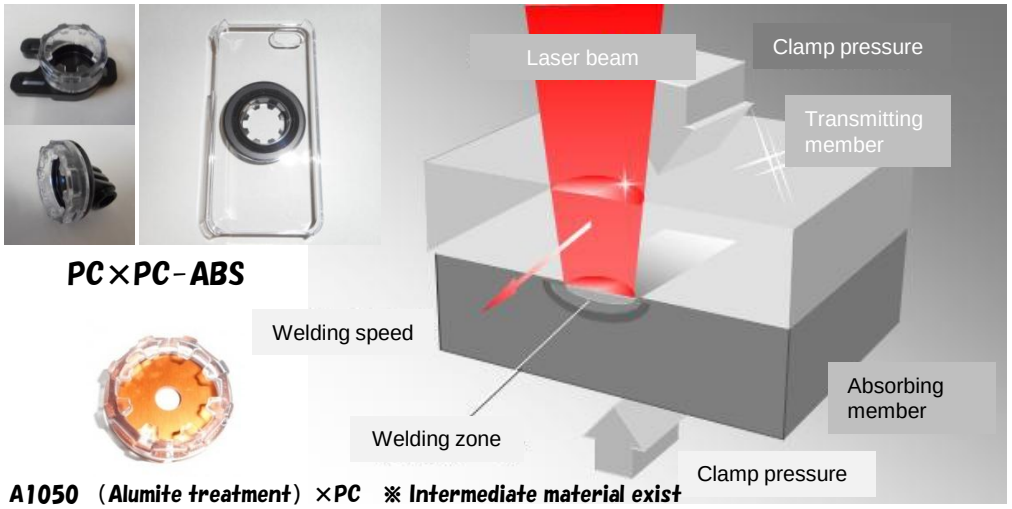
Laser resin welding
m a c h i n e
PLW-20CW

ELEBON®

Laser processing machine specialized for laser resin welding !

Laser welding of thermoplastic resin consists of a transmitting member and an absorbing member. The laser light enters from the transmitting member and is converted into heat by the absorbing member. By applying pressure from above and below during this process, heat is transferred from the absorbing member to the transmitting member, and both members are melted and welded. At this time, internal pressure is generated at the bonding interface due to thermal expansion by local heating, and both members are firmly welded by this internal pressure and external pressure.



PC×PC-ABS

A1050 （Alumite treatment）×PC ※ Intermediate material exist

Comparison of bonding method

Merit/Demerit

Method	Method description	Merit	Demerit
Adhesive	Bonding by adhesive. A method of bonding by applying adhesive to the interface between adherends and bonding them 『Mechanically』, 『Chemically』 and 『Physically』.	・Equipment cost is low.	・Running cost is required. ・Management of adhesive is cumbersome ・Curing time is required. ・Difficult to keep airtightness （aged deterioration）
Ultrasonic welding Vibration welding	Wave bonding. A method of bonding by applying vibration to the adherend and melting it by frictional heat generated at the boundary of the adherend.	・Cycle time is fast ・Power consumption is small ・Air tightness can be obtained easily. ※ But, ingenuity in shape is required.	・Damage to internal part due to vibration is large. ・A horn is required for each item ・Burr/dust tends to be generated ・Since the welded shape is limited and the welding width is necessary, this is not suitable to apply to thin wall case. ・Noise is generated.
Laser welding	Wave bonding. A method of welding by laser light. The laser light absorbed by the adherend is converted into thermal energy.	・There is no damage to internal parts due to wave. ・Running cost is low. ・There is little thermal damage to the product due to local heating. ・Burr/dust generation us little. ・It is easy to obtain air tightness even with a narrow bonding width.	・Material needs to be devised. （transmission and absorption） ・Since this is a new welding method, knew-how has not yet been generalized yet. ・In general, laser equipment is expensive.

Laser resin welding machine

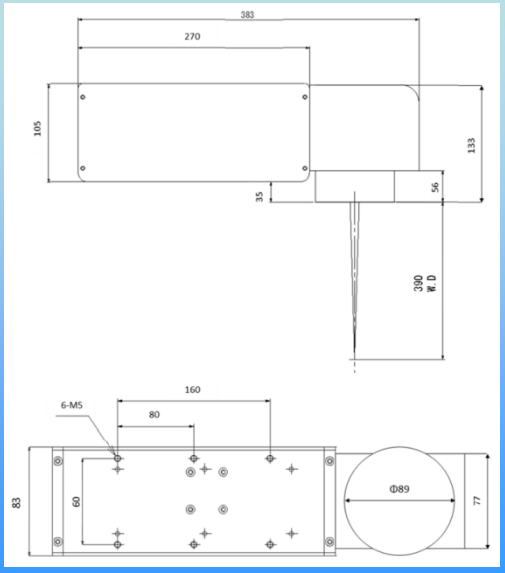
P L W - 2 0 C W

1 Specifications of『PLW-20CW』

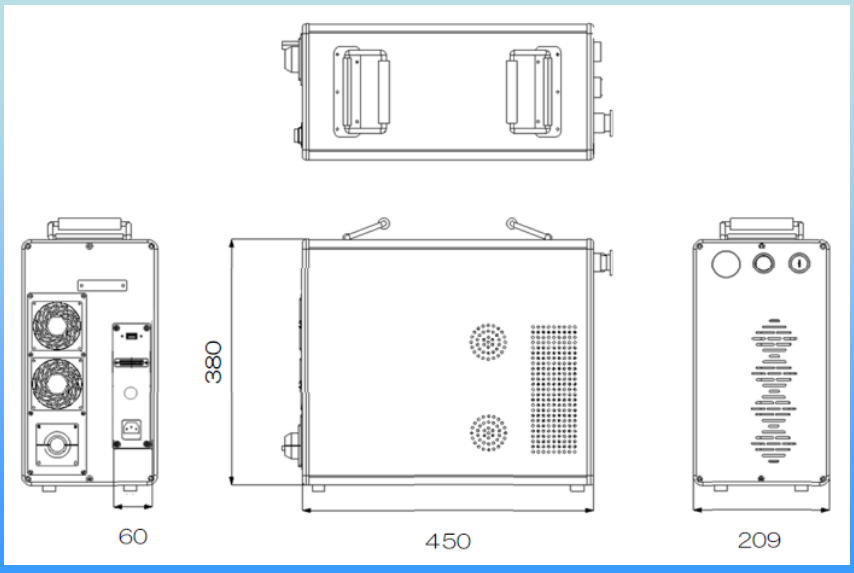
Item	Specification
Oscillation method	Fiber excitation oscillation
Maximum Output (CW oscillation)	20W
Pulse width	CW/Pulse variable
Repetition frequency	CW/Pulse variable
Repetition accuracy	±0.0025mm
Processing area	50×50mm ～ 100×100mm
Cooling method	Air cooling
Power supply voltage	Single phase AC100V ～ 240V　±10%　50 / 60Hz
Ambient temperature	5 ～ 35℃（temperature variation: 10℃/H）No condensation
Font type	TrueType font/JSF font/ JSF single font
File format type	DXF／BMP／TIFF／JPG／JPEG／GIF／TGA／PNG／TIF／AI／PLT／JPC／SVG／NC／G／BOT／DST
Code type (2 dimensional bar code)	DataMatrix／QRCode／MicroQRCode／Code39／Code93／Code128A,B,C／EAN128A,B,C／UPC／Codebar／PDF417
Print shape	Fixed point / Straight line / Dashed line / Circle / Elliptical / Square / Polygon / Curve / Spiral
Print layout	Straight line / Diagonal line / Arc / Vertical writing (Possible to enlarge / reduce / rotate text with mouse drag)
Operation / Supported OS	PC: Windows XP / Vista / 8（32 bit version）

2 Outline drawing of『PLW-20CW』

Laser head



Laser control unit



When using this product, please read the operation manual carefully.

『ELEBON』is a trademark or registered trademark of products using the energization diffusion（heating）bonding technology.

Manufacturer

physical photon Co. Ltd.

〒214-0034
Kanagawa-ken, Kawasaki-shi, Tama-ku, Mita 2-3227
Meiji University, Center for Collaborative Innovation and Incubation 305
TEL : 044-543-9909　FAX : 044-543-9973

Please inquire to:

ECO-A Co. Ltd.

〒302-0127
Ibaraki-ken, Moriya-shi, Matsugaoka,1-18-3

TEL : 0297-44-9247　FAX : 0297-44-9248

Please look at the information on the Internet.

http://www.eco-a2010.co.jp/

● Please note that the contents of the catalog are subject to change without notice.　● This catalog was published in January, 2016.