



IEC 61788-26 REBCO 2G HTS CORC cable

CORC Cable

Conductor on Round Core (CORC) High-Temperature

Isotropic round REBCO 2G HTS superconducting cable (4.2 K–77 K · up to 20+ T)

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4.2 K to 77 K · Up to 20+ T

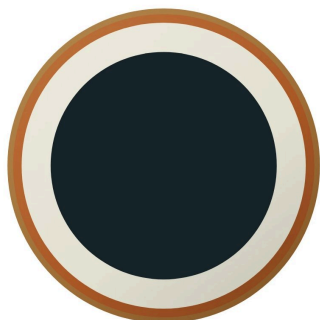
Round Isotropic · R_{bend} ≥ 25 mm

Application

High-current, flexible Conductor-on-Round-Core (CORC) high-temperature superconducting cable built to IEC 61788-26 by helically winding multiple layers of 2–4 mm wide REBCO 2G HTS coated-conductor tapes with thin-film Hastelloy C-276 substrates around a.

Typical uses: Compact High-Field Fusion Tokamaks (20 T), 20 T Particle Accelerator Dipole & Quadrupole Magnets, Cryogenic Electric Aircraft & Naval Power Buses, High-Field NMR / MRI Insert Coils (> 1 GHz)

Construction



Cross-section, not to scale

- 1 Alternating helical layers of REBCO 2G HTS tapes
- 2 Flexible round OFHC copper former
- 3 Cryogenic polyimide or braided S-glass dielectric

Technical data

Typical values

Engineering current density (J _e @ 4.2	300 to 650 A/mm ² across full round cable cross-section	Critical current (I _c @ 4.2 K, 20 T)	3,200 A (Ø 2.8 mm) to 18,000 A (Ø 7.8 mm) · up to 80 kA (6×1 CICC)
Critical current (I _c @ 77 K	800 A (Ø 2.8 mm) to 6,000 A (Ø 7.8 mm) in liquid nitrogen	Inter-tape contact resistance	Low-resistance Ag/Cu interface allows current sharing around localized
Operating temperature window	1.9 K / 4.2 K (LHe) · 10–50 K (GHe / cryocooler) · 65–77 K (LN ₂)	Reaction heat treatment required?	None — REBCO 2G HTS tapes are fully reacted prior to cabling (Wind-only)
Minimum isotropic bend radius	25 mm (CORC-W Ø 2.8 mm) to 75 mm (CORC-C Ø 7.8 mm) with > 95 % I _c	Irreversible axial tensile strain limit	ε _{irr} ≥ 0.5 % to 0.7 % (Hastelloy C-276 substrate)
Transverse Lorentz stress tolerance	≥ 150–200 MPa (with epoxy/solder impregnation in high-field coils)	Radiation & cryogenic cycling resistance	Withstands > 100 thermal cycles (300 K ↔ 4.2 K) without I _c degradation
Standards	IEC 61788-26 (Critical current of REBCO coated conductors) & IEC 61788-3		

Sizes

7 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	REBCO tape layup	Former / Conduit	Cable Ø mm	I _c (4.2K, 20T) kA	I _c (77K, 0T) kA	Min. bend R mm
CORC-W Small-Diameter Magnet Wires (2–3 mm REBCO Tapes · Tight Bend R) 3 sizes						
☐ CORC-W-2.8-18T	18 REBCO tapes (6 layers · 2 mm)	Ø 1.8 mm Cu core	2.8	3.2	0.8	25
☐ CORC-W-3.5-30T	30 REBCO tapes (10 layers · 2 mm)	Ø 2.3 mm Cu core	3.5	5.4	1.4	30
☐ CORC-W-4.2-36T	36 REBCO tapes (12 layers · 3 mm)	Ø 2.6 mm Cu core	4.2	7.8	2.1	38
CORC-C High-Current Magnet & Cryogenic Bus Cables (4 mm REBCO Tapes) 3 sizes						
☐ CORC-C-5.5-30T	30 REBCO tapes (10 layers · 4 mm)	Ø 3.8 mm Cu core	5.5	10.5	3.2	50
☐ CORC-C-6.8-42T	42 REBCO tapes (14 layers · 4 mm)	Ø 4.5 mm Cu core	6.8	14.2	4.6	65
☐ CORC-C-7.8-48T	48 REBCO tapes (16 layers · 4 mm)	Ø 5.2 mm Cu core	7.8	18.0	6.0	75
6-around-1 CORC-in-Conduit (CICC) Fusion Magnet Conductors 1 sizes						
☐ CORC-6x1-CICC-80kA	6×CORC-C-6.8 in Cu/SS conduit	Ø 26.0 mm CICC	26.0	80.0	27.5	250

– Critical current at 4.2 K is stated in a 20 Tesla background magnetic field; 77 K value is in self-field liquid nitrogen.

Standards and approvals

- ✓ IEC 61788-26 REBCO 2G HTS Certified
- ✓ 100 % Tape-by-Tape Hall-Probe I_c Mapped
- ✓ RoHS 2 & Conflict-Free Rare-Earth Traceable

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

+86 185 9591 3361

Email

info@tebaoflex.com

Web

tebaoflex.com/cables/conductor-on-round-core-corc-high-temperature-superconducting-cable



Typical values for this cable type, based on IEC 61788-26 / DOE High-Field Magnet Program. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.