# Drive up, measure, done!

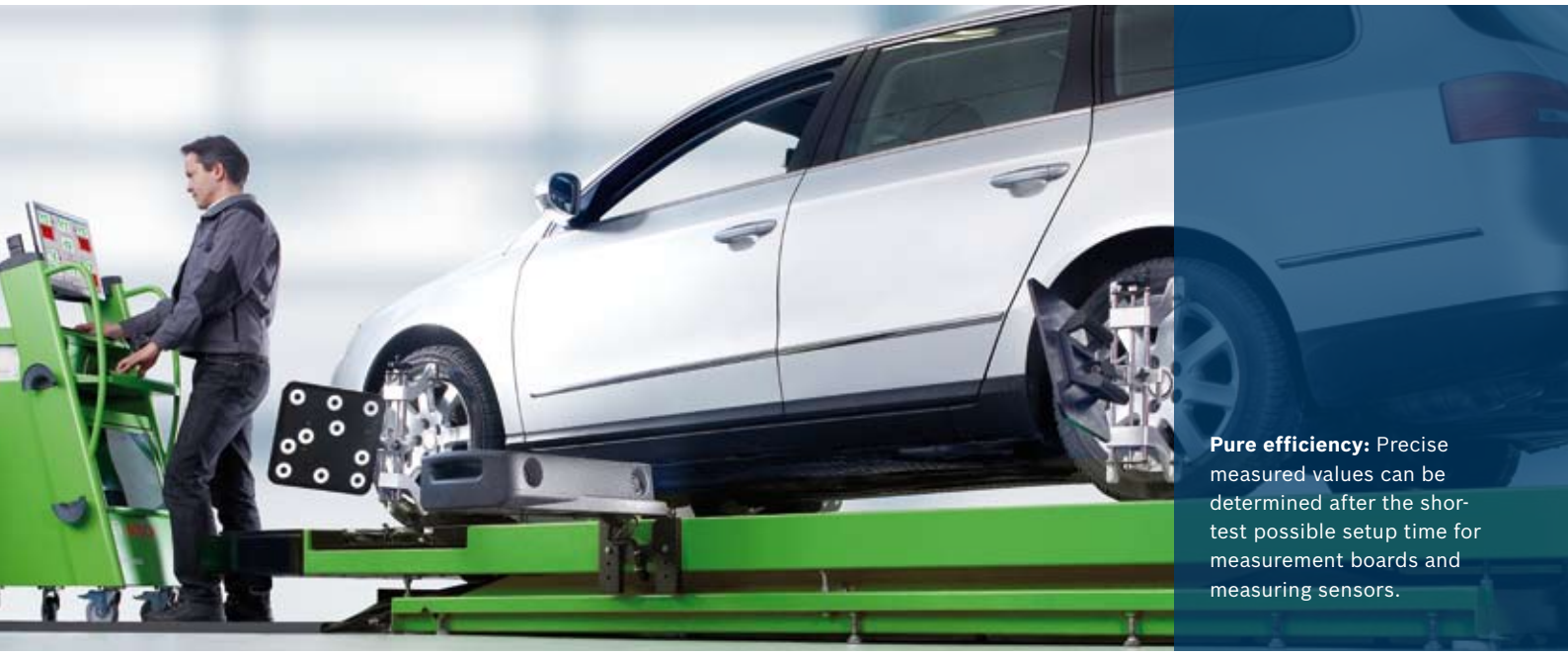
## Wheel alignment from Bosch

BOSCH
Invented for life

# **For all passenger cars and light commercial vehicles:** Wheel alignment from Bosch

- **FWA 4630 – New generation of wheel alignment**
- **FWA 43xx – CCD wheel alignment with 6 cameras**
- **FWA 44xx – CCD wheel alignment with 8 cameras**

# **The new wheel alignment system:** Simple, precise and fast



**Pure efficiency:** Precise measured values can be determined after the shortest possible setup time for measurement boards and measuring sensors.

In independent workshops and tire service centers, wheel alignment is often offered as a service for the purpose of customer binding. In many cases, a tire change is sufficient reason for wheel alignment. This can be done at the same time without high additional costs. Adjustment and repair work resulting from wheel alignment ensures additional turnover in the workshop.

**Wheel alignment from Bosch**
The FWA series range provides the right wheel-alignment analyzer for every workshop. Whether in 3D or CCD: The accuracy always meets the highest demands of vehicle manufacturers. The repeatability of results strengthens the trust in the measuring technology. Practical setting illustrations support fitters. Simple and comprehensible operation guarantees fast implementation of professional wheel alignment. Compact devices to match every workplace. Extensive range of accessories ensures universal application at the vehicle.

**Different CCD versions for the workshop**
The wheel alignment devices from Bosch are available in different versions: Selection can be made between units from the basic model FWA 4310 with six CCD sensors and data transmission per cable to the top model FWA 4437 with eight CCD sensors, radio transmission and runout compensation encoder.

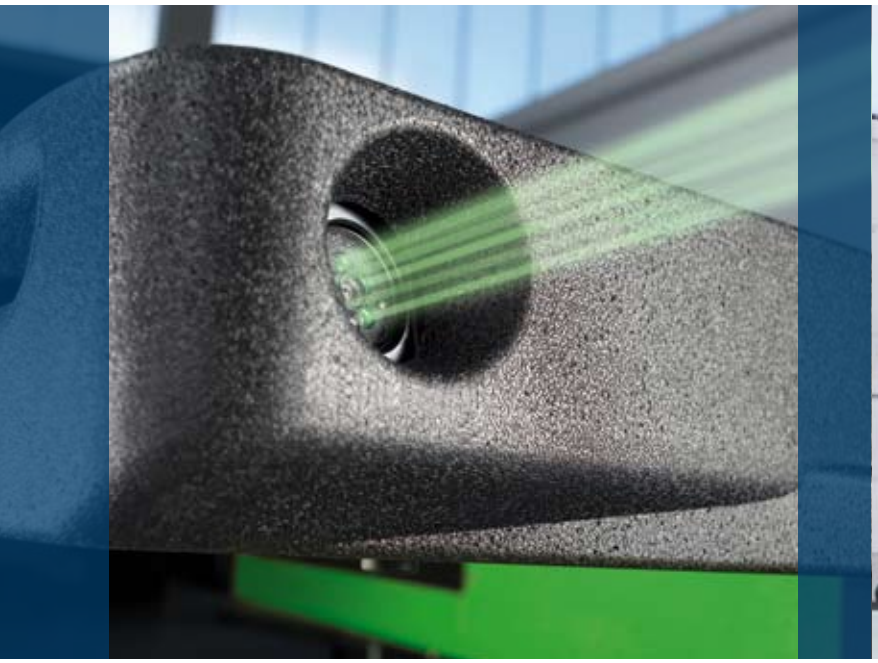
**In focus with the new FWA 4630**
Short setup times, simple operation and fast results characterize the new wheel alignment system FWA 4630 from Bosch.

- **Drive up**
  The indispensable runout compensation can now be carried out with total precision in no time at all. Following setup, you simply drive the car into the correct position. Tedious and dangerous pushing on the platform is a thing of the past.

- **Measure**
  A new dimension in wheel alignment: The FWA 4630 represents a new generation in wheel alignment technology and offers everything that the modern workshop could desire: Fast, precise measured data acquisition of toe, camber, thrust line, axle and wheel offset and, following 20° steering routine, caster and kingpin angle.

- **Done**
  In only seven minutes! In the shortest possible time and with the help of various measuring programs, workshops have all information related to the chassis as well as printable measured results, that nowadays form the basis of a competent customer discussion.

# **Built for daily workshop operation:**
# FWA 4630 – robust and safe



Sensor head covers made of EPP (extruded polypropylene)

Simple operation: Vehicle does not have to be raised during the measuring procedure

## FWA 4630: The advantages

- **Setup times reduced considerably**
  Simple positioning of the light measurement boards and sensor head saves you valuable time!

- **Fast measurement combined with high accuracy**
  Fast rolling runout compensation and consistently accurate on all four wheels simultaneously without having to lift the vehicle.

- **Competence based on precise measuring technology**
  The unique 3D measuring technology of FWA 4630 permits automatic, high precision measurements. High reproducibility of the results guarantees reliability and competence even in the case of repetitions.

- **Designed for tough daily workshop operation**
  The robust and ergonomic design is geared towards practical handling in daily workshop operation right up to the finest detail.

**Competence and precision**
High accuracy is guaranteed right from the start through rolling runout compensation. The measurement is carried out according to 3D measuring technology using two precise CCD cameras per wheel. The integrated reference system as well as camber and inclination pendulum in each sensor head ensure reliable, reproducible measured results without complicated and error-prone calibration. Thanks to reference system, the sensor heads of the FWA 4630 do not even have to be fixed to a lifting platform.

**Mobility for the complete system**
Lifting platforms designed for wheel alignment simply need to be fitted with special support brackets for the sensors. This means that an FWA 4630 system can be used on more than one lifting platform in the workshop if required. It is ideal for use in a wheel alignment pit, with the sensors simply placed on the floor next to the vehicle. The reference system uses a gravitational force reference to guarantee correct results.

# **Exclusive reference system:**
# Automatic position detection

No electronics on the wheel

**Robust, safe and mobile for use in the workshop**

- Ergonomic, bump and shockproof design with resilient plastic housing (made of extruded polypropylene): Provides safety for mechanics, vehicle and measuring technology.
- Resistant to oils and fuels
- The sensitive sensor heads are replaced by simple measurement boards. No more need for electronics at the wheel.
- The integrated camber and inclination pendulum in every sensor head ensures an absolute reference for gravitational force and consequent high reproducibility of the measured values
- The built-in unique reference system makes mobile use of the sensor head possible.
- Little space requirement

**A large amount of data and simple operation**

The vehicle database covers 35,000 vehicles. The User can extend it by individual vehicle specified data.

Regular updates (optional) ensure that new models are integrated quickly. Extensive setting assistances are available for correcting the steering geometry. The well laid-out user interface uses functions typical for Windows to make operation very easy.

Users can select between a guided routine before and after adjustment, a quick measurement without steering swing or random measurement for targeted testing of individual measured values.

# **Database and accessories:**
# Up to date, comprehensive and practical

Simple assembly – the boards only need to be positioned once

Sensor head with CCD camera

**One for all**
With the correct accessories, you can now use a single wheel aligner to measure all passenger cars and light commercial vehicles. Even the standard measurement boards cover all vehicles up to a 340 cm wheelbase. With larger boards at the rear (optional), you can measure up to 430 cm wheelbase.

**The right cable set for every testing station**
Three optional cable sets are available for the FWA 4630 depending on the existing testing station. Can be fitted in scissor lifts, four-column lifts or pits.

**Clear the stage for wheel alignment**
The large selection of lift fastening elements (special accessories) guarantees accurate fitting.

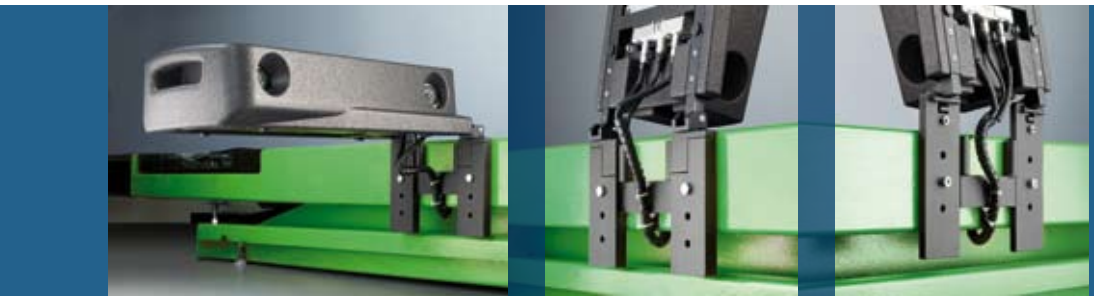
When placing your order for the installation of the mount, please specify the manufacturer and type and designation of your lift.

**Equipment supply**
Sensor heads (2 pieces), switch, hub, test box, trolley, 19" monitor, multilanguage PC, printer, program, specified data (cars & vans), dongle (USB), licenses, standard boards (4 pieces), steering wheel lock, brake pedal lock

**Order number**

| | |
|---|---|
| FWA 4630 | 1 690 700 002 |

| **Weight and dimensions** | |
|---|---|
| Trolley with sensor head | 1,520 x 1,180 x 770 mm |
| Trolley without sensor head | 1,520 x 880 x 770 mm |
| Sensor head | 150 x 370 x 650 mm |
| Sensor head weight | approx. 9.3 kg |
| Total weight of trolley | approx. 110 kg |
| **Power unit** | |
| Input voltage | 110 to 240 V AC (10A) |
| Input frequency | 50 to 60 Hz |
| Output | 0.5 kW |



**Detailed perfection**
Depending on the properties of the lifting platform: sensor head mountings for practically every platform

# **Precise** and **compact:** CCD wheel alignment for passenger cars and commercial vehicles (44xx/43xx)

Wheel alignment devices from Bosch

**The CCD wheel alignment systems from Bosch: Precision for safe handling performance and driving comfort**

The development of new chassis progresses continuously. Every year new vehicles are introduced to the market with increased safety and driving comfort and which make higher demands on the wheel alignment. The measurement of such vehicles depends, on the one hand, on appropriate equipment and, on the other hand, on the information available at all times to support the user. The new generation of wheel alignment systems from Bosch always meets both requirements with a suitable solution.

**The camera technology**

The use of modern 20° digital CCD (Charge Coupled Device) cameras speeds up caster measurement and work with mechanical turntables is possible with almost all vehicles. Only when a maximum steering angle is required by the car manufacturer is the use of an electronic turntable necessary. All new Bosch aligners still cover this requirement and offer a corresponding connection option for electronic turntables. Furthermore, the capacity of the camera permits measurement of vehicles with a wheel base of up to 6.50 meters; this also includes transporters.

**CCD wheel alignment from Bosch at a glance**

**Precision and large measuring range angle**

- Measurement accuracy with very tight tolerance thanks to well-engineered CCD sensor technology
- 20° CCD camera technology for simplified caster measurement

**Software and specs database**

- Simple and flexible user software
- Over 35,000 different vehicles from more than 50 manufacturers, which can be regularly updated
- Many explanatory images and drawings, which allow immediate, reliable correction of incorrect positions

**Mobility and compactness**

- Control system computer, TFT monitor, color printing, all sensor heads and the most important accessories in a robust and practical trolley

Software clear and simple to operate

# **Precise** and **compact:** CCD wheel alignment for passenger cars and commercial vehicles

Short setup time and simple measurement with radio data transmission and remote control

Sensor heads with protective rubber

**Measured values and accuracy**
Eight sensor systems make a 360-degree measurement all round the vehicle possible. They also offer a rear axle measurement option while the system performs a self-check. Depending on the equipment version, measured values, such as toe (partial and total toe), relative steering angle, driving angle between axles, camber, caster, kingpin angle, set-back, wheel base differential, lateral offset, wheel track differential and offset are provided to the user for proper setting of the chassis. Measurement accuracy of up to two angular minutes is achieved.

**Base version and S1 version:**
**the right FWA system for every workshop**
The base versions of the FWA 4xxx have been designed as complete systems for independent workshops to enable testing of most vehicles with the equipment supplied as standard. This why the scope of delivery of the base version contains mechanical turntables and the universal quick-action clamps. These parts are not included in the S1 version for workshops that wish to design their systems themselves. If required, they have to be ordered separately.

**Scope of delivery of base version**
Trolley, computer unit, TFT monitor and color inkjet printer, measured-value sensor, connecting cable, universal quick clamps, a set of mechanical turntables, steering wheel lock, brake tension adjuster, and standard software package with target data.

**Scope of delivery of S1 version**
Trolley, computer unit, TFT monitor and color inkjet printer, measured-value sensor, connecting cable, steering wheel lock, brake tension adjuster, and standard software package with target data.

# **Wheel alignment:**
# CCD devices: versions and technical data

### Device types for base version

| Designation | Order number | Description |
|---|---|---|
| **FWA 4437** | 1 690 320 009 | 8 CCD sensors, radio transmission with 2.4 GHz[1] and runout compensation encoder |
| **FWA 4435** | 1 690 320 006 | 8 CCD sensors , radio transmission with 433 MHz and runout compensation encoder |
| **FWA 4432** | 1 690 320 008 | 8 CCD sensors and radio transmission with 2.4 GHz[1] |
| **FWA 4430** | 1 690 320 005 | 8 CCD sensors and radio transmission with 433 MHz |
| **FWA 4415** | 1 690 320 003 | 8 CCD sensors, data transmission by cable and runout compensation encoder |
| **FWA 4410** | 1 690 320 002 | 8 CCD sensors and data transmission by cable |
| **FWA 4332** | 1 690 320 007 | 6 CCD sensors and radio transmission with 2.4 GHz[1] |
| **FWA 4330** | 1 690 320 004 | 6 CCD sensors and radio transmission with 433 MHz |
| **FWA 4310** | 1 690 320 001 | 6 CCD sensors and data transmission by cable |

[1] Only for countries, where 433 MHz transmission frequency is not allowed

### Device types S1 version[2]

| Designation | Order number | Description |
|---|---|---|
| **FWA 4437 S1** | 1 690 320 027 | 8 CCD sensors, radio transmission with 2.4 GHz[1] and runout compensation sensor |
| **FWA 4435 S1** | 1 690 320 024 | 8 CCD sensors, radio transmission with 433 GHz and runout compensation sensor |
| **FWA 4432 S1** | 1 690 320 026 | 8 CCD sensors and radio transmission with 2.4 GHz[1] |
| **FWA 4430 S1** | 1 690 320 023 | 8 CCD sensors and radio transmission with 433 MHz |
| **FWA 4415 S1** | 1 690 320 021 | 8 CCD sensors, data transmission by cable and runout compensation sensor |
| **FWA 4410 S1** | 1 690 320 020 | 8 CCD sensors and data transmission by cable |
| **FWA 4332 S1** | 1 690 320 025 | 6 CCD sensors and radio transmission with 2.4 GHz[1] |
| **FWA 4330 S1** | 1 690 320 022 | 6 CCD sensors and radio transmission with 433 MHz |
| **FWA 4310 S1** | 1 690 320 019 | 6 CCD sensors and data transmission by cable |

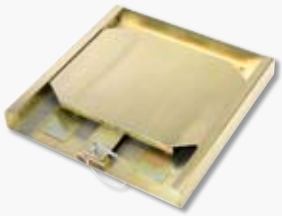
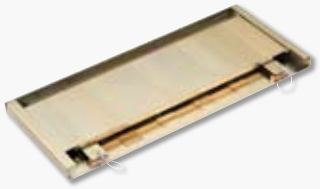
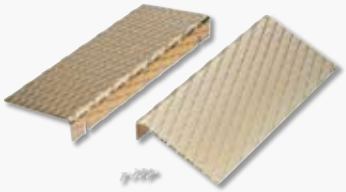
[1] Only for countries, where 433 MHz transmission frequency is not allowed
[2] The scope of delivery of the S1 version includes neither universal quick-action clamps nor mechanical turntables

| Technical data | FWA 44xx/43xx and S1 versions |
|---|---|
| Voltage | 110 – 240 V |
| Frequency | 50/60 Hz |
| Power | 500 W |
| Dimensions of equipment trolley including color monitor (W x D x H) | 870 x 780 x 1600 mm |
| Weight | 103 kg |
| **Mechanical turntable (not S1 versions)** | |
| Dimensions (W x D x H) | 370 x 350 x 50 mm |
| Load bearing capacity | 900 kg |
| Weight | 11,5 kg |

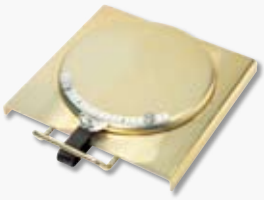
# **Wheel alignment:**
# Special accessories

| Illustration | Description of special accessories | Order number | FWA 43xx/44xx | FWA 4630 |
|---|---|---|---|---|
| | **New: Multi-Quick clamps**<br>1 unit | 1 690 501 250 | ✓ | ✓ |
| | **Remote control set with transmitter and receiver**<br>1 unit | 1 690 321 003 | ✓ | ✓ |
| | **Romess inclination measuring device (for manual data input)**<br>1 unit | 1 693 770 002 | ✓ | ✓ |
| | **Mercedes-Benz toe presser bar**<br>1 unit | 1 693 600 001 | ✓ | ✓ |
| | **Distance bolts for Mercedes-Benz and BMW for the multi-quick clamp**<br>Set with 5 units for one clamp | 1 690 401 019 | ✓ | ✓ |
| | **Adapter for Porsche rims for multi-quick clamps**<br>1 unit | 1 690 402 005 | ✓ | ✓ |
| | **Ballast bags**<br>20 kg<br>10 kg<br>5 kg | <br>1 693 740 003<br>1 693 740 002<br>1 693 740 001 | <br>✓<br>✓<br>✓ | <br>✓<br>✓<br>✓ |

# **Wheel alignment:**
# Special accessories

| Illustration | Description of special accessories | Order number | FWA 43xx/44xx | FWA 4630 |
|---|---|---|---|---|
| | **VAG tool and bridge for four-link front-axle suspension adjustment**<br>1 unit | 1 690 401 039 | ✓ | ✓ |
| | **Universal quick-action clamps up to 21"**<br>1 unit | 1 690 311 001 | ✓ | ✓ |
| | **Rubber cover for turntable**<br>1 unit | 1 690 402 001 | ✓ | ✓ |
|  | **Short sliding plate**<br>1 unit | 1 690 401 003 | ✓ | ✓ |
|  | **Long sliding plate**<br>1 unit | 1 690 401 004 | ✓ | ✓ |
|  | **Drive-on ramps for turntables and sliding plates**<br>2 units | 1 690 401 008 | ✓ | ✓ |
| | **Plastic-coated clamping claws for aluminum rims**<br>4 units for a universal clamp | 1 690 311 003 | ✓ | ✓ |

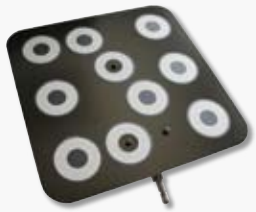
# **Wheel alignment:**
# Special accessories

| Illustration | Description of special accessories | Order number | FWA 43xx/44xx | FWA 4630 |
|---|---|---|---|---|
| | **Mechanical turntable ALU standard**<br>1 unit | 1 690 501 001 | ✓ | ✓ |
|  | **Mechanical turntable**<br>1 unit | 1 690 311 002 | ✓ | – |
| | **Electronic turntable ALU precision**<br>1 unit | 1 690 401 013 | ✓ | – |
| | **Electronic turntable with connecting line**<br>1 unit | 1 690 321 018 | ✓ | – |
| | **Extension arm for quick-action (up to 23") and multi-quick-action clamps (up to 26")**<br>Set of 12 units | 1 690 401 032 | ✓ | – |
| | **Plastic-coated aluminum sleeves for multi-quick clamps**<br>Set of 12 units | 1 690 401 010 | ✓ | – |
| | **Calibration device**<br>1 unit | 1 690 401 056 | ✓ | – |

# **Wheel alignment:**
# Special accessories

| Illustration | Description of special accessories | Order number | FWA 43xx/44xx | FWA 4630 |
|---|---|---|---|---|
| | **Precision spoiler adapter**<br>1 unit | 1 690 401 014 | ✓ | – |
| | **Spoiler adapter - 50 mm**<br>1 unit | 1 690 401 005 | ✓ | – |
| | **Spoiler adapter - 100 mm**<br>1 unit | 1 690 121 001 | ✓ | – |
| | **FWA 4630 Inlay for height compensation**<br>1 unit | 1 690 702 082 | – | ✓ |
| | **FWA 4630 Step-bracket**<br>Set of 2 | 1 690 701 045 | – | ✓ |
| | **FWA 4630 Storage trolley**<br>for wheel brackets/boards<br>1 unit | 1 690 701 041 | – | ✓ |
| | **FWA 4630 Wall hook**<br>for wheel brackets/boards<br>1 unit | 1 690 701 040 | – | ✓ |

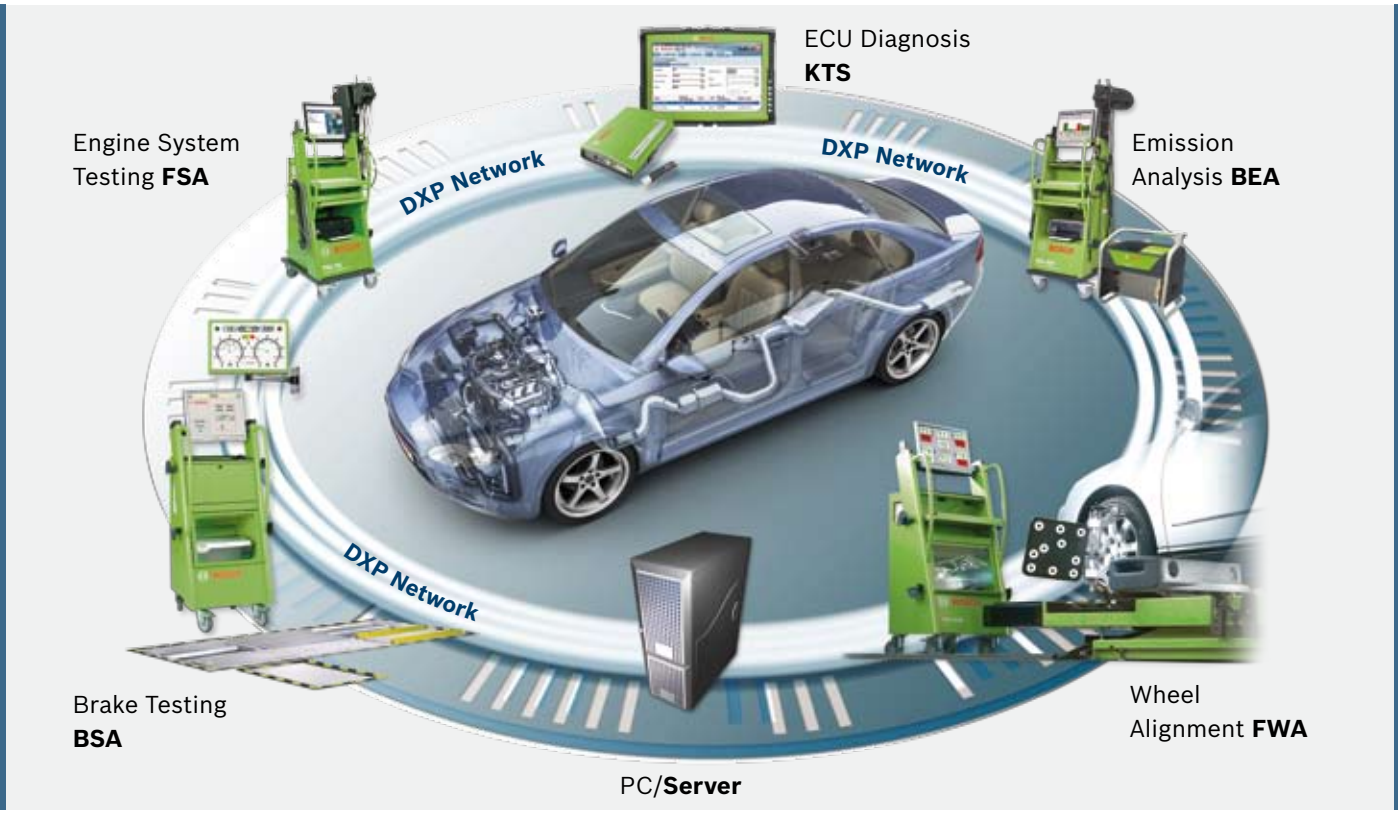
# **Wheel alignment:**
# Special accessories

| Illustration | Description of special accessories | Order number | FWA 43xx/44xx | FWA 4630 |
|---|---|---|---|---|
|  | **FWA 4630 Measuring board for long wheelbase**<br>Set of 2 | 1 690 701 012 | – | ✓ |
| | **FWA 4630 Ramp for passenger cars**<br>1 unit | 1 690 701 052 | – | ✓ |

**Further special accessories for FWA 4630**

| Special accessories | Order number |
|---|---|
| Wheel brackets (Universal clamp, set of 4 pieces) | 1 690 311 010 |
| Cable set, pit | 1 690 701 028 |
| Cable set, four-column lift | 1 690 701 029 |
| Cable set, scissor lift | 1 690 701 030 |
| English keyboard | 1 690 323 018 |
| Lift adapter swivel foot, long (set of 2 for one lift) | 1 690 701 020 |
| Lift adapter swivel foot, short (set of 2 for one lift) | 1 690 701 047 |

# **Data Exchange Platform DXP** for even more economical processes in the workshop




**New! Data Exchange Platform DXP – the efficient workshop software from Bosch**

- Networking of all diagnostic devices
- Fast, simple, reliable data exchange between all PC-based testers in the workshop
- Direct activation of the ECU diagnosis (KTS) from every DXP-networked test system
- Central storage of identification data and result records and exchange with the Workshop Management System (WMS)

**Once recorded – accessible at any time, and everywhere**

DXP from Bosch transfers all vehicle data recorded by a system to all other diagnostic systems integrated in the DXP network. Once identified, input of the license plate number or VIN (Vehicle Identification Number) is sufficient to call up the vehicle data at all workstations. This saves time. All testers from Bosch, Beissbarth and Sicam have networking-capability.

**The technical requirements**

Any modern PC can be used as a server. Bosch recommends the use of a separate preconfigured server. An interface makes connection to many Workshop Management Systems possible.

**Benefits to the workshop**

- More efficient due to simplified processes and short setup times
- No duplicated work thanks to one-time vehicle identification
- Easier subsequent identification saves time
- Central access to ECU diagnosis from every test system
- Customer-friendly through rapid processing of order data and results
- Transparent and service-oriented, standardized test records
- A database for the entire vehicle history with all test results

**Minimum requirements for PC or notebook**

The software can be inst alled on every PC in the workshop.

- Dual Core processor
- At least 2 GB main memory
- At least 150 GB hard-disk memory

# **Bosch**: bringing you the workshop of the future

For over 120 years, Bosch innovations have been keeping vehicles on the road and getting people to and from their destinations while improving safety and peace of mind along the way.
Bosch Automotive Aftermarket offers workshops and retailers a comprehensive portfolio of products that is unmatched worldwide:

- Efficient diagnostics
- Innovative workshop equipment
- Quick, reliable delivery
- The world's most comprehensive range of spare parts – including both new and remanufactured
- Workshop concepts to meet every requirement
- Comprehensive training
- Targeted sales and marketing support
- A competent service hotline
- 24-hour online workshop services
- Affordable leasing services for workshop equipment and software

From parts to scheduling, organization, and results, our solutions are combined with additional services to ensure your needs will be perfectly met, helping you to maximize your potential.

**Workshop tip:**
All-round wheel service is brought to perfection with the complete passenger car brake program from Bosch.

**Diagnostics and parts: you only find both at Bosch.**

Technical changes and program modifications are reserved

AA-DGP/MKT WAW 4123 EN 07.2010

**With extensive know-how, Bosch offers the complete passenger car brake program in original equipment quality:**
Over 10,000 products, from individual components such as brake linings or drum brakes to perfectly tuned complete systems.

**Where to find original Bosch Quality**

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