

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 1/14

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 2/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

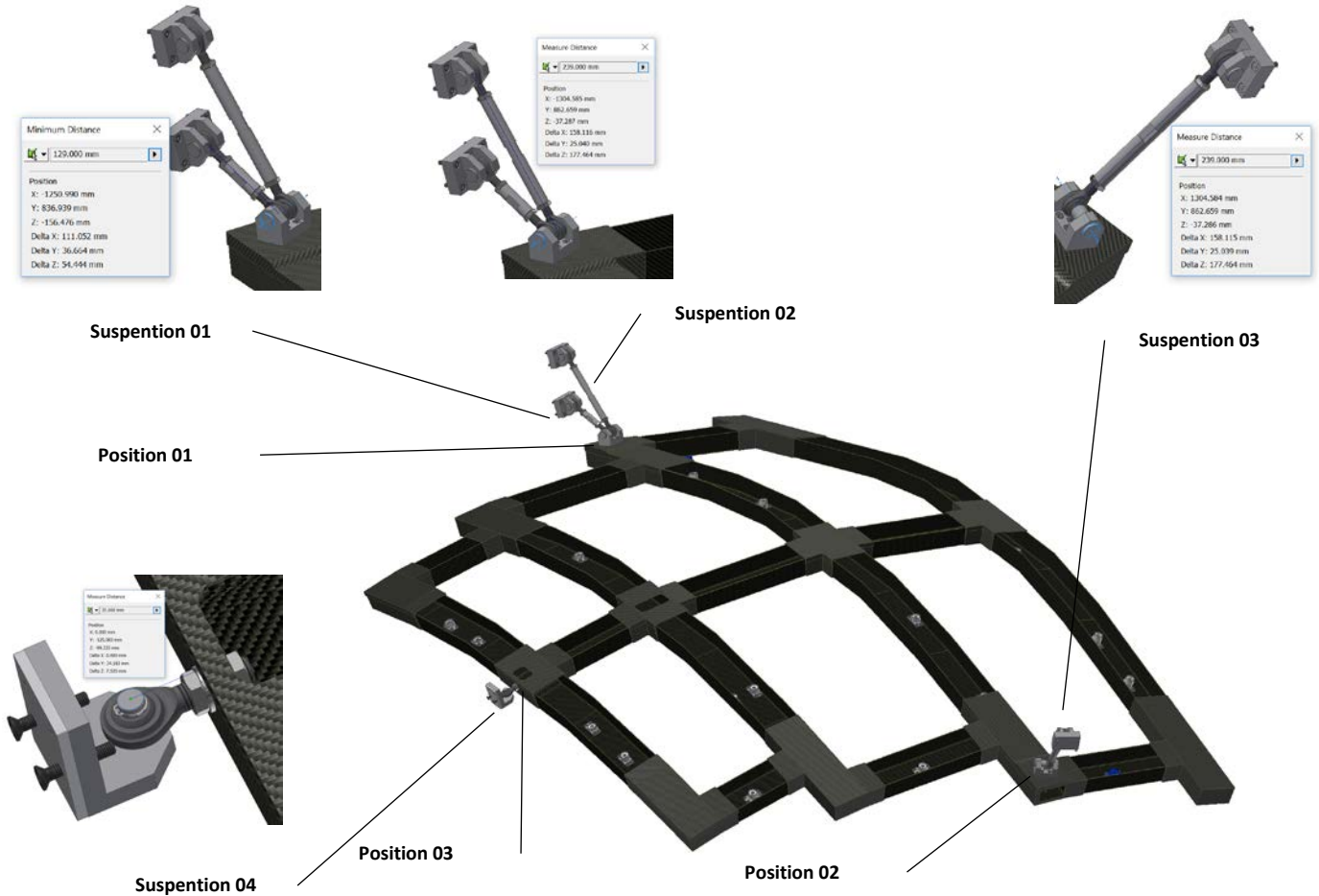
PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

When the CFRP frame is still in the wooden crate:

1. install the mirror suspensions to the CFRP frame as in the positions 1, 2, 3
2. Adjust the length of the suspensions to the theoretical values as in the side picture

The following hardware is required for the positions 1, 2:

- N. 08, ISO 4762 M5 x 25, Bolts M5
- N. 8, ISO 4032 M5, Nuts M5
- N. 8, ISO 7089 5, washers M5



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 3/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

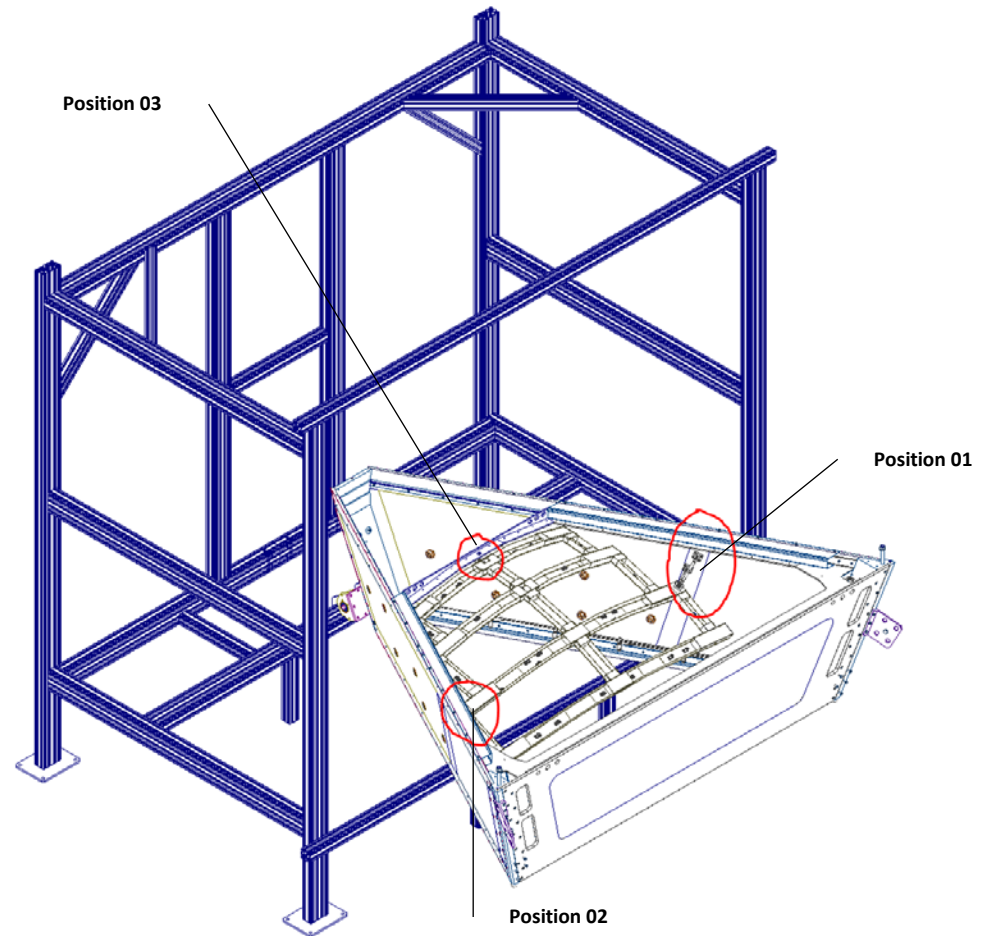
PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

Take the CFRP frame into the RICH shell by hand since the total weight is under 20 kg and fasten the suspensions into the three red circles to the RICH shell.

Three people are recommended to perform this task.

The following hardware is required:

- N. 12 M6x25, positions 1,2
- N. 4 special bolts M6x35, positions 3
- N. 4 washers M6, positions 3
- N.4 Nuts M6, positions 3



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 4/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

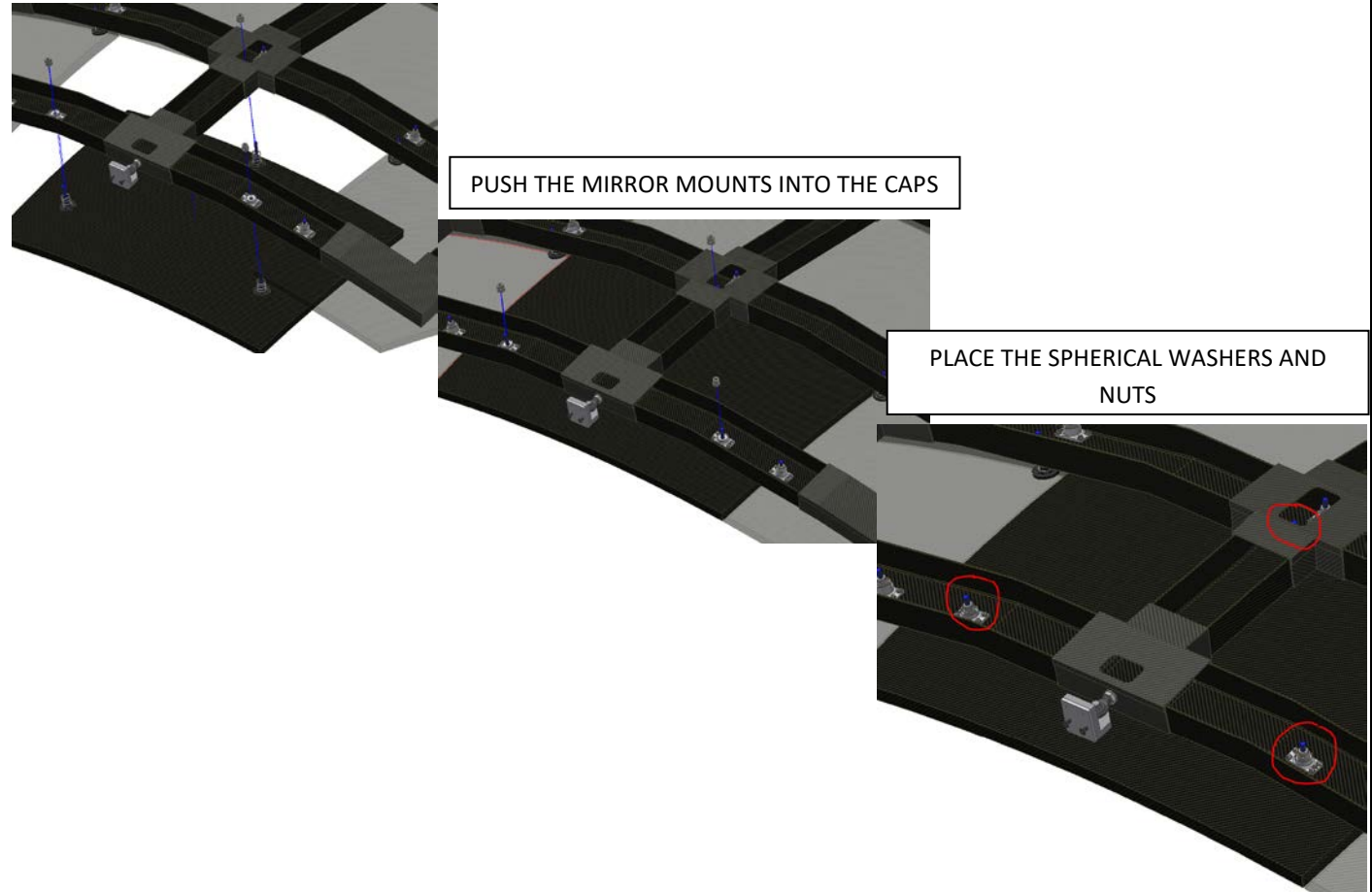
PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

NOTES

RECOMMENDED INSTALLATION SEQUENCE:

1. MIRROR 02 CENTRAL
2. MIRROR 02
3. MIRROR 01
4. MIRROR 05 CENTRAL
5. MIRROR 06
6. MIRROR 05
7. MIRROR 04 CENTRAL
8. MIRROR 03 CENTRAL
9. MIRROR 04
10. MIRROR 03

INSTALL MIRROR 02 CENTRAL FIRST:



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

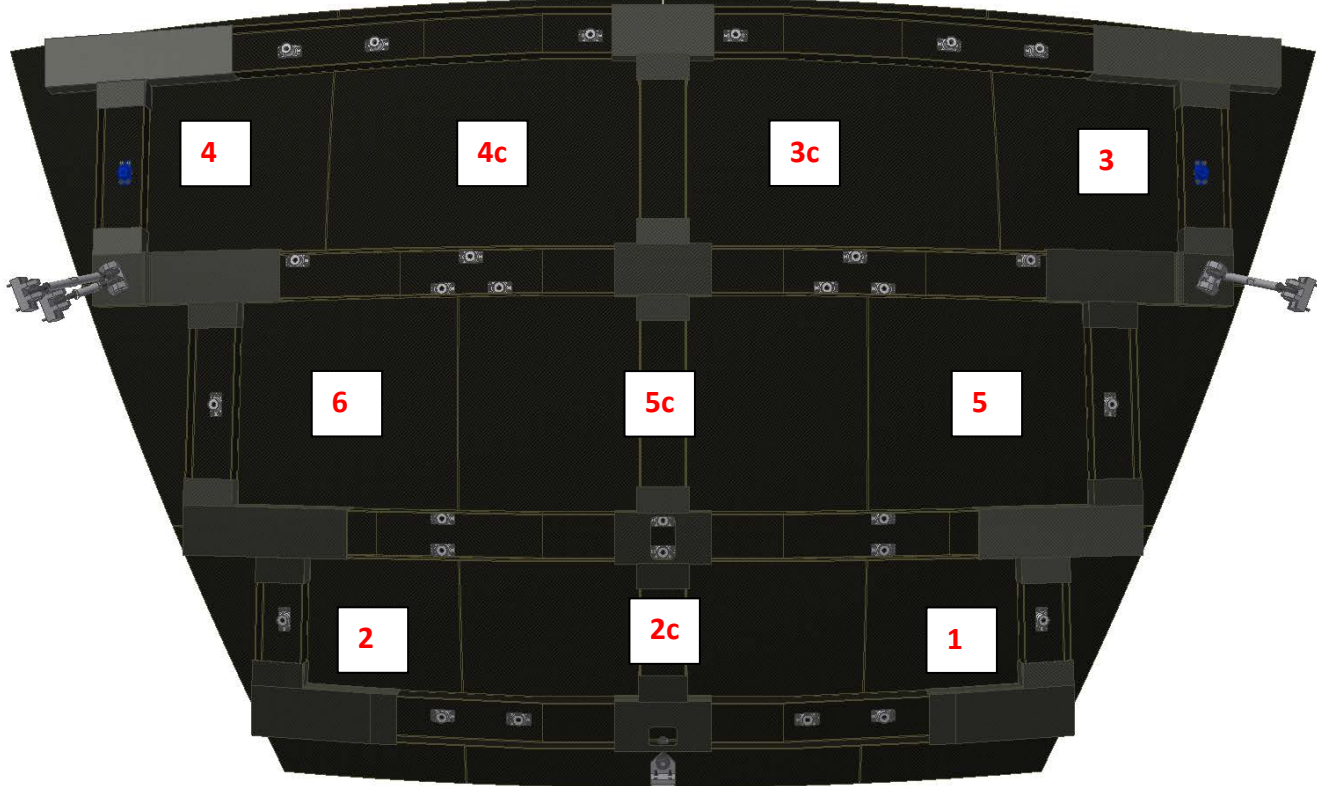
Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 5/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
	<p>MIRROR MAP SEEN FROM THE DOWNSTREAM SIDE (EXIT PANEL)</p>	

PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 6/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
	<p>PRE ALIGNMENT MIRROR MOUNT MAPS.</p> <p>WARNING: The side table will not apply tout court to the mirrors 3 and 4 because of the failure of the mount threted rod during the shipment.</p>	

Mirror Number	Mount Number	Thread Height (mm)
4	1	4.75
	2	20.96
	3	7.28
4C	4	11.86
	5	18.23
	6	10.6
3C	7	20.09
	8	13.66
	9	7.32
3	10	22.64
	11	5.26
	12	4.34
6	13	5.9
	14	10.55
	15	10.01
5C	16	7.69
	17	5.41
	18	10.06
5	19	6.42
	20	5.27
	21	10.35
2	22	8.21
	23	10.09
	24	8.7
2C	25	6.83
	26	8.72
	27	9.82
1	28	7.53
	29	8.3
	30	7.03

PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

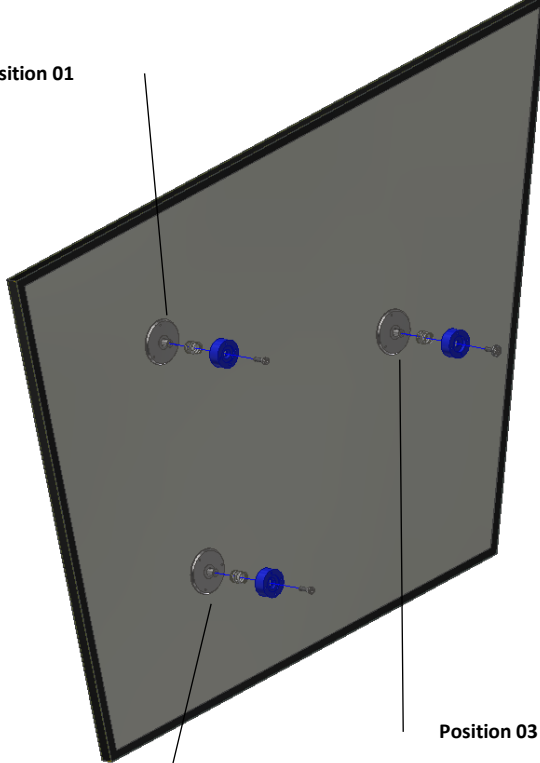
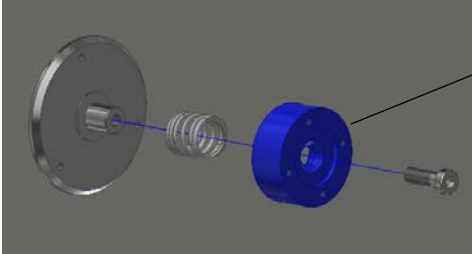
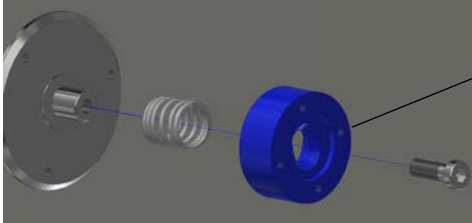
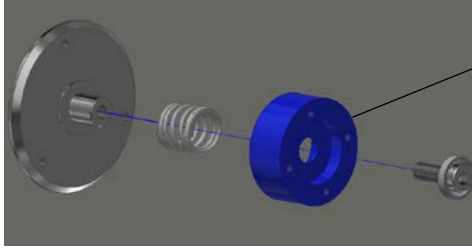
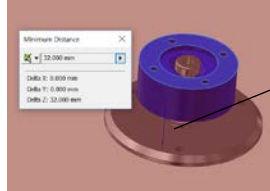
Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 7/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
	<p>Prepare the mirror A2R</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  <p style="text-align: center;">Position 01</p> <p style="text-align: center;">Position 02</p> <p style="text-align: center;">Position 03</p> </div> <div style="width: 50%;"> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Position 01 Cone</p> </div> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Position 02 Slot</p> </div> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Position 03 Plane</p> </div> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Set the height to 32 mm</p> </div> </div> </div>

PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 8/14

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

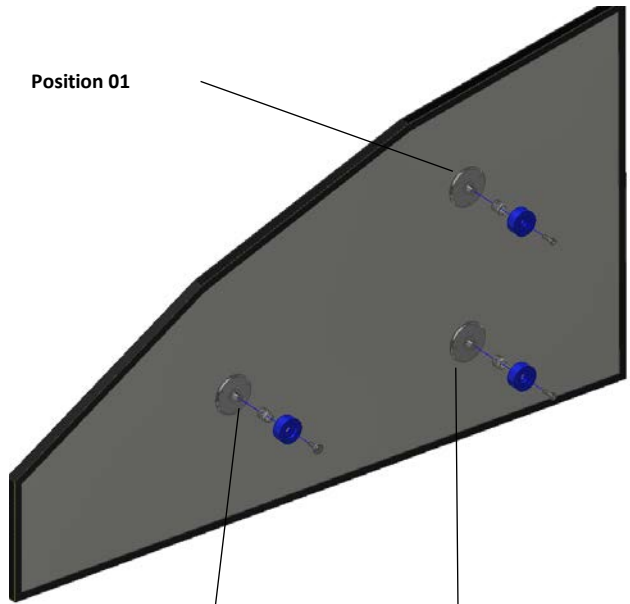
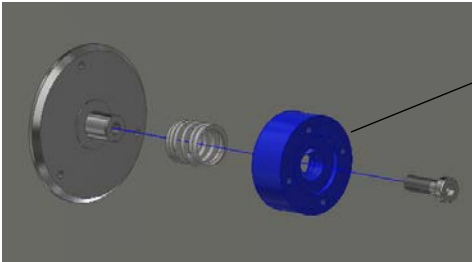
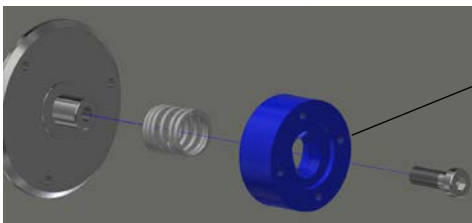
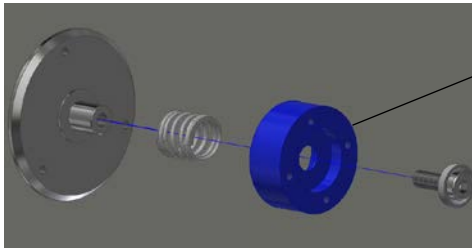
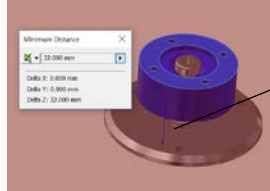
Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 9/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
	<p>Prepare the mirror A1R</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  <p style="text-align: center;">Position 01</p> <p style="text-align: center;">Position 03</p> <p style="text-align: center;">Position 02</p> </div> <div style="width: 50%;"> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Position 01 Cone</p> </div> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Position 02 Slot</p> </div> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Position 03 Plane</p> </div> <div style="margin-bottom: 10px;">  <p style="text-align: right;">Set the height to 32 mm</p> </div> </div> </div>

PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 10/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

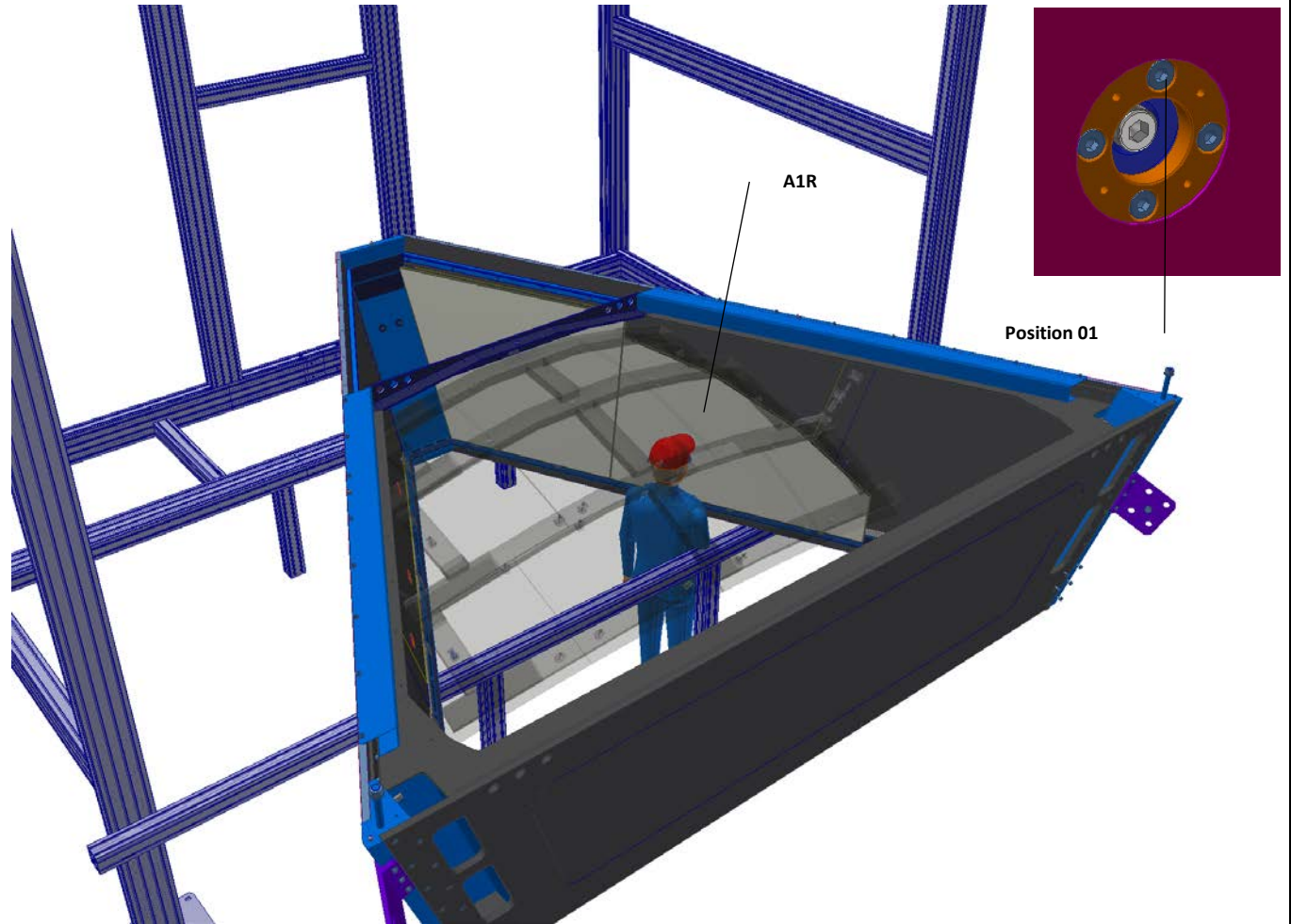
PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

INSTALL MIRROR A1R

Three people are recommended to perform this task.

The following hardware is required:

- N. 12 M5x10, positions 1



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

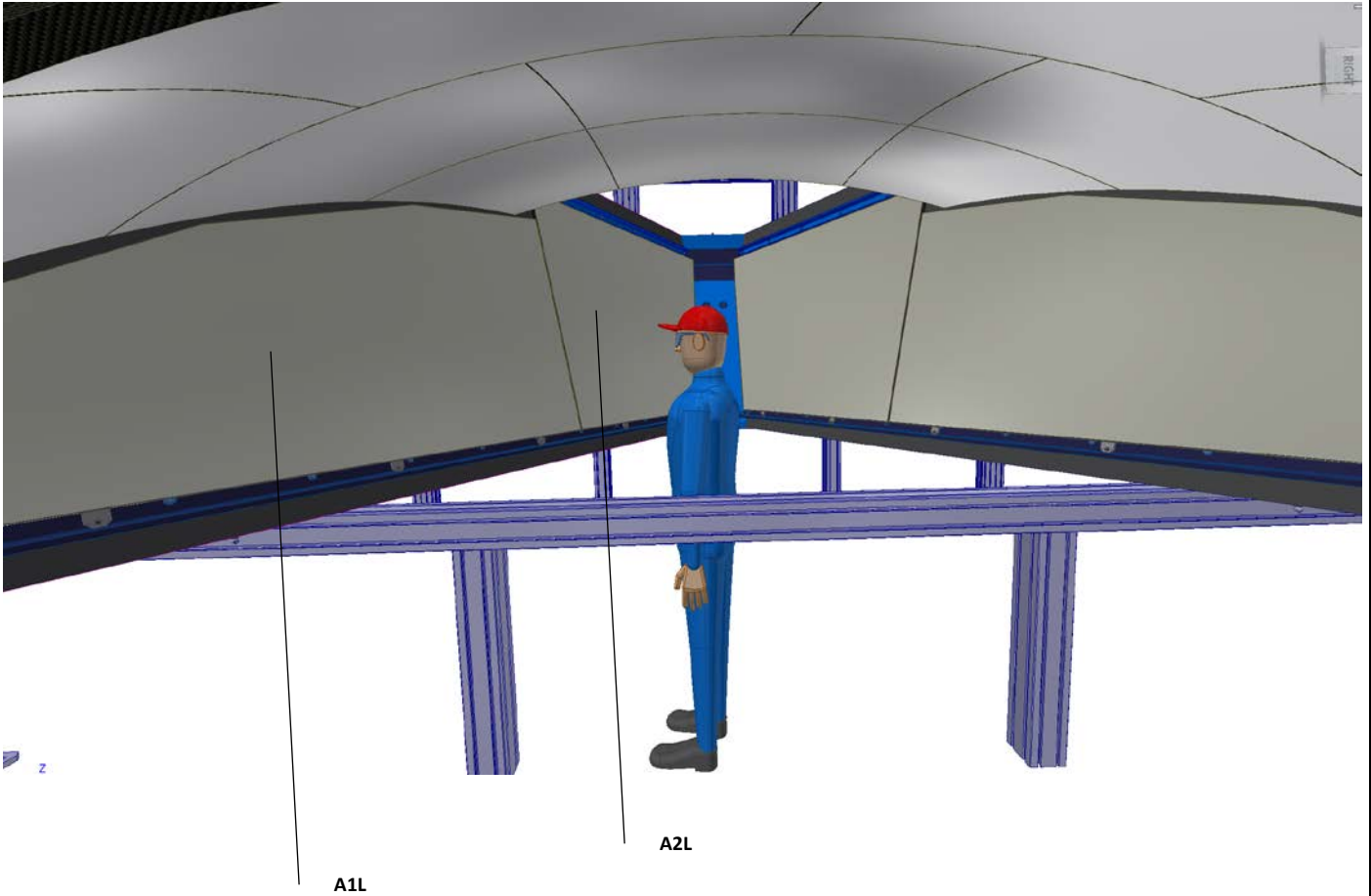
Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 11/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
	<p>Repeat the previous tasks for the installation of mirrors A2L and A1L on the Left side.</p>	

PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 12/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

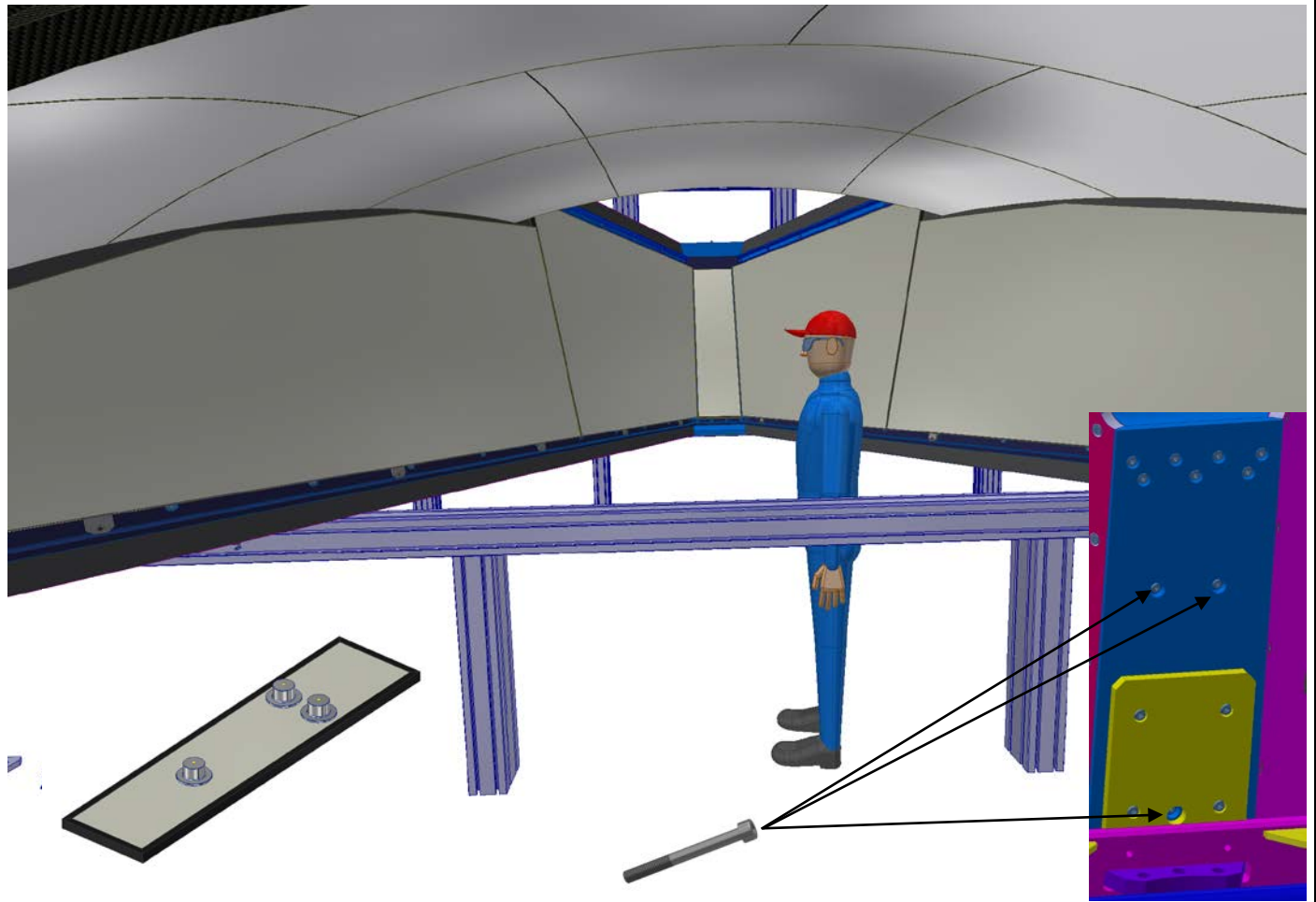
Install the Bottom Mirror:

Two people are recommended to perform this task.

The following hardware is required:

- N. 3 ISO 4762 M6x60
- N. 3 washers 6 mm

Note: this mirror has no adjusters.



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

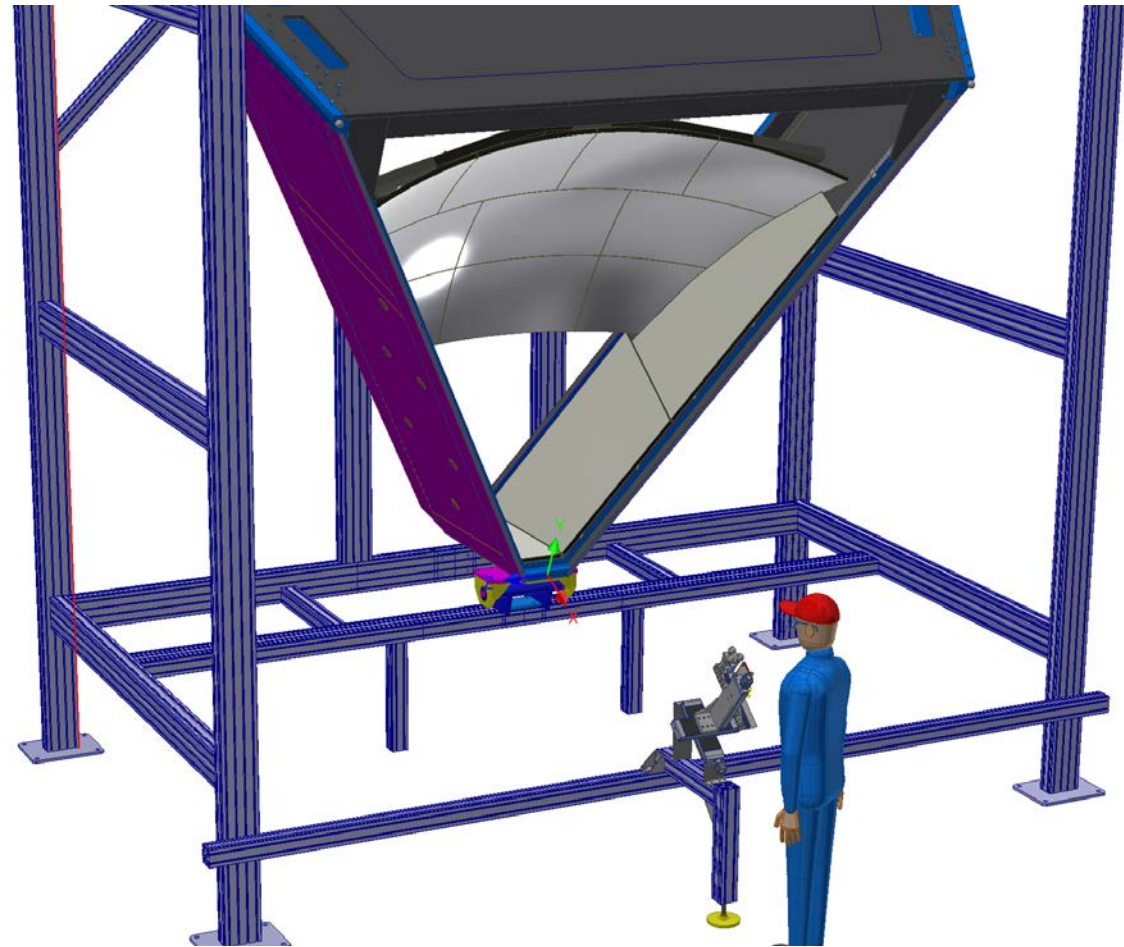
SHEET: 13/14

REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

SPH MIRROR ALIGNMENT:

1. Survey the RICH module with a Lase Tracker and create the reference system as in the picture.



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	

CFRP FRAME-SPH MIRRORS-LATERAL MIRRORS-ASSEMBLY INTO THE RICH SHELL

Mod. 75/95/00

P/N: RICH-001-000

DESCRIPTION: RICH SPHERICAL & PLANAR MIRROR

SHEET: 14/14

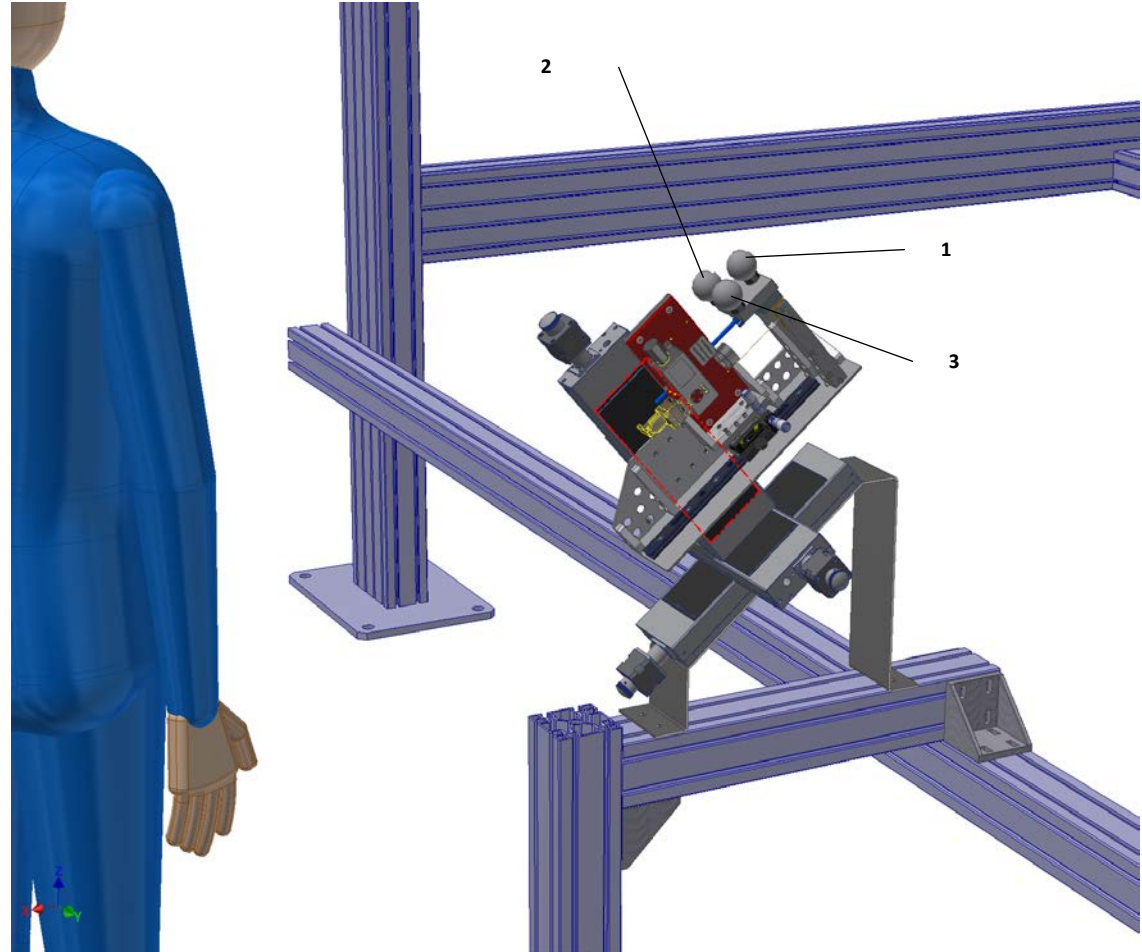
REV.	DATE	REVISION	MODIFIED PHASE	SIGNATURE
0	04/08/2016	FIRST EMISSION	N.A.	

PHASE	DESCRIPTION & NOTE	DRAWINGS
-------	--------------------	----------

SPH MIRROR ALIGNMENT:

1. Install the alignment tool and level the base beam
2. Adjust the position in order to match the following coordinates of the three CCR:

	X	Y	Z
1	1719.002	1004.773	0
2	1760.828	993.566	25.000
3	1760.828	993.566	-25.000



PREPARED BY:	CHECKED BY:	APPROVED BY:
S. Tomassini	S. Tomassini	