

## A. Absolute Arm Presentation

### A.1 Overview

The ABSOLUTE ARM is a portable poly-articulated 3D coordinate measurement device, constructed from high-grade carbon fibre, which is inherently temperature stable.

The arm – from 1200mm to 4500mm measurement volume – is available in 6 or 7 axes. The difference is located on the wrist of the arm: 6 axes are generally enough for most of the probing or tubing applications, while 7 axes are better for scanning applications.

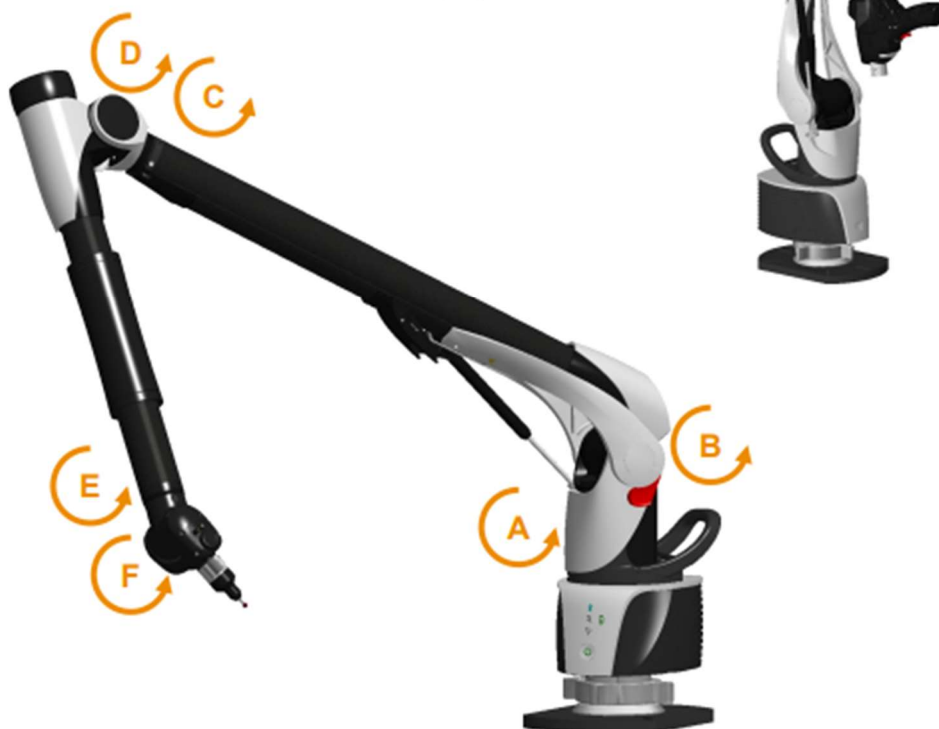
#### 6 or 7 axes

The device duplicates and enhances the movement and reach of the human arm (shoulder, elbow, and wrist). Each element offers several degrees of freedom (2 on shoulder, 2 on elbow, 2 or 3 on wrist).

This means 6 or 7 rotation axes depending on the type (6axes / SE / SI). These axes conventionally are named A / B / C / D / E / F and G. A and B are the Shoulder of the arm, C and D the Elbow and E F and G the wrist.

On each axis, an encoder is giving the axis angle from which the coordinates of the probe centre are calculated.

A, C, E and G axes have infinite rotation, allowing ergonomic comfort of use.



At the end of the arm (i.e. on F or G axis), a probe can be attached through a TKJ connector and is automatically recognized and selected by the software.

The wrist or handle also has 3 buttons which can be used to take measurement points, delete erroneous data, validate message boxes and perform other functions within software.

Accessories (headphones, speakers...) can be connected through Bluetooth wireless technology.

It also contains a haptic feedback motor, to warn the user through vibrations on some events.

## **A. Absolute Arm Presentation**

### **A.1 Overview**

The ABSOLUTE ARM is a portable poly-articulated 3D coordinate measurement device, constructed from high-grade carbon fibre, which is inherently temperature stable.

The arm – from 1200mm to 4500mm measurement volume – is available in 6 or 7 axes. The difference is located on the wrist of the arm: 6 axes are generally enough for most of the probing or tubing applications, while 7 axes are better for scanning applications.



#### Tradução

O ABSOLUTE ARM (Braço de Medição) é um dispositivo portátil de medição de coordenadas 3D poliarticulado, construído em fibra de carbono de alta qualidade, inerentemente estável à temperatura.

O Braço de Medição – com faixa de medição de 1200 mm a 4500 mm – está disponível em 6 ou 7 eixos. A diferença está localizada no pulso do braço: 6 eixos geralmente são suficientes para a maioria das aplicações de sondagem ou tubulação, enquanto 7 eixos são mais adequados para aplicações de digitalização (scanneamento de peças).

#### **6 or 7 axes**

The device duplicates and enhances the movement and reach of the human arm (shoulder, elbow, and wrist). Each element offers several degrees of freedom (2 on shoulder, 2 on elbow, 2 or 3 on wrist).

This means 6 or 7 rotation axes depending on the type (6axes / SE / SI). These axes conventionally are named A / B / C / D / E / F and G. A and B are the Shoulder of the arm, C and D the Elbow and E F and G the wrist.

On each axis, an encoder is giving the axis angle from which the coordinates of the probe centre are calculated.

A, C, E and G axes have infinite rotation, allowing ergonomic comfort of use.

O dispositivo duplica e aprimora o movimento e o alcance do braço humano (ombro, cotovelo e punho). Cada elemento oferece vários graus de liberdade (2 no ombro, 2 no cotovelo, 2 ou 3 no punho).

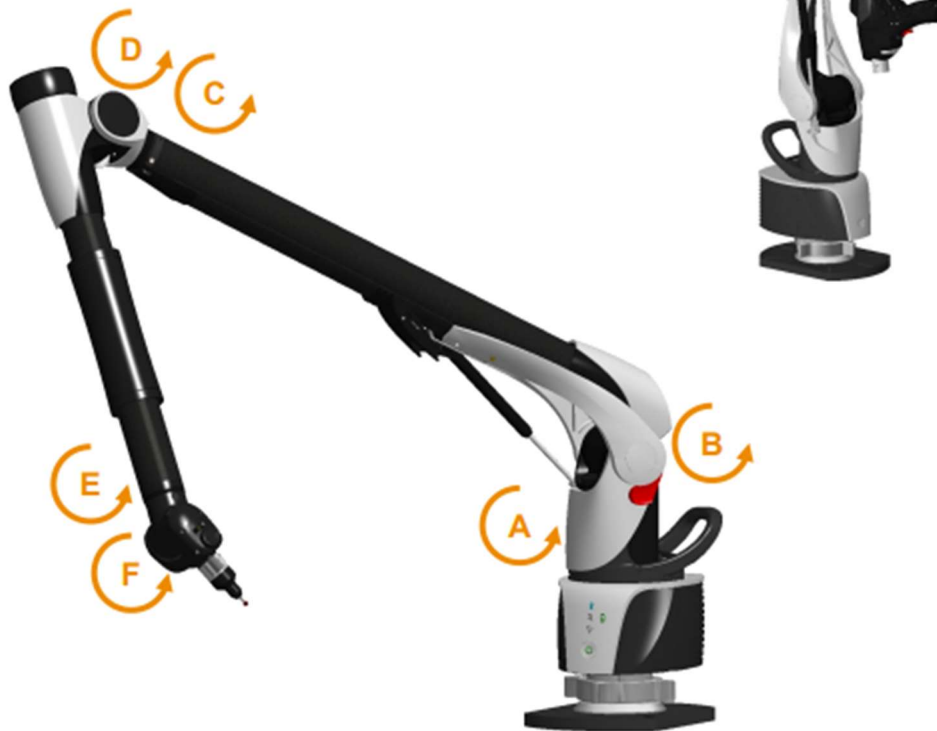
Isso significa 6 ou 7 eixos de rotação, dependendo do tipo (6 eixos / SE / SI). Esses eixos são convencionalmente denominados A / B / C / D / E / F e G.

A e B são o ombro do braço, C e D o cotovelo e E F e G o punho.

Em cada eixo, um codificador fornece o ângulo do eixo a partir do qual as coordenadas do centro da sonda são calculadas.

Os eixos A, C, E e G têm rotação infinita (não há limite no giro), permitindo conforto ergonômico de uso.

Fig. 1. The device has a small robot, allowing ergonomic control of the...



At the end of the arm (i.e. on F or G axis), a probe can be attached through a TKJ connector and is automatically recognized and selected by the software.  
 The wrist or handle also has 3 buttons which can be used to take measurement points, delete erroneous data, validate message boxes and perform other functions within software.  
 Accessories (headphones, speakers...) can be connected through Bluetooth wireless technology.  
 It also contains a haptic feedback motor, to warn the user through vibrations on some events.

Na extremidade do braço (ou seja, no eixo F ou G), uma sonda/ apalpador (chamado de Probe) pode ser acoplada por meio de um conector TKJ, sendo reconhecida e selecionada automaticamente pelo software.

O pulso ou a alça também possuem 3 botões que podem ser usados para registrar pontos de medição, excluir dados incorretos, validar caixas de mensagens e executar outras funções no software.

Acessórios (fones de ouvido, alto-falantes...) podem ser conectados por meio da tecnologia sem fio Bluetooth.

Ele também contém um motor de feedback tátil, para alertar o usuário por meio de vibrações sobre determinados eventos.

