

*The NEW*  
**STEALTH™** MPK  
3.0



# TECH MANUAL



**A GAIT  
SO NATURAL**

**NO ONE  
NOTICES**

**YOU ARE  
WEARING IT**

**“The Passion of Excellence”**



**DAW®  
Industries**

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Orders (800) 252-2828 · Technical Support (800) 242-8669 · [www.daw-usa.com](http://www.daw-usa.com) ///

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# ATTENTION



ISO 10328-P6-**125kg**

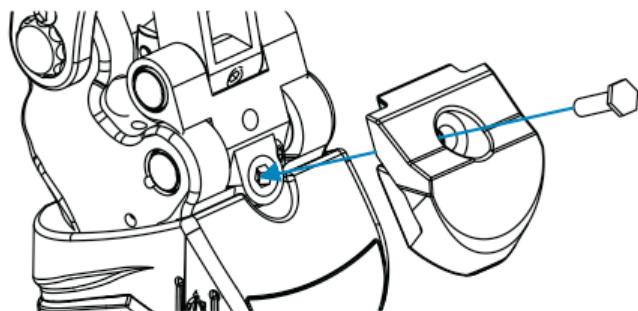
Body weight limited NOT to be exceeded!

DAW components and components are designed and tested by ISO 10328. Compatibility and compliance is achieved only when DAW components are used with other components meeting the same standard.

If an unusual movement or product wear is detected in a prosthesis at any time, the wearer should be instructed to immediately discontinue use of this prosthesis and contact immediately his fitting prosthetist.

## NOTE

1. After aligning the prosthesis, be sure the socket is not limiting knee flexion, otherwise the bumper flexion socket bumper should be added.



2. The battery charge time will be less than 2.5 hrs by the attached USB charger adapter. If user charges the battery by the USB port of PC or notebook, charge time could be slightly longer.
3. When the battery charge is less than one quarter (LED is red), please charge the battery as soon as possible. When there is almost no energy (LED is red blink and audible beep is heard), the system will shutdown.

## INTRODUCTION

### Product No.

**THK-5PSOMPK**  
**THK-5PS10MPK**

### Application

- The Stealth Microprocessor Knee is used for K3 above knee (AK) and knee-disarticulation (KD) amputation fittings.

### Feature & Function

- The Microprocessor knee prosthesis is controlled by microprocessor and 3D accelerometers. The flexion extension resistance of the Knee during stance & swing phase is adjusted automatically. Manual settings of the knee flexion extension resistance is also available.
- **More safety and intelligence** The accelerometers estimate different walking conditions, such as walking speed, ascending or descending a ramp or stairs. The Knee automatically adjusts resistance accordingly to provide natural gait.
- **Programmable** Custom knee joint adjustability for different walking conditions can be set with the PC program.

- The resistance control of the knee joint combined with a five-bar mechanical design provide approximately 0~10° of stance flexion function. This function increases Knee stability and shock absorption during the loading response of gait.
- The stance flexion range and sensitivity can be further adjusted by the single blade screws on the anterior aspect of the knee.
- Extra high flexion resistances (level 8,9) are designed for special conditions, such as initial user training, descending ramps and stairs.
- The flexion resistance and the extension assistance force of the knee is adjusted using the 3mm screws on the posterior aspect or the cylinder.
- LEDs on the remote control shows the bluetooth connection status, battery level, and the current resistance level
- Low battery alarm (beep sound)
- Charging the battery can be done using the USB port of a PC notebook (5v dc) or the USB charging adapter (100~240 v ac).
- For body weight up to 125 kg / 275 lb and K3 activity level.

# MAINTENANCE & CLEANING

## Maintenance

- If dysfunction were found, for example: abnormal noise, screw loosening, decreased flexion angle, decreased extension angle, control and stability problem, please contact **DAW Tech Department** at (877) 242-2423
- Keep knee away from water and wet environment.



- DO NOT attempt your own repairs doing so voids the warranty (excluding disassembly of extension spring housing.) We provide full repair services under normal usage in the warranty period.

## Cleaning

- Wipe the knee with a soft cloth.



- DO NOT use any solvents. Do not immerse the knee or pour solvent over the knee.



# REMOTE CONTROL




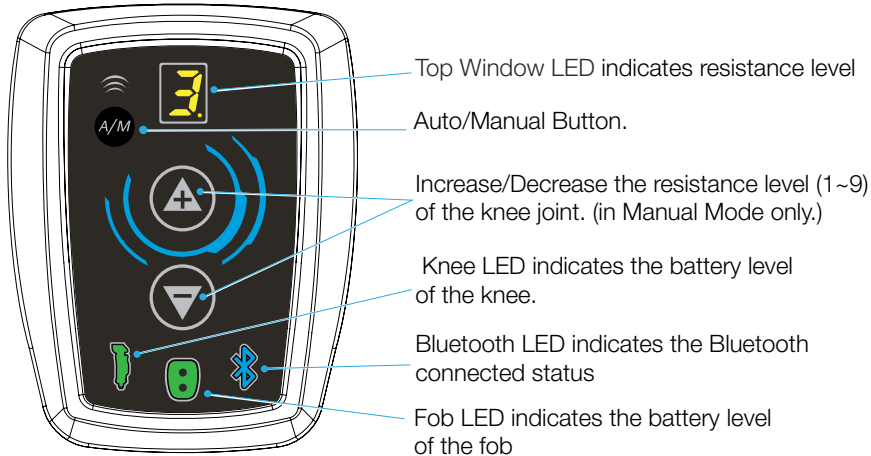
1. Wake the knee from “sleep-mode” by flexing it until the green light on the back of the knee lights up. Wake the fob(monitor) by pressing any button on the fob. When both the knee and fob are on they will begin pairing via Bluetooth connection (solid blue light = paired).
2. When there is no activity on the knee or remote control for more than two minutes, the system will power down, entering Sleep Mode.
3. Press  button to select between the Manual Mode or the Auto Mode. When light is lit in lower right corner of the Top Window LED, (in fig. A where the 3 is,) the knee is in Manual mode. In Manual Mode the knee Resistance can be adjusted with   buttons.

fig. A



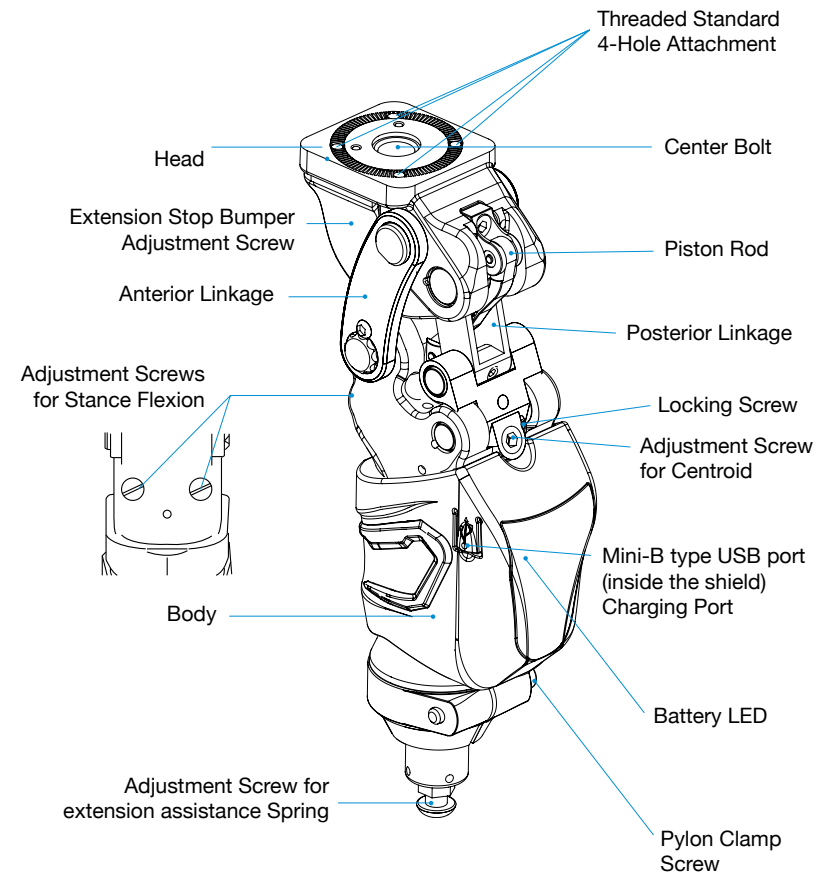
4. Knee Monitor LED is:
  - Green (knee is fully charged)
  - Blue (20% charge, 6 hours remaining)
  - Red (5% charge, 2 hours remaining)
  - Red blink (charge immediately, 10 min. remaining)

(The above remaining charge times are estimates of a new battery.  
The capacity of the knee's Lithium-Ion battery diminishes over-time.)

5. Bluetooth LED is:
  - Blue (connected to the knee prosthesis)
  - Blinking blue (pairing)

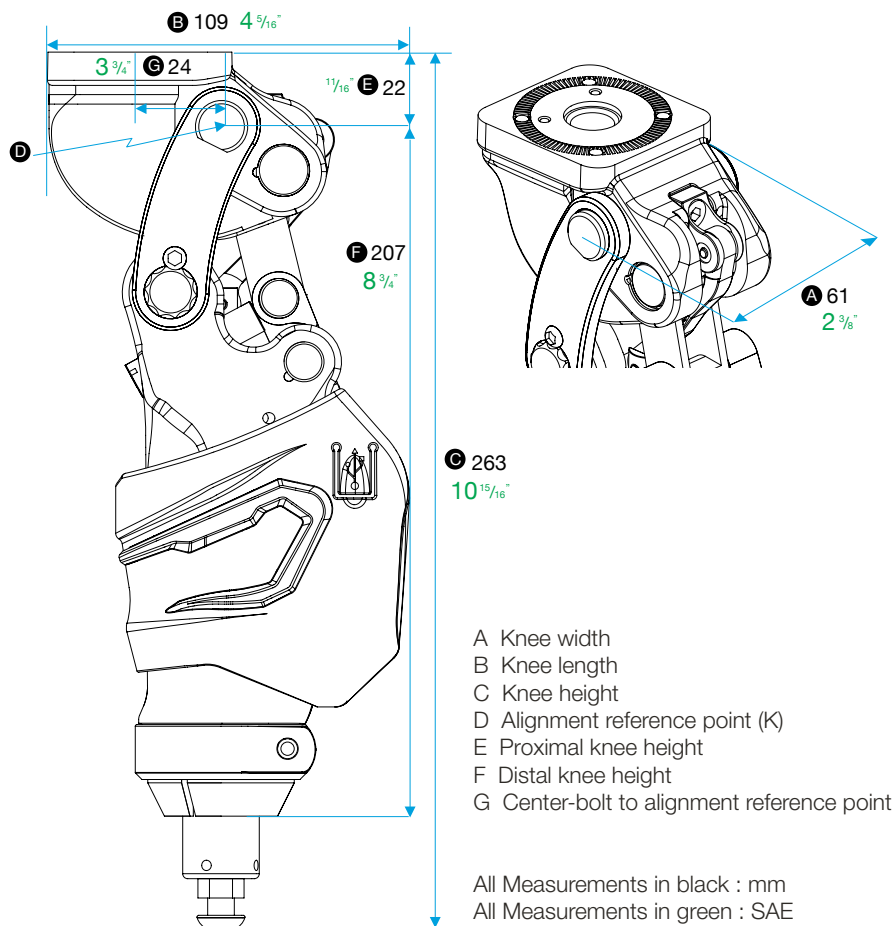


# OVERVIEW



# DIMENSIONS

## The Stealth MPK - Transfemoral THK-5PS0MPK



# MPK AMPUTEE STARTING PROFILE VALUES

## LEVEL 3

WEIGHT (lbs)	LOW	MEDIUM	HIGH
120-140	1-2-2-8	2-3-3-8	3-4-5-8
141-170	2-3-3-8	3-4-5-8	4-5-6-8
171-200	3-4-5-8	3-5-6-8	4-5-6-8
201-240	4-5-7-8	4-6-7-8	5-6-7-8
241-275	4-6-7-8	5-6-7-8	6-7-7-8

## LEVEL 4

WEIGHT (lbs)	LOW	MEDIUM	HIGH
120-140	1-2-2-8	2-3-3-8	3-4-5-8
141-170	2-3-3-8	3-4-5-8	4-5-6-8
171-200	3-4-5-8	3-5-6-8	4-5-6-8
201-240	4-5-7-8	4-6-7-8	5-6-7-8
241-275	4-6-7-8	5-6-7-8	6-7-7-8

You have now created a New Knee Profile for you patient. You should save this Profile in by clicking **SAVE PROFILE**. It will bring up the document file. Be sure to save in "Saved Profiles" under the correct patient name. Any time you wish to reload the saved patient profile in a new Stealth knee by clicking **OPEN PATIENT FILE** and then opening the correct patient file and opening in that patient file "Saved Profiles." Then click on the desired profile. Then click on the "UPDATE KNEE" (Gold button) in the STEALTH Knee Application.

## EASY STARTUP WITH PRESET PROFILES

### LEVEL 3

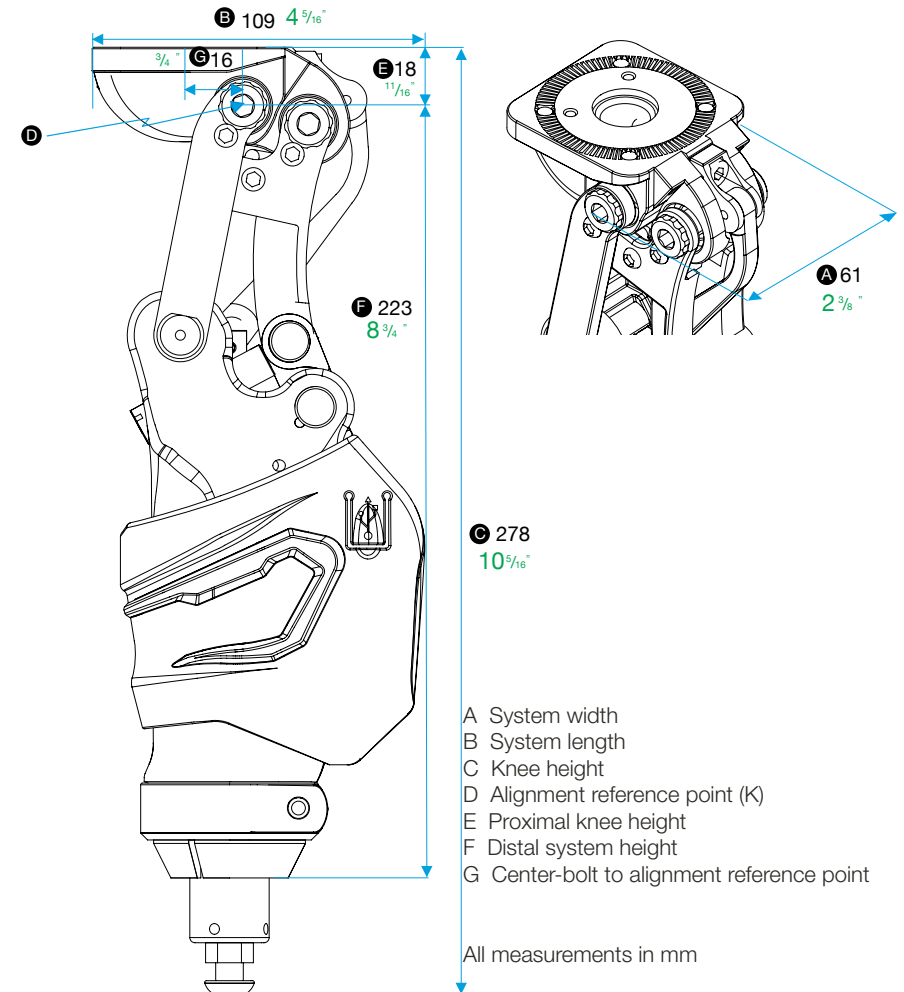
WEIGHT (lbs)	LOW	MEDIUM	HIGH
120-140	1-2-2-8	2-3-3-8	3-4-5-8
141-170	2-3-3-8	3-4-5-8	4-5-6-8
171-200	3-4-5-8	3-5-6-8	4-5-6-8
201-240	4-5-7-8	4-6-7-8	5-6-7-8
241-275	4-6-7-8	5-6-7-8	6-7-7-8

### LEVEL 4

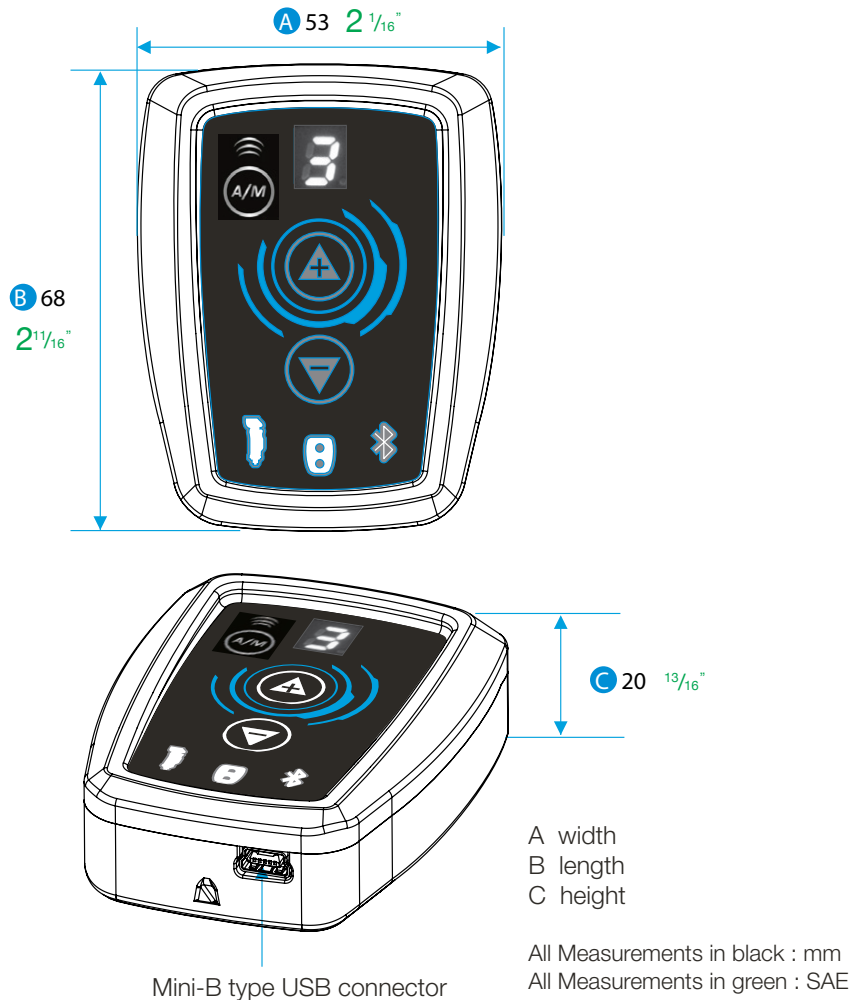
WEIGHT (lbs)	LOW	MEDIUM	HIGH
120-140	1-2-2-8	2-3-3-8	3-4-5-8
141-170	2-3-3-8	3-4-5-8	4-5-6-8
171-200	3-4-5-8	3-5-6-8	4-5-6-8
201-240	4-5-7-8	4-6-7-8	5-6-7-8
241-275	4-6-7-8	5-6-7-8	6-7-7-8

## DIMENSIONS

### The Stealth MPK - Knee Disarticulation THK-5PS10MPK



# REMOTE CONTROL



# ADJUSTING THE PATIENT GAIT TO YOUR PATIENT'S LIKING WHILE THEY'RE WALKING<sup>16</sup>

- 1) Have the Amputee walk at what they consider a slow pace.
- 2) You will see the impaction values moving across the bottom screen.
- 3) Click and drag the yellow line so that it is at positioned at the same impaction level as the highest value shown.
- 4) Ask the Amputee if they want more or less resistance at this slow pace. If they want more, increase the number value in the menu box between the green and yellow lines on the right hand side of the lower screen. Each time you make a resistance change, you must click the "Update Knee" button to transfer the values to the *Stealth* knee.
- 5) Repeat the resistance changes until the Amputee is happy with the resistance at this pace.
- 6) Have the Amputee walk at a normal walking pace. You will see a higher impaction value on the lower screen.
- 7) Drag the orange line down to the highest level of impaction shown.
- 8) Ask the Amputee about the resistance and make resistance changes in the menu box to the right between the yellow and orange lines (Follow the instructions in Step 11).
- 9) Repeat until the preferred resistance is achieved at this pace. Remember to "Update Knee" each time you change a resistance.
- 10) Have the patient walk at what he/she would consider a fast pace.
- 11) Click and drag the red line down to the highest level of impaction shown.
- 12) Ask the Amputee about the resistance and make resistance changes in the menu box to the right between orange and red lines.
- 13) Repeat until the preferred resistance is achieved at this pace.
- 14) The value in the menu box above the red line is to set the resistance for all other gait situations i.e., ramps, stairs, and uneven ground. This value is almost always set at 8. Be sure to "Update Knee" again.



15 **F** - You can Flex the Knee and Move it up and down

- The upper left screen shows the pylon angle of your Patient during gait
- The lower screen show the resulting impaction valve and resistance of the Stealth
- The full screen represents 30 seconds of activity. The Impaction is:

The MPK contains three very precise linear accelerometers. One for each plane X, Y, Z. These correspond to the Transverse, Coronal and Sagittal planes of the human body. These sensors measure the exact relative position of the knee to any given position. The input from each accelerometer is fed into a scaled algorithm to produce a single value that is termed IMPACTION VALUE. The Impaction Value considers velocity, acceleration, time, position relative to the center of the earth and position relative to a previous position.

For example, when a patient takes a step down a stair, the linear accelerometer in the Z plain registers a high positional change as the knee descends. This creates a high impaction value that triggers the knee to obtain maximum resistance against flexion.

When impaction values are above normal levels, the knee increases resistance appropriately.

## SAVING DATA

At anytime you can save a photo of the screen by clicking on the save screen or save impaction strip. When saving be sure to select the correct Patient folder and place it in "saved screens" or "saved strips" according to what you are saving. We recommend that you save the document under date and time. It will make it easier to compare the evolution of the gait at a later time.



## SPECIFICATION

### THK-5PS0MPK – THK-5PS10MPK

#### Technical data

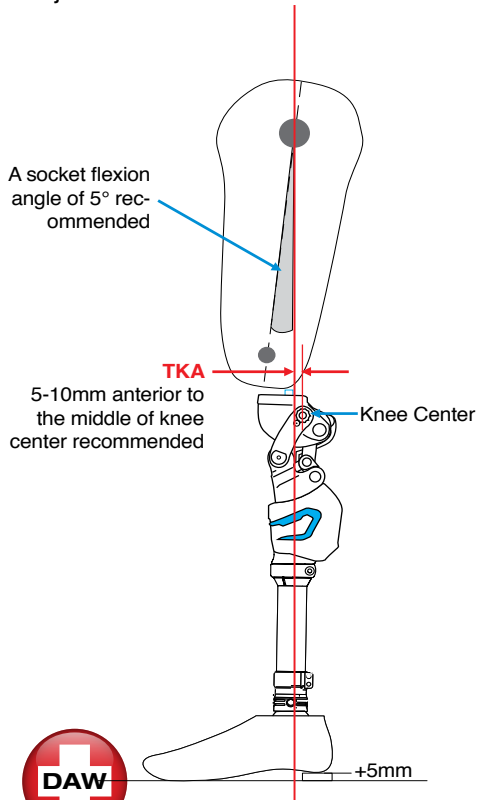
Material	Carbon, Titanium alloy, Aerospace Aluminum
System height	263mm for THK-5PS0MPK 278mm for THK-5PS10MPK
System weight	THK-5PS0MPK: 1.19 kg (2.6 lb) THK-5PS10MPK: 1.27 kg (2.8 lb)
Maximum flexion angle	138°
Maximum body weight	125 kg / 275 lb
Battery	NiCd Recharge 3d
Wireless module	Bluetooth Class II
Activity level	<b>K3</b>

## BENCH ALIGNMENT

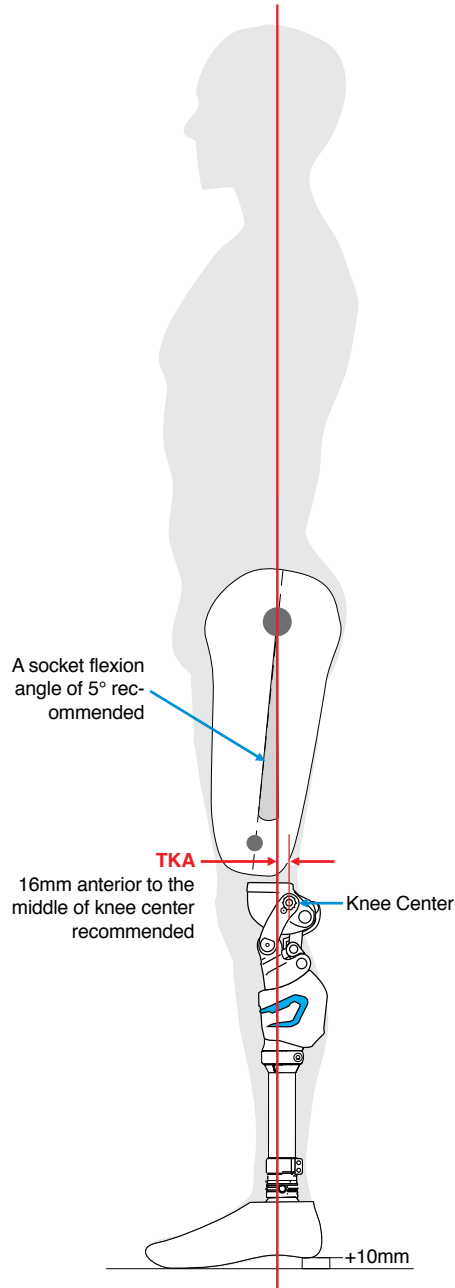
Standard bench alignment must be observed to obtain the maximum benefits offered by this knee unit. All alignment references should be taken from the center of the anterior superior knee axis (commonly referred to as the knee center).

### Important:

- Make sure to cut pylon straight
- Tighten knee tube clamp to 132 in-lb (15N-in)
- Do not use Otto Bock Titanium Pylon
- Do not use a spacer for height adjustment



## STATIC ALIGNMENT



## NOW YOU ARE READY TO STUDY YOUR FIRST PATIENT GAIT

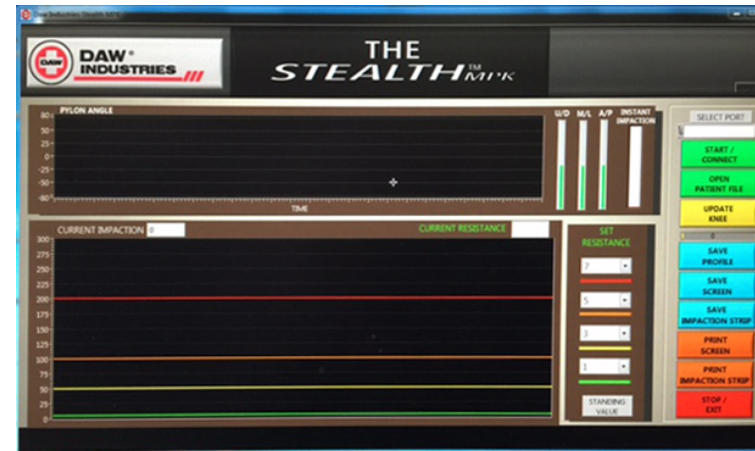
### A - Connecting the Computer and the Bluetooth to the Stealth Knee.

The USB cable has 2 ends:

- 1 - Connect the Micro USB end to the Bluetooth Remote.
- 2 - Connect the USB plug to your Computer.
- 3 - Make sure the Stealth Knee is charged (if not plug into the power supply).
- 4 - Flex the Knee back and forth and verify that the Blue light on the Bluetooth Remote (in the shape of the Knee) lights up. This means that the Knee is communicating with the Bluetooth Remote.

### B - Open the Stealth Application on your computer by double clicking on your desktop the DAW logo.

C - This is the Screen you should see.



D - Select port by clicking on the window below "Select Port" and select a port (Com 3 or 4 or 5 ...should appear). Click to select the com port.

E - Click on the button just below START /CONNECT to do just that.



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# SOFTWARE AND GAIT ANALYSIS

## CREATING A NEW PATIENT FOLDER

### Step 1

Create in "Documents" a file under your NEW patient name.

- A** - Go to documents and find: "Stealth saved Patients."
- B** - You will find 100 folders ready to accept New Patients.
  - 1 - Patient folder Name A1
  - 2 - Patient folder Name A2
  - 3 - Patient folder Name A3
- C** - Pick the first folder without a real Patient Name. in this case "Patient folder Name A1" and rename the folder with the Patient Name. We suggest Last, First Name.
- D** - This is now Patient folder Smith, John.

### Step 2

- A** - Find under Documents the folder "Stealth New Patient."
- B** - Open PDF document and enter the patient information you want to access every time you manage this Patient gait with the Stealth MPK (we recommend you start each line in the "Comments" with a date and time as a reference).
- C** - Save PDF document the way you usually save any document by finding the Patient File in your Documents under : "Stealth saved Patients and under the patient name created in Step 1 above."

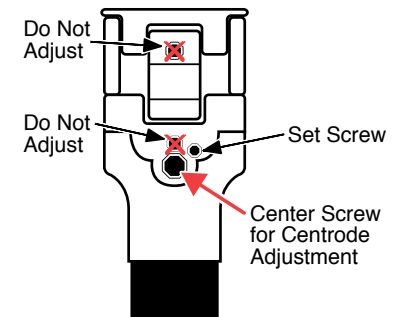
**NOTE:** Please notice that when you open your Patient folder you will find :

- Patient Info
- Saved Profiles
- Saved Screens
- Saved Strips

# MECHANICAL ADJUSTMENT

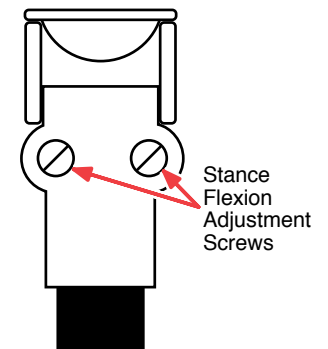
## Adjust Centrode

1. Loosen the set screw.
2. For every inch of increased femoral length, turn the Centrode Adjustment Screw 1/4 turn counter-clockwise. For every inch of decreased femoral length, turn the Centrode Adjustment Screw 1/4 turn clockwise.
3. Re-tighten the set screw.



## The Stance Flexion

1. Locate the two anterior screws in the knee body
2. Turn both anterior Stance Flexion Adjustment Screws, equally, counter-clockwise until the brass bushings no longer touch the posterior axis.
3. Screw them back in (clockwise) until they just touch the axis with slight pressure. Then, turn each screw 3/4 of a turn clockwise again.
4. Turn Stance Flexion Adjustment Screws clockwise or counter-clockwise to adjust sensitivity.



**Clockwise** = Less sensitivity.

**Counter-clockwise** = More sensitivity.

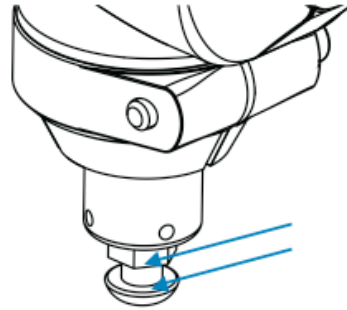
**IMPORTANT**- The screws must have equal adjustment

**NOTE** - After adjusting the screws ensure that there is no gap between the brass bushings and the metal linkage.

# MECHANICAL ADJUSTMENT

## Extension Assist Adjustment

Increased or reduced extension assist is accomplished by adjusting the extension spring Control screw located on the bottom of the knee.



- A) Make all pneumatic flexion and extension resistance adjustments.
- B) Remove pylon.
- C) Loosen distal lock nut.
- D) Adjust Spring Control Screw, with a 5mm Allen key.
  - **Clockwise** turn increases extension assist.
  - **Counter-clockwise** turn decreases extension assist.
- E) Tighten lock nut.

## Removing or Replacing Extension Assist Spring

In some instances it may be necessary to shorten the spring or remove it completely on very active patients, or replace the existing spring with a heavier one for less active patients.

- A) Remove pylon.
- B) Remove pylon clamp screw completely with a 5mm Allen key.
- C) Gently remove the extension spring housing (flexing and extending the knee will help).
- D1) Make necessary adjustment to spring (cutting two coils max.).  
or...
- D2) Replace or remove the spring .
- E) Replace extension spring housing ensuring the vertical notch is aligned with vertical slot in the knee.
- F) Replace the pylon (GUPG-PYLON-16) and pylon clamp screw.
- G) Tighten the pylon clamp to 88in•lb.



# MECHANICAL ADJUSTMENT

## Knee Stability Adjustment

In the event that the prosthesis is properly aligned and the stability is unsatisfactory, the stability setting of the knee can be increased or reduced.

To vary the “break point” of the knees, delicate knee stability adjustments can be accomplished by adjusting the stability screw as follows:

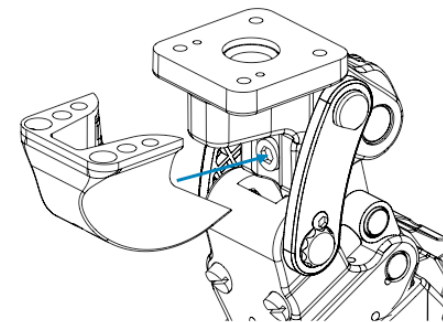
- Remove the cosmetic plastic cover.
- Flex the knee and loosen the locking set screw with a 2mm Allen key.
- Adjust the stability screws with a 6mm Allen key.

**Clockwise** = decreases alignment stability.

**Counter-clockwise** = increases alignment stability.

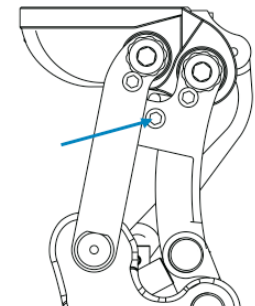
- Tighten locking set screws  
Replace the cosmetic plastic cover.

**\*NOTE:** This adjustment will affect the socket flexion.



(d)

THK-5PS0MPK



(e)

THK-5PS10MPK

