

Translation of the Original Operating Instructions

perma CWL (Crane Wheel Lubrication) PLUS SET



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Without the specific approval of perma-tec GmbH & Co. KG no part of this documentation can be copied or made available to third parties.

We have taken great care when compiling all the details contained in this documentation. However we cannot rule out discrepancies and we reserve the right to make technical changes to the product without giving advance notice. We do not assume any judicial responsibility or liability for damages which may ensue as a result. We will include any necessary changes in the next edition.

1. Description of System

The perma CWL (Crane Wheel Lubrication) PLUS SET provides lubrication directly to the crane wheel flange face in contact with the rail head reducing the coefficient of friction.

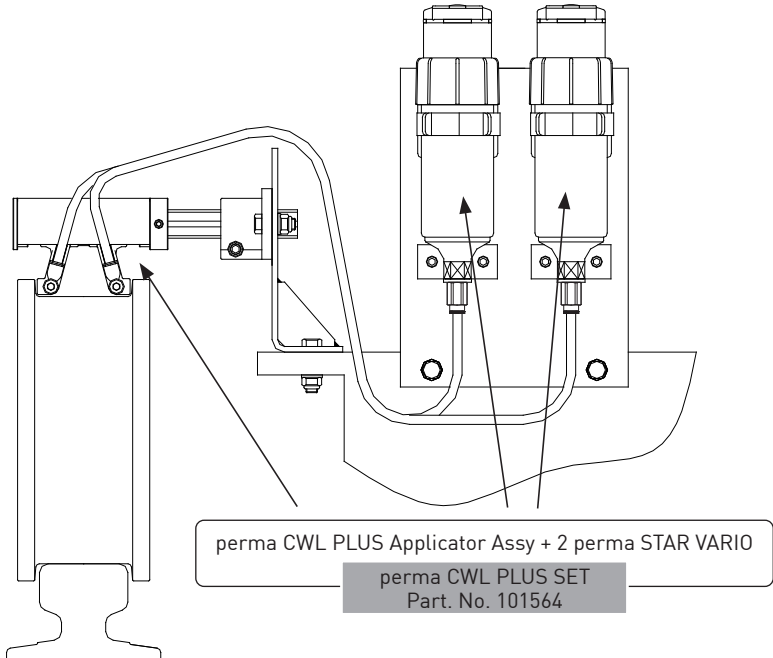


figure 1

The specially formulated lubricant developed for this application is delivered to the flange face through a feed tube at a predetermined rate to suit the application and duty.

The perma CWL PLUS SET offers the following advantages

- Reduced wear on wheel flanges and rail running edge.
- The lubricant can be discharged to individually selected wheels flanges.
- Reduced maintenance costs and risk by increasing the service life of wheel flanges and rail.
- Controls the amount of lubricant used over a predetermined period.
- Reduced energy costs.
- Reduced structural borne noise and vibration.
- Reduced crane down-time, caused by unscheduled maintenance, resulting improved system reliability and longer operating periods.
- Quick and easy installation.
- Quick and easy exchange of Lubrication Canister (LC) without the use of tools.
- Battery powered so no external power supply required.

This system can also be used to lubricate rotating machinery and linear slides. Its design allows for easy installation and exchange.

This publication provides instruction and information on the set-up and operation of the system.

Legal Requirements

Liability

- The information, data and tips stated in this operating manual were up-to-date as of the printing date. No claims for already delivered lubrication systems can be made based on the information, pictures and descriptions.
- perma-tec GmbH & Co. KG can not be held liable for damages and malfunctions caused by:
 - violation and / or non-observance of the safety instructions
 - inappropriate usage
 - unauthorized alterations of the lubrication system
 - inappropriate operations on or with the lubrication system
 - incorrect operation and settings of the lubrication system
 - ignoring the operating manual

Warranty

- Warranty terms and conditions: see terms and conditions of sale and delivery appertaining to perma-tec GmbH & Co. KG.
- Lodge any warranty claims with your local supplier immediately after the defect or error has been identified.
- The warranty expires in all instances where no liability claims can be enforced.

2. System Characteristics

LC capacity	250 cm ³
Battery pack	Battery pack STAR VARIO 4.5 V / 3.0 Ah
Delivery pressure	7.5 bar / 109 psi
Feed tube length max	2.5 m
Operating temperature	-20 °C to +60 °C / -4 °F to +140 °F (Alkaline) -40 °C to +60 °C / -40 °F to +140 °F (Lithium)
For crane wheel widths	50 to 170 mm (A45 to A150 crain rail)
Lubricant	GRAFLOSCON C-SG 0 ULTRA (see date sheet)
Mounting position	vertical & horizontal
Index of protection	IP 67 / 65 (EN 60529)
Emission sound pressure level	< 70 dB(A)

3. General Notes / Safety Instructions

Before mounting the perma CWL PLUS SET, ensure that the kit is complete (refer to parts list, chart 1) and check for any damage that may have occurred during transport.

Read the operating instructions carefully and store them in a safe and easy to access place for future reference.



Do not over tighten the plastic threads of the LC when screwing into the support flange (Item 17).

The perma CWL PLUS SET should only be used for purposes outlined in this document and perma's STAR VARIO operating instructions. The system should only be installed and operated by authorized staff in accordance with these instructions.

Safety Instructions

Staff Responsible for Safety

Operator

The operator is every natural or legal entity who or which uses the lubrication system or on whose authority the lubrication system is used.

For operation on and with the lubrication system, the operator and / or his safety officer must warrant:

- that for all tasks to be done the relevant laws, regulations, rules for prevention of accidents and safety instructions are observed.
- that only qualified personnel will work with and on the lubrication system.
- that all personnel has access to and also adheres to this operating manual when carrying out relevant tasks.
- that unauthorized personnel is not allowed to work with and on the lubrication system.

Qualified Personnel

Qualified personnel are persons who have been authorized by the safety officer of the plant to carry out the required tasks and who are able to recognize possible dangers and to avoid them due to their training, experience and the instructions they have been given as well as due to their knowledge of relevant standards, regulations, rules for prevention of accidents and working conditions.

General Safety Instructions

- We are not laying claim to completeness regarding these safety instructions. Please contact your local supplier if you have any queries or problems!
- All work stations and traffic routes must be kept clean and safe to access!
- Ensure that lighting is sufficient for safe operation!
- Ensure that the relevant regulations and guidelines are adhered to when installation or maintenance work is carried out in places where danger of falling exists!
- Ensure that the relevant safety and operating instructions are observed when the lubrication system is installed or serviced on machines or in factories (e.g. stop the machine)!

Safety Instructions for perma CWL PLUS SET

At the time of delivery the lubrication system is in line with state-of-the-art technology and is basically considered to be safe to operate.



Dangers emanate from the lubrication system for persons, the lubrication system itself and for other material assets of the operator if:

- **unqualified personnel operates the lubrication system!**
- **the lubrication system is used inappropriately and for operations that it was not intended to be used for!**
- **the lubrication system setting / variation is incorrect!**

- Operate the lubrication system only when it is in perfect condition.
- Retrofitting, changing, or reconstructing the lubrication system is not allowed.
- If you are planning to modify the lubrication system, perma-tec must be consulted first.



- **The safety instructions also apply to the operation with the complete equipment and its lubrication points!**
- **Ensure with appropriate measures that no material damage arises in the case of a failure with the lubrication system!**

Safety When Handling Lubricants



Lubricants may cause injuries to persons and may endanger your health!

Consult a doctor immediately in case there is a risk of health damage!

- **Avoid swallowing lubricant!**
- **Do not inhale lubricant vapors!**
- **Avoid any contact of lubricant with eyes, skin and clothing!**
- **Wear safety gloves and safety clothing!**
- **Lubricants on traffic ways will increase the danger of slipping. Therefore, the floor must be cleaned immediately with special cleaner!**
- **Observe safety data sheets of lubricants!**
- **Lubricants must be transported or stored in approved containers!**
- **Do not misuse lubricant containers and do not fill with other substances!**
- **Do not use damaged lubricant containers!**
- **Prevent lubricant from getting into soil or sewer system!**
- **For the disposal of lubricants, follow the individual waste disposal regulations in your country!**
- **Only use genuine spare-parts from perma-tec!**

4. Preventive Maintenance

The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on. The ideal preventive maintenance program would prevent all equipment failure before it occurs.

A large percentage of wheel replacements are due to excessive flange wear and breakage usually caused by friction due to an unfavorable relation of track and wheel base.

Wheel flanges and rails of track mounted cranes are subjected to lateral forces which lead to high wear from friction.

The one-sided load during lifting and driving causes a one-sided wear of the wheel flanges.

As part of your preventive maintenance program, the perma CWL PLUS SET will reduce the amount of friction and improve productivity.

5. perma CWL PLUS SET Function

The battery operated motor unit is connected to the Lubrication Canister (LC) by a driven shaft which rotates at a predetermined speed. This moves the LC piston which pushes the lubricant out of the unit at 6 bars into a connecting feed tube to the probe discharge point and onto the wheel flange.

When an operating failure occurs (e.g. blocked line / pressure build-up to over 6 bar), the drive unit will automatically shut off. The display will show „OL“ and the red LED blinks to indicate the error.

The discharge period (1-12 months) can be programmed with the SET button. In order to prime the system we recommend that the initial discharge period is set to 1 month. The discharge period can be changed at any time to accommodate changes in operating conditions and duty cycle. See the enclosed operating instruction from perma-tec for further information.

When the first wheel of the crane turns, the lubricant is transported from the lubricated wheel flange to the other side of the rail and from there to all wheels that follow. It is normally sufficient to lubricate the drive wheels only; however some operators prefer to fit perma CWL PLUS SET to all wheels.

During shut down periods (holidays etc.) the drive unit should be turned off with the SET button on the drive unit to prevent over lubrication.

6. General Assembly Drawing

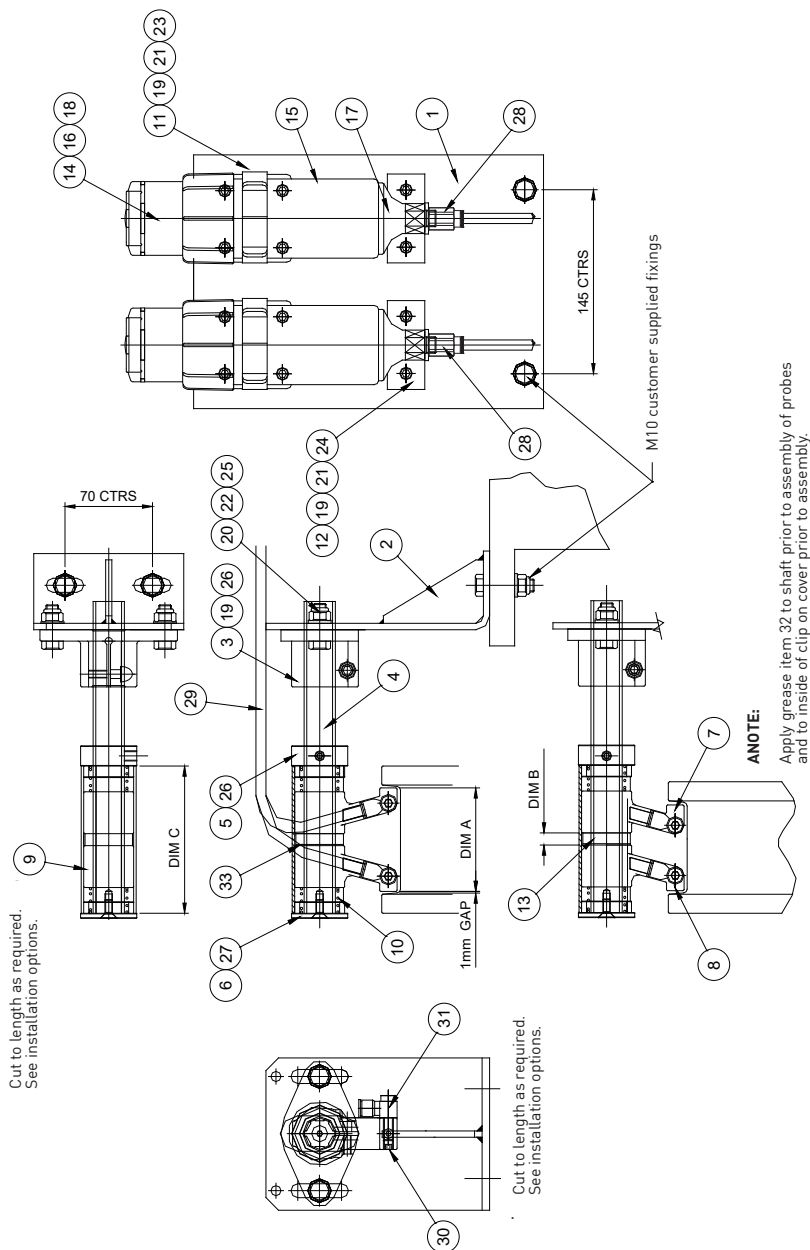


figure 2

7. perma CWL PLUS SET Parts List

Item No.	Description	Spec/Drawing No.	QTY
1	Lub pot MTG plate	RR 93823	1
2	Lubricator MTG bracket	RR 93871	1
3	Shaft MTG bracket	RR 93812	1
4	Shaft	RR 93816	1
5	Shaft clamp collar	RR 93851	1
6	End stop	RR 93817	1
7	Standard probe CWL PLUS	101580	4
8	Off-set probe CWL PLUS	101581	2
9	Clip on protection cover	RR 93852	1
10	Spring	LEE LP 072T 02 S316	2
11	Multipurpose clip (plastic)	101388	2
12	Bracket (stainless steel)	104864	2
13	Spacer	RR 93882	1
14	perma STAR VARIO Drive	117222	2
15	perma STAR LC 250 with GRAFLOSCON C-SG 0 ULTRA	104617	2
16	Battery pack STAR VARIO	101351	2
17	Support flange STAR G1/4 male x G1/4 female (brass / plastic)	109420	2
18	Protection cap STAR Standard Duty 250 (plastic)	109519	2
19	M6 Plain washer STN STL	DIN 125	9
20	M10 Plain washer STN STL	DIN 125	2
21	M6 Nyloc STN STL	DIN 985	8
22	M10 Nyloc STN STL	DIN 985	2
23	M6x25 LG SOC HD SCR STN STL	DIN 912	5
24	M6x15 LG SOC HD SCR STN STL	DIN 912	4
25	M10x30 LG HEX HD SCR GR 8.8 STN STL	DIN 933	2
26	M8x12 LG SOC Setscrew dog point STN STL	DIN 916	1
27	M6x14 LG CSK SOC HD SCR GR 8.8 STN STL	DIN 7991	1
28	Tube connector G1/4 female for tube oØ 8 mm straight (brass nickel-plated)	101502	2
29	Twin tubing	98BTE5.5X8AN	2.5 m
30	1/8" BSPT male plug	3025-1/8	2
31	1/8" BSPT Ø8 pipe swivel banjo	POL08-01	2
32	400 g Cartridge with GRAFLOSCON C-SG 0 ULTRA	101663	1
33	Wear spacer	RR 93936	2

chart 1

8. Installation

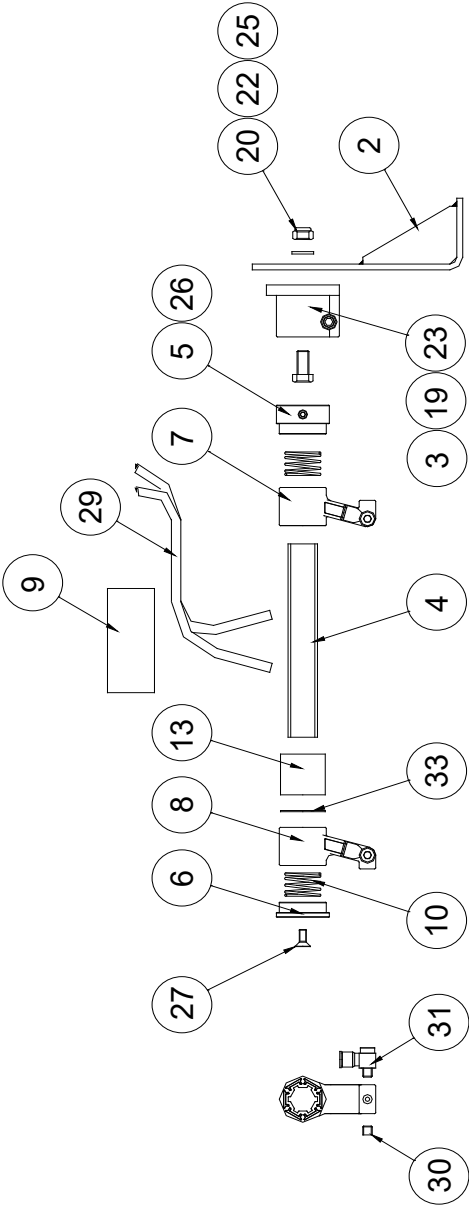


figure 3

- The perma CWL PLUS SET can be mounted on the side or above the axle of the drive wheel on a rigid part of the crane structure.
- Select the required probe configuration to suit your installation as shown below:

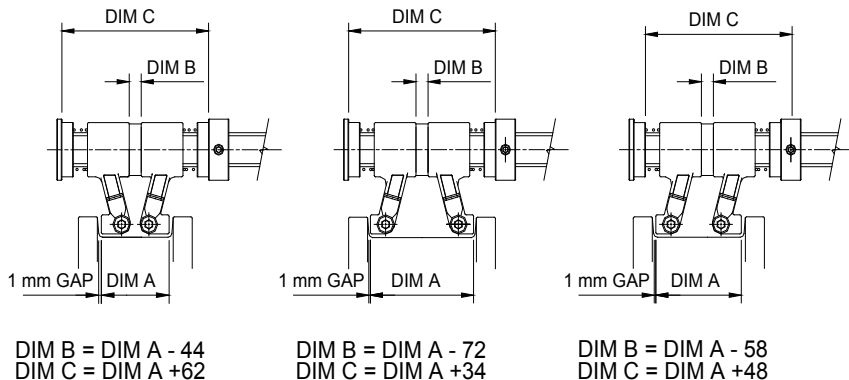


figure 4

- Measure the gap between the wheel flanges at dimension A, allowing a 1 mm gap between flange and probe faces as shown above.
- Find out the measurement of B & C. Cut spacer item 13 to size B length and cut clip on cover item 9 to size C length. Ensure that the cuts are straight and deburred prior to assembly. Use wear spacer item 33 to maintain 1 mm gap if necessary.



figure 5

- Prior to assembly, ensure that the splined shaft and mating sliding components contact faces are liberally coated with the supplied GRAFLOSCON C-SG 0 ULTRA lubricant.
- Assemble all parts of the perma CWL PLUS SET in accordance with the drawing (figure 2 + chart 1).

- Position the perma CWL PLUS Applicator Assy and mark out the mounting bracket holes (No. 2, figure 2). Drill and tap to suit M10 fixing.
- When installing the perma CWL PLUS Applicator Assy, please consider that the axial bearing clearance of the wheel can be accommodated by the compression spring.
- Select a position for the LC mounting plate which is easy and safe to access and is protected from high pressure water jets, falling material, corrosive chemicals and extreme temperatures above 60 °C.

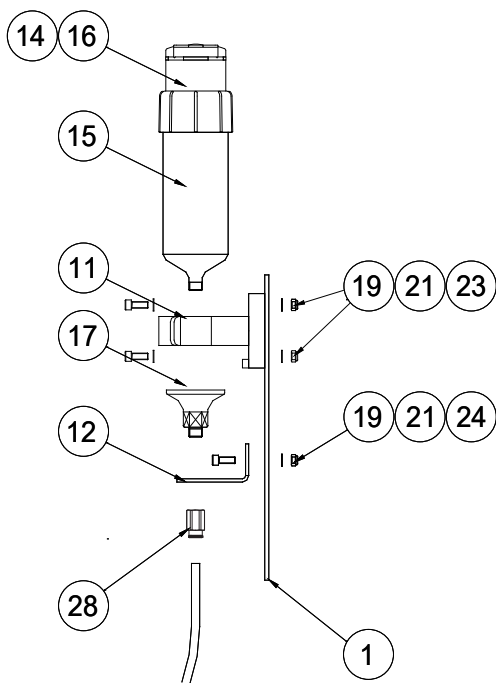


figure 6

- Mount the drive LC unit on the mounting plate (No. 1) with the brackets and fixings provided (figure 6) and attach to a suitable rigid structure ensuring that the distance can accommodate the 2.5 meter long twin tube.
- After installation, check the correct position of the perma CWL PLUS Applicator Assy. Adjustments are possible with the oblong holes in the mounting bracket. Loosen the grub screw in the shaft mounting bracket to adjust the shaft position.
- Ensure that all fixings are tightened and tie wrap the feed tubes to prevent snagging and damage.

- Before you turn the drive unit on for the first time, fill the twin tube with the GRAFLO-SCON C-SG 0 ULTRA lubricate using a commercially available grease gun as shown below and the enclosed 400g lubricant cartridge (figure 7). Without this pre-filling, the LC cannot immediately supply the discharge point with lubricant as it would first have to fill the feed tube and fittings. For example, it would take several days to fill a 1 meter long tube with a 1 month setting.



figure 7

- When you exchange the LC unit, check the position of the perma CWL PLUS Applicator Assy and for signs of excessive probe wear, if necessary replace it with the spare probe enclosed in the kit.

9. Inspection Procedure

The following inspection procedures are recommended to help ensure proper operation of the perma CWL PLUS SET. During the initial discharge period check weekly, then every month. Ensure this check becomes part of your preventative maintain schedule:

- Check the status of the drive unit LED function display. See perma STAR VARIO operating instructions for meaning.
- Inspect all lubrication points for signs of fresh lubricant.
- Check gap between wheel flange and rail head. Reset to 1 mm if necessary by adjusting probe positions, replacing probes or inserting wear washer between probes.
- Check the condition of the tube and fittings. Tighten and replace loose or damaged fitting and check for chaffing of the tube that may lead to leakage.

Spare Parts

Refer to item number of the perma CWL PLUS SET Parts List (chart 1) when ordering spare parts.

10. Disposal

Please follow the individual waste disposal regulations in your country. Protect the environment and save resources by recycling where possible.

Declaration of Conformity



EG-Konformitäts- erklärung nach Richtlinie 2006/42/EG	Déclaration CE de conformité selon la directive 2006/42/CE	Declaración CE de conformidad según la directiva 2006/42/CE	Dichiarazione di con- formità CE secondo la direttiva 2006/42/CE	EC Declaration of Conformity according to Directive 2006/42/EC	UKCA Declaration of Conformity according to Supply of Machinery (Saftey) Regulations 2008
perma-tec GmbH & Co. KG Hammelburger Straße 21 97717 Euerdorf GERMANY					
Der Hersteller erklärt hiermit, dass das bezeichnete Pro- dukt in den gelieferten Ausführungen den Be- stimmungen der oben gekennzeich- neten Richtlinien - einschließlich derer zum Zeitpunkt der Erklärung geltenden Änderungen - entspricht.	Le fabricant déclare par la présente que le produit désigné dans sa version livrée est conforme aux dispositions des direc- tives citées ci-dessus - ainsi qu'aux modifications en vigueur au moment de la certification.	Por la presente el fabricante declara, que todas las versiones disponibles de este producto se ajustan a las directivas arriba indicadas, incluyendo los cambios que se produzcan al tiempo de emitir esta declaración.	Il produttore con la presente dichiara che il prodotto designato nei modelli consegnati è conforme alle disposizioni delle norme sopra riportate, incluse le variazioni valide al momento della dichia- razione.	The manufacturer hereby declares that the product as described in the given statement conforms to the regulations appertaining to the directives referred to above, including any amendments thereto which are in force at the time of the declaration.	
In der Gemeinschaft ansässige Person, die bevollmächtigt ist, die relevanten tech- nischen Unterlagen zusammenzustellen:	Personne établie dans la Communauté autorisée à établir le dossier technique pertinent:	Persona con residencia en la Comunidad que está autorizada a crear los pertinentes documentos técnicos:	Persona residente nella Comunità autorizzata a raccolgere la documentazione tecnica necessaria:	Person residing within the Community authorised to compile the relevant technical documentation:	UK authorized representative:
perma-tec GmbH & Co. KG Hammelburger Straße 21 97717 Euerdorf GERMANY					Daniel Gogola 25 Barnfield, East Allington, Totnes DEVON TQ9 7QR UNITED KINGDOM
Produktbezeichnung:	Désignation:	Tipo de producto:	Descrizione del prodotto:	Product description:	
Automatisches Schmiersystem	Système de lubrification automatique	Sistema de lubricación automático	Sistema di lubrificazione automatica	Automatic lubrication system	
Produktname:	Nom du produit:	Denominación pro- ducto:	Nome del prodotto:	Product name:	
CWL PLUS Vorrichtung	CWL PLUS Dispositif	CWL PLUS Dispositivo	CWL PLUS Dispositivo	CWL PLUS Applicator Assy	
Folgende harmoni- sierte Normen wurden angewandt:	Les normes associées suivantes ont été utilisées:	Se han aplicado las siguientes normas de armonización:	Sono state recepite le seguenti norme di standardizzazione:	The following harmonised / designated standards were applied	
EN ISO 12100:2010					

Euerdorf, 27 March 2023

Dr. Abassin Aryobsei, CEO

Dr. Matthias Lenhart, Technical Director



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