APAS assistant
flexible production assistant
APAS base
One base for many solutions

The APAS family is based on the mobile platform APAS base with:
- an integrated, PC based control,
- a standardized operating concept and
- standardized connectivity.

At the moment the APAS family consists of:
- the APAS assistant,
- the APAS inspector and
- the APAS flexpress.
We are currently working on additions to the family.

What are the distinctive features of the APAS family?
- The APAS family can integrate a customer-specific process on the platform APAS base
- The members of the APAS family are mobile due to the grip and the casters
- Because of the slim design, the family members can be easily integrated into existing production lines

Join the APAS family. Ask us about your individual production assistant APAS custom.

Flexible automation for the smart factory of the future

APAS family – Your partner on the path of the production of tomorrow

Production is in a state of transition. There is a trend towards more individualized products with shorter and shorter life cycles. How is it possible to realize a combination of small production batches and peak loads, yet be economical at the same time? In future, this requires agile and flexible production concepts based on quickly and easily retooled production systems.

Learn more about the APAS family.
Visit our homepage www.bosch-apas.com

How can the APAS family support on the way to a flexible factory?
The standardized production assistants APAS assistant, APAS inspector and APAS flexpress, as a stand-alone solution or in a manufacturing island, are designed for:
- ad-hoc small series production
- semi-automation
- pilot production for safeguarding a process
- agile engineering with early interim results
- quality tests

The APAS family has the following advantages:
- modular design
- efficiency by reuse
- flexibility, many settings are configurable with software
- mobility, no need for a permanent fixation at a workplace
The APAS assistant is a versatile automatic production assistant. As an intelligent and intrinsically safe robot system, the APAS assistant allows direct collaboration with people without expensive additional shielding. This is made possible by the unique sensor skin, which covers the robot arm of the APAS assistant and which reacts, as soon as somebody approaches.

Machines serve as tools to offload staff workload. Despite all its benefits, conventional systems are mostly stationary, rigidly operating and shielded in a complex way to protect the production staff. This, however, makes it more and more difficult to integrate these systems into today’s flexible working world.

Certified by the German employers’ liability insurance association, the APAS assistant is the first assistance system, which allows direct collaboration with people without additional shielding. The APAS assistant supports the workers in case of heavy, monotonous and dirty tasks. The direct collaboration is made possible by using a highly sensitive sensor skin. This skin enables the APAS assistant to react within a very short period of time, when a staff member approaches. Before there is any contact between man and machine, the APAS assistant stops and only then continues its operation, when the danger zone is free.
Everything in control with APAS assistant

Range of applications

Today’s machines are precise, fast and with a high degree of repeat accuracy. In most cases, the machines are only suitable for a few specialized tasks. It is hard to adapt them to changing production conditions. As a consequence, next to the costs of investment, there will be high additional costs. Compared to that, with the APAS assistant new product variants and tasks can be configured not only in a fast, but also cost-efficient way.

By using so-called work plans the production assistant can be taught new tasks and it can be adapted to changed conditions within a very short time. What makes the system special, is that robot, camera and gripper can be applied by using one and the same software. With the help of a graphical user interface, the operator is supported when configuring the work plans by dialogs leading through the menus. Therefore programming skills are not necessary.

Work plans are stored and can be repeated whenever necessary. The result: fast availability and lower costs. The integrated camera system memorizes the start point of a work plan at the workplace, and the APAS assistant can calibrate itself after its position is changed. The APAS assistant can be used in a versatile and flexible way at many different workplaces in production. The production assistant is also a valuable supporter in case of retroactive automation, since existing production lines can be automated subsequently without major changes in the machine layout.

Equipped with an IPC based control system, intelligent sensors, connectivity concepts and its software functions, in many ways the APAS assistant already qualifies as a cyber-physical system of the Industry 4.0.

Tooling
With its servo-controlled and universal three-finger gripper the APAS assistant can grip various other tools and work with them. This broadens the range of application of the APAS assistant enormously. In this way, the APAS assistant is also able to take over special jobs like controlling end products such as control buttons or batteries.

Identification
The APAS assistant is equipped with a 3D image processing system and a camera head. Integrated cameras support the APAS assistant in analyzing the environment and in recognizing and distinguishing parts to be gripped in a self-contained way. Additionally the image recognition ensures a high precision in gripping and placing of parts, which keeps the requirements for feeding of parts as low as possible.

Handling
With high precision the APAS assistant enables the automation of a variety of activities such as palletising, sorting and loading and unloading of production machines. Equipped with the respective sensors, the production assistant enables form-fit or force-fit gripping. Therefore the APAS assistant is the ideal solution especially for tasks, which are less suited for people, such as the handling of potentially harming or hot parts.

Documentation
Nowadays many processes come with extensive documentation. Thanks to its integrated camera, the APAS assistant can record, evaluate, assign and mail corresponding image data. The only part left for the operator is to pass on the data to the end customer.
This document is a schematic representation and not an operating manual. Please refer to the operating manual with regard to the proper use of the system.