



ZERO CLAMP®
Experience precision

THE PRICE-PERFORMANCE CHAMPION

ZEROBOT® 100V eco CNC Loading Robot

AWC Automatic Work Changer for your 5-Axis CNC Machine



(Shown without safety enclosure)

ZEROBOT® 100V eco

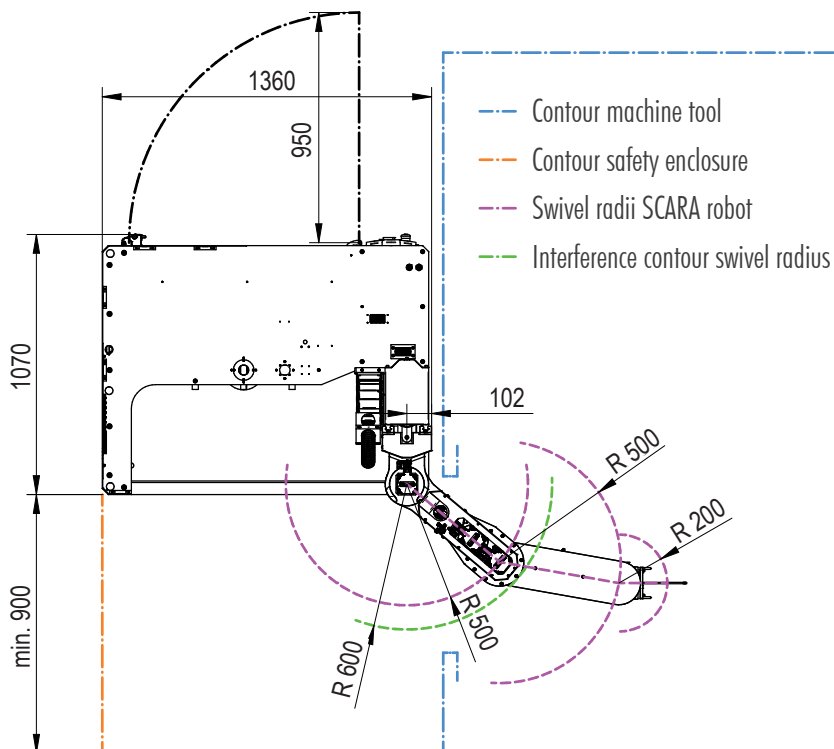
Includes:

ZEROBOT® 100V eco,
complete with
safety enclosure and
connection kit.

ZEROBOT® 100V eco

Highlights

- Interfaces to any CNC machine
- No OEM/factory interface or through the table air rotary union is required
- Robot part handling capacity up to 100kg (220lbs)
- Robot's automatic rotating twin gripper, for quick part exchanging in seconds
- Compact high-capacity reconfigurable double sided part storage racks, manually rotatable
- Accommodates blank parts up to 250mm x 160mm x 200mm (9.8" x 6.3" x 8.0"), handles a large range of part sizes
- Blank part handling for direct gripping and exchanging of blank parts
- 5-Axis Self-Centering ZeroClamp vise handling or option for vises with 52/96mm stud spacing. In addition to small pallet handling up to 155mm Sq. (6" Sq.)
- Pallet handling 330mm Sq. (13" Sq.) for fixtures and special parts
- Very user friendly, simple operation in set-up mode with teach function
- Easy-to-use job creation with standard browser using a laptop, tablet, or smart phone
- Rack side 2 can be set-up while rack side 1 is in operation
- Unobstructed operator access during set-ups and one-offs
- Designed for high part mix automated CNC machining
- German precision and quality

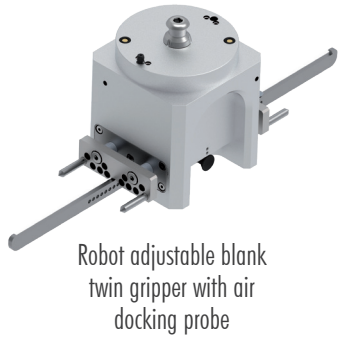
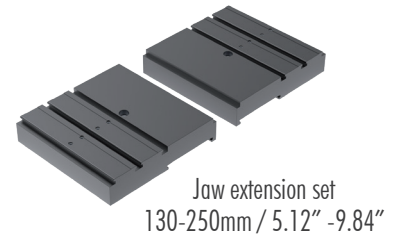
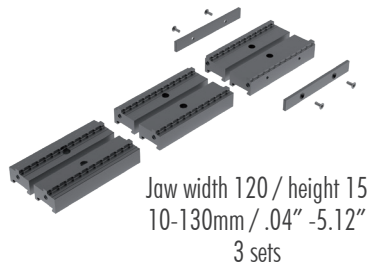
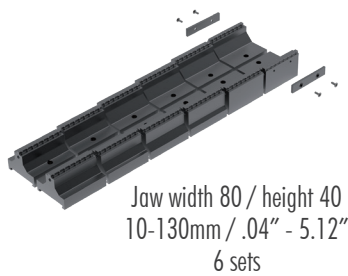


Layout Example

The ZEROBOT® 100V eco is available as shown and also as a mirror image. It is generally set up offset in front of the operating door.

Its unique design ensures the best possible accessibility to the machine. Side mounting for loading via a side door is also possible.

Blank Part Handling



Description	P/N	Price
ZeroVise® P160 IoT	36283	
Robot docking port horiz.	36311	
Robot blank part gripper	23436	
Set of 6 grip jaws 80/40mm	23517	
Set of 3 grip jaws 120/15mm	24697	
Jaw extension set	33664	

MAXIMUM NUMBER OF BLANK PARTS

Blank dimension X mm/inch	25/0.98	50/1.97	75/2.95	100/3.94	125/4.92	150/5.91	175/6.89	200/7.87	250/9.84
Number of blanks per row	16	10	7	5	5	4	3	3	2

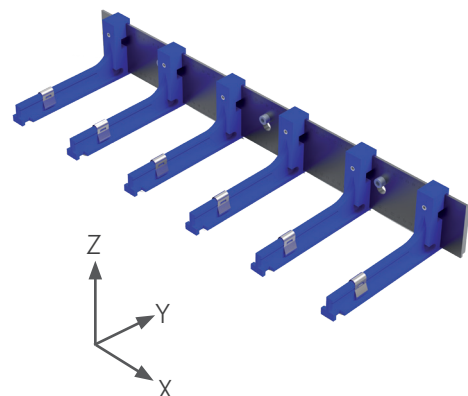
Blank dimension Z mm/inch	25/0.98	50/1.97	75/2.95	100/3.94	125/4.92	150/5.91	175/6.89	200/7.87
Number of rows rack side 1 & 2	32	32	22	22	16	16	12	12

Maximum blank part dimension:
X 130 (5.1") Y 160 (6.3")* Z 200 (8")

Maximum part dimension with jaw extensions:
X 250 (9") Y 160 (6.3")* Z 200mm (8")

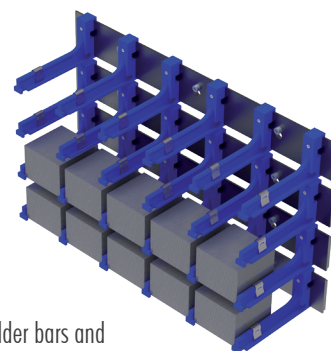
*When using the blank gripper P/N 23436

The number of blank parts per row multiplied by the number of rows gives the maximum number of blanks that can be stored on rack side 1 & 2.



BLANK PART HOLDER

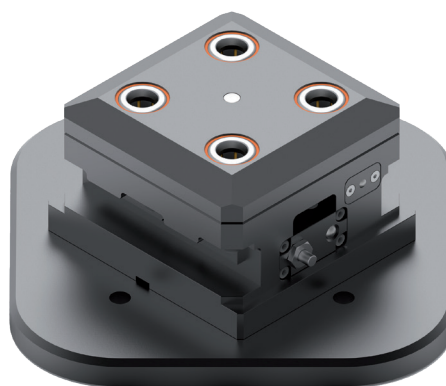
Description	P/N	QTY	Price	Total
Blank "L" holder bar	23535			
Blank part "L" holder	23536			



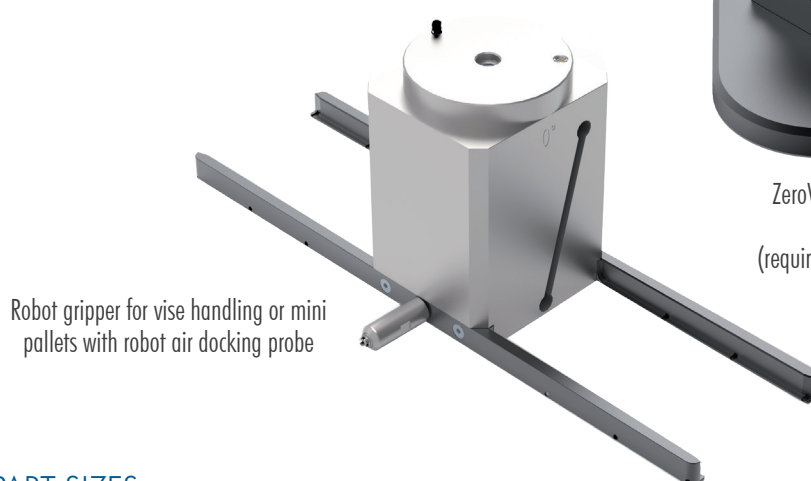
Blank "L" holder bars and
blank part "L" holders with blanks

Vise Handling for ZeroVise® M80/120A 5-axis Self-Centering vise

Description	P/N	Price
ZeroVise® console	31790	
Robot gripper for vises	31987	



ZeroVise® P80Z Zero Point automatic vise
console with base plate
(requires 4 clamping studs with P/N 36757)



Robot gripper for vise handling or mini
pallets with robot air docking probe

MAXIMUM PART SIZES

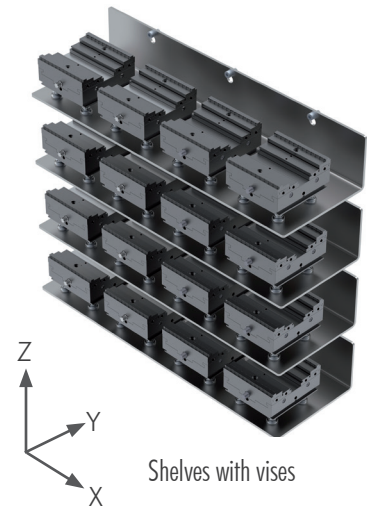
Maximum part sizes for 5-axis Self-Centering vises 80mm (3.15")* and 120mm (4.72")*	Size 80	Size 120	Size 80	Size 120
	without jaw extensions		with jaw extensions	
X with 4 vises per shelf mm/inch	150/5.91	150/5.91	150/5.91	150/5.91
X with 2 vises per shelf mm/inch	300/11.81	300/11.81	300/11.81	300/11.81
Y length mm/inch	87/3.43	107/4.21	168/6.61	208/8.19
Z height mm/inch	150/5.91	150/5.91	135/5.31	135/5.31

*Jaw width

MAXIMUM NUMBER OF VISES

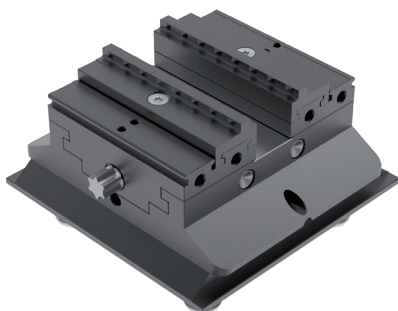
Maximum number of vises for rack side 1 & 2	Parts width X	
	up to 150	up to 300
Part height Z = 50mm (2")	88	44
Part height Z = 100mm (4")	72	36
Part height Z = 150mm (6")	48	24

When using jaw extensions, the part height is reduced by 15mm (0.6").

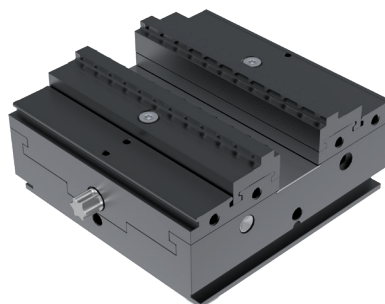


WISE OPTIONS

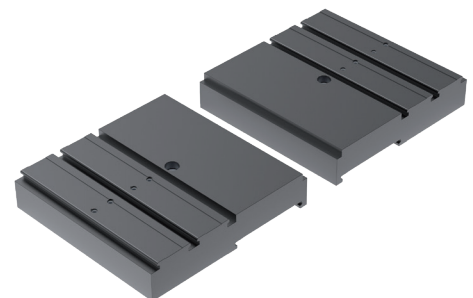
Description	P/N	QTY	Price	Total
ZeroVise® M80A Self-Centering vise	31733			
Grip jaws size 80 (set)	21861			
Jaw extension size 80 (set)	33666			
ZeroVise® M120A Self-Centering vise	33225			
Grip jaws size 120 (set)	22427			
Jaw extension size 120 (set)	33667			
Shelf for 4 vises	33109			



ZeroVise® M80A
Clamping range 7-87mm (0.27"-3.43")



ZeroVise® M120A
Clamping range 7-107mm (0.27"-4.21")



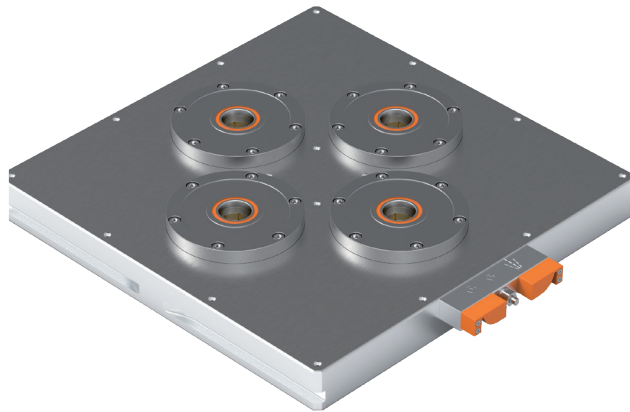
Jaw extension set, clamping range:
M80A: 87-167mm (3.43"-6.57")
M120A: 107-207mm (4.21"-8.15")

Pallet Handling

Description	P/N	Price
Zero Point base plate, 4 size 120mm on 200mm (8") C/C for changing pallets or automation consoles	36757	
Robot pallet gripper	26365	



Robot pallet gripper with
an air docking probe

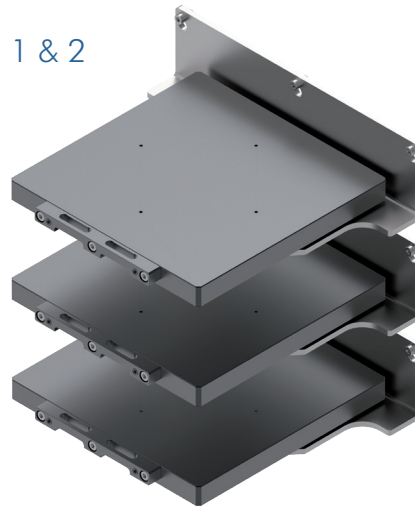


Zero Point digital smart base plate table with 4 clamping units size 120

Allows quick robot exchanging of pallets with air docking probe or manual air gun
changing of automation consoles for blanks and vises.

MAXIMUM NUMBER OF PALLETS FOR RACK SIDE 1 & 2

Maximum installation height	QTY of pallets
130mm (5.12")	18
230mm (9.06")	12
380mm (14.96")	8



Pallets and storage shelves
with robot pallet interface.
Can also be used with
modular rail vises on top
(see catalog).

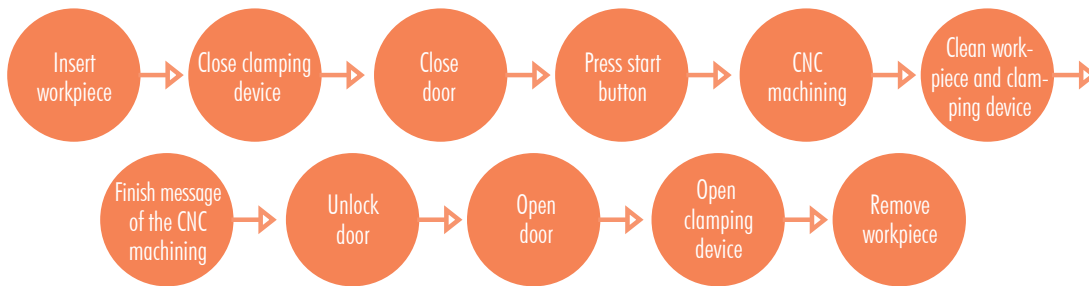
PALLETS AND SHELVES

Description	P/N	QTY	Price	Total
Pallet 330 x 330 x 30mm (13"x13"x1.18") steel toolox 33 (requires Zero Point table P/N 36757, requires 4 clamping studs per pallet)	26341			
Clamping stud 18M16 for use with pallets, ZeroVise® console and ZeroVise® P160 IoT	10004			
Shelf for pallet 330 x 330 x 30mm (13"x13"x1.18")	28520			

General Information about Automatic Loading of a CNC Machine Tool

Similar to loading by an operator, certain requirements and processes must also be observed for automatic loading.

Example of loading and machining sequence for 1 workpiece:



The following variants are of particular importance for automatic loading:

Close and open clamping device (automation console):

- By robot directly at the clamping device (automation console).
- In case of an existing air rotary union with clamping and monitoring functions also via the machine. In this case, a corresponding M function is called at the beginning or end of the CNC program.

Close and open door:

- By an automatic door opener retrofitted by ZeroClamp and controlled by the robot.
- By an actuator retrofitted by ZeroClamp, which operates the door buttons controlled by the robot.
- With an existing automatic door also via the machine. In this case, a corresponding M function is called at the beginning or end of the CNC program, or a corresponding input is available.

Press start button:

- By an actuator retrofitted by ZeroClamp, which actuates the start button controlled by the robot.
- By an input on the machine side, by which the robot starts the machine.
- By a DNC function (for Heidenhain controllers).

Finished message of the CNC machining:

- By an M function at the end of the program.
- By opening an existing automatic door on the machine.

Unlock door:

- Automatic unlocking at the end of the program (via the machine's parameter settings).
- By an actuator retrofitted by ZeroClamp, which actuates the door open button controlled by the robot.



Available Automation Options

- Automatic rack rotation from side 1 to side 2
- Zero Point machine specific tables with 6, 8 or more clamping units
- Automated door for single door and double doors
- Automated door for round door
- Automated side enclosure door
- Automated vise console, shelves and robot grippers for vises with 52/96 Standard 4 stud spacing.



Full automation solution available using communication bus systems, CNC program selection, automatic work holding set-up, etc.



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