

DSH Screw jack



INKOMA - GROUP

INKOMA ALBERT A-I-M

Product description

DSH screw jack

Conventional screw jack applications consist of one or more screw jacks. Usually they are driven by one electric motor and typically connected via drive shafts or couplings resulting in efficiency losses within the drive train.

Screw jacks fitted with worm/wormwheel or bevel gear sets often reach their maximum limit when operating with high duty cycles or high linear speeds. These are two of the main reasons for the development of our new quiet and efficient lifting system. After a long development program with the support of local universities the new DSH screw jack has been created.

The INKOMA-DSH screw jacks have no internal gear system. Instead a special Torque motor is used to directly drive the ballscrew spindle resulting in smooth backlash free rotation. In the DSH system there are virtually no mechanical losses. Specially selected bearings ensure the spindle can withstand both tensile and compressive loads. The compact drive unit has a rigid construction and is suitable for high dynamic applications. Cycle times of 7 cycles per second and lifting speeds of 32m/min are achievable. Repeatable positioning accuracy is also very high. The DSH-units can be synchronised when working together within a system, allowing the screw jacks to be positioned at different levels within the application.

The DSH-system has high energy efficiency. During operation the torque motor is used to control the speed and hold position of the ballscrew spindle. An integrated brake is also available for increased safety. The spindle can be mounted on either side of the DSH unit.

The DSH unit is available with a complete control system. Alternatively other manufacturers equipment can also be specified.

In addition to the basic versions, customer specific executions are also possible e.g. spindle diameter, spindle pitch, mounting dimensions. Please contact us with your special requirements.



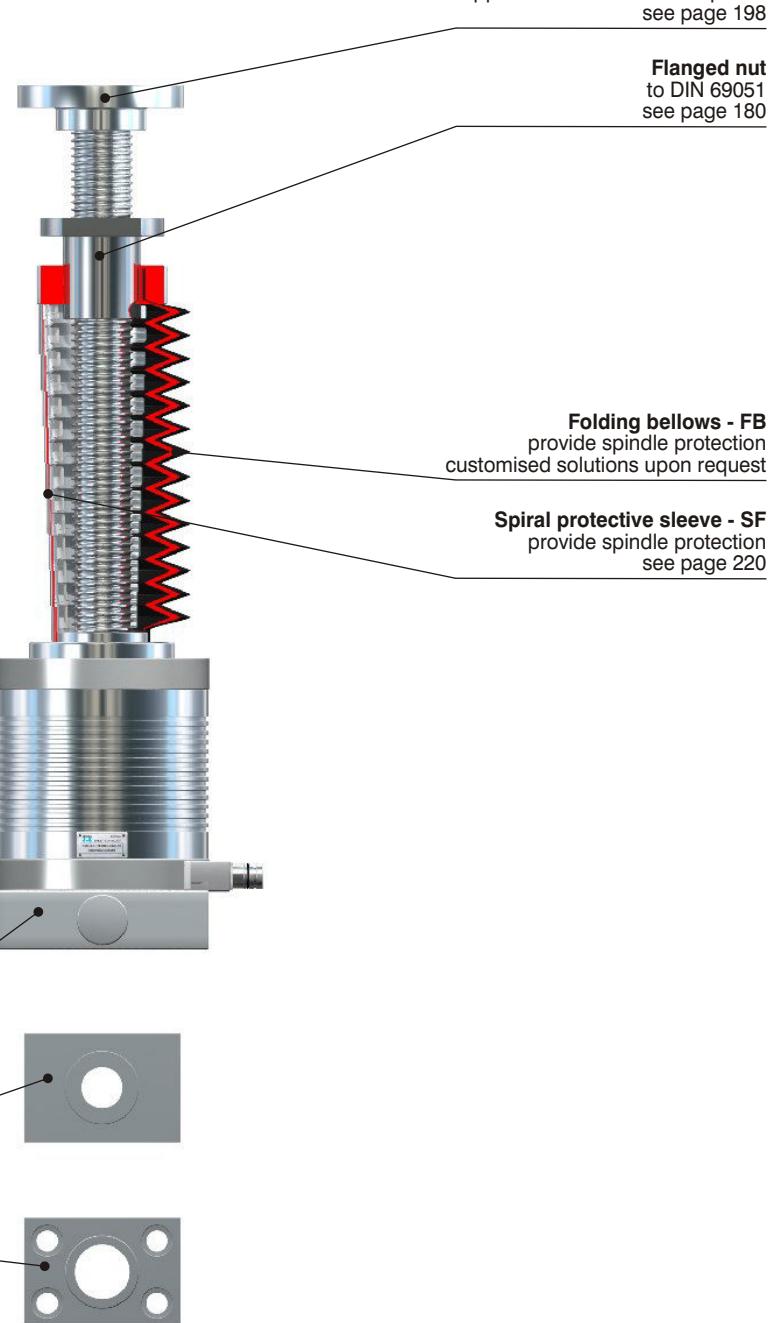
Accessories for rotating spindle version R

Page references

The comprehensive range of accessories for high capacity screw jacks type DSH allows the designer the flexibility to tailor the use of the screw jack precisely to the application. All accessories are manufactured to the same exacting standards as the rest of the INKOMA product range.

In addition to this comprehensive selection, customers special requirements can be accommodated.

Please consult our engineering staff.



Accessories for translating spindle versions SA, SVA

Page references

Clevis - GK
for simple attachment
of the spindle end
see page 204



Rod end bearing - GSK
for simple attachment
of the spindle end
see page 202

Mounting flange - BF
for simple attachment
of the spindle end
see page 202

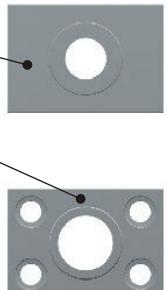
Spiral protective sleeve - SF
provide spindle protection
see page 220

Folding bellows - FB
provide spindle protection
customised solutions upon request

Trunnion adaptor - KA
allows articulating fitting of flanged nut
customised solutions upon request

Bearing block - LB
base mounting bearing unit for KA
customised solutions upon request

Bearing flange - LF
base mounting bearing unit for KA
customised solutions upon request



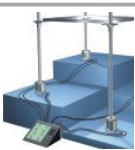
Contents list

DSH screw jacks with rotating and translating spindle



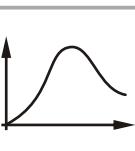
Versions

rotating version (R)
translating version (SA, SVA)



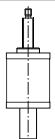
Technical information

requirements, advantages and application areas
comparison between DSH and HSG lifting units



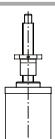
Selection DSH screw jack

selection of the DSH and the spindle (pitch)



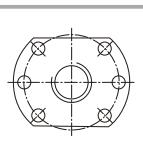
Dimensions DSH-1 to DSH-5

ball screw spindle,
translating version (SA, SVA)



Dimensions DSH-1 to DSH-5

ball screw spindle,
rotating version (R)



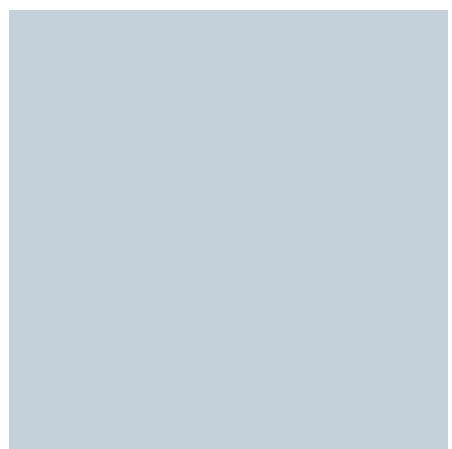
Flanged nut dimensions

flanged nut to DIN 69051 for ball screw spindle
rotating version (R)

-
1.
 2.
 3.
 - ...

DSH questionnaire / accessories

for quotation purposes
accessories for translating version (SA, SVA)
accessories for rotating version (R)



Versions

Rotating and translating spindle

Two versions exist:

- Rotating version
- Translating version

For both versions ballscrew spindles (KGS) are used.

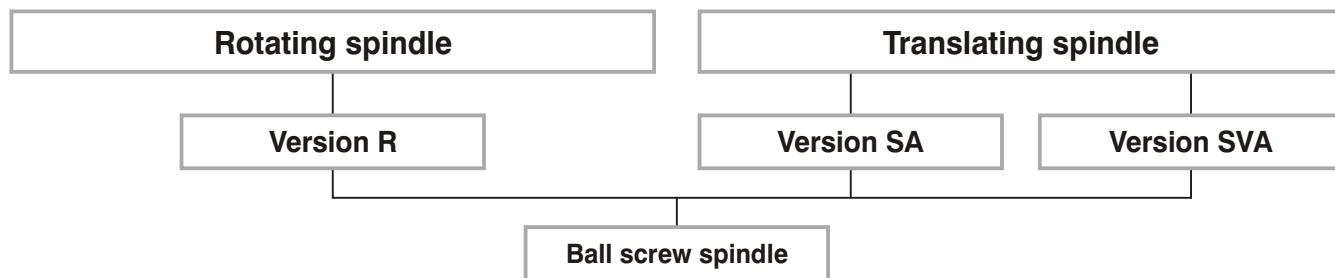
Rotating version (R):

In rotating version (R) the ballscrew spindle is fixed in the rotor of the DSH-unit. Linear motion of the nut results from rotation of the spindle.

Translating version (SA, SVA):

In translating version (SA, SVA) linear lifting motion results from the movement of the non rotating spindle through a special rotating integral nut. The spindle is guided through the DSH unit and must not be allowed to rotate. This can be done by customers design, e.g. with a guide. Otherwise if this is not possible spindle rotation can be prevented by the use of an anti-turn device (version SVA).

Over-travel of the spindle is prevented by a travel limiter (version SA).



Technical information

Requirements, advantages and application areas

Requirements for the DSH-system

- Fast cycle times and high duty applications
(e.g. testing machines, packaging machines, printing machines)
- High lifting speed with large lifting forces
(e.g. machine tools, woodworking machines, special purpose machines)
- Large centre distances between spindles and different height levels between lifting units
(e.g. entertainment equipment, theatre lifting system)
- Backlash free and repeatable high positional accuracy
(e.g. testing machines, machine tools, printing machines, special purpose machines)
- Different load factor between lifting units
(e.g. working platforms, stage lifts)



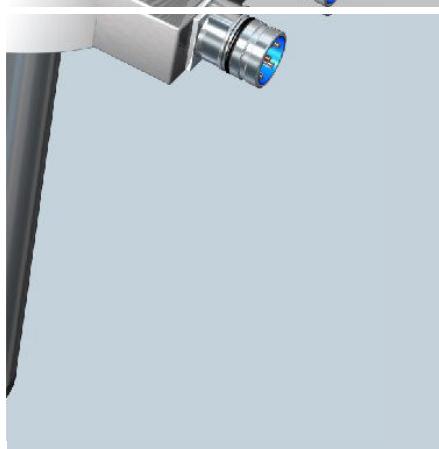
Advantages of the DSH screw jack

- Backlash free and repeatable high positional accuracy
- Lifting speeds of 32m/min (standard) are achievable with a lifting force of 100 kN
- Variable speed capability with programmable ramps for acceleration and deceleration profiles
- High torque and power from extremely compact dimensions
- Minimal maintenance is required to lubricate the ballscrew spindle
- Simplified machine construction, easier installation any operation
- High power efficiency
- Continuous-running operation (ED 100%) is possible
- Available with integrated brake
- Fast cycle times and high duty applications
- It is possible to use more than one DSH screw jack on one spindle



Applications for HSG-screw jacks and DSH-units

- | | |
|--------------------------------------|--|
| • Testing machines | • Foundries and roller plants |
| • Production facilities | • Food industry |
| • Plant engineering and construction | • Stage lifts |
| • Printing industry | • Solar energy plant |
| • Special purpose machinery | • Working platforms, lifting platforms |
| • Woodworking machines | • Paper industry |
| • Plastics industry | |
| • Packaging machines | |

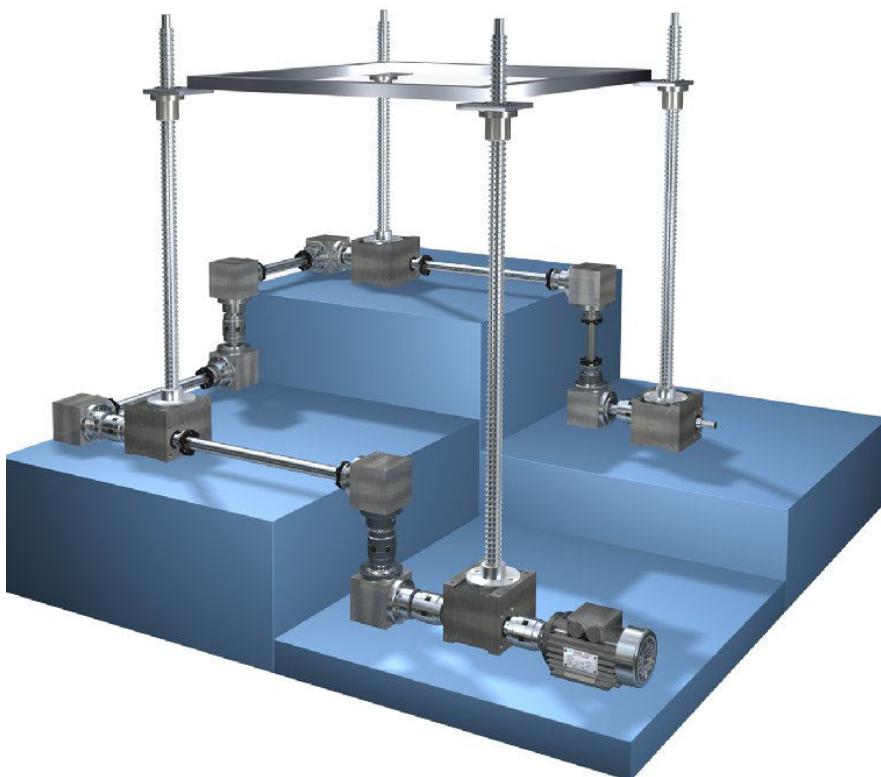


Technical information

Comparison between DSH and HSG lifting units

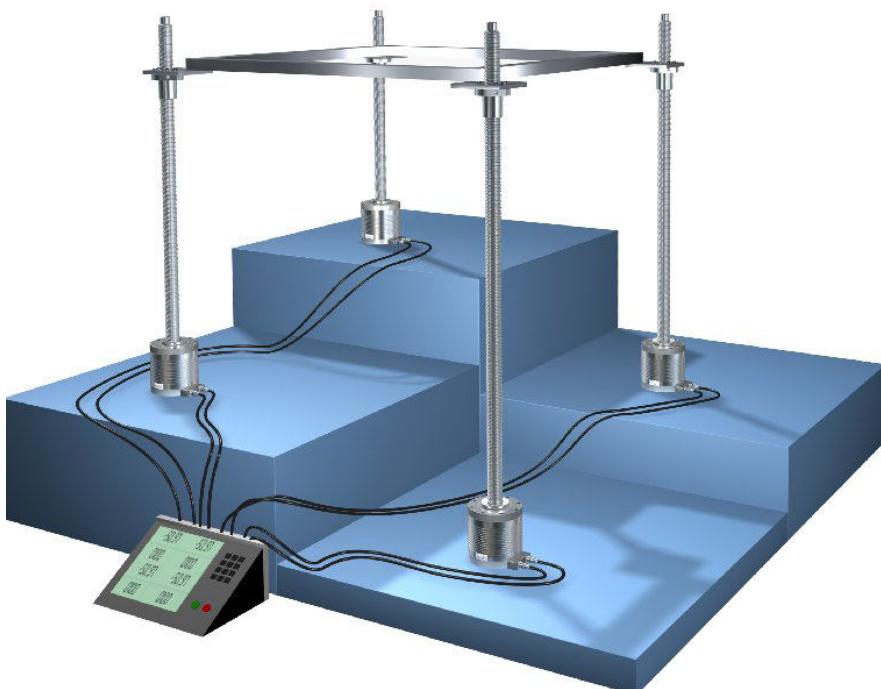
Conventional screw jack application (HSG)

For applications with different height levels between lifting units and when using conventional screw jacks like our HSG range, it is usually necessary to use bevel gearboxes and cardan shafts to connect each screw jack and transmit torque. This method may cause backlash to be present within the system and can mean that all of the screw jacks are not moving at the same time and therefore accurate parallel lifting of the load is not possible.



DSH -System

The DSH units can be synchronised when working together within a complete lifting system. Different height levels can be compensated for due to the positional control functionality. This also ensures exact parallel movement is possible regardless of the distance between each DSH unit. Repeatable positioning accuracy is also very high and unevenly distributed loads can be accommodated.



Selection

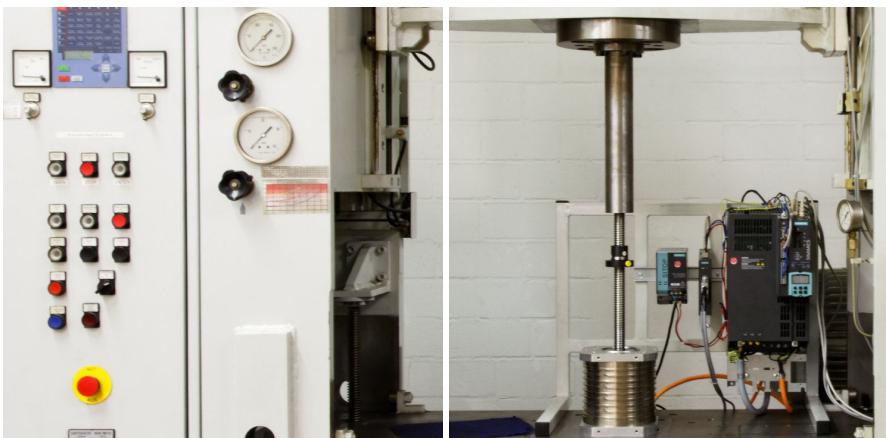
DSH screw jack

Method:

1. **Preselection** of the DSH-unit with the max. static lifting load F_{stat} .
(see page 177, 179)

2. **Selection** of the DSH and the spindle (pitch) with the graph
(see page 175)

See example shown below right.



DSH - testing machine

Explanations of the graphs:

The graphs are valid for air cooled motors. The lifting force and lifting speed are dependent on the duty cycle.

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

Lifting		4s						4s
Lowering				2s		2s		4s
Idle			10s		10s		12s	32s
Total cycle time							40s	
ED per cycle in %							20%	
Cycles per working day							10	

Example for the duty cycle

Explanation of the graph:

Looking at duty graph 2 (DSH-3-KGS-32x10) the maximum operating conditions to obtain 100% duty (ED100) are a 7,8kN lifting force with a lifting speed of 4m/min. Therefore lines to each axis can be drawn from these maximum values to produce a rectangle (area shaded dark blue) to show the continuous (ED100) operating area. The same principle can be applied to the maximum values shown for 20% duty (ED 20) to produce the operating rectangle (area shaded light blue). In this way full data can be obtained to find the maximum operating duty, speed or lifting force for any point on the operating duty line.

Example :

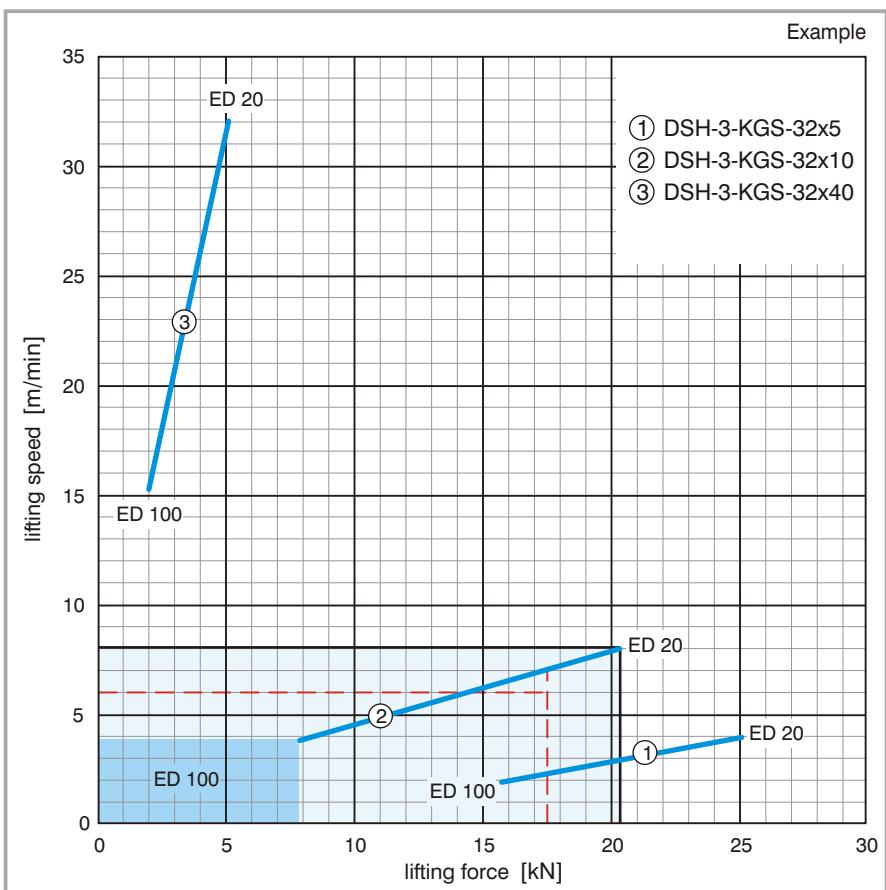
Which standard spindle is suitable for a lifting load of 11 kN and duty ED of 40 %/h ?

- The result of the preselection is DSH-3 (see page 177, 179)
- Required lifting speed is 6 m/min

The graph shows:

With a lifting speed of 6 m/min and ED of 40 %/h a lifting load of 17 kN is possible.

Selection of the DSH: DSH-3-KGS-32x10

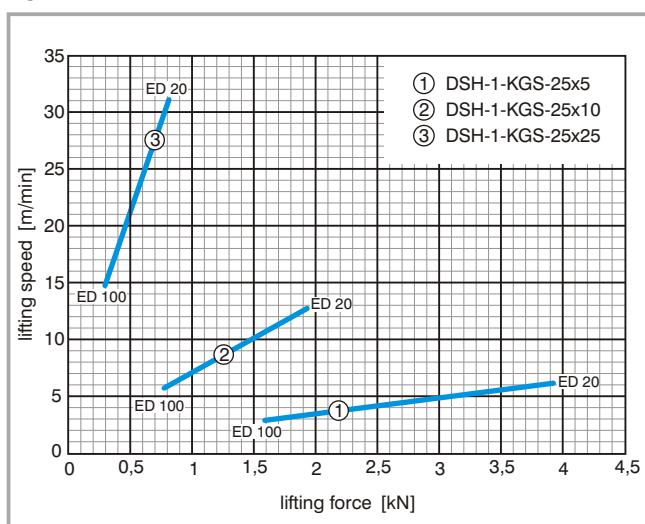




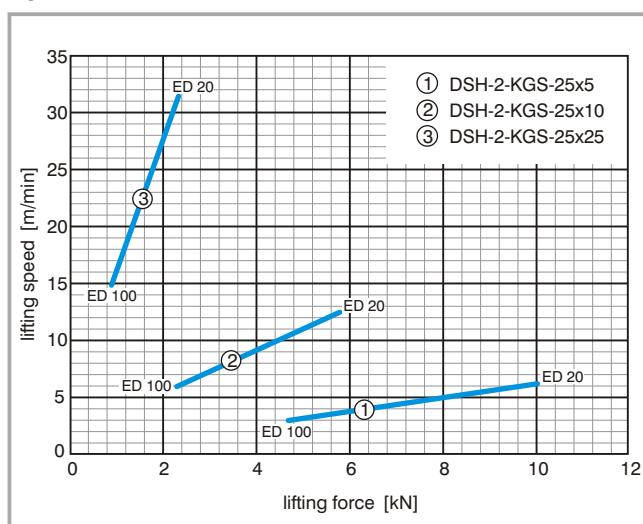
Selection

Selection of the DSH and the spindle (pitch)

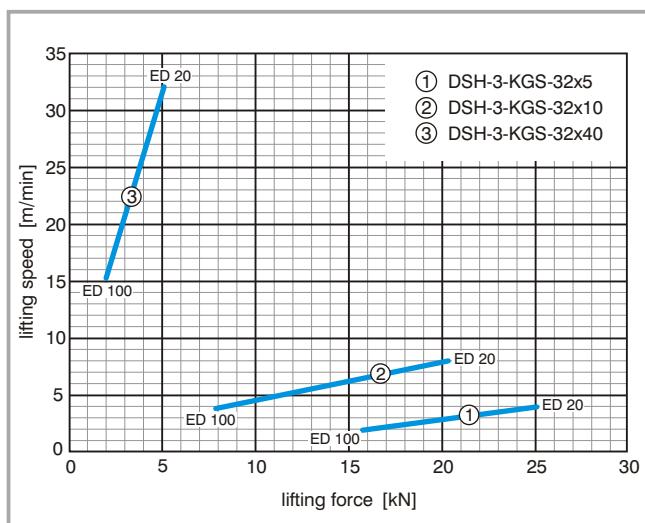
DSH-1



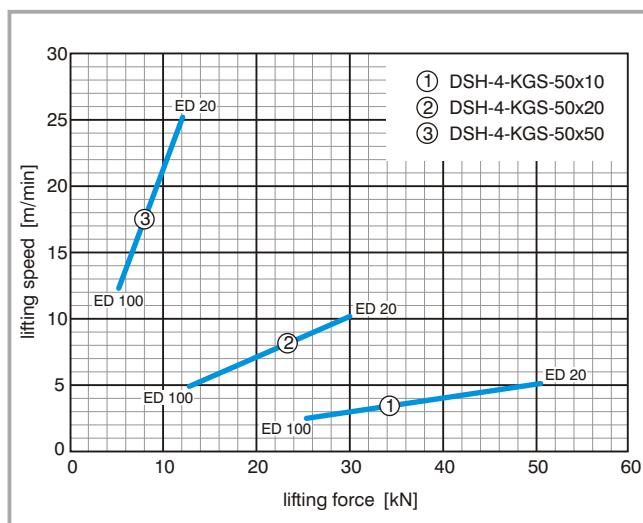
DSH-2



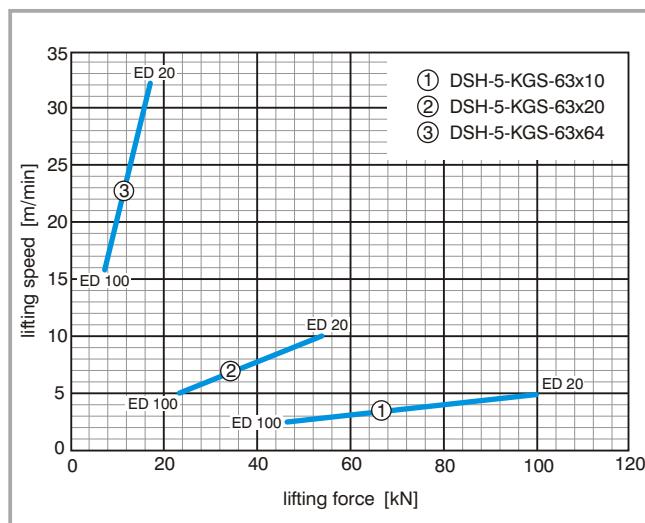
DSH-3



DSH-4



DSH-5



Attention!

The graphs are using theoretical and sampled data. It is necessary to use a suitable safety factor. Please do not hesitate to contact our Technical Sales Staff should you need assistance with product selection and design with the lifting system.



Dimensions DSH-1 - DSH-5

Ball screw spindle, translating version (SA, SVA)

Versions:

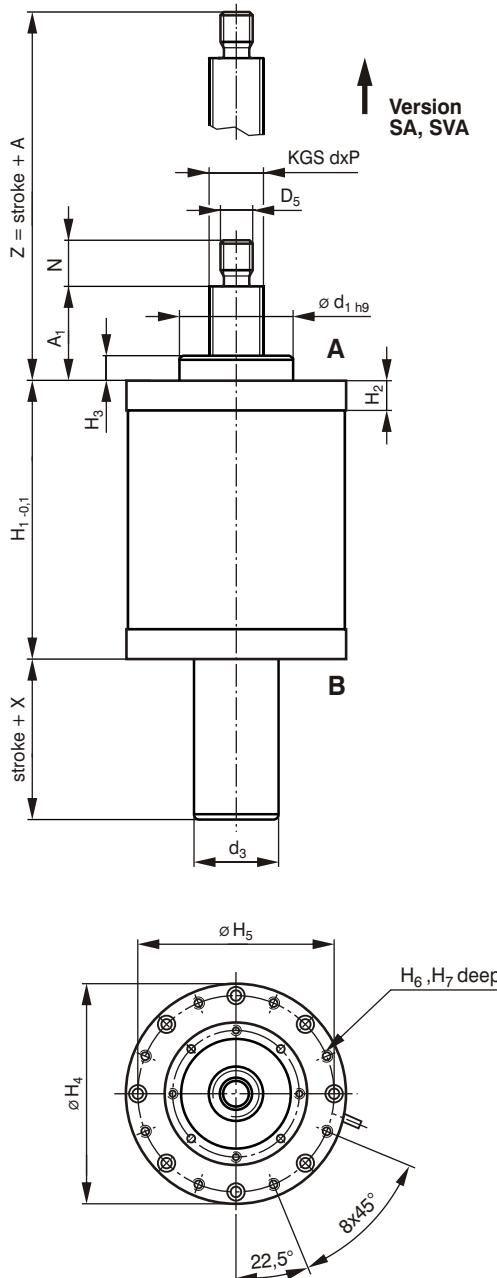
SA: Translating spindle with travel limiter

SVA: Translating spindle with rotation prevention and travel limiter

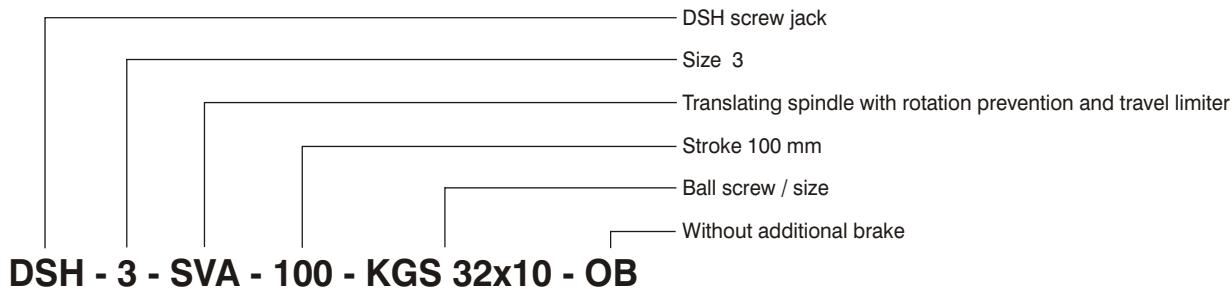
Motor: **OB:** without additional brake
MB: with additional brake

Accessories: see "Accessories" page 185 - 238

Questionnaire: see page 182 - 184



Ordering example:



Order code	F _{stat.} [kN]	max. static load 1)	Effective load					Lift per revolution P [mm]	max. lifting speed 2) V _{lift ED20%} [m/min]	Nominal speed 3) n [1/min]
			F _{eff.} ED 20%/h [kN]	F _{eff.} ED 50%/h [kN]	F _{eff.} ED 80%/h [kN]	F _{eff.} ED 100%/h [kN]				
DSH-1-SA/SVA-stroke-KGS 25x5-OB/MB	5	3,9	2,9	2,0	1,6	5	6,3	1250		
DSH-1-SA/SVA-stroke-KGS 25x10-OB/MB	5	1,9	1,5	1,0	0,8	10	12,5	1250		
DSH-1-SA/SVA-stroke-KGS 25x25-OB/MB	5	0,8	0,6	0,4	0,3	25	31,3	1250		
DSH-2-SA/SVA-stroke-KGS 25x5-OB/MB	10	10,0	8,6	5,8	4,7	5	6,3	1250		
DSH-2-SA/SVA-stroke-KGS 25x10-OB/MB	10	5,8	4,3	2,9	2,3	10	12,5	1250		
DSH-2-SA/SVA-stroke-KGS 25x25-OB/MB	10	2,3	1,7	1,2	0,9	25	31,3	1250		
DSH-3-SA/SVA-stroke-KGS 32x5-OB/MB	25	25,0	25,0	19,8	15,8	5	4,0	800		
DSH-3-SA/SVA-stroke-KGS 32x10-OB/MB	25	20,2	15,2	9,9	7,9	10	8,0	800		
DSH-3-SA/SVA-stroke-KGS 32x40-OB/MB	25	5,1	3,8	2,5	2,0	40	32,0	800		
DSH-4-SA/SVA-stroke-KGS 50x10-OB/MB	50	50,0	44,0	31,7	25,5	10	5,0	500		
DSH-4-SA/SVA-stroke-KGS 50x20-OB/MB	50	29,5	22,0	15,8	12,8	20	10,0	500		
DSH-4-SA/SVA-stroke-KGS 50x50-OB/MB	50	11,8	8,8	6,3	5,1	50	25,0	500		
DSH-5-SA/SVA-stroke-KGS 63x10-OB/MB	100	100,0	80,9	58,1	46,6	10	5,0	500		
DSH-5-SA/SVA-stroke-KGS 63x20-OB/MB	100	53,9	40,5	29,0	23,3	20	10,0	500		
DSH-5-SA/SVA-stroke-KGS 63x64-OB/MB	100	16,8	12,6	9,1	7,3	64	32,0	500		

1) The specification of the max. lifting force is only a guide to enable pre-selection of the initial DSH-size.

The actual dynamic lifting force possible is dependant upon the operating conditions.

2) Higher lifting speeds are available on request.

3) The rated speeds are valid for an operating duty of 20%/h. Higher duty cycles are possible but are dependant upon the application, and additional cooling the DSH-unit may be required.

Order code	Dimensions [mm]																
	KGS dxP	D ₅	d ₁	SA Ø d ₃	SVA □ d ₃	SA X	SVA X	A	A ₁	N	H ₁ ⁴⁾	H ₂	H ₃	H ₄	H ₅	H ₆	H ₇
DSH-1-SA/SVA-stroke-KGS 25x5-OB/MB	25x5	M14	70	50	50	78	85	35	15	20	125	20	20	120	100	M6	18
DSH-1-SA/SVA-stroke-KGS 25x10-OB/MB	25x10	M14	70	50	50	93	100	50	30	20	125	20	20	120	100	M6	18
DSH-1-SA/SVA-stroke-KGS 25x25-OB/MB	25x25	M14	70	50	50	138	145	95	75	20	125	20	20	120	100	M6	18
DSH-2-SA/SVA-stroke-KGS 25x5-OB/MB	25x5	M14	70	50	50	78	85	35	15	20	140	20	20	120	100	M6	18
DSH-2-SA/SVA-stroke-KGS 25x10-OB/MB	25x10	M14	70	50	50	93	100	50	30	20	140	20	20	120	100	M6	18
DSH-2-SA/SVA-stroke-KGS 25x25-OB/MB	25x25	M14	70	50	50	138	145	95	75	20	140	20	20	120	100	M6	18
DSH-3-SA/SVA-stroke-KGS 32x5-OB/MB	32x5	M20	100	90	90	93	98	58	15	43	195	25	25	180	158	M10	20
DSH-3-SA/SVA-stroke-KGS 32x10-OB/MB	32x10	M20	100	90	90	108	113	73	30	43	195	25	25	180	158	M10	20
DSH-3-SA/SVA-stroke-KGS 32x40-OB/MB	32x40	M20	100	90	90	198	203	163	120	43	195	25	25	180	158	M10	20
DSH-4-SA/SVA-stroke-KGS 50x10-OB/MB	50x10	M36	150	90	90	126	131	78	30	48	212	45	30	254	230	M12	30
DSH-4-SA/SVA-stroke-KGS 50x20-OB/MB	50x20	M36	150	90	90	156	161	108	60	48	212	45	30	254	230	M12	30
DSH-4-SA/SVA-stroke-KGS 50x50-OB/MB	50x50	M36	150	90	90	246	251	198	150	48	212	45	30	254	230	M12	30
DSH-5-SA/SVA-stroke-KGS 63x10-OB/MB	63x10	M36	150	95	90	138	144	78	30	48	292	65	30	254	230	M12	30
DSH-5-SA/SVA-stroke-KGS 63x20-OB/MB	63x20	M36	150	95	90	168	174	108	60	48	292	65	30	254	230	M12	30
DSH-5-SA/SVA-stroke-KGS 63x64-OB/MB	63x64	M36	150	95	90	300	306	240	192	48	292	65	30	254	230	M12	30

4) Dimension with brake on request

Dimensions DSH-1 - DSH-5

Ball screw spindle, rotating version (R)

Versions:

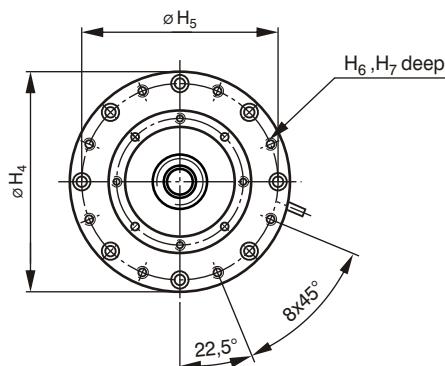
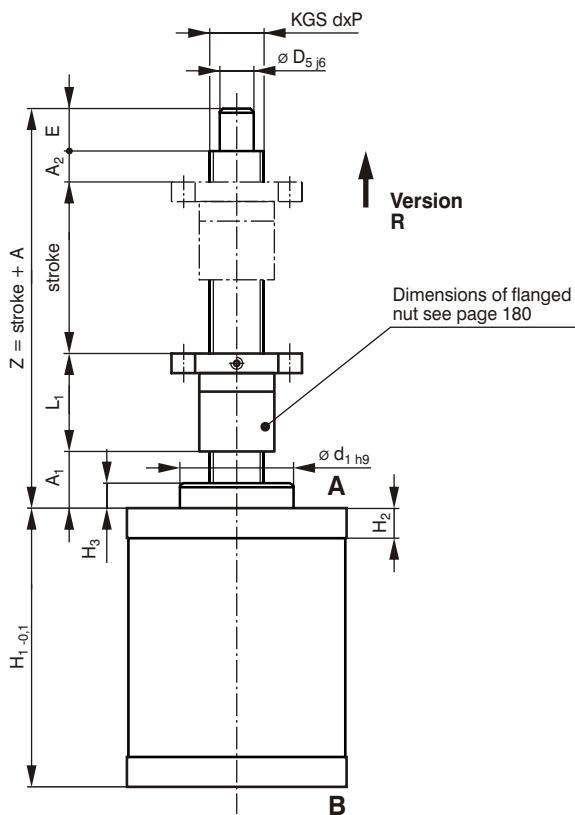
R: Rotating spindle

Motor: OB: without additional brake

MB: with additional brake

Accessories: see "Accessories" page 185 - 238

Questionnaire: see page 182 - 184



Ordering example:

DSH - 3 - R - 100 - KGS 32x10 - OB

- DSH screw jack
- Size 3
- Rotating spindle
- Stroke 100 mm
- Ball screw / size
- Without additional brake

Order code	F _{stat.} [kN]	max. static load 1)	Effective load					Lift per revolution P [mm]	max. lifting speed 2) V _{lift ED20%} [m/min]	Nominal speed 3) n [1/min]
			F _{eff.} ED 20%/h [kN]	F _{eff.} ED 50%/h [kN]	F _{eff.} ED 80%/h [kN]	F _{eff.} ED 100%/h [kN]				
DSH-1-R-stroke-KGS 25x5-OB/MB	5	3,9	2,9	2,0	1,6	5	6,3	1250		
DSH-1-R-stroke-KGS 25x10-OB/MB	5	1,9	1,5	1,0	0,8	10	12,5	1250		
DSH-1-R-stroke-KGS 25x25-OB/MB	5	0,8	0,6	0,4	0,3	25	31,3	1250		
DSH-2-R-stroke-KGS 25x5-OB/MB	10	10,0	8,6	5,8	4,7	5	6,3	1250		
DSH-2-R-stroke-KGS 25x10-OB/MB	10	5,8	4,3	2,9	2,3	10	12,5	1250		
DSH-2-R-stroke-KGS 25x25-OB/MB	10	2,3	1,7	1,2	0,9	25	31,3	1250		
DSH-3-R-stroke-KGS 32x5-OB/MB	25	25,0	25,0	19,8	15,8	5	4,0	800		
DSH-3-R-stroke-KGS 32x10-OB/MB	25	20,2	15,2	9,9	7,9	10	8,0	800		
DSH-3-R-stroke-KGS 32x40-OB/MB	25	5,1	3,8	2,5	2,0	40	32,0	800		
DSH-4-R-stroke-KGS 50x10-OB/MB	50	50,0	44,0	31,7	25,5	10	5,0	500		
DSH-4-R-stroke-KGS 50x20-OB/MB	50	29,5	22,0	15,8	12,8	20	10,0	500		
DSH-4-R-stroke-KGS 50x50-OB/MB	50	11,8	8,8	6,3	5,1	50	25,0	500		
DSH-5-R-stroke-KGS 63x10-OB/MB	100	100,0	80,9	58,1	46,6	10	5,0	500		
DSH-5-R-stroke-KGS 63x20-OB/MB	100	53,9	40,5	29,0	23,3	20	10,0	500		
DSH-5-R-stroke-KGS 63x64-OB/MB	100	16,8	12,6	9,1	7,3	64	32,0	500		

1) The specification of the max. lifting force is only a guide to enable pre-selection of the initial DSH-size.

The actual dynamic lifting force possible is dependant upon the operating conditions.

2) Higher lifting speeds are available on request.

3) The rated speeds are valid for an operating duty of 20%/h. Higher duty cycles are possible but are dependant upon the application, and additional cooling the DSH-unit may be required.

Order code	Dimensions [mm]													
	KGS dxP	D ₅	d ₁	A	A ₁	A ₂	E	H ₁ ⁴⁾	H ₂	H ₃	H ₄	H ₅	H ₆	H ₇
DSH-1-R-stroke-KGS 25x5-OB/MB	25x5	15	70	102	15	15	20	115	20	20	120	100	M6	18
DSH-1-R-stroke-KGS 25x10-OB/MB	25x10	15	70	141	30	30	20	115	20	20	120	100	M6	18
DSH-1-R-stroke-KGS 25x25-OB/MB	25x25	15	70	205	75	75	20	115	20	20	120	100	M6	18
DSH-2-R-stroke-KGS 25x5-OB/MB	25x5	15	70	102	15	15	20	140	20	20	120	100	M6	18
DSH-2-R-stroke-KGS 25x10-OB/MB	25x10	15	70	141	30	30	20	140	20	20	120	100	M6	18
DSH-2-R-stroke-KGS 25x25-OB/MB	25x25	15	70	205	75	75	20	140	20	20	120	100	M6	18
DSH-3-R-stroke-KGS 32x5-OB/MB	32x5	20	100	126	15	15	30	195	25	25	180	158	M10	20
DSH-3-R-stroke-KGS 32x10-OB/MB	32x10	20	100	167	30	30	30	195	25	25	180	158	M10	20
DSH-3-R-stroke-KGS 32x40-OB/MB	32x40	20	100	170	120	120	30	195	25	25	180	158	M10	20
DSH-4-R-stroke-KGS 50x10-OB/MB	50x10	25	150	190	30	30	40	212	45	30	254	230	M12	30
DSH-4-R-stroke-KGS 50x20-OB/MB	50x20	25	150	292	60	60	40	212	45	30	254	230	M12	30
DSH-4-R-stroke-KGS 50x50-OB/MB	50x50	25	150	413	150	150	40	212	45	30	254	230	M12	30
DSH-5-R-stroke-KGS 63x10-OB/MB	63x10	40	150	225	30	30	45	292	65	30	254	230	M12	30
DSH-5-R-stroke-KGS 63x20-OB/MB	63x20	40	150	340	60	60	45	292	65	30	254	230	M12	30
DSH-5-R-stroke-KGS 63x64-OB/MB	63x64	40	150	530	192	192	45	292	65	30	254	230	M12	30

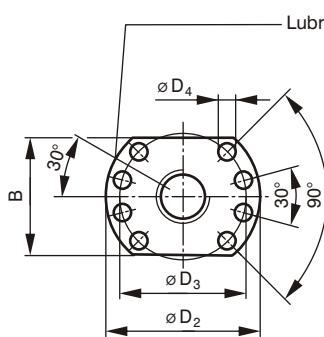
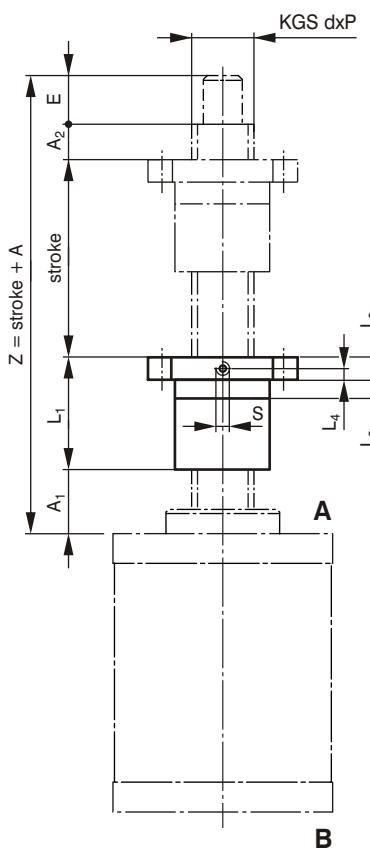
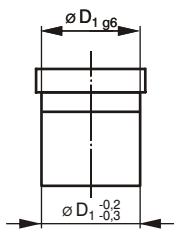
4) Dimension with brake on request



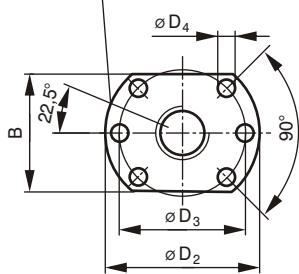
Flanged nut dimensions

Ball screw spindle, rotating version (R)

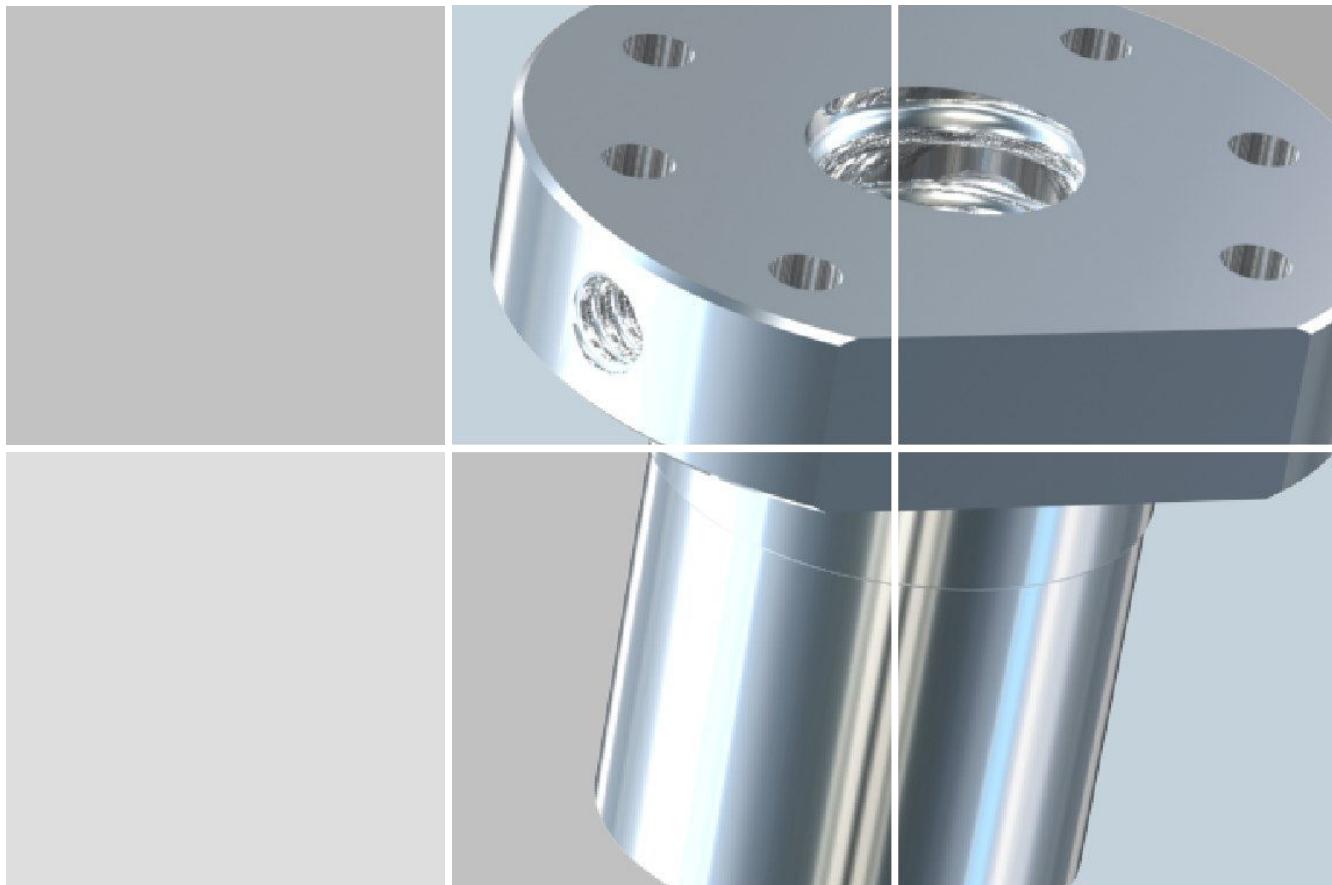
INKOMA-flanged nut to DIN 69051, for all normal connections of the screw jack to the moving element.



Flanged nut DIN 69051
(hole pattern 1)



Flanged nut DIN 69051
(hole pattern 2)



Order code	Hole pattern	Dimensions [mm]														
		KGS dxP	A	A ₁	A ₂	B	D ₁	D ₂	D ₃	D ₄	E	L ₁	L ₂	L ₃	L ₄	S
DSH-1-R-KGS	2	25x5	102	15	15	48	40	62	51	6,6	20	52	10	12	5	M6
DSH-1-R-KGS	2	25x10	141	30	30	48	40	62	51	6,6	20	61	10	16	5	M5
DSH-1-R-KGS	2	25x25	205	75	75	1)	40	62	51	6,6	20	35	10	9	5	M6
DSH-2-R-KGS	2	25x5	102	15	15	48	40	62	51	6,6	20	52	10	12	5	M6
DSH-2-R-KGS	2	25x10	141	30	30	48	40	62	51	6,6	20	61	10	16	5	M5
DSH-2-R-KGS	2	25x25	205	75	75	1)	40	62	51	6,6	20	35	10	9	5	M6
DSH-3-R-KGS	2	32x5	126	15	15	62	50	80	65	9	30	66	12	12	6	M6
DSH-3-R-KGS	2	32x10	167	30	30	62	50	80	65	9	30	77	12	16	6	M6
DSH-3-R-KGS	2	32x40	170	120	120	1)	63	93	78	9	30	85	14	16	7	M8x1
DSH-4-R-KGS	1	50x10	190	30	30	85	75	110	93	11	40	90	16	20	8	M8x1
DSH-4-R-KGS	1	50x20	292	60	60	85	75	110	93	11	40	132	18	25	9	M8x1
DSH-4-R-KGS	1	50x50	413	150	150	85	75	110	93	11	40	73	16	16	8	M8x1
DSH-5-R-KGS	1	63x10	225	30	30	95	90	125	108	11	45	120	18	16	9	M8x1
DSH-5-R-KGS	1	63x20	340	60	60	100	95	135	115	13,5	45	175	20	25	10	M8x1
DSH-5-R-KGS	1	63x64	530	192	192	100	95	135	115	13,5	45	101	20	20	10	M8x1

1) round flange

Questionnaire

for quotation purposes

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	<input type="checkbox"/> 8	<input type="checkbox"/> 16	<input type="checkbox"/> 24	<input type="checkbox"/>
Working cycle: actual in	<input type="checkbox"/> sec.	<input type="checkbox"/> min.		
Lifting				
Lowering				
Idle				
Total cycle time				
ED per cycle in %				
Cycles per working day				

Example:

Usage per day in hours	<input type="checkbox"/> 8	<input type="checkbox"/> 16	<input type="checkbox"/> 24	<input type="checkbox"/>
Working cycle: actual in	<input checked="" type="checkbox"/> sec.	<input type="checkbox"/> min.		
Lifting	4			4
Lowering		2	2	
Idle	10	10	12	32
Total cycle time				
ED per cycle in %				
Cycles per working day				

Operational conditions:

Environmental temperature from °C to °C

dry humid dusty (define material): other effects:

Details about the planned location and attitude

Attitude: vertical horizontal inverted

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 translating version (SA, SVA)

Tensile load, dynamic

 kN

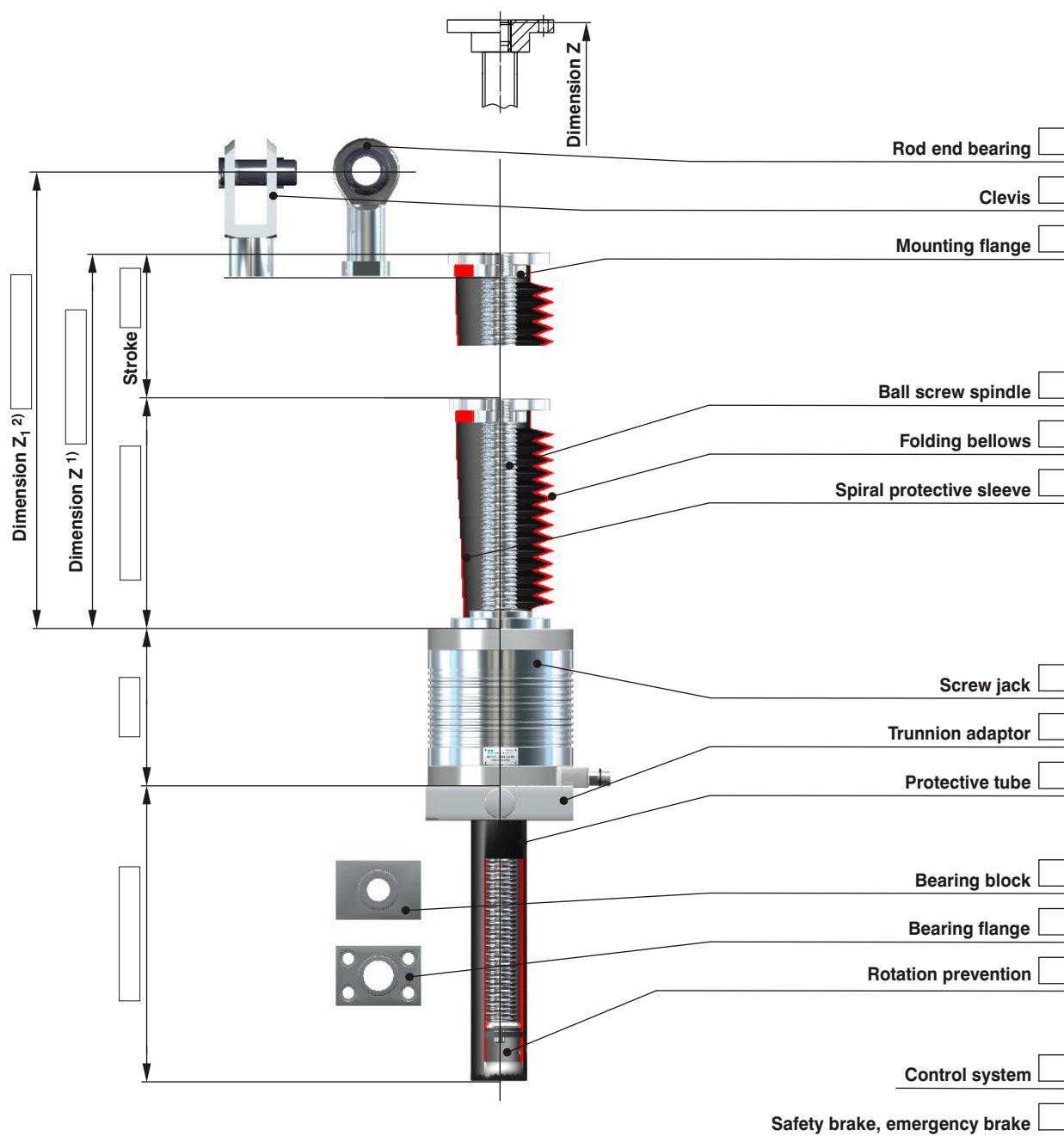
Tensile load, static

 kN

Compressive load, dynamic

 kN

Compressive load, static

 kN


¹⁾ Dimension Z = Distance from the housing upper surface to the spindle end (1-2 mm allowance from mounting face).
²⁾ Dimension Z₁ = Gear housing upper surface to centre line of connecting link

Questionnaire

Accessories for rotating version (R)

Tensile load, dynamic

 kN

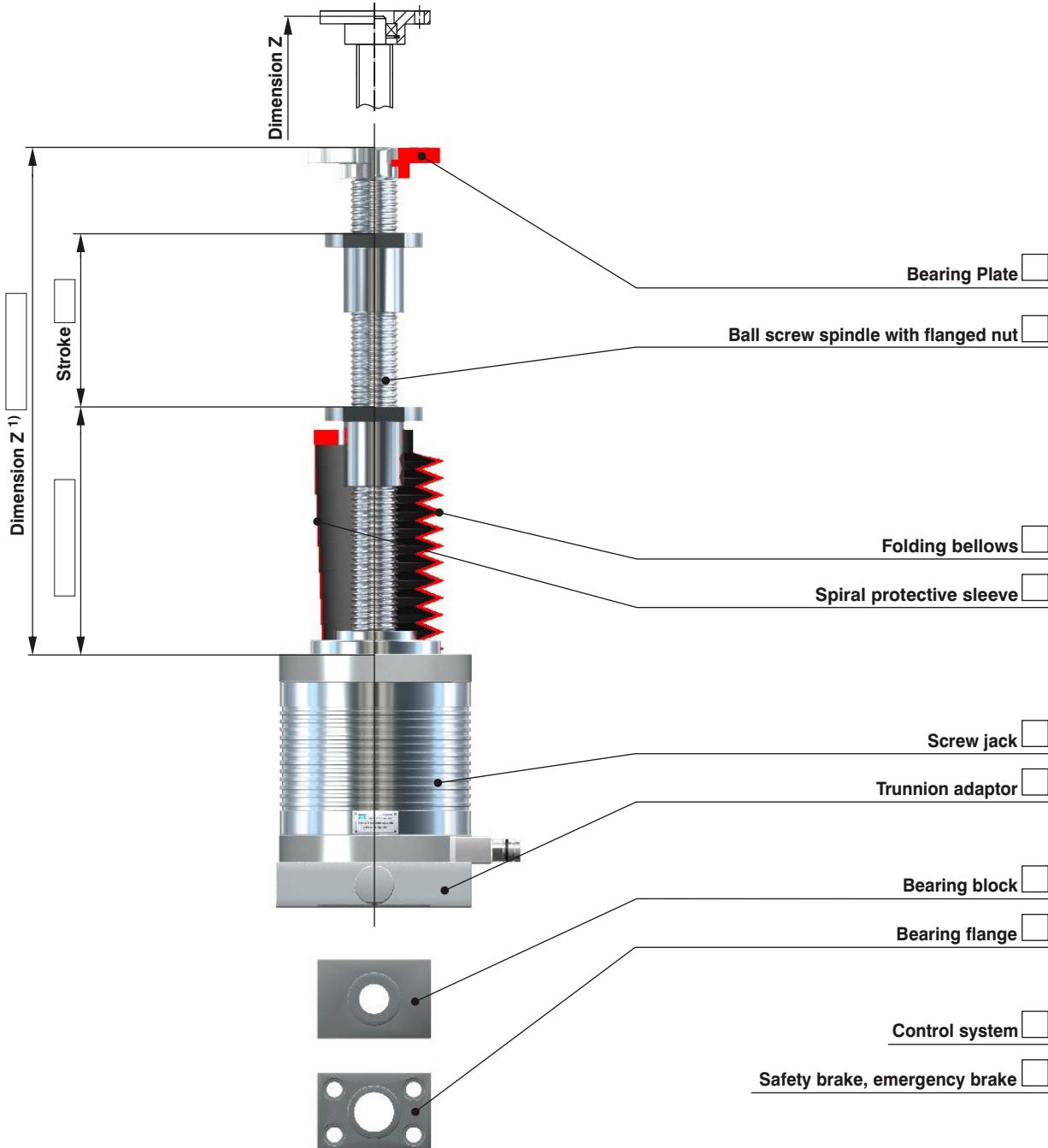

Tensile load, static

 kN


Compressive load, dynamic

 kN


Compressive load, static

 kN


¹⁾ Dimension Z= Distance from the housing upper surface to the spindle end (1-2 mm allowance from mounting face).