

## Precautions for use

- 1 Please be sure to read the operation manual before use.
- 2 Please do not put your hands etc. between welding gun's electrodes when you power on the controller.
- 3 Please do cleaning, check-up, and maintenance of the product depending on the frequency of use. Please regularly check the screws and tighten them up if they are loosened. When necessary, please apply grease and replace the supply parts.
- 4 Basic operating software for Servo Spot Gun varies depending on robotics manufacturer. Please let us help you specify the software you need.
- 5 For more information about our products, please contact your sales representative or call us at the numbers below.

Spot Welding Guns, Welding Machines,  
and Supplies Manufacturer and Seller

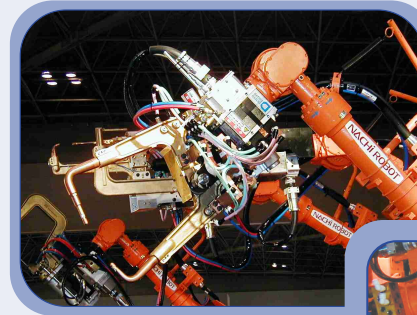


*U.S.A. Ohio Office:*  
8059 Corporate Blvd., Suite B  
Plain City, OH 43064  
Phone: 614-873-3731 FAX: 614-873-3831  
E-mail: [info@denyona.com](mailto:info@denyona.com)

*Japan Headquarters:*  
1648-5 Kamanashi Metal Complex, Tsujijarai,  
Shouwa-cho, Nakakoma-gun, Yamanashi Pref. 409-3853 Japan  
Phone: (055)275-6811 FAX: (055)275-6810

 is a trademark of Denyo Kogyo Co., LTD.

## SERVO SPOT GUN



## SERVO SPOT GUN TMC/TMX Series

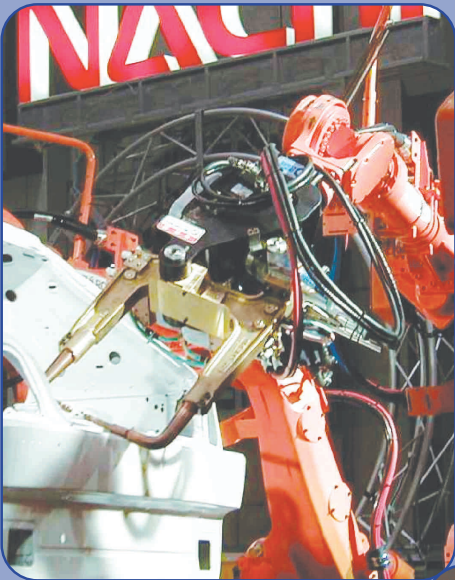


# SERVO SPOT GUN

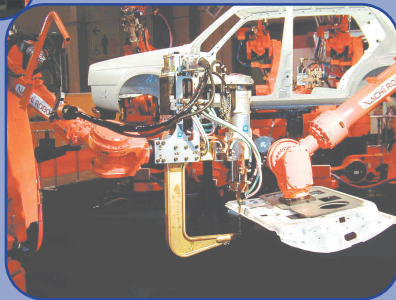
## TMC/TMX Series

### What is a Servo Spot Gun?

- Environmentally-friendly and has a gentle touch to work piece.
- Robot mounted spot welding gun has an excellent weld quality.



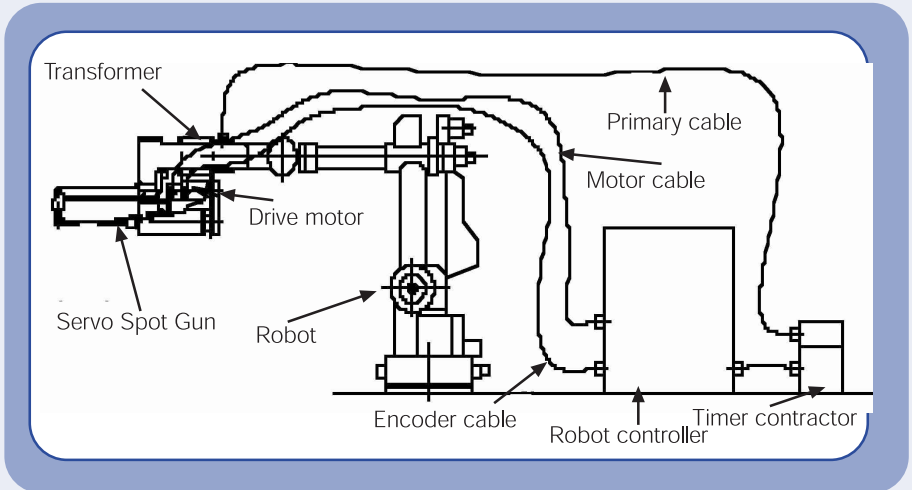
Denyo's conventional spot welding gun previously used an air cylinder for its electrode force. Now it uses a Servo motor. Stroke and weld force can be customized. See more of its great features on the next page.



## Basic System Structure

### Product Overview

Servo Spot Gun has a controller which directly controls its drive motor.



### Specifications

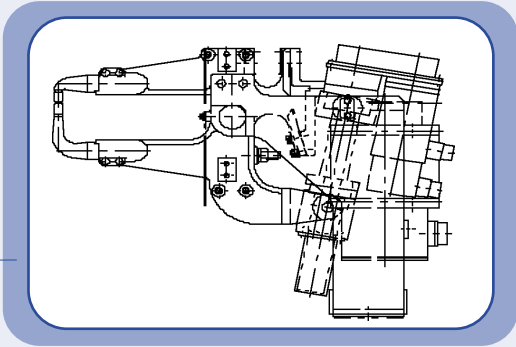
Items		Specifications		
Transformer	Trans-type	Inverter-Trans		AC-Trans
	Type	HFT-90N-6	IT04-G100A	MT 4H-4 8
	Rated capacity	90kVA	100kVA	35~80kVA
	Frequency	700Hz	1000Hz	50 or 60Hz
	Welding source	600V	600V	400V
	Secondary volt	10.7V	12.5V	5.2~11.4V
	Cooling water	6L/min	5L/min	4L/min
	Mass	27kg	23kg	25kg~44kg
Max short circuit current		18000A	18000A	
Permissive duty cycle		10%	10%	

Type X

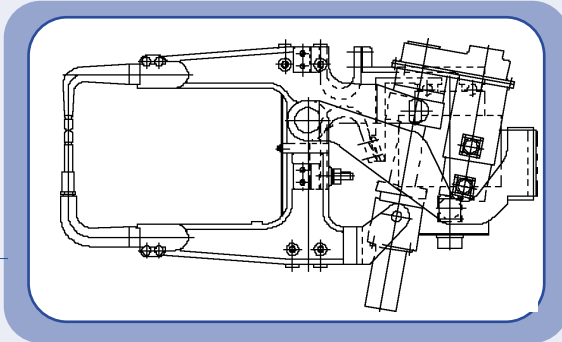
TMX

## Type X Gun

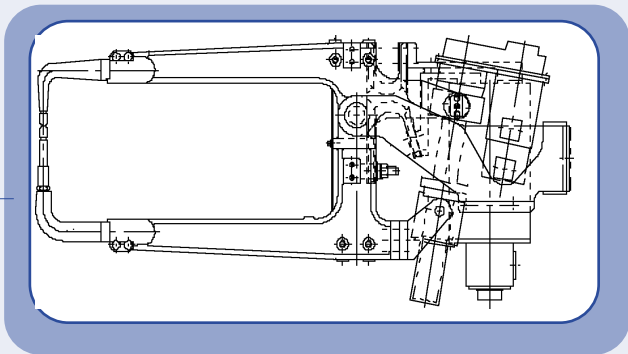
Small size



Medium size



Large size



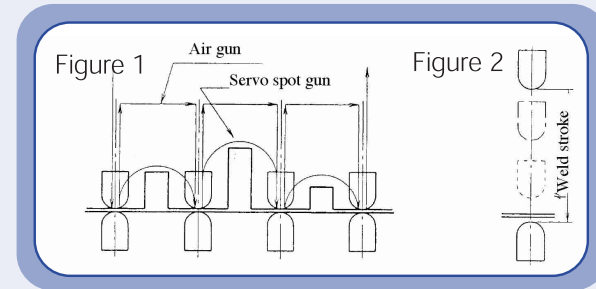
## Customization

Other than the types of guns listed above, we are able to customize the guns according to your specifications. For more information, please contact your sales representative or call us at 614-873-3731.

## Advantages of Denyo's Servo Spot Gun

### 1. Drastic reduction in Cycle Time

Minimum strokes between weld spots enable the shortest welding path and reduction in cycle time (Figure 1). Stroke can be set anywhere within the range of working strokes (electrode worn-out not included).(Figure 2)

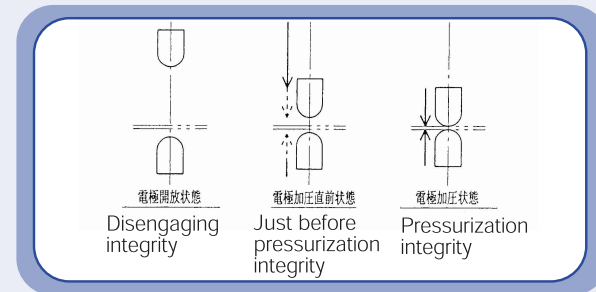


### 1. Effective Control of Weld Force

You can control weld force depending on the work conditions (within the basic weld force specification of each gun).

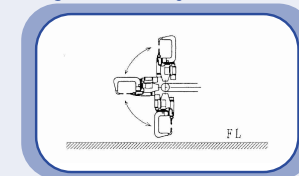
### 2. Light Touch of Electrodes to Work Pieces

Electrodes decelerate right before the moment of touch to work pieces and hold work pieces very gently. This can eliminate the deformation of work pieces. This also reduces the number of clamp locations and simplifies jig design (there may be some differences due to drive software design among robot manufacturers.)



### 3. Gun Poses Every Direction

You can position the gun in every direction from FL surface.



## 5. Silent Operation, Environmental Enhancement, and Improved Energy Conservation

Light touch to work piece makes no impact and air exhaust sound when pressurizing. Quietness is far better than conventional air gun. No air exhaust also enhances factory environment.

Furthermore, energy efficiency improves by approximately 60% compared to an air gun since there is no pressure and compressor loss.

## 6. Electrode Wear Detector

Amount of electrode wear can be checked with a detector (optional).

## 7. Detection of Work Melt

Work melt (one side or both sides) can be detected with electrode travel distance.

## 8. Detection of Electrode Fall Off

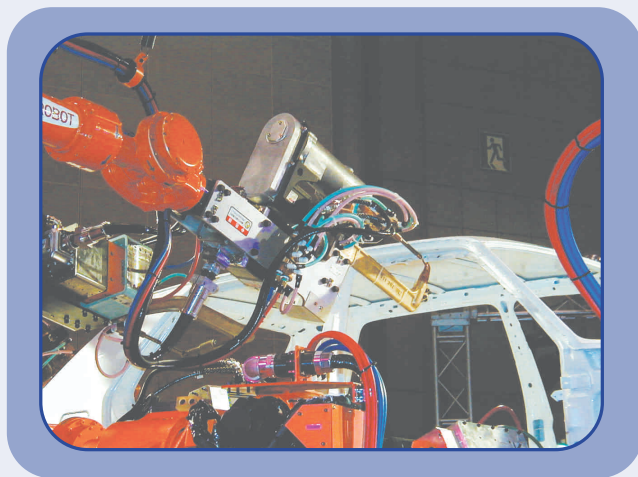
Electrode fall off will be detected in subsequent electrode pressurizing.

## 9. Adaptability to Gun Changer

Multiple guns can be equipped to a single robot. (Gun changer needs a module for servo spot gun.)

## 10. Simplified Peripheral Equipment

Since air is not used, air pipe and related peripheral equipment are spared and it makes the unit simple and neat.



## Standard Specification

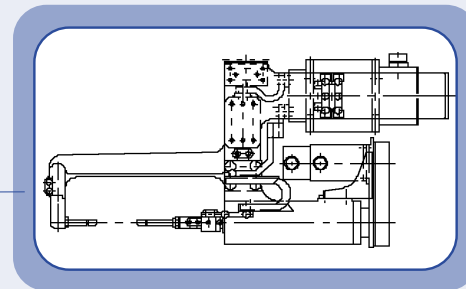
Electrode pressure	980~3920N (100~400kgf)
Electrode stroke (max)	0~200mm
Electrode speed (max)	about 700mm/sec

Type C

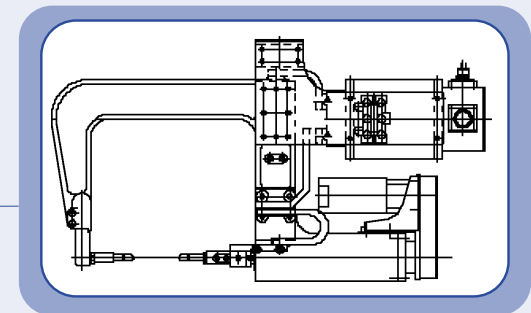
TMC

## Samples of Type C Gun

Small size



Medium size



Large size

