SAMPLI Mill-Fe-R

WHY SAMPLI MILL-FE-R

Our milling machine integrates automated technology and comprehensive flexibility into a compact and robust design. In contrast to off-the-shelf standard CNC machines, this milling machine avoids compromises in terms of size, configurability, and accessibility. We ensure W minimal preparation time with maximum precision programmable by ease-to use interface. Specifically crafted to meet the demands of a QC laboratory within metal industry. Therefore operators can simply set up cutting depths for every sample shape in 0,01mm steps.

FLEXIBILITY AND STABILITY

SAMPLI-Mill-Fe-R is designed to provide remarkable flexibility, catering to the specific requirements of each customer. During manual operation, the operator easily inserts samples through the front door. The default input position is on the left side of the machine, but it can be effortlessly switched to the right side. In automatic mode, samples can be inserted through either the side or front-loading openings, utilizing a robot, conveyor belt, or magazine. This not only grants maximum planning freedom but also results in significant time and cost savings for your project. Moreover, SAMPLI-Mill-Fe-R features excellent damping achieved through mineral composite casting. This leads in a substantial reduction in vibration levels, ensuring outstanding milling results, especially for highly brittle pig-iron samples. Our quality commitment ensures the longest durability and lifetime of the machine, reinforcing its reliability and performance in sample preparation processes.

HOW RESULT LOOKS LIKE

WITHOUT PREPARATION

AFTER PREPARATION

These are our standard times. The times can be set via our PLC as required

ROBOT HANDLING INTO MILLING MACHINE	PRECISION MILLING PROCESS FOR OES-ANALYSIS	ROBOT HANDLING OUT OF MILLING MACHINE

1   10   Time (in s)   45   55

SAMPLE SHAPES

SAMPLE PREPARATION BY SAMPLI Mill-Fe-R

SHORTEST PREPARATION TIME

In the speed-optimized workflow of SAMPLI Mil-FE-R the operator, robot, or a belt transport system places the sample either at the transfer position on left or right side or directly to the clamping unit on the front side. As it begins milling the upper surface of the sample, it automatically assumes a predefined zero plane position. This eliminates the need for time-consuming measurements of sample height. Following this, the clamping unit securing the sample for processing from the top. This streamlined sequence, optimized for speed in each sub-step, results in significant time savings, a crucial factor for time-sensitive production samples. The machine is equipped with sensor-based safety measures to prevent collisions at the transfer position and milling of inappropriate samples.

SEVERAL SAMPLES SHAPES ARE POSSIBLE

Thanks to our many years of expertise and our specially developed clamping unit, we can mill several sample shapes:
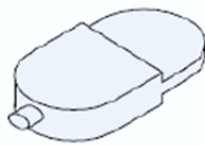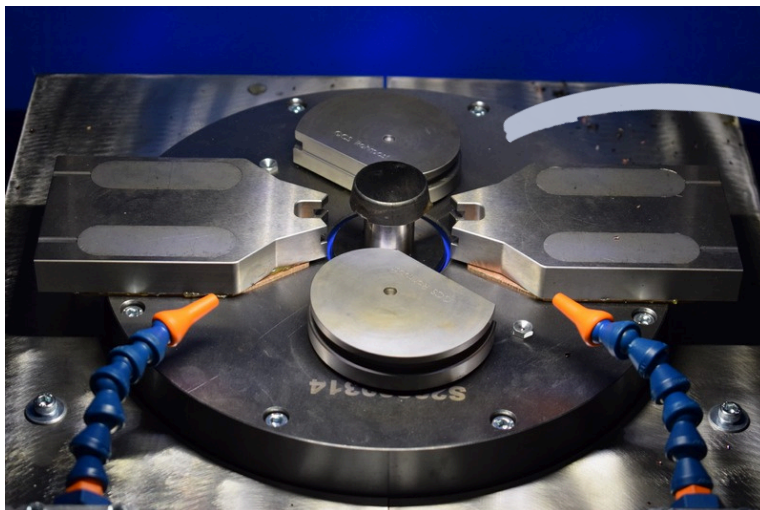
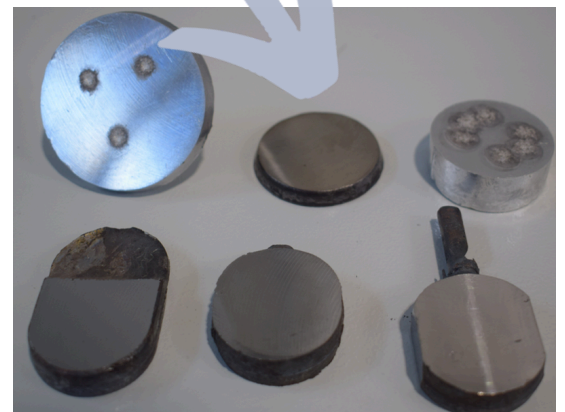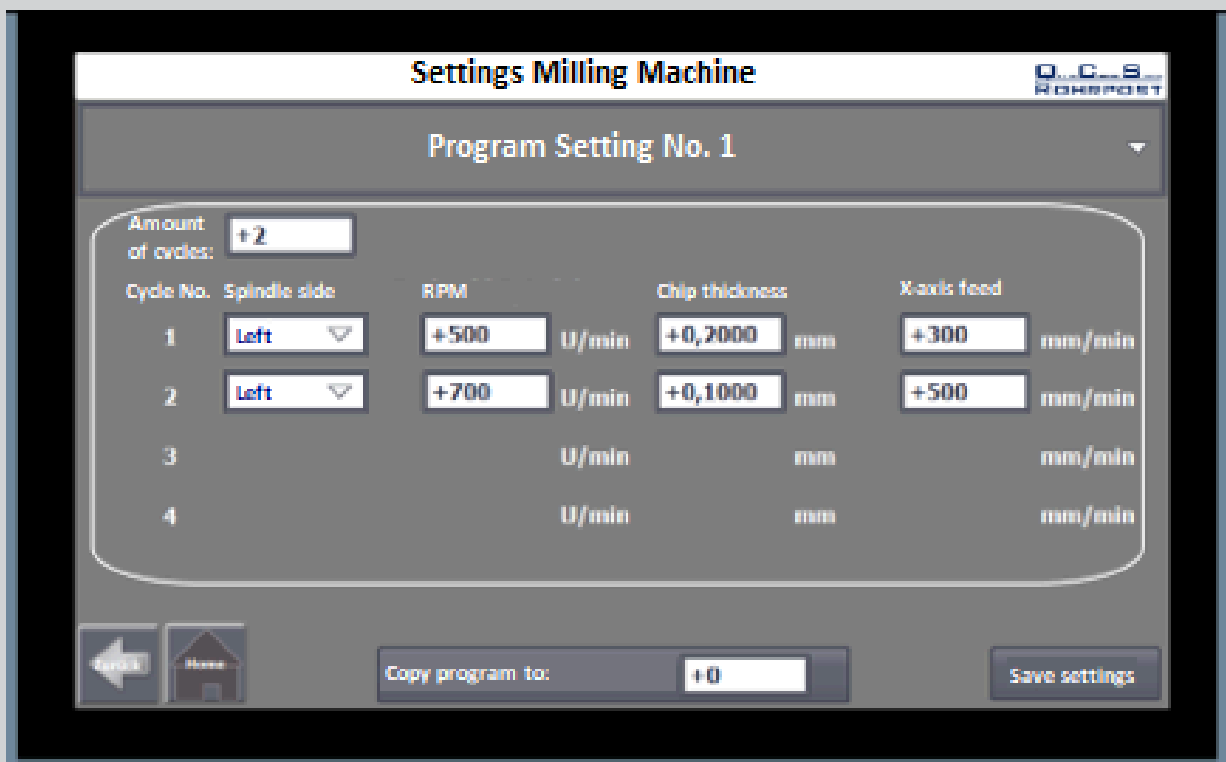**Double Thickness Lollypop**   **Oval Lollypop**   **Cylindrical**   **Conical**   **Aluminium Mushroom**

OUR CLAMPING UNIT FOR SAMPLES SHAPES

Several sample shapes after milling

QCS
Quality Control Systems

Settings Milling Machine | Q _ C _ S Rohrpost

Program Setting No. 1

Amount of cycles:	+2			

Cycle No.	Spindle side	RPM	Chip thickness	X-axis feed
1	Left	+500 U/min	+0,7000 mm	+300 mm/min
2	Left	+700 U/min	+0,1000 mm	+500 mm/min
3		U/min	mm	mm/min
4		U/min	mm	mm/min

Copy program to: +0 | Save settings

MACHINE SETTING FOR SAMPLI Mill-Fe-R

MILLING DEGREES OF HARDNESS UP TO 64 HRC

We do not manufacture conventional CNC milling machines. Our milling machines are specially designed for sample preparation of hardness grades up to 64 HRC. To achieve this, we use spindles developed in-house, which are easy to operate thanks to our software. In addition, we combine our software perspective with our decades of experience in the selection of suitable cutterheads and their inserts. This is essential to ensure representative sample surfaces even at hardness levels of 64 HRC and to keep wear as low as possible. This also means that the speed of the spindles can be individually parameterized. The chip thickness and X-axis feed can also be set individually. Our machine has 2 spindles and 2 cutter heads as standard to cover different sample shapes and sample hardnesses. The number of milling cycles can also be adjusted (see picture above).

CYCLES
Up to four milling cycles can be selected which are run one after the other with different parameters and milling heads.

SPINDLE SPEED (RPM)
The right spindle speed plays a decisive role in achieving a perfectly flat sample surface, especially for very hard samples.

CHIP THICKNESS
Infeed of the height which specifies the amount of material removal per cycle. The sum of the chip thicknesses of all cycles must not exceed the maximum dimension. This setting is particularly helpful for expensive recal samples in order to mill off only as much as necessary.

X-AXIS FEED
Speed of the X-axis during the milling process. This parameter, in conjunction with the spindle speed, decisively influences the result of the finished sample surface.
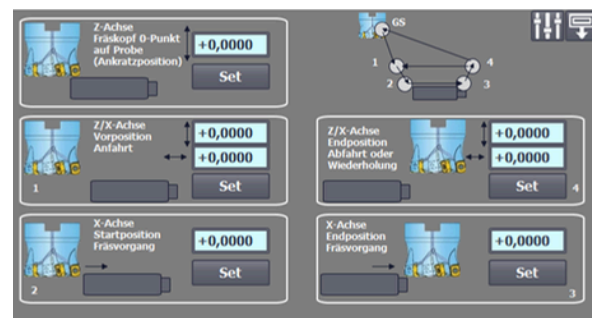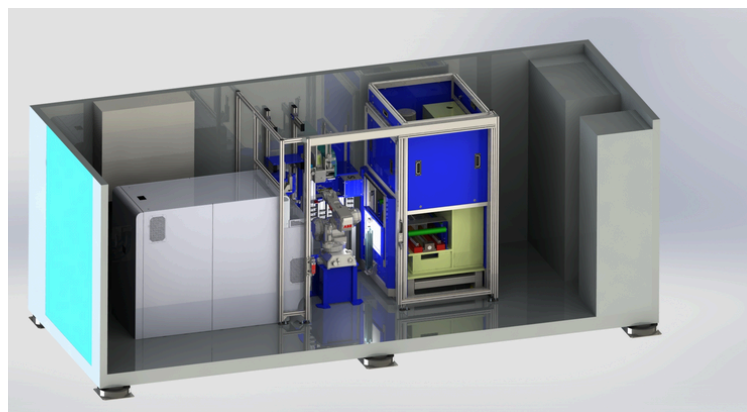

HMI-Touch Terminal

Various X- and Z-axis settings are possible to adjust the cutter heads and cutting plates to the sample shape and thickness. This includes, among other things:

- Z-axis positioning of the sample in the clamping device at the correct height using a hold-down device and our integrated height compensation
- X-axis positioning for the milling process at the speeds set in the programs
- Z combined X-axis positioning for the basic setting of several cycles

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QCS LabAutomation GmbH
Dreherstaße 38,
42899 Remscheid, Germany
+49 (0)2191-890 93 47
info@qcs-info.de

https://qcs-automation.com/en

ABOUT SAMPLI Mill-Fe-R

SAMPLI-Mill-Fe-R with automated side and front door

QCS Container Lab with SAMPLI-Mill-Fe-R

COMPACT DESIGN

The milling machine boasts a highly compact structure, enabling straightforward installation even in confined spaces. Its volume is much smaller than that of standard CNC mills. In container laboratories, the SAMPLI-Mill-Fe-R effortlessly fits into standard cabins, providing additional space for movement. Within larger robot cells, the small machine base creates room for the integration of more extensive and larger equipment in the automation process. Despite its modest size, the machine offers exceptional serviceability and accessibility. The interior has been optimized to direct all waste chips efficiently into the chip containers on the back side for convenient removal. Maintenance, exchange, and repair of crucial machine components, including the spindle, motors etc. are easily accessible. The switch cabinet and the majority of pneumatic components are located at the rear side, ensuring convenient reachability for operators.

Technical specif. SAMPLI-Mill-Fe-R

Dimensions (W x D x H)	Appr. 1.110 x 1.350 x 2.190mm
Weight	Approx. 1.700kg
Voltage	3x 400V, 50 Hz
Compressed Air Supply	Min. 6 bar, max. 8 bar
Sample clamping device	2-4 parallel clamping jaws (depending on sample shape)
Samples Material	Steel, iron, non-ferrous
Samples Shapes	Round, oval, double thickness after pin cutting, square samples
Sample Hardness	Max. 64 HRC depending on the cutting tips
Cutting depth	0,8mm in one step, programmable in steps of 0,01mm
Process cycle duration	Depending upon the program approx. 18 to 35 sec.
Sample Cooling	By compressed air

Configurable options

Input method	Manual at the front, optional with linear transport or robot system
Discharge method	Manual at the front, optional with linear transport or robot system
Automatic sample handling	front or side loading: robotic access from the front or side
De-Burring	By robot
Chip collecting	Automated chip collecting unit for CNS