

# Technical Information



Z040			ZAE SERVO-DRIVE					
Ratio	i	[-]	4.0	6.4	10.0	16.0	27.0	39.0
Max. acceleration torque	$M_{2,a}$	[Nm]	59	79	84	81	89	73
S1 nominal torque <sup>1)2)</sup>	$M_{2,S1}$	[Nm]	66	82	87	84	95	73
Backlash-constant torque	$M_{2,v}$	[Nm]	37	48	52	53	61	43
EMERGENCY STOP torque <sup>3)</sup>	$M_{2,NOT}$	[Nm]	179	195	212	203	238	164
Max. input speed	$n_{1,max}$	[rpm]	8000					
Backlash – standard		[arcmin]	< 6					
Backlash – reduced		[arcmin]	< 3					
Torsional stiffness	$C_{t21}$	[Nm/arcmin]	5					
Nominal efficiency (S1 operation)	$\eta$	[%]	95	94	91	86	80	72
Moment of inertia <sup>4)5)</sup>	$J_{red}$	[kgcm <sup>2</sup> ]	0.8	0.6	0.5	0.5	0.5	0.4
Mass <sup>6)</sup>	m	[kg]	5.6-6.8)					

Z050			ZAE SERVO-DRIVE					
Ratio	i	[-]	4.0	6.4	10.0	16.0	27.0	39.0
Max. acceleration torque	$M_{2,a}$	[Nm]	166	164	176	171	187	158
S1 nominal torque <sup>1)2)</sup>	$M_{2,S1}$	[Nm]	120	130	168	177	187	159
Backlash-constant torque	$M_{2,v}$	[Nm]	110	120	129	125	137	115
EMERGENCY STOP torque <sup>3)</sup>	$M_{2,NOT}$	[Nm]	357	374	420	399	471	315
Max. input speed	$n_{1,max}$	[rpm]	7000					
Backlash – standard		[arcmin]	< 6					
Backlash – reduced		[arcmin]	< 3					
Torsional stiffness	$C_{t21}$	[Nm/arcmin]	9					
Nominal efficiency (S1 operation)	$\eta$	[%]	96	95	92	88	81	76
Moment of inertia <sup>4)5)</sup>	$J_{red}$	[kgcm <sup>2</sup> ]	2.5	2.0	1.8	1.7	1.7	1.6
Mass <sup>6)</sup>	m	[kg]	8.5-11.2)					

Z063			ZAE SERVO-DRIVE					
Ratio	i	[-]	4.0	6.4	10.0	16.0	27.0	39.0
Max. acceleration torque	$M_{2,a}$	[Nm]	336	355	374	368	399	338
S1 nominal torque <sup>1)2)</sup>	$M_{2,S1}$	[Nm]	194	249	295	380	415	405
Backlash-constant torque	$M_{2,v}$	[Nm]	257	265	279	274	297	247
EMERGENCY STOP torque <sup>3)</sup>	$M_{2,NOT}$	[Nm]	951	999	1100	1073	1100	788
Max. input speed	$n_{1,max}$	[rpm]	5500					
Backlash – standard		[arcmin]	< 6					
Backlash – reduced		[arcmin]	< 2					
Torsional stiffness	$C_{t21}$	[Nm/arcmin]	31					
Nominal efficiency (S1 operation)	$\eta$	[%]	96	96	93	90	84	79
Moment of inertia <sup>4)5)</sup>	$J_{red}$	[kgcm <sup>2</sup> ]	6.4	5.0	4.5	4.3	4.3	4.1
Mass <sup>6)</sup>	m	[kg]	14.9-18.3)					

Z080			ZAE SERVO-DRIVE					
Ratio	i	[-]	4.0	6.4	10.0	16.0	27.0	39.0
Max. acceleration torque	$M_{2,a}$	[Nm]	708	707	758	740	810	676
S1 nominal torque <sup>1)2)</sup>	$M_{2,S1}$	[Nm]	415	495	608	613	612	630
Backlash-constant torque	$M_{2,v}$	[Nm]	520	517	555	541	592	495
EMERGENCY STOP torque <sup>3)</sup>	$M_{2,NOT}$	[Nm]	1395	1464	1641	1567	1860	1305
Max. input speed	$n_{1,max}$	[rpm]	4500					
Backlash – standard		[arcmin]	< 6					
Backlash – reduced		[arcmin]	< 2					
Torsional stiffness	$C_{t21}$	[Nm/arcmin]	86					
Nominal efficiency (S1 operation)	$\eta$	[%]	97	96	95	92	87	82
Moment of inertia <sup>4)5)</sup>	$J_{red}$	[kgcm <sup>2</sup> ]	12.4	8.4	6.8	6.2	6.0	5.6
Mass <sup>6)</sup>	m	[kg]	22.5-27.1)					

Z100			ZAE SERVO-DRIVE					
Ratio	i	[-]	4.0	6.4	10.0	16.0	27.0	39.0
Max. acceleration torque	$M_{2,a}$	[Nm]	1475	1480	1690	1545	1680	1410
S1 nominal torque <sup>1)2)</sup>	$M_{2,S1}$	[Nm]	700	870	1100	1250	1120	1150
Backlash-constant torque	$M_{2,v}$	[Nm]	1083	1085	1443	1130	1230	1030
EMERGENCY STOP torque <sup>3)</sup>	$M_{2,NOT}$	[Nm]	3000	3600	3800	4200	3800	3653
Max. input speed	$n_{1,max}$	[rpm]	3600					
Backlash – standard		[arcmin]	< 6					
Backlash – reduced		[arcmin]	< 2					
Torsional stiffness	$C_{t21}$	[Nm/arcmin]	168					
Nominal efficiency (S1 operation)	$\eta$	[%]	97	96	94	91	84	80
Moment of inertia <sup>4)5)</sup>	$J_{red}$	[kgcm <sup>2</sup> ]	36.5	25.0	20.7	18.7	18.3	17.3
Mass <sup>6)</sup>	m	[kg]	36.7 - 47					

Specified data are indicative only. We will be pleased to advise you on an exact design.

- 1) S1 nominal torque without consideration of thermal limits
- 2) in continuous operation with 1,500 min<sup>-1</sup>
- 3) EMERGENCY STOP torque without consideration of the permissible torque of the coupling and the output side shrink disk (for versions 05 and 06)
- 4) depending on the shaft diameter of the motor and the gear arrangement (output)
- 5) reduced to drive → reduced to input side
- 6) depending on motor adaptation and gear arrangement (output)

## Output-side versions of the shaft

On the output side, three different shaft designs are available as standard (see illustration on the right).

For a form-fit connection by means of a feather key connection, the grooved hollow shaft can be used (00).

For a more rigid, frictional connection, a smooth hollow shaft with shrink disc can be used, for which the mounting side can be selected (05+06).

