● Optional parts

■ Extension cable

	5m	10m	15m	20m
Control cable of wire feeder side (10-pin)	BKCPJ-1005	BKCPJ-1010	BKCPJ-1015	BKCPJ-1020
Control cable for analog remote controller (6-pin)	BKCPJ-0605	BKCPJ-0610	BKCPJ-0615	BKCPJ-0620
Control cable for digital panel	BKCAN-0509	BKCAN-0514	BKCAN-0519	BKCAN-0524

* No standard power cable (2m) is required when using an extension cable.
* If you use an automatic machine or a current value close to the rated current, use a one-rank thicker cable.
* According to the extension wiring regulations, tthe power cable is 60mm² for 400A or less, and 80mm² for 500A or less. (For a rated duty cycle of 50%)

■ Voltage detection cable

	5m	10m	15m	20m
Voltage detection cable	K5791G00	K5416N00	-	K5791E00

■ Voltage detection adaptor

When using CBT-EX (DC low spatter), attach it to the wire feeder (CM -743U).

Part name	Part No.
Voltage detection adapter	K5952E00

How To Install

■ Welding torch

● MIG welding torch for stainless steel and steel

Part name	Model	BT3510-xxUT
Applicable wire dia.	mm	(0.9), (1.0), 1.2
Specified max current	A	300A
Duty cycle	%	30%
Cooling method		Air cooling
Cable length	m	3m, 4.5m, 6m

■ Remote controller

● Analog remote controller

Part name	Part No.
Analog remote controller(3m)	K5804S00

● Conversion cable for conventional analog remote controller (K5416Z00)

Part name	Part No.
Conversion cable	K8116E00

● Digital remote controller
(One set of the following three items are needed.)

Part name	Model
Digital remote controller (Main unit)	E-2452
CAN communication cable	BKCAN-0410(10m)
	BKCAN-0420(20m)
BKCAN conversion connector	K5810B00

* Software update is necessary.
Please contuct your dealer for details.

■ Voltage detection line for welding torch

Prepare it when using CBT-EX (DC low spatter) with a MIG torch for stainless steel.

Part name	Part No.
Voltage detection cable	K5791G00

■ Cooling water circulator

Part name	Model / Part No.
Cooling water circulator	WTCB-M1

* When using a water-cooled welding torch with WB-M502, prepare a water-cooling kit (K5848A00) in addition to the above. Contact your dealer or OTC's sales office to install the water cooling kit.

■ TIG solenoid valve kit

Part name	Part No.
TIG solenoid valve kit	K8197A00

* Conversion cable (BKPJT- 60R2) is separately required for WB-M502/P502L.

■ Panel for wire feeder

● Analog panel

Current/voltage setting and inching can be operated in the same way as with analog remote controller.

Part name	Part No.
Analog panel	K8028A00
Conversion cable	K8116E00

* Control cable BKCPJ-06＊＊ is separately required.
* Function switching by F2 cannot be used.

● Digital panel

Such operations as current/voltage setting, inching, and storage/reading of parameter setting can be made in the same way as a digital remote controller.

Part name	Model
Digital panel	E-2628

* Control cable BKCAN-05＊＊ is separately required.

ISO 9001 Registered

OTC DAIHEN Website
www.DAIHEN-USA.com

DAIHEN ROBOT Website
www.DAIHEN-robot.com/en

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Fax: (937) 667-0885

DETROIT TECHNICAL CENTER
750 Welch Road
Commerce Township, MI 48390
Phone: 888-OTC-ROBO
Fax: (937) 667-0885

OTC- 8 REV 11/21

Welding's
EVEN BETTER Electronic Engine

Welbee III

WBII P500L　WBII P400L　WBII P350L
WBII M350　WBII P400　WBII M500

Welbee III NANOTECHNOLOGY

OTC DAIHEN invested over 10 million dollars and 6 years to develop welding's best electronic engine - Welbee, our custom LSI ASIC chip.

Delivering an industry leading 20nsec response time, that is 50 million arc adjustments every second of the weld! 4X faster response than our nearest competitor!

This enables our clean welding results including support for CO2 welding and the reduction and elimination of expensive Helium gas.

Better welds enabled by better technology, for the welder.

be tough

Same great low-maintenance durability

■ Welbee side-flow structure

High dust resistance

Sensitive electronic components are separated and isolated from damaging dust accumulation.

Easy maintenance

Cooling fans adjust to accommodate duty cycle and ambient air temperature. Blow-out with compressed air can be performed without removing covers.

Dust intrusion into electronic parts can be reduced by approx.

98%

Same great model line-up, only better.

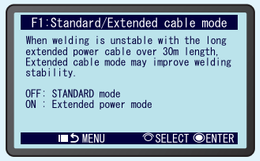
be smart

New and improved operator control panel

Easier to access welding info

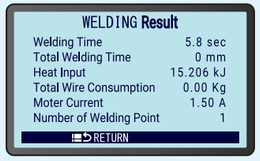
Detailed function display

Settings, functions and errors are displayed in detail reducing the need for an operation manual.



Welding results display

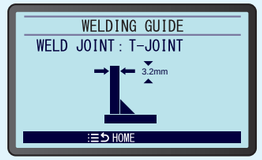
Welding results including time, wire consumption, heat input and more are displayed at the conclusion of each weld.



Ease of Use Improvements

Built-in welding guide

Welding conditions can automatically be set simply by selecting the joint type and plate thickness. This function supports the setting of conditions for those who are unfamiliar with welding work.



Improved Current / Voltage digital display

140% larger than prior model for improved visibility.

Easy-to-read LCD panel

Text font size and background color are adjustable to improve visibility.

* Welding conditions are guidelines and do not guarantee welding results.

DC Pulse / Wave ulse

WBII P500L WBII P400L WBII P350L

Welbee pulse welding has been refined improving welding of steel, stainless steel and aluminum.

Better pulse welding for all materials

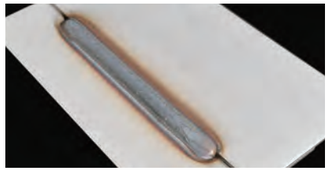
ild steel

No special techni ue is re uired to obtain beautiful welding results with less spatter and uniform bead toes.

Welding conditions
• Welding current: 115A • Arc voltage: 23.1V • late thickness 0.8
• Wire dia.: φ0.045" • Travel speed 24in/min • Shielding gas 80%Ar+20%CO_2

Stainless steel

Controlled droplet transfer enables to obtain good weld beads even with highly viscous stainless steel wire's molten droplets.



Welding conditions
• Welding current 115A • Arc voltage 21.0V • late thickness 0.8
• Wire dia. φ0.045" • Travel speed 24in/min • Shielding gas 98%Ar 2%O_2

Aluminum

Beautiful weld beads can be obtained by suppressing the generation of fine particle spatter.

Welding conditions
• Welding current 55A • Arc voltage 18.5V • late thickness 0.8
• Wire Hard aluminum φ0.045" • Travel speed 14in/min • Shielding gas: 100%Ar

AI-enhanced Smart ulse welding NEW

OTC DAIHEN has implemented AI-enhanced pulse welding with automatic adjustment of the welding waveform for optimal, high-speed welding.

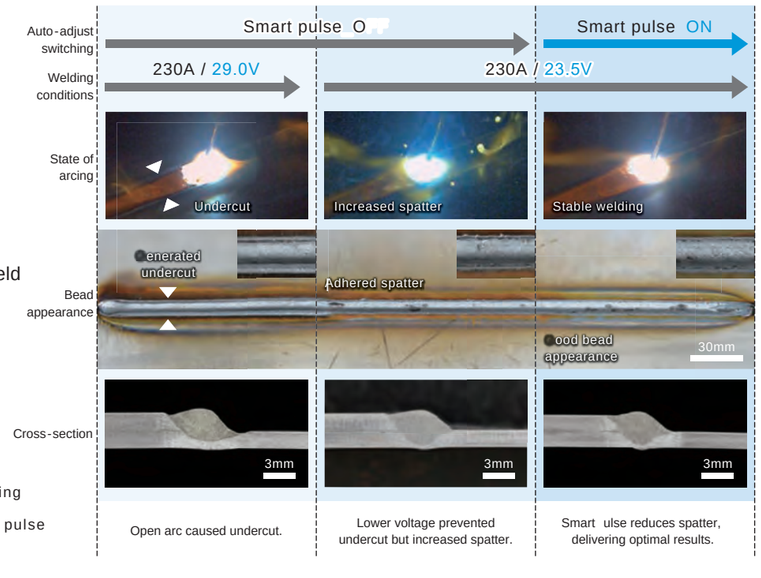
Advantages include elimination of undercut and reduction of adhered spatter, delivering a higher uality weld with a consistent appearance.

Welding conditions
• Welding mode ild steel DC ulse
• Plate thickness: 1/16"
• Wire dia.: φ0.045"
• Travel speed: 60in/min
• Shielding gas: 80%Ar-20%CO_2

*1 The Rule Base is a method of processing data based on the input rules.
* Automatic machine mode of mild steel pulse is supported only.

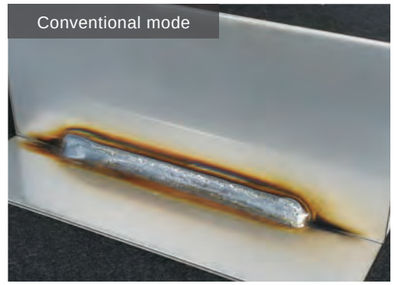
■ SmartPulse high-speed welding comparison

•Function No.84,85



Improved stainless steel waveform delivers beautiful bead appearance. NEW

The soft arc created by our new waveform realizes stable droplet transfer while suppressing the weld scale. Also, the short arc length improves arc position aiming and manipulation.



Welding conditions
• Welding current：200A
• Arc voltage：26.7V
• late thickness：0.08
• Wire dia.：φ0.045"
• Travel speed：40in /min
• Shielding gas：98%Ar 2%O_2

Option Improved support for low slag wires NEW

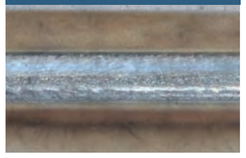
Low-slag wire is now supported, eliminating the unstable arc in high speed welding. This mode reduces problems such as meandering, undercut, and large spatter adhesion caused by low Si wire.

Standard pulse mode

Spatter adhesion and undercut occur

■Cross-section

Low-slag wire mode



ood weld bead with no defects

■Cross-section

Welding conditions
• Welding current: 270A
• Arc voltage: 27.8V
• Base metal galvanized steel 45g/m², 0.09in
• Wire diameter: φ 0.045in
• Travel speed: 51.2in/min
• Shielding gas: 80%Ar+20%CO_2

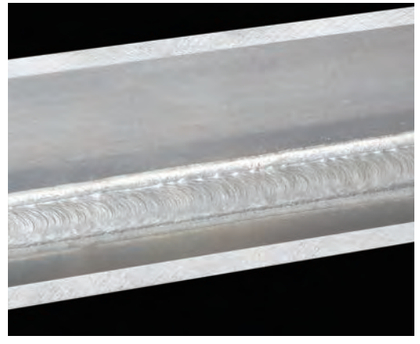
S- I

WBII P400 WBII P400L WBII P500L

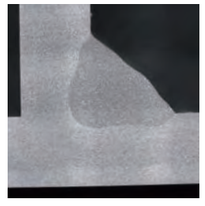
Optimum aluminum welding mode for medium thick plate NEW

In aluminum welding in the medium and high current ranges, the arc tends to become unstable, which causes such problems such as bead meandering and poor penetration. OTC DAIHEN developed S- I is resistant to this disturbance, keeping the welding current constant for beautiful weld beads with consistent penetration.

* Applicable only to hard aluminum wire with a diameter of 1/16in



■Cross-section



Welding conditions
• Welding current 280A
• late thickness 0.4in
• Wire Hard aluminum, φ1/16inch
• Travel speed 16in/min
• Shielding gas 100%Ar

CBT-EX (DC Low Spatter)

Controlled Bridge Transfer- Expanded

WBII P500L **WBII P400L** **WBII P350L**

Low-Spatter L- ode powered by Welbee's precision control

Spatter can be reduced by up to 80% in low, medium and high current ranges.
Less weld spatter on the base metal means less post-weld cleanup prior to assembly or finishing.
Less post-weld cleanup means more parts in less time.

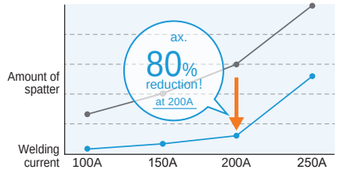
Welding method	Comparison of spatter during welding	Large spatter particles that have to be removed (0.5mm or larger)
CO_2 welding		
Welbee II CBT-EX		

Welding conditions

- Welding current 200A • Travel speed 20 in/min
- Wire dia.: φ0.045in • Shielding gas CO_2
- Welding time: 2.5min

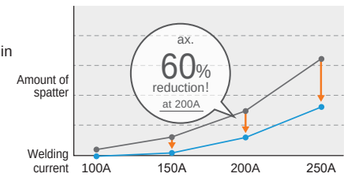
CO_2 welding

Low spatter comparable to those in A welding can be achieved even in CO_2 welding.



A welding

Spatter can be minimized in A welding.



DC welding

Common to the series

ine control for DC welding on all materials and current ranges.

Delivers uniform weld beads with consistent appearance under adverse conditions such as varying arc length and high-speed welding.
Reliable results during manual, semi-automatic and automatic operation.

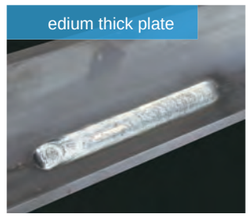
Thin plate

Uniform and beautiful beads with little spatter

Welding conditions

- Welding current 120A
- Arc voltage 16.9V
- late thickness 1/16in
- Wire dia.: φ0.035in
- Travel speed 18in/min
- Shielding gas AR/Co₂

edium thick plate



Stable arc realizes flat weld beads even at high current.

Welding conditions

- Welding current 300A
- Arc voltage: 35.0V
- Plate thickness: 0.35in
- Wire Mild steel flux cored φ0.045in
- Travel speed: 14in/min
- Shielding gas CO_2

Convenience and stability provided by extension mode

Stable and reliable results in extended applications

Welding conditions

- Welding current: 250A • Arc voltage 29.0V • Plate thickness: 1/4in
- Wire dia. : φ0.045in • Travel speed 16in/min • Shielding gas CO_2

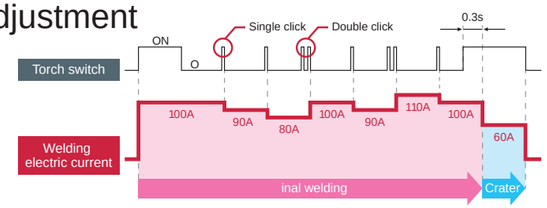
	Standard mode	Extension mode
Cable length 131ft		

Smart function

Common to the series

Torch triggered welding current adjustment

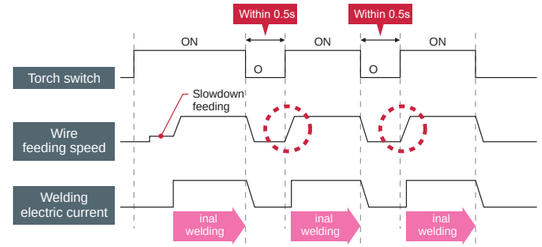
ou can increase or decrease the output current by any preset amount of change by operating the torch switch single click/double click . If you want to change the input heat during welding in accordance with sheet-thickness changes, you can change the welding conditions without suspending your welding work.



* ou cannot use this function when the analog remote controller is connected.

High-speed tack start

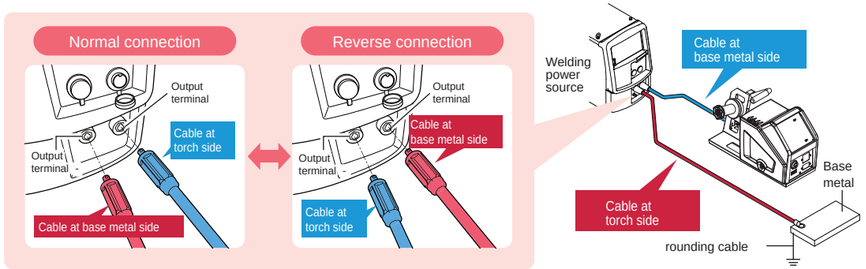
Slow wire feed can be overridden if the torch trigger is pulled within 1/2 second of previous weld, speeding up your tack welds and expanding your productive output.



Straight polarity DCEN mode

NEW

By setting the function number 38 , welding can be performed with straight polarity DCEN - electrode negative , including galvanized steel welding.



Evolved multifunctional remote controller

NEW

OTC DAIHEN's NEW multifunction remote controller supports selected assignment of 6 commonly used functions to the selector switch.

2	unctions		Remote controller switching knob		
			[1]	[2]	[3]
1	Crater setting		Crater O	Crater ON with pulse	Crater ON No pulse
2	as check		O	O	ON
3	Constant penetration		O	O	ON
4	Tack start		O	O	ON
5	Read out of welding conditions		O	O	ON
6	Welding process	P400L II P500L II	CBT-EX (DC low spatter)	DC pulse	DC
		P400 II	DC pulse	DC wave pulse	DC
		M350L II	CBT-EX (DC low spatter)	DC	DC
		M350 II M500 II	–		

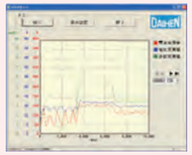
IoT functionality, machine-connected control and integrated uality control

C-based access to recorded welding data

With the USB port e uipped as standard, various data can easily be read.
By using the Smart Wave Viewer from DAIHEN website, you can easily graph the welding data on your C.

ou can easily edit and manage data by using USB.

● Welding waveform display screen



● CSV file output

	A	B	C	D
2	時間 msec	電流実測値 A	電圧実測値 V	送給実測値 m/min
3	0	42	53.8	1.5
4	100	9	25.3	2.1
5	200	139	12.3	2.1
6	300	146	11	2.1
	400	132	13.1	2.1
8	500	106	15.6	2.1
9	600	10	16.5	2.1
10	00	113	16.5	2.1
11	800	11	14.9	2.1
12	900	125	14.2	2.1
13	1000	115	15.3	2.1
14	1100	125	14.6	2.1
15	1200	155	12.3	2.1
16	1300	141	13.8	2.1
3	1400	11	14.9	2.1

* Various software can be downloaded for free from OTC H .
https //www.daihen.co.jp/products/welder/software/

Access to the downloading site

■ List of data that can be output

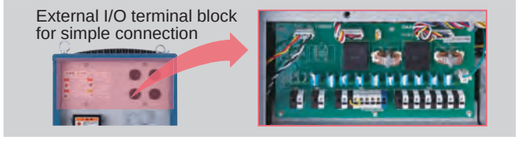
- Simple data log Current, voltage, wire feed setting and actual measurement
- Abnormal log Recording the past 10 abnormal codes
- Welding conditions
- Welding result management Weld points, Wire consumption, Total welding time, Welding monitoring, Total operating time
- Internal function setting values

Easy connection to external devices

A lineup of interfaces are abundantly available for connecting to other robots.
A wide range of options are available according to particular communication specifications.

Connection method	ormat
Analog	I R-101WB
EtherNet/I	I R-800EI
RO IBUS	I R-800 B
DeviceNet	I R-800DN
RO INET	I R-800 N

Simply open the access panel on the back of the welding power source to connect easily to external e uipment



Wire feeder for robot

Wire feeder	odel	C RE- 42
* Applicable wire dia.	mm	0.8 , 0.9, 1.0, 1.2, 1.4 , 1.6
Type of wire		Solid wire, lux cored wire
Wire feeding speed	m/min	22
External dimensions W×D×H	mm	195×2 5×235 No cable is included.
ass	kg	

* or using the wire diameters given in parentheses, optional parts are re uired.

Option

C-based and connected Welbee weld monitoring

Data from up to 100 welding power sources can be collectively monitored on a C to support uality control.

Capable of checking the operating status of the welding power sources even at a remote location.

On the collected monitoring screen, you can monitor not only the operating status of each welding power source but also errors and warnings at a glance.

Access to the detailed condition of the welding power sources.

On the individual monitoring screen, welding current, arc voltage, and wire feed conditions can be checked and also welding abnormalities can be detected immediately by setting the upper and lower limits.

Visualized welding results.

Welding data can be organized in an easy-to-understand manner for each worker, work, and welding power source, which can be used for planning and reviewing the work processes.

uality control and traceability

Welding data is automatically graphed and the results can be checked at a glance. Welding results are stored in a database and can easily be retrieved.

onitoring parameters

* Check the instruction manual for details.

Welding current Setting	Welding voltage Setting	Welding current easured	Welding voltage easured
Wire feed speed easured	Starting signal	rimary input voltage	otor current
Various error codes	ower source's interior temperature	AN rotation speed	Wire feed load rate

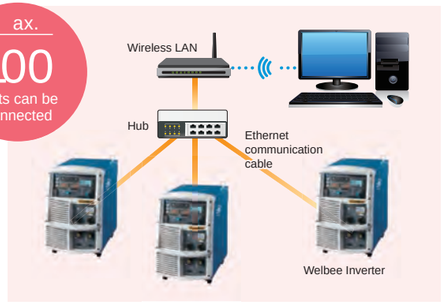
Welbee welding monitor's system configuration

Standard configuration

- Extension board kit for welding power source
- Welding monitor software for C

Items to be prepared by customer

- C Ethernet connectable
  - Supported OS Windows 8.1, 10
  - Re uired memory capacity in. 8 B,
  - Display in. 32bit color / in. 1920 x 1080 resolution
- Ethernet communication hub when connecting multiple units
- Ethernet communication cable
- Wireless LAN interface for wireless connection



* The number of connectable devices may be limited depending on your C and communication environment.
* When you use the extension board kit E-2560 , you can use the latest welding monitor by preparing only the C software - 496 .

Specification

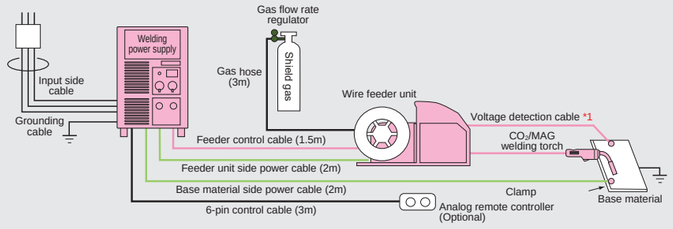
Connection diagram

The parts in this color are standard components. (CO_2/MAG air cooling specification)

The parts in this color are components of WCD-300 pr WCL-500 optional klits

*1 Use the K5791G00 voltage detection cable (5m) attached to the welding power supply unit. (Only for Low spatter model)

The voltage detection cable is not necessary when you do not use the CBT-EX (low-spatter) mode.



*1 When selecting the CBT-EX mode (DC low spatter), use the voltage detection cable K5791G00 (5m) (optional)with the welding power source WB-M352L/P402L/P502L.

Wire feeder with maximized safety, operability and durability

■ For steel and stainless steel

Air cooling **CM-743※1**

Water cooling **CM-743※1 with K5975L00**

■ For aluminum

Air cooling **CM-743U with K5975E00**

Water cooling **CM-743U With K5975E00 & K5975L00**

*1 For CBT-EX (DC low spatter), the voltage detection adapter (K5952E00) is required.
* When you use a pack wire, prepare the guide adapter (K5977J04) .

● Standard configuration

General brand name	Welbee Inverter M350L Ⅱ		Welbee Inverter M350 Ⅱ	Welbee Inverter M500 Ⅱ	Welbee Inverter P400 Ⅱ			Welbee Inverter P400L Ⅱ				Welbee Inverter P500L Ⅱ				
●Welding power source	WB-M352L		WB-M352	WB-M502	WB-P402			WB-P402L				WB-P502L				
Usage	CO_2/MAG Air cooled	CBT-EX (DC low spatter)	CO_2/MAG Air cooled	CO_2/MAG Air cooled	CO_2/MAG Air cooling	Aluminum MIG, Air cooled	Aluminum MIG, Water cooled	CO_2/MAG Air cooled	CBT-EX (DC low spatter)	Aluminum MIG, Air cooled	Aluminum MIG, Water cooled	CO_2/MAG Air cooled	CBT-EX (DC low spatter)	CO2/MAG Water cooled	Aluminum MIG, Air cooled	Aluminum MIG, Water cooled
Wire feeder	CM-743U		CM-743U	CM-743U	CM-743U			CM-743U				CM-743U				
Welding torch	BT3510-30UT (45)(60)	BT3500V-30UT *1	BT3510-30UT (45)(60)	BT5000-30UT (45)(60)	BT3510-30UT (45)(60)	BTA300-30UT (40)	BTAW400-30UT (40)	BT3510-30UT (45)(60)	BT3510V-30UT (40) *2	BTA300-30UT (40)	BTAW400-30UT (40)	BT5000-30UT (45)(60)	*2 BT3510V-30UT	BTW500-30UT (45)(60)	BTA300-30UT (40)	BTAW500-30UT (40)
Powew cable Regulator/Flow meter kits	WCD-300		WCD-300	WCL-500	WCD-300			WCD-300				WCL-500				

*1 When selecting the CBT-EX mode (DC low spatter), attach the voltage detection adapter (K5952E00) to the wire feeder CM-743

● Standard Specification

General Name		Welbee Inverter M350L Ⅱ				Welbee Inverter M350 Ⅱ				Welbee Inverter M500 Ⅱ	Welbee Inverter P400 Ⅱ				Welbee Inverter P400L Ⅱ			Welbee Inverter P500L Ⅱ
Welding power Source Model	Model #	WB-M352L				WB-M352				WB-M502	WB-P402				WB-P402L			WB-M502
Phase(s)		Single-phase		Three-phase		Single-phase		Three-phase		Three-phase Only	Single-phase		Three-phase		Single-phase	Three-phase		Three-phase Only
Rated input voltage	V	208 / 230	460	208 / 230	460	208 / 230	460	208 / 230	460	460	208 / 230	460	208 / 230	460	208 / 230	208 / 230	460	460
Rated Input Current	A	51.3	25	38.5	19.6	51.3	25	38.5	19.6	31.7	56.2	30	54	26.9	56.2	54	26.9	31.6
Rated Input	kVA	11.8	11.5	15.3	15.6	11.8	11.5	15.3	15.6	25.2	12.3	12.6	19.7	20.8	12.3	19.7	20.8	25.2
100% Output Current	A	194	194	271	271	194	194	271	271	500	194 (126)	194 (126)	310 (283)	310 (283)	194 (126)	310 (283)	310 (283)	387 (350)
Rated Duty Cycle (Pulse)	%	60	60	60	60	60	60	60	60	100	60 (40)	60 (40)	60 (50)	60 (50)	60 (40)	60 (50)	60 (50)	60 (80)
Rated Output Current (Pulse)	A	250	250	350	350	250	250	350	350	500	250 (200)	250 (200)	400	400	250 (200)	400	400	500 (400)
Rated Load Voltage	V	26.5	26.5	31.5	31.5	26.5	26.5	31.5	31.5	39	24	24	34	34	24	34	34	39 (34)
Output Current Range (Pulse)	A	30 - 250	30 - 250	30 - 350	30 - 350	30 - 250	30 - 250	30 - 350	30 - 350	30 - 500	30-250(200)	30-250(200)	30 - 400	30 - 400	30-250(200)	30 - 400	30 - 400	30 - 500
Output Voltage Range (Pulse)	V	12 - 26.5	12 - 26.5	12 -31.5	12 - 31.5	12 - 26.5	12 - 26.5	12 -31.5	12 - 31.5	12 - 39	12 - 26.5	12 - 26.5	12 - 34	12 - 34	12 - 26.5	12 - 34	12 - 34	12 - 39
Max no-load Voltage	V	78	70	79	70	78	70	79	70	81	78	70	92	80	78	92	80	94
Welding programs in memory	#	100				100				100	100				100			100
External Dimensions (WxDxH)	mm (in)	395 x 710 x 810 (15.6 x 28 x 31.9)				395 x 710 x 810 (15.6 x 28 x 31.9)				395 x 710 x 810 (15.6 x 28 x 31.9)	395 x 710 x 810 (15.6 x 28 x 31.9)				395 x 710 x 810 (15.6 x 28 x 31.9)			395 x 710 x 810 (15.6 x 28 x 31.9)
Mass	kg (lbs)	85 (187.4)				85 (187.4)				77 (170)	80 (176.4)				80 (176.4)			81 (178.6)
Cable kit (optional)	P/N	WCD-300				WCD-500				WCL-500	WCD-300				WCD-300			WCL-500
Cable size	mm2 (AWG)	60 (2/0)				60 (2/0)				80 (4/0)	60 (2/0)				60 (2/0)			80 (4/0)
Grounding Cable	mm2 (AWG)	6 or more				6 or more				10 or more	6 or more				10 or more			10 or more

●Wire feeder	Model	CM-743U					CM-743U with K5975E00 Aluminum Kit		
Applicable wire		Solid wire Cored wire					Hard aluminum Soft aluminum		
*4 Applicable wire dia.	mm	(0.8), 0.9, 1.0, 1.2, (1.4), (1.6)				(0.8), 0.9, 1.0, 1.2, (1.4), (1.6)	1.2, (1.6)	1.2, 1.6	
Wire feed speed	m/min	22(Max)				22(Max)	22(Max)	22(Max)	
External dimensions（W×D×H）	mm	254 × 611 × 393				254 × 611 × 393	285 × 723 × 393	285 × 723 × 393	
Weight	lb	31				31	31	31	
Cooling system		Air cooling				Water cooling	Air cooling	Water cooling	
●Welding torch		BT3500-30UT	BT3510-30UT	BT5000-30UT	BT3510V-30 *5	BTW500-30	BTA300-30	BTAW400-30	BTAW500-30
Rated current	A	350	350	500	350	500	300	400	500
*4 Applicable wire dia.	mm	(0.9), (1.0), 1.2	(0.9), (1.0), 1.2, (1.4)	(1.2), 1.4, (1.6)	(0.9), (1.0), 1.2, (1.4)	(1.2), (1.4), 1.6	1.2, (1.6)	1.2, (1.6)	(1.2), 1.6
Duty cycle	%	30	60	60	60	100	50	100	80
Cable length	m	3, (4.5, 6)	3, (4.5, 6)	3, (4.5, 6)	3, (4.5, 6)	3, (5)	3,(4)	3,(4)	3,(4)

*3 Eyebolts are not included in the external dimensions. *4 If you use the wire diameter in parentheses, optional part required.
*5 When selecting the CBT-EX mode (DC low spatter), attach the voltage detection adapter (K5952E00) to the wire feeder CM-743.