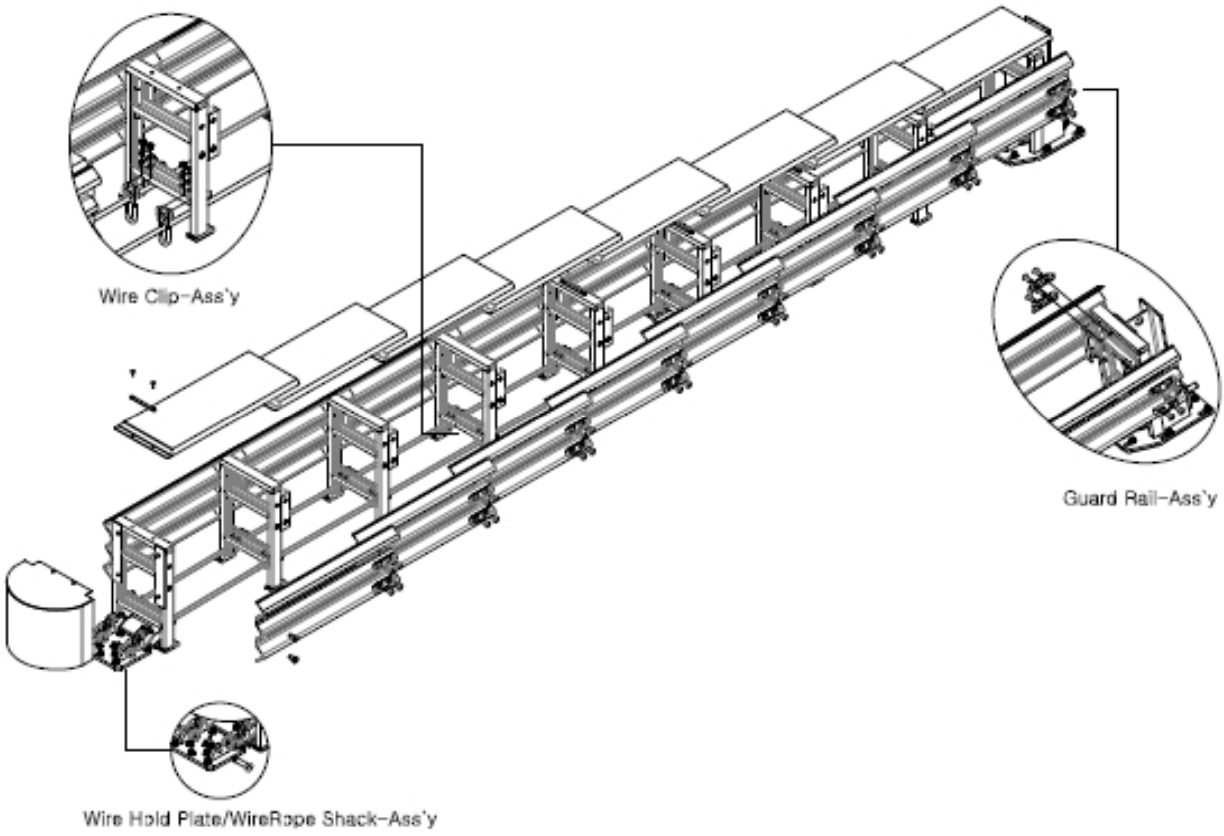
Installation and Assemble Manual

SHIN DO Crash Cushion

Step By Step Instruction For parallel



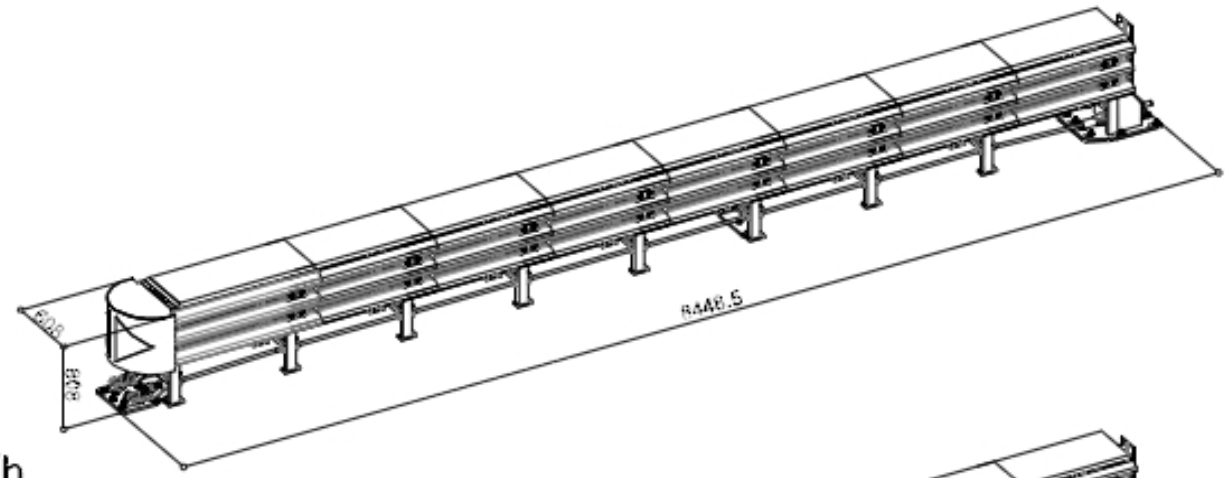
Crash Cushion System

SHINDO
SHINDO INDUSTRY CO., LTD

SHIN DO Crash Cushion-parallel

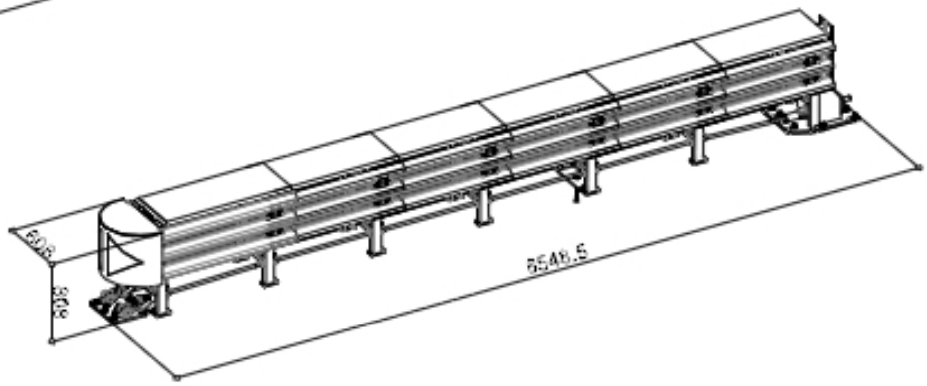
INTRODUCTION

Model Name



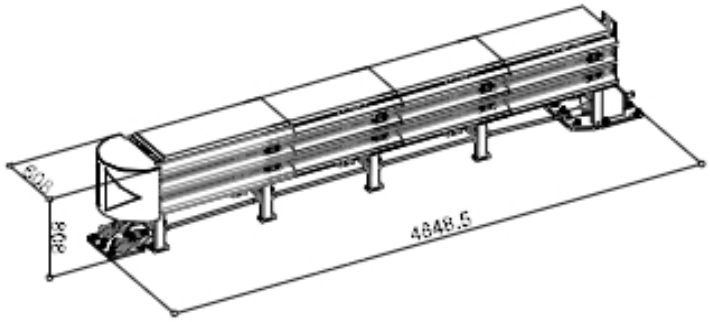
110Km/h

Model : EU_CCS_P_NT_110



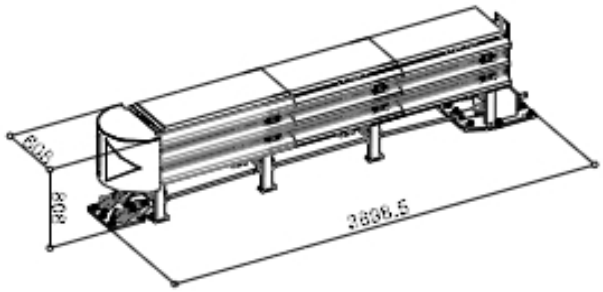
100Km/h

Model : EU_CCS_P_NT_100



80Km/h

Model : EU_CCS_P_NT_80



50Km/h

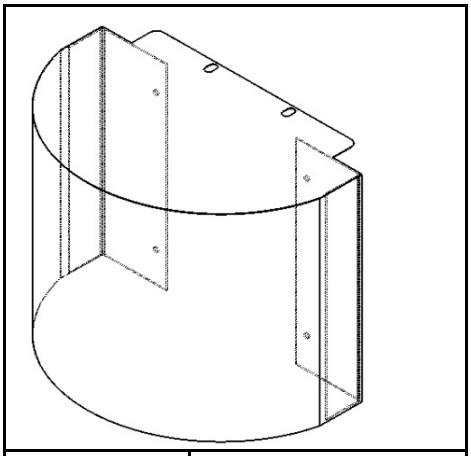
Model : EU_CCS_P_NT_50

Crash Cushion System

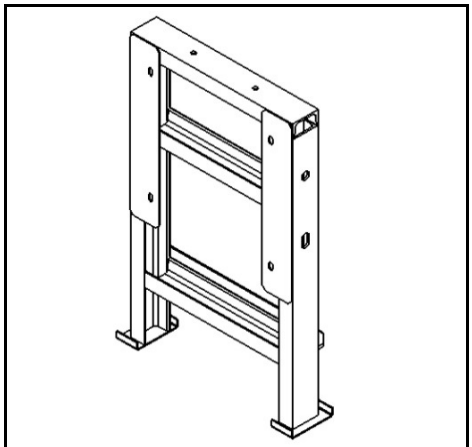
SHINDO
SHINDO INDUSTRY CO., LTD

CCSII Component List

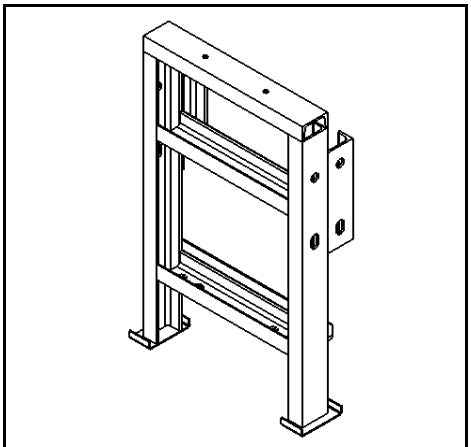
***Component List_1**



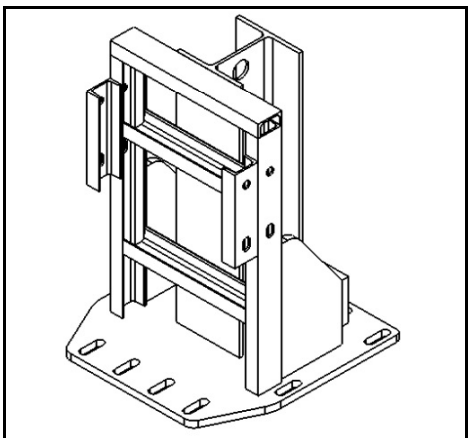
Name	Front Cover
P/CODE	CACEU36FC11L
SIZE	394x602x464
Weight	11Kg



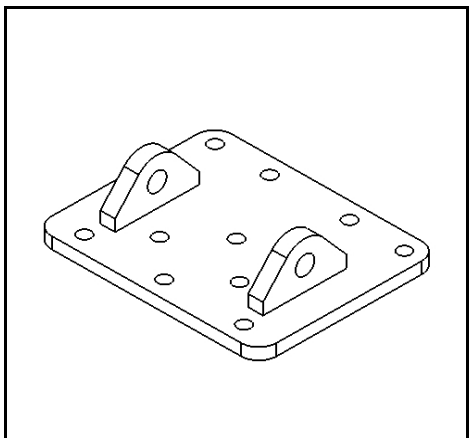
Name	Front Frame
P/CODE	CACEU36FF11L
SIZE	510x120x780
Weight	24.5Kg



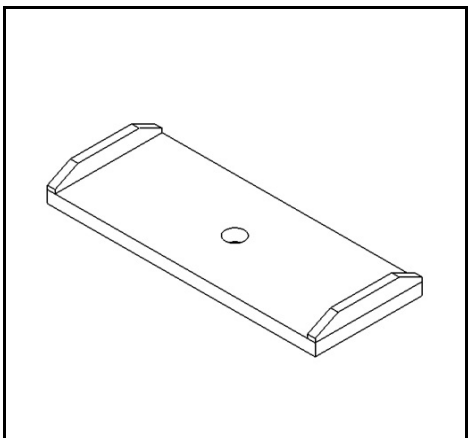
Name	Middle Frame
P/CODE	CACEU36FM11L
SIZE	510x150x780
Weight	25Kg



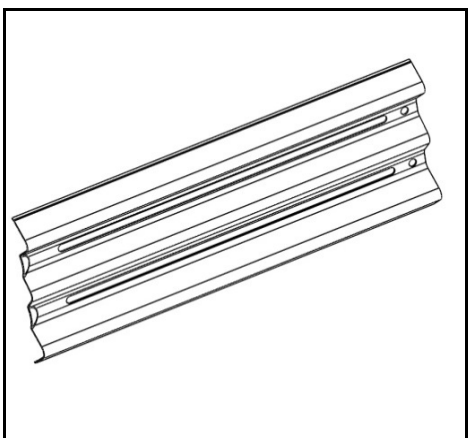
Name	Back Stop Frame
P/CODE	CACEU36FB11L
SIZE	585x570x776
Weight	140Kg



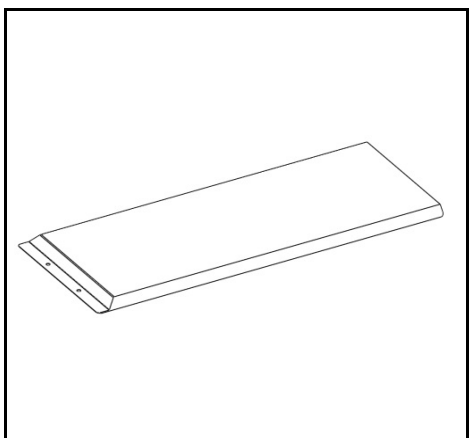
Name	Wire Hold Plate
P/CODE	CACEU36WP11L
SIZE	380x305x100
Weight	20Kg



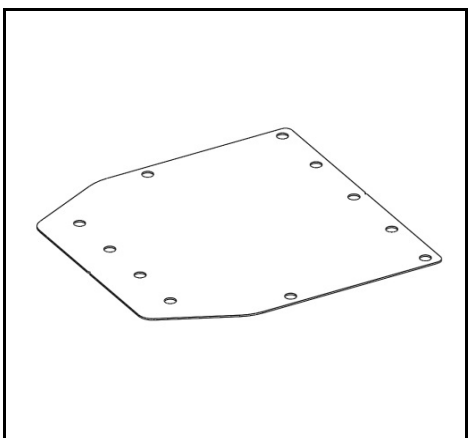
Name	Rotation Bracket
P/CODE	CACEU36BK31L
SIZE	140x350x30
Weight	4.2Kg



Name	GuardRail
P/CODE	CSCEU36GP11L
SIZE	460x1200x69
Weight	17.5Kg



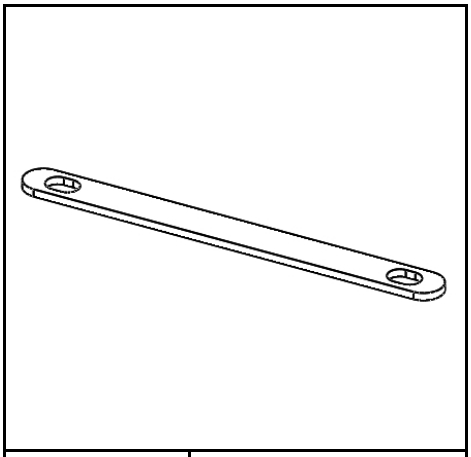
Name	Top Cover
P/CODE	CSCEU36TC11L
SIZE	470x1166x28
Weight	5.5Kg



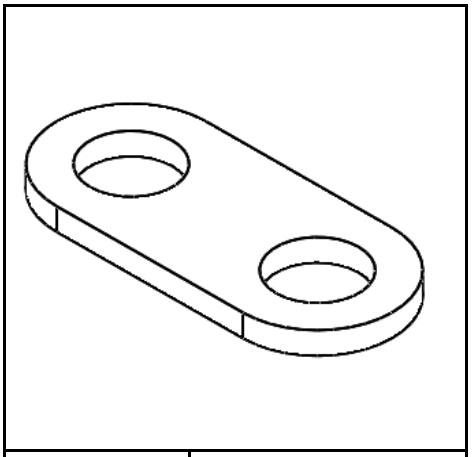
Name	Base Bracket
P/CODE	CSCEU36BK11L
SIZE	568x583x3.0T
Weight	7.0Kg

CCSII Component List

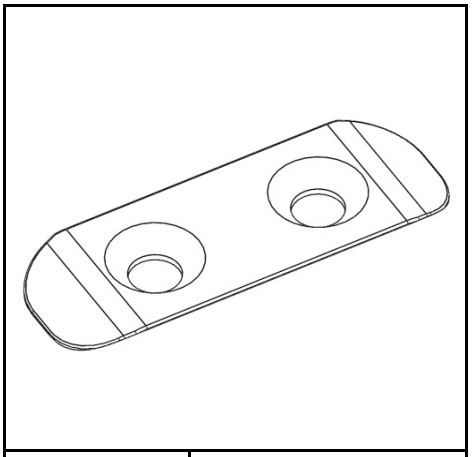
***Component List_2**



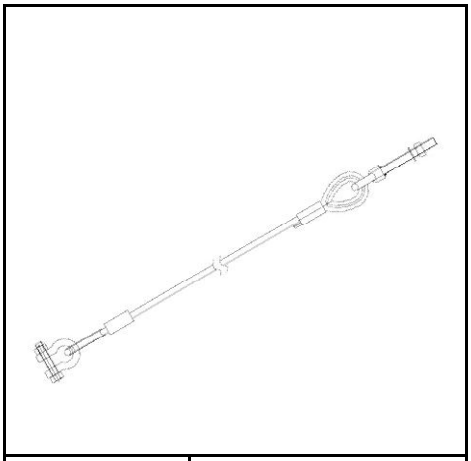
Name	Top Cover_Bracket
P/CODE	CSCEU36BK21L
SIZE	20x220x4.0T
Weight	0.12Kg



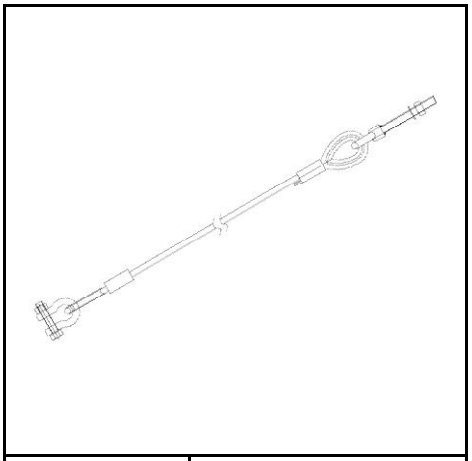
Name	Washer Bracket
P/CODE	CSCEU36BK41L
SIZE	90x40x6.0T
Weight	0.12Kg



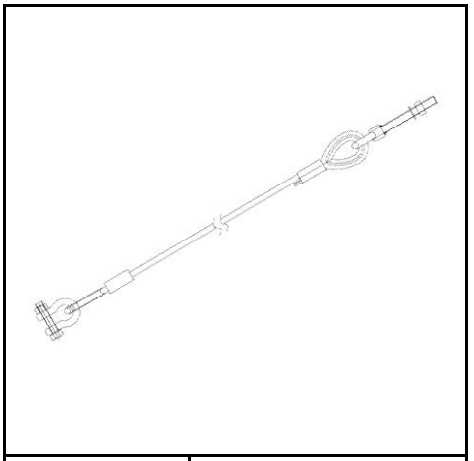
Name	Spacer Bar
P/CODE	CSCEK22SB11L
SIZE	65x180x12
Weight	0.78Kg



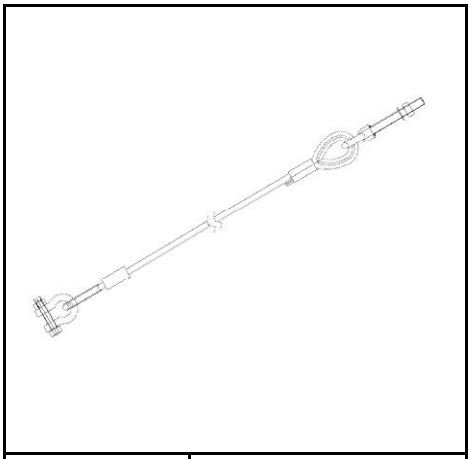
Name	Wire Rope_Ass`y_110
P/CODE	CACEU46WR11T
SIZE	24Øx7850
Weight	26.8Kg



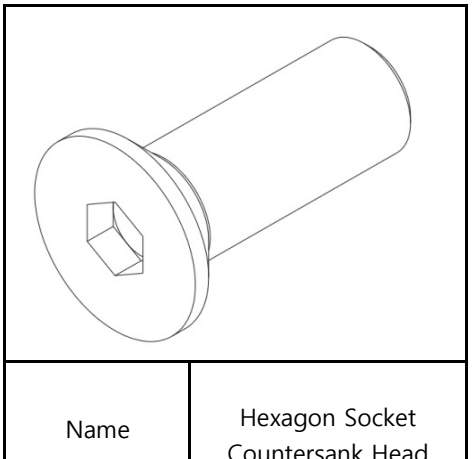
Name	Wire Rope_Ass`y_100
P/CODE	CACEU36WR11T
SIZE	24Øx5950
Weight	22.7Kg



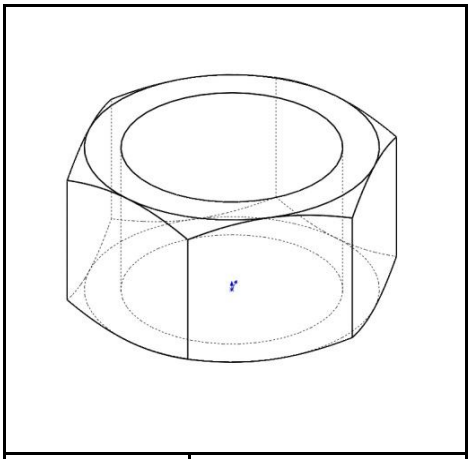
Name	Wire Rope_Ass`y_80
P/CODE	CACEU26WR11T
SIZE	24Øx4050
Weight	18.1Kg



Name	Wire Rope_Ass`y_50
P/CODE	CACEU16WR11T
SIZE	24Øx3100
Weight	16.2Kg



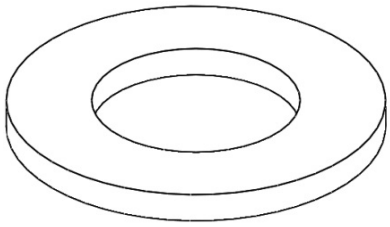
Name	Hexagon Socket Countersank Head screw
P/CODE	MTBMN20060ML
SIZE	470x1166x28
Weight	0.15Kg



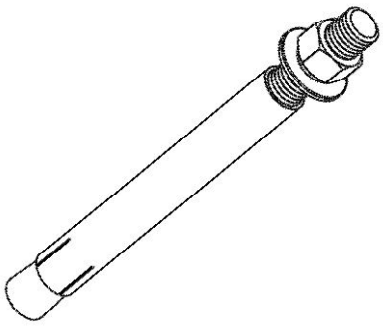
Name	Hexagon Nut_2
P/CODE	MTNM220SL
SIZE	M20
Weight	0.05Kg

CCSII Component List

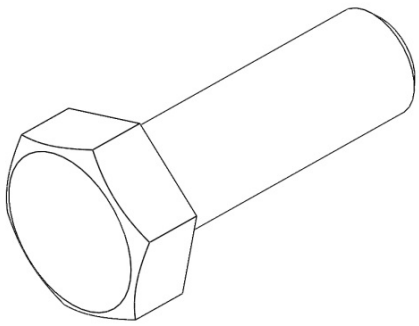
***Component List_3**



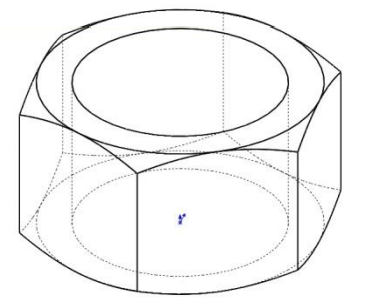
Name	Plain Washer
P/CODE	MTWP020SL
SIZE	37Ø(21Ø)X3.0T
Weight	0.015Kg



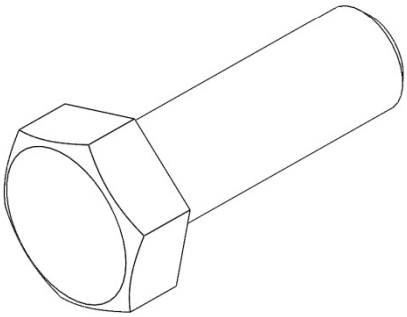
Name	Anchor Bolt_Ass`y
P/CODE	MTBMA20250SL
SIZE	M20*250
Weight	0.7Kg



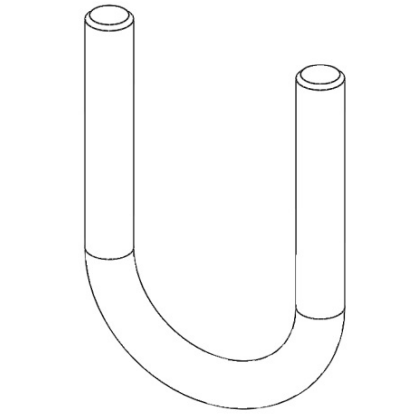
Name	Hexagon Bolt_1
P/CODE	MTBMH10025SL
SIZE	M10x25
Weight	0.025Kg



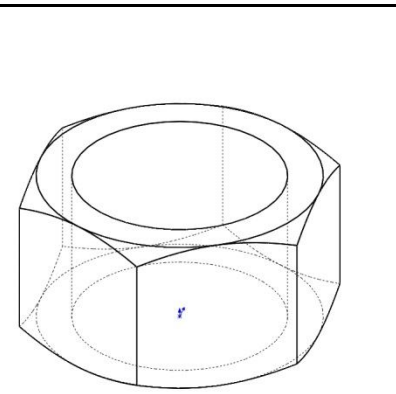
Name	Hexagon Nut_1
P/CODE	MTNM210SL
SIZE	M10
Weight	0.01Kg



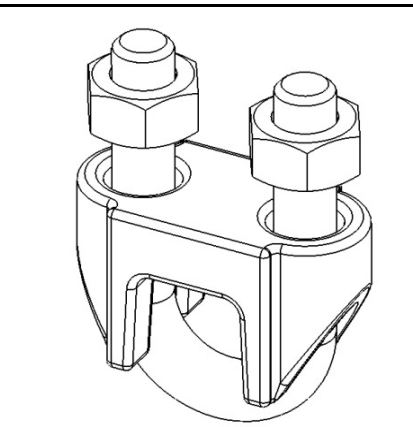
Name	Hexagon Bolt_2
P/CODE	MTBMH20040SL
SIZE	M20x40
Weight	0.15Kg



Name	U_Bolt
P/CODE	MTBMU168090U
SIZE	M16x80
Weight	0.45Kg



Name	Hexagon Nut_3
P/CODE	MTNM216U
SIZE	M16
Weight	0.01Kg

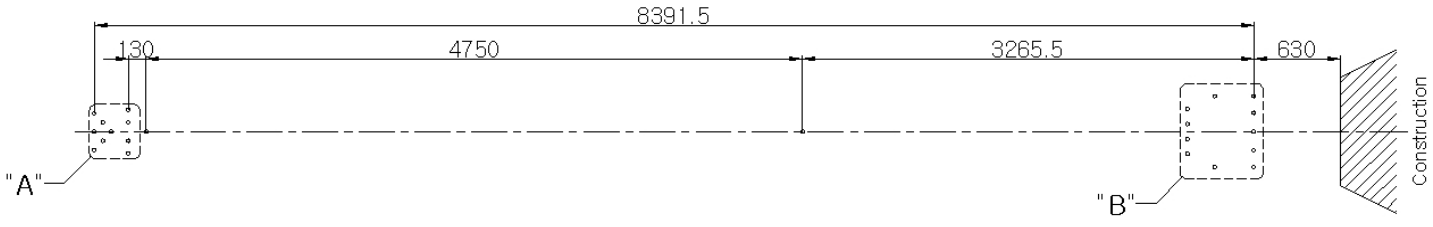


Name	Wire Clip_Ass`y
P/CODE	MTL11SL
SIZE	1 1/8"
Weight	0.85Kg

Assembly Step By Step Instruction For CCS II(Parallel)

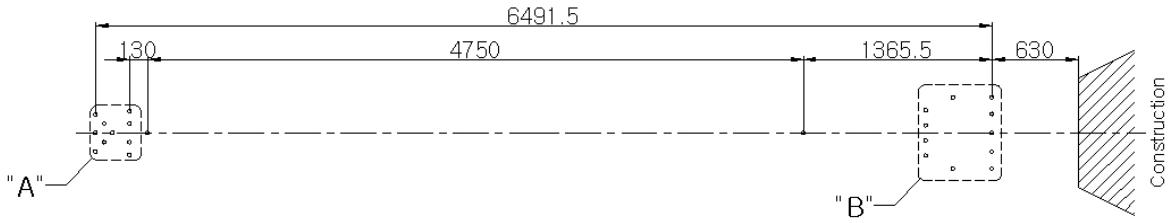
□ Assembly Step 1

- Mark for drilling the holes of anchors



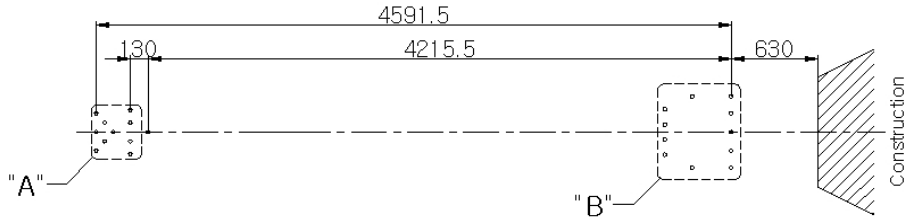
110Km/h

Model : EU_CCS_P_NT_110



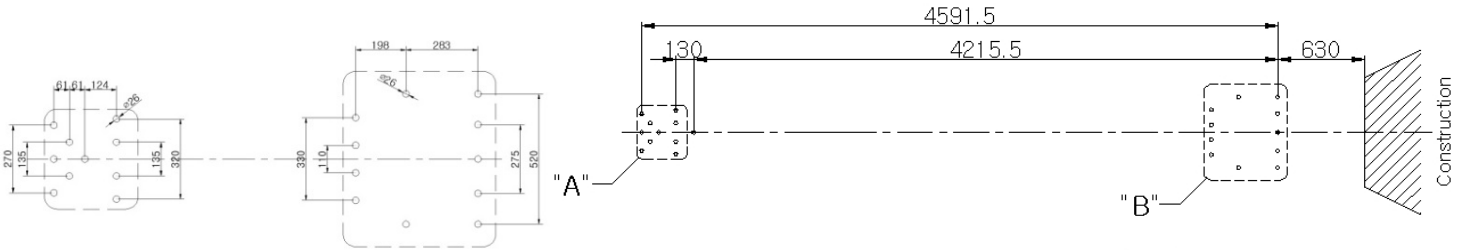
100Km/h

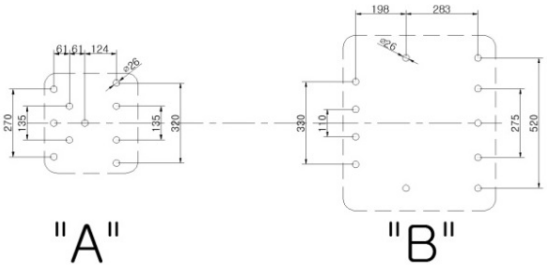
Model : EU_CCS_P_NT_100



80Km/h

Model : EU_CCS_P_NT_80





50Km/h

Model : EU_CCS_P_NT_50

□ Explanation

1. locate the installation place, and mark for drilling the holes of anchors
2. Follow the construction dimension drawing above for the hole marking
3. Apply the minimum speration distance from a structure(630mm) for the installtion

◘ Assembly Step 2

- Drill the holes of anchors for the installation of the product

Name	Hammer drill

◘ Explanation

1. Drill the marks (step1) for the holes of anchors using a hammer drill with drill bits 26mm
2. Drill vertically to the ground, and the depth of holes should be 190 ~ 200mm
3. Clear the site the when when finished the wrok

◘ Assembly Step 3

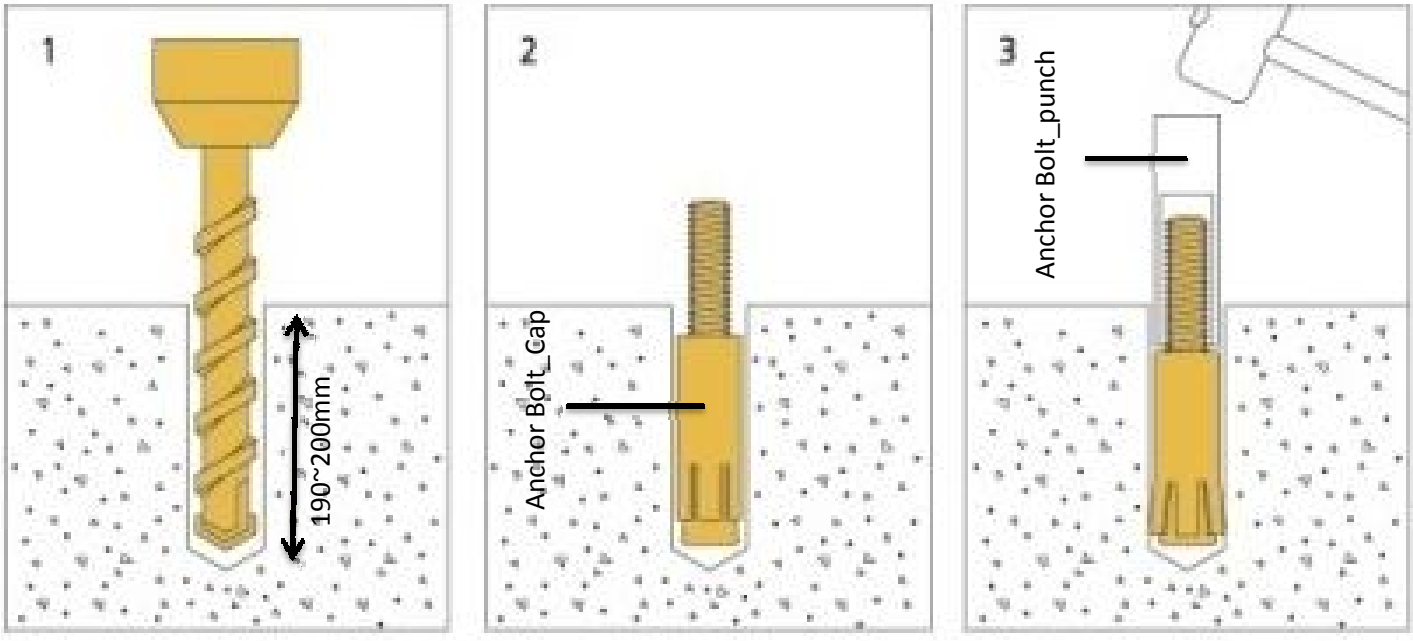
- Fix the anchors in the ground for instsallation of the product

Name	Anchor Bolt_Ass`y

Name	Anchor Bolt_punch

Name	Hammer

* Reference: [Assembly Step 2~Assembly Step 3]



◘ Explanation

1. Insert anchor bolt and anchor bolt_cap into the holes (step2) as image 1 above
2. Insert Anchor Bolt_Punch into the Anchor Bolt, and the fix it with a hammer

* Chemical Bolt can be the alternative of Anchor Bolt_Ass`y Chemical Bolt.

▫ Assembly Step 4

- Fix the Back Stop Frame, Wire Hold Plate and Rotation Bracket.

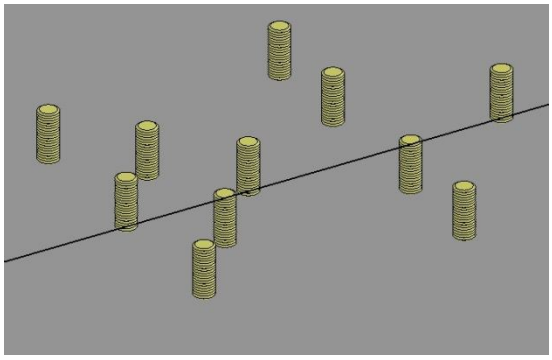


Image of fixed anchors for Wire Hold Plate

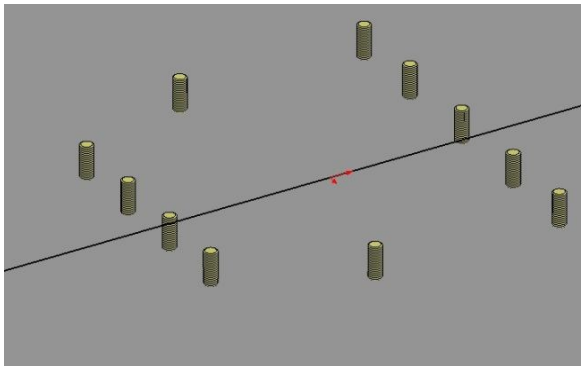
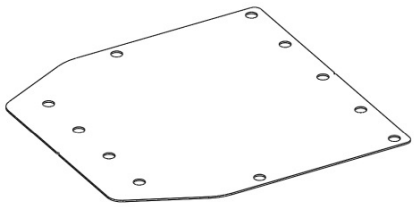
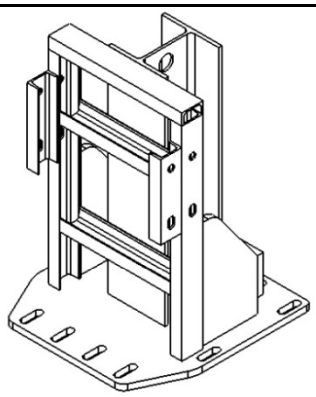


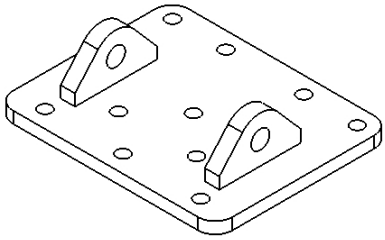
Image of fixed anchors for Back Stop Frame



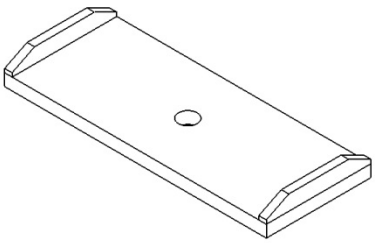
Name	Base Bracket



Name	Back Stop Frame



Name	Wire Hold Plate

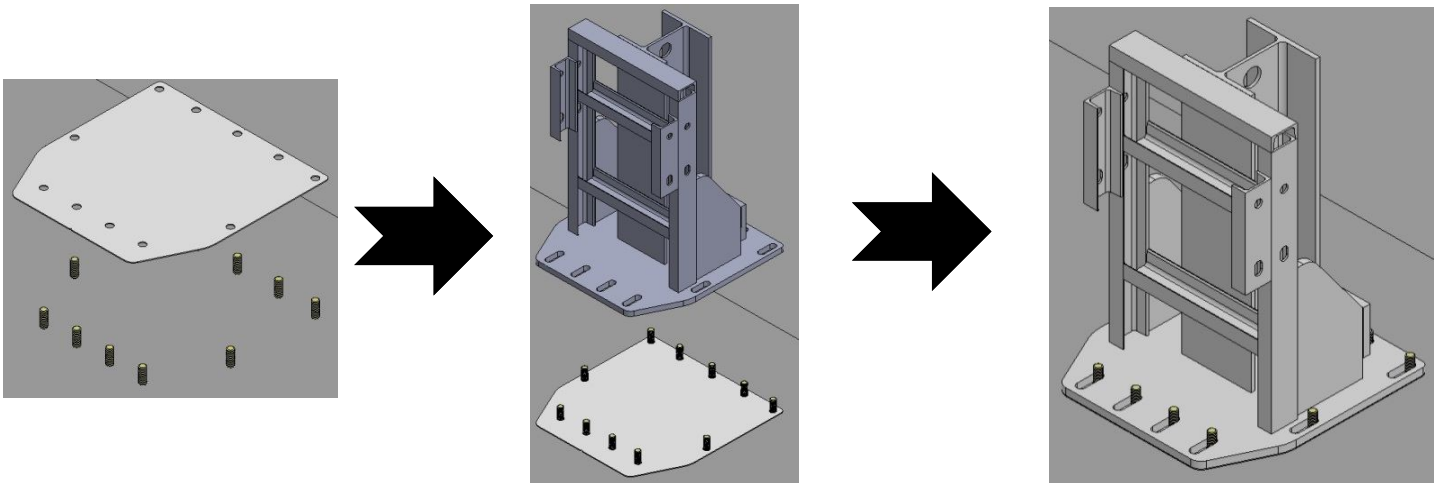


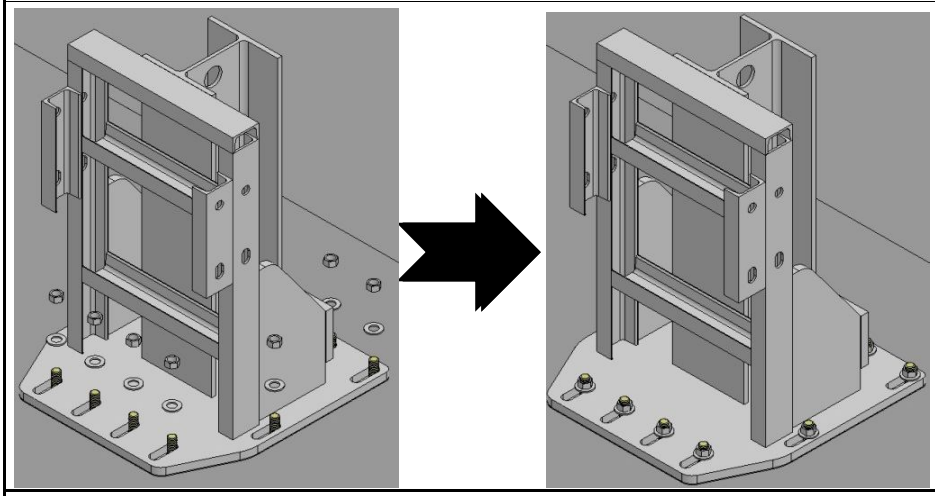
Name	Rotation Bracket

Name	Impact

Name	Socket Wrenches_27mm

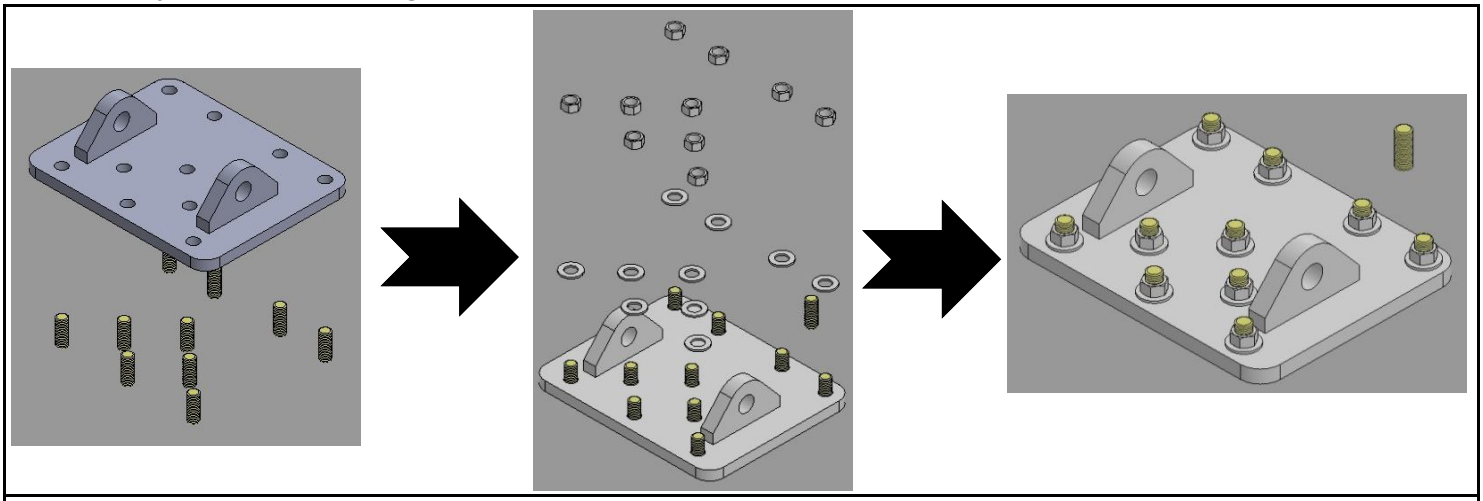
▫ Assembly 4-1 [Setting of Back Stop]





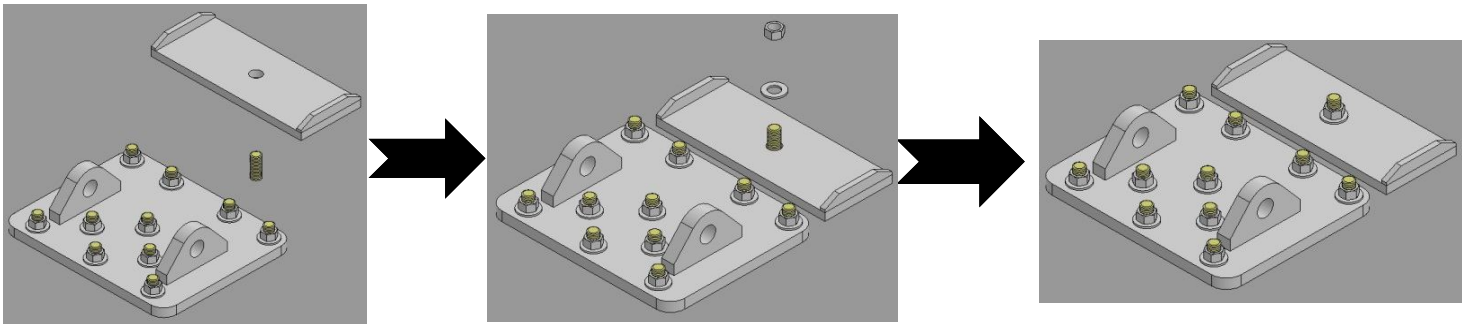
▫ Explanation
1. Insert the Anchor Bolt into Base Bracket
2. locate the Back Stop Frame on Base Bracket
3. Assemble the back stop frame with anchor bolts with plain washers and nuts seperated from Anchor Bolt_Ass`y
4. Fix the conneted nuts using an impact driver with 27mm_Socket wrenches

▫ Assembly Step 4-2 [Setting of Wire Hold Plate]

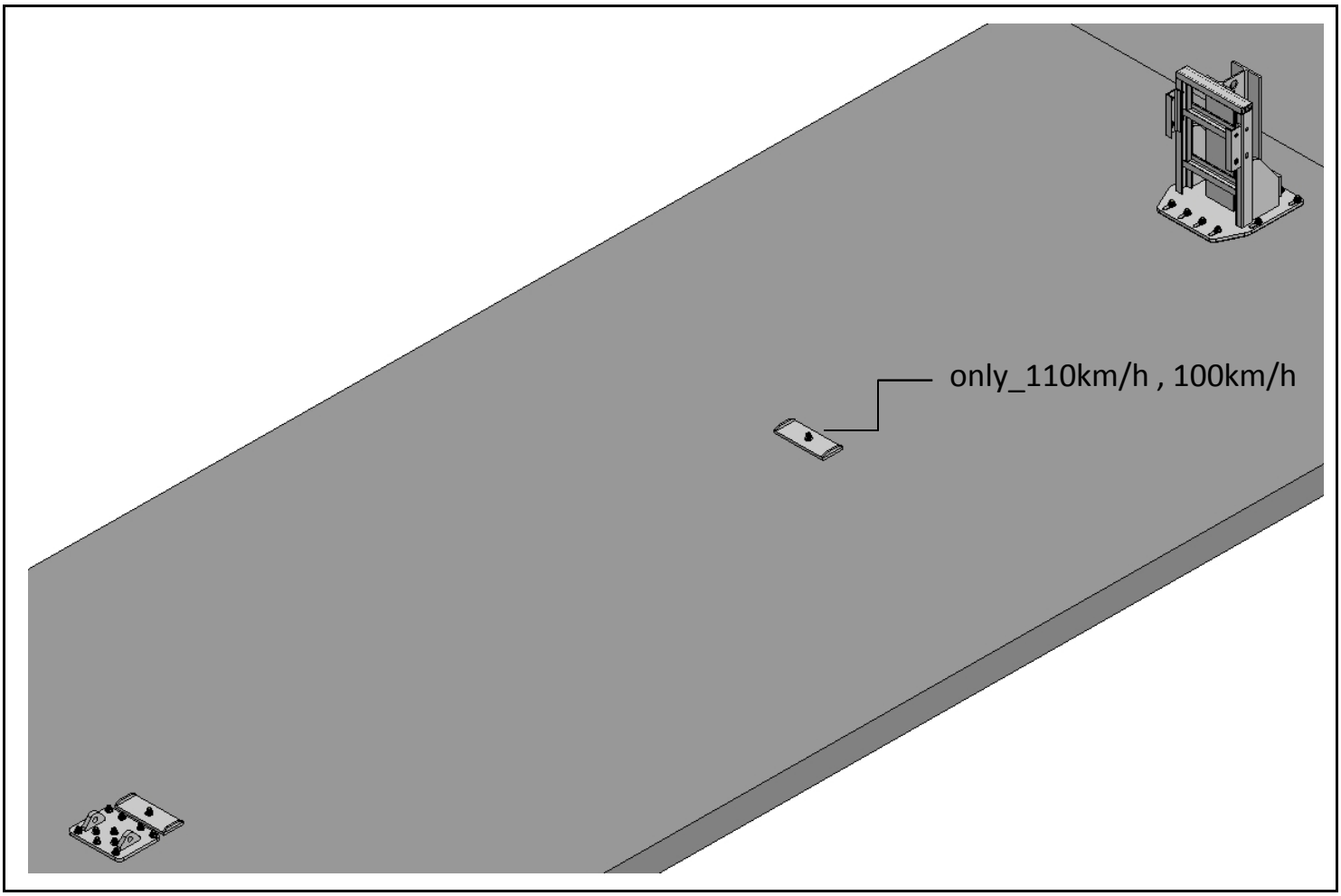


▫ Explanation
1. Insert anchor bolts into Wire Hold Plate
2. Assemble the wire hold plate with anchor bolts with plain washers and nuts seperated from Anchor Bolt_Ass`y
3. Fix the conneted nuts using an impact driver with 27mm_Socket wrenches

▫ Assembly Step 4-3 [Setting of Rotation Bracket]



▫ Explanation
1. Insert Anchor Bolts into Rotataion Bracket
2. Assemble the rotation bracket with anchor bolts with plain washers and nuts seperated from Anchor Bolt_Ass`y
3. Fix the conneted nuts using an impact driver with 27mm_Socket wrenches



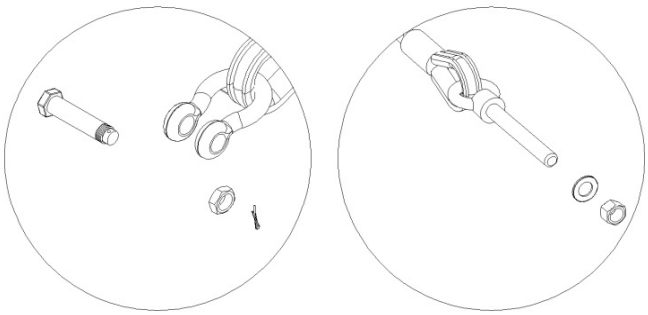
◘ Assembly Step 5 [Connection of Wire Rope_Ass`y]

- Connect up the Wire Rope_Ass`y to Back Stop Frame and Wire Hold Plate

Name	Wire Rope_Ass`y

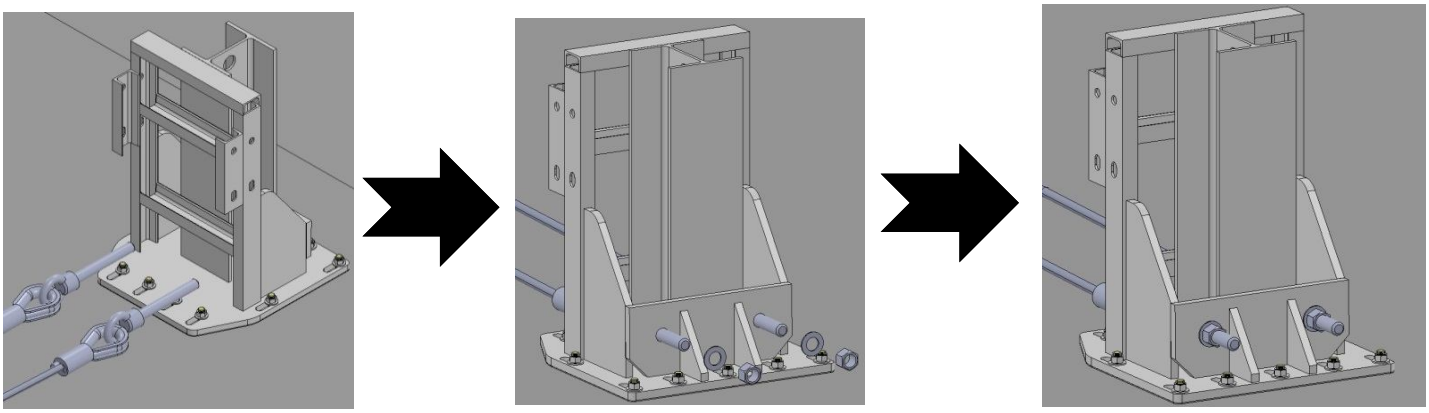
Name	Impact Driver

Name	Socket Wrenches 47mm~48mm



Separate the components of Wire Rope_Ass`y

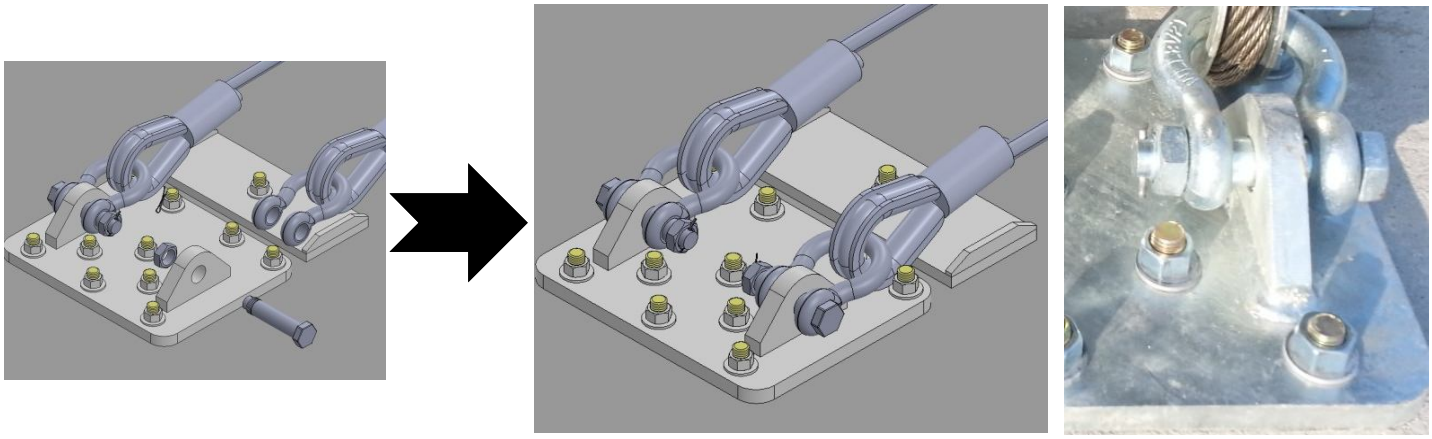
◘ Assembly Step 5-1 [Connection of Wire Rope_Ass`y to Back Stop Frame]



◘ Explanation

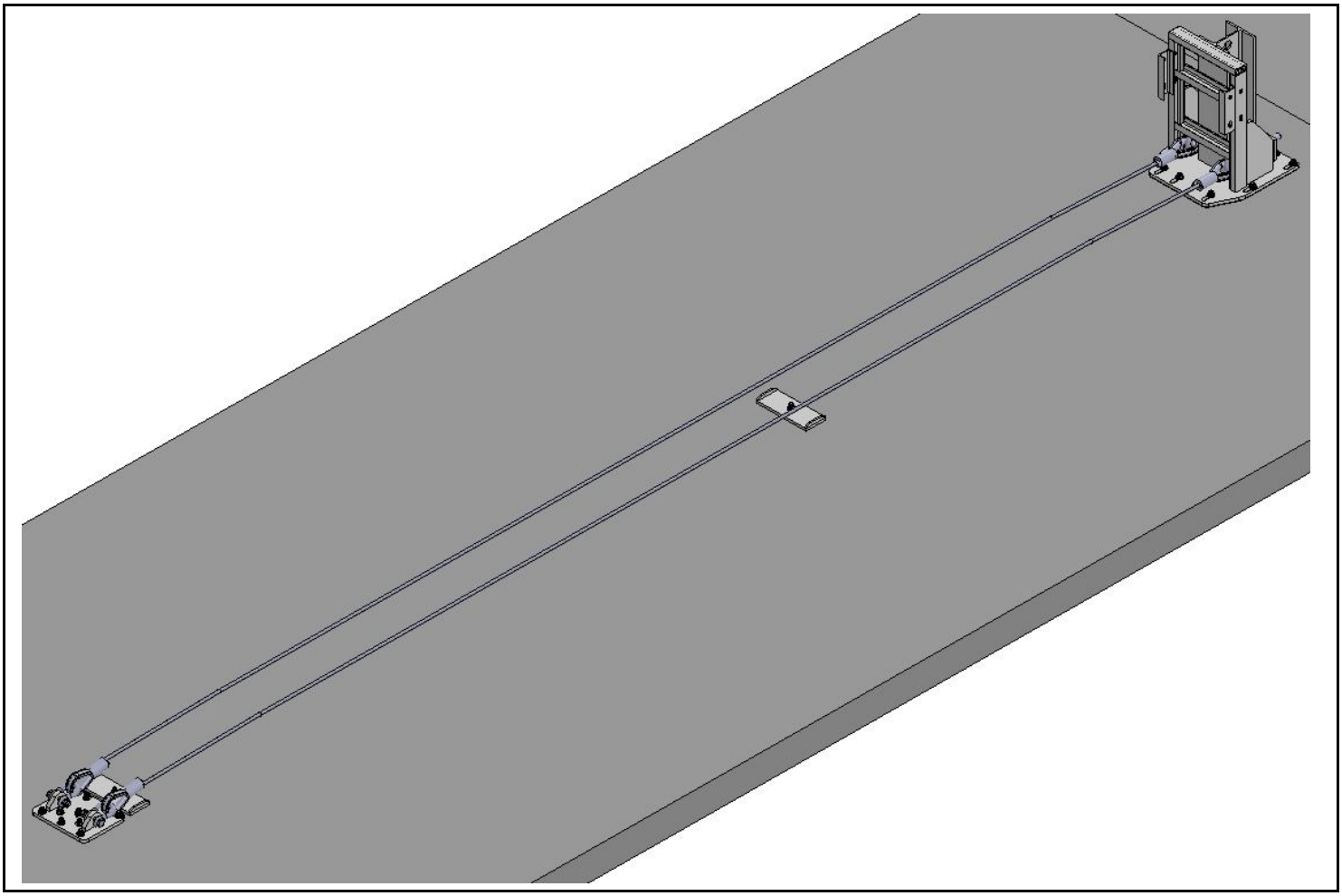
1. Insert seperated components from Wire Rope_Ass`y into holes on the bottom of the Back Stop Frame
2. Assemble nuts and plain washer seperated from Wire Rope_Ass`y

▫ Assembly 5-2 [Connection of Wire Rope_Ass`y to Wire Hold Plate]

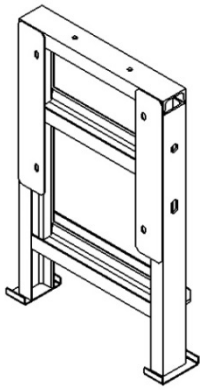


▫ Explanation

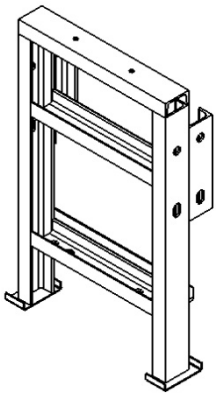
1. Fix the bolts, nuts, pins seperated Wire Rope_Ass`y on Wire Hold Plate
2. Insert a Pin into a bolt, and transform a side in order not to loose the nuts



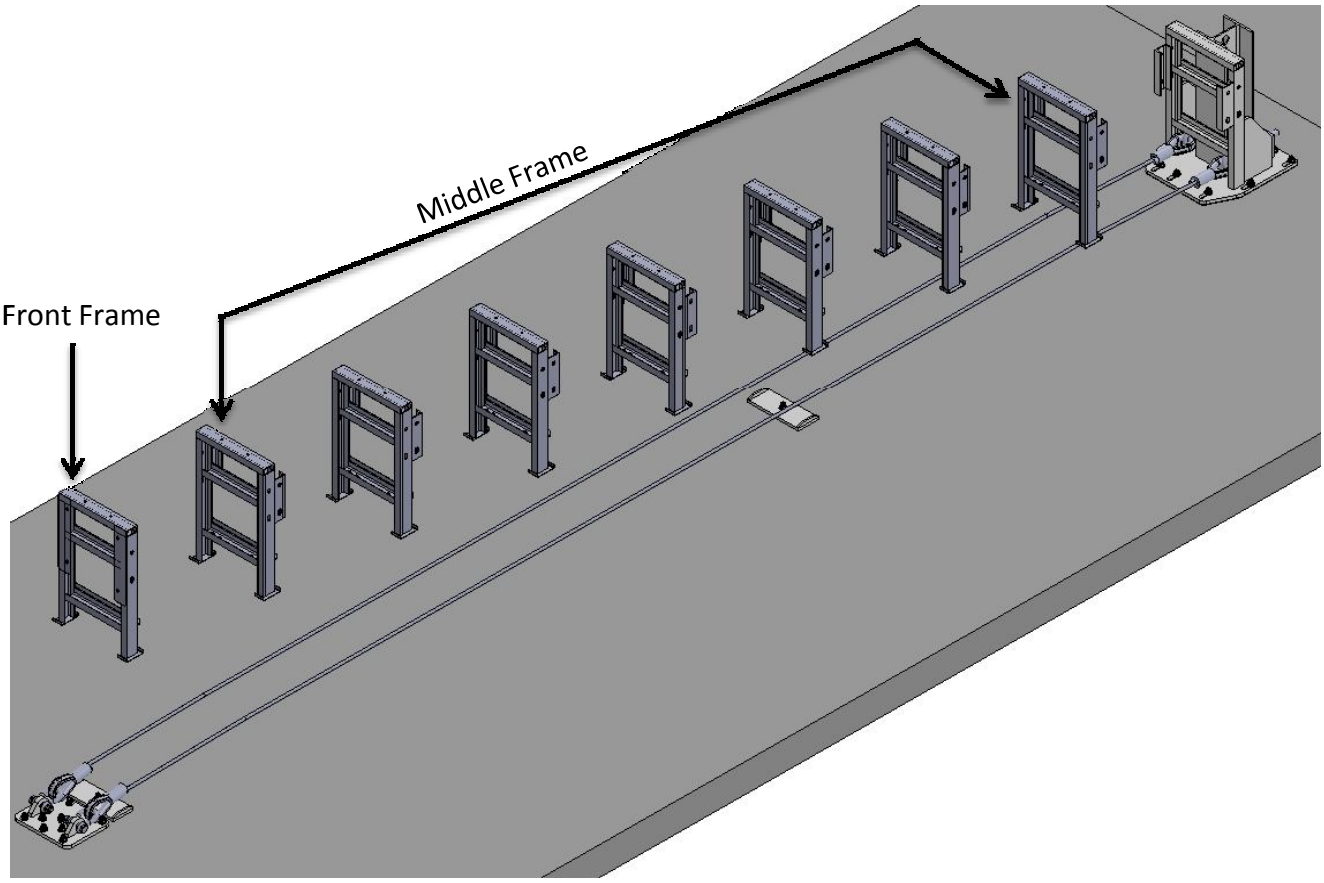
▫ Assembly Step 6[Setting the Position of Front Frame & Middle Frame]



Name	Front Frame

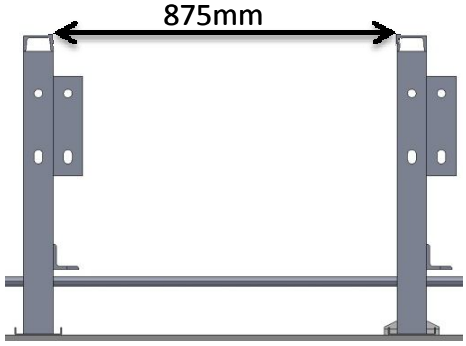


Name	Middle Frame

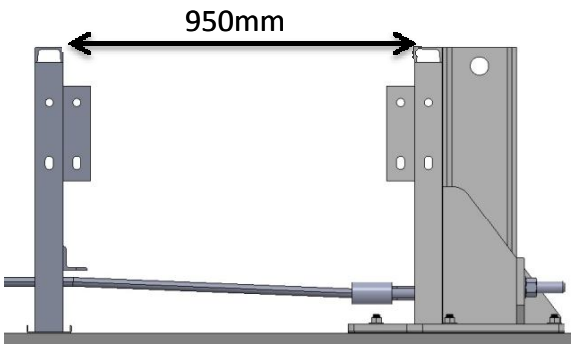


▫ Explanation

1. Place Fix Front Frame and Middle Frame as seen from above
2. Refer to the picture on the bottom for the distance between middle frame

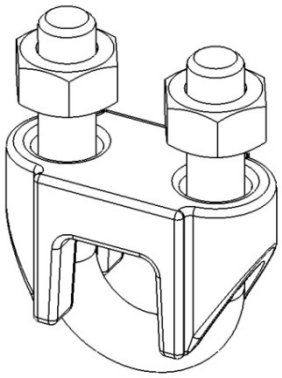


The distance between the middle frames

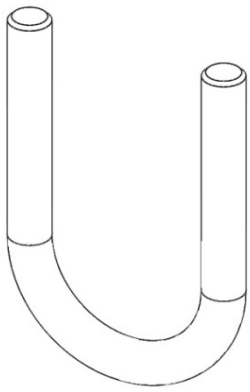


The distance between middle Frame and Back Stop Frame

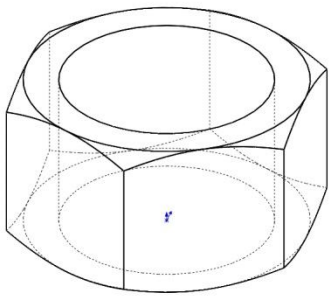
▫ Assembly Step 7[Wire Clip_Ass`y & U_Bolt Temporary-Assembly]



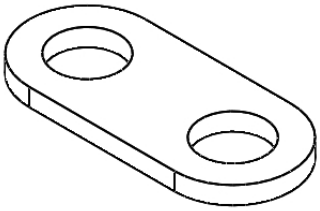
Name	Wire Clip_Ass`y



Name	U_Bolt

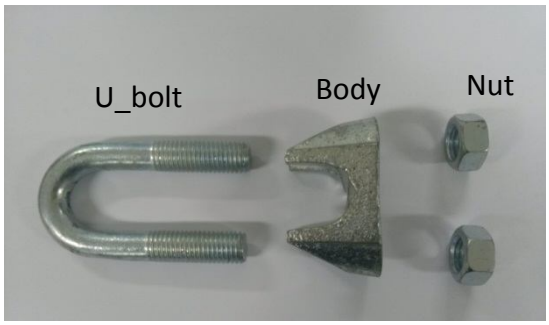


Name	Hexagon Nut_3(M16)

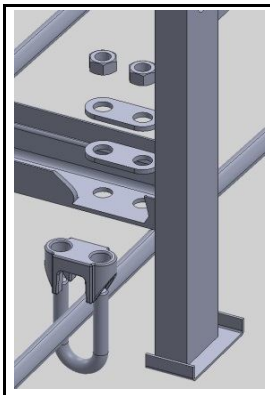
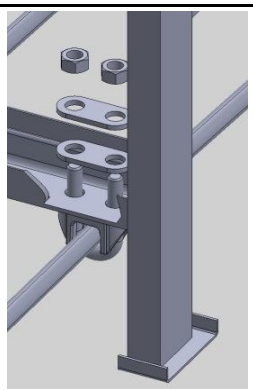
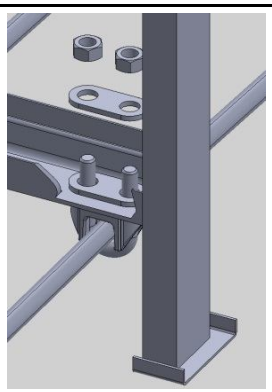
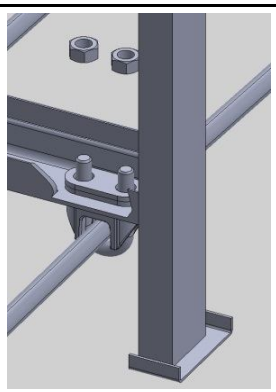
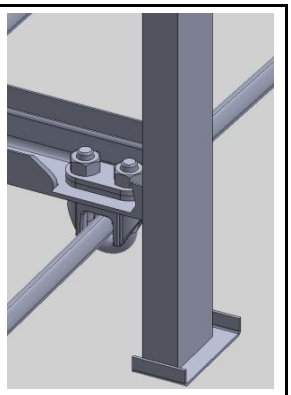


Name	Washer Bracket

▫ Assembly Step 7-1[Wire Clip Temporary-Assembly]

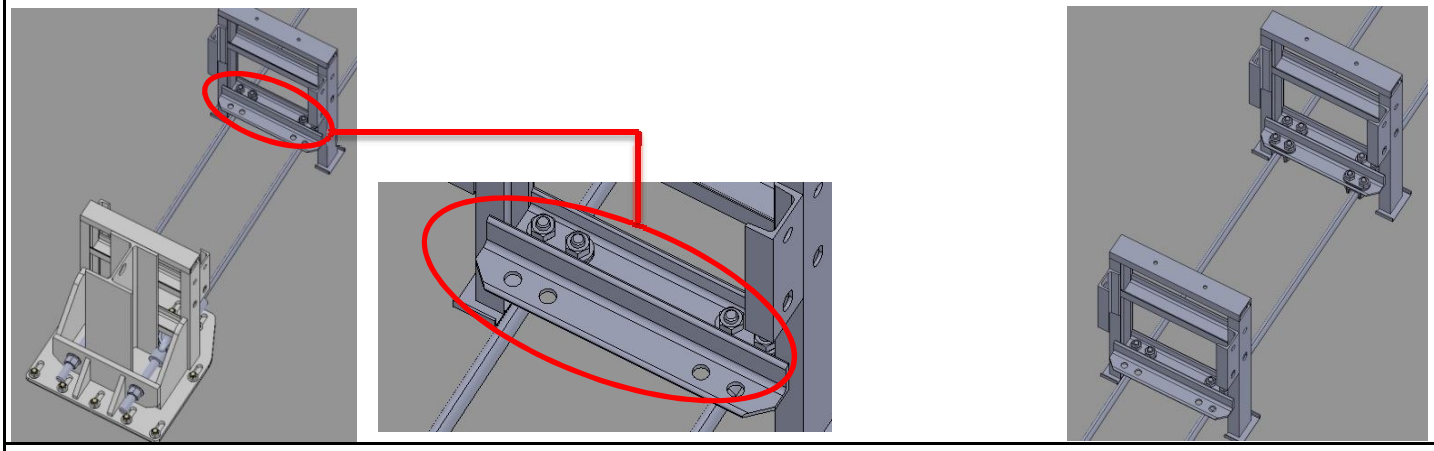


Separate the components from Wire Rope_Ass`y

▫ Explanation

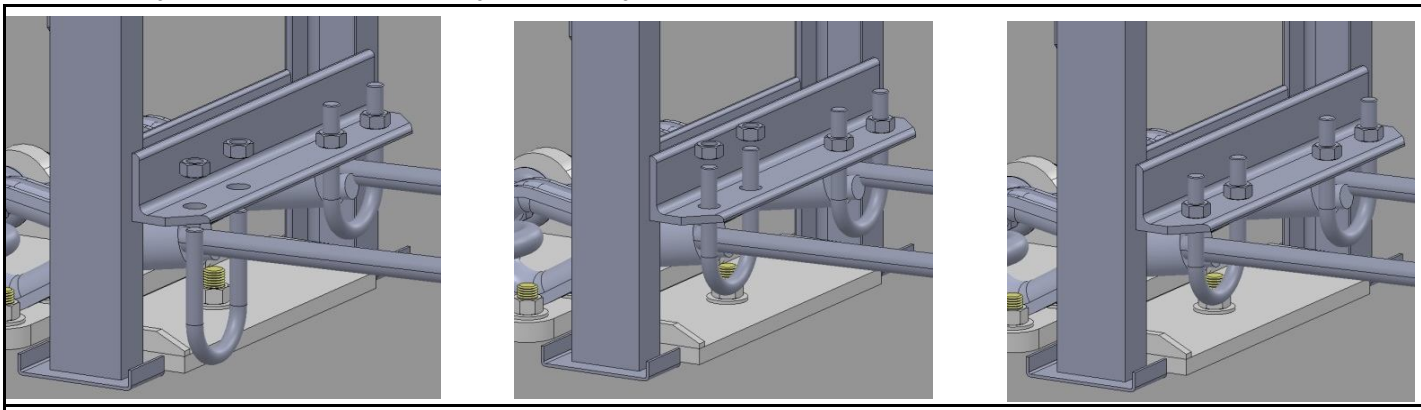
1. Sperate the components from Wire Clip_Ass`y, and put the Wire Rope between Wire Clip U_Bolt and Wire Clip_Body
2. Insert the Wire Clip U_bolt with Wire Rope under the Frame hole.
3. Connect temporarily the 2ea of Washer Bracket on Wire Clip U_Bolt with Wire Clip_Nut



□ Notice

1. Assemble the middle frame right before the back stop frame with only 2EA of Wire Clip_Ass`y,
   and the rest of the middle frames with 4EA of Wire Clip_Ass`y

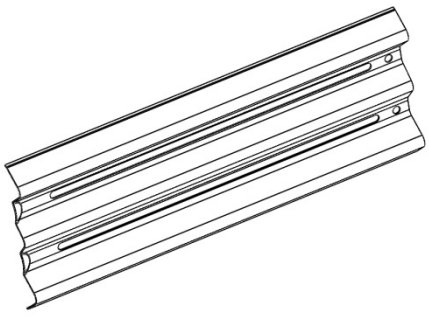
□ Assembly 7-2[U_Bolt Temporary-Assembly]



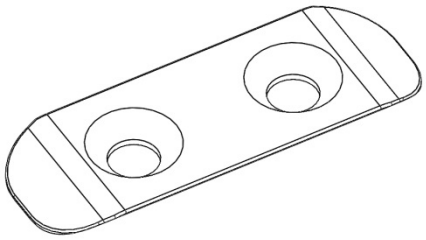
□ Explanation

1. Put Wire Rope in U_Bolt, and insert the U_Bot into the holes on the bottom of Front Frame as seen in the piture
2. Assemble the U_Bolt with Nut[M16]
3. U_Bolt should be 10mm above from the Nut on the rotation bracket when it is assembled with the Nut[M16]

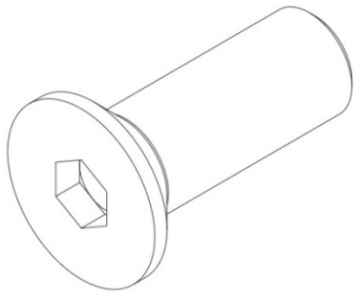
□ Assembly Step 8[GuardRail Temporary-Assembly]



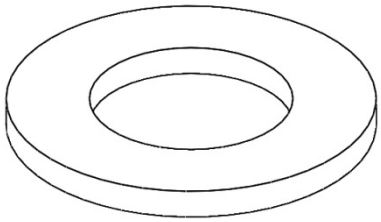
Name	GuardRail



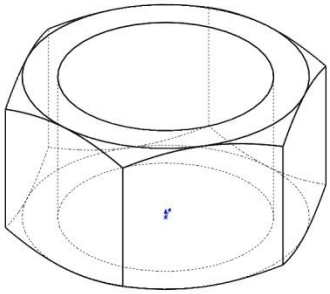
Name	Spacer Bar



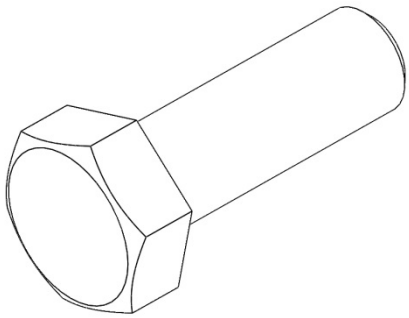
Name	Hexagon Socket Countersank Head screw



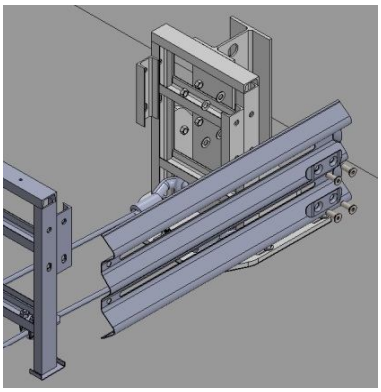
Name	Plain Washer

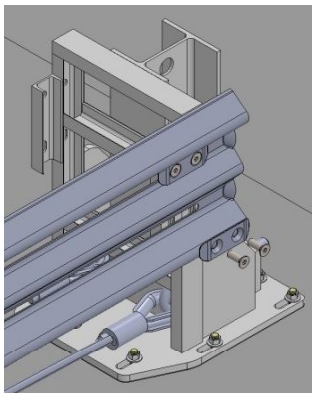


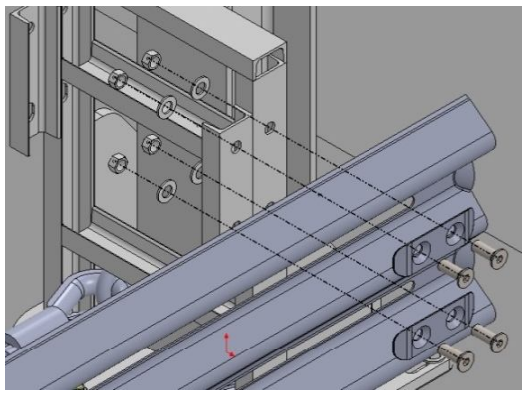
Name	Hexagon Nut_2



Name	Hexagon Bolt_1

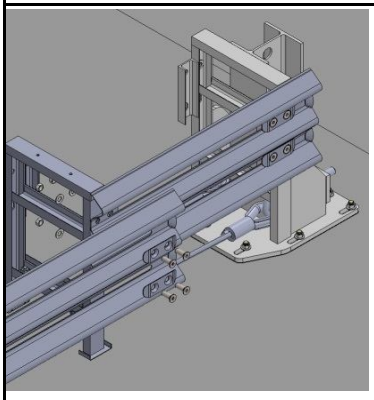


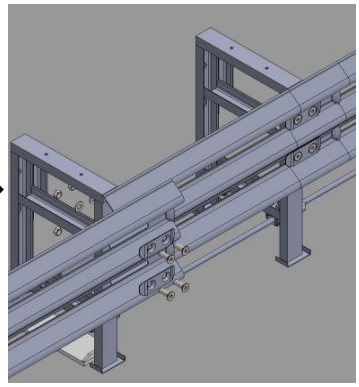


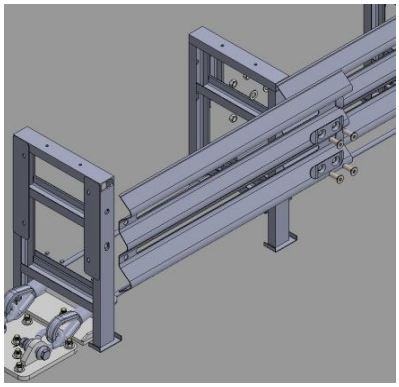


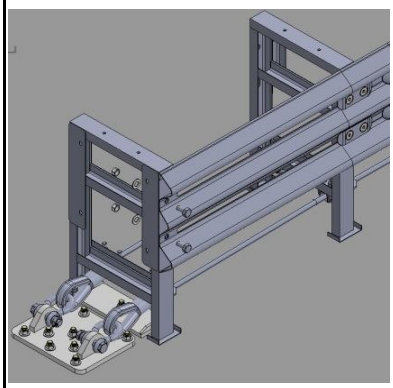
□ Explanation

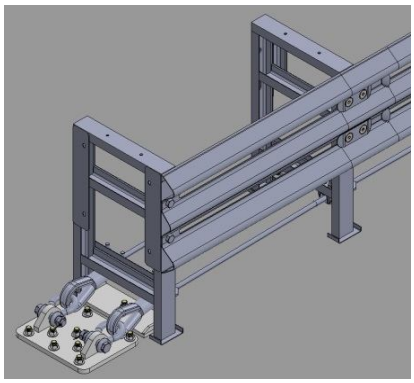
1. Assemble GuardRails in order from the Back Stop Frame to Front Frame
2. Assemble the GuardRail into the frame with Spacer Bar, Plain Washer and Nut(M20)
3. it should be temporary-Assembly at this moment

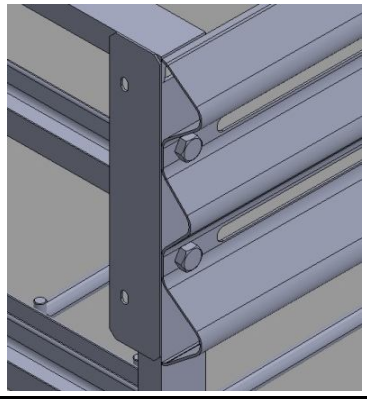












□ Explanation

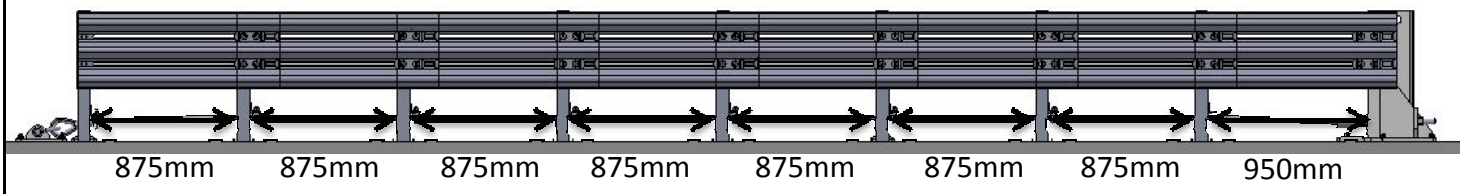
1. Hexagon Bolt_1(M20x40) should be used to assemble the Front Frame and GuardRail
2. Assemble the GuardRail on one side first, and then work on the other side

◘ Assembly Step 9[Setting of GuardRail_]

Name	Impact Driver

Name	Socket Wrench_#12
Name	Socket Wrench_#30

Name	Torque wrench
Name	Spanner_#30



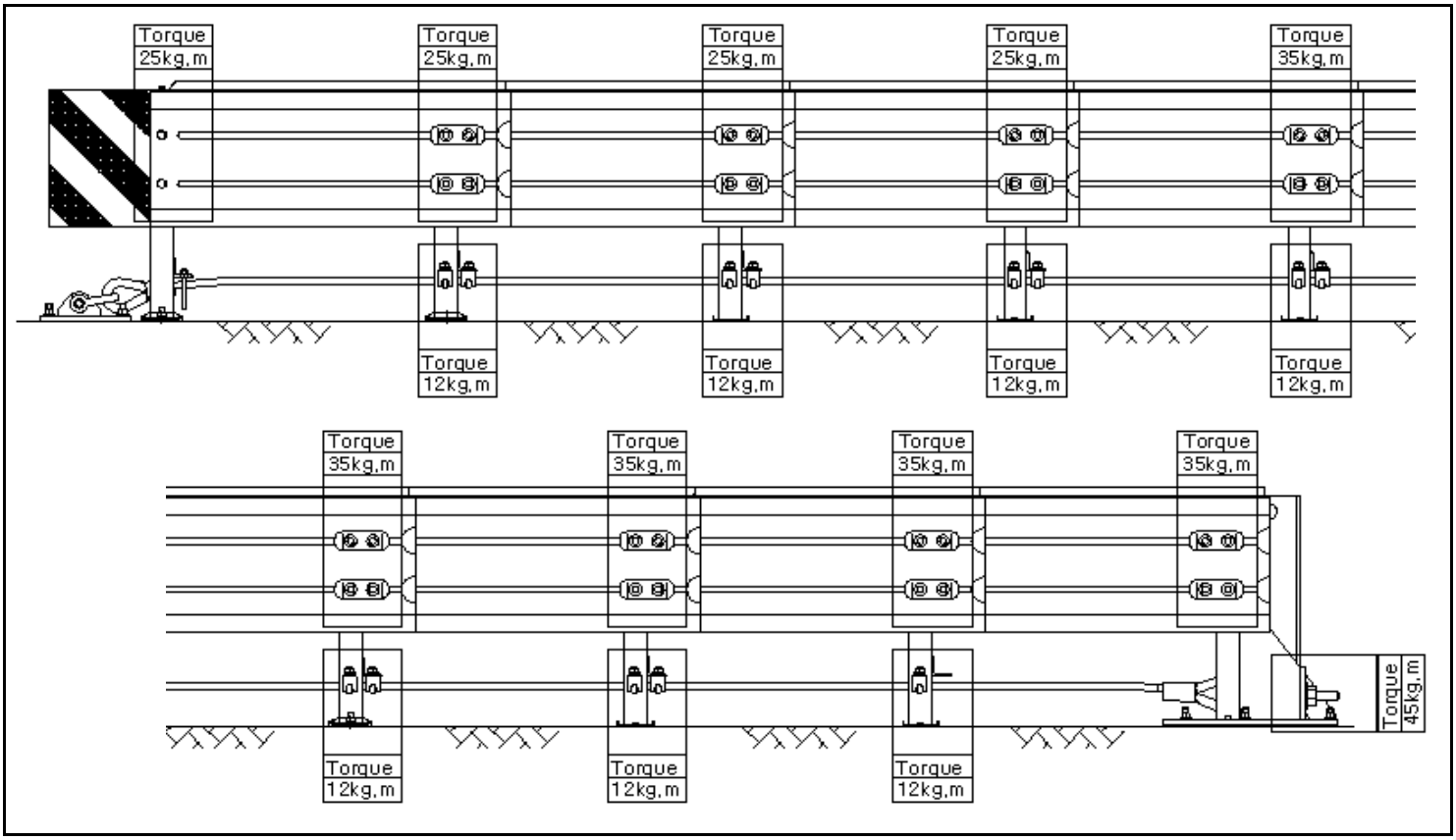
◘ Explanation

1. Locate each frame at interval as seen in the picture above, and Use the Hexagon Socket Countersank Head Screw to tighten the GuardRail and frame using the impact driver installed with Scoket wrench_#12
   When tighening, the Nut should be fixed by Spanner_#30 to be tighten fully
2. Hexagon Bolt_1 on the Front Frame should be tighten by the impact driver installed with Socket Wrench_#30

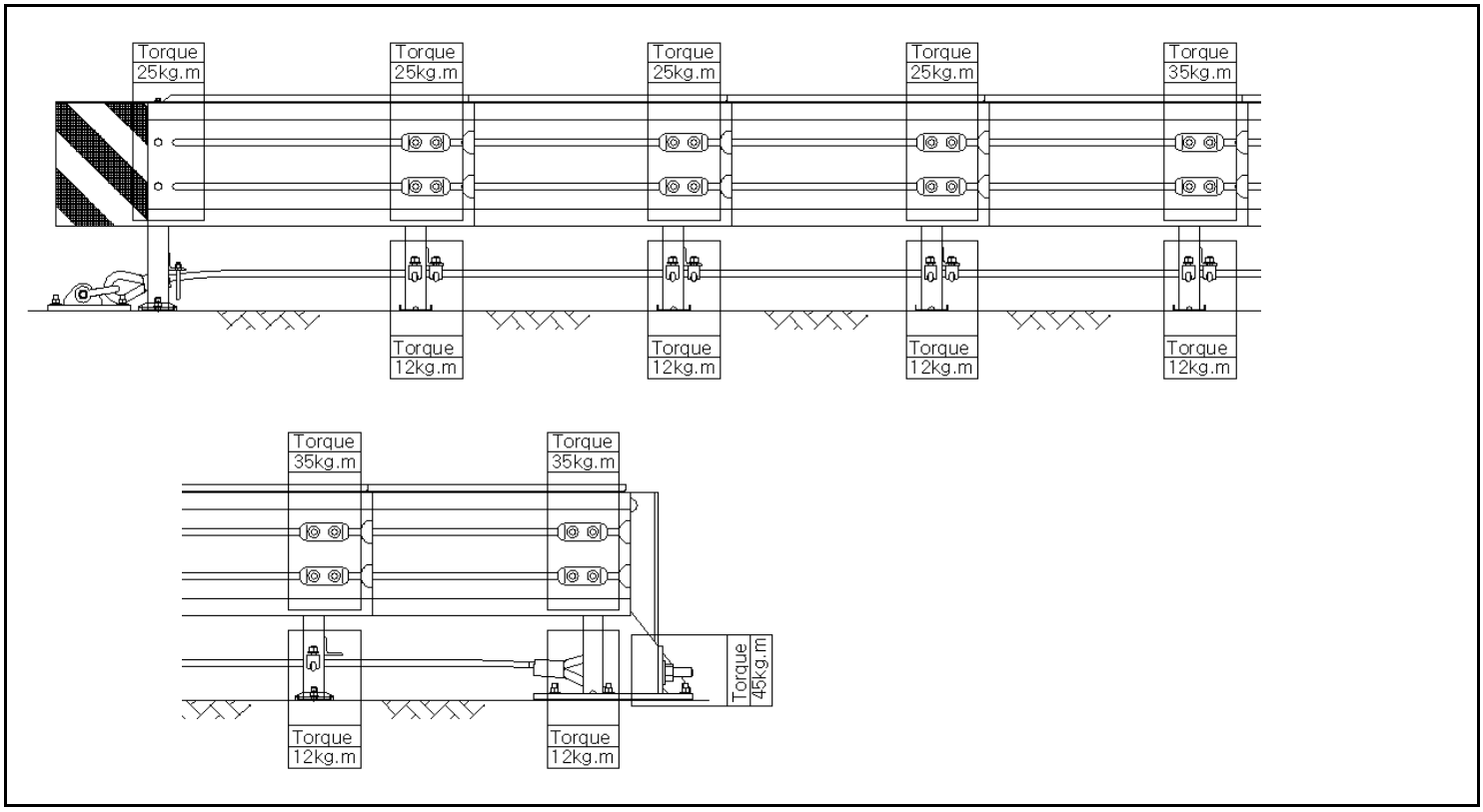
☞ Refer to the table-1 for Torque between guardrail and spacer bar.

Table-1)

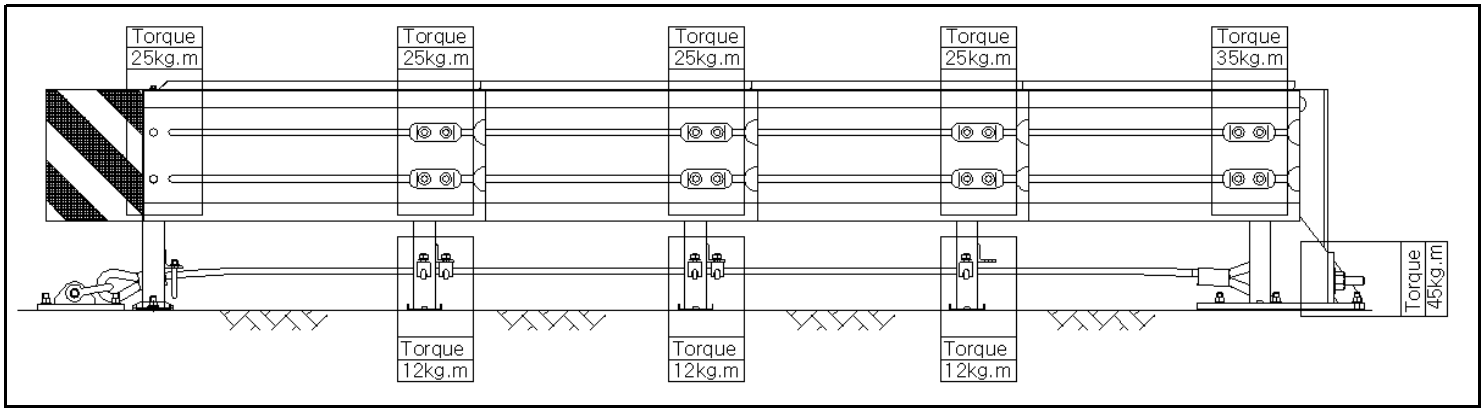
CC110km/h



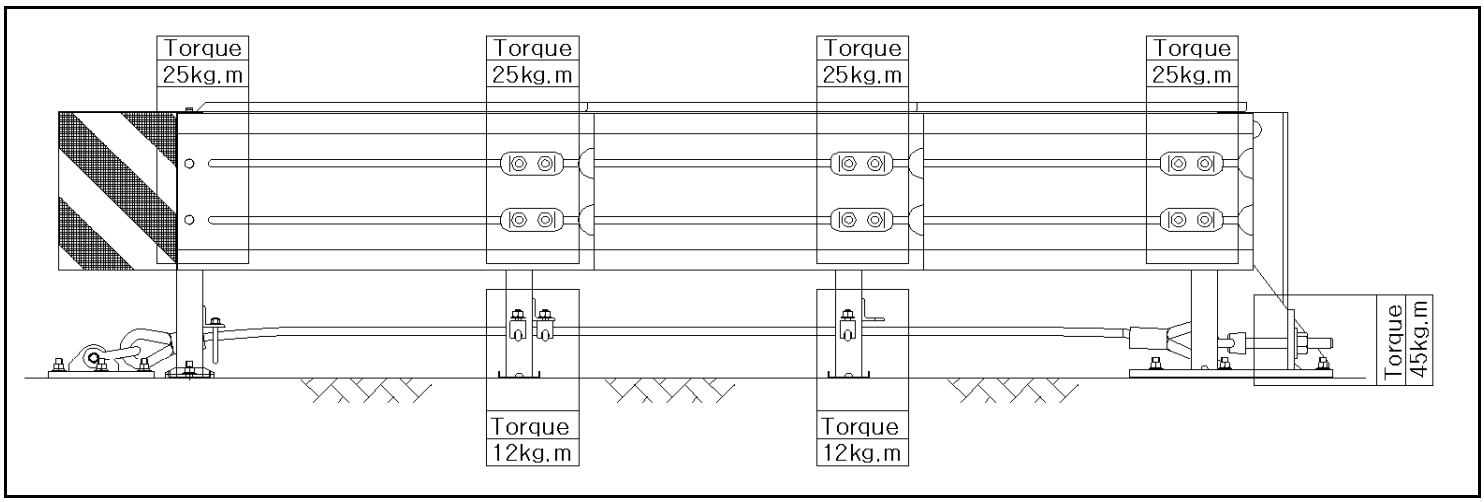
CC100km/h



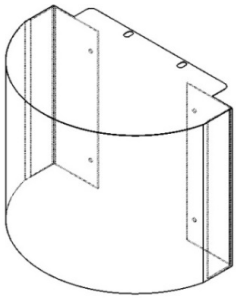
CC80km/h



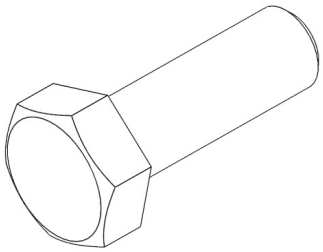
CC50km/h



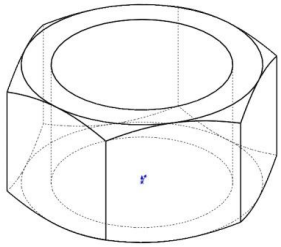
▫ Assembly Step 10[Front Cover Assembly]



Name	Front Cover



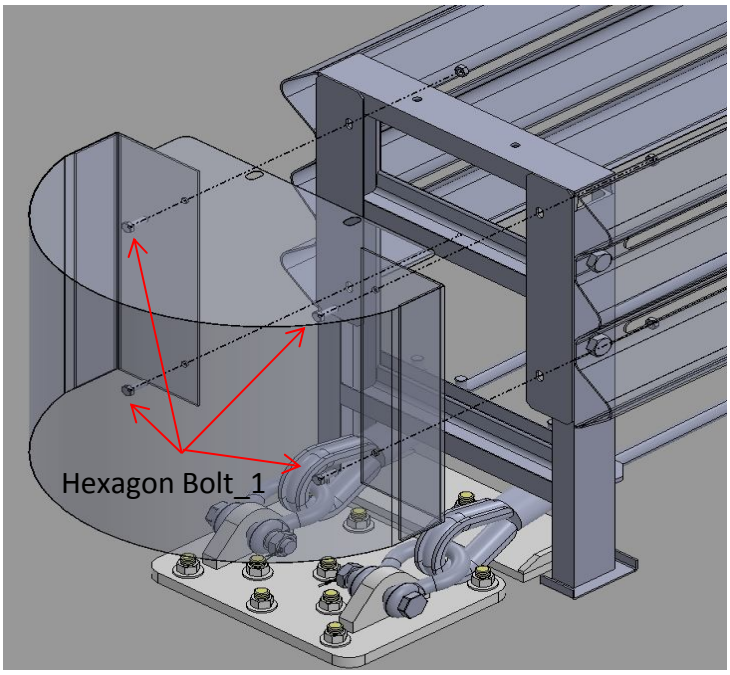
Name	Hexagon Bolt_1

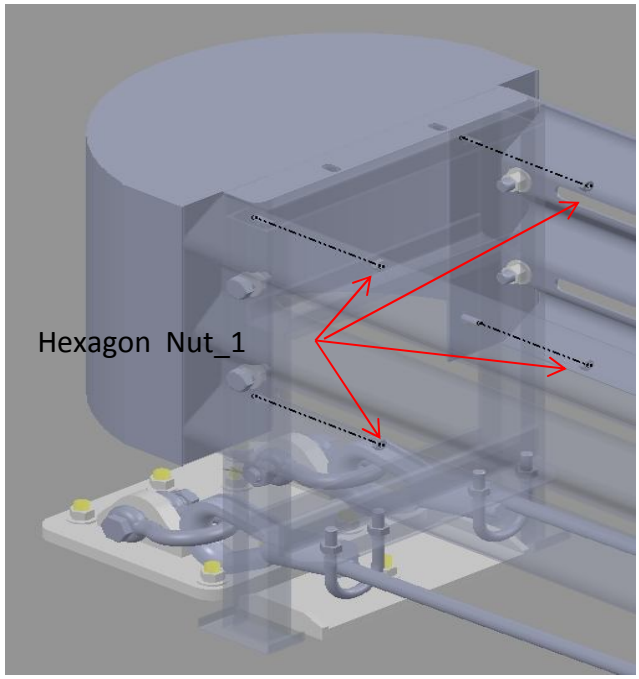


Name	Hexagon Nut_1

Name	Impact Driver

Name	Socket Wrench_#17





▫ Explanation

1. Insert Hexagon Bolt_1 x 4ea into the holes of the Front Cover,
   assemble the Hexagon Nut_1 on each inserted Hexagon Bolt_1
2. Tighten the Hexagon Bolt_1 using the Impact driver installed with Socket wrench_#17

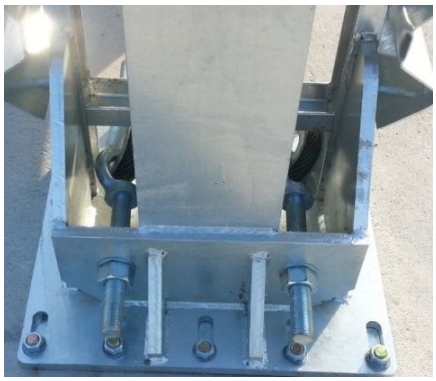
☞ Torque = 5kg.m

◘Assemble_Step 11[Setting of Wire Rope and Wire Clip_Ass`y]

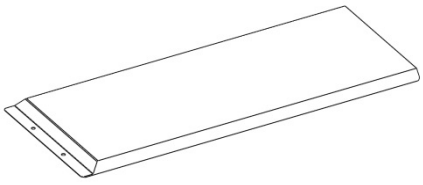
-Tighten the Temporary-Assembled in Assemble_Step 5 and Aseemble_Step 7

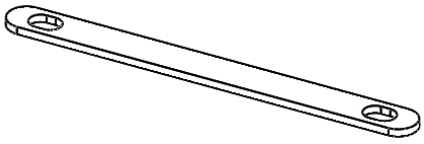
Name	Impact

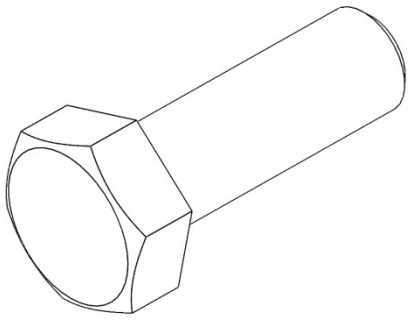
Name	Socket Wrench_#30 Socket Wrench_#47 Socket Wrench_#48

		
◘ Explanation 1. Tighten the Wire Clip_Nut using Socket Wrench_#30	◘ Explanation 1. Tighten Wire Rope_Nut using Socket Wrench_#47~#48	
☞Refer to the table-1 for Torque of Wire Rope Clip and Wire Rope		

◘Assembly Step 12[Setting of Top Cover]

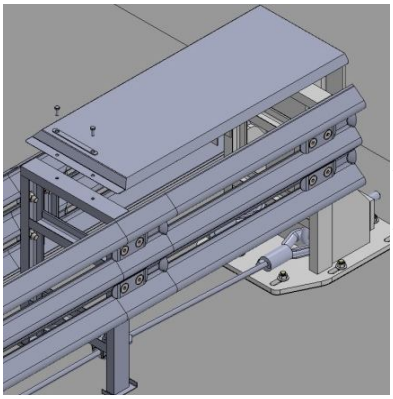
	
Name	Top Cover

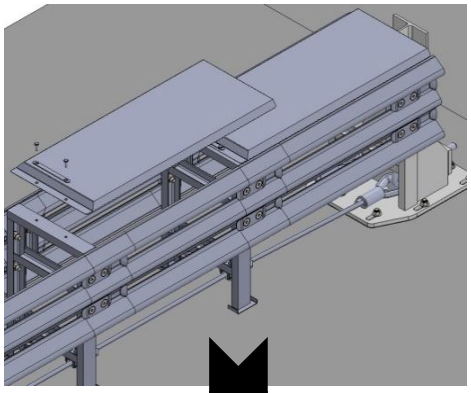
	
Name	Top Cover_Bracket

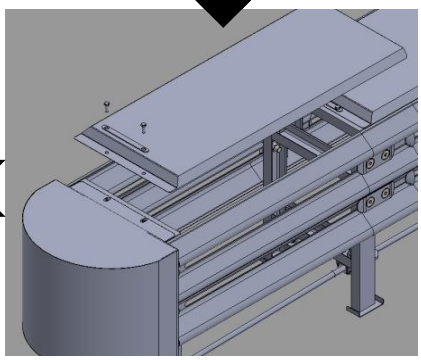
	
Name	Hexagon Bolt_1

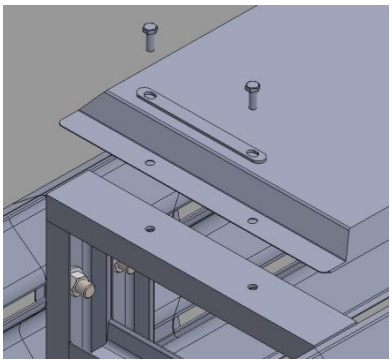
Name	Impact Driver

Name	Socket Wrench_#17









Detail

□ Explanation

1. Assemble Top Covers in order from the Back Stop Frame to the Front frame

2. Quadrate the holes on the frame with the holes on the top cover, put Top Cover_Bracket on it.

Tighten each top cover with hexagon bolt_1 using the impact driver installed with socket wrench_#17

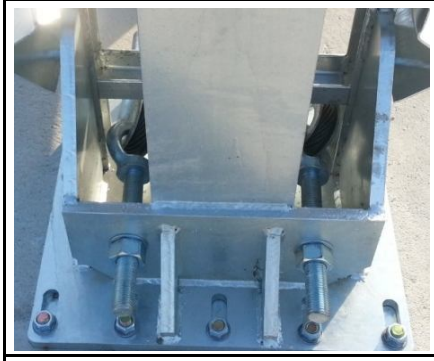
☞ Torque = 5kg.m

▫ Assembly Step 13[Assembly-Completed Image of Main Parts]

Assembly-Completed State [110Km/h]

Assembly-Completed state of Wire Hold Plate

Assembly-Completed State of Wire Clip & Rotation Bracket



Assembly-Completed State of Back Stop Plate-1

Assembly-Completed State of Back Stop Plate-2