CMT

Columbia Marking Tools

Remote, Automatic,
and Non-automatic
Numbering Heads

The specialists in integrated systems
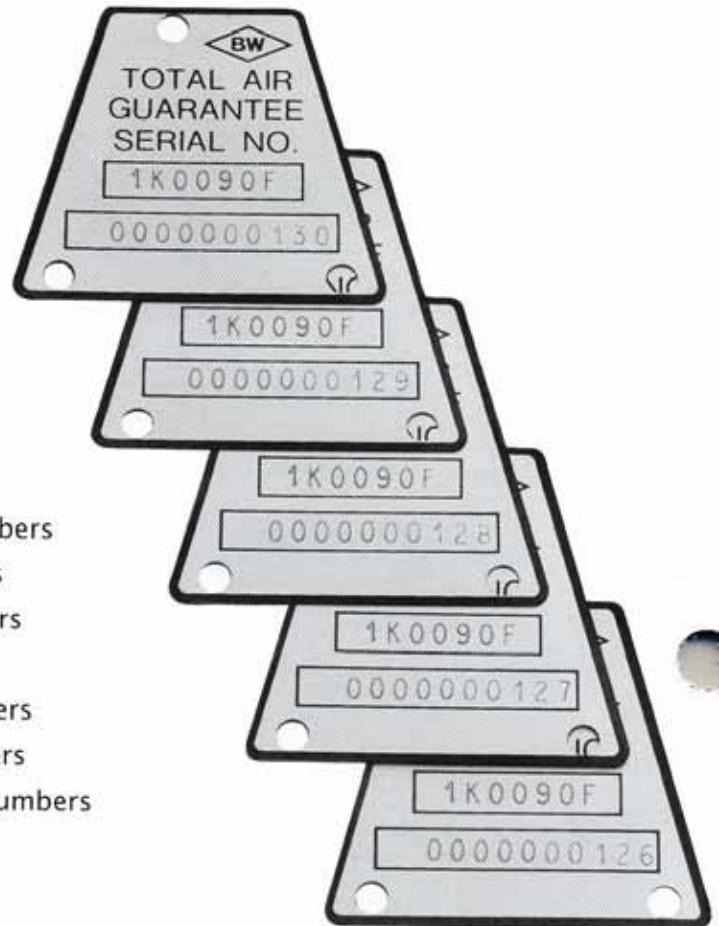
NUMBERING HEADS

Columbia manufactures quality numbering heads for non-automatic, automatic, and remote select numbering.

Columbia offers a range of different numbering head models. However, each numbering head is manufactured for your specific marking application.

Applications

- Serial numbers
- Date codes
- Tag markers
- QC marks
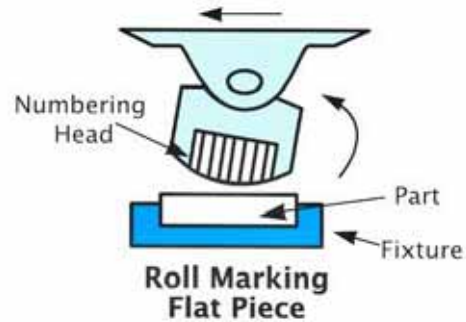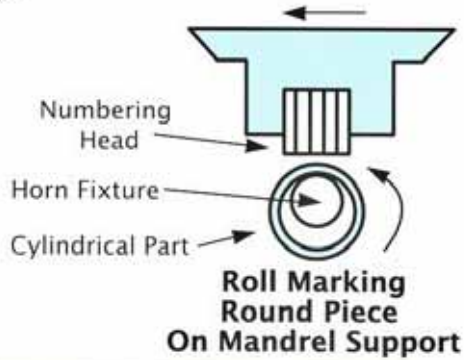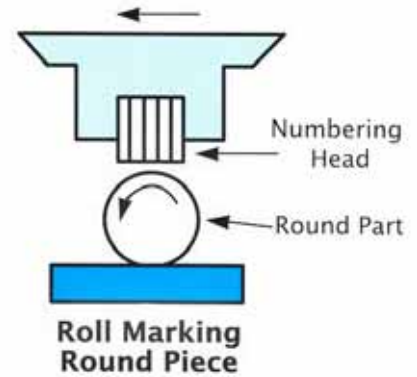- Part numbers
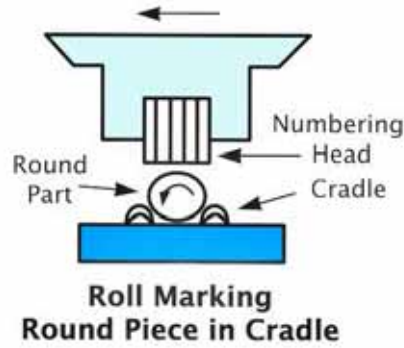- Lot Numbers
- Random Numbers

TOTAL AIR GUARANTEE SERIAL NO.

1K0090F
0000000130

1K0090F
0000000129

1K0090F
0000000128

1K0090F
0000000127

1K0090F
0000000126

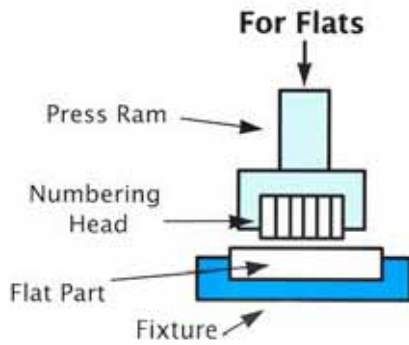# Information to have when ordering

☐ Character Size

☐ # of Wheels/ # of Characters

☐ How many Automatic/Manual/Remote Select Positions

☐ Characters to be engraved (Legend Layout)

☐ Prefix or Suffix

☐ Drawing or Sketch of Typical Reading

☐ Required Spacing

☐ Material to be Marked

☐ Shank Dimensions/Production Requirements
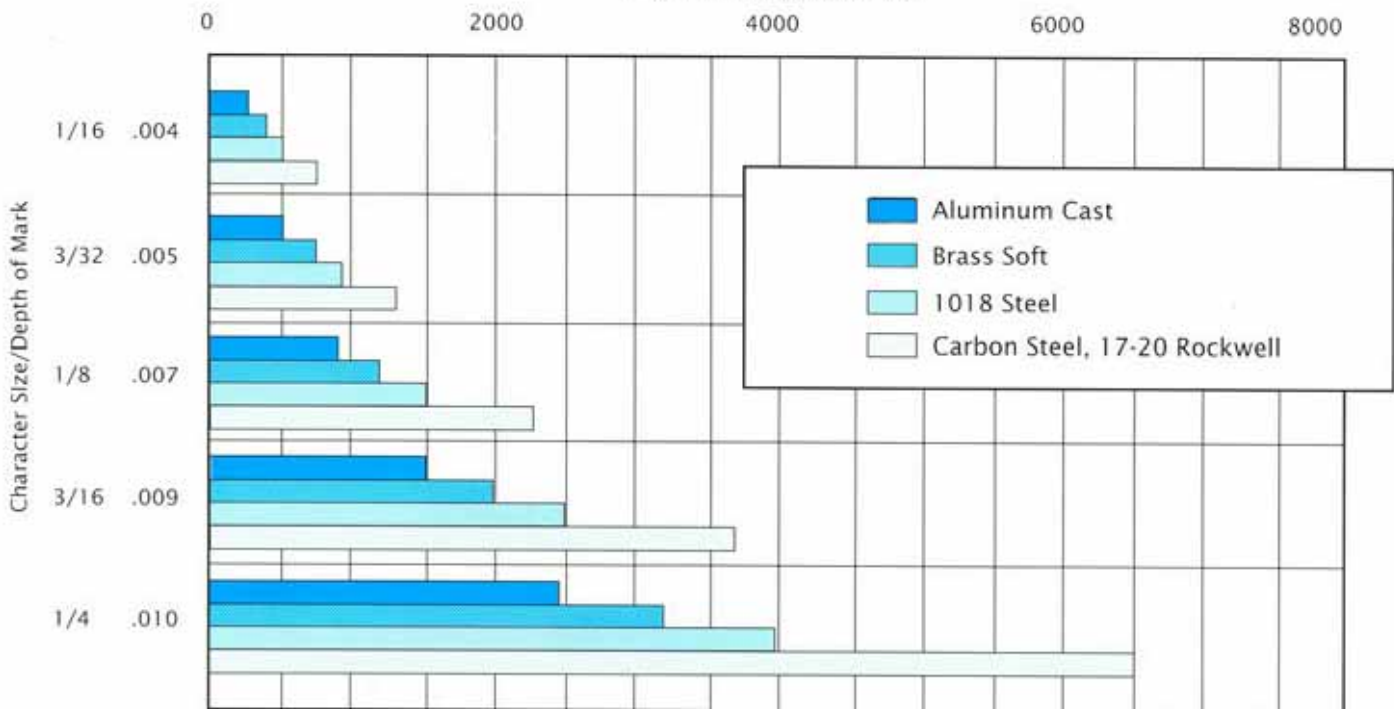
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MARKING INFORMATION

PRESS METHOD

For Flats

- Press Ram
- Numbering Head
- Flat Part
- Fixture

Roll Marking Round Piece in Cradle

- Round Part
- Numbering Head
- Cradle

Roll Marking Round Piece

- Numbering Head
- Round Part

Roll Marking Round Piece On Mandrel Support

- Numbering Head
- Horn Fixture
- Cylindrical Part

Roll Marking Flat Piece

- Numbering Head
- Part
- Fixture

Static stamping pressure per character

For roll marking with 3" die, multiply pressure by .9

Pressure in LB per Character

Character Size/Depth of Mark		
1/16	.004	
3/32	.005	
1/8	.007	
3/16	.009	
1/4	.010	

Legend:
- Aluminum Cast
- Brass Soft
- 1018 Steel
- Carbon Steel, 17-20 Rockwell

Pressures shown are approximate only and cannot be classified as being without exceptions or variations. Pressures for roll marking vary in terms of the number of characters in contact with the surface. This depends on both character size and marking radii. Please consult factory with character size and material to be marked for pressure information.

CHARACTER SIZE DATA

CHARACTER SIZE CHART:

For determining height, width, and spacing of characters engraved on steel roller, stamping and embossing dies.

SIZE	EXTRA CONDENSED	CONDENSED	STANDARD
1/32, 3/64, 1/16, 5/64, 3/32, 1/8, 5/32, 3/16, 1/4, 5/16, 3/8, 1/2	STYLE 1A 40%	STYLE 2A 50%	STYLE 3A 60%

Other character widths available according to your specifications.

TO MEASURE CHARACTER SIZE

SHARP FACE   OPEN FACE   FLAT FACE   BALL FACE (Meets Aircraft Specifications)

DIM. A : CHARACTER SIZE

STANDARDS IN SIZES & SHAPES

Over estimates of the size of character required are quite common. The size of a character is measured as shown by dimension "A" on the above layout. The overall impression size will vary according to the depth of the mark: this effect must be taken into consideration wherever critical space limitations are a factor. It is advisable to use standard sizes where possible. Standard sizes are

1/32   1/16   3/32   1/8   5/32   3/16   1/4   5/16   3/8   1/2

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NON-AUTOMATIC NUMBERING HEAD
HAND STYLE/PRESS STYLE

Columbia Model 30 non-automatic for repetitive sequences feature:

- Character sequence changed by convenient spanner wrench
- Consistent uniform character alignment and depth of impression
- One piece wheels
- Pawl block aids in maintaining wheel alignment
- Wheels are accurately engraved for precision
- Wheels and frame are crafted from high grade tool steel, and accurately heat treated to ensure long life

Columbia Model 30 is available in different shanks and mounting styles:

- 30H hand shank (shown above)
- 30D dovetail style mount
- 30P press shank (shown to the right)

Length of Impression Chart

Height of character	Number of Wheels							
	3	4	5	6	7	8	9	10
1/32	11/64	15/64	19/64	23/24	13/32	31/64	17/32	5/8
1/16	1/4	21/64	13/32	1/2	19/32	21/32	3/4	53/64
3/32	9/32	3/8	15/32	6/16	21/32	3/4	27/32	15/16
1/8	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4
5/32	15/32	5/8	25/32	15/16	1 3/32	1 1/4	13/16	1 9/16
3/16	9/16	3/4	15/16	1 1/8	1 5/16	1 1/2	1 11/16	1 7/8
1/4	21/32	7/8	1 3/32	1 5/16	1 17/32	1 3/4	1 31/32	2 3/16

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STRAIGHT STYLE NUMBERING HEADS
MODEL 123 Automatic, 130 Manual, and 115 Combination

Columbia model 123 automatic and 130 non-automatic **STRAIGHT** style numbering heads feature:

- A variety of mounting styles
- A patented pawl system that allows easy setting and positive alignment
- Character sizes 1/32" to 1/2"
- Sturdy one piece frames
- On the model 123, up to five wheels automatically index to the next consecutive number
- Large diameter main shaft

Machine	Shank Style
Std Press	1" dia x 2" lg
CMT 914	1" dia x 1 3/8" lg
CMT 860	Dovetail Adapter
CMT 751	Rod Style "K" Mount
Special	Designed to suit

Columbia offers two different styles of straight numbering heads:

- 130 manually changed numbers
- 123 automatically incremented serial numbers

Serial numbering of metal, plastic, and other materials are essential elements of modern manufacturing. **Columbia** Model 123 numbering heads are the finest marking devices for rapid, accurate, consecutive numbering.

Combination Automatic Numbering Head Model 115

Columbia designs these marking devices to combine serial numbering and special code combinations in one operation.

The code or data combination are manually set, quickly and easily, while the consecutive serial numbering is done automatically.

HOT STAMP NUMBERING HEADS
MODEL 123H and MODEL 130H

Columbia model 123H automatic and 130H non-automatic **HOT STAMP** numbering heads are engineered for durability, and quality marking in industrial conditions. The following highlights just a few of the features:

- Ampco bronze wheels (for superb heat transfer)
- Press shank, dovetail mount, or flat top mount
- Multiple, controlled heat profile, cartridge heaters for uniform heat
- Heat resistant power cord (available)
- A patented pawl system that allows easy setting and positive alignment
- Character sizes from 1/16" to 2"
- Sturdy "No Flex" frames
- Stainless steel fasteners
- Choice of thermocouple for remote heat control
- Mortised slot available for hot stamp type inserts
- High temperature composite resin insulator plates
- Standard temperature range up to 500˚f, (higher ranges available upon request).

Columbia offers two different models of hot stamping numbering heads:
- 130H manually changed numbers
- 123H automatically incremented serial numbers

Custom Sizes

Columbia manufactures numbering heads in a wide range of character sizes to meet application requirements.

Shown here is a comparison of a 123H with 6 wheels engraved with 1 1/2" characters, alongside a 123 with 5 wheels engraved with 1/32" characters.

ROLL MARKING
58C/158C Convex Numbering Heads

Columbia Model 58C/158C convex roll marking, numbering heads are manufactured for manual or automatic indexing, respectively.

Barrel style heads are rolled by the die slide of a marking machine, similar to the process of a roll type holder. As in roll marking with dies, only a fraction of the pressure is necessary when compared to press marking with a flat head.

Columbia wheels are engineered to meet application specifications, and may be furnished with any figures, letters, or code designs as required. When ordering please specify the legend layout of each wheel.

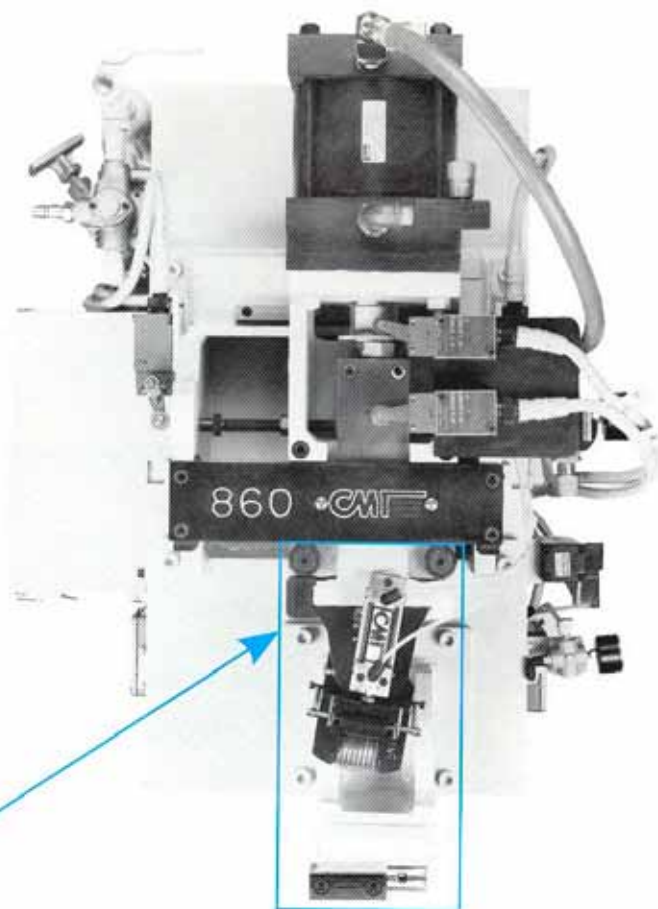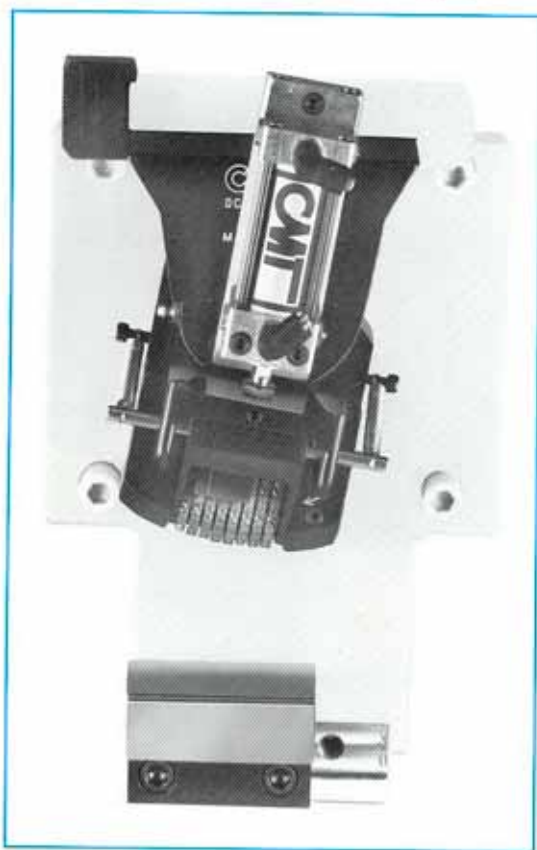## Combination Roll Carriage and Automatic Actuator

Columbia's combination roll carriage and automatic actuator advances roll style numbering heads to the next consecutive number after every cycle of the marking machine. Then the carriage rotates the head through the roll marking process. Completely pneumatically operated, the actuator is furnished with a cylinder, roll carriage, and valve pack. Designed for today's high production, automatic lines, it features oversize bearings, quick disconnect air fittings, and hardened wear surfaces.

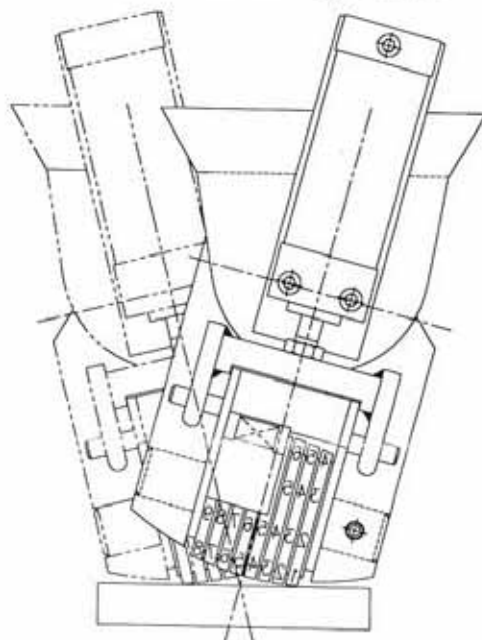| Item Number	Shaft Dia.	Shank Width	Machines
DCA-75NHA	3/4"	3/4"	260
DCC-100NHA	1"	1"	660
DCC-125NHA	1"	1 1/4"	860
CA-75-NHA	3/4"	3/4"	400 SERIES
CC-100NHA	1"	1"	
CC-125NHA	1"	1 1/4"	

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INTEGRATED MARKING SYSTEMS
ROLL MARKING

Columbia offers complete roll marking systems with our line of convex numbering heads, dies and holders.

The **Columbia** 860R roll marking unit is specially designed to be mounted as a station in an automated production line or as a secondary station in an assembly fixture. It will mark a variety of character sizes, in legends up to 3 1/2" long. This completely automatic, roll marking unit marks unfinished or uneven surfaces easily with Columbia's patented, "seek & find", roll marking system.

Due to the rolling action of the convex head, only part of the marking legend contacts the surface at any one time. Pressures for roll marking vary in terms of the number of characters in contact with the surface, character size, material, and the marking radius.

Direction of Marking Slide

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DESIGNED FOR SPECIAL APPLICATIONS
REMOTE CONTROL NUMBERING MACHINES
MODEL 1023RS   MODEL 1058CRS

Columbia Model 1023 and 1058 numbering heads mark electronically generated alphanumeric random sequences. These numbering heads are remote selective, computer interfacable, metal marking machines designed for "rugged" plant environments. Model 1023 is a straight style numbering head, and 1058 is a convex numbering head. Both of these models feature an exclusive integral mark verification system

Applications
- computer stored legends
- automatic gage results
- keyboard input information
- data from testing machines
- video scanned legends
- bar code information
- inspection results
- changing part numbers

CHOICE OF INPUT
Keyboard
Host Computer
PLC
Video Scanner
Bar Scanner
Bar Code Reader

COMMUNICATIONS LINK

ELECTRONIC LOGIC CONTROLLER

AIR CONTROL MODULE

INTERFACE

REMOTE SELECT NUMBERING MACHINE

Embossing Numbering Head
MODEL 24

Embossing numbering heads raise the characters above the sheet metal surface. For legible numbering of stock up to .093" thick, nothing surpasses embossing. These **Columbia** numbering heads are designed to meet specific customer requirements.

Columbia Embossing Numbering Head shown has 9 wheels, 5 wheels are automatically sequenced, 4 wheels are manually indexed. The characters on the wheels are 3/8".

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INTEGRATED MARKING SYSTEMS
TAG MARKERS

Columbia offers complete turn key marking systems with our line of numbering heads.
Tag markers are offered with a variety of options to suit particular needs.

Receiving chute

Loading Magazine

Marking Station Line 1

Marking Station Line 2

Marking Sequence for Tag marker shown:

- Loading magazine holds parts prior to marking
- Slide fixture loads and transfers parts to first marking station
- Marking station for line 2 puts the serial number on the part
- Slide fixture moves part to second marking station
- Marking station for line 1 puts the manually set lot/date/part number on the part
- Slide fixture moves part into receiving chute
- Tags are kept in sequential order.

Line 1 - Manually set wheels

TOTAL AIR
GUARANTEE
SERIAL NO.
1K0090F
0000000130

1K0090F
0000000129

Line 2 - Automatically indexed
(consecutive serial number)