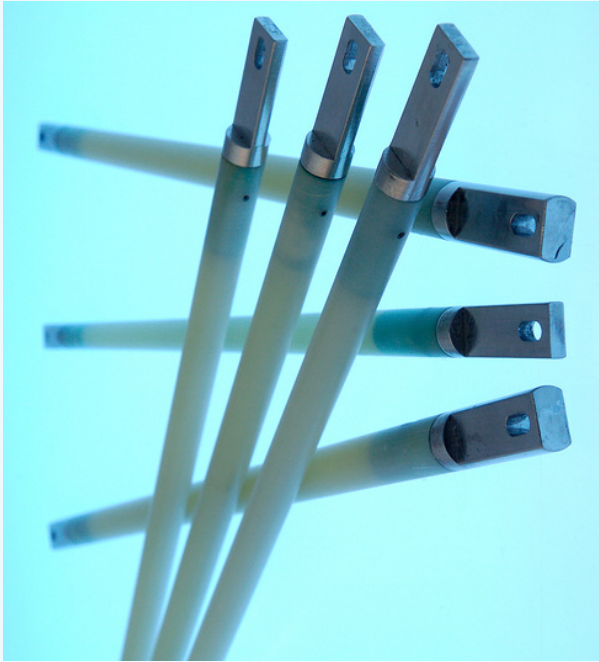


CRYOSAVER™ HTS CURRENT LEADS



- Low heat leak
- Field-tolerant
- Ease of integration
- Durable and stable
- Wide current capacity range
- Optional heat-sink kit
- Custom designs available

Applications

HTS-110's CryoSaver™ HTS current lead range is designed to efficiently transfer current into a cryogenic environment, leading to a wide variety of applications:

- Dry (conduction-cooled) LTS magnets
- MRI, NMR magnets
- HTS magnets employing two-stage cryocoolers
- Persistent or non-persistent coils or cryogenic circuits

Performance and versatility

- With over 20 years in the field, CryoSaver™ current leads have demonstrated consistent, outstanding performance
- The CryoSaver™ family uses HTS tape to create a robust, reliable lead
- CryoSaver™ current leads, rated from 150 A to more than 2000 A, deliver significantly improved performance, with lower heat leak than vapor-cooled leads

Benefits

- Low heat leak: the composite conductor consists of HTS filaments in a low thermal conductivity matrix, providing a very high current density and low heat leak through the small cross-section
- Field tolerant: The anisotropic nature of the leads allow them to be positioned in a cryostat such that applied fields are along a favorable axis, an advantage over isotropic bulk materials
- Ease of integration: Electrical connection to the copper end-caps is easily made, mechanically or by soldering, for low resistance and low Joule heating
- Durable and stable: The HTS conductor exhibits tolerance to strain and thermal cycling superior to other types of HTS leads. CryoSaver™ leads have superior ability to tolerate and recover from minor cooling systems upsets without damage or burnout, as the metal matrix in the conductor slows temperature rise after loss of cooling. Ballasted models include an integral shunt.



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HTS-110

CRYOSAVER™ HTS CURRENT LEADS

CryoSaver™ leads

Standard CryoSaver™ leads use a fibreglass composite body to encase the HTS wire for structural integrity. This allows the lead to tolerate a large number of thermal and electrical cycles. Copper end-caps are used for warm and cold end connections. Standard and short styles are available.

Ballasted leads

These incorporate a current shunt in the lead body to protect inductive loads in case of lead quench. Ballasted leads have superior mechanical properties compared with conventional leads and can tolerate minor misalignment of contact surfaces.

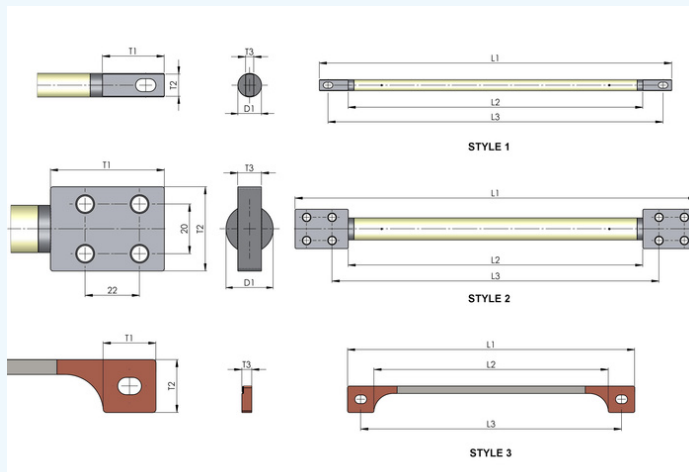


Sapphire heat sink kits

HTS-110 has developed Sapphire heat sink kits for use on all standard leads to optimise the thermal contact between lead and heat sink. We recommend the use of these with all standard current leads.

Customisation

Customised CryoSaver™ current leads can be provided, with different terminals, lengths, or more complex geometries to meet your requirements.



CRYOSAVER™			Terminal					Body				Calculated mechanical limits *		
Operating current (at 64 K)	Type	Calculated heat leak 64 K – 4.2 K (pair) ± 15%	Style	Length (mm)	Width (mm)	Thick-ness (mm)	Hole size (mm)	Dia. (mm)	Overall length (mm)	Gap length (mm)	Fixing centre length (mm) L3	Comp. (N)	Tension (N)	Torsion (Nm)
				T1	T2	T3	D1							
150 A	Std	35 mW	1	25	8.9	3.3	R2.6 x 3	9.5	305	255	290	200	1500	7
	Shrt	65 mW	1	16	7.1	6.4	R1.6 x 2	9.5	170	138	158	-	-	-
	Ball	65 mW	3	16	16	6	R2.6 x 2	4.5x 1.2	174	142	158	-	-	-
250 A	Std	65 mW	1	25	9.4	6.4	R2.2 x 2	11.1	305	255	290	400	2000	11
	Shrt	130 mW	1	16	11	6.4	R2.6 x 2	12.7	170	138	158	-	-	-
	Ball	125 mW	3	16	16	6	R2.6 x 3	4.5x 2.0	174	142	158	-	-	-
500 A	Std	135 mW	1	25	12.8	6.4	R2.6 x 3	14.3	305	255	290	1100	2500	18
	Ball	235 mW	3	16	21	6	R2.6 x 2	9.0x 1.5	174	142	158	-	-	-
1000 A	Std	285 mW	2	46	34	9.2	Ø6.8	19.1	347	255	283	3400	4000	38
2000 A	Std	560 mW	2	46	34	12.7	Ø6.8	25.4	347	255	283	8400	5000	60

*Note: electrical performance may be degraded at the estimated mechanical limits



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