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Spring cable reel FKT140

Operating instructions
BAL011-TR-0011E

01/03

1. Definitions

- FKT140. 20-04.1 140/L/RLS :
 - FKT----- reel type
 - 140 ----- reel size
 - 20-04 ----- slip ring assembly
 - 1 140 ----- spring
 - L ----- feed-off direction(left hand side)
 - RLS ----- accessories
- Motive spring : high quality spiral spring made of texture material
- Protection code: protection against accidental contact and against penetration of foreign matters and water (see also EN 60529 DIN VDE 0470-1)
- spring parameter:
 - n_v : revolutions for initial tension (preload)
 - n_a : revolutions for operation
 - n_r : revolutions for reserve
 - n_{BI} : revolutions till blocking

2. Technical Data

The most important technical data are indicated on the type plate. The plate shows the type designation as well as the year of construction and the order number as well as the material number.

		Kaiser Elektro- und Fördertechnik GmbH		79669 Zell im Wiesental Ortsteil Mambach-Rohmatt Ortsstrasse 40	
Typ: FKT140. 20-04.1140/R			Mat.-Nr.: 0110019		
cable:	PUR-H 4x1,5 ²				
spring:	1 140	Slip ring assem.:	3 + PE		
n ges:	25	Current intensity:	25A		
n v:	3	voltage:	415V ★		
n r:	1	Protection code:	IP65		
Constr year:	2003	Cable length:	14m		
Order no.:	2020003				
				Tel: +49 (0) 7625-7159 Fax: +49 (0) 7625-7199	



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Further information on the reel :

Feed-off direction: standard: left hand side (seen on slip ring assembly) see arrow on the reel.

Reel dimensions: see dimension sheet M011-TR-0011D/E

★ For this slip ring assembly the voltage is 400 V, provided that the assembly is not used in units which are connected directly to the low voltage mains. (VDE0110-1/1997-04: 2.2.1.1 chart 4). Using it for units which are directly connected to the low voltage mains, 415 V alternating voltage are allowed. (chart 3b)

3. Design and description

Cables, tubes and steel ropes for mobile consumer are automatically wound up to spring reels using a spring drive.

The spring drive consists of a spiral spring which is arranged outside the reel body. The spring material used is a long lasting high quality texture spring steel.

The reel as well as the outside connecting elements are planetary rolled and galvanized resp. and thus withstanding conventional environmental influences. For special applications like in maritime climate or for clarification/sewage plants, we recommend a seaworthy painting or the use of VA-material. .

Standard design of reels are made for ambient temperatures from -40°C to $+80^{\circ}\text{C}$. The drive springs and the bearings are greased with a special grease for a temperature range of -55°C up to $+100^{\circ}\text{C}$. (Even for deep-freeze storage).

The slip ring assembly (SK) is mounted within the reel body and is provided with a short cover, depending on the pole factor. The sealing of this cover is done by a toroidal sealing ring which corresponds to protection IP54.

The slip ring assembly consists of brass rings which are plastic-insulated against each other. The brush holders are provided with heavy duty bronze-carbons.

For transmission of data or signals there are used specially coated rings and silver-carbons.

For leading in the reelable cables into the slip ring assembly, the reel body is provided with a connecting sleeve and a twisting/clamping fitting.

The rather compact design makes it possible to use the reel in small places, too.

The max. reeling speed is 63 m/min. at an acceleration of max $0,3\text{m/s}^2$.

The reel corresponds to the general rules DIN/VDE.



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4. Start up

To connect the cable to the brush holder, it is necessary to take off the cover and the circular blank together with the fixation ring as well as the barrel. For this the 3 nuts of the covering have to be removed, so that all parts can be taken off all together.

Now the cable is led to the brush holder by passing the twisting/clamping fitting which is mounted within the welded connecting sleeve of the barrel.

The different leads of the cables have to be bound to the brush holders and have to be fixed strain-relieved by means of the clamps at the flange.

The reel is reassembled in reverse manner and any seam/joint has to be sealed by means of Durasil .

After that, the cable is twist-free wound up to the reel by hand and the cable end has to be fixed to the reel and the cable end has to be fixed to the reel .

The reel has to be fixed in place and the stationary service cable has to be led to the terminal board passing the axle (flange side) and has to be connected to the terminal clamps.

Now the reel is preloaded by n_V revolutions for initial tension and is kept in this position. Release the cable and wind off manually as much cable as needed for leading to the shortest distance to the required place. Connect the cable end at this place and release the reel.

The required preload " n_V " may be determined as follows:

To guarantee the highest lifetime of the spring, it is required that the spring is working in an average range of characteristics. This may be reached as follows:

The reel is manually turned till the spring is fully loaded and the reel speed is adjusted at slow running back.

Thereafter, the working speed is determined depending on the required cable length by subtracting this value from the total number of revolutions.

The remaining sum is divided by 2, thus getting the number of revolutions for preload n_V as well as reserve n_R



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5. Maintenance

The reel is maintenance-free till inspection (30 000 cycles).

Depending on special working conditions, we recommend to make the following checks in certain intervals:

Reel: Since the reel is of screwed design, all screws, pins and nuts have to be checked on their tightness.
The toroidal sealing ring as well as the joints have to be checked on tightness and/or possible damages and if required they have to be exchanged.

Slipping assembly: This assembly has to be cleaned from rubbed off parts (sucked out). Check ring surface and wear of brush holders and if required, exchange them. **Warning**, do not use any contact oils! The carbons are self-greasing. Please check all leads and flexible cords on their fitting and possible insulation damages.

Cables: Please check cables on possible irregularities or damages (knots or corking screws) and if necessary, exchange them. Cables to be checked on twists and if necessary release twists.

6. Repair

The spare parts for the reel are indicated in the spare part list EL011-TR-0011.

Exchange of springs



To prevent accidents please pay attention to the hints concerning handling of springs.

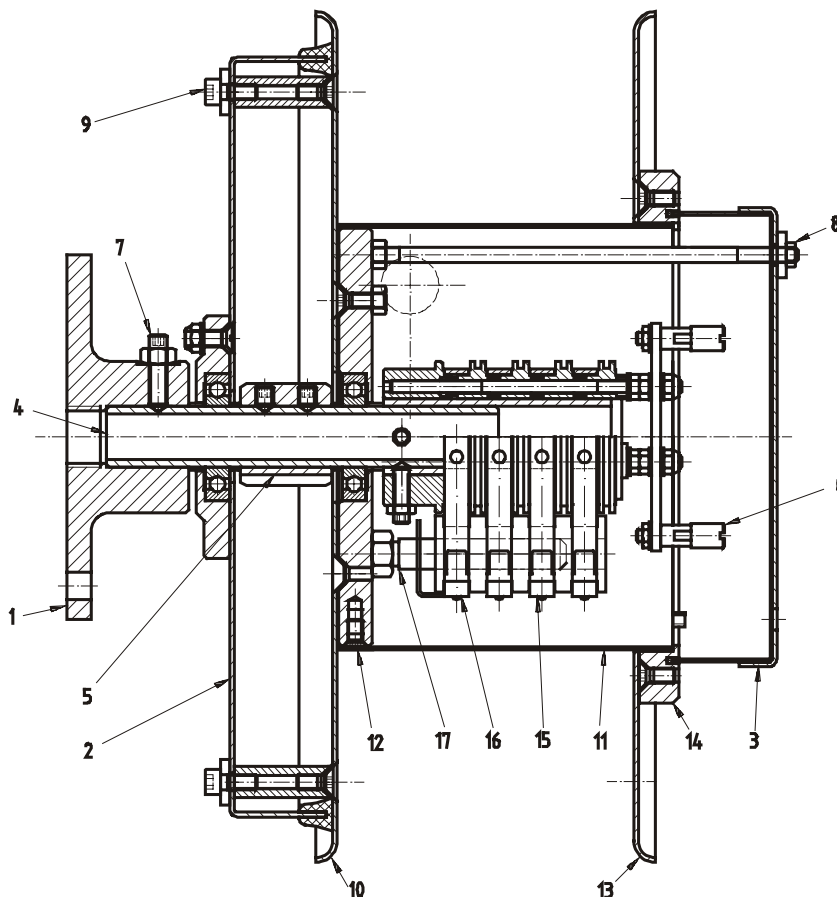
Before opening or dismantling the reel it has to be switched off from voltage.



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- a.) The reeled cable has to be taken off the consumer and it has to be carefully wound up to the barrel body till complete spring load is released.
- b.) After releasing the nuts (8), remove the cover of slip ring assembly (3).
- c.) Remove the stationary supply line at the SK terminal board by opening the clamps (6) and pull off the axle(4).
- d.) Thereafter screw off the reel together with the flange.
- e.) Remove the set screw (7) of fixation flange (1) and take off the flange from the axle.
- f.) Open the spring box by taking off the 6 screws (9) and taking off the complete spring box (2).
- g.) Check the spring on ruptures and secure it with wires and take off carefully from the spring nut.
- h.) Before inserting the new spring, the inside of the spring box has to be greased by an acid-free and elastic grease (like Klüber CENTROPLEX 2DL).
- i.) The reassembling is done in the reverse manner and at that time all parts have to be cleaned carefully before reusing them.



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Exchange of brush holder



Before opening or dismantling the reel it has to be taken off the voltage.

- a.) The reeled cable has to be taken off the consumer and it has to be carefully wound up to the barrel body till complete spring load is released.
- b.) After releasing the nuts (8), remove the cover of slip ring assembly (3)
- c.) Open the twist fitting of connecting sleeve.
- d.) Cutting with a sharp knife the Durasil joint between the flange side circular blank (10) and the barrel body (11).
- e.) Remove the fixation screws (12) at the circumference of the barrel body and take off the barrel body together with the circular blank (13) and the fixation ring (14). At this job please take care of the connecting line.
- f.) Release the flat receptacle from brush holders (15) and take off the brush holders from insulator. At exchanging the brush holder PE (16) the brush bolt (17) has to be removed.
- g.) New brush holders to be installed in reverse manner connecting them.
- h.) Reel to be reassembled and sealed by means of Durasil.
- i.) Start-up the reel in accordance to item 4.

Please consider that:

Ordering the spare parts you will state reel type, order number and material number as well. Both numbers are indicated on the type plate of the reel.

7. Other product documentation

Drawing: M011-TR-0011 D/E

Spare part list: EL011-TR-0011 D/E

Hints concerning handling of springs.