

# 34 GRADE SAMARIUM COBALT MAGNETS



## The Highest Energy Grade SmCo Available

### The Premier Source for Samarium Cobalt

Electron Energy Corporation's (EEC's) 34 Grade Samarium Cobalt (SmCo) delivers best-in-class performance for your most mission critical applications. The 34 Grade SmCo provides a superior energy product, corrosion resistance, excellent temperature stability, and demagnetization resistance.

### More Than Just Your Supplier

As a producer of permanent magnet materials, EEC has a deep understanding of the science behind the materials. This insight separates EEC from competitors and allows its engineering team to provide best-in-class service to customers. EEC's applications engineering team works closely with customers to develop magnetic solutions and optimize design performance. In addition to applications engineering, EEC also provides magnetic circuit design and research and development services.

### Engineering Support

EEC's engineering team is a highly capable group that works closely with our customers to develop magnet solutions that optimize performance. Because EEC is a producer of rare earth magnets, we have a deep understanding of the materials and the science behind their performance. This understanding translates into superior product development and a reduction in defects for faster time to market.

### Optimized Performance

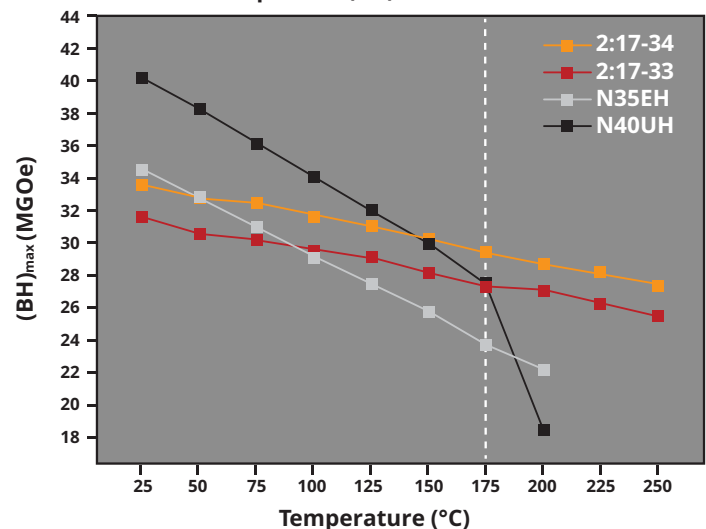
- **Energy density** is maximized to deliver the highest energy in the smallest size.
- **Lighter weight** is possible with less material, so you can pack more power into smaller payloads.
- **Improved efficiency** is achieved by delivering more torque with magnet material.

### SmCo Applications Include:

- High-Speed Motors
- Generators and Actuators
- Microwave Signal Amplification
- Aircraft and Aerospace Assemblies
- Biomedical and Surgical Equipment
- Oil and Gas Exploration



Highest Energy Output vs. Temperature  
Comparison  $(BH)_{\max}$  v T Sm vs Neo



## Properties of 34 Grade SmCo Magnets

### Maximum Energy Product $(BH)_{\max}$

Characteristic	typ	min
MGOe	34	32
kJ/m <sup>3</sup>	271	255

### Residual Induction $B_r$

Characteristic	typ	min
kG	11.9	11.70
T	1.19	1.17

### Coercivity $H_c$

Characteristic	typ	min
kOe	11.1	10.8
kA/m	884	860

### Intrinsic Coercivity $iH_c$

Characteristic	min
kOe	18
kA/m	1433

### Reversible Temp. Coefficients of $B_r$ (1)

Characteristic	typ
%/°C (of induction $B_r$ )	-0.035
%/°C (of coercivity $iH_c$ )	-0.25

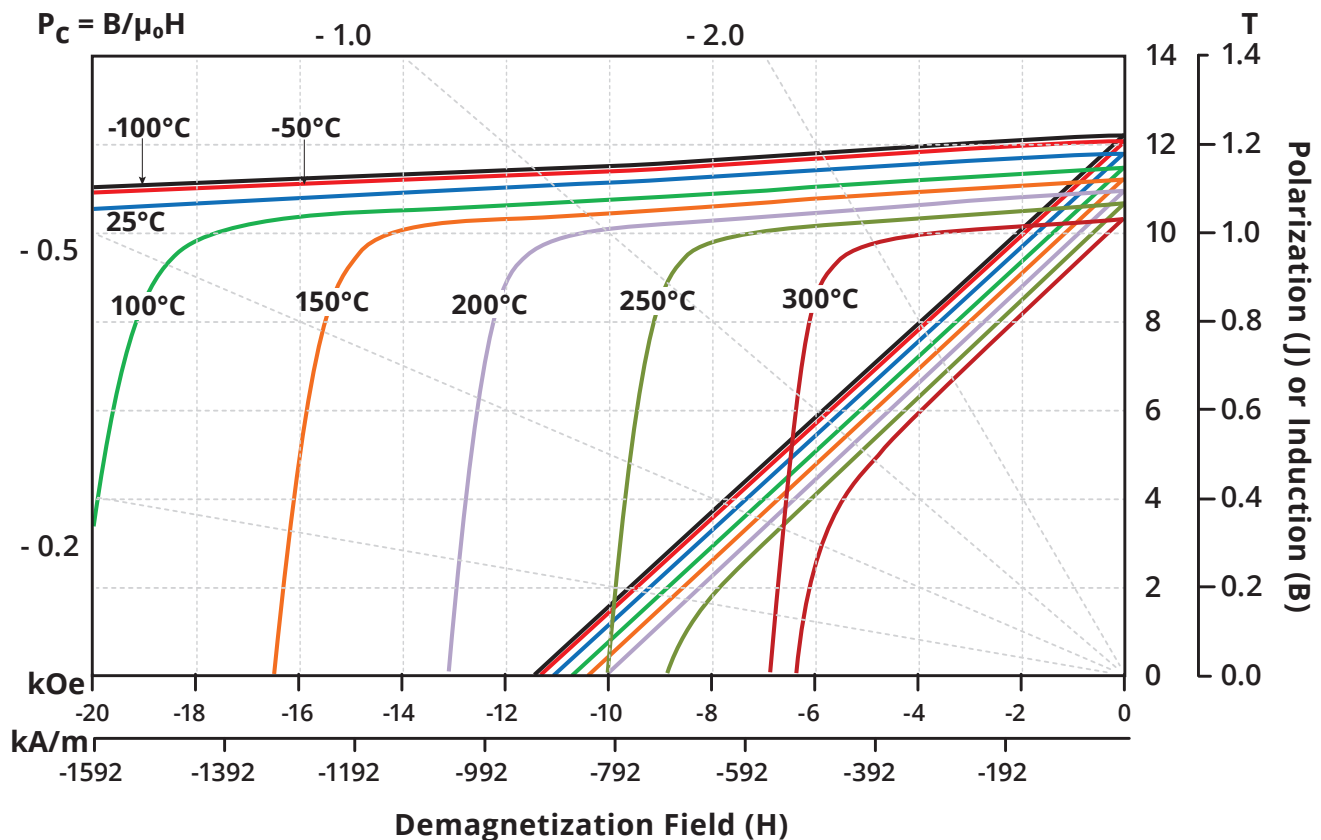
### Maximum Operating Temp. (2)

Characteristic	typ
°C	300

(1) Typical reversible temperature coefficient (RTC) of  $B_r$  calculated between -50 and 150°C. It is for reference only.

(2) Maximum operating temperature has strong dependence on the loadline and operating environment. Consult EEC engineering for details.

## EEC 2:17-34 (Sintered $\text{Sm}_2\text{Co}_{17}$ )



### Notes

The information above is representative of typical material properties and may vary due to part geometry and weight. Additional customized magnet materials available upon request. Please contact Electron Energy Corporation for more information.

EEC 2:17-34 is DFARS compliant.