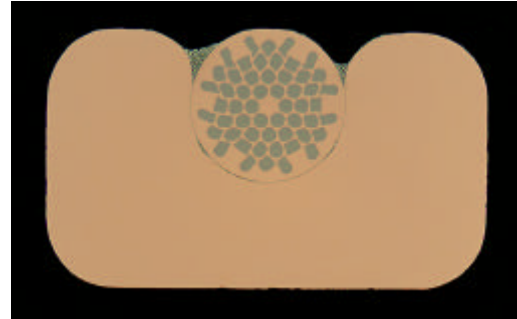
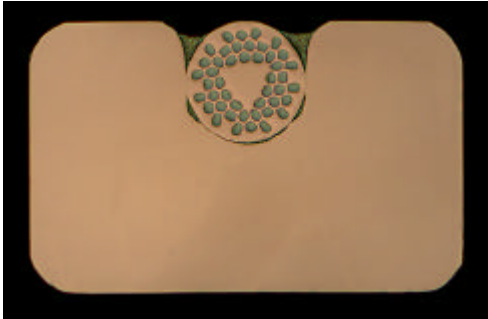


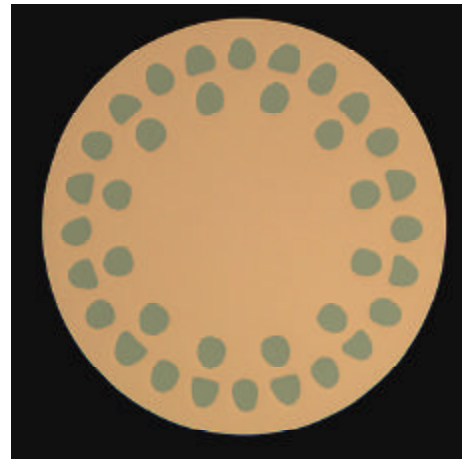
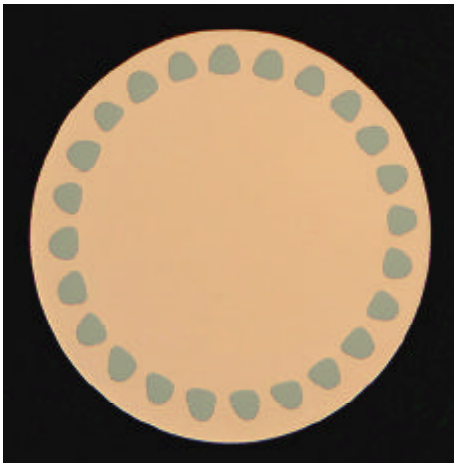
NbTi Superconductors

High Cu ratio strands for MRI



Wire in Channel

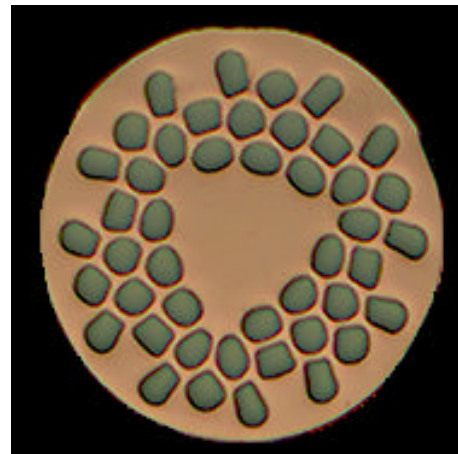
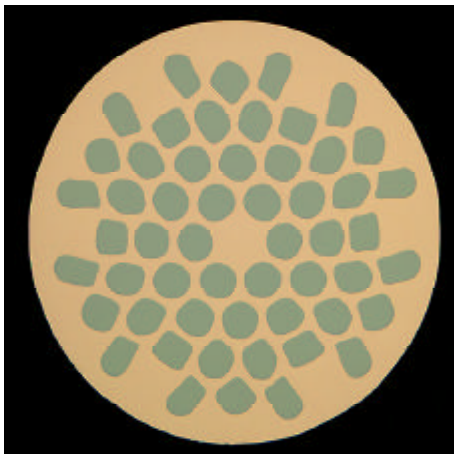
$a \times b = 1.10 \times 1.70 \text{ mm}^2 : 2.15 \times 4.25 \text{ mm}^2$, Cu : NbTi ratio 10 to 20



Monolith wires

Number of filaments 17 to 48, Cu : NbTi ratio 3.2 to 10

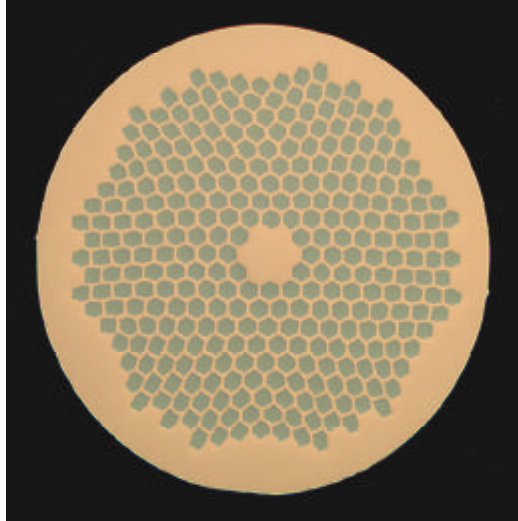
Low Cu ratio strands for NMR and Laboratory magnets



Monolith wires

Number of filaments 45 to 150, Cu : NbTi ratio 1.3 to 2.6

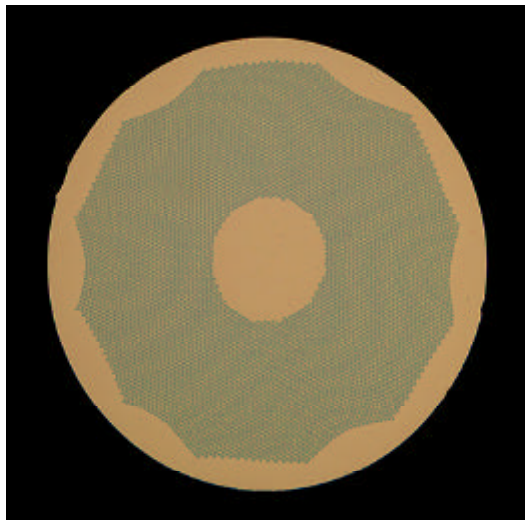
Special strands for high energy physics applications



ATLAS strand F306 Ø 1.30 mm

Cu : NbTi = 1.15

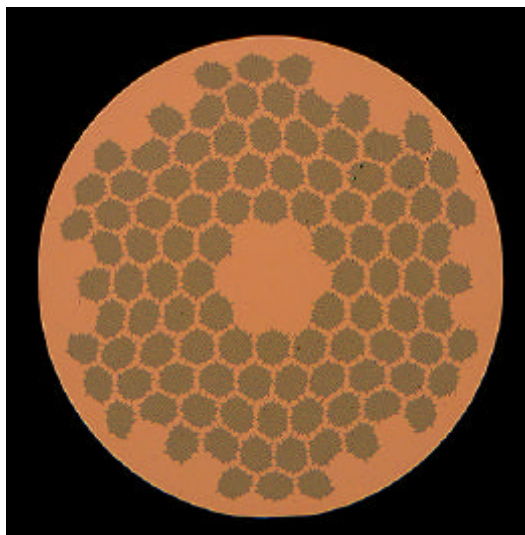
$I_c = 1700 \text{ A @ } 5 \text{ T; } 4.2 \text{ K}$



LHC MQY quadrupole strand F6360 Ø 0.753 mm

Cu : NbTi = 1.25

$I_c = 550 \text{ A @ } 5 \text{ T; } 4.2 \text{ K}$



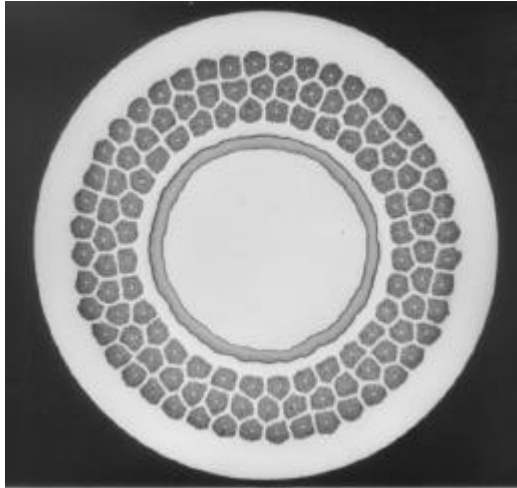
LHC dipole strand F8670 Ø 1.065 mm

Cu : NbTi = 1.65

$I_c = 540 \text{ A @ } 7 \text{ T; } 4.2 \text{ K}$

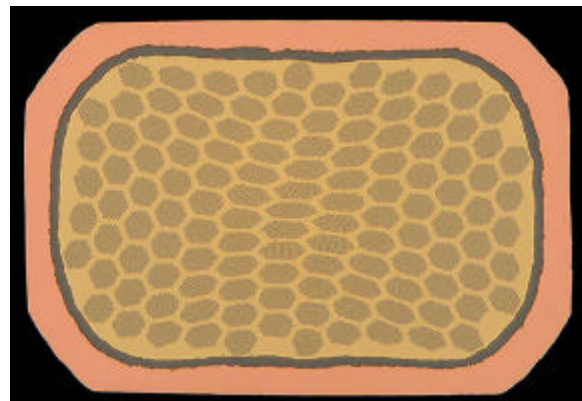
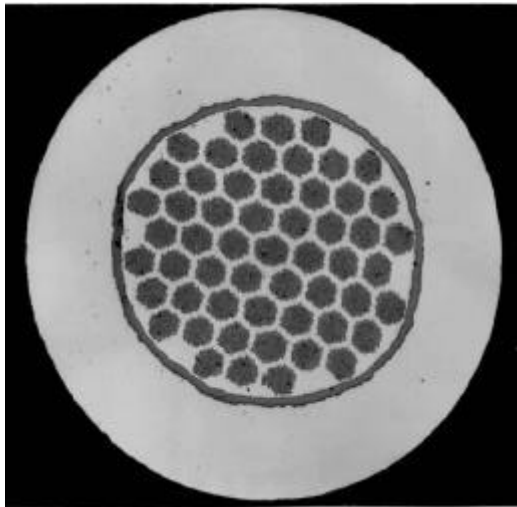
NbSn Superconductors

Internally stabilized



Round wires	Ø 0.7 mm to 1.4 mm
Number of filaments	6000 to 18000
Cu ratio	10 % or 17 %
Ta barrier	4 % to 7 %
Recommended magnetic field range	10 T to 15 T

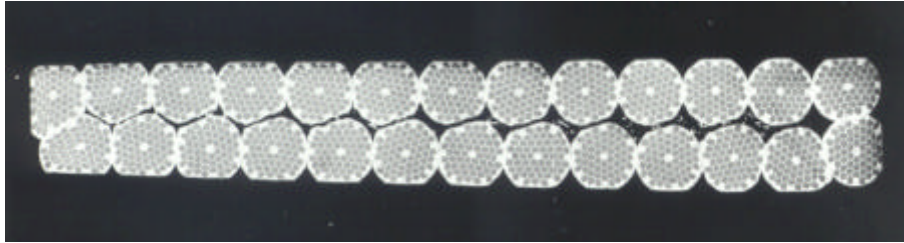
Externally stabilized



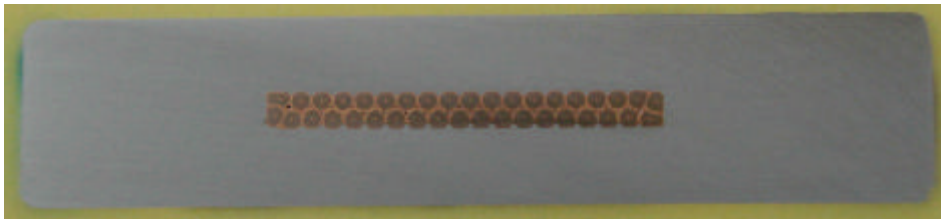
Round and rectangular wires	0.8 mm ² to 7 mm ²
Number of filaments	4000 to > 100000
Cu ratio	23 % to 60 %
Ta barrier	6 % to 14 %
Recommended magnetic field range	12 T to 23.5 T

Examples of cabled conductors

Flat and Keystoned Cables



Keystoneed LHC dipole cable with 28 strands F8670 \varnothing 1.065 mm. Width 15.10 mm , mid-thickness 1.90 mm, keystone angle 1.25° , $I_c = 14800$ A @ 7T; 4.2 K

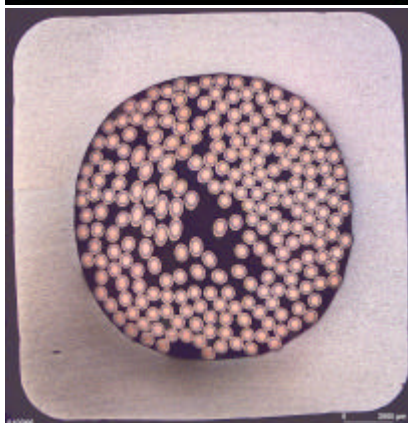


Flat cable for ATLAS Barrel Toroid consisting of 40 strands F300 \varnothing 1.30 mm shaped to 2.30×26.26 mm², cross section and co-extruded with high purity Aluminium with dimension 12.0×57.0 mm², $I_c > 58000$ A @ 5 T; 4.2 K

Forced flow Cable-in-Conduit conductors



ITER cable with 1152 Nb₃Sn strands \varnothing 0.81 mm sheathed with INCOLOY. Dimension 51×51 mm².
EAS low loss strands with Cu ratio of 60 % and coated with 2 μ m Cr. Non Cu current density 600 A/mm² @ 12 T; 4.2 K



Wendelstein 7X cable with $3 \times 3 \times 3 \times 3 \times 3 = 243$ strands F144 \varnothing 0.57 mm, co-extruded with hardenable Al alloy. Dimension 16×16 mm², $I_c \approx 35000$ A @ 6 T; 4.2 K