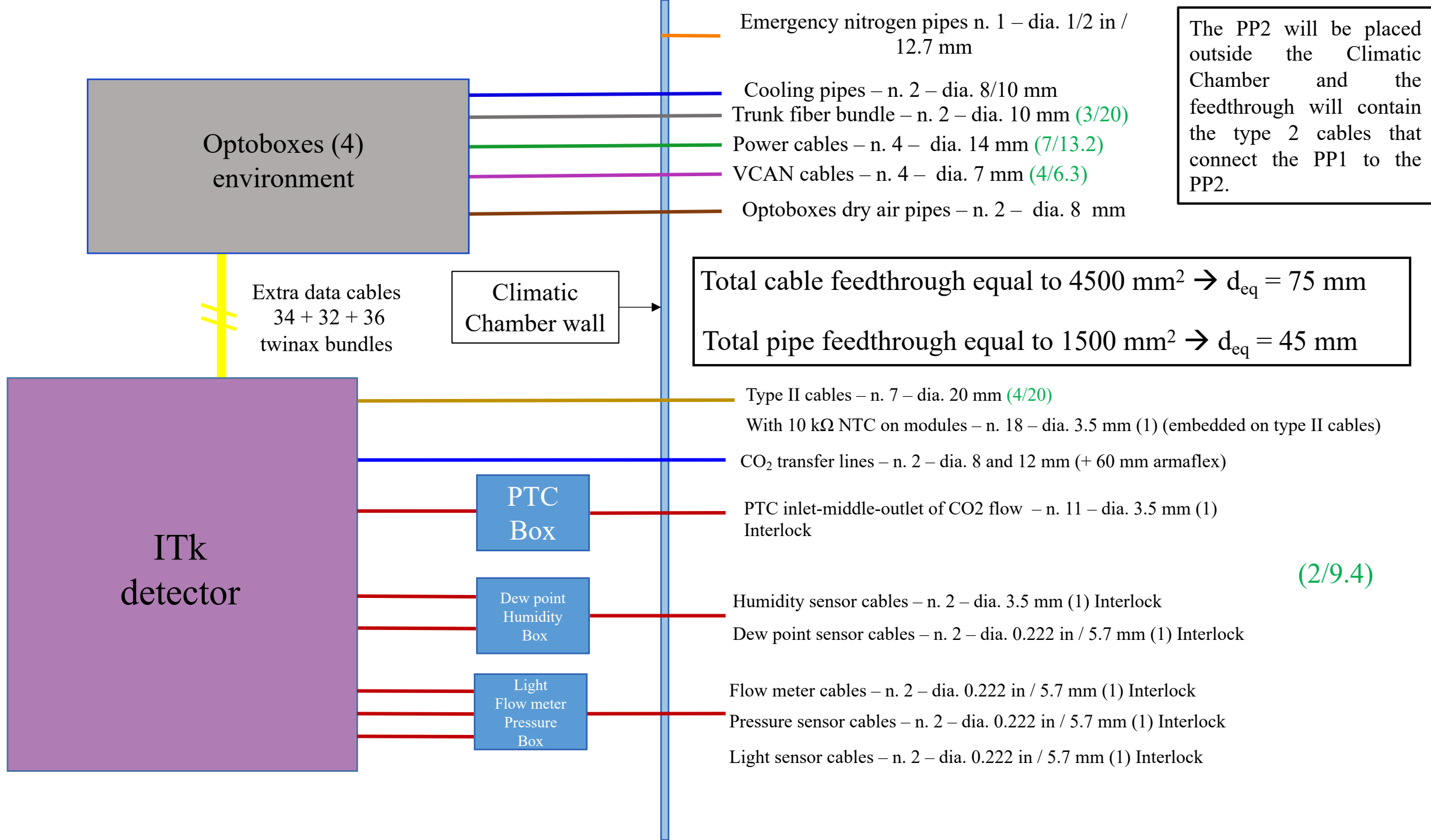


Feedthroughs for the Climatic Chamber



Updates on cables for the climatic chamber feedthroughs

Off-detector services type	Units for one Endcap	Diameter (mm)
Alternative Type-2 power cables (25m)	4 type-N	15 to 20
Env Type-2 power cables (25m)	2	9,4
Type-2 Opto-MoPS (30m)	4	6,3
Type-2 Vopto (25m)	7	13,2
Trunk fibres (25m)	3	20

Table 9: Number of components for each of the different detector sub-system to be tested.

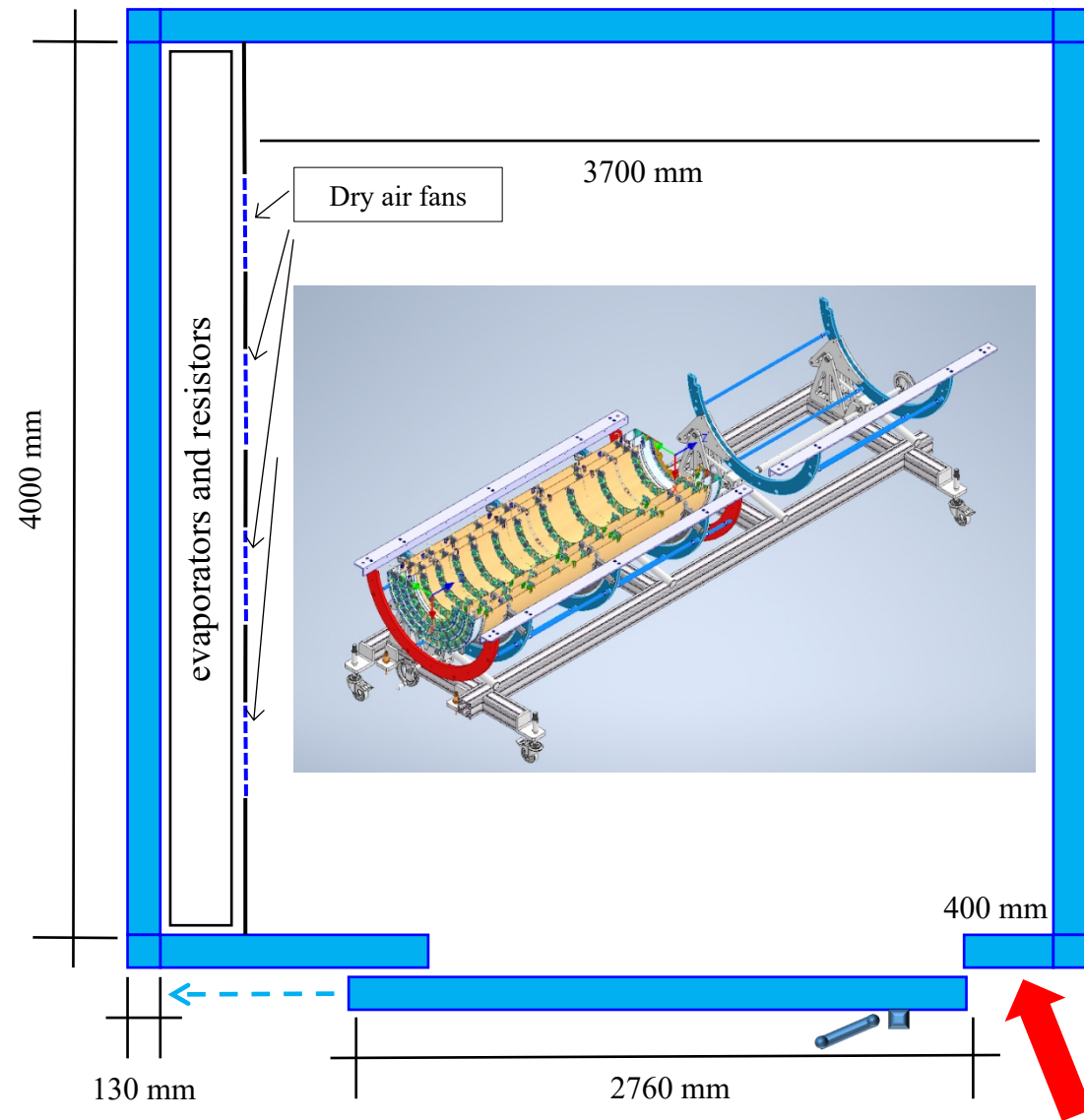
Off-detector services type	#Units for one Endcap (x2 for both Endcaps)	#Units for Outer Barrel layer integration	#Units for Outer Barrel Inclined Unit integration	#Units for Inner System Integration at SLAC	#Units for Inner System Integration in SR1	#Units for Loaded Local Support Reception test of Endcaps (2 sites)	#Units for Loaded Local Support and Inclined Unit Reception test of Outer Barrel (2 sites)	#Units in total	#Units SPARE
PP1 connectors (DCS, power, tilock)	4 (8) type-N	14 type-N	Alternative services	3 type-A, 3 type-N (up to 4 in one testing step)	3 type-A, 6 type-N (up to 7 in one testing step)	Alternative services	Alternative services	31 type-N, 6 type-A	1 type-A (IS), 7 type-N (2 EC, 3 OB, 2 IS)
Alternative Type-2 power cables (25m)	4 (8) type-N	14 type-N	Not used	3 type-A, 3 type-N	3 type-A, 6 type-N	Not used	Not used	31 type-N, 6 type-A	1 type-A (IS), 7 type-N (2 EC, 3 OB, 2 IS)
PP2 boxes Flavour OS Full/IS quad rings	4 (8)	14	Not used	3	6	Not used	Not used	31	4
PP2 boxes Flavour IS Coupled rings	0	0	Not used	3	3	Not used	Not used	6	1
PP3-MoPS-HUB	1 (2)	3	1	1	1	Simplified Version	MHFB	8	1
PP3-MoPS-HUB CIC	12 (24)	39	12	10	16	Not used	Not used	101	9
PP3-MoPS-HUB FPGA	2 (4)	6	2	2	2	Simplified Version	MHFB	16	4
Type-2 Opto-MoPS (30m)	4 (8)	21	3	4	8	2	1	55	4
Type-3 MoPS (3m)	8 (16)	28	?	12	18	Not used	Not used	74 (Numbers to TBC)	4
Type-4 VCAN (80m)	Not needed via Type-4 VPP3	Not needed via Type-4 VPP3	--	Not needed via Type-4 VPP3	Not needed via Type-4 VPP3	Not used	Not needed via Type-4 VPP3	Not needed via Type-4 VPP3	Not needed via Type-4 VPP3

Type-4 VPP3(80m)	1 (2)	2		1	1	Not used		7	2
Type-4 VPP3 (5m)	1 (2)		1	1		Not used		4	2
Type-4 DCS cable (80m) ethernet	1 (2)	4	--	2	1	Not used	1	10	1
Type-4 DCS cable (5m) ethernet	1 (2)	--	1	--	1	Not used	--	4	1
Type-3 TiLock (80m)	4 (8)	14	--	4	7	Not used	3	36	4
Type-3 TiLock (5m)	4 (8)	--	3	4	--	Not used	--	15	2
Type-3 LV (80m)	8 (16)	28	--	8	14	--	7	73	6
Type-3 LV (5m)	8 (16)	--	5	8	--	2	2	33	2
Type-3 HV (80m)	4 (8)	14	--	4	7	--	3	36	4
Type-3 HV (5m)	4 (8)	--	3	4	--	2	2	19	2
LV PSU	2 (4)	6	2	2	3	2	1	20	4
HV PSU	4 (8)	14	3	4	7	2	4	42	4
HV Crate	1 (2)	2	1	1	1	2	3	12	2
LISSY Crate	1 (2)	1	Not used	1	1	Not used	Not used	5	0
DCS PC	1 (2)	2 – 1?	1	1	1	2	1	10	1
VPP3/VCAN PSU	1 (2)	2	2	1	1	Not used	1	9	1
Type-2 Vopto (80m)	7 (14)	21	--	4	8	--	7	54	4
Type-2 Vopto (25m)	7 (14)	--	--	--	--	--	--	14	2
Type-2 Vopto (5m)	--	--	3	4	--	2	--	11	2
Vopto PSU	4 (8)	11	3	1	4	2	1	30	3
Vopto Crate	1 (2)	2	1	1	1	2	1	10	1
Optobox type-N	3 (6)	11	3	2	4	2 (2 boards each)	1	29	1
Optobox type-M	4 (8)	10	--	2	4	--	--	24	1
Naked fan-outs	14 (28)	42	6	8	16	2	1	103	4
MPO24	14 (28)	42	6	8	16	Like LLS QC	1	101	6
Trunk fibres (70m)	3 (6)	8	0	0	5	Not used	1	20	2
Trunk fibres (25m)	3 (6)	--	1	2	--	Not used	--	9	2

Shuffle patch cord	3 (6)	8	2	2	3	Like LLS QC	1	22	3
FELIX boards	6 (12)	18	6	4	8	2	2	52	
FELIX PCs	3 (6)	9	3	2	4	2	2	28	
PP1 connectors (env)	2 type-B, OS 2 type-B	4 type-B, OS 2 type-B	Not used	2 type-B	2 type-B	Not used	Not used	14 type-B	5 type-B (2 EC, 1 OB, 1 IS)
Env Type-2 power cables (25m)	2(4)	6	1	2	2	Not used	Not used	15	4
Env PP2 SCB	(4)8 connector	8 connector	1 connector	4 connector	4 connector	Not used	Not used	25	3
Env PP2 Crates	(1)2	1	1	1	1	Not used	Not used	6	1
Env PP2 Ethernet	(1)2	1	1	1	1	Not used	Not used	6	1
Twinax Extenders	32 (64)	84	Not used	TBD if used	TBD if used	Not used	Not used	XX	XX
Off-detector services type	#Units for one Endcap (x2 for both Endcaps)	#Units for Outer Barrel layer integration	#Units for Outer Barrel Inclined Unit integration	#Units for Inner System Integration at SLAC	#Units for Inner System Integration in SR1	#Units for Loaded Local Support Reception test of Endcaps (2 sites)	#Units for Loaded Local Support and Inclined Unit Reception test of Outer Barrel (2 sites)	#Units in total	#Units SPARE

	A	B	C	D	E	F	G
1							
2	Cable type	Routing	Diameter (mm)	Minimum static bending radius (mm)	Minimum static bending radius incl SF 1.5 to be used in CAD (mm)	Connector type on-detector side	Connector type off-detector side
3	type-2 power bundles	PP1 to PP2	15 to 20	100,00	150,00	Custom Glenair connector with filter male @PP1end	D38999/26FJ4PN male @PP2 end
4	alternative type-2 power bundles	PP1 to PP2	TBD	TBD	TBD	Custom Glenair connector with filter male @PP1end	D38999/26FJ4PN male @PP2 end
5							
6	type-2 opto PWR	optobox to rack room	13,20	90,00	135,00	DSUB25 DTS25PX (male)	??
7							
8	Type-2 Opto-DCSBundlesMOPS	optobox to PP3 MoPS-Hub	6,30	50,00	75,00	SUB9 DTS09PX (male)	DSUB9 male @PP3 end
9	type-3 MoPS	PP2 to PP3 MoPS-Hub	6,30	50,00	75,00	DSUB9 (female @PP2 end)	DSUB9 (male @PP3 end)
10	type-3 tilock	PP2 to LISSY	6,30	50,00	75,00	DSUB9 (male @PP2 end)	DSUB9 (male @PP3 end)
11							
12	type-3 LV	PP2 to rack room	14/16	200,00	300,00	Positronic male VMCT34M00POYO	Positronic male VMCT34M00POYO
13							
14	type-3 HV	PP2 to rack room	12,00	80,00	120,00	REDEL 22pins (KAAH22) SCEM09.41.34.108.	REDEL 51pins (SAGH51) SCEM09.41.34.250.7
15							
16							
17	type-4 VPP3 (also VcanbuPSU, VPP3, EMCI module)	PP3 MoPS-Hub to rack room	19,00	80,00	120,00	DSUB9 ??	DSUB9 ??
18							
19							
20	type-4 VcanbusPSU (also VcanbuPSU, VPP3, EMCI module)	PP3 MoPS-Hub to rack room	19,00	80,00	120,00	DSUB9 ??	DSUB9 ??
21							
22							
23	type-4 DCS Data cable	PP3 MoPS-Hub to rack room	standard ethernet cable			??	??
24							
25	interlock unit matrix						
26	rack room cables						
27	twinax extensions						
28	interlock connections. PSU to LISSY	fibres					
29							
30	Env type-II	PP1 to PP2	2 x 9.4				
31	trunk fibres		20,00				
32	shuffle boxes						
33							



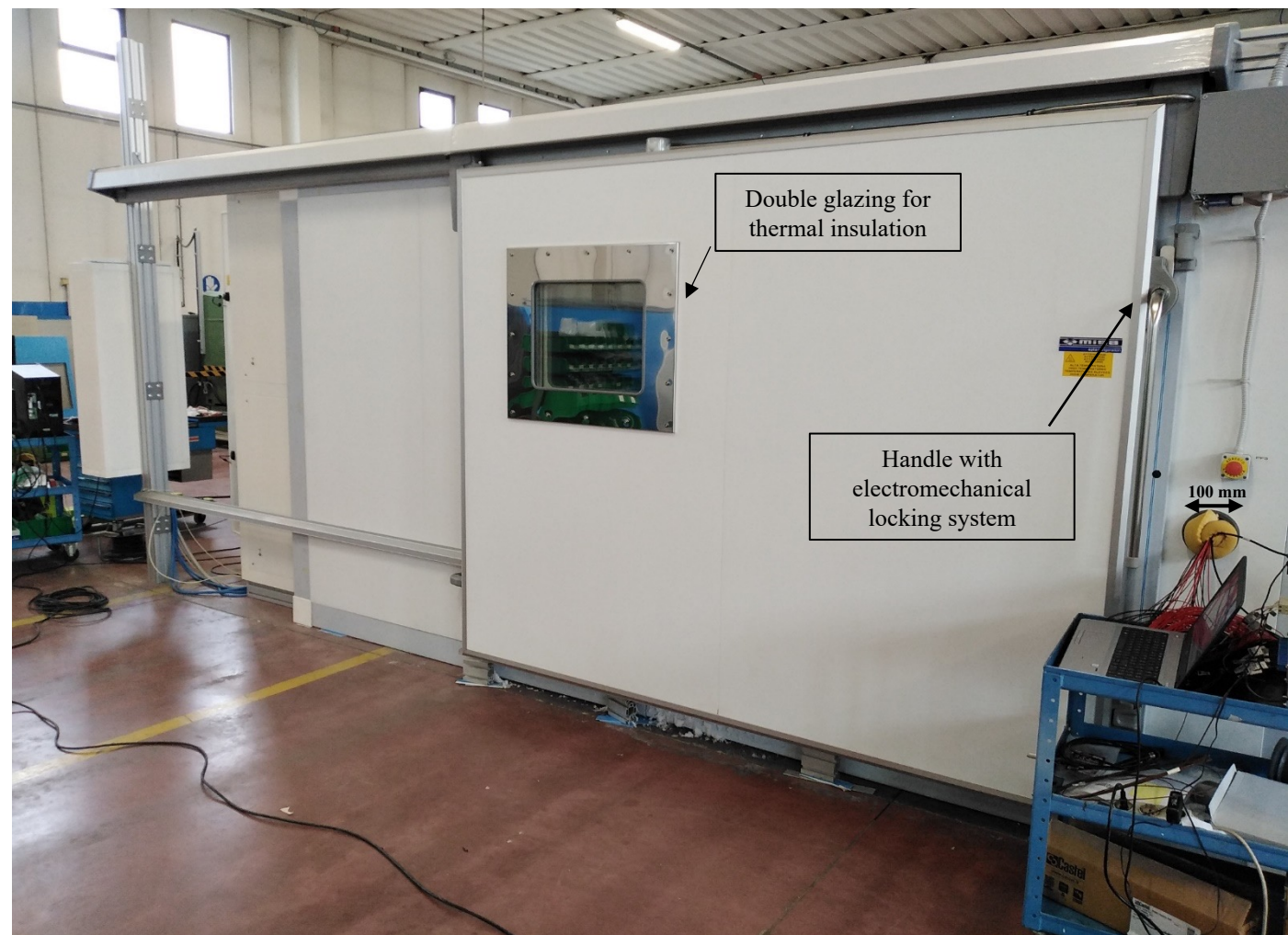


130 mm

2760 mm

400 mm

Chamber wall considered for cable and pipe feedthroughs (with an existing 100 mm circular hole)



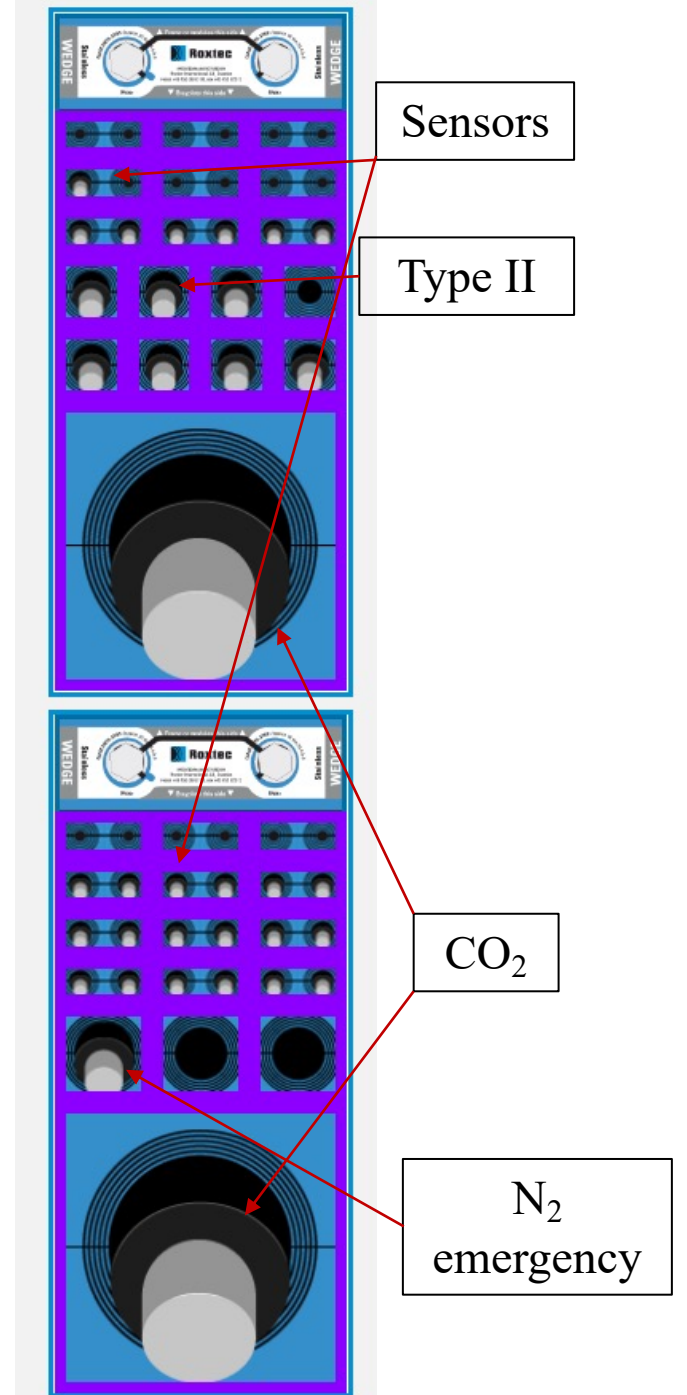
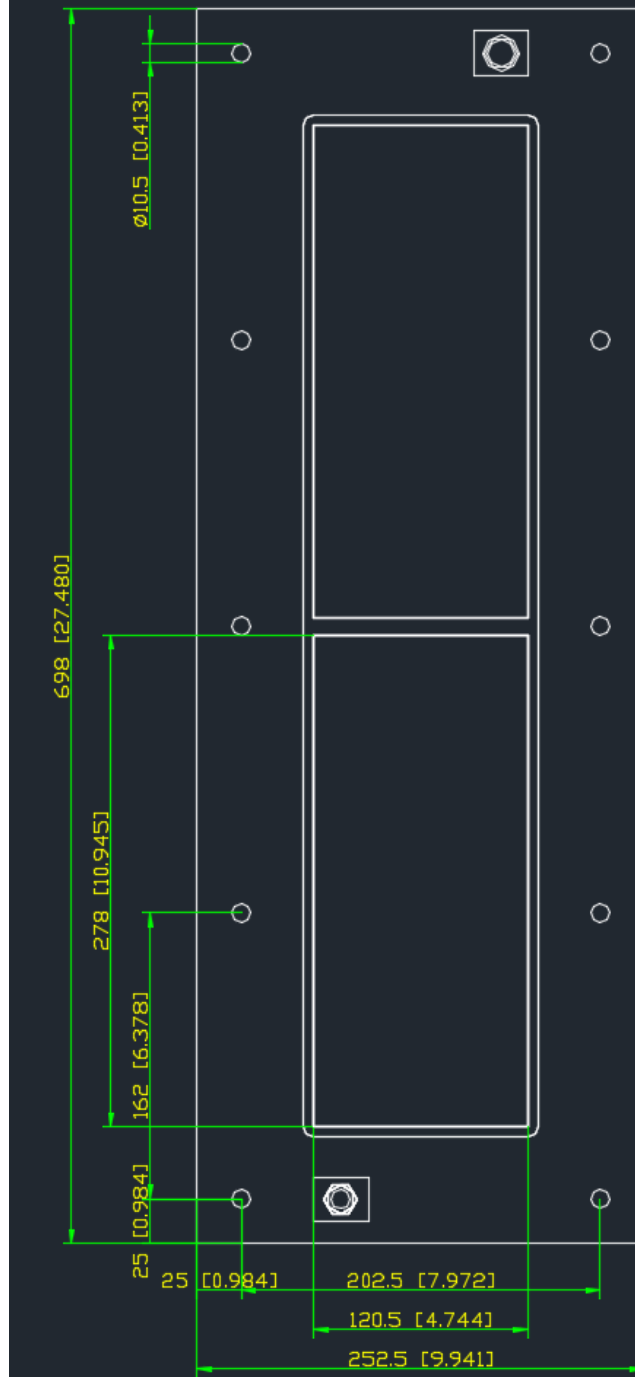
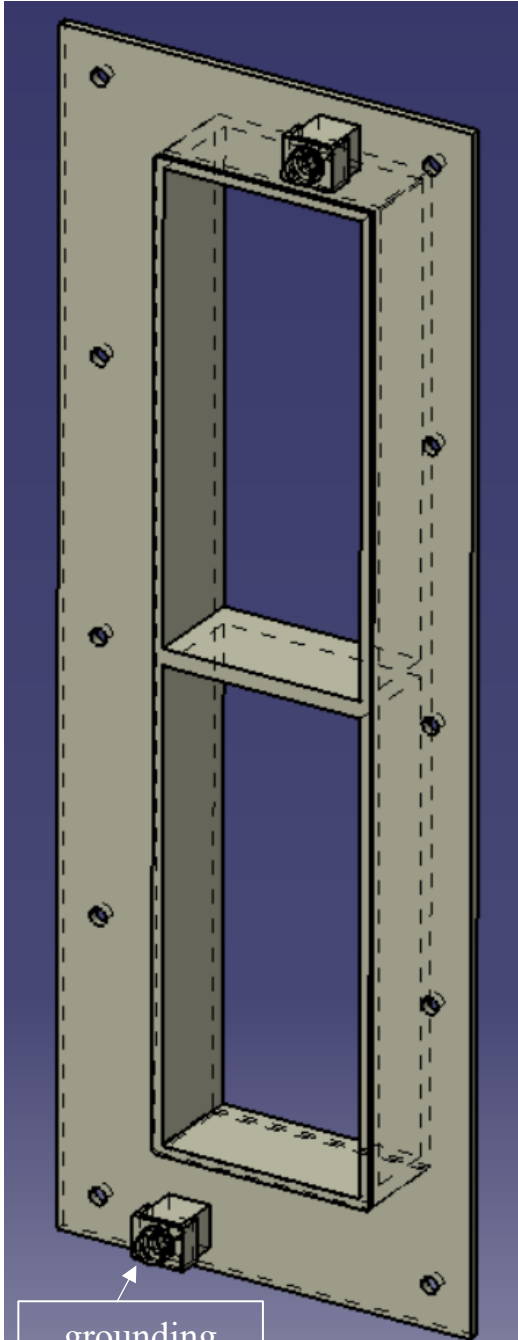
Double glazing for thermal insulation

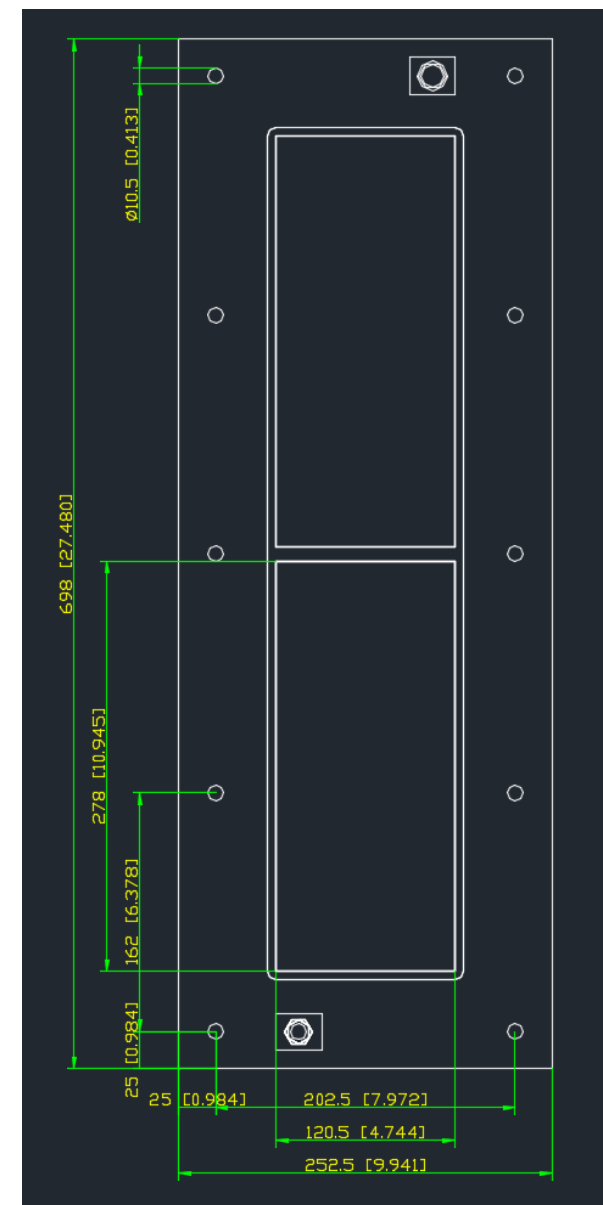
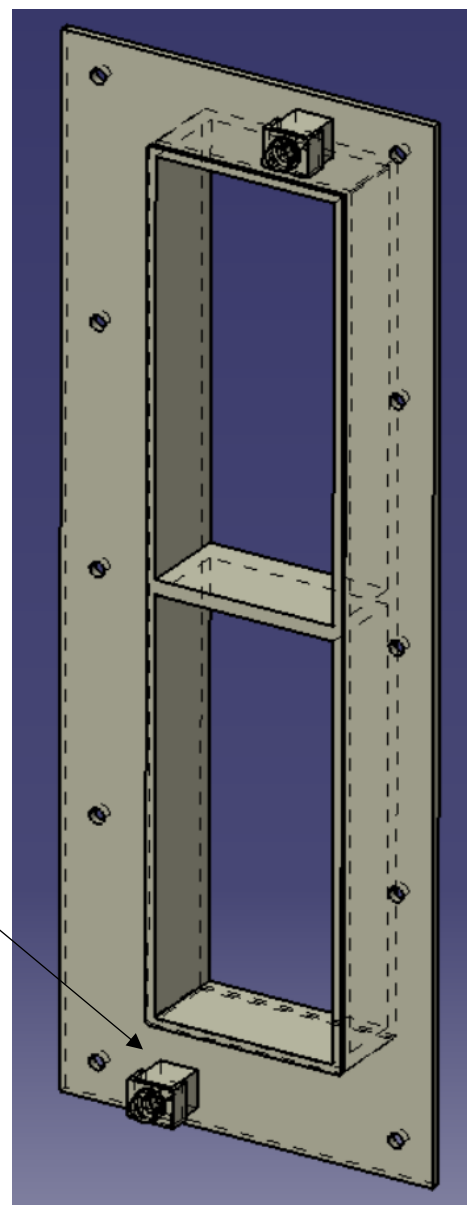
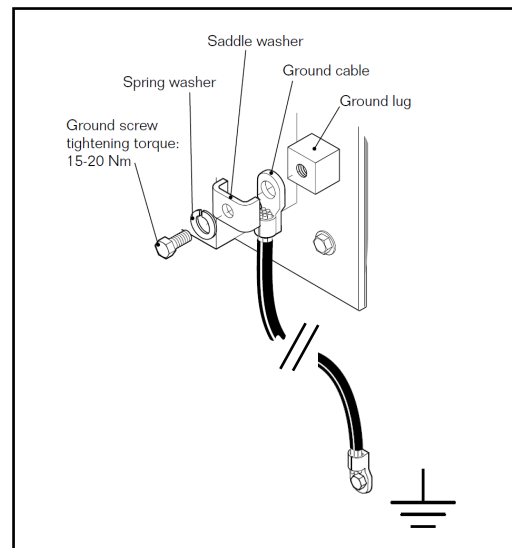
Handle with electromechanical locking system

100 mm

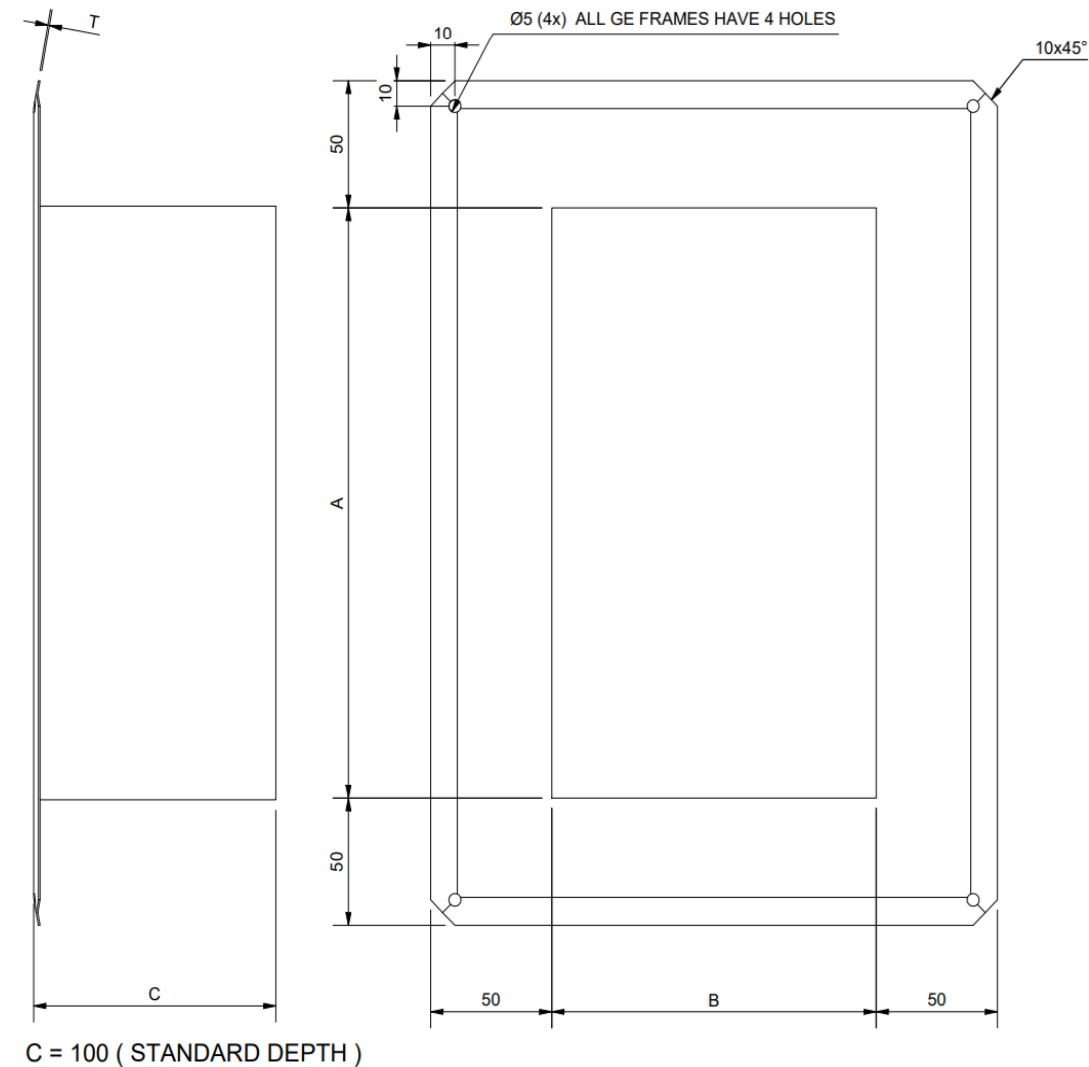
GH BG 8+8X1 AISI316

49 articles configured





grounding

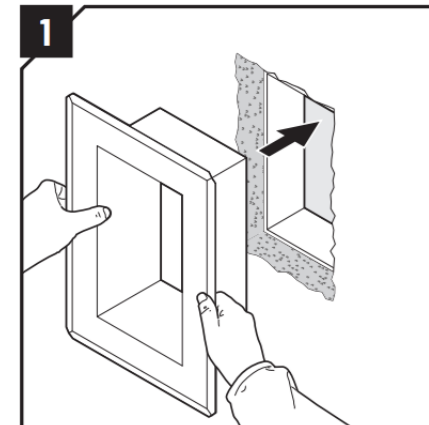


NOTE 1: $T=0,9\text{mm}$ FOR GALVANIZED
 $T=0,7\text{mm}$ FOR ACID PROOF STAINLESS STEEL

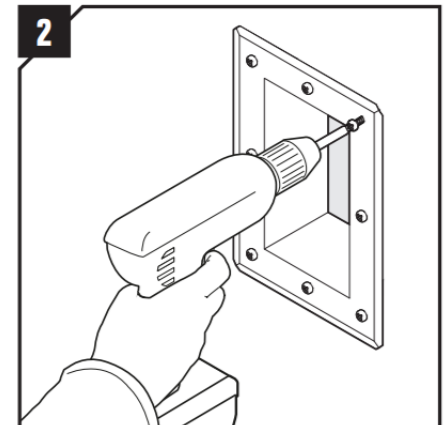
NOTE 2: GE FRAMES FITS CORRESPONDING GH FRAME.
 EXAMPLES:
 GE 4+4x3 FRAME FITS A GH 4+4x3 FRAME
 GE 8x2 FRAME FITS A GH 8x2 FRAME

GE 8+8x1 GALV

Installation



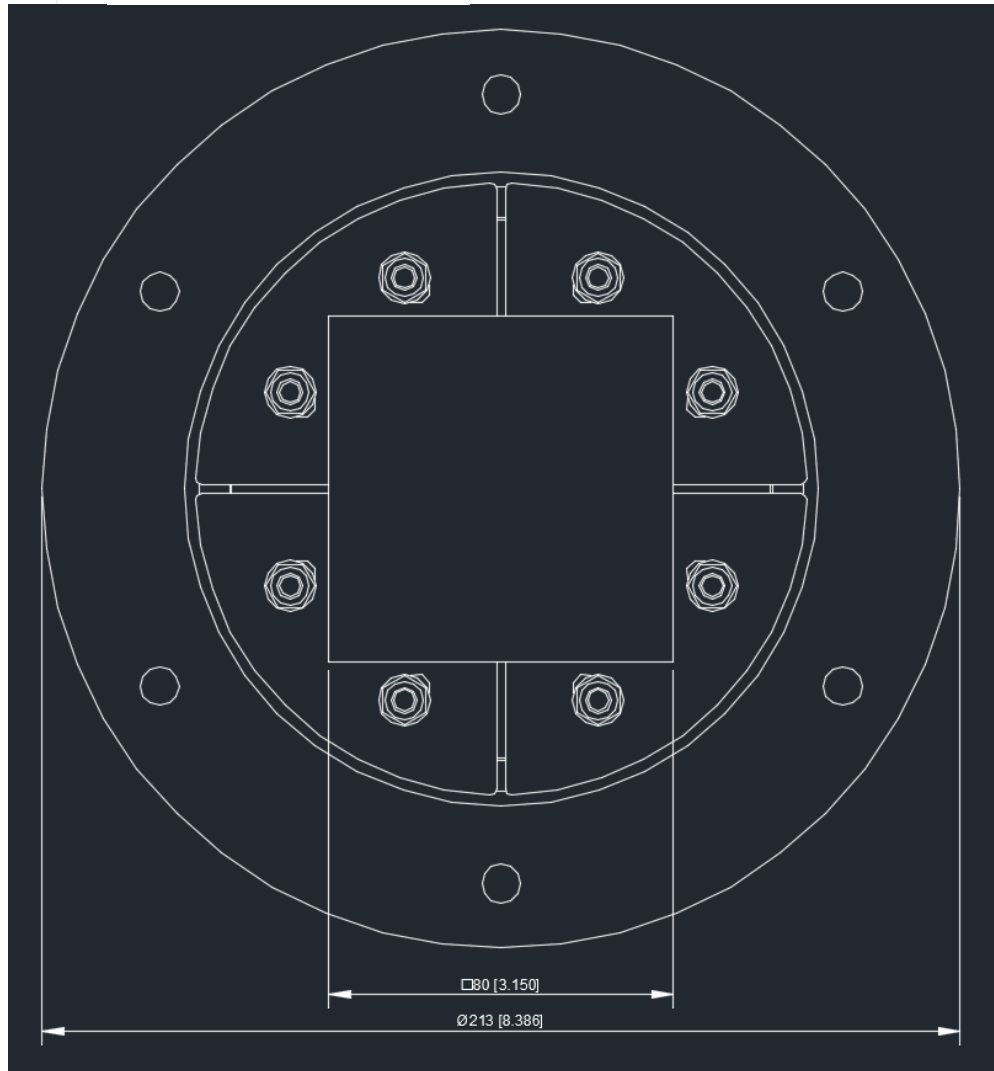
Insert the GE frame from the backside of the transit.



Attach the GE frame to the wall with suitable fasteners.

R 125 B Ex AISI316/AISI316

Filling space	(mm)	80 x 80
Opening size	Ø (mm)	144 - 144
Weight	(kg)	3.4



Cooling pipes – n. 2 – dia. 8/10 mm
Trunk fiber bundle – n. 2 – dia. 10 mm
Power cables – n. 4 – dia. 14 mm
VCAN cables – n. 4 – dia. 7 mm
Optoboxes dry air pipes – n. 2 – dia. 8 mm

