

Hot Pressed and Extruded Bi₂Te₃-Base Thermoelectric Ingot (TIG-BiTe-P/N-4)

Description

The TIG-BiTe-P/N-4 thermoelectric ingot is the one of Bi₂Te₃-Sb₃Te₃ for P and Bi₂Te₃-Bi₂Se₃ for N processed by hot press and extrusion to enhance its performance and mechanical strength. It is good in producing high performance and high reliable mini size thermoelectric modules for cooling and heating applications, specially used in telecom or photonics. Generally, the figure of merit, the dimensionless ZT of our p-type and n-type ingots is larger than 1.1 at 300 K, and the excellent mechanical strength is good for the modules that require thin and tiny size dices, providing the key stone for producing the high performance and reliable Peltier cooling modules. It is ideal materials for making micro size modules.

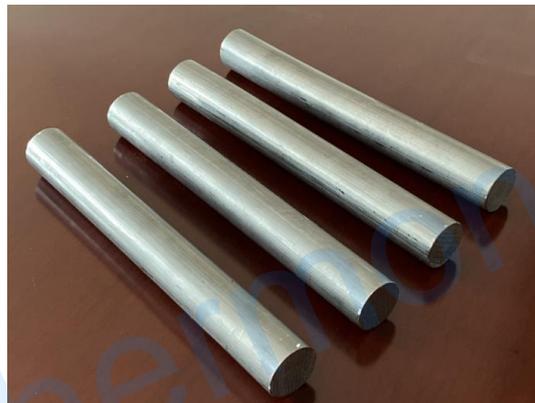
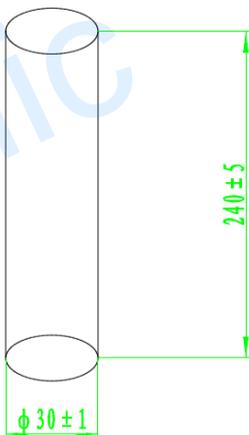
Features and Application

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

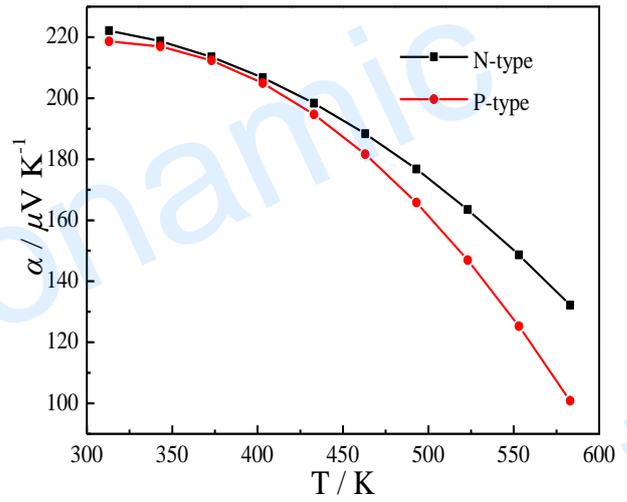
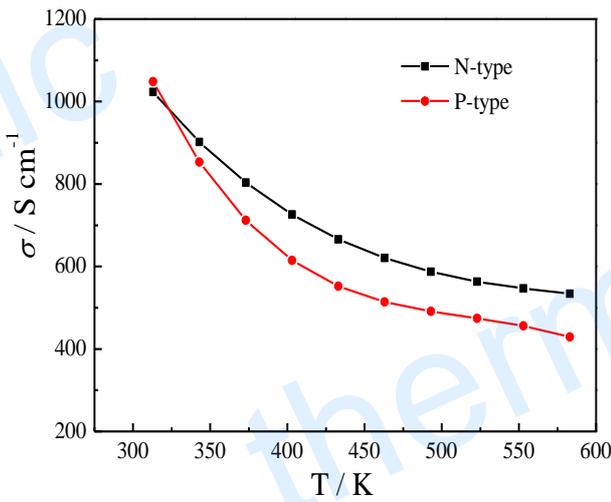
Performance Specification Sheet

Performance Specification	p-Type	n-Type	Note
Type Number	TIG-BiTe-P-4	TIG-BiTe-N-4	
Diameter (mm)	30 ± 1	30 ± 1	
Length (mm)	240 ± 5	240 ± 5	
Density (g cm ⁻³)	6.50	7.85	
Electrical Conductivity ($\sigma / 10^2 \text{ S m}^{-1}$)	800 ~ 1250	800 ~ 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 ($P / \text{W m K}^{-2}$)	≥ 0.005	≥ 0.005	300 K
ZT value	≥ 1.1	≥ 1.1	300 K

Geometric Characteristics (in millimeters)

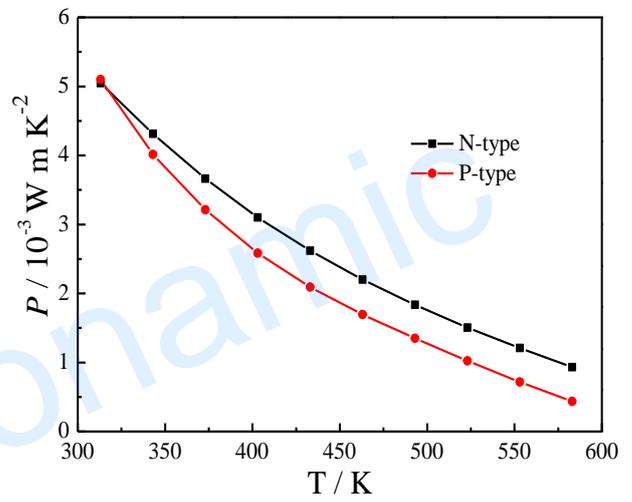
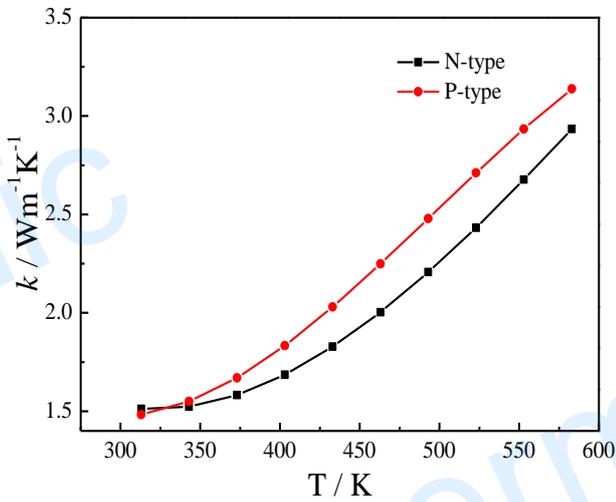


Specification of Bi₂Te₃-Based Thermoelectric Ingot (TIG-BiTe-P/N-4)



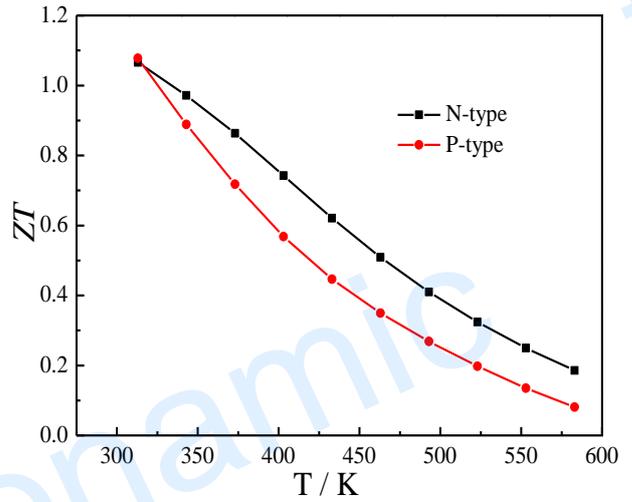
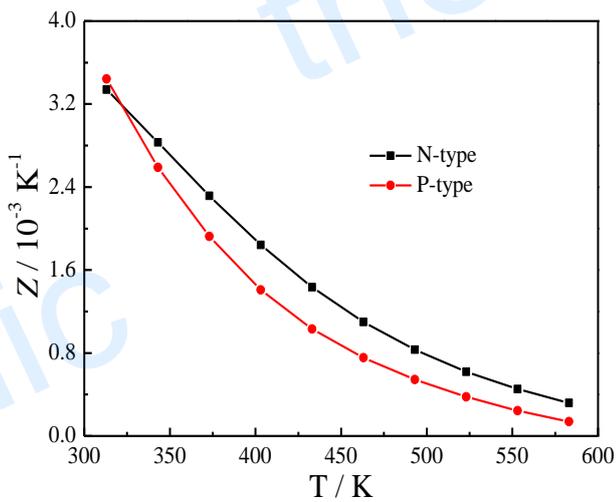
Electrical conductivity of the Bi₂Te₃-based ingot

Seebeck coefficients of the Bi₂Te₃-based ingot



Thermal conductivity of the Bi₂Te₃-based ingot

Power factors of the Bi₂Te₃-based ingot



Z values of the Bi₂Te₃-based ingot

ZT values of the Bi₂Te₃-based ingot

Operation Cautions

- Caution on handling
- Storage in dry environment