



USER MANUAL
Haptic Workstation
version 1.0



Force Dimension
Switzerland

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Table of Contents

1. Parts List	4
1.1 Package I	4
1.2 Package II	10
2. Assembly Instructions	11
2.1 Mounting the Console Frame	11
2.2 Mounting the Haptic Device Arms	12
2.3 Mounting the Haptic Device Masts	13
2.4 Mounting the Protection Caps	14
2.5 Assembling the Monitor Stands	14
2.6 Mounting the Monitor Stands onto Console Frame	17
2.7 Mounting the Armrest Frame	18
2.8 Mounting the Armrest Pads	19
2.9 Mounting the Haptic Devices (sigma.7)	20
2.10 Mounting the Haptic Devices (lambda.7)	22
2.11 Wiring the Console	24
2.12 Adjusting the Monitor Stands	27

1. Parts List

Your **Haptic Workstation** has been carefully packaged in two boxes. Please review all parts and hardware before disposing of any packaging. Before beginning the assembly, separate each component and carefully study the diagrams below.

Please contact our support team (support@forcedimension.com) if any hardware is missing or if you have any questions about the assembly instructions.

1.1 Package I

Figure 1 illustrates the different parts included in **Package I**. The different tools and accessories included in the box are presented in the following pages.

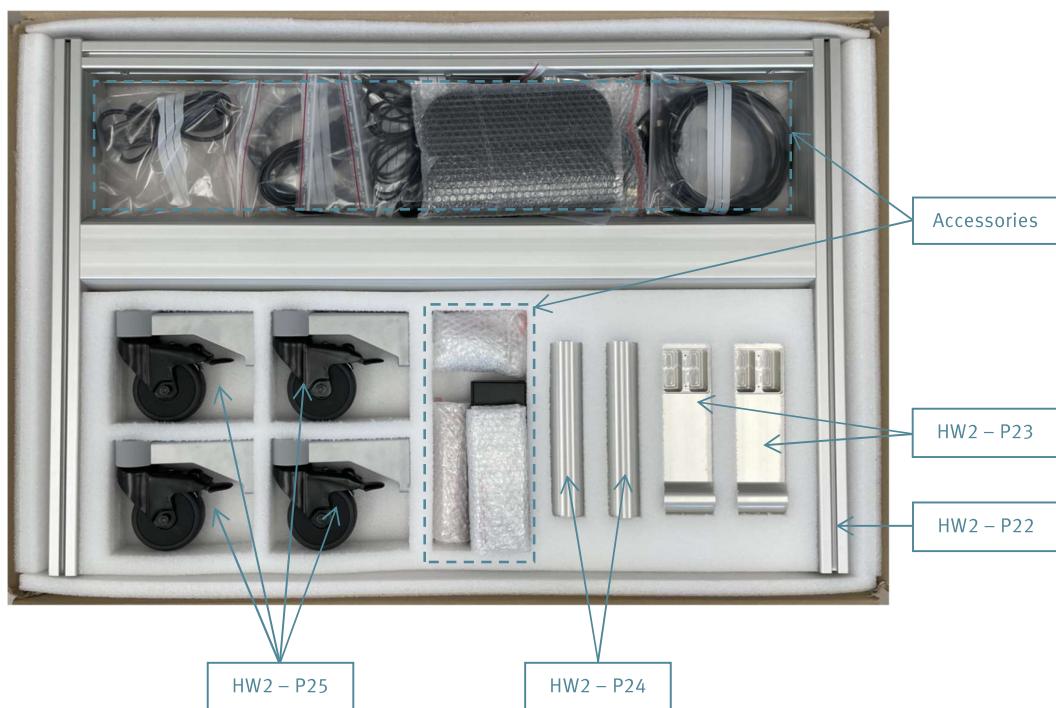


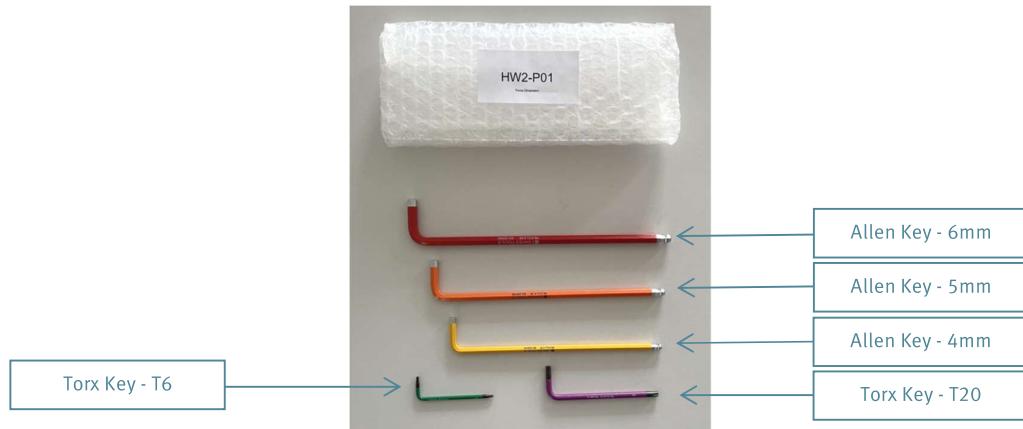
Figure 1- Inside view of Package I

Description

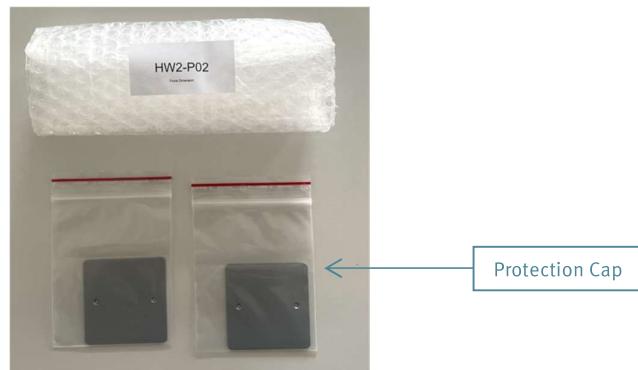
- HW2-P22: Console Frame (1x)
- HW2-P23: Device Arms (2x)
- HW2-P24: Device Masts (2x)
- HW2-P25: Caster Wheels (4x)

Package I includes the following parts:

1. HW2-P01 – Tools



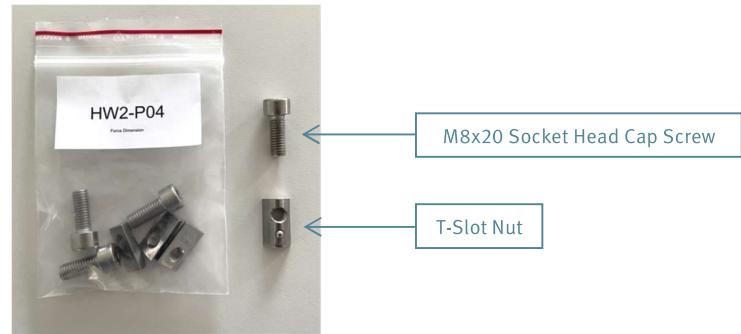
2. HW2-P02 – Protection Caps (2x)



3. HW2-P03 – M8x90 Socket Head Cap Screws (4x)



4. HW2-P04 – M8x20 Socket Head Cap Screws with T-Slot Nuts (4x)



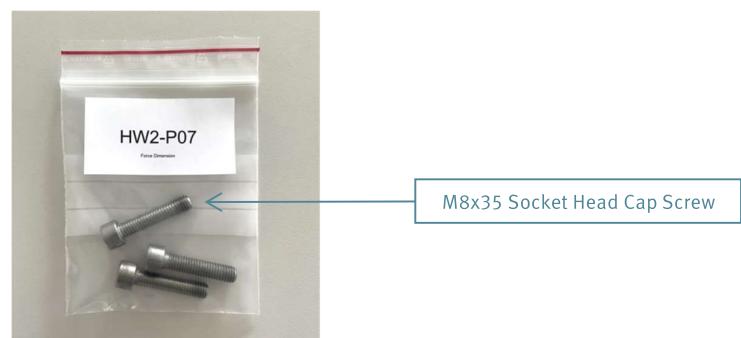
5. HW2-P05 – M6x50 Socket Head Cap Screws (12x)



6. HW2-P06 – M2x4 Torx Screws (4x)



7. HW2-P07 – M8x35 Socket Head Cap Screws (3x)



8. HW2-P08 – M8x16 Socket Head Cap Screws (8x)



9. HW2-P09, HW2-P10, HW2-P11 – HDMI Cables for Monitors (3.0 m)



10. HW2-P12, HW2-P13, HW2-P14 – Extension Cords for Monitors (3.0 m)



11. HW2-P15 – Extension Cord for Desktop Computer (1.8 m) (1x)



12. HW2-P16 – Extension Cords for Haptic Device (0.5m) (2x)



13. HW2-P17 – USB cables for Haptic Devices (3.0m) (2x)



14. HW2-P18 – Armrest Pads (2x)



15. HW2-P19 – Cable Straps (12x)



16. HW2-P20 – Zip Ties



17. HW2-P21 – Power Strip (2x)



1.2 Package II

Figure 2 and **Figure 3** illustrate the different parts included in **Package II**.



Figure 2- Inside view of Package II (Top Layer)



Figure 3- Inside View of Package II (Bottom Layer)

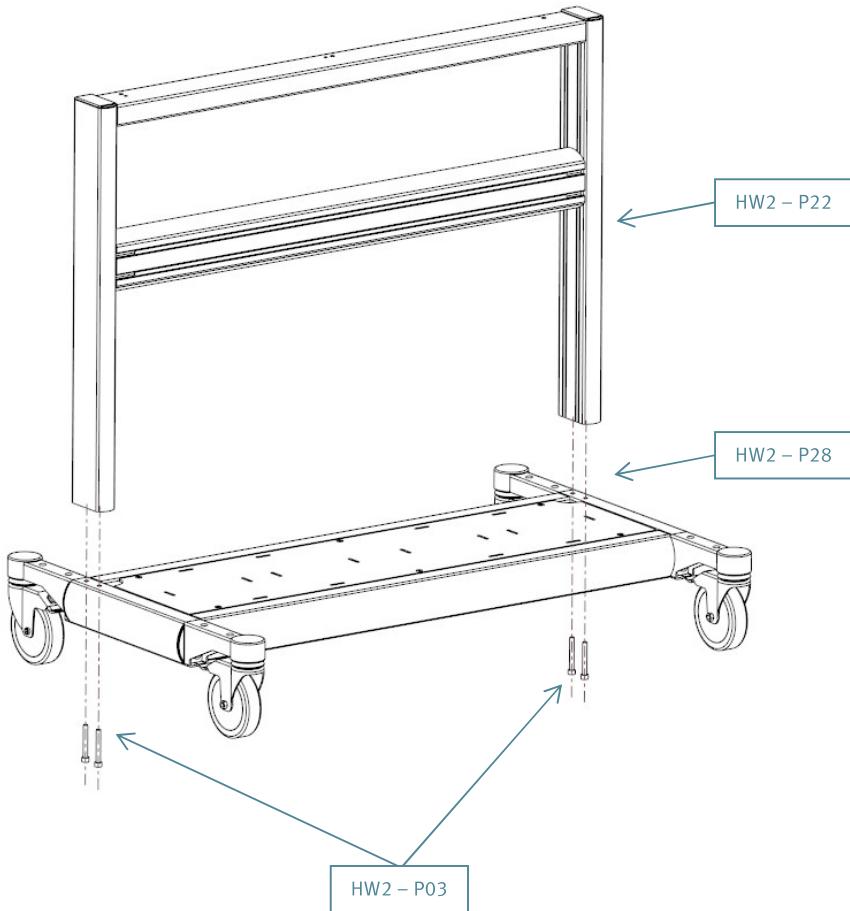
Description

- HW2-P26: Monitor Stands (3x)
- HW2-P27: Armrest Frame (1x)
- HW2-P28: Console Base (1x)

2. Assembly Instructions

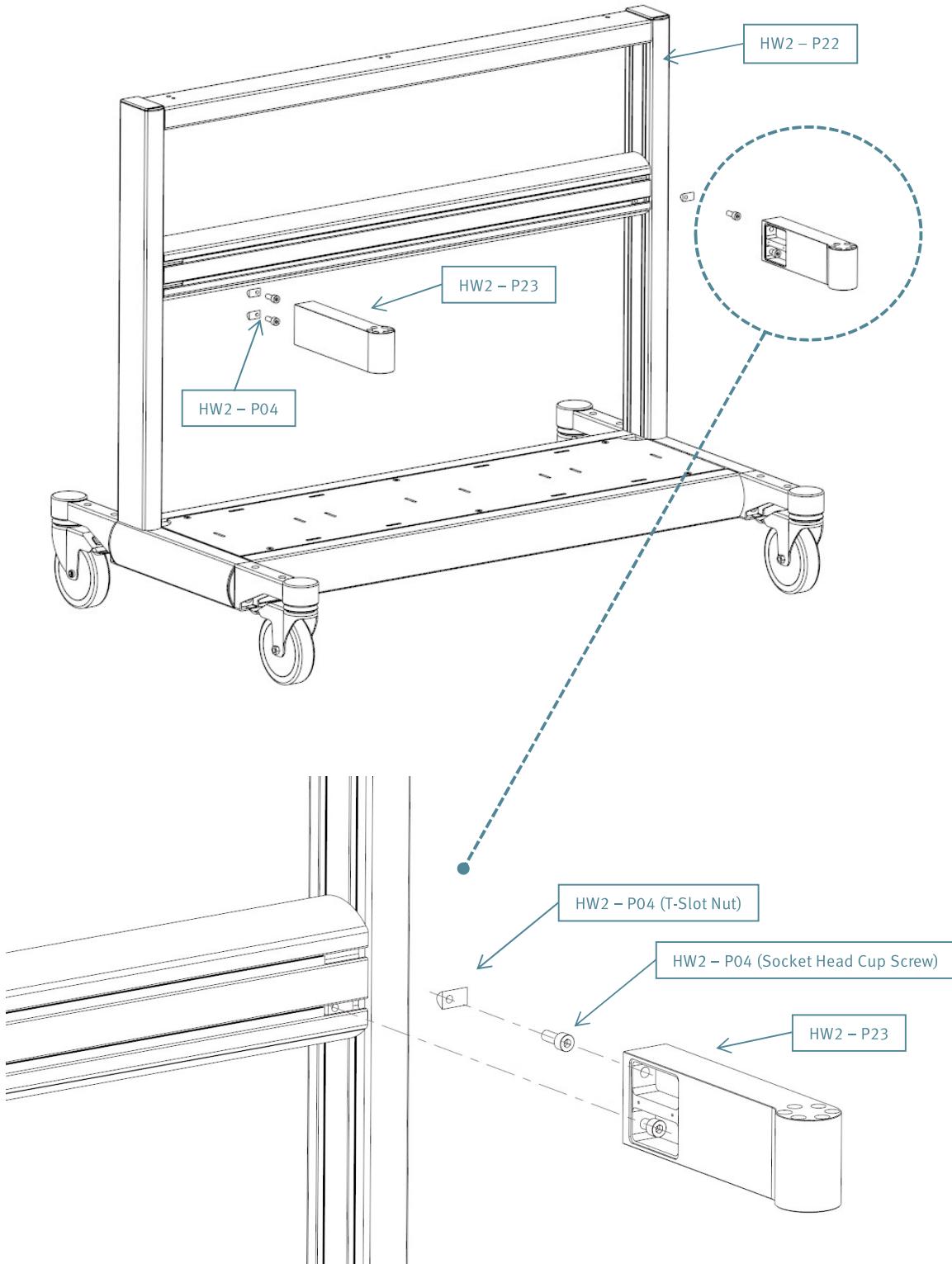
2.1 Mounting the Console Frame

Mount **Console Frame (HW2-P22)** onto **Console Base (HW2-P28)** using **M8x90 Socket Head Cap Screws (HW2-P03)**. Tighten all socket screws using the **6mm Allen Key (HM-P01)**.



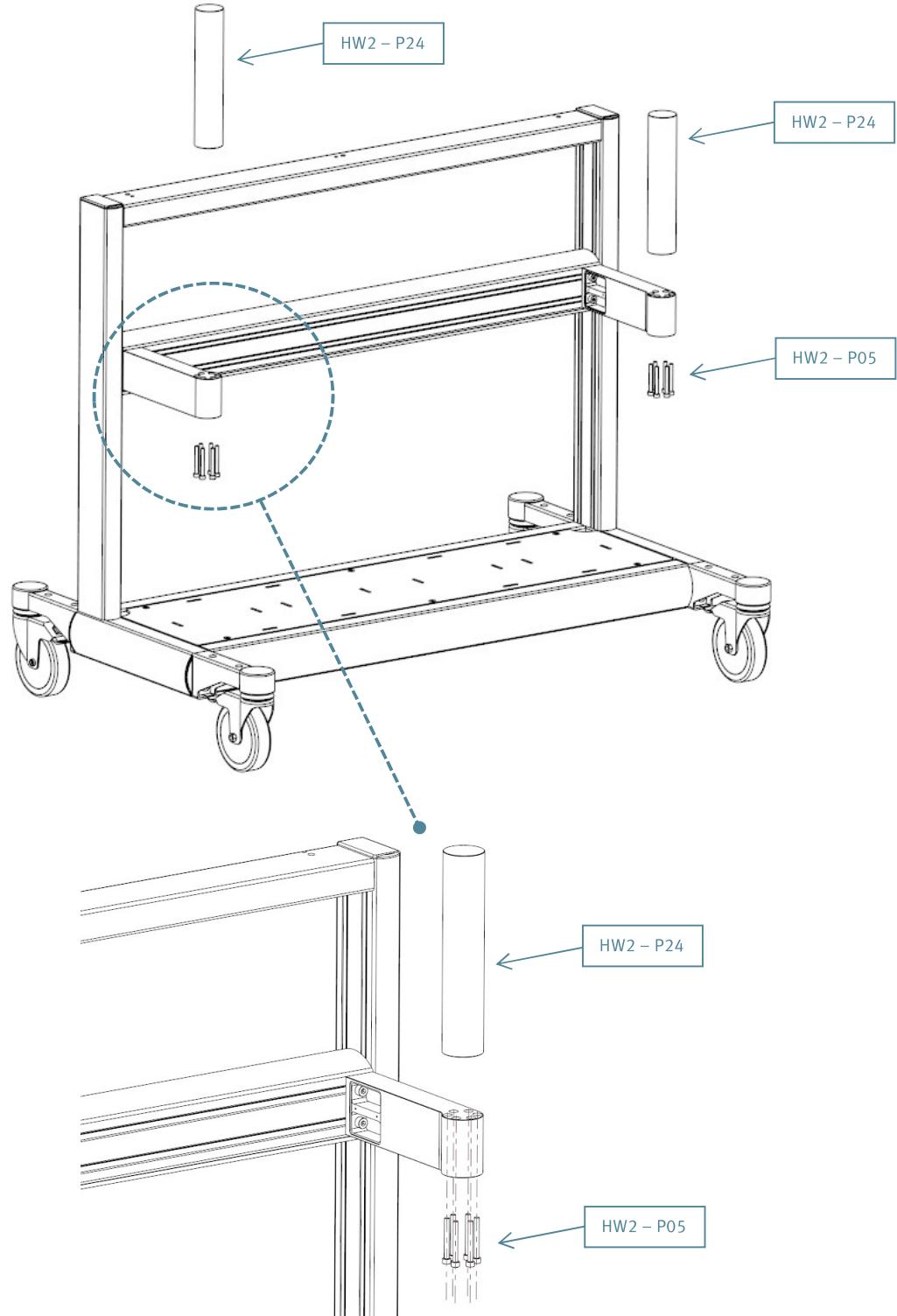
2.2 Mounting the Haptic Device Arms

On each side of the **Console Frame (HW2-P22)** mount **Device Arm (HW2-P23)** using **M8x20 Socket Head Cap Screws with T-Slot Nust (HW2-P04)**. Tighten all socket screws using the **6mm Allen Key (HM-P01)**.



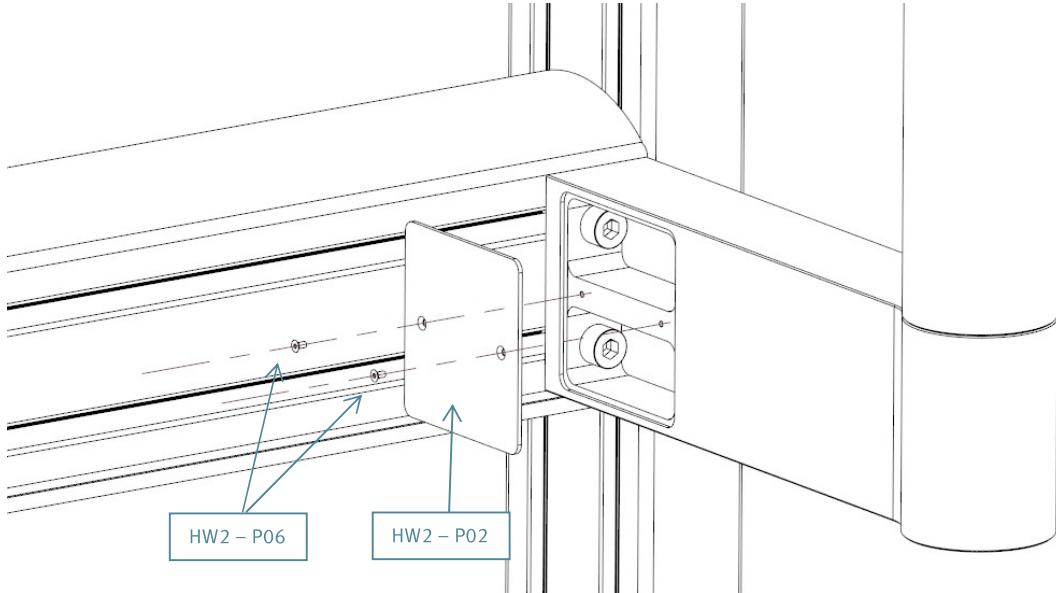
2.3 Mounting the Haptic Device Masts

On each device arm mount **Device Mast (HW2-P24)** using **M6x50 Socket Head Cap Screws (HM2-P05)**. Tighten all socket screws using the **5mm Allen Key (HM-P01)**.



2.4 Mounting the Protection Caps

On each device arm mount **Protection Cap (HW2-P02)** using **M2x4 Torx Screws**. Tighten all screws using the **T6 Torx Key (HM-P01)**.



2.5 Assembling the Monitor Stands

Three **Monitor Stands (HW2-P26)** can be mounted simultaneously on the console frame and are individually packaged in boxes located in **Package II**. We recommend that you only assemble the monitor stands which you plan to use and store the remaining units for future use.



Retrieve the following parts from the **Monitor Stand (HW2-P26)** box:



Mount the **VESA Adapter Plate** on the rear side of your screen monitor using the included **screws (4x)**. Make sure that the printed **arrow** displayed on the **VESA Adapter Plate** points **downward**.



Each **Monitor Stand (HW2-P26)** is composed of an **Upper Link**, **Lower Link**, and **Base Joint**. All parts slide into each other and are secured by small **Tightening Screws** located near the revolute joints of the **Lower Link**.



2.6 Mounting the Monitor Stands onto Console Frame

Mount each **Monitor Stand (HW2-P26)** onto the **Console Frame** using an **M8x35 Socket Head Cap Screw (HW2-P07)**. Tighten the mounting screw with the **5mm Allen Key (HM-P01)**.

Make sure to orient the **Base Joint** so that the **Alignment Pin** is correctly inserted into the corresponding **Grove** located on the **Console Frame**.

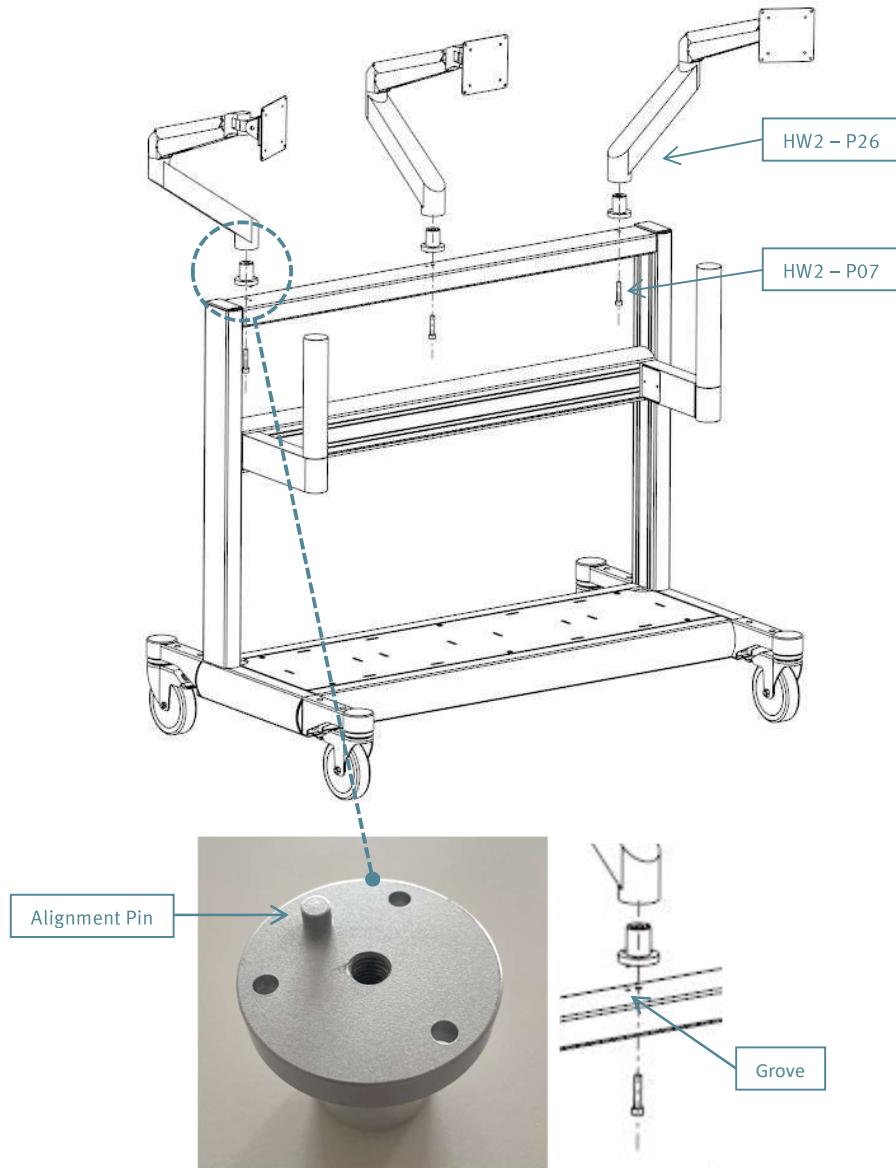
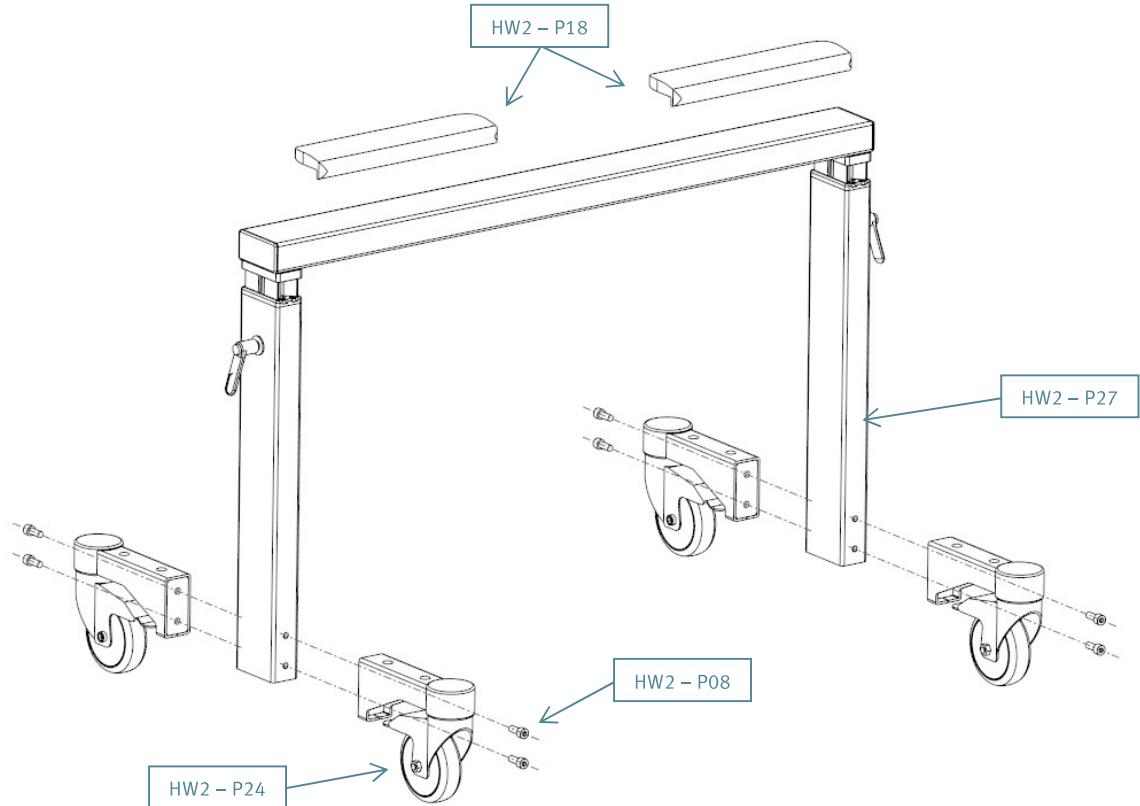


Figure 4 - Base Joint with Alignment Pin

2.7 Mounting the Armrest Frame

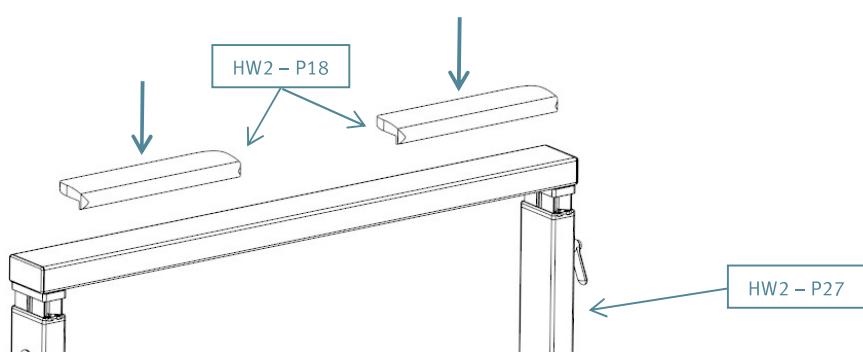
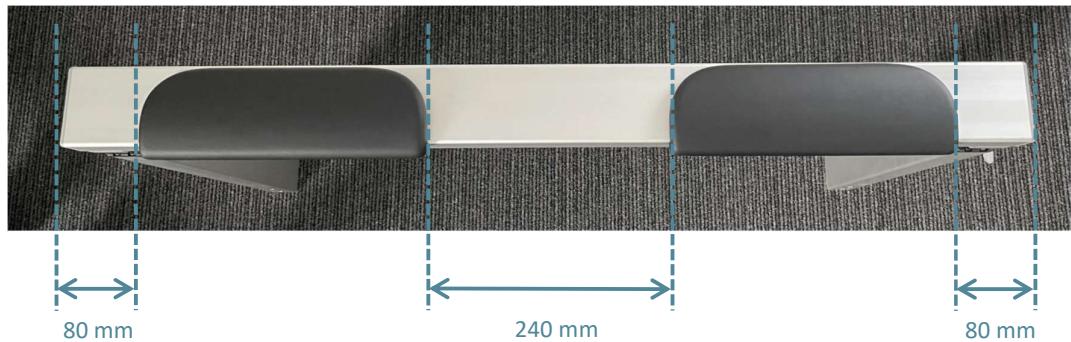
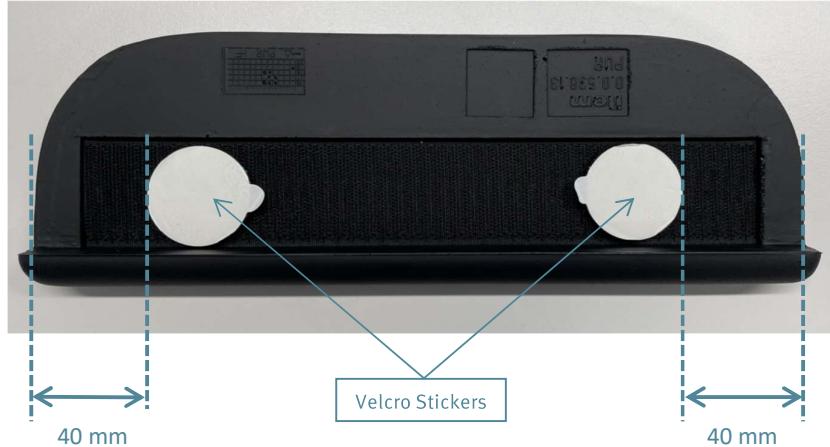
Mount all four **Caster Wheels (HW2-P24)** onto the **Armrest Frame (HW2-P27)** using **M8x16 Socket Head Cap Screws (HW2-P08)**. Tighten all socket screws using the **5mm Allen Key (HM-P01)**.



2.8 Mounting the Armrest Pads

Mount both **Armrest Pads (HW2-P18)** onto **Armrest Frame (HW2-P27)** by following these steps:

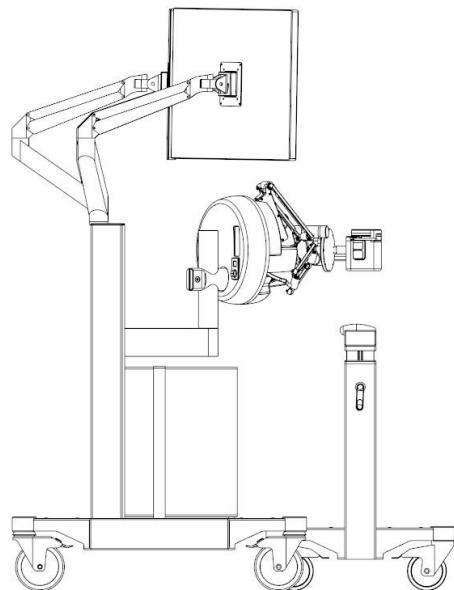
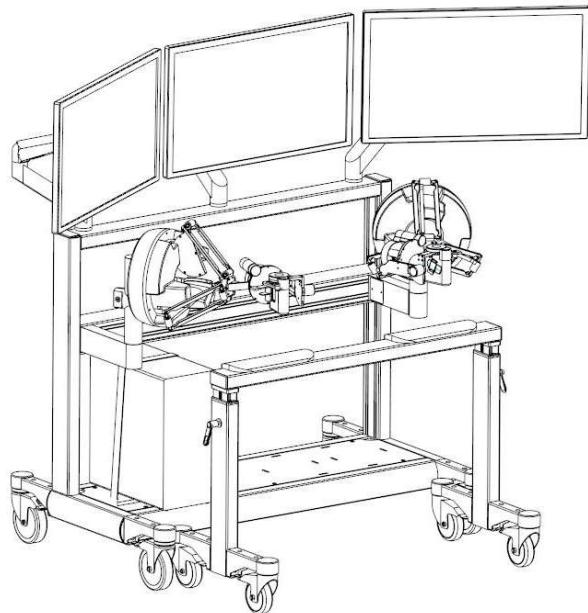
- Position **Velcro Stickers** at 40 mm from edge of **Armrest Pad**.
- Remove protection layer on **Velcro Stickers**.
- Position **Armrest Pads** onto the **Armrest Frame** at 80mm from edge.
- Apply force onto the **Armrest Pads** so that **Velcro Stickers** bond with **Armrest Frame**.



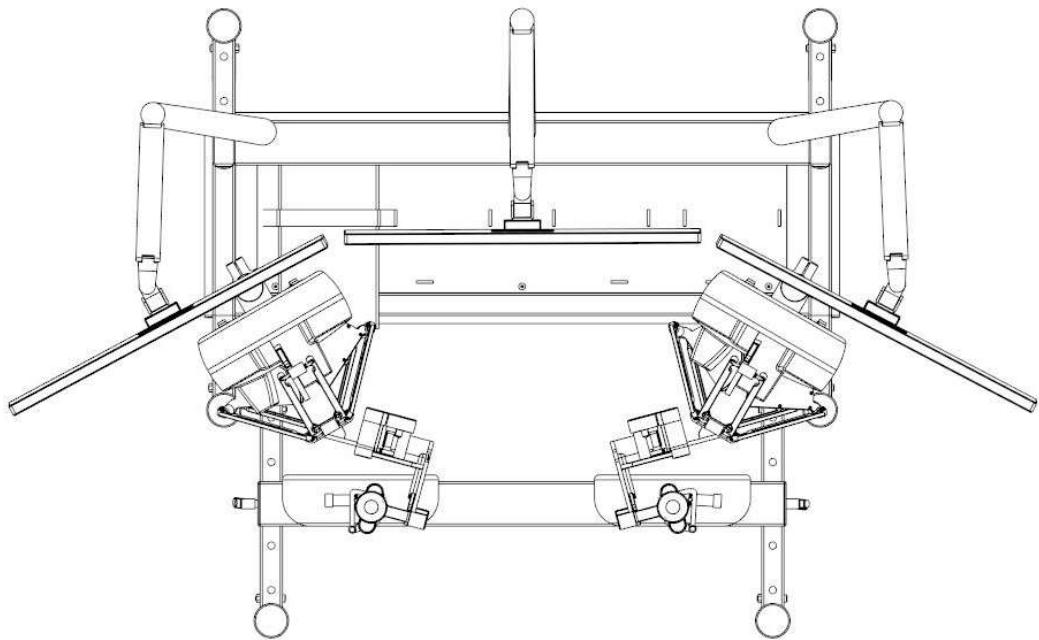
2.9 Mounting the Haptic Devices (sigma.7)

The following figures illustrate the optimal position and orientation of a pair of **sigma.7 haptic devices** mounted onto the **Console Frame**.

The height of the armrest and the haptic devices should be adjusted according to the operator.



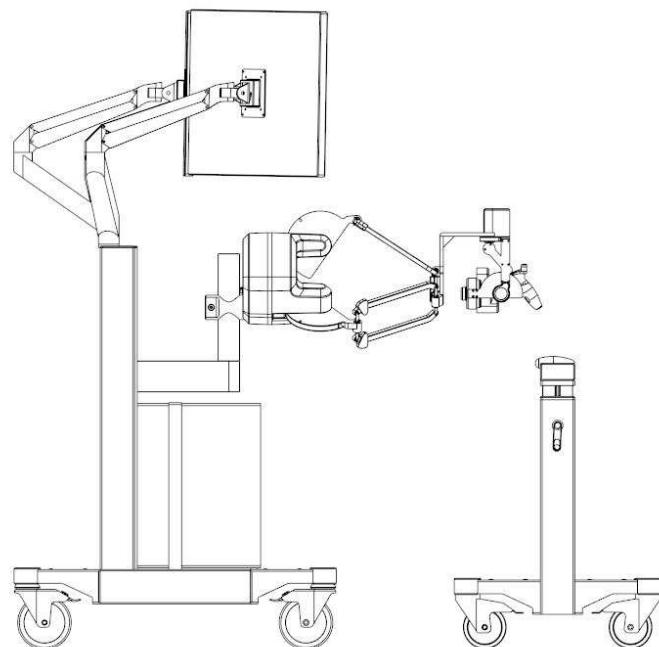
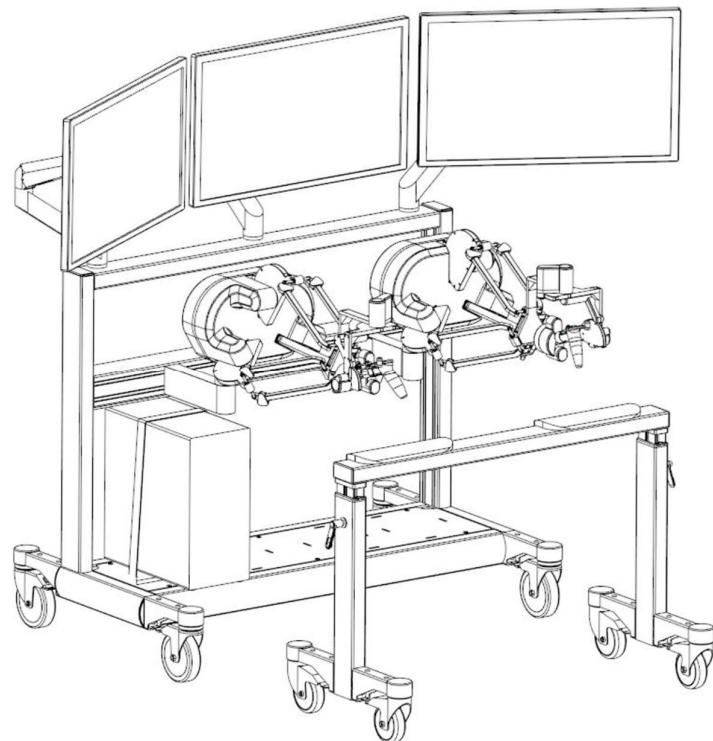
The optimal configuration is obtained by mounting the two **sigma.7 haptic devices** with an angle of approximately 30 degrees around their vertical axis.



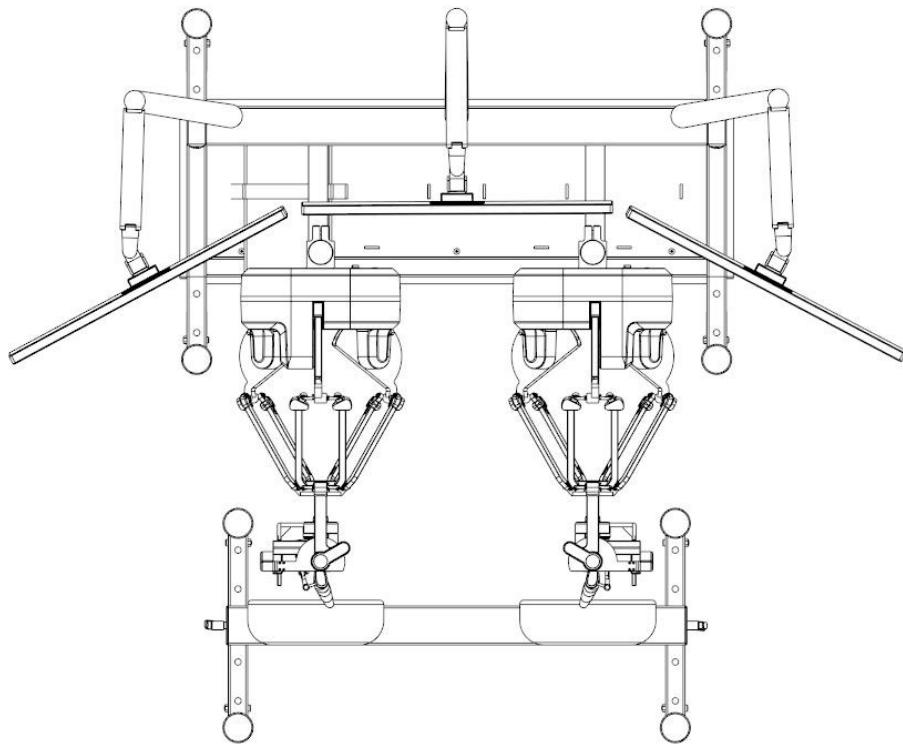
2.10 Mounting the Haptic Devices (lambda.7)

The following figures illustrate the optimal position and orientation of a pair of **lambda.7 haptic devices** mounted onto the **Console Frame**.

The height of the armrest and haptic devices should be adjusted according to the operator.



The optimal configuration is obtained by aligning the two **lambda.7 haptic devices** to be parallel to each other.



2.11 Wiring the Console

The following figures illustrate the wiring of the different electrical components that compose the **Haptic Workstation**. Your configuration may vary according to the number of monitors you plan to use.



Remove the **Console Base Cover Plate** to access the cable box in which you can place the power supplies of your haptic devices and the **Power Strip (HW2-P21)**.

Connect both haptic device power supplies to **Power Strip (HW2-P21)** using the two shorter 0.5-meter **Extension Cords (HW2-P1)**.

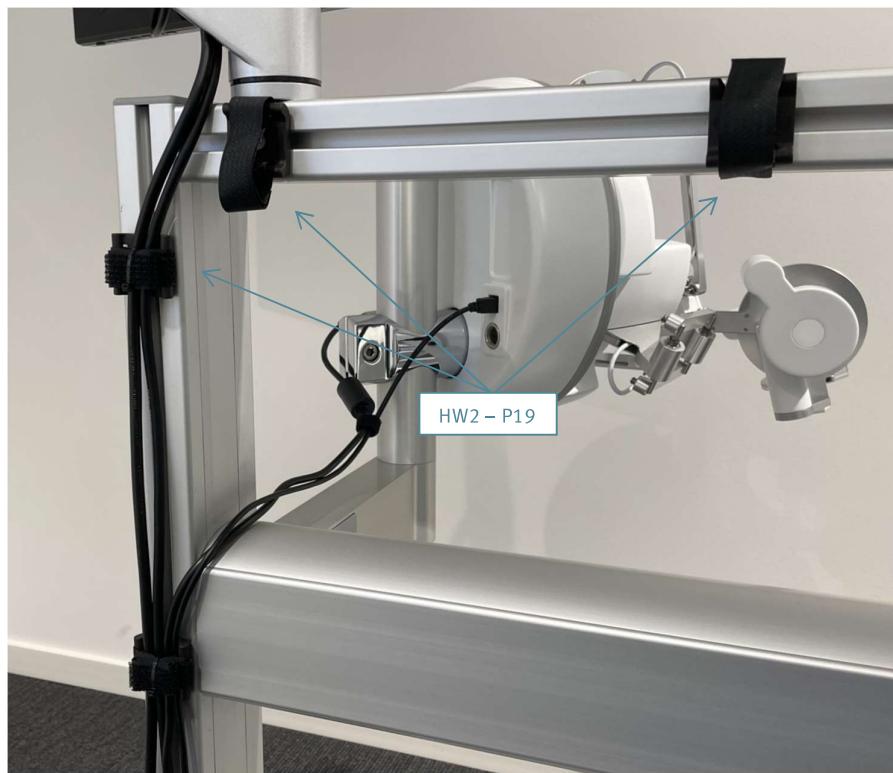
Connect all monitors to the **Power Strip (HW2-P21)** using the 3.0-meter **Extension Cords (HW2-P12, HW2-P13, HW2-P14)**.

Connect your Desktop Computer to the **Power Strip (HW2-P21)** using the 1.8-meter **Extension Cords (HW2-P15)**. The Desktop Computer can be mounted on top of the **Console Base Cover Plate**.

An extension cord (not included with the console) shall be used to connect the **Power Strip (HW2-P21)** to your power outlet. You may use one of the extension cords which came with your haptic devices.

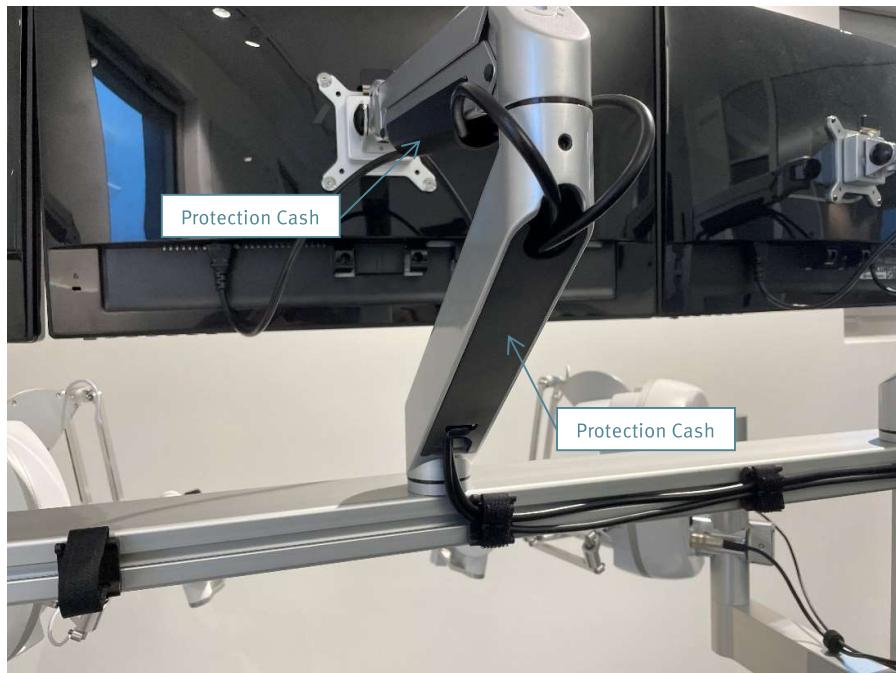


Attach the **HDMI Cables (HW2-P09, HW2-P10, HW2-P11)** of the monitors, the **USB Cables (HW2-P17)** of the haptic devices, and the different **Extension Cords** along the **Console Frame** by mounting the **Cable Straps (HW2-P19)** as illustrated in the following figures:



Release the **Protection Cashes** on each **Monitor Stand** and insert the corresponding **HMDI Cables (HW2-P09, HW2-P10, HW2-P11)** and 3.0-meter **Extension Cords (HW2-P12, HW2-P13, HW2-P14)**.

When securing the cables and closing the **Protection Cashes**, make sure to leave a little slack so that each **Monitor Stand** can freely move and be adjusted without interference.



2.12 Adjusting the Monitor Stands

The counterbalance tension of each **Monitor Stand** can be adjusted with the included **Allen key**.



The orientation of the monitor can be adjusted with the **Tightening Screw** located on the upper revolute axis of the **Monitor Stand**.



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