



A combination of the F300P and the FD Series Robot readily realizes high quality welding performance.

Brackets for the connection of the FD Series Robot.

Torch	Part Name	Part Number
Common	① Shock sensor mounting bracket	L11184B00
	② Shock sensor unit	L6980B00
	③ Nozzle holder assembly	L6380C00
	④ Torch gauge assembly	L6300C00
PTPW-0702	⑤ Plasma torch bracket	L11184C00
PTPW-1002	Note: Besides the bracket, a teaching gauge and cap gauge are required for each torch.	
PTPW-1502		
PTPW-2002		
PTPW-3001	⑥ Plasma torch bracket	K5978B00
	Note: Besides the bracket, a teaching gauge and TCP gauge are required for each electrode size.	

Connection adapters in order to use the conventional torch

Part Name	Part Number	Shape	Model of Conventional Torch	Part Name	Part Number	Shape	Model of Conventional Torch
15A torch-connection adapter	K5929A00	Angle	PT15H315E	150A torch-connection adapter	K5932A00	Straight-long	PWT200V42901A
70A torch-connection adapter	K5930A00	Straight-long	PWT100V42501A			Angle-long	PWT200H42901A
		Angle-long	PWT100H42501A	200A torch-connection adapter	K5933A00	Straight	PWT200V429A
100A torch-connection adapter	K5931A00	Straight	PWT100V425A			Angle	PWT200H429A
		Angle	PWT100H425A				

Note: The conventional torch can be connected to the power supply by using the torch-connection adapter.

Mounting an optional feeder kit enables feeding of filler wire.

External filler controller

Built-in filler wire feeding function (Option)

Optional feeder kit

The filler controller is no longer required to downsize the system.

Components of E-2626 Optional Feeder Kit

PC board	1
Wiring harness	7
USB memory	1

Filler wire feeding conditions can be set on the front panel of power supply

■ Synchronized wire feeding and pulse current is standard

Connection diagram The parts in this color are standard components.

Input power capacity and Cable Specifications

Model name	type	WB-F300P				
Toach in use		15A	70A	100A	150A 200A 300A	
Phase		3 phase				
Input Power Capacity	kVA	more than 1.0	more than 6.0	more than 11.0	more than 17.0	
Fuse/Breaker Capacity	A	220V	30	40	55	
		380V				
		400V				
		460V				
Input Side Cable Grouding Cable	mm ²	220V	more than 14			
		380V	more than 4.0			
		400V				
Power cable for base metal side	mm ²	460V	3	22	60	80

Standard Composition

General Name	Welbee Inverter F300P
Welding Power supply	WB-F300P
Welding torch	Specified in the [Specifications of Torches]
Power cable for base metal side	Specified in the [※1]
Gas hose (5m)	BKHGGF-0705
Water hose (5m)	BKWCF-0905
Air hose (5m)	BKACF-0805

Necessar spec for chiller

Welding torch	A	15	70	100	150	200	300
Pump pressure	MPa	MAX. 0.3		MAX. 0.6		MAX. 0.5	
Water quantity	ℓ/min	2.0 or more	1.1 or more	2.9 or more	4.0 or more		
Cooling capability	kW	0.3 or more	2.1 or more	4.0 or more	5.0 or more	3.5 or more	
Water temperature	°C	40 or more	25 or less				

Standard Specification

General Name		Welbee Inverter F300P					
Welding power supply	Unit form	WB-F300P					
Rated Output Current	A	300					
Rated Input Voltage	V	Specify Primary Voltage when ordering					
Phase		3 phase					
Rated input	kVA	16.3 (14.4kW)					
Rated usage rate	%	100					
Pilot arc current	A	3 to 5	5 to 10	10 to 20			
Torch rated output current	A	15	70	100	150	200	300
Rated load voltage	V	28.6	30.8	32	34	36	40
Output current range	A	0.5 to 15	10 to 70	10 to 100	10 to 150	10 to 200	10 to 300
Rated no-load voltage	V	164 / 178					
Up slope time	s	0 to 10					
Down slope time	s	0 to 10					
Pulse frequency	Hz	0.1 to 999					
Pulse duty	%	5 to 95					
Spot time	s	0.01 to 10					
Number of welding condition		100					
Plasma gas flow rate	ℓ/min	0.10 to 5.00 (at 0.2Mpa)					
Shield gas flow rate	ℓ/min	0.5 to 25.0 (at 0.2Mpa)					
Outside dimension (WxDxH)	mm	395×710×835					
Mass	kg	95					

Filler wire feeder

Product name	Model
Wire feed option kit	E-2626
Wire feeder	CM-7472
Robot feeder unit	AFT-4211

※ to use wire feeder is necessary wire guide and conduit

Remote control

Product name	Parts number
Analog remote control (6m)	K5640R00 (ENG)

Field bus interface

Product name	Model
Field bus welding tool	IFR-800E1 (EtherNet / IP) IFR-800PB (PROFIBUS)
F300P setup kit	K-5976

※1 Power cable for base metal side

Kind of the welding torch	Base material side power cable
150A torch	BKPTF-0305
70A, 100A torch	BKPTF-2205
150A, 200A torch	BKPTF-6005
300A torch	BKPTF-8005

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F300P

Plasma Welding Machine

1. **Keyhole welding achieves high speed and high quality welding.**

2. **Freely variable pulse frequency and width enhances the pulse function that prevents distortion and burn through.**

3. **Built-in torch recognition function prevents the torch and consumables from burning out.**

4. **Built-in mass flow controller provides stable plasma gas supply.**

5. **A rich torch lineup offers two types of nozzle systems.**



Daihen's unique torch construction supports enhanced welding stability and a wide current range.



F300P

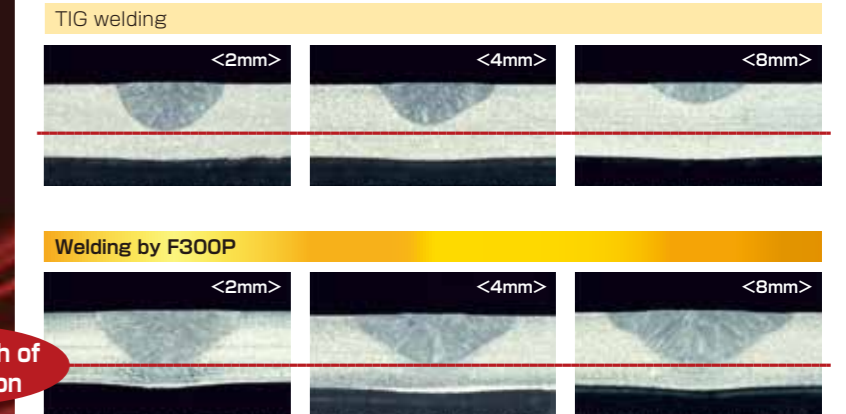
A plasma welding machine provides high quality welding by a plasma arc having high energy density.



Stainless thermos



Comparison between TIG welding and Welding by F300P



Base metal: SUS304 stainless steel. The figures in angle brackets represent a distance between the torch and the base metal. Welding current: 150A. Welding speed: 20 cm/min.

1. High Quality Welding Supports keyhole welding.

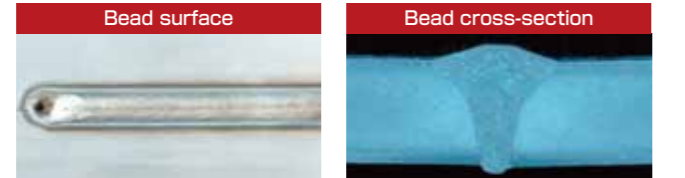
One-side square-butt full penetration welding is achieved by melting the base metal with high-temperature energy created by a plasma arc and re-solidifying with or without filler metal it.

Click here to play the video of keyhole welding.



Advantage 1

- Immunity to standoff delivers stable penetration.
- Capable of keyhole welding with a high energy arc density that TIG welding cannot provide.



Shape of weld joint: Square butt. Welding current: 180A. Base metal: SUS304 stainless steel (6 mm thick). Provided with filler wire and after-shielding jig.

Advantage 2

- Low electrode consumption and stable beads even for galvanized steel plate that is difficult to be welded.

Comparison of electrode consumption and welded bead

	Polished electrode	30 minutes passed after welding (Welded 60 workpieces of 20 cm in weld length)	Electrode	Appearance of bead
TIG welding				
F300P (Double nozzle system)				

Base metal: Galvanized steel plate of 1.6 mm in thickness (basic weight: 45 g/m²). Shape of weld joint: Bead on plate. Welding current: 100A. Welding speed: 40 cm/min. Diameter of tungsten electrode: 3.2 mm. Distance between torch and base metal: 3 mm. Shielding gas: Argon at a rate of 10 l/min. Plasma gas: Argon at a rate of 0.5 l/min.

Advantage 3

- High-speed welding draws a quality bead on base metal without causing humping remove.

Effect of welding speed

	80cm/min	60cm/min	40cm/min	20cm/min
TIG welding				
F300P (Double nozzle system)				

Base metal: SPCC. Welding current: 150A. Standoff: 3 mm. Shielding gas: Argon at a rate of 10 l/min. Plasma gas: Argon at a rate of 0.5 l/min.

2. Enhanced Pulse Function Enhances the functions of adjusting pulse frequency, etc.

Compared with conventional welding machines, the F300P provides higher pulse frequency and variable pulse width.

Arc spot welding time and slope time can be set in 10 milliseconds increments to enable more precise sequential operation.

①The digital setting system was designed considering the accurate settings required to deliver total control.

②The standard pulse function prevents distortion and turn through.



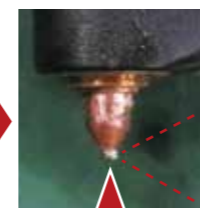
	Conventional VRPW-200	F300P
Pulse frequency	1 to 200 Hz	0.1 to 999 Hz
Pulse width	Fixed at 50%	5 to 95%
Slope time	0.1 to 5.0 s (in increments of 0.1 s)	0 to 10.00 s (in increments of 0.01 s)
Arc spot welding time	0.1 to 5.0 s (in increments of 0.1 s)	0.01 to 10.00 s (in increments of 0.01 s)
Memory of conditions	N/A	100 conditions

3. Torch Recognition Function Provides safety design to prevent the torch and consumables from burning out.

This function limits a current so that a current exceeding the rated current of the torch will not be applied to it. For example, when a torch which rated current is 15A is connected, a current of 16A or more cannot be set.

[Example] When a current of 100A is applied...

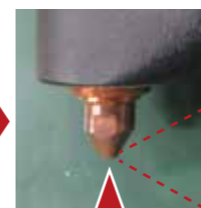
The current limiting function is not provided.



If the current limiting function is not provided, the torch and consumables will burn out when a large current is applied and be required to be replaced.



The current limiting function is provided.



No current exceeding the rated current is allowed to be applied. This prevents the torch and consumables from burning out.



4. Digital Gas Flow Regulator (Mass Flow Controller) Ensures the stable supply of plasma gas.

The control of plasma gas is important for plasma welding. This built-in mass flow controller ensures the stable supply of plasma gas at a constant flow rate.

Click here to display comparison between the float type and the mass flow control system



Float type (Analog type)



Mass flow control (Digital type)

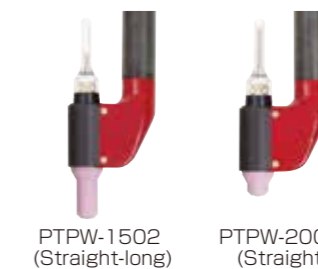
- Setting errors and deviation are easily overlooked due to visual regulation of gas flow rate.
- Gas flow rate significantly varies with a variation in the gas supply pressure.

- Digital gas flow rate regulation avoids setting errors and deviation.
- Even if the gas supply pressure varies, the gas flow rate remains unchanged. (The mass flow controller is provided with automatic regulating function.)
- The gas flow rate is monitored. In the event of gas shortage, an error is displayed.

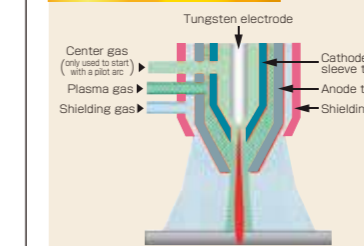
5. Rich Torch Lineup Supports high quality welding and automation from low-current to high-current applications.

Rich lineup of torches with two types of nozzle systems to meet customers' applications.

Double nozzle systems



Double nozzle system



Torches having a rated current of 200A or less use the unique double nozzle system, which reduces the consumption and deformation of the electrode to provide long-term and stable welding.

Single nozzle system

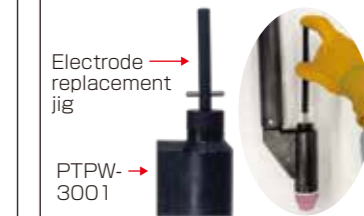


Click here to display the advantages of PTPW-3001.



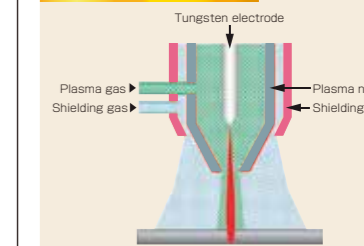
The PTPW-3001 is a tough torch designed to operate with 300A current and 100% duty cycle, and available for keyhole welding of stainless steel plate up to 8 mm in thickness.

Provided with a jig dedicated to electrode replacement as standard accessory



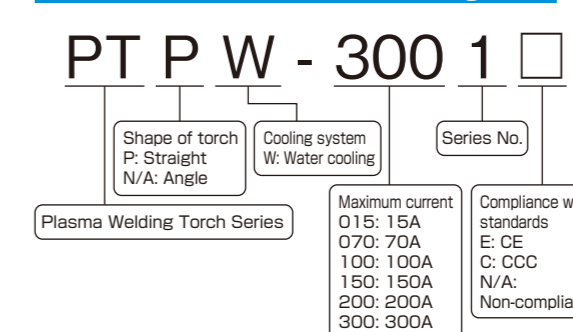
When electrode consumption shortens the electrode length, it can be readily removed by using this electrode replacement jig. This makes the usable length of the electrode 1.7 times as long as electrodes used with conventional torches.

Single nozzle system



Torches having a rated current of 300A use the single nozzle system that facilitates downsizing the torch. This system is suitable for large-current welding of thick plates and enhances the welding efficiency.

Model nomenclature of Plasma Welding Torch



Specifications of Torches

Welding torch	Model	PTPW-0152	PTPW-0702	PTPW-1002	PTPW-1502	PTPW-2002	PTPW-3001
Rated current	A	15	70	100	150	200	300
Rated duty cycle	%	100					
Cooling system		Water cooling					
Diameter of electrode to be used	mm	1.2	2.4	3.2		4.8	
Cable length	m	4	6				
Mass	kg	1.8	2.6	3.1	4.2		