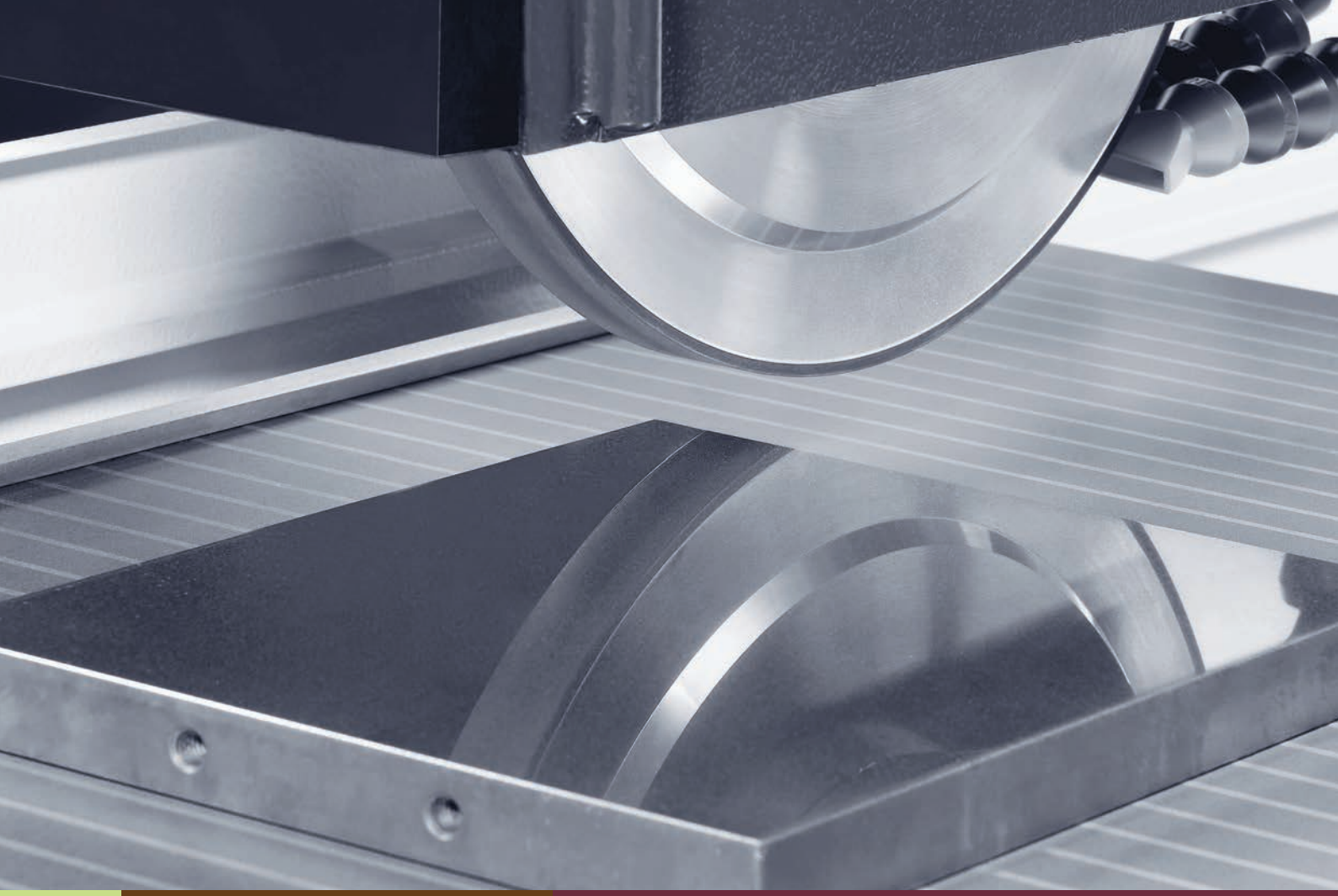


FSG-12/16 ADIV+ Series

Fully Automatic Precision Surface Grinder

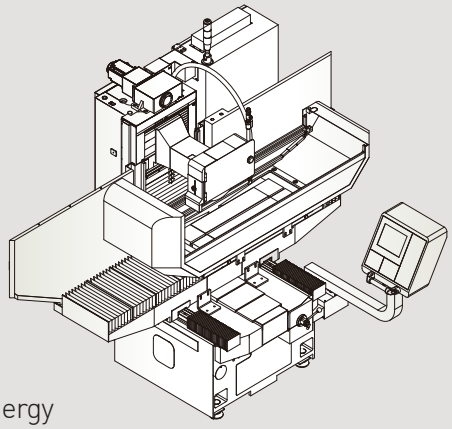
Energy-saving. Efficient. Intelligent



CHEVALIER®

We shape your ideas.™

Fully Automatic Precision Surface Grinders



The newly designed FSG-12/16ADIV+ surface grinder series focuses on the design of green machine tools, meeting the market trends of digitalization, efficiency, automation, and energy saving. We integrate and develop intelligent, carbon management, and energy-saving control management technologies. The FSG-1224ADIV+ was awarded the ISO 14955 standards for the environmental evaluation of machine tools and obtained the EU certification. Furthermore, Chevalier's exclusive intelligent Machine Communications System™ (iMCS) can be an option to include remote machine monitoring, data analysis, alarm history, and maintenance updates to enhance Overall Equipment Efficiency (OEE) and achieve smart manufacturing for customers.

This model features an extended, fully-supported rail design to ensure worktable stability under high loads and prolonged operation. The preloaded needle roller ball guideways have an ultra-low friction coefficient, combined with a linear guide elevating transmission mechanism and air purge spindle design, significantly enhancing overall precision and stability.

Chevalier's FSG-ADIV+ Series of surface grinders have several excellent design features to shorten your processing and non-processing preparation while delivering high-precision workpieces year after year—features you might not expect on such affordable machines: iSurface control, variable speed spindle, constant grinding wheel surface speed, smart grinding path and in-machine dynamic balancing.

Building on the high-quality design of fully automatic precision surface grinders, this new model introduces an upgraded control panel and user-friendly interface for effortless operation. The fully enclosed cover design seamlessly blends aesthetics and functionality, enhancing both beauty and safety to new heights, and delivering a more precise, efficient machining experience for customers.



The FSG-1224ADIV+ is shown with optional accessories.

Constant surface speed adjusts as the grinding wheel's diameter changes for increased accuracy



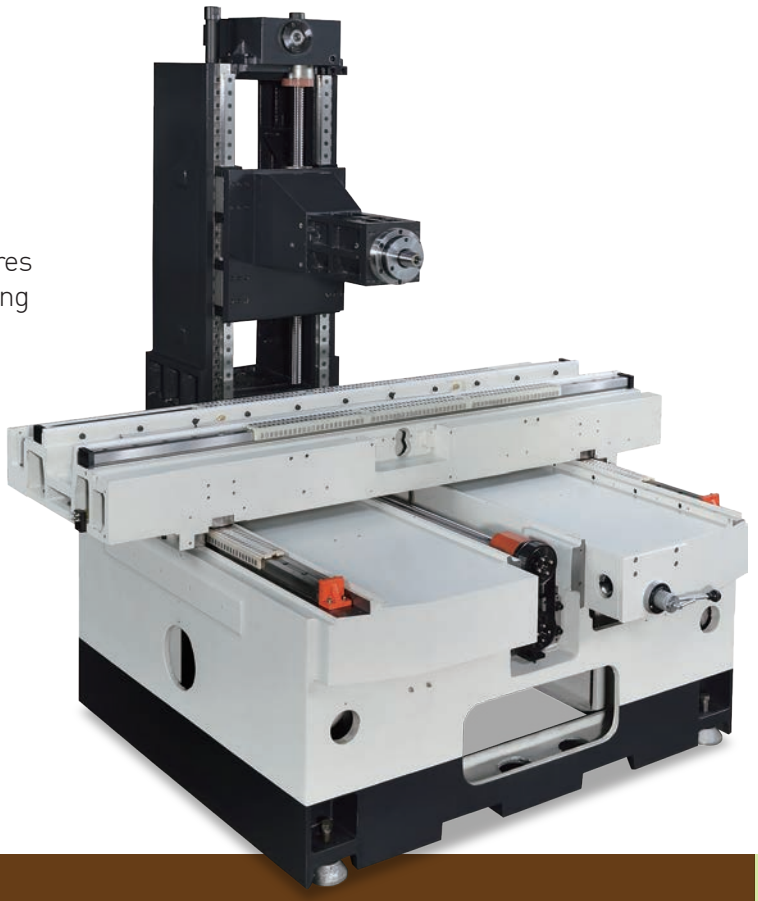
Key Features and Benefits

Machine construction

The machine column and spindle seat are equipped with linear guideways to enhance motion stability and accuracy.

Preloaded needle roller bearings ways ensures extremely low friction coefficient, guaranteeing stable operation of the worktable.

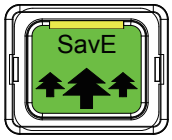
Full-support design, enhances machine rigidity, operational stability and durability.



Green manufacturing practices for a sustainable future

Smart energy-saving

When machine idle time exceeds the preset time, machine will shut down running motors to reduce carbon emissions.



Level-0 Turn off the screen
Level-1 Turn off the running motors

Energy consumption visualization (optional)

Equipped with features such as real-time monitoring, data analysis, and energy consumption management, it provides energy-saving and carbon reduction management solutions.



High efficiency energy-saving design (optional)

By adopting energy-saving technologies, energy consumption can be reduced by up to 30%, lowering operating costs for businesses.



iMachine Communications System™ (iMCS)

iMCS is a comprehensive remote monitoring system that integrates with IoT functions on Chevalier's CNC machines to perform 24/7 data collection, utilization monitoring, data analysis, alarm history, maintenance and overall equipment effectiveness (OEE), all which help to avoid downtime and increases productivity. Additional PC and software are required.

Machine Construction

Completely supported guideways with saddle slide design

To achieve ultimate precision, outstanding rigidity, and lasting durability while effectively reducing maintenance needs, the machine features a fully supported design for crossfeed and longitudinal travel guideways, resembling a robust spine that ensures stable operation of the worktable under heavy loads.



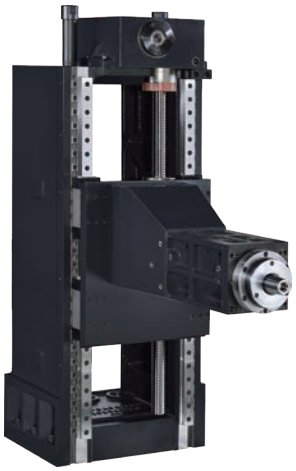
Spindle design

The spindle is supported by four Class 7 (P4), ultra-precision angular contact ball bearings and features an air-cooling circulation design to ensure operational stability and optimized heat dissipation.



Elevating transmission mechanism

To achieve high torque, high speed, and micro down feed accuracy, the elevating transmission mechanism is equipped with a C2-grade ballscrew along with a worm gear structure and driven by a servo motor. The machine column and spindle seat are equipped with linear guideways to enhance motion stability and accuracy.



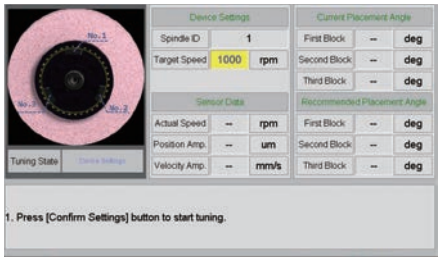
Full enclosure cover design (optional)

The full enclosure cover design is elegant and sophisticated, perfectly blending aesthetics with functionality. Its graceful appearance not only enhances the overall visual appeal of the machine but also provides comprehensive protection, creating a safe and pollution-free working environment for operators.

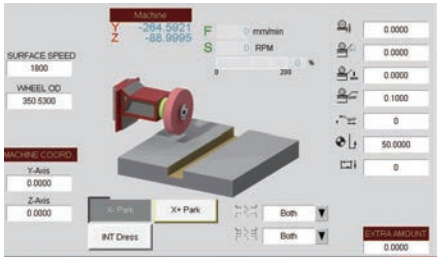


Perfect HMI control

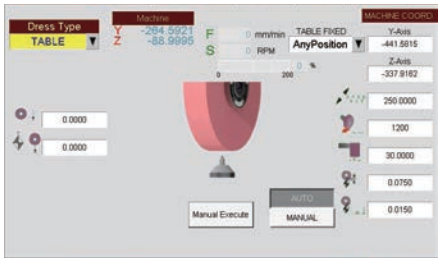
The control's standard equipment includes a 10.4" high definition touchscreen with HMI.



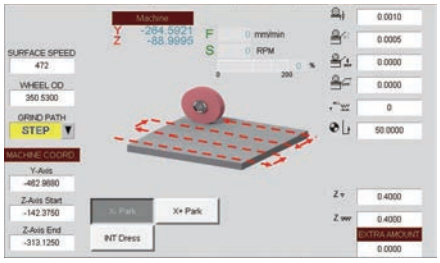
In-Machine Dynamic Balancing



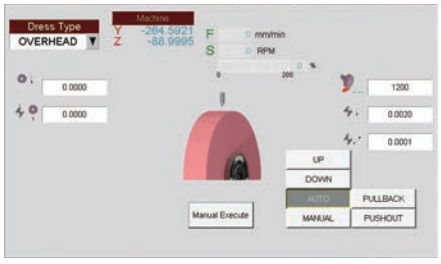
Plunge Grinding Mode



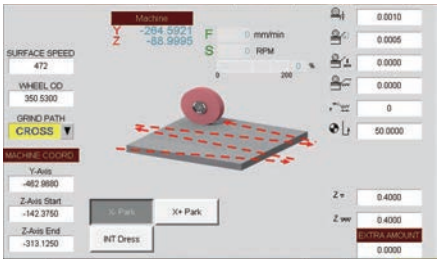
Automatic Table Dressing (optional)*



Surface Grinding Mode



Automatic Overhead Dresser with Compensation (optional)



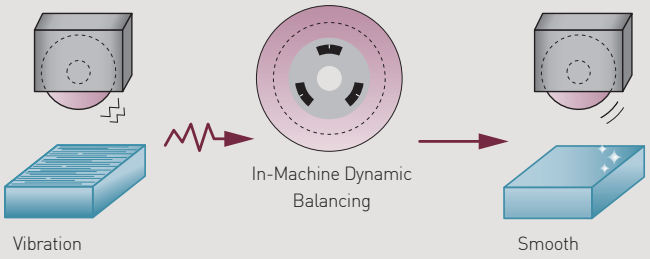
Crisscross Grinding Mode

*U.S.A. standard

Control Features and Benefits

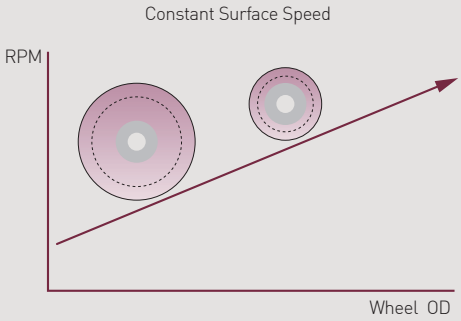
In-machine dynamic balancing

By manually adjusting the in-machine dynamic balancing function, operators can reduce grinding wheel vibration and eliminate the surface workpiece ripple to improve grinding quality.



Variable speed spindle

The built-in driver controls spindle speed. Combined with the automatic dressing function, the driver provides constant surface speed regardless of the grinding wheel's changing diameter.



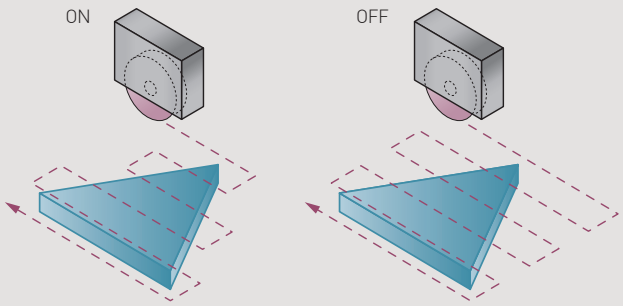
Enhanced control system

Unlike PLC control boards, the PC-based control's powerful computing power enhances the HMI for more precise control. Combined with data analysis from network connectivity, it permits managers to improve production presses for higher output.

A higher level of precision, flexibility and functionality with in-machine dynamic balancing

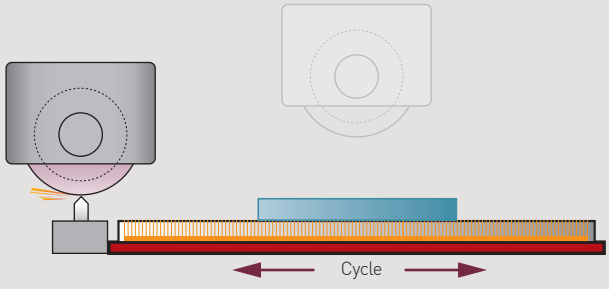
Smart grinding path

Leveraging Chevalier's extensive experience in technological innovation, we have greatly enhanced the FSG-ADIV Series' intelligent grinding path. This smart grinding path will automatically minimize air cutting strokes during grinding of such irregular shapes as I, L, Z or triangular. It will also automatically remove invalid cutting strokes and improve overall processing efficiency.



Automatic table dressing (optional)*

When the grinder enters an automatic dress cycle, the table automatically positions itself where the diamond is set to dress and compensate according to operator settings.



*U.S.A. standard

Wheel Dressing

Chevalier iSurface's exclusive conversational graphic function enables automatic grinding wheel dressing, and automatic compensation maximizes efficiency.

Auto dressing modes (optional)*

Conversational graphic, automatic wheel dressing modes can be linked with all grinding modes.



The FSG-1632ADIV+ is shown with optional accessories.

*U.S.A. standard

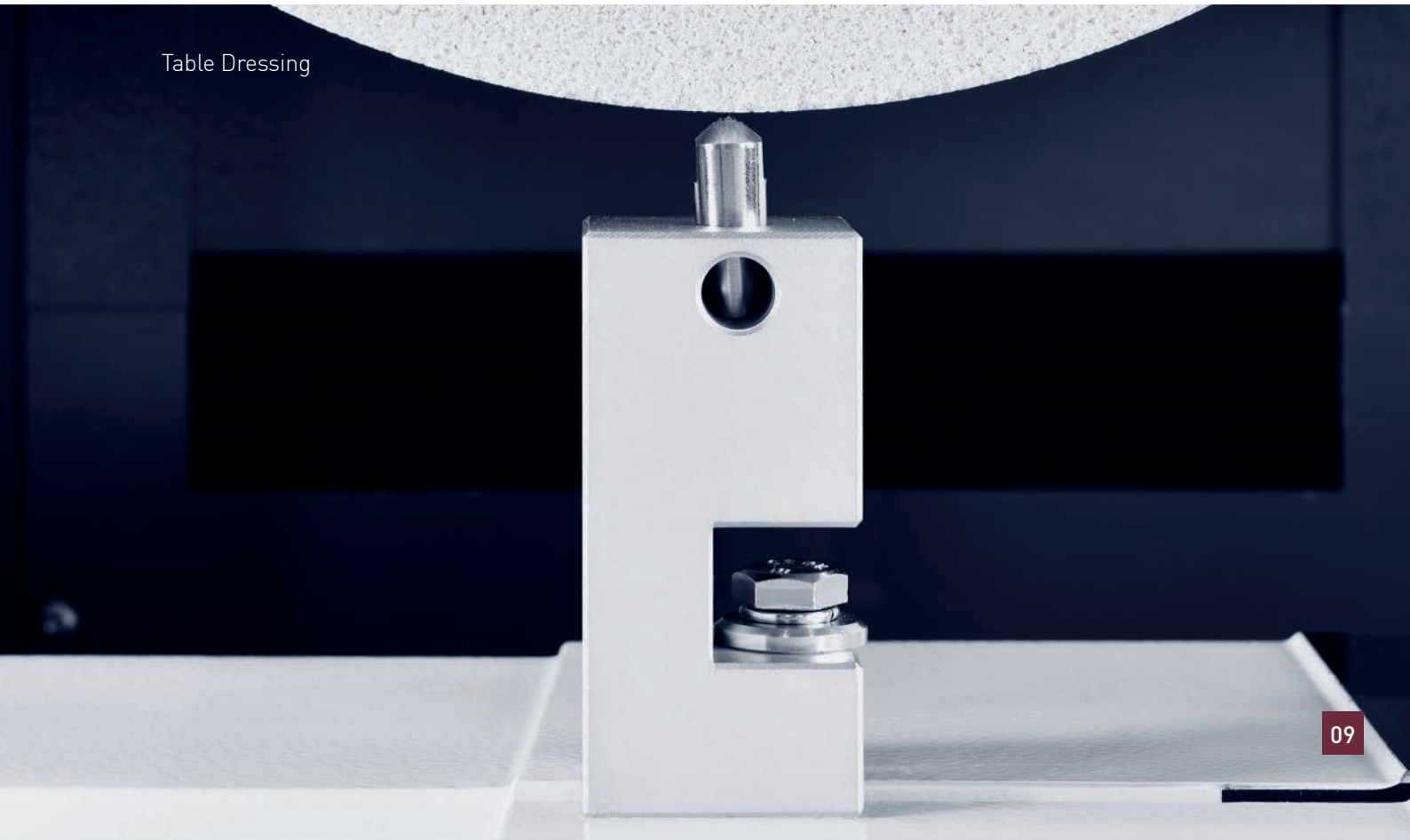


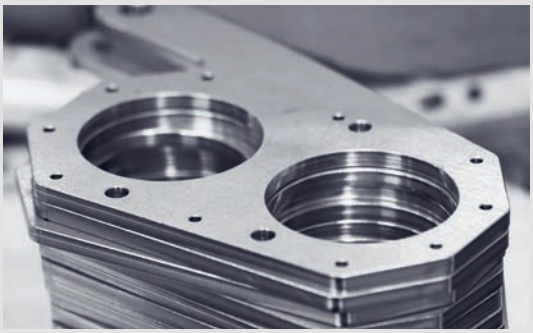
Table Dressing

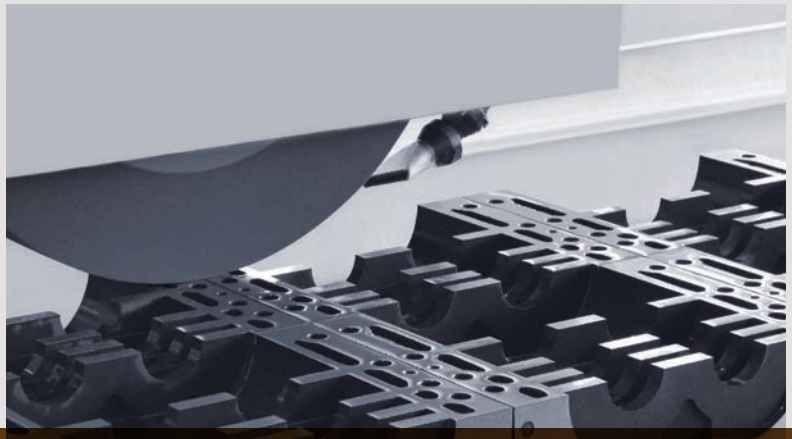


The wheel dressing mode ensures the grinding wheel remains true for consistent grinding accuracy

Applications



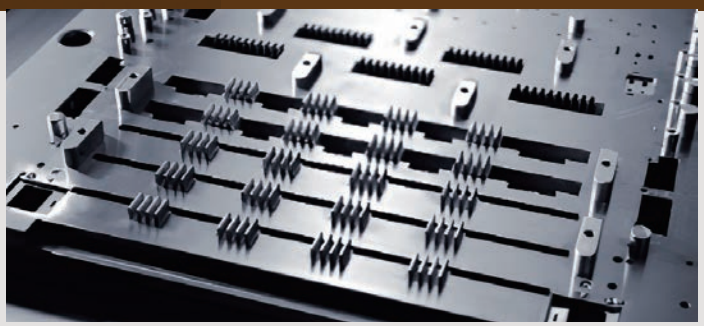


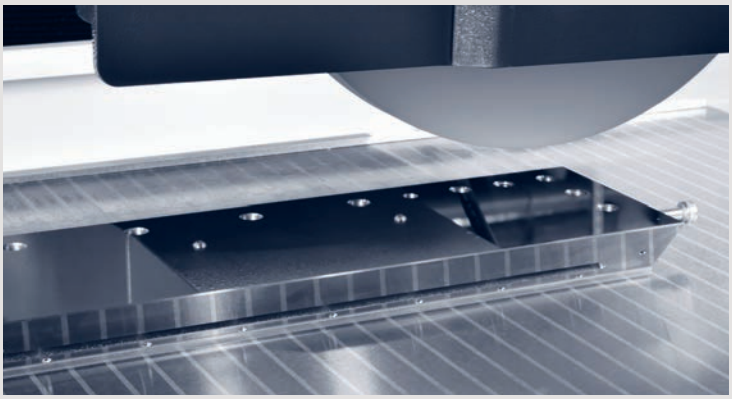


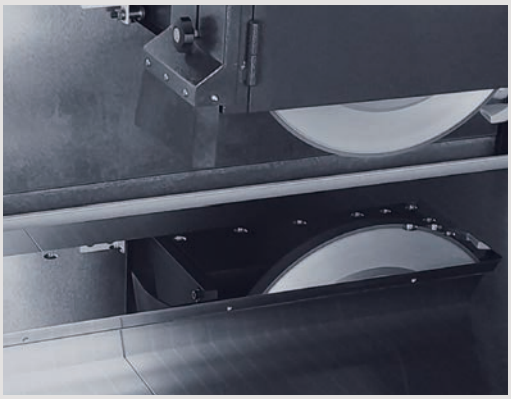


The optimal solutions for the medical, aerospace, and manufacturing industries

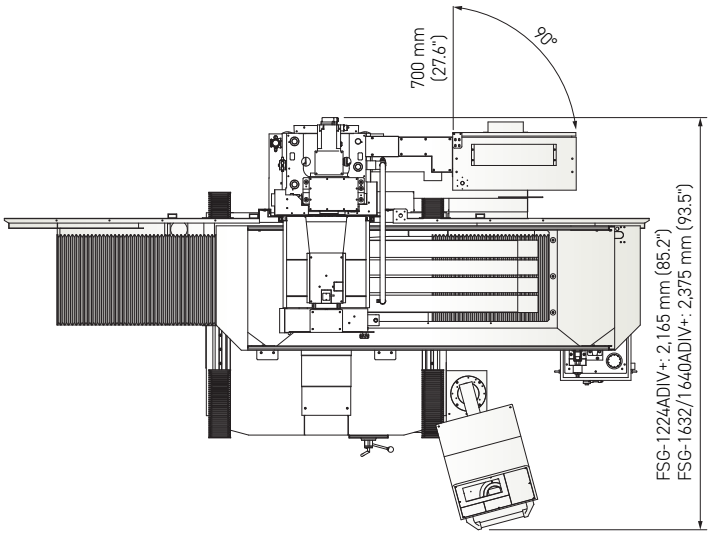


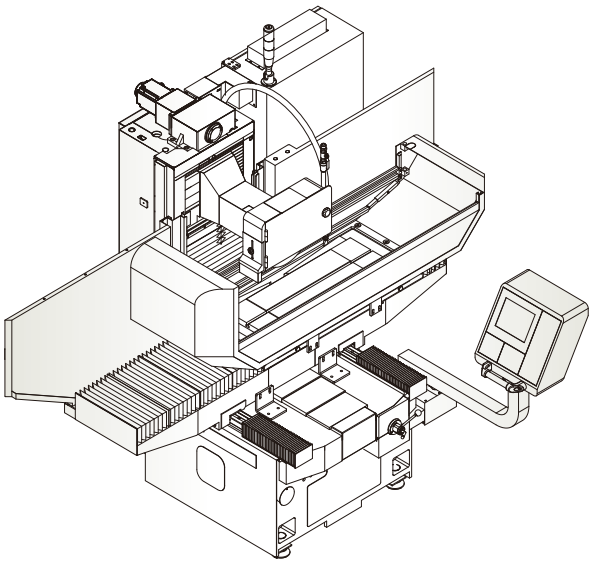




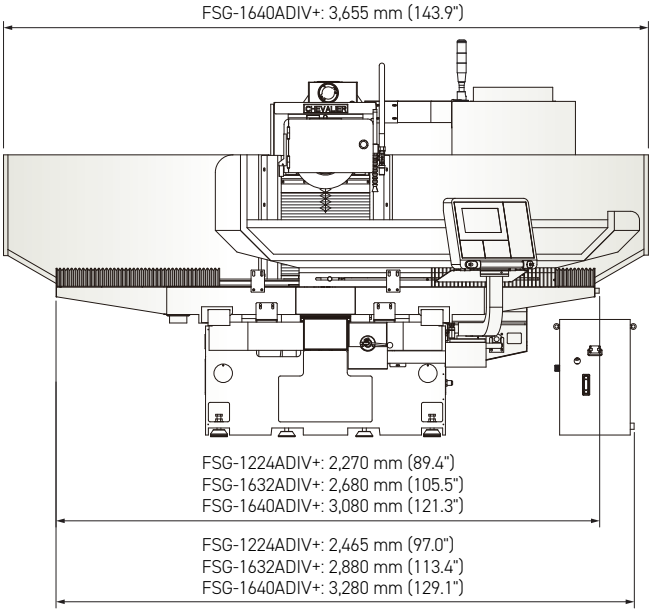


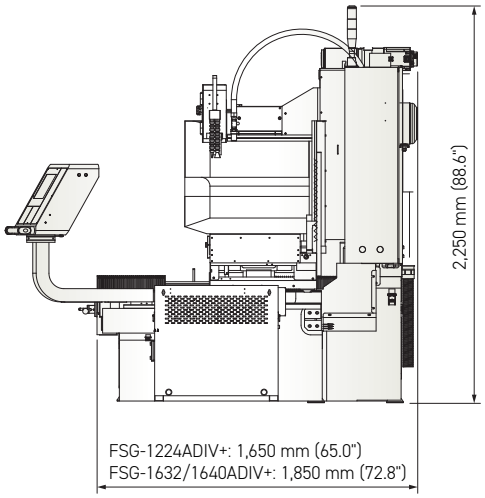
Machine Dimensions





Note: Machine shown with optional accessories

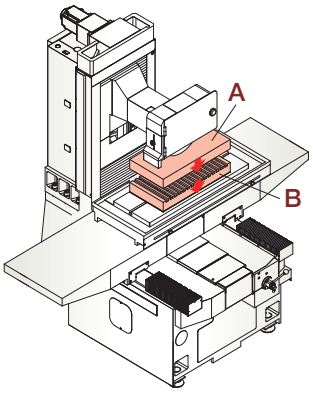


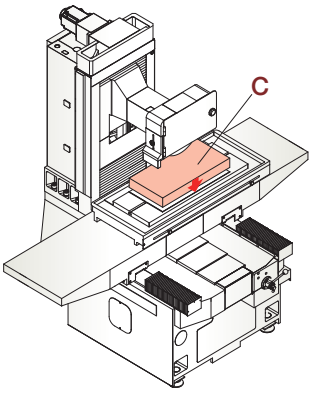


Loading Capacity

Item	FSG-1224ADIV+	FSG-1632ADIV+	FSG-1640ADIV+
A	145 kg (320 lbs.)	175 kg (386 lbs.)	220 kg (485 lbs.)
B	85 kg (187 lbs.)	175 kg (386 lbs.)	220 kg (485 lbs.)
C	230 kg (507 lbs.)	350 kg (772 lbs.)	440 kg (970 lbs.)

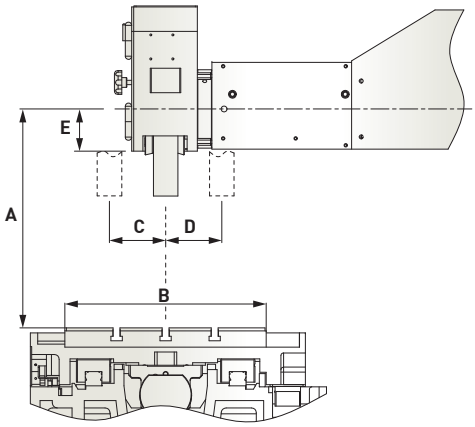
Suggested maximum table loads
A = Workpiece, B = Chuck, C = A+B





Max. Working Space

Units: mm (")

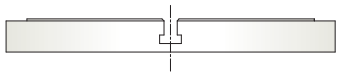


Item	A	B	C	D	E
FSG-1224ADIV+	600 (23.6)	300 (11.8)	167 (6.6)	182.5 (7.2)	86 (3.4)
FSG-1632ADIV+	600 (23.6)	400 (15.7)	222 (8.7)	227.5 (9.0)	86 (3.4)
FSG-1640ADIV+	600 (23.6)	400 (15.7)	222 (8.7)	227.5 (9.0)	86 (3.4)

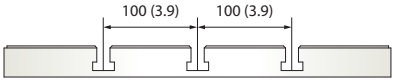
Table and T-Slot Dimensions

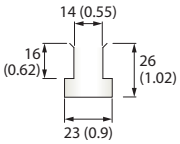
Units: mm (")

FSG-1224ADIV



FSG-1632ADIV
FSG-1640ADIV





FSG-1224ADIV+	T-slot x 1
FSG-1632ADIV+	T-slot x 3
FSG-1640ADIV+	T-slot x 3

The machine's rigidity ensures superior surface grinding performance





A full line of standard and optional accessories adds flexibility to FSG-ADIV Series grinders

Accessories

Standard accessories

- Wheel flange (clamping width): 22~38 mm (0.9"~1.5")
- Grinding wheel (OD x Width x Bore): Ø355 x 50 x Ø127 mm (Ø14" x 2" x Ø5")
- Splash guard
- Hydraulic tank
- Leveling screws, nuts and pads: 6 sets
- Toolbox (includes balancing arbor, hex head wrench, open-end wrench)
- Wheel mounting/dismounting tools
- Diamond dresser stand with diamond rod
- Stylus

Optional accessories

- Chuck control
- Electromagnetic chuck
- Coolant system with auto paper feeding device
- Coolant system with auto paper feeding device and magnetic separator
- Cooling system for spindle
- Y-, Z-axis linear scale
- Dressing attachment- Over-the-wheel (manual type)
- Dressing attachment- Over-the-wheel (hydraulic type)
- Dressing attachment- Over-the-wheel (automatic dressing and compensation)
- Dressing attachment- table mounted (automatic dressing and compensation)*
- Double-sided water baffle
- Grinding wheel balancing stand-roller type
- Heat exchanger for electric cabinet
- Work lamp
- Spindle motor-7.5 HP
- Fully enclosed splash guard

*U.S.A. standard

Specifications

Item	Description	FSG-1224ADIV+	FSG-1632ADIV+	FSG-1640ADIV+
Control system			iSurface	
Capacity	Max. grinding length-longitudinal	610 mm (24.0")	810 mm (31.9")	1,015 mm (40.0")
	Max. grinding width-crosswise	305 mm (12.0")	405 mm (15.9")	
	Distance between table to spindle centerline		610 mm (24.0")	
	Height from table to ground	970 mm (38.2")	980 mm (38.6")	
	Max. table load	230 kg (507 lbs.)	350 kg (772 lbs.)	440 kg (970 lbs.)
Table	Table size	300 x 600 mm (11.8" x 23.6")	400 x 800 mm (15.7" x 31.5")	400 x 1,000 mm (15.7" x 39.4")
	T-slots (width x pitch x no.)	14 mm x 150 mm x 1 (0.6" x 5.9" x 1)	14 mm x 100 mm x 3 (0.6" x 3.9" x 3)	
	Table speed (variable)		5~25 m/min (16~82 fpm)	
	Max. table travel	650 mm (25.6")	850 mm (33.5")	1,050 mm (41.3")
Transverse movement (Z)	Max. travel	350 mm (13.8")	450 mm (17.7")	
	Feed speed		0~2,250 mm/min (0~7.38 fpm)	
	Automatic transverse movement (step)		0.001~32 mm (0.00001"~1.3")	
	Min. input		0.0001 mm (0.00001")	
Wheelhead movement (Y)	Max. travel		480 mm (18.9")	
	Feed speed		0~675 mm/min (0~2.2 fpm)	
	Automatic elevating movement (step)		0.001~0.04 mm (0.00001"~0.0016")	
	Min. input		0.0001 mm (0.00001")	
Spindle	Spindle speed		500~2,200 rpm	
	Spindle motor		3.75 kW (5 HP), opt. 5.5 kW (7.5 HP)	
Motors	Axis motors (Y/Z)		Y/Z: AC servo 1.1 kW	
	Hydraulic motor	0.74 kW (1 HP) / 6P	1.5 kW (2 HP) / 6P	
Wheel dimension	OD x Width x Bore		Ø355 x 50 x Ø127 mm (Ø14" x 2" x Ø5")	
Power and air requirement	Power required	9 kVA (11.5 kVA optional)	10 kVA (12.5 kVA optional)	
	Total air consumption – Pressure		6 kg/cm² (86 psi)	
	Total air consumption – Flow		200 NL/min (7 cfm)	
Machine dimensions	Floor space (W x D x H)	3,110 x 2,865 x 2,250 mm (122.4" x 112.8" x 88.6")	3,250 x 3,075 x2,250 mm (128.0" x 121.1" x 88.6")	3,655 x 3,075 x 2,250 mm (143.9" x 121.1" x 88.6")
	Net weight	2,200 kg (4,850 lbs.)	2,900 kg (6,390 lbs.)	3,500 kg (7,710 lbs.)
Accuracy	Accuracy standard		ISO 1986-1	

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Hesse + Co Maschinenfabrik GmbH
IZ NÖ Süd, Straße 4, Objekt 8
A-2351 Wiener Neudorf
+43 2236 63870
office@hesse-maschinen.com

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