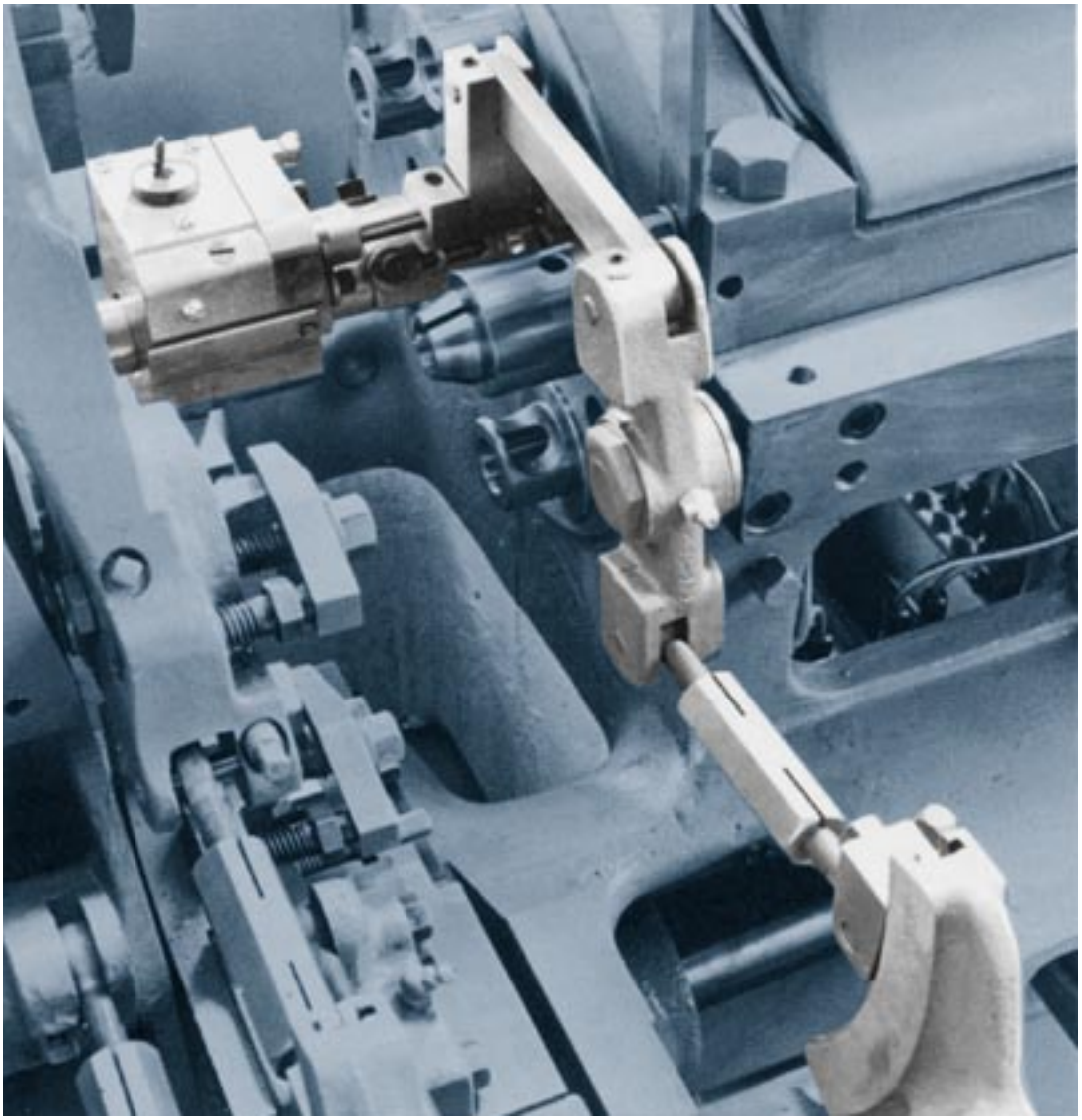


1440-SA
Fourth Position Cross Drill with Inside Countersink Attachment

1615-SA
Inside Cross Drill or Countersink Attachment

The inside cross drill or countersink attachment is used in either the third or fourth position. It can be used with or without a cross drill attachment. Cross holes, up to one quarter inch in diameter, can be drilled or countersunk with a maximum stroke of one half inch. Power is supplied by the center drive, through a bevel gear arrangement.

This attachment is independently cam operated allowing two holes to be drilled at the same time, when used with either a third or fourth position cross drill. The spindle stopping attachment is required when using this attachment.



1615-SA
Inside Cross Drill or Countersink Attachment

CROSS DRILLERS

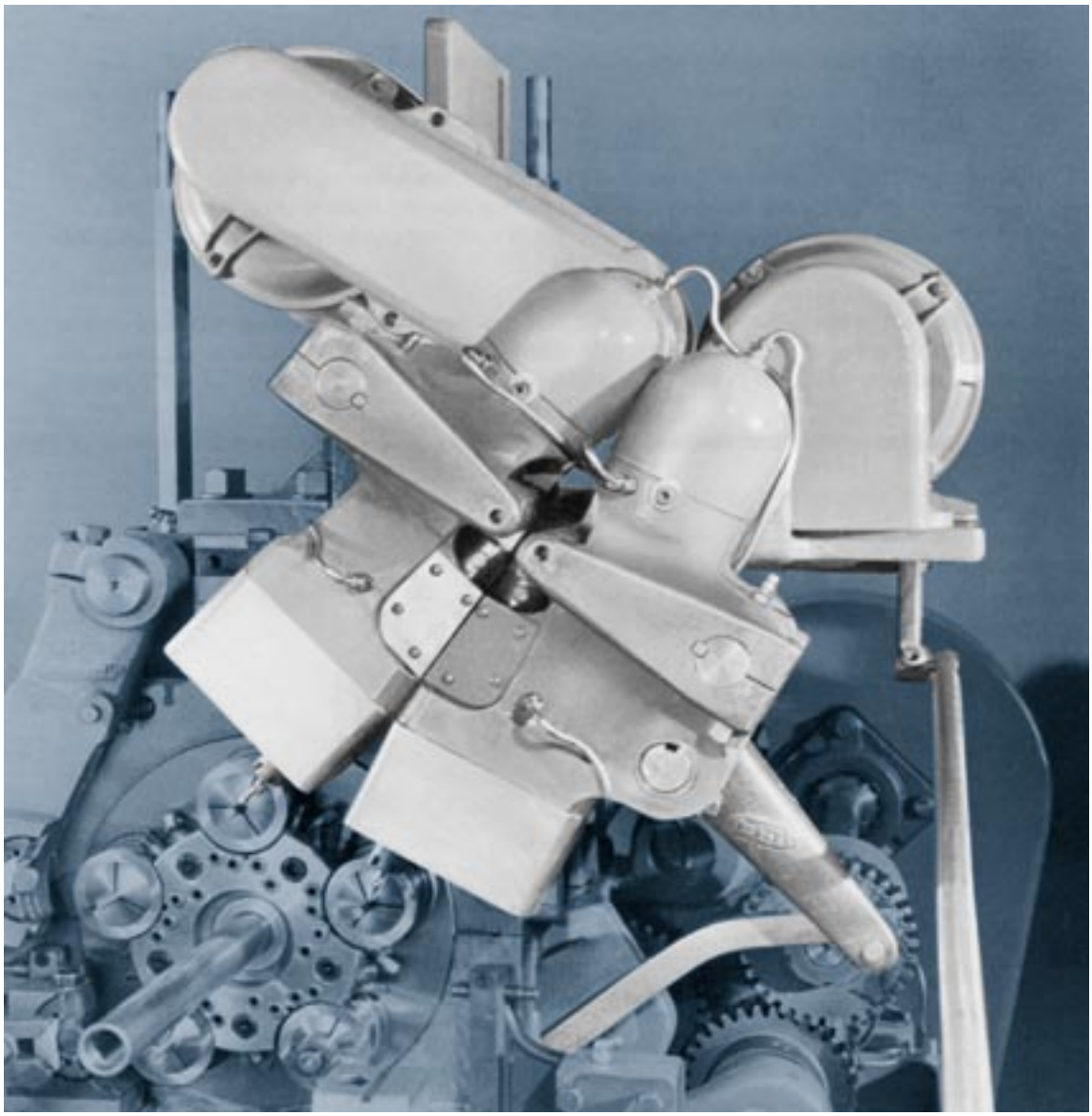
1428-SA/1429-SA
Ninety Degree Cross Drilling Attachment

With the work spindles stopped in the third and fourth positions, the ninety degree cross drill attachment will drill two holes ninety degrees out of phase. Each cross drill is independently cam operated and motor driven.

1430-10-SA
Cross Tapping Attachment

This cross tapping attachment can be used with the ninety degree cross drilling attachment to tap one hole. This attachment is independently motor driven and cam operated.

Some examples of Ninety Degree Cross Drilling



1428-SA/1429-SA
Ninety Degree Cross Drilling Attachment

CROSS TAPPING

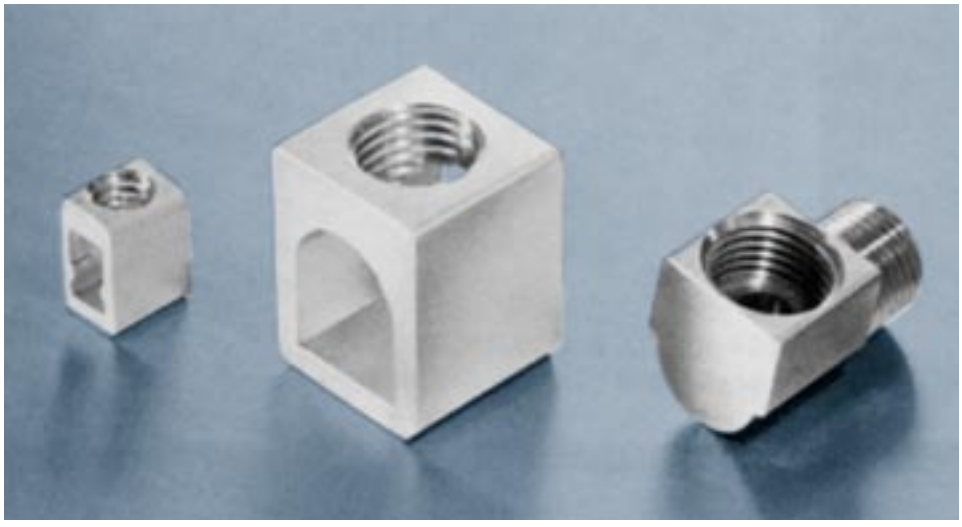
1373-SA
Fourth Position Cross Tapping Attachment

Both the standard and heavy duty cross tapping attachments are available for use in the fourth position. Each is independently cam operated and motor driven. Cross tapping attachments must be accompanied with the third position cross drill attachment (see page 31).

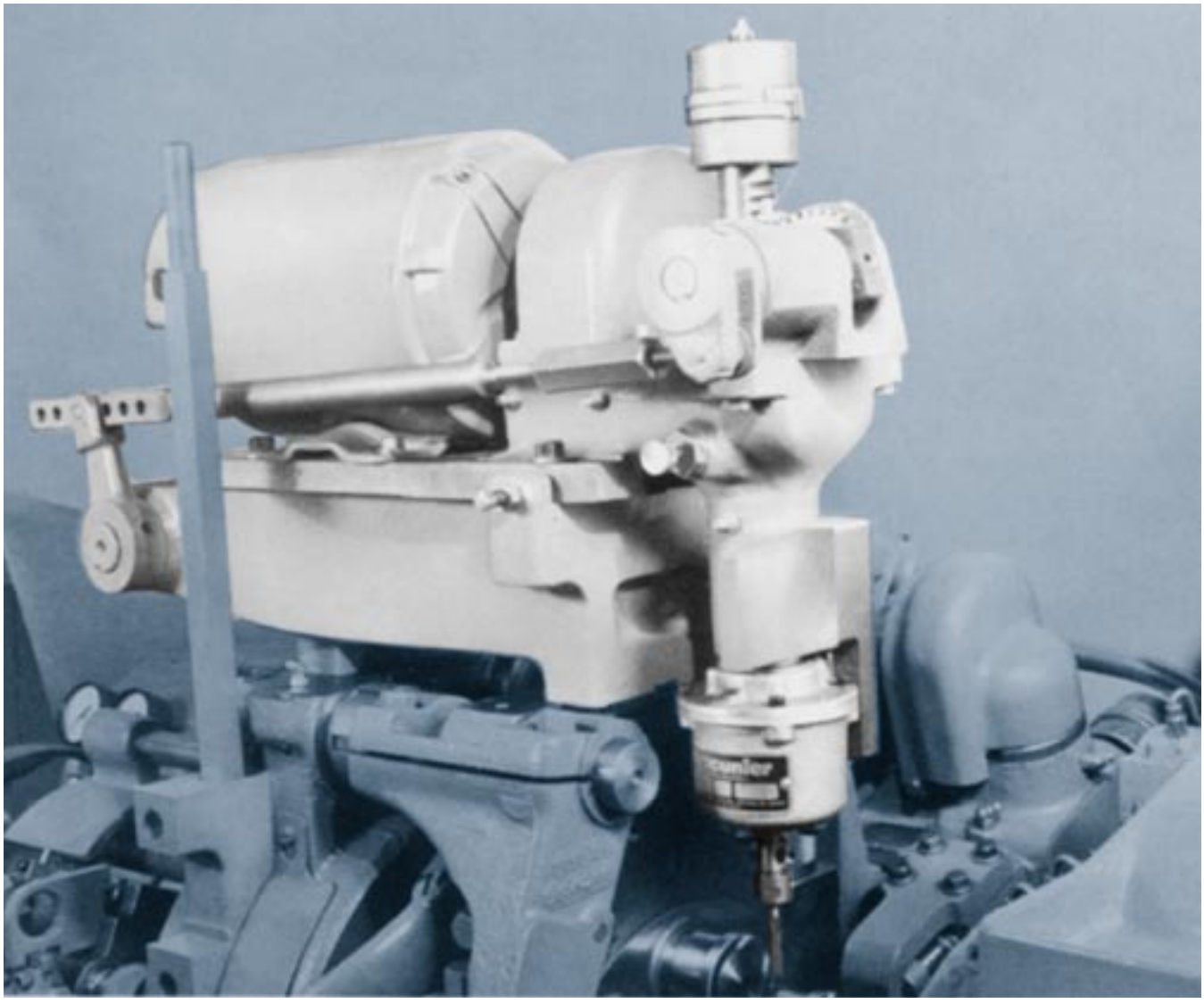
The standard cross tapping attachment is mounted on the revolving head cap and is adjustable along the axis of the work. A size 1 style E procunier tapping head is used to drive and reverse the tap. Thread sizes up to one quarter inch diameter can be tapped in steel using this attachment.

1373-HD-SA
Fourth Position Heavy Duty Cross Tapping Attachment

The heavy duty cross tapping attachment is also mounted on the revolving head cap and is adjustable along the axis of the work. Equipped with a size 2 style E procunier tapping head, this attachment is capable of tapping up to three eighths inch holes in steel and one half inch holes in brass.



Some examples of Cross Tapping



1373-SA
Fourth Position Cross Tapping Attachment

SPINDLE LOCATING

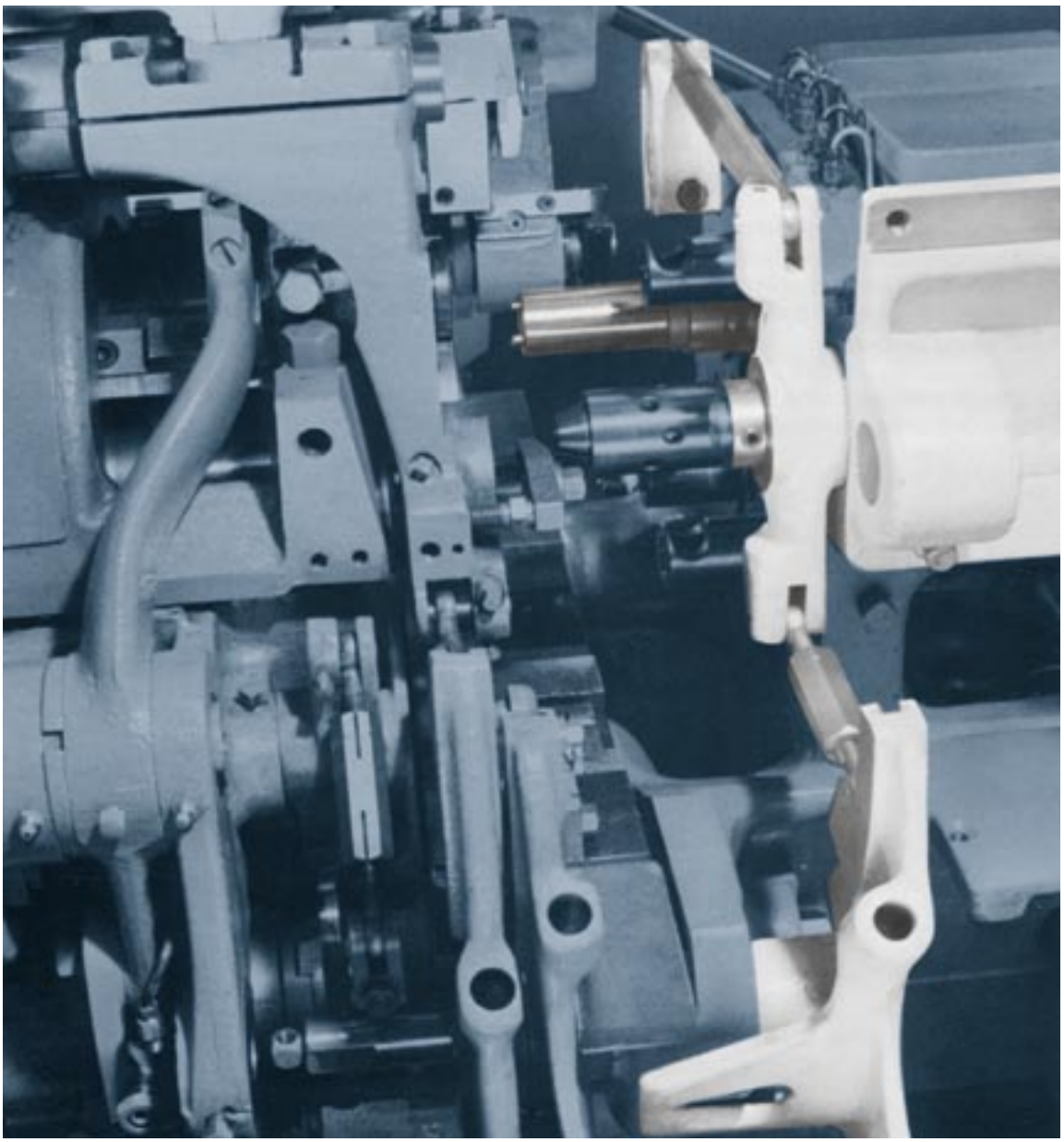
MBSL-200-SA
Spindle Locating Attachment 180 Maximum Movement

MB-2-SL-SA
Spindle Locating Attachment 360 Maximum Movement

The spindle locating attachment is used to radially locate the shape of the stock, or a previously machined surface, in relation to subsequent machining operations. Attachments are available to provide locating movement of 180 or 360 degrees.

A tool spindle position is used to accommodate the locating wrench. Special work collets must be used to accept this wrench. The spindle stopping attachment is required with this attachment.

These parts required the use of the Spindle Locating Attachment



MBSL-200-SA
Spindle Locating Attachment

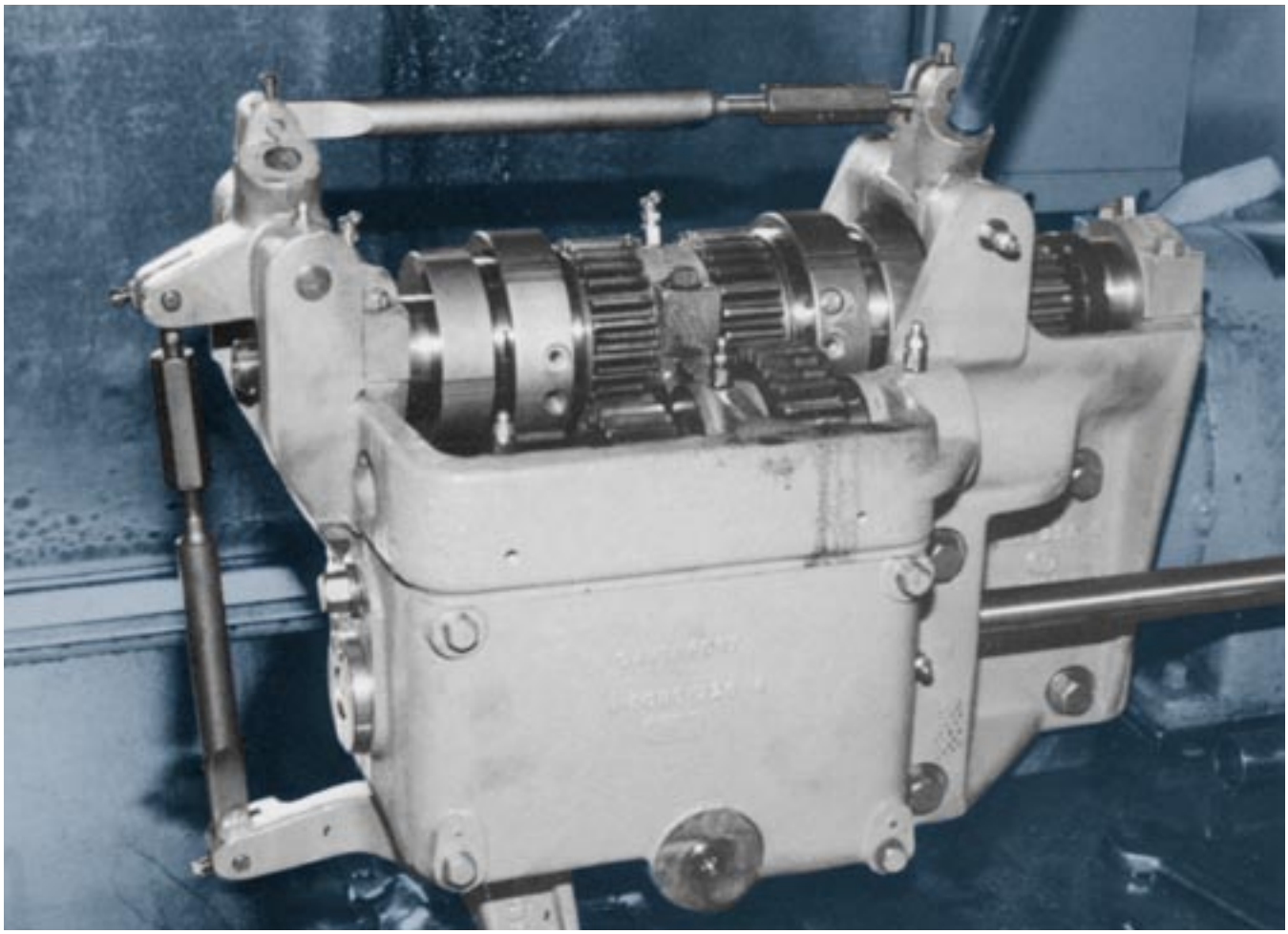
THREADING

MB-226-SAC1
Disc Drive Threading Attachment*

Used to thread internal holes, the attachment will change speeds to allow the top to run on and run off the workplace. It is also applicable for self-opening die heads.

A Retrofit Kit (MB-226-160-10-SA) is available to update all threading clutches manufactured after 1937.

*Includes gear cover (not shown)



MB-226-SAC1
Disc Drive Threading Attachment

SB-226-SAC
Servo Threading Attachment

The Servo Driven Threading Attachment is designed to thread parts (tap ID or thread OD) at an infinite number of speeds (up to 6000 RPM in 1 RPM increments). The attachment control is integral to the Servo B control. The programmable controller commands the Servo motor drive speeds and shifting points, allowing for shifting from low to high speed at any point during the tapping work cycle.

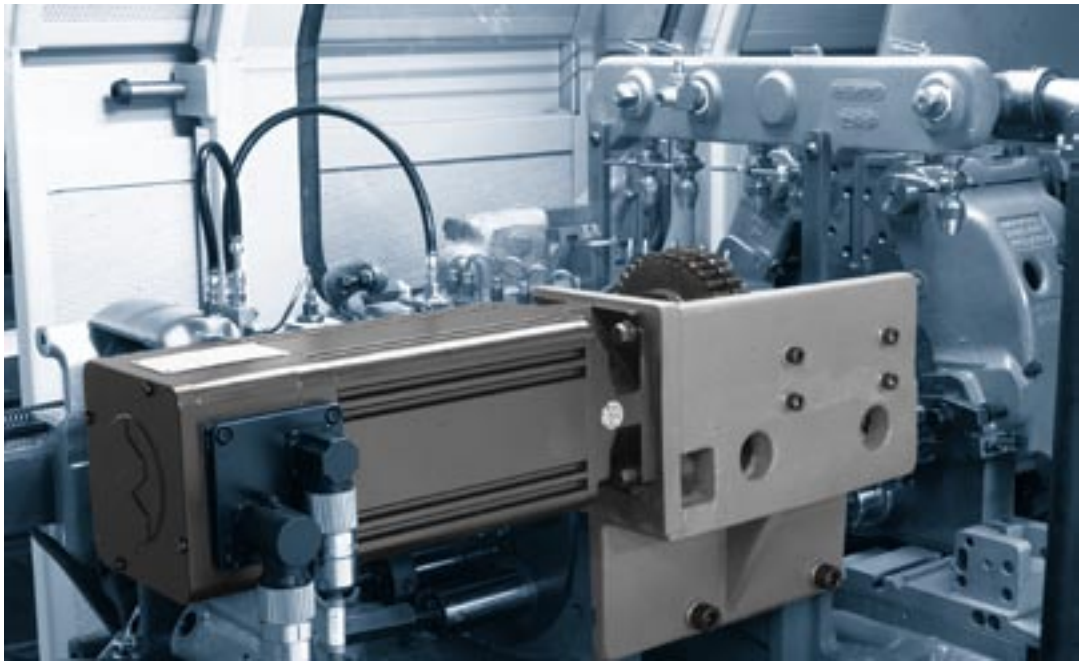
The attachment drives the 3rd and/or 4th position tool spindles at a programmed speed. The spindles can be used for turning operations, such as threading, drilling, reaming, broaching, etc. Threading has a unique motion profile related to the thread pitch. Turning, however, has simple, one-speed motion.

Numerous combinations of operations are possible with this attachment. For example, threading in 3rd and 4th positions, drilling in 3rd and threading in 4th (or vice versa), or drilling in 3rd and 4th positions. If a stationary tool spindle is required, a locking device holds the spindle from rotating, with the driven gear completely disengaged from the driving gear. The work spindle can be revolving or stopped (with spindle stop clutches).

Since the speed and shifting point of the tool spindle are controlled with the Servo motor and motion controller, the rotating spindle motion becomes the variable in tooling applications. This eliminates two main adjustments required with the traditional mechanical threading attachment. With Servo threading, the precise speed change shifting point (determined by cam design) is programmed into the control. The speed at which the tap enters and leaves the work piece is calculated and entered in the control as a specific RPM.

Due to the programmable features of this attachment, a large range of pitch threads are attainable with a small range of cam profiles. Since the threading speed is calculable, operators can simply determine if the surface speed of the tool is within the recommended limitations for the specified material.

Web utility with modem connection allows monitoring and diagnostic capabilities to the motion controller from Davenport service personnel.



SB-226-SAC
Servo Threading Attachment – Standard on Servo B

THREAD ROLLING

1448-SA
Second Position Thread Roll Attachment

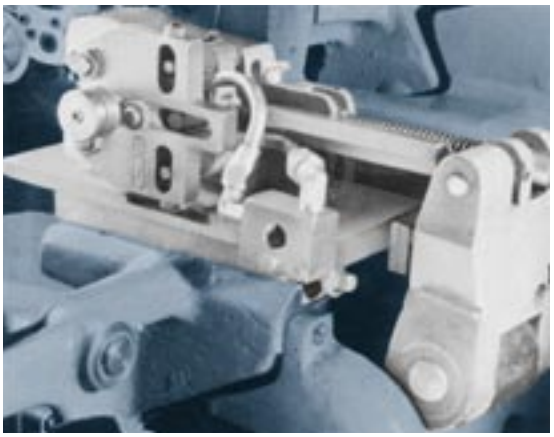
1431-SA
Third Position Thread Roll Attachment

1421-SA
Fourth Position Thread Roll Attachment

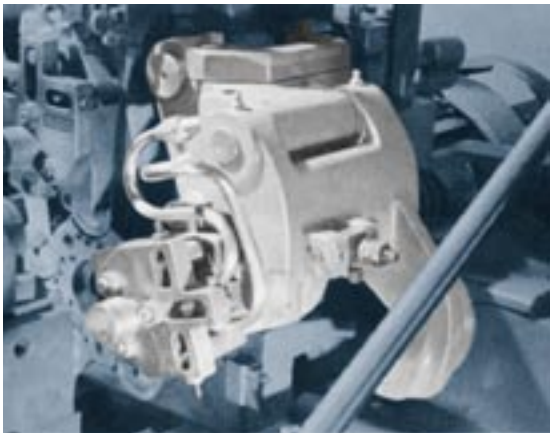
Thread roll attachments are available for use in the second, third and fourth positions. Each of these attachments operates on the same principle. Mounted on a slide, two thread rolls equipped with a compensating device are fed to the center of the work. When the rolls are positioned properly, they are fed into the work piece radially, completing the thread rolling operation. Because the rolls are on the center of the work, there is no side pressure applied to the spindles during the thread rolling process.

Thread sizes within the capacity of the machine, and up to eleven sixteenths of an inch wide, can be rolled using standard thread rolling attachments.

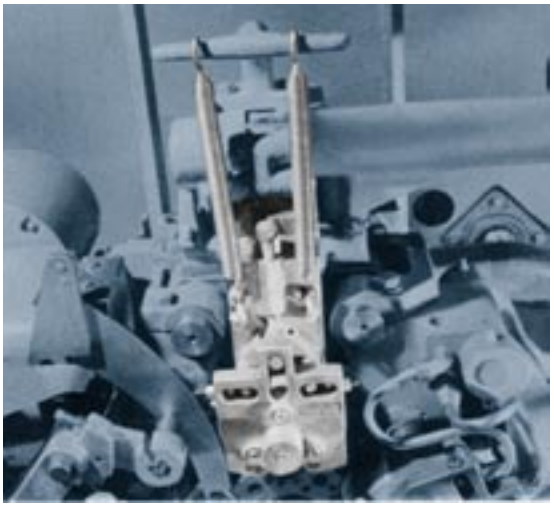
Some typical Thread Rolling applications



1448-SA
Second Position Thread Roll Attachment



1431-SA
Third Position Thread Roll Attachment



1421-SA
Fourth Position Thread Roll Attachment

TRANSFER ATTACHMENTS

1244-100-SA
Transfer Arm Attachment

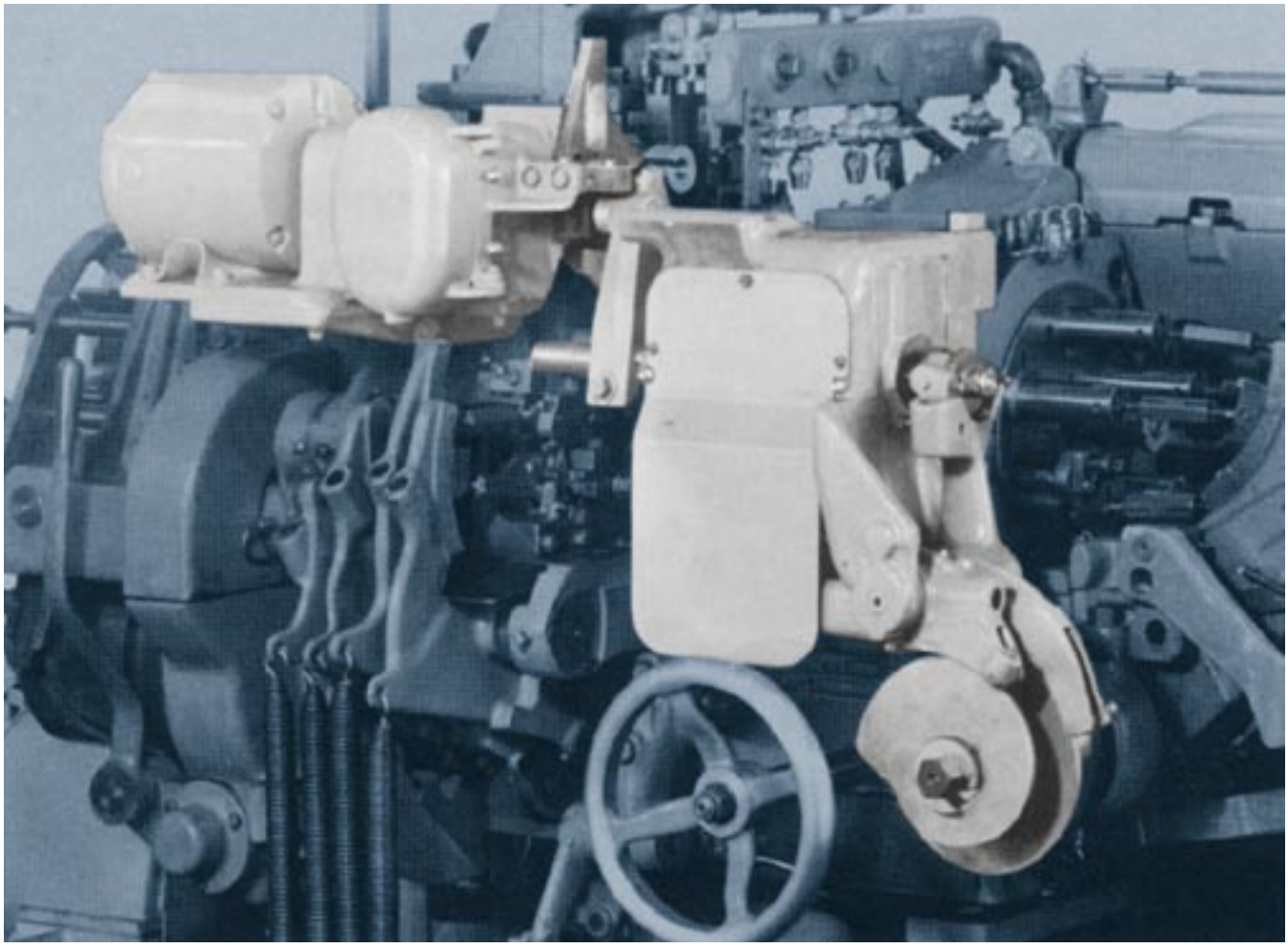
The transfer arm attachment is used in conjunction with other attachments to permit machining the cutoff end of the work piece. After cutoff, the work piece is transferred out of the work area and machined by auxiliary attachments mounted on the revolving head cap. Attachments that are available for use with the transfer attachment include:

1. 1287-100-SA Slotting attachment
2. 1252-30-SA Second end drilling attachment
3. 1326-SA Left end threading attachment
4. 1287-276-SA Trepan and slotting attachment

1287-100-SA
Transfer Slotting Attachment

The transfer arm attachment is shown mounted with a slotting attachment (1287-100-SA). The slotting attachment carries a two and three quarters inch diameter saw and is independently motor driven with a speed range of 294 R.P.M. to 1991 R.P.M.

Parts created with the use of the Transfer Attachment

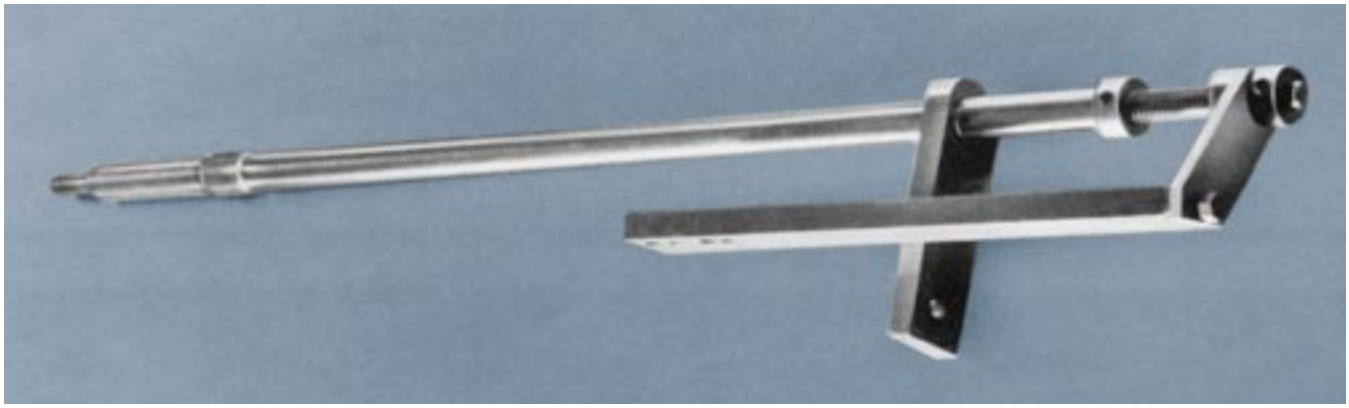


1244-100-SA & 1287-100-SA
Transfer and Slotting Attachment

EJECTOR ATTACHMENTS

1263-146-SA & 1263-146-11-SA
Special Burring Spindle Ejecting Attachment

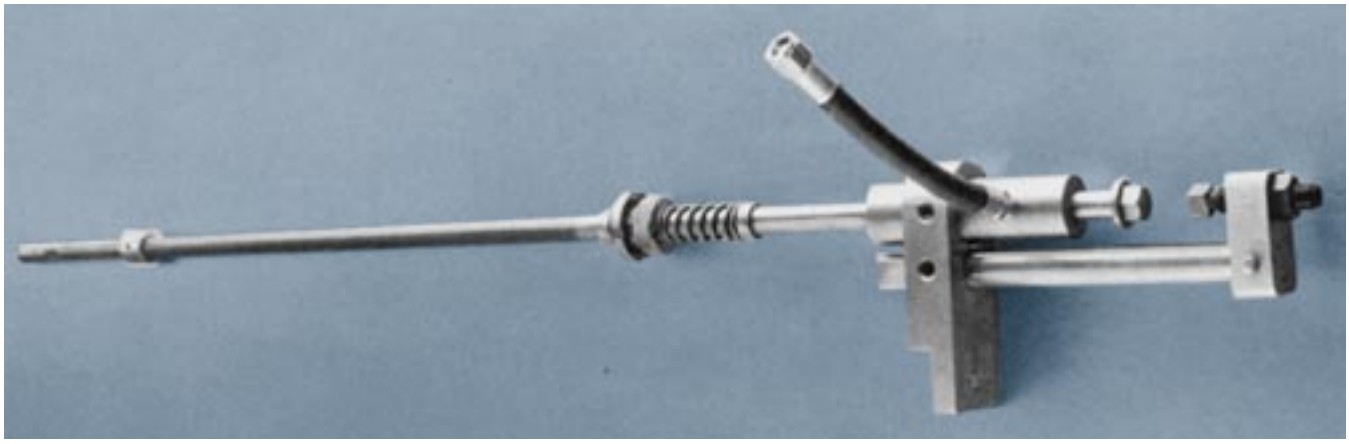
Occasionally it becomes necessary to support a work piece during ejection from the burring spindle. This is frequently true in the case of long parts or when chucking over the shoulder. Special ejecting attachments are available to support the work in an internal hole (1263-146-SA) or on the outside diameter (1263-146-11-SA).



1263-146-SA or 1263-146-11-SA
Special Ejecting Attachments

1263-141-SA
Ejecting and Oiling Attachment

The ejecting and oiling attachment provides a constant flow of oil through the burring spindle, which flushes chips from the work piece and the collet. The ejector rod will eject the work piece after the burring collet is opened.



1263-141-SA
Oiling and Ejecting Attachment

1263-130-SA
Special Ejecting Tube Assembly

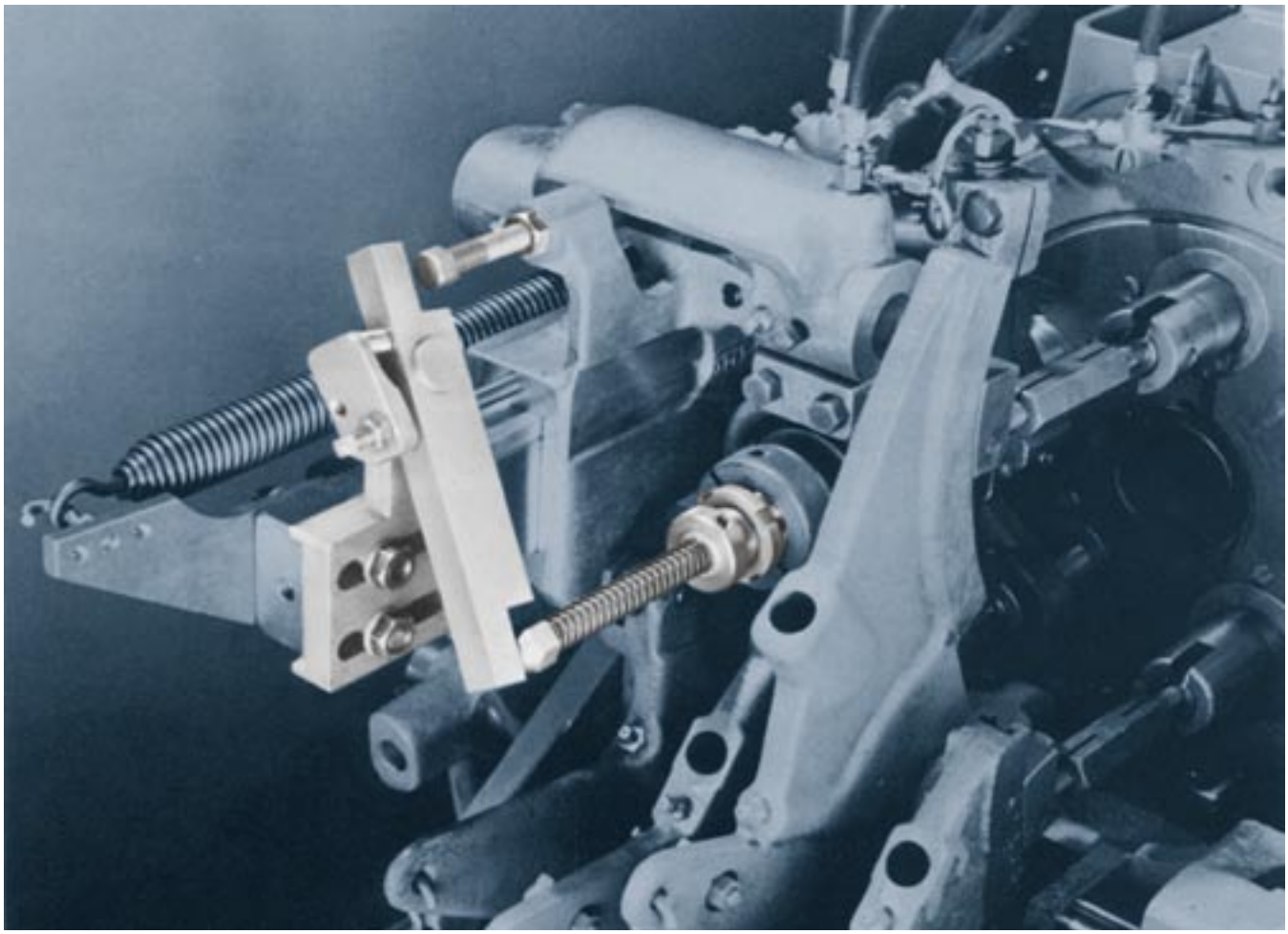
This special ejecting tube assembly transports and ejects parts through the burring spindle.

1263-130-SA
Special Ejecting Tube Assembly

EJECTOR ATTACHMENTS

1263-144-SA
Burring Spindle Ejector – Six to One Ratio

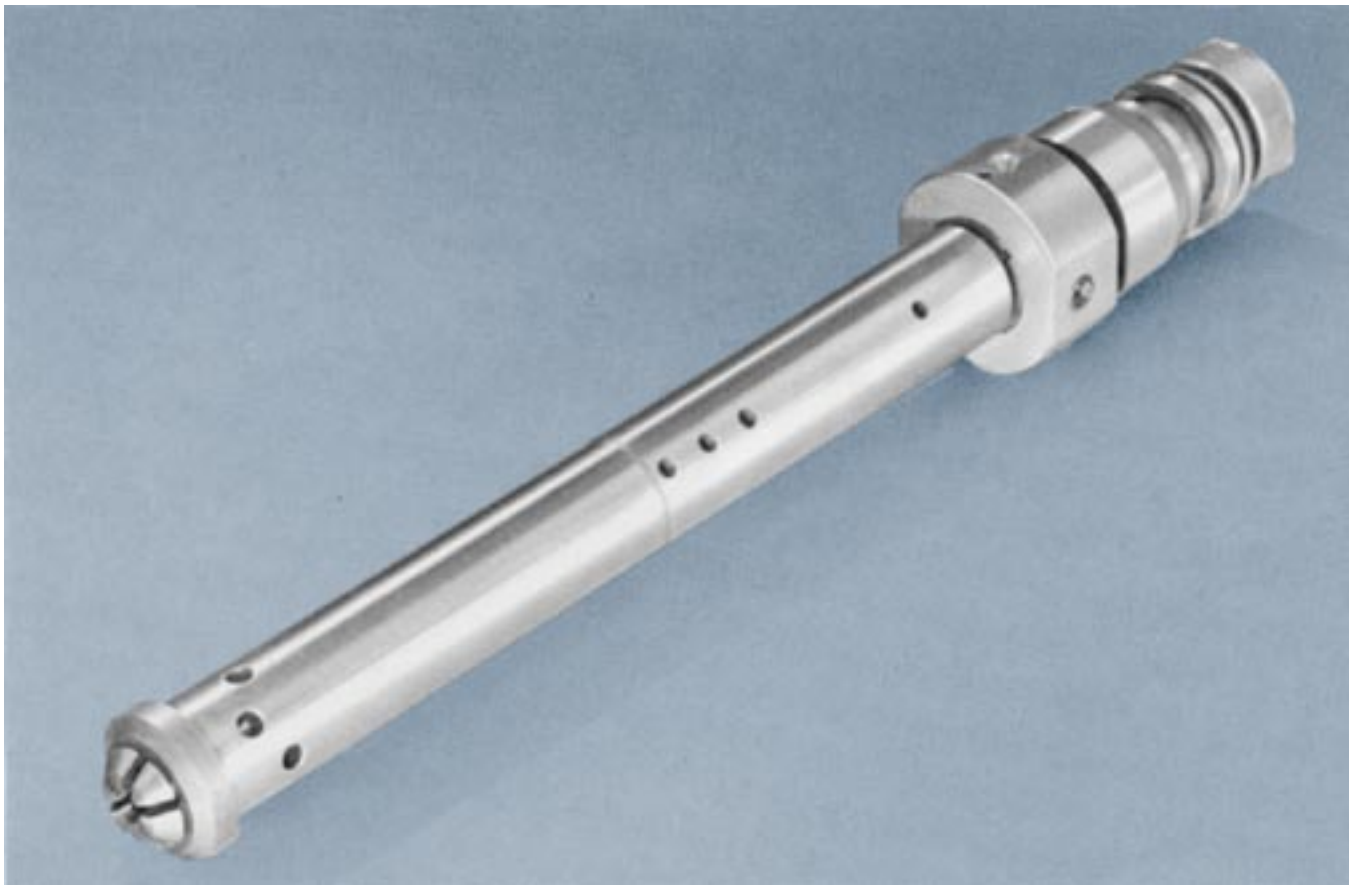
The six to one ejector is used to eject long parts from the burring spindle. Ejecting stroke of up to three and one quarter inches can be attained with this attachment.



1263-144-SA
Burring Spindle Ejector - 6 to 1 Ratio

MB-635-30-SA and MB-635-30-1-SA
Burring Spindle Chucking Mechanism

A special ball chucking mechanism, for use on the burring spindle, permits opening the burring collet seven sixty-fourths of an inch on each side. This allows the burring collet to advance “over shoulders” to a machined diameter where greater chucking surface can be attained. This chucking mechanism is adaptable to either the third position burring attachment (see page 10) or the fifth position burring attachment (see page 9).



MB-635-30-SA
Burring Spindle Chucking Mechanism

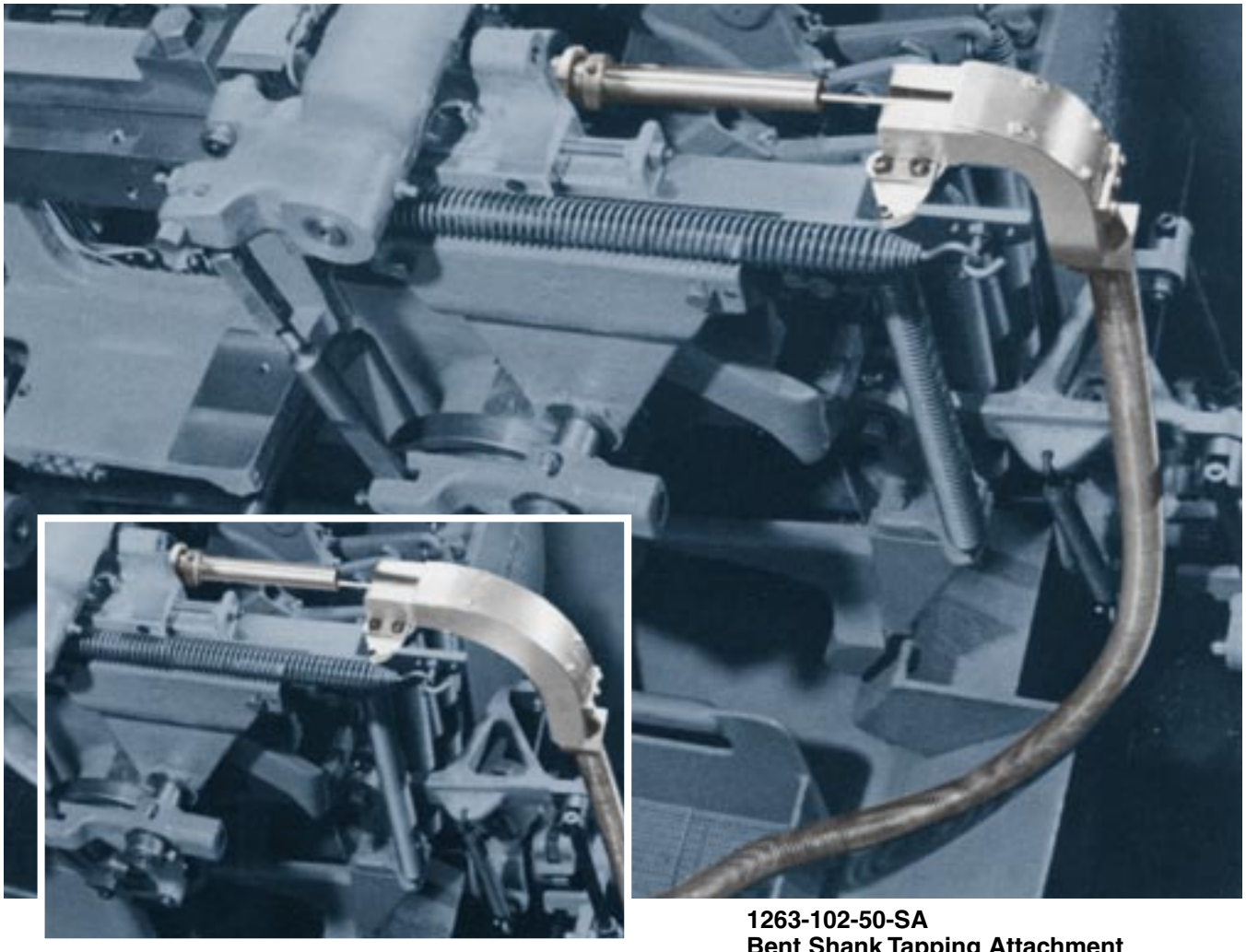
BENT SHANK TAPPING

1263-102-35-SA
Special Bent Shank Tapping Attachment

A special bent shank tapping attachment is supplied with a three and one half inch wrench radius allowing longer parts to be tapped. (Send a part print to Davenport to determine applicability to the attachment)

1263-102-50-SA
Bent Shank Tapping Attachment

The bent shank tapping attachment can be used with either the third, fourth, or fifth position stationary head burring attachment (see pages 9 & 10). This attachment permits through tapping parts in the burring spindle, after the cutoff operation. A bent shank tap is mounted in the burring spindle. After cutoff, the revolving burring spindle drops back, feeding the work piece over the tap. Cycle times can be reduced by tapping after cutoff and an extra tool spindle will be available for other machining operations. The length of part to be tapped is restricted by the two-inch radius within the tapping wrench.

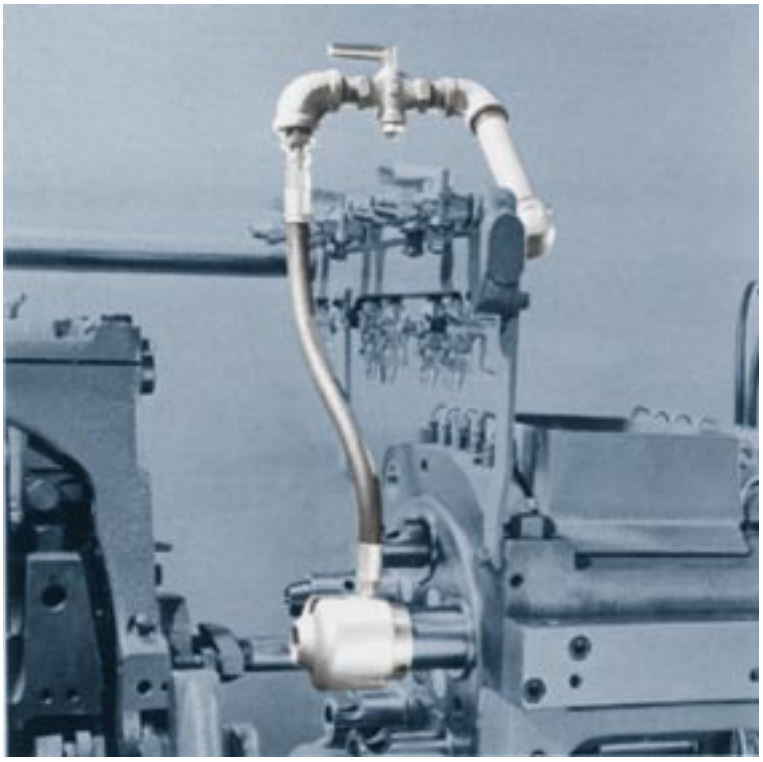


1263-102-50-SA
Bent Shank Tapping Attachment

1263-102-35-SA
Special Bent Shank Tapping Attachment

1263-102-43-SA
Oil Sleeve Assembly for Bent Shank Tapping

When using the bent shank tapping attachment it is recommended that an oil sleeve be mounted on the burring spindle. Oil from this sleeve will flush and cool the tap.



1263-102-43-SA
Oil Sleeve

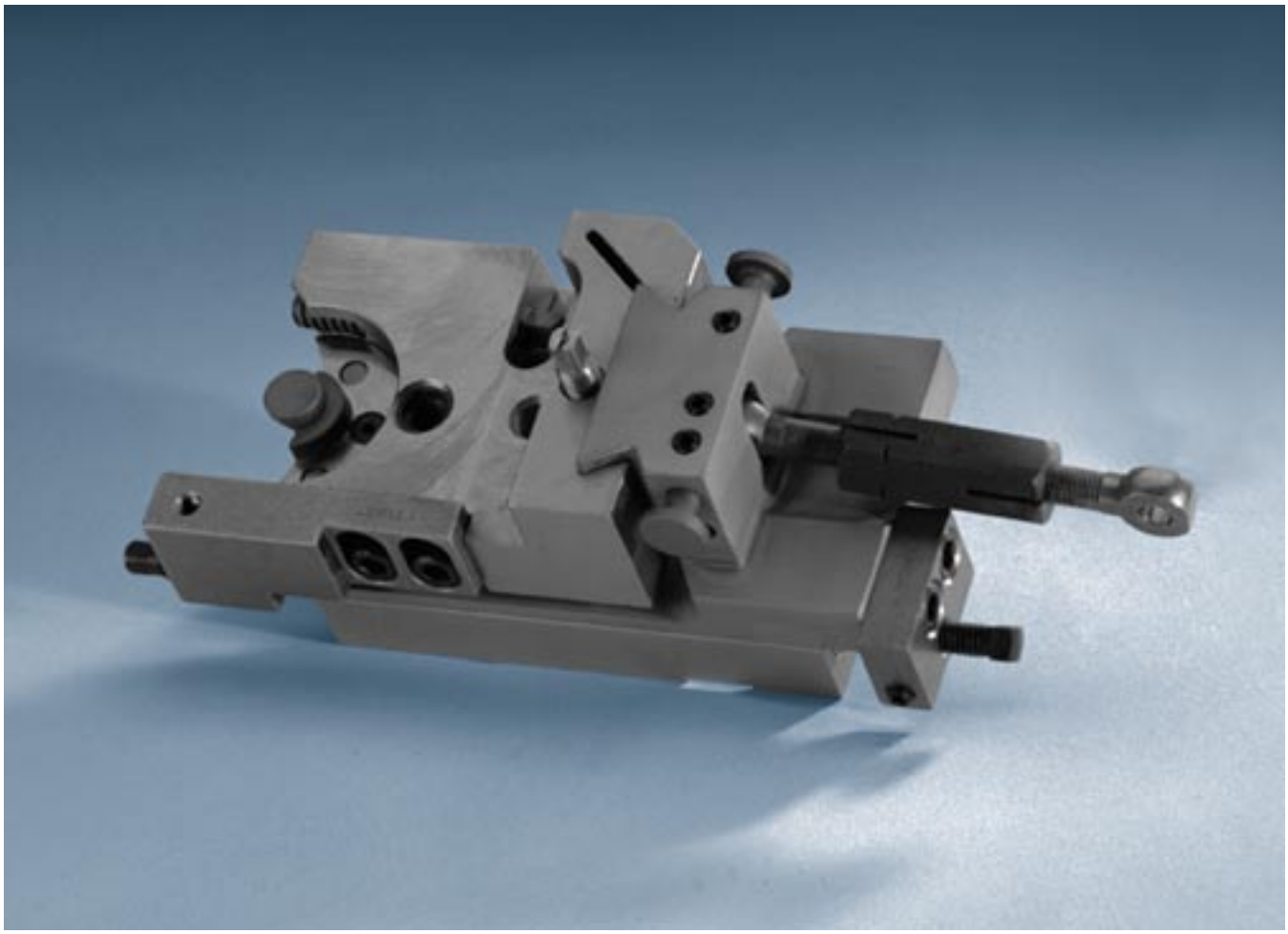
These parts were all tapped with a standard Bent Shank Tapping Attachment

CROSS SLIDE ATTACHMENTS

131EG

CJWinter Adjustable Cross Slide with Expansion Gib & Stop

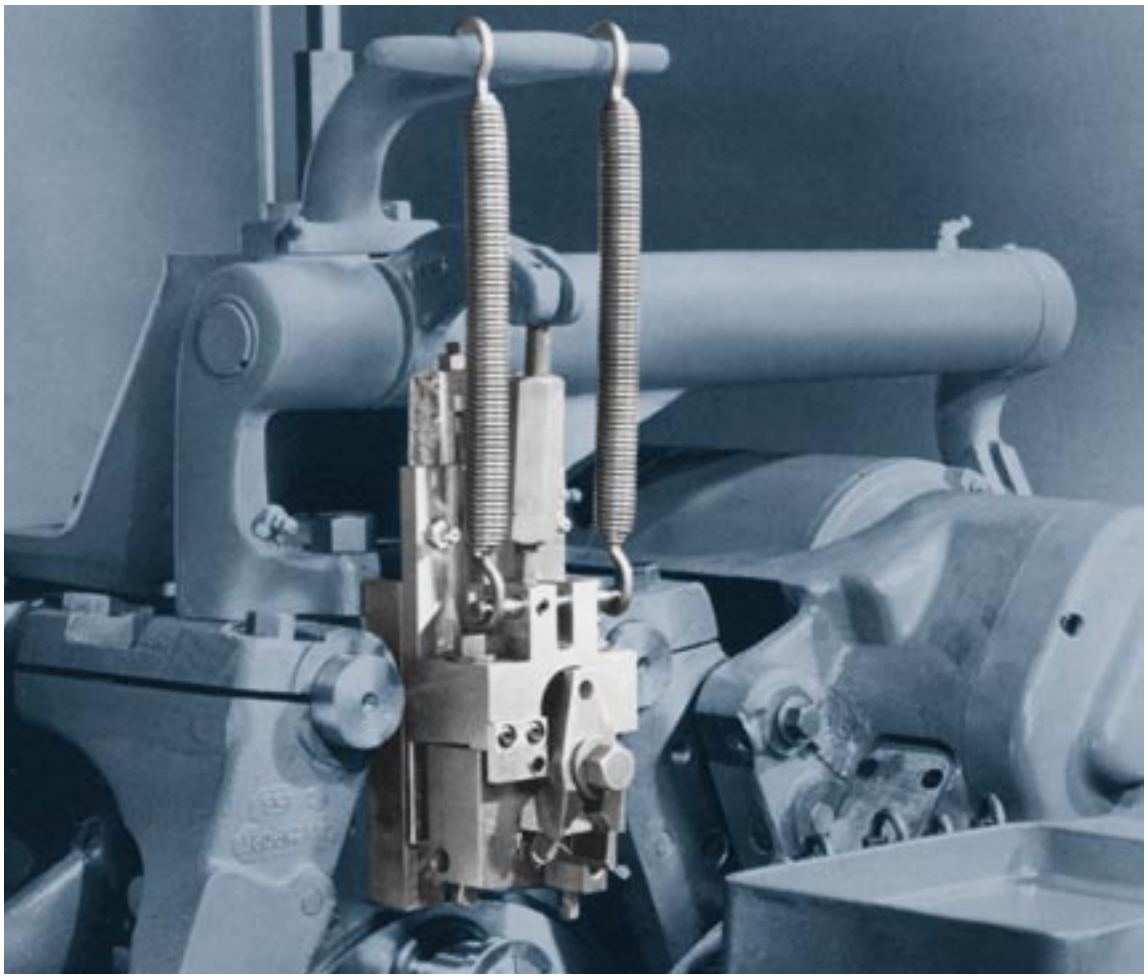
Superior precision and rigidity. Virtually eliminate chatter while making deeper and wider cuts.



131EG
Cross Slide with Expansion Gib & Stop

5080-272-SA
Mounting Bracket

The 5080-272-SA mounting bracket is an integral part of both the 4th position cross slide and 4th position thread roll attachments.

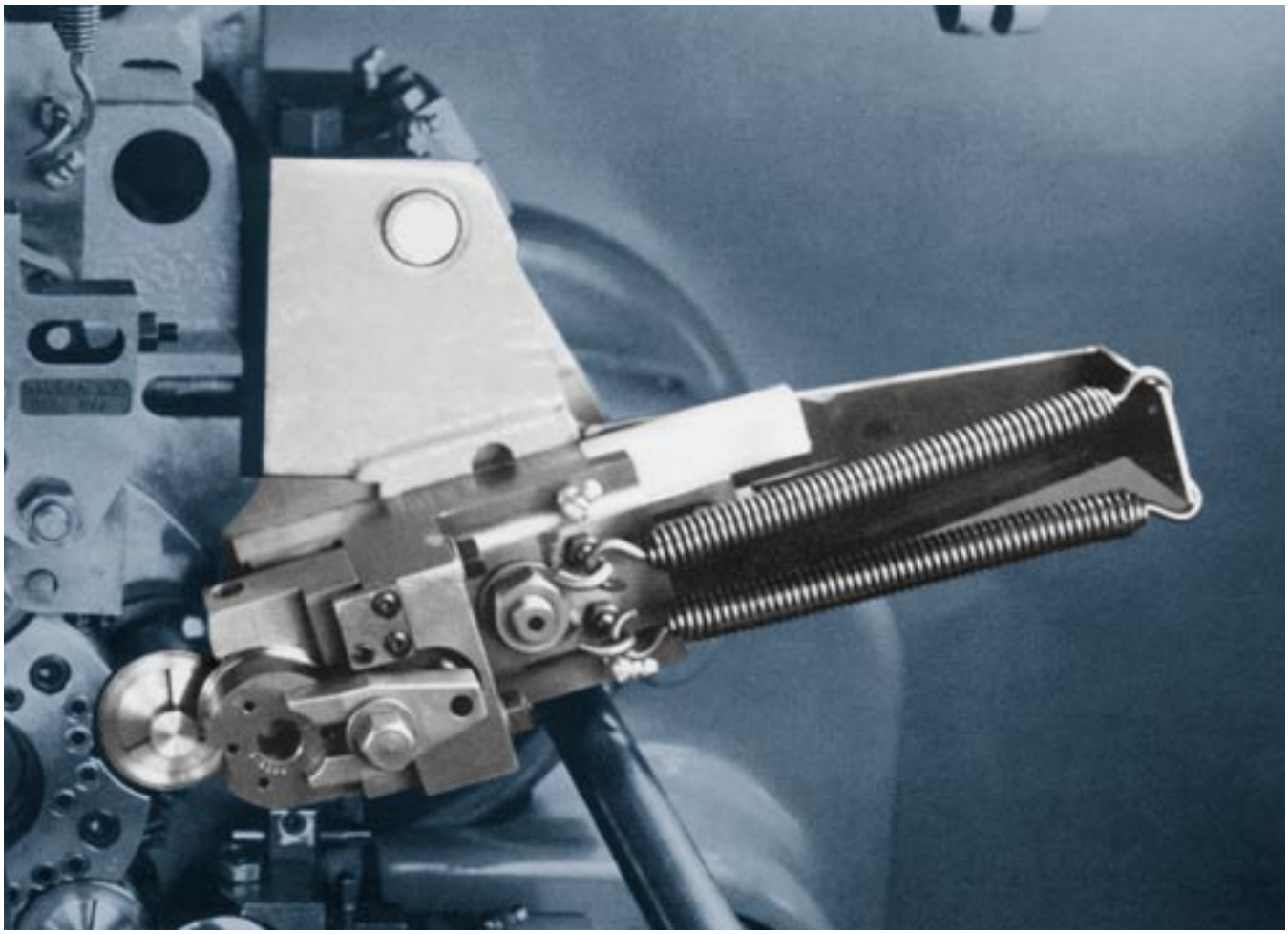


Fourth Position Cross Slide
Shown with Mounting Bracket

CROSS SLIDE ATTACHMENTS

1644-SA
Third Position Cross Slide

This adjustable cross slide is available for use in the third position. It replaces the standard third position tool arm (5080-64), and provides additional rigidity in forming, skiving and sizing operations. This slide provides 1/2” linear adjustment along the axis of the work, simplifying the tool alignment procedure.

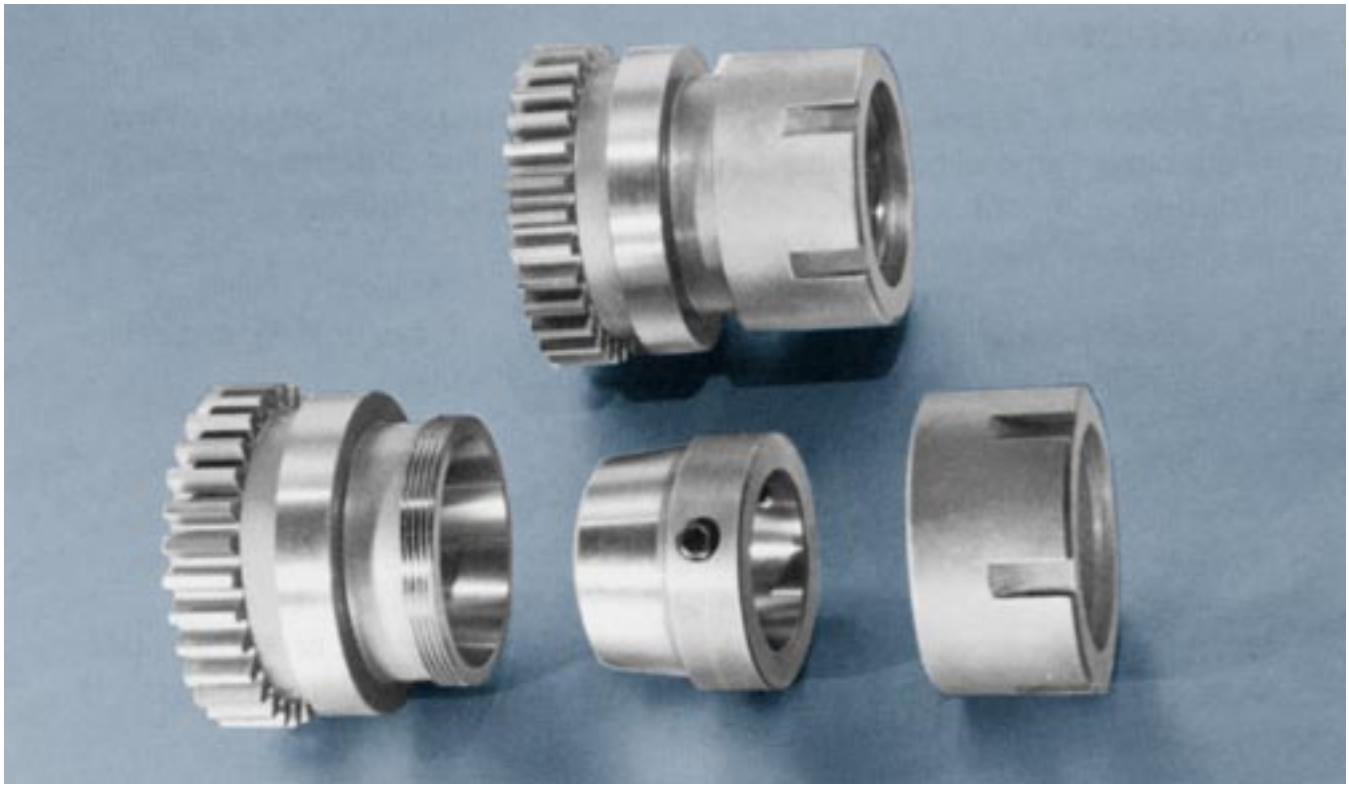


1644-SA
Third Position Cross Slide

ALIGNING GEARS

1263-132-SA
Spindle Aligning Gears (Included in HP Head)

When machining stock other than round, it may be necessary to align the work spindles with the burring collet or with each other. This process is simplified with the use of work spindle aligning gears. These gears are locked on a taper in any desired radial position.

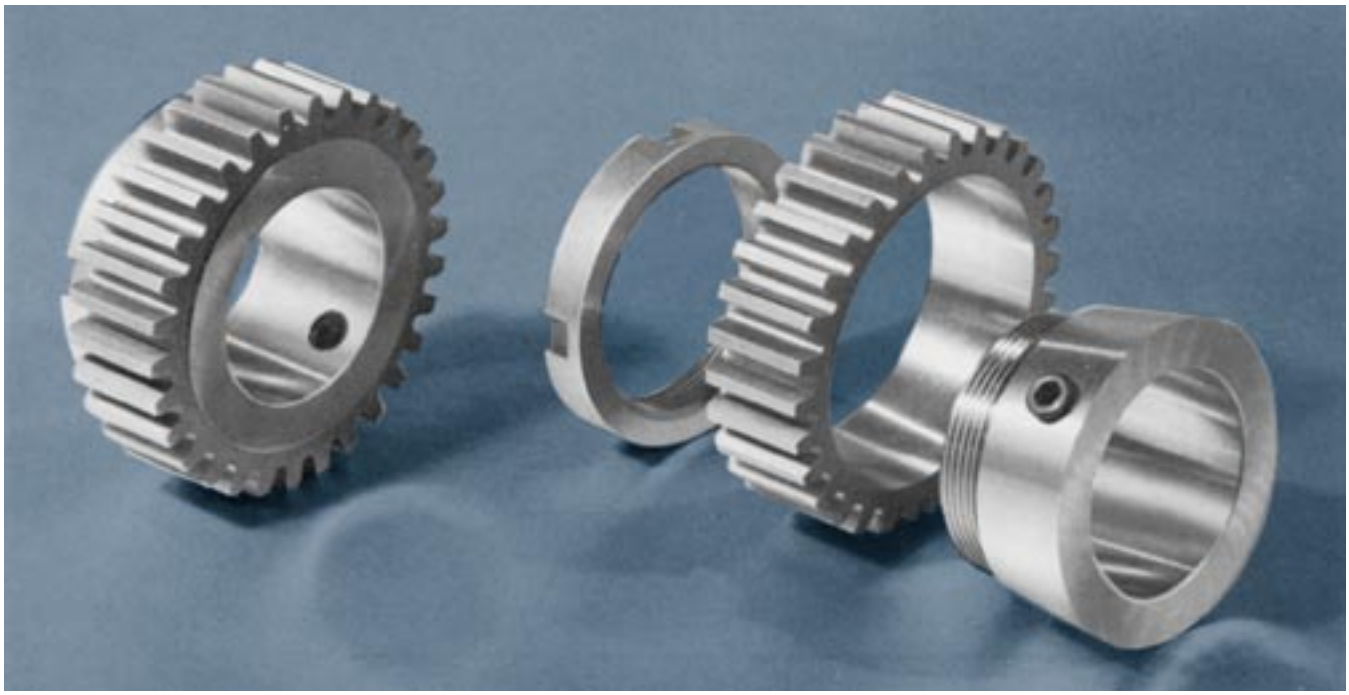


1263-132-SA
Work Spindle Aligning Gears

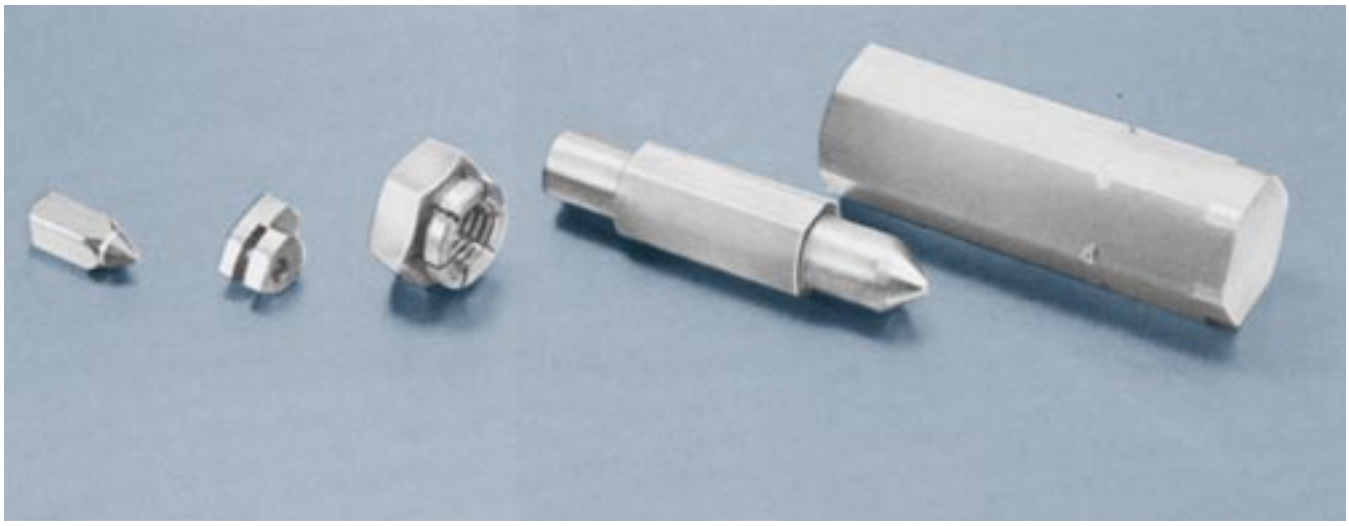
ALIGNING GEARS

1263-139-SA
Burring Spindle Aligning Gear

Once the work spindles are located relative to each other, the burring spindle aligning gear can be radially adjusted to accept stock from each of the five work spindles. The burring spindle aligning gear is also locked on a taper.



1263-139-SA
Burring Spindle Aligning Gears

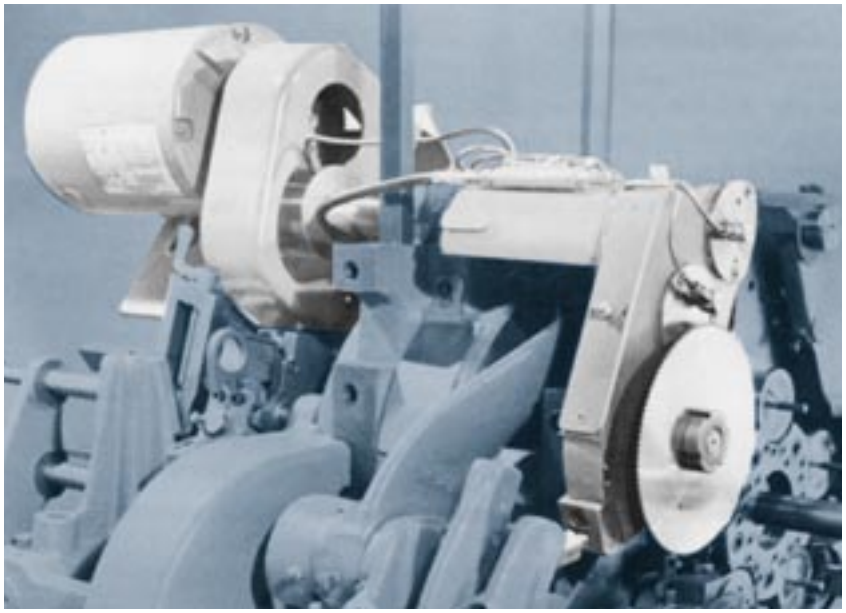


Parts Machined Using Spindle Aligning Gears

ADDITIONAL ATTACHMENTS

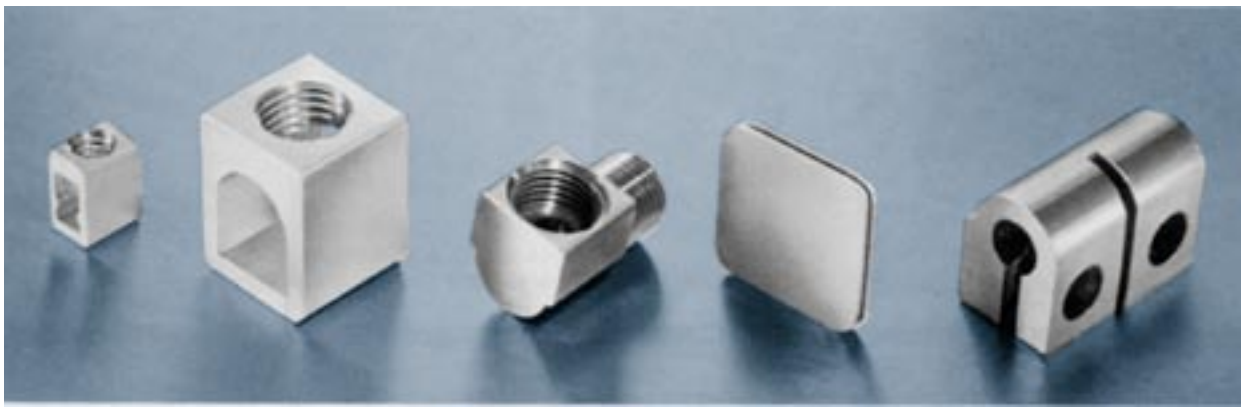
1383-100-SA
Sawing Off Attachment

The sawing off attachment is a necessity when running bar stock with the work spindles stopped. It is designed for use with a six inch diameter saw having a minimum thickness of twenty thousandths of an inch.



1383-100-SA
Sawing Off Attachment

Note:
This Sawing Off Attachment is shown without the mandatory guard.

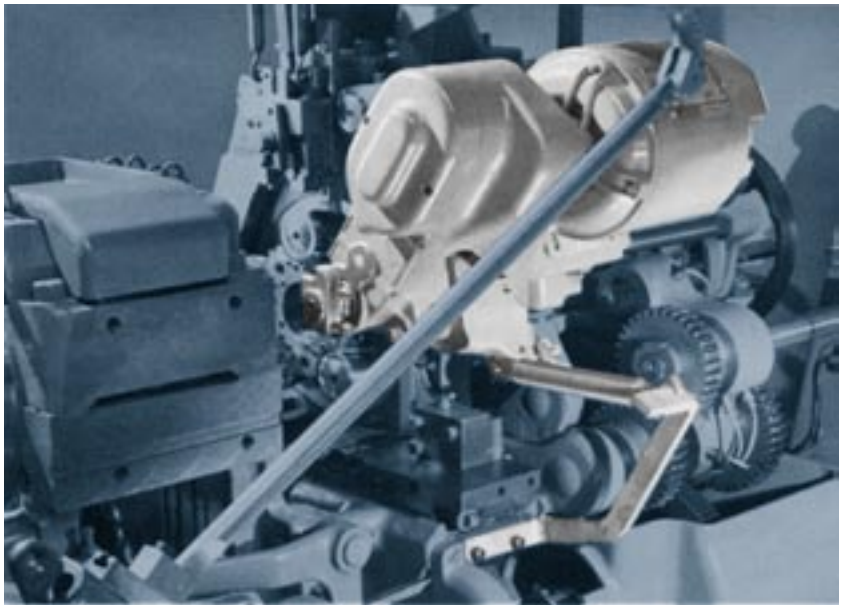


Examples of sawed off parts

1483-SA
Third Position Tool Arm Milling Attachment

The third position tool arm milling attachment carries a three inch diameter milling cutter up to one half inch wide. It swings into the work from a special third position tool arm. If the work spindle is stopped, a one and one half inch cutter radius will be left in the part.

This attachment is independently motor driven with a cutter speed range of 287 R.P.M. to 2761 R.P.M.



1483-SA
Third Position Tool Arm Milling Attachment

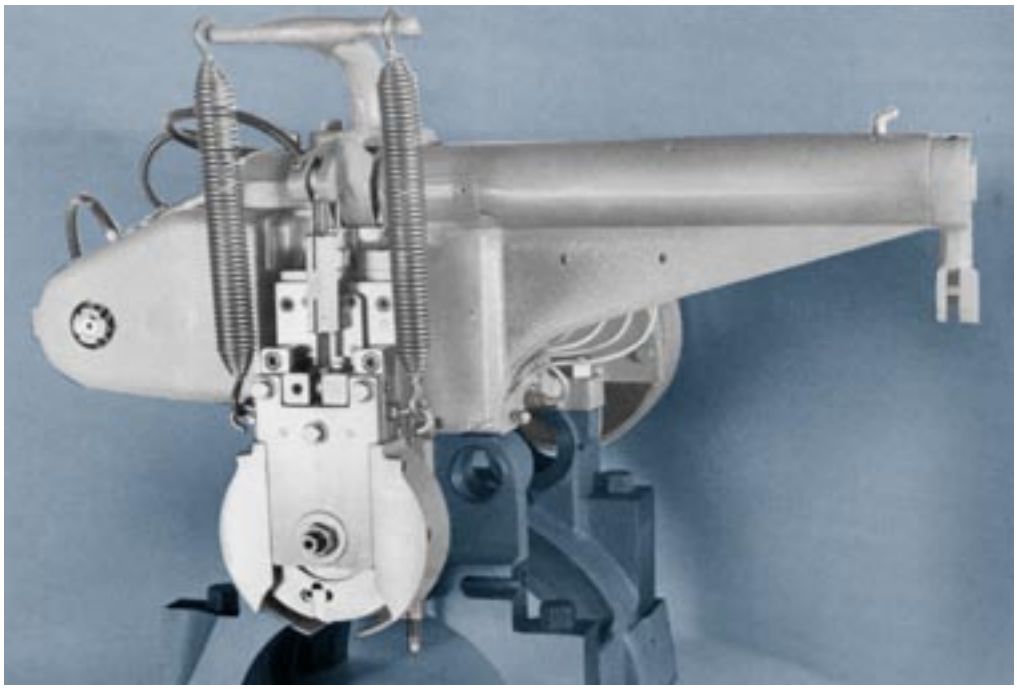
Examples of Tool Arm Milling

ADDITIONAL ATTACHMENTS

1444-SA
Fourth Position Flat Generating Attachment

Mounted on the revolving head cap, the flat generating attachment is driven by the ring gear in a direct ratio with the work spindles. A change gear arrangement, within the attachment, provides various cutter-to-spindle speed ratios. By altering the number of cutters and the cutter speed, hexagons, squares, double flats, and many other shapes can be generated on non-ferrous materials.

With the work spindle stopped this attachment can be used to plunge mill with a five inch diameter cutter.

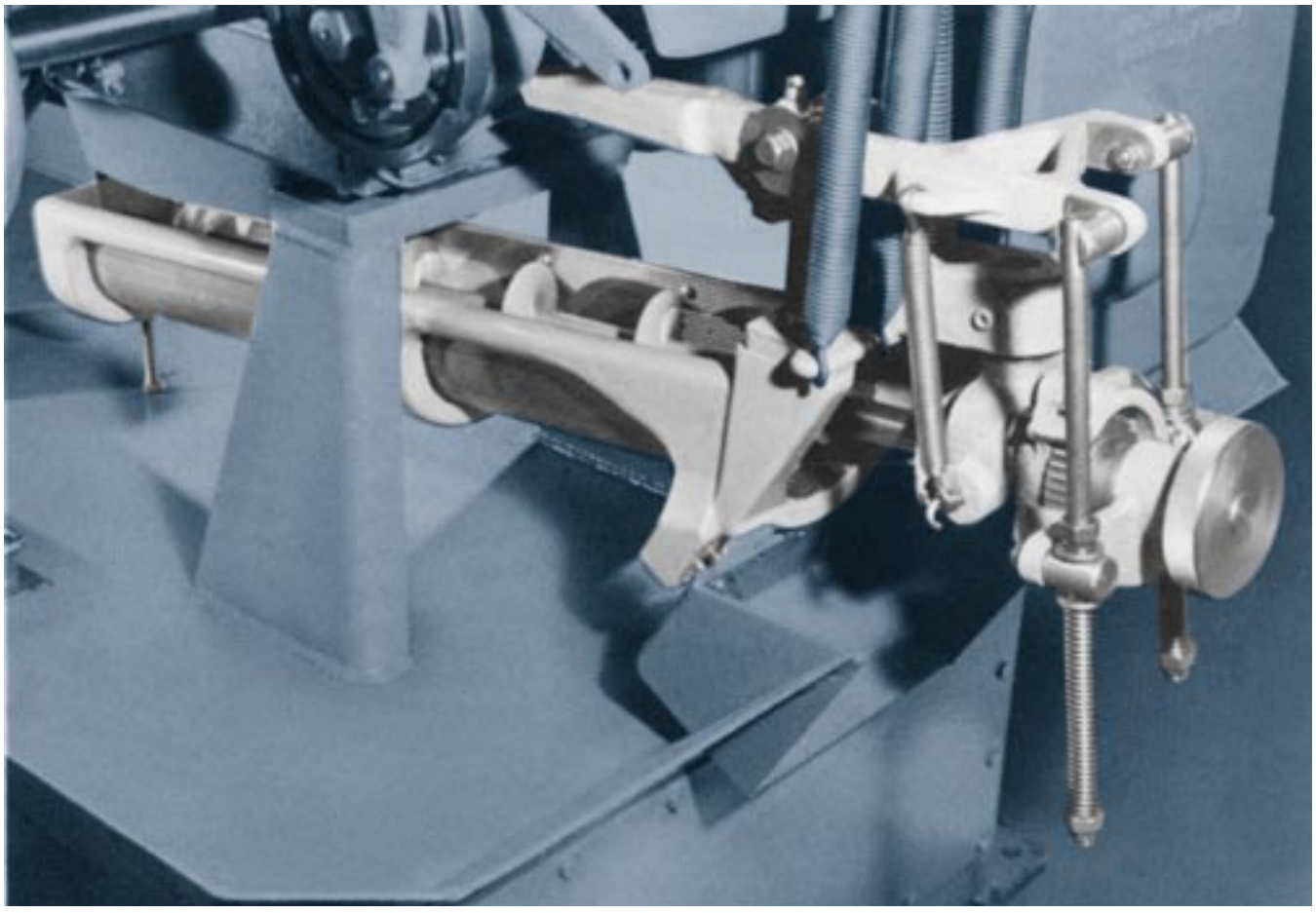


1444-SA
Fourth Position Flat Generating Attachment

Examples of Flat Generating Applications

5080-329-50-SA
Double Action Chip Conveyor

The double action chip conveyor is used to pull chips from the center of the machine and discharge them into a pan. Due to the double action ratchet, the chip pulling spiral is in constant motion.



5080-329-50-SA
Double Action Chip Conveyor

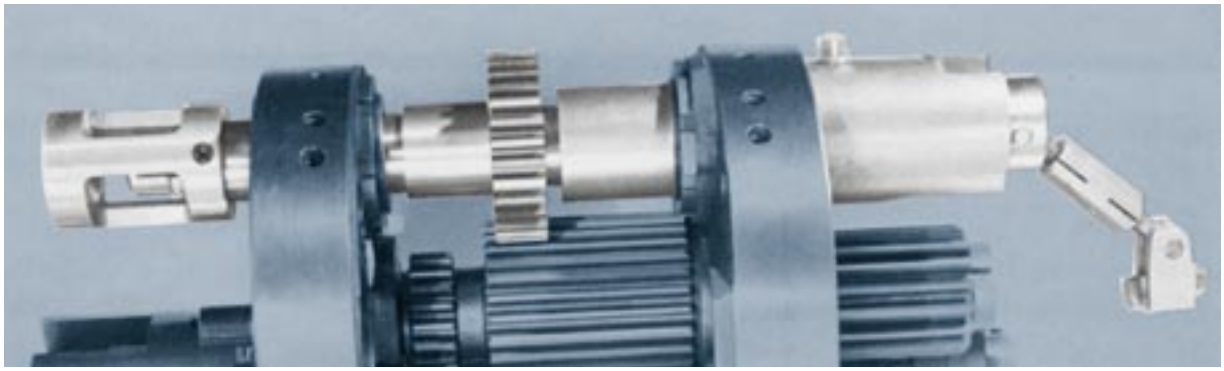
ADDITIONAL ATTACHMENTS

1317-75-SA
Support and Drill Attachment

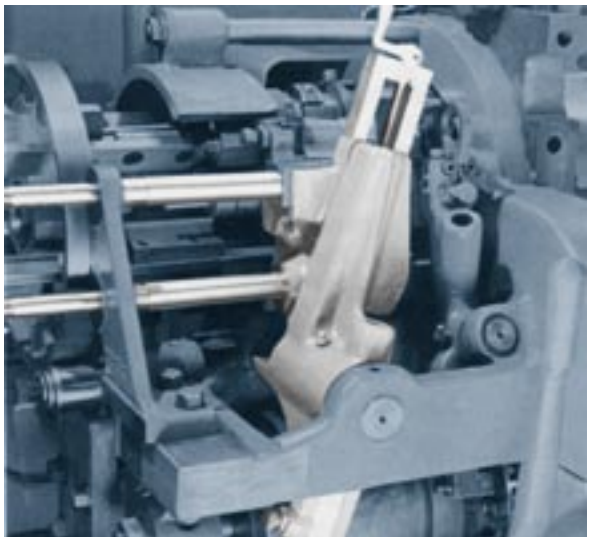
The support and drill attachment is used to support the work piece while drilling. First the support is positioned over the workplace, and then the drill is fed in to the desired depth. Both the drill and the support are located on the same spindle. This insures concentricity between the work piece and the drill. The entire operation of drilling and supporting is controlled by one cam.

5157-2-SA
Four and One Half Inch Feed Attachment

The four and one half inch feed attachment is used to increase the stock feed out capacity from three inches to four and one half inches. It is supplied as standard equipment on extended bed machines. Stock can be fed through as little as one eighth of an inch, or as much as four and one half inches with this attachment.



1317-75-SA
Support and Drill Attachment

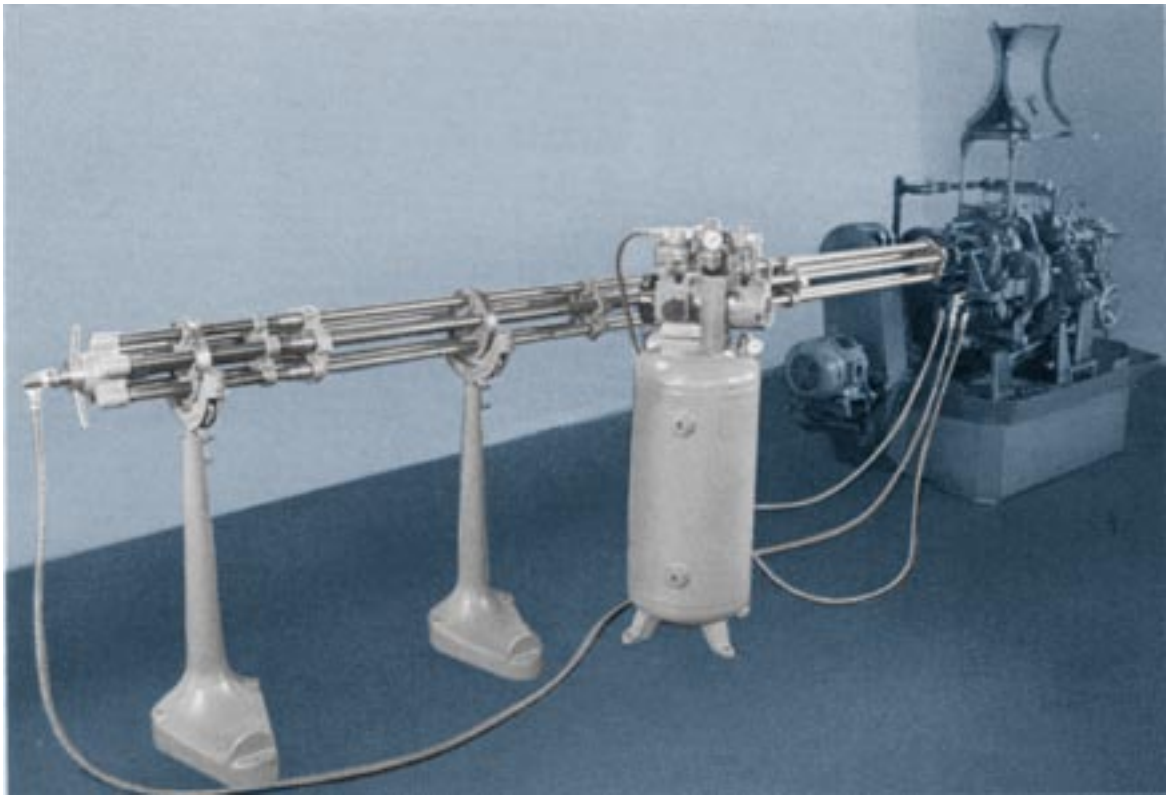


5157-2-SA
Four and One Half Inch Feed Attachment

5080-382-75-SA
Air Feed Attachment

The air feed attachment eliminates the standard feed tubes and feed lever mechanism and replaces them with air cylinders that push the stock from the ends. By eliminating the feed tubes and feed fingers it becomes possible to run jobs up to one inch in diameter on oversize machines.

Examples of work incorporating the Air Feed Attachment

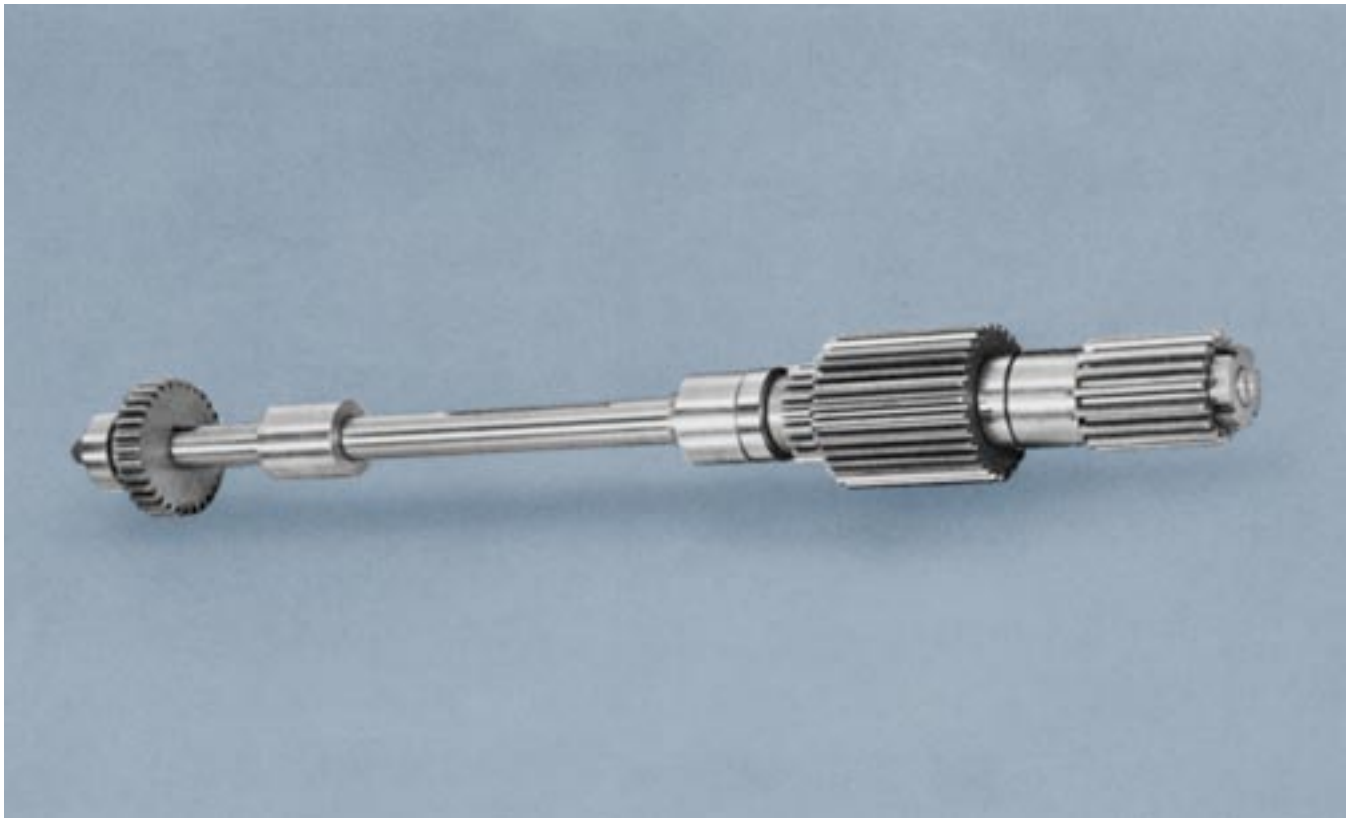


5080-382-75-SA
Air Feed Attachment

ADDITIONAL ATTACHMENTS

1232-66-4-2-SA
Center Drive Attachment

The center drive attachment provides power to several attachments within the stationary head. Driven by the work spindles in a 1:1 ratio, the center drive runs through the revolving head and into the stationary head, where a barrel gear and a drill spindle drive gear are mounted. Although not supplied with the center drive attachment, provision has been made for an outboard barrel gear enabling various drives for rotary slotting, keyway milling, offside milling, and many other attachments.



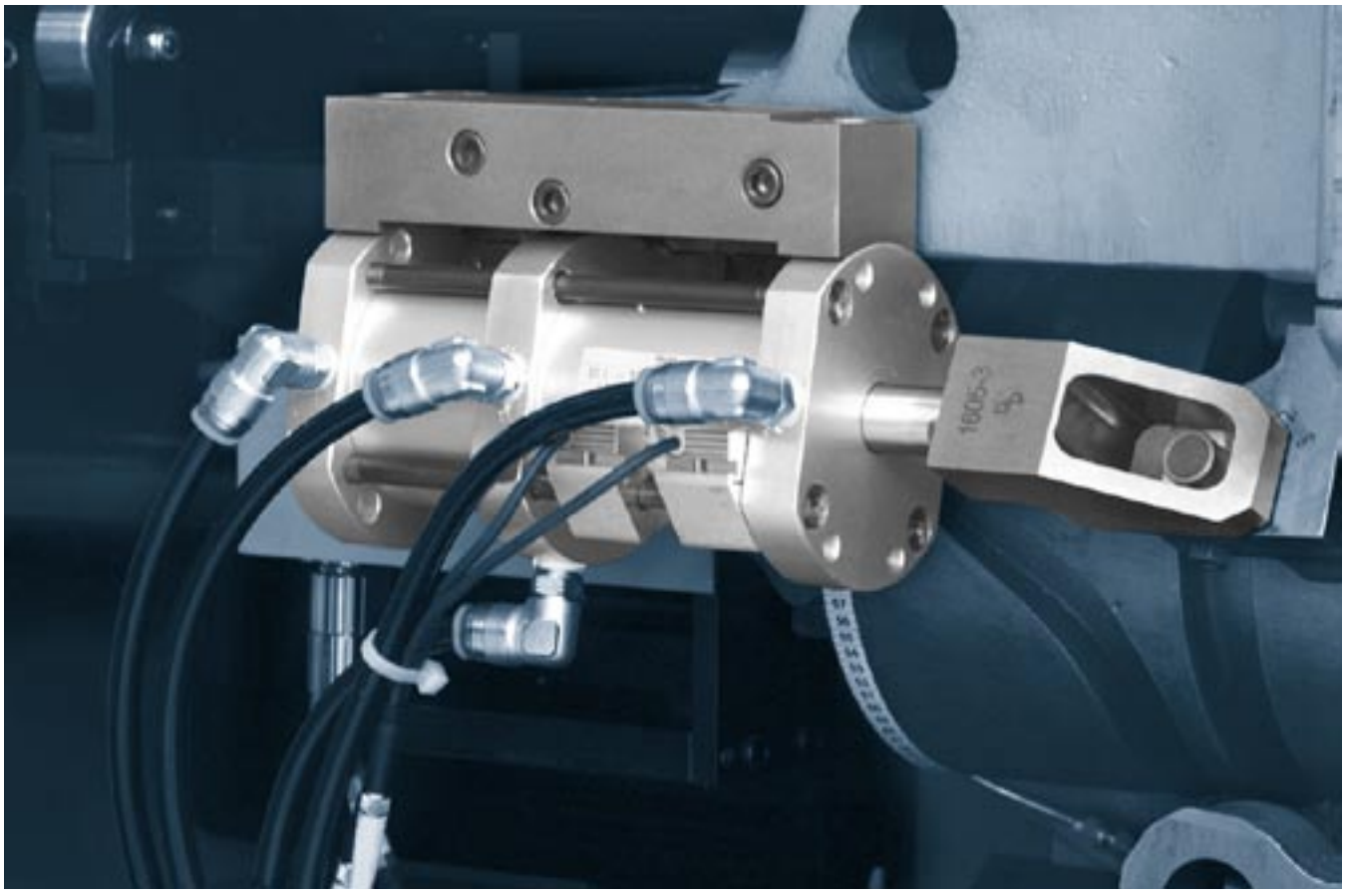
1232-66-4-2-SA
Center Drive Attachment

SPECIAL ATTACHMENTS

SB-1605-SA
Pneumatic Collet Open/Close Attachment

This attachment can be used on any existing Davenport machine.

This double action air cylinder opens and closes the collets with the push of a button. The design of this attachment provides optimal opening and closing pressures.

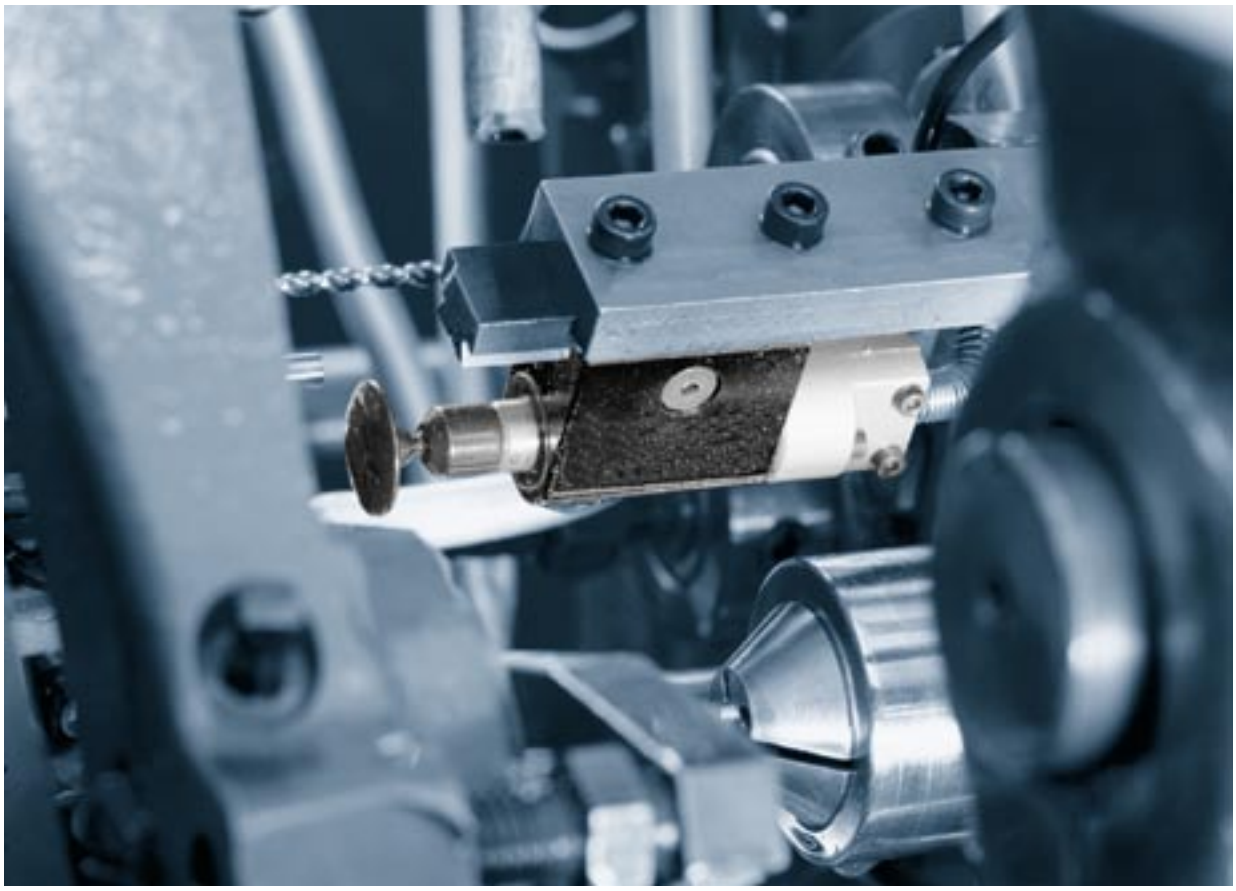


1605-SA
Pneumatic Collet Attachment

SPECIAL ATTACHMENTS

70-AS-021-IN (INCH)
70-AS-021-MM (MILLIMETER)
Part Length Detector

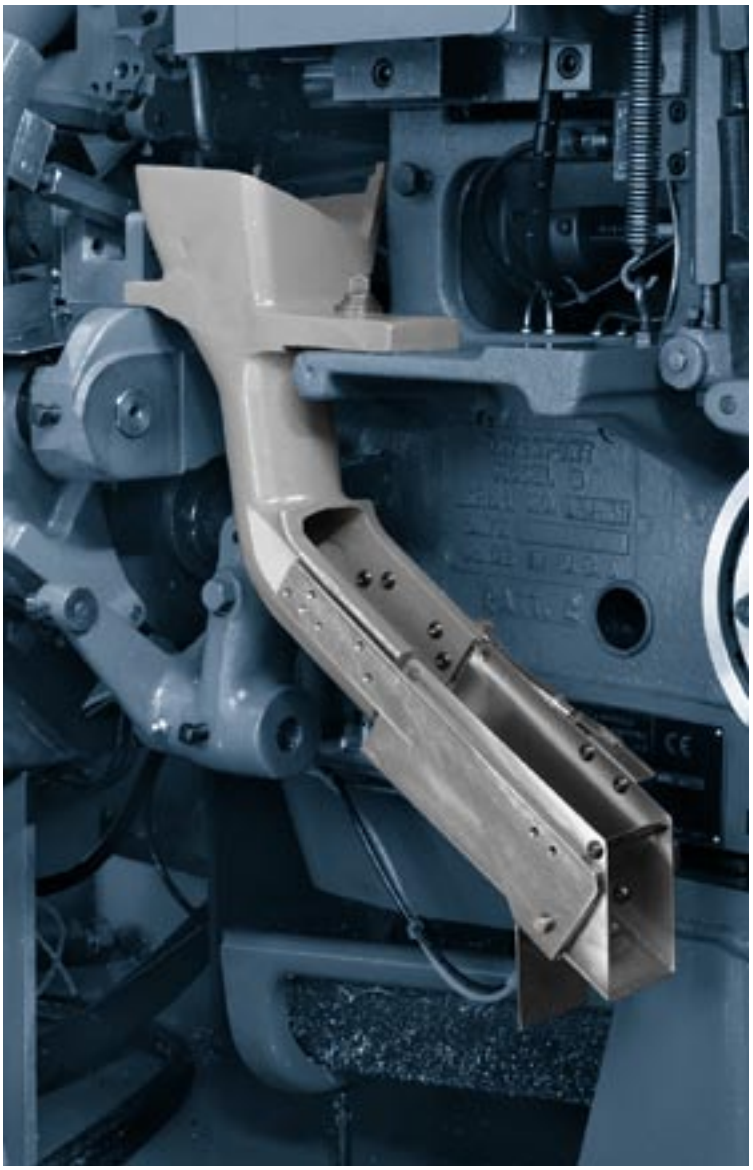
This sensing unit mounts between tooling positions so no tooling positions are lost. It will detect short and long parts as they pass by on the index of the machine. If out of tolerance parts are detected, the unit will signal shut down of the machine. It helps ensure high quality components.



70-AS-021
Part Length Detector

SB-5080-426-62-SA
Part Chute Diverter

This attachment is used in conjunction with sensors to redirect discrepant parts away from good product. Signals from the shut off devices (such as a part length detector) of broken tool sensors will signal the diverter to drop the deflective part away from the parts basket during the machine cycle. This can be used with short part detector, stock depletion sensor, hydraulic cutoff override etc. It can be adapted to any Davenport machine with the proper electronics. Consult a Davenport representative at info@davenportmachine.com for specific requirements.



5080-426-62-SA
Part Chute Diverter

SPECIAL ATTACHMENTS

SB-5080-46-H-SA
Hydraulic Cutoff Override (For use with bar loader)

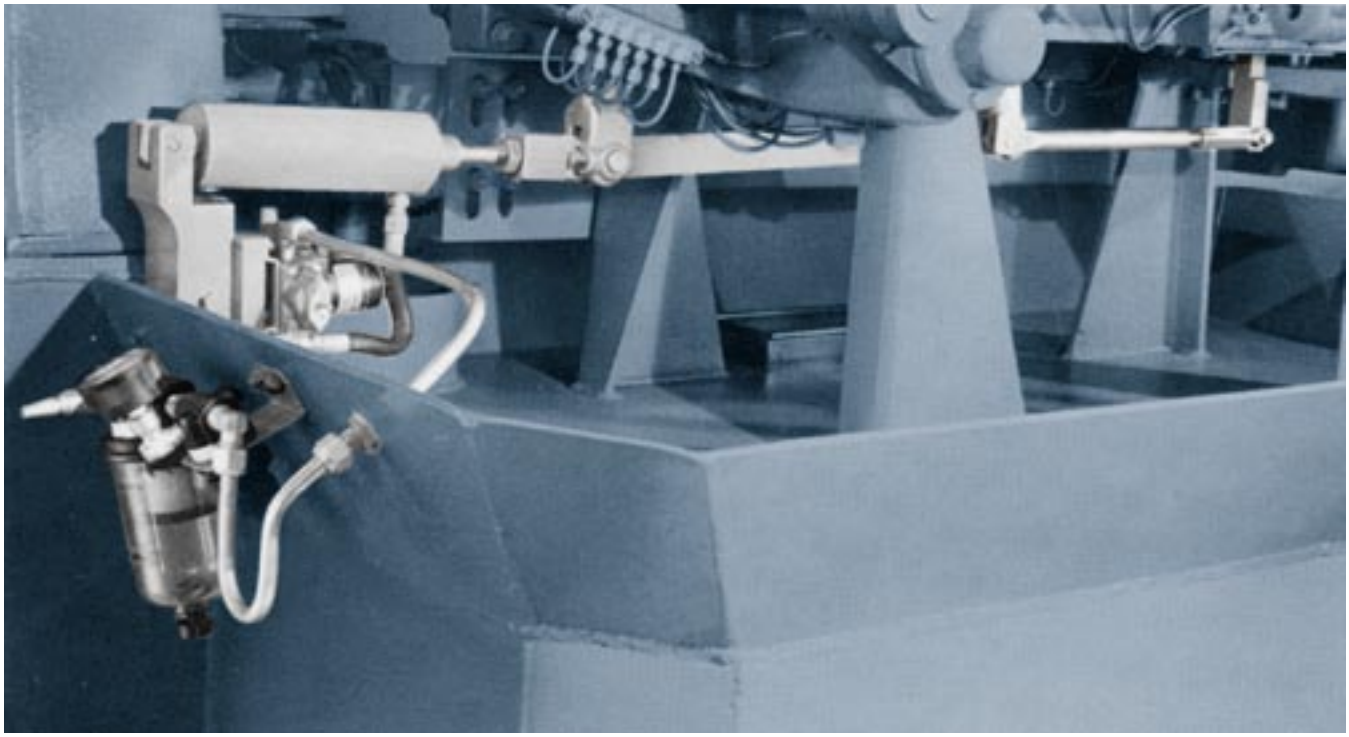
This attachment will automatically cut the bar from the largest diameter past the center to leave a clean bar end for the rest of the operation. This eliminates possible discrepant parts caused by a rough bar end.

5080-46-H-SA
Hydraulic Cutoff Override

MBLA-196-35-SA
Declutch and Brake Attachment

The declutch and brake attachment can be used in a number of ways to stop the machine in the event that a failure should occur.

A micro switch is used to activate the declutching mechanism and shut the machine off. There are several sensors that can be used to activate this attachment, such as stock depletion, short part, etc. Once the micro switch is activated, power to the motor will be shut off. The starting clutch lever will be disengaged and an air braking clutch will be engaged to stop the machine movement.



MBLA-196-35-SA
Declutch and Brake Attachment

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By Product Name

By Product Number

DAVENPORT MACHINE

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