

Okamoto

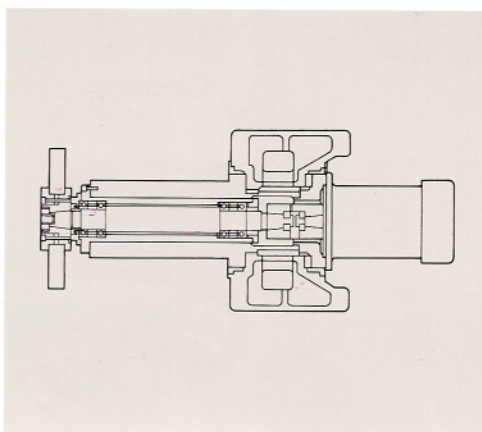
ACC Series Saddle Type Surface Grinders



Saddle

For almost seventy-five years, machinists worldwide - in virtually every industry have relied on Okamoto surface grinders to get the job done. And with good reason. Okamoto is the recognized leader in grinding technology. From concept to design. Manufacturing. Distribution. Support and service. Okamoto is dedicated to one thing - Total customer satisfaction. This brochure outlines Okamoto's diverse line of high-precision Saddle Type Surface Grinders. Check the features. Note the variety in capacity and control options. You'll see that Okamoto is the true value in grinding machines.

ROCK-SOLID CONSTRUCTION is the key to precise grinding, reliability and long-term machine life. The heavily ribbed, high grade Meehanite cast iron on Okamoto's grinders provides the rigidity and stability that assures you unrivaled performance. Column construction is also extra rigid with tapered gibs on the vertical guideways, providing strength for rigorous-duty grinding and the high-precision necessary for those extra fine grinding applications.

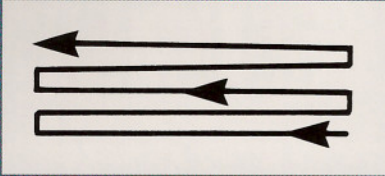


CARTRIDGE TYPE SPINDLES
Grinding wheel spindles are direct drive and incorporate super-precision, pre-loaded ball bearings that are lubed for life. This design provides for maximum spindle stiffness to handle light to heavy duty grinding applications. This simple, yet effective design is maintenance free and simplifies service.



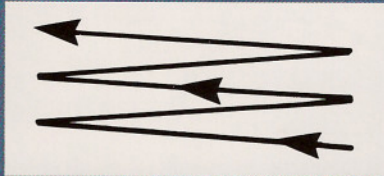
GUIDEWAYS
Okamoto saddle series surface grinders employ Double-Vee construction. This ensures true tracking and maximizes the effective life of the grinder's built-in accuracy.

SURFACE (Step)



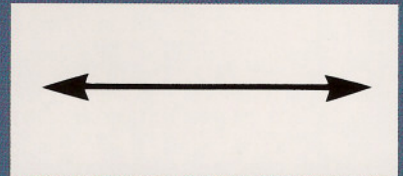
Uses the automatic stepping feature of the grinder on crossfeed and the standard automatic table reversal.

SURFACE (Criss-Cross)



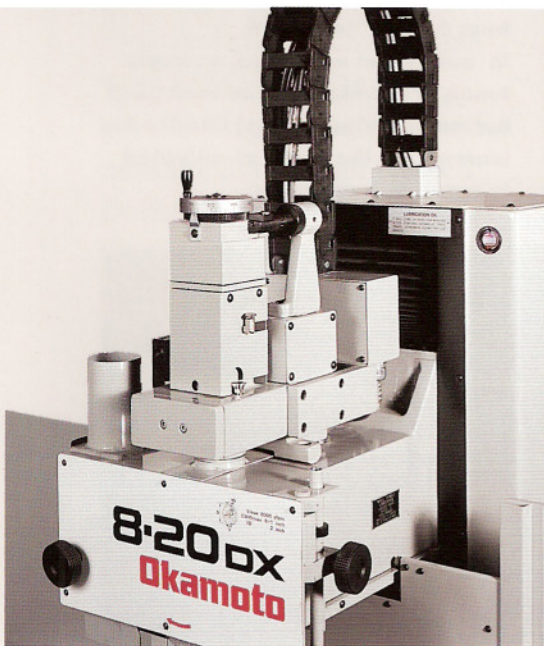
Uses continuous crossfeed in combination with standard automatic reversal. Ideal for grinding thin parts subject to heat build-up. Also provides optimum surface finishes

PLUNGE



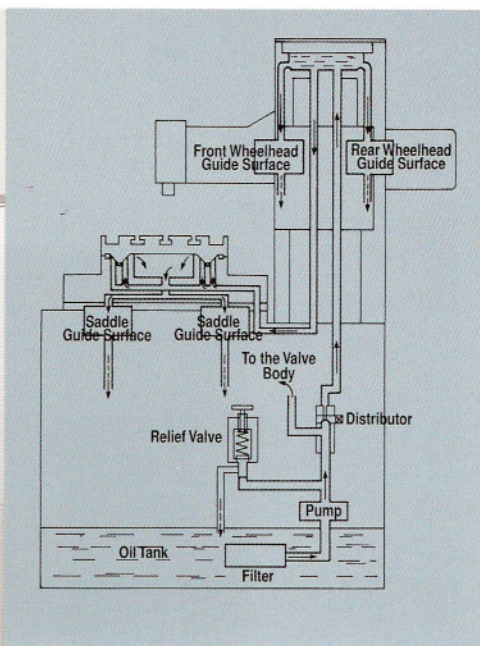
Easily accomplished by simply switching off the crossfeed and switching the grinder to downfeed at each table stroke. Ideal for fast stock removal.

Features



WHEELHEAD ASSEMBLY

The wheelhead assembly features rigid design and construction for long-term precision. It is easily accessed for wheel change and maintenance (shown with optional DXV Dresser).



AUTOMATIC LUBRICATION

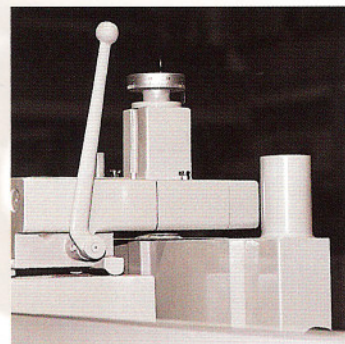
The reliable gravity feed lubrication system assures proper oil distribution to necessary components to ensure smooth, trouble-free machine performance.



PREMIUM GRADE COMPONENTS

The best components make the best machine. Castings, electrical, electronic and mechanical components - whatever the part, you'll find only the best on an Okamoto.

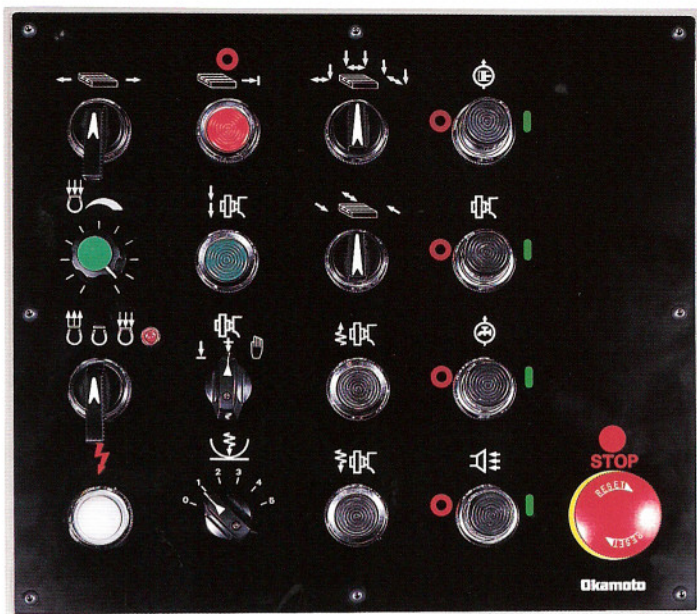
Okamoto ST series



Manual or Hydraulic Over-the-Wheel dressers are available to automate and expand your grinding operations.

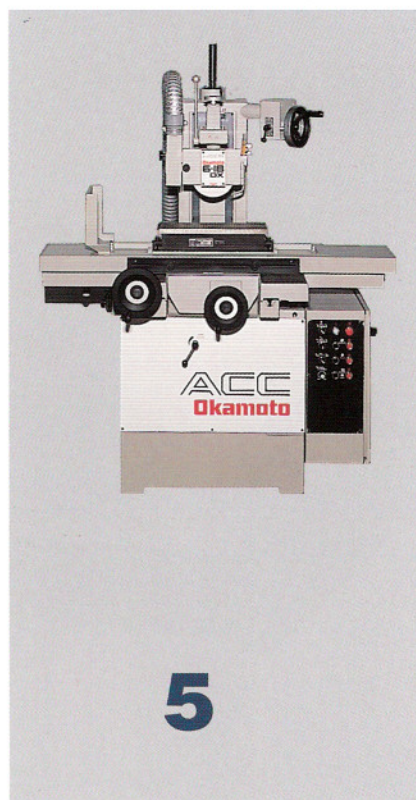
The ST Control simplifies set-up, grinding operations and optimizes productivity and grinding accuracy. Saddle reversal actuates automatic downfeed. A feed amount adjustment screw permits incremental downfeed adjustments from 0.0001" to 0.0015. In automatic operation, a simple touch of the manual fine feed push button provides manual fine feed in increments the same as selected in automatic operation.

ST Series Grinders are the ideal choice in basic hydraulic type surface grinders. The easy-to-use, pendant-mounted, solid state control assures optimum reliability and operator convenience - promotes safety too. Some of the many great machine features include smooth, quiet automatic table movement with auto park, proven gravity feed automatic lubrication, automatic downfeed as fine as 0.0001" and much more. And you can count renowned Okamoto quality of design and manufacture throughout. The ST Series truly is the best value in its class.



Okamoto 6•18DXseries

The ACC-6•18 Series is the perfect smaller capacity hydraulic surface grinder. Choose from three configurations - manual or MDI control - to suit your requirement. Rugged base and column construction supplies the rigidity and stability needed for both coarse and extra-fine grinding requirements. Extended saddle longitudinal ways reduce overhang to provide long machine life and peak accuracy. Hand scraped, Double Vee Table Ways allow for heavier table loads and ensure true tracking for improved accuracy. Vertical feed is switchable - coarse and fine. Lubrication is provided by Okamoto's efficient gravity feed lubrication system.



ACC-6•18DX Series Grinders are available in three versions:

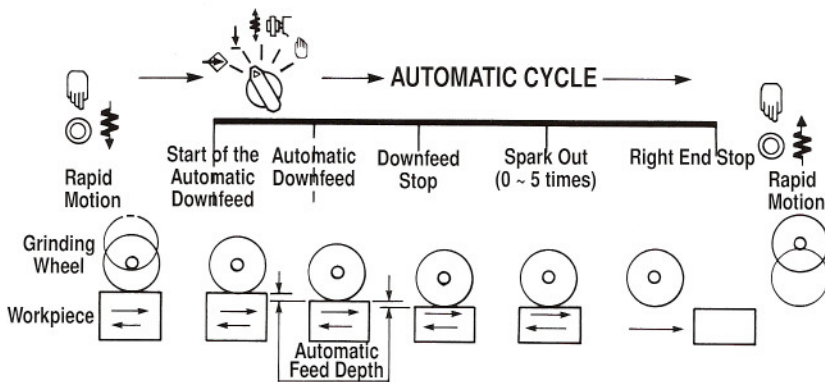
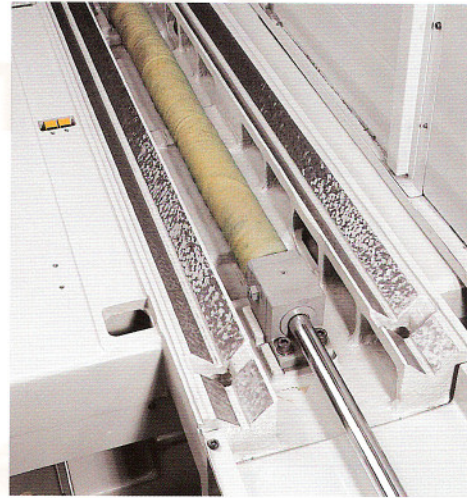
ACC-6•18DX1
Hydraulic Table Feed

ACC-6•18DX2
Hydraulic Table Feed
Auto Crossfeed

ACC-6•18DX3
Hydraulic Table Feed
Auto Crossfeed
Auto Downfeed

Okamoto DXseries

**Double Vee Table
Ways on both the
Longitudinal and
Crossfeed axes
assure optimum
performance and
long term grinding
accuracy.**



ACC-DX Series grinders are perhaps the most widely used grinders in operation. And with good reason. They provide effortless set-up, simplicity of operations and consistent accuracy and reliability unmatched by any grinders in their class. Their extra rigid column assemblies minimize deflection. Wheel spindles utilize super-precision pre-loaded ball bearings for optimum stiffness. Full width tables eliminate overhang and glide



smoothly and effortlessly thanks to Double-Vee Table Ways on both the longitudinal and crossfeed axes. Other standard features include Rapid Vertical Feed, efficient Automatic Lubrication, extensive Way

Protection, conveniently positioned Controls, Independent Hydraulic and Grinding Wheel Control, built-in Chuck Control with variable holding power & demagnetizer and much more.

DX Control

The DX control has the control and convenience features that today's demanding machinist wants. Grinding Versatility, Quick Set-Up, Precise Control, Convenience and dependable long-term Reliability.

Okamoto truly has simplified surface grinding, even for first time operators. All control functions are conveniently located and are easily actuated by push buttons or switches. And since the DX Control uses solid state electronics, precise command execution is assured for consistent, repeatable accuracy and performance.

Automatic downfeed is selectable in increments from 0.00005" to 0.0015" (0.00001" manual increment) for the ultimate in Automatic Surface Grinding performance.

The DX Control delivers these versatile features:

- ◆ Surface Grinding
- ◆ Traverse (Criss-Cross) Grinding
- ◆ Plunge Grinding at one end or both ends of table stroke
- ◆ Rough & Finish Grind in Cycle
- ◆ Pre-Set Spark-Out Passes
- ◆ Table "Park" at Right End



The Efficient Way to Grind up to 3 Surfaces in a Single Set-Up

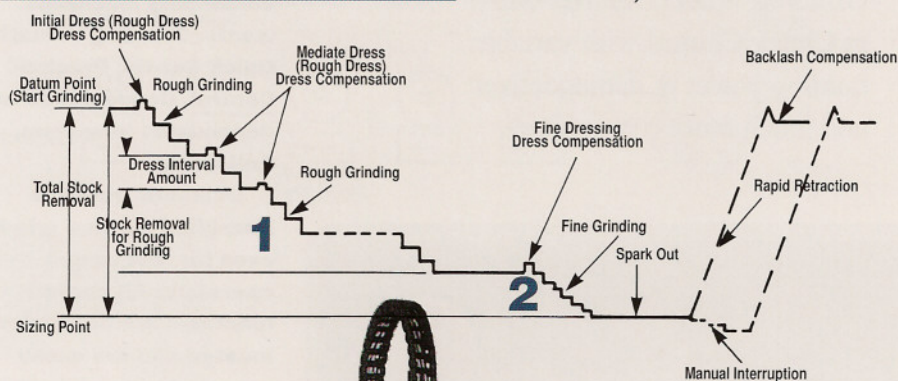
Grinding up to three surfaces in a single set-up has never been simpler thanks to the user-friendly EXB control. The combination of conventional switches, a keypad and easy-to-read CRT makes set-up, data input & verification and grinding a snap. Solid state design and construction means long-term reliability.



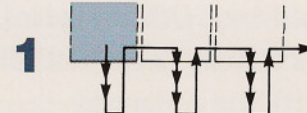
ACC-EXB Series Grinding Cycles

- ◆ Traverse for Rough / Fine Grinding
- ◆ Plunge for Rough / Fine Grinding
- ◆ Shift-Plunge for Rough
Traverse for Fine
- ◆ Pre-Set Spark-Out Passes
- ◆ Table "Park" at Right End

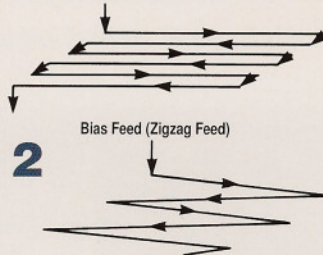
(◆ Shift-Plunge for Rough;
Traverse for Fine)



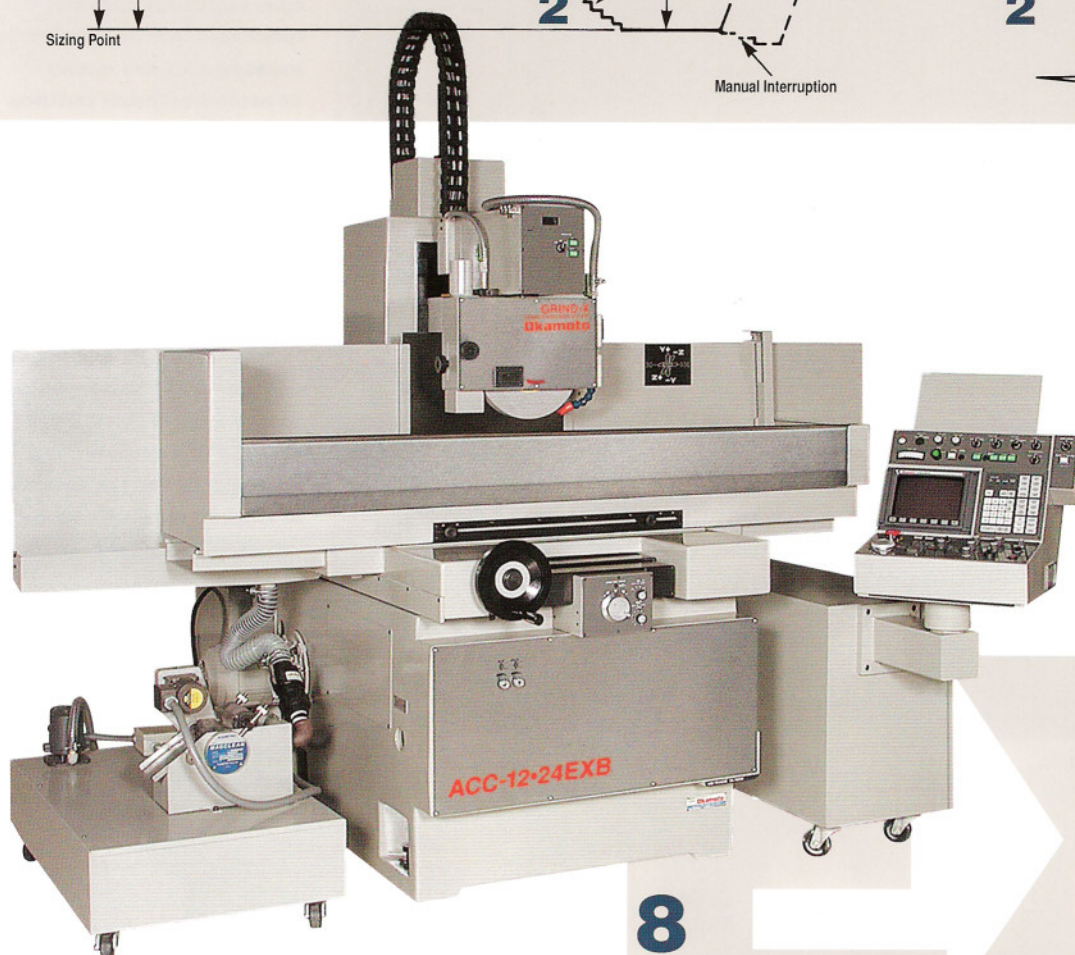
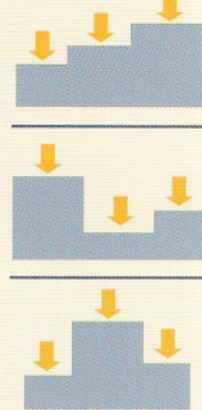
Rough Grinding (Shift Plunge Cut)



Fine Grinding: Step Feed or



**Single Set-Up
Precise Grinding
of up to 3
Surfaces**



WORK / CHUCK DATUM POSITIONS

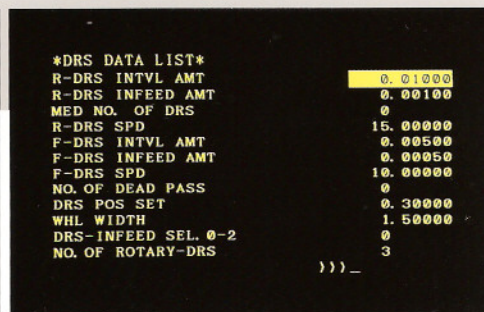
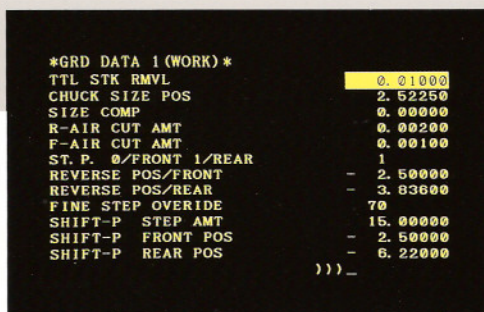
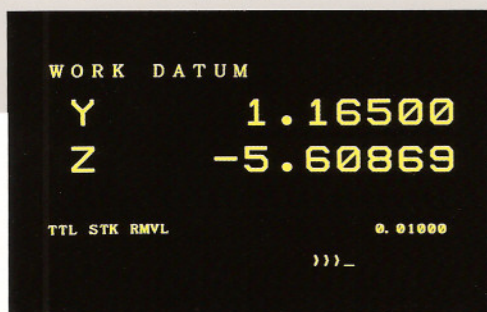
This data page displays the exact position of the workpiece in relation to the grinding wheel. Choose either Work Datum or Chuck Datum for workpiece sizing references. The minimum increment is 0.00001". Automatic downfeed is selectable in 10 increments from 0.00005" - 0.0015".

GRINDING DATA

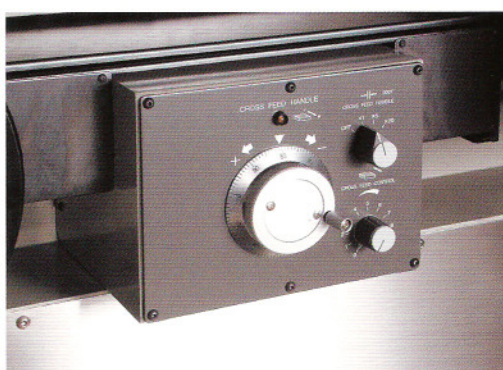
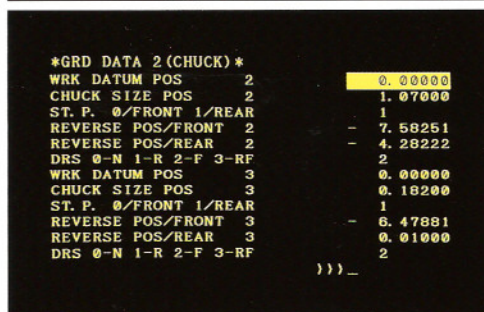
These data pages are used to input grinding data such as Stock Removal, Air Cuts, Table Reversal Positions, Rough and Fine Downfeed Speeds for up to 3 different surfaces. Offsets for size adjustments can also be programmed.

DRESSING DATA

This data page is used to input wheel dress data - Rough & Fine Dress Infeed Amount, Dead Passes, Number of Dresses & Dress Interval, Dress Speeds & Dress Positions. You can also choose to dress prior to going to the workpiece and also dress as many times as desired.

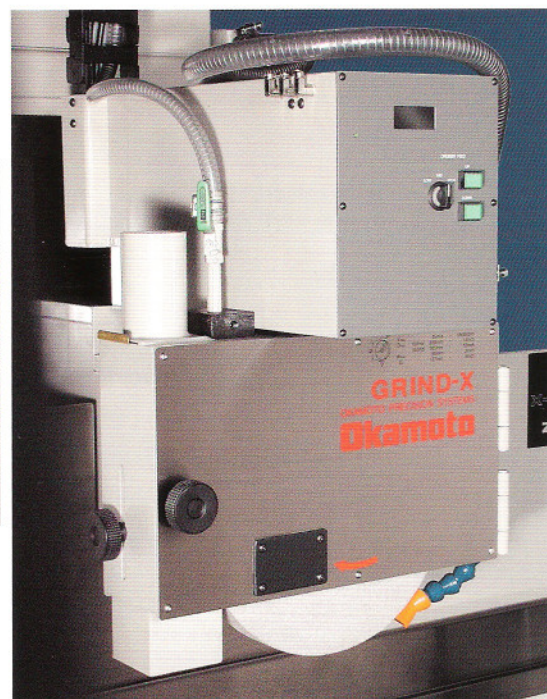


Superb design, construction and accuracy plus state-of-the-art MDI control - that's the EXB Series Saddle Series Grinders. Their Fully Automatic Grinding Cycles include - ROUGH, FINE & high productivity SHIFT- PLUNGE cycle for fast stock removal and fine finish on up to 3 surfaces in a single set-up. Other performance features include Rapid Wheelhead Approach / Retract and Retraction to start position in automatic cycle. Grinding conditions such as infeed, sparkout, etc. can be changed during the automatic grinding cycle. Handle interrupt for vertical and crossfeed is also possible. Dress interval is programmable with automatic compensation and aircut allowances. A Dress Interrupt Function permits wheel dress - on demand - at any point during the grinding cycle.



Servo Crossfeed Control

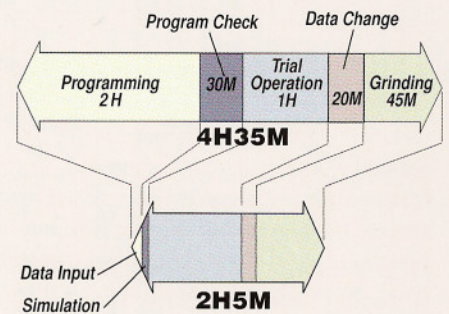
EXB Series Grinders provide precise servo crossfeed manual movement as little as 0.0001". This simplifies grinding workpieces with shoulders (with relief) and provides for fast, accurate crossfeed positioning. The manual pulse generator is conveniently located on the front of the grinder for easy access.



Overhead Wheel Dresser

The EXB overhead wheel dresser lets you dress in rough and fine grind cycles - when and as many times as you choose to for total grinding flexibility. Dress compensation is standard, and a convenient dress interrupt feature also allows for "dress on demand".

ACC-DXNC CNC Grinders boost throughput while delivering the highest degree of repeatable accuracy. An RS232C Interface simplifies program changeover, program saving and retrieval. This assures consistent, accurately ground parts even with multiple machine operators. Easy data input & fast set-up, consistent repeatable peak accuracy and precise CNC control make the DXNC ideal for both small-lot grinding as well as high volume production runs.



ACC-DXNC CNC Grinders dramatically reduce cycle times.

Okamoto ACC-DXNC Series CNC Surface Grinders are fast becoming the preferred choice of performance conscious machinists. And with good reason. They deliver all of the benefits of 2-axis simultaneous CNC controlled grinding without the time-consuming, complicated programming. Okamoto's user-

friendly conversational CNC software slashes programming time. The operator simply chooses the set-up grinding mode, grinding pattern and cycle that's right for the job and the unique DXNC

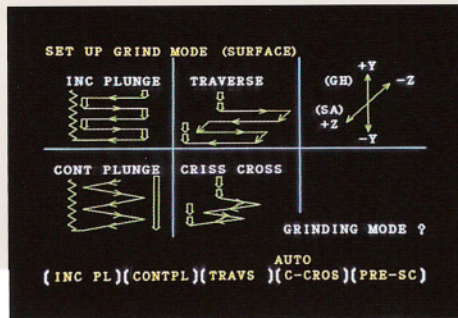
control does the rest! Now even unskilled operators can realize optimum grinding accuracy and productivity.



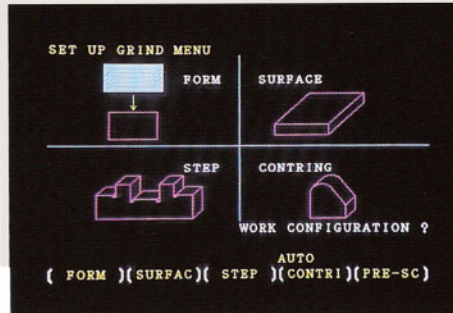
GRINDING MODES

Choose from four grinding modes

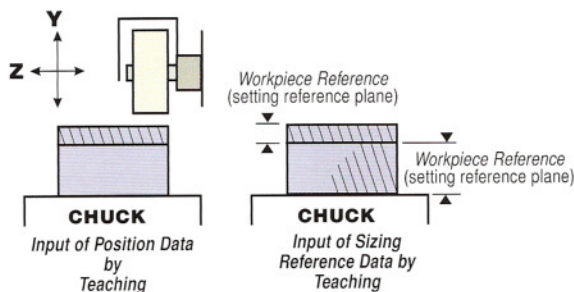
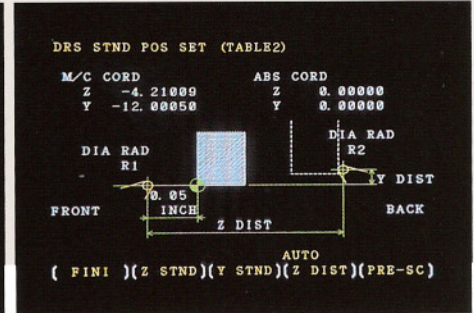
- Incremental Plunge
- Continuous Plunge
- Traverse
- Criss-cross



FORM PATTERNS

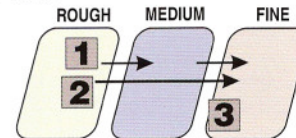


DRESSING DATA



Pick the desired grinding cycle -

1. Rough / Medium / Fine
2. Rough / Fine
3. Fine



Okamoto's unique software does away with complicated programming!

1. Select the grinding mode:

- Incremental Plunge
- Continuous Plunge
- Traverse
- Criss-cross

2. Choose the form pattern that's right for the job:

- Form
- Regular Form
- Irregular Form
- Surface
- Step - Up
- Step - Down

3. Pick the grinding cycle:

- Rough / Medium / Fine
- Rough / Fine
- Fine
- Compensation

4. Input other sizing and position data

5. Press Cycle Start

A ladder display function simplifies program check to ensure accuracy and productivity. The CNC automatically controls grinding functions including dressing. Programmable dressing with dress compensation is standard on all DXNC grinders.



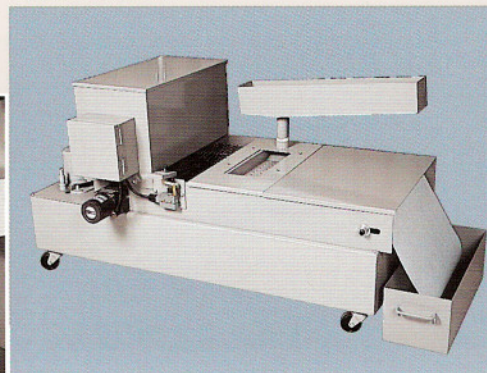
Grinding Wheel Balancer

Balances grinding wheels quickly, precisely and efficiently.



Coolant Systems

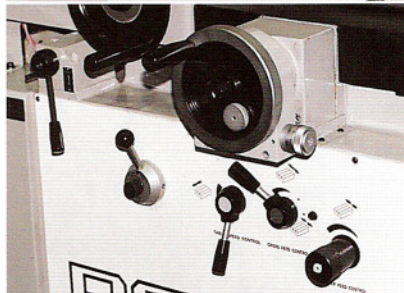
Available in a variety of configurations to meet specific requirements.



Magnetic Separator
Efficiently separates swarf from coolant fluid.



Micro Crossfeed
For precise crossfeed positioning.



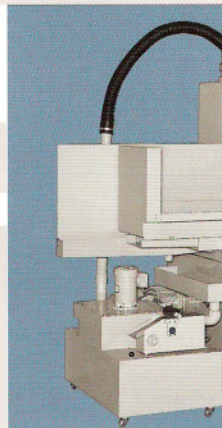
Oil Temperature Regulator

Keeps oil at constant temperature to minimize thermal expansion.



Dust Suction

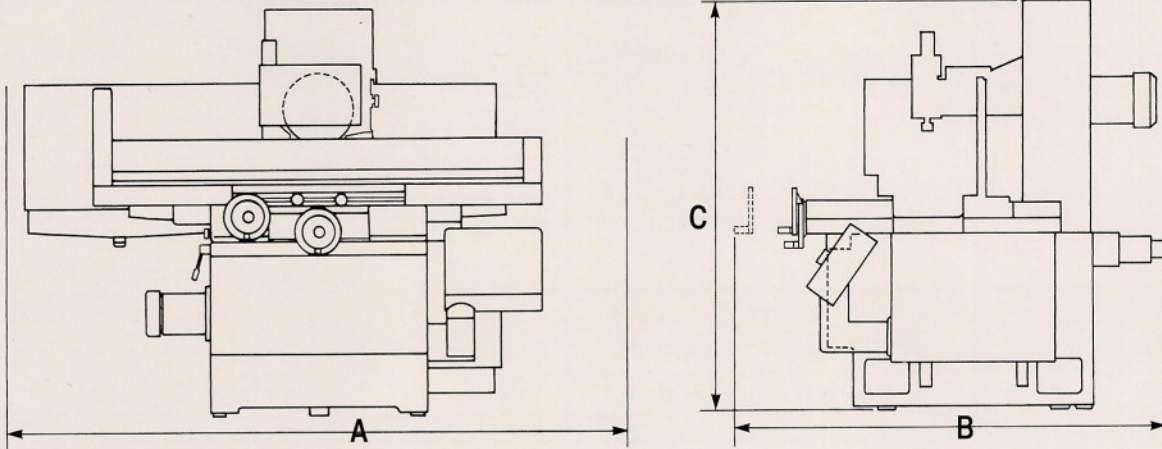
Efficiently removes grinding dust from work envelope.



Hydraulic Overhead Wheel Dresser

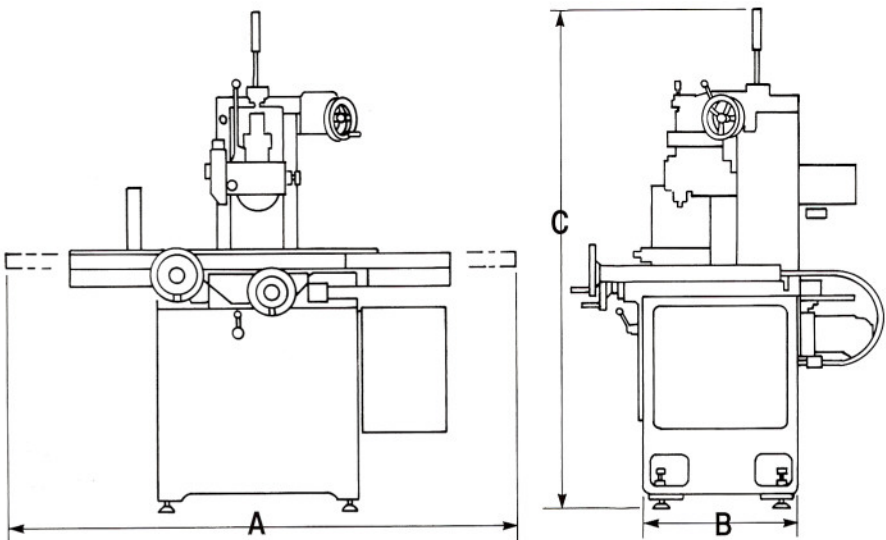
Simplifies grinding wheel dressing and provides true wheel form for optimum grinding precision.





	8•20	12•24	16•24	16•32	20•24	20•40
ACC ST Series						
A	94"	103"	-	130"	-	-
B	64"	74"	-	88"	-	-
C	68"	70"	-	80"	-	-
Weight Lbs.	3,000	3,900	-	7,600	-	-
ACC DX Series						
A	94.69"	107.28"	107.25"	130.32"	107.25"	179.00"
B	62.72"	75.04"	86.34"	87.05"	96.46"	100.00"
C	69.49"	69.81"	69.81"	81.89"	79.76"	80.70"
Weight Lbs.	3,810	5,280	6,160	8,800	7,040	10,580
ACC EXB Series						
A	95.00"	108.00"	108.00"	131.00"	108.00"	178.00"
B	73.00"	82.00"	90.00"	95.00"	91.00"	101.00"
C	71.00"	71.00"	71.00"	81.00"	83.00"	80.00"
Weight Lbs.	4,630	6,175	7,050	7,720	8,825	11,470
ACC DXNC Series						
A	95"	107"	107"	130"	107"	178"
B	72"	79"	87"	87"	97"	100"
C	97"	95"	95"	107"	105"	102"
Weight Lbs.	4,630	6,175	7,055	8,820	7,720	10,580

	DX1	DX2	DX3
ACC 6•18 DX Series			
A	75"	75"	77"
B	46"	46"	51"
C	76"	76"	79"
Weight Lbs.	2,200	2,200	2,420



	ACC-ST Series			ACC 6•18 DX Series		
	8•20	12•24	16•32	DX1	DX2	DX3
Capacity						
Table Working Surface (W x L)	8" x 21.6"	12" x 24"	16" x 33.5"	6" x 20"	6" x 20"	6" x 20"
Maximum Table Movement (Manual)	25.6	29.5"	37.5"	20.8" x 6.9"	20.8" x 6.9"	20.8" x 6.9"
Max. Dist. between Wheel & Table	15.7"	13.7"	21.5"	11.7"	11.7"	11.7"
Magnetic Chuck Size (W x L x H)	8" x 20" x 3.2"	12" x 24" x 3.2"	16" x 32" x 3.5"	6" x 18" x 2.36"	6" x 18" x 2.36"	68" x 18" x 2.36"
Table Load Capacity Including Chuck	440 lbs	925 lbs	1,540 lbs	264 lbs	264 lbs	264 lbs
T Slots (No. x W)	1 x 0.67"	1 x 0.67"	3 x 0.67"	1 x 0.67"	1 x 0.67"	1 x 0.67"
Grinding Wheel						
Wheel Size (D x W x B)	8" x 1" x 1.25"	12" x 1.5" x 5"	12" x 1.5" x 5"	8" x 1" x 1.25"	8" x 1" x 1.25"	8" x 1" x 1.25"
Wheel Speed (60 Hz)	3,600 rpm	1,800 rpm	1,800 rpm	3,480 rpm	3,480 rpm	3,480 rpm
Motors						
Grinding Wheel Spindle	2 hp	5 hp	5 hp	2 hp	2 hp	2 hp
Vertical Feed	0.5 hp	0.5 hp	0.5 hp	N/A	N/A	0.5 hp AC Servo
Hydraulic Oil Pump	1 hp	2 hp	3 hp	1 hp	1 hp	1 hp

ACC-ST Series 8•20, 12•24 16•32			ACC 6•18 DX Series DX1 DX2 DX3			ACC-DX Series 8•20, 12•24, 16•24 16•32, 20•24, 20•40	
Table Longitudinal Movement							
Longitudinal Feed Rate	1 ~ 82 ft/min / 10 ~ 82 ft/min		0.33 ~ 66 ft/min			1 ~ 82 ft/min	
Feed Per Handwheel Revolution	1.85"		4"			1.85"	
Crossfeed							
Manual							
Manual Pulse Feed	N/A		N/A			N/A	
Jog Feed	N/A		N/A			N/A	
Automatic							
Intermittent Feed	0.02" - 0.5"	0.02" - 0.8"	N/A	0.004" - 0.2"		0.02" ~ 0.4" (8•20); 0.02" ~ 0.8" (all others)	
Grinding Feed	4 ~ 40 in/min		N/A	0.5 ~ 13.1ft/min		4 ~ 40 ft/min	8 ~ 40 ft/min
Wheel Vertical Feed							
Automatic							
Downfeed Increment	0.0001 ~ 0.0015		N/A		0.00005" - 0.0015"	0.00005" - 0.0015"	
Spark-Out Passes	0 - 5		N/A		0 - 5	0 - 5	
Manual							
.1x / 1x / 10x Position							
Feed Per Handwheel Revolution	0.025"		Coarse / Fine 0.080" / 0.020"		0.001" (x .1)	0.001" (x .1)	
					0.010" (x 1)	0.010" (x 1)	
					0.100" (x 10)	0.100 (x 10)	
Feed Per Handwheel Graduation	0.0001"		0.00004" / 0.0001"		0.00001" (x .1)	0.00001" (x .1)	
					0.0001" (x 1)	0.0001" (x 1)	
					0.001" (x 10)	0.001" (x 10)	
Rapid Vertical Feed	16 in/min		N/A		15.7 in/min	23.6 in/min	

Specifications subject to change without notice.

ACC-DX, EXB, DXNC Series

8•20	12•24	16•24	16•32	20•24	20•40
8" x 21.6"	12" x 24"	16" x 25.6"	16" x 33.5"	20" x 25.6"	20" x 41.3"
25.6"	29.5"	29.5"	37.4"	29.5"	45.3"
15.7"	13.6"	13.6"	21.5"	21.5"	21.5"
8" x 20" x 3.2"	12" x 24" x 3.2"	16" x 24" x 3.5"	16" x 32" x 3.5"	20" x 24" x 3.5"	20" x 40" x 3.5"
440 lbs	925 lbs	925 lbs	1,540 lbs	1,540 lbs	1,540 lbs
1 x 0.67"	3 x 0.67"	3 x 0.67"	3 x 0.67"	3 x 0.67"	3 x 0.67"
8" x 1" x 1.25"	12" x 1.5" x 5"	12" x 1.5" x 5"	12" x 1.5" x 5"	12" x 1.5" x 5"	12" x 1.5" x 5"
3,600 rpm	1,800 rpm	1,800 rpm	1,800 rpm	1,800 rpm	1,800 rpm
2 hp *	5 hp **	5 hp **	5 hp **	5 hp **	5 hp **
0.5 AC Servo Motor					
1 hp	2 hp	2 hp	3 hp	3 hp	3 hp

* 3 hp on 8•20DXNC

** 7.5 hp on all other DXNC models

ACC-EXB Series

8•20 12•24, 16•24, 16•32, 20•24, 20•40

ACC-DXNC Series

8•20 12•24, 16•32

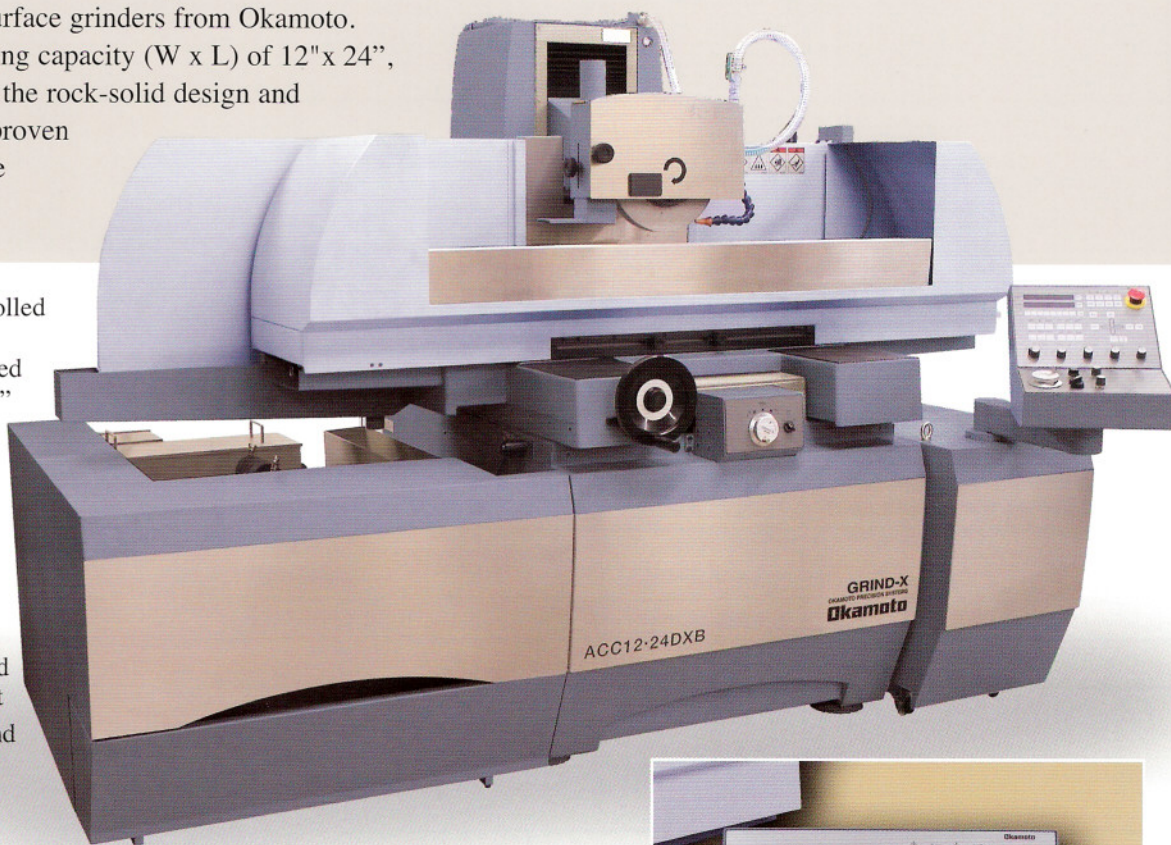
3 ~ 82 ft/min		3 ~ 82 ft/min	
1.85"		1.85"	
0.0001 / 0.0005 / 0.002		0.00001" / 0.00010" / 0.001"	
N/A		0 ~ 40 in/min	
0.02" ~ 0.4"	0.02" ~ 0.8"	0.02" ~ 0.4"	0.02" ~ 0.8"
0.010 ~ 40 ft/min		0.010 ~ 40 ft/min	
0.00005" - 0.0015"		0.00001" ~ 0.005"	
0 - 5		0 - 5	
0.001" (x .1)		0.001" (x .1)	
0.010" (x 1)		0.010" (x 1)	
0.100" (x 10)		0.100" (x 10)	
0.00001" (x .1)		0.00001" (x .1)	
0.0001" (x 1)		0.0001" (x 1)	
0.001" (x 10)		0.001" (x 10)	
40 in/min		40 in/min	

Okamoto ACC-12·24DXB

New!

The ACC-12·24DXB is the latest generation in high-performance surface grinders from Okamoto. Available in a grinding capacity (W x L) of 12"x 24", this grinder features the rock-solid design and construction of the proven DX Series plus these added benefits:

- ◆ Servo Motor controlled Crossfeed
 - 0 - 40 ft/min speed
 - .0001/.0005/.002" handwheel increment
 - .75hp servo motor
- ◆ Improved Spindle design features P4 class bearings
- ◆ Rounded Splash Guards for enhanced coolant containment
- ◆ Simplified set-up and control through Touch Pad Input



State-of-the-Art MDI Control features:

- ◆ Touch pad control Teach Function for Crossfeed Positions and Grinding Cycles
- ◆ Touch pad control for Cross and Vertical Rapid Feeds



Okamoto

Emerging Abrasives Technology

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