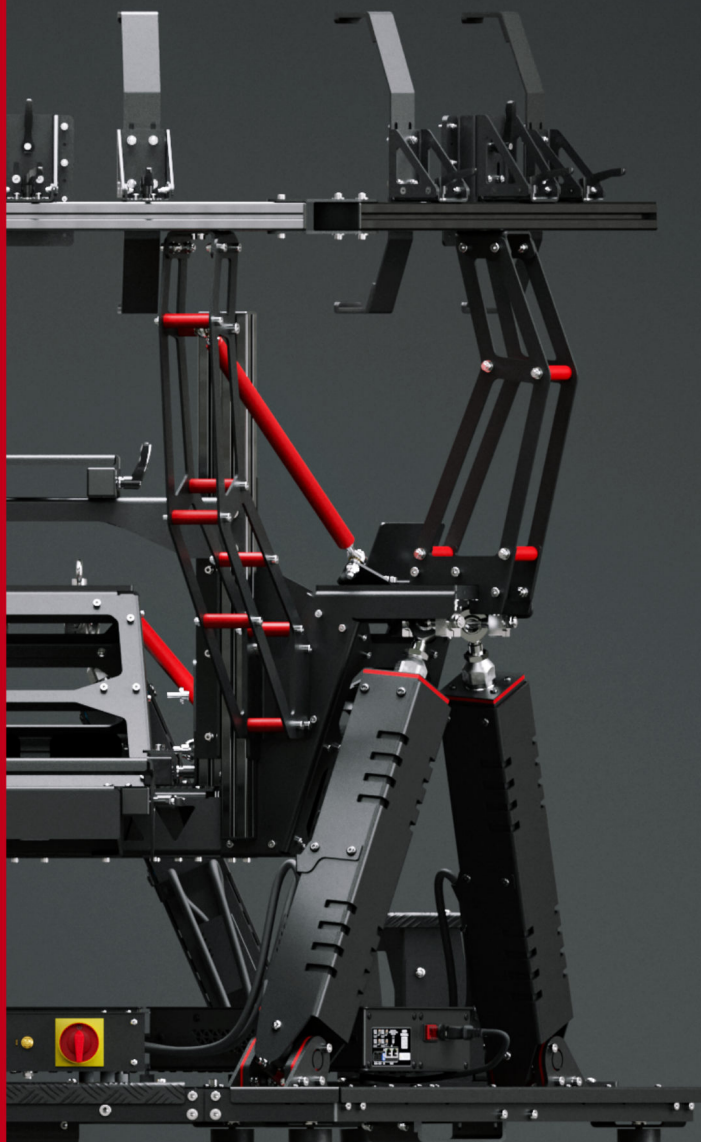


PRECISION IN MOTION
REDEFINED

EN

USER MANUAL



QS S25

The Motion Systems, manufacturer of Qubic System, would like to thank you for choosing the QS-S25, an innovative product that helps you to develop highly reliable training and entertainment solutions that reproduce key immersive elements, such as surface textures, acceleration, engine vibrations and vehicle dynamics for multiple types of land, air or sea vehicles. Our motion system has been designed to deliver the most realistic simulation experience. We hope you enjoy your new Qubic System!

Our experts are ready to assist you:
QubicSystem.com/contact



ASK SUPPORT

Our experts are ready to assist you:
MotionSystems.eu/Support



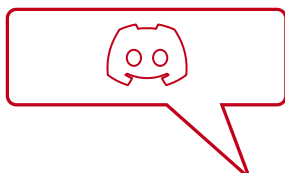
SEARCH OUR TUTORIALS

Everything you wish to know is here:
QubicSystem.com/Tutorials



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DISCORD YOU ASK, WE ANSWER

Join our discord server to ask questions:
QubicSystem.com/Discord

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1. SAFETY PRECAUTIONS

Read all safety instructions before installing and using this product. Save this document for future reference. If ownership of this product is transferred, be sure to include this manual.

Following coloured frames are used in this manual to draw attention to important information or warnings:

INFO

The instructions included in this frame indicate information that is considered important, but not injury- or damage-related.

WARNING

The instructions included in this frame indicate a dangerous situation that, if not avoided, could result in a user injury or device damage.

1.1. GENERAL SAFETY

WARNING



Keep hands and feet away from the moving parts when device is in motion.

WARNING



Always ensure that cockpit attachment points can withstand forces generated by the QS-S25 (approved construction or tested for expected load). Check the cockpit for loose mounting points.

WARNING



To reduce the risk of burns, fire, electrical shock, injury or mechanical damage always **TURN OFF THE POWER SUPPLY** before plugging and unplugging the QS-S25. Dangerous voltages level can be present in Power Cabinet for a few minutes after turning off the machine.

WARNING



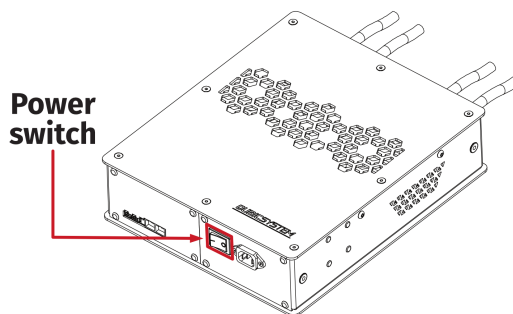
The device is intended solely for individuals **OVER THE AGE OF 16**. In case of use by individuals with limited physical, sensory, or mental capabilities, strict supervision is required. Read safety instructions before using the device.

To reduce the risk of burns, fire, electrical shock, injury or mechanical damage:

- Use the QS-S25 only for its intended purpose, according to instructions.
- Unplug the QS-S25 from the power supply if it is not used for an extended period or when there is a need to perform hardware installation, maintenance, servicing or repairs.
- The QS-S25 was designed for indoor use only - **DO NOT** store or use the product outdoors.
- Keep the QS-S25 away from the heat sources, high humidity, water, and other liquids. **DO NOT** store in cold place where water condensation may occur.
- **DO NOT** disassemble the product. Any tampering with or altering the product will void the warranty, poses a serious risk of electric shock, and may irreparably damage the product.
- **DO NOT** cover the ventilation holes in the Power Cabinet.
- Keep the power cord plug and the socket dry, clean and dust-free.
- Protect the power cord from damage caused by being stepped on, rubbed against, or pinched.
- **DO NOT** use the QS-S25 if the ambient temperature is below 5° Celsius (41° Fahrenheit) or above 40° Celsius (104° Fahrenheit).
- **DO NOT** use the QS-S25 if it has been damaged, or any component is broken or missing. Please contact technical support.
- **DO NOT** use attachments or replacement parts not recommended or approved by the manufacturer. If you must replace a power cord, use only certified products with the same rating as the one being replaced.
- Any modifications to machine's settings and its cockpit are at the risk of the user/installer.
- Connect the QS-S25 to a properly grounded outlet only. See grounding instructions in section 2.7 on page 23.
- If you want to increase safety level of the system, you can add external safety devices. For detailed information see section 7 on page 101.

WARNING

Always turn all the power switches off on the QS-SB2 power cabinets before plugging and unplugging the QS-S25. Dangerous voltages level can be present in Power Cabinet for a few minutes after turning off the machine.



WARNING

Stop using the QS-S25 immediately and contact technical support when the machine starts to emit unusual noise, smoke or any other suspicious behavior indicating the machine is not working properly.

1.2. HEALTH AND SAFETY INSTRUCTION

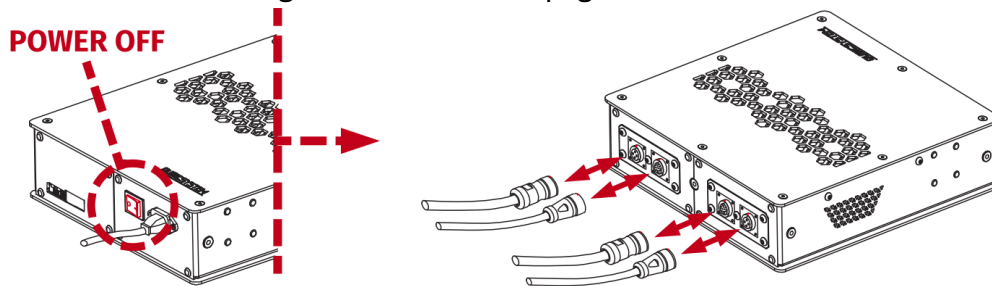
WARNING

As with any mechanical device, user is the one responsible for inspecting the condition of the machine before using it and ensuring safe working conditions.

The safety of Qubic System users is top priority. To protect users and bystanders from injuries caused by mechanical parts movement and electric shock, the following instructions **MUST BE** followed.

WARNING

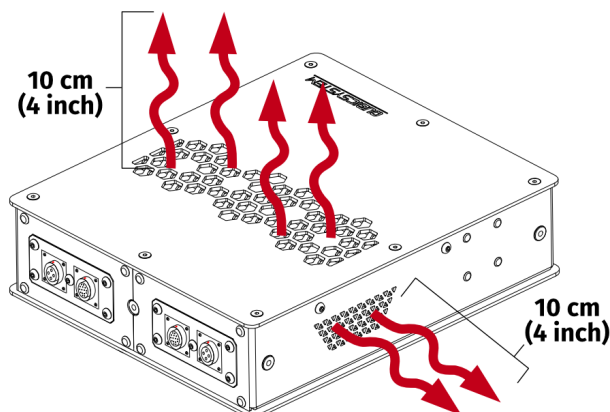
Plugging and unplugging the actuator must **ALWAYS** be performed with Power Cabinet's power switched OFF.
For more information go to section 4.3 on page 78.



Always make sure that all PUSH-PULL connectors are plugged **all the way in** - ring lock **MUST** click into place. Loose connections may result in serious actuator damage.

What must be checked before turning on the device:

- Ensure that nothing is blocking machine's movements or air vents. The minimum distance between the air vents in the Power Cabinet's and any outside part of the cockpit equipment is 10 cm (4 in).



- Check if cables are mounted correctly – they must **NOT** be stretched or loosely connected to the socket. Place them out of the moving range of the device components.
- Check if all components are correctly mounted.
- Check if there are no sharp edges near the moving range of the cockpit.

WARNING



Dangerous voltage levels are present in the Power Cabinet and cables during the operation and for up to a few minutes after turning off the machine.

How to safely turn on and use the QS-S25:

- Ensure that everyone around is aware of cockpit's rapid movements.
- Ensure that no one stands in the range of the motion (minimum of 1.5 m [5 feet]).

WARNING



In order to perform a calibration, QS-S25 will move after turning the power on and cycling the Motion Lock button. Stay in the safe distance from that movement and do not try to interrupt it.

- **DO NOT** change the payload weight mounted to the QS-S25 during a start-up calibration.
- Motion Lock Switch should be mounted within the reach of the user – it has to be available immediately in every situation. Different seat positioning setups should be taken into account.
- Check the Motion Lock Switch **AT LEAST** once a month to reduce the possibility of unknown and unexpected failure.
- Before getting on and off the machine activate Motion Lock Switch by pressing it down.
- In case of game crash or freeze - Motion Lock Switch must be triggered (pressed down) before getting off the machine.

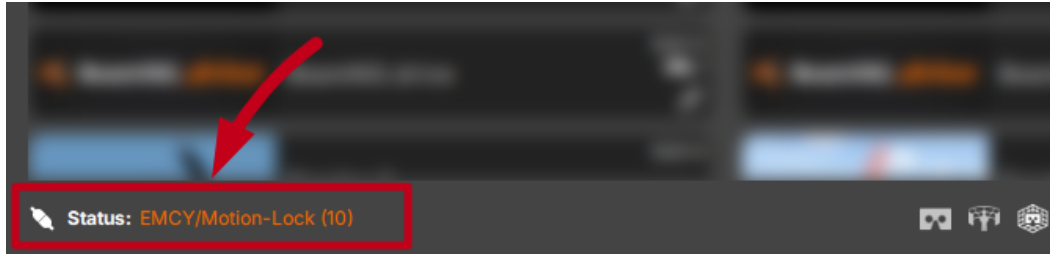
WARNING



NEVER unplug the actuator with Power Cabinet's power ON, because the actuator will **launch upwards abruptly**.

INFO

To check if the QS-S25 is in the Motion Lock mode - go to QubicManager application main window. Platform status is displayed in the lower left corner of the main application window:



INFO

Motion Lock input is not SIL/PL (safety integrity level/performance level) rated and **DOES NOT** guarantee safety. If you wish to achieve specific SIL/PL ranking, consider introducing a power cut-off device that is controlled by an external safety relay and cuts off the power to all Power Cabinets. Example application of the power cut-off contactor can be found in section **7.3.2** and **7.3.3** on pages **105** and **107**.

- For VR Headset users:
 - Remove the VR goggles before entering or exiting the rig.
 - Ensure that cables from the VR Headset are not in the movement range of the QS-S25.
 - Ensure that the whole VR setup is not in the motion range of the QS-S25.
 - Ensure that VR setup cables are protected from being crushed by the QS-S25
 - **DO NOT** place them loosely under the motion rig.

INFO

It is **recommended** that the connected PC is capable of running the game at stable 90 frames per second or more when VR Headset is used. Lower values can cause VR sickness.

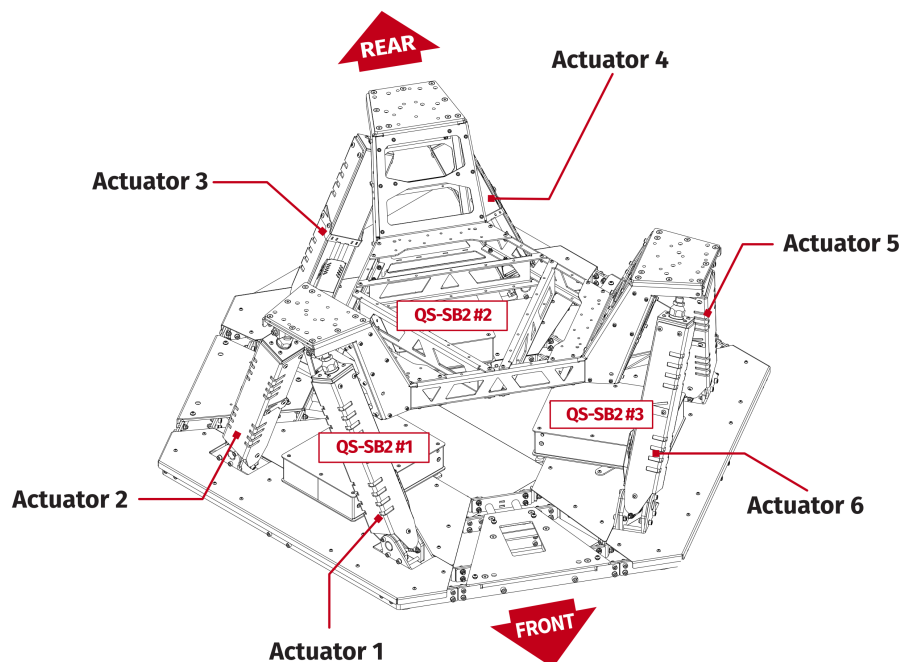
- **DO NOT** use QS-S25 if you are pregnant, tired, or under the influence of alcohol or narcotic substances.
- **STOP USING** the QS-S25 immediately if you start feeling pain, fatigue or any physical or mental discomfort.
- User **MUST** always be mentally and physically capable of operating the simulator at its full performance.
- For every two hours of playing, we recommend at least **15 MINUTES OF BREAK**.
- **DO NOT** put your hands or legs in the actuator's range of motion!
- **DO NOT** use the QS-S25 with small children or pets around.

- **DO NOT** put any items between actuators and stabilization plates.
- **DO NOT** pull the wires connecting the actuators with the Power Cabinets.
- **Always** fasten the seat belt while using the QS-S25.

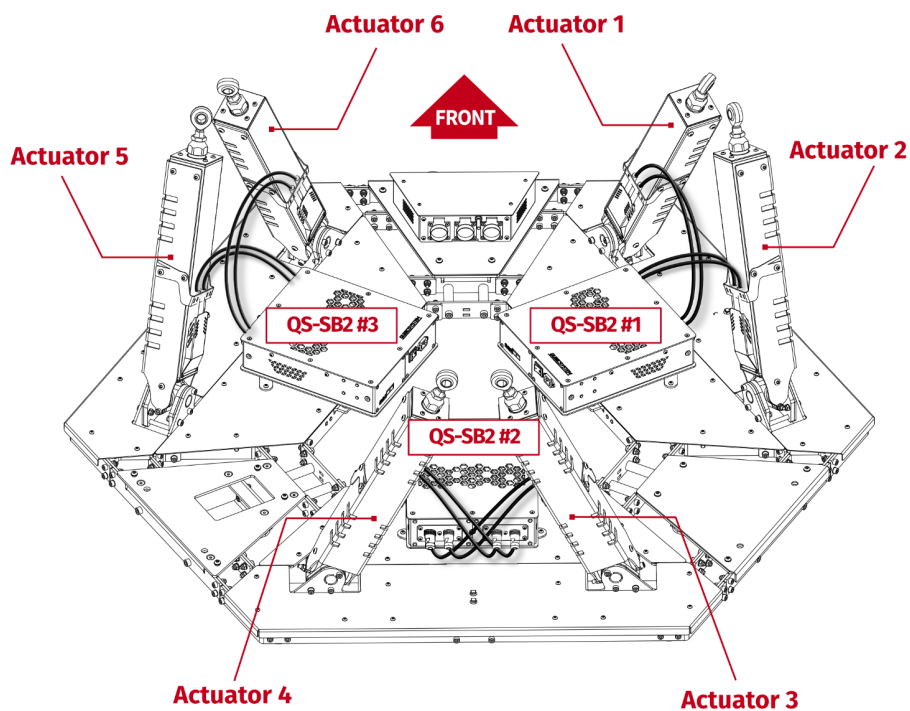
2. PRODUCT DESCRIPTION

2.1. COMPLETE VIEW

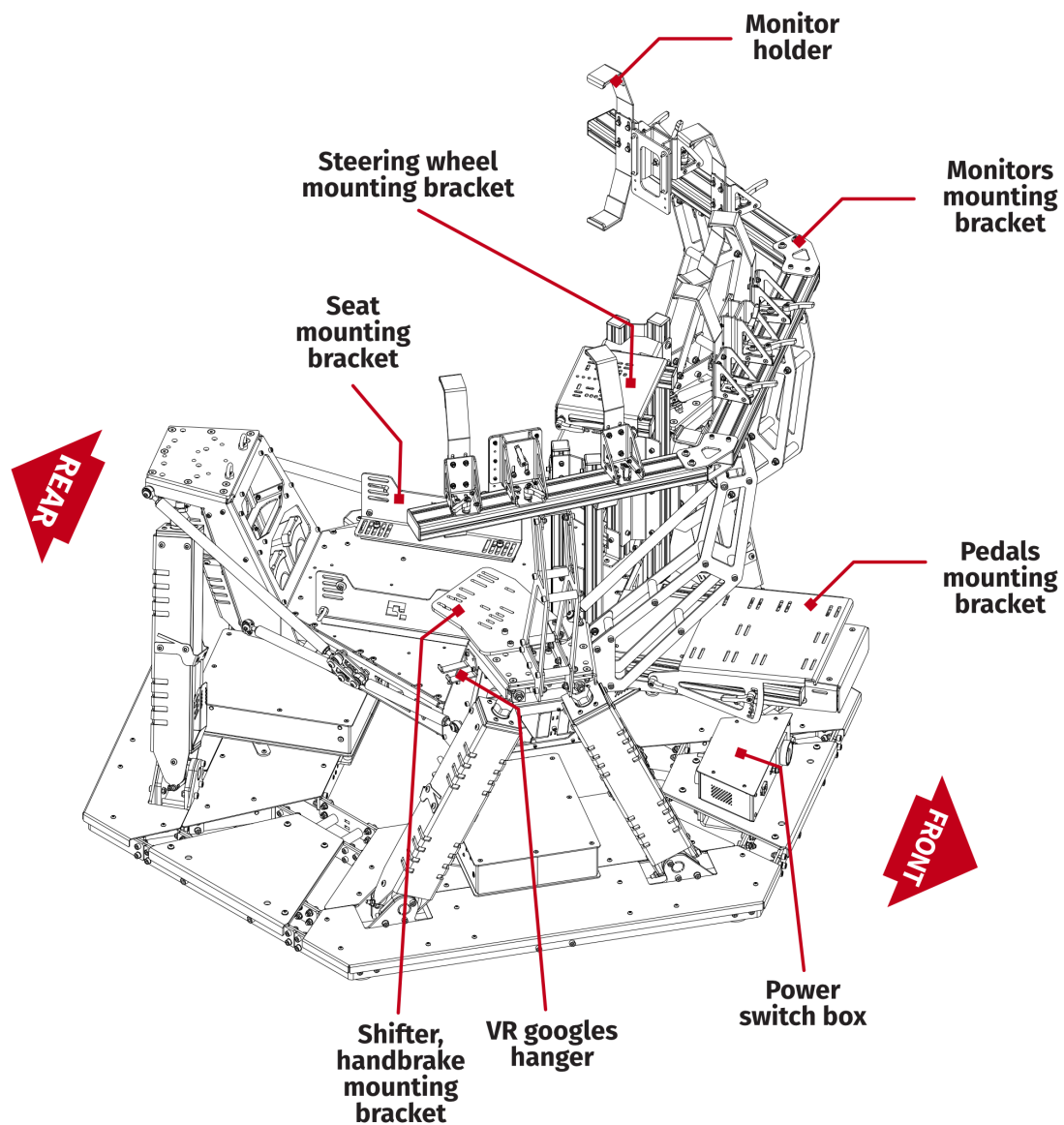
QS-S25 basic setup overview:



Actuators numbering and connections with power cabinets:



QS-S25 basic with all additional accessories overview:

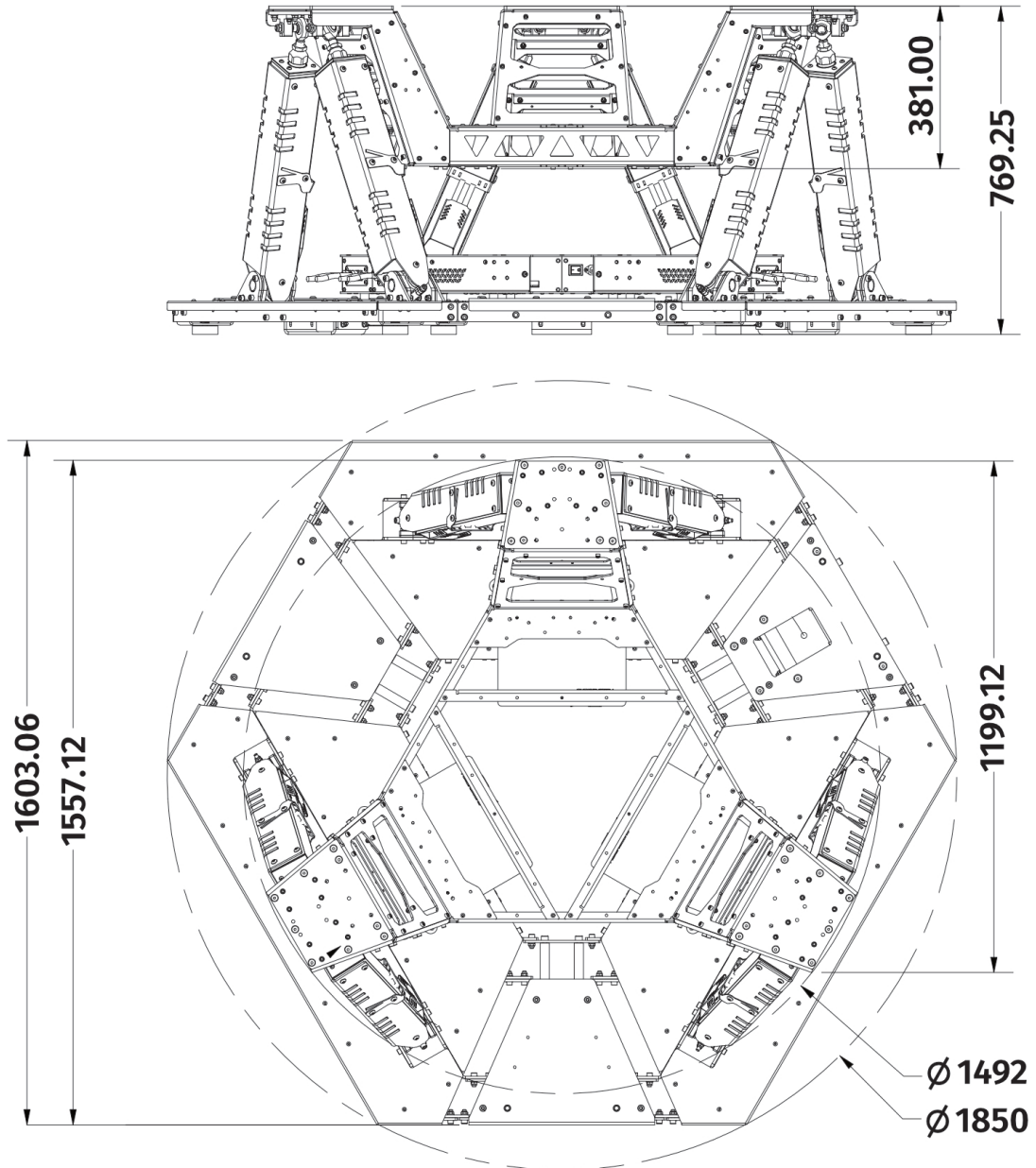


INFO

Use only monitors compatible with VESA 100 x 100 32" type mounting.

2.2. DIMENSIONS

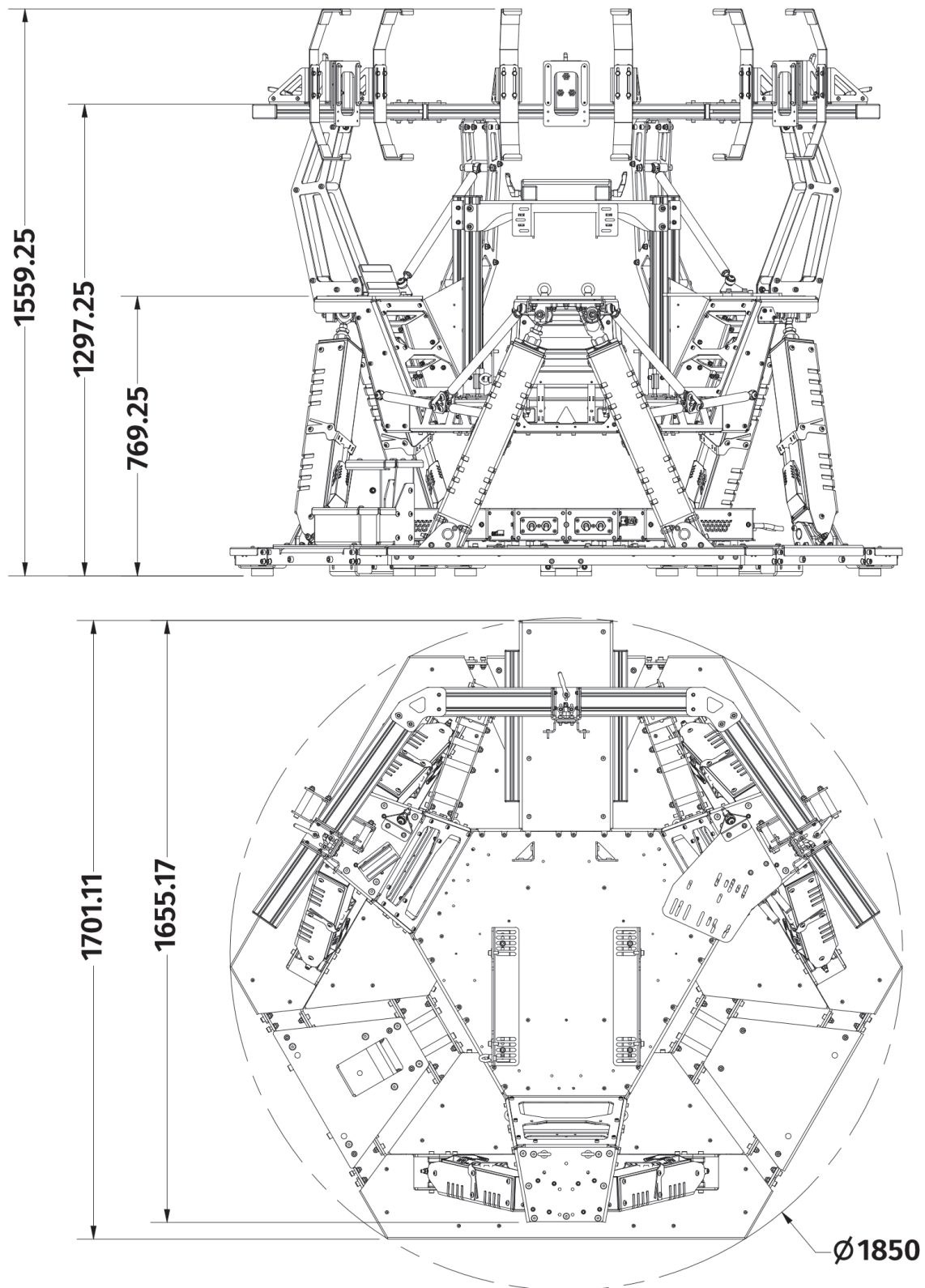
QS-S25 basic setup dimensions:



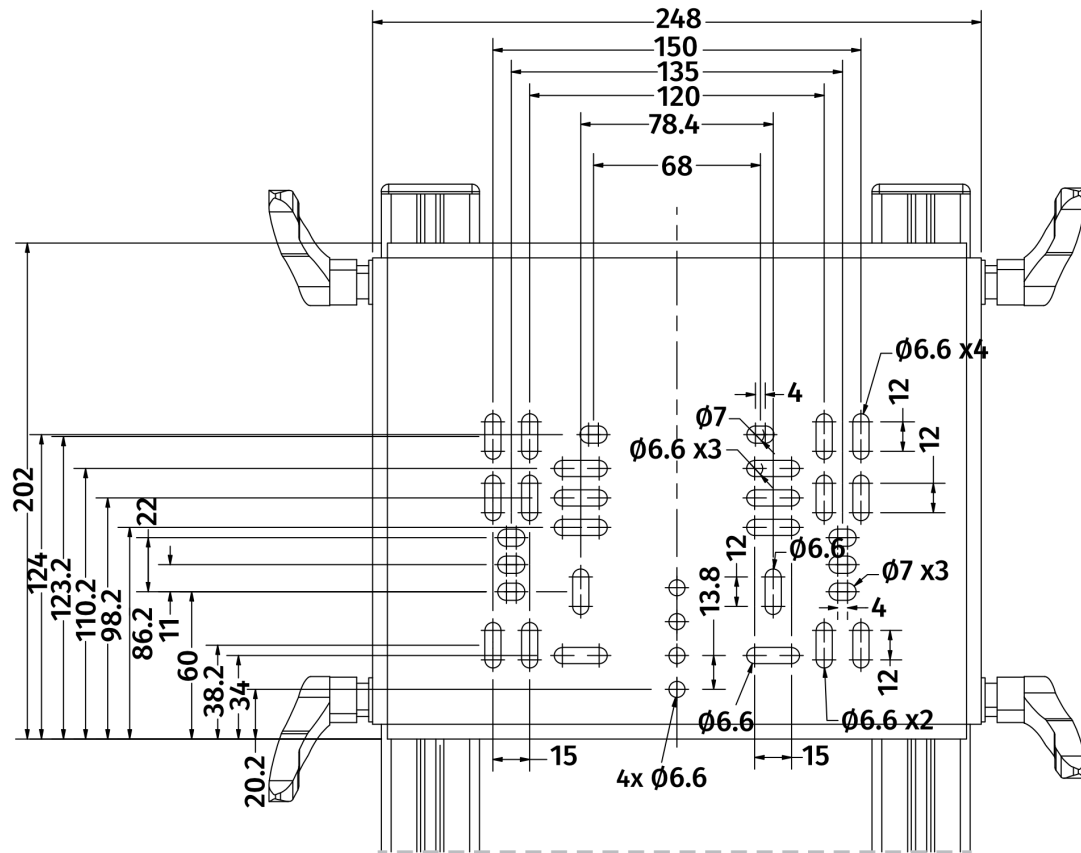
INFO

QS-S25's maximum heave is 108.3 mm (4.26 in) - ensure that the room in which the motion platform will operate has a high enough ceiling (including accessories + monitors).

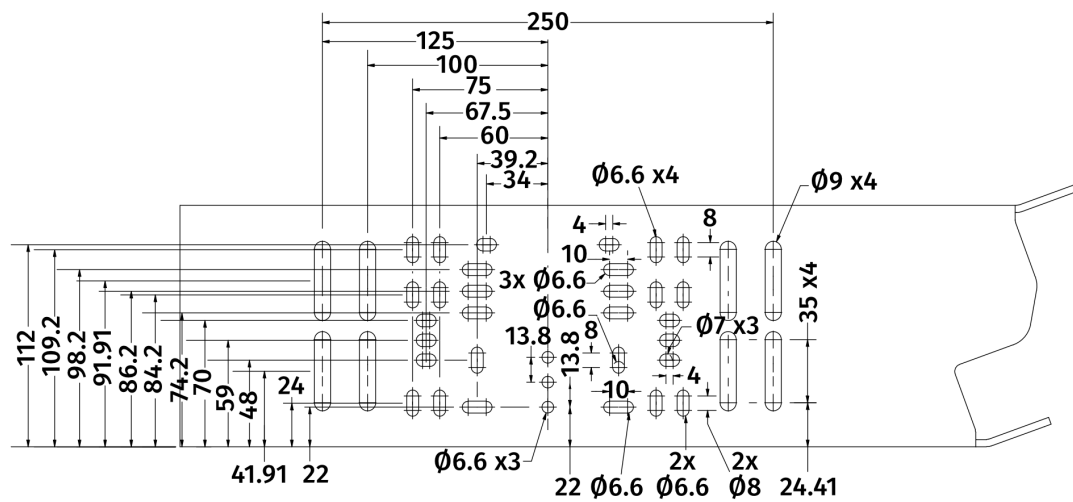
QS-S25 dimensions with accessories:



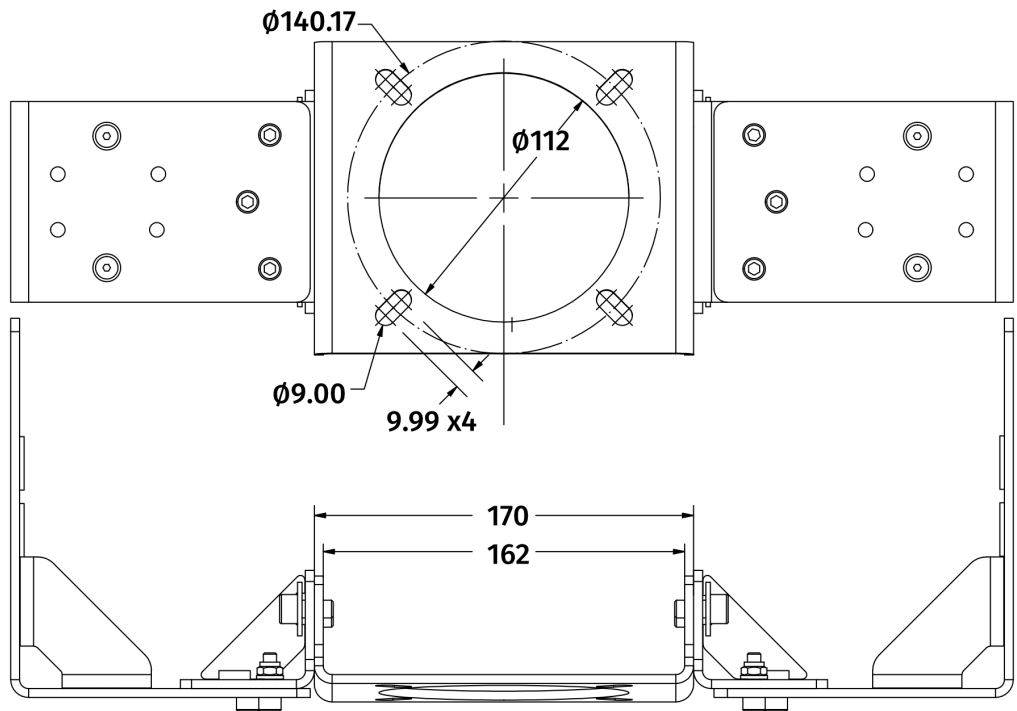
Wheel deck dimensions:



Top desk dimensions:



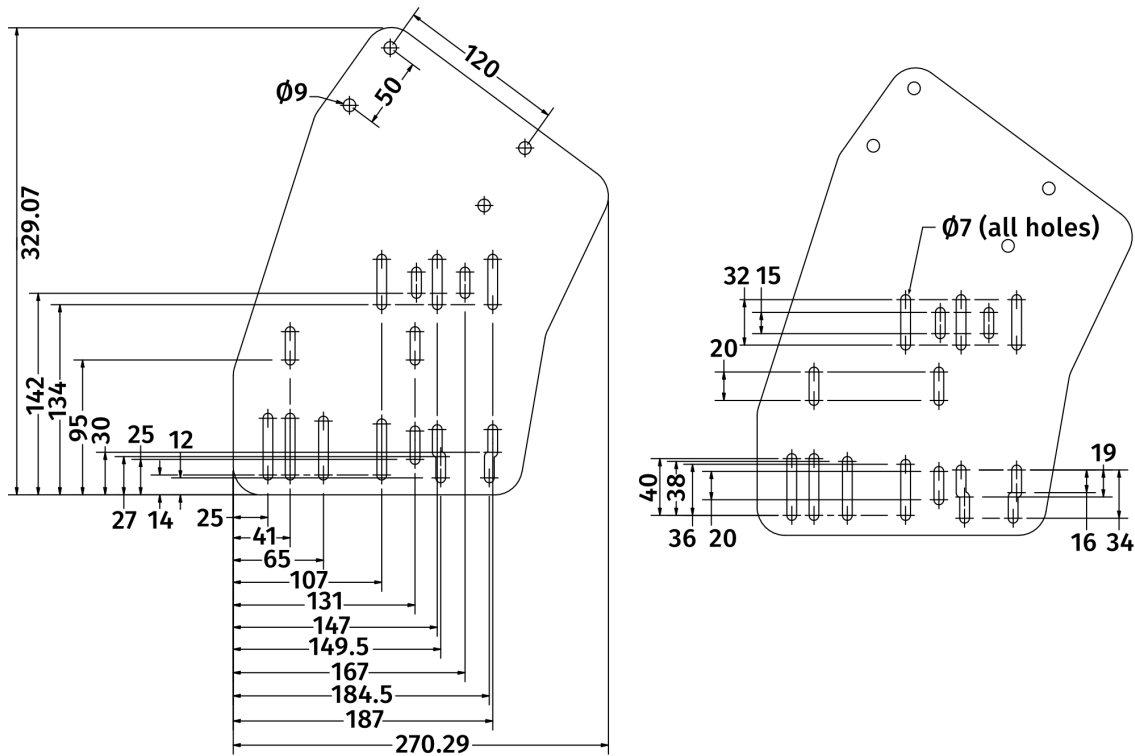
Front mount dimensions:



INFO

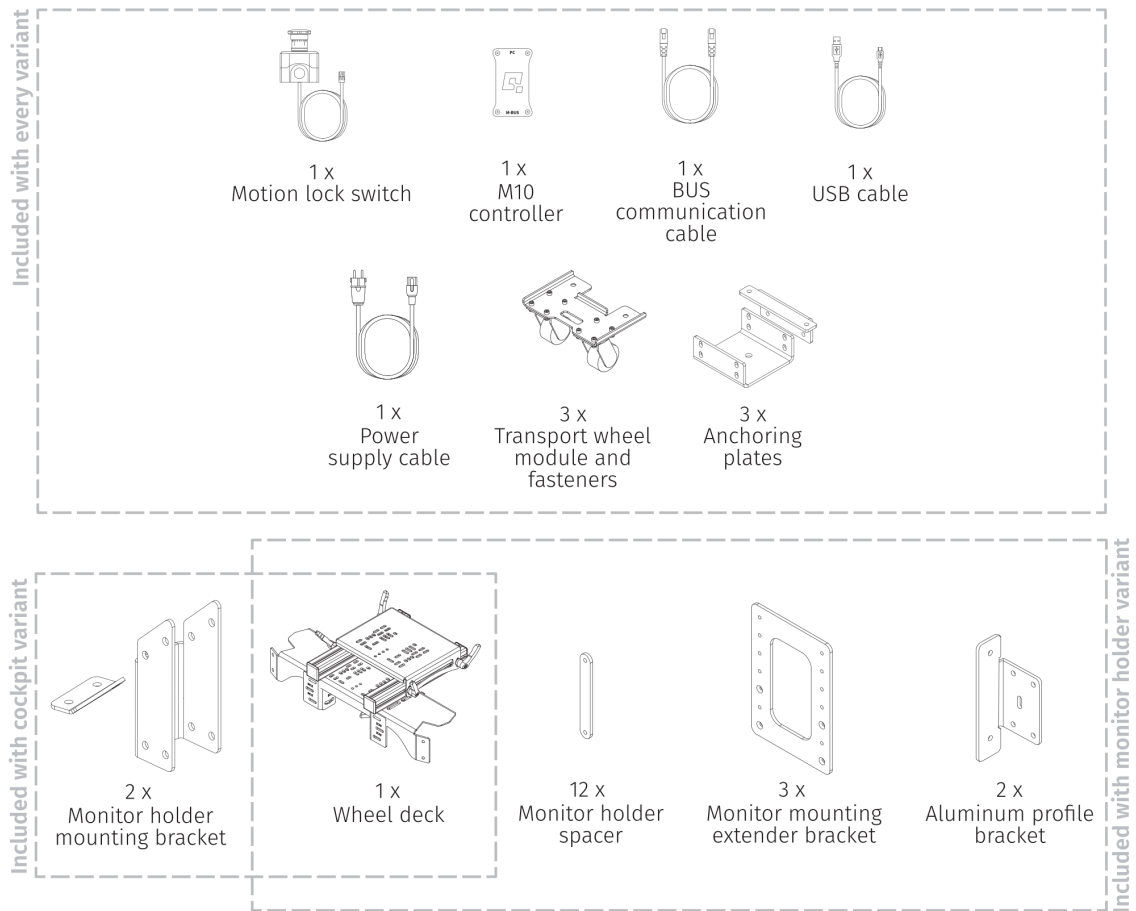
To mount the QS-DD-20, remove the central front mounting bracket and attach the steering wheel directly by the sides of the direct drive housing.

Shifter mount dimensions:



2.3. COMPONENTS (ASSEMBLED VARIANT)

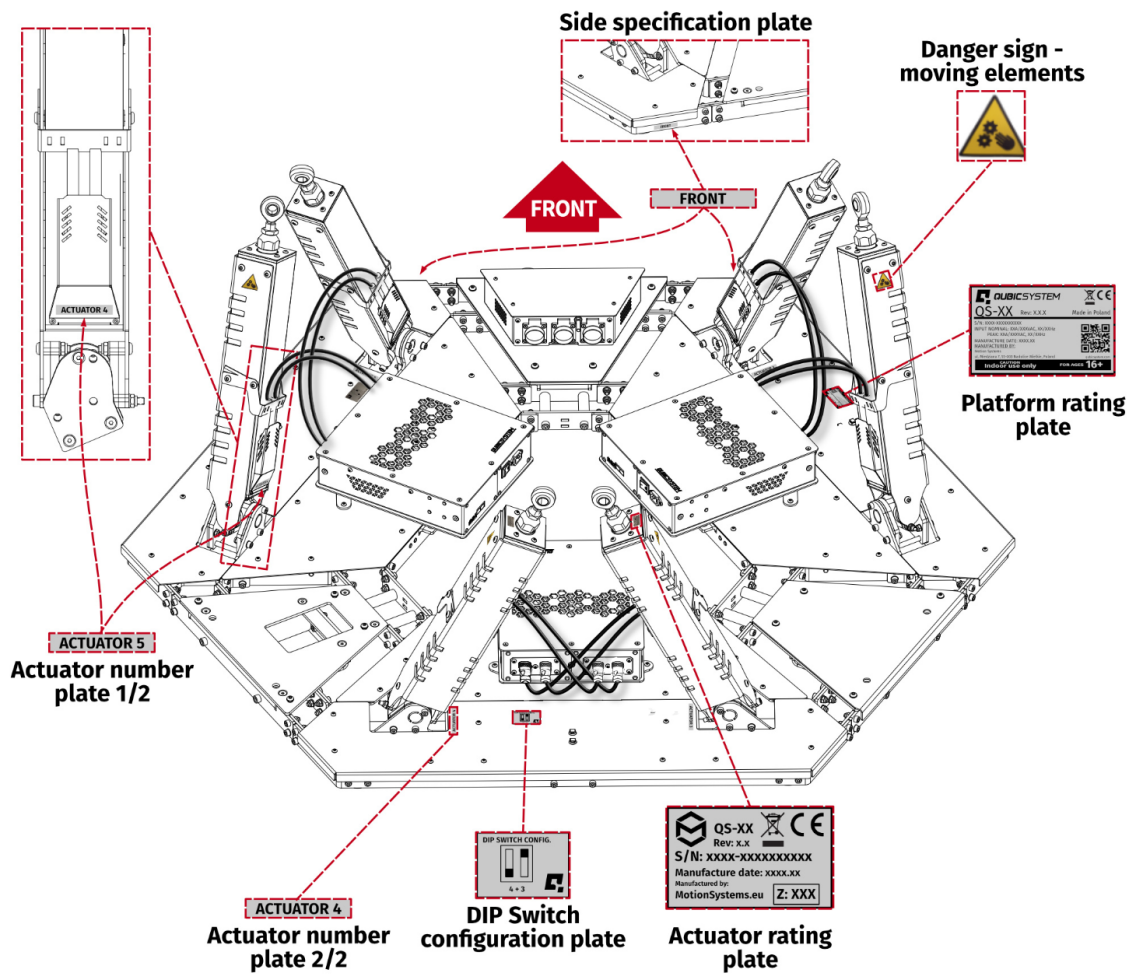
QS-S25 (assembled) components:



INFO

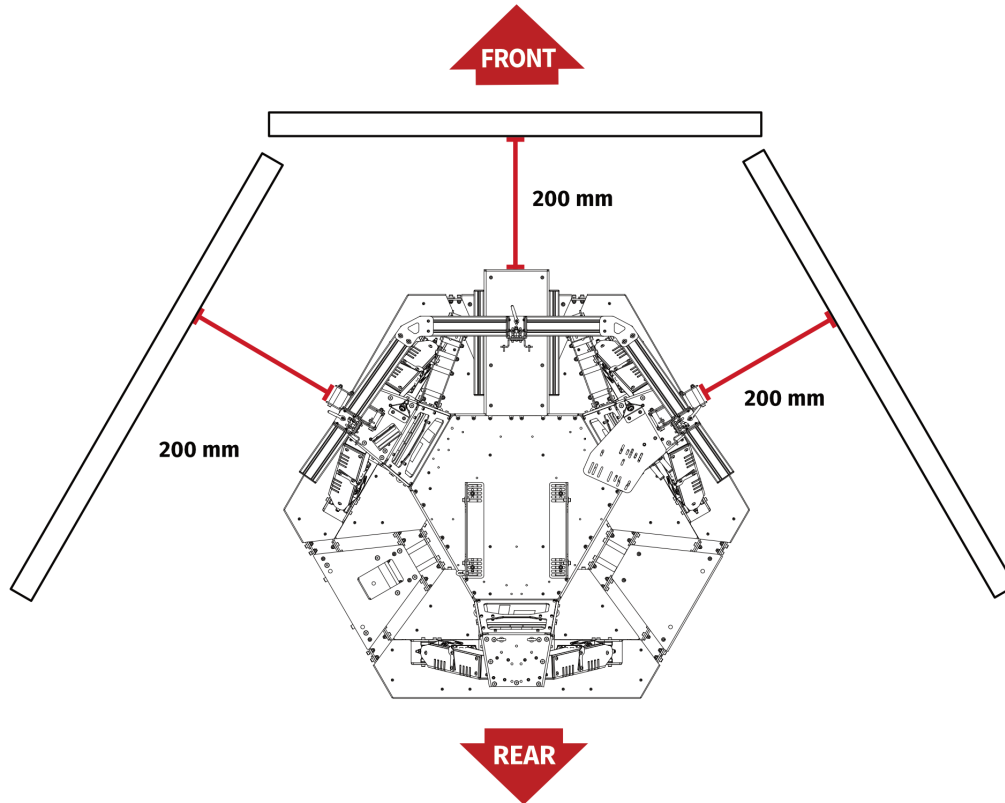
For information on components in modularized variant go to section 3 on page 30.

2.4. LABELS AND WARNING PLATES PLACEMENT



2.5. SAFE AND WORKING DISTANCES

Minimum **placement safe distance** from the QS-S25 edges to the nearest object are shown below:

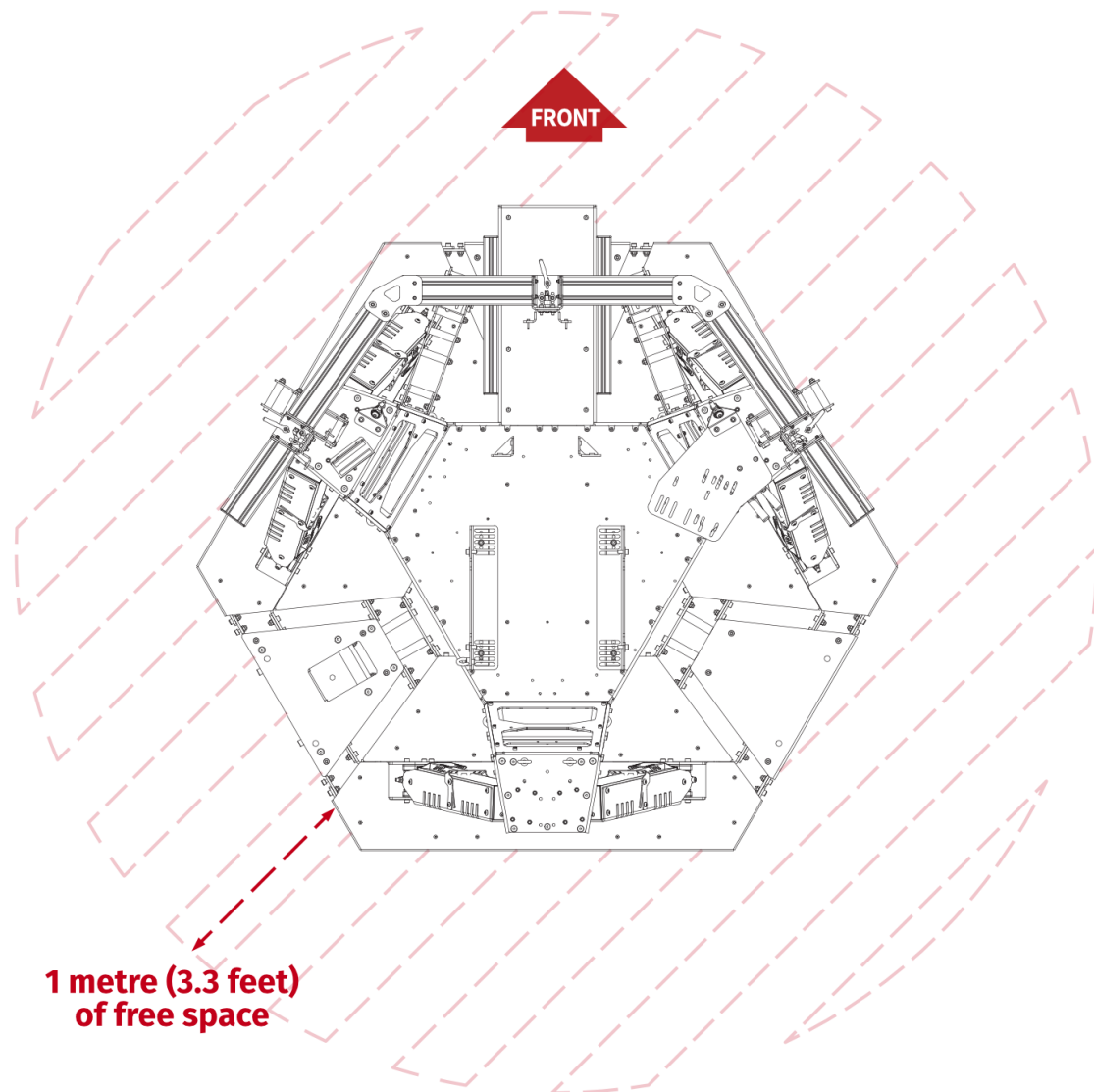


INFO

Keep in mind that QS-S25 might move during simulation, occasionally check if the safe distances are kept to avoid damages by QS-S25 hitting for example wall or TV screen.

To ensure that safe distance is always kept - anchor the machine to the ground. For more details go to section **Anchoring** on page 76.

Minimum **approach safe distance** at which a person is permitted to come up the machine when it is powered ON is 1 meter.



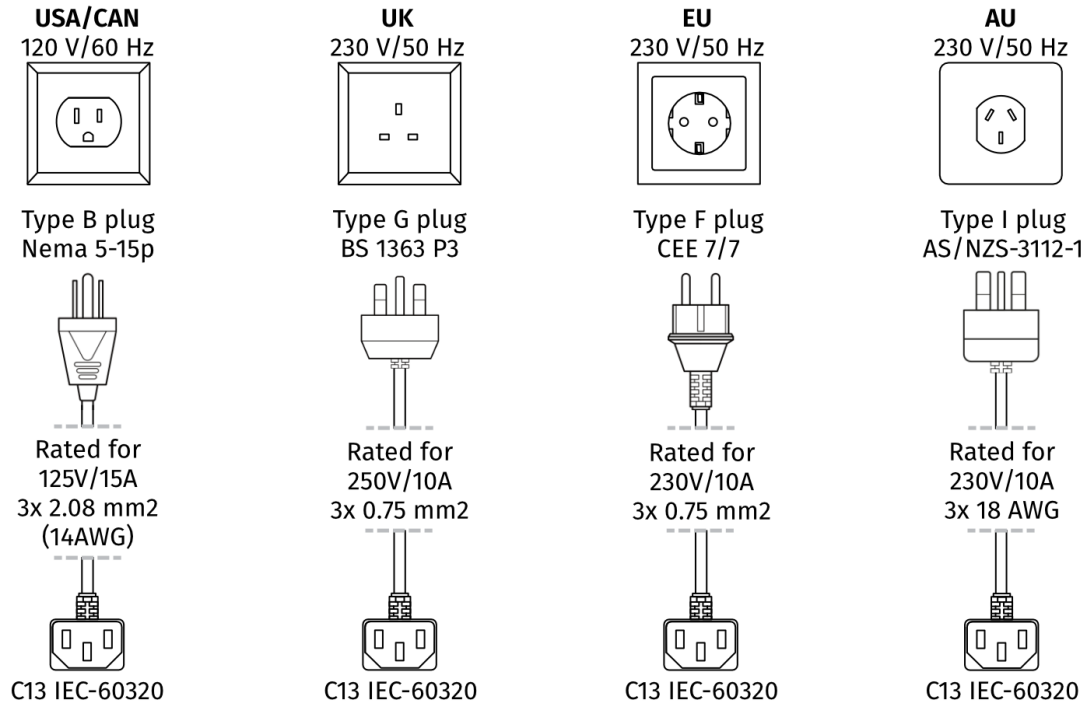
2.6. ENVIRONMENTAL CONDITIONS

QS-S25 shall be operated within ambient conditions as specified below:

- Only indoor use
- Temperature : 5° - 40° Celsius / 41° - 104° Fahrenheit
- Humidity : 0 - 70 % (without condensation)
- Maximum altitude : up to 2000 m / 6561 ft

2.7. POWER REQUIREMENTS

QS-S25 requires a 120/230 $\pm$ 10% VAC 50-60 Hz single phase with ground and neutral connection.



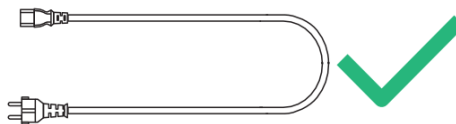
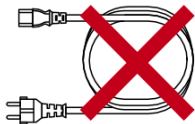
WARNING

- The device is **NOT** intended to be used in an IT earthing/grounding system.
- The device is intended to be used in a TN-S earthing/grounding system.
- The product must be connected to the mains power supply with a protective earth (**PE**) and a residual current circuit breaker (**RCCB**).
- For proper operation and protection of the device, it is recommended to use a miniature circuit breaker (MCB) type **B16** (rated current 16 A, B-curve characteristic).

If you experience issues such as unexpected shutdowns or resets during simulation, it is recommended to inspect the power cables and power source. The use of cables that do not meet the specified requirements may lead to malfunctions. To ensure proper device operation, replace any non-compliant cables with ones that meet the required specifications.

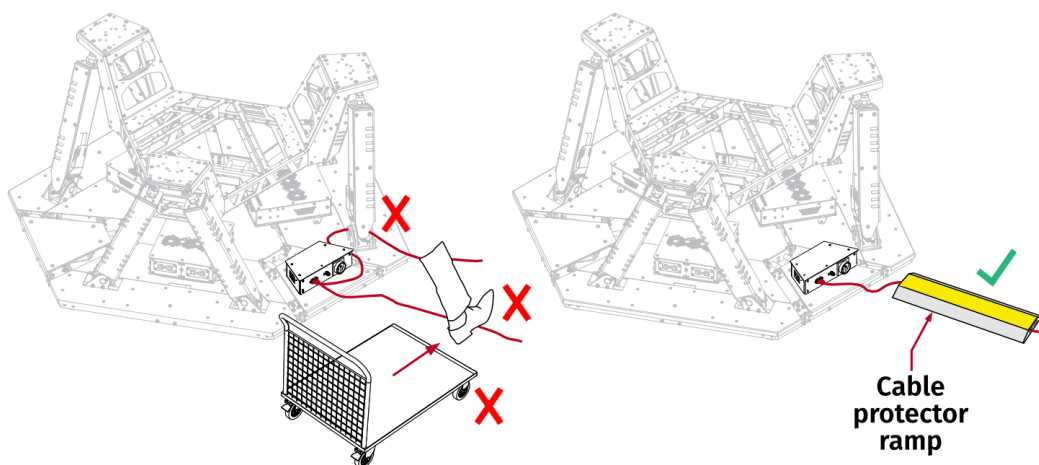
INFO

Always **UNWIND THE CABLE COMPLETELY** when using a cable reel and untangle an extension cord before connecting the device to the power supply.



INFO

DO NOT place the machine in a location where the cable can be damaged. **DO NOT** allow anybody to step or pass over the cable with any wheeled equipment. Use cable protector ramp, if necessary.



2.8. POWER CONSUMPTION

Tables below contain power consumption data on Performance mode (Q-MODE is unavailable for QS-S25).

Voltage - 230V:

Converter specification		Breaker specification	Power consumption	
Average Power [kVA]	Peak Power [kVA]	Peak Current [A]	Average Power (stress test) [kW]	Average Power (typical game) [kW]
1.3	2.4	11	0.46	0.20

Voltage - 110V:

Converter specification		Breaker specification	Power consumption	
Average Power [kVA]	Peak Power [kVA]	Peak Current [A]	Average Power (stress test) [kW]	Average Power (typical game) [kW]
0.9	1.5	13	0.45	0.24

Be aware that with heavier payload, and/or more intensive simulation, average Power consumption may rise.

INFO

For proper operation and protection of the device, it is recommended to use a miniature circuit breaker (MCB) type **B16** (rated current 16 A, B-curve characteristic).

2.9. SYSTEM PERFORMANCE

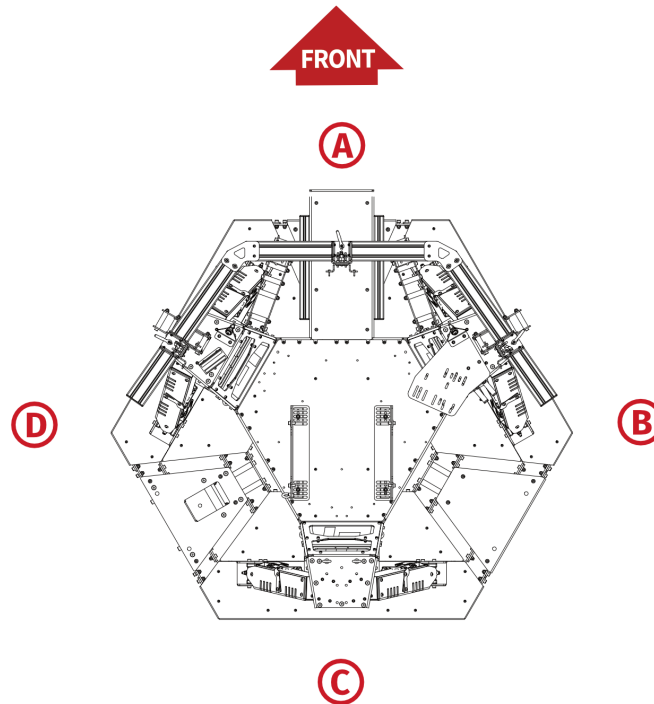
Table below contains system performance data for 230V power supply.

Motion	Excursion	Velocity	Acceleration
SURGE	-139.2 / 115.3 mm	1000 mm/s	1 G*
SWAY	-114.7 mm / 114.7 mm	900 mm/s	1 G*
HEAVE	-54.3 / 53.8 mm	350 mm/s	0.5 G*
ROLL	-5.1° / 5.1°	40°/s	500°/s ² *
PITCH	-4.6° / 4.6°	40°/s	500°/s ² *
YAW	-9.8° / 9.8°	80°/s	1000°/s ² *

*value limited for safety reasons

2.10. NOISE EMISSION

The QS-S25 was checked for noise level based on actual standards. Noise level during normal work condition is not over 80 dB. Measuring method is compliant with ISO 11202. Four measuring positions as shown on the picture are placed 160 cm from the floor level and 100 cm from the edge of the device.

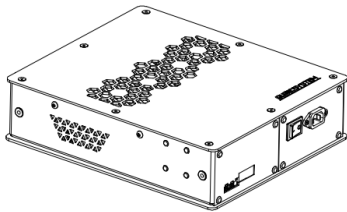


Measurement point	A	B	C	D
Measurement conditions: ■ Sinus input signal ■ Auto acceleration ■ 100% speed ■ Heave 50 mm ■ 0,9 Hz frequency ■ 250 kg ballast load	60,7 dB(A)	63,4 dB(A)	62,9 dB(A)	63,2 dB(A)
■ Typical game ■ 250 kg ballast load	53,9 dB(A)	56,8 dB(A)	57,8 dB(A)	58,6 dB(A)

2.11. COLD START PROCEDURE

For safety reasons, and in strict compliance with the requirements of ISO 14118:2017 (E) concerning the prevention of unexpected start-up, QS-210, QS-220, QS-V20, QS-CH2, and QS-S25 motion systems require one complete cycle of the Motion Lock switch whenever power is restored after being cut off or during the start-up. Follow the steps below:

1. Verify that the motion platform is OFF - the power switch on the Power Cabinet is not backlit, and **QubicManager** displays an Offline status.

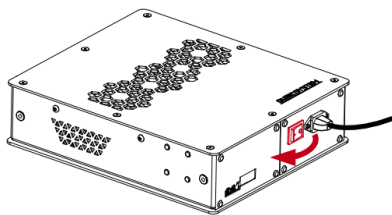


Platform's power is **OFF**

QubicManager bottom left corner:

Status: Offline/Waiting for nodes (4)

2. Turn the Power ON. The platform will not move.

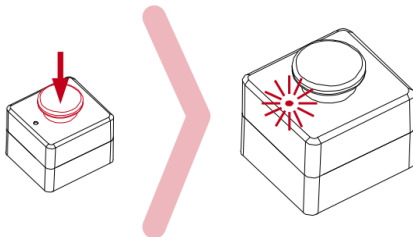


Platform's power is **ON**

QubicManager bottom left corner:

Status: Press and release Motion-Lock (5)

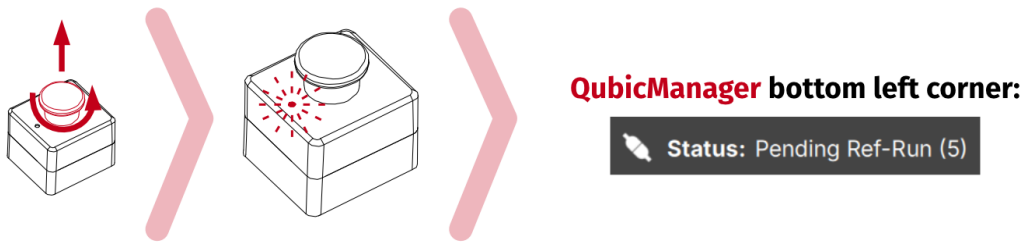
3. Press the **Motion Lock button** - diode emits constant light. The platform will not move.



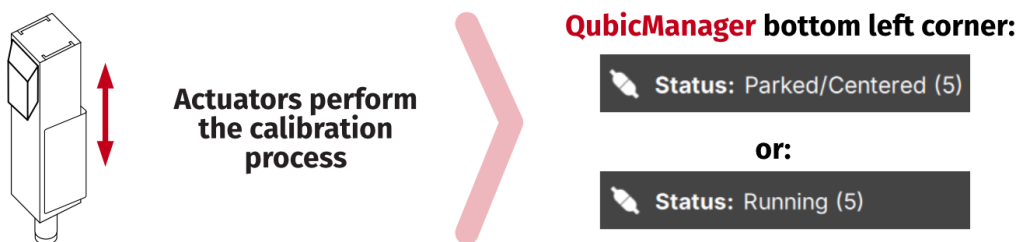
QubicManager bottom left corner:

Status: EMCY/Motion-Lock (5)

4. Turn the **Motion Lock button** counterclockwise - diode blinks. The system will perform start-up calibration. Do not change the payload.



5. If the status displays **Parked/centered** or **Running** - the motion platform is ready for operation.



INFO

- If the status displays  **Status: Parked/Centered (5)** - no need to perform a Cold start procedure, the platform is ready for operation.
- If the platform was already powered ON while starting the QubicManager and status displays  **Status: Press and release Motion-Lock (5)** - start from step 3.
- If the Motion Lock was already engaged during start-up and the status displays  **Status: EMCY/Motion-Lock (5)** - no need to cycle through the stages, start from step 4.
- For the procedure to work, M10 controller must be powered on (via USB) - QubicManager does not have to be running.

2.12. GLOBAL PAUSE START-UP

To protect the user from unexpected machine movement, the Global Pause function is enabled by default on application startup.

If the game remains paused for more than 5 seconds, Global Pause is activated automatically to prevent the device from starting before the user is ready (e.g. seat belts are not fully fastened), which is especially useful in environments with frequent driver changes, such as racing simulator centers. When active, Global Pause is indicated by a voiceover message, an active button at the bottom of the program and a highlighted yellow frame around the button panel.



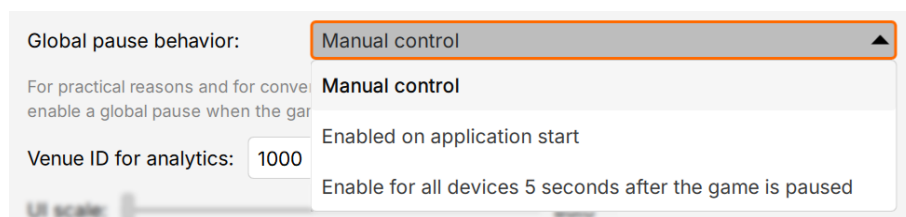
There are convenient ways of managing the global pause function using hotkeys and special buttons to disable it:

- Stream Deck button (for VR users)
- Joystick or Button Box button (for VR users)
- Hotkeys: Scroll Lock or Win + Shift + especially
- Icon on the web interface
- 3rd party application that is able to trigger `mosy://toggle-pause`

INFO

For more detailed information about global pause behavior and configuration, including pause mapping and deactivation, refer to the **Help & Tutorials** → **Automatic Global Pause** article available in QubicManager.

It can also be disabled completely in **QubicManager** → **Software Configuration** → **General settings** (scroll down) → **Global pause behavior** by selecting Manual control.



The following types of behavior are available for global pause:

- **Auto-enable 5s after the game is paused** - QubicManager automatically enables global pause after the game is paused for at least 5 seconds. User explicit action is required to turn off the global pause. This is the default configuration.
- **Enabled on application start** - Global pause is enabled automatically on Qubic Manager start, but once it is disabled by the user, no automatic actions are performed.
- **Manual control** - Global pause is never automatically enabled, user has full control.

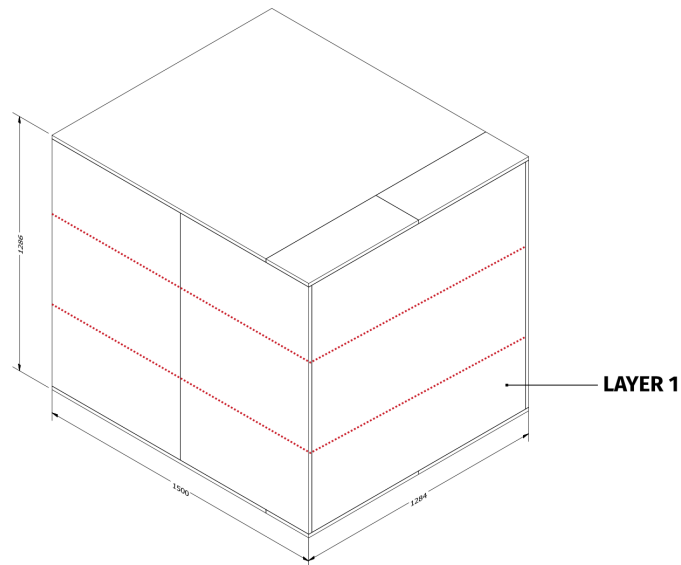
WARNING

Disabling the Global Pause function is performed at the **user's own responsibility** and should only be done by users who understand the operation of the device and are aware of the associated risks.

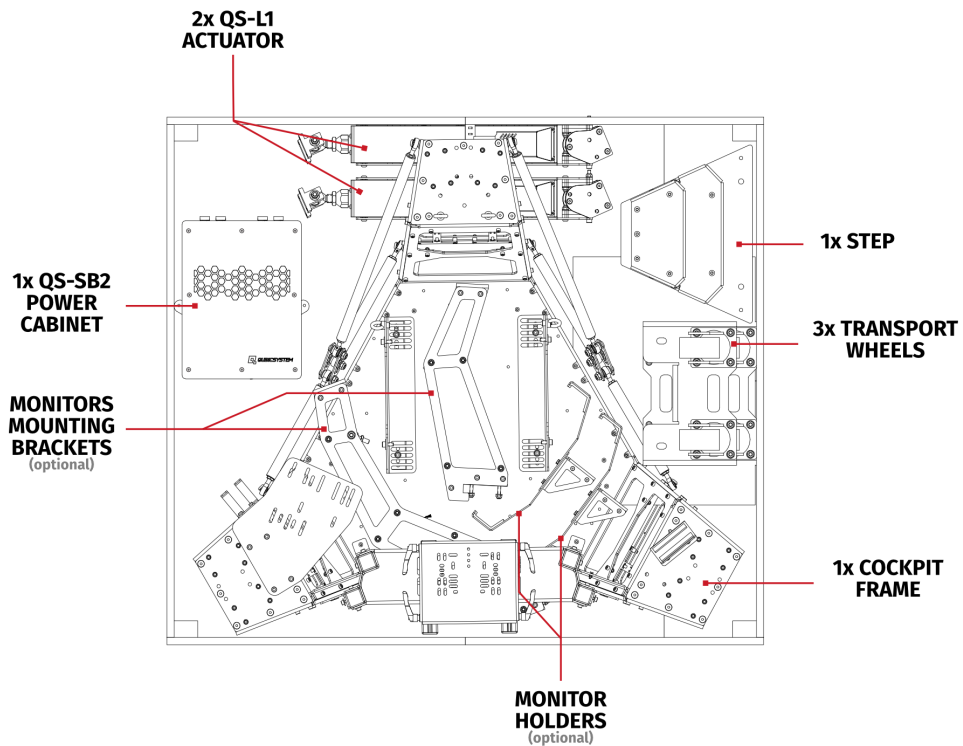
INFO

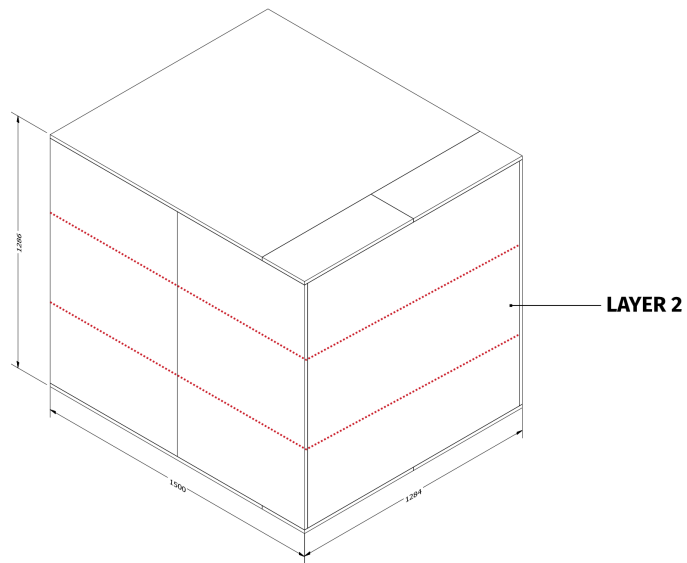
Use mild thread locker on every bolt that is not screwed in with a locknut.

3. QS-S25 MODULARIZED ASSEMBLY

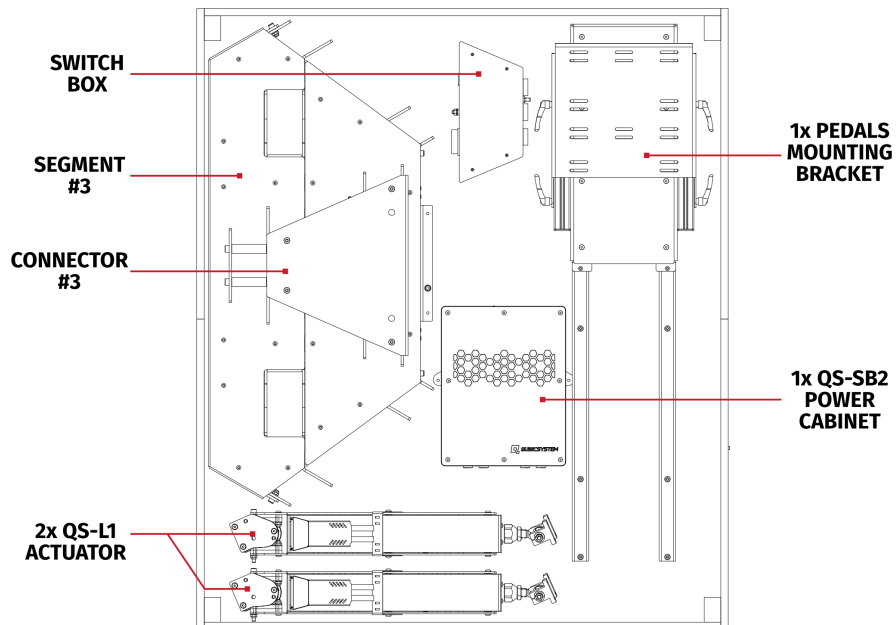


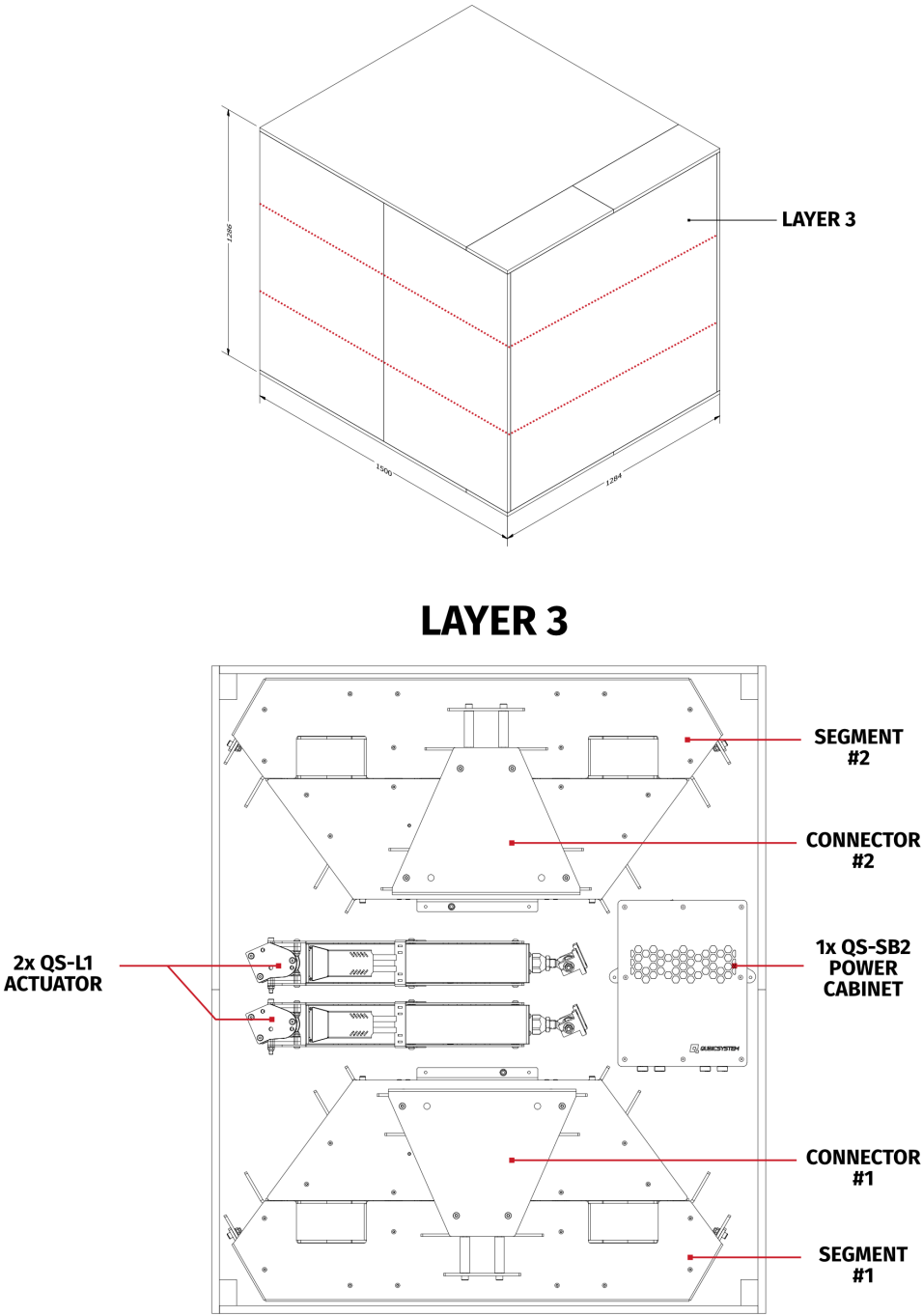
LAYER 1





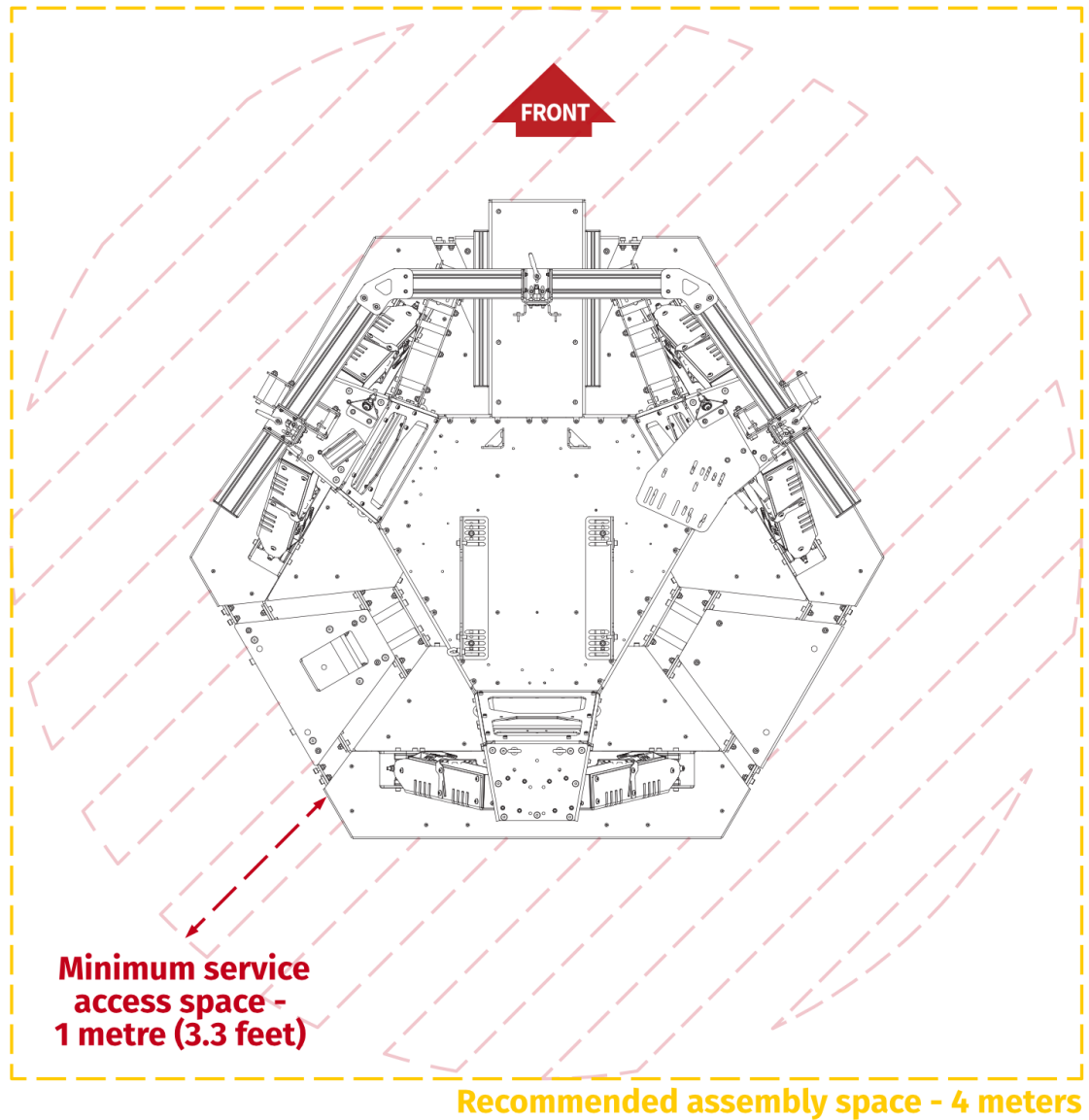
LAYER 2





3.1. MINIMUM SERVICE ACCESS AND ASSEMBLY SPACE REQUIREMENTS

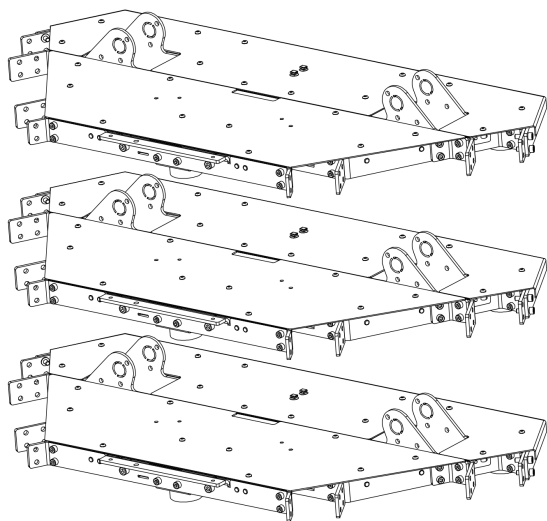
- Minimum assembly area required to perform full modularized assembly is a **4 m x 4 m** square of free space.
- Minimum service area required for future maintenance and service tasks is **1 meter** of clearance around the outer edge of the entire device.



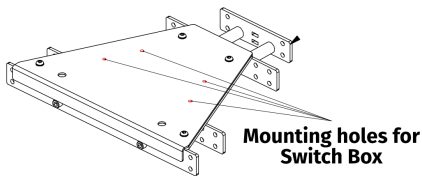
3.2. LOWER FRAME ASSEMBLY

Operation	Tools
Unpack the segments and connectors. Front side connector has additional holes for mounting power switch box.	by hand

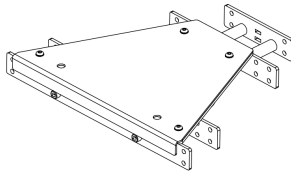
3 x Segment



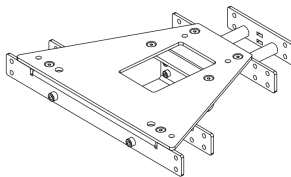
1 x Front connector



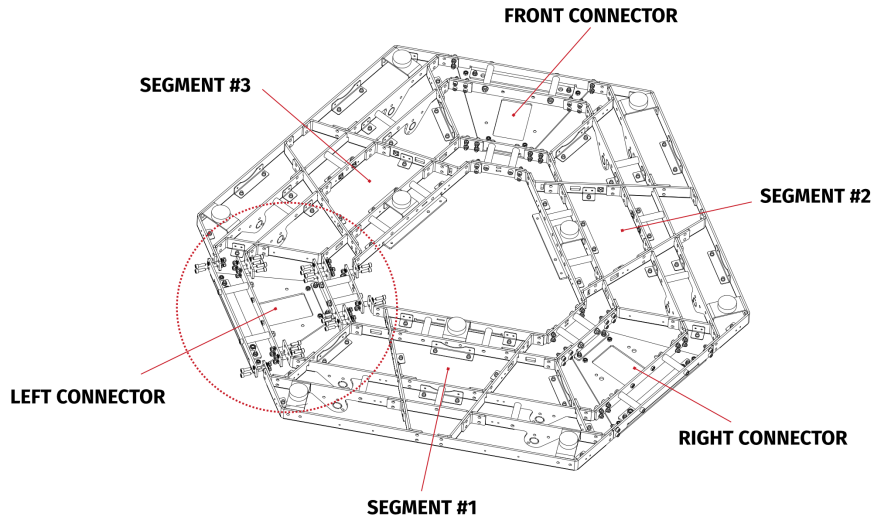
1 x Right connector



1 x Left connector



Operation	Tools	Torque specs
Turn the connectors and segments upside down, connect the segments with connectors using bolts, nuts and washers as shown on the illustration.	6 mm hex key, 13 mm socket wrench	DIN 912 M8 - 23 Nm (17 ft-lbs)

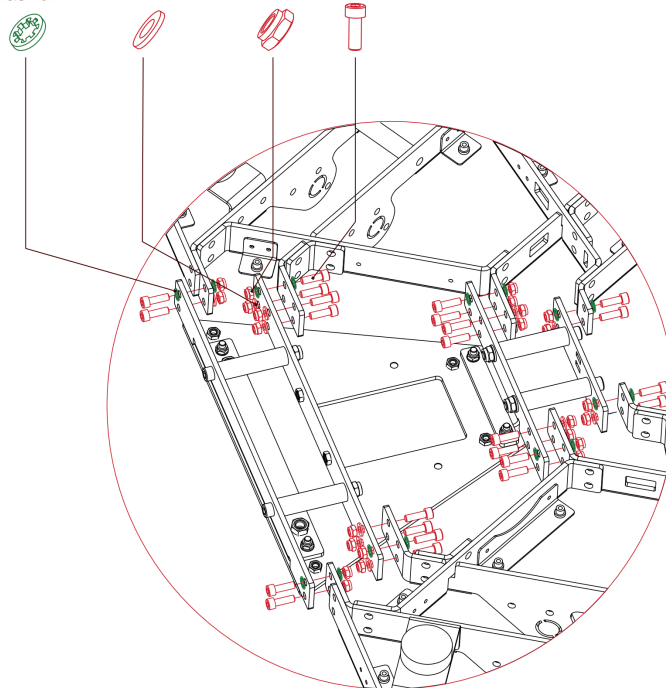


16x
 DIN 6797 J 8,4
 toothed
 washer

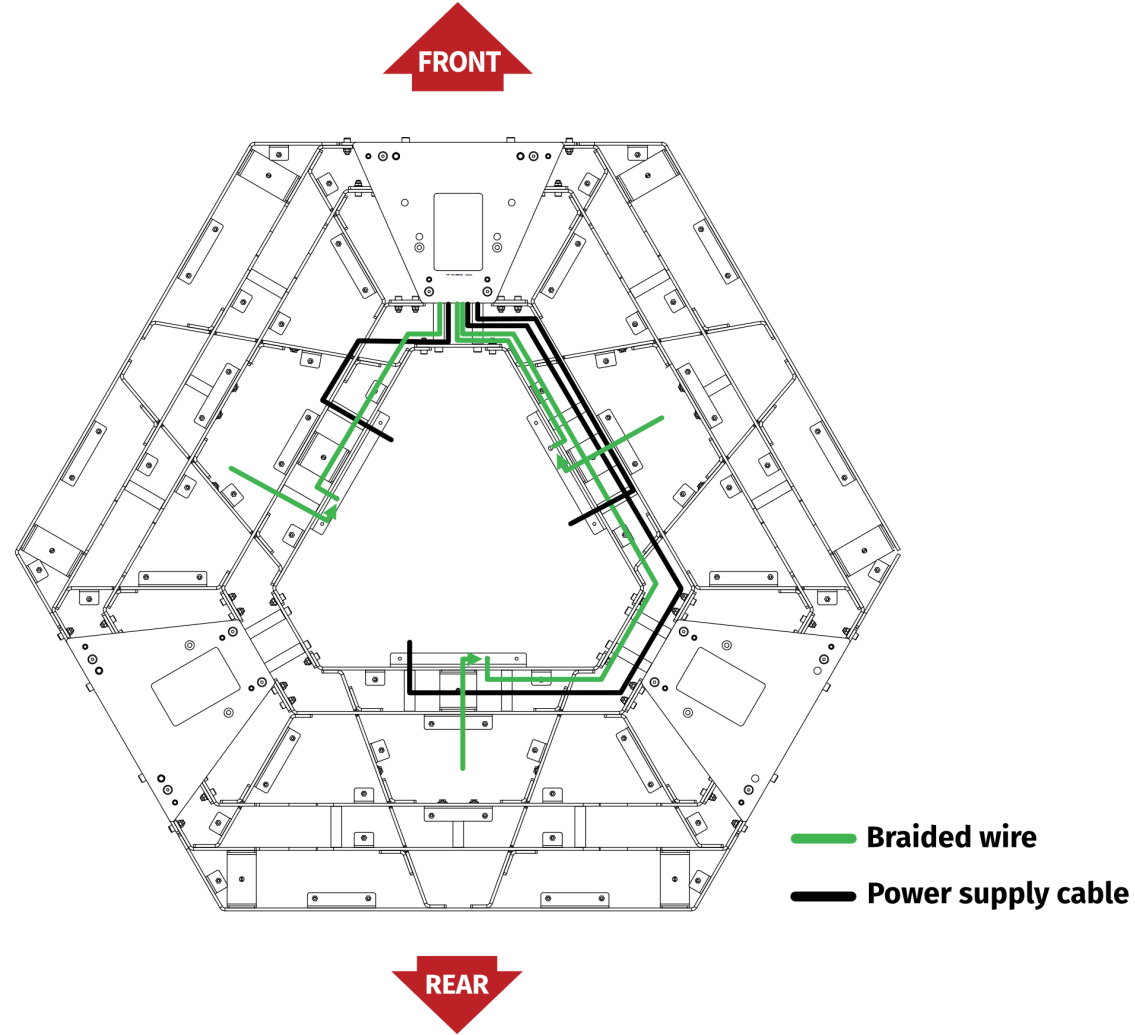
16x
 DIN 125
 A 8,4
 washer

24x
 DIN 985
 M8 nut

24x
 DIN 912
 M8x25

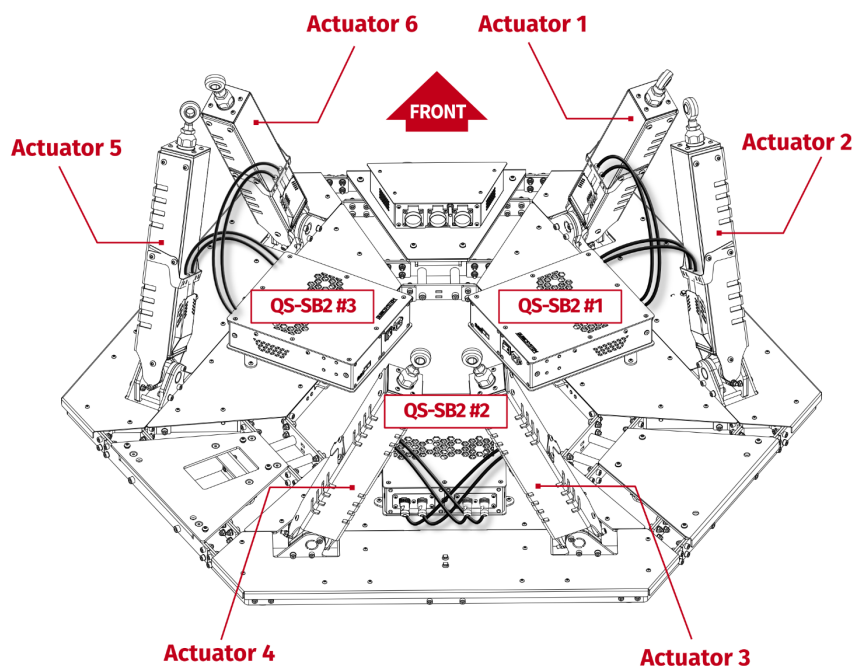


Operation	Tools
Lay down the braided wires (grounding connections) and power supply cables as shown on the illustration. Cables will be connected to the power cabinets later on. Braided wires shall be connected from the switch box to cockpit frame, and from cockpit frame to power cabinets.	by hand

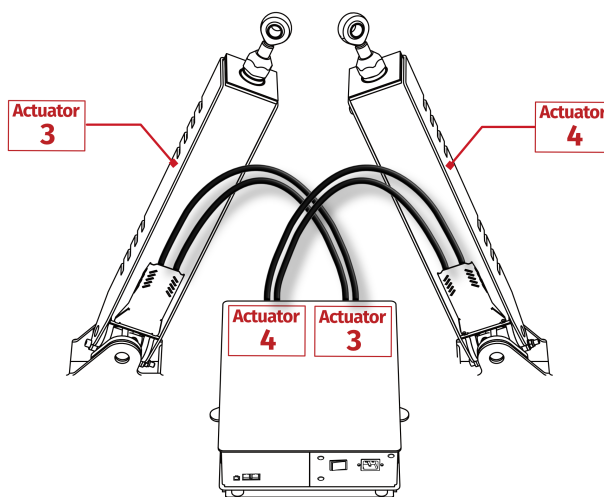


3.3. MOUNTING ACTUATORS AND POWER CABINETS

Operation	Tools
Place the power cabinets and actuators according to the layout shown below (actuator's cables should be crossed).	by hand



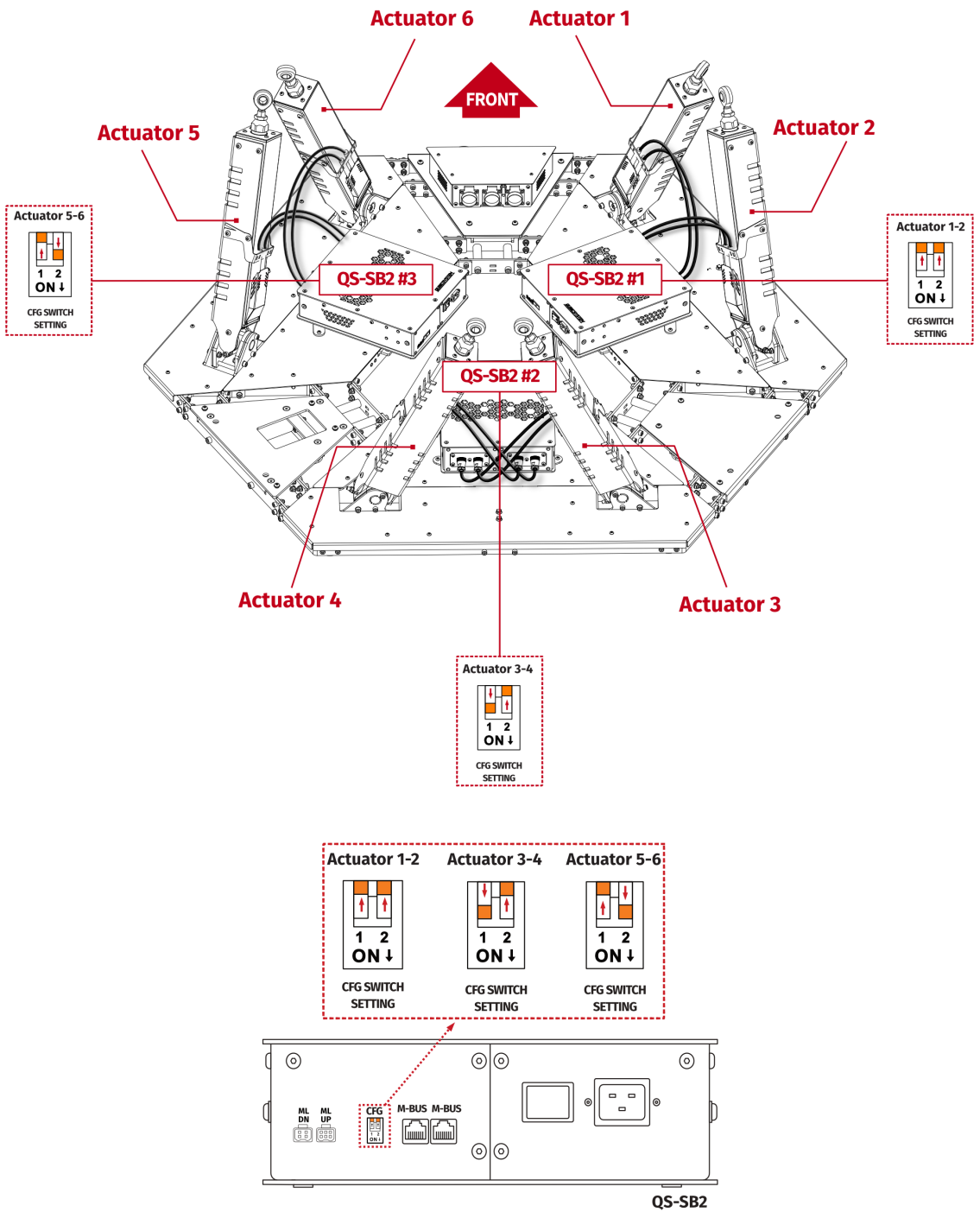
Place the actuators as shown on the layout. Power supply and control cables from power cabinet to the actuator should cross each other.



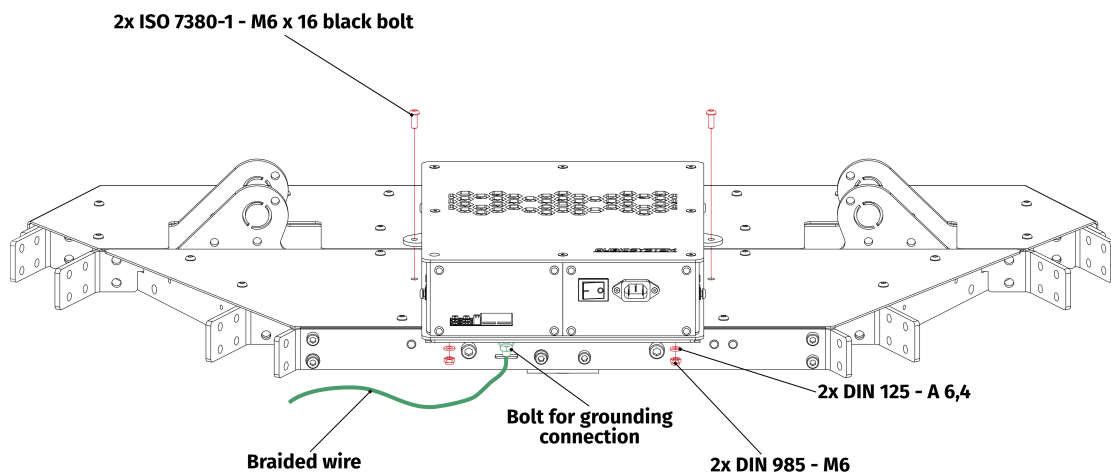
INFO

In case of revision including push-pull connectors, they can be plugged to Power Cabinets after the actuator have been bolted in (section 3.3 on page 40).

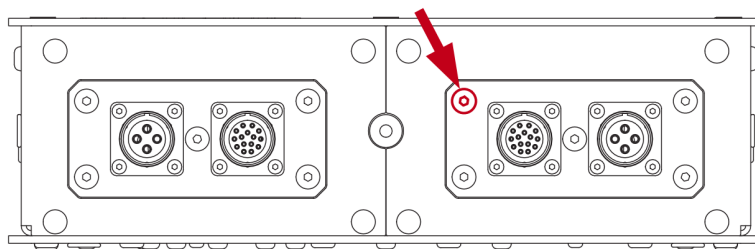
Operation	Tools
Configure the CFG switches according to the actuators layout.	by hand



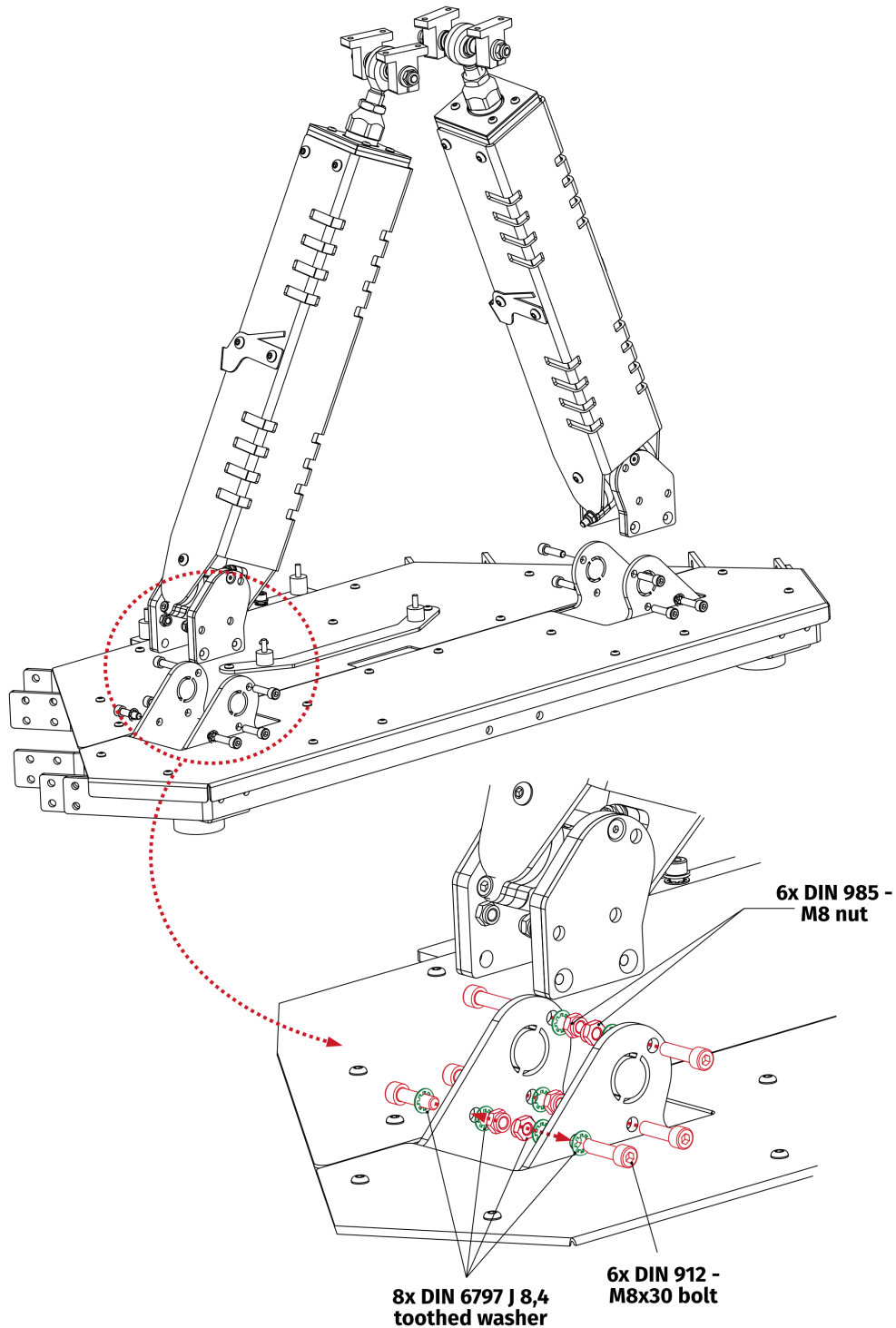
Operation	Tools	Torque specs
Bolt in the power cabinets with segments. Power cabinets has attached mounting brackets with vibro-isolators, place them on the segment and screw in using bolts and nuts for the connection.	5mm hex key, 10mm socket wrench	ISO 7380-1 M6 - 7Nm (5.1 ft-lbs)



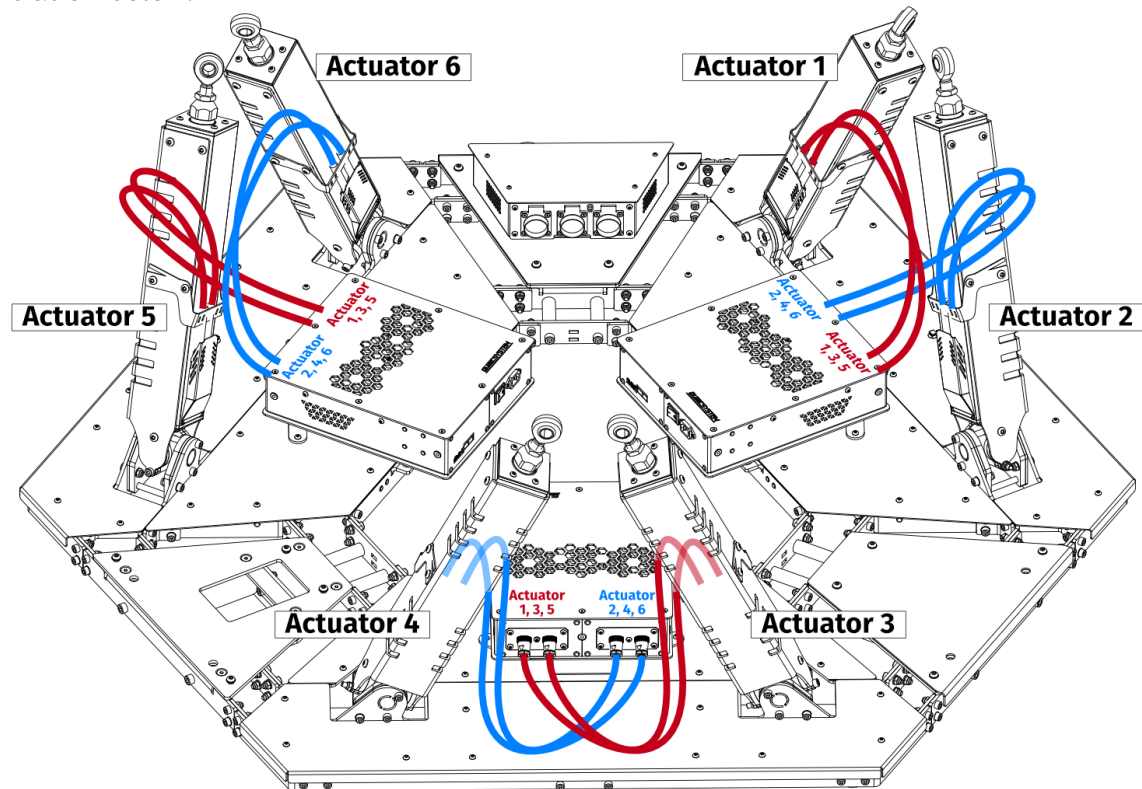
Operation	Tools
Unbolt the marked bolt, connect and screw in the short braided wire from the backside grounding connection bolt.	3mm hex key



Operation	Tools	Torque specs
Connect the actuators with the base frame segments.	6mm hex key, 13mm socket wrench	DIN 912 M8 - 23 Nm (17 ft-lbs)



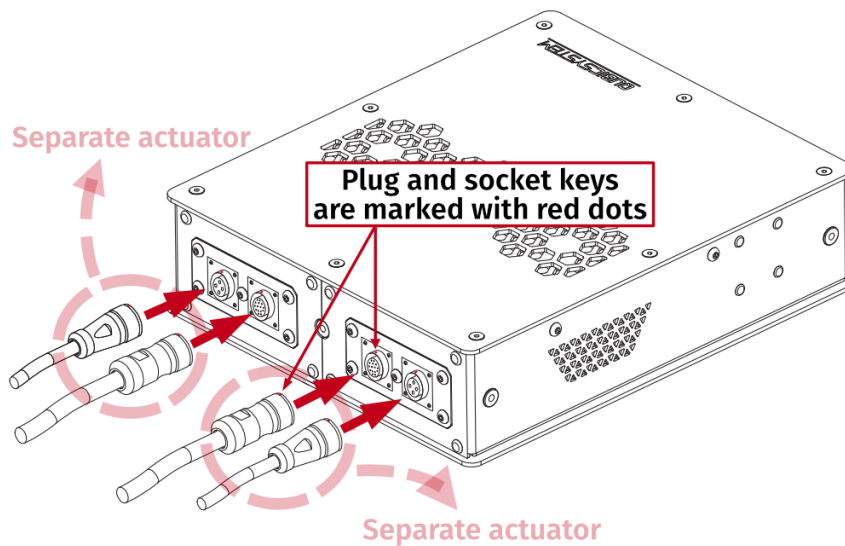
In case of revision including push-pull connectors, plug them in according to the illustration below:



To connect the actuator to a Power Cabinet - match the plug with the socket (4 vs. 15 pin) and plug it in, matching the key at the top of the plug (also marked with a red dot). Push it in **firmly** until the PUSH-PULL ring lock **clicks in place**.

WARNING

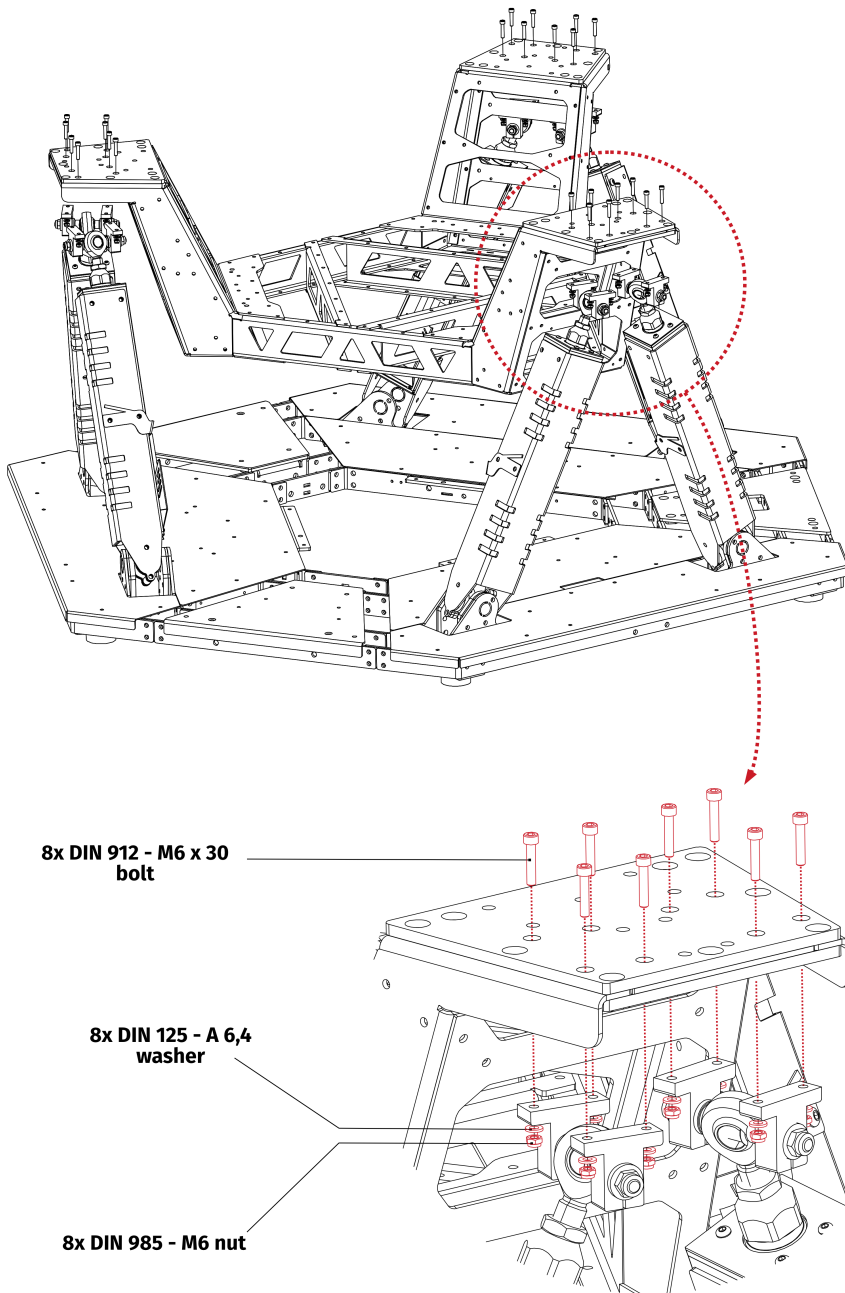
Plugging and unplugging the actuator must **ALWAYS** be performed with Power Cabinet's power switched **OFF**.



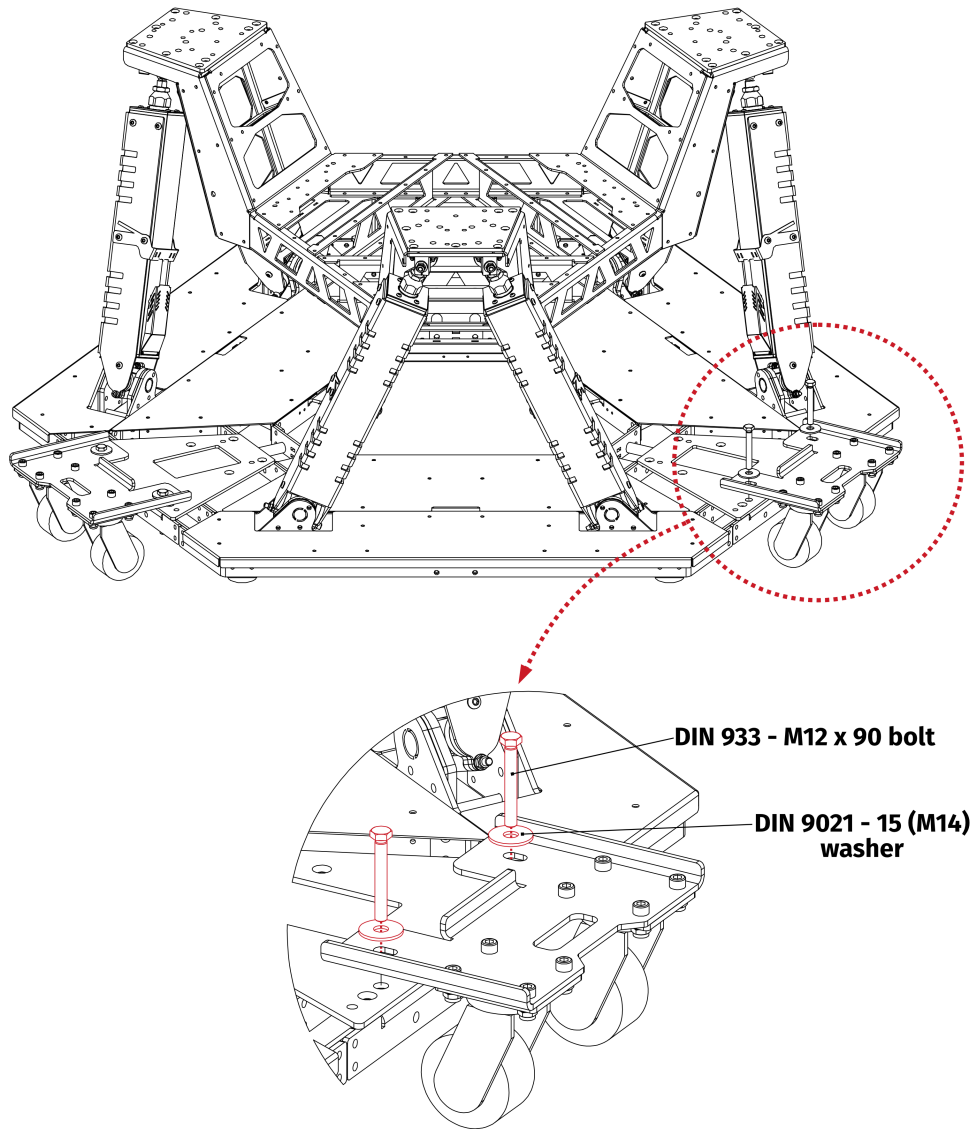
More details on push-pull connectors - section 4.3 on page 78.

3.4. MOUNTING COCKPIT FRAME

Operation	Tools	Torque specs
Connect the actuators with the cockpit frame.	5mm hex key, 10mm socket wrench	DIN 912 M6 - 9.5 Nm (7 ft-lbs)



Operation	Tools	Torque specs
Optional - connect the wheels to the lower frame segments in order to move the device to the designated location.	19mm socket	Enough for the wheel module to be resting flat on the base frame.

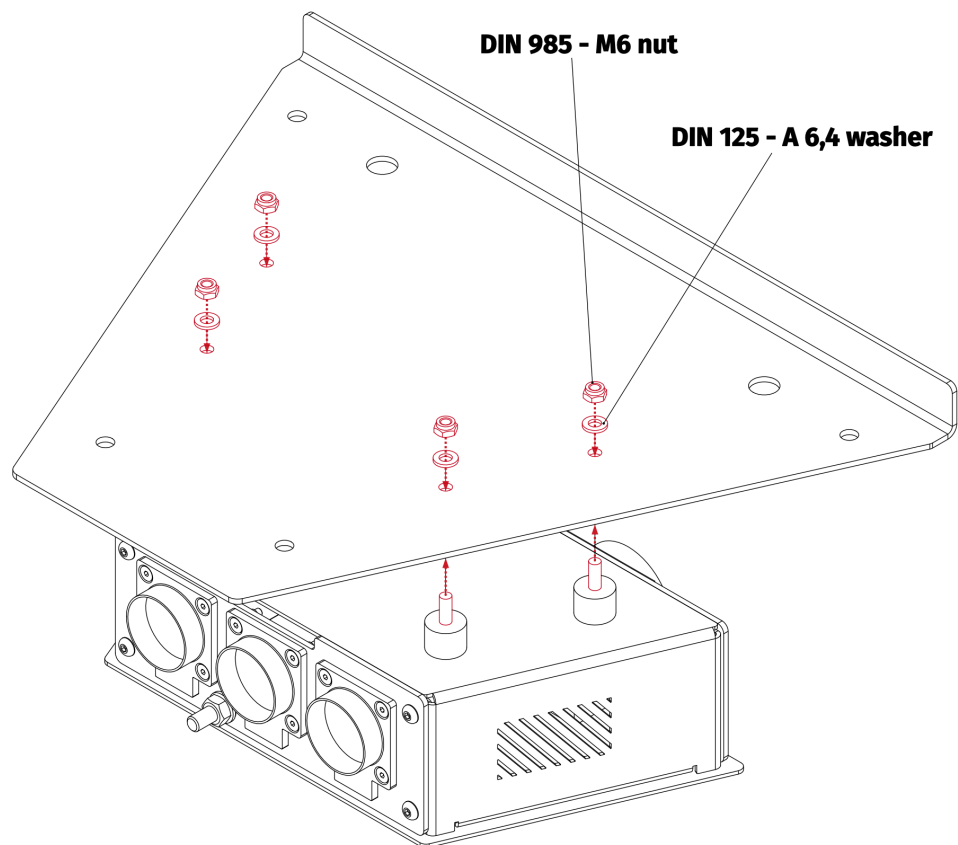


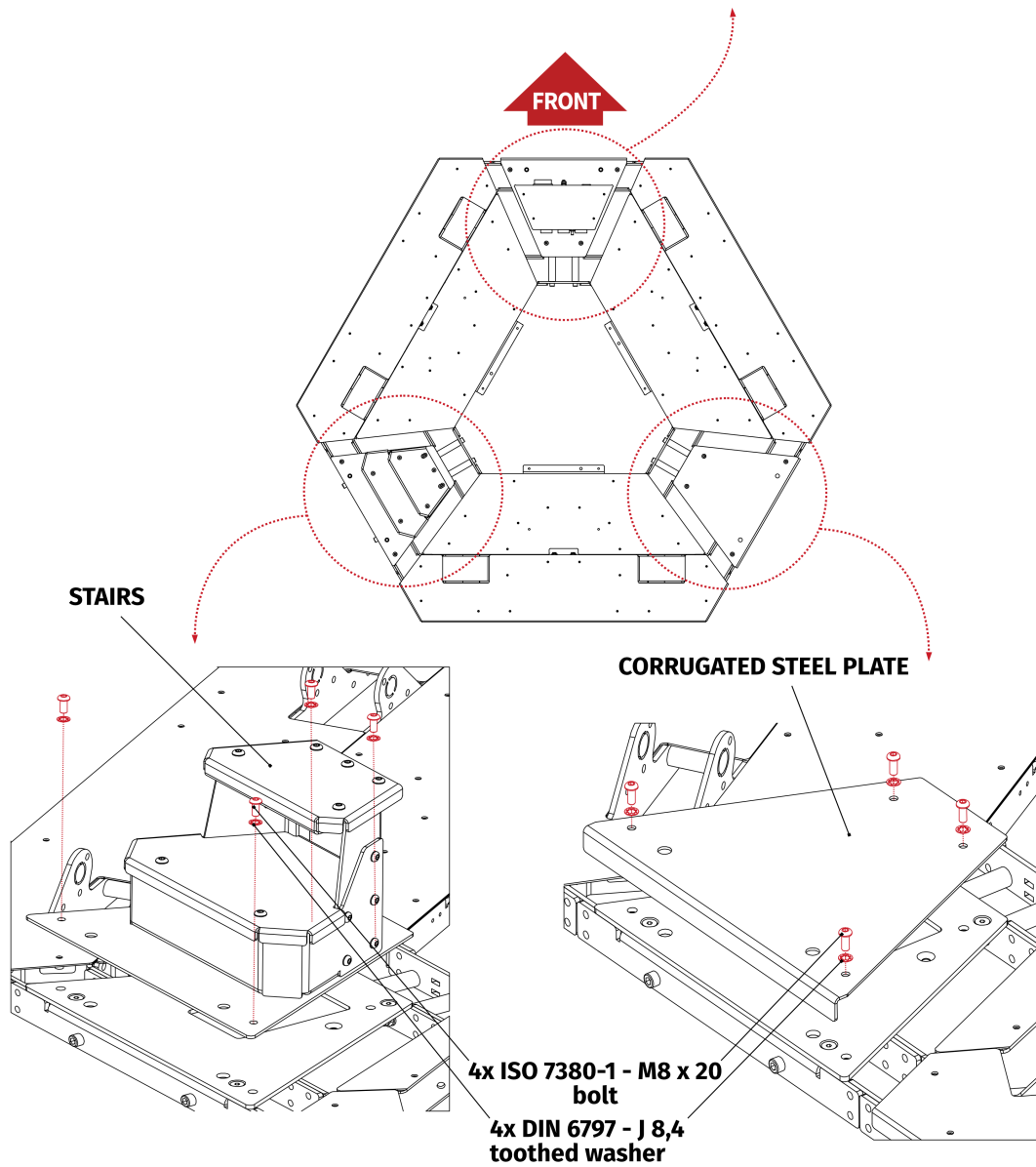
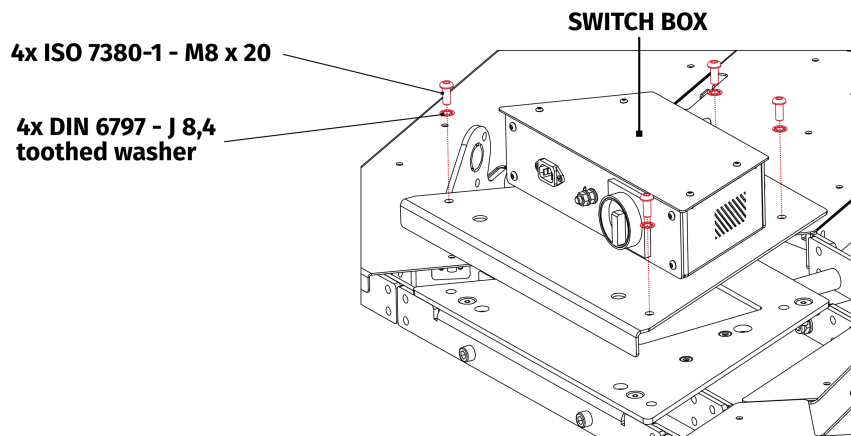
WARNING

Do not use the device with attached transportation wheels. Wheels shall be attached only for transportation purposes.

3.5. MOUNTING LOWER FRAME ACCESSORIES

Operation	Tools	Torque specs
Connect the switch box, stairs and steel plate with lower frame connectors.	5mm hex key, 10mm socket wrench	ISO 7380-1 M8 - 17 Nm (12.5 ft-lbs)



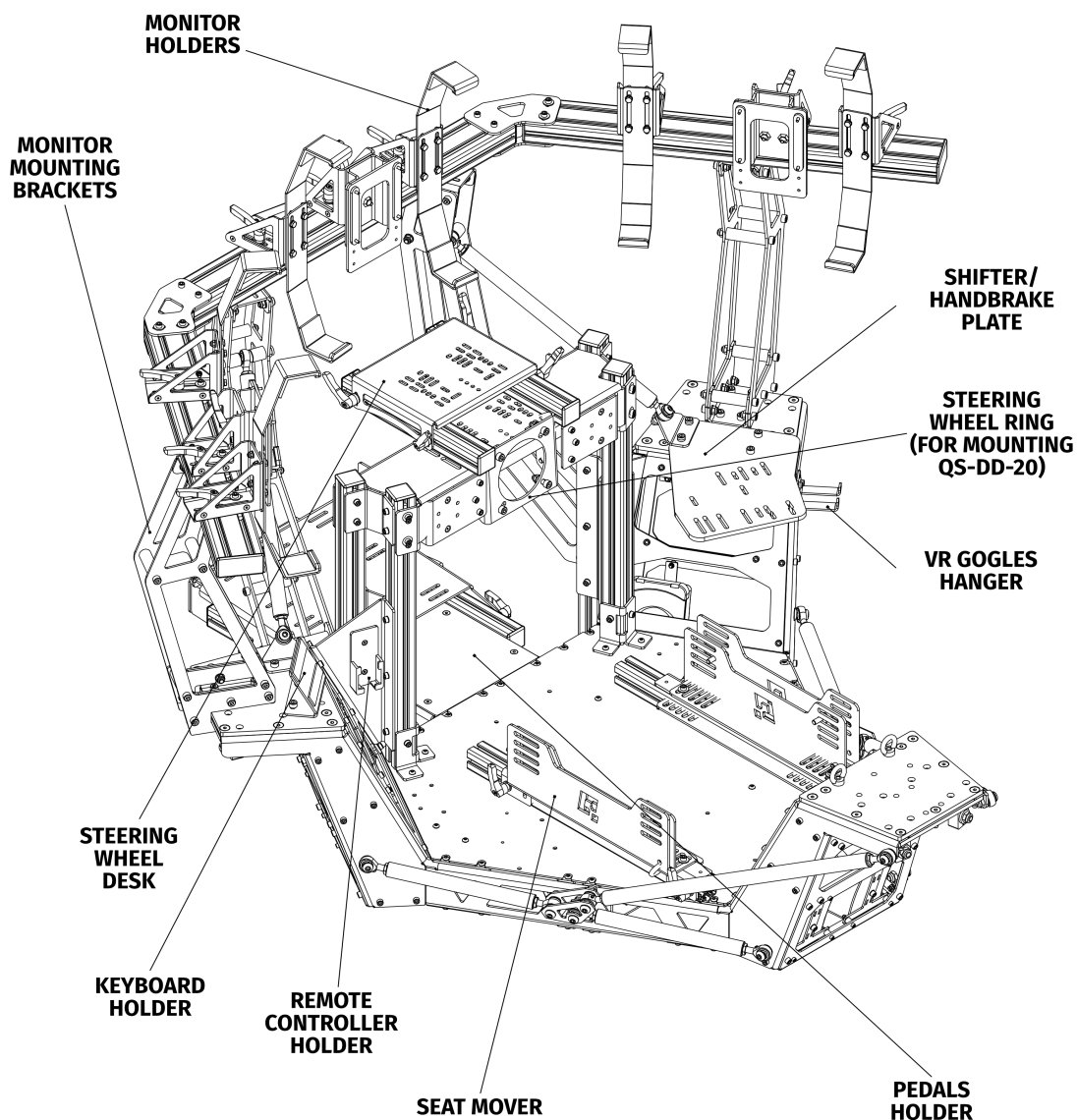


3.6. MOUNTING COCKPIT ACCESSORIES

INFO

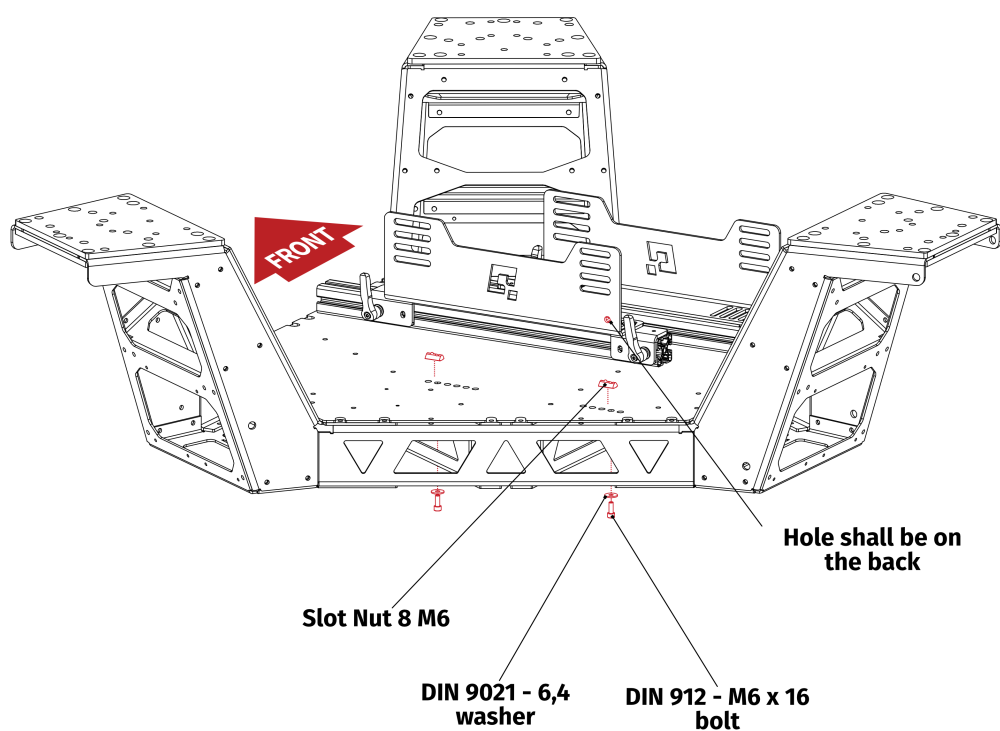
Before mounting cockpit accessories power-up the device and check if the pitch and roll movements are correct. Run QubicManager → Tools and Diagnostic → Platform Diagnostic and check correctness of the movements. If any of the movement is incorrect then the actuators were installed in the wrong place.

Cockpit accessories overview :



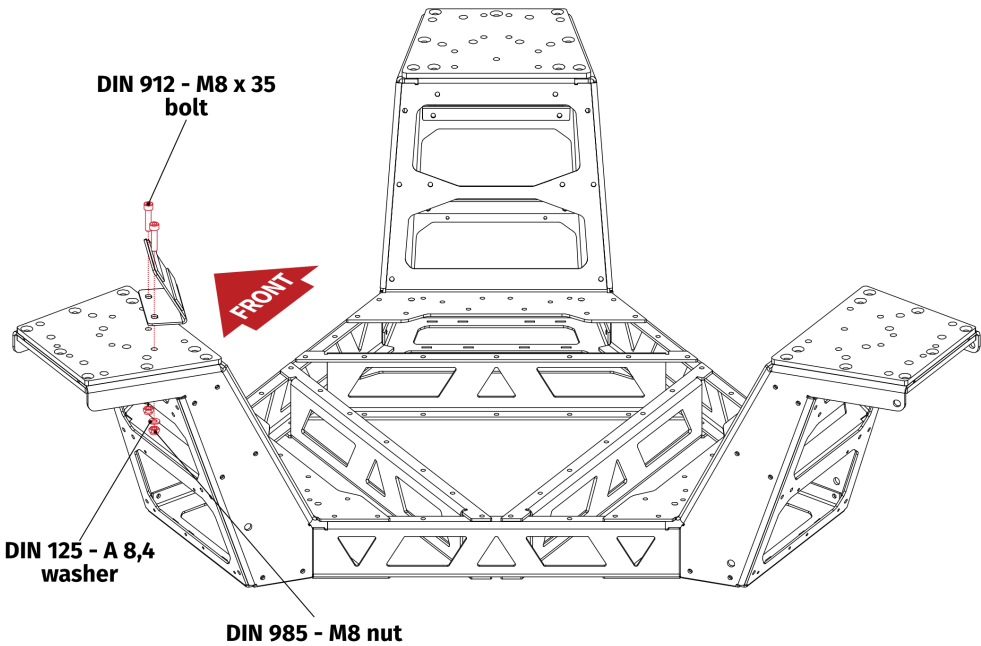
3.6.1 SEAT MOVER

Operation	Tools	Torque specs
Connect the seat mover with cockpit. Slide in slot nuts into the seat mover railings and screw it in from below of the frame.	5mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs)



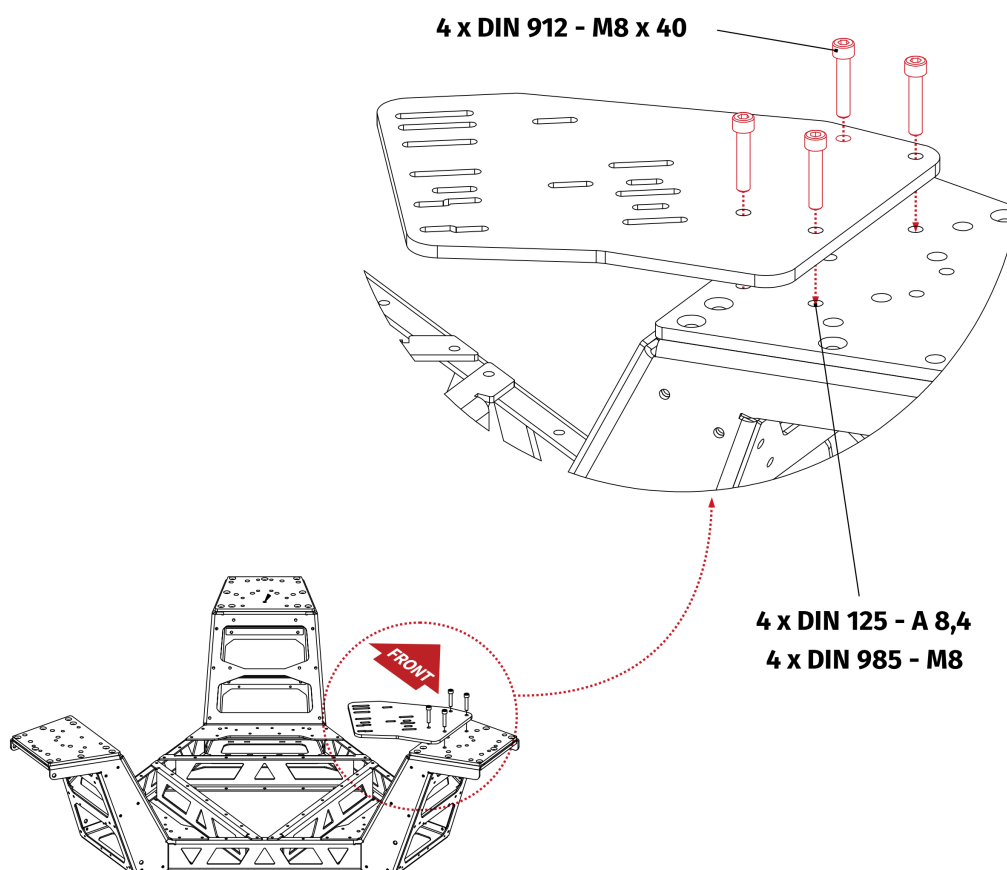
3.6.2 KEYBOARD HOLDER

Operation	Tools	Torque specs
Connect the keyboard holder with the cockpit frame.	6mm hex key, 13mm socket wrench	DIN 912 M8 - 23 Nm (17 ft-lbs)



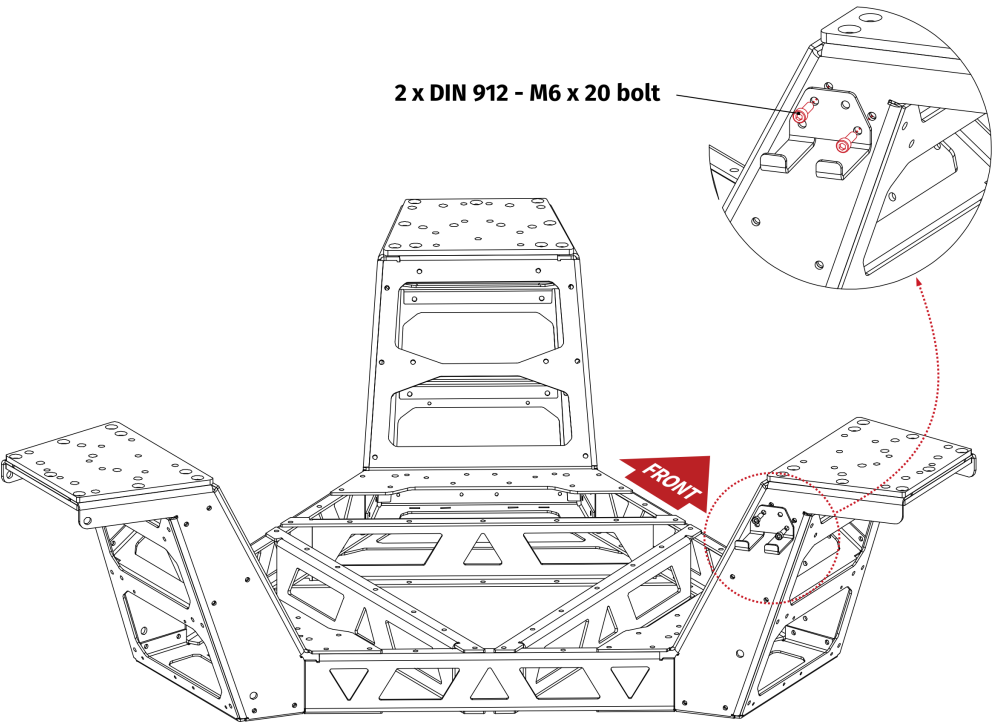
3.6.3 SHIFTER/HANDBRAKE PLATE

Operation	Tools	Torque specs
Connect the shifter/handbrake plate with the cockpit frame.	6mm hex key, 13mm socket wrench	DIN 912 M8 - 23 Nm (17 ft-lbs)



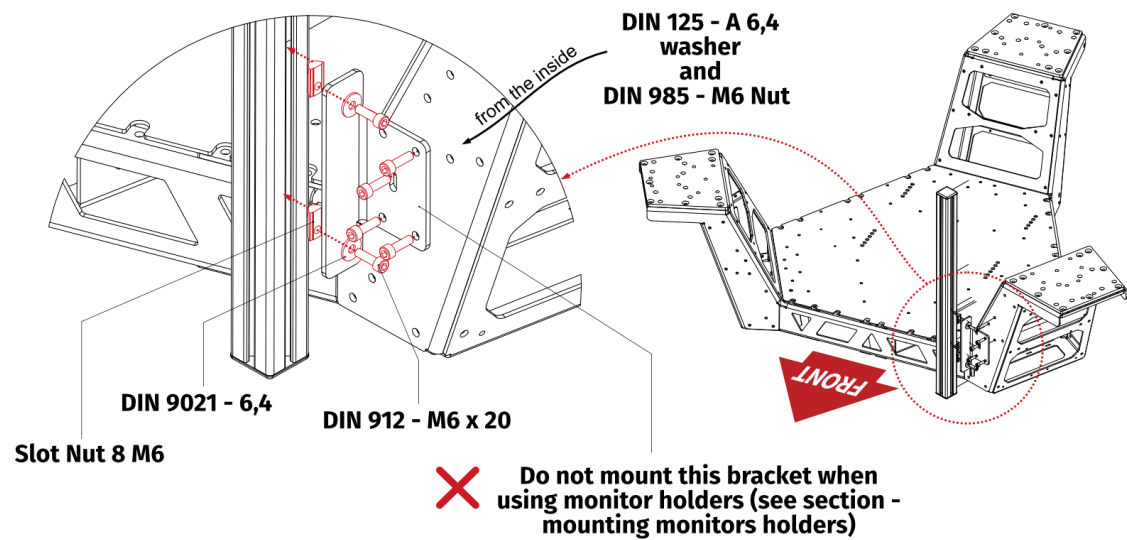
3.6.4 VR GOGGLES HANGER

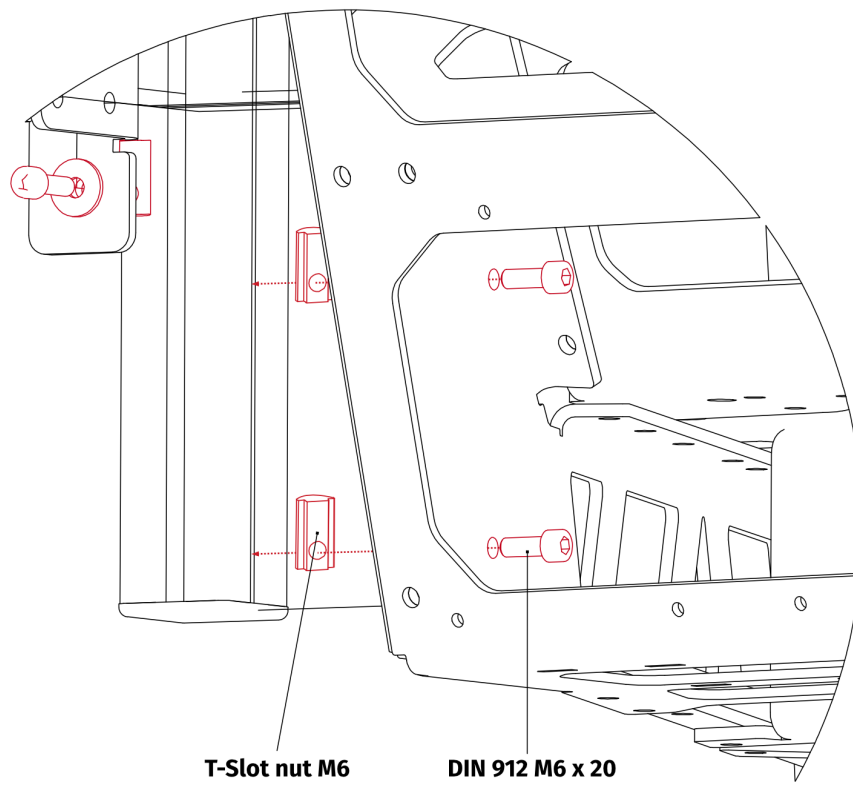
Operation	Tools	Torque specs
Connect the VR goggles hanger with the cockpit frame.	5mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs)

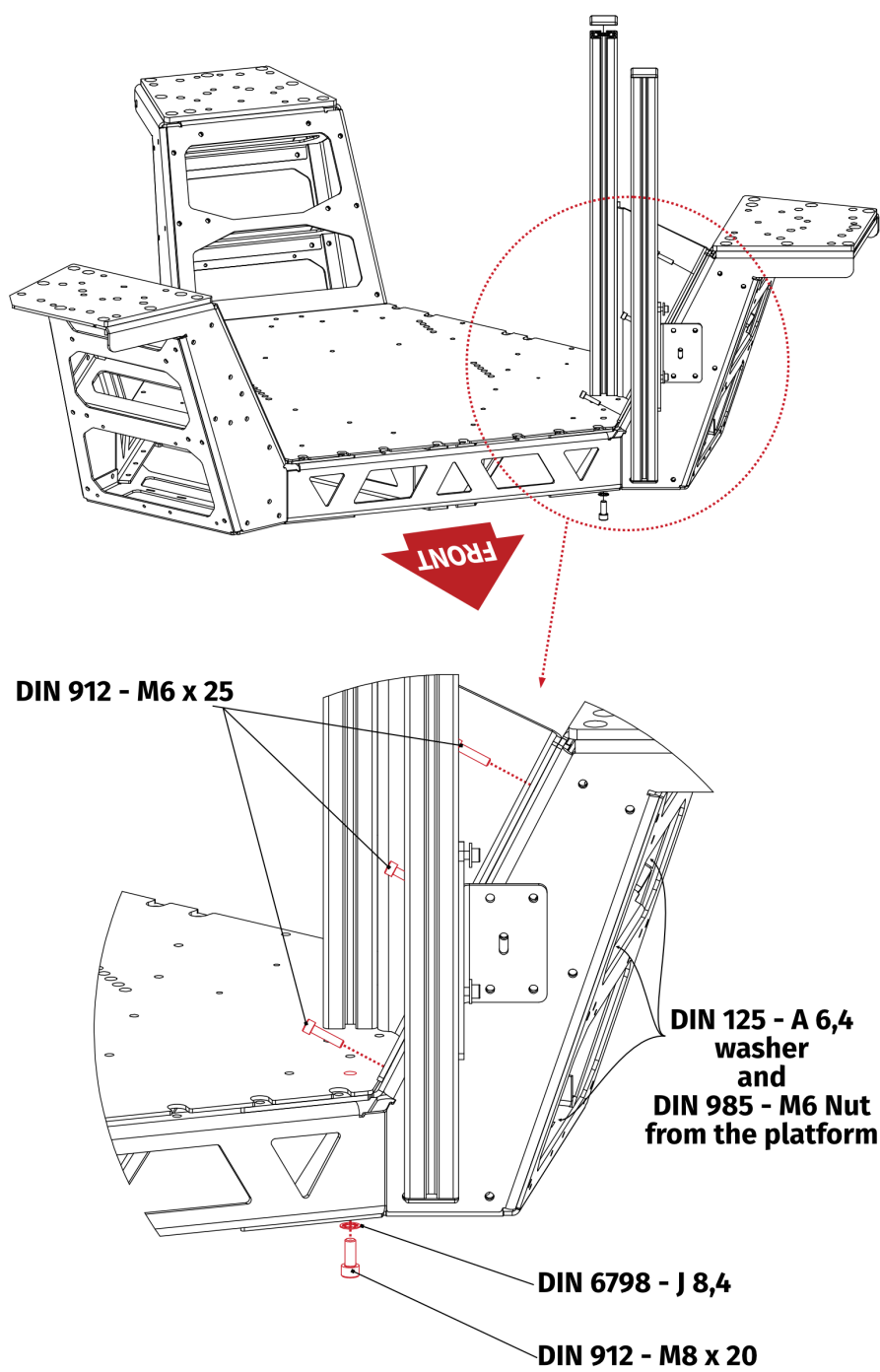


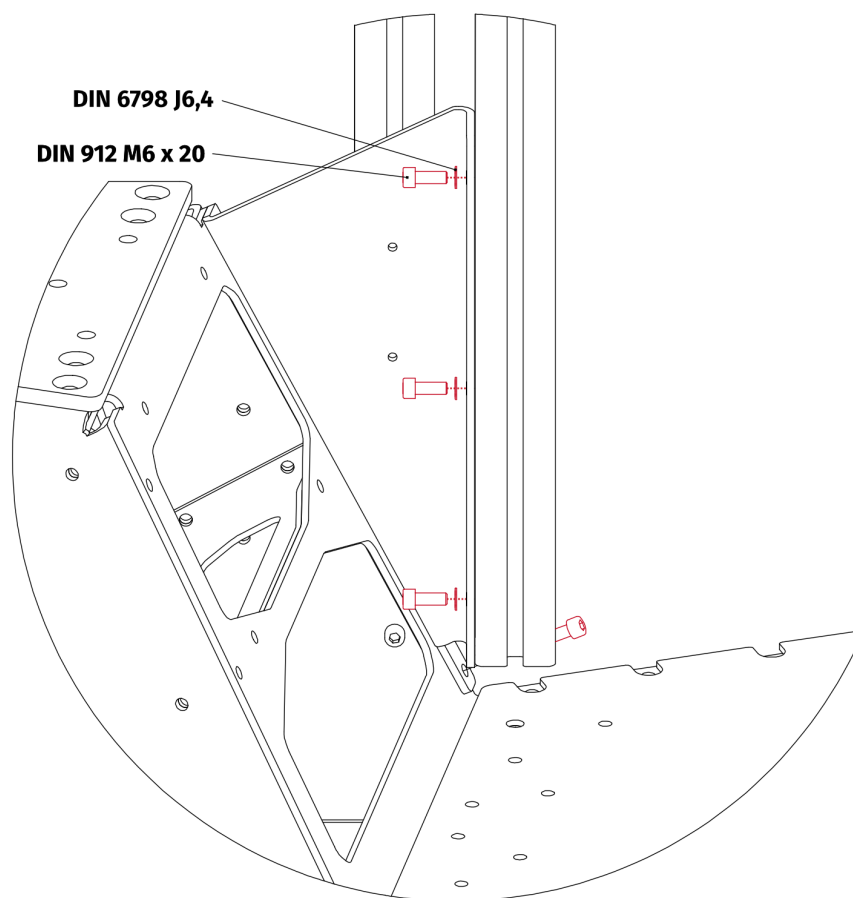
3.6.5 STEERING WHEEL DESK

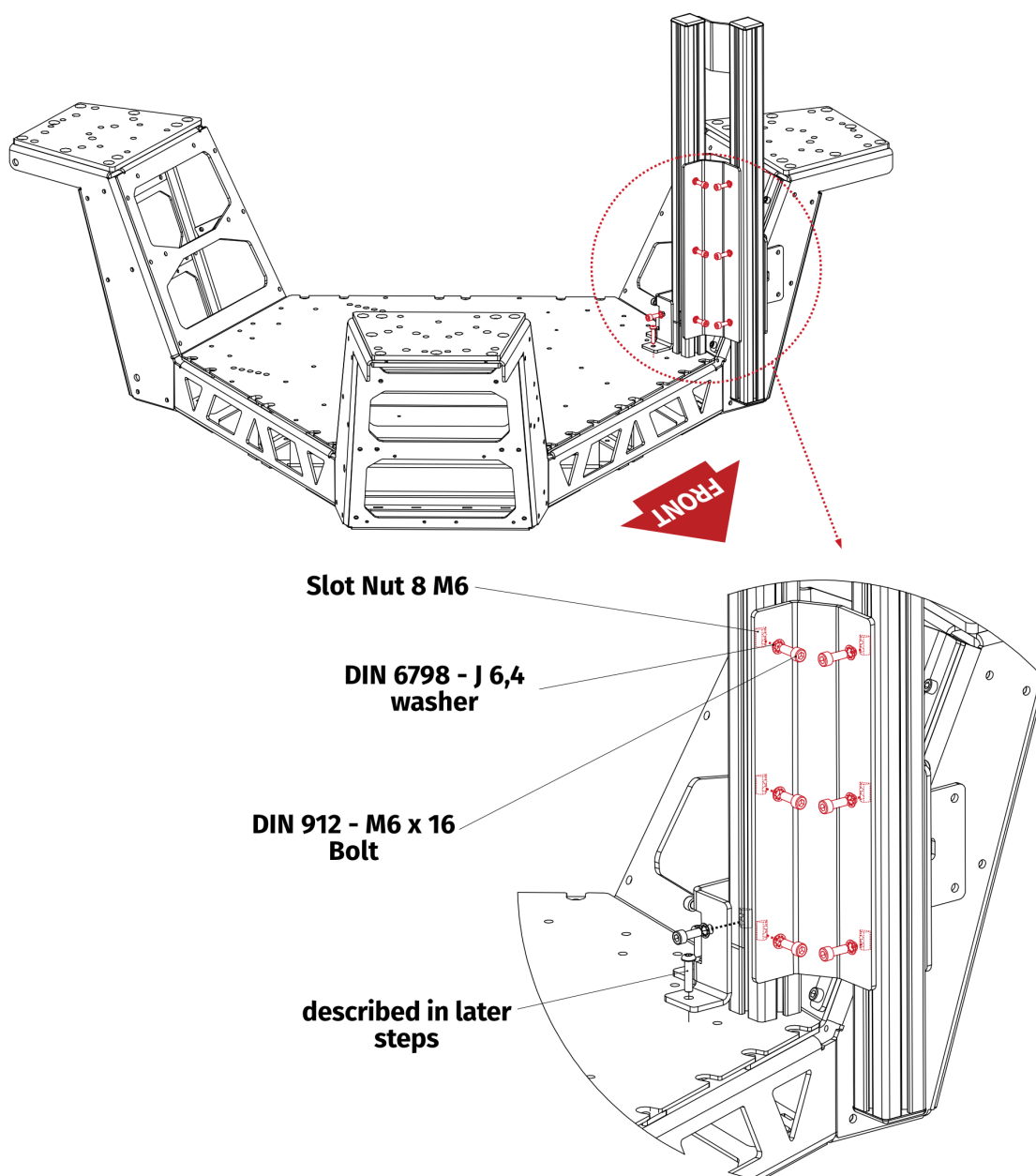
Operation	Tools	Torque specs
Assemble the steering wheel desk as shown on the illustrations. Do not mount the additional bracket if you wish to install the monitor holders.	4, 5, 6mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs) DIN 912 M8 - 23 NM (17 ft-lbs) ISO 7380-1 M6 - 7 Nm (5.2 ft-lbs)

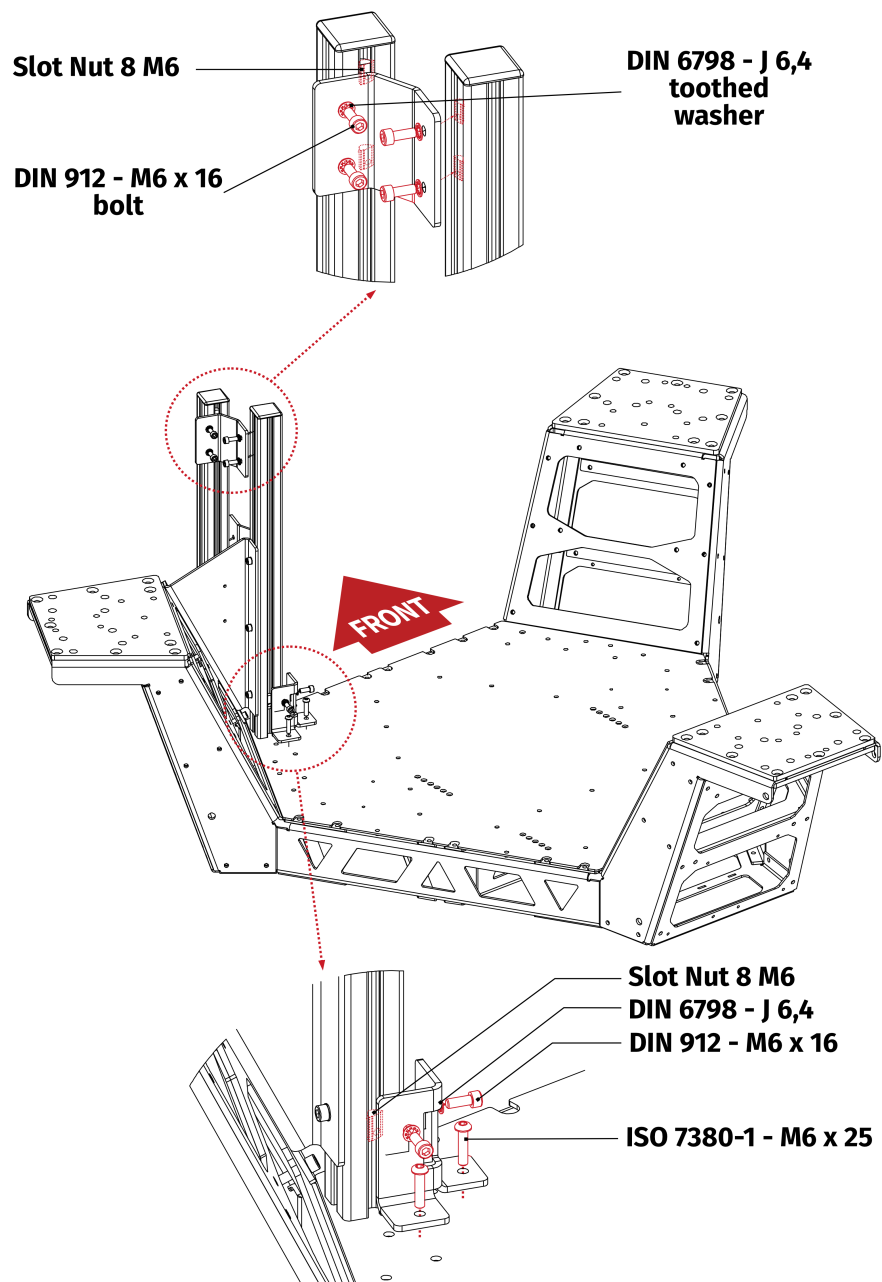




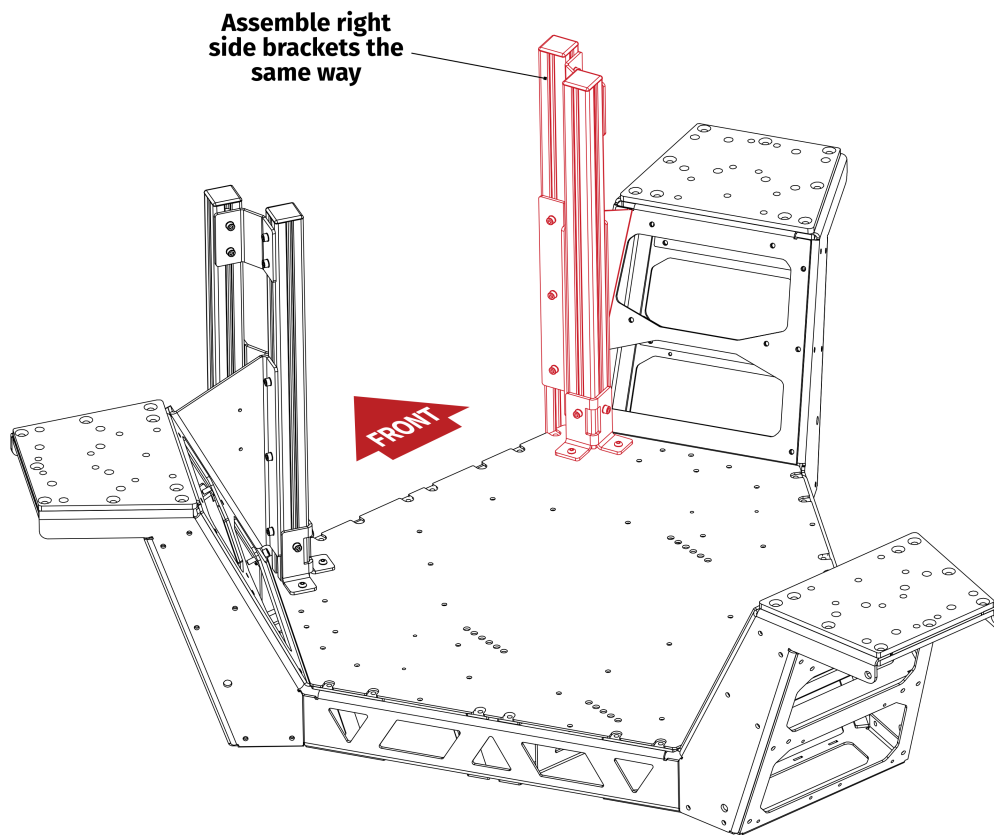




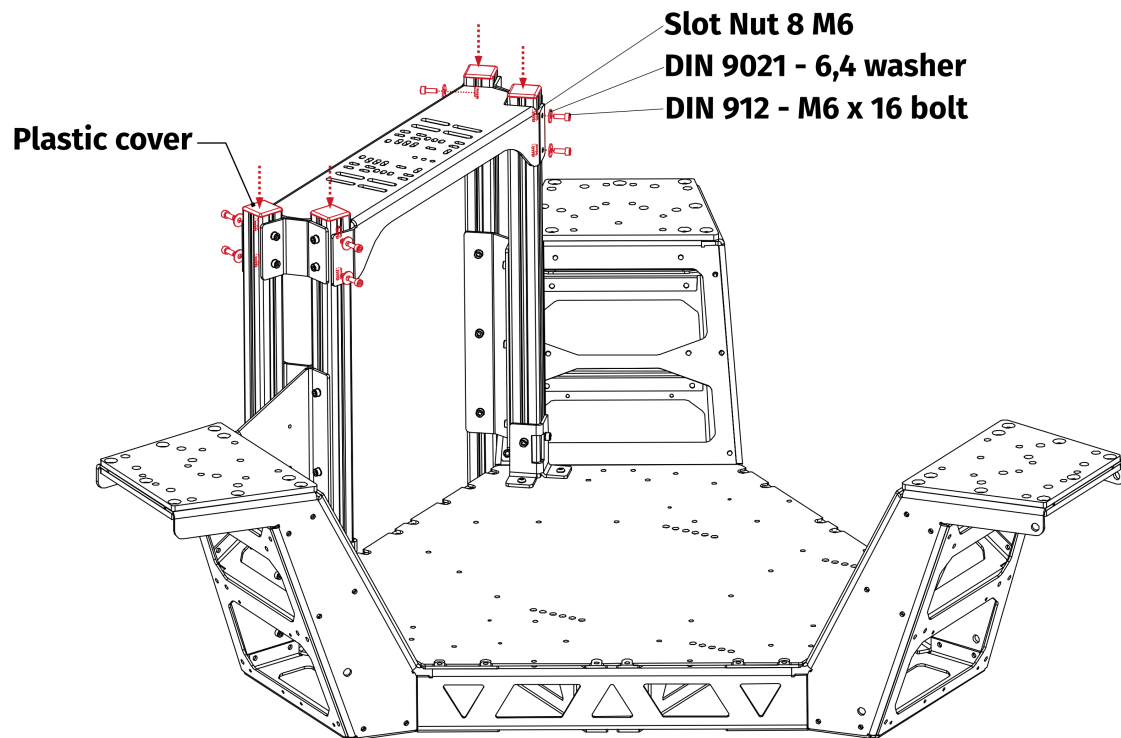




Operation	Tools
Connect right side bracket the same way as the left one.	4, 5, 6mm hex key

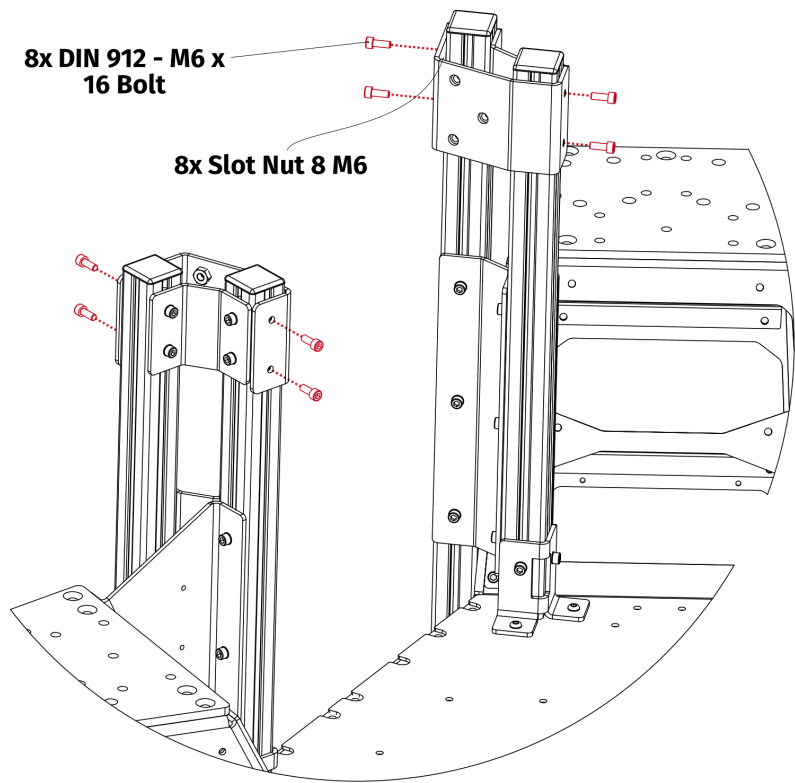


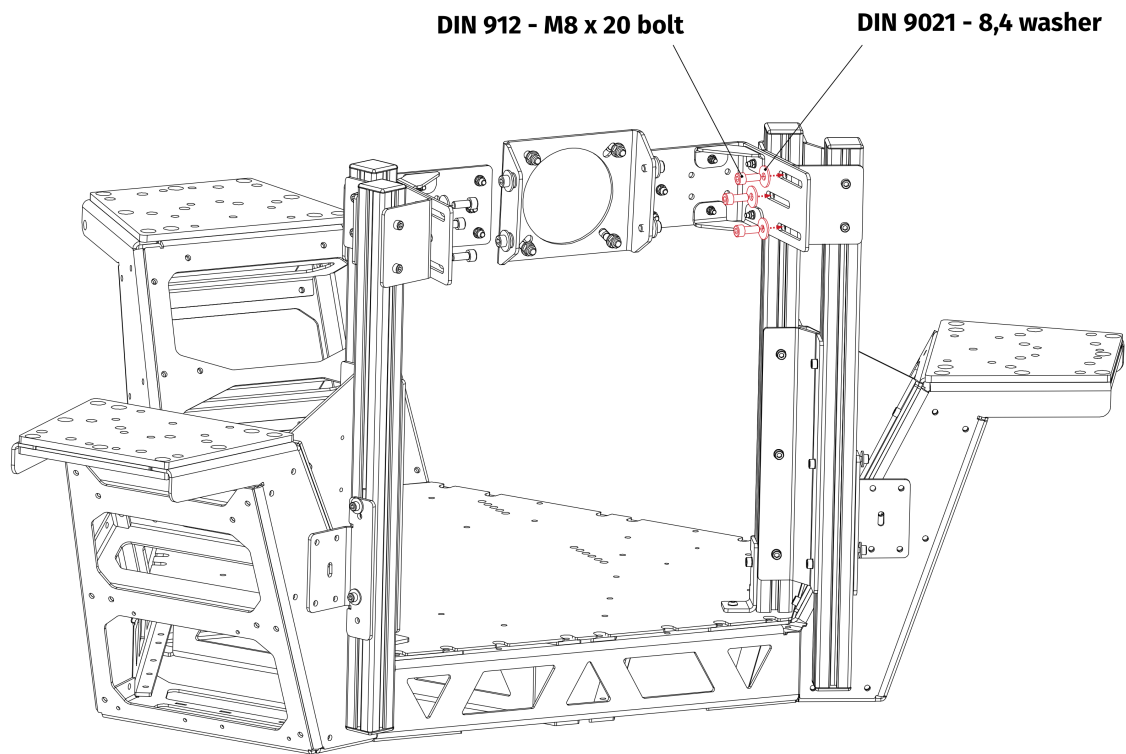
Operation	Tools	Torque specs
Put in the plastic endings on the brackets. Connect the steering wheel desk to the side brackets.	5mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs)



3.6.6 STEERING WHEEL BRACKET

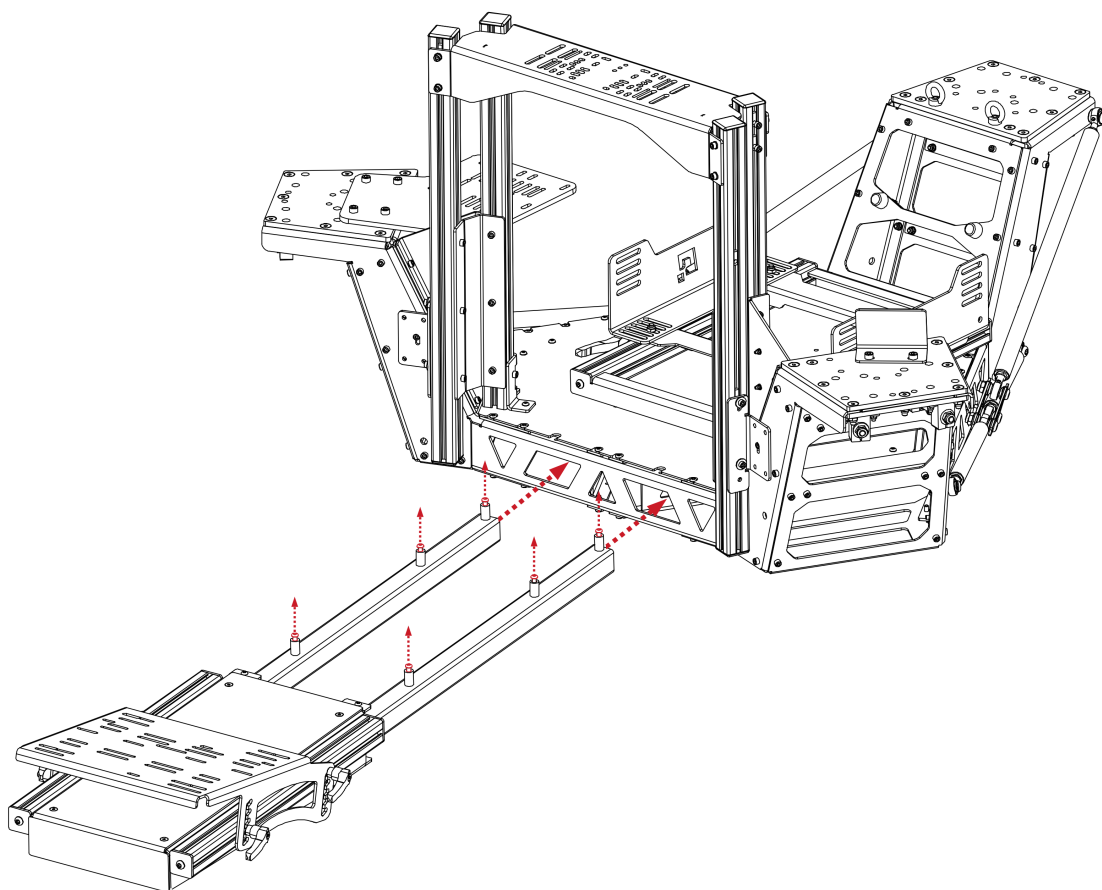
Operation	Tools	Torque specs
Optional Install the direct drive mounting bracket.	5, 6mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs) DIN 912 M8 - 23 Nm (17 ft-lbs)



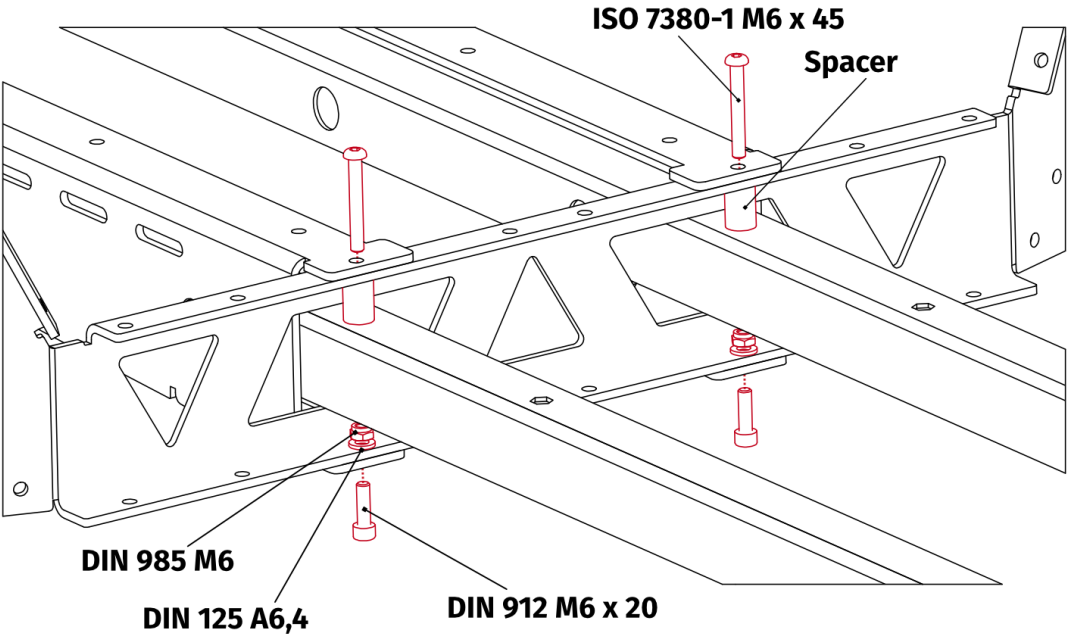


3.6.7 PEDALS BRACKET

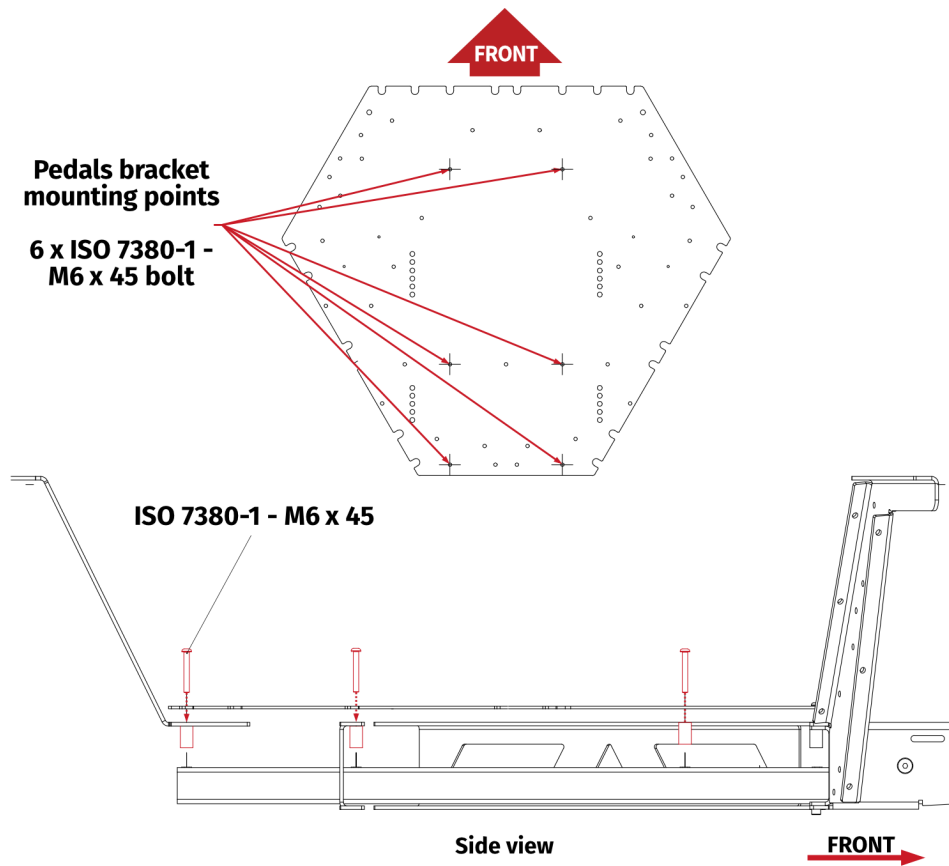
Operation	Tools
Put in the pedals mounting bracket as shown on illustration. Remove 6 bolts from the spacers.	4mm hex key



Operation	Tools	Tools
Attach the pedals set to the frame.	4, 5mm hex key	ISO 7380-1 M6 - 7 Nm (5.2 ft-lbs) DIN 912 M6 - 9.5 Nm (7 ft-lbs)

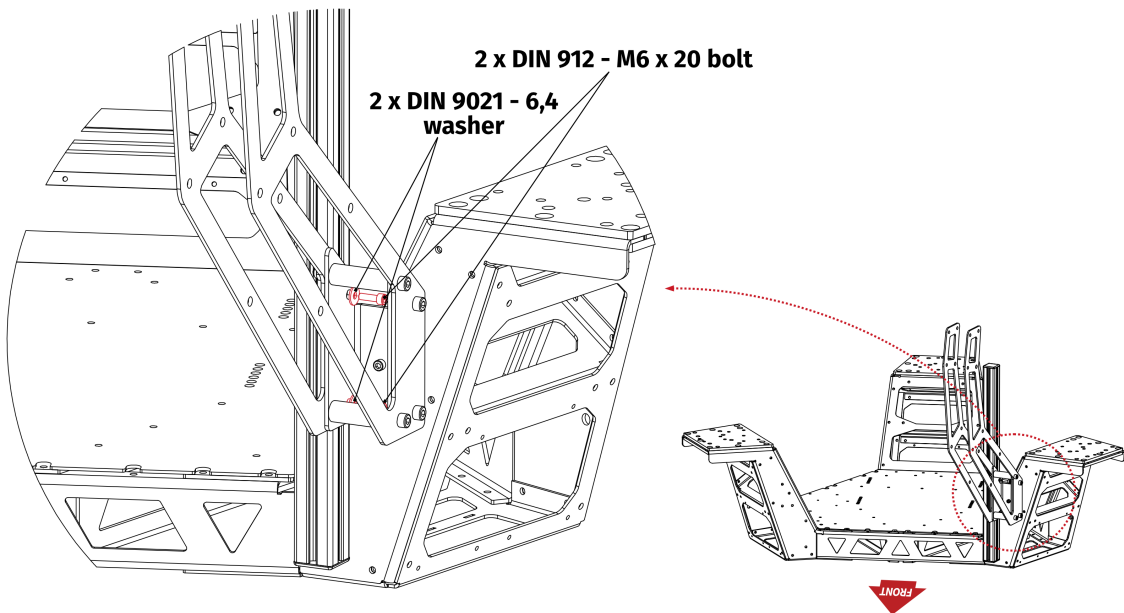


Operation	Tools	Torque specs
Put in the removed bolts through the holes in the cockpit frame and use them to connect the pedals bracket with cockpit frame.	4mm hex key	ISO 7380-1 M6 - 7 Nm (5.2 ft-lbs)



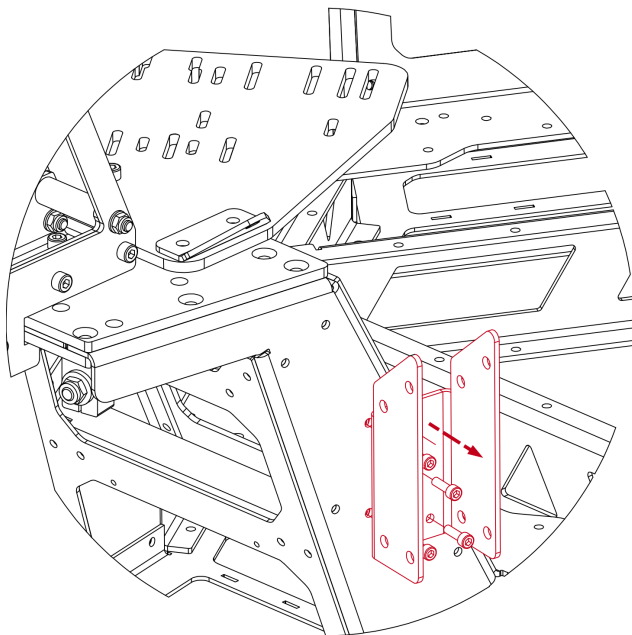
3.6.8 MONITORS HOLDERS

Operation	Tools	Torque specs
Connect the monitors holder front bracket.	5mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs)

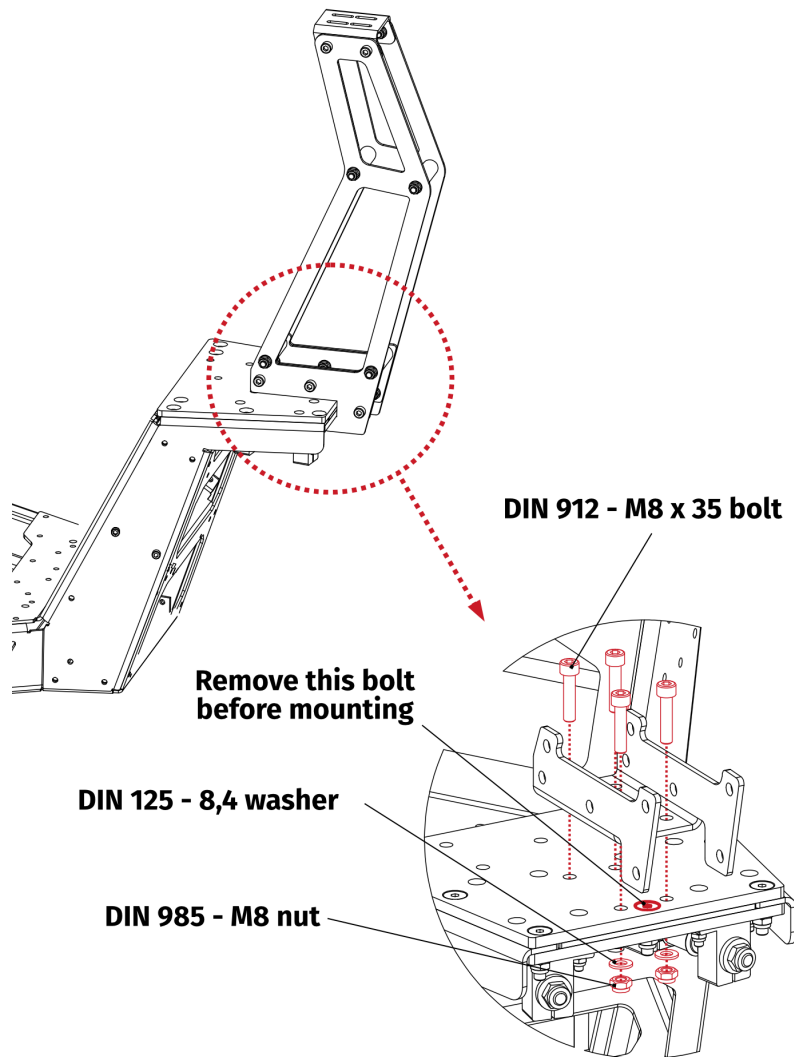


INFO

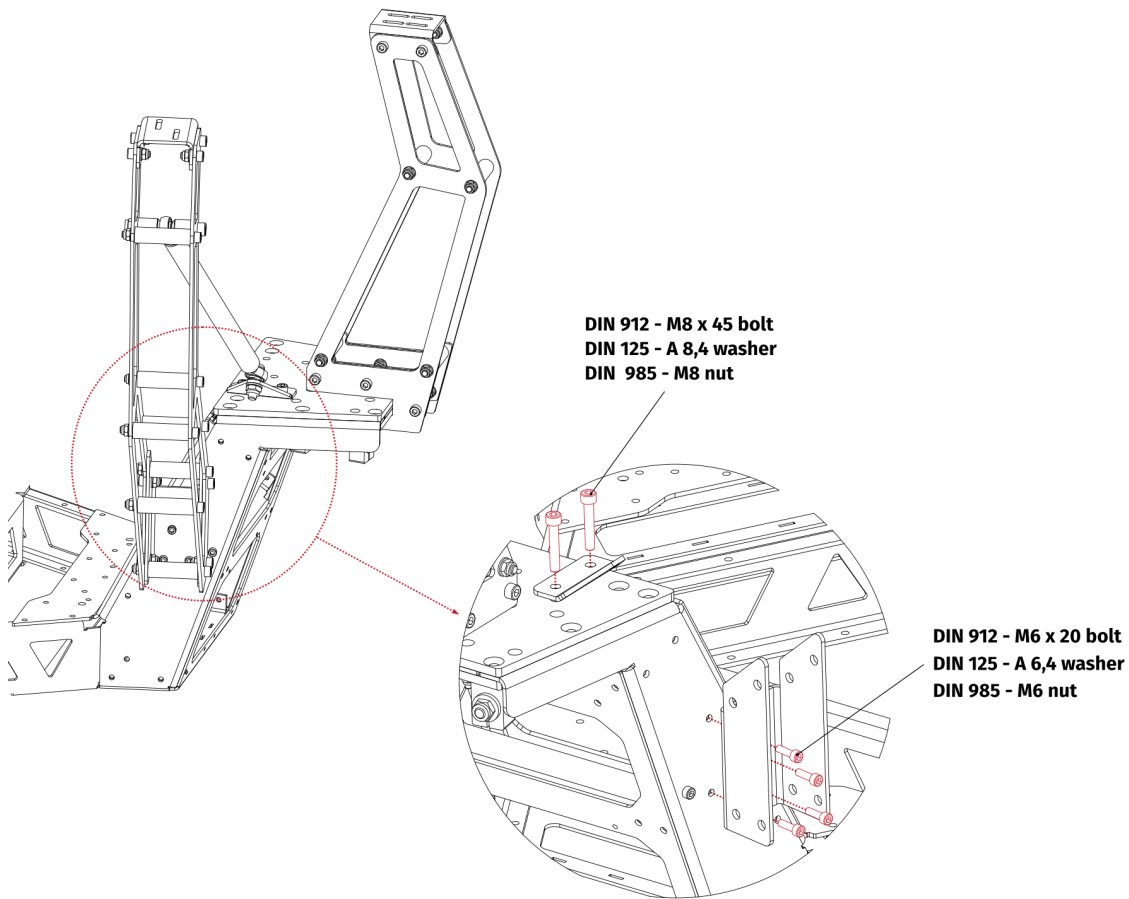
Depending on the assembly, you may need to loosen or take out the U-bracket and assemble it again with monitors holder front bracket.



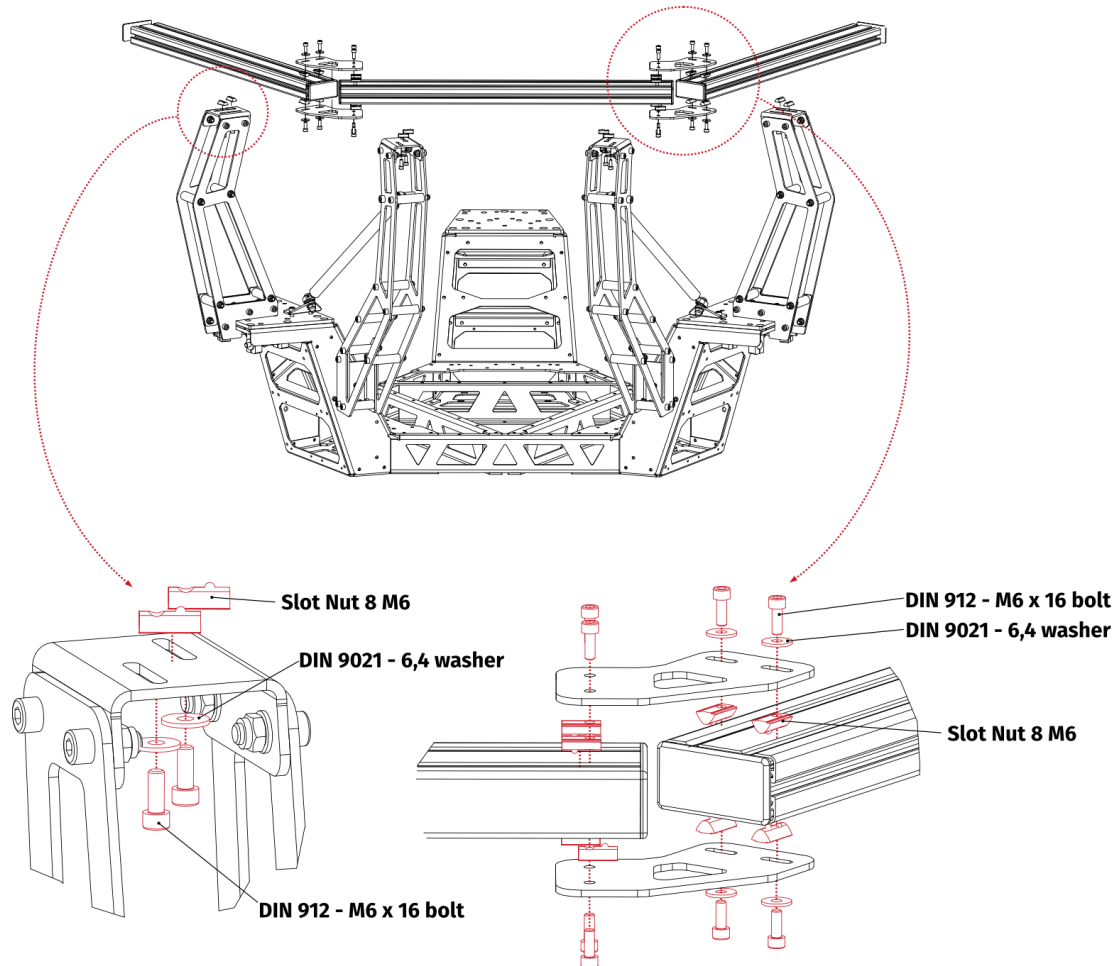
Operation	Tools	Torque specs
Connect the monitors holder side bracket.	6mm hex key, 13mm socket wrench	DIN 912 M8 - 23 Nm (17 ft-lbs)



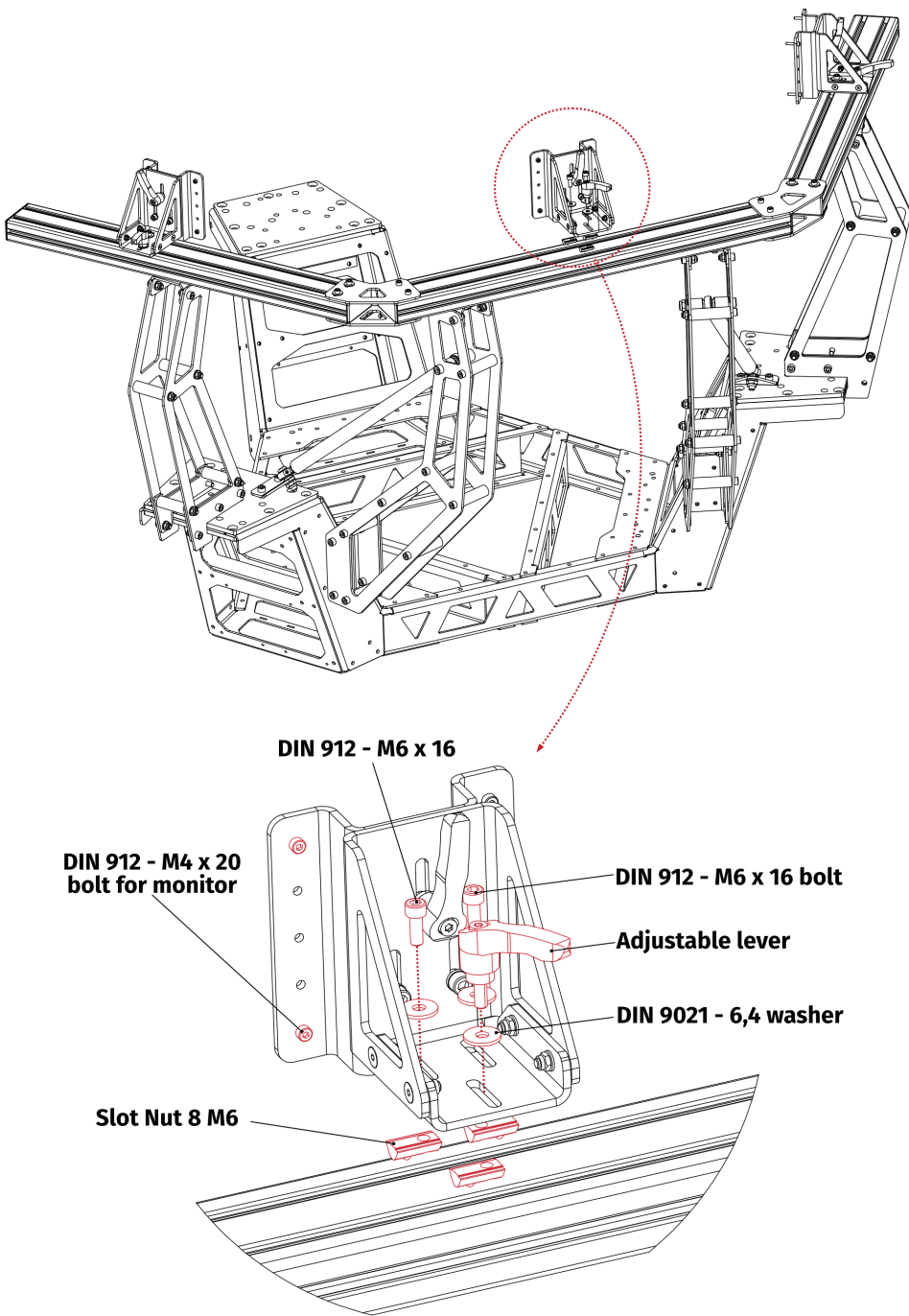
Operation	Tools	Torque specs
Connect the monitors holder front bracket - pull rod.	6mm hex key, 13mm socket wrench	DIN 912 M8 - 23 Nm (17 ft-lbs) DIN 912 M6 - 9.5 (7 ft-lbs)



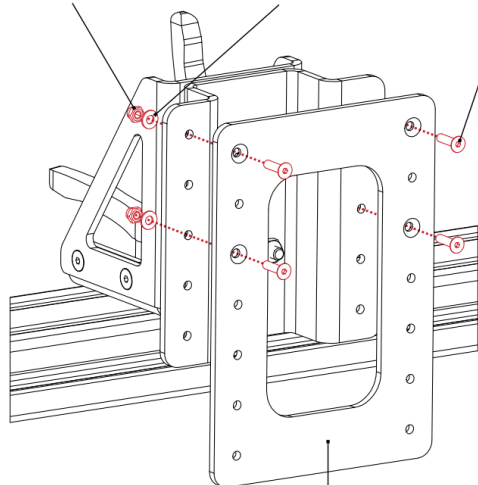
Operation	Tools	Torque specs
Connect the monitors holders top frame.	5mm hex key	DIN 912 M6 - 9.5 (7 ft-lbs)



Operation	Tools	Torque specs
Connect the monitors mounting brackets to the top frame	2.5, 3, 5mm hex key	DIN 912 M6 - 9.5 (7 ft-lbs) DIN 912 M4 - 2.8 Nm (2 ft-lbs) DIN 7991 M4 - 2 Nm (1.5 ft-lbs)

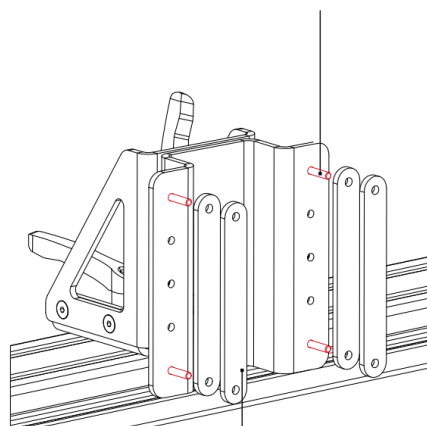


**DIN 985 - M4
nut** **DIN 125 - A 4,3
washer** **DIN 7991 - M4x16
bolt**



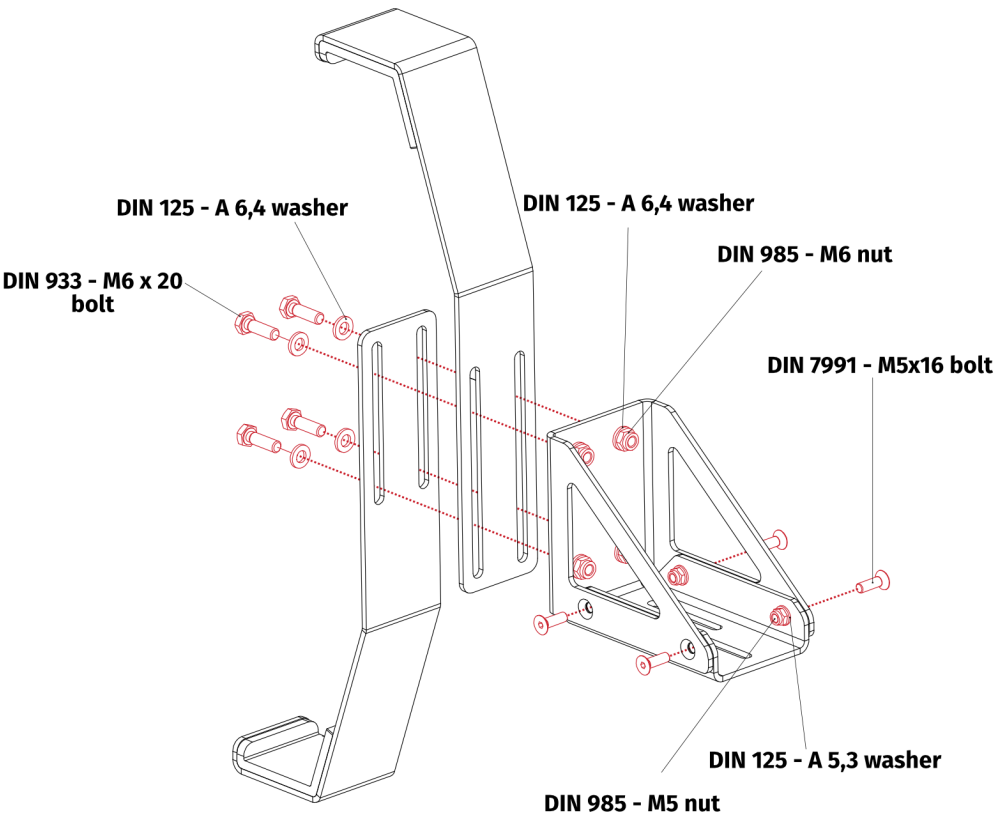
**Mounting bracket for
adjusting monitor
height, in case when
monitor mounting
points are not in the
center**

DIN 912 - M4 x 20 bolt

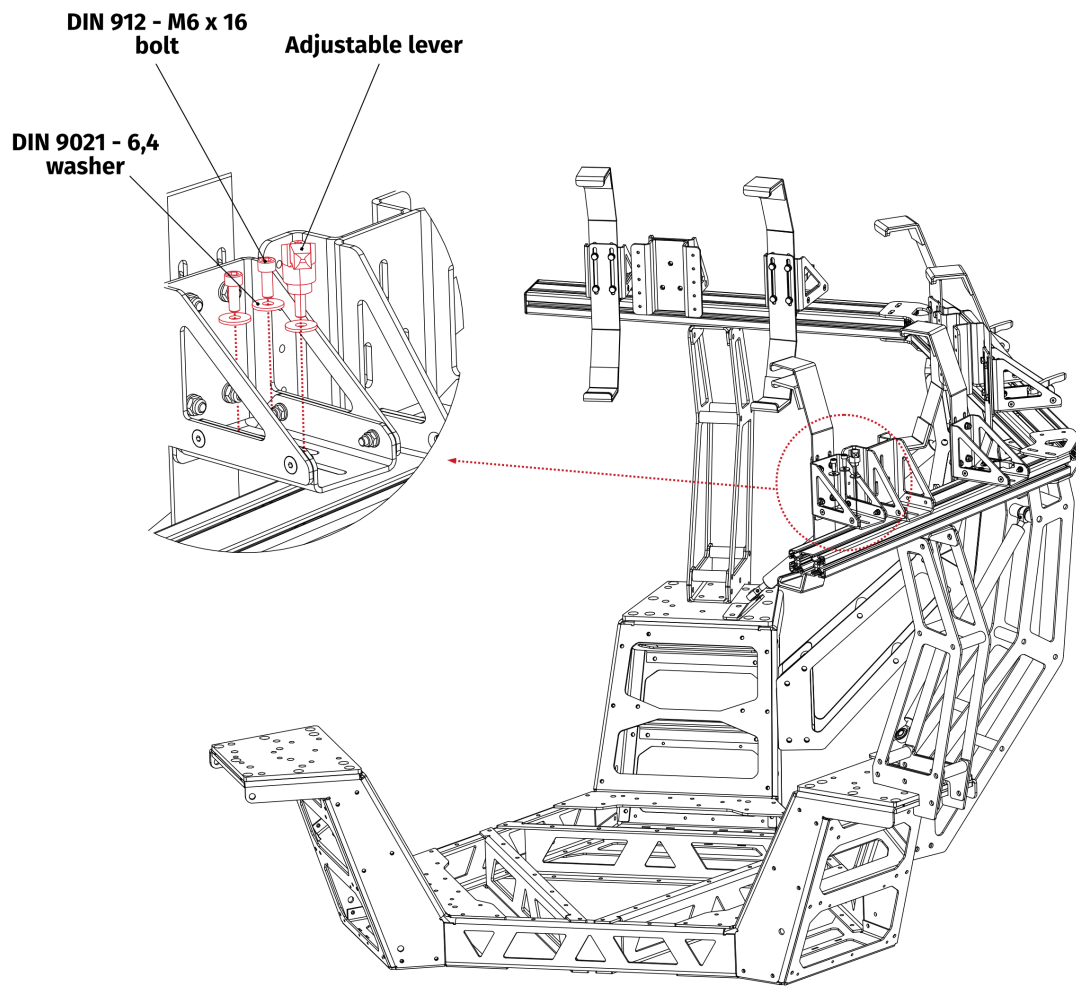


**Mounting brackets for
monitors with mounting
niche**

Operation	Tools	Torque specs
Connect the monitors frame to the mounting bracket	3mm hex key, 8 & 10mm socket wrench	DIN 933 M6 - 9.5 Nm (7 ft-lbs) DIN 7991 M5 - 4.1 Nm (3 ft-lbs)

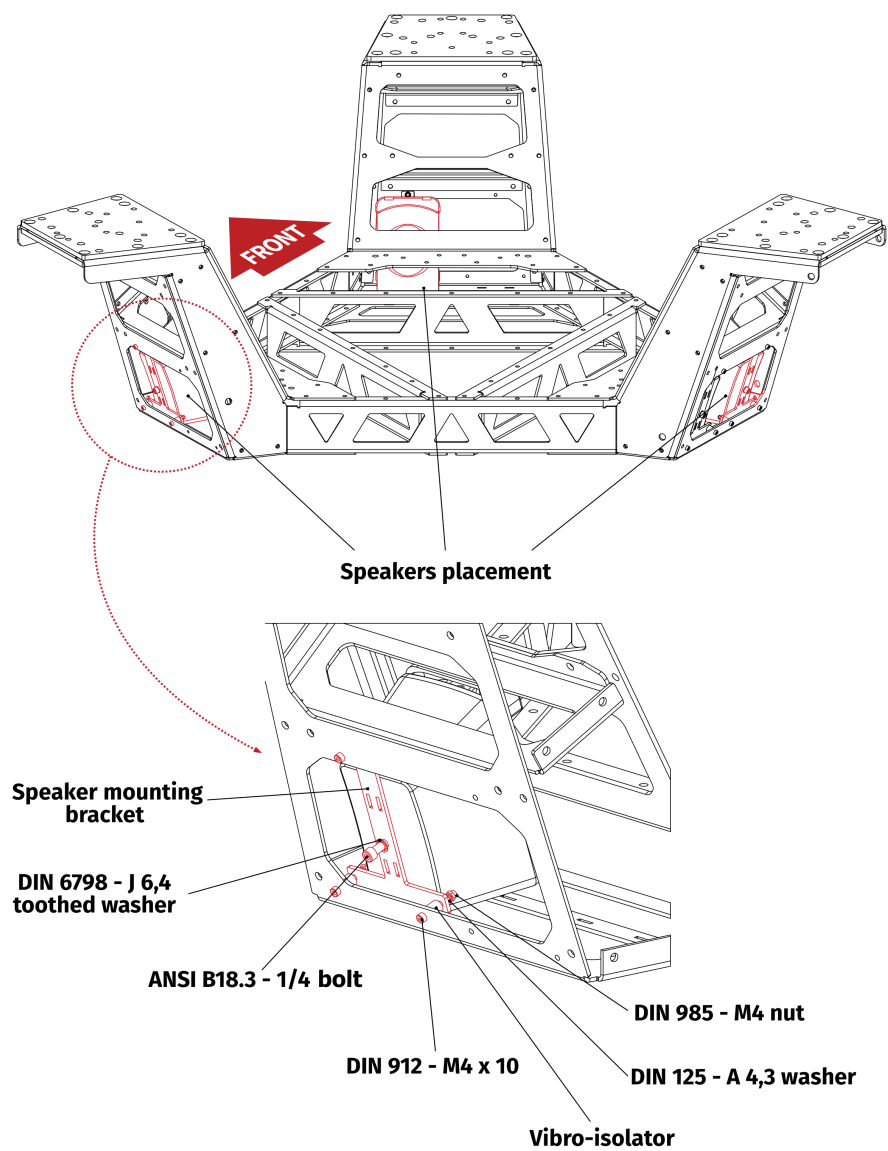


Operation	Tools	Torque specs
Connect the mounting brackets with the upper frame of the holders.	5mm hex key	DIN 912 M6 - 9.5 Nm (7 ft-lbs)



3.6.9 SPEAKER HOLDERS

Operation	Tools	Torque specs
Connect the speakers mounting brackets and mount the speakers inside the cockpit frame.	3mm hex key, 7mm socket wrench	DIN 912 M4 - 2.8 Nm (2 ft-lbs) ANSI B18.3 1/4 - 12 Nm (8.8 ft-lbs)



INFO

Dedicated set of speakers for the QS-S25 is Logitech Z906

4. INSTALLATION

WARNING

Dangerous voltages level can be present in Power Cabinet and cables during the operation and for a few minutes after turning off the machine.

Remember, even though possibilities with QS-S25 are broad, some things should be kept in mind when the place for the rig is chosen. Motion Systems **DOES NOT** approve exceeding or ignoring any of these points and **IS NOT** responsible for malfunctions or failures that are the results of these actions.

- **DO NOT** use the QS-S25 on very soft or fragile surfaces like rubber, glass, or foam.
- Ensure that all QS-S25 modules are mounted properly.
- Be aware that QS-S25 will crawl a little in every direction during operation. Those movements could damage the surface in the long term. Manufacturer, its subsidiaries, and their partners are not responsible for any floor damages. It is recommended to anchor the machine to the ground - see section **Anchoring** on page **76** for details.
- **DO NOT** mount the rig in tight or cluttered spaces – nothing should restrict QS-S25's motion range.
- Seatbelts and other harnesses should be mounted to parts of the motion rig that move in the same way as the seat. **DO NOT** attach them to any static part or ground.
- Cables must not be stretched and should be kept in a way that prevents them from getting under actuator or any part that can crush or tear them.
- If you want to use the QS-S25 in an unusual application, and you are not sure, that the desired setup is feasible, please contact the distributor/reseller.
- Only racing seats and harnesses certified by the FIA shall be installed on the QS-S25.
- The user/integrator is responsible for using a pedal set other than that provided by the manufacturer.

4.1. TRANSPORTATION

The platform can be moved using transportation wheel modules, included in the package. Attaching them to a fully assembled platform will lift it from the ground and allow to roll it into designated place. Wheel modules **MUST** then be unfastened. **DO NOT** use the platform while on the wheels.

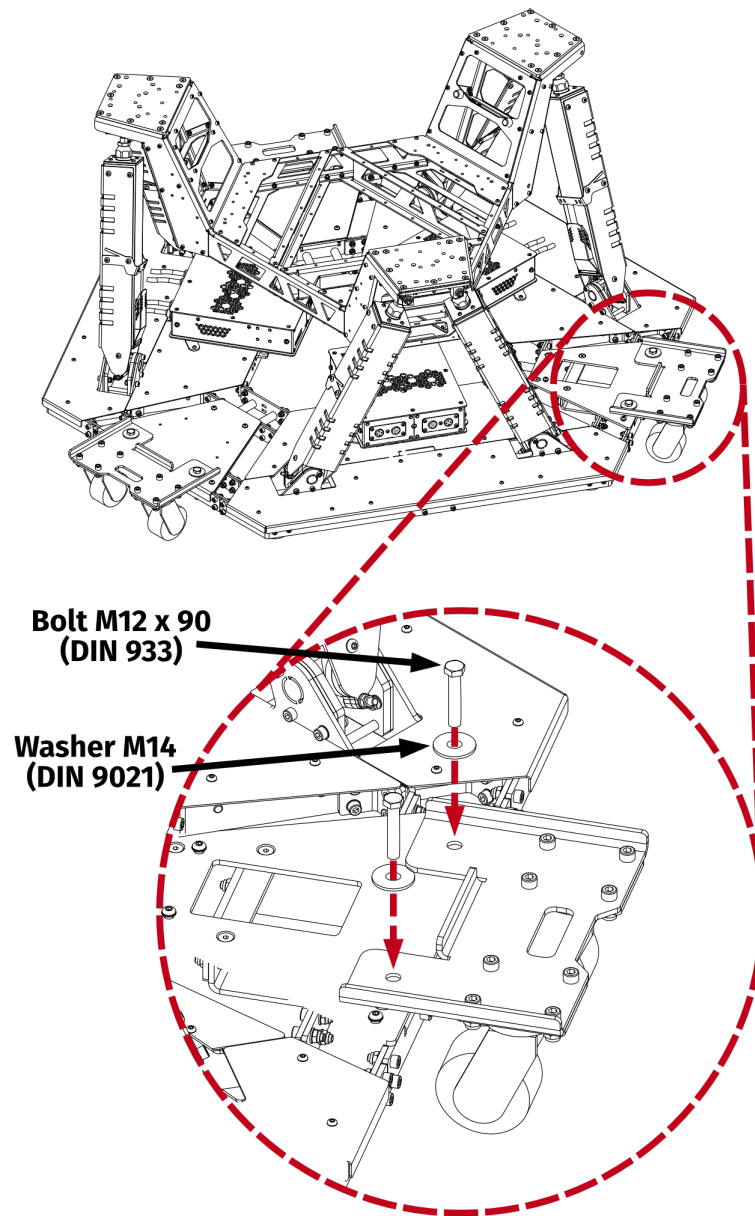
The platform may also be lifted and transported using lifting straps and a lifting device.

WARNING

All operations **MUST BE** performed with the power OFF and cables disconnected from the outlet.

4.1.1 ATTACHING WHEEL MODULES

To roll the platform into designated place install wheel modules (x3) using included bolts and washers. Screw them in gradually to evenly lift the platform (tight enough for the wheel module to be resting flat on the base frame).



WARNING

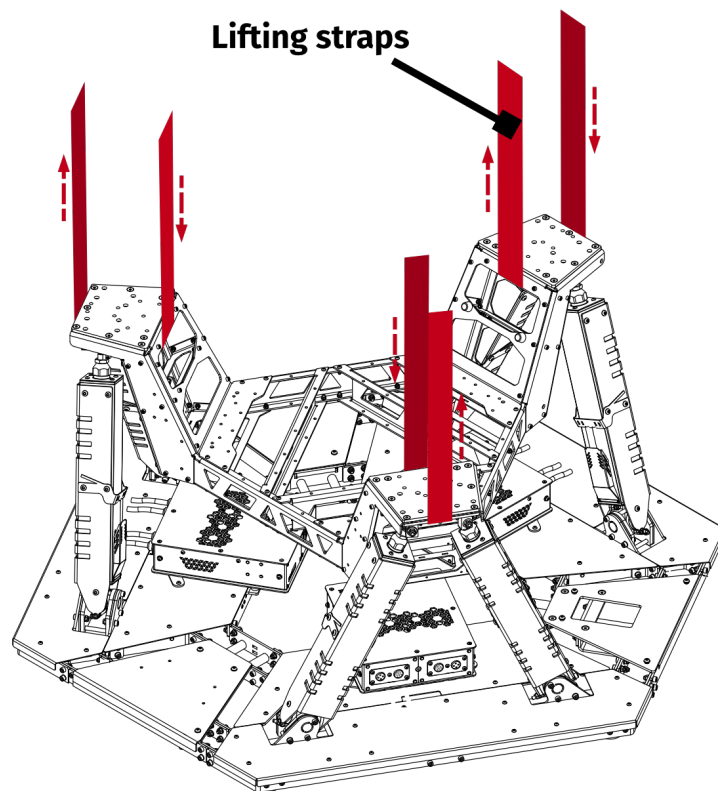
After rolling the platform into designated place wheel modules **MUST** then be uninstalled. **DO NOT** use the platform while on the wheels.

4.1.2 LIFTING THE PLATFORM

WARNING

To avoid damaging platform's components with lifting straps - side monitor screens and right desk should be removed.

The platform can be moved by lifting it from the ground. **ONLY** use lifting points shown below:



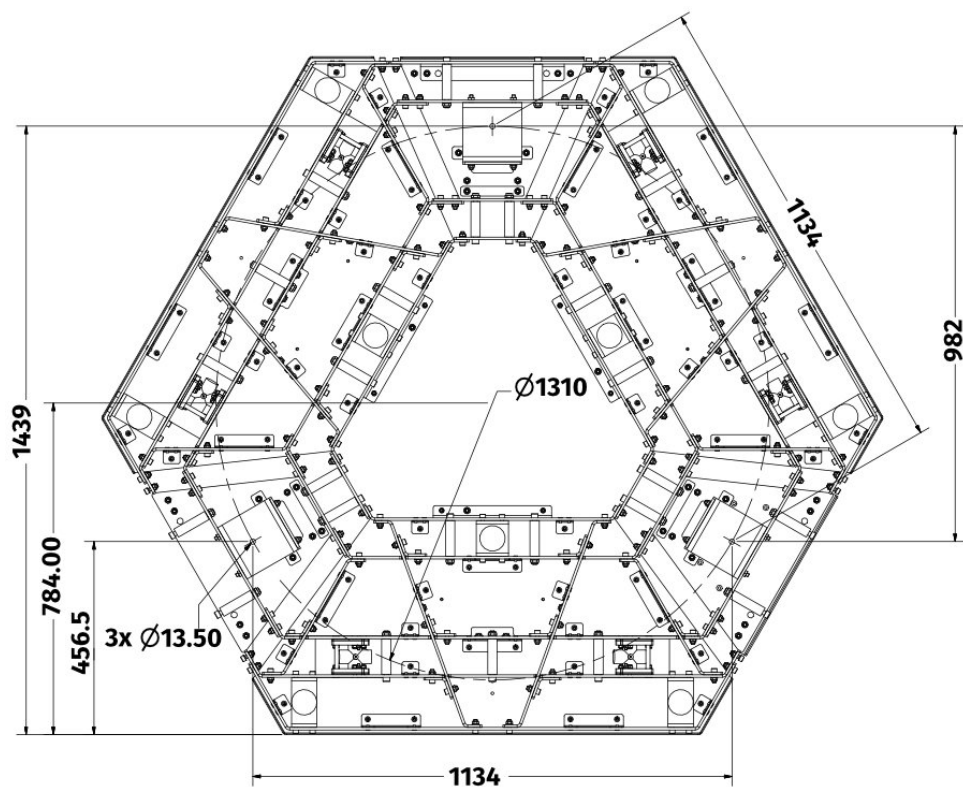
WARNING

- Only a professional forklift operator can operate the forklift/hoist.
- Forklift operator should be assisted by a helper standing in short distance and guiding him while moving the platform.

4.2. ANCHORING

Depending on the floor surface, the platform may crawl in all directions during normal operation. It is recommended to anchor it to the ground.

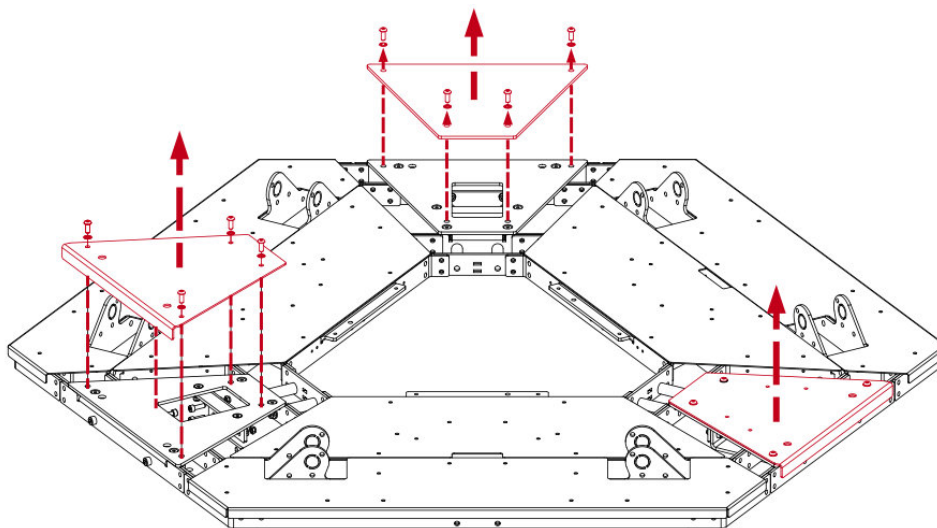
Anchor holes pattern dimensions:



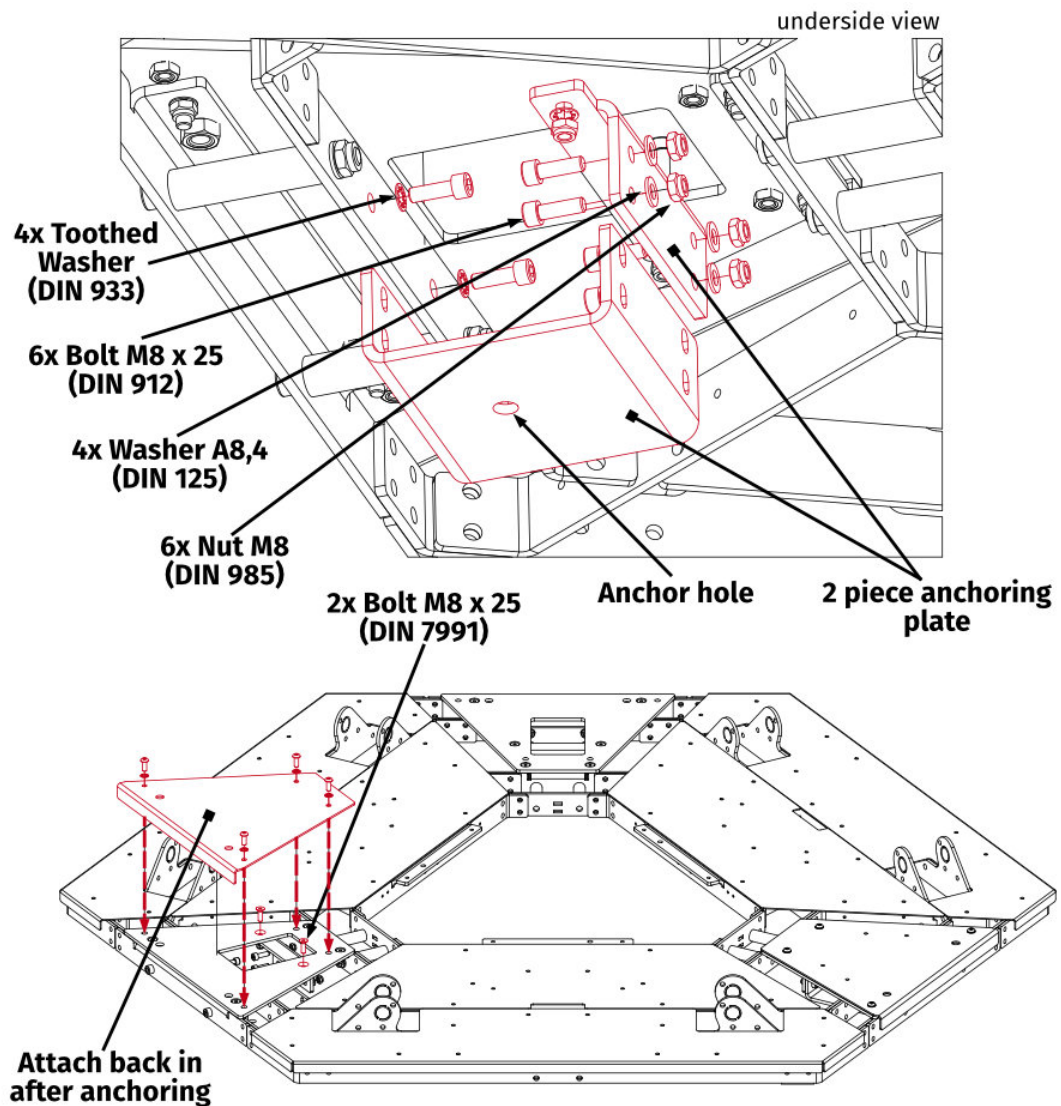
INFO

It is suggested to use M12 wedge anchor bolts.

1. Remove three triangular bottom plates from the platform using 5 mm hex key (4 bolts per plate).



-
2. Install anchoring plates underneath the platform using bolts, nuts and washers included in the package, as shown in the illustration (DIN 912 M8 bolt - 23 Nm (17 ft-lbs); DIN 7991 M8 bolt - 17.4 Nm (12.8 ft-lbs)):



3. Once the platform is in its designated place - install anchor bolts referring strictly to manufacturer's anchor bolt manual.
4. Reattach triangular plates back to the platform using 5mm hex key.

4.3. ACTUATOR CONNECTION WITH A POWER CABINET

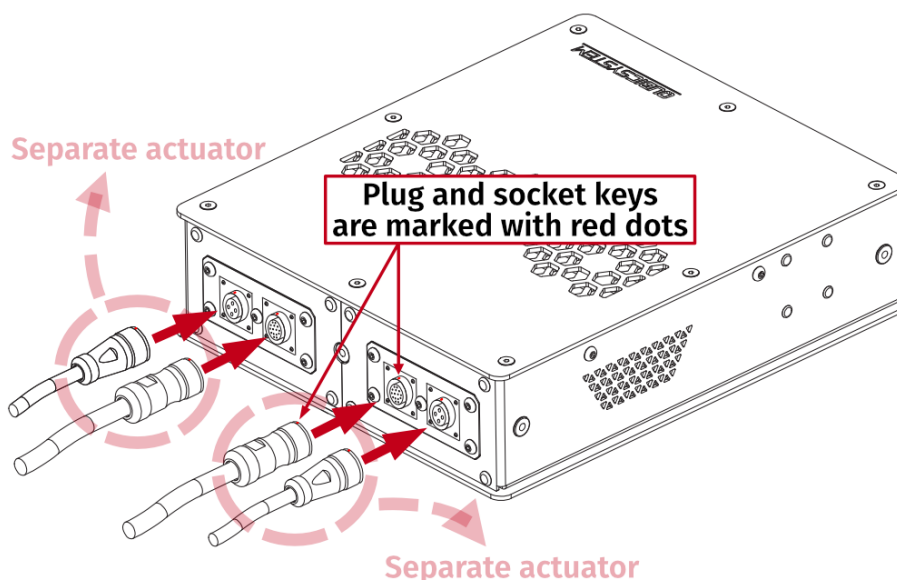
INFO

Revised version of the QS-S25 is equipped with push-pull actuator connectors. If your machine has integrated actuator cables, this section does not apply.

WARNING

Plugging and unplugging the actuator must **ALWAYS** be performed with Power Cabinet's power switched OFF.

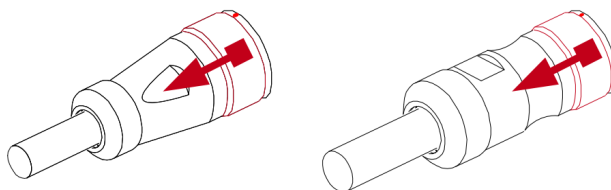
To connect the actuator to a Power Cabinet - match the plug with the socket (4 vs. 15 pin) and plug it in, matching the key at the top of the plug (also marked with a red dot). Push it in firmly until the PUSH-PULL ring lock clicks in place.



WARNING

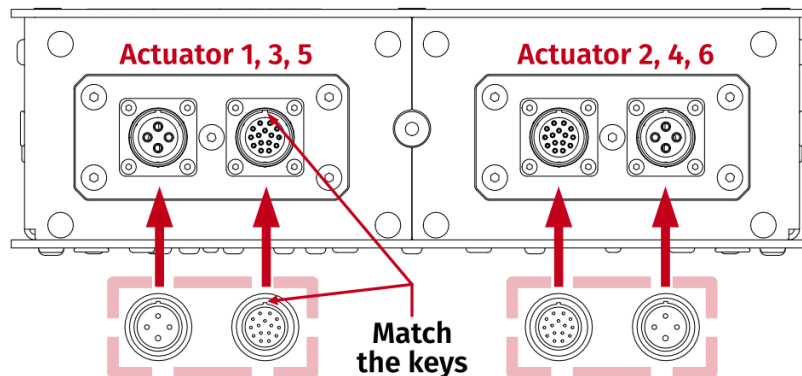
Always make sure that all PUSH-PULL connectors are plugged **all the way in** - ring lock **MUST** click into place. Loose connections may result in serious actuator damage.

To disconnect the plug, first pull on the metal ring to release the lock and then pull the plug to disconnect:



NEVER pull the plug by the cable

Keep in mind the order of connecting the actuators. Left socket panel is for odd number actuator, and right socket panel is for even number actuators.

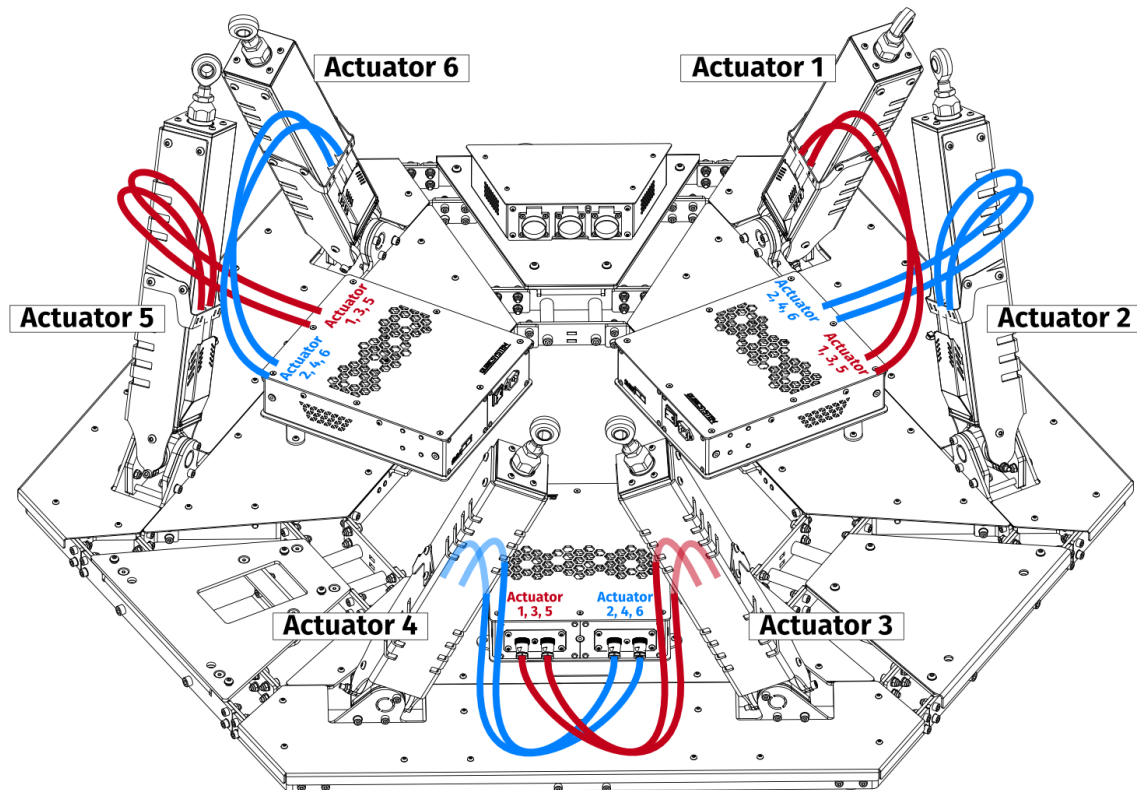


WARNING

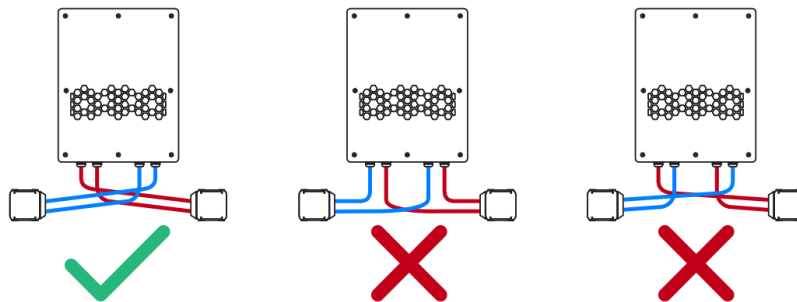


- Under no circumstances **DO NOT** plug QS-210 actuator to QS-220 Power Cabinet and QS-220 actuator to QS-210 Power Cabinet. That **WILL** lead to an irreversible damage to the actuators and will **NOT** be covered by a warranty.
- **NEVER** unplug the actuator with Power Cabinet's power ON, because the actuator will **launch upwards abruptly**.

Keep in mind that for the correct operation of the QS-S25, pair of actuator cables must be plugged to the correct pair of sockets. Odd number actuator must be plugged into the left socket panel (Actuator 1, 3 and 5) and even number actuator must be plugged into right socket panel (Actuator 2, 4 and 6). Refer to the illustration below:



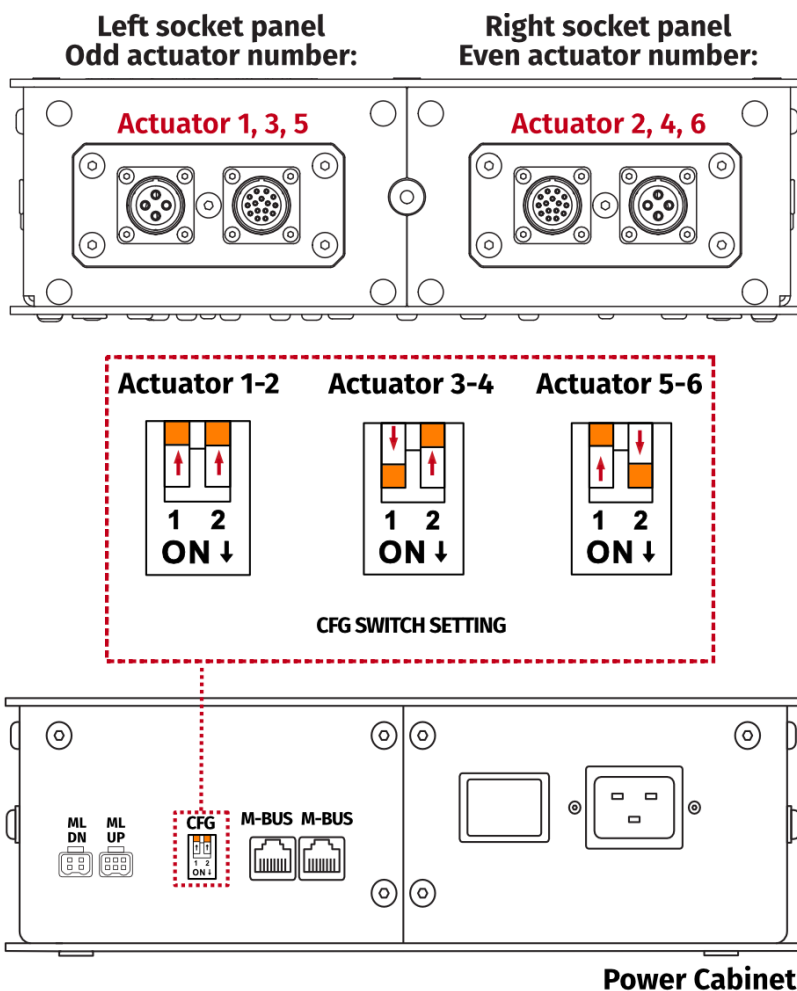
DO NOT cross-connect any of the push-pull connectors. The order of connection is strictly specified.



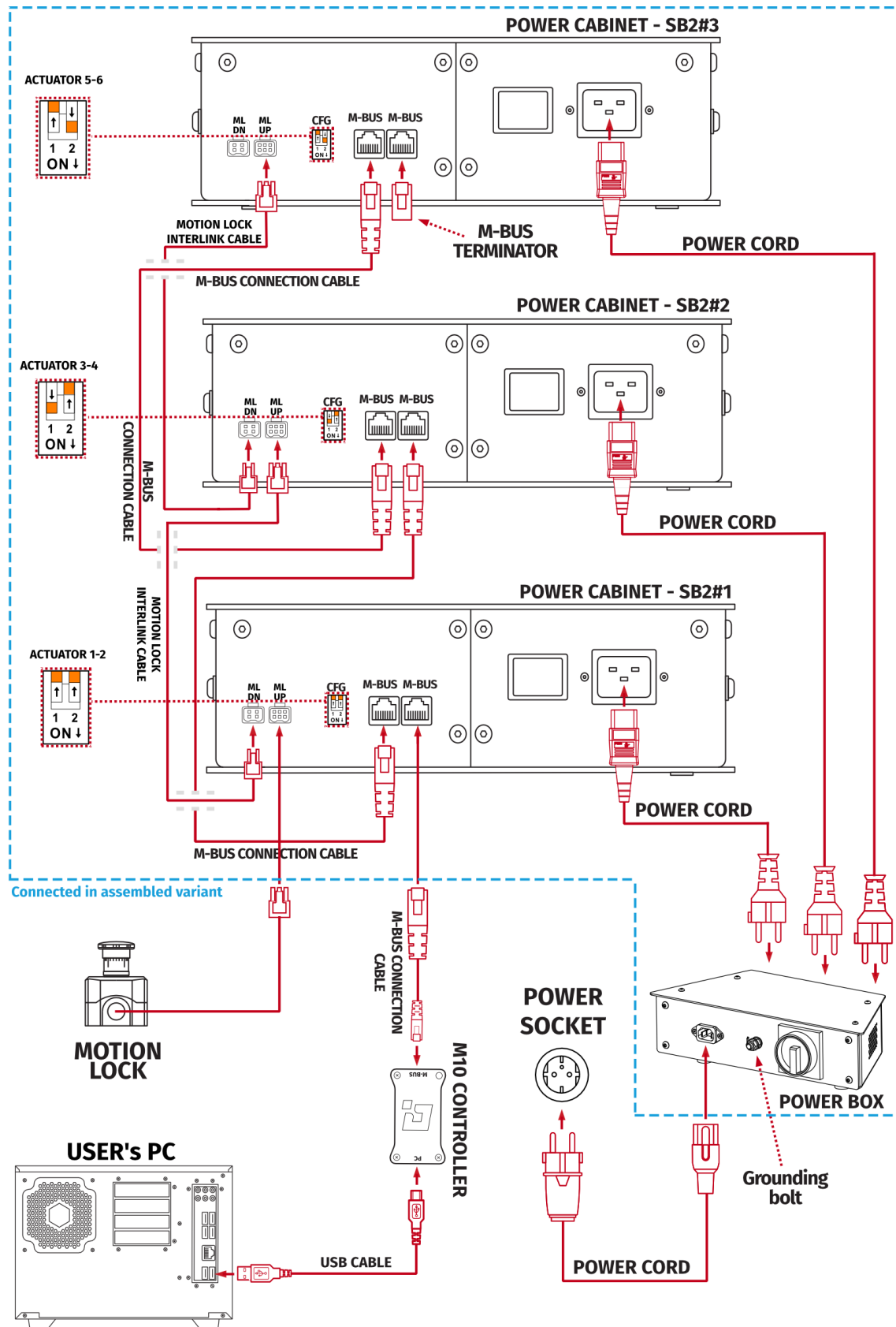
4.4. CFG SWITCH CONFIGURATION

INFO

- All QS-SB2 Power Cabinets **must** be interconnected via Motion Lock interlink cables and M-BUS communication cables.
- Order of connecting the cables is not important. Keep the CFG switches setting according to the actuators numbering.



4.5. INTERCONNECTIONS

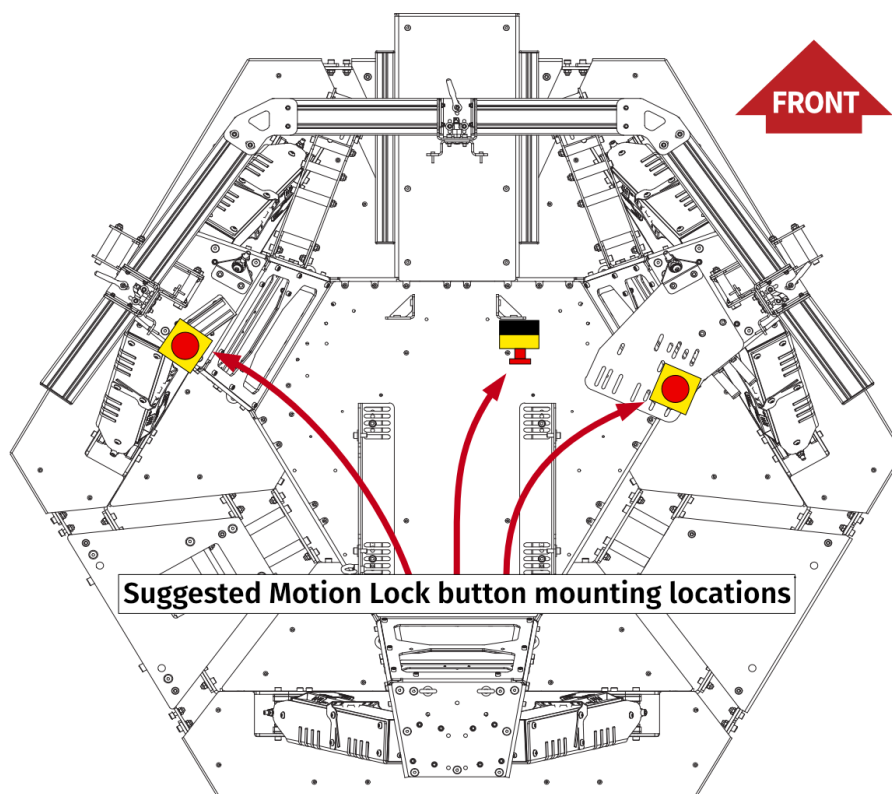


4.6. MOTION LOCK INSTALLATION AND CONNECTION

WARNING

Motion Lock button **MUST** be mounted **close to the operator** of the machine, after being strapped in by the racing harness - it must be **easily reachable** in every situation.

DO NOT disassemble the Motion Lock button for installation - mounting must be performed using velcro strips or strong double sided tape. Suggested mounting locations are: next to the shifter on the side mounting brackets, next to the steering wheel on the front mount bracket.



4.6.1 MOTION LOCK CONNECTION WITH OTHER QS DEVICES

If you own more QubicSystem devices, we recommend including them in the Motion Lock circuit in order to create one e-stop button setup. Refer to diagrams below.

WARNING

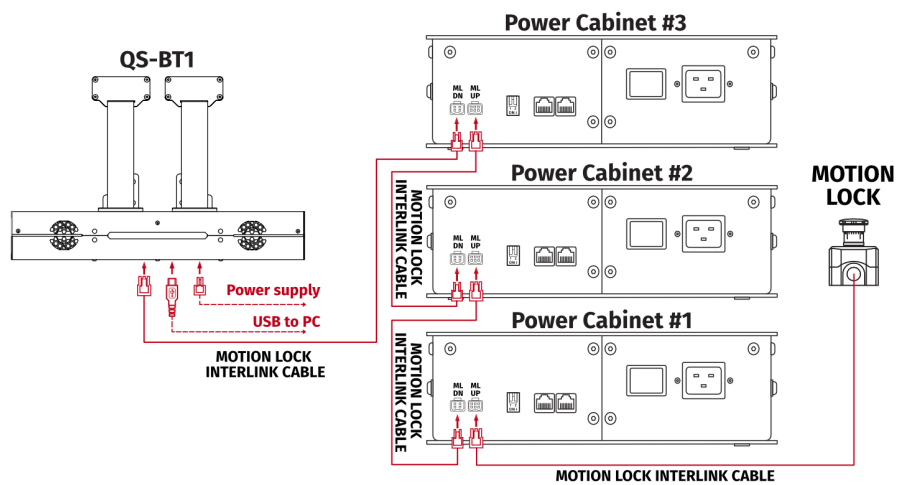
All Motion Lock connections must be performed with power switched OFF.

INFO

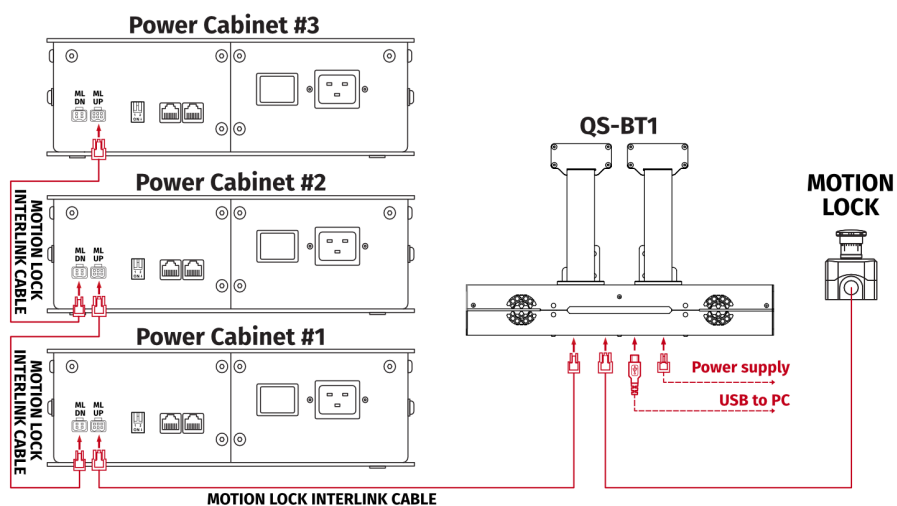
Motion Lock interlink cables have different ML/UP (6 pin) and ML/DN (4 pin) plugs on each end.

QS-S25 and a belt tensioner (QS-BT1):

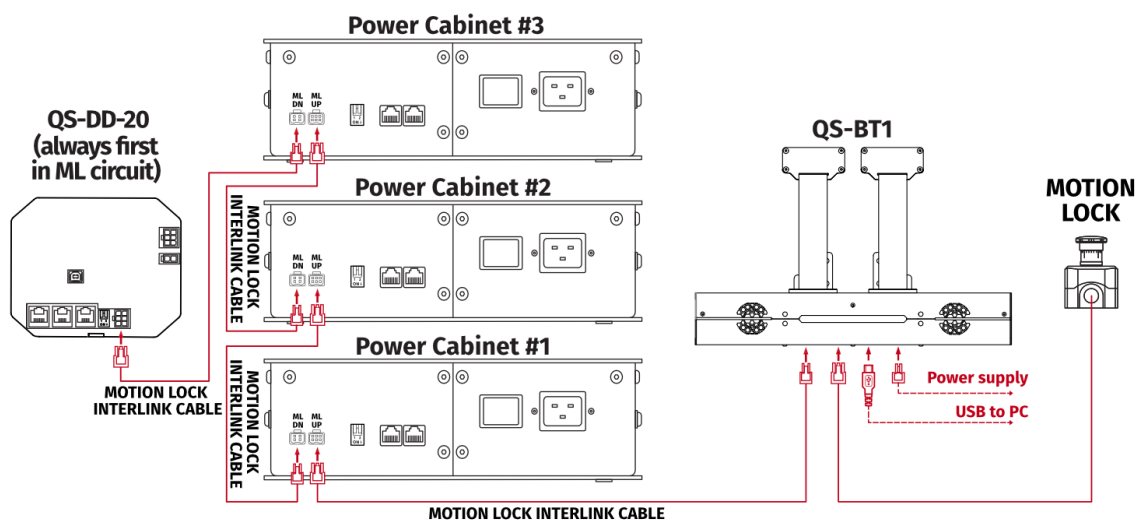
Variant #1



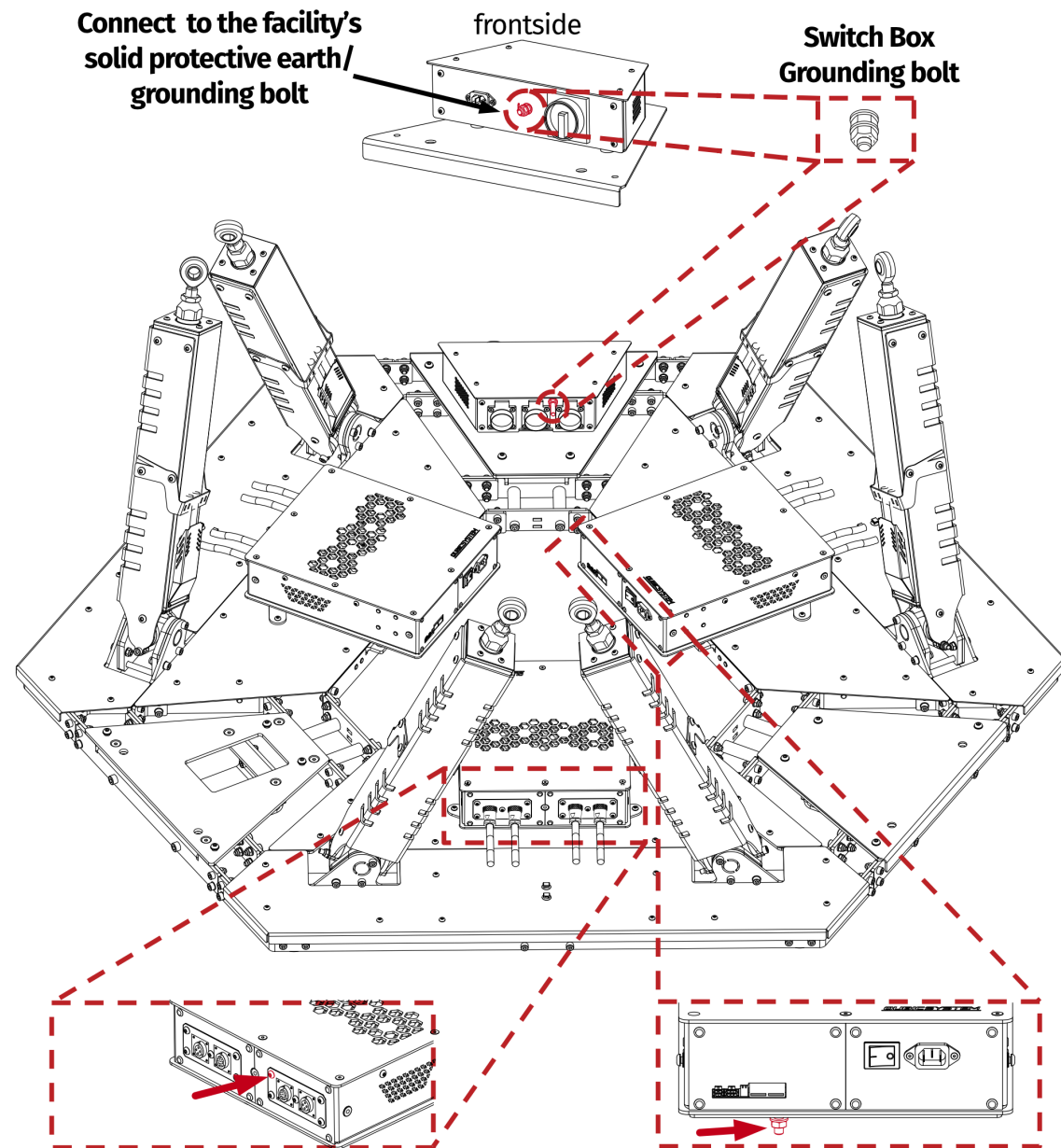
Variant #2



QS-S25, steering wheel (QS-DD-20) and a belt tensioner (QS-BT1):



4.7. CONNECTING POWER CORDS



4.8. CONNECTING GROUNDING WIRES

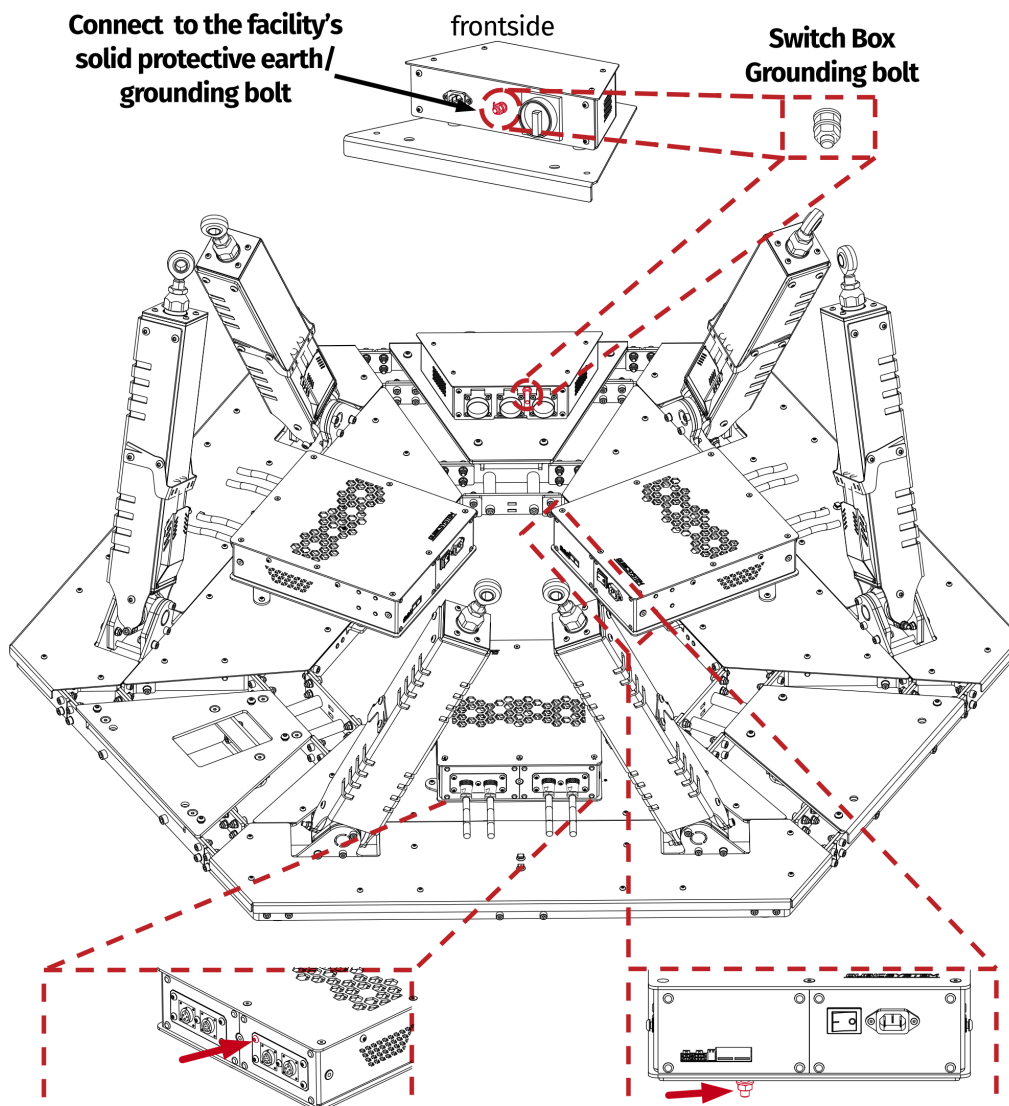
INFO

Platform is equipped with a low resistance protective-earth bolt. It must be connected to the facility's solid protective earth/grounding bolt in order to increase suppression level. It is recommended to use at least 10 mm² copper wire.

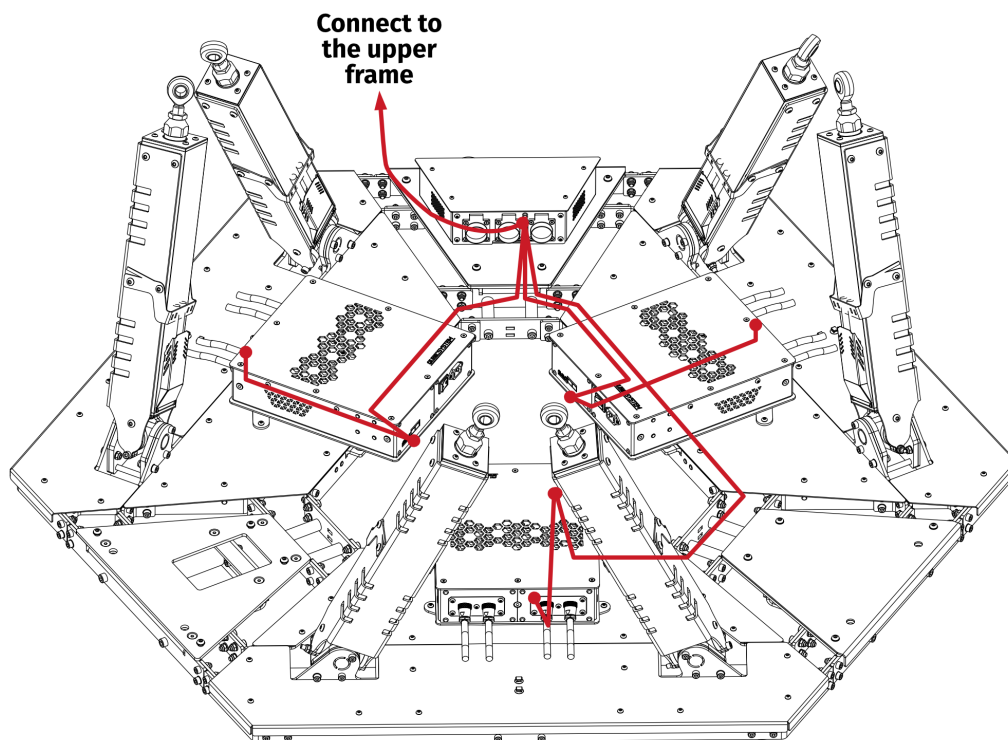
WARNING

All operations **MUST BE** performed with the platform powered off and by a qualified electrician.

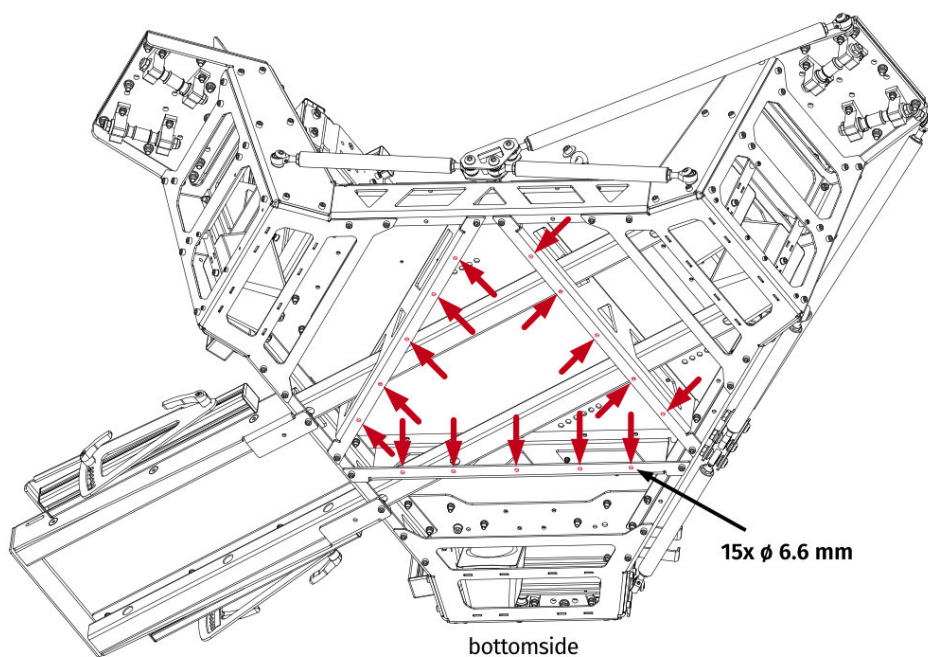
Front grounding bolt on Switch Box is to be connected to the facility's solid protective earth/grounding bolt. Switch box and Power Cabinets grounding bolts are marked in an illustration below:



Connect all Power Cabinets with a grounding bolt from a Switch Box:



Connect the upper frame with Switch Box using a M6 bolt, M6 nut and a toothed washers (alternatively remove the paint around the hole for a conductive connection with the frame) using one of the holes marked in an illustration below:

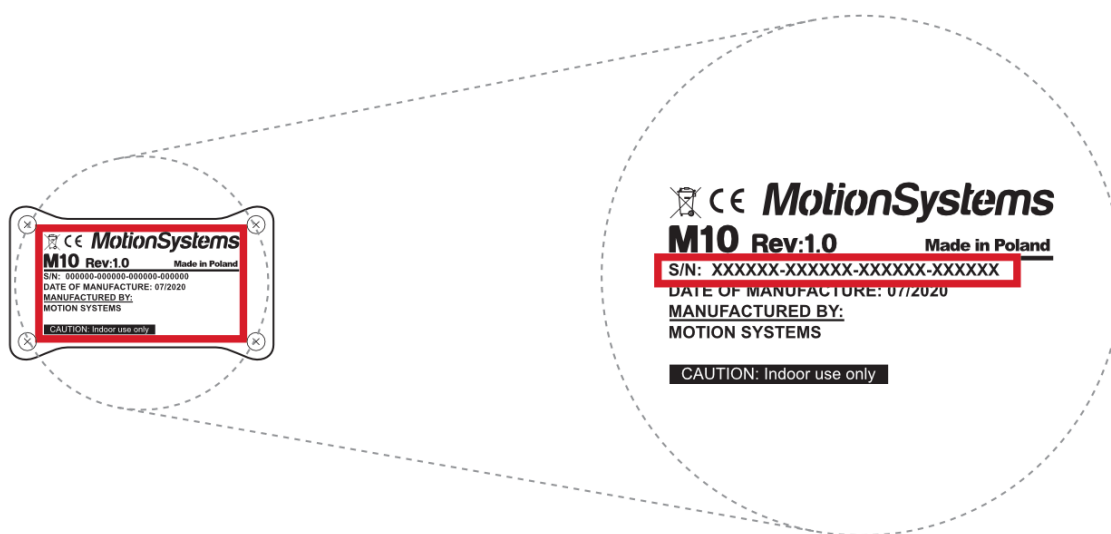


4.9. SOFTWARE INSTALLATION

INFO

Note down the QS-S25 serial number before installation as it is needed to access software download page.

The **SERIAL NUMBER** can be found on the M10 identification label in the **XXXXXX-XXXXXX-XXXXXX-XXXXXX** format. This serial number is also used for activation of FSMI (Force-SeatMI) and MT (Motion Theater) licenses - check information on page **92**.



To download the software visit: QubicSystem.com/Download

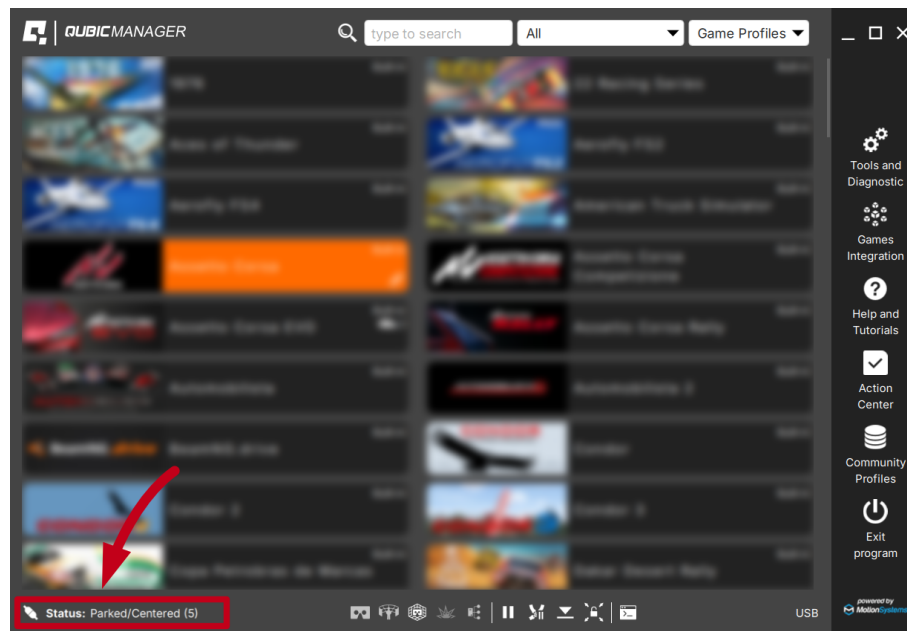
Once the QS-S25 is installed and connected correctly:

1. Download **Qubic Manager Software**.
2. Proceed with the installation steps and launch the application.
3. Connect power connection cord to the wall socket.
4. Turn on the system by switching on the power switch button on the Power Box.
5. Cycle through the Motion Lock Switch positions - press and unpress it (go to section **2.11** on page **27** for details on the procedure).
6. Disable Global Pause mode - details in section **2.12** on page **28**.
7. The QS-S25 will perform a start-up calibration.

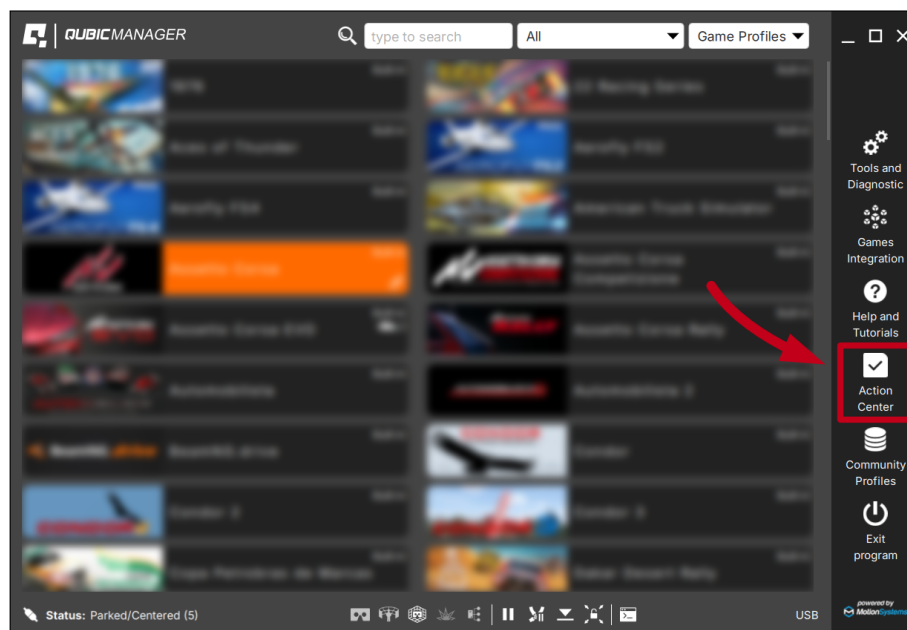
WARNING

DO NOT change the payload during the start-up calibration.

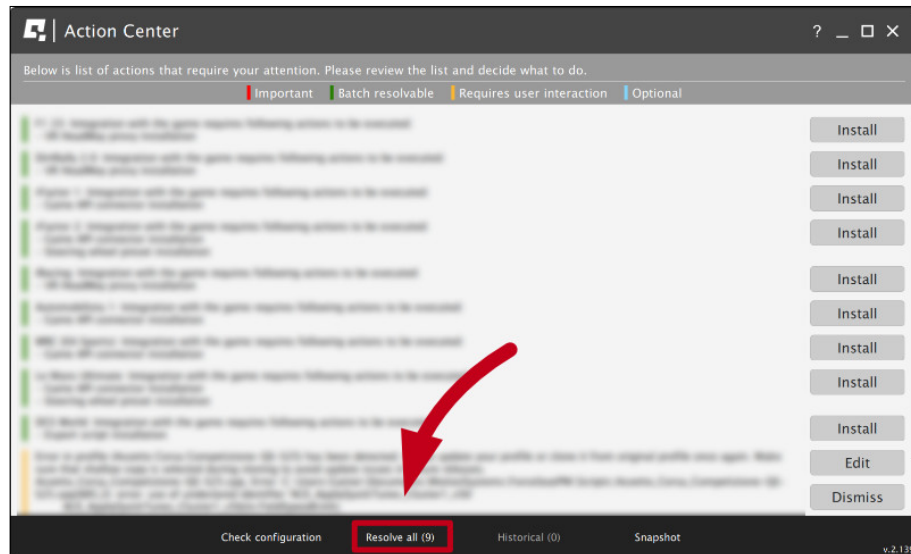
8. If Qubic Manager has recognized the QS-S25 correctly, the status of the machine visible in the lower left corner will change to **Parked/Centered**.



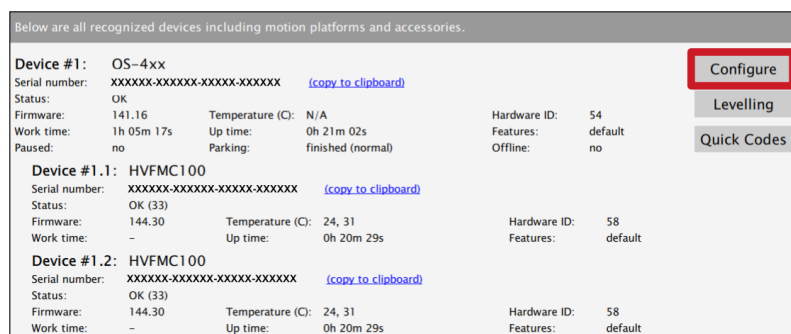
9. Check **Action Center** on the right side panel for a list of actions that requires attention:



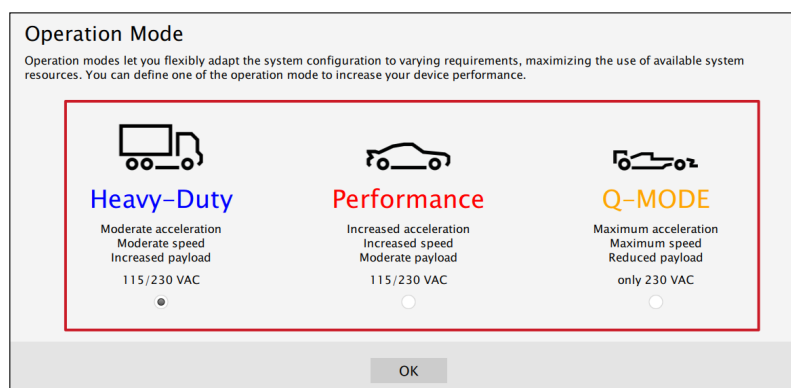
10. It is possible to solve them one by one or by pressing the **Resolve All** button. Firmware update may require additional confirmation in the dialogue box.



11. Go to **Tools and Diagnostics** → **Devices** and select **Configure**.



12. Choose one of the operation modes:



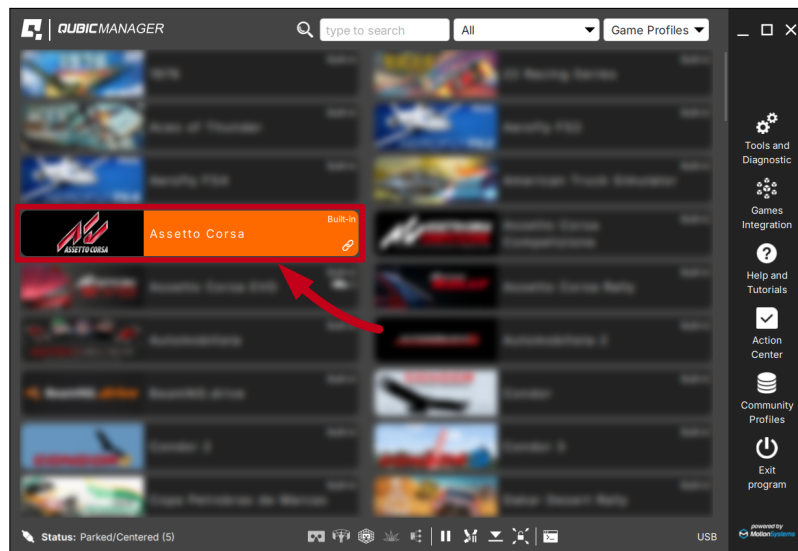
INFO

Q-MODE is unavailable for QS-S25

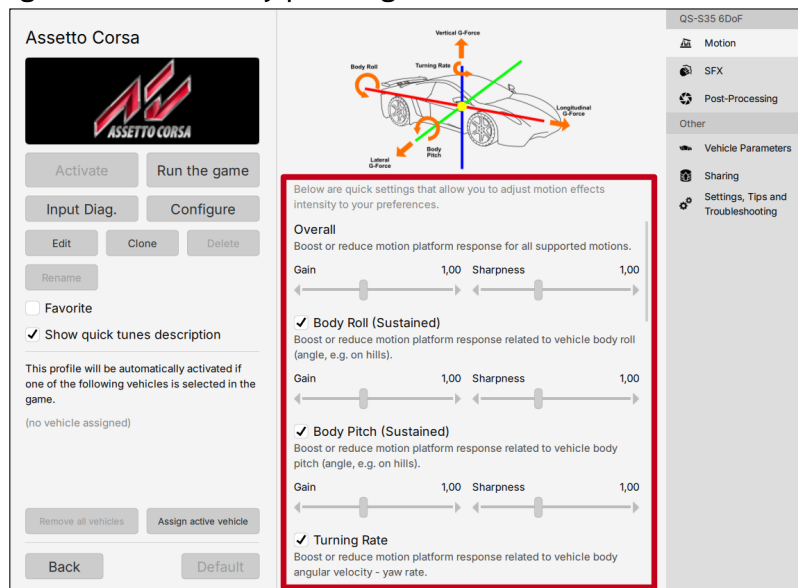
13. Close the configuration and return to the main application window. Choose the game and check profile details by clicking on the game tile.

INFO

Default profiles are integrated with the software and do not require additional installation. List of supported games is available at: QubicSystem.com/Supported-games.



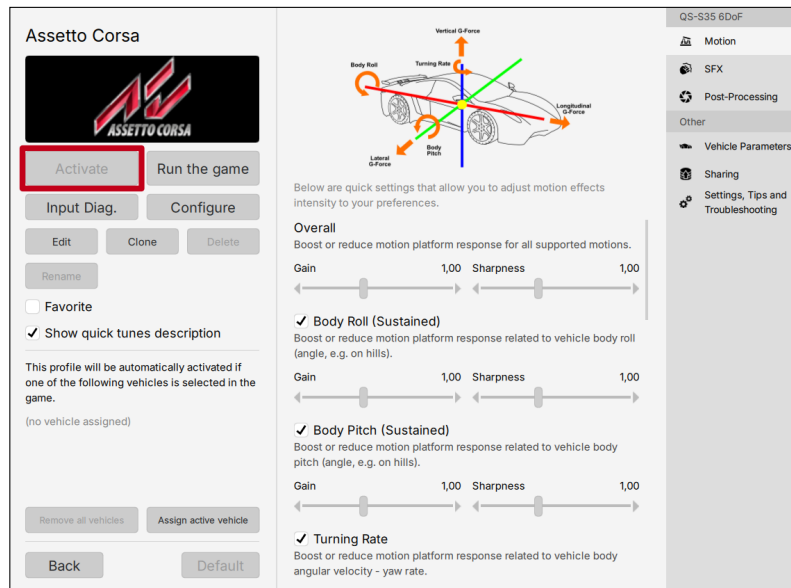
14. Adjust the motion effects intensity to your preferences in the game profile window, scroll down in the window to see all of the settings. You can adjust the settings during the game simulation by pressing **ALT+TAB**.



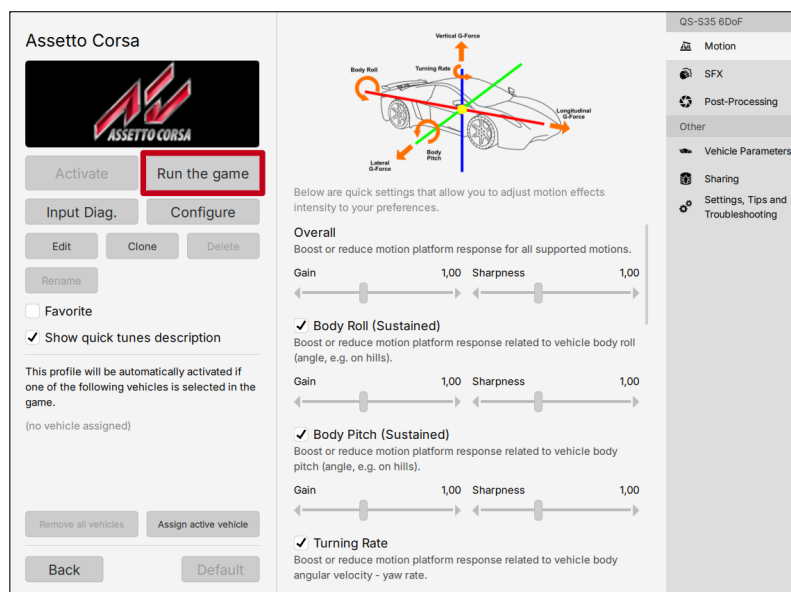
WARNING

The QS-S25 is a high performance machine capable of fast and abrupt movement based on game/simulation input data. User **MUST** maintain a sensible approach when modifying the default game profile.

15. Activate profile by clicking the **Activate** button.

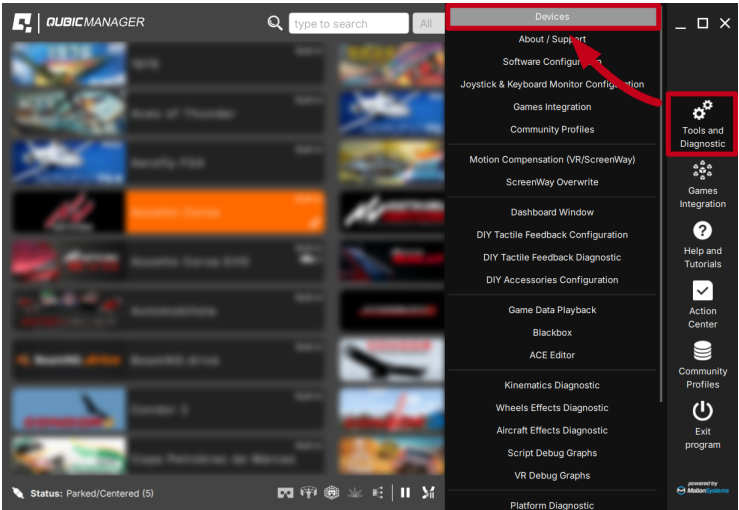


16. Launch the game by clicking the **Run the game** button.

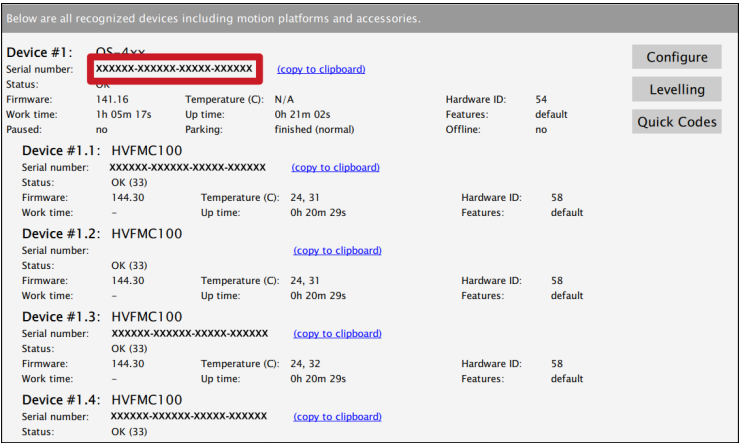


INFO

If you need the serial number to activate other software licenses such as ForceSeatMI or ForceSeatDI, it can be found in the Qubic Manager. After connecting the QS-S25 go to **Tools and Diagnostics → Devices**:



Serial number is visible under the device name:



WARNING

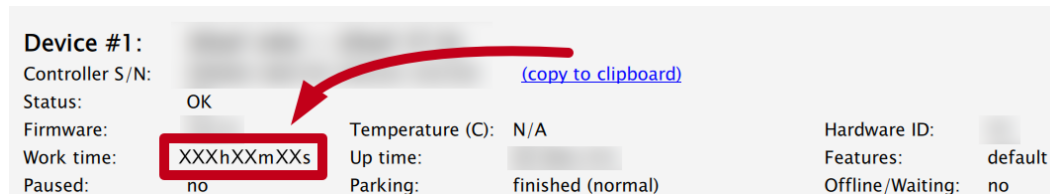
The software is provided "as is", without warranty of any kind, express or implied, including but not limited to the warranties of merchantability, fitness for a particular purpose, and non-infringement. In no event shall the authors or copyright holders be liable for any claim, damages, or other liability, whether in an action of contract, tort or otherwise, arising from, out of, or in connection with the software or the use or other dealings in the software. The software sends anonymous usage data to the Motion Systems company. The data is used to improve the software and game profiles. The data is not used for advertising purposes.

5. MAINTENANCE AND CLEANING

INFO

Cleaning should be conducted every 160 working hours or once a month.

To see the working hours counter, go to **Tools and diagnostics** → **Devices**. It is displayed in the QS-S25 device listing:



Device #1:			
Controller S/N:			(copy to clipboard)
Status:	OK		
Firmware:		Temperature (C):	N/A
Work time:	XXXXhXXmXXs	Up time:	
Paused:	no	Parking:	finished (normal)
		Hardware ID:	
		Features:	default
		Offline/Waiting:	no

To minimize the risk of abnormal heating that can result in system failure, keep the QS-S25 uncovered, clean and dust-free. Cleaning the unit should be performed with a soft, dry cloth. **DO NOT** use solvents or cleaners that may corrode or damage materials of parts used in the QS-S25 in any other way.

If any of the above mentioned elements is dirty or dusty use clean cloth to remove it. Isopropyl alcohol can be used to remove contamination caused by lubricants.

5.1. CHECKING MOTION LOCK BUTTON

At least once a month check if Motion Lock button is working correctly:

1. Before anyone steps into the platform - turn on the QS-S25.
2. Push the red Motion Lock button.
3. The machine should stop and not react to any signal.
4. Turn on a simulation or a game to confirm that - with a correct profile activated proceed to a game or a simulation and engage movement.

✓ If the Motion Lock Button works correctly - platform does not react nor move in any way.

X If the Motion Lock button does not work correctly - platform proceeds to simulate motion from the game/simulation. Check the cable connection and repeat the test. If the problem persists - **DO NOT** use the platform, power it off and contact technical support immediately.

5.2. ACTUATOR SEAL LUBRICATION

To minimize the risk of actuator failure, visually check the condition of rubber seals once a month.



Actuator seals need lubricating ONLY if the actuator starts emitting squeaking noises (that happens ONLY after an extended period of operation).

In order to lubricate the seals:

1. Go to **QubicManager** → **Tools and Diagnostics** → **Platform diagnostics** → **Motions (IK)** tab → set the **Max Speed** to 10% → drive the **C1 Heave** slider all the way to the right - **beware, the platform will lift to its maximum range**.
2. Clean the whole piston rod thoroughly with a clean microfiber cloth.
3. Spray silicone grease evenly around the piston rod close to the housing:



4. Go back to **Platform diagnostic** window → **Sinus Motions (IK)** → in the **Amplitude** of **C1: Heave** slot type in "50" → tick "Enable" (**beware - heave sinus motion will begin**). Allow the motion platform to run for 30-60 seconds.
5. After 30-60 second stop the sinus motion by unticking "Enable".
6. Repeat step number 1. to raise the platform.
7. Wipe off the residue of silicone grease from the piston rods.
8. Close the **Platform diagnostic** window - the platform will rest slowly on the actuators.

INFO

- Manufacturer tested silicon grease specifications: working conditions (°C): -40 do +200, density (g/cm³): 1,02, NLGI class: 2, worked penetration: 220-270, dielectric constant (100 Hz): 2,9, breakdown voltage (kV/mm): 30, pH of water lift: 4 to 6.
- Alternatively to silicone grease spray - good quality red bearing grease may be applied.

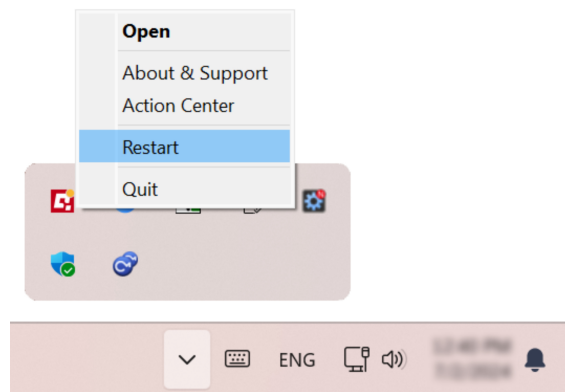
6. TROUBLESHOOTING

WARNING

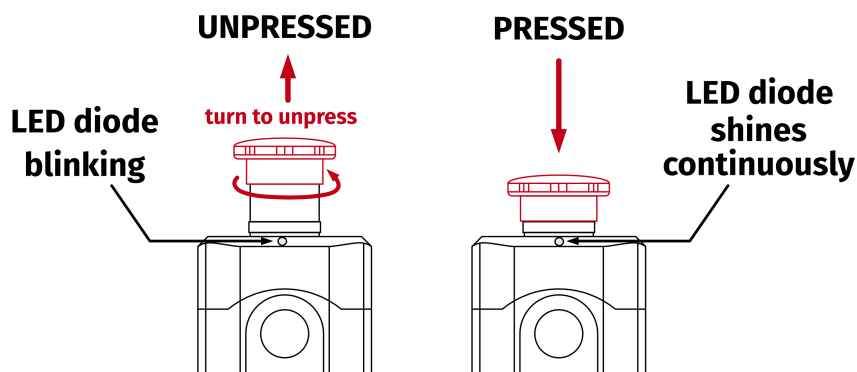
DO NOT attempt to do any repairs by yourself. It could be dangerous and will result in loss of warranty! Repairs should be consulted with technical support and then performed by a qualified technician.

Before contacting technical support, try this:

- Check Action Center in QubicManager.
- Check all cable connections in the device.
- Restart QubicManager application by right-click on the application icon in the system tray and selecting **Restart**:



- Check Motion Lock Switch position (should be unpresed to activate the motion) :



- Try different USB ports (also try bypassing the USB hub by a direct PC connection).
- If a problem occurred abruptly, it could be caused by a thermal protection. Turn off the QS-S25, disconnect it from power outlets and wait at least 15 minutes to let it cool down. Try turning it on again later.
- In case of any unclear electrical issues, strange behavior or abnormal work conditions, contact technical support.

6.1. QUBICMANAGER DEVICE STATUSES

-  **Status: Not connected** - no device is detected. If status appears while devices are connected - indicates that firmware update failed (requires firmware recovery) or M10 controller or USB connection is at fault. Check USB connection for loose connections, try different USB ports, bypass any USB hubs, swap USB cable for a different one.
-  **Status: Offline/Waiting for nodes (9)** - Power Cabinets are disconnected or not powered. If this status appears during operation - check power cords, power switches, CFG DIP switches configuration and M-BUS connection cables.
-  **Status: Running** - the device is in simulation/receives input signal.
-  **Status: Paused** - the device is paused (Pause button at the bottom of the QubicManager window).
-  **Status: EMCY/Motion-Lock (5)** - Motion Lock system has been triggered. Unpress the Motion lock button, check the Motion Lock button cable/connection. In a setup with no Motion Lock button - check the Motion Lock jumper.
-  **Status: Press and release Motion-Lock (9)** - the device is waiting for a cold start procedure (more details on page 27).
-  **Status: Pending Ref-Run (9)** - the device is performing calibration/reference run. **DO NOT** change the payload.
-  **Status: Parking/Centering** - the device is parking (the game/simulation was paused or no telemetry input is available).
-  **Status: Parked/Centered (5)** - the device achieved parking position and is in stand-by mode. It is powered, connected and ready to be operational.
-  **Status: Connected with issues** - there is an issue with the connection or power - check the working status in Tools and diagnostic → Devices.

INFO

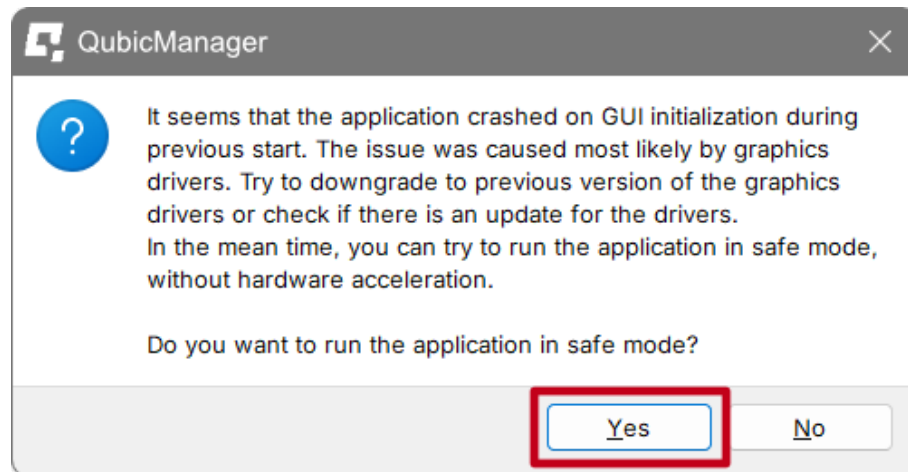
- **ALL** diagnostics and cable connection inspections **MUST** be performed with the device powered **OFF**.
- If any of error statuses persist after performing the troubleshooting steps - please contact technical support.

6.2. COMMON PROBLEMS WITH SOLUTIONS

- **Problem:** QubicManager software crashes on launch with an OpenGL error.

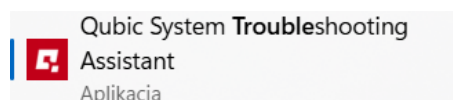
Solution long-term #1: This issue is caused by graphics drivers. Try to downgrade to a previous version of graphics drivers or check for updates.

Solution short-term: To open the app, click **OK** on all the operating system errors. Restart the QubicManager software and you will be presented with a window:

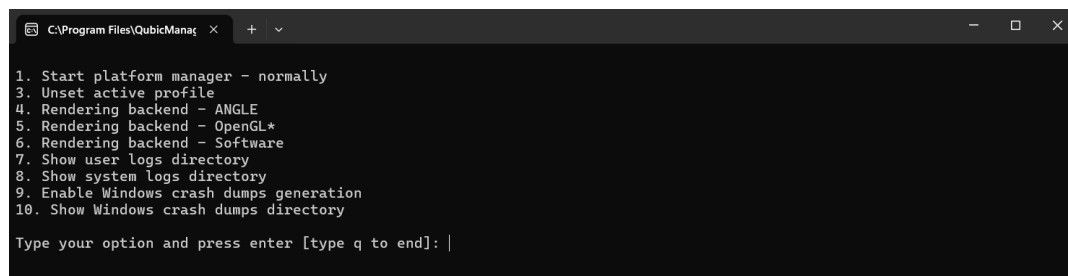


Click "YES" if you want run the application in Safe Mode (it will run a little slower).

Solution long-term #2: In order to overwrite the OpenGL rendering backend permanently, type in **troubleshooting** in Windows search bar. Select **Qubic System Troubleshooting Assistant**.



In the prompt window, type **6** on your keyboard and click **Enter**. Restart the QubicManager application.



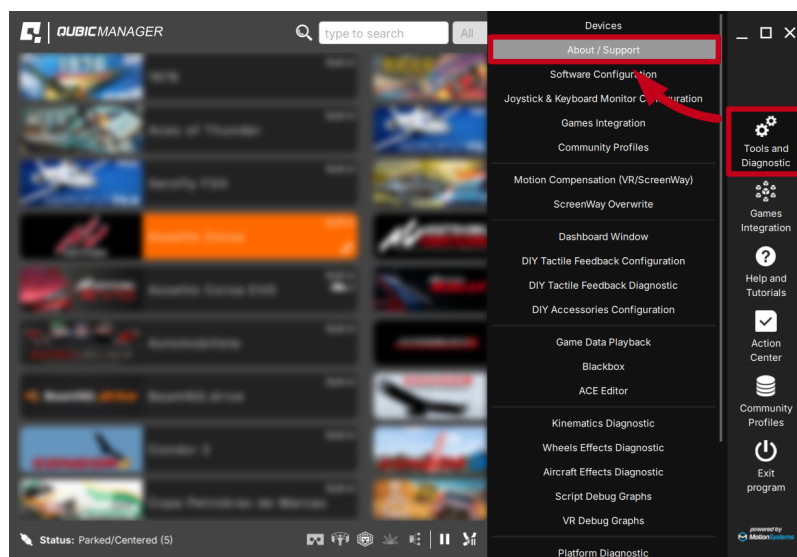
6.3. CREATING A SNAPSHOT

A snapshot is the easiest and fastest way to diagnose a problem. If you send in the zip file generated in the snapshot menu along with a description of the problem, technical support receives all the necessary information about the product and its configuration. It can be then analyzed to provide the best solution.

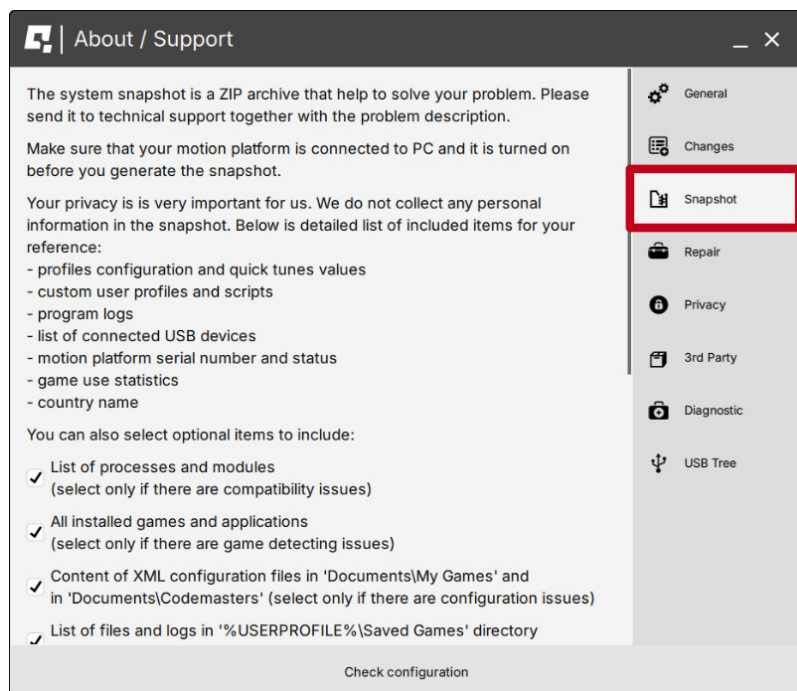
INFO

The QS-S25 and all interconnected Power Cabinets **MUST BE** be powered up when creating the snapshot.

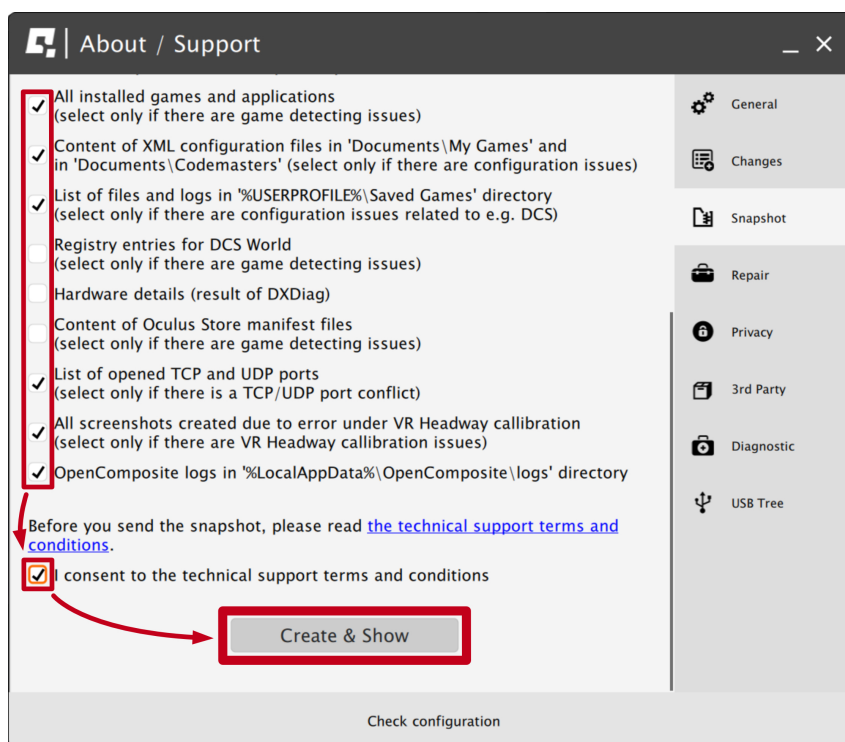
1. Open the main window of the QubicManager application.
2. Go to **Tools and Diagnostic** → **About / Support**.



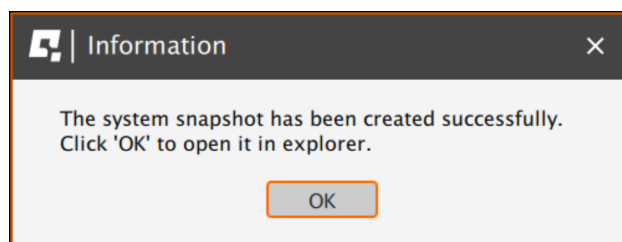
3. Open the **Snapshot** window:



4. Select data that will be included in the snapshot.
5. Scroll down, consent to the technical support terms and conditions and select **Create & Show**:

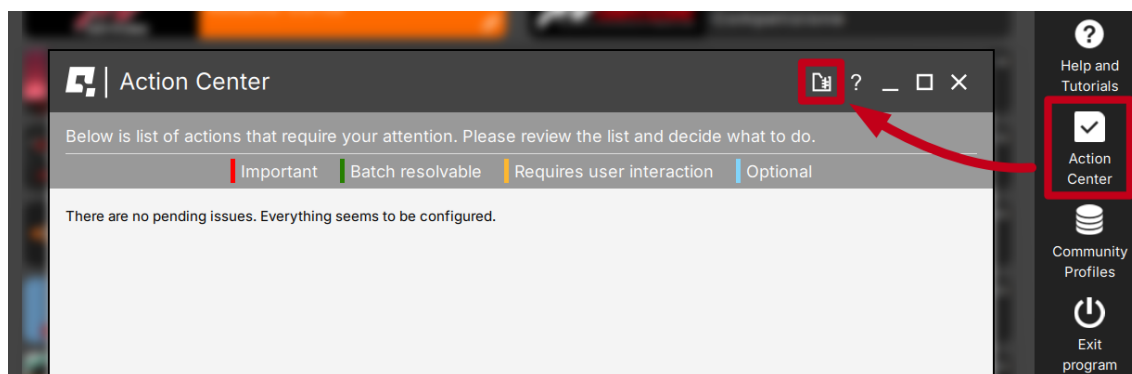


6. The snapshot has been created, click the **OK** button - the folder with the snapshot ZIP file will open.



7. Attach the snapshot ZIP file to your support request.

Alternatively, click Snapshot icon in the top-right corner of the Action Center:



6.4. DISCORD CHANNEL

We strongly recommend joining our discord channel, where our growing community is sharing amazing tips and ideas of how to set up, use and tune the Qubic System products. You can also send questions for our staff or get answers directly from the community.

Join our discord channel by following the invitation link:

QubicSystem.com/Discord



7. ADVANCED APPLICATIONS

INFO

Examples shown in this section describe optional application of external safety and power cut-off devices. If you wish to expand the functionality of your motion system, read the whole section to have a good understanding of how to apply and what functionality to expect. Apply at your own discretion.

WARNING

Motion Lock input is not a SIL/PL (safety integrity level/performance level) rated and **DOES NOT** guarantee safety. If you wish to achieve specific SIL/PL ranking, consider introducing a power cut-off device that is controlled by an external safety relay and cuts off the power to all QS-SB2. Example application of the power cut-off contactor can be found in section 7.3.2 and 7.3.3.

INFO

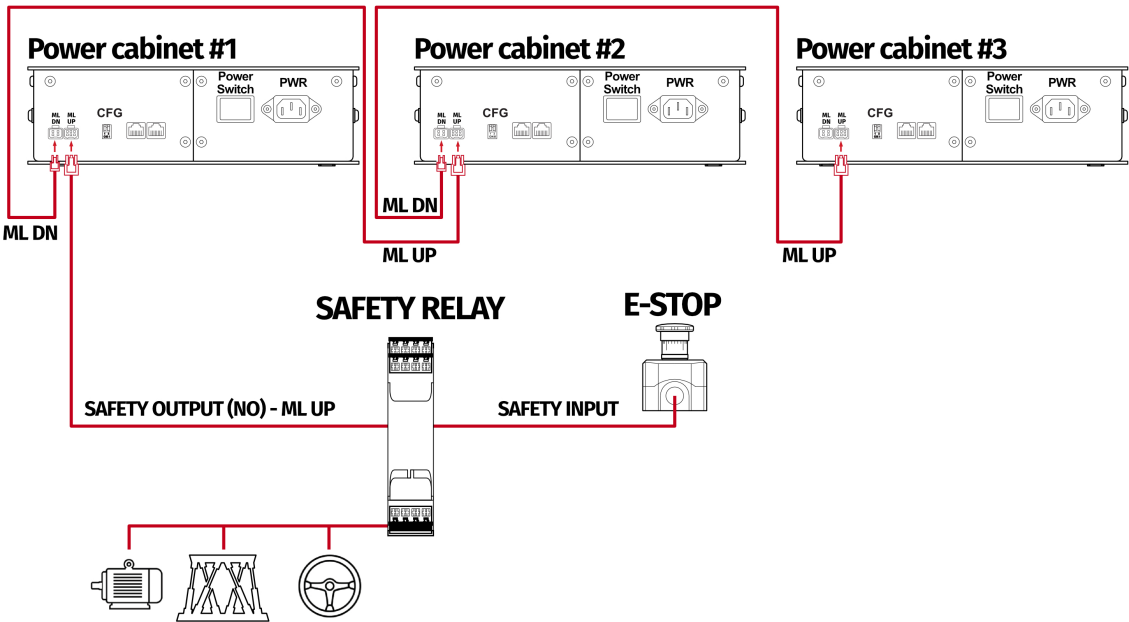
When applying safety relay to the Motion Lock :

- Use input cables according to your safety relay manual.
- Use output cables according to your safety relay manual and cross section no less than 0,75 mm²
- Implementing an additional safety relay requires deactivating Motion Lock cycle procedure at the power up. In order to do that, go to "Tools and diagnostics" → "Devices" → click "Quick codes" next to a "HVFMC200" item → enter code "7c2f47a2" → click "Execute" → wait for the operation to finish → repeat for every HVFMC200 with an unique Serial Number (every second item).

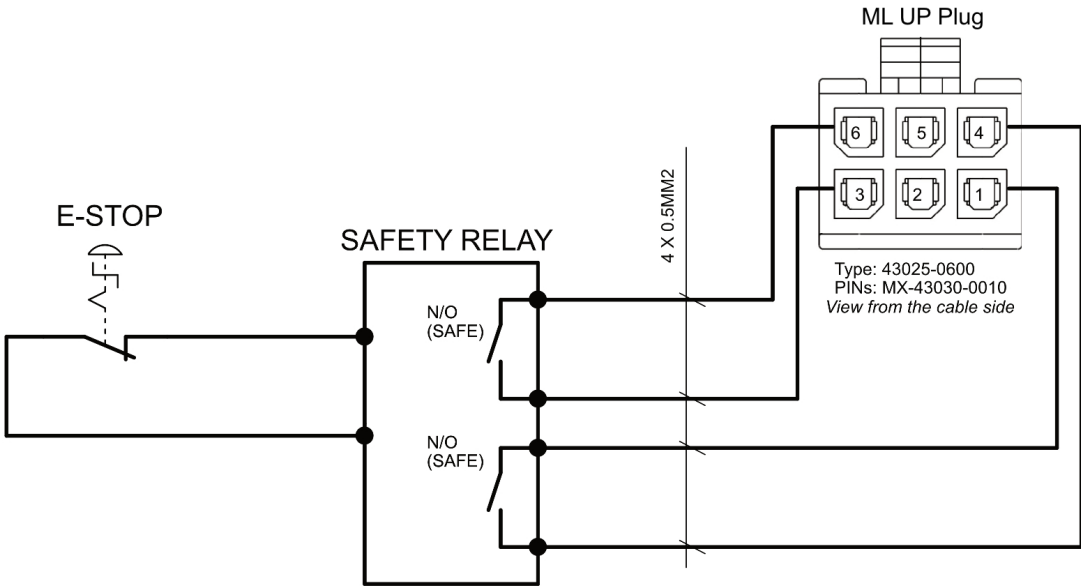
7.1. ADDING ADDITIONAL DEVICES TO THE MOTION LOCK CIRCUIT

If there is necessity to stop other devices, apart from the QS-S25, ML (Motion Lock) and additional user devices can be controlled by safety relay outputs. In the example application, the E-STOP button is connected to the external safety relay. When the E-STOP is triggered, the safety relay will activate the Motion Lock function, which will stop motion of the platform and additional devices.

Example application of single-channel safety relay that controls ML and additional devices:



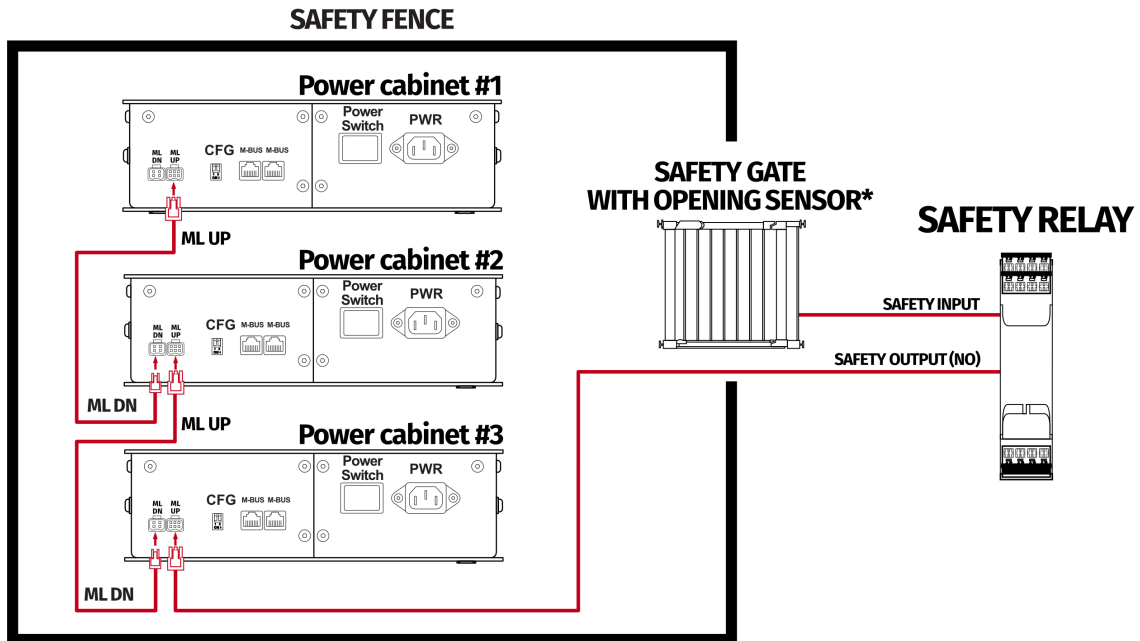
Example wiring diagram of application of one-channel safety relay with E-STOP button:



7.2. IMPLEMENTING THE WORKING ZONE PROTECTION

To protect bystanders from accidental hit from moving parts of the platform, safety gate with opening sensor* can be connected to safety relay input for activating ML function. When the gate opens, the safety relay output activates the ML (Motion Lock) function and stops the motion of the platform.

Example application of safety gate opening sensor:



*Check your safety relay manual for list of applicable sensors

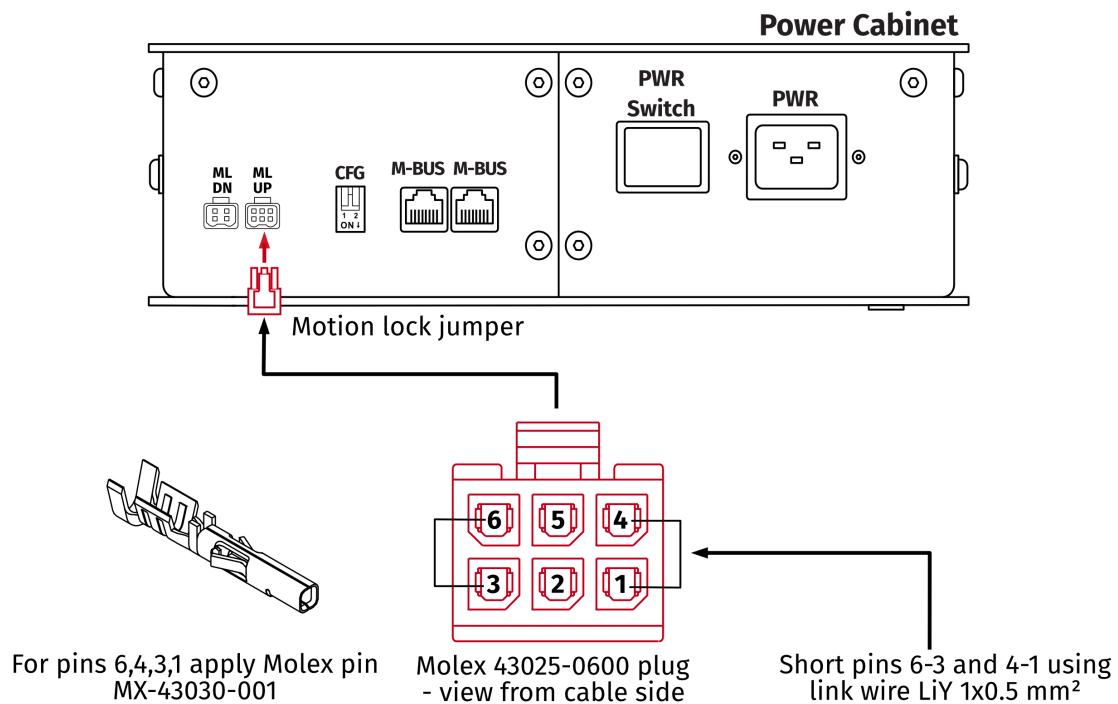
7.3. INCREASING SAFETY LEVEL

WARNING

Modifications of the safety system, involving application of the power line contactors, shall be performed only by somebody competent. A competent person is a qualified and knowledgeable person, who because of their training and experience has the knowledge required to apply those changes. It is user responsibility to commission modification of the safety system to a competent person, experienced with industrial wiring practices, which will be required to undertake the installation. Commissioning shall be undertaken by a trained electrical technician experienced in safety installations.

7.3.1 ASSEMBLING MOTION LOCK JUMPER

To apply solutions which require using power line contactors, Motion Lock connection cables in the QS-SB2 power cabinet needs to be replaced with jumpers. To prepare a jumper, you need to assemble recommended connector as shown below:



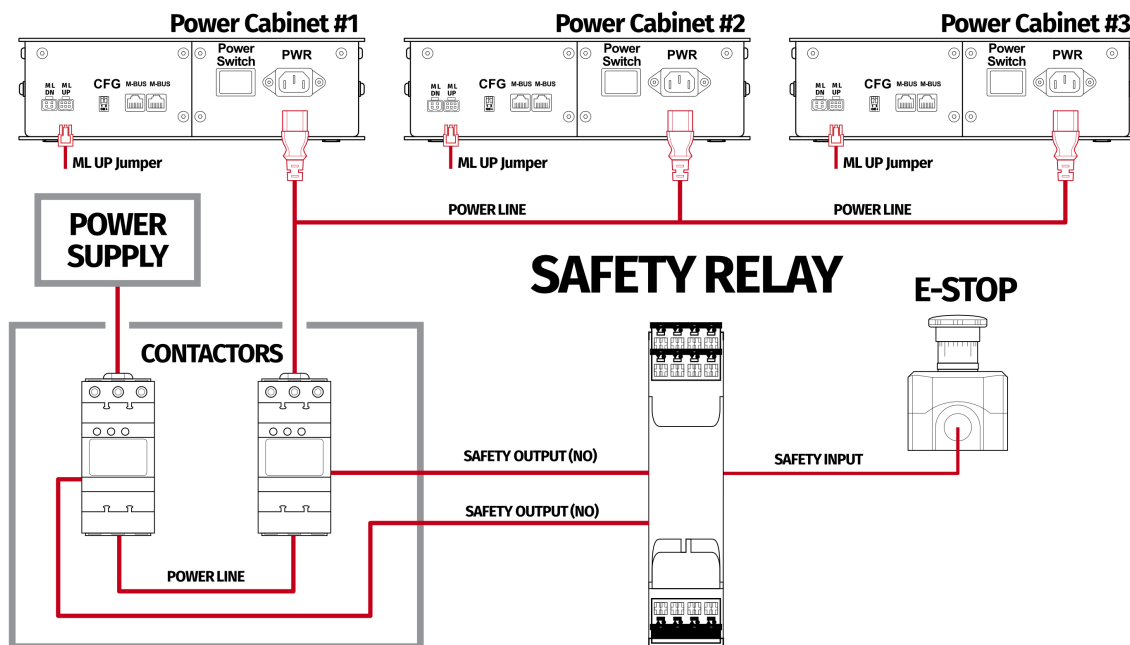
7.3.2 ADDING POWER-CUT CIRCUIT WITH E-STOP BUTTON

If specific SIL/PL rated level needs to be achieved, it might be necessary to install a power cut-off device. Two contactors connected in series and controlled by safety relay can be used to provide or cut-off power line to QS-SB2 power cabinets. When safety function on safety relay input is triggered, a safety relay will switch off the contactors, thus cutting-off the power to the platform. To apply this solution, ML UP connection cables needs to be replaced with prepared jumper as described in section 7.3.1.

INFO

To achieve required safety performance level it is necessary to perform safety risk assessment at user site.

Example application of power line contactors and E-STOP button:



INFO

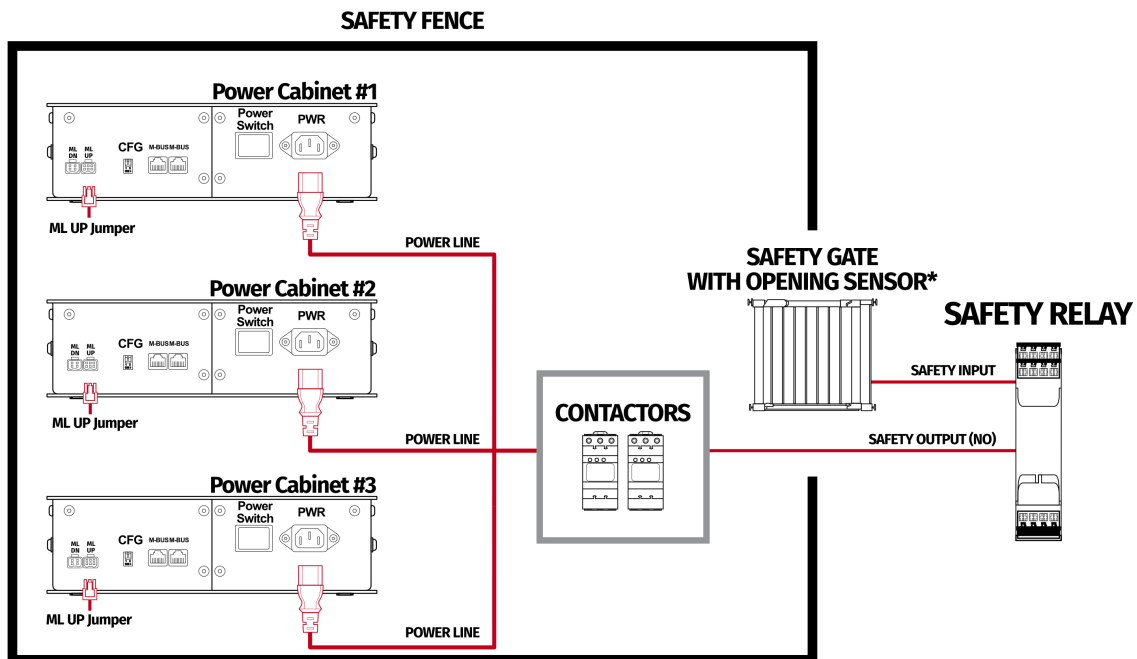
In order to increase SIL/PL level it's a good practice to apply well-known contactors of two different manufacturers in order to decrease probability of failure resulting from serial production.

PE (protective grounding/earthing) connection is omitted for better transparency

7.3.3 IMPLEMENTING THE WORKING ZONE PROTECTION WITH POWER-CUT CIRCUIT

In example application contactors connected in series provide power line to the QS-SB2 power cabinets. When safety function on safety relay input is triggered, a safety relay will switch off the power contactors, thus cutting-off the power to the platform.

Example application of power line contactors with safety gate opening sensor:



*Check your safety relay manual for list of applicable opening sensors

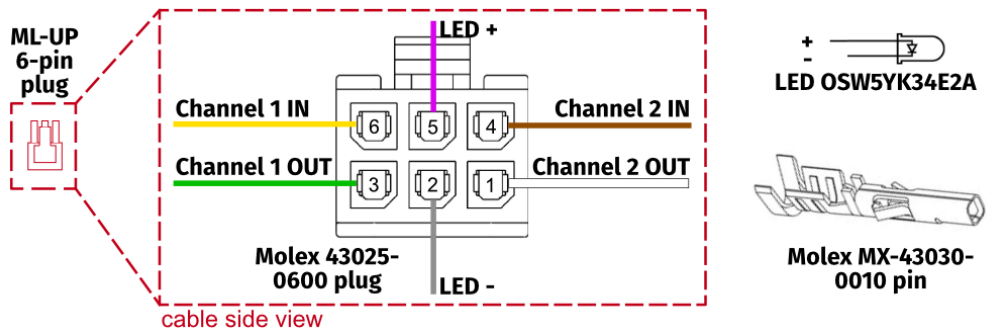
INFO

When applying safety relay and contactors to the power line remember to:

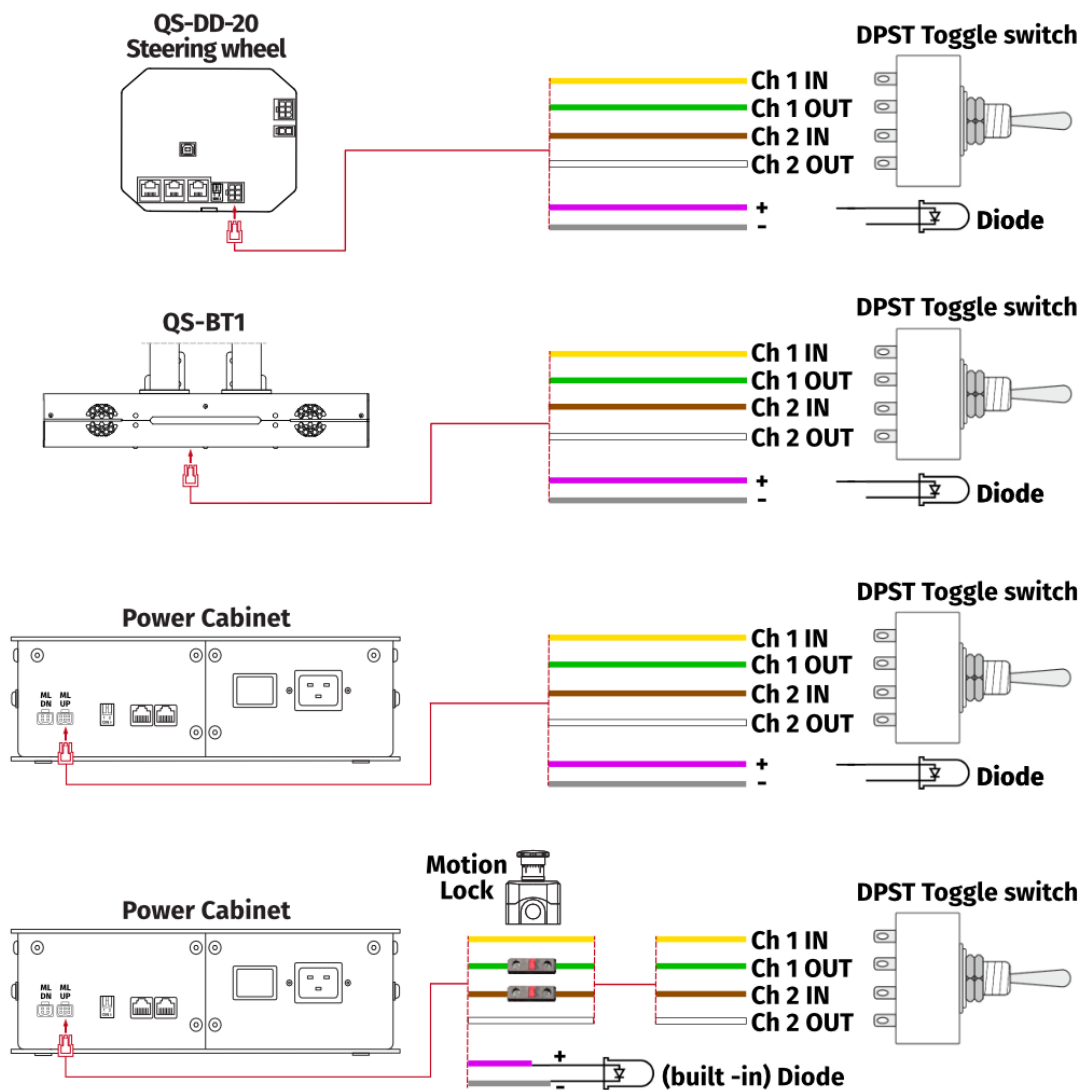
- Use control cables according to your safety relay manual
- Power line cables shall be chosen accordingly to power requirements of motion system. See power requirements of specific motion system.

7.4. IMPLEMENTING NON-FACTORY MOTION LOCK SWITCH

For non-factory Motion Lock plug setup, you must assemble plug and connectors as shown below:



If you want to assemble custom Motion Lock switch or a button box setup (only Double Pole Single Throw switch compatible) using QubicSystem Motion Lock interlink cable, follow the diagrams below:



8. CONFORMITY INFORMATION



The QS-S25 meets the requirements of CE marking and relevant regulations of the EMC Directive 2014/30/EU.



The QS-S25 meets the requirements of FCC 47 CFR Part 15, Class B digital device.

9. ENVIRONMENTAL IMPACT AND DISPOSAL



DO NOT dispose of this product with standard household waste but drop it off at a collection point for the disposal of Waste Electrical and Electronic Equipment for recycling.

QS-S25 is shipped with wooden cases/cardboard boxes. If the packaging is no longer needed, it can be fully recycled.

QS-S25 is an advanced device and if stored or disposed of incorrectly it could harm the environment or/and other people. When the device is no longer in use it should be disposed in environmental safe manner in compliance with applicable local work and environmental protection regulations. If no other agreement of disposal was concluded, the device shall be dismantled for disposal as follows:

- Metal parts should be scrapped.
- Electric and electronic components should be disposed of in the specialized disposal center.
- Other materials should be sorted and disposed of accordingly to the local law and regulations.

10. LIABILITY DISCLAIMER

If permitted under applicable law, Motion Systems and its subsidiaries disclaim all liability for any damages caused by one or more of the following:

- The product has been modified, opened, or altered.
- Failure to comply with assembly instructions.
- Inappropriate or abusive use, negligence, an accident (an impact - for example).
- Normal wear.

INFO

If permitted under applicable law, Motion Systems and its subsidiaries disclaim all liability for any damages unrelated to the material or manufacturing defect with respect to the product (including, but not limited to, any damages caused directly or indirectly by any software, or by combining the QS-S25 with any unsuitable element or other elements not supplied or not approved by Motion Systems for this product).

11. WARRANTY

Motion Systems warrants to the consumer that this product shall be free from defects in materials and workmanship, for a warranty period which corresponds to the time limit to bring an action for concerning this product.

For commercial customers there is a one (1) year limited warranty, starting on the original date of purchase.

For non-commercial customers there are two (2) years warranty, starting on the original date of purchase.

Within the warranty period, the product will be repaired or replaced free of charge, excluding shipping charges.

This warranty shall not apply:

- If the product has been modified, opened, altered, or has suffered damage as a result of inappropriate or abusive use, negligence, an accident, normal wear, or any other cause unrelated to a material or manufacturing defect (including, but not limited to, combining the QS-S25 with any unsuitable element, including in particular power supplies, chargers, or any other elements not supplied or approved by Motion Systems for this product).
- In the event of failure to comply with the instructions provided by technical support.
- To software (said software being subject to a specific warranty).
- To accessories (cables, cases, for example).
- If the product was sold at public auction or if the product has suffered damage as a result of force majeure: flood, fire, earthquake, storm.

This warranty is non-transferable. No new warranty period commences if the product is repaired or replaced. Your statutory rights towards the seller are not affected or restricted by this warranty. Motion Systems, and their partners are not liable for any indirect, incidental, or punitive damages from use of this product. In case of malfunction during the warranty period immediately contact technical support.

12. COPYRIGHT

Qubic System is a trademark of Motion Systems. All rights reserved.

All the contents in this user manual are the intellectual property of Motion Systems. No part of this manual, including the products and software described in it, shall be modified or translated into any language without the prior written permission of Motion Systems. Specifications and information in this manual are subject to change at any time without obligation to notify any person of such revision or changes. Illustrations are not binding.

INFO

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13. MANUFACTURER INFORMATION

Qubic System is a brand
that belongs to **Motion Systems**

HQ address:
Miedziana 7 Street
55-003 Nadolice Wielkie
Poland



Motion Systems homepage

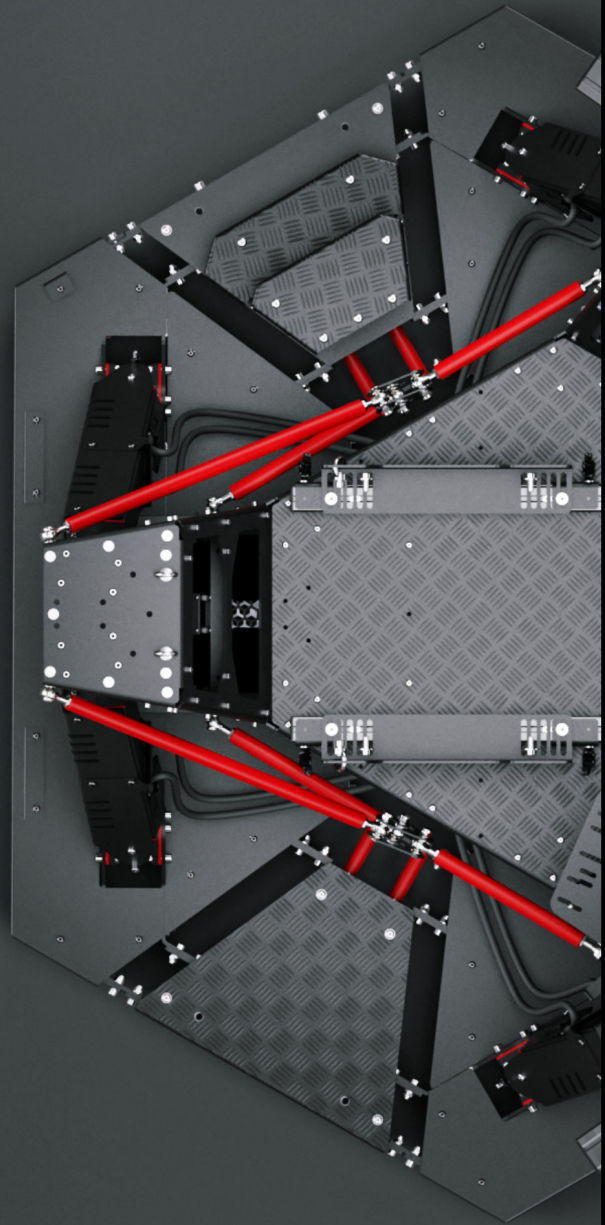


QubicSystem homepage

INFO

In support queries please contact your reseller.

 **QUBICSYSTEM**



QS 525