No.: 24-XM2412110003

Floor Box Option1

Version	Date	Prepared	Reviewed	Approved
A	Jan 7,2025	Damon	Bryan	Peter

Address: No. 88 Qixin Road, NETDA, Nantong, Jiangsu, P.R. China, 226009
Tel:+86 513 8010 0986 | E-mail: sales@zttgroup.com | Website: www.zttgroup.com

Product datasheet

1. Product description :

Floor Box(10) Option 1

Floor Box(20) Option 1

2. General Properties:

3. Application:

- For Indoor floor installation inside the building with fiber's splicing, distributing and protection.

4. Feature

- Wall-mounting, with screw lock design for safety.
- 2 Cable entries for riser cable (top & bottom) and cable entries for max. 10 pcs drop cable for FB10 and max.20 pcs drop cable for FB20.
- PC+ABS, good anti-aging performance with beautiful appearance.
- Incoming cable up to 10mm,outgoing cable up to 5mm.
- Floor Box has locking system (screw opening with a non-common screwdriver).
- FB has mechanical fixing for both cable's FRP/Aramid yarn and External HDPE sheath.
- FB allow the fixing of different diameter cables.
- Ensure that in any direction fiber bending radius≥30 mm.
- FB has enough space for fixing of a reflector at drop side.
- Adequate space for installing optical reflectors is available on female/female SC/APC connectors.
- FB has enough space for outdoing single fiber cables.
- Trays can be capable of hosting, for each incoming/outgoing optical fiber, an adequate spare of approximately 1,5 meters to allow future re-splicing.
- Tray bracket must provide turning mechanism for each tray with a rotation angle and self-locking at 90°.
- IP51.
- IK09.
- Comply with UL94-V0.

- Color: Grey(RAL 7035).
- Operation Environment Temperature :-40℃～+60℃.
- Product measure: 225mm (H)* 150mm (W)*50mm (D)
  225mm (H)* 150mm (W)*70mm (D)

  Note: Nominal size may vary±10mm.

5. RFID and Labelling

- An NFC standard RFID (ISO-IEC 14443A) can be placed within the FB to allow its traceability and uniqueness within PPC Network Inventory systems.RFID is positioned on the inside of the cover, right behind the PPC's logo.
- The production lot of each single component and the corresponding supplier will be labelled into the FB. Labelling must specify:

  a. Supplier acronym.

  b. Lot number or similar identification system of the production series.
- The operating manuals will be pasted inside of the cover in the form of QR code.
- FB external cover will be labelled with 1 Barcode bearing the unique identification number of the FB .
- FB external cover will be labelled PPC color logo.

6. Packaging

- Single box (dimensions right for 1pc)

- Multiple carton box (dimensions right for X pcs)

- Pallet size and quantity of boxes (dimensions right for X pcs)

7. Package list

FB10 option1

No.	Description	Unit	Quantity
1	Box	set	1
2	Cable tie	pcs	6
3	Heat shrink tubes	pcs	10
4	Key	pc	1
5	Wall mounted accessories	set	1

FB20 option1

No.	Description	Unit	Quantity
1	Box	set	1
2	Cable tie	pcs	6
3	Heat shrink tubes	pcs	20
4	Key	pc	1
5	Wall mounted accessories	set	1

Instruction Manual

1. Description：

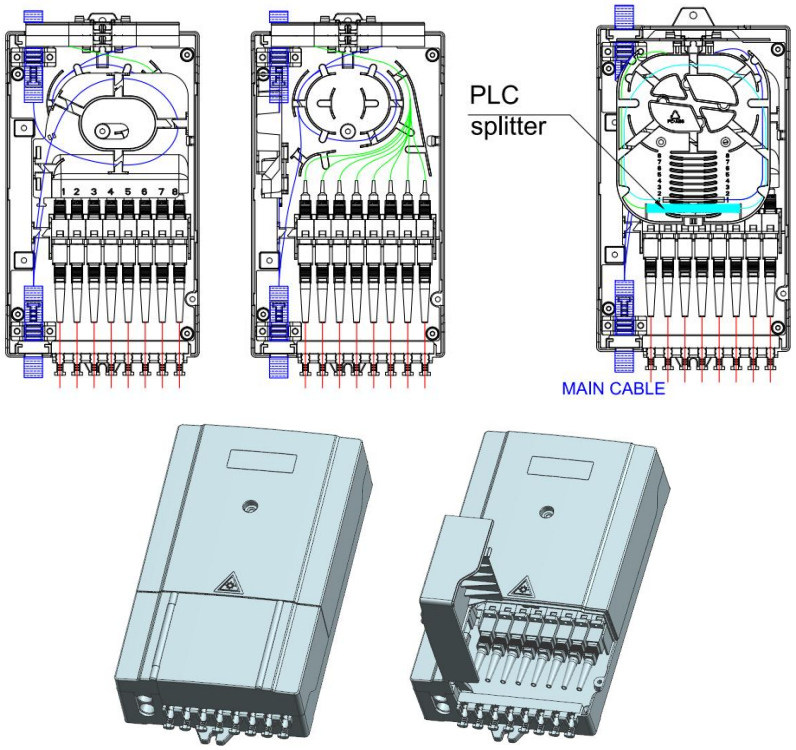
The box is used as a termination point for the feeder cable to connect with drop cable in FTTx communication network system. The fiber splicing, splitting, distribution can be done in this box, and meanwhile it provides solid protection and management for the FTTx network building.

2. Features：

- Wall-mounting, with screw lock design for safety.
- 2 Cable entries for riser cable (top & bottom) and cable entries for max. 10 pcs drop cable for FB10 and max.20 pcs drop cable for FB20.
- PC+ABS, good anti-aging performance with beautiful appearance.
- Incoming cable up to 10mm,outgoing cable up to 5mm.
- Floor Box has locking system (screw opening with a non-common screwdriver).
- FB has mechanical fixing for both cable's FRP/Aramid yarn and External HDPE sheath.
- FB allow the fixing of different diameter cables.
- Ensure that in any direction fiber bending radius≥30 mm.
- FB has enough space for fixing of a reflector at drop side.
- Adequate space for installing optical reflectors is available on female/female SC/APC connectors.
- FB has enough space for outdoing single fiber cables.
- Trays can be capable of hosting, for each incoming/outgoing optical fiber, an adequate spare of approximately 1,5 meters to allow future re-splicing.
- Tray bracket must provide turning mechanism for each tray with a rotation angle and self-locking at 90°.
- IP51.
- IK09.
- Comply with UL94-V0.
- Color: Grey(RAL 7035).
- Operation Environment Temperature :-40℃～+60℃.
- Product measure: 225mm (H)* 150mm (W)*50mm (D)
  225mm (H)* 150mm (W)*70mm (D)

  Note: Nominal size may vary±10mm.

3. Product cable ways：

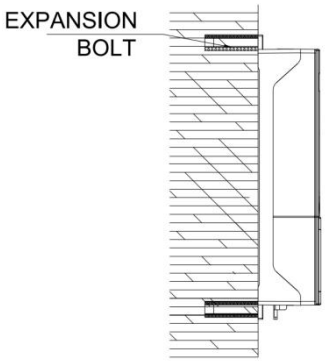


Pic. 1　Cable ways

4. Installation：

Wall-mounted installation

Drill 2 holes over the wall based on the size，place the expansion bolt，place the box to match up the holes and use bolt to fasten.(Pic 2)



Pic 2 Wall mounted installation

Technical datasheet of the passive components used

iq.ul.com

PROSPECTOR® CLICK TO CONTINUE

View additional material information including performance and processing data

The information presented on the UL Prospector datasheet was acquired by UL Prospector from the producer of the material. UL Prospector makes substantial efforts to assure the accuracy of this data. However, UL Prospector assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

Component - Plastics E526129

Guide Information

Lihuayi Weiyuan Chemical Co Ltd

No.208, Lishi Road, Lijin County, Dongying City, Shandong Province, P.R.China, DONGYING CITY SHANDONG SHANDONG 257336 CN

WY-DZ001(+)

Polycarbonate (PC)/Acrylonitrile Butadiene Styrene (ABS), furnished as pellets

Color	Min. Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
NC	1.5	V-0	0	-	60	60	60
	3.0	V-0	0	-	60	60	60

Comparative Tracking Index (CTI): -

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Change (%): -

Inclined Plane Tracking (IPT) kV: -

Volume Resistivity (10^x ohm-cm): -

Surface Resistivity (10^x ohms/square): -

High Volt, Low Current Arc Resis (D495): -

(+) - May be blank, or replaced by one digit number 0-9 to represent customer code.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2022-07-14

Last Revised: 2022-07-13

© 2022 UL LLC

IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	1.5	V-0 (NC)
			3.0	V-0 (NC)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	°C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	°C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	CTI275
		Material Group		IIIa
IEC Ball Pressure	IEC 60695-10-2	°C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	°C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-1	kJ/m^2	-	-

Compliance of the product

Doc name	Chapter	Req. #	Product	Details	Compliancy	Notes
Technical Specification-Floor Box	Chap.2	R. 1	Floor Box	FB must allow for an easy operability on field, comprising all the relevant activities required (e.g., installation, cable routing, cable entrance, fiber routing, splicing, maintenance).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 2	Floor Box	FB must meet the requirement of both the Directive of the European Parliament and the Commission no. 2006/1907/EC (REACh) and when applicable the requirements of the Directive of the European Parliament and the Commission no. 2011/65/EU (RoHS), as amended on July 22, 2019 (RoHS III).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 3	Floor Box	FB must be engineered to be installed on walls.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 4	Floor Box	FB must support the function of bridging PPC access network with OLO HH connection.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 5	Floor Box	FB must ensure the connection between the optical fibers of the incoming Building cable and the single optical fibers of the HH connections guaranteeing the optical.	Compliant	

				continuity		
Technical Specification-Floor Box	Chap.2	R. 6	Floor Box	FB must meet the following environmental requirements:	Compliant	
Technical Specification-Floor Box	Chap.2	R. 6.a	Floor Box	Operating temperature (outdoor): - 40°C ~ + 60°C.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 6.b	Floor Box	Storage temperature: - 25°C ~ + 60°C.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 6.c	Floor Box	Relative humidity: ≤ 95%RH.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 6.d	Floor Box	Atmospheric pressure: 70 ~ 106 kPa	Compliant	
Technical Specification-Floor Box	Chap.2	R. 7	Floor Box	FB must be robust, reliable and optimized for installation, connection and maintenance activities.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 8	Floor Box	FB design must allow service personnel to easily install, open, close, access and operate the FB itself in case of front access.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 9	Floor Box	FB must ensure adequate mechanical and environmental protection for the contained optical elements, like splices and passive elements (e.g., connectors).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 10	Floor Box	FB must be made in PC-ABS plastic material.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 11	Floor Box	FB must be compliant to IEC/EN 60529 standard. Specifically, FB must be	Compliant	

				available inthe two following Options:		
Technical Specification-Floor Box	Chap.2	R. 11.a	Floor Box	Option 1: FB compliant to IP51;	Compliant	
Technical Specification-Floor Box	Chap.2	R. 11.b	Floor Box	Option 2: FB compliant to IP65.	Compliant	
Technical Specification-Floor Box	Chap.2	R.12	Floor Box	FB must be IK9 for protection against physical damages (as per IEC/EN 50102 standard).	Compliant	
Technical Specification-Floor Box	Chap.2	R.13	Floor Box	FB must be resistant to ultraviolet radiation (ultraviolet radiation resistance for high strength material) according to UV light testing EN ISO 4892-3:2016.	Compliant	
Technical Specification-Floor Box	Chap.2	R.14	Floor Box	FB chassis material must include fiberglass reinforcement and the thickness of the main body (i.e., PC-ABS box) shall be equal or higher than 3 mm.	Compliant	
Technical Specification-Floor Box	Chap.2	R.15	Floor Box	FB plastic surface must be smooth, well plasticized, complete in shape, consistent in colour, free from defects such as bubbles, cracks, cavities, warps, impurities, flash edges and burrs.	Compliant	
Technical Specification-Floor Box	Chap.2	R.16	Floor Box	FB plastic must have UL94-V0 self-extinguishing degree.	Compliant	
Technical Specification-Floor Box	Chap.2	R.17	Floor Box	FB must be grey coloured	Compliant	

				(i.e., RAL 7035).		
Technical Specification-Floor Box	Chap.2	R.18	Floor Box	FB must have maximum dimensions	Compliant	
Technical Specification-Floor Box	Chap.2	R.18.a	Floor Box	up to 10 ports: 250(H)x150(W)x50(D) mm;	Partially Compliant	Option2 size :225*150*69
Technical Specification-Floor Box	Chap.2	R.18.b	Floor Box	up to 20 ports: 250(H)x150(W)x75(D) mm.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 19	Floor Box	FB upper cover must be completely removable and replaceable without affecting the internal optical components, even when installed on walls.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 20	Floor Box	When FB upper cover is open, the limiting angle must be at least 100° (±10°) in order to provide enough operating space.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 21	Floor Box	FB cover must support hundreds of repeated openings and closings without any damage for the product.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 22	Floor Box	FB cover must have anti-theft opening function with special key locking system (screw opening with a non-common screwdriver)	Compliant	
Technical Specification-Floor Box	Chap.2	R. 23	Floor Box	FB cover must be equipped with a silicon rubber isolation gasket for perfect sealing.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 24	Floor Box	FB must support a mechanism to prevent FB to be left in an incorrect	Compliant	

				closed position.		
Technical Specification-Floor Box	Chap.2	R. 25	Floor Box	Cable must be fixed inside the FB with mechanical fixing means. Fixing accessories (e.g.,tire-ups, adjustable metal strap, …) shall be supplied together with the FB in the right quantities considering the number of FB's inlets.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 26	Floor Box	Mechanical fixing means must be suitable for fixing both cable's FRP/Aramid yarn and External HDPE sheath in order to withstand any forces arising from the cable itself.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 27	Floor Box	FB must allow the fixing of different diameter cables.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 28	Floor Box	Inlets sealing, cables fixing, and box closing must not request any heat shrinkable products and/or resin.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 29	Floor Box	FB internal design must ensure that all the components and the fiber optic routes are placed in such way that save space, follow a logical structure, are easy to understand and operate, and avoid fiber optic cable crossings.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 30	Floor Box	FB internal design must guarantee that all the paths of the fibers or tubes	Compliant	

				respect theminimum bending radius of 30 mm.		
Technical Specification-Floor Box	Chap.2	R. 31	Floor Box	FB internal design must guarantee separate sections for the management of the incoming Building cable (Wholesale section) and the outgoing HH Connection cables (Retailer section) along with their spare. Building cable and HH Connection cables, loose tubes and cable spares must not be mixed, overlapped nor crossed at any time. Internal sections can be either on the same plane or on overlapping planes.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 32	Floor Box	Wholesale FB section must be closed with a special closing system (e.g., custom key) and not easily accessible by Retailer operators.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 33	Floor Box	Wholesale FB section must have enough space for the correct installation and fixing of a reflector inside the Floor Box.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 34	Floor Box	Retail FB section must have enough space for the correct installation and fixing of a reflector inside	Compliant	

				the Floor Box.		
Technical Specification-Floor Box	Chap.2	R. 35	Floor Box	Retail FB section must allow the storage of 30 cm spare for each of the outgoing HH Connection cables.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 36	Floor Box	FB must allow the separate handling of each single fiber without interfering with the circuits already in operation, during the activities of network construction, assurance and maintenance; therefore, it must be possible to access to the splices already allocated into trays without manipulating or removing the wiring.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 37	Floor Box	The installation of the cables must be done without any risk for the existing splices or preinstalled pigtails.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 38	Floor Box	During the openings and closings of the FB, the fibers must not be stressed.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 39	Floor Box	FB internal plastic components such as trays, tray brackets and bottom plate must be made of PC-ABS FR.	Compliant	

Technical Specification-Floor Box	Chap.2	R. 40	Floor Box	FB internal metal structural parts and mounting screws (if any) must be made of stainless steel SUS304. Any metal structural part, after 120h of salty spray test according to the salty spray test method of IEC 61300-2-26, must not show any visible rust spots on the outside	Compliant	
Technical Specification-Floor Box	Chap.2	R. 41	Floor Box	FB must be equipped with trays.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 42	Floor Box	Trays must guarantee that every single fiber is protected and guided to ensure compliance with the minimum bending radius of 30 mm, even during handling of the tray.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 43	Floor Box	Trays must allow the management and protection of splices between the optical fibers of the incoming Building cable and SC/APC connectors' 900 mm pigtails (SC/APC semi connectorized patches) within trays.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 44	Floor Box	Trays must be grey colored.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 45	Floor Box	Trays must be numbered (e.g., 01, 02, 03, …) with indelible, not removable and easily visible labels.	Compliant	

Technical Specification-Floor Box	Chap.2	R. 46	Floor Box	Splicing trays must be equipped with splice holder plates; these plates must be able to house heat-shrink tubes with a maximum length of 45 mm to protect the splices. Heat shrink tubes must be fixed directly in the plates without any other means. The plates must be 2,4 mm wide.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 47	Floor Box	Each splicing tray must accommodate up to 12 fiber splices with heat shrinkable splicing protection tubes.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 48	Floor Box	Trays must be capable of hosting, for each incoming/outgoing optical fiber, an adequate spare of approximately 1,5 meters to allow future re-splicing.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 49	Floor Box	The top tray must be covered.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 50	Floor Box	Tray bracket must provide turning mechanism for each tray with a rotation angle up to 140° and self-locking at 90° without external force to provide enough operating space.	Partially Compliant	Option2 sample can not meet self -locking
Technical Specification-Floor Box	Chap.2	R. 51	Floor Box	Trays must be plug&play within the tray bracket	Compliant	
Technical Specification-Floor Box	Chap.2	R. 52	Floor Box	FB installable connectors mechanical characteristics must comply with the IEC	Compliant	

				61754 standard.		
Technical Specification-Floor Box	Chap.2	R. 53	Floor Box	FB must be suitable for the future installation of female-female SC/APC connectors and SC/APC semi-connectorized patch cables.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 54	Floor Box	FB connectors, when installed, must have the possibility to rotate vertically to allow for an easier operability (i.e.,insertion/removal of patching).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 55	Floor Box	An NFC standard RFID (ISO-IEC 14443A) must be placed within the FB to allow its traceability and uniqueness within PPC Network Inventory systems.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 56	Floor Box	The RFID must be provided already written with a unique identifier for the material and it must allow the possibility to modify its content.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 57	Floor Box	This RFID must be securely fixed (glued/adhesive RFIDs will not be accepted) but must be removable in case of replacement.	Not Compliant	The RFID is glued
Technical Specification-Floor Box	Chap.2	R. 58	Floor Box	RFID must be positioned on the inside of the cover, right behind the PPC’s logo, so that it can be read/written	Compliant	

				by a special RFID reader/writer without having to open FB cover.		
Technical Specification-Floor Box	Chap.2	R. 59	Floor Box	The production lot of each single component and the corresponding supplier must be labelled into the FB. Labelling must specify:	Compliant	
Technical Specification-Floor Box	Chap.2	R. 59.a	Floor Box	Manufacturer acronym.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 59.b	Floor Box	Supplier acronym.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 59.c	Floor Box	Lot number or similar identification system of the production series.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 60	Floor Box	Non-removable, plasticized and printed with permanent ink QRcode (compliant to ISO IEC 18004:2015) must be applied inside the FB indicating the data of the manufacturer and the operating manuals.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 61	Floor Box	FB external cover must be labelled with the warning laser beam icon, according to UNI EN ISO 7010-2012.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 62	Floor Box	FB external cover must be labelled with 1 Barcode bearing the unique identification number of the FB with the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.2	R. 62.a	Floor Box	CODE128 (ISO15417) encoding.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 62.b	Floor Box	The code of each FB must be composed as follows:	Compliant	

				WWZZXXYYYYYYY.		
Technical Specification-Floor Box	Chap.2	R. 62.c	Floor Box	The FB identification code must be unique and previously agreed with the Client (FBs with duplication of the Code will NOT be admitted).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 63	Floor Box	FB external cover must be silk printed5 with PPC color logo which will be exactly defined prior to product order. Logos printed on stickers or labels and subsequently attached to FB will not be accepted.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 64	Floor Box	FB external cover must not bear any logo, name or other recognizable trait representing the manufacturer/supplier.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 65	Floor Box	FB must be equipped with an adequate support system that allows to anchor the FB in the places where installation is planned (i.e., walls).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 66	Floor Box	The fixing system must be able to support, in addition to the weight of the FB, any accidental overweight of 500 N.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 67	Floor Box	Each FB must be packaged individually before leaving the factory.	Compliant	

Technical Specification-Floor Box	Chap.2	R. 68	Floor Box	FB packaging must protect the product against shocks and condensation during the storage and the transport, including in installers' vehicles.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69	Floor Box	For each FB the packaging must include:	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.a	Floor Box	Package list.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.b	Floor Box	The product and all the accessories needed for operating the product (e.g., tire ups, adjustable metal strap, Heat-shrink tubes, …).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.c	Floor Box	Product datasheet in English (description of the product and its conditions of use).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.d	Floor Box	Technical datasheet of the passive components used (e.g., references, materials, paints, technical characteristics, …).	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.e	Floor Box	Detailed instructions in English for the installation and operation of the product with a clear description of the cabling and management of passive optical components.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.f	Floor Box	Video in English showing the installation and operation procedures.	Compliant	

Technical Specification-Floor Box	Chap.2	R. 69.g	Floor Box	Complete technical file in English showing the compliance of the product with the specifications.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.h	Floor Box	Product certificates.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.i	Floor Box	Product compliance with REACh regulation.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.j	Floor Box	Safety data sheet signed by an authorized person to engage the responsibility of the supplier.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.k	Floor Box	Lifetime of the product.	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.l	Floor Box	Necessary information regarding the recycling of the products and its packaging and their carbon footprint	Compliant	
Technical Specification-Floor Box	Chap.2	R. 69.m	Floor Box	Quality test plan of the product (IQC, IPQC, FQC, OQC…).	Compliant	
Technical Specification-Floor Box	Chap.3	R. 70	Floor Box	Named N the max number of SC/APC connectors installable within a FB, they must be sized as follows:	Compliant	
Technical Specification-Floor Box	Chap.3	R. 70.a	Floor Box	N = 10 → FB (10), suitable to host up to 10 SC/APC pigtails and connectors;	Compliant	
Technical Specification-Floor Box	Chap.3	R. 70.b	Floor Box	N = 20 → FB (20), suitable to host up to 20 SC/APC pigtails and connectors.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 71	Floor Box	FB must be realized following the functional scheme shown in Figure 1.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 72	Floor Box	As shown in Figure 1, FB must have two different inlets for the Building cable	Compliant	

				to enter and exit the box.		
Technical Specification-Floor Box	Chap.3	R. 73	Floor Box	FB must have the following entry points:	Partially Compliant	
Technical Specification-Floor Box	Chap.3	R. 73.a	Floor Box	1 inlet with diameter suitable to handle the entering of the incoming Building cable from 2,3 mm up to 12 mm.	Partially Compliant	Option1:1 inlet with diameter suitable to handle the entering of the incoming Building cable from 2,3 mm up to 10.5 mm.
Technical Specification-Floor Box	Chap.3	R. 73.b	Floor Box	1 inlet with diameter suitable to handle the exiting of the incoming Building cable from 2,3 mm up to 12 mm.	Partially Compliant	Option1:1 inlet with diameter suitable to handle the entering of the incoming Building cable from 2,3 mm up to 10.5 mm.
Technical Specification-Floor Box	Chap.3	R. 73.c	Floor Box	N circular inlets with diameter suitable to handle HH Connection cables with a diameter from 2,3 mm up to 5 mm each.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 74	Floor Box	FB must be equipped with the following trays:	Compliant	
Technical Specification-Floor Box	Chap.3	R. 74.a	Floor Box	FB (10) → one splicing tray that allows the management of up to N required optical splices.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 74.b	Floor Box	FB (20) → two splicing trays that allow the management of up to N required optical splices.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 75	Floor Box	FB must be supplied with the accessories/parts needed for a proper installation and uselisted	Compliant	

				below:		
Technical Specification-Floor Box	Chap.3	R. 75.a	Floor Box	2 circular inlets with diameter suitable to handle cables from 2,3 up to 12 mm with proper cable fixing means for entry and exit of the Building cable.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 75.b	Floor Box	N circular inlets with diameter suitable to handle cables from 2,3 mm up to 5 mm with proper cable fixing means.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 75.c	Floor Box	A termination area for the incoming Building cable's optical fibers destined to serve the HHs, having at least 1 standard colored splice tray to house up to N splices between incoming fibers and 900 mm SC/APC pre-connectorized patches.Splicing tray must be supplied with all the accessories needed (e.g., heat-shrink tubes).	Compliant	
Technical Specification-Floor Box	Chap.3	R. 75.d	Floor Box	A parking area for the optical fibers not terminated within the FB, suitable to host,for each optical fiber, an adequate spare of approximately 1,5 meters to allow future cutting and re-splicing.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 75.e	Floor Box	Panel for positioning up to N type SC/APC	Compliant	

				female/female connectors		
Technical Specification-Floor Box	Chap.3	R. 75.f	Floor Box	RFID, labelling and documentation.	Compliant	
Technical Specification-Floor Box	Chap.3	R. 75.g	Floor Box	Fixing kit.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76	Floor Box	Supplier must prove that all the products supplied and described in this technical specification, have successfully passed all the tests specified in the following regulations:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.a	Floor Box	FB Box: IP51/IP65 minimum, IK9 EN 50102	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.b	Floor Box	UV resistance: EN ISO 4892-3.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.c	Floor Box	Protection degree:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.c.i	Floor Box	Visual appearance: IEC 61300-3-1.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.c.ii	Floor Box	Protection degree: IEC 60529.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.d	Floor Box	Optical (Tested 1310nm,1550nm and 1625nm):	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.d.i	Floor Box	Change in Attenuation: IEC 61300-3-3 Method 1.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.d.ii	Floor Box	Transient loss: IEC 61300-3-28	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.e	Floor Box	Vibration: IEC 61300-2-1.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.f	Floor Box	Cable retention: IEC 61300-2-4.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.g	Floor Box	Cable torsion: IEC 61300-2-5.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.h	Floor Box	Shock: IEC 61300-2-9.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.i	Floor Box	Static load (Crush): IEC	Compliant	

				61300-2-10.		
Technical Specification-Floor Box	Chap.4	R. 76.j	Floor Box	Impact: IEC 61300-2-12, Method B.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.k	Floor Box	Damp Heat: IEC 61300-2-19.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.l	Floor Box	Change of Temperature: IEC 61300-2-22.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.m	Floor Box	Resistance to corrosion (Salt mist): IEC 61300-2-26.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.n	Floor Box	Re-entries: IEC 61300-2-33.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.o	Floor Box	Intervention at a node: IEC 61300-2-33.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 76.p	Floor Box	Cable flexure (Bending): IEC 61300-2-37.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 77	Floor Box	Supplier must ensure the respect of visual appearance during and after the tests listed in 4.4, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 78	Floor Box	Supplier must ensure the respect of protection degree after the tests listed in 4.4, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 79	Floor Box	Supplier must ensure the respect of change in attenuation (change in insertion loss/static optical stability) during and after the tests listed in 4.4, according to the following characteristics:	Compliant	

Technical Specification-Floor Box	Chap.4	R. 80	Floor Box	Supplier must ensure the respect of transient loss (dynamic optical stability) during and after the tests listed in 4.4, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 81	Floor Box	Supplier must perform Fluorescent UV lamps test to evaluate UV resistance of the material composing the FB, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 82	Floor Box	Supplier must prepare a representative number of test samples, considering:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 82.a	Floor Box	FBs features and installation environment	Compliant	
Technical Specification-Floor Box	Chap.4	R. 82.b	Floor Box	Applicable Cables size.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 82.c	Floor Box	Installation at room temperature for protection degree test samples.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 82.d	Floor Box	The need of a new sample for the evaluation of each different protection degreetest.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 82.e	Floor Box	Suitable cable length for the optical performance evaluation.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 83	Floor Box	Supplier must perform all the tests listed at room temperature, unless otherwise stated.	Compliant	
Technical Specification-Floor Box	Chap.4	R. 84	Floor Box	Supplier must perform cable retention test to evaluate FB protection	Compliant	

				degree, according to the following characteristics:		
Technical Specification-Floor Box	Chap.4	R. 85	Floor Box	Supplier must perform cable torsion test to evaluate FB protection degree, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 86	Floor Box	Supplier must perform static load (crush) test to evaluate FB protection degree, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 87	Floor Box	Supplier must perform impact test to evaluate FB protection degree, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 88	Floor Box	Supplier must perform damp heat test to evaluate FB protection degree, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 89	Floor Box	Supplier must perform change of temperature test to evaluate FB protection degree, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 90	Floor Box	Supplier must perform resistance to corrosion (salt mist) test to evaluate FB protection degree, according to the following characteristics:	Compliant	

Technical Specification-Floor Box	Chap.4	R. 91	Floor Box	Supplier must perform re-entries test to evaluate FB protection degree, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 92	Floor Box	Supplier must perform cable flexure test to evaluate FB protection degree, according to the following characteristics	Compliant	
Technical Specification-Floor Box	Chap.4	R. 93	Floor Box	Supplier must perform vibration (optical) test to evaluate FB optical performance, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 94	Floor Box	Supplier must perform cable retention test to evaluate FB optical performance, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 95	Floor Box	Supplier must perform cable torsion test to evaluate FB optical performance, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 96	Floor Box	Supplier must perform shock test to evaluate FB optical performance, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 97	Floor Box	Supplier must perform change of temperature test to evaluate FB optical	Compliant	

				performance, according to the following characteristics:		
Technical Specification-Floor Box	Chap.4	R. 98	Floor Box	Supplier must perform intervention at a node test to evaluate FB optical performance, according to the following characteristics:	Compliant	
Technical Specification-Floor Box	Chap.4	R. 99	Floor Box	Supplier must perform cable flexure test to evaluate FB optical performance, according to the following characteristics:	Compliant	

Lifetime of the product

Quality Assurance:

According to this tender, we Zhongtian Broadband Technology Co., Ltd. will operate strictly according to Quality Assurance System ISO9001 and Environmental Management System ISO14001. Based on the quality policy and aim made by our headquarter, we set up a quality assurance team in which Quality Department, Technical department and Engineering Service Department is the main part and General Manager is the team leader. We audit all the factors of quality internally and offer post sales technical service and dealing the customer information. All our employees comply with the service policy “know customer, satisfy customer”, insist the manufacturer policy “quality basic, strictly management factory” and implement the enterprises spirit “Meticulous, spotless, we try our best to serve high quality products and best service for this project. Here, I represent Zhongtian Broadband Technology Co., Ltd. make the promise on quality that.

The life of Passive Materials produced by Zhongtian Broadband Technology Co., Ltd. fully comply with tender, and assure that under the proper installation, normal operation and maintenance, it will operate well in its lifetime.

Zhongtian Broadband Technology Co., Ltd. assure that the supplied Passive Materials manufactured by good material, advanced production technical and best way for design and production, and fully complied with the quality, model and performance of contract.

After-Sales Service:

During the installation, we can send technical person to monitor Passive Materials installation and testing.

We provide technical inquiries and communication.

We can provide 24 months production warranty period after delivery.

According to the customers’ requirement, we can provide the training including Passive Materials design, splicing, installation and maintenance.

All the quality documents and qualify factors are effectively controlled by Zhongtian Broadband Technology Co., Ltd. Based on the long term and effective quality control, we believe that our Passive Materials and quality assurance system can assure our supplied products and service satisfy the requirements in technical specification of tender document.

Bidder: Zhongtian Broadband Technology Co., Ltd.

Jan. 10, 2025

Action Plan for “Carbon Dioxide Peaking & Carbon Neutrality” Green & Low Carbon Manufacture (GLCM)

In order to actively respond to the major strategic decision of “Carbon Dioxide Peaking & Carbon Neutrality” put forward by the CPC Central Committee and the State Council, ZTT Group must vigorously promote “Green & Low Carbon Manufacture” (GLCM). GLCM is a modern manufacturing mode that comprehensively considers the environmental impact and resource benefits and enables the whole life cycle of products and services from design, manufacturing, packaging, transportation, use to disposal to have the lowest impact on the environment and the highest resource utilization rate, optimize the economic and social benefits, and promote the high-quality development of nation and enterprises.

I General Requirements

1. Implementing the national strategy of “Carbon Dioxide Peaking & Carbon Neutrality”. We must solidly promote the Opinions of the CPC Central Committee and the State Council on *Complete, Accurate and Comprehensive Implementation of the New Development Concept to Do a Good Job of Carbon Dioxide Peaking & Carbon Neutrality* and *Action Plan for Carbon Dioxide Peaking by 2030*, and contribute to the due efforts of enterprises and individuals to reduce global greenhouse gas emissions and slow down climate warming.

2. Actively participating in the construction of new power system with new energy as the main body. We will vigorously develop and consume green energy such as photovoltaic and wind power, speed up the construction of a clean, low-carbon, safe and efficient energy system, adjust the energy consumption structure, effectively respond to the “coal shortage, power cuts and halt production”, strictly control the “intensity and total amount” of energy consumption, and realize the transition from “double control” of energy consumption to carbon emission as soon as possible.

3. Vigorously building a green and low carbon manufacturing system. We will adhere to green and energy-saving carbon and consumption reduction of the whole product life cycle, accelerate the innovation of low carbon technology in manufacturing industry, actively promote the use of advanced and applicable energy-saving and

low-carbon technologies, and digitalization, service-orientation and green low-carbon of manufacturing industry.

4. Making use of the situation to layout and optimize the industrial structure. We will actively build an industrial layout with passive all-optical network as the breakthrough, 5G energy products as the leader, prefabricated optical cable as the support, traditional ODN products as the foundation and system integration as the growth point, and firmly develop green and low-carbon industries such as green energy, 5G communication and Industrial Internet.

Ⅱ Overall Goal

We must firmly establish the concept of green and low-carbon development, commit to the whole life cycle of products and services, adhere to green and low-carbon technological innovation, optimize the structure of energy consumption and industrial development, and promote green design, green procurement, green production and green living by means of energy substitution, raw material substitution, energy saving and emission reduction, material saving and recycling so as to realize the company's sustainable development strategy of reducing energy consumption and emissions, improving quality and efficiency, and help achieve the blueprint of China's ecological civilization.

During the 14th Five-Year Plan period, compared with 2020, the proportion of green energy consumption will reach about 5.7% in 2021, the energy consumption per unit will be reduced by about 10% in 2021, and the carbon dioxide emission per unit will be reduced by about 13%. By 2023, the proportion of green energy consumption will reach about 15%, the energy consumption per unit will be reduced by about 13%, and the carbon dioxide emissions per unit will be reduced by about 16%; By 2025, the proportion of green energy consumption will reach about 25%, the energy consumption per unit will be reduced by about 16%, and the carbon dioxide emissions per unit will be reduced by about 20%.

During the 15th Five-Year Plan period, by 2030, compared with 2020, the proportion of green energy consumption will reach 50%, the energy consumption per

unit will be reduced by about 25%, and the carbon dioxide emission per unit will be reduced by about 30%, so as to achieve Carbon Dioxide Peaking by 2030 and Carbon Neutrality by 2055.

The overall goal of "Carbon Dioxide Peaking & Carbon Neutrality"

	Output value	**Green energy consumption**		**Comprehensive energy consumption per ten thousand yuan GDP**				**Carbon emissions per ten thousand yuan GDP**		
age	Output value (100 million yuan)	Total PV consumption (10,000 kwh)	Proportion of photovoltaic consumption (%)	Total power consumption (10,000 kwh)	Electricity consumption per 10,000 yuan output value (kwh/ 10,000 yuan)	Comprehensive energy consumption per 10,000 yuan output value (tce/ 10,000 yuan)	Reduction ratio of energy consumption per 10,000 yuan GDP	Total carbon emissions (tCO2e)	Carbon emissions per 10,000 yuan of output value (tCO2e/ 10,000 yuan)	Reduction ratio of carbon emissions per 10,000 yuan GDP
2020	7.2	19.8	5%	398	53.36	0.018		3908.31	0.054	
2021	8.5	23.2	5.7%	408	48.02	0.0162	10%	3995	0.047	13%
2022	10	46.9	10%	469	46.95	0.0158	12%	4600	0.046	15%
2023	13	90.45	15%	603	46.42	0.0156	13%	5850	0.045	16%
2024	25	226	20%	1133	45.35	0.0153	15%	11000	0.044	18%
2025	30	336	25%	1344	44.82	0.0152	16%	12900	0.043	20%
2025 National Level			20%				13.5 %			18%
2030			50%				25%			thirty percent
2030 National Level			25%							
2020 Nanton City's Level					475					

Note: The data are calculated on the basis of the gross output value of Zhongtian Broadband Technology Co., Ltd. in the 14th Five-Year Plan, the target of carbon emission reduction per 10,000 yuan gross output value, the target of energy consumption reduction per 10,000 yuan gross output value, the target of photovoltaic consumption proportion and the total power consumption, energy consumption and carbon emission in the base year of 2020, which are as follows:

A. Comprehensive energy consumption per ten thousand yuan output value in that year (tce/ ten thousand yuan) = comprehensive energy consumption per ten thousand yuan output value in 2020 (tce/ ten thousand yuan) ×(1- the reduction ratio of energy consumption per ten thousand yuan GDP in that year).

B. Carbon emissions per ten thousand yuan of output value in that year (TCO2e) = carbon emissions per ten thousand yuan of output value in 2020 ((tCO2e))×(1- carbon emissions reduction ratio per ten thousand yuan of output value in that year).

C. Total carbon emissions in the current year (t)= carbon emissions in the output value per ten thousand yuan in the current year (tCO2e)×target output value in the current year (100 million yuan) × 10,000.

D. Electricity consumption of output value per ten thousand yuan in the current year (kwh/ ten thousand yuan) = electricity consumption of output value per ten thousand yuan in 2020 (kwh/ ten thousand yuan) ×(1- reduction ratio of energy consumption of output value per ten thousand yuan in the current year).

E. Total electricity consumption (10,000 kwh)= output value of 10,000 yuan (kwh/ 10,000 yuan) × target output value (100,000 kwh)= total electricity consumption (10,000 kwh)× proportion of photovoltaic consumption.

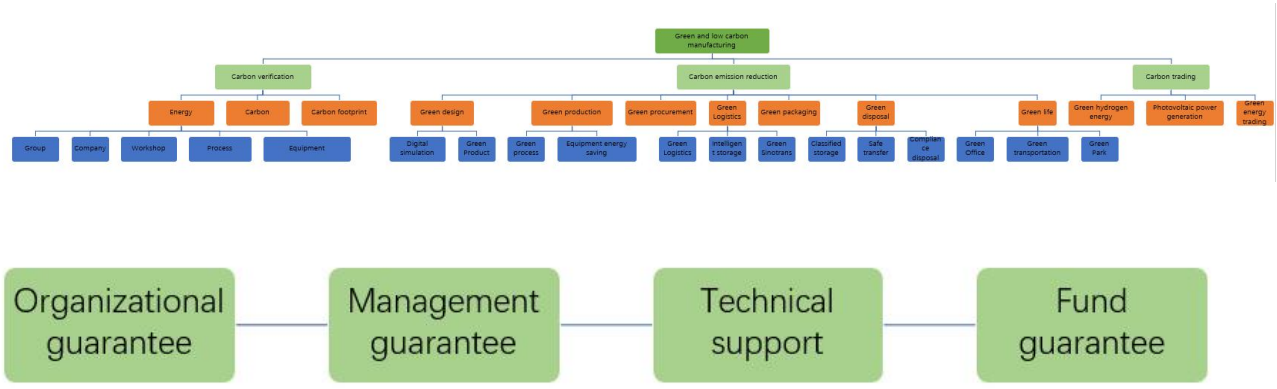
Analysis and conclusion:

A. During the 14th Five-Year Plan period, the annual total power consumption and total carbon emissions are still rising year by year with the increase of output value. Compared with the target, we still need to continuously improve our production capacity, and reach the target of Carbon Dioxide Peaking by 2030.

B. In 2020, Nantong City's power consumption per ten thousand yuan GDP will be 475kwh/ 10,000 yuan, and we will be far lower than Nantong City's level.

C. During the 14th Five-Year Plan period, we will re-plan the construction of photovoltaic power stations, which can meet the total photovoltaic consumption of the company's overall goal of "Carbon Dioxide Peaking & Carbon Neutrality". However, from 2023, part of the electricity still need to be realized through green electricity trading.

III Overall Structure



IV General Route

1. Studying new technologies and reducing carbon emissions through transform and upgrade. We use advanced green low-carbon technology, find the differences of equipment, improve its performance and reduce energy consumption.

2. Benchmarking new equipment by iteration for high efficiency and energy saving. We track the latest performance compared with the existing equipment, calculate based on ROI, and establish a replacement plan.

3. Optimizing new processes and promoting new driving force by manufacturing upgrade. We study the latest product technology, optimize the manufacturing process, reduce unnecessary allowance and maximize the utilization of resources.

4. Digging deep into and reducing loss by lean improvement. We focus on the process of energy conversion, analyze the losses, and improve the energy utilization rate.

5. Fine controlling of emissions and recycling. We investigate all kinds of emissions and recycle.

6. Information layout and maximum value through transparent data. We layout the information system, master the actual use of energy and materials, make accurate analysis, and constantly improve and upgrade.

V Carbon Verification

1. Energy Verification

Defining the responsible department

Company-level and workshop-level data of electricity, gas, steam, oil and water are all checked and counted monthly by the carbon emission reduction work team, and released internally and externally to ensure the consistency and compliance of the data.

Clearing statistical coverage

In order to clearly check the company's total energy consumption and consumption intensity, it is necessary to know the power supply circuit diagram and types of energy, and find out the distribution and proportion of all kinds of energy consumption, all of which should be checked according to three-level energy data (on a monthly basis), which are the company level, the workshop level and the equipment level respectively.

Using automatic acquisition

Automatic data acquisition of energy is a very specific basic work, which should be implemented step by step according to the actual needs. All kinds of energy consumption data at the company level must be automatically collected and uploaded to the energy management platform. The energy consumption data at the workshop level, process level and equipment level are delivered to the energy collection and implementation service unit.

Work progress plan:

(1) Complete the company-level monthly energy verification by the end of October, 2021; (2) Complete the automatic data collection of electricity, gas and water at the end of December, 2021.

Statistics of energy verification in recent three years

Total Energy Consumption Statistics

the Year of 2019

Item		Unit of Measurement	January	February	March	April	May	June	July	August	September	October	November	December
Output Value		ten thousand yuan	10302	6066	7000	8400	8615.66	13154.2	6614.84	11371.23	11966	7338.83	10800	8588.49
Water		t	9184	5222	6407	5946	4690	5572	7977	7903	7151	6630	8179	6800
Electricity		kvh	437900	282540	410000	317800	411000	396000	526000	521500	274300	283000	261000	278000
			/	/	/	/	/	/	/	/	/	/	/	/
Gas	CO_2	m³	881.28	422.28	927.18	771.12	771.12	532.44	569.16	587.52	605.88	761.94	514.08	605.88
	CH_4	m³	39346	22729	39670	34900	28366	29593	36605.0	30163.0	31616	33360	13590	32380
	C_2H_2	m³	/	/	/	/	/	/	/	/	/	/	/	/
	C_3H_8	m³	/	/	/	/	/	/	/	/	/	/	/	/
	CO	m³	/	/	/	/	/	/	/	/	/	/	/	/
	N_2	m³	/	/	/	/	3757	2523.5	1800.5	3179.5	1419.5	1768.5	5220.5	2772
	Ar	m³	14040	6660	9920	6580	6820	9780	6500	12420	5326	16760	10200	12648
	A mixture of He & Ar	m³	/	/	/	/	/	/	/	/	/	/	/	/
	Ar + CO_2	m³	/	/	/	/	/	/	/	/	/	/	/	/
	O_2	m³	2025	1013	2476	2037	1676	2020	992	2374.5	2082	2402	1368	2051
	He	m³	/	/	/	/	/	/	/	/	/	/	/	/
	.....		/	/	/	/	/	/	/	/	/	/	/	/
	.....		/	/	/	/	/	/	/	/	/	/	/	/
Steam	Steam	m³	/	/	/	/	/	/	/	/	/	/	/	/
Oil	Gasoline	t	/	/	/	/	/	/	/	/	/	1.121	0.625	0.342
	Diesel	t	0.658	0.081	0.224	0.519	0.331	0.624	0.45	0.470	0.35	0.667	0.136	0.25
Miscellaneous	Charcoal	t	/	/	/	/	/	/	/	/	/	/	/	/
	Coal	t	/	/	/	/	/	/	/	/	/	/	/	/
Energy Conversion	TCE	T	106.15	64.95	103.15	85.47	101.54	88.03	113.33	104.81	75.76	79.15	74.09	77.23
Power Consumption		kwh/ten thousand yuan	42.51	46.58	58.57	37.83	47.70	30.10	79.52	45.86	22.92	38.56	24.17	32.37
Comprehensive Energy Consumption		tce/ten thousand yuan	0.010	0.011	0.015	0.010	0.012	0.007	0.017	0.009	0.006	0.011	0.007	0.009

Total Energy Consumption Statistics

the Year of 2020

Item		Unit of Measurement	January	February	March	April	May	June	July	August	September	October	November	December
Output Value		ten thousand yuan	3897	2479.9	6538.91	7726	7689	7642.5	8728	6231	6641.8	6469.29	7147	6227.33
Water		t	7043	2629	5830	3095	6200	6400	6400	5620	6565	5752	5406	3983
Electricity		kvh	242000	178000	304000	334000	338000	375000	388000	378000	376000	299000	370200	398900
			/	/	/	/	/	/	/	/	/	/	/	/
Gas	CO_2	m³	284.58	293.70	936.36	945.54	862.92	743.58	862.92	853.74	642.6	954.72	1312.74	541.62
	CH_4	m³	26800	12400	45000	36000	39000	42000	41000.0	40900.0	28000	30800	38000	39000
	C_2H_2	m³	/	/	/	/	/	/	/	/	/	/	/	/
	C_3H_8	m³	/	/	/	/	/	/	/	/	/	/	/	/
	CO	m³	/	/	/	/	/	/	/	/	/	/	/	/
	N_2	m³	3144	2291	6069	5126	7981	12011	13827	10325	11239	8453	8122	10492
	Ar	m³	3520	3177	7800	5020	7760	6640	6700	7380	8220	4C00	11320	6940
	A mixture of He & Ar	m³	/	/	/	/	/	/	/	/	/	/	/	/
	Ar + CO_2	m³	/	/	/	/	/	/	/	/	/	/	/	/
	O_2	m³	1376	1063	975	1470	2042	459	2030	941	1020	2575	5573	5356
	He	m³	/	/	/	/	/	/	/	/	/	/	/	/
	.....		/	/	/	/	/	/	/	/	/	/	/	/
	.....		/	/	/	/	/	/	/	/	/	/	/	/
Steam	Steam	m³	/	/	/	/	/	/	/	/	/	/	/	/
Oil	Gasoline	t	0.544	0.087	0.461	0.387	0.52	0.328	0.576	0.704	0.337	0.06	/	/
	Diesel	t	0.553	0.22	0.262	0.537	0.017	0.194	0.2	0.3	0.166	0.355	0.2	0.4
Miscellaneous	Charcoal	t	/	/	/	/	/	/	/	/	/	/	/	/
	Coal	t	/	/	/	/	/	/	/	/	/	/	/	/
Energy Conversion	TCE	T	65.38	38.36	97.21	88.91	93.41	101.94	102.21	100.85	83.45	77.82	96.03	100.89
Power Consumption		kwh/ten thousand yuan	62.10	71.78	46.49	43.23	43.96	49.07	44.45	60.66	56.61	46.22	51.80	64.06
Comprehensive Energy Consumption		tce/ten thousand yuan	0.017	0.015	0.015	0.012	0.012	0.013	0.012	0.016	0.013	0.012	0.013	0.016

Total Energy Consumption Statistics

the Year of 2021

Item		Unit of Measurement	January	February	March	April	May	June	July	August	September	October	November	December
Output Value		ten thousand yuan	6200	3172.93	7659	7268.58	7673.47	7129.32	7536.56	8637.83	8693.82	8555.25	9222.62	7276.09
Water		t	7638	6094	6907	8012	7359	8115	8269	5755	6756	3138.00	5962	2643
Electricity		kwh	406300	228100	344200	364900	350300	449700	398000	434086	342196	235695.00	245793	275450
Gas	CO_2	m^3	734.4	651.78	798.66	670.14	624.24	302.94	587.52	651.78	679.32	459.00	923.9	1020.2
	CH_4	m^3	43400	21000	37700	38000	37300	32728	31325.0	29092.0	28079	21142.00	24781	27368
	C_2H_2	m^3	/	/	/	/	/	/	/	/	/	/	/	
	C_3H_8	m^3	/	/	/	/	/	/	/	/	/	/	/	/
	CO	m^3	/	/	/	/	/	/	/	/	/	/	/	/
	N_2	m^3	18325	8366	13372	8440	12688	17240	27480	27690	21400	14240.00	30280	28880
	Ar	m^3	5480	5800	5120	3500	9330	3880	6710	8290	6580	3290.00	/	6440
	A mixture of He & Ar	m^3	/	/	/	/	/	/	/	/	/	/	/	/
	Ar + CO_2	m^3	/	/	/	/	/	/	/	/	/	/	/	/
	O_2	m^3	4042	1446	3933	3034	2616	3045	3009	3562	6768	3666.00	2711.5	5338.054
	He	m^3	/	/	/	/	/	/	/	/	/	/	/	/
			/	/	/	/	/	/	/	/	/	/	/	/
			/	/	/	/	/	/	/	/	/	/	/	/
Steam	Steam	m^3	/	/	/	/	/	/	/	/	/	/	/	/
Oil	Gasoline	t	/	/	0.026	/	/	/	/	/	/	0.00	0.00	0.00
	Diesel	t	/	/	0.23	0.305	0.169	0.3	0.2	0.3	0.313	0.29	0.6	0.448
Miscellaneous	Charcoal	t	/	/	/	/	/	/	/	/	/	/	/	/
	Coal	t	/	/	/	/	/	/	/	/	/	/	/	/
Energy Conversion	TCE	T	107.6	55.96	92.44	95.38	92.66	98.79	90.57	92.04	79.4	57.507	64.041	70.905
Power Consumption		kwh/ten thousand yuan	65.532	71.889	44.941	50.202	45.651	63.078	52.809	50.254	39.361	27.550	26.651	37.857
Comprehensive Energy Consumption		toe/ten thousand yuan	0.017	0.018	0.012	0.013	0.012	0.014	0.012	0.011	0.009	0.007	0.007	0.010

Note: In 2020, Nantong City's power consumption per 10,000 yuan GDP is 475kwh/ 10,000 yuan.

Formula: Energy consumption (tce) = Electricity (kwh)*0.0001229+water (t)*0.0002571+natural gas (m^3)*0.0017572+acetylene (m^3)*0.0083143+propane (m^3)*0.000671+ gas (m^3) * 0.0003571 + Oxygen(m^3)*0.0004 + Gasoline(t)*1.4714 + Diesel(t)*1.4571.

Note: According to the requirements of the Group, water only includes tap water, and all energy sources are subject to the invoiced amount. Different measurement units are converted into standard statistical units by the conversion factor.

2. Carbon Emission Verification

Statistical Table of Carbon Emission Verification in Recent Three Years

	Unit	2019	2020	2021
Total carbon emissions	tCO2e	4190.18	3908.31	3982.41
Output value	Ten thousand yuan	110271	77417	89025
Carbon emissions per 10,000 yuan of output value	tCO2e/ten thousand yuan	0.037	0.05	0.044

Carbon emissions per 10,000 yuan of output value (tCO2e/ 10,000 yuan) = total carbon emissions per year (tCO2e)/ GDP per year (10,000 yuan)

Total carbon emissions (tCO2e) = total electricity consumption (MWH) * 0.7921+water consumption (ton) * 0+natural gas consumption (m^3) * 1.9997/1000+acetylene consumption (ton) * 88 /26+Propane consumption (tons)*132/44+Gas consumption (tons)*88/56+Oxygen

consumption(tons)*0+Steam consumption(tons)*1000*2786/1000000*0.126+Gasoline consumption(tons)*3.0605+Diesel consumption (tons)*3.5032

Note:

(1) The unit given in the above calculation of power supply is MWH, and the commonly used power unit is KWH, 1000KWH=1MWH.

(2) 0.126 given in the formula above is the steam emission factor produced by coal-fired units, and the steam emission factor produced by gas-fired units is 0.059 TCO2/GJ.

(3) The emission factors of gasoline given above are only applicable to mobile emission sources, and the fixed emission source coefficient of gasoline is 2.9994.

(4) The above-mentioned emission factors of diesel are only applicable to in-plant diesel vehicles, the coefficient of out-of-plant diesel vehicles is 3.2149, and the coefficient of fixed emission source using diesel is 3.1753.

Peer benchmarking of carbon verification in 2020 as follows.

	Output value (ten thousand yuan)	**Energy consumption conversion（tce）**	**Electricity consumption per 10,000 yuan of output value (kwh/ 10,000 yuan)**	**Comprehensive energy consumption per 10,000 yuan of output value (tce/ten thousand yuan)**	**Total carbon emissions (tCO2e)**	**Carbon emissions per 10,000 yuan of output value (tCO2e/ 10,000 yuan)**
Huawei	89140000	470691	40.4	0.0052	4570916	0.0512
Zhongtian broadband	77417	1046.46	51.42	0.0135	3908.31	0.05

3. Carbon Footprint Verification

(1) Definition

Carbon footprint is a newly developed indicator used to measure the environmental impact from carbon dioxide emissions produced by institutions or individuals due to daily energy consumption. As a new type of environmental policy, carbon footprint is an ecological label.

Carbon footprint has created a market mechanism to make economic returns for enterprises' energy saving and emission reduction. By evaluating the carbon footprint of products, it can inform and facilitate consumers' green purchase, and encourage manufacturers to continuously reduce the impact of their production processes and products on the environment.

Carbon footprint category	Definition	Standard	Remarks
Product-level carbon footprint	Verifying direct and indirect greenhouse gas emissions in the product life cycle (from "cradle" to "grave"), involving supply chain, manufacturing, consumers, etc.	PAS2050 ISO14067 ISO14040	Internal energy consumption management requirements
Company-level carbon footprint	Calculating the direct and indirect greenhouse gases emitted by the company within a certain period of time (usually one year), mainly for the company's energy consumption.	ISO14064	
Project-level carbon footprint	Verifying the direct and indirect greenhouse gases produced by a project within a certain period of time (such as one year). Usually, customers are concerned about the reduced emissions during this period of time and the same period of time in the past.	ISO14064 UNFCCC CDM	General customer requirements

(2) Measuring carbon footprint

Inviting a third-party organizations to participate in carbon footprint measurement with the opportunity of national green factory declaration.

Before June 2022

Defining organizational boundaries and reporting boundaries, determining quantitative methods, collecting activity data, selecting emission coefficients, calculating emissions, internal assessment, checking inventory of greenhouse gases and preparing reports.

Calculation formula:

$$\sum_{i}^{n} AD_i * EF_i * GWP_i$$

AD: Activity Data, that is, consumption, such as electricity, natural gas and gasoline;

EF: Emission Factor, the same substance, different occasions, different EF;

GWP: Global Warming Potential.

(3) Carbon footprint planning

Period	Plan
From December, 2021 to March, 2022	Completing the total carbon emissions within the "geographical boundary of enterprises" in 2020. Hiring a third-party organization to calculate the carbon verification of our company and the carbon footprint data of products according to customer requirements, and issue a report.
After March, 2022	Regularly monitoring carbon emissions, gradually establishing a carbon neutrality management system in the whole life cycle, supporting the long-term carbon emission reduction, carbon dioxide peaking and carbon neutrality development goals, and strengthening our brand influence.

VI Carbon Emission Reduction (Green Manufacture)

1. Green Design

Green design is the source means of green development, and also the key means to achieve the goal of carbon dioxide peaking and carbon neutrality.

In the design stage, according to customer requirements and environmental laws & regulations, while ensuring the product's functions, quality and life, the product's environmental attributes (such as reproducibility, recyclability, detachability, maintainability, etc.) should also be considered. We combine with the concept of green design, manufacture green and low-carbon products, create a resource-saving and environment-friendly society, and undertake the social responsibility of green, low-carbon, environmental protection and circular economy.

Green design includes the following two aspects:

（1）Digital simulation design. We adopt digital simulation design method, evaluate the product performance in advance, rationalize the design, and reduce the number of trial samples. We carry out system design, structural check, mechanical performance and electrical performance simulation analysis.

（2）Green materials and products. A. Green and environmentally-friendly degradable materials are selected in the design; B. Products are designed to reduce energy consumption, improve quality and increase efficiency; C. Products are designed to reduce material consumption; D. Recyclable design which is easy to disassemble, convenient to maintain, and can be recycled after the product is scrapped.

Project Case of Green Design

No.	Category	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect
1	Digital simulation design	Digital proofing of cabinet	Siemens NX software is used to realize digital proofing of cabinet	80,000 kWh electricity saving per year; Cost reduction of 400,000 yuan/year	Carbon emission reduction of 91.5t/ year.
2	Digital simulation design	Product standardization design	Standardization within the same product；Standardized design of similar parts between different products；Design specifications establishment	200,000 yuan	Production efficiency improvement of spare parts by 50% and electricity saving of 27,000 kWh per year
3	Green product	Smart lamp post	Smart light pole integrates the needs of traffic, police, urban management and public security departments, equipped with various functional perception devices, to realize holographic perception and intensive management of road intelligent infrastructure.	Electricity saving of 90 kWh each lamp post per month	Carbon emission reduction by 1036.8kg per year
4	Green product	Overlapping base station	Energy-integrated cabinet+photovoltaic power generation scheme is an intelligent digital network energy product designed by innovative integration technology, which mainly integrates multiple-input and multiple-output power supply, high-voltage DC power distribution unit, and intelligent lithium battery into a cabinet to provide	Electricity saving of 2160 kWh each Overlapping base station per month(configurable)	Carbon emission reduction by 11.43 tons per year

			various DC uninterrupted power supply for 5G base station equipment. .		

2. Green Manufacture

(1) Green process

Green process refers to the process improvement behavior of the production process. The production process design adopts integrated production mode and economical production process, and uses resource-saving production technology.

Project Case of Green Process

No.	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect
1	Optimization of Prefabricated Optical Cable Hot Drying Equipment	In the hot baking process, the 2000W hand-held hot baking gun was changed to 550W portable hot baking gun.	Annual output of 1.3 million cores, and the estimated income of 26,000 yuan	Annual carbon dioxide emission reduction of about 14 tons
2	Optimization of production process for vertical BBU frame adjusting windshield assembly	The assembly is produced by general punching, which can improve product qualification rate and consistency, and save repair time.	Electricity saving of 13,500 yuan in the whole year	Annual carbon dioxide emission reduction of about 14 tons
3	Mesh structure optimization	After changing the die, the punching time of the standard cabinet mesh door was reduced from 8 minutes to 2 minutes.	Annual production of 23,000 mesh doors, which can save 2,300 hours and 43,000 yuan energy consumption in the whole year	Annual carbon dioxide emission reduction of about 52 tons
4	Improvement of thermal drying efficiency of connector heat shrinkable tube	In the connector curing process, the heat shrinkable tube needs to be heated, and output can be increased and energy consumption can be reduced by improving the heating efficiency.	A total of 30 million cores in the whole year, which can save 25,000 hours and 10,000 yuan energy consumption	Annual carbon dioxide emission reduction of about 4.2 tons

(2)Equipment energy-saving upgrade

All kinds of professional production equipment and peripheral supporting auxiliary

equipment are the biggest energy-consuming facilities in the field of industrial manufacturing. On the one hand, low-energy consumption equipment is used, on the other hand, energy-saving and low-carbon technical transformation of existing high-energy consumption equipment and long-life equipment is carried out. It is important to popularize and apply energy-saving and low-carbon technologies in the field of equipment, study the latest energy-saving technologies, dig deep into equipment loss and precisely control and utilize emissions.

A. High energy consumption equipment is listed as the key control object

Account books are established for high energy consumption equipment (energy consumption exceeding 100kW/h).

Project case of high energy consumption equipment renovation

No.	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect
1	Pretreatment pool reconstruction	The pretreatment of the spraying line is reformed for waste water recycling and utilization.	6.1	8640 tons water saving per year
2	Air compressor waste heat recovery	Heat exchange technology is used to recover the waste heat of air compressor.	5.4	8,000 cubic meters of natural gas saving per year
3	Frequency conversion transformation of air compressor	Energy-saving transformation of air compressor by frequency conversion technology	3.2	12,000 kWh electricity saving per year

B. Long-life equipment is listed as the key improvement object

Account books are established for long-life equipment (more than ten years).

Project case of long-life equipment renovation

No.	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect
1	Modification of high energy consumption fan for coating line	Replace the third-stage high-energy consumption motor with the first-stage energy-saving motor	Annual cost reduction of 45,000 yuan	Carbon emissions reduction of 20t/ year

C. The peripheral supporting auxiliary equipment will be reformed as a whole

The peripheral supporting auxiliary equipment has strong universality, and there is much room for improvement.

Project case of common auxiliary equipment energy-saving renovation

No.	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect
1	Hitachi air compressor replacement	High-efficiency air compressor permanent magnet frequency conversion technology	43000 yuan	Carbon emissions reduction of 39t/ year.

3. Green Procurement

Green procurement is the behavior of fully considering environmental protection, resource conservation, safety and health, low carbon and recycling promotion, while advancing the concept of green low carbon, and giving priority to purchasing and using raw materials, products and services that are conducive to energy-saving, water-saving and material-saving. We set up a special green procurement work team to convey green and low-carbon manufacture requirements to our suppliers.

(1) Goal of green procurement

Type	Supplier	Goal of green procurement
Short-term goals for 2023	Completing the pilot supplier promotion	10% reduction in carbon emissions per million yuan of purchased goods and services
Mid-term goals for 2025	TOP100 suppliers with purchase amount	10% reduction in carbon emissions per million yuan of purchased goods and services
Long-term goals for 2030	TOP100 suppliers with purchase amount	25% reduction in carbon emissions per million yuan of purchased goods and services

(2) Major measures of green procurement

A. Establishing a sustainable green supply chain management strategy. Suppliers are required to incorporate the concept of green supply chain management into the development strategic planning, define the objectives, set up management departments, and participate in it;

B. Implementing green supplier management. Suppliers are required to establish the concept of green procurement, constantly improve and perfect procurement standards and systems, and make green procurement run through the whole process of purchasing raw materials, products and services;

C. Strengthening green production. We create the green design concept based on the product life cycle, integrate the environmental data resources, establish the basic

process and product database, build the evaluation model, and carry out the life cycle evaluation in the R&D stage;

D. Building a green recycling system. We establish an extended producer responsibility system, and take the initiative to undertake the responsibility of recycling and resource utilization of discarded products;

E. Building a green information collection, monitoring and disclosure platform. We establish an online monitoring system for energy consumption and a database for emission reduction monitoring, regularly publish corporate social responsibility reports, and disclose the completion of energy conservation and emission reduction targets.

(3) Main requirements of green suppliers

A. Requiring suppliers to obtain certification of environment, energy management system and carbon emission verification system, formulating and implementing carbon emission reduction targets and action plans, and increasing energy conservation and emission reduction;

B. Incorporating carbon emission reduction requirements into supplier performance evaluation, system audit and new supplier certification requirements, and suppliers choose to lean towards energy saving and consumption reduction;

C. Requiring suppliers to prohibit or restrict the use of harmful substances and implement carbon emission reduction management, advocate suppliers to increase the use of clean energy, and support the long-term goal of green and low carbon;

D. Logistics transportation will developed to new energy and hydrogen energy. We reduce the resource consumption in the process and the harm of logistics to the environment, and realize the greening of logistics environment and the best utilization of logistics resources.

4. Green Logistics

Green logistics is a process of making full use of logistics resources, adopting advanced logistics technology, rationally planning and implementing logistics activities such as transportation, storage, loading and unloading, handling, packaging, distribution processing, information processing to reduce the impact of logistics on the environment. In order to design green logistics from the whole life cycle of products, we can focus on the following aspects:

(1) Green logistics within the factory

Inter-process transfer adopts electric unmanned vehicles such as AGV and RGV through digitalization of manufacturing industry.

For short-distance transportation of materials in the workshop, electric forklifts and

other transportation methods shall be adopted, and the required transportation route, transportation volume and time shall be arranged as a whole, so as to reduce unplanned and purposeless operations of forklifts and other transportation tools.

We strengthen the research on energy-saving technology of forklifts, and manage the purchase of forklifts according to their load capacity.

(2) Intelligent warehouse material management

The feasibility of intelligent warehouse management is discussed for key raw materials, semi-finished products and finished products. For example, intelligent three-dimensional warehouse can greatly reduce the storage area, and digital warehouse can greatly reduce the time and labor consuming of finding materials, the risk of wrong mixing. If the product is qualified after testing, the certificate will be posted. When the product is packaged, it will be managed by region and the order. When the product is delivered, the forklift can pick up the goods accurately.

(3) Green outbound of finished products

A. Improving the vehicle rate. Centralized scheduling of orders in the same direction, ensuring one-time delivery of orders at the same address, improving the vehicle rate, avoiding batch delivery of scattered orders, and reducing transportation costs.

B. Careful dispatch and delivery. Logistics tallymen need to strengthen the dispatching and control of vehicles, goods, personnel and forklifts, and carry out fixed-point and fixed-time quantitative management to avoid vehicles running empty or blocking traffic.

C. Reducing the inventory cycle. We strictly control delivery delay and charge overdue storage fees by the hour. When the order is overdue, the packaging quality risk should be assessed.

D. Reducing report output. A single discussion on the control of the delivery material. It is really necessary to provide paper records in batches, and print them in a suitable typesetting way.

E. New multi-modal transport: We explore new modes of logistics and transportation such as railway-highway, water-railway and highway-water transport and promote cost reduction and efficiency increase of logistics industry and green and low-carbon development of transportation.

Project case of green logistics

No.	Category	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect

1	New multi-modal transport	Railway -highway transport	Identifying railway -highway transport contract in advance every month, arranging production, purchase and delivery in advance, and setting aside the multimodal transport plan.	Cost reduction of 40,000 yuan/year	Carbon emissions reduction of 0.8 tons
2	Green logistics within the factory	Electric forklift	Replacing diesel forklift with electric forklift	Cost reduction of 10,000 yuan/year.	Carbon emissions reduction of 5 tons

5. Green Packaging

Green packaging is also an important part of "Green & Low-Carbon Manufacture". In order to realize the harmony and unity of people, society and nature, and the sustainable development of packaging for protecting the environment and saving resources, we should recycle more waste and harmful materials. Especially for non-high-energy-consuming enterprises, such as electronic components and electrical manufacturing, it can be improved from the following aspects: recyclable materials, recycling materials, and reduced packaging.

Project case of green packaging

No.	Category	Project name	Project introduction	Expected economic benefits	Expected energy saving and carbon reduction effect
1	Reduced packaging	Packaging reduction	Customizing and standardizing the packaging of conventional batch of products, and limiting the size at the source of packaging design to achieve the effects of simplifying packaging, reducing waste and saving resources.	8000 yuan	Packaging materials saving of 2 tons
2	Recycling materials	Reducing non-recyclable fillers	In the packaging that must be filled, honeycomb paper or other recyclable materials should be gradually used instead of foam to achieve the goal of recycling. Honeycomb paper is made of recyclable paper, which can be 100% recycled after use.	30000 yuan	Non-recyclable materials replacement of 2 tons

6. Green Disposal

(1) Sorting and storage

The types and quantities of solid, liquid and hazardous wastes shall be stored in categories, and signs and labels shall be strikingly hung on the storage site.

(2) Safe transfer

Setting the solid waste transfer route. Special vehicles should be qualified for hazardous waste transportation. We weigh the hazardous waste before transfer, and fill in the transfer sheet, including the name, characteristics, place of production and process.

(3) Compliance

A. Solid waste disposal

Specific solid wastes includes plates and aluminum scrap; General solid waste includes metal scraps, waste paper bins, waste wooden boxes, glass bottles, waste plastics, waste paper, etc. Solid waste disposal satisfies the waste reduction, but also achieves economic benefits.

B. Hazardous wastes disposal

Organizations with corresponding qualifications should be entrusted to carry out compliance, and confirmed to ensure the compliance of the hazardous wastes treatment process.

It is forbidden to mix hazardous wastes with general wastes, and different types of hazardous wastes should be collected separately.

7. Green Life

(1) Green office

We improve the energy-saving resource management system for air conditioners, elevators, lighting, printers, copiers and household appliances, and strengthen the target management of energy and water consumption. Green products such as energy-saving, water-saving, environmental protection and regeneration are selected for office materials, and paperless office is promoted.

We give priority to the purchase of green products such as energy-saving and water-saving appliances, and reduce the consumption of domestic energy resources. We actively practice green lifestyle, save water and electricity, do not waste food and use disposable plastic products. In addition, we participate in voluntary tree planting, environmental supervision and protection publicity and other green public welfare activities.

(2) Green traffic

We advocate to take public transportation and purchase new energy vehicles, etc.

(3) Green Park

A. Green infrastructure, perfect supporting facilities such as water, electricity, gas and roads, and adopt energy-saving lighting and water-saving appliances;

B. Creating a livable environment in the park, optimize parking management, standardize pipeline installation, strengthen noise control, rationally lay out public green space and increase public activity space;

C. Improving the level of informatization and intelligence in the park, make full use of the existing information platform, and integrate data and information such as park security, public facilities management, and environmental sanitation monitoring;

D. Cultivating the green culture of the park and carry out green theme propaganda.

VII Carbon Trading

The basic principle of carbon trading is that one party of the contract obtains greenhouse gas emission reduction by paying the other party, and the buyer can use the purchased emission reduction amount to slow down the greenhouse effect so as to achieve its emission reduction goal.

Considering that some high energy consumption units can't transform quickly in a short time to meet the needs of green manufacturing. We can refer to the policy trends of the state in carbon trading, and adopt trading methods to realize carbon offset, so as to achieve legality, compliance and rationality, and finally achieve the goal of carbon neutrality.

1. Photovoltaic Power Generation

We make full use of all kinds of resources such as roofs, open spaces, carports and invest in the construction of distributed photovoltaic power stations, which are used as self-contained power sources and replace traditional electric energy with photovoltaic green energy.

We will build a new photovoltaic power generation capacity of 257.6KW in 2022, with an annual power generation capacity of about 270,000 kWh. The carbon emission can be reduced by 119.6 tons.

Building user-side shared energy storage system in green park.

It is used for peak-valley electricity price arbitrage of energy storage industrial users. Users can use the energy storage device to store electric energy in the valley period when the electricity price is low, and use the stored electric energy in the peak period, thus reducing the electricity bill expenditure and avoiding the peak period of electricity consumption. Planning and construction should be combined with distributed

photovoltaics, and the way of "using photovoltaics during the day and storing energy at night" can effectively solve the current power load limitation problem of some enterprises. Supporting the "parallel-to-grid switching device", the power grid is no longer worried about power failure, and the "millisecond seamless switching" standby power supply has no worries about important loads.

VIII Safeguard Measures

1. Organizational Guarantee

(1) Special carbon emission reduction work team

Personnel: The general manager of the company is the team leader, the director of the digital office is the executive team leader, and the managers of each department participate in the daily activities of carbon emission reduction as members of the special class.

Responsibilities: As the main unit of carbon emission reduction, implement the decision-making and deployment of special classes to ensure the normal operation of special classes; To study the carbon emission reduction technology and realization path of the unit, and organize to formulate the double-carbon target, strategic plan, action plan and energy saving and emission reduction measures of the unit; Coordinate resources, organize the implementation, supervise and promote the important matters agreed by the special class; Regularly report the work progress to the special class.

2. Managerial Guarantee

Time Limit	Job Responsibility	Responsible Organization
Late October, 2021	Preparing the first draft of the outline of Green & Low Carbon Manufacture (GLCM) and conduct the initial review	Special carbon emission reduction work team
October 30, 2021	Completing monthly energy inventory	Digital office
Mid-December,2021	Completing automatic acquisition of company-level data on electricity, gas and water	Digital office
Mid-December,2021	Completing the on-site deployment of automatic collection of electricity, gas and water data and output counters of key equipment each workshop and realize early warning of long-term idling and unit consumption exceeding	Digital office
The fourth quarter of	Selecting key cooperative suppliers to promote energy saving and emission reduction	Purchasing department

2021	technologies	
The fourth quarter of 2021	Completing the investigation, elimination and replacement of the company's high energy consumption equipment	Production department

Based on the power consumption in the fourth quarter of 2020, the power saving target is ≥10%. On the basis of considering the same output scale, the unit that has achieved the target will reward the team with 50% of the power saving amount, and the unit that has not achieved the target will reward the team with 50% of the excessive power consumption amount.

3. Technical Support

(1) Energy Management System (EMS)

By building an energy management platform based on the industrial Internet, the comprehensive collection and management of energy consumption (water, electricity, gas, coal) in production and daily factory affairs can be realized with the help of two-dimensional code and data acquisition technologies. Establish models of equipment energy consumption, production line energy consumption and workshop energy consumption, realize energy consumption prediction and early warning, improve energy-saving space and save production costs.

The technical committee of the group planned the EMS in a unified way. The energy management platform can realize the functions of factory power analysis, workshop power analysis, production line power analysis, equipment power analysis, real-time power monitoring and power alarm prediction. Production water analysis, factory water analysis and real-time monitoring of water energy.

(2) Certification of EMS

Energy conservation is a systematic and comprehensive work. At present, there are many problems, such as no basis for energy use, no quota for distribution, no measurement for assessment, no plan for management, no supervision for loss, no measures for energy conservation, and no management for waste. Applying systematic management methods to reduce energy consumption, improve energy utilization efficiency, promote energy conservation, and build energy management system is the key to energy management. In line with GB/T 23331-2020/ISO 50001:2018 Energy Management System Requirements and Usage Guide, the company's operation is more competitive by improving energy performance and reducing energy consumption.

(3) Green factory certification

With reference to GB/T 36132-2018 General Principles of Green Factory Evaluation,

GB/T 33761-2017 General Principles of Green Product Evaluation, GB/T 39257-2020 Green Supply Chain Management Evaluation Standard for Green Manufacturing Enterprises and other norms, we will compare them item by item, benchmark the construction, and carry out the green factory certification in an orderly manner.

4. Financial Guarantee

In accordance with all the work plans listed in the final version of Action Plan for Green & Low- Carbon Manufacture (GLCM) V2.0, Digital office shall make a good plan design and budget, especially make a good calculation of the expected economic benefits and the expected energy saving and carbon reduction effects. If necessary, the Office shall also organize the expert review of the plan, and then put into the renovation and upgrading work.

IX Conclusion

Finally, under the general trend of building a harmonious, sustainable innovation and supply chain in the whole society, all of us should recognize the times and trends under the new situation of "double carbon". We have to force management, optimize production scheduling and adapt to the power supply period; It is necessary to innovate technology, reduce energy consumption, eliminate backward tooling and connect with new materials and technologies, so that limited resources can create maximum benefits.

Quality test plan

1. Purpose

To ensure product quality, inspection requirements and methods for sheet metal parts have been established.

2. Scope

This specification is used to guide the process inspection personnel in conducting the full process inspection of our company's sheet metal parts.

3. Inspection criteria and specifications

3.1 KD03-BJ-0015 “Process specification for dimensional and positional tolerances of sheet metal structural components”

4. Testing environment requirements

4.1 Having a normal visual acuity of 1.0 or above (including corrected) and color perception.

4.2 Appearance and color illuminance: The appearance and color are under natural light or approximate natural light with an illuminance of 450-550LX (such as a 40W fluorescent lamp or lamp located 500mm away from the inspection surface).

4.3 Visual distance: The distance between the eyes and the product is 650-75mm, and direct vision is accurate.

4.4 Environmental performance testing area and material performance testing area: The temperature requirement is 15-35 ℃, and the humidity is 45-75%.

5. Test items and indicator requirements

5.1 Process testing is conducted by sampling and testing according to product batches and production processes

5.2 Implement a full process inspection to control product quality, with inspection personnel conducting spot checks. The inspection frequency for the entire process is 2 times per day;

5.3 The specific regulations for the process testing content, inspection methods, and sampling quantity of each batch of products are as follows:

No	Process	Test items and requirements	Test methods/ tools/equipment	Test quantity
**	Confirmation of materials and fixtures	1. Check whether HSF environmentally friendly materials are selected (whether there are HSF environmental labels on the environmentally friendly materials); 2. Check whether the fixtures and other equipment used are HSF environmentally friendly (whether the production	Visual inspection	全检

		equipment of environmentally friendly products has HSF environmental labeling);		
1	Punching	1. Visually inspect the board to see if there are any defects such as dents, cracks, or deformations.	Visual inspection	5 pcs Ac=0Re=1
		2. Check whether the type and thickness of the board meet the requirements of the drawing.	Visual inspection and caliper	5 pcs Ac=0Re=1
		3. Calculate the unfolded dimensions based on the part drawing and check if they match the actual measured dimensions.	Tape measure, caliper	5 pcs Ac=0Re=1
		4. Refer to the drawings to check for any missed, excessive, or incorrect punches. Measure the actual hole spacing, size, and shape to see if they are consistent with the part drawings.	Visual inspection and caliper	5 pcs Ac=0Re=1
		5. The acceptance standards for hole tolerance defects are detailed in Appendix 11	Visual inspection and caliper	5 pcs Ac=0Re=1
2	Bending	1. Check whether the bending direction is correct according to the drawing, and whether there are any missing or excessive folds.	Visual inspection	5 pcs Ac=0Re=1
		2. Check if the bending dimensions are consistent with the drawings. (* Embedded double door external dimensions - width needs to be controlled with a negative tolerance of -0.5)	Caliper	5 pcs Ac=0Re=1
		3. Measure whether the bending angle is correct (see Appendix 4 for details)	Angle ruler	5 pcs Ac=0Re=1
3	Normal punching	1. Calculate the unfolded size based on the part drawing, check if it matches the actual measured size, and check the hole size.	Caliper	5 pcs Ac=0Re=1
4	Fitter	1. Check if the size of the counterbore is correct and if there are any omissions.	Calipers, go/no go gauges	5 pcs Ac=0Re=1
		2. Is the size of the tapping produced according to the drawing, with smooth threads that can pass through and stop.		
		3. Is the direction of the counterbore correct.	Visual inspection	5 pcs Ac=0Re=1
		4. Is there any phenomenon of missing pressure, mispressing, inability to press, or damage to the board on the	Visual inspection	5 pcs Ac=0Re=1

		surface.		
		5.* Reliability test for push and pull force of riveted parts	Reliability Test Guide	1 pc/day
5	Welding	1. The welding size, position, and direction shall be consistent with the requirements of the drawing.	Visual inspection , caliper, tape measure	5 pcs Ac=0Re=1
		2. The welding appearance should be free of welding defects such as oil stains, burning through, undercutting, incomplete welding, slag inclusion, porosity, shrinkage, cracks, poor forming, spatter, weld nodules, incomplete fusion and incomplete penetration.	Visual inspection	5 pcs Ac=0Re=1
		3. Is the selection of welding method correct.	Visual inspection	5 pcs Ac=0Re=1
		4. If the verticality of the welded structure is not specified with a tolerance, it shall be tested according to the general tolerance specified in GB1804, as detailed in Appendix 1	Tape measure, caliper	5 pcs Ac=0Re=1
		5. The flatness of the cabinet door and side panels meets the requirements (according to the requirements of each cabinet drawing). If the drawing does not require a requirement of 5mm or less, they can only be concave inward.	Feeler gauge, vernier caliper	5 pcs Ac=0Re=1
		6. Smooth transition between weld seam and base metal; The weld seam reinforcement is between 0-3mm; Whether the number of welding points meets the requirements of the drawing;	Visual inspection and caliper	5 pcs Ac=0Re=1
		7 * Welding strength reliability test: Hammer impact method is used for testing, selecting visually good parts, with the bolt facing upwards and the hammer vertically striking the bolt from top to bottom until the plate deforms (indents). The solder joints should not have fractures, cracks, or detachment.	Reliability Test Guide	1 pc/day
6	Polishing	1. The polishing surface is smooth and even, and whether the polishing operation distinguishes between rough and fine grinding operations.	Visual inspection	5 pcs Ac=0Re=1
		2. The surface of the product has no missed grinding, no welding marks that have not been polished clean, no strip-shaped polishing marks, and a pit depth of less than	Caliper	5 pcs Ac=0Re=1

		0.25mm.		

Note: 1. Special process: Welding

2.The marked * item is a reliability test item, and the test method is detailed in the Reliability Test Operation Guide.

3.If the order quantity is less than the sampling quantity, a full inspection will be conducted.

4.The inspection items with * * are only applicable to orders with environmental requirements.

5.4 Part processing acceptance

5.4.1 The dimensions, shapes, positions, and machining roughness specified in the technical requirements of the pattern design shall be inspected and accepted in accordance with the requirements of the pattern design.

5.4.2 For inspection and acceptance without specified requirements in the design, the relevant requirements in 5.5 shall be followed for inspection and acceptance.

5.5 Inspection and acceptance regulations for machined parts without specified technical requirements in the drawings

5.5.1 Linear dimensions shall be inspected and accepted according to level m in Appendix 3. Pay attention to taking (+) for inclusive relationships, (-) for inclusive relationships, and (±) for non inclusive relationships.

5.5.2 Angle: Conduct inspection and acceptance according to the following two situations, taking (+) for inclusive relationship, (-) for inclusive relationship, and (±) for non inclusive relationship.

5.5.2.1 The bending angle of the bent part shall be executed in accordance with the provisions of Appendix 6.

5.5.2.2 The punching angle of the punched parts shall be executed according to the provisions in Appendix 7.

5.5.3 The straightness and flatness shall be inspected and accepted according to the following two situations

5.5.3.1 The straightness and flatness of the formed surfaces of flat stamped parts (flat parts processed by punching) and formed stamped parts (parts processed by bending, stretching or other forming stamping) shall be determined in accordance with the provisions of Appendix 8.

5.5.3.2 The straightness of the bending line of the bent part shall be determined in accordance with the provisions of Appendix 9.

5.5.4 Coaxiality and symmetry, whether for flat or formed stamped parts, shall be carried out in accordance with the provisions of Appendix 10.

5.6 Appearance inspection and acceptance regulations

5.6.1 Burr requirements

For cold stamped parts, the machining burrs shall be inspected and accepted in accordance with the provisions of Appendix 5. For parts with clear requirements for burrs, the final inspection and acceptance of the parts shall be carried out according to the technical requirements of the drawing.

6. Unqualified products

When any unqualified are found during the process inspection, it is necessary to label the unqualified, preliminarily analyze the reasons, and make written records. The testing room will initiate a quality feedback form OA feedback process to provide timely feedback to relevant departments. Follow the "Unqualified Product Control Procedure" specifically

7. Related documents

"Unqualified Product Control Procedure" KD02-ZL-0012

8. Related Records

"Process Inspection Record Form" KD04-JC-0006

"Quality feedback form" KD04-JC-0004

"Raw Material Quality Feedback Form" KD04-JC-0003

9. Appendix

Appendix 1 Tolerance of Verticality (Unit: mm)

	~120	>120~400	>400~1000	>1000~2000	>2000~4000
≤3	0.5	1.0	1.8	2.6	4.0
>3~6	1.0	1.5	2.4	4.0	5.5

Appendix 2 Tolerance of Gap (Unit: mm)

	Same gap	Parallel clearance
≤1000	1.0	2.0
>1000	1.5	2.5

Appendix 3 The numerical punching of the limit deviation value for general tolerance linear dimensions in GB1804

Tolerance	Dimension (mm)							
	0.5~3	>3~6	>6~30	>30~120	>120~400	>400~1000	>1000~2000	>2000~4000
Accuracy f	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	-
Medium m	**±0.1**	**±0.1**	**±0.2**	**±0.3**	**±0.5**	**±0.8**	**±1.2**	**±2**
Rough c	±0.2	±0.3	±0.5	±0.18	±1.2	±2	±3	±4
Coarsev	-	±0.5	±1	±1.5	±2.5	±4	±6	±8

Appendix 4 The maximum deviation value of the angle dimension is determined by the length of the shorter side of the angle

Tolerance	Dimension，mm				
	~10	>10~50	>50~120	>120~400	>400
Accuracy f	**±1°**	**±30′**	**±20′**	**±10′**	**±5′**
Medium **m**					
Rough c	±1°30′	±1°	±30′	±15′	±10′
Coarsev	±3°	±2°	±1°	±30′	±20′

Appendix 5: acceptable range of burr height for general punching parts

Size (plate thickness mm)		≤1.2	＞1.2~1.5	＞1.5~2.5	＞2.5~3.5	＞3.5
		Burr height				
Type	Sprayed parts in normal production	10%	8%	6%	5%	4%
	New mold	5%	5%	4%	3%	2%
	Electroplated parts and parts without surface spraying in normal production	5%	5%	4%	3%	2%

Appendix 6 Tolerance of Bending Angle

Bending angle	Tolerance
≤90°	±2°00′
＞90°	±3°00′

Appendix 7 Tolerance of Punching Piece Angle

Short edge length (mm)	~30	＞30~120	＞120~400	＞400~1000
Tolerance	±2°	±1°	±0°30′	±0°20′

Appendix 8 Straightness and Flatness Tolerance Numbers for Stamped Parts

Size (length)		≤10	＞10~25	＞25~63	＞ 63~160	＞160~400	＞400~1000	＞1000
		Tolerance						
Type	Flat	0.06	0.10	0.15	0.25	0.40	0.50	0.90

	stamped parts							
	Formed stamping parts	0.12	0.20	0.30	0.50	0.80	1.20	1.80

Appendix 9 Bending Line Straightness Tolerance of Bending Parts

Size (length)		~120	＞120~400	＞400~1000	＞1000~2000	＞2000~4000
		Tolerance				
Thick ness	≤3	0.3	0.5	0.9	1.2	1.6
	＞3~6	0.5	1.0	1.5	2.0	2.8

Appendix 10 Coaxiality and symmetry of stamped parts without specified tolerances

Size (length)		≤3	＞3~10	＞ 10~25	＞ 25~63	＞63~160	＞ 160~400	＞ 400~1000	＞1000
		Tolerance							
Type	Flat stamped parts	0.25	0.40	0.60	0.80	1.00	1.20	1.60	2.00
	Formed stampin g parts	0.50	0.80	1.20	1.60	2.00	2.50	3.20	4.00

Appendix 11 Dimensional Tolerance and Geometric Tolerance Defect Table

No	Name	Description	Requirements
1	Process leakage hole	1. Drainage holes required for electroplating or spraying processes; 2. Due to the waterproof requirements of the product itself, a leakage hole is opened at the lower end of the door panel; 3. The hole shape includes circular or square holes, as well as other types of holes.	The size of the leakage hole is not strictly controlled, with a negative tolerance of ≥ -0.5mm and a maximum size of ≤ -6mm in the direction of the end face width
2	Process hook hole	Hanger holes required for electroplating or spraying processes.	
3	Installing lumbar hole	The waist circular through-hole designed for assembly of structural components.	Length direction: Control error ± 5mm, but there should be no variation in the hole shape

			Width direction:+1mm/-0mm
4	Installing circular holes	Round through holes designed for assembly purposes in structural components	Error:+0.5mm/-0mm
5	Non installation square hole	Non assembly marking holes and avoidance holes for structural components.	Regardless of diameter control
6	Reinforcement opening	Avoidance holes required for electroplating or spraying processes.	The aperture and pore size are not controlled, but there must be no shape variation
7	Layer shelf/panel waist hole	Waist hole for non fitting surfaces of shelves/laminates used for placing equipment.	Regardless of control
8	Door mesh hole	Round or hexagonal holes on doors or structural components that require heat dissipation.	The mesh size is based on our existing mold, and the mesh layout is not controlled, but the ventilation rate needs to meet the requirements
9	Hinge mounting hole	The structural components that require the installation of hinges should have circular through holes.	Strict control is required according to the drawing requirements
10	Axis pin hole	Round through holes that require welding or installation.	
11	SR fixed buckle hole	Fixed hole for fitting with SR fixing buckle.	

2、 **Remarks:**

1. The above standards only apply to products designed by our technical personnel and do not include products with drawings provided by customers.

2. Products from the same batch or order must ensure consistency.

3. Unmarked linear and geometric dimensional tolerances shall be executed according to GB/T1804-M level.