STAGE SYSTEMS

waagner biro
STAGE SYSTEMS

COMPETENCE
INNOVATION
PERFORMANCE

YOUR PARTNER WORLDWIDE FOR:

- any size of project up to technical landmarks
- ensuring a smooth production workflow
- fast track renovations with minimal closure times
- customized solutions

WELL KNOWN FOR:

- technical competence
- trouble free execution
- performance & quality
- covering the whole life cycle
- C · A · T control

FACTS

- > 10.000 drives installed
- > 15.000 performances /year in more than 40 countries - 100% executed with Waagner-Biro Stage Systems equipment
- > 60 experienced mechanical engineers

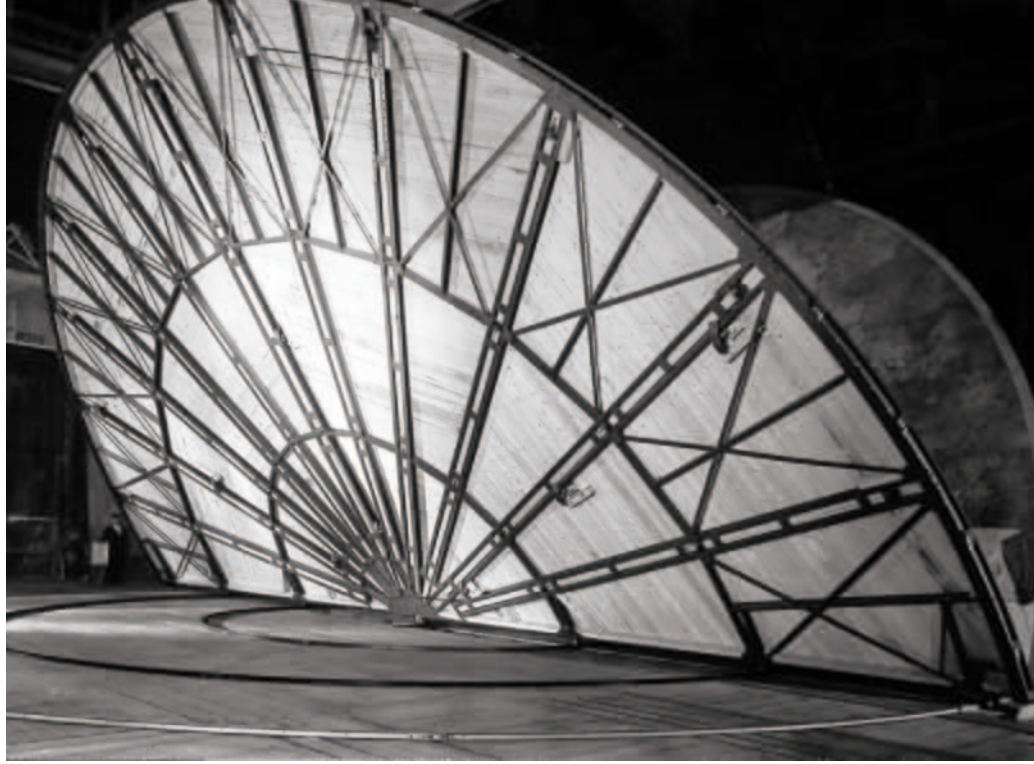
FROM TRADITION TO INNOVATION

In 1854 Rudolf P. Waagner and Anton Biró each founded a workshop in Vienna. These two small enterprises merged and developed into the Waagner-Biro Stage Systems AG. Waagner-Biro Stage Systems´ core competence since these beginnings has been steel construction, mechanical engineering, facade work and electrical engineering. Over the years Waagner-Biro Stage Systems specialised in the field of stage machinery, where we have become a global player.

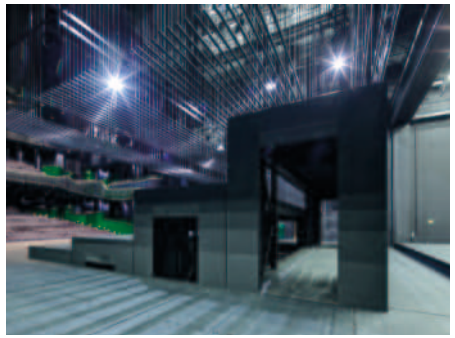
The company´s growth began with the rebuild of the Vienna State Opera and the Burgtheater after World War II and came to the world´s attention between 1963 and 1972, when we planned and built the stages for the Sydney Opera House in Australia. This was followed by projects on every continent, for example in Seoul/Korea, Manaus/Brazil, Berlin/Germany, Hong Kong/China, Moscow/Russia, Caracas/Venezuela, Madrid/Spain, Vienna/Austria etc.

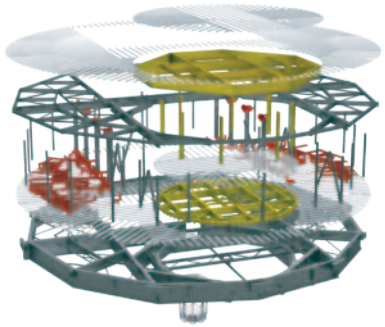
Our success was due to our constant readiness to be innovative and our close cooperation with our customers. Traditionally, we pay great attention to long-term partnerships with theatres around the world.

Nowadays it's impossible to imagine a theatre without a modern and safe control system as the digital era didn't stop in front of theatres. It was more than 30 years ago that Waagner-Biro Stage Systems started to develop it's own control system CAT. Mid of 2017 Waagner-Biro Stage Systems introduced the actual version C · A · T V5 keeping it's position as a market leading stage company.



PORTFOLIO





LOWER STAGE MACHINERY

Waagner-Biro Stage Systems makes customers´ visions come true: no matter how specialised and demanding. Waagner-Biro Stage Systems offers lower stage machinery solutions for:

Single-deck and double-deck platforms based on lifting mechanisms such as ‚Spiralift', ‚Linklift', or scissor-type. For fast and silent running Waagner-Biro Stage Systems relies on rope winch drive technology.

Revolving stages, especially for demanding lower stage machinery, which combine revolving stages with inserted platforms or revolving disc.

For surprise appearances Waagner-Biro Stage Systems has developed a movable **actor´s lift** with a lifting speed of up to 0.5 m/s.

Stage waggons, which are particularly important for rapid scenery changes, are another Waagner-Biro Stage Systems speciality. These are driven passively and therefore require no power cabling.

This system has proven its reliability and accuracy in two dimensions at the Copenhagen Opera House. Moreover, Waagner-Biro Stage Systems has developed revolving disc waggons that can be split either for easy storage or to be used as individual stage waggons.

UPPER STAGE MACHINERY

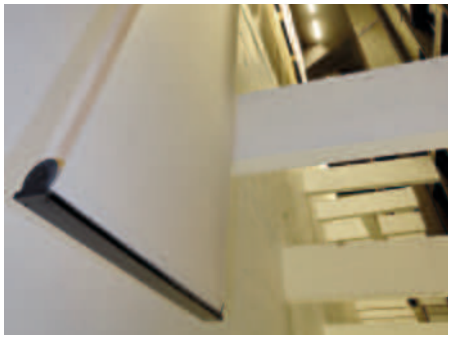
Waagner-Biro Stage Systems combines fly bar and point hoist solutions to provide optimum overall upper stage machinery solutions.

Waagner-Biro Stage Systems **fly bar solutions** meeting the latest safety standards for theatres include:

- **Super silent horizontal winches**, operating with specially developed silent motors, brakes and gear boxes
- **Vertical winches** called driving axles for wall mounting ensuring 0° fleet angle
- Extremely space-saving **pile winding winches** for applications with lower lifting heights
- And **Flexifly**, the modular line shaft hoist, perfectly suited for applications requiring an economic lifting solution.

Point hoist solutions by Waagner-Biro Stage Systems include fixed point hoist winches with movable pulleys as well as:

- **Movable point hoists** with extension arm, which are easy to roll on the grid and provide maximum positioning flexibility for lifting point loads
- The **FLY**, a fully integrated point hoist combining winch unit, power electrics and control in one box. This lightweight 175 kg hoist can be positioned on the grid but is also perfectly suited to being suspended on a crane beam system



ACOUSTIC SOLUTIONS

Modern concert halls demand maximum flexibility since they accommodate a multitude of musical events ranging from small chamber ensembles to large symphony orchestras. To allow flexible adaptation of hall acoustics, Waagner- Biro provides acoustic solutions such as:

- **Canopies** with flexible movement mechanism allowing lifting and tilting, which may additionally be equipped with automated flaps for loud-speaker clusters and lighting bars
- **Banners** based on rolling or folding systems with a length of up to 18 m for concert halls or reverberation rooms
- **Acoustic door mechanism** for reverberation rooms. Waagner-Biro Stage Systems´ solutions combine minimum space requirements with maximum precision.

CONTROL SYSTEM

The Computer Aided Control System is based on a modular decentralized control approach based on:

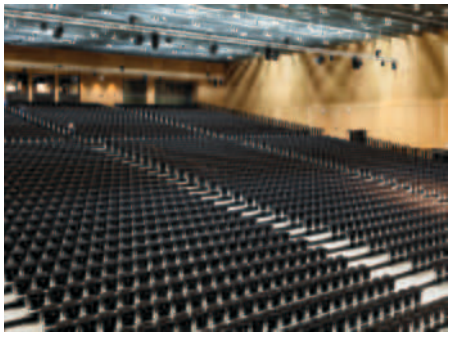
- **Redundant servers** on which all shows are stored and which feed the distributed axis controllers

- **Axis controllers** for each motor. These axis controllers with double processing units fully comply with SIL3 requirements (EN17206). The results of both processing units are compared continuously and action on the actuators is only initiated if the results are equal

- A portfolio of **control panels** suited to various operation scenarios. The products range from double screen operator desks for central operation and programming to wireless mobile remote control panels for local operation of fly bars and other machinery

- **Redundant network** to ensure highest availability during operation. Even if one network is down, functionality of the equipment is guaranteed

- **Telemaintenance:** if required, servers regularly send comprehensive status information to Waagner-Biro Stage Systems Automation. Experts evaluate the information and inform the customer about potentially upcoming defects, which in turn considerably increases the reliability of the whole system



TELESCOPIC SEATING

Contemporary venues from stadiums to congress centres, from arenas to concert halls, need to support multifunctional use. Based on customer requirements, Waagner-Biro Stage Systems designs appropriate **telescopic seating solutions**, satisfying even the most exceptional demands, such as mobile and transportable units, stowable, lifting or turntable units and systems with variable heights.

During the design phase, Waagner-Biro Stage Systems works with partner companies to satisfy equally demanding requirements in terms of seating ergonomics and architectural finish. Completing the portfolio, Waagner-Biro Stage Systems offers a multitude of tailor-made venue equipment such as **sliding or lifting walls**.

THEATRES

STATE THEATER/ARTS CENTRE MELBOURNE MELBOURNE, AUSTRALIA

Arts Centre Melbourne, originally known as the Victorian Arts Centre and briefly called the Arts Centre, is a performing arts centre. It is a complex of distinct venues. Hamer Hall is a separate building and the largest of the venues. The other venues (the State Theatre, Playhouse and Fairfax Studio) are housed in the Theatres Building (under the spire).

Our latest project – the State Theatre (2,079-seat) - involved the renewal of over 100 decoration hoists in the theatre's upper machinery. This included dismantling of the existing technology, installation of the new machines, and the complete renovation of the electrical and control systems- deadline of just under 7 months was provided for all related renovation work. Despite the demanding timeline, the project was successfully handed over on schedule in April 2021.

AT A GLANCE

- covering 107 fly bar hoists
- 22 chain hoists
- 12 mobile point hoists
- C·A·T V5 Control System


WLL 2T
VMK-S


BARCO


VOLKSTHEATER


UNICORN

VOLKSTHEATER
VIENNA, AUSTRIA

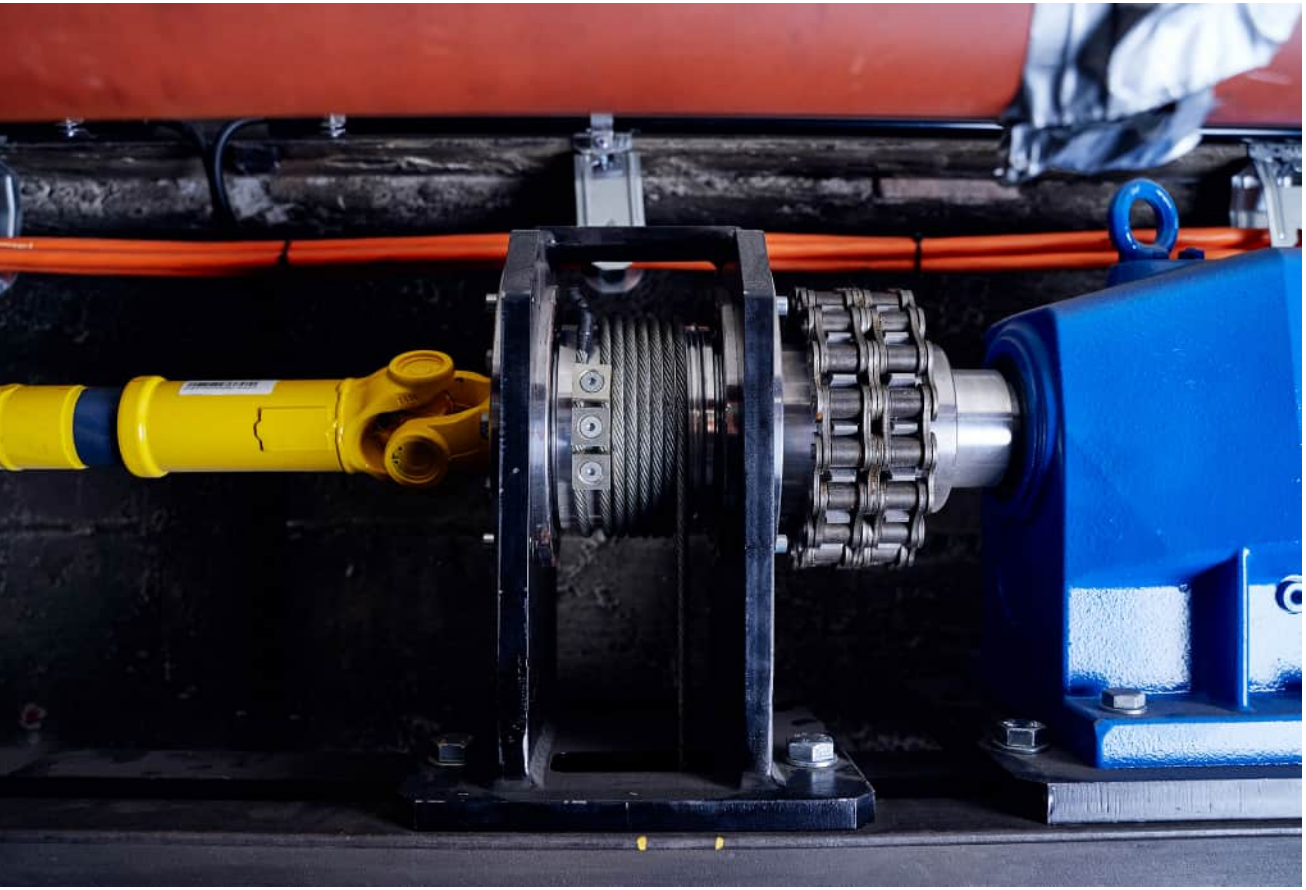
The Volkstheater was built in 1889 and is one of the largest theatres with the third largest stage amongst the german-language countries IT was constructed in the style of historicism and had a total of 1901 seats, today only 832 seats.

With the end of the 2018/19 season, the preparatory measures for a new general renovation of the exterior and interior took place. Waagner-Biro Stage Systems was also responsible for the entire stage technology in this refurbishment - as 40 years ago for the original stage machinery.

The handover to the client took place End of October 2020.

AT A GLANCE

- with more than 50 hoists
- C·A·T V5 Control System



LANDESTHEATER SALZBURG
SALZBURG, AUSTRIA

The Salzburg State Theater is a listed building and is part of the UNESCO World Heritage Historic Center of the City of Salzburg. The building houses drama, ballet and musical theater. In October 1971, the theater received a classic studio stage in the former Mirabell Casino called „Kammerspiele", which is now used for contemporary and classic drama.

While the building is needed for the annual Salzburg Festival in summer, the Great Festival Hall and the House for Mozart are also other venues of the Salzburg State Theater at this time.

In 2021, the house decided to renew the stage machinery, most of which was originally also supplied by Waagner-Biro Stage Systems.

AT A GLANCE

- 26 fly bar hoists
- 47 hoists
- Under Stage Machinery
- C·A·T V5 Control System


LANDESTHEATER

CITY THEATER
BASEL, SWITZERLAND

The Theatre Basel, located in Basel, Switzerland, serves as the city's municipal theater and is home to the opera and ballet companies. Since 1975, it has been cherished by culture enthusiasts for its diverse performances and extensive offerings.

Major renovations were carried out in two phases between 2015 and 2018, focusing on the Big Stage. This included a complete overhaul of the upper stage machinery and the implementation of the advanced C·A·T control system. More than 70 hoists were upgraded across both halls, ensuring precise and efficient control of stage elements.

Additionally, during the summer of 2015, twelve scissor lifting platforms were seamlessly integrated into the Small Stage. These platforms, with a low height of only 250 mm, offer a lifting capacity of 4.5/7.5 kN and a travel range of 1.16 m, enhancing the stage's versatility and functionality.

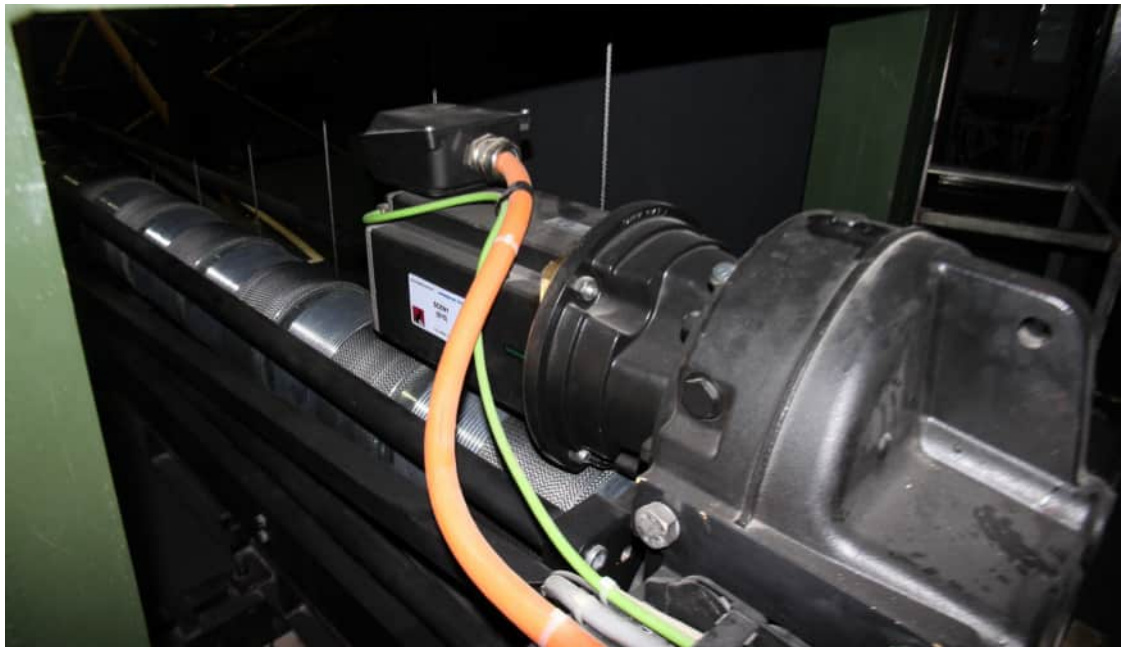
The theater also boasts 3 orchestra platforms measuring 15.0 x 1.5 m, equipped to move at a speed of 0.1 m/s, and a remarkable three-section turntable wagon spanning 15 x 15 m.

AT A GLANCE

- 14 mobile point hoists, 12 chain hoists
- 53 fly bar hoists, 12 point hoists
- 3 compensating platforms
- 1 scenery storage elevator & 2 trap elevators


THEATER BASEL ... WWW.THEATER-BASEL.CH ... TEL. 061-


waagner biro



DAI SHOW THEATRE
XISHUANGBANNA, PR CHINA

Located at the Xishuangbanna International Resort in China, housing a water acrobatics show, the theatre is a highly sophisticated venue that sets a new level of artistic and technical achievement to excite audiences from all over the world.
The theatre itself features a large performance water basin around which the audience is seated. The stage areas can easily transition between wet and dry as well as to reveal a deep dive pool.

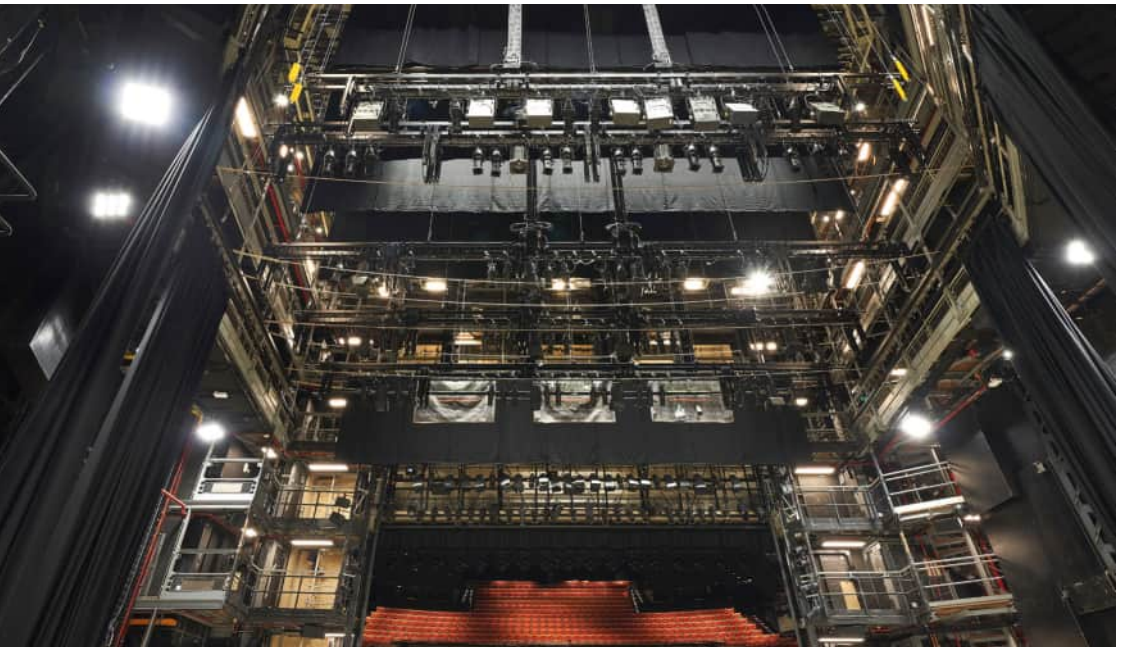
The theatre's large center dive basin plug, measuring 8 meters in diameter, can raise and lower the water level 5.5 meters. The perimeter basin – 333,661 gallons of water – can be drained in approximately 20 seconds and refilled in 45 seconds. The large central basin is 5 meters deep allowing performers to dive dramatically from 15 meters above the water, into the pool throughout the performance. The overhead rigging and acrobatic flying systems, along with all other mechanized theatrical systems, are controlled by a sophisticated automation system – the C·A·T control system. The flight speed of the artists flying system is 4 meters per second, so more than 8.6 miles per hour.

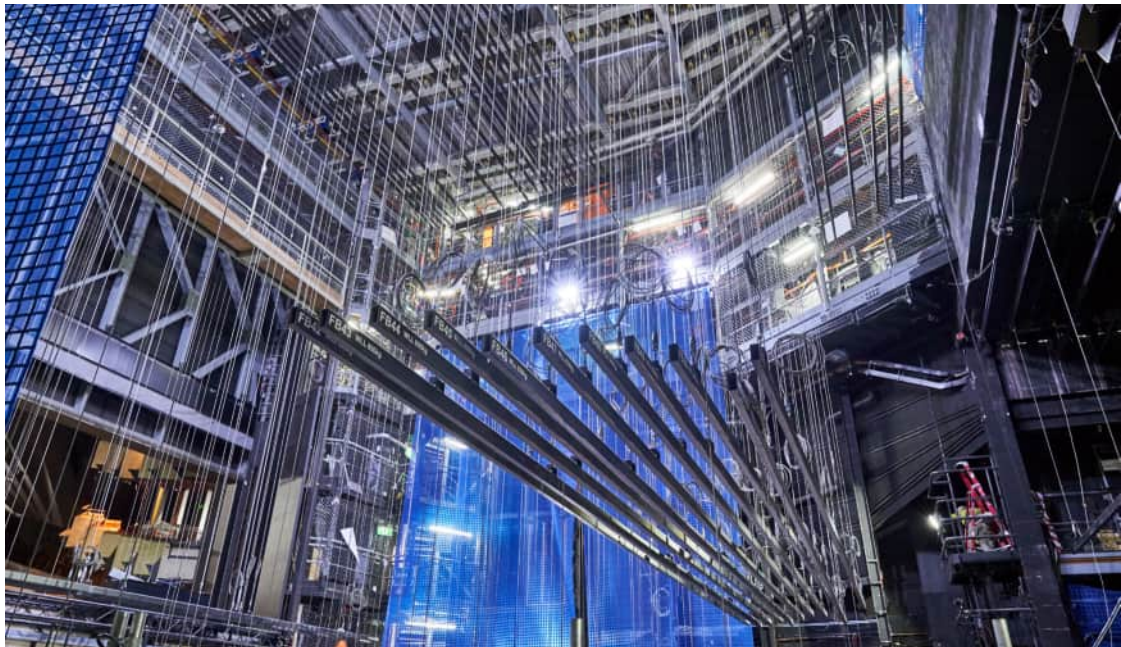
The Dai Show Theatre opened on September 25, 2015 and features 1.183 seats.

AT A GLANCE

- 13 acrobatic hoists (typical capacity 250kg)
- 2 Multi-line scenic hoists (typical capacity 1,000kg)
- 21 Acrobatic gates with retractable donuts

OPERA HOUSES





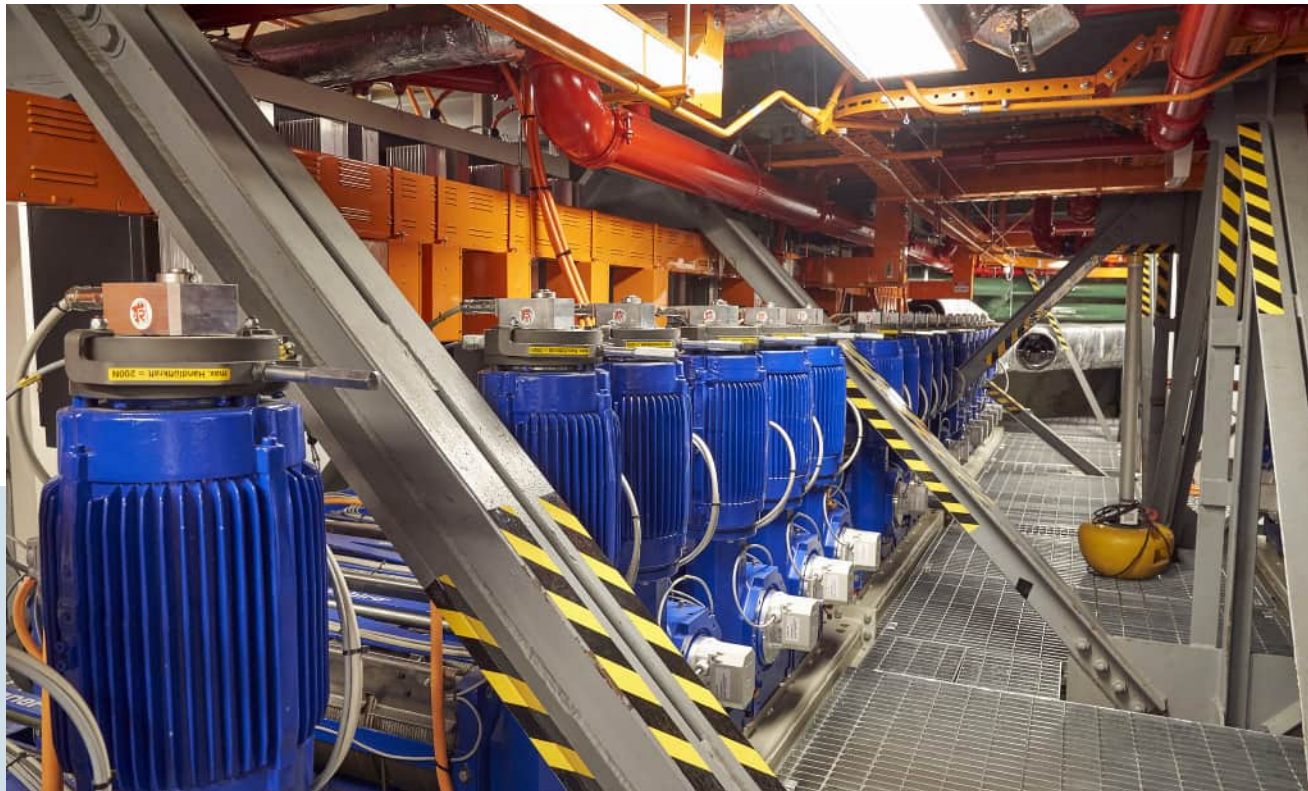
SYDNEY OPERA HOUSE / JOAN SUTHERLAND THEATRE SYDNEY, AUSTRALIA

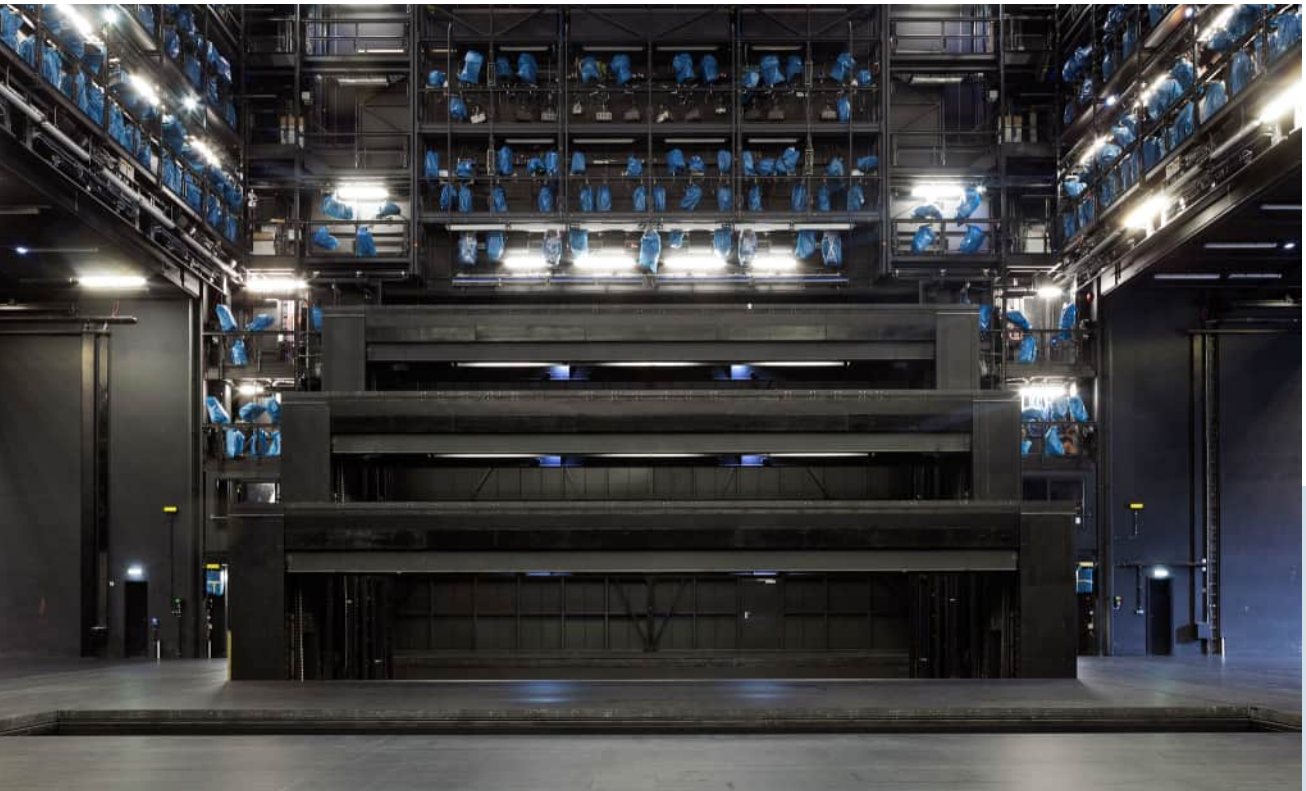
The remarkable masterpiece was built in 1973 and has been linked with Sydney ever since. In 1972 Waagner-Biro Stage Systems equipped the Sydney Opera house with a revolving stage (diameter 15 m) and two stage platforms (each 3.7 x 11 m) and upper stage machinery.
More than 40 years later, the JST machinery had reached the end of its operational life. To continuously ensure the highest quality standards part of the machinery and the control had to be replaced. Waagner-Biro Stage Systems built a new state-of-the-art fly system, a new rear stage lift, in addition to that Waagner-Biro Stage Systems has renovated the orchestra platforms.

More than 100 hoists have been installed in the upper stage machinery on two levels: the upper level serves as a machine room, which is decoupled acoustically and insulated to achieve the lowest noise emissions in the audience area. The heart of the JST are two backstage podiums. These create the connection between the "scene dock" at the ground level and the stage, which is 10 meters above the "scene dock".
The JST only closed for seven months to do the complete renovation. The big re-opening was celebrated properly at New Year's Eve in 2017.

AT A GLANCE

- Very short installation phase of 7 months
- More than 100 hoists in the upper stage machinery
- 2 rear stage elevators (each 11.41 x 3.6m width x depth)





STATE OPERA 'UNTER DEN LINDEN' BERLIN, GERMANY

The State Opera Unter den Linden, Berlin's oldest opera house, has been shining in new splendor since 2017 following extensive renovation work.
Waagner-Biro Stage Systems brought the entire technology up to date. This project is one of the largest in the history of Waagner-Biro Stage Systems.

Despite the listed building requirements and the need to preserve the historic building fabric, the modernization of the stage technology was successfully implemented. A specially designed steel scaffold helped to install the systems carefully without touching the exterior walls.

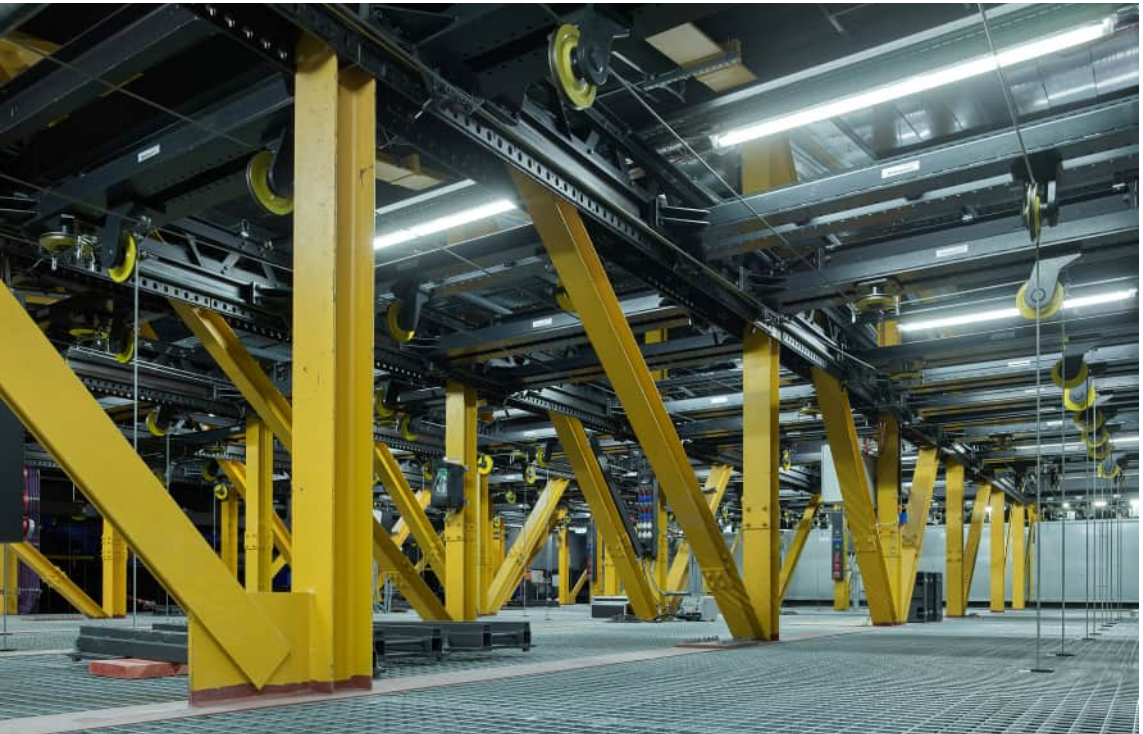
The extensive equipment with more than 280 drive axes, a complex upper machinery, including 60 fly bar hoists and 42 point hoists, the forestage and state-of-the-art lower machinery with a total of 8 platforms is optimally controlled by the proven C·A·T control system.

Another special feature can be found in the rehearsal platform. There is an underground transport route that is also used during performances to ensure that everything runs smoothly.

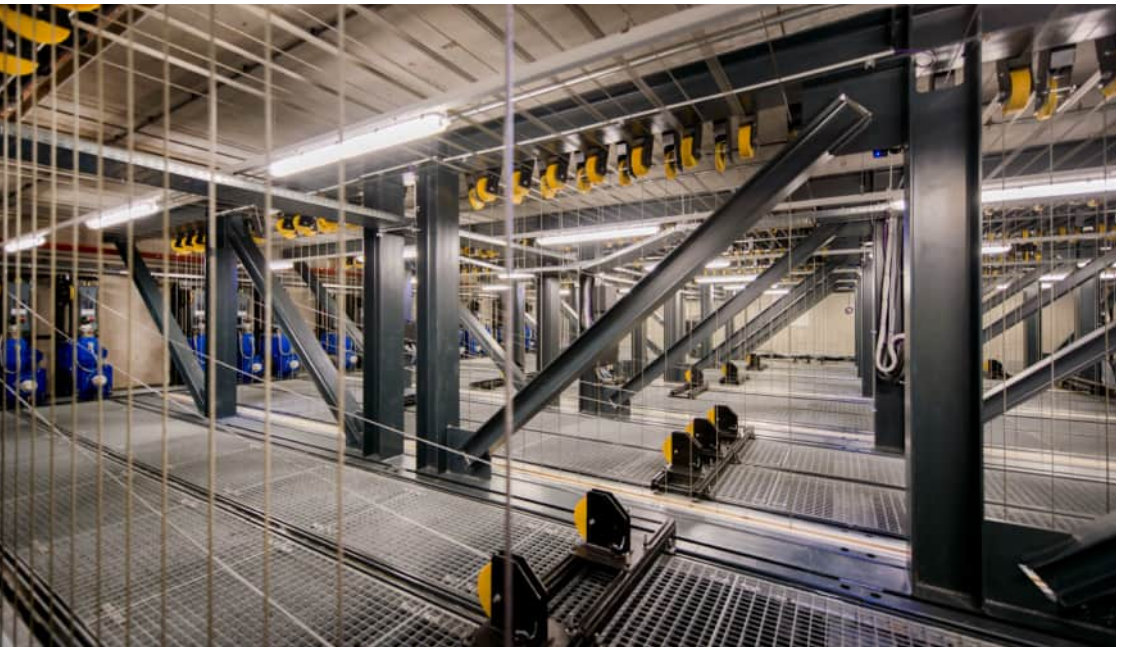
AT A GLANCE

- 4 double deck platforms, 4 single platforms & 3 compensating platforms
- 60 scenery hoists
- 42 point hoists
- 12 stage wagons
- Rehearsal platform


FRIDERICVS REX APOLLINI ET MVSIS




GZ2K



MUSIC THEATRE
LINZ, AUSTRIA

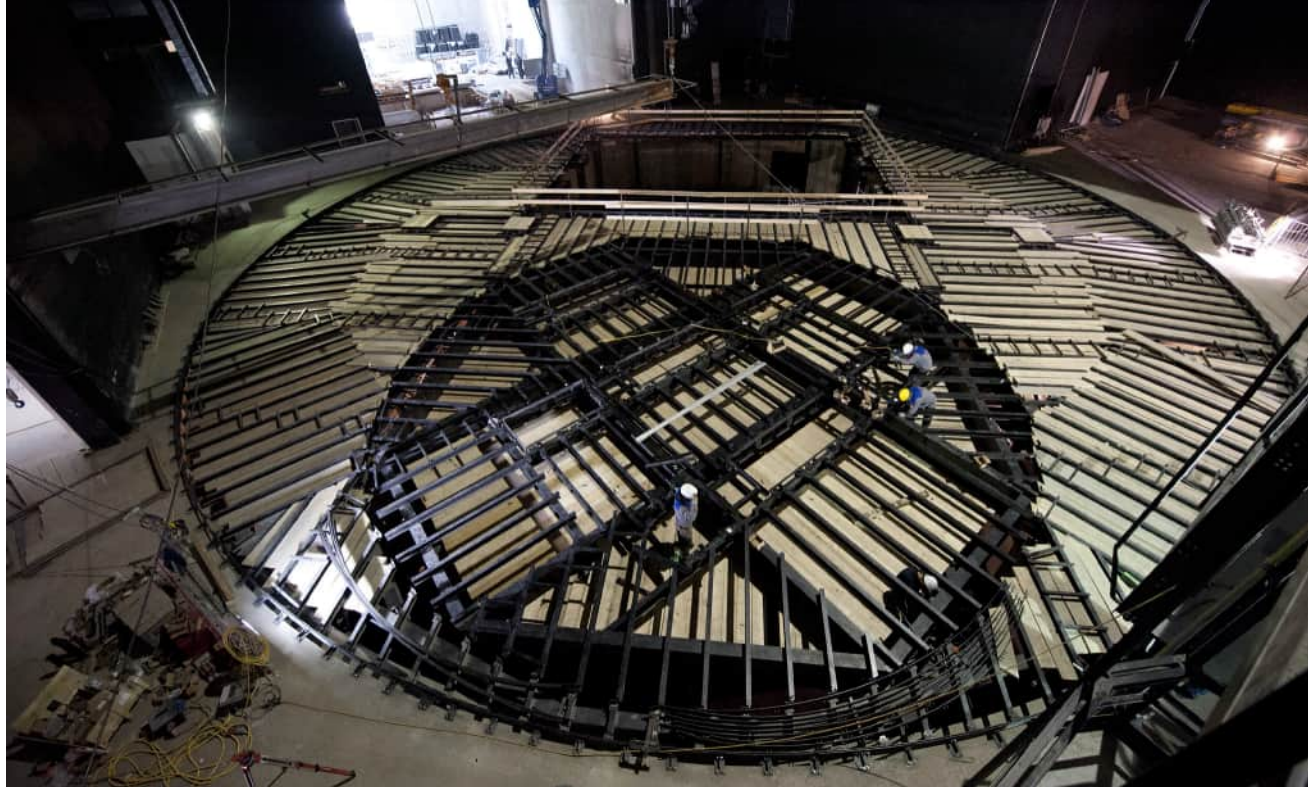
The revolving stage in the Music Theatre in Linz measures 32 metres in diameter. This makes it one of the largest in the world and the centrepiece of the newly built cultural monument. Three double-deck main stage lifts with inclinable secondary decks and a smaller revolving stage for performance purposes are integrated into the overall steel construction.

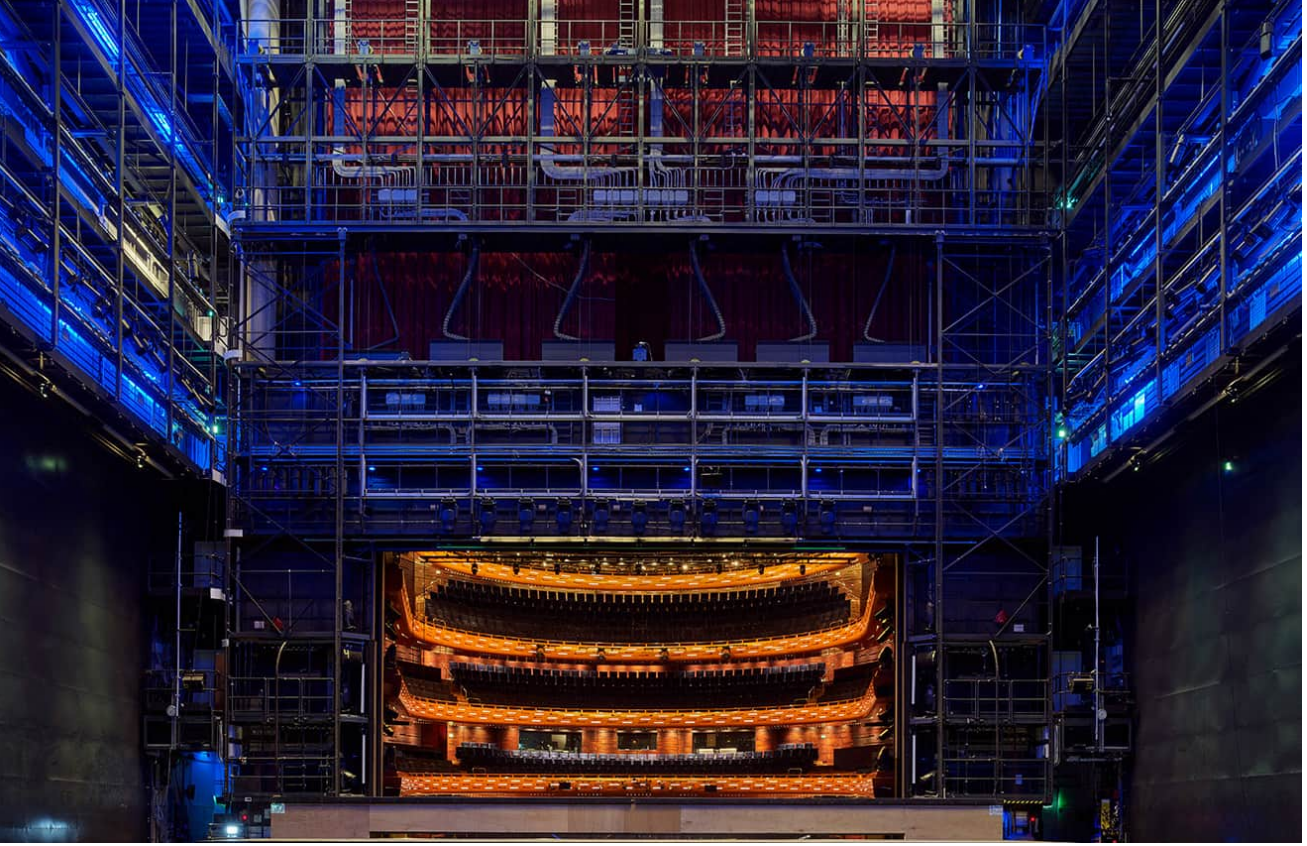
In addition to the revolving stage, three 15 x 4 metre doubledeck platforms and an additional revolving stage with a diameter of 15 metres were installed in the lower stage. The doubledeck platforms enable the automatic creation of steps for use in dramatic scenes or choral concerts. Built-in flaps allow for appearances and scenery changes to be performed with the help of steps or trap doors.

The upper stage machinery includes forty-three 500 kg hoists and eight 1,000 kg hoists. The entire project, conceived by architect Terry Pawson was, and is, very ambitious. The concept behind the stage equipment makes it possible for multiple scenes to be built simultaneously on the main stage – as well as facilitating quick and effective scene changes.

AT A GLANCE

- Transport revolving stage: Ø 32 m; 4 trap doors; operating weight 502 tons (equals to 4 A380 airplanes), play revolving stage Ø 15 m and three double deck platforms à 15 x 4 m
- More than 80 hoists in the upper stage machinery





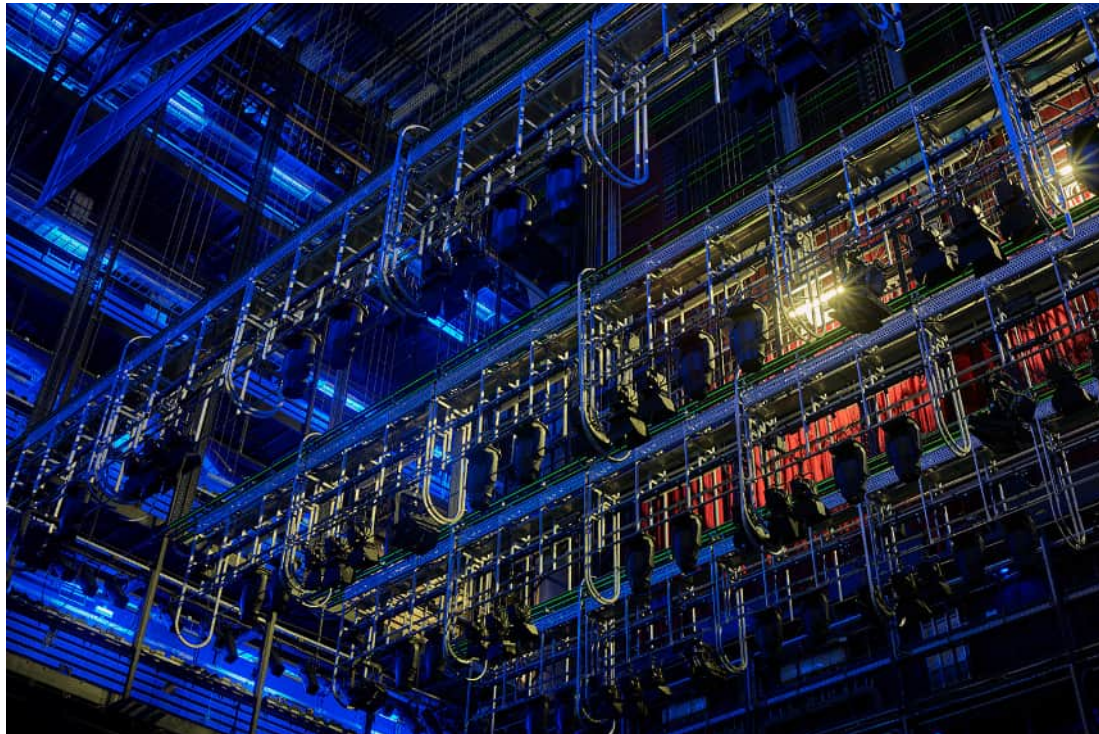
COPENHAGEN OPERA HOUSE DENMARK

As a newly constructed opera house, the Copenhagen Opera is a rarity on the European continent. Waagner-Biro Stage Systems was involved in the project in two capacities. The company was responsible for the architecturally impressive steel and glass facade, thereby magnificently realizing and showcasing the plans of top architect Henning Larsen.
In addition, Waagner-Biro Stage Systems installed the complete stage equipment which, when completed in 2004, set new standards to match the importance of the new opera house. One of our stage equipment innovations was the cyclorama that can be raised by up to five metres to give access to the 2,500 m² stage. Equally innovative is the "Pinion-Drive" stage waggon system we supplied, which can move freely both vertically and horizontally. The system's drive units are secured to the floor and can be retracted. Whether it is from the inside or from the outside, the Copenhagen Opera offers over 1,670 visitors an impressive sight and it has seamlessly joined the ranks of the most important opera houses in Europe.
In 2004 Copenhagen Opera was one of the first theatres enjoying the C·A·T V4, in 2017 the Opera decided to continue its aim to have a state of the art stage machinery being again within the first ones to have the C·A·T V5.

AT A GLANCE

- First pinion drive waggon system with 116 pinion drive units
- 4 double deck main stage elevators à 16 x 4 m, travel 10 m, 4 secondary elevators, 30 equaliser elevators
- 10 stage waggons: 16x4 m, v=0.3 m/s, 5 stage waggons: 16 x 2 m, v=0.3 m/s, 1 ballet and 1 revolving stage waggon 16 x 16 m
- More than 120 hoists in the upper stage machinery


203
28
29
30
31
35
36
37
38
39
202
203
32
33
34
35
36
37
38
39
40
41
42
102
102



CONCERT HALLS

NATIONAL KAOHSIUNG CENTER FOR THE ARTS
KAOHSIUNG, TAIWAN

A capacity of more than 6,000 seats, an opera house, a concert hall, a theatre, a library, more than 1,000 m² sized rehearsal rooms and two lecture halls make the new Arts Center, the worlds largest event center under one roof.
The opera house is equipped with 5 lifting platforms having a travel distance of 19 metres, 10 stage wagons each 16 x 3 m, a wagon with a turntable and an upper stage machinery with approximately 100 hoists. In addition, the orchestra pit can easily be arranged as desired for being able to perform operas in traditional European as well as in traditional Chinese style, where the orchestra is arranged on the side.

The theatre, which can be configurated with proscenium and thrust stage can seat up to 1,250 people. The upper stage machinery is equipped with more than 80 hoists. The concert hall executed in 'vineyard style' is equipped with 16 orchestra platforms and a 30 ton moveable acoustic ceiling. More than 600 drives are integrated in the Waagner-Biro Stage Systems C·A·T control system.
Mid of October 2018, the long-awaited grand opening of the largest performing arts centre in Kaohsiung, was celebrated.

AT A GLANCE

- More than 600 drives integrated in C·A·T control system
- 5 x double deck platforms: 16m x 3m
- 1 x turntable wagon: friction wheel, 16m x 15m
- 10 x Stage wagon: 16m x 3m, friction wheel

ELBPHILHARMONIE
HAMBURG, GERMANY

At the heart of the Elbphilharmonie is one of the most exciting architectural challenges in Europe: a world-class concert hall with 2,150 seats at a height of 50m above the Elbe. Then there is a smaller concert hall for up to 550 visitors and the Kai Studio for about 170 visitors.
The client's specified goal is to build one of the best concert halls is the world. The Elbe Philharmonic Hall should join the ranks of worldfamous homes to the performing arts like the Golden Hall of Vienna's Musikverein, the Berlin Philharmonie Concert Hall and the Concertgebouw in Amsterdam.

Waagner-Biro Stage Systems supplied the complete upper and lower stage machinery for the main and the smaller concert halls, a highly-modern C·A·T control system and has been also responsible for the system's installation. A particularly elegant touch: the elaborately decorated ceiling has openings for the chain, scenery and microphone hoists. These can be closed when the machinery is not in use which means that, not only the look of the ceiling is perfect, but so are the hall's acoustics.

The official opening took place on January 11 & 12, 2017.

AT A GLANCE

- 33 chain hoists, 24 microphone winches at the main hall
- 26 scissor driven platforms at the main hall
- 81 specid acoustic banners
- Telescopic stand at the smaller hall

GIANT AMBER CONCERT HALL LIEPAJA, LATVIA

The official cornerstone ceremony for the GIANT AMBER Concert Hall in Liepaja was celebrated on 4th of October 2013. The new Concert Hall is one of the largest concert halls in the Baltic area with 1,200 seats.

The GIANT AMBER project includes a concert hall, an auditorium for chamber music as well as rehearsal and ancillary rooms. The project was completed after 2 years of construction in July 2015. In 2014, Waagner-Biro Stage Systems won the contract to supply the complete upper stage and lower stage machineries as well as the fixed steel structures.

The upper stage machinery included structural steelwork, height-adjustable acoustic canopies with a total surface area of 160 m² and a dead weight of approximately 20 tons as well as 16 chain hoists. The lower stage machinery provided a transport platform, an orchestra platform and a height adjustable lifting platform in the auditorium.

Completion of the project has been in September 2015 followed by a grand opening in November 2015.

AT A GLANCE

- 16 chain hoists
- 1 orchestra platform with 55 m²
- 1 transport platform with 6 m²
- 12 pcs stage platformsystem, in total 102 m²

SYDNEY OPERA HOUSE / CONCERT HALL
SYDNEY, AUSTRALIA

The next project in the Opera House's renovation programme was the modernization of the world-famous concert hall. Waagner-Biro Stage Systems was once again awarded to renew the entire stage machinery of the concert hall, including the upper and lower stage technology as well as the acoustic technology.

One of the biggest challenges was to integrate machine hoists with a much higher payload than before into the architecture of the building. These included more than 90 winches in the upper stage machinery for precise and reliable movement of the stage elements.
In addition, a stage riser with multiple platforms, a seating wagon system as well as 22 automated reflectors in the side walls, 18 upper stage reflectors and 28 side wall acoustic banners were installed to ensure an optimal acoustic environment in the concert hall.

The C·A·T control system enables precise and efficient control of the entire stage technology.

AT A GLANCE

- 78 winches, 6 bobines and 14 chain hoists
- stage riser with 28 platforms, 4 seating wagons
- acoustic reflectors and banners
- C·A·T Control System

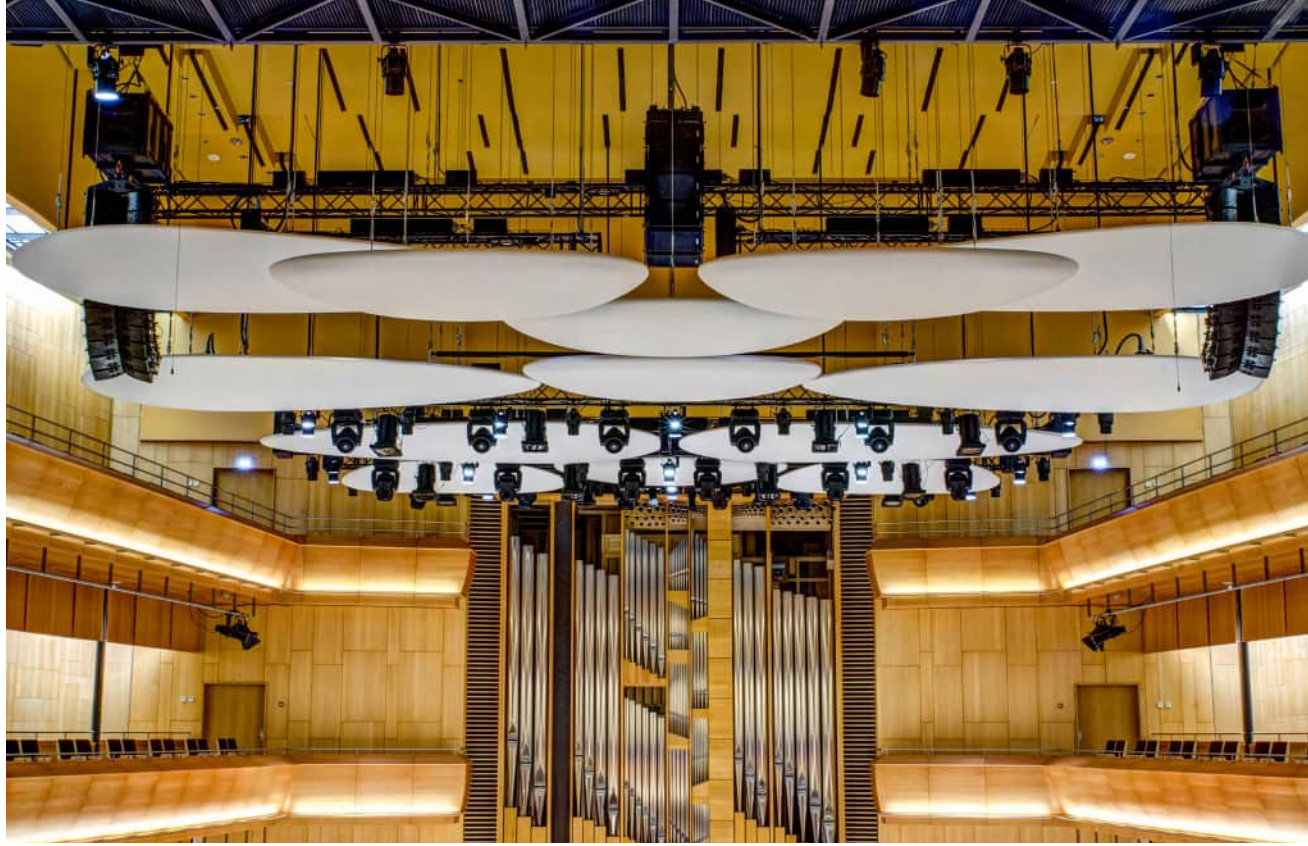
STAVANGER KONSERTHUS
NORWAY

The new concert house in Stavanger, inaugurated in September 2012, consists of two concert halls separated by a footpath. The red concrete box with its natural acoustics is a concert hall suited to the repertoire of symphony orchestras, while the glass box is a multi-purpose hall for louder rock and jazz concerts.
These two complementary halls were designed so as to allow for a classical concert to be performed in one hall and a rock concert to take place in the other at the same time. With adjustable reflectors in form of a "cloud formation", the volume of the hall can be adapted to the actual concert situation. The concert hall is equipped with 20 orchestra lifts, eight movable ceiling elements, 11 winches for acoustic reflectors as well as curtain systems.

The multi-functional hall can be used for theatrical performances, musicals with fully equipped platform and orchestra pit, as a viewers rank and gallery, or as a flat hall with a stage for rock and pop concerts. It can also be used as a hall with seats with a podium for conferences etc. This hall is equipped with 20 scissor podiums at the back of the stage, six orchestra platforms, three ‚Spiralift' platforms, six telescopic seating blocs, chair s and 48 hoists in the upper stage machinery. In total, Waagner-Biro Stage Systems integrated 205 adjustable axes into the C·A·T control.

AT A GLANCE

- Movable acoustic ceiling with 8 elements, up to 30 tons each
- a retractable seating solution allowing a variety of applications from theatre to catwalk
- 6 orchestra platforms, 20 scissor and 3 ‚Spiralift' platforms, 48 upper stage machinery hoists for two halls



HARPA
REYKJAVIK, ICELAND

The opening of Harpa in May 2011 was an important moment for all of Iceland because it happened during a time of financial insecurity in the country.

For Waagner-Biro Stage Systems the Harpa project was likewise special. The company supplied not only the complete stage equipment for three rooms (Concert Hall, Rehearsal Hall and Fourth Hall), but also supplied impressive acoustics solutions conceived by the architect Henning Larsen.

In cooperation with New York-based acoustic specialists, Artec Consultants, and with the help of innovative technology, Waagner-Biro Stage Systems installed in total 267 eighteen-metre-long acoustic curtains, 78 acoustic gates, 35 tons of mobile acoustic covers and a chorus waggon. This created a perfect and flexible, controllable sound experience, whether for a major opera or for more intimate theatrical drama.

AT A GLANCE

Elaborate system of adaptable physical acoustics, which adjusts hall reverberation using:

- 185 moveable acoustic banners of 18 m
- 264 m² overhead canopies weighing 35 tons
- doors to hidden reverberation chambers

MULTIPURPOSE VENUES

AUSTRIA CENTER VIENNA, AUSTRIA

The ACV is one of Europe's leading conference centers and is used for international congresses, corporate conferences, exhibitions, trade fairs and other events with up to 22,800 participants. The existing stage technology at the Austria Center Vienna (ACV) - Austria's largest conference center - was refurbished by Waagner-Biro Stage Systems.

In 2022, ACV commissioned Waagner-Biro Stage Systems with the realization of „drives for LEDs incl. control" for the new polySTAGE in the entrance hall.

The polyStage consists of a permanently installed kinetic LED installation with over 310 m2 with a high-resolution surface. The centerpiece is 52 individual panels arranged in 2 rings, each of which is equipped with a motor via belts to be controlled and moved individually. The two rings are flanked by an LED banner

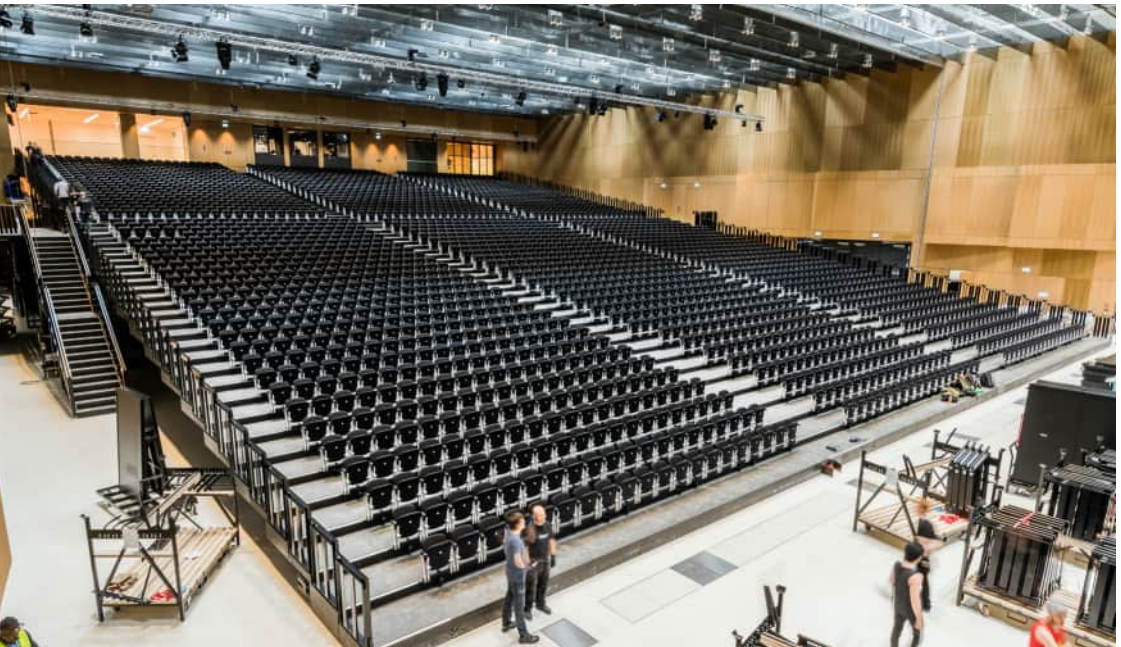
The entire new kinetic LED installation was integrated into the C·A·T V5 control system.

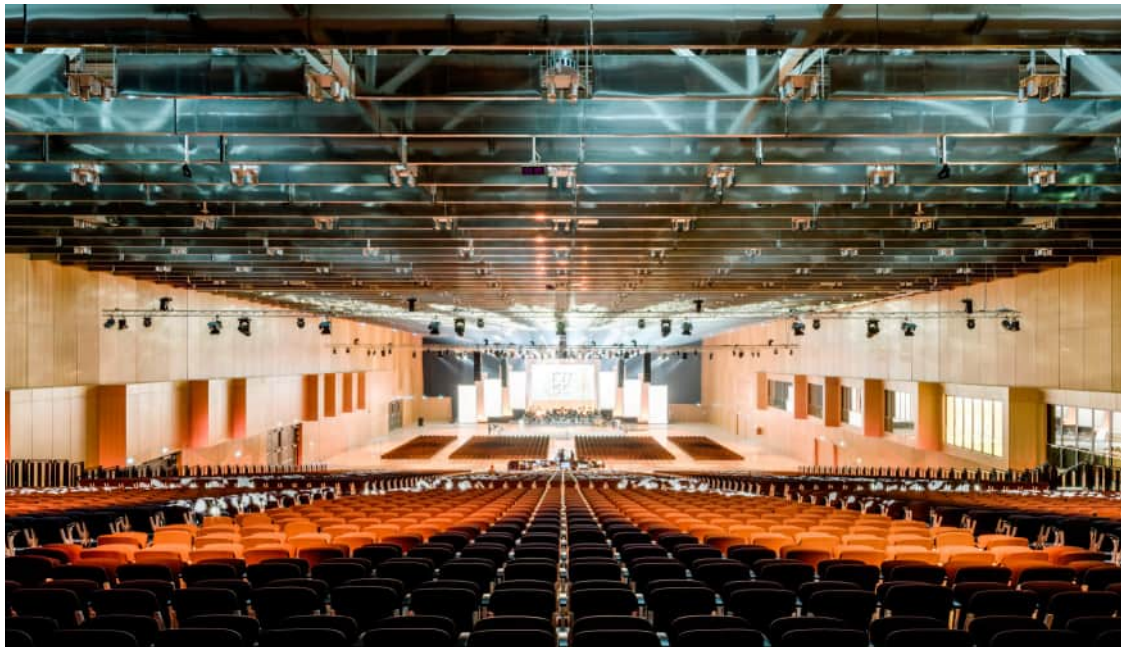
AT A GLANCE

- 45 double belt hoists
- 17 single belt hoists
- 31 control cabinets
- C·A·T V5 control system


AUSTRIA CENTER VIENNA
WELCOME
← ENTRANCE 1
← ENTRANCE 2


RHEINMAIN CONGRESSCENTER





RHEINMAIN CONGRESSCENTER WIESBADEN, GERMANY

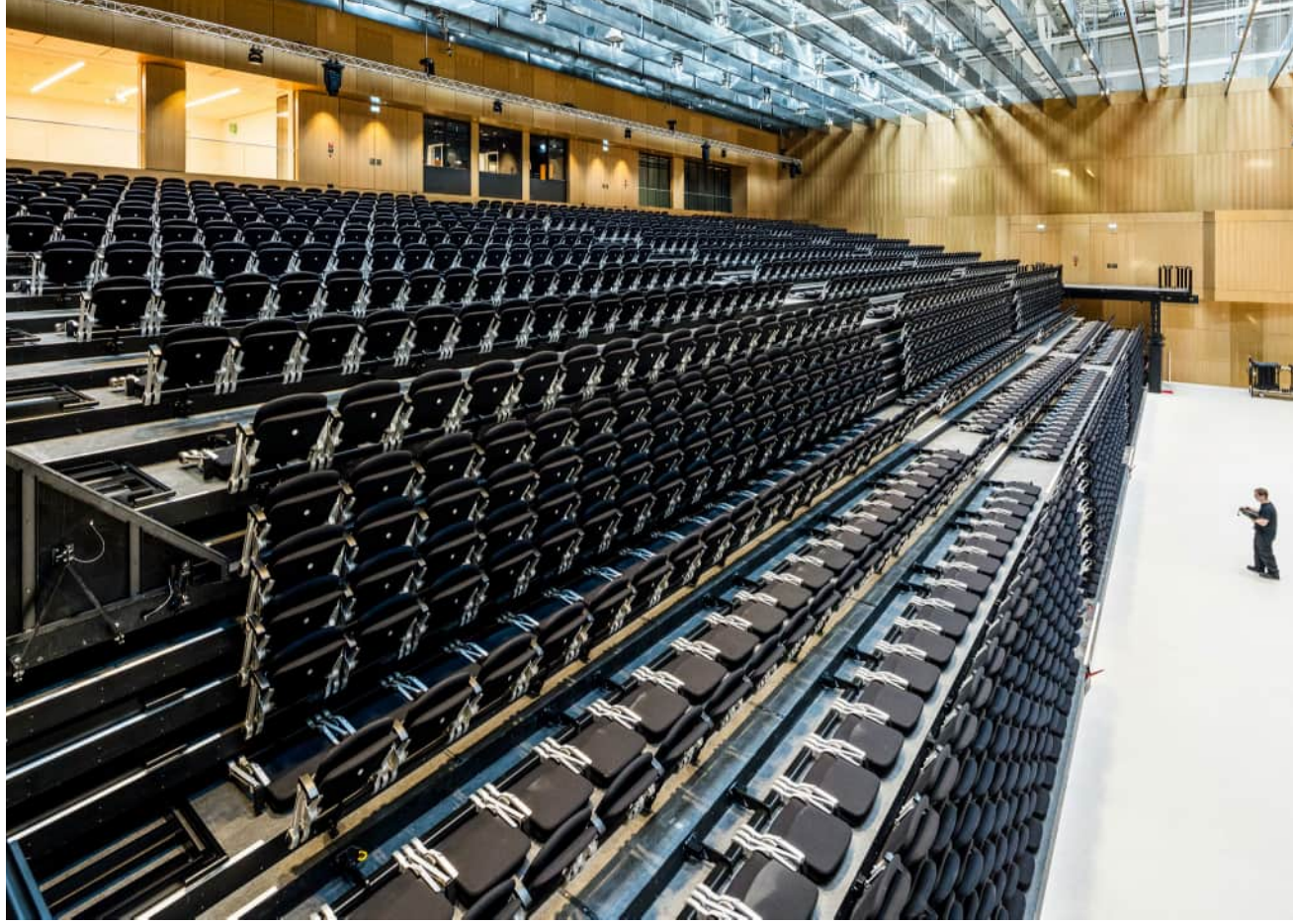
The RheinMain CongressCentre (RMCC) in Wiesbaden opened on April 13th, 2018 equipped with a seating system and stage machinery provided by Waagner-Biro Stage Systems. As flexibility is key in the new convention centre, the concepts developed for this venue provide a range of configurations with flexible seating, walls and floors. The unique architecture and the flexible space concept provide the optimum conditions for events up to 12,500 people.

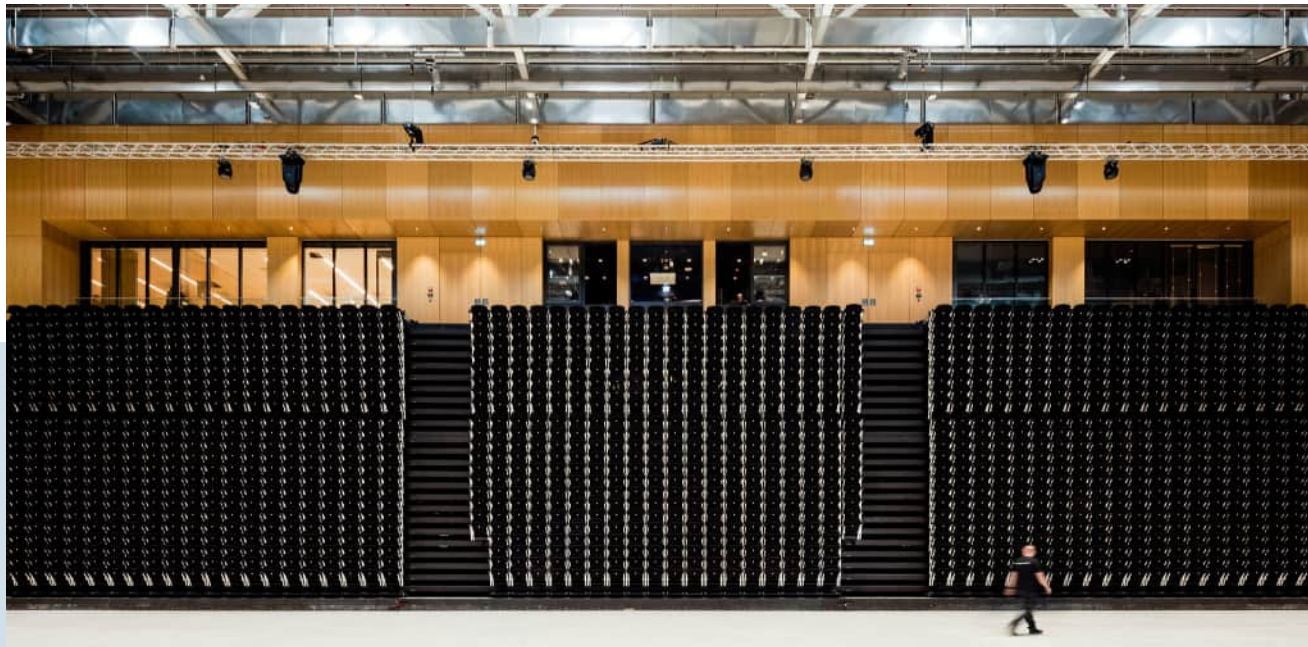
The RMCC consists of two function halls (Hall North 4,600m²; Hall South 2900m²) separated by a common foyer. The North Hall has an automated telescopic seating system consisting of 3 blocks 39 metres wide that deploy a total of 2,924 seats over a distance of 48 metres. The height of the seating blocks is 8.0 m, with a step rise of 160mm, the seats are fully upholstered and are raised and lowered automatically. When retracted the depth is 3.6 metres, each block weighs 100 tons, and is automatically transferred to the storage area behind timber veneered doors.

The tribune and the stage machinery are integrated in the Waagner-Biro Stage Systems C·A·T control system.

AT A GLANCE

- 3 telescopic seating blocks with folding chairs - in total 50 rows
- Dimensions: approx. 39m (w) x 8m (h) x 48m (l)





BUSINESS CENTRE SKOLKOVO
MOSCOW, RUSSIA

Business Centre in Skolkovo - a multifunctional building in the heart of Skolkovo. The main feature of the building is the 48-metre-tall atrium space with a spiral ramp. It can be quickly transformed into a conference hall, theatre scene or exhibition area.
Waagner-Biro Stage Systems provided a complex lifting platform system for high performance audience use. The building is equipped with a circular floor plan in its interior and a multifunctional platform configuration consisting of 11 platforms with several secondary platforms incorporated at ±0 m level where different types of event can take place. The diameter is 19.8 m and the lifting height of the variable platforms goes up to +4.5 m.

The upper stage machinery has been equipped with a 6D flying system. Up to 16 point-hoist winches can be used for simultaneous 3D or 6D movement. This allows control of not only position, but also roll, pitch and yaw axis of a flying object driven by eight winches. Furthermore, it is possible to have multiple objects flying at the same time.
The entirety of the upper stage machinery is integrated into the C·A·T control system.
In Summer 2017 the new and ultra-modern business centre celebrated its opening..

AT A GLANCE

- 11 main platforms (scissor guided), 29 secondary platforms (screw jack driven)
- 3D and 6D flying system
- Individual configuration for approx. 300 seats


UNICORN
wagner bird


Nafarroako
Gobernua
Gobierno
de Navarra

REYNO DE NAVARRA ARENA PAMPLONA, SPAIN

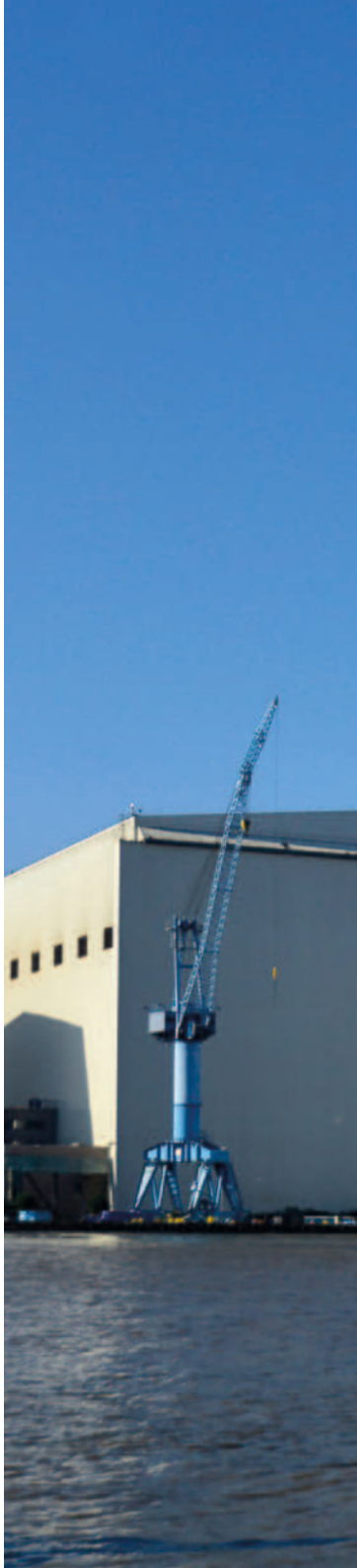
A flexible solution which makes the best possible use of the available space was the brief for the „Reyno de Navarra Arena" project in Pamplona, northern Spain. Waagner-Biro Stage Systems met this challenge by producing a special design whose „secret" is hidden beneath the floor. After pressing a button, an otherwise hidden central stand is extended which divides the great hall into a main and a secondary independent arena.

The special feature: the central stand can be rotated using the control system in either one direction or another, depending on which event attracts the biggest audience.

The result is a partly fixed, partly mobile telescopic stand which includes a seat folding mechanism and provides room for up to 12,000 spectators. The required four double-storey main platforms cover a total area of 600m².

AT A GLANCE

- 12,000 seats; 6,500 on retractable system (4 platforms, each 44 x 12 m)
- 11,000 m² area with two independent spaces



CRUISE LINERS


Mardi Gras
Carnival

MARDI GRAS & CARNIVAL CELEBRATION & CARNIVAL JUBILEE (HELIOS-CLASS) TURKU, FINLAND

Mardi Gras is an Excellence-class cruise ship operated by Carnival Cruise Line. The ship is Carnival's lead vessel of the fleet's Excel (XL)-class, a subclass of the Excellence class, and was built by Meyer Yard.

From a stage machinery point of view the Mardi Gras offers unforgettable experiences to the guests with its newest LED system attraction in the atrium lounge.

16 freely rotatable and vertically moving LED panels are located in front of the curved windows in the atrium. During performances, these so-called "blades" form an LED surface measuring 21 m x 7 m, which can be used to display shows and films. The special feature is that the blades can rotate vertically around their own axis. When the ship docks in a port, the panels are rotated outward. This allows videos to also be enjoyed from the port.

AT A GLANCE

- 16 freely rotatable and vertically moving LED panels

NORWEGIAN ESCAPE, NORWEGIAN JOY, NORWEGIAN BLISS & NORWEGIAN ENCORE PAPENBURG, GERMANY

Norwegian Escape and Norwegian Joy - with a gross tonnage of 164,600 and space for 4,200 passengers - are the first two (out of four) cruise liners of the new Breakaway PLUS Class. This makes them even larger than their predecessor craft, the Norwegian Breakaway and the Norwegian Getaway.

Along with an additional deck to offer guests even more possibilities and innovative entertainment features. At the "Escape Theater" (on Norwegian Escape) two Tony Award-winning Broadway musicals are shown supported by stage equipment of Waagner-Biro Stage Systems.

The theaters on all four cruise liners are equipped in the upper stage with eight fly battens, two lighting trusses, two front of house light pods as well as with a projection screen. The lower stage consists of six stage lifts (3 pcs below stage lifts; 3 pcs above stage lifts) and one wheel chair lift.

Norwegian Escape's maiden voyage took place in summer 2015 and the one from Norwegian Joy in summer 2017 followed by the maiden voyage of Norwegian Bliss in 2018. The Norwegian Encore will start her journey in autum 2019.

AT A GLANCE

- 8 fly batten á 1,000 kg
- 2 lighting truss á 1,500 kg
- 2 FOH light pod á 3,000 kg
- 6 scissor stage lifts with each 6.34 m²
- Wheel chair lift with 1.22 m²


诺唯真喜悦号 NORWEGIAN JOY


NCL
NORWEGIAN PRIMA
NORWEGIAN PRIMA

NORWEGIAN CRUISE LINER "NORWEGIAN PRIMA" & "NORWEGIAN V!VA" (LEONARDO-CLASS)

Norwegian Prima and Norwegian Viva are the forerunners of a new series of four ships, known under the code name „Leonardo". The 3rd (Norwegian Aqua) and 4th ship in this series belong to the Prima class.

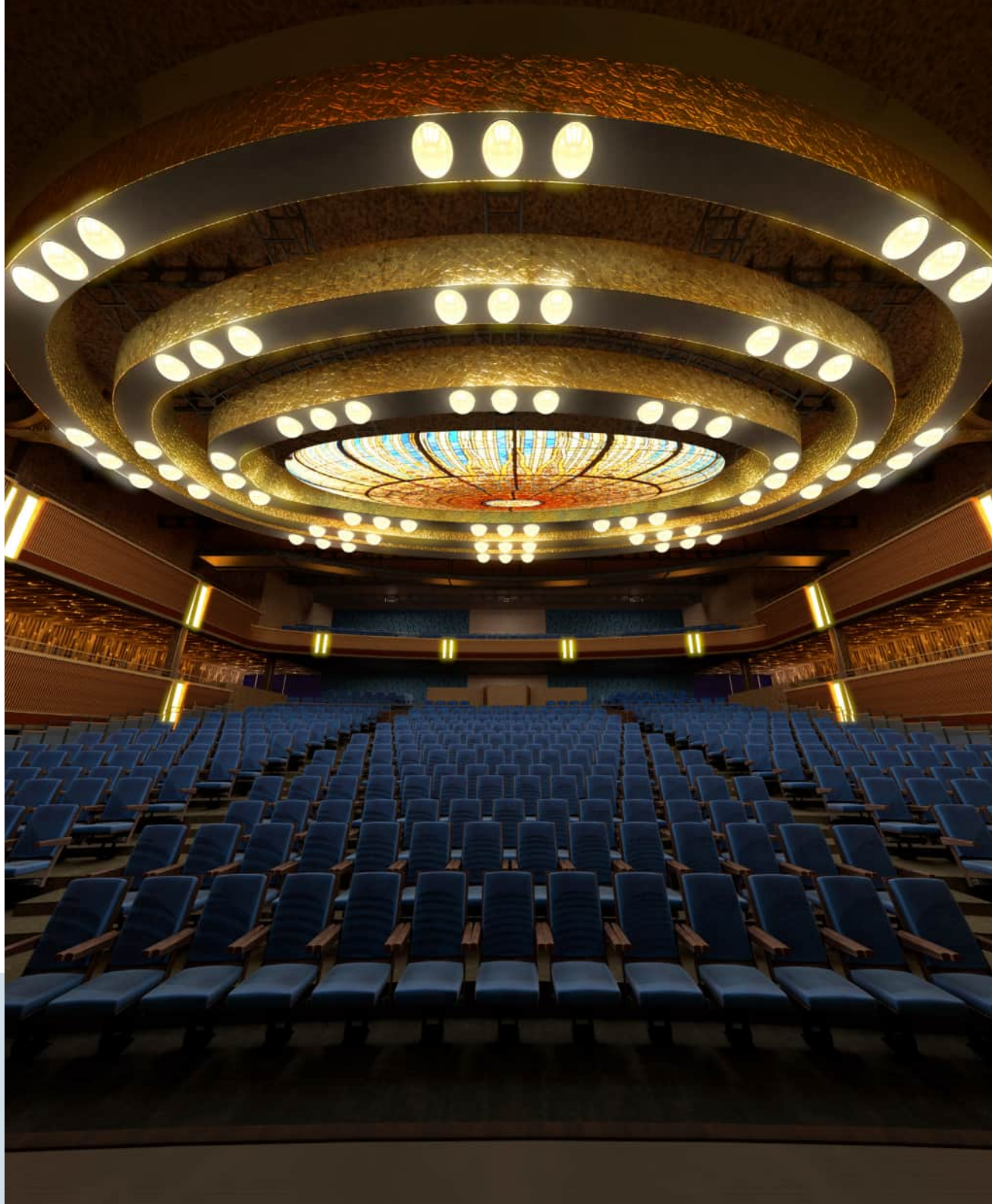
An outstanding feature of these ships is the approximately 3-tonnen „chandelier", which can be raised and lowered and transforms the theatre into a disco.

In addition to the chandelier, the ships have five stage platforms, including two that function as performer elevators under the stage. Side covers close the openings created by these elevators, adding to the versatility of the stage design. A wheelchair lift provides barrier-free access to the stage area, while a material elevator at the rear assists with loading decorations.

The maiden voyages of Norwegian Prima and Norwegian Viva took place in 2022 and 2023 respectively. Two more Prima Class ships are planned for 2025 and 2026 and will continue the tradition of innovation in the cruise industry.

AT A GLANCE

- 1 LED Portal Header , 2 LED Portal Legs ,1 LED Upstage Wall
- Chandelier structure consisting of 4 movable rings




SPECTRUM OF THE SEAS

QUANTUM OF THE SEAS, ANTHEM OF THE SEAS, OVATION OF THE SEAS SPECTRUM OF THE SEAS, ODYSSEY OF THE SEAS PAPENBURG, GERMANY

With a length of 335m, the ‚Quantum Class' is the biggest cruise ship ever built in Germany. Two of the most attractive places onboard are the ‚Royal Theatre' at the bow, as well as the ‚Two 70', a multi-media experience space at the stern. The ‚Royal Theatre', which accommodates up to 1.300 spectators, boasts 25 computer-steered drives in the smallest of spaces available.

Despite only extremely limited space being available, we were able to mount six scissor-style platforms on the main-stage and a three-part orchestra stage in the ‚Royal Theatre'. These are flanked by six independently movable stage waggon systems.

And at first sight the ‚Two 70' looks like a chill-lounge with catering and a legendary 270° view of the sea, but in a mere instant it turns into a multi-media show- and adventure-room. The huge panoramic glass front is darkened and a seamlessly projected panorama leads the spectator into another world.

A massive robotic arm made by Waagner-Biro Stage Systems on which one can see six high-definition video panels dancing, is then silently lowered from the ceiling. In the foreground a ring podium with secondary platform rises and turns from the dance floor. Lateral runway-lifts and big oval lifts on the left and the right hand side complement the stage together with three actor's lifts positioned around the room, which makes it possible to let actors appear from the floor amidst the audience. In addition, 4 trap doors are installed in the ceiling.

Waagner-Biro Stage Systems thus won over Meyer Werft as well as the shipping line Royal Caribbean International, both in terms of performance and the quality of its work.

AT A GLANCE

- Two70° - transformative venue with a massive robotic arm for dancing video panels, a ring podium with secondary platform, oval platforms, actor's lifts
- Royal theatre – fully equipped theatre for 1,300 spectators (25 upper stage machinery hoists, 6 platforms and a three-part orchestra platform, C·A·T control)

C·A·T CONTROL SYSTEM

CONTROL REPLACEMENT

While properly designed stage machinery is an investment that lasts decades, it is recommended to update automated control systems to the latest safety standards and to replace aged electronics and switchgear components after 10 to 15 years.

Waagner-Biro Stage Systems offers comprehensive automation expertise and flexible automation products for updating your existing stage machinery installations to reach the state of the art. Our refurbishment services can be adapted to almost any scope: from full replacement of switchgear and control system including safety critical sensors and actuators down to step-by-step replacements of the computer control system and other critical parts. Our C·A·T control product range can be adapted to almost every existing inverter, relay and hydraulics platform and therefore also supports progressive update plans. Please contact us for developing your individual update strategy.

References of the last years are:

- Sydney Opera House - Australia
- Elbphilharmonie Hamburg- Germany
- Copenhagen Opera House - Denmark
- Theater De Vest Alkmaar - Netherlands
- Taichung Opera House - Taiwan
- Austria Center Vienna - Austria
- Shanghai Oriental Art Centre - China
- Theatre Marigny, Paris - France
- Grand Theatre Luxembourg - Luxembourg

SERVICE

ON-CALL SERVICE AND TROUBLESHOOTING

In case a fault develops, an established service hotline guarantees that troubleshooting can begin immediately.

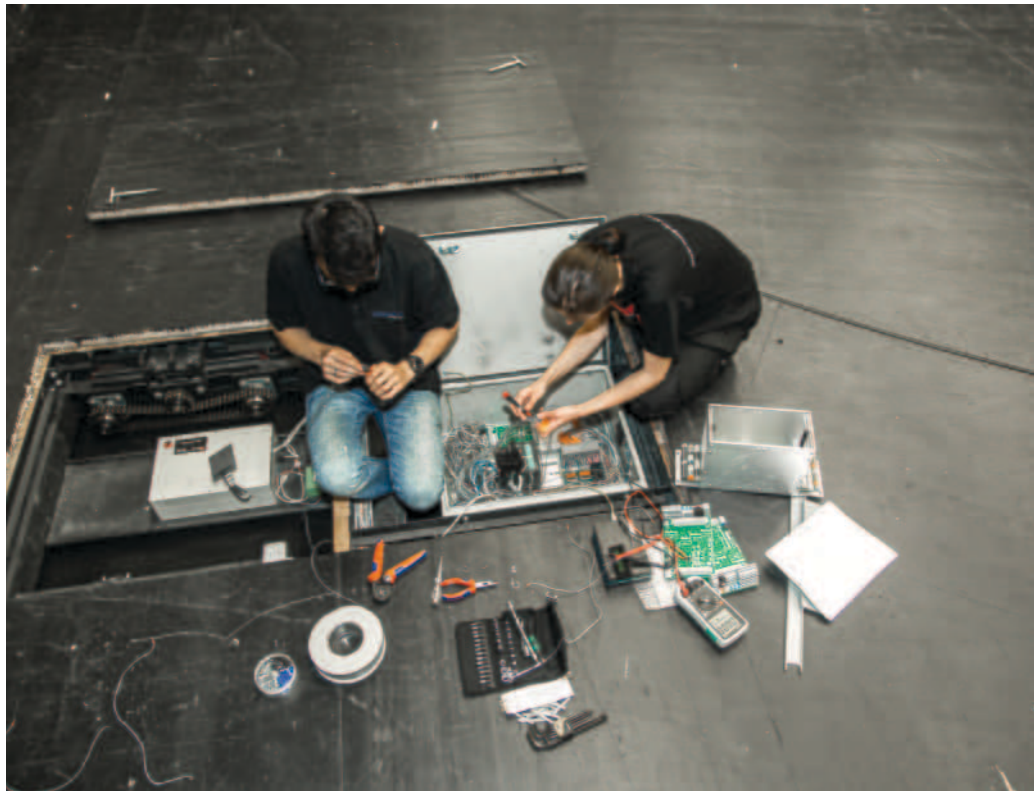
Remote diagnostics for the system and its components are performed via online connection. During the remote diagnostics process, system and component data are transferred to Waagner-Biro Stage Systems and – whenever possible – errors will be diagnosed and rectified. If remote repair is not possible, our service personal will action all necessary steps for repair of the installation on site!

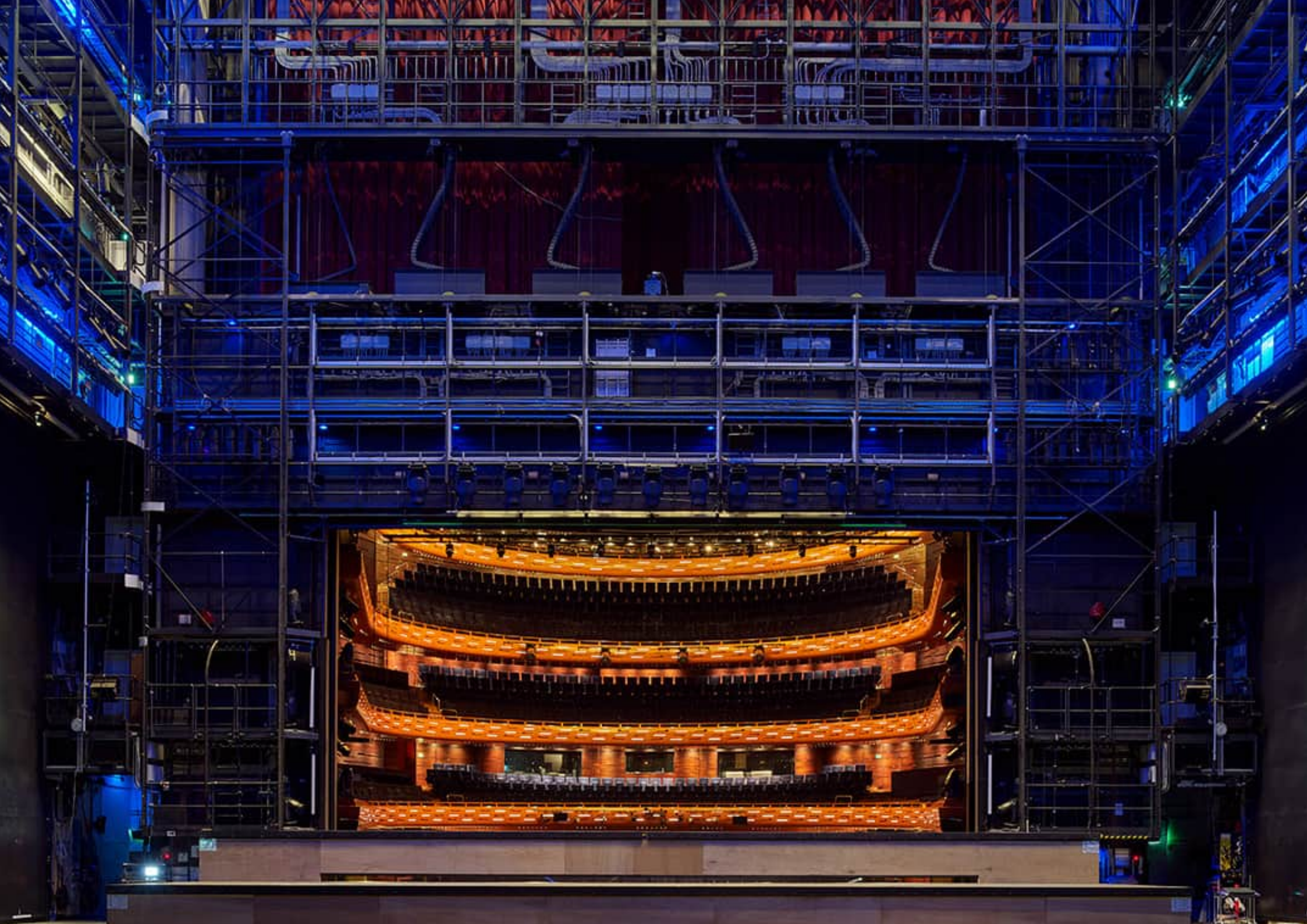
MAINTENANCE

Professional organization together with well-founded know-how, technical equipment and quality-orientated management (ISO 9001) guarantee the highest level of service.

Maintenance will be performed by Waagner-Biro Stage Systems service personnel and will be supported by our remote maintenance system for all computer hard and software issues. All works are reported in a maintenance report in detail.

The specific characteristics of equipment will be taken into consideration when maintenance intervals are determined, and an individual maintenance plan will be provided accordingly.





Edition August 2024

IMPRINT:

Editor and publisher: Waagner-Biro Austria Stage Systems GmbH
Leonard-Bernstein-Str. 10, A-1220 Vienna
Editorial staff & layout: Ulrike Schuch, Franziska Trautmann, Angelika Albert-Knaus, Michael Frisch

WAAGNER-BIRO STAGE SYSTEMS

— AUSTRIA

Waagner-Biro Austria Stage Systems GmbH
Saturn Tower
Leonard-Bernstein-Straße 10
1220 Vienna, Austria
T: +43/1/90 280
F : +43/1/90 280 999
office@waagner-biro-stage.com

— GERMANY

Waagner-Biro Bavaria Stage Systems GmbH
Am Schönbühl 12
92729 Weiherhammer, Germany
T: +49/9605/92 22 0
F: +49/9605/92 22 50
stagesystems.bavaria@waagner-biro-stage.com

— LUXEMBOURG

Waagner-Biro Luxembourg Stage Systems S.A.
1, rue de l´école BP10
4813 Rodange, Luxembourg
T: +352/50 35 21
F: +352/50 35 24
stagesystems.luxembourg@waagner-biro-stage.com

— RUSSIA

OOO Waagner-Biro Moscow Stage Systems
Zemlzyanoj Val 75, 3rd floor
109004 Moscow, Russia
T: +7/495/803 36 49
F: +7/495/803 36 49
stagesystems.moscow@waagner-biro-stage.com

— Spain

Waagner-Biro Spain Stage Systems S.A.
c/Santisima Trinidad 30
28010 Madrid, Spain
T: +34/91/447 57 29
F: +34/91/446 18 67
stagesystems.spain@waagner-biro-stage.com

— CHINA

Waagner-Biro Stage Systems (Beijing) Co. Ltd.
Room A027, 2nd Floor, NanYin Mansion
No. 2 North Street East 3rd ring,
Chaoyang District, Beijing, PR China 100020
T: +86/10/641 36 389
stagesystems.china@waagner-biro-stage.com

— UNITED KINGDOM

Waagner-Biro UK Stage Systems Ltd.
Eldo House Kempson Way
Bury St. Edmunds
IP32 7AR Suffolk
England
T: +44/781 005 89 44
stagesystems.uk@waagner-biro-stage.com

WWW.WAAGNER-BIRO-STAGE.COM