I am your
ACCESSIBLE POWERTOOL
FLEXIBLE APPLICATION
SCALABLE SOLUTION
agile like a human arm
with a human-like sense of touch
a full solution that interacts smartly
easy to setup and intuitive to use
Gerd Hirzinger, the most recognized pioneer in robotics and the first researcher to receive every international robotics and automation award, says, “Worldwide, robotics researchers are convinced that sensitive torque controlled robots are the future; in particular when considering the large scale future topics such as robotic assistance, safe human-robot collaboration in production or service robotics. Interestingly, this novel technology was often considered to be far too complex to be realized. However, the Franka Emika robot is the perfect exemplar of the synergies between mechatronics and digitalization in the context of Industry 4.0, and I believe it is the long searched for breakthrough.”

Based in Munich, Franka Emika GmbH develops, designs and distributes collaborative industrial robots. The revolutionary robotic system Franka Emika, was unveiled to the public on April 25, 2016 at Hannover Messe, and in 2017 the series production is launching in Bavaria, Germany. The creator of Franka Emika, Sami Haddadin, states that, “I strongly believe that Franka Emika is a game changer not only in intelligent robotics but also far beyond, opening the doors to a new world of connected digital intelligence accessible to everybody. My goal is the democratization of automation.” Franka Emika is designed for cost-effective human-robot collaboration. It is the first robot that builds itself, and is therefore perfectly suited for mass production. Franka Emika can be operated and programmed by anyone, regardless of technical skills, in just a few minutes through an intuitive setup process.

Franka Emika consists of Franka Arm, Franka Control, the gripper Franka Hand and the software Franka Desk which are connected to Franka Cloud. Franka Arm is a safe, force-limited robot arm with torque sensors in all seven joints which provide human arm like agility and sensitivity. Franka Emika has a unique workspace starting from close to its base with a payload of three kilograms and a repeatability of 0.1 millimeters. Franka Desk is a visual intuitive App-based programming software which runs on browsers of tablets and computers. With the revolutionary Franka Cloud, it is possible to deploy 1 or 1,000 Franka Emika robots in no time and to share and archive solutions and Apps locally or globally. Franka Emika offers a seamless connection to Industry 4.0 and has a wide range of applications for customers.

Our vision is to make robots a commodity by putting humans at the center of the robot design. This design paradigm allows us to seamlessly connect efficiency, digitalization and intelligent automation in order to achieve the optimal user experience. Franka Emika is unmatched in cost-efficiency and can be used by anyone.
INDUSTRIES SEEK ROBOTIC SOLUTIONS

Unprecedented areas of application and new markets for intelligent robot assistants are emerging. However, nowadays all industries still face the restrictions of the current state-of-the-art robotic technology in manufacturing and assembly:

- Integration, programming and tooling is too expensive and extremely time consuming.
- Solutions are custom-made and lack reusability and adaptability. Consequently, investment is project specific and cannot be depreciated over several projects.
- Complicated programming procedures limit accessibility as industries depend on highly skilled experts with increasingly short product life cycles.
- The current robotic solution costs cannot compete with labor costs at production sites.
- Deployment by existing staff at the production facility is not possible.
- Lack of sensitivity severely limits the robot’s product assembly capabilities.
- Safety fences are very expensive, take up a lot of valuable workspace and restrict the accessibility of the production space and limit the flexibility of the application.

TOWARDS COMMODITY AUTOMATION

For all the good reasons.

Democratization of automation:
The ideal robot of the future can be used by everyone and assists people by reliably and quickly executing unpleasant or even dangerous tasks. The democratization of such a key technology can only take place when the solution is powerful, affordable, flexible and globally available.
FRANKA EMiKA

"I am your accessible powertool, flexible application, scalable solution."

Designed to work among humans
Lightweight structure with advanced human-inspired kinematics and excellent precision
Safe, artificial reflex system halts motion to prevent collision
Human-like sense of touch enables complex and robust product assembly
Intuitive multimodal human-robot interaction

Convenient for everybody
Smartphone-like user experience for programming within minutes
Platform independent and seamless integration into Industry 4.0
Cloud connection for global access to Robot Apps

Highest return on investment
Competitively low hardware, software and integration cost
Compatible with existing infrastructures for flexible integration in no time
Novel programming approach using modular and reusable powerful Robot Apps
Effortless multi robot deployment

The ideal robot assistant of the future has to guarantee safe physical interaction.
This is accomplished by the robot’s learning ability and intuitive operation.
FRANKA ARM
Franka’s arm is inspired by the agility of the human arm. Within its workspace Franka Emika is able to act naturally.

FRANKA CONTROL
The slim 19” control unit can be mounted in server racks or placed anywhere else. It connects Franka Emika to the cloud or to your local shopfloor network.

FRANKA PILOT
Pilot is Franka Emika’s direct user interface on Franka Arm. It provides quick buttons to customize the Apps and to execute their features. The pilot is essential for teaching Franka Emika by demonstration. For example, the user can simply press the guiding button and take Franka Emika by the hand to teach it what to do. After Franka Emika learns the task, it operates autonomously.

FRANKA HAND
Franka Hand can grasp firmly and quickly for high performance and flexible pick and place. Franka Emika’s fingers can be exchanged to optimally grasp a wide variety of objects. Due to its force-sensitivity and compliance, Franka Emika can release and lock the fixture mechanism of its fingers by itself. Hence, different optimized fingers can be seamlessly integrated into any automation processes, making manual tool exchanges almost unnecessary.

FRANKA ARM & CONTROL
- degrees of freedom: 7
- payload: 3 kg
- sensitivity: torque sensors in all 7 joints
- maximum reach: 859 mm
- velocity: 2 m/s end-effector speed
- repeatability: +/- 0.1 mm (ISO 9283)
- communication: ethernet (TCP/IP)
- supply voltage: 100 - 240 V
- controller size: 19” x 355 x 483 x 89 mm (D x W x H)

FRANKA DESK / APPS
- platform
- App programming
- deployment / repository
- Apps

Technical data are subject to modification

via browser on any device
visual & intuitive, dialogue based
local or cloud
freely combinable to create tasks
SET UP IN NO TIME

Ready. Set. Go!

Franka Emika can be set up extremely quickly. After delivery, it takes only a few minutes to install, run and write your own programs. Once completed, deploying the same configuration is almost instantaneous.

FRANKA CLOUD LIBRARY

Thanks to the Cloud Library containing all the Apps and solutions, every Franka Emika can become an even better help over time.

Apps and solutions can be uploaded to Franka Desk and they are updated in your Cloud Library after every modification. From there, your Apps and solutions can be shared among other Franka Ekimas.

IN THE CLOUD

Deploy Apps and solutions locally or globally.

Franka Emika has access to a continuously growing online world of Robot Apps, which permanently expands Franka Emika’s skills and thereby makes the system more and more capable. Share your Apps and solutions with other Franka Emika’s worldwide or within your own network. You can also seamlessly connect to Industry 4.0 by streaming Franka Emika’s data.
Franka Emika is a first-generation, collaborative robot system designed specifically to assist humans. The complete modularly, ultra-lightweight construction, highly integrated mechatronic design, sensitive torque sensors in all joints, and human-like kinematics, make the system unique. Based on the "soft-robotics-control", inspired by human beings, Franka Emika is able to recognize and process even the slightest touch by using its artificial reflex system to react within milliseconds.

**FRANKA EMIKA IS UNIQUE**

Torque controlled with a sense of touch.

Franka Emika is a first-generation, collaborative robot system designed specifically to assist humans. The complete modularly, ultra-lightweight construction, highly integrated mechatronic design, sensitive torque sensors in all joints, and human-like kinematics, make the system unique. Based on the "soft-robotics-control", inspired by human beings, Franka Emika is able to recognize and process even the slightest touch by using its artificial reflex system to react within milliseconds.

7 degrees of freedom
Agile and sensitive like a human arm.

Learning Capability
Today’s Artificial Intelligence(s) and Machine Learners are able to analyze large data volumes, to recognize patterns and to draw conclusions. However, physical interaction with the real world is still a challenge. Existing robotic systems are massive mechanical positioning machines that simply cannot feel, because they are not made for interaction with the world. Franka Emika is born with this ability and through learning it expands its skill set.

Unique Sensitivity
Immediate stop in case of collision.

Collision vs. Interaction
Most accurate contact detection, interpretation and reaction.

Sensitive Insertion
Wiggling for robust assembly and insertion.
FRANKA EMKA IS UNIQUE

Agility
Agile and weightless with soft robotics control.

Flexible elbow
Separate control of the elbow.

Reconfiguration
Optimized wrist for efficient reconfiguration.

Adjustable force
Exact control of contact force.

Repeatability
Positional repeatability in every direction.

Virtual walls
Virtual walls for object and human protection.

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Agile and weightless with soft robotics control.

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Separate control of the elbow.

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Optimized wrist for efficient reconfiguration.

Adjustable force
Exact control of contact force.

Repeatability
Positional repeatability in every direction.

Virtual walls
Virtual walls for object and human protection.
Wide-range workspace

Close-range workspace, even near the base
FRANKA DESK AND APPS

Programming in NO TIME.

In order to meet your application and usability demands we went beyond any existing technology and developed the revolutionary programming environment, Franka Desk. Desk is a visual and intuitive programming environment for anyone, which allows even the most inexperienced user to program the robot easily. With Franka Desk you can intuitively handle Franka Emika’s advanced technology and fully take advantage of its highly sophisticated capabilities. Programming is as easy as arranging and allocating available Apps into entire automation solutions which you can run instantly. No extra hardware is needed! Franka Desk runs completely on any web browser and can be operated via any touchscreen device or keyboard.

FRANKA PILOT

Seamless multimodal operation.

Everybody can setup and run this revolutionary industrial robot! Franka Pilot is the direct user interface integrated into Franka Arm. It provides quick buttons to customize the Apps and execute Franka’s features. It is also essential for teaching Franka Emika by demonstration. For example, the user can simply press the guiding button and, with just one hand, teach Franka what to do. With Pilot you can always have one hand free to interact with your environment. Setting poses, switching into manual guiding mode, operating the Franka Hand or remote controlling Franka Desk are only a few examples of what you can do with Pilot.

Tell Franka Emika what to do:

1. Arrange your own workflows by drag and dropping the modular Robot Apps.
2. Set parameters according to your needs via Desk’s dialog-based menu navigation.
3. Take Franka Emika by hand and show it how to complete the task.
4. Press PLAY.
In order to utilize the numerous highly advanced capabilities of Franka Emika, we developed a novel programming paradigm. This paradigm perfectly realizes the concept of a sensitive, integrated and adaptive Industry 4.0 tool. To program Franka Emika the user does not need to know anything about the sophisticated features of the robotic system or how it should be integrated into any service-oriented network structure.

Every user, regardless of programming knowledge, can easily operate the robot within a few minutes. Franka Desk and its ready-to-use Robot Apps merely require a few process parameters such as positions or task-specific values to integrate the robot into the production process. Through learning, Franka Emika enhances its skills bit by bit.

Apps are programs for Franka Emika that are ready to be deployed immediately for entire application processes. They are compositions of control structures, interaction patterns, parameters, data providers and learning capabilities. By arranging the required Apps, you can create solutions to your most complex tasks without needing any in-depth programming knowledge.

For setting up the Apps you are guided through interactive step-by-step dialogs. Out of the box, Franka Emika can already accomplish tasks like pressing buttons, plugging in cables or placing objects. Just drag and drop the Apps you need, set up your requirements with Franka Emika’s help, and start working.
FRANKA SOLUTIONS

The breakthrough technology of Franka Emika offers a wide range of automation solutions, such as insertion, plugging and assembly. Therefore, essential tasks of all sizes and industry segments can be automated. Franka Emika can be produced on demand thanks to its ability to build itself and its low production cost. Franka Emika is not only efficient but also affordable, flexible and globally available; therefore, it enables the democratization of automation.

FROM MARKET TO MARKET

Testing
- testing touchscreen devices by: swiping, dragging, tapping, pressing, sliding...
- testing hardware devices by: pressing, sliding, press n' dragging, rotating knobs, switching...
- visual inspection: using cameras and sensors...
- plug-in/plug-out connectors...

Handling
- picking, placing, sorting, stacking, packaging, upturning, machine tending, palletizing, pushing and dragging trays, inserting into trays/packages, pull-out, extract...

Assembly
- aligning, inserting, screw driving, press fitting, mounting, cabling, snap fitting...

Finishing and dispensing
- polishing, grinding, laser engraving, laser marking, labeling, printing, potting, riveting, bonding, folding, removing foil, seeling, soldering, welding, adhesive taping, laminating...
In Franka Store users have access to robot hardware, equipment, Apps and solutions. These components can easily be found via semantic search and can be combined according to the user’s needs. The capabilities of Franka Emika will further grow with the help of the Franka Community. This community of not only robotics providers, but also industrial and domestic process experts, can share their solutions. Together, these robotic natives will provide Apps, solutions, support and communication to the end users within the growing Franka World ecosystem.