

# 500 MHz/89 mm

UltraShield™ Plus - Wide bore - Long hold time



Magnet System 500/89 US Plus LH

Part Number Z101341

[illegible]

Page 2 of 8

## NMR Magnet Specifications

Type	500 WB UltraShield™
NMR-frequency ( <sup>1</sup> H)	500 MHz
Operating field	11.74 Tesla
Field stability (guaranteed value in persistent mode)	< 15 ppb/hr (< 7.5 Hz/hr)
Axial range with homogeneity better than 10ppm	~ 70 mm
Radial stray field (horizontal distance of the 0.5mT (5G) line from the magnetic centre)	< 0.70 m
Axial stray field (vertical distance of the 0.5mT (5G) line from the magnetic centre)	< 1.40 m
Cryo shims	X, Y, Z, Z <sup>2</sup> , XZ, YZ, XY, X <sup>2</sup> -Y <sup>2</sup>

## Cryostat Specifications

Type	D 355/89
Room temperature bore	89 mm
Approx. helium evaporation rate under stabilized, normal conditions (T=20°C, p=1030 mbar)	< 26.5 ml liquid helium/hour
Liquid helium refill volume/total volume	~ 96/127 litres
Helium hold time	> 150 days
Approx. nitrogen evaporation rate under stabilized, normal conditions (T=20°C, p=1030 mbar)	~ 400 ml liquid nitrogen/hour
Liquid nitrogen refill volume/total volume	~ 193/241 litres
Nitrogen hold time	> 18 days

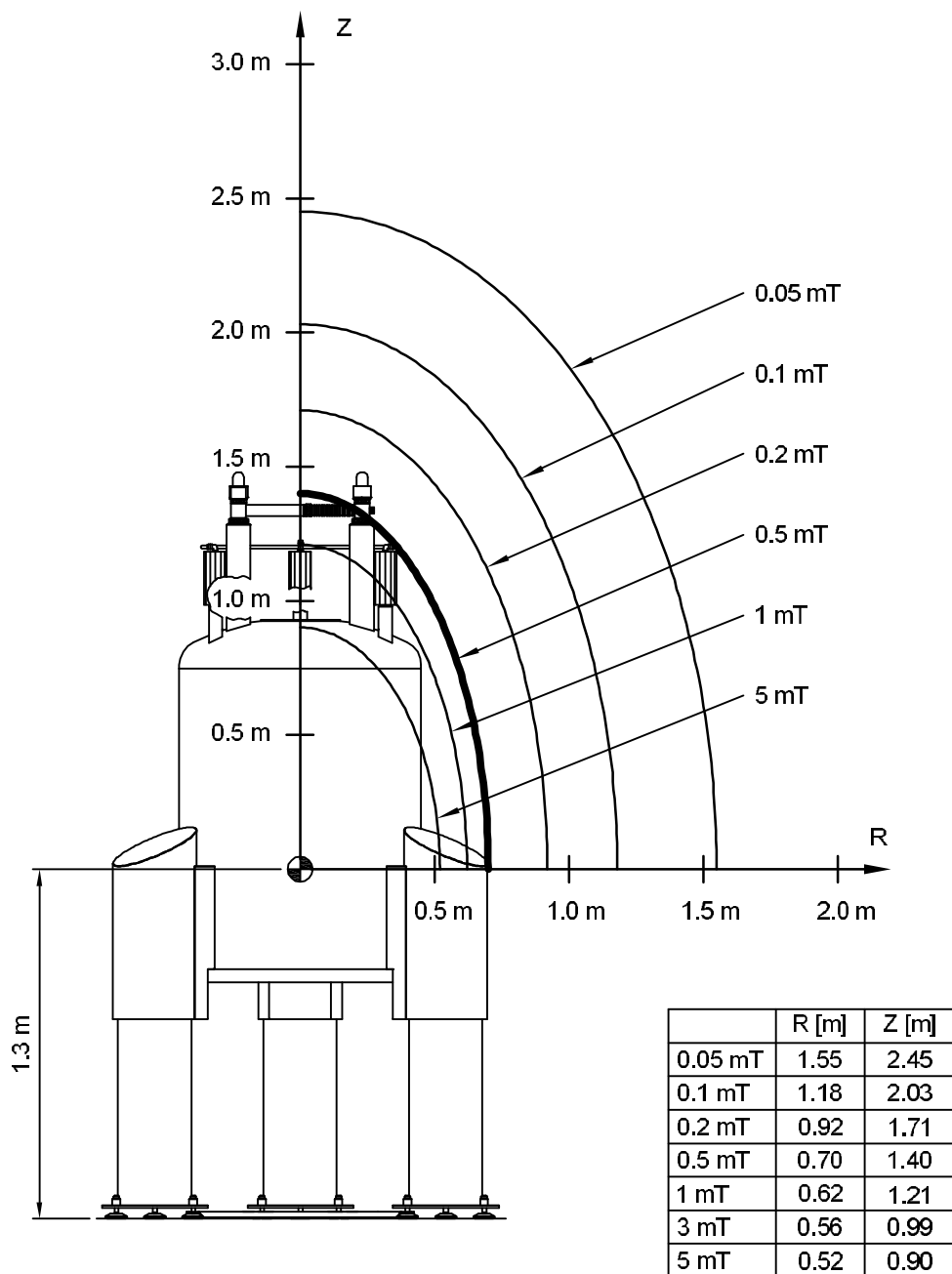
## System Data

Minimum ceiling height with F95-880LC magnet stand	3580 mm
Minimum ceiling height with F95-950LC magnet stand (micro imaging)	3650 mm
Reduced minimum ceiling height F95-880LC magnet stand (with special equipment)	AH0056 3348 mm
Reduced minimum ceiling height F95-950LC magnet stand	3426 mm
System weight (empty, with magnet stand)	1165 kg
System weight (filled completely, with magnet stand)	1377 kg

## Stray Field Plot

⊙ = magnetic center

1 mT = 10 Gauss



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## Accessories

Magnet stand F95-880LC	→ 880 mm	Z102179
Magnet stand F95-950LC For Micro Imaging Probes	→ 950 mm	Z102180
Anti vibration columns LC100XD* (Frequencies damped above 3.5 Hz / resonance frequency = 2.0 Hz)		Included
Sample changer mounting assembly*		On request
QNP box mounting assembly		On request
Adapter plate sensor set*		Included
Electronic atmospheric pressure device* with adjustable set point (Stabilizes the pressure within the helium vessel $\pm 0.1$ mbar), Long term stability (1030 mbar) < 0.7%/year		Z102597
Gas counter for helium and/or nitrogen gas (accuracy = $\pm 2\%$ )*		Z54231

## Equipment for Cryogen Transfer

Helium transfer line* (1455/2060/655)	AH0070	53962
Extension tube, He-transfer line to transport Dewar (l=438 mm)*		Z57822
Nitrogen refilling set*		Z53144

## Room temperature Shim System\*

Room temperature shim system Wide Bore Type W2 Alu		Z46435.B
Shim system upper part (Shell) Wide Bore Type D		Z46399.D
Shim upper part BST WB/99 SB-Insert		Z46400.D
Shim upper part BST WB/99 WB-Insert		Z46401.D
BSMS/2 SCB Shim coil cable kit D2 (Standard 9m) BOSS II		Z002845
BSMS/2 SCB13R - 20U Shim control		Z002799
BSMS/2 SCB13M - 16S Shim control		Z003873
BSMS/2 SCB13L - 16S Shim control		Z003874

## Optional SB Shim coil (from 500 MHz upwards)

Shim coil SB PLG BOSSII S4*		Z46428.B
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\* A detailed description of the marked objects can be found in chapter „Accessories“.

## Transport

Overall system dimensions for transportation		
Magnet box	L x D x H	115 x 136 x 202 cm <sup>3</sup>
Accessories box	L x D x H	97 x 116 x 143 cm <sup>3</sup>
Minimum system dimensions of magnet, unpacked (without manifold)		Ø 95 cm, H 175 cm
System weight for transportation		~ 1209 kg
Weight accessories box (including magnet stand)		~ 320 kg

## Installation

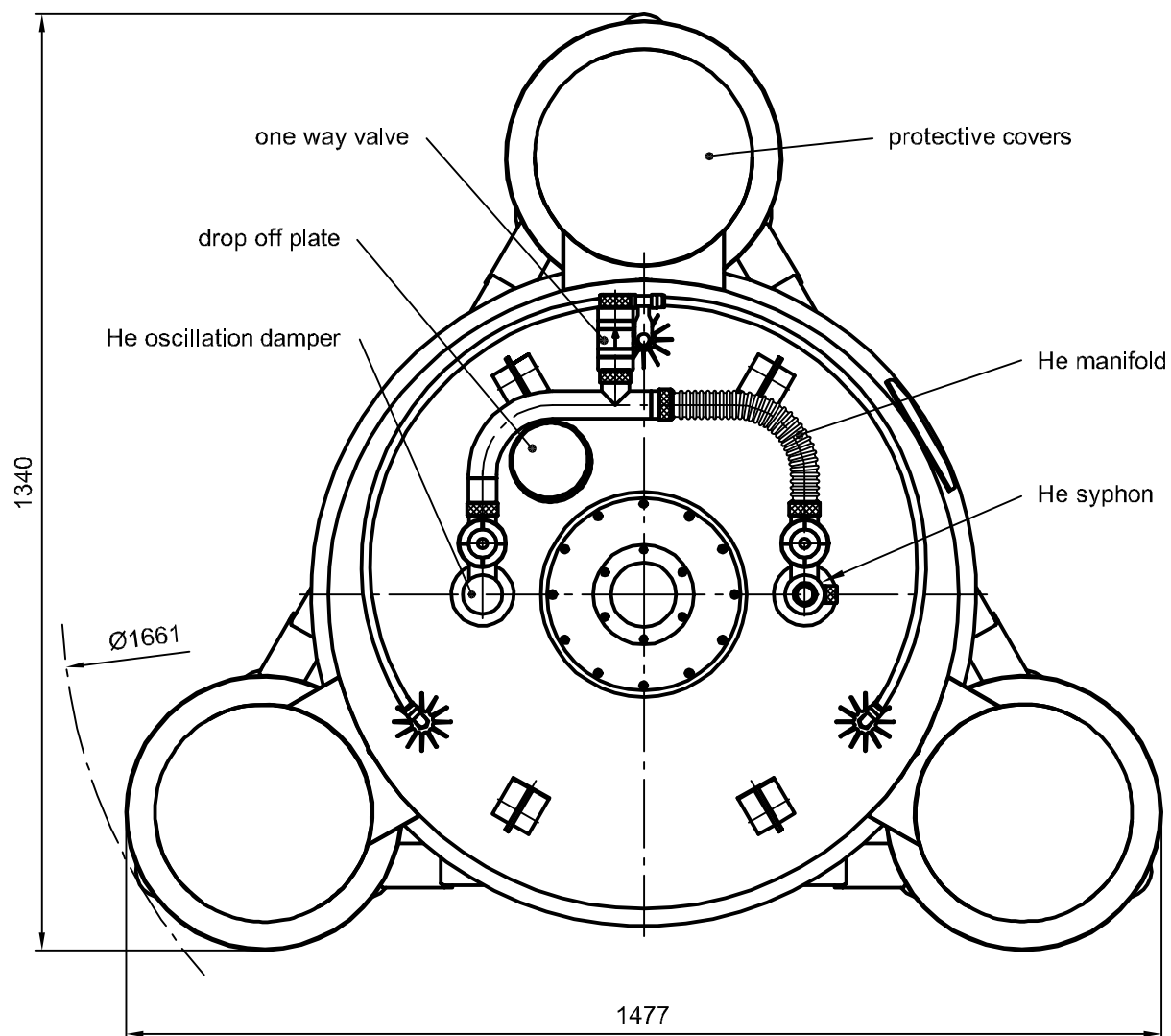
Minimum hook height needed during assembly	3180 mm
Minimum hook height needed during assembly Micro Imaging Stand	3250 mm
Liquid nitrogen needed for installation (cooling down, energizing, shimming, filled up completely)	750 litres
Liquid helium needed for installation (cooling down, energizing, shimming, filled up completely)	750 litres
Liquid helium needed after a quench	350 litres
<b>Equipment for Installation (Pumping/Cooling down)</b>	
Vacuum valve KF40, complete*	Z53420
Installation one-way valve (He) with KF25 outlet*	Z58140
Extension tube, He-transfer line to magnet siphon (l=201 mm)	Z55548
L-tube for nitrogen pre-cooling	Z26300
Cooling lead 1" D3xx included in 55pin current lead	-
<b>Equipment for Energizing</b>	
Current lead 1" (55pin) D3xx	Z58149
Shorting plug lead 1" D*xx	Z58487
Auxiliary shorting plug lead D3xx	Z58488
Tool box for current leads, L-tubes etc.	40398

## Installation at Reduced ceiling height

Helium transfer line with bendable extensions (1455/2060/380)	29085
Flexible extension, tube He-transfer line to magnet (l=215 mm)	Z52984
Extension tube, He-transfer line to magnet siphon for pre-cooling (l=438 mm)	Z57822
Flexible Helium level sensor 1300/690	Not yet available
<b>Additional Equipment for Installation at Reduced Ceiling Height</b>	
Cooling lead 1" bendable, D3xx included in 55pin current lead	-
L-tube for nitrogen pre-cooling (2 pieces 432 mm/450 mm)	Z55512
<b>Equipment for Energizing at Reduced Ceiling Height</b>	
Current lead 1" (55pin) D3xx, bendable	Z57550
Shorting plug lead 1" D3xx, bendable	Z57016
Auxiliary shorting plug lead, bendable	Z57017

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

## Top View



dimensions in millimeters

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