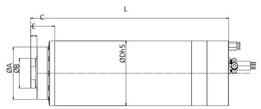
The built-in type spindle is the highlight of application technology on COMORK. It is a high speed spindle with variable speed change to suit various sizes of work-pieces while maintaining the best possible grinding performance. High material removal rate and high feed rate help to reduce machining time, thus increasing production efficiency greatly. The high rigidity and minimum vibration enable the workpiece to exhibit outstanding geometric accuracy and surface finish.

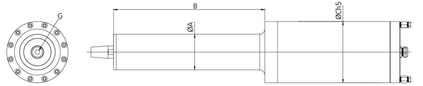
Specifications of Built-in Type Spindle



Model	Color	Coupler	Lubr.	RPM	ØA(mm)	ØB(mm)	ØC(mm)	ØD(mm)	ØE(mm)	L(mm)	Volt(V)	S1 Current(A)	S1 Power(kW)	S1 Torque(Nm)
CF1208-15	Green	DV-26	Grease	15000	100	60	55	120	11.5	369	220	21	5.5	6.6
CF1215-30	Blue	DV-22	Grease	30000	97	59	55	120	11.5	337	220	28	7.5	4.9
CF1206-90	Black	DV-08	Oil mist	90000	65	24	44	120	7	224	220	17	4.2	0.5
CF1209-12	Purple	DV-07	Oil mist	12000	60	20	40	120	7	210	200	10	2.5	0.2

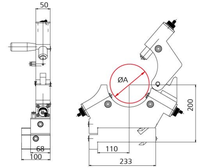
Built-in Type Spindle for Deep Hole Machining

The built-in type spindle for deep hole machining is performed by using the main spindle and sub-spindle to replace the traditional extended spindle. The length and outside diameter of the sub-spindle can be customized to meet customer requirements.



Model	Lubr.	RPM	ØA(mm)	B(mm)	ØC(mm)	Volt(V)	S1 Current(A)	S1 Power(kW)	S1 Torque(Nm)
CFL-1212	Grease	12000	70 32 40	260 280 260	120	220	25	5.5	4.4

Specifications of Steady Rest



Model	Description	ØA
412-040-M001	100 steady rest	0—100
412-040-M002	150 steady rest	100—190
412-040-M003	200 steady rest	190—280

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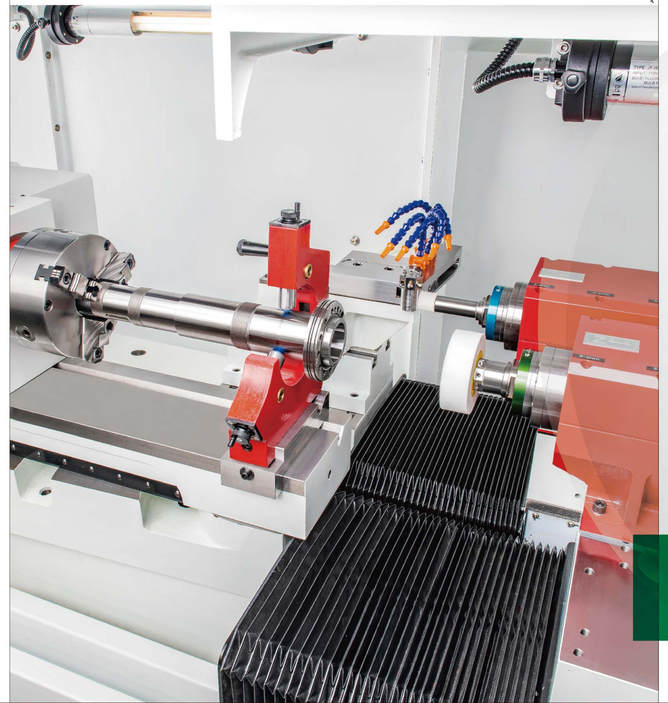

COMORK
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Grinding Our Dream

Innovation on the fundamentals of grinding.
Creating a new chapter of grinding craft.

GJ-412

CNC Internal Cylindrical Compound Grinding Machine

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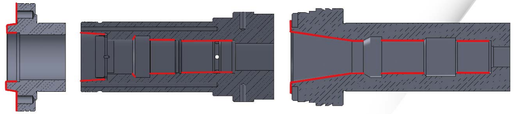
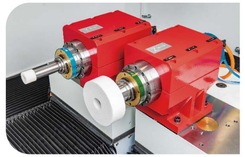
Machining Positions by Various Spindles

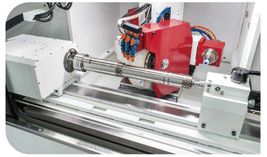


Layout of Wheel Spindles



APPLICABLE MODEL	COMORK GJ-412 Internal Cylindrical Compound Grinding Machine	
Wheel axis	Y-axis	Z-axis
Spindle speed	30000	15000
Grinding wheel size	35x30	100x40
Grinding wheel material	WA	WA
Coupler specifications	DV-22-35-40	DV-26-40-50
Grinding positions	Internal hole	End face & taper

When the COMORK GJ-412 is used together with the COMORK G0-350 G2, the complicated machining processes for the spindle and its similar workpieces can be reduced to only three setups. With the rotating function (B-axis) used on the G0-350 G2, plunge feed and angular feed can be changed as desired. It also allows outside diameter, end face, and external threads to be ground at one time. With two machines used together, spindle machining efficiency will be increased dramatically.



CNC INTERNAL CYLINDRICAL COMPOUND GRINDING MACHINE

The COMORK GJ-412 CNC Internal Cylindrical Compound Grinding Machine features large machining capacity in length and swing. In addition, this machine is also equipped with B-axis function, suitable for machining on the nose of a lathe spindle, spindle nose or back draw taper for a milling machine, and workpieces with deep holes such as sleeves. Multiple machining processes can be accomplished with only one setup for the workpiece. In addition to saving time and labor costs, it also upgrades machining efficiency and accuracy.

GJ-412

Machine Features:

- The built-in type spindle is standard equipment, and features a wide range of spindle speed and higher cutting ratio to achieve maximum grinding efficiency.
- Internal, external, end face and tapered face can be ground in one operation.
- X, Y, Z-axes are all mounted with high precision linear guideways.
- Twin wheel spindles exhibit high efficiency internal and external grinding.
- The base is designed with operator in mind. Its semi-circular design can reduce the waste of space. Massive and highly rigid machine structure ensures maximum stability during grinding.
- This machine is equipped with a FANUC Oi-TF CNC controller
- Multi-face grinding requires only one setup of the workpiece.
- Non-circular grinding function is available as an option.
- Fully enclosed splash guard is included.
- Optional B-axis is equipped with a circular encoder to ensure the best indexing accuracy.

Automatic Sensing Device

The automatic sensing device is used to detect the current of the wheel spindle. It allows for setting the top and bottom limit values of current, which provides an indication when the grinding wheel touches the workpiece or a warning if a malfunction occurs. The device can be applied for gap elimination, inconsistent machining allowance on workpiece, workpiece reference point setting, and reduce the possibility of collision leading to machine damage.

Operation Panel

The operation panel is optimized according to the user's habitual gestures. When executing programs, the operation mode can be changed to handwheel mode for adjustment. This provides a setting effect for the user.

Pictogramming Software

The conversational software is an innovative self-directed program that is intuitive and easy to understand. Its ease of operation and good iteration increases production flexibility. In addition, it has built-in safety values and error reminding function to prevent the entering of incorrect data by inexperienced operators. Even novice operators can set data fast and accurately for direct production.

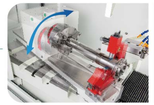
Work Head

The work head is equipped with an A2-5 spindle as standard equipment. Upon request, and optional A2-6 spindle is available for accommodating larger workpieces, while providing better rigidity and higher loading capacity. The work head is driven by a servomotor. With the use of C-axis function and special software, the machine can perform non-circular grinding such as punch, eccentric shaft, and cam, as well as other grinding functions.

Multi-face Machining Accomplished at One Time.

By using the special software of the controller, multi-face grinding can be accomplished in one process, ensuring high machining accuracy and high efficiency, and also dramatically reducing machining costs.

The work head is equipped with a micrometric taper regulator. In case there is a difference between both ends of a workpiece after grinding, in can be compensated by programs or using this device for micrometric taper adjustment with a range of within ±20μm.



B-axis Function

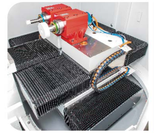
With the use of the additional B-axis function, the workpiece can automatically orient to the desired grinding angle. The B-axis can also be equipped with a circular encoder to achieve the best indexing accuracy.

Multi-direction Diamond Dresser

The patented structure design in combination with the use of composite material allows the diamond dresser to exhibit superior rigidity and damping capacity. Upon request, roller dresser is available.

Twin Wheel Head Structure

Twin wheel head configuration permits internal and external grinding to be accomplished in one process. The wheel spindle provides a selection of various built-in type spindles with speed from 8000 to 120000 RPM. O.D. wheel diameter is Ø355.



Linear Guideway Layout

The double-cross layout of linear guideways allows the diamond dresser to keep stationary. The linear scale equipped on the X-axis can reduce error on the moving axis while eliminating inconsistent size problems. The large span between X-axis linear guideways helps to increase the stability of the slide, providing strong support during grinding.

Circular Door

The circular door design can save the occupied floor area and change the workpiece loading and unloading method. The workpiece is easier to access, in line with ergonomic principles. When replacing spindle or cleaning the machine, it provides added convenience for operations inside the machine.

Base

The machine base provides strong support for the work head and wheel head, ensuring outstanding stability and quality of grinding.

Machine Specifications

Model	Unit	Specification	Remarks
Max. swing of spindle	mm	Ø450	
Spindle speed	r.p.m.	0~1,000	
Angle adjustment on spindle head	mm	0°~15°	
Hole grinding diameter range	mm	Ø6~300	
Max. outside grinding diameter range	mm	Ø360	
Max. grinding length	mm	300	
Max. length of workpiece	mm	1000	
Max. grinding faces with single setup	mm	8	
Max. weight of workpiece	KG	120	Steady rest mounted
Max. travel on X-axis	mm	550	
Max. travel on Y-axis	mm	375	
Max. travel on Z-axis	mm	375	
X-axis feed rate	mm/min	0~10,000	
Y-axis feed rate	mm/min	0~10,000	
Z-axis feed rate	mm/min	0~10,000	
Min feed unit on X-axis	mm	0.0001	
Min feed unit on Y-axis	mm	0.0001	
Min feed unit on Z-axis	mm	0.0001	
Spindle motor on X-axis	KW	Servomotor 1.2	Optional 1.8
Electricity required	KW	20	
Machine dimensions	mm	2754 x 3289 x 1978	
Net weight of the machine	KG	9,500	

• Machine specifications and sizes are subject to change without prior notice.

Machine Dimensions