



Magnet Sales Information

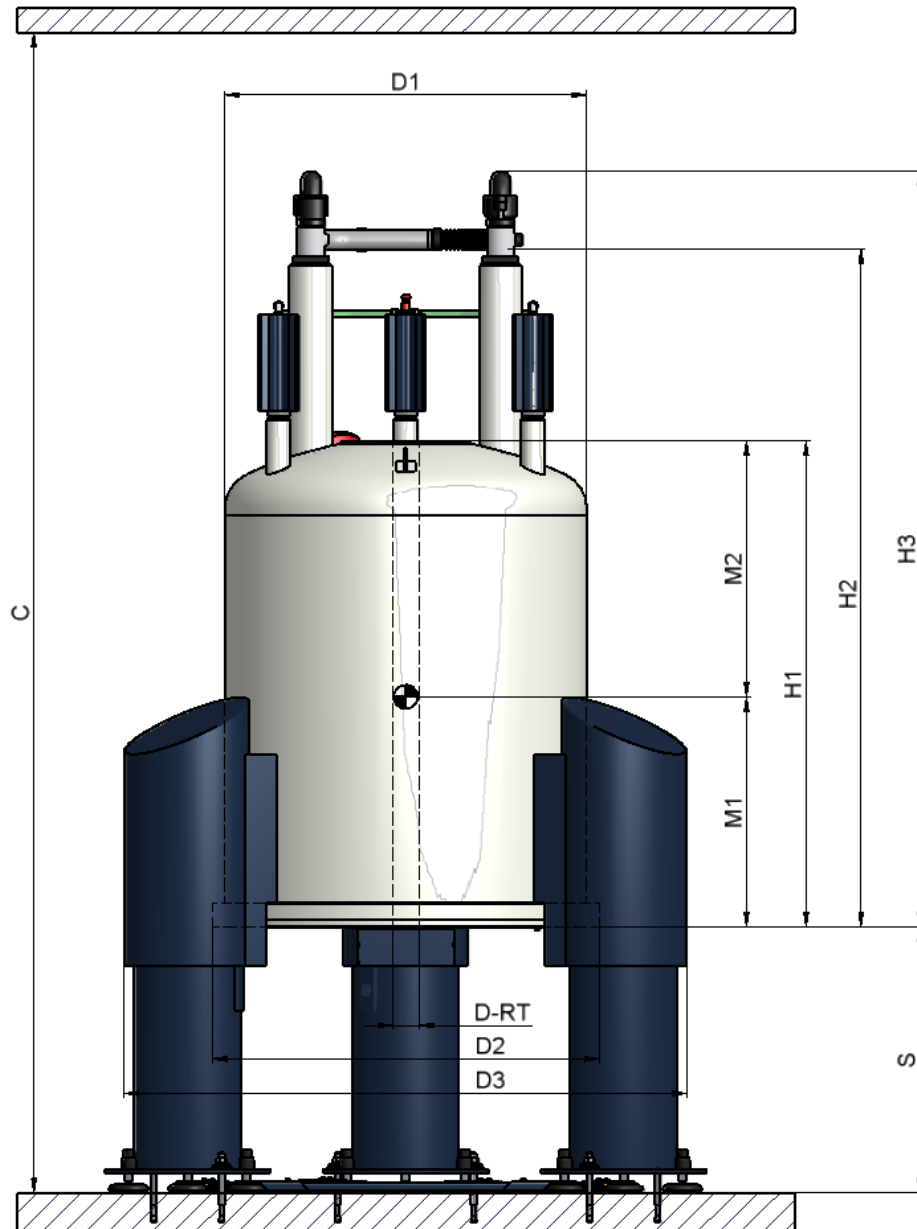
Ascend™ 600 MHz / 54 mm



Magnet System Ascend™ 600 MHz / 54 mm

Part Number Z115312

Geometrical Dimensions



⊕ = magnetic center
1 mT = 10 Gauss

Z1044563

Geometrical Dimensions

		Description
C =	2845 mm	Operational ceiling height
D-RT =	54 mm	Diameter room temperature bore tube
D1 =	745 mm	Diameter cryostat upper part
D2 =	795 mm	Diameter cryostat bottom plate
D3 =	1477 mm	Width of magnet stand
H1 =	1205 mm	Height of cryostat from bottom flange to upper flange
H2 =	1604 mm	Height of cryostat from bottom flange to Helium tower Minimum height for transportation
H3 =	1764 mm	Height of cryostat from bottom flange to Helium manifold
S =	700 mm	Height between floor and magnet bottom flange

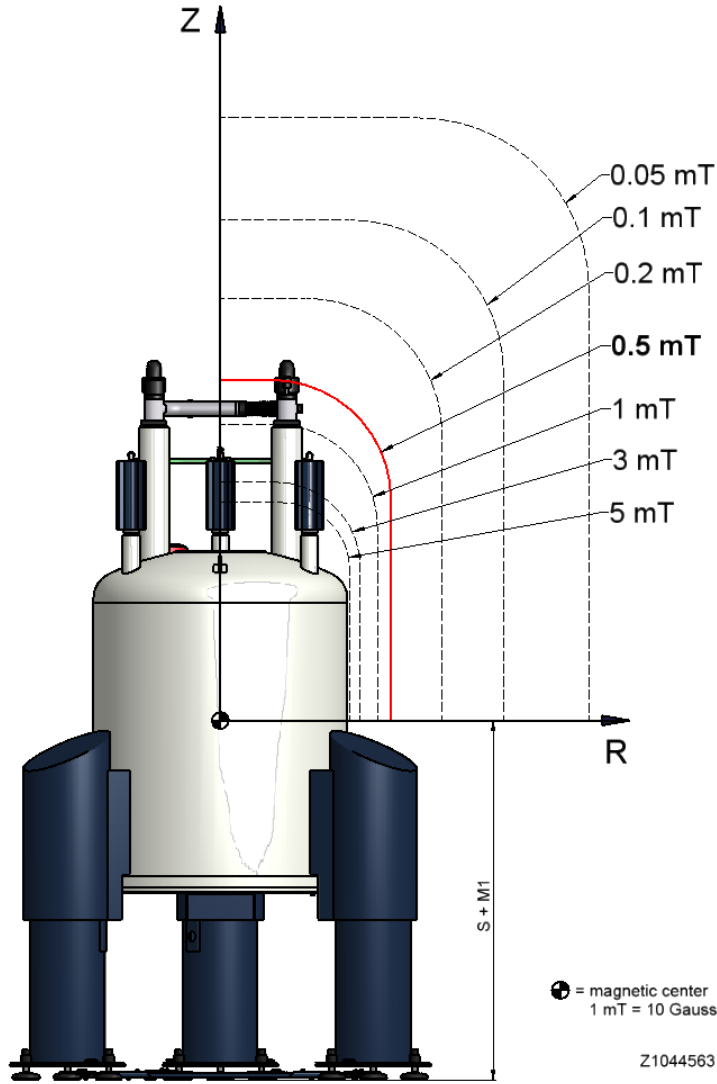
System Data

Minimum operational ceiling height (Helium transfer line 29085)	2845 mm
Minimum ceiling height with standard Helium transfer line 53962	3135 mm
Required space (footprint, width x depth)	~ 1.4 m ²
System weight (empty, without magnet stand)	619 kg
Magnet stand	111 kg
System weight (filled completely, with magnet stand)	850 kg

NMR Magnet Specifications

Type	BZH 600'70 ASCEND™
NMR-frequency (¹ H)	600 MHz
Operating field	14.09 Tesla
Field stability (guaranteed value in persistent mode)	< 10 ppb/hr (< 6.0 Hz/hr)
Axial range with homogeneity better than 10 ppm	~ 55 mm
Radial fringe field (horizontal distance of the 0.5 mT (5G line from the magnetic centre)	< 0.70 m
Axial fringe field (vertical distance of the 0.5 mT (5G line from the magnetic centre)	< 1.40 m
Cryo shims	X, Y, Z, Z ² , Z ³ , XZ, YZ, XY, X ² -Y ²
Electromagnetic Disturbance Suppression EDS** typical	> 99 %

Fringe Field Plot



Fringe field contour	Radial [R]	Axial [Z]
200 mT (Directive 2013/35/EU)	Inside cryostat	Inside cryostat
5 mT	0.52 m	0.90 m
3 mT	0.56 m	0.99 m
1 mT	0.62 m	1.21 m
0.5 mT (5 Gauss)	0.70 m	1.40 m
0.2 mT	0.92 m	1.71 m
0.1 mT	1.18 m	2.03 m
0.05 mT (~Earth magnetic field)	1.55 m	2.45 m

Cryostat Specifications

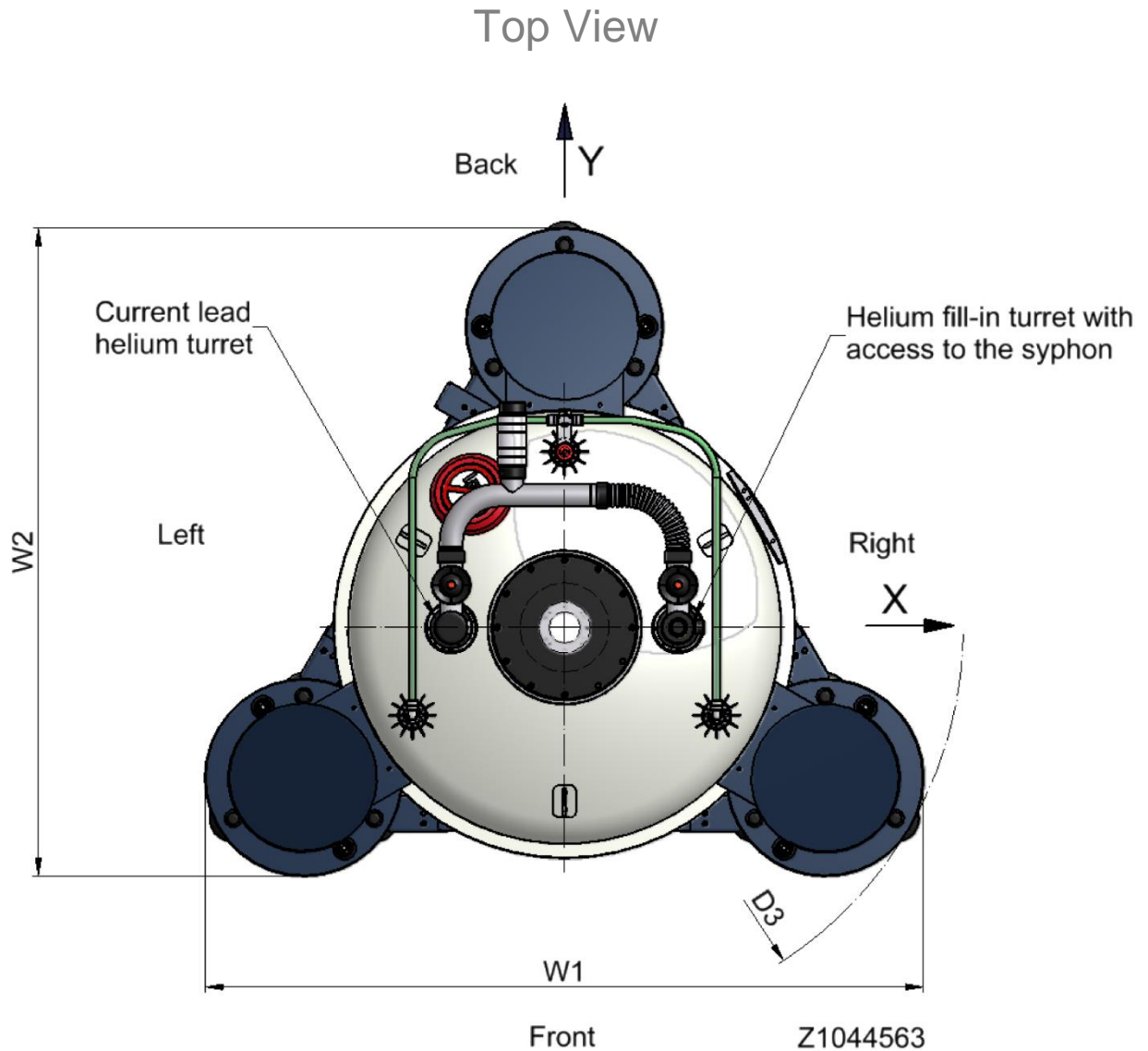
Type	D 325/54 ASCEND™
Room temperature bore	54 mm
Approx. Helium evaporation rate under stabilized conditions (T=20°C, p=1030 mbar)	<16 ml liquid Helium/hour
Liquid Helium refill volume/total volume	~ 58/88 litres
Helium hold time	> 150 days
Approx. Nitrogen evaporation rate under stabilized conditions (T=20°C, p=1030 mbar)	<240 ml liquid Nitrogen/hour
Liquid Nitrogen refill volume/total volume	~ 107/134 litres
Nitrogen hold time	> 18 days

Accessories

Magnet stand F80-700 ADI (height 700 mm) Air Spring and Damped Isolator with vertical damping Frequencies damped > 3.8 Hz / resonance frequency 2.6 Hz	Included	Z112741
Magnet stand F80-700 API (height 700 mm) Air Piston and Damped Isolator with vertical and horizontal damping Frequencies damped > 3.8 Hz / resonance frequency 2.6 Hz	Optional AH0065	Z117692
API cylinders upgrade Air Piston and Damped Isolator with vertical and horizontal damping Frequencies damped > 3.8 Hz / resonance frequency 2.6 Hz	Optional	Z114651
Electronic atmospheric pressure device with adjustable set point*	Optional	Z102597
Nitrogen level sensor for BSMSII (SCB3) bendable (not good for BSNL)	Included	Z122404

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 (2850 mm)		29085



Geometrical Dimensions

Width of magnet stand	W1	1236 mm
Depth of magnet stand	W2	1116 mm
Diameter of magnet stand = 2 x radius	D3	1375 mm

Transport

Overall system dimensions for transportation		
Magnet box	L x D x H	114 x 93 x 198 cm ³
Magnet stand box	L x D x H	97 x 76 x 120 cm ³
Minimum system dimensions of magnet, unpacked (without manifold)		Ø 79.5 cm, H 159 cm
Magnet System weight for transportation		~ 750 kg
Magnet stand box weight for transportation		~ 176 kg

Installation

Liquid Nitrogen needed for cool down	600 litres
Liquid Helium needed for cool down	300 litres
Liquid Helium needed for energizing, cryo shimming and quench reserve	300 litres
Nitrogen gas for flushing, minimum grade 4.6	1 cylinder 50 l/200 bar
Helium gas for flushing, minimum grade 4.6	2 cylinder 50 l/200 bar

* A detailed description of the marked objects can be found in „Magnet Accessories“ ZTKS0041.

Electromagnetic Disturbance Suppression **EDS™:

Ascend™ magnets efficiently suppress external electromagnetic field disturbances using a proprietary Bruker technology **EDS™**. Sources of such disturbances are corridor traffic, elevators, power lines, outside vehicular traffic and railway lines.

Definition:

The **EDS™ factor** for spatially homogeneous disturbances is defined as the fraction of the external disturbance suppressed by the magnet in the magnetic centre at a given disturbance frequency. Thereby, no digital lock system or other field compensation device is used.

Detailed specification for magnet system 600/54 Ascend™:

Disturbance frequency	EDS™ factor
< 0.01 Hz	> 99 %
0.01 - 1 Hz	> 97 %
1 - 5 Hz	> 98 %
> 5 Hz	> 99 %
16.667 Hz (railways)	> 99.9 %
50 Hz (power lines)	> 99.9 %
60 Hz (power lines)	> 99.9 %

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