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REBCO Melt-Textured HTS Bulks Datasheet 2021

Material: Melt textured REBa2Cu3O7-x with RE2BaCuO5 excess
Basic formula: RE1.8Ba2.4Cu3.4Ox + additives
Preparation method: Seeded melt growth, **Critical temperature:** ~ 90 K
Shape: cylindrical, square, rectangular, rings, ring segments or other
Dimensions: disks diameters up to 100 mm, standard squares 40*40*12 mm, standard rectangles up to 80*32*13 mm, custom shapes available
Trapped magnetic field: up to 2 T (77 K), **Levitation force:** 20 - 865 N (77 K)

List of standard products:

YBCO single domain	Dimensions (diameter/height)
CSYL-14 disk	14 mm / 6 mm
CSYL-21 disk	21 mm / 8 mm
CSYL-25 disk	25 mm / 9 mm
CSYL-28 disk	28 mm / 10 mm
CSYL-35 disk	35 mm / 12 mm
CSYL-50 disk	50 mm / 15 mm
CSYL-56 disk	56 mm / 16 mm
CSYL-404010 square	40 x 40 x 10 mm
YBCO multi domain	
CSYL-404012 square	40 x 40 x 12 mm
CSYL-663312 rect.	66 x 33 x 12 mm
CSYL-803213 rect.	80 x 32 x 13 mm
GdBCO single domain	
CSGL-28 disk	28 mm / 10 mm
CSGL-35 disk	35 mm / 12 mm
CSGL-50 disk	50 mm / 15 mm
CSGL-100 disk	100 mm / 15 mm
EuBCO single domain	
CSEL-35 disk	35 mm / 12 mm
CSEL-50 disk	50 mm / 15 mm
CSEL-56 disk	56 mm / 16 mm

Other shapes and dimensions available as custom prepared.

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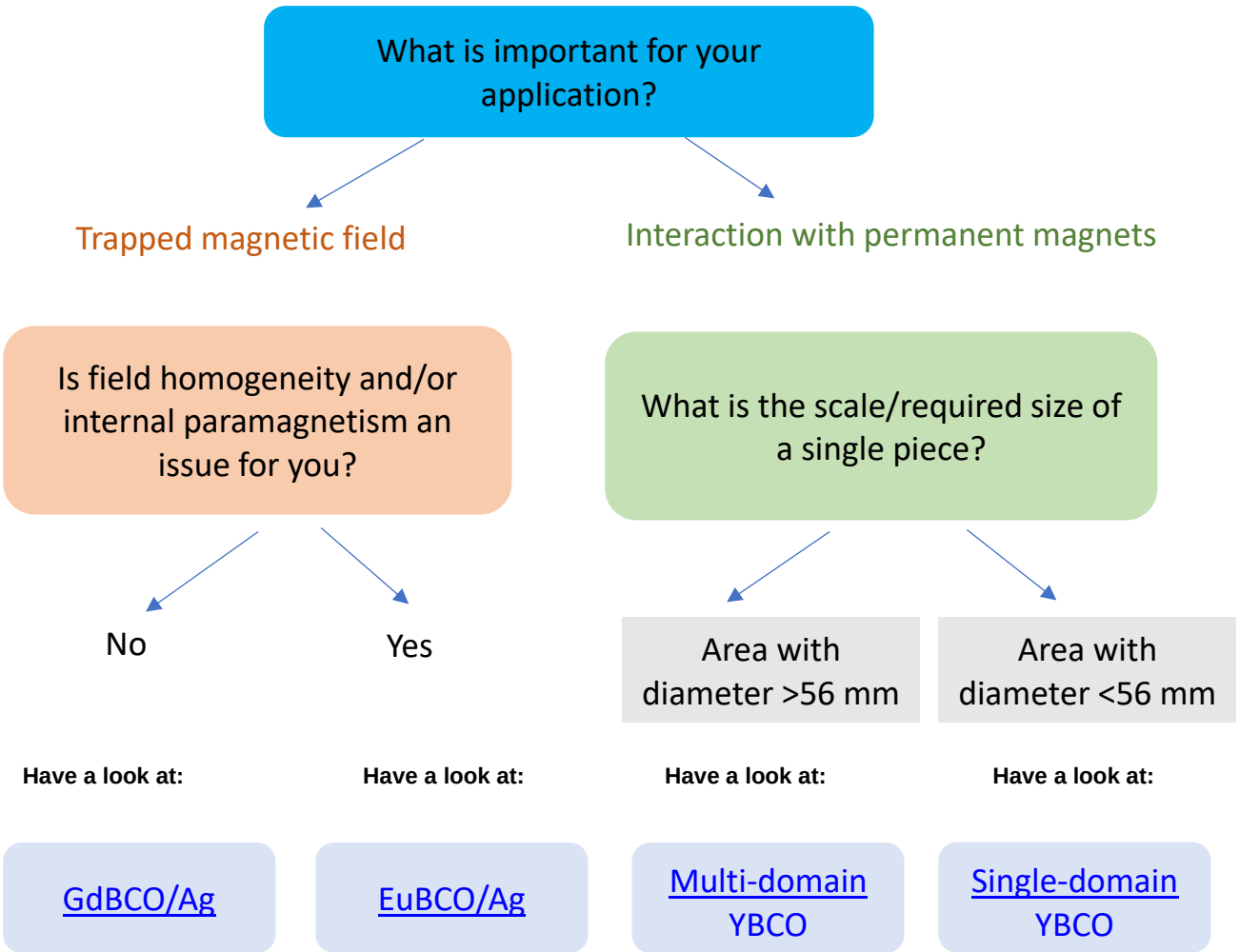
REBCO Bulk Selection Assistant

To help you find the right product we have prepared the following simle guide.
Before you choose our product, you should be able to define its intended use:



If you need cheap HTS materials for a low-budget school project/demos, you may have a look at:

https://www.can-superconductors.com/demonstration-kits.html
https://shop.can-superconductors.com/index.php?id_product=24&controller=product&id_lang=1

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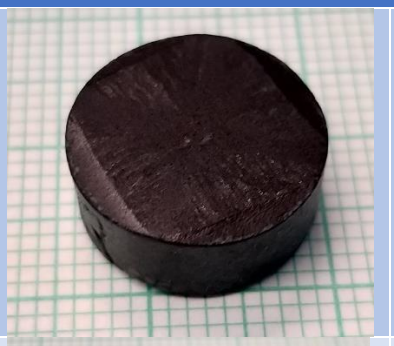
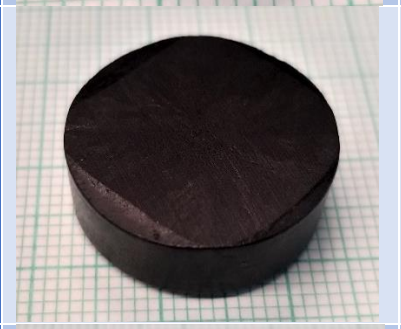
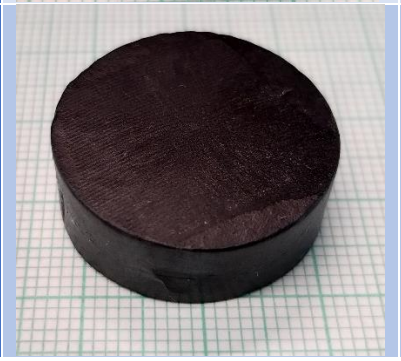
SINGLE DOMAIN YBCO

Smaller YBCO Levitation Disks

Small disks - Parameters				
CSYL-14		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**14 ± 0.7** **6 ± 0.1** **6 ± 1** **20-25** **20** **0.7** **---**	**mm** **mm** **g** **N** **N** **T** **---**
CSYL-21		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**21 ± 1.0** **8 ± 0.1** **17 ± 2** **45-55** **40** **0.8** **---**	**mm** **mm** **g** **N** **N** **T** **---**
CSYL-25		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**25 ± 1.2** **9 ± 0.1** **25 ± 3** **60-70** **60** **0.85** **---**	**mm** **mm** **g** **N** **N** **T** **---**

Experimental conditions

- **Levitation force**
  Magnet: NdFeB (N52), Ø20mm, h20mm, Zero field cooling
  77 K – liquid nitrogen, 0.2 mm/s feed rate

- **Trapped field**
  External field 1.8 T, Field cooling, 77 K – liquid nitrogen
  1 mm above surface (mapping), Handheld probe for peak value
  Calibration of Hall sensors for 77 K

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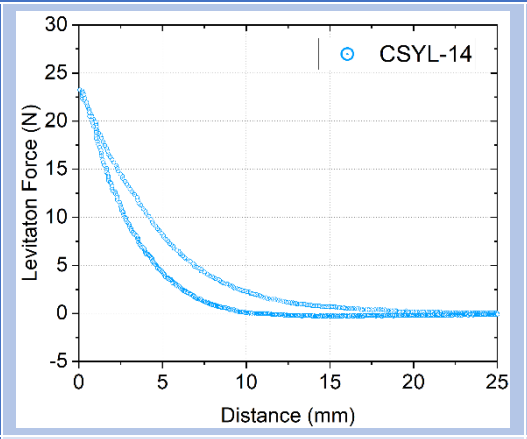
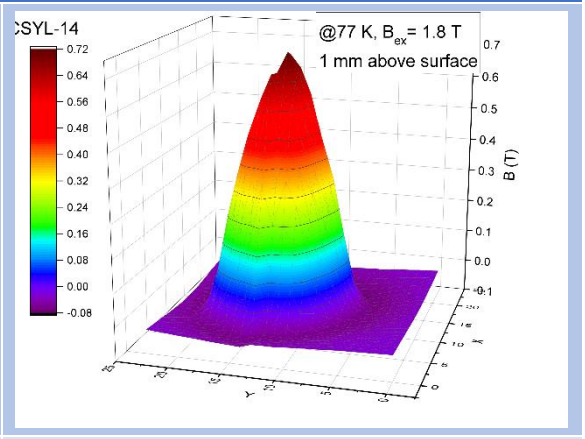
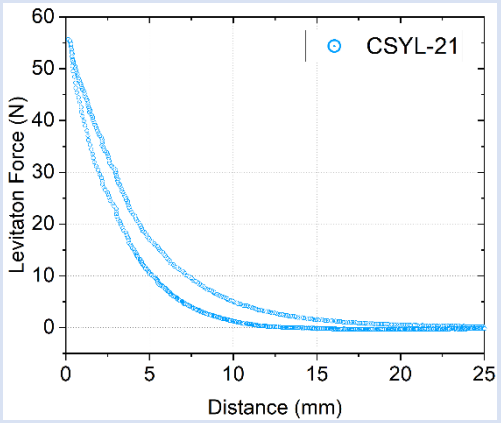
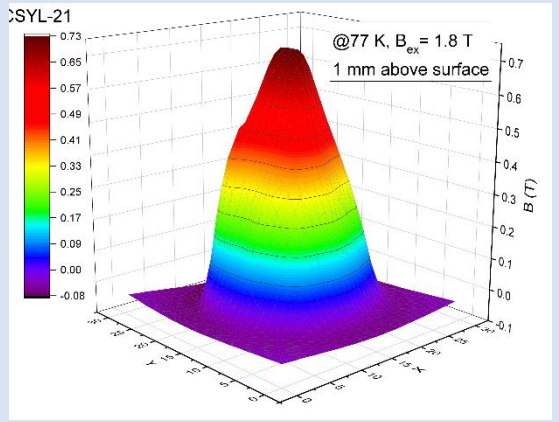
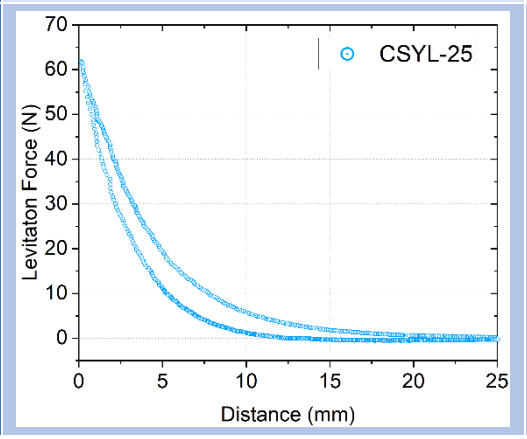
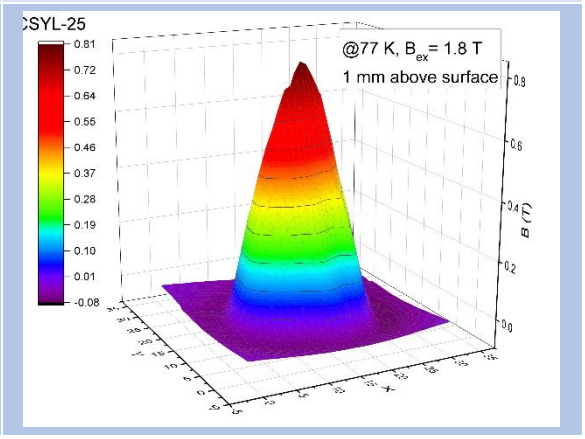
Small disks – examples of measurements

CSYL-14		
CSYL-21		
CSYL-25		

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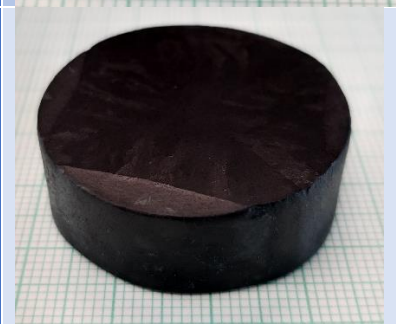
Medium YBCO Levitation Disks

Medium disks - Parameters				
CSYL-28		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**28 ± 1.3** **10 ± 0.1** **35 ± 3** **85-100** **70** **0.9** **---**	**mm** **mm** **g** **N** **N** **T** **---**
CSYL-35		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**35 ± 1.5** **12 ± 0.1** **70 ± 5** **105-120** **100** **1.0** **---**	**mm** **mm** **g** **N** **N** **T** **---**

Experimental conditions

- **Levitation force**
  Magnet: NdFeB (N52), Ø25mm, h25mm, Zero field cooling
  77 K – liquid nitrogen, 0.2 mm/s feed rate

- **Trapped field**
  External field 1.9 T,Field cooling, 77 K – liquid nitrogen
  1 mm above surface (mapping), Handheld probe for peak value
  Calibration of Hall sensors for 77 K

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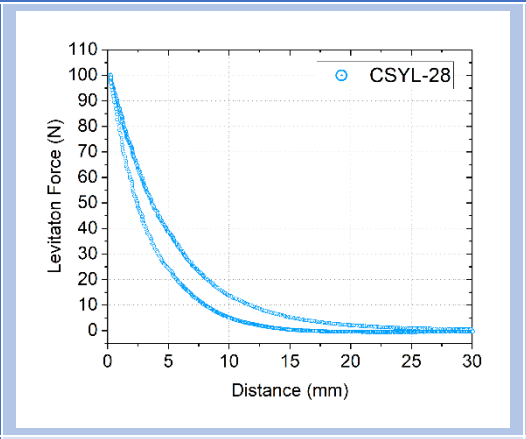
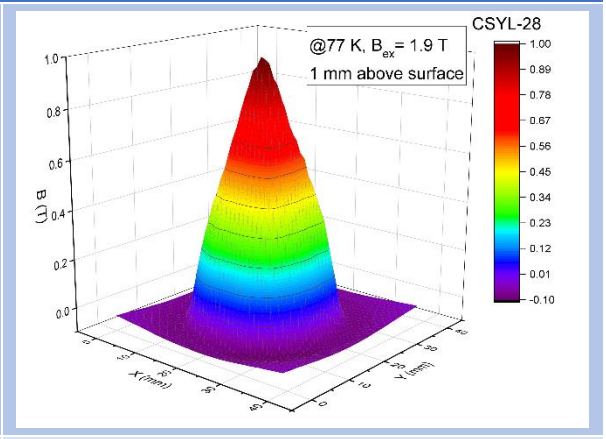
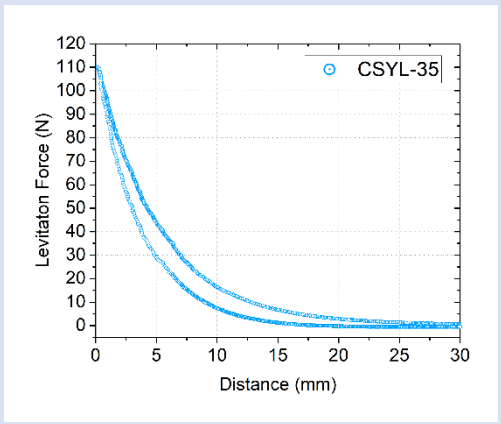
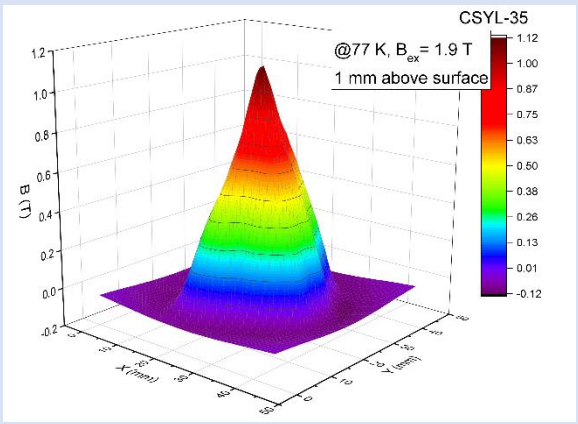
Medium disks – examples of measurements

CSYL-28		
CSYL-35		

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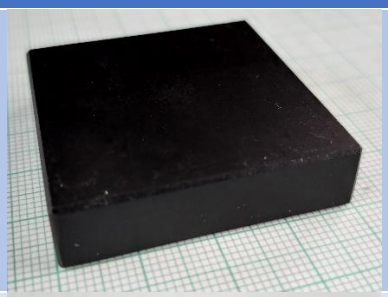
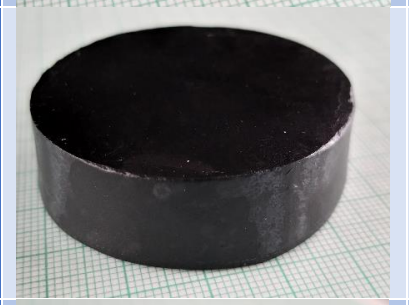
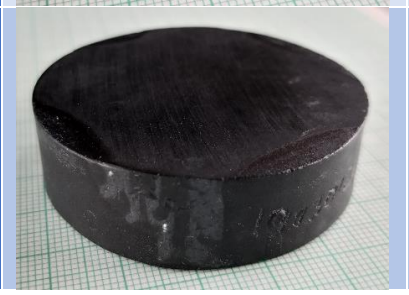
Large YBCO Levitation Disks and Square

Large disks - Parameters				
CSYL-404010		Dimensions Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**40x40x10 ± 0.1** **10 ± 0.1** **95 ± 5** **220-250** **200** **1.1** **0.9**	**mm** **mm** **g** **N** **N** **T** **T**
CSYL-50		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**50 ± 1.7** **15 ± 0.1** **170 ± 10** **310-330** **300** **1.2-1.3** **1.0**	**mm** **mm** **g** **N** **N** **T** **T**
CSYL-56		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**56 ± 2** **16 ± 0.1** **225 ± 15** **340-360** **330 (400#)** **1.3-1.4** **1.1**	**mm** **mm** **g** **N** **N** **T** **T**

Experimental conditions

- **Levitation force**
  Magnet: NdFeB (N52), cube 40 mm, Zero field cooling
  77 K – liquid nitrogen, 1.5 mm/s feed rate
  # NdFeB (N52), cube 50 mm

- **Trapped field**
  External field 2.0 T,Field cooling, 77 K – liquid nitrogen
  1 mm above surface (mapping), Handheld probe for peak value
  Calibration of Hall sensors for 77 K

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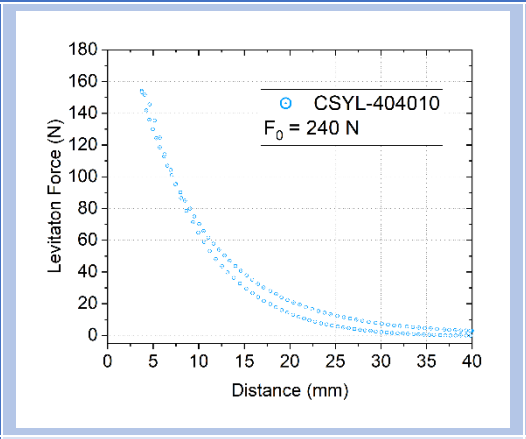
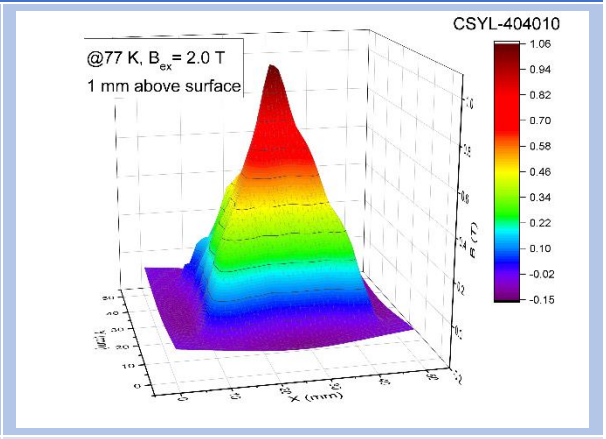
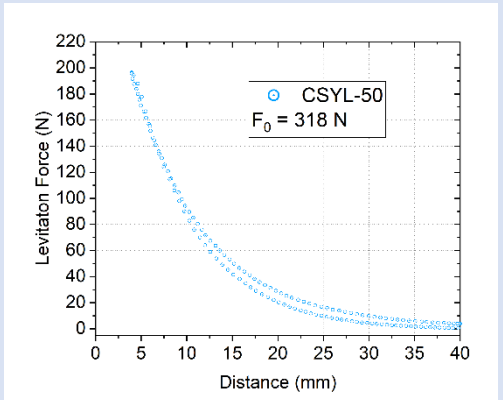
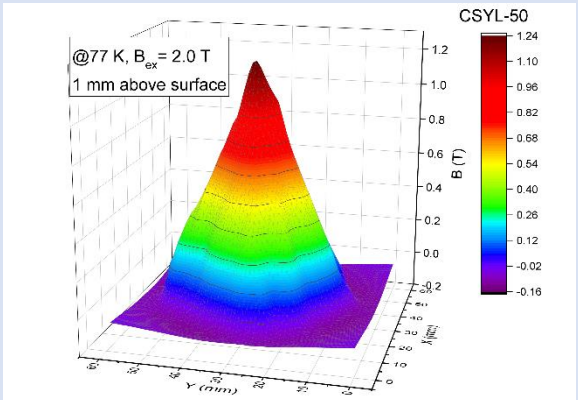
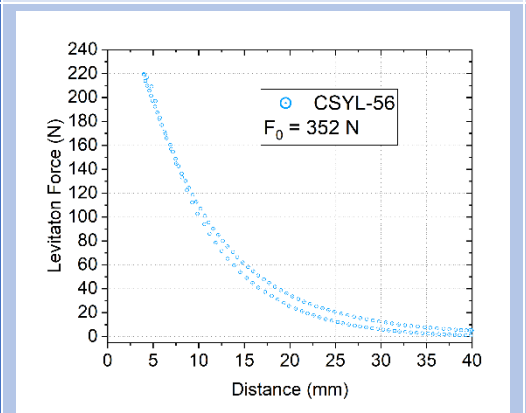
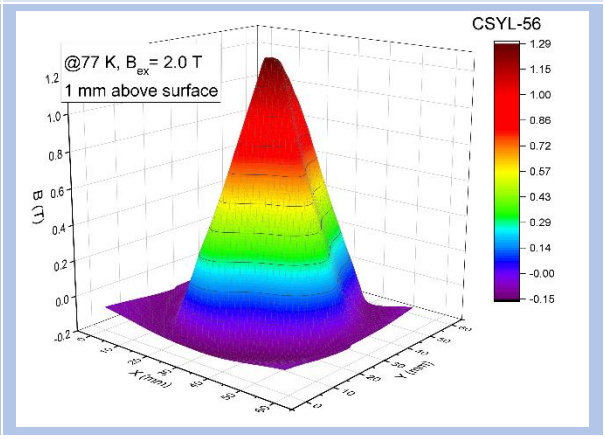
Large disks – examples of measurements

CSYL-404010		
CSYL-50		
CSYL-56		

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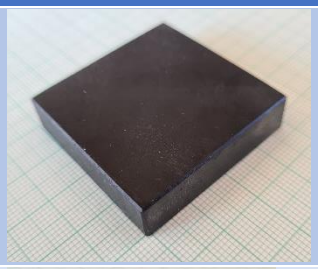
Multi-domain YBCO

YBCO multi domain - Parameters				
CSYL-404012		Side Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**40 ± 0.1** **12 ± 0.1** **95 ± 5** **250** **200** **0.9** **---**	**mm** **mm** **g** **N** **N** **T** **---**
CSYL-663312		Side A Side B Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**66 ± 0.1** **33 ± 0.1** **12 ± 0.1** **150 ± 10** **220** **200** **0.9** **---**	**mm** **mm** **mm** **g** **N** **N** **T** **---**
CSYL-803213		Side A Side B Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**80 ± 0.1** **32 ± 0.1** **13 ± 0.1** **195 ± 10** **240** **220** **0.9** **---**	**mm** **mm** **mm** **g** **N** **N** **T** **---**

Experimental conditions

- **Levitation force**
  Magnet: NdFeB (N48), 20 mm cubes N-S-N track, Zero field cooling
  77 K – liquid nitrogen, 0.6 mm/s feed rate
- **Trapped field**
  External field 1.9 T,Field cooling, 77 K – liquid nitrogen
  1 mm above surface (mapping), Handheld probe for peak value
  Calibration of Hall sensors for 77 K

Typical use cases

- **Large area levitation**
- **Levitation over PM track**

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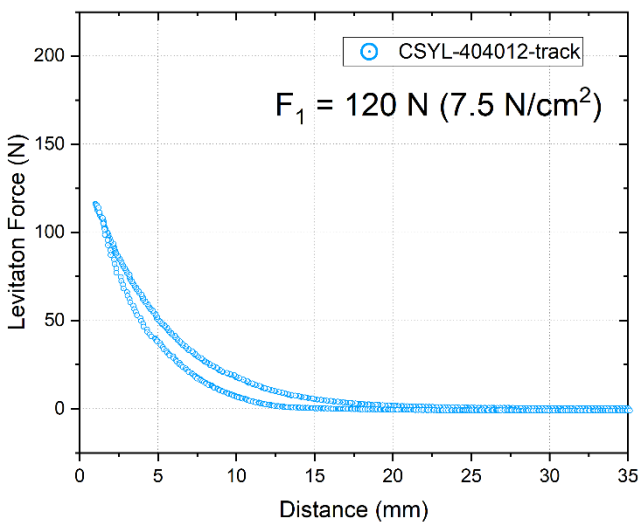
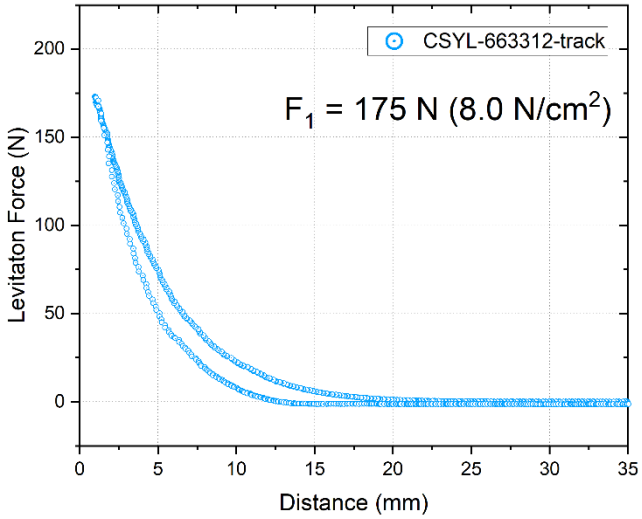
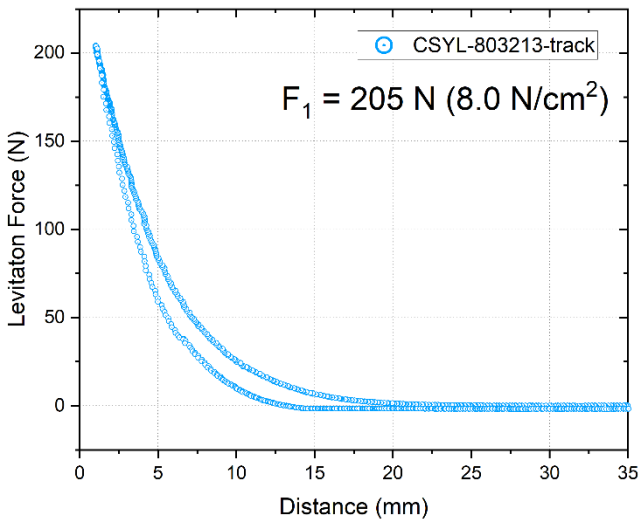
YBCO multi domain – Levitation force over PM track

CSYL-404012	
CSYL-663312	
CSYL-803213	

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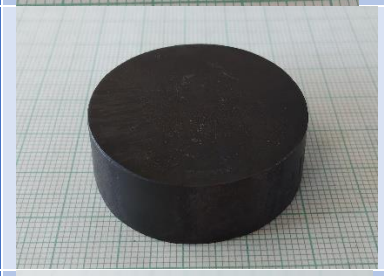
EuBCO/Ag Single domain

EuBCO/Ag single domain - Parameters				
CSEL-28		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**28 ± 1.3** **10 ± 0.1** **45 ± 5** **100** **---** **1.2** **1.0**	**mm** **mm** **g** **N** **---** **T** **T**
CSEL-35		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**35 ± 1.7** **12 ± 0.1** **100 ± 10** **150** **---** **1.4** **1.2**	**mm** **mm** **g** **N** **---** **T** **T**
CSEL-50		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**50 ± 2.0** **15 ± 0.1** **230 ± 15** **330** **---** **1.9** **1.5**	**mm** **mm** **g** **N** **---** **T** **T**
CSEL-56		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**56 ± 2.0** **16 ± 0.1** **320 ± 20** **360** **---** **2.2** **1.7**	**mm** **mm** **g** **N** **---** **T** **T**

Experimental conditions

- **Levitation force**
  Magnet: NdFeB (N52), Suitable sized magnet, Zero field cooling
  77 K – liquid nitrogen, 0.6 mm/s feed rate
- **Trapped field**
  External field 1.9 T,Field cooling, 77 K – liquid nitrogen
  1 mm above surface (mapping), Handheld probe for peak value
  Calibration of Hall sensors for 77 K

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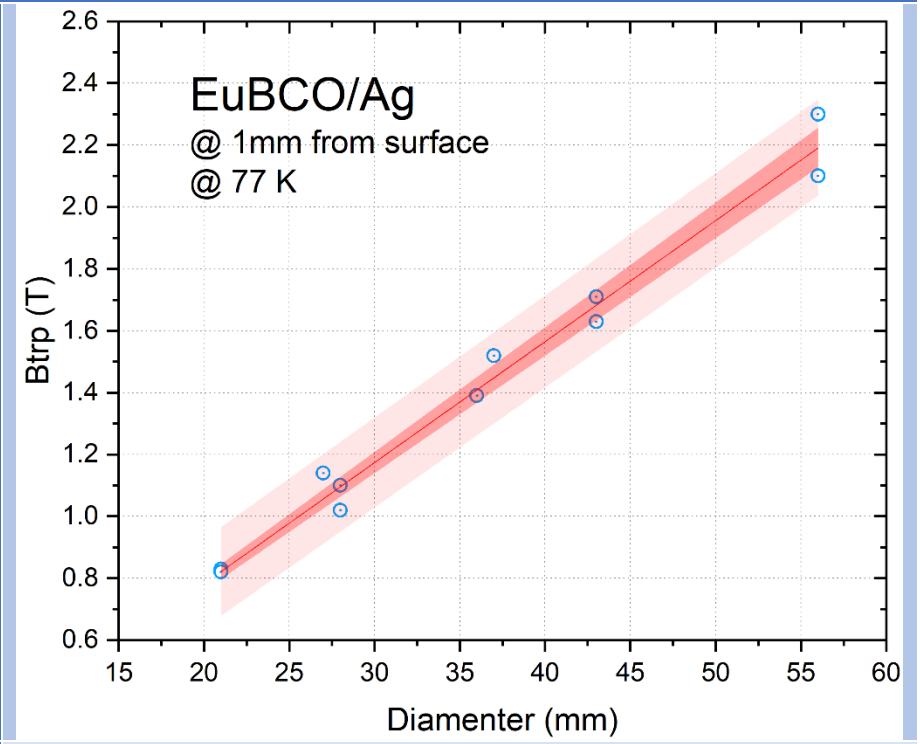
Typical use cases

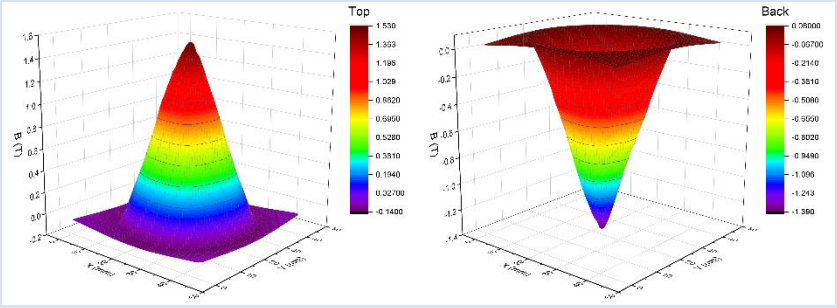
- **Trapped field applications**
- **MRI/NMR**

EuBCO/Ag single domain – Trapped field

Standard peak values



CSEL-35



Top side (1.53 T) Back side (1.39 T)

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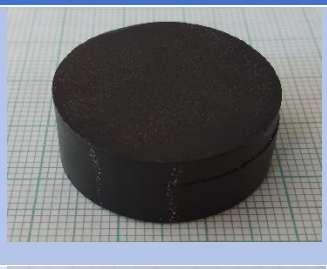
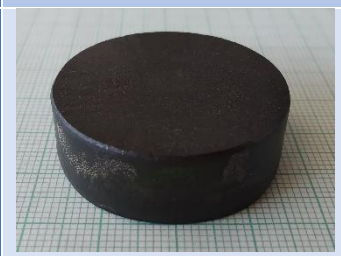
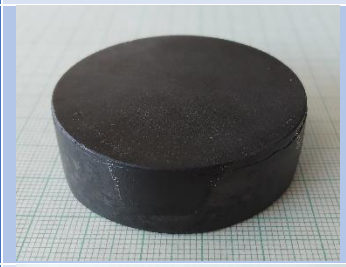
GdBCO/Ag Single domain

YBCO multi domain - Parameters				
CSGL-28		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**28 ± 1.3** **10 ± 0.1** **40 ± 5** **100** **---** **1.1** **0.9**	**mm** **mm** **g** **N** **---** **T** **T**
CSGL-35		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**35 ± 1.7** **12 ± 0.1** **100 ± 10** **150** **---** **1.3** **1.1**	**mm** **mm** **g** **N** **---** **T** **T**
CSGL-50		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**50 ± 2.0** **15 ± 0.1** **230 ± 20** **300** **---** **1.6** **1.3**	**mm** **mm** **g** **N** **---** **T** **T**
CSGL-100		Diameter Height Mass Levitation force (std) Levitation force (min) Trapped field (std) Trapped field (min)	**102 ± 5** **18 ± 0.1** **1100 ± 50** **900-1000** **---** **---** **---**	**mm** **mm** **g** **N** **---** **T** **T**

Experimental conditions

- **Levitation force**
  Magnet: NdFeB (N52), suitable size, Zero field cooling
  77 K – liquid nitrogen, 0.6 mm/s feed rate
- **Trapped field**
  External field 1.9 T,Field cooling, 77 K – liquid nitrogen
  1 mm above surface (mapping), Handheld probe for peak value
  Calibration of Hall sensors for 77 K

Typical use cases

- **Superconducting magnets**

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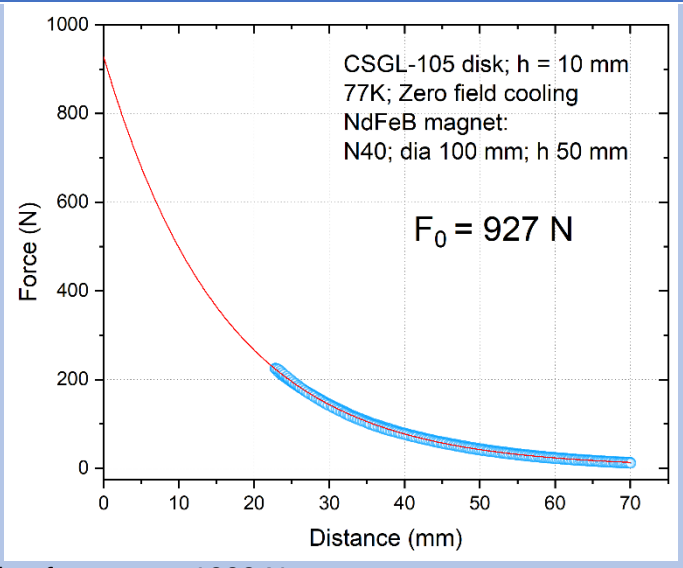
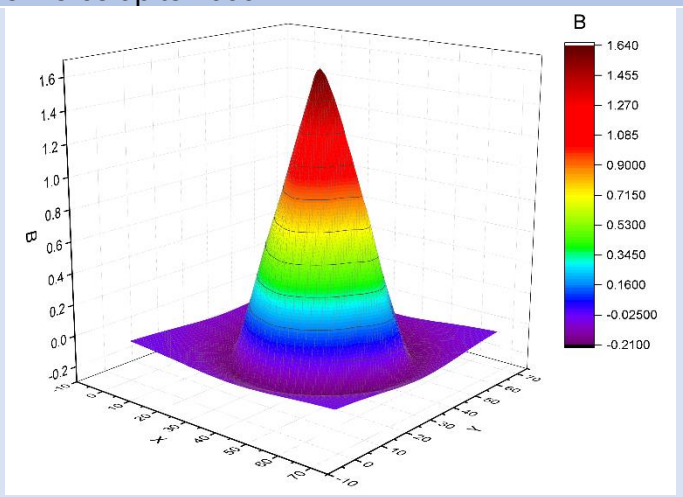
GdBCO single domain – example data

CSGL-100



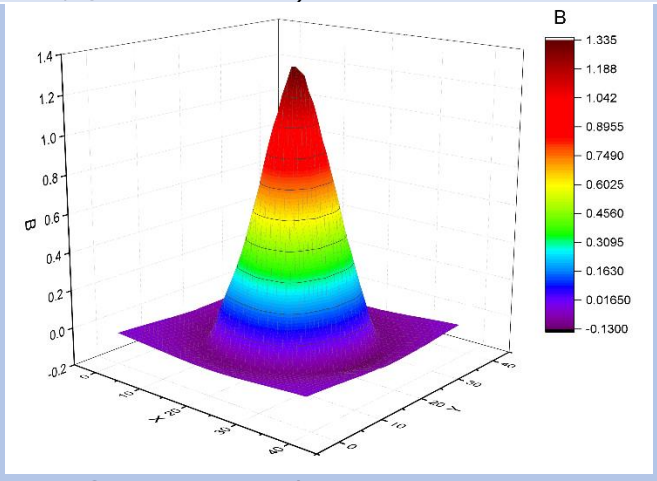
Levitation force up to 1000 N

CSGL-50



(Btrp @77 K; @1 mm – 1.64 T)

CSGL-28



(Btrp @77 K; @1 mm – 1.33 T)