

3.1 Technical Data

SIZE		SA 0		SA 1		SA 2			SA 3		
Profile ISO 15552	[mm]	□ 45		□ 52		□ 65			□ 75		
Rod diameter	[mm]	∅ 20		∅ 22		∅ 25			∅ 30		
Front attachment thread	[mm]	M10 × 1.25 depth 15 mm		M12 × 1.25 depth 20 mm		M12 × 1.25 depth 20 mm			M16 × 1.5 depth 24 mm		
Input shaft diameter	[mm]	∅ 9		∅ 9		∅ 11			∅ 14		
Max. load F_{max} ⁽¹⁾	[N]	5500		5500		6400			8600		
Ball screw BS		BS1	BS2	BS1	BS2	BS1	BS2	BS3	BS1	BS2	BS3
Diameter × Lead ($d_o \times P_h$)	[mm]	12 × 5	12 × 10	14 × 5	14 × 10	16 × 5	16 × 10	16 × 16	20 × 5	20 × 10	20 × 20
Ball (D_w)	[mm]	∅ 2.381		∅ 3.175		∅ 3.175			∅ 3.175		
Accuracy grade ⁽²⁾		IT 7		IT 7		IT 7			IT 7		
N° of circuits		3	2	3	2	4	3	2	4	3	2
N° of starts		1	2	1	1	1	1	2	1	1	2
Dynamic load (C_a)	[N]	5300	6600	7800	5300	11100	8900	10500	12800	10200	12100
Static load (C_{0a})	[N]	8000	9500	11100	6900	18100	14400	15700	24400	18900	20900
Linear travel for 1 motor shaft revolution	[mm]	5	10	5	10	5	10	16	5	10	20
Max. input speed n_{max}	[rpm]	7500		6430		5625			4500		
Max. linear speed v_{max}	[mm/s]	625	1250	536	1072	470	937	1875	375	750	1500
Total actuator efficiency (η)		0.86	0.88	0.85	0.88	0.85	0.87	0.88	0.84	0.87	0.88
Mass in linear motion (m) and moment of inertia (J) of the actuator reduced to motor shaft											
m_o ref. to 0 mm stroke	[kg]	0.32	0.32	0.47	0.48	0.61	0.62	0.61	1.00	1.00	1.00
m_{100} for each 100 mm extra-stroke	[kg]	0.13		0.14		0.19			0.20		
J_o ref. to 0 mm stroke actuator	[kg×m ²]	3.9×10 ⁻⁶	4.6×10 ⁻⁶	5.5×10 ⁻⁶	6.5×10 ⁻⁶	1.4×10 ⁻⁵	1.5×10 ⁻⁵	1.8×10 ⁻⁵	3.5×10 ⁻⁵	3.7×10 ⁻⁵	4.5×10 ⁻⁵
J_{100} for each 100 mm extra-stroke	[kg×m ²]	1.8×10 ⁻⁶	2.0×10 ⁻⁶	2.6×10 ⁻⁶	2.9×10 ⁻⁶	4.5×10 ⁻⁶	4.9×10 ⁻⁶	5.7×10 ⁻⁶	1.1×10 ⁻⁵	1.2×10 ⁻⁵	1.3×10 ⁻⁵
Weight of 100 mm stroke actuator ⁽³⁾	[kg]	1.8		2.3		3.4			4.8		
Extra-weight for each 100 mm extra-stroke	[kg]	0.44		0.51		0.67			0.79		
Operating temperature	°C	10 ... 40									

⁽¹⁾ - pull or push

⁽²⁾ - ball screws with accuracy grade IT 3 or IT 5 available on request

⁽³⁾ - weight of actuator without accessories

3.1 Technical Data

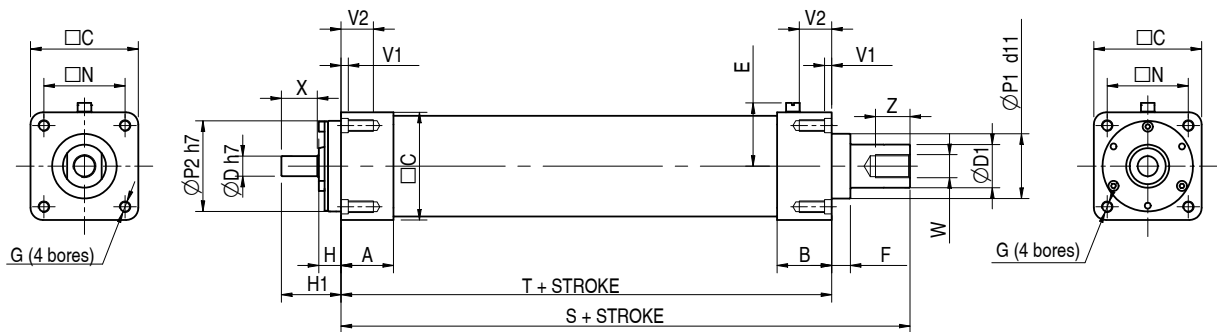
SA 4			SA 5				SA 6				SIZE
□ 95			□ 115				□ 140				[mm] Profile ISO 15552
∅ 35			∅ 50				∅ 60				[mm] Rod diameter
M20 × 1.5 depth 30 mm			M20 × 1.5 depth 40 mm				M27 × 2 depth 54 mm				[mm] Front attachment thread
∅ 19			∅ 19				∅ 24				[mm] Input shaft diameter
12000			37000				46000				[N] Max. load $F_{max}^{(1)}$
BS1	BS2	BS3	BS1	BS2	BS3	BS4	BS1	BS2	BS3	BS4	Ball screw BS
25 × 5	25 × 10	25 × 25	32 × 5	32 × 10	32 × 20	32 × 32	40 × 5	40 × 10	40 × 20	40 × 40	[mm] Diameter × Lead ($d_o \times P_h$)
∅ 3.175	∅ 3.969	∅ 3.175	∅ 3.175	∅ 6.350	∅ 6.350	∅ 6.350	∅ 3.175	∅ 6.350	∅ 6.350	∅ 6.350	[mm] Ball (D_w)
IT 7			IT 7				IT 7				Accuracy grade $(^2)$
4	3	2	6	4	3	2	6	4	3	2	N° of circuits
1	1	2	1	1	1	2	1	1	1	2	N° of starts
14500	14800	13600	23000	37000	29800	35000	25300	42800	34300	40300	[N] Dynamic load C_d
31500	28000	27300	60200	66800	53200	58100	76900	88900	70000	77100	[N] Static load C_{da}
5	10	25	5	10	20	32	5	10	20	40	[mm] Linear travel for 1 motor shaft revolution
3600			2810				2250				[rpm] Max. input speed n_{max}
300	600	1500	234	468	937	1500	187	375	750	1500	[mm/s] Max. linear speed v_{max}
0.82	0.86	0.88	0.80	0.85	0.87	0.88	0.78	0.84	0.87	0.88	Total actuator efficiency (η)
Mass in linear motion (m) and moment of inertia (J) of the actuator reduced to motor shaft											
1.45	1.44	1.46	3.37	3.22	3.26	3.19	4.90	4.90	4.90	4.90	[kg] m_o ref. to 0 mm stroke
0.24			0.49				0.62				[kg] m_{100} for each 100 mm extra-stroke
9.3×10^{-5}	9.6×10^{-5}	1.2×10^{-4}	3.3×10^{-4}	3.3×10^{-4}	3.6×10^{-4}	4.2×10^{-4}	8.3×10^{-4}	8.4×10^{-4}	8.8×10^{-4}	1.0×10^{-3}	[kg×m ²] J_o ref. to 0 mm stroke actuator
2.7×10^{-5}	2.8×10^{-5}	3.1×10^{-5}	6.9×10^{-5}	7.1×10^{-5}	7.5×10^{-5}	8.4×10^{-5}	1.8×10^{-4}	1.8×10^{-4}	1.9×10^{-4}	2.1×10^{-4}	[kg×m ²] J_{100} for each 100 mm extra-stroke
8.2			19				31				[kg] Weight of 100 mm stroke actuator $(^3)$
1.1			1.9				2.7				[kg] Extra-weight for each 100 mm extra-stroke
10 ... 40											°C Operating temperature

⁽¹⁾ - pull or push

⁽²⁾ - ball screws with accuracy grade IT 3 or IT 5 available on request

⁽³⁾ - weight of actuator without accessories

3.2 Dimensions



SIZE	SA 0	SA 1	SA 2	SA 3	SA 4	SA 5	SA 6
A	30	30	37	37	48	96	116
B	40	34	40	38	51.5	82	108
□ C	46	52	65	75	95	112	138
∅ D	7	9	11	14	19	19	24
∅ D1	20	22	25	30	35	50	60
E	30	32	39	44	54	-	-
F	21.5	10	13	13	5	8	8
G	M6	M6	M8	M8	M10	M10	M12
H	11	11	14	15.5	16.5	15.5	17.5
H1	30	30	39	41.5	47.5	56.5	57
□ N	32.5	38	46.5	56.5	72	89	110
∅ P1	30	35	40	45	45	70	80
∅ P2	40	40	50	63	80	100	125
S	229	246	264	296	330	453	538
T	203	205	217	241	284	396	474
V1	4.5	4.5	5.5	5.5	5.5	25	30
V2	17.5	17.5	22.5	22.5	27.5	-	-
W	M10 × 1.25	M12 × 1.25	M12 × 1.25	M16 × 1.5	M20 × 1.5	M20 × 1.5	M27 × 2
X	18	18	23	25	28	28	28
Z	15	20	20	24	30	40	54

Standard stroke lengths:

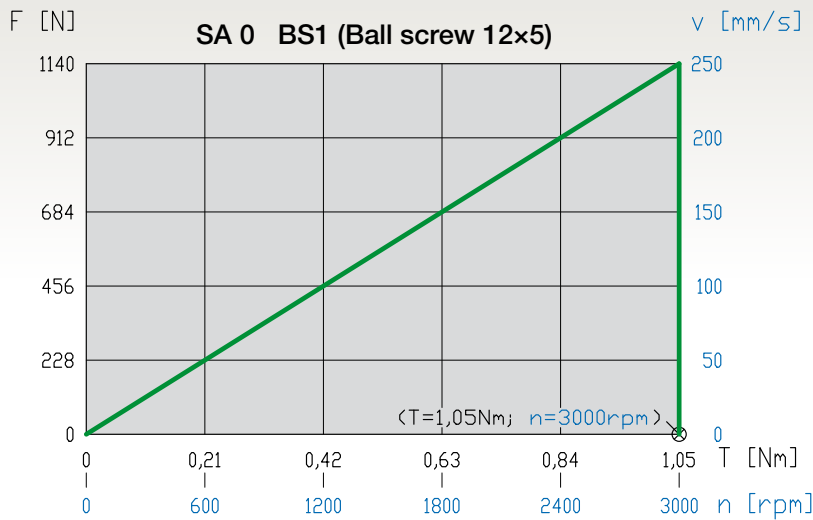
Stroke [mm]	100	200	300	400	500	600	700	800	900	1000
SA 0	C100	C200	C300	-	-	-	-	-	-	-
SA 1	C100	C200	C300	C400	-	-	-	-	-	-
SA 2	C100	C200	C300	C400	C500	C600	-	-	-	-
SA 3	C100	C200	C300	C400	C500	C600	C700	C800	-	-
SA 4	C100	C200	C300	C400	C500	C600	C700	C800	-	-
SA 5	C100	C200	C300	C400	C500	C600	C700	C800	C900	C1000
SA 6	C100	C200	C300	C400	C500	C600	C700	C800	C900	C1000

NOTES

Available accessories, dimensions and orientation: please refer to page 24 *SA IL: Accessories Dimensions*.
Input shaft versions:

- Vers. 1: cylindrical input shaft (standard); special executions in different dimensions, with or without key, available on request
- Vers. 5: interface for coupling to fit motors / servomotors supplied by customer (on request).

3.3 Performances

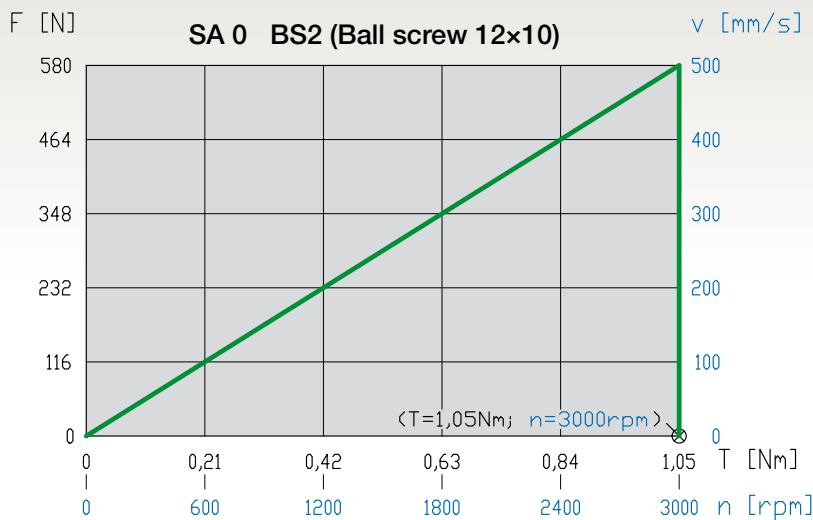


3.3.1 SA 0

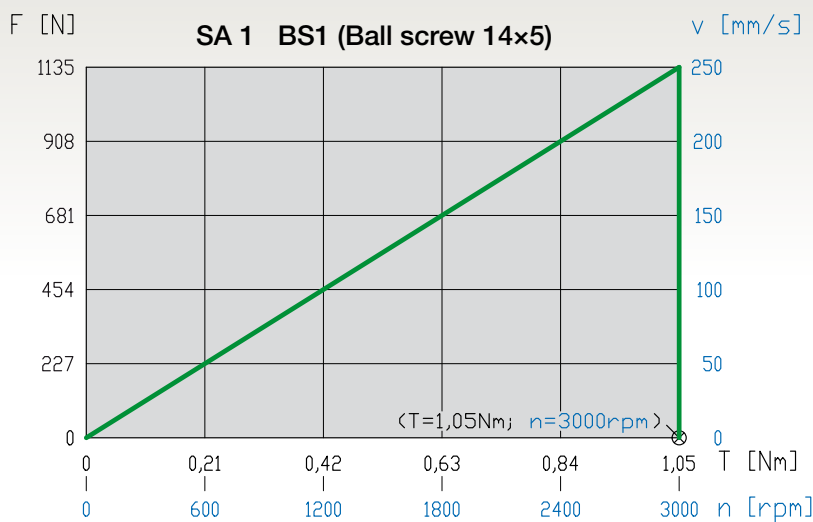
Following diagrams show, for each actuator size, the relation between:

- Linear speed v [mm/s] depending on actuator input speed n [rpm]
- Actuator force F [N] depending on input torque T [Nm]

Different values not included in the diagrams can be calculated by linear interpolation.



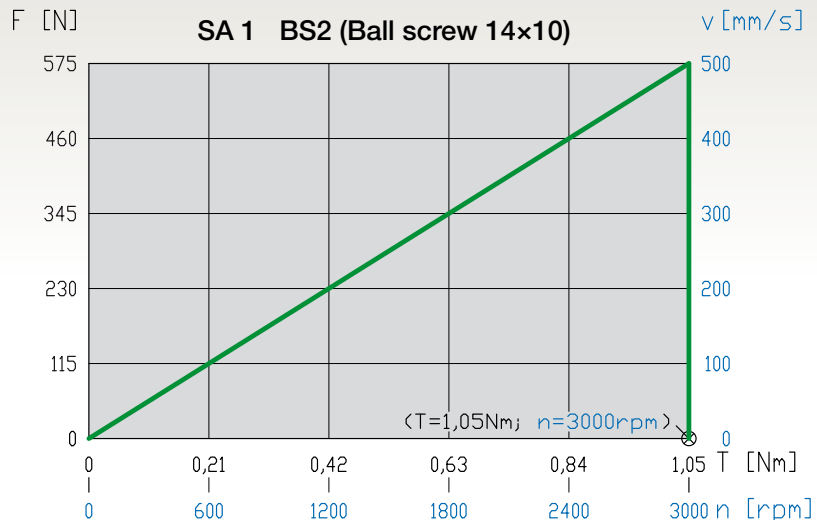
3.3.1 SA 0



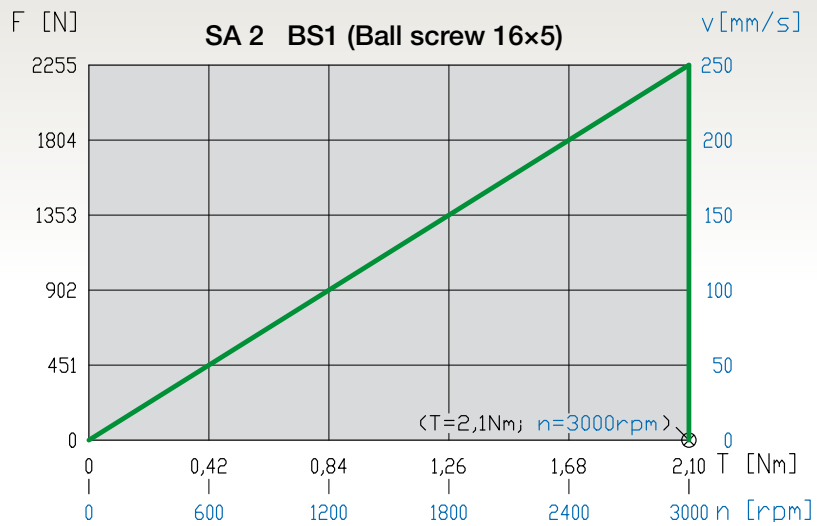
3.3.2 SA 1

3.3 Performances

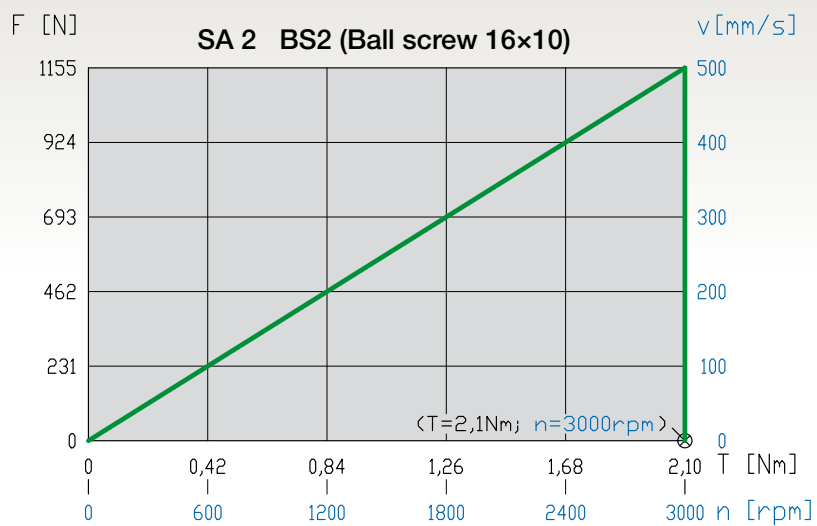
3.3.2 SA 1



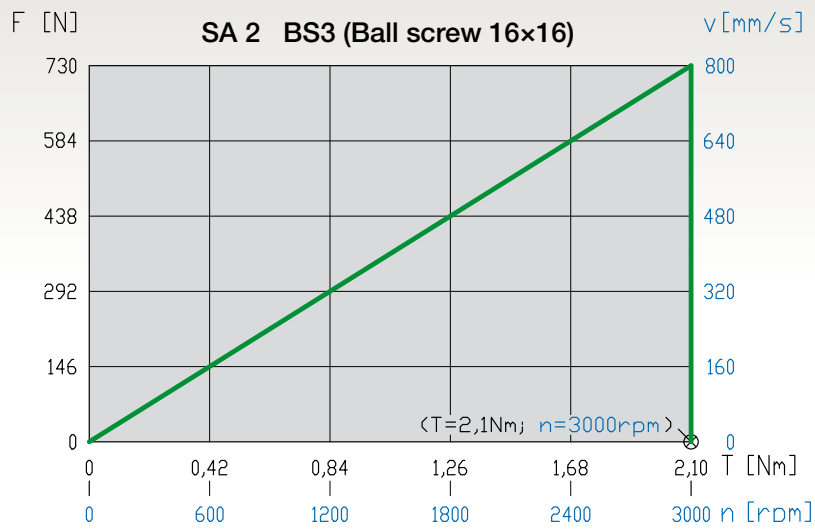
3.3.3 SA 2



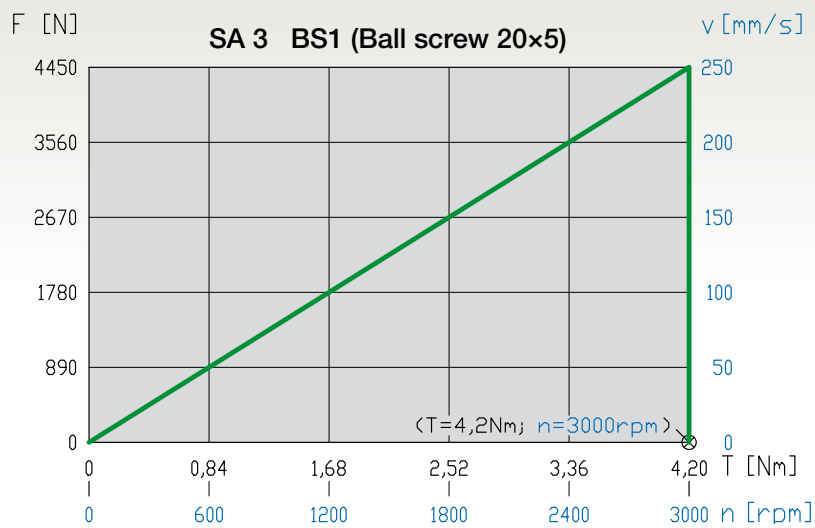
3.3.3 SA 2



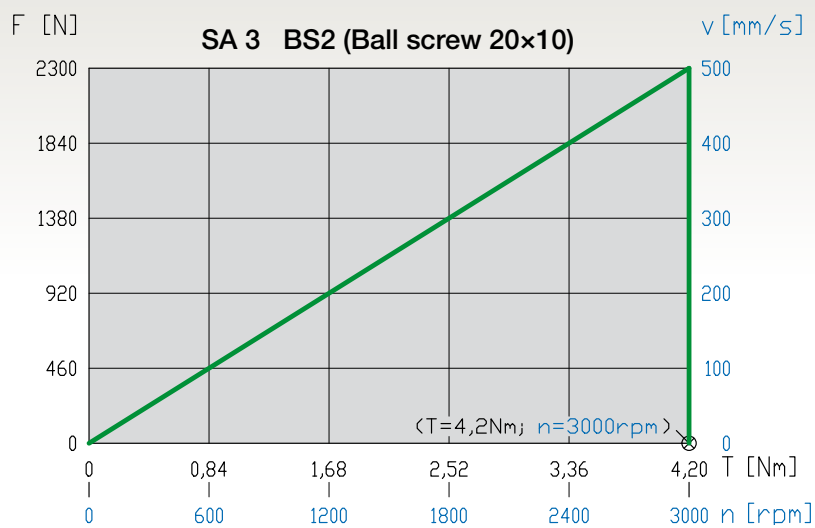
3.3 Performances



3.3.3 SA 2



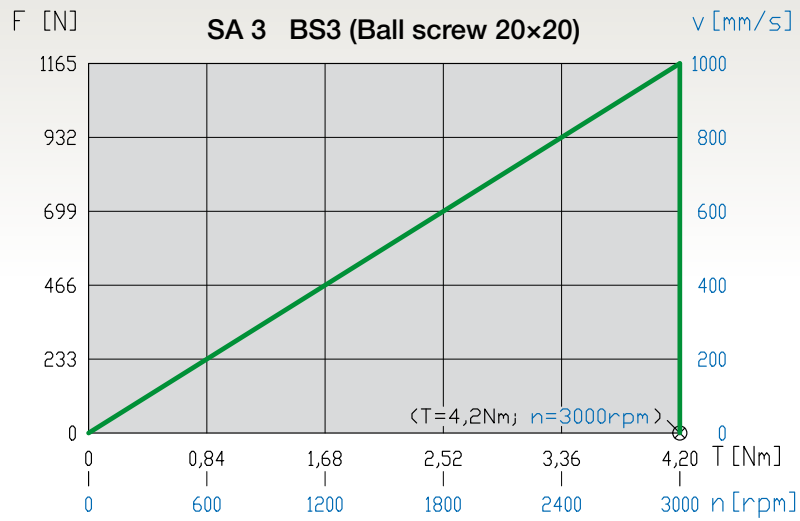
3.3.4 SA 3



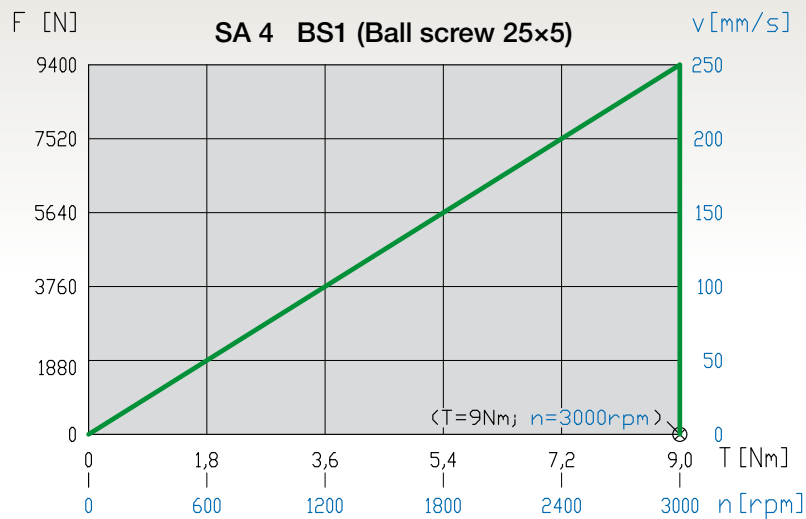
3.3.4 SA 3

3.3 Performances

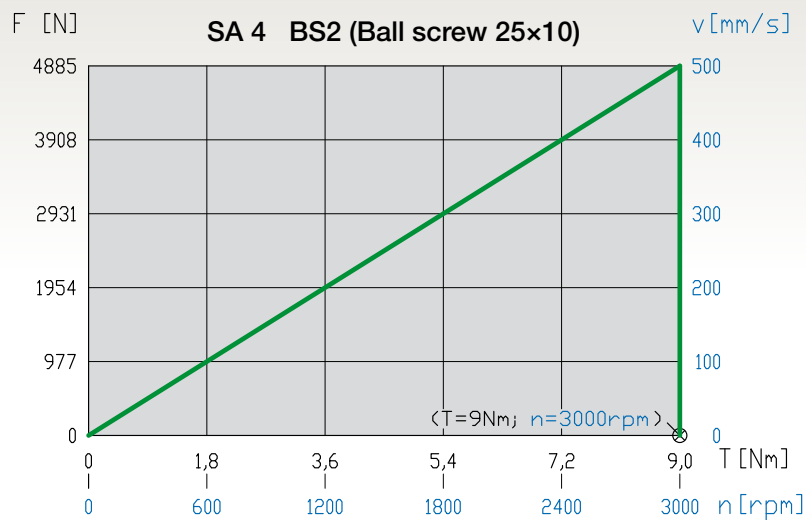
3.3.4 SA 3



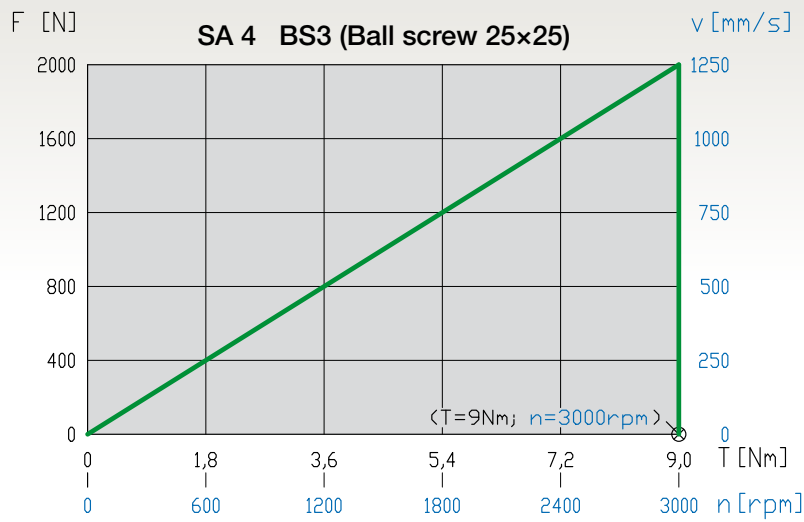
3.3.5 SA 4



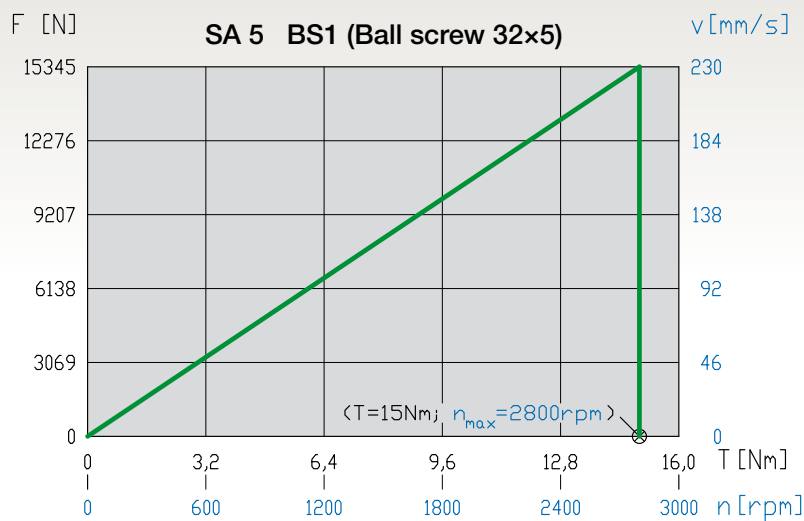
3.3.5 SA 4



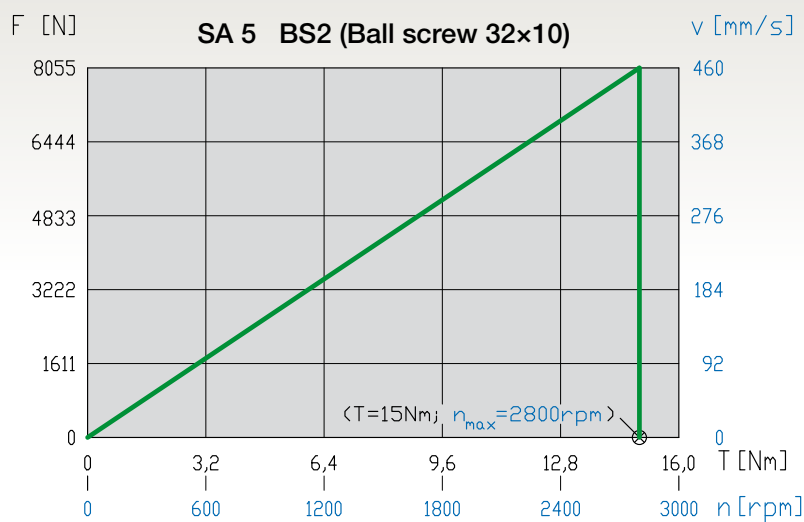
3.3 Performances



3.3.5 SA 4



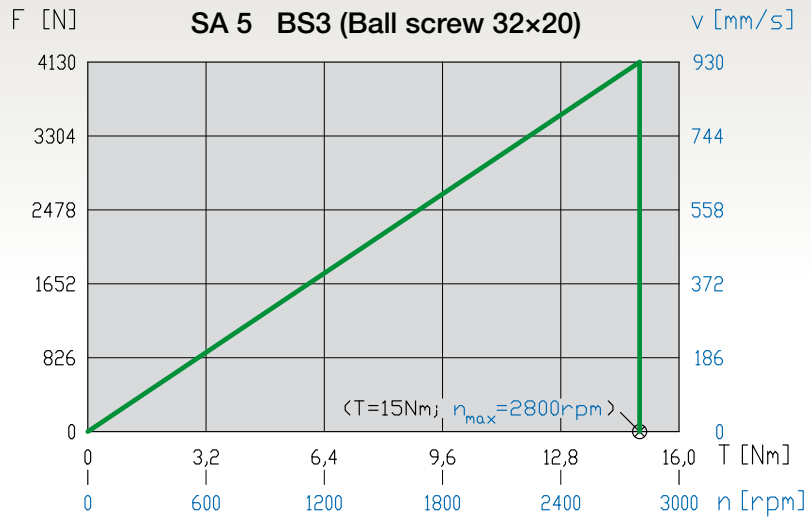
3.3.6 SA 5



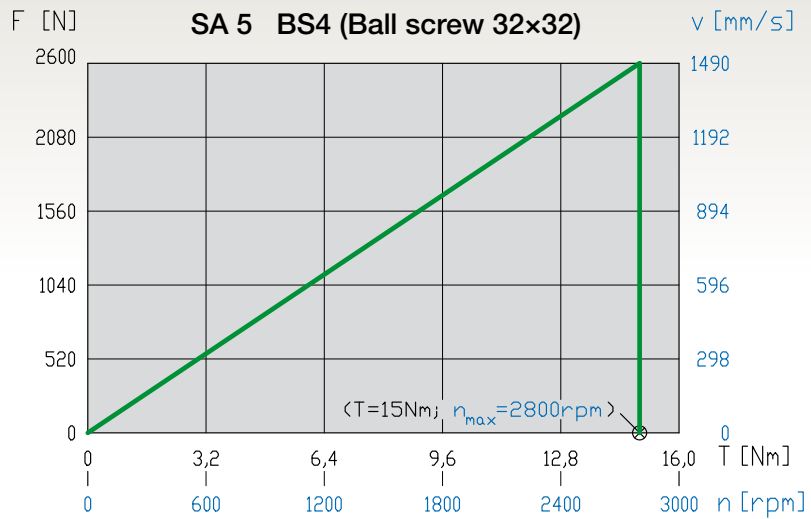
3.3.6 SA 5

3.3 Performances

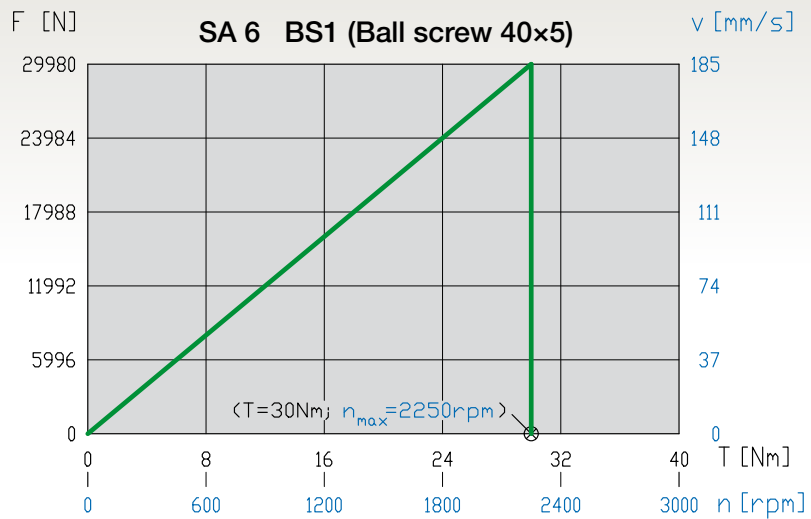
3.3.6 SA 5



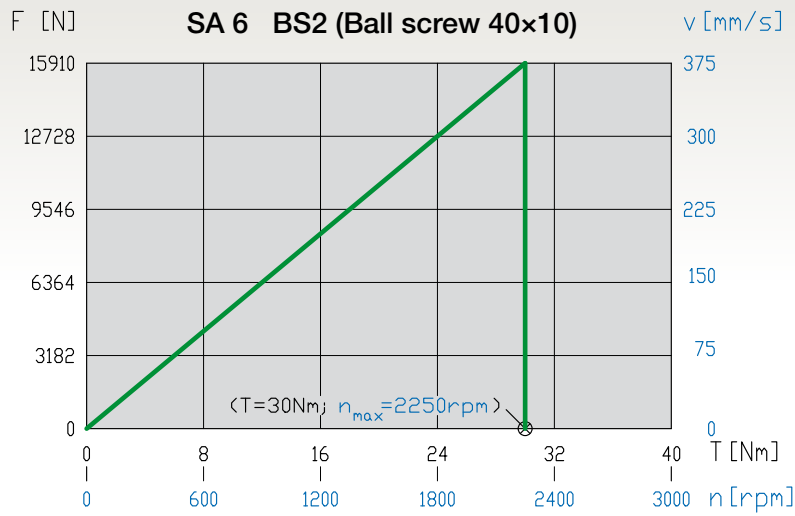
3.3.6 SA 5



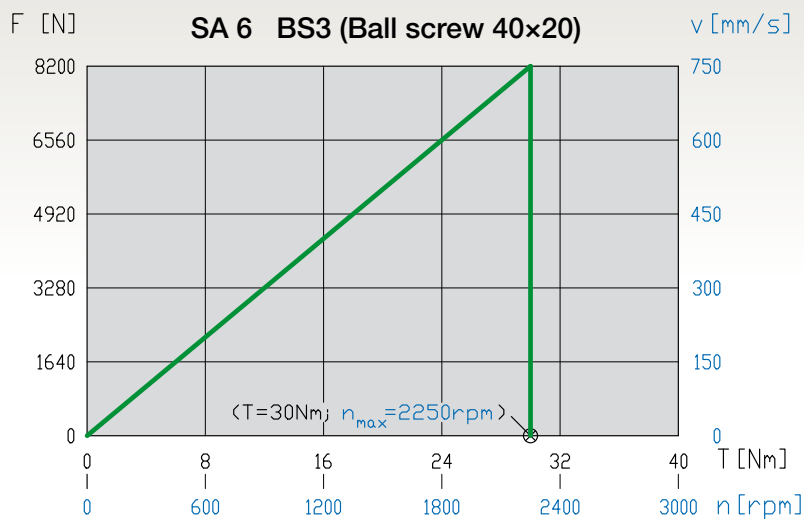
3.3.7 SA 6



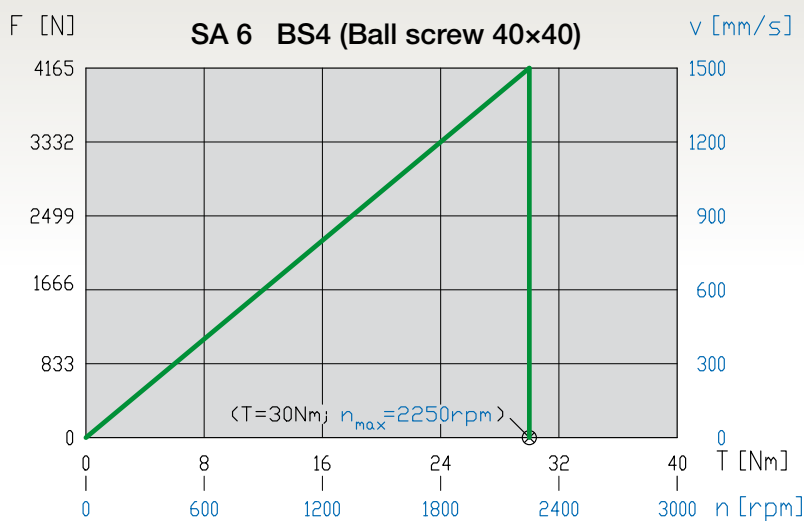
3.3 Performances



3.3.7 SA 6



3.3.7 SA 6



3.3.7 SA 6