Micromatic Grinding TECHNOLOGIES LTD.
Reliable customer friendly grinding solutions

OD GRINDING CNC MACHINE

Stallion

OD GRINDING CNC MACHINE

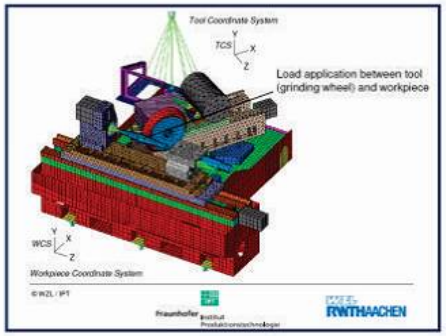
Ace Micromatic Group Company

THE PRODUCT

KEY HIGHLIGHTS

- Rigid Machine suitable for higer cutting forces.
- Static and Dynamic FEA for critical parts and sub-assemblies verified by Aachen University Germany.
- Machine specifications defined by using QFD Tools.
- Quality and testing confirms to ISO/ VDI Standards.
- Globally accepted TPM friendly features.
- High Productive OD Grinder available in various variants:
  - 45 mps - Conventional Wheel
  - 60 mps - Conventional Wheel
  - 80 mps - CBN Wheel

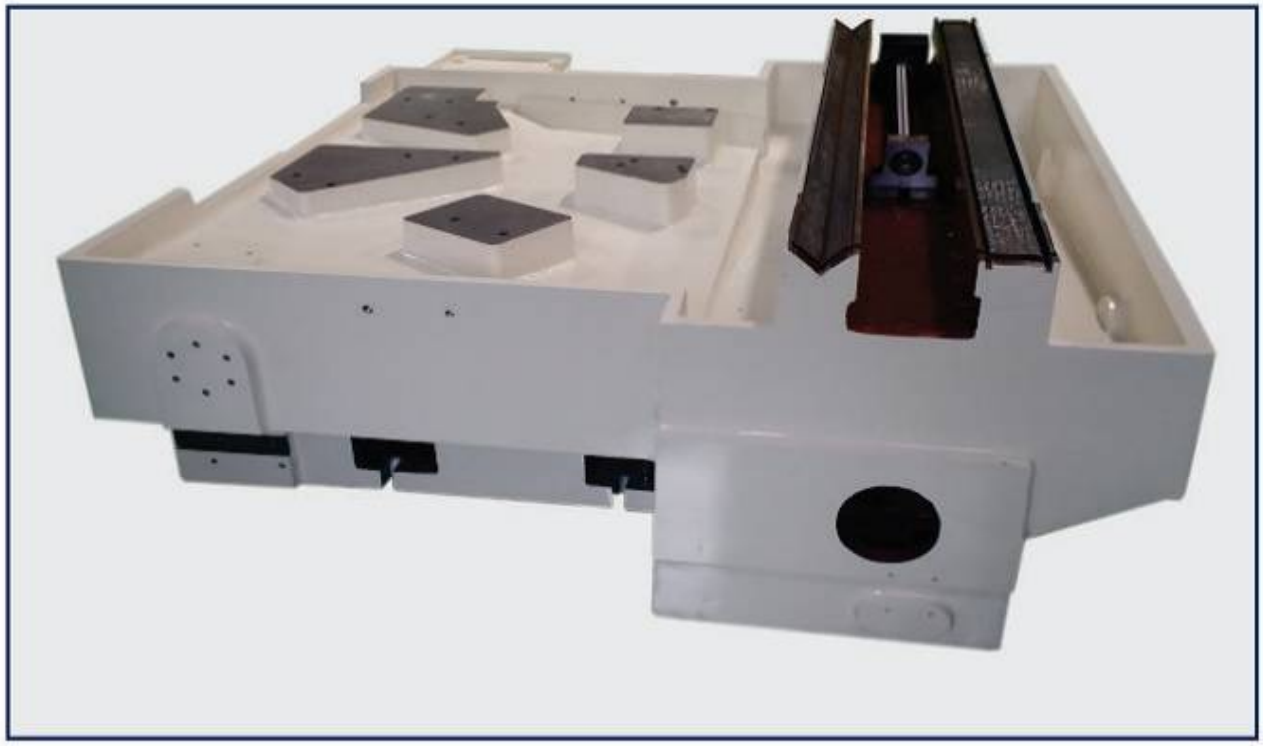
  } HIGHER MRR
- Conventional Wheel in size of Dia. 550 mm/ 660mm as standard.
- Available in Straight and Angular configuration.
- Suitable for components from various Industrial segments.



Static and Dynamic FEA verified by Aachen University Germany

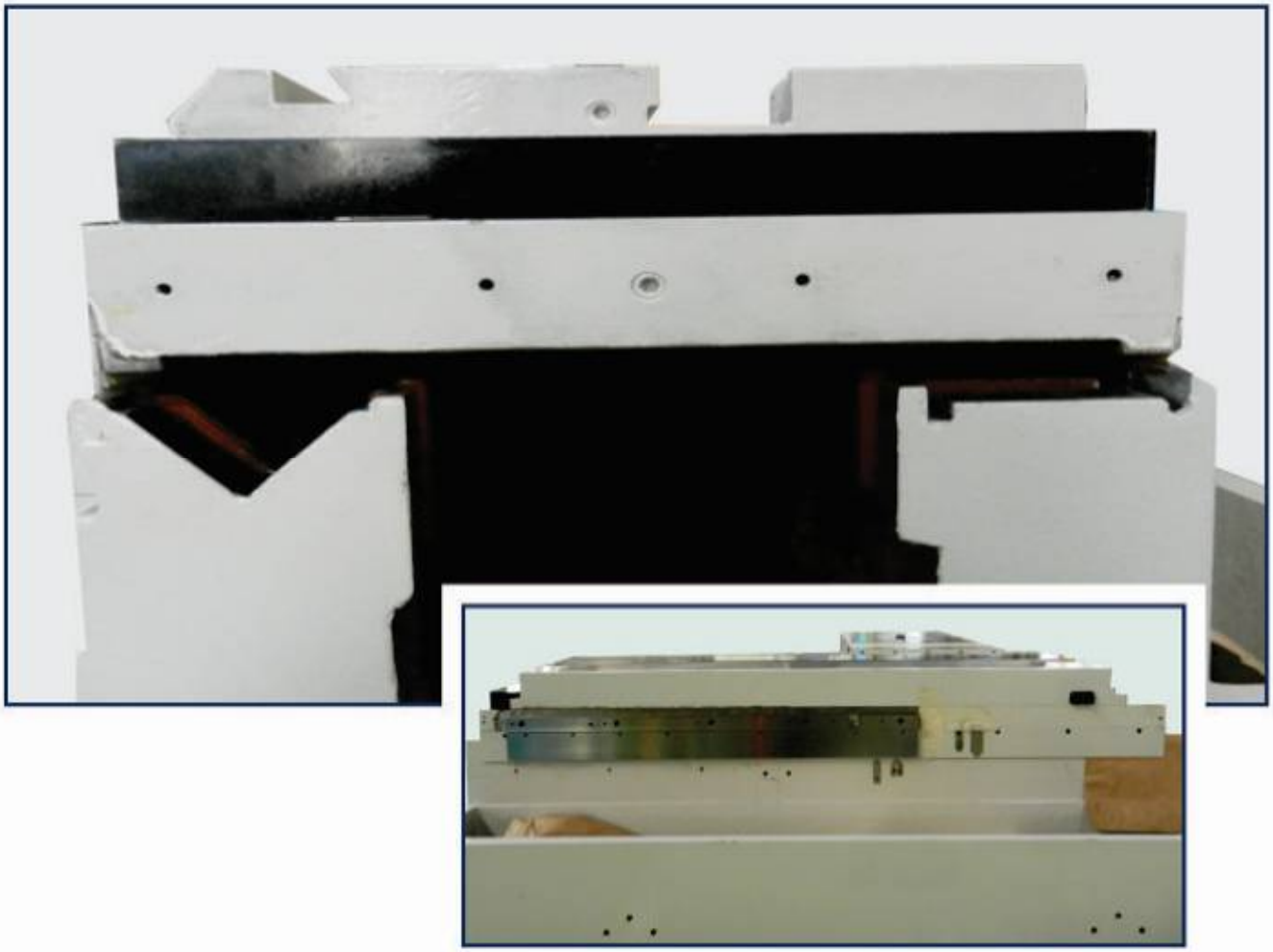
FEATURES

BED



- High quality cast iron rigid box structure, wider rear to accommodate heavy duty infeed slide and wheel head.
- Self – cleaning slopes provided in bed for proper coolant flow and bed cleaning.
- Stress relieved machine bed for better thermal stability.
- Z-axis guideways is precisely hand-scraped and turcite lined to ensure stick-slip free movement and longer life.
- Provision for lifting of machine as single piece by use of Fork lift.
- Plug and play to reduce machine setup time and easy relocation. Location defined for electrical cabinet stand, power pack stand, wheel loading / unloading arm and Lifting pin.

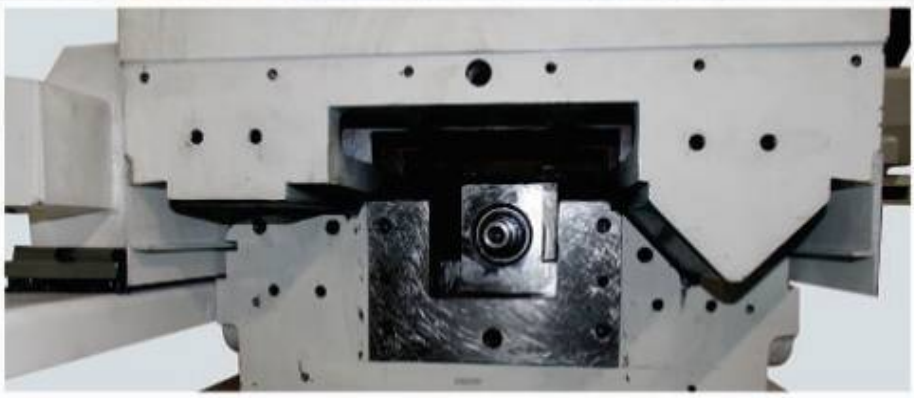
TABLE SLIDE- Z AXIS



- Table is in two pieces, top table suitable for adjustment of taper.
- Bottom table is having turcite coated Vee & Flat guideways for longer life and stip slip free movement.
- Forced Lubrication to Vee & Flat is provided through hydraulic system which ensures smooth movement at low traverse speed.
- Variable Traverse movement is by 40mm diameter circulating ball screws connected to servo motor through flexible coupling.
- Various accessories can be mounted suitably on top table as per application requirements.
- Linear glass scale for better positioning accuracy can be mounted as per application requirement (Optional).
- L.M. Guide ways can be provided optionally as per application requirement.

FEATURES

CARRIAGE SLIDE X AXIS

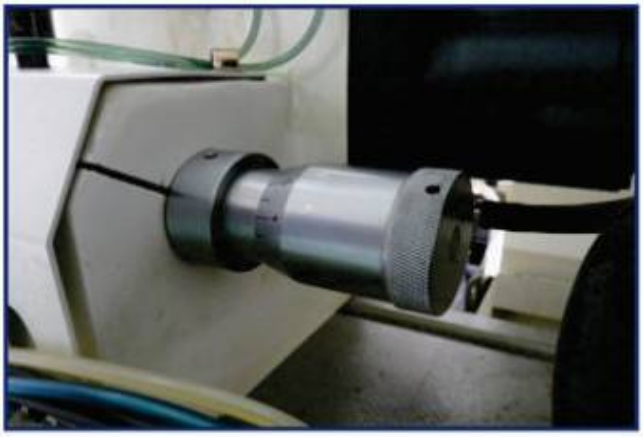


- Infeed slides are with high quality grey cast iron and have highly precise, ground Vee and flat guide ways.
- Guide ways with broader Vee & Flat cross section ensures overall higher degree of stability.
- The distance between the guideways is optimally maintained to ensure machine's over all rigidity.
- Guideways are turcite lined to ensure stick-slip free movement.
- Slide is moved by 40mm diameter circulating ball screws connected to servo motor through flexible coupling.
- Specially designed sealing arrangement for better protection of guide ways from coolant and dust ingress.
- Carriage is mounted for Straight or Angular infeed approach as per application.
- Carriage slide designed to adopt linear glass scale for better positioning accuracy.

WORK HEAD

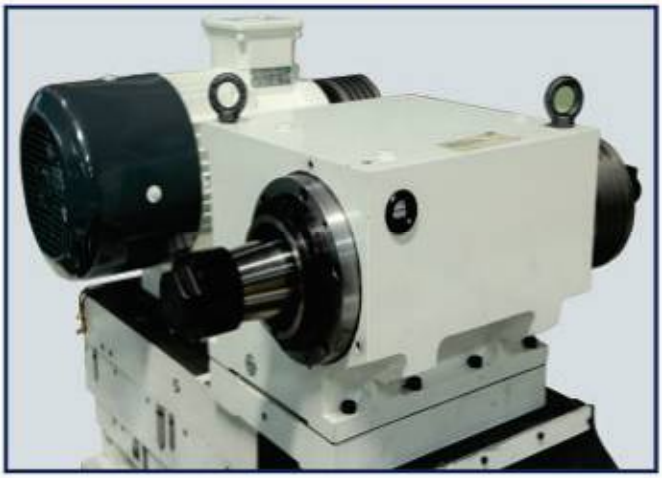
- Servomotor driven Dead centre workhead with MT-5 centre / MT-5 centre.
- Labyrinth seal and air purging to restrict coolant and dust entry in to drive system.
- Air lifting for ease in manual movement of work head on table for setup change over.
- Various options as available:
  - Dead centre workhead centre with MT-6 taper
  - Live cum dead centre workhead centre with A2-5 / MT5 taper
  - Live centre workhead centre with MT5 taper

TAILSTOCK



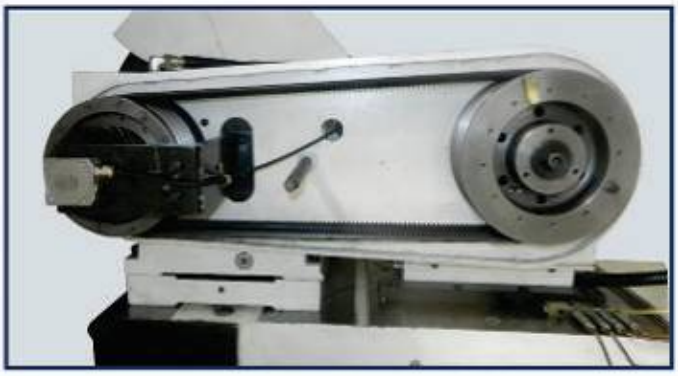
- Robust Tailstock designed suitably for heavy load with MT 5 Taper centre.
- Spieth bush bearings with clearance setting facility.
- Barrel diameter 65mm with 60 mm stroke.
- Air lifting for ease in manual movement of tail stock on table during setup change over.
- Auto lubrication through cartridge.
- Various options as available:
  - Hydraulically operated tail stock for easy loading / unloading of components
  - Micro-taper correction attachment for easy taper correction upto ± 0.040 mm
  - Programmable Hydraulic tailstock to accommodate components up to 120mm length variation
  - Servo operated tail stock for easy setup change and precise positioning

WHEEL HEAD



- Cartridge type wheel head spindle available in various options:
  - Hydrodynamic wheel head with Spindle dia 63 or 80 suitable for peripheral speed upto 45 mps. As an option dia. 100 antifriction spindle is available in heavy duty model.
  - Antifriction wheel head with dia. 80 spindle suitable for peripheral speed upto 60mps.
  - Antifriction wheel head with dia 80 spindle suitable for peripheral speed upto 80mps, with oil air lubrication suitable for CBN wheel.
  - Built in Spindle of 7.5 kW, 11kW & 15 kW available as an option.
- Wheel spindle and rotating elements are Dynamically balanced for reduced vibration.
- Wheel balancer flange type or inside spindle type can be provided optionally as per spindle requirement.

- Power transmission from Induction motor to spindle is through special multi stranded belts. This sub system provides:
  - Higher efficiency of power transmission
  - Eliminate belt whip, twist & turn over
  - Suitable for drives with pulsating loads Heat and oil resistant
- Spindle with Servomotor drive is available as an option.



- Hydrodynamic Spindle Dia 80 mm is provided with heat exchanger system and external lubrication unit as standard. This provides higher life and stability to spindle while taking heavy plunge cut upto 145 mm.

HYDRAULIC AND LUBRICATION SYSTEM

- Hydraulic unit is designed suitably to provide:
  - Automatic lubrication for guideways and ball screws.
  - Functioning for In-process Gauge, Flagging, and other accessories.
- Pressure switch ensures sensing of pressure, providing safety interlock for machine
- Aluminium body of power pack tank provides better heat dissipation.

DRESSING ARRANGEMENT

Blade Type Dressing Unit

Diamond Role Type Dressing Unit

Stallion Medium and Heavy Duty Machines

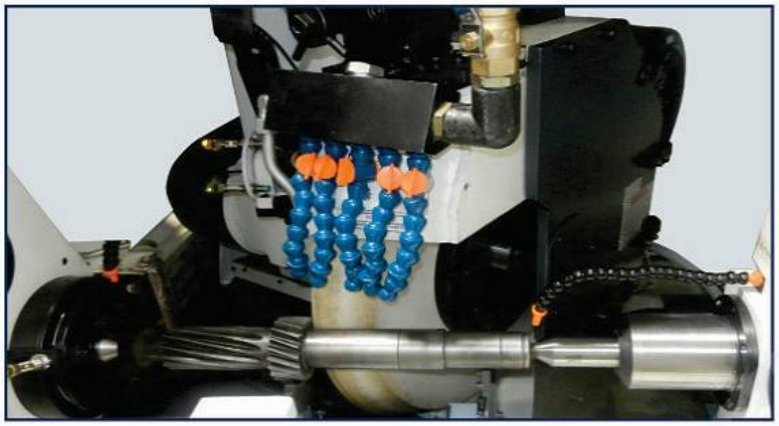
- Standard Blade type dressing unit is rigidly mounted on work head or tailstock as per application.
- Through coolant provision in dresser block provides better dresser life.
- Dressing of critical profile are available through diamond roll and disc type dresser as per application.

Stallion CBN Machine

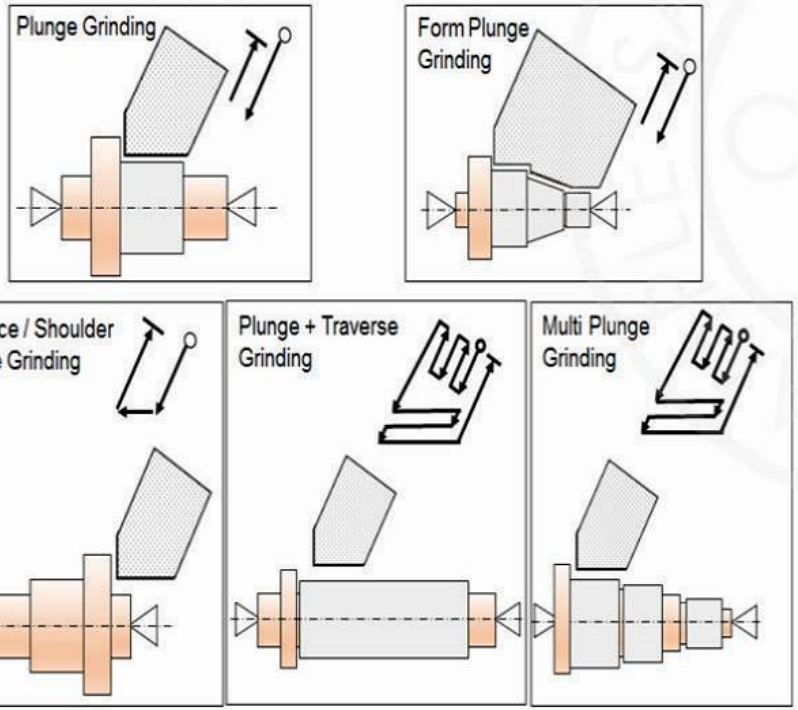
- Disc type dressing unit is rigidly mounted on workhead.

Disc Type Dressing Unit

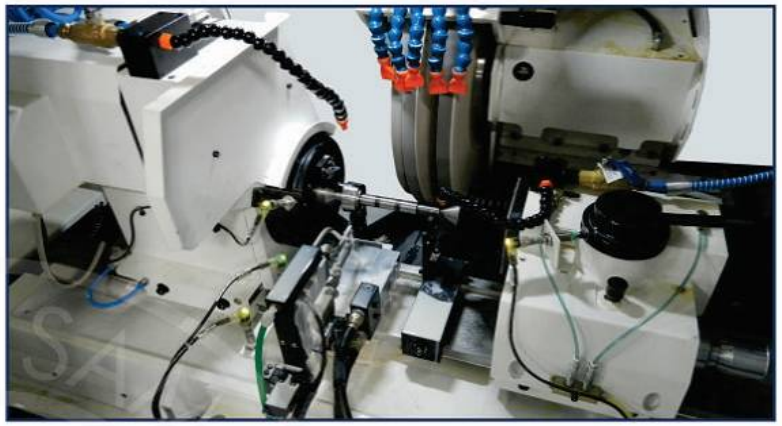
ANGULAR APPROACH WHEEL HEAD



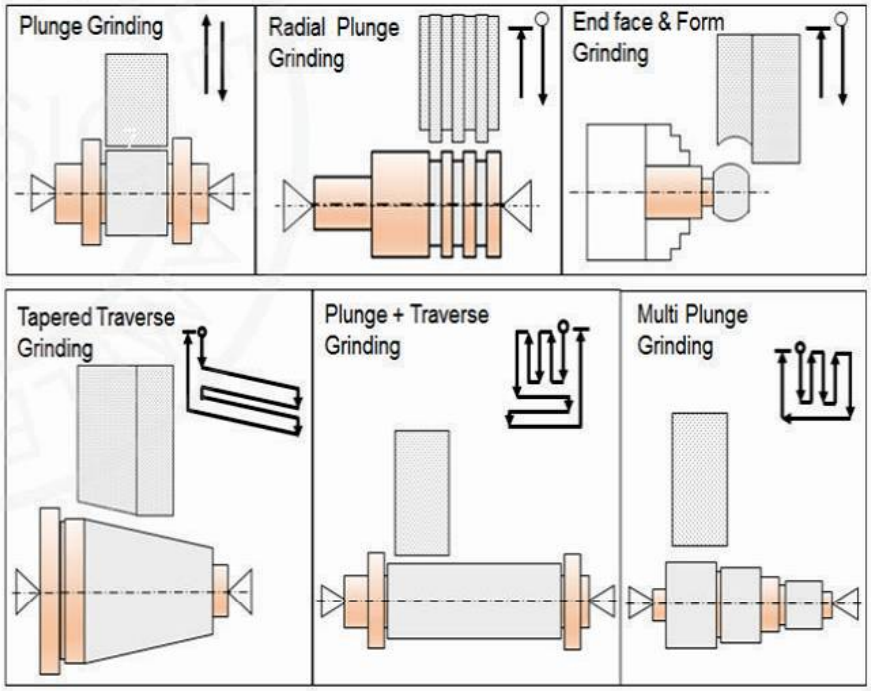
Grinding Applications Example:



STRAIGHT APPROACH WHEEL HEAD



Grinding Applications Example:



OD GRINDING CNC MACHINE

STANDARD AND OPTIONAL ACCESSORIES

Description	SM / 45mps	SH / 45mps	SH / 60mps	CBN / 80mps
3 tier Tower Lamp	√	√	√	√
Air conditioning for electronic unit	√	√	√	√
Work head pulley puller	√	√	√	√
Wheel head pulley puller	√	√	√	√
Wheel Adaptor puller	√	√	√	√
Work head / Tailstock mounted dresser holder (stationary type)	√	√	√	X
Disc dresser	O	O	O	√
Diamond Roll dresser	O	O	O	X
Wheel lifting hook / tackle	√	√	√	√
Balancing mandrel with nut for static wheel balancing	√	√	√	X
Set of machine mounting levelling pads with bolts	√	√	√	√
Lighting system	√	√	√	√
One Set of Service Tools	√	√	√	√
Set of machine instruction manuals	√	√	√	√
Wheel Loading / unloading unit	O	O	O	O
Static Wheel Balancer	O	O	O	O
In-process gauge (Table /Bed type)	O	O	O	O
Active / Passive Flagging	O	O	O	O
Gap Eliminator/ Crash Detector	O	O	O	O
Width Gauge	O	O	O	O
Dynamic Wheel Balancing System	O	O	O	O
Linear Scale for X axis and Z axis	O	O	O	O
Steady rest suitable for application	O	O	O	O
Coolant System	O	O	O	O
Coolant Chiller	O	O	O	O
Mist Collector	O	O	O	O
Automatic Opening & Closing of Front door	O	O	O	O
Safety Light Curtain	O	O	O	O
Work head Centre	O	O	O	O
Tailstock Centre	O	O	O	O
Work driving arrangement	O	O	O	O
Wheel Safety Guard	O	O	O	O
Automation as per application	O	O	O	O

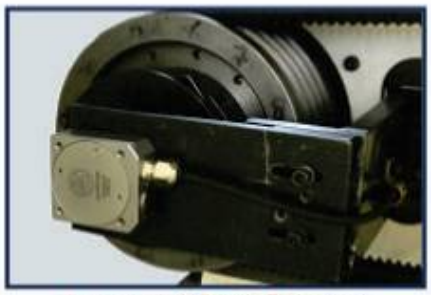
√ Standard Accessories O Optional Accessories x Not Applicable

Toolings are offered as option inline with application requirement.

OPTIONAL ACCESSORIES

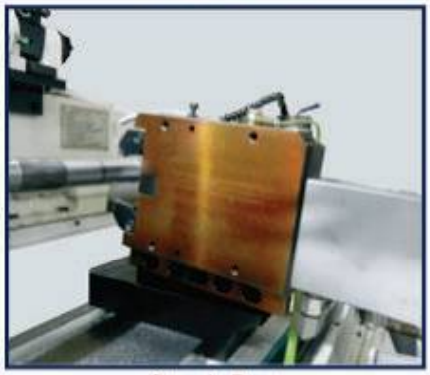
Inprocess Gauging

Flagging Unit

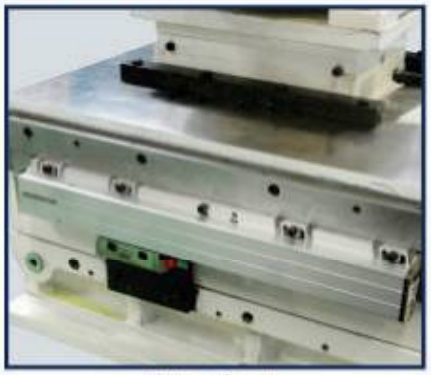


Automatic Wheel; Balancer

Width Gauge



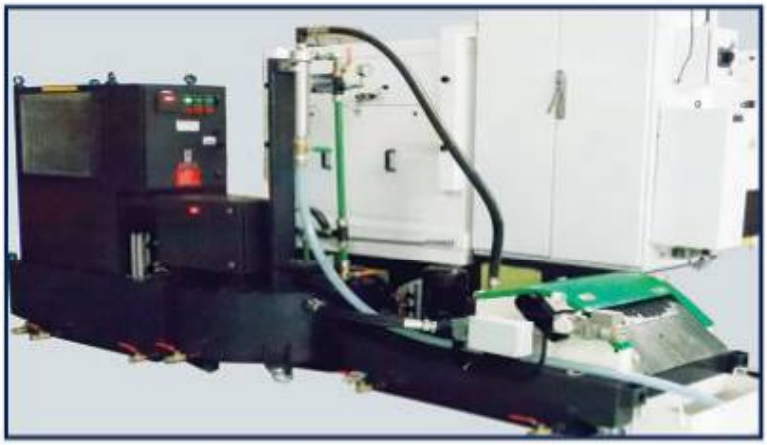
Steady Rest



Glass Scale

Wheel head Chiller Unit

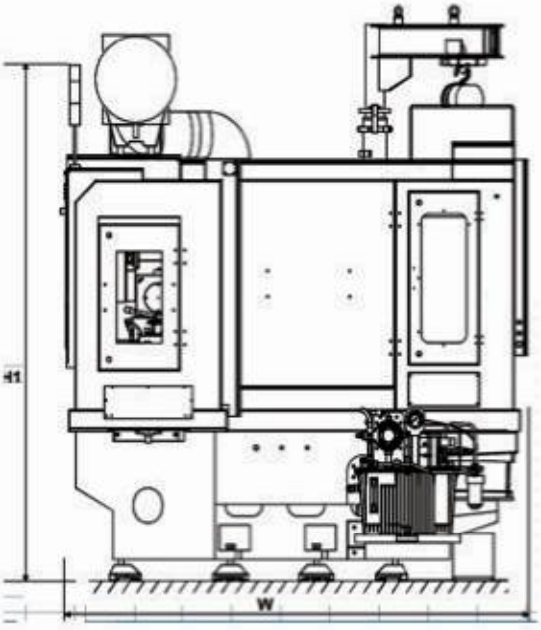
Compact Band + Rear Earth Magnetic Seperator Type Coolant Unit

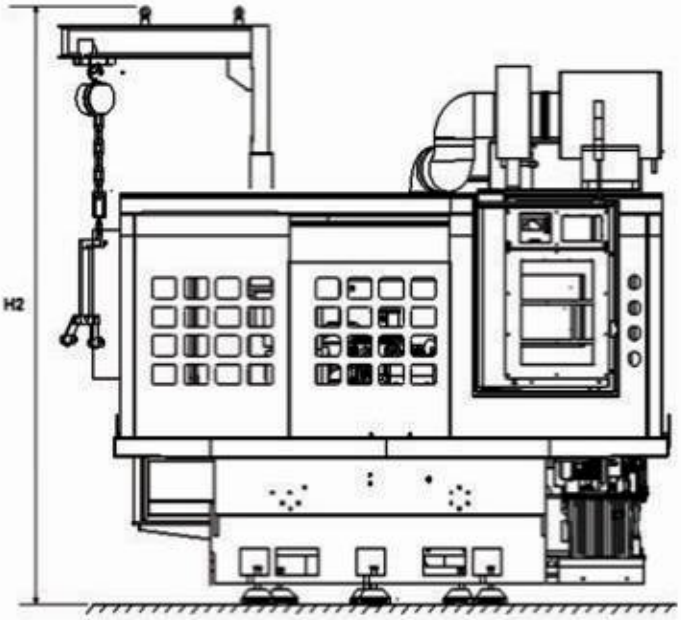


Hydrocyclone Type Coolant System

Mist Collector

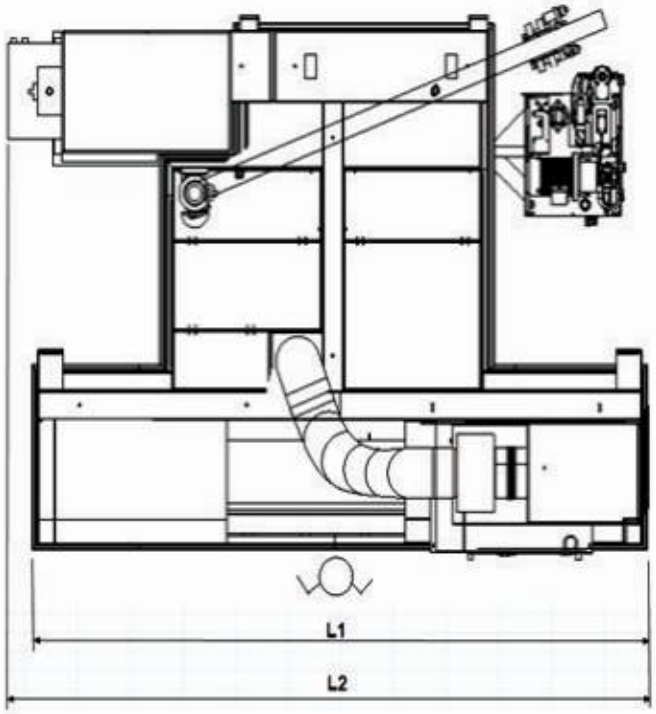
MACHINE LAYOUT





Machine Model	L1	L2	W	H1	H2
SM-40	~3000	~3700	~2300	~2350	~2815
SM-63	~3400	NA	~2500	~2350	~2815
SM-100	~4500	NA	~2500	~2350	~2815
SM-120	~ 4900	NA	~2500	~2350	~2815
SH-40	~3000	~3700	~2300	~2350	~2815
SH-63	~3400	NA	~2500	~2350	~2815
SH-100	~4500	NA	~2500	~2350	~2815
SH-120	~ 4900	NA	~2500	~2350	~2815
CBN-40	~3000	~3700	~2300	~2350	~2815
CBN-63	~3400	NA	~2500	~2350	~2815

All dimensions in mm and without coolant tank and other peripheral accessories.



MACHINE GUARDING

- Ergonomically designed machine sheet metal guarding for ease in maintenance and operator friendliness.
- Operator Friendly Swivel type pendant with ease in reach while setting of machine.
- All Hydraulic gauges fitted in front at eye- level providing better visibility, accessibility and real time display for flow and pressure.
- Wide open front door for ease in setting and loading/ unloading of jobs.

Wide open doors at front & rear

Swivel type pendant

Gauges in front of operator

Specifications

Description	Unit	Stallion Medium Duty				Stallion Heavy Duty/ 45 mps				Stallion Heavy Duty/ 60 mps				Stallion CBN	
		SM-40 CNC 45mps	SM-63 CNC 45mps	SM-100 CNC 45mps	SM-120 CNC 45mps	SH-40 CNC 45mps	SH-63 CNC 45mps	SH-100 CNC 45mps	SH-120 CNC 45mps	SH-40 CNC 60mps	SH-63 CNC 60mps	SH-100 CNC 60mps	SH-120 CNC 60mps	CBN-40 CNC 80mps	CBN-63 CNC 80mps
Capacity															
Swing over table	mm	320				320				320				320	
Max. Grinding diameter	mm	200				200				200				100	
Max. Grinding length	mm	400	630	1000	1200	400	630	1000	1200	400	630	1000	1200	400	630
Admit between centers	mm	400	630	1000	1200	400	630	1000	1200	400	630	1000	1200	400	630
Max. weight of job between centres	kg	150				150				150				100	
Wheel Head															
"Grinding wheel size (OD x Bore x Width)"	mm	550 x 203.2 x 80[1]				660[2] x 254 x 145				660 x 254 x 120 (160[3])				450x 40x 35 (max)	
Spindle motor power (Induction type)	kw	7.5 (11)				11 (15)				15				15	
Peripheral (surface) speed	m/sec.	45				45				60				80	
Spindle Size	mm	Dia 63 (80)				Dia 80 (100)				Dia 80				Dia 80	
Type of spindle bearing		Hydrodynamic bearing				Hydrodynamic bearing (Antifriction)				Antifriction				Antifriction bearing	
Wheel Slide (X-Axis)															
Infeed stroke	mm	260				300				300				300	
Rapid feed rate (dia)	mm/min	10000				10000				10000				10000	
Minimum increment / pulse (On dia)	mm	0.001				0.001				0.001				0.001	
Feed servo motor torque	Nm	12				12				12				12	
Approach of Wheel head		Straight / Angular				Straight / Angular				Straight / Angular				Straight	
Wheel slide		`V'&Flat - Turcite Lined (LM Guideways)				`V'&Flat - Turcite Lined (LM Guideways)				`V'&Flat - Turcite Lined (LM Guideways)				LM guideways	
Table (Z-Axis)															
Table stroke	mm	670	840	1230	1430	670	840	1230	1430	670	840	1230	1430	670	830
Rapid feed rate	mm/min	10000				10000				10000				10000	
Minimum increment/ pulse	mm	0.001				0.001				0.001				0.001	
Feed servo motor torque	Nm	12	12	12	22	12	12	12	22	12	12	12	22	12	
Table slide		"`V'&Flat - Turcite Lined (LM Guideways)"				"`V'& Flat - Turcite Lined (LM Guideways)"				"`V'&Flat - Turcite Lined (LM Guideways)"				`V'&Flat with Turcite Lined (LM guideways)	
Table type		Split ±1°				Split ±1°				Split ±1°				Split ±1°	
Work head															
Type		Dead Centre[4]				Dead Centre[4]				Dead Centre[4]				Dead Centre[4]	
Centre taper	No.	MT5				MT5 (MT6)				MT5 (MT6)				MT5 (MT6	
Spindle speed (variable)	rpm	Variable				Variable				Variable				Variable	
Motor torque	Nm	12 (22)				12 (22)				12 (22)				12 (22)	
Tail Stock															
Centre taper	No.	MT-5				MT-5				MT-5				MT-5	
Quill diameter	mm	65 (100)				65 (100)				100				100	
Quill travel	mm	60 (80/120)				60 (80/120)				80 (120)				80 (120)	
Micro Taper Correction	mm	(± 0.040)				(± 0.040)				(± 0.040)				(± 0.040)	
Hydraulic Unit															
Tank capacity	ltr	40				40				40				40	
Motor power	Kw	0.55				0.55				0.55				0.55	
General															
Operation voltage	Volts	415 ± 10% AC 3 Phase, 50 Hz				415 ± 10% AC 3 Phase, 50 Hz				415 ± 10% AC 3 Phase, 50 Hz				415+10%AC 3 Phase	
Machine weight(Approx.)	kg	4000	5000	6000	6500	4500	5500	6500	7000	4500	5500	6500	7000	4500	5500
"Floor space (without coolant unit)"	mm	3000x2200	3400x2200	4500x2200	4900x2200	3000x2200	3400x2200	4500x2200	4900x2200	3000x2200	3400x2200	4500x2200	4900x2200	3000x2200	3400x2200

Note :- • Items in brackets ( ) indicate Optional items • [1]120 mm max. wheel width with straight approach wheel head and 100 mm max. wheel width with Angular approach wheel head for plunge length upto 120 mm available as an option • [2]Grinding Wheel with Ø 760 x 180 mm width and 22 kW motor power is available as an option • [3]Grinding length, Wheel Diameter, Surface speed need to confirm as per application requirement • [4]Live centre/ Live cum dead center is available as option

• Minimum Wheel depends on component • Wheel width as mentioned is with recess • Color shown in picture may not match actual color due to printing limitations. • Since continous development is taking place, design and specifications are subject to change without prior notice and information

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Reliable customer friendly grinding solutions

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