# Our locations



**Okamoto**
**GRIND - X**

Okamoto Machine Tool Europe GmbH
Raiffeisenstraße 7b · 63225 Langen · Germany
Tel. +49 (0) 6103 - 201 100 · Fax +49 (0) 6103 - 201 1020
www.okamoto-europe.de · info@okamoto-europe.de


# Precision Internal Grinding Machine

## IGM 15


**GRIND - X**
OKAMOTO PRECISION SYSTEMS
**Okamoto**
GRINDING SOLUTIONS

# Precision Internal Grinding Machine

# IGM 15

From standard operations to contour form grinding data input time is much improved by the grinding data automatic setting function

## GRINDING DATA AUTOMATIC SETTING FUNCTION

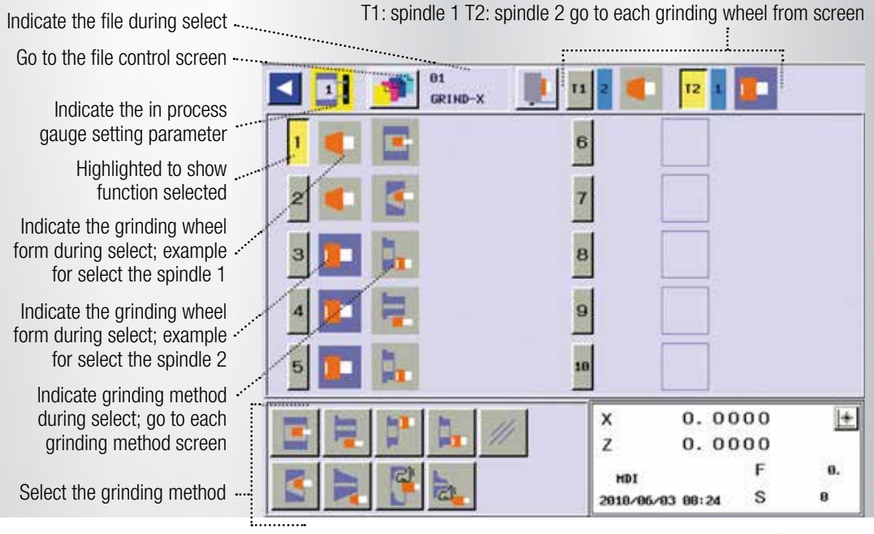
The most suitable grinding parameters, according to our grinding experience, are automatically entered by inputting only the wheel grain size and wheel width.

## TOUCH PANEL INPUT

There is no dialogue on the screen. All parameters, even those for complicated forms, are input via the touch screen and operator panel.

## FILE CONTROL

Data for 6 different grinding wheels and 21 work-pieces can be stored.




**Main screen (common 15EX III, 15NCIII-2)**

| Description | | Unit | IGM15EXIII | IGM15NCIII | IGM15NCIII |
|---|---|---|---|---|---|
| Internal diameter to be ground | | mm | ø 6 ~ 150 | | ø 6 ~ 100 |
| Grinding stroke | | mm | max 125 | | |
| Swing over table | | mm | ø 600 | | |
| Swing inside workpiece guard | | mm | ø 260 | | |
| Distance from bottom of frame to centre of Chuck | | mm | 1000 | | |
| Wheel spindle cross feed (X-axis) | max travel | mm | 170 | | 300 |
| | Feed rate | mm/min | 0,001 ~ 10000 | | |
| | Rapid feed rate | mm/min | 1000 | | |
| Table longitudinal feed (Z-axis) | max travel | mm | 500 | | |
| | Feed rate | mm/min | 0,001 ~ 15000 | | |
| | Rapid feed rate | mm/min | 15000 | | |
| Least input increment | X-Axis | mm | ø 0,0001 | | |
| | Z-Axis | mm | 0,0001 | | |
| Work spindle speed | | $min^{-1}$ | 100 ~ 850 | | |
| Work spindle swivel angle | | deg. | -5 ~ 15 | | |
| Motor | Work spindle | kW | 1,8 (AC servo motor) | | |
| | Wheel spindle | kW | 3,7 | | |
| | X-Axis | kW | 1,2 | | |
| | Z-Axis | kW | 1,2 | | |
| Power supply (including optional coolant system) | | kVA | 8 | | 12 |
| Machine space | | mm | 2525 x 1860 x 1800 | | 2525 x 2010 x 1800 |
| Machine net weight | | kg | 2300 | | 2400 |



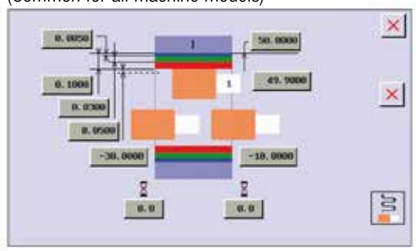


IGM 15

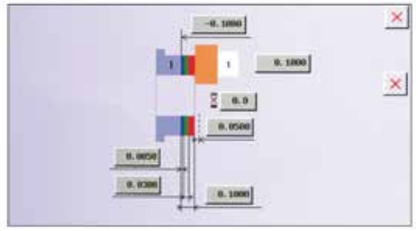
# IGM 15

## Main screen

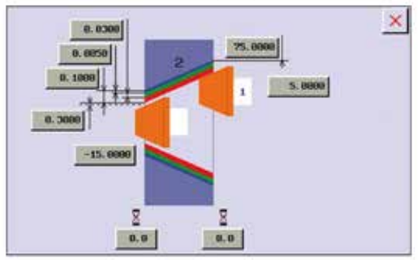
Straight grinding setting screen
(Common for all machine models)



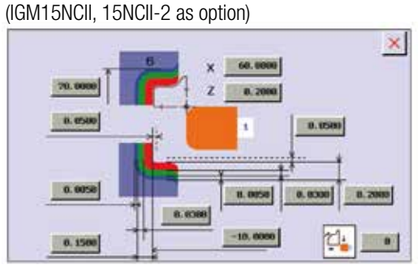
Face grinding data setting screen
(Common for all machine models)



Taper grinding data setting screen
(IGM15NCIII, 15NCIII-2 as option)

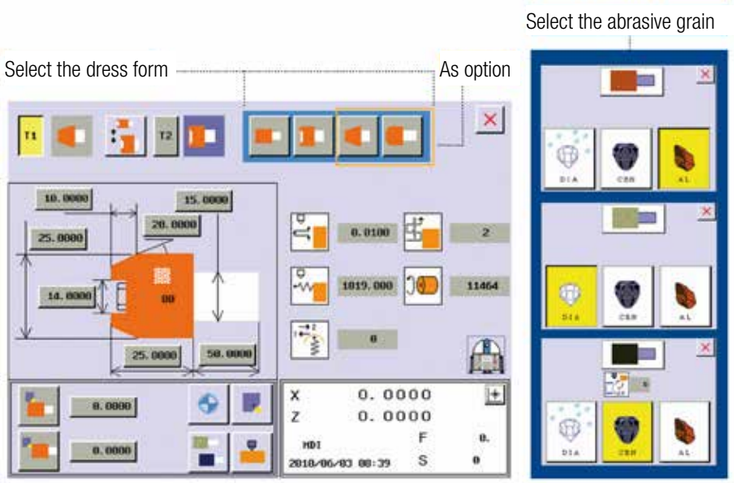


Contour grinding screen
(IGM15NCII, 15NCII-2 as option)



Select the dress form — As option

Select the abrasive grain



### IGM15EX III

**Internal grinder with 10 step conversational software, can be used like a conventional machine (single axis control)**

- The 10 step conversational software (previously only 1 step) has been developed especially for straight grinding and face grinding.
- Both the grinding wheel and work spindles are driven by AC servo motors as standard. The highest accuracy is possible.

### IGM15NC III

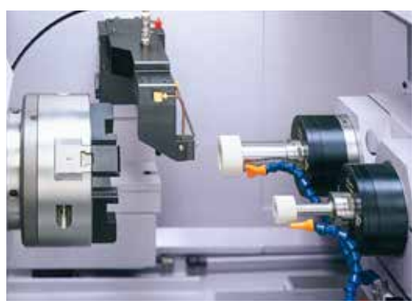
**Internal grinder with advanced conversational software and ISO G Code input via expanded keyboard. (2-axis simultaneous control)**

- Taper and contour form software are available via 2-axis simultaneous control. EDELAC Win for contouring programmes is recommended.
- Both the grinding wheel and work spindles are driven by AC servo motors as standard. The highest accuracy is possible.

### IGM15NC III

**Internal grinder with 2 spindles for multiple face grinding in one chucking**

- Advanced conversational software with 10 steps.
- Cross feed (X-Axis) has scale feed back system. Improved positioning accuracy is further enhanced by the use of a chiller type ball screw.





## Accessories

| Standard | IGM15EXIII | IGM15NCIII | IGM15NCIII-2 |
|---|---|---|---|
| **X-Axis (cross feed) closed loop spec** | no | yes | yes |
| **Grinding wheel, X-axis ball screw oil cooling type** | no | no | yes |
| **Grinding wheel spindle with holder 20000 min$^{-1}$ (grease packed)** | yes | yes | no |
| **High frequency spindle 10000 min$^{-1}$, 20000 min$^{-1}$** | no | no | yes |
| **Wheel spindle inverter for high frequency spindle** | no | no | yes |
| **Grinding wheel AC spindle motor** | yes | yes | no |
| **Work head AC servo motor** | yes | | |
| **Oil mist lube system (small refuel type)** | yes | | |
| **Tool nose radius compensation** | yes | | |
| **10 steps grinding, no key board, straight face · grinding specs** | yes | no | no |
| **10 steps grinding, key board specifications + G code input** | no | yes | yes |
| **Dress coolant system, through spindle coolant supply** | yes | | |
| **Table cleaning nozzle** | yes | | |
| **Preparation for mist extraction (hood)** | yes | | |
| **LED lamp inside cover** | yes | | |
| **Workhead shift device** | yes | | |
| **Grinding wheel spindle load indicator** | yes | | |
| **Work spindle RPM indicator** | yes | | |
| **Working hour meter, No. of workpiece indicator** | yes | | |
| **Full cover, interlocked door** | yes | | |
| **Taper+contour form software available by the simultan. contr. 2 axis** | no | yes | yes |
| **Grinding wheel forming software (taper form, free form)** | no | yes | yes |

| Optional | | IGM15EXIII | IGM15NCIII | IGM15NCIII-2 |
|---|---|---|---|---|
| **Coolant System** | with magnetic separator/paper filter | yes | | |
| | with magnetic separator/paper filter/ temperature regulator | yes | | |
| **Sleeve type grinding wheel spindle (high frequency spindle, oil mist type)** | OH-10MB (10000 min$^{-1}$) | yes | yes | standard |
| | OH-20MB (20000 min$^{-1}$) | yes | yes | standard |
| | OH-30MB (30000 min$^{-1}$) | yes | yes | yes |
| | OH-40MB (40000 min$^{-1}$) | yes | yes | yes |
| | OH-60MB (60000 min$^{-1}$) | yes | yes | yes |
| **Sleeve type grinding wheel spindle (oil mist type)** | GS-5 (60000 min$^{-1}$, 40000 min$^{-1}$) | yes | yes | no |
| | B-32M (30000 min$^{-1}$) | yes | yes | no |
| | B-23M (20000 min$^{-1}$, 16000 min$^{-1}$, 13000 min$^{-1}$) | yes | yes | no |
| | R-7B-A (10000 min$^{-1}$) | yes | yes | no |
| **Grinding wheel spindle with holder (grease packed)** | OH-10G (10000 min$^{-1}$) | yes | yes | no |
| | OH-15G (15000 min$^{-1}$) | yes | yes | no |
| | OH-20G (20000 min$^{-1}$) | standard | standard | no |
| | OH-30G (30000 min$^{-1}$) | yes | yes | no |
| | OH-50G (50000 min$^{-1}$) | yes | yes | no |
| **Grinding wheel spindle with holder (oil mist type)** | OH-10M (10000 min$^{-1}$) | yes | yes | no |
| | OH-20M (20000 min$^{-1}$) | yes | yes | no |
| | OH-30M (30000 min$^{-1}$) | yes | yes | no |
| | OH-40M (40000 min$^{-1}$) | yes | yes | no |
| | OH-60M (60000 min$^{-1}$) | yes | yes | no |
| **Sleeve type grinding wheel spindle holder** | | yes | yes | no |
| **Chucks** | 3-jaw scroll chuck | yes | | |
| | 4-jaw independent chuck | yes | | |
| | Micro centric chuck | yes | | |
| | Diaphragm chuck | yes | | |
| | Collet chuck | yes | | |
| | Finger chuck | yes | | |
| | Diaphragm finger chuck | yes | | |
| | Gear chuck | yes | | |
| | Various other power chucks available | yes | | |
| | Hydraulic pressure drive device for power chuck | yes | | |
| **Workhead spindle NC swing, swing min. setting unit: 0.00001°** | | no | yes | yes |
| **Graphic conversat. software for workhead spindle NC swing angle setting** | | no | yes | yes |
| **Workhead spindle rotation constant control** | | no | yes | yes |
| **Auto programming software** | | no | yes | yes |
| **Auto power cut-off device** | | yes | | |
| **Inprocess guage system** | | no | yes | yes |
| **Rotary dressing device** | | yes | | |
| **Signal tower** | | yes | | |