OTC

A500P

be smart tough

Welbee

Welbee Inverter

AC/DC Pulsed TIG Welding Power Source

Be smart

NEW

- 3 Advanced TIG Modes : AC Pulse / DC / AC+DC Hybrid Pulse
- Exclusive AC+DC Hybrid Pulse combines the cleaning action of AC pulse with the speed & penetration of DC, resulting in faster travel speeds, smaller beads and deeper weld penetration.
- Improved duty cycle achieves high-efficiency welding with AC pulse frequencies upto 500Hz.
- Welding Setting Guide drives simple, automatic setting of the welding condition.
- Fieldbus network I/O support for easy, plug-and-play interface to your automation.

Be tough

Versatility that delivers high-qualtiy welds ranging form ultra- thin sheet to thick plate.
Beacuse your most critical applications require ths best, most consistent welds.

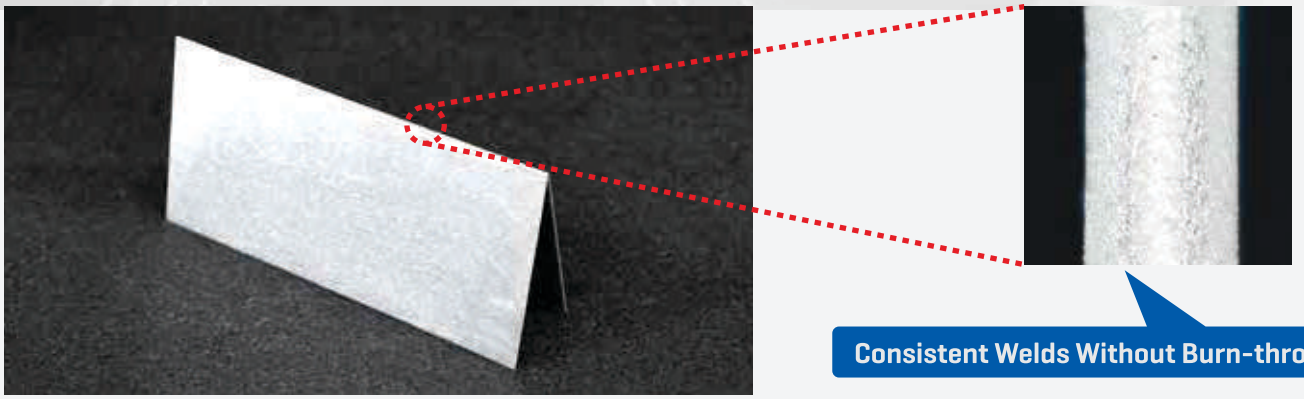
OTC DAIHEN INDIA PVT. LTD.

A500P

AC Pulse Welding Mode for High-Quality welds on all materials and thicknesses.

High-Quality Welding On Ultra-Thin Sheet

Arc Stability in the low-current zone (min. current for AC Output : 5A) and superior arc-concentration (max. AC pulse frequency : 500 Hz)

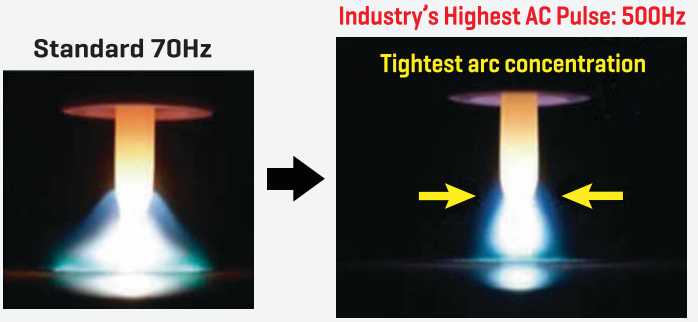


Base Metal : Soft Aluminium : Sheet Thickness : 0.2mm; Ar 100%;
Current : 5A; Welding Speed : 7cm/min; AC Pulse Frequency : 500Hz

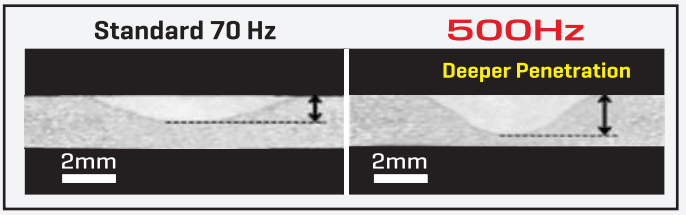
Industries Highest AC Pulse Frequency = Industries Tightest Arc Concentration

Tight Arc Concentration produced at an AC Pluse Frequency of 500 Hz drives deeper penetration and stronger welded joints.

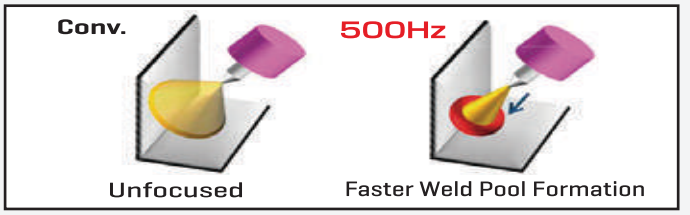
Faster Are starts with near- instantaneous weld pool formation result in 3X quicker tack welds.



■ Deeper Weld Penetration at the same weld cureent.



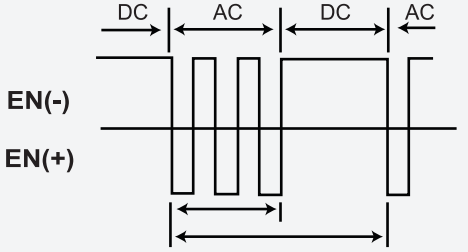
■ Near-instantaneous weld pool formation speeds tack welds up to 3X conventional welders.



Advanced TIG Modes

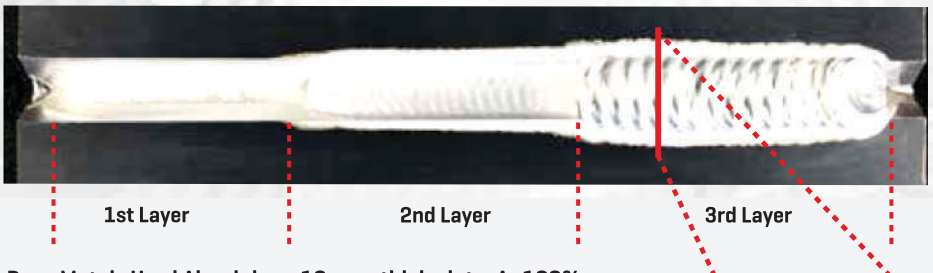
■ 3 Advanced TIG Modes are available :
AC Pulse / DC / AC+DC Hybrid Pulse
AC+DC Hybrid Pulse Mode

Alternately outputs the AC period in which cleaning action is obtained and the DC period in which deep penetration is obtained.



Improved Duty Cycle Supports thicker Plate Welds

Higher Duty Cylce (Max. Output : 500A, Continuous Duty Welding Current : 387A), enables multi-pass welding on thick plates.



Base Metal : Hard Aluminium, 10-mm thick plate, Ar 100%

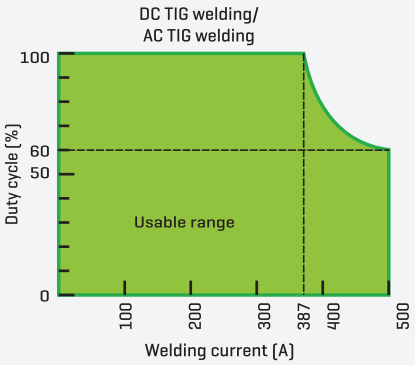
-1st layer :
Straight Run, AC240A (filler wire feed rate: 2.7m/min, Welding Speed : 30cm/min, AC Frequency : 500Hz)

-2nd layer :
Weaving Run, AC220A (filler wire feed rate: 3.0m/ min, Welding Speed: 12 cm/min, AC Frequency:150Hz)

-3rd layer :
Weaving Run AC220A (filler wire feed rate: 3.5m/ min, Welding Speed: 10 cm/min, AC Frequency:70Hz)

Original Size Photo

Higher current rating and a wider usable current range at 100% duty cycle outpace conventional TIG Welders

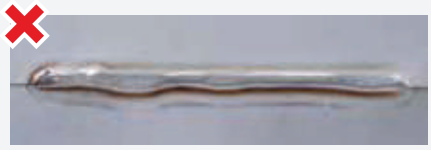


Fine Adjustment (0.1 A increments) at the low current range (5.0A - 10.0A) optimizes current setting of the best weld condition for ultra-thin sheet

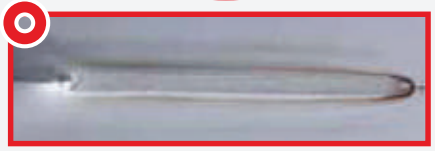
Weld Results vs. Fine Current Adjustments

SUS304, 0.3-mm Thick Plate Butt Joint, DC Mode

A500P **Amp:8.5A**



Meandernd Weld bead due to heat input shortage.



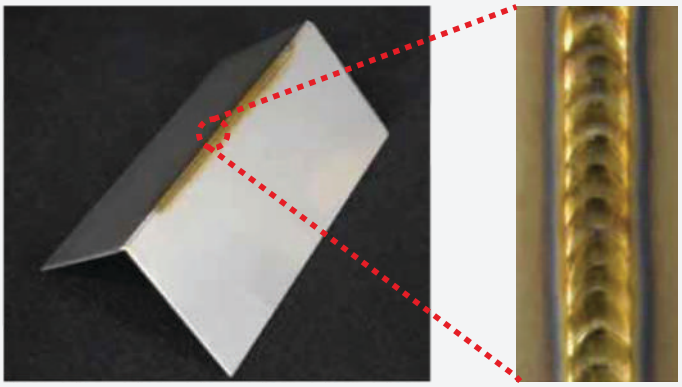
Stable Weld Bead Obtained by fine Amp. Control

Burn-through caused by excessive heat input.

1 A increments **Amp:8A** → **Amp:9A**

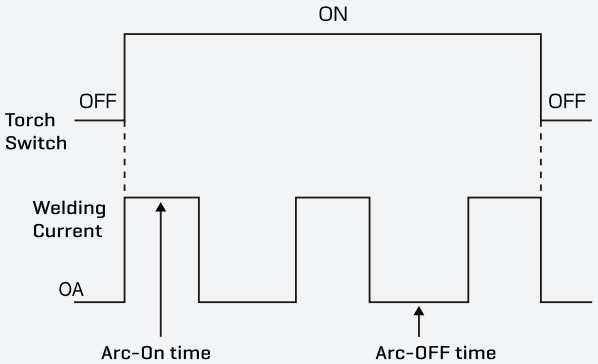
TIG Interval Function Modulates Heat Input to prevent thermal strain and burn-through on ultra-thin sheet

The intrerval function eliminates the need to repeatedly activate/deactivate the torch switch to adjust heat input. Arc-ON and Arc-OFF times are fully programmable to semi-automatically achieve the ideal heat input and "Stacked-Dime" bead appearance for your ultra-thin sheet application



Note: High Frequency wave is initiated at Arc-On. Touch Start is Disabled.

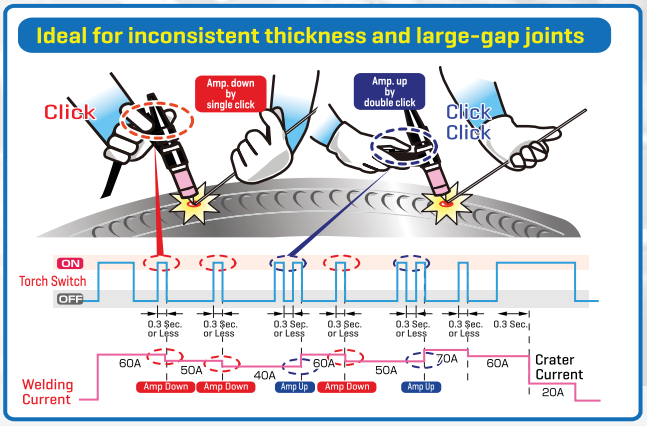
Programmable Arc-ON and Arc-OFF time intervals



Welding Current Adjusting Function of the Torch Switch

Welding Current Adjusting Function allows the increase or decrease of the output current via torch switch operation.

Step-level increase/decrease amount is programmable.



AC Manual Welding Mode for Covered Electrodes

- Supports covered electrode welding in both AC and DC manual welding Mode.
- Imroved Operation via the ON/OFF function of the torch Switch.

Note: When using the AC manual welding mode. See Artical 332 of the Ordinance on Industrial Safety and Health. Installing the voltage reducing device if necesary, (voltage reducing device K300 requires K970J77 mounting bracket)

WELBEE : Designed for Durability and Easy Maintenance

Side Air-Flow Structure

- Best Protection for the Precision Components

Precision Components including the WELBEE Processor, are mounted in a sealed area within the weld power source housing, protected from the harsh welding environment.

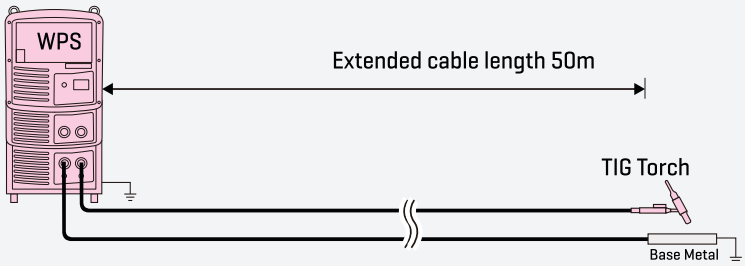
- Wind tunnel design for reliable operation and simple maintenance

Cooling fans incorporate a side-flow design, operating automatically based on the duty cycle and ambient temperature. Preventive maintennce using compressed air from front-to-rear simply and easily removes and accumulated debris from the lower, power inverter area.

Cable-Extension (AC TIG Mode and AC+ DC TIG Mode)

- Optional mode where the torch cable can be extended up to 50m from the weld power source.

Note : AC Frequency is limited to maximum of 100 Hz with this option



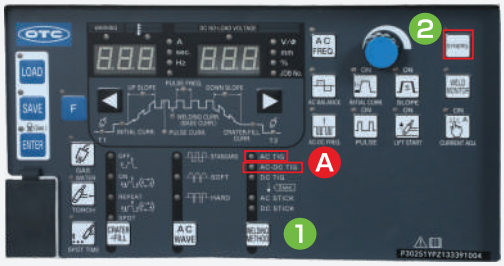
WELDING SETTING GUIDE for Automatic Setting Welding Conditions

- Quick and Simple Setup for your WPS Condition

Automatic assistance in setting welding conditions such as welding current, initial current, and crater current, by setting four (4) key application paramenters:

1) Electrode Diameter 2) Base Metal Type
3) Weld Joint Type 4) Base Metal Thickness

Simplifying the setup of our WPS condition including pulse parameters, saving time and streamlining the initialization process for new jobs



1 **Electrode Dia.** (Choice:1.6,2.4, 3.2,4.0,4.8. or 6.4 mm f)
2 **Base Metal Type** Al, Mild Steel, Stainless Steel)
3 **Weld Joint Type** (T fillet, Butt, Lap Fillet, Corner)
4 **Base Metal Thickness** (0.5 mm or thicker)

Set these *four(4)* key application Parameters and the suitable welding conditons will be automatically set

How to use the Welding Setting Guide

1 Select the Welding Method button

A Select AC TIG or DC TIG.

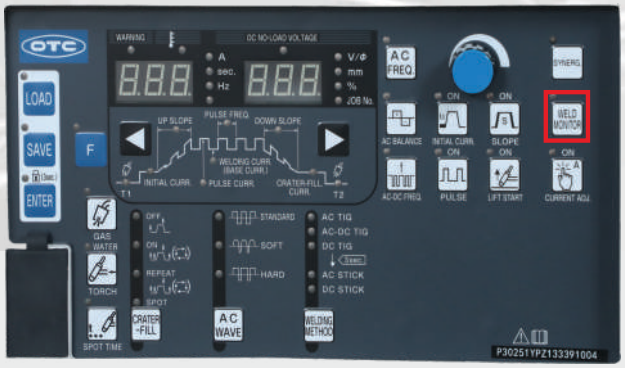
2 Select the welding Setting Gulde button to set the four (4) key application parameters: (electrode dia., base metal type, weld joint type, and base metal thickness)

Proper Setting of the Weld Conditon is Complete.

Welding Management monitors and detects welding abnormalities during operation

Monitor and detect weld quality & quantity to deliver welding quality management through automatic alarming of welding abnormalities.

Actively monitors and reports on sixteen (16) weld quality and quantity perameters to aid quality management by your welders.



Weld Monitored Items

Settings for Monitoring and Detection of Abnormalities

Quality Management	Mgmt Item	Welding Management Data
Weld Abnormality and Early Detection	Weld Quality	Welding Amps / Volts average value
		Plus-side current tolerance(%)
		Minus-side current tolerance(%)
		Welding voltage upper limit (V)
		Welding voltage lower limit (V)
		Abnormality duration time (sec)
		Welding condition abnormality detected
Productivity	Total welding time	Resultant total welding time (min)
		Taraget welding time (min)
		Taraget welding time achieved
Weld counter and missing weld detection	Number of welds	Weld counter
		Target count for weld counter
		Weld counter achieved

Standard Specifications

Specification/Model		Welbee Inverter A500P			
Model		WB-A500P			
Rated output current	A	AC TIG Welding	DC TIG Welding	AC STICK Welding	DC STICK Welding
		500	500	300	400
Rated input voltage (Range)	V	400(±15%)			
Number of phase	-	Three phase			
Reted frequeancy	Hz	50/60			
Rated input	KVA	19.1(18.2KW)	19.3(18.4KW)	16.6(13.0KW)	17.7(16.8KW)
Maximum no-load voltage	V	77			
Rated duty cycle	%	60	60	100	60
Rated output voltage	V	30	30	32	36
Output current range	A	5~500 / 5-350 (Softcorner)	5~500	10~300	10~400
Preflow time	sec.	0~99		-	
Afterflow time	sec.	0~99		-	
Up slope time	sec.	0~10		-	
Down slope time	sec.	0~10		-	
Pulse frequency	Hz	0.1~1000			
Pulse width	%	50(Modifiable with function keys 5~95%)			
AC Frequency	AC TIG/AC-DC TIG	30~500 Hz			
	AC Stick	50~60 Hz			
Cleaning Width		-20~20			
AC-DC Switching Frequency	Hz	0.1~50			
Crater filler control		OFF/ON/ON (repeat)			
Arc spot time	sec.	0.1~10			
Number of Welding Condition Memory		100			
External Diemensions (WXDXH)	mm	395X710X810(w/o eyebolt)			
Mass	kg	82			
Starting method		High frequency Start/Lift start			

※ When the AC Frequency becomes higher, it may deviate from the set current and the output current.
※ Depending on the area in which a power source is used, the specification is different.

Welding Torch	Model	AWD-17	AWD-26	AWD-18	AW-12
Rated current A	A	150 (DC) 130 AC	200 (DC) 160 AC	350 (DC) 270 AC	500 (DC) 400 AC
Rated duty cycle %	%	50	50	100	100
Cooling method		Air-Cooled	Air-Cooled	Water-Cooled	Water-Cooled
Applied Electrode Diameter	mm	(0.5~2.4)	(0.5~4)	(0.5~4)	(1~6.4)
Cable lenght	m	4 - 8			

Standard Accessories

Name	Welbee inverter A500P
Power cable connector (Part Number)	1 (4734-016)

Torch Standard Accessories

Welding Torch Model	AWD - 17	AWD - 26	AWD - 18	AW - 12
Torch Switch	1(4 / 8m)	1(4 / 8m)	1(4 / 8m)	1(4 / 8m)
Cable tie	2	2	2	2

Fieldbus Interface for use with Automation / Robotics

Fieldbus connection tool for digital I/O communication with automation logic controller or conventional robot controller

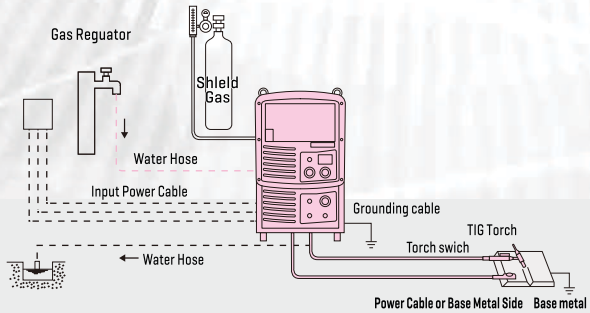
Network I/O interface

IFR-800EI : EtherNet/IP interface
IFR-800PB : PROFIBUS interface

Fieldbus connection tool catalog (Japanese)

Connection Diagram

This color is a Standard Composition.



Power supply Equipment Capacity and Connection Cable

Project		Model	WB-A500P
Input voltage	V	V	400±15%
Number of phase	–	–	Three phase
Input Power Capacity	KVA	KVA	20 or more
Capacity of Distribution Box	Switch with fuse	A	40
	Earth Leakage breaker ※1 No fuse Breaker	A	40
※2 Input Side Cable		mm^2	4 or more
Power Cable for Base Metal Side		mm^2	50 or more
※2 Grounding Cable		mm^2	4 or more

※1 When using a No-Fuse Breaker, please use "for motor"
※2 Numerical value in parenthesis indicates the size of the welding machine side pressure terminal
CE-Marking welding power supplies are equipped with a input cable and ground cable.
※ Depnding on the area in which a power source is used, the specification is differnt

Standard Compositions

Model		Welbee Inverter A500P				
Welding Torch		AWD-17 (Air Cooled)	AWD-26 (Air Cooled)	AWD-18 (Water Cooled) (Optional)	AW-12 (Water Cooled)	
Base Metal Side Power Cable		BKPDT-6003 (3m)	BKPDT-6007 (5m)	BKPDT-6012 (10m)	BKPDT-8017 (15m)	BKPDT-8022 (20m)
Gas Hose		BKGFF-0603				
Water Hose	Tap Water Kit (5m)	BBDW-3001				
	Water Hose (2m)	BBPU-3002				

Optional Accessories

Torch Adapter

Model	
For AWD-17	BBAWD-1701
For AWD-26	BBAWD-2601
For AWD-18	BBAWD-1801
For AW-12	BBAWD-1201

Remote Controller

Item Name	Part No.
Digital Remote Control	E-2452
CAN Communication Cable	BKCAN-405 (5M)
	BKCAN-410 (10M)
BKCAN Conversion Connector	K5810B00

Extension Cable for Remote Control

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

Extension Cable for Torch

Model	4m	11m	16m
AW (D) - 17	BAWE-1504	BAWE-1511	BAWE-2015
AW (D) - 26	BAWE-2004	BAWE-2011	BAWE-2016
AW (D) - 18	BAWE-3004	BAWE-3011	BAWE-3016
AW - 12	BAWE-5004	BAWE-5011	BAWE-5016

Interface

Item Name	Part No.
Fieldbus connection tool (EtherNet/IP Type)	IFR-800EI
Fieldbus connection tool (PRFIBUS Type)	IFR-800PB
Fieldbus connection tool (DirectNet Type)	IFR-800DN
Fieldbus connection tool (ProfiNet)	IFR-800PN

※Please select according to the communication specification on the host side.

Foot Control

Item Name	Part No.
Foot Operated Current Control	K1104F00
Foot Switch (On/Off)	4259-004

Electric Shock Prevention Device

Item Name	Part No.
Electric Shock Prevention Device	K-300
Mounting Bracket	K970J77
Cable for base metal side	BKPDT-60R1(0.1M)

※This equipment may be required when using AC STICK mode.

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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