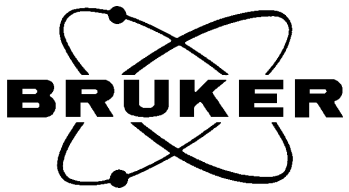

NMR CASE ™

System Requirements

BRUKER

The information in this manual may be altered without notice.

BRUKER accepts no responsibility for actions taken as a result of use of this manual. BRUKER accepts no liability for any mistakes contained in this manual, leading to coincidental damage, whether during installation or operating of the items or units described in this manual.

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P/N B2928

Table of Contents

1. Warning.

The NMR Case has to be installed on top of a NMR magnet cryostat.

This magnet creates a very STRONG MAGNETIC FIELD.

Objects and tools can be attracted to the magnet with great force and may cause damage.

Use only NON-magnetic tools.

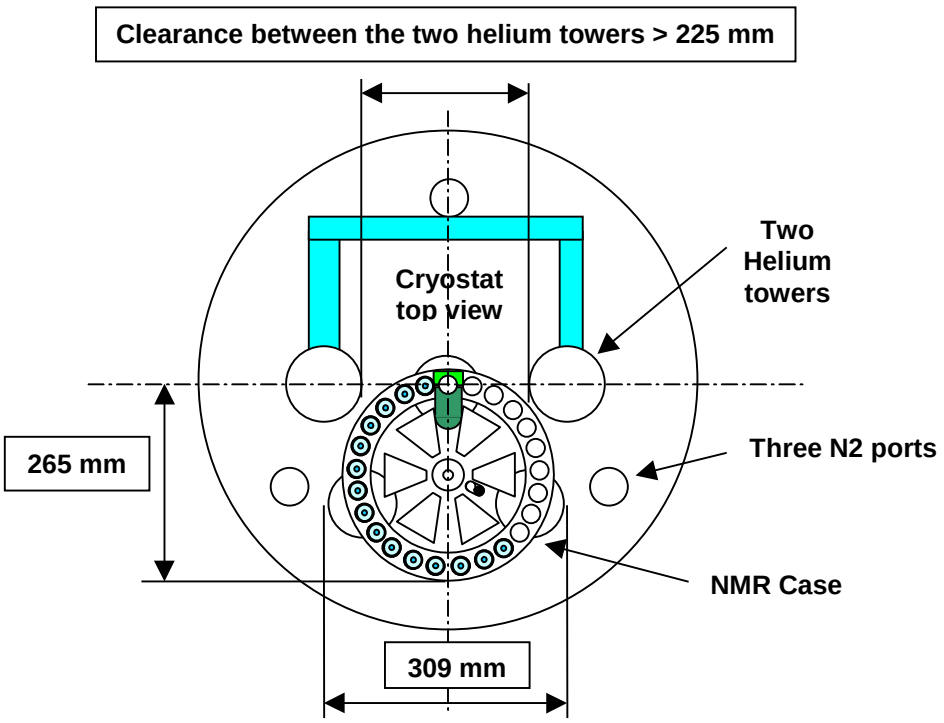
A non-magnetic TOOL SET is supplied with the NMR Case.

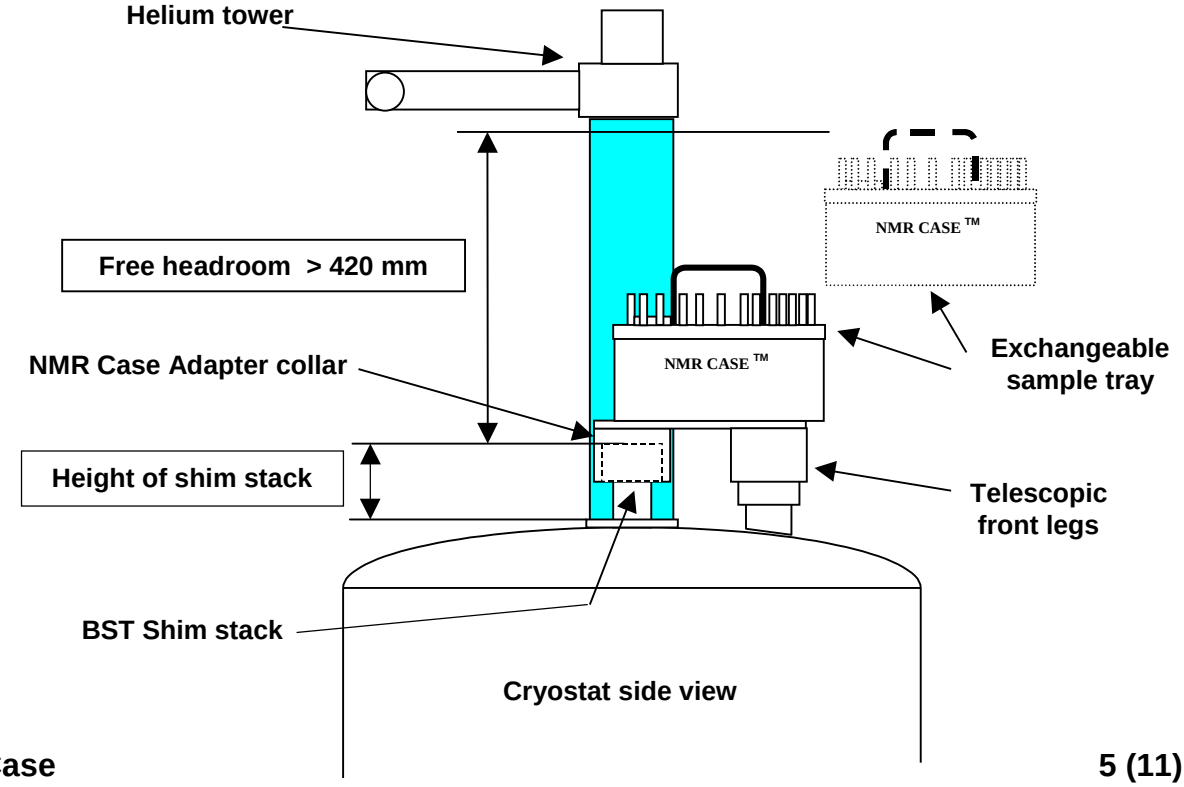
Read and follow carefully the installation manual.

2. Non-magnetic ladder.

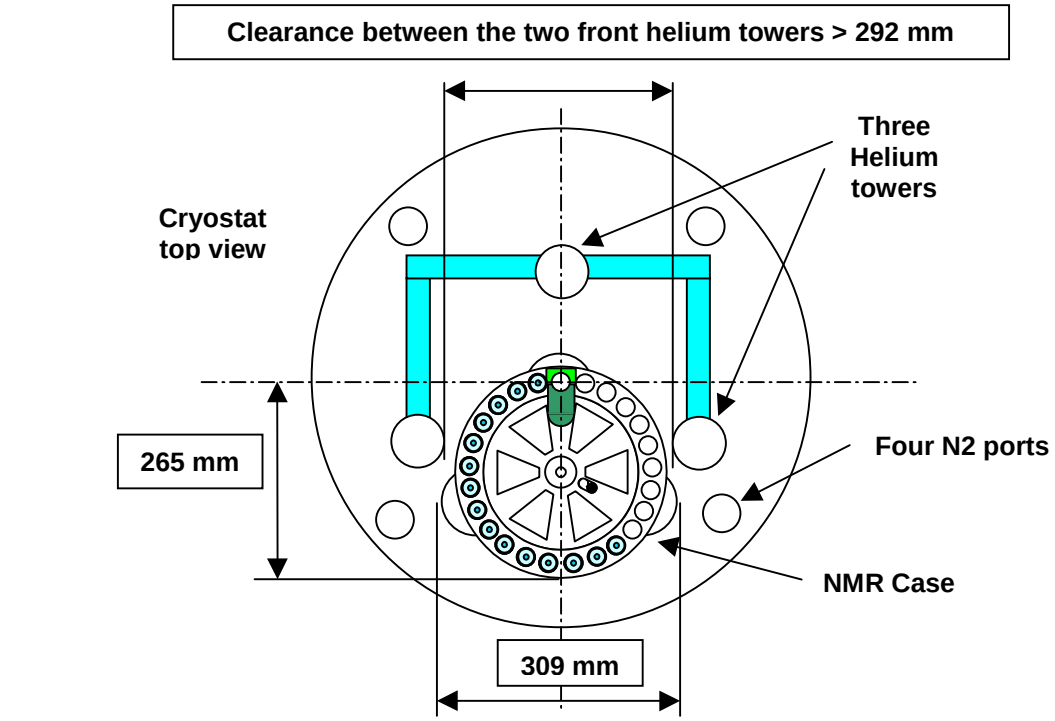
To install the NMR case on top of the magnet cryostat, a non-magnetic ladder made from wood or aluminum must be available**.** Bruker does not supply non-magnetic ladders.

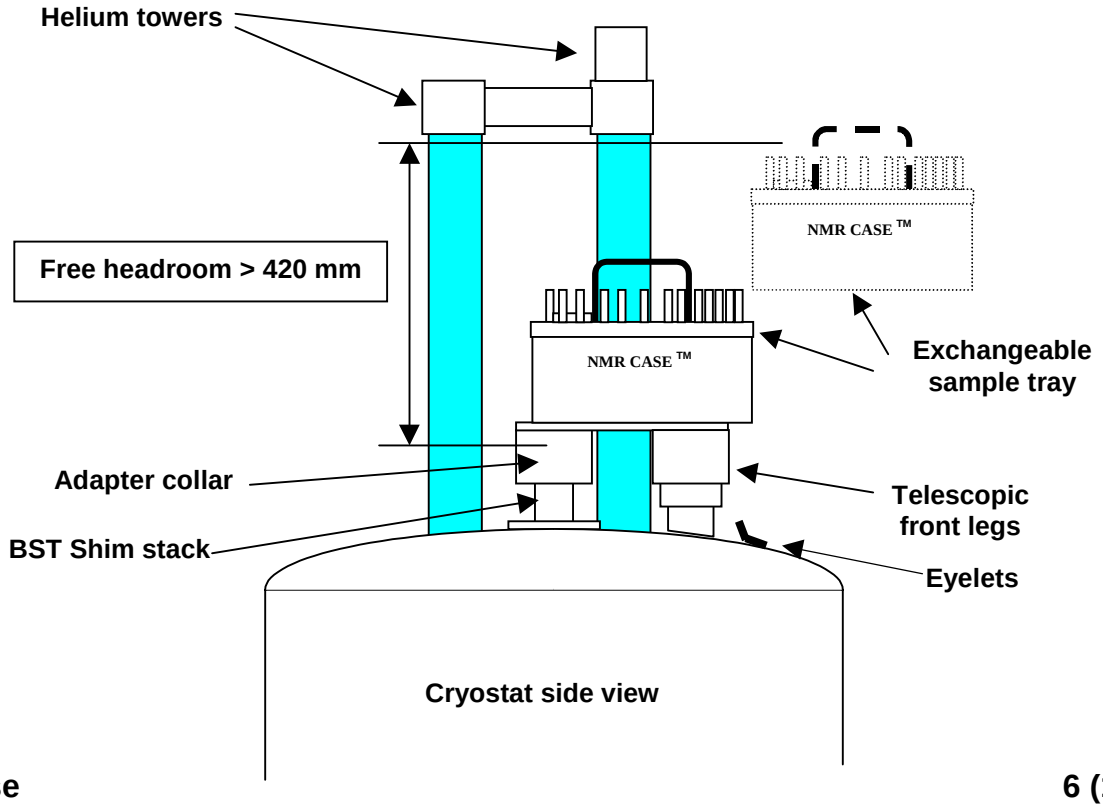
3. Necessary space on top of the magnet cryostat with TWO helium towers.





4. Necessary space on top of the magnet cryostat with THREE helium towers.



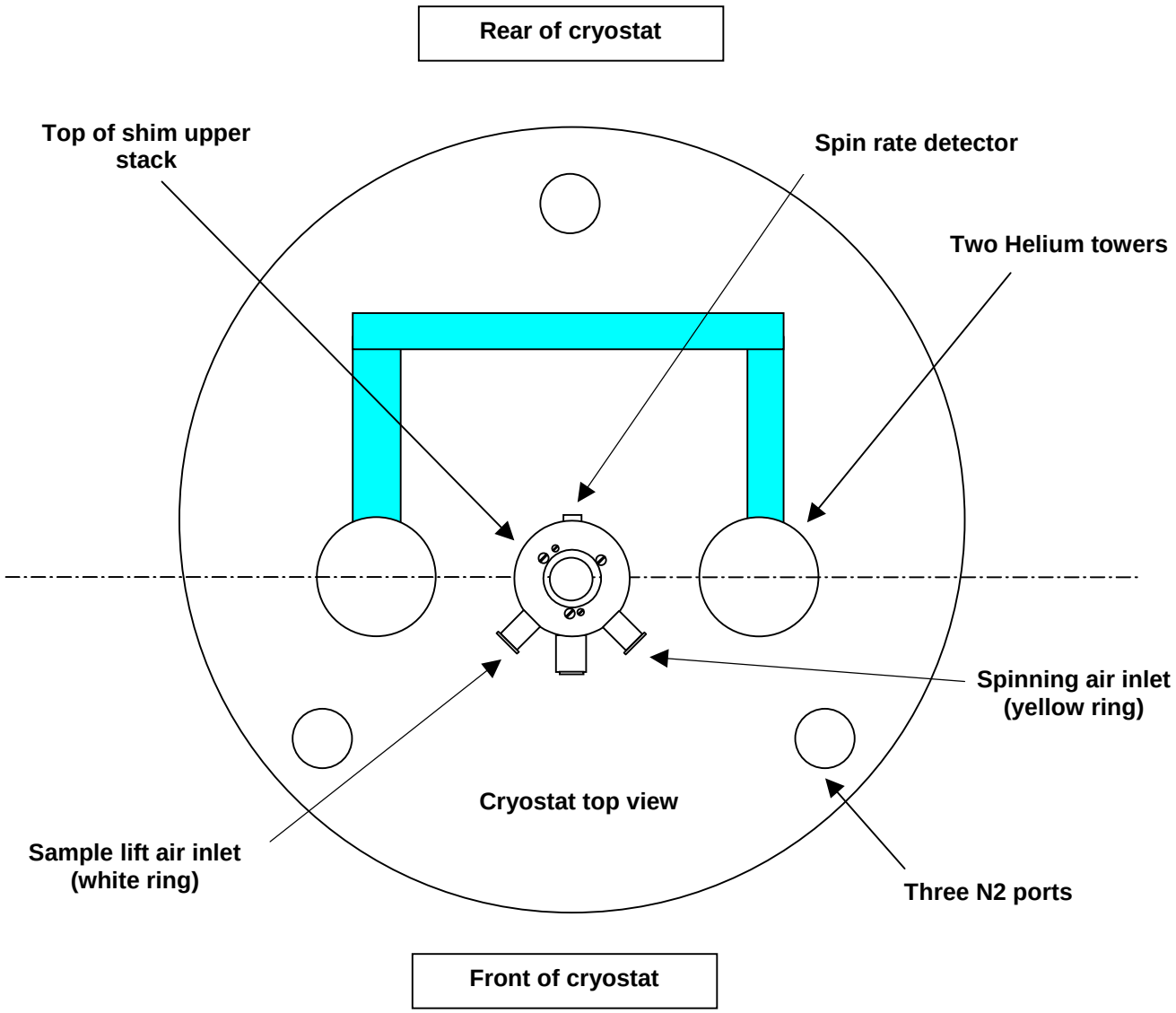


5. Orientation of the shim stack

The shim stack orientation must be as shown. The two air inlets must point to the front of the cryostat. The spin rate cable connector must point to the rear. The shim cable at the bottom of the cryostat must point to the rear.

Precision of the orientation :
The collar for the NMR Case can be rotated by ± 30 degrees; therefore the orientation of the shim stack does not need to be very precise.

Shimming:
If the shim stack needs to be rotated, all new shim settings are necessary. Please consult a BRUKER engineer.



6. Shim stack adapter collars

The following adapter collars are necessary and must be specified when ordering an NMR Case:

Type of shim stack	Shim stack P/N	Shim stack Color	Shim stack top diameter	Spin rate sensor (width)	NMR Case adapter collar P/N
BST	Z9523 Z9524 Z9525 Z9526 Z42416 Z9527 Z46308 Z48798	Red	Ø 75 mm	Built in	B2383, is Included with every NMR Case
Old standard bore		Red	Ø 50 mm	Small (20 mm)	B2902
WB > SB adapter insert	Z7680 Z3972 Z5297 Z6964	Gray	Ø 50 mm	Large (30 mm) Small (20 mm)	B2901 B2902
BST WB/99 > SB	Z46281 Z46282 Z46283 Z47036	Red	Ø 100 mm	Built in	B3155

7. The telescopic legs hit a metal eyelet on the cryostat

Eyelet covers can be ordered from Bruker USA, the part number is B3156. The telescopic legs will rest on top of the eyelet covers.

8. The telescopic legs are too long

Short legs can be ordered. The part numbers are B3743 and B3744, two each are necessary.

9. Electrical outlet requirement

110 Volt AC 60 Hz or 220 Volt AC 50 Hz, 50 Watt.

10. Compressed gas requirement

NMR Case motion controller unit

The NMR Case motion controller unit must be connected to compressed, oil-free, dry and dust-free air. Oil content < 0.005 ppm (0.005 mg/m3), filter size 1 micron, dew point < 4 degrees C.

Alternatively dry nitrogen gas with 99% purity can be used.

The gas pressure should be between 60 to 90 pounds per square inch (4 bar to 6 bar). The necessary flow rate is 0.5 cubic foot per minute (14 liters per minute).

NMR Console

The NMR console has to deliver the sample lift air. Usually, the sample lift airflow needs to be increased above the amount necessary for manual operation.

The sample lift airflow is dependent on the weight of the sample spinners and the length and type of shim stack. For the blue 5 mm spinners and a short BST shim stack, an sample lift air flow of 3.5 cfm (100 l/m) is necessary. Heavy spinners and a long shim stack of an older version than BST need 4.5 cfm (140 l/m). Of course this high air flow is necessary only during the duration of the sample eject/insert cycle (ca 30 seconds).

Consult the site installation manual and make sure there is enough supply airflow and pressure available to allow for a sample lift airflow set fully to the maximum.

Consult the BSMS manual on how to increase the sample lift airflow.

11. Lifting up the helium tower connecting tubes

In some installations the shim stack tube is long and causes the NMR Case sample changer to sit high above the magnet dewar. In this case, there is not enough free space above the NMR Case, because the horizontal helium tower connection tube (T) of the magnet dewar is in the way.

Solution: the tower connection tube (T) can be raised by 90 mm with commercial available vacuum components.

Example: components from Nor-Cal Products, Inc. 1967 South Oregon Street, P.O. box 518, Yreka, California 96097, phone (916) 842-4457 or (800) 824-4166, fax (916) 842-9130

Parts (H): 4 pieces of NW 90° radius elbows part number 2E-NW-25B

Parts (R): 4 pieces of NW clamps, part number NW-25-CP, and 4 pieces of NW aluminum centering rings with Viton o-ring, part number NW-25-CR-AV

Of course, these parts can also be ordered through BRUKER.

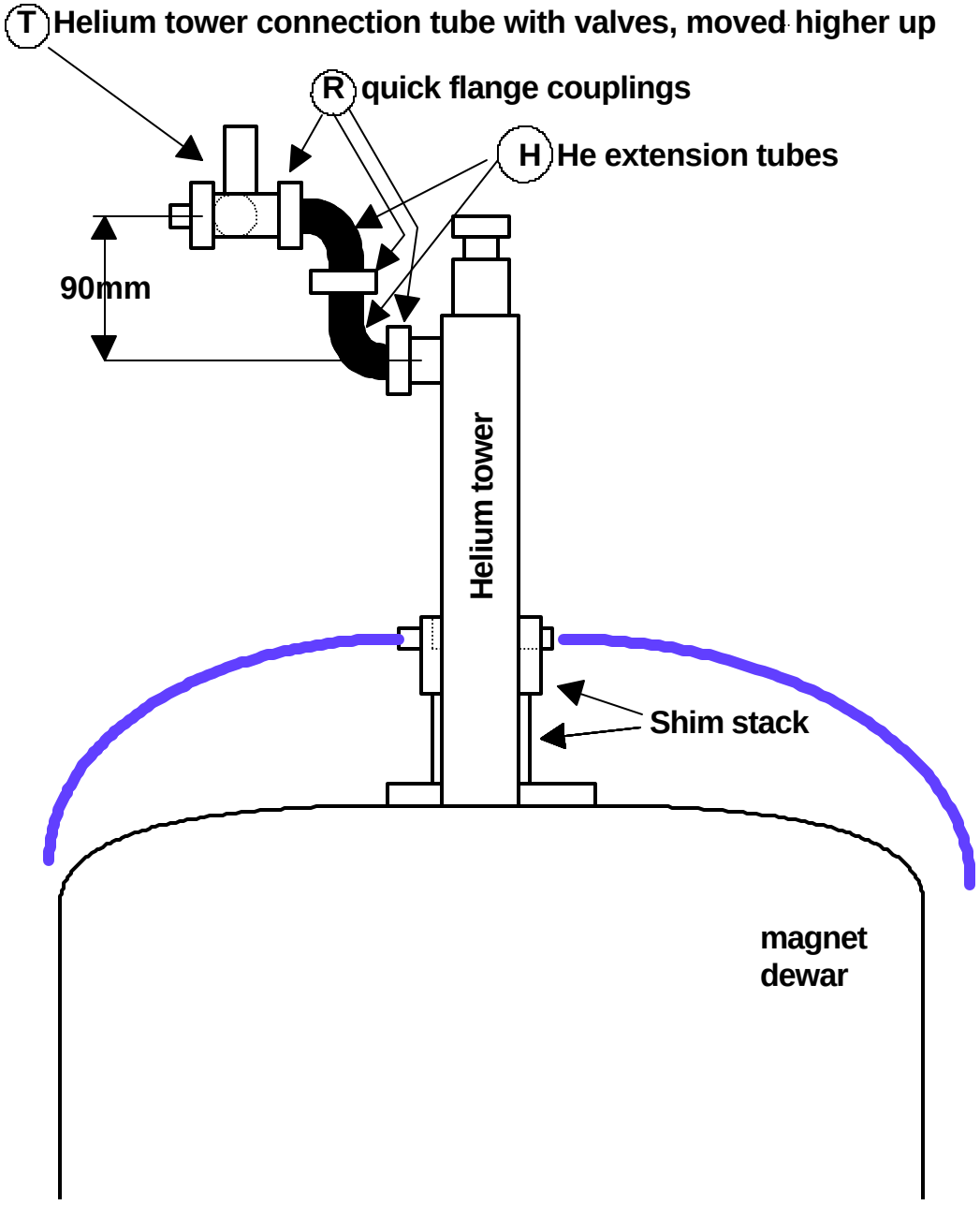
Mounting:

Open the clamps of the two originals quick flange couplings (R) and remove the he tower connection tube from the he towers.

Important: to avoid moisture entering the helium towers, immediately block the two openings into the helium towers with Kleenex tissues.

Connect the two extension tubes to both sides of the horizontal connection tube. Use two clamps and o-rings.

Remove the Kleenex tissues and quickly reconnect the tube assembly to the two helium towers.


T Helium tower connection tube with valves, moved higher up
R quick flange couplings
H He extension tubes
90mm
Helium tower
Shim stack
magnet
dewar

Lifting up the helium tower connection tubes.