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Installation instructions

according to Annex VI of the EC Directive 2006/42/EC Mechanical Equipment and further product details

Escalator Machine

OMS Hypodrive EC 2 - 7



Save for future use

Installation instructions EC 2 - 7

(We reserve the right to make technical changes – status 05/2023)





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1 Foreword

The opreating manual contains warning- and security-hintsin form of pictograms, that points out dangers and helps.















Application-tip: Additional hints, info No endagering

Warning : before a general danger Possible endangering of the installation and Person-damages

Warning: dangerous high voltage Possible endangering Heavy person-damage or death

Warning: hot surface Possible endagering Heavy person-damages or damages

Warning: Crushing danger Possible endagering Heavy person-damages

Warning: Capture danger Possible endagering Heavy person-damages or damages

Warning: high danger Possible endagering of persons or the installation Heavy person-damages or death

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The OMS escalator machine EC 2 -7 is used as the drive for escalators and passenger conveyors (moving pavements), travolators and is designed for use inside a confined space (e.g. in a state authority building). Its use in any other way requires release by OMS.

The OMS escalator machine is a high-performance drive unit, consisting of several modules with different tasks. The design of the motors is suitable for operation with frequency converters.

Please read this operating and maintenance manual thoroughly. It will help you to avoid possible malfunctions and discrepancies during the commissioning and operation of the machine.

The safety measures and regulations for the commissioning and operation of escalator machines comply with DIN EN 115 : 2017 and DIN EN 292 Part 1 and 2, each in their respective latest version.

The OMS escalator machine may only be used in a technically perfect condition and the working capacity confirmed by OMS.

Should the machine have been damaged during transport or if a defect is identified during the commissioning of the machine, please inform OMS immediately giving details of the defect or damage.

If water damage exists, please contact OMS.

The decision, whether to repairs can be carried out on site and the machine still be used should only be made after consultation with and release from OMS. If necessary the machine must be returned to OMS in its original packaging.

Therefore, please keep the packaging material until after commissioning.

If changes, become recognisable during the machine's service life, e.g. due to wear, aging, etc., they should be immediately corrected according to this mounting- and maintenance manual.

The gears may only be opened in the factory by OMS, otherwise all warranty and guarantee claims expire.

Should the machine not be used until a later date, measures must be taken to conserve the machine (see Chapter 6, Page 32).



2 Safety Instructions for OMS Escalator Machines

2.1 Applicable Use

The OMS – escalator traction machine EC 2 - 7 is solely intended for usage in escalators and passenger conveyors (travelators, moving walks) for public transportation according to EN 115 2017 and DIN EN ISO 12100 part 1 + 2.

The installation and use of the EC $_{2-7}$ for other purposes is not applicable. The OMS AN-TRIEBSTECHNIK is not liable for personal injury and or damage resulting from none applicable usage.

All Planning, installations and maintenance work may only be carried out by qualified personnel. Qualified personnel are such who having studied for qualifications, or are experienced, or have received instruction and have the knowledge relating to the relevant standards and directives, safety regulations and local knowledge required to install and maintain the machine and be able to recognise and access the risks appertaining to this machine. (Qualified Personnel, as defined in IEC 364).

This OMS – escalator drive is applicable to the 9th Directive of the Machine and Product Safety Law (9. Verordnung zum Geräte- und Produktsicherheitsgesetz [Maschinenverordnung]) and the 2006/42 EC Machine Directive. It is part of a machine, namely an escalator or a travelator and is therefore not liable for CE certification.

The commencement of regular use is not permitted until the traction machine has been correctly installed into the escalator or travelator and the manufacturer has applied the CE label to the escalator or travelator to certify that the safety requirements have been fulfilled for the complete product / machine as supplied by the manufacturer.

All other required regulations and certificates (e.g. applicable to general use, maintenance and inspections) remain in force.

The drive manufacturer only respects the warranty for operation and safety of the drive if it is has been erected, maintained and operated according to the printed specifications supplied individually with each drive. The warranty is void if the parameters outlined in the operating, maintenance and control documentation have been exceeded. An incorrect installation or incorrect use of the system, and or violation of the standards outlined above, lead to a complete and absolute none liability of the drive manufacturer.

The used motors are generally suitable for frequency inverter operation, provided the slew rate limit of the motors is adhered to. Customer supplied frequency converters must be set up according to their instruction sheets, in order to comply with the requirements of the OMS-Escalator Machine, and with the national EMI directives.

The escalator traction machine is only intended for installation and usage in an enclosed area.



OMS Drives may only be stored, erected and run in dry closed areas. The IQ/OQ representative and the user must ensure that adequate measures are taken to avoid a contamination with building dust and or dirt.

Stopping of a running traction machine is via frequency inverter control or via the machine brake. In emergency situations braking may be via an external, auxiliary brake on the escalator main shaft. Make sure that when braking with such an auxiliary brake *only*, the traction machine is not dynamically overloaded. When braking with an auxiliary brake, this should preferably be engaged together with the machine brake.

OMS-Escalator machines may only be operated when in technically good condition and within the parameters as described by OMS.

Applicable use also includes the following:

- Working according to the supplied instructions,
- Observing the regulatory safety and environmental requirements,
- Adherence and observance of the Escalator documentation and regulations.

2.2 Non Applicable Use

OMS Drives may not be operated in potentially explosive or environmentally aggressive areas.

Further operation is not permissible once the pre determined wear points have been achieved.

Permissible Limits:

- max. Motor Speed: refer to technical documentation;
- Local ambient temperature during operating min.: o° C max. 45° C and 55° C for 1h.;with motor heating -10 up to 45°C
- Local ambient temperature without operating: -20°C max. 60°C
- The technical data and specifications on the Motor Data Label are only valid for an installation height up to h ≤ 1000m over NN.
- Max. rel. Humidity: 85% at 20°C (none condensing).
- Operation under extreme climatic conditions must be clarified with OMS.

None applicable use also includes the following:

- Dry operation without oil or use of a lubricant other than specified
- Opening the Gearbox when installed on the drive



Important:



 All work related to; Transport, Electrical Connections, pre-Service Checks and Maintenance of the Drive System must be carried out by qualified technicians. Incompetent work can lead to serious personal injury and / or damage.

Warning ! Special Notes appertaining to EC 2 - 7:



• The machine is very efficient and has a very low natural friction rate. The machine operates immediately after the brake has been released.

2.3 Warranty and Liability for the Escalator Drive

- The drive manufacturer only respects the warranty for operation and safety of the drive if it is has been erected, maintained and operated according to the printed specifications supplied individually with each drive.
- The warranty is void if the parameters outlined in the operating, maintenance and control documentation have been exceeded.
- The customer is responsible for the qualified installation of the drive by certified personal.
- If damage or other problems are found on the Escalator or the drive, then the system must be disabled, otherwise the operator will be liable for all damage and injury appertaining thereto.
- An incorrect installation or incorrect use of the system, particularly with respect to the forbidden procedures outlined above, lead to a complete and absolute none liability of the drive manufacturer.
- This is also applicable, when after damage has occurred, the operator and/or the installer and /or the maintenance company cannot supply a fully documented list of procedures relating to the erection, testing, maintenance and SOP's of the escalator.



2.4 Dangers that are associated with the Escalator Drive

Our escalator drives are at the cutting edge of technology and are delivered in a safe operating configuration. Any changes made by that customer or his operative that may affect the inherent safety of the escalator drive are not permissible

2.5 Instructions for Safe Use

If changes are observed during the service life of the machine, e.g. wear, ageing etc. then the machine should be serviced and the changes dealt with, according to this OMS Operating Manual.

The gearbox may only be opened by OMS at our factory site; the warranty will otherwise become invalid.

2.6 Requirements and Qualification - Installation and Maintenance Personnel

All installations, maintenance work and repairs on the electrical parts of the machine may \underline{on} . \underline{ly} be carried out by qualified personnel.

Qualified personnel are such who having studied for qualifications, or are experienced, or have received instruction and have the knowledge relating to the relevant standards and directives, safety regulations and local knowledge required to install and maintain the machine and to be able to recognise and assess the risks appertaining this machine. (Qualified Personnel, as defined in IEC 364).

OMS recommend that the technical personnel acquaint themselves with the machine before it is erected and taken into service. Please read the General- and Maintenance Instructions carefully, these instructions will aid you to find mistakes and technical deficiencies during the installation and operating life of the machine.

2.7 General Information

Should damage occur during transport, or should the machine appear during erection to have errors or be damaged, please contact OMS and inform us of the damage or error.

In case of damage caused by water, please contact OMS.

A decision as to whether the damage or error can be rectified on site or not, can first be taken after the customer has contacted OMS. OMS will then decide if the machine can be taken into service or whether the machine should be returned - with the original packaging – to OMS. Please retain the original packaging until after the machine has been taken into service.



3 Commissioning

3.1 Assembly

Prior to installation, the intended frame or foundation upon which the escalator machines are to be installed must always have been calculated and proved adequate.

The frame must be rigid enough to withstand all and any bending and torsional forces that may occur during operation.

Fix the machine in the position as in the order using the four mounting holes in the gear unit base. Using the through-holes in the support frame and bolts and nuts to ensure secure attachment is recommended.



Bolts: *M 16 quality 10.9* or higher Torque: *160 Nm* Max. allowed uneveness of the surface : 0,05mm If necessary, use shimps to achieve the requires eveness.





3.1.1 Escalator machine, complete



3.2 Before commissioning;

Replace the labelled sealing plug on the gear housing with the dipstick supplied. Remove the sealing plug and replace it with the vent screw, (see Fig.4). Please keep the sealing plug in a safe place, easy to find for possible subsequent transport of the machine.







Note:

The gears are sealed oil-tight for transport. With the sealing plug the gears do not have any ventilation. If it is started up while being sealed in this way, an overpressure can be created in the housing, with the possible consequence of leaks and oil leaks at the shaft-sealing ring. The dipstick does not represent a seal for the gears.



3.3 Special climate conditions

Temperature is falling below the dew point, especially:

humid and hot & humid climate :

Motor heating is mandatory in every instance where condensation due to the temperature falling below the dew point is possible

Where the temperature in the machine room can reach $T \ge 45$ °C, 1 or 2 blowers in the step band are required to blow colder air from in between the step band Into the machine room For temperature $T_{amb} \le -20$ °C heating of gear box (oil) is mandatory a thermostat controller is required

3.4 Electrical connection



<u>Only</u> trained and qualified personnel may open the terminal box on the motor and the supply voltage connection or carry out maintenance or repairs to electrical parts of the machine.

Switch off the mains switch beforehand and secure it against being accidentally switched back on!

Note:

The machine's electrical equipment has been designed in compliance with the general technical specifications of EN 60 204 - 1.

Procedure:

1. Motor:

The connection to the power supply is carried out according to the circuit diagram in the motor's terminal box (for details see the terminal diagram for the motor in the Appendix). If another cable output is required as the specified direction, the terminal box can be rotated by undoing the internal screws. Carefully undo and fasten the thin temperature monitoring cable.

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(We reserve the right to make technical changes – status 05/2023)





Not allowed!

Capacitive coupling of transients from the motor power cable may destroy the sensors!



Optimized cable installation to protect the sensor cables against interference radiation (EMI)

Cables for the inductive sensors should use a cable screen

When using a frequency inverter : $\delta U / \delta t \leq 500 V / \mu s$ is the max. allowable slew rate



2. Brake magnet:

The brake magnet (dual circuit double lift split magnet) must be connected according to the various requirements (see connection of the brake magnet to the power supply in the Appendix). Supply voltage generally 230V AC (± 10% max)

- a) For a single circuit braking system, both circuits of the magnet (O-20) are connected via a control module.
- b) For a dual-circuit braking system both circuits are connected via a control module with over excitation (O-21) or each connected via separate control modules (0-22, O-23).



4 General

The machine requires low maintenance.

The very high, 96%, efficiency of the gears ensures that the power losses are reduced so far that built on parts and surrounding mechanical and electronic elements are only subjected to low heat loads. This has a favourable influence on wear and temperature-induced aging of the components.

Therefore topping up the gears with oil is called **long-term lubrication**.

For average ambient temperatures of approx. 30° C and under continuous operating methods the oil can be used for up to 30,000 operating hours. Apart from the usual checks, the lubricating properties of the oil should be examined every 2 - 3 years (see Chapter 5).

The OMS escalator machine consists of few modules and built-on parts, which if necessary can be completely replaced.



Fig. 1: Design of the OMS escalator machine EC 2 - 7

4.1 Technical data



Please refer to the Appendix for details of the OMS escalator machine's working capacity, sheet:

"Technical data for the escalator machine EC 2 - 7".

All dimensions and connecting dimensions for the OMS escalator machine are given in the Appendix:

"Dimensioned drawing of the escalator machine EC 2 - 7".

4.2 Sound pressure level

The A-weighted sound level L_{pA} in dB(A) according DIN EN ISO 11200 is measured in the distance of 1 m to the surface of the machine.

The machines are driven directly at main stream on a test rig in a sound absorbing room. Whe working to the following limits : 25% load (at Pmax = 7,5kW), the machines fulfil the following noise emission requirements.

Maschine typical Sound Pressure Level L _{p,A}		
EC 2 - 7	6odB(A) at n <u><</u> 1000 min ⁻¹ , Motor 7,5kW	
	62dB(A) at n≤1500 min ^{−1} , Motor 7,5kW	

Depending on the construction, these values may vary.

4.3 Machine Manufactrer identification plate

The following information can found on the manufacturers identification plate.. For example:



Type: EC 2 - 7 Ratio: OMS-No.: - Year xxxx-MMYY

4.4 Modules and built on parts

The OMS escalator machine EC 2 - 7 consists of:

- Gears, complete
- Motor, complete (with handwheel fan and motor cover)



- Brake system, complete (including brake drum and coupling)
- Sprocket wheel
- Function monitoring devices
 - Brake function monitoring (optional)
 - Brake lining wear monitoring (optional)
- Safety devices
 - Speed sensors (NRD monitoring) (optional)
 - Over/underspeed monitoring with (optional)
 - Frequency scaler (5:1) with NAMUR interface
 - Stopping distance monitoring
 - Fan cover switch (safety circuit) (optional)

(optional)

4.5 Alternative equipment

The escalator machines can also be fitted with the following alternative components:

```
Gear ratio i= 27,56 , i=22,42 ; i= 19,44
Motor selection
```

Standard features:

- Terminal box (117x140) with metric thread for BG 132
- Terminal box (140x140) with metric thread for BG 160

With connected cable NYSLYÖ-J (Make: LAPP Ölflex Classic 110 or comparable), 285 cm long, of which 35 cm stripped bare, wire end ferrules, Cross-section: **7 x 4mm²** for frame size 132 (up to 7.5 kW-50 Hz and 7.5 kW-60 Hz)

 7×6 mm² for frame size 160 (from 7.5 kW-50 Hz and 7.5 kW-60 Hz)

- 3 Winding earthing contact (bimetal opener) with 80 cm cable 2x0.75mm², of which 7 cm stripped bare, with contact pins for Wieland plug-in connectors
- Colour: gentian blue RAL 5010,
- Motor cover slit and secured with wing screws (can be pulled off)
- Fixing facility for handwheel safety switch,
- Motor shaft and BS end shield provided for magnetic encoders
- 50 Hz-Motors 4-pole (=1500 min⁻¹) and 6-pole (=1000 min⁻¹),
- 60 Hz-Motors 6-pole (=1200 min⁻¹)
- Duty type S6-60% ED or a motor output stage smaller then S1 certified (E.g. 7.5 kW S6-60% / 5.5kW S1)

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- Vibrations : 0,71mm/s measured according to the OTIS-regulations
- Brake drum and handwheel fan fitted

<u>Variants</u>

Tables have been set up in the following for the following variants:

- Variant A: Reference motor as described above
- Variant B: As A, however with additional fitted pickup (2x magn. encoder and magnet wheel)
- Variant D: Motors with UL and CSA acceptance inspection. With terminal box without perma nently installed cable. Temperature monitoring by 1 set each thermal time-delay switch and PTC thermistor (PTCs).
- Variant E: Combination of variant B and D
- Variant F: As D, however with temperature sensor cable 285 cm, of which 35 cm stripped bare, wire end ferrules,



4.6 Spare parts

The following components can be exchanged:

- Gear housing
 Coupling, elastic clutch gasket
 Sprocket wheel
 Oil dipstick, Gearbox oil
- Motor, complete (including Hand wheel, Brake drum, claw coupling)
- Brake
 - Brake solenoid in size O 20, O21(single circuit) O 22, O 23 double circuit) Brake lever pair with brake lining Spring single circuit/ springs - dual circuit Brake lever bolts
- Sensor technology

 Over and underspeed controls
 Brake lining wear control
 Braking function controls
 Fan cover switch

4.7 Gear versions and fitting locations

The type of construction used for the OMS escalator machine EC 2 - 7 enables the braking installations to be positioned in two different fitting locations:

Position A – Brakes opposite the sprocket wheel



Position B – Brakes to the right next to the sprocket wheel (view onto the sprocket wheel)

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5 Service and Maintenance

The regulations for operation, service and inspection according to the valid safety regulations like EN 115 "Safety rules for the construction and installation of escalators and moving walks" as well as all other applicable national and international regulations must be adhered to.

The operator is responsible for the safe installation, control and maintenance according to the applicable regulations and standards. Before beginning of the maintenance switch off the main switch and against inadvertent switching on secures!

For inspection, repair work and service and similar operations the access to the escalator or pas- senger conveyor must be restricted for unqualified persons, namely passengers by using appropriate provisions.



Before starting the maintenance work the main power switch must be switched off and secured against being accidentally switched back on!

Item	Maintenance Freauency	Source
Oil Level, Control	Every 3 Months	See 5.3.1
Oil change	Introduction - after 10.000 h.	See 5.3.4
Bearing, Check (Audible)	In accordance with the regu- lar escalator maintenance schedule, at least annually.	
Brake, Check	In accordance with the regu- lar escalator maintenance schedule, at least annually.	See 5.4
Wear of chain wheel	In accordance with the regu- lar escalator maintenance schedule, at least annually	
Electrical Wiring and Con- nections, Check for wear and loose connections	In accordance with the regu- lar escalator maintenance schedule, at least annually.	

5.1 Recommended Routine Maintenance



Cleaning the machine surfaces	When required, at least an- nually.	
Safety installations and mechanisms, Check for presence and function	In accordance with the regu- lar escalator maintenance schedule, at least annually.	

5.2 Error – Troubleshooting Errors

Error	Possible Cause	Answer	
Unusual, none rhythmic operating noises	 Grinding / Scraping Bearings Knocking / Jumping Gears Regulator adjust- 	 Call Cus- tomer Service 	
	ment	 Check the parame- ters of the Fre- quency Converter 	
Oil Leak	 Seal damaged 	 Call Cus- tomer Service 	
Brake does not switch	• Wiring is not OK	 Check all electrical connec- tions 	

5.3 Gear oil

5.3.1 Check the oil level

During each service.

• At the dipstick: Oil level between the marks

5.3.2 Check the condition of the oil

Always check the condition of the oil at regular intervals.

Check:

• Check the oil for discoloration, pull out the dipstick and allow a drop of oil to fall on the oil test card.

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5.3.3 Controlling the Oil Viscosity

However, we would like you to check the viscosity of the Gearbox Oil regularly.

Control:



Check the oil viscosity by letting a drop of oil fall from the Dipstick onto a piece of white paper. Compare the colour of the oil with the Oil Check Card.

Interval: 1. after approx. 10.000 h. 2. after approx. 20.000 h.

3. ; 3...... + 5000h Intervals

The oil must be exchanged at least every 5 years of operation



 Oil colour light yellow to mid-brown: usable;

Condition of the oil is good to still

- Oil colour mid-brown to dark-brown: Change oil immediately;
- Oil colour dark-brown to black: Oil cannot be used



5.3.4 Oil change

Please proceed as follows if an oil change is necessary:



- 1. Place a suitable container beneath the oil drain plug on the bottom of the gears. The volume of oil is approx. 3,2 l.
- 2. Carefully open the oil drain plug.
- 3. Clean the oil drain plug thoroughly.
- 4. After all the oil has drained, refasten the oil drain hole.
- 5. Fill the oil by pouring it into the dipstick opening.
- 6. Please note the filled level (see 5.3.1).
- 7. Only use the specified oil grade:

Klüber Syntheso D 220 EP Quantity: 3,2 I (never mix with other grades of oil!) Klübersynth GH 6-220 Quantity: 3,2I (never mix with other grades of oil!) (Only use other oil grades after consulting OMS)

8. Close the filling opening with the dipstick.



Fig. 6

5.3.5 General comments:

The loss of lubricating properties and the dark brown to black discoloration of the oil result after long maintenance intervals, due to particles or dirt collecting in the oil bath, due to moisture in the gear housing, high ambient temperature and the resulting temperature in the machine room. Please note: These conditions accelerate the end of the oil lubricating properties. Therefore: In case of doubt change the oil.



Any oil that escapes during an oil change or as the result of a leak must be removed immediately.

Used synthetic oil that has been replaced is special waste!

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5.4 Servicing the brakes

5.4.1 Manual release lever



To open the brake it's allowed to put an extension tube onto the manual release lever.

The maximum allowed length of the extension tube is **180mm**.

The manual release lever is allowed to be actuated in vertical direction. ONLY!

The maximum allowed force for actuating the manual release lever with extension tube is **300N**.



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5.4.2 Check: The brake lever for easy movement

During the usual maintenance intervals the brake levers of the escalator equipment must be checked for easy movement. To do this, each individual brake lever must be opened as described under 5.5.4 (check the two brake circuits). The brake lever must close again with easy movement. If necessary the brake lever joint pin must be tightened (see 5.5.3) and regreased before being refitted.

5.4.3 Check: Air clearance and brake lining wear

a) Air clearance:

The air clearance must not be less than 1.0 mm.

As soon as the air clearance reaches 1 mm it must be adjusted back to maximum 1.5 mm

(See Section 5.5.2 and Fig.9).

Procedure:

- 1. Press back the magnetic tappet and measure the clearance between the tappet and pressure screw (Fig. 9).
- 2. To adjust, undo the lock nut, turn the pressure screw and retighten the lock nut, tighten with **80Nm**. Set value S=1.5 mm.
- 3. After adjusting the clearance open the brake mechanically using the air lever on the magnet and check electrically via the plant controls.



If the air clearance can no longer be adjusted because the screw head is in contact with the brake lever, both brake levers must be replaced with new linings!

b) Brake lining wear:

The amount of brake lining wear determines the position of the brake lever. With increasing brake lining wear the brake lever approaches the inside of the magnet. The brake lining area in the engagement should be \geq 70% of the total area.

Check for brake lining wear:

If the minimum spacing at a brake lever has been reached, both brake levers must be replaced with relined levers.



5.4.4 Replace the brake lever



Disable and secure the complete escalator system. (Observe the instructions of the escalator manufacturer).

- You must always replace both brake levers!
- The brake levers on each side are always replaced one after the other.
- To replace the brake lever, the compression spring must be removed along with the locked pressure washer and the clamping bolt.
- Pull out the splint.
- Push up the joint pin (with flat screwdriver under the bolt head) and pull out.
- Lift out the lever to the side, at the same time removing the intermediate washers.
- A lever with new brake linings is fitted in the reverse order.
- Do not forget the intermediate washers!
- Adjust the brakes, and check braking capacity, as under 5.5.2





When new brake linings are fitted the required braking moment is not reached until the brakes have been briefly pressed with the selected spring bias!

Splint



5.5 Brakes

5.5.1 Adjusting the brakes

Depending on the nominal moment required for the motor, magnets with the appropriate lifting force and compression springs with the relevant stiffness are specified in the factory. In the dual circuit brakes the magnet is controlled on opening with brief excitation, i.e. with increased lifting force.

To compensate for possible brake lining wear and reliable check of the wear, an air clearance of 1.5 mm is preset between the magnetic tappets and the respective pressure screws. To check and adjust the air clearance see Section 5.5.2.

Please check the function of the brakes before commissioning the escalator. If the preset braking moment does not match the operating conditions you can adjust it.



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5.5.2 Adjusting the braking torque single circuit braking system:

1. With the brakes closed (locked), undo lock nut M12 at the threaded rod.

2. The prestressing of the brake spring can be adjusted by turning the spring wound screw (turning in a clockwise direction increases the prestressing).





3. Spring pressure preset (Single Circuit brake 10mm, double circuit brake 6mm each spring), is adjusted during the field inspection.

4. Tighten the hexagon nut M12 and use the air lever of the magnet to check whether the required air gap clearance (return stroke) is still available. If necessary reset to the required air gap clearance of 1.5 mm ±0,1mm by adjusting the pressure screw in the brake lever.





- 5. Check whether the brake magnet completely opens, mechanically with the central air lever and electrically via the plant controls.
- 5.5.3 Adjusting the brake torque of the dual circuit braking system:



Fig. 10

- 1. While the brakes are closed, undo the lock nut M12 at the screws
- 2. For the remaining procedure see 5.5.2

Tighten the counter nut only if the brake is adjusted finally, torque = 25Nm!

5.5.4 Checking the two brake circuits:

Note: The procedure for the brake acceptance inspection within the scope of the escalator acceptance inspection is not described here in detail. Please note the required safety regulations.

a) If the machine is accessible

If the machine is accessible in an operations room, you can individually open each brake lever to the side with the aid of a tyre lever (heavy screwdriver) and check the simple holding torque of the respective other brake lever.

b) Separate electrical remote control: To check the simple holding torque of each braking circuit, the brake levers can be individually controlled separately by the two existing magnetic coils. This requires a Type O 23 magnet.

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5.6 Replacing the motor

If it is necessary to replace the motor after a long service life or if the motor is defective, an elastic coupling ring is supplied for the replacement.



Attention: the motor surface may be hot – allow time to cool down. Danger of burning your skin exists otherwise !

- Stop the escalator and secure it against accidentally starting up again.
- Release the brakes by pressing the manual lever on the brake magnet and fix the lever with a wooden wedge to prevent it from moving
- Remove the switch (hood-type switch, controller for overspeed and temperature monitoring) from the motor.
- The motor connection cable on the motor must not be removed. It must only be disconnected at the contactor.
- Remove the 4 fixing screws on the motor foot above the brake lever.
- Raise the motor using a rope and the eye bolts to be fixed to the side of the motor.
- Replace the elastic coupling ring; at the same time clean the claw coupling e.g. by blowing the dirt out.
- To replace the motor mark a coupling claw on the motor with a gap in the gear coupling and in this way carefully guide the coupling claws into each other while putting down the motor.
- Tighten the fixing screws several times by tightening the diagonally opposite screws one after the other. (Torque approx. **50 Nm**)
- Fit the components in the reverse order.
- Connect all the electric switches and systems.
- Check the electric connections and the correct rotational direction of the motor.

5.7 Replacing the elastic coupling ring

A claw coupling with an elastic coupling ring is located between the motor and the gears. The coupling ring is made of polyurethane material, essentially moisture and heat resistant. For replacing you must remove the motor(see 5.6).

The abrasion of the elastic coupling ring depends on climate and usage.

We recommend an inspection of the elastic coupling ring after 2 years and the replacement after 4 years of usage.



5.8 Description of Magnetic Encoder

The new Magnetic Encoder generates a high resolution signal for non reversal detection (NRD), for overspeed detection and for brake distance monitoring.

According to the EN 115 each new installed escalator requires a provison for detecting reversal of running direction for an (upwards running) escalator. Upon customer specification, or mandatory for a rise above 6 m, overspeed detection is required as well. Brake distance monitoring is required in some applications today, and with the new pending release of the EN 115 will be required.

Currently the speed of the traction machine is being monitored with two inductive proximity switches of the NAMUR type, detecting a number of cutouts in the lower side of the braking drum (4 at 1.200 rpm and 1.500 rpm, 6 at 1.000 rpm as standard).

With the speed interface box (SIB), which incorporates a frequency divider (standard division ratio is 5, but a division ratio between 2to 9 can be specified by the customer at order time). With this unit, which incorporates a NAMUR interface, the new Magnetic Encoder can be interfaced to existing controllers.

5.8.1 Block diagram Frequency divider





5.8.2 Connection Scheme Frequency divider / NAMUR Interface



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5.9 Adjusting the brake function sensors

- The switching lug must be fitted onto the thread of the brake magnet tappet •
- The sensor must be installed in the front drill hole with an air clearance of 3,0mm between the sensor and brake magnet housing. The sensors must be adjusted while the brakes are closed.

Information about the inductive brake function sensor:

Design sensing distance: 4,5mm Initial function – electric circuit by opened brake closed

5.10 Adjusting the break lining wear sensors

Installation instructions EC 2 - 7







Fig. 16

- The sensor for the brake lining wear is fitted in the external drill hole of the brake lever.
- A spacing of 11mm is set for new machines in the factory, and should not be adjusted. The sensor respond, if the brake lining at the front edge of the brake lever has reached a thickness of 1mm. The machine can still be used. The ever must be replaced.
- If it is necessary to replace the two brake linings a distance of 11mm must be set for the new linings.

Information about the inductive brake lining wear sensor:

Design sensing distance: 4,5mm Initial function – electric circuit by worn brake lining closed

5.11 Adjusting the fan cover safety switch

Installation instructions EC 2 - 7

(We reserve the right to make technical changes – status 05/2023)







The safety switch on the machine is used to ensure that when the fan hood is raised the machine drive is switched off via the safety chain.

The safety hood-type switch is fitted by OMS in the factory as an option (at request of the customer).



5.12 Adjustment of Non Reversal Device (NRD) and Speed Sensor



Fig. 16

- 1. Change sensor
- Disconnect wires from sensor
- Unscrew the sensor plate
- Measure of sensor depth X
- Unscrew the sensors
- Screw in the new sensors at measure X in the sensor plate
- Install the sensor plate
- Function test and adjustment



6 MISCELLANEOUS

6.1 Storage

The machine must not be stored outdoors or be exposed to the effects of weather.

A) Storage up to 3 months:

No special storage measures required.

Before installing the machine, please note:

- Check all brake components (remove any slight rust film on the brake drum by braking).
- Rotate the machine by hand (to evenly distribute the grease in the motor bearings).

B) For storage up to 18 months:

If lengthy storage is planned from the outset, this is specified in the order and the machine is conserved by OMS in the factory and is ordered packaged in a moisture repellent (yellow) foil. If this is not the case then:

- The gears must be filled up to the upper locking screw with oil after 6 months storage time at the latest.
- Attention: oil grade: see yellow adhesive label; only use the same grade oil.
- After filling with oil the machine must be packaged in a moisture repellent (yellow) foil. (This foil can be ordered from OMS)
- Otherwise: Store in a dry place

Before installing the machine, please note:

- Reduce the oil level! Drain the oil to the specified level (see Section 5.3.1)
- .Check all the brake components (remove any slight rust film on the brake drum by braking).
- Rotate the machine by hand (to evenly distribute the grease in the motor bearings).
- Install the machine (see Section 4. Commissioning)

C) Storage period longer than 18 months:

As an option, have the machine conserved in the factory or carry out the measures described under: **B) up to 18 months storage time** Otherwise: store in a dry place



Important, please note before installing the machine:

- Completely replace the gear oil! Check the oil grade and filled level (see Section 5.1.1 and 5.1.3)
- Check all the brake components (remove any slight rust film on the brake drum by braking).
- Rotate the machine by hand (to evenly distribute the grease in the motor bearings).
- If the machine moves stiffly when rotated, the motor bearings might have to be replaced.
- Install the machine (see Section 4. Commissioning)



If the machine is stored for a long time, the manufacturer's guarantee may well expire

If a further guarantee is required, the machine can be returned to the manufacturer for an overhaul, which will be charged for (possible replacement of the bearings, etc.) and for the above measures to be carried out.

6.2 Transport

The machine must be sealed oil tight!

The machine is sealed oil tight in the factory for transport, or must be resealed, i.e. the dipstick must be removed and replaced by the originally enclosed sealing plug.

The total weight of the unit depends on the motor power. Gear box only : 160 kg Motorweight at 5,5kW - S6 - 60%: 114 kg Motorweight 7,5kW - S6 - 60%: 119 kg Motorweight 9,5kW - S& - 60%: 141 kg Motorweight bei 9,5kW - S1-100%: 141 kg



7 Disassembly

7.1 Disassembly of the Escalator Drive

Remove the Oil Dipstick and replace it with the supplied Sealing Plug. The Gearbox is not sealed when the Oil Dipstick is fitted.

To disassemble the Escalator Drive carry through the same procedure as during the assembly – but in reverse order.

7.2 Scrapping the Escalator Drive

• The Gear Wheels, Axles and Bearings can be scrapped as standard steel scrap. The forged parts can also be scrapped as standard steel scrap



Used Oil is Special Waste!



8 Appendix

Technical data for the OMS-escalator machine EC 2 - 7

Dimensioned drawing of the OMS-escalator machine EC 2 - 7

Electrical connections (Sheet C)

Please contact us if you have any questions:

OMS Antriebstechnik Bahnhofstraße 12 36219 Cornberg

Tel.: 05650 - 969 - 0 Fax: 05650 - 969 - 100

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Homepage: <u>www.oms-antrieb.de</u>

APPENDIX A Technical data OMS escalator machine EC 2 - 7

(We reserve the right to make technical changes – status 05/2023)



Input torque, max.	T _{max.} =	93 Nm
Input revolutions	n =	1.000, 1.200, 1.500 rpm
Efficiency	η≥	96%
Oil quantity:	V =	approx. 3,2 liters
Average temperature in oil bath	T =	30 - 40 Kelvin above ambient temperature
Oil change intervals	t =	up to 40.000 operating hours
Lifetime gearing		Lifetime durability
Lifetime bearings (with oil pump) with equivalent load factor	t = p _{equiv.} =	146.000 operating hours 0,6 x nominal power
Lifetime bearings (w/o oil pump) with equivalent load factor	t = p _{equiv.} =	70.000 operating hours 0,6 x nominal power
Sound pressure level	L _p =	60 dB (A) @ 1.000 rpm (25% load) 62 dB (A) @ 1.500 rpm (25% load)
Ratios	i =	19,444; 22,418; 27,563
Escalator speed	V =	0,5 bis 0,75 m/s
Versions		Single drive unit left suitable for escalators and moving walks
Position in the machine room		Left (seen from the lower landing platform)
Safety requirements fulfilled		DIN EN 115-1: 2017
Motor		3-phase AC asynchronous motor, IP55 suitable for frequency inverter operation
Maximum motor power depends on ratio		max. 9.5kW @ 1.000rpm max. 11kW @ 1.500rpm max. 11kW @ 1.200rpm
Motor protection		Thermal bimetal switch
Brake		1- circuit or 2- circuit safety brake system
Sprocket size number of teeth standard		Duplex 20 A-2; 20 B-2 z= 17 up to 25 DIN 8187 / 8188
Monitoring function		Brake function, brake lining wear

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oms Hypodrive Gear box EC 2-7 Dimension mm A, max. *** 841 В 291 С 157 D 500 Eı 138 E2 138 G 350 Н 231,7 К 273,6 J 30 L 102 F 200 0 264 ***) M, A depends on motor size and power

Dimensioned Drawing EC 2-7

APPENDIX B Dimensioned drawing of the OMS escalator machine EC 2 - 7 Motor arrangement Version A Sheet 1

(We reserve the right to make changes – Status 05/2023)







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1. Terminal diagram for E - motor Terminal box:

The machine's motor must be wired for star/delta operation with a 7 way cable (3 + 3 +PE).

Connecting to mains voltage





Connecting to Frequency inverter



Attention:

For Fi-operation the following must be observed:

You have to use a filter between the Fi and the motor, which is limiting the increase speed of the voltage from the Fi to the motor connecting points to a limit of $\delta U/\delta t \le 500 V/\mu s$.

Higher increasing speed of the voltage can damage the motor windings (short circuit is possible).



2. Mains supply connection for OMS brake magnet

Connection with one control switch; Both magnetic circuits are controlled together.



Connection with two control switches; Each magnetic circuit is controlled independently.





The pin assignment to the Wieland-Connector:

The pin assignment is agreed with the individual customer accordingly.





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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier					
Product name	:	Klübersynth GH 6-220			
Article-No.	:	012161			
1.2 Relevant identified uses of the	e si	ubstance or mixture and uses advised against			
Use of the Sub- stance/Mixture	:	Lubricating oil			
Recommended restrictions on use	:	Restricted to professional users.			
1.3 Details of the supplier of the s	afe	ety data sheet			
Company	:	Klüber Lubrication München Geisenhausenerstr. 7 81379 München Deutschland Tel: +49 (0) 89 7876 0 Fax: +49 (0) 89 7876 333 info@klueber.com			
E-mail address of person responsible for the SDS	:	mcm@klueber.com Material Compliance Management			
National contact	:	Klüber Lubrication Deutschland Geisenhausenerstraße 7 81379 München Deutschland Tel.: +49 89 7876 0 Fax: +49 89 7876 565 customer.service.de@klueber.com www.klueber.com			

1.4 Emergency telephone number

Emergency telephone num- : +49 89 7876 700 (24 hrs) ber

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) Not a hazardous substance or mixture.



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LUBRICATION

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

Additional Labelling

EUH210 Safety data sheet available on request.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature

: polyalkylene glycol oil

Components				
Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	specific concen- tration limit M-Factor Notes Acute toxicity estimate	Concentration (% w/w)
Reaction mass of 3- methylphenyl diphenyl phosphate, 4- methylphenyl diphenyl phosphate, bis(3- methylphenyl) phenyl phosphate, 3- methylphenyl 4- methylphenyl phenyl phosphate and tri- phenyl phosphate	945-730-9 01-2119511174-52- XXXX	Aquatic Acute1; H400 Aquatic Chronic3; H412	M-Factor: 1/	>= 1 - < 2,5

For explanation of abbreviations see section 16.



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SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled	 Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If unconscious, place in recovery position and seek medical advice. Keep respiratory tract clear. If breathing is irregular or stopped, administer artificial respiration.
In case of skin contact	 Remove contaminated clothing. If irritation develops, get med- ical attention. In case of contact, immediately flush skin with plenty of water. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. If eye irritation persists, consult a specialist.
If swallowed	 Move the victim to fresh air. If unconscious, place in recovery position and seek medical advice. Keep respiratory tract clear. Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person.
4.2 Most important sympt	s and effects, both acute and delayed
Symptoms	: No information available.

Risks : None known.

4.3 Indication of any immediate medical attention and special treatment needed Treatment : No information available.

SECTION 5: Firefighting measures

5.1	5.1 Extinguishing media				
	Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or car- bon dioxide.		
	Unsuitable extinguishing	:	High volume water jet		

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r	nedia				
5.2 S	pecial hazards arising from	n the	substance or mixture		
ł	Hazardous combustion prod- lcts	:	Carbon oxides Nitrogen oxides (NOx)		
5.3 A	dvice for firefighters				
f	Special protective equipment for firefighters		In the event of fire, wear self-cor Use personal protective equipment tion products may be a hazard to	ntained breathing apparatus. ent. Exposure to decomposi-) health.	
F	Further information	:	Standard procedure for chemica Collect contaminated fire extingu must not be discharged into drai	l fires. iishing water separately. This ns.	
SEC	SECTION 6: Accidental release measures				
6.1 P	ersonal precautions, protec	ctive	equipment and emergency pro	cedures	
ŀ	rersonai precautions	:	Evacuate personnel to safe area Use personal protective equipme Ensure adequate ventilation. Refer to protective measures list	is. int. ed in sections 7 and 8.	

6.2 Environmental precautions

Environmental precautions Do not allow contact with soil, surface or ground water. : Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling				
Advice on safe handling	:	Avoid inhalation of vapour or mist. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the ap-		

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			plication area. Wash hands and face before breaks handling the product. Do not ingest. Do not repack. Do not re-use empty containers. These safety instructions also apply t may still contain product residues. Keep container closed when not in us	and immediately after to empty packaging which se.	
Hy	giene measures	:	Wash face, hands and any exposed s handling.	skin thoroughly after	
7.2 Co	nditions for safe storage	, incl	uding any incompatibilities		
Re are	equirements for storage eas and containers	:	Store in original container. Keep cont use. Keep in a dry, cool and well-ven which are opened must be carefully r to prevent leakage. Store in accordar national regulations. Keep in properly	ainer closed when not in tilated place. Containers esealed and kept upright nce with the particular y labelled containers.	
St	orage class (TRGS 510)	:	10, Combustible liquids		
7.3 S pe Sp	e cific end use(s) becific use(s)	:	Specific instructions for handling, not	required.	

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health ef- fects	Value
bis(4-(1,1,3,3- tetramethyl- butyl)phenyl)amine	Workers	Inhalation	Long-term systemic effects	4,11 mg/m3
	Workers	Skin contact	Long-term systemic effects	1,17 mg/kg bw/day
Reaction mass of 3- methylphenyl diphenyl phosphate, 4- methylphenyl diphenyl phosphate, bis(3- methylphenyl) phenyl phosphate, 3- methylphenyl 4- methylphenyl phenyl phosphate and tri- phenyl phosphate	Workers	Inhalation	Long-term systemic effects	3,5 mg/m3



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	Workers	Inhalation	Acute systemic ef- fects	28 mg/m3
	Workers	Dermal	Long-term systemic effects	0,5 mg/kg bw/day
	Workers	Dermal	Acute systemic ef- fects	4 mg/kg bw/day
pentaerythritol tetrakis(3-(3,5-di-tert- butyl-4- hydroxy- phenyl)propionate)	Workers	Inhalation	Long-term systemic effects	9,5 mg/m3
	Workers	Skin contact	Long-term systemic effects	27 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
bis(4-(1,1,3,3-	Fresh water	0,00002 µg/l
tetramethylbutyl)phenyl)amine		
	Marine water	0,000002 µg/l
	Fresh water sediment	0,00467 mg/kg
	Marine sediment	0,000467 mg/kg
	Soil	0,000934 mg/kg
Reaction mass of 3-methylphenyl diphenyl phosphate, 4- methylphenyl diphenyl phos- phate, bis(3-methylphenyl) phe- nyl phosphate, 3-methylphenyl 4- methylphenyl phosphate and triphenyl phosphate	Fresh water	0,002 mg/l
	Marine water	0,0002 mg/l
	Fresh water sediment	3,43 mg/kg
	Marine sediment	0,343 mg/kg
pentaerythritol tetrakis(3-(3,5-di- tert-butyl-4- hydroxyphenyl)propionate)	Fresh water	0,086 mg/l
	Marine water	0,0086 mg/l

8.2 Exposure controls

 Engineering measures

 none

 Personal protective equipment

 Eye protection
 :
 Safety glasses with side-shields

 Hand protection
 :
 Nitrile rubber

 Material
 :
 Nitrile rubber

 Break through time
 :
 > 10 min

 Protective index
 :
 Class 1

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Remarks	:	For prolonged or repeated contact use protective gloves. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. The selected protective gloves have to satisfy the specifica- tions of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
Respiratory protection	:	Not required; except in case of aerosol formation.
Filter type	:	Filter type A-P
Protective measures	:	The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Choose body protection in relation to its type, to the concen- tration and amount of dangerous substances, and to the spe- cific work-place.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	yellow
Odour	:	characteristic
Odour Threshold	:	No data available
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	>= 250 °C Method: ISO 2592, open cup
Auto-ignition temperature	:	No data available

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	Decom Dec ture	nposition temperature composition tempera- e	:	No data available	
	pН		:	8,0 (20 °C) Concentration: 100 %	
	Viscos Vis	ity cosity, dynamic	:	No data available	
	Vis	cosity, kinematic	:	220 mm2/s (40 °C)	
	Solubil Wa	lity(ies) ter solubility	:	partly soluble	
	Sol	ubility in other solvents	s :	No data available	
	Partitic octano	on coefficient: n- I/water	:	No data available	
	Vapou	r pressure	:	< 0,001 hPa (20 °C)	
	Relativ	ve density	:	1,050 (20 °C) Reference substance: Water The value is calculated	
	Densit	у	:	1,05 g/cm3 (20 °C)	
	Bulk de	ensity	:	No data available	
	Relativ	ve vapour density	:	No data available	
9.2	Other i	nformation			
	Explos	sives	:	Not explosive	
	Oxidizi	ing properties	:	No data available	
	Self-ig	nition	:	No data available	
	Evapo	ration rate	:	No data available	
	Sublim	nation point	:	No data available	



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SECTION 10: Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

- 10.2 Chemical stability
 - Stable under normal conditions.

10.3 Possibility of hazardous reactions

- Hazardous reactions : No dangerous reaction known under conditions of normal use.
- 10.4 Conditions to avoid Conditions to avoid

: No conditions to be specially mentioned.

10.5 Incompatible materials Materials to avoid

: No materials to be especially mentioned.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity <u>Product:</u> Acute oral toxicity

Acute oral toxicity	:	Remarks: This information is not available.
Acute inhalation toxicity	:	Remarks: This information is not available.
Acute dermal toxicity	:	Remarks: This information is not available.

Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3-methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phosphate and triphenyl phosphate

: Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg
Acute dermal toxicity	:	LD50 (Rat): > 2.000 mg/kg Method: OECD Test Guideline 402 GLP: yes Assessment: The substance or mixture has no acute dermal



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toxicity

Skin corrosion/irritation

Product: Remarks

2.

: This information is not available.

Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate

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٠		

Species	: R	Rabbit
Assessment	· N	Io skin irritation
Method	: C	DECD Test Guideline 404
Result	: N	lo skin irritation

Serious eye damage/eye irritation

Product: Remarks

: This information is not available.

Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate

:	
Species	: Rabbit
Assessment	: No eye irritation
Method	: OECD Test Guideline 405
Result	: No eye irritation

Respiratory or skin sensitisation

Product: Remarks

: This information is not available.

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Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3-methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate

: Assessment Result	:	Did not cause sensitisation on laboratory animals. Did not cause sensitisation on laboratory animals.
Germ cell mutagenicity		
Product:		
Genotoxicity in vitro	:	Remarks: No data available
Genotoxicity in vivo	:	Remarks: No data available

Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3-methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate

:		
Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative GLP: yes
Carcinogenicity		
Product:		
Remarks	:	No data available
Reproductive toxicity		
Product:		
Effects on fertility	:	Remarks: No data available
Effects on foetal develop- ment	:	Remarks: No data available



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	Compo	onents:					
	Reactic methylp phosph	on mass of 3-methylpl ohenyl) phenyl phospl late	nenyl nate,	diphenyl phosphate, 4-methylphenyl diphe 3-methylphenyl 4-methylphenyl phenyl ph	envl phosphate, bis(3- osphate and triphenyl		
	:						
	Reprod	luctive toxicity - As-	:	- Fertility -			
	sessme	ent		No evidence of adverse effects on sexual or on development, based on animal exp	function and fertility, eriments.		
	Repeat	ted dose toxicity					
	Produc	<u>:t:</u>					
	Remar	ks	:	This information is not available.			
	Aspira	tion toxicity					
	Produce This inf	:t: formation is not availal	ole.				
11.2	Inform	ation on other hazar	ds				
	Endoc	rine disrupting prop	erties	;			
	Produc	<u>:t:</u>					
	Assess	ment	:	The substance/mixture does not contain of ered to have endocrine disrupting propert REACH Article 57(f) or Commission Dele (EU) 2017/2100 or Commission Regulation levels of 0.1% or higher.	components consid- ties according to gated regulation on (EU) 2018/605 at		
	Furthe	r information					

Further information

Product: Information given is based on data on the components and the toxicology of similar products. Remarks :

SECTION 12: Ecological information

12.1	Toxicity
------	----------

Product:		
Toxicity to fish	:	Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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Toxi aqua	city to daphnia and other atic invertebrates	:	Remarks: No data available		
Toxi plan	city to algae/aquatic ts	:	Remarks: No data available		
Toxi	city to microorganisms	:	Remarks: No data available		

Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3-methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate

Toxicity to fish	:	LC50 (Oryzias latipes (Japanese medaka)): 1,3 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 0,55 mg/l Exposure time: 72 h
M-Factor (Acute aquatic tox- icity)	:	1
Toxicity to microorganisms	:	EC50 (activated sludge): Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to daphnia and other aquatic invertebrates (Chron- ic toxicity)	:	NOEC: 0,12 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available
Physico-chemical removabil- ty	:	Remarks: No data available

Components:

:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate



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Biodegradability		: Result: rapidly biodegradable Biodegradation: 75 % Exposure time: 28 d Method: OECD Test Guideline 301C		

12.3 Bioaccumulative potential

Product:

Bioaccumulation

: Remarks: This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT). This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Components:

Reaction mass of 3-methylphenyl diphenyl phosphate, 4-methylphenyl diphenyl phosphate, bis(3-methylphenyl) phenyl phosphate, 3-methylphenyl 4-methylphenyl phenyl phosphate and triphenyl phosphate

: Bioaccumulation	:	Bioconcentration factor (BCF): 220
Partition coefficient: n- octanol/water	:	log Pow: 4,5

12.4 Mobility in soil

<u>Product:</u> Mobility	:	Remarks: No data available
Distribution among environ- mental compartments	:	Remarks: No data available

12.5 Results of PBT and vPvB assessment

Product:	This substance/mixture contains no components considered
Addition	to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

12.6 Endocrine disrupting properties

Product:	
Assessment	 The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.



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12.7 Other adverse effects

Product:

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2.1

Additional ecological information

Revision Date:

13.01.2022

: Harmful to aquatic life with long lasting effects.

Date of last issue: 02.04.2020

Date of first issue: 16.06.2015

SECTION 13: Disposal considerations

13.1	Waste treatment methods		
	Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not dispose of with domestic refuse. Dispose of as hazardous waste in compliance with local and national regulations.
			Waste codes should be assigned by the user based on the application for which the product was used.
	Contaminated packaging	:	Packaging that is not properly emptied must be disposed of as the unused product. Dispose of waste product or used containers according to local regulations.
			The following Waste Codes are only suggestions:
	Waste Code	:	unused product 13 02 06*, synthetic engine, gear and lubricating oils
			uncleaned packagings 15 01 10, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

4.1	UN number or ID number
	Not regulated as a dangerous good
4.2	UN proper shipping name
	Not regulated as a dangerous good
4.3	Transport hazard class(es)
	Not regulated as a dangerous good
4.4	Packing group



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$^{\prime\prime}$ LUBRICATION

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14.5 Environmental hazards Not regulated as a dangerous good						
14.6 Special precautions for user Not applicable						
14.7 Maritime transport in bulk according to IMO instruments Remarks : Not applicable for product as supplied.						

SECTION 15: Regulatory information

15.1 ture	Safety, health and environmental regulations/legislation specific for the substance or mix-					
	REACH - Restrictions on the m the market and use of certain of preparations and articles (Ann	ianı lanç ex)	ufacture, placing on gerous substances, (VII)	:	Not applicable	
	REACH - Candidate List of Sul Concern for Authorisation (Arti	osta cle	nces of Very High 59).	: T s la	This product does not contain sub- stances of very high concern (Regu lation (EC) No 1907/2006 (REACH)	
	REACH - List of substances su (Annex XIV)	H - List of substances subject to autho x XIV)		:	Not applicable	
	Regulation (EC) No 1005/2009 on substances plete the ozone layer		substances that de-	:	Not applicable	
	Regulation (EU) 2019/1021 on tants (recast)	gulation (EU) 2019/1021 on persistent or its (recast)		:	Not applicable	
	Regulation (EC) No 649/2012 ment and the Council concerni of dangerous chemicals	of tl ng t	ne European Parlia- he export and import	:	Not applicable	
	Seveso III: Directive 2012/18/E Parliament and of the Council major-accident hazards involvi stances.	U c on t ng c	of the European : he control of Jangerous sub-		Not applicable	
	Water contaminating class (Germany)	:	WGK 2 obviously hazar Classification according	dou to	us to water AwSV, Annex 1 (5.2)	
	TA Luft List (Germany)	:	Total dust: others: 3,18 %			
			Inorganic substances in powdered form: Not applicable Inorganic substances in vapour or gaseous form: Not applicable Organic Substances:		wdered form: pour or gaseous form:	

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			portion Class 1: < 0,01 % others: 96,82 %	
			Carcinogenic substances: Not applicable Mutagenic: Not applicable Toxic to reproduction: Not applicable	
Volatile organic compounds : Directive 2010/75/EU of 24 November 20 emissions (integrated pollution prevention Volatile organic compounds (VOC) conte		nber 2010 on industrial evention and control) c) content: 0,06 %		
15.2 Cher This inforr	nical safety assessme nation is not available.	ent		

SECTION 16: Other information

Full text of H-Statements				
H400	:	Very toxic to aquatic life.		
H412	:	Harmful to aquatic life with long lasting effects.		

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN -Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS -Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP -Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL -International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIOC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office



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of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS -Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

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