

Press Release

October 30, 2015

Two Cutting-edge Huge 5-axis Machines Installed in DMG MORI Iga Campus

DMG MORI CO., LTD. (hereinafter called DMG MORI) has installed two DMC 340 FD large 5-axis machines in its Iga Campus.

The Iga Campus is the manufacturing facility equipped with the state-of-the-art machines and equipment which help achieve a production environment that keeps pace with Industry 4.0. At the facility, manufacturing information including tooling information and machining schedule is centrally managed by connecting large machines like the DMC 340 FD with peripherals for automation such as a tool presetter and a pallet pool system over the network, and controlling them with our original embedded software.

The DMC 340 FD is a large 5-axis machine equipped with a pallet changer. The machine is currently manufactured at the Pfronten factory in Germany, one of the manufacturing bases of our group company DMG MORI AKTIENGESELLSCHAFT. Featuring the direct drive turning table with a maximum rotational speed of 120 min⁻¹, the machine combines milling with turning on one machine. This allows, for example, a workpiece requiring both 5-axis machine and vertical lathe to be completed with the DMC 340 FD alone.

The spindle with a speed of up to 12,000 min⁻¹*, output of 52 kW* and torque of up to 430 Nm* achieves high-efficiency machining of large workpieces such as machine tool beds and aircraft & ship components. The 5X-torqueMASTER, a gearbox spindle unit with a spindle speed of up to 6,300 min⁻¹, output of 44 kW and torque of up to 1,550 Nm, is also available as an option.

As for the machine construction, the DMC 340 FD employs a high-rigidity, single-piece bed with 3-point support. The robust, 3-point support structure minimizes gradual deterioration in static accuracy. As a result, the frequency of time-consuming leveling with jack bolts is reduced and the operators' workload is alleviated.

*Option

Up until now, a 5-face machine has been used at the Iga campus. The 5-face machine has no cover, so cutting chips or fragments of a broken tool could scatter during machining, possibly causing injury to the operators. Moreover, the use of long, small-diameter tools and an angled attachment for the spindle imposes restrictions on spindle speed.

The DMC 340 FD, meanwhile, comes with a full cover to ensure safety. The high-speed spindle enables the machine to achieve high-speed machining of castings by means of a ceramic tool, which has been considered difficult on the conventional 5-face machine, resulting in shorter machining time. Additionally, thanks to the swivel milling head, the spindle requires no attachment change. This, coupled with high-speed tool change achieved with rapid traverse rates of 60/30/40 m/min (X/Y/Z), contributes to significant reduction in non-cutting time. The DMC 340 FD with improved performance and shorter non-cutting time has allowed us to reduce total machining time by approximately 49%* compared to the conventional 5-face machine. And the machine's superior capability to achieve process integration through simultaneous 5-axis machining brings much greater productivity to us.

*This figure is the result obtained when beds for our CNC lathes were machined on both machines.

Currently, the Iga Campus is the only facility in Japan where the DMC 340 FD is running. This means the machine in the Iga Campus can serve not only as a production equipment but also as a display model to showcase its high-precision, high-efficiency machining. A documentary video showing how the DMC 340 FD was transported from Germany to Japan and installed in the Iga Campus is available on DMG MORI Video Clips. Please visit our Video Clips page by clicking [here](#).

■ Main specifications

Item		DMC 340 FD
Travel (X/Y/Z)	(mm)	3,400/3,400/1,600 [2,000]
Table size	(mm)	φ2,500
Table loading capacity	(kg)	6,000 ^{*1}
Max. turning diameter	(mm)	φ3,400
Max. turning length	(mm)	1,650 [2,050]
Rapid traverse rate (X/Y/Z)	(m/min)	60/30/40
Max. spindle speed	(min ⁻¹)	10,000 [12,000] [6,300 (gear spindle)]
Tool storage capacity	(tools)	Chain type : 60 [120] [180] [240]
Footprint (width x depth)	(mm)	13,937 × 12,535 ^{*2}
Machine weight	(kg)	102,000

[] Option

*1 : 10,000 kg for DMC 340 U

*2 : For 60-tool chain magazine

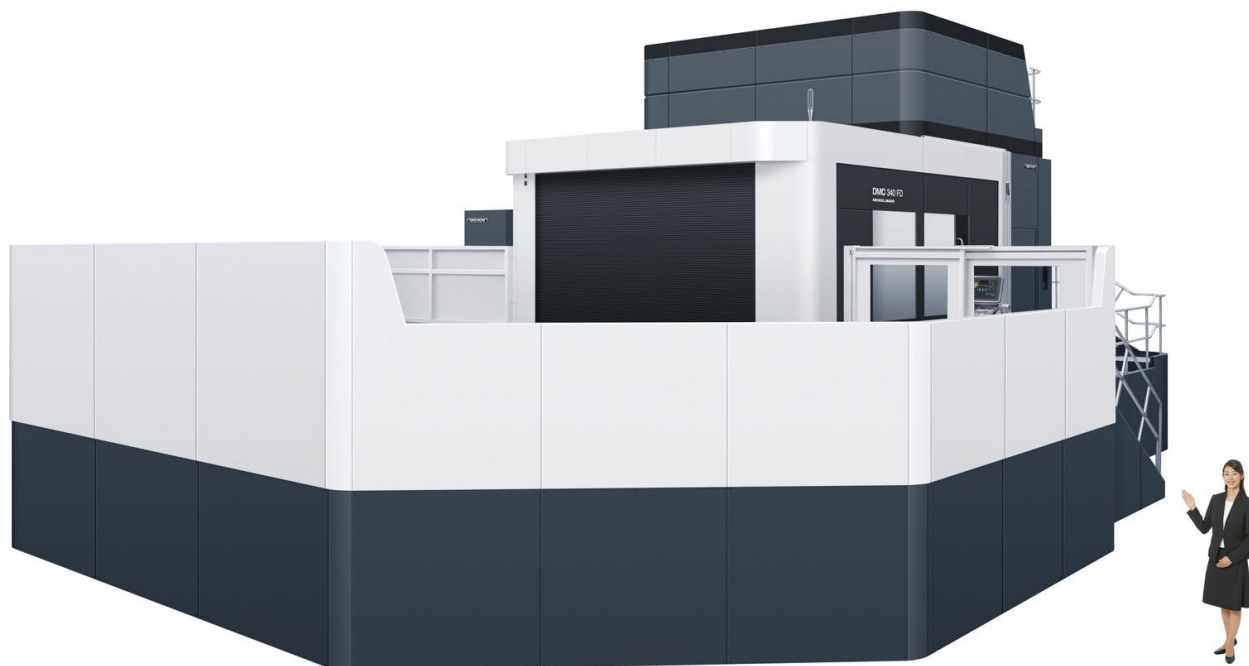


Photo 1 Exterior



Photo 2 Unloading at Port



Photo 3 Installation at Iga Campus