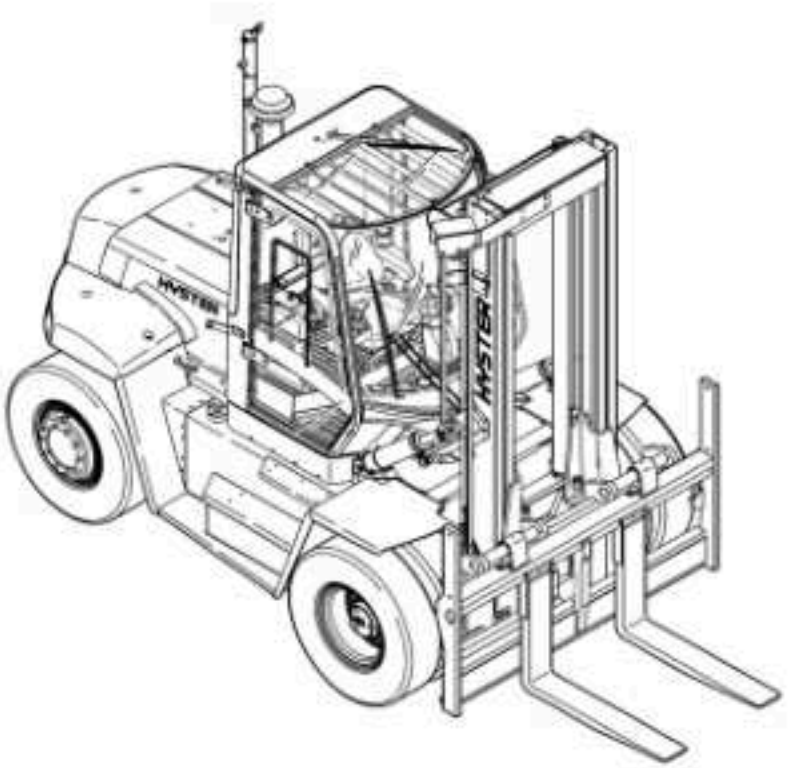
SERVICE MANUAL

G007 (H170-280HD)



FORM 1556870-G007 Rev. 08/14

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This section is for the following models:

S3.50-5.50XL (S70-120XL) [D004];
S3.50-5.50XM (S70-120XM) [E004, F004];
E3.50-5.50XL (E70-120XL, E70-120XL$_3$) [C098];
H3.50-5.00XL (H70-110XL) [G005];
H6.00-7.00XL (H135-155XL, H135-155XL$_2$) [F006, G006];
H8.00-16.00XL (H165-360XL) [D019, E007];
H8.00-12.00XM (H170-280HD) [F007, G007, H007];
H13.00-14.00XM (H300-330HD) [E019, F019, G019];
H16.00XM-6 (H360HD) [E019, F019, G019];
H10.00-12.00XM-12EC (H360HD-EC) [E019, F019, G019]
E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) [D098/E098]

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TE-10 Transmission Specifications

ELECTRICAL

Electronic-controlled modulation solenoids
VFS 2nd - VFS 1st/3rd - VFS Fwd - VFS Rev
Coil resistance - 4.35 ±0.35Ω at 25°C (77°F)

On/Off solenoids
Total neutral and selector solenoids
Coil resistance - 12V - 28 ±2Ω at 20°C (68°F)
Coil resistance - 24V - 28 ±2Ω at 20°C (68°F)

Speed sensor
Type - Magneto resistive sensor.
Sensing distance - 0 to 1.8 mm (0 to 0.07 in.)
Sensor signal - Generates a square current with a fixed amplitude changing between 7 and 14 mA.

Table 1. Temperature Sensor (In Speed Sensor) Resistance vs Temperature

Ambient Temperature	Resistance Ω
–55°C (–67°F)	980
–50°C (–58°F)	1030
–40°C (–40°F)	1135
–30°C (–22°F)	1247
–20°C (–4°F)	1367
–10°C (14°F)	1496
0°C (32°F)	1630
10°C (50°F)	1772
20°C (68°F)	1922
25°C (77°F)	2000
30°C (86°F)	2080
40°C (104°F)	2245

Table 1. Temperature Sensor (In Speed Sensor) Resistance vs Temperature (Continued)

Ambient Temperature	Resistance Ω
50°C (122°F)	2417
60°C (140°F)	2597
70°C (158°F)	2785
80°C (176°F)	2980
90°C (194°F)	3182
100°C (212°F)	3392
110°C (230°F)	3607
120°C (248°F)	3817
125°C (257°F)	3915
130°C (266°F)	4008
140°C (284°F)	4166
150°C (302°F)	4280

HYDRAULIC COOLER LINES

There is a minimum 19 mm (0.75 in.) internal diameter for lines and fittings. They must be suitable for operation from ambient temperature to 120°C (248°F) continuous operating temperature. They must withstand 30 bar (435 psi) continuous pressure and 45 bar (652 psi) intermittent surges. Conform SAE J1019 and SAE J517, 100RI.

TORQUE SPECIFICATIONS FOR LUBRICATED OR PLATED SCREW THREADS

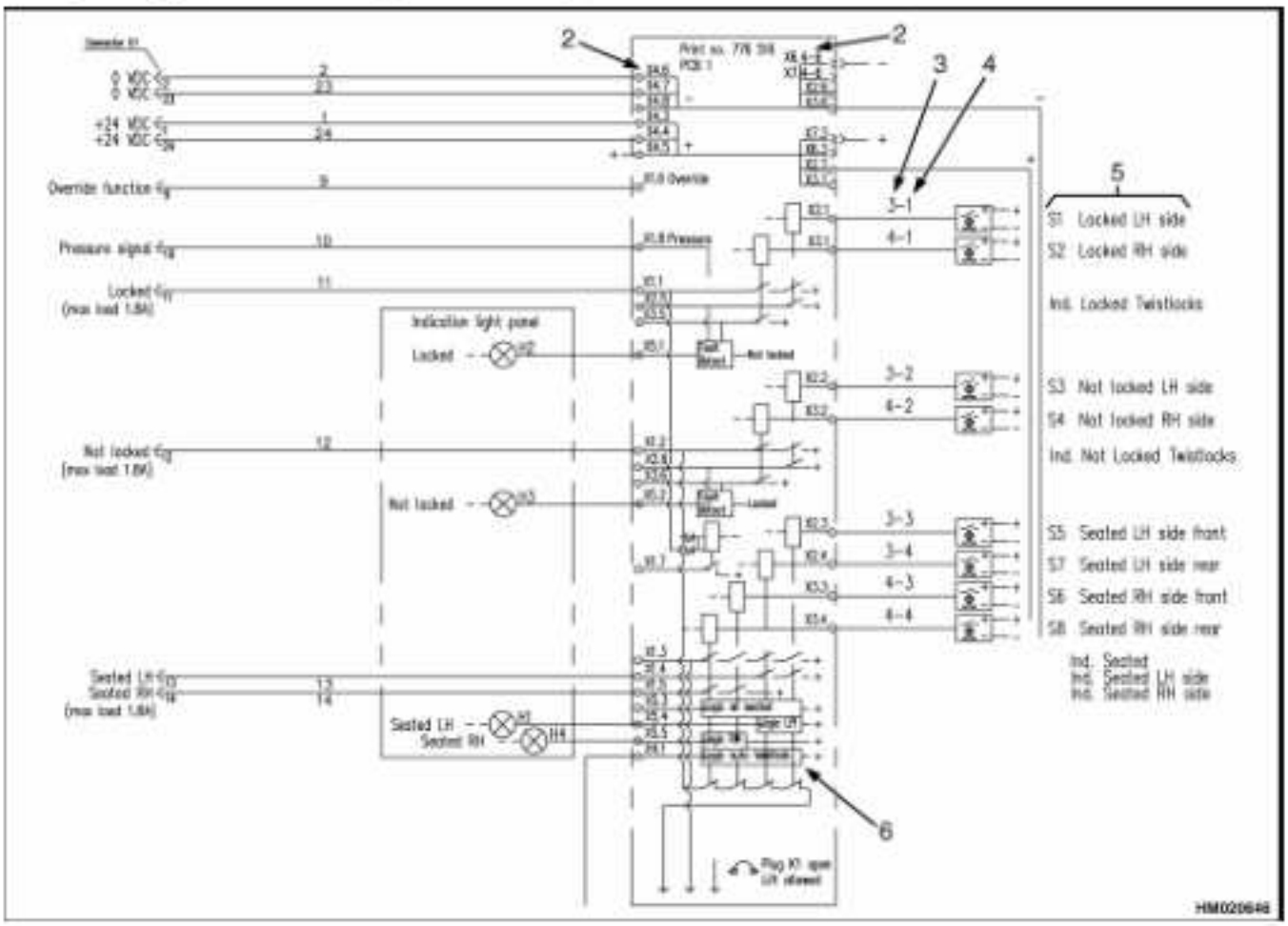
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Table 5. Error Code Descriptions (Continued)

Warning Lights		Fault Code Readout	
Diagnostic Warning Light	Engine Stop Warning Light	Engine Fault Code	Description
	ON	E1515	SAE J1939 Multiplexed Accelerator Pedal or Lever Sensor System - Received Network Data In Error
ON		E1539	Auxiliary Pressure Sensor Input 1 Circuit - Voltage Above Normal or Shorted to High Source
ON		E1621	Auxiliary Pressure Sensor Input 1 Circuit - Voltage Below Normal or Shorted to Low Source
ON		E1663	Aftertreatment Exhaust Gas Temperature 1 Swapped - Out of Calibration
ON		E1664	Aftertreatment 1 Diesel Oxidation Catalyst Missing - Condition Exists
ON		E1665	Aftertreatment Exhaust Gas Temperature 1 Circuit - Voltage Below Normal, or Shorted to Low Source
ON		E1666	Aftertreatment Exhaust Gas Temperature 1 Circuit - Voltage Below Normal, or Shorted to Low Source
ON		E1667	Aftertreatment Exhaust Gas Temperature 1 - Data Erratic, Intermittent or Incorrect
ON		E1668	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Voltage Below Normal or Shorted to Low Source
ON		E1669	Aftertreatment 1 Diesel Exhaust Fluid Tank Level Sensor Circuit - Voltage Above Normal or Shorted to High Source
ON		E1673	Aftertreatment 1 Diesel Exhaust Fluid Tank Level - Data Valid But Below Normal Operating Range - Most Severe Level
ON		E1674	Aftertreatment Exhaust Gas Temperature 2 Circuit - Voltage Below Normal, or Shorted to Low Source
ON		E1675	Aftertreatment Exhaust Gas Temperature 2 Circuit - Voltage Below Normal, or Shorted to Low Source
ON		E1676	Aftertreatment Exhaust Gas Temperature 2 - Data erratic, intermittent or incorrect
ON		E1677	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Voltage Below Normal or Shorted to Low Source
ON		E1678	Aftertreatment 1 Diesel Exhaust Fluid Tank Temperature Sensor - Voltage Above Normal or Shorted to High Source

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The electrical schematic shows the logic of the PCBs in relation to the different signals. The correct electrical schematic for your attachment is shown on **Hyster Hypass Online**. Figure 20 shows part of an electrical schematic. If the logic is controlled by an integrated circuit, it will be indicated on the schematic by boxed text such as "Logic auto twist lock" or "Fault detect".



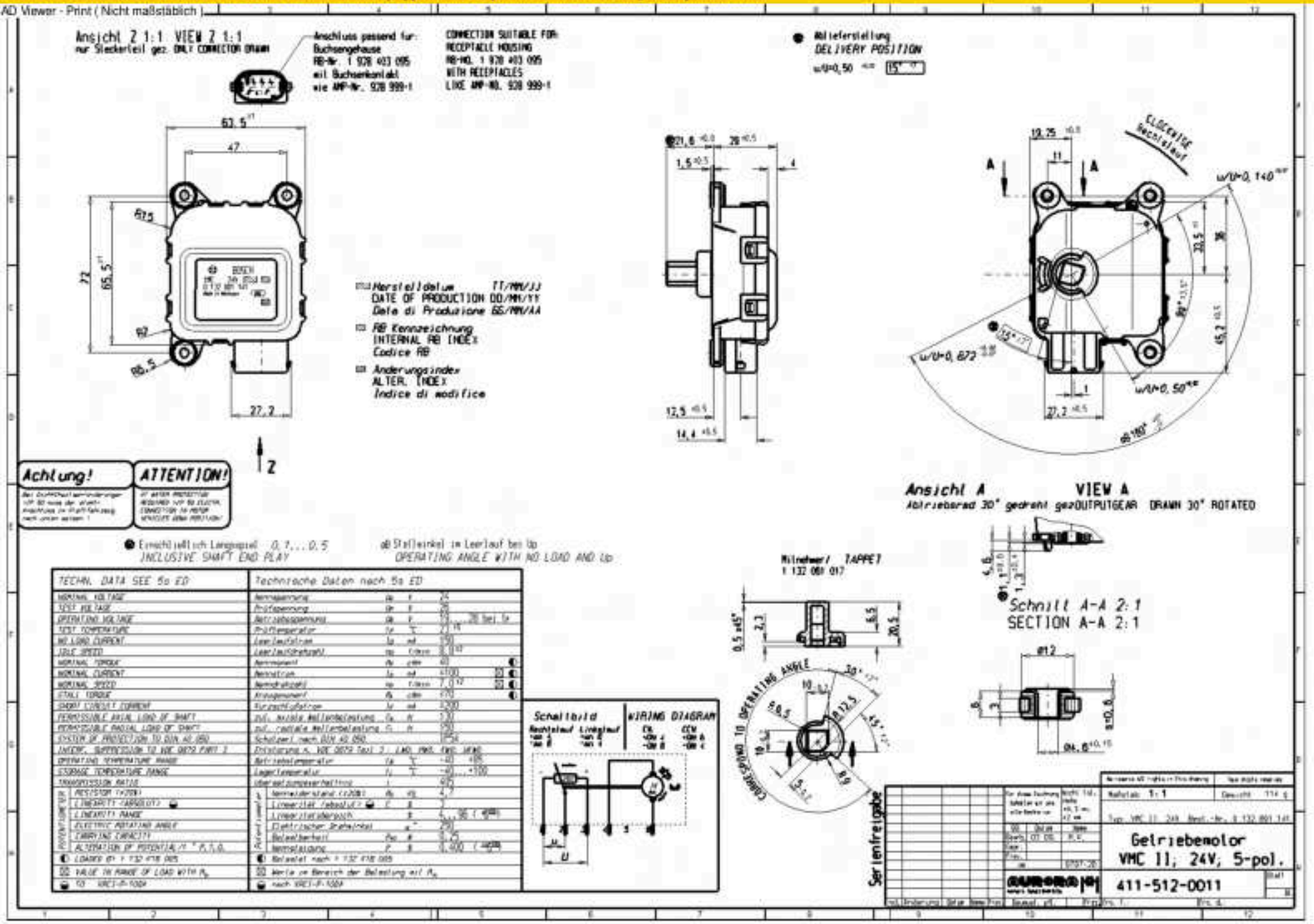
1. 24-PIN LIFT TRUCK ELECTRICAL CONNECTOR
2. SOCKET IDENTIFICATION NUMBER
3. CABLE NUMBER
4. CABLE WIRE NUMBER
5. FUNCTION
6. INTEGRATED CIRCUIT

Figure 20. Electrical Schematic Section

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HiCAD Viewer - Print (Nicht maßstäblich)



TECHN. DATA SEE 5a ED	Technische Daten nach 5a ED				
NOMINAL VOLTAGE	Nennspannung	U_N	V	24	
TEST VOLTAGE	Prüfspannung	U_P	V	28	
OPERATING VOLTAGE	Betriebsspannung	U_B	V	9 ... 32	28 bei 1a
TEST TEMPERATURE	Prüftemperatur	t_P	°C	23 ± 5	
NO LOAD CURRENT	Leerlaufstrom	I_0	mA	≤ 150	
IDLE SPEED	Leerlaufdrehzahl	n_0	r/min	≥ 6 000	
NOMINAL TORQUE	Nennmoment	M_N	cNm	60	◐
NOMINAL CURRENT	Nennstrom	I_N	mA	≤ 1100	20 ◐
NOMINAL SPEED	Nenndrehzahl	n_N	r/min	≥ 2 012	20 ◐
STALL TORQUE	Kippmoment	M_K	cNm	≥ 170	◐
SHORT CIRCUIT CURRENT	Kurzschlußstrom	I_K	mA	≤ 3200	
PERMISSIBLE AXIAL LOAD OF SHAFT	zul. axiale Wellenbelastung	F_A	N	≤ 30	
PERMISSIBLE RADIAL LOAD OF SHAFT	zul. radiale Wellenbelastung	F_R	N	≤ 150	
SYSTEM OF PROTECTION TO DIN 40 050	Schutzart nach DIN 40 050			IP54	
INTERF. SUPPRESSION TO VDE 0879 PART 2	Entstörung n. VDE 0879 Teil 2	LMD	HMS	Typ: VEMC	
OPERATING TEMPERATURE RANGE	Betriebstemperatur	t_B	°C	-40 ... +85	
STORAGE TEMPERATURE RANGE	Lagertemperatur	t_L	°C	-40 ... +100	
TRANSMISSION RATIO	Übersetzungsverhältnis	i		670	
RESISTOR (+20°C)	Nennlastdrehzahl (+20°C)	n_N	r/min	≥ 1	
LINEARITY (CAPACITY)	Linearität (absolut)	E	°	≤ 7	
LINEARITY RANGE	Linearitätsbereich	α	°	≤ 5 ... 35 (355)	
ELECTRIC ROTATING ANGLE	Elektrischer Drehwinkel	α	°	≤ 240	
CARRYING CAPACITY	Belastbarkeit	P_{max}	W	≥ 0,5	
ALTERATION OF POTENTIAL /1 ° P.T.O.	Nennleistung	P_N	W	≥ 0,400 (400)	
◐ LOADED BY 1 132 418 005	◐ Belastet nach 1 132 418 005				
20 VALUE IN RANGE OF LOAD WITH P_N	20 Werte im Bereich der Belastung mit P_N				
● TO VRE1-P-1004	● nach VRE1-P-1004				

● Einschließlich Längsspiel 0,1 ... 0,5 INCLUSIVE SHAFT END PLAY

ab Stellwinkel im Leerlauf bei U_B OPERATING ANGLE WITH NO LOAD AND U_B

Serienfreigabe

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