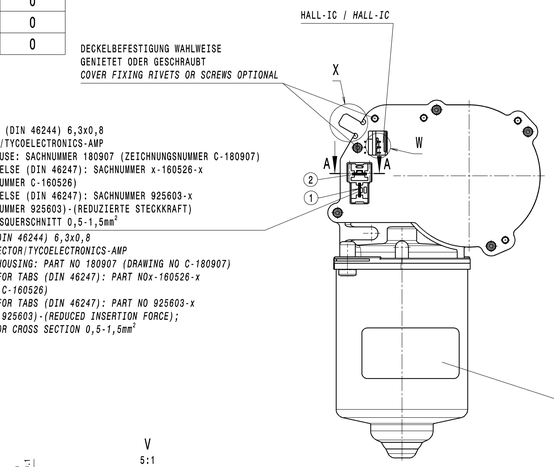
REV. NO.	ZONE	DESCRIPTION		DATE	NAME
SOCO00841		DOPPELTVERSTEMMT WAR EINFACHVERSTEMMT	DOUBLE STAKING WAS SINGLE STAKING	2014-02-19	PITTCCOD

SAMPLING AND RELEASE ACCORDING TO HQ-P-7.3 AND NMA SUPPLIER MANUAL

SPECIAL CHARACTERISTIC	QUANTITY
SRC	0
SC	0
FC	0

VORZUGSDREHRICHTUNG
PRIORY DIRECTION OF ROTATION



W
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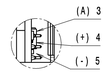
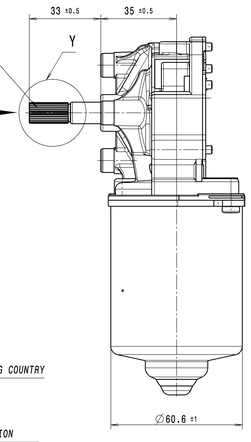
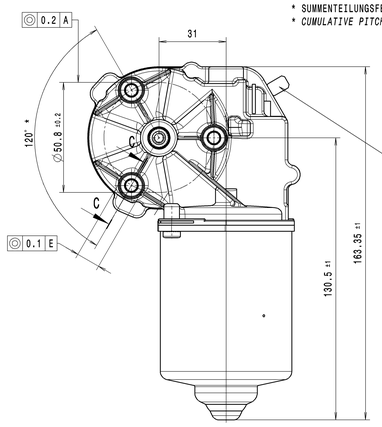


MAS-CON STECKER-NR.: MLAS 100
GEGENSTECKER PANDUIT-NR.: CE100 F22-03
FUER LEITERQUERSCHNITT AWG: 22
MAS-CON PLUG-NO.: MLAS 100
PLUG CONNECTION PANDUIT-NO.: CE100 F22-03
FOR CONDUCTOR CROSS SECTION AWG: 22

KERBVERZAHNUNG 8x10
AEHNLICH DIN 5481 (28 ZAEHNE)
SIEHE EINZELHEIT Z
SERRATION 8x10
SIMILAR TO DIN 5481 (28 TEETH)
REFER TO DETAIL Z

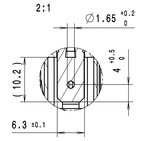




* SUMMENTEILUNGSFEHLER: ± 20'
* *CUMULATIVE PITCH ERROR: ± 20'*

FLACHSTECKER 6.3 x 0.8
DICKE 0.9-0.1
NACH SWF 43.101 DIN 46244
MALE SPADE TERMINAL 6.3 x 0.8
THICKNESS 0.9-0.1
TO SWF 43.101 DIN 46244
GEGENSTECKER EMPFEHLUNG
RECOMMENDATION OF MATING PART
RSB 8240.158.F 1.5-6.3
FA.STOCKO

A-A
2:1



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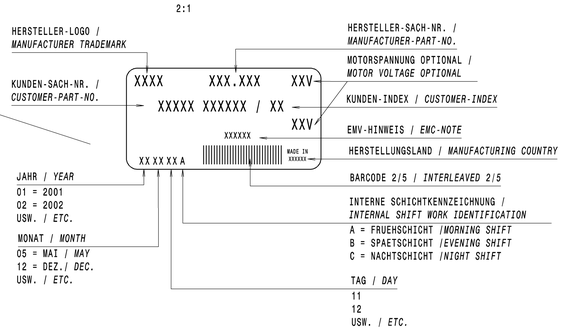
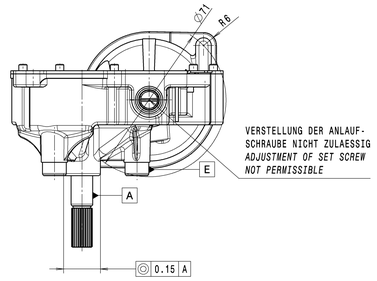
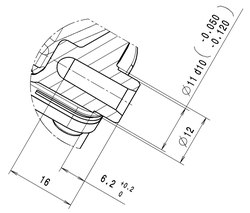


C-C (3x)
2:1

BEFESTIGUNGSLOECHER FUER SELBSTFORMENDE SCHRAUBEN M6,
POWER LOK GEWINDE DIN ISO 965-2, MAX. ZULAESSIGES
ANZUGSMOMENT DER BEFESTIGUNGSSCHRAUBE 13Nm
FASTENING HOLES FOR SELFFORMING SCREWS M6,
POWER LOK THREAT DIN ISO 965-2, MAX. PERMISSIBLE
TORQUE FOR FASTENING SCREW 13 Nm



VERSTELLUNG DER ANLAUF-
SCHRAUBE NICHT ZULAESSIG
ADJUSTMENT OF SET SCREW
NOT PERMISSIBLE



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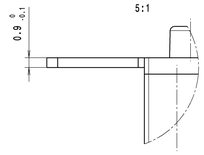

X
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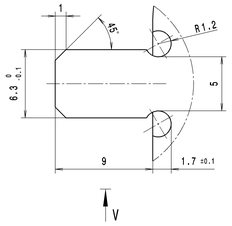

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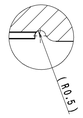

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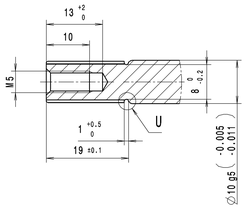


A) ALLGEMEINES

1.	PRUEFSPANNUNG	UP = 24V DC
2.	LEERLAUFDREHZAHL	n0 = 57...70 min-1
**3.	LEERLAUFSTROM	I0 = 2,2 A EFFEKTIV , MAX.2.7A
4.	ENTSTOERBAUTEILE	= SIEHE DIAGRAMM
5.	ISOLATIONSPRUEFUNG	= 500V DC FUER 1 SEC.
6.	GETRIEBEHEMMUNG STATISCH	≤ TBD
7.	RADIALBELASTUNG DER ABTRIEBSWELLE	F = 80N
8.	AXIALBELASTUNG DER ABTRIEBSWELLE	F = 15N
9.	GERAEUSCHPEGEL	= NACH INTERNER SPEZ.: CMS_405_699
10.	UMGEBUNGSTEMPERATUR	= -20°C BIS +60°C
11.	SCHUTZART	IP = 30
12.	VIBRATION	= NA

A) GENERAL

1.	*TEST VOLTAGE*	*UP = 24V DC*
2.	*NO LOAD SPEED*	*n0 = 57...70 min-1*
**3.	*NO LOAD CURRENT*	*I0 = 2,2 A EFFECTIVE , MAX.2.7A*
4.	*RFI SUPPRESSION*	*= SEE DIAGRAM*
5.	*ISOLATION TEST*	*= 500V DC FOR 1 S*
6.	*SELF LOCKING STATIC*	*≤ TBD*
7.	*RADIAL LOAD ON DRIVE SHAFT*	*F = 80N*
8.	*AXIAL LOAD ON DRIVE SHAFT*	*F = 15N*
9.	*NOISE LEVEL*	*= AFTER INTERNAL SPECIFIC.: CMS_405_699*
10.	*TEMPERATURE*	*= -20°C TO +60°C*
11.	*PROTECTION*	*IP = 30*
12.	*VIBRATION*	*= NA*

B) BETRIEBSDATEN

NENNMOMENT (NENNLAST) MN = 4Nm
NENNMOMENT MAX. WERT MNMAX = 10Nm LINKS-RECHTSLAUF

B) RUNNING DATA

LOAD MN = 4Nm
MAX. LOAD MNMAX = 10Nm CCW-CW

C) LEBENSDAUERPRUEFUNG

1. ZYKLUS (DEFINITION)
   EINSCHALTDAUER LL. = AUF 20 SEC.- PAUSE 40 SEC.
   = ZU 20 SEC.- PAUSE 40 SEC.
2. MIN. LEBENSDAUER = 30 000 ZYKLEN
3. PRUEFMOMENT = 4Nm
4. BLOCKLAUF = 8000 GEDAEMPFTE BLOCK ZYKLEN
   RECHTS-LINKSLAUF, 200ms VERZOEGERUNGSZEIT ,
   MIT 13A STROMBEGRENZUNG AUF GLEICHEM
   ZAHNSEGMENT MIT NIDEC LTC PRUEFEINRICHTUNG
5. LEISTUNG NACH LEBENSDAUERTEST = ABWEICHUNG BIS 10% ZULAESSIG

C) LIFE TEST

1. *CYCLE (DEFINITION)*
   ON TIME / OFF TIME = 20 s - BREAK 40 s CW
   = 20 s - BREAK 40 s CCW
2. *MIN. LIFE TIME = 30 000 CYCLES*
3. *TEST LOAD = 4Nm*
4. *BLOCKING TEST = 8000 BLOCK CYCLES ON SAME TOOTH SEGMENT*
   200ms TIME TO BLOCK,
   13A CURRENT LIMITATION TEST PERFORMED
   WITH NIDEC LTC TEST RIGG
5. *PERFORMANCE AFTER LIFE TEST = DEVIATIONS LIMIT 10%*

D) MITGELTENDE UNTERLAGEN

1. ALLG. SPEZIFIKATION INDUSTRIEMOTOREN NIDEC
   NACH SWF 46.402 (AUSGABE VOM 09.04.1998)
   DARUEBERHINAUS GEHENDE ANFORDERUNGEN
   HAT DER KUNDE DURCH PRUEFUNGEN IM SYSTEM SICHERZUSTELLEN.
   HIERFUER UEBERNIMMT NIDEC KEINE HAFTUNG.

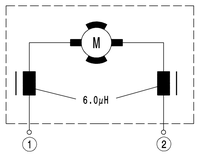
   BEI BELASTUNG DES MOTORS UEBER 8 Nm
   IST AXIALSPIEL DES ANKERS ZULAESSIG

D) OTHER VALID DOCUMENTS

1. *GEN. SPECIFICATION INDUSTRIAL MOTORS NIDEC*
   ACC. SWF 46.402 (EDITION AT 09.04.1998)
   ADDITIONAL REQUIREMENTS, WHICH ARE NOT CONTENT OF THE
   ABOVE SPECIFICATION, HAVE TO BE SECURED BY THE CUSTOMER.
   FOR THIS ADDITIONAL REQUIREMENTS NIDEC CAN TAKE NO PRODUCT LIABILITY.

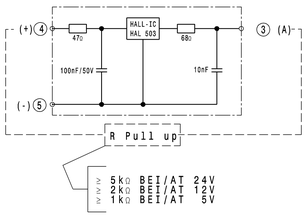
   AXIALPLAY OF THE ARMATURE IS
   PERMISSIBLE WHEN THE MOTORLOAD > 8Nm

SCHALTBILD
CIRCUIT DIAGRAM

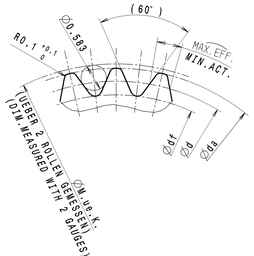


\+ RECHTSLAUF *CW ROTATION*
\- LINKSLAUF *CCW ROTATION*

SCHALTBILD ENCODER
CIRCUIT DIAGRAM ENCODER

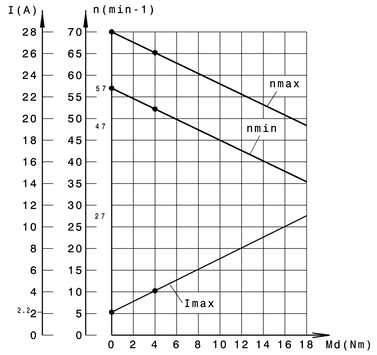


Z
20:1



MOTORKENNLINIE
MOTOR CURVE

** ● MESSPUNKTE KENNLINIE
** ● *MEASURE POINTS GRAPH*



DATEN HALL IC - 1 KANAL
DATA OF HALL IC -1 SIGNAL CHANNEL

SPANNUNGSBEREICH: Up = 4.5-24V
VOLTAGE RANGE
STROMAUFNAHME: ≤ 30 mA
CURRENT CONSUMPTION
TEMPERATURBEREICH: = -20°C - +60°C
TEMPERATURE RANGE
**AUSGANG: = 1 IMPULS PRO UMDREHUNG DER ANKERWELLE
***OUTPUT: = 1 PULSE PER REVOLUTION OF ARMATURE*

AUSGANGSSIGNAL
OUTPUT SIGNAL

**AUSGANG: = OFFENER KOLLEKTOR
***OUTPUT = OPEN COLLECTOR*

SAETTIGUNGSSPANNUNG: UCESAT ≤ 0.4V = ULOW
LOW LEVEL OUTPUT VOLTAGE: BEI |AT Ia= 26mA

TASTVERHAELTNIS DER AUSGANGSSIGNALE: 50% ±10%
PULSE DUTY FACTOR OF OUT-PUT SIGNAL

RISE AND FALL TIME >=0,5 V/µs BEI R PULL UP 2kΩ, VCC= 12V
RISE AND FALL TIME >=0,5 V/µs AT R PULL UP 2kΩ, VCC= 12V

EINSCHALTVERZOEGERUNG: 150 ms BEI 3.8V
ONTIME DELAY: 150 ms AT 3.8V

KERBVERZAHNUNGSDATEN
SERRATION DATA

ZAHNEZAHL = 28
NO. OF TEETH
LUECKENWINKEL = (60°)
SPACE WIDTH ANGLE
TEILKREIS-Ø d = 9.0
REFERENCE CIRCLE Ø
GRUNDKREIS-Ø =(8.03)
FORM CIRCLE Ø
KOPFKREIS-Ø da = 9.6 -0.2
TIP CIRCLE Ø
FUSSKREIS-Ø df = 8.26 +0.11/-0.09
ROOT DIAMETER
FUSSRADIUS THEOR. 0.08 IST 0.12 - 0.19
ROOT RADIUS
MAX. EFF. = 0.495
(MAX. ACT.) = 0.480
MIN. ACT. = 0.439
KUGEL-Ø = 0.583
BALL Ø
(M.u.e.K. = MAX. 9.816 / MIN. 9.741)
VERZAHNUNG: LEHRENHALTIG NACH GUTLEHRRING FA. FRENCO 33906
UND SEKTORVERZAHNUNG AUSSCHUSSLEHRRING
FA. FRENCO 56169
TOOTH GEAR: TRUE TO GAUGE ACCORDING GO RING GAUGE COMPANY
FRENCO 33906 AND SECTION GEARING NO-GO RING GAUGE
COMPANY FRENCO 56169

** 100% PRUEFUNG KONTROLL PLAN
*** 100% CHECKING CONTROL PLAN*
NA | NICHT ANGEWENDET
NOT APPLICABLE

VERZAHNUNGSDATEN *GEAR TOOTH DATA*

UEBERSETZUNG	*RATIO*	i	=	1:69
GANGZAHL	*NO. OF STARTS*	z1	=	1
ZAHENEZAHL	*NO. OF TEETH*	z2	=	69
NORMALMODUL	*NORMAL MODULE*	mn	=	0.8
ZAHNRADMATERIAL	*GEAR WHEEL MATERIAL*		=	DELRIN 100
ABTRIEBSWELLENMATERIAL	*DRIVE SHAFT MATERIAL*		=	C45 Pb C DIN EN 10277

MAX. GETRIEBEFESTIGKEIT STATISCH : 28Nm
MAX. GETRIEBEFESTIGKEIT DYNAMISCH: 17Nm
KOHLEQUALITAET 09
MAX. STATIC GEAR STRENGTH
MAX. DYNAMIC GEAR STRENGTH
CARBON BRUSH QUALITY 09

LIMIT DIMENSIONS FOR NOMINAL SIZE RANGES IN mm	...6	>6...30	>30...120	>120...400	>400...1000
TOLERANCES FOR NOMINAL SIZE RANGES IN mm ±	0,1	0,2	0,3	0,5	0,8
LIMIT DIM. FOR NOMINAL SIZE RANGES IN DEGREE/ MINUTE (SHORTER ANGLE SIDE)	...10	>10...50	>50...100	>100	
TOLERANCES FOR NOMINAL SIZE RANGES ±	1°	30'	20'	10'	

SURFACE FINISH
ACC. TO SWF 00.051 — NORM FOR SURFACE FINISH

SURFACE TEXTURE ACC. TO DIN EN ISO 1302 — EDGES ACC. TO ISO 13715
GEOMETRICAL PRODUCT SPECIFICATIONS (GPS) SIZE ISO 14405 (E) — GEOM. TOLERANCING ACC. TO DIN EN ISO 1101
STOCK MATERIAL
CUSTOMER REFERENCE NO.
MATERIAL SPECIFICATION
ACC. TO SWF 10.XXX — NORM FOR MATERIAL SPECIFICATION

MATERIAL NO. **405-699-99-99** — OLD SPAIN MATERIAL NO. — REFERENCE NO.

ALL DIMENSIONS IN mm — SCALE 1:1

TITLE
MOTOR DCK31
MOTOR DCK31

ARTICLE NO. **0266**

RELEASE-LEVEL
RELEASED

DT	DOCUMENT NO.	VERSION	SHEET	OF	FORMAT
A	10000012939	02	1	1	A0

	DATE	NAME
DRAWN	03.03.2014	HOFFBANNT
CHECKED	12.08.2015	BRUNNR
RELEASED	12.08.2015	SOMMERHALTER

NIDEC MOTORS & ACTUATORS
GERMANY / POLAND / SPAIN

SUB. FOR — 4E 4154 A 000

COMPUTER DRAWING PLOTTED AT

ITEM	MATERIAL NUMBER	QUANT.	TITLE	DOCUMENT NO.

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