

**D** **SERIES**  
Digital Inverter  
Welding Machine

## AC+DC Hybrid Pulse TIG Welding Machine

### Redefining the meanings of “High Quality” and “Ease of Use”

- Easily regulate current via hand torch switch
- Improve quality at every welding place through a wide variety of welding modes
- Improve welding performance of thin plates with silent pulse function
- Improved arc concentration allows for better workability of fillet and butt welding



# Redefining the meanings of "High Quality" and "Ease of Use"

AC-DC Hybrid Pulse TIG Welding  
**DA300P**

The DA300P was designed to meet our users requests for high quality results and ease of use. We have met this challenge by providing improved weld modes, weldtime current control, and crater-time oxidation prevention.

## High Quality

### 1

#### New AC Frequency Variable Control (50-200 Hz)

##### Increase Weld Performance of Thin Aluminum Plates via High AC Frequency

- Improved arc concentration allows for better watability of fillet and butt welding
- By controlling heat input (via improved heat input efficiency), bead width increases in thin plate butt welding, and melt through becomes easier to control.

##### Butt of pipes



Pulsed current 200A, Base current 20A, Pulse frequency 2Hz  
AC frequency: 150Hz, Welding speed: 20cm/minute, Plate thickness: 4mm (A6062)

##### Corner joint



Welding current: 130A, AC frequency: 150Hz  
Welding speed: 25cm/minute, Plate thickness: 3mm (A6063 + Casting)

Even when the AC frequency is raised, there is only a slight decrease in welding current, resulting in consistent weld quality.

(Relationship between AC frequency and depth of penetration)

Frequency	50Hz	100Hz	200Hz
Macroscopic cross section			
Bead is wide.	Bead is wide.	Bead is narrow	Bead is narrow
		(The depth of penetration is fixed.)	

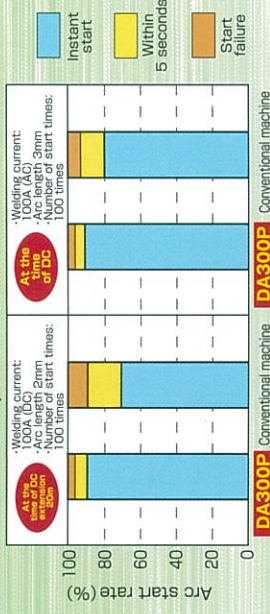
Welding current: 200A, Welding speed: 40cm/minute, Plate thickness: 6mm (A5052)

### High quality

#### 2 Assured Arc Starts

- Instant arc starts are improved, even when extension cables are used.
- Effectively eliminates start failures that occur during multi-pass aluminum AC welding.

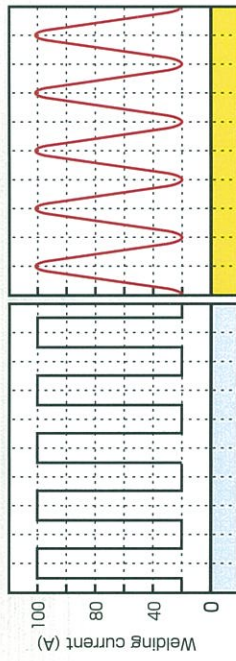
##### Comparison of start rate



### High quality

#### 3 Newly-developed "Silent Pulse Function"

- By using the restrictive effects of heat input, you can also prevent from melt-through of thin plates.
- The sound of the arc is reduced, improving the work environment.



Conventional machine  
Pulse welding current waveform

DA300P  
"Silent pulse" welding current waveform

### Ease of Use

## 1

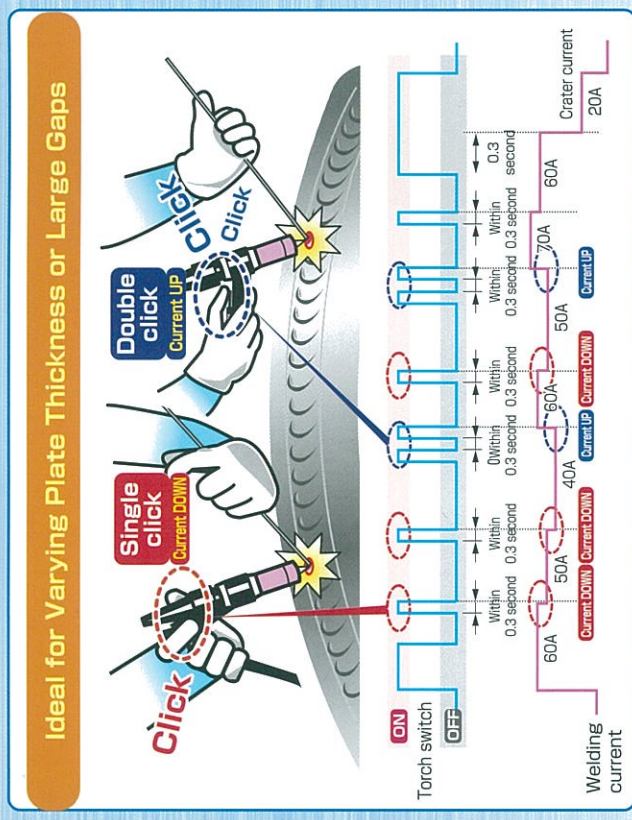
#### I Want to Regulate the Current During Welding!



##### Weld Current Regulating Function via Torch Switch

The DA300P comes with a newly-developed weld current regulating function that allows the user to change the output weld current during mid-weld. By clicking on a switch on the torch, the user can increase or decrease weld output, allowing for optimal welding conditions. The step amount of current change is arbitrarily defined by the user.

This feature provides optimal control for more delicate metals, such as Aluminum, which typically requires slight current regulation.



### Ease of Use

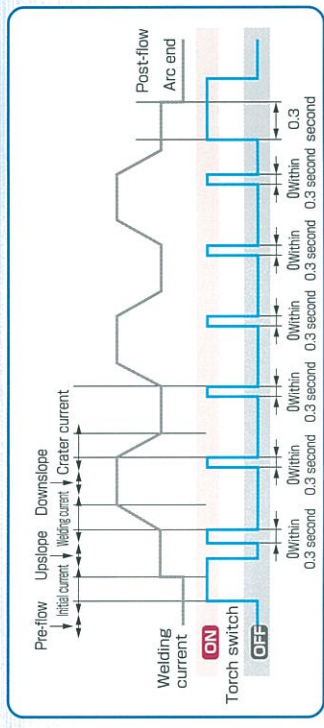
## 2

#### I Want to Prevent the Oxidation of Craters!



##### Crater (Repeat) Function

It is now possible to send the command for the Crater (Repeat) Function at the end of the weld via the torch switch. This helps prevent from oxidation at the crater and on the Tungsten electrode, which created problems in conventional methods.



## High Quality

### High quality

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## User-friendly Touch Panel Provides Improved Operability & Feedback

### One Key - One Operation Touch Panels and Lage LED Panels Provide Improved Operability & Visibility

#### Recordable Welding Conditions for Optimal Reproduction (Stores up to 100 Conditions)

The DA300P is capable of storing up to 100 different welding conditions for optimizing reproduction of welding conditions. Custom tailor your own welding conditions to meet your needs.

#### Optimized AC Waveform Modes for High-Quality Aluminum Welding

#### AC Waveform Modes and Feature Examples

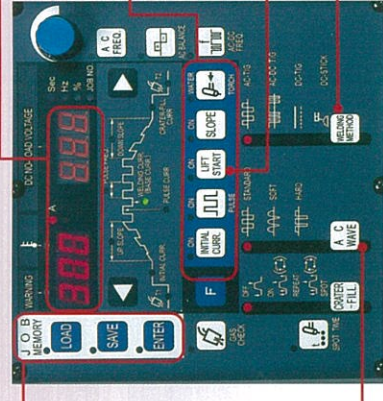
Basic welding waveform	Appearance of bead	Welding speed	Arc sound	The ease of butt joint control	The ease of fillet welding	Thin plate	Thick plate	Use of filler rod	Electrode penetration
AC-DC hybrid TIG	○	○	○	△	○	○	△	○	○
AC rectangular wave	○	○	○	○	○	○	○	○	○
AC sine wave	○	○	△	○	△	○	△	○	○
AC frequency	High	○	○	○	○	○	○	○	○
	Low	○	○	○	○	○	○	○	○

**Large LED Display**  
Monitors current during weld and displays average output current after welding ends. Also displays program number and error codes.

**Pleasant Welding Functions**

**Start Method Selection**  
In addition to high frequency starts, touch start is also included as a standard feature.

**Four Types of Welding Processes (Standard)**  
Corresponds to various kinds of welding needs.



## Unique, User-Friendly Design

### Advanced Double Operation System

OTC's unique control allows for system operation via both the machine panel and remote controls. Both analog and digital remote controls are offered as an option. In addition to the conventional analog remote control, OTC now offers a fully digital remote control for full weld condition control.



Analog remote control

Part number : K5048B00



Digital remote control

Type : E-2452

### Simplified Connections of Dedicated Torch

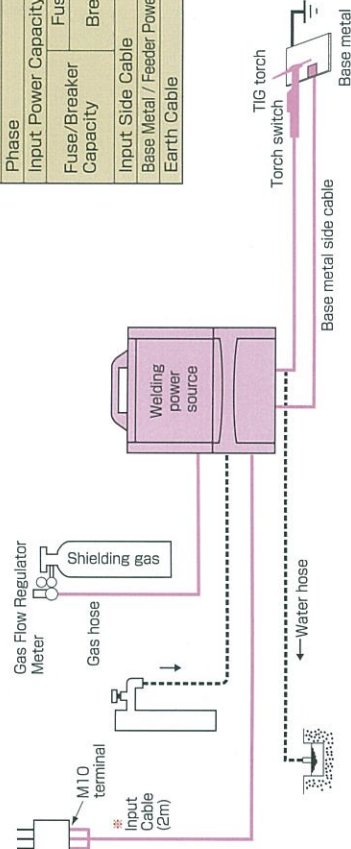
OTC standard TIG torches now utilize DINSE connectors, thereby making torch switching a breeze. Conventional torches may also be attached with dedicated adapters.

### Dust-Proof Filters

Eliminates harmful dust and grime from entering the body of the DA300P, which helps prolong the machines life.

## ● Connection Diagram

Colors indicate standard composition



\*2m Input Cable is attached to Welding Power Source.

## ■ Input Power Capacity and Cable Specifications

Item	Model name	DA-300P
Power Source Voltage	V	400±15%
Phase	—	3 phase
Input Power Capacity	kVA	more than 13.2
Fuse / Breaker Capacity	A	50
Fuse / Breaker	A	50
Input Side Cable	mm <sup>2</sup>	more than 4
Base Metal / Feeder Power Cable	mm <sup>2</sup>	more than 38
Earth Cable	mm <sup>2</sup>	more than 4

## ● Standard Specifications

General Names	DA300P	DA-300P
● Welding Power Source	Type	3 phase
Phase	V	400±15%
Rated Input Voltage	AC TIG	12.5 (9.4kW)
Rated Input	DC TIG	11.9 (8.9kW)
Rated Duty Cycle	%	13.2 (10.0kW)
Max. No-load Voltage	V	40
Rated Load Voltage	AC TIG	58
DC TIG	V	22
DC STICK	V	22
Range of Output Current (DC)	DC TIG	30
DC STICK	A	4~300
Range of Output Current (AC)	Hard	10~250
Standard	A	10~300
Soft	A	10~300
AC+DC Hybrid	Hard	10~200
Standard	A	10~300
Soft	A	10~200
Initial/Crater Filler Current	Hard	10~300
Standard	A	10~300
Soft	A	10~200
D C	A	4~300
Gas Pre-Flow	Sec.	0.1~20
Gas Post Flow	Sec.	0.1~30
Up-slope	Sec.	0.1~10
Down-slope	Sec.	0.1~10
Pulse Frequency	Hz	0.1~500
Pulse Width	%	50 (Possible to change functionkey 5~95%)
AC Frequency	Hz	50~200
AC Balance	Hz	-20~20 (Percentage of positive electrode period, 5~50%)
AC-DC Switching Frequency	Hz	0.1~50
Crater Filler Control	[On] [Off] [Repeat] change type	
Arc Spot	Sec.	0.1~10
Max. Program Storage		100
External Dimensions (W×D×H)		250×640×544 (Except handle)
Weight	kg	44
Start Type	Type	High frequency start/Touch start
● Welding Torch	AWD-17	AWD-26
Rated Current	A	150 (DC), 130 (AC)
Rated Duty Cycle	%	200 (DC), 160 (AC)   300 (DC), 260 (AC)
Cooling Method	Air cooling	50
Rated Duty Cycle	Air cooling	50
Applicable Electrode Diameter	mm	0.5, (1.0), (1.6), (2.0), (2.4), (3.2), (4.0) <sup>※2</sup>
Cable Length	m	4, 8

\*1 Option is necessary to use Tungsten electrode except for 1.6.

\*2 Option is necessary to use Tungsten electrode except for 2.4.

## ● Welding torch



\* Please contact your distributor for questions regarding combinations of other torches

## Option

### ■ Remote control

Convenient for operating away from power source.

- Analog remote control

Analog remote control	Part number
	K5048B00

- Digital remote control

(Need the following 3-piece set)

Digital remote control	Part number
(10m)	E-2452
Control cable	BKCAN-O410
(20m)	BKCAN-O420
CAN Communication Bag	K5422B00

### ■ Torch adapter

Necessary to connect a conventional torch to the welding power source.

For air-cooled AW-17	Part number
	BBAWD-1701
For air-cooled AW-26	Part number
	BBAWD-2601
For water-cooled AW-18	Part number
	BBAWD-1801



Analog remote control



Digital remote control

### ■ Torch extension cable

The conventional extension cable can be used for both AW and AWD model torches, however, the AW requires the above mentioned Torch Adapter.

Type	For 4m	For 11m	For 16m
Air-cooled AW(D)-17	BAWE-1504	BAWE-1511	BAWE-1516
Air-cooled AW(D)-26	BAWE-2004	BAWE-2011	BAWE-2016
Water-cooled AW(D)-18	BAWE-3004	BAWE-3011	BAWE-3016

### ■ Extension remote control cable

For 4m	For 11m	For 16m
BKCPJ-0404	BKCPJ-0411	BKCPJ-0416

In accordance with DAIHEN's policy to make continuing improvements, design and/or specifications are subject to change without notice and without any obligation on the part of manufacturer.

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