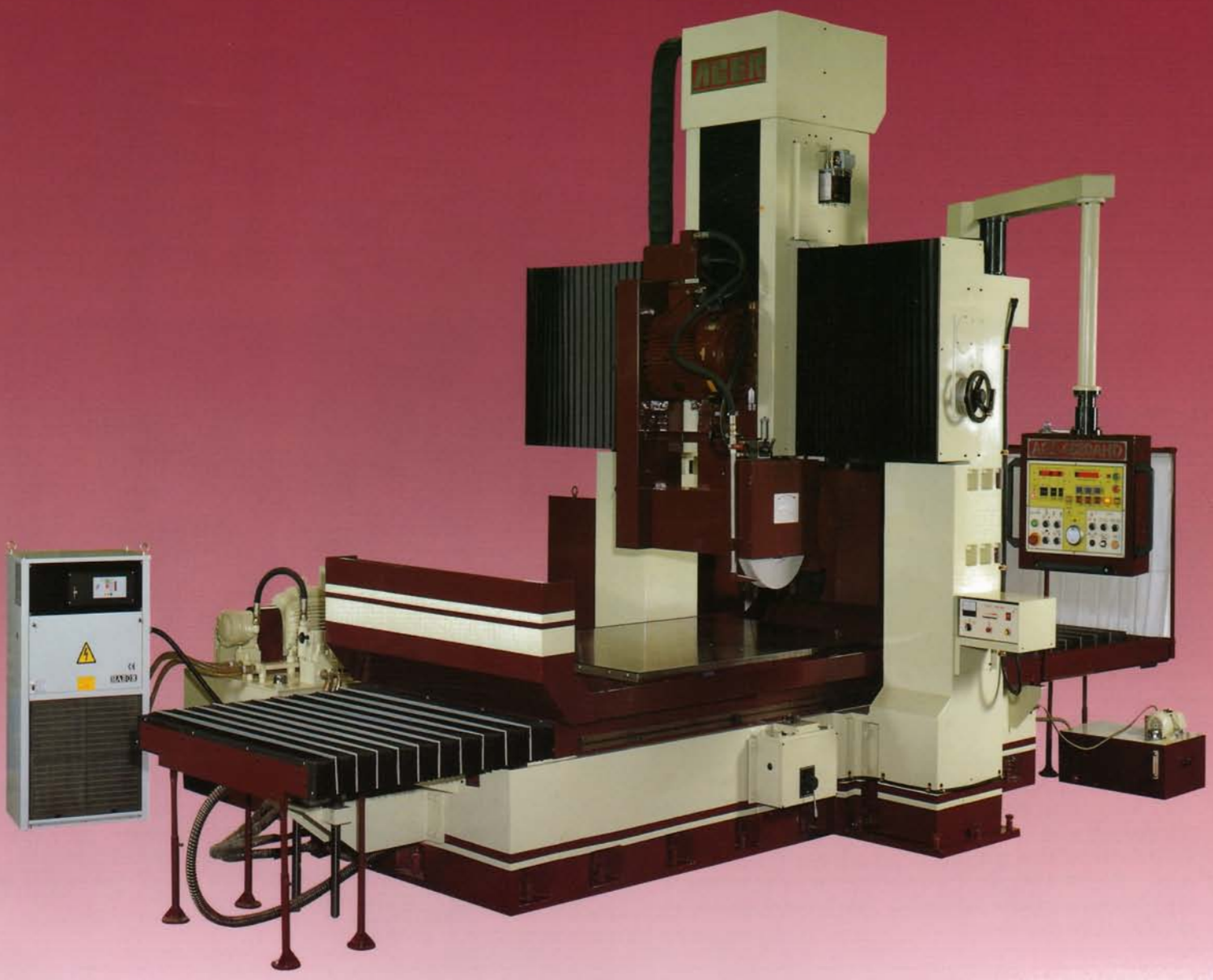
ACER

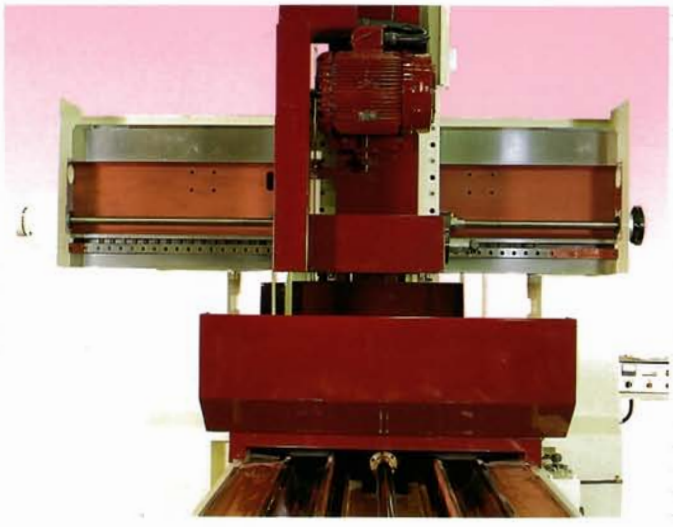
Technology • Creativity • Reliability
An Unswerving Commitment to Excellence

High Precision Double-Column Surface Grinder

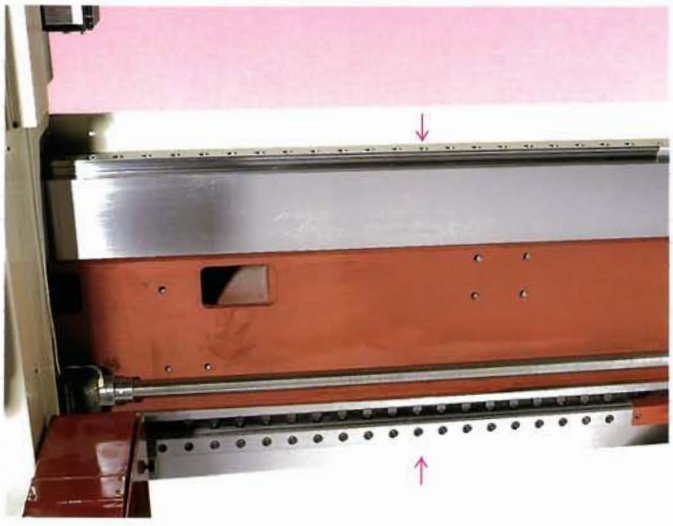
Model: 4860AHD ~48240AHD



ACER Features & Constructions



This double-column type surface grinder has two columns, a lateral beam and a machine base. They are connected together by screws, and their outside appearance looks like a square shape. This design has a fixed height lateral beam. This means the only moving Z axis is the spindle housing assembly. Since lateral head movement and deflection of the lateral beam is eliminated, accurate grinding can be achieved.

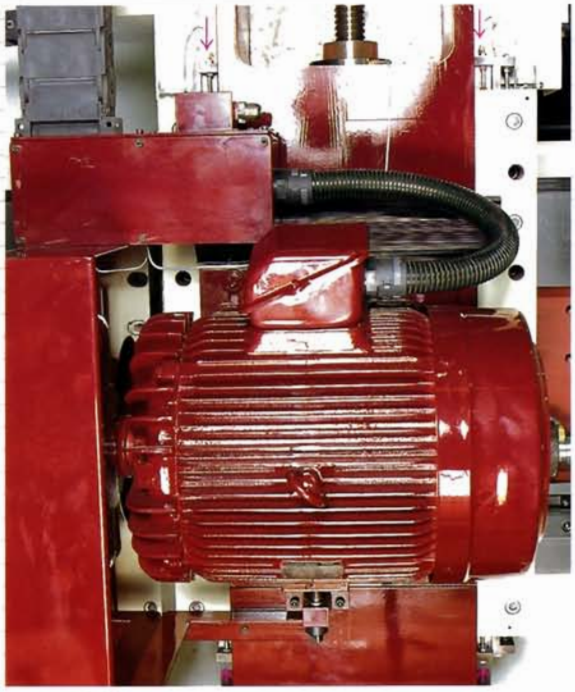


This lateral beam has a high intensive structure, well ground by a precision grinder, which joins with precision linear V bearing slide ways for heavy duty pressure support. Crossfeed movement is driven by a ball screw using an AC motor as the power source. The resulting motion is very smooth and steady given this design of the axis. The traversing distance of the crossfeed is controlled by a PLC processor on the control panel. The traversing distance is using knobs on the control panel. No mechanical setting is involved.

The machine has a double-vee slide ways, which are precisely ground and scraped to the desired specification. With this design, movement of the table will hold its place whenever it is in motion. This is especially true when using the grinder for side grinding as the grinder will be rock solid. The total length of the vee ways is twice as ong as the maximum grinding distance. This prevent any radial movement on the table.

The table is driven by a hydraulic system. The cylinder of the system is fixed on the table and the piston is fixed on the machine body. With this reversing technology, the table runs smooth and steady. On the ends of the piston are two sets of cushion springs and rubber couplings to reduce transversing pressure. This design eliminates any shocking motion on the table ends.

The z axis main control is a Sanyo servo motor. This motor, coupled with a gear reducing box, can drive the spindle up and down within 2/100,00 of an inch. This axis is the only axis controlled by the NC system, and it is support by a high precision ball screw. All movement of the axis can be precisely set and calculated.
An individual lubrication pump lubricates the ball screw and the supporting Z axis slide ways.



Another feature on the Z axis is its six position adjusting gibs which hold in place the spindle housing. All slide ways are coated with Turcite B. Movement of the axis is very precise and accurate since the gibs slide against the Turcite ways and are auto lubricated. To adjust the squareness of the spindle, simply adjust the taper gibs to get the desired result.

The spindle assembly is the heart of this grinder. It uses three-pair of preloaded, super precision, angular contact ball bearings that are completely sealed with high quality grease. Even under heavy duty grinding, the spindle will remain quiet, and maintain high accuracy and low temperature. The spindle run-out is under 0.00012".

A common problem on grinders is that the oil of the hydraulic system can heat up, and change the dynamic structure and hence the grinding accuracy of the machine. This double column machine is equipped with an oil regulating device that is able to keep the oil temperature within a specified range. Consequently the grinder's accuracy is maintained.

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Precision Automatic Sur

Str
axi
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Fo
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AC crossfeed
motor control

Large spindle housing
with wheel guard able
to hold 3" thick wheel

Horizontal way
cover to seal off
grids and coolar
from damaging
the slide ways

CE standard electric
cabinet with cooling
fan design

Metal type
splash guard

Oil temperature
regulating device

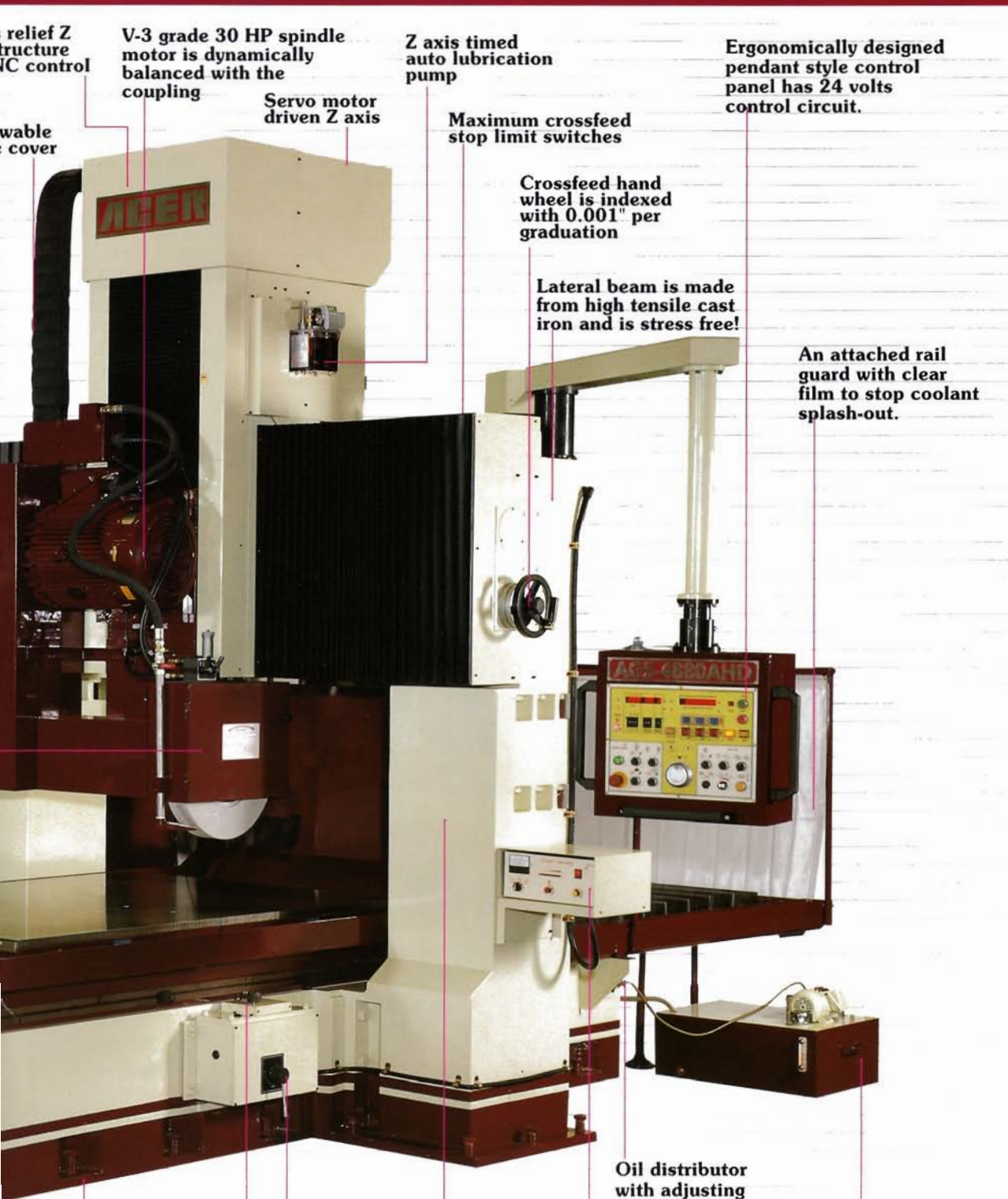
Hydraulic tank

Working tabl
eletro-magne

Accordion type
way cover

Piston supporting
base and rods

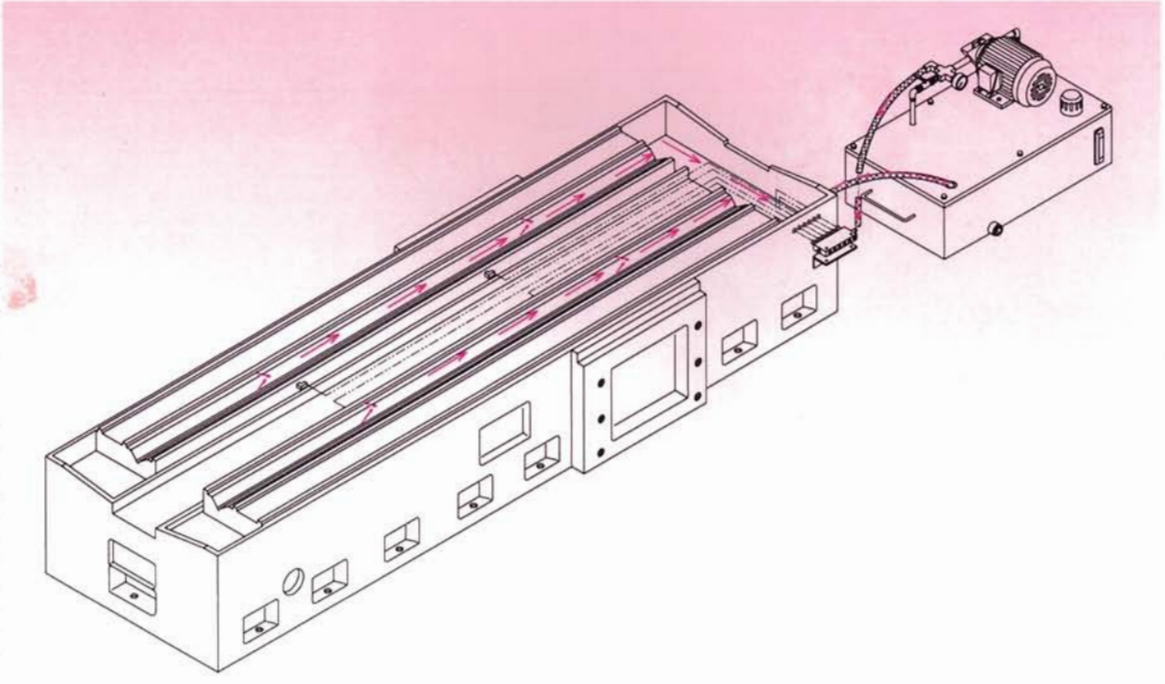
ace Grinder


relief Z
tructure
NC control
wable
cover
V-3 grade 30 HP spindle motor is dynamically balanced with the coupling
Servo motor driven Z axis
Z axis timed auto lubrication pump
Maximum crossfeed stop limit switches
Crossfeed hand wheel is indexed with 0.001" per graduation
Lateral beam is made from high tensile cast iron and is stress free!
Ergonomically designed pendant style control panel has 24 volts control circuit.
An attached rail guard with clear film to stop coolant splash-out.
ith
chuck
Massive machine base weighs over 13,200 lbs (80" model)
Directional control valve to change table direction
Flow control lever to change table speed
Heavy ribbed column is the joint between the machine base and lateral beam
Variable chuck control master (optional)
Oil distributor with adjusting valves design.
Re-circulating auto-lubricating system

ACER Features & Constructions

This electrical cabinet is separated into two sections. On the right is the high voltage power control on the right, and on the left is the low voltage control. This separation permits easy trouble shooting of electrical troubles. The cooling fan on the left-hand side of the cabinet reduces the inside temperature to keep the control running smoothly.

The control voltage on this panel is 24 volts. The location of the switches is designed for the best view and most convenient operation of the user. Micro-computer and machinery power switches are separately lined up. Two different colors to identify switches and each switch is engraved with a simple graph to showing its function. This allows the operator to learn the machine easily. The heart of the control is the PLC controller. This controller separates the machinery circuit and microprocessor circuit to prevent the microprocessor control circuit being interrupted by machinery power noise. The functions of the machine are layed-out section by section to make operation easy to understand and learn.

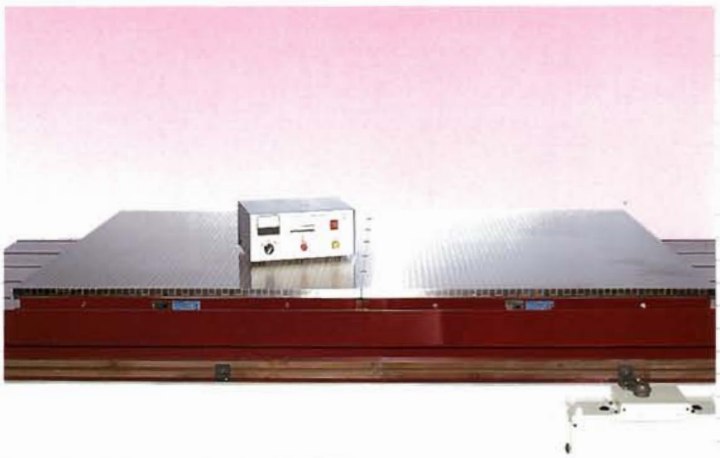


The lubrication tank has an automatic circulatory system design. An adjustable flow rate valve permits suitable lubrication to reach the desired position. Lubrication of the table and base is by forced oil through grooves from the top to the bottom of the slide way. This allows the ways to maintain a film of oil to reduce friction, and help the table to glide smoothly and firmly.

ACER Standards & Optional Accessories

Standards

Manufactured to exact tolerances:	JIS	ACER STD
Parallelism of longitudinal movement	0.0004/18"	0.0004/40"
Parallelism of cross movement	0.0004/6"	0.0003/20"
Parallelism between spindle centerline to table surface	0.0008/12"	0.0004/20"
Squareness between spindle centerline to table movement	0.0008/12"	0.0004/12"
Squareness of longitudinal movement to cross movement	0.0008/12"	0.0004/12"
Squareness between vertical, cross & longitudinal movement	0.0004/4"	0.0004/12"
Run-out of spindle nose	0.0002"	0.00012"



Electro-magnetic chuck with variable chuck controller (must be installed at the factory)

Wheel flange

Hydraulic parallel dresser system (must be installed at factory)

Magnetic separator with coolant paper filter system

SPECIFICATIONS:

ITEM \ MODEL		AGS-4860 AHD	AGS-4880 AHD	AGS-48100 AHD	AGS-48120 AHD	AGS-48160 AHD	AGS-48200 AHD	AGS-48240 AHD
Working surface of table (W x L)		47.3"x59.3"	47.3"x79"	47.3"x98.3"	47.3"x118.3"	47.3"x157.4"	47.3"x196.8"	47.3"x236.2"
Max. Grinding (W x L)		51.2"x63"	51.2"x82.7"	51.2"x102.4"	51.2"x122"	51.2"x161.4"	51.2"x200.7"	51.2"x240.1"
Max. table travel		66.9"	86.6"	106.3"	126"	165.4"	204.7"	244.1"
Max. crossfeed travel		55.1"						
Distance between table surface and spindle center		37.4"						
Variable table speed by oil cylinder		16~80fpm						
Automatic crossfeed carriage movement		0~1"						
Downfeed handwheel	Per (min) graduation	0.0002"						
Crossfeed handwheel dial	Per graduation	0.001"						
	Per revolution	0.2"						
Auto downfeed micro adjustment dial	Per graduation	0.0001"						
Longitudinal travel from-to		6"~70.9"	6"~90.6"	6"~110.2"	6"~129.9"	6"~169.3"	6"~208.6"	6"~248"
Crossfeed travel from-to		0~55.1"						
Spindle motor		20HP x 4P (30HP x 4P OPTION)						
Hydraulic pump motor		10HP x 6P			15HP x 6P			25HP x 6P
Auto crossfeed motor		1/4HP x 6P or 1/2HP x 4P						
Auto downfeed motor		800W DC SERVO MOTOR						
Grinding wheel (O.D. x T x I.D.)		20" x 3" x 8"						
Rotation speed of spindle (Horizontal)		1250RPM / 60HZ						
Flow rate of coolant pump		80 l/min		120 l/min				
Max. load capacity in addition to magnetic chuck (lbs)		8,250	9,900	1,1550	13,200	15,400	18,700	22,000
Machine weight (lbs)	Net	26,400	30,800	35,200	39,600	44,000	48,400	52,800
	Gross (Appr.)	29,920	35,200	38,720	46,200	50,600	56,320	61,600
Packing dimension (L x W x H) (Approx.)		256"x137"x138"	276"x137"x138"	350"x137"x138"	378"x137"x138"	480"x137"x138"	582"x137"x138"	684"x137"x138"

NOTE: 1. The manufacturer reserves the right to modify the design, specifications, mechanism, etc., to improve the performances of the machine without notice. All the specifications shown above are just for reference.

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