

STRUTTURE SPAZIALI
SPACE FRAME SYSTEMS ENGINEERING
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UZAY TAŞIYICI SİSTEMLERİ MÜHENDİSLİK MAKİNA VE YAPI SANAYİ TİCARET LTD. ŞTİ.

Le strutture reticolari spaziali UTS sono una costruzione prefabbricata costituita da aste tubolari e nodi sferici collegati tra di loro mediante avvitamento nei fori filettati dei nodi I bulloni furiuscenti dai doni saldati alle estremita delle aste in accordo con la geometria del progetto.

Impieghi

Le strutture reticolari spaziali UTS offrono una soluzione staticamente, architettonicamente ed economicamente ottimizzate per la realizzazione di coperture di centri sportivi, piscine, tribune, sale congressi, conferenze, centri commerciali, pareti verticali, cupole, piramidi, forme libere e coperture industriali.

Progettazione

La flessibilita' dei sistemi reticolari spaziali permette la definizione geometrica di qualunque figura nello spazio e UTS mediante un sofisticato software dedicato risolve rapidamente qualunque progetto nei sui contenuti architettonici, geometrici e statici.

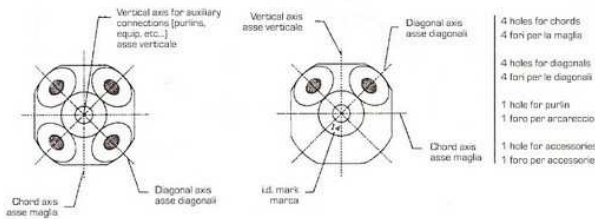
Aste

Le aste sono realizzate in profili tubolari di diverso diametro in acciaio nelle qualita' S235JR-S275JR-S355JR per sopportare i carichi progettualmente previsti. La compressione viene trasferita nel nodo dal contatto diretto del cono e del dado. La trazione nel tubo viene trasferita per mezzo del cono e del bullone.

Nodi

I nodi consistono in sfere d'acciaio in qualita C45 stampate a caldo dal pieno provviste di fori filettati per il collegamento delle aste realizzati come dal progetto.

10 Holes machined node for square off-Set geometry / Nodo con 10 fori per la maglia quadrata



Plain node / Sfera

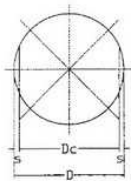


Table of standard node sizes / Tabella dei nodi standard

D (mm)	S (mm)	Dc (mm)	Max Bolt / Bullone
60	2.50	55	M12
75	3.50	68	M16
90	4.00	82	M18
110	5.00	100	M24
132	6.00	120	M30
154	7.00	140	M42
180	10.00	170	M48
220	11.00	198	M56
240	11.00	218	M64

D: Node diameter / Diametro nodo
S: Node surface cut depth / Profondita del taglio nodo
Dc: Max surface cut distance / Distanza massima del taglio nodo



Antalya Airport Temporary Domestic Terminal / Turkey



Salerno Archeologic Museum / Italy



Webasto Istanbul Plant / Turkey

Protezione contro la corrosione

Le aste, i coni e gli arcarecci sono protetti con zincatura a caldo sulle superfici interne e esterne mentre i nodi e i bulloni sono elettrolitici.

Verniciatura

Dopo la zincatura a richiesta tutti i materiali vengono verniciati con un ciclo che consiste in agglomerazione per frettaggio in campo elettrostatico di polveri di resine poliesteri contenenti carbonile e fusione delle resine a forno a 200 C ed essiccazione in presenza di isocianurato di trigliceridi. Resistenza alla temperatura da -40C a +200C ed ia raggi ultravioletti. Colore scelta su tabella Ral.



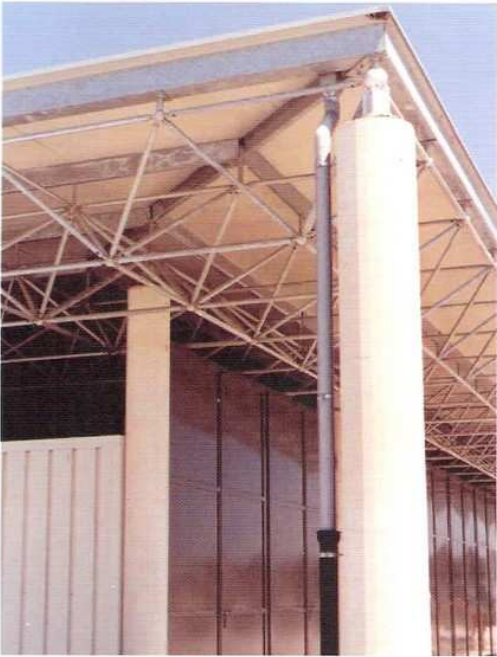
Como Ipebnet Shopping Mall / Italy



Cuneo Market Hall / Italy



Rome Airport Domestic Flights Check-in Hall / Italy



Stalle di Sosta - Cuneo Market / Italy

Protection against corrosion

Space frame tubular members, purlins, and all other components like steel columns, bracings, etc. are hot dip galvanized. Nodes and all connection elements like bolts, sleeves, and pins are electro-galvanized.

Finishing

All space frame members are electrostatic powder coated in colors chosen from Ral catalogue. Mechanical surface cleaning to avoid hot dip galvanized surface defects and preheating to release the gas bubbles applied to tube and purlin members before powder coating.

UTS space Frame System is fully prefabricated system consisting of tubular members and spherical connectors assembled together according to the geometry of the chosen structural system by the means of end bolts and nuts of the members.

Applications

UTS space frame structures offers economic solutions for sport halls, swimming pools, industrial buildings, exhibition halls, aircraft hangars, warehouses, showrooms, conference and concert halls, shopping malls, curtain walls, canopies, pedestrian bridges, advertisement boards and towers, etc.

Design

UTS has fully computerized design facility offering very fast and flexible design environment to the architects and engineers to solve their structural and architectural problems and develop effective system solutions based on international design codes.

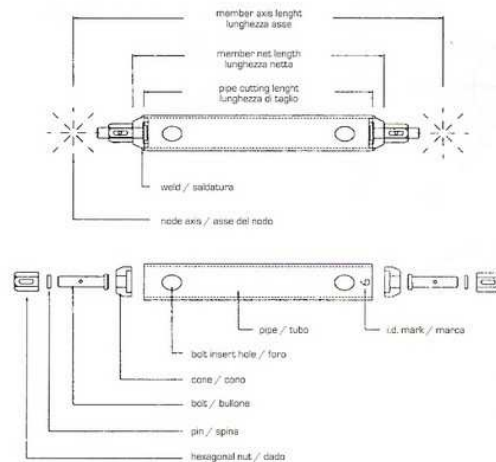
Member

The member of UTS space frame system consists of a steel (grade S235JR-S275JR-S355JR, stainless steel or aluminium also possible) circular hollow section tube and two coaxial cones welded at both ends. The member is designed to carry axial tensile and compressive forces imposed by the loads and clear span of the structure.

Node

The node is a solid steel sphere made by hot forging technique and drilled/ threaded/ surface flattened according to the connection angle of the members and according to the diameter of the connection bolt.

Member components / Componenti del membro



TNT Logistic Warehouse / Turkey

Arcarecci

Gli arcarecci costituiscono una orditura secondaria realizzata con profili aperti C, U, I o con profili scatolari imbullonati con piedini di altezza variabile ai nodi di estradosso tale da creare il piano di appoggio della copertura come lamiere grecate, pannelli, polycarbonato, vetro.

Purlins

To connect the cladding on the space frame structure purlin system is requested. The purlin members are mainly steel box section, C, U, I (grade S235JR usually) profiles which are chosen according to the type of the cladding material and the purlin span.



Samatya Pedestrian Overpass-Istanbul / Turkey
Curved arch purlins system



Kazan Universal Sports Hall
Catwalk system / Russia



Kazan Theatre Hall Stage Roof / Russia

Montaggio

La grande flessibilità delle strutture spaziali consente varie tecniche di montaggio secondo le condizioni del cantiere, premontaggio a terra e sollevamento in quota con gru, montaggio in quota su ponteggio o sistemi misti.

Erection

Assembly on scaffolding system, assembly with mobile scaffolding and temporary supports, erection by crane lifting of ground assembly or the combination of any of these methods can be chosen according to the site conditions.

Imballaggio

Tutti i materiali vengono consegnati accuratamente imballati in casse di legno.

Packing

All members are packed inside wooden cases with plastic cover protection.

Table of standard members Tabella dei tubi standard		Allowable member forces in tons Forze ammissibili del membro in t		Steel grade S235JR Qualità di acciaio S235JR	
Type Tipo	Diameter x thickness (mm) Diametro x spessore (mm)	Tension Tirazione	Compression (w=1) Compressione (w=1)	Bolt Bullone	Nut dado
1 1/4"	42.4x3.20	3.00	2.35	M12-10.9	19/13
1 1/2"	48.3x3.20	3.00	4.80	M12-10.9	24/13
2"	60.3x3.80	6.30	6.80	M16-10.9	27/16
2 1/2"	76.1x3.60	9.10	9.00	M20-10.9	36/22
3"	89.9x4.00	10.30	10.30	M20-10.9	36/22
	89.9x4.00	13.50	13.50	M24-10.9	41/26
4"	114.3x4.50	7.49	15.08	M20-8.8L	41/22
	114.3x4.50	7.49	18.00	M20-8.8L	46/22
	114.3x4.50	17.50	16.50	M27-10.9	46/29
5"	139.7x5.00	7.49	20.50	M20-8.8L	46/22
	139.7x5.00	20.50	23.50	M27-10.9	50/29
	139.7x5.00	20.50	28.50	M27-10.9	55/29
	139.7x5.00	26.00	19.00	M30-10.9	50/32
	139.7x5.00	33.00	23.50	M33-10.9	55/35
6"	152.4x5.00	38.10	18.00	M36-10.9	55/38
	152.4x5.00	20.50	39.00	M27-10.9	55/29
8"	165.1x6.00	43.50	30.00	M42-10.9	65/44
	219.1x6.30	20.40	46.30	M30-10.9	70/32
	219.1x6.30	46.30	44.20	M42-10.9	70/44
	219.1x6.00	30.30	54.08	M33-10.9	70/35
	219.1x6.00	58.33	35.82	M48-10.9	70/50

Tubes of different thicknesses and diameters with higher steel grades S235JR and S355JR are also used according to the requirements of the project. Aluminum and stainless steel members are also possible.

Tubi di diverso diametro e spessore con grado di acciaio più alto S235JR and S355JR vengono utilizzati secondo la richiesta del progetto. Membri in alluminio e acciaio inossidabile possono essere fabbricati.



Supports packing

Support node



Steel Columns packing



Erection by crane, Cuneo Market Hall / Italy



Erection on scaffolding, Catania Sports Hall / Italy



Truck Loading



Microsoft Turkey Cebit 2001 Fair Stand



Genpa Cebit 2000 Istanbul Fair Stand

Stand di Fiera

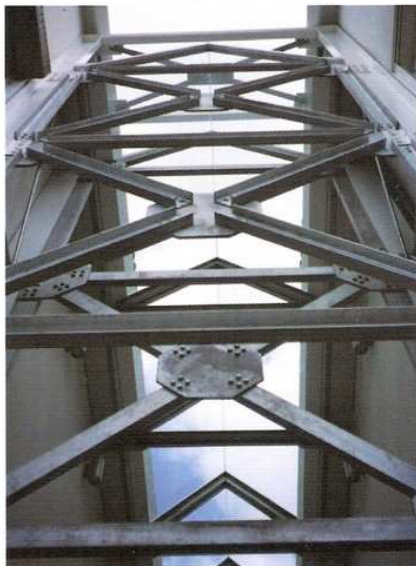
Progettazione e realizzazione dei stand di fiera con componenti di strutture reticolari in alluminio.

Exhibition Stands

Design, fabrication and erection of aluminum space frame components, aluminum framing for fair stand structures and display units.



Istanbul Technical University - Elementary School Hall



JN Project - Structural Steel, Istanbul / Turkey



MG - Rover Autoshow 2001 Fair Stand



Telsim Cebit 2000 Istanbul Fair Stand



Askaynak Tatef 1999 Fair Stand



Otokar - Land Rover Plant Structural Steel Framing / Turkey

Carpenteria strutturale e architettonica

Progettazione e montaggio di carpenteria strutturale e architettonica.

Structural and Architectural Steel Framing

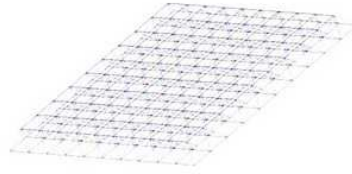
Design, fabrication and erection of structural and architectural steel frames.



JN Project - Glass Skylight Framing / Turkey



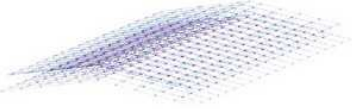
Cuneo Market Hall Entrance Canopy / Italy



Iperbennet Shopping Center Canopy Cirie / Italy



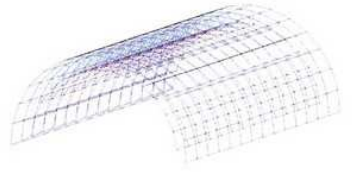
Rome Railway Canopies / Italy



Tofaş - Fiat Izmir Fair Stand / Turkey



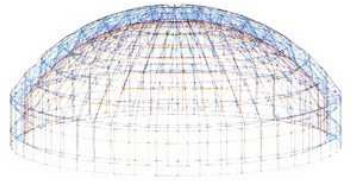
Garmiel Bus Stop



Weizman Institute Entrance Hall



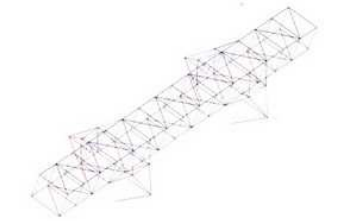
Avene Hcohsen Sports Hall



Otokar - Land Rover Plant Canopy / Turkey



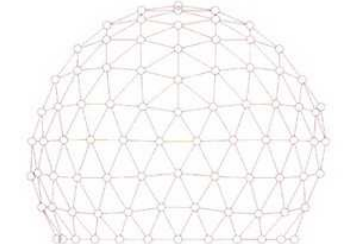
Cuneo Market Office Building



Izmir Rail Transport System Canopies / Turkey



Otokar - Land Rover Plant Warehouse / Turkey



Catanzaro Vegetable Market Entrance Canopy / Italy



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