INKOMA - GROUP

SGT screw jack

ALBERT

Maschinenfabrik ALBERT GmbH
Technologiepark 2
A - 4851 Gampern - Austria

phone: +43/(0)7682-39080-10
fax: +43/(0)7682-39080-99
e-mail: office@albert.at
internet: www.ALBERT.at

Product description

SGT 5 to SGT 1000 screw jack with trapezoidal or ball screw spindles

ALBERT-SGT-screw jacks are electromechanical transmission components suitable for a wide spectrum of industrial machinery. A range of 11 sizes, coupled with a modular approach to nut and installation arrangements, satisfy customer design requirements.
The range has a logical progression of load capability between 5 and 1000 kN. Higher loads are possible and spindles up to 10m long can be provided. Normal stroke speeds up to 0.05 m/s. For higher speeds please enquire.

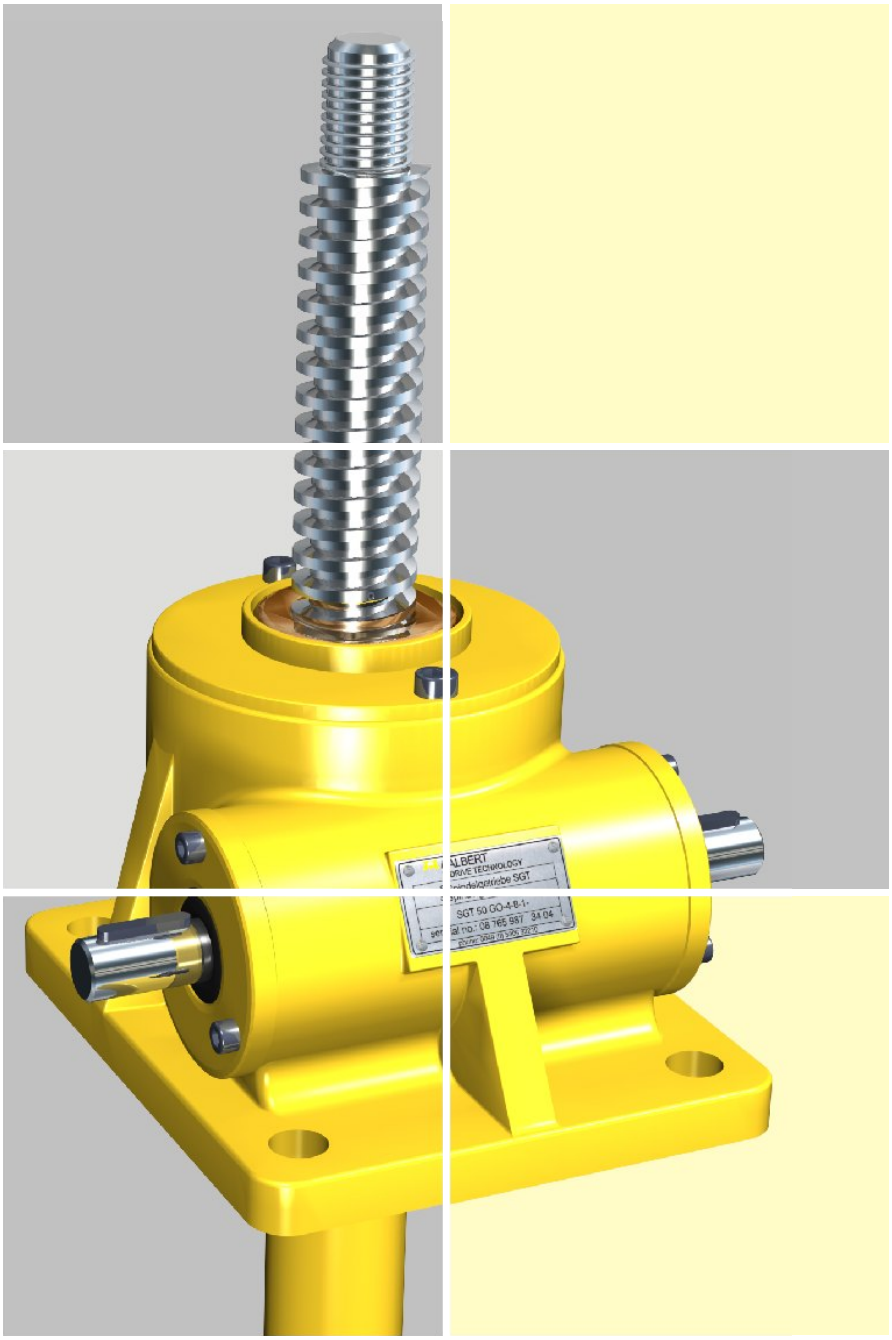
Logically designed combinations of standard components, with good interchangeability, make simple installation possible whilst permitting operation in any chosen position and attitude with minimum space requirement.
ALBERT-SGT-screw jacks can be provided with electrical, hydraulic, pneumatic and manual inputs. Precise relative motion is provided for screw jacks used in combination but with unequal loads. Rest positions are maintained by the self locking trapezoidal spindle or by the use of a brake motor.

Environmental temperatures between -50°C and +200°C are possible. High operational safety is ensured by the choice of compatible materials and simple installation and maintenance. For more extreme mechanical or chemical conditions, ALBERT-SGT-screw jacks are manufactured with suitable special materials.

The enclosed construction, including comprehensive spindle protection, allows utilisation in hostile conditions. Standard options include safety nuts, ball screw spindles (for high utilisation or lifting speeds), spindle rotation prevention and backlash compensation. Special spindle diameters and leads can also be supplied.

Application examples: Production Equipment, Assembly and Repair, Storage and Mechanical Handling, Paper, Food, Rolling Mills and Foundries, Mining and Metal manufacturers, Building, Water and Ship Building (exposed deck equipment), Research and Development, New Technologies, Theatre and Stage Engineering.

The wide range of available accessories ensures the closest possible match to customer requirements.
If you have questions or problems our technical and sales personnel will be very pleased to hear from you. We are always happy to offer our experience and provide assistance with the design of drives and equipment.



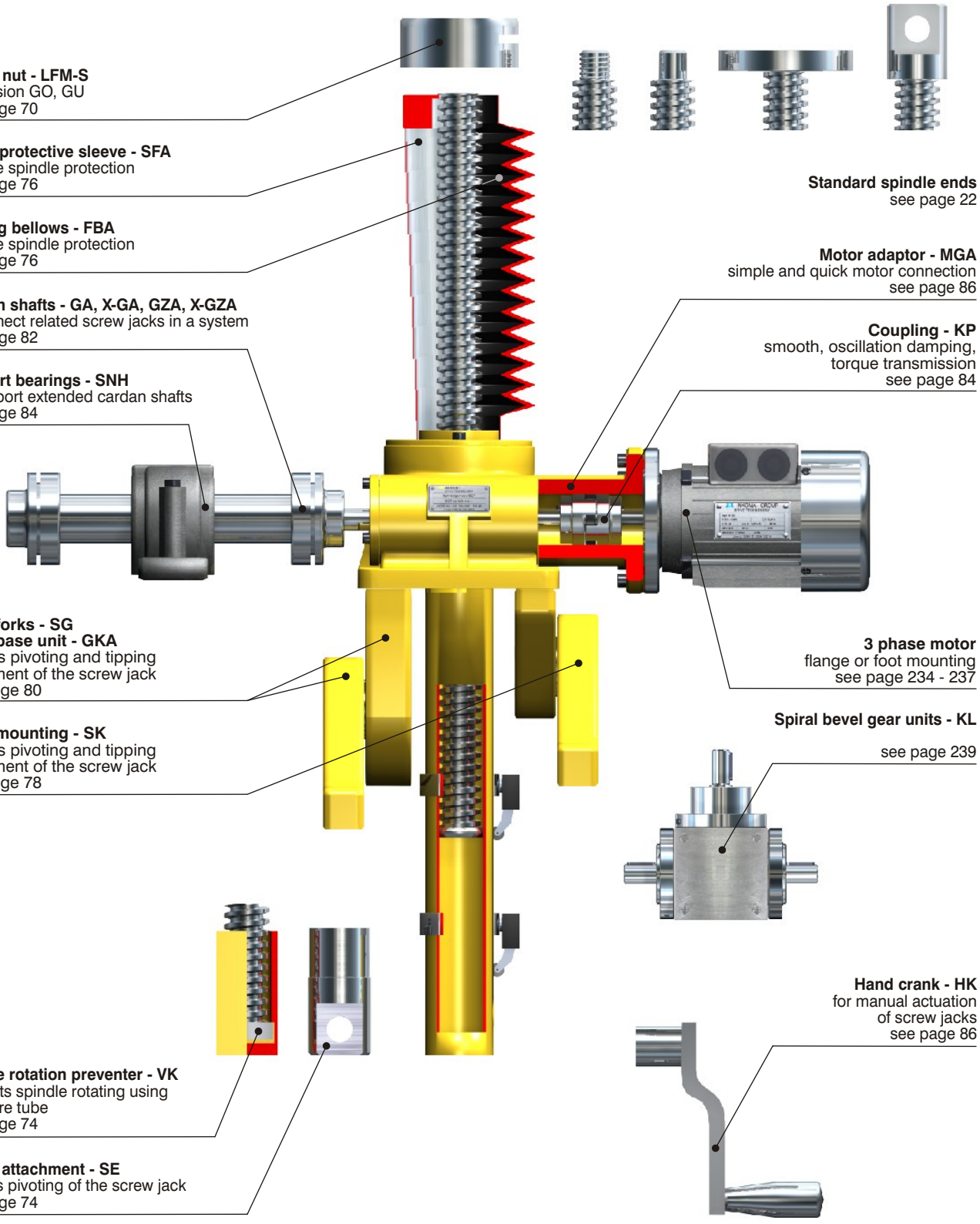
Accessories for version GO, GU (basic design)

Page references

The comprehensive range of ALBERT accessories for screw jacks type SGT provides the designer with the means to achieve the best possible fit of the equipment to the application. All accessories are manufactured to the same exacting standards as the rest of the ALBERT product range.

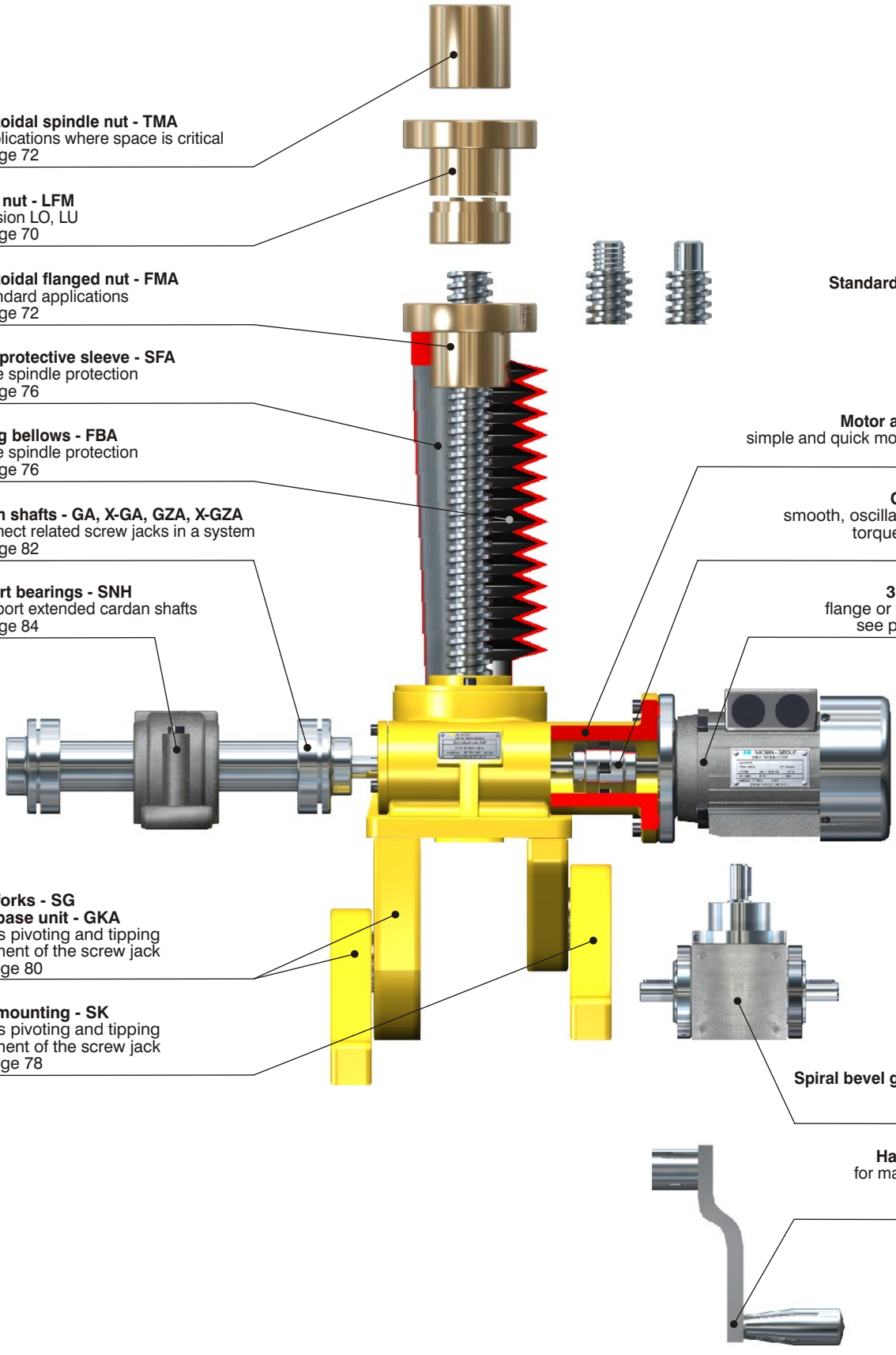
In addition to this comprehensive programme, customer specific requirements are also catered for. Our engineers will be pleased to hear from you.

Special designs are available. Please enquire.



Accessories for version LO, LU (running nut design)

Page references



Trapezoidal spindle nut - TMA
for applications where space is critical
see page 72

Safety nut - LFM
for version LO, LU
see page 70

Trapezoidal flanged nut - FMA
for standard applications
see page 72

Spiral protective sleeve - SFA
provide spindle protection
see page 76

Folding bellows - FBA
provide spindle protection
see page 76

Cardan shafts - GA, X-GA, GZA, X-GZA
to connect related screw jacks in a system
see page 82

Support bearings - SNH
to support extended cardan shafts
see page 84

Pivot forks - SG
Pivot base unit - GKA
permits pivoting and tipping movement of the screw jack
see page 80

Pivot mounting - SK
permits pivoting and tipping movement of the screw jack
see page 78

Standard spindle ends
see page 28

Motor adaptor - MGA
simple and quick motor connection
see page 86

Coupling - KP
smooth, oscillation damping, torque transmission
see page 84

3 phase motor
flange or foot mounting
see page 234 - 237

Spiral bevel gear units - KL
see page 239

Hand crank - HK
for manual actuation of screw jacks
see page 86

Contents list

SGT screw jacks - basic design and running nut design

Contents list

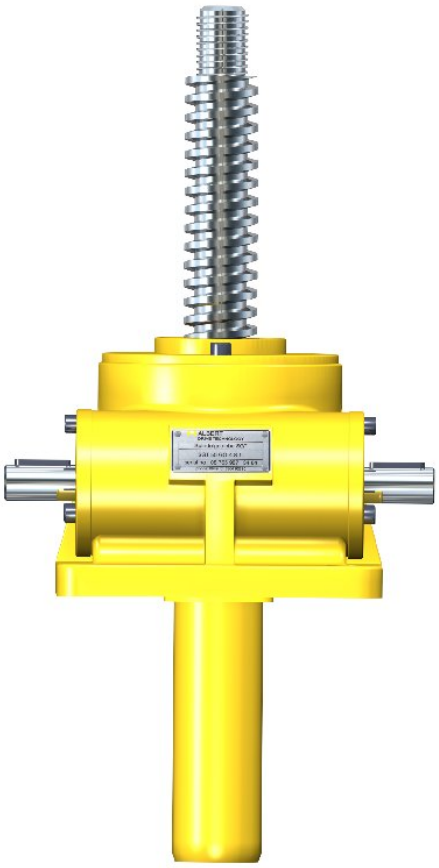
SGT screw jacks - basic design and running nut design

Versions

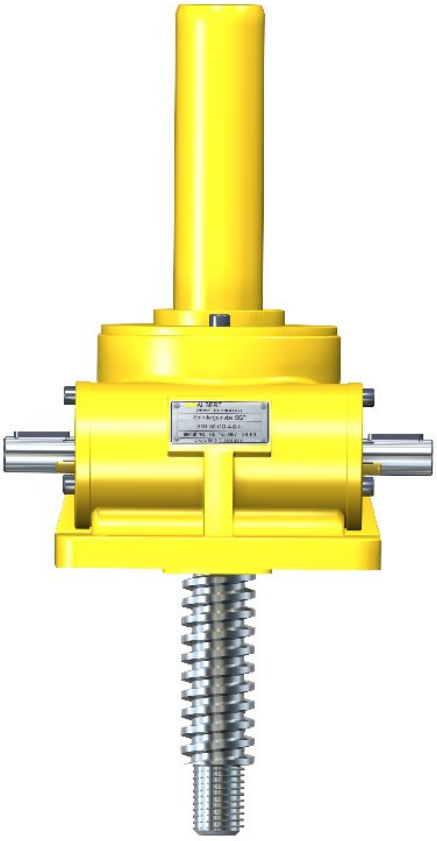
Basic design GO, GU

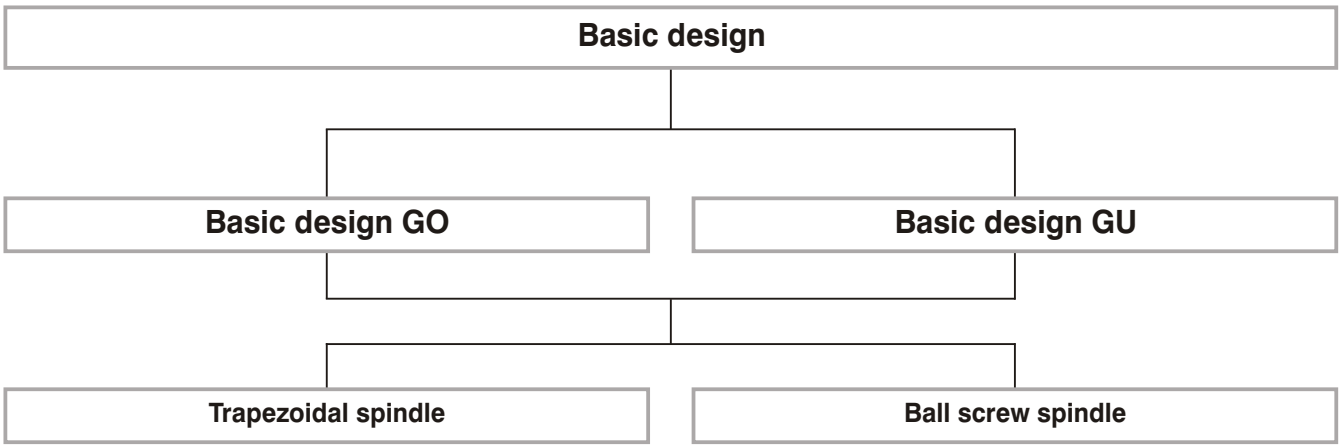
G configuration (basic design) has two versions: GO (basic design, spindle above) and GU (basic design, spindle below).
In both cases the spindle moves to transmit the linear lifting motion. The spindle is axially guided through the screw jack gear housing. Any tendency of the spindle to rotate must be resisted.

Version GO



Version GU



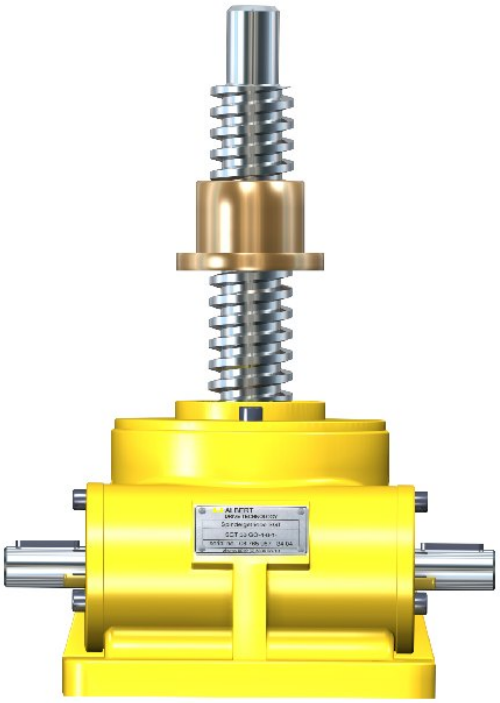


Versions

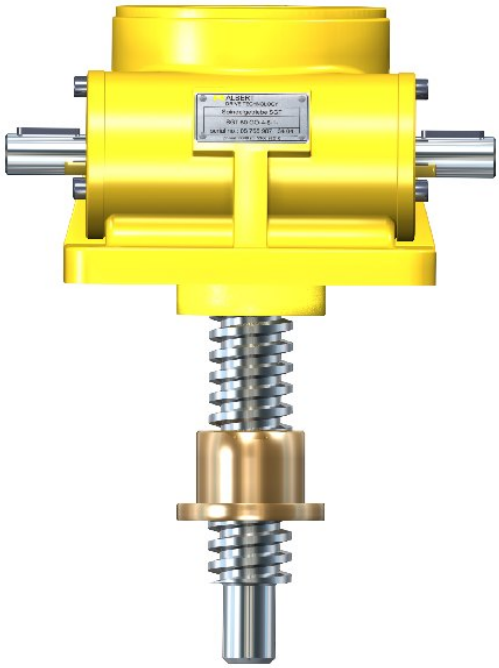
Running nut design LO, LU

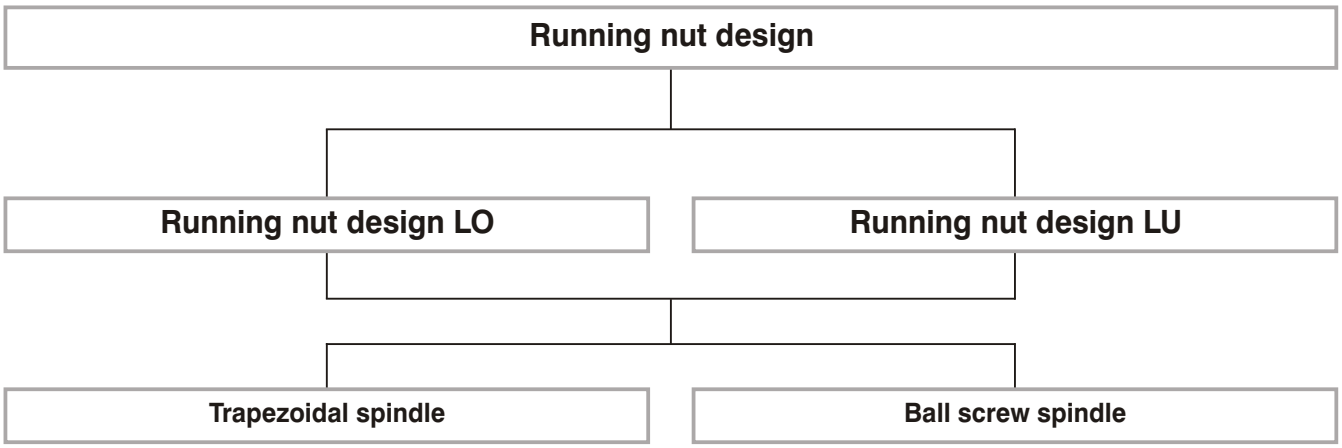
L configuration (running nut) has two versions: LO (running nut, spindle above) and LU (running nut, spindle below).
The axial movement of the nut transmits the linear lifting motion due to spindle rotation. In this configuration the spindle is axially fixed in the gear housing.

Version LO



Version LU





Dimensions for SGT 5, SGT 20 and SGT 500

Versions GO, GU

further sizes see page 20

All versions are supplied with double worm shafts (version 0) as standard.
Optionally these can be supplied only on the left (version 1) or the right (version 2).

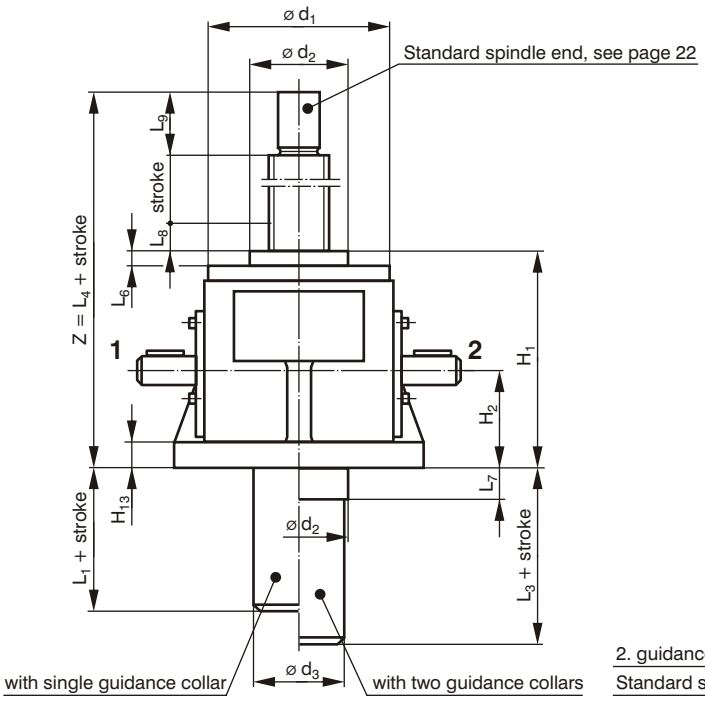
Versions

GO: Basic design, spindle above

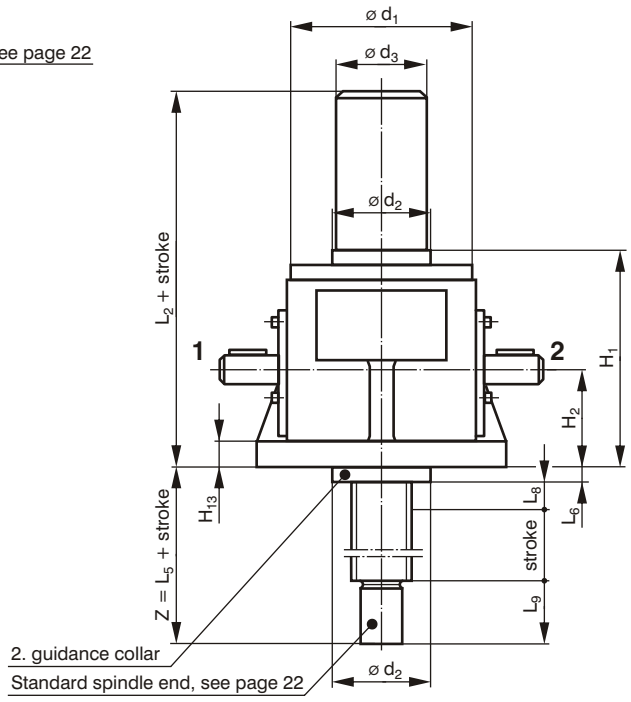
GU: Basic design, spindle below

Ratio:	**N**: normal, **L**: slow
Lubrication:	Grease
Material:	see table page 56
Accessories:	see “Accessories for SGT” page 65 - 87
Questionnaire:	see page 58 - 62

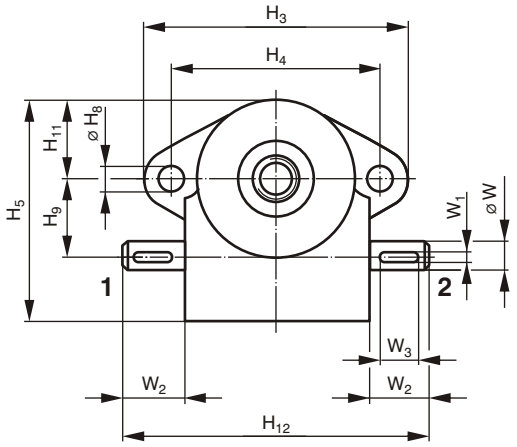
Basic design GO



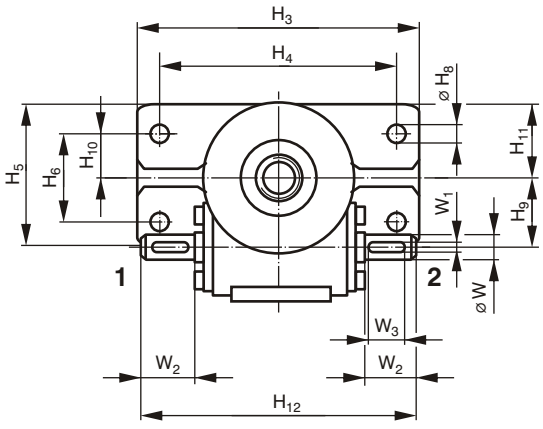
Basic design GU

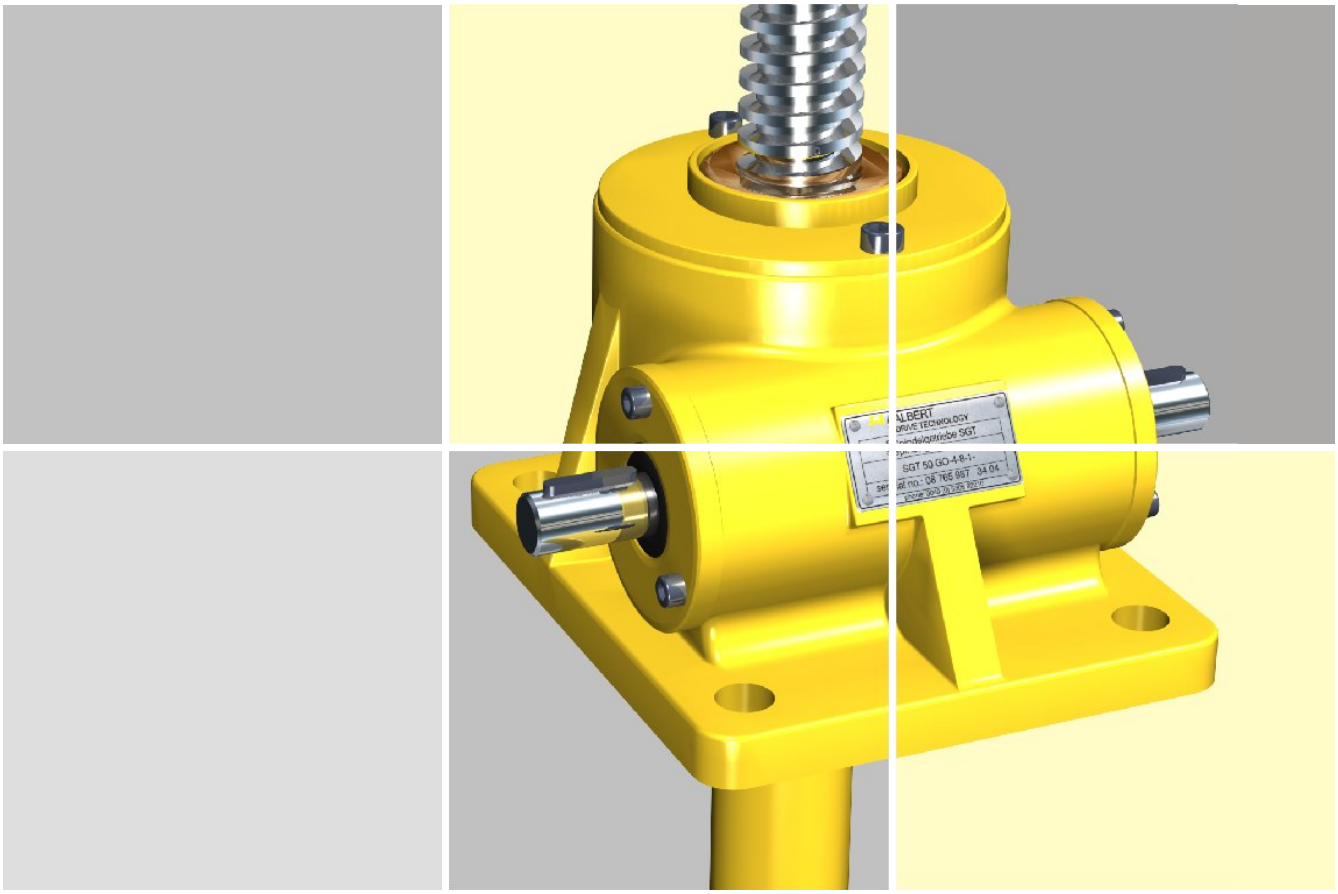


Screw jack size SGT 5



Screw jack sizes SGT 20 and SGT 500





Order code	Dimensions [mm]														
	d_1	d_2	d_3	H_1	H_2	H_3	H_4	H_5	H_6	H_7	H_8	H_9	H_{10}	H_{11}	H_{12}
SGT 5	67	36	28	76	32	117	90	85	-	-	9	27	-	34	120
SGT 20	98	48	45	105	44	185	152	95	57	-	11*	45,2	28,5	47,5	180
SGT 500	297	160	140	292	140	500	400	264	150	-	48	137	75	132	560

Order code	Dimensions [mm]													
	H_{13}	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	W	W_1	W_2	W_3
SGT 5	10	4	86	28	108	39	7	18	10	22	10k6	3	20,5	16
SGT 20	14	6	123	38	157	62	10	20	20	32	14k6	5	34,5	25
SGT 500	45	-	324	54	447	170	15	22	25	130	40k6	12	104,5	90

Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium, apply to machined surfaces.
For all other dimensions casting tolerances apply.

*models with motor adaptor have M16 threaded mounting holes

Dimensions for SGT 30 to SGT 350, SGT 750 and SGT 1000

Versions GO, GU

further sizes see page 18

All versions are supplied with double worm shafts (version 0) as standard.
Optionally these can be supplied only on the left (version 1) or the right (version 2).

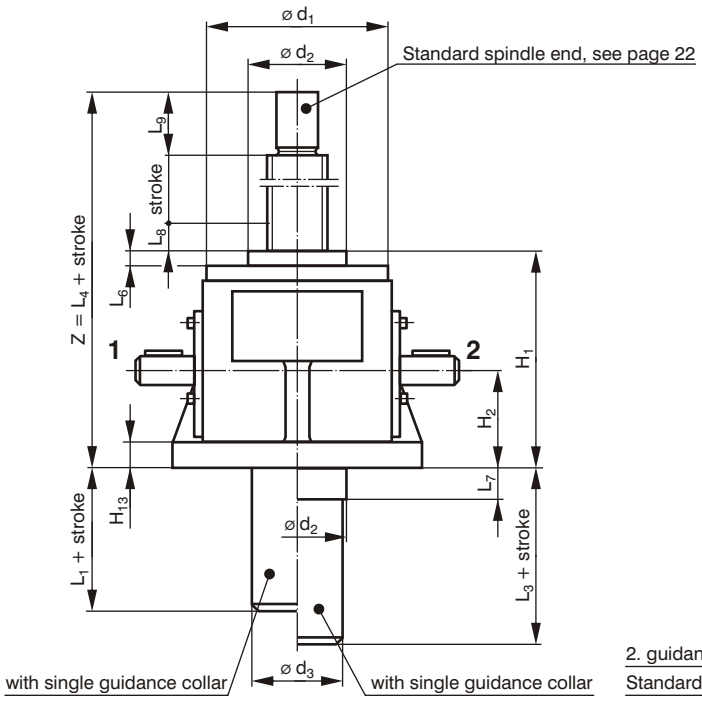
Versions

GO: Basic design, spindle above

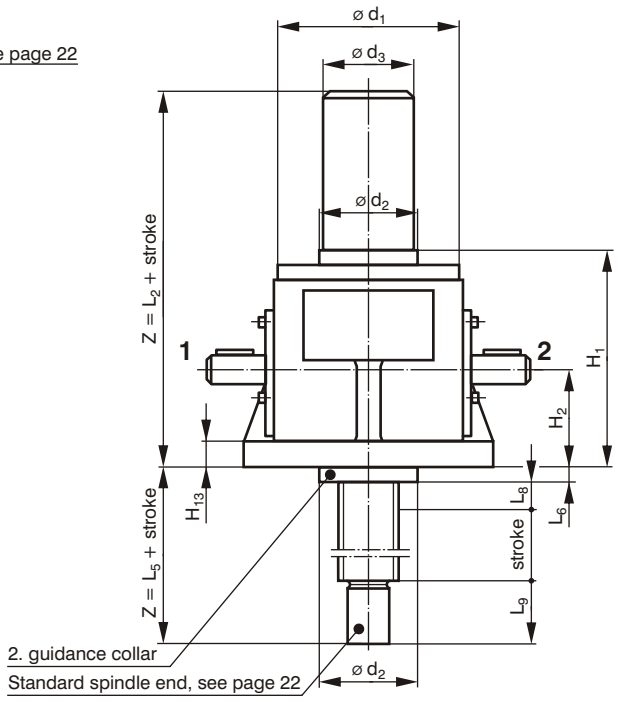
GU: Basic design, spindle below

Ratio:	**N**: normal, **L**: slow
Lubrication:	Grease
Material:	see table page 56
Accessories:	see “Accessories for SGT” page 65 - 87
Questionnaire:	see page 58 - 62

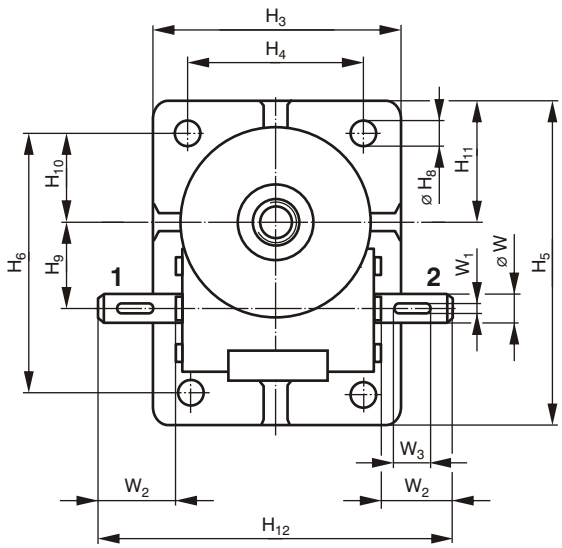
Basic design GO



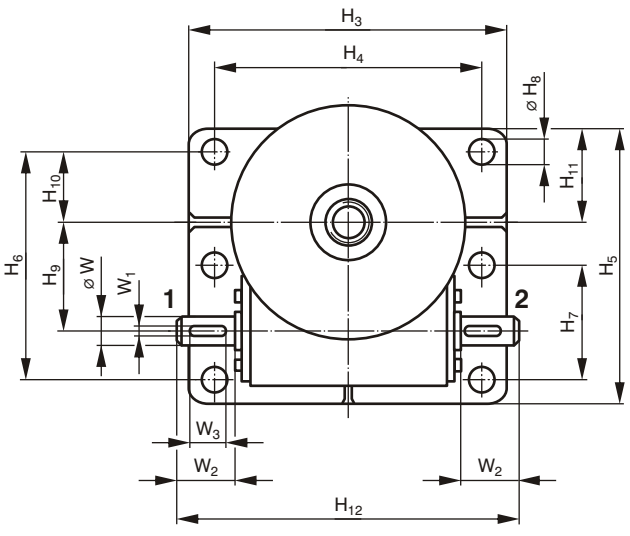
Basic design GU

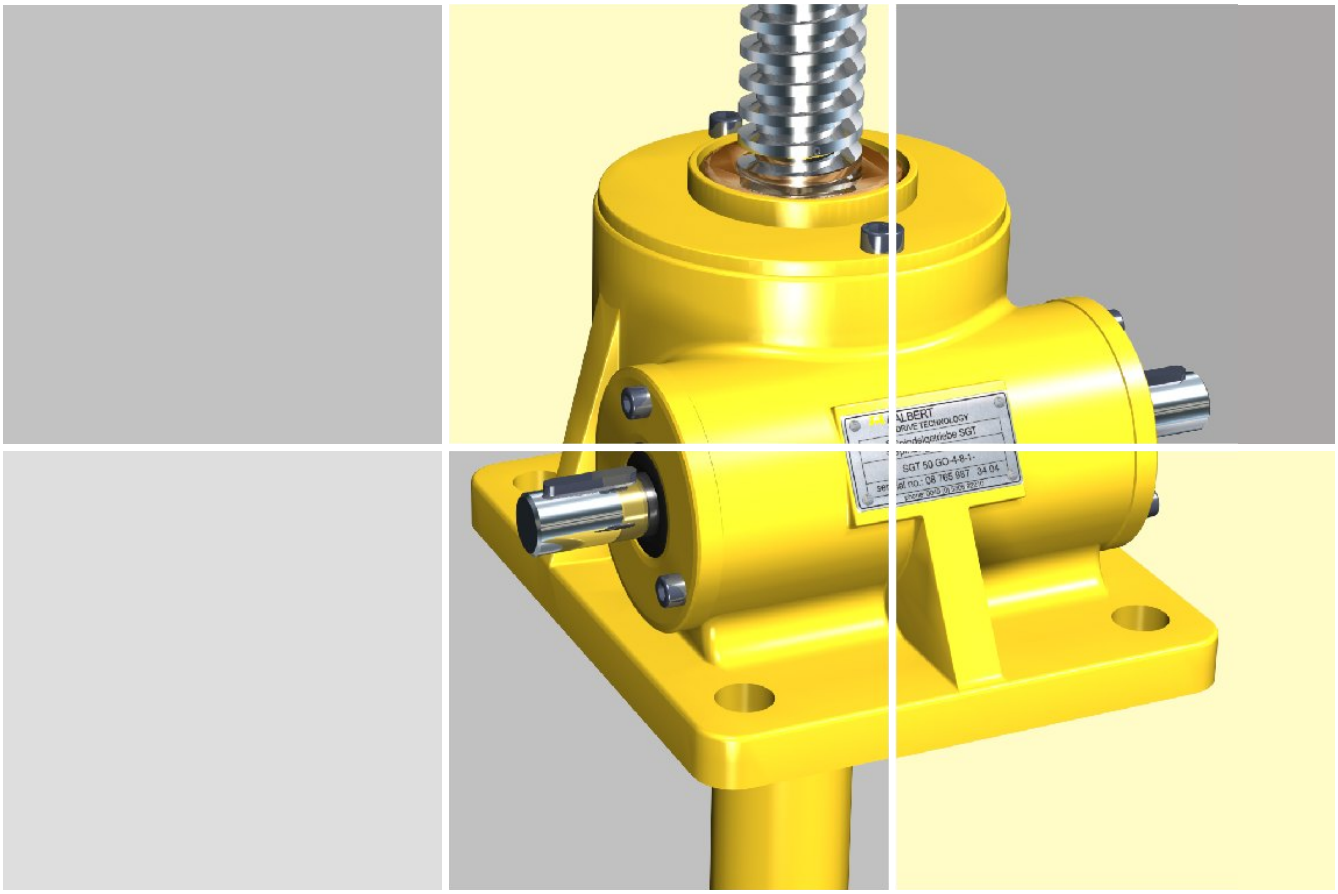


Screw jack sizes SGT 30 to SGT 350



Screw jack sizes SGT 750 and SGT 1000





Order code	Dimensions [mm]														
	d_1	d_2	d_3	H_1	H_2	H_3	H_4	H_5	H_6	H_7	H_8	H_9	H_{10}	H_{11}	H_{12}
SGT 30	98	48	45	106	45	120	90	165	135	-	14	45,2	50	65	180
SGT 50	119	65	60	140	61,5	160	114	214	168	-	17	56,2	58	82	228
SGT 150	148	82	76	160	70	203	155	240	190	-	21	66,8	63,5	88	280
SGT 200	185	100	83	192	87	220	160	297	240	-	28	72,5	95	124	322
SGT 300	205	130	114	222	102	265	190	355	280	-	35	97	95	133	355
SGT 350	257	150	133	250	115	280	210	430	360	-	35	120	135	170	430
SGT 750	357	200	180	325	155	560	460	475	365	182,5	48	160	125	180	610
SGT 1000	455	240	194	370	170	620	520	540	440	220	52	196	160	210	670

Order code	Dimensions [mm]													
	H_{13}	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	W	W_1	W_2	W_3
SGT 30	12	5	125	39	158	62	10	20	20	32	16k6	5	29,5	25
SGT 50	18	0	159	39	202	72	10	20	20	42	20j6	6	45	32
SGT 150	20	10	191	50	235	85	10	20	25	50	25k6	8	46,5	45
SGT 200	21	7	224	52	279	97	10	20	25	62	28k6	8	48,5	50
SGT 300	25	7	258	54	312	100	10	20	25	65	34k6	10	56,5	56
SGT 350	30	4	284	54	357	117	10	20	25	82	38k6	10	72	70
SGT 750	50	-	360	54	490	185	20	22	25	140	52k6	16	110	100
SGT 1000	50	-	437	65	570	220	20	22	25	175	60k6	18	111	100

Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium, apply to machined surfaces.
For all other dimensions casting tolerances apply.

Dimensions for SGT 5 to SGT 1000

Standard spindle ends for versions GO, GU

All versions are supplied with double worm shafts (version 0) as standard.
Optionally these can be supplied only on the left (version 1) or the right (version 2).

Versions

GO: Basic design, spindle above

GU: Basic design, spindle below

Ratio: **N**: normal, **L**: slow

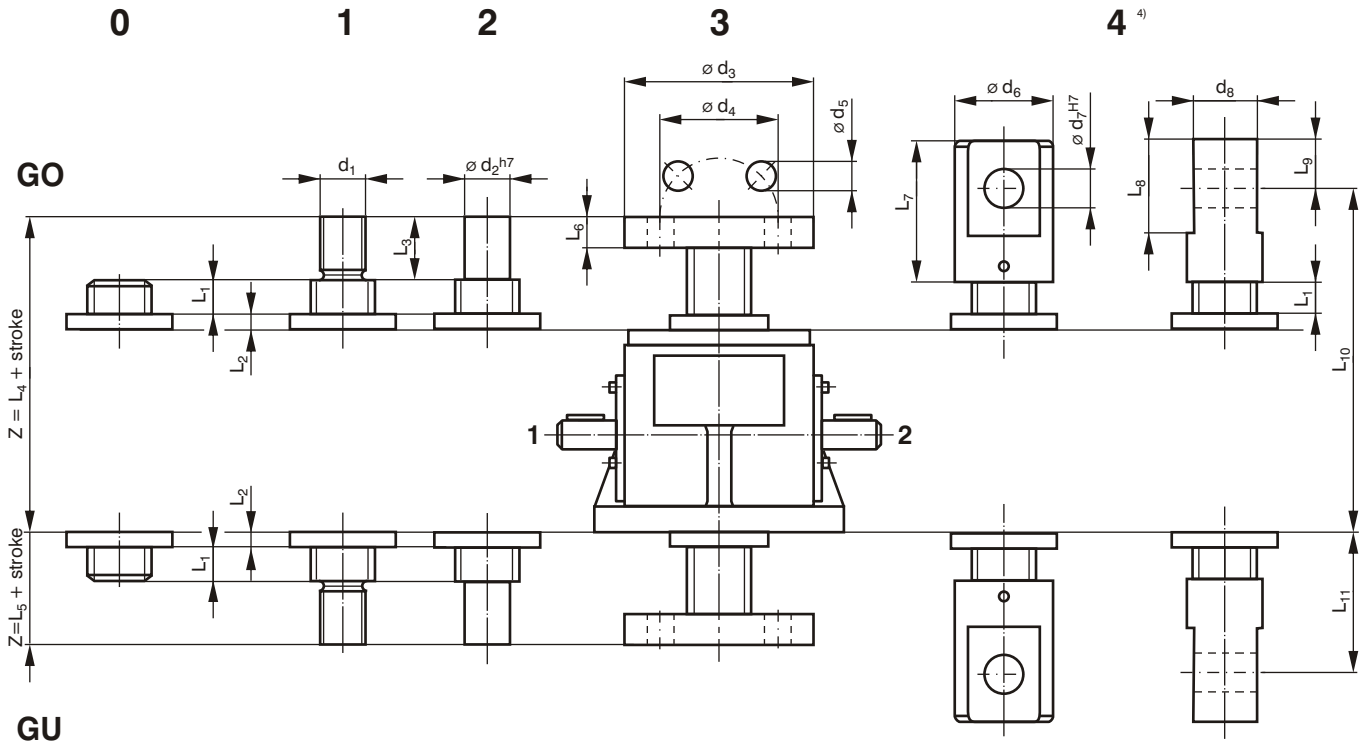
Lubrication: Grease

Material: see table page 56

Accessories: see “Accessories for SGT” page 65 - 87

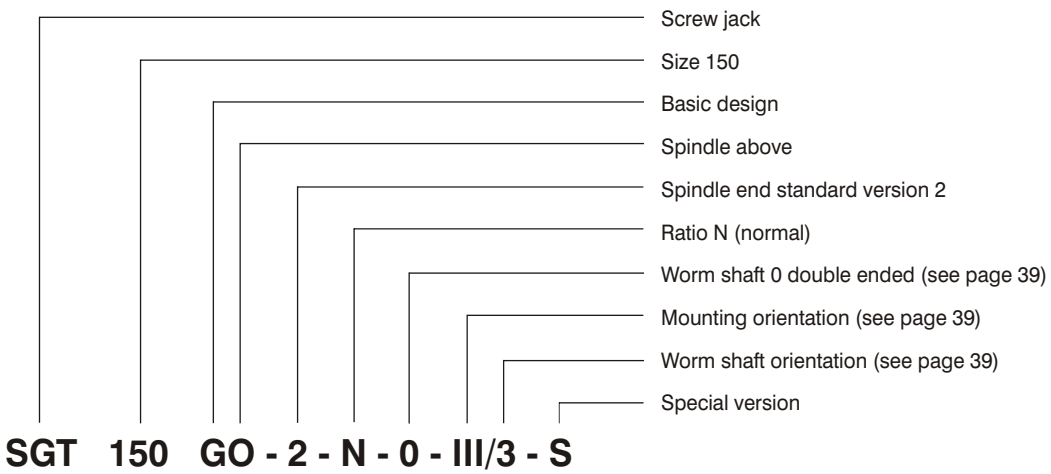
Questionnaire: see page 58 - 62

Selection of the standard spindle ends:



4) standard spindle end 4: the design of the bolt is provided by the customer.

Ordering example:

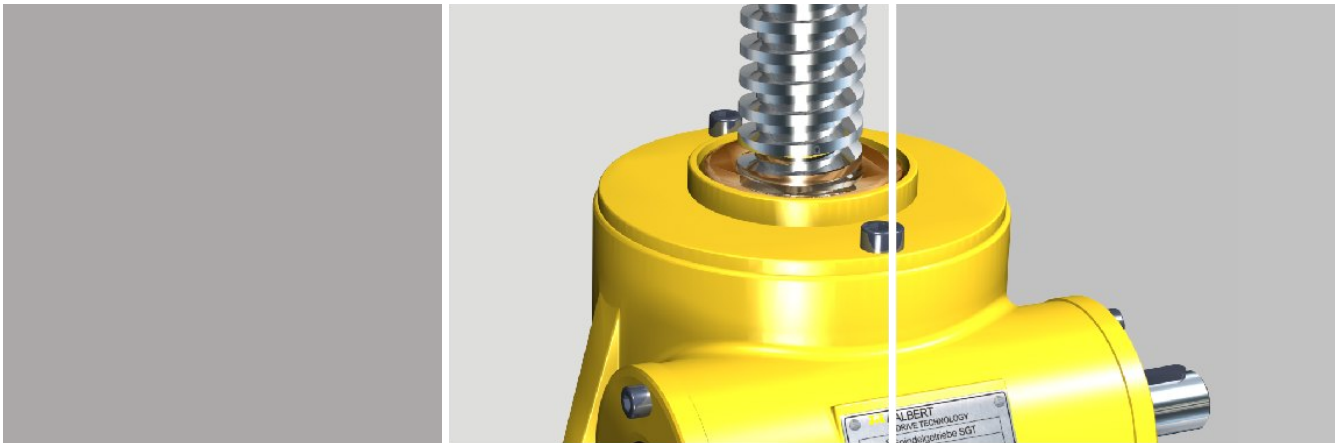


Initial selection table

Order code	Static lifting force [1] F_{max} [kN]	Ratio N (normal) i N	Lift per worm shaft rotation [mm/ rot.]	Overall efficiency $\eta_{tot.}$ [-]	Ratio L (slow) i L	Lift per worm shaft rotation [mm/ rot.]	Overall efficiency $\eta_{tot.}$ [-]	Input power (S4-20%) $P_{in.}$ [kW]	max. spindle torque [2] $M_{sp.}$ [Nm]	max permissible torque at worm shaft [3] $M_{in.}$ [Nm]	Spindle Tr x P [mm]	Spindle efficiency $\eta_{spindle}$ [-]	Lubricant quantity [kg]	Mass without spindle m [kg]	Mass of spindle per m m [kg/m]
SGT 5	5	10	0,6	0,21	24	0,25	0,12	0,18	9	12	20x6	0,51	0,1	1,5	1,76
SGT 20	20	6	1	0,26	24	0,25	0,14	0,51	43	29	26x6	0,44	0,2	8	3,22
SGT 30	30	6	1	0,24	24	0,25	0,13	0,6	71	48	30x6	0,40	0,2	8	4,44
SGT 50	50	6	1,17	0,23	24	0,29	0,12	1,1	151	95	40x7	0,37	0,3	18	8,13
SGT 150	150	8	1,5	0,20	24	0,5	0,13	2,8	710	192	60x12	0,40	0,5	28	17,94
SGT 200	200	8	1,5	0,20	24	0,5	0,13	3,9	999	283	65x12	0,38	0,7	40	21,40
SGT 300	300	10,66	1,5	0,19	32	0,5	0,11	5	2050	478	90x16	0,37	1,0	75	41,13
SGT 350	350	10,66	1,5	0,18	32	0,5	0,11	6,2	2572	732	100x16	0,35	1,8	91	51,78
SGT 500	500	10,66	1,5	0,15	32	0,5	0,09	7,8	4191	862	120x16	0,30	2,0	180	76,76
SGT 750	750	10,66	1,5	0,14	32	0,5	0,08	9,4	7060	1750	140x16	0,27	4,0	365	106,70
SGT 1000	1000	12	1,67	0,13	36	0,56	0,08	12,7	10995	2780	160x20	0,29	4,0	545	138,00

[1] The values for max. load apply only for initial jack selection. The actual permitted lifting force depends on the version of the jack and the operating conditions.
[2] max. torque the spindle can transmit.
[3] important when screw jacks are in series e.g. where several units are constrained to operate together at same or differing speeds.

The values in the above table relate only to ALBERT-SGT-screw jacks in standard configuration (grease lubrication, spindle diameter, spindle lead…) and in standard materials. Units may be specified with oil lubrication. This provides higher efficiency and may allow selection of a smaller screw jack. The provision of comprehensive application data is essential to ensure the correct selection.



Order code	Dimensions [mm] d_1	d_2	d_3	d_4	d_5	d_6	d_7	d_8	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	L_{10}	L_{11}
SGT 5	M12	12	67	45	7	30	15	20	10	7	22	108	39	12	50	30	15	121	52
SGT 20	M18x1,5	17	98	75	12	40	15	30	20	10	32	157	62	18	65	46	23	167	72
SGT 30	M22x1,5	17	98	75	12	48	25	30	20	10	32	158	62	18	67	52	25	168	72
SGT 50	M30x2	30	119	75	17	60	25	40	20	10	42	202	72	20	90	60	30	220	90
SGT 150	M40x3	40	148	105	21	80	35	60	25	10	50	235	85	25	120	90	45	260	110
SGT 200	M50x3	50	185	140	26	85	40	65	25	10	62	279	97	30	130	100	50	297	115
SGT 300	M70x3	70	205	155	28	120	50	80	25	10	65	312	100	40	155	120	60	342	130
SGT 350	M80x3	80	257	200	33	128	60	90	25	10	82	357	117	45	200	150	70	405	165
SGT 500	M100x5	100	295	225	35	170	100	120	25	15	130	447	170	50	270	202	100	486	210
SGT 750	M110x6	110	350	270	48	200	120	140	25	20	140	490	185	70	350	242	120	585	275
SGT 1000	M140x6	140	365	280	52	220	140	160	25	20	175	570	220	100	370	282	140	625	275

Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium, apply to machined surfaces.
For all other dimensions casting tolerances apply.

Dimensions for SGT 5, SGT 20 and SGT 500

Versions LO, LU

further sizes see page 26

All versions are supplied with double worm shafts (version 0) as standard.
Optionally these can be supplied only on the left (version 1) or the right (version 2).

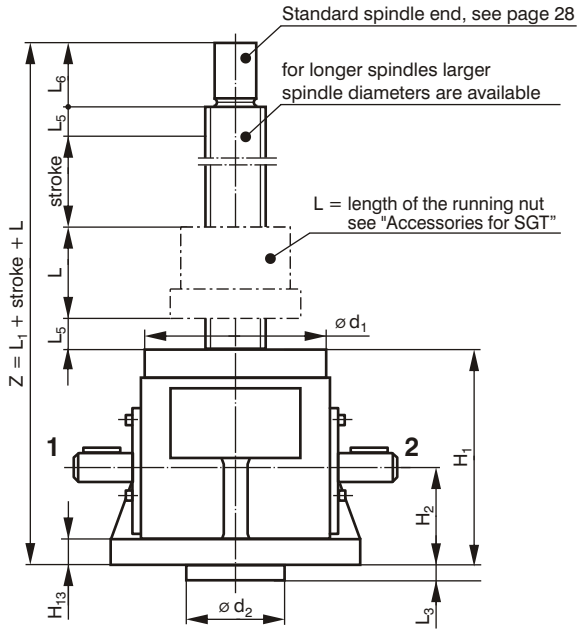
Versions

LO: Running nut design, spindle above

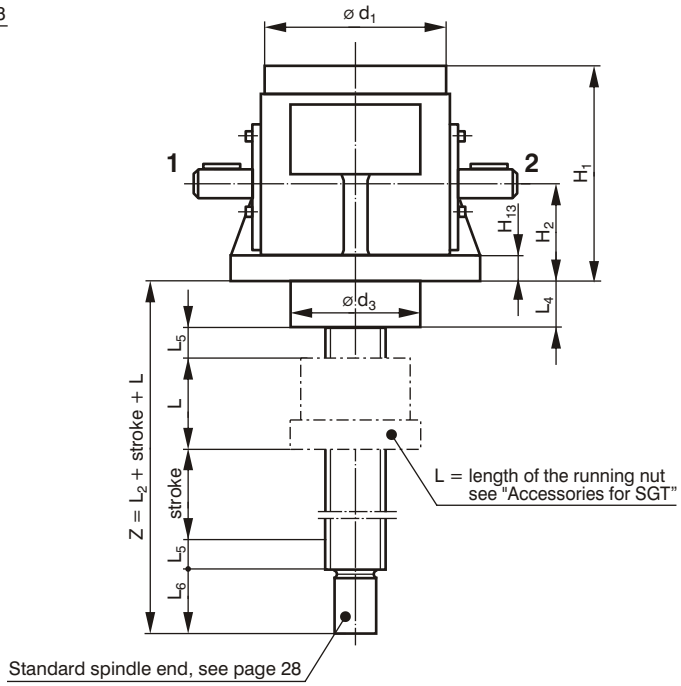
LU: Running nut design, spindle below

Ratio:	**N**: normal, **L**: slow
Lubrication:	Grease
Material:	see table page 56
Accessories:	see “Accessories for SGT” page 65 - 87
Questionnaire:	see page 58 - 62

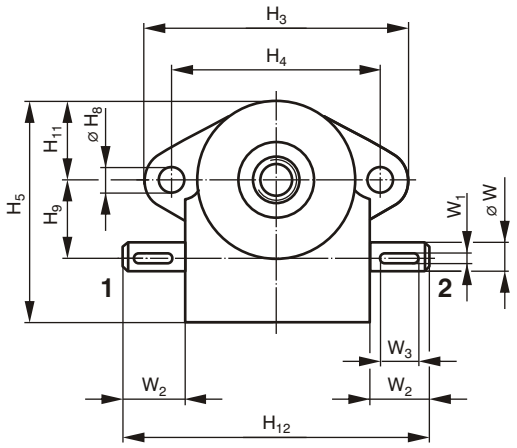
Running nut design LO



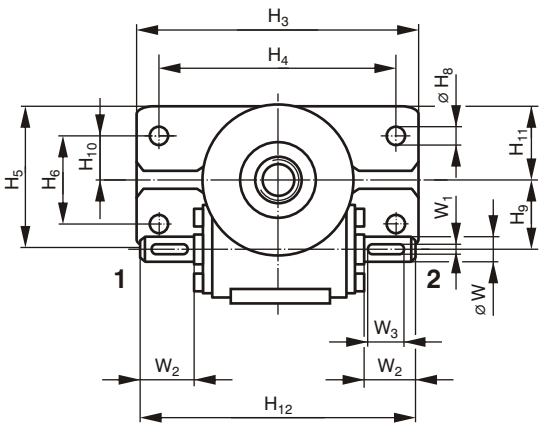
Running nut design LU

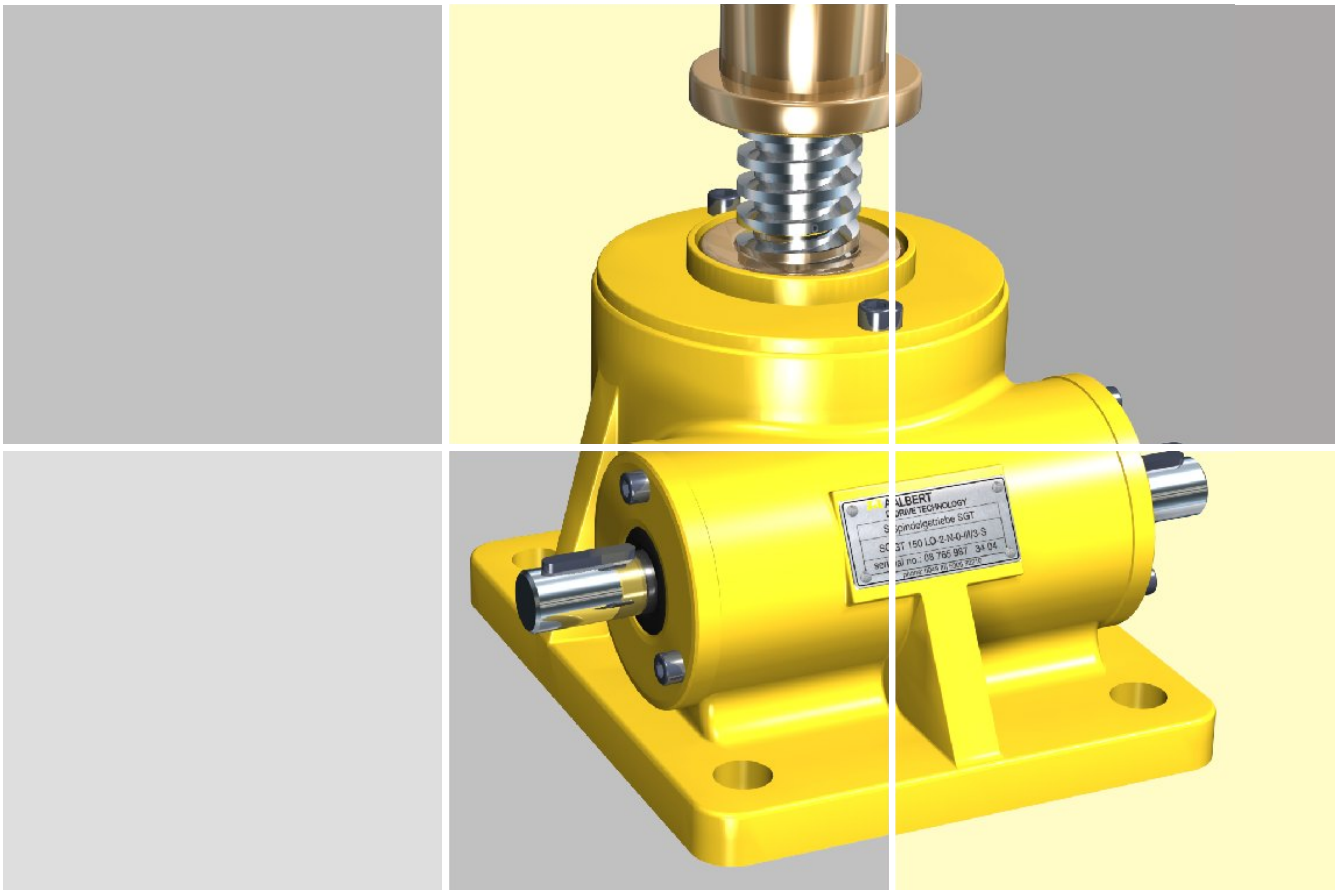


Screw jack size SGT 5



Screw jack sizes SGT 20 and SGT 500





Order code	Dimensions [mm]												
	d_1	d_2	d_3	H_1	H_2	H_3	H_4	H_5	H_6	H_7	H_8	H_9	H_{10}
SGT 5	67	36	45	76	32	117	90	85	-	-	9	27	-
SGT 20	98	48	60	105	44	185	152	95	57	-	11*	45,2	28,5
SGT 500	297	160	210	292	140	500	400	264	150	-	48	137	75

Order code	Dimensions [mm]												
	H_{11}	H_{12}	H_{13}	L_1	L_2	L_3	L_4	L_5	L_6	W	W_1	W_2	W_3
SGT 5	34	120	10	118	60	-	18	10	22	10k6	3	20,5	16
SGT 20	47,5	180	14	177	96	-	24	20	32	14k6	5	34,5	25
SGT 500	132	560	45	472	239	30	59	25	130	40k6	12	104,5	90

Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium, apply to machined surfaces.
For all other dimensions casting tolerances apply.

*models with motor adaptor have M16 threaded mounting holes

Dimensions for SGT 30 to SGT 350, SGT 750 and SGT 1000

Versions LO, LU

further sizes see page 24

All versions are supplied with double worm shafts (version 0) as standard.
Optionally these can be supplied only on the left (version 1) or the right (version 2).

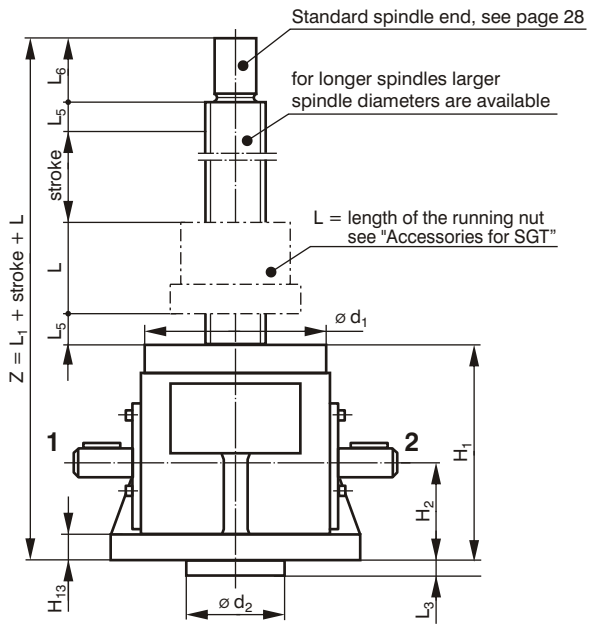
Versions

LO: Running nut design, spindle above

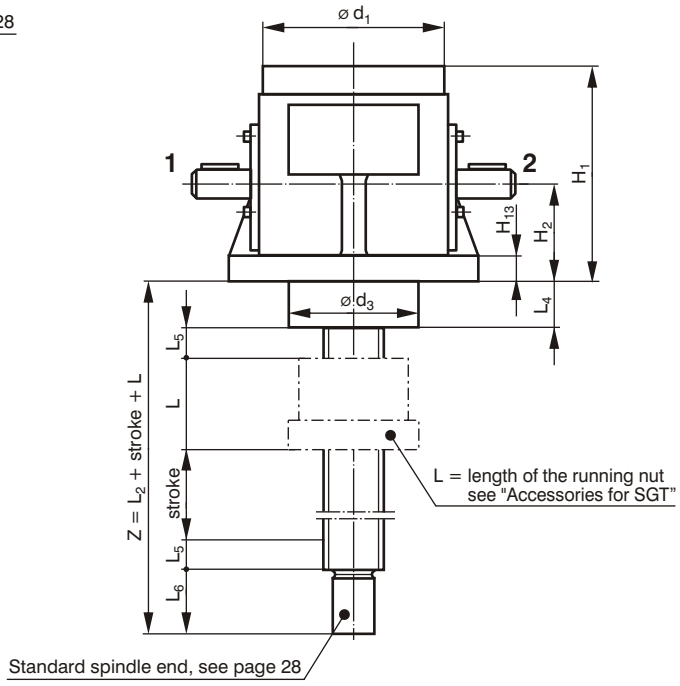
LU: Running nut design, spindle below

Ratio:	**N**: normal, **L**: slow
Lubrication:	Grease
Material:	see table page 56
Accessories:	see “Accessories for SGT” page 65 - 87
Questionnaire:	see page 58 - 62

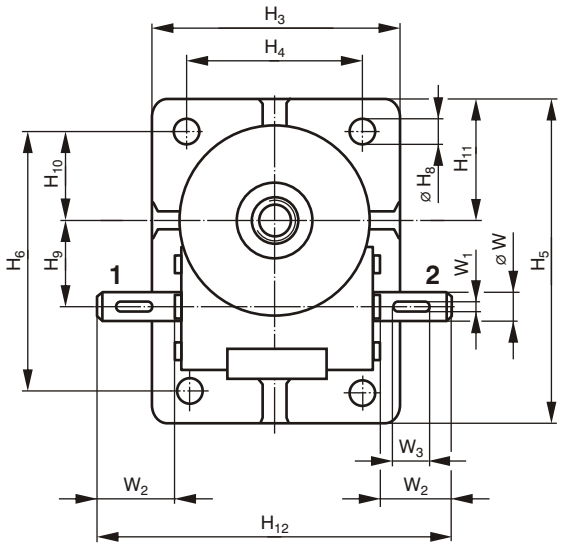
Running nut design LO



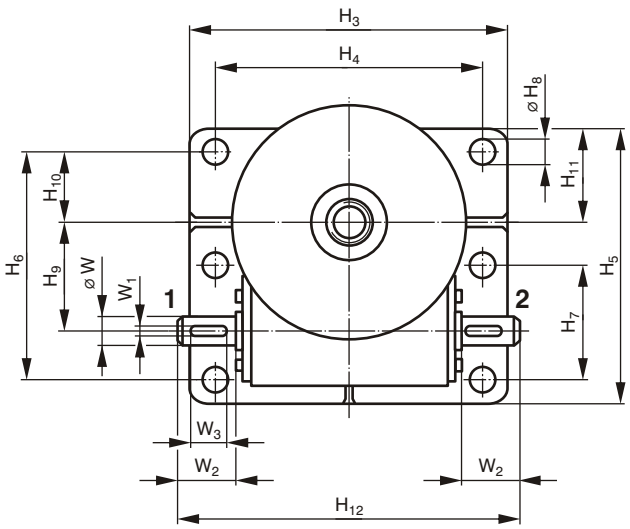
Running nut design LU

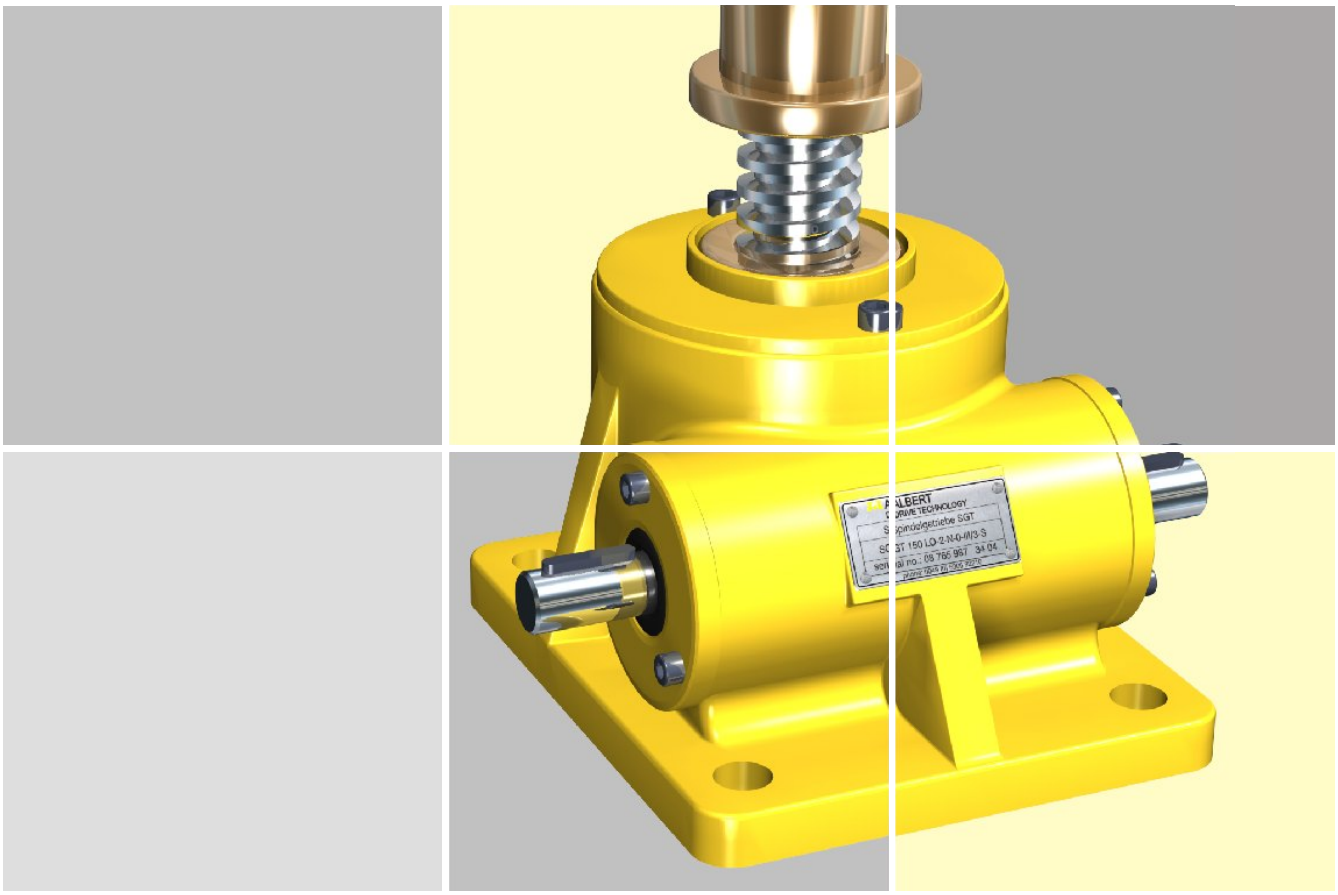


Screw jack sizes SGT 30 to SGT 350



Screw jack sizes SGT 750 and SGT 1000





Order code	Dimensions [mm]												
	d_1	d_2	d_3	H_1	H_2	H_3	H_4	H_5	H_6	H_7	H_8	H_9	H_{10}
SGT 30	98	48	60	106	45	120	90	165	135	-	14	45,2	50
SGT 50	119	65	83	140	61,5	160	114	214	168	-	17	56,2	58
SGT 150	148	82	110	160	70	203	155	240	190	-	21	66,8	63,5
SGT 200	185	100	140	192	87	220	160	297	240	-	28	72,5	95
SGT 300	205	130	160	222	102	265	190	355	280	-	35	97	95
SGT 350	257	150	180	250	115	280	210	430	360	-	35	120	135
SGT 750	357	200	220	325	155	560	460	475	365	182,5	48	160	125
SGT 1000	455	240	250	370	170	620	520	540	440	220	52	196	160

Order code	Dimensions [mm]											
	H_{11}	H_{12}	H_{13}	L_1	L_2	L_3	L_4	L_5	L_6	W	W_1	W_2	W_3
SGT 30	65	180	12	178	96	-	24	20	32	16k6	5	29,5	25
SGT 50	82	228	18	222	112	-	30	20	42	20j6	6	45	32
SGT 150	88	280	20	260	134	20	34	25	50	25k6	8	46,5	45
SGT 200	124	322	21	304	151	-	39	25	62	28k6	8	48,5	50
SGT 300	133	355	25	337	167	-	52	25	65	34k6	10	56,5	56
SGT 350	170	430	30	382	187	-	55	25	82	38k6	10	72	70
SGT 750	180	610	50	515	255	35	65	25	140	52k6	16	110	100
SGT 1000	210	670	50	595	295	40	70	25	175	60k6	18	111	100

Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium, apply to machined surfaces.
For all other dimensions casting tolerances apply.

Dimensions for SGT 5 to SGT 1000

Standard spindle ends for versions LO, LU

All versions are supplied with double worm shafts (version 0) as standard.
Optionally these can be supplied only on the left (version 1) or the right (version 2).

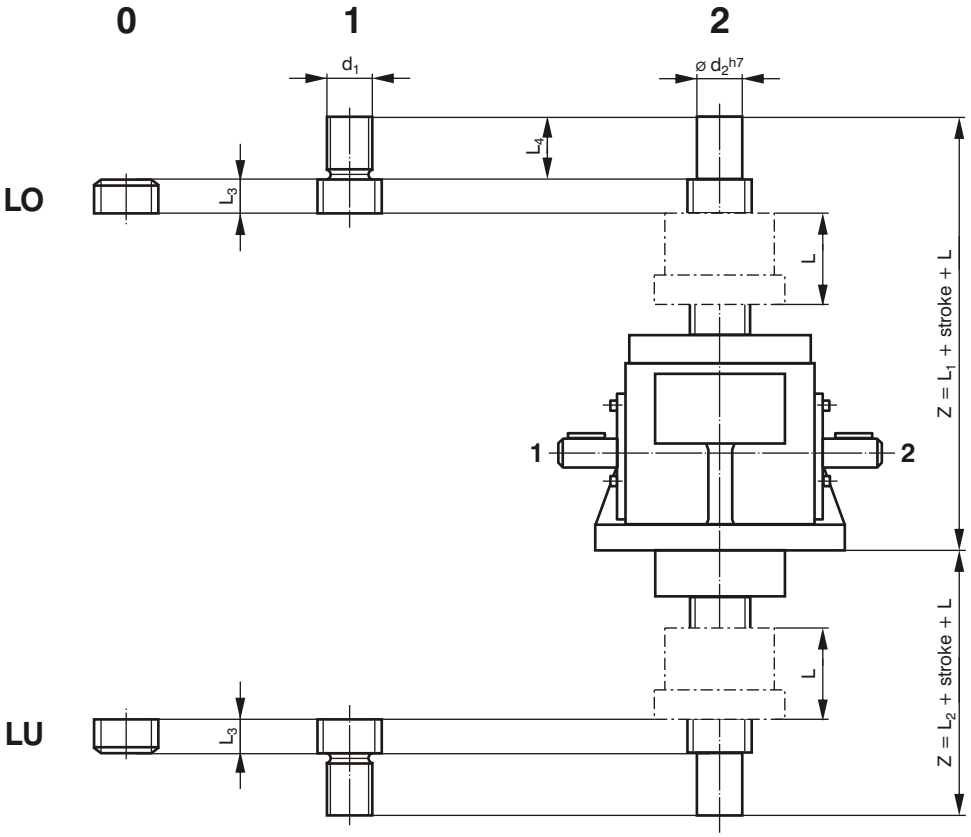
Versions

LO: Running nut design, spindle above

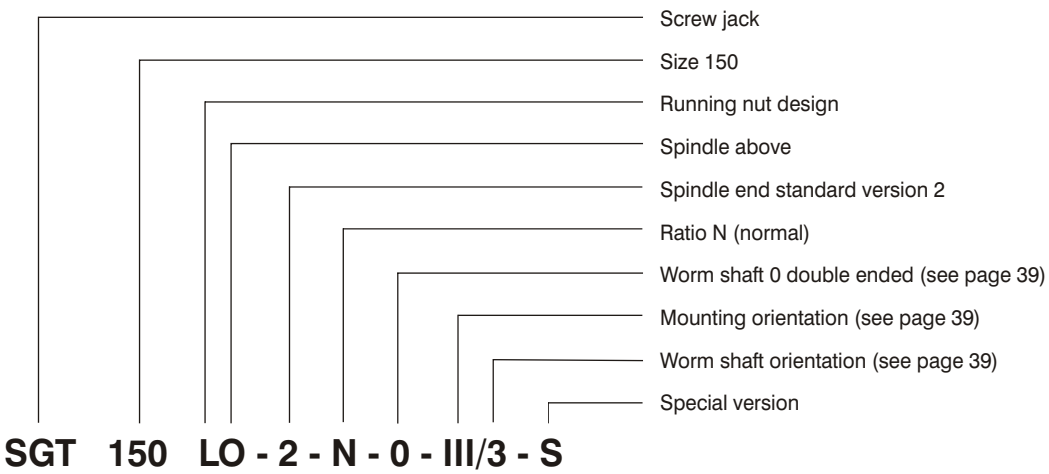
LU: Running nut design, spindle below

Ratio:	**N**: normal, **L**: slow
Lubrication:	Grease
Material:	see table page 56
Accessories:	see “Accessories for SGT” page 65 - 87
Questionnaire:	see page 58 - 62

Selection of the standard spindle ends:



Ordering example:



Initial selection table

Order code	Static lifting force [1] F_{max} [kN]	Ratio N (normal) Ratio i N	Lift per worm shaft rotation [mm/ rot.]	Overall efficiency $\eta_{tot.}$ [-]	Ratio L (slow) Ratio i L	Lift per worm shaft rotation [mm/ rot.]	Overall efficiency $\eta_{tot.}$ [-]	Input power (S4-20%) $P_{in.}$ [kW]	max. spindle torque [2] $M_{sp.}$ [Nm]	max permissible torque at worm shaft [3] $M_{in.}$ [Nm]	Spindle Tr x P [mm]	Spindle efficiency $\eta_{spindle}$ [-]	Lubricant quantity [kg]	Mass without spindle m [kg]	Mass of spindle per m m [kg/m]
SGT 5	5	10	0,6	0,21	24	0,25	0,12	0,18	9	12	20x6	0,51	0,1	1,5	1,76
SGT 20	20	6	1	0,26	24	0,25	0,14	0,51	43	29	26x6	0,44	0,2	8	3,22
SGT 30	30	6	1	0,24	24	0,25	0,13	0,6	71	48	30x6	0,40	0,2	8	4,44
SGT 50	50	6	1,17	0,23	24	0,29	0,12	1,1	151	95	40x7	0,37	0,3	18	8,13
SGT 150	150	8	1,5	0,20	24	0,5	0,13	2,8	710	192	60x12	0,40	0,5	28	17,94
SGT 200	200	8	1,5	0,20	24	0,5	0,13	3,9	999	283	65x12	0,38	0,7	40	21,40
SGT 300	300	10,66	1,5	0,19	32	0,5	0,11	5	2050	478	90x16	0,37	1,0	75	41,13
SGT 350	350	10,66	1,5	0,18	32	0,5	0,11	6,2	2572	732	100x16	0,35	1,8	91	51,78
SGT 500	500	10,66	1,5	0,15	32	0,5	0,09	7,8	4191	862	120x16	0,30	2,0	180	76,76
SGT 750	750	10,66	1,5	0,14	32	0,5	0,08	9,4	7060	1750	140x16	0,27	4,0	365	106,70
SGT 1000	1000	12	1,67	0,13	36	0,56	0,08	12,7	10995	2780	160x20	0,29	4,0	545	138,00

[1] The values for max. load apply only for initial jack selection. The actual permitted lifting force depends on the version of the jack and the operating conditions.
[2] max. torque the spindle can transmit.
[3] important when screw jacks are in series e.g. where several units are constrained to operate together at same or differing speeds.

The values in the above table relate only to ALBERT-SGT-screw jacks in standard configuration (grease lubrication, spindle diameter, spindle lead…) and in standard materials. Units may be specified with oil lubrication. This provides higher efficiency and may allow selection of a smaller screw jack. The provision of comprehensive application data is essential to ensure the correct selection.

Order code	Dimensions [mm] d_1	d_2	L_1	L_2	L_3	L_4
SGT 5	M12	12	118	60	10	22
SGT 20	M18x1,5	17	177	96	20	32
SGT 30	M22x1,5	17	178	96	20	32
SGT 50	M30x2	30	222	112	20	42
SGT 150	M40x3	40	260	134	25	50
SGT 200	M50x3	50	304	151	25	62
SGT 300	M70x3	70	337	167	25	65
SGT 350	M80x3	80	382	187	25	82
SGT 500	M100x5	100	472	239	25	130
SGT 750	M110x6	110	515	255	25	140
SGT 1000	M140x6	140	595	295	25	175

Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium, apply to machined surfaces.
For all other dimensions casting tolerances apply.

Trapezoidal spindles for SGT 5 to SGT 1000

Standard dimensions

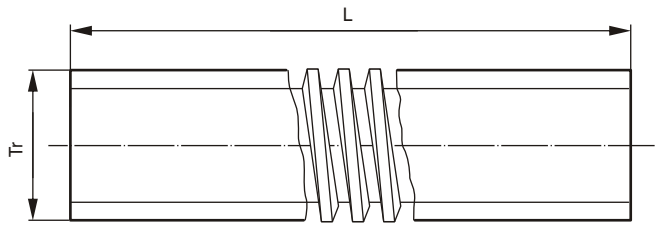
The trapezoidal spindles for ALBERT-screw jacks are accurately manufactured.

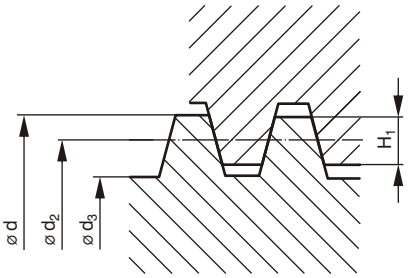
The metric trapezoidal spindles are manufactured to DIN 103.

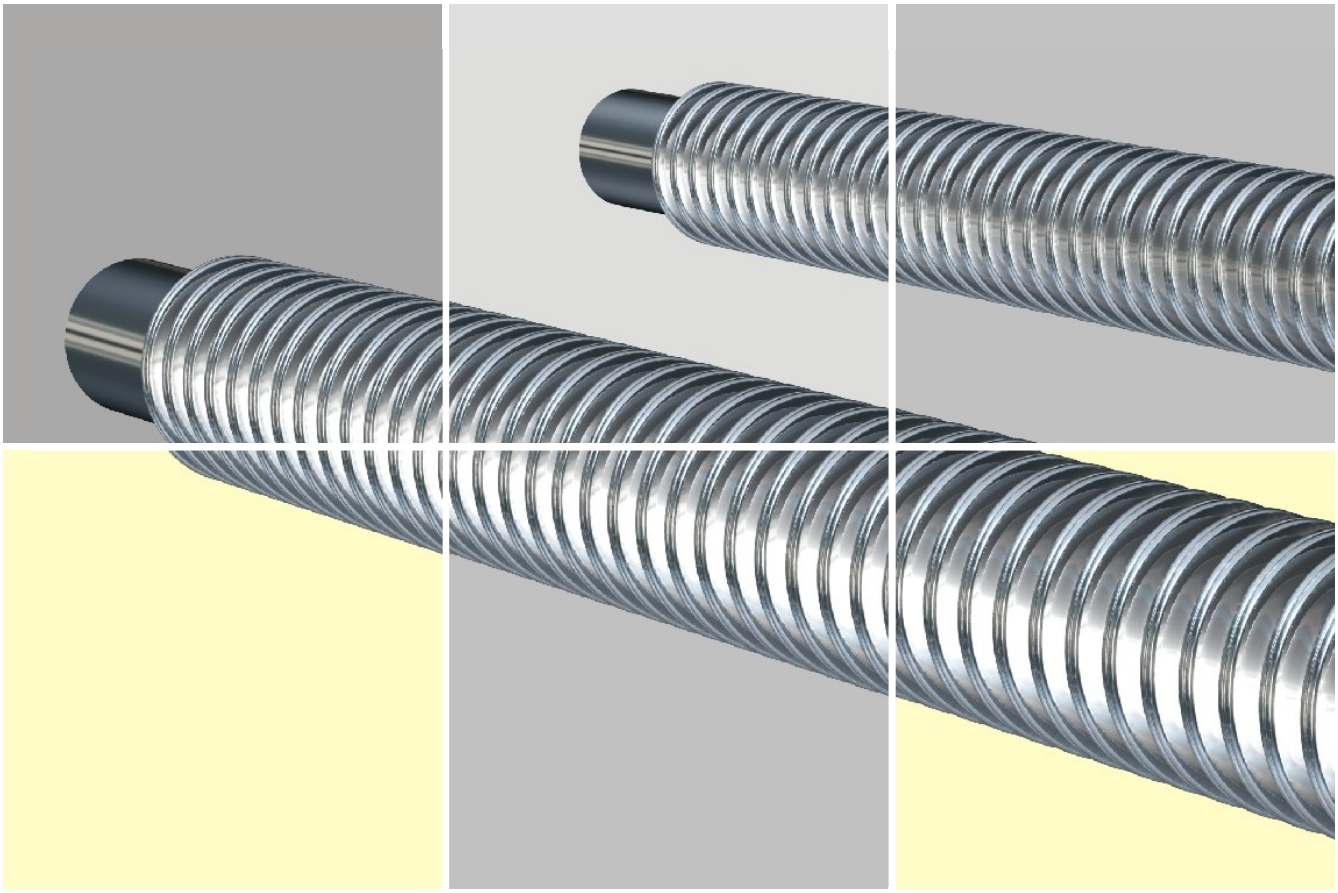
Standard spindles are manufactured from heat treatable steel, drawn or peeled, h11. The lead tolerance is ± 0,1 mm per 300 mm length for a single start right hand thread.

Multi-start and left handed threads are available. Please enquire.

Thread quality: 7 e



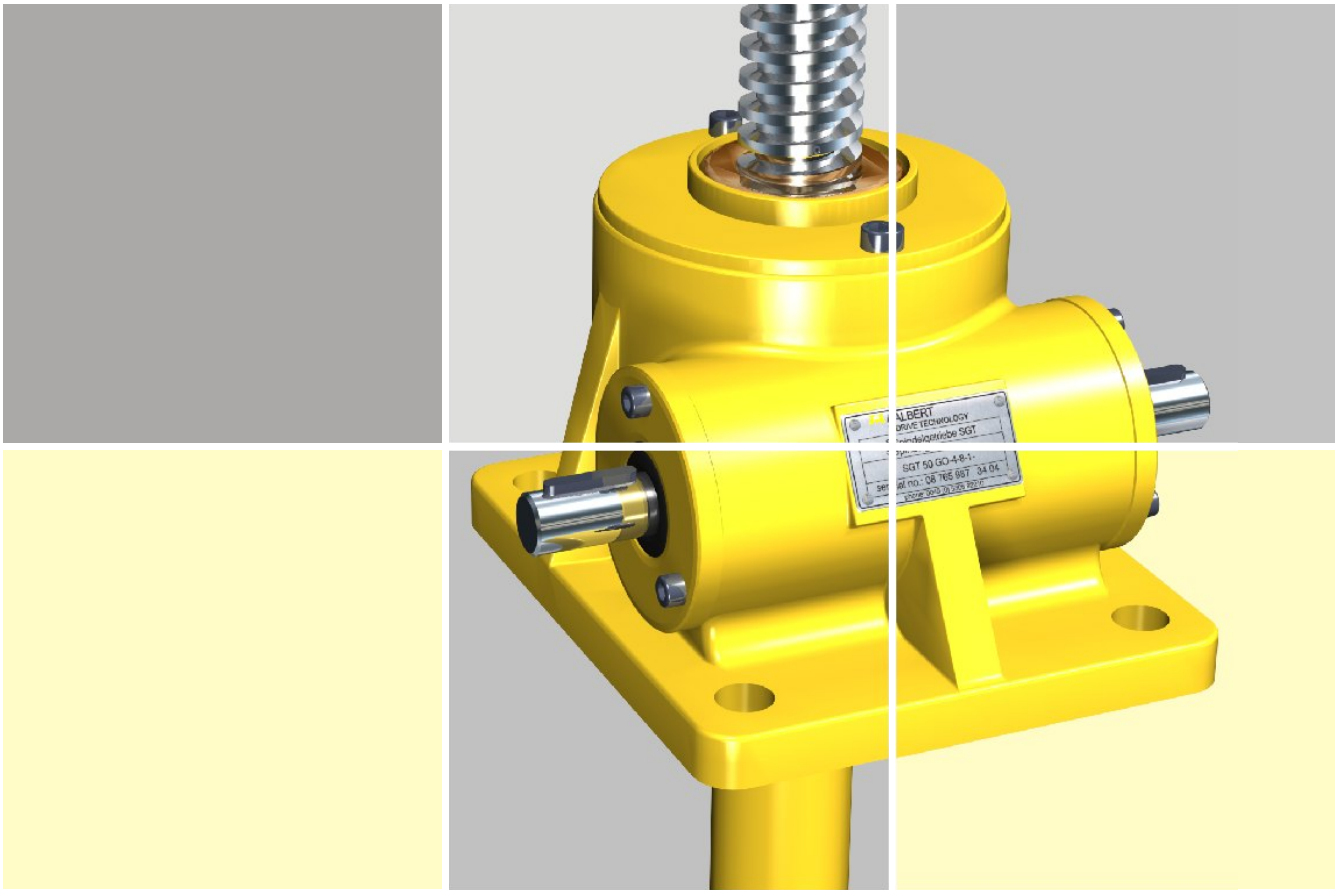




Size	Dimensions [mm]						Precision [µm/300mm]	Straightness [mm/1000mm]
	d	$d_{2\ min}$	$d_{2\ max}$	d_3	H_1	P		
Tr 20 x 6	20	16,571	16,882	13	3	6	100	0,5
Tr 26 x 6	26	22,547	22,882	19	3	6	100	0,5
Tr 30 x 6	30	26,547	26,882	23	3	6	100	0,5
Tr 40 x 7	40	36,020	36,375	32	3,5	7	100	0,5
Tr 60 x 12	60	53,355	53,830	47	6	12	100	0,5
Tr 65 x 12	65	58,830	58,830	52	6	12	100	0,5
Tr 90 x 16	90	81,250	81,810	72	8	16	100	0,5
Tr 100 x 16	100	91,250	91,810	82	8	16	100	0,5
Tr 120 x 16	120	111,250	111,810	102	8	16	100	0,5
Tr 140 x 16	140	131,250	131,810	122	8	16	100	0,5
Tr 160 x 20	160	149,188	149,788	138	10	20	100	0,5

Size	Lead angle at flank diameter	Theoretical efficiency (for µ=0,1) η [-]	Mass of spindle per m [kg/m]	Geometric moment of inertia [cm^4]	Section modulus [cm^3]	Polar moment of inertia [cm^3]	Mass moment of inertia [kg m^2 /m]
Tr 20 x 6	6°24'	0,51	1,76	0,140	0,216	0,431	$6{,}38 \times 10^{-5}$
Tr 26 x 6	4°44'	0,44	3,22	0,640	0,673	1,347	$2{,}13 \times 10^{-4}$
Tr 30 x 6	4°02'	0,40	4,44	1,374	1,194	2,389	$4{,}04 \times 10^{-4}$
Tr 40 x 7	3°29'	0,37	8,13	5,170	3,217	6,434	$1{,}35 \times 10^{-3}$
Tr 60 x 12	4°02'	0,40	17,94	23,953	10,193	20,386	$6{,}54 \times 10^{-3}$
Tr 65 x 12	3°42'	0,38	21,40	35,891	13,804	27,608	$9{,}31 \times 10^{-3}$
Tr 90 x 16	3°33'	0,37	41,13	131,917	36,644	73,287	$3{,}46 \times 10^{-2}$
Tr 100 x 16	3°10'	0,35	51,78	221,935	54,130	108,261	$5{,}48 \times 10^{-2}$
Tr 120 x 16	2°36'	0,30	76,76	531,338	104,184	208,368	$1{,}20 \times 10^{-1}$
Tr 140 x 16	2°12'	0,27	106,70	1087,450	178,271	365,541	$2{,}32 \times 10^{-1}$
Tr 160 x 20	2°25'	0,29	138,00	1780,270	258,010	516,021	$3{,}88 \times 10^{-1}$

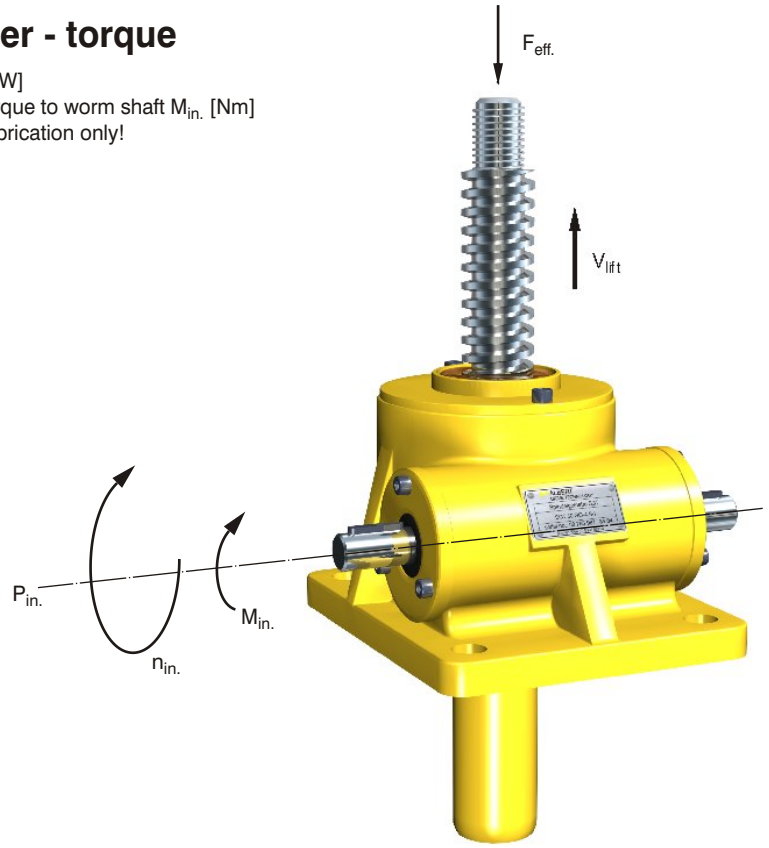
Only valid for versions in standard materials.
General tolerances to DIN ISO 2768 - medium.



SGT 5, SGT 20, SGT 30

Input power - torque

Input power $P_{in.}$ [kW]
Permitted input torque to worm shaft $M_{in.}$ [Nm]
Valid for grease lubrication only!



SGT 5																	
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				0,5		1		2		2,5		3		4		5	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	30	0,50	10	0,05	0,3	0,05	0,5	0,05	0,9	0,05	1,1	0,05	1,4	0,05	1,8	0,05	2,2
50	12,5	0,21	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,05	1,0	0,05	1,3	0,05	1,6
100	60	1,00	10	0,05	0,3	0,05	0,5	0,05	0,9	0,05	1,1	0,05	1,4	0,05	1,8	0,05	2,2
100	25	0,41	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,05	1,0	0,05	1,3	0,05	1,6
200	120	2,00	10	0,05	0,3	0,05	0,5	0,05	0,9	0,05	1,1	0,05	1,4	0,05	1,8	0,05	2,2
200	50	0,83	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,05	1,0	0,05	1,3	0,05	1,6
300	180	3,00	10	0,05	0,3	0,05	0,5	0,05	0,9	0,05	1,1	0,05	1,4	0,06	1,8	0,07	2,2
300	75	1,25	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,05	1,0	0,05	1,3	0,05	1,6
400	240	4,00	10	0,05	0,3	0,05	0,5	0,05	0,9	0,05	1,1	0,06	1,4	0,08	1,8	0,10	2,2
400	100	1,67	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,05	1,0	0,06	1,3	0,07	1,6
500	300	5,00	10	0,05	0,3	0,05	0,5	0,05	0,9	0,06	1,1	0,07	1,4	0,10	1,8	0,12	2,2
500	125	2,10	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,05	1,0	0,07	1,3	0,09	1,6
600	360	6,00	10	0,05	0,3	0,05	0,5	0,06	0,9	0,07	1,1	0,09	1,4	0,12	1,8	-	-
600	150	2,50	24	0,05	0,3	0,05	0,5	0,05	0,7	0,05	0,8	0,06	1,0	0,08	1,3	0,10	1,6
700	420	7,00	10	0,05	0,3	0,05	0,5	0,07	0,9	0,08	1,1	0,10	1,4	0,13	1,8	-	-
700	175	2,91	24	0,05	0,3	0,05	0,5	0,05	0,7	0,06	0,8	0,07	1,0	0,10	1,3	0,12	1,6
800	480	8,00	10	0,05	0,3	0,05	0,5	0,08	0,9	0,10	1,1	0,12	1,4	-	-	-	-
800	200	3,33	24	0,05	0,3	0,05	0,5	0,06	0,7	0,07	0,8	0,08	1,0	0,11	1,3	-	-
900	540	9,00	10	0,05	0,3	0,05	0,5	0,09	0,9	0,11	1,1	0,13	1,4	-	-	-	-
900	225	3,75	24	0,05	0,3	0,05	0,5	0,06	0,7	0,08	0,8	0,09	1,0	0,13	1,3	-	-
1000	600	10,00	10	0,05	0,3	0,05	0,5	0,10	0,9	0,12	1,1	0,14	1,4	-	-	-	-
1000	225	4,17	24	0,05	0,3	0,05	0,5	0,07	0,7	0,09	0,8	0,10	1,0	0,14	1,3	-	-
1100	660	11,00	10	0,05	0,3	0,05	0,5	0,10	0,9	-	-	-	-	-	-	-	-
1100	275	4,60	24	0,05	0,3	0,05	0,5	0,08	0,7	0,10	0,8	0,11	1,0	-	-	-	-
1200	720	12,00	10	0,05	0,3	0,06	0,5	0,11	0,9	-	-	-	-	-	-	-	-
1200	300	5,00	24	0,05	0,3	0,05	0,5	0,08	0,7	0,10	0,8	0,13	1,0	-	-	-	-
1300	780	13,00	10	0,05	0,3	0,06	0,5	0,12	0,9	-	-	-	-	-	-	-	-
1300	325	5,41	24	0,05	0,3	0,05	0,5	0,09	0,7	0,11	0,8	0,14	1,0	-	-	-	-
1400	840	14,00	10	0,05	0,3	0,07	0,5	0,14	0,9	-	-	-	-	-	-	-	-
1400	350	5,83	24	0,05	0,3	0,05	0,5	0,10	0,7	0,12	0,8	0,15	1,0	-	-	-	-
1500	900	15,00	10	0,05	0,3	0,07	0,5	0,14	0,9	-	-	-	-	-	-	-	-
1500	375	6,25	24	0,05	0,3	0,05	0,5	0,10	0,7	0,13	0,8	0,15	1,0	-	-	-	-

Please enquire for other operating conditions.

SGT 20

Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				0,5		1		2,5		5		10		15		20	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	50	0,8	6	0,10	0,30	0,10	0,60	0,10	1,53	0,10	3,10	0,10	6,10	0,10	9,20	0,10	12,2
50	12,5	0,2	24	0,05	0,14	0,05	0,28	0,05	0,71	0,05	1,42	0,05	2,84	0,05	4,26	0,05	5,68
100	100	1,7	6	0,10	0,30	0,10	0,60	0,10	1,53	0,10	3,10	0,10	6,10	0,10	9,20	0,13	12,2
100	25	0,4	24	0,05	0,14	0,05	0,28	0,05	0,71	0,05	1,42	0,05	2,84	0,05	4,26	0,06	5,68
200	200	3,3	6	0,10	0,30	0,10	0,60	0,10	1,53	0,10	3,10	0,13	6,10	0,19	9,20	0,26	12,2
200	50	0,8	24	0,05	0,14	0,05	0,28	0,05	0,71	0,05	1,42	0,06	2,84	0,09	4,26	0,12	5,68
300	300	5,0	6	0,10	0,30	0,10	0,60	0,10	1,53	0,10	3,10	0,19	6,10	0,29	9,20	0,39	12,2
300	75	1,3	24	0,05	0,14	0,05	0,28	0,05	0,71	0,05	1,42	0,09	2,84	0,13	4,26	0,18	5,68
400	400	6,6	6	0,10	0,30	0,10	0,60	0,10	1,53	0,13	3,10	0,26	6,10	0,39	9,20	0,51	12,2
400	100	1,6	24	0,05	0,14	0,05	0,28	0,05	0,71	0,06	1,42	0,12	2,84	0,18	4,26	0,24	5,68
500	500	8,3	6	0,10	0,30	0,10	0,60	0,10	1,53	0,16	3,10	0,32	6,10	0,48	9,20	-	-
500	125	2,1	24	0,05	0,14	0,05	0,28	0,05	0,71	0,07	1,42	0,15	2,84	0,22	4,26	0,30	5,68
600	600	10,0	6	0,10	0,30	0,10	0,60	0,10	1,53	0,19	3,10	0,39	6,10	-	-	-	-
600	150	2,5	24	0,05	0,14	0,05	0,28	0,05	0,71	0,09	1,42	0,18	2,84	0,27	4,26	0,36	5,68
700	700	11,6	6	0,10	0,30	0,10	0,60	0,11	1,53	0,22	3,10	0,45	6,10	-	-	-	-
700	175	2,9	24	0,05	0,14	0,05	0,28	0,05	0,71	0,10	1,42	0,21	2,84	0,31	4,26	0,42	5,68
800	800	13,3	6	0,10	0,30	0,10	0,60	0,13	1,53	0,26	3,10	0,51	6,10	-	-	-	-
800	200	3,3	24	0,05	0,14	0,05	0,28	0,06	0,71	0,12	1,42	0,24	2,84	0,36	4,26	0,48	5,68
900	900	15,0	6	0,10	0,30	0,10	0,60	0,14	1,53	0,29	3,10	-	-	-	-	-	-
900	225	3,8	24	0,05	0,14	0,05	0,28	0,07	0,71	0,13	1,42	0,27	2,84	0,40	4,26	-	-
1000	1000	16,6	6	0,10	0,30	0,10	0,60	0,16	1,53	0,32	3,10	-	-	-	-	-	-
1000	250	4,2	24	0,05	0,14	0,05	0,28	0,07	0,71	0,15	1,42	0,30	2,84	0,45	4,26	-	-
1100	1100	18,3	6	0,10	0,30	0,10	0,60	0,18	1,53	0,35	3,10	-	-	-	-	-	-
1100	275	4,6	24	0,05	0,14	0,05	0,28	0,08	0,71	0,16	1,42	0,33	2,84	0,49	4,26	-	-
1200	1200	20,0	6	0,10	0,30	0,10	0,60	0,19	1,53	0,39	3,10	-	-	-	-	-	-
1200	300	5,0	24	0,05	0,14	0,05	0,28	0,09	0,71	0,18	1,42	0,36	2,84	-	-	-	-
1300	1300	21,6	6	0,10	0,30	0,10	0,60	0,21	1,53	0,42	3,10	-	-	-	-	-	-
1300	325	5,4	24	0,05	0,14	0,05	0,28	0,10	0,71	0,19	1,42	0,39	2,84	-	-	-	-
1400	1400	23,3	6	0,10	0,30	0,10	0,60	0,22	1,53	0,45	3,10	-	-	-	-	-	-
1400	350	5,8	24	0,05	0,14	0,05	0,28	0,10	0,71	0,21	1,42	0,42	2,84	-	-	-	-
1500	1500	25,0	6	0,10	0,30	0,10	0,60	0,24	1,53	0,48	3,10	-	-	-	-	-	-
1500	375	6,3	24	0,05	0,14	0,05	0,28	0,11	0,71	0,22	1,42	0,45	2,84	-	-	-	-

SGT 30

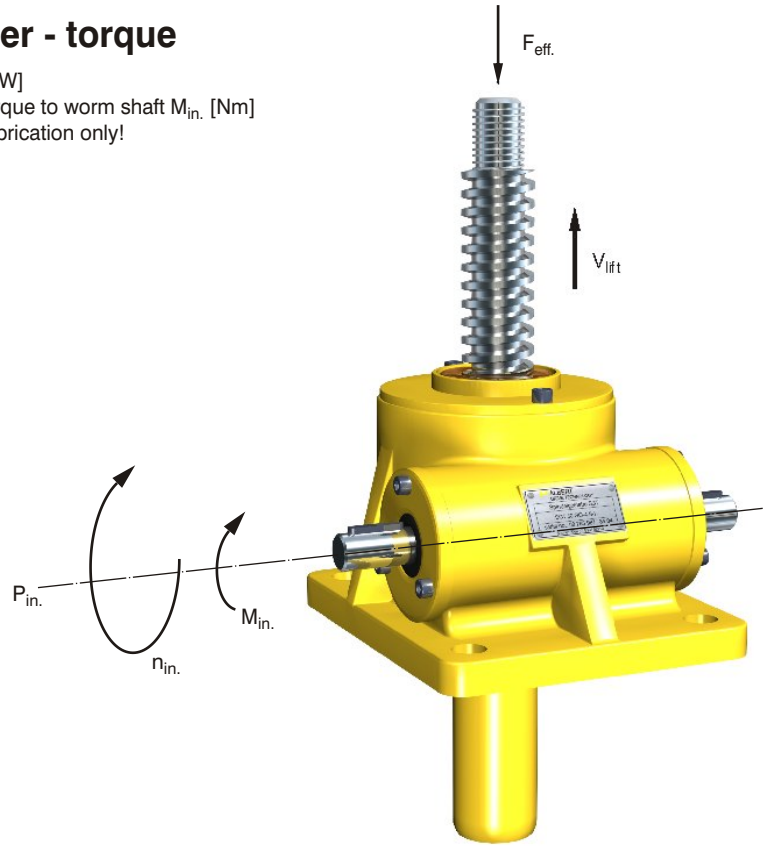
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				1,5		3		5		10		15		20		30	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	50	0,8	6	0,10	1,00	0,10	2,00	0,10	3,32	0,10	6,63	0,10	9,95	0,10	13,3	-	-
50	12,5	0,2	24	0,05	0,46	0,05	0,92	0,05	1,53	0,05	3,06	0,05	4,60	0,05	6,1	-	-
100	100	1,7	6	0,10	1,00	0,10	2,00	0,10	3,32	0,10	6,63	0,10	9,95	0,14	13,3	-	-
100	25	0,4	24	0,05	0,46	0,05	0,92	0,05	1,53	0,05	3,06	0,05	4,60	0,06	6,1	-	-
200	200	3,3	6	0,10	1,00	0,10	2,00	0,10	3,32	0,14	6,63	0,21	9,95	0,28	13,3	-	-
200	50	0,8	24	0,05	0,46	0,05	0,92	0,05	1,53	0,06	3,06	0,10	4,60	0,13	6,1	-	-
300	300	5,0	6	0,10	1,00	0,10	2,00	0,10	3,32	0,21	6,63	0,31	9,95	0,42	13,3	-	-
300	75	1,3	24	0,05	0,46	0,05	0,92	0,05	1,53	0,10	3,06	0,14	4,60	0,19	6,1	-	-
400	400	6,6	6	0,10	1,00	0,10	2,00	0,14	3,32	0,28	6,63	0,42	9,95	0,56	13,3	-	-
400	100	1,6	24	0,05	0,46	0,05	0,92	0,06	1,53	0,13	3,06	0,19	4,60	0,26	6,1	-	-
500	500	8,3	6	0,10	1,00	0,10	2,00	0,17	3,32	0,35	6,63	0,52	9,95	-	-	-	-
500	125	2,1	24	0,05	0,46	0,05	0,92	0,08	1,53	0,16	3,06	0,24	4,60	0,32	6,1	-	-
600	600	10,0	6	0,10	1,00	0,13	2,00	0,21	3,32	0,42	6,63	-	-	-	-	-	-
600	150	2,5	24	0,05	0,46	0,06	0,92	0,10	1,53	0,19	3,06	0,29	4,60	0,39	6,1	-	-
700	700	11,6	6	0,10	1,00	0,15	2,00	0,24	3,32	0,49	6,63	-	-	-	-	-	-
700	175	2,9	24	0,05	0,46	0,07	0,92	0,11	1,53	0,22	3,06	0,34	4,60	0,45	6,1	-	-
800	800	13,3	6	0,10	1,00	0,17	2,00	0,28	3,32	0,56	6,63	-	-	-	-	-	-
800	200	3,3	24	0,05	0,46	0,08	0,92	0,13	1,53	0,26	3,06	0,39	4,60	0,51	6,1	-	-
900	900	15,0	6	0,10	1,00	0,19	2,00	0,31	3,32	-	-	-	-	-	-	-	-
900	225	3,8	24	0,05	0,46	0,09	0,92	0,14	1,53	0,29	3,06	0,43	4,60	0,58	6,1	-	-
1000	1000	16,6	6	0,10	1,00	0,21	2,00	0,35	3,32	-	-	-	-	-	-	-	-
1000	250	4,2	24	0,05	0,46	0,10	0,92	0,16	1,53	0,32	3,06	0,48	4,60	-	-	-	-
1100	1100	18,3	6	0,10	1,00	0,23	2,00	0,38	3,32	-	-	-	-	-	-	-	-
1100	275	4,6	24	0,05	0,46	0,11	0,92	0,18	1,53	0,35	3,06	0,53	4,60	-	-	-	-
1200	1200	20,0	6	0,10	1,00	0,25	2,00	0,42	3,32	-	-	-	-	-	-	-	-
1200	300	5,0	24	0,05	0,46	0,12	0,92	0,19	1,53	0,39	3,06	0,58	4,60	-	-	-	-
1300	1300	21,6	6	0,10	1,00	0,27	2,00	0,45	3,32	-	-	-	-	-	-	-	-
1300	325	5,4	24	0,05	0,46	0,13	0,92	0,21	1,53	0,42	3,06	-	-	-	-	-	-
1400	1400	23,3	6	0,10	1,00	0,29	2,00	0,49	3,32	-	-	-	-	-	-	-	-
1400	350	5,8	24	0,05	0,46	0,14	0,92	0,22	1,53	0,45	3,06	-	-	-	-	-	-
1500	1500	25,0	6	0,10	1,00	0,31	2,00	0,52	3,32	-	-	-	-	-	-	-	-
1500	375	6,3	24	0,05	0,46	0,14	0,92	0,24	1,53	0,48	3,06	-	-	-	-	-	-

Please enquire for other operating conditions.

SGT 50, SGT 150, SGT 200

Input power - torque

Input power $P_{in.}$ [kW]
Permitted input torque to worm shaft $M_{in.}$ [Nm]
Valid for grease lubrication only!



SGT 50																	
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				2,5		5		10		20		30		40		50	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	58	0,97	6	0,10	2,0	0,10	3,9	0,10	7,9	0,10	15,8	0,12	23,8	0,17	31,6	-	-
50	14,6	0,24	24	0,10	1,0	0,10	2,0	0,10	3,9	0,10	7,9	0,10	11,8	0,10	15,8	-	-
100	116,7	1,90	6	0,10	2,0	0,10	3,9	0,10	7,9	0,17	15,8	0,25	23,8	0,33	31,6	-	-
100	29,2	0,49	24	0,10	1,0	0,10	2,0	0,10	3,9	0,10	7,9	0,12	11,8	0,16	15,8	-	-
200	233,3	3,90	6	0,10	2,0	0,10	3,9	0,17	7,9	0,33	15,8	0,50	23,8	0,66	31,6	-	-
200	58,3	0,97	24	0,10	1,0	0,10	2,0	0,10	3,9	0,16	7,9	0,25	11,8	0,33	15,8	-	-
300	350	5,80	6	0,10	2,0	0,12	3,9	0,25	7,9	0,50	15,8	0,75	23,8	1,00	31,6	-	-
300	87,5	1,46	24	0,10	1,0	0,10	2,0	0,12	3,9	0,25	7,9	0,37	11,8	0,49	15,8	-	-
400	466,7	7,80	6	0,10	2,0	0,16	3,9	0,33	7,9	0,66	15,8	-	-	-	-	-	-
400	116,7	1,94	24	0,10	1,0	0,10	2,0	0,16	3,9	0,33	7,9	0,49	11,8	0,66	15,8	-	-
500	583,3	9,70	6	0,10	2,0	0,21	3,9	0,41	7,9	0,83	15,8	-	-	-	-	-	-
500	145,8	2,40	24	0,10	1,0	0,10	2,0	0,21	3,9	0,41	7,9	0,62	11,8	0,83	15,8	-	-
600	700	11,70	6	0,12	2,0	0,25	3,9	0,50	7,9	1,00	15,8	-	-	-	-	-	-
600	175	2,90	24	0,10	1,0	0,12	2,0	0,25	3,9	0,50	7,9	0,75	11,8	0,99	15,8	-	-
700	816,7	13,60	6	0,15	2,0	0,29	3,9	0,58	7,9	-	-	-	-	-	-	-	-
700	204,2	3,40	24	0,10	1,0	0,15	2,0	0,29	3,9	0,58	7,9	0,86	11,8	-	-	-	-
800	933,3	15,60	6	0,17	2,0	0,33	3,9	0,66	7,9	-	-	-	-	-	-	-	-
800	233,3	3,90	24	0,10	1,0	0,17	2,0	0,33	3,9	0,66	7,9	0,99	11,8	-	-	-	-
900	1050	17,50	6	0,19	2,0	0,37	3,9	0,74	7,9	-	-	-	-	-	-	-	-
900	262,5	4,40	24	0,10	1,0	0,19	2,0	0,37	3,9	0,74	7,9	-	-	-	-	-	-
1000	1166,7	19,40	6	0,21	2,0	0,41	3,9	0,83	7,9	-	-	-	-	-	-	-	-
1000	291,7	4,90	24	0,10	1,0	0,21	2,0	0,41	3,9	0,83	7,9	-	-	-	-	-	-
1100	1283,3	21,40	6	0,23	2,0	0,45	3,9	-	-	-	-	-	-	-	-	-	-
1100	320,8	5,40	24	0,12	1,0	0,23	2,0	0,45	3,9	-	-	-	-	-	-	-	-
1200	1400	23,30	6	0,25	2,0	0,49	3,9	-	-	-	-	-	-	-	-	-	-
1200	350	5,80	24	0,13	1,0	0,25	2,0	0,49	3,9	-	-	-	-	-	-	-	-
1300	1516,7	25,30	6	0,27	2,0	0,53	3,9	-	-	-	-	-	-	-	-	-	-
1300	379,2	6,30	24	0,14	1,0	0,27	2,0	0,53	3,9	-	-	-	-	-	-	-	-
1400	1633,3	27,20	6	0,29	2,0	0,57	3,9	-	-	-	-	-	-	-	-	-	-
1400	408,3	6,80	24	0,15	1,0	0,29	2,0	0,57	3,9	-	-	-	-	-	-	-	-
1500	1750	29,20	6	0,31	2,0	0,62	3,9	-	-	-	-	-	-	-	-	-	-
1500	437,5	7,30	24	0,16	1,0	0,31	2,0	0,62	3,9	-	-	-	-	-	-	-	-

Please enquire for other operating conditions.

SGT 150

Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				10		20		40		60		80		100		150	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	75	1,3	8	0,10	11,9	0,12	23,9	0,25	47,5	0,37	71,5	0,50	95,5	0,62	119	-	-
50	25	0,4	24	0,10	6,0	0,10	12,0	0,13	24,0	0,19	36,0	0,26	48,0	0,31	60	-	-
100	150	2,5	8	0,13	11,9	0,25	23,9	0,50	47,5	0,75	71,5	1,00	95,5	1,25	119	-	-
100	50	0,8	24	0,10	6,0	0,13	12,0	0,26	24,0	0,38	36,0	0,52	48,0	0,63	60	-	-
200	300	5,0	8	0,25	11,9	0,50	23,9	1,00	47,5	1,49	71,5	1,99	95,5	2,49	119	-	-
200	100	1,7	24	0,13	6,0	0,25	12,0	0,50	24,0	0,75	36,0	1,00	48,0	1,26	60	-	-
300	450	7,5	8	0,37	11,9	0,75	23,9	1,49	47,5	2,24	71,5	-	-	-	-	-	-
300	150	2,5	24	0,19	6,0	0,38	12,0	0,76	24,0	1,13	36,0	1,52	48,0	1,89	60	-	-
400	600	10,0	8	0,50	11,9	1,00	23,9	1,99	47,5	-	-	-	-	-	-	-	-
400	200	3,3	24	0,25	6,0	0,50	12,0	1,01	24,0	1,51	36,0	2,01	48,0	-	-	-	-
500	750	12,5	8	0,62	11,9	1,24	23,9	2,49	47,5	-	-	-	-	-	-	-	-
500	250	4,2	24	0,31	6,0	0,63	12,0	1,26	24,0	1,89	36,0	2,52	48,0	-	-	-	-
600	900	15,0	8	0,75	11,9	1,50	23,9	-	-	-	-	-	-	-	-	-	-
600	300	5,0	24	0,38	6,0	0,75	12,0	1,50	24,0	2,26	36,0	-	-	-	-	-	-
700	1050	17,5	8	0,87	11,9	1,75	23,9	-	-	-	-	-	-	-	-	-	-
700	350	5,8	24	0,44	6,0	0,88	12,0	1,76	24,0	-	-	-	-	-	-	-	-
800	1200	20,0	8	1,00	11,9	2,00	23,9	-	-	-	-	-	-	-	-	-	-
800	400	6,6	24	0,50	6,0	1,01	12,0	2,01	24,0	-	-	-	-	-	-	-	-
900	1350	22,5	8	1,12	11,9	2,25	23,9	-	-	-	-	-	-	-	-	-	-
900	450	7,5	24	0,57	6,0	1,13	12,0	2,26	24,0	-	-	-	-	-	-	-	-
1000	1500	25,0	8	1,25	11,9	2,50	23,9	-	-	-	-	-	-	-	-	-	-
1000	500	8,3	24	0,63	6,0	1,26	12,0	2,52	24,0	-	-	-	-	-	-	-	-
1100	1650	27,5	8	1,37	11,9	-	-	-	-	-	-	-	-	-	-	-	-
1100	550	9,2	24	0,69	6,0	1,38	12,0	-	-	-	-	-	-	-	-	-	-
1200	1800	30,0	8	1,50	11,9	-	-	-	-	-	-	-	-	-	-	-	-
1200	600	10,0	24	0,75	6,0	1,51	12,0	-	-	-	-	-	-	-	-	-	-
1300	1950	32,5	8	1,62	11,9	-	-	-	-	-	-	-	-	-	-	-	-
1300	650	10,8	24	0,82	6,0	1,63	12,0	-	-	-	-	-	-	-	-	-	-
1400	2100	35,0	8	1,74	11,9	-	-	-	-	-	-	-	-	-	-	-	-
1400	700	11,6	24	0,88	6,0	1,76	12,0	-	-	-	-	-	-	-	-	-	-
1500	2250	37,5	8	1,87	11,9	-	-	-	-	-	-	-	-	-	-	-	-
1500	750	12,5	24	0,94	6,0	1,88	12,0	-	-	-	-	-	-	-	-	-	-

SGT 200

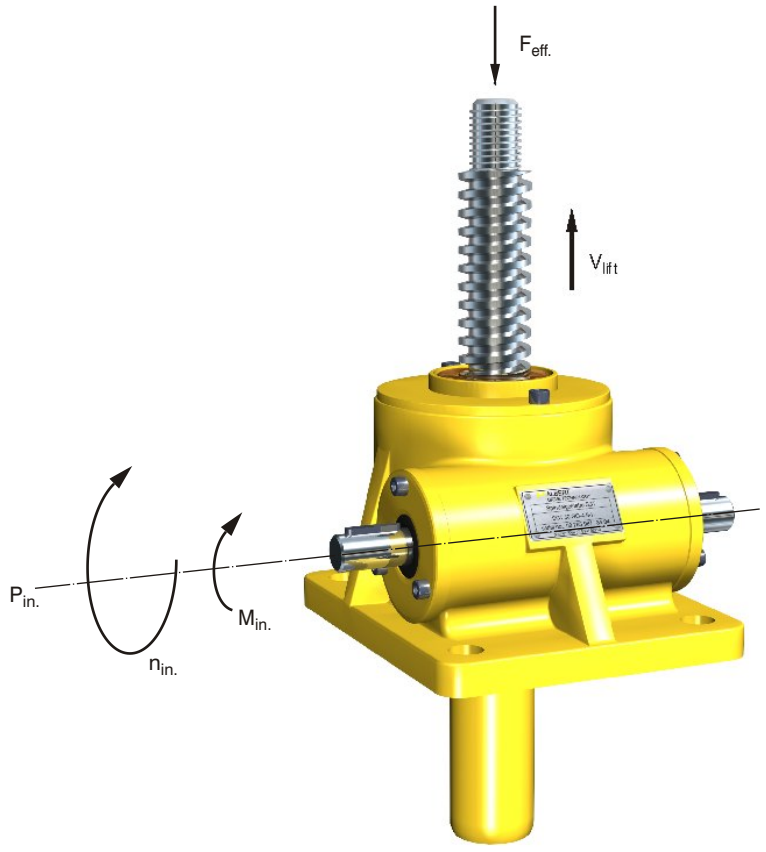
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				25		50		75		100		120		160		200	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	75	1,3	8	0,16	30,0	0,31	60,0	0,47	90,1	0,63	120	0,75	144	1,01	192	1,26	240
50	25	0,4	24	0,10	15,2	0,16	30,5	0,24	45,7	0,32	61	0,38	73,2	0,51	97,5	0,64	122
100	150	2,5	8	0,31	30,0	0,63	60,0	0,94	90,1	1,26	120	1,51	144	2,01	192	2,51	240
100	50	0,8	24	0,16	15,2	0,32	30,5	0,48	45,7	0,64	61	0,77	73,2	1,02	97,5	1,28	122
200	300	5,0	8	0,63	30,0	1,26	60,0	1,89	90,1	2,51	120	3,02	144	-	-	-	-
200	100	1,7	24	0,32	15,2	0,64	30,5	0,96	45,7	1,28	61	1,53	73,2	2,04	97,5	2,55	122
300	450	7,5	8	0,94	30,0	1,89	60,0	2,83	90,1	-	-	-	-	-	-	-	-
300	150	2,5	24	0,48	15,2	0,96	30,5	1,44	45,7	1,91	61	2,30	73,2	3,06	97,5	-	-
400	600	10,0	8	1,26	30,0	2,51	60,0	-	-	-	-	-	-	-	-	-	-
400	200	3,3	24	0,64	15,2	1,28	30,5	1,91	45,7	2,55	61	-	-	-	-	-	-
500	750	12,5	8	1,57	30,0	3,14	60,0	-	-	-	-	-	-	-	-	-	-
500	250	4,2	24	0,80	15,2	1,60	30,5	2,39	45,7	3,19	61	-	-	-	-	-	-
600	900	15,0	8	1,89	30,0	-	-	-	-	-	-	-	-	-	-	-	-
600	300	5,0	24	0,96	15,2	1,91	30,5	2,87	45,7	-	-	-	-	-	-	-	-
700	1050	17,5	8	2,20	30,0	-	-	-	-	-	-	-	-	-	-	-	-
700	350	5,8	24	1,11	15,2	2,24	30,5	3,35	45,7	-	-	-	-	-	-	-	-
800	1200	20,0	8	2,51	30,0	-	-	-	-	-	-	-	-	-	-	-	-
800	400	6,6	24	1,27	15,2	2,55	30,5	3,83	45,7	-	-	-	-	-	-	-	-
900	1350	22,5	8	2,83	30,0	-	-	-	-	-	-	-	-	-	-	-	-
900	450	7,5	24	1,43	15,2	2,87	30,5	-	-	-	-	-	-	-	-	-	-
1000	1500	25,0	8	3,14	30,0	-	-	-	-	-	-	-	-	-	-	-	-
1000	500	8,3	24	1,60	15,2	3,19	30,5	-	-	-	-	-	-	-	-	-	-
1100	1650	27,5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1100	550	9,2	24	1,75	15,2	-	-	-	-	-	-	-	-	-	-	-	-
1200	1800	30,0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1200	600	10,0	24	1,91	15,2	-	-	-	-	-	-	-	-	-	-	-	-
1300	1950	32,5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1300	650	10,8	24	2,07	15,2	-	-	-	-	-	-	-	-	-	-	-	-
1400	2100	35,0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1400	700	11,6	24	2,23	15,2	-	-	-	-	-	-	-	-	-	-	-	-
1500	2250	37,5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1500	750	12,5	24	2,39	15,2	-	-	-	-	-	-	-	-	-	-	-	-

Please enquire for other operating conditions.

SGT 300, SGT 350, SGT 500

Input power - torque

Input power $P_{in.}$ [kW]
Permitted input torque to worm shaft $M_{in.}$ [Nm]
Valid for grease lubrication only!



SGT 300																	
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				50		75		100		130		160		200		250	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	75,5	1,3	10,66	0,33	62,9	0,49	94,3	0,66	125,7	0,86	163,5	1,05	201,2	1,32	251,5	-	-
50	25	0,4	32	0,19	35,6	0,28	53,4	0,37	71,2	0,48	92,5	0,60	113,9	0,75	142,4	-	-
100	151	2,5	10,66	0,66	62,9	1,00	94,3	1,32	125,7	1,71	163,5	2,11	201,2	2,63	251,5	-	-
100	50	0,8	32	0,37	35,6	0,56	53,4	0,75	71,2	0,97	92,5	1,19	113,9	1,49	142,4	-	-
200	302	5,0	10,66	1,32	62,9	1,98	94,3	2,63	125,7	3,42	163,5	4,21	201,2	-	-	-	-
200	100	1,6	32	0,75	35,6	1,12	53,4	1,49	71,2	1,94	92,5	2,39	113,9	2,98	142,2	-	-
300	453	7,5	10,66	1,98	62,9	2,96	94,3	3,95	125,7	-	-	-	-	-	-	-	-
300	150	2,5	32	1,12	35,6	1,68	53,4	2,24	71,2	2,91	92,5	3,58	113,9	4,47	142,2	-	-
400	604	10,0	10,66	2,63	62,9	3,95	94,3	-	-	-	-	-	-	-	-	-	-
400	200	3,3	32	1,49	35,6	2,24	53,4	2,98	71,2	3,88	92,5	4,77	113,9	-	-	-	-
500	755	12,6	10,66	3,29	62,9	4,94	94,3	-	-	-	-	-	-	-	-	-	-
500	250	4,2	32	1,86	35,6	2,80	53,4	3,73	71,2	4,85	92,5	-	-	-	-	-	-
600	906	15,0	10,66	3,95	62,9	-	-	-	-	-	-	-	-	-	-	-	-
600	300	5,0	32	2,24	35,6	3,35	53,4	4,47	71,2	-	-	-	-	-	-	-	-
700	1057	17,6	10,66	4,61	62,9	-	-	-	-	-	-	-	-	-	-	-	-
700	350	5,8	32	2,61	35,6	3,91	53,4	-	-	-	-	-	-	-	-	-	-
800	1208	20,1	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	400	6,6	32	2,98	35,6	4,47	53,4	-	-	-	-	-	-	-	-	-	-
900	1359	22,0	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900	450	7,5	32	3,35	35,6	-	-	-	-	-	-	-	-	-	-	-	-
1000	1509	25,2	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	500	8,3	32	3,73	35,6	-	-	-	-	-	-	-	-	-	-	-	-

Please enquire for other operating conditions.

SGT 350

Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				50		100		150		200		250		300		350	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	75,5	1,3	10,66	0,34	65,0	0,69	130	1,03	195	1,36	260	1,71	325	2,06	390	-	-
50	25	0,4	32	0,19	35,5	0,37	71	0,56	106	0,74	142	0,93	177	1,11	213	-	-
100	151	2,5	10,66	0,69	65,0	1,37	130	2,06	195	2,74	260	3,43	325	-	-	-	-
100	50	0,8	32	0,37	35,5	0,74	71	1,11	106	1,49	142	1,86	177	2,23	213	-	-
200	302	5,0	10,66	1,37	65,0	2,74	130	4,11	195	5,48	260	-	-	-	-	-	-
200	100	1,6	32	0,74	35,5	1,49	71	2,23	106	2,97	142	3,71	177	-	-	-	-
300	453	7,5	10,66	2,06	65,0	4,11	130	-	-	-	-	-	-	-	-	-	-
300	150	2,5	32	1,11	35,5	2,23	71	3,34	106	4,46	142	5,57	177	-	-	-	-
400	604	10,0	10,66	2,74	65,0	5,48	130	-	-	-	-	-	-	-	-	-	-
400	200	3,3	32	1,49	35,5	2,97	71	4,46	106	-	-	-	-	-	-	-	-
500	755	12,6	10,66	3,43	65,0	-	-	-	-	-	-	-	-	-	-	-	-
500	250	4,2	32	1,86	35,5	3,71	71	5,57	106	-	-	-	-	-	-	-	-
600	906	15,1	10,66	4,11	65,0	-	-	-	-	-	-	-	-	-	-	-	-
600	300	5,0	32	2,23	35,5	4,46	71	-	-	-	-	-	-	-	-	-	-
700	1057	17,6	10,66	4,80	65,0	-	-	-	-	-	-	-	-	-	-	-	-
700	350	5,8	32	2,60	35,5	5,20	71	-	-	-	-	-	-	-	-	-	-
800	1208	20,1	10,66	5,48	65,0	-	-	-	-	-	-	-	-	-	-	-	-
800	400	6,6	32	2,97	35,5	5,94	71	-	-	-	-	-	-	-	-	-	-
900	1359	22,6	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900	450	7,5	32	3,34	35,5	-	-	-	-	-	-	-	-	-	-	-	-
1000	1510	25,2	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	500	8,3	32	3,71	35,5	-	-	-	-	-	-	-	-	-	-	-	-

SGT 500

Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				100		150		200		250		300		400		500	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	75,5	1,3	10,66	0,83	159,3	1,25	238,9	1,67	318,5	2,08	398	2,50	477,8	3,34	637,0	-	-
50	25	0,4	32	0,46	88,4	0,69	132,6	0,93	176,8	1,16	221	1,39	265,3	1,85	353,7	-	-
100	151	2,5	10,66	1,67	159,3	2,50	238,9	3,34	318,5	4,17	398	5,00	477,8	6,67	637,0	-	-
100	50	0,8	32	0,93	88,4	1,39	132,6	1,85	176,8	2,32	221	2,78	265,3	3,70	353,7	-	-
200	302	5,0	10,66	3,34	159,3	5,00	238,9	6,67	318,5	-	-	-	-	-	-	-	-
200	100	1,6	32	1,85	88,4	2,79	132,6	3,70	176,8	4,63	221	5,56	265,3	7,41	353,7	-	-
300	453	7,5	10,66	5,00	159,3	7,50	238,9	-	-	-	-	-	-	-	-	-	-
300	150	2,5	32	2,78	88,4	4,17	132,6	5,56	176,8	6,94	221	-	-	-	-	-	-
400	604	10,0	10,66	6,67	159,3	-	-	-	-	-	-	-	-	-	-	-	-
400	200	3,3	32	3,70	88,4	5,56	132,6	7,41	176,8	-	-	-	-	-	-	-	-
500	755	12,6	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
500	250	4,2	32	4,63	88,4	6,94	132,6	-	-	-	-	-	-	-	-	-	-
600	906	15,0	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600	300	5,0	32	5,56	88,4	-	-	-	-	-	-	-	-	-	-	-	-

Please enquire for other operating conditions.

SGT 750, SGT 1000

Input power - torque

Input power $P_{in.}$ [kW]
Permitted input torque to worm shaft $M_{in.}$ [Nm]
Valid for grease lubrication only!

SGT 750																	
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				100		200		300		400		500		650		750	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	75	1,25	10,66	0,9	170,6	1,8	341,3	2,7	512,0	3,6	682,5	4,5	853,1	5,8	1109	6,7	1280
50	25	0,41	32	0,5	99,5	1,0	199,0	1,6	298,4	2,1	397,9	2,6	497,4	3,4	646,6	3,9	746
100	150	2,5	10,66	1,8	170,6	3,6	341,3	5,4	512,0	7,1	682,5	8,9	853,1	-	-	-	-
100	50	0,83	32	1,0	99,5	2,1	199,0	3,1	298,4	4,2	397,9	5,2	497,4	6,8	646,6	7,8	746
200	300	5,0	10,66	3,6	170,6	7,1	341,3	-	-	-	-	-	-	-	-	-	-
200	100	1,67	32	2,1	99,5	4,2	199,0	6,2	298,4	8,3	397,9	-	-	-	-	-	-
300	450	7,5	10,66	5,4	170,6	10,7	341,3	-	-	-	-	-	-	-	-	-	-
300	150	2,5	32	3,1	99,5	6,2	199,0	9,4	298,4	-	-	-	-	-	-	-	-
400	600	10,0	10,66	7,1	170,6	-	-	-	-	-	-	-	-	-	-	-	-
400	200	3,33	32	4,2	99,5	8,3	199,0	-	-	-	-	-	-	-	-	-	-
500	750	12,5	10,66	8,9	170,6	-	-	-	-	-	-	-	-	-	-	-	-
500	250	4,17	32	5,2	99,5	-	-	-	-	-	-	-	-	-	-	-	-
600	900	15,0	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600	300	5,0	32	6,2	99,5	-	-	-	-	-	-	-	-	-	-	-	-
700	1050	17,5	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
700	350	5,83	32	7,3	99,5	-	-	-	-	-	-	-	-	-	-	-	-
800	1200	20,0	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	400	6,67	32	8,3	99,5	-	-	-	-	-	-	-	-	-	-	-	-
900	1350	22,5	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900	450	7,5	32	9,4	99,5	-	-	-	-	-	-	-	-	-	-	-	-
1000	1500	25,0	10,66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	500	8,33	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SGT 1000																	
Input speed	Lifting velocity		Ratio	Effective load $F_{eff.}$ [kN]													
				100		200		350		500		600		800		1000	
$n_{in.}$ [1/min]	V_{lift} [mm/min]	V_{lift} [mm/s]	i N - L	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$	$P_{in.}$	$M_{in.}$
50	83,3	1,4	12	1,05	200	2,10	400	3,67	700	5,25	1000	6,30	1200	8,40	1600	-	-
50	27,8	0,5	36	0,57	108	1,14	217	1,99	379	2,84	542	3,41	650	4,54	867	-	-
100	166,6	2,8	12	2,10	200	4,20	400	7,35	700	10,50	1000	12,59	1200	-	-	-	-
100	55,6	0,9	36	1,14	108	2,27	217	3,97	379	5,68	542	6,81	650	9,08	867	-	-
200	333,3	5,6	12	4,20	200	8,40	400	-	-	-	-	-	-	-	-	-	-
200	111,1	1,9	36	2,27	108	4,53	217	7,94	379	11,34	542	-	-	-	-	-	-
300	500	8,3	12	6,29	200	12,57	400	-	-	-	-	-	-	-	-	-	-
300	166,7	2,8	36	3,41	108	6,82	217	11,94	379	-	-	-	-	-	-	-	-
400	666,6	11,1	12	8,38	200	-	-	-	-	-	-	-	-	-	-	-	-
400	222,2	3,7	36	4,53	108	9,07	217	-	-	-	-	-	-	-	-	-	-
500	833,3	13,9	12	10,47	200	-	-	-	-	-	-	-	-	-	-	-	-
500	277,8	4,6	36	5,68	108	11,36	217	-	-	-	-	-	-	-	-	-	-
600	1000	16,6	12	12,57	200	-	-	-	-	-	-	-	-	-	-	-	-
600	333,3	5,6	36	6,80	108	-	-	-	-	-	-	-	-	-	-	-	-
700	1167	19,4	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
700	388,9	6,5	36	7,92	108	-	-	-	-	-	-	-	-	-	-	-	-
800	1333	22,2	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	444,4	7,4	36	9,05	108	-	-	-	-	-	-	-	-	-	-	-	-
900	1500	25	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900	500	8,3	36	10,18	108	-	-	-	-	-	-	-	-	-	-	-	-
1000	1667	27,8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	555,6	9,3	36	11,36	108	-	-	-	-	-	-	-	-	-	-	-	-

Please enquire for other operating conditions.

Installation of SGT screw jacks

Worm shaft - mounting orientation - worm shaft orientation

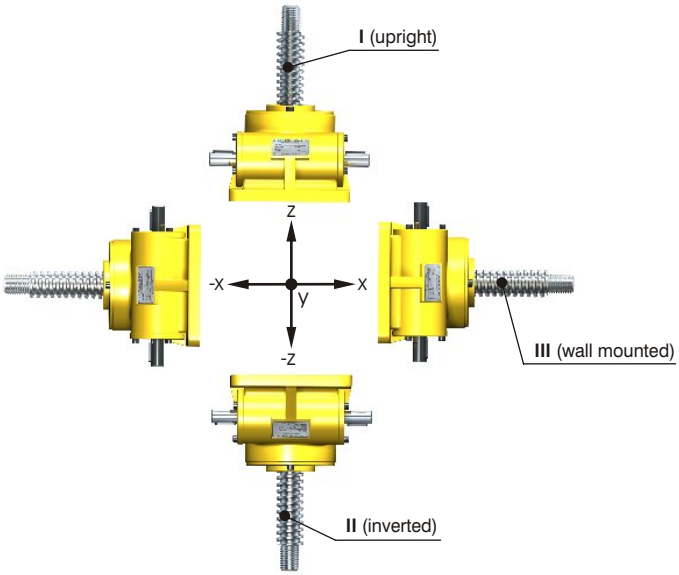
Recommended guidelines for screw jack arrrangements:

- Spindle in tension
- Housing in compression
- Fixing screws unloaded

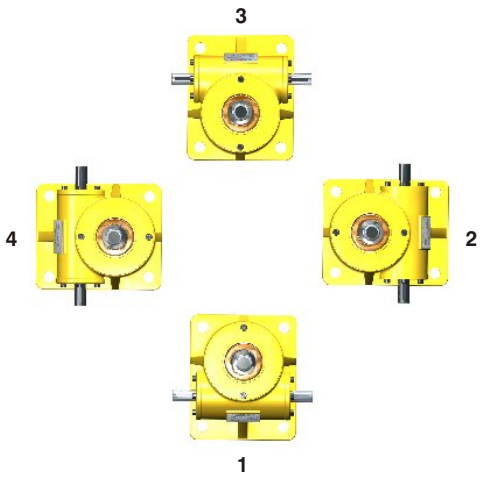
Worm shaft:

1 = left | 0 = double ended | 2= right

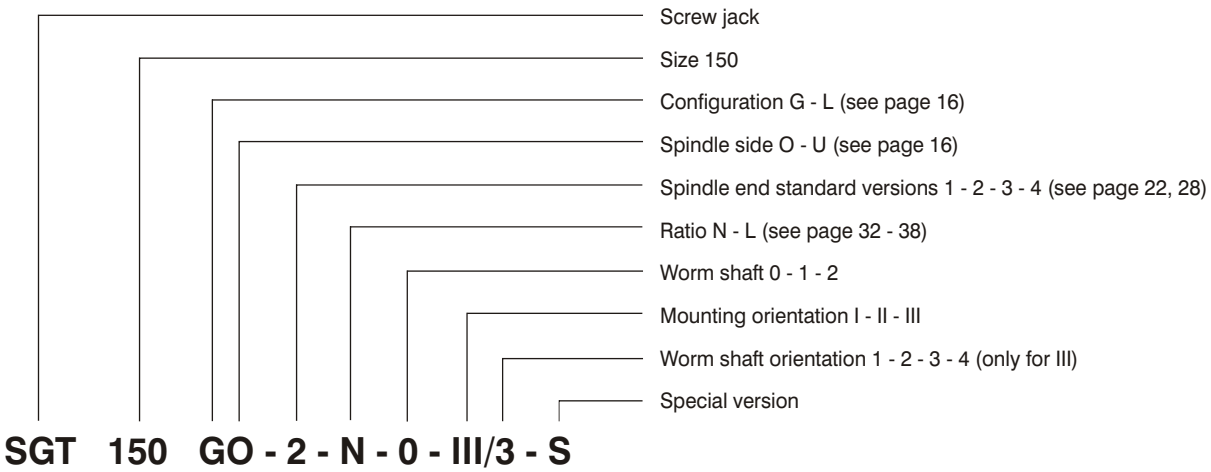
Mounting orientation:



Worm shaft orientation:
(for wall mounting)



Ordering example:



Suggested drive arrangements - mechanically synchronised

Examples

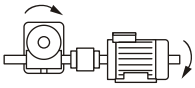
When designing screw jack arrangements, the operating requirements, the load to be moved and the stroke must be known. Additional loads which are not axially transmitted must be taken into account.
Once the number of jacks and their orientation is established the load must be calculated for individual jacks. Next the drive train for the screw jacks is established.

Please observe the following guidelines:
- all screw jacks in the arrangement examples have the same sense of rotation
- the number of connecting links is as small as possible
- the motor should be located close to the most heavily loaded screw jacks

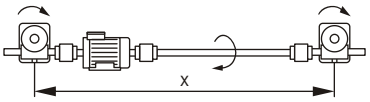
Arrangement examples

X and Y are centre distances

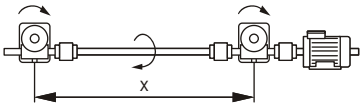
Example 1



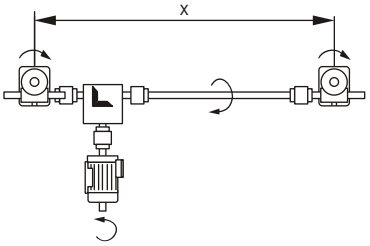
Example 2



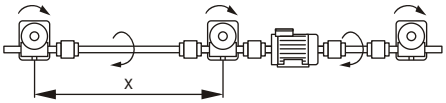
Example 3



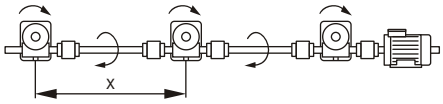
Example 4



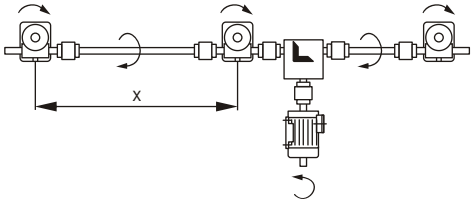
Example 5



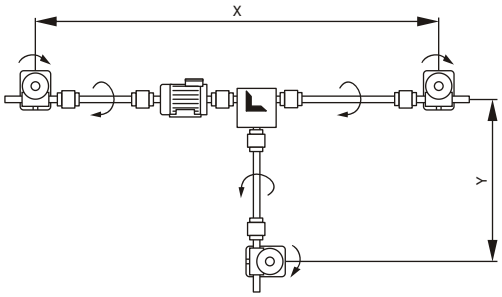
Example 6



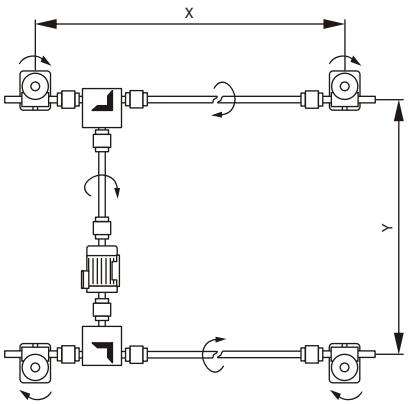
Example 7



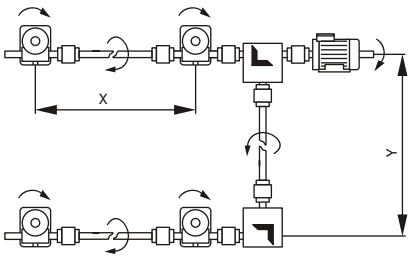
Example 8



Example 9

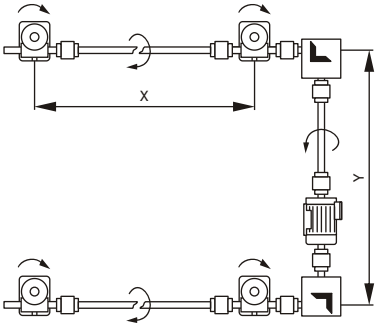


Example 10

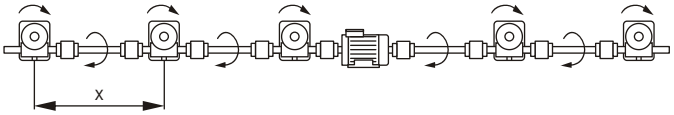


Suggested drive arrangements - mechanically synchronised

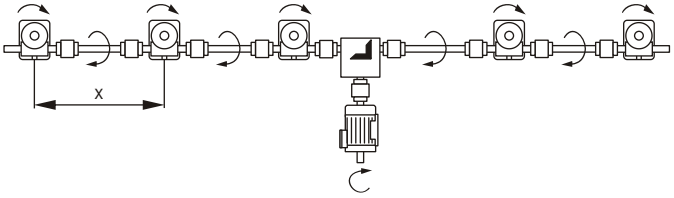
Example 11



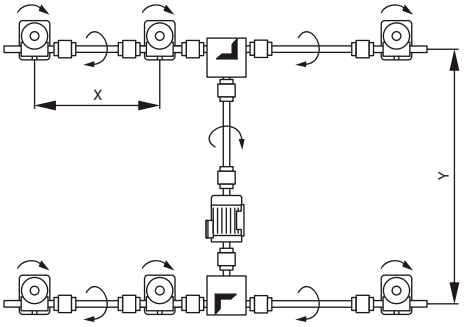
Example 12



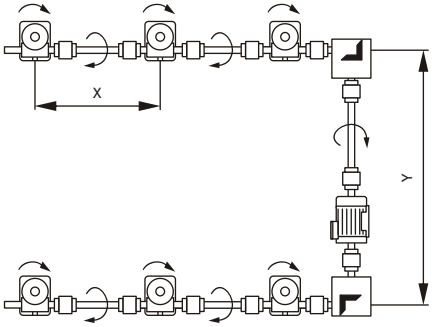
Example 13



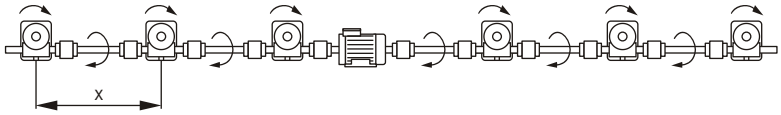
Example 14



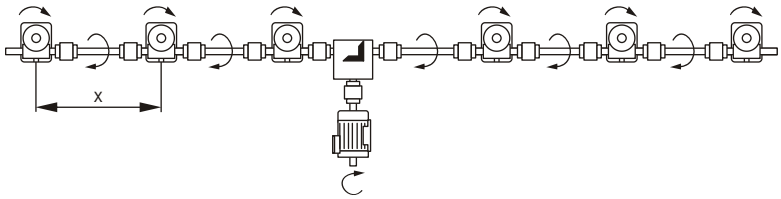
Example 15



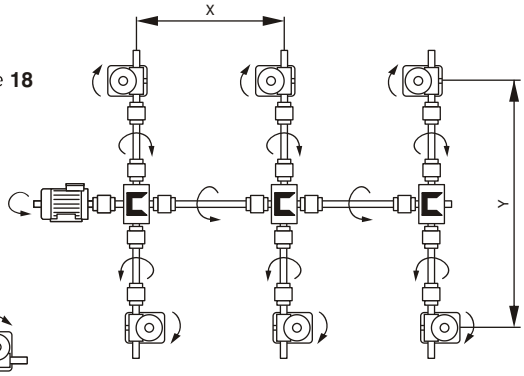
Example 16



Example **17**

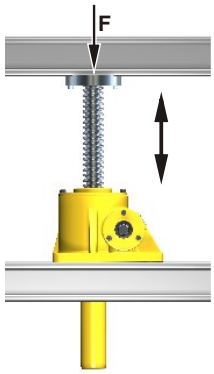


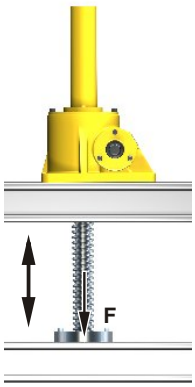
Example **18**

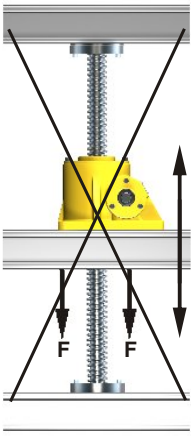


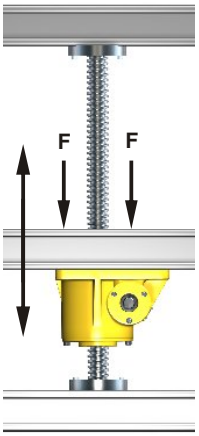
Installation examples

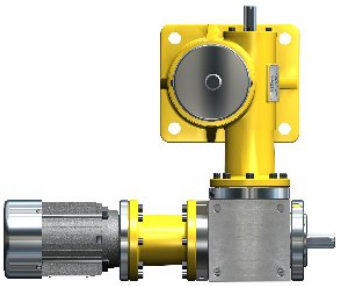
SGT 5 - SGT 1000

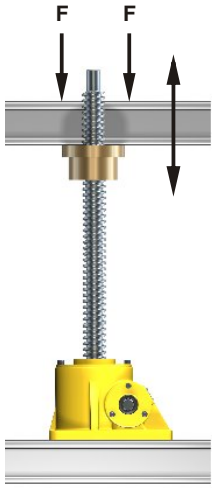


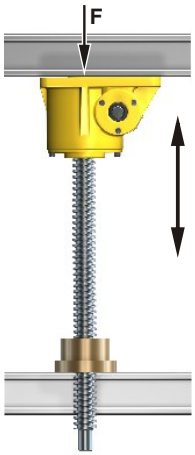


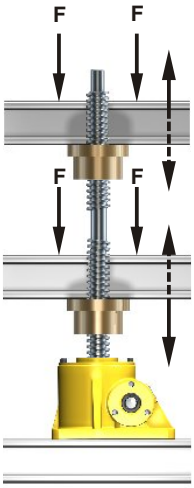


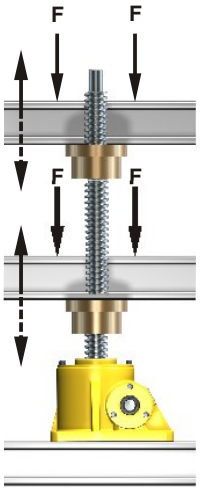


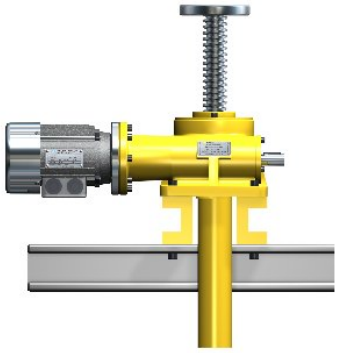


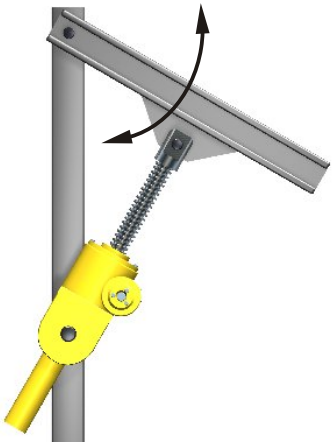


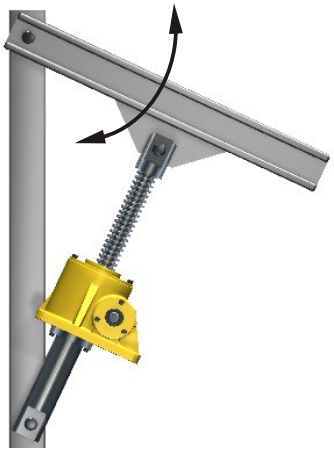


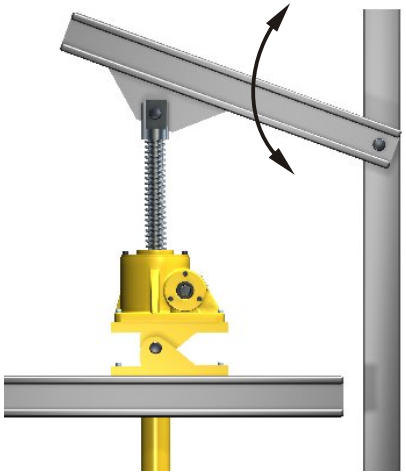






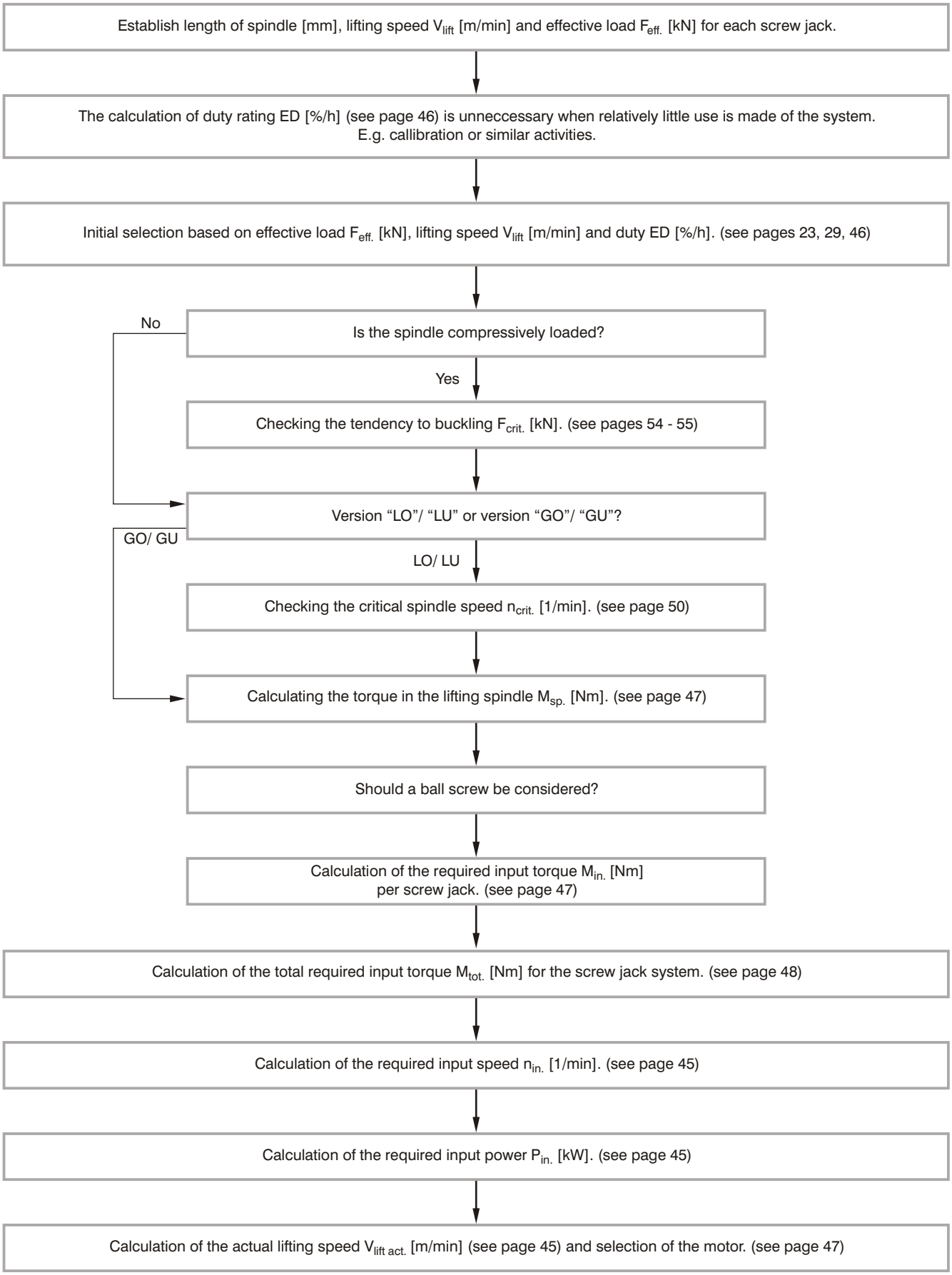






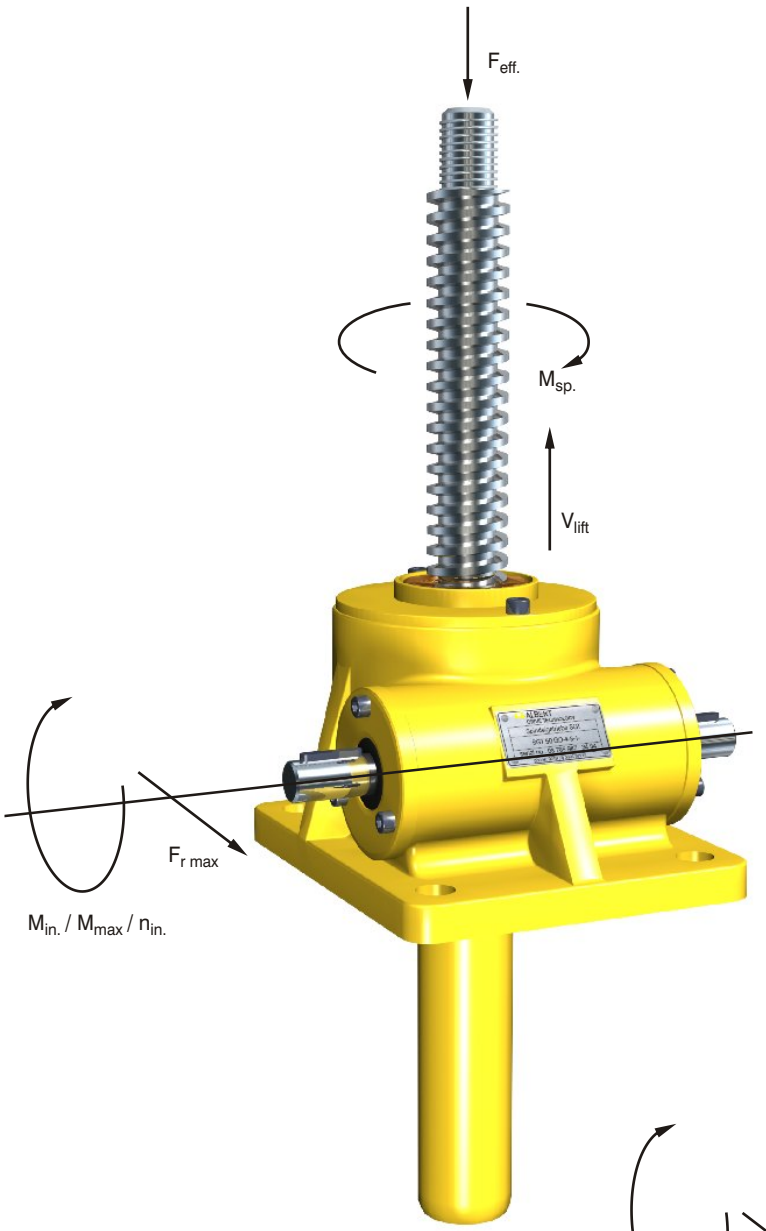
Dimensioning of screw jack systems

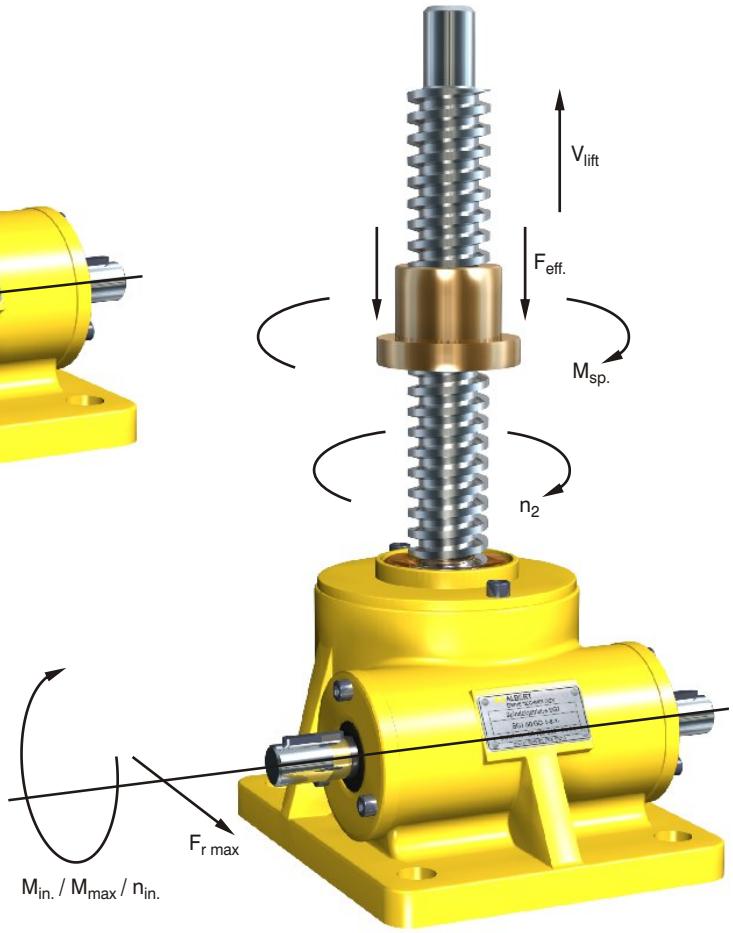
Selection path



Definition of the applied loads, torques and speeds

$F_{eff.}$	[kN]	effective lifting load of the screw jack
$F_{r\ max}$	[kN]	maximum radial load
$M_{in.}$	[Nm]	input torque
M_{max}	[Nm]	maximum input torque
$M_{sp.}$	[Nm]	torque in the lifting spindle
$n_{in.}$	[1/min]	input speed
n_2	[1/min]	spindle speed (only running nut design)
V_{lift}	[m/min]	lifting speed





Calculations

Input speed $n_{in.}$ [1/min]

Required input speed $n_{in.}$ [1/min] to achieve a partciular lifting speed V_{lift} [m/min] is calculated as follows:

$$n_{in.}\ [1/min] = \frac{V_{lift}\ [m/min] \bullet 1000}{P\ [mm]} \bullet i\ [-]$$

Input power $P_{in.}$ [kW] per screw jack

Required input power $P_{in.}$ [kW] for a particular screw jack is calculated as follows:

$$P_{in.}\ [kW] = \frac{F_{eff.}\ [kN] \bullet V_{lift}\ [m/min]}{60 \bullet \eta_{tot}}$$

Input power $P_{machine}$ [kW] for total system

Overall required input power $P_{machine}$ [kW] for the complete system (screw jack, connecting shafts, bevel gear units) is calculated as follows:

$$P_{machine}\ [kW] = \frac{F_{eff.\ tot.}\ [kN] \bullet V_{lift}\ [m/min]}{60 \bullet \eta_{tot} \bullet \eta_{machine}}$$

Actual lifting speed $V_{lift\ act.}$ [m/min]

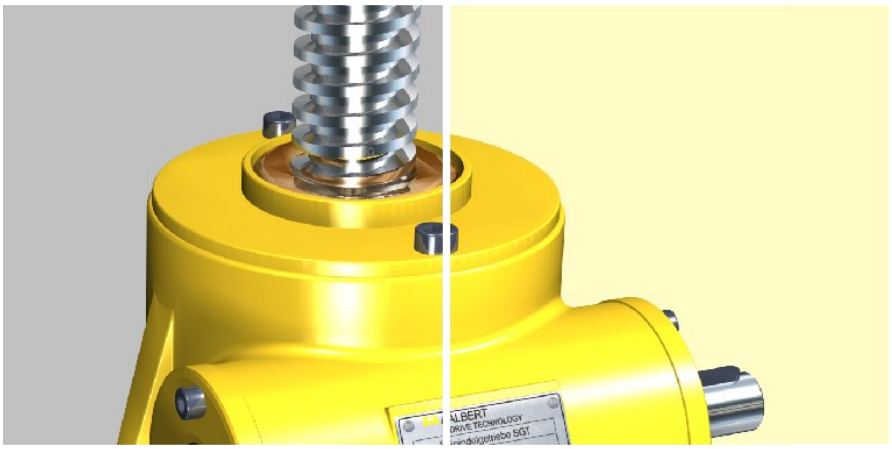
In most cases the required input speed $n_{in.}$ [1/min] differs from the motor speed. The actual lifting speed $V_{lift\ act.}$ [m/min], which will be achieved based on motor speed n_{motor} [1/min] is calculated as follows:

$$V_{lift\ act.}\ [m/min] = \frac{n_{motor}\ [1/min] \bullet P\ [mm]}{1000 \bullet i\ [-]}$$

Order code	N - i - L	$\eta_{tot.}$
SGT 5	10	0,21
SGT 5	24	0,12
SGT 20	6	0,26
SGT 20	24	0,14
SGT 30	6	0,24
SGT 30	24	0,13
SGT 50	6	0,23
SGT 50	24	0,12
SGT 150	8	0,20
SGT 150	24	0,13
SGT 200	8	0,20
SGT 200	24	0,13
SGT 300	10,66	0,19
SGT 300	32	0,11
SGT 350	10,66	0,18
SGT 350	32	0,11
SGT 500	10,66	0,15
SGT 500	32	0,09
SGT 750	10,66	0,14
SGT 750	32	0,08
SGT 1000	12	0,13
SGT 1000	36	0,08

Explanation:

n_{in}	[1/min]	input speed
n_{motor}	[1/min]	motor speed
V_{lift}	[m/min]	lifting speed at the spindle
$V_{lift\ act.}$	[m/min]	actual lifting speed
P	[mm]	spindle pitch
i	[-]	screw jack ratio
$P_{in.}$	[kW]	input power per screw jack
$P_{machine}$	[kW]	input power for total system
$F_{eff.}$	[kN]	effective lifting load of the screw jack
$F_{eff.\ tot.}$	[kN]	effective load to be lifted for the system
η_{tot}	[-]	total working efficiency (see table)
$\eta_{machine}$	[-]	efficiency of the system (see page 48)

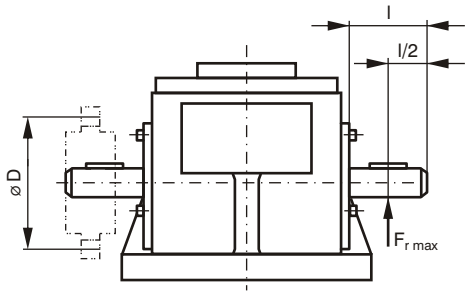


Calculations

Maximum radial load $F_{r\ max.}$ [N] at the worm shaft

The worm shaft can experience radial loads due to gears, sprockets or belt pulleys. To avoid exceeding the max radial load $F_{r\ max.}$ [N] the minimum shaft diameter $D_{min.}$ must be calculated.

$$D_{min}\ [m] = \frac{9550}{2} \bullet \frac{2 \bullet P_{in.}\ [kW]}{F_{r\ max}\ [N] \bullet n_{in.}\ [1/min]} = \frac{2 \bullet M_{max}\ [Nm]}{F_{r\ max}\ [N]}$$



Maximum input torque $M_{max.}$ [Nm]

Maximum radial load at the worm shaft $F_{r\ max.}$ [N]

Order code	M_{max} [Nm]	$F_{r\ max}$ [N]
SGT 5	1,9	250
SGT 20	13	300
SGT 30	18	350
SGT 50	44,2	750
SGT 150	108	1000
SGT 200	182	1300
SGT 300	314	2000
SGT 350	398	2300
SGT 500	796	2400
SGT 750	1178	3700
SGT 1000	1415	5100

Duty ED [%/h]

The duty ED [%/h] is derived from the time in operation (lifting and lowering) and the inactive time between successive operations.

$$ED\ [\%/h] = \frac{Stroke\ [m] \bullet LS \bullet 100}{60 \bullet V_{lift}\ [m/min]}$$

Example:

Lifting		4s							4s
Lowering				2s		2s			4s
Inactive			10s		10s		12s		32s
								Total cycle =	40s
								ED per cycle in % =	20%
								Cycles per operating day =	10

Explanation:

D_{min}	[m]	smallest diameter
$P_{in.}$	[kW]	input power
$F_{r\ max}$	[N]	maximum radial load (see table)
$n_{in.}$	[1/min]	input speed at the worm shaft
M_{max}	[Nm]	maximum input torque (see table)
Stroke	[m]	working stroke of the screw jack
V_{lift}	[m/min]	lifting speed
LS	[-]	number of loaded operations

Calculations

Input torque $M_{in.}$ [Nm] at the worm shaft

The input torque $M_{in.}$ [Nm] at the worm shaft is calculated as follows:

$$M_{in.}\ [Nm] = \frac{P_{in.}\ [kW] \bullet 9550}{n_{in.}\ [1/min]}$$

Torque $M_{sp.}$ [Nm] in the lifting spindle

The torque in the lifting spindle $M_{sp.}$ [Nm] is that torque that the lifting spindle exerts at the spindle end in basic design.
In the running nut design $M_{sp.}$ [Nm] is that torque which the running nut exerts on the spindle due to the load.

$$M_{sp.}\ [Nm] = \frac{F_{lift\ dyn.}\ [kN] \bullet P\ [mm]}{2 \bullet \pi \bullet \eta_{spindle}}$$

Order code	Trapezoidal spindle $\eta_{spindle}$	Ball screw spindle $\eta_{spindle}$
SGT 5	0,51	0,9
SGT 20	0,44	0,9
SGT 30	0,40	0,9
SGT 50	0,37	0,9
SGT 150	0,40	0,9
SGT 200	0,38	0,9
SGT 300	0,37	0,9
SGT 350	0,35	0,9
SGT 500	0,30	0,9
SGT 750	0,27	0,9
SGT 1000	0,29	0,9

Selection of the motor

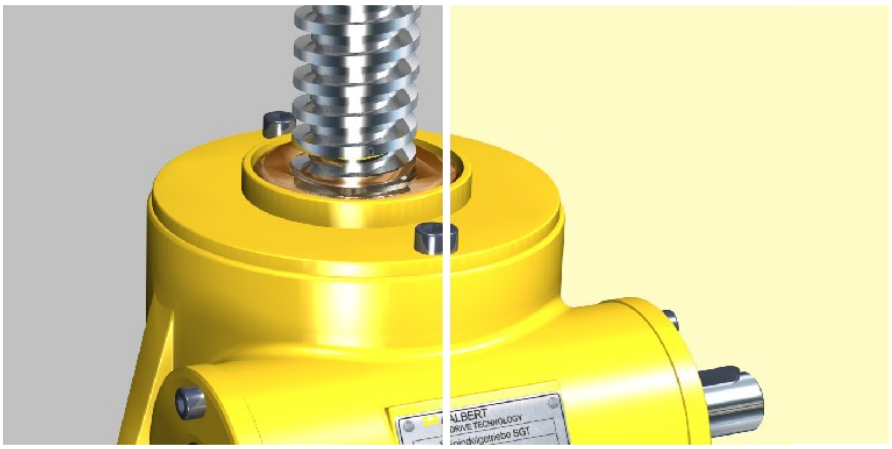
The required motor can be selected from the power $P_{in.}$ [kW] and the input speed $n_{in.}$ [1/min].

Notes about motor selection:

- The motor selected should be able to overcome the breakaway torque of the system which can be considerably higher than the calculated input torque. This relates particularly to systems where there is poor efficiency and long idle periods.
- Following selection of the drive motor it should be checked whether the transmission elements and the screw jacks may be overloaded by the selected motor. For maximum input torque $M_{max.}$ [Nm] see the adjacent table page 46.
- When using some trapezoidal spindles a brake motor should be selected since self locking cannot be guaranteed.
- In conditions of heavy vibration the self locking capability of some screw jacks can no longer be guaranteed. In such cases, or where it is possible that such vibration may occur, a brake motor must be specified.
- To minimise the possibility of damage to the screw jack system, end of travel limit switches should be fitted. E.g. electro-mechanical devices or inductive proximity devices.

Explanation:

$P_{in.}$	[kW]	input power (see page 45)
$n_{in.}$	[1/min]	input speed at the worm shaft
$F_{lift\ dyn.}$	[kN]	dynamic lifting load on the screw jack
P	[mm]	spindle pitch (see page 23, 29)
$\eta_{spindle}$	[-]	efficiency of the spindle (see table)



Calculations

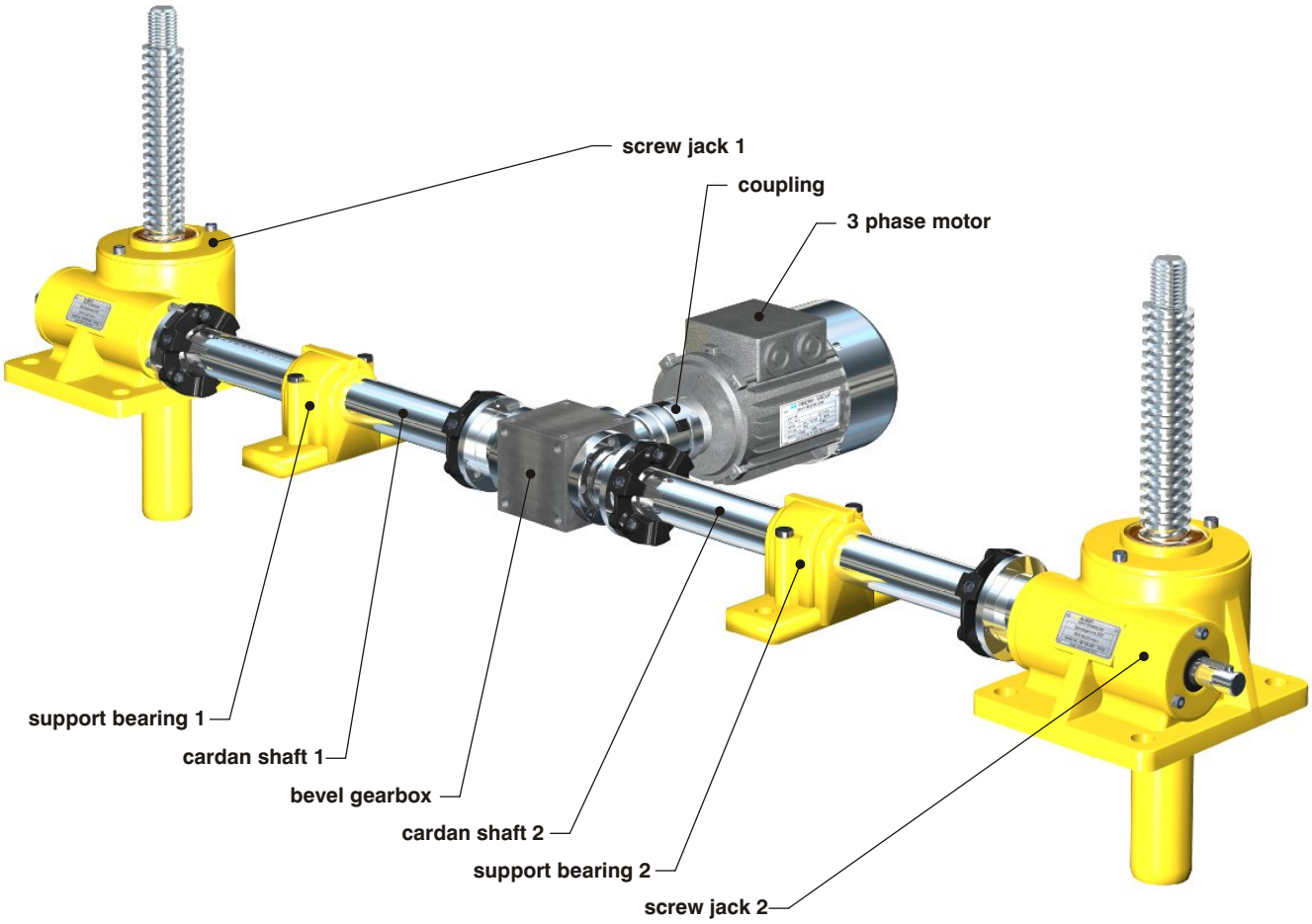
Total input torque $M_{tot.}$ [Nm]

The total torque $M_{tot.}$ [Nm] required for the system comprises the lifting load torque, plus losses due to flexible couplings, cardans, support bearings and bevel gearboxes. The following example shows the derivation of the total torque $M_{tot.}$ [Nm].

Note:
If a bevel gearbox with a ratio i_k [-] of greater than 1 is used then the torque and input speed must be modified accordingly.

$$M_{tot.} = \left(\frac{M_{in.\,1}}{\eta_{cardan\ shaft}} + \frac{M_{in.\,2}}{\eta_{cardan\ shaft}} \right) \cdot \frac{1}{\eta_{K}}$$

Important:
The breakaway torque of the system can be considerably higher than the calculated input torque. This applies particularly to systems with poor efficiency and long idle periods.



Explanation:

$M_{tot.}$	[Nm]	total input torque
$M_{in.1}$	[Nm]	input torque for screw jack 1
$M_{in.2}$	[Nm]	input torque for screw jack 2
$\eta_{cardan\ shaft}$	[-]	efficiency of cardan shaft with support bearing (dependent on the length and the number of support bearings ca. 0.75 - 0.95)
η_{K}	[-]	efficiency of bevel gearbox (ca. 0.9)
$\eta_{machine}$	[-]	efficiency of the system = 0,85 (guidance for simple drive arrangements; example 9 see page 40)

Calculations

Spindle efficiency $\eta_{spindle}$ [-]

The spindle efficiency $\eta_{spindle}$ [-] is calculated as follows:

$$\eta_{spindle}\,[-] = \frac{\tan\varphi}{\tan(\varphi + \rho)}$$

Surface stress in thread p [N/mm²]

Calculation of surface stress p [N/mm²] in thread:

$$p\,[N/mm^2] = \frac{F_{lift\ dyn.}\,[N] \bullet P\,[mm]}{l_1\,[mm] \bullet d_2\,[mm] \bullet \pi \bullet H_1\,[mm]}$$

Life calculation L_h [h] ball screw spindle / ball bearing

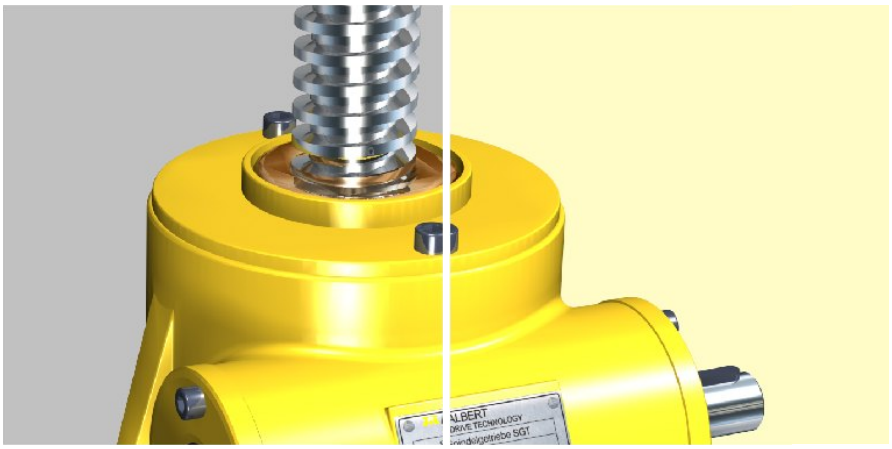
The life L_h [h] for the ball screw spindle or bearing is calculated as follows:

$$L_h\,[h] = \frac{\left(\frac{C_{dyn.}\,[kN]}{F_{lift\ dyn.}\,[kN]}\right)^3 \bullet 10^6}{60 \bullet n_2\,[1/min]}$$

Explanation:

φ	[-]	lead angle at flank diameter...
$\varphi = \arctan\left(\frac{P}{d_2 \bullet \pi}\right)$		...single start spindle
$\varphi = \arctan\left(\frac{P_h}{d_2 \bullet \pi}\right)$		...multistart spindle
ρ	[-]	wear angle of the spindle (based on 5,91° for well greased spindle)
P_h	[mm]	pitch of spindle - multistart (example: Tr 40x14 P7; P_h=14)
P	[mm]	pitch of spindle - single start (example: Tr 40x7; P=7) spindle lead - multistart (example: Tr 40x14 P7; P=7)
d_2	[mm]	flank diameter of spindle $d_2 = d\text{-}0{,}5 \bullet P$

d	[mm]	external diameter of spindle
$F_{lift\ dyn.}$	[N]	dynamic lifting load on the screw jack
l_1	[mm]	length of nut thread
H_1	[mm]	flank engagement
$C_{dyn.}$	[kN]	dynamic load rating of ball screw spindle/ ball bearing
$F_{lift\ dyn.}$	[kN]	dynamic lifting load on the spindle when in motion (axial)
n_2	[1/min]	ball screw spindle/ ball bearing speed $n_2 = \frac{n_{in.}\,[1/min]}{i\,[-]}$
$n_{in.}$	[1/min]	input speed at the worm shaft



Calculations

Critical spindle speed $n_{crit.}$ (only running nut design)

Rotating spindles are subject to vibration due to resonance. All rotating spindles should be checked for speed n_2 [1/min] vs permitted speed.

Method:

1. Determination of the spindle speed n_2 [1/min]

$$n_2\ [1/min] = \frac{V_{lift}\ [m/min] \bullet 1000}{P\ [mm]}$$

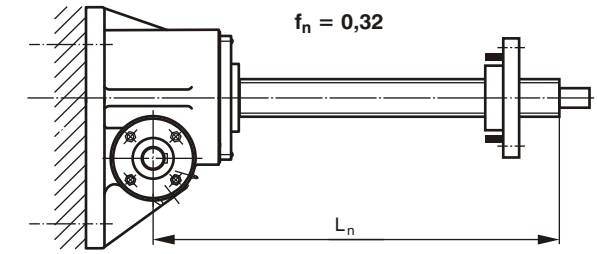
2. Obtain the critical spindle speed $n_{crit.}$ [1/min] from the graph. The spindle size and the length L_n [mm] is required.

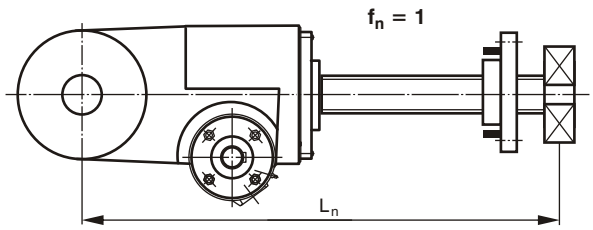
3. Determination of the permitted spindle speed $n_{perm.}$ [1/min].

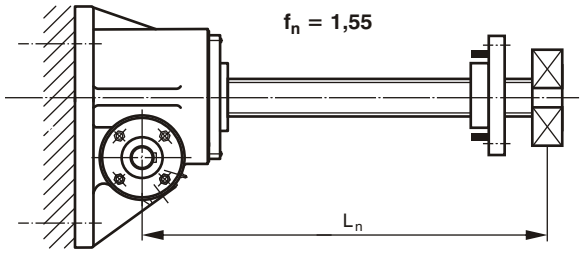
$$n_{perm.}\ [1/min] = 0{,}8 \bullet n_{crit.}\ [1/min] \bullet f_n\ [-]$$

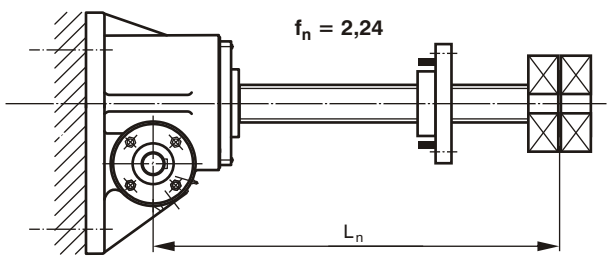
4. The permitted spindlle speed $n_{perm.}$ [1/min] must be greater than the actual spindle speed n_2 [1/min].

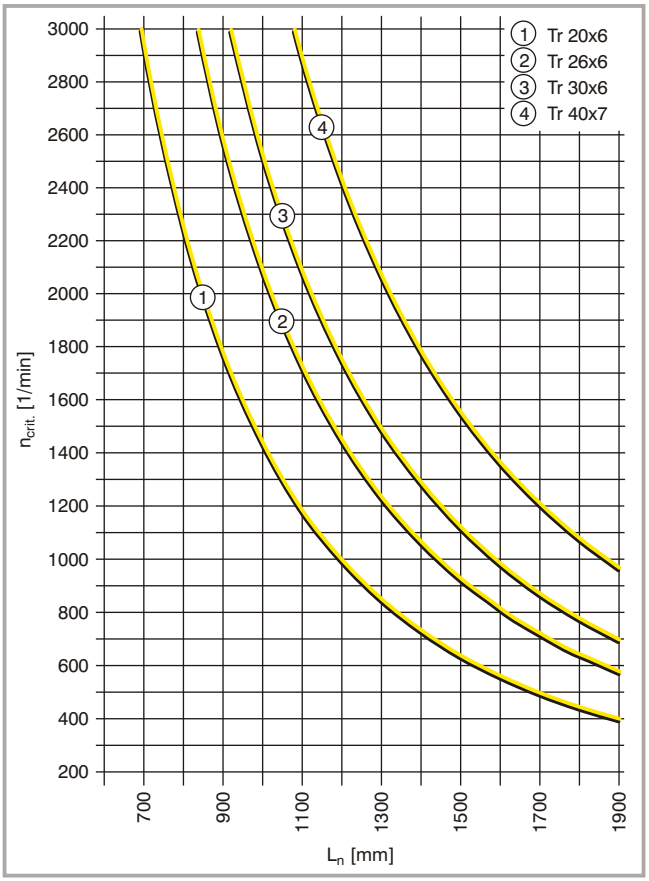
$$n_{perm.} > n_2$$

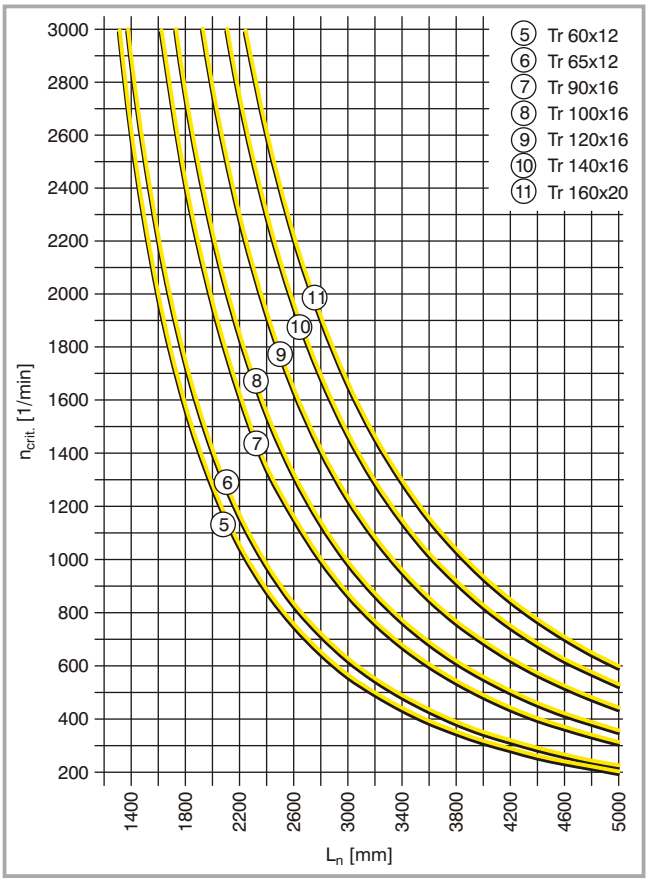












Calculations

Permissible side loading F_S [kN] on the spindle due to compressive loads

The permissible side loading F_S [kN], resulting from compressive axial loading F_a [kN], can be obtained from the graph below:

Important:
The permitted side load F_s acting via the spindle to the running nut leads to increased edge pressure in the actuating spindle. Wear is increased and life reduced. If in doubt consult our engineers!

Buckling safety factor:

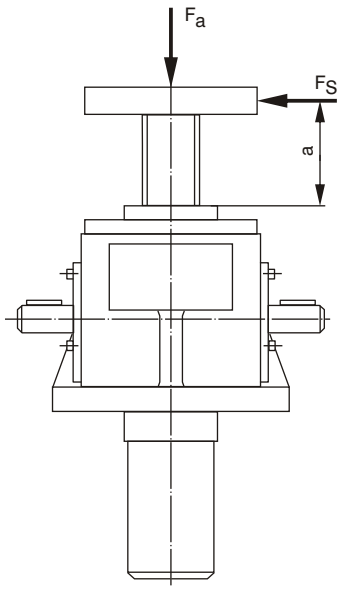
Tetmajer: 3...4

Euler: 4

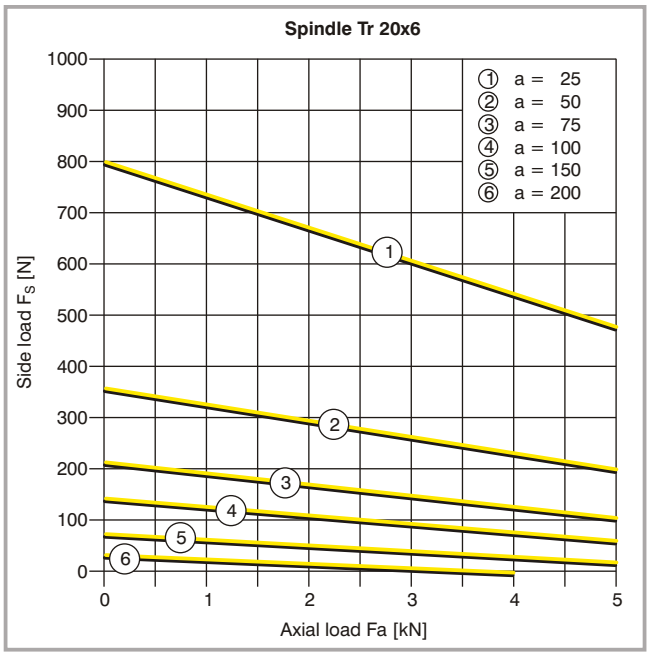
Comparative stress:

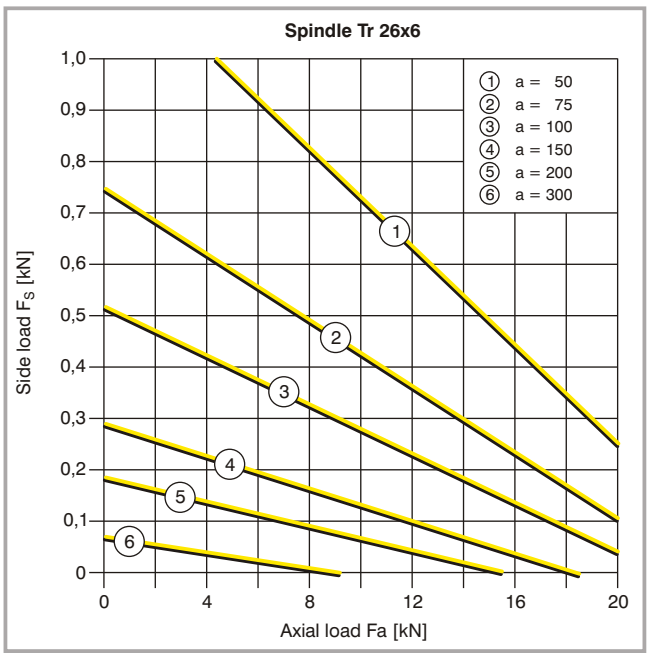
$$\sigma_{Vmax} < \sigma_{Vperm.}$$

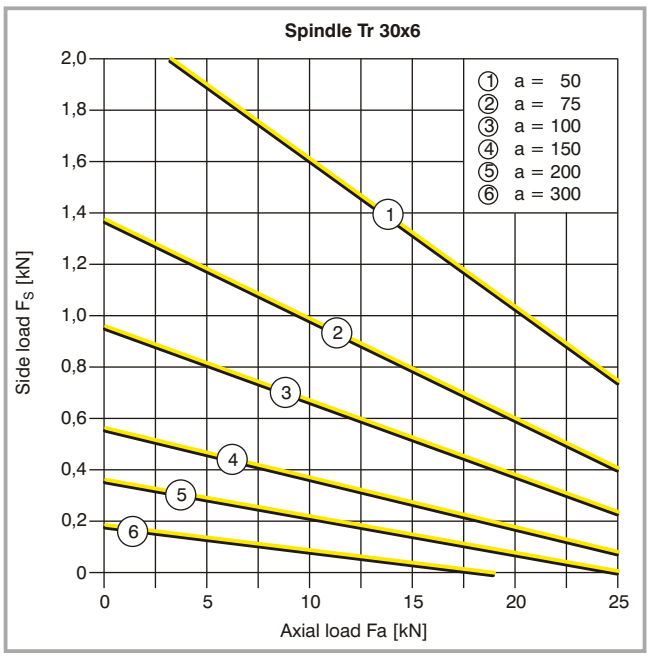
$$\sigma_V = \sqrt{(\sigma_B + \sigma_D)^2 + 3\tau_t^2}$$



For GO-GU with second guidance collar
For LO-LU only for static loading







Calculations

Permissible side loading F_S [kN] on the spindle due to compressive loads

Buckling safety factor:

Tetmajer: 3...4

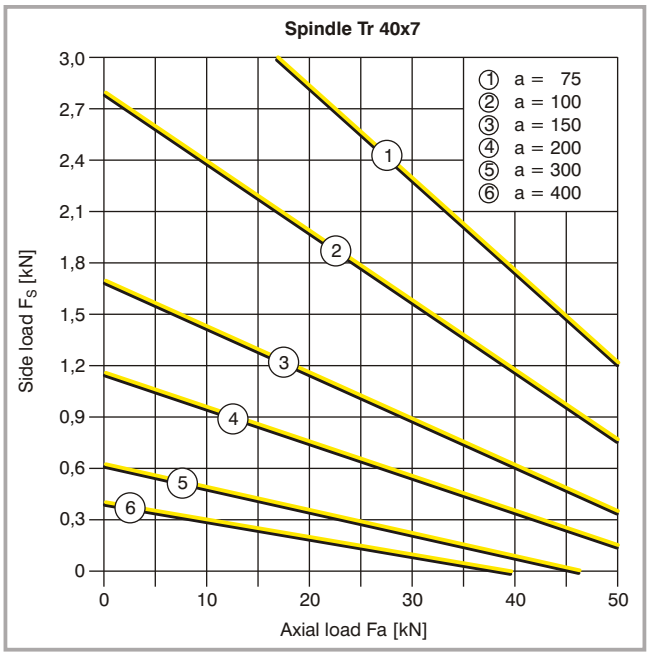
Euler: 4

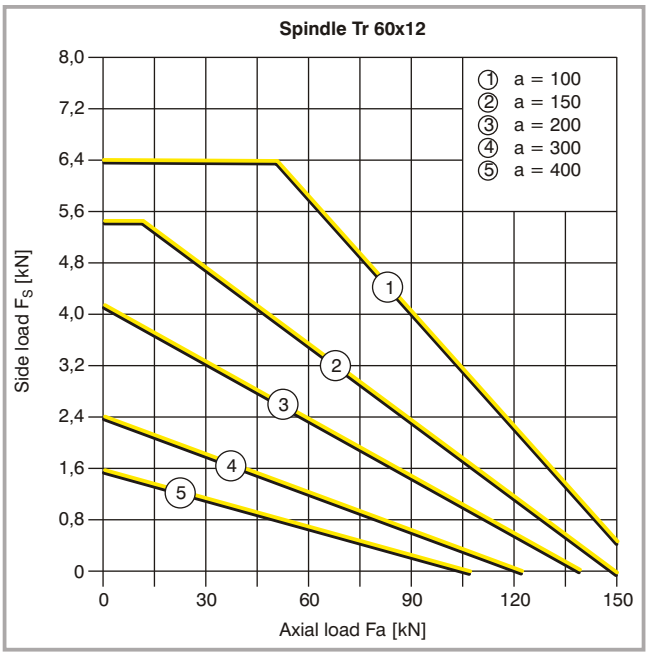
Comparative stress:

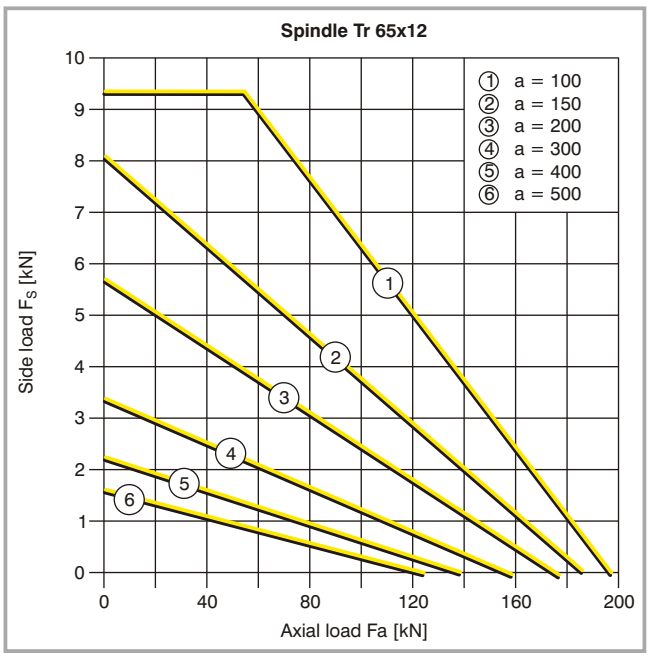
$$\sigma_{Vmax} < \sigma_{Vperm.}$$

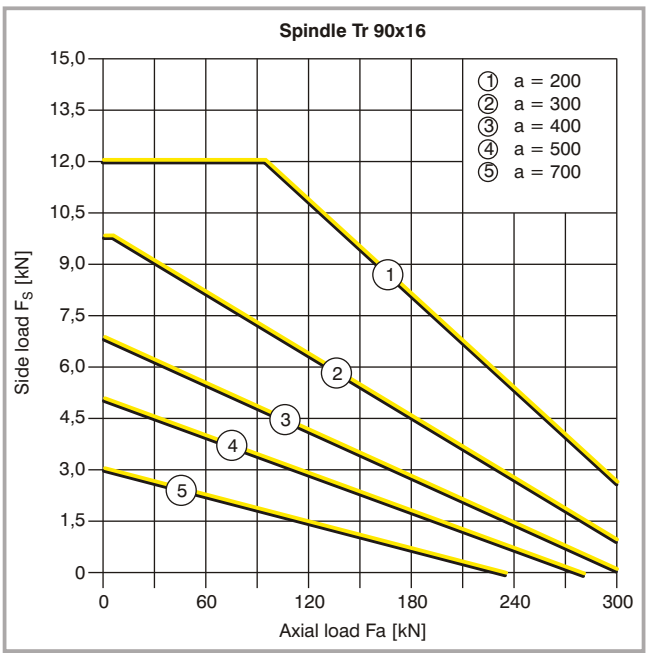
$$\sigma_V = \sqrt{(\sigma_B + \sigma_D)^2 + 3\tau_t^2}$$

Important:
The permitted side load F_s acting via the spindle to the running nut leads to increased edge pressure in the actuating spindle. Wear is increased and life reduced. If in doubt consult our engineers!









Calculations

Permissible side loading F_S [kN] on the spindle due to compressive loads

Buckling safety factor:

Tetmajer: 3...4

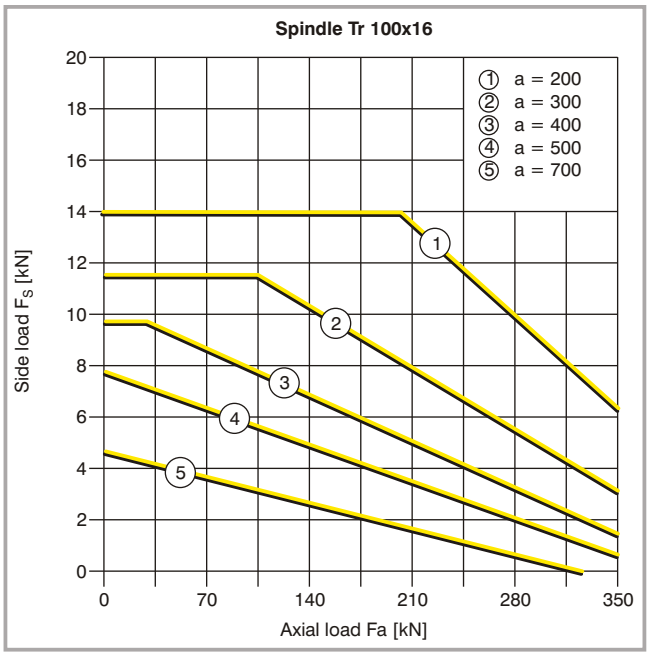
Euler: 4

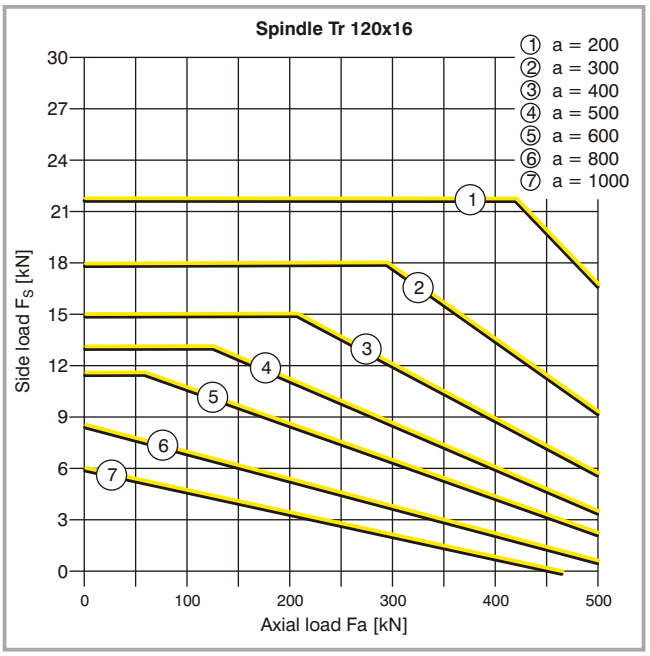
Comparative stress:

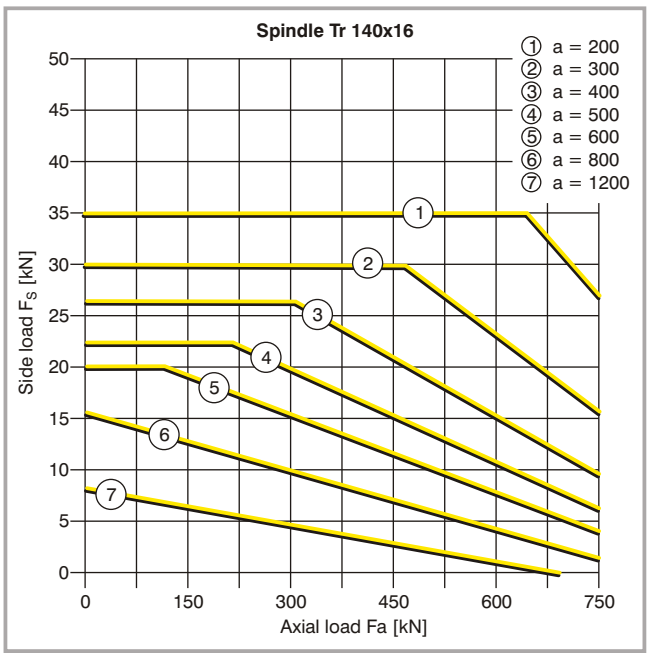
$$\sigma_{Vmax} < \sigma_{Vperm.}$$

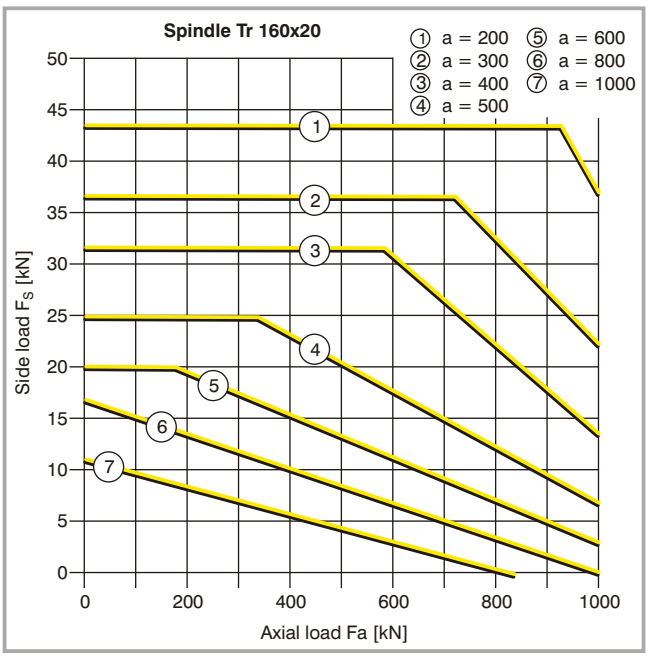
$$\sigma_V = \sqrt{(\sigma_B + \sigma_D)^2 + 3\tau_t^2}$$

Important:
The permitted side load F_s acting via the spindle to the running nut leads to increased edge pressure in the actuating spindle. Wear is increased and life reduced. If in doubt consult our engineers!





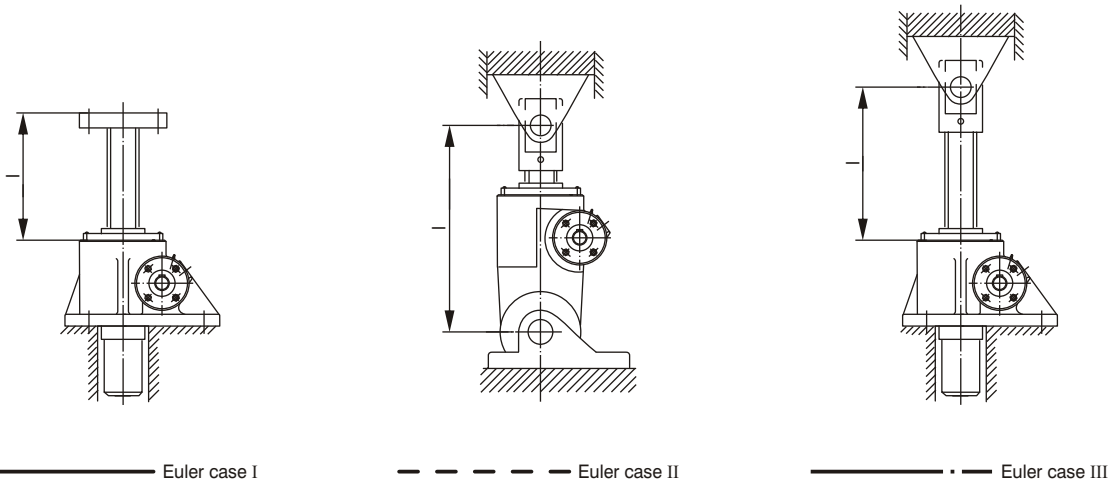


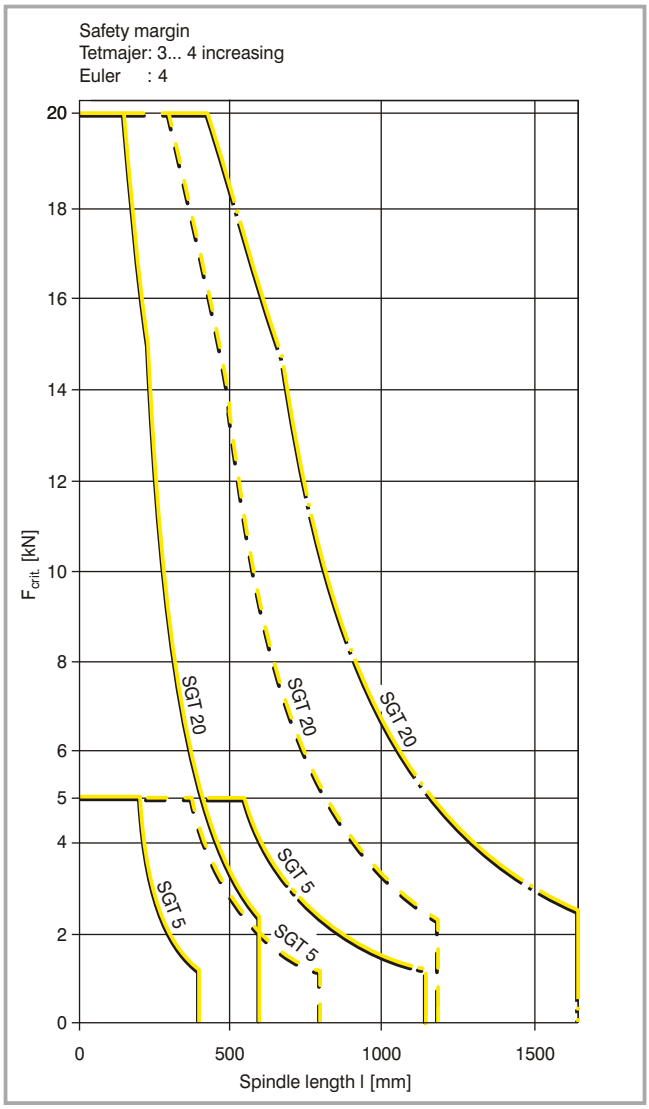


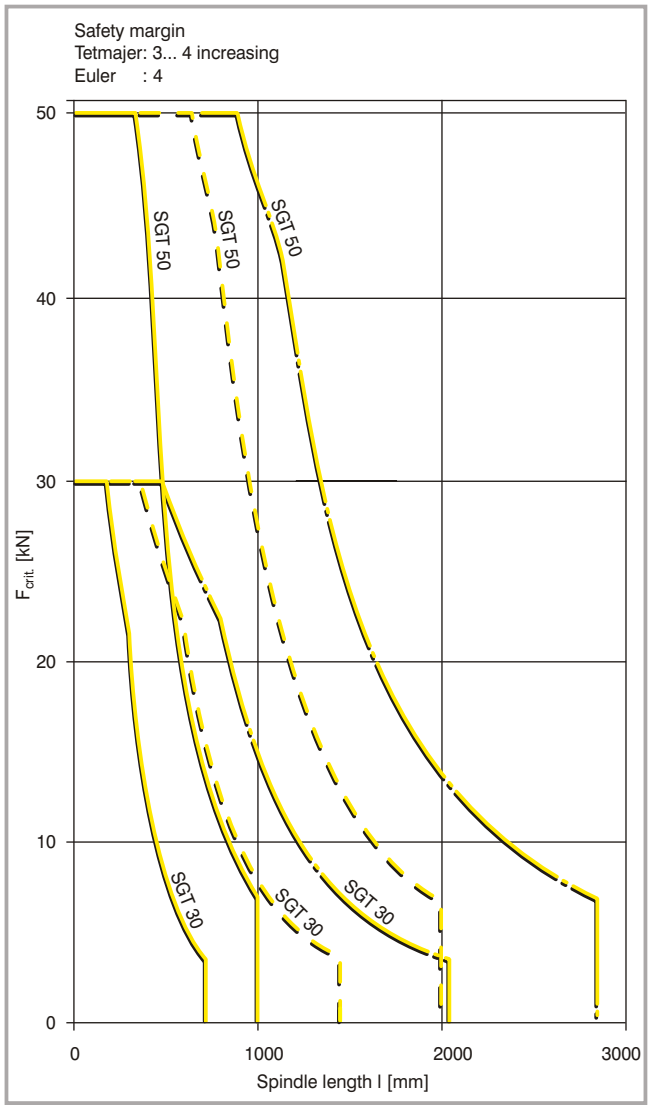
Calculations

Critical buckling loads $F_{crit.}$ [kN] on the spindle

Under compressive loading slim spindles tend to buckle. For this reason all compressively loaded spindles must be checked for permitted axial loading.

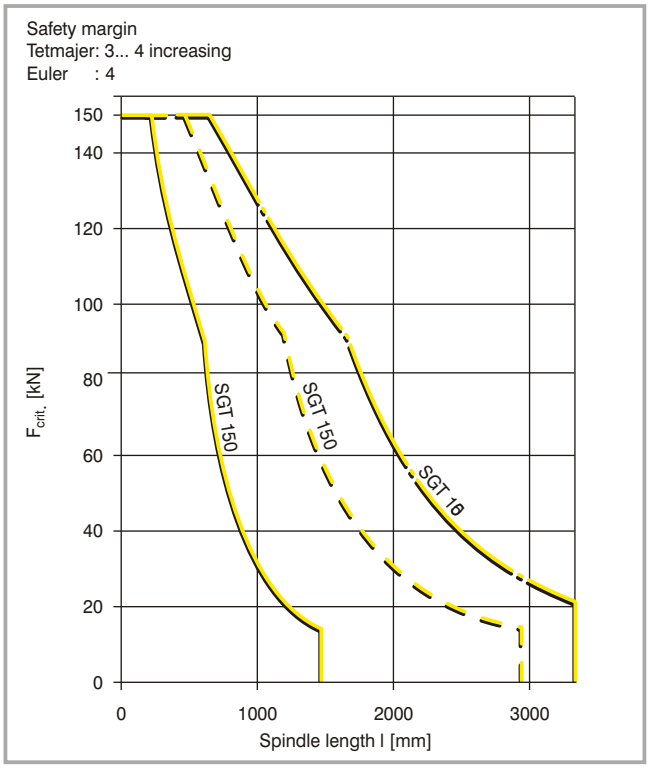


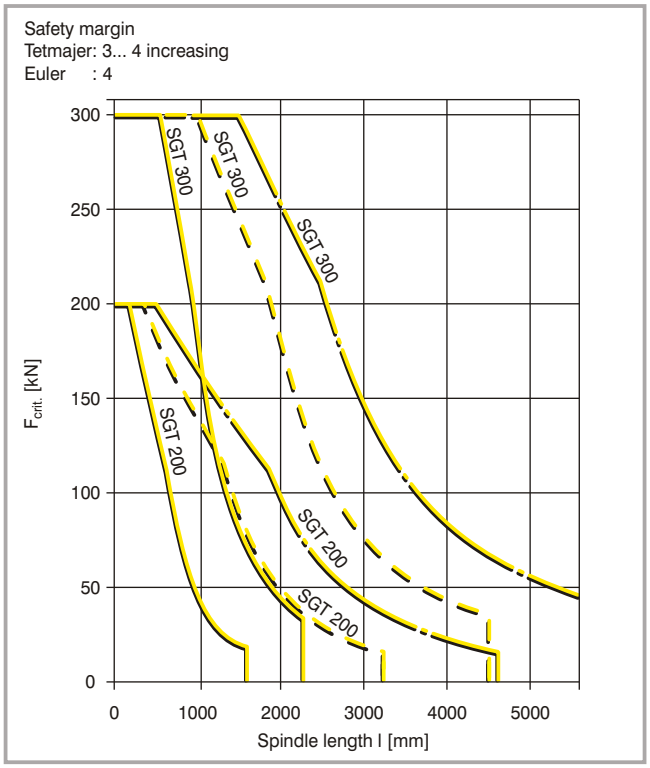


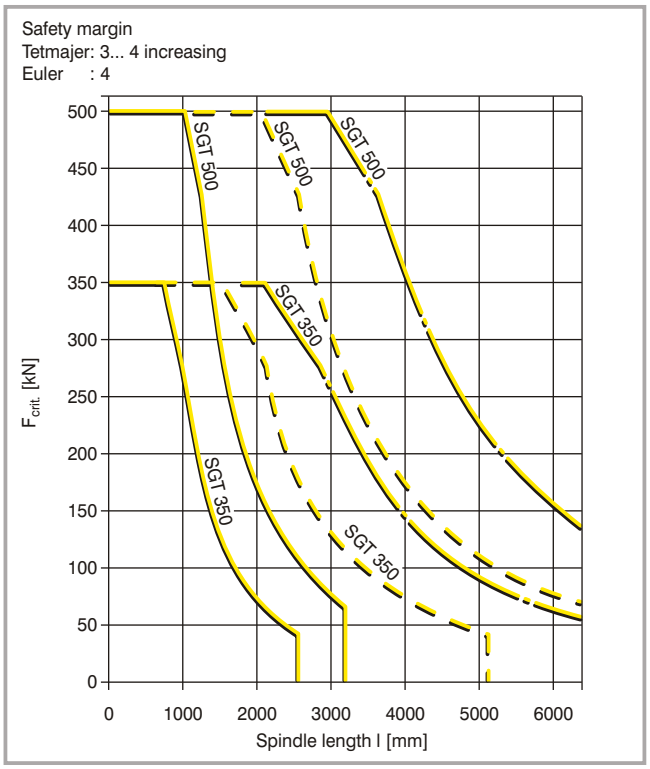


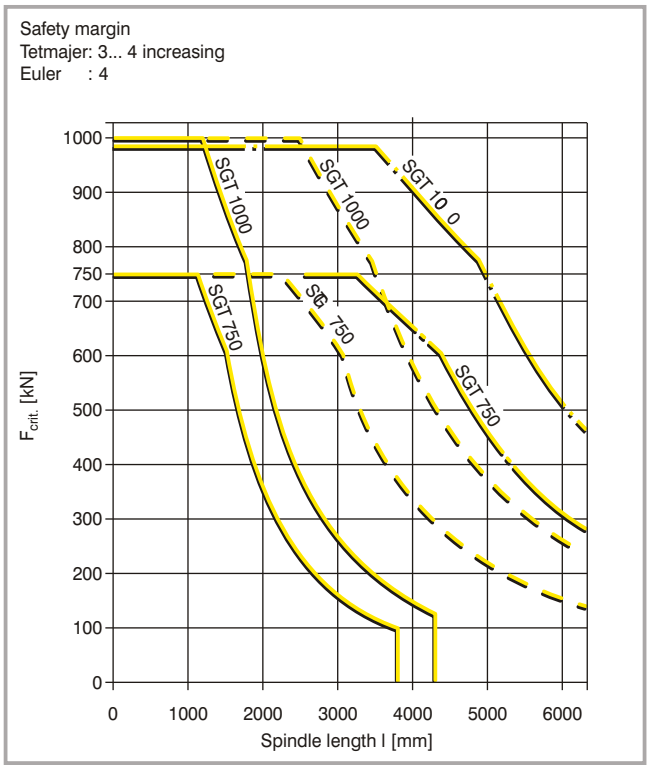
Calculations

Critical buckling loads $F_{crit.}$ [kN] on the spindle









Gear housing material

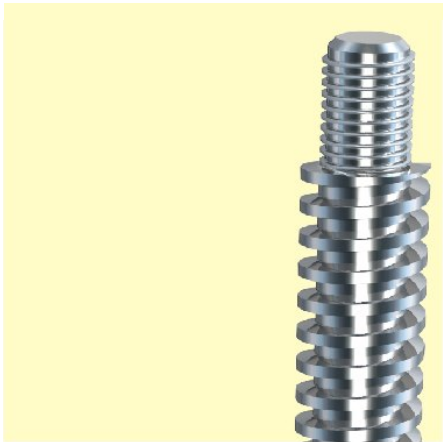
Selection table

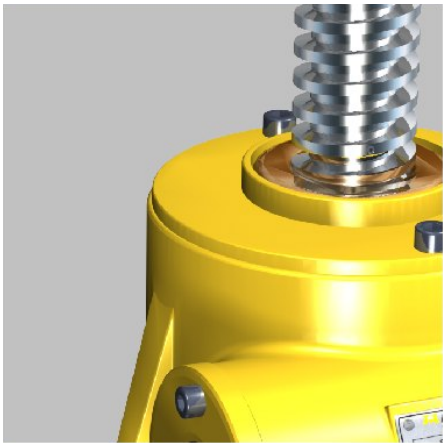
Gear housings for ALBERT-screw jacks are manufactured from the best possible materials. Alongside the standard materials there are a number of other options. If the adjacent table does not contain the material you require, please ask.

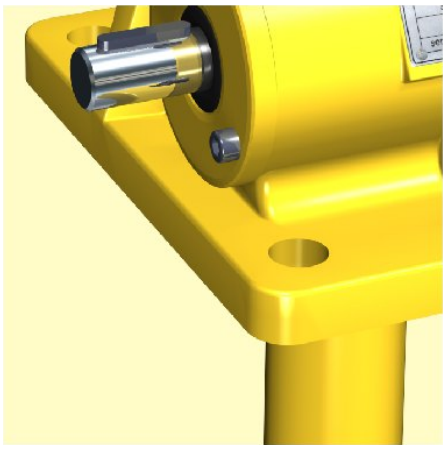
● - standard
○ - option
— - not possible

Screw jack size	Al 1)	GG 2)	Inox / VA 3)	St 4)	GS 5)	GGG 6)
SGT 5	●	●	●	○	—	—
SGT 20	—	●	—	○	—	—
SGT 30	—	●	●	○	—	—
SGT 50	—	●	●	○	●	—
SGT 150	—	—	●	○	●	—
SGT 200	—	—	●	○	●	—
SGT 300	—	—	●	○	●	—
SGT 350	—	—	●	○	—	●
SGT 500	—	—	—	○	●	—
SGT 750	—	—	—	○	●	—
SGT 1000	—	—	—	○	●	—

1) Aluminium
2) Grey cast iron
3) Corrosion resistant version
4) St 52
5) Cast steel
6) SG iron





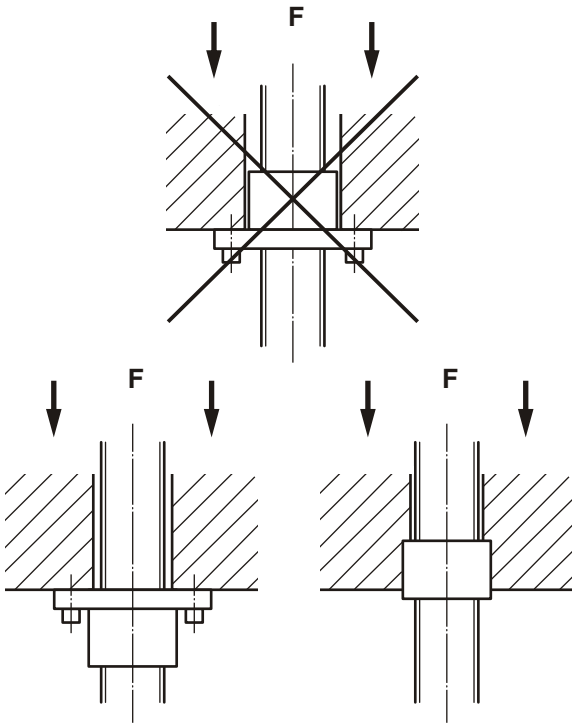


Installation and maintenance

Assembly

For ease of installation, ensure machined mounting faces are provided with through bored holes.

Important:
It should be ensured, wherever possible, that spindle nut fixing screws are compressively loaded.



The screw jack should be aligned using a spirit level. Parallel alignment between the lifting system and the guide mechanism must be carefully checked.

Screw jacks systems should be checked for twisting and for tight spots. To check this the lifting system should be actuated by hand over the entire stroke. The force required should be light and even.

The direction of rotation of the screw jacks should be carefully checked.

Before test running the spindle(s) must be cleaned and if possible sprayed with an aerosol grease lubricant over the entire stroke length.

When test running:
1. Check the function and position of any limit switches.
2. Test the lifting system initially without load if possible.
3. Increase the load incrementally, checking for any hot spots and for gearbox temperature rise.
4. Check the tightness of all screwed connections.

Important:
Do not exceed the permitted loads, duty and input speeds.

Failure to observe this will invalidate your guarantee.

Maintenance of SGT 5 to SGT 1000

The spindle should be regularly cleaned and relubricated. Every 500 operating hours or every 18 months the grease in the gear housing should be replaced.

1. Dismount the screw jack and clean.
2. Disassemble the spindle and spindle protection tube. (only for translating spindle)
3. Remove locking screw for gear housing cover.
4. Wash out the gear housing and components with a suitable wash medium.
5. Refill with **grease** according to the table below.

When carrying out maintenance, check wear on the spindle nut. Measure the **axial play** between the spindle and the nut. The maximum values are shown in the table.

If the maximum values have been exceeded the gear unit must be overhauled. Ideally return to ALBERT for restoration to functional condition.
After checking the wear the unit should be re-assembled by a fitter. Check carefully that rotation is smooth and light and free from axial play.

This is a short version of recommended maintenance. With each order acknowledgement the current version of the complete installation and maintenance instructions will have been provided.

Order code	Grease quanitity [kg]	max. axial play [mm]
SGT 5	0,1	1,5
SGT 20	0,2	1,5
SGT 30	0,2	1,5
SGT 50	0,3	1,75
SGT 150	0,5	3,0
SGT 200	0,7	3,0
SGT 300	1,0	4,0
SGT 350	1,8	4,0
SGT 500	2,0	4,0
SGT 750	4,0	4,0
SGT 1000	4,0	5,0

Recommended greases:
The screw jack is factory filled with rhenus LZN 2 which complies with DIN 51502:

KP
2K-25

Questionnaire

for quotation purposes

Our checklist can be found on our homepage **www.ALBERT.at**
Category: Screw jacks / SGT high performance screw jack
Please either complete this online or
download this as a word document.

Company: .....

Department: ..... Contact: .....

Date: ..... Tel.: ..... Fax.: .....

Address: .....

Project: .....

Loads:

No. of screw jacks in system: .....

Axial load				
	Total system		Per spindle	
	dynamic [kN]	static [kN]	dynamic [kN]	static [kN]
Compressive load				
Tensile load				

Type of loading:

☐ steady ☐ oscillating ☐ shock ☐ increasing ☐ vibrating

Stroke:

Stroke length [mm] ..... Lifting speed [m/min]: .....

Application information:

Usage per day in hours ☐ 8 ☐ 16 ☐ 24 ☐									
Working cycle: actual in ☐ sec. ☐ min.									
Lifting									
Lowering									
Idle									
Total cycle time									
ED per cycle in %									
Cycles per working day									

Example:

Usage per day in hours ☐ 8 ☐ 16 ☐ 24 ☐									
Working cycle: actual in ☒ sec. ☐ min.									
Lifting	4								4
Lowering			2		2				4
Idle		10		10		12			32
Total cycle time									40
ED per cycle in %									20
Cycles per working day									10

Operational conditions:

Environmental temperature from °C ..... to °C .....

☐ dry ☐ humid ☐ dusty (define material): ..... ☐ other effects: .....

Details about the planned location and attitude

Attitude: ☐ 1 (upright) ☐ 2 (inverted) ☐ 3 (wall mounted)

Spindle guidance: ☐ without guidance ☐ with guidance

Requirements:

Number of sets: ..... Quantity per year: .....

Required delivery: .....

Accessories: Please indicate the accessories required on the next page!

For the best design please provide a drawing!

Questionnaire

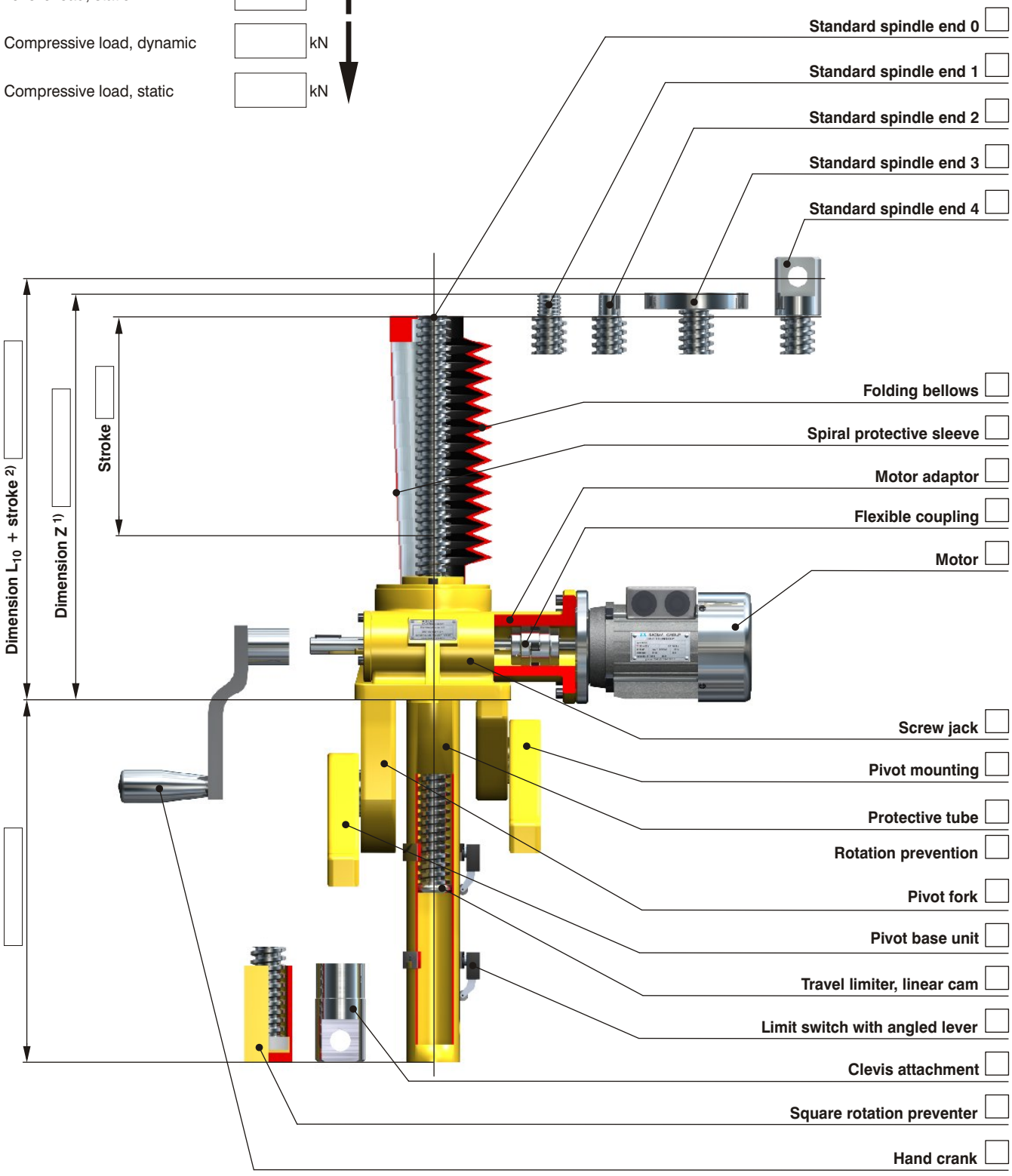
Accessories for basic design GO (translating spindle)

Tensile load, dynamic ☐ kN

Tensile load, static ☐ kN

Compressive load, dynamic ☐ kN

Compressive load, static ☐ kN



1) Dimension Z = underside of gear housing to end of standard spindle 1, 2 and 3
2) Dimension L_{10} + stroke = underside of gear housing to centre of clevis bore standard spindle end 4

Questionnaire

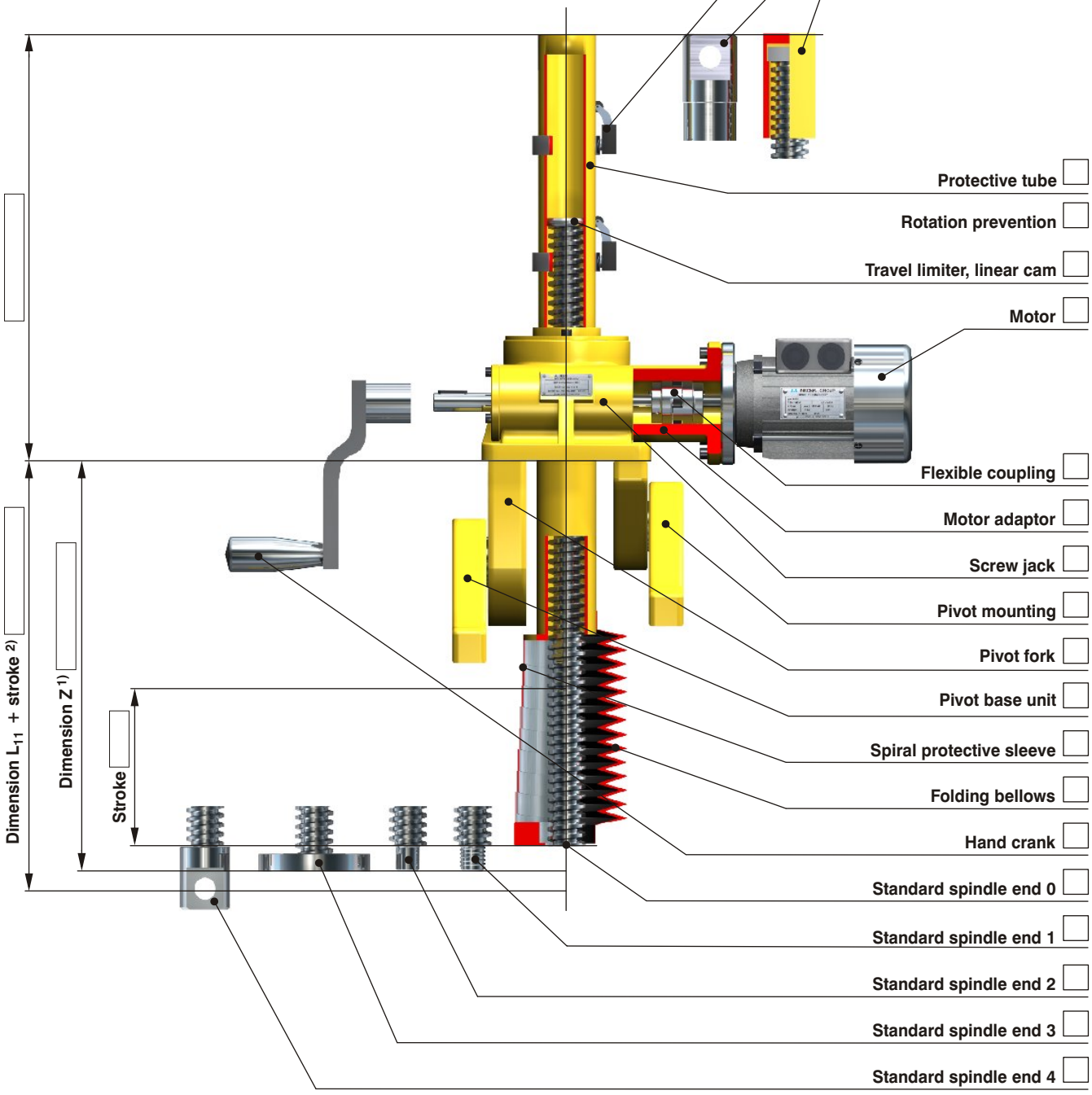
Accessories for basic design GU (translating spindle)

Tensile load, dynamic ☐ kN

Tensile load, static ☐ kN

Compressive load, dynamic ☐ kN

Compressive load, static ☐ kN



1) Dimension Z = underside of gear housing to end of standard spindle 1, 2 and 3
2) Dimension L_{11} + stroke = underside of gear housing to centre of clevis bore standard spindle end 4

Questionnaire

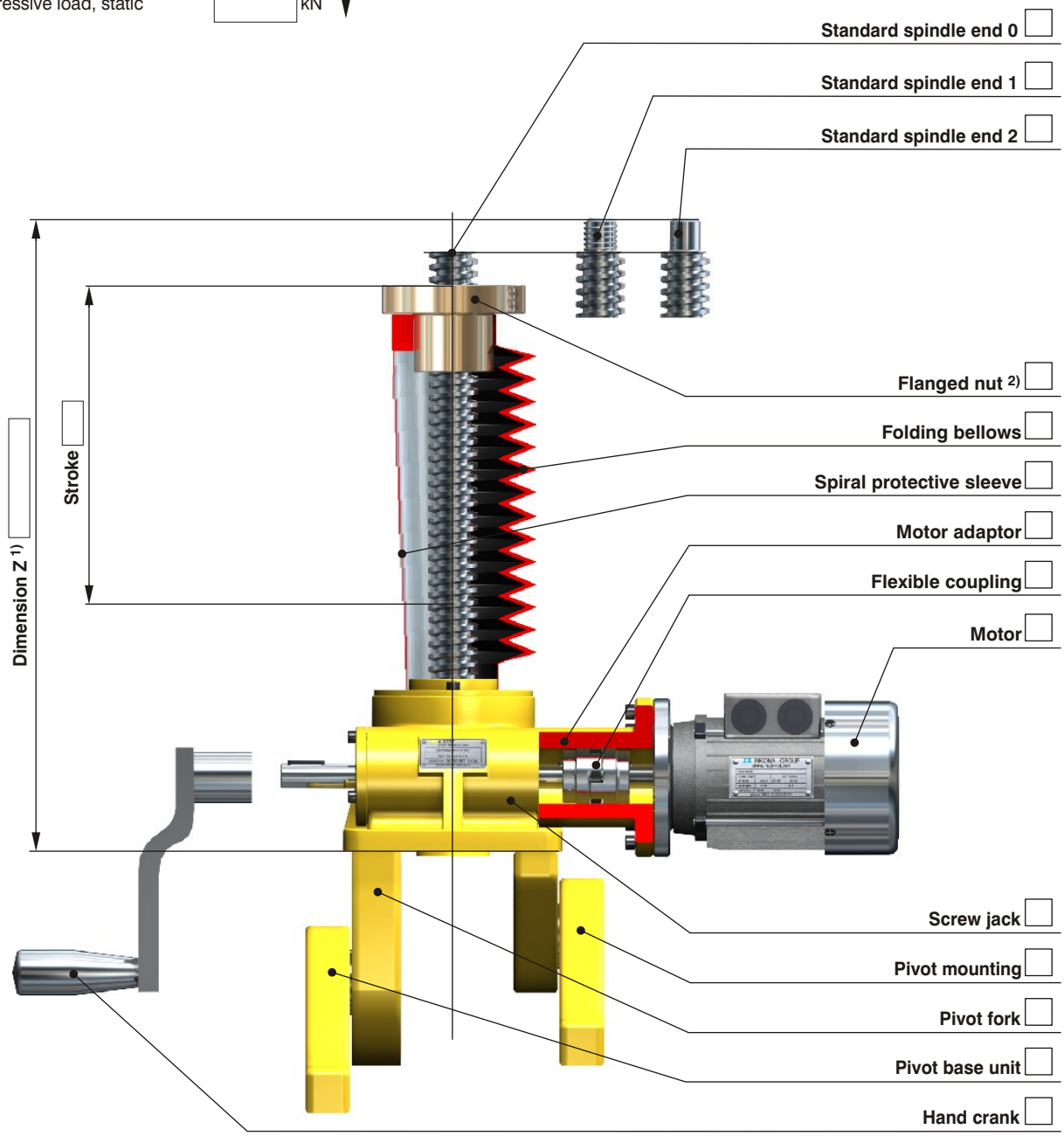
Accessories for running nut design LO (rotating spindle)

Tensile load, dynamic ☐ kN

Tensile load, static ☐ kN

Compressive load, dynamic ☐ kN

Compressive load, static ☐ kN

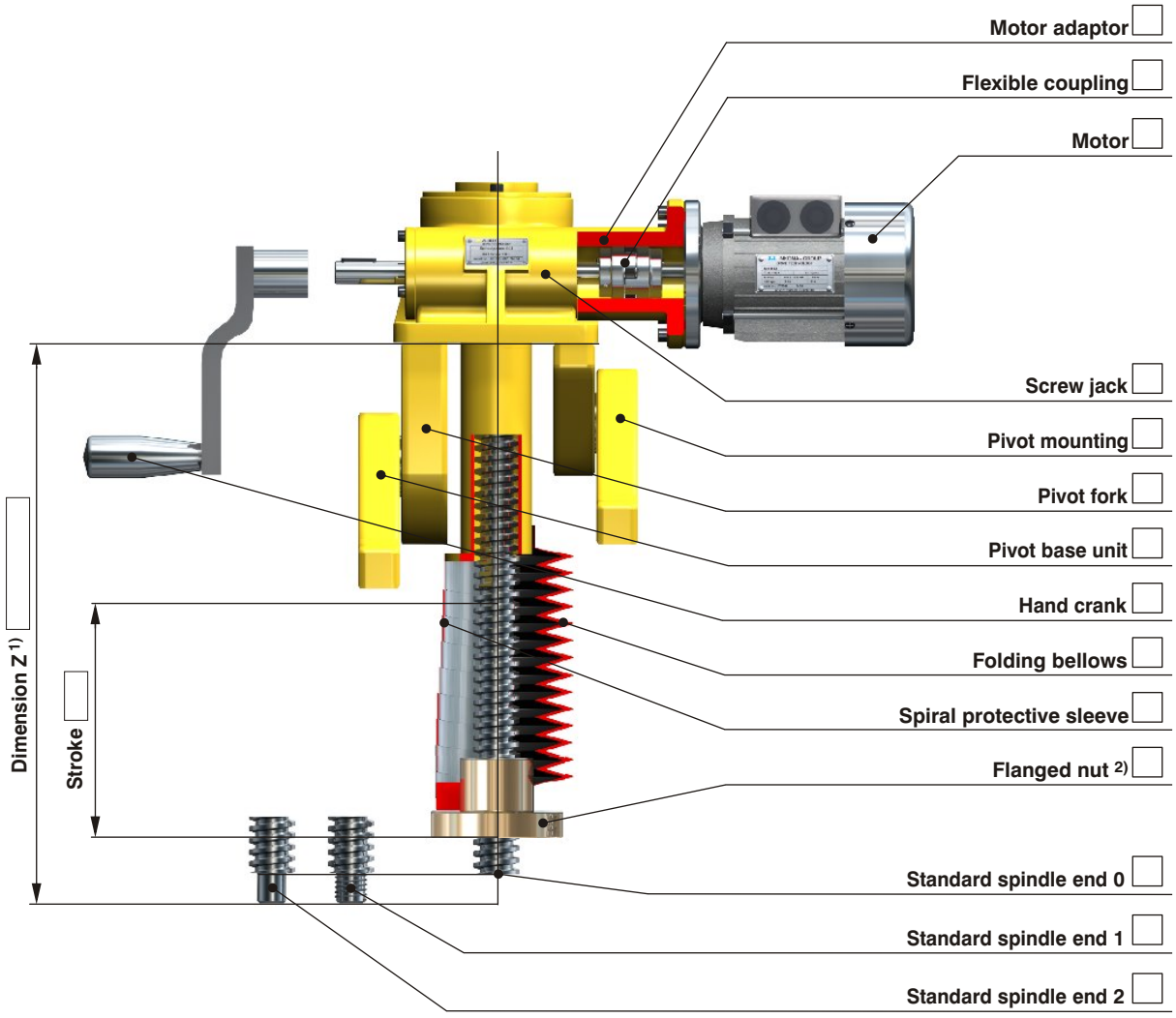


1) Dimension Z = underside of gear housing to end of spindle
2) For further versions see category “Accessories for SGT screw jacks”.

Questionnaire

Accessories for running nut design LU (rotating spindle)

Tensile load, dynamic		kN
Tensile load, static		kN
Compressive load, dynamic		kN
Compressive load, static		kN

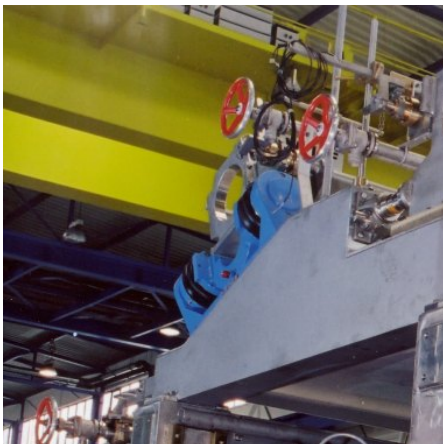


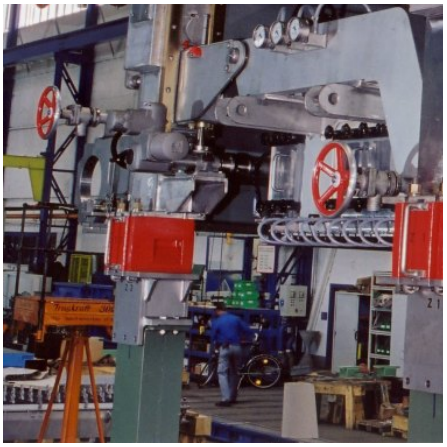
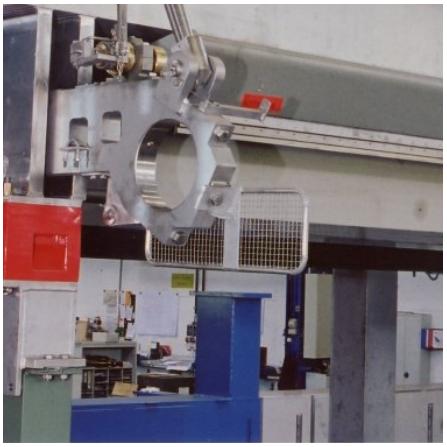
1) Dimension Z = underside of gear housing to end of spindle
2) For further versions see category “Accessories for SGT screw jacks”.

Application examples

Screw jacks system for paper industry

SGT 150 GO configuration (reference customer Hermes PM5), completely rust proof, yellow paint

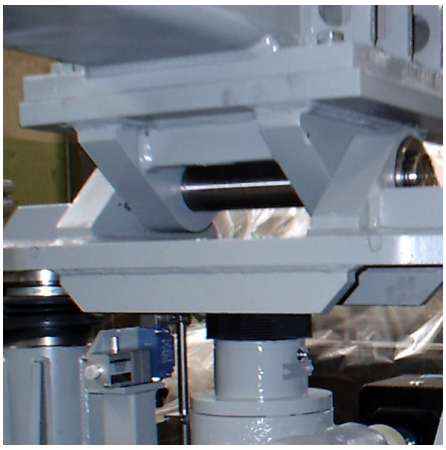


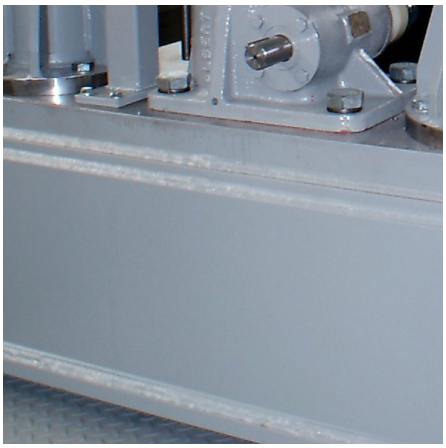




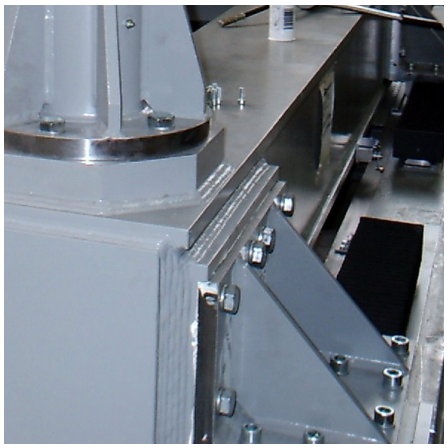

Application examples

Welding fixture

**Welding fixture with screw jack system SGT 300,
integrated safety nut for both tensile and compressive loading**







Special version

**Screw jack SGT 1000
special version,
with integral guidance tube,
stroke 2000mm**