Data Collection / Trial Wheel Documentation

SDoc000036_01_0001_021219_10:25

General Information	
Customer	Rane
Objective	Customer Trial
Date of Trial	
Location	
Contact Person	
Mobile Number	
Mail Id	

Machine Tool	
Machine Model	EG200
Machine Number	502286
Wheel Head Type	Anti Friction/ Roller Bearings
Guideway Type Xaxis	V & Flat
Grinding Wheel Motor Power kW	5.5
Work Holding Type	Between Centers
Steady Rest	
Flagging Type	
Flagging Make	
Flagging Model	
Wheel Balancer Type	
Wheel Balancer Make	
Wheel Balancer Model	
Automation	
Gap Crash Make	
Gap Crash Model	

Consumables Details	
Wheel Make	CUMI
Wheel Specs	DA60K5W20
Abrasive Grain Size	60
Maximum Cutting Speed mps	45
Dresser Type	Blade
Dia Roll Size	
Coolant Type	Water Soluble
Coolant Make	Mobil

Workpiece Details	
Component Name	Pinion M/CD RHD
Material	SCM420H
Hardness	58-63
Initial Component Dia mm	19.6685
Stock on OD mm	0.3

Operational Parameters	
Dressing Feed Rate OD mmpmin	154
Dressing Frequency	10

SDoc000038_02_0001_021219_12:24

General Information	
Customer	Cumi
Objective	Internal Trial
Date of Trial	2019-06-01T02:03
Location	
Contact Person	Cumi
Mobile Number	
Mail Id	

Machine Tool	
Machine Model	H Grind250
Machine Number	20152
Wheel Head Type	Hydrodynamic
Guideway Type Xaxis	V & Flat
Grinding Wheel Motor Power kW	11
Work Holding Type	Between Centers
Steady Rest	
Flagging Type	Active
Flagging Make	
Flagging Model	T-25
Wheel Balancer Type	Spindle
Wheel Balancer Make	
Wheel Balancer Model	ST-1300 + P7 WB
Automation	
Gap Crash Make	
Gap Crash Model	

Consumables Details	
Wheel Make	
Wheel Specs	CS33A 120HH5 VB1 15
Abrasive Grain Size	0
Maximum Cutting Speed mps	45
Dresser Type	Blade
Dia Roll Size	
Coolant Type	Water Soluble
Coolant Make	Houghton

Workpiece Details	
Component Name	SHAFT INTERMEDIATE
Material	
Hardness	58-60 HRC
Initial Component Dia mm	40.038
Stock on OD mm	0.3

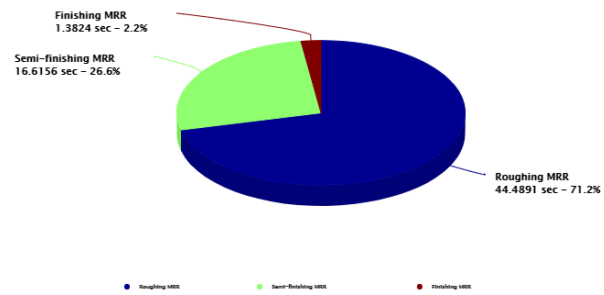
Operational Parameters	
Dressing Feed Rate OD mmpmin	100
Dressing Frequency	10

Quality Parameters

	Target		Achieved	
Item	**Lower**	**Upper**	**Lower**	**Upper**
OD_Tolerance (mm)	11.999	12.002		
Surface Finish-Ra(µm)	0.488	0.592		
Rz(µm)				
Concentricity(mm)		0.002		

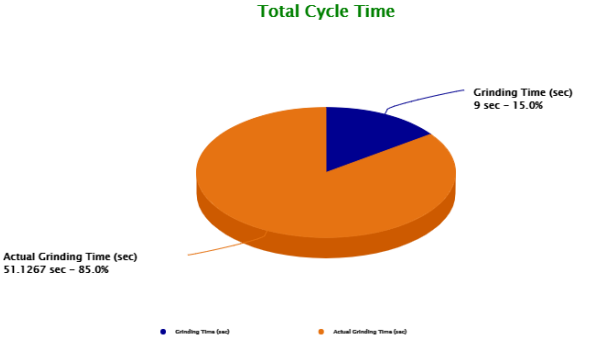
Calculated Parameters

Item	Value
Roughing MRR (cu. mm/s)	44.4891
Semi-finishing MRR (cu. mm/s)	16.6156
Finishing MRR (cu. mm/s)	1.3824
Wheel : Work Ratio	23.0721
Equivalent Diameter (mm)	18.8395
Overlap Ratio OD	9.9875
Overlap Ratio Face	0
Overlap Ratio Radius	0
Dress Lead OD (mm/rev)	0.0801
Dress Lead Face (mm/rev)	0
Dress Lead Radius (mm/rev)	0



Total Cycle Time

Item	Value
Grinding Time (sec)	9
Non Grinding Time (sec)	12
Total Grinding Time (sec)	21
Actual Grinding Time (sec)	51.1267

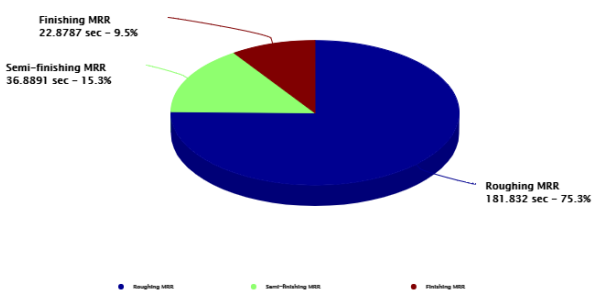


Quality Parameters

	Target		Achieved	
Item	**Lower**	**Upper**	**Lower**	**Upper**
OD_Tolerance (mm)				
Surface Finish-Ra(µm)				
Rz(µm)				
Concentricity(mm)				

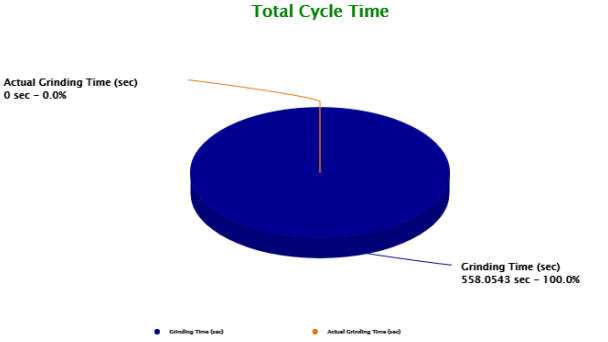
Calculated Parameters

Item	Value
Roughing MRR (cu. mm/s)	181.832
Semi-finishing MRR (cu. mm/s)	36.8891
Finishing MRR (cu. mm/s)	22.8787
Wheel : Work Ratio	0
Equivalent Diameter (mm)	35.3237
Overlap Ratio OD	17.192
Overlap Ratio Face	0
Overlap Ratio Radius	0
Dress Lead OD (mm/rev)	0.0349
Dress Lead Face (mm/rev)	0
Dress Lead Radius (mm/rev)	0

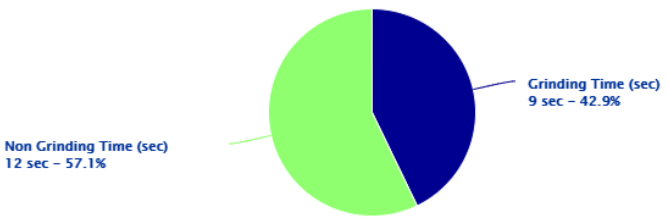


Total Cycle Time

Item	Value
Grinding Time (sec)	558.0543
Non Grinding Time (sec)	0
Total Grinding Time (sec)	558.0543
Actual Grinding Time (sec)	0



Grinding Time and Non Grinding Time Drilldown



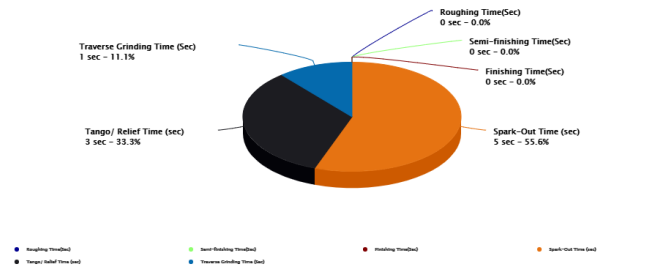
Grinding Time and Non Grinding Time Drilldown

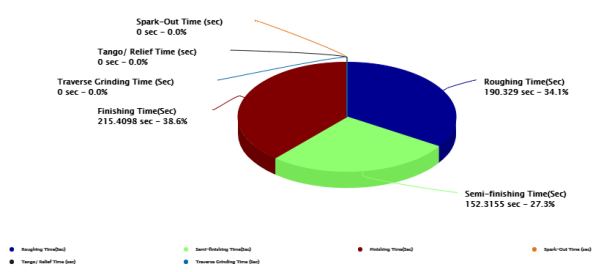
Calculated Time

Item	Value
Roughing Time(Sec)	0
Semi-finishing Time(Sec)	0
Finishing Time(Sec)	0
Spark-Out Time (sec)	5
Tango/ Relief Time (sec)	3
Traverse Grinding Time (Sec)	1

Calculated Time

Item	Value
Roughing Time(Sec)	0
Semi-finishing Time(Sec)	0
Finishing Time(Sec)	0
Spark-Out Time (sec)	5
Tango/ Relief Time (sec)	3
Traverse Grinding Time (Sec)	1



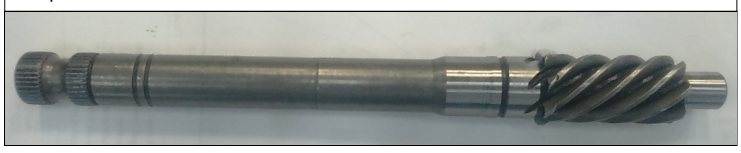


Remarks

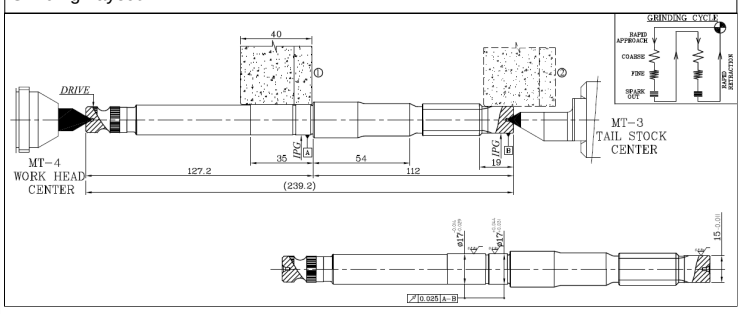
At 100 skip, the Ra was 0.48 mic therefore we reduced the work RPM from 1105 to 1050 (Rough) & 1086 to 1000 (Finish) after which there was improvement in Ra. So, we further increased the dress skip from 100 to 150 wherein all quality parameters like Ra, Profile & TR were ok however the curvature was getting narrower by upto 8 mic so we increased the dressing depth from 0.020mm to 0.030mm, which has controlled the curvature but when we further increased the skip from 150 to 200, again the curvature started getting narrower. So acc to the customer, they would run & monitor the wheel at 150 skip for now & if they will feel comfortable with the performance then they would increase the skip by themself. During the entire trial there was no abnormality observed in the GCM readings. All std room reports & GCM reports are attached for reference.

Process

Component

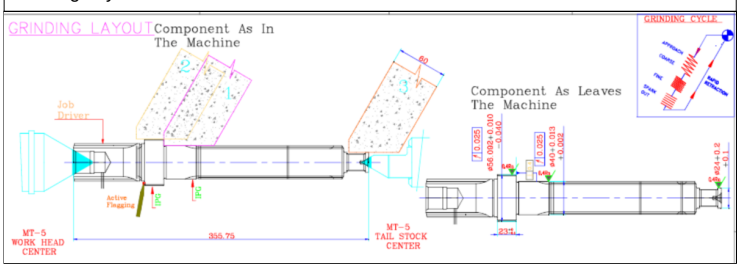


Grinding Layout

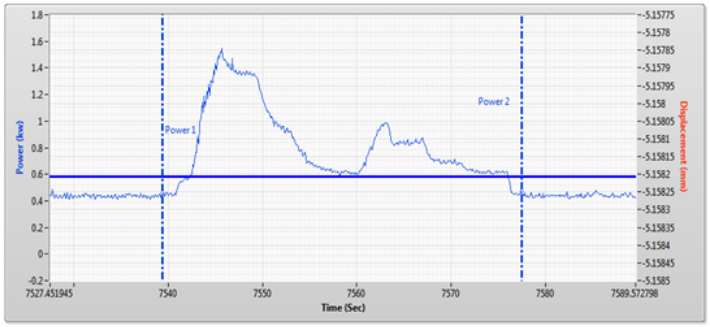


Process

Grinding Layout



Macgine Signature



Process Layout