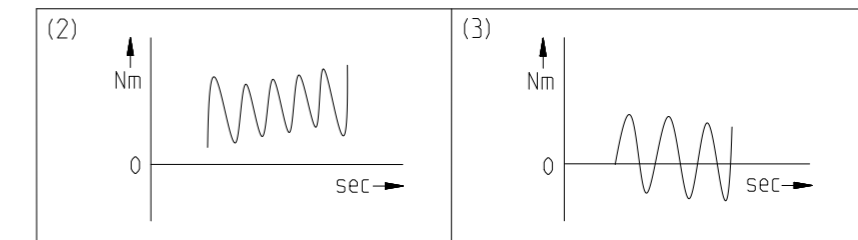


General gearbox data	Character	Unit	
Planetary gearbox - gearing type	-	-	Straight teeth
Rotation direction	-	-	Input and output in the same direction
Number of stages	p	-	2-stage
Output shaft bearing	-	-	Deep groove ball bearing
Service life (L10h)	t_L	h	30.000
Max. operating temperature	T_{min} / T_{max}	°C	-25 / +90
Protection class	-	-	IP 69K
Lubrication (lifetime lubrication)	-	-	Food grade lubrication (Klübersynth UH1 14-222)
Installation position	-	-	Any
Max. bending moment based on the gearbox input flange (for motor weight) (1)	M_b	Nm	16
Motor shaft concentricity / Coaxiality and axial runout Motor flange	-	mm	0,04 / 0,08 (Measuring methods according to DIN EN 50347)
Required motor shaft tolerance	-	-	j6; k6
Min. permissible motor shaft length	$L_{20 min}$	mm	29
Reference operating mode	-	-	S1
Reference operating factor	K_A	-	1
Reference speed	n_2	rpm	100
Reference ambient temperature	T_{Amb}	°C	20
Radial force for output bearing based on shaft center after L10h=20,000h with Fa=0N	$F_r 20.000h$	N	900
Axial force for output bearing based on gearbox axis after L10h=20,000h with Fr=0N	$F_a 20.000h$	N	1500
Radial force for output bearing based on shaft center after L10h=30,000h with Fa=0N	$F_r 30.000h$	N	600
Axial force for output bearing based on gearbox axis after L10h=30,000h with Fr=0N	$F_a 30.000h$	N	1000
Maximum radial force based on shaft center and T2=0Nm	$F_r Max$	N	1250
Maximum axial force based on gearbox axis and T2=0Nm	$F_a Max$	N	1600

Ratio-dependent gearbox data	Character	Unit										
Ratio	bii	-	9	12	15	16	20	25	32	40	64	100
Nominal output torque No alternating torque (2)	T_{2N}	Nm	87	80	82	87	87	82	87	82	50	38
Nominal output torque Alternating torque permitted for 10,000,000 load changes (3)	$T_{2N 10Mio}$	Nm	35	35	35	35	35	35	35	35	35	35
Nominal output torque Alternating torque permitted for 100,000,000 load changes (3)	$T_{2N 100Mio}$	Nm	27	27	27	27	27	27	27	27	27	27
Max. output torque for 30,000 output shaft rotations (2)	T_{2max}	Nm	140	140	131	140	140	131	140	131	80	61
Emergency stop torque permitted 1000 times	T_{2stop}	Nm	174	174	164	174	174	164	174	164	100	76
Average idle torque for $n_1=3,000$ rpm and 20 °C gearbox temperature	T_0	Nm	0,35	0,3	0,3	0,3	0,25	0,25	0,2	0,2	0,2	0,15
Average thermal input speed at 50% T2N, S1, and T_Amb Operating temperature may not be exceeded!	$n_{1N 50\%}$	rpm	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Average thermal input speed at 100% T2N, S1, and T_Amb Operating temperature may not be exceeded!	$n_{1N 100\%}$	rpm	2950	3300	3500	3500	3500	3500	3500	3500	3500	3500
Max. mechanical input speed Operating temperature may not be exceeded!	$n_{1 Limit}$	rpm	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
Torsional backlash based on output shaft	j_t	arcmin	< 9	< 9	< 9	< 9	< 9	< 9	< 9	< 9	< 9	< 9
Torsional stiffness based on output shaft	c_g	Nm/arcmin	7,2	8,5	8,5	8,7	8,7	8,6	8,6	8,5	7,2	6,6
Efficiency at T2N, gearbox temperature 70 °C and $n_1=1,000$ rpm	η	%	97	96	96	96	95	95	94	94	89	82
Running noise at $n_1=3,000$ rpm without load at a distance of 1m	Q_g	dB(A)	60	60	60	60	60	60	60	60	60	60
Gearbox weight	m_G	kg	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,4	5,4
Mass moment of inertia based on clamping system diameter input	J	kgcm ²	0,74	0,983	0,977	0,841	0,798	0,796	0,758	0,757	0,758	0,748

$$(1) \text{ Max. motor weight* in kg} = \frac{0,2 \times M_b}{\text{motor length in m}}$$

- * with symmetrically distributed motor weight
- * with horizontal and stationary mounting



Subject to modifications.



HLAE090-bii-SFSA3SE-Z(D20)
/(L20)/(D21)/(D22)/B14/(G3)

Sheet 2/2

Revision status: A from: 11/2021