



Invention & Innovation

NITTA

Automatic Tool Changer

Catalogue



NITTA CORPORATION



'Automatic Tool Changer'

Automatic Tool Changer provides function of changing tools and jigs for robots, and it can properly connect/disconnect electric current, air and water required for tools. As a single robot can use different kinds of tools, it can contribute to multi-function and versatility of production line.

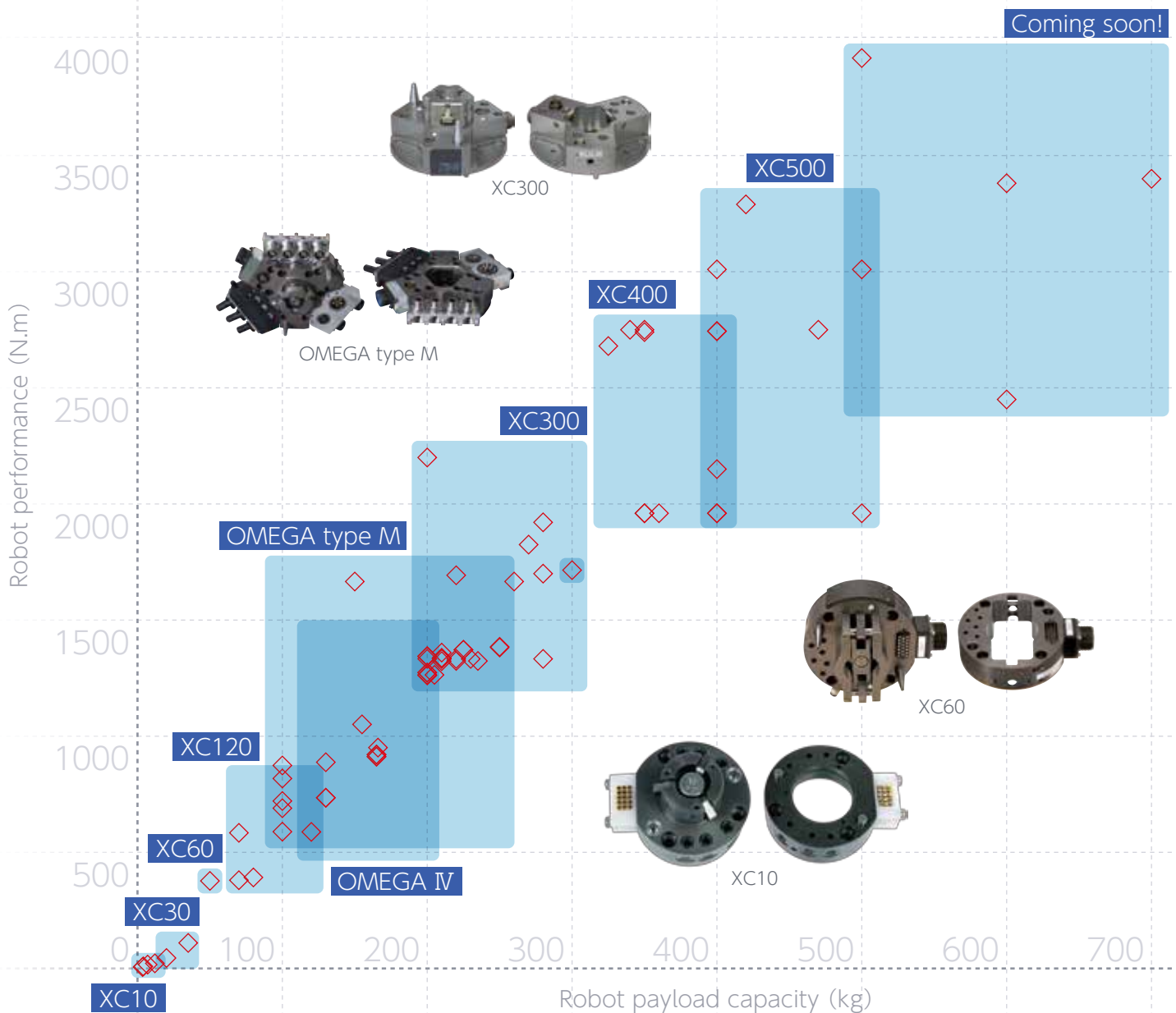
Automatic Tool Changer

Features and Application

- ◆ Safe structure held by the large-bore cylinder and cam lock system.
- ◆ More than 200,000 units used in 28 countries.
- ◆ Tool change for stripping pressed, formed products or assembly works.
- ◆ Changing spot welding guns and many kinds of material handlings.

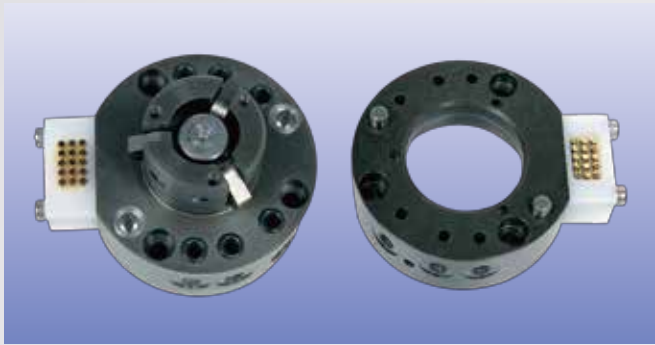


Products line up



XC10

● Payload Capacity 10kg



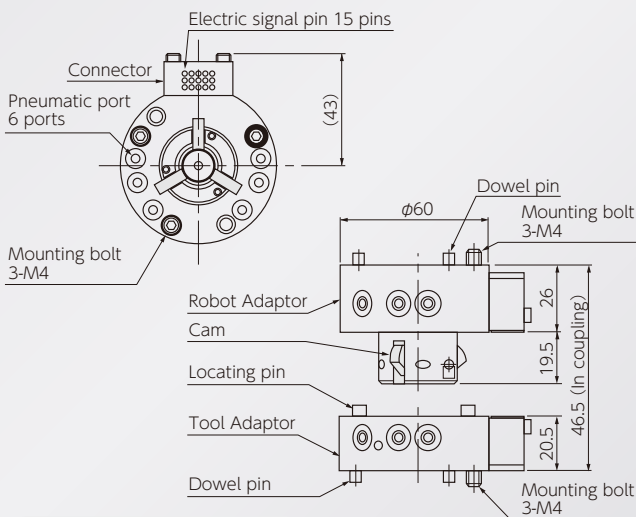
Features

- ◆ Payload Capacity 10kg
- ◆ Light weight & low price
- ◆ Fail-safe latching
- ◆ Large bore cylinder and cam lock system
- ◆ Compulsory separation mechanism

Application

- ◆ Electric / small size component handling
- ◆ Take-out for formed products
- ◆ Sealing gun change
- ◆ Attachment change for inspection robot

Dimensional outline

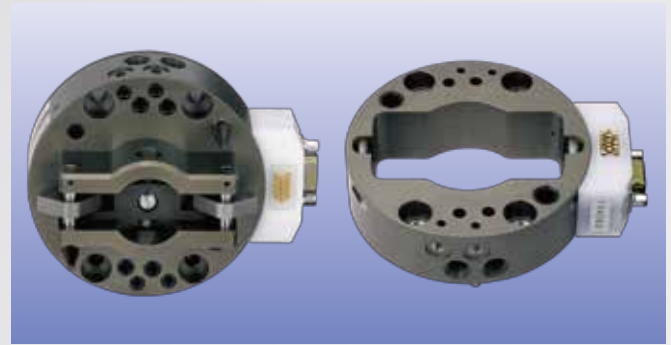


Specifications

Payload capacity	10kg	
Allowable moment	29.4Nm (300kgf·cm)	
Allowable torque	34.3Nm (350kgf·cm)	
Housing Diameter	φ60mm	
Combined profile	46.5mm	
Main body material	Aluminum Alloy	
Position repeatability	0.020mm	
Air pressure for working	0.39~0.85MPa (4~8.7kg/cm ²)	
Weight	Robot side	0.24kg
	Tool side	0.12kg
Electrical signal	Current	3A
	Quantity	None or 15pins
Pneumatic port	Quantity	6ports
	Effective cross section	4mm ²
	CV value	0.23/port
	Max pressure	0.855MPa (8.75kg/cm ²)
Surrounding condition	Temperature	0~60°C (No Freeze)
	Humidity	0~95%RH (No Condensation)

XC30

● Payload Capacity 30kg



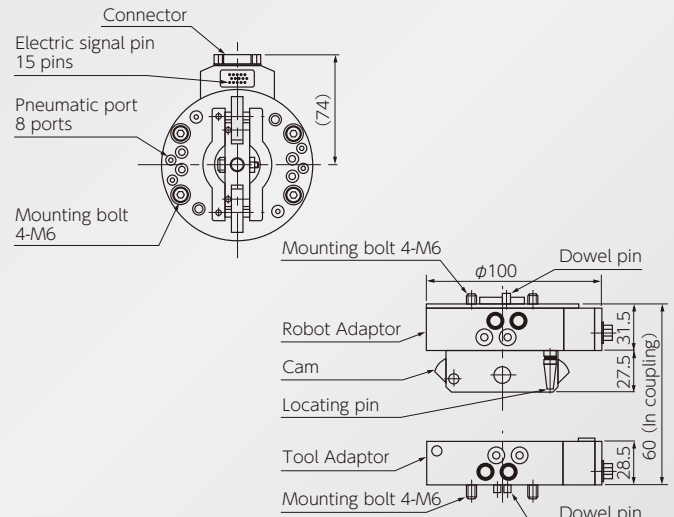
Features

- ◆ Payload capacity 30kg
- ◆ Large bore cylinder and cam lock system
- ◆ Built-in chuck / unchuck sensor
- ◆ Abundant variety of applications

Application

- ◆ Tool change for stripping pressed or formed products
- ◆ Material handling tool change for arc / spot welding
- ◆ Tool change for polishing, deburring and assembly
- ◆ Diversified material handling tool changes

Dimensional outline

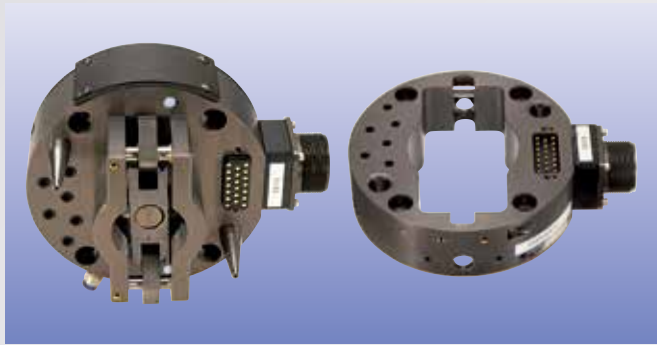


Specifications

Payload capacity	30kg		
Allowable moment	147Nm (1500kgf·cm)		
Allowable torque	147Nm (1500kgf·cm)		
Housing Diameter	φ100mm		
Combined profile	60mm		
Main body material	Aluminum Alloy		
Position repeatability	0.025mm		
Air pressure for working	0.39~0.59MPa (4~6kg/cm ²)		
Weight	Robot side	1.0kg	
	Tool side	0.5kg	
Electrical signal	Current	3A	
	Quantity	None or 15pins	
Pneumatic port	Quantity	4ports Rc1/8	4ports (M5)
	Effective cross section	11mm ²	4mm ²
	CV value	0.63/port	0.23/port
	Max pressure	0.855MPa (8.75kg/cm ²)	
Output signals	Chuck		
	Unchuck		
	Face		
Surrounding condition	Temperature	0~60°C (No Freeze)	
	Humidity	0~95%RH (No Condensation)	

XC60

● Payload Capacity 60kg



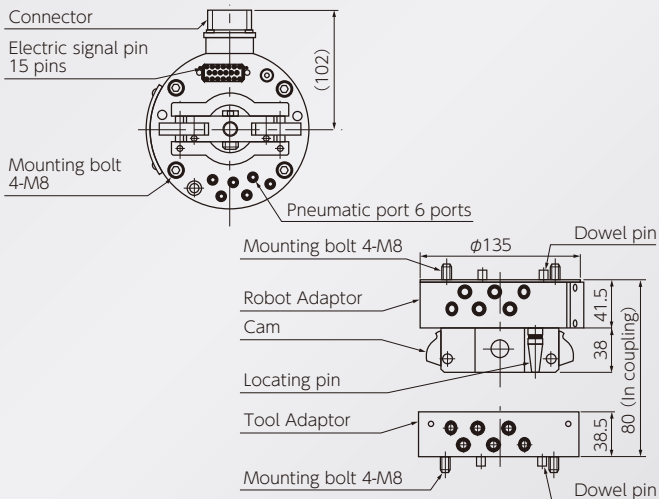
Features

- ◆ Payload capacity 60kg
- ◆ Large bore cylinder and cam lock system
- ◆ Built-in chuck / unchuck sensor
- ◆ Abundant variety of application

Application

- ◆ Tool change for stripping pressed, formed products, polishing, deburring, and assembly
- ◆ Material handling tool change for arc / spot welding
- ◆ Arc torch change and painting / sealing gun change
- ◆ Diversified material handling tool changes

Dimensional outline

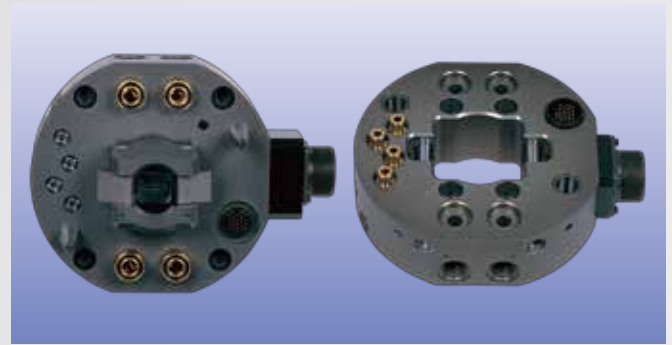


Specifications

Payload capacity	60kg	
Allowable moment	441Nm(4500kgf·cm)	
Allowable torque	441Nm(4500kgf·cm)	
Housing Diameter	φ135mm	
Combined profile	80mm	
Main body material	Aluminum Alloy	
Position repeatability	0.025mm	
Air pressure for working	0.39~0.59MPa(4~6kg/cm ²)	
Weight	Robot side	1.9kg
	Tool side	1.0kg
Electrical signal	Current	3A
	Quantity	None or 15pins or 20pins
Pneumatic port	Quantity	6ports Rc1/8
	Effective cross section	11mm ²
	CV value	0.63/port
	Max pressure	0.855MPa(8.75kg/cm ²)
Output signals	Chuck	
	Unchuck	
	Face	
Surrounding condition	Temperature	0~60°C(No Freeze)
	Humidity	0~95%RH(No Condensation)

XC120

● Payload Capacity 120kg



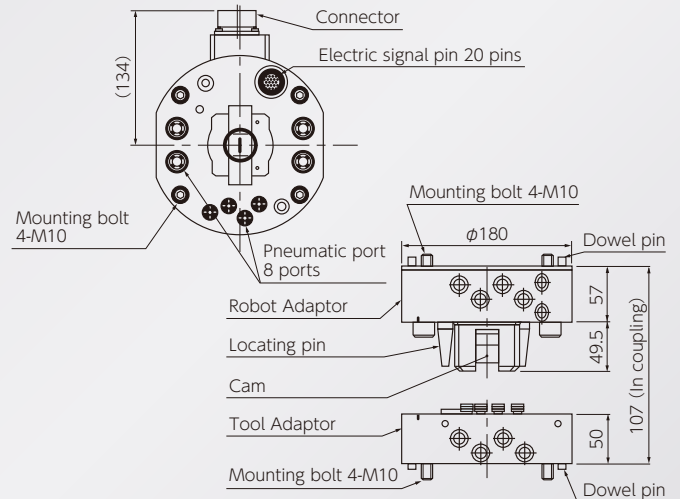
Features

- ◆ Payload capacity 120kg
- ◆ Large bore cylinder and cam lock system
- ◆ Built-in chuck / unchuck sensor

Application

- ◆ Tool change for stripping pressed, formed products, polishing, deburring, and assembly
- ◆ Change of arc torches and painting / sealing guns
- ◆ Tool change for various purposes

Dimensional outline

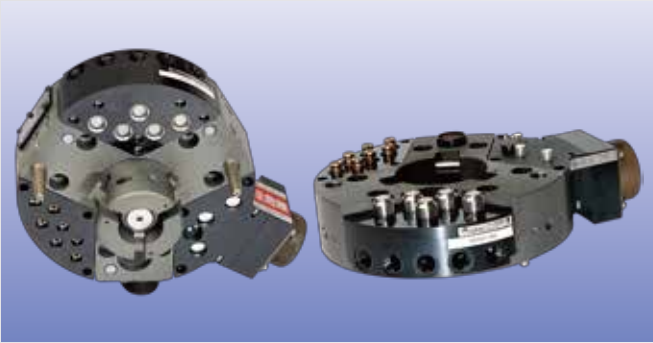


Specifications

Payload capacity	120kg		
Allowable moment	1079Nm(11000kgf·cm)		
Allowable torque	1079Nm(11000kgf·cm)		
Housing Diameter	φ180mm		
Combined profile	107mm		
Main body material	Aluminum Alloy		
Position repeatability	0.050mm		
Air pressure for working	0.39~0.85MPa(4~8.7kg/cm ²)		
Weight	Robot side	4.6kg	
	Tool side	2.7kg	
Electrical signal	Current	3A	
	Quantity	None or 20pins	
Pneumatic port	Quantity	4ports Rc1/2	4ports Rc1/4
	Effective cross section	64mm ²	13mm ²
	CV value	3.6/port	0.72/port
	Max pressure	0.855MPa(8.75kg/cm ²)	
Output signals	Chuck		
	Unchuck		
	Face		
Surrounding condition	Temperature	0~60°C(No Freeze)	
	Humidity	0~95%RH(No Condensation)	

OMEGA IV

● Payload Capacity 200kg



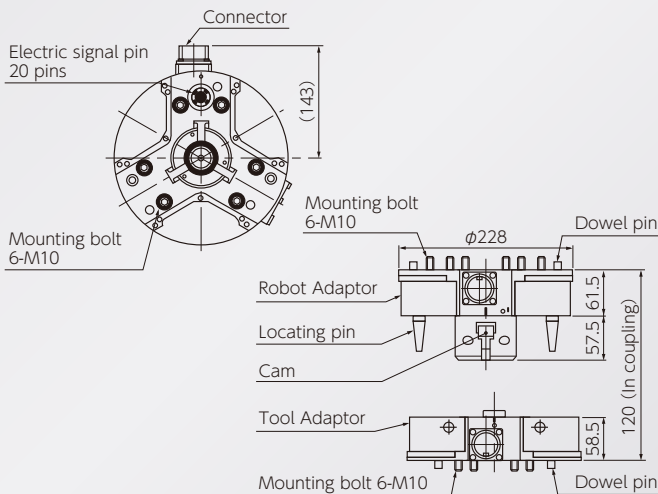
Features

- ◆ 3-module system
- ◆ High rigid body
- ◆ Easy and secure coupling / uncoupling with cam lock system
- ◆ Directly mounted solenoid valve as option
- ◆ LED equipped as standard
- ◆ Module compatible with former Omega Series

Application

- ◆ Gun changer for spot welding
- ◆ Converting from spot welding to material handling
- ◆ Assembly material handling tool changer
- ◆ Changing stripping hand for press - formed works
- ◆ Attachment change

Dimensional outline

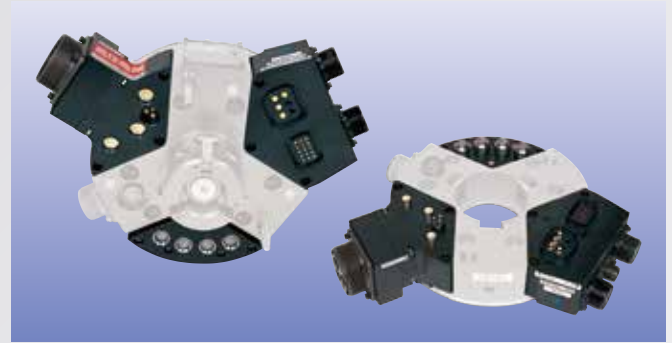


Specifications

Payload capacity	200kg	
Allowable moment	1471Nm(15000kgf·cm)	
Allowable torque	1471Nm(15000kgf·cm)	
Housing Diameter	φ228mm	
Combined profile	120mm	
Main body material	Aluminum Alloy	
Position repeatability	0.050mm	
Air pressure for working	0.39~0.85MPa(4~8.7kg/cm ²)	
Weight	Robot side	4.2kg
	Tool side	2.8kg
Electrical signal	Current	3A
	Quantity	None or 20pins
Output signals	Chuck	
	Unchuck	
	Face	
Surrounding condition	Temperature	0~60°C(No Freeze)
	Humidity	0~95%RH(No Condensation)

Functional module

● Modules for OMEGA IV / XC300 / XC400 / XC500



Features and Function

- ◆ All modules can be used with OMEGA IV, XC300, XC400 and XC500. They are flexible to diverse applications.
- ◆ Many kinds of modules can transfer air, water, electric current and signal inside.
- ◆ Every module has the same setting pattern to adaptors so that you can choose the module position as you like.
- ◆ Modules out of our standard can be designed by your request. Modules for other type of tool changers also can be realized.

	Spot welding module		Hydraulic module		Servo motor module	
Module						
Product code	Robot side OMRW03-※	Tool side OMTW03-※	Robot side OMRH04-004	Tool side OMTH04-006	Robot side OMRX21-※	Tool side OMTX21-※
inter face	Connector type 3 - 100A pin		4 - Rc 1/2 Port CV value 3.4/port		6 - 20A pin 15 - 3A pin	
Weight	1.0kg		1.0kg	0.8kg	0.8kg	
Material	Withstand voltage resin		Main body: Aluminum Alloy Fitting: Stainless,			Withstand voltage resin

Fall Prevention System

● Automatic Tool Changer



Features and Function

- ◆ Prevent tool falling by operational error, hand-operation mistake of solenoid valve, and residual air pressure by hose bent or choked.
- ◆ Easy mount on existing ATC system

Product Code	CAR-006-※※
Dimensional outline (without fitting)	64×70×73(mm)
Main body material	Aluminum alloy
Weight	0.98kg(9.6N)
Working fluid	Air
Air pressure of working	0~0.99MPa(0~9.9kgf/mm ²)
Port diameter (nominal diameter)	Rc(PT)1/8(6A)
Product component	Fall prevention mechanical valve ASSY Bracket for mechanical valve Adaptor plate Dog to check the unchucking position

XC300

● Payload Capacity 300kg



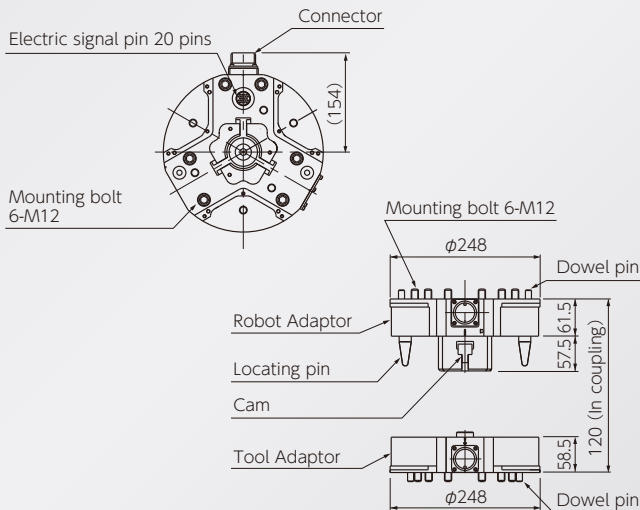
Features

- ◆ 3-module system compatible with OMEGAIV
- ◆ High rigid body
- ◆ Secure chuck / unchuck with cam lock system
- ◆ LED and chuck / unchuck sensor equipped as standard
- ◆ Directly mounted solenoid valve as option

Application

- ◆ Change of spot welding guns
- ◆ Change of material handling tools
- ◆ Change of tools extracting assembled, stripping pressed or molded products

Dimensional outline

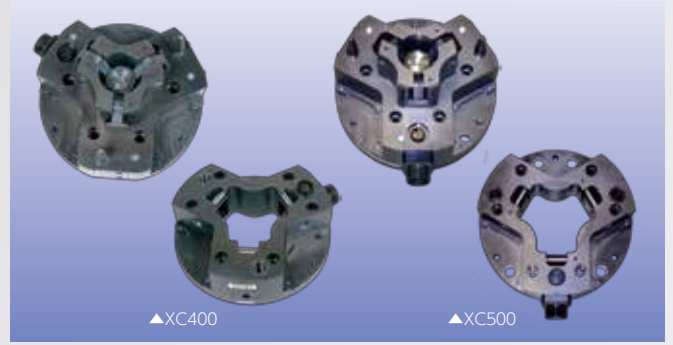


Specifications

Payload capacity	300kg	
Allowable moment	2205Nm(22500kgf·cm)	
Allowable torque	2205Nm(22500kgf·cm)	
Housing Diameter	φ248mm	
Combined profile	120mm	
Main body material	Aluminum Alloy	
Position repeatability	0.050mm	
Air pressure for working	0.39~0.85MPa(4~8.7kg/cm ²)	
Weight	Robot side	7kg
	Tool side	3.5kg
Electrical signal	Current	3A
	Quantity	None or 20pins
Output signals	Chuck	
	Unchuck	
	Face	
Surrounding condition	Temperature	0~60°C(No Freeze)
	Humidity	0~95%RH(No Condensation)

XC400 / XC500

● Payload Capacity 400kg / 500kg



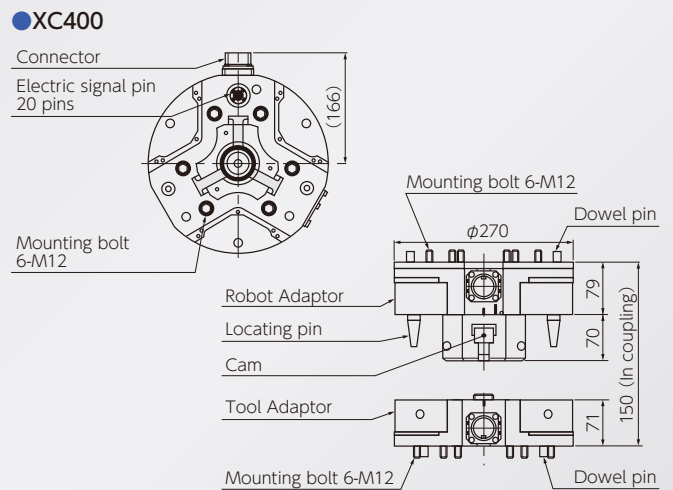
Features

- ◆ Large bore cylinder and high rigid body
- ◆ Secure chuck / unchuck with cam lock system
- ◆ Reliable component configuration and low price
- ◆ Module compatible with OMEGAIV

Application

- ◆ Change of large-sized material handling tools
- ◆ Change of large-sized welding guns
- ◆ Change of various tools with heavy load

Dimensional outline



Specifications

Payload capacity	400kg	500kg
Allowable moment	2942Nm(30000kgf·cm)	3500Nm(35700kgf·cm)
Allowable torque	2942Nm(30000kgf·cm)	3500Nm(35700kgf·cm)
Housing Diameter	φ270mm	
Combined profile	150mm	
Main body material	Aluminum Alloy	
Position repeatability	0.050mm	
Air pressure for working	0.39~0.85MPa(4~8.7kg/cm ²)	
Weight	Robot side	12.0kg
	Tool side	8.0kg
Electrical signal	Current	3A
	Quantity	None or 20pins
Output signals	Chuck	
	Unchuck	
	Face	
Surrounding condition	Temperature	0~60°C(No Freeze)
	Humidity	0~95%RH(No Condensation)

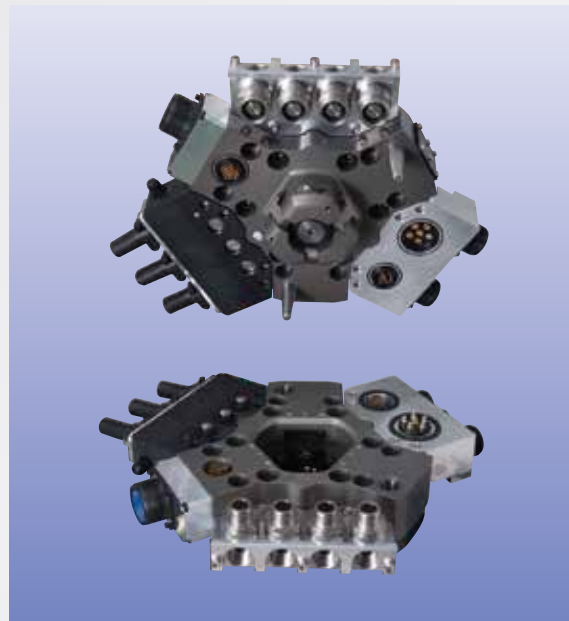
OMEGA type M

● Payload Capacity 50~250kg

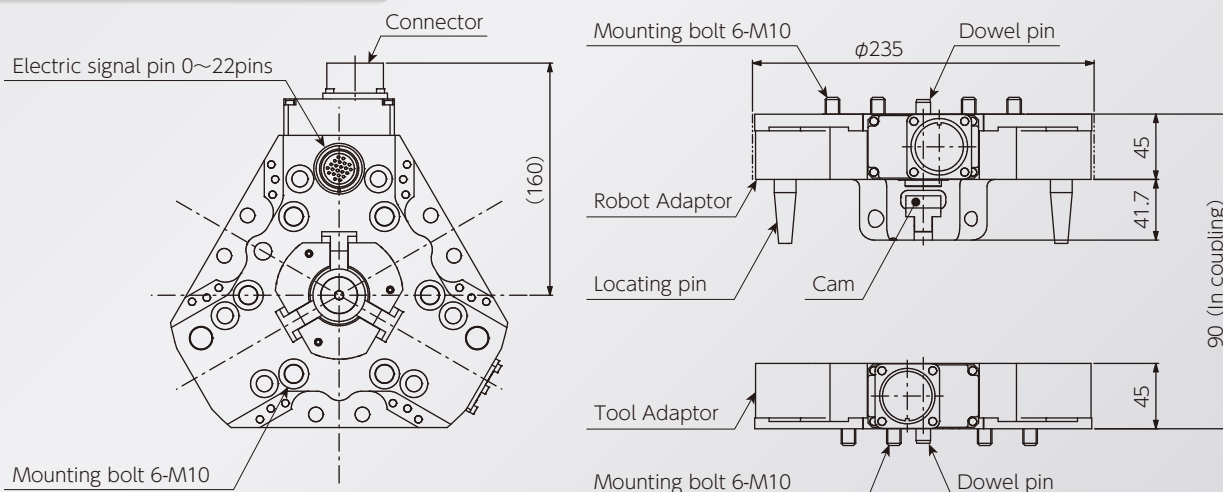
Features and Application

The solution for new generation robots and welding process demands

- ◆ 50kg to 250kg payload capacity
Adapted to 45 different kinds of robots in the world and suitable for versatility.
- ◆ Thin, light, but extremely high load capacity
Directly installed to robots. Thin and light body for fast acceleration of small high speed robots.
- ◆ New generation specs
High welding current capacity, improved coolant ability, improved signal communication against noise and no water spill module.
- ◆ Succession of versatility
Succession of versatility such as functional modules and L / R symmetry transformation.
- ◆ Preventive (predictable) maintenance function
Maintenance work reduction by preventive maintenance. (Option)



Dimensional outline



Specifications

Payload capacity	50~250kg	Weight	Robot side	4.0kg	Output signals	Chuck
Housing Diameter	φ235mm		Tool side	2.2kg		Unchuck
Combined profile	90mm	Adaptor plate	Robot side	No need (Directly installed with P.C.D. 125 robot flange pattern.)	Surrounding condition	Face
Main body material	Aluminum Alloy		Tool side			Temperature
Position repeatability	0.050mm	Electrical signal	Current	3A	Humidity	0~95%RH (No Condensation)
Air pressure for working	0.39~0.85MPa (4~8.7kg/cm ²)		Quantity	0~22pins		

This catalogue was made by cooperation with
Kawasaki Heavy Industries, Ltd. / FANUC Corporation / Nachi-Fujikoshi Corp. / Yaskawa Electric Corporation

▲ Safety Caution Read Automatic Tool Changer instruction manuals carefully and thoroughly before using the Nitta products, and then use it correctly.

NITTA CORPORATION

※This catalogue was made in February, 2018. It can be changed without any advance announcement to improve the products.
※The numbers used in the catalogue are not guaranteed. ※Unauthorized copying of this catalogue is strictly prohibited.

Nitta Moore Div. Industrial products Sales Dept. Mechatronics Systems Sales Sec.

Web site <http://www.nitta.co.jp/>

Head office 4-4-26, Sakuragawa, Naniwa-ku, Osaka 556-0022 Japan
Tokyo Branch 8-2-1, Ginza, Chuo-ku, Tokyo, 104-0061 Japan
Nagoya Branch 1-17-23, Meieki-minami, Nakamura-ku, Nagoya, 450-0003 Japan
Nabari Plant 1300-45, Yabata, Nabari, Mie, 518-0494 Japan

TEL.+81-6-6563-1273 FAX.+81-6-6563-1274
TEL.+81-3-6744-2708 FAX.+81-3-6744-2709
TEL.+81-52-589-1310 FAX.+81-52-586-5707
TEL.+81-595-64-2916 FAX.+81-595-64-9527