

# **SFA Models** (Superior Fine Adjustment)



## 90° = 0.001mm Adjustment

WORLD LEADER IN STEADY REST TECHNOLOGY www.arobotech.com



## About us

Arobotech Systems is the world leader in providing steady rests for use on grinding machines. Grinding AUTO REST<sup>®</sup> is recognized as the industry standard.

Sales and service are provided from our World Headquarters in Madison Heights, Michigan with additional sales and/or service locations in Germany, Japan, China, India, and Korea.



## How it works

### Accuracy

Arobotech Systems offers the original sliding wedge design with unsurpassed clamping accuracy. Each Grinding AUTO REST<sup>®</sup> must repeat within .001mm during testing to pass our rigorous certification criteria.

### Self-Centering

The straight-line motion produced by the sliding wedge design gives Grinding AUTO REST<sup>®</sup> its unique self-centering capability. This feature automatically centers any size within each model's clamping range.

### Follow Down Operation

This feature allows the Grinding AUTO REST<sup>®</sup> to support the part at the point of grind. The dynamic self-centering ability compensates for the changing part size to keep the workpiece on center throughout the grind cycle.

## **Benefits of use**

### **Quality improvements**

- Improve roundness Our Follow Down feature supports the diameter being ground
- Better size control by keeping the workpiece stable throughout the grind cycle
- Improve concentricity Our Self-Centering feature automatically compensates for under- and over-sized parts

### **Other benefits**

- Reduce scrap by reliably holding the workpiece accurately in place every time
- Improve cycle time with more aggressive grinding
- Accurately support workpiece without using a tailstock
- Models available from 1 to 250mm diameters
- Quick change-over







## Content

O.D. Grinding	Page 3 - 8
Crankshaft Grinding	Page 9 – 13
Machine Prep	Page 14
Mounting	Page 15
Accessories	Page 16
Service	Page 17
Repair	Page 18

## **Tooling Configurations**

Grinding AUTO REST<sup>®</sup> model and configuration is chosen based on workpiece size and grinding technical requirement. Models that feature wear pads mounted directly to the arms often represent the best value. Nest design is required for larger sizes and special features (offset, extended, etc.)



## **Direct Mounted Wear Pads**

- Wear Pads ordered by set (3 per set)
- Set number specifies clamping range
- Offset and special pads available contact sales@arobotech.com

### **Nest Mounted Wear Pads**

- Nests ordered by set (3 per set)
- Set number specifies clamping range
- Alternate angle center nests available in the event of quality issues
- Offset and special nests available contact sales@arobotech.com
- Offset and special pads available contact sales@arobotech.com



## Product Overview - O.D. Models

Available features:

- Arm Retraction for Part Loading
- Fixed or Follow Down Operation
- 2-Axis SFA 0.001mm / 90° Centerline Adjustment
- Visible Zero Adjustment Screws
- Upper Arm Gage Clearance
- Position Feedback Sensors
- Lower Mounting Rail
- Side Mount Cylinder
- \*\*\* See Data Sheet for Specific Features of Each Model \*\*\*



## **OD Grinding Models – Direct Mounted Wear Pads**

Model		GR-4000			GR-4	020	GR-4100		
Replaces		GC29222Y		GR-3520V		GR-6030V			
Clamp Range	mm	2 – 30			15 – 40		15 – 60		
Pad Set 1		2 – 4			15 – 35		15 – 50		
Pad Set 2			4 - 12			20 - 40		25 - 60	
Pad Set 3				12 - 30					

## **OD Grinding Models – Nest Mounted Wear Pads**

Model			GR-4	1300		GR-4400				
Replaces			GR-1	15V		GR-320V				
Maximum Size	mm		60			90				
Nest Set 1		15 – 30				10 - 30				
Nest Set 2			30 – 45				30 – 50			
Nest Set 3				45 - 60				50 – 70		
Nest Set 4					n/a				70 - 90	

Contact sales@arobotech.com for free assistance

- \* Model Selection
- \* Process Review
- \* Special Models
- \* 3D Models
- \* Accessories

- \* Machine Integration

- \* Modifications
- \* Special Features
- \* Mounting Bases
- \* Spare Parts
- Contact Us For Full Technical Details And Customer Service sales@arobotech.com www.arobotech.com

# Grinding AUTO REST<sup>®</sup> GR-4000-000



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## Grinding AUTO REST<sup>®</sup> GR-4020-000



Wear Pad Set			1	2
Minimum Clamp Diameter	D1	mm	15	20
Maximum Clamp Diameter	D2	mm	35	40

X-Axis Adjustment per Screw Rotation	mm	0.004
X-Axis Adjustment Total	mm	±0.20
Y-Axis Adjustment per Screw Rotation	mm	0.004
Y-Axis Adjustment Total	mm	±0.20
Piston Area	cm2	6.4
Cylinder Stroke	mm	51
Operating Pressure	bar	15 – 30
Maximum Pressure	bar	45
Air Purge Pressure	bar	0.3 – 0.5
Lubrication Volume	cm3	0.03 - 0.04
Lubrication Frequency		Working Cycle (or every 6 minutes)
Repeatability	mm	±0.001
Mass	kg	8.5
Maximum Lifting Capacity	Kg	43



**Included Features** 

- \* Arm Retraction For Part Loading
- \* Fixed or Follow Down Operation
- \* 2-Axis Centerline Adjustment
- \* 90° = 0.001mm Adjustment
- \* Visible Zero Adjustment Screws
- \* Position Feedback Sensors

Items Required To Use This Product:

- \* Set of Wear Pads
- \* Mounting Base

# Grinding AUTO REST<sup>®</sup> GR-4100-000



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# Grinding AUTO REST<sup>®</sup> GR-4300-000



## Grinding AUTO REST<sup>®</sup> GR-4400-000





## **Product Overview - Crankshaft Models**

Available features:

- Arm Retraction for Part Loading
- Extended Reach for Counterweight Clearance
- Fixed or Follow Down Operation
- 2-Axis SFA 0.001mm / 90° Centerline Adjustment
- Visible Zero Adjustment Screws
- Upper Arm Gage Clearance
- Position Feedback Sensors
- Lower Mounting Rail
- Side Mount Cylinder
- \*\*\* See Data Sheet for Specific Features of Each Model \*\*\*



Model			GR-6000								GR-6100			
Replaces				G	R-1150V-SE	DG			GR-1350V-SG					
Clamp Range	mm				15 – 95				43 - 95					
Nest Set 1		15 – 25							43 – 56					
Nest Set 2			25 – 45							56 - 69				
Nest Set 3				35 - 55							69 - 82			
Nest Set 4					45 – 65							83 – 95		
Nest Set 5						55 – 75				•			_	
Nest Set 6							65 – 86							
Nest Set 7								75 - 95						
Model					GR-6200						GR-6300			
Replaces					GC29403A	1			-		GC30916A			
Clamp Range	mm				60 - 130						40 - 140			
Nest Set 1		60–70							40-62					
Nest Set 2			70-80							62-74				
Nest Set 3				80-90							74-96			
Nest Set 4					90-100							96-118		
Nest Set 5						100-110							118-140	
Nest Set 6							110-120							
Nest Set 7								120-130	1					
Nest Set 7 120-130   Contact sales@arobotech.com for free assistance														

\* Model Selection

\* Process Review

\* Special Models

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\* Accessories

\* Machine Integration

- \* Modifications
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- eatures \* Mounting Bases

\* 3D Models

\* Spare Parts

# Grinding AUTO REST<sup>®</sup> GR-6000-000



X-Axis Adjustment per Screw Rotation	mm	0.004
X-Axis Adjustment Total	mm	±0.20
Y-Axis Adjustment per Screw Rotation	mm	0.004
Y-Axis Adjustment Total	mm	±0.20
Piston Area	cm2	11.4
Cylinder Stroke	mm	125.2
Operating Pressure	bar	10 – 27
Maximum Pressure	bar	32
Air Purge Pressure	bar	0.3 – 0.5
Lubrication Volume	cm3	0.10 - 0.15
Lubrication Frequency		Working Cycle (or every 6 minutes)
Repeatability	mm	±0.001
Mass	kg	27
Max Lifting Capacity	Kg	83



\* Set of Nests

\* Set of Wear Pads

\* Mounting Base

Items Required to Use This Product:

Included Features

- \* Arm Retraction for Part Loading
- \* Extended Reach for Clearance
- \* Fixed or Follow Down Operation
- \* Upper Arm Gage Clearance
- \* 2-Axis Centerline Adjustment
- \* 90°= 0.001mm Adjustment
- \* Position Feedback Sensor
- \* Visible Zero Adjustment Screw
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# Grinding AUTO REST<sup>®</sup> GR-6100-527



# **GR-6200-000**

## Grinding AUTO REST®



X-Axis Adjustment per Screw Rotationmm0.004X-Axis Adjustment Totalmm±0.20Y-Axis Adjustment per Screw Rotationmm0.004Y-Axis Adjustment Totalmm0.004Y-Axis Adjustment Totalmm±0.20Y-Axis Adjustment Totalmm±0.20Y-Axis Adjustment Totalmm±0.20Piston Areacm220.3Cylinder Strokemm135Operating Pressurebar10 – 27Maximum Pressurebar32Air Purge Pressurebar0.3 – 0.5Lubrication Volumecm30.25 – 0.35Lubrication FrequencyWorking Cycle (or every 6 minutes)			
Y-Axis Adjustment per Screw Rotationmm0.004Y-Axis Adjustment Totalmm±0.20Piston Areacm220.3Cylinder Strokemm135Operating Pressurebar10 – 27Maximum Pressurebar32Air Purge Pressurebar0.3 – 0.5Lubrication Volumecm30.25 – 0.35Lubrication FrequencyVorking Cycle (or		mm	0.004
per Screw RotationImm0.004Y-Axis Adjustment Totalmm±0.20Piston Areacm220.3Cylinder Strokemm135Operating Pressurebar10 – 27Maximum Pressurebar32Air Purge Pressurebar0.3 – 0.5Lubrication Volumecm30.25 – 0.35Lubrication FrequencyWorking Cycle (or	X-Axis Adjustment Total	mm	±0.20
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Cylinder Strokemm135Operating Pressurebar10 – 27Maximum Pressurebar32Air Purge Pressurebar0.3 – 0.5Lubrication Volumecm30.25 – 0.35Lubrication FrequencyWorking Cycle (or	Y-Axis Adjustment Total	mm	±0.20
Operating Pressurebar10 - 27Maximum Pressurebar32Air Purge Pressurebar0.3 - 0.5Lubrication Volumecm30.25 - 0.35Lubrication FrequencyWorking Cycle (or	Piston Area	cm2	20.3
Maximum Pressurebar32Air Purge Pressurebar0.3 – 0.5Lubrication Volumecm30.25 – 0.35Lubrication FrequencyWorking Cycle (or	Cylinder Stroke	mm	135
Air Purge Pressurebar0.3 – 0.5Lubrication Volumecm30.25 – 0.35Lubrication FrequencyWorking Cycle (or	Operating Pressure	bar	10 – 27
Lubrication Volumecm30.25 – 0.35Lubrication FrequencyWorking Cycle (or	Maximum Pressure	bar	32
Lubrication Frequency Working Cycle (or	Air Purge Pressure	bar	0.3 – 0.5
	Lubrication Volume	cm3	0.25 – 0.35
· · · ·	Lubrication Frequency		Working Cycle (or every 6 minutes)
Repeatability mm ±0.001	Repeatability	mm	±0.001
Mass kg 50.4	Mass	kg	50.4
Max Lifting Capacity Kg 125	Max Lifting Capacity	Kg	125



Included Features

- \* Arm Retraction for Part Loading
- \* Extended Reach For Clearance
- \* Fixed or Follow Down Operation
- \* Upper Arm Gage Clearance
- \* 2-Axis Centerline Adjustment
- \* 90°= 0.001mm Adjustment
- \* Position Feedback Sensor
- \* Visible Zero Adjustment Screw

- Items Required To Use This Product:
- \* Set of Nests
- \* Set of Wear Pads
- \* Mounting Base

# Grinding AUTO REST<sup>®</sup> GR-6300-000



# **Machine Prep**



Warning! Grinding AUTO REST®s are hydraulically operated. Care must be taken at all times to avoid injury or damage to equipment



Under no circumstances will this document take precedent over the machine builder operating and safety guidelines

**Clamp Position** 

Sensor Holder

**Retract Position** 

Sensor Holder



## Hydraulic

Grinding AUTO REST<sup>®</sup> uses a single hydraulic cylinder to extend and clamp on the part. The same cylinder is then used to open and retract the arms. The basic hydraulic recommendation:

- Recommended Hydraulic Power Supply = 3GPM (11 LPM) @ 500 psi (34 bar) minimum. See operator's manual for specific model recommended operating pressure. Hydraulic pump must maintain pressure to the rest when clamped and unclamped
- 4 way 2 position solenoid valve with a pressure reducing valve for each Grinding AUTO REST®
- Flow control valve for each Grinding AUTO REST<sup>®</sup> 1 second recommended clamping time

## Electrical

### Machine control interface

Interface to machine control must be supplied by the machine builder. Arobotech Systems does not supply a machine control interface.

### **Position sensors**

Each Grinding AUTO REST<sup>®</sup> has integrated sensor mounting for barrel type proximity sensor. Sensors are used to alert the machine control of the steady rest position. Please note that it is the responsibility of the customer to supply proximity sensors. See operator's manual for specific model sensor size.

### Machine door

Prepare the machine so that the Grinding AUTO REST<sup>®</sup> can be operated in manual mode with the door open. Always follow valid safety regulations.

## Lubrication

Machine must be capable of delivering lubrication oil to each Grinding AUTO REST<sup>®</sup> every 6 minutes or each working cycle (whichever is more frequent). See operator's manual for specific model volume recommendations.

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# Mounting



## Grinding AUTO REST<sup>®</sup>

## **Accessories**

Arobotech offers a full complement of accessories for use with our Grinding AUTO **REST®** products

- Mounting Bracket
- Hydraulic Power Supply
- Lubricator
- Valve Package
- Pre-Position Vee Cradles
- Master Set Up Bar
- Alignment Gage
- Specialty Tooling











# Service

## **Our commitment**

Arobotech Systems is a full service company. Our relationship with the customer does not end at the point of sale and delivery. When you purchase an Arobotech product you gain not only a superior workholding device, but also many years of experience with workholding solutions.

Arobotech offers full support to all of our products for their entire service life.



## **Available Services**

### Installation

Arobotech has experienced personnel to assist with Grinding AUTO REST® and accessories

### Training

Our staff offers experienced on-site training for your engineering and production staff

## Troubleshooting

We bring many years of experience to troubleshooting your Grinding AUTO REST<sup>®</sup> and grinding process. Contact service@arobotech.com for support. On site troubleshooting is available.

## **Repair and Reconditioning**

## service@arobotech.com

# Repair

## **Repair and Reconditioning Service**

Arobotech offers complete repair and reconditioning service. Damaged or worn units can be returned for a free-of-charge performance / condition evaluation



**Repaired / Reconditioned Unit** 



## **Return for Evaluation**

All Returns Require an RMA Number

Contact us at to request an RMA number www.arobotech.com/service/ +001 248-588-9080 service@arobotech.com

Authorized products may be returned to Arobotech for a performance / condition evaluation at no charge with the following conditions:

- Include RMA number on outside of the shipping container and all shipping documents
- Label "Return for Evaluation"
- Include a description of the symptom or failure that prompted the return (as described on the RMA)
- Include contact information (as listed on the RMA)
- Packaging should be sufficient to prevent damage during transit
- Customer is responsible for all shipping charges

Ship subject unit(s) to: Arobotech Systems 1524 E. Avis Drive Madison Heights, MI 48071 USA Shipments from outside the United states also must have noted on all paperwork: "These goods were manufactured in the United States and are being returned for repair" Shipping terms must be DDP

Contact us with any questions: +001 248-588-9080 sales@arobotech.com

Notify us at sales@arobotech.com when shipment is made so we can track and prepare our evaluation team

## **Evaluation Report**

Our team will perform a full evaluation and issue a report (including cost to repair / recondition). Please allow 2 weeks for the evaluation report after receipt at our facility.

Once the evaluation report is complete, we require one of the following actions within the 90 day evaluation period:

- Purchase order to begin repairs
- Return unit as is with no repair
- Scrap at our facility (written direction required)





Arobotech Systems, Inc. World Headquarters 1524 E. Avis Drive Madison Heights, MI 48071 USA +001 (248) 588-9080 +001 (248) 588-9370 (fax)

+001 (248) 588-9370 (fax) Sales@arobotech.com Service@arobotech.com



GSN Schleiftechnik GmbH Im Moosfeld 5 73495 Stödtlen Germany +49 (0)7964 – 33111 790 info@arobotech.de



AMT Shanghai Technology and Service Center (AMT STC) No.8 Building, No.81 MeiYue Road China (Shanghai) Pilot F.T.Z. Shanghai, 200131, P.R. China +86 21 5868 2809 - 109 +86 21 5868 2803 (fax) Info@arobotech.cn





P R Sales Corporation Pvt. Ltd. Flat 3. Kedar Apartments Plot 48, Mayur Colony, Kothrud Pune, Maharashtra 411038 India

Tel. +91-20-25437591 Fax +91-20-25445255 info@prsales.in



294-1, Sangbuk-ro, Sangbuk-myeon, Ulju-gun, Ulsan 689-821 Korea +82 052 256 5758 +82 052 256 5760 (fax) Info@arobotech.co.kr

Seong Eun Tech.



Mitsubishi Corporation Technos Dai Nagoya Building, 3-28-12, Meieki Nakamuraku Nagoya City, Aichi Prefecture 450-6418 Japan +81-52-565-2641 +81-52-565-1989 (fax) e100\_arobotech@mmts.co.jp

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