

Presentation ATB Nordenham GmbH
Member of Wolong group

Factory ATB Nordenham GmbH

Nordenham



Factory ATB Nordenham GmbH

1952 established as Felten & Guillaume (**F&G**)
Manufacturing plant and headquarters in Nordenham, Germany



1998 to November **2002**, Moeller Antriebstechnik GmbH

Nov. 2002 acquired by ATB Group, Spielberg, Austria, as

ATB Antriebstechnik GmbH

Nov. 2011 acquired by WOLONG GROUP



Nov. 2012 Company renamed in

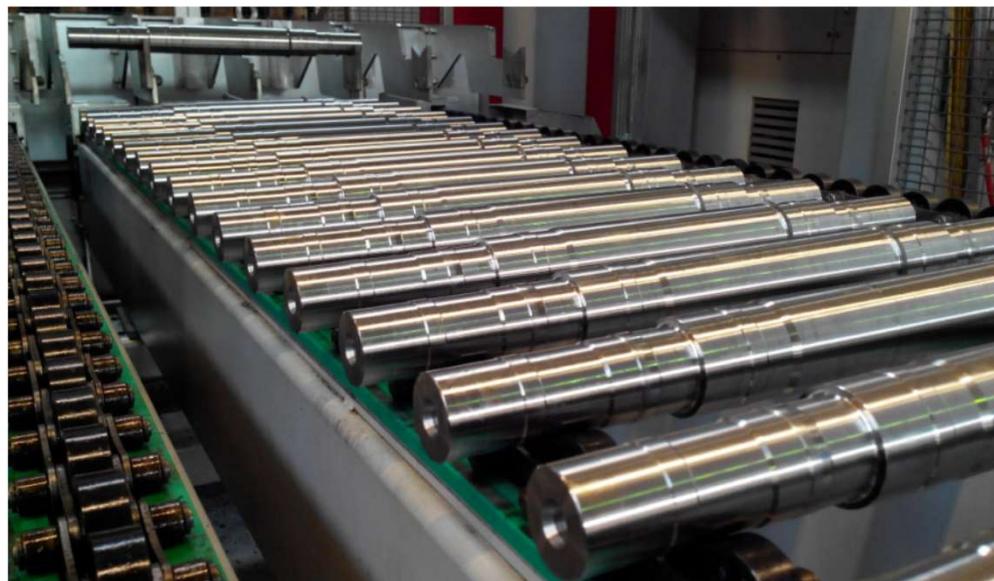
ATB Nordenham GmbH



Factory ATB Nordenham GmbH



CNC shaft machining centre
with gantry equipment
Manufacturer EMCO

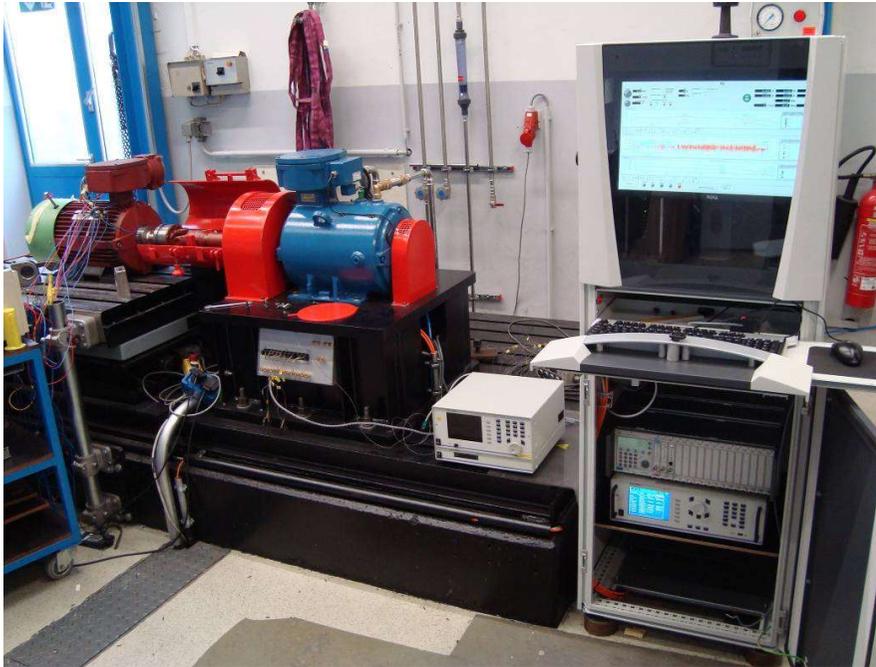


Factory ATB Nordenham GmbH

- Production of stator windings BG 280 - BG 450



Factory ATB Nordenham GmbH



Main testbay redesigned in 2013.

- Up to 700 kW
- Up to 6 kV
- Up to 6000 rpm



Factory ATB Nordenham GmbH



Painting area

Factory ATB Nordenham GmbH



Dispatch area

Products of ATB Nordenham GmbH

ATB Nordenham GmbH
is a Leading Manufacturer
of High-Quality HV and LV Motors
in Flameproof Enclosure
for Gas and Dust Hazardous Areas



Customer Structure:

- - Chemical Industry / Pharmaindustrie
- - Petrochemical Industry
- - Oil- and Gas Industry
- - On-/Off-Shore Industry/Marine
- - Engineerings und Consultings



LV Motors:

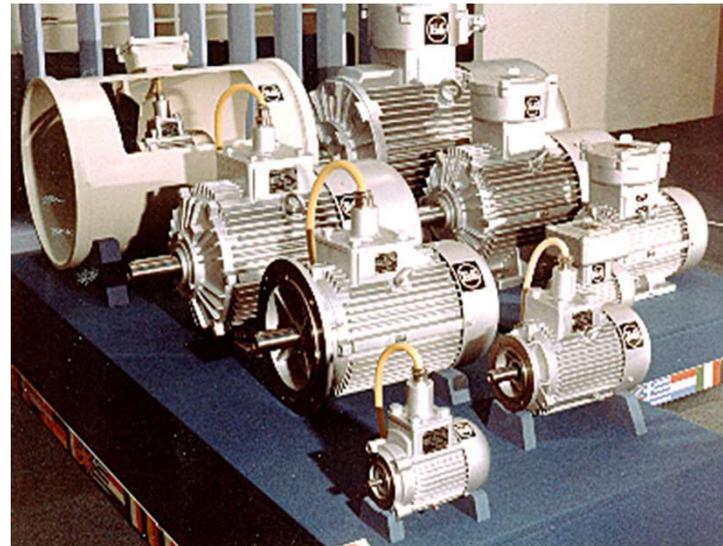
Standard Design in

- II 2 G Ex db eb IIC T4 Gb
II 2D Ex tb IIIC T120°C Db
acc. to ATEX or in
- Ex db eb IIC T4 Gb
Ex tb III C T120°C Db
acc. to IECEx
- 3~-Motors
Frame size 63 - 450 (500)
- with rating 0,12 – 700 kW
 - single speed motors
 - pole-changing motors
 - inverter operation

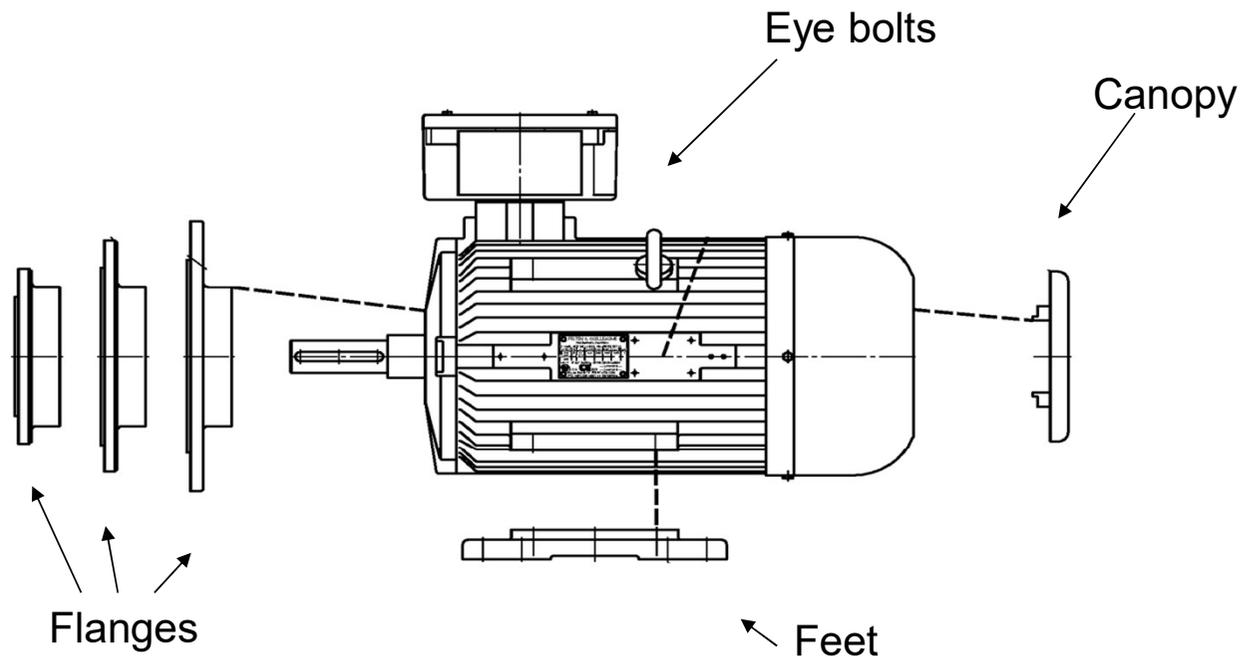


LV Motors:

- Temperature class in **T4**,
T5 and T6 possible on request
- Std.temperature range $-20\dots+40^{\circ}\text{C}$
- Low-temperature design -40°C
(-55°C) without heating elements
- High-temperature up to $+60^{\circ}\text{C}$
(with reduced rating)
- Additional dust approval e.g. in II 2D Ex tb IIIC T120°C Db



LV Motor designs Flange ring or „Universal Chemistry Motor (UCM)“

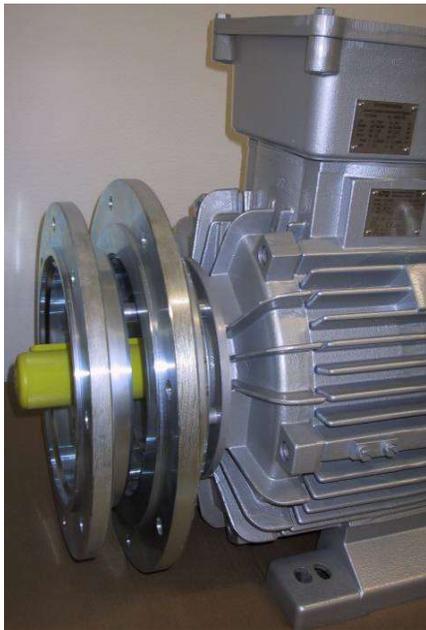


UCM-General design:

- with PTC
- VIK
- IE3
- Inverter operation



- LV Motors design „Flange ring design / UCM“



LV Motors in High Efficiency design

- Our energy-saving motors conform with the following efficiency requirements:
- Class **IE2** - High Efficiency according to IEC 60034-30-1: 2014 for worldwide use

Series CD...Y2, 0,12 - 800kW,
2-, 4-, 6-, 8- pole.





Adapted motors in **IE2** at 50Hz,
with limited **starting current** of **max. 7-times**

Motors series CD... **Y2.7** are available in efficiency class IE2
at 50Hz

Range: 2- & 4- poles

55kW up to 200kW (usable for Shell, ...)

LV Motors in Premium Efficiency design

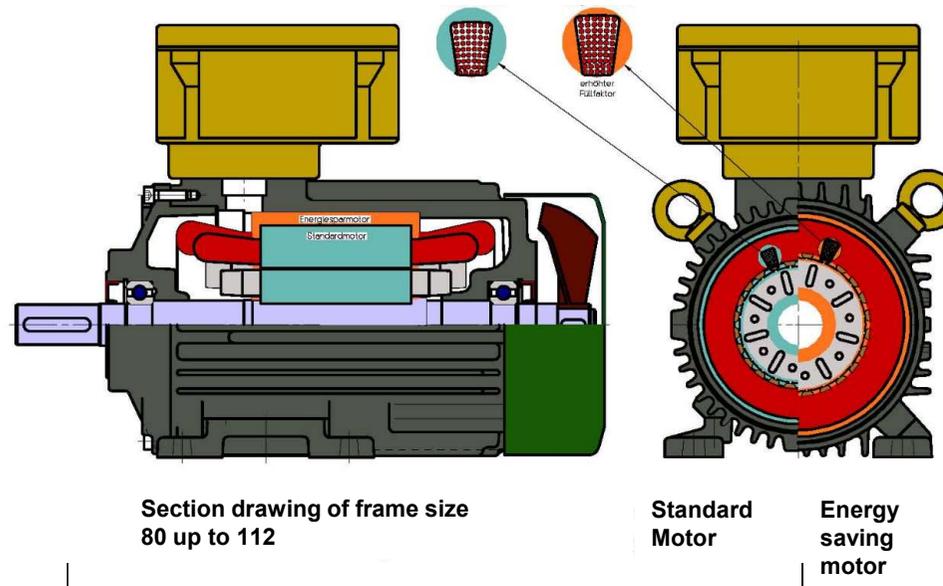
- Our energy-saving motors conform with the following efficiency requirements:
- Class **IE3** - Premium Efficiency according to IEC 60034-30-1: 2014, for worldwide use

Series CD...Y3, 0,12-800kW,
2-, 4-, 6, 8-pole.



Energy saving motors in
Flame proof enclosure
CD...Y2/Y3

IE 3





Adapted motor design in IE2 at 60Hz

Motors series CD... Y3 are available in efficiency class **IE2 at 60Hz**

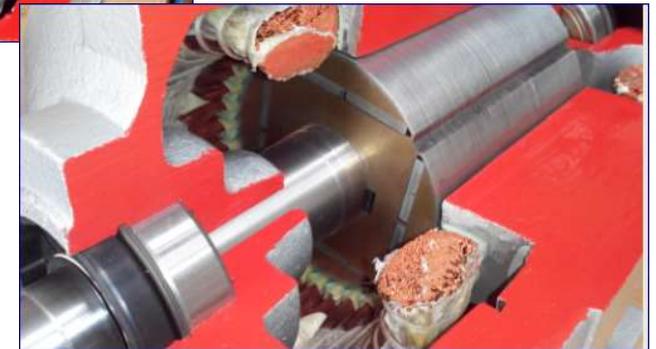
Range: 2- & 4- poles

0,75kW up to 345kW

LV Motors in Super Premium Efficiency design

Our energy-saving motors are conform with the following efficiency requirements:

- Class **IE4** - Premium Efficiency according to IEC 60034-30-1: 2014, Series CD...Y4 (on request)



LV Motors in Low Noise design

Noise Design class 1 with
standard radial flow-fan



Noise Design class 2 and 3
with axial flow-fan
up to 450kW



Noise Design class 4
with water cooling



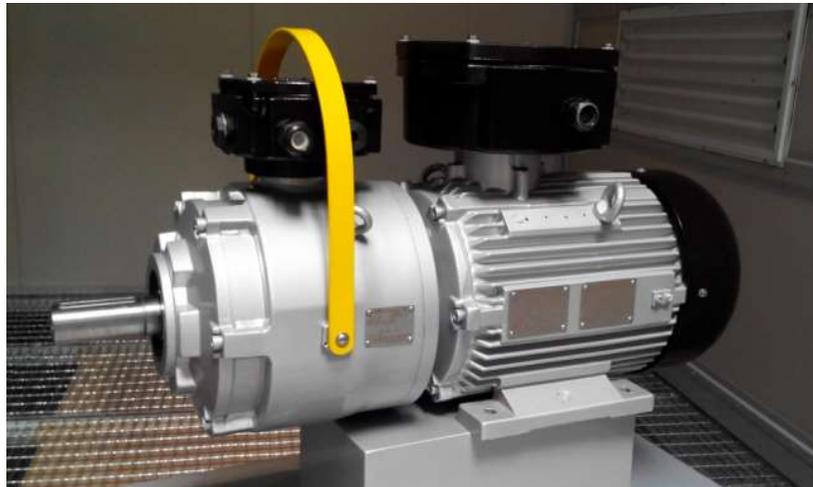
LV Motors with integrated fitted-in brake

Type BD...B, frame size 80 -132 in II 2G Ex de IIB+H₂ T4 Gb or
II 2D Ex tb IIIC T120° C Db



New **external ATB-brakes** type **CM...**
mounting on DE or NDE(CMN)

- Available for frame sizes 71-160.



Motor type: CD...SM



LV Motors with **external fitted-on brakes** from Kendrion or VIS



...with fitted-on facilities



Non-reverse ratchet,



Forced ventilation, IC416,
CD...F,



...with fitted-on encoders, ...

e. g. from...



HÜBNER
BERLIN

Kübler

HENGSTLER

HEIDENHAIN

LEINE LINDE

THALHEIM

BEI IDEACOD
BEI TECHNOLOGIES, INC.

Pepperl+Fuchs GmbH

LV Motors



without terminal box,
with flying leads, CD...K



without fan, CD...O

LV Motors with integrated frequency inverter (Compact Drive)

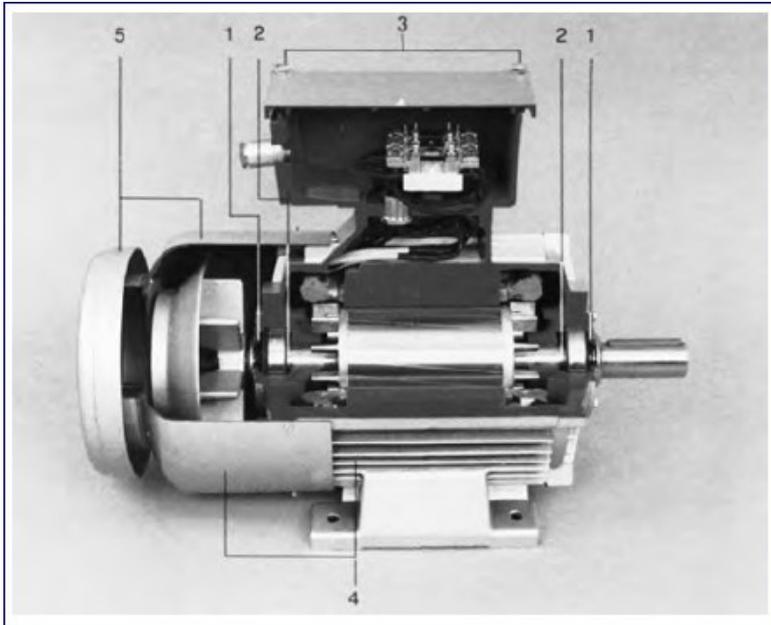
Frame size 80-112(up to 5,5kW), 2-4-pole, 400V/500V, II 2G Ex db eb IIC T4 Gb.



New design CEIGL80 with Lenze i550 inverter.



LV Motors in Marine design (here on-deck installation)



1. Saltwater-resistant double seals
2. Corrosion-resistant shafts
3. Stainless-steel fastening screws
4. Saltwater-resistant multilayer special paintwork, also with zinc primer
5. Reinforced fan cowl with canopy and baffle plate to protect fan in high seas



HV-Motors

CD...H

- Frame 355 – 450
- 160 – 710kW
- up to 6600V/60Hz
- II 2G Ex db(eb) IIC(B) T4 Gb





Certificates of ATB Nordenham Motors

Europe	- ATEX
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China - CNEX / CCC / CEL

Russia - EAC (former TR CU)

World wide use - IECEx Scheme

Marine Classification Authorities on request

- DNV / GL
- ABS
- LR
- BV

Examples of customized motors



-hollow-shaft



-watercooled, hollow-shaft

Special customized motors



-customized flange



- HV with 2nd box for star-point
- special shaft
- customized flange

Special customized motors

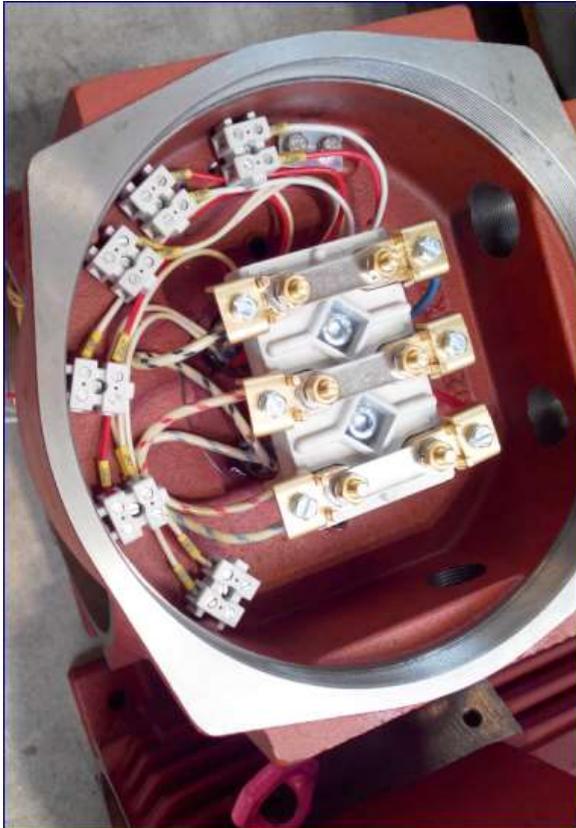


- fitted-on brake at DE
- separate fan-cooled IC416



- Ex-d-box with box-position on RHS,
with cable entry from bottom

Special customized motors

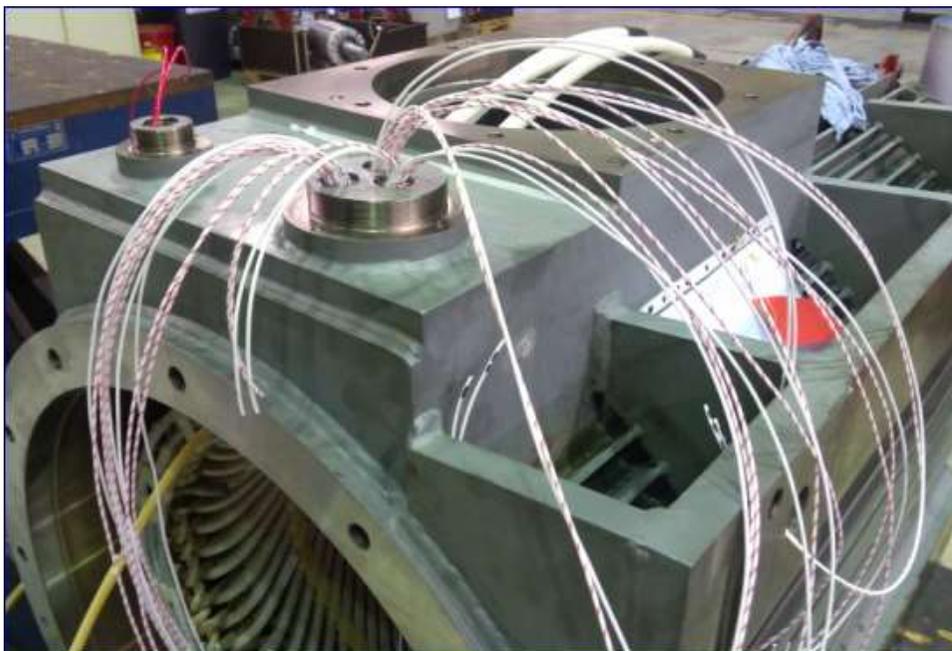


-Exd-box with auxiliary terminals (PTCs, heaters, PT100)

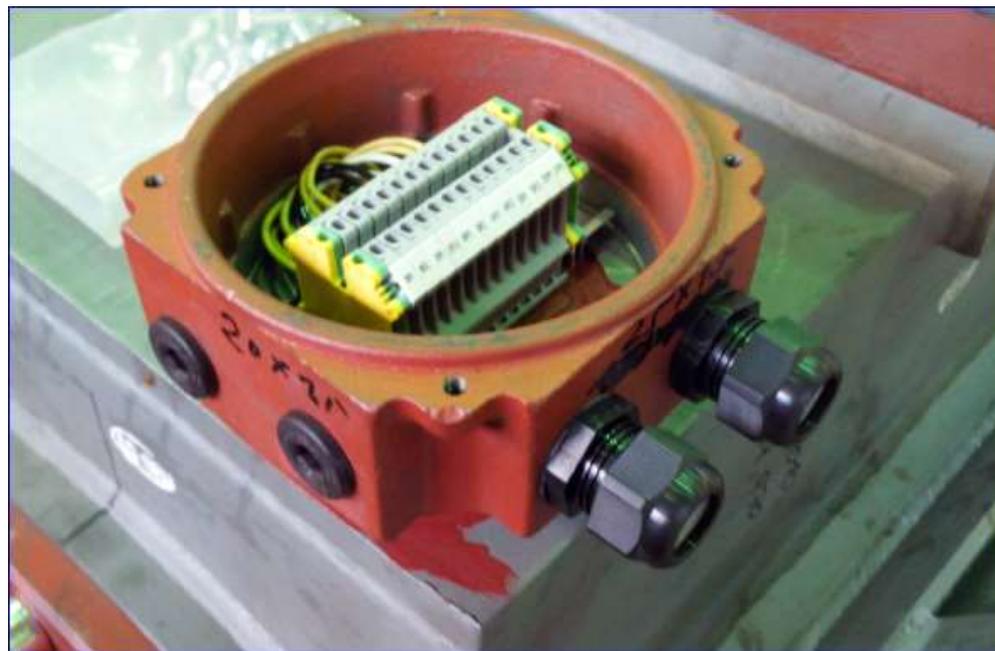


-Exd-box with customized terminal arrangement (higher cable cross-sections, PT100...)

Special customized motors



-HV-motor frame 450, steel welded housing,
prepared for PT100, heaters)

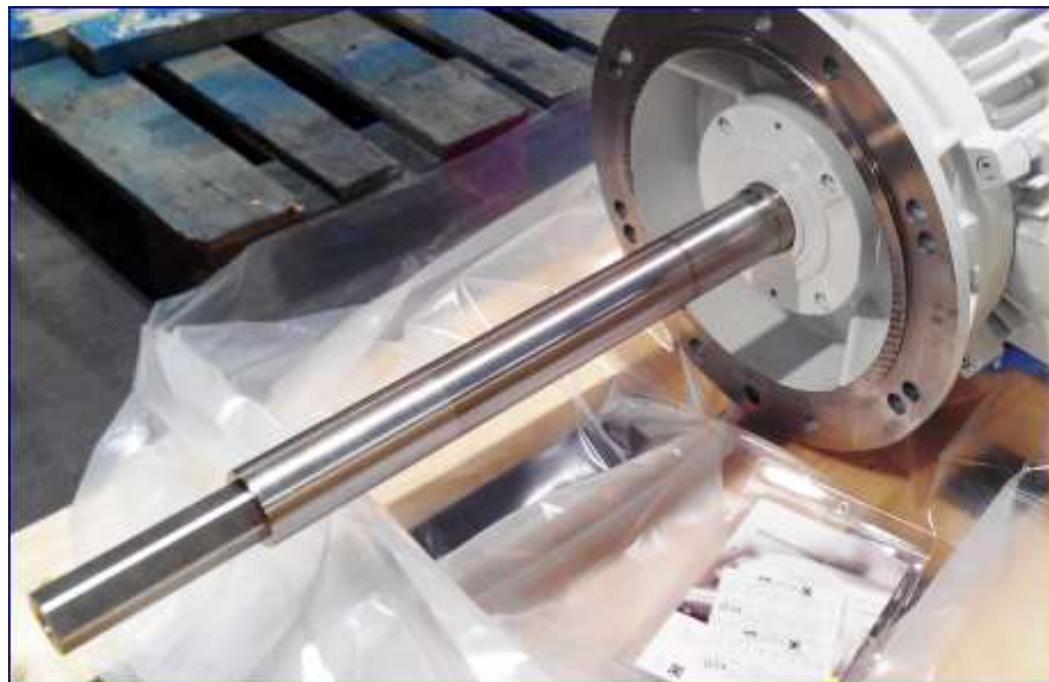


-Ex-e cast iron auxiliary box(PTCs, PT100)

Special customized motors

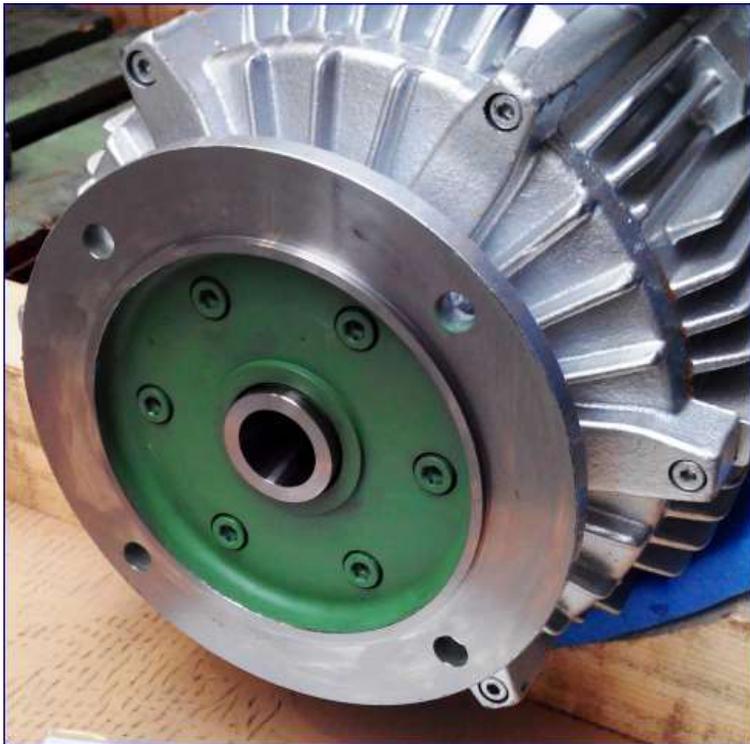


-customized shaft (hexagon)



-customized shaft (elongated for a pump)

Special customized motors



-customized shaft (hollow)



-customized shaft (elongated for a pump)

Special customized motors



- customized
shaft and flange



Marking II 2G Ex db **eb** IIC T4 Gb

:

Terminal box in Ex eb enclosure..!

Motor housing enclosure is all time in flameproof enclosure Ex-d!

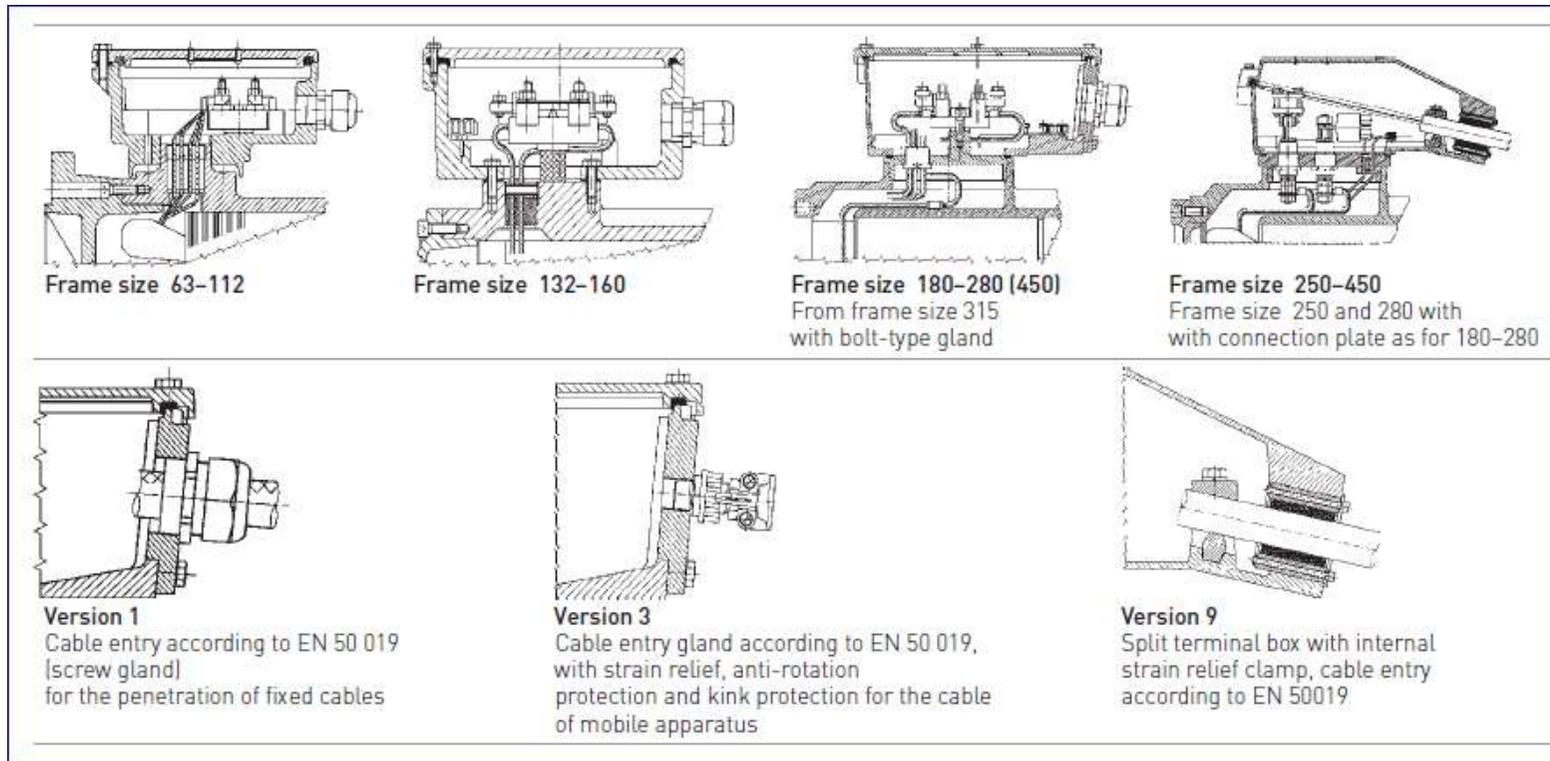
These „e“ decides between connection technology with terminal box **in increased safety Ex-e** or, if not stated (without „e“), complete motor with terminal box **in flameproof enclosure Ex-d!**

Both connection technologies are equivalent from view of regulations.

ATB Nordenham can serve both technologies.

The standard Ex-e connection technology is more frequent in central Europe.

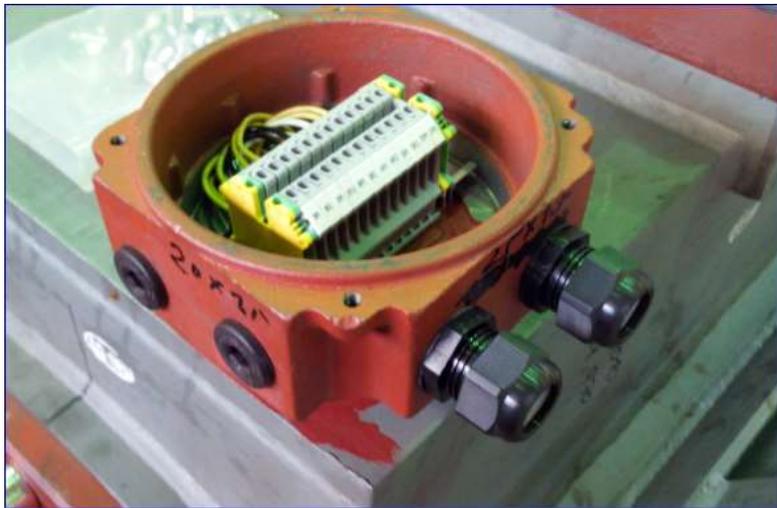
The standard Ex e II connection technology



Version 1 standard; versions 3, 9 as option.

Increased Safety Ex e II

Ex-e terminal box with cable gland version 1 (cable entry without strain relief)



Increased Safety Ex e II

Ex-e terminal box with cable gland version 3 (cable entry with strain relief)
In trumpet form up and including M63x1,5



Increased Safety Ex e II

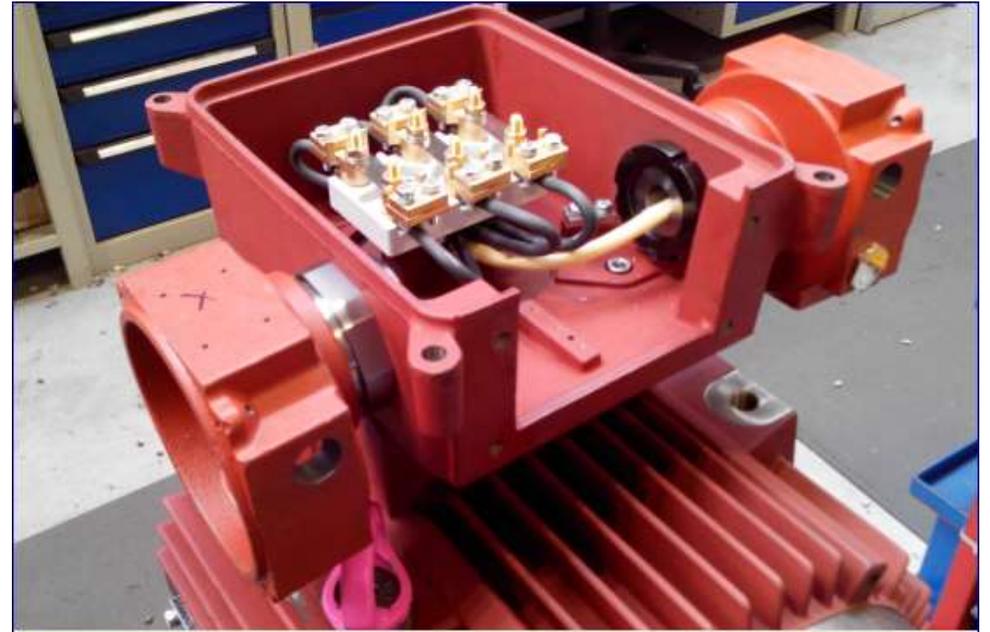
Ex-e terminal box version 9



Auxiliary terminal boxes in Ex-e



Al-alloy Ex-e-boxes



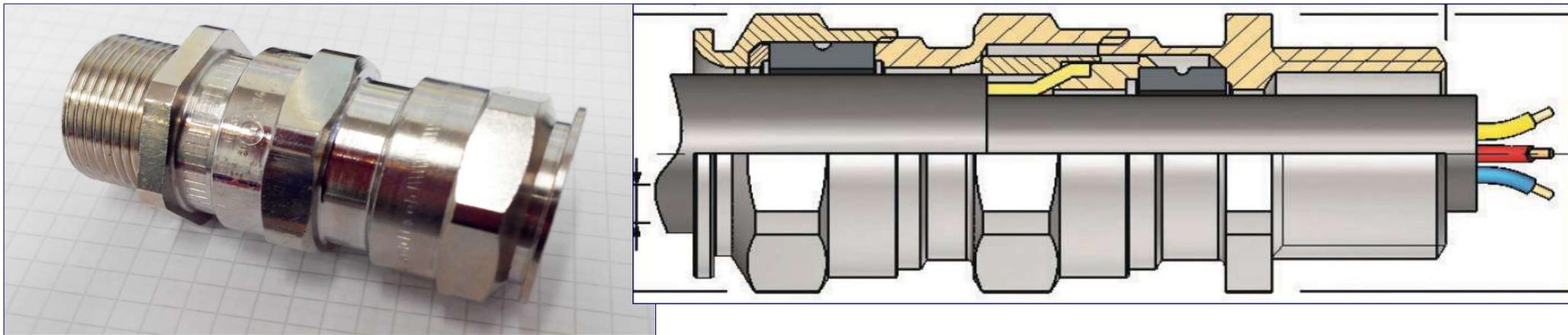
Cast iron Ex-e-boxes

Ex-d terminal boxes



Standard metric threads acc. to catalogue for cable inlets. Exd-cable glands on request only

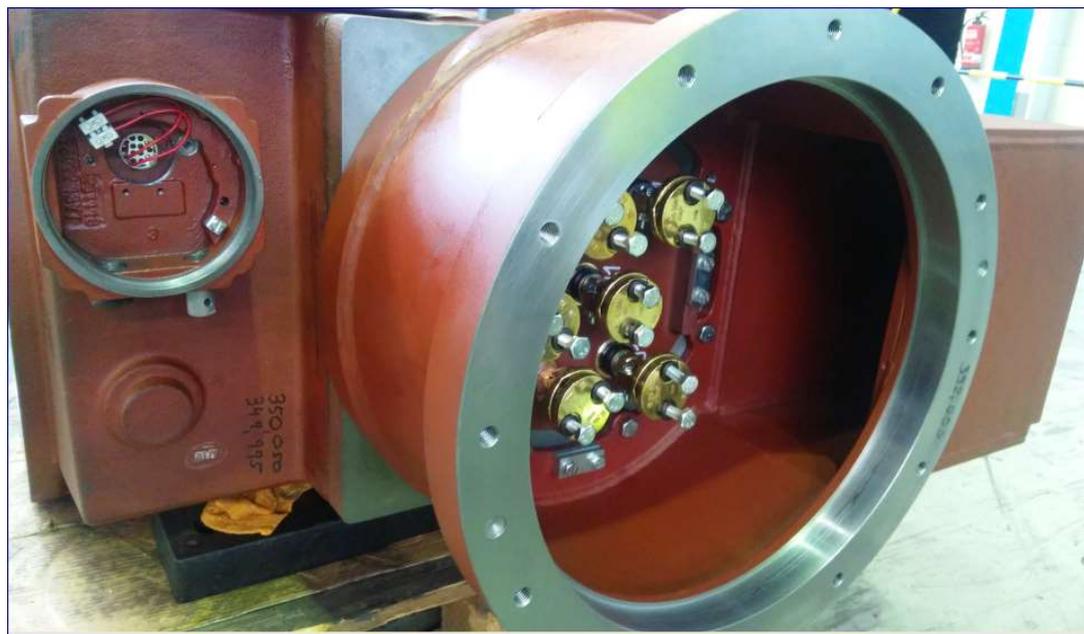
Standard metric threads acc. to catalogue for cable inlets.
Ex-d-cable glands on request only! Not in scope of standard supply.



Additional information about the cable in use is necessary, latest with the order!

- Type of cable (e.g. armoured cable)
- Outer cable diameter in mm
- Inner cable diameter in mm
- Does the cable cross section diameter fits to the certified cross sections?

Ex-d terminal boxes



Auxiliary terminal boxes in Ex-d

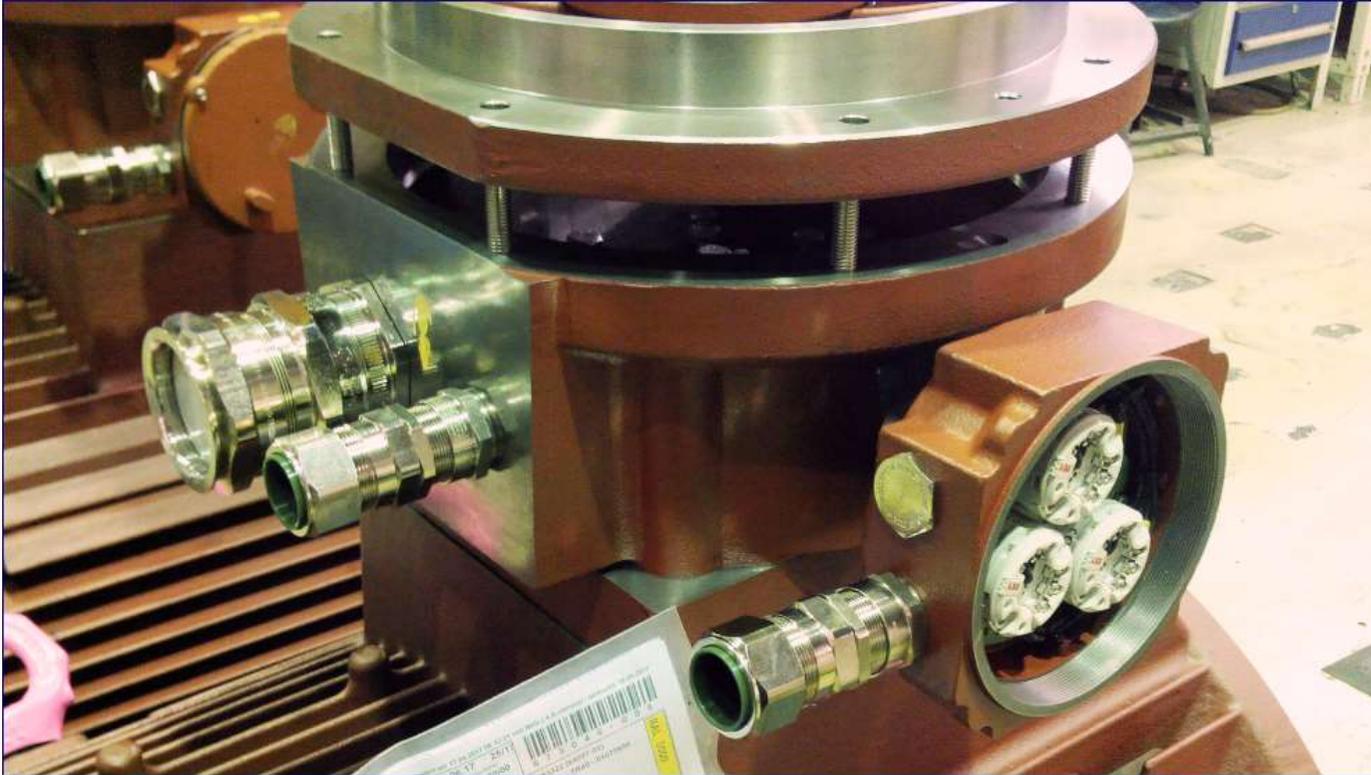


Frame size ≥ 180



Frame size ≥ 355

Auxiliary terminal boxes in Ex-d



Inverter Operation

ATB Motors can be operated with each frequency inverter under following requirements:

PTCs as protection monitoring required (in general required, if operation mode is different from S1-mains operation!)

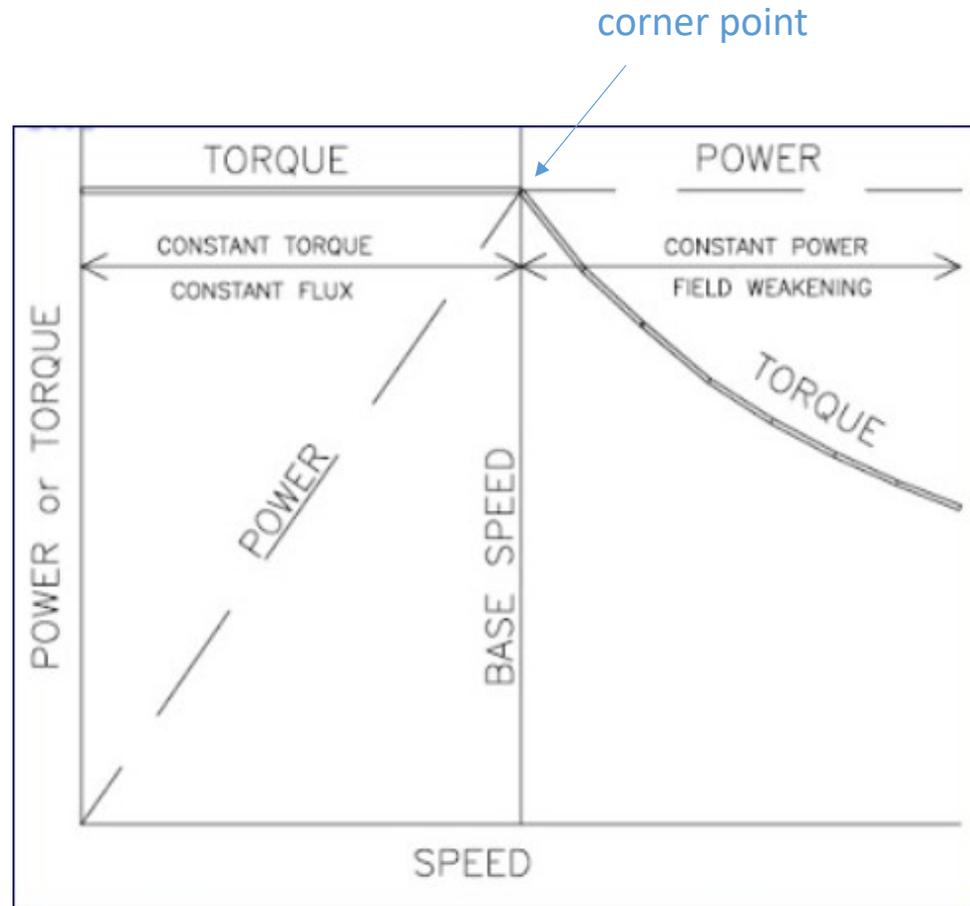
Insulated bearing NDE for frame sizes ≥ 315

Standard winding design with maximum periodic peak voltage up to 1600V and with du/dt max.2kV/us. (Different on request.)

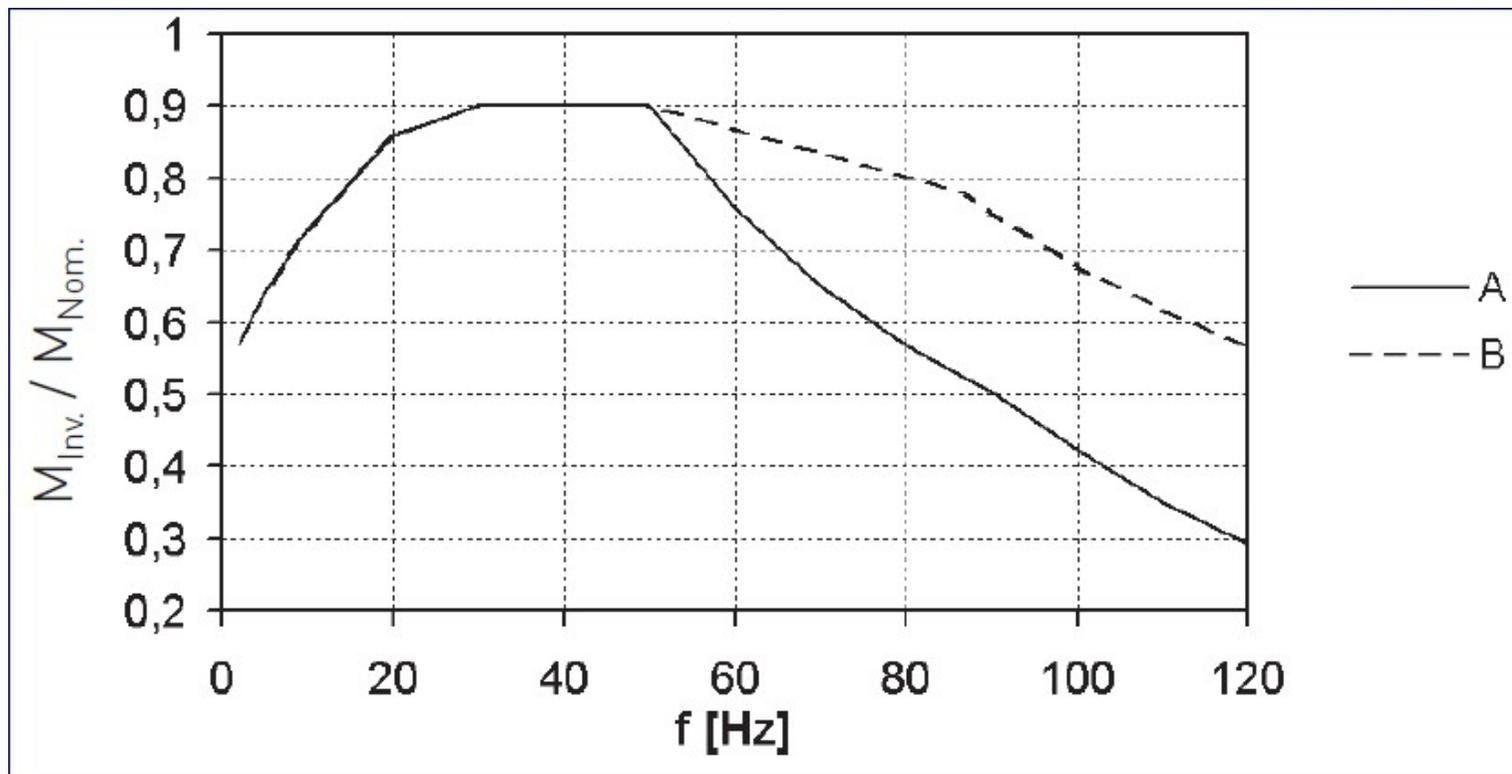
Values for higher room temperatures ($>40^{\circ}$ C) and altitudes(1000m) available on request.

The thermal utilization of the motors corresponds to thermal class F.

Inverter operation curves



Operating curve frame size 180-200; 4-8-pole, T4, 40C, 50Hz-grid



Curve A: Field weakening range above 50 Hz

Curve B: Field weakening range above 87Hz

catalogue page 58...

Which informations are required to select a motor for inverter operation?

-Required shaft power during inverter operation.

Please note: Nominal motor rating might be different from inverter rating!

-torque characteristic of load (e.g. constant torque or square drop torque)

-speed range (e.g. 5 – 50Hz)

With these information you can select the right motor size with consideration of required motor type (e.g. IE2-class, mains grid) from catalogue...

How to select a motor from catalogue ?

From customer: IE2 class, 4-pole, grid 400V/50Hz, required rating 31kW/50Hz, constant torque, 5-50Hz, 40° C

Operation with	Mains	Inverter											
		Self ventilation					Forced ventilation						
Ventilation													
Torque characteristic	-	decreasing quadratic		constant	constant	constant	constant	constant	constant	constant	constant	constant	
Frequency	50 Hz	5-50 Hz		20-50 Hz	10-50 Hz	5-50 Hz	5-50 Hz	50-87 Hz ¹⁾	50-87 Hz ¹⁾	5-87 Hz ¹⁾	5-87 Hz ¹⁾	5-87 Hz ¹⁾	
Contol range	-	1:10		1:2,5	1:5	1:10	1:10	1:10	1:10	1:10	1:10	1:10	
Speed range	-	150-1500 rpm		600-1500 rpm	300-1500 rpm	150-1500 rpm	150-1500 rpm	1500-2610 rpm	1500-2610 rpm	1500-2610 rpm	1500-2610 rpm	150-2610 rpm	
Output/torque	P ₂ [kW]	P _U [kW] 50 Hz	M _U [Nm]	P _U [kW] 50 Hz	M _U [Nm]	P _U [kW] 50 Hz	M _U [Nm]	P _U [kW] 50 Hz	M _U [Nm]	P _U [kW] 87 Hz	M _U [Nm]	P _U [kW] 50 Hz	P _U [kW] 87 Hz
CD...													
CD...Y2													
200L-4	30	28 ²⁾	183	27	176	24	156	21	136	40	146	28	37
225S-4	37	32 ²⁾	208	31	201	29	188	26	168	49	179	32	45
225M-4	45	38 ²⁾	247	37	240	35	227	32	207	60	220	38	55
250M-4	55	46 ²⁾	298	45	291	43	278	41	265	70	256	46	65

Selected motor: CD 225M-4Y2, 45kW at mains, 32kW at inverter operation, 1:10 constant

Contact- and additional informations?



ATB Nordenham main catalogue, 148 pages.

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Thank you for your attention.