INNOVACERA
advanced ceramic solutions



Ceramic Reflector

Introduction

Innovacera Ceramic laser reflectors are high reflectance cavities used in solid state and CO_2 laser systems. It is made by high purity 99% porous alumina ceramic and sintered at high temperatures to achieve a controlled porosity.

Our range of custom ceramic reflectors offer significant advantages and improvements over those made with materials such as metal and polymer, it work particularly well in Ruby and Nd: YAG laser pumping chambers and used extensively for long–life laser reflectors.

Ceramic reflectors can be glazed both inside the cavity and around the outer edges using a highly reflective glaze that seals the ceramic against ingress of cooling fluids that may alter the refractive index, introduce impurities and reduce reflectance and efficiencies. Glazes can also act as filters and our glazed reflectors have been used successfully in certain applications.



Physical Properties

- Color: White
- Bulk density (fired), Mg/m^3: 3.1
- Porosity (apparent), % nominal: 22
- Flexural strength (ASTM C1161, 3–point), MPa: 170
- Thermal expansion coefficient
  200–500C, $10^{-6}/C$ 7.9
  200–1000C, $10^{-6}/C$ 9.0



Prime Features

- Surfaces can be sealed and coated with a solarization–resistantglaze to give high bulk reflectivity
- 97.8% reflectance efficiency at 1000nm
- Reflectance efficiency exceeds 96% across the wavelength range 500–2000nm (see curve)
- Controlled porosity
- Good thermal conductivity
- High electrical resistivity



Typical Applications

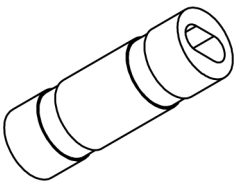
- Pumping chambers for flash lamp and continuous wave lasers using media such as Nd: YAG lasers, Alexendrite — low to high power, single or multiple lamp designs used for welding, cutting, marking and in medical lasers.
- Layered and segmented pumping chambers for diode pumped lasers.
- Intense Pulse Light (IPL) applications for cosmetic surgery.

Typical Models Explain

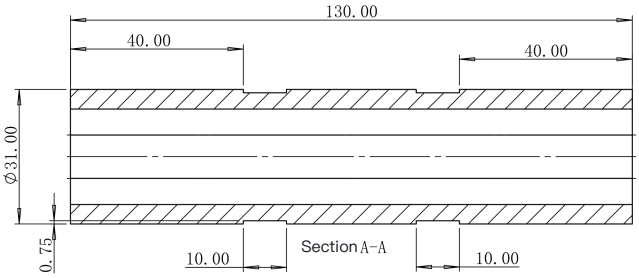


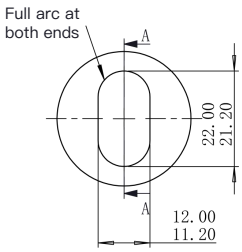
- BAB – the external shape is round;
- ZAB – the external shape is irregular;
- LAK – the external shape is rectangular but one side is concave;
- EAB – the external shape is rectangular;
- GAZ – the external shape is triangular;
- Description of part number: CRDP–XX–YY–Z–AAA–BBB.

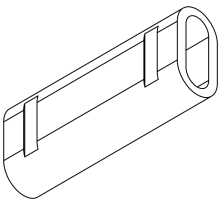
CRDP: ceramic reflector for diode–pumped solid–state laser.
XX: internal diameter of the reflector in mm.
YY: reflector length in mm.
Z: number of the diodes to be placed around the laser rod.
AAA: related to the cross section of the reflector such as TRI (triangle shape), CRL (round shape), PLT (plate shape).
BBB: variant for remarks.



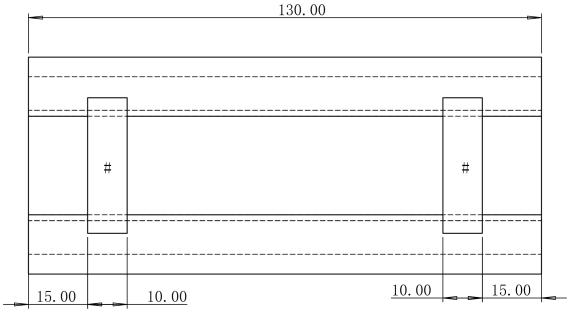
BAB330–130

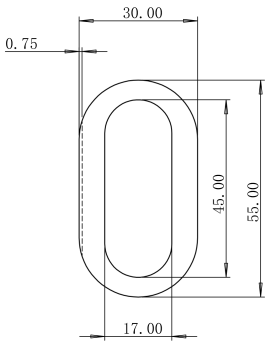




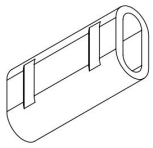
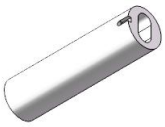
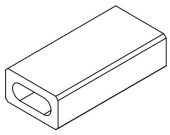
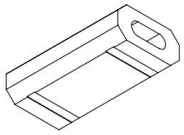
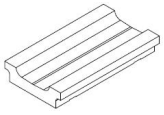
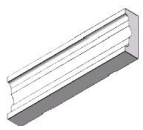


BAB350

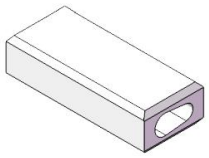
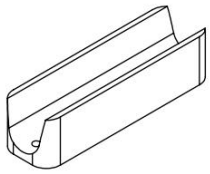




Some Models Size (Lamp-pumped Solid-state Lasers)

Model	Size (mm)			Drawing Reference
	Length	Holes Height	Holes Length	
BAB275	100	14.4	28.4	
BAB275-120	120	14.4	28.4	
BAB192 (TCT97, BAB349)	97	12	22	
BAB330 (TCT117)	117	12	22	
BAB330-130 (TCT130)	130	12	22	
BAB492	150	17	45	
BAB496	160	17	45	
BAB497	170	17	45	
BAB299	100	17	45	
BAB350	130	17	45	
BAB228	115	12	22	
ZAB-S04-30	30	8	12	
ZAB-S05-30	30	8	12	
ZAB-S03	45	6	16	
ZAB-S04-50	50	8	12	
ZAB-S01	59.5	8	17	
ZAB-S02	60	9	30	
ZAB205	77	11	22	
ZAB198	114.75	16	–	
ZAB146 (TCT142D)	142	39	–	
LAK311	145	–	–	
LAK331	160.5	–	–	

Some Models Size (For Beauty and IPL Applications)

Model	Internal Radius/Angle (mm/degree)	Length (mm)	Drawing Reference
CRIPL–4.27/3.28–48/60	4.27–3.28	48 to 60	
CRIPL–23–46	23°46’	46	
CRIPL–19–48–5	19°52’	48	
CRIPL–19–48–5G	19°52’	48	
CRIPL–19–48–3	19°52’	48	

Innovacera also have other model are available, customized drawing are available, too.

Some Models Size (Diode–pumped Solid–state Lasers)

Model	Internal Dia. (mm)	Length (mm)	Drawing Reference
CRDP–12–25–3–PLT	12	25	Suitable for diode side–pumped solid–state lasers, 3 group diode bars placed around the YAG rod
CRDP–12–65–3–PLT	12	65	–
CRDP–12.2–67–3–TRI	6.07	32.26	Triangle, offering FF to give better strength, reflectance would be 95/96%. Suitable for diode side–pumped solid–state lasers, 3 group diode bars placed around the YAG rod CRDP–12.2–67–3–TRI.

Innovacera also have other model are available, customized drawing are available, too.

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