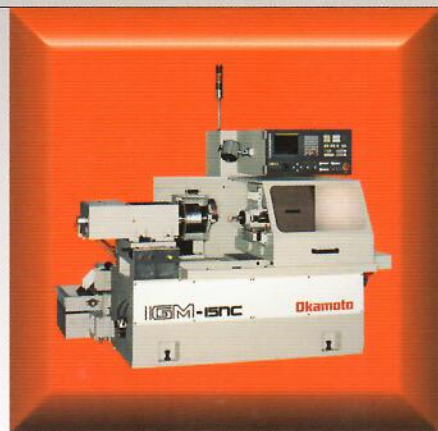


Okamoto

Internal Grinding Machines / IGM Series



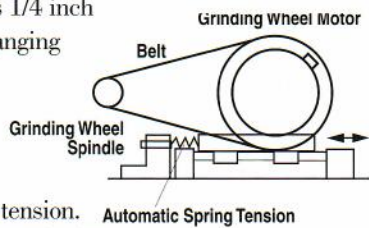
IGM THE SERIES

15NC

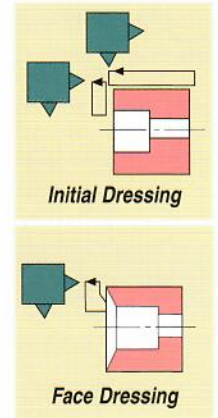
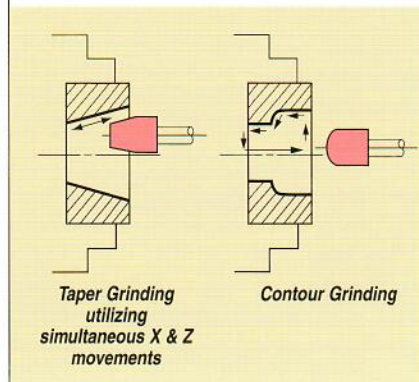
Okamoto

The Okamoto IGM-15NC has the rigidity, power and long-term precision for demanding high-volume production runs, yet provides quick, easy set-up and changeover for small lot runs. With its versatile Fanuc 18i-T controller, you have the choice of easy-to-learn yet powerful conversational programming or universal G & M code programming. Shops that are new to CNC programming appreciate the IGM-15NC's teach mode and ability to store 10 different program types to make job changeovers quick and efficient. You can even generate multi-type programs that include taper and contour grinding in G & M code.

10,000 / 15,000 / 20,000 / 30,000 / 40,000 and 60,000 rpm spindles are available allowing you to optimize grinding wheel surface speeds for any diameter within the machines 1/4 inch to 6 inch diameter range. Changing spindles is easy. Just release the drive belt tension and remove two bolts. Swap the spindle assemblies, replace the bolts and engage the belt tension. It only takes a few minutes to ready the IGM-15NC for its next assignment.



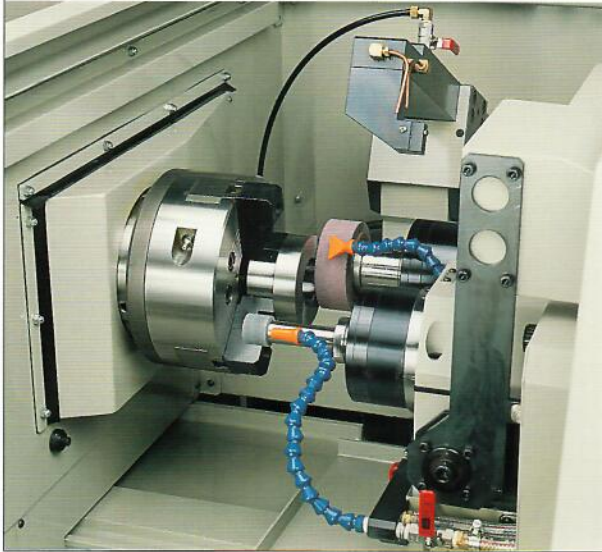
Accuracy? Longevity? The IGM-15NC delivers both. The grinding spindles are positioned on high precision linear guideways mounted with the work spindle to the tough and stable meehanite cast base. You can position the grinding spindle in 10 millionth increments. With your valuable experience and the IGM-15NC, you'll be capable of holding tighter tolerances, achieve better micro-finishes, and produce more parts per shift than before.



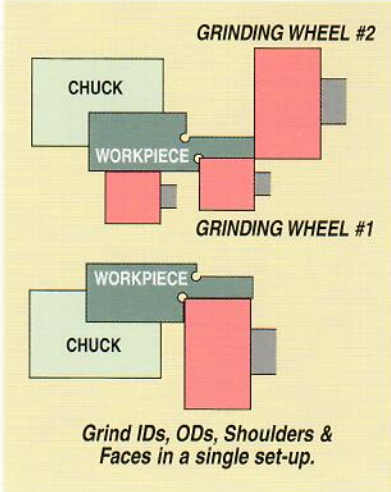
The IGM-15NC features the powerful Fanuc 18i-T controller that is easy to learn and use, and flexible enough to tackle complex grinding cycles quickly and accurately.

With the ability to program dressing intervals and coolant at the dresser, you can be assured that you'll hold tighter tolerances and better micro-finishes.

The IGM-15NC2 Twin Spindle ID/OD Grinder is the perfect choice for shops that routinely require using two different spindles to grind the same workpiece.



IGM-15NC2



Twin grinding spindles mean more finished parts and less non-productive time per shift.

If you routinely grind workpieces that have both large and small diameters and are looking for the ultimate in productivity, you need the Okamoto IGM-15NC2 Twin Spindle ID Grinder. The possibilities are nearly endless with this machine: Set it to grind a large face with lower rpm and a small ID with higher rpm in one chucking and without changing spindles. You can also set it with a course wheel for rough grinding and a fine grit wheel for polishing in the same setup. Or set it to grind a large OD and a small ID in the same setup to achieve the tightest tolerances for circular run-out between the two diameters.

You get the same heavy duty construction and features as the IGM-15NC plus the versatility of a second precision spindle. Both spindles are oil chilled to maintain uniform size even under demanding conditions.

```

MENU LIST (TOOLNO 5 WRKNO 5 )

_1-1 FILE NO. SELECT      3-1 TEACH INPUT
_2 TOOL SET              -2 DATUM DIST
_3 PROCESS SET           4-1
_4 START POS SET        -2 FILE MANAGE
2-1 AUTO GRD            5-1 CONTROL SET
_2 COMP GRD              -2 PARAMETER
_3 SS COMP GRD
_4 MANUAL GRD
_5 SS MANUAL GRD

SELECT MENU BY CURSOR, THEN PUSH [DISP]
NUM- S 0 T0000
REF **** * 13:22:10
( PRV. )( ) ( DISP )( ) ( CONT )
  
```

Main Menu

```

FILE NO. SELECT

TOOL NO. : 5
1 VEKTEK 3 BELTRAN 5 A-103
2 KSH-153 4 EXPRESS
WORK NO. : 6
1 VEKTEK 6 TEST-02
2 2NDTEST 7
3 BOSCH 8
4 EXPRESS 9
5 TEST-01 10

INPUT FILE NO.
NUM- S 0 T0000
REF **** * 13:23:07
( ) ( ) ( NAME ) ( ) ( DONE )
  
```

Tool & Program Storage

```

TEACHING INPUT NO. 2

TARGET SIZE 2.50000 ABS CORD
INTL AIRCUT AMT 0.00500 X -2.49872
F-GRD AMT 0.00100 Z 12.32289
M-GRD AMT 0.00100

A:TTL AMT 0.01000 B:GRD-PT L -0.50000 C:GRD-PT R -0.10000
[IN]
SEL TEACH-DATA BY SOFTKEY AFTER WHL MOVE
NUM- S 0 T0000
MEM **** * 13:42:12
( A ) ( B ) ( C ) ( ) ( DONE )
  
```

Simple Touch & Teach Graphic Programming

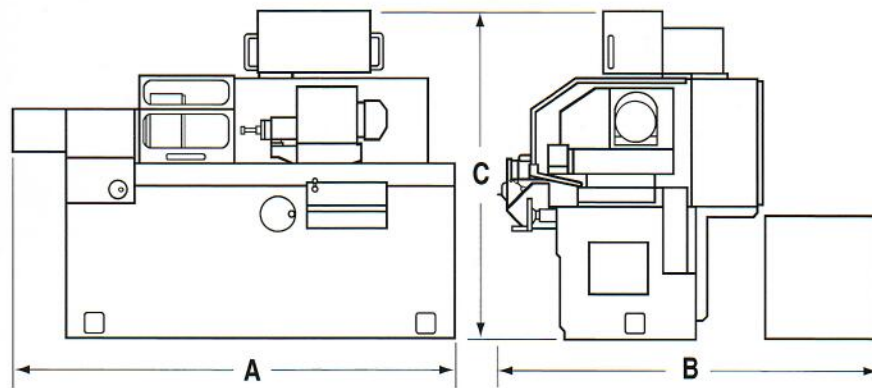
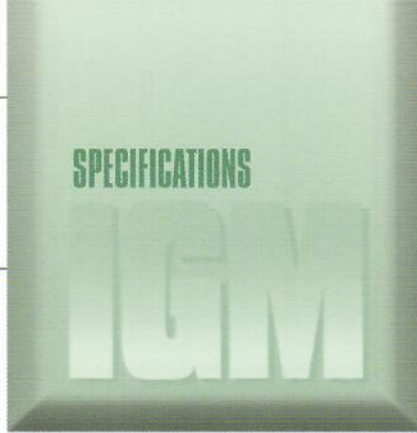
```

AUTO GRD NO. 1 **READY**
STK REMV : 0.00500 ABS POS
GRD METHD : IN LEFT PLUNGE X -2.49872
DRS METHD : LFT_DRS Z 12.32289
FINISH PT : -0.00200 X 0.00000
OFFSET : 0.00000 Z 0.00000

GRD ... PUSH CYCLESTART S 0 T0000
MEM **** * 14:02:23
( PRV. )( ) ( SINGLE )( ) ( )
  
```

Real Time Graphic Display While Grinding

SPECIFICATIONS



	A	B	C
IGM-2MB	96"	54"	69"
IGM-15NC	100"	78"	67"
IGM-15NC2	116"	90"	70"

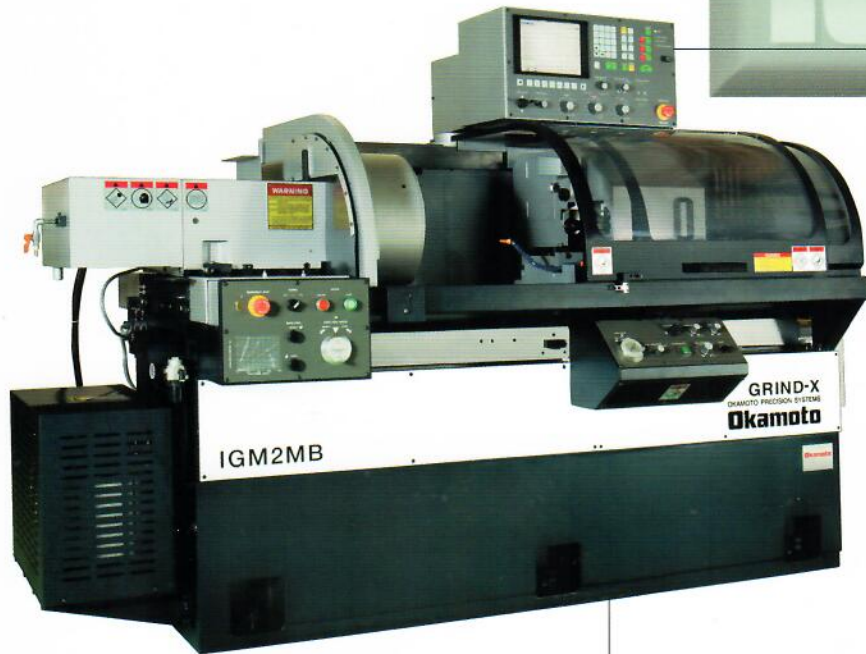
	IGM-2MB	IGM-15NC	IGM-15NC2
CAPACITY			
Internal Diameter to be Ground:	0.24" ~ 8"	0.24" ~ 6" / 8"	0.24" ~ 4" <i>If one spindle</i> - 0.24" ~ 6"
Maximum Grinding Stroke:	8"	5"	3.2" <i>If one spindle</i> - 5"
Swing Over Table:	24"	24"	24"
Swing Inside Splash Guard:	14"	10"	
WORKHEAD			
Workhead Speed:	50 ~ 1,700 rpm	100 ~ 850 rpm	100 ~ 850 rpm
Swivel:	-5 ~ +30 deg	-5 ~ +15 deg	-5 ~ +15 deg
Maximum Crossfeed:	9"	N/A	N/A
Minimum Feed Increment (Diameter):	0.00001"	N/A	N/A
Automatic Feed Range:	0.004 ~ 0.16 ipm	N/A	N/A
Rapid Feedrate:	10 ipm	N/A	N/A
WHEELHEAD			
Maximum Crossfeed (X-Axis):	1.2"	6.7"	12"
Feedrate:	N/A	0.001 ~ 400 ipm	0.001 ~ 200 ipm
Rapid Feedrate:	1.8 ipm	400" ipm	200" ipm
Minimum Increment:	0.0001"	0.00001" dia	0.00001" dia
Lubrication:	Oil Mist	Oil Mist	Oil Mist & Oil Cooling
Standard Spindle:	Option	Option	10,000 & 30,000 rpm
Optional Wheel Spindles:	10,000/15,000/20,000 30,000/40,000/60,000 rpm	10,000/15,000/20,000 30,000/40,000/60,000 rpm	10,000 / 20,000 / 30,000 40,000 / 60,000 rpm
TABLE			
Maximum Longitudinal Travel:	20"	20"	20"
Table Speed:	4 ~ 590 ipm	0.001 ~ 400 ipm	0.001 ~ 400 ipm
Minimum Increment (Z-Axis):	0.0001"	0.00001"	0.00001"
Rapid Feedrate:	590 ipm	400 ipm	400 ipm
Manual Pulse Handwheel Graduations:	0.0001", 0.0005", 0.005", 0.01"	0.0100", 0.00100", 0.00010", 0.00001"	0.0100", 0.00100", 0.00010", 0.00001"
MOTORS			
Wheel Spindle:	5 hp / 2P	3 hp / 2P	7 hp 2/4P High-Speed Frequency Inverter Control
Work Spindle:	2 hp / 4P	2 hp / 4P	2 hp / 4P
Crossfeed (X-Axis):	1 hp	1 hp, AC Servo	1 hp, AC Servo
Longitudinal (Z-Axis):	4 hp	1.2 hp, AC Servo	1.2 hp, AC Servo
FLOOR SPACE			
Length x Width x Height:	96" x 54" x 69"	100" x 78" x 67"	116" x 90" x 70"
WEIGHT			
Net Weight:	6,160 lbs	5,072 lbs	5,300 lbs

Specifications Subject to Change Without Notice.

Okamoto

IGM THE SERIES

2MB



If you need to grind single-step IDs in high volume and are looking for the ultimate in throughput and productivity, you need the Okamoto IGM-2MB.

This workhorse features a standard air chuck actuator, a heavy-duty workhead with both angular contact and ball bearings, and rugged construction for both X and Z positioning accuracy. A single point dresser insures close tolerance production part after part.

With spindle choices of 10,000 to 60,000 rpm available and the ability to change spindles in just a few minutes, you can optimize grinding wheel surface speed resulting in better micro-finishes, closer tolerances, and longer wheel life. The Okamoto IGM-2MB provides flexibility, accuracy, and greater productivity over its generous 1/4 inch to 8 inch diameter range.

Your operators don't need experience with CNC programming to get the most from the Okamoto IGM-2MB! With its easy-to-learn, easy-to-use MDI control, operators can effortlessly position the spindle and workpiece to teach the rapid advance, dress, start grind and end grind positions. Dressing cycles can be programmed to compensate for grinding wheel breakdown and loading. Operators can easily adjust the grinding diameter by using the manual pulse generator control.

Grinding Control -
Start & Finish Size
Infeed - Rough/Medium/Fine
Dressing Data - Infeed Amount,
Dressing Speed, Number of Dresses,
Spark-Out



Position Control -
Touch & Teach for Table Stroke,
Dresser Position, Coolant On/Off

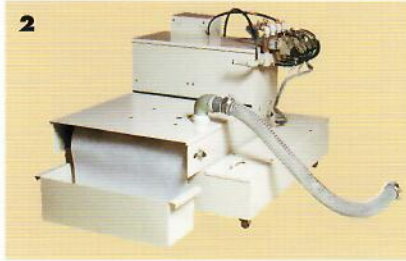
**STANDARD ACCESSORIES/
OPTIONAL EQUIPMENT**



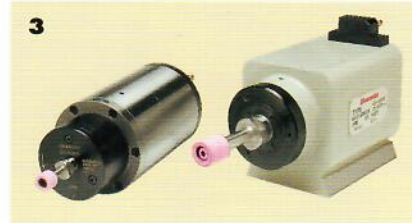
1. Oil Mist Unit (standard on all models)

2. Coolant Systems (optional) with Paper Filter with Paper Filter & Magnetic Separator

3. Spindles (optional)
IGM-2MB & IGM-15NC have endless belt driven spindles (right).
IGM-15NC/2 has a high frequency type spindle (left).
10,000 / 15,000 / 20,000
30,000 / 40,000 / 60,000
available. See specification chart for details.



2



3

4. Single Point Dresser with Diamond Tool (standard on IGM-2MB)

5. Single Point Forming Dresser with Diamond Tool (optional on IGM-15NC & IGM-15NC2)

6. 2-Point Swing Type Dresser with Diamond Tool (standard on IGM-15NC2)

7. Radius Dresser (optional on IGM-15NC)

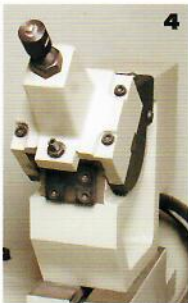
8. Oil Chill Unit (standard on IGM-15NC2)

9. Power Chuck (optional)

10. Collet Chuck (optional)

11. Specialty Chucks (optional - contact Okamoto for types & models)

12. Run Light (standard on IGM-15NC & IGM-15NC2)



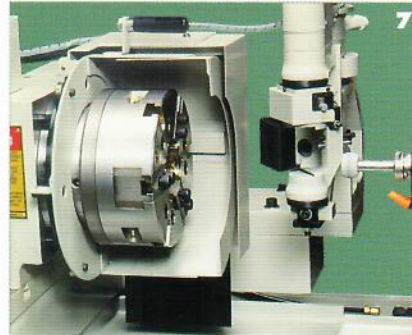
4



5



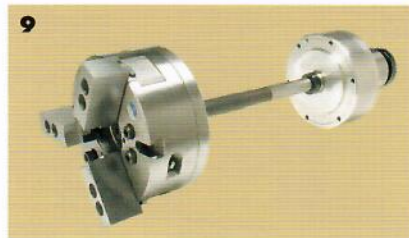
6



7



8



9



10

Not Pictured

Fanuc 18i-T Control (standard on IGM-15NC & IGM-15NC2)

Necessary Tools & Tool Box (standard on all models)

Front Sliding Splashguard (standard on all models)

Leveling Bolts & Pads (standard on all models)

Wheel Spindle Speed Meters (standard on IGM-15NC & IGM-15NC2)

Wheel Spindle Load Meters (standard on all models)

Work Spindle Inverter (standard on all models)

Wheel Spindle Inverter (standard on IGM-15NC & IGM-15NC2)

Workhead Speed Meter (standard on all models)

Dress Coolant Unit (optional on all models)

Work Light

(standard on IGM-15NC & IGM-15NC2 / optional on IGM-2MB)

In-Process Gauging (optional on all models)



11



12

Okamoto
Emerging Abrasives Technology

Okamoto Corporation

1342 Barclay Boulevard

Buffalo Grove, IL 60089

Tel: (847) 520-7700

Fax: (847) 520-7980

www.okamotocorp.com