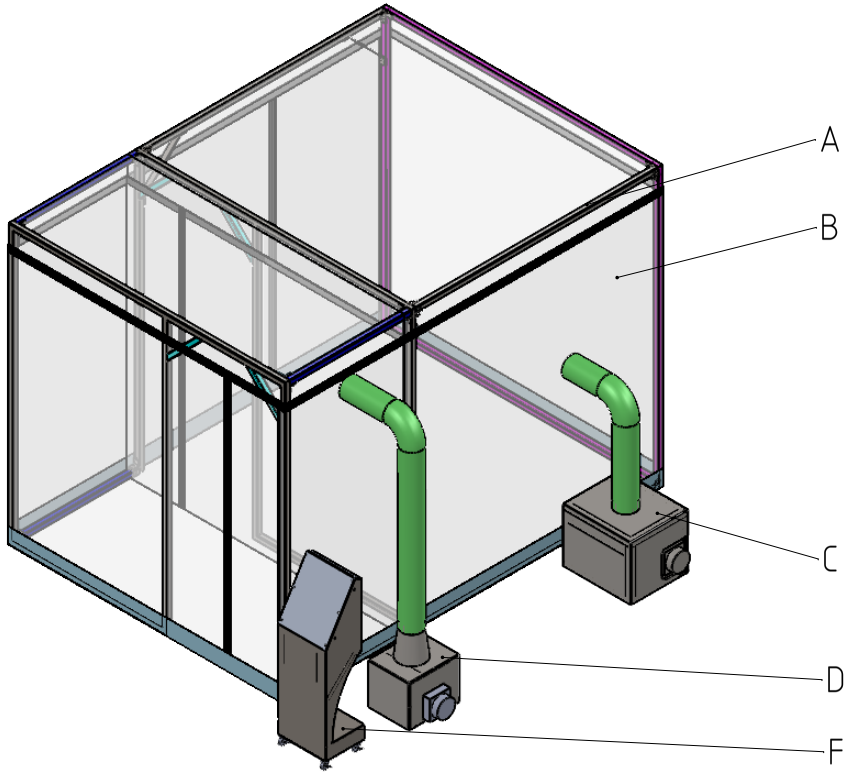
แบบห้องแยกโรค ความดันลบ สำหรับโรงพยาบาลสนาม

Negative Pressure Isolation Room
for Field Hospital

การออกแบบและสร้างต้นแบบห้องแยกโรค ความดันลบ สำหรับโรงพยาบาล

(Negative Pressure Isolation Room for Field Hospital)



สารบัญแบบ (Negative Pressure Isolation Room)		
กลุ่ม	รายละเอียดแบบ	หมายเลขขแบบ
A	โครงห้องแยกโรคความดันลบ	SLRI-SW-COVID19-640112-A-A
B	ผ้าใบพลาสติก	SLRI-SW-COVID19-640112-B-A
C	กล่องพัดลมใหญ่	SLRI-SW-COVID19-640112-C-A
D	กล่องพัดลมเล็ก	SLRI-SW-COVID19-640112-D-A
E	ระบบไฟฟ้า	SLRI-SW-COVID19-640112-E-A
F	Control unit	SLRI-SW-COVID19-640112-F-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		5/16/2021
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mk

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

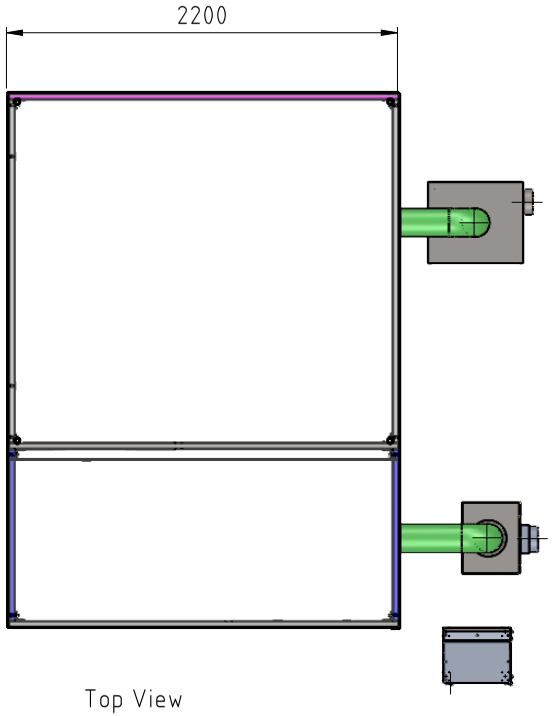
TITLE: Tent COVID19 Assembly

DWG NO. SLRI-SW-COVID19-640112-A

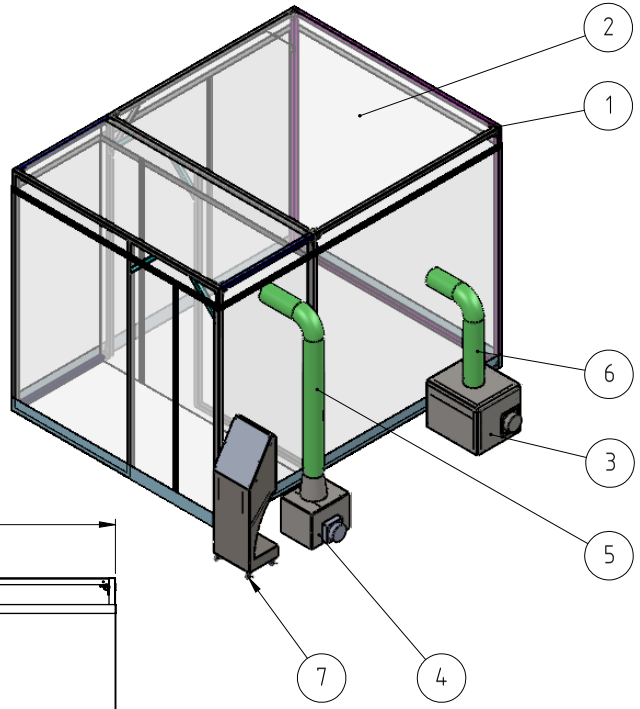
A3

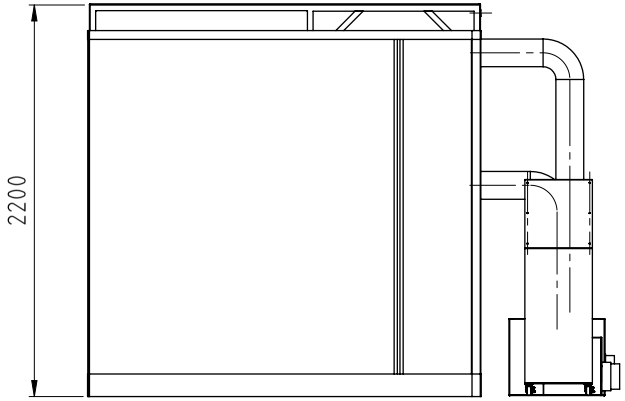
SCALE:1:100 | UNIT : mm. | WEIGHT: | SHEET 1 OF 14

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Tent_Covid19	SLRI-SW-COVID19-640112-A	1
2	Assembly tent canvas	SLRI-SW-COVID19-640112-B	1
3	Main frame huge	SLRI-SW-COVID19-640112-D	1
4	Assembly Main frame tiny_compress	SLRI-SW-COVID19-640112-C	1
5	Flexible tube	STD.	1
6	Flexible tube	STD.	1
7	Control Compressure Stand	SLRI-SW-COVID19-640112-F	1

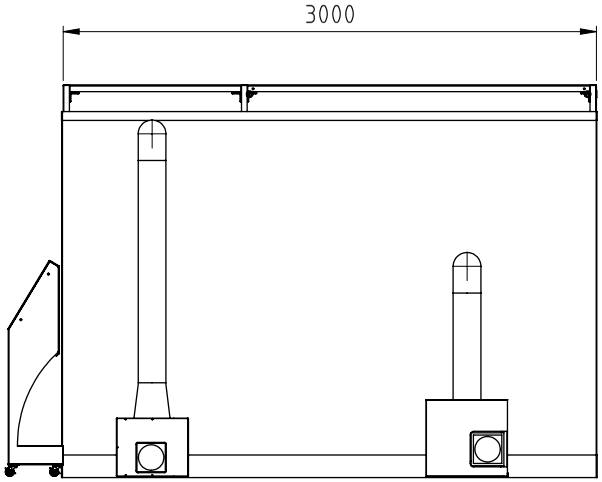


Top View





Front View



Right Side view

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		5/18/2021
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen Tolerances ISO 2768: mH

MATERIAL :

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Tent COVID19 Assembly

DWG NO. SLRI-SW-COVID19-640112-A

A3

SCALE:1:50 | UNIT : mm. | WEIGHT: | SHEET 2 OF 14

แบบโครงห้องแยกโรคความดันลบ (A)

SLRI-SW-COVID19-640112-A-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

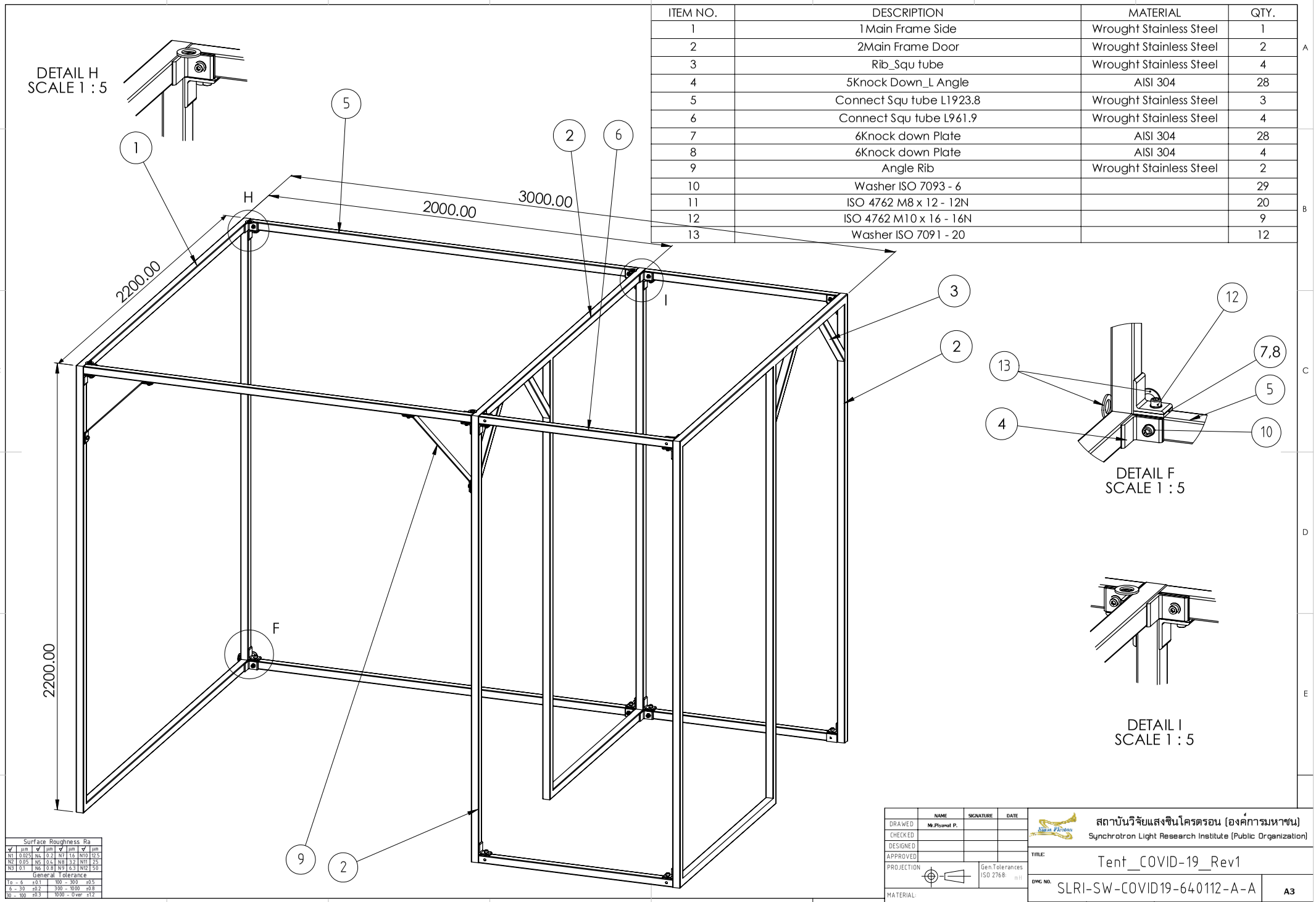
TITLE: Tent_COVID-19_Rev1

DWG NO. SLRI-SW-COVID19-640112-A

A3

SCALE:1:100 | UNIT : mm. | WEIGHT: | SHEET 1 OF 2

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	1Main Frame Side	Wrought Stainless Steel	1
2	2Main Frame Door	Wrought Stainless Steel	2
3	Rib_Squ tube	Wrought Stainless Steel	4
4	5Knock Down_L Angle	AISI 304	28
5	Connect Squ tube L1923.8	Wrought Stainless Steel	3
6	Connect Squ tube L961.9	Wrought Stainless Steel	4
7	6Knock down Plate	AISI 304	28
8	6Knock down Plate	AISI 304	4
9	Angle Rib	Wrought Stainless Steel	2
10	Washer ISO 7093 - 6		29
11	ISO 4762 M8 x 12 - 12N		20
12	ISO 4762 M10 x 16 - 16N		9
13	Washer ISO 7091 - 20		12



Surface Roughness Ra							
✓	µm	✓	µm	✓	µm	✓	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To - 6	±0.1	100 - 300	±0.5
6 - 30	±0.2	300 - 1000	±0.8
30 - 100	±0.3	1000 - Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Tent_COVID-19_Rev1

DWG NO. SLRI-SW-COVID19-640112-A-A

A3

SCALE:1:33.3 | UNIT : mm. | WEIGHT: | SHEET 2 OF 2

แบบผ้าใบพลาสติก (B)

SLRI-SW-COVID19-640112-B-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To - 6	±0.1	100 - 300	±0.5
6 - 30	±0.2	300 - 1000	±0.8
30 - 100	±0.3	1000 - Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyanat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

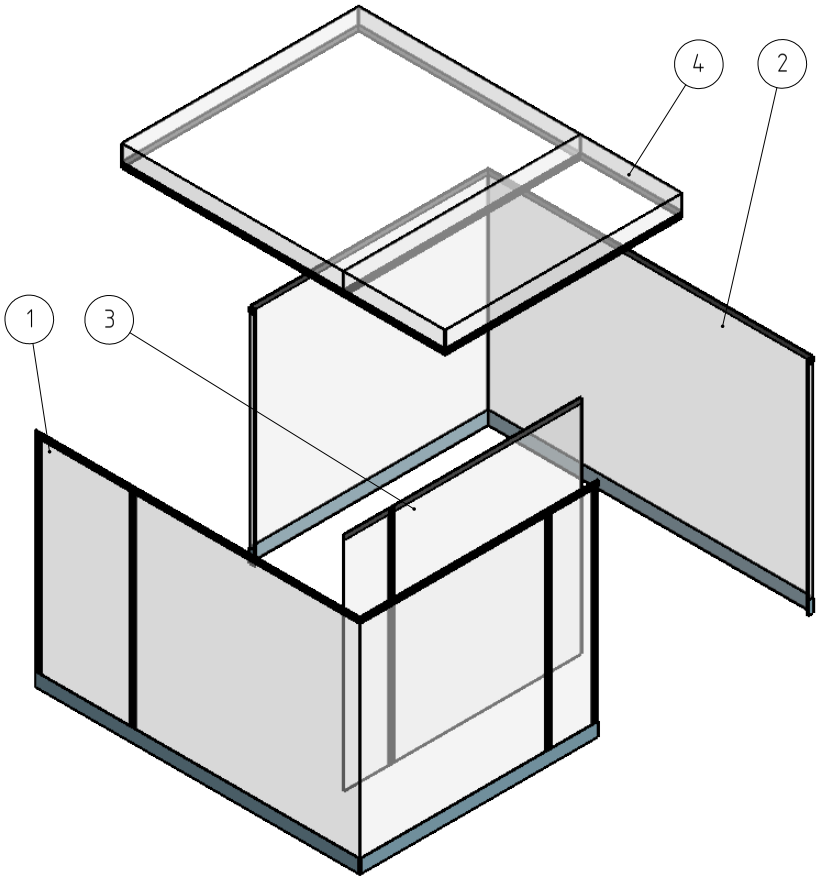
TITLE: Tent Canvas_Rev.1

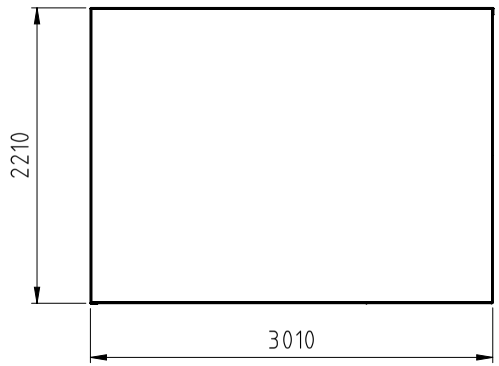
DWG NO. SLRI-SW-COVID19-640112-A

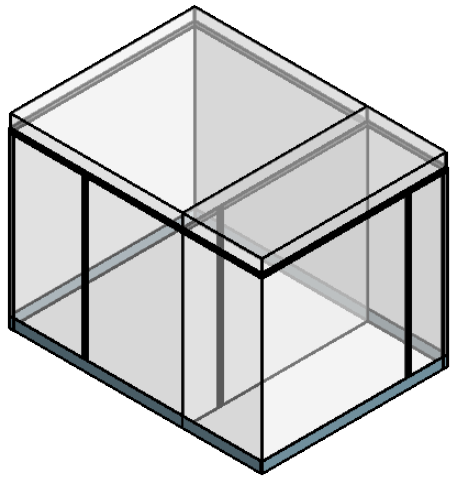
A3

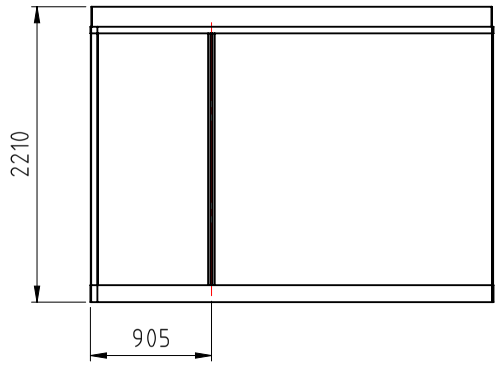
SCALE:1:100 | UNIT : mm. | WEIGHT : | SHEET 1 OF 2

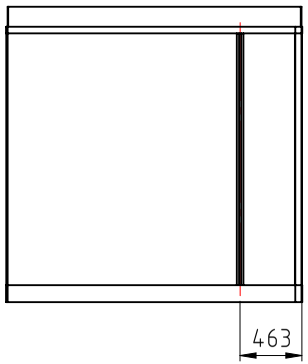
ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Left side	Plastic : Ethylene viniyl (EVA)	1
2	Right side	Plastic : Ethylene viniyl (EVA)	1
3	Middle side	Plastic : Ethylene viniyl (EVA)	1
4	Top side	Plastic : Ethylene viniyl (EVA)	1











Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		5/16/2021
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mK

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Tent Canvas

DWG NO. SLRI-SW-COVID19-640112-B-A

A3

SCALE : 1 : 40 | UNIT : mm. | WEIGHT: | SHEET 2 OF 2

แบบกล่องพัดลมใหญ่ (C)

(HEPA Filter Unit)

SLRI-SW-COVID19-640112-C-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

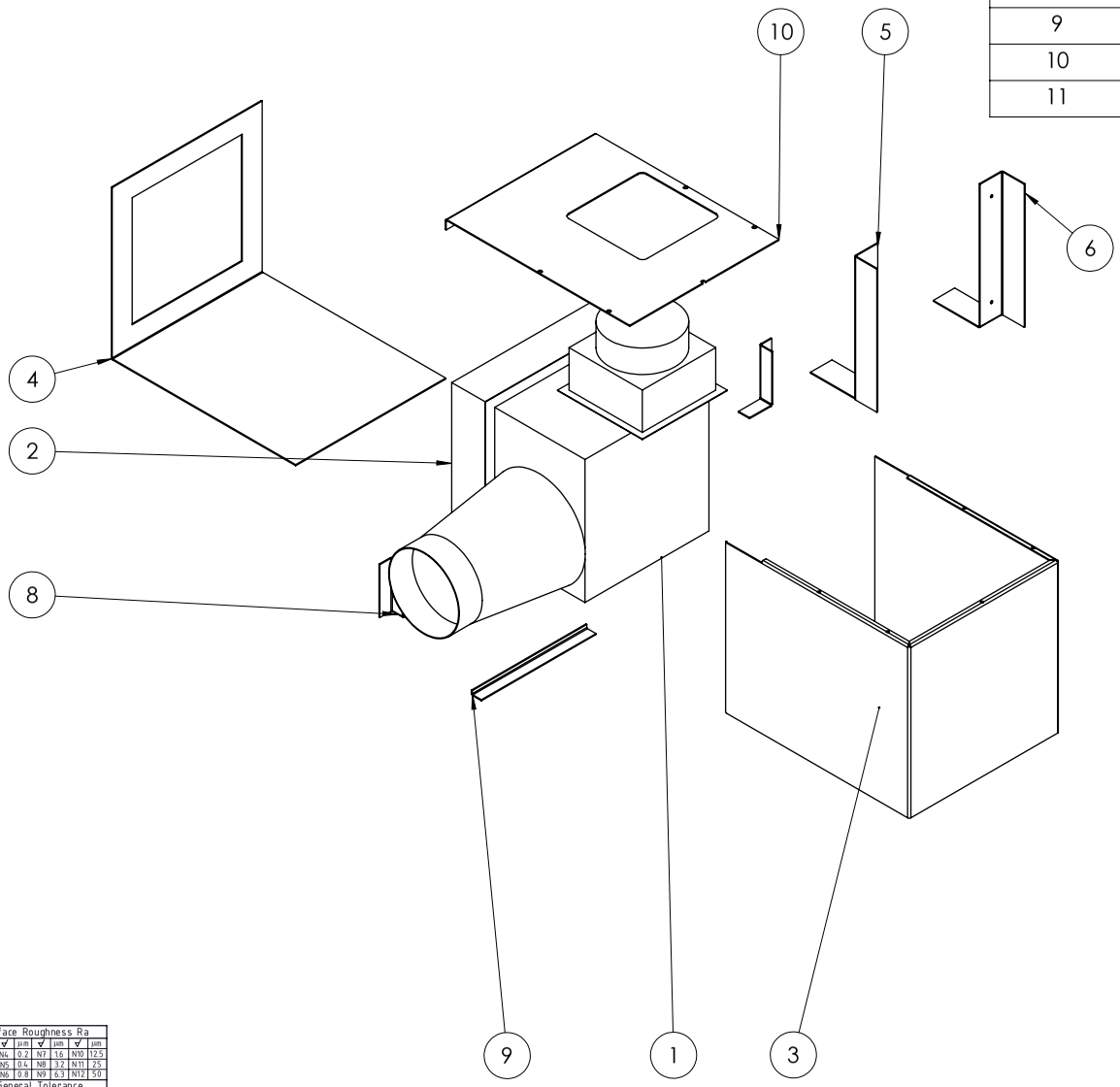
TITLE: Main frame compress_REV2

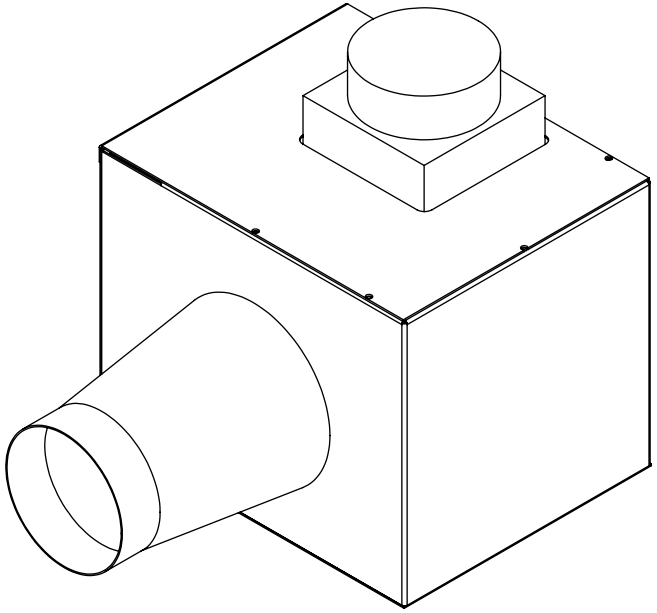
DWG NO. SLRI-SW-COVID19-640112-A

A3

SCALE:1:100 | UNIT : mm. | WEIGHT: | SHEET 1 OF 2

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	VD-18Z4T5	STD.	1
2	Base cover compress#2	AISI 304	1
3	Front cover compress#2	AISI 304	1
4	Supprt adjuster	AISI 304	1
5	Supprt adjuster	AISI 304	1
6	support compress#2	AISI 304	1
7	support compress#2	AISI 304	1
8	Hepa filter		1
9	Base Filter compress#2	AISI 304	1
10	Door compress#2	AISI 304	1
11	Cone top	AISI 304	1





Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

Rev.1

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Main frame compress_REV2

DWG NO. SLRI-SW-COVID19-640112-C-A

A3

SCALE:1:5 | UNIT : mm. | WEIGHT: | SHEET 2 OF 2

แบบกล่องพัดลมเล็ก (D)

(MEDIUM Filter Unit)

SLRI-SW-COVID19-640112-D-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			
PROJECTION		Gen.Tolerances ISO 2768: mH	
MATERIAL:			

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

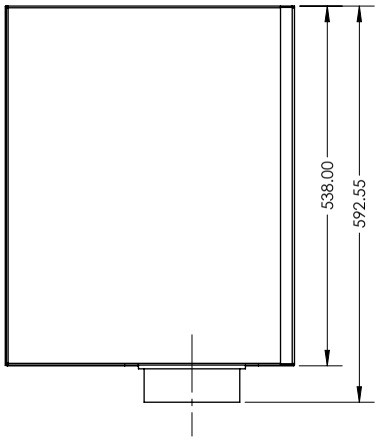
TITLE: Main frame suction

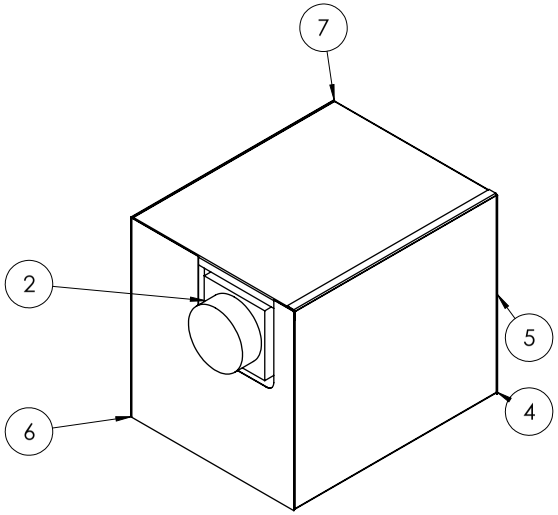
DWG NO. SLRI-SW-COVID19-640112-A

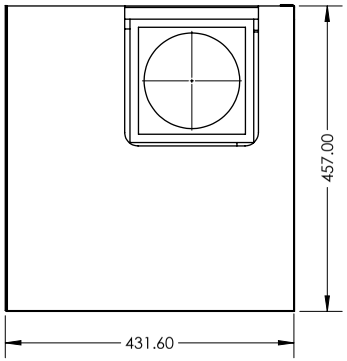
A3

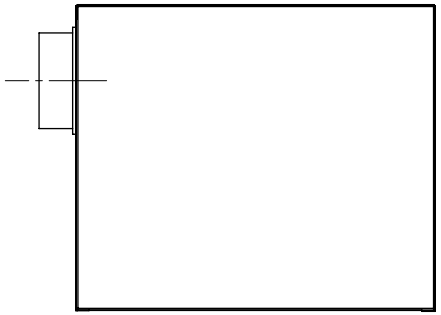
SCALE:1:100 | UNIT : mm. | WEIGHT: | SHEET 1 OF 3

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Main frame huge	Wrought Stainless Steel	1
2	VD-23ZPP4T5	AISI 304	1
3	Base Filter	AISI 304	1
4	Base cover	AISI 304	1
5	Side cover	AISI 304	1
6	Front cover	AISI 304	1
7	Door cover	AISI 304	1









Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

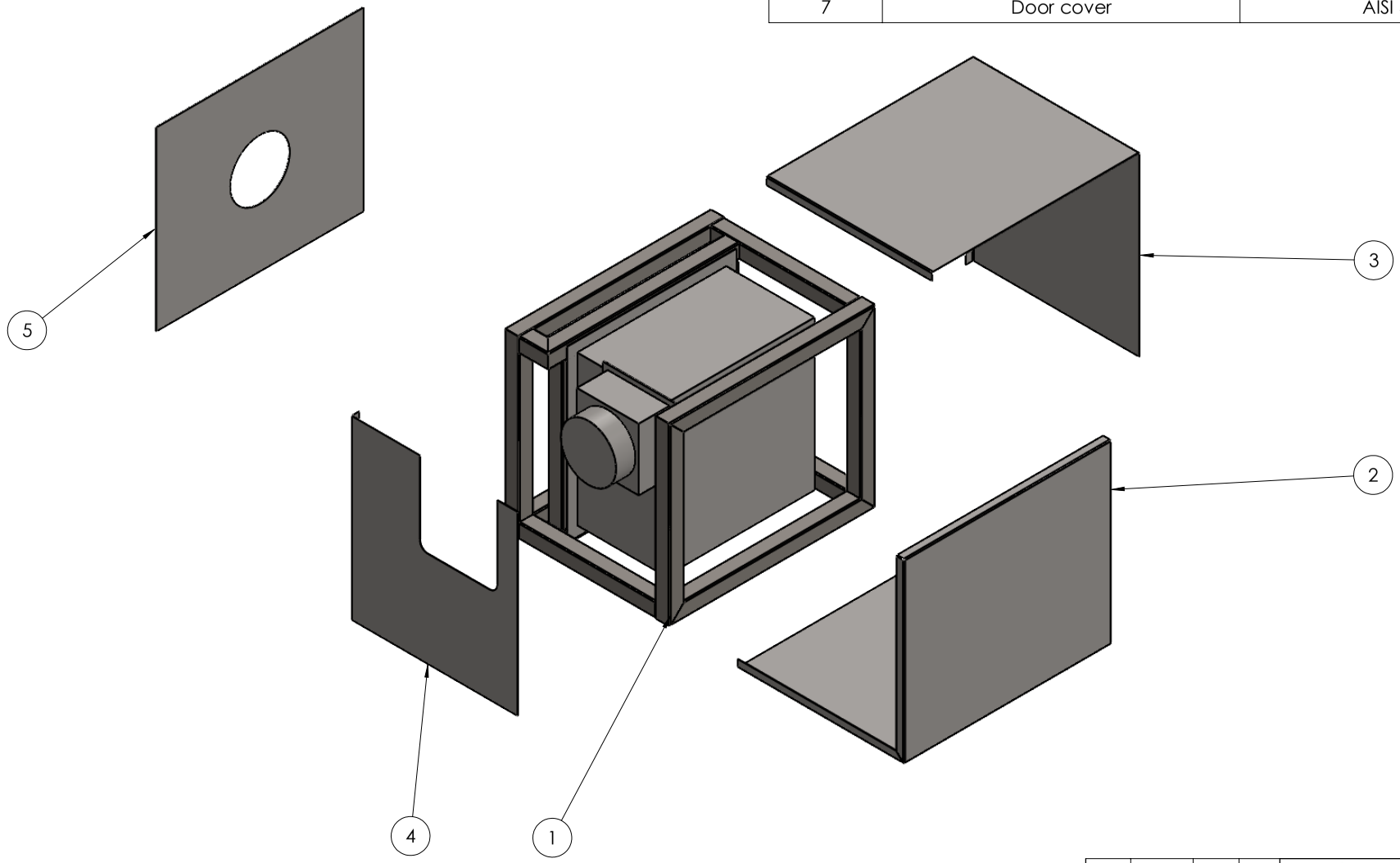
TITLE: Main frame suction

DWG NO. SLRI-SW-COVID19-640112-D-A

A3

SCALE:1:20 | UNIT : mm. | WEIGHT: | SHEET 2 OF 3

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Main frame huge	Wrought Stainless Steel	1
2	VD-23ZPP4T5	AISI 304/STD.	1
3	Base Filter	AISI 304	1
4	Base cover	AISI 304	1
5	Side cover	AISI 304	1
6	Front cover	AISI 304	1
7	Door cover	AISI 304	1



Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Main frame suction

DWG NO. SLRI-SW-COVID19-640112-D-A

A3

SCALE:1:20 | UNIT : mm. | WEIGHT: | SHEET 3 OF 3

แบบระบบไฟฟ้า (E)

SLRI-SW-COVID19-640112-E-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.2	N12	50

General Tolerance			
1a - 6	±0.1	300 - 900	±0.5
6 - 30	±0.2	900 - 1000	±0.8
30 - 100	±0.3	1000 - Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen Tolerances ISO 2768 mH

MATERIAL

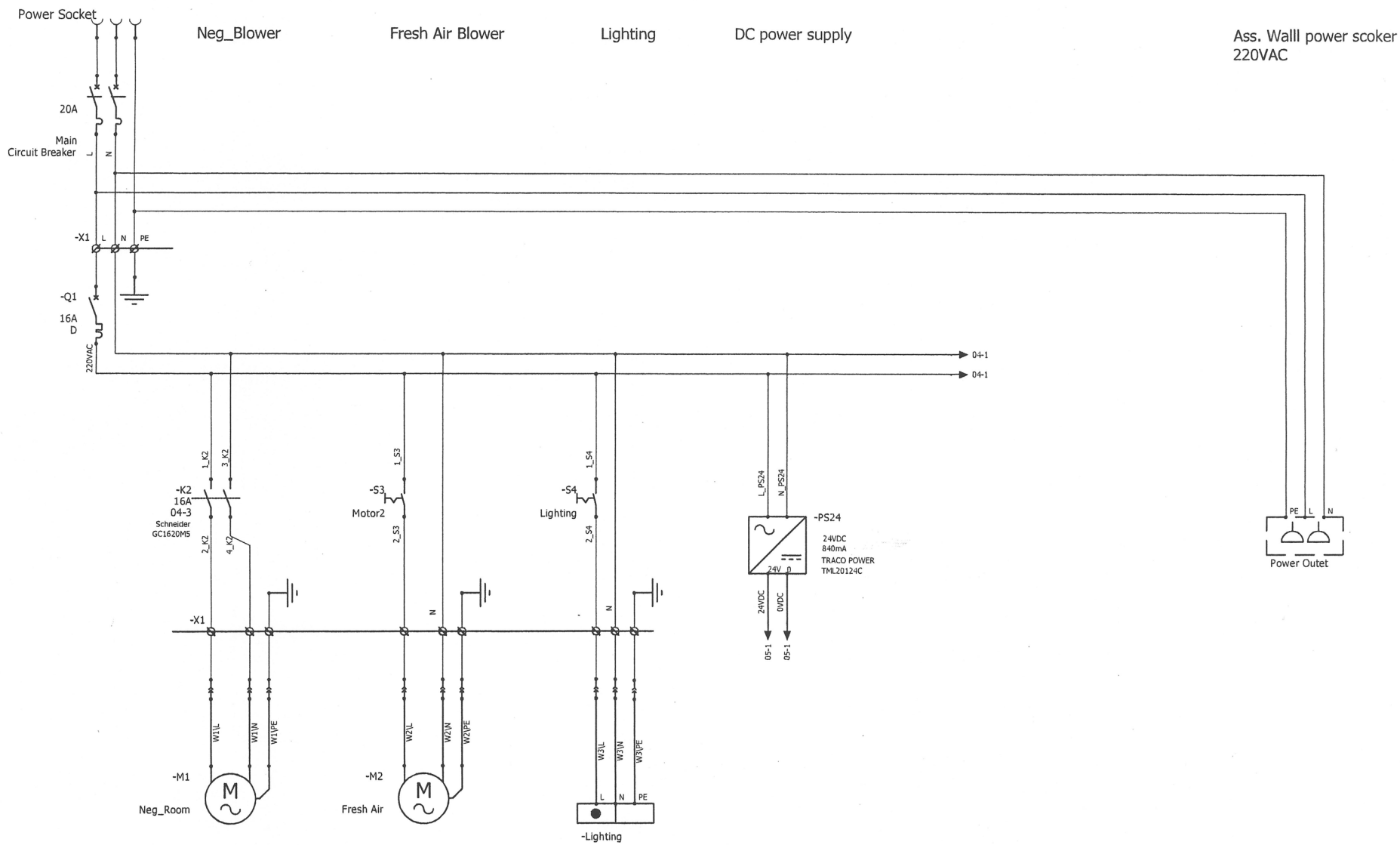
สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Tent COVID19 Assembly

DWG NO. SLRI-SW-COVID19-640112-A

A3

SCALE 1:100 | UNIT mm. | WEIGHT | SHEET 8 OF 9



Surface Roughness Ra							
∇	µm	∇	µm	∇	µm	∇	µm
N1	0.025	N5	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
0 - 6	±0.1	300 - 400	±0.5
6 - 30	±0.2	400 - 1000	±0.8
30 - 100	±0.3	1000 - Over	±12

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen Tolerances ISO 2768 mH

MATERIAL

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)

Synchrotron Light Research Institute (Public Organization)

TITLE: Tent COVID19 Assembly

DWG NO. SLRI-SW-COVID19-640112-E-A A3

SCALE:1:100 | UNIT: mm | WEIGHT: | SHEET 10 OF 14

แบบแผงควบคุมการทำงาน (F)

(Control Unit)

SLRI-SW-COVID19-640112-F-A

Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To – 6	±0.1	100 – 300	±0.5
6 – 30	±0.2	300 – 1000	±0.8
30 – 100	±0.3	1000 – Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mH

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

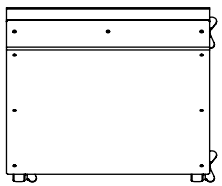
TITLE: Control Compressure Stand_Rev1

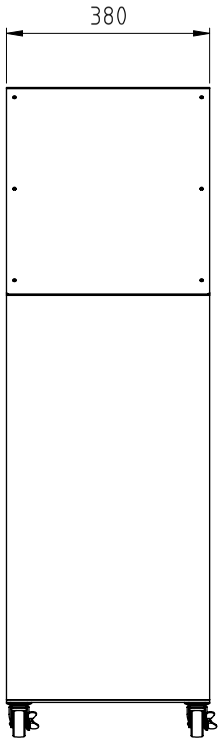
DWG NO. SLRI-SW-COVID19-640112-A

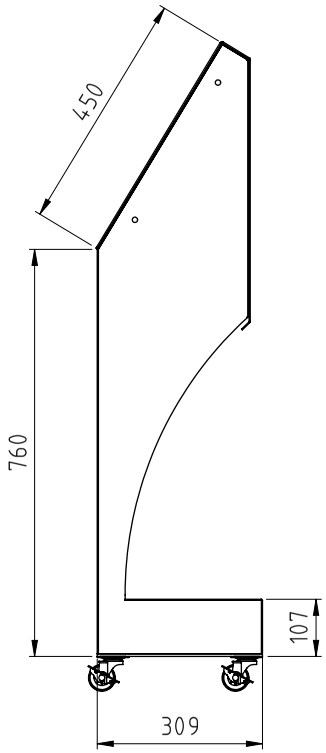
A3

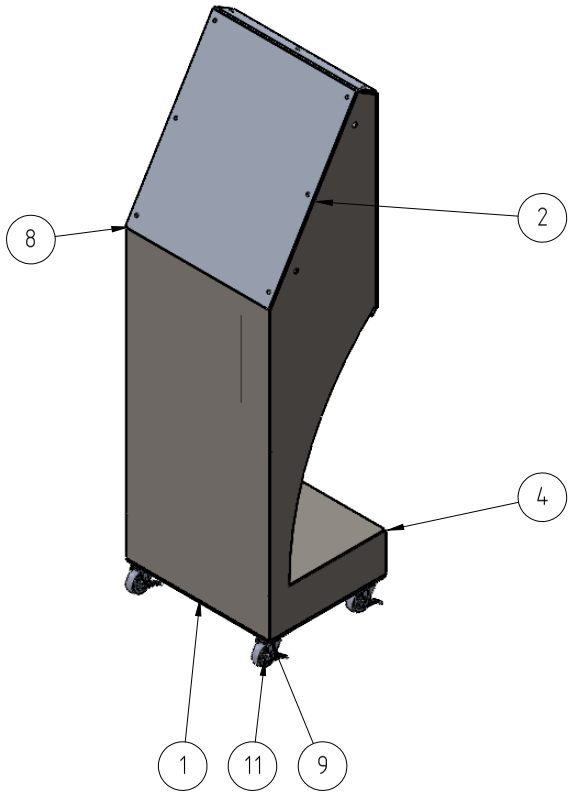
SCALE:1:100 | UNIT : mm. | WEIGHT: | SHEET 1 OF 3

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Front	ASTM A36 Steel	1
2	Side plate_R	ASTM A36 Steel	1
3	Side plate_L	ASTM A36 Steel	1
4	Cover back	ASTM A36 Steel	1
5	Back Control	ASTM A36 Steel	1
6	L Angle	ASTM A36 Steel	2
7	Back for Control	5086-H32, Rod (SS)	1
8	Front Plate	5086-H32, Rod (SS)	1
9	Footing plate	ASTM A36 Steel	1
10	Sup_Control board	ASTM A36 Steel	2
11	Wheel with stopper OD.2"	-	4









Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To - 6	±0.1	100 - 300	±0.5
6 - 30	±0.2	300 - 1000	±0.8
30 - 100	±0.3	1000 - Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		5/18/2021
CHECKED			
DESIGNED			
APPROVED			
PROJECTION		Gen.Tolerances ISO 2768: mH	
MATERIAL:			

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

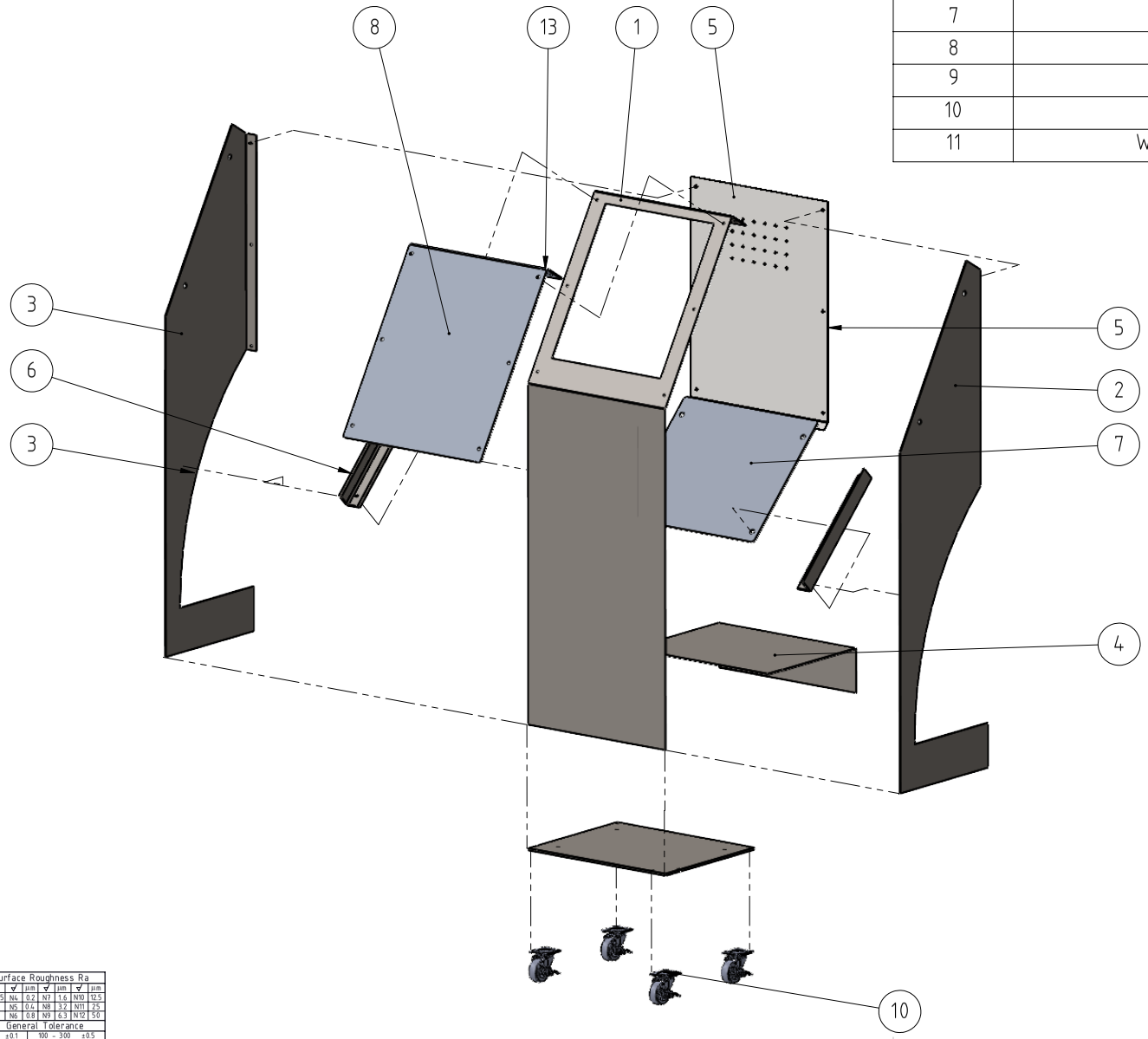
TITLE: Control Compressure Stand_Rev1

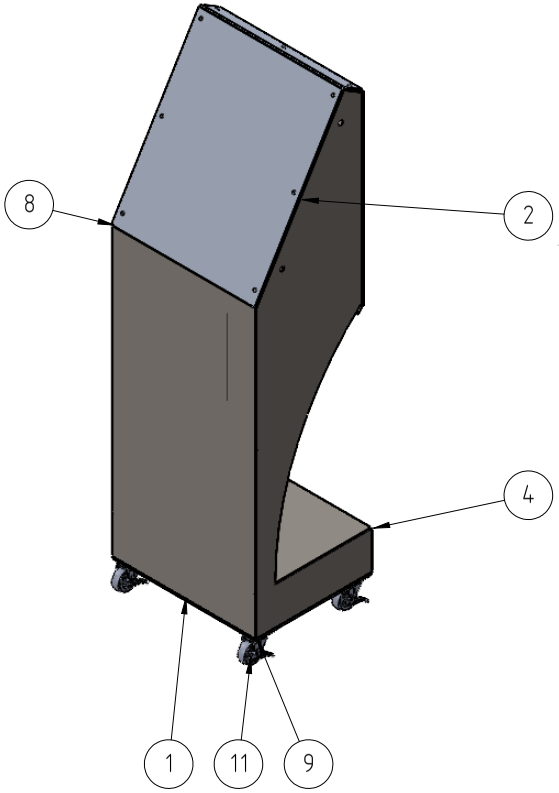
DWG NO. SLRI-SW-COVID19-640112-F-A

A3

SCALE:1:10 | UNIT : mm. | WEIGHT: | SHEET 2 OF 3

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Front	ASTM A36 Steel	1
2	Side plate_R	ASTM A36 Steel	1
3	Side plate_L	ASTM A36 Steel	1
4	Cover back	ASTM A36 Steel	1
5	Back Control	ASTM A36 Steel	1
6	L Angle	ASTM A36 Steel	2
7	Back for Control	5086-H32, Rod (SS)	1
8	Front Plate	5086-H32, Rod (SS)	1
9	Footing plate	ASTM A36 Steel	1
10	Sup_Control board	ASTM A36 Steel	2
11	Wheel with stopper OD.2"	-	4





Surface Roughness Ra							
√	µm	√	µm	√	µm	√	µm
N1	0.025	N4	0.2	N7	1.6	N10	12.5
N2	0.05	N5	0.4	N8	3.2	N11	25
N3	0.1	N6	0.8	N9	6.3	N12	50

General Tolerance			
To - 6	±0.1	100 - 300	±0.5
6 - 30	±0.2	300 - 1000	±0.8
30 - 100	±0.3	1000 - Over	±1.2

	NAME	SIGNATURE	DATE
DRAWED	Mr.Piyawat P.		5/18/2021
CHECKED			
DESIGNED			
APPROVED			

PROJECTION

Gen.Tolerances ISO 2768: mK

MATERIAL:

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
Synchrotron Light Research Institute (Public Organization)

TITLE: Control Compressure Stand_Rev1

DWG NO. SLRI-SW-COVID19-640112-F-A

A3

SCALE:1:10 | UNIT : mm. | WEIGHT: | SHEET 3 OF 3

สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)

กระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม

111 อาคารสิรินธรวิชโชทัย ถนนมหาวิทยาลัย ตำบลสุรนารี อำเภอเมือง

จังหวัดนครราชสีมา 30000

โทรศัพท์ 0-4421-7040 โทรสาร 0-4421-7047 E-mail : siampl@slri.or.th

Website : www.slri.or.th Facebook : http://www.facebook.com/SLRI.THAILAND