



**T & I Limited**

***Introduces a Revolution in  
Roller Sharpening***

**COSMOS  
CNC Fully Automatic  
Chasing Machine**

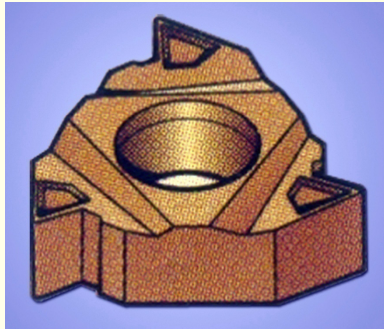
**EXCLUSIVE ENGINEERING FEATURES**

1. Heavy, graded Cast Iron Bed, seasoned, hand scraped and ribbed with combination of ISO trapezoidal and flat top guide-ways.
2. Heavy duty Headstock equipped with main spindle constructed of Needle Roller and Cylindrical Roller Bearings
3. Both axis slides are motorised with AC servo motors fitted with rotary encoders for feedback.
4. The drive to the slides is through hardened and ground zero backlash, precise imported Ball screws
5. Manufactured conforming to IS-1878 Pt 1 (ISO 1708) standards
6. Guaranteed to give you pitch accuracy of up to 5 microns



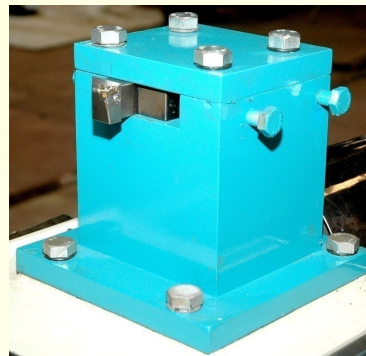
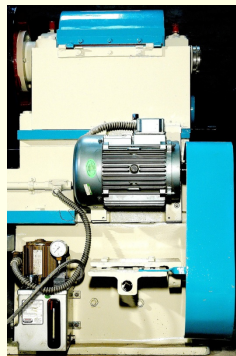
## EXCLUSIVE ENGINEERING FEATURES

1. SIEMENS CNC system for setting & controlling of cutting parameters having online display of cutting parameters.
2. Automatic Lubrication system for lubricating the slides and ball screws at regular intervals, automatically.
3. Infinite spindle speeds, using Variable Speed Drive (VSD)
4. Feed: 2,000mm/min during idle return and 20mm/min for forward during cutting
5. Single point throw-away Tungsten-carbide inserts for grooving i.e. higher cutting speed and feeds and no regrinding of tools.
6. Sturdy 3 roller support at tail end



## RESULTS

- Perfect Roller Meshing
- Lower Sharpening Time
- Zero – Error Pitch Grooves
- No Operator Skill Required
- Mirror – like Surface Finish
- Lower Sharpening Cost



## BENEFITS

- **Consistent and Perfect Chasing, results in improved GRADE PERCENTAGE**
- **Lower Heat Generation due to less friction, resulting from mirror-like finish of rollers, improves quality of CTC LIQUOR QUALITY**
- **Increase in segment life due to lesser metal to metal friction, resulting in lower running costs and higher SEGMENT UTILISATION**
- **LOWER RUNNING COSTS resulting from un-skilled operator wages and elimination of metal and lubricant wastage**
- **HIGHER OUTPUTS due to reduced chasing time**

## APPROX. CHASING COST COMPARISON BETWEEN AUTOMATIC AND CONVENTIONAL MACHINE

	CONVENTIONAL	AUTO - CHASING
Cost of each Cutting Tool	Rs. 3,500.00	Rs. 990.00
Brand and Grade of Tool	CEC M15	SANDVIK
Maximum re-grindings possible	60	3-edge throw-away Insert
No. of re-grindings required per pair of rollers	4	1 cutting edge per pair
Total cost of Cutting Tool per pair of roller (A)	Rs. 465.00	Rs. 330.00
Tool grinding Cost per pair of roller (B)	Rs. 25 x 8 = Rs. 200.00	N/A (throw-away inserts)
Chasing speed	8 RPM	Upto 180 RPM
Chasing feed	1.15 mm/min	6 mm/min
Chasing time (Rough + Finish)	3 hours	2 hours
Machine cost per hour (Invested Value)	Rs. 25.00	Rs. 100.00
Total Machine Cost per pair of roller (C)	Rs. 150.00	Rs. 400.00
Power cost per pair of roller (D)	Rs. 45.00	Rs. 75.00
Operator cost per hour	Rs. 30.00	Rs. 30.00
Total Operator cost per pair of roller (E)	Rs. 180.00	Rs. 120.00
Production per month	25 pairs	40 pairs (50% increase)
Total Chasing cost per Pair (A+B+C+D+E)	Rs. 1,040.00	Rs. 925.00
<b>TOTAL SAVINGS PER PAIR (CHASING)</b>	<b>N/A</b>	<b>RS. 115.00</b>

**CALCULATION OF SAVINGS IN STAINLESS STEEL OF SEGMENTS AND EXTRA PROCESSING OF GREEN LEAF WITH RE-SHARPENING ON AUTOMATIC CHASING MACHINE**

DESCRIPTION	CONVENTIONAL	AUTO - CHASING
Diameter of New 13" Segments	330 mm	
Remaining Diameter After Usage of Segments	285 mm	
<b>THEREFORE, METAL AVAILABLE FOR RE-SHARPENING (A)</b>	<b>45 mm</b>	
Number of Hours before Re-sharpening Required (B)	60 hours	<b>70 hours</b>
Wastage of Segment per re-sharpening (C)	0.50 mm	<b>0.40 mm</b>
<b>THEREFORE, SAVINGS OF SEGMENTS PER RE-SHARPENING</b>	x	<b>0.10 mm</b>
<b>TOTAL INCREASE IN LIFE OF SEGMENTS (0.10MM ÷ 0.50 MM X 100)</b>	<b>20%</b>	
<b>Total Re-sharpenings Possible (A ÷ C) (D)</b>	90	<b>112</b>
<b>THEREFORE, EXTRA RE-SHARPENINGS POSSIBLE</b>	<b>22 (25%)</b>	
Cost of New Pair of 36" x 13" Rollers (Segments @ 1,950/- x 36 nos.) (E)	Rs. 70,200.00	
Metal Cost per re-sharpening (E ÷ D)	Rs. 780.00	<b>Rs. 625.00</b>
Tea Processed per re-sharpening (1,000 kgs. GL per hour) (1,000 x B) (F)	60,000 kgs.	<b>70,000 kgs.</b>
Total GL Processing per Pair of Rollers (Segments only) (D x F)	54,00,000 kgs.	<b>78,40,000 kgs.</b>
<b>THEREFORE, EXTRA GREEN LEAF PROCESSED PER PAIR OF ROLLERS (SEGMENTS ONLY)</b>	<b>24,40,000 kgs. (45%)</b>	