HDYJ230006 Flat Single-axis Tracking Bracket Sample Installation Manual

Tracking Bracket 1x10-Damper

Authorized by： Wei Jin

Proofread： Yang Zheng

Review： Zhengping Zhu

THE GARDEN FURNITURE CENTRE LTD

EST. 1999

Catalog

HDsolar 华鼎新能源 HUADING NEW ENERGY CO., LTD.

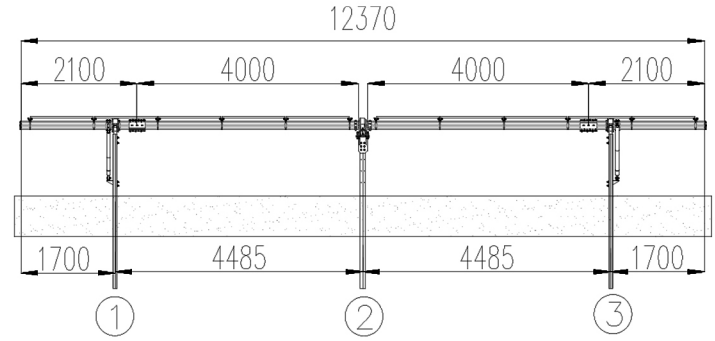
Tracker system-1x10 BOM list

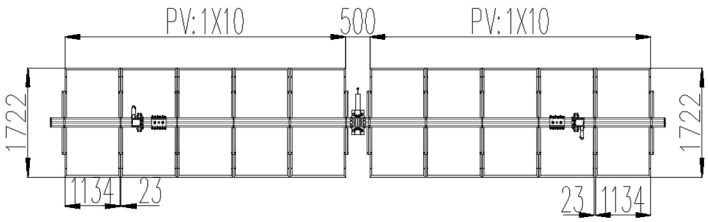
GARDEN FURNITURE CENTRE EST. 1999

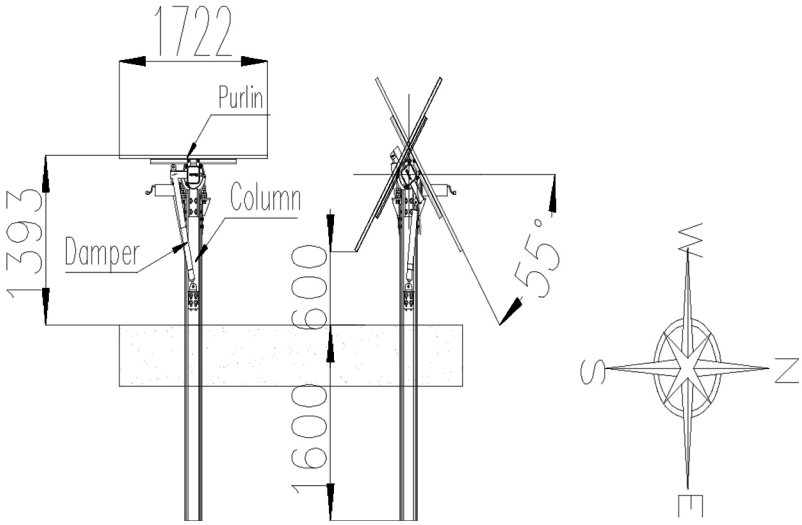
No.	Descriptions	Specification	Qty	Unit	Remarks
1	Driving column H type steel	L=2590mm	1	pc	H200x100x3.3x4.2
2	ordinary column C type steel	L=2680mm	2	pc	C160x65x14x3
3	Welding part on the bearing seat	welding parts	2	pc	steel board：-4/-3
4	Welding part under the bearing seat	welding parts	2	pc	steel board：-4/-3/-4
5	Ball bearing	140	4	pc	Matching holding bearings and 140 main axis
6	Main axis limiter	-3.5x300x36	4	pc	ZAM：-3.5
7	Main axis	□140x140x2.5，L=4000	2	pc	NO..A
8	Main axis	□140x140x2.5，L=2100	4	pc	NO.B
10	Main axis hoop	-5x300x330	4	pc	steel board：-5
11	Purlin holding boards assy	welding parts	12	pc	welding parts，average HDG 65μm
12	Purlin hoop	-3.5x426.5x22	12	pc	steel board：-3.5
13	Purlin hoop pad	-5x20x20	24	pc	purlin holding boards assy+purlin hoop
14	Purlin	L=1000mm	12	pc	HDЛ83x40x30x1.8
15	Reducer seat assy	welding parts	2	pc	steel board：-12/-8/-6
16	Damper arm	welding parts	2	pc	steel board：-5/-4/-2
17	Damper arm hoop	-4x442.5x26	4	pc	steel board：-4
18	Reinforcing board for damper arm hoop	-4x84x27	4	pc	steel board：-4
19	Lower bracket assy for damper	welding parts	2	pc	steel board：-6/-5/-6
20	Axis sleeve	L=25	24	pc	Φ16x2，20#，purlin+purlin hoop
21	Axis sleeve	L=7	4	pc	Φ30x7，plastic parts，for the use of damper
22	Axis sleeve	L=5	4	pc	Φ30x7，plastic parts，for the use of damper
23	damper+damper up+down bracket arry	Φ14x65x4 B type Pinshaft with holes	4	pc	/
24	Welding part on the bearing seat+Welding part under the bearing seat	Φ12x80x4 B type Pinshaft with holes	4	pc	/
25	Controller hoop	Stainless steel, M8-U type, with 140 square tube	2	pc	with 1 large flat pad,1 spring pad and 1 bolt
26	Antenna mounting plate	-2x83x32	1	pc	install on the controller
27	Square pad	-4x100x50	8	pc	use for main axis+reducer
28	Round pad	-4x46x46	4	pc	use for reducer+bracket
29	Cotter pins	Φ3.2X30	16	pc	/
30	Main axis end caps	-0.5x144x144,with 140 square tube	2	pc	Galvanized sheet
31	damper	AST-30-430Q	2	pc	/
32	Reducer	FD07V055D140R1D01	1	pc	/
33	bolts for fixing the modules	A2-70，M8x25 Allen bolts	40	pc	wit two flat pads,1 spring pad and 1 nut
34	purlin holding plate assy+purlin hoop	8.8 class HDG，M8x35 Allen bolts	24	pc	wit two flat pads,1 spring pad and 1 nut
35	Main axis limiter+Main axis limiter	8.8 class HDG，M10x30 Allen bolts	4	pc	wit two flat pads,1 spring pad and 1 nut
36	Purlin holding plate assy+purlin	8.8 class HDG，M10x60 Allen bolts	24	pc	wit two flat pads,1 spring pad and 1 nut
37	ordinary column+Welding part under the bearing seat	8.8 class HDG，M12x45 Allen bolts	8	pc	wit two flat pads,1 spring pad and 1 nut
38	Driving column+reducer seat	8.8 class HDG，M12x45 Allen bolts	12	pc	wit two flat pads,1 spring pad and 1 nut
39	damper arm+hoop assy	8.8 class HDG，M12x45 Allen bolts	8	pc	wit two flat pads,1 spring pad and 1 nut
40	ordinary column+damper down bracket	8.8 class HDG，M12x45 Allen bolts	8	pc	wit two flat pads,1 spring pad and 1 nut
41	main hoop+main axis hoop	8.8 class HDG，M12x45 Allen bolts	24	pc	wit two flat pads,1 spring pad and 1 nut
42	main axis hoop+main axis	8.8 class HDG，M14x180 Allen bolts	4	pc	wit two flat pads,1 spring pad and 1 nut
43	main axis+reducer	8.8 class HDG，M16x35 Allen bolts	16	pc	with 1 flat pad and 1 spring pad
44	reducer+reducer seat	8.8 class HDG，M20x90 Allen bolts	4	pc	with 1 large flat pad and 1spring pad, 2 nuts

审核：

Dimensions in millimeters





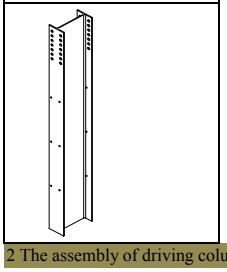


Re: 1. This is array **1x10**single horizontal axis;
2. Module **1722x1134x30**,power is **400wp**;
3. Tracking angle±55° ;
4. Bracket ±55时, the lowest distance to the ground is **600mm**;
5. There are **3** columns, ②is driving column;
6. Column①and③are ordinary column;
7. On the ordinary column①and③install the damper;
8. There are total 4 axises;
9. Steel pile, buried into earth **1.6M**

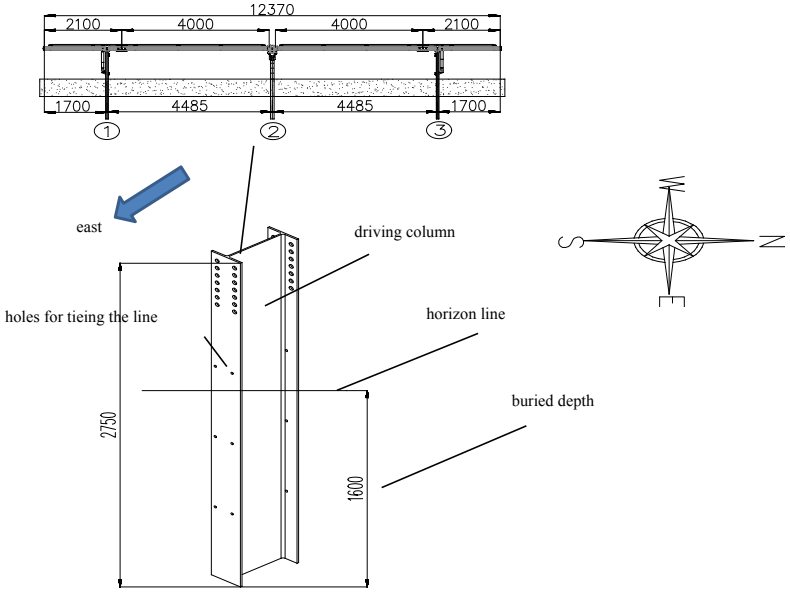
3-3-The assembly of driving column

1 Materials

Driving column 1pcs



2 The assembly of driving column



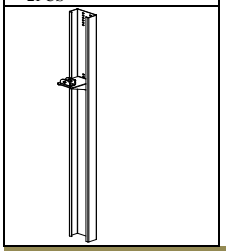
3 Technical requirement

1.②is driving column，1pc；
2.When the drive column is installed, it is centered and symmetrical as a whole, keeping it vertical；
3.Column horizontal deflection angle limit：±1° ; Column verticality deviation:±1°

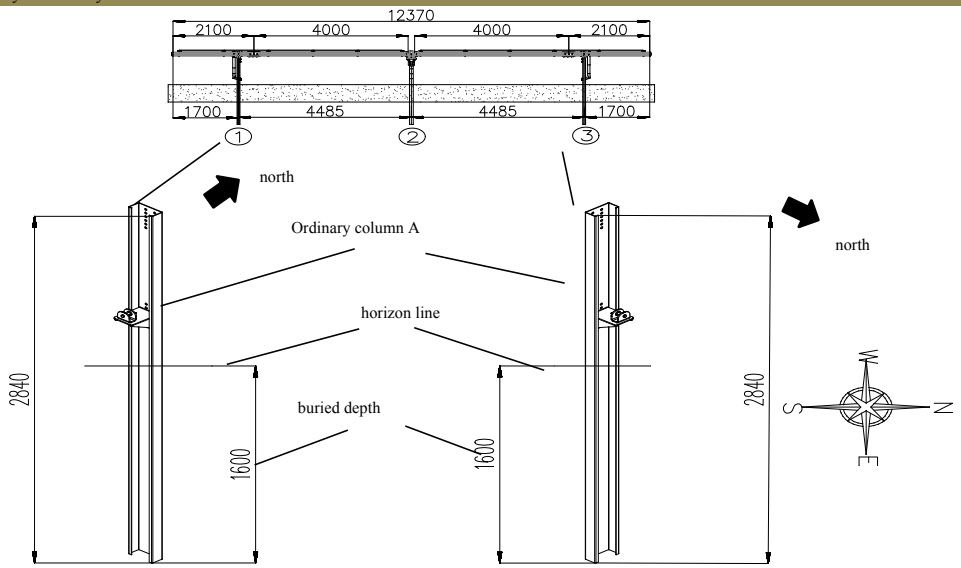
4-The Assembly of ordinary column

1 Materials

ordinary columnA
2PCS



2 The assembly of ordinary column A

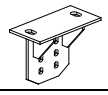
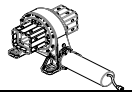
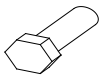
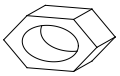


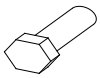
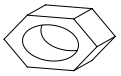
3 Technical requirement

1.①③are ordinary column A，total 2pcs
2.Ordinary columnA is installed overall centered and symmetrical ；
3.Adjust the height of ordinary column A based on the position of the driving column to ensure that all axises are installed horizontally；
4.Ordinary columnA stays vertical，and at the same height；
5.The height construction deviation of ordinary column A in the north-south direction is guaranteed to be within ±20mm，The position deviation in the east-west direction is guaranteed to be within ±20mm；
6.The height construction deviation of ordinary column A in the north-south direction is guaranteed to be within ±20mm，The position deviation in the east-west direction is guaranteed to be within ±20mm

5-The assembly of the reducer

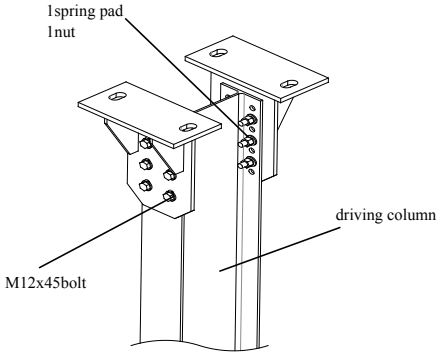
1 Materials

reducer base	reducer	M12×45	M12large flat pad	M12spring washer	M12nut
2pcs	1pcs	12pcs	24pcs	12pcs	12pcs
					

M20x90outer hexgon bolt	round pad of reducer	M20 spring pad	M20flat pad	M20nut
4pcs	4pcs	4pcs	4pcs	8pcs
				

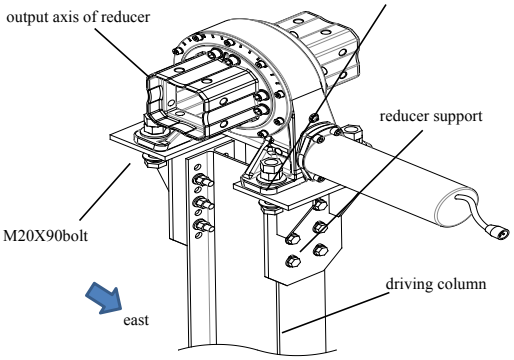
2 The assembly of reducer

Exterior:
1large flat pad
Internal：
1large flat pad
1spring pad
1nut



M12X45 bolts：12pcs
M12 large flat pad：24pcs
M12 spring pad：12pcs
M12 nut：12pcs
Tightening torque：85N.m

up：2nut
1spring pad
1round pad of reducer
down：1flat pad



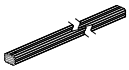
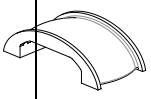
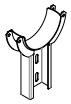
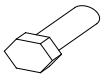
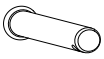
M20X90 bolts：4pcs
M20 flat pads：4pcs
round pad of reducer：4pcs
M20 spring pad：4pcs
M20 nut：8pcs
Tightening torque：425N.m

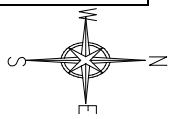
3 Technical requirement

1.On the Column②install the support of reducer，install the reducer on the support, make sure it is stable and horizontal with the axis of output axis Parallel to north-south and symmetrical to drive column；Parallel to north-south and symmetrical to drive column；
2.The mounting bolts of the reducer（M20）the direction will be showed like Pic.；
3. The motor is mounted securely with the tail facing east (as shown in the picture).

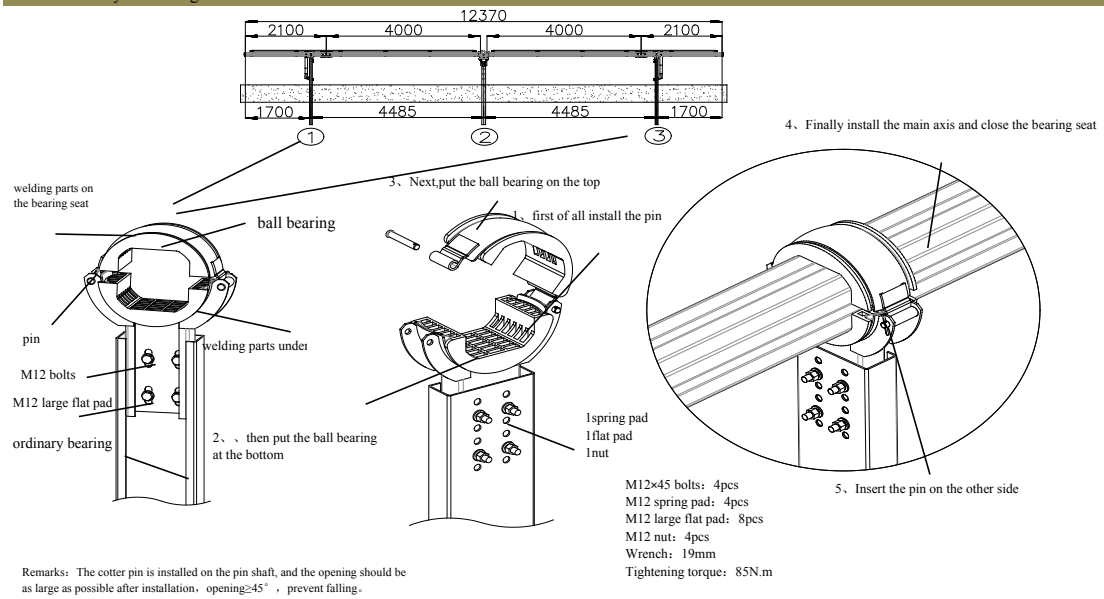
6-bearing seat+main axis installation

1.material

main axisA 4m	main axis B 2.1m	square pad	main axis hoop	ball bearing	Welding parts under the bearing	Welding parts on the bearing
2pcs	2pcs	8pcs	4pcs	4pcs	2pcs	2pcs
						
M14X160outer hexagon bolt	M12X45outer hexagon bolt	M16x35outer hexagon bolt	M14 nut	M12 nut	M16 spring pads	M14 spring pads
4pcs	32pcs	16pcs	4pcs	32pcs	16pcs	4pcs
						
M12 spring pads	M14large flat pads	M12large flat pads	M12 flat pads	pin12x80x4	Cotter pins4.0x30	main axis limiter
32pcs	8pcs	16pcs	48pcs	4pcs	4pcs	4pcs
						



2 The assembly of bearing seat

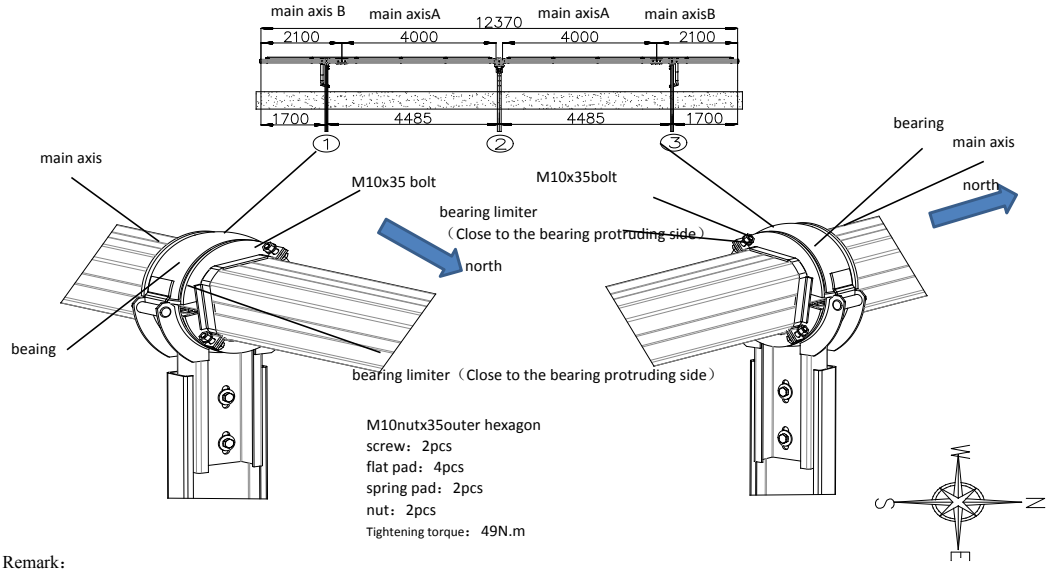


M12×45 bolts：4pcs
M12 spring pad：4pcs
M12 large flat pad：8pcs
M12 nut：4pcs
Wrench：19mm
Tightening torque：85N.m

Remarks：The cotter pin is installed on the pin shaft, and the opening should be as large as possible after installation，opening≥45°，prevent falling。

6-bearing seat+main axis installation

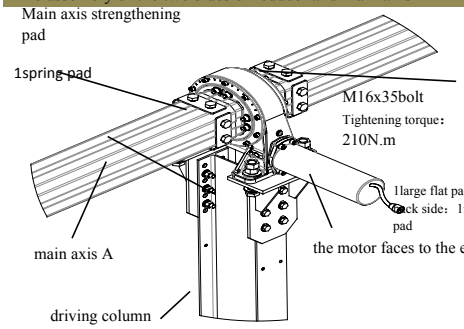
3 The assembly of axis limiter



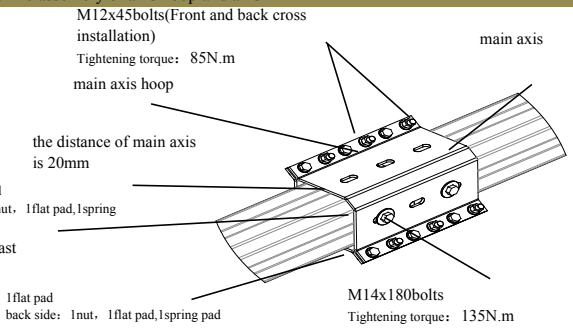
Remark：

1.The bearing limiter at the upper end of the common and damping columns is fixed with M10 nuts, one of which is borrowed and fixed by the equipotential wire.

4The assembly of the two sides of reducer and main axis



5The assembly of axis hoop and axis

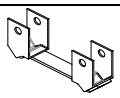
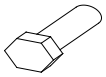


6 technical requirements

1. The overall installation should be firm and beautiful；
2. Pay attention to the installation direction of the bearing, the side of the extrude is facing the direction of the driving column
3. Bearing limiter: firmly installed, close to the side of the bearing extrude,
4. Keep the overall axis in horizontal
5. After the axis installed with hoops, the spacing is 20mm；

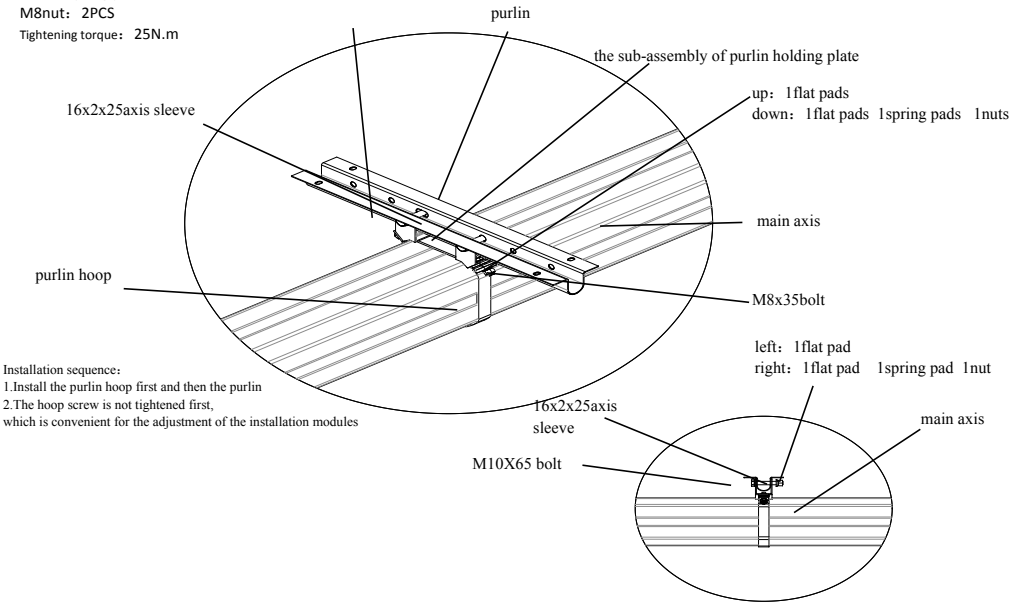
7-The assembly of purlins

1 Materials

purlin	the sub-assembly of	purlin hoop	pad of purlin hoop	M8X35 outer hexagon bolt	M10X60uter hexagon bolt	
12pcs	12pcs	12pcs	24pcs	24pcs	24pcs	
						
M8flat pad	M10flat pads	10spring pads	8spring pads	M8 nut	M10 nut	16x2x25 axis sleeve
48pcs	48pcs	24pcs	24pcs	24pcs	24pcs	24pcs
						

2 The assembly of purlin

M8X35 outer hexagon bolt：2PCS The long waist hole here is convenient for adjustment
M8 flat pad：4PCS
M8flat spring pad：2PCS
M8nut：2PCS
Tightening torque：25N.m



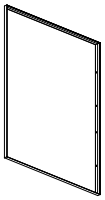
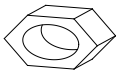
Installation sequence：
1.Install the purlin hoop first and then the purlin
2.The hoop screw is not tightened first,
which is convenient for the adjustment of the installation modules

3 Technical requirement

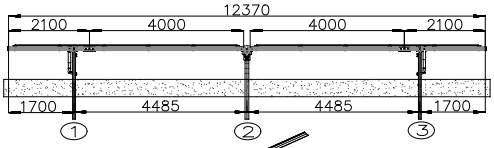
1. The overall installation shoud be firm and beautiful；
2. After the overall installation, the spacing is even and the height is equal.

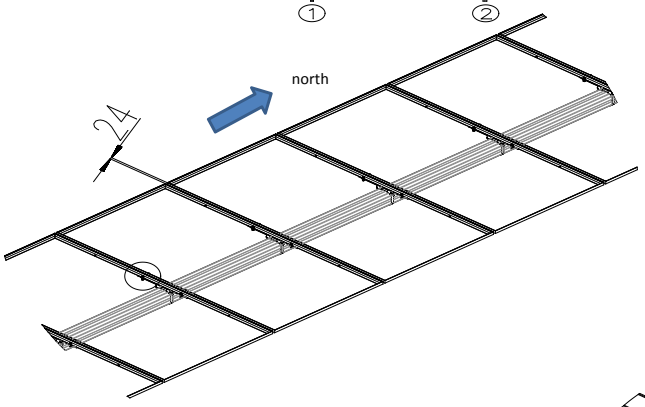
8-The assembly of modules

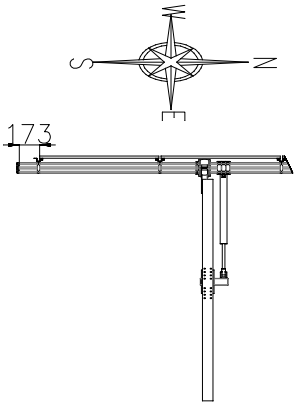
1 Materials

Module 400w	M6X25outer hexagon bolt	M8 flat pad	M8 flat pad	M8 bolt
10pcs	A2-70	（SUS304）	（SUS304）	A2-70
	40pcs	80pcs	40pcs	40pcs
				

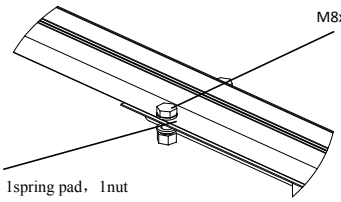
2 The assembly of modules







M8x25stainless steel bolts：40pcs
M8stainless flat pad：80pcs
M8 stainless spring pad：40pcs
M8 stainless nut：40pcs
Tightening torque：25N.m



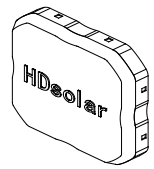
up：1flat pad
down：1flat pad，1spring pad，1nut

3 Technical requirement

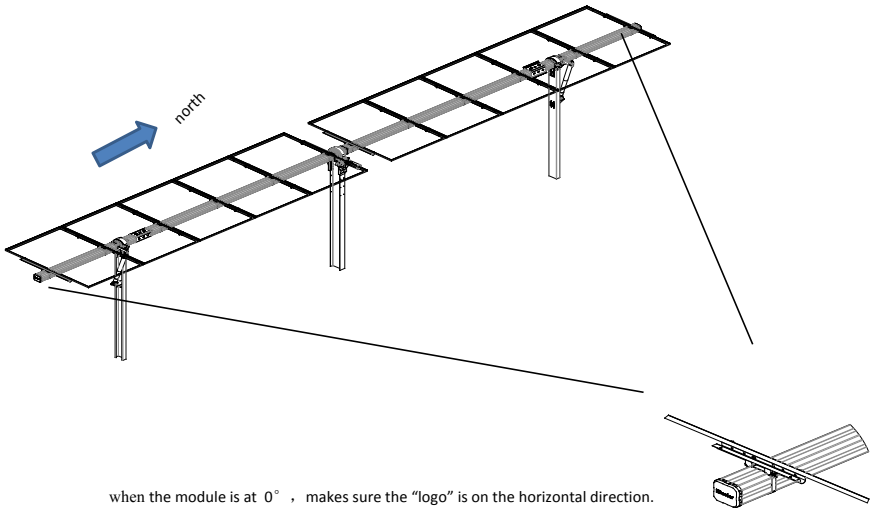
1. The overall installation of the components should be firm and beautiful；
2. After the overall assembly is installed, the spacing is uniform, the two sides are symmetrical, and the height is equa
3. Recommended clearance distance between components is 23mm。
4. The distance between the first module and the main axis is shown in the figure173mm。

9-The installation of the main axis cover

1Material

main axis cover
2pcs


2 Installation of the axis cover



when the module is at 0°， makes sure the “logo” is on the horizontal direction.

3 Technical requirement

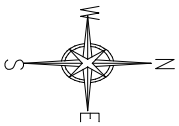
1.One end cover is installed at each end of the single-row flat single-axis, and when the component is placed flat, the characters on the end cover are all upward and horizontal；

2.The end cover is installed in place: the inner concave surface coincides with the end surface of the main axis, and the outer convex surface is symmetrical and perpendicular to the main axis.

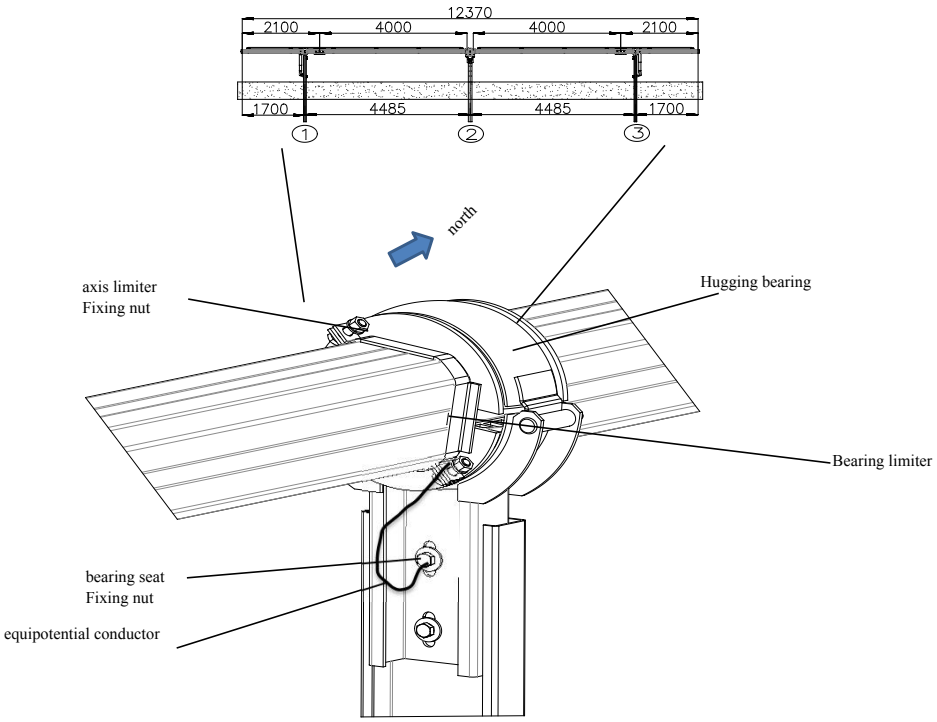
10-The installation of equipotential conductor

1 Materials

equipotential conductor
2pcs

2 Installation of the axis cover

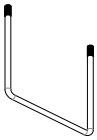
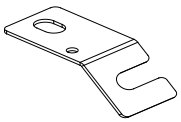
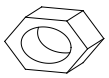


3 Technical requirement

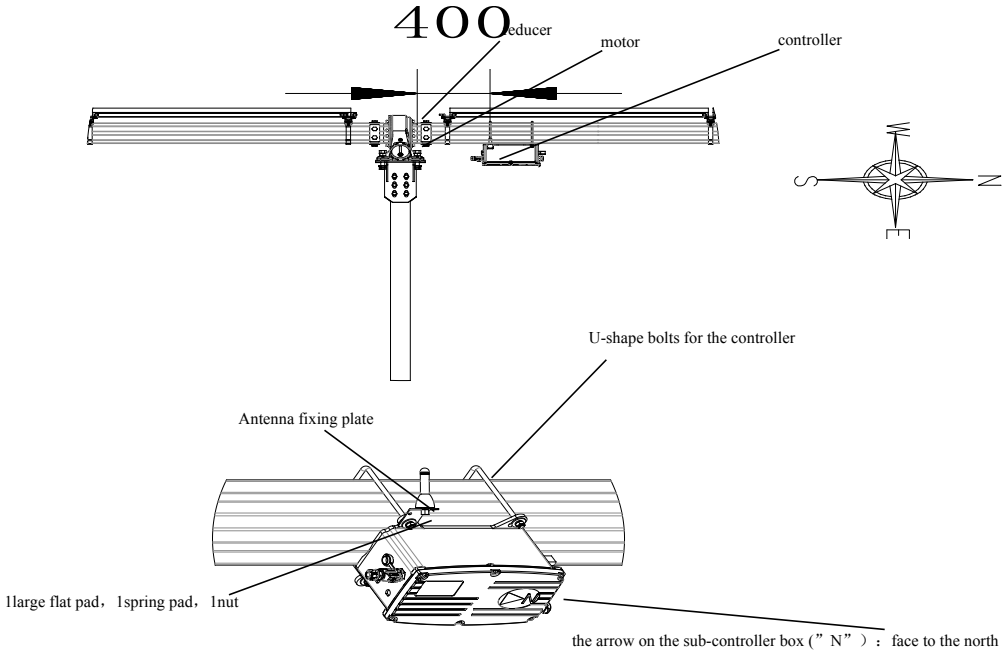
1. One potential wire should be installed between the housing and bearing limit parts at the upper end of the column (1) and the column (3).；
2. Before installing the equipotential conductor, put the photovoltaic module flat first；
3. After the two ends of the equipotential conductor are fixed, the bent part should face downward；；
4. After the installation is completed, the equipotential conductor still has some bending allowance when the main axis is turned over at the maximum angle in both positive and negative directions；；
5. Both ends of the equipotential wire (cold-pressed end) are firmly installed and in good contact。
6、When the modules are installed, ensure that the edges of all modules are on the same straight line to ensure the aesthetics of the installation。

11-The installation of the controller

1 Materials

main controller	shape bolt for the control	Antenna fixing plate	M8large flat pad	M8 spring pad	M8 nut
1pcs	2pcs	1pcs	（SUS304）	（SUS304）	A2-70
			4pcs	4pcs	4pcs
					

2 The installation of the main controller

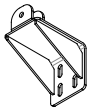


3 Technical requirement

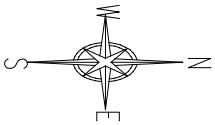
1. The overall installation is firm and beautiful, without stains, damage, etc.
2. The controller is 400mm away to the end of the reducer connecting axis

12-The installation of damper

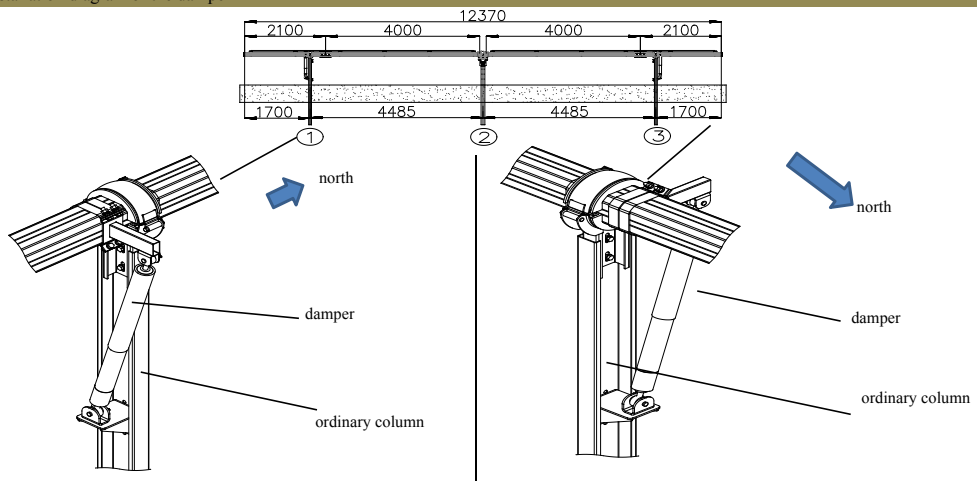
1 Materials

damper	damper arm	damper hoop	damper lower bracket	damper axis sleeve A	pin14x65x4	M12x45outer hexagon head bolt
2pcs	2pcs	4pcs	2pcs	4pcs	4pcs	16pcs
						
				damper axis sleeve B	pin 3.2x30	nut
				4pcs	4pcs	16pcs
						

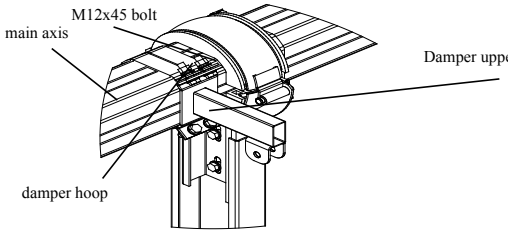
M12spring pad	M12 large flat pad	pin 14x65	M12flat pad
16pcs	16pcs	4pcs	16pcs
			



2 Installation diagram of the damper

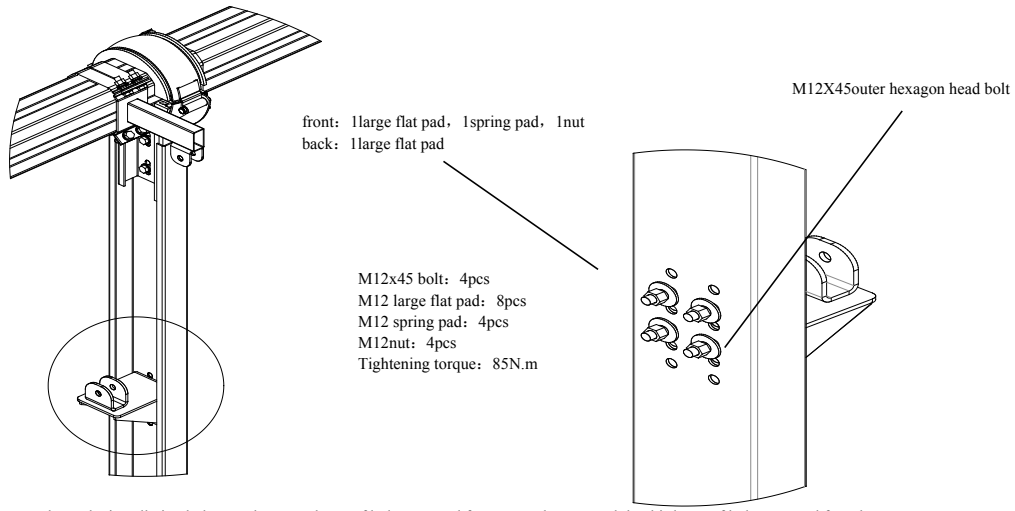


3 Damper upper bracket installation



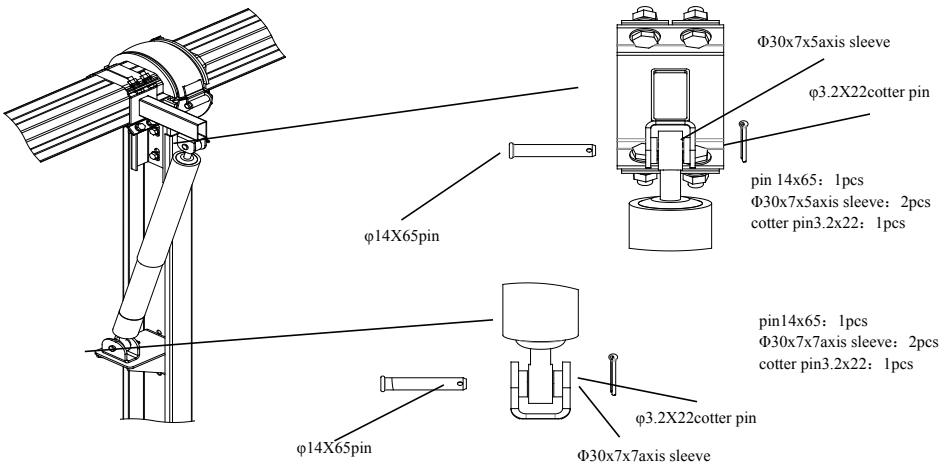
M12x45 bolt：4pcs
M12 flat pad：8pcs
M12 spring pad：4pcs
M12 nut：4pcs
Tightening torque：85N.m

4 Damper lower bracket installation



Remarks：The installation holes are the second row of holes counted from top to bottom and the third row of holes counted from bottom to top

5 The installation of damper and pin



6 technical requirements

1. The overall installation is firm and beautiful, without interfering with the active space of the axis and bearings；
2. Ensure that the axis in the telescopic direction of the damper is perpendicular to the axis of the main shaft；
3. After the damper is installed, it needs to expand and contract naturally without distortion；
4. After the cotter pin is installed, the opening should be as large as possible，opening≥45°，prevent falling.

13-cable connection

1 cable

cable	starting point	end point	remarks
motor cable	motor cable	controller	Motor comes with
antenna cable	antenna cable	controller	Controller comes with
power cable（+）	Splitter（+）	controller	red cable
power cable（-）	Splitter（-）	controller	black cable

2 线缆安装