Technical specifications

LOHER CHEMSTAR and VARIO 1PS1 motor series, type of protection "Non-sparking"

The LOHER CHEMSTAR and VARIO motors of the 1PS1 series are fully-enclosed, surface-cooled motors in the "Non-sparking" type of protection Ex nA II. In these motors, the type of construction prevents the occurrence of arcing, sparks or hot surfaces during normal operation, ensuring that the required level of safety is maintained. The CHEMSTAR motors can be designed in accordance with the applicable VIK specifications ("Verband der Industriellen Energie- und Kraftwirtschaft e. V.", the Association of the Industrial Energy and Power Industry).

The motors are assigned to device group II – category 3G (corresponding to Zone 2) and are approved and optimized for use in hazardous areas of Zone 2 in accordance with EN 60079-0 and EN 60079-15. The motors are marked according to EN 60079-15 with II 3G Ex nA IIC Gc for use in Zone 2.

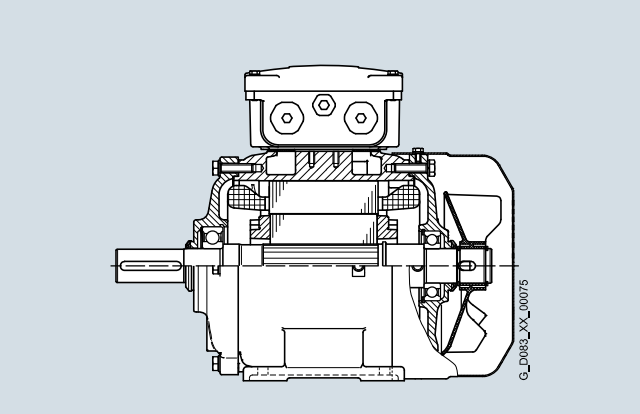
General technical specifications

LOHER CHEMSTAR and VARIO 1PS1 motors	
Motor type	*A..K*
Frame size	90 … 500
Outputs	0.25 … 1120 kW
Temperature class	T3
Type of protection	II 3G Ex nA IIC Gc IEC/EN 60079-15
Ex Zones	Gas Zone 2 optional, Dust Zone 22/21
Guidelines	94/9/EC (ATEX 95)
Cooling	Surface-cooled, water-jacket-cooled on request
No. of poles	2 … 12-pole, multi-pole + pole-changing versions on request
Voltage/frequency	All common voltages, and in 50 Hz and 60 Hz special designs on request
Degree of protection	IP55 to IP68
Type of construction	All common types of construction + special types of construction
Housing	Cast-iron or steel
Insulation	Class F utilized according to B
Special versions	
• For outdoor temperatures -55 to +60 °C (other temperatures on request)	
• Site altitude up to 3000 m (> 3000 m on request)	
• Modified windings, for example, for increased ambient temperatures, site altitude for optimum electrical values	
• Permanent load S1 as well as partial load operation, e.g. S2/S3/S6	
• Drive-end located bearing; special bearing for increased axial/radial forces	
• Large electrical variance, such as reduced starting current, modified torque curve, star-delta start-up, etc.	
• CHEMSTAR: copper rotor as an option	
• Metal fan in aluminum, steel or brass	
• Monitoring devices such as Pt100, PTC, KTY winding/bearing, vibration monitoring, etc.	
• Country-specific certificates such as EAC (Eurasian Customs Union), NEPSI (China), China Energy Label, CCOE (India), IECEX (international)	
• Version for offshore, on-deck and/or marine classifications	
• Combination with brakes + encoder + forced ventilation	
• Enlarged connection system and/or larger terminal box for large cable cross-sections	

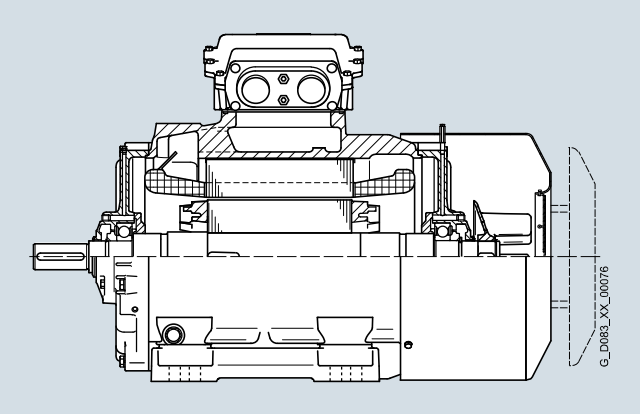
2

Technical specifications (continued)

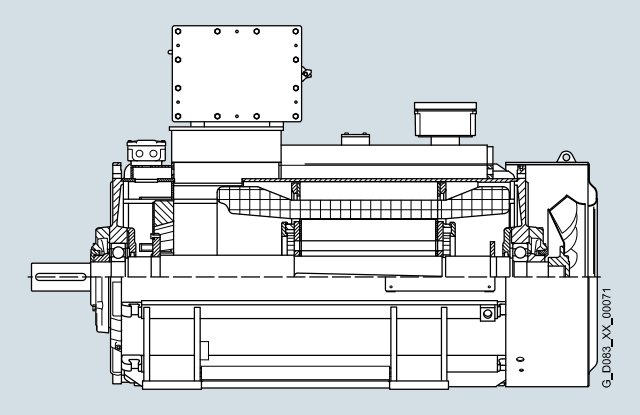
Mechanical design



Sectional view of CHEMSTAR 1PS1 three-phase motor,
frame sizes 90 to 200 LB
Example: 1PS1131-0BD0.-0AA3 *(motor type: ANGK-132SR-02)*
7.5 kW, 2-pole



Sectional view of CHEMSTAR 1PS1 three-phase motor,
frame sizes 225 to 355
with regreasing device (frame size 315 and above)
Example: 1PS1316-0BD0.-0AA3 *(motor type: ANGK-315LL-02)*
200 kW, 2-pole



Sectional view of VARIO three-phase motor, frame sizes 355 to 500,
with regreasing device
Example: 1PS1357-0BH0.-0AA2 *(motor type: ANSK-355LC-02)*
355 kW, 2-pole

Housing, ventilation

Housing and fan for motors of the LOHER CHEMSTAR and VARIO 1PS1 series

Frame size	Housing			Bearing plates	Fan cover	Fan [2]
	Material	Design of housing feet [1]	Surface	Material	Material	Material
LOHER CHEMSTAR						
90 … 160	Cast-iron	Cast	With cooling fins	Cast-iron	Sheet steel	Plastic
180 ... 280		Screwed on				
315						Aluminum
355		Cast				Steel
LOHER VARIO						
355 … 450	Steel	Welded	With cooling fins	Cast-iron	Sheet steel	Steel
500 [3]				Steel, bearing hub in cast-iron		

[1] For designs with feet only.

[2] For specific operating conditions, the external fans can be constructed in aluminum for frame sizes 71 to 225 and in sheet steel for frame sizes 250 to 315. This applies in the case of increased coolant temperature in particular. The cooling air flow from NDE to DE must not be obstructed. The intake area in front of the fan cover must not be obstructed.

[3] Suitable for both directions of rotation, but LOHER VARIO 2- and 4-pole are only suitable for one direction of rotation.

Technical specifications (continued)

Terminal boxes

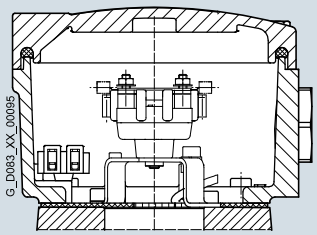
The installed terminal boxes are also marked and certified as "Non-sparking". Ex nA terminal boxes of the CHEMSTAR and VARIO series are identical in construction to the Ex e "Increased safety" connection system. In accordance with the current, harmonized edition, EN 60079-0 Edition 2009, the gas for the type of protection Ex test must be specified in the case of type of protection "Non-sparking". The CHEMSTAR and VARIO series are generally certified for the highest class as per "IIC". They are marked in accordance with the EC directive (94/9/EC) with II 3G Ex nA IIC T3 Gc. Compliance with the regulations is documented here with an EC Declaration of Conformity.

The terminal boxes comply with type of protection "Increased safety" Ex e II. The housings are made of cast-iron and designed to IP55 degree of protection in accordance with EN 60034-5. The terminals are therefore protected from touch, dust deposits and water jets from any direction.

The position of the terminal box and cable entries can be obtained from the tables below. Terminal boxes can be rotated by 90° which allows the incoming supply cable to be fed in from different sides.

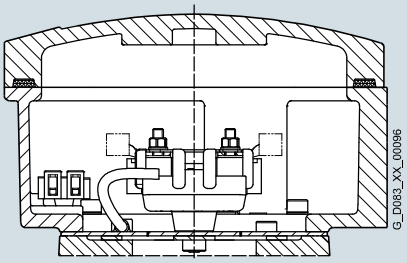
Monitoring devices or anti-condensation heaters are connected via auxiliary terminals in the terminal box. In frame size 132 and above, the auxiliary terminals can be installed in an auxiliary terminal box that is mounted on the side of the terminal box corresponding to the type of protection of the motor. The design of the terminal boxes can be seen in the schematic diagrams. The number and size of the main and auxiliary terminals as well as their characteristic data can be obtained from the tables below.

Figure 1 Terminal box for LOHER CHEMSTAR frame sizes 90 to 112



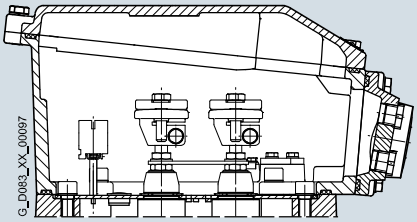
No auxiliary terminal boxes Ex e (**W72, M52**) are possible.

Figure 2 Terminal box for LOHER CHEMSTAR frame sizes 132 to 225



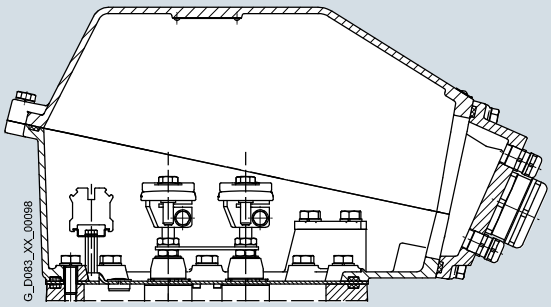
Frame sizes 132 to 160, 1 auxiliary terminal box Ex e (**W72, M52**) is possible, frame sizes 180 to 225, 2 auxiliary terminal boxes Ex e (**W72, M52**) are possible.

Figure 3 Terminal box for LOHER CHEMSTAR frame sizes 250 to 280



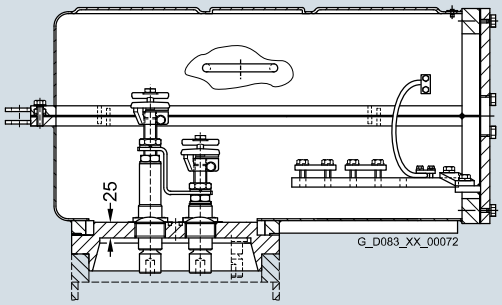
3 auxiliary terminal boxes Ex e (**W72, M52**) are possible.

Figure 4 Terminal box for LOHER CHEMSTAR frame sizes 315 to 355



3 auxiliary terminal boxes Ex e (**W72, M52**) are possible.

Figure 5 Terminal box for LOHER VARIO frame sizes 355 to 500



With the VARIO connection system, the auxiliary terminal boxes (max. 3) are mounted on the housing.

For motors of type series 1PS1 CHEMSTAR and VARIO, the terminal pins are fitted with round terminals in accordance with DIN 46223.

2

Technical specifications (continued)

Terminal box for 1PS1 motors

Degree of protection: IP55
Type of protection: Ex e II, acc. to EN 60079-7
Housing material: Cast-iron

Frame size	Standard terminal box							Enlarged terminal box – Option **L00**			
	Terminal studs	Conductor cross-section min.	Conductor cross-section max.	Auxiliary terminals in main terminal box Number × max. cross-section [1]	PE/ground connection max.		Fig. No. on Page 2/79	Terminal studs	Conductor cross-section min.	Conductor cross-section max.	Fig. No. on Page 2/79
		mm^2	mm^2	mm^2	mm^2				mm^2	mm^2	
LOHER CHEMSTAR											
90	6 × M4	1	2.5 (6) [2]	4 × 2.5	4	6 [2]	**Fig. 1**	6 × M5	1	10 (25) [2]	**Fig. 2**
100											
112											
132	6 × M5	1	10 (25) [2]		25		**Fig. 2**	6 × M6	2.5	35 (50) [2]	**Fig. 2**
160											
180	6 × M6	2.5	35 (50) [2]	12 × 4	70		**Fig. 2**	6 × M10	6	70	**Fig. 3**
200											
225											
250	6 × M10	6 … 70			95		**Fig. 3**	6 × M12	16	150	**Fig. 4**
280											
315 S/M	6 × M12	16 … 150		16 × 4	150		**Fig. 4**	6 × M16	16	300	**Fig. 4**
315 L	6 × M16/M20 [3]	16 … 300						Special connection system on request			
LOHER VARIO											
355 … 500							**Fig. 5**				

Number and size of entry thread and cable glands (to be ordered specially), see table "Cable glands for 1PS1 motors".

Cable glands for 1PS1 motors

Frame size	Standard cable glands [4] Entry thread [6]	Cable diameter, type HSK-K [7] mm	Max. entry thread [5] Metric	NPT [8]
LOHER CHEMSTAR				
90	1 × M25 × 1.5	9 … 16	1 × M25 × 1.5	1 × 1"
100	1 × M32 × 1.5	13 … 20	1 × M32 × 1.5	2 × 1"
112	2 × M32 × 1.5		2 × M32 × 1.5	
132			2 × M40 × 1.5	2 × $1^1/_2$"
160	2 × M40 × 1.5	22 … 32		
180			2 × M63 × 1.5	2 × 2"
200	2 × M50 × 1.5	32 … 38		
225				
250	2 × M63 × 1.5	37 … 44		
280				
315 S/M			2 × M100 × 1.5	2 × $3^1/_2$"
315 L				
355				
LOHER VARIO				
355 … 500	[9]	[9]	[9]	[9]

Entry thread for PTC thermistor, heating: M20 × 1.5/D = 6 up to 12 mm

The entry threads are sealed on delivery with certified plugs.
The terminal boxes will only be supplied with cable glands in accordance with the table if specially ordered.
Special cable glands can be fitted on request.

1) Rated voltage / max. working voltage 400 V/440 V
2) Maximum conductor cross-section with cable lug.
3) Alternatively, larger studs for higher rated current.
4) Materials used for standard gland: polyamide
5) Other threads, number and size on request.
6) Number and size of entry threads according to DIN 42925.
7) Cable glands suitable for the infeed of unshielded/non-reinforced cables and leads.
8) Cable glands for NPT thread on request.
9) Undrilled gland plate.

Technical specifications (continued)

Electrical design

The outputs and electrical values listed in the selection tables can be changed by modifying the configurations. For example, if a copper cage rotor is used in place of a die-cast aluminum rotor, an even higher degree of efficiency can be achieved.

The insulation system of this motor series is suitable for line voltages up to 1000 V. The connection system (terminal boxes, terminals) is designed for rated voltages up to 1000 V, including frame size 355 for CHEMSTAR motors.

The motors are equipped with 6 terminals. They can be operated in star or delta. The standard connection for all 400 V motors is delta connection. They are therefore suitable for 400 VΔ/690 VY and for Y-Δ starting at 400 V. The 500 V motors are available both for 500 VY and for 500 VΔ, provided that one of the two variants is not preferred for winding reasons.

Motors of the 1PS1 series are wound in accordance with temperature class F (155 °C). Normally, they are only utilized according to Class B (130 °C). Exceptions are indicated in the selection and ordering data. In accordance with EN 60034-1, in addition to the temperature class, the thermal utilization is also stamped on the rating plate if this value lies below that of the temperature class. The motors of this series are therefore stamped with "F – B", and those indicated are stamped with "F".

Operation on a frequency converter

General use of "Overcoat" double-layer enameled wires and optimized impregnation techniques ensures that most motors in this series can be converter-fed without modification of the electrical design. The standard requires that the motor manufacturer conducts an initial type test using the original converter. Converter-fed motors of the 1PS1 series are fitted with PTC thermistors (CHEMSTAR) or Pt100 (VARIO). These temperature sensors in combination with a trip unit certified by the German Federal Testing Laboratory perform sole temperature monitoring in the case of converter-fed operation. Motor circuit breakers can be dispensed with. PTC thermistors with a rated shutdown temperature of 145 °C ("KL145") are normally used. Other PTC thermistors can also be installed in the motor, e.g. prewarning sensors.

Acceptance testing of explosion-proof motors of type of protection Ex nA II T

For dimensioning and for acceptance testing, with regard to the heat rise of all parts of the machine, the most unfavorable value is used. Motors of the 1PS1 series are certified for temperature class T3. None of the components, even those inside the housing (e.g. rotor cage winding), are permitted to exceed a temperature of 200 °C. The winding temperature is limited by the temperature class (e.g. "F": 145 °C). The reason for the above-mentioned initial test on the original converter is normally to establish compliance with the temperature limits for the motor with type of protection Ex nA II T.

Special cases "blocked shaft" and "starting":
Type of protection Ex nA II T excludes these two special cases. Limit temperatures are permitted here that do not take into account the temperature class. Even though "blocked shaft" and "starting" are excluded, a motor of the type of protection Ex nA II T is not permitted to be implemented for heavy starting. These motors are only permitted to be operated on soft-starting devices under the following conditions:

- The soft-starting device has been function-tested by the German Federal Testing Laboratory
- A motor circuit breaker must be provided as a minimum of protection
- The duty type does not give rise to expectations of a significant increase in temperature as a result of the starting procedure (e.g. pump drives with a low moment of inertia)

2

Selection and ordering data (continued)

P_{rated}, 50 Hz	Frame size	Operating values at rated output: n_{rated}, 50 Hz	T_{rated}, 50 Hz	IE class	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	cos φ rated, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	I_{rated}, 50 Hz, 500 V	I_{rated}, 50 Hz, 690 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	A	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411)																		
• Efficiency: High Efficiency IE2, 0.75 kW and above in accordance with IEC 60034-30																		
• Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 %																		
• Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																		
2-pole: 3000 rpm at 50 Hz																		
LOHER CHEMSTAR																		
1.5	**090 L**	2865	5.00	IE2	84.0	85.1	84.3	0.88	2.90	2.32	1.68	3.0	6.8	2.8	*ANGK-090LR-02*	**1PS1095-■BD■■-3AA3**	36	0.0020
2.2	**090 L**	2850	7.4	IE2	84.6	85.6	85.1	0.86	4.4	3.52	2.55	3.0	6.5	3.0	*ANGK-090LS-02*	**1PS1098-■BD■■-3AA3**	36	0.0020
3	**100 L**	2900	9.9	IE2	86.0	86.3	85.8	0.87	5.8	4.6	3.36	2.7	7.5	3.0	*ANGK-100LS-02*	**1PS1106-■BD■■-3AA3**	51	0.0041
4	**112 M**	2890	13.2	IE2	86.5	86.8	86.8	0.93	7.2	5.8	4.2	2.7	7.0	3.1	*ANGK-112MS-02*	**1PS1113-■BD■■-3AA3**	66	0.0075
5.5	**132 S**	2910	18.0	IE2	88.5	89.9	89.2	0.90	10.0	8.0	5.8	2.6	6.7	3.1	*ANGK-132SR-02*	**1PS1131-■BD■■-3AA3**	83	0.014
7.5	**132 S**	2915	24.6	IE2	89.5	90.1	89.5	0.91	13.3	10.6	7.7	2.7	6.8	3.0	*ANGK-132SS-02*	**1PS1132-■BD■■-3AA3**	95	0.020
11	**160 M**	2930	36	IE2	90.7	91.0	90.0	0.90	19.5	15.6	11.3	2.1	7.5	2.8	*ANGK-160MR-02*	**1PS1163-■BD■■-3AA3**	176	0.045
15	**160 M**	2925	48	IE2	91.3	92.1	91.9	0.89	26.5	21.5	15.4	2.1	7.0	2.8	*ANGK-160MS-02*	**1PS1165-■BD■■-3AA3**	176	0.092
18.5	**160 L**	2925	60	IE2	91.4	92.2	91.9	0.89	33.0	26.5	19.0	2.1	7.0	2.8	*ANGK-160LS-02*	**1PS1166-■BD■■-3AA3**	192	0.092
22	**180 M**	2960	71	IE2	92.5	93.0	92.8	0.90	38.0	30.5	22.0	2.2	6.8	2.9	*ANGK-180MS-02*	**1PS1183-■BD■■-3AA3**	246	0.16
30	**200 L**	2960	97	IE2	92.0	92.3	91.7	0.87	54.0	43.5	31.5	2.5	6.9	3.3	*ANGK-200LR-02*	**1PS1206-■BD■■-3AA3**	333	0.20
37	**200 L**	2960	119	IE2	92.5	92.8	92.3	0.88	66.0	52.0	38.0	2.7	7.4	3.5	*ANGK-200LS-02*	**1PS1208-■BD■■-3AA3**	349	0.23
45	**225 M**	2965	145	IE2	92.9	93.1	92.5	0.88	79.0	64.0	46.0	2.3	7.8	2.6	*ANGK-225MS-02*	**1PS1223-■BD■■-3AA3**	420	0.34
55	**250 M**	2975	177	IE2	93.8	93.9	93.2	0.86	98.0	79.0	57	2.1	8	2.9	*ANGK-250MM-02*	**1PS1253-■BD■■-3AA3**	540	0.45
75	**280 S**	2980	240	IE2	94.4	93.9	92.4	0.89	129	103	75	2.1	7.3	3.0	*ANGK-280SL-02*	**1PS1280-■BD■■-3AA3**	775	0.88
90	**280 M**	2980	288	IE2	94.4	94.1	92.6	0.90	153	122	89	2.0	6.3	2.5	*ANGK-280MM-02*	**1PS1283-■BD■■-3AA3**	830	1.03
110	**315 S**	2980	352	IE2	94.8	94.3	92.9	0.88	190	152	110	2.2	6.7	2.5	*ANGK-315SL-02*	**1PS1311-■BD■■-3AA3**	960	1.55
132	**315 M**	2980	423	IE2	95.1	95.0	94.2	0.89	225	180	130	2.0	6.3	2.4	*ANGK-315ML-02*	**1PS1313-■BD■■-3AA3**	1020	1.85
160	**315 M**	2980	513	IE2	95.6	95.6	95.0	0.89	270	215	157	2.3	6.8	2.6	*ANGK-315MN-02*	**1PS1315-■BD■■-3AA3**	1100	2.2
200	**315 L**	2980	641	IE2	95.8	95.8	95.2	0.89	340	270	196	2.6	7.3	2.7	*ANGK-315LL-02*	**1PS1316-■BD■■-3AA3**	1310	2.8
250	**315 L**	2985	800	IE2	95.8	96.1	95.8	0.90	420	335	245	2.6	7.3	2.7	*ANGK-315LN-02*	**1PS1318-■BD■■-3AA3**	1450	3.5
315	**355 L**	2985	1008	IE2	96.1	96.3	96.0	0.89	530	425	310	2.3	7	2.7	*ANGK-355LB-02*	**1PS1356-■BD■■-3AA3**	1580	4.7
LOHER VARIO																		
355	**355 L**	2983	1136	IE2	96.5	96.5	96.0	0.92	575	460	333	1.20	6.80	2.80	*ANSK-355LC-02*	**1PS1357-■BH■■-3AA0**	2100	3.6
400	**355 L**	2985	1279 [1]		96.7	96.7	96.1	0.91	655	525	380	1.40	7.90	3.20	*ANSK-355LD-02*	**1PS1358-■BH■■-3AA0**	2200	4.0
450	**355 L**	2978	1443 [1]		96.4	96.5	96.0	0.91	740	590	430	0.95	6.20	2.55	*ANSK-355LX-02*	**1PS1358-■BJ■■-3AA0**	2300	5.0
450	**400 L**	2984	1440 [1]		96.5	96.5	95.9	0.90	745	595	430	0.80	6.20	2.80	*ANSK-400LL-02*	**1PS1404-■BJ■■-3AA0**	2400	6.0
500	**400 L**	2982	1601 [1]		96.6	96.7	96.2	0.91	820	655	475	0.80	5.9	2.55	*ANSK-400LN-02*	**1PS1405-■BJ■■-3AA0**	2600	7.0
560	**400 L**	2983	1792 [1]		96.8	96.8	96.3	0.91	915	730	530	0.85	6.2	2.7	*ANSK-400LN-02*	**1PS1407-■BJ■■-3AA0**	2600	7.0
630	**400 L**	2984	2016 [1]		96.8	96.8	96.3	0.91	–	825	595	0.85	6.2	2.6	*ANSK-400LX-02*	**1PS1408-■BJ■■-3AA0**	2900	8.5
630	**450 L**	2986	2014 [1]		96.7	96.6	96.0	0.91	–	830	600	0.75	6.2	2.7	*ANSK-450LL-02*	**1PS1453-■BJ■■-3AA0**	3500	11.0
710	**450 L**	2986	2270 [1]		96.8	96.8	96.2	0.91	–	925	670	0.80	6.3	2.8	*ANSK-450LL-02*	**1PS1455-■BJ■■-3AA0**	3500	11.0
800	**450 L**	2986	2557 [1]		96.9	96.9	96.3	0.91	–	1050	760	0.80	6.3	2.8	*ANSK-450LN-02*	**1PS1457-■BJ■■-3AA0**	3700	13.0
900	**450 L**	2985	2879 [1]		97.0	97.0	96.5	0.91	–	1170	850	0.85	6.4	2.7	*ANSK-450LN-02*	**1PS1458-■BJ■■-3AA0**	3700	13.0
1000	**500 L**	2986	3198 [1]		96.6	96.5	95.6	0.90	–	–	960	0.85	6.4	2.8	*ANSK-500LL-02*	**1PS1507-■BJ■■-3AA0**	6300	24.0
1200	**500 L**	2990	3831 [1]		96.9	96.8	96.1	0.91	–	–	1135	0.75	6.6	2.8	*ANSK-500LN-02*	**1PS1508-■BJ■■-3AA0**	6300	35.0

Operating modes	Frame size		Order code
Mains-fed operation	90 ... 450 (≤ 800 kW)	**0**	**–**
Converter-fed operation, standard insulation [2]	90 ... 400	**1**	–
Converter-fed operation with special insulation (derating approx. 5 %) [2]	160 ... 500	**2**	**–**
Mains-fed operation, pre-formed coil	450 (> 800 kW)... 500	**3**	**–**
Converter-fed operation, pre-formed coil	450 ... 500	**4**	**–**

Voltages	Frame size		Order code
690 VΔ, 50 Hz	355 ... 500	**0**	**–**
230 V/400 V, 50 Hz	90 ... 112	**1**	–
500 VY, 50 Hz	90 ... 315	**3**	**–**
500 VΔ, 50 Hz	355 ... 450	**5**	–
400 V/690 V, 50 Hz	90 ... 400	**6**	**–**
690 VY, 50 Hz	90 ... 400	**8**	**–**
For other voltages see Page 2/91	90 ... 500	**9**	**...**

Types of construction	Frame size		Order code
IM B3	90 ... 500	**0**	**–**
IM B5	90 ... 315	**1**	–
IM B34	90 ... 112	**2**	**–**
IM B14	90 ... 112	**3**	**–**
IM V1/cover	90 ... 400	**4**	**–**
IM B35	90 ... 500	**6**	**–**
For other types of construction see from Page 1/28	90 ... 500	**9**	**...**

[1] Outside the IE code classification according to IEC 60034-30.

[2] Can only be ordered with additional identification code **-Z** and order code **M73**.

Selection and ordering data (continued)

P_{rated}, 50 Hz	Frame size	Operating values at rated output: n_{rated}, 50 Hz	T_{rated}, 50 Hz	IE class	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi$ rated, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	I_{rated}, 50 Hz, 500 V	I_{rated}, 50 Hz, 690 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	A	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411)																		
• Efficiency: High Efficiency IE2, 0.75 kW and above in accordance with IEC 60034-30																		
• Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 %																		
• Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																		
4-pole: 1500 rpm at 50 Hz																		
LOHER CHEMSTAR																		
1.1	**090 L**	1460	7.2	IE2	86.4	87.2	86.3	0.85	2.15	1.72	1.25	1.9	6.8	2.8	*ANGK-090LR-04*	**1PS1095-■BD■■-3BA3**	34	0.0044
1.5	**090 L**	1455	9.8	IE2	86.1	86.5	85.2	0.81	3.10	2.48	1.80	1.9	6.7	2.8	*ANGK-090LS-04*	**1PS1098-■BD■■-3BA3**	37	0.0044
2.2	**100 L**	1455	14.4	IE2	87.1	87.8	86.8	0.83	4.4	3.52	2.55	1.7	6.4	2.4	*ANGK-100LR-04*	**1PS1106-■BD■■-3BA3**	53	0.0060
3	**100 L**	1455	19.7	IE2	86.0	86.3	84.7	0.80	6.3	5.0	3.65	2.0	6.3	2.6	*ANGK-100LS-04*	**1PS1108-■BD■■-3BA3**	55	0.0071
4	**112 M**	1460	26.2	IE2	88.8	89.4	88.8	0.84	7.8	6.2	4.5	1.9	6.8	2.5	*ANGK-112MS-04*	**1PS1113-■BD■■-3BA3**	66	0.0126
5.5	**132 S**	1455	36.1	IE2	89.0	89.7	89.2	0.85	10.5	8.4	6.1	2.6	7.6	2.7	*ANGK-132SR-04*	**1PS1131-■BD■■-3BA3**	93	0.030
7.5	**132 M**	1470	48.7	IE2	90.2	90.7	90.1	0.84	14.3	11.4	8.3	2.0	7.6	2.8	*ANGK-132MS-04*	**1PS1133-■BD■■-3BA3**	102	0.030
11	**160 M**	1460	71	IE2	90.5	91.4	91.6	0.81	21.7	16.7	12.1	2.1	6.8	2.6	*ANGK-160MR-04*	**1PS1163-■BD■■-3BA3**	176	0.077
15	**160 L**	1460	98	IE2	90.9	92.0	92.2	0.81	29.4	22.5	16.3	2.1	6.5	2.7	*ANGK-160LS-04*	**1PS1166-■BD■■-3BA3**	192	0.098
18.5	**180 M**	1470	120	IE2	92.3	92.8	92.4	0.83	34.9	27.5	20.0	3.3	7.6	3.0	*ANGK-180MR-04*	**1PS1183-■BD■■-3BA3**	246	0.16
22	**180 L**	1470	143	IE2	91.8	92.3	92.0	0.83	41.7	32.5	23.5	3.0	7.0	2.6	*ANGK-180LS-04*	**1PS1186-■BD■■-3BA3**	255	0.16
30	**200 L**	1470	195	IE2	92.3	93.2	93.4	0.83	56.5	45.0	33.0	1.5	6.0	2.5	*ANGK-200LS-04*	**1PS1206-■BD■■-3BA3**	333	0.27
37	**225 S**	1480	239	IE2	93.5	93.9	93.4	0.81	71.0	52.0	38.0	3.0	7.3	2.9	*ANGK-225SR-04*	**1PS1220-■BD■■-3BA3**	415	0.37
45	**225 M**	1475	291	IE2	93.5	93.9	93.4	0.81	71.0	65.0	47.5	3.0	7.3	2.9	*ANGK-225MS-04*	**1PS1223-■BD■■-3BA3**	445	0.37
55	**250 M**	1480	355	IE2	93.7	94.4	94.4	0.87	97.0	78.0	56.0	2.5	7.7	2.9	*ANGK-250MM-04*	**1PS1253-■BD■■-3BA3**	560	0.75
75	**280 S**	1480	484	IE2	94.4	94.8	95.0	0.84	137	109	79.0	2.4	7.0	2.6	*ANGK-280SL-04*	**1PS1280-■BD■■-3BA3**	820	1.3
90	**280 M**	1480	581	IE2	94.5	94.4	93.5	0.85	162	129	94.0	2.5	7.2	2.7	*ANGK-280MM-04*	**1PS1283-■BD■■-3BA3**	870	1.4
110	**315 S**	1485	707	IE2	94.6	94.6	93.5	0.82	205	164	119	2.0	6.6	2.5	*ANGK-315SL-04*	**1PS1311-■BD■■-3BA3**	960	2.2
132	**315 M**	1485	849	IE2	95.0	95.1	94.5	0.84	240	191	138	2.0	6.4	2.5	*ANGK-315ML-04*	**1PS1313-■BD■■-3BA3**	1040	2.9
160	**315 M**	1485	1029	IE2	95.1	95.3	95.0	0.85	285	230	166	2.1	6.9	2.5	*ANGK-315MN-04*	**1PS1315-■BD■■-3BA3**	1120	3.4
200	**315 L**	1488	1284	IE2	95.2	95.4	95.3	0.85	355	285	205	2.3	6.9	2.5	*ANGK-315LL-04*	**1PS1316-■BD■■-3BA3**	1340	3.9
250	**315 L**	1487	1605	IE2	95.2	95.4	95.2	0.83	455	365	265	2.6	7.5	2.6	*ANGK-315LM-04*	**1PS1317-■BD■■-3BA3**	1420	4.2
315	**355 L**	1488	2022	IE2	95.1	95.2	95.0	0.85	560	450	340	2.0	7.7	2.5	*ANGK-355LB-04*	**1PS1356-■BD■■-3BA2**	1730	6.8
315	**355 L**	1493	2015	IE2	96.3	96.3	96.0	0.85	560	445	320	1.3	7.7	2.6	*ANGK-355LB-04* [2]	**1PS1356-■BD■■-3BB2**	1730	6.8
LOHER VARIO																		
355	**355 L**	1491	2273	IE2	96.6	96.6	96.0	0.86	615	492	357	1.25	6.7	2.4	*ANSK-355LC-04*	**1PS1358-■BH■■-3BA0**	2300	7.7
400	**355 L**	1491	2561 [1]		96.7	96.7	96.1	0.86	690	552	400	1.25	6.7	2.4	*ANSK-355LD-04*	**1PS1350-■BH■■-3BA0**	2350	8.5
450	**355 L**	1491	2880 [1]		96.6	96.7	96.1	0.86	785	630	457	1.1	6.2	2.4	*ANSK-355LN-04*	**1PS1357-■BJ■■-3BA0**	2400	9.0
500	**355 L**	1492	3200 [1]		96.7	96.7	96.2	0.85	875	700	505	1.0	6.2	2.4	*ANSK-355LX-04*	**1PS1358-■BJ■■-3BA0**	2500	9.5
500	**400 L**	1492	3200 [1]		96.6	96.6	96.0	0.87	855	685	495	1.1	6.2	2.6	*ANSK-400LL-04*	**1PS1404-■BJ■■-3BA0**	2700	13
560	**400 L**	1492	3583 [1]		96.7	96.7	96.1	0.88	950	760	550	1.1	6.2	2.55	*ANSK-400LN-04*	**1PS1405-■BJ■■-3BA0**	2900	15
630	**400 L**	1492	4031 [1]		96.8	96.8	96.2	0.88	1070	855	620	1.1	6.3	2.6	*ANSK-400LN-04*	**1PS1407-■BJ■■-3BA0**	2900	15
710	**400 L**	1492	4544 [1]		96.9	96.9	96.4	0.88	1200	960	695	1.05	6.3	2.5	*ANSK-400LX-04*	**1PS1408-■BJ■■-3BA0**	3500	17
800	**450 L**	1493	5114 [1]		96.9	96.9	96.3	0.88	1355	1085	785	1.0	6.6	2.6	*ANSK-450LL-04*	**1PS1455-■BJ■■-3BA0**	3800	24.5
900	**450 L**	1493	5755 [1]		97.0	97.0	96.4	0.88	–	1215	880	1.05	6.6	2.5	*ANSK-450LN-04*	**1PS1457-■BJ■■-3BA0**	4300	29.0
950	**450 L**	1493	6076 [1]		97.0	97.0	96.5	0.88	–	1285	930	1.05	6.6	2.5	*ANSK-450LN-04*	**1PS1458-■BJ■■-3BA0**	4800	29.0
1000	**500 L**	1494	6390 [1]		96.9	96.9	96.2	0.88	–	–	980	0.85	6.2	2.55	*ANSK-500LL-04*	**1PS1504-■BJ■■-3BA0**	5200	43.0
1120	**500 L**	1493	7160 [1]		97.0	97.0	96.4	0.88	–	–	1095	0.80	6.0	2.4	*ANSK-500LL-04*	**1PS1505-■BJ■■-3BA0**	5200	43.0
1250	**500 L**	1494	7990 [1]		97.0	96.9	96.3	0.88	–	–	[3]	0.80	6.5	2.4	*ANSK-500LN-04*	**1PS1507-■BJ■■-3BA0**	6600	54.0
1400	**500 L**	1494	8940 [1]		97.1	97.0	96.3	0.87	–	–	1385	0.90	7.2	2.7	*ANSK-500LN-04*	**1PS1508-■BJ■■-3BA0**	6600	54.0

Operating modes	Frame size		Order code
Mains-fed operation	90 ... 450 (≤ 800 kW)	**0**	**–**
Converter-fed operation, standard insulation [3]	90 ... 400	**1**	**–**
Converter-fed operation with special insulation (derating approx. 5 %) [3]	160 ... 500	**2**	**–**
Mains-fed operation, pre-formed coil	450 (> 800 kW)... 500	**3**	–
Converter-fed operation, pre-formed coil	450 ... 500	**4**	**–**

Voltages	Frame size		Order code
690 VΔ, 50 Hz	355 ... 500	**0**	**–**
230 V/400 V, 50 Hz	90 ... 112	**1**	**–**
500 VY, 50 Hz	90 ... 315	**3**	**–**
500 VΔ, 50 Hz	355 ... 450	**5**	–
400 V/690 V, 50 Hz	90 ... 400	**6**	**–**
690 VY, 50 Hz	90 ... 400	**8**	–
For other voltages see Page 2/91	90 ... 500	**9**	**...**

Types of construction	Frame size		Order code
IM B3	90 ... 500	**0**	**–**
IM B5	90 ... 315	**1**	**–**
IM B34	90 ... 112	**2**	**–**
IM B14	90 ... 112	**3**	–
IM V1/cover	90 ... 400	**4**	**–**
IM B35	90 ... 500	**6**	–
For other types of construction see from Page 1/28	90 ... 500	**9**	**...**

[1] Outside the IE code classification according to IEC 60034-30.

[2] Motor with special rotor (Cu).

[3] Can only be ordered with additional identification code **-Z** and order code **M73**.

2

Selection and ordering data (continued)

P_{rated}, 50 Hz	Frame size	Operating values at rated output: n_{rated}, 50 Hz	T_{rated}, 50 Hz	IE class	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi$ rated, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	I_{rated}, 50 Hz, 500 V	I_{rated}, 50 Hz, 690 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	A	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411)																		
• Efficiency: High Efficiency IE2, 0.75 kW and above in accordance with IEC 60034-30																		
• Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 %																		
• Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																		
6-pole: 1000 rpm at 50 Hz																		
LOHER CHEMSTAR																		
0.75	**090 L**	960	7.5	IE2	80.0	80.4	78.0	0.72	1.88	1.5	1.09	1.5	4.5	2.2	*ANGK-090LR-06*	**1PS1095-■BD■■-3CA3**	36	0.0044
1.1	**090 L**	950	11.1	IE2	78.1	77.9	75.4	0.72	2.80	2.24	1.62	1.4	4.1	2.0	*ANGK-090LS-06*	**1PS1098-■BD■■-3CA3**	42	0.0044
1.5	**100 L**	955	15.0	IE2	80.0	79.0	75.0	0.68	3.95	3.16	2.29	2.5	4.5	2.7	*ANGK-100LS-06*	**1PS1106-■BD■■-3CA3**	55	0.010
2.2	**112 M**	950	22.1	IE2	82.7	83.7	82.3	0.74	5.2	4.2	3.01	2.0	5.0	2.2	*ANGK-112MS-06*	**1PS1113-■BD■■-3CA3**	66	0.019
3	**132 S**	950	30.2	IE2	85.4	86.1	85.1	0.79	6.4	5.1	3.71	2.5	5.7	2.5	*ANGK-132SR-06*	**1PS1131-■BD■■-3CA3**	92	0.033
4	**132 M**	955	40.0	IE2	85.7	86.7	86.1	0.82	8.2	6.6	4.8	2.3	6.0	2.5	*ANGK-132MR-06*	**1PS1133-■BD■■-3CA3**	96	0.045
5.5	**132 M**	955	55	IE2	86.1	86.1	85.5	0.77	12.0	9.6	7.0	2.4	6.0	2.6	*ANGK-132MS-06*	**1PS1135-■BD■■-3CA3**	104	0.045
7.5	**160 M**	965	74	IE2	88.2	88.5	88.0	0.80	15.3	12.3	8.90	1.5	6.0	2.4	*ANGK-160MR-06*	**1PS1163-■BD■■-3CA3**	176	0.088
11	**160 L**	970	108	IE2	88.9	89.4	88.7	0.78	23.0	18.3	13.3	1.6	6.0	2.6	*ANGK-160LS-06*	**1PS1166-■BD■■-3CA3**	192	0.11
15	**180 L**	980	148	IE2	90.5	91.2	90.7	0.82	29.0	23.5	16.9	2.1	6.5	2.5	*ANGK-180LS-06*	**1PS1186-■BD■■-3CA3**	255	0.28
18.5	**200 L**	980	180	IE2	91.2	91.5	90.9	0.80	36.5	29.5	21.0	2.5	7.0	2.6	*ANGK-200LR-06*	**1PS1206-■BD■■-3CA3**	333	0.45
22	**200 L**	980	214	IE2	91.5	92.0	91.4	0.78	44.5	35.5	26.0	2.5	7.0	2.6	*ANGK-200LS-06*	**1PS1208-■BD■■-3CA3**	349	0.49
30	**225 M**	980	292	IE2	91.7	92.5	92.0	0.81	58.0	46.5	34.0	2.0	7.0	2.8	*ANGK-225MS-06*	**1PS1223-■BD■■-3CA3**	430	0.92
37	**250 M**	985	359	IE2	92.2	92.3	91.1	0.77	75.0	60.0	43.5	2.1	6.0	2.1	*ANGK-250MM-06*	**1PS1253-■BD■■-3CA3**	560	1.0
45	**280 S**	985	436	IE2	92.9	93.0	93.1	0.85	82.0	66.0	47.5	2.0	6.0	2.3	*ANGK-280SL-06*	**1PS1280-■BD■■-3CA3**	780	2.5
55	**280 M**	985	533	IE2	93.4	93.6	93.0	0.88	97.0	77.0	56.0	2.4	7.0	2.8	*ANGK-280MM-06*	**1PS1283-■BD■■-3CA3**	850	2.9
75	**315 S**	990	723	IE2	94.0	94.1	93.5	0.86	134	107	78.0	2.0	6.7	2.1	*ANGK-315SL-06*	**1PS1311-■BD■■-3CA3**	960	3.3
90	**315 M**	990	868	IE2	94.8	95.2	95.1	0.85	161	129	93.0	2.1	6.9	2.3	*ANGK-315ML-06*	**1PS1313-■BD■■-3CA3**	1030	4.0
110	**315 M**	990	1061	IE2	94.5	94.6	94.3	0.86	195	156	113	2.0	7.1	2.2	*ANGK-315MM-06*	**1PS1314-■BD■■-3CA3**	1110	4.9
132	**315 M**	990	1273	IE2	94.7	94.8	94.5	0.86	235	187	136	2.0	7.0	2.1	*ANGK-315MN-06*	**1PS1315-■BD■■-3CA3**	1110	4.9
160	**315 L**	990	1543	IE2	94.8	95.0	94.6	0.87	280	225	162	2.0	6.8	2.1	*ANGK-315LL-06*	**1PS1316-■BD■■-3CA3**	1300	6.0
200	**315 L**	990	1929	IE2	95.0	95.0	94.6	0.84	360	290	210	2.1	7.0	2.3	*ANGK-315LM-06*	**1PS1317-■BD■■-3CA3**	1410	6.8
200	**315 L**	992	1925	IE2	95.4	95.6	95.3	0.88	345	275	199	1.5	6.9	2.3	*ANGK-315LM-06* [3]	**1PS1317-■BD■■-3CB3**	1420	6.8
250	**355 L**	995	2399	IE2	95.9	96.1	95.8	0.86	440	350	255	1.5	7.3	2.3	*ANGK-355LB-06*	**1PS1356-■BD■■-3CB2**	1730	9.1
LOHER VARIO																		
280	**355 L**	993	2691	IE2	96.1	96.1	95.5	0.85	495	395	286	1.2	6.4	2.35	*ANSK-355LC-06*	**1PS1357-■BH■■-3CA0**	2350	10.5
315	**355 L**	994	3027	IE2	96.2	96.2	95.5	0.84	560	450	325	1.35	6.6	2.5	*ANSK-355LD-06*	**1PS1358-■BH■■-3CA0**	2400	11.5
355	**355 L**	993	3415	IE2	96.3	96.3	95.8	0.85	630	505	360	1.0	5.6	2.3	*ANSK-355LN-06*	**1PS1357-■BJ■■-3CA0**	2400	12.5
400	**355 L**	992	3849 [1]		96.3	96.4	95.9	0.84	715	575	415	1.0	5.6	2.25	*ANSK-355LN-06*	**1PS1358-■BJ■■-3CA0**	2400	12.5
400	**400 L**	994	3844 [1]		96.3	96.4	95.8	0.84	715	575	415	1.0	5.6	2.3	*ANSK-400LL-06*	**1PS1404-■BJ■■-3CA0**	2800	18.0
450	**400 L**	994	4323 [1]		96.4	96.4	95.9	0.84	800	640	465	1.0	5.5	2.25	*ANSK-400LN-06*	**1PS1405-■BJ■■-3CA0**	3100	21.5
500	**400 L**	994	4805 [1]		96.5	96.5	96.0	0.84	890	710	515	1.05	5.7	2.3	*ANSK-400LN-06*	**1PS1407-■BJ■■-3CA0**	3100	21.5
560	**450 L**	995	5374 [1]		96.7	96.7	96.2	0.85	980	785	570	0.95	5.8	2.3	*ANSK-450LL-06*	**1PS1453-■BJ■■-3CA0**	4100	34.0
630	**450 L**	995	6046 [1]		96.8	96.8	96.3	0.85	1105	885	640	0.95	5.7	2.3	*ANSK-450LL-06*	**1PS1455-■BJ■■-3CA0**	4100	34.0
710	**450 L**	995	6813 [1]		96.9	97.0	96.5	0.85	1240	995	720	0.95	5.7	2.25	*ANSK-450LN-06*	**1PS1457-■BJ■■-3CA0**	4400	40.0
800	**450 L**	995	7676 [1]		97.0	97.0	96.5	0.85	–	1125	815	1.0	5.9	2.35	*ANSK-450LN-06*	**1PS1458-■BJ■■-3CA0**	4400	40.0
900	**500 L**	995	8635 [1]		96.8	96.8	96.2	0.85	–	–	915	1.0	5.8	2.25	*ANSK-500LL-06*	**1PS1505-■BJ■■-3CA0**	5400	60.0
1000	**500 L**	995	9592 [1]		96.9	96.8	96.2	0.85	–	–	1015	1.0	6.0	2.25	*ANSK-500LN-06*	**1PS1507-■BJ■■-3CA0**	6100	72.0
1120	**500 L**	995	10746 [1]		96.9	96.9	96.4	0.86	–	–	1120	1.0	5.7	2.15	*ANSK-500LN-06*	**1PS1508-■BJ■■-3CA0**	6100	72.0

Operating modes	Frame size		Order code
Mains-fed operation	90 ... 450	**0**	–
Converter-fed operation, standard insulation [3]	90 ... 450	**1**	–
Converter-fed operation with special insulation (derating approx. 5 %) [3]	160 ... 500	**2**	–
Mains-fed operation, pre-formed coil	500	**3**	–
Converter-fed operation, pre-formed coil	450 ... 500	**4**	–

Voltages	Frame size		Order code
690 VΔ, 50 Hz	355 ... 500	**0**	–
230 V/400 V, 50 Hz	90 ... 112	**1**	–
500 VY, 50 Hz	90 ... 315	**3**	–
500 VΔ, 50 Hz	355 ... 450	**5**	–
400 V/690 V, 50 Hz	90 ... 400	**6**	–
690 VY, 50 Hz	90 ... 400	**8**	–
For other voltages see Page 2/91	90 ... 500	**9**	...

Types of construction	Frame size		Order code
IM B3	90 ... 500	**0**	–
IM B5	90 ... 315	**1**	–
IM B34	90 ... 112	**2**	–
IM B14	90 ... 112	**3**	–
IM V1/cover	90 ... 450	**4**	–
IM B35	90 ... 500	**6**	–
For other types of construction see from Page 1/28	90 ... 500	**9**	...

[1] Outside the IE code classification according to IEC 60034-30.

[2] Motor with special rotor (Cu).

[3] Can only be ordered with additional identification code **-Z** and order code **M73**.

Selection and ordering data (continued)

P_{rated}, 50 Hz	Frame size	Operating values at rated output: n_{rated}, 50 Hz	T_{rated}, 50 Hz	IE class	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi$ rated, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	I_{rated}, 50 Hz, 500 V	I_{rated}, 50 Hz, 690 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	A	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411)																		
• Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 %																		
• Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																		
8-pole: 750 rpm at 50 Hz																		
LOHER CHEMSTAR																		
0.37	**090 L**	700	5.0	1)	67.0	67.5	64.0	0.60	1.33	1.06	0.77	1.7	2.5	2.0	*ANGK-090LR-08*	**1PS1095-■BD■■-3DA3**	36	0.0036
0.55	**090 L**	700	7.5	1)	69.5	69.5	65.0	0.60	1.90	1.52	1.10	1.7	2.8	2.0	*ANGK-090LS-08*	**1PS1098-■BD■■-3DA3**	42	0.0044
0.75	**100 L**	700	10.2	1)	71.9	70.2	66.0	0.70	2.15	1.72	1.25	2.0	3.7	2.1	*ANGK-100LR-08*	**1PS1106-■BD■■-3DA3**	55	0.010
1.1	**100 L**	710	14.8	1)	74.7	72.2	68.5	0.70	3.05	2.44	1.77	1.5	4.0	2.0	*ANGK-100LS-08*	**1PS1108-■BD■■-3DA3**	56	0.010
1.5	**112 M**	710	20.2	1)	78.0	78.5	76.5	0.73	3.80	3.04	2.20	1.8	4.0	2.0	*ANGK-112MS-08*	**1PS1113-■BD■■-3DA3**	66	0.016
2.2	**132 S**	715	29.4	1)	82.5	83.2	81.5	0.73	5.3	4.2	3.07	1.7	4.5	2.1	*ANGK-132SR-08*	**1PS1131-■BD■■-3DA3**	96	0.033
3	**132 M**	715	40.1	1)	83.8	84.5	82.9	0.74	7.0	5.6	4.1	1.8	4.5	2.2	*ANGK-132MR-08*	**1PS1133-■BD■■-3DA3**	104	0.045
4	**160 M**	715	53	1)	85.9	86.0	83.9	0.74	9.10	7.3	5.3	1.8	5.0	2.2	*ANGK-160MR-08*	**1PS1163-■BD■■-3DA3**	176	0.12
5.5	**160 M**	720	73	1)	86.0	86.3	84.4	0.74	12.5	10.0	7.2	1.8	5.3	2.3	*ANGK-160MS-08*	**1PS1165-■BD■■-3DA3**	176	0.12
7.5	**160 L**	720	99	1)	86.0	86.4	84.5	0.74	17.0	13.6	9.9	2.0	5.4	2.3	*ANGK-160LS-08*	**1PS1166-■BD■■-3DA3**	192	0.16
11	**180 L**	720	146	1)	87.1	87.9	87.0	0.81	22.5	18.0	13.0	1.8	5.0	2.6	*ANGK-180LS-08*	**1PS1186-■BD■■-3DA3**	255	0.28
15	**200 L**	720	199	1)	88.5	88.9	88.7	0.76	32.0	26.0	18.7	1.8	4.0	2.1	*ANGK-200LS-08*	**1PS1206-■BD■■-3DA3**	333	0.49
18.5	**225 S**	725	244	1)	88.7	89.5	88.8	0.77	39.0	31.5	22.5	2.4	5.0	2.4	*ANGK-225SR-08*	**1PS1220-■BD■■-3DA3**	395	0.82
22	**225 M**	730	288	1)	89.3	89.8	88.8	0.76	47.0	37.5	27.0	2.5	5.1	2.5	*ANGK-225MS-08*	**1PS1223-■BD■■-3DA3**	430	0.92
30	**250 M**	735	390	1)	90.8	91.2	90.4	0.80	60.0	47.5	34.5	1.9	5.3	2.2	*ANGK-250MM-08*	**1PS1253-■BD■■-3DA3**	560	1.0
37	**280 S**	735	481	1)	90.9	91.9	91.7	0.80	73.0	59.0	42.5	1.8	5.0	2.2	*ANGK-280SL-08*	**1PS1280-■BD■■-3DA3**	780	1.9
45	**280 M**	740	581	1)	91.0	91.2	90.1	0.78	92.0	73.0	53.0	2.2	5.0	2.1	*ANGK-280MM-08*	**1PS1283-■BD■■-3DA3**	850	2.2
55	**315 S**	740	710	1)	93.7	94.0	93.6	0.78	109	87.0	63.0	1.6	6.0	2.1	*ANGK-315SL-08*	**1PS1311-■BD■■-3DA3**	950	3.4
75	**315 M**	740	968	1)	93.8	94.3	94.2	0.79	146	117	85.0	1.6	5.8	2.0	*ANGK-315ML-08*	**1PS1313-■BD■■-3DA3**	1030	4.1
90	**315 M**	740	1161	1)	93.8	94.4	94.3	0.79	175	140	102	1.7	5.8	2.5	*ANGK-315MM-08*	**1PS1314-■BD■■-3DA3**	1110	4.8
110	**315 M**	740	1419	1)	93.9	94.5	94.5	0.79	215	171	124	1.7	5.8	2.0	*ANGK-315MN-08* 2)	**1PS1315-■BD■■-3DA3**	1110	4.8
132	**315 L**	740	1703	1)	94.1	94.7	94.7	0.79	255	205	149	1.6	5.8	2.0	*ANGK-315LL-08*	**1PS1316-■BD■■-3DA3**	1300	6.0
160	**315 L**	742	2059	1)	94.4	94.4	93.6	0.79	310	250	180	1.5	6.0	2.5	*ANGK-315LM-08* 3)	**1PS1317-■BD■■-3DA3**	1410	7.2
200	**355 L**	740	2580	1)	95.2	95.5	95.2	0.80	355	280	205	1.5	6.4	2.7	*ANGK-355LB-08* 3)	**1PS1356-■BD■■-3DB0**	1420	14.7
LOHER VARIO																		
225	**355 L**	744	2886	1)	95.3	95.4	94.8	0.81	420	335	243	1.15	5.8	2.4	*ANSK-355LC-08*	**1PS1357-■BH■■-3DA0**	2350	15.7
250	**355 L**	744	3206	1)	95.3	95.4	94.8	0.81	466	373	270	1.2	5.8	2.45	*ANSK-355LD-08*	**1PS1358-■BH■■-3DA0**	2400	17.0
280	**355 L**	743	3597	1)	95.8	96.0	95.6	0.81	520	415	300	1.15	5.2	2.3	*ANSK-355LN-08*	**1PS1357-■BJ■■-3DA0**	2400	12.5
315	**355 L**	743	4049	1)	95.8	96.0	95.6	0.81	580	465	335	1.05	5.1	2.2	*ANSK-355LX-08*	**1PS1358-■BJ■■-3DA0**	2550	13.5
355	**400 L**	743	4559	1)	96.0	96.1	95.6	0.81	655	525	380	1.0	5.1	2.3	*ANSK-400LL-08*	**1PS1404-■BJ■■-3DA0**	2800	17.5
400	**400 L**	744	5136	1)	96.1	96.2	95.8	0.82	735	585	425	0.95	5.2	2.25	*ANSK-400LN-08*	**1PS1407-■BJ■■-3DA0**	3100	21.0
450	**400 L**	743	5779	1)	96.1	96.3	95.9	0.81	830	665	480	0.95	5.0	2.25	*ANSK-400LX-08*	**1PS1408-■BJ■■-3DA0**	3250	23.0
500	**450 L**	745	6411	1)	96.5	96.6	96.1	0.83	900	720	520	0.85	5.2	2.2	*ANSK-450LL-08*	**1PS1455-■BJ■■-3DA0**	4100	35.5
560	**450 L**	745	7178	1)	96.5	96.6	96.1	0.84	1000	800	580	0.85	5.4	2.25	*ANSK-450LN-08*	**1PS1457-■BJ■■-3DA0**	4400	42.0
630	**450 L**	745	8075	1)	96.6	96.7	96.2	0.83	1130	905	655	0.90	5.3	2.25	*ANSK-450LN-08*	**1PS1458-■BJ■■-3DA0**	4400	42.0
670	**450 L**	746	8579	1)	96.7	96.7	96.3	0.83	1210	965	700	0.85	5.2	2.3	*ANSK-450LX-08*	**1PS1450-■BJ■■-3DA0**	4600	46.0
710	**500 L**	746	9086	1)	96.7	96.8	96.2	0.85	1240	995	720	0.85	5.8	2.55	*ANSK-500LL-08*	**1PS1504-■BJ■■-3DA0**	5400	73.0
800	**500 L**	746	10242	1)	96.7	96.8	96.4	0.85	–	1120	810	0.85	5.6	2.45	*ANSK-500LL-08*	**1PS1505-■BJ■■-3DA0**	5400	73.0
900	**500 L**	745	11530	1)	96.5	96.6	96.1	0.84	–	1285	930	1.0	5.5	2.2	*ANSK-500LN-08*	**1PS1507-■BJ■■-3DA0**	6100	88.0
950	**500 L**	746	12152	1)	96.7	96.7	96.1	0.83	–	–	990	0.95	5.9	2.4	*ANSK-500LX-08*	**1PS1508-■BJ■■-3DA0**	6400	96.0

Operating modes	Frame size		Order code
Mains-fed operation	90 ... 450	**0**	–
Converter-fed operation, standard insulation 4)	90 ... 450	**1**	–
Converter-fed operation with special insulation (derating approx. 5 %) 4)	160 ... 500	**2**	–
Mains-fed operation, pre-formed coil	500	**3**	–
Converter-fed operation, pre-formed coil	500	**4**	–

Voltages	Frame size		Order code
690 VΔ, 50 Hz	355 ... 500	**0**	–
230 V/400 V, 50 Hz	90 ... 112	**1**	–
500 VY, 50 Hz	90 ... 315	**3**	–
500 VΔ, 50 Hz	355 ... 450	**5**	–
400 V/690 V, 50 Hz	90 ... 400	**6**	–
690 VY, 50 Hz	90 ... 400	**8**	–
For other voltages see Page 2/91	90 ... 500	**9**	...

Types of construction	Frame size		Order code
IM B3	90 ... 500	**0**	–
IM B5	90 ... 315	**1**	–
IM B34	90 ... 112	**2**	–
IM B14	90 ... 112	**3**	–
IM V1/cover	90 ... 450	**4**	–
IM B35	90 ... 500	**6**	–
For other types of construction see from Page 1/28	90 ... 500	**9**	...

1) Outside the IE code classification according to IEC 60034-30.
2) Rated output, partial utilization up to 155 °C (F).
3) Motor with special rotor (Cu).
4) Can only be ordered with additional identification code **-Z** and order code **M73**.

2

Selection and ordering data (continued)

P_{rated}, 50 Hz	Frame size	Operating values at rated output: n_{rated}, 50 Hz	T_{rated}, 50 Hz	IE class	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi$ rated, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	I_{rated}, 50 Hz, 500 V	I_{rated}, 50 Hz, 690 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	A	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411) • Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 % • Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																		
10-pole: 600 rpm at 50 Hz																		
LOHER CHEMSTAR on request																		
LOHER VARIO																		
180	**355 L**	594	2889	[1]	94.6	94.7	94.0	0.81	338	271	196	1.05	5.3	2.15	*ANSK-355LC-10*	**1PS1357-■BH■■-3EA0**	2350	16.5
200	**355 L**	594	3211	[1]	94.6	94.8	94.1	0.81	376	300	218	1.05	5.1	2.05	*ANSK-355LD-10*	**1PS1358-■BH■■-3EA0**	2400	18.0
225	**355 L**	593	3620	[1]	95.2	95.5	95.1	0.80	425	340	245	1.1	4.8	2.15	*ANSK-355LX-10*	**1PS1358-■BJ■■-3EA0**	2550	19.0
250	**400 L**	594	4014	[1]	95.4	95.7	95.2	0.80	475	380	275	0.95	4.7	2.05	*ANSK-400LL-10*	**1PS1404-■BJ■■-3EA0**	2800	27.0
280	**400 L**	595	4495	[1]	95.6	95.8	95.3	0.81	520	415	300	0.95	4.7	2.05	*ANSK-400LN-10*	**1PS1405-■BJ■■-3EA0**	3100	32.0
315	**400 L**	595	5058	[1]	95.6	95.8	95.4	0.80	595	475	345	0.95	4.7	2.05	*ANSK-400LN-10*	**1PS1407-■BJ■■-3EA0**	3100	32.0
355	**400 L**	595	5700	[1]	95.8	96.0	95.6	0.80	665	530	385	0.95	4.8	2.1	*ANSK-400LX-10*	**1PS1408-■BJ■■-3EA0**	3300	35.0
400	**450 L**	595	6418	[1]	96.0	96.1	95.5	0.80	750	600	435	1.0	4.9	2.1	*ANSK-450LL-10*	**1PS1454-■BJ■■-3EA0**	4100	42.0
450	**450 L**	595	7221	[1]	96.1	96.2	95.6	0.81	835	670	485	0.95	4.8	2.05	*ANSK-450LN-10*	**1PS1455-■BJ■■-3EA0**	4400	50.0
500	**450 L**	595	8020	[1]	96.2	96.3	95.7	0.80	940	750	545	0.95	5.0	2.15	*ANSK-450LN-10*	**1PS1457-■BJ■■-3EA0**	4400	50.0
520	**450 L**	595	8336	[1]	96.2	96.2	95.6	0.79	985	785	570	1.0	5.1	2.2	*ANSK-450LX-10*	**1PS1458-■BJ■■-3EA0**	4700	55.0
560	**500 L**	596	8965	[1]	96.1	96.1	95.3	0.80	1050	840	610	0.85	5.3	2.35	*ANSK-500LL-10*	**1PS1504-■BJ■■-3EA0**	5400	82.0
630	**500 L**	596	10082	[1]	96.2	96.2	95.4	0.80	1180	945	685	0.90	5.3	2.4	*ANSK-500LN-10*	**1PS1505-■BJ■■-3EA0**	6100	98.0
670	**500 L**	597	10719	[1]	96.3	96.2	95.4	0.80	1260	1005	730	0.95	5.5	2.45	*ANSK-500LN-10*	**1PS1507-■BJ■■-3EA0**	6100	98.0
750	**500 L**	597	11998	[1]	96.4	96.3	95.5	0.79	–	–	820	0.95	5.5	2.45	*ANSK-500LX-10*	**1PS1508-■BJ■■-3EA0**	6500	108
12-pole: 500 rpm at 50 Hz																		
LOHER CHEMSTAR on request																		
LOHER VARIO																		
160	**355 L**	493	3097	[1]	94.1	94.3	93.8	0.78	313	250	181	0.95	4.6	2.1	*ANSK-355LC-12*	**1PS1357-■BH■■-3FA0**	2350	17.0
180	**355 L**	494	3481	[1]	94.3	94.5	93.9	0.77	355	285	205	1.0	4.7	2.15	*ANSK-355LD-12*	**1PS1358-■BH■■-3FA0**	2400	19.0
190	**355 L**	494	3672	[1]	94.5	94.7	94.3	0.77	375	300	218	0.95	4.6	2.2	*ANSK-355LX-12*	**1PS1358-■BJ■■-3FA0**	2550	18.5
200	**400 L**	494	3861	[1]	94.9	95.1	94.7	0.78	390	310	225	0.95	4.6	2.05	*ANSK-400LL-12*	**1PS1404-■BJ■■-3FA0**	2800	26.5
225	**400 L**	495	4341	[1]	95.1	95.3	94.9	0.79	430	345	250	1.0	4.7	2.15	*ANSK-400LN-12*	**1PS1405-■BJ■■-3FA0**	3100	32.0
250	**400 L**	495	4824	[1]	95.2	95.4	95.0	0.78	485	390	282	1.0	4.6	2.1	*ANSK-400LN-12*	**1PS1407-■BJ■■-3FA0**	3100	32.0
280	**400 L**	495	5402	[1]	95.2	95.4	95.0	0.78	545	435	315	0.95	4.8	2.2	*ANSK-400LX-12*	**1PS1408-■BJ■■-3FA0**	3300	35.0
315	**450 L**	495	6075	[1]	95.5	95.7	95.3	0.78	610	490	355	0.90	4.5	1.95	*ANSK-450LL-12*	**1PS1454-■BJ■■-3FA0**	4100	42.0
355	**450 L**	495	6842	[1]	95.6	95.8	95.4	0.78	690	550	400	0.90	4.6	2.0	*ANSK-450LN-12*	**1PS1455-■BJ■■-3FA0**	4400	50.0
400	**450 L**	495	7709	[1]	95.7	95.9	95.4	0.78	785	630	455	0.95	4.6	2.0	*ANSK-450LN-12*	**1PS1457-■BJ■■-3FA0**	4400	50.0
420	**450 L**	495	8095	[1]	95.7	95.9	95.4	0.78	810	650	470	0.95	4.7	2.05	*ANSK-450LX-12*	**1PS1458-■BJ■■-3FA0**	4600	55.0
450	**500 L**	496	8662	[1]	95.8	95.8	95.2	0.80	845	675	490	0.90	4.8	2.05	*ANSK-500LL-12*	**1PS1504-■BJ■■-3FA0**	5400	82.0
500	**500 L**	496	9617	[1]	95.8	95.8	95.1	0.79	950	760	550	0.95	5.1	2.2	*ANSK-500LN-12*	**1PS1505-■BJ■■-3FA0**	6100	98.0
560	**500 L**	496	10779	[1]	95.9	96.0	95.3	0.80	1055	840	610	0.90	4.9	2.1	*ANSK-500LN-12*	**1PS1507-■BJ■■-3FA0**	6100	98.0
600	**500 L**	496	11546	[1]	96.0	96.1	95.5	0.80	–	905	655	0.90	5.1	2.15	*ANSK-500LX-12*	**1PS1508-■BJ■■-3FA0**	6350	108

Operating modes	Frame size		Order code
Mains-fed operation	355 ... 400	**0**	–
Converter-fed operation, standard insulation [2]	355 ... 400	**1**	–
Converter-fed operation with special insulation (derating approx. 5 %) [2]	355 ... 500	**2**	–
Mains-fed operation, pre-formed coil	450 ... 500	**3**	–
Converter-fed operation, pre-formed coil	450 ... 500	**4**	–

Voltages	Frame size		Order code
690 VΔ, 50 Hz	355 ... 500	**0**	–
500 VY, 50 Hz	355 ... 500	**3**	–
500 VΔ, 50 Hz	355 ... 450	**5**	–
400 V/690 V, 50 Hz	355 ... 500	**6**	–
690 VY, 50 Hz	355 ... 500	**8**	–
For other voltages see Page 2/91	355 ... 500	**9**	...

Types of construction	Frame size		Order code
IM B3	355 ... 500	**0**	–
IM V1/cover	355 ... 450	**4**	–
IM B35	355... 500	**6**	–
For other types of construction see from Page 1/28	355 ... 500	**9**	...

[1] Outside the IE code classification according to IEC 60034-30.

[2] Can only be ordered with additional identification code **-Z** and order code **M73**.

Selection and ordering data (continued)

P_{rated}, 50 Hz	Frame size	Motor type	Article No.	m IM B3
kW	FS			kg
• Cooling: self-ventilated (IC 411) • Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 % • Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc				
14-pole: 430 rpm at 50 Hz				
LOHER CHEMSTAR on request				
LOHER VARIO				
125	355 L	*ANSK-355LC-14*	**1PS1357-■BH■■-3GA0**	2350
140	355 L	*ANSK-355LD-14*	**1PS1358-■BH■■-3GA0**	2400
160	400 L	*ANSK-400LL-14*	**1PS1404-■BJ ■■-3GA0**	2800
180	400 L	*ANSK-400LN-14*	**1PS1405-■BJ ■■-3GA0**	3100
200	400 L	*ANSK-400LN-14*	**1PS1407-■BJ ■■-3GA0**	3100
225	400 L	*ANSK-400LX-14*	**1PS1408-■BJ ■■-3GA0**	3250
250	450 L	*ANSK-450LL-14*	**1PS1454-■BJ ■■-3GA0**	4100
280	450 L	*ANSK-450LN-14*	**1PS1455-■BJ ■■-3GA0**	4400
315	450 L	*ANSK-450LN-14*	**1PS1457-■BJ ■■-3GA0**	4400
340	450 L	*ANSK-450LX-14*	**1PS1458-■BJ ■■-3GA0**	4600
355	500 L	*ANSK-500LL-14*	**1PS1504-■BJ ■■-3GA0**	5400
400	500 L	*ANSK-500LN-14*	**1PS1505-■BJ ■■-3GA0**	6100
450	500 L	*ANSK-500LN-14*	**1PS1507-■BJ ■■-3GA0**	6100
500	500 L	*ANSK-500LX-14*	**1PS1508-■BJ ■■-3GA0**	6500
16-pole: 375 rpm at 50 Hz				
LOHER CHEMSTAR on request				
LOHER VARIO				
100	355 L	*ANSK-355LC-16*	**1PS1357-■BH■■-3HA0**	2350
110	355 L	*ANSK-355LD-16*	**1PS1358-■BH■■-3HA0**	2400
132	400 L	*ANSK-400LL-16*	**1PS1405-■BJ ■■-3HA0**	2800
160	400 L	*ANSK-400LN-16*	**1PS1407-■BJ ■■-3HA0**	3100
180	400 L	*ANSK-400LX-16*	**1PS1408-■BJ ■■-3HA0**	3250
200	450 L	*ANSK-450LL-16*	**1PS1454-■BJ ■■-3HA0**	4100
225	450 L	*ANSK-450LN-16*	**1PS1455-■BJ ■■-3HA0**	4400
250	450 L	*ANSK-450LN-16*	**1PS1457-■BJ ■■-3HA0**	4400
265	450 L	*ANSK-450LX-16*	**1PS1458-■BJ ■■-3HA0**	4650
280	500 L	*ANSK-500LL-16*	**1PS1504-■BJ ■■-3HA0**	5400
315	500 L	*ANSK-500LN-16*	**1PS1505-■BJ ■■-3HA0**	6100
355	500 L	*ANSK-500LN-16*	**1PS1507-■BJ ■■-3HA0**	6100
400	500 L	*ANSK-500LX-16*	**1PS1508-■BJ ■■-3HA0**	6650

Operating modes	Frame size		Order code
Mains-fed operation	355 ... 500	**0**	–
Converter-fed operation, standard insulation [1]	355 ... 500	**1**	–
Converter-fed operation with special insulation (derating approx. 5 %) [1]	355 ... 500	**2**	–
Mains-fed operation, pre-formed coil	450 ... 500	**3**	–
Converter-fed operation, pre-formed coil	450 ... 500	**4**	–

Voltages	Frame size		Order code
690 VΔ, 50 Hz	355 ... 500	**0**	–
500 VY, 50 Hz	355 ... 500	**3**	–
500 VΔ, 50 Hz	355 ... 450	**5**	–
400 V/690 V, 50 Hz	355 ... 500	**6**	–
690 VY, 50 Hz	355 ... 500	**8**	–
For other voltages see Page 2/91	355 ... 500	**9**	...

Types of construction	Frame size		Order code
IM B3	355 ... 500	**0**	–
IM V1/cover	355 ... 500	**4**	–
IM B35	355 ... 500	**6**	–
For other types of construction see from Page 1/28	355 ... 500	**9**	...

[1] Can only be ordered with additional identification code **-Z** and order code **M73**.

2

Selection and ordering data (continued)

P_{rated}, 60 Hz	Frame size	Operating values at rated output: n_{rated}, 60 Hz	T_{rated}, 60 Hz	IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi$ rated, 60 Hz, 4/4	I_{rated}, 60 Hz, 480 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411) • Efficiency: High Efficiency IE2, 0.75 kW and above in accordance with IEC 60034-30 • Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 % • Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																
2-pole: 3000 rpm at 60 Hz																
LOHER CHEMSTAR																
1.8	**090 L**	3460	4.97	IE2	85.4	85.6	84.5	0.88	2.85	3.0	7.0	2.8	*ANGK-090LR-02*	**1PS1095-■BD■■-3AA3**	36	0.0020
2.6	**090 L**	3460	7.2	IE2	85.5	85.8	84.7	0.84	4.4	3.0	7.0	3.0	*ANGK-090LS-02*	**1PS1098-■BD■■-3AA3**	36	0.0020
3.6	**100 L**	3510	9.8	IE2	87.5	87.1	85.2	0.85	5.8	2.9	8.0	3.0	*ANGK-100LS-02*	**1PS1106-■BD■■-3AA3**	51	0.0041
4.5	**112 M**	3490	12.3	IE2	87.5	87.7	87.2	0.94	6.6	2.7	7.8	3.0	*ANGK-112MS-02*	**1PS1113-■BD■■-3AA3**	66	0.0075
6.6	**132 S**	3510	18.0	IE2	89.5	88.7	87.2	0.89	10.0	3.0	7.8	3.0	*ANGK-132SR-02*	**1PS1131-■BD■■-3AA3**	83	0.014
9	**132 S**	3510	24.5	IE2	90.1	91.0	90.1	0.91	13.1	2.7	7.0	3.0	*ANGK-132SS-02*	**1PS1132-■BD■■-3AA3**	95	0.020
13.2	**160 M**	3550	36	IE2	90.8	91.2	91.0	0.88	19.9	2.0	7.5	2.6	*ANGK-160MR-02*	**1PS1163-■BD■■-3AA3**	176	0.045
18	**160 M**	3550	46	IE2	91.5	91.8	91.2	0.89	26.5	1.9	7.0	2.6	*ANGK-160MS-02*	**1PS1165-■BD■■-3AA3**	176	0.092
22	**160 L**	3550	59	IE2	91.5	91.8	91.2	0.89	32.5	2.0	7.0	2.7	*ANGK-160LS-02*	**1PS1166-■BD■■-3AA3**	192	0.092
26	**180 M**	3560	70	IE2	92.5	93.0	92.4	0.89	38.0	2.6	7.0	2.6	*ANGK-180MS-02*	**1PS1183-■BD■■-3AA3**	246	0.16
36	**200 L**	3560	96	IE2	92.6	92.8	92.0	0.89	53.0	2.0	7.2	2.6	*ANGK-200LR-02*	**1PS1206-■BD■■-3AA3**	333	0.20
44	**200 L**	3560	118	IE2	93.0	93.1	92.4	0.89	64.0	2.0	7.2	2.6	*ANGK-200LS-02*	**1PS1208-■BD■■-3AA3**	349	0.23
54	**225 M**	3565	145	IE2	93.2	93.4	92.8	0.88	79.0	2.2	7.6	2.6	*ANGK-225MS-02*	**1PS1223-■BD■■-3AA3**	420	0.34
66	**250 M**	3575	176	IE2	93.8	93.7	92.6	0.88	96.0	1.9	7.5	2.6	*ANGK-250MM-02*	**1PS1253-■BD■■-3AA3**	540	0.45
90	**280 S**	3575	240	IE2	94.5	94.5	93.0	0.90	127	1.7	7.0	2.4	*ANGK-280SL-02*	**1PS1280-■BD■■-3AA3**	775	0.88
110	**280 M**	3580	293	IE2	95.1	95.0	93.9	0.89	156	2.4	7.7	2.7	*ANGK-280MM-02*	**1PS1283-■BD■■-3AA3**	830	1.03
125	**315 S**	3580	333	IE2	94.6	94.4	93.2	0.87	183	1.9	7.0	2.5	*ANGK-315SL-02*	**1PS1311-■BD■■-3AA3**	960	1.55
145	**315 M**	3580	387	IE2	95.1	95.0	93.8	0.89	205	2.0	7.7	2.6	*ANGK-315ML-02*	**1PS1313-■BD■■-3AA3**	1020	1.85
180	**315 M**	3581	480	IE2	95.4	95.4	94.4	0.88	260	2.2	7.5	2.7	*ANGK-315MN-02*	**1PS1315-■BD■■-3AA3**	1100	2.2
220	**315 L**	3580	587	IE2	95.8	95.9	95.4	0.90	305	2.5	7.3	2.7	*ANGK-315LL-02*	**1PS1316-■BD■■-3AA3**	1310	2.8
270	**315 L**	3580	720	IE2	95.8	95.9	95.4	0.90	375	2.6	7.7	2.7	*ANGK-315LN-02*	**1PS1318-■BD■■-3AA3**	1450	3.5
315	**355 L**	3580	840	IE2	95.5	95.3	94.6	0.90	440	2.0	7.2	2.7	*ANGK-355LB-02*	**1PS1356-■BD■■-3AA2**	1580	4.7
LOHER VARIO																
400	**355 L**	3583	1066	[1]	96.4	96.3	95.6	0.92	540	1.15	6.7	2.75	*ANSK-355LC-02*	**1PS1357-■BH■■-3AA0**	2100	3.6
450	**355 L**	3585	1198	[1]	96.6	96.5	95.7	0.92	610	1.2	7.4	3.0	*ANSK-355LD-02*	**1PS1358-■BH■■-3AA0**	2200	4.0
500	**355 L**	3579	1334	[1]	96.3	96.2	95.5	0.91	680	0.90	6.3	2.65	*ANSK-355LX-02*	**1PS1358-■BJ■■-3AA0**	2300	5.0
500	**400 L**	3581	1333	[1]	96.4	96.3	95.5	0.90	690	0.65	5.7	2.45	*ANSK-400LL-02*	**1PS1404-■BJ■■-3AA0**	2400	6.0
560	**400 L**	3584	1492	[1]	96.6	96.5	95.7	0.91	770	0.80	6.5	2.8	*ANSK-400LN-02*	**1PS1405-■BJ■■-3AA0**	2600	7.0
630	**400 L**	3583	1679	[1]	96.7	96.6	96.0	0.91	860	0.75	6.1	2.65	*ANSK-400LN-02*	**1PS1407-■BJ■■-3AA0**	2600	7.0
710	**400 L**	2585	1891	[1]	96.7	96.6	95.9	0.91	675 [2]	0.80	6.5	2.75	*ANSK-400LX-02*	**1PS1408-■BJ■■-3AA0**	2900	8.3
710	**450 L**	3586	1890	[1]	96.3	96.1	95.1	0.90	685 [2]	0.70	6.2	2.7	*ANSK-450LL-02*	**1PS1455-■BJ■■-3AA0**	3500	12
800	**450 L**	3586	2130	[1]	96.5	96.3	95.3	0.91	762 [2]	0.80	6.4	2.85	*ANSK-450LN-02*	**1PS1457-■BJ■■-3AA0**	3900	14
900	**450 L**	3586	2396	[1]	96.6	96.4	95.6	0.90	865 [2]	0.80	6.4	2.8	*ANSK-450LN-02*	**1PS1458-■BJ■■-3AA0**	3900	14

Operating modes	Frame size				Order code
Mains-fed operation	90 ... 450	**0**			–
Converter-fed operation, standard insulation [3]	90 ... 450	**1**			–
Converter-fed operation with special insulation (derating approx. 5 %) [3]	160 ... 450	**2**			–
Mains-fed operation, pre-formed coil	450	**3**			–
Converter-fed operation, pre-formed coil	450	**4**			–
Voltages	Frame size				Order code
230 V/400 V, 60 Hz	90 ... 112		**1**		–
500 VY, 60 Hz	90 ... 450		**3**		–
400 V/690 V, 60 Hz	90 ... 450		**6**		–
690 VY, 60 Hz	90 ... 450		**8**		–
For other voltages see Page 2/91	90 ... 450		**9**		...
Types of construction	Frame size				Order code
IM B3	90 ... 450			**0**	–
IM B5	90 ... 315			**1**	–
IM B34	90 ... 112			**2**	–
IM B14	90 ... 112			**3**	–
IM V1/cover	90 ... 450			**4**	–
IM B35	90 ... 450			**6**	–
For other types of construction see from Page 1/28	90 ... 450			**9**	...

[1] Outside the IE code classification according to IEC 60034-30.

[2] Only possible with 690 V (values apply to 690 V).

[3] Can only be ordered with additional identification code **-Z** and order code **M73**.

Selection and ordering data (continued)

P_{rated}, 60 Hz	Frame size	Operating values at rated output: n_{rated}, 60 Hz	T_{rated}, 60 Hz	IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi$ rated, 60 Hz, 4/4	I_{rated}, 60 Hz, 480 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411) • Efficiency: High Efficiency IE2, 0.75 kW and above in accordance with IEC 60034-30 • Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 % • Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																
4-pole: 1800 rpm at 60 Hz																
LOHER CHEMSTAR																
1.3	**090 L**	1760	7.1	IE2	85.6	85.2	82.0	0.82	2.25	2.2	7.2	2.7	*ANGK-090LR-04*	**1PS1095-■BD■■-3BA3**	34	0.0044
1.8	**090 L**	1760	9.8	IE2	87.8	88.0	86.6	0.80	3.1	2.2	7.4	2.7	*ANGK-090LS-04*	**1PS1098-■BD■■-3BA3**	37	0.0044
2.6	**100 L**	1755	14.1	IE2	88.0	88.3	87.2	0.83	4.3	1.9	7.0	2.5	*ANGK-100LR-04*	**1PS1106-■BD■■-3BA3**	53	0.0060
3.6	**100 L**	1760	19.5	IE2	87.5	87.0	85.2	0.79	6.3	1.8	7.0	2.4	*ANGK-100LS-04*	**1PS1108-■BD■■-3BA3**	55	0.0071
4.8	**112 M**	1760	26.0	IE2	89.9	90.3	89.5	0.83	7.8	1.9	7.0	2.5	*ANGK-112MS-04*	**1PS1113-■BD■■-3BA3**	66	0.0126
6.6	**132 S**	1750	36.0	IE2	89.8	90.4	89.9	0.86	10.3	2.4	7.5	2.7	*ANGK-132SR-04*	**1PS1131-■BD■■-3BA3**	93	0.03
9	**132 M**	1765	48.7	IE2	90.1	90.5	89.7	0.86	14.0	2.0	7.5	2.2	*ANGK-132MS-04*	**1PS1133-■BD■■-3BA3**	102	0.03
13	**160 M**	1765	70.0	IE2	91.1	91.5	91.0	0.85	20.0	3.0	7.5	2.6	*ANGK-160MR-04*	**1PS1163-■BD■■-3BA3**	176	0.10
18	**160 L**	1770	97.0	IE2	92.4	92.1	91.8	0.85	27.5	3.0	7.5	2.6	*ANGK-160LS-04*	**1PS1166-■BD■■-3BA3**	192	0.13
22	**180 M**	1775	118	IE2	92.5	93.0	92.2	0.84	34.0	1.8	7.5	2.8	*ANGK-180MR-04*	**1PS1183-■BD■■-3BA3**	246	0.20
16	**180 L**	1775	140	IE2	93.7	94.0	93.5	0.85	39.5	1.8	7.5	2.6	*ANGK-180LS-04*	**1PS1186-■BD■■-3BA3**	255	0.23
26	**200 L**	1780	193	IE2	94.2	94.4	93.9	0.83	55.0	3.0	7.5	2.9	*ANGK-200LS-04*	**1PS1206-■BD■■-3BA3**	333	0.37
44	**225 S**	1780	236	IE2	93.7	94.0	93.5	0.85	66.0	2.0	7.0	2.6	*ANGK-225SR-04*	**1PS1220-■BD■■-3BA3**	415	0.64
54	**225 M**	1780	290	IE2	94.2	94.7	94.6	0.85	81.0	2.0	7.0	2.6	*ANGK-225MS-04*	**1PS1223-■BD■■-3BA3**	445	0.72
66	**250 M**	1780	354	IE2	94.5	94.4	94.2	0.86	98.0	2.1	7.7	2.7	*ANGK-250MM-04*	**1PS1253-■BD■■-3BA3**	560	0.79
90	**280 S**	1785	481	IE2	94.6	94.8	94.5	0.84	136	2.2	7.0	2.5	*ANGK-280SL-04*	**1PS1280-■BD■■-3BA3**	820	1.44
110	**280 M**	1785	588	IE2	95.2	95.2	94.8	0.84	165	2.5	7.0	2.7	*ANGK-280MM-04*	**1PS1283-■BD■■-3BA3**	870	1.66
125	**315 S**	1787	668	IE2	95.0	95.0	94.0	0.82	193	2.2	7.0	2.5	*ANGK-315SL-04*	**1PS1311-■BD■■-3BA3**	960	2.2
145	**315 M**	1787	775	IE2	95.1	95.2	94.7	0.84	220	2.0	7.0	2.2	*ANGK-315ML-04*	**1PS1313-■BD■■-3BA3**	1040	2.9
180	**315 M**	1787	962	IE2	95.4	95.4	94.8	0.83	275	2.4	7.5	2.5	*ANGK-315MN-04*	**1PS1315-■BD■■-3BA3**	1120	3.4
220	**315 L**	1787	1176	IE2	95.4	95.6	95.0	0.84	330	2.3	7.5	2.5	*ANGK-315LL-04*	**1PS1316-■BD■■-3BA3**	1340	3.9
270	**315 L**	1787	1443	IE2	95.8	95.8	95.5	0.85	400	2.3	7.5	2.4	*ANGK-315LM-04*	**1PS1317-■BD■■-3BA3**	1420	4.2
315	**355 L**	1790	1680	IE2	95.4	95.5	95.2	0.85	465	1.8	7.0	2.5	*ANGK-355LB-04*	**1PS1356-■BD■■-3BA2**	1730	6.8
315	**355 L**	1791	1680	IE2	95.6	96	95.5	0.86	460	1.1	7.0	2.4	*ANGK-355LB-04* [3]	**1PS1357-■BD■■-3BB2**	1730	6.8
LOHER VARIO																
400	**355 L**	1791	2133	[1]	96.4	96.3	95.5	0.86	–	1.1	6.5	2.30	*ANSK-355LC-04*	**1PS1358-■BH■■-3BA0**	2300	7.7
450	**355 L**	1791	2399	[1]	96.5	96.4	95.6	0.86	–	1.1	6.5	2.30	*ANSK-355LD-04*	**1PS1350-■BH■■-3BA0**	2350	8.5
500	**355 L**	1791	2664	[1]	96.6	96.5	95.9	0.86	–	1.05	6.3	2.45	*ANSK-355LN-04*	**1PS1357-■BJ■■-3BA0**	2400	9.0
560	**355 L**	1792	2984	[1]	96.7	96.6	95.9	0.85	–	1.0	6.5	2.50	*ANSK-355LX-04*	**1PS1358-■BJ■■-3BA0**	2500	9.5
560	**400 L**	1791	2984	[1]	96.5	96.4	95.6	0.88	–	1.0	6.2	2.55	*ANSK-400LL-04*	**1PS1404-■BJ■■-3BA0**	2700	13
630	**400 L**	1791	3357	[1]	96.6	96.5	95.8	0.89	–	1.0	6.0	2.45	*ANSK-400LN-04*	**1PS1405-■BJ■■-3BA0**	2900	15
710	**400 L**	1791	3784	[1]	96.7	96.6	96.0	0.89	–	0.95	5.7	2.30	*ANSK-400LN-04*	**1PS1407-■BJ■■-3BA0**	2900	15
800	**400 L**	1792	4263	[1]	96.8	96.8	96.1	0.88	–	0.95	6.1	2.45	*ANSK-400LX-04*	**1PS1408-■BJ■■-3BA0**	3100	17
900	**450 L**	1793	4792	[1]	96.9	96.8	96.1	0.88	–	0.90	6.4	2.55	*ANSK-450LL-04*	**1PS1455-■BJ■■-3BA0**	3800	24.5
1000	**450 L**	1793	5324	[1]	96.9	96.8	96.2	0.88	980 [2]	0.85	6.0	2.40	*ANSK-450LN-04*	**1PS1457-■BJ■■-3BA0**	4300	29

Operating modes	Frame size		Order code
Mains-fed operation	90 ... 500	**0**	–
Converter-fed operation, standard insulation [4]	90 ... 500	**1**	–
Converter-fed operation with special insulation (derating approx. 5 %) [4]	160 ... 500	**2**	–
Mains-fed operation, pre-formed coil	450 ... 500	**3**	–
Converter-fed operation, pre-formed coil	450 ... 500	**4**	–

Voltages	Frame size		Order code
230 V/400 V, 60 Hz	90 ... 112	**1**	–
500 VY, 60 Hz	90 ... 500	**3**	–
400 V/690 V, 60 Hz	90 ... 500	**6**	–
690 VY, 60 Hz	90 ... 500	**8**	–
For other voltages see Page 2/91	90 ... 500	**9**	...

Types of construction	Frame size		Order code
IM B3	90 ... 500	**0**	–
IM B5	90 ... 315	**1**	–
IM B34	90 ... 112	**2**	–
IM B14	90 ... 112	**3**	–
IM V1/cover	90 ... 500	**4**	–
IM B35	90 ... 500	**6**	–
For other types of construction see from Page 1/28	90 ... 500	**9**	...

[1] Outside the IE code classification according to IEC 60034-30.
[2] Only possible with 690 V (values apply to 690 V).
[3] Motor with special rotor (Cu).
[4] Can only be ordered with additional identification code **-Z** and order code

2

Selection and ordering data (continued)

P_{rated}, 60 Hz	Frame size	Operating values at rated output: n_{rated}, 60 Hz	T_{rated}, 60 Hz	IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	cos φ rated, 60 Hz, 4/4	I_{rated}, 60 Hz, 480 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	Motor type	Article No.	m IM B3	J
kW	FS	rpm	Nm	–	%	%	%	–	A	–	–	–			kg	kgm²
• Cooling: self-ventilated (IC 411) • Efficiency: High Efficiency IE2, 0.75 kW and above in accordance with IEC 60034-30 • Insulation: thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B), S1-100 % • Type of protection: "Non-sparking" in accordance with EN 60079-15; 2010: CE 0102 II 3G Ex nA IIC T3 Gc																
6-pole: 1200 rpm at 60 Hz																
LOHER CHEMSTAR																
0.75	**090 L**	1160	6.2	IE2	81.8	82.0	80.1	0.72	1.53	1.5	5.0	2.5	*ANGK-090LR-06*	**1PS1095-■BD■■-3CA3**	36	0.0044
0.9	**090 L**	1160	7.4	IE2	82.0	82.0	80.2	0.72	1.83	1.4	5.1	2.4	*ANGK-090LS-06*	**1PS1098-■BD■■-3CA3**	42	0.0044
1.25	**100 L**	1175	10.2	IE2	85.5	85.2	82.3	0.73	2.4	1.5	5.6	2.4	*ANGK-100LS-06*	**1PS1106-■BD■■-3CA3**	55	0.010
1.8	**112 M**	1180	14.6	IE2	86.6	86.5	83.0	0.73	3.4	1.3	5.8	2.5	*ANGK-112MS-06*	**1PS1113-■BD■■-3CA3**	66	0.019
3	**132 S**	1170	24.5	IE2	87.9	87.6	85.3	0.74	5.5	2.4	6.6	3.0	*ANGK-132SR-06*	**1PS1131-■BD■■-3CA3**	92	0.033
4	**132 M**	1160	32.9	IE2	88.3	88.9	88.1	0.79	6.9	2.1	6.6	2.7	*ANGK-132MR-06*	**1PS1133-■BD■■-3CA3**	96	0.045
5.5	**132 M**	1180	44.5	IE2	90.0	90.2	89.0	0.80	9.2	1.5	6.5	2.3	*ANGK-132MS-06*	**1PS1135-■BD■■-3CA3**	104	0.045
7.5	**160 M**	1180	61	IE2	89.6	89.7	88.0	0.80	12.6	1.3	6.2	2.4	*ANGK-160MR-06*	**1PS1163-■BD■■-3CA3**	176	0.088
11	**160 L**	1175	89	IE2	90.2	90.4	89.0	0.80	18.3	1.3	6.5	2.4	*ANGK-160LS-06*	**1PS1166-■BD■■-3CA3**	192	0.11
15	**180 L**	1170	122	IE2	91.0	91.4	90.7	0.81	24.5	2.4	7.0	2.5	*ANGK-180LS-06*	**1PS1186-■BD■■-3CA3**	255	0.28
18.5	**200 L**	1180	150	IE2	91.7	91.7	90.8	0.80	30.5	2.5	7.0	2.6	*ANGK-200LR-06*	**1PS1206-■BD■■-3CA3**	333	0.45
22	**200 L**	1180	178	IE2	91.8	91.8	91.0	0.80	36.0	2.5	7.0	2.6	*ANGK-200LS-06*	**1PS1208-■BD■■-3CA3**	349	0.49
30	**225 M**	1180	243	IE2	93.0	93.0	92.0	0.82	47.5	2.0	7.0	2.8	*ANGK-225MS-06*	**1PS1223-■BD■■-3CA3**	430	0.92
37	**250 M**	1185	298	IE2	93.2	93.2	92.3	0.80	60.0	1.4	7.0	2.6	*ANGK-250MM-06*	**1PS1253-■BD■■-3CA3**	560	1.0
45	**280 S**	1185	363	IE2	93.6	93.6	92.5	0.80	37.5	2.3	6.5	2.5	*ANGK-280SL-06*	**1PS1280-■BD■■-3CA3**	780	2.5
55	**280 M**	1188	442	IE2	93.8	93.6	93.0	0.90	45.5	2.4	7.0	2.8	*ANGK-280MM-06*	**1PS1283-■BD■■-3CA3**	850	2.9
75	**315 S**	1190	602	IE2	94.5	94.6	94.3	0.90	62	2.3	7.2	2.4	*ANGK-315SL-06*	**1PS1311-■BD■■-3CA3**	1030	3.3
90	**315 M**	1190	722	IE2	94.5	94.6	94.3	0.90	75	2.2	7.2	2.3	*ANGK-315ML-06*	**1PS1313-■BD■■-3CA3**	1100	4.0
110	**315 M**	1190	883	IE2	95.0	95.0	94.3	0.90	90	1.8	7.1	2.2	*ANGK-315MM-06*	**1PS1314-■BD■■-3CA3**	1190	4.9
132	**315 M**	1190	1059	IE2	95.2	95.2	94.3	0.90	108	1.8	7.2	2.2	*ANGK-315MN-06*	**1PS1315-■BD■■-3CA3**	1180	4.9
160	**315 L**	1190	1284	IE2	95.2	95.2	94.6	0.90	134	2.0	7.5	2.3	*ANGK-315LL-06*	**1PS1316-■BD■■-3CA3**	1400	6.0
200	**315 L**	1192	1602	IE2	95.1	95.2	94.6	0.80	172	2.4	7.4	2.6	*ANGK-315LM-06*	**1PS1317-■BD■■-3CA3**	1600	6.8
250	**355 L**	1194	1999	IE2	95.4	95.5	94.7	0.90	210	1.1	7.1	2.4	*ANGK-355LB-06*	**1PS1356-■BD■■-3CB2**	1730	9.1

LOHER VARIO on request

Operating modes	Frame size				Order code
Mains-fed operation	90 ... 355	**0**			–
Converter-fed operation, standard insulation [2]	90 ... 355	**1**			–
Converter-fed operation with special insulation (derating approx. 5 %) [2]	160 ... 355	**2**			–
Voltages	Frame size				Order code
230 V/400 V, 60 Hz	90 ... 112		**1**		–
500 VY, 60 Hz	90 ... 355		**3**		–
400 V/690 V, 60 Hz	90 ... 355		**6**		–
690 VY, 60 Hz	90 ... 355		**8**		–
For other voltages see Page 2/91	90 ... 355		**9**		...
Types of construction	Frame size				Order code
IM B3	90 ... 355			**0**	–
IM B5	90 ... 315			**1**	–
IM B34	90 ... 112			**2**	–
IM B14	90 ... 112			**3**	–
IM V1/cover	90 ... 355			**4**	–
IM B35	90 ... 355			**6**	–
For other types of construction see from Page 1/28	90 ... 355			**9**	...

[1] Motor with special rotor (Cu).

[2] Can only be ordered with additional identification code **-Z** and order code **M73**.

Selection and ordering data

Voltages	Voltage code 11. position of the Article No.		Additional identification code with order code and plain text if required	Motor series															
				LOHER CHEMSTAR												LOHER VARIO			
				Frame size															
1PS1. . . - . . . ■ . -				90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Optional voltages																			
690 VΔ, 50 Hz	**0**			–	–	–	–	–	–	–	–	–	–	–	○	○	○	○	○
230 VΔ/400 VY, 50 Hz	**1**			○	○	○	○	○	○	○	○	○	○	–	–	–	–	–	–
500 VY, 50 Hz	**3**			○	○	○	○	○	○	○	○	○	○	○	–	–	–	–	–
400 VΔ, 50 Hz	**4**			○	○	○	○	○	○	○	○	○	○	○	○	○	○	–	–
500 VΔ, 50 Hz	**5**			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
400 VΔ/690 VY, 50 Hz	**6**			○	○	○	○	○	○	○	○	○	○	○	○	○	○	–	–
690 VY, 50 Hz	**8**			○	○	○	○	○	○	○	○	○	○	○	○	–	–	–	–
415 VY, 50 Hz	**9**		**L1C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–
415 VΔ, 50 Hz	**9**		**L1D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
380 VΔ/660 VY, 50 Hz	**9**		**L1L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–
220 VΔ/380 VY, 50 Hz	**9**		**L1R**	✓	✓	✓	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–	–	–
1000 VΔ, 50 Hz	**9**		**L1V**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Other voltages	**9**		**L1Y** • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
220 VΔ/380 VY, 60 Hz (50 Hz output)	**9**		**L2A**	✓	✓	✓	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–	–	–
220 VΔ/380 VY, 60 Hz (60 Hz output)	**9**		**L2B**	✓	✓	✓	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–	–	–
380 VΔ/660 VY, 60 Hz (50 Hz output)	**9**		**L2C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–
380 VΔ/660 VY, 60 Hz (60 Hz output)	**9**		**L2D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–
460 VY, 60 Hz (60 Hz output)	**9**		**L2E**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	–	–
460 VΔ, 60 Hz (60 Hz output)	**9**		**L2F**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
575 VY, 60 Hz (60 Hz output)	**9**		**L2L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	–	–
575 VΔ, 60 Hz (60 Hz output)	**9**		**L2M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
440 VY, 60 Hz (50 Hz output)	**9**		**L2Q**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	–	–
440 VΔ, 60 Hz (50 Hz output)	**9**		**L2R**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
460 VY, 60 Hz (50 Hz output)	**9**		**L2S**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	–	–
460 VΔ, 60 Hz (50 Hz output)	**9**		**L2T**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
575 VY, 60 Hz (50 Hz output)	**9**		**L2U**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	–	–
575 VΔ, 60 Hz (50 Hz output)	**9**		**L2V**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
440 VY, 60 Hz (60 Hz output)	**9**		**L2W**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	–	–
440 VΔ, 60 Hz (60 Hz output)	**9**		**L2X**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.

○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O.R. On request
– Not possible

For dual voltages 230 V/400 V, 220 V/380 V, 400 V/690 V or 380 V/660 V:
– For motors for converter-fed operation, the converter rating plate is stamped with 380 V or 400 V.
– For motors with a Dahlander circuit, the lower voltage is generally specified.

Voltages not listed in the catalog are only available on request.

2

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special electrical designs/winding protection																	
Design with reduced starting current – factory clarification required (type test may be necessary), ETO option (Engineer To Order) without order code	**–**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Special design according to load curve of driven machine or customer requirements – factory clarification required and maybe type test needed, ETO option without order code	**–**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Adjustment of rating in response to customer requirements – factory clarification required and maybe type test needed, ETO option without order code	**–**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Motor protection with 3 PTC thermistors for tripping – without surge arresters, sole protection not included	**A11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor protection with 2 × 3 PTC thermistors for prewarning/tripping – without surge arresters, sole protection not included	**A12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor protection with 3 PTC thermistors for tripping as sole protection on converter (TMS)	**A15**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor protection with 2 × 3 PTC thermistors for prewarning/tripping as sole protection on converter (TMS)	**A16**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Measuring of winding temperature by means of embedded KTY84-130 temperature sensor	**A23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Measuring of winding temperature by means of 2 × embedded KTY84-130 temperature sensors	**A25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Monitoring of winding temperature using 3 Pt100 resistance thermometers – 2-wire from element and terminal box; for round-wire windings only	**A60**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Monitoring of winding temperature using 2 × 3 Pt100 resistance thermometers – 2-wire from element and terminal box; for round-wire windings only	**A61**	–	–	–	–	O.R.	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓	✓	✓	✓
3 Pt100 resistance thermometers in stator winding, 3-wire connection from auxiliary terminal box	**A63**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
6 Pt100 resistance thermometers in stator winding, 3-wire connection from auxiliary terminal box	**A64**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
6 Pt100 slot resistance thermometers without surge arresters for 4-wire connection from terminal box – for pre-formed coil winding only	**A65**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
6 Pt100 slot resistance thermometers with surge arresters for 4-wire connection from terminal box – for pre-formed coil winding only	**A66**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
6 Pt100 slot resistance thermometers in shielded design without surge arrester for 4-wire connection from terminal box – for pre-formed coil winding only	**A67**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
6 Pt100 slot resistance thermometers in shielded design to Ex i with surge arresters for 3- and 4-wire connection from terminal box – for pre-formed coil winding only	**Q40**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special electrical designs/winding protection (continued)																	
2 Pt100 double resistance thermometers in shielded design (Ex i) for roller bearing or sleeve bearing	**V80**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Winding Pt100 in 3- or 4-wire type from sensor instead of from terminal (not Ex i Pt100!)	**Q43**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Bearing Pt100 in 3- or 4-wire type from sensor instead of from terminal – optionally possible for **V80**, **A40**, **A42**	**Q44**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
One thermocouple per bearing	**Q49**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Sensor for housing vibration monitoring (preferred brand), with loose cable – for each sensor	**V14**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Sensor for housing vibration monitoring (preferred brand), without terminal box – for each sensor	**V15**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
3 transmitters, 4 to 20 mA for Pt100 winding	**P20**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
1 transmitter with digital display with Ex d or Ex i approval	**V88**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Pt100 winding in tolerance class A with calibration certificate	**V78**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Site altitude max. 1500 m (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Site altitude max. 2000 m (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Site altitude max. 2500 m (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Site altitude max. 3000 m (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D09**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cooling air temperature max. 45 °C (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cooling air temperature max. 50 °C (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special electrical designs/winding protection (continued)																	
Cooling air temperature max. 55 °C (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D13**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cooling air temperature max. 60 °C (observe derating) – derating in accordance with reduction table, efficiency class of motor is maintained. No additional charge when special voltage is selected (11th position of Article No. = 9).	**D14**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coolant temperature below +40 °C with increased output – factory clarification required, not applicable for IE2.	**D18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Utilization to temperature class 155 (F) with higher output – higher output on request, not applicable for IE2. No additional charge when special voltage is selected (11th position of Article No. = 9).	**C12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Rated output of the lower output level – IEC output levels are maintained, only in combination with **D06** to **D18**. No additional charge when special voltage is selected (11th position of Article No. = 9).	**C29**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Temperature class F	**W00**	–	–	–	–	–	–	–	–	–	–	–	–	O	O	O	O
Temperature class H	**W01**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–
Special insulation for increased voltage load in converter-fed operation (phase/phase 2250 V_{Peak}/derating) – for LOHER CHEMSTAR at 8th position of the Article No. = 2	[1]	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sealing of winding overhangs with silicone rubber	**W03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Sealing of cable duct with silicone rubber	**W04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Efficiency according to efficiency class IE3 (Premium Efficiency) – factory clarification required	**D25**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–
Non-standard voltage and/or frequency for separate fan motor	**Y81** • and identification code	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Other special electrical designs/configurations		O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Colors and paint finish																	
Internal corrosion protection system J08	**W10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Coating system N08 – 110 µm (C3 medium) – corrosion resistance acc. to EN/ISO 12944-5 = C3	**V09**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coating system N14/J08 – 170 µm (chemical industry + onshore, C5 industrial climate) – corrosion resistance acc. to EN/ISO 12944-5 = C5 (5 to 15 years) for industrial climate	**V10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coating system N14A (chemical industry + onshore, C5 industry) – corrosion resistance acc. to EN/ISO 12944-5 = C5 (5 to 15 years) for industrial climate	**W14**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Colors and paint finish (continued)																	
Special prime coat system Z05 with internal corrosion protection system J08	**W15**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Coating system Z21/J08 – 210 µm (offshore, C5M-M) – corrosion resistance acc. to EN/ISO 12944-5 = C5 (5 to 15 years) – sea climate	**V11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Increased layer thickness 275 µm for coating system Z21 (C5M-high) – only in combination with **V11** – corrosion resistance acc. to EN/ISO 12944-5 = C5 high (> 15 years) – sea climate	**V19**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special offshore paint finish S13 with reference to NORSOK M501 (C5M-high) with comments and deviations – corrosion resistance acc. to EN/ISO 12944-5 = C5 high (> 15 years) – sea climate	**V12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special coating system S11/J08 (e.g. sub-merged motors)	**V13**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unpainted, only primed	**K24**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Unpainted	**K23**	○	○	○	○	○	○	○	○	○	○	○	○	–	–	–	–
Outer coating 110 µm for zinc-galvanized noise cabinet – **V98** = Outer coating 110 µm for zinc-galvanized noise cabinet	**V98**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Special colors according to Munsell or British Standard	**Y50** • and identification code	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Standard paint finish in RAL 1004, 1018, 2000, 2004, 5009, 5012, 5015, 6003, 6011, 7000, 7011, 7031, 7038, 9002	**Y53** • and special finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special paint finish in RAL 1004, 1018, 2000, 2004, 5009, 5012, 5015, 6003, 6011, 7000, 7011, 7031, 7038, 9002 – (specify special coating system in addition, e.g. **V10**, **V11**, **W14**, etc.)	**Y54** • and special finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RAL colors, other than those offered above	**Y51** • and special finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special non-RAL colors	**Y71** • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Other paint combinations/systems or RAL colors to customer specification		O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Design for Zones according to ATEX																	
Ex nA II T3 (Zone 2) design according to IEC 60079-15 for converter-fed operation – system test on original converter	**M73**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Design for Zone 21 (conductive dust) for mains-fed operation	**M34**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design for Zone 21 (conductive dust) for converter-fed operation	**M38**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design in double protection additionally for dust, Zone 22 for mains-fed operation, no hybrid certification – non-conductive dust	**W20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design in double protection additionally for dust, Zone 21 for converter-fed operation, no hybrid certification – non-conductive and conductive dust	**W21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design in double protection additionally for dust, Zone 22 for converter-fed operation, no hybrid certification – non-conductive dust, select options for converter-fed operation separately	**W22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.

Special versions

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Design for Zones according to ATEX (continued)																	
Design in double protection additionally for dust; Zone 21 for converter-fed operation; no hybrid certification – select options for converter-fed operation separately	**W23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Ship design "Operation below deck"																	
Design acc. to GL (Germanischer Lloyd), CT 45 °C with manufacturer's declaration – non essential	**W24**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design acc. to LRoS (Lloyds Register of Shipping), CT 45 °C with manufacturer's declaration – non essential	**W25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design acc. to BV (Bureau Veritas), CT 50 °C with manufacturer's declaration – non essential	**W26**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design acc. to DNV (Det Norske Veritas), CT 45 °C with manufacturer's declaration – non essential	**W27**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design acc. to ABS (American Bureau of Shipping), CT 50 °C with manufacturer's declaration – non essential	**W28**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Design acc. to RINa (Registro Italiano Novale), CT 50 °C with manufacturer's declaration – non essential	**W29**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Other certifications, motors for upper deck mounting and acceptance tests to classification – factory clarification required	**W99**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Design acc. to GL (Germanischer Lloyd), CT 45 °C, essential drive [1]	**Q60**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to LRoS (Lloyds Register of Shipping), CT 45 °C with manufacturer's declaration, essential drive [1]	**Q61**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to BV (Bureau Veritas), CT 45 °C with manufacturer's declaration, essential drive [1]	**Q62**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to DNV (Det Norske Veritas), CT 45 °C with manufacturer's declaration, essential drive [1]	**Q63**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to ABS (American Bureau of Shipping), CT 50 °C with manufacturer's declaration, essential drive [1]	**Q64**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to RINa (Registro Italiano Novale), CT 50 °C with manufacturer's declaration, essential drive [1]	**Q65**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to CCS (China) CT 45 °C with manufacturer's declaration, essential drive [1]	**Q66**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to USSR (Russia) CT xx °C with manufacturer's declaration, essential drive [1]	**Q67**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to PR (Poland) CT xx °C with manufacturer's declaration, essential drive [1]	**Q68**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Design acc. to NKK (Japan) CT xx °C with manufacturer's declaration, essential drive [1]	**Q69**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Individual certifications																	
Coolant temperature in temperature range -50 to +40 °C – roller bearing design	**D02**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Coolant temperature in temperature range -40 to +40 °C – roller bearing design	**D03**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Coolant temperature in temperature range -30 to +40 °C – roller bearing design	**D04**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Electrical design according to NEMA MG1-12	**D30**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Individual certifications (continued)																	
China Energy Efficiency Label	**D34**	○	○	○	○	○	○	○	○	○	○	○	○	–	–	–	–
Certification acc. to NEPSI – design may differ (different cover size)	**D32**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Certificate EAC for Eurasian Customs Union	**D35**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IEC Ex certificate	**D37**	○	○	○	○	○	○	○	○	○	○	○	○	✓	✓	✓	✓
Special mechanical designs																	
Terminal box on right-hand side (view onto DE)	**K09**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□
Terminal box on left-hand side (view onto DE)	**K10**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	○	○	○	○
Terminal box on top	**K11**	□	□	□	□	□	□	□	□	□	□	□	□	○	○	○	○
Terminal box to IP65	**Q71**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Cable entry thread metrically different from standard – thread dimension must be specified	**W30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Enlarged connection system for main terminal box – not in combination with **K53** (Ex d terminal box)	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Undrilled cable gland plate – for main terminal box	**L01**	–	–	–	–	–	–	–	–	–	–	–	–	□	□	□	□
Split terminal box	**W31**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓
NPT thread – specify size in plain text, gland cannot be supplied	**W32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Cable gland, standard – one cable gland for supply cable in the main terminal box, non-armored cable	**K54**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Cable gland, standard thread size for auxiliary connection (1 unit) – for connection cable of accessories in main or auxiliary terminal box	**W33**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Main terminal with tinned cable lug for copper cable	**W34**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Saddle terminal for connection without cable lug	**W35**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Special cable gland – special sizes or armored cable, exact cable data needed	**Y97** • and identification code	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Material of auxiliary terminal box: Stainless steel – not in combination with **K53** (Ex d terminal box)	**M51**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Separate auxiliary terminal box for anti-condensation heater	**M52**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Heater in main terminal box	**P84**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Auxiliary terminal box in cast-iron design with "undrilled" removable cable gland plate – not in combination with **K53** (Ex d terminal box)	**Q75**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Auxiliary terminal box in cast-iron design with removable cable gland plate "drilled with metric thread and sealed with metal plug" – not in combination with **K53** (Ex d terminal box)	**Q76**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓

Special versions

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series														
		LOHER CHEMSTAR												**LOHER VARIO**		
		Frame size														
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special mechanical designs (continued)																	
Auxiliary terminal box Ex e/cast-iron – not in combination with **K53** (Ex d terminal box)	**W72**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cable outlet radially without terminal box with 1 m free cable length (4- or 7-core)	**W38**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Additional price for each additional meter of cable – only in combination with **W38**	**W39**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Connection cable for accessories – only in combination with **W38**, length as power cable	**W40**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Additional separately supplied terminal box made of cast-iron with baseplate – main terminal box certified acc. to Ex e	**W41**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Cable entry from DE	**K83**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cable entry from NDE	**K84**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Rotation of the terminal box by 180°	**K85**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Vibration quantity level A – IEC 60034-14	**K01**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Vibration quantity level B – IEC 60034-14 – for converter-fed operation only at lowest and highest speed of speed range	**K02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shaft and flange with increased accuracy according to DIN 42955-R	**K04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Radial sealing ring at DE for horizontal flange-mounting types (DE oil-tight)	**K17**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Radial sealing ring at DE for vertical flange-mounting types (DE oil-tight)	**W43**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Labyrinth sealing for external bearing seal	**W44**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓	✓	□	□	□	□
Bearing for increased cantilever forces (roller bearing DE) with regreasing device – comprising **K40**	**K20**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Bearings for increased axial forces	**V20**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Regreasing device DE/NDE	**K40**	–	–	–	–	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□
Grease-collecting chamber if regreasing is applied	**W45**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bearing insulation NDE for roller bearings – binding for frame sizes 315 to 500 for converter-fed operation	**L27**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓	✓	✓	✓	✓
Shaft grounding device – up to -20 °C only	**V36**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Located bearing DE	**K94**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Located bearing NDE	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special grease Klüber Staburags NBU8EP – ETO option (Engineer To Order) without order code	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special grease Klüber Isoflex SL2 – ETO option (Engineer To Order) without order code	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special grease Barierta L55/2 – ETO option (Engineer To Order) without order code	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other special grease – ETO option (Engineer To Order) without order code	**–**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Pt100 bearing in tolerance class A with calibration certificate – only in combination with **Q44**	**V76**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Sensor for housing vibration monitoring Bently Nevada Accelerometers plus separate terminal box – for each sensor	**V16**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special mechanical designs (continued)																	
Bearing ventilation at DE for lower bearing temperature for roller bearing design grease-lubricated	**V17**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Bearing insulation at both ends for roller bearing design motors (DE linked to ground) – for horizontal mounting only (vertical mounting on request)	**V18**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Grease extractors for DE and NDE	**V21**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓
Automatic grease lubricator at DE and NDE (permissible temperature range from -15 to +50 °C)	**V22**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Enlarged spent grease chamber at DE and NDE	**V25**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
External grounding (additionally)	**W46**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
VIK design – including **W14**, **W69**	**K30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
LOHER CHEMSTAR Plus design, including VIK design – including **K30**, **K51**, **W14**, **W69** and IP66 bearing seal, vibration quantity level as grade B	**W09**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Second rating plate, supplied loose	**K31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second rating plate installed in terminal box	**W47**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extra rating plate for customer data (each plate) – data must be specified as text in the order	**Y82** • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rating plates made of stainless steel	**W48**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Rating plates in languages other than English or German – main rating plate or extra rating plates O.R. factory clarification required	**W49**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Additional measures for 2 to 4 years storage in accordance with storage regulations	**W50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anti-condensation heater 230 V	**K45**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Anti-condensation heater 115 V	**K46**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Anti-condensation heater rated voltage range 110 to 120 V (min. 100 V, max. 132 V) Ex e II T3	**M14**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Anti-condensation heater rated voltage range 220 to 240 V (min. 200 V, max. 264 V) Ex e II T3	**M15**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Anti-condensation heater 208 to 254 V – 1-phase (self-limiting for Ex e, Ex n)	**W88**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Heater with thermostat (e.g. Elmess)	**V75**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Second standard shaft extension – for 100 % torque	**K16**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Non-standard cylindrical shaft extension (standard diameter or smaller) – in case of significantly different diameters, especially high-pole motors due to the maximum permissible torque stress, factory clarification required	**Y55** • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shaft of material 1.7225	**W51**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Shaft of material 1.4021	**W52**	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–

Special versions

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special mechanical designs (continued)																	
Shaft end of stainless steel butt-welded (material 1.4571)	**W53**	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–
Shaft made of special steel – for increased torque loading, e.g. 1.7225-42CrMo4	**L72**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Welded standard stator housing for surface-cooled motors – factory clarification required because of possible dimension deviations	**W54**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	□	□	□	□
Welded copper bar rotors	**W55**	–	–	–	O.R.	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□
Second shaft extension for IM B3 up to 100 % T_{rated}; cylindrical with feather key	**Q21**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Special rotor for heavy duty starting (e.g. double-cage rotor or brass rotor) – testing needed	**Q22**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Generator design (asynchronous) with 1.8 times runaway speed	**W56**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
IP56 degree of protection	**K51**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□
IP65 degree of protection	**K50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IP66 degree of protection	**L94**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
IP67 degree of protection	**K93**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
IP67 degree of protection without level switch (resin material for terminal box protection will be shipped as extra package, 8 m submerged, 72 h max.)	**W58**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Condensation drainage holes sealed with screw	**W60**	–	–	–	–	□	□	□	□	□	□	□	□	✓	✓	✓	✓
Increased tropicalization, humidity ≥ 80 % – LOHER CHEMSTAR incl. **V10** and **W71**, LOHER VARIO incl. **V10** and **P45**	**W61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tropical design for outdoor onshore installation	**L28**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Design without fan and fan cover – motor mounted in air stream of driven fan; without external air stream cooling, due to derating	**W62**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.
Fan with plastic coating in case of metal fan	**W63**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fan of aluminum	**W64**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	□	–	–	–	–	–
Fan of steel	**W65**	O.R.	O.R.	O.R.	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□
External fan of brass	**W66**	O.R.	O.R.	O.R.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
External fan of stainless steel	**V94**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Special ventilation for on-deck motors	**W67**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fan cover of steel sheet (3 mm thick)	**W68**	O.R.	O.R.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Galvanized fan cover – included in **K30** and **W09**	**W69**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Noise class 3 for clockwise direction of rotation viewed onto DE – for 2-pole motors only	**K37**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Noise class 3 for counter-clockwise direction of rotation viewed onto DE – for 2-pole motors only	**K38**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Clockwise – direction of rotation must be specified for LOHER VARIO 2-/4-pole motors	**K97**	–	–	–	–	–	–	–	–	–	–	–	○	○	○	○	○
Counter-clockwise – direction of rotation must be specified for LOHER VARIO 2-/4-pole motors	**K98**	–	–	–	–	–	–	–	–	–	–	–	○	○	○	○	○
Noise reduction: Silencer for air inlet (DW, NMA) – only in combination with **K97** or **K98**	**L20**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Stainless steel grid for air inlet silencer – only in combination with **L20**	**L25**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special mechanical designs (continued)																	
Noise cabinet with inspection door – zinc-galvanized, unpainted – noise reduction approx. 15 dB(A) based on GG1	**V32**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Operation in both directions of rotation – for LOHER VARIO (frame sizes 355 to 500) 2-/4-pole increased noise values and possible derating	**K99**	□	□	□	□	□	□	□	□	□	□	□	○	✓	✓	✓	O.R.
Higher number of starts (up to 3000 starts per year) – factory testing is necessary	**Q23**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Full-key balancing	**L68**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Support ring for coupling guard	**L15**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Fitting of coupling halves (customer-supplied, finish-machined and balanced) – supplied 4 weeks ahead of testing date	**L17**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓
Motor mounting material: bolts for mounting on steel foundation with shims (V2A), taper pins	**L31**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Motor mounting material: T-head bolts, anchor sleeves and soleplates for mounting on concrete foundation	**L33**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Half-key balancing	**L69**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Heavy duty bearing design for extreme cantilever forces	**L96**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Stainless steel screws and plates	**W71**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Stainless steel external bolts	**P45**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Ambient temperatures down to -40 °C; preheating before operation necessary	**W73**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Ambient temperatures down to -40 °C; preheating before operation necessary (factory clarification required)	**W77**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Ambient temperatures down to -60 °C; preheating before operation necessary – factory clarification required	**W78**	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Ambient temperatures down to -40 °C Ex nA II and Ex e II; no preheating before operation	**W79**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mounting of rotary pulse encoder, 1024 pulses per revolution -10 to 30 V, HTL level – explosion-proof version	**W96**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Ambient temperatures down to -55 °C; no preheating before operation	**W98**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Mounting of rotary pulse encoder Ex version (preferred brand) – 1024 pulses per revolution -10 to 30 V, HTL level – explosion-proof version	**V72**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Mounting of rotary pulse encoder Ex version with integrated shaft grounding (preferred brand) – 1024 pulses per revolution –10 to 30 V, HTL level – explosion-proof version; up to 20 °C; select bearing insulation separately	**V77**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Mechanical protection for rotary pulse encoder	**M68**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Mounted axial forced ventilation – forced ventilation should preferably be specified in the 10th position of the Article No.	**G17**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	O.R.	O.R.	O.R.	O.R.

Special versions

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special mechanical designs (continued)																	
Mounted radial forced ventilation	**W81**	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.	O.R.	–	–	–	–
Forced ventilation at NDE	**V28**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Backstop for clockwise direction of rotation viewed onto DE (counter-clockwise blocked)	**G48**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Backstop for counter-clockwise direction of rotation viewed onto DE (clockwise blocked)	**G49**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tapered shaft extension with shaft nut	**T36**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
Sun canopy mounting in normal steel, cover in unpainted stainless steel for vertical motors	**V87**	–	–	–	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Sun canopy mounting in normal steel, cover in unpainted stainless steel for horizontal motors	**V99**	–	–	–	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Preparation for SPM bearing monitoring, only M8 drilled hole for measuring nipple	**W84**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Machined surface on motor foot with dowel pin holes	**Q94**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Base frame for height adaptation of max. 2 frame sizes difference	**Q96**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Adaptation of foot and shaft dimensions to next higher frame size (no adaptation of terminal box!)	**Q97**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Adaptation of flange dimensions and drilled holes in flange	**Q98**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Preparation for later installation of sun protection shield	**Q99**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
SPM bearing monitoring: Measuring nipple system 32 - thread M8, DE and NDE	**G50**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shock pulse measurement (SPM), fixed sensor and distribution box	**H05**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
SPM bearing monitoring: Fixed sensor system 40 thread M8	**W85**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Bearing temperature monitoring with PTC thermistors at DE/NDE	**W86**	–	–	–	–	O.R.	O.R.	✓	✓	✓	✓	✓	✓	–	–	–	–
Speed monitoring by inductive proximity switches, Pepperl + Fuchs	**A03**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
2 Pt100 resistance thermometers for 3- or 4-wire connection from terminal box for roller bearings – 1 × DE and 1 × NDE	**A40**	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓
2 Pt100 double resistance thermometers for 4-wire connection from terminal box for roller bearings – 1 × DE and 1 × NDE	**A42**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
2 dial-type thermometers for roller bearings and sleeve bearings with meter unit without contacts	**A70**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
2 dial-type thermometers for roller bearings and sleeve bearings with meter unit on stator housing and 2 NO contacts	**A71**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓

Special versions	Additional identification code **-Z** with order code and plain text if required	Motor series															
		LOHER CHEMSTAR												**LOHER VARIO**			
		Frame size															
1PS1. . . - . . . . . - . . . . -Z		90	100	112	132	160	180	200	225	250	280	315	355	355	400	450	500
Special mechanical designs (continued)																	
Bearing temperature monitoring with 1 × Pt100 per bearing in 2-wire connection	**A72**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	–	–	–	–
One dial-type thermometer with 2 contacts, capillary principle – Ex i design without supply unit!	**V89**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Engraved tag plate fixed on terminal box	**V96**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
4 mm shims, stainless-steel base (V4A/AISI 316) – not laminated	**Q92**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
4 mm shims, brass base – not laminated	**V31**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Slotted feet holes	**Q95**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Pre-formed coil for LV motors	**V01**	–	–	–	–	–	–	–	–	–	–	–	–	O.R.	O.R.	O.R.	O.R.
2 metal test sheets (100 × 150 mm) with paint layer for special acceptance test	**V08**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Impact protection – for built-on devices, per device	**M81**	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
"High-speed motors" for speed range 3600 < $n \leq$ 6000 rpm – factory clarification required; torque characteristic and cutoff frequency affect the design	**W87**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	✓	✓	✓	✓
"High-speed motors" for speed range > 6000 rpm – factory clarification required; torque characteristic and cutoff frequency affect the design; ETO option (Engineer To Order) without order code	**–**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Retrofit (description of special design separately) – adaptation to an existing motor	**B15**	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.
Extension of the liability for defects																	
Extension of the liability for defects by 12 months to a total of 24 months from delivery	**Q80**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extension of the liability for defects by 18 months to a total of 30 months from delivery	**Q81**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extension of the liability for defects by 24 months to a total of 36 months from delivery	**Q82**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extension of the liability for defects by 30 months to a total of 42 months from delivery	**Q83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extension of the liability for defects by 36 months to a total of 48 months from delivery	**Q84**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extension of the liability for defects by 48 months to a total of 60 months from delivery	**Q85**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O.R. Possible on request
– Not possible

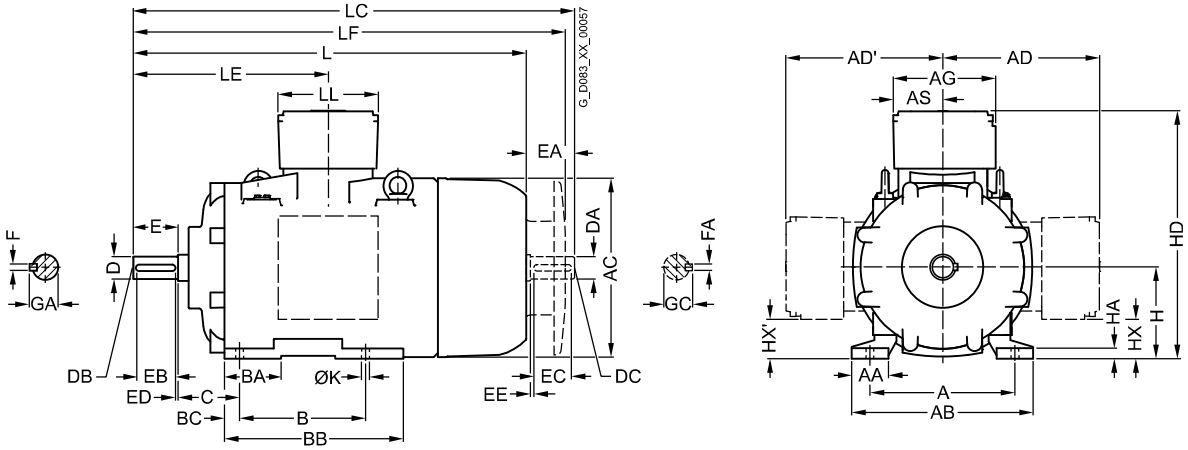
[1] Coding in 8th position of the article number, for LOHER CHEMSTAR = 2.

2

Dimensional drawings

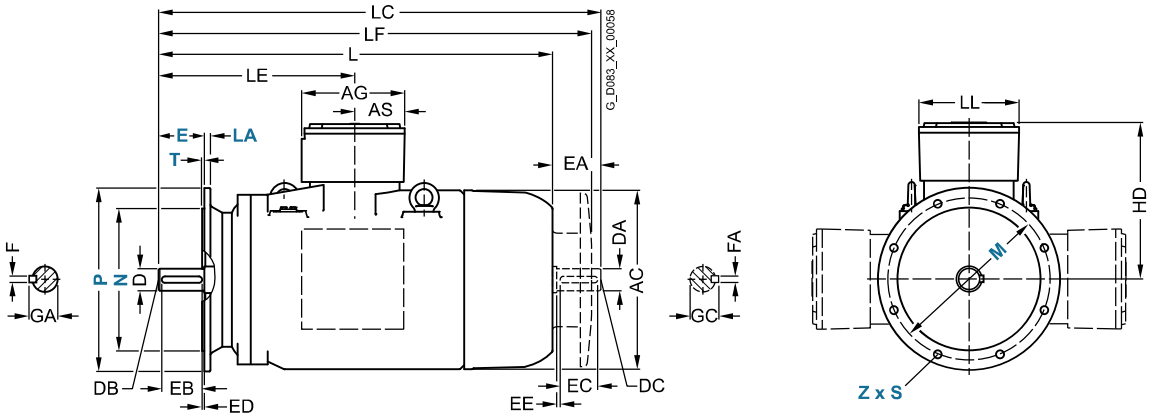
Type of construction IM B3

For flange dimensions, see Page 2/110.



Types of construction IM B5 and IM V1

For flange dimensions, see Page 2/110.

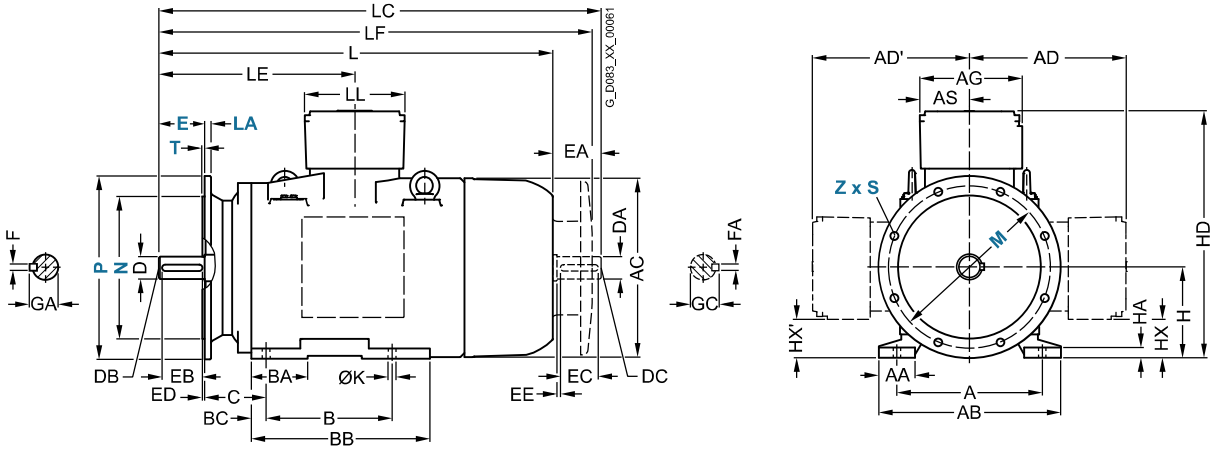


		Dimension designation acc. to **IEC**																	
Frame size	No. of poles	A	AA	AB	AC	AD/AD'	AG	AS	B	BA	BB	BC	C	H	HA	HD	øK	L
LOHER CHEMSTAR																		
90 L	2 … 16	140	40	180	186	–	138	69	125	62	155	15	56	90	13	303	10	426
100 L	2 … 16	160	40	205	213	–	138	69	140	45	170	15	63	100	18	327	12	482
112 M	2 … 16	190	45	240	237	–	138	69	140	45	170	18	70	112	18	352	12	465
132 S	2 … 16	216	50	260	278	274	186	92	140	92	228	25	89	132	18	406	12	574
132 M	2 … 16	216	50	260	278	274	186	92	178	92	228	25	89	132	18	406	12	574
160 M	2 … 16	254	60	310	331	305	186	92	210	60	307	21	108	160	27	465	15	786
160 L	2 … 16	254	60	310	331	305	186	92	254	60	307	21	108	160	27	465	15	786
180 M	2 … 16	279	70	349	364	349	254	123	241	99	359	24	121	180	19	529	15	822
180 L	2 … 16	279	70	349	364	349	254	123	279	99	359	24	121	180	19	529	15	822
200 L	2 … 16	318	80	400	404	367	254	123	305	120	425	32	133	200	25	569	19	884
225 S	2 4 … 16	356	90	446	451	384	254	123	286	136	438	34	149	225	26	609	19	966 996
225 M	2 4 … 16	356	90	446	451	384	254	123	311	136	438	34	149	225	26	609	19	966 996
250 M	2 4 … 16	406	100	505	489	522 522	382	176	349	110	420	35.5	168	250	35	772	25	1028

Dimensional drawings (continued)

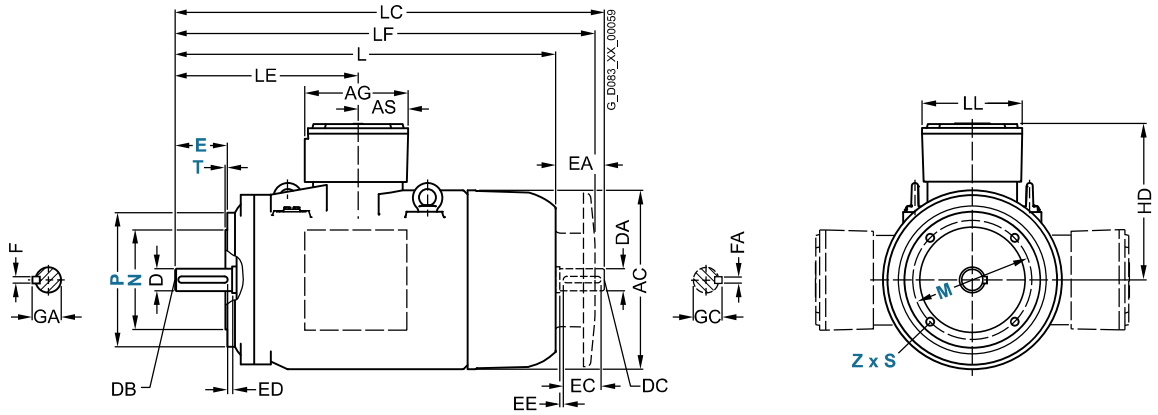
Type of construction IM B35

For flange dimensions, see Page 2/110.



Type of construction IM B14

For flange dimensions, see Page 2/110.

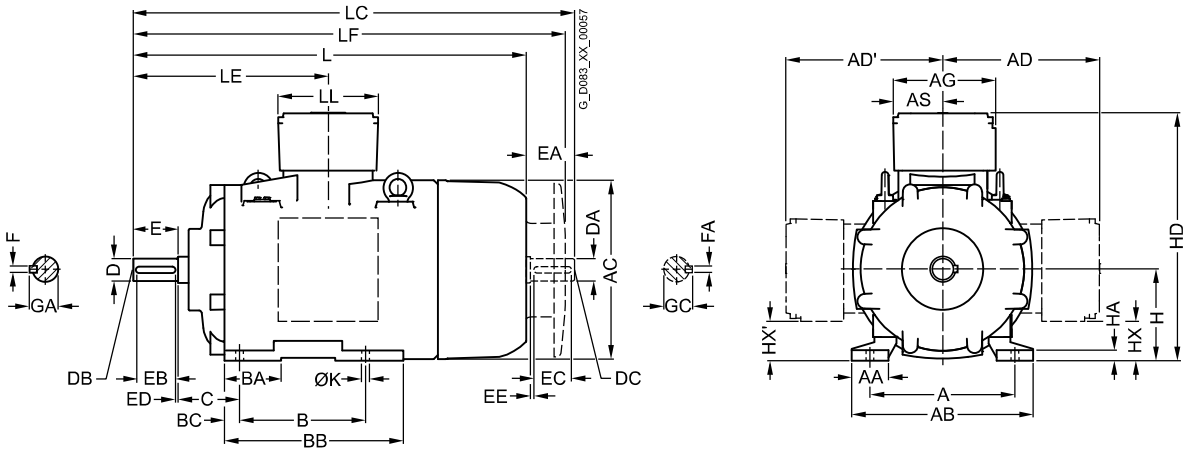


		Dimension designation acc. to **IEC**					DE shaft extension						NDE shaft extension						
Frame size	No. of poles	LC	LE	LF	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
LOHER CHEMSTAR																			
90 L	2 … 16	486	173	459	138	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
100 L	2 … 16	552	205	520	138	28	M10	60	50	5	8	31	28	M10	60	50	5	8	31
112 M	2 … 16	535	210	505	138	28	M10	60	50	5	8	31	28	M10	60	50	5	8	31
132 S	2 … 16	664	270	638	184	38	M12	80	70	5	10	41	38	M12	80	70	5	10	41
132 M	2 … 16	664	270	638	184	38	M12	80	70	5	10	41	38	M12	80	70	5	10	41
160 M	2 … 16	906	381	850	184	42	M16	110	100	5	12	45	42	M16	110	100	5	12	45
160 L	2 … 16	906	381	850	184	42	M16	110	100	5	12	45	42	M16	110	100	5	12	45
180 M	2 … 16	942	415	912	246	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
180 L	2 … 16	942	415	912	246	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
200 L	2 … 16	1004	460	974	246	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S	2	1086	480	1062	246	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	4 … 16	1146	510	1092		60		140	125	7.5	18	64	60		140	125	7.5	18	64
225 M	2	1086	480	1062	246	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	4 … 16	1146	510	1092		60		140	125	7.5	18	64	60		140	125	7.5	18	64
250 M	2	1178	496	1140	354	60	M20	140	125	7.5	18	64	60	M20	140	125	7.5	18	64
	4 … 16					65						69	65						69

2

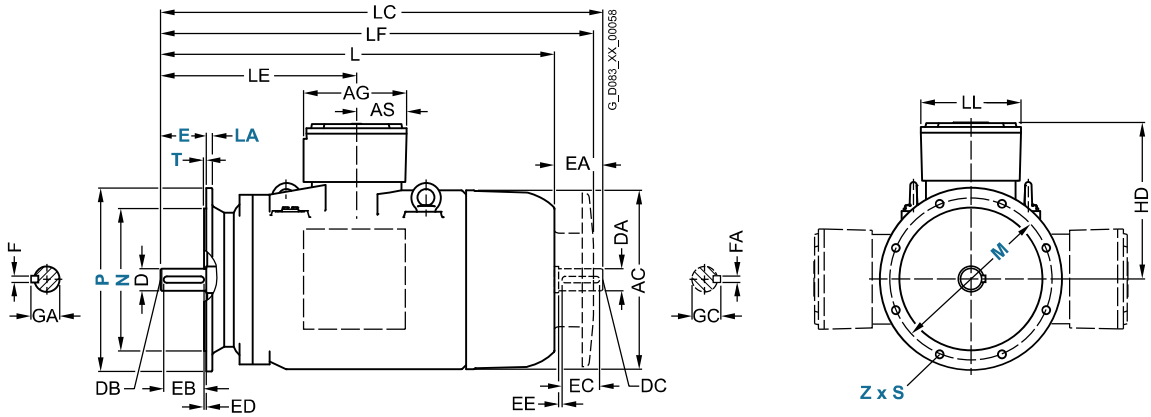
Dimensional drawings (continued)

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see Page 2/110.

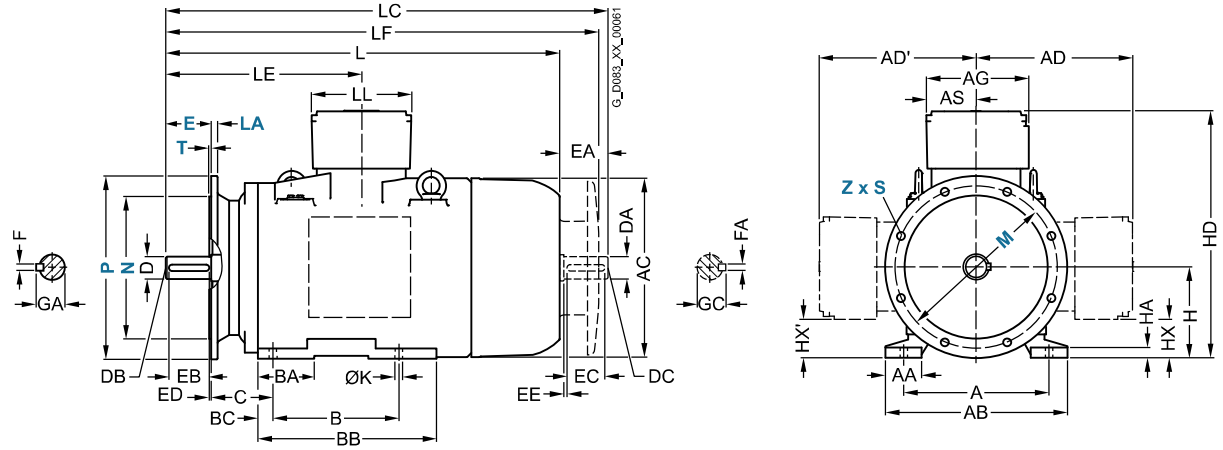


		Dimension designation acc. to **IEC**																	
Frame size	No. of poles	A	AA	AB	AC	AD/AD'	AG	AS	B	BA	BB	BC	C	H	HA	HD	øK	L
LOHER CHEMSTAR																		
280 S	2 4 … 16	457	110	570	550	552	382	176	368	120	520	51	190	280	40	768	26	1119
280 M	2 4 … 16	457	110	570	550	552	382	196	419	120	520	51	190	280	40	768	26	1119
315 S	2 4 … 16	508	125	630	622	660	509	196	406	165	575	59	216	315	40	955	28	1304 1334
315 M	2 4 … 16	508	125	630	622	660	509	196	457	165	575	59	216	315	40	955	28	1304 1334
315 LL	2 4 … 16	508	125	630	622	676	509	196	508	165	575	59	216	315	40	971	28	1491 1521
315 L	2 4 … 16	508	125	630	622	676	509	196	560	165	575	59	216	315	40	971	28	1491 1521
355 M	2 4 … 16	610	120	730	700	729			560	150	650	45	254	355	50	1084	30	1400 1430
355 L	2 4 … 16	610	120	730	700	729			630	150	720	45	254	355	50	1084	30	1470 1500

Dimensional drawings (continued)

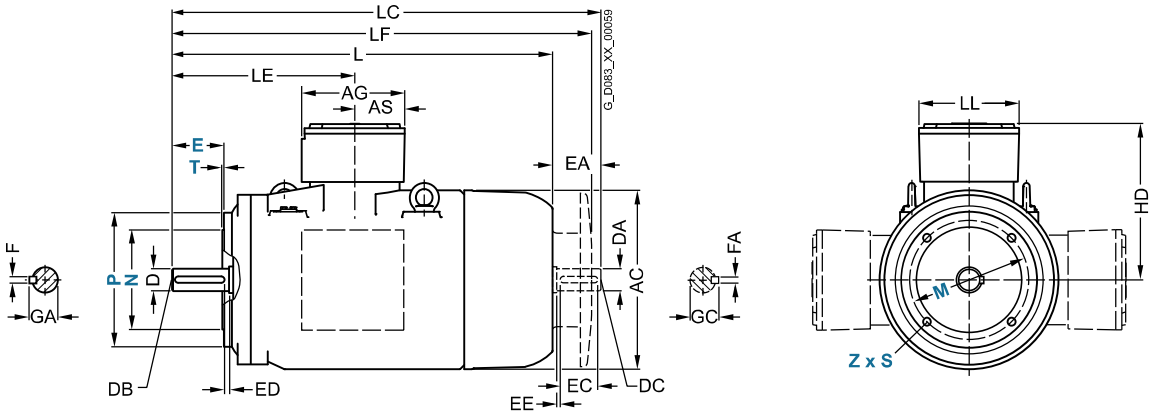
Type of construction IM B35

For flange dimensions, see Page 2/110.



Type of construction IM B14

For flange dimensions, see Page 2/110.

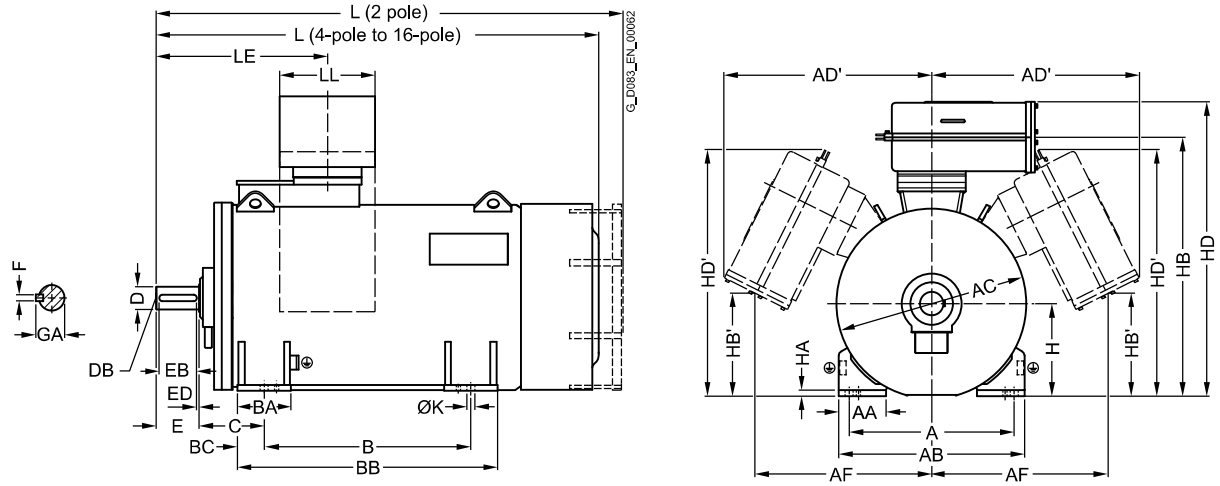


		Dimension designation acc. to **IEC**					DE shaft extension						NDE shaft extension						
Frame size	No. of poles	LC	LE	LF	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
LOHER CHEMSTAR																			
280 S	2	1269	582	1231	354	65	M20	140	125	7.5	18	69	65	M20	140	125	7.5	18	69
	4 … 16					75					20	79.5	75					20	79.5
280 M	2	1269	582	1231	354	65	M20	140	125	7.5	18	69	65	M20	140	125	7.5	18	69
	4 … 16					75					20	79.5	75					20	79.5
315 S	2	1494	630	1422	401	65	M20	140	125	7.5	18	69	65	M20	140	125	7.5	18	69
	4 … 16	1554	660	1452		80		170	140	15	22	79.5	80		170	140	15	22	79.5
315 M	2	1494	630	1422	401	65	M20	140	125	7.5	18	69	65	M20	140	125	7.5	18	69
	4 … 16	1554	660	1452		80		170	140	15	22	85	80		170	140	15	22	85
315 LL	2	1694	630	1609	401	65	M20	140	125	7.5	18	69	65	M20	140	125	7.5	18	69
	4 … 16	1741	660	1639		80		170	140	15	22	85	80		170	140	15	22	85
315 L	2	1694	630	1609	401	65	M20	140	125	7.5	18	69	65	M20	140	125	7.5	18	69
	4 … 16	1741	660	1639		80		170	140	15	22	85	80		170	140	15	22	85
355 M	2	1550	674	1563	401	75	M20	140	125	7.5	20	79.5	75	M20	140	125	7.5	20	79.5
	4 … 16	1610	704	1593		90	M24	170	140	15	25	95	90	M24	170	140	15	25	95
355 L	2	1620	709	1633	401	75	M20	140	125	7.5	20	79.5	75	M20	140	125	7.5	20	79.5
	4 … 16	1680	739	1663		90	M24	170	140	15	25	95	90	M24	170	140	15	25	95

Dimensional drawings (continued)

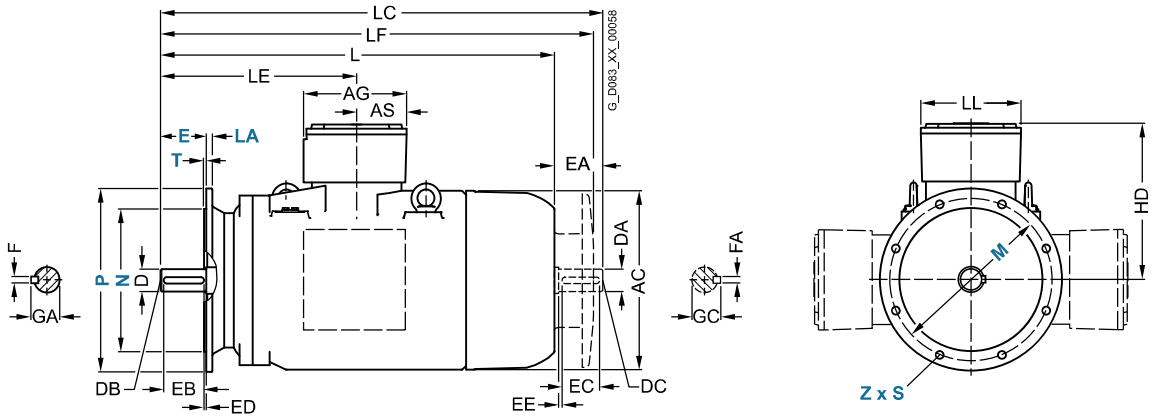
Type of construction IM B3

Design of terminal box and position for LOHER VARIO



Types of construction IM B5 and IM V1

For flange dimensions, see Page 2/110.
Design of terminal box and position for LOHER VARIO

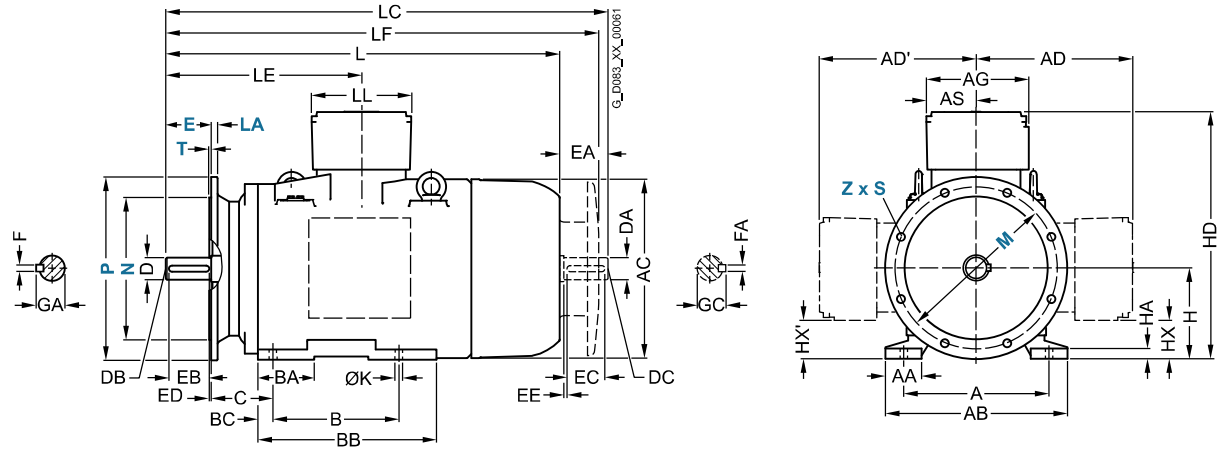


		Dimension designation acc. to **IEC**																	
Frame size	No. of poles	A	AA	AB	AC	AD/AD'	AF	AG	AS	B	BA	BB	BC	C	H	HA	HD	øK	L
LOHER VARIO																			
355 L	2	630	140	780	740		500			800	210	950		254	355	35	1190	33	1860
	4 … 16																		1890
400 L	2	710	185	860	820		500			900	210	1090		280	400	30	1297	33	1975
	4 … 16																		2015
450 L	2	800	230	900	920		500			1000	260	1260		315	450	30	1375	39	2095
	4 … 16																		2135
500 L	2	900	220	1030	1015		500			1120	280	1400		335	500	40	1479	39	–
	4 … 16																		2305

Dimensional drawings (continued)

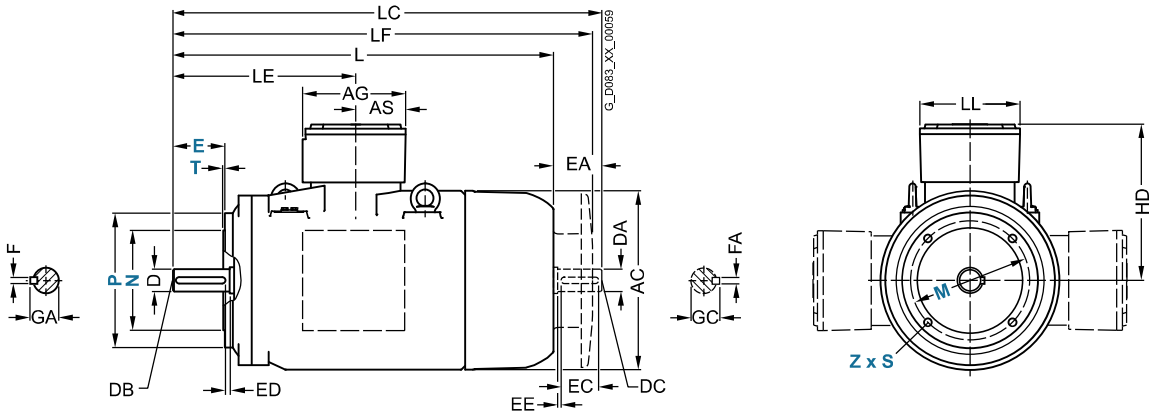
Type of construction IM B35

For flange dimensions, see Page 2/110.
Design of terminal box and position for LOHER VARIO



Type of construction IM B14

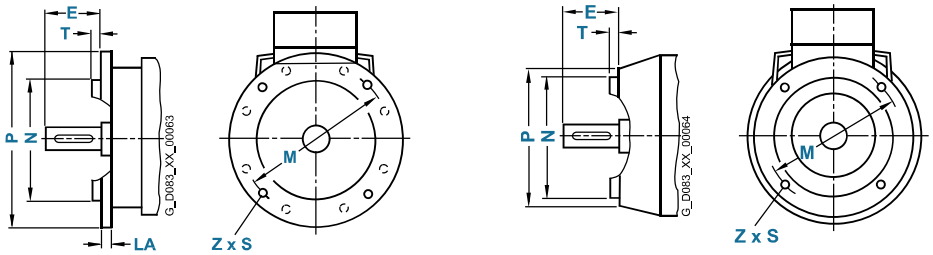
For flange dimensions, see Page 2/110.
Design of terminal box and position for LOHER VARIO



		Dimension designation acc. to **IEC**				DE shaft extension					NDE shaft extension								
Frame size	No. of poles	LC	LE	LF	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
LOHER VARIO																			
355 L	2		657			75	M20	140			20	79.5	75	M20	140			20	79.5
	4 … 16		687			90	M24	170			25	95	90	M24	170			25	95
400 L	2		695			80	M20	170			22	85	80	M20	170			22	85
	4 … 16		732			100	M24	210			28	106	100	M24	210			28	106
450 L	2		707			85	M20	170			22	90	85	M20	170			22	90
	4 … 16		747			110	M24	210			28	116	110	M24	210			28	116
500 L	2		–			–	–	–			–	–	–	–	–			–	–
	4 … 16		747			120	M24	210			32	127	120	M24	210			32	127

Flange dimensions

Dimensional drawings



In EN 50347, the frame sizes are allocated flange FF with through holes and flange FT with tapped holes.
(Z = the number of retaining holes)

Frame size	No. of poles	Flange with through hole (**FF**)/ tapped hole (**FT**) acc. to EN 50347	Dimension designation acc. to IEC							
		Selectable flange	**LA**	**E**	**M**	**N**	**P**	**S**	**T**	**Z**
LOHER CHEMSTAR										
90 L	2 … 16	**FF165**	10	50	165	130	200	11.5	3.5	4
		FF215 [1]	11	–	215	180	250	14	4	4
		FT115	15	50	115	95	140	M8	3	4
		FT100 [1]	8	–	100	80	120	M6	3	4
		FT130 [1]	10	–	130	110	160	M8	3.5	4
100 L	2 … 16	**FF215**	11	60	215	180	250	14	4	4
		FT130	11	60	130	110	160	M8	3.5	4
		FT115 [1]	10	–	115	95	140	M8	3	4
		FT130 [1]	12	–	165	130	200	M10	3.5	4
112 M	2 … 16	**FF215**	11	60	215	180	250	14	4	4
		FT165 [1]	13	–	265	230	300	14	4	4
		FT130	11	60	130	110	160	M8	3.5	4
		FT165 [1]	12	–	165	130	200	M10	3.5	4
132 S	2 … 16	**FF265**	12	80	265	230	300	14	4	4
		FF215 [1]	11	–	215	180	250	14	4	4
132 M	2 … 16	**FF265**	12	80	265	230	300	14	4	4
		FF215 [1]	11	–	215	180	250	14	4	4
160 M	2 … 16	**FF300**	20	110	300	250	350	18	5	4
		FF215 [1]	11	–	215	180	250	14	4	4
		FF265 [1]	12	–	265	230	300	14	4	4
160 L	2 … 16	**FF300**	20	110	300	250	350	18	5	4
		FF215 [1]	11	–	215	180	250	14	4	4
		FF265 [1]	12	–	265	230	300	14	4	4
180 M	2 … 16	**FF300**	13	110	300	250	350	18	5	4
		FF265 [1]	12	–	265	230	300	14	4	4
		FF400 [1]	16	–	400	350	450	18	5	8
180 L	2 … 16	**FF300**	13	110	300	250	350	18	5	4
		FF265 [1]	12	–	265	230	300	14	4	4
		FF400 [1]	16	–	400	350	450	18	5	8
200 L	2 … 16	**FF350**	15	110	350	300	400	18	5	8
		FF300 [1]	15	–	300	250	350	18	5	4
		FF400 [1]	16	–	400	350	450	18	5	8
225 S	2	**FF400**	16	110	400	350	450	18	5	8
		FF350 [1]	15	–	350	300	400	18	5	8
	4 … 16	**FF400**	17	140	400	350	450	18	5	8
		FF350 [1]	15	–	350	300	400	18	5	8

[1] Flange is selectable at no additional cost.

Dimensional drawings (continued)

Frame size	No. of poles	Flange with through hole (**FF**)/ tapped hole (**FT**) acc. to EN 50347	Dimension designation acc. to IEC							
		Selectable flange	**LA**	**E**	**M**	**N**	**P**	**S**	**T**	**Z**
LOHER CHEMSTAR (continued)										
225 M	2	**FF400**	16	110	400	350	450	18	5	8
		FF350 [1]	15	–	350	300	400	18	5	8
	4 … 16	**FF400**	16	140	400	350	450	18	5	8
		FF350 [1]	15	–	350	300	400	18	5	8
250 M	2 … 16	**FF500**	18	140	500	450	550	18	5	8
		FF400 [1]	16	–	400	350	450	18	5	8
280 S	2 … 16	**FF500**	18	140	500	450	550	18	5	8
		FF400 [1]	22	–	400	350	450	18	5	8
280 M	2 … 16	**FF500**	18	140	500	450	550	18	5	8
		FF400 [1]	22	–	400	350	450	18	5	8
315 S	2	**FF600**	22	140	600	550	660	24	6	8
		FF500 [1]	22	–	500	450	550	18.5	5	8
	4 … 16	**FF600**	22	170	600	550	660	24	6	8
		FF500 [1]	22	–	500	450	550	18.5	5	8
315 M	2	**FF600**	22	140	600	550	660	24	6	8
		FF500 [1]	22	–	500	450	550	18.5	5	8
	4 … 16	**FF600**	22	170	600	550	660	24	6	8
		FF500 [1]	22	–	500	450	550	18.5	5	8
315 LL	2	**FF600**	22	140	600	550	660	24	6	8
		FF740 [1]	25	–	740	680	800	24	6	8
	4 … 16	**FF600**	22	170	600	550	660	24	6	8
		FF740 [1]	25	–	740	680	800	24	6	8
315 L	2	**FF600**	22	140	600	550	660	24	6	8
		FF740 [1]	25	–	740	680	800	24	6	8
	4 … 16	**FF600**	22	170	600	550	660	24	6	8
		FF740 [1]	25	–	740	680	800	24	6	8
355 M	2 4 … 16	**FF740**	25	140 170	740	680	800	24	6	8
355 L	2 4 … 16	**FF740**	25	140 170	740	680	800	24	6	8
LOHER VARIO										
355 L	2 4 … 16	**FF740**	25	140 170	740	680	800	22	6	8
400 L	2 4 … 16	**FF940**	28	170 210	940	880	1000	22	6	8
450 L	2 4 … 16	**FF1080**	30	170 210	1080	1000	1150	26	6	8
500 L	2 4 … 16	**FF1180**	30	– 210	1180	1120	1250	26	7	8

[1] Flange is selectable at no additional cost.

Notes

Technical specifications

LOHER CHEMSTAR and VARIO 1PS0 motor series without explosion protection

The motors of series 1PS0 without explosion protection are available as LOHER CHEMSTAR and VARIO motors. Motors that operate in a "safe" or "non-explosive" environment do not require any special mechanical and electrical protection against explosive gas, vapor or dust. There is no risk of explosion in this case. The CHEMSTAR motors can be mechanically designed in accordance with VIK specifications ("Verband der Industriellen Energie- und Kraftwirtschaft e. V.", the Association of the Industrial Energy and Power Industry). These motors therefore correspond mechanically to the VIK recommendation, they have no Ex marking and are not permitted to be used in potentially explosive atmospheres of Zone 2. VIK motors with Ex certification are available for selection in series 1PS1.

In general, these motors are suitable for applications in production plants or process engineering equipment in factories (conveyor belts, elevators and cranes, escalators and water pumps).

General technical specifications

LOHER CHEMSTAR and VARIO 1PS0 motors	
Motor type	*A...A*
Frame size	90 ... 500
Output range (50 Hz types)	0.37 ... 1400 kW (thermal utilization in accordance with temperature class B at ambient temperature = 40 °C)
Number of poles	2 to 12-pole, also higher number of poles for special versions Pole-changing: • 2 speeds, e.g. 4-/2-pole, 8-/4-pole, 12-/6-pole • 3 speeds, e.g. 8-/4-/2-pole, 8-/6-/4-pole Dahlander or separate windings for square-law or constant torques
Voltage range	Up to 1000 V
Rated voltage	Normal low voltage Non-standard voltage and/or frequency as required by the customer
Operating mode	S1 and others
Degree of protection	IP55, IP56 and IP65 to IP68
Cooling method	IC 411, IC 416, special cooling methods such as non-ventilated IC 410, IC 71W water-jacket-cooled
Type of construction	All common types of construction + special types of construction
Housing	Cast-iron or steel
Bearings	Roller bearings (standard) and special bearings for high axial and radial forces
Types of protection	None
Noise level	All motors are noise-optimized (noise values in accordance with EN 60034-9) low-noise version for 2-pole motors (GG3) is possible as an option