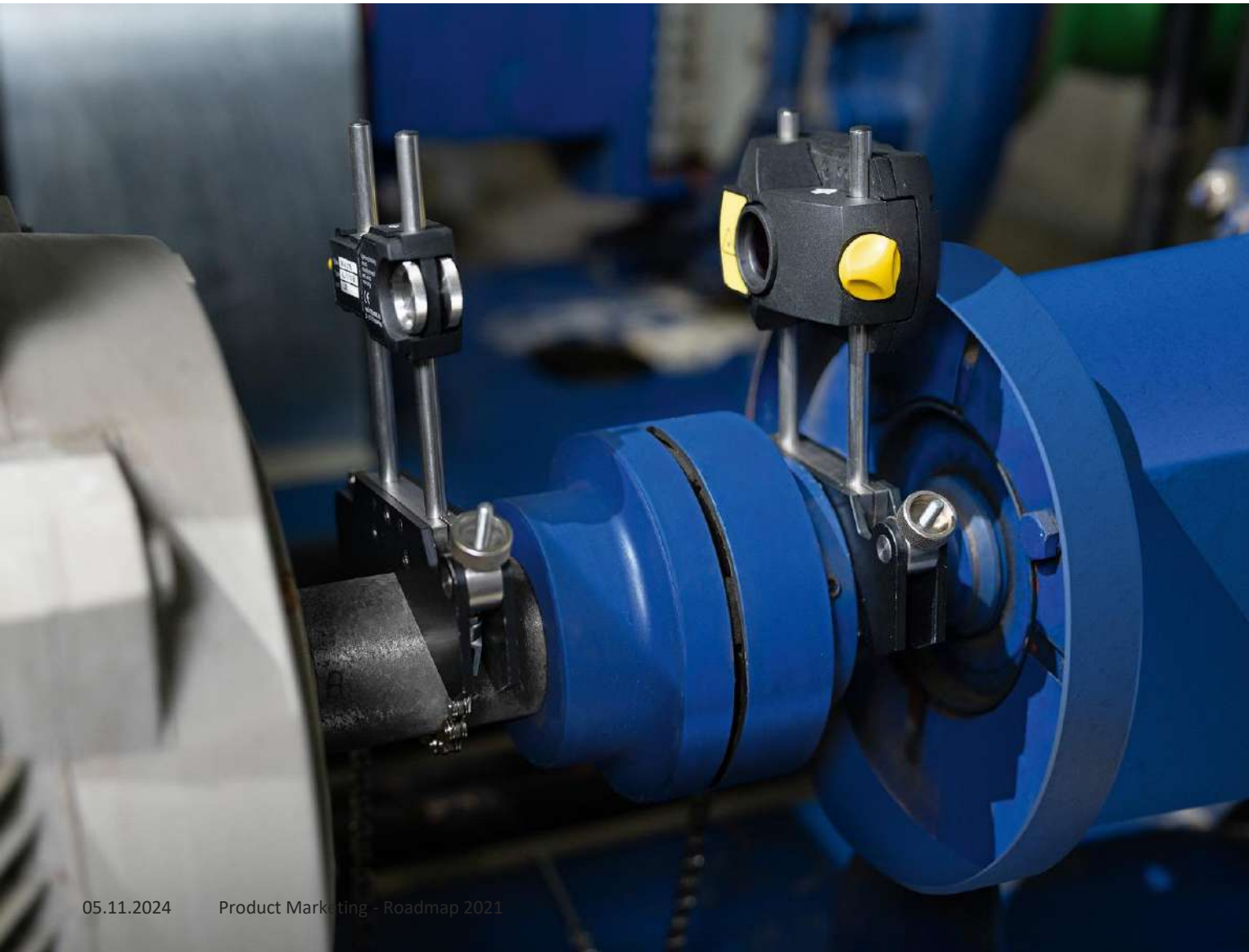


Alignment



Line up for higher machine availability

Schaeffler is

your solution provider

for smart maintenance

A thoroughly positive user experience



From installation to operation to maintenance.

One-stop shopping for all innovative and smart solutions for meeting long-term productivity needs.

In short:

We make life as easy as possible for our customers

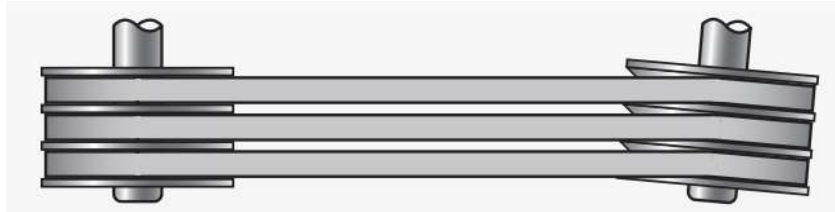
Pulley and gear wheel alignment



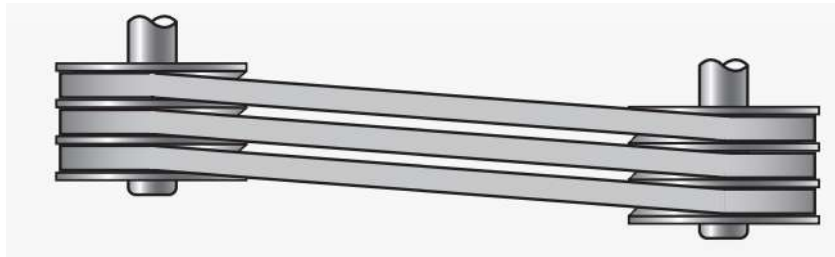
For safe and efficient operation of belt drives and chain drives, pulleys and gear wheels

- must be aligned with each other
- the correct chain or belt tension must be set.

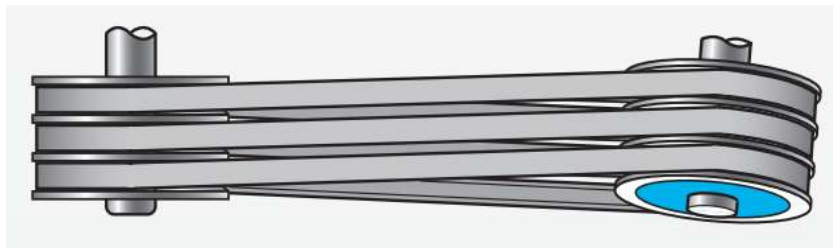
When pulleys/gear wheels are not aligned,



Angular misalignment



Parallel misalignment



Twist misalignment



there are unwanted, high vibrations



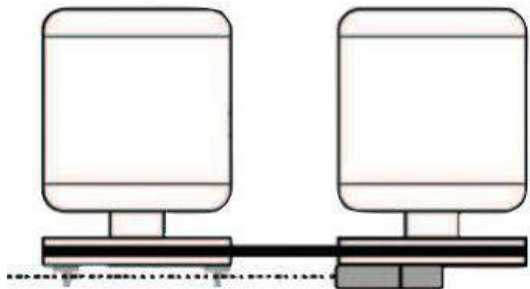
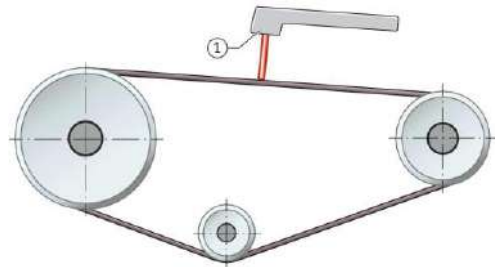
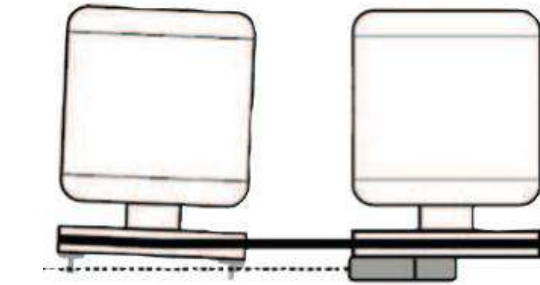
the load of bearings, pulleys, gear wheels, belts, chains and other components rises



energy consumption increases



machine failures can result



Alignment process – workflow:

1. Measure and correct misalignment
2. Belt tension measurement and adjustment
3. Re-check the alignment

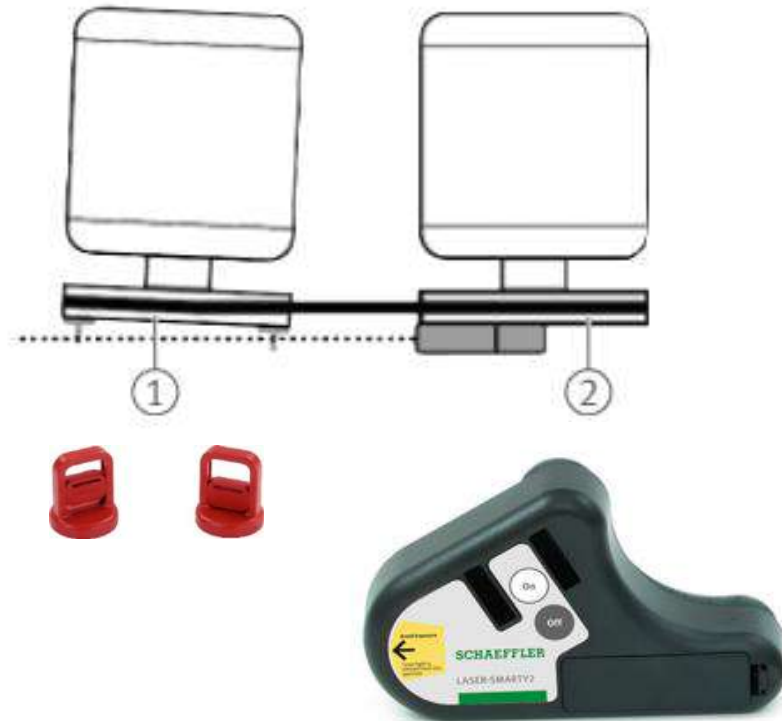


Pulley alignment device

LASER-SMARTY3

Fast and precise alignment of pulleys and gear wheels

- Line laser with 2 power levels for improved function in bright lighting conditions and over long distances (up to max. 10 m)
- For belt pulleys and gear wheels with a diameter from approx. 60 mm and a distance of up to approx. 10 m
- Simple installation of the laser and the optical target marks with magnets
- For belt drives of fans, pumps, compressors etc.
- Measuring device with 2 target marks and battery in lined case



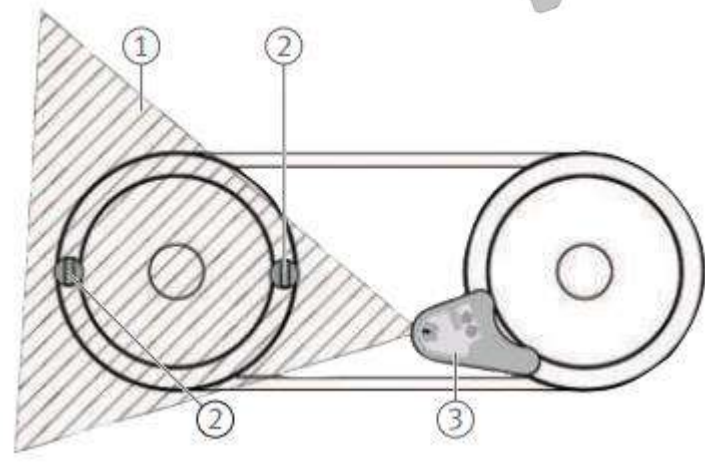
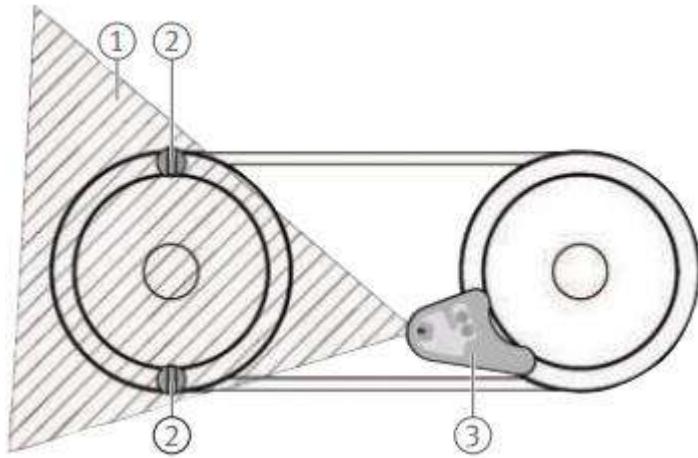
Placement of the measuring device

- Fasten the measuring device (2) to the fixed section of the machine and the target marks (1) to the adjustable section of the machine.

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2024

12.01 Dedicated Sales Service - Europa

2017



Vertical alignment

- Attach the target marks (2) vertically on the adjustable belt pulley.
- Correct angular misalignment using SHIMS
- If the belt pulleys are not in alignment (parallel offset), align the machine using adjusting screws or move the belt pulley axially on the shaft until laser beam is centred in both target marks.

Horizontal alignment

- Attach the target marks (2) in line in a single plane.
- Align the adjustable section of the machine by moving axially so that the laser beam is centred in both target marks.



Pulley alignment device

LASER-SMARTY3

Fast and precise alignment of pulleys and gear wheels

- Attached in a few seconds thanks to magnetic attachment
- Faster and more accurate than measuring with earlier, conventional methods
- Alignment can be made by one operator
- Also suitable for non-magnetic sheaves when using double-sided adhesive tape
- Less wear and more efficiency due to lower energy costs

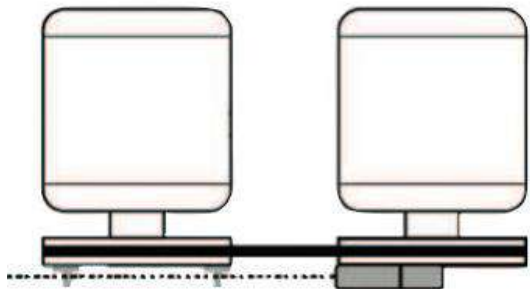
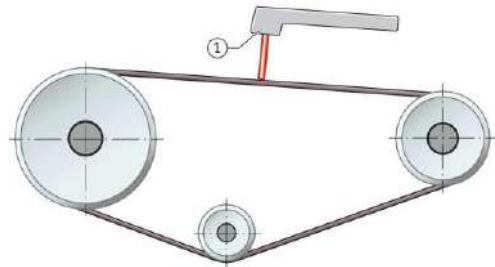
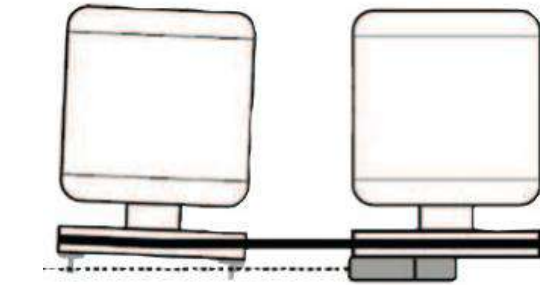


SHIMS-xx

Fast and precise alignment of machines

- Stainless steel shims for alignment of vertical misalignments or tilt feet of motors, pumps, fans, gearboxes, etc.
- 6 different sizes (M8 to M52) available in 12 thicknesses
- 3 different assortment cases available
- Single sizes also available in refill pack (10 pieces)





Alignment process – workflow:

1. Measure and correct misalignment
2. Belt tension measurement and adjustment
3. Re-check the alignment

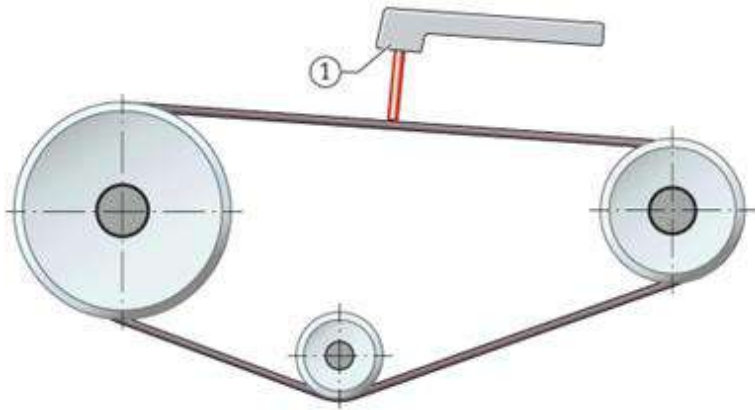


Belt tension gauge

LASER-TRUMMY2

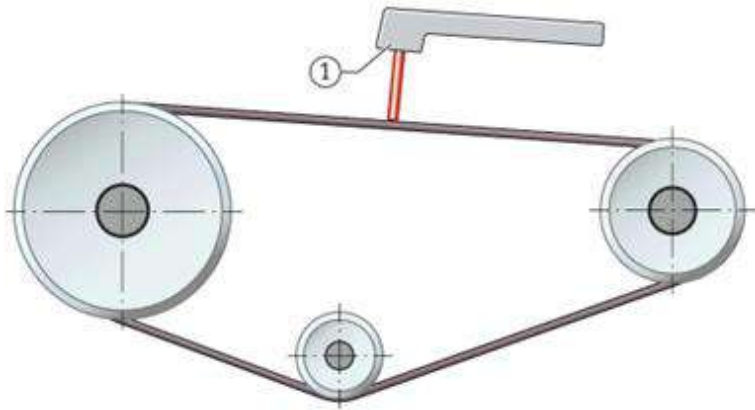
Fast and precise measurement of belt tension

- Optical-electronic measuring gauge for measuring belt tension (trum force)
- Measured value displays as frequency in HZ or as force in N
- For belt drives of fans, pumps, compressors, etc
- Can also be used in hard-to-reach places with cable measuring probe
- Less wear and more efficiency due to lower energy costs
- Complete set comes in case, comes with measuring device, measuring probe for direct connection, and cable measuring probe



Natural frequency in “Hz” - Measurement

- Strike the belt to excite it to natural vibration.
- Hold the measurement sensor (1) over the drive belt at the centre of the free strand length.
- Distance above the belt should be 3 mm to 20 mm.
- Measurement is marked by an acoustic signal.
- Display shows the word “Measurement” with the measured value in Hz (natural frequency)
- Compare measured value with the nominal value specified by the belt drive manufacturer



Strand Force in “N” - Measurement

- Adjust LASER-TRUMMY2 to measurement in “N”
- **Enter belt mass**
- **Enter strand length (max . Distance between the pulleys)**
- Strike the belt to excite it to natural vibration.
- Hold the measurement sensor (1) over the drive belt at the centre of the free strand length.
- Distance above the belt should be 3 mm to 20 mm.
- Measurement is marked by an acoustic signal.
- Display shows the word “Measurement” with the measured value in N (strand force)
- Compare measured value with the nominal value specified by the belt drive manufacturer

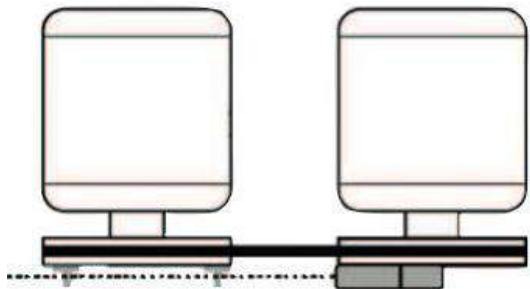
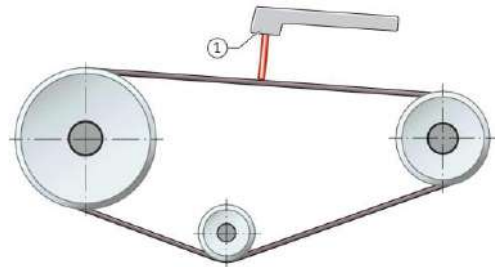
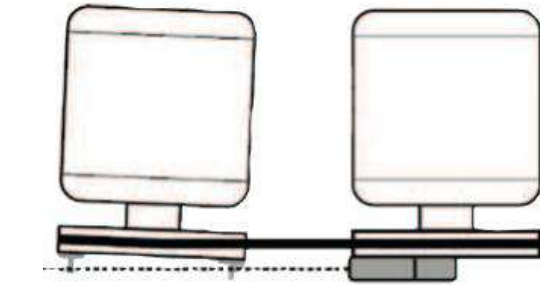


Belt tension gauge

LASER-TRUMMY2

Fast and precise measurement of belt tension

- Simple handling
- Measured value displays as frequency in HZ or as force in N
- 2 measurement probes:
 - Cable probe for hard-to-reach places
 - Plug-in probe for measurement with one hand
- Less wear and more efficiency due to lower energy costs
- Complete set comes in case (1) with cable measuring probe (2), Plug-in probe (3), measuring instrument and battery.



Alignment process – workflow:

1. Measure and correct misalignment
2. Belt tension measurement and adjustment
3. Re-check the alignment – Finished!

A strong trio act for aligning and tensioning of belt and chain drives



Shaft alignment

Shaft Alignment

SCHAEFFLER



For safe and efficient operation of belt drives and chain drives, pulleys and gear wheels

- must be aligned with each other
- the correct chain or belt tension must be set.

For years, our
LASER-EQUILIGN alignment system
has been valued for its high precision and reliability.

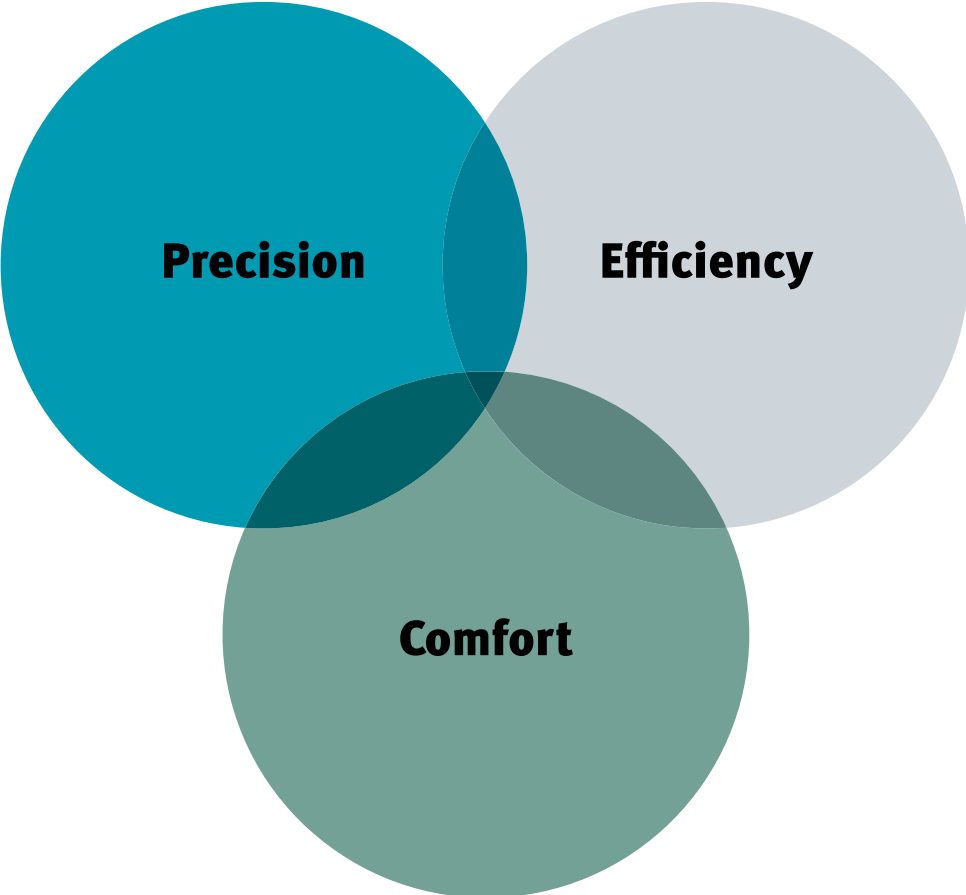
The Product

LASER-EQUILIGN2

Line up for higher machine availability –
with single-laser technology



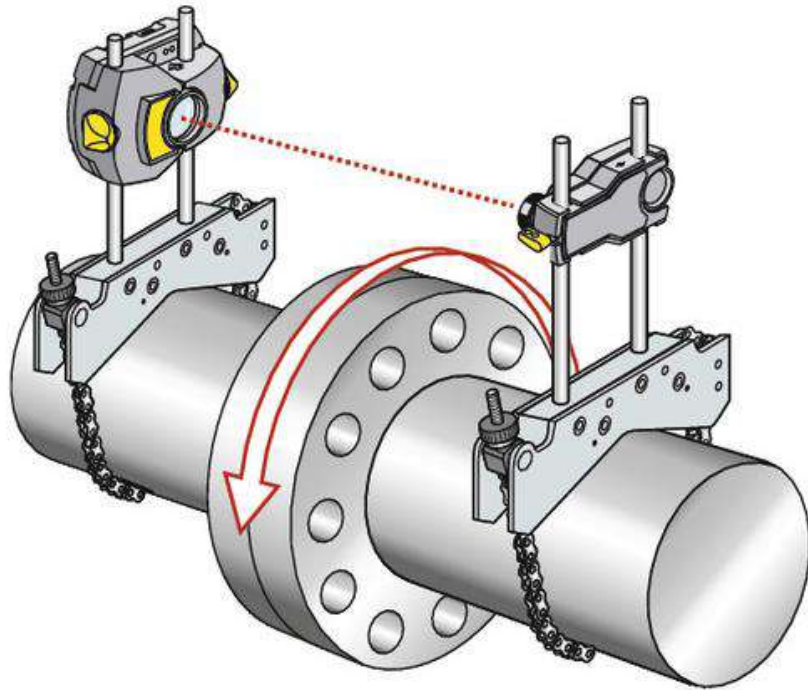
The Product



Precision

for maximum
machine performance

The Product / Precision

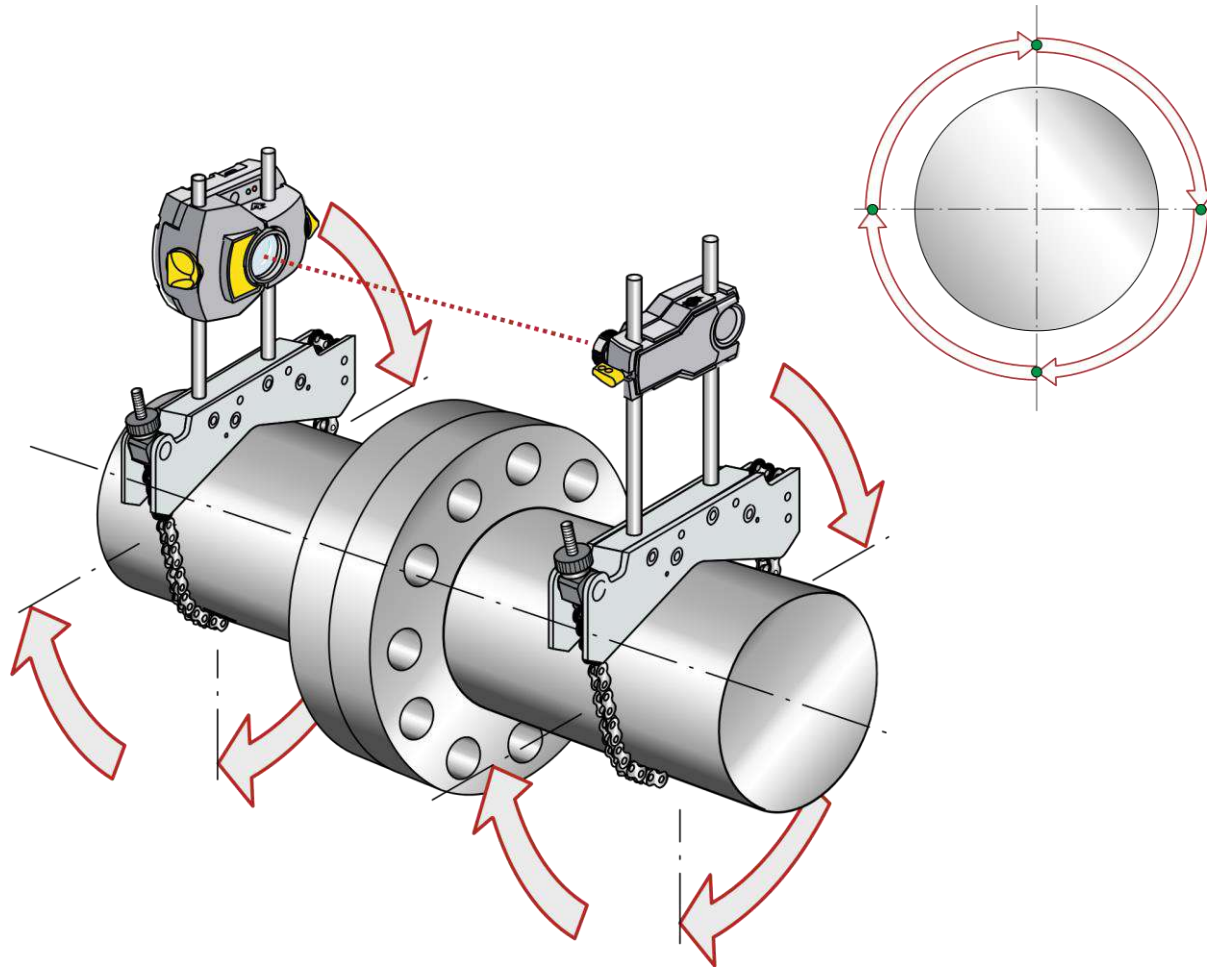


Single-laser/sensor technology
in the LASER-EQUILIGN2

The precise alignment comes from reflection technology, which results in double the normal angle resolution.

This is especially advantageous in applications with short shafts where lasers and sensors are close together.

The Product / Precision



Active clock mode with 3 - 4 measuring points

The precise alignment comes from reflection technology, which results in double the normal angle resolution.

Depending on the conversion situation and turning options there can be measured

- 3 or 4 measuring points
- In 8 possible clock positions:

12:00	1:30	3:00	4:30
6:00	7:30	9:00	10:30

Efficiency

for high
cost-effectiveness

Precise alignment using LASER-EQUILIGN2 yields crucial benefits in terms of cost-effectiveness



Machines consume less power



Less wear



Higher availability



Longer service life

The Product / Efficiency



Precise alignment reduces energy consumption - Example:

Cooling lubricant systems in production facilities

Motor output	75 kW	100 kW	200 kW
Annual energy costs	€37,440	€49,920	€99,840
Assumed energy reduction	1%	1%	1%
Savings per machine	€374	€499	€998
Savings with 6 machines	€2,244	€2,994	€5,988

The Product / Efficiency



Precise alignment reduces energy consumption - Example:



Additional savings thanks to:

- Less time spent on alignment
- Longer machine lifecycle thanks to reduced wear

Comfort

thanks to
easy operation

The Product / Convenience

Convenient, intuitive operation for fast and precise alignment

using a large, user-friendly, handheld tablet. All functions are easily identifiable. Users receive clear instructions on how to successfully carry out the alignment process.



The Product / Convenience



- Tablet is shock-resistant and waterproof (IP68)
- 8" 4c touchscreen
- 19 languages
- High-resolution camera with flash for documentation purposes
- RFID inside

The Product / Convenience

Proven system comprising of laser/sensor and reflector

- Easy to install
- Bluetooth connection
- Li-ion battery with a long life
- “Hose water protection” (IP65)



The Product / Convenience



Live Move function
for fast results

Live Move monitors alignment corrections in real time:

Red: outside tolerance



Yellow: within acceptable range

Green: within optimal range



Your benefits at a glance

- Economical and competitive alignment device for horizontal applications
- Precise alignment thanks to superior single-laser technology
 - Higher machine availability
 - Lower energy costs during operation
 - Longer service life for all surrounding parts
 - Fast and simple setup
- Four-point measurement for better measurement analysis
- Large 8" TFT display that can also be operated when wearing gloves
- Intuitive operation, thanks to nonverbal user interface – no additional training or consulting fees
- Bluetooth connection
- RFID machine identification
- High-resolution camera for documentation
- PDF report with images (editable, e.g. with company logo)

Scope of Delivery

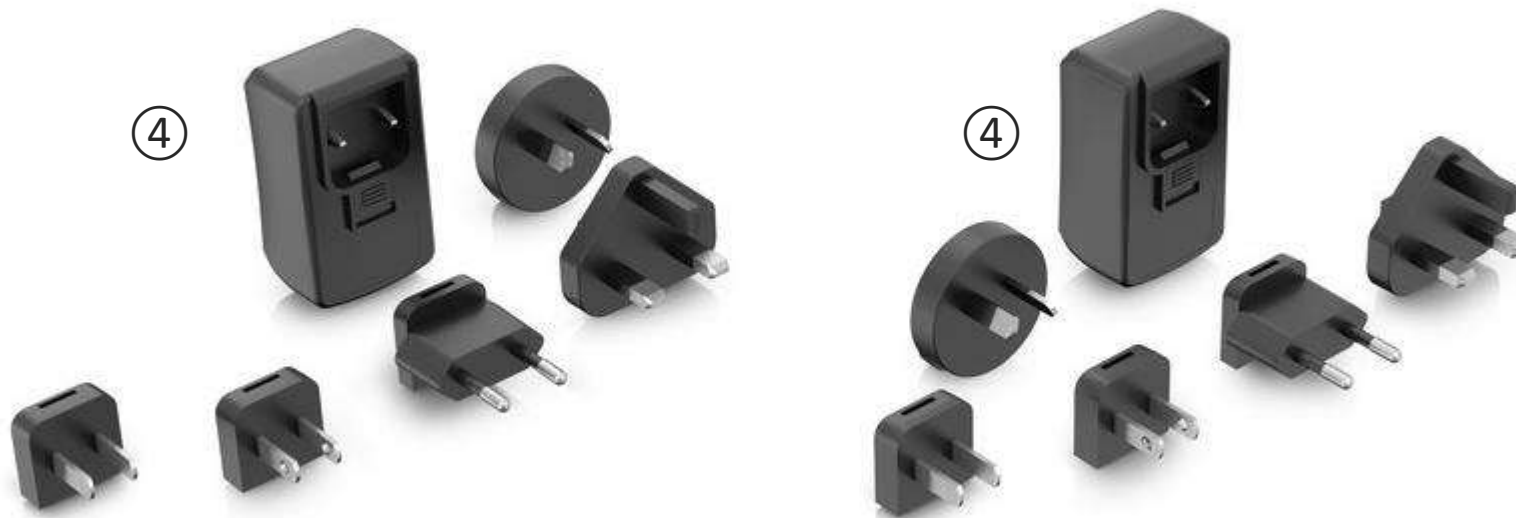


Scope of Delivery

Pos. No.	Quantity	Designation	Description
1	1	LASER-EQUILIGN2-TABLET	Tablet
2	1	LASER-EQUILIGN2.REFLECT	Reflector
3	1	LASER-EQUILIGN2.TRANS	Laser/sensor unit
4	2	LASER-EQUILIGN2.CHARGER	Charger with 5 adapters each
5	1	LASER-EQUILIGN2.CABLE-USB-STICK	USB-A-USB-C ADAPTER CABLE for data transfer
6	1	LASER-EQUILIGN2.CABLE-TRANS	MICRO USB CABLE for charging the sensor
7	1	LASER-EQUILIGN2.CABLE-TABLET	USB-C DATA CABLE for charging the tablet
8	1	-	Tape measure
9	1	-	Hex wrench, SW 4
10	2	LASER.BRACKET	Shaft bracket for laser/sensor and reflector
11	2	LASER.CHAIN600	Chain, length 600 mm, for shaft diameter ≤ 200mm
12	4	LASER.POST150	Post, length 150 mm
13	1	LASER-EQUILIGN2.CASE	Case
	1	-	Microfiber cloth
	1	BA55, Pocket Guide German	Printed matter, quick reference guide
	1	BA55, Pocket Guide English	Printed matter, quick reference guide
	1	Warning Notices and Safety Instructions	Printed matter, quick reference guide
	1	Calibration certificate, bilingual (de and en)	Printed matter



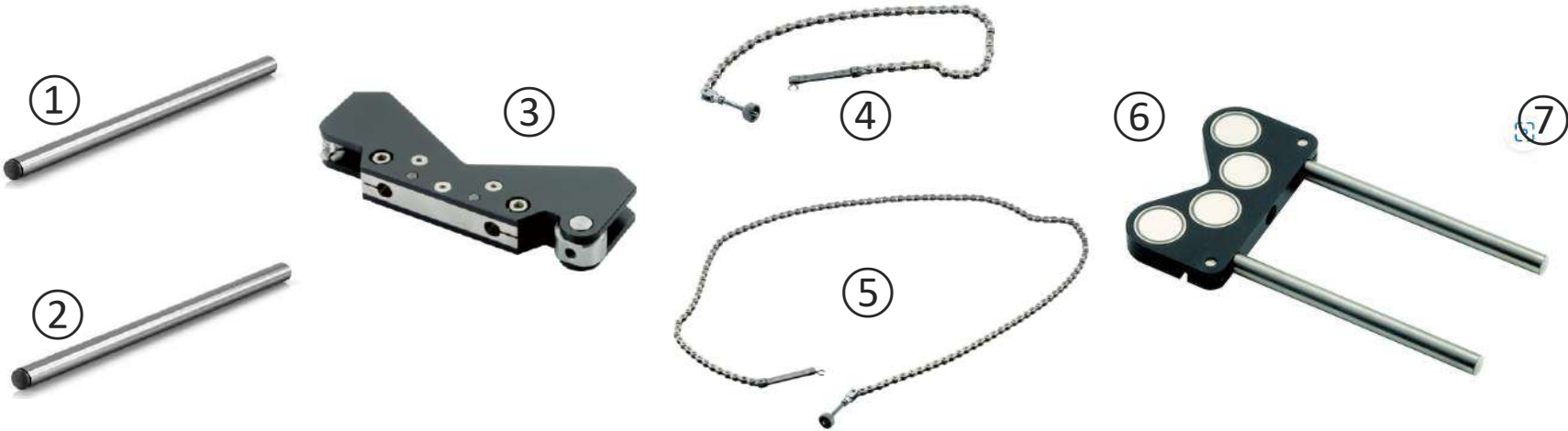
Scope of Delivery – 2 Chargers (Pos 4) with 5 adapters each



Spare parts - Accessories - Service

Pos.	SAP Designation	SAP Mat. No.	Quantity	Description	Spare part	Accessory
1	LASER-POST150	097975818-0000-10	1	post, length 150 mm	x	
2	LASER-POST300	097975621-0000-10	1	post, length 300 mm		x
3	LASER.BRACKET	081743963-0000-10	1	bracket (without post/chain)	x	
4	LASER.CHAIN600	097975206-0000-10	1	chain, length 600 mm for shaft diameter ≤ 200mm	x	
5	LASER.CHAIN1500	097975184-0000-10	1	1 x chain, length 1500 mm for shaft diameter ≤ 500mm		x
6	LASER.BRACKET-MAGNET	081745060-0000-10	1	Magnetic bracket including 2 posts, 115 mm length, for shaft diameter ≥ 500 mm and/or depending on assembly situation		x
7	DEMO-LASER-EQUILIGN	300203896-0000-01	1	Demo device for LASER-EQUILIGN2 for demonstrations and training for internal purposes only		x
	All other parts on request, contact:			tool-repair <OR-HZR-tool-repair@schaeffler.com>		

Note:
All these mechanical components for fixture of the laser/sensor unit and the reflector of LASER-EQUILIGN and LASER-EQUILIGN2 are interchangeable and usable for both.



Countries product salable with regard to Bluetooth radio licenses

Region/Country	ALI 21.901 sensALIGN 3 sensor Radio licences available
LASER-EQUILIGN2 - 096035269-0000-10	salable
Europe (EU including Switzerland, Norway, UK, Turkey)	x
USA	x
Canada	x
Australia	x
Singapore	x
Thailand	x
Brazil	x
India	x
Malaysia	x
South Africa	x
UAE	x
Chile	x
Philippines	x
Indonesia	x
Mexico	x
LASER-EQUILIGN2-CA - 096866314-0000-10	
Canada	

Region/Country	no radio licenses required product duct can be sold without restriction
LASER-EQUILIGN2 - 096035269-0000-10	salable
Russia	x
Egypt	x
Tunisia	x
Israel	x
Ukraine	x
Kazakhstan	x
Belarus	x
Kuwait	x
Jordan	x
Lebanon	x
Algeria	x
Ghana	x
Kenya	x
Ivory Coast	x
Morocco	x
Oman	x
Yeman	x
Qatar	x
Puerto Rico	x
Trinidad & Tobago	x
North Caladonia	x
Gambon	x
Panama	x
Hong Kong	x
Vietnam	x

Global Service Center List – Calibration/Repair

Country	Calibration	Repair	Company Name	Address:	Contact Person
Brasil	X		PRUFTECHNIK Ltda.	R. José Pires Xavier Sobrinho, 101, Triângulo, Pedro Leopoldo - MG, 33600-000	ingrid.moura@mgstecnologia.com.br, Phone: +55 31 3661 3374
Canada	X		FLUKE ELECTRONICS LTD PARTNERSHIP (Formerly PRUFTECHNIK Maintenace Technologie Service Inc)	4406 Rue Louis-B.-Mayer, Laval, QC H7P 0G1	Viorel.Bobeica@pruftechnik.com, Phone: (514) 738-6565 ext. 2225
China	X		FLUKE SHANGHAI CORPORATION (Formerly PRÜFTECHNIK Trading (Shanghai) Co., Ltd)	EXPEDITORS WAREHOUSE PROLOGIS PVG AIRPORT LOGISTICS CENTER NO. 619 CHUAN NAN FENG ROAD, B2 AREA SHANGHAI RAGINAL LIU	zhiwen.gu@fluke.com, Phone:
Germany	X	X	Fluke Deutschland GmbH	Oskar-Messter-Straße 19-21 85737 Ismaning	
Singapore	X		FLUKE SOUTH EAST ASIA PTE LTD (Formerly PRUFTECHNIK S.E.A. Pte. Ltd.)	1 CLEMENTI LOOP #06-02/03/04 SINGAPORE 129808	Rajiv@pruftechnik.com.sg , Phone: (65) 6382 0662
United States	X		FLUKE ELECTRONICS CORPORATION (Formerly Pruftechnik Inc.)	7821 Bartram Avenue Philadelphia, PA 19153	Ted.Gwara@pruftechnik.com, Phone: 1 (856) 631-5758

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