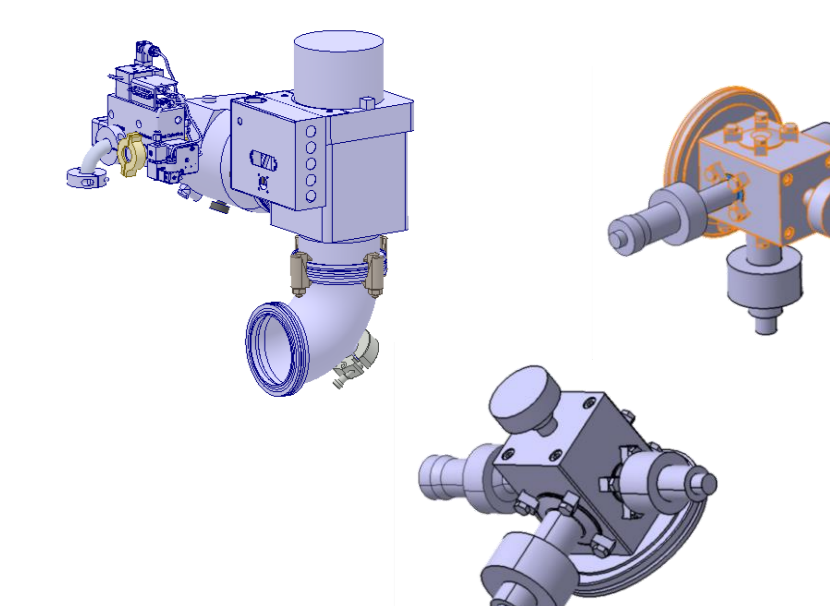
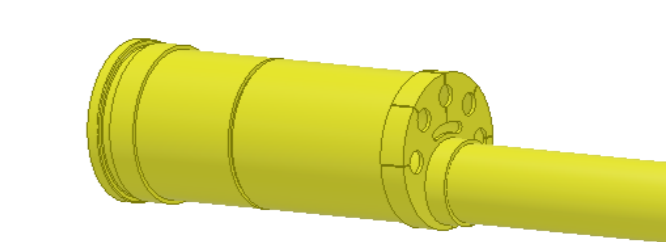
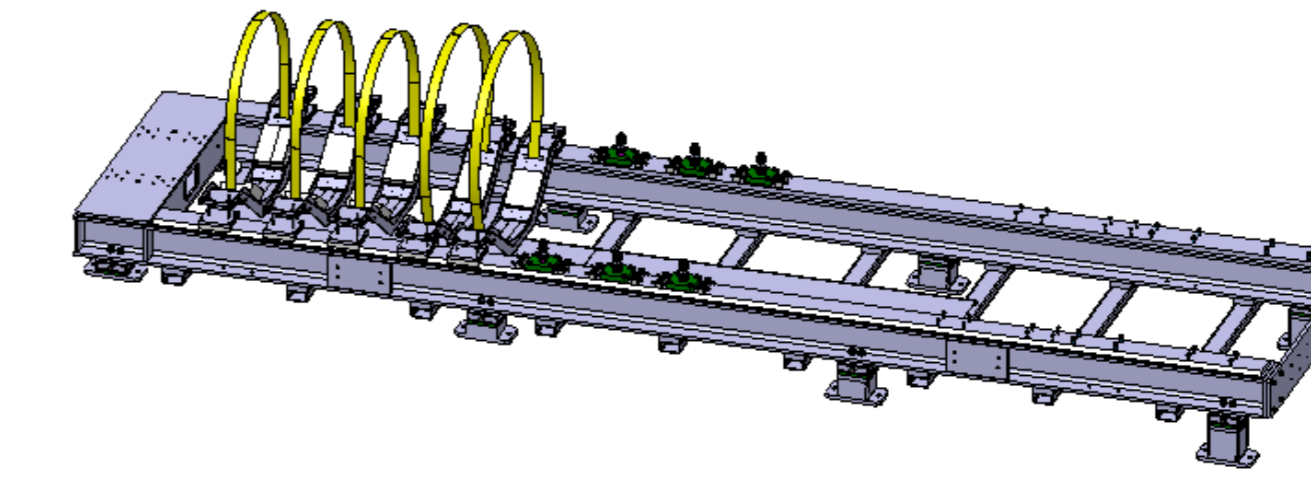
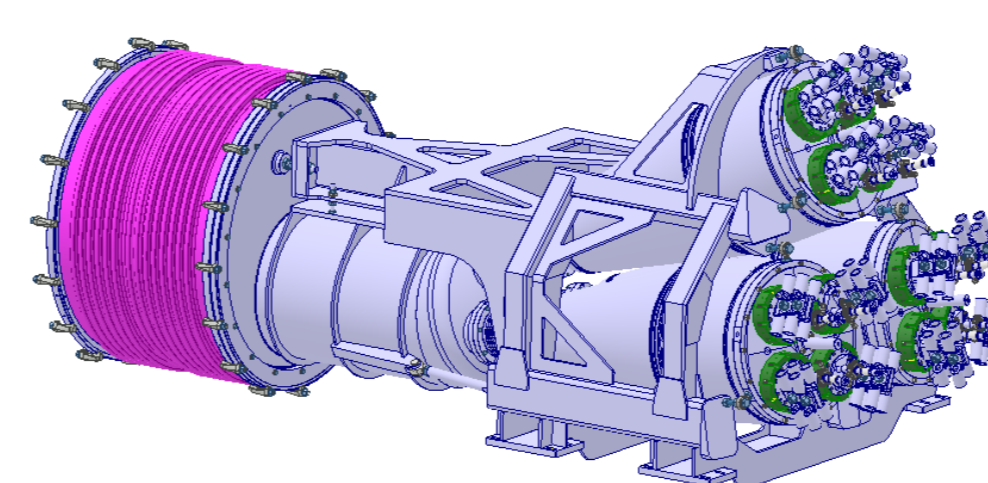
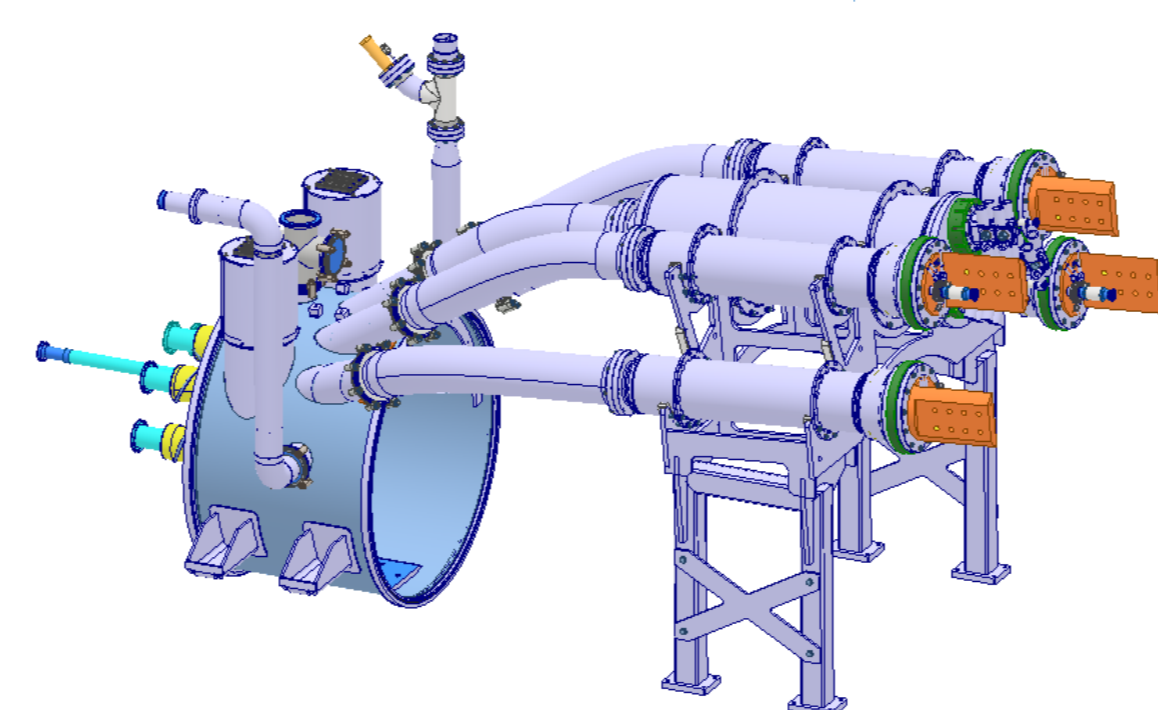
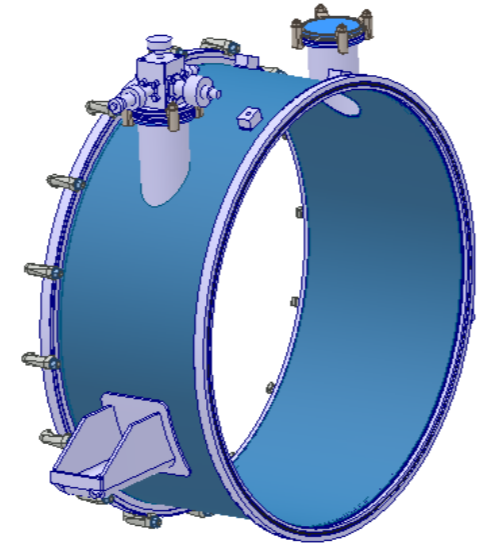
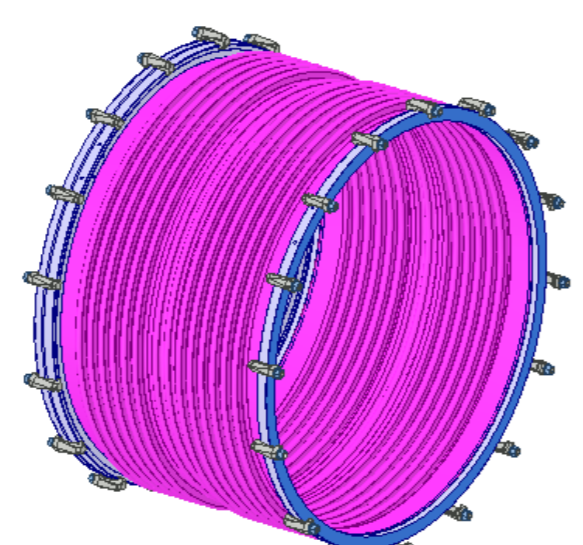
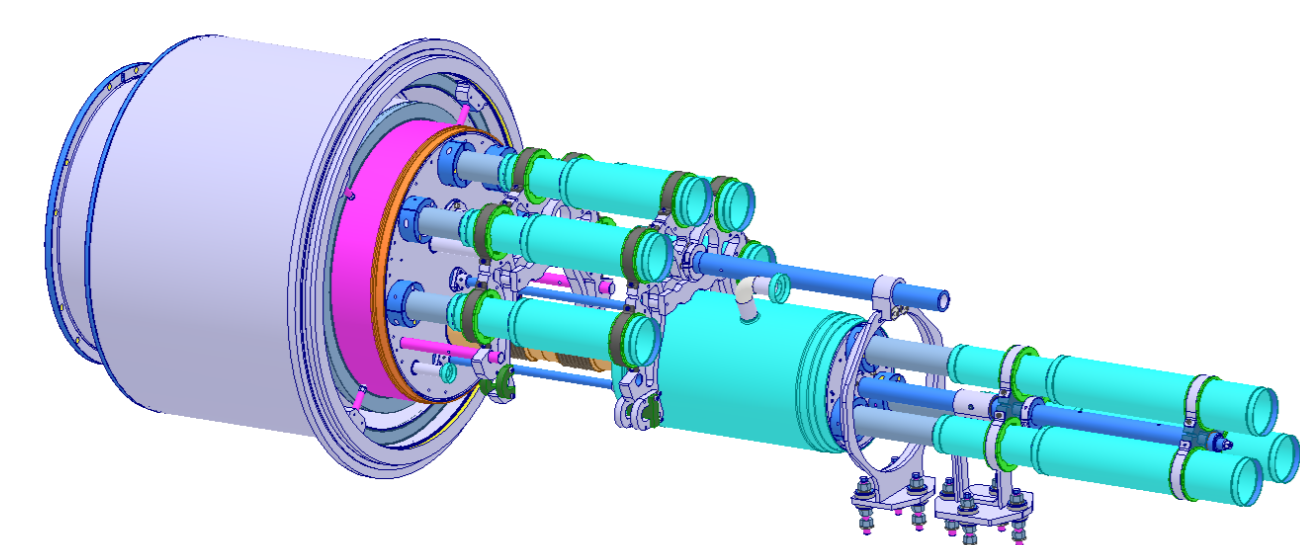
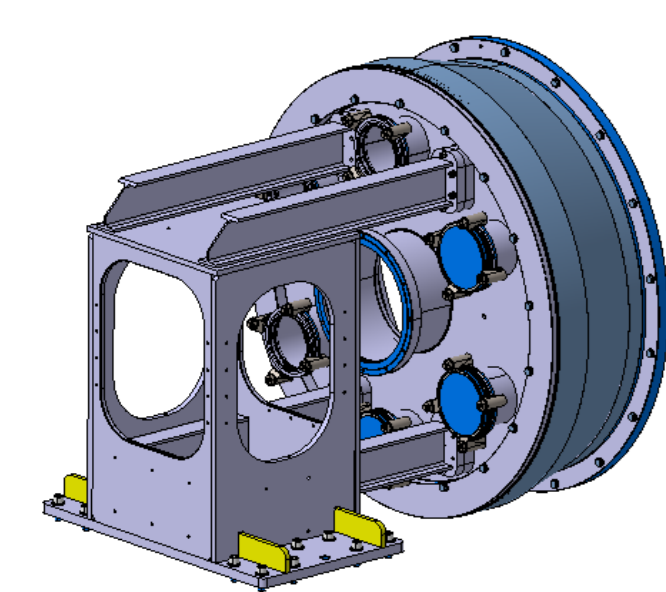


# Assembly drawings follow-up for the DFHX configuration : 9 December 2020

Dwg assembly / ST1228847 / LHCFHX\_0001



Assembly of connection flange to SC Link  
ST1228945 / (DFHX LHCFHX\_0001)

Assembly of cryogenic boxes, barrier and vacuum Ch  
ST1228224

Vacuum chamber flexible  
ST1228718 / LHCFHX\_0006  
Bellows LHCFHX\_0003  
Float flange LHCFHX\_0002  
Rod LHCFHX\_0004  
double flange LHCFHX\_0005  
(tooling to be added)

Assembly vacuum chamber to sleeve  
ST1228841 / LHCFHX\_0008

Assembly module central 13&7 kA  
ST1228803

Assembly module 3 2kA  
ST1228863

DFHX support frame  
ST1295103

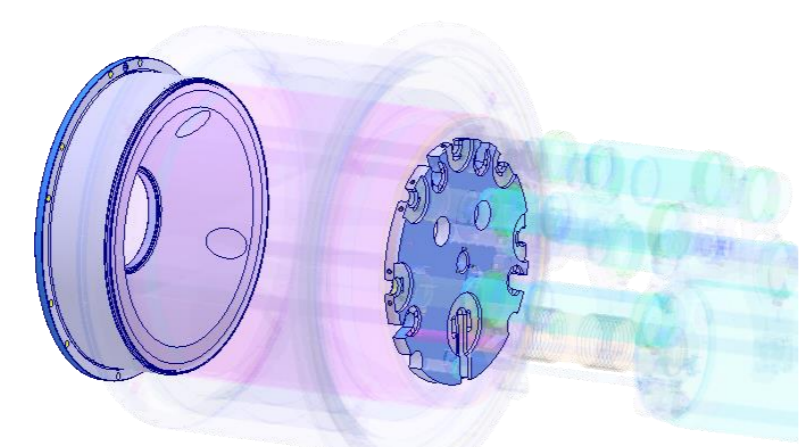
MLU assembly  
ST1331653

Vacuum ancillaries  
VPGFY003-Assembly  
VAZAC MVALVE/3JAUGES PASS  
ST0030627 / LHCV\_0076

Connection flange to Link  
ST1228944 / LHCFHX\_0021  
Vacuum flange LHCFHX\_0023

Assembly front part cryo box  
ST1228227

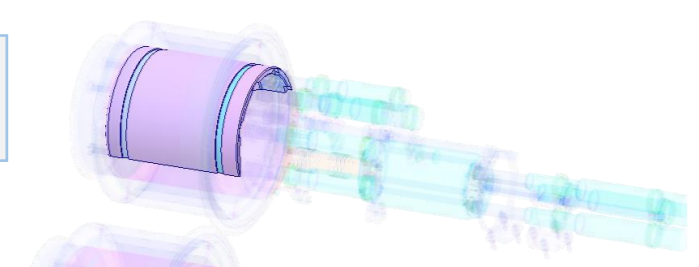
Front part cryo box LHCFHX\_0047  
Plate front LHCFHX\_0046  
Weld strip LHCFHX\_0115



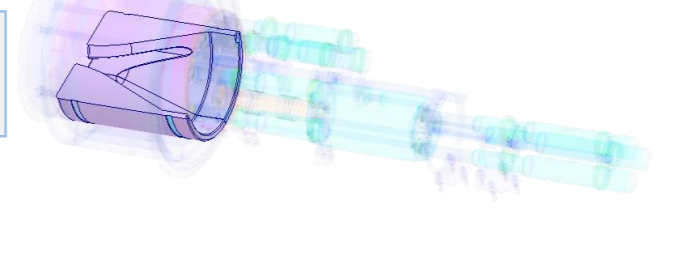
Cable distrib plate LHCFHX\_0048

Fill box1 LHCFHX\_0097

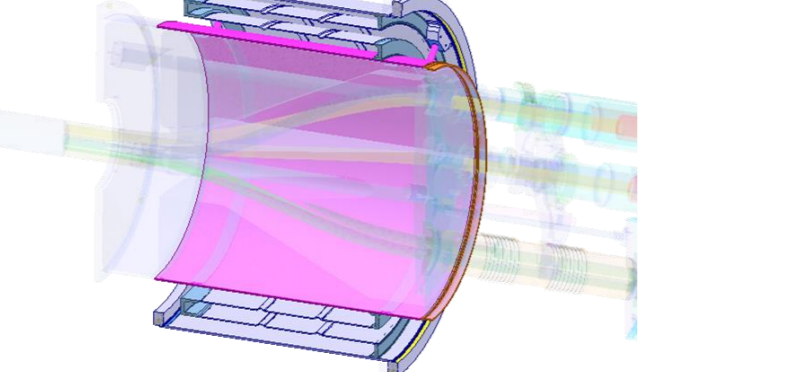
Upper fill  
ST1234764 / LHCFHX\_0095



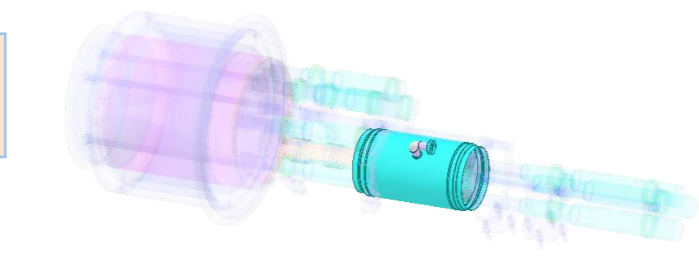
Bottom fill  
ST1234922 / LHCFHX\_0096



Vacuum chamber for thermal dissipation  
ST1198134 / LHCFHX\_0042  
Centring piece LHCFHX\_0043



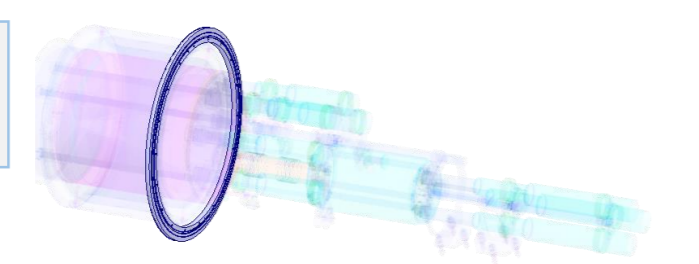
Envelope cryogenic box2  
ST1233640 / LHCFHX\_0049



IFS warm exit x2  
ST1228149 / LHCFHX\_0018  
Flex LHCFHX\_0113

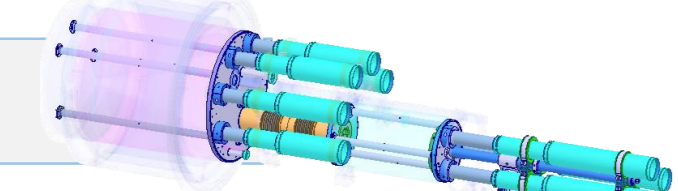


SC Link - Double flange  
ST1228731 / LHCFHX\_0005

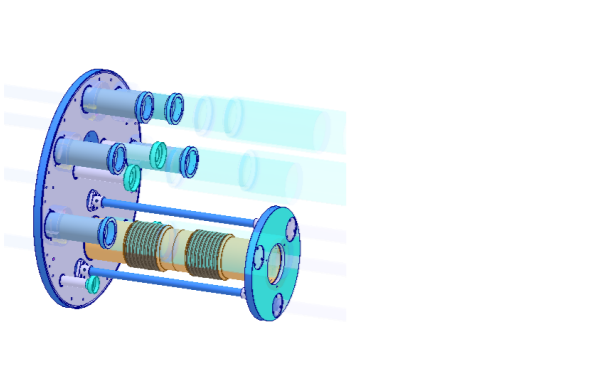


Bride, joint, clamps, pins

Assembly rear part cryo box  
ST1228237



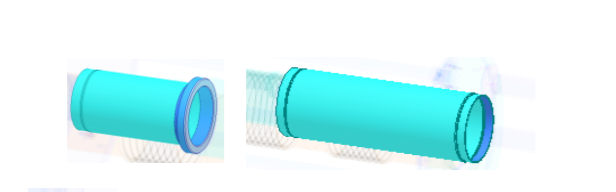
Central Part Cryogenic Box 1&2  
ST1228245 / LHCFHX\_0053  
Central part Cryobox LHCFHX\_0089  
Assembly shaft LHCFHX\_0090  
shaft d20 LHCFHX\_0088  
shaft support LHCFHX\_0057



Rear plate box1 ST1228241 LHCFHX\_0051  
Front plate box2 ST1228260 LHCFHX\_0050

Double bellows ST1352353 LHCFHX\_0102

Sleeve D10 13kA ST1233565 LHCFHX\_0075  
Sleeve 1/2 box1 ST1245876 LHCFHX\_0076

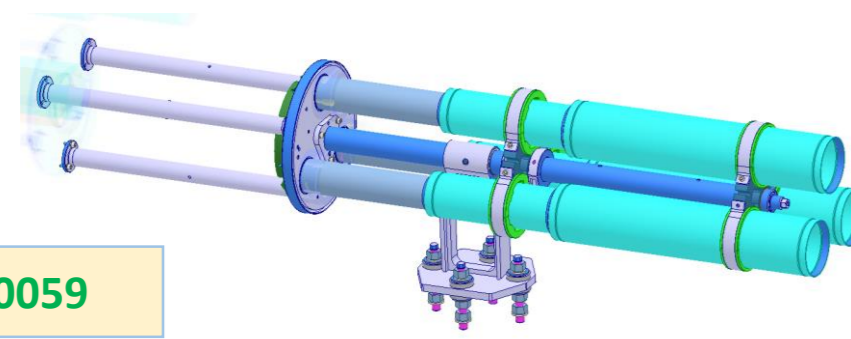


Split ring ST1318240 LHCFHX\_0063

Guide cable  
ST1228318 LHCFHX\_0083  
ST1228267 LHCFHX\_0082



Assembly rear part cryogenic box2  
ST1228273

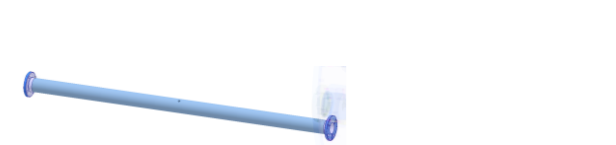


Rear part Cbox2 ST1228276 LHCFHX\_0059

Sleeve 103 2kA ST1233576 LHCFHX\_0092  
1/2 sleeve box2 LHCFHX\_0060

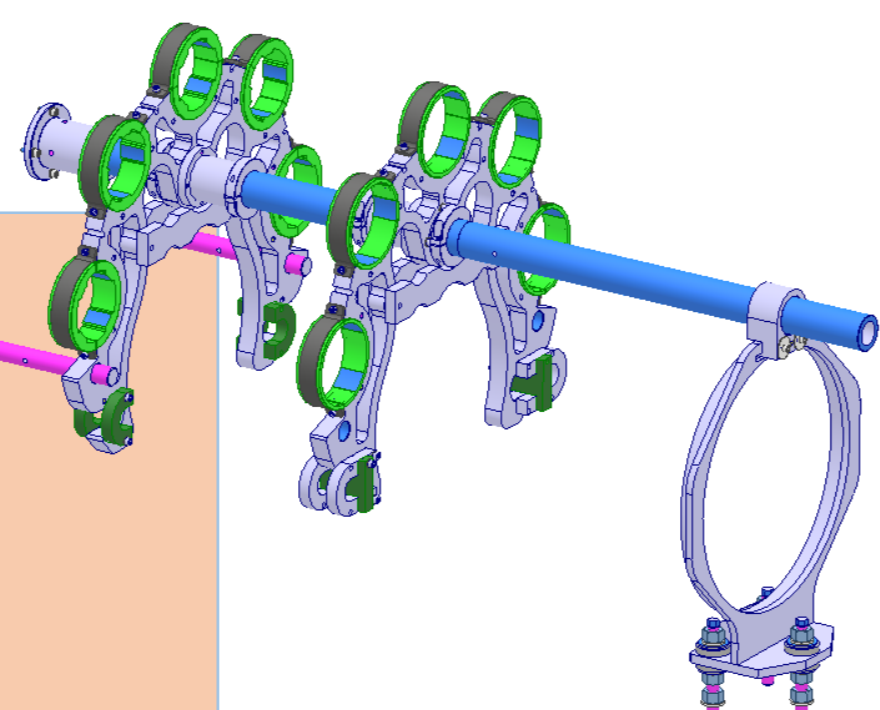
Distrib plate box2 LHCFHX\_0087  
Guide cable box2 LHCFHX\_0084  
Stopped shaft LHCFHX\_0111  
Shaft box2 LHCFHX\_0056  
Box2 support LHCFHX\_0108  
Shaft support box2 LHCFHX\_0058  
Clamp collar D45 LHCFHX\_0086  
Sleeve support plate LHCFHX\_0064

Centring shaft ST1228317 LHCFHX\_0098  
Shaft box1 ST1246013 LHCFHX\_0055

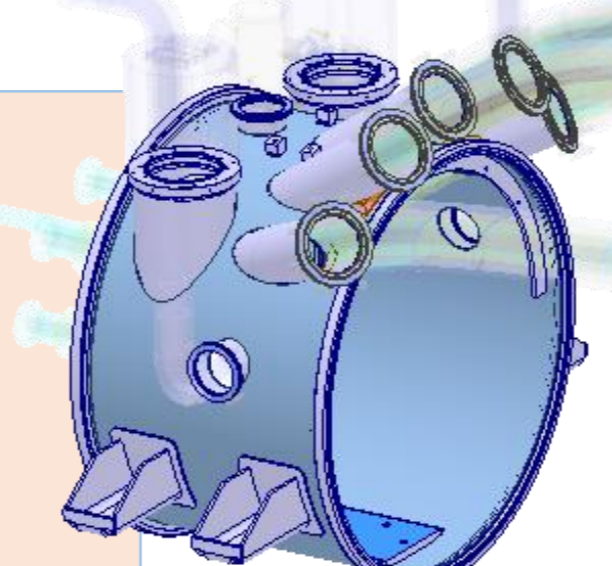


Sleeve support assembly  
ST1326110 / LHCFHX\_0112

Shaft support LHCFHX\_0093  
Shaft machined LHCFHX\_0118  
Male shaft machined LHCFHX\_0119  
Tailstock LHCFHX\_0062  
Support frame LHCFHX\_0061  
Line support IFS LHCFHX\_0079  
Lateral stop LHCFHX\_0080/81  
Clamp D48 LHCFHX\_0085  
Threaded rod M16 LHCFHX\_0109  
Shaft D25 LHCFHX\_0116  
Maintien sleeve  
Clamp LHCFHX\_0074/0077  
Half collar LHCFHX\_0071/0072  
Sleeve support plate LHCFHX\_0054  
Centering ring LHCFHX\_0117  
Line support LHCFHX\_0078/0079/0081



Vacuum chamber central  
ST1298947 / LHCFHX\_0024  
IFS con flange LHCFHX\_0031  
DN100 ISO LHCFHX\_0103  
Blank DN160 ISO LHCFHX\_0033  
Feet LHCFHX\_0069  
module LHCFHX\_0066  
U profile LHCFHX\_0065



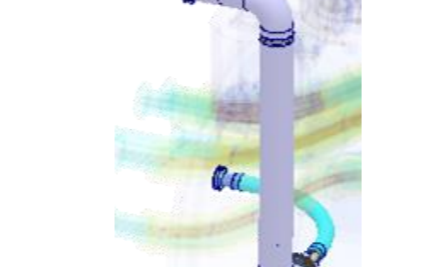
IFS DFHX EXIT  
ST1227826 / LHCFHX\_0009  
Peek LHCFHX\_0010  
Washer plate LHCFHX\_0011  
Vertical rod LHCFHX\_0013  
Perf. Sheet LHCFHX\_0014



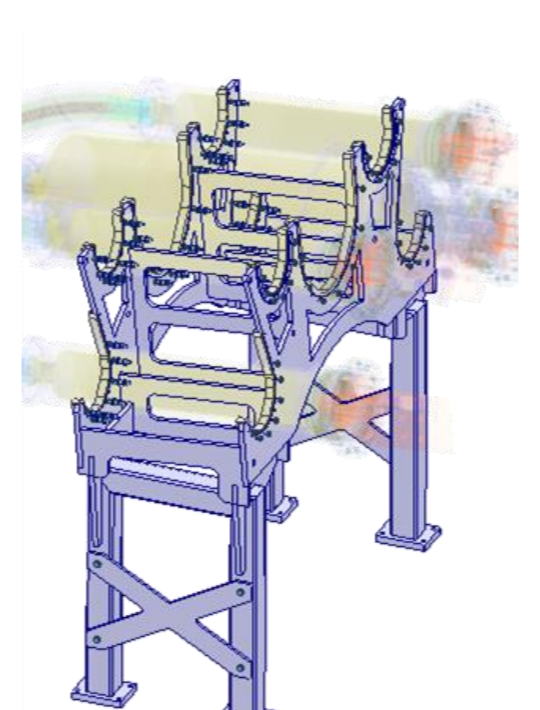
Cryogenic safety line assembly  
ST1330037 / LHCFHX\_0030  
Safety relief Assy LHCFHX\_0028  
Welded chimney LHCFHX\_0204  
Release Safety flange LHCFHX\_0205  
CF63 - interface LHCFHX\_0027  
Swagelock Assy LHCFX\_0234  
Detail LHCFX\_0236  
Cryo safety line LHCFHX\_0029  
Flex DN32 LHCFHX\_0110



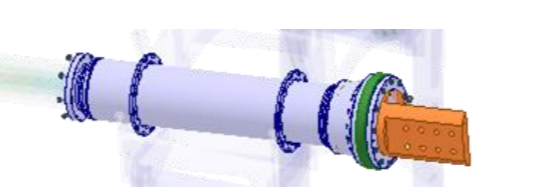
Return line assembly - GHE  
ST1228498 / LHCFHX\_0026  
Flex DN32 LHCFHX\_0114



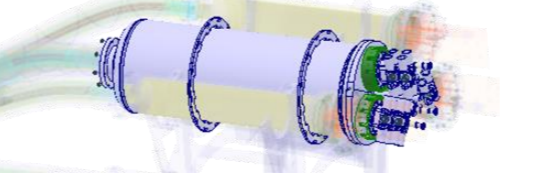
18 kA leads support frame equipped  
ST1246057 / LHCFHX\_0122  
18kA frame welding LHCFHX\_0127  
front plate LHCFHX\_0134  
side plate LHCFHX\_0130  
middle plate LHCFHX\_0132  
stiffener LHCFHX\_0129  
stiffening plate LHCFHX\_0131  
shim LHCFHX\_0133  
Support cross LHCFHX\_0123  
Top ring LHCFHX\_0136  
7kA support ring LHCFHX\_0124  
RS support 18kA LHCFHX\_0125  
LS ring 18 kA LHCFHX\_0126



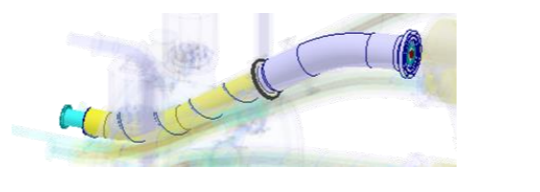
Assy current leads HL-LHC 14/18kA  
ST1313803 / LHCFHLA0001



Common leads 7kA assembly  
ST1231654 / LHCFDLHD0008



Double flexible 7kA assy  
ST1331994



Double flexible 18kA assy  
ST1332335



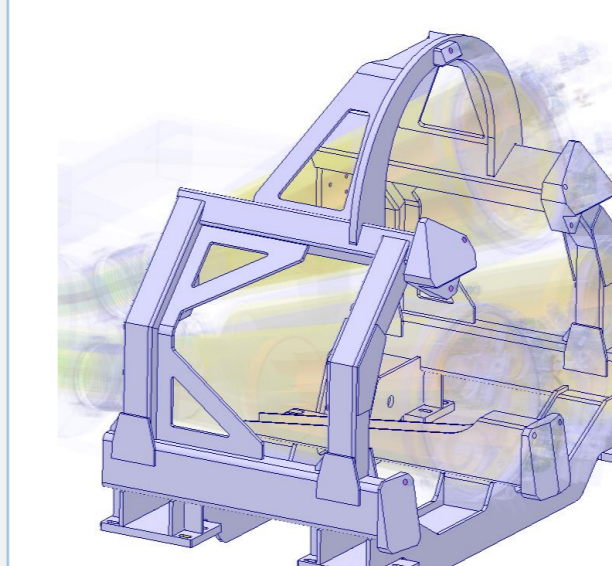
18kA leads support frame welding  
ST1346262



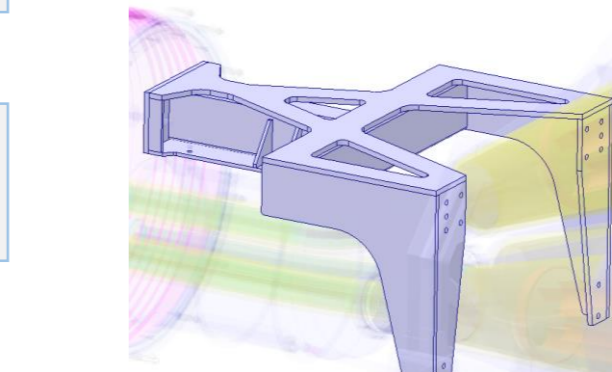
DN100 - ISO K cross  
Clamps, blank flanges, O-rings



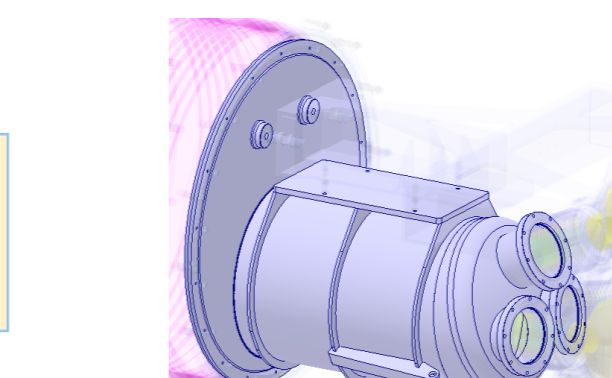
2kA current lead support frame  
ST1239833 / LHCFHX\_0138/0151  
cradle plate LHCFHX\_0139  
central tube LHCFHX\_0140  
Rear cradle LHCFHX\_0141  
Intermediate LHCFHX\_0142  
tube LHCFHX\_0143  
tube LHCFHX\_0144  
tube LHCFHX\_0146  
tube LHCFHX\_0145  
top ring LHCFHX\_0147  
back stiffener LHCFHX\_0148  
rear interface LHCFHX\_0149  
frame anchor LHCFHX\_0152  
stiffening pl LHCFHX\_0161  
side stiffener LHCFHX\_0162  
side stiff LHCFHX\_0163  
front stiff LHCFHX\_0164  
base plate LHCFHX\_0165  
side plate LHCFHX\_0168  
corner stiff LHCFHX\_0169  
seat plate LHCFHX\_0170



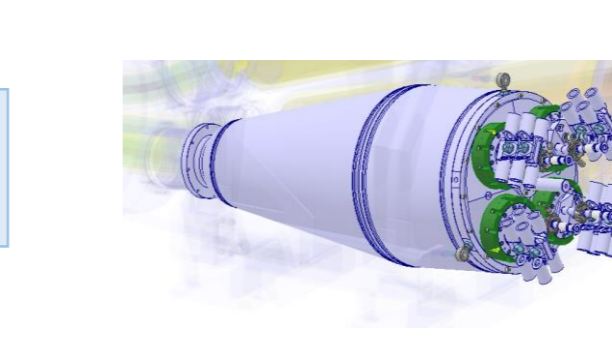
Chamber extremity support  
ST1239440 / LHCFHX\_0137



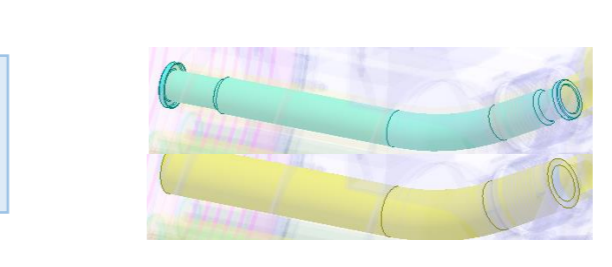
Vacuum chamber extremity  
ST1228482 / LHCFHX\_0044  
Anchor LHCFHX\_0045



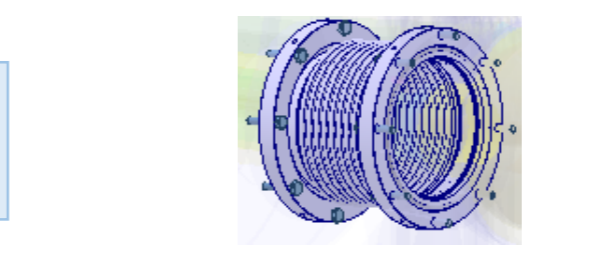
Common leads 2kA assembly  
ST1227142 / LHCFDLHB0018



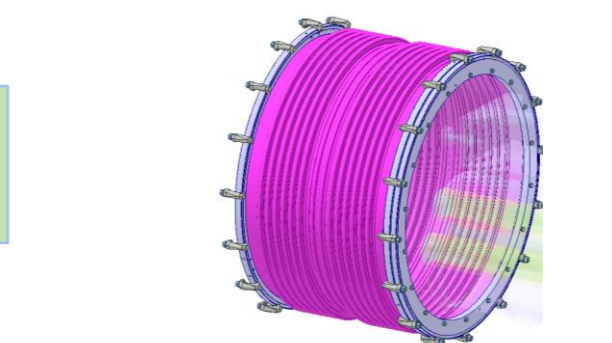
DN65 flexible hose 2kA leads  
MLU flexible hose 2kA



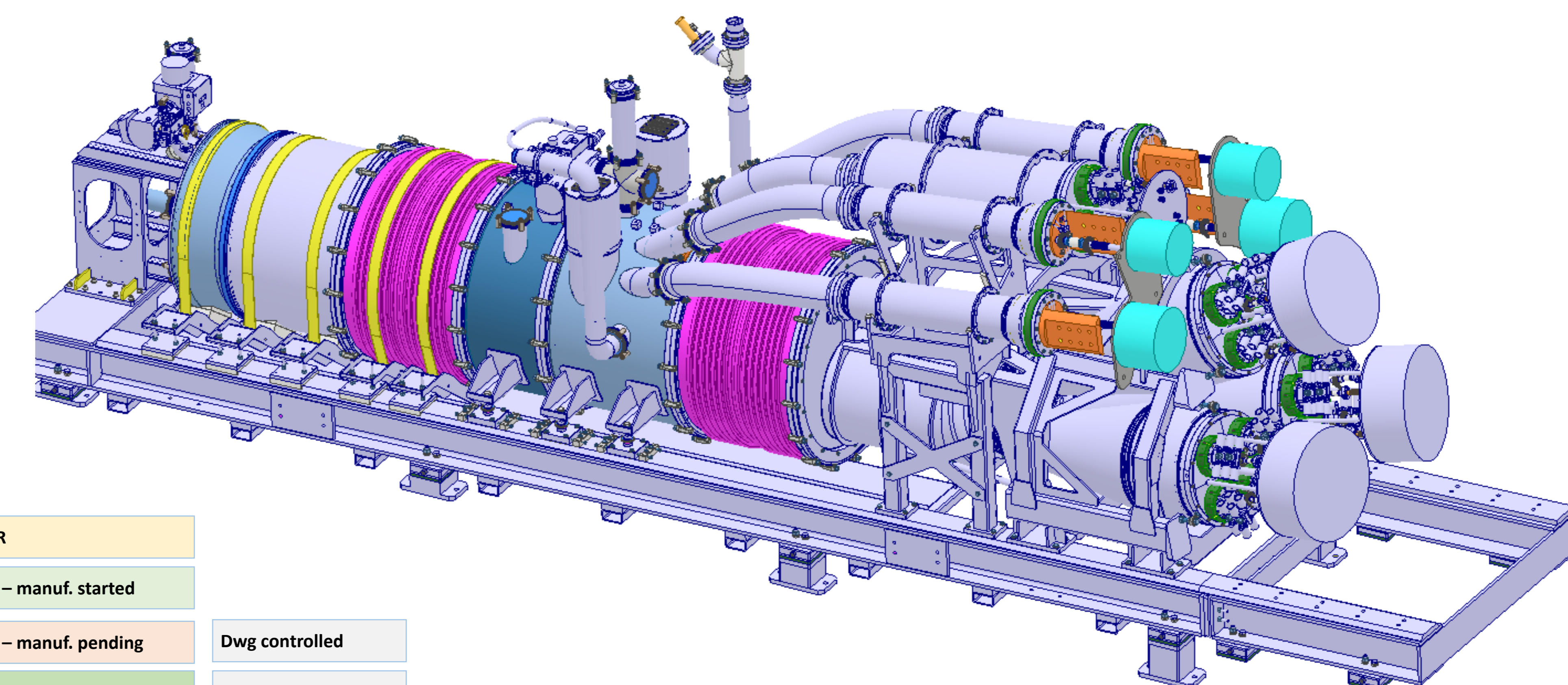
DN160 bellows LHCFHX\_0094



Vacuum chamber flexible  
ST1228718 / LHCFHX\_0006



Traction bar assy  
ST1345731 / LHCFHX\_0067  
Bar LHCFHX\_0068  
Fittings



RFR  
AP - manuf. started  
AP - manuf. pending  
AP - sub-contract started  
AP - sub-cont pending

Dwg controlled  
Dwg In progress

Main Workshop priorities:  
- Cryogenic piping and vessels  
- Main vacuum vessels  
All non-cryogenic nor vacuum vessels parts will be sub-contracted  
- Frame subcontracted in black steel