



# CERTIFICATE OF CONFORMITY

**Certificate - No.:** 17-IS-1374-TAT-18-EN81-387

<b>Applicant/Certificate Holder</b>	: KÖŞKERLER ÇELİK HALAT ve MAKINA SANAYI TICARET A.Ş. Çerkeşli Köyü OSB Mahallesi, IMES Bulvarı, No:20, IMES Org. San. Bölgesi, Dilovası, Kocaeli, TURKEY
<b>Manufacturer</b>	: KÖŞKERLER ÇELİK HALAT ve MAKINA SANAYI TICARET A.Ş. Çerkeşli Köyü OSB Mahallesi, IMES Bulvarı, No:20, IMES Org. San. Bölgesi, Dilovası, Kocaeli, TURKEY
<b>Product</b>	: Rope drive, for use as part of the machine for traction drive lifts resp. indirect acting hydraulic lifts with and without reduced number of travels
<b>Type/Model(s)</b>	: SWR K-240W 6,5 mm
<b>Standard(s) / Certification Basis</b>	: 2014/33/EU Lifts Directive EN 81-20:2014 EN 81-50:2014

This Certificate of Conformity is issued on a voluntary basis according to the reference standards & directive which are mentioned above. This certificate is based on the state of the art, which is documented through the current harmonized standards.

The equipment fulfills the requirements of the test specifications for the respective scope of application stated in the Annex I of this certificate, keeping the mentioned conditions.

The test results refer to the test specimen and the corresponding examination of conformity only.

**Test Report No.** : 2017394 and 2018014

**Issue Date** : 30.04.2018

**Expiry Date** : 29.04.2021



According to the above stated test report(s) the specified product complies with the applicable requirements of the mentioned standard(s). The applicant may use the test report and this certificate in connection with the declaration of conformity according to the EU Directive and Annex indicated above.

This Certificate of Conformity has been granted to the applicant based on the results of testing performed by the applicant/manufacturer or an accepted laboratory and the consequent review of the test report by TÜV Austria Turk. Revisions to the referenced certification basis or any change of the design, materials, components or processing may require the repetition of all or some of the qualification tests in order for the test report and therefore this associated certificate to remain valid.

If new knowledge should occur, the test laboratory reserves the right, to give additional conditions concerning the use of the rope drive, or to modify existing conditions.

**ANNEX-I OF CERTIFICATE NO.  
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**1. Scope of Application**

Traction drive lifts, falling within the scope of validity of the Directive 2014/33/EU (Lifts Directive) or whose rope drive / drive according to EN 81-20:2014, Number 5.9.2.1.1 a) resp. Number 5.9.3.1.1 b) will be renewed.

According the following definitions:

Traction drive lifts according EN 81-20:2014 and EN 81-50:2014

Traction drive lifts without reduced number of trips      Rope safety factor (Sf) calculated according to EN 81-50:2014, Number 5.12 or equally good

Traction drive lifts with reduced number of trips      Rope safety factor (Sf) determined deviating from EN 81-50:2014, Number 5.12

**Technical Data**

Characteristics of the rope	Rope Type	SWR K-240 W
	Nominal diameter of the rope - $d_{Nom}$	Ø 6,50 mm (1)
	Minimum breaking load - $F_{min}$	31,68 kN
	Construction / Type	8x19 W + IWRC, sZ, U
	Tensile strength of the wire - $R_o$	1770 N/mm <sup>2</sup>
Traction sheave	Minimum diameter - $D_{Tmin}$ (2)	≥ 210 mm
	$D_T / d_{Nom}$	≥ 32,3
	V-angle in case of V-groove	$\gamma > 35^\circ$ to $60^\circ$
	U-angle in case of semi-circular undercut groove (U-groove)	$\beta > 75^\circ$ to $105^\circ$
Diverting pulleys	Minimum diameter - $D_{Umin}$ (2)	≥ 210 mm
	$D_U / d_{Nom}$	≥ 32,3

(1) Deviating from EN 81-20:2014 (D), Number 5.5.1.2 a)

(2) Deviating from EN 81-20:2014 (D), Number 5.5.2.1

**2. Conditions**

**2.1. Conditions for traction lifts according to EN 81-20:2014 and EN 81-50:2014**

**2.1.1.** The intended use of the lift installation must be coordinated between the rope manufacturer, the manufacturer of the lift and the person who

makes the purchasing order (in case of new lifts) or operator (in case of modifications of the lift).

Especially a statement must be given with regard to the following points:

- The intended use of the lift,
- The expected yearly number of trips,
- The expected number of trips up to the moment when having reached the limit at which the steel wire ropes have to be discarded - for lift installations with a reduced number of trips,
- The rope safety factor which is required with respect to the lift installation
- These statements and the calculations based on the statements must be documented and must be enclosed to the technical documents.
- See number 3.3 of this certificate.

**2.1.2.** The rope safety factor must be determined

- In case of traction drive lifts without reduced number of trips, According to EN 81-50:2014, Number 5.12 or equally good

**2.1.3.** The rope safety factor must be at least  $S_f = 12$ .

**2.1.4.** In case of lift installations with reduced number of trips, the trips must be registered by a safe and reliable automatic counter device (e. g. by a power-fail proof, non-resettable electric counter).

When the number of trips after which the ropes have to be discarded is reached, the lift must be safely stopped in the next landing by the control system and the suspension ropes must be replaced.

See number 3.3 and 3.4 of this certificate.

**2.1.5.** The suspension ropes must be discarded in case of (for all lift installations)

- 20 broken wires within a length of  $30 \times d$  or
- 10 broken wires within a length of  $6 \times d$  or
- a diameter reduction of more than 6% related to the nominal rope diameter and (for lift installations with a reduced number of trips)
- When reaching the maximum number of trips which has been determined by calculation.

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**2.1.6.** The rope traction of the suspension ropes must be calculated according to EN 81-50:2014, Number 5.11 or equal.

**2.1.7.** The ratio between the diameter of the traction sheave and the rope diameter must be at least:

- $d_{Nom}: 6,5mm$
- $D_T / d_{Nom} \geq 32,3$

- 2.1.8.** The traction sheave must be designed with a semi-circular undercut groove (U-angle  $b = 75^\circ$  up to  $b = 105^\circ$ , hardened or non-hardened) or with a hardened V-groove (V-angle  $g = 35^\circ$  up to  $g = 60^\circ$ ) made of steel or cast iron.
- 2.1.9.** The ratio between the diameter of the diverting pulley and rope diameter must be at least:
- $d_{Nom}: 6.5 \text{ mm}$
  - $D_T / d_{Nom} \geq 32,3$
- 2.1.10.** The diverting pulleys must be designed with a semi-circular groove made of steel or cast iron (hardened or non-hardened) or made of plastics.
- 2.1.11.** All additional requirements of EN 81-20:2014 regarding rope drives must be kept, e.g. like:
- junction of the rope termination (80% of the minimum breaking load)
  - distribution of load of suspension
  - protections at traction sheaves and pulleys (bracket against derailing of the rope, nip guards)
  - visual examination on the traction sheave is guaranteed

### **3. Remarks**

- 3.1.** A sign with particulars for identification, containing the name of the manufacturer and the type specification must be attached at the product, to be able to check the conformity of the examined product with the series production.
- 3.2.** The certificate concerning the examination of conformity may be used only in connection with the pertinent Annex.
- 3.3.** The following installations will be regarded as lifts with a reduced number of trips.
- 3.3.1.** Traction lifts according EN 81-20:2014 and EN 81-50:2014 with a deviating rope safety factor (smaller) than the rope safety factor which is defined in EN 81-50:2014, Number 5.12.

The deviant rope safety factor (smaller than the rope safety factor which is defined in EN 81-50:2014, Number 5.12) is the result of the determined maximum number of trips, after which the steel wire ropes has to be discard.

In the case of a change of the intended use of the lift installation (using the lift more frequently), an improvement of the lift installation may become necessary.

- 3.3.2.** Each change of direction is regarded as a trip which shall be registered by the automatic counting device.

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Re-levelling movements should be avoided as far as possible. Re-levelling movements exceeding the range of  $l/d_{Nom} > 10$  (bending length ratio = bending length / nominal diameter of the rope) — in case of a preceding change of direction — must be evaluated as a trip,

**3.4.** The following equivalent number of traction sheaves will be taken as basis:

	<b>V-groove with Groove angles g of</b>								
	35°	36°	38°	40°	42°	45°	50°	55°	60°
N <sub>equiv</sub> (t)	18.5	16	12	10	8	6.5	5	3.7	3
	<b>Semi-circular Groove with undercut and undercut angles b of</b>								
	75°	80°	85°	90°	95°	100°	105°		
	2.5	3	3.8	5	6.7	10	15.2		

Deviating from EN 81-50:2014, Number 5.12 table 2 some additional V-grooves (V-angle 55° and 60°) will be used, the corresponding equivalent number of traction sheaves N<sub>equiv(t)</sub> has been determined by extrapolation.

- 3.5.** The test results refer to the test specimen and the corresponding examination of conformity only.
- 3.6.** The list of safety components (annex III of Directive 2014/33/EU) doesn't contain rope drives. For that reason no EU-type examination certificate according to annex IV part A (EU-type examination for safety components for lifts) of the Directive 2014/33/EU, can be issued for that.
- 3.7.** This certificate is based on the state of the art, which is documented trough the current harmonized standards. Changes resp. extensions of these standards or a further development of the state of the art may make a revision of this report necessary.
- 3.8.** If new knowledge should occur, the test laboratory reserves the right, to give additional conditions concerning the use of the rope drive, or to modify existing conditions.
- 3.9.** The certificate about an examination of conformity number 17-IS-1374-TAT-18-EN81-387 can be added to the required reading technical dossier as a help for decision of the notified body.