Information on the Process Engineering Center

See website for details▶

Our extensive support system will contribute to your manufacturing.

Robot College

Welding Demonstration

Consulting

Various training courses are available for everyone, from beginners to experts.

Dedicated classrooms for the College are located in the Center. Qualified instructors await, offering courses such as Robot College in a proactive manner. You can use them for various purposes, including training when introducing FA.

●Our welding machines can be tested at various locations around the world.

trial with workpieces is available for a sample welding demonstration.

The FA equipment in the Process Engineering Center is installed in an environment similar to an actual factory.
Qualified operators are in place full-time to perform operations and demonstrations.

We provide various technical consultations and guidance for system introductions.

We are happy to provide consultations for hardware and software related to FA equipment, such as welding machines and robot systems. Please feel free to contact us.

Latest Information on Panasonic Welding Machines

Various information such as the latest news, catalogs, and case studies are available.

https://connect.panasonic.com/en/products-services_welding

Global Customer's Case Studies are Here!

We support our customers around the world with welding.

https://connect.panasonic.com/en/products-services_welding/solutions/case-studies

⚠ Safety Precautions

●Read the instruction manuals carefully for ensuring correct use.
●Place the welding machines in a well-ventilated indoor environment where there are no combustibles.
●Use protective equipment to safeguard yourself and individuals nearby from arc light, spatters, and slag generated during welding.
●Be sure to wear a dust respirator to prevent exposure to metallic vapor (fumes) harmful to humans generated during welding. (The group-2 substances of the Ordinance on Prevention of Hazards due to Specified Chemical Substances)
●Use ear protection to shield yourself and individuals nearby from the arc sound generated during welding.
○ Failing to use ear protection may result in permanent noise-induced hearing loss.
○Follow JIS T8161 (Acoustics-Hearing protectors) for the types of ear protection.* * Earplugs, earmuffs

The Panasonic Group is committed to manufacturing environmentally friendly products

For more details

Panasonic GREEN IMP**ACT**

Energy Saving We aim to reduce the CO_2 emissions in product use by delivering products that thoroughly pursue energy conservation for customers.

Resource Saving We will reduce the use of new resources and create products made of recycled resources recovered from used products to promote resource circulation.

Chemical Substances Panasonic's products comply with the reference values of the EU RoHS Directive, which restricts the use of specific environmentally hazardous substances.*
*Lead, cadmium, mercury, hexavalent chromium, specified brominated flame retardants, specified phthalates

Contact for Panasonic welding machines and robots

Please contact us at the toll-free number on the right for any inquiries.

Mobile phones OK®

0120-700-912

Available from mobile phones.

Business hours:
9:00 a.m. - 12:00 noon, 12:45 p.m. - 5:00 p.m.
(Closed: Saturdays, Sundays, public holidays, New Year holidays, and Panasonic holidays)

Panasonic Connect Co., Ltd
Process Automation Business Division
2-7 Matsuba-cho, Kadoma City, Osaka 571-8502,Japan

Please use this QR code to access the inquiry form.

Printed in Japan [2024.05]
1-0005K

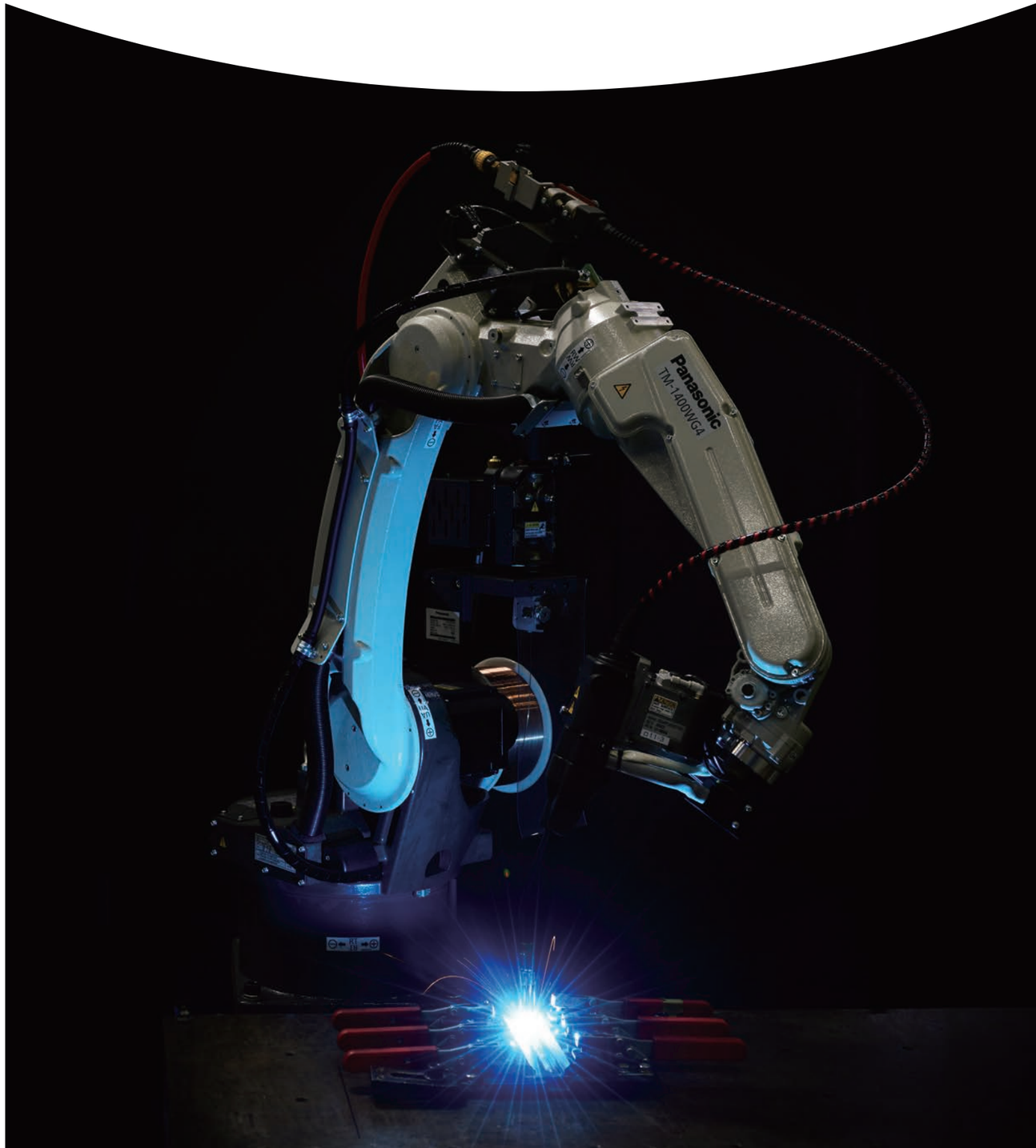
●Product colors in this catalog may differ slightly from the actual colors because this is a printed material.
●The contents in this catalog is subject to change without notice for product improvement.

Catalog No. IR0015E

Panasonic CONNECT

Welding Robots

General Catalog



Product Lineup

Please refer to the website for details of each unit.

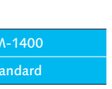
■Robots

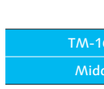
Name			TS-800	TS-950	TM-1100	TM-1400
Type			Short	Short	Short	Standard
Image						
Input voltage (V)			3-phase 200/220	3-phase 200/220	3-phase 200/220	3-phase 200/220
Payload (kg)			8	8	6	6
Working range (mm)		Maximum reach	841	971	1,163	1,437
		Minimum reach	159	190	418	404
		Front-back working range	682	781	745	1033
Motion speed (°/s)	3 basic axes	Swivel (RT axis)	326	326	225	225
		Upper arm (UA axis)	326	326	225	225
		Front arm (FA axis)	510	510	225	225
	3 wrist axes	Rotation (RW axis)	518	518	425	425
		Bending (BW axis)	518	518	425	425
		Twist (TW axis)	1 040	1 040	629	629
Position repeatability (mm)			Within ±0.05	Within ±0.05	Within ±0.08	Within ±0.08
Motor		Total power (W)	2 100	2 100	3 400	3 400
		Brakes	All axes	All axes	All axes	All axes
Mounting			Floor/Ceiling*1/Wall*2	Floor/Ceiling*1/Wall*2	Floor/Ceiling*1	Floor/Ceiling*1
Unit mass (kg)			Approx. 55	Approx. 56	Approx. 156	Approx. 180
Page			24	24	25-26	25-26

TM-1600	TM-1800	TM-2000	TL-1800	TL-2000	LA-1800
Middle	Long	Long	Long	Long	Medium type multi-purpose
					
3-phase 200/220	3-phase 200/220	3-phase 200/220	3-phase 200/220	3-phase 200/220	3-phase 200/220
4	6	6	8	6	26
1,639	1,809	2,011	1,801	1,999	1,801
513	430	550	383	491	489
1126	1379	1461	1418	1508	1312
210	195	195	195	195	201
210	197	197	197	197	199
215	205	205	205	205	218
425	425	425	385	385	434
425	425	425	375	375	450
629	629	629	624	624	720
Within ±0.08	Within ±0.08	Within ±0.10	Within ±0.8	Within ±0.15	Within ±0.07
3 400	4 700	4 700	5 050	5 050	6 600
All axes	All axes	All axes	All axes	All axes	All axes
Floor/Ceiling*1	Floor/Ceiling*1	Floor/Ceiling*1	Floor/Ceiling*1	Floor/Ceiling*1	Floor/Ceiling*1
Approx. 180	Approx. 215	Approx. 217	Approx. 215	Approx. 216	Approx. 320
25-26	25-26	25-26	27	27	28

*1 The ceiling-mounted type is available as a factory-configured option.
*2 Requires setup by a service technician. The working range of the swivel (RT axis) will be limited.
* Please refer to the website for details.

■Functions ●: Standard ○: Option

Function			Robot controller			External welding/cutting power source (for G4 controller)	
			WGH4 (High-current welding power source integrated model)	WG4 (High-current welding power source integrated model)	G4 (Welding power source separated model*)	400NE1 (CO_2/MAG/MIG)	500GZ4／350GZ4 (CO_2/MAG/MIG)
Model details							
Rated output current (A)			40 to 500 DC	30 to 350 DC	In compliance with the external welding/cutting power source (see right)	400	500/350
Rated output voltage (V)			16 to 39 DC	12 to 36 DC		38 DC	45/36 DC
Welding process (CO_2)	CO_2		● MTS-CO_2	● MTS-CO_2		● MTS-CO_2	● MTS-CO_2
	Ultra-low spatter CO_2		○ AWP*1	○ AWP*1			
Welding process (Mild steel MAG/MIG)	MAG		● SP-MAG	● SP-MAG		● SP-MAG	● SP-MAG
	Ultra-low spatter MAG		○ AWP*1	○ AWP*1			
	Pulsed MAG		● Normal-Pulse	● Normal-Pulse		● Normal-Pulse	
	High-speed pulsed MAG		● HD-Pulse	● HD-Pulse		● HD-Pulse	
Welding process (Stainless steel MIG)	MIG		● SP-MAG	● SP-MAG		● SP-MAG	
	Ultra-low spatter MIG		○ AWP*1	○ AWP*1			
	Pulsed MIG		● TAWERS Pulsed MIG	● TAWERS Pulsed MIG		●	
Welding process (Aluminum MIG)	MIG		●	●			
	Ultra-low spatter MIG		○ AWP*1	○ AWP*1			
	Pulsed MIG		●	●			
Welding process (Mild steel/Stainless steel TIG)	DC TIG			● TAWERS TIG			
Welding process (Aluminum TIG)	AC TIG						
Cutting	CUT						
Page			5, 6, 9-12, 17, 18, 23, 29	5, 6, 9-16, 19, 23, 29	5, 6, 9, 10, 20-22, 29	* Please refer to the website for details of each power source.	

External welding/cutting power source (for G4 controller)										
400VP1TA1 (CO_2/MAG/MIG)	350VZ1TA1 (CO_2/MAG/MIG)	350VR1TA1	500AE2TAS	700VH1	500BP4	300BP4	300BZ3	130PF1	080PF3
									
400	350	350	500	700	500	300	300	130	80
38 DC	36 DC	36 DC	45 DC	55 DC	24 DC	20 DC	20 DC	–	–
●	● MTS-CO_2	●	●	●					
●	● SP-MAG	●	●	●					
● Normal-Pulse			●	●					
● HD-Pulse									
●	●	●	●						
●			●						
					●	●	●		
					●	●			
								●	●
* Please refer to the website for details of each power source.									

*1 Active Wire Feed Process
*2 A separate welding power source is required.
* Please refer to the website for details.

* Description: Active TAWERS 4 (An overall robot system name)
Active Wire Feed Process 4 (Abbreviation: AWP4, a welding process name)
S-AWP (Abbreviation of the welding process name, Super Active Wire Feed Process)

Arc Welding Controller

G4 Controller Series

Further evolved welding functions and improved compatibility with peripheral devices

See website for details

Panasonic GREEN IMPACT

1 Further evolved welding performance

●261 types of welding tables included (1.7 times the conventional models)

- **Mild steel: 95 types**
- **Stainless steel: 42 types**
- **Stainless steel (ferrite-based): 34 types**
- **Hard aluminum: 31 types**
- **Zinc-plated steel: 26 types**
- **Soft aluminum: 18 types**

*The above list represents a portion of the types.
*Tables will be added as necessary.
The number of tables include optional ones.

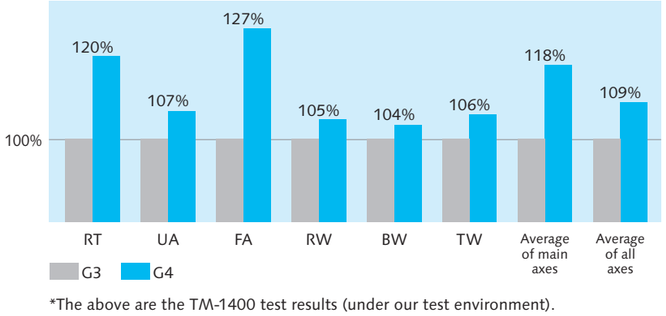
2 Optimized operation reduces the time required to move to the next weld point

●The maximum speed of each axis has been improved by up to 27% (compared to the G3 controller)

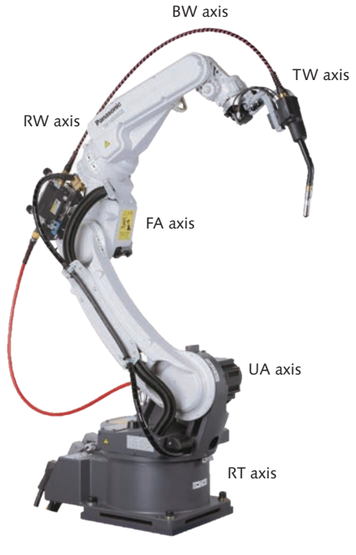
●The basic performance has been enhanced through improved CPU performance and memory capacity

●The maximum speeds of all axes have been enhanced through improved acceleration and deceleration control

Maximum speeds of the 6 axes (compared to G3)*



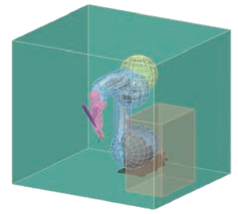
*The above are the TM-1400 test results (under our test environment).



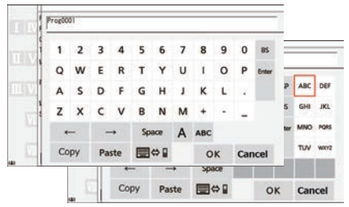
3 Touch interactions and 3D display improve ease of use

●The touch panel is operable while wearing gloves
●3D engine allows finer 3D display and intuitive operation
●Character enlargement function improves visibility

New teach pendant screen with a touch panel operable while wearing work gloves



Fine 3D display on LCD with a resolution 1.6 times the conventional model

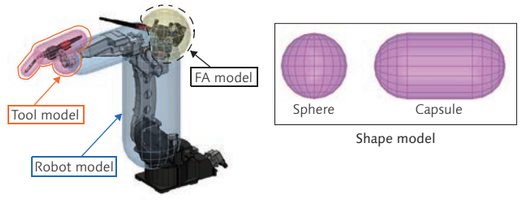


Intuitive operation simplifies text entry

4 Software-based safety mechanism enables more flexible and safer work environments

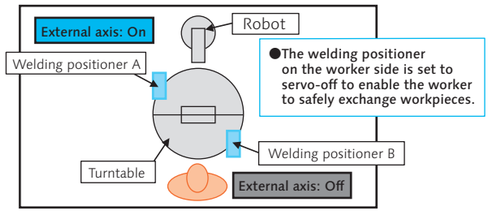
●Area monitoring function

Monitors whether the spherical or capsule-shaped models arranged on the manipulator and tool are within the safety area.
When the shape models are outside the specified safety area, an error is triggered to alert operators of unsafe conditions and halt the robot operation.



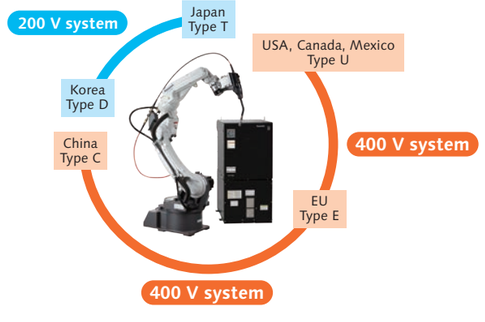
●Individual servo-off function

The individual servo-on/off function for external axes enhances the safety of workers.
In the example below, two welding positioners are on the turntable. The operation of welding positioner A, where the robot is welding, is on.
At that time, welding positioner B is turned off to allow the worker to safely exchange workpieces.

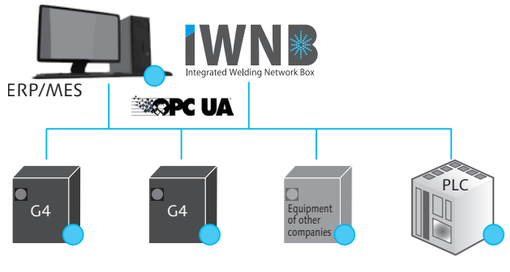


5 The 400 V systems (380 to 460 V) as well as the 200 V systems (200/220 V) are available

●No step-down transformer is required, even in factories with different input voltages



6 The conformance to the OPC UA standard facilitates integration with peripheral devices



● Please refer to the website for other ancillary devices and details.

Arc Welding Robots

TS/TM/TL/LA Series

See website for details

Achieves high-quality welding

TS Series

Space saving & high payload

TS
800
950

External type/
Through-arm type

TM Series

The torch type can be selected to suit your application

TM
1100
1400
1600
1800
2000

Separate type

Through-arm type

TL Series

Long arm & high payload

TL
1800
2000

External type

LA-1800

A single robot can perform material handling and welding operations

LA
1800

External type

■Manipulator lineup

	TS Series		TM Series					TL Series		LA
	800	950	1100	1400	1600	1800	2000	1800	2000	1800
Separate	–	–	○	○	○	○	○	–	–	–
Through-arm	○	○	○	○	○	○	○	–	–	–
External	○	○	*1	*1	–	–	–	○	○	○
Payload	8 kg		6 kg		4 kg	6 kg		8 kg	6 kg	26 kg

* Please contact us for products that comply with C-UL, UL, CE, KCS, and CCC standards.
*1 Supported for TIG and some other types

Manipulator Features

Various features specialized for arc welding

1 Enhanced basic performance

Increased motion speed (reduced takt time)
The maximum speed of each axis has been improved by up to 27% (compared to the G3 controller)

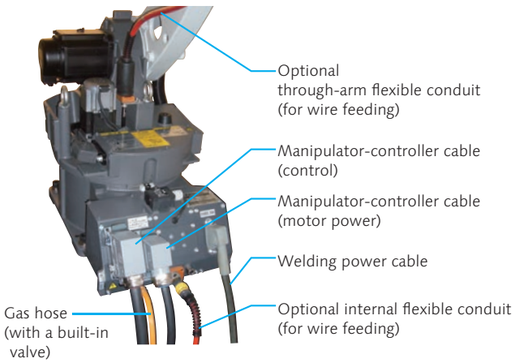
Extended maximum reach (applicable welding range)
TM-1400: 1 437 mm (63 mm more than the conventional TA type)

2 Arm structure specialized for welding

Side mount arm structure
Makes the arm compact and improves accessibility to workpieces

3 Structure designed specifically for welding

Tidy appearance with through-arm cables



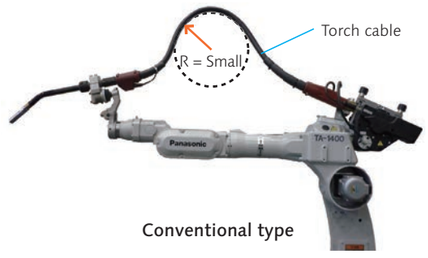
* The optional internal flexible conduit is for use with a pail-pack wire only.

Separate type (TM Series)

The advantages of both the through-arm type and external type torch cables are achieved in a well-balanced manner.

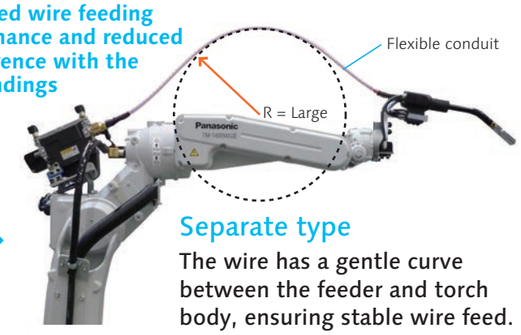
See website for details

1 External flexible conduit



Conventional type

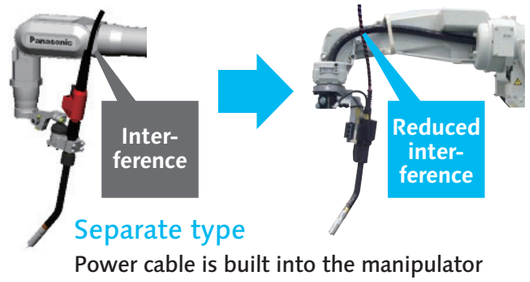
Improved wire feeding performance and reduced interference with the surroundings



Separate type
The wire has a gentle curve between the feeder and torch body, ensuring stable wire feed.

2 Through-arm power cable

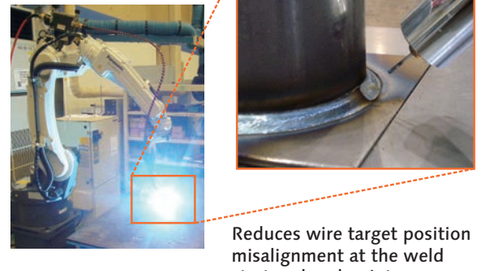
Conventional type
Power cable may interfere with the surroundings depending on the welding position.



Separate type
Power cable is built into the manipulator to reduce interference with the surroundings.

Separate type:
Example of circumferential welding

Suppresses wire twisting.



Reduces wire target position misalignment at the weld start and end points.

New welding robot configuration offers even higher quality welding.

Standard Functions

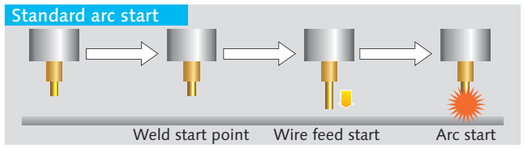
WG4/WGH4/G4

See website for details

1 Flying start

* Same as the wire stick auto release function (for CO2/MAG welding)

Executes welding start/end programs just before the torch reaches the weld start/end points. This function helps reduce the takt time.

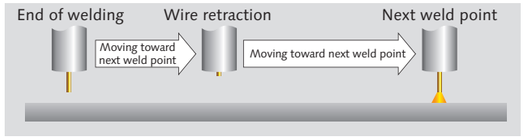


The arc is struck the moment the torch reaches the weld start point.

2 Auto wire retraction

*Same as the wire stick auto release function (for CO2/MAG welding)

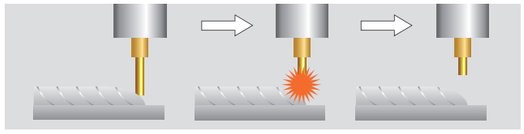
Simple operation/settings allow automatic wire retraction while moving toward the next weld start point, securing improved arc start at the next point. It prevents touch start at arc start.



3 Auto stuck wire release

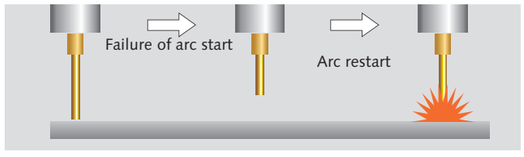
(for CO2/MAG welding)

Automatically detects a wire stuck at the end of welding and re-ignites the arc to release the wire.



4 Arc start retry

When detecting an arc start failure, the robot automatically restarts arc ignition without stopping the operation as an error.

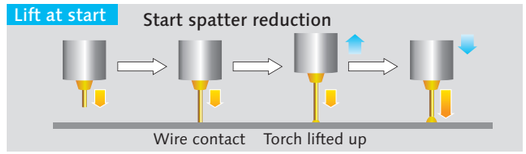


5 Lift at start/end

*G4 is non-supported.

Quality improvement at weld start and end points and high-speed processing

The robot lifts up the welding torch quickly at the start and end of the weld in conjunction with the welding waveform and wire feed control.

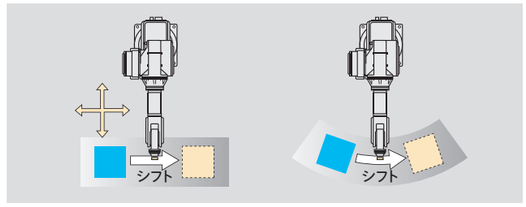


6 Collision detection

The operation stops immediately when a collision is detected through dynamics-based collision detection. After the operation stops, the manipulator enters a flexible control state to reduce the impact from collisions and minimize damage to equipment.

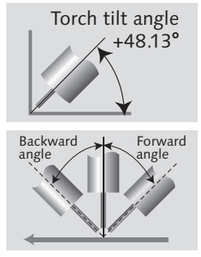
7 Parallel shift + RT axis rotation shift

The shift function can reduce the teaching time for identical workpieces.



8 Torch angle display (teach pendant)

The torch angle is displayed on the screen, making it possible to reduce teaching time and obtain consistent bead appearance.



Standard and Optional Functions

WG4/WGH4

1 Weld Navigation enables the easy setting of welding parameters

Easily check and set welding conditions with the teach pendant.

The pendant offers an extensive welding parameters database accumulated through years of experience.

*WG4/WGH4: Standard function

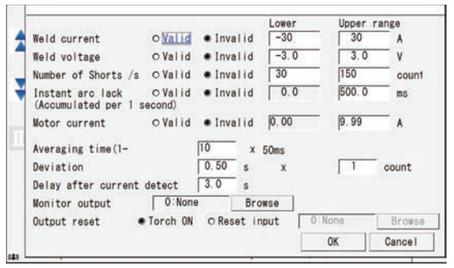
*Screens are subject to change without notice for improvement purposes.

This function reduces the time required for setting welding parameters.

2 Weld data management function

Significantly evolved toward the ideal production/quality control.

Welding data can be sampled with a minimum interval of 10 µsec, enabling high-precision monitoring and status/error output. Welding results can be recorded in log files, which can be used as base data for production/quality control.

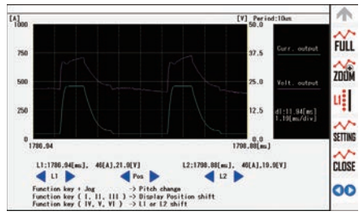


Welding quality monitor Included as standard

Constantly monitors data such as welding current, welding voltage, and wire feed speed to accurately detect minor welding anomalies and alert operators.
(Only one monitoring condition included as standard)

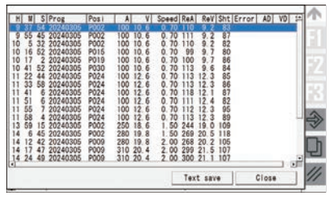
Weld data management function Software option

- Welding quality monitor (extended function)
  Up to 50 welding quality monitoring conditions can be defined.
- Welding data recording
  Data such as welding current, welding voltage, and the number of short-circuits can be recorded at short intervals based on specified triggers. The log data can be graphed on the teach pendant and recorded on the SD memory card.



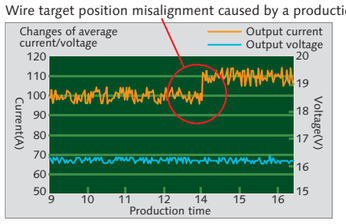
Welding log function Software option

Data for each welding point can be recorded in a log file.
Users can make effective use of the stored data for tracking surveys.



Example of log data processing: Usable for defect rate reduction

Wire target position misalignment caused by a production lot change



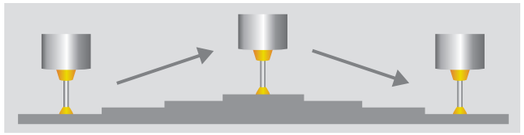
More advanced welding system can be built

Make full use of an external I/F (network), TP display operation, high-capacity memory (welding operation database), etc.

Auto extension control Software option

Effectively mitigates the effects of teaching errors or heat distortion of odd-shaped workpieces.

Robots detect changes in wire extension and compensate automatically. No additional hardware is required, and the operations can be simply performed using only robots.

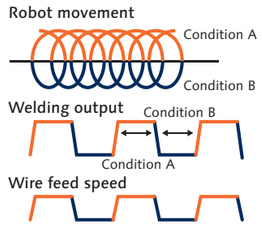


Cooperative multi-robot control

Allows cooperative control between three robots (2 arc welding robots + 1 handling robot).

Synchronous weaving low pulse function (Spiral weaving included)

Spiral weaving movement



Seamlessly synchronizes 3 elements: welding output, wire feed speed, and weaving movement.
Alternates between conditions A and B during spiral weaving, ideal for welding plates of different thicknesses (high current for a thick plate, low current for a thin plate).

TAWERS® WG4/WGH4

TAWERS enables flexible welding process selection/switching

SP-MAG Ⅱ for MAG welding
(short-circuit transfer range for thin plates)
MTS-CO_2 for CO_2 welding

SP-MAGⅡ

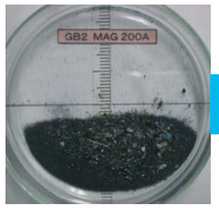
SP(Super-imposition) Control

Reduces spatter significantly during MAG welding of thin plates

Welding waveform control technology achieves low spatter in short-circuit transfer range.

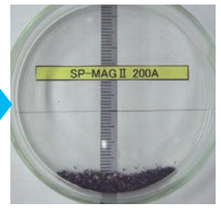
■Spatter generation comparison (1 minute at 200 A)

Full Digital Welding Machine (Conventional model)

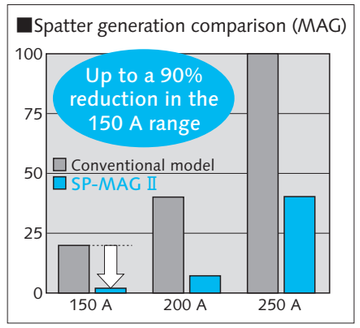


Spatter reduction effect

TAWERS (SP-MAG II)

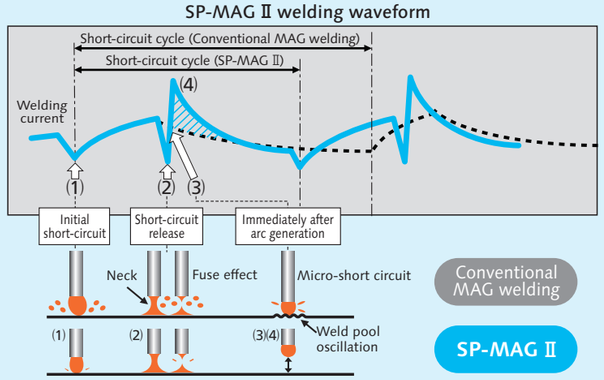


■Spatter generation comparison (MAG)



Wire used: YM-50MT

SP-MAG Ⅱ welding waveform



Conventional MAG welding

SP-MAG Ⅱ

(1)Initial short-circuit control
Detects an initial short-circuit accurately and then enables secondary switching*1 to rapidly reduce the welding current to prevent a micro-short circuit that causes spatter, and ensure short circuiting transfer.

(2)Neck control
Detects a neck of the wire tip and then enables secondary switching*1 to rapidly reduce the welding current to prevent the fuse effect of the wire tip that causes spatter.

(3)HS control
Suppresses the weld pool oscillation immediately after arcgeneration, and prevents a micro-short circuit that causes spatter.

(4)SP control
Superimposes the current immediately after short-circuit release to increase the melting rate of the wire tip, thereby making the next short-circuit smoother and shortening the cycle.

*1 Secondary switching
Spatter reduction process that rapidly reduces welding current immediately before and after a short-circuit, and enables a smooth transition betweenthe arc and short circuit.

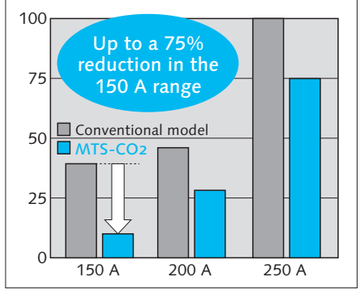
MTS-CO_2

MTS(Metal Transfer Stabilization) Control

Reduces spatter by up to 75% using CO_2 gas

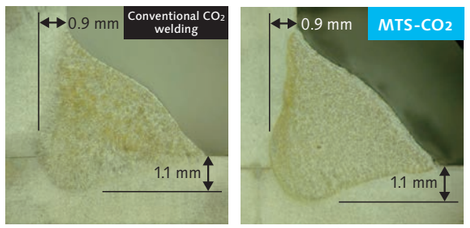
MTS control added to our SP-MAG technologies reduces spatter generation specific to CO_2 welding.

■Spatter generation comparison(CO_2)



Stable pan-bottom shaped penetration achieved by CO_2 welding.

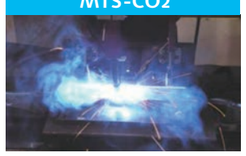
Penetration comparison example



Joint: Fillet Base metal: Mild steel SPCC (2.3-mm thick, 120 A)
Welding speed: 30 cm/min
Wire: YGW12 (1.2 mm) Gas: CO_2

Conventional CO_2 welding

MTS-CO_2



TAWERS Standard Welding Process

TAWERS® WG4/WGH4

TAWERS enables flexible welding process selection/switching

Pulse MAG welding (high-current range)
HD-Pulse for high-speed and low-spatter welding
Normal-Pulse for low-spatter welding of medium and thick plates

HD-Pulse

HD-Pulse(Hyper Dip-Pulse Control)

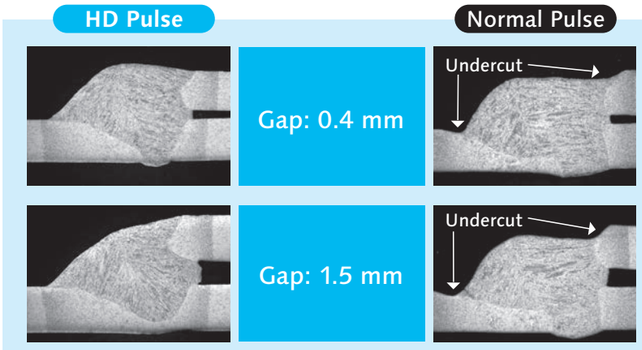
Achieves high-speed pulse welding

Short arc length and narrow arc width prevents undercuts caused by insufficient deposition during high-speed welding.

HD-Pulse welding features

- **Prevents undercuts during high-speed welding.**
- **The short-circuit transfer enables lower heat input than drop transfer. Gap tolerance is improved.**
- **Precisely controls dip timing, reducing spatter.**

■Example of high-speed welding



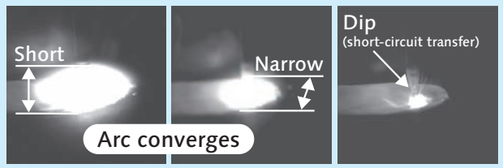
●Plate thickness: 2.3 mm ●Welding current: 300 A ● Welding speed: 110 cm/min

Preventing undercuts with ideal penetration

■Types of droplet transfer

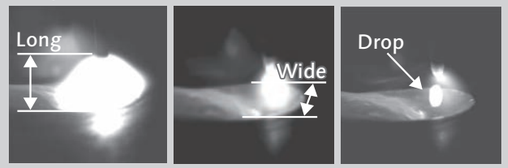
HD-Pulse control

Transfer type: 1 dip by 1 pulse
(short-circuit transfer)



Normal-Pulse control

Transfer type: 1 drop by 1 pulse
(drop transfer)



■Process comparison in spray transfer range (280 A or more)

Welding process	SP-MAG Ⅱ	Normal-Pulse	HD-Pulse
Welding speed	Good	Good	Excellent
Spatter	Average	Excellent	Good
Penetration pattern	Marginal	Average	Excellent
Undercut	Marginal	Marginal	Excellent
Base metal heat input	Marginal	Marginal	Good
Gap handling	Marginal	Marginal	Good
Overall evaluation	Marginal	Marginal	Excellent

- **SP-MAG Ⅱ:**
  Spatter control is a challenge in the high-current range.
- **Normal-Pulse :**
  Undercut control is a challenge in high-speed welding.

HD-Pulse control is ideal for high-current and high-speed welding

Active TAWERS 4
WG4

The welding power source integrated robot has evolved into a new range, achieving high-speed and ultra-low-spatter welding

Active Wire Feed Process 4 (AWP4)

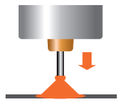
AWP4(Active Wire Feed Process 4)

Wider current range and precise wire feed

- **Contribute to productivity improvement with high-speed welding and ultra-low spatter**
- **Achieve 100% duty cycle at 310 A**

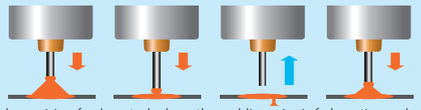
(When using CO_2 gas, 1.2 mm mild steel solid wire, and an air-cooling unit)

Conventional CO2/MAG/MIG welding



The welding wire is fed at a constant speed.Spatter reduction is limited.

Active Wire Feed Process



High-precision feed control where the welding wire is fed continuously with a back and forth motion.
Spatter is reduced through a stable short-arc cycle.

System enabling both high-speed welding and ultra-low spatter

AWP4 servo pull torch | Wire booster | AWP4 software | Air-cooling unit

YT-CJT352 Series | YW-PCF041 | YA-2KPMV2 | YA-2KPUR1

Please contact us for details.

WG4

TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

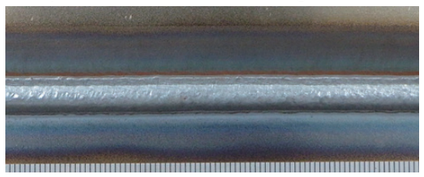
* TS:Through-arm/External
* TM:Separate/Through-arm
* TL:External
* LA:External

High-speed welding

- **Productivity improved at speeds of 100 cm/min or higher**
- **Smooth and beautiful bead appearance**

Welding conditions: Joint: Lap Gas: CO_2
Welding current: 320 A
Welding speed: 110 cm/min
Plate thickness: 3.2 mm

Example of mild steel SPCC welding

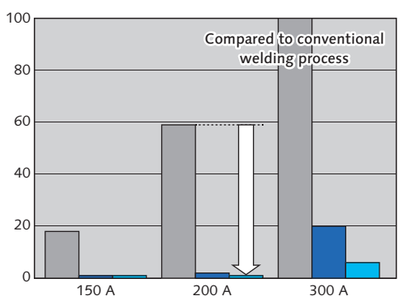


Reduces spatter by up to 99% (compared to conventional models)

CO_2 welding

Conventional welding process
Active TAWERS(2)
Active TAWERS 4

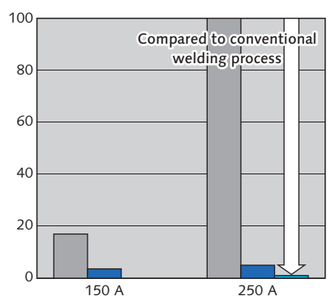
98 % reduction in 200 A range



MAG welding

Conventional welding process
Active TAWERS(2)
Active TAWERS 4

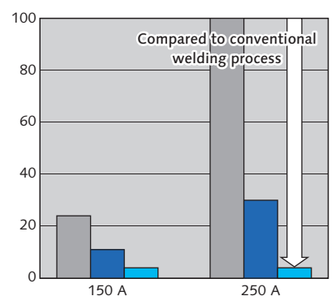
99 % reduction in 250 A range



Stainless steel welding

Conventional welding process
Active TAWERS(2)
Active TAWERS 4

96 % reduction in 250 A range



Note: Precautions for using Active TAWERS 4 servo pull torch
1. Use a coated pail-pack wire. (Panasonic wire recommended.)
2. Adjust the wire cast diameter to 1000 to 1200 mm.

Active TAWERS 4
WG4

Burn-through prevention, higher gap tolerance, and better bead appearance Applicable to wider ranges

Active Wire Feed Process (Optional for thin-plate and gap welding)

HBC(Heat Balance Control)process supports welding of high-tensile steel plates that are becoming thinner

Active TAWERS 4

HBC software

YA-2KPMV1T01

Just add software to Active TAWERS 4

* Effective only for mild steel/SUS.

WG4

TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

* TS:Through-arm/External
* TM:Separate/Through-arm
* TL:External
* LA:External

Suppresses burn through in thin plate welding

- **Low heat input control significantly increases condition tolerances (welding speeds and gaps)**
- **Capable of welding thin high-tensile steel plates that are prone to burn-through**

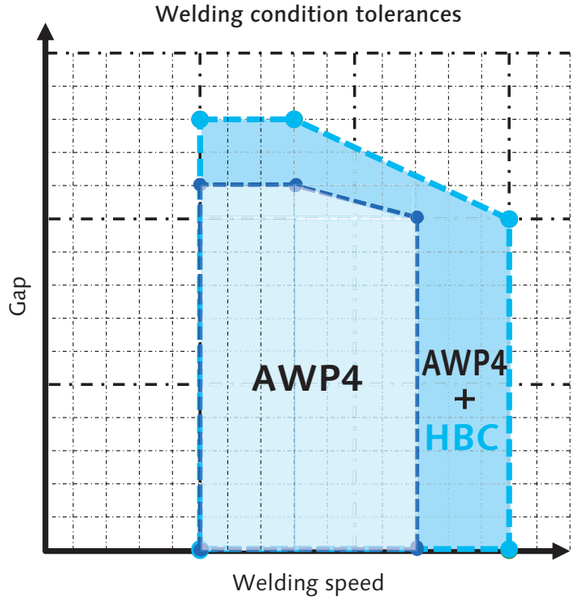
Example of high-tensile steel (980 MPa)

Conventional Active TAWERS: Burn through

HBC process: No burn through

Welding conditions: Joint: Lap Gas: MAG
Welding current: 150 A
Welding speed: 100 cm/min
Plate thickness: 0.8 mm Gap: 1 mm

Welding condition tolerances



Conventional S-AWP basic functions are included in the AWP4 software (YA-2KPMV2).

Note: Precautions for using AWP4
1. Use a coated pail-pack wire. (Panasonic wire recommended.)
2. Adjust the wire cast diameter to 1000 to 1200 mm.

TAWERS Zi-Tech

Welding technology for zinc-coated steel

Solution to reduce excessive spatter generation and residual blowholes

See website for details

Solid wire welding of zinc-coated steel with less spatter and blowholes achieved by our two solutions.

Zi-Active

WG4

TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

* TS:Through-arm/External
* TM:Separate/Through-arm
* TL:External
* LA:External

Zi-Pulse

WG4/WGH4

TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

Effective for zinc-coated steel welding Reduces spatter and blowholes

Zi-Active

Solution using Active TAWERS

- Uses general welding wire (solid 1.2)
- Applicable range extended to MAG welding in addition to CO_2 welding
- Effective for a wide range of coating weights
  CO_2 gas: 45 to 190 g/m²
  MAG gas (80:20): 45 to 60 g/m²
  MAG gas (90:10): 45 to 60 g/m²

Active TAWERS

Zi-Tech software

Just add software to Active TAWERS

YA-2KPMV1T02

* Conventional Zi-Pulse process is also available.

Spatter generation: 75 to 95% reduction (compared to the conventional CO_2 process)

	Coating weight: 190 g/m²	
	Normal CO_2	Zi-Active
Bead appearance	Spatter adhesion: High	Spatter adhesion: Minimal
X-ray	Blowholes: Numerous	Blowholes: Few

Welding conditions: Wire: YM-50 (φ1.2) Joint: Lap Gas: CO_2
Welding current: 250 A Welding speed: 80 cm/min
Plate thickness: 2.3 × 2.3 mm

Zi-Pulse

Solution using standard TAWERS

- Uses general welding wire (solid 1.2)
- Uses MAG gas (90:10) (HD-Pulse welding process)
- Effective for coating weights ranging from 45 to 60 g/m²

Standard TAWERS(WG4)

TAWERS Zi-Pulse software

Just add to standard TAWERS (TS/TM/TL Series)

YA-2KPMZ1

Spatter generation: 30 to 60% reduction (compared to the 80:20 MAG process)

	Coating weight: 190 g/m²	
	MAG 80 : 20	Zi-Pulse MAG 90 : 10
Bead appearance	Spatter adhesion: Low	Spatter adhesion: High
X-ray	Blowholes: Numerous	Blowholes: Few

Welding conditions: Wire: YM-50MT (φ1.2) Joint: Lap fillet
Welding current: 230 A Welding speed: 80 cm/min
Plate thickness: 2.0 x 2.0 mm

Note: Precautions for using AWP4
1. Use a coated pail-pack wire. (Panasonic wire recommended.)
2. Adjust the wire cast diameter to 1000 to 1200 mm.

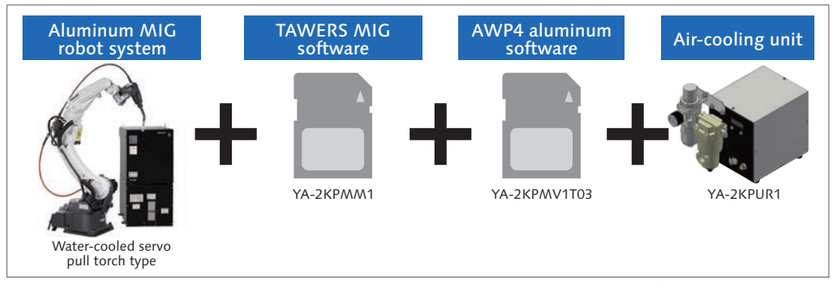
Active TAWERS WG4

Welding technology for zinc-coated steel

Solution to reduce excessive spatter generation and residual blowholes

S-AWP Aluminum

The ultra-low spatter welding performance of Active TAWERS is extended to aluminum MIG welding.



Please contact us for details.

WG4

TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

* TS:External
* TM:Separate
* TL:External
* LA:External

Active TAWERS 4 for aluminum MIG reduces spatter and smut

- **The ultra-low spatter welding performance of AWP, demonstrated on mild steel, is now extended to aluminum**
- **A wider current range of 40 to 180 A enables high-speed welding and expansion of applicable plate thickness**

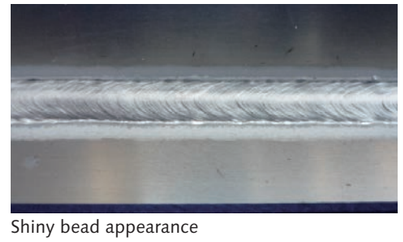
Example of medium thickness plate welding (3.0 mm)

Conventional TAWERS (DC pulse MIG)

Smut formation over the bead

Smut generation suppressed

Active TAWERS 4 Aluminum

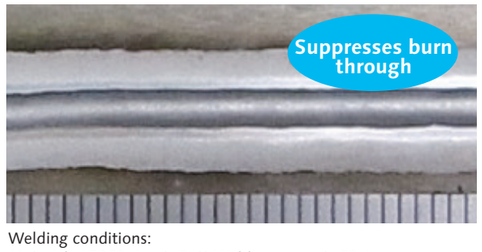


Shiny bead appearance

Welding conditions: Material: A5052 Joint: T joint Welding current: 155 A Welding speed: 60 cm/min Plate thickness: 3.0 mm

Effective for welding thin aluminum plates

Example of thin plate welding (0.6 mm)



Welding conditions:
Material: A5052 Joint: Butt Welding current: 50 A
Welding speed: 150 cm/min
Plate thickness: 0.6 mm

AC-MIG System

AC unit

YX-350AC1

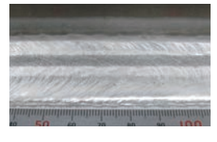
AC control and stable wire feed ensure high-quality aluminum MIG welding, and powerful output. Useful for a variety of welding situations.

Additional AC unit increases applications of aluminum MIG welding.

* This system cannot be used in combination with the Active TAWERS aluminum function.

Rated output of 350 A Thin to medium and thick plates

One unit can support a wide range of conditions from AC aluminum welding of delicate thin plates to powerful DC welding of medium and thick plates. (Output current: 22 A to 350 A)



Joint: Flat fillet
Base metal: A5052
Plate thickness: 15.0 mm
Wire: A5356WY (1.2 mm)
Welding speed: 40 cm/min
Welding current: 280 A DC for 1 pass
250 A DC for 2 to 3 passes

Active TAWERS
WGH4

Active Wire Feed Process available on high-current range

See website for details

S－AWP HP

High-speed and medium/thick plate welding achieved with high power

HP type robot system + AWP4 basic software + S-AWP HP software + Air-cooling unit

Water-cooled servo pull torch type

YA-2KPMV2 + YA-2KPMV1T05 + YA-2KPUR1

Please contact us for details.

WGH4

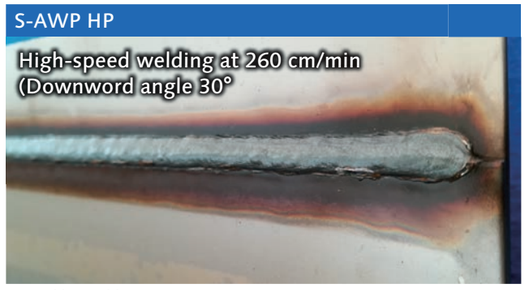
TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

* TS:External
* TM:Separate
* TL:External
* LA:External

Even higher-speed welding

Minimum 50%*1 speed increase compared to conventional model

S-AWP HP

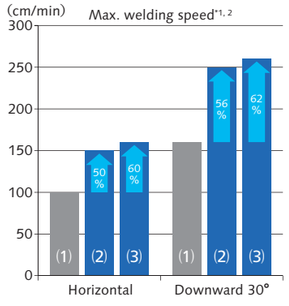


Vertical lap welding
SPCC (1.6 mm), 380 A
YM-50 (ϕ1.2), CO_2

(1) Active TAWERS 4 standard: 300 A (ϕ1.2)
(2) S-AWP HP:380 A (ϕ1.2)
(3) S-AWP HP:400 A (ϕ1.4)

*1 Measurements tested in our company's test environment. When you consider the purchase of equipment, verify the suitability for your work at our Process Engineering Center.

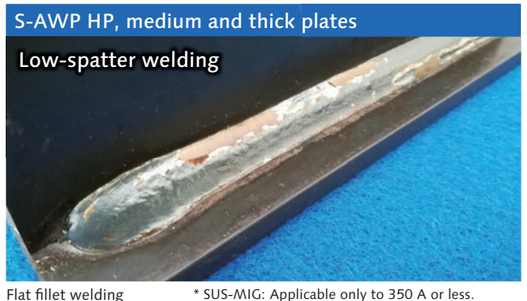
*2 Common welding conditions: Horizontal lap welding, SPCC (3.2 mm), YM-50 (ϕ1.2/ϕ1.4), CO_2



Medium and thick plate welding

Minimum 60%*1 spatter reduction compared to conventional model

S-AWP HP, medium and thick plates



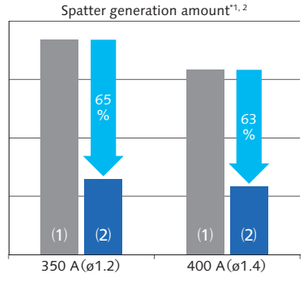
Flat fillet welding
SPHC (9.0 mm)
320 A, 40 cm/min
YM-50 (ϕ1.2), CO_2

* SUS-MIG: Applicable only to 350 A or less.
MAG with AWP4: Applicable only to 350 A or less.

(1)Conventional High Power TAWERS
(2)S-AWP HP

*1 Measurements tested in our company's test environment. When you consider the purchase of equipment, verify the suitability for your work at our Process Engineering Center.

*2 Common welding conditions: BOP, SPHC (6.0 mm), 100 cm/min, YM-50 (ϕ1.2/ϕ1.4), CO_2



Note: Precautions for using AWP
1. Use a coated pail-pack wire. (Panasonic wire recommended.)
2. Adjust the wire cast diameter to 1000 to 1200 mm.

TAWERS®
WGH4

High-power model specialized for welding medium and thick plates

TAWERS for medium and thick plates

WGH4

TS	TM	TL	LA
800	1100	1800	1800
950	1400	2000	
	1600		
	1800		
	2000		

Various functions can be selected based on your application

Select necessary options for TAWERS for medium and thick plates.

Functions effective for medium and thick plate welding

Standard setting / Optional setting

- Groove touch sensor YA-2JPWS1T01
- Touch sensor function YA-2JPWS1
- TAWERS arc sensor function YA-2KPSA1
- Thick plate welding function YA-2JPMB1
  - Medium thickness plate welding function YA-2JPMC1
- Cooperative multi-robot control function (Twin Harmonizer)
  - Cooperative external axis control function (Harmonizer) YA-2JPHA1
- Other options

High Power TAWERS（WGH4）

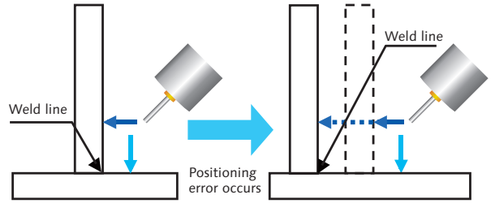
* TAWERS for medium and thick plates: Supplied with touch sensor software and a wire clamp unit

Examples of functions

Touch sensor operation

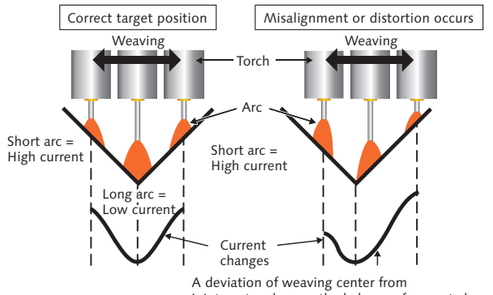
The robot calculates the point of contact with the base metal and determines the weld line.

Measures deviation in the weld line due to errors and determines the weld line again.



Arc sensor operation

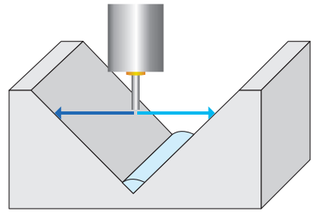
Detects misalignment or distortion of the workpiece and adjusts the position to the correct target position.



A deviation of weaving center from joint center changes the balance of current changes.

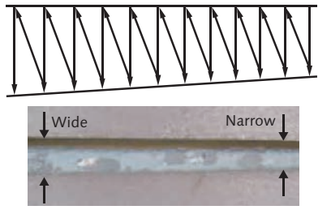
Groove touch sensor function

Searches for the groove and detects positioning errors.
Senses groove width and center, compensating for misalignment in each workpiece.



Variable weaving function Thick plate welding function (YA-2JPMB1)

Adapts to changes in the groove width. Controls the amount of deposited metal, ensuring uniform bead height.



TAWERS® WG4

High deposition enables high-speed TIG welding

TAWERS-TIG

High-frequency start

TAWERS-TIG start unit

Achieves excellent arc start. Enables improved welding quality and reduces takt time.

Not applicable to aluminum.

WG4

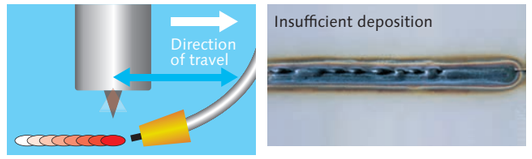
TS	TM	TL	LA
800	1100	1800	1800
950	1400		

* TS:External
* TM:External
* TL:External
* LA:External

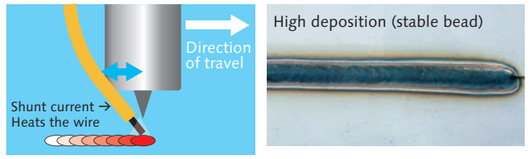
The proximity of the electrode and filler wire increases the wire heating effectExample of high-speed welding (80 cm/min, stainless steel)

Example of high-speed welding (80 cm/min, stainless steel)

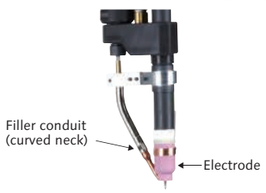
Conventional process



TAWERS-TIG

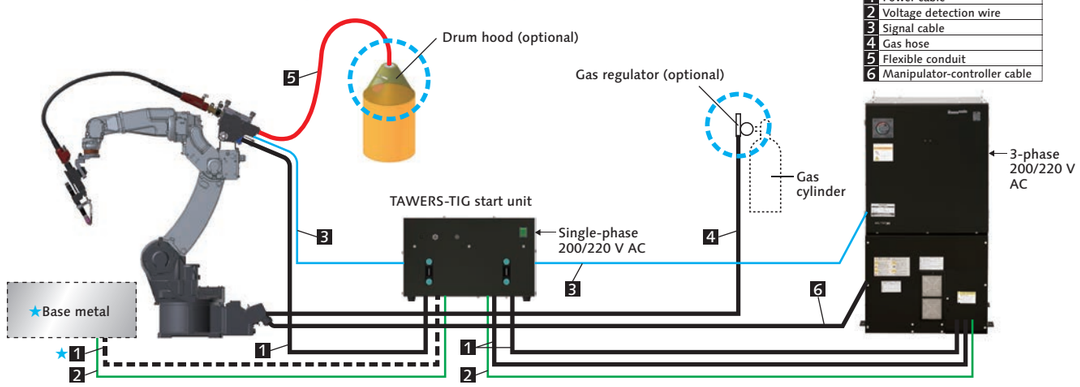


Curved neck filler conduit



Achieves consistent filler wire feeding.
Effective in improving weld quality and limiting misalignment.

■Example of connection diagram (high-frequency start)



No.	Item
1	Power cable
2	Voltage detection wire
3	Signal cable
4	Gas hose
5	Flexible conduit
6	Manipulator-controller cable

★Items to be supplied by the customer

Please contact us for details.

Robot Systems G4

Realizes stable high-quality welding in combination with a full digital welding power source

See website for details

Full Digital CO2/MAG Welding Machine NE1 Series SP-MAG

SP(Super-imposition Control)

CO2/MAG/MIG welding robot system that can be selected according to your application

400NE1

Adopts SP control, which has been installed in the world's first welding power source integrated robot TAWERS, and has been praised by many customers.

Features of SP-MAG

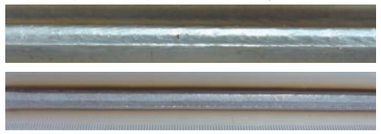
- Spatter reduction (reduced man-hours for removal)
- Optimal for high-speed welding due to a shortened short-circuit cycle
- Beautiful bead appearance achieved by shortened arc length

TM-1400G4 (Separate)

TS	TM	TL	LA
800	1100	1800	2000
950	1400	2000	
	1600		
	1800		
	2000		

Beautiful bead appearance and reduced spatter achieved even in high-speed welding by GZ4

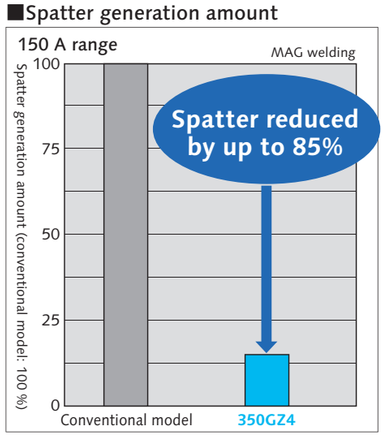
* Optional parts are required for connecting a robot.



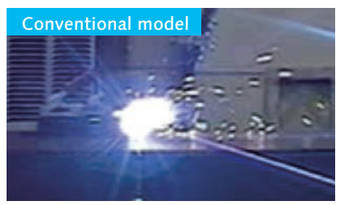
MAG welding (220 A)
Joint: Fillet Base metal: Mild steel SPCC (thickness: 2.3 mm) Welding current: 220 A
Welding speed: 100 cm/min Wire: ϕ1.2 (YM-50MT) Gas: MAG (80% Ar and 20% CO_2)

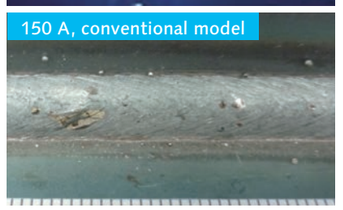
MIG welding (180 A)
Joint: Fillet Base metal: SUS308 (thickness: 1.5 mm) Welding current: 180 A
Welding speed: 80 cm/min Wire: ø1.2 (Y308LSi) Gas: MIG (98% Ar and 2% O_2)

■Spatter generation amount



* Up to 80% reduction in 500GZ4
(Compared to conventional model, 250 A range)





Joint: Fillet Base metal: Mild steel SPCC (thickness: 2.3 mm) Welding current: 150 A
Welding speed: 50 cm/min Wire: ø1.2 (YM-50MT) Gas: MAG (80% Ar and 20% CO_2)

Full Digital Controlled Welding Machine

Lineup of CO2/MAG/MIG welding machines to achieve high-quality welding

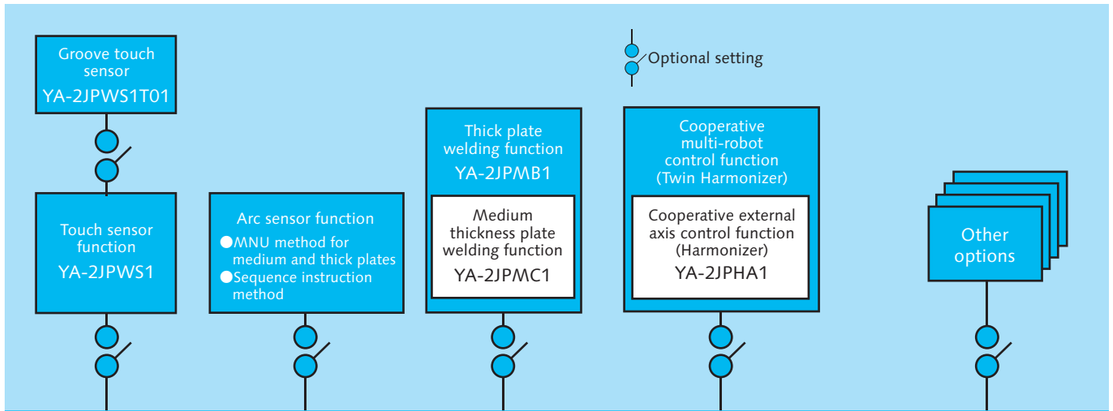
400NE1 350GZ4 500GZ4 350VZ1TA1 350VR1TA1 500VR1TA1 400VP1TA1

Medium and Thick Plate Welding Robot System G4

Freely selectable functions effective for medium and thick plate welding

Medium and thick plate welding system

Functions effective for medium and thick plate welding



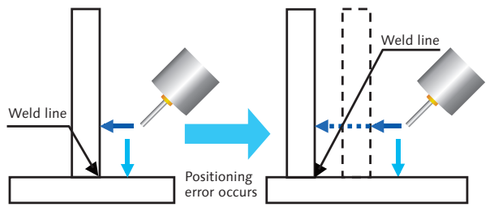
* Please contact us for details.

Examples of functions

Touch sensor operation

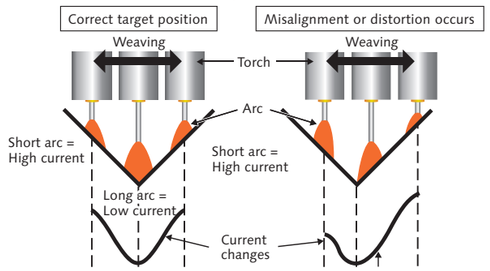
The robot calculates the point of contact with the base metal and determines the weld line.

Measures deviation in the weld line due to errors and determines the weld line again.



Arc sensor operation

Detects misalignment or distortion of the workpiece and adjusts the position to the correct target position.



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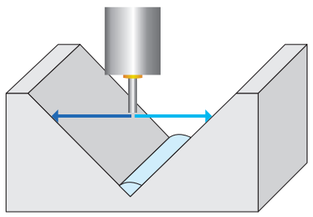

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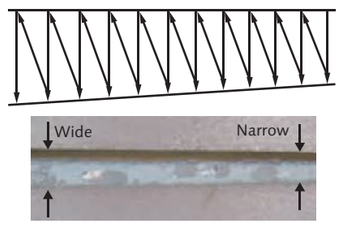


TIG Robot System G4

Realizes high quality welding in combination with a full digital welding power source

TIG welding robot system that can be selected according to your application

Combinations of applicable materials, welding power sources, and robots

Type	Material	Applicable filler wire diameter (mm)	Applicable welding power source	Applicable robot
TIG without filler	Stainless steel	–	300BZ3	TS-800 TS-950 TM-1100 TM-1400 TL-1800 LA-1800
	Stainless steel Aluminum	–	300BP4 500BP4	
TIG with filler	Stainless steel	1.2	300BZ3	TS-800 TS-950 TM-1100 TM-1400 TL-1800 LA-1800
	Stainless steel Aluminum	1.2	300BP4 500BP4	
Rotary TIG with filler	Stainless steel	1.2	300BZ3	TL-1800 LA-1800
	Stainless steel Aluminum	1.2	300BP4 500BP4	

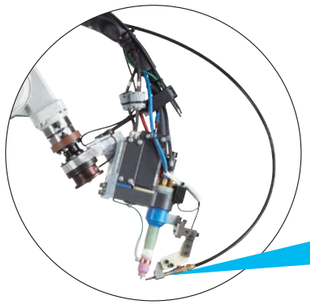
* An external axis controller is required for the rotary TIG filler welding.

TS	TM	TL	LA
800	1100	1800	1800
950	1400		

* TS:External
* TM:External
* TL:External
* LA:External

Rotary TIG Filler Welding Robot System
TL-1800G4

Features of the rotary TIG filler unit



- Optimal welding position achieved
- High-precision filler feeding
- Improved accessibility to workpieces

Filler tip position can be adjusted up/down, right/left, and front/back

Lineup of TIG welding torches

Air-cooled torch
YT-TCT201
200 A, 35 %

Water-cooled torch
YT-TCT401
400 A, 60 %

Full Digital Controlled Welding Machine

FULL DIGITAL

Lineup of TIG welding machines to achieve high-quality welding

AC/DC TIG welding machines

300BP4

500BP4

DC TIG welding machine

300BZ3

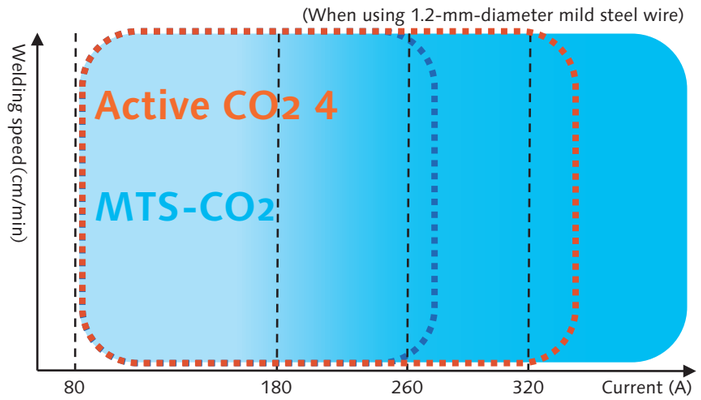
TAWERS® WG4/WGH4

TAWERS enables flexible welding process selection/switching

SP-MAG II for MAG welding
(short-circuit transfer range for thin plates)
HD-Pulse for high-speed and low-spatter welding in pulse MAG welding (high-current range), and MTS-CO_2 for CO_2 welding

TAWERS Welding Process Guide

CO_2 welding Standard



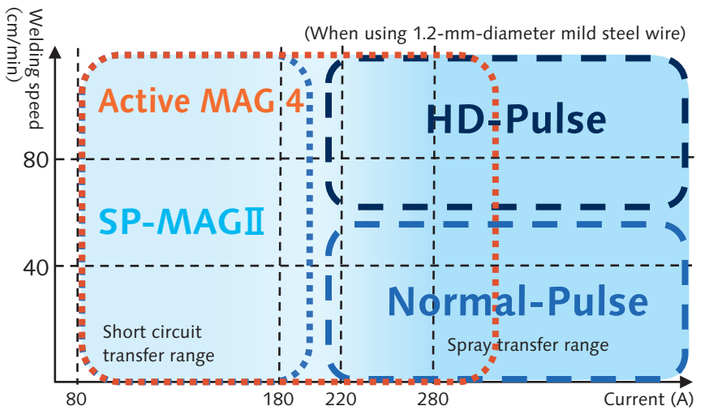
AWP4 — High speed & low spatter in low- to high-current range

The integration of waveform control and wire feed control enables further low-spatter and high-quality welding.

MTS-CO_2 — Low spatter in low-current range

MTS control added to SP-MAG technology reduces spatter generation specific to CO_2 welding.

MAG welding Standard



AWP4 — High speed & low spatter in low- to medium-current range

The integration of waveform control and wire feed control enables further low-spatter and high-quality welding.

SP-MAGII — Low spatter in low-current range

Secondary switching and SP/HS control achieve a stable arc and low spatter welding.

HD-Pulse — High speed & low spatter in high-current range

1 dip by 1 pulse (short-circuit transfer) minimizes undercuts in high speed welding.

Normal-Pulse — Low spatter in high-current range

1 drop by 1 pulse (drop transfer) achieves low spatter.

Small Type Arc Welding Robots

TS Series

Supports various welding styles
Improves production efficiency
for small workpieces


TS-800

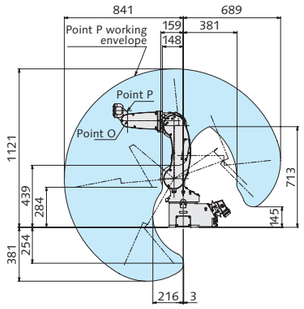

TS-950

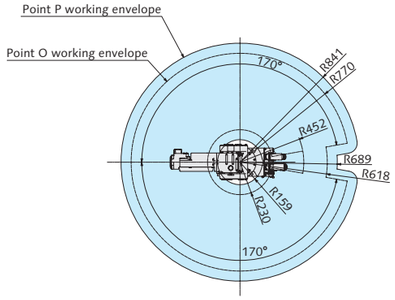
See website for details

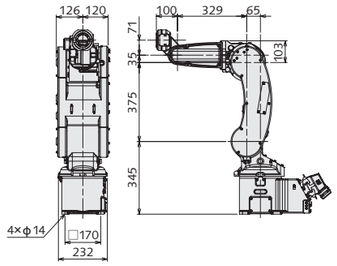
Working envelopes and dimensions (Unit = mm)

* For the working envelope of point O, please consult with our sales office.

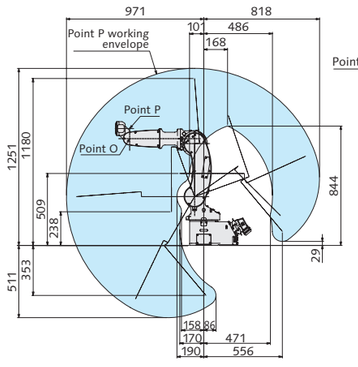
Short Type TS-800

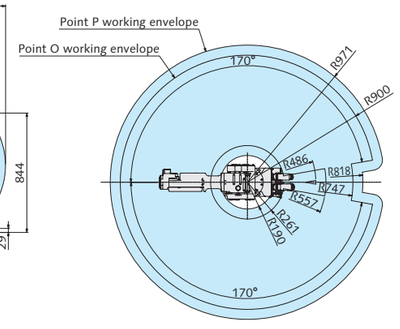


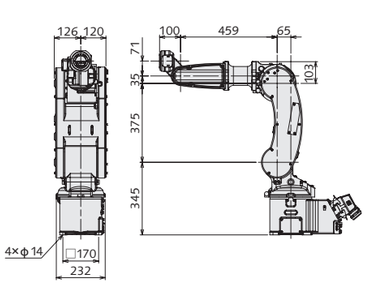




Short Type TS-950







■General specifications of manipulators

Name			TS-800	TS-950
Type			Short type	Short type
Structure			6 axis articulated	
Payload			8 kg	
Working range		Maximum reach	841 mm	971 mm
		Minimum reach	159 mm	190 mm
		Front-back working range	682 mm	781 mm
Motion speed	Arm	Swivel (RT axis)	326°/s	
		Upper arm (UA axis)	326°/s	
		Front arm (FA axis)	510°/s	
	Wrist	Rotation (RW axis)	518°/s	
		Bending (BW axis)	518°/s	
		Twist (TW axis)	1 040°/s	
Position repeatability			Within ±0.05 mm	
Motor		Total power	2 100 W	
		Brakes	All axes	
Mounting			Floor/Ceiling*1/Wall*2	
Unit weight			Approx. 55 kg	Approx. 56 kg

*1 The ceiling-mounted type is available as a factory-configured option.
*2 Requires setup by a service technician. The working range of the swivel (RT axis) will be limited.

Standard Arc Welding Robots

TM Series

The torch type can be selected to suit your application

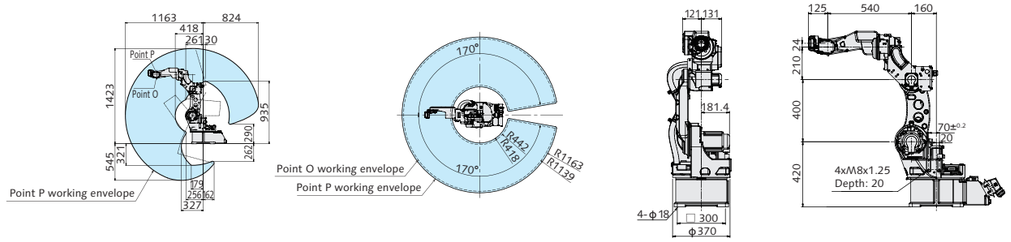
Separate type　Through-arm type　External type

See website for details

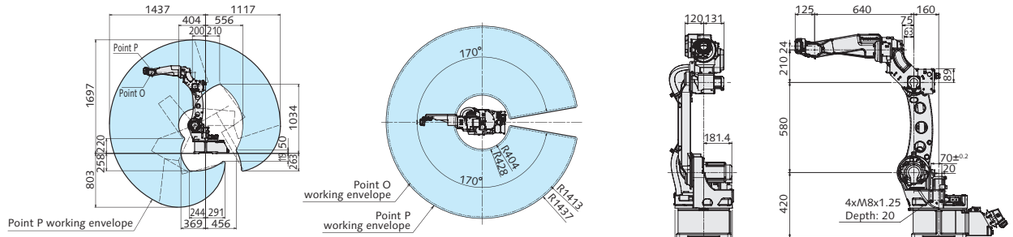
Working envelopes and dimensions (Unit = mm)

* For the working envelope of point O, please consult with our sales office.

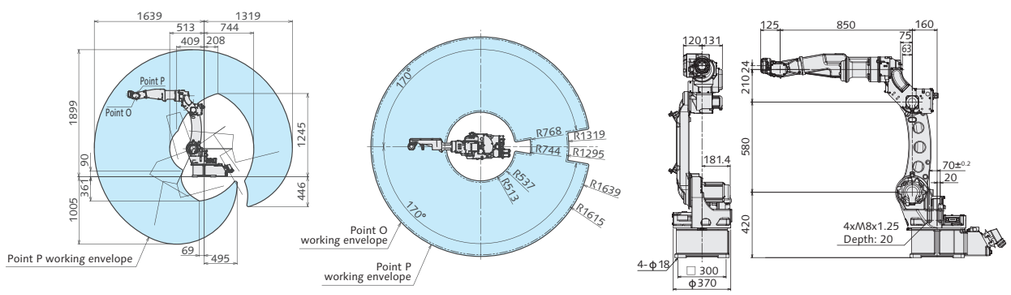
Short Type TM-1100



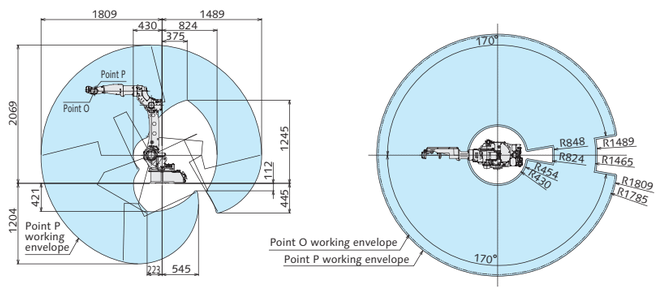
Standard Type TM-1400

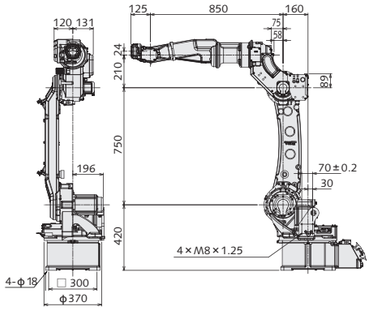


Middle Type TM-1600

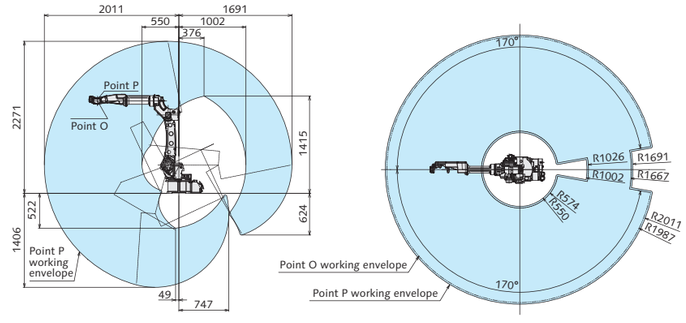


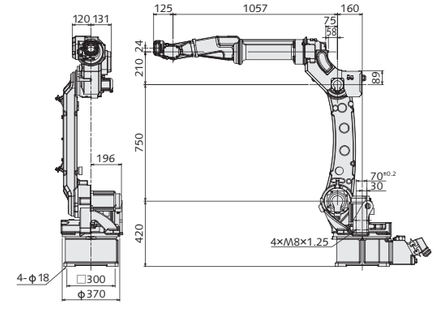
Long Type TM-1800





Long Type TM-2000





■General specifications of manipulators

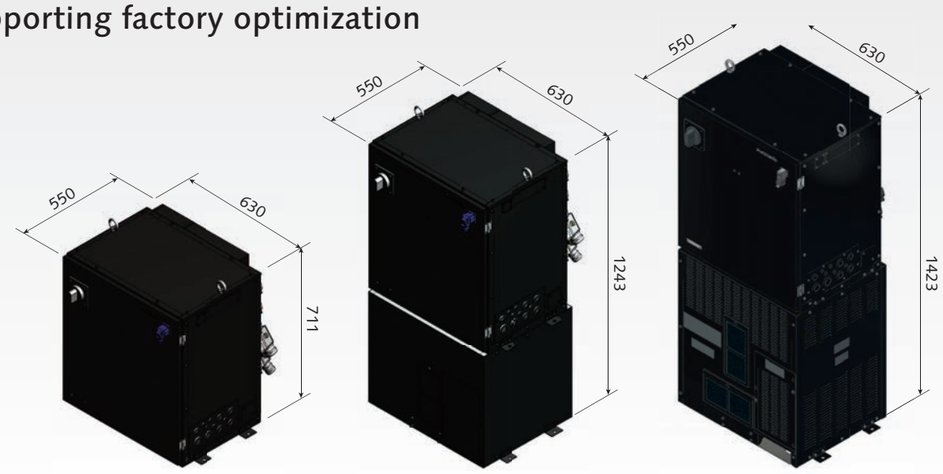
Name			TM-1100	TM-1400	TM-1600	TM-1800	TM-2000
Type			Short type	Standard type	Middle type	Long type	Long type
Structure			6 axis articulated				
Payload			6 kg		4 kg	6 kg	
Working range		Maximum reach	1 163 mm	1 437 mm	1 639 mm	1 809 mm	2 011 mm
		Minimum reach	0 418 mm	0 404 mm	513 mm	430 mm	550 mm
		Front-back working range	0 745 mm	1 033 mm	1 126 mm	1 379 mm	1 461 mm
Motion speed	Arm	Swivel (RT axis)	225°/s		210°/s	195°/s	
		Upper arm (UA axis)	225°/s		210°/s	197°/s	
		Front arm (FA axis)	225°/s		215°/s	205°/s	
	Wrist	Rotation (RW axis)	425°/s		425°/s	425°/s	
		Bending (BW axis)	425°/s		425°/s	425°/s	
		Twist (TW axis)	629°/s		629°/s	629°/s	
Position repeatability			Within ±0.08 mm				Within ±0.10 mm
Motor		Total power	3 400 W			4 700 W	
		Brakes	All axes				
Mounting			Floor/Ceiling*				
Unit weight			Approx. 156 kg	Approx. 170 kg	Approx. 180 kg	Approx. 215 kg	Approx. 217 kg

* The ceiling-mounted type is available as a factory-configured option.

Arc Welding Robot Controller

G4 Controller Series

Next-generation robot controllers supporting factory optimization



G4 WG4 WGH4

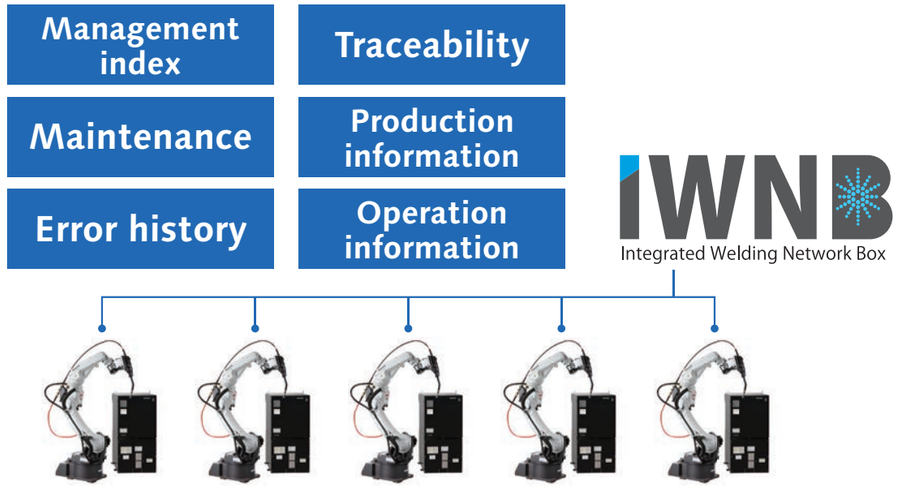
Name	G4	WG4	WGH4
External dimensions (mm)	Width 630 × Depth 550 × Height 711	Width 630 × Depth 550 × Height 1243	Width 630 × Depth 550 × Height 1423
Mass (kg)	63 (Type T/D)/ 78 (Type Y)/ 82 (Type E)	141 (Type T/D)/ 163 (Type Y)/ 167 (Type E)	171 (Type T)/ 193 (Type Y)/ 198 (Type E)
Memory capacity (points)	160 000		
Position control method	Software servo system		
External memory I/F	TP: SD memory card slot × 1 USB2.0 (Hi-Speed) × 2		
Number of control axes	Simultaneous 6 axes (max. 27 axes)		
Input/output signal	Dedicated signal: Input: 6 points, Output: 8 points General signal: Input: 40 points, Output: 40 points		
Rated input voltage (V)	200 to 220 AC (±10%): (Type T/D) 380 to 460 AC (±10%): (Type Y/E)		200 to 220 AC (±10%): (Type T) 380 to 460 AC (±10%): (Type Y/E)
Number of phases, rated frequency (Hz)	3-phase, 50/60 (±2%)		
Input cable (mm^2)	3.5(AWG12)	14(AWG6)	22 (AWG4): (Type T) / 14 (AWG6): (Type Y/E)
Ground cable (mm^2)	14(AWG6)		22 (AWG4): (Type T) / 14 (AWG6): (Type Y/E)
Applicable welding process	—	CO_2/MAG/Stainless steel MIG Pulse MAG/Stainless steel pulse MIG	
Output current (A)		30 to 350 DC	40 to 500 DC
Output voltage (V)		12 to 36 DC	16 to 39 DC
Rated duty cycle (%)		CO_2/MAG/Stainless steel MIG: 80 Pulse MAG/Stainless steel pulse MIG: 60	450 A: 100 500 A: 60

* Type U will be offered for sale at a later date.

Integrated Welding Management System

iWNB Integrated Welding Network Box

Visualization through IoT enables enhanced productivity, quality,and traceability

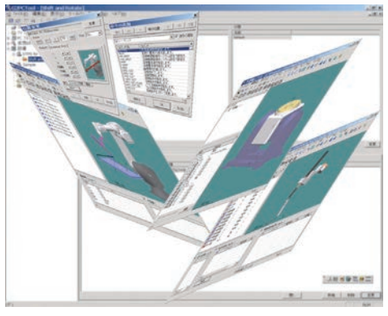


* Up to 640 robots can be connected to an iWNB PC when the G4 controller is used.

- Productivity improvement: An operation rate and cycle time analysis function, along with error status visualization, supports the improvement of operation rate
- Quality visualization & traceability enhancement: Accumulation and retrieval of work information and welding data, along with establishment of traceability, improves reliability

Visual Solution

DTPS Ⅲ DeskTop Programming & Simulation system



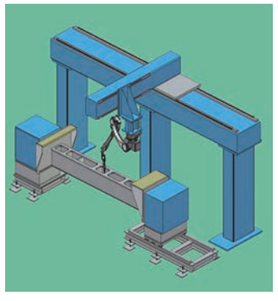
Edits and simulates robot programs on a computer.

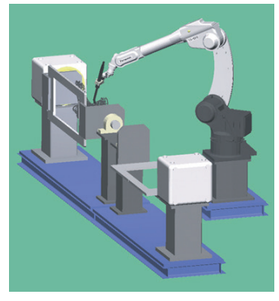
DTPSⅢ is software for teaching and simulation using Panasonic robots.
With this software, users can create, edit, and verify robot programs on a PC. It can be used extensively, from creating and correcting actual equipment data to studying equipment prior to introduction andthen verifying the range of robot motion.

Main features of DTPSⅢ

- Useful editing functions such as batch conversion and shifting
- Highly-accurate movement simulation using identical arithmetic logic
- Graphical 3D display with shading function
- Providing operation identical to that of the robot
- Simple CAD function for creating workpiece shapes.
- External graphic import function included as standard
- Also serves as a tool to control data from multiple robots
- Enabling data conversion between different models

DTPSⅢ operation environment: Windows 10
Recommended specifications: Please contact us.



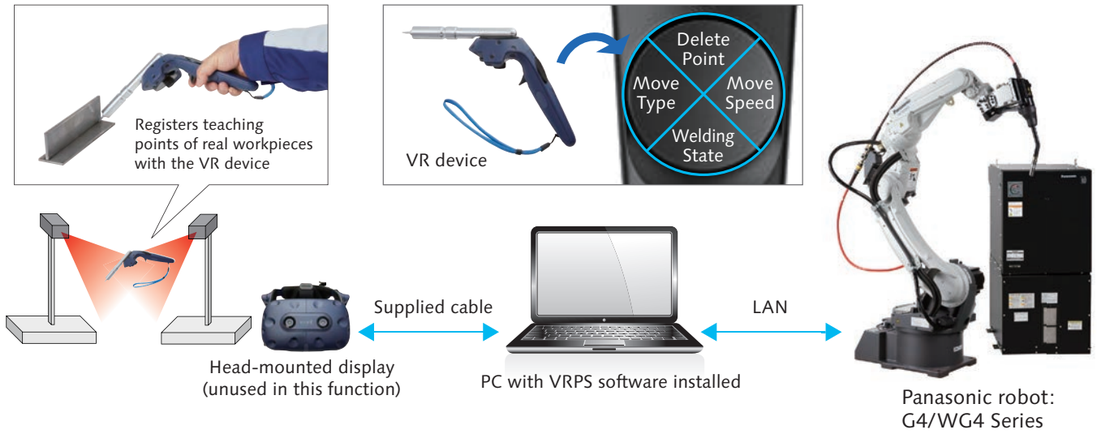


TAWERS (WG4)/G4 Series Compliant

VRPS Virtual Robot Programming System

See website for details

Simple robot teaching with intuitive operation is achieved through virtual reality (VR)



- Efficient: Reduces teaching time by using the VR device
- Easy to use: Allows intuitive operation using a real workpiece
- Anyone can use it: Enables unskilled operators to perform teaching

Visual Weld Inspection Solution

Bead Eye

See website for details

Labor-saving and enhanced traceability through automation of manual visual inspection

Easy **Advanced** **Practical**

Achieves

AI inspection × Master comparison inspection

- Labor-saving: Automates the visual inspection by operators and reduces their workload
- Enhanced traceability: Identifies detailed defect factors by determining bead shape using a newly developed AI engine and accumulates inspection data

Center Mount Tilt-Rotate Positioners

R Series High-speed Type

*Two max. payload types available: 300 kg and 500 kg

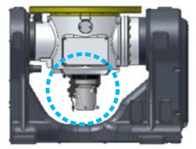
■Basic specifications

Name		Positioner unit	
Model		YA-1RJC62T10	YA-1RJC72T10
Applicable robot		TS/TM/TL/LA-WG4/WGH4/G4 robot systems	
Maximum payload		300 kg	500 kg
Maximum output speed	Rotation	190.0°/s (31 r/min)	165.0°/s (27 r/min)
	Tilt	125.5°/s (20 r/min)	90.0°/s (15 r/min)
Working range	Rotation	±10 rotations (with multi-rotation data reset function)	
	Tilt	–135° to +135°	
Allowable moment	Rotation	323 N·m	392 N·m
	Tilt	882 N·m	1 274 N·m
Position repeatability		±0.05 mm (R=250 mm position)	
Hollow shaft diameter		55 mm	
Allowable welding current		500 A, 60% duty cycle	
Applicable welding process		CO_2/MAG、MIG、TIG	
Unit weight		285 kg	
External axis controller		Internal or external type	

- 1.8 times faster maximum speed compared to conventional models
- Smallest-in-class footprint of 780 × 500 mm (300 kg payload type)
- Easier installation with three control cable outlet positions

Option

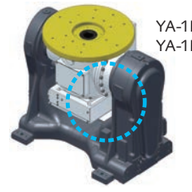
Rotary joint



AXU01428
for RJC

- Rotation angle of the rotation axis: ±∞
- 2 air piping systems (tube outer diameter: 8 mm)
- 6 signal cable systems (allowable current: 2 A)

Curl cable (factory option)



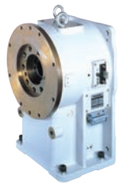
YA-1RJC62T12
YA-1RJC72T12

- Rotation angle of the rotation axis: ±360°
- 4 air piping systems (tube outer diameter: 8 mm)
- 26 signal cable systems (allowable current: 2 A to 4 A)

Single-axis positioners

Maximum payload 250/500 kg
RJB 12/22

Maximum payload 1000 kg
RJB 32



Side mount 2-axis positioners

RJR 42T10

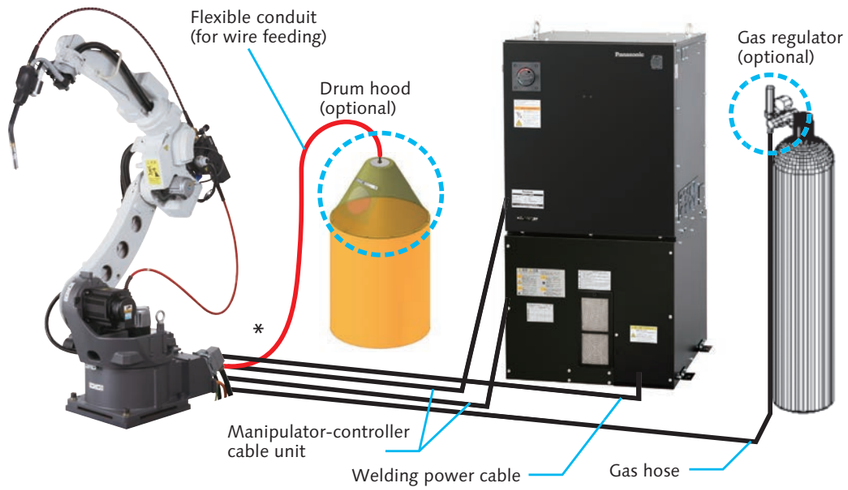
RJR 52T10

■Basic specifications of the positioner units (RJR drive units: Positioner units excluding parts related to the current collector)

Name	Positioner unit		
Model	YA-1RJB12	YA-1RJB22	YA-1RJB32
Applicable robot	TS/TM/TL/LA-WG4/WGH4/G4 robot systems		
Maximum payload	250 kg	500 kg	1 000 kg
Maximum output speed	190°/s (31.6 r/min)	120°/s (20 r/min)	120°/s (20 r/min)
Working range	±10 rotations (with multi-rotation data reset function)		
Allowable rotation torque	196 N·m	490 N·m	1 470 N·m
Allowable moment	1 470 N·m	1 470 N·m	6 125 N·m
Position repeatability	±0.05 mm (R=250 mm position)		
Hollow shaft diameter	55 mm	55 mm	75 mm
Brake	Provided		
Allowable welding current	500 A, 60% duty cycle		
Applicable welding process	CO_2/MAG、MIG、TIG		
Unit mass	125 kg	125 kg	255 kg
External axis controller	Internal or external type	Internal or external type	External type

■Example of connection diagram

TM-1400WG4(Separate type)



* The robot internal flexible conduit (option) is for use with a pail-pack wire only.

■Standard wire diameters and coiling

Model		Wire diameter (mm)	Spool wire		Pail-pack wire			
					Line Pack-S			Line Pack
			10 kg	20 kg	200 kg	250 kg	300 kg	400 kg
M Wire	YM-50M	1.2		YM-50M1220			YM-50M12302	
	YM-50MT	0.9	YM-50MT0910	YM-50MT0920		YM-50MT09252		
	YM-50MT	1.0	YM-50MT1010	YM-50MT1020		YM-50MT10252		
	YM-50MT	1.2	YM-50MT1210	YM-50MT1220		YM-50MT12252		
	YM-45MT	0.8	YM-45MT0810			YM-45MT08252		
	YM-45MT	0.9		YM-45MT0920				
	YM-45MT	1.0		YM-45MT1020		YM-45MT10252		
	YM-45MT	1.2		YM-45MT1220		YM-45MT12252		
	YM-51MT	1.2				YM-51MT12252		
	YM-41AM	1.2		YM-41AM1220			YM-41AM12302	
	YM-51AM	1.2		YM-51AM1220			YM-51AM12302	
	YM-51MZ	1.2		YM-51MZ1220			YM-51MZ12302	
Copper coated	YM50T1	0.8	YM50T10810					
	YM50T1	0.9	YM50T10910	YM50T10920	YM50T109202P			
	YM50T1	1.0	YM50T11010	YM50T11020				
	YM50T1	1.2	YM50T11210	YM50T11220		YM50T112252P		YM50T112404P
	YM50	1.2	YM501210	YM501220				
	YM-50	1.2		YM-501222			YM-5012302	YM-5012404
	YM-50	1.2					YM-5012304	
	YM50	1.4		YM501420				
	YM-50	1.4				YM-5014252		
	YM50	1.6		YM501620				
	YM-50	1.6						YM-5016404
	YM50	2.0		YM502020				
	YM55	1.2		YM551220				
	YM45T	0.6	YM45T0610					
	YM45T	0.8	YM45T0810	YM45T0820	YM45T08202P			
	YM45T	0.9		YM45T0920				
	YM45T	1.0		YM45T1020				
	YM45T	1.2		YM45T1220				
	YM51A	0.9		YM51A0920				
	YM51A	1.2		YM51A1220				
	YM60	1.2		YM601220				
	YM60	1.6		YM601620				
	YM70	1.2		YM701220				
	YM70	1.6		YM701620				
	YM350	1.2		YM3501220				

* Please contact us if you have any questions about the selection.

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