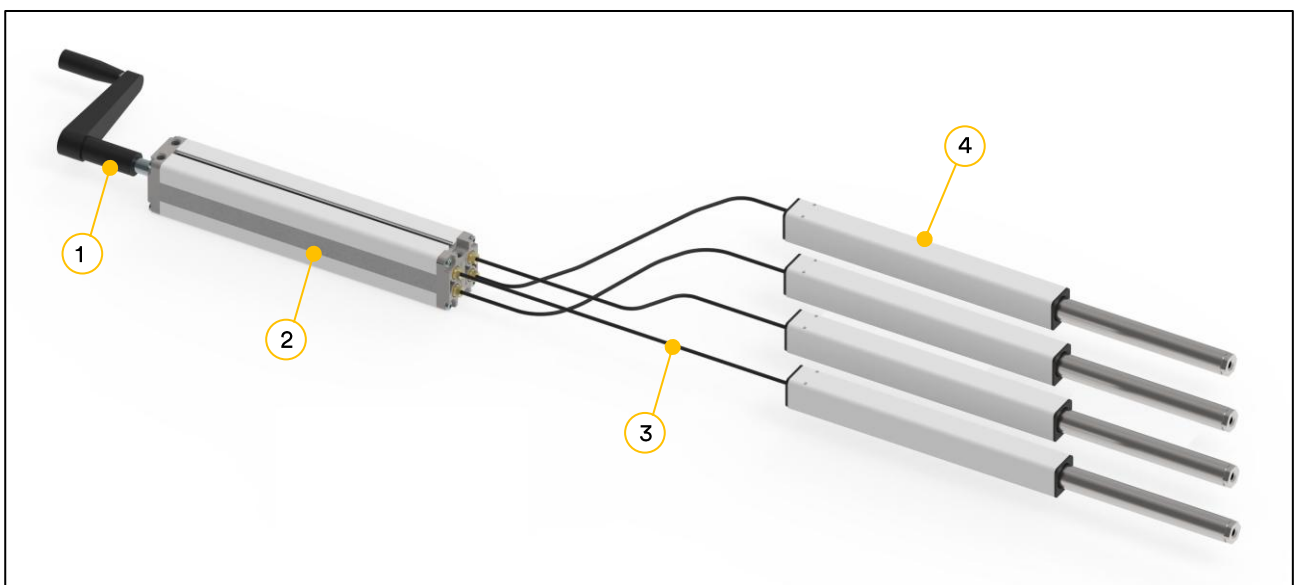


Operating manual –Lifting system Hydraulic with Hand crank



It is essential to read this operating instruction thoroughly before commissioning the system. The manual must be kept in close proximity to the system for future reference.



- ① Hand crank of Type H
- ② Pump

- ③ Hydraulic tubing
- ④ Lifting element (Cylinder, Linear unit, Table leg)

Errors and technical changes reserved.

Ergoswiss AG does not assume any liability for operating errors or using the products outside of the intended purpose use.

At the time of delivery Ergoswiss AG will replace or repair defect products within accordance with the warranty provisions. In addition, Ergoswiss assumes no other liability.

For your questions and special custom demand Ergoswiss AG will be at your disposal.

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This operating instruction applies to:

Pump PA/PB/PF with Hand crank

e.g.: Pump PA 2830 Type H with Hand crank Type H – (Article no.: 100.30003 + 113.00105)

e.g.: Pump PF 4830 Type H with Hand crank Type H – (Article no.: 103.30033 + 113.00105)

e.g.: Pump PB 6830 Type H with Hand crank Type H – (Article no.: 102.30043 + 113.00105)

	Description	Standard variations
PF	Type of pump	PA, PB, PF
Type H	Spindle shaft Type H	10x.3xxxx
4830	Number of driven cylinders	1, 2, 3, 4, 5, 6, 7, 8, 9, 0 = 10
4830	Code for piston diameter	4 = 14 mm, 8 = 18 mm, 6 = 26 mm
4830	Stroke of cylinder on the 14xx-series in cm	15, 20, 30, 40, 50, 60, 70 cm

Other versions

	Description
GS	milled pusher block
GZ	milled center plate
AL	Aluminum center plate
s01-s99	Special variation: special stroke, special front panel, color, special oil, etc.

Notes over the operating instruction:

Lifting systems from Ergoswiss AG are intended for installation in an overall system (e.g. assembly table) and classified under the category of incomplete machines in accordance with the Machinery Regulation (EU) 2023/1230.

This operating instruction contain information on the commissioning, handling and safety of the lifting system and are aimed at the further- user and manufacturer of the entire system. The further-user of this lifting system is obliged to create an operating manual with all usage information and hazard warnings for the entire system.

The declaration of incorporation is only valid for the Ergoswiss lifting system and not for the overall system created by the further-user.

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1 Safety requirements

The safety instructions must be paid attention to! If the system is operated improperly or not in accordance with the intended use, there may be a risk to persons and property!

Before installing and operating the lifting system, this operating instruction must be read and understood. The manual must be kept in the close proximity to the system for future reference.

1.1 Explanations of the symbols and notes

The following explanations of symbols and notes must be observed. These are classified according to ISO 3864-2 (ANSI Z535.4).

DANGER



Indicates an imminent danger.
Failure to follow the information will result in death or severe physical injury (disability).

WARNING



Indicates a potentially dangerous situation.
Failure to follow the information will result in death or severe physical injury (disability).

ATTENTION



Indicates a potentially dangerous situation.
Failure to follow the information will result in damage to property and minor or medium physical injuries will result.



NOTE
Indicates general information, useful user tips and work recommendations, which have no impact on the health and safety of staff.

2 System description

2.1 General information

The basic functionality of a hydraulic lifting system by Ergoswiss AG is the lifting and lowering of work surfaces, machine parts, profile systems, etc.

An operative hydraulic lifting System consists of a minimum of following components:


- Lifting element (Table leg Tx, Linear unit Lx, Cylinder Cx) with tubing
- Pump (PA, PB, PF) with Motor drive
- Hand crank

The hand crank, which is attached to the pump, moves an internal spindle drive inside the pump, which forces the volume of oil from the pump through the tubing into the lifting elements.

2.2 Intended purpose use

System is designed for:	NOT scope of application:
<ul style="list-style-type: none"> → Height adjustment of worktops → Height adjustment of machine parts → Height adjustment of profile systems → ... the list is not exhaustive 	<ul style="list-style-type: none"> → Clamping tool or press → Security component → Lifting platforms / personnel transport only in consultation with Ergoswiss AG

2.2.1 General safety instructions

ATTENTION	
	<p>The safety instructions must be paid attention to! If the system is operated improperly or not in accordance with the intended use, there may be a risk to persons and property!</p>

The lifting system may be used if:

- it is located in closed rooms, in a dry and non-explosive environment.
- the ambient temperature is between +10 °C and +40 °C.
- This device can be used by children aged 8 and over and by persons with reduced physical, sensory or mental abilities or lack of experience and knowledge if they are supervised or have been instructed in the safe use of the device and the resulting dangers to understand.

The lifting system must not be:

- operated outside of the performance data (max. compressive, bending moment loads).
- subjected to tensile loads (lifting system is a single acting hydraulic system).
- subjected to impulse, impact and impact forces (e.g. setting down loads).
- operated on unstable or sloping ground.
- operated with impermissible or non-designated components.
- operated with damaged components.
- opened, reworked or rebuilt.
- Children must not play with the device. Cleaning and user maintenance shall not be made by children without supervision.

When installing and operating the lifting system, the intended use of the entire system must be adhered to. Commissioning is prohibited until the entire system complies with the provisions of the Machinery Regulation (EU) 2023/1230. For this purpose, it is essential to perform a risk analysis, so that possible residual hazards can be reacted to (e.g. through constructive measures or through instructions in the operating instructions and/or through safety indication on the system). In the event of improper use, the liability of Ergoswiss AG and the general operating permit for the lifting system will expire.

2.3 Target group and prior knowledge

Before installing and operating the lifting system, this operating instruction must be read and understood. The manual must be kept in close proximity to the system for future reference.

This operating instruction addresses the following groups of people:

The **manufacturer of the overall system** who integrates this lifting system into an overall system and integrates these operating instructions into the operating instructions for the overall system.

The **commissioning personnel** who install the lifting system in a workplace, a machine, etc. and put it into operation. For commissioning basic mechanical and electrical knowledge are required.

2.4 Performance characteristics

2.4.1 Lifting element

	Lifting element 14xx	Lifting element 18xx	Lifting element 16xx
Cross-section Cylinder	Piston Ø = 14 mm	Piston Ø = 18 mm	Piston Ø = 26 mm
Cross-section Guiding	→ see technical drawing		
Standard stroke length	150, 200, 300, 400, 500, 600, 700 mm (5.9", 7.9", 11.8", 15.7", 19.6", 23.6", 27.6")		
Installation length	→ see technical drawing		
Weight	→ see technical drawing		
Max. allowed pressure load per lifting element	1'500 N (337 lbf)	2'500 N (562 lbf)	5'200 N (1'169 lbf)
Max. allowed system load	→ see system combination table		
Lifting speed	→ see system combination table		
Max. allowed tensile load	0 N (0 lbf) ①		
Reset force per lifting element ①	→ see system combination table		
Max. bending moments	→ see technical drawing ②		
End switch	No, storage of end positions (reading encoder)		
Tested product life span	10'000 double strokes, with max. stroke & system load, Duty cycle 2/18 ③		

① Single acting hydraulic system; cannot absorb any tensile force, requires reset force

② stat. = during standstill; dyn. = during stroke movement



NOTE

For further information on the lifting element, see the system combination table and technical drawings.

2.4.2 Pump

	Pump PA	Pump PF	Pump PB
Number of connections for lifting elements	1 ... 2	3 ... 4	3 ... 10
Cross-section Pump	35 x 85 mm (1.38" x 3.35")	65 x 60 mm (2.56" x 2.36")	60 x 120 mm (2.36" x 4.72")
Standard stroke length	150, 200, 300, 400, 500, 600, 700 mm (5.9", 7.9", 11.8", 15.7", 19.6", 23.6", 27.6")		
Installation length	→ see technical drawing		
Weight	→ see technical drawing		
Max. allowed system load	→ see system combination table		
Protection class (DIN EN 60529)	IP 41; PA, PF, PB 3xxx-6xxx IP 10; PB 7xxx-0xxx		
Tested product life span	10'000 double strokes, with max. stroke & system load		



NOTE

For further information on the pump, see the system combination table and technical drawings.

2.4.3 System data

An excerpt of the system combination table is shown below.

# Lifting elements	Max. system load [kg] (lbs)	Stroke length [mm] (in)	Lifting element Type	Pump Type	Stroke per turn [mm/U] (in/T)
1	100 (220)	150 (6")	① 1415	PA 1815	5 mm/U (0.2"/T)
		200 (8")	① 1420	PA 1820	
		300 (12")	① 1430	PA 1830	
		400 (16")	① 1440	PA 1840	
		500 (20")	① 1450	PA 1850	
		600 (24")	① 1460	PA 1860	
		700 (28")	① 1470	PA 1870	
2	300 (660)	150 (6")	① 1415	PA 2815	5 mm/U (0.2"/T)
		200 (8")	① 1420	PA 2820	
		300 (12")	① 1430	PA 2830	
		400 (16")	① 1440	PA 2840	
		500 (20")	① 1450	PA 2850	
		600 (24")	① 1460	PA 2860	
		700 (28")	① 1470	PA 2870	
	500 (1'100)	90 (3.5")	① 1815	PA 2815	3 mm/U (0.12"/T)
		110 (4.3")	① 1815	PA 2820	
		180 (7.1")	① 1820	PA 2830	
		240 (9.4")	① 1830	PA 2840	
		300 (12")	① 1830	PA 2850	
		400 (16")	① 1840	PA 2866	
3 ... 10	350 (770)	150 (6")	① 1415	PF/PB x815	5 mm/U (0.2"/T)
		200 (8")	① 1420	PF/PB x820	
		300 (12")	① 1430	PF/PB x830	
		400 (16")	① 1440	PF/PB x840	
		500 (20")	① 1450	PF/PB x850	
		600 (24")	① 1460	PF/PB x860	
		700 (28")	① 1470	PF/PB x870	
	600 (1'320)	110 (4.3")	① 1815	PF/PB x820	3 mm/U (0.12"/T)
		180 (7.1")	① 1820	PF/PB x830	
		240 (9.4")	① 1830	PF/PB x840	
		300 (12")	① 1830	PF/PB x850	
		400 (16")	① 1840	PF/PB x866	
	800 (1'760)	110 (4.3")	① 1815	PF/PB x418	1.8 mm/U (0.07"/T)
		180 (7.1")	① 1820	PF/PB x430	
		240 (9.4")	① 1830	PF/PB x440	

① Cylinder (CB, CD, CE, ...), Linear unit (LA, LD, ...) or Table leg (TA, TL, TT, ...)

NOTE

The lifting system can be subjected to uneven loads as long ...



- the max. load on the single lifting element is not exceeded,
- the max. bending torque of the lifting element is not exceeded,
- the entire system is located on sufficient safe ground

... and the entire plant has been constructed in accordance with the provisions of the mechanical equilibrium. → Conducting a risk analysis

ATTENTION



High pulse / impact forces due to the discontinuation of loads are not allowed.
(e.g. discontinuation of loads in feed with crane or forklift)

3 Mounting instructions

NOTE

The hydraulic tubing is to be assembled to the lifting element in accordance with the assembly instructions.



The lifting element with tubing is to be assembled to the pump in accordance with the assembly instructions.

The pump with motor drive or with Hand crank is to be assembled to the existing system in accordance with the assembly instructions.

Information on mounting the pump, the pump with motor drive and the lifting element can be found in the technical drawings.

NOTE



To all connections of the pump a lifting element must be connected to, otherwise the pump will block and the lifting system will be damaged.

NOTE



The minimum tubing bending radius is 25 mm. The tubing must be routed in such a way that it is not exposed to any mechanical stress, no aggressive media (chemicals), no direct sunlight (UV radiation) and no heat.

4 Operation

ATTENTION



Danger of squeezing during height adjustment!

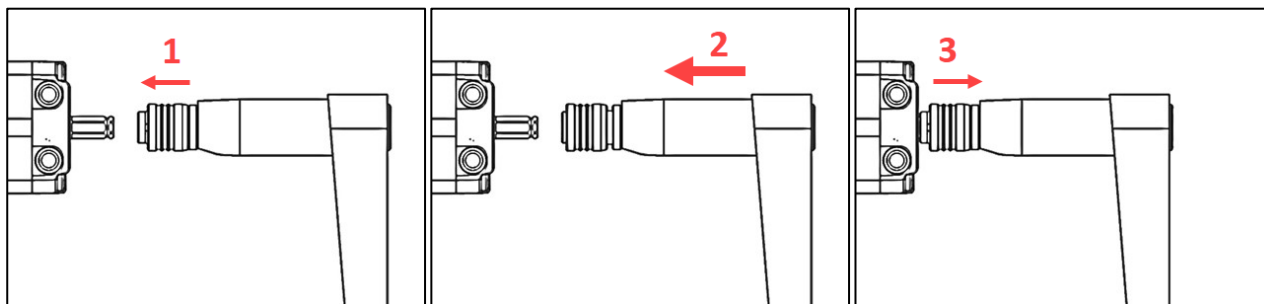
ATTENTION



The entire lifting area of the lifting element must always remain free. The lifting element is not allowed to hit a stop before it reached its upper and lower block positions. Otherwise air will be pulled into the system or too much pressure will build up.

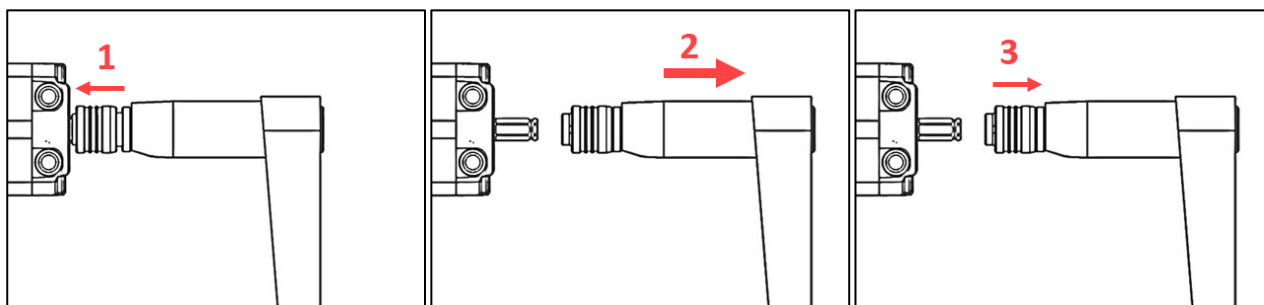
4.1 Attaching the hand crank

1. Push the sleeve forward.
2. At the same time, place the entire hand crank onto the hexagon spindle shaft of the pump.
3. Release the sleeve, it will automatically be pushed back.
→ The hand crank is now attached to the pump.



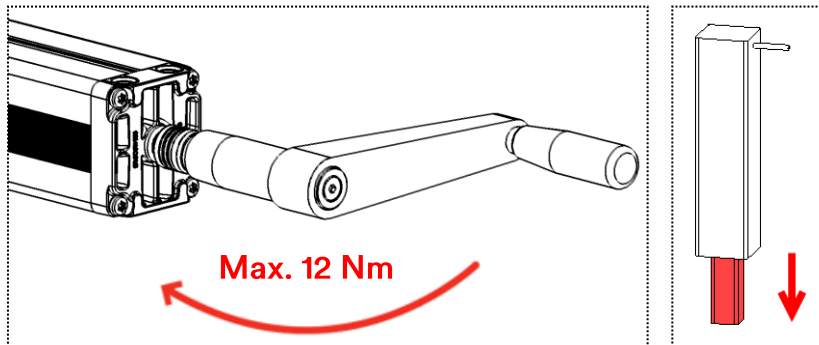
4.2 Removing the hand crank

1. Push the sleeve forward.
2. At the same time, pull the entire hand crank off the hexagonal spindle shaft of the pump.
3. Release the sleeve, it will automatically be pushed back.
→ The hand crank is now removed from the pump.



4.3 Extending the lifting system

By turning the hand crank clockwise the lifting elements are extended.
Turn the crank until the desired working height is reached.

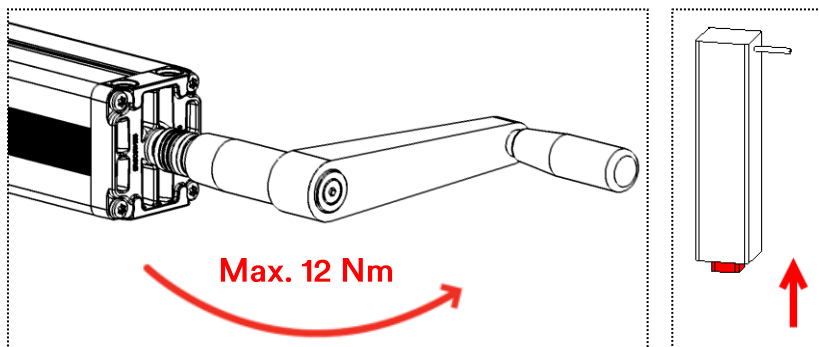


NOTE

The hand crank may be actuated with a maximum torque of 12 Nm = 8.8 lbf·ft!
The system must not be driven towards the end position with momentum!

4.4 Retracting the lifting system

By turning the hand crank counter-clockwise the lifting elements are retracted.
Turn the crank until the desired working height is reached.

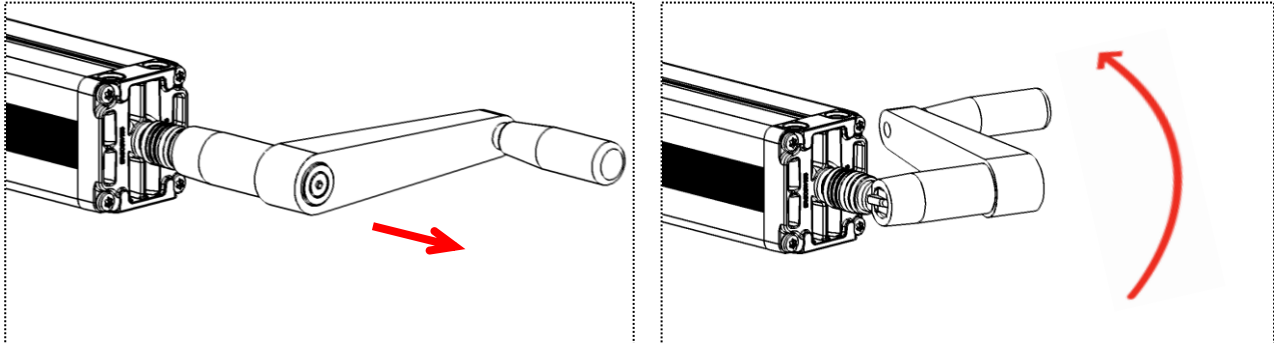


NOTE

The hand crank may be actuated with a maximum torque of 12 Nm = 8.8 lbf·ft!
The system must not be driven towards the end position with momentum!

4.5 Folding hand crank

The crank body can be folded down by pulling the hand crank handle.
After folding back the crank body again, the pump can be operated again.



ATTENTION



If the lifting system is not operated, the hand crank should be folded in for safety reasons to avoid the following scenarios:

- Risk of injury to persons due to impact with the hand crank
- Damage to the crank handle due to impact with the hand crank
- Retraction of the lifting system on its own

5 Trouble shooting

ATTENTION



The lifting system must not be opened, reworked or operated by impermissible components.

Error	Cause	Rectification
Hand crank cannot be turned	Not all lifting elements were connected to the pump	Mount all lifting elements on the pump according to the assembly instructions
	System overloaded	Remove load from the system
Oil loss	Pump, tubing or lifting element defective	Remove load from the system, Contact the customer service

6 Maintenance, cleaning and disposal

The lifting system is maintenance-free during normal operation throughout its entire lifespan.

Repairs must only be conducted by specialists. Only original replacement parts may be used. For all repair work the system must always be unloaded.

When decommissioning and disposing of the lifting system the electronic parts must be disposed of separately. The system consists of components that can be fully recycled and thus they are quite safe from an environmental protection perspective. The electronic parts comply with the RoHs directive.

The lifting system is not covered by the Electrical and Electronic Equipment Act (WEEE Directive 2012/19/EU).

Lifting systems from Ergoswiss AG are intended for installation in an overall system (e.g. assembly table) and classified under the category of incomplete machines in accordance with the Machinery Regulation (EU) 2023/1230.

Therefore, these systems are not intended for private use.

7 Declaration of Incorporation



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EG Declaration of Incorporation in the sense of the Machinery Regulation (EU) 2023/1230 annex V, Part B

We hereby declare that for the incomplete machine „hydraulic lifting system”, for ergonomically height adjustable workplaces or similar, with the variants

Hydraulic system				
Drive	+	Pump	+	Lifting element
Hand crank (113.xxxxx)				Cylinder CB, CD, CE, CG, CH, CI, Cx (107/109/307/309.xxxxx)
Motor Px A, Px B, Px D (112.xxxxx)		PA, PB, PF (100/102/103.xxxxx)		Linear unit LA, LB, LD, LG, LH, Lx, (106/306.xxxxx)
				Table leg TA, TL, TM, TQ, TT, TU, Tx (106/306.xxxxx)
				Lifting castor HR, Hx (501.xxxxx)

the following essential requirements of the Machinery Regulation (EU) 2023/1230 are applied and complied with:

1.1.2.; 1.1.3.; 1.1.5.; 1.1.6.; 1.2.; 1.3.2.; 1.3.4.; 1.3.9.; 1.5.1.; 1.5.3.; 1.5.4.; 1.5.7.; 1.5.8.; 1.5.9.

In particular the applied harmonized standards:

EN 1005	Safety of machinery: Physical performance
EN ISO 12100	Safety of machinery: 2011
EN 55014	Electromagnetic compatibility
EN 60335	Safety of electrical appliances for household use (110V version: UL 60950)
EN 60204	Electrical equipment of devices
EN 61000	Electromagnetic compatibility: EMC (110V version: FCC Part 15 Class A)
EN 62233	Household electrical appliances EMC, evaluation and measurement

specific technical documentations have been created in accordance with annex IV, part B, and will be sent to the national authorities by registered letter or electronically, if the request is justified, and this incomplete machine is in conformity with the relevant provisions of other EU Directives and Regulations:

89/391/EG	Safety and health of workers
2023/988/EU	Regulation on general product safety
2014/30/EU	Directive on electromagnetic compatibility
2014/35/EU	Low voltage directive

Furthermore, we declare that this incomplete machine may only be commissioned if it has been determined that the machine in which the incomplete machine is to be installed complies with the provisions of the Machinery Regulation (EU) 2023/1230 and our assembly and service operating instructions have been followed.

Widnau, 26. November 2025
Martin Keller
Managing Director / CEO

Document responsibility EU:

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