Selection and Ordering Data

Motor	Planetary gearbox Single-stage			Available gear ratios i =				Motor speed, max. S3-60%	Output torque, max. S3-60%	Radial load on output shaft, max.[1]	Axial load on output shaft, max.[1]
Type	Type	Tor-sional back-lash	Weight of gearbox, approx.	4	5	7	10	n_{G1} (n_1)	M_{G2} (T_{2B})	F_r (F_{2Rmax})	F_a (F_{2Amax})
		arcmin	kg (lb)					rpm	Nm (lb$_f$-ft)	N (lb$_f$)	N (lb$_f$)
1FT6021	SP 060S-MF1	≤ 4	1.9 (4.19)	–	–	–	✔	6000	40 (29.5) (32 (23.6) for i = 10)	2700 (607)	2400 (540)
1FT6024				✔	✔	✔	✔				
1FT6031				✔	✔	✔	✔				
1FT6034				✔	✔	✔	–				
1FT6034	SP 075S-MF1	≤ 4	3.9 (8.6)	–	–	–	✔	6000	110 (81.1) (90 (66.4) for i = 10)	4000 (899)	3350 (753)
1FT6041				✔	✔	✔	✔				
1FT6044				✔	✔	✔	✔				
1FT6061	SP 100S-MF1	≤ 3	7.7 (17)	✔	✔	✔	✔	4500	300 (221) (225 (167) for i = 10)	6300 (1416)	5650 (1270)
1FT6062				✔	✔	✔	✔				
1FT6064				✔	✔	✔	✔				
1FT6081	SP 140S-MF1	≤ 3	17.2 (37.9)	✔	✔	✔	✔	4000	600 (442) (480 (354) for i = 10)	9450 (2124)	9870 (2219)
1FT6082				✔	✔	✔	✔				
1FT6084				✔	✔	✔	✔				
1FT6086				✔	✔	✔	–				
1FT6086	SP 180S-MF1	≤ 3	34 (75)	–	–	–	✔	3500	1100 (811) (880 (649) for i = 10)	14700 (3305)	14150 (3181)
1FT6102				✔	✔	✔	✔				
1FT6105				✔	✔	✔	–				
1FT6108				✔	✔	✔	–				
1FT6105	SP 210-MF1[2]	≤ 4	53 (117)	–	–	–	✔	2500	1900 (1400) (1520 (1120) for i = 10)	18000 (4047)	22500 (5058)
1FT6108				–	–	–	✔				
1FT6132				✔	✔	✔	✔				
1FT6134				✔	✔	✔	–				
1FT6136				✔	✔	✔	–				
1FT6134	SP 240-MF1[2]	≤ 4	80 (176)	–	–	–	✔	2200	2720 (2005)	27000 (6070)	27800 (6250)
1FT6136				–	–	–	✔				
Order codes • Gearbox shaft with fitted key • Gearbox shaft without fitted key				**J02** **J22**	**J03** **J23**	**J05** **J25**	**J09** **J29**				

Ordering data: **1FT6 … -… 71-..■ 1-Z J■■**

G without holding brake
H with holding brake

Order No. of the motor with identifier **"-Z"** and order code for mounting the planetary gearbox assigned to the motor
Preconditions for mounting planetary gearboxes:
Plain motor shaft extension/shaft and flange accuracy tolerance N and vibration magnitude grade A/IP65 degree of protection[3]

✔ Possible
– Not possible

[1] In reference to the output shaft center.

[2] For these versions, the quantity of oil in the gearbox depends on the mounting position. In the case of a vertical mounting position, the 12th position in the Order No. should be "**9**" and a further order code also has to be specified: **1FT6…-…79-..■ 1-Z J.. + M1■**
G **H**
H Mounting position IM V1
G Mounting position IM V3

[3] IP64 degree of protection with 1FT602.: **1FT602.-6AK71-..■ 0-Z J..**
G **H**

Series SP+ planetary gearboxes, single-stage for 1FT6 motors

Technical specifications

Planetary gearbox with 1FT6 motor

Single-stage Type	Gear ratio	Motor speed	Output torque	Moments of inertia of gearbox (referred to the drive)						
		Continuous duty S1[1]		1FT602.	1FT603.	1FT604.	1FT606.	1FT608.	1FT610.	1FT613.
		$n_{rated\ 1}$	$M_{rated\ 2}$ ($T_{2\ rated}$)	J_1	J_1	J_1	J_1	J_1	J_1	J_1
		rpm	Nm (lb$_f$-in)	kgcm^2 (lb$_f$-in^2)	kgcm^2 (lb$_f$-in^2)	kgcm^2 (lb$_f$-in^2)	kgcm^2 (lb$_f$-in^2)	kgcm^2 (lb$_f$-in^2)	kgcm^2 (lb$_f$-in^2)	kgcm^2 (lb$_f$-in^2)
SP 060S-MF1	4	3300	26 (230)	0.16 (0.05)	0.24 (0.08)	–	–	–	–	–
	5	3300	26 (230)	0.13 (0.04)	0.22 (0.08)	–	–	–	–	–
	7	4000	26 (230)	0.11 (0.04)	0.19 (0.06)	–	–	–	–	–
	10	4000	17 (151)	0.10 (0.03)	0.18 (0.06)	–	–	–	–	–
SP 075S-MF1	4	2900	75 (664)	–	0.69 (0.24)	0.94 (0.32)	–	–	–	–
	5	2900	75 (664)	–	0.58 (0.20)	0.83 (0.28)	–	–	–	–
	7	3100	75 (664)	–	0.48 (0.16)	0.73 (0.25)	–	–	–	–
	10	3100	52 (460)	–	0.42 (0.14)	0.67 (0.23)	–	–	–	–
SP 100S-MF1	4	2500	180 (1593)	–	–	–	3.65 (1.25)	–	–	–
	5	2500	175 (1549)	–	–	–	2.99 (1.02)	–	–	–
	7	2800	170 (1505)	–	–	–	2.81 (0.96)	–	–	–
	10	2800	120 (1062)	–	–	–	2.58 (0.88)	–	–	–
SP 140S-MF1	4	2100	360 (3186)	–	–	–	–	14.3 (4.89)	–	–
	5	2100	360 (3186)	–	–	–	–	13.1 (4.48)	–	–
	7	2600	360 (3186)	–	–	–	–	12 (4.1)	–	–
	10	2600	220 (1947)	–	–	–	–	11.4 (3.90)	–	–
SP 180S-MF1	4	1500	750 (6638)	–	–	–	–	45.1 (15.4)	45.1 (15.4)	–
	5	1500	750 (6638)	–	–	–	–	36.4 (12.4)	36.4 (12.4)	–
	7	2300	750 (6638)	–	–	–	–	28.6 (9.77)	28.6 (9.77)	–
	10	2300	750 (6638)	–	–	–	–	24.4 (8.34)	24.4 (8.34)	–
SP 210-MF1	4	1200	1000 (8851)	–	–	–	–	–	75.8 (25.9)	75.8 (25.9)
	5	1200	1000 (8851)	–	–	–	–	–	63.5 (21.7)	63.5 (21.7)
	7	1700	1000 (8851)	–	–	–	–	–	52.9 (18.1)	52.9 (18.1)
	10	1700	1000 (8851)	–	–	–	–	–	47.1 (16.1)	47.1 (16.1)
SP 240-MF1	4	1000	1700 (15046)	–	–	–	–	–	–	146 (49.9)
	5	1000	1700 (15046)	–	–	–	–	–	–	120 (41.0)
	7	1500	1700 (15046)	–	–	–	–	–	–	96.4 (32.9)
	10	1500	1700 (15046)	–	–	–	–	–	–	83.1 (28.4)

[1] The limit values in the table apply for S1 continuous duty (ON time > 60% or > 20 min) for a maximum gearbox temperature of 90 °C (194 °F).

Selection and Ordering Data

Motor	Planetary gearbox Two-stage			Available gear ratios i =					Motor speed, max. S3-60%	Output torque, max. S3-60%	Radial load on output shaft, max.[1]	Axial load on output shaft, max.[1]
Type	Type	Torsional backlash arcmin	Weight of gearbox, approx. kg (lb)	16	20	28	40	50	n_{G1} (n_1) rpm	M_{G2} (T_{2B}) Nm (lb$_f$-ft)	F_r (F_{2Rmax}) N (lb$_f$)	F_a (F_{2Amax}) N (lb$_f$)
1FT6021	SP 060S-MF2	≤ 6	2 (4.41)	✔	✔	✔	✔	✔	6000	40 (29.5)	2700 (607)	2400 (540)
1FT6024				✔	✔	✔	✔	–				
1FT6031				✔	✔	✔	–	–				
1FT6024	SP 075S-MF2	≤ 6	3.6 (7.94)	–	–	–	–	✔	6000	110 (81.1)	4000 (899)	3350 (753)
1FT6031				–	–	–	✔	✔				
1FT6034				✔	✔	✔	–	–				
1FT6041				✔	✔	–	–	–				
1FT6034	SP 100S-MF2	≤ 5	7.9 (17.4)	–	–	–	✔	✔	4500	300 (221)	6300 (1416)	5650 (1270)
1FT6041				–	–	✔	✔	✔				
1FT6044				✔	✔	✔	–	–				
1FT6061				✔	✔	✔	✔	–				
1FT6062				✔	✔	✔	–	–				
1FT6064				✔	–	–	–	–				
1FT6044	SP 140S-MF2	≤ 5	17 (37.5)	–	–	–	✔	✔	4000	600 (443)	9450 (2124)	9870 (2219)
1FT6061				–	–	–	–	✔				
1FT6062				–	–	–	✔	✔				
1FT6064				–	✔	✔	–	–				
1FT6081				✔	✔	✔	✔	–				
1FT6082				✔	✔	–	–	–				
1FT6084				✔	–	–	–	–				
1FT6064	SP 180S-MF2	≤ 5	36.4 (80.3)	–	–	–	✔	✔	4000	1100 (811)	14700 (3305)	14150 (3181)
1FT6081				–	–	–	–	✔				
1FT6082				–	–	✔	✔	–				
1FT6084				–	✔	✔	–	–				
1FT6086				✔	✔	–	–	–				
1FT6102				✔	✔	–	–	–				
1FT6082	SP 210-MF2 [2]	≤ 6	50 (110)	–	–	–	–	✔	3500	1900 (1401)	18000 (4047)	22500 (5058)
1FT6105				✔	–	–	–	–				
1FT6084	SP 240-MF2 [2]	≤ 6	70 (154)	–	–	–	✔	✔	3500	3400 (2508)	27000 (6070)	27800 (6250)
1FT6086				–	–	✔	✔	✔				
1FT6102				–	–	✔	✔	✔				
1FT6105				–	✔	✔	–	–				
1FT6108				✔	✔	–	–	–				
1FT6132				✔	✔	–	–	–				
1FT6134				✔	–	–	–	–				
1FT6136				✔	–	–	–	–				
Order codes • Gearbox shaft with fitted key • Gearbox shaft without fitted key				**J12** **J32**	**J13** **J33**	**J15** **J35**	**J16** **J36**	**J17** **J37**				

Ordering data: **1FT6...-...71-..■ 1-Z**
J■■
G without holding brake
H with holding brake

Order No. of the motor with identifier **"-Z"** and order code for mounting the planetary gearbox assigned to the motor
Preconditions for mounting planetary gearboxes:
Plain motor shaft extension/shaft and flange accuracy tolerance N and vibration magnitude grade A/IP65 degree of protection[3]

[1] In reference to the output shaft center.

[2] For these versions, the quantity of oil in the gearbox depends on the mounting position. In the case of a vertical mounting position, the 12th position in the Order No. should be "**9**" and a further order code also has to be specified: **1FT6...-.A.79-..■ 1-Z J.. + M1■**
G **H** Mounting position IM V1
H Mounting position IM V3

[3] IP64 degree of protection with 1FT602.: **1FT602.-6AK71-..■ 0-Z J..**
G
H

Series SP+ planetary gearbox, two-stage for 1FT6 motors

Technical specifications

Planetary gearbox with 1FT6 motor

Two-stage Type	Gear ratio	Motor speed	Output torque	Moments of inertia of gearbox (referred to the drive)						
		Continuous duty S1[1]		1FT602.	1FT603.	1FT604.	1FT606.	1FT608.	1FT610.	1FT613.
		$n_{rated\ 1}$	$M_{rated\ 2}$ ($T_{2\ rated}$)	J_1	J_1	J_1	J_1	J_1	J_1	J_1
		rpm	Nm (lb_f-in)	kgcm^2 (lb_f-in^2)	kgcm^2 (lb_f-in^2)	kgcm^2 (lb_f-in^2)	kgcm^2 (lb_f-in^2)	kgcm^2 (lb_f-in^2)	kgcm^2 (lb_f-in^2)	kgcm^2 (lb_f-in^2)
SP 060S-MF2	16	4400	26 (230)	0.08 (0.03)	0.18 (0.06)	–	–	–	–	–
	20	4400	26 (230)	0.07 (0.03)	0.17 (0.06)	–	–	–	–	–
	28	4400	26 (230)	0.06 (0.02)	0.16 (0.05)	–	–	–	–	–
	40	4400	26 (230)	0.06 (0.02)	0.16 (0.05)	–	–	–	–	–
	50	4800	26 (230)	0.06 (0.02)	0.16 (0.05)	–	–	–	–	–
SP 075S-MF2	16	3500	75 (664)	0.17 (0.06)	0.25 (0.08)	0.68 (0.23)	–	–	–	–
	20	3500	75 (664)	0.14 (0.05)	0.22 (0.08)	0.65 (0.22)	–	–	–	–
	28	3500	75 (664)	0.11 (0.04)	0.19 (0.06)	0.62 (0.21)	–	–	–	–
	40	3500	75 (664)	0.10 (0.03)	0.18 (0.06)	0.61 (0.21)	–	–	–	–
	50	3800	75 (664)	0.10 (0.03)	0.18 (0.06)	0.61 (0.21)	–	–	–	–
SP 100S-MF2	16	3100	180 (1593)	–	0.72 (0.25)	0.96 (0.33)	2.60 (0.89)	–	–	–
	20	3100	180 (1593)	–	0.60 (0.20)	0.84 (0.29)	2.48 (0.85)	–	–	–
	28	3100	180 (1593)	–	0.49 (0.17)	0.73 (0.25)	2.36 (0.81)	–	–	–
	40	3100	180 (1593)	–	0.43 (0.15)	0.67 (0.23)	2.31 (0.79)	–	–	–
	50	3500	175 (1549)	–	0.43 (0.15)	0.66 (0.23)	2.30 (0.79)	–	–	–
SP 140S-MF2	16	2900	360 (3186)	–	–	2.79 (0.96)	3.61 (1.23)	9.60 (3.28)	–	–
	20	2900	360 (3186)	–	–	2.26 (0.77)	3.08 (1.05)	9.07 (3.1)	–	–
	28	2900	360 (3186)	–	–	1.84 (0.63)	2.66 (0.91)	8.65 (2.96)	–	–
	40	2900	360 (3186)	–	–	1.58 (0.54)	2.39 (0.82)	8.39 (2.87)	–	–
	50	3200	360 (3186)	–	–	1.57 (0.54)	2.38 (0.81)	8.37 (2.86)	–	–
SP 180S-MF2	16	2700	750 (6638)	–	–	–	10.2 (3.48)	15.8 (5.41)	14.4 (4.91)	–
	20	2700	750 (6638)	–	–	–	8.48 (2.9)	14.1 (4.82)	12.1 (4.12)	–
	28	2700	750 (6638)	–	–	–	6.90 (2.36)	12.5 (4.27)	11 (3.76)	–
	40	2700	750 (6638)	–	–	–	6.06 (0.91)	11.6 (3.96)	10.2 (3.48)	–
	50	2900	750 (6638)	–	–	–	5.98 (2.04)	11.6 (3.96)	10.1 (3.45)	–
SP 210-MF2	16	2100	1000 (8851)	–	–	–	–	36.3 (12.4)	37.4 (12.8)	–
	20	2100	1000 (8851)	–	–	–	–	34.5 (11.8)	35.6 (12.2)	–
	28	2100	1000 (8851)	–	–	–	–	32.3 (11.0)	33.4 (11.4)	–
	40	2300	1000 (8851)	–	–	–	–	23.1 (7.89)	24.3 (8.3)	–
	50	2300	1000 (8851)	–	–	–	–	21.9 (7.48)	23 (7.86)	–
SP 240-MF2	16	1900	1700 (15046)	–	–	–	–	47.3 (16.2)	48.4 (16.5)	53 (18.1)
	20	1900	1700 (15046)	–	–	–	–	43.1 (14.7)	44.2 (15.1)	48.8 (16.7)
	28	1900	1700 (15046)	–	–	–	–	37.5 (12.8)	38.6 (13.2)	43.2 (14.8)
	40	2100	1700 (15046)	–	–	–	–	32.4 (11.1)	33.6 (11.5)	38.1 (13)
	50	2100	1700 (15046)	–	–	–	–	29.5 (10.1)	30.6 (10.5)	35.1 (12)

[1] The limit values in the table apply for S1 continuous duty (ON time > 60% or > 20 min) for a maximum gearbox temperature of 90 °C (194 °F).