Mobile measurement technique: These buzzwords gain further significance in times of continuously increasing product quality requirements. Being able to inspect in situ brings various advantages:

- The logistical effort of moving large and heavy parts to a measuring area is removed.
- Reports concerning the quality of parts can be produced in the manufacturing environment, e.g. during or prior to assembly. If fit problems occur, the origin can be immediately detected and ideally changes can be done on the fly. Complex parts can also be measured in situ on the machining-centres eliminating the need to lose the datum points by moving the part to a traditional CMM. A portable FaroArm has become indispensable for process capability. Parts and finished products as well as tools and jigs can be measured.

It is important to know that using portable measurement equipment today does not mean that there have to be compromises in terms of accuracy. Mobile measurement equipment from FARO is often more accurate than conventional CMMs. Combining the advantages of portable measurement with the accuracy you can achieve with the Faro Gage, the decision is easy to make.

Improvement in quality, reduction in costs and increased efficiency: These are the benefits Faro customers can expect.
The flexibility of the Faro Arm is enabled through 6 or 7 joints that allow endless rotation of the major axis. At the grip you find a probe, that could be compared to a forefinger. To measure a point the probe is placed on the measurement position.

Highly accurate shaft encoders allow the arm to compute the position of the probe at any time in 3D space. So the Faro Arm works like the human arm, but with more precision and greater flexibility.

Measurements can be made in a variety of locations with the help of various mounting options for example magnetic or vacuum mounts. Even if there is no mains voltage, the Faro Arm offers an integrated battery capable of powering the arm for hours.
Nowadays hardly any cars are developed, planned or built without the use of a FaroArm. Whether it’s a matter of measuring directly on the vehicle, on the machine tools or on the assembly line: Automobile manufacturers such as Land Rover, Jaguar, DaimlerChrysler, Volkswagen, Aston Martin, Audi, Porsche and BMW exploit the benefits of the Faro Arm system.
FaroArms - and quality control

Welding appliances are measured by Porsche with the FaroArm.
The advantage: The measuring is carried out directly and on the spot, and necessary adjustments on the tool can be immediately carried out - by just one person. This lowers costs, saves a lot of time and increases the quality of the products.
The risk of a possible production standstill is also reduced.

Under the Mexican sunshine ABB turbines are assembled for generators of all size groups. The tolerances required are correspondingly tight. The FaroArm demonstrates its full strength in these surroundings. The generators and their component parts can be directly measured in situ and problems can be highlighted without delay.

Large construction machines are too big for conventional measuring devices. With the help of a FaroArm, which allows measurements to be made directly in situ. Costly transport of large, heavy components or assemblies to measuring devices is eliminated.
When the BBC made its prize-winning film „Walking with the Dinosaurs”, FARO was also active behind the scenes. With the aid of a laser scanner on the FaroArm, models of dinosaurs were optically scanned and thus entered into the computer. The result: „living“ dinosaurs on the screen.

The Platinum FaroArm’s ±0.005 mm accuracy renders traditional CMMs, hand tools and other portable inspection equipment obsolete. Anyone, anywhere can now inspect, reverse engineer or perform CAD-to-Part-analysis on parts, fixtures and assemblies with previously unheard of precision.

The Faro Titanium Arm represents particularly impressive value for money, boasting accuracy of up to ±0.0107 mm.
The Control Station is an extremely flexible 3D measurement system for engineering, production, and quality control. This total solution includes a Platinum series FaroArm, touch screen computer and both CAM2 Measure and Softcheck Tool software. From hole patterns to complex curved surfaces, this complete system answers the shop floor measurement and fit questions that cost manufacturers money.

Adding another dimension to the Control Station system with an extra axis of rotation and removable handle (for curved probes, add-on laser scanners, or just for extra control).

The Faro Laser Scanner is ideal for non-contact measurement applications, including inspection, rapid prototyping, reverse engineering, 3-D modeling and cloud-to-CAD comparison with various software packages.

Faro Laser Tracker and FaroArm: Large components are aligned and scanned with the Faro Laser Tracker. Measuring is continued with the FaroArm outside of the „Tracker’s visualrange“. As a result of this symbiosis between executing arms and controlling tracker the two product groups form an unbeatable team, not only in terms of precision, but also in terms of the profitability of the overall system.
**Highly sensitive angle shaft encoders**
Achieve the high precision of the new FaroArm: up to ±0.005mm in each joint.

**Overload sensors**: In each joint prevent defective measurements. If the pressure on one or more joints is too high then defective measurements occur. The overload sensors prevent this.

**Protected against environmental effects**: The joints are encased so that they are protected against dust and moisture. This means that the FaroArm can be used in almost any environment.

**Endless rotation** in the three main axes. This allows ergonomic easy use.

**Intergangeable measuring probe**: The FaroArm has an integrated interface for the Renishaw PT20 probe. This can be assembled within just a few moments.

**Integrated counter balance**: FARO’s patented counter balance allows the user to have a hand free to concentrate on the measurements. The "elbow joint" is automatically self-supporting and does not have to be held by the user. This allows fatigue-free work!

**Universal Mount**: Simple types of mount underline the flexibility of the system and allow the easy use of, e.g., portable tripod, magnetic mount or Vacuum mount etc.

**An integrated battery** allows work to be carried out far away from any power supply for several hours.
FaroArm -

Product Features

**Accuracy Specifications (six axis models only)**

<table>
<thead>
<tr>
<th>Model (Measuring Range)</th>
<th>Repeatability Sphere Test*</th>
<th>Repeatability Cone Test*</th>
<th>Length</th>
<th>FaroArm Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Platinum</strong> 1.2 m (4 ft.)</td>
<td>±.0051 mm (±.0002 in.)</td>
<td>±.013 mm (±.0005 in.)</td>
<td>±.018 mm (±.0007 in.)</td>
<td>9.1 kg (20 lbs.)</td>
</tr>
<tr>
<td>Platinum 1.8 m (6 ft.)</td>
<td>±.010 mm (±.0004 in.)</td>
<td>±.020 mm (±.0008 in.)</td>
<td>±.029 mm (±.0011 in.)</td>
<td>9.3 kg (20.5 lbs.)</td>
</tr>
<tr>
<td>Platinum 2.4 m (8 ft.)</td>
<td>±.020 mm (±.0008 in.)</td>
<td>±.025 mm (±.0010 in.)</td>
<td>±.036 mm (±.0014 in.)</td>
<td>9.5 kg (21 lbs.)</td>
</tr>
<tr>
<td>Platinum 3.0 m (10 ft.)</td>
<td>±.038 mm (±.0015 in.)</td>
<td>±.043 mm (±.0017 in.)</td>
<td>±.061 mm (±.0024 in.)</td>
<td>9.75 kg (21.5 lbs.)</td>
</tr>
<tr>
<td>Platinum 3.7 m (12 ft.)</td>
<td>±.053 mm (±.0021 in.)</td>
<td>±.061 mm (±.0024 in.)</td>
<td>±.086 mm (±.0034 in.)</td>
<td>9.98 kg (22 lbs.)</td>
</tr>
<tr>
<td><strong>Titanium</strong> 1.2 m (4 ft.)</td>
<td>±.010 mm (±.0004 in.)</td>
<td>±.025 mm (±.0010 in.)</td>
<td>±.036 mm (±.0014 in.)</td>
<td>9.1 kg (20 lbs.)</td>
</tr>
<tr>
<td>Titanium 1.8 m (6 ft.)</td>
<td>±.020 mm (±.0008 in.)</td>
<td>±.041 mm (±.0016 in.)</td>
<td>±.057 mm (±.0023 in.)</td>
<td>9.3 kg (20.5 lbs.)</td>
</tr>
<tr>
<td>Titanium 2.4 m (8 ft.)</td>
<td>±.041 mm (±.0016 in.)</td>
<td>±.051 mm (±.0020 in.)</td>
<td>±.072 mm (±.0028 in.)</td>
<td>9.5 kg (21 lbs.)</td>
</tr>
<tr>
<td>Titanium 3.0 m (10 ft.)</td>
<td>±.076 mm (±.0030 in.)</td>
<td>±.086 mm (±.0034 in.)</td>
<td>±.122 mm (±.0048 in.)</td>
<td>9.75 kg (21.5 lbs.)</td>
</tr>
<tr>
<td>Titanium 3.7 m (12 ft.)</td>
<td>±.107 mm (±.0042 in.)</td>
<td>±.122 mm (±.0048 in.)</td>
<td>±.172 mm (±.0068 in.)</td>
<td>9.98 kg (22 lbs.)</td>
</tr>
</tbody>
</table>

* For full descriptions of test methods used, please refer to our website www.faro.com.

**Hardware Specifications:**

- **Operating Temp range:** 10 to 40°C
- **Temperature Cycle:** 5°C/5min.
- **Humidity:** 95%, noncondensing
- **Calibration Lifecycle:** Permanent
- **Protection:** IP 64 standards
- **Acceleration:** Permissible angular: greater than 105 rad/s²

**Power Supply:**

- Universal worldwide voltage
- 85-245VAC, 50/60 Hz

**Certification:** CE Compliant

- ENS0081-1: 1991 Class B (Radiated and Conducted)
- ENS0082-1: 1991 (ESD, RI, EFT)
- IEC 801-2 (1991), 8kV AC
- IEC 801-3 (1984), 3 V/m
- IEC 801-4 (1988), 0.5 kV Signal Lines, 1kV AC Power Lines
The mounting of a mobile measurement arm must be quick and flexible on the other hand it must ensure that the measurement arm is secure. This is why FARO offers a wide range of different mounting options for the FaroArms. Whether mounting plate, portable tripod or magnetic mount, each type of mount offers you the required safety for high precision measurements and the highest possible flexibility you can expect from a mobile measuring system.

Myriad mounting options allows the Arm to be used to its full potential in any environment. Even mounted directly on the part.

These tripods are designed for maximum portability and stability with retractable wheels that can be raised and lowered.

A mounting plate can be attached directly to a part or machine with the aid of clamps or bolts. As demonstrated at Keenans in Ireland.
Truly Portable -
FaroArm Accessories

A magnetic base that allows the FaroArm to be mounted to surface plates, tools and other ferrous surfaces.

The Vacuum mount quickly, easily and rigidly mounts the FaroArm to granite surfaces without a degradation in accuracy.

Quick Release mandrel

The Faro Precision rail is a highly accurate rail, which can be used to move the FaroArm during Measurement. The Faro Precision rail increases the working area of the Faro Arm.

Designed specifically for the FaroArm, this folding stand comes complete with patented stabilizing struts that mount to the actual work surface and retractable wheels for shop-floor mobility.
The choice of the most suitable measuring probe depends on the type of material to be measured. If you are measuring mainly flexible components, e.g. plastic or thin sheet metal parts, then the touch trigger probe from Renishaw is ideal. All new FaroArms in the platinum and titanium series have an integrated interface for this probe which can be mounted quickly and easily and without any additional adapter. The FARO standard zircon probe can be used with all the other components. The probe is positioned where a point is to be measured; the measurement is made by pressing the green button. This system means the probes are very robust and easy to calibrate.
From hole patterns to complex curved surfaces, CAM2 Measure answers the shop floor measurement and fit questions that cost manufacturers money. CAM2 Measure specializes in feature measurement/inspection and CAD-to-part comparison, where every measured part can be compared to engineering design files.

While CAM2 Measure operates on a fully functional CAD engine to make the import and comparison of measured parts and assemblies to design data easy, the program is completely functional without CAD as a powerful inspection and measurement tool. Identify and verify feature locations such as holes, spheres, and arcs for first article inspection or alignment. Because CAM2 Measure draws features as they are measured, process control becomes instantaneous. The software can be used with many measurement devices including portable or fixed-base coordinate measurement machines (CMMs), Laser Trackers, and photogrammetry systems.

**Specifications**

**Platform:**
Windows 2000/XP

**Data Input:** CATIA*, Pro-Engineer*
WMF, IGES, ASCII, SAT, ACL, VDA, DES

**Data output:** IGES, VDA, STEP EMF, ASCII, CSV, SAT, ACL

**Language:** English, French, German, Spanish, Italian, Portuguese

**Features**
- Advanced Feature Measurement
- Measurement & Alignment Wizards
- Visual “Home-In” Guides
- Guided CAD to Part Comparison (Learn/Execute)
- SPC and Graphical Reporting
- Basic Scanning Functions
- Portable and Stationary CMM Compatibility
To be as flexible as the most human of all measuring instruments, with the same stability and mobility, but with a level of precision in a different dimension - this is FARO’s philosophy.

All this began more than 25 years ago when the first FaroArms were produced exclusively for the field of medicine. This meant that surgeons obtained a new instrument as an aid for orthopedic operations, for example, facilitating an entirely new precision. Industry was also quick to recognise the advantages of mobile measuring on the spot with the FaroArm and the Faro Laser Tracker. FARO in its present form was founded in Orlando, USA in 1993. The initial public offering took place in 1998, and FARO with its 250 employees is today the world’s market leader for portable measuring technology.

Meanwhile, in a wide range of industries there are over 8,000 mechanical and optical systems ensuring optimal quality at low cost, high precision and reliability. This makes Faro the global market leader in this segment. And this position motivates us even more to continue searching in the future for new innovations, which will make portable measuring, even simpler and even more exact.
Following your purchase you are not just left on your own. A qualified customer-service team is at your disposal to provide advice on the telephone or on the spot. Whether to help with an application-specific query or with technical problems. Our enthusiastic customer service provides rapid and simple assistance.

For our other Systems Faro offers competent training courses so that you can optimally prepare your employees for working with the FaroArm system.

Either directly with you on your premises, or in one of our modern, well equipped training centres. Highly qualified, customer-focused trainers cater for the individual needs of the participants and their applications.

Faro products are maintained by FARO. We service arms with a pick-up and bring-in service. With the pick-up service, a replacement unit is loaned to customers while theirs is away. FARO inform users on innovations and users’ experience, also organising a customer forum and maintaining regular contacts with our customers.

Special maintenance programs make sure that the FaroArm is regularly certified (to comply with ISO9000) Premium Warranty cover guarantees a loaner arm whilst it is in service.
From the smallest to the largest measuring volumes

With the launch of the Faro Gage, FARO is offering an optimum product range for measurements between 5µm and up to 70 m.

With its user-friendly software and accuracy of up to ± 0.005 mm, the Faro Gage is the latest addition to the Faro family. The Faro Laser Tracker which was unveiled in November 2002 covers the large measurement volumes in the Faro product family. With a working radius of up to 70 m, it uses a laser beam to measure large components with absolute precision and with the simplest of handling.

The two measurement arms, the Titanium and the Platinum, complete the measuring range up to a max. working volume of 3.7 m.