

# Tholus Planetariums - Decision guide and technical sheets

Verifiable comparison for management, designers and procurement

## Executive comparison

Air is mobile, spans 5-10 m and starts at CHF 7'900. Venue is semi-permanent, spans 5-12 m and starts at CHF 24'900. Landmark is permanent, spans 9-30 m and starts at CHF 159'000.

| Feature                           | Tholus Air                                                                            | Tholus Venue                                                                                                                       | Tholus Landmark                                                                                                                |
|-----------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Available diameters</b>        | 5, 6 and 10 m                                                                         | 5, 6, 8, 9, 10 and 12 m                                                                                                            | 9, 15, 20, 25 and 30 m                                                                                                         |
| <b>Indicative capacity</b>        | 15-65 seats; up to 110 standing                                                       | 15-90 seats; up to 140 standing                                                                                                    | 55-510 seats; up to 925 standing                                                                                               |
| <b>Starting scope</b>             | Dome, projection, audio, base content, software, server, training and 2-year warranty | Geodesic dome, screen, projection, audio, base content, software, server, training and 2-year warranty                             | Rigid dome, screen, multi-projection, audio, base content, software, server, design, installation, testing and 3-year warranty |
| <b>Mobility</b>                   | Foldable and designed to travel                                                       | Demountable; relocation planned between programme cycles                                                                           | Permanently integrated into the building or destination                                                                        |
| <b>Assembly or delivery</b>       | Assembly and recalibration: about 30 min for 5-6 m; about 1 hour for 10 m             | Site assembly is planned; recalibration takes about 30-60 min depending on the system                                              | Schedule defined in the executive design; multi-projector recalibration takes about 1 hour                                     |
| <b>Space and usual site works</b> | Level surface, height, access, power and ventilation; normally no permanent works     | Verified space and services; outdoor use needs engineered anchors or ballast. Permits, masonry and non-standard bases are excluded | Coordination with building, structure, access and services. Permits, masonry and non-standard bases are excluded               |
| <b>Best suited to</b>             | Schools, museums, tours and temporary events                                          | Venues, festivals and seasonal or recurring cultural programmes                                                                    | Museums, campuses, science centres and permanent destinations                                                                  |

Prices exclude VAT. Capacity depends on layout, technical area, aisles, exits and approvals. Stated times cover assembly or recalibration in a ready space; delivery, site works and commissioning are confirmed after the site review.

## Timing: what is already known

The setup and recalibration times below assume a ready site. Delivery, works, permits and commissioning are planned after site verification and confirmed in the proposal.

# Technical sheet - Tholus Air

A verifiable technical configuration for every diameter.

| Diameters and configurations      | Included equipment                                                                                                    |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Tholus Air 5 - EUR 7.900</b>   | 5-metre double-membrane dome; 7,500-lumen projector; Convex-mirror system; TholusOS Pro for 1 year                    |
| <b>Tholus Air 6 - EUR 9.900</b>   | 6-metre double-membrane dome; 7,500-lumen projector; Convex-mirror system; TholusOS Pro for 1 year                    |
| <b>Tholus Air 10 - EUR 19.900</b> | 10-metre double-membrane dome; 3 DLP projectors at 7,500 lumens; Calibrated multi-projection; TholusOS Pro for 1 year |

## Indicative capacities

| Diameter | Planetarium: children seated on floor | Planetarium: seated adults | Fulldome with chairs | Standing event |
|----------|---------------------------------------|----------------------------|----------------------|----------------|
| 5        | 35-40                                 | 20-25                      | 15                   | 30             |
| 6        | 45-55                                 | 30-40                      | 20                   | 30-35          |
| 10       | -                                     | -                          | 55-65                | 100-110        |

Capacities depend on the layout and approvals. Technical space, aisles, exits, seating and venue requirements may reduce the actual number.

## System and performance

### Standard projectors

Single-chip DLP, 7,500 lumens, 1920 × 1200 and 1500:1 contrast per projector.

### Usable brightness

Optics, mirror, warping and calibration reduce nominal brightness. Usable dome brightness is measured after calibration.

### Blending and resolution

In multi-projection, overlap zones use part of the pixels and light to merge images, so effective resolution is lower than the mathematical sum of the projectors.

# Operational continuity and maintenance - Tholus Air

The SLA defines priorities, acknowledgement and spare-parts handling.

## Uniformity with TholusOS

TholusOS corrects geometry, colour and brightness to equalise the dome. Output can vary between points.

## Calibration

Guided calibration takes approximately 30 minutes. Single-projector inflatable systems take approximately 30 minutes to assemble and recalibrate; multi-projection takes approximately 1 hour.

## Included equipment

Dome inflation blower; Audio system; Mirror projection on single-projector versions; calibrated multi-projection where specified; Base content package; Stellarium and WorldWide Telescope; 2 immersive games; Operational training; Tholus server; TholusOS in the package version; 2-year European warranty

## Warranty

2-year European warranty on the supplied dome and components, under the contract terms and applicable law.

## SLA response times

P1, system stopped or show impossible: acknowledged within 1 business day. P2, degraded service: within 2 days. P3, non-blocking requests: within 3 days.

## Replacement

A covered critical spare is dispatched within 3 business days when in stock. Otherwise, we provide a dated recovery plan within 2 days. Transit time depends on the destination.

## Spare parts

The original component or a compatible replacement remains available for at least 10 years after delivery. Critical spares are identified in the technical documentation.

## Remote assistance

Included during the warranty for diagnostics, configuration, TholusOS and calibration support, with access agreed with the customer.

## On-site service

Available across Europe on request. After diagnosis, we provide a plan and quotation within 3 business days, targeting an intervention within 10 business days, subject to site access and travel.

## Maintenance programme

Annual preventive programme covering structure, ventilation, projection, audio, server, safety and calibration, plus an additional check after relocation or work on optical components.

# Delivery package

Every Tholus Air is delivered as a complete, documented mobile system.

- Dome blower sized for the enclosure and identification of the compatible replacement.
- Sized audio, projection, Tholus server and TholusOS configuration.
- Starter content package, Stellarium, WorldWide Telescope and 2 games.
- Operator training and procedures for assembly, checks and shutdown.
- Manuals, electrical diagram, critical-spares list and configuration record.
- Conformity dossier prepared for the applicable rules and destination-country requirements.

## Commercial scope and conditions

Each diameter price covers the standard Tholus Air system. Transport and on-site work are defined after the space review.

|          |                                |                                                                                                                                                 |
|----------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Included | Tholus Air system              | Dome, specified projection, audio, server, software, starter content, operator training and the warranty stated in the technical specification. |
| Separate | On-site services and equipment | Transport, installation at the venue, seating and bespoke content are quoted separately.                                                        |

Prices exclude VAT. The selected model identifies the standard supply; transport, on-site installation, seating and bespoke content remain separate.

# Technical sheet - Tholus Venue

A verifiable technical configuration for every diameter.

| Diameters and configurations | Included equipment                                                                                              |
|------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Tholus Venue 5               | 5-metre geodesic dome; Negative-pressure fulldome screen; Mirror or fisheye projection; TholusOS Pro for 1 year |
| Tholus Venue 6               | 6-metre geodesic dome; Negative-pressure fulldome screen; 3-projector system; TholusOS Pro for 1 year           |
| Tholus Venue 8               | 8-metre geodesic dome; Negative-pressure fulldome screen; 3-projector system; TholusOS Pro for 1 year           |
| Tholus Venue 9               | 9-metre geodesic dome; Negative-pressure fulldome screen; 3-projector system; TholusOS Pro for 1 year           |
| Tholus Venue 10              | 10-metre geodesic dome; Negative-pressure fulldome screen; 5-projector system; TholusOS Pro for 1 year          |
| Tholus Venue 12              | 12-metre geodesic dome; Negative-pressure fulldome screen; 5-projector system; TholusOS Pro for 1 year          |

## Indicative capacities

| Diameter | Planetarium: children seated on floor | Planetarium: seated adults | Fulldome with chairs | Standing event |
|----------|---------------------------------------|----------------------------|----------------------|----------------|
| 5        | 35-40                                 | 20-25                      | 15                   | 30             |
| 6        | 45-55                                 | 30-40                      | 20                   | 30-35          |
| 8        | 80-100                                | 65-80                      | 30-35                | 45-50          |
| 9        | -                                     | -                          | 55-65                | 60-70          |
| 10       | -                                     | -                          | 55-65                | 100-110        |
| 12       | -                                     | -                          | 80-90                | 125-140        |

Capacities depend on the layout and approvals. Technical space, aisles, exits, seating and venue requirements may reduce the actual number.

## System and performance

### Standard projectors

Single-chip DLP, 7,500 lumens, 1920 × 1200 and 1500:1 contrast per projector.

### Usable brightness

Optics, warping, blending and calibration reduce nominal brightness. Usable dome brightness is measured after calibration.

### Blending and resolution

Overlap zones use part of the pixels and light to merge images, so effective resolution is lower than the mathematical sum of the projectors.

# Operational continuity and maintenance - Tholus Venue

Installation closes only when the system, operators and documentation are ready. After commissioning, the SLA governs diagnosis, recovery and maintenance.

## Uniformity with TholusOS

TholusOS corrects geometry, colour and brightness to equalise the dome. Output can vary between points.

## Calibration

Guided calibration takes approximately 30 minutes. The single-projector setup takes approximately 30 minutes to assemble and recalibrate; multi-projection takes approximately 1 hour.

## Negative-pressure system

The pump draws between 0.5 and 1.5 kW depending on dome diameter and configuration. Declared sound level is 50-56 dB in normal operation and 65-70 dB at maximum output; perceived noise depends on placement and acoustic treatment.

## Included equipment

Audio system; Mirror projection on the single-projector version; calibrated multi-projection on the other diameters; Base content package; Stellarium and WorldWide Telescope; 2 immersive games; Operational training; Tholus server; TholusOS Pro for 1 year; 2-year European warranty

## Warranty

2-year European warranty on the supplied structure and components, under the contract terms and applicable law.

## SLA response times

P1, system stopped or show impossible: acknowledged within 1 business day. P2, degraded service: within 2 days. P3, non-blocking requests: within 3 days.

## Replacement

A covered critical spare is dispatched within 3 business days when in stock. Otherwise, we provide a dated recovery plan within 2 days. Transit time depends on the destination.

## Spare parts

The original component or a compatible replacement remains available for at least 10 years after delivery. Critical spares are identified in the technical documentation.

## Remote assistance

Included during the warranty for diagnostics, configuration, TholusOS and calibration support, with access agreed with the customer.

## On-site service

Available across Europe on request. After diagnosis, we provide a plan and quotation within 3 business days, targeting an intervention within 10 business days, subject to site access and travel.

## Maintenance programme

Annual preventive programme covering structure, ventilation, projection, audio, server, safety and calibration, plus an additional check after relocation or work on optical components.

# Venue institutional supply

The supply includes commissioning, verified performance and documentation.

- Installation, calibration, testing and commissioning at the agreed venue.
- Audio system sized for the diameter, audience and intended use.
- Operator training and handover of the verified configuration.
- Starter content package, Stellarium, WorldWide Telescope and 2 games.
- 2-year European warranty and support governed by the published SLA.
- Complete standby negative-pressure pump delivered and identified as a critical spare.
- Manuals, diagrams, calibration record, maintenance plan and spare-parts list.
- Conformity dossier prepared for the applicable rules and destination-country requirements.

## Commercial scope and conditions

The published price covers the Venue system. On-site activities and local works are defined only after a technical review of the location.

|                        |                                        |                                                                                                                                                                                         |
|------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Included</b>        | <b>Standard supply</b>                 | Geodesic dome, fulldome screen, specified projection, audio, standard PVC floor, server, software, starter content, training and warranty.                                              |
| <b>In the proposal</b> | <b>Activities at the venue</b>         | Transport, on-site assembly and installation, calibration, testing, commissioning, seating and bespoke content.                                                                         |
| <b>Local works</b>     | <b>Building-project responsibility</b> | The local project retains building permits or other approvals that may be required, masonry, foundations, utility connections and bases other than the standard PVC flooring we supply. |

Prices exclude VAT. Standard supply is separate from transport, on-site activities, seating, bespoke content and local works.

# Technical sheet - Tholus Landmark

A verifiable technical configuration for every diameter.

| Diameters and configurations | Included equipment                                                                                                          |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Tholus Landmark 9</b>     | 9-metre rigid dome; Acoustically transparent aluminium; Calibrated multi-projector system; TholusOS Enterprise for 5 years  |
| <b>Tholus Landmark 15</b>    | 15-metre rigid dome; Acoustically transparent aluminium; Calibrated multi-projector system; TholusOS Enterprise for 5 years |
| <b>Tholus Landmark 20</b>    | 20-metre rigid dome; Acoustically transparent aluminium; Calibrated multi-projector system; TholusOS Enterprise for 5 years |
| <b>Tholus Landmark 25</b>    | 25-metre rigid dome; Acoustically transparent aluminium; Calibrated multi-projector system; TholusOS Enterprise for 5 years |
| <b>Tholus Landmark 30</b>    | 30-metre rigid dome; Acoustically transparent aluminium; Calibrated multi-projector system; TholusOS Enterprise for 5 years |

## Indicative capacities

| Diameter | Planetarium: children seated on floor | Planetarium: seated adults | Fulldome with chairs | Standing event |
|----------|---------------------------------------|----------------------------|----------------------|----------------|
| 9        | -                                     | -                          | 55-65                | 60-70          |
| 15       | -                                     | -                          | 130-145              | 220-240        |
| 20       | -                                     | -                          | 200-220              | 400-440        |
| 25       | -                                     | -                          | 320-345              | 800-890        |
| 30       | -                                     | -                          | 450-510              | 850-925        |

Capacities depend on the layout and approvals. Seating, technical space, aisles, exits, accessibility and building requirements determine the actual number.

## System and performance

### Standard projectors

Single-chip DLP, 7,500 lumens, 1920 × 1200 and 1500:1 contrast per projector.

### Usable brightness

Optics, warping, blending and calibration reduce nominal brightness. Usable dome brightness is measured after calibration.

### Blending and resolution

Overlap zones use part of the pixels and light to merge images, so effective resolution is lower than the mathematical sum of the projectors.



# Operational continuity and maintenance - Tholus Landmark

Commissioning, spares and maintenance are defined for the installed theatre.

## Uniformity with TholusOS

TholusOS Enterprise corrects geometry, colour and brightness to equalise the dome. Output can vary between points.

## Calibration

Guided calibration takes approximately 30 minutes. Initial assembly follows detailed design; multi-projector recalibration takes approximately 1 hour.

## Included equipment

Audio system; Complete projection system: mirror projection where a single channel is specified, calibrated multi-projection in other cases; Base content package; Stellarium and WorldWide Telescope; 2 immersive games; Operational training; Tholus server; TholusOS Enterprise for 5 years; 3-year European warranty

## Warranty

3-year European warranty on the Tholus Landmark supply, under the contract terms and applicable law.

## SLA response times

P1, system stopped or show impossible: acknowledged within 1 business day. P2, degraded service: within 2 days. P3, non-blocking requests: within 3 days.

## Replacement

A covered critical spare is dispatched within 3 business days when in stock. Otherwise, we provide a dated recovery plan within 2 days. Transit time depends on the destination.

## Spare parts

The original component or a compatible replacement remains available for at least 10 years after delivery. Critical spares are identified in the technical documentation.

## Remote assistance

Included during the warranty for diagnostics, configuration, TholusOS and calibration support, with access agreed with the customer.

## On-site service

Available across Europe on request. After diagnosis, we provide a plan and quotation within 3 business days, targeting an intervention within 10 business days, subject to site access and travel.

## Maintenance programme

Annual preventive programme covering structure, ventilation, projection, audio, server, safety and calibration, plus an additional check after relocation or work on optical components.

# Landmark institutional supply

Handover includes testing, training and documentation.

- Installation, calibration, testing and commissioning of the theatre.
- Audio system sized for the geometry, audience and operating programme.
- Operator training and handover of the verified configuration.
- Starter content package, Stellarium, WorldWide Telescope and 2 games.
- 3-year European warranty and support governed by the published SLA.
- Project-defined critical spare kit delivered at commissioning.
- Manuals, as-built diagrams, calibration record, maintenance plan and spare-parts list.
- Conformity dossier prepared for the applicable rules and destination-country requirements.

## Commercial scope and conditions

The published price identifies the TUN supply. The building, local works and operating costs remain separate scopes to coordinate during the preliminary study.

|                                   |                                        |                                                                                                                                                                                                                                                |
|-----------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TUN supply</b>                 | <b>Tholus system</b>                   | Rigid dome, screen, multi-projection, audio, server, software, starter content, training, TholusOS Enterprise and warranty.                                                                                                                    |
| <b>Within TUN scope</b>           | <b>Design and commissioning</b>        | Detailed system design, technical coordination, assembly, calibration, testing, commissioning, documentation and certifications within our responsibility.                                                                                     |
| <b>Outside TUN supply</b>         | <b>Building and local works</b>        | Building, foundations, building permits or other approvals that may be required, masonry, services, local utility connections and bases other than the standard PVC flooring we supply are the client's or local design team's responsibility. |
| <b>Outside initial investment</b> | <b>Maintenance and operating costs</b> | Staff, energy, planned maintenance after the included period, consumables, uncovered spares and software renewals are planned separately.                                                                                                      |

Prices exclude VAT. The proposal confirms the TUN scope against the real site and coordinates interfaces with the building, local works and future operation.