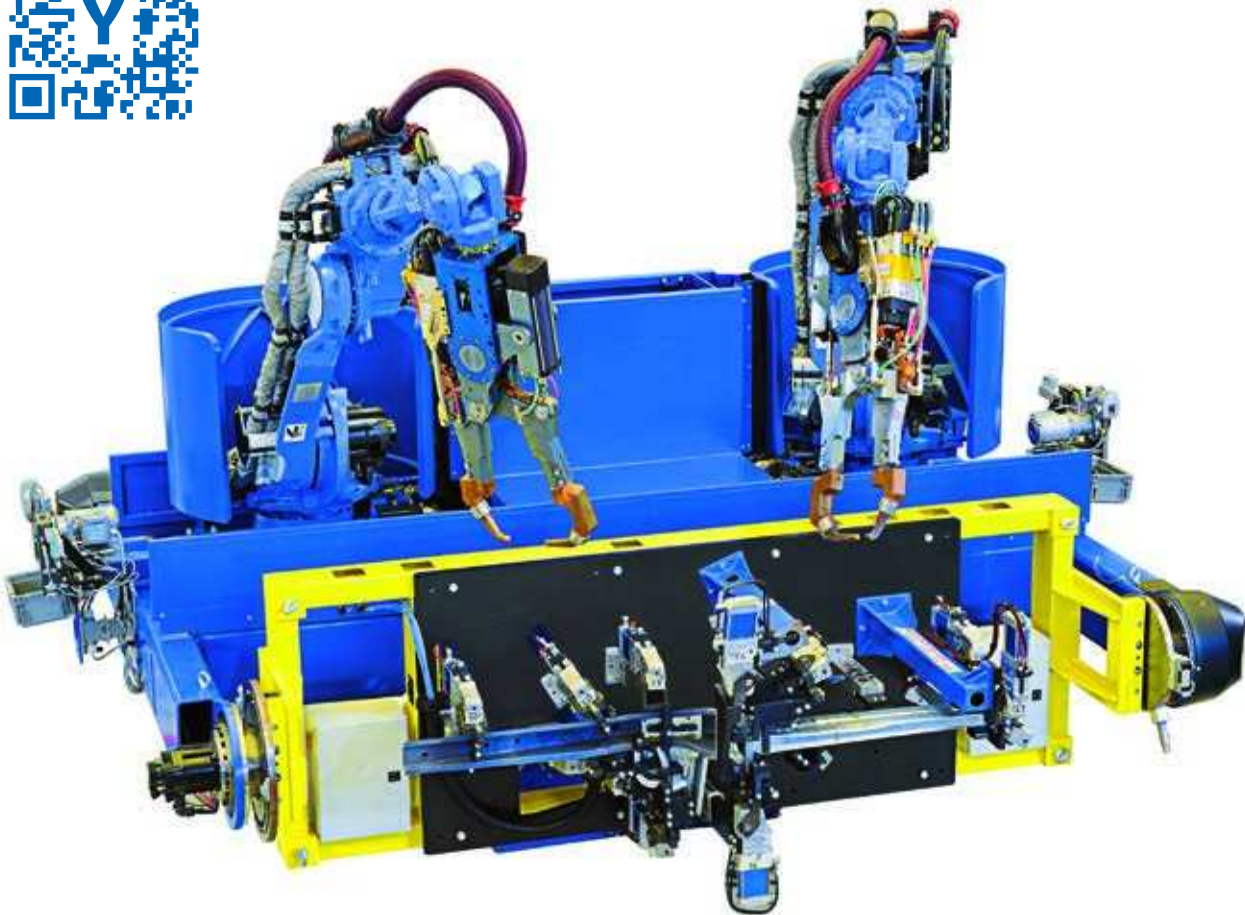


YASKAWA

Spot welding systems

Industrial solution



From robot to complete solution

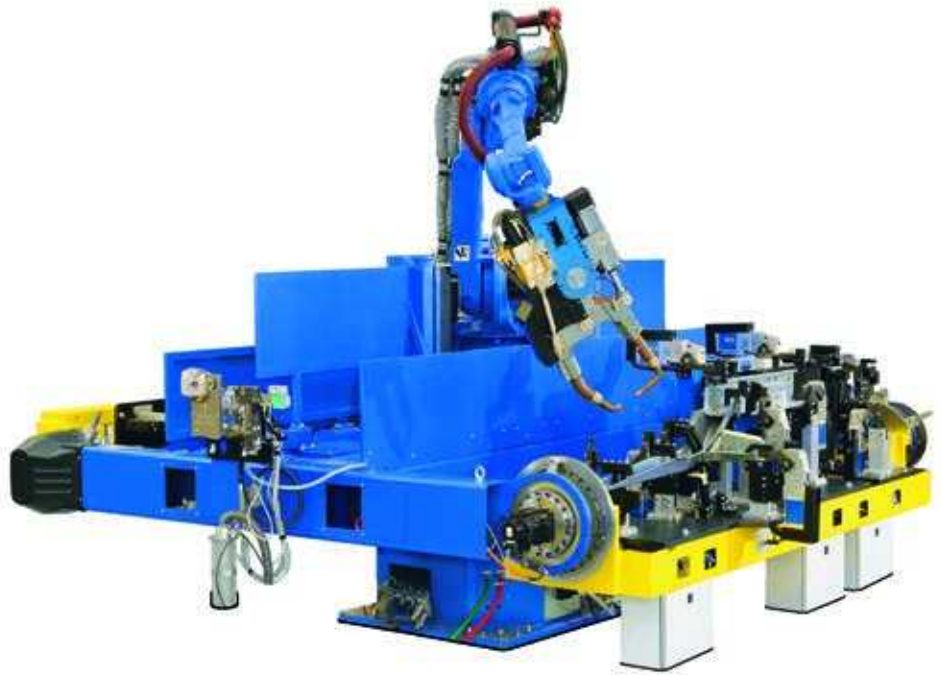
The success of an idea comes from an approach that undermines

The success of an idea comes from an mines tradition. YASKAWA took the beyond the robot, being sure of the right quality of the product, and create a complete spot welding solution.

The corporate know-how has put the company fully re-vamped on the Automotive market. Today, Yaskawa is able to design, build, install and service robotized lines that meet the highest standards in terms of technology and innovation.

Turnkey process

- Analysis of the specifications
- Pre-design and drafting of the proposal
- Simulation and Layout of the solution
- Traceability and Lean Manufacturing
- Short-time production
- Line assembly and installation
- Testing and Inspection
- Maintenance and spare parts in time and worldwide



KEY BENEFITS

- **Compact solution**, save space up to 40 %
- **Improved accessibility** to the parts to be welded
- **Easy to move**, consists of a single block
- **Easy to install**, no re-teach on site
- **Reduced set-up by the customer**, no re-teach on site
- **Easy to program**, ergonomic position for the operator
- **Flexible concept** – high versatility from one product to another
- **“Robot on board” in frontal position**, easily unloading of the item without interference
- **Faster than ever**, save cycle time

The best selling and most demanded spot welding robots

MOTOMAN VS-series



VS100

MOTOMAN MS-series



MS80W II

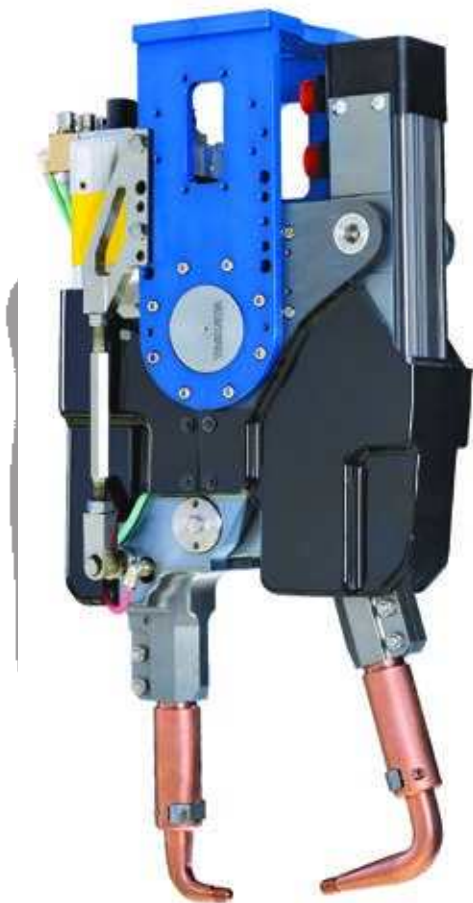


MS165



MS210

Spot welding gun range

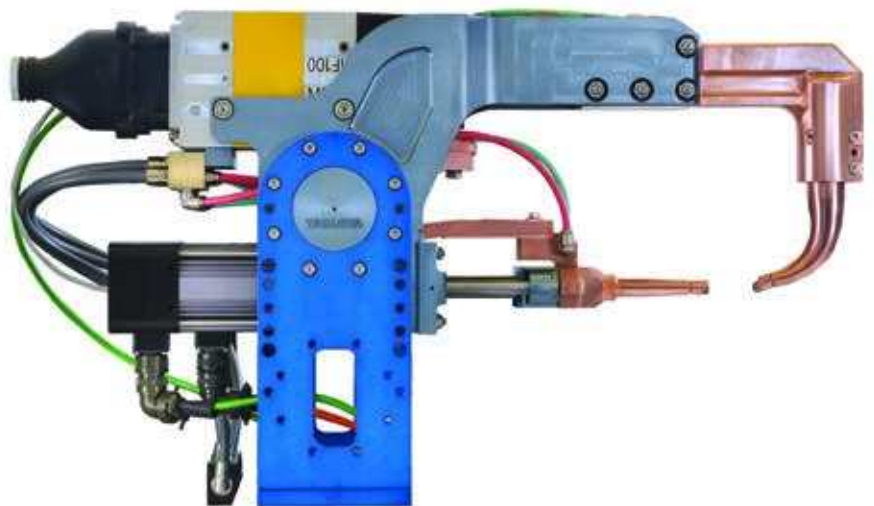


The new range of spot welding guns was developed by YASKAWA and has an extremely low weight. Carefully designed down to the smallest detail, it allows you to use robot with lower capacity.

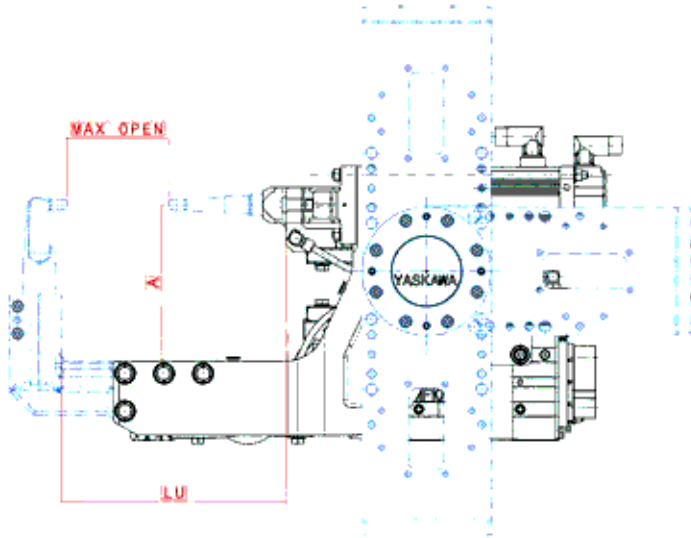
These features allow us to make a wide range of guns with different openings, reach and wrist mounting, depending on the item to be welded.

KEY BENEFITS

- No pneumatic system
- It consists of three components (gun body, transformer and motor) for maximum simplicity of the structure
- The cables can be connected sideways to ensure better rotation of the wrist of the robot
- Lower energy consumption
- Can be mounted on a robot with lower weight
- Easier to install
- Standardization of the gun with greater customization options starting from the standard solution



Gun C

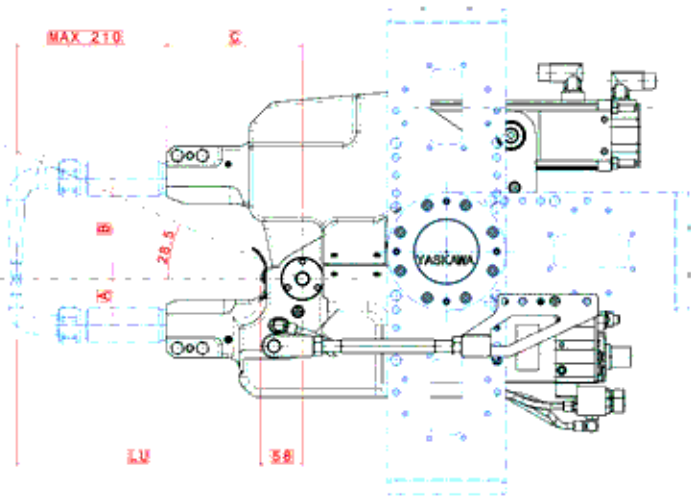


Arm center distance		
A	200	300

LU Usabele opening [mm]	Electrode force Max. load [daN]	Max. opening Max. open [mm]
250	450	130
300	450	130
350	450	130

Possible combinations (family size)	
Gun	A
BGJ-200	200
BGJ-300	300

Gun X



Arm center distance and length			
A	64	125	150
B	100	140	250
C	190	290	—

Possible combinations (family size)			
Gun	A	B	C
BGX-65-100-190 BGX-65-100-290	65	100	190 / 290
BGX-65-140-190 BGX-65-140-290	65	140	190 / 290
BGX-65-250-190 BGX-65-250-290	65	250	190 / 290
BGX-125-100-190 BGX-125-100-290	125	100	190 / 290
BGX-125-140-190 BGX-125-140-290	125	140	190 / 290
BGX-125-250-190 BGX-125-250-290	125	250	190 / 290
BGX-150-100-190 BGX-150-100-290	150	100	190 / 290
BGX-150-140-190 BGX-150-140-290	150	140	190 / 290
BGX-150-250-190 BGX-150-250-290	150	250	190 / 290

LU Usabele opening [mm]	Electrode force Max. load [daN]		Max. opening Max. open [mm]
250	530 (C = 190)	N.O. (C = 290)	144
300	500 (C = 190)	N.O. (C = 290)	167
350	450 (C = 190)	500 (C = 290)	190
400	380 (C = 190)	450 (C = 290)	214
450	320 (C = 190)	380 (C = 290)	238

Nut welding machine



The nut welding machine is the new machine designed and manufactured

by YASKAWA for completing the welding process. It consists of a welded structure, adjustable in different positions and with higher head.

On the right or left side of the machine, depending on your needs, you can mount the handling robot MH5 with support attached to the structure and a unit for servicing the item to be welded (nut/bushing/pin).

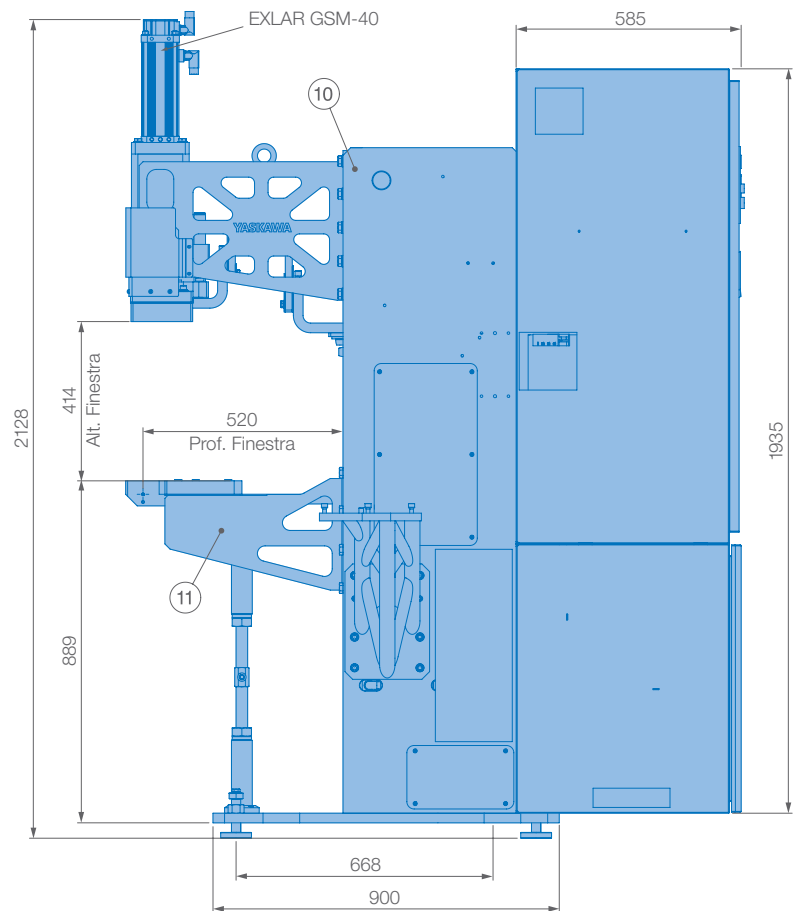
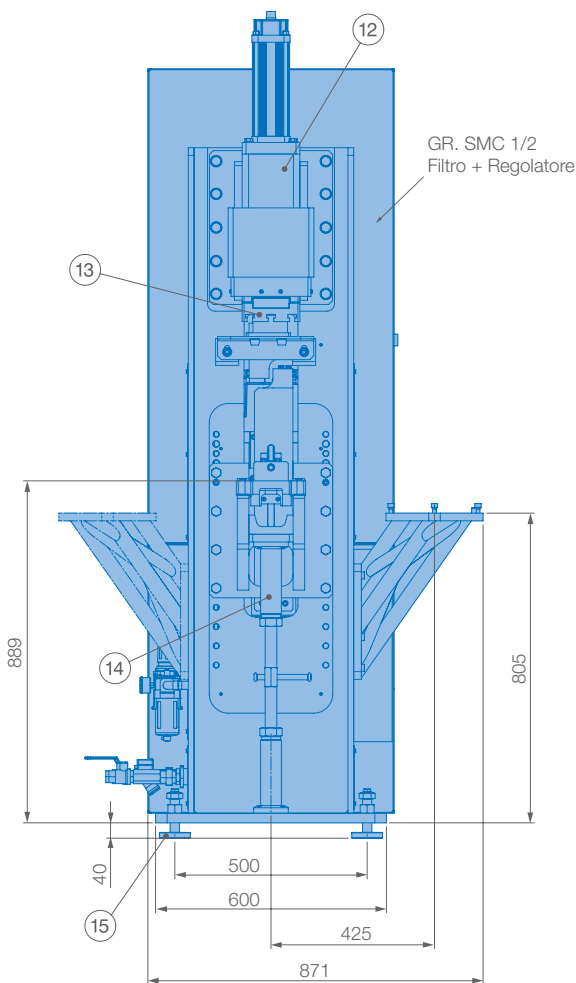
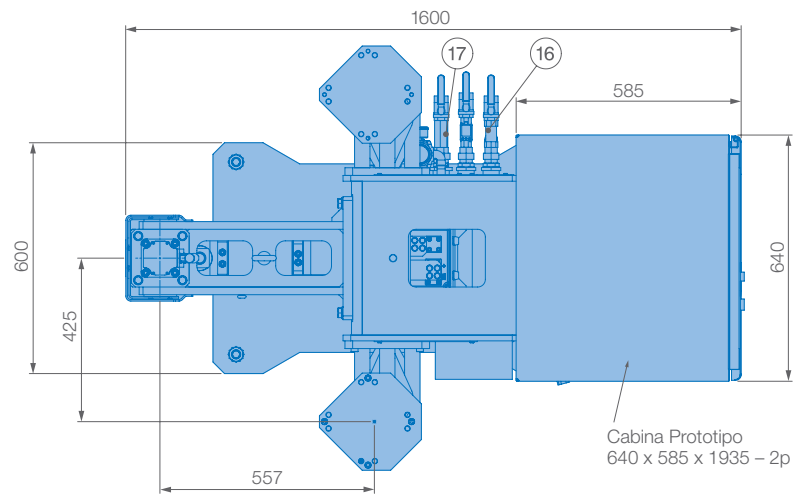
Specifications

Between the workbench and the top head is mounted a tool dedicated to item welding. To the back of the structure is installed a cabinet containing a vibrator that allows you to select the item to be welded, to control the handling robots and the timer of the transformer. The items to be welded are loaded into the vibrator and conveyed, by vibration, near the service unit. When the item is brought in position, it can be picked up by the handling robot that places it on the tool on which the sheet metal item is already present. The servomotor brings the moving part of the tool into contact with the item that is in contact with the sheet metal item. Through pressure and current flow, the indents of the item (nut/bushing/pin) are melted with the sheet metal item.

KEY BENEFITS

- Autonomy, thanks to the integration of its elements
- Greater performance and reliability
- Immediate maintenance
- Quick set-up when changing the item

Nut welding machine



Specifications			
machine type	NUT MACHINE	min. opening between the board	400 mm
Supply voltage	400 V - 50 Hz	top board size (3 grooves)	150 x 150 mm
Secondary voltage	9.3 V (with no load)	Bottom board size (customized)	150 x 150 mm
Short circuit current intensity	39 KA	Water pressure	0,3 - 0,6 Mpa
Auxiliary supply voltage	220 V-AC / 24 V-CC	Water consumption	13 l/min.
Conventional power at 50 %	85 kW	Air consumption (m ³ for 100 points at 0.4 mpa)	1,4 m ³
min. force on electrodes	250 daN	Welding control	PSI63C0 36 KA
max. force on electrodes	1000 daN	SCR unit	BOSCH
SF axis usable depth	500 mm	Weight	950 kg
mobile electrode stroke	130 mm	Height	2128 mm
lower shelf adjustment stroke	200 mm	minimum-maximum width	640 - 870 mm
max. opening between the boards	600 mm	Depth	1600 mm

Dressing kit

- Spot Welding gun wiring from robot base to wrist – 35 mm² power cord, water pipe PUR 12, motor, encoder, signal cables
- Spot Welding connection from robot base to DX200 controller (length 10 metres) – 2 pipes PUR 12, power cord 35 mm²



Welding cabinet

- MF inverter with 36 kA for water-cooling
- Auto-Adaptive SD card (optional)
- Profi bus or Profi net card
- Ethernet card
- Cabinet h = 600 mm
- Main switch 160 A
- Power contactor
- Contactor and switch kit for dressing unit control
- 24 V-DC power supply



Motorgun software

Communication software for the welding timer and the gun motor guarantees a high quality welding process due to integration and complete dialogue between all items managed as a unique YASKAWA brand product.

- Easy to set up: a few steps to configure communication with the welding timer
- Easy to set calibration, configuration page dedicated to calibration of gun and motor
- Contains functions that enable self-learning

	PULSE	STROKE	TORQUE	PRESSURE
1	1195	2.5 mm	6.0 %	600 N
2	2263	5.0 mm	20.0 %	1920 N
3	3996	10.0 mm	25.0 %	1920 N
4	8437	20.0 mm	30.0 %	1600 N
5	12077	30.0 mm	35.0 %	1730 N
6	16175	40.0 mm	40.0 %	1870 N
7	20575	50.0 mm	45.0 %	2080 N
8	24765	60.0 mm	50.0 %	2120 N
9	28545	70.0 mm	60.0 %	2430 N

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