



You have purchased a Demag product. This equipment was manufactured in accordance with German and European standards and regulations (EC Machinery Directive) and state-of-the-art engineering principles.

Refer to 206 978 44, 720 IS 900 for safety instructions for this friction force checking device.

These operating instructions are designed to provide the operator with appropriate instructions for safe and correct operation.

Every individual given the task of transporting, installing, commissioning, operating, maintaining and repairing this product and additional equipment must have read and understood

- the operating instructions
- the safety regulations and
- safety instructions in the individual chapters and sections.

The operating instructions must be available to the operating personnel at all times in order to prevent operating errors and to ensure smooth and trouble-free operation of our products.

The friction force checking device is supplied in a specially designed case.

Purpose

The display unit indicates the force measured by the measuring sensor in t, the lowest display value is 0,01 t.

Function

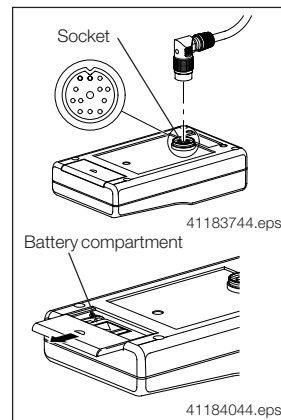
The display unit is powered by a battery. The electronic circuit performs the following functions:

- supplies the measuring sensor with regulated voltage
- converts the measuring sensor signal into a display value
- monitors the 9 V battery; when the battery voltage drops below 8 V, the display switches to "Lo Batt".

Putting into service

Insert the measuring sensor plug into the socket on the back of the display unit and screw threaded collar tight. When this connection is made, the unit is switched on and the 1,25 t or 3,15 t display range is selected. Replace the battery if the display shows "Lo Batt".

Changing the battery



Slide the cover down on the back of the unit to open the battery compartment. Carefully remove the battery from the compartment and undo the battery terminal clip. Then connect a new battery, place it in the compartment, carefully arrange the connecting cables and close the compartment.

Technical data

Dimensions: W x H x D = 80 mm x 145 mm x 40 mm

Weight: approx. 220 g

Battery: 9 V block

Case with display unit/measuring sensor/adapte

Part no. 836 708 44 – DC 1 - 20, DCM 1 - 5, DKUN 1 - 20, DKM 1 - 2
PMV 5 - 12, PKV 1, PK 2 - 10

Checking the friction force checking device

To guarantee safe and reliable functioning of the friction force checking device, we recommend an annual inspection and/or adjustment of the friction force checking device be carried out (measuring sensor and display unit).

For inspection purposes, the friction force checking device must be sent to our agent or Demag.

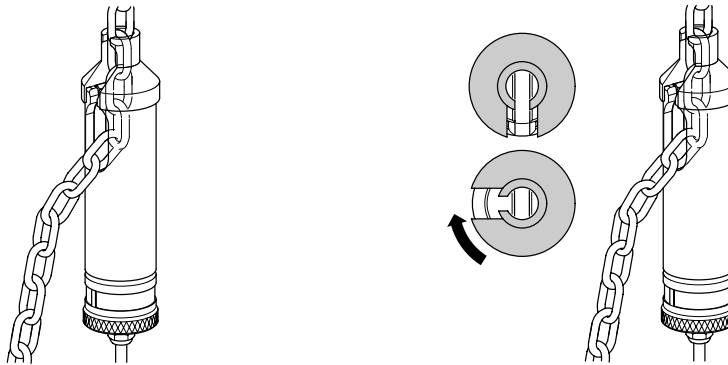
Checking and setting the DC slipping clutch



Adjustment work on the slipping clutch may only be carried out when the emergency-stop switch is actuated.

The emergency-stop switch must be actuated and protected against unauthorised restoration of the power supply to protect against dangerous voltages when the electrical equipment cover is open. No covers, plugs or fastening elements of the electrical equipment sub-assemblies must be loosened or removed. The electrical equipment cover must be closed again before the unit is put back into service to test the slipping clutch.

Fitting friction force sensor



Fit the chain in friction force sensor with the adapter.

Bestell-Nr. Adapter

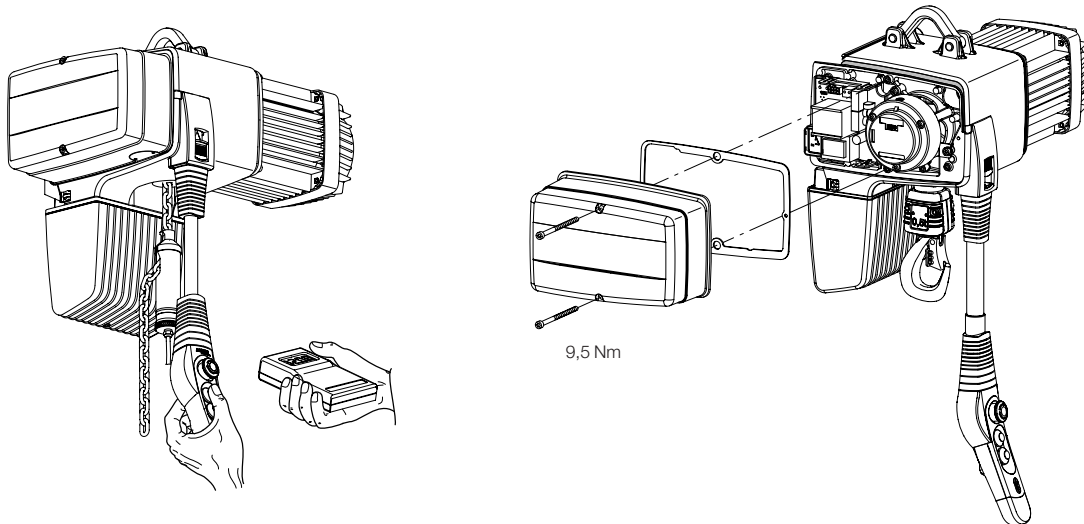
DC 1+2	836 731 44
DC 5	836 732 44
DC 10	836 733 44
DC 20	836 734 44



Secure the chain by turning the adapter in the direction of the arrow.

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Allow the slipping clutch to slip at creep speed and read off the display value.
Limit the slipping time to 1 second.
The limit switch must not be actuated while the setting is being checked.
Adjust the slipping clutch depending on the display value.

**Tighten the locknut if the value is too low.
Release the locknut if the display value is too high (see Correction).**

**Correction
If the friction force needs adjusting, proceed as follows:**

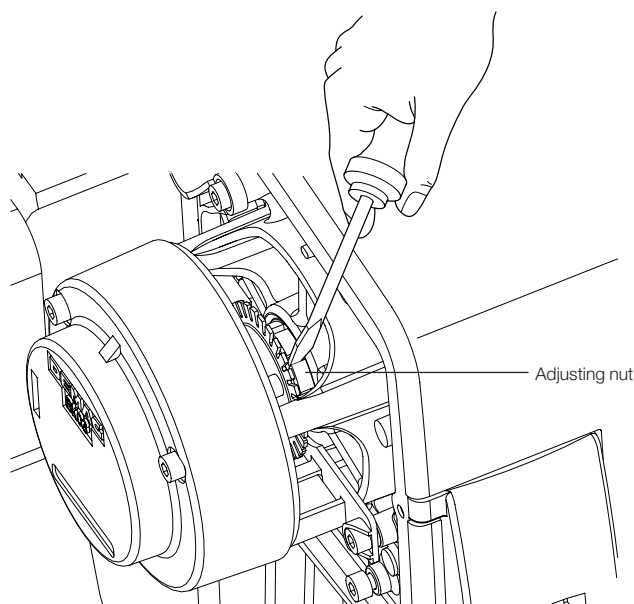
- 1) Remove electrical equipment cover.
- 2) Lower slipping force sensor a small distance.

- 3) Insert a screwdriver from above between the the brake and gearbox housing into one of the recesses of the adjusting nut and turn it.



Ensure that the pulse wheel and fork light barrier are not moved or damaged when adjusting the slipping clutch.

- 4) Check whether the setting value has been reached. If not, repeat the process.
- 5) Fit the electrical equipment cover when adjustment has been completed.



Direction

- tighte = right
- release = left



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When reducing the slipping force, first set the adjusting nut 2 to 3 segments below the specified value (setting value in t). Then adjust to the required value.

DC Slipping clutch setting values

DC-Pro chain hoist

SWL [kg]	Chain hoist type	Lifting speed		Motor size	Setting [t]	
		[m/min at 50 Hz]	[m/min at 60 Hz]			
80	DC-Pro 1 -...V1	8,0/2,0	9,6/2,4	ZNK 71 B 8/2	0,18	
	DC-Pro 2 -...V2	16/4	19,2/4,8		0,13	
100	DC-Pro 1 -...V1	8,0/2,0	9,6/2,4		0,21	
	DC-Pro 2 -...V2	16/4	19,2/4,8		0,16	
125	DC-Pro 1 -...V1	8,0/2,0	9,6/2,4		0,24	
	DC-Pro 2 -...V2	16/4	19,2/4,8		0,20	
160	DC-Pro 2 -...V1	8,0/2,0	9,6/2,4		ZNK 80 A 8/2	0,29
	DC-Pro 5 -...V2	12,0/3,0	14,4/3,6			
200	DC-Pro 2 -...V1	8,0/2,0	9,6/2,4			0,34
	DC-Pro 5 -...V2	12,0/3,0	14,4/3,6			0,32
250	DC-Pro 2 -...V1	8,0/2,0	9,6/2,4			0,40
	DC-Pro 5 -...V2	12,0/3,0	14,4/3,6			
315	DC-Pro 5 -...V1	6,0/1,5	7,2/1,8	0,50		
	DC-Pro 10 -...V2	12,0/3,0	14,4/3,6	ZNK 100 A 8/2		0,69
400	DC-Pro 5 -...V1	6,0/1,5	7,2/1,8	ZNK 80 A 8/2		0,64
	DC-Pro 10 -...V2	12,0/3,0	14,4/3,6	ZNK 100 A 8/2		0,84
500	DC-Pro 5 -...V1	6,0/1,5	7,2/1,8	ZNK 80 A 8/2		0,80
	DC-Pro 10 -...V2	12,0/3,0	14,4/3,6	ZNK 100 A 8/2		1,00
630	DC-Pro 10 -...V1	6,0/1,5	7,2/1,8		ZNK 100 B 8/2	1,13
	DC-Pro 20 -...V2	12,0/3,0	14,4/3,6			
800	DC-Pro 10 -...V1	6,0/1,5	7,2/1,8	ZNK 100 A 8/2	1,36	
	DC-Pro 20 -...V2	12,0/3,0	14,4/3,6	ZNK 100 B 8/2		
1000	DC-Pro 10 -...V1	6,0/1,5	7,2/1,8	ZNK 100 A 8/2	1,60	
	DC-Pro 20 -...V2	12,0/3,0	14,4/3,6	ZNK 100 B 8/2		
1250	DC-Pro 20 -...V1	6,0/1,5	7,2/1,8		2,00	
1600					2,56	
2000					3,20	

DCM-Pro Manulift chain hoist

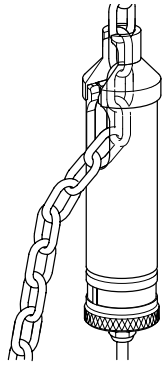
SWL [kg]	Manulift type	Lifting speed		Motor size	Setting [t]	
		[m/min at 50 Hz]	[m/min at 60 Hz]			
80	DCM-Pro 1 -...V1	8,0/2,0	9,6/2,4	ZNK 71 B 8/2	0,18	
	DCM-Pro 2 -...V2	16/4	19,2/4,8		0,13	
125	DCM-Pro 1 -...V1	8,0/2,0	9,6/2,4		0,24	
	DCM-Pro 2 -...V2	16/4	19,2/4,8		0,20	
250	DCM-Pro 2 -...V1	8,0/2,0	9,6/2,4		ZNK 80 A 8/2	0,40
	DCM-Pro 5 -...V2	12,0/3,0	14,4/3,6			

DC-Com chain hoist

SWL [kg]	Chain hoist type	Lifting speed		Motor size	Setting [t]
		[m/min at 50 Hz]	[m/min at 60 Hz]		
80	DC-Com 1	8,0/2,0	9,6/2,4	ZNK 71 B 8/2	0,20
100					0,22
125					0,26
160	DC-Com 2	4,0/2,0	4,8/2,4	ZNK 71 B 8/4	0,34
200					0,38
250					0,47
315	DC-Com 5	4,0/2,0	4,8/2,4	ZNK 80 A 8/4	0,63
400					0,76
500					0,90
630	DC-Com 10	4,0/1,0	4,8/1,2	ZNK 100 A 8/2	1,13
800					1,36
1000					1,60
1250	DC-Com 20	4,0/1,0	4,8/1,2	ZNK 100 B 8/2	2,00
1600					2,56
2000					3,20

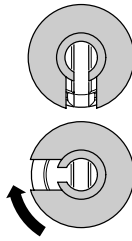
DK Slipping clutch values

Fitting friction force sensor



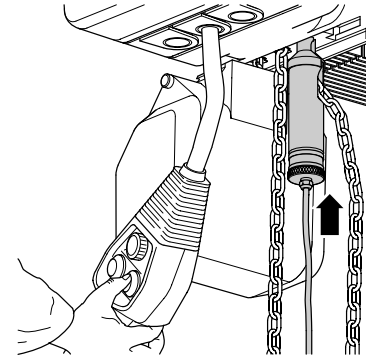
Fit the chain in friction force sensor with the adapter.

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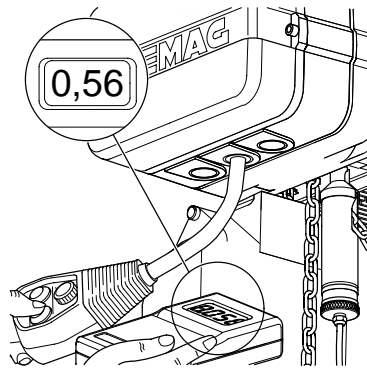
Secure the chain by turning the adapter in the direction of the arrow.

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Drive the friction force sensor against the chain hoist base plate by flick-switching and pre-tension it without allowing the clutch to slip.

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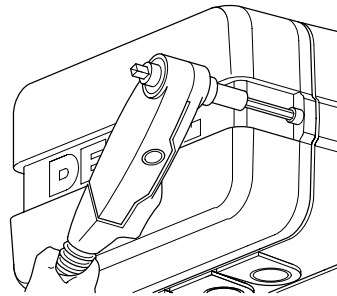


Allow the clutch to slip while lifting at creep speed (if provided) and read off the display value. Keep the slipping time to a minimum (**max. approx. 2 sec.**) to keep the temperature rise as low as possible. Adjust the slipping clutch depending on the display value.

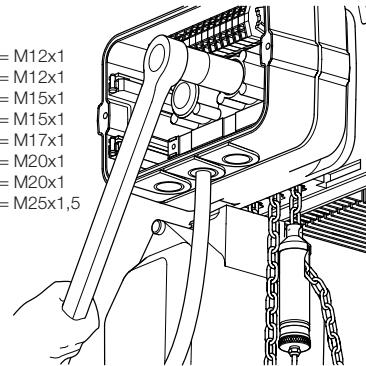
Tighten the locknut if the value is too low.

Release the locknut if the display value is too high (see Correction).

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Locknut
 DKUN 1 = M12x1
 DKM 1 = M12x1
 DKUN 2 = M15x1
 DKM 2 = M15x1
 DKUN 5 = M17x1
 DKUN 10 = M20x1
 DKUN 16 = M20x1
 DKUN 20 = M25x1,5



Correction

If the friction force needs adjusting, proceed as follows:

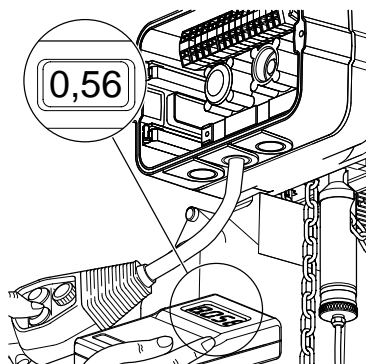
- 1) Remove the equipment cover.
- 2) Lower the friction force sensor slightly. Remove the cap, fit the spanner and adjust the slipping clutch.

To set the slipping clutch, pay attention to the following:

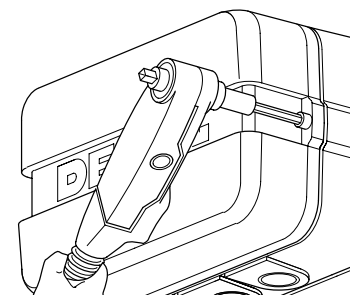
DK/DKM 1	• M ..x. locknut (LH thread)	
Direction	• set = left	⚠
	• release = right	
DK/DKM 2	• M ..x. locknut (RH thread)	
DKUN 5-20	• M ..x. locknut (RH thread)	
Direction	• set = right	⚠
	• release = left	

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- 3) Drive the friction force sensor against the chain hoist base plate by flick-switching and pre-tension it without allowing the clutch to slip. Allow the clutch to slip and read off the display value. Keep the slipping time to a minimum (**max. approx. 2 sec.**) to keep the temperature rise as low as possible. Check whether the setting value has been reached, if not, then repeat the procedure. Repeat this procedure no more than 3 times. Then allow the slipping clutch to cool off for 30 minutes in order to achieve accurate adjustment.



- 4) When adjustment is completed, refit the cap and replace the equipment cover.

Tightening torque:

DK/DKM 1	=	4 Nm
DK/DKM 2	=	10 Nm
DKUN 5	=	10 Nm
DKUN 10/16/20	=	23 Nm



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DKUN Slipping clutch setting values

Size	DKUN 1-200		DKUN 1-160		DKUN 1-125		DKUN 1-100	
	DKES 1-200	-	DKES 1-160	-	DKES 1-125	-		
Motor type	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting
SWL in t 1/1 reeving	0,2		0,16		0,125		0,1	
Setting in t	0,3	0,28	0,26	0,24	0,2		0,17	
Part no. (adapter)	836 730 44							

Size	DKUN 2-400		DKUN 2-315		DKUN 2-250		DKUN 2-200		DKUN 2-160	
	DKES 2-400	-	DKES 2-315	-	DKST 2-500 DKES 2-250	-	DKES 2-200	-	DKES 2-160	-
Motor type	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting
SWL in t 1/1 reeving	0,40		0,31		0,25		0,20		0,16	
Setting in t	0,6	0,56	0,5	0,47	0,4		0,34		0,29	
Part no. (adapter)	836 731 44									

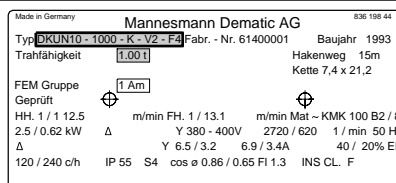
Size	DKUN 5-630		DKUN 5-500		DKUN 5-400		DKUN 5-315		DKUN 5-250	
	DKES 5-630	-	DKST5-1000 DKES 5-500	-	DKES 5-400	-	DKES 5-315	-		
Motor type	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting
SWL in t 1/1 reeving	0,63		0,50		0,40		0,31		0,25	
Setting in t	0,95	0,88	0,80	0,75	0,64		0,54		0,45	
Part no. (adapter)	836 732 44									

Size	DKUN 10-1250		DKUN 10-1000		DKUN 10-800		DKUN 10-630		DKUN 10-500	
			DKST 10-2000	-						
Motor type	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting
SWL in t 1/1 reeving	1,25		1,00		0,80		0,63		0,50	
Setting in t	1,88	1,75	1,6	1,5	1,28		1,07		0,9	
Part no. (adapter)	836 733 44									

Size	DKUN 16-1600		DKUN 16-1250		DKUN 16-1000		DKUN 16-800	
	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting
SWL in t 1/1 reeving	1,6		1,25		1		0,8	
Setting in t	2,4	2,24	2	1,88	1,6		1,36	
Part no. (adapter)	836 735 44							

Size	DKUN 20-2500		DKUN 20-2000		DKUN 20-1600		DKUN 20-1250	
	Main/creep lifting		Main/creep lifting		Main/creep lifting		Main/creep lifting	
SWL in t 1/1 reeving	2,5		2		1,6		1,25	
Setting in t	3,5		3		2,56		2,13	
Part no. (adapter)	836 734 44							

Setting value tolerances	Tolerance
up to 1000 kg	± 10 kg
up to 1000 kg	± 20 kg



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Example: DKUN 10 rating plate

See the corresponding table for the items marked for the slipping clutch setting.

DKM Slipping clutch setting values

Size	DKM 1-80 DKMES 1-80	DKM 1-125 DKMES 1-125	DKM 2-250 DKMES 2-250	DKM 2-125 DKMES 2-125
Motor type	Main/creep lifting	Main/creep lifting	Main/creep lifting	Main/creep lifting
SWL in t 1/1 reeving	0,08	0,125	0,25	0,125
Setting in t	0,16	0,2	0,4	0,25
Part no. (adapter)	836 731 44		836 731 44	

PK Slipping clutch setting values

Size	PMV 5	PMV 8	PMV 12
Motor type	Main/creep lifting	Main/creep lifting	Main/creep lifting
SWL in t 1/1 reeving	0,05	0,08	0,125
Setting in t	0,13	0,16	0,2
Part no. (adapter)	836 731 44		

Size	PKVUN 1-160		PKUN 1-125		PK 2		PK 5		PK 10	
	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting	Main lifting	Main/creep lifting
SWL in t 1/1 reeving	0,16		0,125		0,25		0,5		1	
Setting in t	0,24		0,2		0,4		0,8		1,6	
Part no. (adapter)	836 731 44		836 732 44		836 733 44		836 734 44		836 734 44	

Fitting the friction force sensor

PKUN 1 - PK 2 - PK 10 - PMV 5 - PMV 12

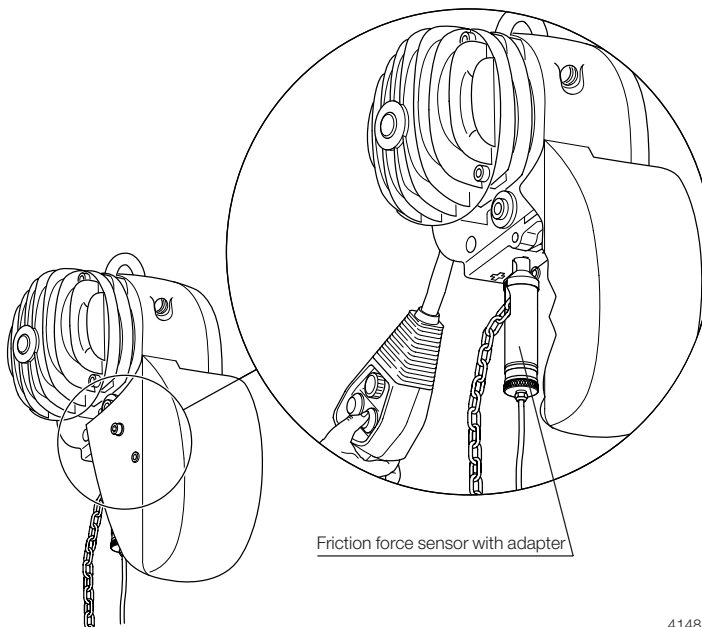
- 1) Fit the chain in the friction force sensor with the adapter (see page 2).
- 2) Drive the friction force sensor against the chain guide of the chain hoist by flick-switching and pre-tension it without allowing the clutch to slip.
- 3) Allow the clutch to slip and read off the display value. Adjust the slipping clutch depending on the display value.

Tighten the setting screw (PK 1 – PK 2 – PMV) or shaft nut (PK 5 – PK 10) if the value is too low.

Release the setting screw or shaft nut if the display value is too high.

Correction

- 4) Drive the friction force sensor against the chain guide of the chain hoist by flick-switching and pre-tension it without allowing the clutch to slip. Allow the clutch to slip and read off the display value. Check whether the setting value has been reached, if not, then repeat the procedure.



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Demag Cranes & Components GmbH

Handling Technology

Postfach 67 · D-58286 Wetter

Telefon (02335) 92-0

Telefax (02335) 922406

E-Mail handling@demagcranes.com

www.demagcranes.de