

**TITAN RS**



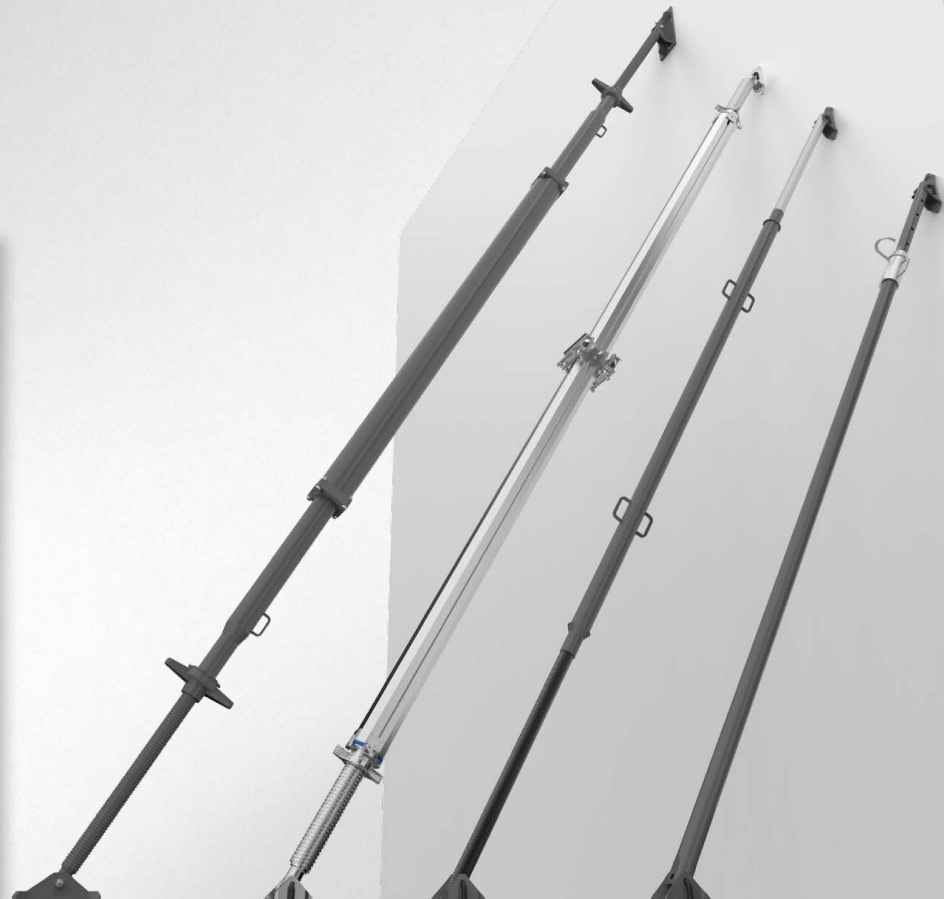
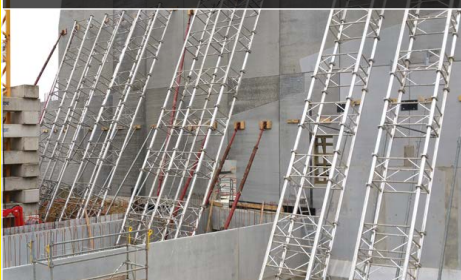
**TITAN RSK**



**TITAN BKS**



**TITAN Alu-BKS**



**TITAN push-pull props for supporting  
precast concrete elements and  
wall/column formwork**

Single props and modular systems  
in steel or aluminium

with verified calculations  
for many common applications

# The right push-pull prop for every job

Whether made from steel or lightweight aluminium, the four products in the ISCHEBECK push-pull prop range are ideal for the quick alignment and secure support of precast concrete elements as well as wall and column formwork. In terms of the heights and angles possible, this versatile, coordinated range is flexible and economic. All TITAN push-pull props are suitable for tension and compression loads. The movable end fittings enable the props to be set up at any angle.

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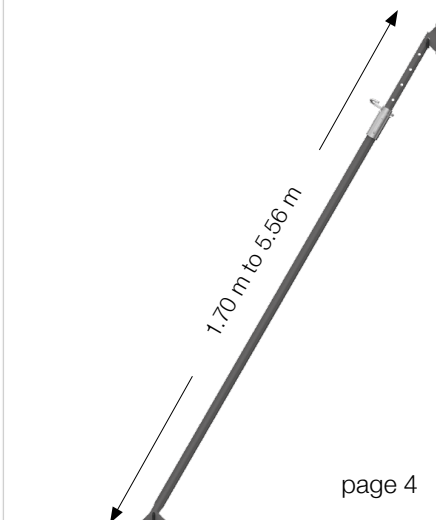
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### TITAN RS push-pull props (steel)

The tried-and-tested inclined prop with quick adjustment

- Available in four lengths
- Suitable for tension and compression
- Connecting pins every 100 mm for quick adjustment
- Collar for exact fine adjustment



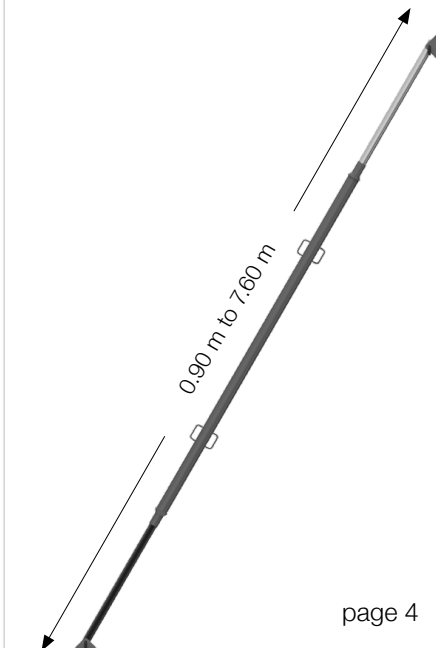
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### TITAN RSK push-pull props (steel)

Inclined prop with screw jacks and handles at both ends

- Available in five lengths
- Suitable for tension and compression loads up to 40 kN
- Exact fine adjustment
- Handles always within easy reach



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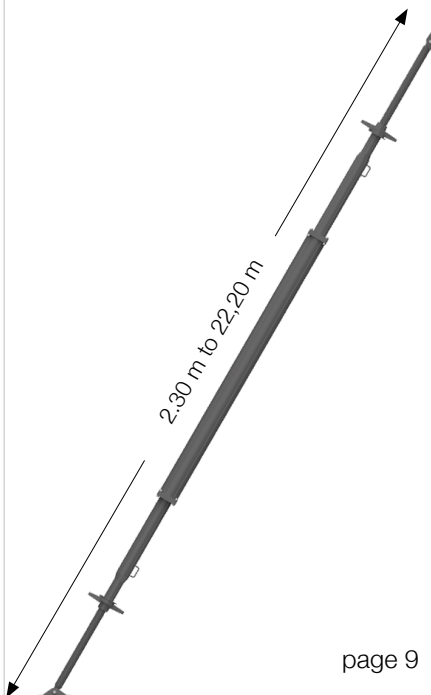
with verified calculations



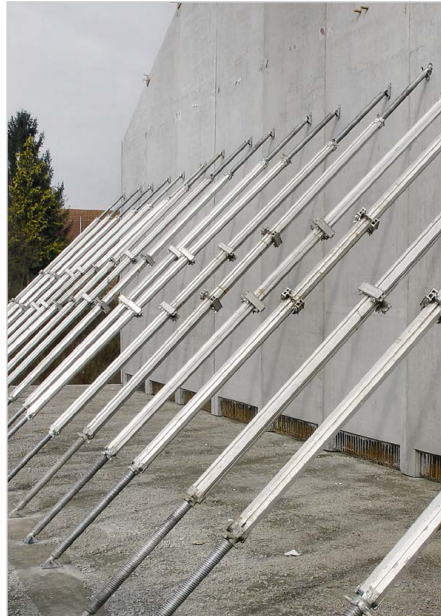
### TITAN BKS push-pull props (steel)

Modular system – flexible up to great heights

- Available in 12 lengths
- Suitable for tension and compression loads up to 50 kN
- Screw jack and outer tube in steel
- Very high load-carrying capacity



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### TITAN Alu-BKS push-pull props

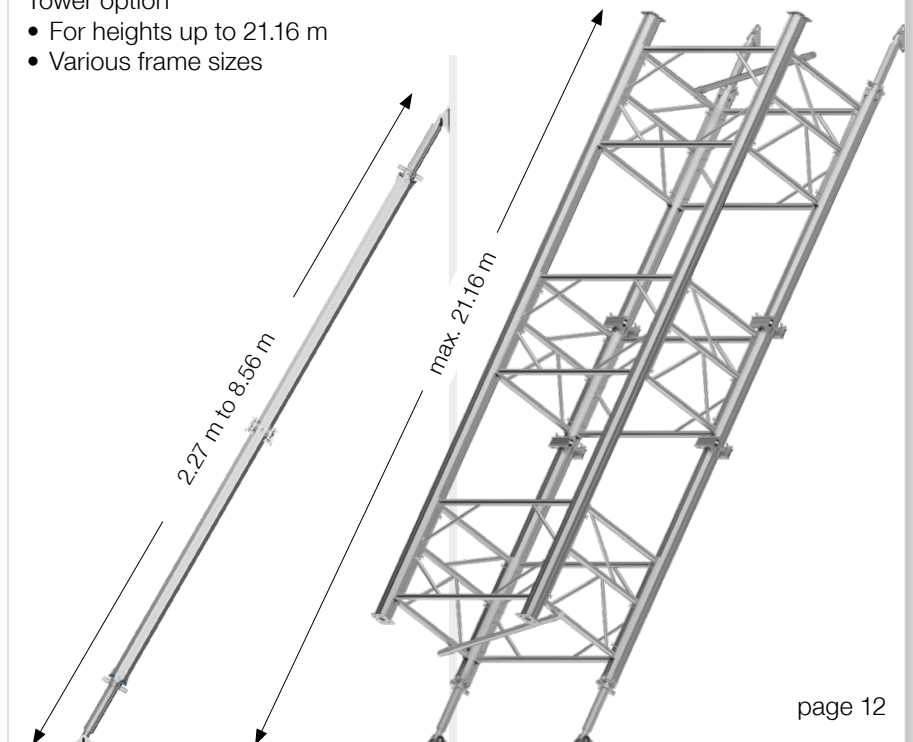
As single prop or tower – with aluminium components

Single props available in five lengths

- Suitable for tension and compression
- Very economic modular system
- No component weighs more than 24 kg

Tower option

- For heights up to 21.16 m
- Various frame sizes



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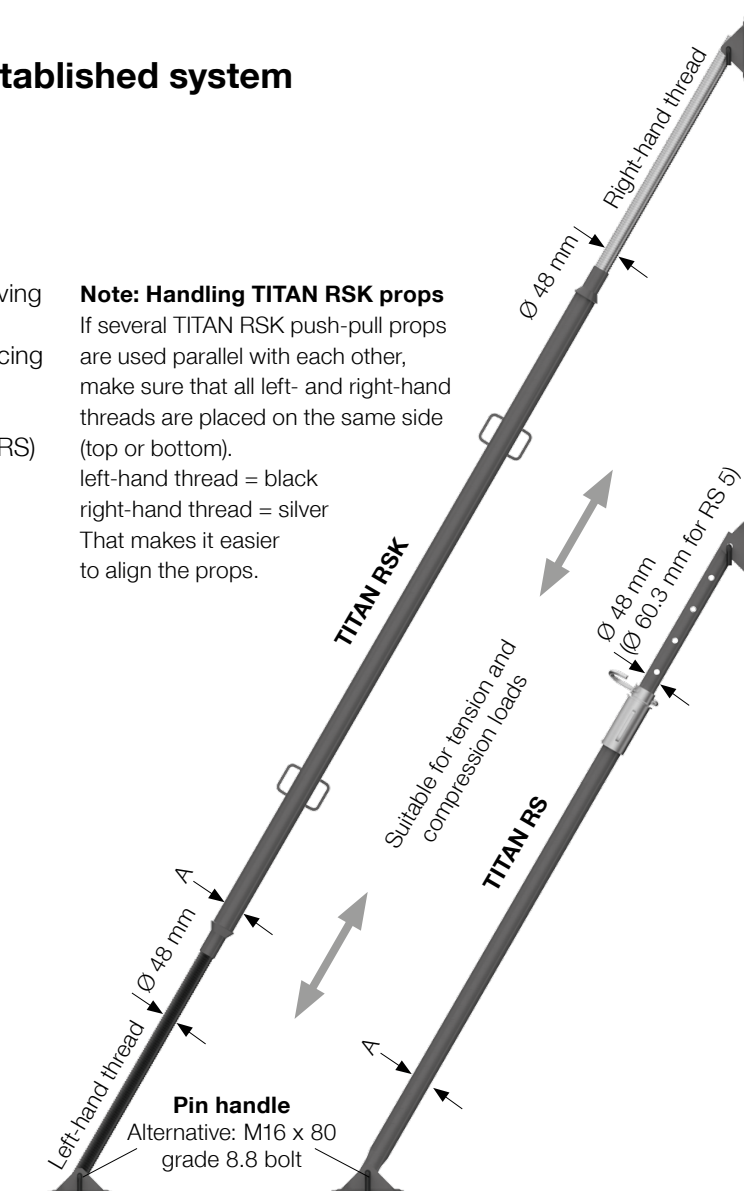
## TITAN push-pull props – the well-established system

TITAN RS and TITAN RSK inclined props have been proving their benefits on building sites of all types and sizes for many decades. And it's the details that are really convincing in terms of everyday practice and ease of use:

- Handles always within easy reach
- Connecting pins every 100 mm for quick adjustment (RS)
- Exact fine adjustment
  - with collar (RS)
  - with screw jacks both ends (RSK)

### Note: Handling TITAN RSK props

If several TITAN RSK push-pull props are used parallel with each other, make sure that all left- and right-hand threads are placed on the same side (top or bottom).  
 left-hand thread = black  
 right-hand thread = silver  
 That makes it easier to align the props.

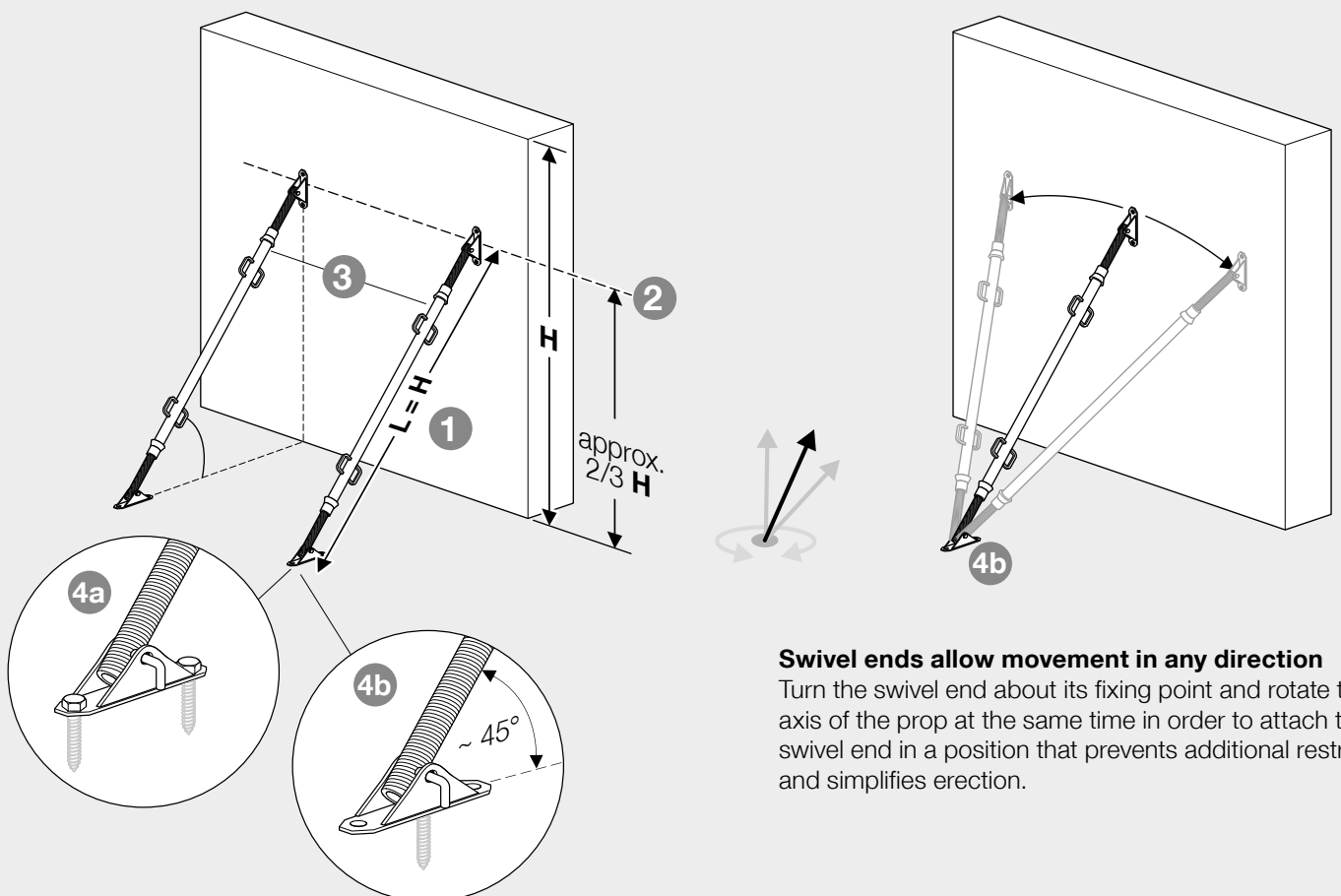


## Rules of thumb for the use of push-pull props

- 1 Length L of push-pull prop**  
 The length **L** of the push-pull prop should be equal to the height **H** of the element requiring support. The length calculation does not take account of the loads occurring. These must be calculated separately.
- 2 Height of anchorage**  
 The height of the anchorage must comply with the stipulations of the precast concrete element supplier. In normal cases the anchorage point is located at 2/3 the height of the element requiring support.
- 3 Number of push-pull props**  
 Every element should be supported in at least two places.
- 4a Two fixings for swivel ends**  
 Two fixings should be used to attach each swivel end to the element requiring support and to the floor. Exception: Quick-action swivel end adapter – only a single fixing on the element.
- 4b Single fixing for swivel end**  
 Swivel ends with single fixings are used when the push-pull prop cannot be positioned at 90° to the element requiring support. When using a single fixing, the push-pull prop should be set up at an angle of approx. 45° so that no additional eccentricity moment occurs.

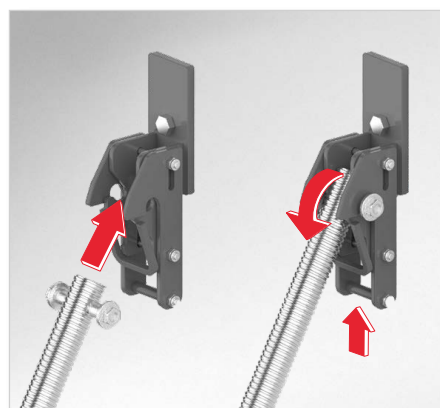
**Table of permissible loads, TITAN RS and TITAN RSK**

	Total length L [m] incl. 2 standard swivel ends	Permiss. load [kN]				Weight [kg]	Outer tube A [mm]	Art. No.
		in compression [kN]			in tension [kN]			
		min. L	half L	max. L				
<b>RS 2</b>	1.70 – 2.90	37.0	27.5	18.0	25.0	11.3	Ø 57	0220200021
<b>RS 3</b>	2.10 – 3.60	24.0	16.0	8.0	25.0	14.0	Ø 57	0220200022
<b>RS 4</b>	2.80 – 4.30	19.8	9.7	4.8	25.0	20.9	Ø 57	0220200025
<b>RS 5</b>	4.06 – 5.56	24.6	16.2	10.7	22.0	32.1	Ø 70	0220200027
<b>RSK 1</b>	0.90 – 1.50	40.0	40.0	40.0	40.0	7.8	Ø 70	0220200023
<b>RSK 3</b>	1.80 – 3.20	40.0	29.2	15.4	40.0	15.5	Ø 70	0220200039
<b>RSK 4</b>	2.60 – 4.00	38.8	23.3	12.8	40.0	19.8	Ø 70	0220200041
<b>RSK 6</b>	4.60 – 6.00	30.5	18.4	9.9	40.0	35.0	Ø 83	0220200042
<b>RSK 8</b>	6.20 – 7.60	40.0	20.1	9.1	40.0	69.0	Ø 108	0220200043



## End fittings for TITAN RS, TITAN RSK and TITAN Alu-BKS

Every push-pull prop must be fixed to the floor and wall with end fittings attached with concrete bolts or heavy-duty anchors. Both single and double fixings are possible, but the maximum possible loads must be taken into account.



### Quick connector

simplifies the erection of precast concrete elements because the push-pull prop is simply hooked on the adapter and unhooked afterwards.

- Quick connector fitted to precast element beforehand, i.e. no working at dangerous heights
- Push-pull prop quickly positioned and removed
- Fits all RS, RSK and Alu-BKS push-pull props

Quick-connector

Weight 5.10 kg

Art. No. 0420210020

Self-centring bolt for quick-action swivel end adapter (obligatory)

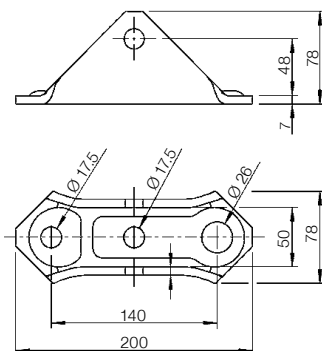
Weight 0.45 kg

Art. No. 0420214509



### Standard swivel end

Fixed with two M16 bolts. The oversized  $\varnothing 26$  mm hole compensates for inaccuracies when installing anchors with  $\pm 5$  mm tolerance. Fits RS, RSK and Alu-BKS push-pull props.



Supplied with pin handle

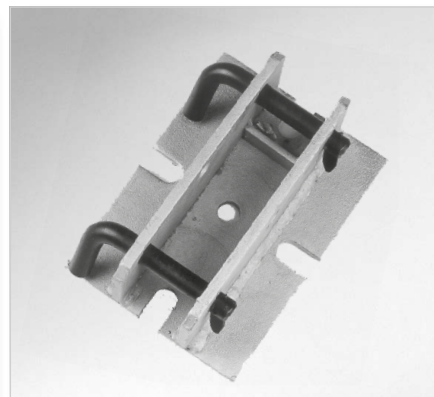
Weight 1.37 kg

Painted

Art. No. 0420214504

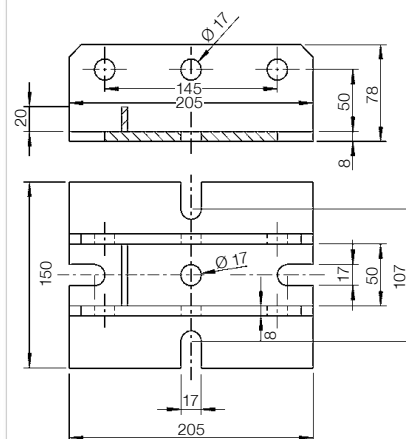
Galvanised

Art. No. 0420214505

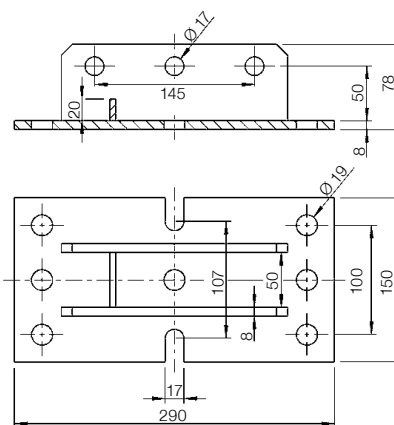


### Double RSK adapter

for fixing two push-pull props. The built-in stopper lug prevents props from folding up during repositioning by crane.



version until 2023



version from 2024

Supplied with 2 pin handles

Weight 4.00 kg

Art. No. 0420214516

## Fixings



### Pin handle

Ø16 mm, fits all swivel ends, with polyseal coating

Weight 0.24 kg  
Art. No. 0220210027

Alternative to pin handle  
(not illustrated):

### Hexagon-head bolt with nut

M16 x 80, grade 8.8, fits all swivel ends, galvanised

Weight 0.18 kg  
Art. No. 0420214507



### TITAN screw anchor M24/D15x160

recoverable, with M24 x 30 bolt, always adequate as single fixing.

Weight 0.73 kg  
Art. No. 0620750007



### Robusta cast-in sleeve,

Ø15/20/26.5, fits Dywidag formwork ties. Available in various lengths.

The permissible loads between 5 and 60 kN depend on diameter, length and concrete strength (details available on request).



### Reducing sleeve 26/X

for use with standard swivel end, available in various diameters.



### Concrete bolt

Ø16 x 130, 24AF, recoverable, self-cutting thread, Ø14 mm pre-drilled hole required.

Weight 0.21 kg  
Art. No. 0620210030

## Erection tools



### Universal Spanner

for RS/RSK push-pull props, Gi-A trench struts, Ti-S/Ti-E35 props, painted

Weight 2.42 kg  
Art. No. 0620210061



### RSK bit for faster working

Adapter for cordless drill for extending and retracting screw jacks easily.

- Fits all common drill chucks
- Easily used with existing drills
- with polyseal coating
- Fits all RSK push-pull props

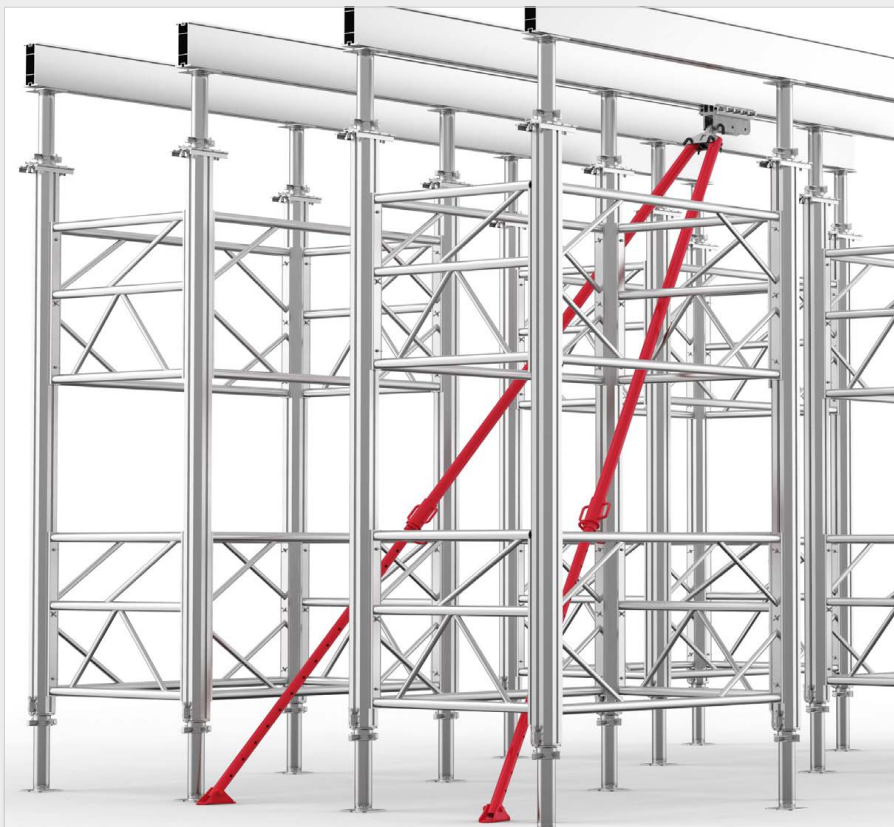


Weight 0.36 kg  
Art. No. 0620210026



## End fittings for special cases

Special situations call for special solutions. Many special solutions are available for connecting props to scaffolds, formwork and beams. Please get in touch with us so that we can show you a solution to suit your situation.



### ① Beam friction clamp for push-pull prop

for transferring horizontal forces on the beam axis

- For fixing to TITAN 225 aluminium formwork beam
- Can be used to attach up to 3 push-pull props (design software available)
- Verified calculations

Weight 6.20 kg  
Art. No. 0120420045

### ② H-load adapter

for transferring horizontal loads eccentric to the beam axis

- For fixing to beam friction clamp for push pull prop

Weight 1.82 kg  
Art. No. 0620420047



### Adapter for steel walers

for fixing to U 100 and SF 100 walings without bolts, painted.

adjustable: 145 – 155 mm

Permiss. load 5 kN

Weight 2.30 kg  
Art. No. 0320210006



# TITAN BKS – modular system

From 2.30 to 18.50 m

TITAN BKS is a modular system made from robust steel parts for carrying loads of up to 50 kN (tension/compression). The individual parts can be quickly assembled to form push-pull props with different lengths.

- Two-start trapezoidal thread for quick adjustment with millimetre accuracy

*with verifiable structural calculations*

BKS Spindle element ①

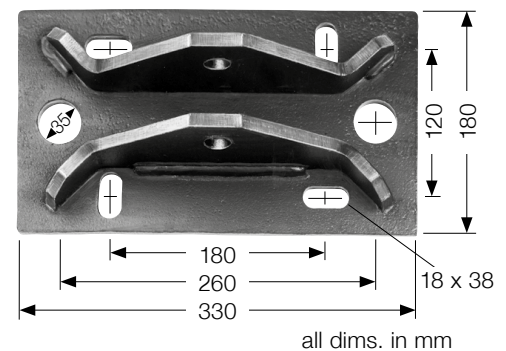
Swivel end plate ④  
with M20 x 90  
grade 5.6 bolt

BKS Spindle element ①

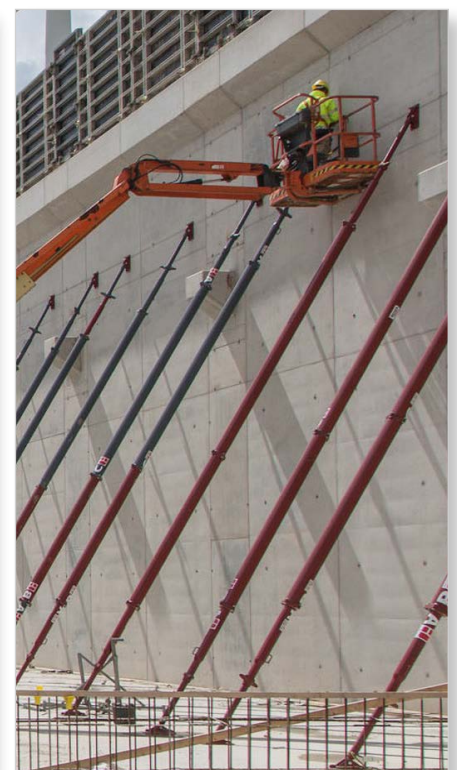
Extension ② ③  
available in two lengths:  
2.40 m; 3.70 m

Swivel end plate ④  
with M20 x 90  
grade 5.6 bolt

**Flexible erection with swivel end plate**  
with elongated holes to allow for tolerances  
(18 x 38 mm)



**Historic facade retention**  
Prague, Czech Republic



# TITAN BKS – modular system

## Push-pull prop combinations

The right sequence of extension pieces is very important when assembling TITAN BKS push-pull props:

**TITAN BKS = spindle element + extension(s) + spindle element**

**❶ Spindle element** 1150 – 1850 mm

**❷ Short extension** 2400 mm

**❸ Long extension** 3700 mm

## Force-locking connection

4 bolts M16x70-10.9 galvanized with nut M16-10 and washer discs per connection. Required torque 245Nm

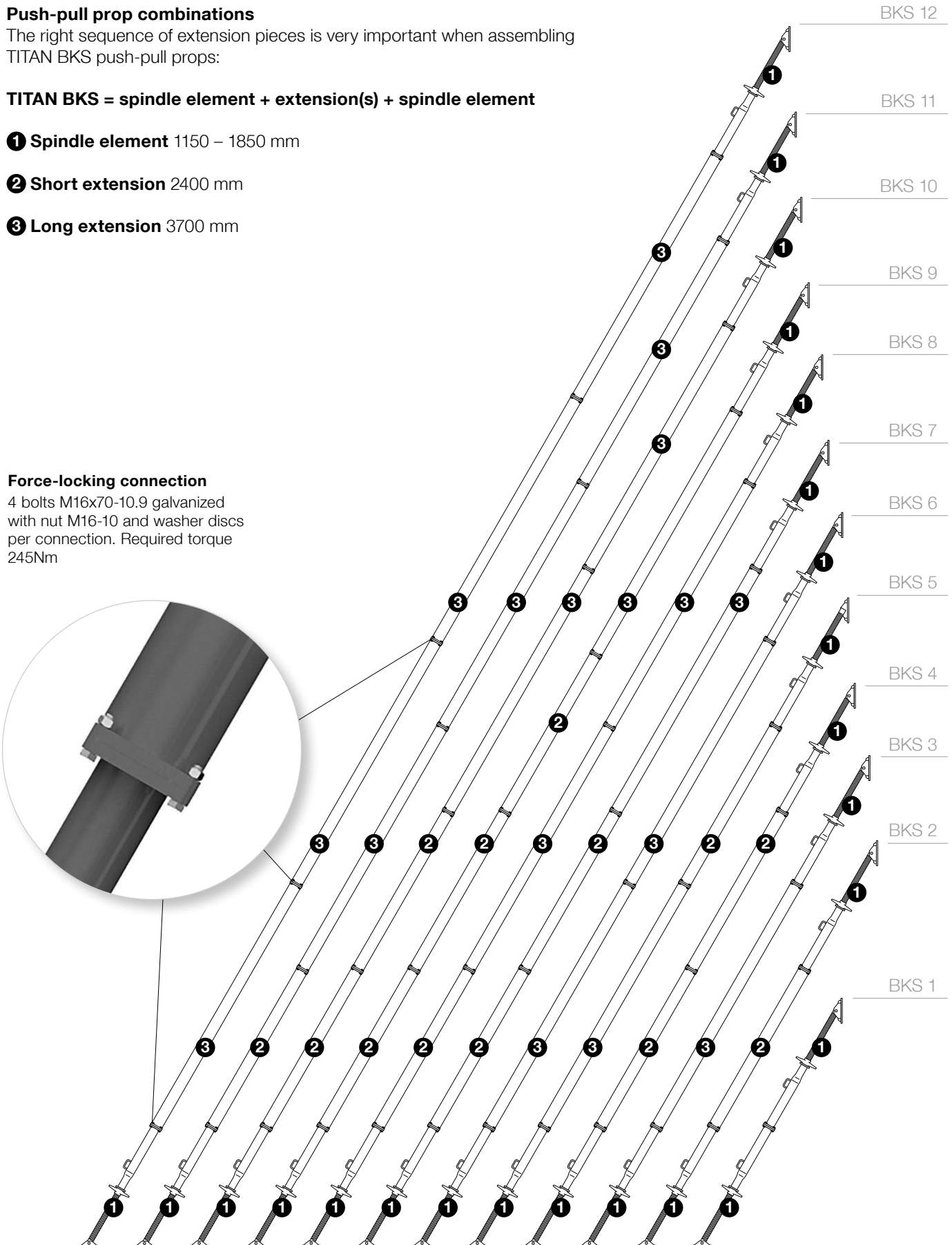
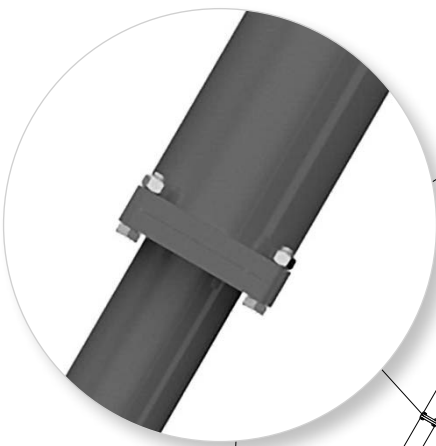


Table of permissible loads, TITAN BKS

Type	Total length L	Permissible axial load				Individual parts			Joints**	Weight
		from – to [m]	in compression		in tension [kN]	Spindle element  ① 1,15 - 1,85 m	Extension			
	min L* [kN]		half L* [kN]	max L* [kN]			② 2,40 m	③ 3,70 m		
										[kg]
BKS 1	2,3 – 3,7	50,0	50,0	47,0	50,0	2	-	-	1	74
BKS 2	4,7 – 6,1	50,0	50,0	37,5	50,0	2	1	-	2	124
BKS 3	6,0 – 7,4	50,0	49,0	34,0	50,0	2	-	1	2	146
BKS 4	7,1 – 8,5	50,0	45,0	30,3	50,0	2	2	-	3	175
BKS 5	8,4 – 9,8	50,0	37,5	26,8	50,0	2	1	1	3	197
BKS 6	9,7 – 11,1	44,1	32,0	23,0	50,0	2	-	2	3	219
BKS 7	10,8 – 12,2	37,9	27,4	19,5	50,0	2	2	1	4	248
BKS 8	12,1 – 13,5	31,2	23,4	16,4	50,0	2	1	2	4	270
BKS 9	13,2 – 14,6	24,3	19,6	13,8	50,0	2	3	1	5	298
BKS 10	14,5 – 15,9	18,8	15,8	11,4	50,0	2	2	2	5	320
BKS 11	15,8 – 17,2	14,5	11,0	9,3	50,0	2	1	3	5	342
BKS 12	17,1 – 18,5	11,0	9,0	7,2	50,0	2	-	4	5	342
BKS 13	18,2 – 19,6	8,2	6,5	5,0	50,0	2	2	3	6	393
BKS 14	19,3 – 20,7	5,7	4,3	3,1	50,0	2	4	2	7	421
BKS 15	20,8 – 22,2	3,6	2,5	1,5	50,0	2	-	5	6	435

\* Extension L<sub>a</sub>: min L = min L<sub>a</sub> = 0,12 m, half L = half L<sub>a</sub> = 0,47 m, max L = max L<sub>a</sub> = 0,82 m

\*\*Four M16 x 70 bolts (10.9, Zinklamelle) required per joint

## Components

### ① Spindle element

painted, supplied in packs of 24  
in square "Barelle",  
with swivel end plate  
Weight 36.62 kg  
Art. No. 0120220001

### ② Extension, 2400 mm

Ø 159 x 4.5 mm, supplied in  
packs of 15 in "Barelle", galvanised  
Weight 50.00 kg  
Art.-Nr. (painted) 0120220005  
Art.-Nr. (galvanised) 0220220072



### Spanner

painted, 800mm for push and pull  
props  
Weight 3,70 kg  
Art. No. 0620220030

### ③ Extension, 3700 mm

Ø 159 x 4.5 mm, painted, supplied in  
packs of 15 in "Barelle", galvanised  
Weight 72.00 kg  
Art.-Nr. (painted) 0120220009  
Art.-Nr. (galvanised) 0220220078

### ④ Swivel end plate

galvanised, with M20 x 90 grade 5.6  
bolt for fixing push-pull props  
Weight 7.22 kg  
Art. No. 0220224525

**Hexagon-head bolt** (not illustrated)  
with nut, M16 x 70 and washers, grade  
10.9, for connecting extension pieces  
Weight 0.15 kg  
Art. No. 0620224550

**Hexagon-head bolt** (not illustrated)  
with nut, M20 x 90, grade 5.6, for  
swivel end plates  
Weight 0.32 kg  
Art. No. 0220224527



# TITAN Alu-BKS

A combination of just a few lightweight parts

TITAN Alu-BKS is a modular system made from lightweight aluminium parts.

- Individual components can be set up, taken down and transported without the need for a crane.
- Individual components are quickly assembled to form push-pull props in different sizes.
- Outer tube includes multi-purpose slot suitable for attaching ledger frames.



## TITAN aluminium BKS spindle element ①

As an alternative, it is possible to use the **standard swivel end adapter ②**.

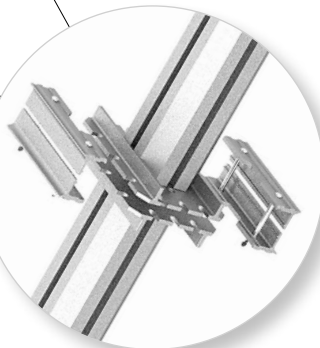
## TITAN aluminium extension outer ④

available in four lengths  
0.50 / 1.00 / 1.25 / 5.00 m



## TITAN aluminium BKS spindle element ①

with screw jack retainer. Can be adjusted under load with the universal prop spanner for TITAN adjustable aluminium legs.



## Connecting brackets ③

quickly and easily fitted

**End fitting** for further information see page 6.

## Components



### ① TITAN aluminium spindle element

with screw jack retainer (standard swivel end required).

- Adjustment with standard swivel end: 2.07 – 3.28 m
- Supplied in packs of 30/“Barelle”

Weight 21.00 kg  
Art. No. 0220200045



### ② Racking bracket for Alu-BKS

for wall connection without aluminium screw jack (standard swivel end req.)

- Only one screw jack required
- Short push-pull prop lengths from 2.27 m possible in modular system
- Special for type 9

Weight 2.39 kg  
Art. No. 0220210020



### ③ Connecting brackets

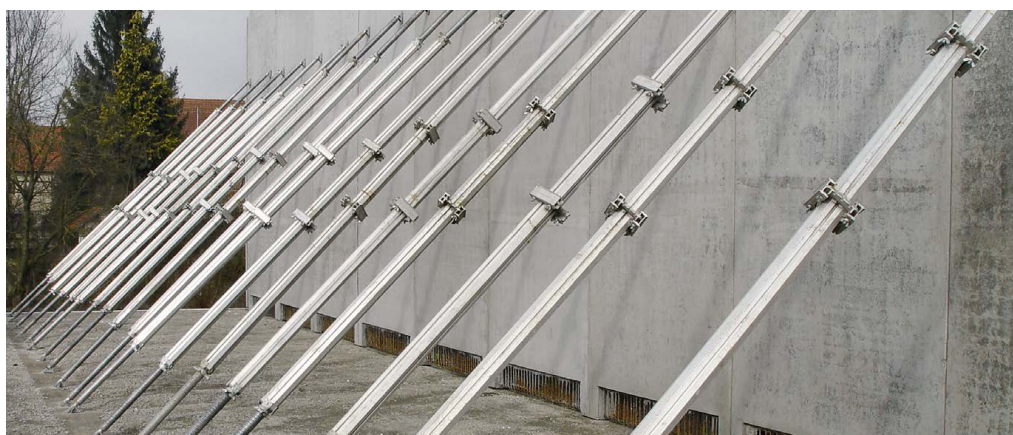
quickly and easily fitted, two brackets required per butt joint.

Weight 0.79 kg  
Art. No. 0120150084

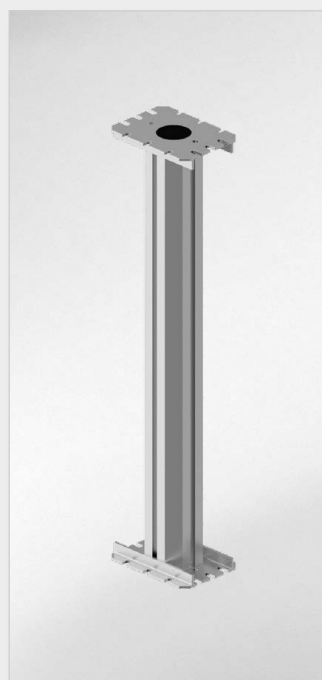
**Table of permissible loads, Alu-BKS**

Total length L				Permiss. load			Individual parts					Weight	
Extension [m]				in compression			in tension	Spindle element	Connecting brackets	Aluminium extension pieces		Racking bracket	[kg]
				[kN]			[kN]			1.00 m	5.00 m		
min. half max.				min.	half	max.		①	③	④	④	②	
Type 5	2.27	2.88	3.48	33.0 (33.2*)	31.9 (32.5*)	29.4 (30.3*)	32	1	-	-	-	1	23.4
Type 6	4.13	5.34	6.56	36.0 (37.8*)	20.4 (22.3*)	10.4 (12.3*)	32	2	2	-	-	-	43.0
Type 7	5.13	6.34	7.56	23.8 (25.5*)	13.8 (16.1*)	7.3 (9.5*)	32	2	4	1	-	-	51.0
Type 8	6.13	7.34	8.56	16.0 (18.0*)	9.2 (11.7*)	4.9 (7.3*)	32	2	6	2	-	-	59.0
Type 9	7.27	7.88	8.48	8.0 (11.5*)	5.4 (9.1*)	3.3 (7.1*)	32	1	2	-	1	1	49.4

\*Permissible load without wind on push-pull props



## Assembly tool



### ④ TITAN aluminium extension outer

requires two connecting brackets for a structural connection.

#### 500 mm

Weight 4.30 kg  
Art. No. 0220150039

#### 1000 mm

Weight 5.70 kg  
Art. No. 0220150041

#### 1250 mm

Weight 8.50 kg  
Art. No. 0220150040

#### 5000 mm

Weight 24.00 kg  
Art. No. 0220150051



### Spanner

for push-pull prop TITAN Alu-BKS and TITAN Megashore leg. Provides safe grip and flexible grip positions by changing the key mouth ensures optimal accessibility.

Weight 4.70 kg  
Art. No. 0220150056

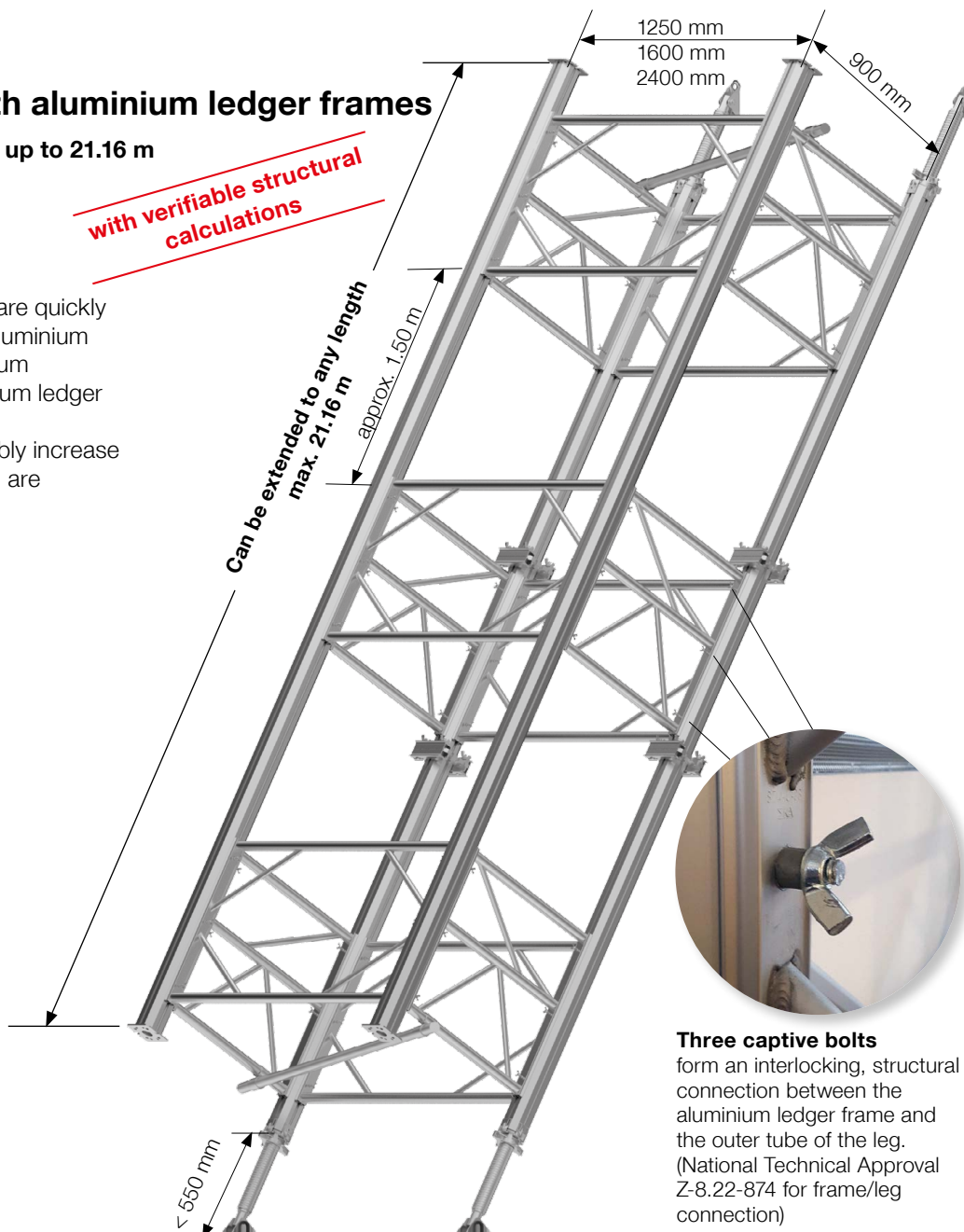
## TITAN Alu-BKS with aluminium ledger frames

Support tower for heights up to 21.16 m

*with verifiable structural calculations*

Stable 4-leg support towers are quickly and easily assembled from aluminium screw jack elements, aluminium extension pieces and aluminium ledger frames.

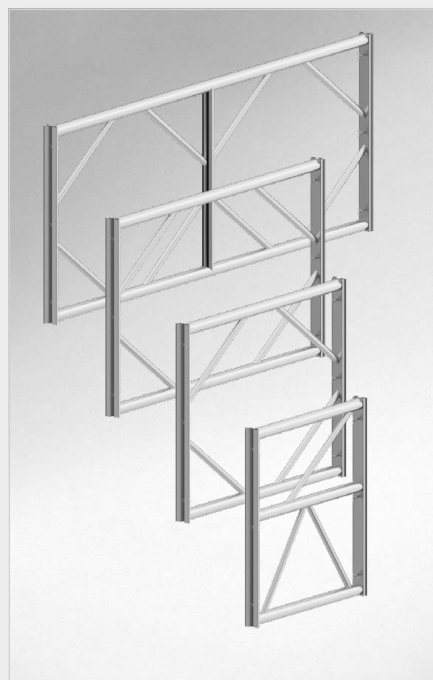
The ledger frames considerably increase the loadbearing capacity and are available in four sizes.



### Three captive bolts

form an interlocking, structural connection between the aluminium ledger frame and the outer tube of the leg. (National Technical Approval Z-8.22-874 for frame/leg connection)

## Assembly tool



### Aluminium ledger frame

850 mm total height, Ø48 mm tubes, suitable for attaching scaffold couplers. Packed in bundles of 20 pcs.

### Available in four widths:

#### 2400 mm

Weight 13.50 kg  
Art. No. 0120150073

#### 1600 mm

Weight 8.80 kg  
Art. No. 0120150071

#### 1250 mm

Weight 7.80 kg  
Art. No. 0120150070

#### 900 mm

Weight 7.50 kg  
Art. No. 0220150068



### Cordless impact wrench (with torque limiter)

for faster assembly of aluminium ledger frames. Supplied complete with sockets, manual torque wrench, extension bars and carry case.

Weight 5.70 kg  
Art. No. 0620150019



## Design

### TITAN Alu-BKS with aluminium ledger frames

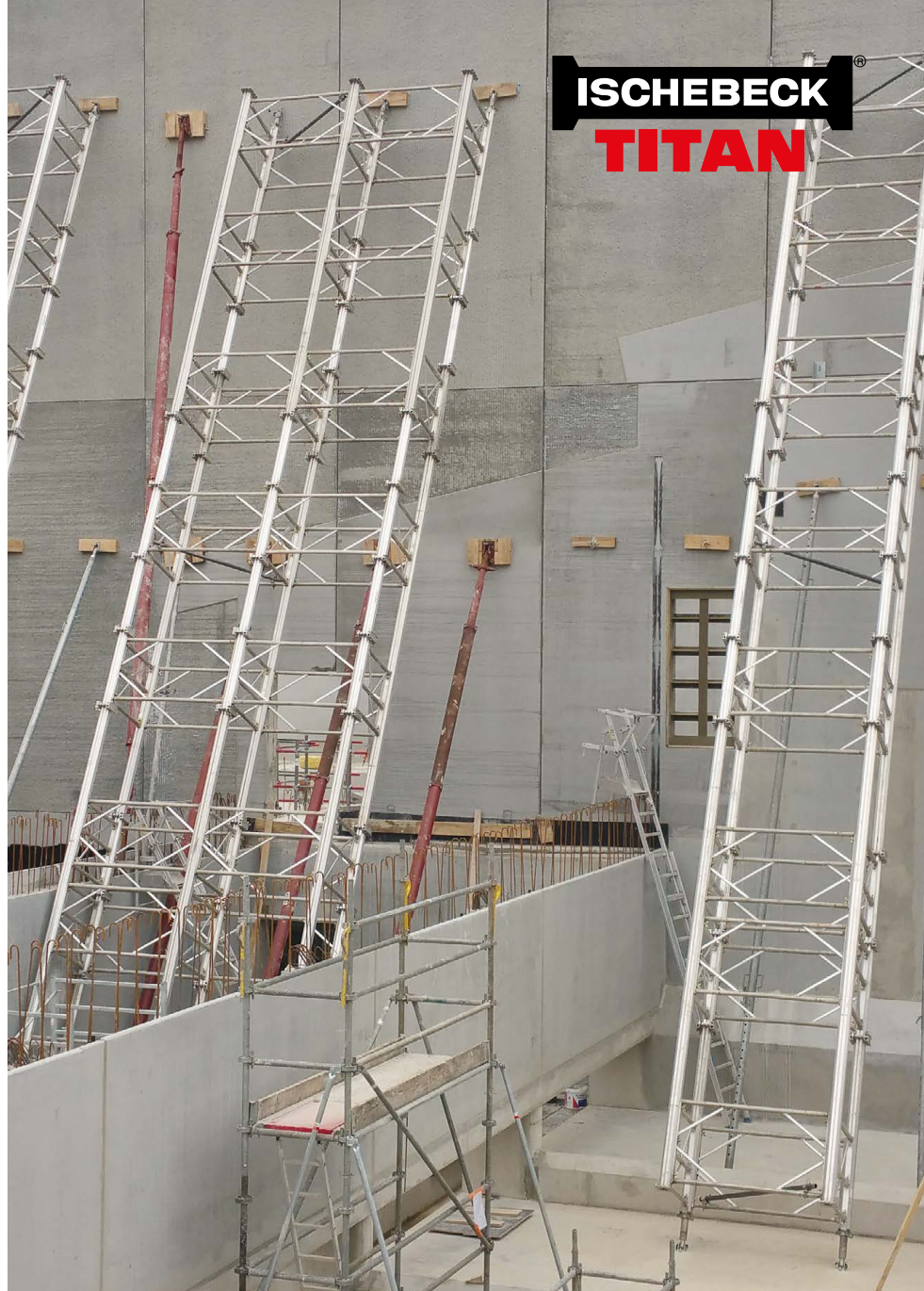
A dynamic pressure of 0.8 kN/m<sup>2</sup> according to DIN 1055 was used for the wind load.

- Self-weight has been taken into account
- Screw jack extension < 550 mm
- Frames parallel to wall, 1.25 m, 1.60 m, 2.40 m
- Frames perpendicular to wall, 0.9 m

### Cross-section maintained with diagonal braces

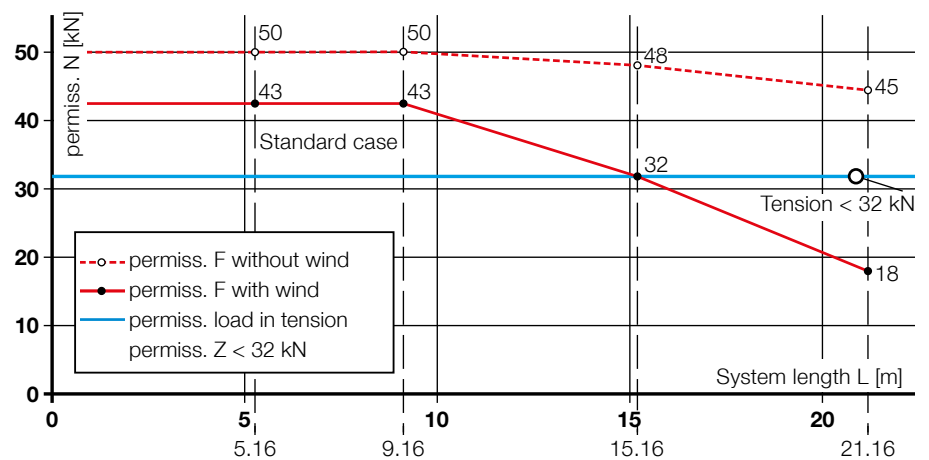
Scaffold tube braces should be attached diagonally to maintain the cross-section. The scaffold tubes are attached to the Ø48 mm top or bottom members of the 900 mm ledger frames with swivel couplers.

- Up to 8 m long: one diagonal brace required at each end.
- From 8 to 16 m long: one additional diagonal brace required in the middle.
- More than 16 m long: four diagonal braces required, spaced equally over the length.



### Design chart

Verified calculation from 15 July 2005. Permissible load per loadbearing leg. Self-weight and wind load to DIN 1055 are considered in the calculations. Safety factors  $\gamma_M = 1.1$  for materials and  $\gamma_F = 1.5$  for actions have already been taken into account in the data given here.



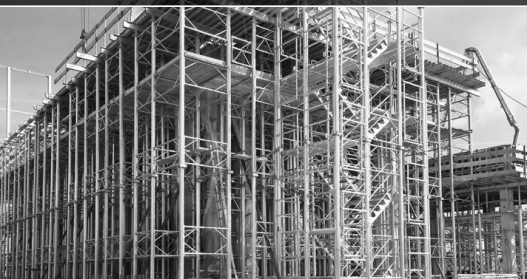




**Precast concrete elements aligned and supported**  
with TITAN RSK push-pull props (size 8 shown here) up to a height of 7.60 m

The photos reproduced in this brochure represent momentary snapshots of work on building sites. It is therefore possible that certain facts and circumstances do not fully correspond to the technical (safety) requirements.

#### Falsework and Formwork systems



#### Trench lining systems



#### Geotechnical solutions



Certified Management-System to DIN EN ISO 9001:2015



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