AMTOS Force Control Unit

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The AMTOS Force Control Unit (FCU) is a fully electric device designed to be used in surface finishing applications (typically sanding or polishing of parts with complex geometries), in which the axial force of the tool pressing against the workpiece needs to be precisely controlled.

FCU has the possibility of force control within the 5-200 N range (accuracy within ± 2 N), which is applied to the tool flange with travel range of 50mm.

Tool mass and orientation are autonomously compensated within the FCU control system during the operation, allowing the device to be used on industrial robots and machine tools.

Dynamics of FCU can be adjusted by setting the control system parameters, which allows the fine tuning of the device with respect to the machining process (type of the tool, machining parameters or workpiece characteristics).

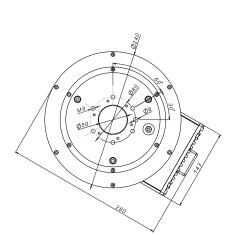
These characteristics allow a wide range of applications even on parts produced with high deviations in dimensions and/or parts clamped with low accuracy.

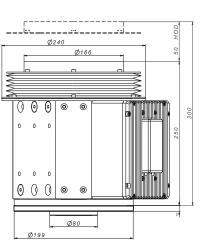
FCU is controlled using the Modbus TCP protocol, which allows integration with a variety of different types (including an older generation) of control systems (such as PLCs, robot or machine tool control systems). The motor used in FCU device is of PMSM type which makes FCU resistant to dust, regularly present in sanding and polishing operations.

Being a fully electric device, the FCU is energy efficient and requires minimal maintenance.

Tool flange pattern.

FCU plan.





SPECIFICATIONS

POWER SUPPLY REQUIREMENTS: 48 VDC / 10A (PN=480W)

FORCE CONTROL RANGE: 5–200 N (accuracy within ±2 N; not including tool power supply cables, dust suction hoses, etc.) TOOL FLANGE STROKE LENGTH: 50 MM MASS OF THE UNIT: 12 KG COMMUNICATION PROTOCOL: MODBUS TCP



The device is patented.

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