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# ZeeSharp

CTC ROLLER SHARPENING **SERIES**



## ZENITH FORGINGS PVT. LTD.

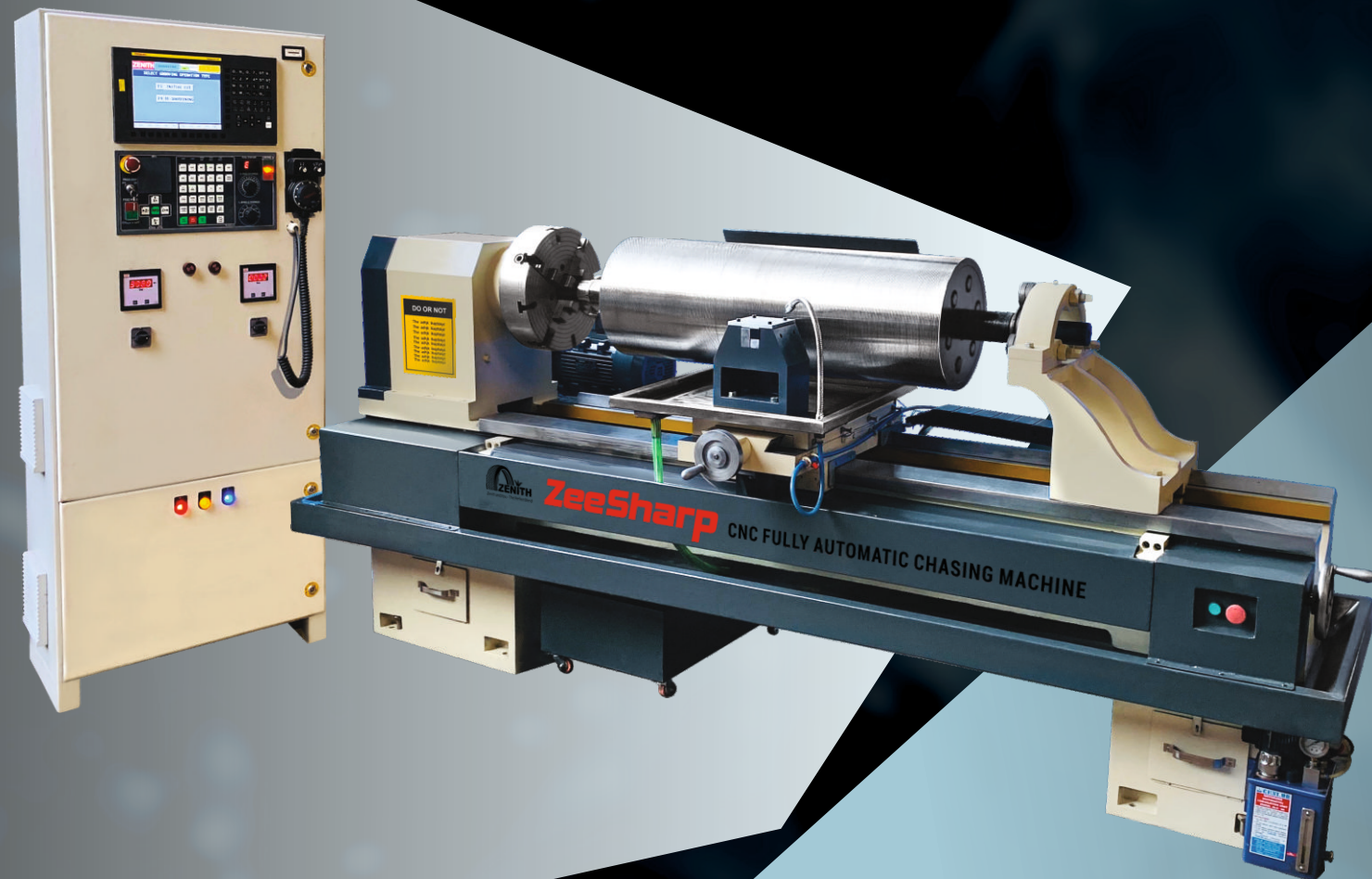
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**ZeeSharp**

## CNC FULLY AUTOMATIC CHASING MACHINE

### ▶ RESULTS

- ▶ Skilled operator is not required.
- ▶ Sharpening time is substantially reduced.
- ▶ Sharpening cost gets lowered.
- ▶ Pitch grooves ensures zero error.
- ▶ Superior surface finish.
- ▶ Perfect meshing of CTC rollers.

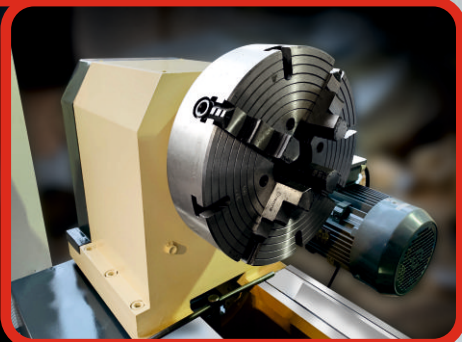
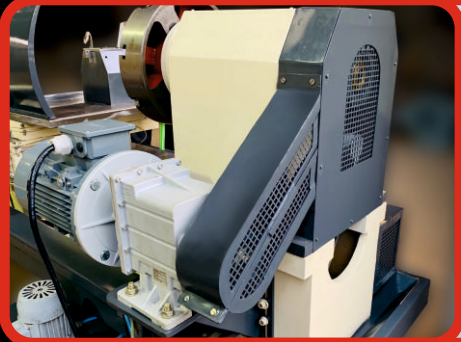
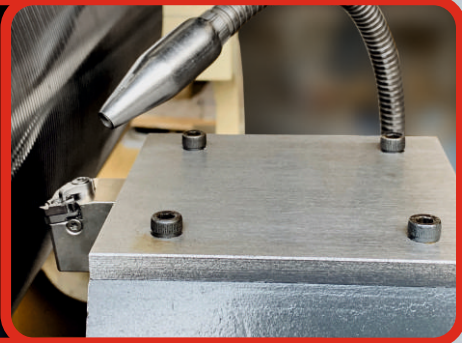
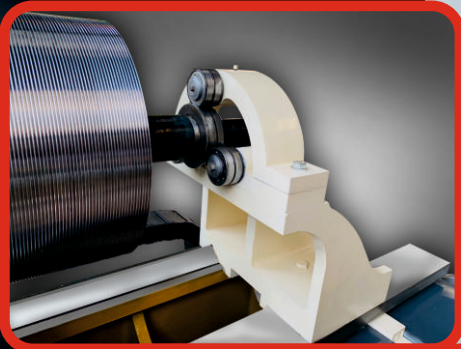
### ▶ ADVANTAGES

- ▶ Improved and consistent quality of CTC output results from superior surface finish of rollers and low heat generation due to less friction.
- ▶ Operational cost is lowered due to unskilled operator wage and elimination of wastage of metal and lubricant.
- ▶ Cost saving due to higher segment utilisation and increase in tool life resulting from less metal friction.
- ▶ Superior mechanical & electrical features ensure longevity of the life of the machine.
- ▶ The chasing output is higher due to less consumption of time in operation

### ▶ UNIQUE FEATURES

- ▶ Reliable, imported CNC system ensuring precision for setting, controlling of cutting parameters having online display of operation.
- ▶ The slides and ball screws are lubricated automatically at regular intervals with the help of an automatic lubricating system.
- ▶ Pitch accuracy to 5 microns is assured.
- ▶ 6 spindle speeds ranging from 8 to 140 RPM.
- ▶ Feed rapid during idle return and 0.2mm to 20mm/ revolution for forward during cutting.
- ▶ No re-grinding of tools and higher cutting speed and feeds due to single point throw away TC inserts for grooving
- ▶ Seasoned, heavy, and scraped and ribbed, graded cast iron bed with combination of ISO trapezoid and flat top guide ways.
- ▶ At tail end sturdy 3 rollers support is provided.
- ▶ Hardened and ground precise ball screws, screws, with double nuts are used for the drive to the slides.
- ▶ AC Servo Motors fitted with rotary encoders for feedback have been incorporated.
- ▶ Fully enclosed, self lubricating spindle assembly is incorporated with heavy duty headstock.
- ▶ IS-1878PT 1 (ISO) standards are conformed to in manufacturing.





### SALIENT MECHANICAL FEATURES

- ▶ Anti friction Turcite lining (Polytetrafluoroethylene) on the main bed for longevity of the Machine life.
- ▶ Superior Japanese AC Servo Motors is incorporated to motorise both the Axes ( X & Z )
- ▶ An AC Variator provided ensures the flexibility of infinite speeds of the Head Stock
- ▶ Taper roller precision steel bearings is used for the smooth running of the spindle of the Head Stock
- ▶ Tungsten Carbide, PID coated, single point, throw away inserts requiring no re sharpening are incorporated for grooving, eliminating the high speed chaser.
- ▶ Hardened and ground, imported ball screws with end -flanged, double nut assembly with light pre load of C5 grade (18microns/300 mm) drives the slides with exact precision.

### AUTOMATION FEATURES

#### AC Servo Motors

- ▶ Servo drives with PLC system for setting and controlling of operation.
- ▶ Online display to monitor cutting parameters.
- ▶ For fast and precision execution of operation superior RISC based motors are provided.
- ▶ In built Parameter Unit ( PU ) and High Resolution 17 bit encoder are provided.
- ▶ In built positioning loop and real time auto tuning have been incorporated for precision.

#### Programmable Logic Controller (PLC)

- ▶ Fast processing time and wide input voltage band power supply for operational accuracy
- ▶ Highly compact and efficient PLC with in- built positioning instruction and 2 axes control

#### Others important features

- ▶ Any error of the machine during operation is displayed in the Automatic Diagnostic Unit easing trouble shooting.
- ▶ Automatic lubrication of ball is ensured by a pre - programmed lubricating pump.
- ▶ Automatic cooling of cutting tools during operation is ensured by an efficient coolant system.
- ▶ At regular intervals screws and slides have been provided to ensure rigidity.

### TECHNICAL SPECIFICATION

Overall Diamension mm (ft)	Length	2850mm(9'-4')
	Width	1118mm (3'-8')
	Height	1270 (4'-2')
Power Requirement KW/HP	Longitudinal Travel	1.964HP/1.465kw
	Cross Travel	1.964HP/1.465kw
	Headstock	5HP/3.75kw
	Coolant	0.25HP/0.875kw
Capacity	Centre Height	340mm
	ABC	1640mm
	Swing over Bed (Dia)	340mm
	Swing over Cross-slide (Dia)	360mm
	Width of Bed	400mm
	Length of Bed	2100mm
	Spindle	A26, with 63mm bore
	Tool Shank Size (mm)	25 x 25 x 150
Speed & Feed	Longitudinal Travel	1460mm with feed from 0.05 to 1450mm/min
	Cross Travel	150mm with feed from 0.05 to 500mm/min
	Headstock	1 to 90 RPM, Infinite Variable
Chasing	TPI	8 & 10
	CTC Roller Size	24", 30", 36", 42", 48" & 52"
	Diameter	8.25", 9.5" & 13"
Weight	nett	2150 Kgs
	Gross	2650 Kgs

### CALCUATION OF SAVING IN STAINLESS STEEL OF SEGMENT AND EXTRA PROCESSING OF GREEN LEAF WITH RE-SHARPENING ON AUTOMATIC CHASING MACHINE

DESCRIPTION	CONVENTIONAL	AUTO - CHASING
Diameter of New 13" Segments	340mm	
Remaining Diameter After Usage of Segments	285mm	
<b>THEREFORE, METAL AVAILABLE FOR RE-SHARPENING (A)</b>	45mm	
Number of Hours before Re-sharpening Required (B)	60 hours	70 hours
Wastage of Segment per re-sharpening @	0.50 mm	0.40 mm
<b>THEREFORE, SAVINGS OF SEGMENTS PER RE-SHARPENING</b>	x	0.10 mm
<b>TOTAL INCREASE IN LIFE OF SEGMENTS (0.10MM - 0.50 MM x 100)</b>	<b>20%</b>	
Total Re-sharpenings Possible (A-C) (O)	90	112
<b>THEREFORE, EXTRA RE-SHARPENINGS POSSIBLE</b>	<b>22 (25%)</b>	
Cost of New Pair of 36" x 13" Rollers (Segments @ 1,850/- x 36 nos) (E)	<b>Rs. 66,600.00</b>	
Metal Cost per re sharpening (E-D0)	Rs. 740.00	Rs. 595.00
Tea Processed per re-sharpening (900 kgs. GL per hour) (900xB) (E)	54,000 kgs.	63,000 kgs.
Total GL Processing per Pair of Rollers (Segments only) (D x F)	48,60,000 kgs.	70,56,000 kgs.
<b>THEREFORE, EXTRA GREEN LEAF PROCESSED PER PAIR OF ROLLERS (SEGMENTS ONLY)</b>	<b>21,96,000 kgs. (45%)</b>	



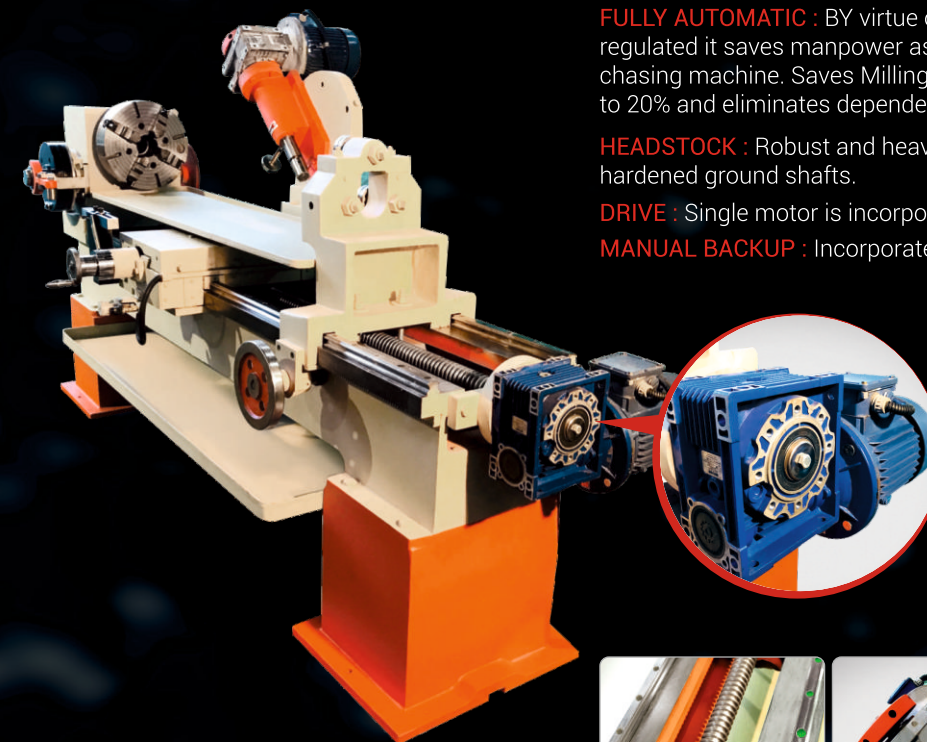
**ZeeSharp**

## AUTO MILLING MACHINE



ZEE SHARP is augmented in the industry as an instrument with higher level of accuracy and ease in operation with sturdy linear guides in place of cast iron beds ensuring flawless and high quality milling operation for a better cup. This surely marks yet another humble effort ZENITH to aid the Industry.

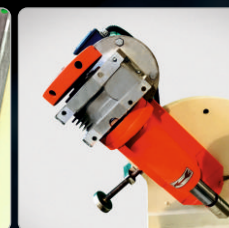
## SALIENT FEATURES



MAIN DRIVE



LINEAR SLIDES



CROSS SLIDE



INDEXING ASSEMBLY

## SALIENT FEATURES

**AUTO TOOL** : Electronically regulated for retracting, reversing and resetting resulting in saving time and manpower.

**THE BED** : Hard Chrome plated, sturdy linear bed, saddle and cross side assembly to ensure high accuracy, longer life and to eliminate any wear and tear compared to cast iron bed.

**LEAD SCREW** : EN steel, precision machined, self cleaning lead screw.

**AUTO INDEXING** : By virtue of being electronically regulated the indexing errors are fully eliminated.

**AUTO CUTTING** : Ensures uniformity in milling depth throughout the length of the roller.



# ZeeSharp

## AUTO CHASING MACHINE

ZEE SHARP Automatic Chasing Machine  
Unique concept developed through continuous efforts of our R&D Team. ZeeSharp is a fully automatic chasing machine suitable for all size of CTC Rollers-8.25" to 13" Dia and 30" to 52" Length  
Both 8 TPI and 10 TPI chasing can be done using the normal 1" or 2" wide Chasers.



### SALIENT FEATURES

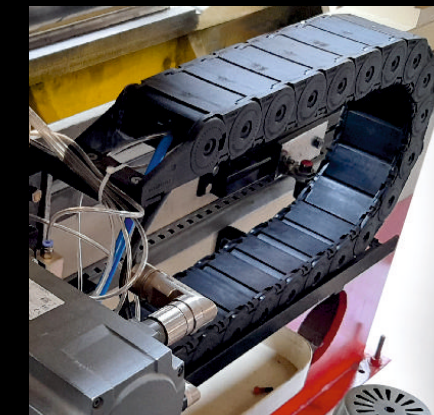
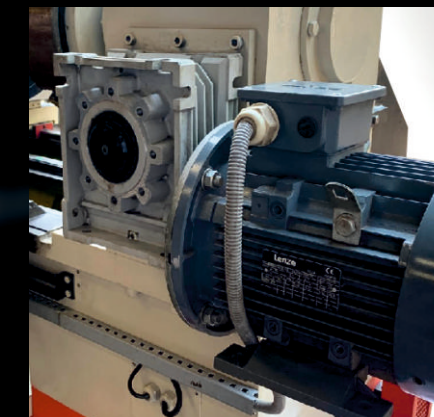
**FULLY AUTOMATIC:** Owing to have fully automatic system the chasing machine can be operated by semi skilled workers having basic training as all functions such as tool feeding, retracting and resetting are automatically controlled. As a result precision chasing of rollers can be achieved even in absence of highly skilled operator.

**MAINTENANCE:** The machine is simple and easy to maintain. All the gears, pinions and the bed is made of special grade steel and are of high precision ensuring sturdiness, rigidity and longevity.



**BED DESIGN:** Chrome plated heavy C.I. Body to resist wear & tear and to ensure long time precision operation. Linear

guide, saddle & cross slide assembly are provided on the bed to ensure finesse in operation. High precision ball screw and auto lubricating system ensure quality chasing everytime.



**SUPERIOR SHARPENING:** The quality of chasing is much superior due to minimum manual operation features and consequent minimum dependence on operator's skill. Accurate chasing not only results in obtaining better and uniform cuts but also reduces heat generation on the segment rollers.

### SALIENT FEATURES

### SPECIAL FEATURES


A composite and compact PLC based control panel is provided for ease in operation and also to display various important operational parameters like Spindle RPM, Roller RPM, Cutting Speed, current status of the tool (sharp/blunt) etc. AC Variator is also provided to select roller RPM to achieve desired cutting speed.



### OPERATIONAL ECONOMY & SAVINGS:

- Only one operator can handle both Chasing and Milling operation.
- In place of skilled operator even semi skilled operators can operate the machine.
- Reduction in wastage of segment materials as it eliminates the need for repetitive chasing and meshing to rectify errors.
- 20/22% less operational time than manual chasing.
- Minimum downtime.





Design, manufacture & supply of complete range of tea processing machinery – including withering, CTC/Rolling, fermenting, drying, sorting, packaging, conveyorisation, milling & chasing, heat generation, weighing, and other miscellaneous applications. We supply complete processing lines for all types of tea including CTC. Zenith also provides turnkey solutions for tea manufacture, including design, planning layouts, and utilities like steam and electrical.