

Highly diverse machine facilities connected simply and digitally

Episode 4

NC Machine

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EXECUTIVE VIEW

Digital transformation of production requires an integrated IT/OT architecture – for example, the 'Industry 4.0 Solution Blueprint' from SAP. Using FORCAM FORCE EDGE, we can connect your brownfield systems and comprehensively map levels 0 to 2 in the SAP Industry 4.0 Blueprint. Our Edge solution offers maximum system stability and at the same time allows all relevant data to be transferred to the SAP Digital Manufacturing Cloud, where your machine data can be docked seamlessly to all relevant processes.

In six articles for common machine types, we outline how companies can use the FORCAM FORCE™ EDGE connectivity layer to connect all machines – regardless of manufacturer, vintage or control system – and process the data in the SAP DMC (Digital Manufacturing Cloud) or SAP ME/MII.

Go to [FORCAM FORCE™ EDGE](https://sapappcenter.com)
(sapappcenter.com)

PART 4: NC MACHINE

In manufacturing technology, the abbreviations NC or DNC (Distributed Numerical Control) are about feeding computer-controlled machine tools (CNC machines) with the required manufacturing information. The software programs required for production are transferred to the machine controller or file system with the aid of a DNC system.

The FORCAM DNC module controls the distribution of NC programs to the relevant machine. The special feature is that NC programs that have been modified on the machine, say in the course of prototype production, can be transferred back to the superordinate system, such as the SAP DMC (Digital Manufacturing Cloud) or SAP ME/MII, via the DNC module. An appropriate machine control system is a key requirement for this.



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SOLUTION ARCHITECTURE COMPLETE WITH BI-DIRECTIONAL COMMUNICATION

Once a reference machine has been selected, the choice of appropriate NC plug-in is crucial. The key question is whether this machine is capable of receiving NC programs or whether it can also transfer NC programs back to a superordinate system. Attention must also be paid to how the machine is integrated into the work process (line, workshop or standalone production).

These requirements are mapped onto the FORCAM FORCE™ solution portfolio. The solution architecture produced features bi-directional communication. This means that a PLM or ERP system transfers an NC program to the machine controller or file system via the standardized FORCE EDGE API web interface and via the DNC plug-ins.

Likewise, the NC program can be transferred back from the machine controller via the FORCE EDGE API to the ERP system using the appropriate plug-ins.

The transfer of NC programs from, for example, SAP DMC to the Forcam system works via the FORCE EDGE API interface. Further management instructions to the individual controllers is the core task of the Edge module “FORCAM FORCE™ EDGE”.

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SCHEDULE OF THE SERIES

Episode 1: Presses	(14th Jan 2021)
Episode 2: Assembly Line	(21st Jan 2021)
Episode 3: Palett Machine	(28th Jan 2021)
Episode 4: NC Machine	(04th Feb 2021)
Episode 5: Energy Monitoring	(11th Feb 2021)
Episode 6: Traceability	(17th Feb 2021)