



**DOKUMENTACJA
TECHNICZNA
DŹWIGU**

**Park Naukowo Technologiczny
Gdańsk**

201900

3. Rysunki dźwigu

Rysunek montażowy dźwigu
Schemat olinowania



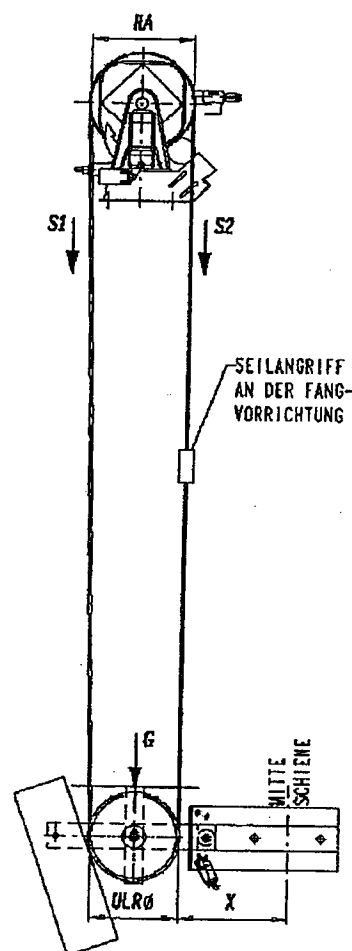
Technical Instructions Guide cable design & tensioning data

Guide cable calculation according to EN81-1/2:

- The maximum forces on the guide cable occur at the moment of safety stop (catching)
- The friction coefficient μ is taken as $\mu=0.2$ mm (applies to new cable and groove)
- The V-angle γ for the controller types used is $\gamma=40^\circ$ or $\gamma = 38^\circ$
- The values used for minimum breaking force and weight per meter of guide cable correspond to the guide cable purchased from Gustav Wolf, with the description "6x19 Warrington + Fe", material number: 220 867, minimum breaking force: 25.8 [kN], cable weight: 0.16 [kg/m].

Tensioning force G [kg]	63	72	87
Cable Data:			
Guide cable diameter [mm]	6,5	6,5	6,5
Minimum breaking force F in [kN]	25,8	25,8	25,8
Weight per meter LG in [kg/m]	0,16	0,16	0,16
Travel height H in [m]	122	93	45
Contact angle β	180°	180°	180°
Calculation:			
$\mu(\alpha) = \mu \cdot \sin(\gamma/2) = 0,2 / \sin(40/2)$	0,5848	0,585	0,5848
Cable weight S = $(FH+4) \times LG \times 9,81$ in [N]	197,77	152,3	76,91
Cable force $S_1 = S \times G/2$ in [N]	512,77	512,3	511,91
Cable force $S_2 = S_1 \times \exp(f_w \times b)$ in [N]	3219,3	3216	3213,9
This results in cable safety s	8,01	8,02	8,03
$s = F/S_2$			

→ Required guide cable safety ≥ 8
according to EN81-1/2



Version:	Supersedes:	To:	Prepared:	Checked:	Released:
15.03.04	Limiter cable chart – definition from 13.06.01 and limiter cable calculation from 18.05.01	TBM,TBP,AV, CS,MOD;	PC / TBM	KRN/TBM	Goe/ TB



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Guide cable chart:

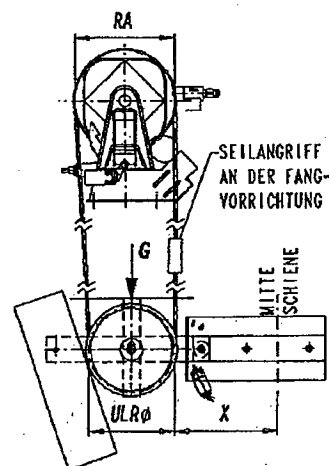
Safety gear	min	max	Clamp no. (over 6 [kg])	Guide cable Ø (mm)	max travel height (m) acc. to guide cable calculation (page 2 of 2)	Drawing No.	Note
6071/0	200	200	63	6.5	122	NB 0001V #	
6071/1	200	200	63	6.5	122	NB 0001V #	
6071/2	200	200	63	6.5	122	NB 0001V #	
6071/5	250 - 300	250	63	6.5	122	NB 00026 #	Car with car frame GII
2 x 6071/3	250 - 300	250	87	6.5	45	NB 00026 #	With car frame IV
PC32	140 - 160	140	63	6.5	122	NB 0001V #	
PC15	125 - 165	165	63	6.5	122	NB 0001V #	No longer manufactured
PC30	125 - 165	165	63	6.5	122	NB 0001V #	
PC44	160 - 225	-	-	-	-	-	No yet in use
PC60	150 - 200	200	72	6.5	93	NB 00026 #	

Used and released types of control (speed governor)

Type	V angle	Possible guide cable Ø (mm)	Guide cable runout RA (No pulley) (mm)
6023	40°	6.0 - 8.0	300
Wab 1	40°	6.0 - 6.5	200
Bode 7	40°	6.0 - 8.0	310
Bode 6	40°	6.0 - 6.5	210
Jungblut Typ HJ 200	38°	6.0 - 6.5	200
Jungblut Typ HJ 300	38°	6.0 - 8.0	300

Used and released types tensioning weight deflection pulley (ULR)

ULR Ø	Possible guide cable Ø	Material No.
215	6.0 - 6.5	220 768



Important:

- Only Ø6.5 (6x19 Warrington + FE) guide cables with material number 220 867 are used!
If the guide cables do not have the required cable safety (according to guide cable calculation page 2) an 8 mm cable must be used.
- ATTENTION: With an 8 mm guide cable a controller with ULR 300 and a Ø 300 deflection pulley is required!
- Tensioning weight must only be increased after consultation with TBM and after guide cable safety calculation has been carried out!
- Steel plates are employed as tensioning weights. Via fixed lever transmission the tensioning force of 6 [kg] results, relative to the tensioning pulley.
- The controller fixture must be designed in accordance with the cable runoff of the guide cable tensioning system used (attention with slanted layout of controller on PC60 safety gear)!
- The guide cable tensioning device and controller fixture is special on the Simpakt (the controller is mounted in the shaft pit, the deflection pulley in the shaft head)!
- When using a controller with $RA \geq 300$ the Ø 215 tensioning weight deflection pulley can be used with the guide cable tensioner, since the guide cable must only be aligned at the cable's application point on the safety gear, a slanted cable runoff is possible on the rear side (see illustration above).
→ The diameter ratio of pulleys for the guide cable – measured from cable centre to cable centre – and cable must be at least 30 ($ULR\varnothing$ or $RA\varnothing$ / guide cable $\varnothing \geq 30$) acc. to EN81-1/2.

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