



DUTCH WHEELS

A GLOBAL LEADER IN STAND-ALONE GIANT WHEELS

PROPOSAL

White-series WS80/24/10

AmuseBr, Sao Paolo

Porto Alegre - Brazil

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Dutch Wheels Operations B.V. - The Netherlands

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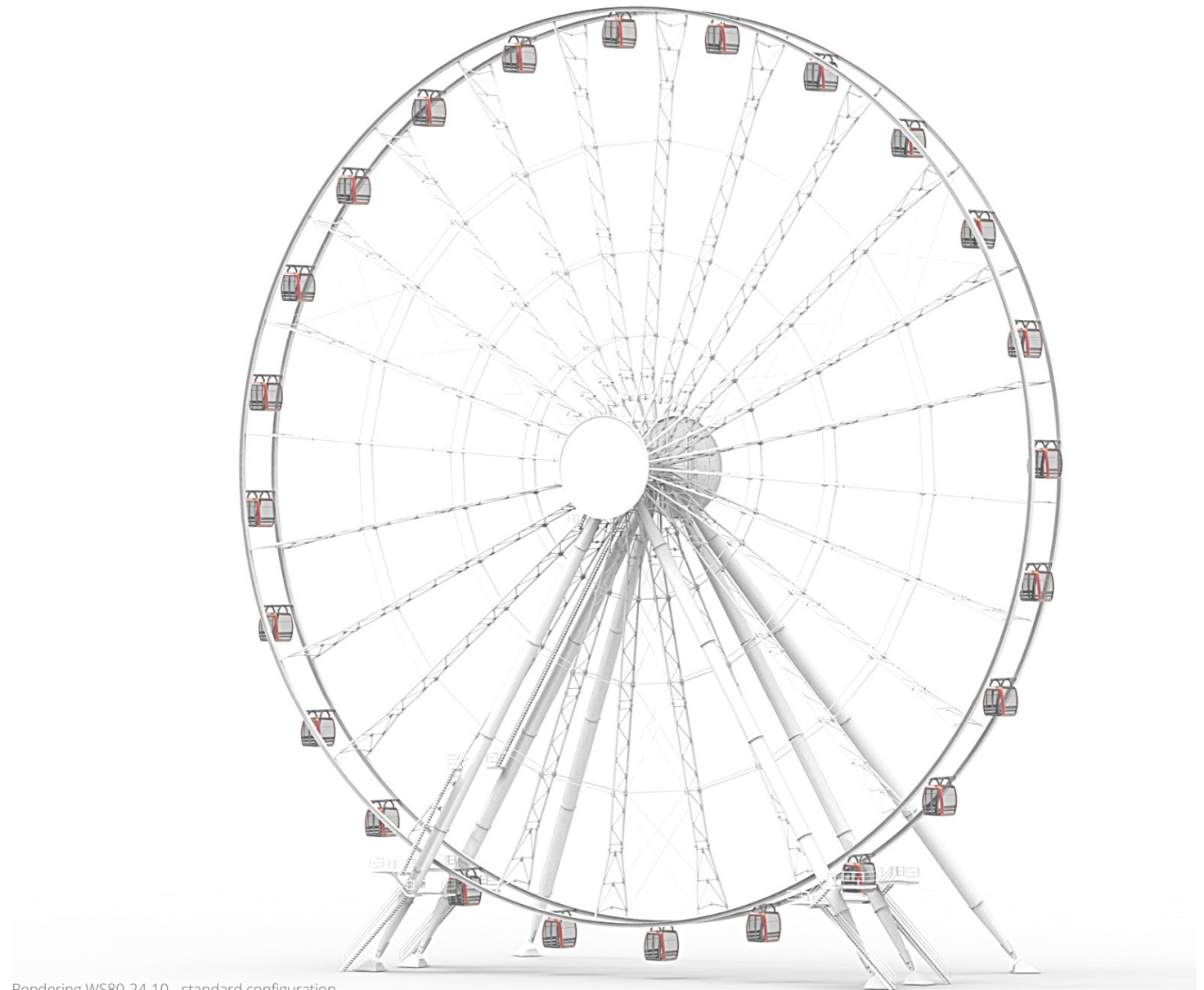
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General

The White-series is targeting high-end locations where the wheel is supposed to operate for many years in extreme climate conditions. Equal to the Red-series the wheel is designed according applicable EN and ASTM standards. Introducing this wheel to the real estate market means we have ensured it also meets “endless-life” requirements, typical to this market. The wheel appearance of the White-series is more robust than the Red-series. No concessions are made in respect to product quality, durability, maintenance friendliness, and safety.

One of the main differences compared with the Red-series is the size of the gondola. The 60 meter version comes with the eight-person sit-down gondola which is larger in size than most gondolas used for this size of wheel. The 60 meter wheel is available in a 30 and 42 gondola configuration. The 80 meter version offers several gondola options and configurations with 24 or 48, 10-person or 24, 26-person standup gondola. The White-Series range also includes a 100 and 120 meter version.

Apart from all the technical features, a White-series wheel looks spectacular and will add value to any high-end, mixed-use, or leisure type development. Luxury, impressiveness, and experience are key words when discussing this series and its design.



Rendering WS80-24-10 - standard configuration

Specifications & Layout

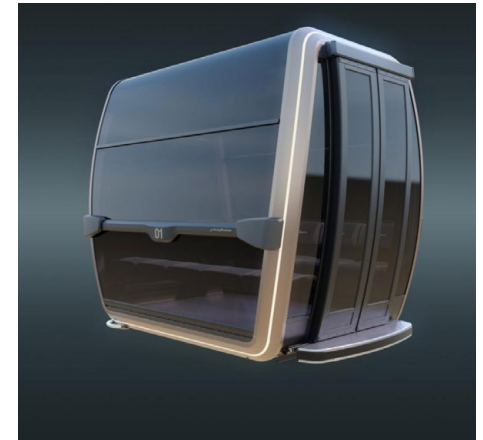
All data in the quotation are approximate and subject to adjustment during the final engineering.

GENERAL DESIGN WS80-24	
Height	80 meters / 262 feet
Footprint	52 x 28 meters / 171 x 92 feet
No. of loading positions	6
No. of columns	6
No. of spokes	24
Wheel color	RAL9010
LAY-OUT WS80-24	
Front side wheel	4- legged side
Position OCC (Operator Control Console)	front side wheel
Position e-container (seen from front)	left and backside wheel
Position drive system (seen from front)	left side wheel
ELECTRICAL WS80-24	
Electrical supply	to be determined
Main supply	380V +/- 10% ; 3/N/PE ; 50 Hz 480V +/- 10% ; 3/N/PE ; 60 Hz
Auxiliary supply	240 or 120V +/- 10% ; 50/60 Hz
GONDOLA WS80-24 / DW10W	
Number of gondolas	24
Number of passengers per gondola (standard)	10
Maximum load standard gondola	750 kg
Gondola color	RAL9010 unless otherwise specified

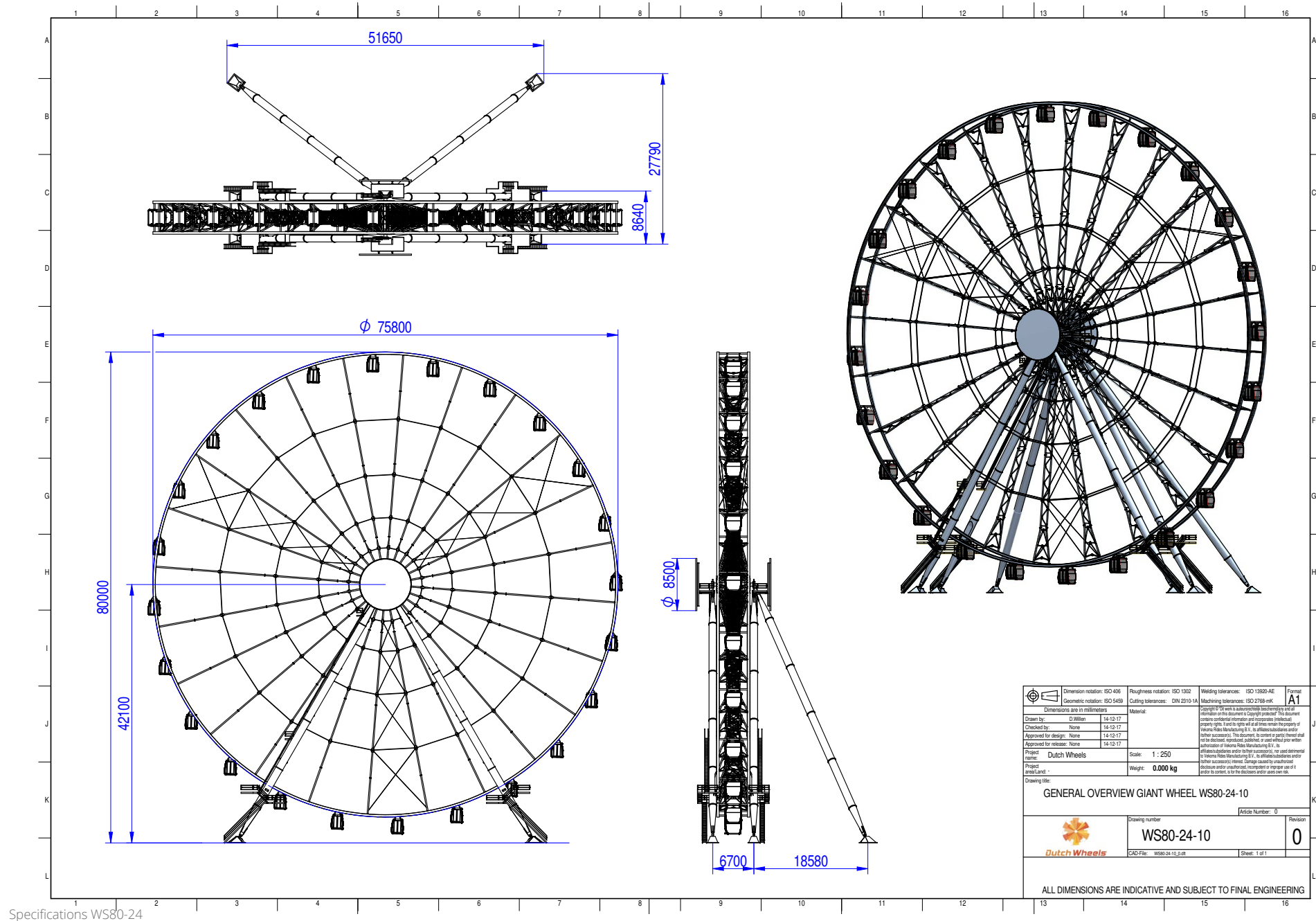
OPERATION WS80-24	
Operation mode	start/stop or continuous rotation
Rotational direction (seen from front)	counterclockwise
Maximum speed	1.5 m/s
Maximum eccentric loading	12 gondolas
OPERATIONAL RESTRICTIONS WS80-24	
Maximum wind speed in operation	22 m/s
Operational ambient temperature	-15 to +45 degree celcius
Ice	no frosty rim or ice formation on wheel allowed



Operator console (OCC1)



DW10W "Symphony" gondola



Specifications WS80-24

Scope of delivery

Steel structure

The steel in general consists of:

- column feet,
- columns,
- main axle,
- spokes,
- braces,
- rimbars,
- and gondola axles.

In general the steel structure contains welded and machined parts. The giant observation wheel has 6 column feet. The individual column foot has been designed for differential settlement. There are also 6 columns, which are assembled out of pipe and cone parts. The individual parts are bolted together and connected to the column feet by stainless steel pins. On top of the columns a main axle is mounted. The main axle contains 2 bearings as well as a back-up bearing system to evacuate the wheel in case a main bearing is damaged.

Spokes are bolted to the main axle. The spokes themselves are composed out of 6 individual parts and mounted together by bolts. The cable-tray is integrated in the spoke design. To prevent the spokes from buckling, braces and cables, which are set to pre-tension, are mounted between the spokes by stainless steel pins. Also 3 sections of cross braces and cables have been added to create a stable frame and to prevent the two outer parts to deform separately.

The outer ring is composed out of 24

rimbar components per side. The rimbars are bolted together. The cable trays and rimbar lighting are integrated inside the rimbar frame. Electrical components in the rimbar are covered by plates. The gondola axles are mounted between the rimbars. All pins and bolts used to assemble the components have a high corrosion protection degree. All non-painted fasteners are galvanized. To prevent wear, bronze bushes are used at the pin connections.

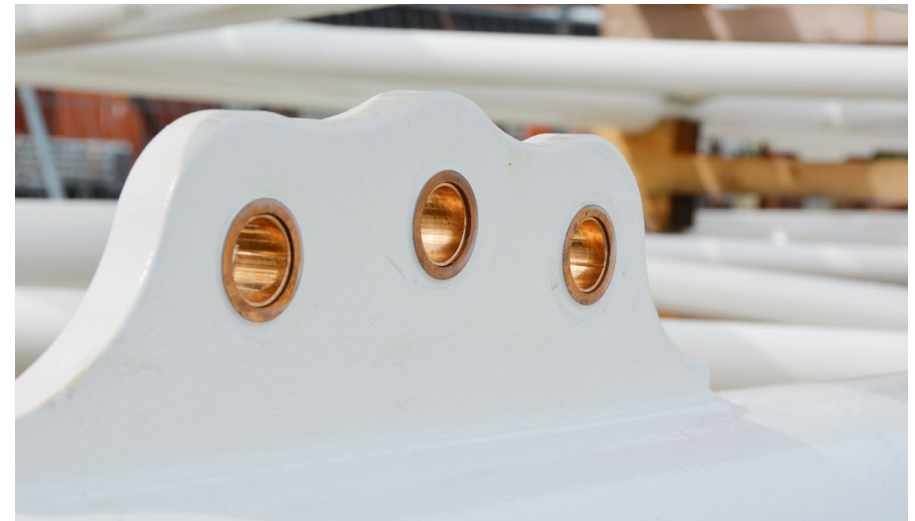
Drive system and storm lock

The main drive system contains 8 drives, 4 on each side of the wheel. In the closed position the tires (full rubber) of the drive system are pressed against the rimbar. Every drive has its own frequency converter, which makes it possible to control all drives separately and if necessary switch off. There is a redundancy of 2 drives, which means that it is still possible to safely operate the wheel with 6 drives (taking the restricting mentioned in the manual into account).

The wheel also contains a storm lock which prevents the wheel from rotating, when the wheel is out of use and the drive system is put in the position 'open'.



Cable trays integrated in spoke design



Bronze bushes to prevent wear

Gondolas

The wheel contains 24 standard gondolas.

All gondolas have sliding doors at one side of the gondola. As an option, the doors can be opened automatically by the ride control. This option includes a feature that in case the connection is lost, the doors can be opened by buttons at the outside of the gondola and ultimately a facility to manually unlock the doors. The door mechanism includes a mechanical lock which prevents opening from the inside. Warning lights at the outside of the gondola indicate if the gondola doors are locked or unlocked. These lights are triggered by a sensor integrated in the door mechanism.

The gondola has an aluminum frame and light grey windows of PolyCarbonate or . low-e safety glass as an option. Outside RGB LED lighting can be chosen which will be integrated in 8 cornersides of the gondola . Flip-in windows are integrated for fresh air.

There are 2 benches inside the gondola made of black imitation leather. Individual seats instead of benches are available as an option. The floor is covered with an aluminium barley grain sheet.

Inside the ceiling 4 LED spots and a button to switch on/off the lighting are integrated.

A basic audio system providing the passengers with a welcome message, safety instructions, narration or music is part of the standard configuration. This system is also used to establish a two-way

communication between the gondola and the operator by pressing the help button in the ceiling. In case required, the operator can also establish a connection with a specific or all gondolas.

An optional video screen turns the audio feature into an interactive multimedia system allowing for instance to select different languages and play video.

The gondola contains a HVAC unit, with 3.95 kW cooling and 1.7 kW heating capacity. The HVAC unit can be controlled by the ride control. The condensation water of the HVAC unit is dumped while the gondola is in the loading area by an electrically controlled valve.

When the power to the gondola is lost, a UPS in the gondola takes over. The UPS has sufficient capacity to power all local lighting and control systems for minimum five minutes and to open and close the doors for at least one time (in case of electrical doors.)

Warning/safety signs and maximum loading of the gondola are labelled inside the gondola. The outside labelling includes the gondola number at the left and right side, the Dutch Wheels logo at the right corner of the sliding doors and a customer logo behind the seats on both sides of the gondola.

The optional VIP gondola has a luxury interior design where the exact design is to be discussed. The floor of the VIP gondola can be made of glass to create an even better experience.



DW10W Symphony 10 gondola



Symphony gondola contour lighting

Wheeldeck

The station design is not included. An interface drawing of the wheel will be provided to the client to design the wheeldeck.

Ride Control System (Siemens based)

The RCS consists of control cabinets integrated in a special design 40 ft HC e-container, an operator console and platform consoles to be integrated with the loading ramp. All electrical wiring and connections are provided. The operator console contains a 24" touchscreen panel, with operation and emergency buttons. The operational modes are automatic, manual and maintenance.

Platforms and stairs

At the left and right side of the wheel maintenance platforms and stairs are included in the design for inspection of the wheel components and drive system. A fall arrest protection is included. Work lighting is integrated into the design of the platforms and stairs to allow safe working conditions at night.

Foundations

A foundation plan together with foundation loads and the different load cases are provided by Dutch Wheels. Anchor bolts, nuts and templates for fitting in solid concrete foundations will also be provided, however foundations and all other civil works have to be provided by

the Buyer.

Lighting

The entire show lighting package is optional. The show lighting package of the wheel consists of:

- Dot-based RGB lighting with a pitch of approximately 125 mm integrated into the rimbars.
- Dot-based RGB lighting with a pitch of approximately 125 mm integrated into an aluminum profile (clamped to the spokes).
- Floodlights at ground level to lighten up the wheel.
- Flood-based spoke lighting to accentuate the spokes.
- Dot-based RGB lighting globe.
- LED screen video globe with a pixel pitch of 10 mm.

All options can be chosen separately.

Painting

The paint system used for the wheel is a zinc based 3-layer system. This represents corrosion protection class C5 according to ISO 12944.

Calculations

The structural analysis and other designs are in conformity with the EN 13814, ASTM F2291 and GB8408. For electrical equipment EN60204, EN61439 and IEC60529 are used.

Drawings

Dutch Wheels will supply all necessary drawings for installation and maintenance purposes. A full drawing package for third party review will be available at Dutch Wheels head office.

Manuals

Operating and Maintenance Manuals in the English language will be provided.

Material Quality

Material quality in accordance to DIN and European Standards or Equivalents.

Brands

Brands used (but not limited to): Siemens, Coleman, SEW, SKF, Martin.



e-room cabinets



White-series Montreal

Offer

Components and prices

Prices in Euros, ex works, Inco Terms 2010 - Subject to final design

COMPONENT	PRICE	REMARKS
Basic wheel	€ 13.500.000	Fully functional wheel with basic configuration
Foundation bolts and templates	Included	
Steel structure	Included	
Maintanance platforms and stairs incl. fall arrest	Included	
Wheel deck	Excluded	
GONDOLA		
24 Symphony-10 gondolas color RAL 9010	Included	Gondolas contain aluminum structure, light grey Polycarbonate windows, HVAC unit, manual sliding doors one side, 2 benches with carpet cover, flip in window left and right side, barley grain floor, 4 LED fixtures with on/off button, Help button and 2 way communication system, all labeling.
Automatic doors	€ 192.000	doors with electric actuator, control buttons on gondola, integrated with ride control and console on loading ramp, meeting highest safety level.
VIP upgrade (sport seats configuration, dark grey windows)	€ 30.000	Various standard designs. Special demands possible but need to be priced. Price is for 1 VIP upgrade in addition to bace gondola price.
Individual seats with leather look cover	€ 72.000	Various colours possible. Price covers all 24 gondolas.
Glass floor	€ 10.000	Price per gondola.
Outside RGB lighting (integrated in gondola poles)	€ 175.000	Price covers all 24 gondolas.
Client specific logo	€ 154	Price per gondola.

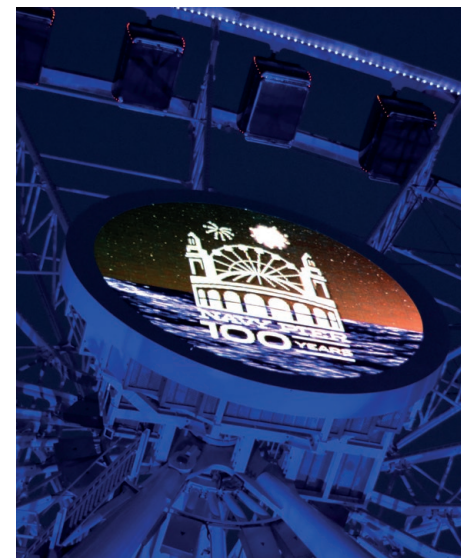


Ringbeams



Braces

COMPONENT	PRICE	REMARKS
LIGHTING		
Floodlights	€ 100.000	12 RGB floodlights with two sections per unit. Including controls, connection boxes. unit and integration for optional media server.
Dot based rimbar lighting (pitch approx. 125 mm)	€ 410.000	RGB LED dots mounted in ringbeam panels. Includes connection boxes and cabling. Price for two sides.
Globe dot based 8,5 meter	Excluded, price to be determined	RGB LED dots mountes in circles with 8 dots per meter. Delivery includes connection boxes and cabling.
Globe dot based 10 meter	Excluded, price to be determined	RGB LED dots mountes in circles with 8 dots per meter. Delivery includes connection boxes and cabling.
Globe video based 8,5 meter (one side only)	Excluded, price to be determined	Pitch 10 resolution round screen. Delivery includes cabling, connection boxes and content managment system. Price and specification currently subject to update
Globe video based 10 meter (one side only)	Excluded, price to be determined	Pitch 10 resolution round screen. Delivery includes cabling, connection boxes and content managment system. Price and specification currently subject to update
Mediaserver	€ 75.000	Price includes two media servers (one for backup) to create advanced light effects as well as audio integrated light shows.
RIDE CONTROL & EQUIPMENT		
40 HC foot E-container	included	
Control cabinets	Included	
Drive system (8 drives) incl. stormlock	Included	
Electric wires, pipes and hoses	Included	
Sensors, cable trays and connectors	Included	
Emergency control	Included	
Generator	Excluded	Generator needs to be arranged by client.



Video globe



lighting package

COMPONENT	PRICE	REMARKS
TRANSPORT		
Transport document	Excluded, at cost	
Import	Excluded	
Organizing transport	Excluded, at cost	
Transport insurance	Excluded, at cost	
loading	Excluded, at cost	
Unloading	Excluded	
Temporary storage costs	Excluded	
Local transit costs	Excluded	
INSTALLATION		
		Installation process needs to be discussed in detail to understand and prepare, staffing requirements, crane plans and timing.
Mechanical Installation team	Excluded	for mechanical installation including supervisor. Estimate
Electrical Installation team	Excluded	for electrical installation including supervisor
Testing and commissioning	Included	
Work permits, etc.	Excluded	
TOOLS, EQUIPMENT & FACILITIES		
Special assembly tools	Excluded, at cost	A full set of special installation tools will be shipped to site in about 3 containers.
General assembly tools (cranes, etc.)	Excluded	to be arranged for locally
Auxiliaries	Excluded	
Office	Excluded	
Canteen	Excluded	
Sanitary facilities	Excluded	
First aid kit	Excluded	
Fencing (security)	Excluded	
LODGING		
Travel to wheel location	Excluded, at cost	



Installation



Installation

COMPONENT	PRICE	REMARKS
Lodging	Excluded	
Meals	Excluded	
Transport of personnel to site	Excluded	
GENERAL		
Spare parts	Included	This package includes a set of wear part like tires, mechanical and electrical components.
Warranty for 24 months of operation	Included	
Inspection, registration, licences, permits, approvals and certifications	Excluded	Depends on local building codes and local government
Operator training	Excluded, price to be determined	Based on specific needs and local staff to be trained, excluding travel and local expences
On-site operational support	Excluded, price to be determined	This relates to the on-site support to help setup the wheel operation. Proposal will be made upon specific needs.



VIP version Symphony

Suggested Configuration:

Base wheel

Gondola:

-

Lighting

- Floodlights
- Gondola contour
- Ringbeam
- Mediaserver

Total Price: € 14.202.000

Not included in the scope of work

(Unless stated otherwise in the price list and/or in the technical documentation, as and where applicable)

- Engineering and construction of foundations and any other civil works.
- Grounding pin for lightning protection.
- Generator (if required).
- Local and/or governmental

inspection/certifications.

- Approval of any independent institute of all technical. documentation, production
- Procedures and at site commissioning.
- Co-ordination and evaluation of any local approvals.
- Grouting.
- Site services (use of light, power and other facilities).
- Crowd control fences.
- Operating cabin and roofs.
- Wheel deck.
- Electrical conduit lines to mains.
- Fire warning/emergency signs.
- Electric grounding.
- Packing, lashing and securing (in case of transport to be arranged by client).
- Pre-assembly of foundation bolts in concrete.
- 3rd party consultation or

approval.

- Crane hire, compressor, welding sets, tools and all further required equipment.
- Cost for food, lodging, rental car and other applicable

expenditures for installation supervisor.

- Any other items not listed.



Main axle White-series

Terms & Conditions

Price conditions

The prices in this quotation are net and based on 2020 manufacturing cost levels. Prices may be subject to immediate change depending on the international market prices for steel and labor.

Validity of Quotation

The pricing and other conditions of our proposal are based on contract award within two months after release of this quotation, after which date our quotation expires.

Delivery time and terms

The delivery time is subject to factory workload and planning and is to be confirmed upon contract award.

Terms of payment

- 30% downpayment within 10 days after signing contract of sale.

- 30% against invoice sent upon start of production.
- 30% before shipment ex- Weert, Netherlands.
- 10% against invoice and signed document of acceptance, or 3rd party final inspection report.

Taxes & Duties

All prices stated are net prices and exclusive of any taxes and/or duties. There will be no Dutch taxes and/or duties charged, subject to receipt of proper transport and custom documentation. The Buyer will be responsible for all taxes and import duties which may be levied on the scope of supply or equipment. Customs clearance charges will be for the account of Buyer. The Buyer will obtain the necessary import licenses if required.

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As this product is still subject to engineering, the actual product may be different. Dutch Wheels group of companies will make an effort to update on relevant changes as they are being implemented.



Chicago Centennial Wheel at Navy Pier



White-series



Dutch Wheels

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