

REBCO Melt-Textured HTS Bulks Datasheet



Material: Melt textured $\text{REBa}_2\text{Cu}_3\text{O}_{7-x}$ with $\text{RE}_2\text{BaCuO}_5$ excess

Basic formula: $\text{RE}_{1.8}\text{Ba}_{2.4}\text{Cu}_{3.4}\text{O}_x$ + additives

Preparation method: Seeded melt growth, **Critical temperature:** ~ 90 K

Shape: cylindrical, square, rectangular, rings, ring segments or other

Trapped magnetic field: up to 2 T (77 K), **Levitation force:** 20 - 865 N (77 K)

List of standard products:

YBCO single domain	Dimensions (Ø/height) ‡	Standard QC: Levitation F_0 *
CSYL-14 disk	14 mm / 6 mm	20 N ¹
CSYL-21 disk	21 mm / 8 mm	40 N ¹
CSYL-25 disk	25 mm / 9 mm	60 N ¹
CSYL-28 disk	28 mm / 10 mm	70 N ¹
CSYL-35 disk	35 mm / 12 mm	100 N ¹
CSYL-50 disk	50 mm / 15 mm	300 N ²
CSYL-56 disk	56 mm / 16 mm	400 N ²
CSYL-404010 square	40 x 40 x 10 mm	200 N ²
YBCO multi domain		
CSYL-404012 square	40 x 40 x 12 mm	200 N ³
CSYL-663312 rect.	66 x 33 x 12 mm	200 N ³
CSYL-803213 rect.	80 x 32 x 13 mm	220 N ³
GdBCO single domain		Standard QC: B_{trp} **
CSSL-28 disk	28 mm / 10 mm	0.9 T
CSSL-35 disk	35 mm / 12 mm	1.1 T
CSSL-50 disk	50 mm / 15 mm	1.3 T
CSSL-100 disk	100 mm / 15 mm	1.3 T ⁴
EuBCO single domain		
CSEL-28 disk	28 mm / 10 mm	1.0 T
CSEL-35 disk	35 mm / 12 mm	1.2 T
CSEL-50 disk	50 mm / 15 mm	1.4 T ⁴
CSEL-56 disk	56 mm / 16 mm	1.4 T ⁴

Notes:

‡ Standard tolerance on diameter $\pm 5\%$, another dimensions ± 0.1 mm
Other shapes and dimensions available as custom prepared.

- * Levitation force is measured at 77 K with zero-field cooling, F_0 is extrapolated value for 0 mm distance
- ** Trapped field is measured at 77 K with field cooling ($B_{ex} = 1.6$ T), mapping is done approximately 1.5 mm above the bulk surface
- 1 Cylindrical NdFeB (N52) magnets with appropriate diameter are used.
- 2 Cube NdFeB (N52) magnets with appropriate dimensions are used.
- 3 NdFeB (N48), 20 mm cubes N-S-N track is used.
- 4 Maximum value measurable in our QC system, the real value is higher (see additional data)

Selected data (standard and non-standard QC and R&D results):

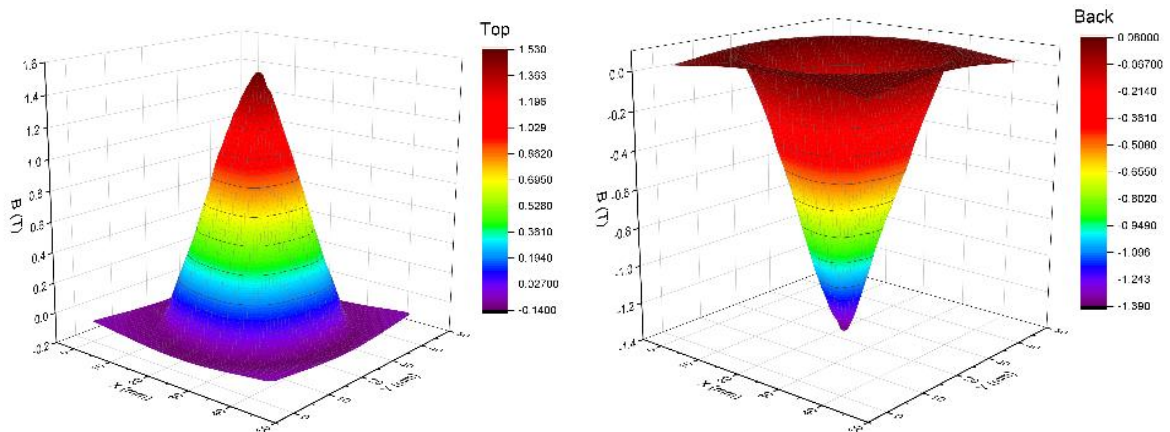


Fig.1. Examples of trapped field profiles (GdBCO/Ag 35 mm diameter)

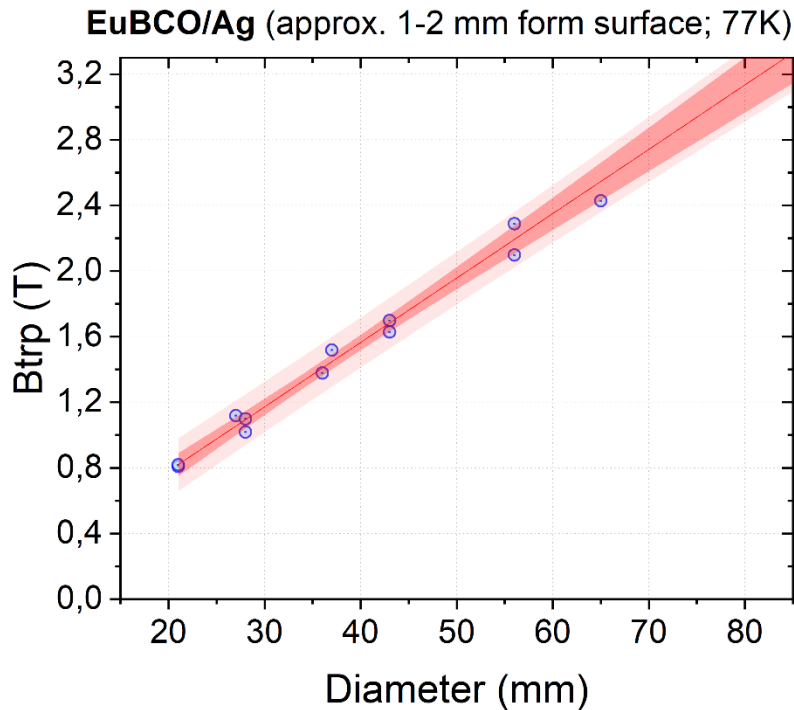


Fig.2. Expected trapped field maxima (EuBCO/Ag)

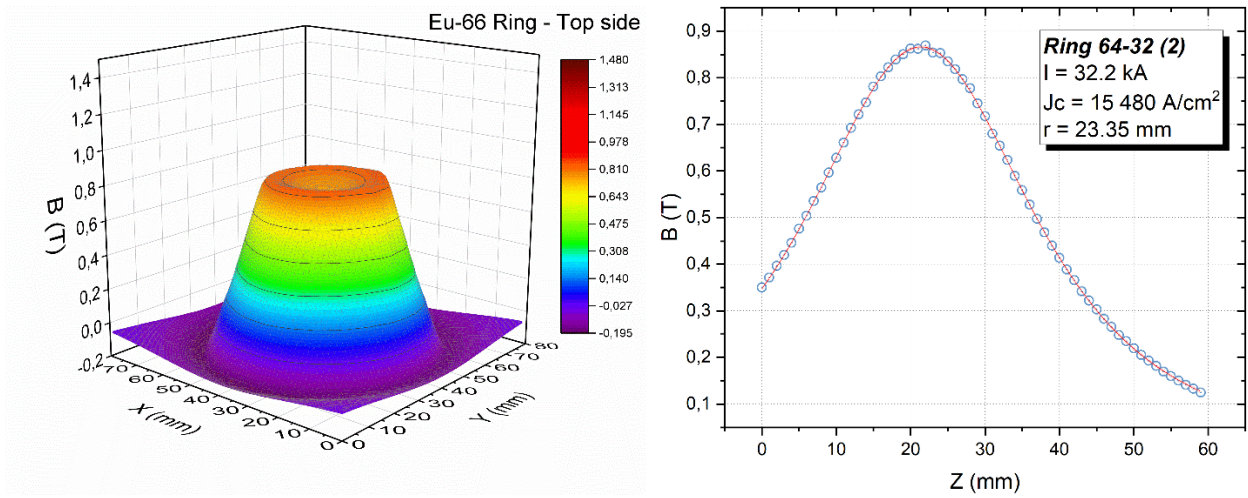


Fig.3. Trapped field profiles 3D map and bore Z-scan (EuBCO/Ag – Ring shaped bulks)

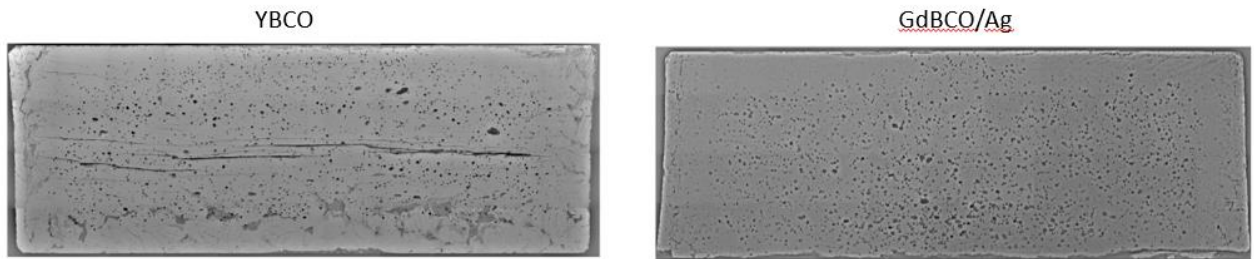


Fig.4. Comparison of microstructure YBCO vs. REBCO/Ag (cross-section)

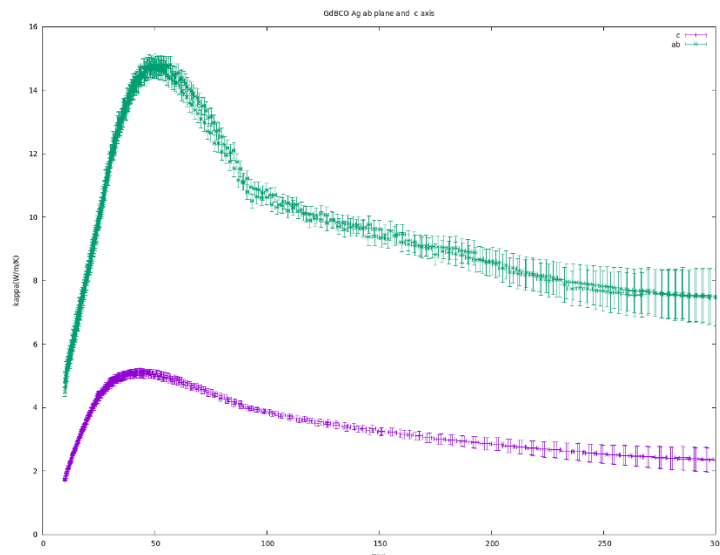


Fig.5. Thermal conductivity of GdBCO/Ag in c-axis (purple) and a/b-plane (green) direction.