

SIEMENS

Dimension drawings

SIMOTICS

M-1FE1 built-in motors

For SINAMICS S120

Edition

12/2019

www.siemens.com

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Drive technology
Dimension drawings for SIMOTICS
M-1FE1

Operating Instructions

12/2019

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Legal information

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⚠ WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
⚠ CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

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The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

The dimensions and dimension drawings for SIMOTICS M-1FE1 built-in motors are provided in the following Chapter.

Note

Siemens AG reserves the right to change the motor dimensions as part of design improvements without prior notification.

Dimension drawings for the required motors are also available in:

CAD CREATOR (<http://www.siemens.com/cadcreator>),

DT CONFIGURATOR (<http://siemens.de/dt-konfigurator>) or

Catalog NC62 (<https://intranet.for.siemens.com/org/i-dt-mc/intraDocs/catalogs/nc622019/NC%2062%20-%202019%20-%20Complete%20Catalog/motion-control-NC62-complete-English-2019.pdf>)

Additional information on 1FE1 built-in motors is available in the associated Configuration Manual and Hardware Installation Manual (<https://support.industry.siemens.com/cs/ww/de/view/109745110/88061310347?dl=en>).

1.1 DT Configurator

The DT CONFIGURATOR supports you when configuring your drive.

In the DT CONFIGURATOR - you can simply and quickly find

- Technical data
- Characteristics
- dimension drawings
- 2D/3D CAD data

The DT CONFIGURATOR supports you when generating plant/system documentation regarding project-specific information.

Note

The 3D model in the DT CONFIGURATOR is a simplified representation that does not show all of the details.

You can find further information on the Internet at DT CONFIGURATOR (<http://siemens.de/dt-konfigurator>):

1.2 CAD Creator

In the CAD CREATOR you will find the following quickly and easily:

- Dimension drawings
- 2D/3D CAD data

The CAD CREATOR supports you in the creation of system documentation regarding project-specific information. The data for motors, drives and CNC controls is currently available in the online version.

Note

The 3D model in the CAD CREATOR is a simplified representation that does not display every detail.

You will find further information on the Internet at "CAD CREATOR (<http://www.siemens.com/cadcreator>)".

Motors

- 1FK7, 1FT7, 1FT6 synchronous motors
- 1FE1 built-in synchronous motors
- 1FW3 complete torque motors
- 1FW6 built-in torque motors
- 1FK7, 1FT7, 1FT6 geared motors
- 1PH8 synchronous/induction motors
- 1PH7, 1PH4, 1PL6, 1PM4, 1PM6 induction motors
- 2SP1 motor spindles
- 1FN3 linear motors

SINAMICS S120

- Control Units
- Power Modules (blocksize, chassis)
- Line Modules (booksize, chassis)
- Line-side components
- Motor Modules (booksize, chassis)
- DC link components
- Additional system components
- Load-side power components
- Encoder system connection
- MOTION-CONNECT connection system

SIMOTION

- SIMOTION D
- SIMOTION C

SINUMERIK solution line

- Control systems
- Operator components for CNC controls

Dimensions of built-in motors

The dimensions of the built-in motor are provided in the following chapter

Dimensions of built-in motors with cooling jacket 1FE1□□□-□□□□□-□B□□

As standard, stators with cooling jacket and cast winding overhang are supplied. The technical data and characteristics in SIOS apply (link)

Dimensions of built-in motors without cooling jacket 1FE1□□□-□□□□□-□A□□

Stators without cooling jacket can also be supplied with impregnated winding. Technical data and characteristics on request.

The following built-in motors are available without cooling jacket:

1FE105□-6W□□□, 1FE1061-6W□□□, 1FE1084-6W□□□, 1FE109□-6W□□□, 1FE111□-6W□□□, 1FE107□-4W□□□, 1FE108□-4W□□□, 1FE109□-4W□□□, 1FE110□-4W□□□.

All other frame sizes are on request.

Note

For the installation instructions "Rotor companion dimension", a magnetic, conductive shaft material (steel) with a coefficient of expansion of $11 \times 10^{-6}/K$ is used as basis for the recommended fit.

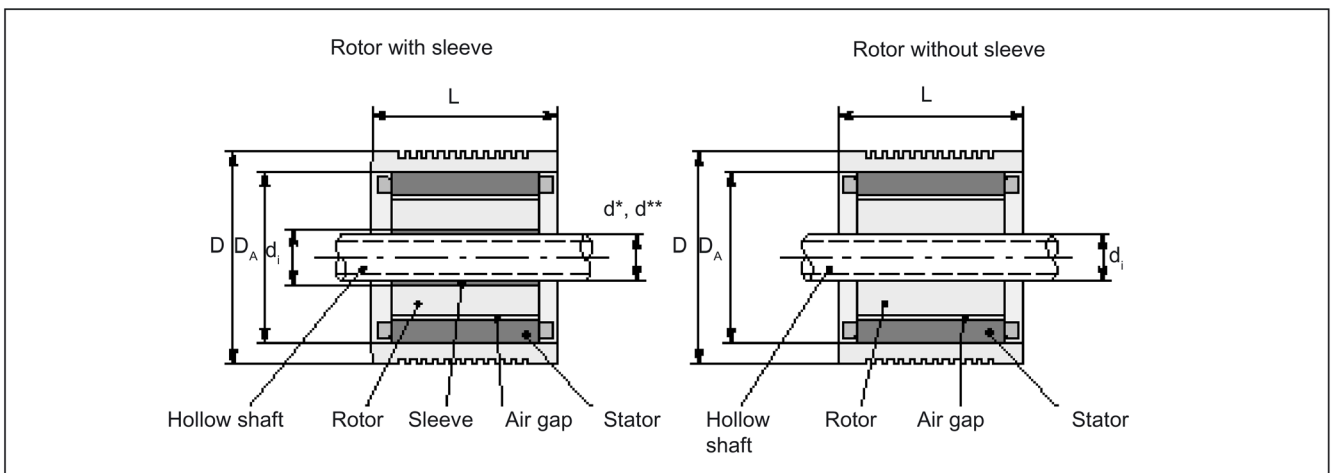


Figure 2-1 Dimensions of built-in motors (see the following tables)

Table 2- 1 Dimensions of built-in motors, 6-pole

Motor type	L	D	D _A	d _i - □□A□	d' - □□B□	d'' - □□C□	d'' - □□D□	d'' - □□E□	d'' -□□N□				
	all dimensions in mm												
	Standard rotor sleeves ¹⁾								Special rotor sleeves (on request)				
1FE1041-6W□□□□-6BA□	107	95	85	44	-	-	-	-	-	-	-	-	-
1FE1042-6W□□□□-6BA□	157	95	85	44	-	-	-	-	-	-	-	-	-
1FE1051-6W□□□□-1B□□	170	115	103.5	42	-	33	-	-	-	-	-	-	-
1FE1052-6W□□□□-6B□□	220	115	103.5	42	-	33	-	-	-	-	-	-	-
1FE1054-6W□□□□-6BA□	320	115	103.5	42	-	-	-	-	-	-	-	-	-
1FE1061-6W□□□□-6B□□	130	130	118	58	48	-	-	-	-	-	-	-	-
1FE1064-6W□□□□-6BA□	280	130	118	58	-	-	-	-	-	-	-	-	-
1FE1082-6W□□□□-6B□□	195	190	170	93	67	74	80	-	-	-	-	-	-
1FE1084-6W□□□□-6B□□	295	190	170	93	67	74	-	-	-	-	-	-	-
1FE1091-6W□□□□-6B□□	150	205	180	92	67	80	-	-	-	-	-	-	-
1FE1092-6W□□□□-6B□□	200	205	180	92	67	80	-	-	74 (T37 ²⁾)	-	-	-	-
1FE1093-6W□□□□-6B□□	250	205	180	92	67	80	-	-	-	80.1(T 06 ¹⁾)	-	-	-
1FE1113-6W□□□□-6B□□	260	250	220	120	-	-	80	105.2	85.7 (T42 ¹⁾)	-	-	110(T 55 ¹⁾)	-
1FE1114-6W□□□□-6B□□	310	250	220	120	82	102	-	-	92 (T46 ²⁾)	98 (T49 ¹⁾)	105.2 (T52 ²⁾)	110(T 55 ¹⁾)	-
1FE1115-6W□□□□-6BC□	360	250	220	-	-	102	-	-	-	-	-	-	-
1FE1116-6W□□□□-6B□□	410	250	220	120	82	102	-	-	-	-	-	-	-

- 1) If not otherwise marked, rotors with sleeve are prebalanced when delivered.
- 2) When delivered, the rotors are not prebalanced.
- 15th position of the MLFB = A → without rotor sleeve
- 15th position of the MLFB = B → with rotor sleeve, dimensions see column d'
- 15th position of the MLFB = C → with rotor sleeve, dimensions see column d''-□□C□
- 15th position of the MLFB = D → with rotor sleeve, dimensions see column d''-□□D□
- 15th position of the MLFB = E → with rotor sleeve, dimensions see column d''-□□E□
- 15th position of the MLFB = N → with special rotor sleeve, dimensions see column d''-□□N□

Table 2- 2 Dimensions of built-in motors, 8-pole

Motor type	L	D	D _A	d _i -A□.	d* -B□.	d** -C□.	d** -D□.	d** -E□.	d** -B□.	d** -C□.	d** -D□.	d** -E□.
	all dimensions in mm											
	Standard rotor sleeves ¹⁾						Special rotor sleeves ¹⁾ (on request)					
1FE1143-8W□□□-1B□□	290	310	280	166.7	-	-	-	-	-	-	-	-
1FE1144-8W□□□-1B□□	340	310	280	166.7	-	150.3	-	-	110 (T55)	-	-	-
1FE1145-8W□□□-1B□□	390	310	280	166.7	-	150.3	140.3	125	-	-	-	-
1FE1147-8W□□□-1B□□	490	310	280	166.7	-	150.3	140.3	-	-	-	-	-

1) If not otherwise marked, rotors with sleeve are prebalanced when delivered.

15th position of the MLFB = A → without rotor sleeve

15th position of the MLFB = B → with rotor sleeve, dimensions see column d*

15th position of the MLFB = C → with rotor sleeve, dimensions see column d**-.C□

15th position of the MLFB = D → with rotor sleeve, dimensions see column d**-.D□

15th position of the MLFB = E → with rotor sleeve, dimensions see column d**-.E□

Table 2- 3 Dimensions of built-in motors, 4-pole

Motor type	L in mm	D in mm	D _A in mm	d _i -1BA□ in mm	d _i -1BR□ in mm
1FE1051-4H□□□-1BA□	130	120	106	46	-
1FE1051-4W□□□-1BA□	130	120	106	46	-
1FE1052-4H□□□-1BA□	180	120	106	46	-
1FE1052-4W□□□-1BA□	180	120	106	46	-
1FE1053-4H□□□-1BA□	230	120	106	46	-
1FE1053-4W□□□-1BA□	230	120	106	46	-
1FE1072-4W□□□-1BA□	185	155	135	58	-
1FE1073-4W□□□-1BA□	235	155	135	58	-
1FE1074-4W□□□-1BA□	285	155	135	58	-
1FE1082-4W□□□-1BA□	190	180	160	68	-
1FE1083-4W□□□-1BA□	240	180	160	68	-
1FE1084-4W□□□-1BA□	290	180	160	68	-
1FE1085-4W□□□-1BA□	340	180	160	68	-
1FE1092-4W□□□-1BR□	200	205	180	-	80
1FE1093-4W□□□-1BR□	250	205	180	-	80
1FE1093-4W□□□-1BA□	250	205	180	72	-
1FE1094-4W□□□-1BR□	300	205	180	-	80
1FE1094-4W□□□-1BA□	300	205	180	72	-
1FE1095-4W□□□-1BR□	350	205	180	-	80
1FE1095-4W□□□-1BA□	350	205	180	72	-
1FE1096-4W□□□-1BR□	400	205	180	-	80
1FE1096-4W□□□-1BA□	400	205	180	72	-
1FE1103-4W□□□-1BA□	265	230	200	96	-
1FE1104-4W□□□-1BA□	315	230	200	96	-
1FE1105-4W□□□-1BA□	365	230	200	96	-
1FE1106-4W□□□-1BA□	415	230	200	96	-
1FE1124-4W□□□-1BA□	315	270	240	110	-
1FE1125-4W□□□-1BA□	365	270	240	110	-
1FE1126-4W□□□-1BA□	415	270	240	110	-

15th position of the MLFB = A → without rotor sleeve, dimensions see column d_i-.A□

15th position of the MLFB = R → without rotor sleeve, dimensions see column d_i-.R□

Dimension drawings

3.1 1FE104-6

3

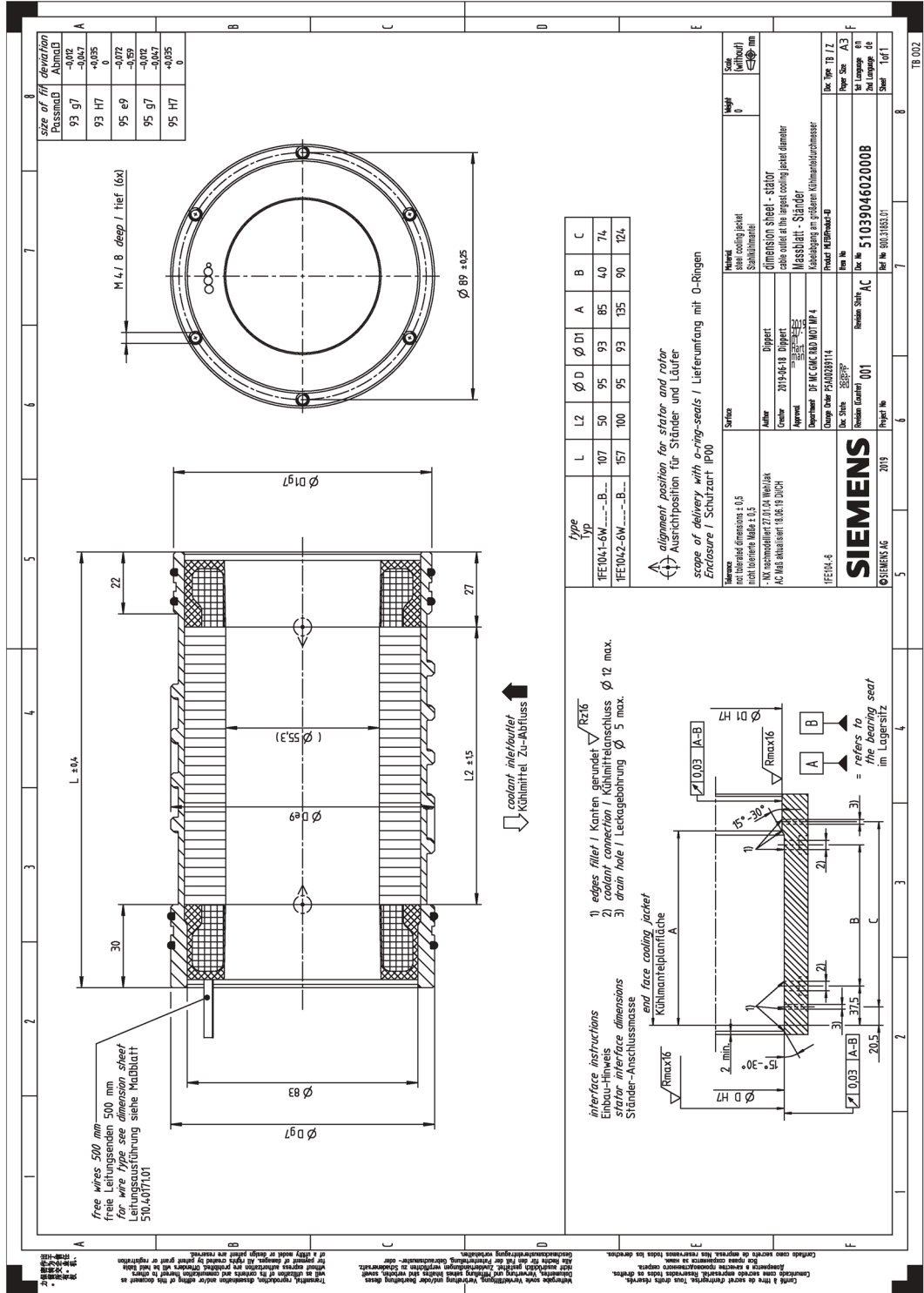


Figure 3-1 1FE104-6, stator with cooling jacket, cable outlet at the larger cooling jacket diameter

3.2 1FE105.-6

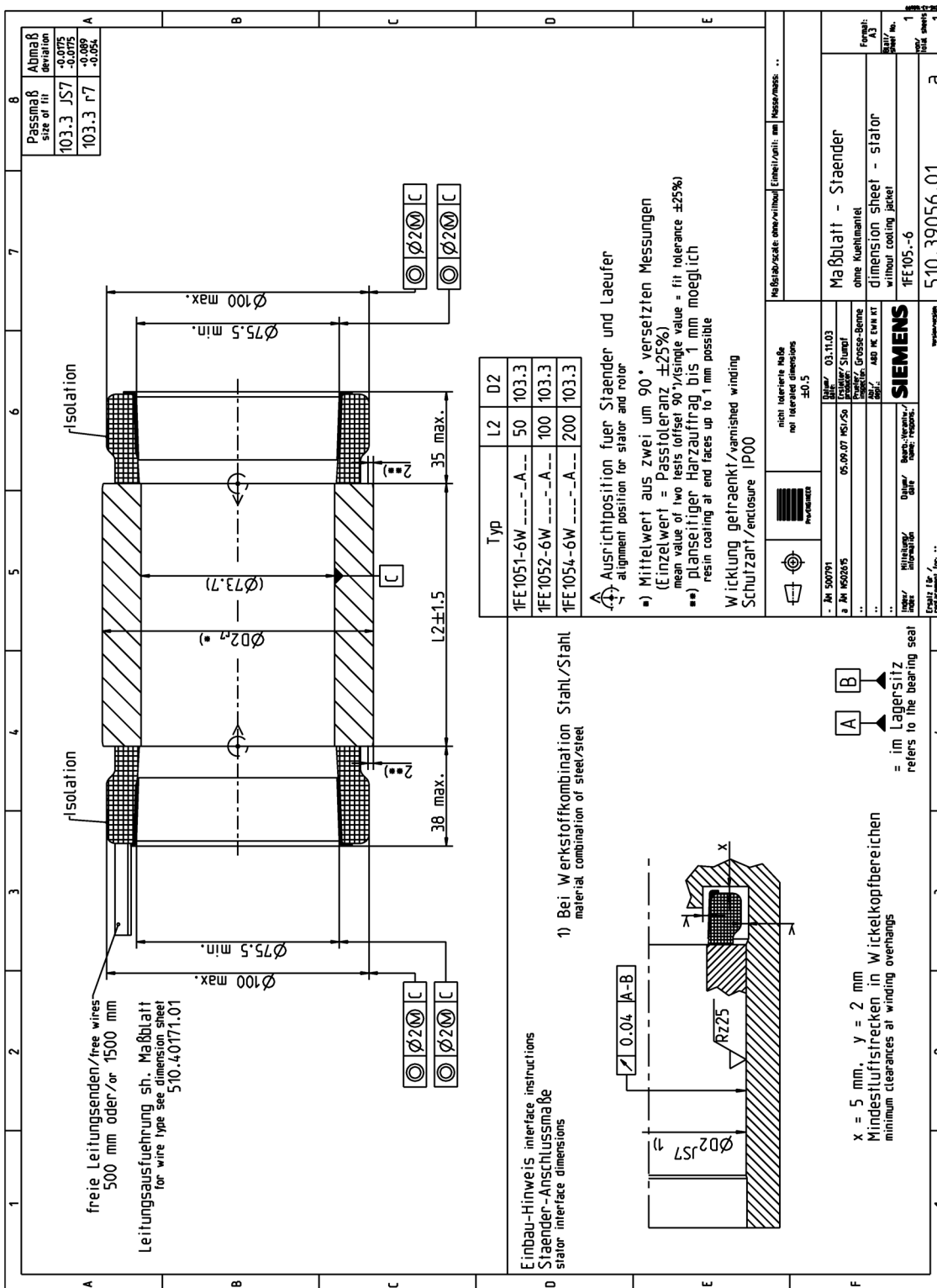
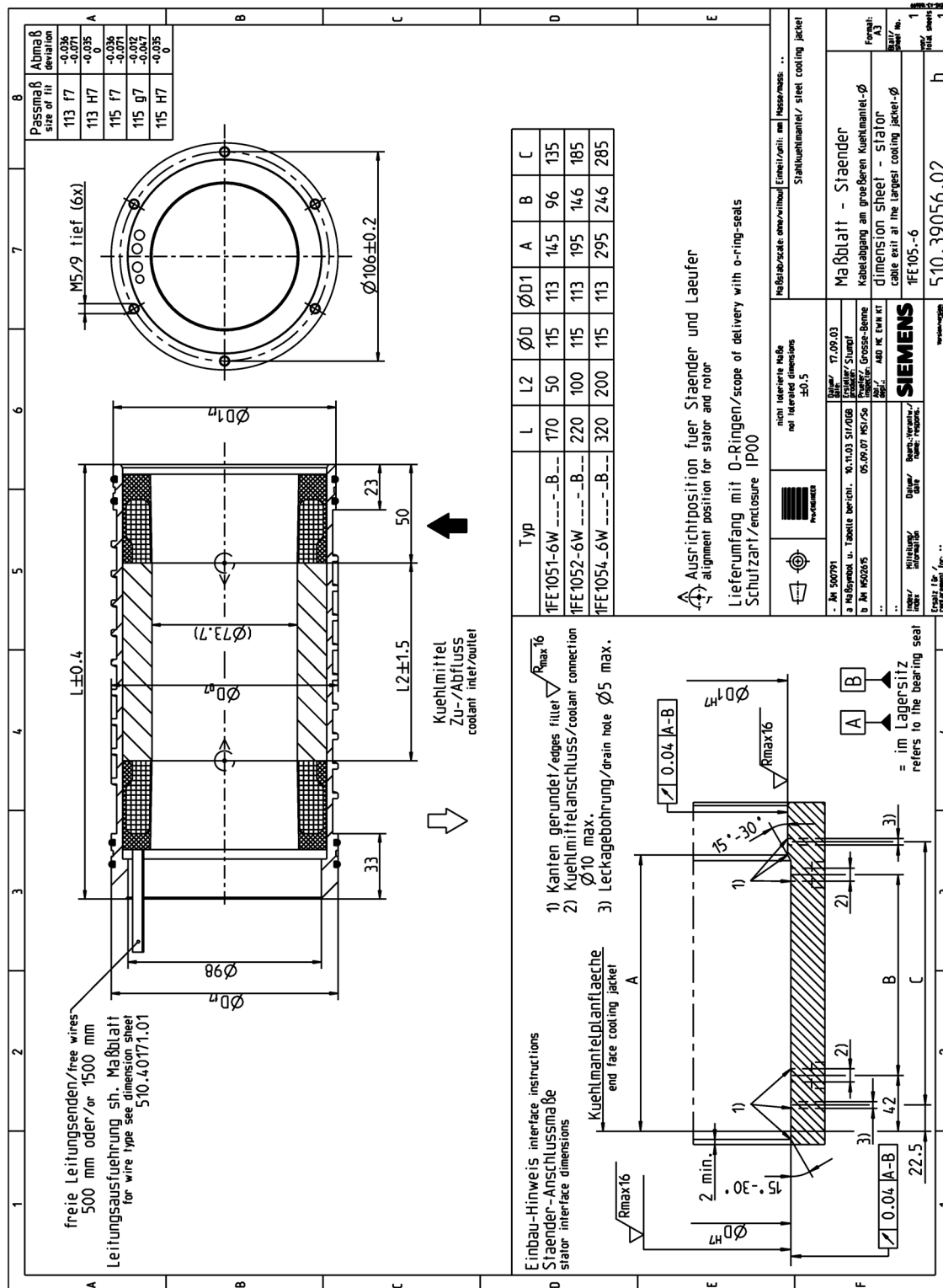


Figure 3-3 1FE105□-6, stator without cooling jacket



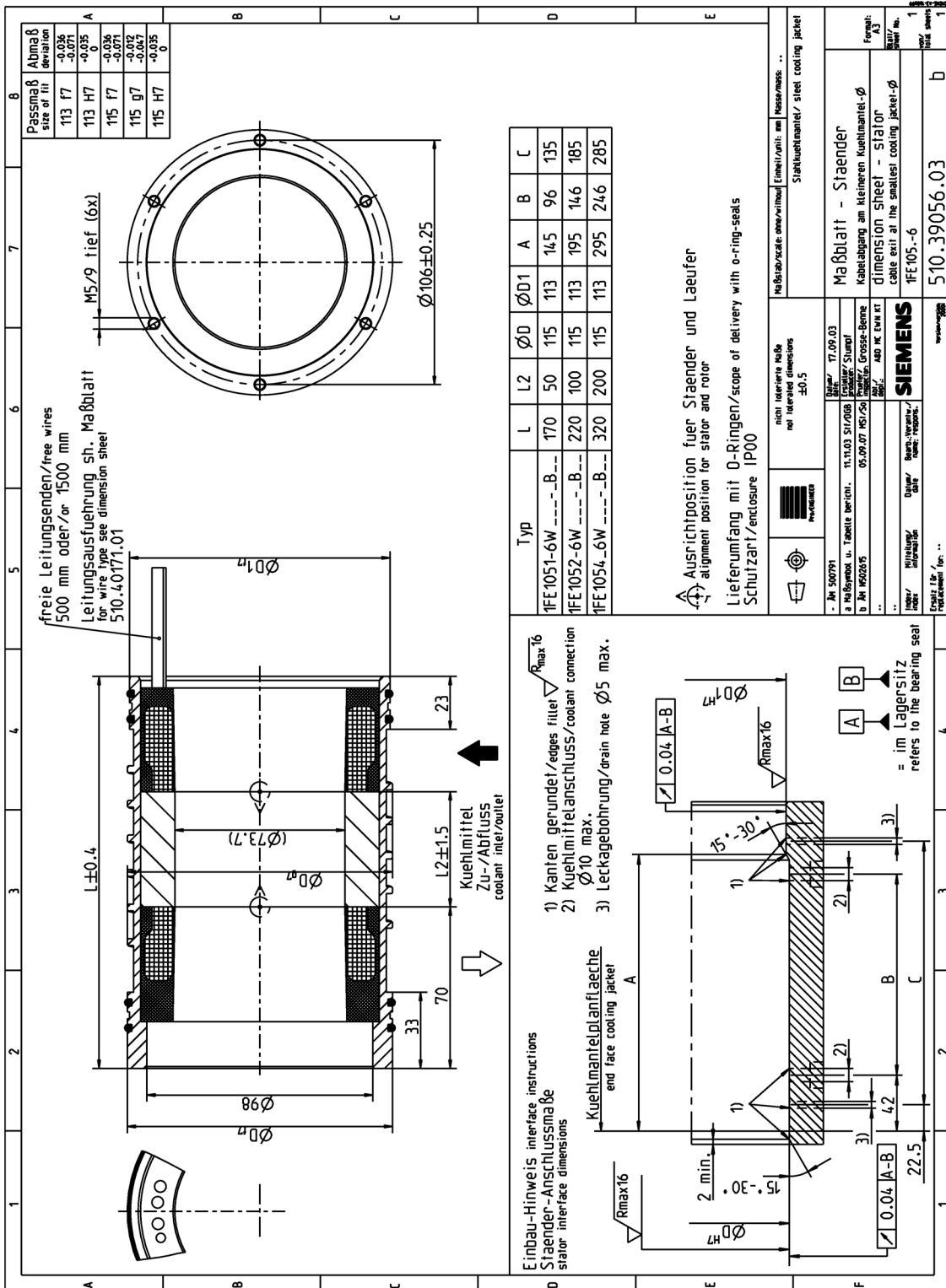


Figure 3-5 1FE105□-5, stator with cooling jacket, cable outlet at the smaller cooling jacket diameter

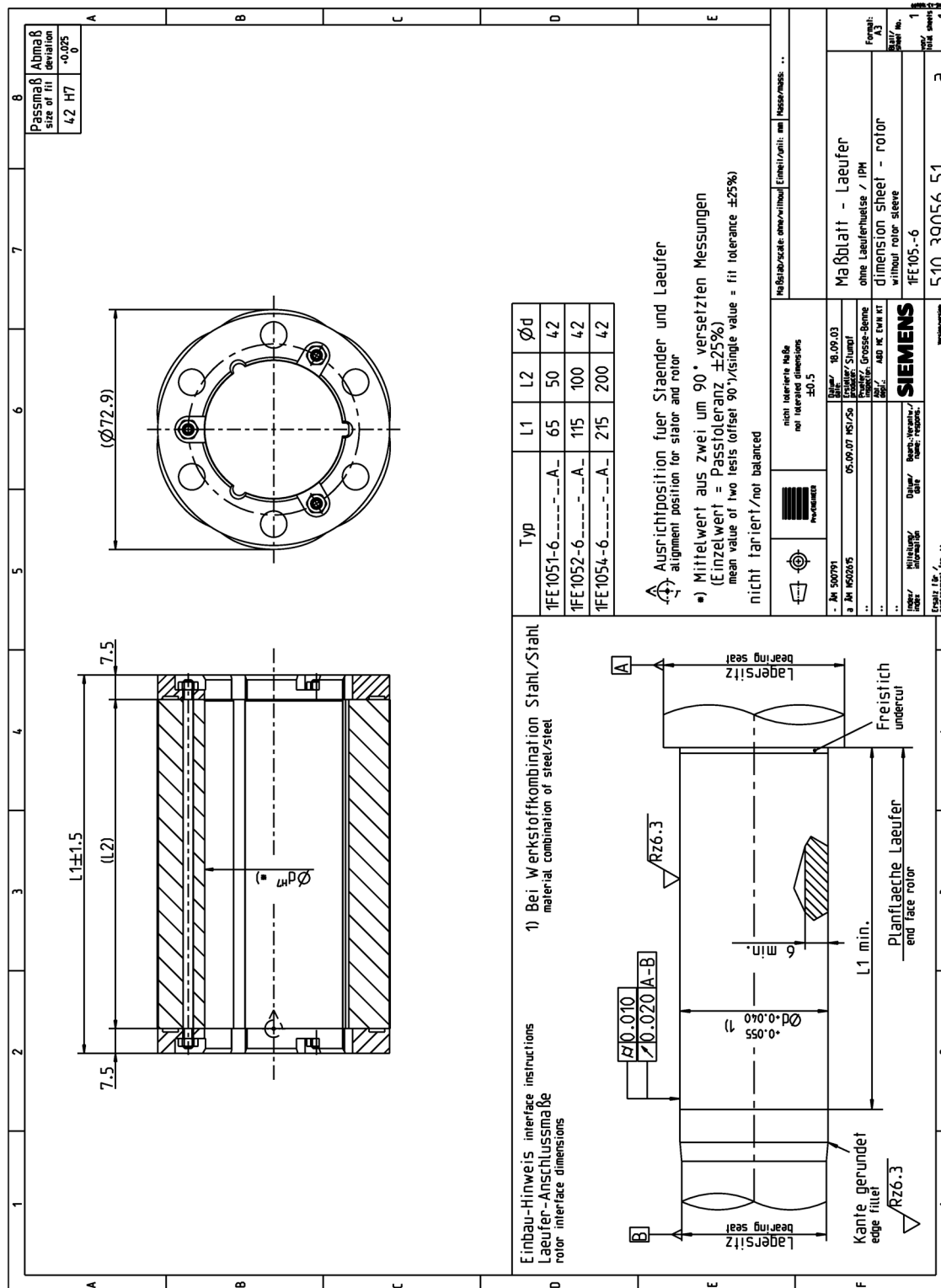


Figure 3-6 1FE105□-6, rotor without sleeve

3.3 1FE106.-6

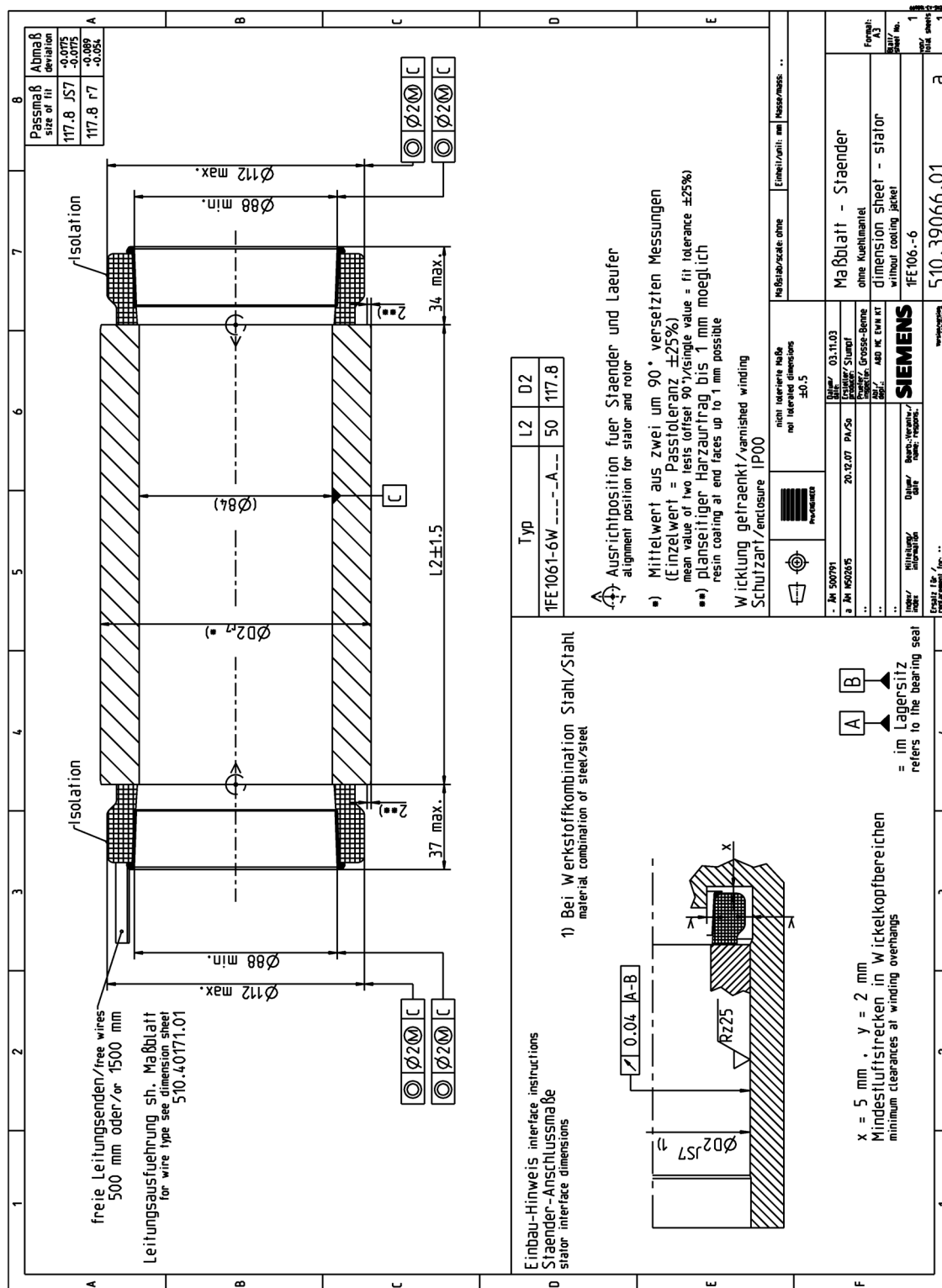


Figure 3-8 1FE106□-6, stator without cooling jacket

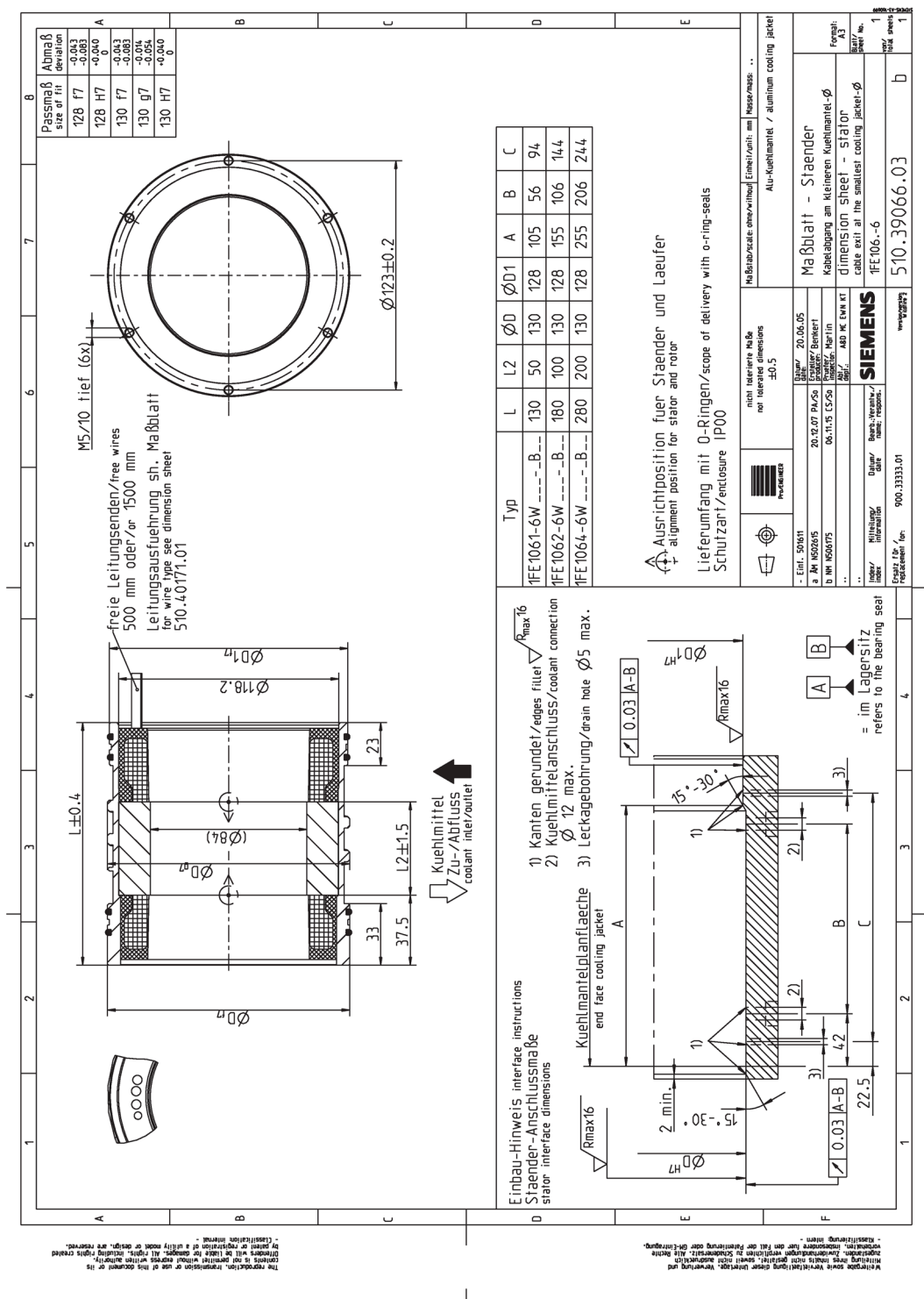


Figure 3-10 1FE106-6, stator with cooling jacket, cable outlet at the smaller cooling jacket diameter

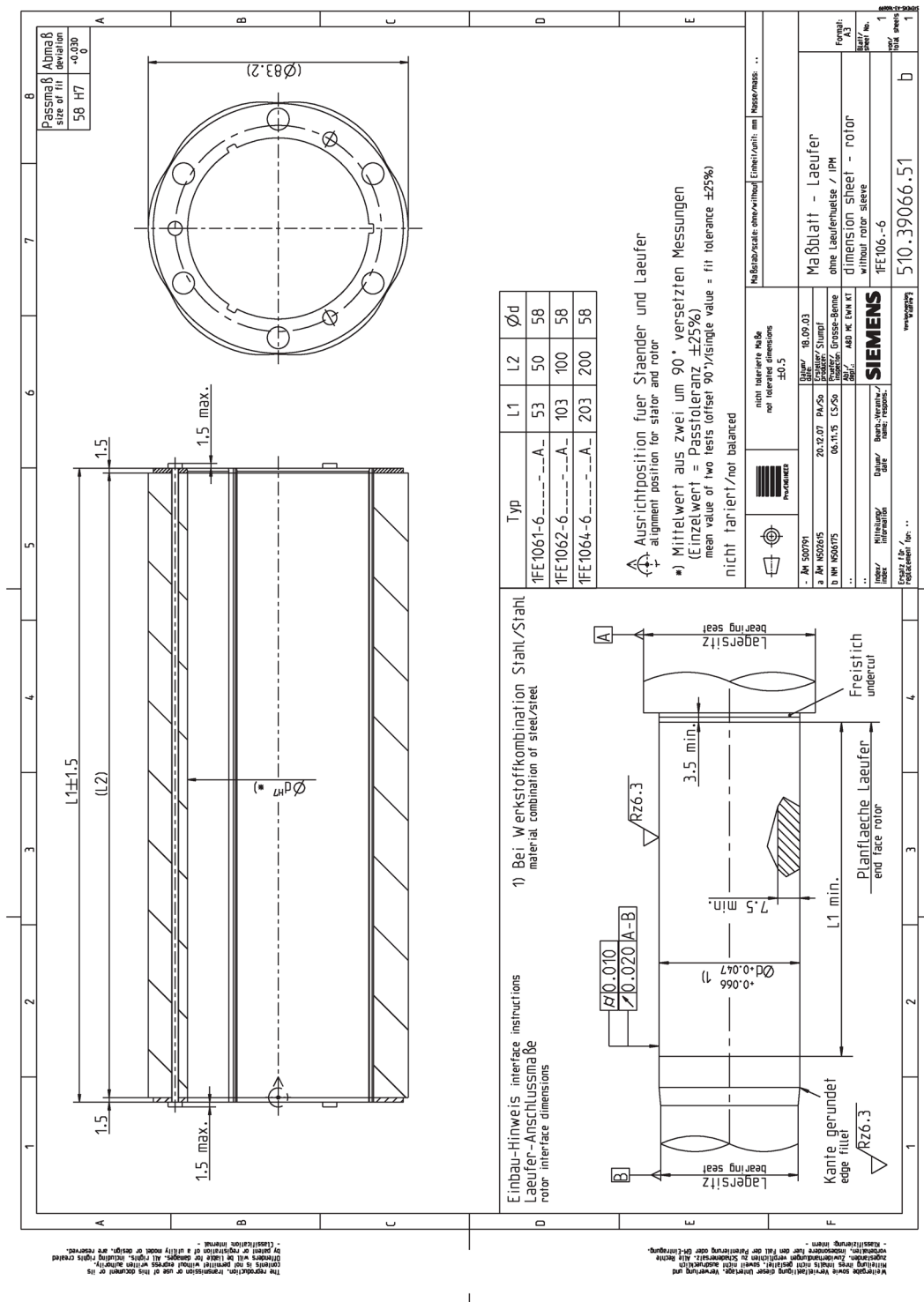


Figure 3-11 1FE106-6, rotor without sleeve

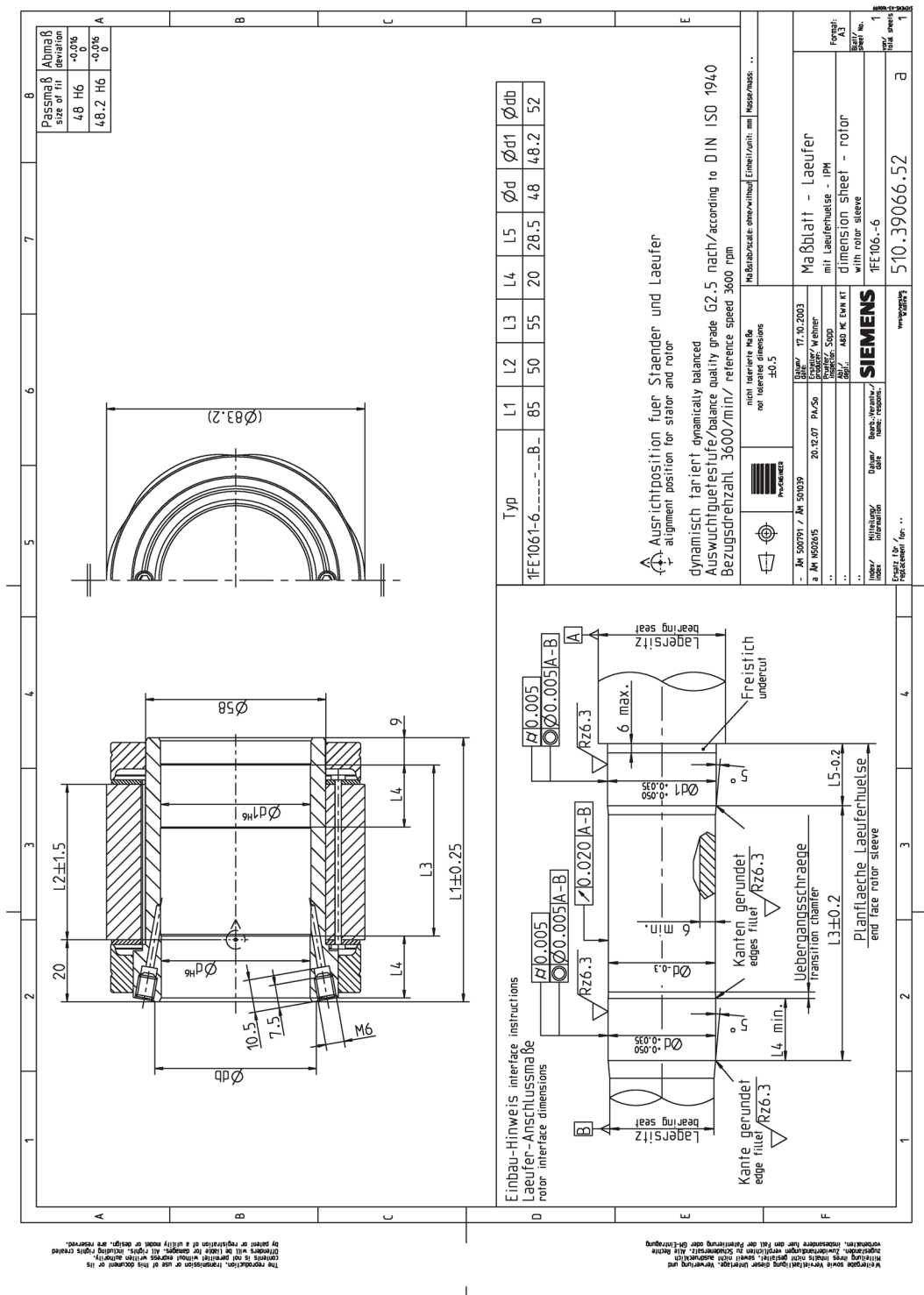


Figure 3-12 1FE106□-6, rotor with sleeve

3.4 1FE108.-6

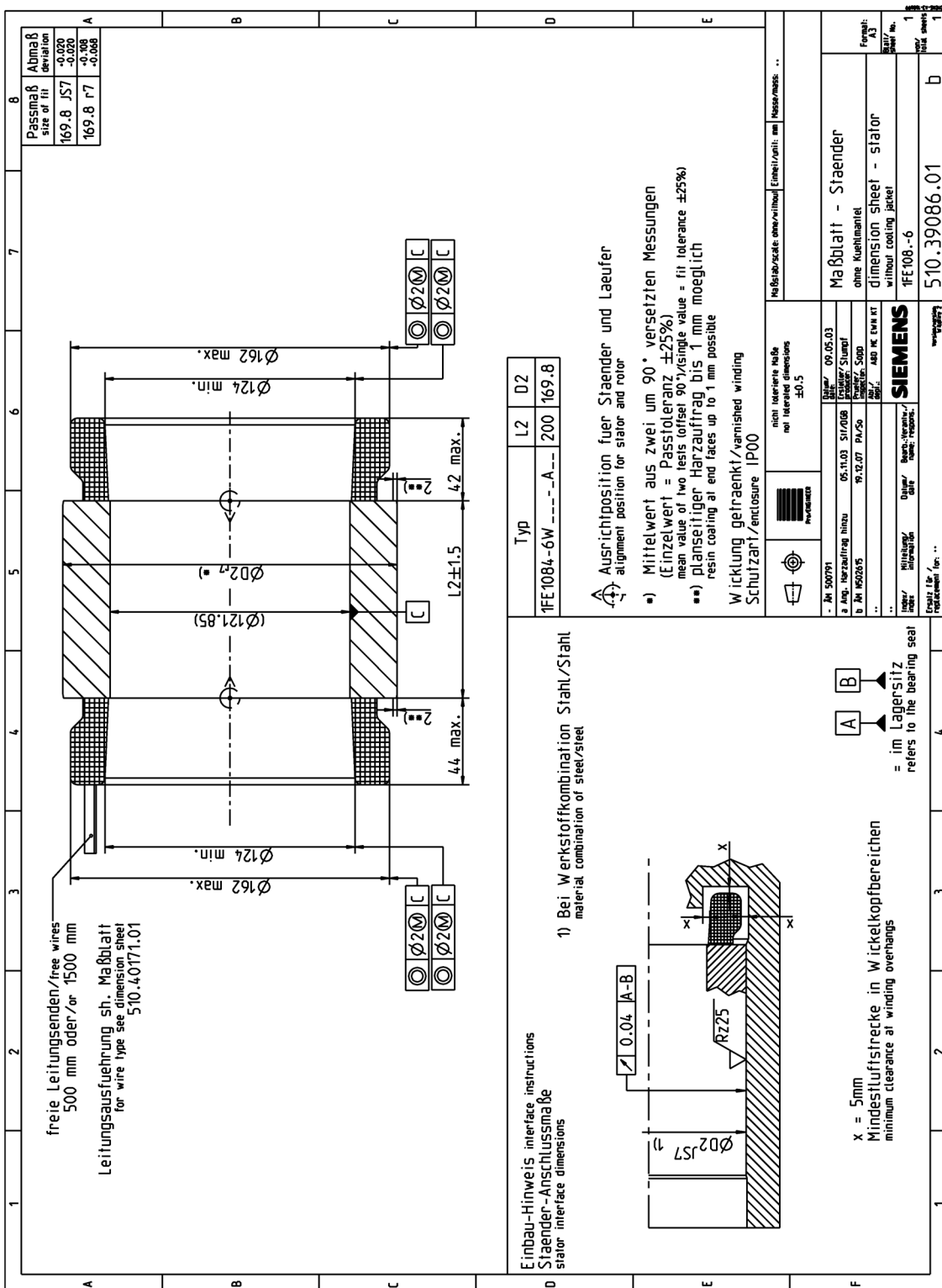


Figure 3-13 1FE108□-6, stator without cooling jacket

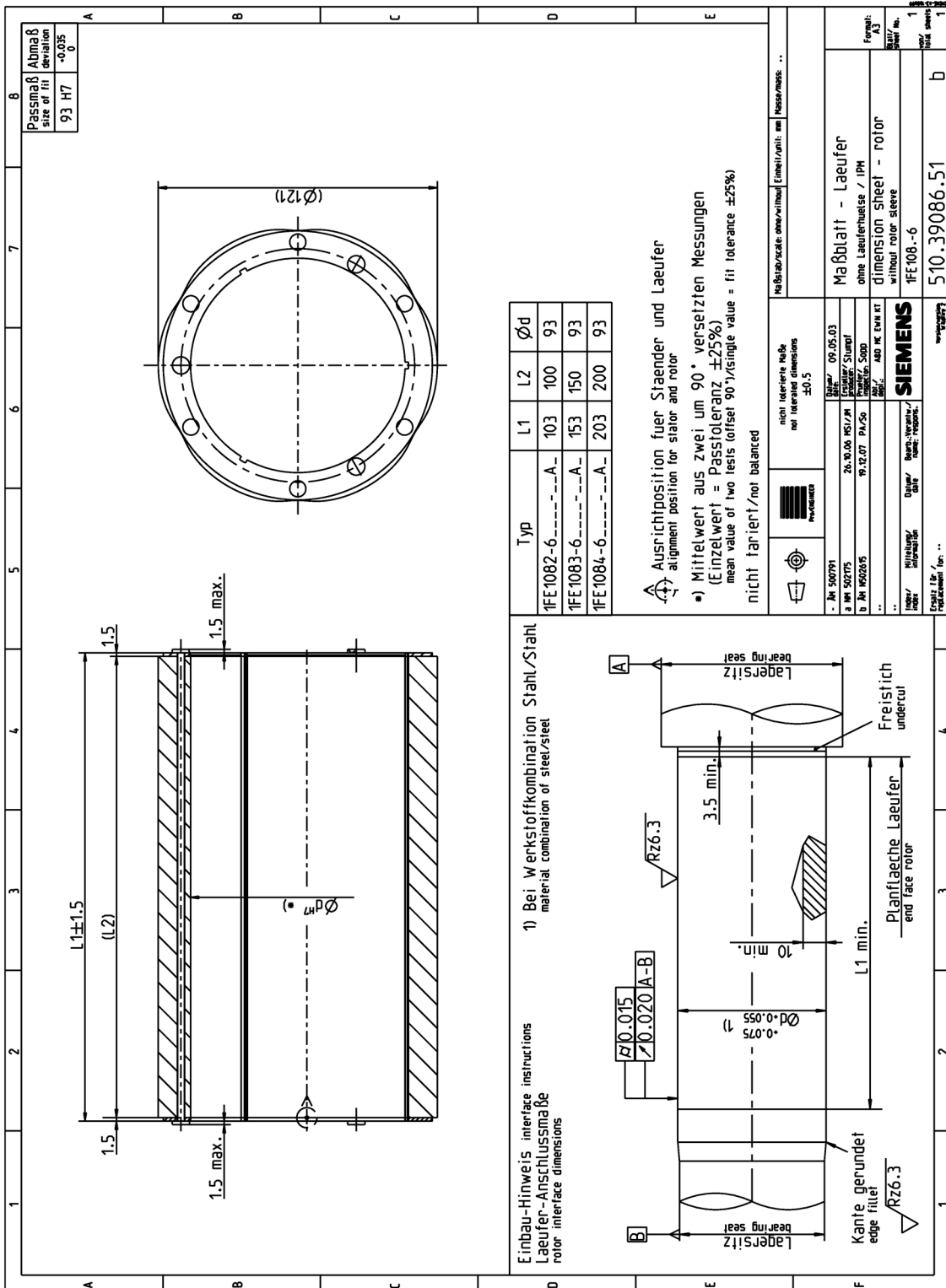


Figure 3-17 1FE108□-6, rotor without sleeve

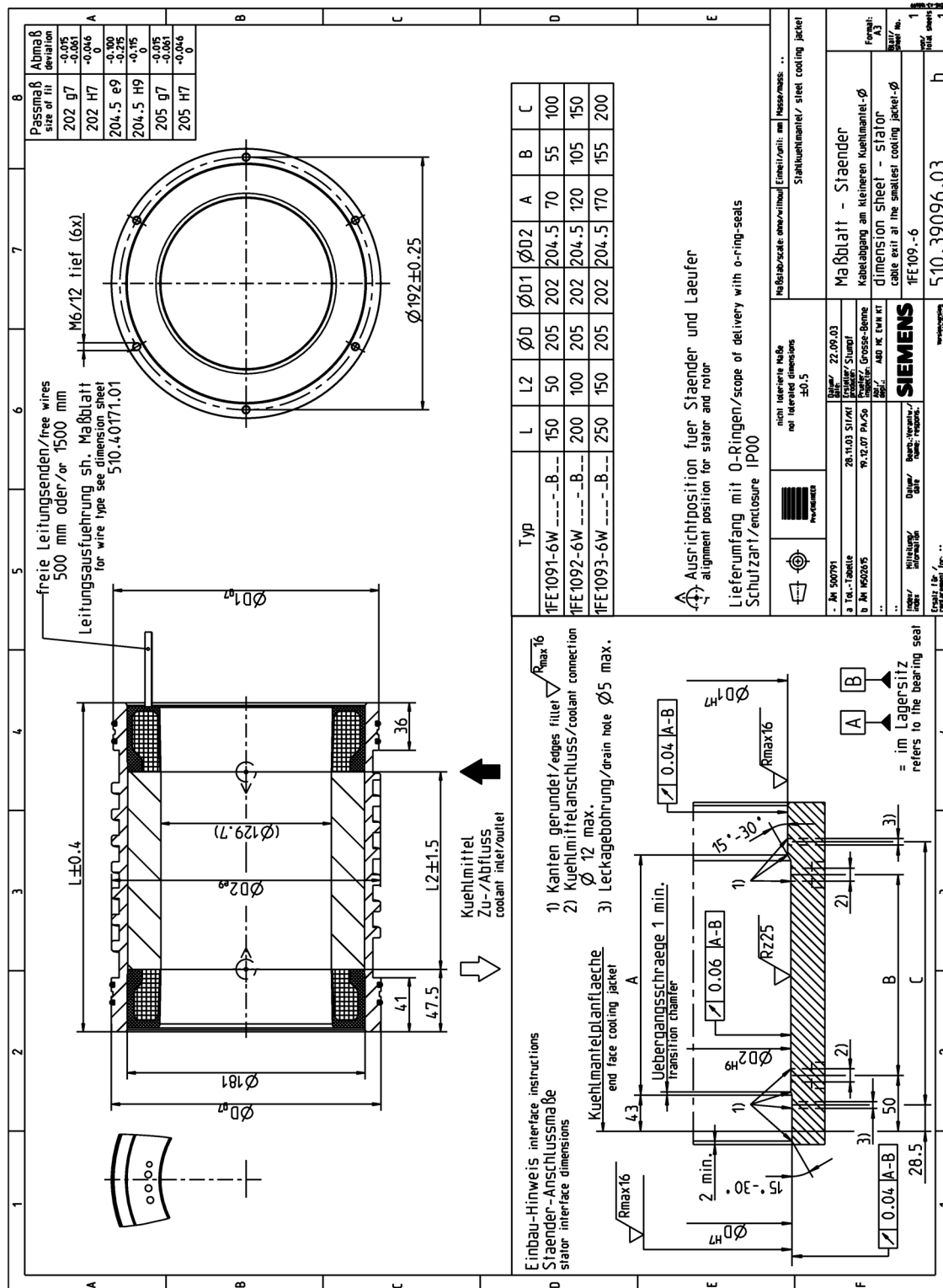


Figure 3-20 1FE109□-6, stator with cooling jacket, cable outlet at the smaller cooling jacket diameter

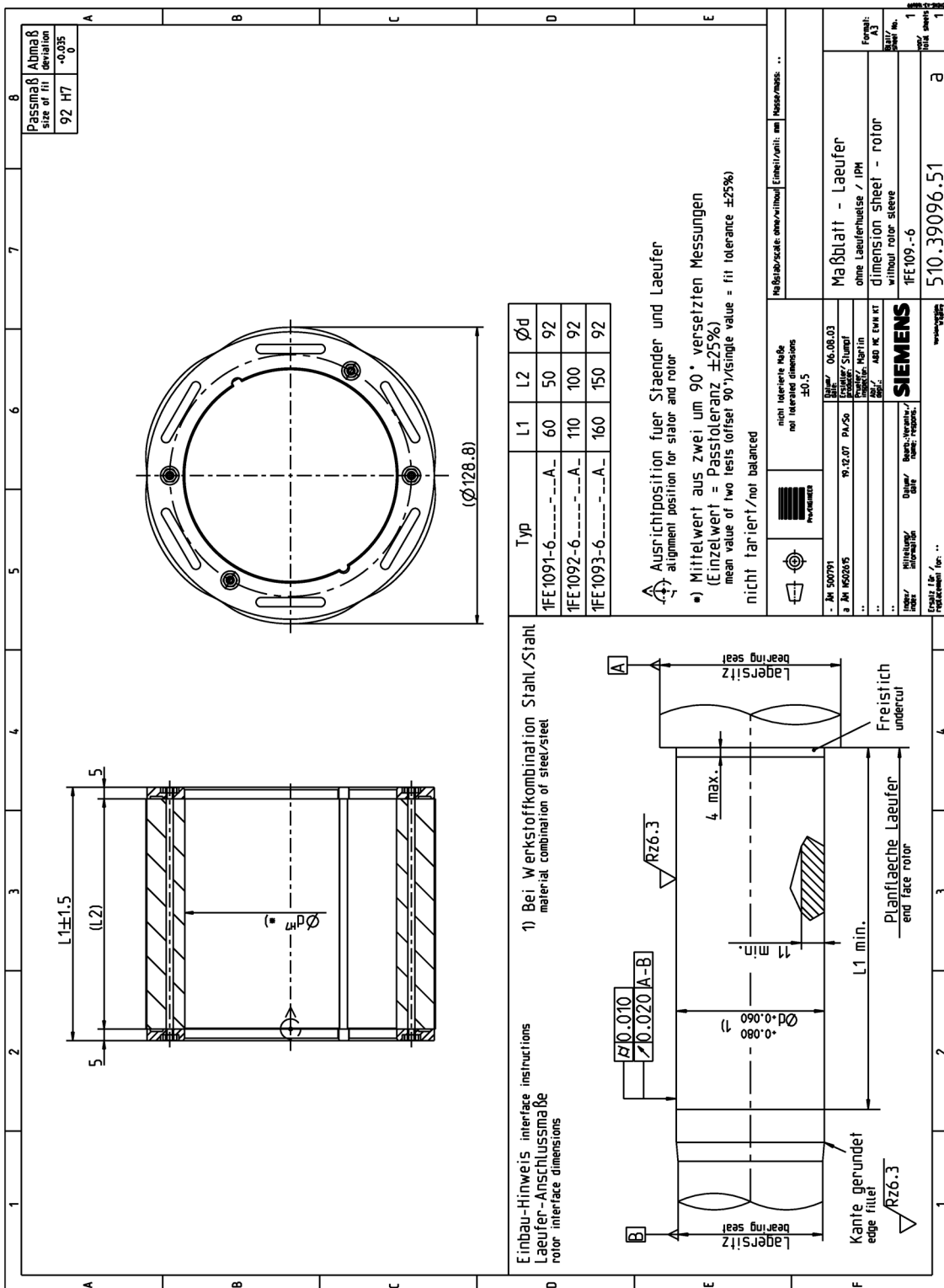


Figure 3-21 1FE109□-6, rotor without sleeve

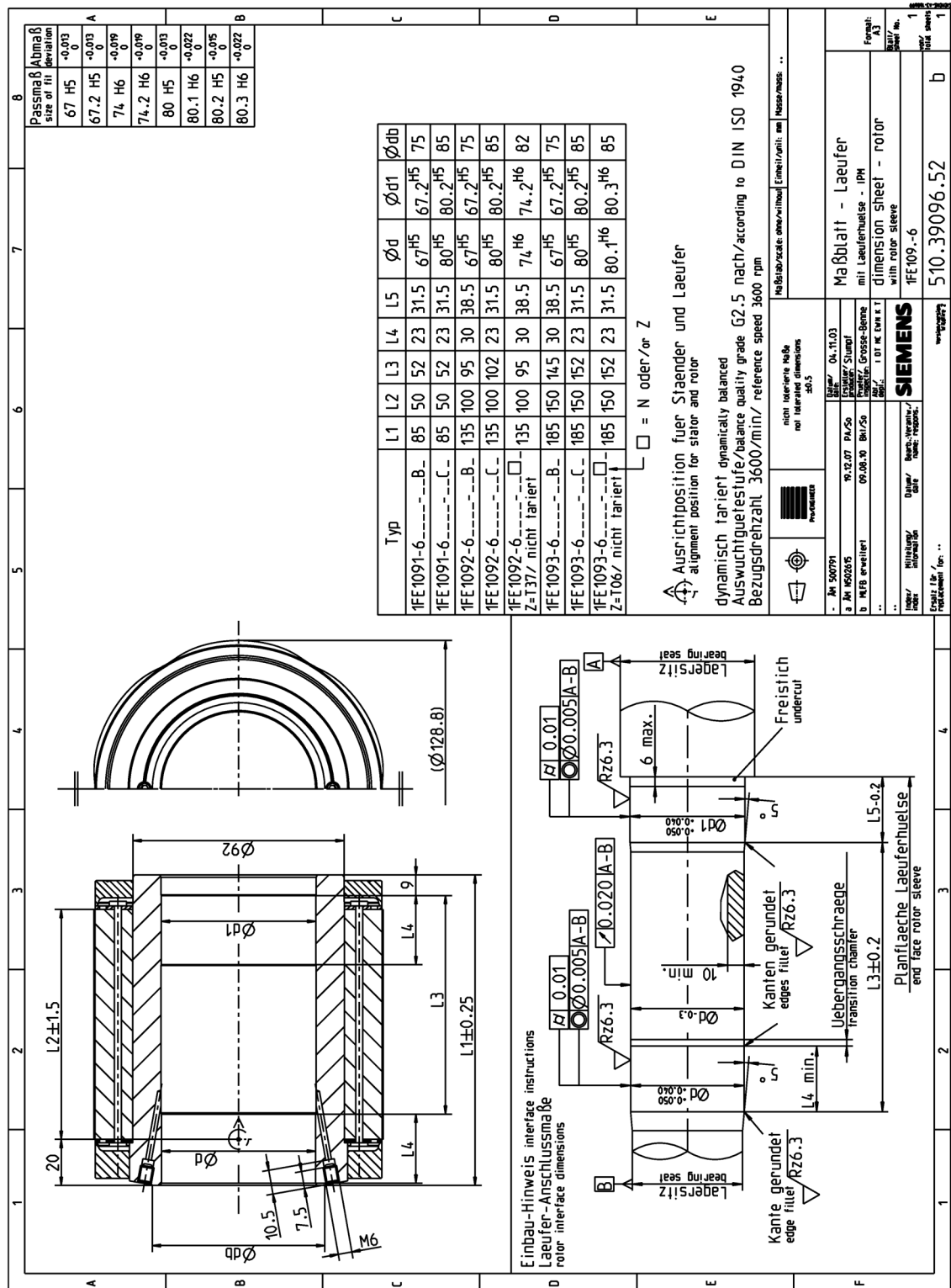


Figure 3-22 1FE109□-6, rotor with sleeve

3.6 1FE111.-6

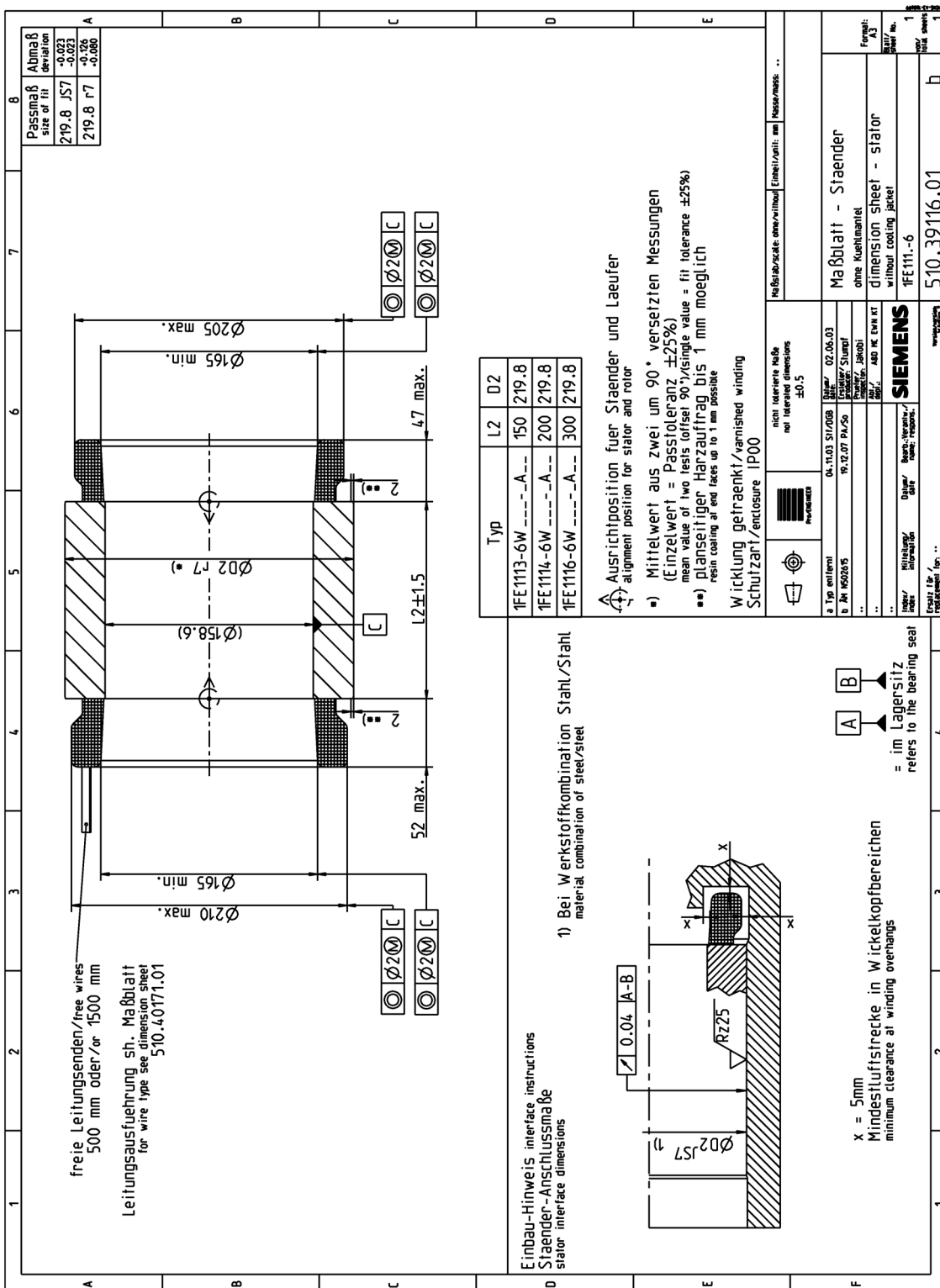


Figure 3-23 1FE111□-6, stator without cooling jacket

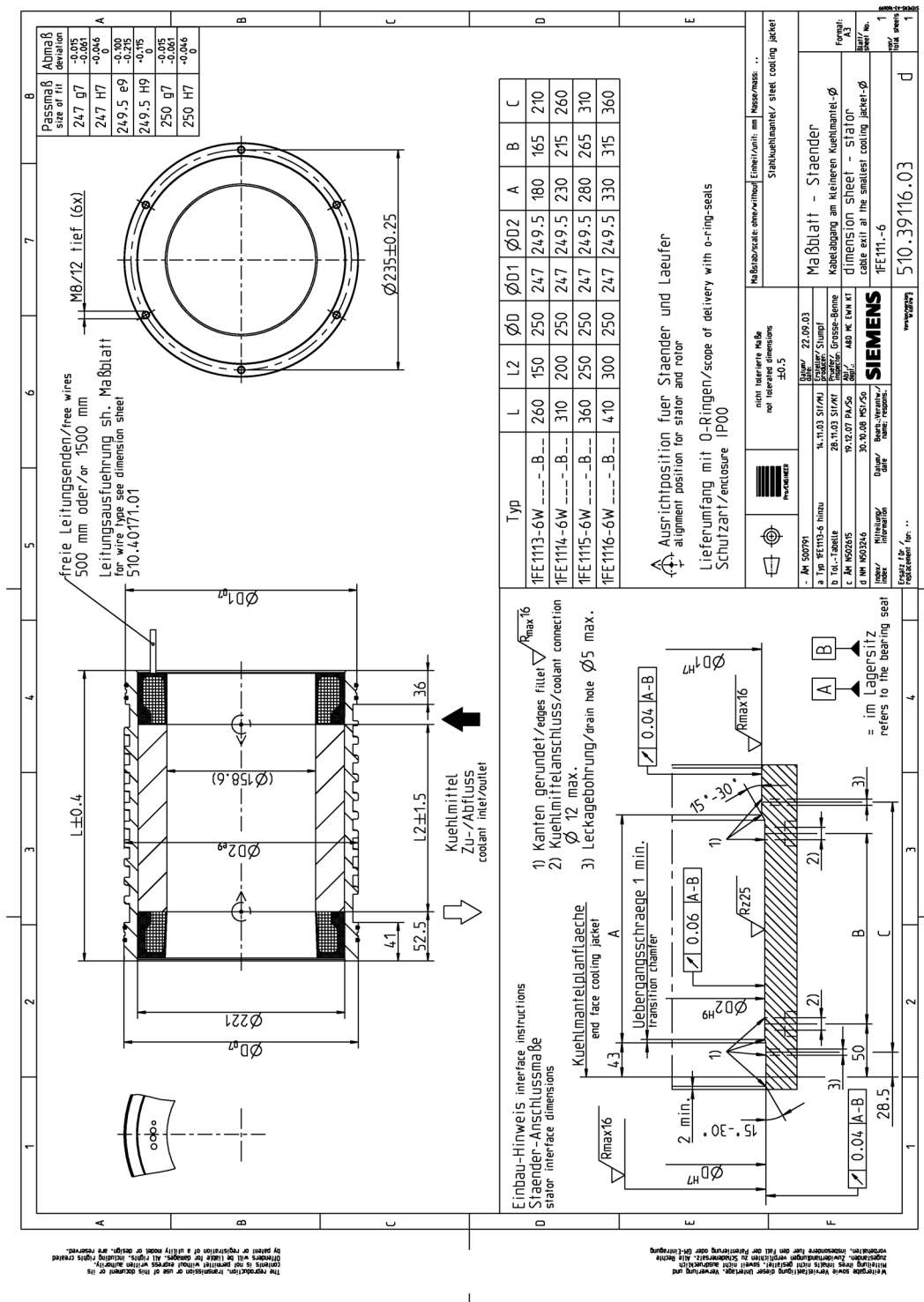


Figure 3-25 1FE111-6, stator with cooling jacket, cable outlet at the smaller cooling jacket diameter

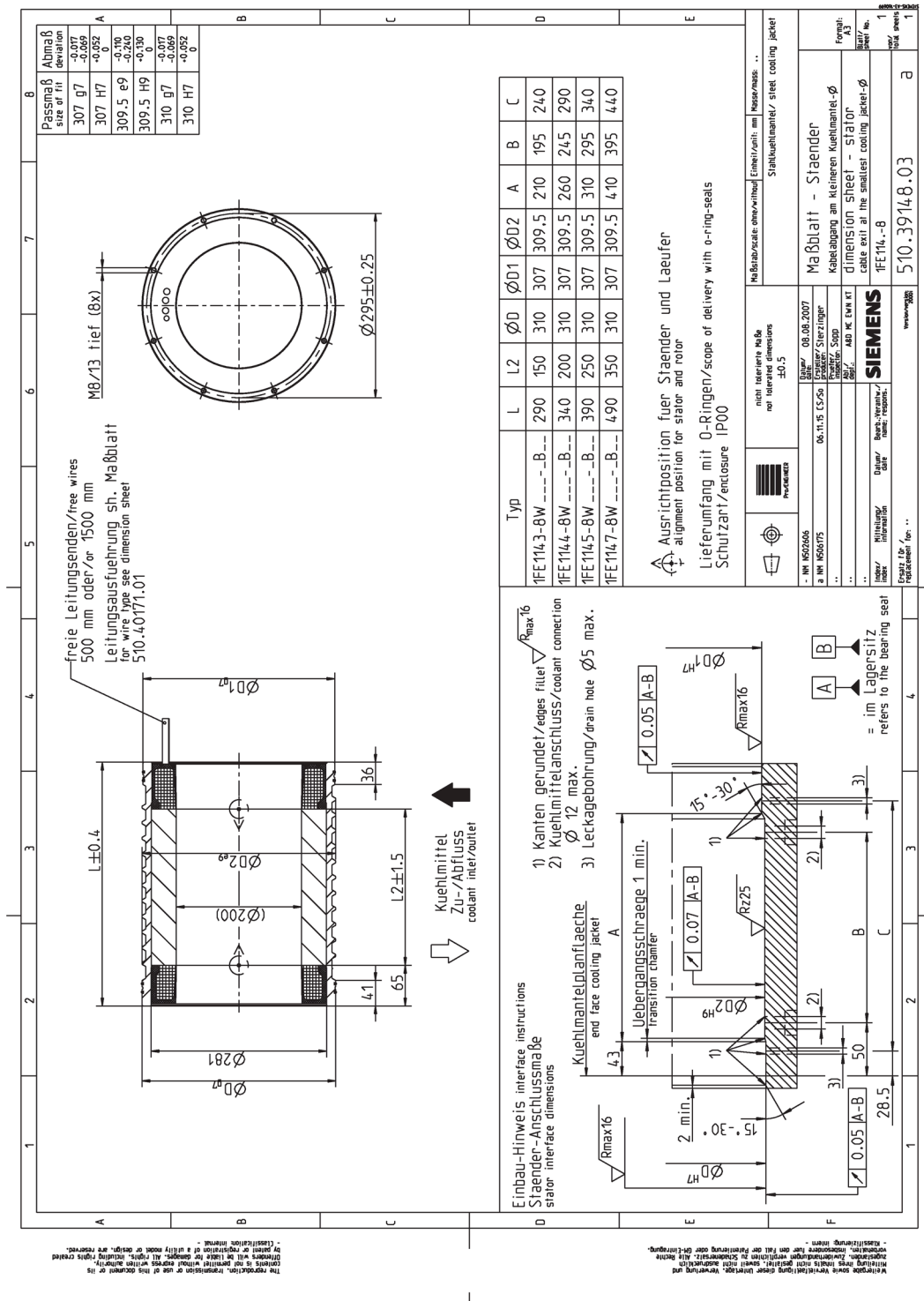


Figure 3-29 1FE114-8, stator with cooling jacket, cable outlet at the smaller cooling jacket diameter

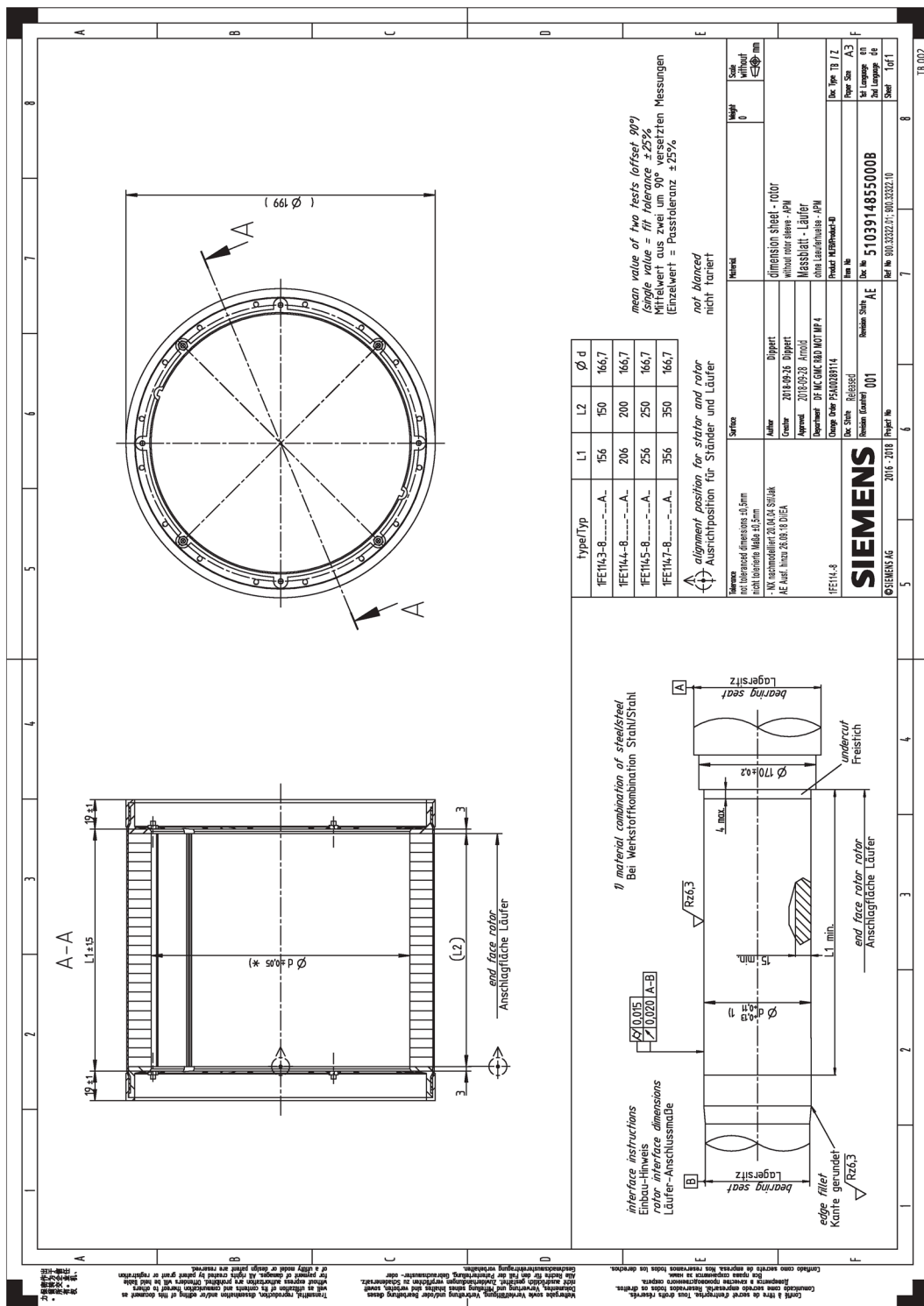


Figure 3-30 1FE114-8, rotor without sleeve

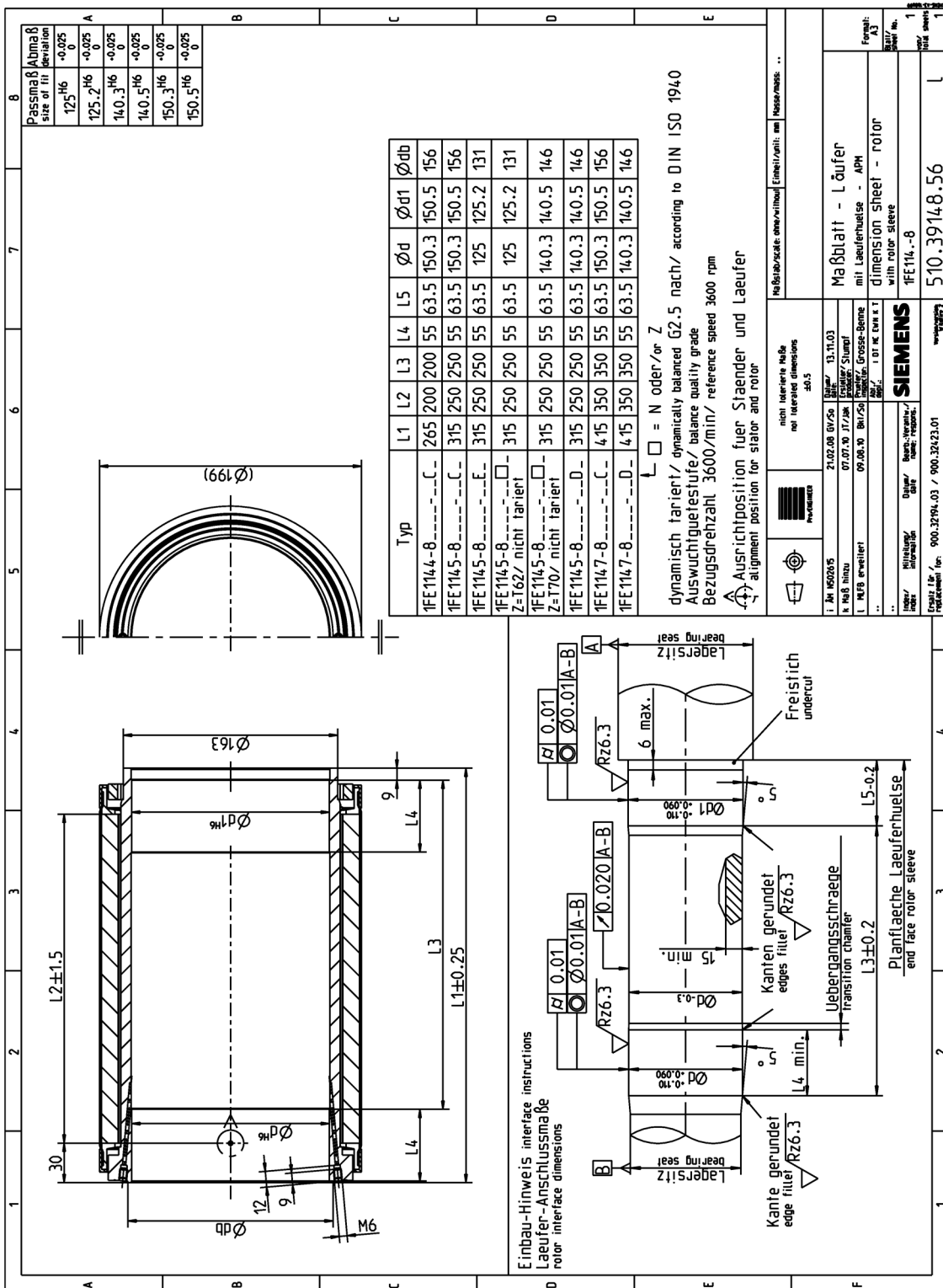


Figure 3-31 1FE114□-8, rotor with sleeve

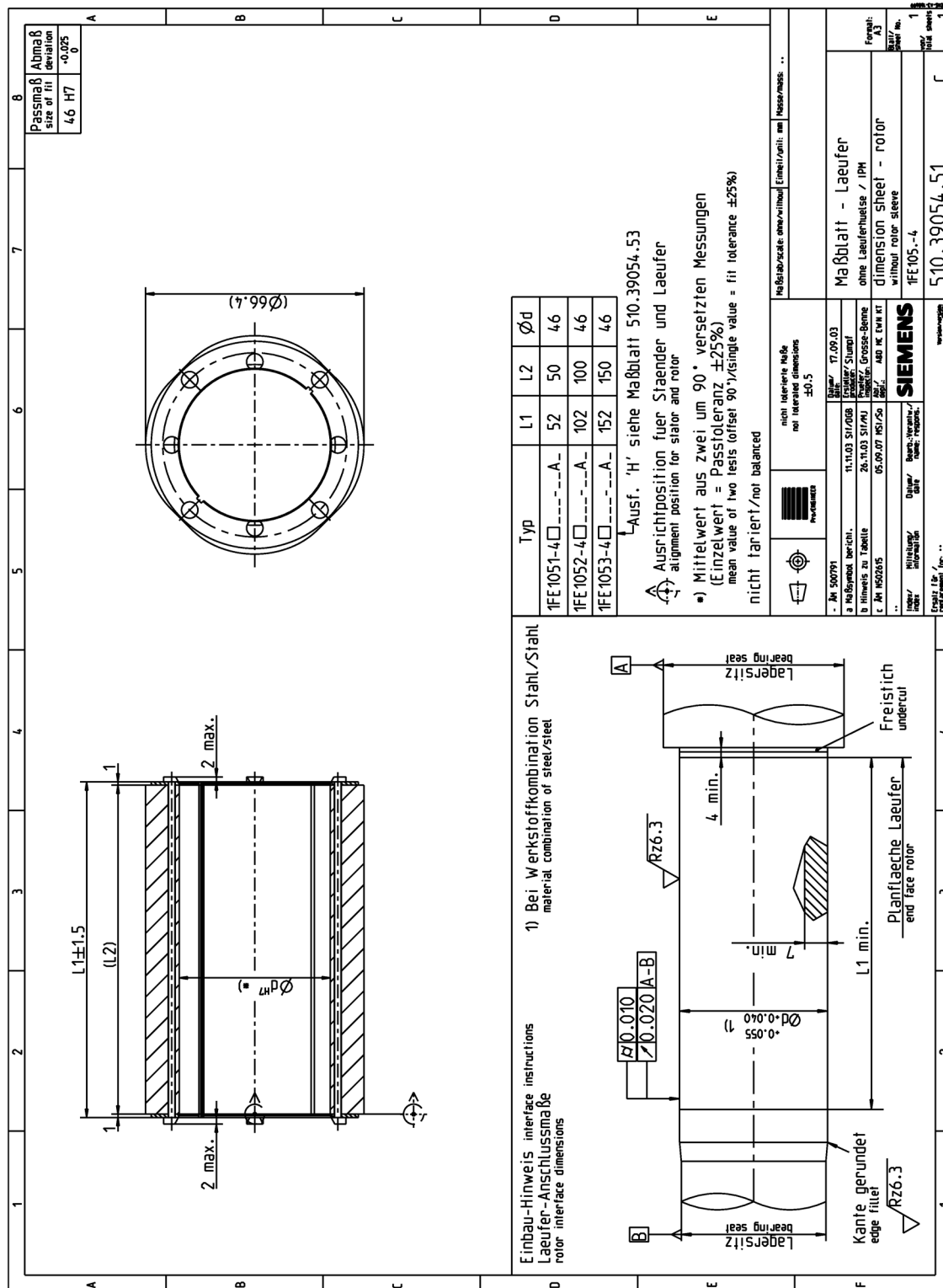


Figure 3-34 1FE105□-4, rotor without sleeve

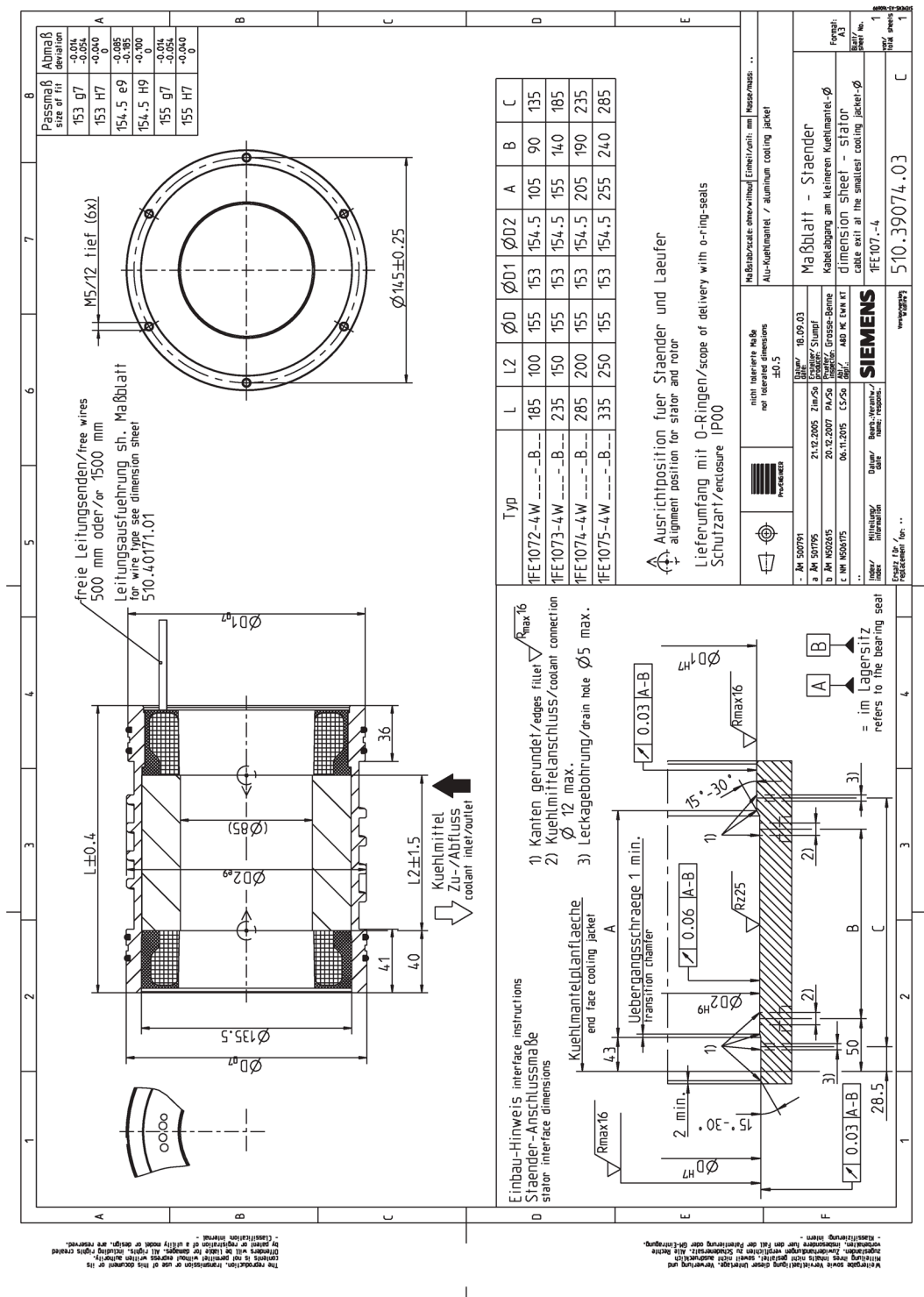


Figure 3-38 1FE107-4, stator with cooling jacket, cable outlet at the smaller cooling jacket diameter

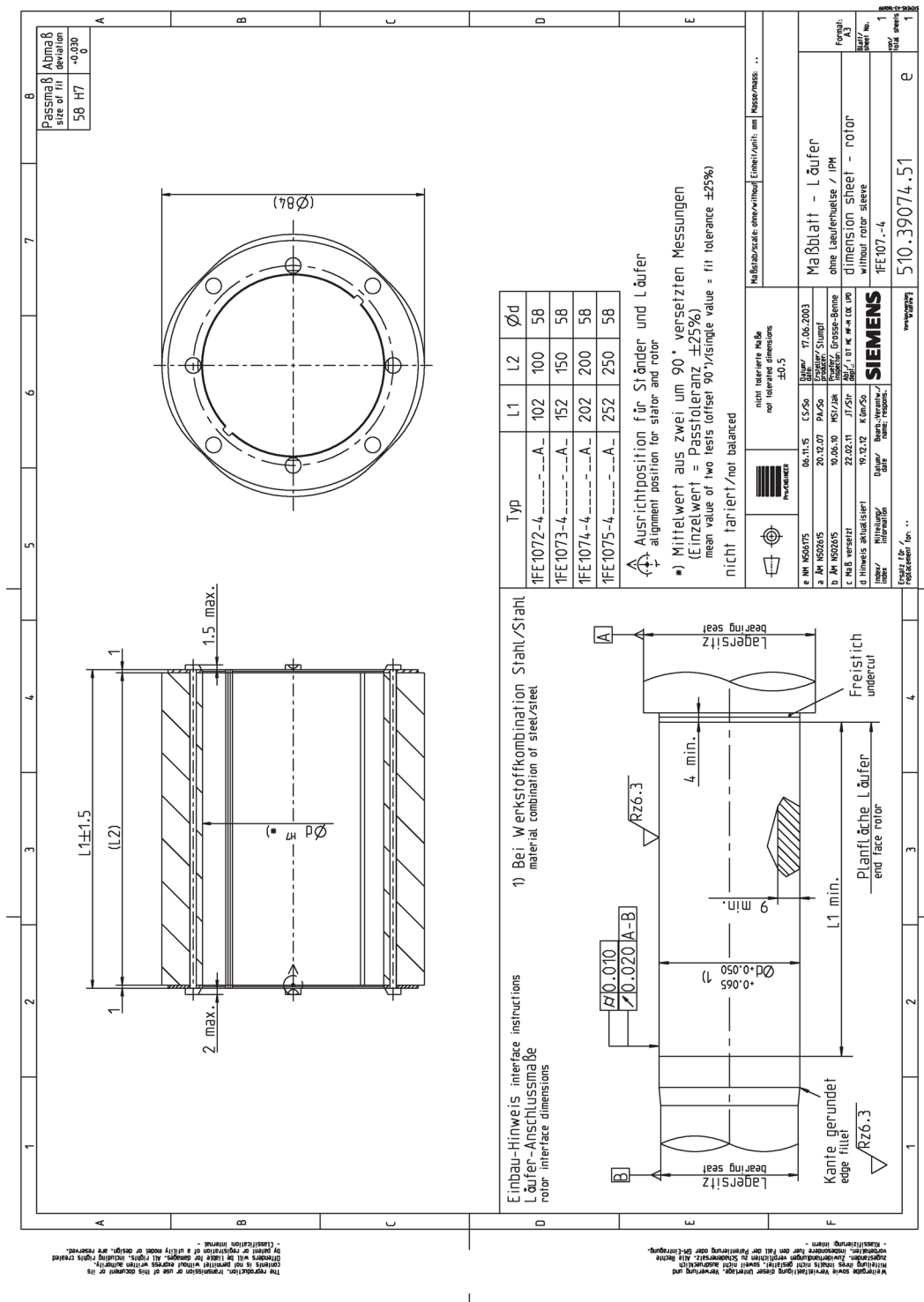


Figure 3-39 1FE107-4, rotor without sleeve

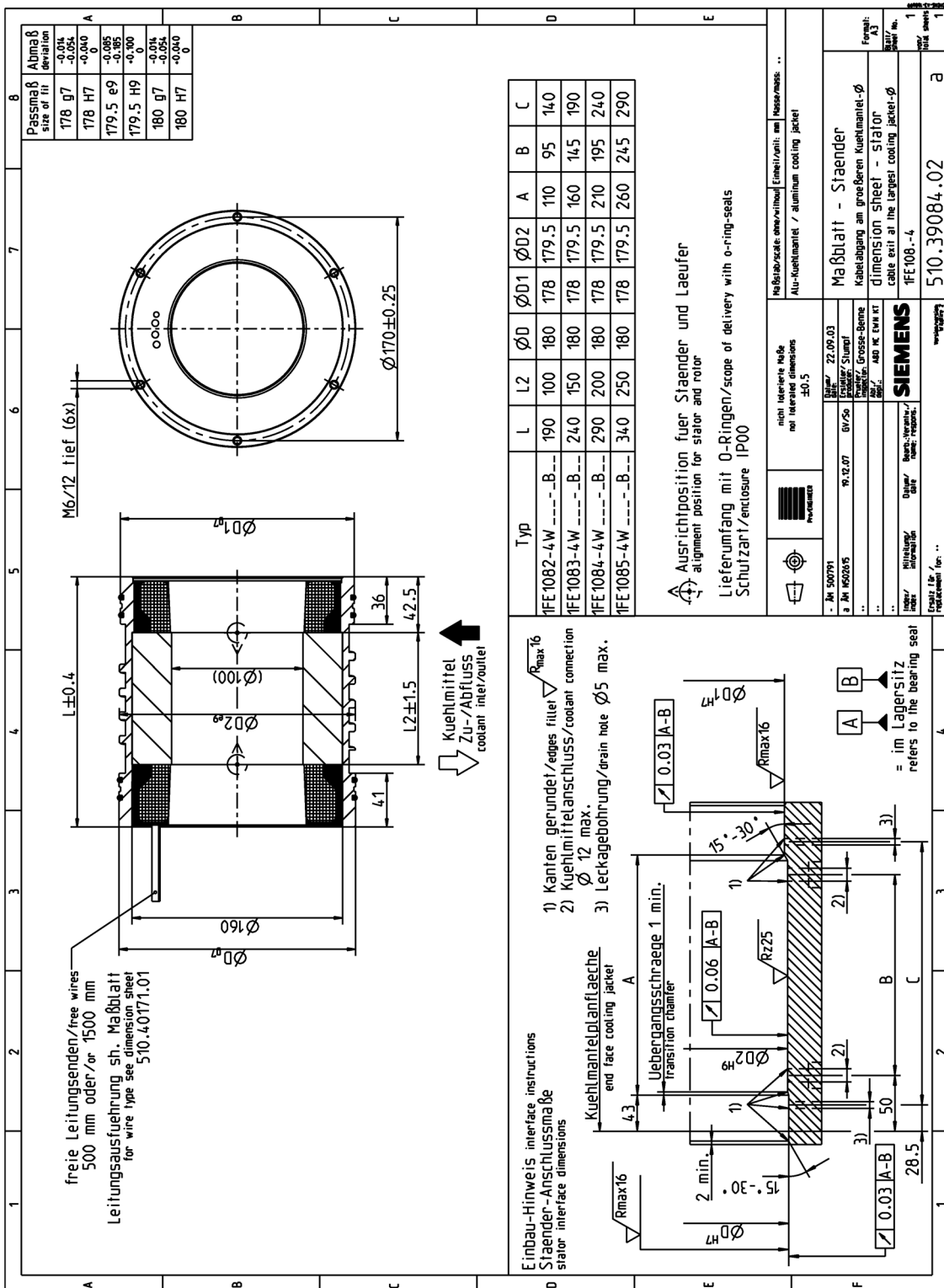
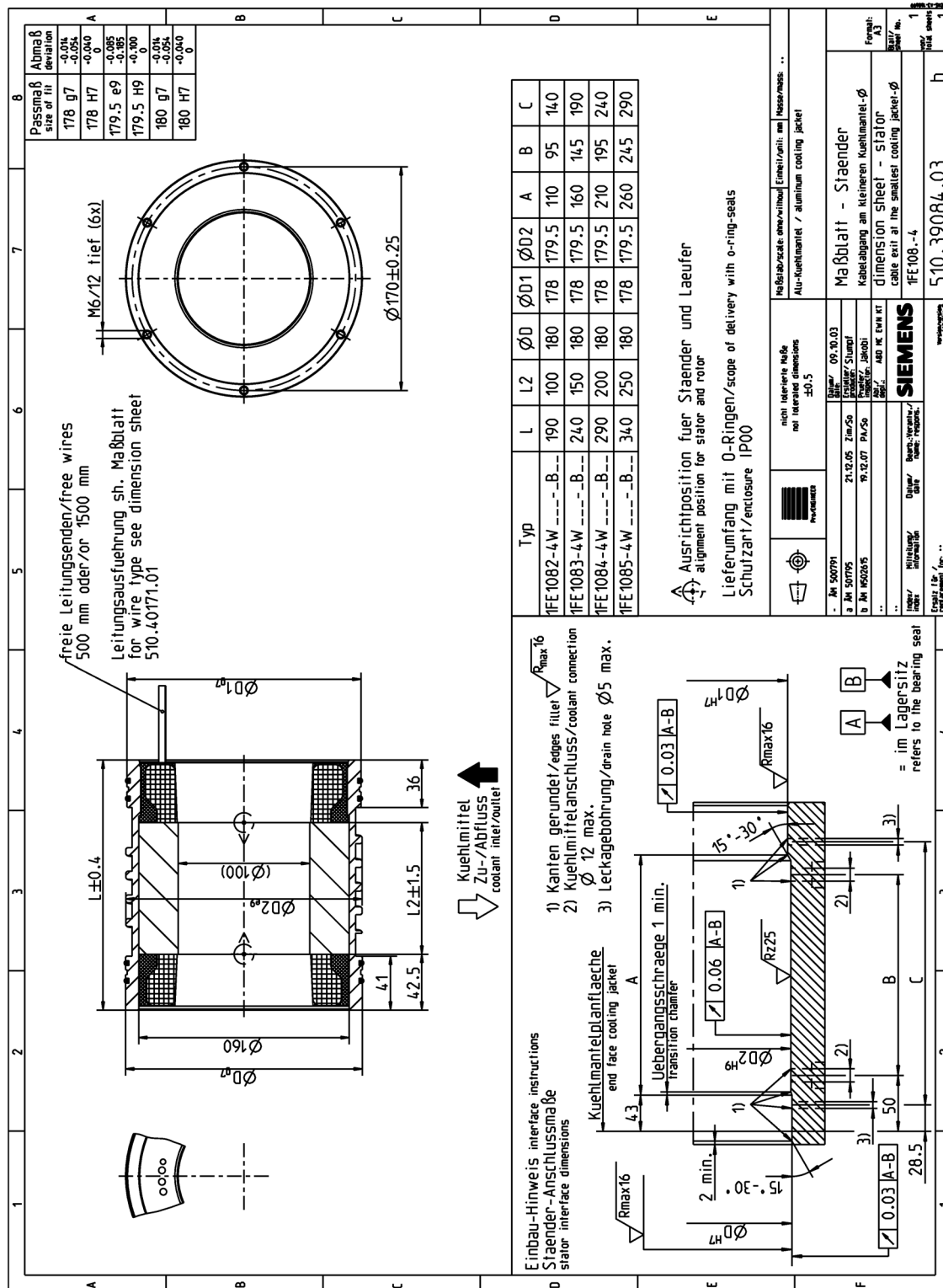


Figure 3-41 1FE108-4, stator with cooling jacket, cable outlet at the larger cooling jacket diameter



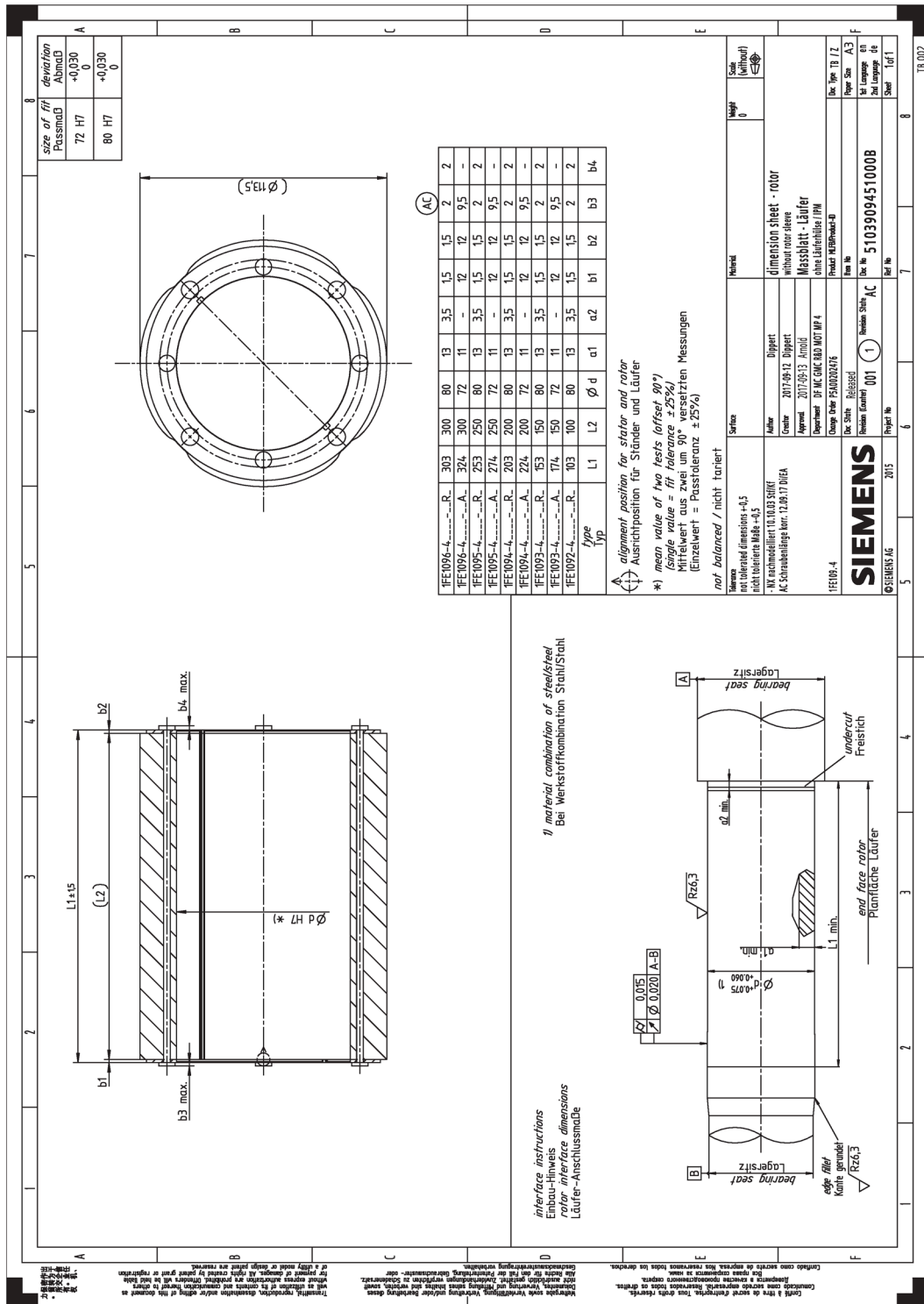


Figure 3-48 1FE109-4, rotor without sleeve

3.12 1FE110.-4

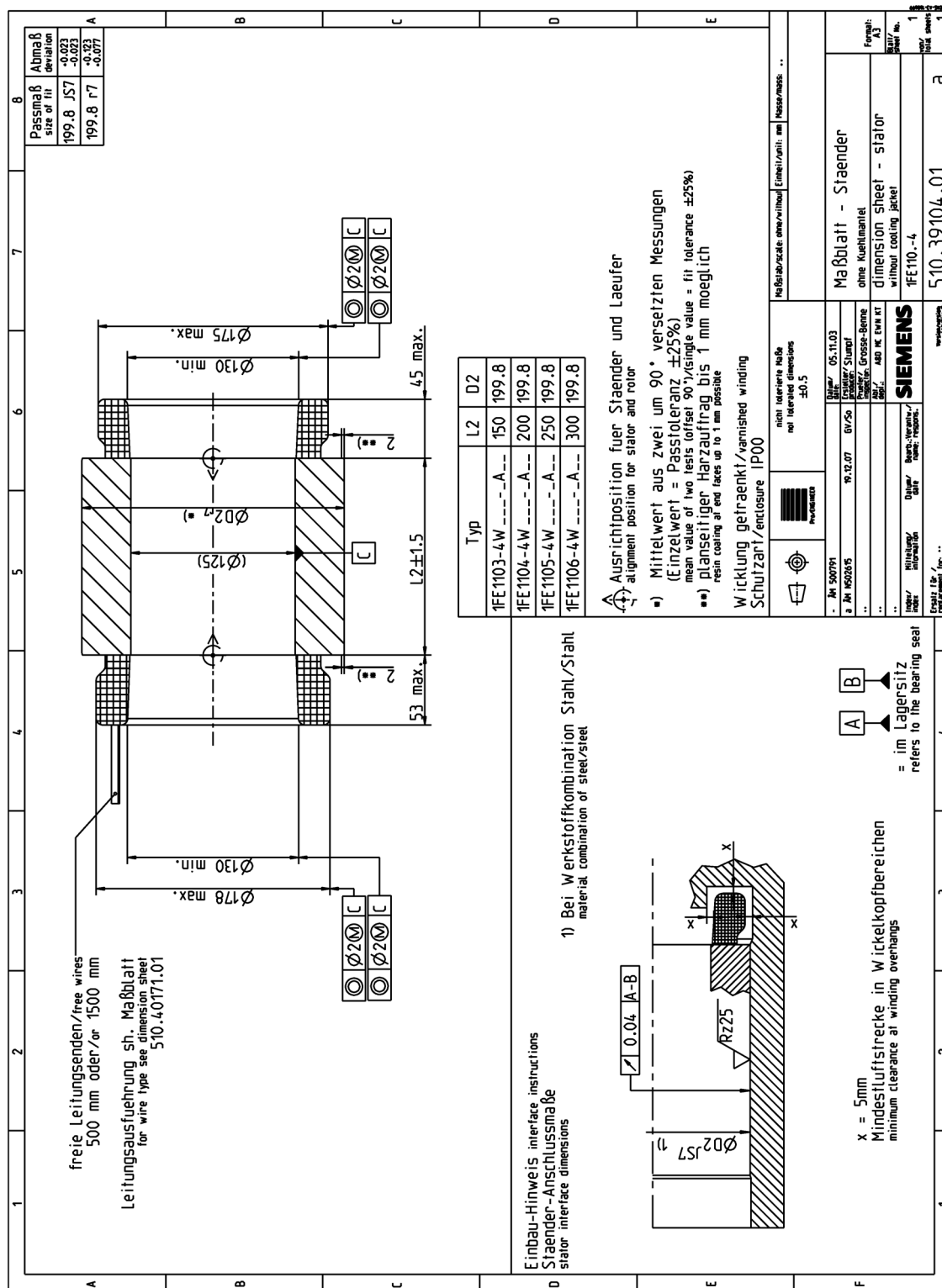


Figure 3-50 1FE110□-4, stator without cooling jacket

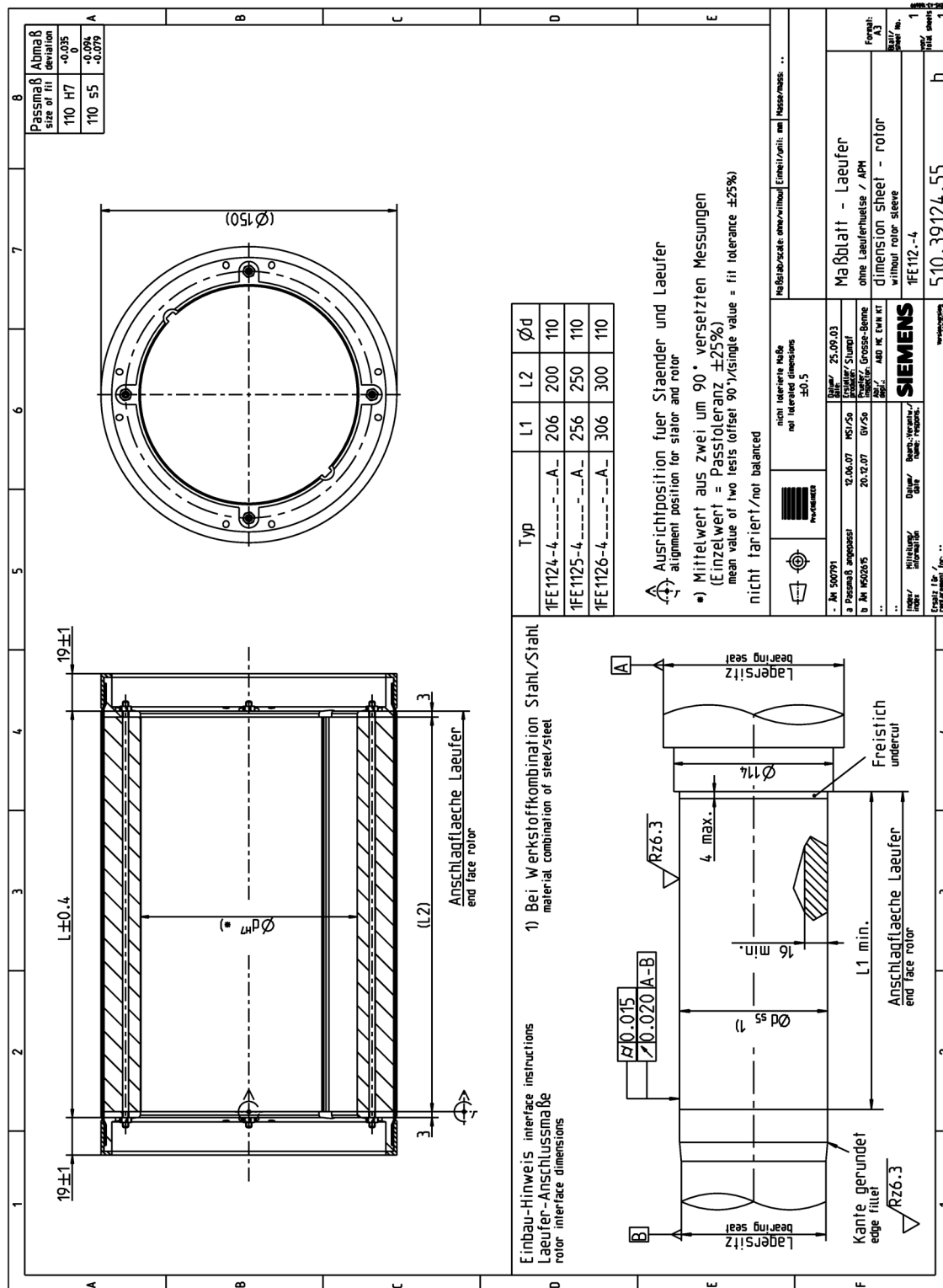


Figure 3-54 1FE112□-4, rotor without sleeve

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Dimensions of built-in motors, 9

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