BARDONS & OLIVER

Rotating Head Cut-Off Machines RH-500 RH-700 RH-900 RH-1100 RH-1300 RH-1600

Unrivaled Flexibility in a Productivity Workhorse

18

The Bardons & Oliver RH Series Rotating Head Cut-Off Machines

A UNIQUE TUBE AND BAR PROCESSING SYSTEM LIKE NO OTHER

QUICK SET-UP - PROGRAMMABLE SIZE CHANGEOVER

Perform machine set-ups from the Operator Control Panel, or HMI. Even for jobs as varied as the ones shown in the photos below, all adjustments are made as commanded from the HMI. Cutting tool slides, workholding, vises, and material handling are repositioned using digital servos and hydraulics with linear transducer feedback producing incredible flexibility.



4" O.D. x 0.157" wall material. Finished part requires cut-off and 15mm deep counterbores at both ends of part.



5" O.D. x 0.500" wall material. Straight cut-off operation only.



8" O.D. x 0.187" wall material. Finished part requires cut-off and 18mm deep counterbores at both ends of part.

Main Screen

HIGH CAPACITY CUTTING OF PRECISION BLANKS

- Achieve 45-50 sq.in./min. or more on high production heavy-wall tube processing.
- Hold +/-0.005" length tolerance and parallelism in a strict Cpk environment. Precision blanks reduce machining time and material loss on downstream finishing operations.



WHY A ROTATING HEAD?

Unlike conventional cut-off lathes, Bardons & Oliver Rotating Head Cut-Off Machines **hold the material stationary while the cutting tools rotate.** This brings the unique advantage of lathe style cut-off to a broader range of applications than was previously possible. Now difficult-to-process material such as irregular tubes and bars can be processed more efficiently than with saws with Bardons & Oliver Rotating Head Cut-Off Machines.

Bardons & Oliver Rotating Head Cut-Off Machines:

- Allow processing of hot rolled or irregular tubes.
- Eliminate marking of tube O.D. Maintain tube O.D. cosmetics.
- Perform 4th corner chamfering I.D. operations on back side of finished workpiece.
- Cut only the tube wall, unlike a saw that "recuts" hardened chips and shavings that collect in tube I.D.
- Maintain more precise length accuracy and parallelism of finished part faces.
- Perform end finishing operations without expensive secondary equipment.

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RAW MATERIAL TO FINISHED PARTS IN ONE OPERATION

End finishing capability without the expense of secondary equipment, dedicated tooling, and long complicated set-ups.

Complete the 4th Corner. The rotating head cut-off machine has the unique capability to chamfer and counterbore the I.D. and the O.D. of both ends of the workpiece. Other machines like band saws, cold saws and traditional cut-off lathes require expensive secondary machines to complete parts with these features.

The operator can specify a wide range of part end conditions by accessing the Part Editing Screen within the HMI. Simply select an existing program or fill in the blanks to create a new program.



- O.D. chamfers
- I.D. chamfers
- O.D. and I.D. chamfers in combination
- I.D. counterbores
- "J" grooves and weld preps with appropriate software
- Bevels
- O.D. steps or shoulders
- Face grooves or tree panning

Parts finished in one operation. Work in process eliminated. Inventory reduced.

From the machine's Part Editing Screen, the operator can load all finished workpiece information. This can include counterbores, O.D. chamfers and I.D. chamfers. Also, as seen in the center section of the screen, both ends of the part can be processed in one operation.

> Finished part complete with counterbore in each end, 25-50 second cycle time, depending on O.D., length, and counterbore depth.





For straight cutting jobs without O.D. chamfers, mount cut-off tools at all four slide positions.



For cutting smaller tubing or solid bar, mount two cut-off tools on opposing slides.

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To cut workpieces complete with O.D. and/or I.D. chamfers on both ends of the part, mount cut-off tools on all four slides including the Bardons & Oliver combination cut-off/chamfer tool in one position.

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To counterbore I.D. of one or both ends of the finished workpiece, mount cut-off tools on opposing slides and counterbore tools on two remaining slides.

GENERATE COMPLEX PART END CONFIGURATIONS

Perform operations on the O.D. and I.D. of parts made from tube stock **on both ends in one operation**. The Bardons & Oliver rotating head cut-off machine has three servo controlled axes to give the operator full control over the finished workpiece plus a servo controlled feed vise for precise length control and continuous tube feed out - no hitch feeding.

- X-Axis Tool Slides. Precise control of tools for cut-off, O.D. chamfer or I.D. chamfer operations.
- Z1-Axis Feed Chuck. Holds incoming tube for processing of leading edge. Can reposition tube to allow for tool clearance for special I.D. tools. Can feed tube (Z1-minus) to generate counterbores, face grooves, and other complex configurations.
- **Z2-Axis Head Chuck.** Holds that portion of the tube that becomes the finished workpiece. *Continues to hold the finished workpiece in position after the cut-off operation.* Can reposition tube to allow for tool clearance for special I.D. tools. Can feed finished workpiece (Z1-minus) to generate counterbores, face grooves, and other complex configurations on trailing end of part.
- Servo-Controlled Feed Vise. Precise length control of finished workpiece. Continuous feed out of tube regardless of length without hitch feeding.

Work in process eliminated.

Inventory reduced.



LEAN MANUFACTURING ACHIEVED. TAKT TIME REALIZED.

Run the parts your customers need. . .when they need them. . .how they need them.



TEN STANDARD INTERFACE SCREENS GIVE THE OPERATOR COMPLETE PROCESS CONTROL THROUGH THE OPERATOR CONTROL PANEL, OR HMI

Main Screen (*Figure A*) controls all basic functions required during automatic operation.

Machine Screen and Barfeed Screen (Figure B) allows manual control of virtually every machine function plus the input of key machine variables.

Tool Set-up Screen guides the operator through the job set-up sequence and automatically generates tool offsets.

Job Set-up Screen (Figure C) allows the operator to enter information for up to six parts that can be run simultaneously from the same material.

Set-up Parameter Screen guides the operator or process engineer through the setting of key machine operating parameters.

Part Editing Screen (Figure D) and Master Database Screen (Figure E) allow for the creation, editing, and storing of data for up to 200 part numbers.

Maintenance Screen and Fault Screen allow the monitoring of machine and handling table inputs and faults. Fault History screen keeps a record of recent faults and cannot be deleted.



PART

MADE ####

MADE HANN

MADE ####

OFFSET

NSTALL TOOL IN SLOT #

С

1234 12

MACHINE CONTROL

1234 12

1234 12

MACHINE JOB SETUP

1ST PART ####### @ QTY ####

2ND PART ####### @ QTY ####

3RD PART ####### @ QTY ####

4TH PART ####### @ QTY ####

5TH PART ####### @ QTY ####

6TH PART ####### @ QTY ####

ROTATING HEAD

12345.1

1234 123





With a part program storage capacity of over 200 part numbers and the ability to create a job sequence of six programs, the Bardons & Oliver Rotating Head Cut-Off Machine truly delivers.



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ROTATING HEAD CUT-OFF SERIES



ZERO SET-UP TIME FOR LOADING TABLE

- No lost production time for material O.D. adjustment
- Full range of travel on V-Rolls, Kickouts, and Tube Stops (optional) controlled from HMI
- Instant size changeover



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BARDONS & OLIVER

STAGE INCOMING MATERIAL WITH ZERO LOST PRODUCTION TIME

- Load additional material on 50" inlet table without interrupting machine cycle
- Optional table extensions with stop gates (shown) allow staging of next job
- Optional loading bucks provide safe and efficient handling of tube bundles



FROM START TO FINISH, THE BARDONS & OLIVER RH SERIES

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QUICKER MOVEMENT OF TUBES - FASTER CYCLE TIMES ON LONG PARTS

- Servo actuated rack and pinion driven Feed Vise
- 10' continuous stroke standard *No Hitch Feeding*
- Precision part length held to +/- 0.005"

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• Allows next tube loading while current tube is still processing

ZERO SET-UP TIME FOR WORKHOLDING

- There is no lost production time for material size adjustment.
- Two 6 jaw long stroke chucks (*Photos A & B*). Hydraulic servo, linear transducer feedback. One chuck holds incoming material, one holds finished workpiece. Instant size changeover ordered from HMI.
- Feed Vise with full range jaw travel (*Photos C & D*). No changeover required.









PARTS FINISHED IN ONE OPERATION

- No secondary end finishing equipment required
- Machine Z1 and Z2-Axis (shown) generate complex finished workpiece end configurations
- Eliminate work in process; reduce inventory

CUT-OFF MACHINE IS A MODEL OF PRODUCTIVITY AND EFFICIENCY

KEY FEATURES OF THE RH SERIES



ROTATING HEAD

- Four precision built hardened 8620 steel cut-off slides with hardened tool steel guides and bases mounted on the rotating head
- Long travel accommodates a wide range of material sizes without resetting tools
- Tools may be added to cut O.D. chamfers
- Slides actuated via rack and pinion with servo driven feedbox

PRECISION END FINISHING OF WORKPIECE

- Rigidly mounted Workholding and Carriages firmly hold incoming tube and finished workpieces during machining
- Servo driven rack and pinion provides fast and accurate Z1 and Z2-Axis motion
- Z1 and Z2-Axis carriages ride on #45 rails and sliders





MIST COOLANT SYSTEM (optional)

- Extends tool life
- Allows increased cutting rate
- Improves surface finish
- Requires less maintenance than flood coolant system



FEED VISE AXIS

CENTRAL LUBRICATION

• Delivers positive lubrication to critical machine elements

AVAILABLE TOOLING ENHANCES END FINISHING CAPABILITY

- A wide variety of standard off-the-shelf tools allows for cut-off, end facing, O.D. turning, I.D. boring, and O.D. and I.D. chamfering
- Custom tools available



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Feed Vise • Full Range capacity TUBE LOADING SYSTEM - Stid 24 ft Incoming Material Maximum Length ft/m Incoming Material Maximum Length ft/m Incoming Material Minimum Length ft/m Maximum Material Weight per Length lb/ft / kg/m 85 / 126.7 85 / 126.7 Maximum Material Weight per Length lb/ft / kg/m 10/ 3 100 / 3.9 Maximum Material Weight per Length lb/ft / kg/m 10/ 10.00 50 / 127.0 Tube Support Servo Height Adjusted Vee Rolls for Tube 0.D. Change Over ELECTRICAL POWER & CAPACITIES Electrical Power 460 vac, 3 phase, 60 hz, 50 kva 460 vac, 3 phase, 60 hz, 67 kva Main Breaker 100 amp 100 amp 100 amp 150 amp 150 amp Pneumatic Requirements 6 scfm @ 80 psi 8 scfm @ 80 psi 8 scfm @ 80 psi Hydraulic Reservoir Capacity Gal/L 2.5 / 9.5 5 Central Lubrication System Capacity Gal/L 0.5 / 1.9 512 x 186 / 15545 x 4725 consult factory Machine Height in/mm 100 / 2540 102.0 / 2598 consult factory				0.00110.204.00041	and a second	the state of the	rication		
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(Heaviest piece) *With special jaws and machine setup, shorter lengths are possible.

ENGINEERING SPECIFICATIONS





AUTOMATION THROUGH INTEGRATION

Let the Bardons & Oliver factory automation specialists turn your Rotating Head Cut-Off Machine into a manufacturing system by integrating any of these material handling enhancements:



UNLOADER CONFIGURATIONS FOR EVERY REQUIREMENT

- Ring style and short part pick-off unloaders for high production blanking operations
- Pick-off unloaders for parts up to 12" long
- May be combined with any configuration long part unload system



- Long part unloader length per customer specifications
- May be combined with short part pick-off
- Finished part discharge toward operator or towards back of machine
- Separate remnant and crop disposal



BUCK STYLE UNLOADER

- Provides efficient means for collecting finished tubes
- Allows for tubes to be lowered into customer's pallet
- Available end justification and 60-degree forms for banding
- Unloader includes part staging area to allow continued cutting while collected parts are removed from bucks







ROBOT

- Relieves machine operator of heavy lifting and/or tedious material handling operations
- System can include part justification for proper lifting
- Robot control seamlessly interfaces to machine control
- Robot with optional vision system "finds" part on exit conveyor, identifies it, and places it in appropriate container

Please visit our website to learn more about Bardons & Oliver Tube & Bar Processing Machines, CNC Turning Machines, System Automation, and Robotics Integration.You'll find videos, downloadable literature, technical information and more.

BARDONS & OLIVER

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