



DW300

DC/AC Pulse MIG Automatic Welding Machine

NEW

D Digital Inverter
Welding Machine
SERIES

The Pinnacle of High-quality Thin Plate Welding Powerful Output AC Pulsed Welding Machine

- With a rated current of 300A, the DW300 easily handles a wide-range of applications
- Greater gap tolerance for optimized automation
- Less welding fumes and cleaner bead appearances
- Digital turbo startup function improves arc starting performance



The Pinnacle of High-Quality Thin Plate Achieve Highly Efficient, High Quality TIG-like Bead

Leave It to The **High efficiency High quality MIG DW300** to Take Care

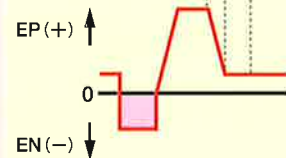
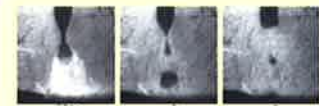
needs 1

We are currently doing aluminum TIG welding, but want to improve efficiency...

Weld Very Thin Plate With High Efficiency and High Quality Using DAIHEN's New AC Pulsed MIG Welding Process.

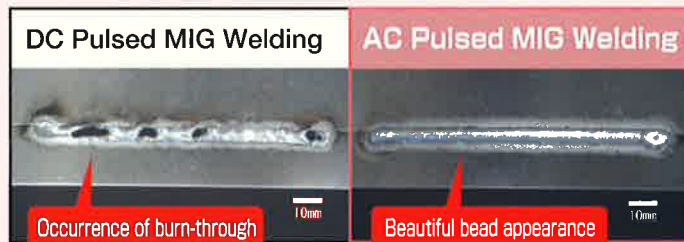
New AC MIG Welding Process

This process allows you to adjust the volume of melted wire while controlling the depth of penetration in the base metal. Improved heat input control allows for welding of very thin plates. The DW300 produces highly efficient, high quality welding with no burn through, and is suitable for aluminum, stainless steel, and mild steel thin plate material.



Radio waveform sample for AC pulsed MIG welding

Reducing the heat input by the AC pulsed effects the welding of extremely thin 0.8mm plate.



Welding current: 50A, Welding voltage: 15V, Welding speed: 80cm/min
Base metal: A5052, Plate thickness: 0.8mm, Gap: 1mm, Lap joint

needs 2

We also want to improve efficiency for medium plate welding with the AC pulsed welding process, not just thin plate...

With a Max Output of 300A, The DW300 Easily Welds Medium-Thick Plates

Setting up a 1.6mm aluminum wire in standard mode allows for applications of AC pulsed MIG welding for thin to medium-thick plates, expanding the range of applications.

The wave pulse welding process also produces a clean bead appearance for medium plates



Welding current: 210A, Welding voltage: 23V
Welding speed: 55cm/min, Welding wire: A5183, 1.6φmm

Welding Process	Applicable Wire	Wire Diameter (mmφ)
AC wave pulsed MIG	Hard Aluminum	1.2, 1.6
	Soft Aluminum	1.0, 1.2, 1.6
DC wave pulsed MIG	Hard Aluminum	1.2, 1.6
	Soft Aluminum	1.0, 1.2, 1.6
AC pulsed MIG	Hard Aluminum	1.2, 1.6
	Soft Aluminum	0.8, 0.9, 1.0, 1.2
	Stainless steel	0.8, 0.9, 1.0, 1.2
	Mild steel solid	1.0, 1.2, 1.6
DC pulsed MIG	Hard Aluminum	1.2, 1.6
	Soft Aluminum	0.8, 0.9, 1.0, 1.2
DC pulsed MAG	Stainless steel	0.8, 0.9, 1.0, 1.2
	Mild steel solid	0.8, 0.9, 1.0, 1.2

te Welding!

Appearances for MIG Applications

of Needs Like These!!

AC/DC Pulsed
MIG Automatic
Welding
Machine



D/W300

(Number of patent applications: 5)

needs3

We want stable welding even if the joint gap is big...

STABILITY

Significant Increase in Gap Tolerance Allows for Powerful Automation

Adjusting the EN ratio enables control of the volume of molten metal and welding without burn-through, even for thin plate work involving a gap.

EN Ratio	Bead Appearance	Macro Screen
0%	Wire feeding speed: 2.8m/min 	
10%	Wire feeding speed: 3.2m/min 	
20%	Wire feeding speed: 3.6m/min 	

Welding current: 80A, Welding speed: 80cm/min, Base metal: A5083, 1.5mmt, Welding wire: A5356, ϕ 1.2mm

needs4

We do not want beads to become black in aluminum welding...

QUALITY

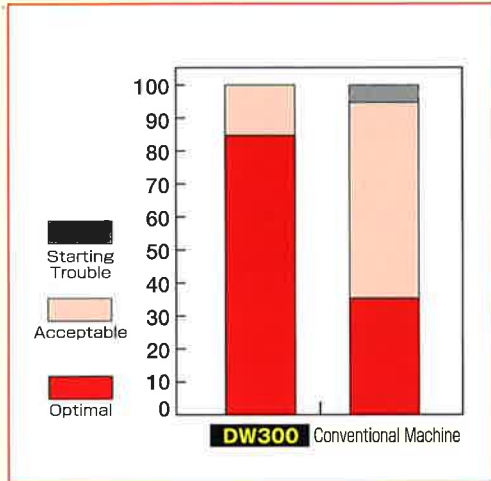
Less Weld Fumes and Soot Provide Clean Bead Appearance

Since the temperature of transfer droplets is low, problematic black soot is controlled, allowing for clean bead appearance.

AC Pulsed MIG		Wire: A5356 1.2mm Welding current: 104A Welding voltage: 17.4V EN ratio: 20%
DC Pulsed MIG		Wire: A5356 1.2mm Welding current: 105A Welding voltage: 17.5V

Improve Arc Start Performance

The DW300 includes a newly developed digital turbo start function that provides outstanding arc start performance even in aluminum welding, where arc starting is difficult.



Standard AC Wave Pulsed MIG Mode Tackles the Difficulties of High Quality Aluminum Welding Process

DAIHEN's unique wave pulse mode reduces crack sensitivity and blowholes. This is particularly effective for heat-treatable alloys (6000 and 7000 series).

AC Wave Pulsed MIG

Reduction of blowholes

Reduction of crack sensitivity

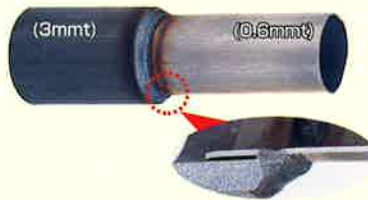
Effective for joints with different plate thickness



Improved Weld Characteristics for Thin Mild Steel and Stainless Steel Plates.

The DW300 also excels in controlling the heat input for plate thickness differences for stainless steel, mild steel, etc., and of very thin plates.

Stainless steel plate thickness difference (AC pulsed MIG: 100A, 18V, 60cm/min)



Thin plate butt-welding for galvanized sheet iron



(AC pulsed MIG: 65A, 16V, 90cm/min)

Achieve Even Higher Quality Welding in Combination With The Almega AX Series

- The new compact AC Servo Torch combined with DAIHEN's Synchro MIG welding function(option) provides heat input control for a beautiful, TIG-like bead appearance. Synchro-MIG Welding function is effective for joints that require precise heat input control, such as different plate thickness and out-of-position welding.
- A dedicated interface board allows the DW300 to be used as a dedicated power supply for the AX robot
- The teach pendant allows direct setup of parameters required for welding and easy setup of appropriate welding conditions, thereby insuring the highest welding quality for even the most difficult applications.
- Included arc monitoring function allows for supervision of welding conditions. This prevents possible welding failures and at the same time can be utilized to check error history.



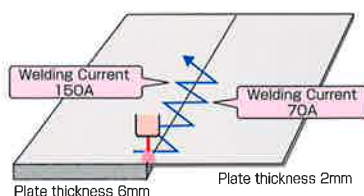
Sample welding parameters that can be set up from the teach pendant

Welding parameters	
Settings for welding start and end conditions	Welding current, welding voltage
	Arc characteristics
	Pre-flow time
	Slowdown speed
	Crater time, after-flow time
Anti-stick adjustment	
Welding Mode Setup:	
Welding mode changeover at optional welding place	
Arc monitoring (Welding current, arc voltage)	
Setting for welding current and arc voltage error monitoring	
Motor load monitoring for wire feeder	
Setting of error monitoring for wire feeder motor load	
Detection of arc outage	
Detection of deposition	



Synchro MIG Welding

Synchronizing the robot weaving operation and welding current

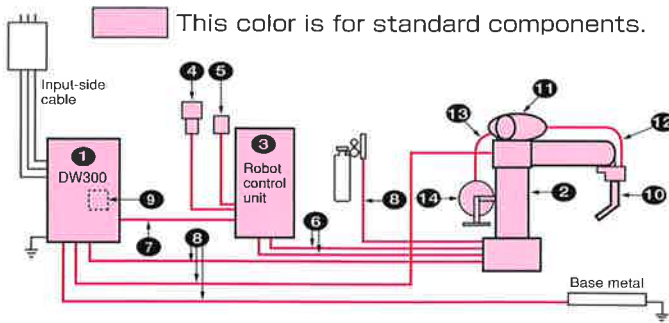


Welding Results using Synchro MIG Welding

	Bead Appearance	Macro Cross Section
Synchro MIG Welding		 Back bead: Good!
Normal MIG Welding		 Back bead: Excessive!

Connection Diagram, Typical Combinations and Equipment Required

■ AX-V6 Robot:



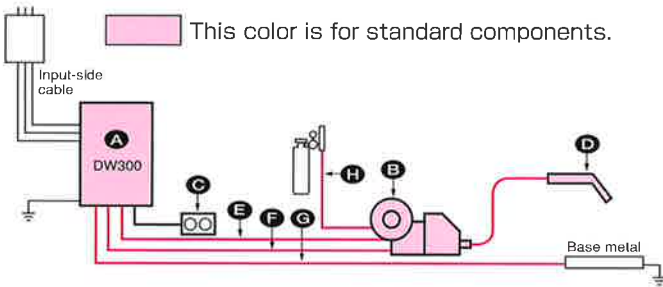
This figure indicates only the major components, based on the MIG specification standard configuration drawing.
For details, contact our local sales representatives or sales department.

● In Combination With the AX-V6 Robot (Aluminum specification):

Description	Types
1 Welding Power Source	DW-300
2 Manipulator	AX-MV6 (Type : AXMV61)
3 Robot Controller	AX-C (Type : AXCMN1)
4 Teach Pendant	AXTPDS0N-JC08
5 Operation Box	AXOP-0005
6 Control Cables 1, 2 (wire harness)	AXRB-1005
7 Control Cable 5	AXRB-5105
8 Control Cable 4 and Cable Hose, etc.	※1 AXRB-4105
9 CAN Interface Board Built in	L9123C
10 Welding Torch	MTXCA-2531
11 Wire Feeder	AFA-4001 (For D Series)
12 Coaxial Cable	L-6611 (1.1m)
13 Conduit	L3770B (1.5m)
14 Wire Reel Stand	L7482A

※1: The cable hoses include a gas hose and torch-side welding cable.

■ Semi-Automatic Welding:

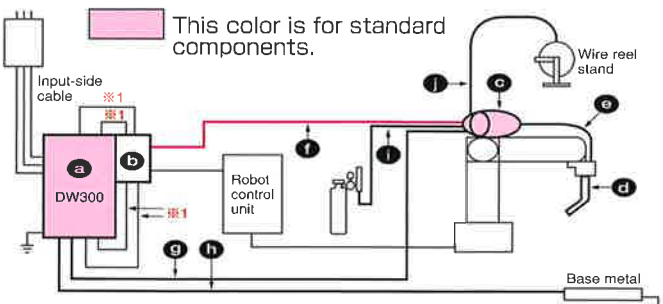


● Used for Semi-automatic Welding (Extension set to 10m)

General Name	Digital AC Wave DW300
A Welding Power Supply	DW-300
B Wire Feeder	CM-7401/CMA-7401
C Remote Controller	K5416F00 (Handled as parts)
D Welding Torch	WT3500-SE
E Wire Feeder-side Control Cable (10-pin)	※1 BKCPJ-1010
F Feeder-side Power Cable	※1 BKPDT-6012
G Base Metal-side Power Cable	※1 BKPDT-6012
H Gas Hose	※1 BKGG-0610

※1: For the cables and gas hoses, select the required length from among 5m, 10m, 15m and 20m.

■ Other Companies' Robots:



This figure indicates only the major component parts and equipment in the MIG specifications.

If connecting this system with other companies' robots and automatic machinery, separate detail specification checking is required.

● In Combination With Other Companies' Robots (Aluminum specification: Extension set to 10m):

Description	Types
a Welding Power Supply	DW-300
b Interface Box	IFR-101D (Mounting hook: E2451P00)
c Wire Feeder	CMRE-741
d Aluminum Kit	K5603B00 (Handled as parts)
e Welding Torch	MTXCA-2531
f Coaxial Cable	L-6611 (1.1m)
f Feeder-side Control Cable (10-pin)	※2 BKCPJ-1010
g Feeder-side Power Cable	※2 BKPDT-6012
h Base Metal-side Power Cable	※2 BKPDT-6012
i Gas Hose	※2 BKGG-0610
j Conduit	L450K00 (For aluminum)

※1: This cable is supplied with the interface box. For connection, see the Instruction manual for IFR-101D.

※2: For the cables and gas hoses, select the required length from among 5m, 10m, 15m and 20m.

Standard Composition and Specifications

Input Power Capacity and Cable Specifications

Item	Model	DW-300
Supply Voltage	V	400±15%
Number of Phases	—	3-phase
Equipment Capacity	kVA	more than 18
Switch Box Capacity	Fuse	A 30
	Earth Leakage Breaker ※1 No-fuse Breaker	A 30
Input-side Cable	mm ²	more than 5
Base Metal-side Cable	mm ²	60
※2 Grounding Cable (Class D Grounding)	mm ²	more than 5

※1: When using a no-fuse breaker, use a motor breaker.

※2: The grounding cable size differs depending on the input cable size. For details, refer to the Instruction Manual.

Welding Power Source

Welding Power Supply	Type	DW-300(CE-Marking)
Rated Input Voltage	V	400±15% (50/60Hz)
Number of Phases	—	3-phase
Rated Input	kVA	18 (16kW)
Rated Duty Cycle	%	80
Rated Output Current	A	300
Rated Load Voltage	V	29
Output Current Range	A	30~300
Output Voltage Range	V	12~36
Maximum No-load Voltage	V	81
External Dimensions (WxDxH)	mm	300×705×595(without the carrying handle)
Mass	kg	66

Wire Feeder

Wire Feeder	type	CM-7401 (CE-Marking)	CMA-7401 (CE-Marking)
Applicable Wire Size	mm	(0.8), 0.9, 1.0, 1.2, (1.4), (1.6)	1.0, 1.2, (1.6)
Wire Type	—	Solid Wire, Flux-cored Wire	Hard Aluminum, Soft Aluminum
Wire Feeding Speed	m/min	Max 22	
Weight	kg	16	16
Dimensions (W×D×H)	mm	243×732×402	243×732×402

CO₂/MAG Welding Torch

CO ₂ /MAG Welding Torch	type	WT3510-SE
Rated Current	A	350
Applicable Wire Size	mm	(0.9, 1.0), 1.2, (1.4)
Duty Cycle	%	60
Cooling Method	—	Air-Cooled
Cable Length	m	3, (4.5), (6)

Aluminum MIG Welding Torch

Aluminum MIG Welding Torch	type	WTAW400-SE
Rated Current	A	400A
Applicable Wire Size	mm	1.2 (1.6)
Duty Cycle	%	100
Cooling Method	—	Water-Cooled
Cable Length	m	3

Wire Feeder Control Cable (10-pin)

Wire Feeder Control Cable	DW300 CE-Marking Spec.
Standard Cable	Choose cable from the following, BKCPP-1002 (2m) BKCPP-1007 (5m) BKCPP-1012 (10m)
Extension Cable	BKCPJ-1005 (5m), BKCPJ-1010 (10m) BKCPJ-1015 (15m), BKCPJ-1020 (20m)

Gas Hose

Gas Hose	DW300 CE-Marking Spec.
Standard	3m Gas Hose is attached to Wire Feeder.
Extension	BKGG-0605 (5m), BKGG-0610 (10m) BKGG-0615 (15m), BKGG-0620 (20m)

Wire Feeder Power Cable

Wire Feeder Power Cable	DW300 CE-Marking Spec.
Standard Cable	Choose cable from the following, BKPDJ-6002 (2m) BKPDJ-6007 (5m) BKPDJ-6012 (10m) BKPDJ-6017 (15m) BKPDJ-6022 (20m)

Base Metal Power Cable

Base Metal Power Cable	DW300 CE-Marking Spec.
Standard Cable	Choose cable from the following, BKPDT-6002 (2m) BKPDT-6007 (5m) BKPDT-6012 (10m) BKPDT-6017 (15m) BKPDT-6022 (20m)

Optional

Remote Control Box



Analog Remote Controller

● Analog Remote Controller

Name	Part numbers
Analog Remote Controller (3m Cable is attached)	K5416H00
Extension Cable	BKCPJ-0605 (5m)
	BKCPJ-0610 (10m)
	BKCPJ-0615 (15m)
	BKCPJ-0620 (20m)



Digital Remote Controller

● Digital Remote Controller

Name	Part numbers
Digital Remote Controller	E-2454
Control Cable	BKCAN-0410 (10m)
	BKCAN-0420 (20m)
CAN Communication Board	K5422B00

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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