

ECM/PECM Machine Leistritz EC 20 NX for Pulsed Electrochemical Machining

1. Highlight Features

- Automated part load
- Advanced NC-control
- Easy-to-operate display panel and process display or documentation
- Highest accuracy
- Perfect process control



Leistritz NX20 machine after assembly and before entry into service

2. Technical Description

The core technology of the ECM process is the anodic dissolution of surplus material and a combination of electrical power, electrolyte and material of the raw part. The tools can be two or more cathodes, having the negative shape of the final part. The cathodes are moving towards the raw part and to the final part in a linear movement or if suitable in a pulsing movement. The gap between the part to be machined and the cathodes is continuously flushed with the electrolyte, removing the metal hydroxide and cooling at the same time the raw part & cathodes. The composition of the electrolyte has to be adjusted to the material that is processed (Ti- or Nickel based alloy). The electrolyte supply units ensure the supply of the machine and process with electrolyte and respective needed volume and parameters during processing.

3. Features

- Compact construction in monoBLOCK®-design with 3-point-support
- Leak-proof machine housing with a large door for unique access to the working area
- Siemens 840 SL Solution Line control system
- Standardized workpiece holder HSK63
- Workpiece-magazine for 60 pieces
- Visualization and digital archiving of all process parameters via 21"-display with touch-screen
- No parting line on the workpiece by using 360° modeled cathodes
- No side gap machining by using multiple cathodes
- High process stability and accuracy
- Machining with linear and oscillating feed movement
- Generous design of the torque motors
- Direct measuring system in all axes (brand Heidenhain)
- Combined ECM-Generator for machining with constant and pulsing voltage
- Water-cooled ECM-Generator for constant conditions
- Process monitoring of the generator parameters with digital oscilloscope (PC)
- Possibility of machining with a decentralized electrolyte-system

4. Optional Features

- Enhanced generator power up to 10.000A
- Larger tool storage room with capacity up to 120 pieces

5. Technical Data

Machine NX20	
Max. traverse path X-axis	735 mm
Max. traverse path Y-axis	650 mm
Max. traverse path Z-axis	560 mm
Max. weight load table	3.000 kg
Machine NX20 (without electrolyte container and pulse generator)	
Footprint of the machine	3.934 mm x 2.460 mm x 2.835 mm (LxWxH)
Weight	appr. 12.000 kg
Ambient Conditions	
Temperature	5 - 40° Celsius
Relative humidity	20 - 75 %
Operational elevation	max. 1000m above sea level
Technical data of the hydrostatic unit	
Maximum pressure of the system.	20 bar
Tank volume	30 l
Brand of oil	Vitam DE 46
Technical data hydraulic unit	
System pressure max.	200 bar
Tank volumen	2 l
Brand of oil	Vitam DE 46

Technical data pneumatic unit		
Operating minimum pressure	5,5 bar	
Operating maximum pressure	8,0 bar	
Average consumption of compressed air (incl. con-	30 m ³ /h	
Condition of air	Filtered, free of condensate and oil	
Technical data of centralized lubrication system		
Maximum pressure of the system	30 bar	
Tank volume	1,8 l	
Brand of oil	NLGI-class 000	
Electrical power		
Voltage	3x 400 VAC ± 10 % + N + PE	
Frequency	50 Hz ± 2 %	
Fuse to main switch board	250 A (incl. 3 NH-separator)	
Fuse for the pulse generator	100 A	
Fuse for the ECM-control unit	80 A	
Fuse for the machine body	80 A	
Connected wattage	100 W	
Dimensions of the raw part		
Max. weight of the raw part (fixture included)	8 kg	
Max. size of diameter of the raw part	100 mm	
Max. length of the raw part	120 mm	
Fixture to clamp the raw part	HSK 63	
Quantity of raw parts fitting to the storage room	60 pieces per chain	
Alloys		
Classification	Description	ECM-Electrolyte
Martensitic stainless steel	Greek Ascoloy AMS 5616	Nitrate-Base
	17-4-PH AMS 5643	
Austenitic stainless steel	ST 17/13 W 1,4962	Nitrate-Base
Nickel based alloys	Nimonic 90	Nitrate-Base
	Nimonic 115	
	Inco 718	
	Gathorized Waspaloy	