

Xcelerate X20 | R-C2 | 6S

6-sided complete machining



Unmanned 6-sided production: Also for you?

Milling small series to single pieces, in unmanned production and machined on all 6 sides, remains a challenge, despite the growth in the number of automated machines.

Setting up an unmanned production mix requires a lot of clamping equipment that needs to be prepared. The first operation is already being automated more often. The second operation of the same series is often not automated. How is accurate positioning of the second clamping ensured? It is not surprising that products with high accuracy requirements are tensioned manually on a pallet or directly into the clamp of the machine. Another aspect is the cleaning of a product that is of great importance in order to guarantee quality, specifically in unmanned production.

For this reason, it is often decided to split up into different process steps. A product cannot be finished in one run, resulting in inefficiency; extra man-hours to complete the order, too few unmanned hours, logistical costs and extra overhead. For this efficiency, Xcelerate X20 | R-C2 | 6S is the solution.

Process steps Xcelerate X20 | R-C2 | 6S

- 1 The robot picks up a vise with the R-C2 robohead and takes a raw part from the tray.
- 2 The piece is centered on the centering unit.
- 3 The robot takes the material in the vise to the machine and places the vise (including the piece) on the machine table for the first operation. The machine processes the material on 1 - 3 or 5 sides.
- 4 After machining, the set of product and vise, are being cleaned in the blow-off unit.
- 5/6 The vise of the first set-up is placed at the lower station of the take-over system. An empty vise for the second fixture is already prepared and placed at the top station which moves downwards to take over the product.
- 7 The robot moves the vise with the second set-up to the machine for the second operation.
- 8 When the second operation has been completed by the machine, the product can be returned to the tray and the cycle can be repeated for the remaining products.



How does it work?

Xcelerate: the system is loaded with material and corresponding centric vises with jaws. In the Job Manager, the operator enters the jobs where the system links the right vises to the right products and where production can be carried out in accordance with the entered job list

R-C2: the robot takes with the R-C2 head the right vise, for the product to be machined. The product is accurately positioned and clamped again on the centering unit. Now the product and the vise are united and the whole is placed in the machine at the zero-clamping chuck. The various vises are then used to produce the various products or series.

6S: the 6S module makes it possible to automatically transfer the product to the next vise for the second part of the operation. The module does this by precisely aligning the vise for the second machining operation with the vise for the first machining operation. The second vise moves over the product so that the robot with the R-C2 head picks up the second vise including the product in the same way as the first vise has been placed.

A process run can be functionally extended by adding cleaning process steps; the product and vise are blown clean by the separate cleaning module and before new material is placed, the chuck in the machine is also cleaned by a nozzle on the robot head. The process is thus fully controlled and very reliable.



All advantages at a glance

- ✓ The cycle time of a complete cycle is significantly reduced, instead of just planning and clamping several times.
- ✓ Simplification of logistics, planning and overhead through less production steps. Shorter delivery times due to faster production of a complete product ready for delivery.
- ✓ 24/7 machining of complete products, i.e. a higher output of unmanned hours. Multiple products and series can also be machined completely unmanned. In addition, the staff can focus on the challenging work. This results in a high ROI.
- ✓ More efficient production: no extra production needed to overcome possible rejects in subsequent production steps. The machine efficiency is very high due to robotization of the entire process in 1 cycle.
- ✓ The flexibility in the vises and jaws that can be used means that the right vise can be selected for the right product specifications. This ensures optimum accessibility of the milling tool to all sides to be machined.
- ✓ High storage capacity on a small footprint, 1,4 m² floor against a storage capacity of 2,9 m². In addition, the system is easy to install and operate.
- ✓ Wide range of applicability: universal clamping technology makes it possible to automate small series and single pieces easily. This makes this solution very suitable for small series.
- ✓ Reduction set-up times by using R-C2 because it can store a greater variety of clamps within the cell. As a result, the preparation may only be limited to the creation of specific jaws for the second fixture.
- ✓ Increased quality: through a controlled takeover, less manual intervention in the preparation and full control from the first product. Constant accuracy is embedded in the systematic takeover of the product. Proven Cellro and GRESSEL quality.



Your Return on Investment

- ✓ Xcelerate will cost you less than € 14,- per hour. You will not find such an inexpensive and efficient employee in the market.
- ✓ Significantly increase your output, without extra staff.
- ✓ Complete and 6-sided machining of your products with minimal additional costs.

Average Ratings when used in practice

Xcelerate X20	Xcelerate X20 R-C2	Xcelerate X20 R-C2 6S	
20%	20%	20%	More output in manned production hours.
60%	60%	75%	Lower labour costs per hour.
20 uur	25 uur	40 uur	Extra unmanned production per week.
1,5 jaar	1,5 jaar	1,25 jaar	Payback period of Xcelerate.





Base frame X20 + robot		
Robot type	M-20iD/25	M-20iA/35M
Working range robot (radius)	1.831mm	1.813mm
Payload robot	25kg	35kg
Dimensions	1.680x 1.150x 2.520mm	1.680x 1.150x 2.520mm

Storage modules	
Number and dimensions of product storage capacity (lxbxh)	1 drawer à 1.200x600x285mm 2 drawers à 1.200x600x255mm
Payload per drawer: 200kg	3 drawers à 1.200x600x165mm 4 drawers à 1.200x600x105mm

Requirements for system setup	
Electrical connection	400 VAC+PE (CEE 32 A power outlet)
P(KVA)	3
I(A) (at 400V)	4,33
Safety fuse	10A
Pneumatic pressure connection	6-8 bar
Hose	10mm air
Air consumption	400* liter/min

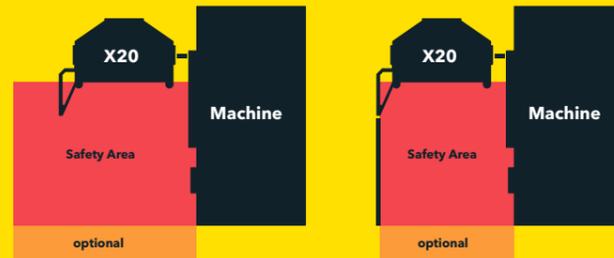
HMI	
Software	Cellro Cell Controll
Operating height (centre of screen)	1.500mm

Interface specifications	
The machine interface of Xcelerate can be delivered in 4 different executions	<ul style="list-style-type: none"> - HW-IO - Ethernet - Profibus - Profinet

* Air consumption with blow-off option: 600 liter/min

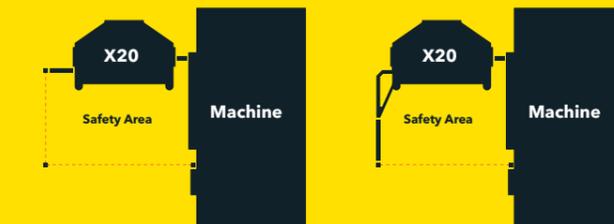
6S Module	
Take-over station	<ul style="list-style-type: none"> - Vertical guidance for transferring material. - Horizontal guidance at the bottom to store products. - Eccentric positioning for transfer.
Centering unit	<ul style="list-style-type: none"> - Accurate positioning of material.
Clean unit	<ul style="list-style-type: none"> - Blowing off chips, dust and coolant.

Safety	
Floorscanner	<ul style="list-style-type: none"> - Safety laser scanner (without interruption of production).
Safety shield glass	<ul style="list-style-type: none"> - Physical shielding of the robot.



Safety zone with glass screen and laser scanner

Light curtain - Invisible shielding (interruption of production)



Safety zone with light curtain and mirror

In cooperation with GRESSEL AG

This product has been developed in collaboration with GRESSEL AG. GRESSEL AG has over 90 years of experience in clamping and clamping of products. This knowledge has been combined with more than 15 years of Cellro knowledge of robot automation in the machining industry and assures users of an innovative and reliable solution to increase their machine efficiency.

Last year GRESSEL AG together with Cellro developed the R-C2 head for Xcelerate X20. This head is an innovation in itself because until then there was no solution where gripping and clamping came together in one head. GRESSEL brought it to the market as a solution to simplify the operator's work by gripping and clamping products in one. Minimal set-up time and effort, low staff working time, top cost-effectiveness (high productivity, low cost), easy operation without special knowledge and proven GRESSEL clamping technology quality.

Gressel R-C2	
Mechanical centric robot clamp module	<ul style="list-style-type: none"> - Controlled coupling - Freely programmable closing force up to 25 kN (C2 80) of 35 kN (C2 125) - RFID-tag

Clamping type	Max. Product weight with Robot M-20iD/25* (kg)	Max. Product weight with Robot M-20iA/35M* (kg)	Tension range (mm)	Dimensions without jaws (mm)
C2 80 L-130	9,6	22,5	0-121	130x80x85
C2 80 L-190	7,6	20	0-185	190x80x85
C2 125 L-160	6	18	0-163	160x125x85

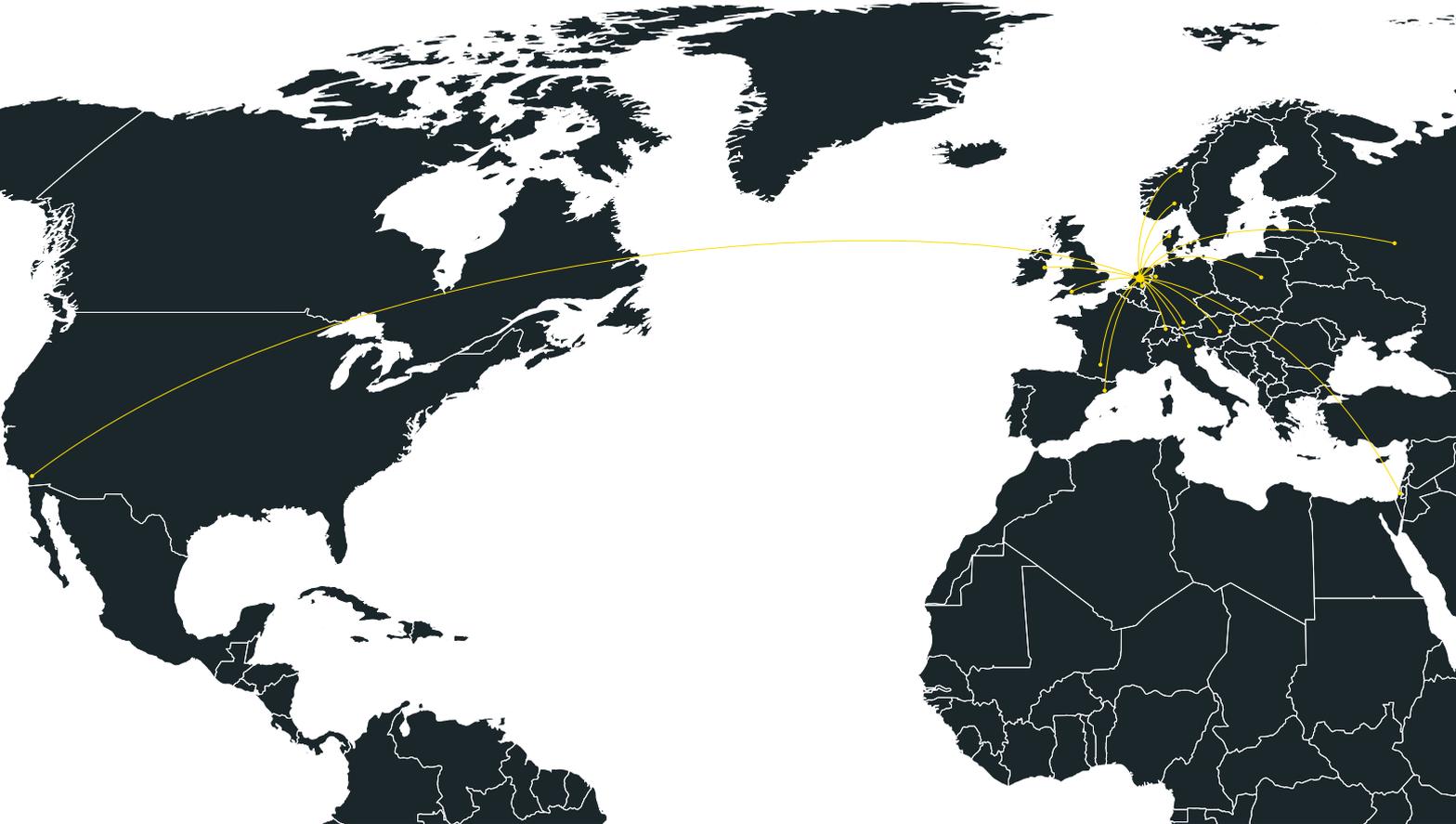
* The maximum product weight depends on the product dimensions and the length of the clamping jaws. Please contact one of our specialists for more information.



The Cellro Network

When you purchase a Cellro system, you can rely on our strong international network. We serve our customers locally through local procurement and service points in your area. This allows you to benefit from our expertise everywhere and ensures the transfer of knowledge.

Our local distributors sell our standardized solutions such as the Xcelerate worldwide. In addition, a large number of renowned machine builders have chosen Cellro as their automation system in order to meet the market demand for ready-made combinations of machine and automation.



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About Cellro

Cellro is a first-class developer of robot automation for the machining industry. Our company is based on the idea that your automation must be future-proof. After all, automation lasts for decades. Our automation solutions are in line with the growth of your company, your future production and the automation roadmap within your company with your employees. We have designed our automation flexibly. This means that a Cellro system, such as the Xcelerate, can easily be adapted to your needs, so that your profits can continue to increase in the coming years.

Our products are your key to profitable automation, now and in the future. With 15 years of experience and close cooperation with our customers, our modular design and smart software are the basis of these flexible automation solutions. This gives you a high return on your investment, now and in the future, as well as a future-proof, risk-free investment.

**Your Machines,
More Profitable.**