



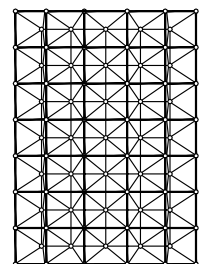
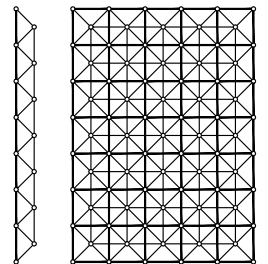
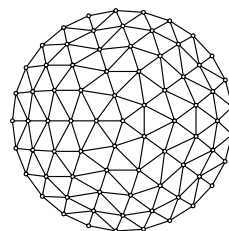
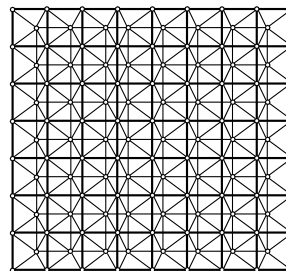
Space Frame Systems



Technical Specifications

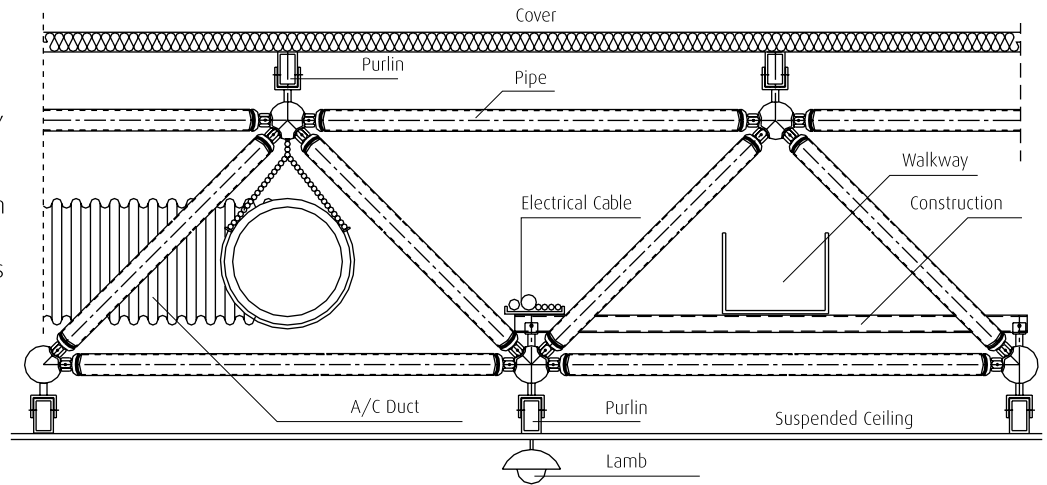
Specification

- TRIANGULAR MODULES are efficient in transferring stresses. With little to no bending moments, they are more stable and stronger than 90 degree frames.
- 3-D LATTICE STRUCTURES can cover larger areas at a lower weight. The many lightweight members in a lattice structure distribute loads evenly and efficiently through the structure in three dimensions, making it more efficient and lighter than a conventional two-dimensional frame.
- DOUBLY CURVED GEOMETRIES have the ability to span long distances. Their curvature transfers stresses more efficiently with little to no bending moments, making them stiffer than conventional flat surfaces. Doubly curved geometries now offer infinite possibilities of free-style designs.



Application Fields

- Industrial Structures (Factory, Warehouses, Antrepo, Hangar etc.)
- Spors Complexes(Swimming Pools, Sport halls, tribunes, etc.)
- Multipurpose Halls (Theatres, Concert Halls, Cinemas, Convention Centres, Exhibition Halls,etc.)
- Hangar Buildings, Canopies, Stands etc.
- Shopping centres, showrooms, transportation structures, school structures, etc.
- Fair stands
- Scaffoldings, load scaffoldings etc.

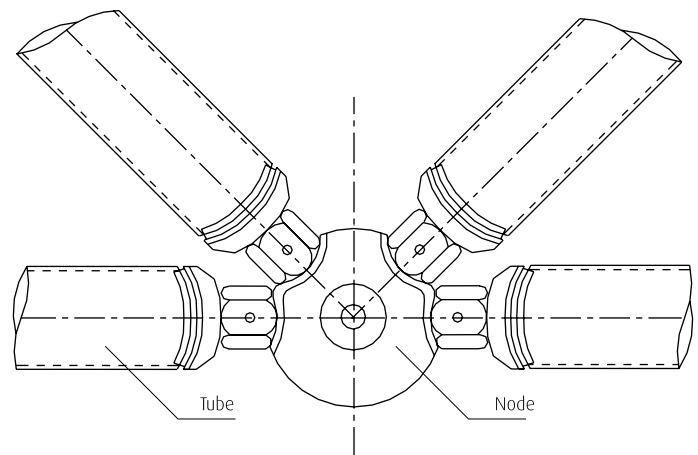


Advantages

- Since the space frame systems can be designed in 3d and can statically work in two sides big spans can be passed with acceptable system heights.
- For thermal effects its structure is more flexible than the other structures.
- Cantilevers can be easily applied to structure in both four sides.
- AC Ducts, electrical and collateral canals, catwalks, lightning systems can be easily hanged to space frames.
- System can be covered with all kind of cladding systems from outside and from inside false ceiling can be easily applied if necessary.
- Space Frame Systems are demontable.
- It can be easily transported by seafreight, trucks or air freight.
- Assembly of space frame systems are easy and quick.
- Can be either erected on ground or at site by scaffoldings and cranes.

Nodes

- Nodes are selected from $\varnothing 50$ mm to $\varnothing 400$ mm diameter shall be produced with C45 or AISI\SAE1050 quality material in conformance with the EN10083-2 standard.
- They are produced by hot forging or machining production techniques.
- All nodes shall be drilled and tapped by digitally controlled machines according to design calculations.



Tubes

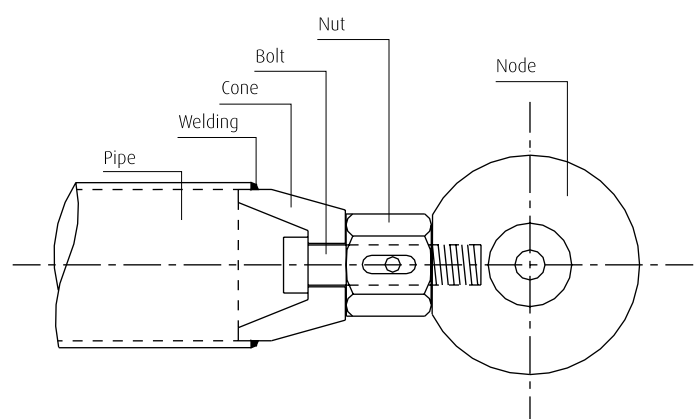
- All the tubes, whose sections are determined according to the tension and compression forces as per the design calculations can be both seamed or seamless tubes from S235JR (St 37-2), S275JR (St 44-2), S355J2G3 (St 52-3) quality steel sheets with high weldability property conforming to EN10025 standards.
- Tubes produced in conformance to DIN 2440, DIN 2441, DIN 1626, EN 10219 Standards are chosen from 26.9 mm to 324 mm according to the design calculations.
- Hot forged or machined cones of the same quality of the tubes are welded to each side by semi automatic gas shielded arc welding process.

Bolts

- All bolts shall be produced in conformance with EN 10083-1 standard and shall have isometric threads conforming to DIN 13-1.
- Strength classification shall be 6.8, 8.8, or 10.9 in compliance with the requirements of EN20898-1.

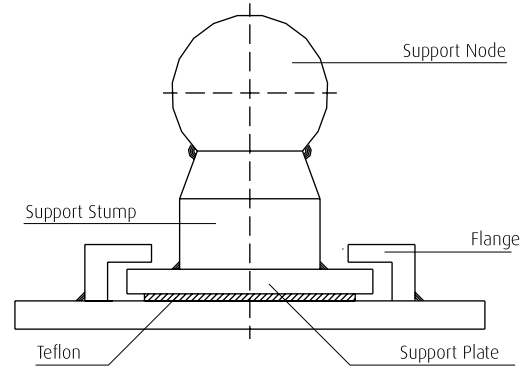
Nuts

- All nuts shall be produced from hexagonal shaped cold and \ or hot rolled S355J2G3 (St52-3) quality non alloyed steel and \ or AISI\SAE 1030 quality low alloyed steel.



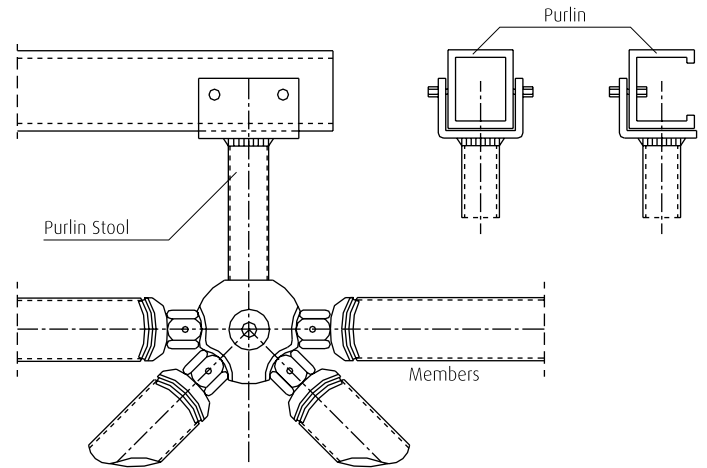
Supports

- Supports shall be produced with C45 or AISI\SAE 1050 quality material in conformance with the EN 10083-2 standard with hot forging and/or machining production techniques.
- All bolt connection holes are drilled and tapped by numerical controlled machines based on design calculations.
- Support flanges shall be of S235JR(St 37-2) material in conformance with E10025.
- Teflon plates shall be placed under the moveable supports.



Purlins, Purlin Stools

- Profiles that cladding is connected to are called purlins and assembled to space frame with stools in different heights based on slope and design calculations.
- They are selected from profiles with channel sections or box sections or build-up sections and can be in same or different colour with space frame.
- Purlins shall be of S235JR(St 37-2) material in conformance with E10025.
- Slope of the roof shall be provided with means of purlin stools.
- Connection of the purlin stools to the nodes shall be made by bolts.
- Purlin stools shall be of S235JR(St 37-2) material in conformance with E10025.



Covering

All roofs can be covered with steel single sheets or sandwich panels or polycarbonate panels or glasses or aluminium sheets.

Protection Against Corrosion

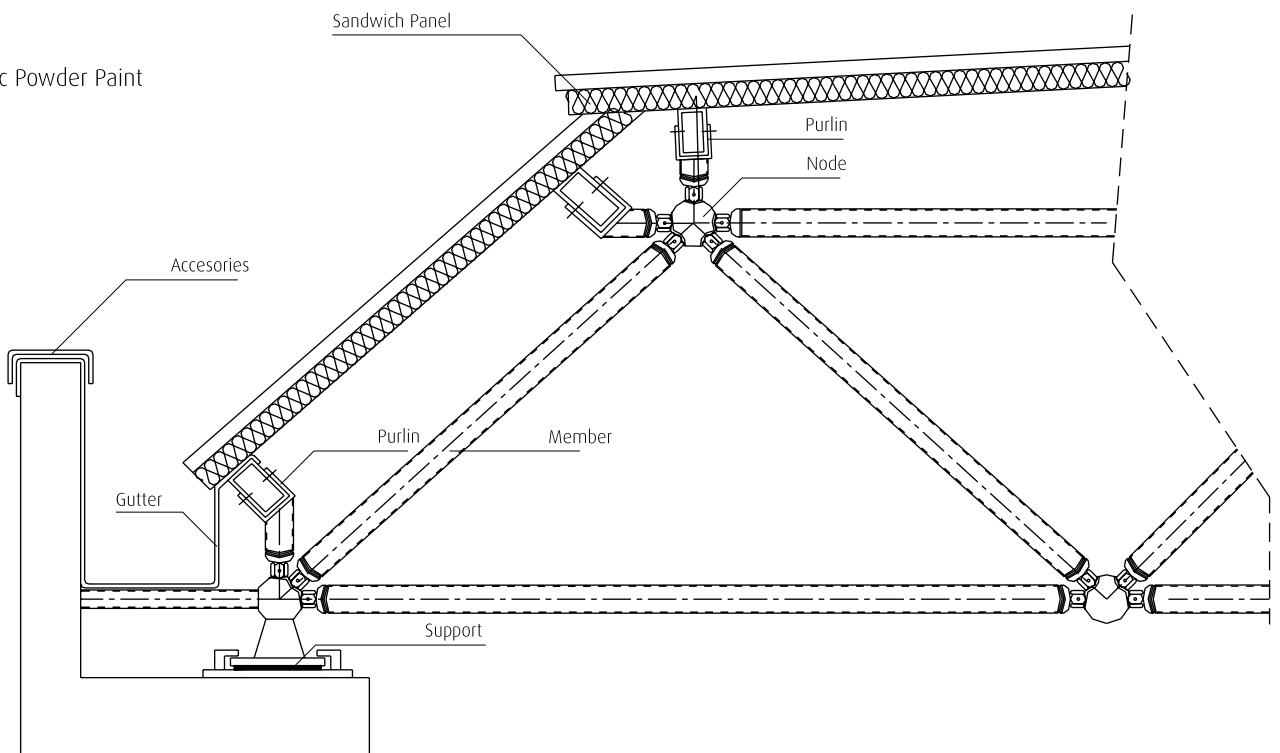
Space Frame elements protection against corrosion can be arranged by;

1. Galvanizing

- Hot Dipped Galvanizing
- Electrogalvanizing

2. Painting

- Electrostatic Powder Paint
- Wet Paint



1. Hot Dip galvanising

- Tubes, purlins and purlin stools are first cleaned in acid tanks to remove rust away and than shall receive electrostatic polyester powder coating of avarage 50-80 microns.
- If required tubes and purlins can be hot dipped galvanized in conformance with EN 1179 prior to powder coating.
- Nodes, Bolts and Supports shall be electro plated with avarage 25 micron zinc in conformance with ISO 20081.
- Slleves shall be hot dipped galvanized in conformance with EN 1179 .

2. Painting

- First of all tubes, purlins shall be cleaned by sand blasting and other mechanical methods.
- Cleaned materials paint with powder coating and shall be baked in oven at 200 °C.
- All pipes and/or other materials have been ~80 microns thickness.
- Nuts and nodes can be paint same color or different color like that pipes
- Color can be choose RAL catalogue.

Erection

Prior to erection general site conditions and condition of the structure on which space frame is to be erected shall be checked by an engineer of UZAY KONSTRUKS 9YON Engineer and unsatisfactory conditions are reported to main contarcotr to allow to start erection .

Erection shall be done strictly according to approved shop drawings.

Erection shall be done by professional erection crews based on Uzay Konstruksiyon Engineers instructions.

Erection can be done both on ground and lifted by cranes or at sight with helps of scaffoldings.

All bolts shall be correctly tightened.

All supports shall be correctly placed and rotated based on shop drawings.

Site welds of the supports shall be done by certified welders.



Uzay Konstruksiyon Sistemleri İnşaat San. ve Tic. Ltd. Şti.

İçerenköy Mah. Ali Nihat Tarlan Cad. Kartal Sk. Gülgez İş Merkezi No:12 D:7 34752 İçerenköy Ataşehir-İstanbul Turkey

T: +90 444 4 899 F: +9 0216 572 22 72

info@uk.com.tr

www.uk.com.tr