Bruker BioSpin

Magnet Sales Information

300 MHz / 154 mm

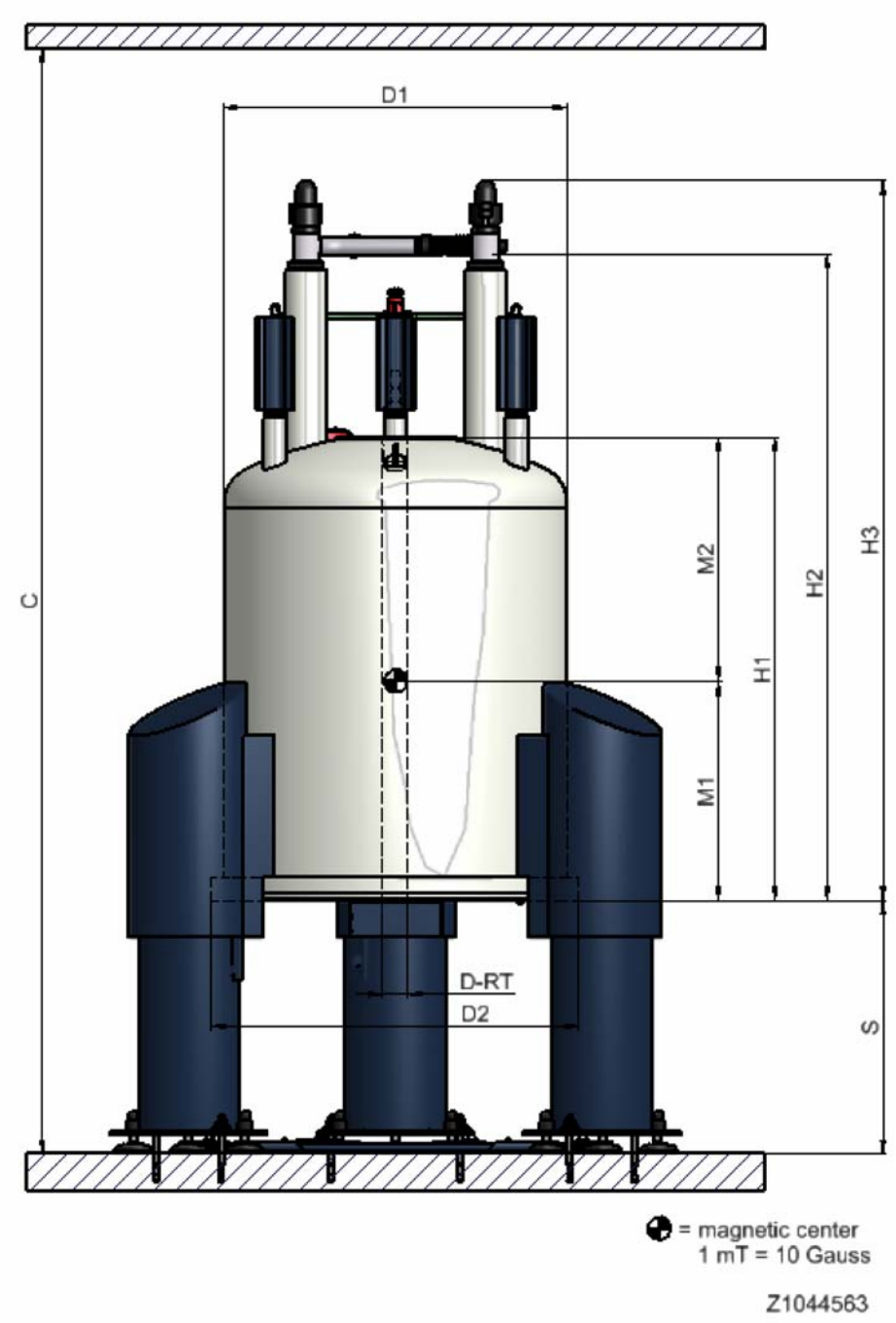
UltraShield™ Plus – Super Wide bore - Long hold time

Magnet System 300/154 US PLUS™ LH
Part Number Z106379

think forward

NMR | EPR | MRI

Geometrical Dimensions



Geometrical Dimensions

		Description
C =	3410 mm	Operational ceiling height
D-RT =	154 mm	Diameter room temperature bore tube
D1 =	800 mm	Diameter cryostat upper part
D2 =	850 mm	Diameter cryostat bottom plate
H1 =	1140 mm	Height of cryostat from bottom flange – upper flange
H2 =	1526 mm	Height of cryostat from bottom flange to Helium tower Minimum height for transportation
H3 =	1699 mm	Height of cryostat from bottom flange to Helium manifold
S =	1050 mm	Height between floor and magnet bottom flange

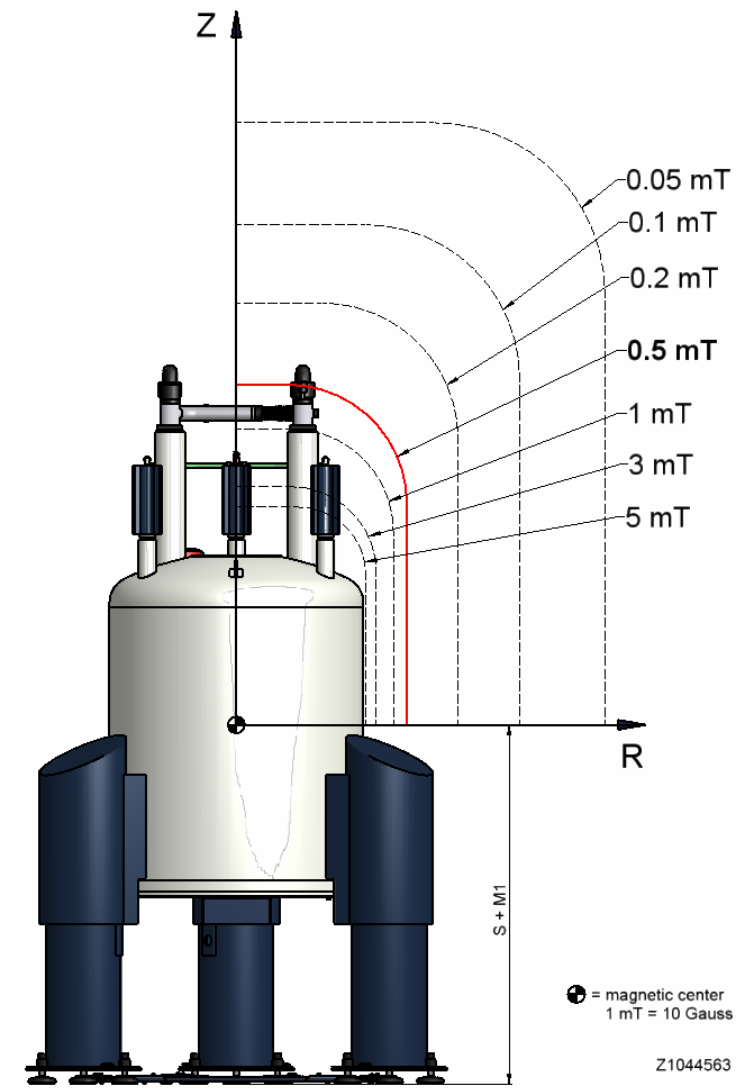
System Data

Minimum operational ceiling height (Helium transfer line 29085)	3130 mm
Minimum ceiling height with standard Helium transfer line 53962	3410 mm
Required space (footprint, width x depth)	~ 1.49 m^2
System weight (empty, without magnet stand)	534 kg
Magnet stand	115 kg
System weight (filled completely, with magnet stand ADI/EMI)	780/765 kg

NMR Magnet Specifications

Type	BZH 300'154 US PLUS™
NMR-frequency (^{1}H)	300 MHz
Operating field	7.05 Tesla
Field stability (guaranteed value in persistent mode)	< 20 ppb/hr (< 6 Hz/hr)
Axial range with homogeneity better than 10 ppm	~ 60 mm
Radial stray field (horizontal distance of the 0.5 mT (5G line from the magnetic centre)	< 1.00 m
Axial stray field (vertical distance of the 0.5 mT (5G line from the magnetic centre)	< 2.00 m
Cryo shims	X, Y, Z, Z^2, Z^3, XZ, YZ, X-Y, X^2-Y^2

Fringe Field Plot



Fringe field contour	Radial [R]	Axial [Z]
200 mT (Directive 2004/40/EC)	Inside cryostat	Inside cryostat
5 mT	0.65 m	1.18 m
3 mT	0.72 m	1.32 m
1 mT	0.88 m	1.69 m
0.5 mT (5 Gauss)	**1.00 m**	**2.00 m**
0.2 mT	1.29 m	2.53 m
0.1 mT	1.63 m	3.06 m
0.05 mT (~Earth magnetic field)	2.10 m	3.74 m

Cryostat Specifications

Type	D 345/154 US PLUS™
Room temperature bore	154 mm
Approx. Helium evaporation rate under stabilized conditions (T=20°C, p=1030 mbar)	< 28 ml liquid Helium/hour
Liquid Helium refill volume/total volume	~ 60/101 litres
Helium hold time	> 90 days
Approx. Nitrogen evaporation rate under stabilized conditions (T=20°C, p=1030 mbar)	< 300 ml liquid Nitrogen/hour
Liquid Nitrogen refill volume/total volume	~ 101/126 litres
Nitrogen hold time	> 14 days

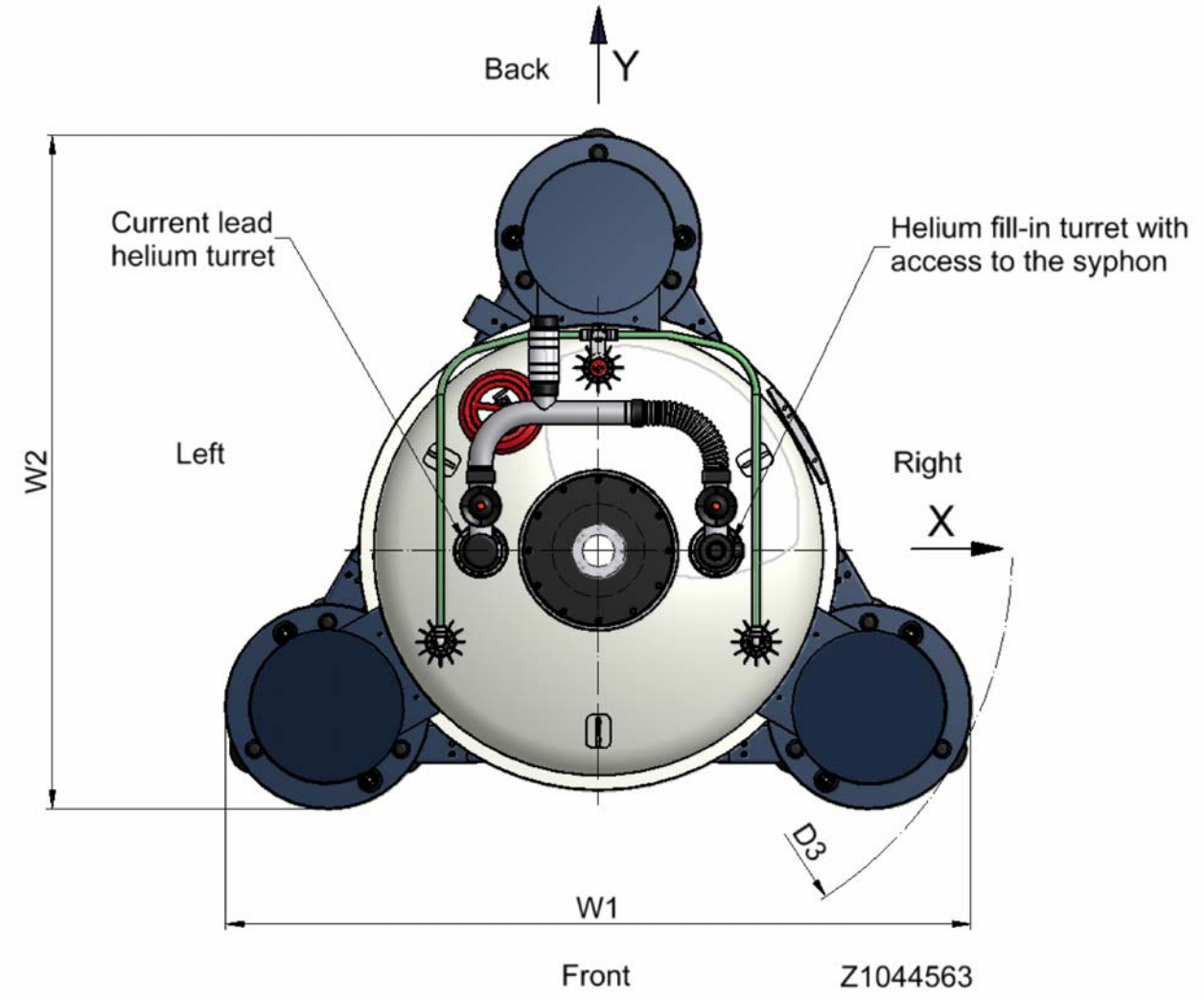
Accessories

Magnet stand F85-1050 **EMI** (height 1050 mm) **E**lasto**m**er **I**solators with vertical damping Frequencies damped > 14 Hz / resonance frequency = 9.5 Hz	Standard	Z109694
Magnet stand F85-1050 **ADI** (height 1050 mm) **A**ir Spring and **D**amped **I**solators with vertical damping Frequencies damped > 3.8 Hz / resonance frequency = 2.6 Hz	Optional	Z109426
Magnet stand F85-1050 **API** (height 1050 mm) **A**ir **P**iston and Damped **I**solators with **vertical** and **horizontal** damping Frequencies damped > 3.8 Hz / resonance frequency = 2.6 Hz	Optional	On request
Nitrogen level sensor for BSMSII (SCB3) (not working with BSNL)	Optional	Z122400

Equipment for Cryogen Transfer

Helium transfer line* D3xx (1455/2060/655)	AH0070	53962
Helium transfer line* with bendable extensions (1455/2060/380) for minimum operational ceiling height (3000 mm)		29085

Top View



Geometrical Dimensions

Width of magnet stand	W1	1285 mm
Depth of magnet stand	W2	1157 mm
Diameter of magnet stand = 2 x radius	D3	1430 mm

Transport

Overall system dimensions for transportation		
Magnet system box	L x D x H	105x 126 x 180 cm^3
Magnet stand box	L x D x H	167 x 88 x 101 cm^3
Minimum system dimensions of magnet, unpacked (without manifold)		∅ 85 cm, H 153 cm
System weight for transportation		~ 710 kg
Weight magnet stand box (ADI/EMI)		~ 198/182 kg

Installation

Liquid Nitrogen needed for installation (cooling down)	480 litres
Liquid Helium needed for installation (cooling down, energizing, shimming, filled up completely)	200 litres
Liquid Helium needed after a quench	110 litres
Nitrogen gas for flushing	1 cylinder 50 l/200 bar
Helium gas for flushing	1 cylinder 50 l/200 bar

* A detailed description of the marked objects can be found in chapter „Accessories“.

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