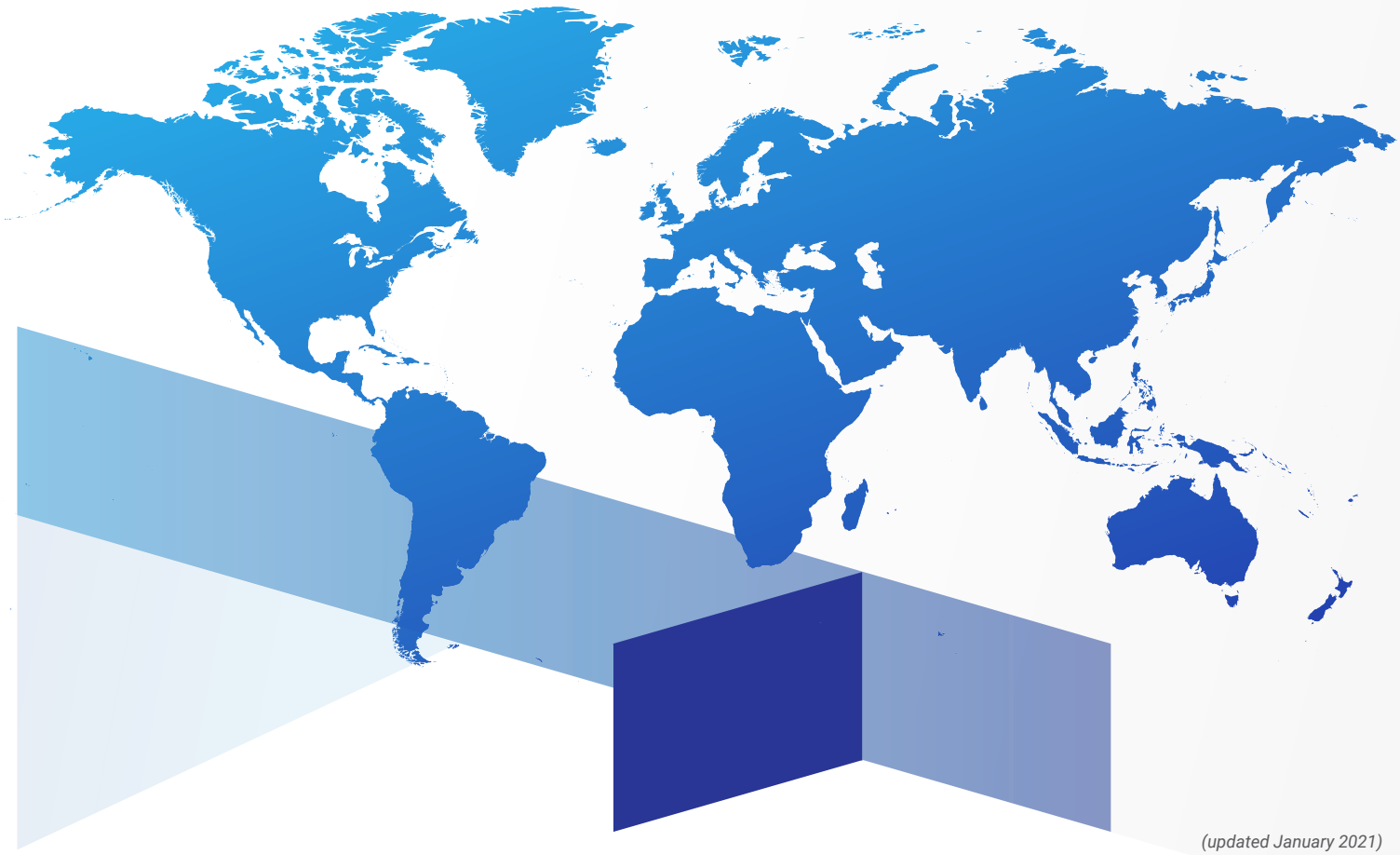
ENGLISH

SITTI

Integrated Solutions
for Air Traffic Control
and Operations Rooms

The voice that guides you.
Always.®

SITTI in the World



(updated January 2021)

AFRICA	EUROPE	AMERICA	MIDDLE EAST	ASIA	OCEANIA
Algeria	Italy	Argentina	Armenia	Afghanistan	Australia
Botswana	Austria	Bolivia	Azerbaijan	Bangladesh	New Zealand
Burkina Faso	Belarus	Brazil	Georgia	Cambodia	Papua New Guinea
Cameroon	Belgium	Canada	Iraq	China	Solomon Islands
Chad	Bulgaria	Chile	Jordan	India	Tonga
Congo Brazzaville	Croatia	Colombia	Oman	Indonesia	Vanuatu
Dem.Rep. of Congo	Cyprus	Costa Rica	Qatar	Japan	
Djibouti	Czech Republic	Ecuador	Saudi Arabia	Malaysia	
Egypt	Denmark	French Guyana	Syria	Maldives	
Equatorial Guinea	France	Honduras	Turkey	Myanmar	
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Ethiopia	Greece	Peru	Yemen	Philippines	
Ghana	Lithuania	Sint Maarten		Singapore	
Guinea Bissau	Luxembourg	Suriname		South Korea	
Guinea Conacry	Kosovo	Trinidad & Tobago		Sri Lanka	
Kenya	Malta	USA		Taiwan	
Lybia	Netherlands	Venezuela		Thailand	
Mauritania	Norway			Uzbekistan	
Morocco	Poland			Vietnam	
Mozambique	Portugal				
Niger	Romania				
Nigeria	Russia				
North Sudan	Spain				
Rwanda	Sweden				
Senegal	UK				
Somalia	Ukraine				
South Africa					
Swaziland					
Tanzania					
Tunisia					
Zambia					
Zimbabwe					

// Future Proof Solutions

SITTI has got extensive experience in the field of integrated radio and telephone communications in complex networks. Continued research and development, in conjunction with close attention to the changing requirements in Air Traffic Control (ATC), Control Room Management and Strategic and Emergency Service (SES) applications, make SITTI a worldwide reference point and market leader in these fields.

Established in 1946, SITTI is a system supplier and integrator providing comprehensive solutions in the fields of Civil and Military Aviation communications and strategic services, such as ANSPs, Fire Brigades, Search & Rescue, Railways, Police, Air Defence, Control and Command Centres, as well as commercial organisations requiring secure, reliable and controlled communications.

The worldwide recognised high reliability of SITTI system solutions is the best "product" we can supply our customers with, together with the excellent professional support deserved by each and every installation. A dedicated team of experts is assigned to each customer in order to implement the best solution to his needs.

The company offers a large integrated product portfolio including Voice Communication Switching systems (VCS), with large capability of interfacing lines and links of different kinds, ergonomic workstations for tower and radar environments, for both civil and military applications. Ancillary equipment and services (such as VoIP gateways, remote and mobile towers facilities, advanced security and control features, time reference systems, etc.) allow SITTI to present itself as a complete solution provider.

Full membership in international standardisation workgroups, attention to the evolving Customer needs, commitment to the development and implementation of the most advanced technological and operational capabilities, extensive integration features, are the strength points of SITTI. Integration of operational functions at all levels is the driving factor in the development and continuous improvement of the services offered to our users.

The MULTIFONO® Voice Communication System platform is the company core product, fully integrating the most advanced communication technology with user friendliness at operator level. Standards compliance, flexibility, modularity, scalability, security, high quality, fault tolerant architecture are the main characteristics of this VCS solution that offers the most efficient and technologically advanced solution to today's ATC and Command Centres.

- **Voice and Data communications** with very high quality, extreme reliability, most advanced technology.
- **Air Traffic Control (ATC), Operations Rooms,** Strategic Emergency Services (such as fire brigade, search & rescue, police, ambulance, rail and transport management centres, defence and crisis centres).
- **Full compliance** to international standards from ICAO, EUROCAE, EUROCONTROL.
- **Quality certification** by both civil and military organisations.
- **Significant** research and development (R&D) investment.
- **Turn-key** and network integrated system design and installation.
- **System support** and customer assistance by qualified skilled staff as well as remote connection capabilities for maintenance and configuration purposes.
- **Ergonomic workstations** offering safe, efficient and comfortable access to devices and services.
- **Integration** of ancillary and third party devices to cope with demanding environments.

SITTI. YOUR SOLUTION PROVIDER

Our products

VOICE COMMUNICATION SYSTEMS (VCS)
VOIP GATEWAYS
RECORDING SYSTEMS
INTEGRATED SOLUTIONS
TOWER APPLICATIONS
ATC CONSOLES
DIGITAL CLOCK SYSTEMS

Company profile

Your Solution Provider

SITTI is a private company developing integrated solutions and manufacturing communication systems for mission and safety critical operations, wherever secure, reliable and controlled communication is required. The long-term market leading position of SITTI worldwide is the best guarantee for customers looking for standard (yet customisable) solutions for civil and military Air Traffic Control (ATC) and Strategic Services.

Since 75 years SITTI is a world primary system supplier and integrator of operational and technical solutions for Civil and Military agencies and organisations, air traffic control centres, military strategic and tactical command centres, railways and harbour traffic management, public services, emergency control centres, operations rooms.

The worldwide recognised high reliability of the supplied solutions, their full standards compliance and customisation options are the best "products" we can offer to our customers, together with the high professional support devoted to each and every installation, for better operators' situational awareness.

SITTI is today present in most countries in the world with a very large base of installed systems and services. The high level of scalability and modularity of SITTI solutions and the large integration capabilities allow our products to fulfil operational, technical and support requirements for all ATC needs, ranging from small air field towers to large ACC centres.

THE VOICE THAT GUIDES YOU. ALWAYS.®

Our expertise

Today's applications require different communication technologies to be integrated into one solution to meet the requirements for highly flexible usages. SITTI has got extensive experience and expertise in the integration of analogue, digital, VOIP radio and telephone communications equipments and networks, thus making it a primary reference point worldwide, widely confirmed by its successful presence and growth in the evolving Voice Communication Systems (VCS) market.

Innovating solutions, new operators features, integration of user services, technologies and functionalities into a common platform are the main focus of SITTI's Research and Development activities. This is the basis of our win-win approach for the mutual success of SITTI and our customers, especially in mission and safety critical applications.

SITTI is full member of the major international committees and working groups for the standardisation of technical and operational procedures and interfaces. They are aimed at providing customers with future-proof solutions, capable of positively responding to the most demanding challenges, dealing with both standard and legacy radio and telephone devices and protocols, including VoIP, according to ED137 standard.

Operational and technical training, on site Customer assistance, qualified skilled personnel and remote maintenance connection facilities provide our customers with outstanding long term system support.

ALWAYS ONE STEP AHEAD.

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The primary choice for quality Voice & Data Communications

SITTI's top performance Voice Communication System is the MULTIFONO® platform which fully integrates the most recent technologies, combined with great userfriendliness at operator level and exceptional reliability.

This VCS system family fully complies with the latest international standards by ICAO, EUROCONTROL and EUROCAE. Transportable field deployable solutions for military applications are also available.

Design, implementation and evolution of SITTI systems worldwide are constantly led by the willingness of improving our targets: reliability, performance, cutting-edge technology and user-friendliness, to provide Customers with systems capable of coping with demanding and challenging performance environments.

Ancillary products, such as ergonomic Operational Consoles, Protocol Gateways, Time Reference systems, complete the offer to our Customers, thus making SITTI a total solution provider.

THE VOICE THAT GUIDES YOU. ALWAYS.®

// Why Choosing SITTI?

- World primary system supplier for Civil and Military, agencies and organisations
- Full compliance to International Standards
- Function integration and customised solutions
- Extensive experience in integrated radio and telephone communications
- Significant Research & Development investments
- On site Customer assistance
- Remote connection capabilities for verification and maintenance purposes
- Ergonomic design for comfortable and safe service
- Network integration

// Applications

- Air Traffic Control (ATC)
- Strategic and Emergency Services (SES)
- Scalable Air Field Towers, Approach and ACC Centres
- Fire Brigade Departments
- Railways Management
- Defence and Crisis Control Centres
- Commercial and Strategic Operational Centres

Consoles

Controller Working Position

Leveraging on its large experience accumulated in decades of successful presence on the market, SITTI is offering its customers a number of solutions for helping them choosing the best solution for their operative consoles.

Besides its world leading position in the study and development of standard technical solutions for integrated Voice Communication Systems, SITTI developed several series of console products to cope with the needs and requirements of operators and controllers on a continuous daily use basis.

The user at the core

Operators and controllers sitting all day at their desks with a heavy and critical workload must be given the best working solution possible. It is not just a matter of comfortable sitting places, but all aspects related to work environment shall be taken into consideration, such as:

- Ergonomy and comfort
- Seating adjustment
- Non-toxic fire-extinguishing materials and paints
- Easy access to communication instrumentation
- Free line-of-sight view over controlled areas
- Reduced “head-up” and “head-down” movements
- Handy placement of displays
- Correct body posture
- Reduced fatigue for arms and legs
- Space optimization

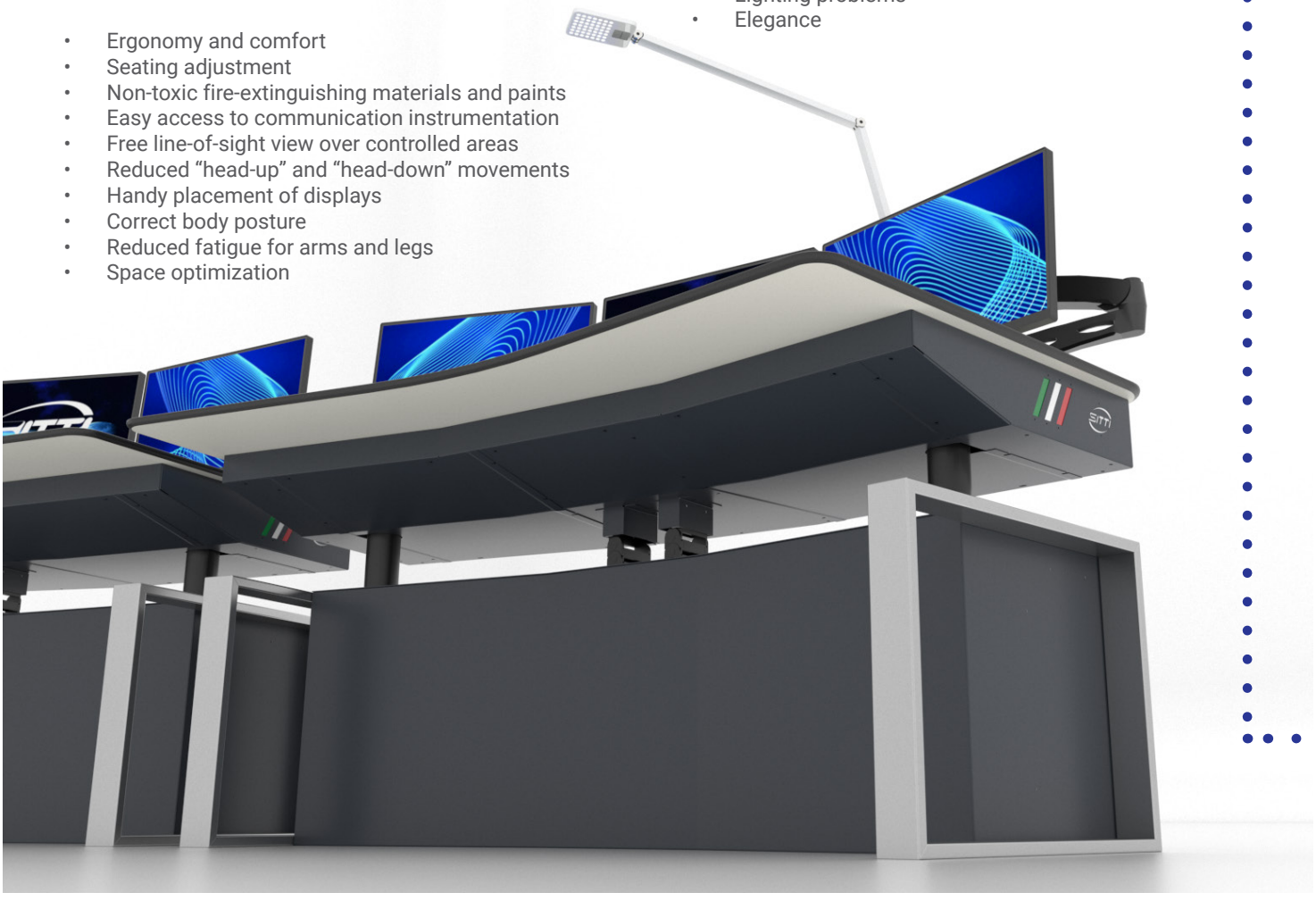
Inside the console

In many cases, consoles are also used to accomodate equipment and devices inside them, in order to make the working place clean and clear and to enhance safety and security. Therefore, further characteristics shall also be considered:

- Adequate internal space
- Reduction of visible/accessible devices to minimum
- Maintenance activities without service interruption
- Air flow and conditioning
- Locking system to prevent unauthorised access
- Power supplies
- Removable access panels

Last but not least, a special attention has been paid by SITTI to allow its consoles adapting to very different environments and use cases, ranging from small airport towers and control centres to large Air Traffic Control radar and procedural centres:

- Easy transportation and mounting
- Flexibility
- Modularity
- Curve spaces and uneven surfaces
- Lighting problems
- Elegance



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SITTI solutions

Putting all these requirements together, SITTI consoles are designed with high consideration for the operator's comfort and fatigue related factors, in order to provide him/her with the best, efficient and effective access to equipment and services. Research, use of suitable materials, installation criteria form the basis of the design of our consoles for long term daily use.

ATC Controllers and Control Centre Operators are tasked with a heavy and high responsibility workload, and as such they deserve an ergonomic and easy-to-use environment that makes it easy and comfortable to access all communication equipment and their ancillary services. In line with these requirements, SITTI design criteria take into consideration all related aspects, such seating adjustment, optimisation of viewing angles, noise isolation and ventilation, choice of materials, touch and feel aspects, as well as the correct positioning of communication devices (keyboards, connector panels, loudspeaker, etc.).

- SITTI longstanding presence in the ATC and Control Room markets allowed us to deeply understand the needs that may arise in different operational applications. Small towers, as an example, may have access limitations and/or limited infrastructural facilities. In addition, operators in a tower require a clear view on the airfield ground with sun light protection, while ACC controllers usually work in bigger rooms with different needs.

- Limited space availability (especially in small towers and emergency service centres) makes it important to fruitfully exploit all available space inside a console, for housing equipment of different size and shape. This may also require proper ventilation and air conditioning, while keeping noise to the minimum level possible.

- Logistics is another significant aspect to pay attention to: transportation, installation, maintenance issues. The modularity that characterized SITTI consoles allows them to be easily transported everywhere in the world and quickly installed wherever needed, even inside buildings with narrow stairs and limited physical access possibilities.

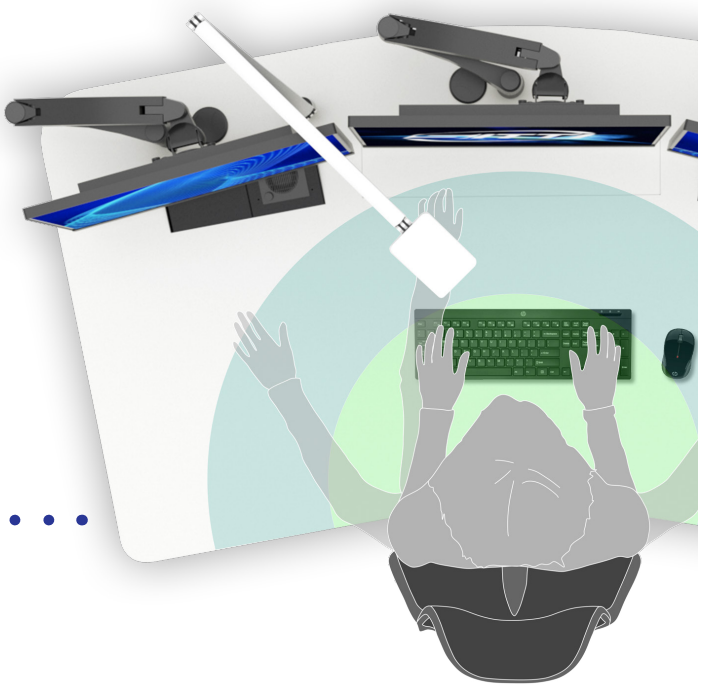
Main common characteristics

SITTI developed several series of consoles to best respond to customer needs. Regardless of the intended usage of the consoles and their size and shape, all products are characterized by the same quality and design features that make them be appreciated in all fields they will be used for.

The more valuable characteristics that are common to all console series are:

- Special attention to avoidance of any sharp edges and corners
- Non-flammable materials and paints
- Non-toxic materials and paints
- Stable structure
- Adjustable feet to stabilize the working plane
- No obstacles to the user when moving the chair
- Self-supporting aluminium skeleton
- Internal space equipped with 19 inches racks (or special frames, according to customer needs)
- Footboard covered with black rubber surface
- High abrasion resistance
- Washable surfaces
- Antistatic working surface
- Stainless nuts, bolts, washers, screws, etc.
- Easy assembly
- User-definable colours

All this results in a higher efficiency of the operators who will get the best from the touch and feel approach of the console design by SITTI. Tailor-made solutions are possible to cope with specific customer requirements, thanks to SITTI internal specialized workshop.



PK Consoles

PK Console Series

The **PK console** low profile series is conceived as the solution to the needs of airport towers and control rooms, where both direct interaction with other neighbouring operators and possibility of clear line-of-sight are required. The PK console series is characterised by very **high modularity** and **low weight** design:

- Operator consoles can be easily composed by integrating smaller units to best fit into the allotted area
- The materials used for this type of consoles give lightness to the structure
- Easy transportation and modular composition make them the best choice for airport towers and control and operations rooms

The key is flexibility

Modularity does not simply mean that you can put together many pieces in a straightforward way. The PK series includes standard 30, 45, 60 degrees elements that allow any kind of composition to better exploit the available space; different angles are available on request.

This may make the difference, especially in small rooms or towers where space is really an issue and a solution for the maximum exploitation of the available space is sought. The special design of these consoles facilitates easy transportation, thanks to their low weight and modular construction.

The combination of these characteristics allows these consoles to be very easily transported to their final destination and assembled on site, avoiding logistics problems that may arise during installation in all those environments (e.g. towers) with limited accessibility because of narrow stairs, doors, etc.

PK consoles are specifically designed to give operators and controllers easy access to flat screens of different sizes, while preserving their low profile, thus making these consoles particularly fit for airfield towers. Because of their modularity, low weight and angular modules, they can be tailored to all rooms of different sizes and shapes.

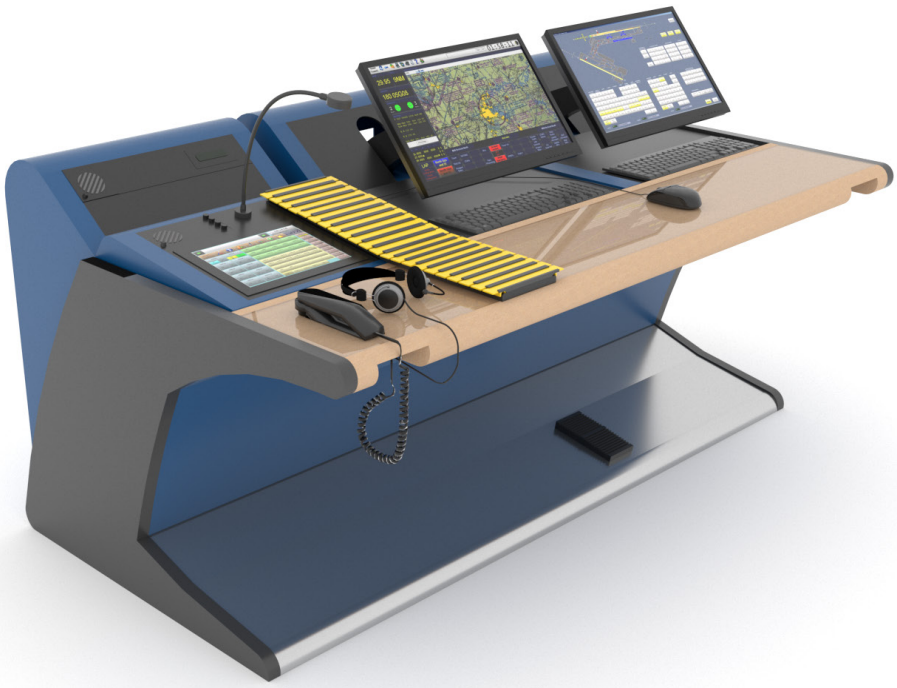
Many details can be freely chosen by the customer, like colors, presence of glass surface or footboard with or without the PTT activation pedal.

Customizable

The top area on the console, above the writing panel, is customisable according to operative requirements. This wide area can easily accommodate displays, processing equipment, loudspeakers, keyboards of different kind and size, flight strips, etc.

A variety of optional arms can be installed for holding monitors of various sizes to give operators and controllers the best access to the information they are interested in. Controller Working Position keyboards are also provided with tilt frames to adjust their viewing angle, according to local lighting conditions.

The special design of this series of consoles allows to easily create versions of any desired angle, so to cope with all possible room sizes and shapes.



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Main benefits

Easy installation criteria, customizable shapes, light weight and construction materials are the reasons of the success of this consoles series, especially designed for long term daily use:

- **Flexibility** - taking into consideration evolving controller requirements and equipment expansion
- **Efficient Integration** - for space optimisation both on the desk and inside the console
- **User Friendliness** - handy access to displays and communication equipment
- **Ergonomic and Comfort Factors** - to give operators the best operational workspace
- **Suitable Materials** - for long lasting, ease of installation, maintenance and workplace comfort
- **Operational Health Protection** - to grant a safe environment

Standard features

All consoles belonging to the PK console series are characterized by the following features:

- Operative area
  - Wide writing plane
  - Headset/handset insertion panels (on both left and right sides)
  - Optional covering glass for easy reading of maps and notes
- Internal space for equipment and devices
  - Standard 19” rack inside the console
  - Protected power distribution
  - Thermo-magnetic breakers
- Removable panels
  - Two panels (one on the front, the other on the rear side) for easy maintenance
  - Ventilation grids
  - Side plates (left and right) allowing cabling between adjacent consoles
- Miscellaneous
  - Arrangement for the horizontal and vertical laying of cables
  - Anti-slip rubber foot rest board
  - Optional arrangement for foot PTT
  - Adjustable feet to compensate floor irregularities

The number of racks inside the console and their height depends on the size of the console itself. As an example, the PK312 model (which is 1200 mm wide) may host 2 racks whose maximum height is 10 U each.

Basic solutions

The following table shows some of the solutions that SITTI produces as standard products, although customized versions can be manufctured as well, especially when it comes to modules with a specific angle.

Model	Shape	Working desk Height	Max Height	Length	Depth
PK 306	straight	725	877	607	1108
PK 312	straight	725	877	1210	1108
PK 317	straight	725	877	1815	1108
PK 330	30° corner	725	877	-	-
PK 345	45° corner	725	877	-	-
PK 360	60° corner	725	877	-	-

PCF Consoles

PCF Console Series

Consoles belonging to the PCF series are designed to accommodate one or more large display screens of different sizes and weights that can be easily fixed to appropriate adjustable arms, so that displayed information is immediately available to the operator or controller.

Radar, weather, maps, flight schedule monitors are just some of the possible examples of data that is required to be accessible at a glance by the operational staff on duty. The optimal design of this series of consoles allows controllers to look at the screens without losing operational and situational awareness.

Special attention is paid to allow easy installation and on-going operational maintenance access without affecting controller operations. Hinged rear doors for easy access to integrated equipment, internal lighting, sliding panels, footboard, 19 inches rack frames, protected power distribution, movable equipment carts are some of the available features that complete these consoles.

High and low profile

PCF consoles are manufactured in two height profiles to best fit operational applications. These are:

- **Low profile** – The work area of low profile consoles is made of a desk plane and an equipment/monitor section above it. The OTW (out of the window) view is not obstructed by any element or equipment, thus allowing operators and controllers to have a clear front vision. This makes them particularly suitable for airfield towers and emergency operational rooms.

- **High profile** – The work area of high profile consoles is the same as for low profile ones, providing the same capabilities and functionalities operators and controllers can access to. Besides that, a roll bar is added to install additional screens and monitors above the controller seat. The optimal application for this kind of consoles is ATC Approach and ACC centres.

Consoles of both profiles can be combined in modular sets for shipment volume reduction and ease of handling. Appropriate arms are provided to install monitors and permit their tilting in all directions to adjust the viewing angle for preventing any tedious light reflection.

Key features

PCF consoles have a modular design to allow maximum flexibility when changes and upgrades are required, in accordance with evolving customer needs. Different sizes are available to optimize the available space and to accommodate different types of equipment, such as radar and monitoring screens of different sizes and weights. The key features of PCF consoles can be summarized as follows:

- Operative area
  - Wooden working desk
  - Wide writing plane
  - Headset/handset insertion panels (on both left and right sides)
  - Sliding panels for connectors

- Internal space for equipment and devices
  - 2 standard 19” racks inside the console
  - Protected power distribution
  - Thermo-magnetic breakers
  - Internal lighting
  - Optional cart for easy access to installed equipment

- Removable panels
  - Front and rear access panels
  - Side plates (left and right) allowing cabling between adjacent consoles
  - Optional noise reduction panels

- Miscellaneous
  - Arrangement for horizontal and vertical laying of cables
  - Anti-slip rubber foot rest board
  - Optional arrangement for foot PTT
  - Adjustable feet to compensate floor irregularities
  - Colors can be freely chosen by the customer

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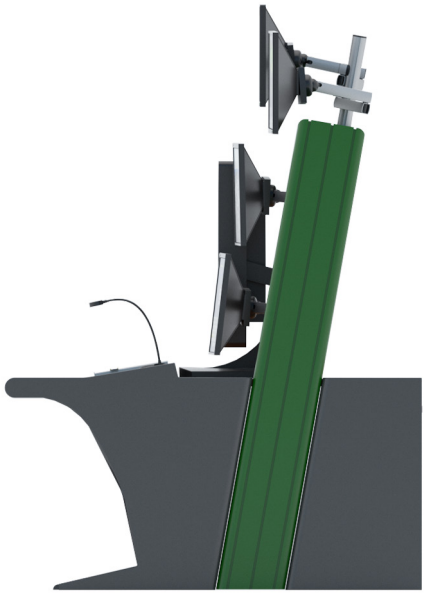
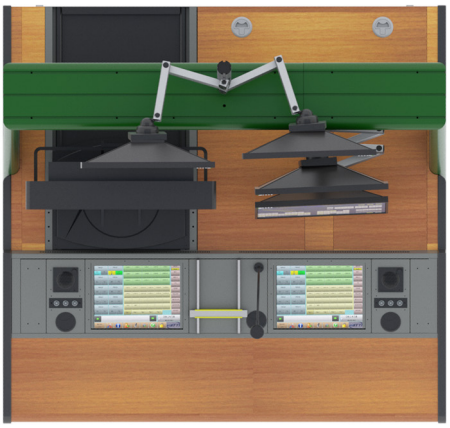
The number of racks inside the console and their height depends on the size of the console itself. As an example, the PCF150 model may host 2 racks on wheels whose maximum height is 12 U each.

The design of these consoles is such that the customer may decide by his own which devices shall be installed both on the working area and on the roll bar, without preventing any future change in this decision, because these consoles are so flexible, that they can be adapted to any evolution of operational requirements and needs.





Ventilation, noise and cooling

The environment where consoles are installed may vary significantly. There are situations where the heat produced by the equipment inside the console can be dissipated by simple natural ventilation grids or additional fans are required. In some other cases, the space inside the console shall be sealed to optimise air conditioning.

PCF consoles allow all these options on simple request, just like noise reduction panels that significantly improve the comfort to operators in case of noisy equipment installed inside the console.

All maintenance operations can be carried out seamlessly, without in any way disturbing or influencing the ordinary work of controllers, thanks to the panels on the rear that give full access to the devices inside the console. This allows a complete separation and isolation between controllers operations and systems upgrade and maintenance.

Some technical details

The following table shows some technical information about the consoles belonging to the PCF series.

Characteristic	Value
Length	1500 mm
Height (high profile)	1900 mm
Height (low profile)	1133 mm
Depth at floor level	1130 mm
Depth at desk level	1300 mm
Materials	• Aluminium • Stainless steel • Wood
Colors	Customer can choose
Racks inside the console	2
Max height of racks	12 U

TK Consoles

TK Console Series

The TK consoles have been designed by taking into account the current technological evolution that is gradually moving in the direction of concentrating information sources in multifunctional terminals, without having them distributed on separate controls or panel indicators and displays.

Another driving force that brought to the development of the TK series is the need of offering customers a very flexible and highly modular set of consoles and solutions that promote and encourage easy integration of different equipment and devices.

Last, but not least, logistic aspects have been pushing to think of solutions that contribute in making shipping and installation of consoles all over the world as cheap and easy as possible, with limited effort; this results in the possibility for customers to possibly assemble these consoles by their own.

Operational scenarios

The main goal of the TK console series is the capability of adapting to all operational needs, without being hindered by space and room shape constraints. The design of TK consoles for a specific usage (regardless whether it is an airfield tower or an operations rooms or any other application) starts from its mechanical modular skeleton.

The exceptional adaptability allowed by the modular way the console structure is made of allows taking into consideration all possible aspects that may limit the use of other types of consoles. Once the overall structure of the whole set of consoles is defined, the individual consoles are assembled, thus perfectly adapting to the customer operational scenarios and available space.

Consoles can be used in towers or operational and ACC rooms. The TK series of consoles is proposed in two versions that are aimed at coping with the different and specific needs in these environments:

- **TK/ACC** - High profile console giving operators a clear understanding of the overall situation.
- **TK/TWR** - Low profile console guaranteeing out-of-the-window view for exceptional situational awareness.

Core structure

The secret of the TK console series and its extraordinary flexibility lies in its core aluminium structure. TK consoles are in fact based on aluminium profiles that improve strength, lightness and modularity in construction.

All angles can be designed with different degrees of amplitude, according to operational requirements, thus allowing a precise and complete setting of the consoles in airport towers and control rooms.

Thanks to this technical solution, consoles are available for almost any desired angle, thus improving the exploitation of the available space and the optimum positioning of the working staff. This also allows to freely define the size of the consoles themselves when they are ordered.

It is in fact not just a matter of space and size, but also of systems dimensioning and costs. Airport towers have the need of allocating space to a limited number of controllers and to the devices they utilize, in buildings where space may often be a critical issue.

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Exceptional finishing

The operator work plane is made of MDF (Medium-Density Fibreboard) that allows to have a thinner and lighter, but at the same time lasting, fireproof, non-toxic and recyclable surface.

Among the very many distinguishing features, the following ones are significantly worth being mentioned:

- The arms holding monitors and lamps can slide on dedicated rails
- Easy cabling (with brush strips)
- Free positioning of communication devices and/or screens on the working surface
- Possibility of fitting keyboards, monitors and other devices into the working surface
- Fixed or slidable drawers alongside the console with/ without tempered glass door
- Clear out-of-the-window (OTW) view, especially for airport tower installations

Front, rear and side panels are also made of painted aluminium with polyester acrylic resin finishing. The rear closing panels are also equipped with slits for heat dissipation and equipped with snap-on handles for quick access to the inner console space.

Added values

Besides all the above mentioned features that by themselves make TK consoles the best choice for airfield towers and control rooms, the following additional added value features are to be also taken into account:

- Easy assembling on site
- Reduced transportation costs
- Extreme flexibility, especially for non-conventional room layouts
- Fully customisable workplace with many customizable options
- Ergonomic design for comfortable operator/controller sitting and operational awareness
- High attention to health protection to alleviate stress and discomfort over long usage times
- Large internal console space with rear access for non-disruptive maintenance
- Noise reduction
- Very limited head-up / head-down movements for operators

The number of racks inside the console and their height depends on the size of the console. As a general rule, they host 2 racks whose maximum height is 10 U each, but different solutions are possible.

Colors can be freely chosen by the customer.

Characteristic	Default Value
Desk Height	743 mm
Depth at desk level	1080 mm
Length	Customizable
Weight	70 kg/m
Colors	Customer can choose

KR Consoles

KR Consoles Series

The long-standing involvement of SITTI in the Air Traffic Control and Control Room management field suggested the design of the KR console series, by putting together the vast experience accumulated in many years of successful presence on the market. The current technological trend is going towards a larger and larger integration of different information sources into multifunctional terminals.

Interactive maps, tracking radars, flight plans, electronic strips, surveillance cameras, and many other data, voice, video sources and streams are being integrated to reduce the amount of devices on the operators' desks, with the intent of reducing the effort needed for getting information and increase their situational awareness. Concentration and integration are the keywords in this paradigm.

Motorized

To give operators a better view over the area under their responsibility and to allow them to work both sitting at their desk and standing while watching what's going on or just stretching their legs, KR consoles are equipped with three electrical actuators that allow the working area to be adjusted in height, according to the operator needs.

The possibility of adjusting the height of the working desk provides these consoles with a great usage flexibility and makes them fit for a very large number of applications. The overall adjustable height is about 400 mm. Sensors prevent danger to the user by automatically stopping the movement when any counter-pressure is detected.

Simplicity

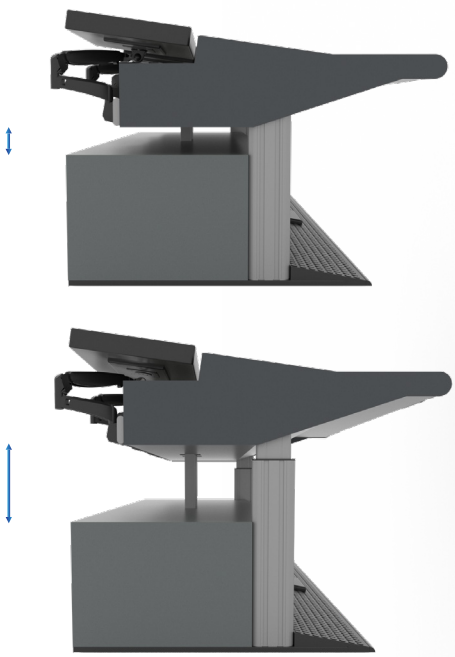
Simplicity is the goal in the development of KR consoles. Priority has been given to simplicity in the design and the required operating functionality, centred on the operator and his task requirements. The result is a product that is the right solution for applications where many different data sources are to be considered simultaneously, without losing the capability of having excellent situational awareness, especially where it is needed to have direct eyes on a physical area, like airfield towers.

Standard features

All KR consoles have a low profile that best suits to airport towers and control rooms. The console aluminium body may contain standard 19" equipment and devices, accessible from the rear in a seamless way that is not disturbing the operator at work. Access from the front is also possible.

They provide operators and controllers with:

- Large operative area in MDF, covered with linoleum or laminate
  - Wide writing plane
  - Headset/handset insertion panels
  - Slant surface for holding monitors and keyboards of different sizes
  - Durable surface, easy to clean



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- Internal space for equipment and devices
  - 2 standard 19" racks inside the console
  - Protected power distribution
  - Heat dissipation solutions

- Removable panels for maintenance purposes
  - One panel on the front, another one on the rear side
  - Snap-on handles for quick access
  - Ventilation grids for heat dissipation
  - Side plates allowing cabling between adjacent consoles

- Miscellaneous
  - Arrangement the horizontal and vertical laying of cables
  - Anti-slip rubber foot rest board
  - Optional arrangement for foot PTT
  - Adjustable feet to compensate floor irregularities

The KR console core is made up of an aluminum profile structure giving strength, light weight and flexibility in construction. A long lasting, fireproof, non-toxic and recyclable MDF (*medium density fiber board*) material is used for the cover panels and work surfaces. Cabling is done through the false floor and then via internal channeling towards monitors and equipment.

The number of racks inside the console and their height depends on the size of the console itself. As a general rule, each console hosts 2 racks whose maximum height is 10 U each.

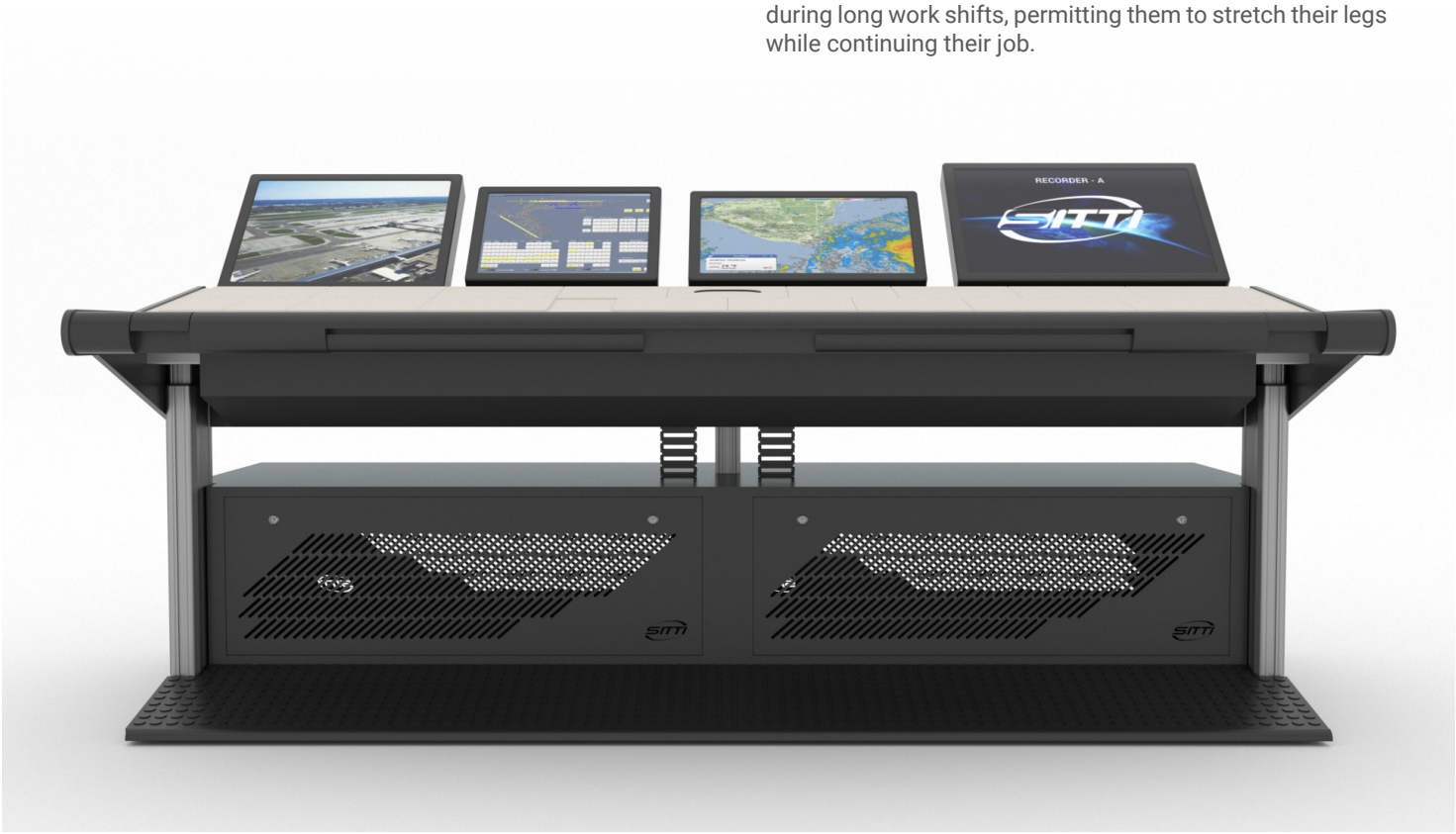
Colours can be freely chosen by the customer, just like the console length.

Characteristic	Default Value
Desk Height	785-1185 mm
Depth at desk level	1170 mm
Length	Customizable
Weight	110 kg/m
Colours	Customer can choose
Materials	• Aluminium • Stainless steel • Wood
Racks inside the console	2
Max height of racks	10 U
Height adjustment	400 mm

Comfort

KR consoles have been designed to give operators the maximum comfort possible, through a series of technical measures and appropriate distancing between objects. This results in the reduction of the operators fatigue and their increased capability of concentrating on the information provided by both direct observation and monitoring instruments.

KR consoles are thought for both sitting and standing operation, resulting in an increased comfort for individual users. The overall adjustable height is around 400mm, which gives the possibility of changing the viewing angle over the airfield, the runway or the taxi area operators are responsible for. The capability of changing the height of the operative desk further increases the comfort to operators during long work shifts, permitting them to stretch their legs while continuing their job.

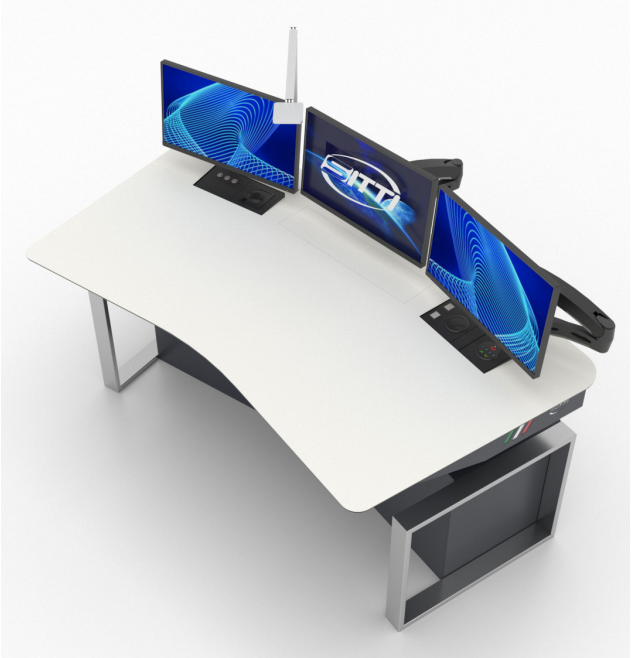


GH Consoles

SITTI have been working for many years side by side to ATC clients worldwide, offering its unparalleled competence and expertise. This allowed SITTI also getting a vast experience in delivering tower and ACC consoles to give operators the best workplace and contributing to making their air traffic control tasks easier and more comfortable.

GH Consoles are the result of such a long process, based on the know-how acquired by SITTI in delivering a large number of towers and ACC operative installations, taking into full account all recent technological trends that see information sources, normally distributed on individual displays, being consolidated and concentrated into multifunctional terminals.

Priority has been given to simplicity and ergonomics to offer friendly solutions for comfortably accessing all required operating functionalities, centred on the operator and his task requirements.



Construction and Materials

A console for air traffic control purposes is thought for a continuous 24/7/365 use. This makes the choice of materials extremely important to ensure the client a long lasting and future-proof solution, capable of coping with changing needs and requirements. Materials shall not only allow the required flexibility, but also properly consider all working conditions, not forgetting aesthetics.

- All consoles belonging to the GH series have an aluminium profile structure that provides the needed strength, stability and endurance. Aluminium contributes to keep the console weight low and gives high flexibility in construction and installation, thus allowing the client to possibly rearranging the tower or control room layout when new needs come up.
- The work surface is made of HPL (High Pressure Laminate). This is a very versatile non-porous material, that makes the workplace waterproof and easy to maintain and clean, thus making it easy to guarantee hygiene and durability over time. It is also very elegant and gives a nice touch-and-feel sensation to operators during their daily operations. HPL is opaque with an extremely low light reflexion index for a more comfortable use.
- Two motors allow controllers to adjust the height of the work surface to adapt it to different and variable working conditions, without losing control and situational awareness over the activities they are responsible for.
- High quality colours, removable panels in stainless steel, customisable bays for accommodating loudspeakers and control devices, moveable arms, large internal space for communication equipment complete this high level product.

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Engineering and Ergonomics

The design of GH consoles had two major objectives: to create a working position easy to assemble and install and to provide controllers with a comfortable and ergonomic workplace.

The console structure is such that it is easy to be mounted on site, thus overcoming possible space and transportation problems, very common in airport towers. This also reduces lead time and associated costs. On the other side, ergonomics is essential to air traffic operators, while maintaining clear line of sight and placing communication devices in the best position ever. The design of course considered all applicable international standards on ergonomy.

The space internal to the console can be used to house communication devices, thanks to the two 19” racks, each of which is 8 U high, that allow rear access for non-disruptive maintenance activities. An intelligent cable distribution arrangement reduces the burden of physical connections between different pieces of equipment. Power distribution is protected.

// Main Characteristic

Minimum worktop height	730 mm
Maximum worktop height	1130 mm
Rear width	1784 mm
Front width	1517 mm
Depth	1021 mm
Number of racks inside	2
Height of each rack	8 U

// Finishes

Colours	Any RAL colour, at customer choice
Customizable Corporate Logos	Yes
Power distribution	Protected
Access panels	Removable

Integrated Solutions
for Air Traffic Control
and Operations Rooms

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ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001

INFORMATION SECURITY MANAGEMENT SYSTEM DNV·GL ISO/IEC 27001