

10. Technical data 2AD180

10.1 Nominal data

Name	Symbol	Unit	2AD180		
			C	D	
Motor size			C	D	
Windings ID letters			BS	AS	BS
Nominal power ¹⁾	P_n	kW	52	49	63
Nominal torque ¹⁾	M_n	Nm	331	425	401
Motor nominal speed	n	min ⁻¹	1500	1100	1500
Maximum speed	n_{max}	min ⁻¹	6000		
Nominal current	I_n	A _{eff}	110		133
Nominal voltage	U_n	V _{eff}	351	322	365
Rotor moment of inertia ²⁾	J_M	kgm ²	0,373	0,45	
Thermal time constant	t_{th}	min	70	75	
Minimum conn. cross section EN 60204 section 1/02.86	A	mm ²	35		50
Average noise level at 1m (PWM=4kHz)	L_p	dB(A)	80±3		
Mass ³⁾	m	kg	310	402	
Ambient temperature		°C	0 ... 45		
Insulation classification DIN VDE 0530 section 1			F		
Vibration severity level ⁴⁾ DIN ISO 2373			R, S, S1		
¹⁾ Values determined per DIN VDE 0530 section 1 For the selection of an AC main spindle motor, curves are available for the specified nominal powers which take operating modes S1, S2 and S6 into consideration. ²⁾ Values without holding brakes ³⁾ Values without holding brakes, with blower ⁴⁾ For values see Fig. 2.7 "RMS vibration speed"					

Fig. 10.1: Nominal data 2AD180

Permissible shaft load

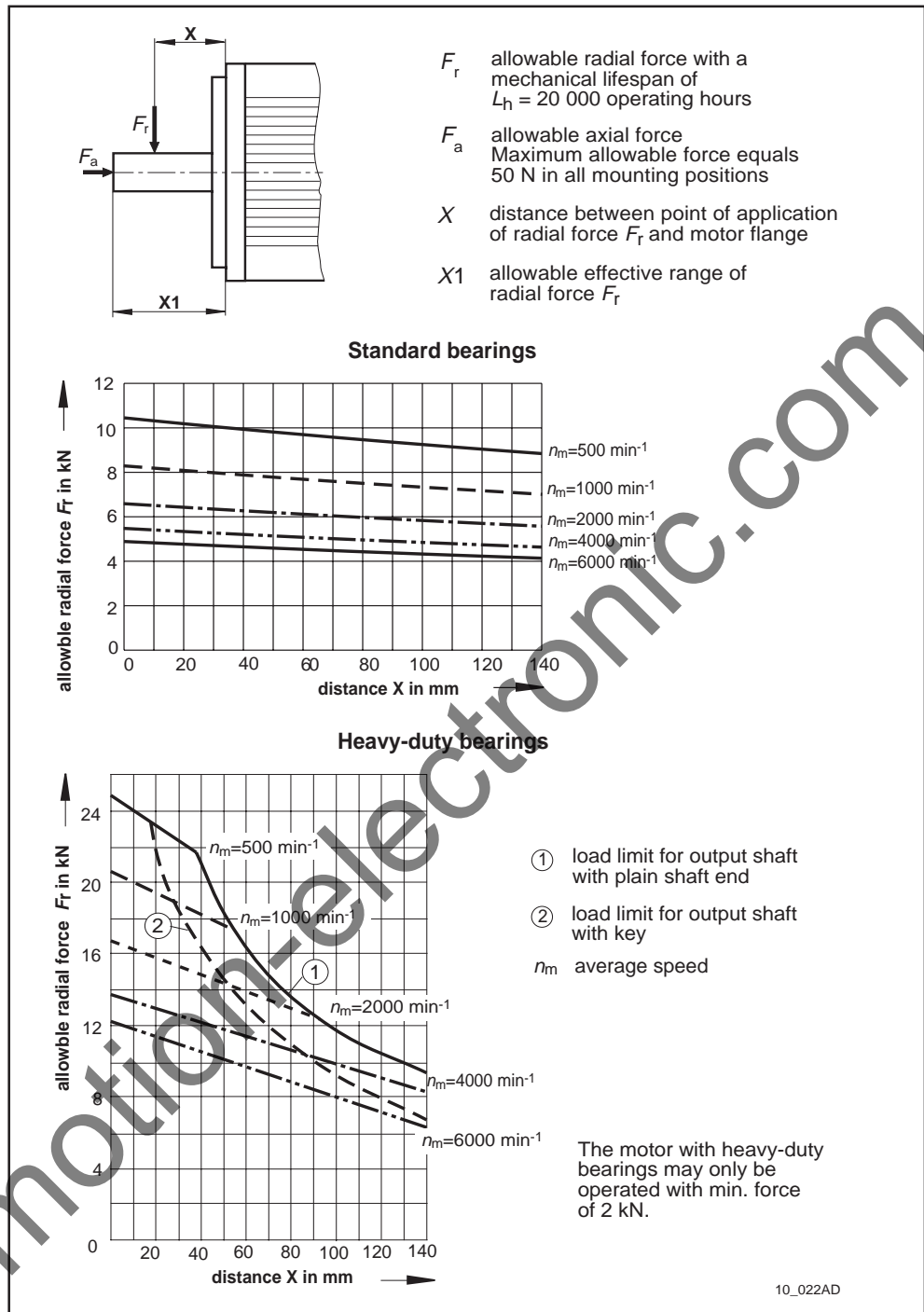


Fig. 10.2: Permissible shaft load 2AD180

Lubricant consumption

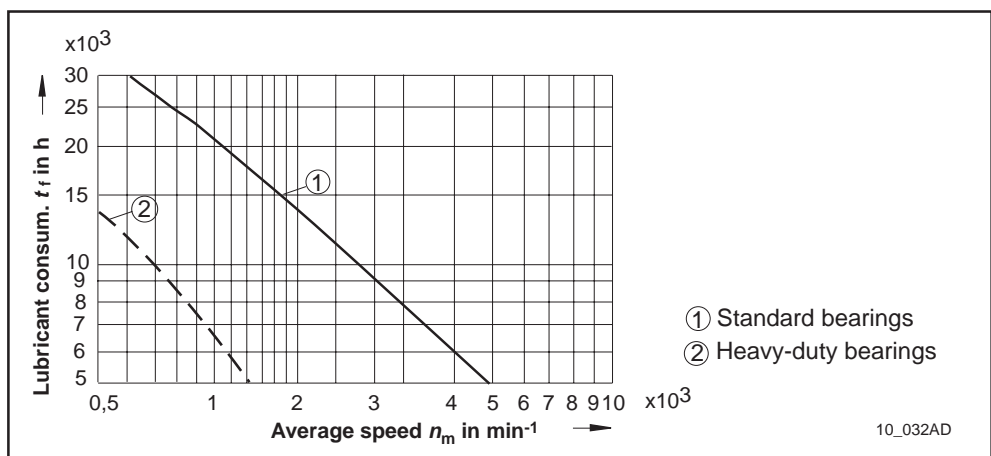


Fig. 10.3: Lubricant consumption 2AD180

10.2 Holding brake

(Only possible with motor length "C".)

Designation	Symbol	Unit	Design	
			electrical clamp	electrical release
Functional principle			electrical clamp	electrical release
Holding torque	M_h	Nm	300	200
Nominal conn. voltage	U_n	V	24±10%	
Nominal current	I_n	A	2	
Moment of inertia	J_B	kgm ²	0,0097	
Max. decel energy	W_{max}	Ws	70000Maximum	
Speed	n_{max}	min ⁻¹	6000 ¹⁾	
Release delay	t_l	ms	160	110
Clamp delay	t_k	ms	120	60
Mass	m	kg	11	
<p>1) With an electrically released holding brake, the peak speed of is determined by the maximum decel energy W_{max} of the holding brake. It is computed:</p> $n_{max} = \sqrt{\frac{2 W_{max}}{J_M + J_B + J_C} \cdot \frac{30}{3,14}}$ <p> J_M rotor moment of inertia J_B moment of inertia of holding brake J_L moment of inertia of load reduced (attachment mounted to output shaft) </p>				

Fig. 10.4: Technical data of holding brake on 2AD180

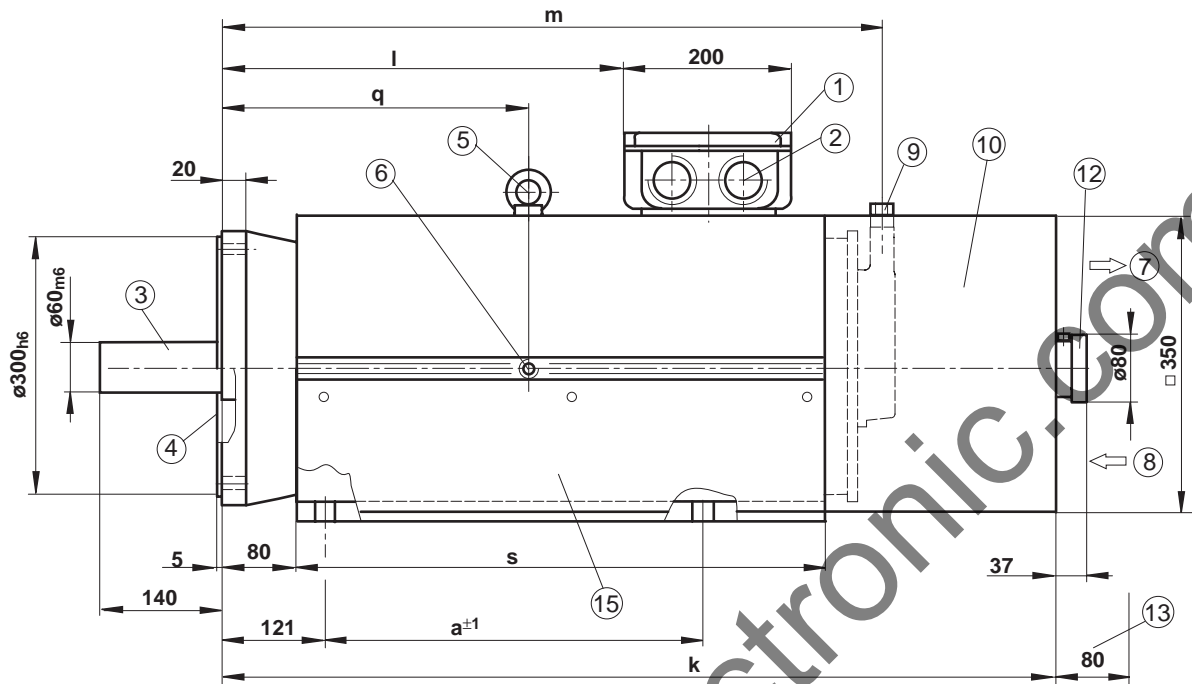
10.3 Motor blower

Designation	Symbol	Unit	Design		
			axial blower		radial blower
Air current			B → A blowing (recommended)	A → B suction	A → B suction
Power consumption	S_N	VA	220		330
Nominal voltage	U_N	V	3 x AC, 400V 50/60Hz 3 x AC, 460V 60Hz		
Average air volume	V	m ³ /h	1950		

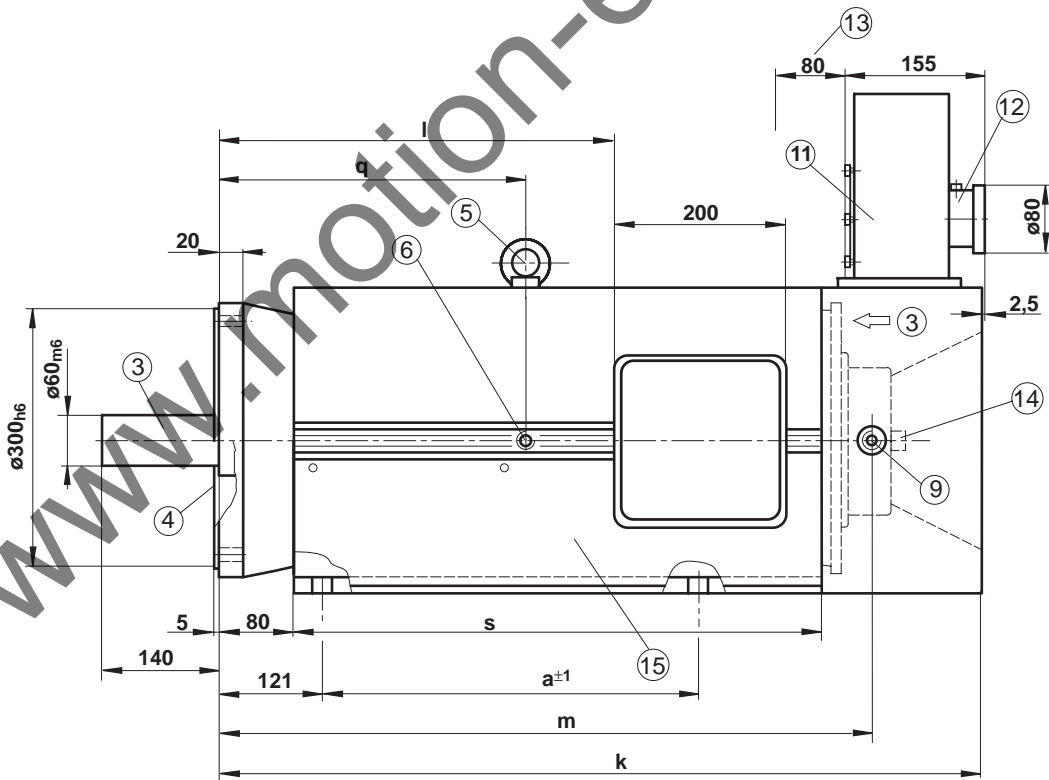
Fig. 10.5: Technical data of motor blower on 2AD180

10.4 Dimensions

Motor with Axial blower and feedback types 3, B35



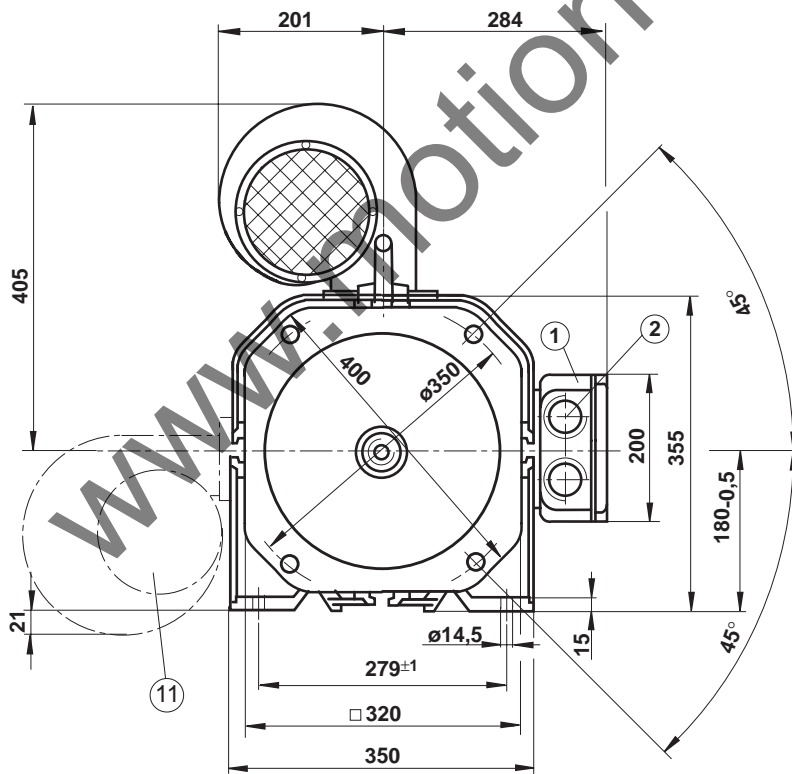
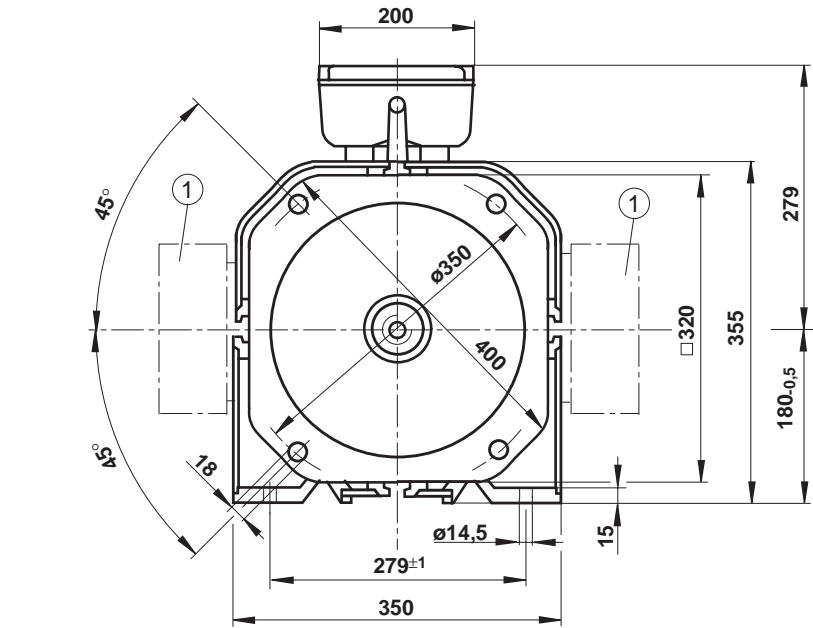
Motor with radial blower and feedback type 3, B35



Tolerances

Dim. upto	6	30	120	400	1000	2000
Tolerance	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2

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Dim.:	2AD180C	2AD180D
a	430	540
k	w/o holding brake	944
	with holding brake heavy-duty brake	1054
l	464	574
m	w/o holding brake	743,5
	with holding brake heavy-duty brake	853,5
q	360	415
s	w/o holding brake	599
	with holding brake heavy-duty brake	709

- ① power connection: arrangement selectable, can be turned by 90° in terms of output direction of power connection
- ② cable output: PG 42
- ③ plain shaft end concentricity tolerance DIN 42955 -R; center drill hole on front DIN 332 DS M20x42
- ④ flange dimensions per DIN42948
- ⑤ ring screws M20 - DIN 580
- ⑥ add. threads M20 for ring screws; second thread opposite
- ⑦ air flow A → B
- ⑧ air flow B → A
- ⑨ Motor feedback conn. type 3 (flanged socket), allocation per position of power connection
- ⑩ Axial blower
- ⑪ Radial blower arrangement selectable; pos. if radial blower may not be same as that of power connection.
- ⑫ Motor blower connection terminal box with cable threaded joint
- ⑬ Mounting distance (min. clearance for taking in air for cooling).
- ⑭ B-side shaft end dimensions, see Fig. 10.8
- ⑮ Air baffle

Dim.:	2AD180C	2AD180D
a	430	540
k	w/o holding brake	889
	with holding brake heavy-duty brake	999
l	464	574
m	w/o holding brake	743,5
	with holding brake heavy-duty brake	853,5
q	360	415
s	w/o holding brake	599
	with holding brake heavy-duty brake	709

Available designs, see Fig. 10.12 - Type codes

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Fig. 10.6: Dimensions for 2AD180

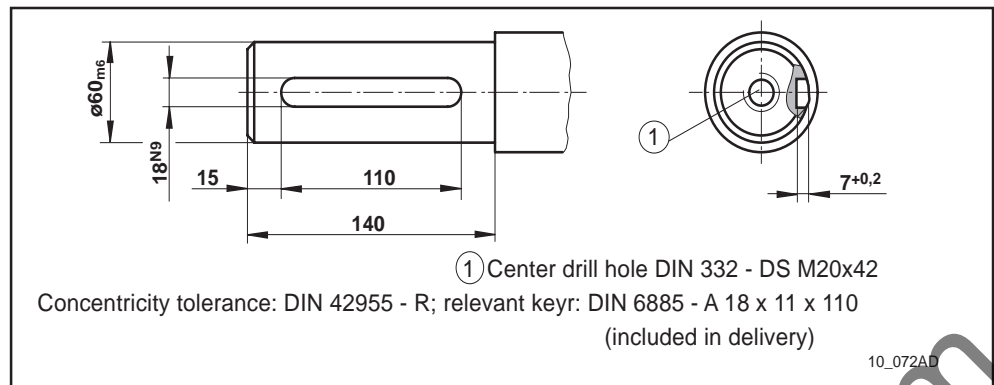


Fig. 10.7: Output shaft with key 2AD180

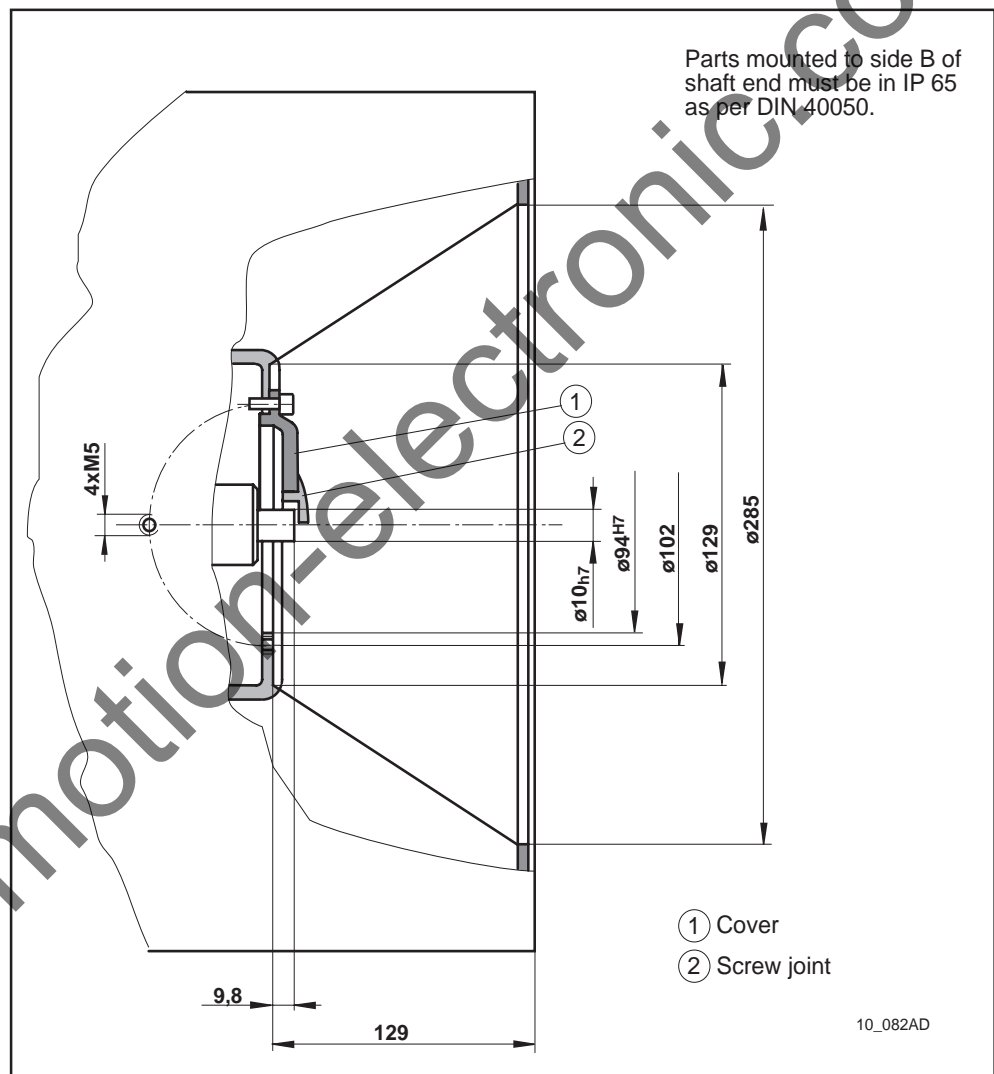


Fig. 10.8: B-side shaft end 2AD180

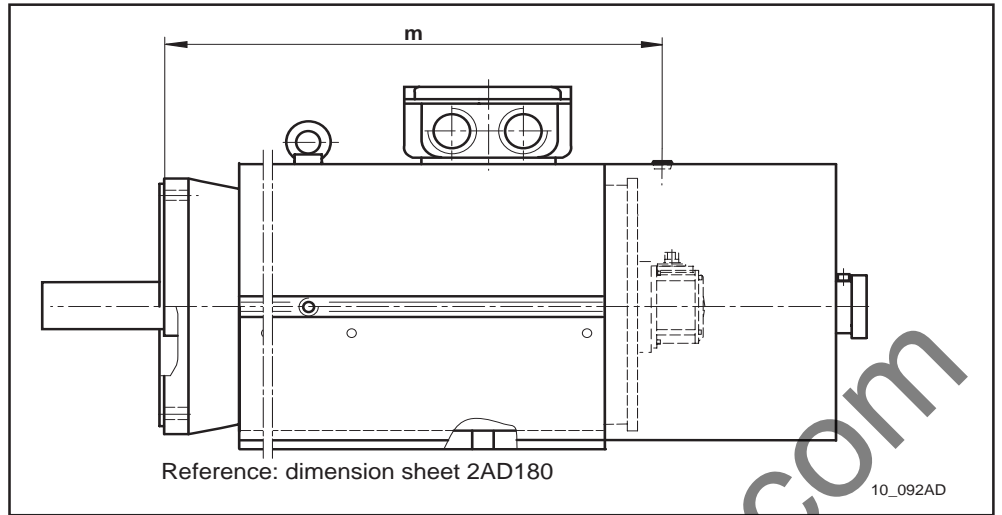


Fig. 10.9.: 2AD180 with feedback types 6, 7

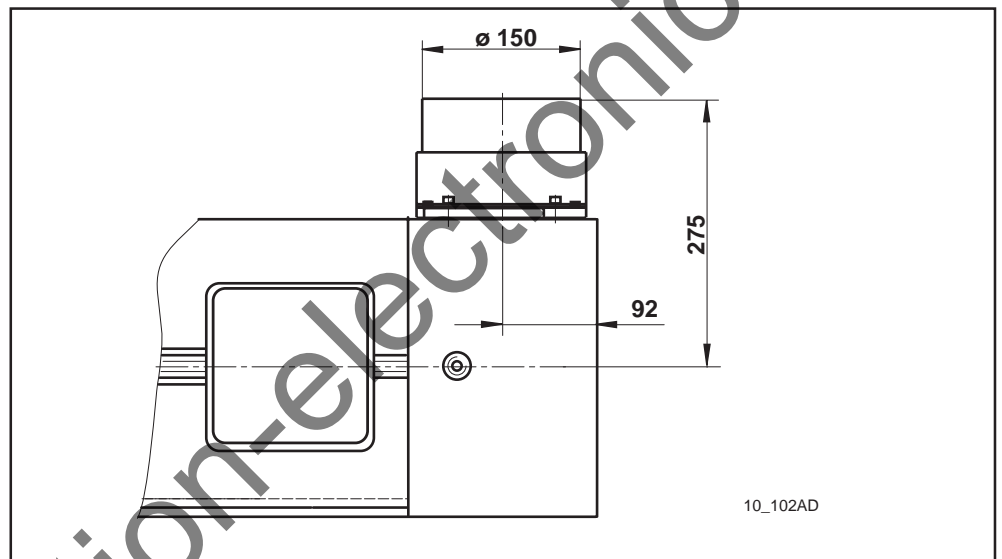


Fig. 10.10.: 2AD180 with mounted accessories - M01 2AD180 (blower base)

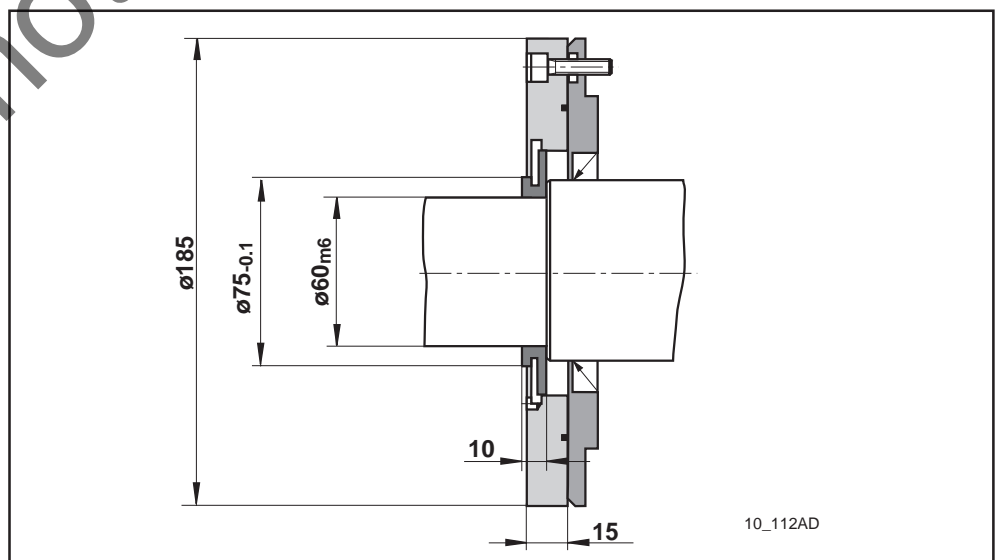


Fig. 10.11: 2AD180 with mounted accessories - M02 2AD180 (labyrinth seal)

10.5 Type codes

Type codes:	Example:	2AD180C-B35OB1-BS03-A2N1
1. Name:	2AD	
2. Motor size:	180	
3. Motor length:	C, D	
4. Construction: Flange and foot mounting	B35	
5. Position of power connection: top left right	O L R	
6. Output direction of power connection: to side A, terminal box to side B, terminal box to the right, terminal box to the left, terminal box	A B R L	
7. Cooling mode: Axial blower (Air current B --> A) Axial blower (Air current A --> B) radial blower (Air current B --> A), Blower top ** radial blower (Air current B --> A), Blower right ** radial blower (Air current B --> A), Blower bottom ** radial blower (Air current B --> A), Blower left **	1 2 3 6 7 8	
8. Windings designation: 2AD180C 2AD180D	BS BS	
9. Holding brake****): without electrical clamp electrical release, heavy-duty	0 1 3	
10. Motor feedback: high-resolution motor feedback digital servo feedback digital servo feedback with integral multiturn absolute encoder	3 6 7	
11. Output shaft:		
	plain shaft	with key with whole key balanced with half key balanced
without shaft sealing ring	A	B E
with shaft sealing ring	C	D H
12. B-side shaft end: without with (for mounted encoder, incremental/absolute) ***	2 3	
13. bearings: Standard heavy-duty	N V	
14. Vibration severity level: R S S1 ****)	1 2 3	

*) looking towards motor shaft, direction per power connection
 **) blower position may not be the same as that of the power connection
 ***) only available with radial blower and motor feedback "3";
 ****) not available with heavy-duty bearings
 *****) only available with motor length C

Quellverweis: INN 41.01 section 18-0, Aug. 1

Fig. 10.12: Type codes 2AD180