

## Specification of Bi<sub>2</sub>Te<sub>3</sub>-Based Thermoelectric Ingot (TIG-BiTe-P/N-3)

### Description

The TIG-BiTe-P/N-3 thermoelectric ingot is grown by Thermonamic with the alloy of Bi, Sb, Te, Se, special doping and our unique crystallizing processes. It is grown up specially for optimizing its good performance in low temperature range and used in producing high performance thermoelectric modules for cooling and heating applications. Generally, the figure of merit  $ZT$  of our p-type and n-type ingots is larger than 1.1 at 300 K, and the good feature attracts many high-end customers. Meanwhile, our ingot is featured with good mechanical strength and highly stable property, providing the key stone for producing the high performance and reliable Peltier cooling modules.

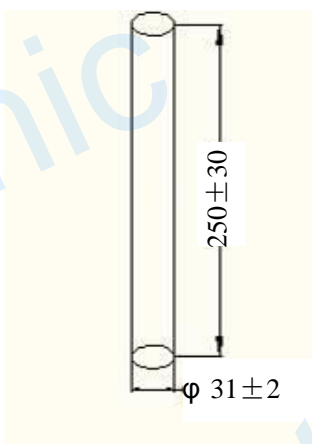
### Features and Application

- Silver-white Color
- p-Type and n-type ingot  $ZT \geq 1.1$  @ 300K
- High performance and reliable Peltier cooling modules

### Performance Specification Sheet

Performance Specification	p-Type	n-Type	Note
Type Number	TIG-BiTe-P-3	TIG-BiTe-N-3	
Diameter (mm)	$31 \pm 2$	$31 \pm 2$	
Length (mm)	$250 \pm 30$	$250 \pm 30$	
Density (g cm <sup>-3</sup> )	6.75	7.83	
Electrical Conductivity ( $\sigma / 10^2 \text{ S m}^{-1}$ )	850 ~ 1250	850 ~ 1250	300 K
Seebeck Coefficient ( $\alpha / \mu\text{V K}^{-1}$ )	200 ~ 230	200 ~ 230	300 K
Thermal Conductivity ( $\kappa / \text{W m}^{-1} \text{ K}^{-1}$ )	1.2 ~ 1.6	1.2 ~ 1.6	300 K
Power Factor ( $P / \text{W m K}^{-2}$ )	$\geq 0.005$	$\geq 0.005$	300 K
$ZT$ value	$\geq 1.1$	$\geq 1.1$	300 K

### Geometric Characteristics (in millimeters)

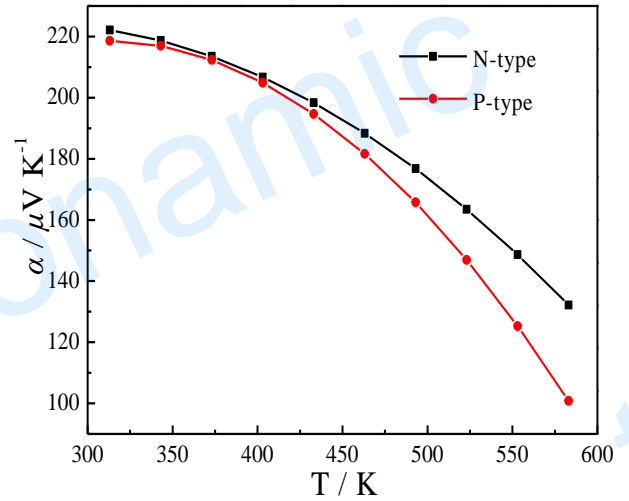
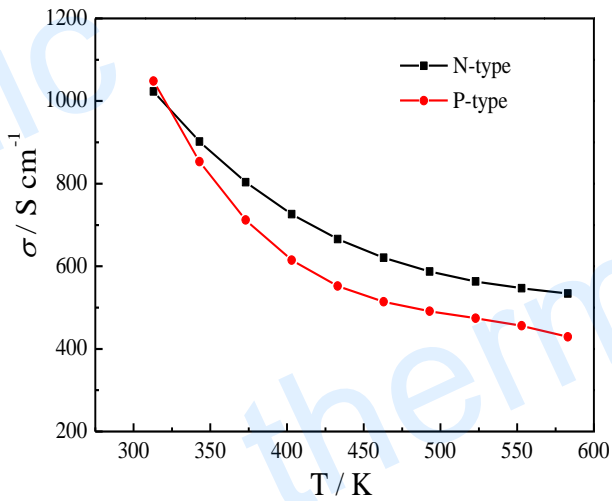


p-type Ingot



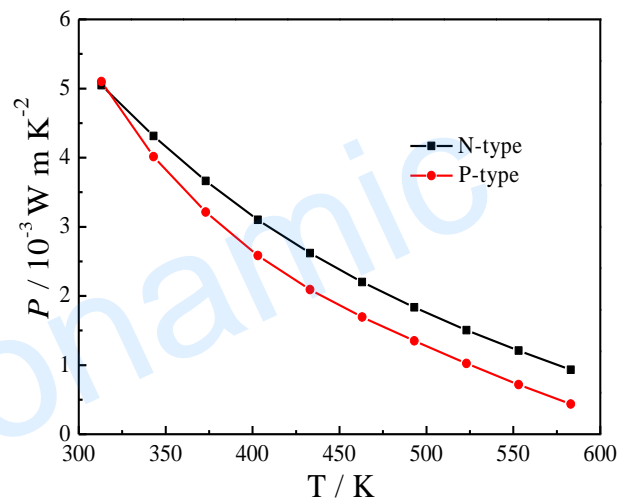
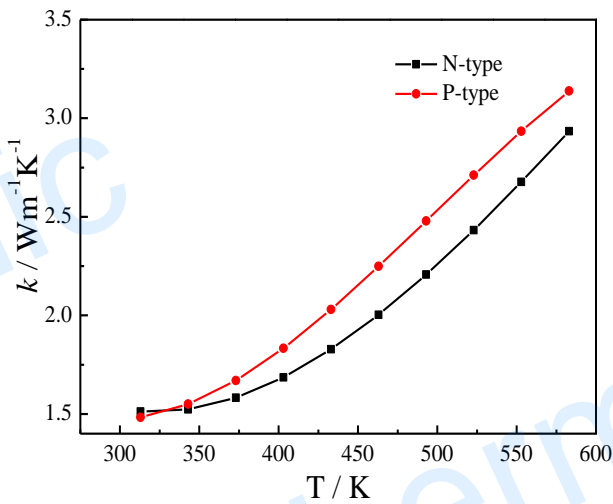
n-type Ingot

**Specification of Bi<sub>2</sub>Te<sub>3</sub>-Based Thermoelectric Ingot (TIG-BiTe-P/N-3)**



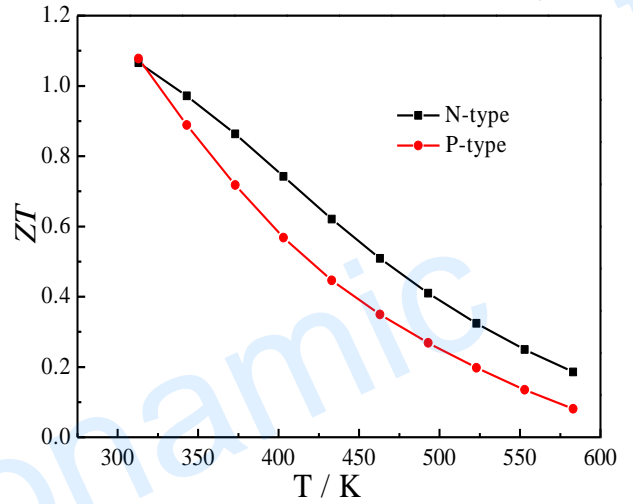
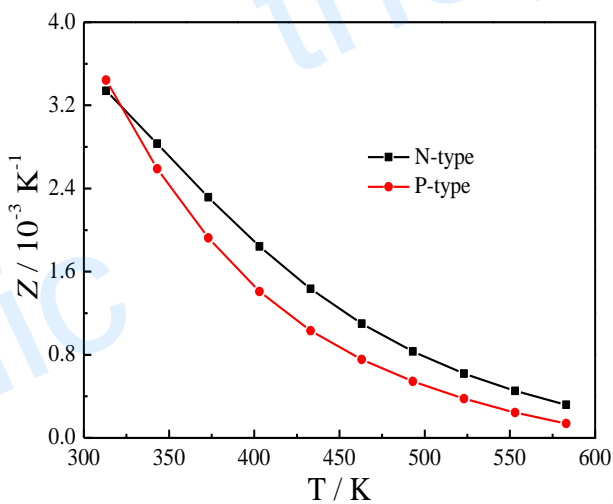
Electrical conductivity of the Bi<sub>2</sub>Te<sub>3</sub>-based ingot

Seebeck coefficients of the Bi<sub>2</sub>Te<sub>3</sub>-based ingot



Thermal conductivity of the Bi<sub>2</sub>Te<sub>3</sub>-based ingot

Power factors of the Bi<sub>2</sub>Te<sub>3</sub>-based ingot



Z values of the Bi<sub>2</sub>Te<sub>3</sub>-based ingot

ZT values of the Bi<sub>2</sub>Te<sub>3</sub>-based ingot

**Operation Cautions**

- Caution on handling
- Storage in dry environment

Creative technology with fine manufacturing processes provides you the reliable and quality products

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