



# HILMA.MCP

Jaw width 60 / 100 / 125 mm, fixed jaw - centric - position flexible



## 1 Description of the product

### Description

The products are designed for universal workpiece clamping on machine tools.

The clamping force is applied by turning the spindle clockwise using a torque wrench.

### Application

The products are used for machining dimensionally stable workpieces in single or multiple clamping devices.

The products are suitable for both series and individual production.

## 2 Validity of the documentation

This documentation applies to the products:

Products from catalogue sheet WM-021-005-xx-xx. These are the types and order numbers:

- 945830102 + 0302 + 0702 + 0802
- 945850102 + 0302 + 0702 + 0802
- 945850122 + 0322 + 0722 + 0822
- 945860102 + 0302 + 0702 + 0802
- 945860112 + 0312 + 0812
- 945860122 + 0322 + 0822
- 945860132 + 0332 + 0832

## 3 Target group

Specialists, fitters and setters of machines and systems with expertise in mechanical equipment.

### Qualification of personnel

Expertise means that personnel must:

- be able to read and fully understand technical specifications such as circuit diagrams and product-specific drawing documents,
- have specialised knowledge of the function and structure of the corresponding components.

A **specialist** is a person who has sufficient knowledge based on their professional training and experience and is familiar with the relevant regulations to such an extent that they:

- can assess the work assigned to them,
- can recognise potential dangers,
- can take the necessary measures to eliminate hazards,
- are familiar with recognised technical standards, rules and guidelines,
- have the necessary repair and assembly skills.

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## 4 Symbols and signal words

### **WARNING**

#### Personal injury

Indicates a potentially dangerous situation.  
 If it is not avoided, death or serious injury can result.

### **CAUTION**

#### Minor injuries / damage to property

Indicates a potentially dangerous situation.  
 If not avoided, minor injuries or property damage may result.

#### Hazardous to the environment



The symbol indicates important information for the proper handling of environmentally hazardous substances.  
 Failure to observe these instructions may result in serious environmental damage.



#### Mandatory sign!

The symbol indicates important information on the necessary protective equipment, etc.

### **NOTE**

- The symbol indicates user tips or particularly useful information. This is not a signal word for a dangerous or harmful situation.

## 5 For your safety

### 5.1 Basic information

The operating manual serves to provide information and avoid hazards when installing the products in the machine as well as information and notes for transport, storage and maintenance. Accidents and damage to property can only be avoided and trouble-free operation of the products can only be guaranteed if this operating manual is strictly observed.

Observance of the operating manual also has the same effect:

- avoidance of injuries,
- reduced downtime and repair costs,
- increased service life of the products.

### 5.2 Safety instructions

The product was manufactured in accordance with the generally recognised rules of technology.

Observe the safety instructions and descriptions of actions in this operating manual to avoid personal injury or damage to property.

- Read this operating manual thoroughly and completely before working with the product.
- Keep the operating manual in a place where it is accessible to all users at all times.
- Observe the applicable safety regulations, accident prevention and environmental protection regulations of the country in which the product is used.
- Only use the Roemheld product if it is in perfect technical condition.
- Observe all instructions on the product.
- Only use accessories and spare parts approved by the manufacturer in order to prevent personal injury due to unsuitable spare parts.
- Comply with intended use.

- You may only put the product into operation once it has been established that the incomplete machine or machinery into which the product is to be installed complies with the country-specific provisions, safety regulations and standards.
- Carry out a risk analysis for the incomplete machine or machinery.  
 Due to the interaction of the product with the machine / device and the environment, risks may arise that can only be determined and minimised by the user, e.g.
  - Generated forces,
  - Generated movements,
  - Influence of hydraulic and electrical control,
  - etc.
- Ensure that personal protective equipment is used during all work steps.

## 6 Use

### 6.1 Intended use

The products are intended exclusively for clamping workpieces in industrial use.

The intended use also includes

- Use within the performance limits specified in the technical data (see catalogue sheet).
- Use in the manner described in the operating manual.
- Compliance with the maintenance intervals.
- Personnel qualified or instructed in accordance with the activities.
- The installation of spare parts only with the same specifications as the original part.
- Only clamping jaws may be moved.

### 6.2 Improper use

#### **WARNING**

#### Injury, material damage or malfunctions!

- Do not make any modifications to the product!

The use of the products is not permitted:

- For use at home.
- On pallets or tool tables in primary shaping and forming machines.
- If physical/chemical effects (vibrations, welding currents or other things) could damage the product.
- In machines, pallets or tool tables used to change the properties of materials (magnetisation, irradiation, photochemical processes, etc.).
- In areas where special guidelines apply, especially for equipment and machinery:
  - For use at fairgrounds and amusement parks.
  - In food processing or in areas with special hygiene regulations.
  - For military purposes.
  - In mines.
  - In explosive and aggressive environments (e.g. ATEX).
  - In medical technology.
  - In the aerospace industry.
  - For passenger transport.

- With deviating operating and environmental conditions, e.g:
  - With higher operating pressures than specified in the catalogue sheet or installation drawing.

Special solutions are available on request!

## 7 Assembly

### **WARNING**

#### Injury due to falling parts!

- Keep hands and other body parts away from the work area.
- Wear personal protective equipment!

### **CAUTION**

#### Heavy weights can fall down

- Some product types have a considerable weight. These must be secured against falling during transport.
- The weight specifications can be found in the "Technical data" chapter.

### **NOTE**

#### Aggressive media

If there is a possibility that aggressive cutting and cooling fluids with chips may enter the interior of the clamping slide, the interior of the clamping slide must be cleaned by the customer.

#### Ease of movement

Ensure ease of movement during assembly!

### 7.1 Assembly types

#### **WARNING**

#### Risk of injury due to improper attachment of the product!

Improper fastening of the product can cause the product to come loose from the machine table or be damaged during clamping or processing.

- Install the product according to the instructions in this operating manual.
- Before installing the product, ensure that the mounting surface of the product base and machine table are clean.
- The mounting surface of the product substructure must be level and rest on the machine table with at least a 75 % overlap.
- Install the product according to the torque specifications in the operating manual.
- Fasten the product in such a way that it cannot be displaced by the machining forces.

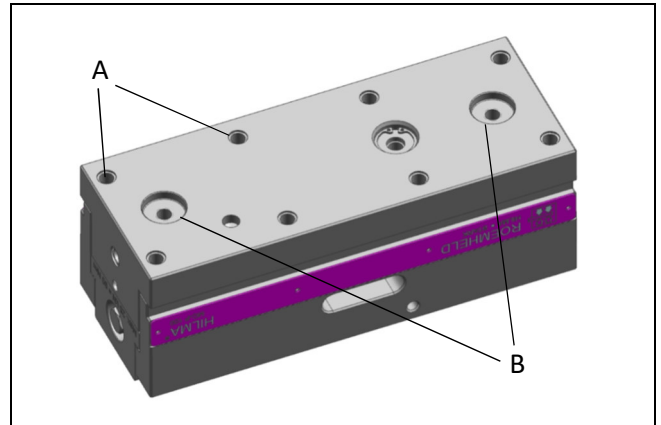


Fig. 1: Assembly types

A Threaded hole	B Fitting bore
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Attachment to the machine table:

1. Remove any unevenness and chips between the support and the base surface.
2. Align
  - with the dial gauge,
  - with fitting bores in the lower part.
3. Fasten
  - with screws,
  - with clamping claws.
4. Clamping via zero point clamping system
  - Mount the retractable nipple in the fitting bores according to the manufacturer's specifications.
  - Use the zero point clamping system in accordance with the manufacturer's specifications.

Special mounting kits can be ordered for each series.

## 8 Commissioning

### **NOTE**

#### Lubricate before commissioning

The elements are supplied with minimum lubrication.

Before commissioning, the sliding surfaces must be lightly oiled with ISO VG 220 bedway oil!

- Check tight fit (check tightening torques of fixing screws).

### **NOTE**

#### Operation of the product on grinding machines

When the product is used on grinding machines, the product becomes increasingly dirty.

- Remove dirt from the product at regular intervals.

### **WARNING**

#### Risk of injury or material damage due to collision with system components!

Persons may be injured by collision with the system components in the movement area of the system components or property damage may be caused by collision with other system components.

- Before commissioning, check the movement range of the system components for collisions.

## 9 Operation

### **⚠ WARNING**

#### **Vibration loosens the fastening of the product!**

Vibration impairs the fastening of the workpiece and leads to an improperly fastened workpiece. An improperly fastened workpiece can be ejected from the product during processing and injure people or cause material damage.

- Avoid vibration on the product as far as possible.

#### **Risk of burns from hot workpieces!**

Hot workpieces can cause burns to parts of the body.

- Wear heat-resistant protective clothing.

#### **Crushing, burns and broken bones from falling workpieces!**

Workpieces can fall during work and cause injuries.

- Wear protective footwear with at least safety level 1 (S1) during work.

#### **Risk of injury due to improperly fitted hand crank or fitted torque spanner!**

If the hand crank or torque spanner is not properly attached, it may slip off when cranking or turning and injure the operator.

- Check that the hand crank or torque spanner is correctly seated.

#### **Risk of injury due to restricted movement range of the hand crank or torque spanner!**

When cranking or turning, limbs can be crushed between the hand crank or torque spanner and objects within the movement range of the hand crank or torque spanner.

- The movement range of the hand crank or torque spanner must be freely accessible.

#### **Risk of injury when clamping the workpiece!**

Due to the properties of the workpiece, people may be injured during the clamping process because the workpiece is not properly clamped.

- Remove any dirt from the clamping surfaces before clamping.
- Observe the material properties of the workpiece when clamping.
- Observe the shape of the workpiece when clamping.
- Observe the clamping surface of the workpiece when clamping.
- Observe the inertia of the workpiece when clamping.

### **⚠ CAUTION**

#### **Risk of injury due to crushing of limbs when clamping**

The product must be used in such a way that no limbs of yourself or others can be crushed during clamping.

- When clamping, keep the clamping area clear of limbs of yourself or others.

#### **Risk of injury when clamping and releasing the product due to the high force exerted**

Initially, higher forces have to be overcome when unclamping the product. Persons can slip and injure themselves due to the high exertion when unclamping.

- Release clamping carefully and slowly.

### **i NOTE**

#### **Machining with an attached crank or torque spanner is not permitted**

A crank handle or torque spanner attached to the product is not permitted during machining.

- Before machining a workpiece, remove the crank handle or torque spanner from the product.

### 9.1 Fixed jaw design

The mechanical force is transmitted to the clamping jaws via the slides.

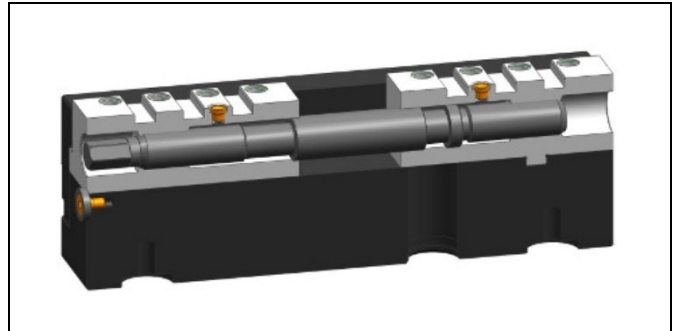


Fig. 2: Spindle drive design

- Spindle drive with right-left thread
- 1 slide fixed by means of feather key
- Clamping force build-up with torque spanner
- Clamping force is proportional to the torque

### 9.2 Centric design

The mechanical centric force is transmitted to the clamping jaws via the slides.

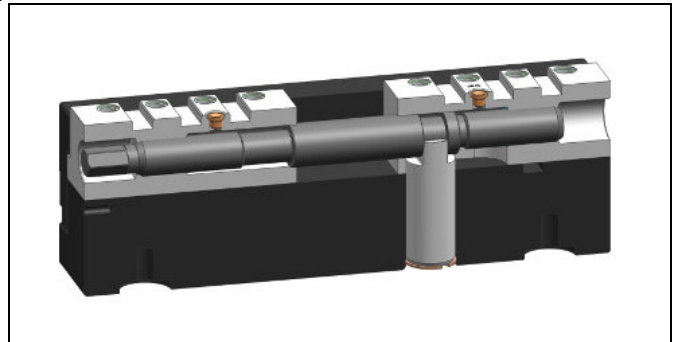


Fig. 3: Spindle drive design

- Spindle drive with right-left thread
- Threaded spindle centred by centre bearing
- Clamping force build-up with torque spanner
- Clamping force is proportional to the torque

### 9.3 Position flexible design

The mechanical centric force is transmitted to the clamping jaws via the slides.

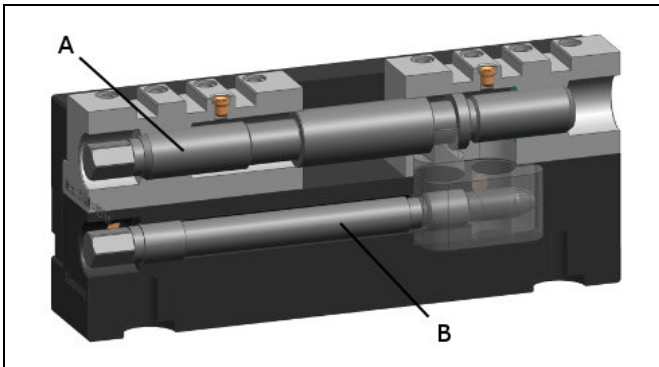


Fig. 4: Spindle drive design

A Spindle drive	B Spindle for clamping
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- Spindle drive with right-left thread
- Clamping force build-up with torque spanner - Clamping force is proportional to the torque
- Floating version with a compensation of  $\pm 2$  mm
- Additional 2nd spindle for clamping

### 9.4 Setting the clamping range

1. Attach the torque spanner to the hexagon socket.
2. Adjust the clamping range with the torque spanner until the workpiece can be inserted.
3. Position the workpiece between the clamping jaws (not included in the scope of delivery).
4. Adjust the clamping range with the torque spanner until the clamping jaws are in contact with the workpiece.
5. Check the clamping range overlap (min. 2 mm).

### 9.5 Clamping and releasing

#### **⚠ WARNING**

##### **Risk of injury due to flexible or insufficiently clamped workpieces!**

Flexible or insufficiently clamped workpieces can be ejected from the machine during machining or fall down and injure persons.

- Only use the product for clamping rigid workpieces.
- Clamp the workpiece sufficiently before machining.

##### **Risk of injury due to insufficient clamping force or clamping of the workpiece!**

Insufficient clamping force of the product or insufficiently clamped workpieces can be ejected from the machine during machining or fall down and injure persons.

- Have the product checked for operational safety by a qualified specialist after prolonged downtime, after repairs and at regular intervals.
- Have the product checked for defined clamping force by a qualified specialist.
- Have the product checked for visual damage or wear by a qualified specialist.
- Before commissioning the product, check that the product is properly secured.
- Before commissioning the product, check that the workpiece is securely clamped.

### Clamping and releasing, fixed jaw + centric version

1. Build up the clamping force by turning the spindle clockwise using a torque spanner.
2. Observe maximum values (see chapter 13 "Technical data").
3. Reduce the clamping force by turning the spindle anti-clockwise.

### Clamping and releasing, position flexible version

1. Ensure that the clamping spindle is released.
2. Build up the clamping force, then locking force, by turning the respective spindle clockwise using a torque spanner.
3. Clamping jaws adapt to the workpiece contour in the range of  $\pm 2$  mm.
4. Observe maximum values (see chapter 13 "Technical data").
5. Reduce the clamping force and locking by turning the respective spindle anti-clockwise.

## 10 Maintenance

### **⚠ WARNING**

#### **Burns due to hot surface!**

- During operation, surface temperatures on the product can exceed 70 °C.
- Only carry out maintenance and repair work when the unit has cooled down or when wearing protective gloves.

#### **Risk of injury due to breakage of parts of the product!**

During operation, parts of the product may break and cause injury to persons.

- Observe the maintenance intervals for the parts in accordance with the operating manual.

### 10.1 Maintenance schedule

Maintenance work	Interval	Performance
Cleaning	As required	Operator
Regular checks	Daily	Operator
Regular lubrication	At least once a month, at the latest after 500 clamping procedures!	Operator <b>⚠ Caution!</b> If this lubrication is not carried out, the clamping system may fail!
Repair	As required	Specialised personnel

### 10.2 Cleaning

#### **⚠ CAUTION**

##### **Damage to the moving components!**

Avoid damaging the moving components (spindle and slides).

##### **Aggressive cleaning agents**

The product may not be cleaned with:

- corrosive or caustic components or
- organic solvents such as halogenated or aromatic hydrocarbons and ketones (nitro thinner, acetone, etc.).

The element must be cleaned at regular intervals. In particular, the spindle drive and housing area must be cleaned of chips and other liquids.

In case of heavy contamination, cleaning must be carried out at shorter intervals.

### 10.3 Regular checks

1. Check the clamping force regularly with a load cell.
2. Observe maintenance intervals.

### 10.4 Regular lubrication of the spindle

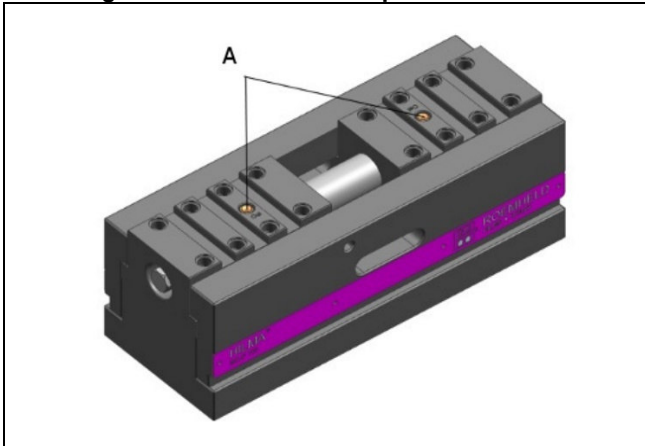


Fig. 5: Lubricating the spindle via grease nipple (A) for type 100 + 125

The following maintenance and care work must be carried out as required, but at least once a month:

1. Lubricate the spindle in the carriage with bedway oil via the grease nipple using an oil pusher.
2. Lubricate the spindle thread with bedway oil.
3. Lubricate the spindle chamber with bedway oil.
4. Lubricate the guideways with bedway oil.

For type 60, retract the clamping system and spray the spindle with MOS2 lubricating oil.

## 11 Service / maintenance service

1. Austria and Germany

Repair at the manufacturer's works:

Please return the clamping system carriage paid with a STARK return note.

Stark Spannsysteme GmbH  
Römergrund 14  
6830 Rankweil, Austria  
Tel: +43 5522 37400  
E-mail: info@stark-roemheld.com

Repair at the customer's factory:

Please request the maintenance service.

Service telephone: +49 6405 89400  
E-mail: service@roemheld.de

2. Third country

Please contact the HILMA-RÖMHELD general importer or your local dealer.

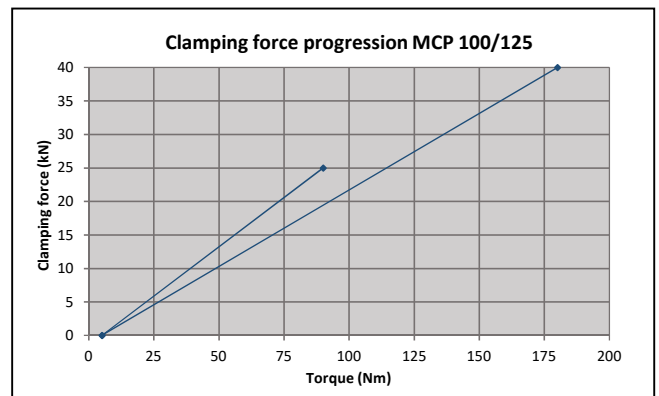
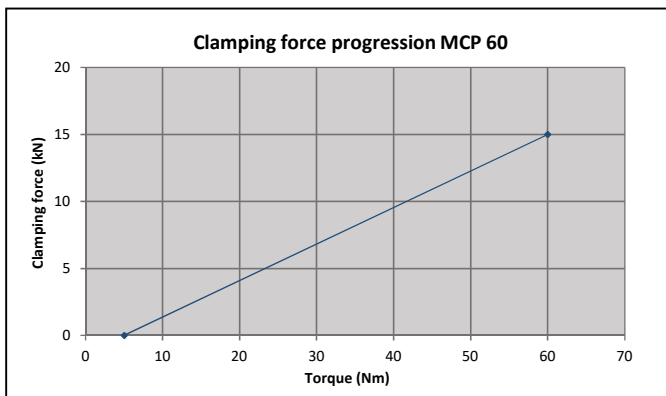
## 12 Troubleshooting

Fault	Cause	Elimination
Clamping slide has play	Guide knocked out	Replace clamping system
No clamping force build-up	Clamping range set incorrectly.	See chapter "Setting the clamping range".

## 13 Technical data

### Characteristic values

Type	945830x02	945850x02	945850x22 short	945860x02	945860x22 short	945860x12 flat	945860x32 flat + short
Jaw width (mm)	60	100	100	125	125	125	125
Installation height (mm)	70	100	100	130	130	100	100
Lower part length (mm)	170	260	168	465	283	465	283
Max. clamping force (kN)	15	25	25	40	40	40	40
Torque (Nm)	60	90	90	180	180	180	180
Clamping stroke (mm)	30	50	50	101	101	101	101
Max. clamping (Nm)	30	50	50	70	70	70	70
Floating stroke (mm)	±2	±2	±2	±2	±2	±2	±2
Mass (kg)	4.7	17.5	11	52	31	39	23



### NOTE

#### Further information

- Further technical data can be found in the catalogue sheet.

#### Suggestion, tightening torques for screws of strength class 8.8; 10.9, 12.9

### NOTE

- The specified values are to be regarded as guide values and must be designed by the user depending on the application!  
See note!

Thread	Tightening torques (MA) [Nm]		
	8.8	10.9	12.9
M6	10	15	18
M8	25	36	45
M10	49	72	84
M12	85	125	145
M14	135	200	235
M16	210	310	365
M20	425	610	710

**Note:** Valid for workpieces and shaft screws made of steel with metric thread and head dimensions such as DIN 912, 931, 933, 934 / ISO 4762, 4014, 4017, 4032

The table values for tightening torques (MA) are taken into account:

Steel/steel design, coefficient of friction  $\mu_{total} = 0.14$  - not lubricated, utilisation of minimum yield strength = 90%.

### 13.1 Storage

#### ⚠ CAUTION

#### Storage of components!

- The product must not be exposed to direct sunlight, as the UV light can destroy the seals.
- Storage outside the storage conditions is not permitted.
- Improper storage can lead to embrittlement of seals and resinification of the anti-corrosion oil or corrosion of the element.

ROEMHELD products are tested with mineral oil as standard. On the outside, the products are treated with an anti-corrosion agent.

The oil film remaining after the test provides six months of internal corrosion protection when stored in dry and evenly tempered rooms.

For longer storage periods, the product must be filled with a non-resinifying corrosion inhibitor and the outer surfaces must be treated.

### 13.2 Accessories

#### NOTE

#### Accessories

- See catalogue sheet.
- Only the use of original STARK components, such as clamping jaws or corresponding accessories, is approved.

## 14 Disposal



### Hazardous to the environment

Due to possible environmental pollution, the individual components must be disposed of by an authorised specialist company.

The individual materials must be disposed of in accordance with the applicable guidelines and regulations as well as the environmental conditions.

Special attention must be paid to the disposal of components with residual pressurised fluids. The instructions for disposal in the safety data sheet must be observed.

When disposing of electrical and electronic components (e.g. position measuring systems, proximity switches, etc.), the country-specific legal regulations and provisions must be observed.

## 15 Declaration of Incorporation

### Manufacturer

STARK Spannsysteme GmbH  
Römergrund 14  
6830 Rankweil Austria  
Tel.: +43 5522 37400-0  
E-mail: info@stark-roemheld.com  
Internet: www.stark-roemheld.com

Products from catalogue sheet WM-021-005-xx-xx. These are the types and order numbers:

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- 945860102 + 0302 + 0702 + 0802
- 945860112 + 0312 + 0812
- 945860122 + 0322 + 0822
- 945860132 + 0332 + 0832

They are designed and manufactured in accordance with Directive **2006/42/EC** (MD) as amended and the applicable technical regulations.

According to the MD, these products are components that are not ready for use and are intended exclusively for installation in a machine, device or system.

- The products may only be put into operation once it has been established that the incomplete machine / machinery into which the product is to be installed complies with the provisions of the Machinery Directive (2006/42/EC).

The manufacturer undertakes to provide the specific documentation of the products to national authorities on request. The technical documentation in accordance with Annex VII Part B has been prepared for the products.

### 15.1 List of applied standards

**Product Safety Act**; November 2011

**DIN EN ISO 12100**, 2011-03, Safety of machinery; Basic concepts, general principles for design (replacement for parts 1 and 2)

**DIN EN ISO 13857; 2008-06**, Safety of machinery; Safety distances to prevent hazard zones being reached by upper and lower limbs. (replaced: DIN EN 294)

**DIN EN 349**, 2008-09, Safety of machinery; Minimum gaps to avoid crushing of parts of the human body.

**DIN EN 81714-2**, 2007-08; Design of graphical symbols for use in the technical documentation of products

**DIN EN 82079; 2010-10**, Preparation of instructions for use; Structuring, content and presentation – Part 1

**STARK SPANNSYSTEME GmbH**

**Martin Greif**

**Managing director**



**Rankweil, (date) 30.01.2024**









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