



Custom-Built.  
Code-Compliant.  
Globally Proven.

**ALUMINUM  
GEODESIC  
DOME ROOF**

**PRECISION ENGINEERING  
FOR SUPERIOR DOMES**

**ATECO**   
**GLOBAL INDUSTRIES**  
“World-Wide Integrated Engineered Solutions”

# INTEGRATED ENGINEERING SOLUTIONS

Advanced Products & Systems for Storage Tanks

## Who We Are

Ateco Global Industries is a specialized engineering and manufacturing company providing comprehensive top-of-tank solutions for aboveground storage tanks. Our product portfolio is designed to meet the demanding requirements of the energy, petrochemical, water, and process industries — ensuring performance, safety, and environmental compliance across global markets.

With headquarters in Istanbul and strategically located production facilities in Turkey and Saudi Arabia, we combine deep technical know-how with modern fabrication technologies to deliver turnkey solutions across the globe.

## What We Do

We design, engineer, and manufacture a wide range of products and systems for atmospheric and low-pressure storage tanks:

- Aluminum Geodesic Dome Roofs
- Internal Floating Roofs (IFR)
- Floating Roof Seal Systems
- Roof Drain Systems
- Floating Suction Lines
- Tank Venting Equipment
- Oil Skimmers & Emission Control Devices
- Custom-Fabricated Tank Accessories

## Where We Operate

**Headquarters:** Istanbul, Turkey

**Manufacturing Facilities:**

Kocaeli Turkey

Kütahya Turkey

Riyadh Saudi Arabia

**Regional Office:** Dubai, United Arab Emirates

**Export Reach:** 20+ Countries across MENA, Europe, and Central Asia

## Our Vision

To be the global benchmark in engineered storage tank solutions through innovation, reliability, and world-class manufacturing.

## Our Mission

To deliver advanced, modular systems that elevate the safety, efficiency, and environmental performance of storage tank operations worldwide.

# ALUMINUM GEODESIC DOME ROOF

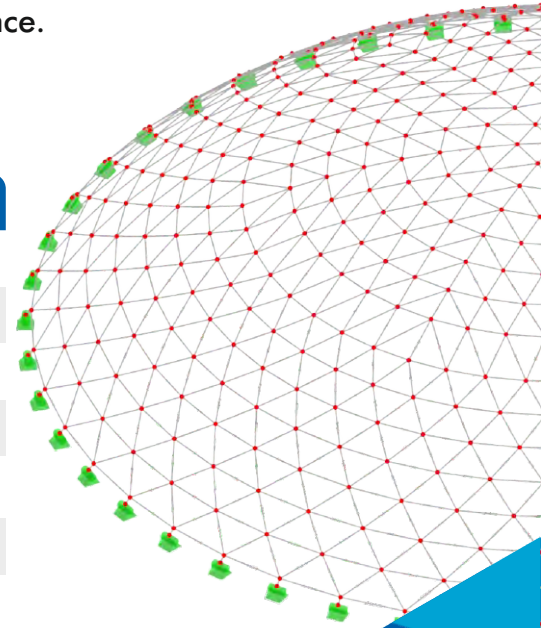
Engineered For Reliability & Performance

## Overview

Ateco Aluminum Geodesic Dome Roof systems are precision-engineered structures specifically designed to offer the highest reliability, environmental safety, and operational efficiency for storage tanks worldwide. Utilizing advanced materials, proven design principles, and modular construction, Ateco domes deliver exceptional long-term value and performance.

## Technical Specifications

| Specification        | Details                                                |
|----------------------|--------------------------------------------------------|
| Material             | AL 6061-T6 Structural Aluminum                         |
| Structural System    | Double Web I-Beam + Bolted Batten Connections          |
| Sealing System       | Premium Silicone Gaskets, Stainless Steel Fasteners    |
| Compliance Standards | API 650 (Appendix G), AWWA D108, EN 1999 (Eurocode 9)  |
| Diameter Range       | Ø6 m – Ø100+ m                                         |
| Design Loads         | Engineered for High Wind, Snow, and Seismic Conditions |
| Installation Type    | Fully Modular, Non-Welded, Bolted Construction         |
| Fire Safety          | Non-Combustible Aluminum Panels with Secure Clamping   |



## Advantages

### Durability Beyond Compare

Ateco Aluminum Geodesic Dome Roofs are built with 6061-T6 structural aluminum, offering exceptional resistance to corrosion even in harsh environments such as coastal, desert, or industrial regions. With no need for painting or coating, lifecycle maintenance costs are minimized. The structural system is designed for a lifespan of 25+ years with negligible degradation, ensuring long-term reliability and reduced operational expenditure.

### Operational Efficiency

The modular and lightweight design enables fast on-site assembly without welding, reducing construction schedules and tank downtime. Its optimized strength-to-weight ratio lowers the load on tanks, minimizing reinforcement requirements. Components are prefabricated and containerized for efficient transport and logistics, while the design remains fully compatible with both new and retrofit storage tank applications.

### Environmentally Responsible Design

Aluminum is 100% recyclable, maintaining its strength and quality through repeated use, supporting circular economy principles. Vapor-tight sealing significantly reduces VOC emissions, ensuring compliance with strict environmental standards. Additionally, the lightweight structure contributes to lower energy consumption during manufacturing, transportation, and installation compared to steel alternatives.





## APPLICATIONS & INDUSTRY SECTORS

Trusted Solutions for Storage Tanks Across Key Global Industries

### Where Our Domes Are Used

Ateco Aluminum Geodesic Dome Roofs are trusted across a wide range of industries worldwide. In the oil & gas sector, our domes are installed on crude oil and refined product terminals, ensuring maximum safety and emission control. Within petrochemical facilities, they protect chemical feedstock and derivatives while maintaining strict environmental compliance.

For water and wastewater applications, aluminum domes safeguard potable water reservoirs and treatment plants with unmatched corrosion resistance. In industrial storage and bulk terminals, our roofs provide reliable protection for both liquid and solid materials, ensuring operational efficiency. Finally, in the energy and power generation industry, Ateco domes are chosen for their durability and compatibility with thermal and renewable energy storage tanks.





## **100% IN-HOUSE PRODUCTION**

Ensuring superior quality by controlling every stage of production in-house.



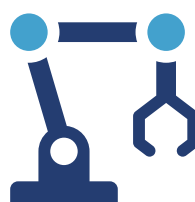
## **BEST SUPPORT**

Comprehensive technical support, ensuring seamless project execution.



## **GREAT DESIGN IDEA**

Innovative engineering solutions that redefine excellence in design.



## **CUTTING-EDGE TECHNOLOGY**

Equipped with state-of-the-art technology, delivering unmatched precision and efficiency.

# MANUFACTURING & R&D EXCELLENCE

Precision Production, Continuous Innovation, Proven Reliability

Ateco Global Industries operates advanced manufacturing facilities in Turkey (Kütahya & Kocaeli) and Saudi Arabia (Riyadh), equipped with state-of-the-art CNC machining, aluminum forming, and automated fabrication technologies. Each dome component — from precision-cut panels to load-bearing joints — is produced under strict quality control protocols to ensure consistency, accuracy, and long-term structural integrity.

Our in-house R&D department continuously refines material design, component geometry, and assembly techniques through simulation-based optimization and physical testing. This integration of research and production enables Ateco to deliver lighter, stronger, and more durable aluminum dome systems tailored to each project's structural and environmental conditions.

Ateco's production strategy follows the principle of intelligent lightweight construction, combining mechanical performance with material efficiency. Through parametric modeling and weight optimization, every structure achieves superior strength-to-weight ratios, translating to faster installation, reduced transport cost, and extended service life.

## Key Features & Capabilities

### **In-House Fabrication**

All dome components are fully manufactured within Ateco facilities, ensuring end-to-end control over every production stage — including cutting, forming, welding, and surface treatment. This integrated fabrication approach eliminates external dependencies and guarantees consistent dimensional accuracy across all assemblies, reducing on-site adjustments and accelerating installation.

### **Quality Assurance**

Each part undergoes strict inspection and traceability checks according to ISO 9001-based quality assurance procedures. From raw material certification to final fit-up testing, every step is documented and verified to meet Ateco's internal standards — which often exceed international requirements, ensuring zero-defect delivery.

### **Innovation & Development**

Our R&D division works continuously to refine design and production processes through FEA simulations, prototype testing, and field feedback analysis. This ongoing innovation ensures superior product reliability, structural efficiency, and adaptability to evolving client and industry needs, while driving Ateco's next-generation dome technologies.

### **Corrosion Resistance**

Ateco uses marine-grade aluminum alloys (typically 3000 and 5000 series) that naturally resist corrosion and environmental degradation. Unlike coated steel structures, Ateco domes require no paint, eliminating issues such as peeling, rusting, or chemical maintenance — even in coastal or high-humidity environments.

### **Low Lifetime Maintenance**

The inherent corrosion resistance and lightweight design of aluminum minimize structural stress, resulting in extended service life with virtually zero maintenance requirements. This delivers measurable long-term savings in OPEX and lifecycle management. Over time, this translates into lower operational costs and significantly reduced downtime for tank owners and operators.



# DESIGN & ENGINEERING CAPABILITIES

Engineered for Strength, Precision and Performance

## Verified Engineering for Unmatched Structural Integrity

At Ateco, engineering precision goes beyond compliance. Every geodesic dome is designed and validated using advanced 3D CAD tools, Finite Element Analysis (FEA), and real-world load simulations. Each structure undergoes multi-stage verification — including wind uplift mapping, snow load simulations, and stress concentration analysis — to ensure complete structural reliability under API 650, Eurocode, and AWWA D108 standards.

Through iterative analysis, our engineers optimize uplift resistance, joint stiffness, and panel deflection performance to guarantee long-term durability even in extreme environments such as coastal, desert, or seismic zones.

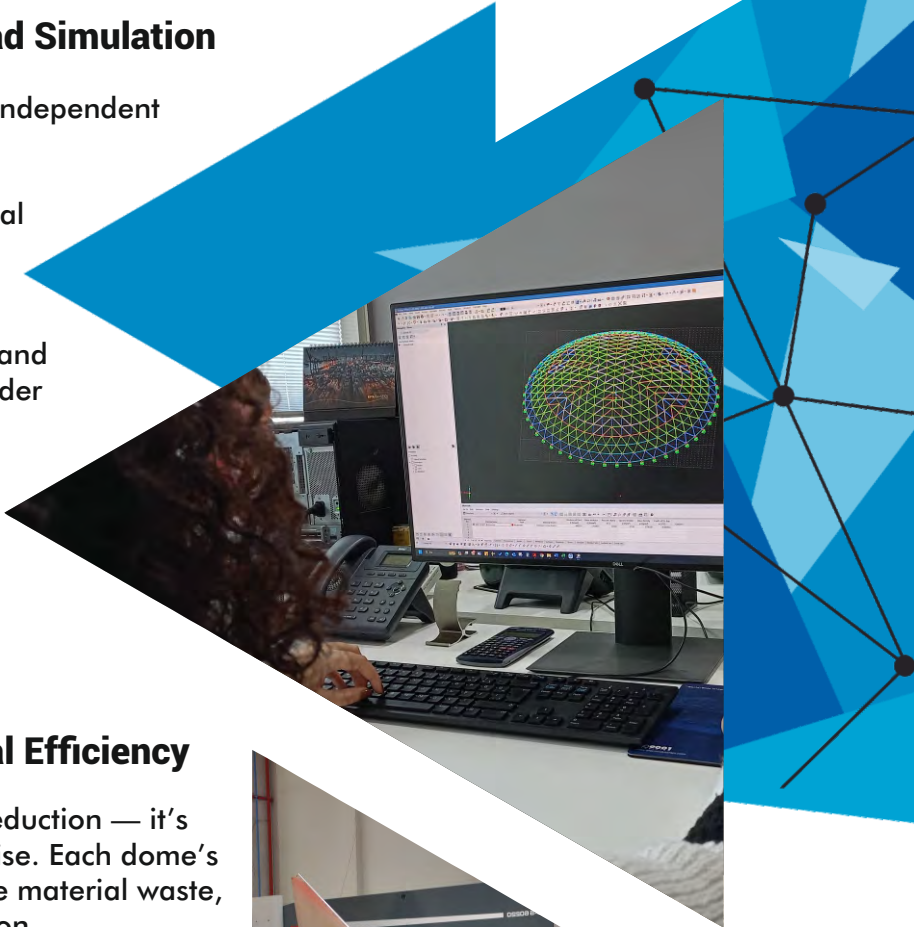
## Engineering Verification & Load Simulation

Every Ateco dome passes through a series of independent verification checkpoints.

**FEA Stress Mapping:** Full-scale computational modeling of load transfer and point stress behavior across the dome.

**Dynamic Load Testing:** Verification of uplift and lateral forces to validate field performance under wind speeds exceeding 300 km/h (186 mph).

**Peer-Reviewed Validation:** All designs are reviewed and approved by certified structural engineers before release to production. This rigorous process ensures that every dome performs not only in theoretical models but also under dynamic real-world conditions.



## Design Optimization & Material Efficiency

Optimization at Ateco isn't limited to weight reduction — it's about maximizing efficiency without compromise. Each dome's geometry is algorithmically refined to minimize material waste, simplify assembly, and enhance load distribution.

By applying parametric design tools and adaptive modeling, Ateco achieves measurable gains in production speed and reliability while maintaining full structural integrity. This balance of innovation and practicality defines Ateco's engineering excellence.



## Key Outcomes

- ✓ Up to 15% reduction in aluminum usage through optimized geometry.
- ✓ Shorter installation time via pre-fabricated modular components.
- ✓ Higher lifespan consistency due to stress-distributed panel alignment.



American  
Petroleum  
Institute



[www.atecoindustries.com](http://www.atecoindustries.com)

# STRUCTURAL COMPOSITION

## Precision-Engineered Dome Framework

### Overview

Ateco's aluminum geodesic dome structure is defined by the synergy of high-strength materials and precise engineering geometry. Each panel, node, and beam is integrated into a load-bearing network that ensures uniform stress transfer, dimensional stability, and long-term reliability under environmental loads. The double-web I-beam ring system enhances rigidity while reducing total weight, creating a superior strength-to-mass ratio compared to conventional steel roof assemblies. Combined with precision-machined hubs and interlocking panels, the system maintains full alignment throughout temperature variations and seismic movements.

#### Fasteners & Hardware

All AISI 304/316 stainless-steel fasteners are fatigue-tested and weather-sealed for maintenance-free long-term performance.

#### Batten Bar (Clamp Bar)

Extruded 6063-T6 aluminum box-beam design provides exceptional torsional stiffness and uniform panel alignment across the dome surface.

#### Gasket & Sealing System

Dual-layer EPDM gaskets (ASTM D1418) deliver long-term leak-tight performance with superior ozone and weather resistance.

#### Silicone Gasket

High-performance silicone gasket provides weather sealing and vibration isolation under the bolt assembly.

#### Dome Sheet Panel

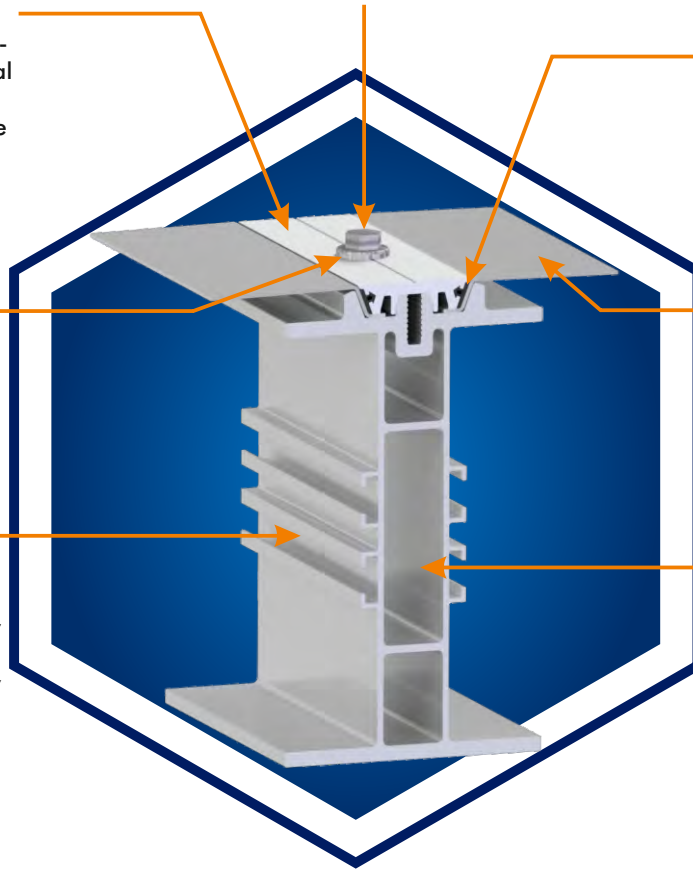
Precision-formed AL5052-H32 aluminum panels with flame-proof interlocking joints ensure superior corrosion resistance and high structural strength under dynamic loads.

#### Integrated T-Slot Channel

The integrated T-Slot provides modular connection points for platform assemblies and ensures reliable grounding continuity throughout the dome structure.

#### Double Web I-Beam

High-strength AL6061-T6 aluminum I-beam serves as the dome's main structural member, transferring loads efficiently while compensating for thermal expansion and settlement.



#### Load Path Optimization

Ensures balanced load transfer and structural uniformity across dome geometry.



#### FEA Validation

Verifies dome strength through advanced finite element simulations.



#### Dimensional Stability

Guarantees precision fit and long-term structural alignment under stress.

# NODE ASSEMBLY & CONNECTION DETAIL

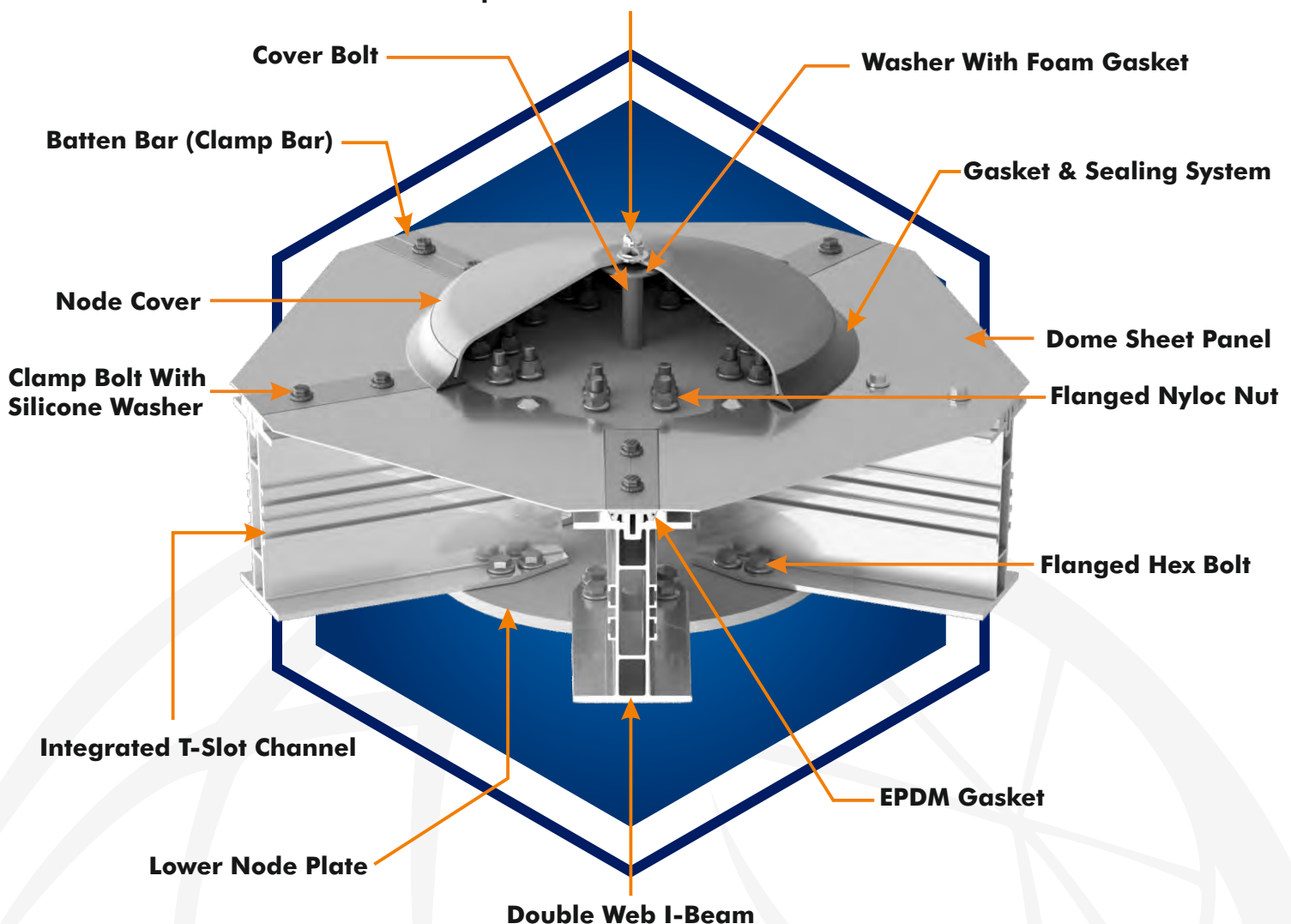
Precision-Engineered Junction for Strength, Alignment, and Sealing Integrity

## Overview

Each geodesic dome node represents a critical junction where multiple structural members intersect, transferring loads uniformly across the dome while maintaining airtight and watertight performance. The assembly integrates high-strength aluminum profiles, precision-engineered sealing components, and corrosion-resistant fasteners — ensuring long-term stability under thermal expansion, wind, and operational stresses.

| Component                            | Description                                                                    |
|--------------------------------------|--------------------------------------------------------------------------------|
| Dome Sheet Panel                     | AL5052-H32 panels with high rigidity and corrosion resistance.                 |
| Batten Bar (Clamp Bar)               | AL6063-T6 extrusions ensuring torsional stiffness and uniform panel alignment. |
| Cap Nut with Silicone Gasket         | Sealed cap design for waterproof and corrosion-free performance.               |
| Washer with Foam Gasket              | Provides tight compression and prevents moisture ingress.                      |
| Clamp Bolt with Silicone Washer      | Stainless steel fasteners with vibration and sealing isolation.                |
| Node Cover                           | Protects the joint interface against weather and debris.                       |
| Flanged Hex Bolt & Nyloc Nut         | AISI 304/316 stainless hardware ensuring long-term durability.                 |
| EPDM Gasket                          | Flexible, UV-resistant sealing layer ensuring leak protection.                 |
| Integrated T-Slot Channel            | Provides modular connectivity and reliable grounding continuity.               |
| Lower Node Plate & Double Web I-Beam | Primary load-carrying members designed for optimal stiffness and alignment.    |

### Cap Nut With Silicone Gasket



# ACCESSORIES & COMPONENTS

## Custom-Designed Dome Accessories for Enhanced Performance

### Overview

Ateco Aluminum Dome Roofs are equipped with a full range of precision-engineered accessories that meet operational, ventilation, and maintenance requirements. Each component is seamlessly integrated into the dome structure to ensure leak-tight performance, operational safety, and convenient access during inspection or maintenance.

All accessories are manufactured from the same corrosion-resistant aluminum alloys for long-term durability under harsh environments.

### Core Accessories

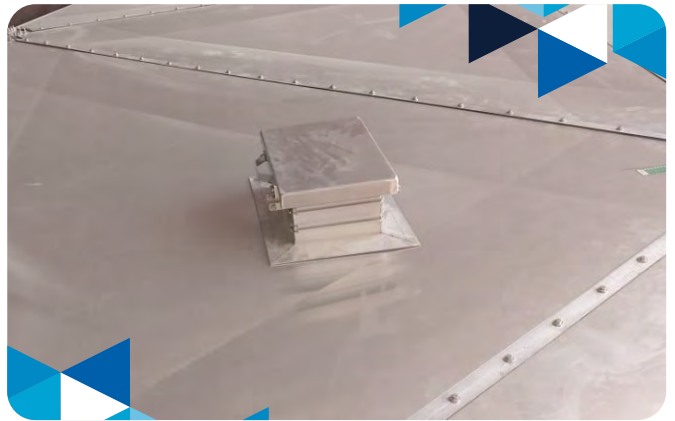
#### ◆ Platform

Engineered for maintenance and inspection access, platforms are custom-designed according to tank diameter and service needs. They can be integrated with manholes or vents and supported directly by dome structural members without compromising integrity.



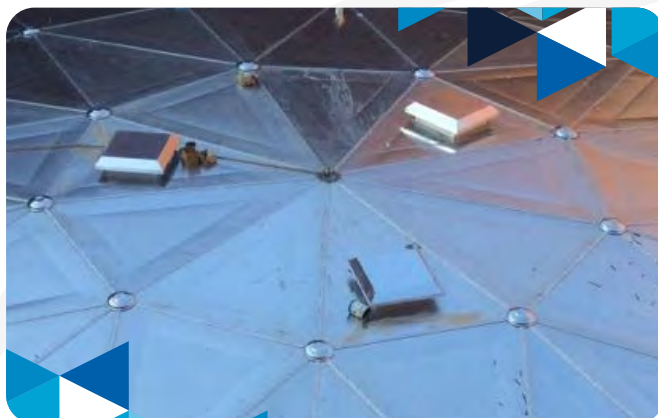
#### ◆ Manholes

Manholes, available in various diameters (typically 600–900 mm), provide reliable access to the dome interior for inspection. Each unit is sealed with EPDM or nitrile gaskets and fitted with stainless-steel hardware to ensure leak-proof durability.



#### ◆ Gravity Vents / Pressure Relief Vents

Designed for natural ventilation and overpressure protection, vent assemblies are engineered to allow airflow while preventing ingress of rainwater or debris — ensuring balanced internal pressure.



#### ◆ Pipe Boots

Flexible sealing units designed for process piping or instrumentation through the dome. Made of EPDM or silicone rubber and secured with aluminum fittings, ensuring long-term resistance to chemicals and weather.



# ACCESSORIES & COMPONENTS

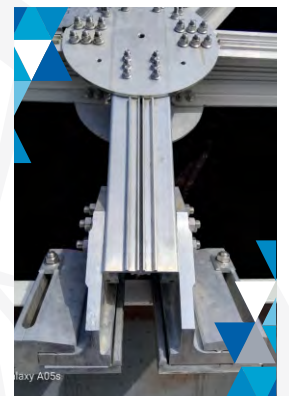
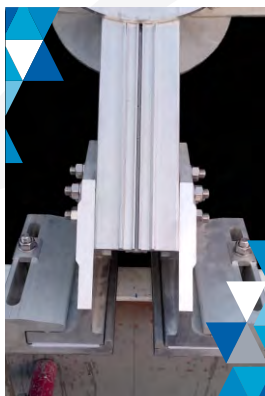
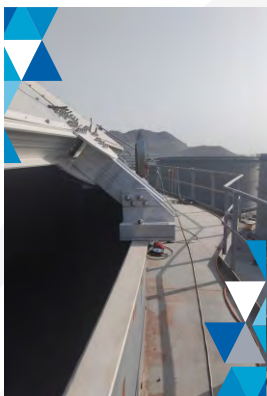
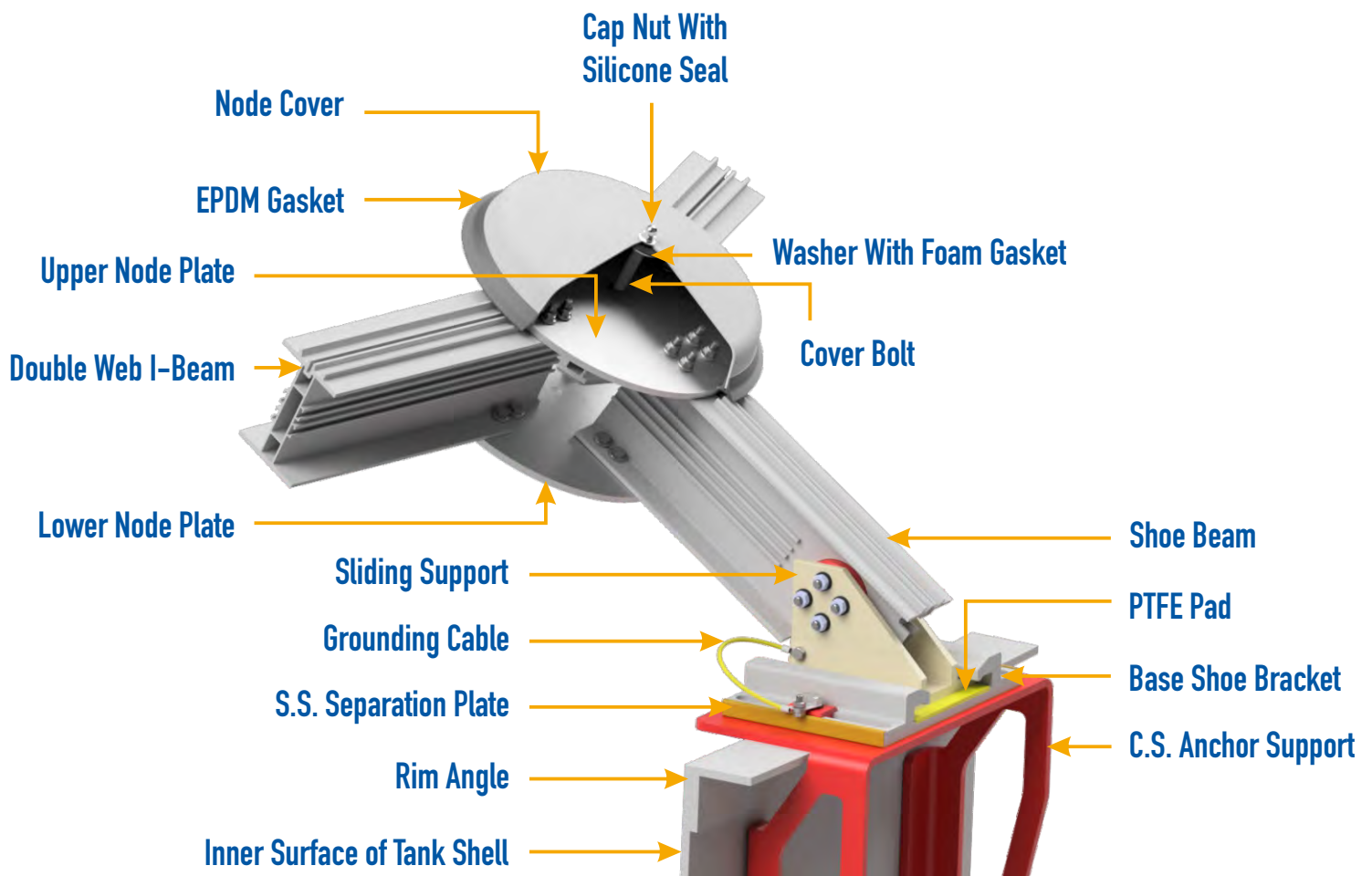
Precision-Engineered Interfaces for Complete Dome Integration

## Support Connection Types

The connection between the dome structure and the tank shell plays a vital role in maintaining both structural stability and long-term reliability. Ateco's engineered support systems are designed to accommodate various project conditions — including temperature changes, wind loads, and tank settlement — without compromising the dome's integrity or sealing performance.

### ◆ Sliding Support

Allows controlled radial and thermal movement between the dome and the tank shell, preventing stress accumulation and distortion caused by temperature gradients or tank settlement.



# ACCESSORIES & COMPONENTS

Precision-Engineered Interfaces for Complete Dome Integration

## Support Connection Types

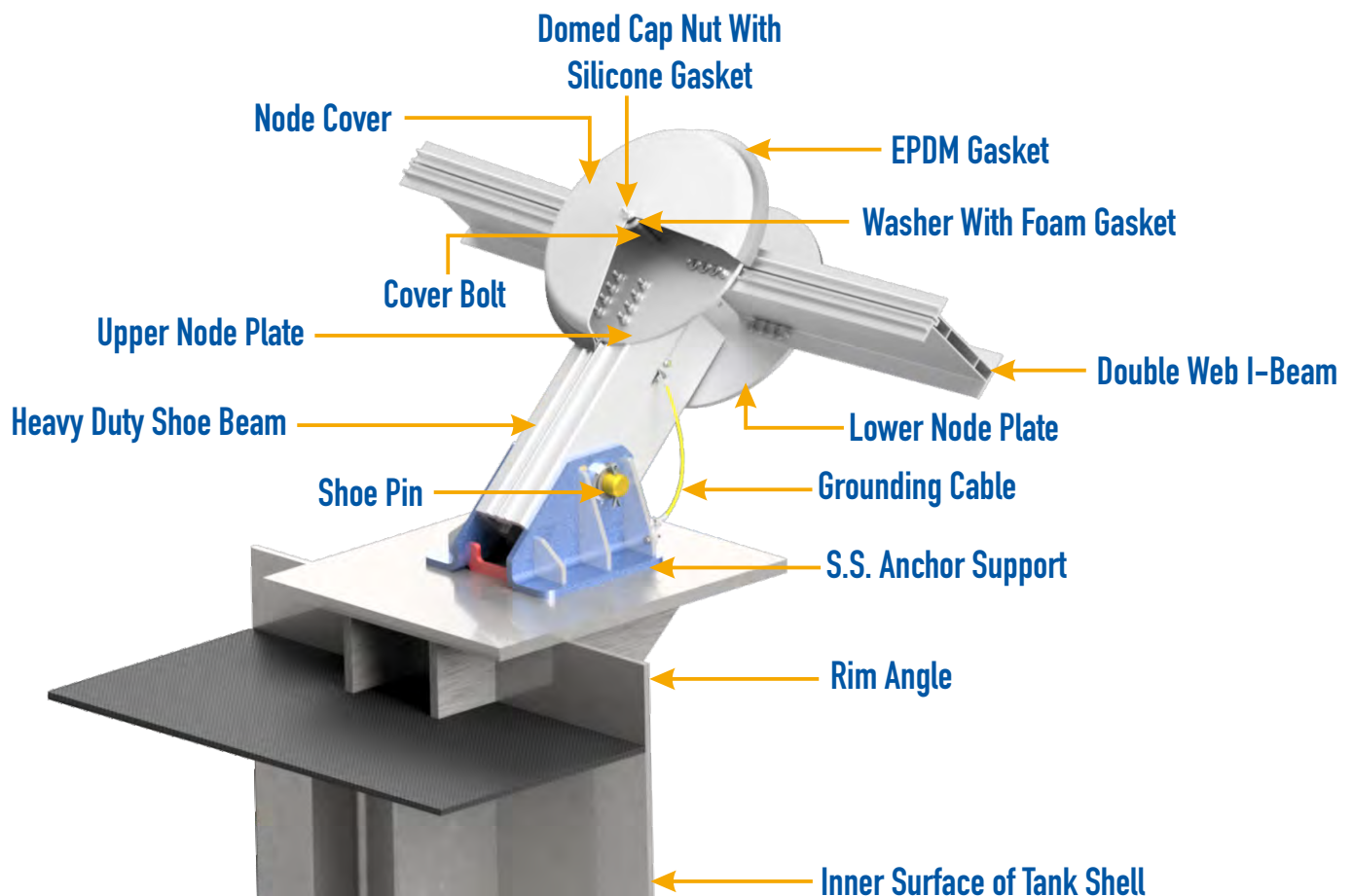
The connection between the dome structure and the tank shell plays a vital role in maintaining both structural stability and long-term reliability. Ateco's engineered support systems are designed to accommodate various project conditions — including temperature changes, wind loads, and tank settlement — without compromising the dome's integrity or sealing performance.

### ◆ Fixed Support

Allows rigid and direct load transfer between the dome structure and the tank shell, eliminating relative movement.

Ideal for smaller tanks or stable foundations where differential expansion is minimal.

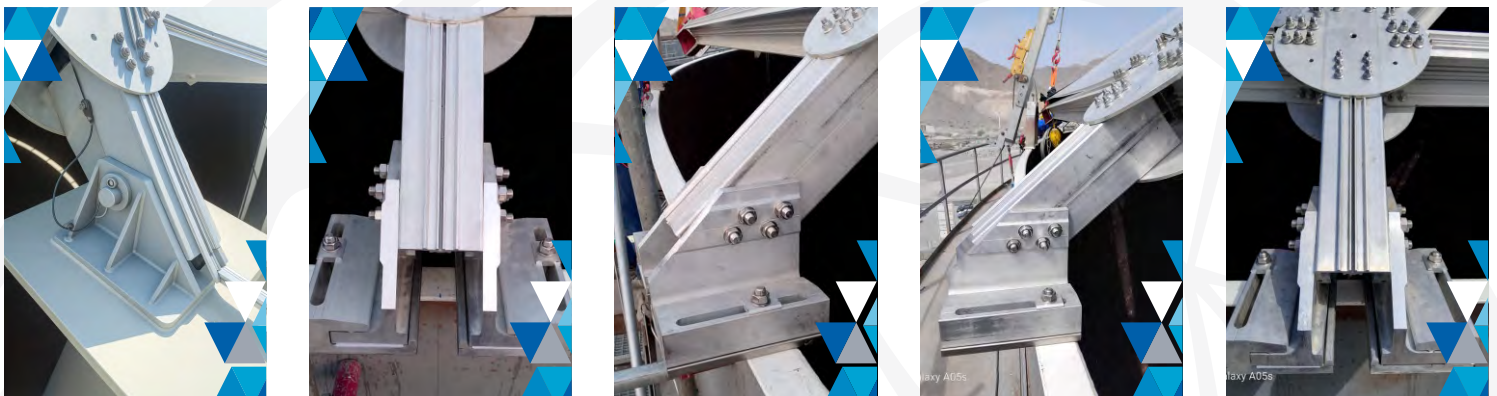
Ensures maximum structural stability and long-term alignment accuracy.



### Notes & Technical Highlights

All Ateco support systems are verified under API 650 Appendix G and Eurocode 9, with FEA validation ensuring uniform stress distribution and reliable load transfer.

Rigid connection design provides direct axial and lateral load transmission, ensuring high stiffness and long-term structural stability.



# ALUMINUM VS STEEL

Structural Efficiency Through Intelligent Design

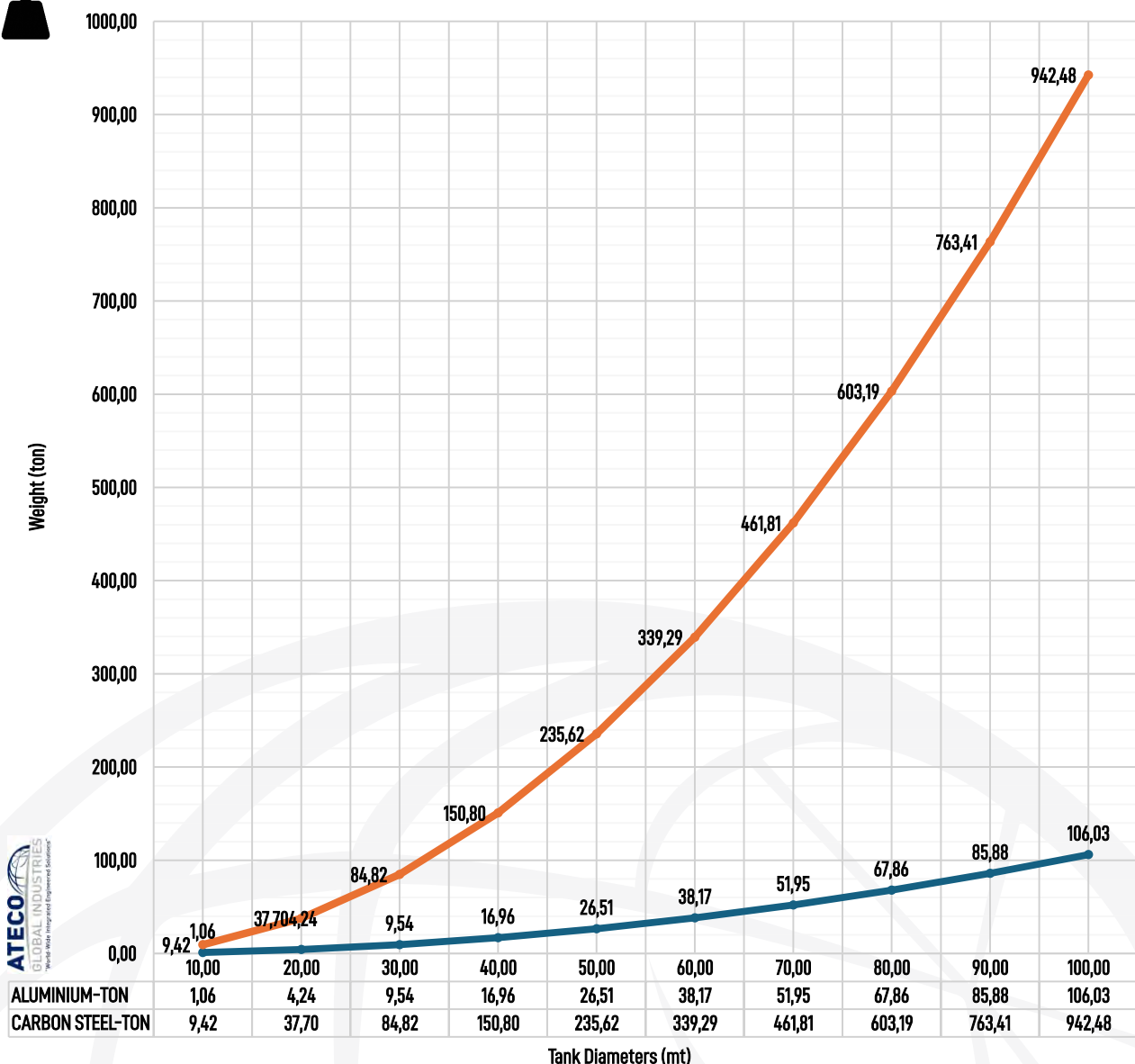
## Aluminum vs Steel – Comparative Structural Efficiency

Compared to conventional steel cone roofs, Ateco's aluminum geodesic domes deliver exceptional structural efficiency — providing equal strength with only a fraction of the weight. This intelligent design not only improves corrosion resistance and installation speed but also reduces overall lifecycle costs.

| Feature              | Aluminum Geodesic Dome                | Steel Cone Roof                     |
|----------------------|---------------------------------------|-------------------------------------|
| Weight               | ~1/6 of steel roof weight             | Heavy structural load               |
| Corrosion Resistance | Excellent — naturally oxide-protected | Requires coating & repainting       |
| Maintenance          | Minimal; no painting required         | Regular painting & inspection       |
| Installation Time    | 2–3× faster, modular assembly         | Slower, requires heavy lifting      |
| Durability           | 30+ years, corrosion-free             | 10–15 years typical lifespan        |
| Thermal Expansion    | Designed with sliding supports        | Requires flexible joints or sealant |
| Environmental Impact | 100% recyclable aluminum              | High embodied carbon footprint      |



Comparative Roof Weight Analysis: Aluminum Geodesic Dome vs. Steel Supported Cone Roofs



Note: Data based on standard dome design parameters, API 650 Appendix G

# ALUMINUM VS STEEL

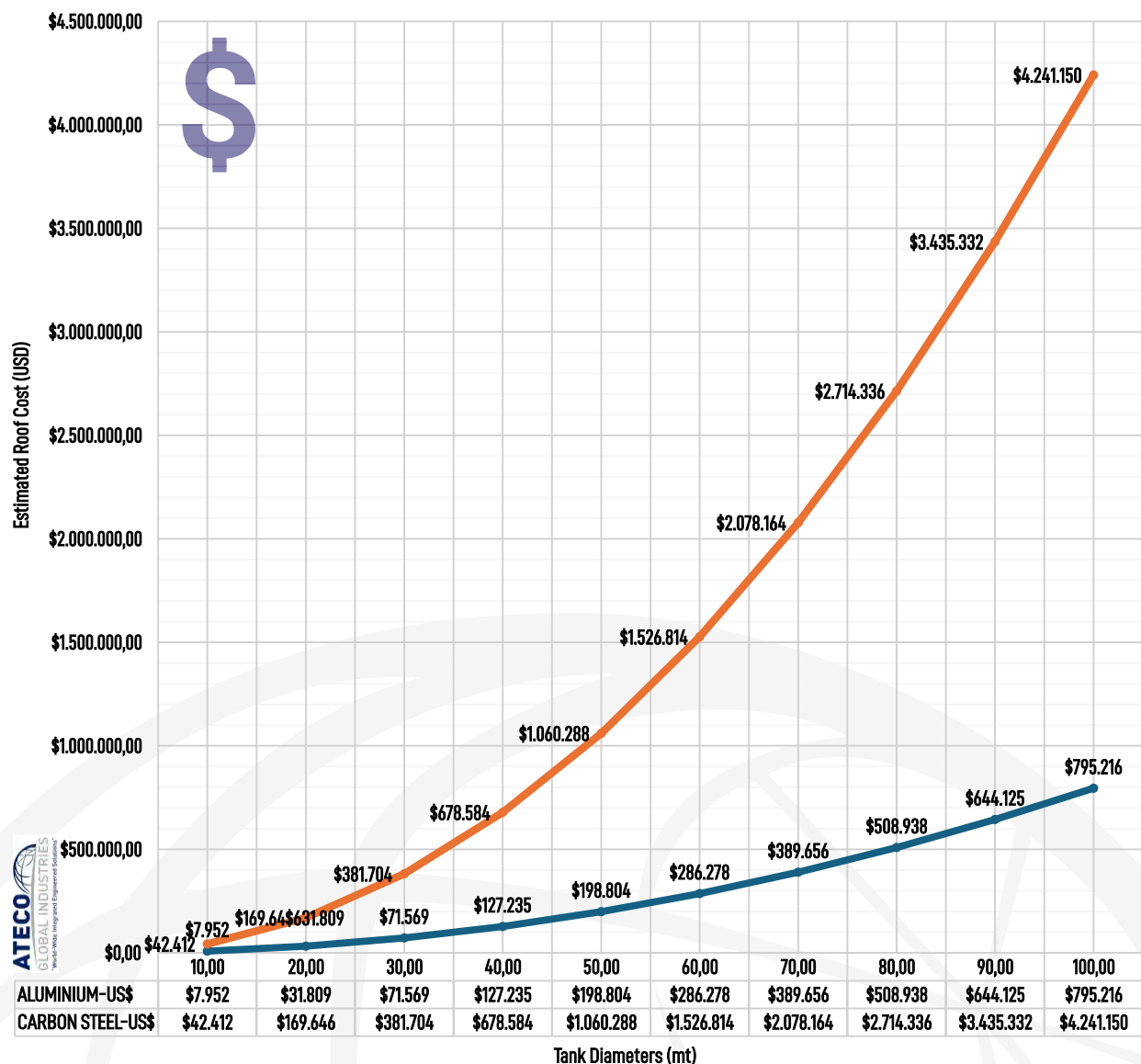
Structural Efficiency Through Intelligent Design

## Aluminum vs Steel – Comparative Cost Efficiency

Compared to conventional steel cone roofs, Ateco's aluminum geodesic domes deliver significant cost advantages by reducing structural weight, installation time, and maintenance requirements. The reduced material consumption and longer service life translate into lower overall project expenditure and total cost of ownership.

| Feature           | Aluminum Geodesic Dome                | Steel Cone Roof                        |
|-------------------|---------------------------------------|----------------------------------------|
| Material Cost     | Moderate, recyclable aluminum         | High, heavy-gauge steel                |
| Installation Cost | Lower – modular, lightweight assembly | Higher – requires heavy equipment      |
| Maintenance Cost  | Minimal, corrosion-free               | Regular painting and repair            |
| Lifecycle Cost    | Reduced total ownership cost          | Increased cost due to shorter lifespan |
| Value Retention   | High resale and recycling value       | Low salvage value                      |

Comparative Roof Cost Analysis: Aluminum Geodesic Dome vs. Steel Supported Cone Roofs



Note: Data based on standard dome design parameters, API 650 Appendix G, and industry average material costs.

# ALUMINUM VS STEEL

## Lifecycle Performance & ROI Advantage

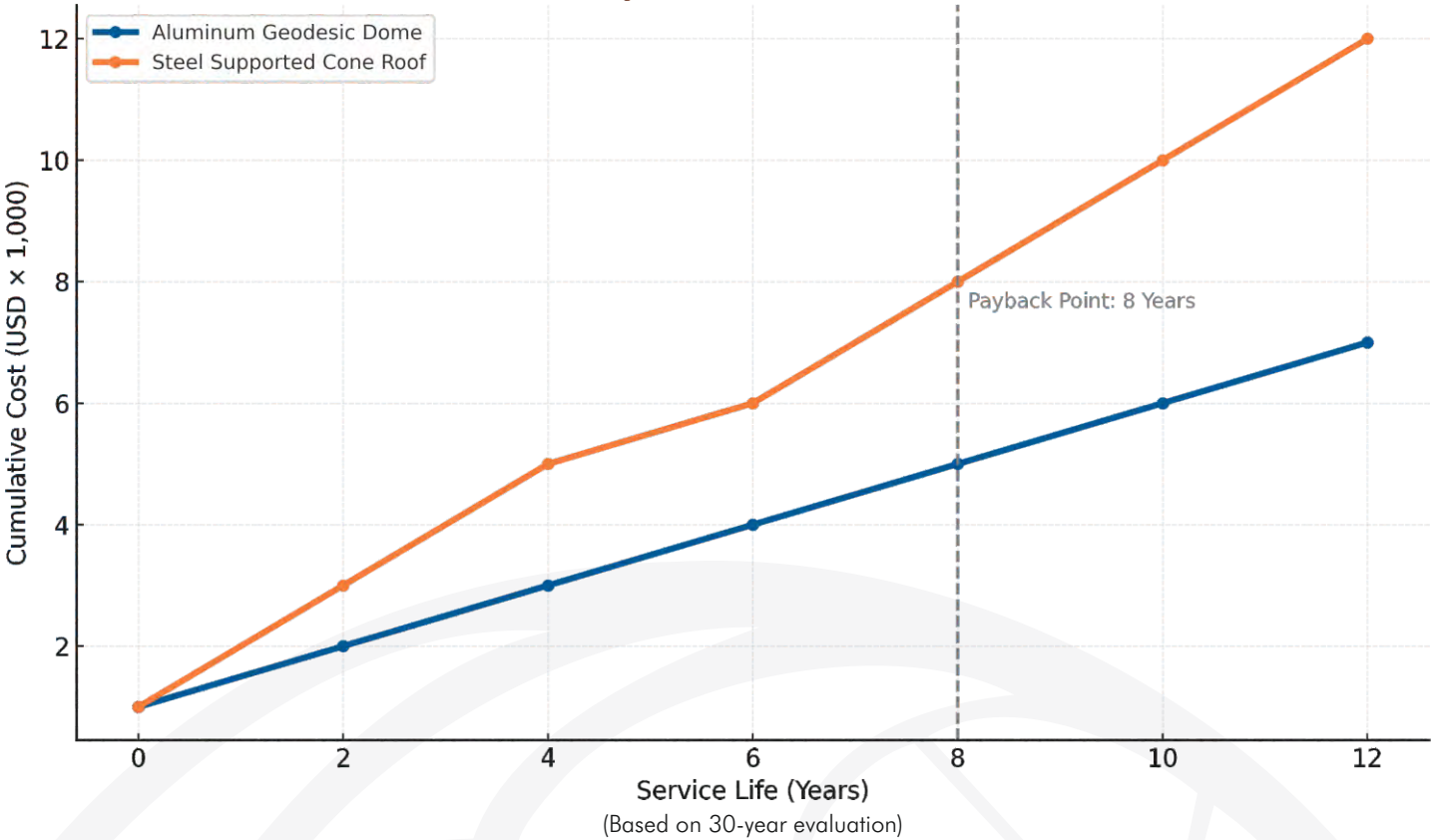


### Lower Lifecycle Costs • Faster Payback • Sustainable Investment

Over the entire service life of a storage tank, the choice of roof material significantly impacts total cost of ownership. Ateco’s aluminum geodesic domes deliver substantial lifecycle savings — eliminating corrosion-related maintenance, extending operational life, and retaining long-term asset value. When evaluated over a 30-year period, aluminum domes demonstrate up to 40–60% lower lifecycle cost and a payback period within 5–7 years, compared to traditional steel cone roofs.

| Feature                  | Aluminum Geodesic Dome | Steel Cone Roof              |
|--------------------------|------------------------|------------------------------|
| Initial Cost             | Moderate               | Lower                        |
| Maintenance              | None (corrosion-free)  | Regular coating & inspection |
| Service Life             | 30+ years              | 10–15 years                  |
| Repainting/Refurbishment | Not required           | Every 5–7 years              |
| Total Lifecycle Cost     | Up to 60% lower        | Cumulative cost increases    |
| Payback Period           | 5–7 years              | —                            |

Payback Over Time



**Note:** Based on comparative 30-year service life assumptions and standard tank operating conditions.

### The Ateco Advantage

Through intelligent engineering and corrosion-free materials, Ateco dome roofs ensure long-term performance with minimal lifecycle costs — maximizing ROI and sustainability across decades of service.

Ateco EDGE represents the fusion of advanced engineering, proven durability, and global expertise — a philosophy that defines every dome system we design and manufacture.

Built upon decades of experience, the Ateco EDGE principle focuses on three essential pillars: precision engineering, material intelligence, and long-term reliability.

Through the use of high-strength aluminum alloys, modular fabrication, and strict international standards such as API 650, Eurocode, and AWWA D108, Ateco delivers dome structures that outperform conventional designs in both performance and lifecycle value.

Each project benefits from in-house engineering, simulation-driven analysis, and real-world field validation, ensuring optimal strength-to-weight ratios and unmatched corrosion resistance.

The result is a new standard in dome technology — lighter, stronger, and smarter structures that provide measurable savings in construction time, maintenance, and operational cost. Ateco EDGE defines not just a product, but a commitment to excellence in every stage — from design and manufacturing to global project delivery.



## Engineering Excellence

Advanced FEA modeling, precision manufacturing, and in-house R&D integration ensure optimal structural performance.



## Durability by Design

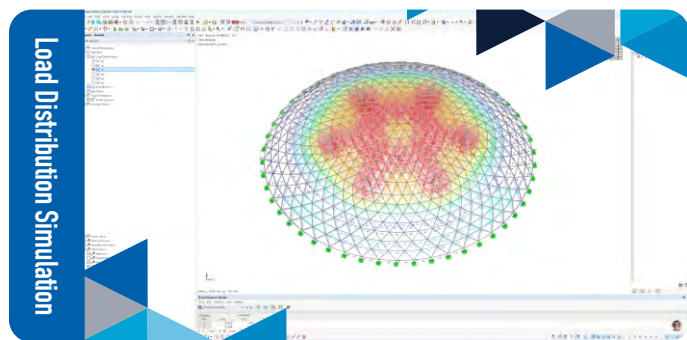
Corrosion-resistant alloys, modular design, and meticulous assembly deliver unmatched longevity and stability.



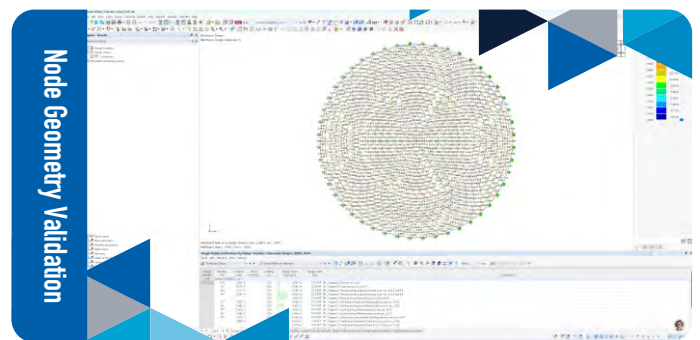
## Global Expertise

Global production footprint, certified standards (API 650, Eurocode 9), and consistent quality worldwide.

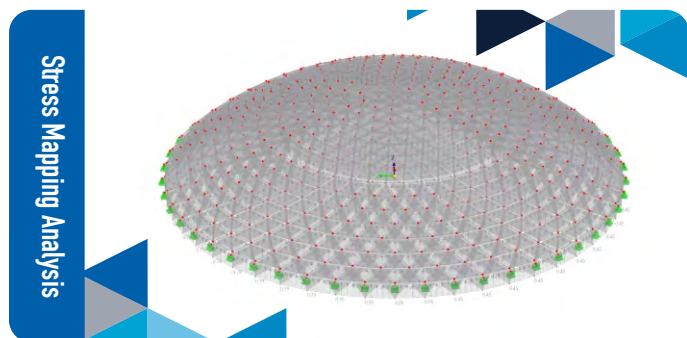
“Ateco EDGE — Engineered for reliability, designed for the world.”



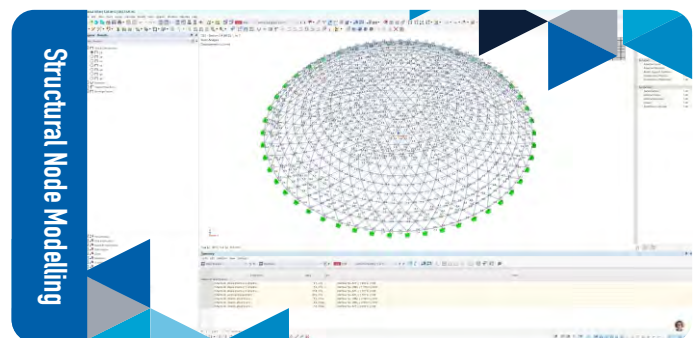
Visual representation of dome load transfer under static and dynamic conditions.



Verification of node geometry, joint stress, and connection accuracy.



Full-dome stress distribution analysis ensuring optimal strength-to-weight ratio.



Evaluation of node system geometry and stress correlation in assembled structure.

# QUALITY ASSURANCE & INSTALLATION EXCELLENCE

Structural Efficiency Through Intelligent Design

## Overview

At Ateco Global Industries, quality and reliability are the foundation of every dome we design and build. From material selection to on-site installation, every process is managed under a strict quality management system in compliance with ISO 9001, API 650 (Appendix G), AWWA D108, and EN 1999 (Eurocode 9). Each component is traceable, inspected, and certified to meet both international and client-specific standards — ensuring superior structural integrity, safety, and long-term performance.

## Certified Engineering & Manufacturing

Our production facilities in Turkey and Saudi Arabia operate under advanced manufacturing and quality controls systems, guaranteeing full compliance with global engineering codes. Comprehensive documentation, third-party testing, and dimensional verification ensure that each dome component meets the highest precision and durability standards. Every dome is engineered, analyzed, and validated using FEA simulation and real-world testing before shipment.



### Highlights:

- ✓ ISO 9001 Quality Management
- ✓ Material Traceability
- ✓ Third-Party Inspection Available
- ✓ API 650 / Eurocode 9 / AWWA D108 Compliance

## Installation & Site Services

Ateco provides comprehensive installation and site supervision services worldwide, ensuring that every dome system is assembled safely, efficiently, and in full compliance with international standards. Our experienced field teams and certified supervisors manage each phase of installation — from unloading and component verification to final inspection and commissioning — ensuring precise assembly and reliable long-term operation.



**Rapid Bolt  
Based  
Assembly**



**Certified  
Installation  
Supervision**



**On-Site  
Inspection &  
Verification**



**Post  
Installation  
Support**

### Key Capabilities:

- Modular dome systems enabling rapid, bolt-based assembly without welding
- Installation supervised by experienced engineers and certified site teams
- On-site inspection and dimensional verification during assembly
- Operator training and post-installation maintenance guidance
- Full compliance with international HSE and safety standards
- Pre-installation planning and assembly method statements



# ATECO

## GLOBAL INDUSTRIES

"World-Wide Integrated Engineered Solutions"

**PRECISION ENGINEERING  
FOR SUPERIOR DOMES**



### **Riyadh Facility - KSA**

RMFA5365 Al Musfat Al-Khafej  
Street Building No: 5365 P.O:5365  
Riyadh, Kingdom of Saudi Arabia



### **Istanbul Head Office - TR**

Küçükbakkalköy Mah. Dereboyu Cad.  
Brandium R5 Blok Kat:4 Daire:88  
Ataşehir / Istanbul - Turkey



### **Kutahya Facility - TR**

Çobanköy OSB Mah.  
Tavşanlı OSB 3. Cad. No:01  
Tavşanlı / Kütahya - Turkey



+90 216 514 21 26



+90 541 588 83 00



[www.atecoindustries.com](http://www.atecoindustries.com)



[info@atecoindustries.com](mailto:info@atecoindustries.com)