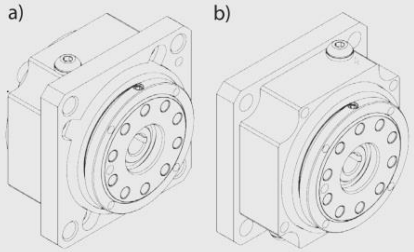
Spinea TwinSpin “M” Series Specifications

Tab.2.4a: M series mini reduction gears TwinSpin versions

Shape of the case	a) The mounting part of the case is located on the output side of the high precision reduction gear TwinSpin b) The mounting part of the case is located on the input side of the high precision reduction gear TwinSpin	
Input shaft connection	a) Direct connection of shafts without couplings. Motor shaft is centred in the hole with key-way b) Indirect connection of shafts with rigid or flexible couplings c) Shafts are centred according to customer requirements	

M series high precision reducers are produced in several modifications based on their specification of shaft and case, see Tab.2.4.a.

Tab.2.4b: M series ordering specifications

TS-50 - 63 - M - P6

Name	Size	Ratio	Series version	Shaft version		
				P	H	S
TS	50	47 , 63	M	6	8	according to special request

Note: Example of specification of the modified TwinSpin reduction gear with motor flange:
TS 50 – 63 – M - P6– M235 – P231. Identification (ID) M235 and P231 for a specific modification is set by the manufacturer.

Tab.2.4c: Rating table M series

Size	Reduction ratio	Rated output torque	Acceleration and braking output torque	Permissible output torque at emergency stop	Rated input speed	Rated output speed	Max. continuous input speed	Max. allowable input speed 1)6)	Tilting stiffness 1)	Torsional stiffness 1)
	i	T_R [Nm]	T_{max} [Nm]	T_{em} [Nm]	n_R [rpm]	n_{Rout} [rpm]	n_{cmax} [rpm]	n_{max} [rpm]	M_t [Nm/arcmin]	k_t [Nm/arcmin]
TS 50	47 63	18	36	90	2 000	32	3 000	5 000	4	2,5

RIGHT TO CHANGE WITHOUT PRIOR NOTICE RESERVED

1) Mean statistical value
2) Load at output speed $n_{Rout} = n_R / i$. for TS 50 M it is 32 [rpm]
3) Tilting moment $M_{c\,max}$ at F_a=0. If $F_a \neq 0$ see par.3.5.1
4) Radial force $F_{r\,max}$ for F_a=0. If $F_a \neq 0$ see par.3.5.1
5) Axial force $F_{a\,max}$ for F_r=0, M_c=0. If $M_c \neq 0$ par.3.5.1
6) At 50% n_{cmax} (max input speed in cycle)
7) Applies to standard version of the high precision reduction gear with shaft connected by a key-way
8) a2 – is the distance of the radial force centre from the front of the output flange [m]

Tab.2.4c: Rating table M series

Average no-load starting torque 1)	*Average back driving torque 1)*	Max. lost motion	Hysteresis	Max. peak tilting moment 2)3)	Max radial force 2)4)8)	Max. axial force 2)5)	Input inertia 7)	Weight 7)
[cNm]	[Nm]	LM [arcmin]	H [arcmin]	$M_{c\,max}$ [Nm]	F_{rR} [kN]	$F_{a\,max}$ [kN]	I [10^{-4} kgm^2]	m [kg]
4 3	3 2	<1,5	<1,5	44	a2=0 1,44 a2>0 0,044/(a2+0,0305)	1,9	0,007	0,47

Note:
Load values in Tab. 2.4d are valid for the nominal life Lh=6000 [Hrs].