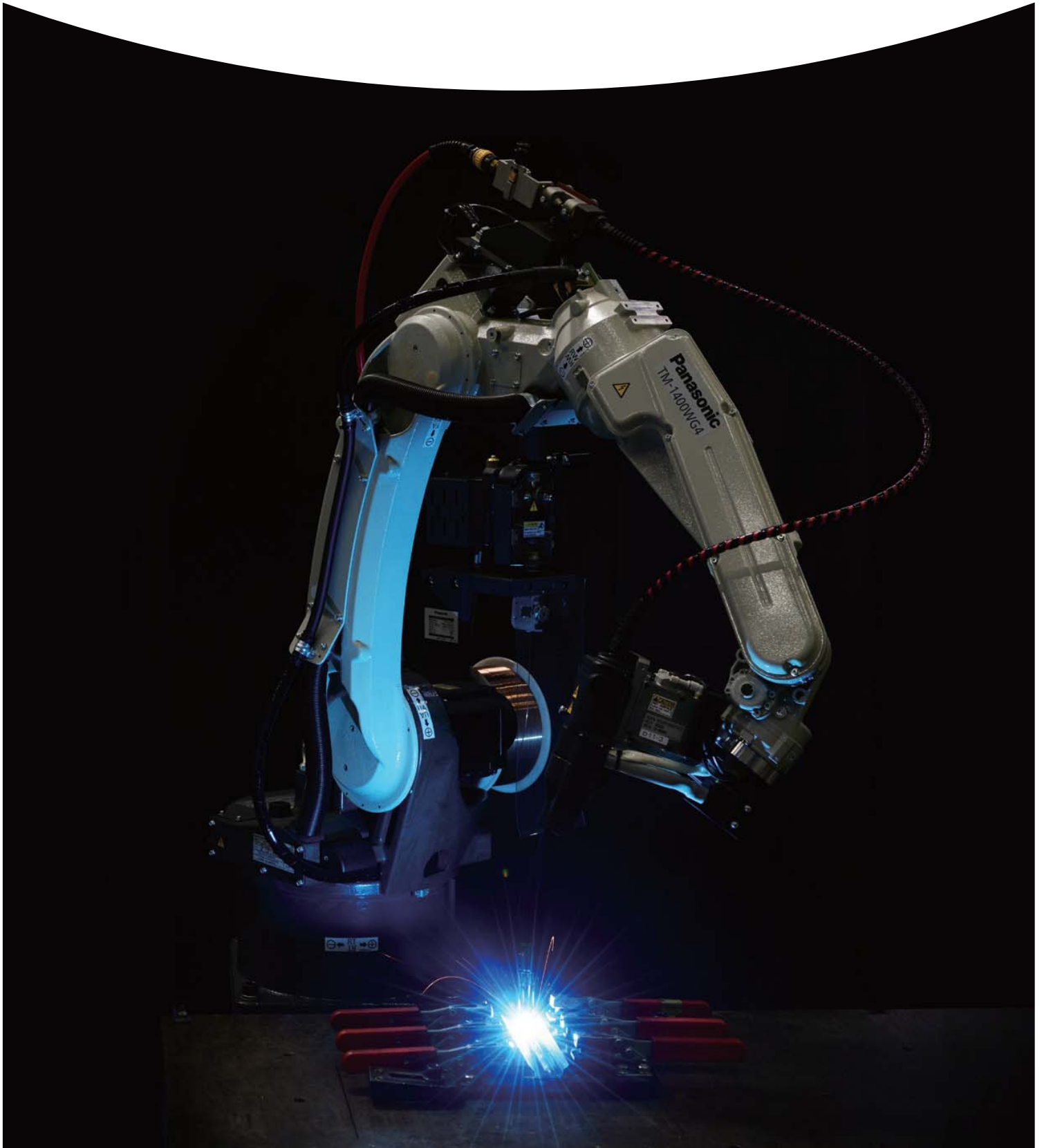




Please refer to the website for details of each unit.

TM-1600 Middle	TM-1800 Long	TM-2000 Long	TL-1800 Long	TL-2000 Long	LA-1800 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	2.6
1,639	1,809	2,011	1,801	1,999	1,801
513	430	550	383	491	489
112.6	137.9	146.1	141.8	150.8	131.2
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. 230
25-26	25-26	25-26	27	27	28

[illegible]

2

Arc Welding Controller

G4 Controller Series

Further evolved welding functions and improved compatibility with peripheral devices

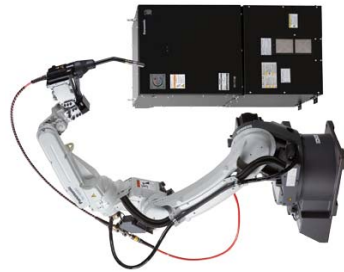


ENVIRONMENTAL
IMPACT



1 Further evolved welding performance

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



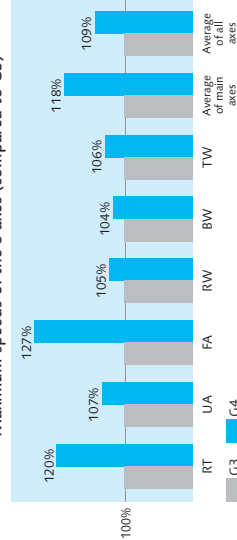
Mild steel: 95 types
Stainless steel: 42 types
Stainless steel (ferrite-based): 34 types
Hard aluminum: 31 types
Zinc-plated steel: 26 types
Soft aluminum: 18 types

*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

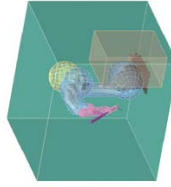
Maximum speeds of the 6 axes (compared to G3)*



*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



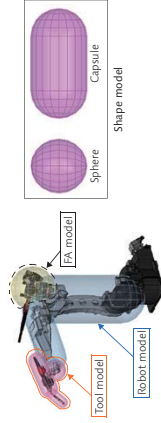
Intuitive operation simplifies text entry

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.

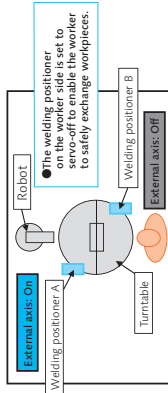


- Individual servo-on/off function

The individual servo-on/off function for external axes enhances the safety of workers.

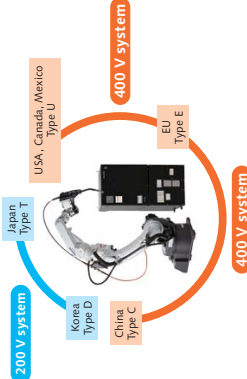
In the example below, two welding positioners are on the turntable. The operation of welding positioner A, where the robot is welding, is on.

At that time, welding positioner B is turned off to allow the worker to safely exchange workpieces.

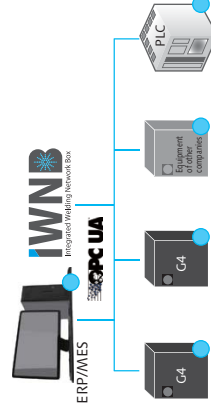


5 The 400 V systems (380 to 460 V) as well as the 200 V systems (200/220 V) are available

- 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.

TS/TM/TL/LA Series

Achieves high-quality welding

TS Series

Space saving & high payload

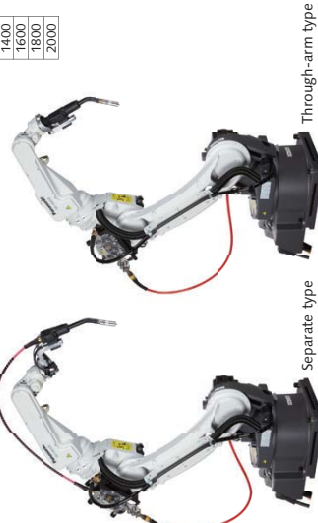
TS
800
950



TM Series

The torch type can be selected to suit your application

TM
1100
1400
1600
1800
2000



TL Series

Long arm & high payload

TL
1800
2000



LA-1800

A single robot can perform material handling and welding operations

LA
1800



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)

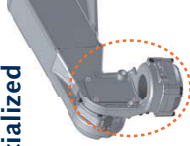
Extended maximum reach (applicable welding range)

TM1-1400: 1 437 mm (63 mm more than the conventional TA type)

2 Arm structure specialized for welding

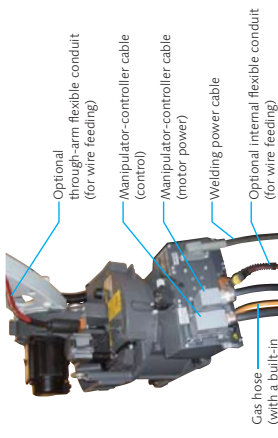
Side mount arm structure

Makes the arm compact and improves accessibility to workpieces



3 Structure designed specifically for welding

Tidy appearance with through-arm cables



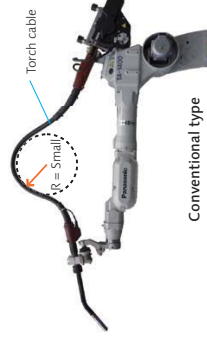
* The optional internal flexible conduit is for use with a pull-pack wire only.

Separate type (TM Series)

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

1 External flexible conduit

Improved wire feeding performance and reduced interference with the surroundings



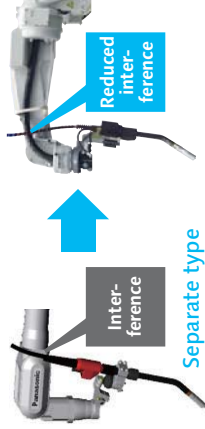
Separate type

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.



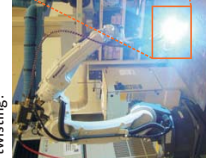
Separate type

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.

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	

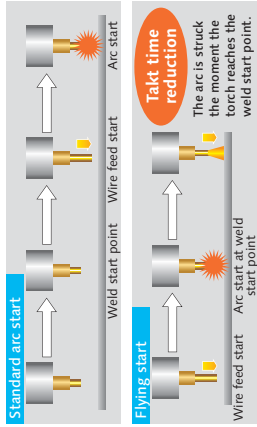
* Please contact us for products that comply with C-UL, UL, CE, KCS, and CCC standards.

*1 Supported for TIG and some other types

WG4/WG4H/G4

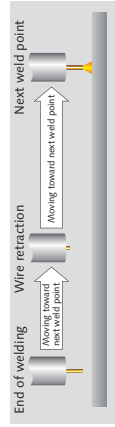
1 Flying start

* 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.



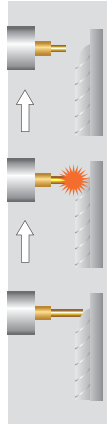
2 Auto wire retraction

* 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.



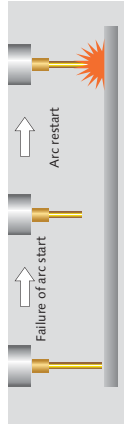
3 Auto stuck wire release

(for CO₂/MAG welding)
Automatically detects a wire stuck at the end of welding and re-ignites the arc to release the wire.



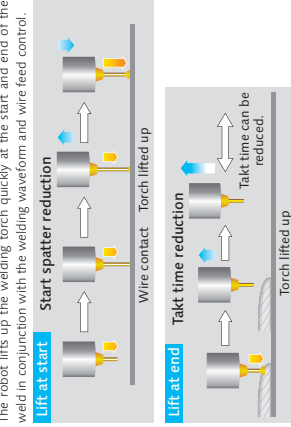
4 Arc start retry

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.

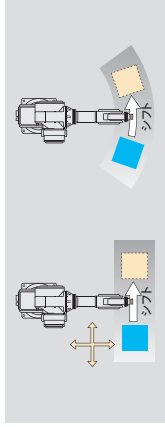


6 Collision detection

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.



WG4/WG4H

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/WG4H: Standard function



This function reduces the time required for setting welding parameters.

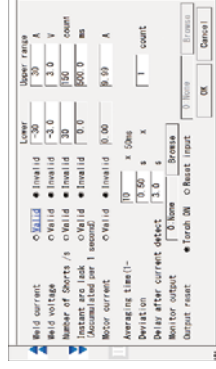
*Screens are subject to change without notice for improvement purposes.

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.

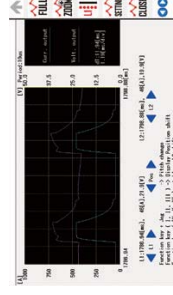
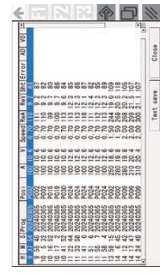
● Welding data recording

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

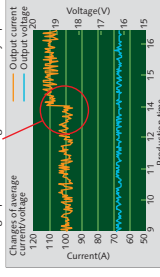
Software option
Data for each welding point can be recorded in a log file.

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

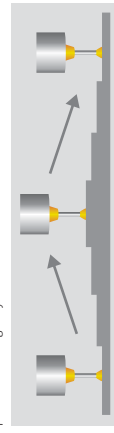
Auto extension control

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.

Robots detect changes in wire extension and compensate automatically.



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

Robot movement

Condition A

Condition B

Welding output

Condition A

Condition B

Wire feed speed

Condition A

Condition B

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).

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

TAWERS® WG4/WGCH4

TAWERS enables flexible welding process selection/switching
SP-MAG II for MAG welding
(short-circuit transfer range for thin plates)
MTS-CO₂ for CO₂ welding

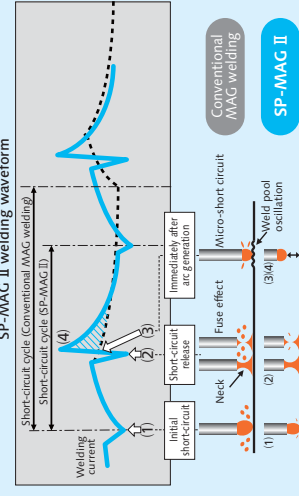
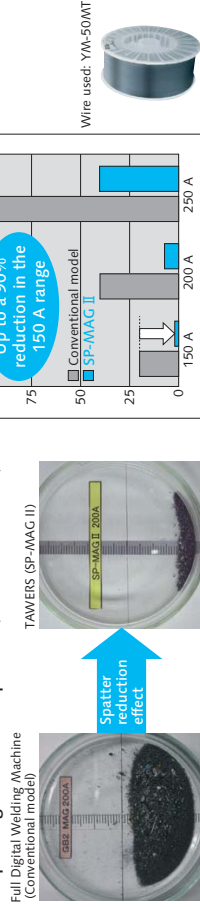
SP-MAG II

SP(Super-imp)osition) 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)

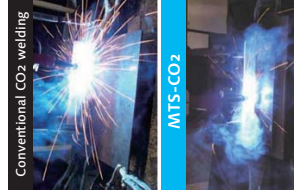
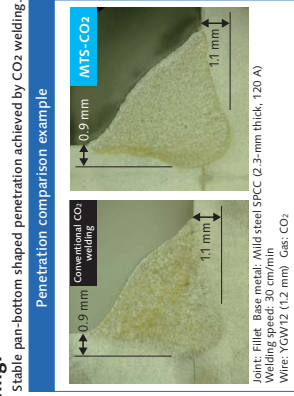
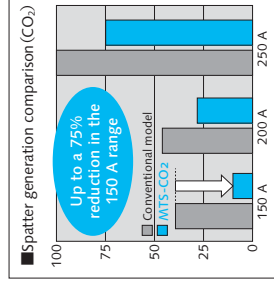


MTS-CO₂

MTS(Metal Transfer Stabilization) Control

Reduces spatter by up to 75% using CO₂ gas

MTS control added to our SP-MAG technologies reduces spatter generation specific to CO₂ welding.



TAWERS® WG4/WGCH4

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

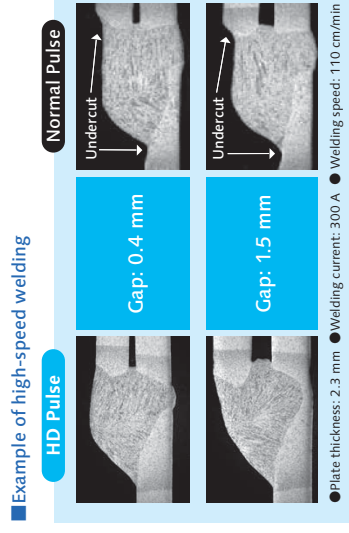
HD-Pulse(Hyper Dip-Pulse Control)

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.



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

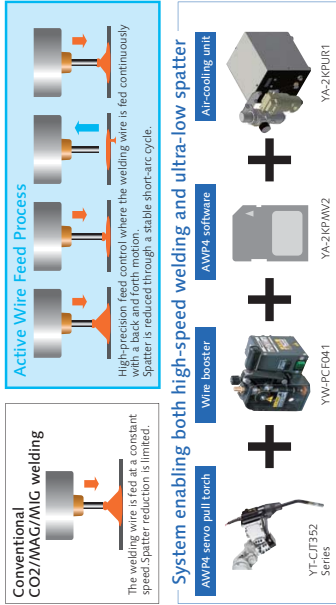
Active TAWERS 4

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 CO₂ gas, 1.2 mm mild steel solid wire, and an air-cooling unit)



High-speed welding

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

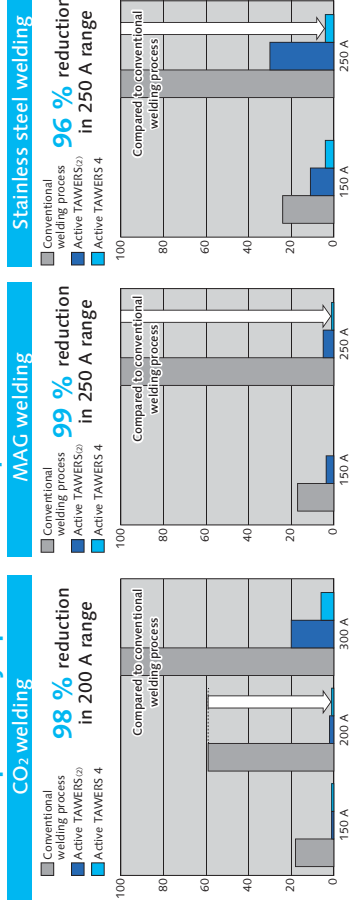
Welding conditions: Joint: Lap Gas: CO₂
Welding current: 320 A
Welding speed: 110 cm/min
Plate thickness: 3.2 mm

Example of mild steel SPCC welding



Please contact us for details.

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



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



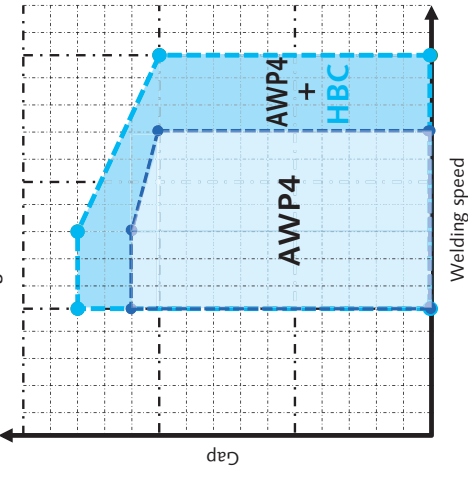
Suppresses burn through in thin plate welding

- 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)



Welding condition tolerances



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

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

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

Welding technology for
zinc-coated steel
Solution to reduce excessive spatter
generation and residual blowholes



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

**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 CO₂ welding
 - Effective for a wide range of coating weights
- CO₂ gas: 45 to 190 g/m²
MAG gas (80:20): 45 to 60 g/m²
MAG gas (90:10): 45 to 60 g/m²



Spatter generation: 75 to 95% reduction
(compared to the conventional CO₂ process)

Coating weight: 190 g/m ²	
	Zi-Active
Bead appearance	Normal CO ₂
X-ray	

Welding conditions: Wire: YM-50 (φ1.2) Joint: Lap CO₂
Welding current: 250 A Welding speed: 80 cm/min
Plate thickness: 2.3 x 2.3 mm

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



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

Coating weight: 190 g/m ²	
	Zi-Pulse MAG 90 : 10
Bead appearance	
X-ray	

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

Active TAWERS WG4

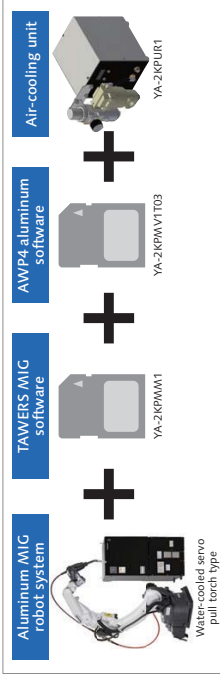
Welding technology for
zinc-coated steel
Solution to reduce excessive spatter
generation and residual blowholes

S-AWP Aluminum

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

TS	TW	TL	LA
800	1100	1800	1800
950	1400	2000	2000

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



Please contact us for details.

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



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 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.

AC unit

YX-350AC1

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: A5356WV (1.2 mm)
Welding speed: 40 cm/min
Welding current: 280 A DC for 1 pass
250 A DC for 2 to 3 passes

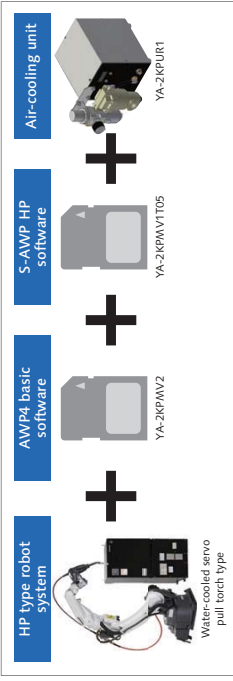
Active TAWERS WGH4

Active Wire Feed Process
available on high-current
range



S – AWP HP

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



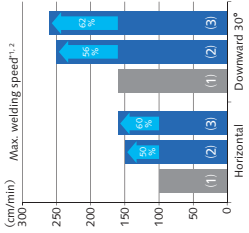
Please contact us for details.

Even higher-speed welding

Minimum 50%^{*1} speed increase compared to conventional model



Vertical lap welding
SPCC (1.6 mm), 380 A
YM-50 (φ 1.2), CO₂



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

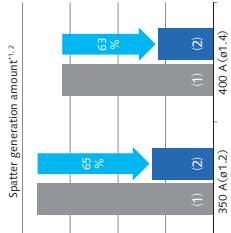
*2 Common welding conditions: Horizontal lap welding, SPCC (3.2 mm), YM-50 (φ 1.2/φ 1.4), CO₂

Medium and thick plate welding

Minimum 60%^{*1} spatter reduction compared to conventional model



Flat fillet welding
SPHC (9.0 mm)
320 A, 40 cm/min
YM-50 (φ 1.2), CO₂



*1 Measurements tested in our company's test environment. When you consider the purchase of welding 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 (φ 1.2/φ 1.4), CO₂

Note: Precautions for using AWP
1. Use a coated pull-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

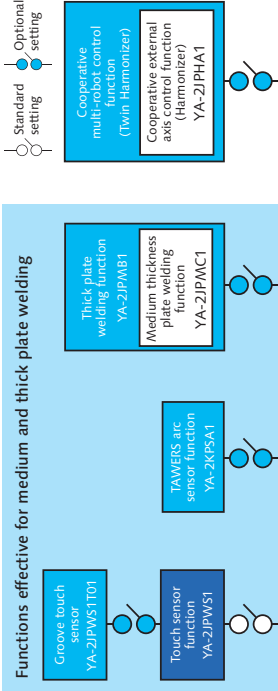
TAWERS for medium and thick plates

Various functions can be selected
based on your application

Select necessary options for TAWERS for medium and thick plates.

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

WGH4



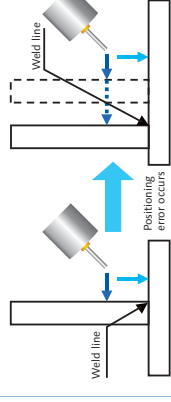
High Power TAWERS(WGH4)

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

Examples of functions

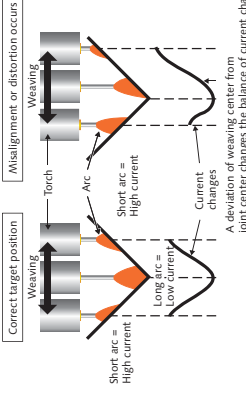
Touch sensor operation

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



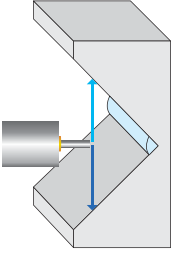
Arc sensor operation

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



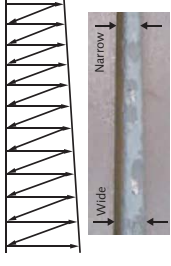
Groove touch sensor function

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



Variable weaving function

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



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

TS	TW	TL	LA
800	1100	1800	1800
950	1400		

* TS: External
* TW: External
* TL: External
* LA: External



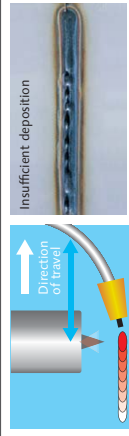
TAWERS-TIG start unit

Not applicable to aluminum.

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



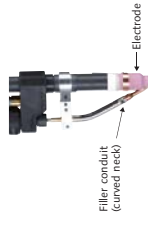
Insufficient deposition

TAWERS-TIG



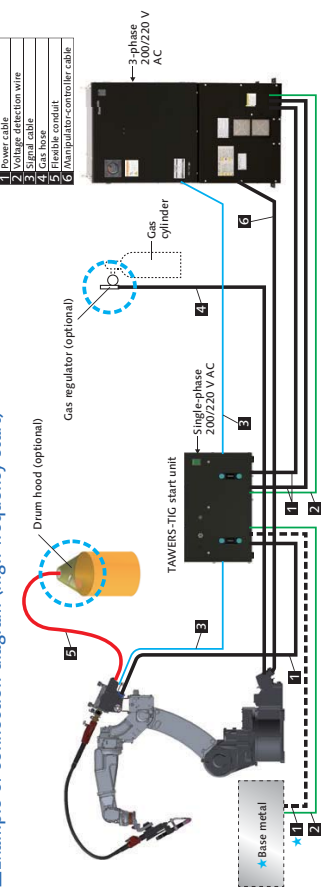
High deposition (stable bead)

Curved neck filler conduit



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

Example of connection diagram (high-frequency start)



* 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



Full Digital CO₂/MAG Welding Machine NE1 Series **SP-MAG** SP(Superimposition 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.

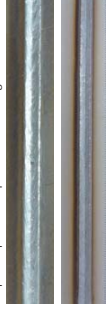
Features of SP-MAG

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

TW-1400G4 (Separate)

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

* Optional parts are required for connecting a robot.



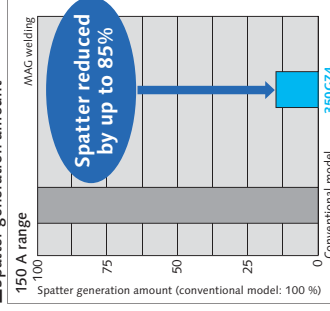
MAG welding (220 A)

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% CO₂)

MIG welding (180 A)

Joint: Fillet Base metal: SUS308 (thickness: 1.5 mm) Welding current: 180 A
Welding speed: 80 cm/min Wire: φ1.2 (Y308LS) Gas: MIG (98% Ar and 2% O₂)

Spatter generation amount



Spatter reduced
by up to 85%

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



350GZ4

150 A, 350GZ4

Joint: Fillet Base metal: Mild steel SPCC (thickness: 2.3 mm) Welding current: 150 A
Welding speed: 50 cm/min Wire: φ1.2 (YM-50MT) Gas: MAG (80% Ar and 20% CO₂)

Full Digital Controlled Welding Machine

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

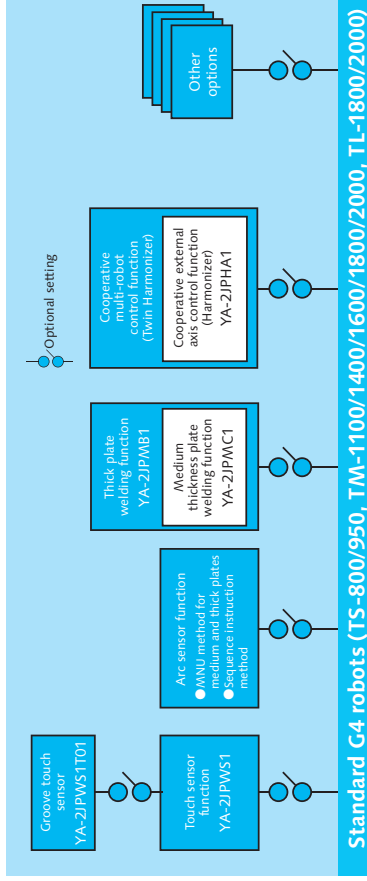


Medium and Thick Plate Welding Robot System G4

Freely selectable functions effective for medium and thick plate welding

Medium and thick plate welding system

Functions effective for medium and thick plate welding

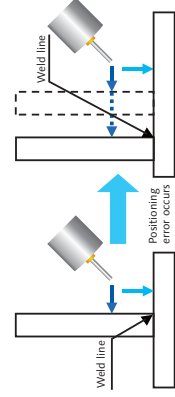


* Please contact us for details.

Examples of functions

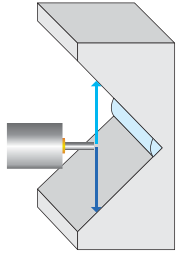
Touch sensor operation

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



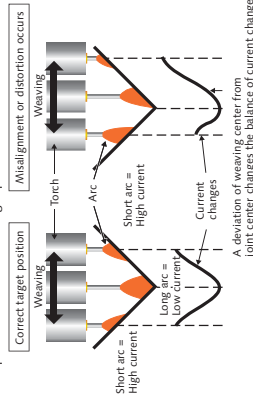
Groove touch sensor function

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



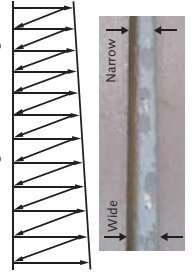
Arc sensor operation

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



Variable weaving function

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



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

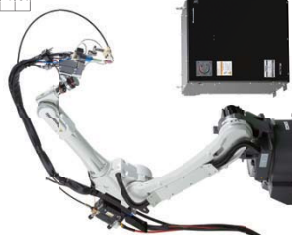
Combinations of applicable materials, welding power sources, and robots

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
TIG with filler	Stainless steel Aluminum	—	300BP4 500BP4	TS-800 TS-950 TM-1100 TM-1400 TL-1800 LA-1800
Rotary TIG with filler	Stainless steel Aluminum	1.2	300BZ3 300BP4 500BP4	TS-800 TS-950 TM-1100 TM-1400 TL-1800 LA-1800

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

TS	TM	TL	LA
800	1100	1800	1800
950	1400		

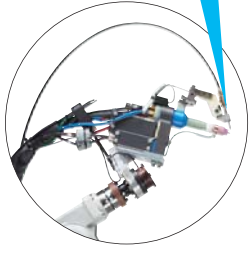
- * TS: External
- * TM: External
- * TL: External
- * LA: External



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



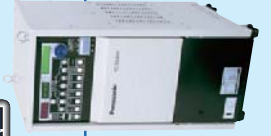
Lineup of TIG welding torches

Full Digital Lineup of TIG welding machines to achieve high-quality welding

AC/DC TIG welding machines



300BP4



500BP4

DC TIG welding machine



300BZ3

HD-Pulse for high-speed and low-spatter welding in pulse MAG welding (high-current range), and MTS-CO₂ for CO₂ welding

Low spatter in high-current range



TM Series

The torch type can be selected to suit your application



Separate type

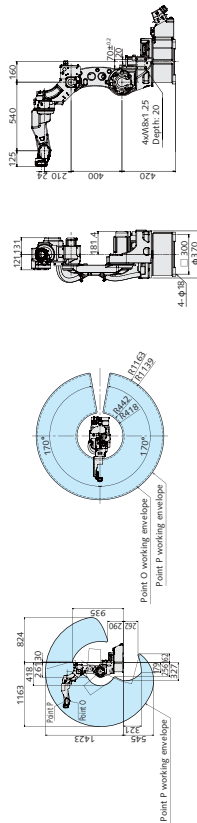
Through-arm type

External type

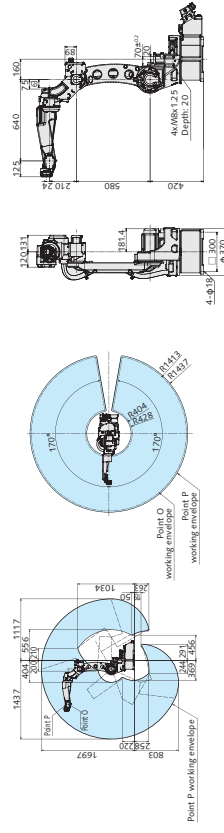
Working envelopes and dimensions (Unit = mm)

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

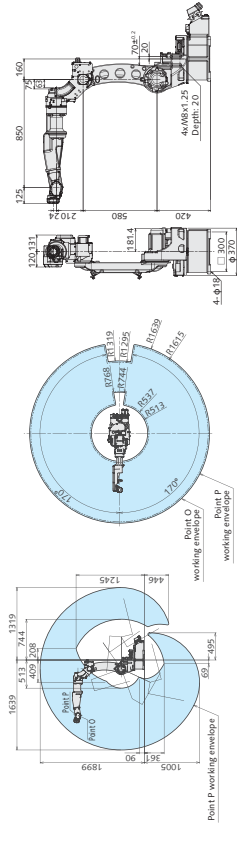
Short Type TM-1100



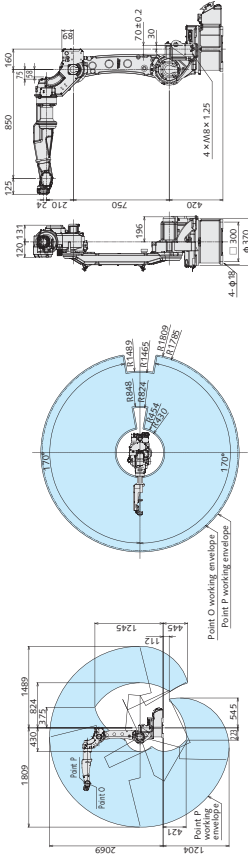
Standard Type TM-1400



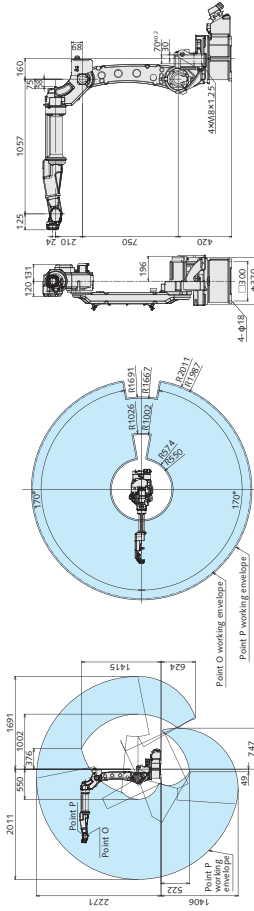
Middle Type TM-1600



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	6 kg	4 kg	6 kg	6 kg
Motion speed	Maximum reach	1 163 mm	1 437 mm	1 809 mm	2 011 mm
	Minimum reach	0 418 mm	0 404 mm	430 mm	550 mm
	Front-back working range	0 745 mm	1 033 mm	1 126 mm	1 379 mm
	Swivel (RT axis)	225°/s	225°/s	210°/s	195°/s
Position repeatability	Upper arm (UA axis)	225°/s	225°/s	210°/s	197°/s
	Front arm (FA axis)	225°/s	225°/s	210°/s	205°/s
	Rotation (RW axis)	425°/s	425°/s	425°/s	425°/s
	Bending (BW axis)	425°/s	425°/s	425°/s	425°/s
Twist (TW axis)	629°/s	629°/s	629°/s	629°/s	629°/s
	Within ±0.08 mm	Within ±0.08 mm	Within ±0.08 mm	Within ±0.10 mm	Within ±0.10 mm
Motor	Total power	3 400 W	All axes	4 700 W	4 700 W
	Brakes				
Mounting	Floor	Floor	Floor	Floor	Floor
	Ceiling	Ceiling	Ceiling	Ceiling	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.

TL Series

Long arm & high payload



TL-1800

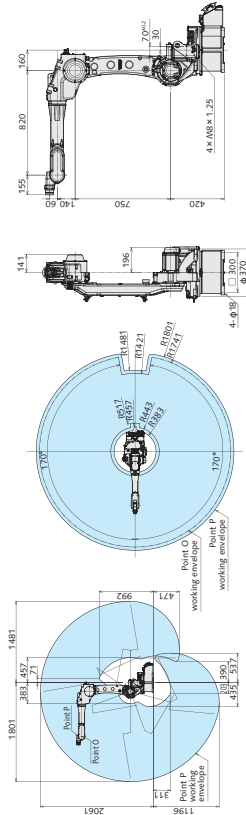
TL-2000



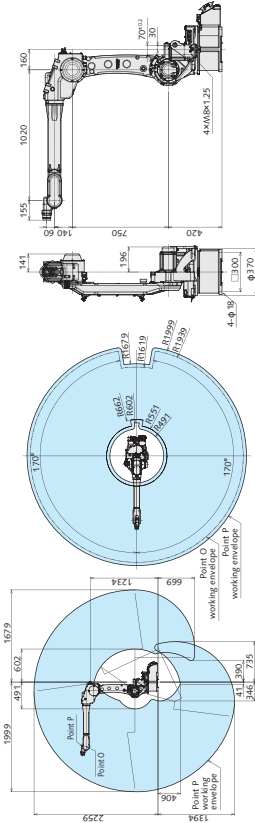
Working envelopes and dimensions (Unit = mm)

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

Long Type TL-1800



Long Type TL-2000



General specifications of manipulators

Name	TL-1800	TL-2000
Type	Long type	
Structure	6 axis articulated	
Payload	8 kg	6 kg
Working range	Maximum reach 1 801 mm Minimum reach 383 mm	Maximum reach 1 999 mm Minimum reach 491 mm
Motion speed	Front-back working range	1 508 mm
	Swivel (RT axis)	95°/s
	Upper arm (UA axis)	19.7°/s
	Front arm (FA axis)	20.5°/s
Wrist	Rotation (RW axis)	38.5°/s
	Bending (BW axis)	37.5°/s
	Twist (TW axis)	62.4°/s
Position repeatability	Within ±0.08 mm	
Motor	5 050 W	
Mounting	Total power	All axes
	Brakes	Floor/Ceiling*
Unit weight	Approx. 215 kg	Approx. 216 kg

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

LA-1800

A single robot can perform material handling and welding operations



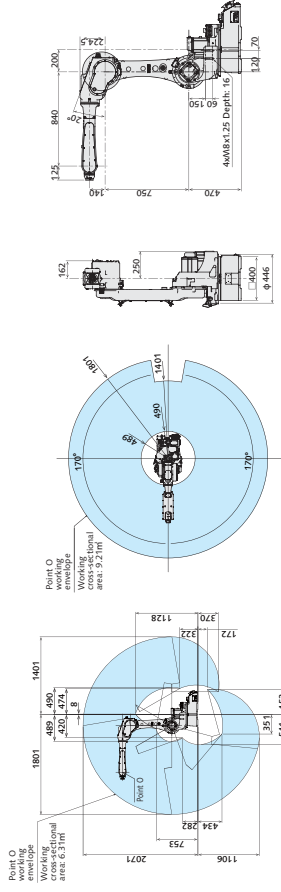
LA-1800C4



Working envelopes and dimensions (Unit = mm)

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

Long Type LA-1800



General specifications of manipulators

Name		LA-1800
Type	Medium multi-purpose type	
Structure	6 axis articulated	
Payload	26 kg	
Working range	Maximum reach	1 801 mm
	Minimum reach	489 mm
Motion speed	Front-back working range	1 312 mm
	Swivel (RT axis)	201°/s
	Upper arm (UA axis)	199°/s
	Front arm (FA axis)	218°/s
	Rotation (RW axis)	434°/s
	Bending (BW axis)	450°/s
Position repeatability	Twist (TW axis)	720°/s
	Within ±0.07 mm	
Motor	Total power	6 600 W
	Brakes	All axes
Mounting	Floor/Ceiling*	
	Approx. 320 kg	

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

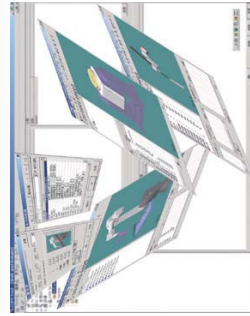


G4 Controller Series

Name	C4	WC4	WG4H
External dimensions (mm)	Width 630 × Depth 550 × Height 711 63 (Type T/D) / 78 (Type Y) / 82 (Type E)	Width 630 × Depth 550 × Height 1243 141 (Type T/D) / 163 (Type Y) / 167 (Type E)	Width 630 × Depth 550 × Height 1423 171 (Type T) / 193 (Type Y) / 198 (Type E)
Mass (kg)			
Memory capacity (points)			
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)			
Number of phases, rated frequency (Hz)	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)
Input cable (mm ²)		3-phase, 50/60 (±2%)	
Ground cable (mm ²)	3.5 (AWG12)	14 (AWG6)	22 (AWG4): (Type T) / 14 (AWG6): (Type Y/E)
Applicable welding process			22 (AWG4): (Type T) / 14 (AWG6): (Type Y/E) 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

Visual Solution

DTPS III

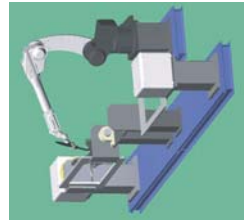
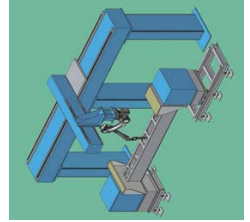


DTPS III is software for teaching and simulation using Panasonic robots.

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 and then verifying the range of robot motion.

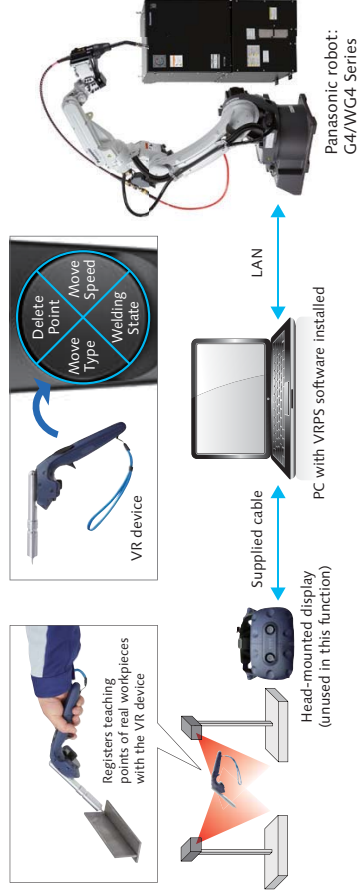


- Useful editing functions such as batch conversion and shifting
 - Highly-accurate movement simulation using identical arithmetic logic
 - Graphical 3D display with shading function
 - Providing operation identical to that of the robot
 - Simple CAD function for creating workpiece shapes.
 - External 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.



VRPS Virtual Robot Programming System

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

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



Easy

Advanced

Practical

Achieves

AI inspection X 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



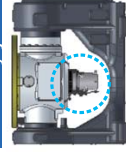
*Two max. payload types available: 300 kg and 500 kg

Basic specifications	
Name	Positioner unit
Model	YA-TRC62T10 YA-TRC72T10
Applicable robot	TS/TM/TLA-WG4/WGH4/G4 robot systems
Maximum payload	300 kg 500 kg
Maximum output speed	190.0°/s (31 r/min) 165.0°/s (27 r/min)
Working range	125.5°/s (20 r/min) 90.0°/s (15 r/min)
Allowable rotation torque	±10 rotations (with multi-rotation data reset function)
Position repeatability	±135° to +135°
Allowable moment	323 N·m 392 N·m
Hollow shaft diameter	882 N·m 1,274 N·m
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 x 500 mm (300 kg payload type)
- Easier installation with three control cable outlet positions

Option

Rotary joint



- 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)



- 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



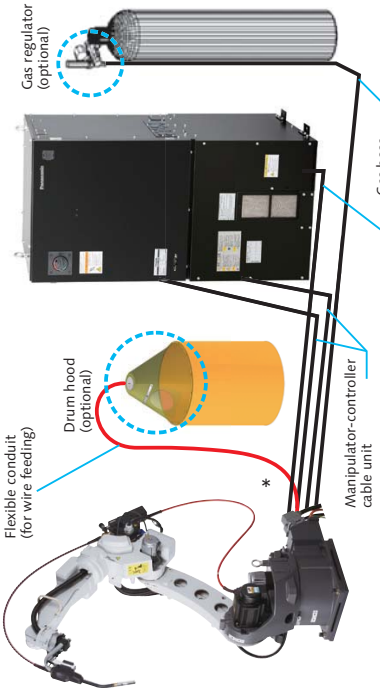
RJR 52T10

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

Positioner unit	
Name	YA-TRB12 YA-TRB22 YA-TRB32
Model	TS/TM/TLA-WG4/WGH4/G4 robot systems
Applicable robot	500 kg 1 000 kg
Maximum payload	120°/s (20 r/min) 120°/s (20 r/min)
Maximum output speed	±10 rotations (with multi-rotation data reset function)
Working range	196 N·m 1470 N·m
Allowable rotation torque	1470 N·m 6 125 N·m
Position repeatability	±0.05 mm (R=250 mm position)
Hollow shaft diameter	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 255 kg
External axis controller	Internal or external type Internal or external type

Example of connection diagram

TM-1400W/C4(Seperate 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			
		10 kg	20 kg	Line Pack-S	Line Pack	Line Pack	Line Pack
Al Wire	YM-50M	1.2	YM-50MT1220		YM-50MT12302		
	YM-50MT	0.9	YM-50MT0910	YM-50MT09252			
	YM-50MT	1.0	YM-50MT1010	YM-50MT10252			
	YM-50MT	1.2	YM-50MT1210	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-41AM1220		YM-41AM12302		
	YM-51AM	1.2	YM-51AM1220		YM-51AM12302		
	YM-51MZ	1.2	YM-51MZ1220		YM-51MZ12302		
	YM50T1	0.8	YM50T10810				
	YM50T1	0.9	YM50T10910	YM50T109202P			
	YM50T1	1.0	YM50T11010	YM50T11020			
	YM50T1	1.2	YM50T11210	YM50T11220	YM50T112252P		YM50T112404P
	YM50	1.2	YM501210	YM501220			
Copper coated	YM-50	1.2	YM501210	YM501220		YM-5012302	YM-5012404
	YM-50	1.2	YM501210	YM501222		YM-5012304	
	YM-50	1.4	YM501420				
	YM-50	1.4	YM501420		YM-5014252		
	YM50	1.6	YM501620				
	YM-50	1.6	YM501620				YM-5016404
	YM50	2.0	YM502020				
	YM55	1.2	YM551220				
	YM45T	0.6	YM45T0610				
	YM45T	0.8	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.

Information on the Process Engineering Center



Our extensive support system will contribute to your manufacturing.

See website for details▶



Robot College

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.

Welding Demonstration



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.

Consulting



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

Energy Saving

We aim to reduce the CO₂ 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.

For more details



Panasonic GREEN IMPACT

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.



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)

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Please use this QR code to access the inquiry form.

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