



GRÜN SYS GREENLINE GES 3



GRÜN SYS GREENLINE GES 3 L



ATTENTION:

When using the anchor device, observe the GRÜN safety instructions.
When mounting the anchor device, observe the assembly instructions.

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Symbols:



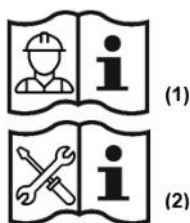
DIN EN 795



General building inspectorate approval /
general type approval from the DIBt
(Deutsches Institut für Bautechnik; German Institute
for Construction Engineering)



Load: parallel to the
mounting plane



Abbreviations	Meaning
EAE	Einzelanschlageeinrichtung (Single anchor device)
SYS	Seilsystem (Cable system)
BEF	Befestigungsset (Screw set)
ZUB	Zubehör (Accessories)

ATTENTION:

To use the anchor device, observe the GRÜN safety instructions (1).

To attach the anchor device, observe the assembly instructions (2).

Only assembly instructions from GRÜN apply.

It is only permitted to use fastening materials supplied by GRÜN.

It is not permitted to replace individual parts.

1 Technical data

Product specifications:

Requirement	Test centre	Marking	User
DIN EN 795:2012 CEN/TS 16415:2017	DEKRA Testing and Certification GmbH Persönliche Schutzausrüstung/Personal Protective Equipment Dinnendahlstr. 9 44809 Bochum - Germany		
abZ/aBG Z-14.9-804	Deutsches Institut für Bautechnik (DIBt) Kolonnenstr. 30 B 10829 Berlin - Germany		

The GREENLINE cable lifeline system has been developed for securing persons and is suitable for the following fall protection systems conforming to EN 363:2019:

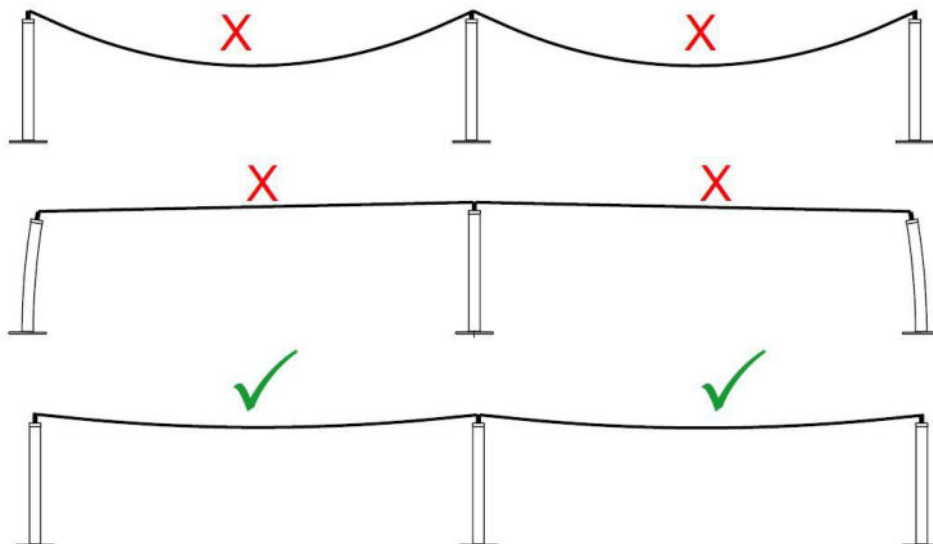
suitable:

- Restraint system
- Fall protection system
- Rescue system

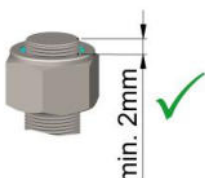
not suitable:

- Working with rope access

General installation instructions:



Optimum cable pretension between 30 – 70 kg.



All nuts should be installed with a depth stop.

2 Specifications for system versions

Specifications for system designs according to EN795

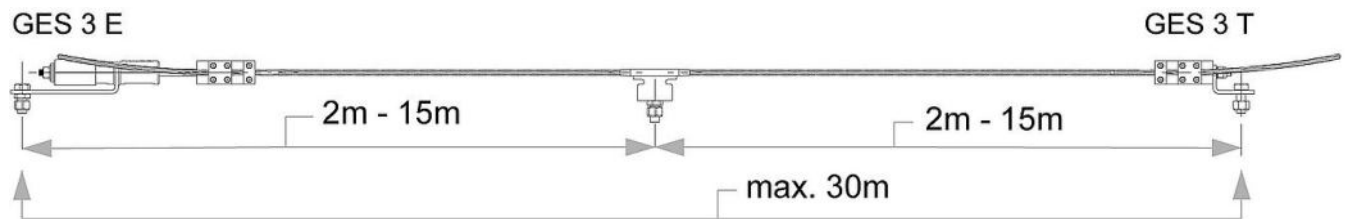
EN 795

Installation must be carried out on suitable subfloors with adequate strength.

The force that is introduced into the structure in the event of a fall when properly used at the end anchors of the anchor device can be up to 15 kN.

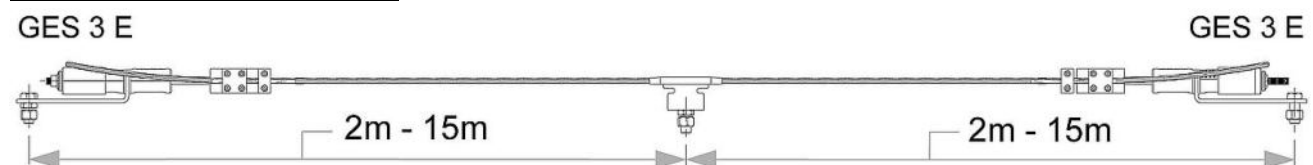
Systems up to 30 m without curve

GRÜN SYS GREENLINE GES 3 L



Systems with one or more curves

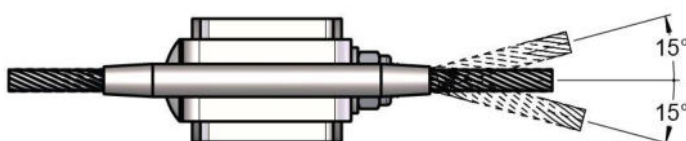
GRÜN SYS GREENLINE GES 3



The cable system angle of inclination is permitted to deviate max. 15° from the horizontal.



The cable entry angle in system components is max. 15°.



Specifications for system designs according to EN795

EN 795

Allocation of GRÜN system supports and max. number of users according to EN 795

End lock set Subfloor type	System types		Field size according to EN 795	GRÜN recommendation: max. field size for restraint system
	GES 3 L	GES 3		
Concrete				
GRÜN SYS VARIANT BD GRÜN SYS SAFEX MULTI BD Z			2 m - 15 m	10 m
GRÜN SYS VARIANT BD GRÜN SYS SAFEX MULTI 2 BD Z			2 m - 15 m	10 m
Prestressed concrete hollow core slabs				
GRÜN SYS VARIANT HD GRÜN SYS SAFEX MULTI HD Z			2 m - 15 m	10 m
Metal				
GRÜN SYS VARIANT TR E GRÜN SYS SAFEX MULTI TR Z			2 m - 15 m	10 m
GRÜN SYS VARIANT TR E GRÜN SYS SAFEX TR Z			2 m - 15 m	10 m
GRÜN SYS SDW 1 GRÜN SYS SDW 2			2 m - 15 m	7,5 m
GRÜN SDW FLEX			2 m - 15 m	10 m
GRÜN SYS I-KLEMME			2 m - 15 m	6 m
GRÜN SYS VARIANT ST GRÜN SYS SAFEX MULTI ST Z			2 m - 15 m	10 m
GRÜN SYS VARIANT KT GRÜN SYS SAFEX MULTI KT Z			2 m - 15 m	10 m
Wood				
GRÜN SYS VARIANT WOOD GRÜN SYS SAFEX WOOD			2 m - 15 m	10 m
GRÜN SYS VARIANT HO GRÜN SYS SAFEX MULTI HO Z			2 m - 15 m	10 m
GRÜN SYS VARIANT KT GRÜN SYS SAFEX MULTI KT Z			2 m - 15 m	10 m
Ballasted				
GRÜN SYS TOPGRÜN			2 m - 10 m	10 m
GRÜN SYS TOPGRÜN LIGHT			2 m - 8 m	8 m
GRÜN SYS TOPKIT			2 m - 10 m	10 m

Specifications for system designs according to DIBt



Installation options on:

Individual anchor devices
installed in line with manufacturer specifications

Concrete components (C20/25 – C50/60)
conforming to technical construction regulations

Steel components ($\geq$ S235)
conforming to technical construction regulations

Load effects [kN] in the substructure



On end holders



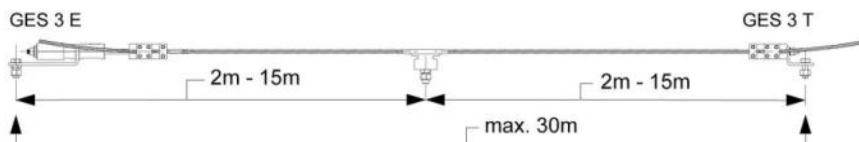
On intermediate supports



On curves

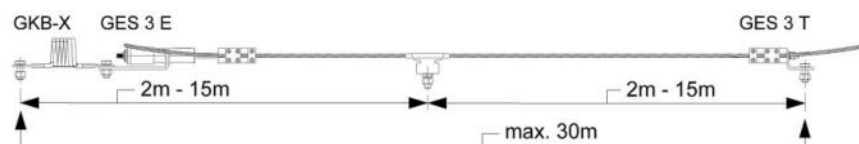
Systems types without curves

GRÜN SYS GREENLINE GES 3 L



Max. users		
1	13.7	9.0
2 - 3	14.2	10.5 / 12.0
4	15.0	13.5

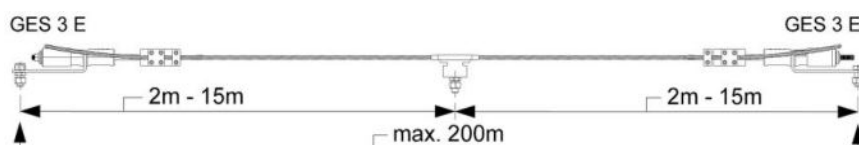
GRÜN SYS GREENLINE GES 3 L PLUS



Max. users		
1	8.2	8.2
2 - 3	10.3	10.3
4	12.2	12.2

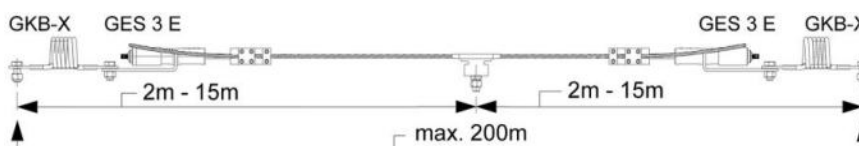
System types with max. one curve

GRÜN SYS GREENLINE GES 3



Max. users			
1	13.7	9.0	13.7
2 - 3	14.2	10.5 / 12.0	14.2
4	15.0	13.5	15.0

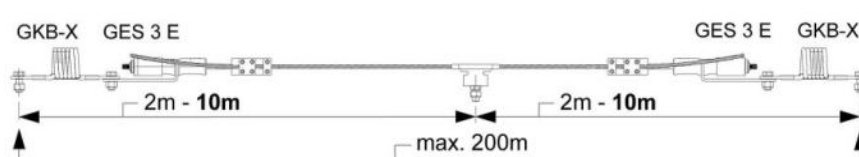
GRÜN SYS GREENLINE GES 3 PLUS



Max. users			
1	8.2	9.0	8.2
2 - 3	10.3	10.5 / 12.0	10.3
4	12.2	13.5	12.2

Systems types with multiple curves

GRÜN SYS GREENLINE GES 3 PLUS



Max. users			
1	8.2	9.0	13.0
2 - 3	10.3	10.5 / 12.0	13.0 / 16.8
4	12.2	13.5	16.8

Specifications for system designs according to DIBt



Allocation of GRÜN system supports and max. number of users according to DIBt

End lock set Subfloor type	System types without curves				Field size according to DIBt	GRÜN recommendation: max. field size for restraint system
	GES 3 L	GES 3 L PLUS	GES 3	GES 3 PLUS		
Concrete ≥ C 20/25						
SYS VARIANT BD SYS SAFEX MULTI BD Z					2 m - 15 m	10 m
Prestressed concrete hollow cor slabs ≥ C45/55						
SYS VARIANT HD SYS SAFEX MULTI HD Z					2 m - 15 m	10 m
SYS VARIANT HD30 SYS SAFEX MULTI HD Z					2 m - 15 m	10 m
Trapezoidal steel profile ≥ S320GD in positive position						
SYS VARIANT TR E SYS SAFEX TR Z					2 m - 15 m	10 m

End lock set Subfloor type	System types with one curve		Field size according to DIBt	GRÜN recommendation: max. field size for restraint system
	GES 3	GES 3 PLUS		
Concrete ≥ C 20/25				
SYS VARIANT BD SYS SAFEX MULTI BD Z			2 m - 15 m	10 m
Prestressed concrete hollow cor slabs ≥ C45/55				
SYS VARIANT HD SYS SAFEX MULTI HD Z			2 m - 15 m	10 m
SYS VARIANT HD30 SYS SAFEX MULTI HD Z			2 m - 15 m	10 m
Trapezoidal steel profile ≥ S320GD in positive position				
SYS VARIANT TR E SYS SAFEX TR Z			2 m - 15 m	10 m

End lock set Subfloor type	System types with several curves	Field size according to DIBt	GRÜN recommendation: max. field size for restraint system
	GES 3 PLUS		
Concrete ≥ C 20/25			
SYS VARIANT BD SYS SAFEX MULTI BD Z		2 m - 10 m	10 m
Prestressed concrete hollow cor slabs ≥ C45/55			
SYS VARIANT HD SYS SAFEX MULTI HD Z		2 m - 10 m	10 m
SYS VARIANT HD30 SYS SAFEX MULTI HD Z		2 m - 10 m	10 m
Trapezoidal steel profile ≥ S320GD in positive position			
SYS VARIANT TR E SYS SAFEX TR Z		2 m - 10 m	10 m

■ Specifications for system designs according to DIBt

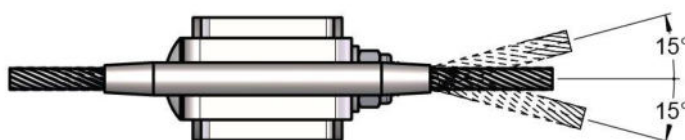


Other system specifications according to DIBt

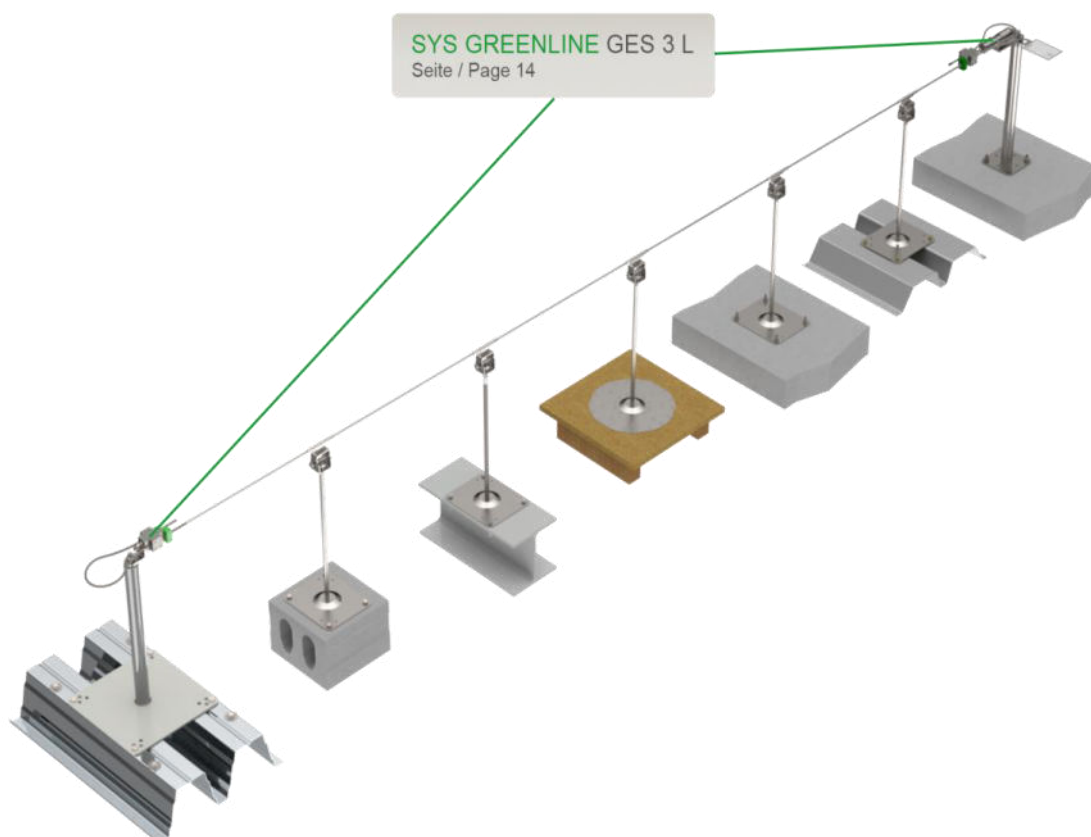
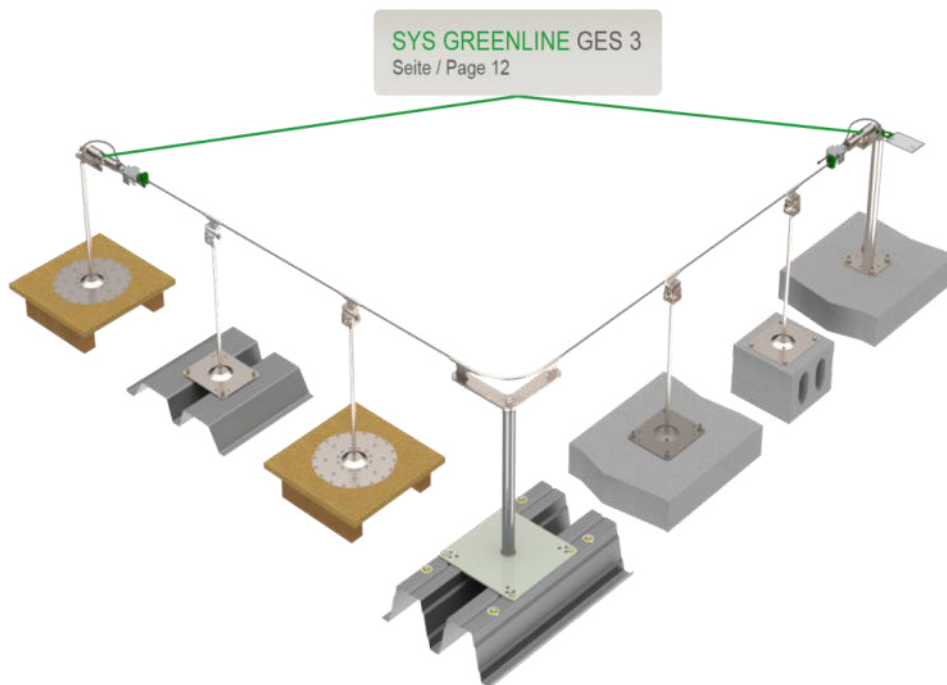
The traversable cable system angle of inclination is permitted to deviate max. 10% from the horizontal. Otherwise, non-traversable intermediate holders or the GRÜN stop clamp must be used.

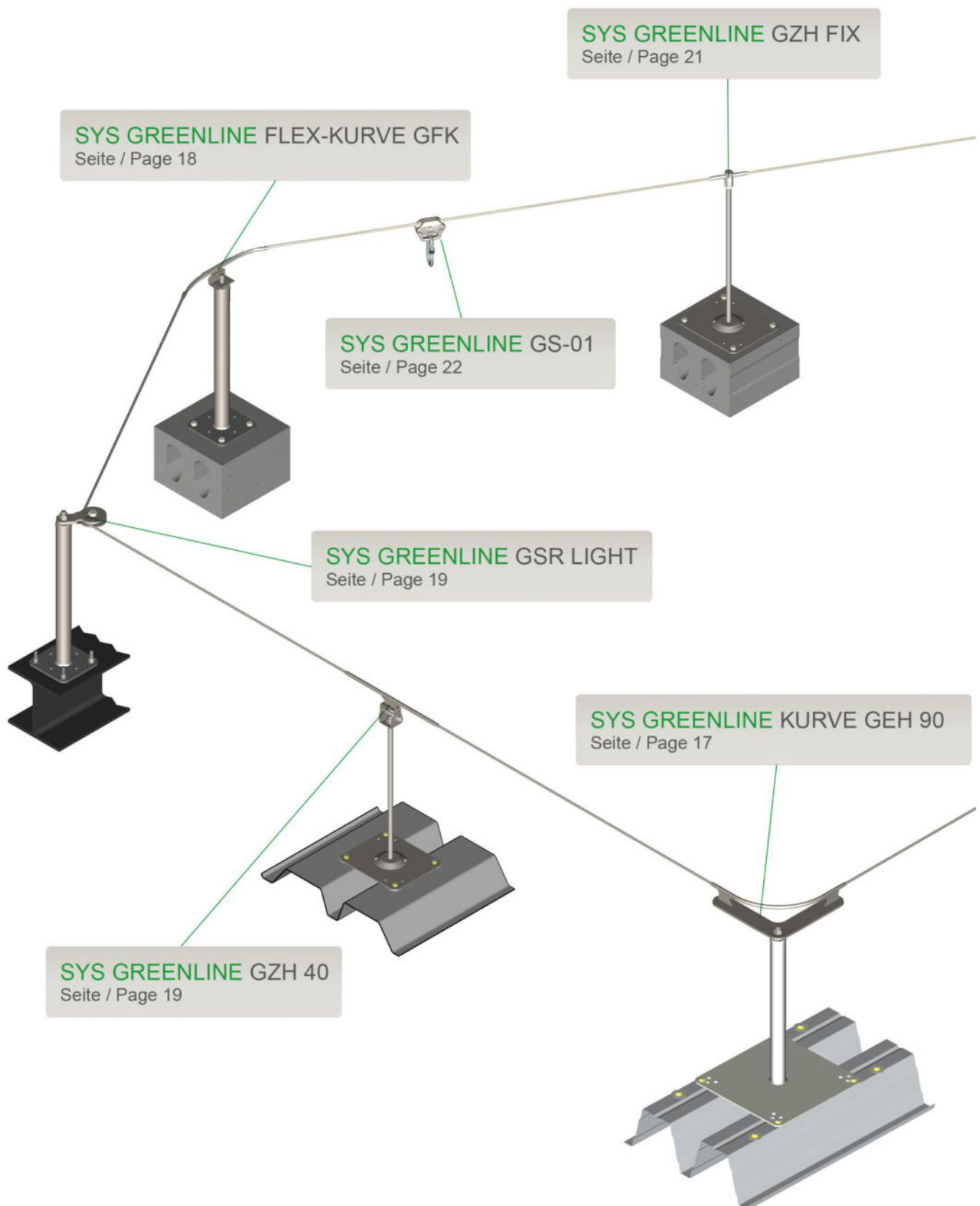


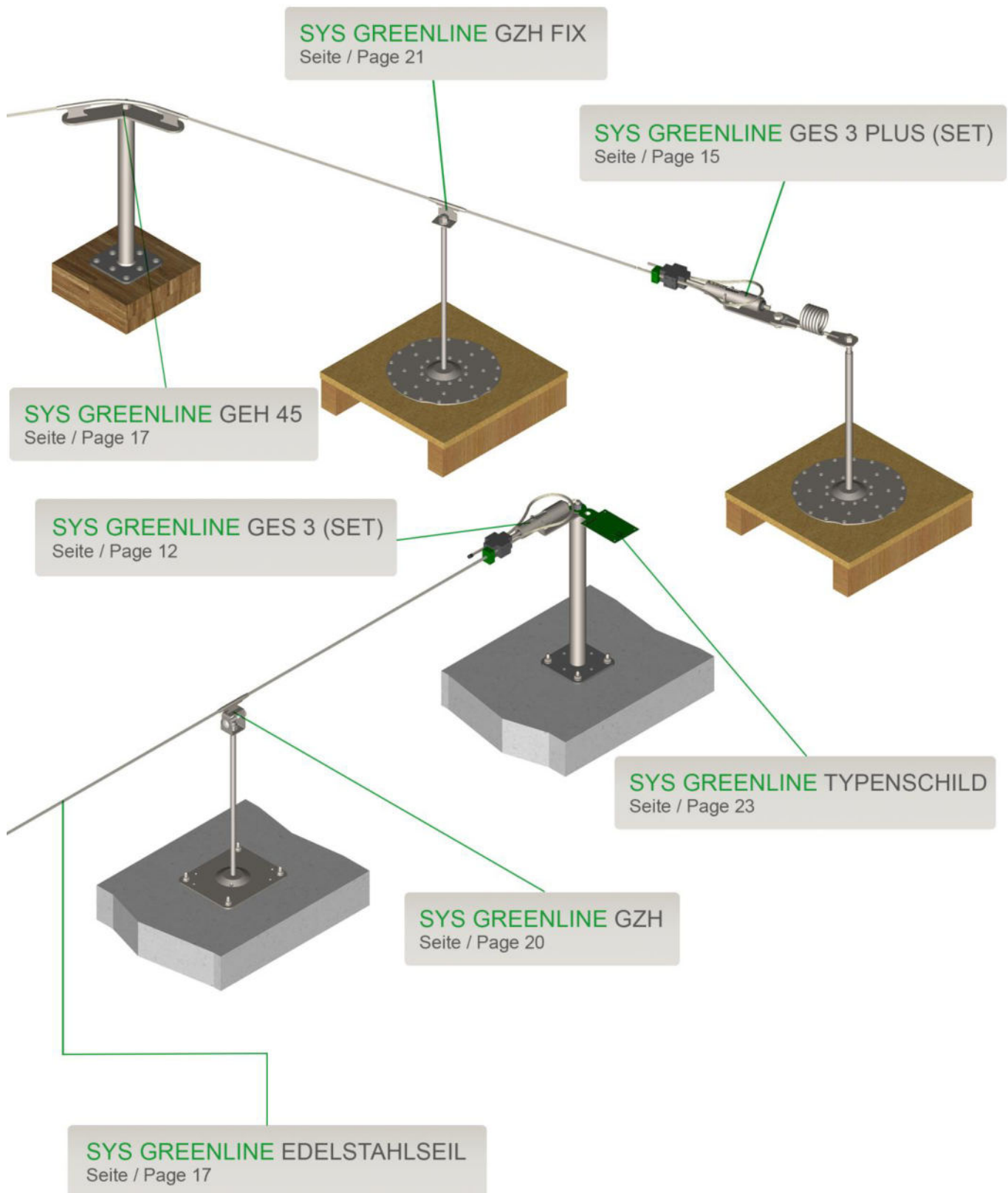
The cable entry angle in system components is max. 15°.



3 System components and installation GRÜN SYS GREENLINE®



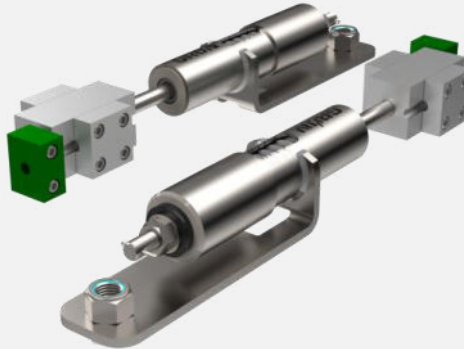




3.1 End lock sets

3.1.1 GRÜN SYS GREENLINE GES 3

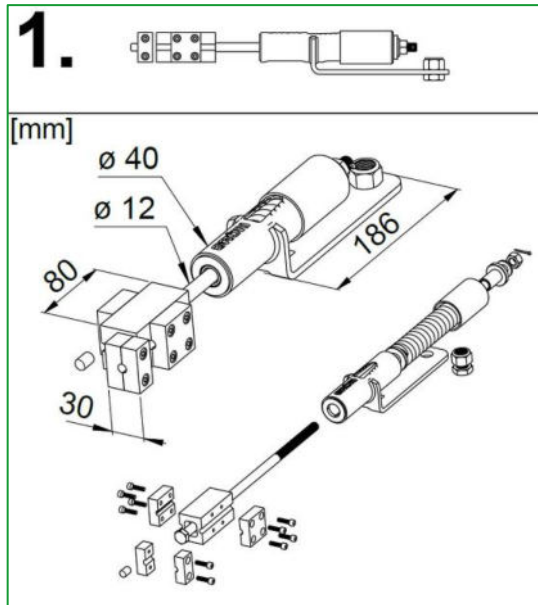
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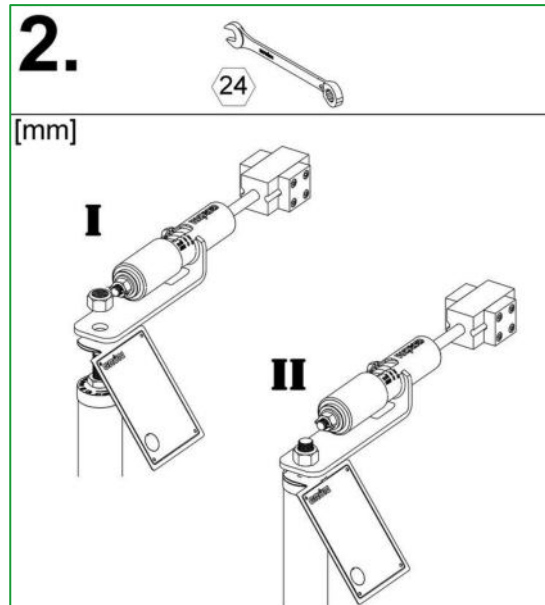
EN 795



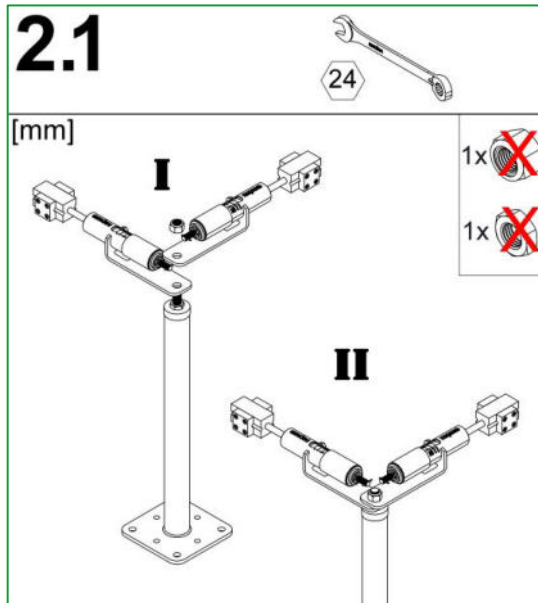
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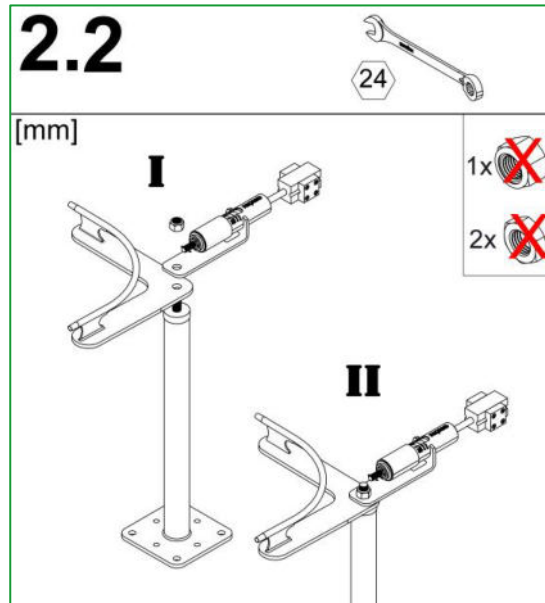
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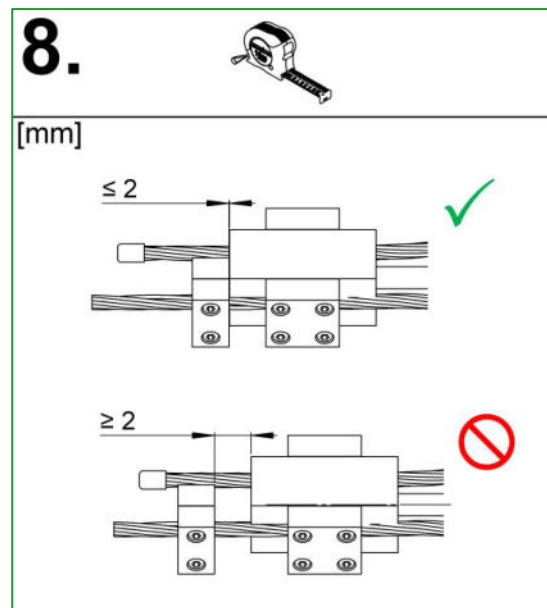
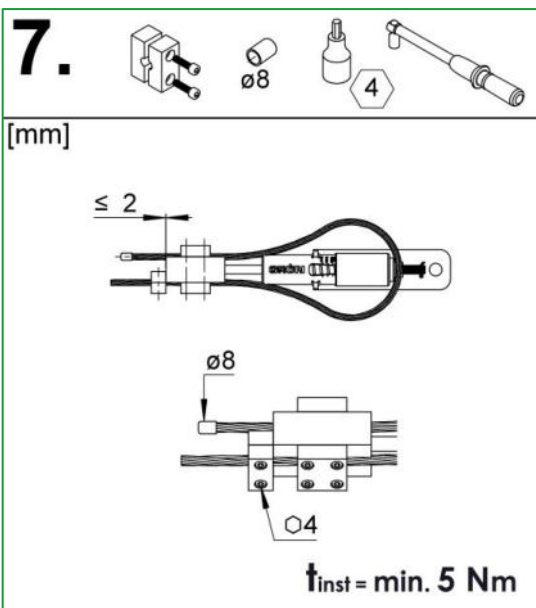
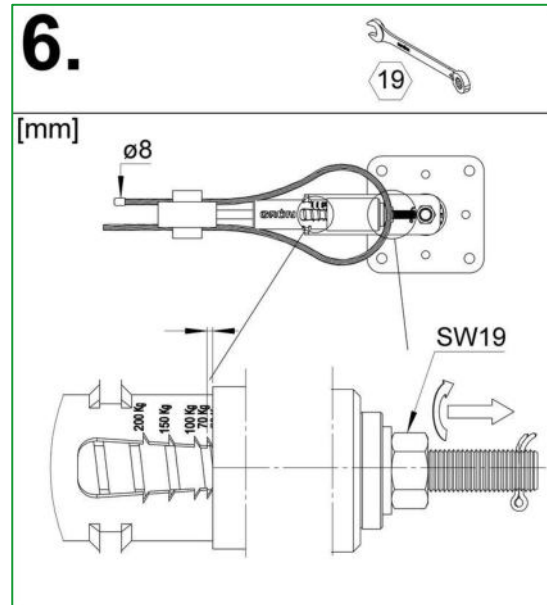
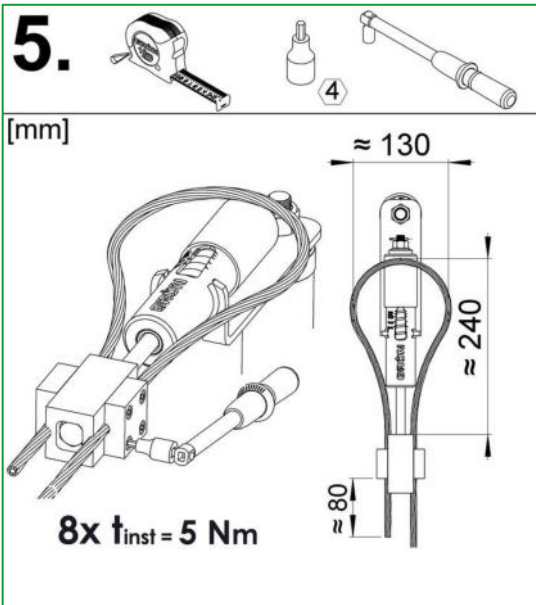
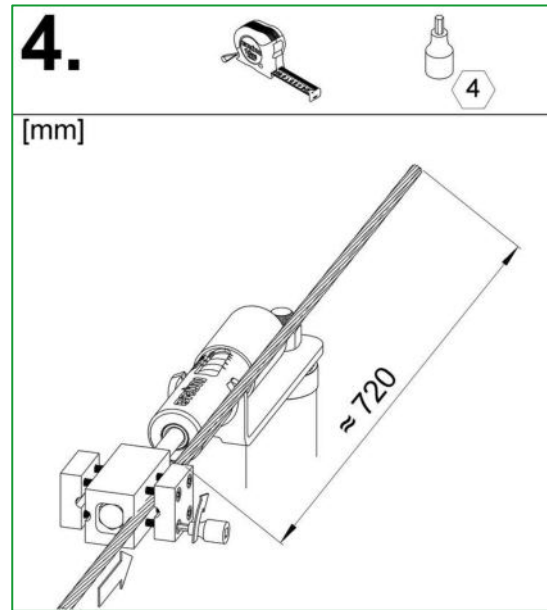
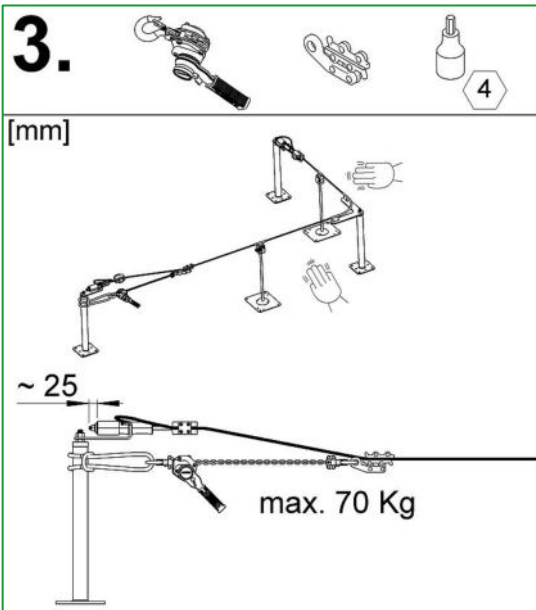


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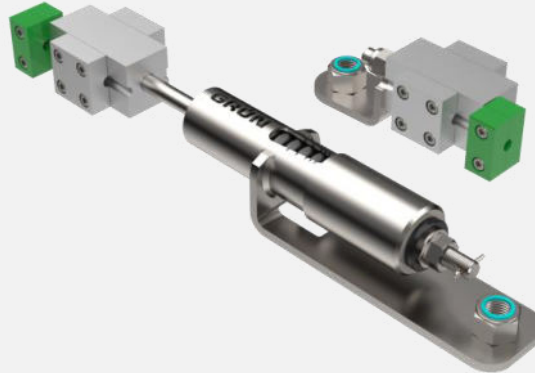
2.2





3.1.2 GRÜN SYS GREENLINE GES 3 L

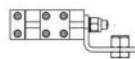
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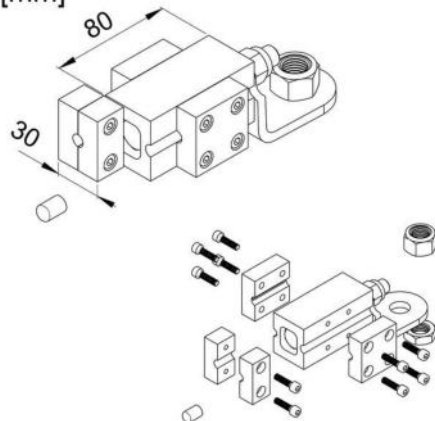
EN 795



1.



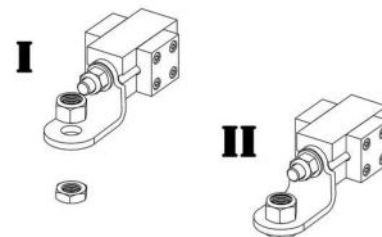
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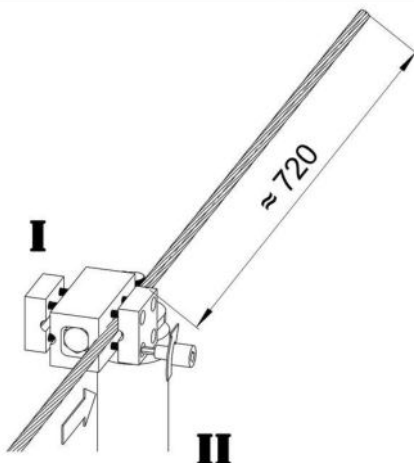
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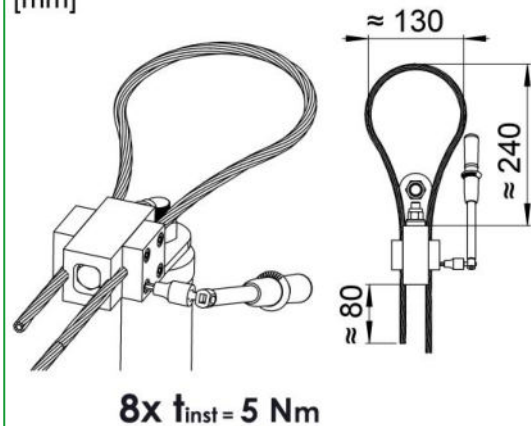
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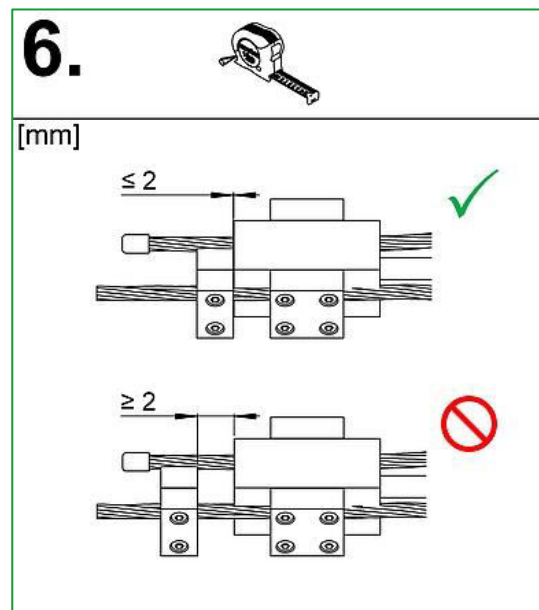
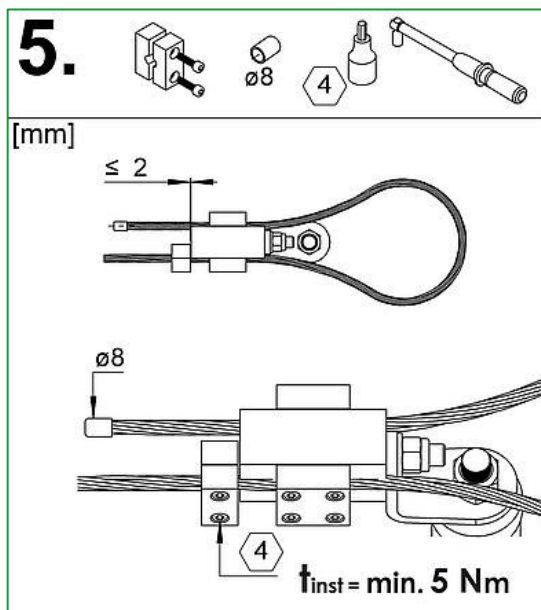


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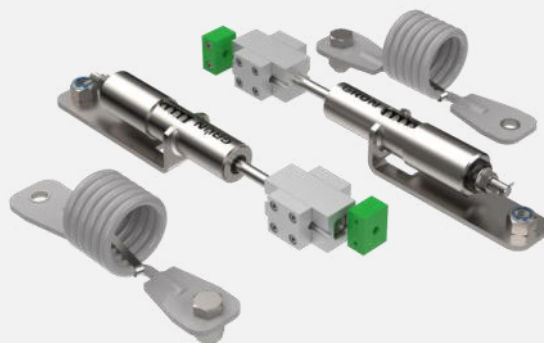
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3.1.3 GRÜN SYS GREENLINE GES 3 PLUS

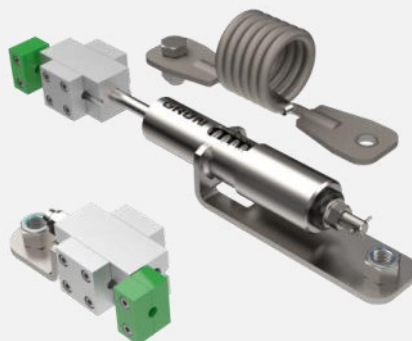
48910340



GRÜN SYS GREENLINE GES 3 and GRÜN SYS GREENLINE GKB-X

3.1.4 GRÜN SYS GREENLINE GES 3 L PLUS

48910360



GRÜN SYS GREENLINE GES 3 L and GRÜN SYS GREENLINE GKB-X

3.1.5 GRÜN SYS GREENLINE GKB-X

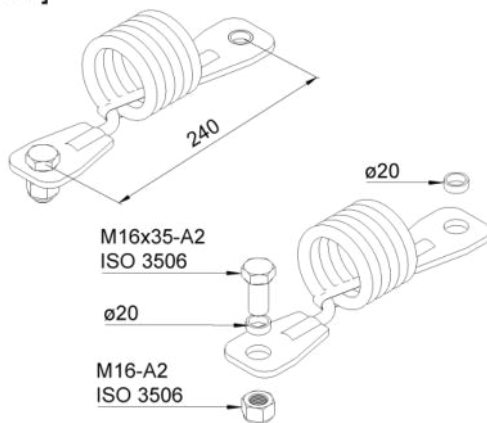
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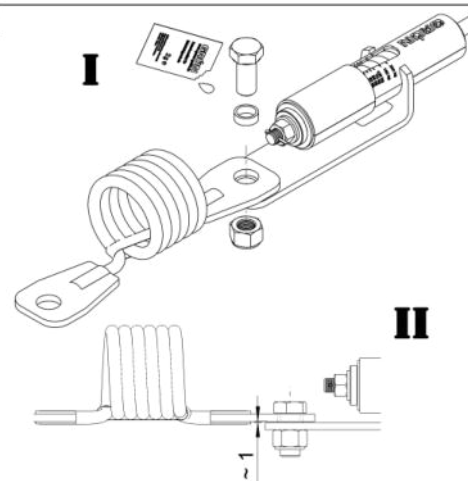
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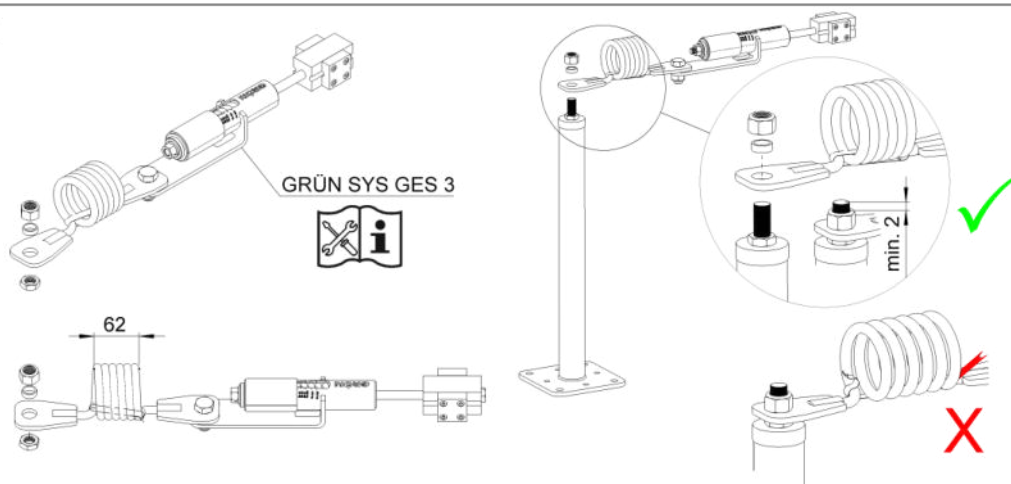


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3.

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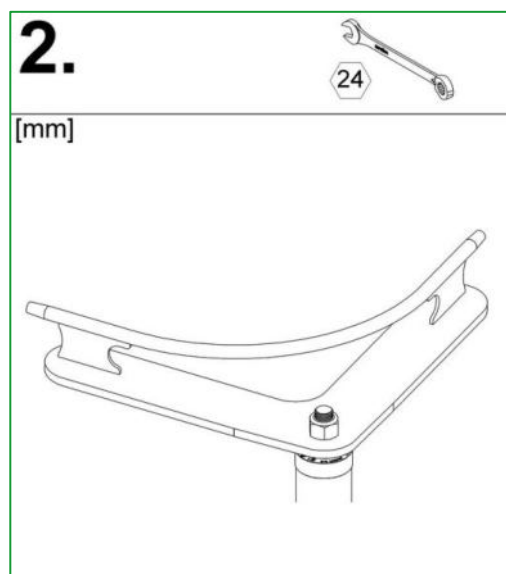
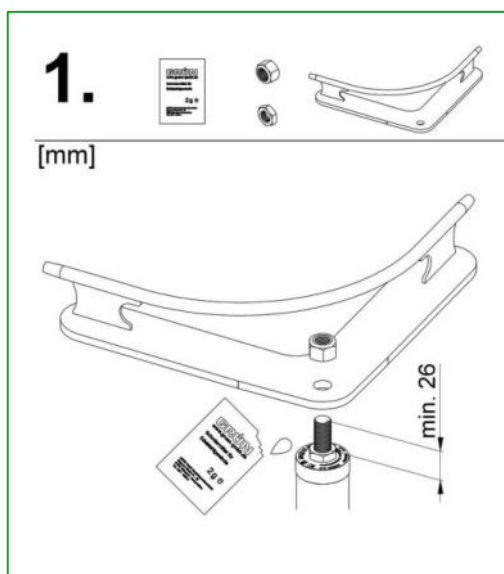
3.2 Curve elements

3.2.1 GRÜN SYS GREENLINE GEH 90

48911200		EN 795 DIBt
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3.2.2 GRÜN SYS GREENLINE GEH 45

48911300		EN 795 DIBt
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3.2.3 GRÜN SYS GREENLINE STAINLESS STEEL CABLE

47901011		EN 795 DIBt
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3.2.4 GRÜN SYS GREENLINE FLEX-KURVE GFK

48911700

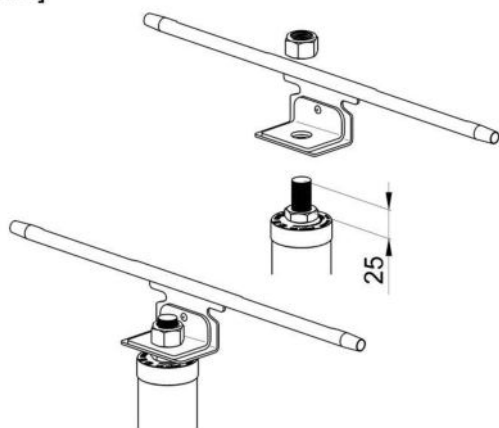


EN 795

1.

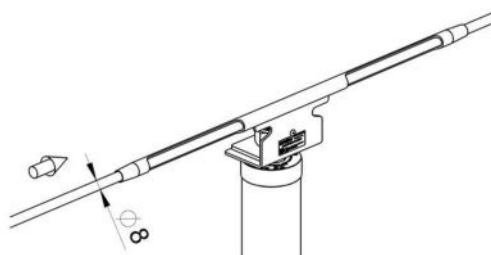


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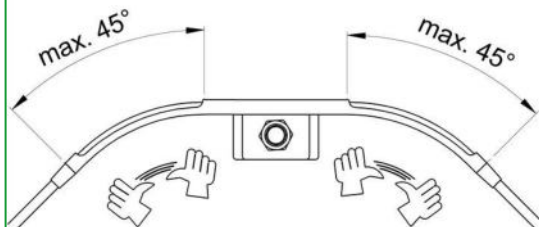
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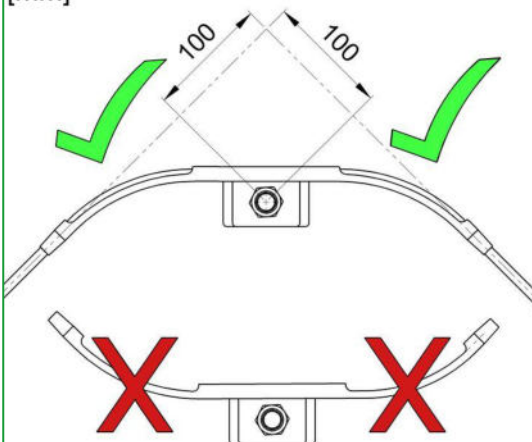
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4.

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3.2.5 GRÜN SYS GREENLINE GZH 40

48911100



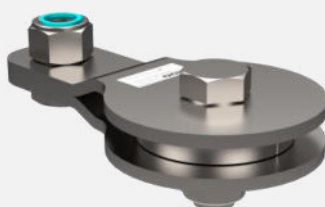
EN 795



traversable intermediate support bendable from 0° to 40°

3.2.6 GRÜN SYS GREENLINE GSR LIGHT

48911600

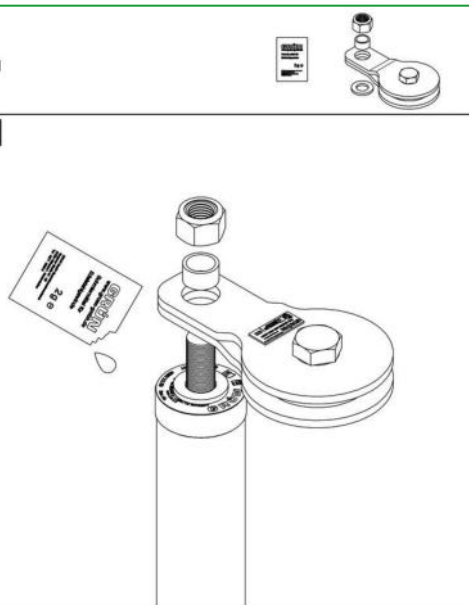


EN 795



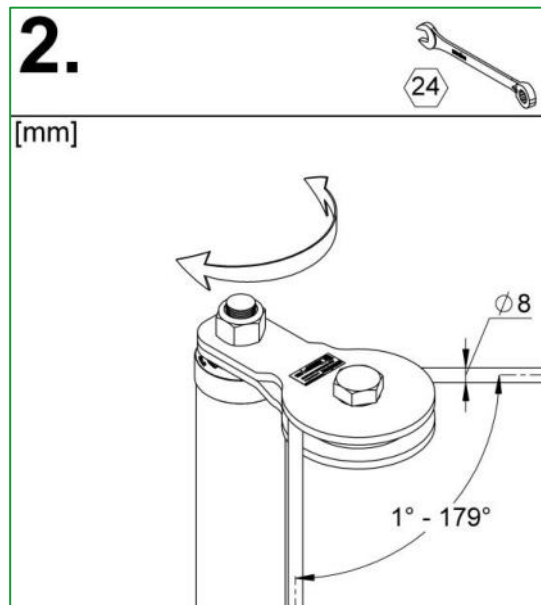
1.

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2.

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Only for assembly onto "VARIANT" supports

3.3 Intermediate supports

3.3.1 GRÜN SYS GREENLINE GZH

48910400



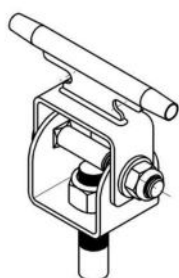
traversable intermediate support rotatable by 180°

EN 795



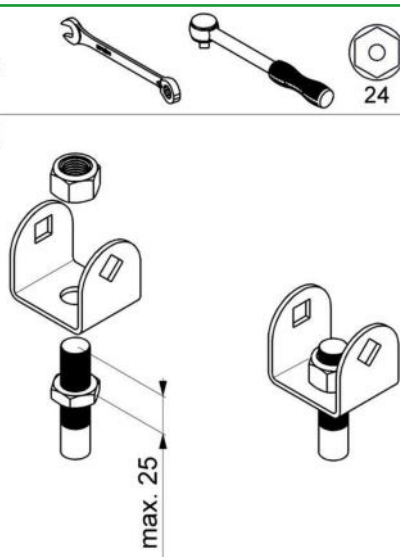
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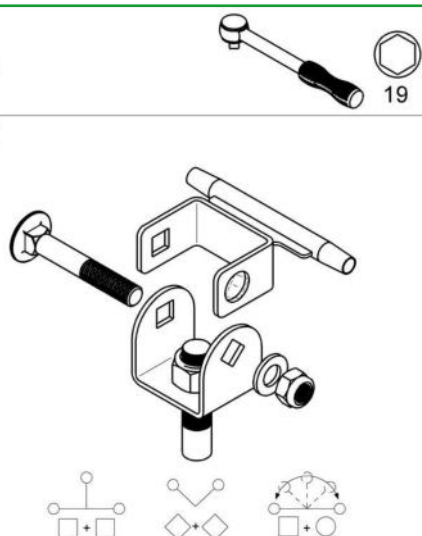
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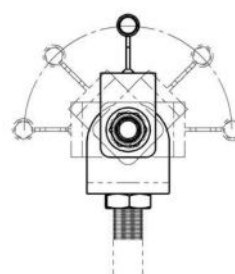
3.

[mm]



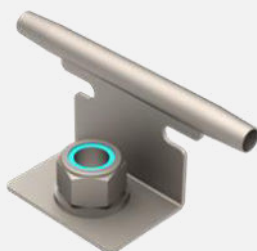
4.

[mm]



3.3.2 GRÜN SYS GREENLINE GZH FIX

48910500



only on system supports



EN 795



3.3.3 GRÜN SYS GREENLINE GZH-X

60150500



(Not suitable for anchor devices
"GRÜN SDW 1 + GRÜN SDW 2")

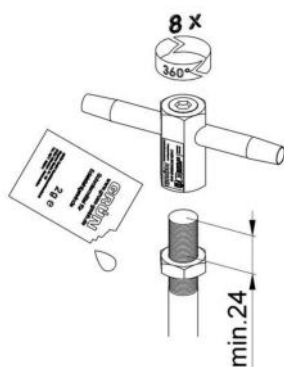
EN 795



1.



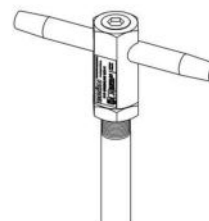
[mm]



2.



[mm]



3.4 Cable sliders

	The separate instructions for use for GRÜN cable sliders are to be followed.	
48925500	GRÜN SYS GREENLINE GS-01	
48921400	GRÜN SYS GREENLINE GS-02-LINEAR only overhead systems and only systems without curves	
Other compatible connection options		
 Carabiner hooks (DIN EN 362:2008 B/T/A)	 GRÜN SYS GREENLINE PREMIUM	 GRÜN SEILGLEITER GREENRUNNER-01
With non-traversable systems, for the safety of users it is necessary that the connection device is not attached in fall-risk areas, otherwise a Y-connection device is to be used.		

4 GREENLINE rope deflection in case of a fall

Cable deflection for GREENLINE cable systems

Possible cable deflection in the fall protection system

Products	Field size [m]	Cable deflection [m]
GREENLINE GES 3, GREENLINE GES 3 L, GREENLINE GES 3 PLUS, GREENLINE GES 3 L PLUS	6	1.60
	7.5	1.80
	10	2.05
	15	2.50

Take the possible deformation of the system supports into account for the deflection.

Possible cable deflection in the restraint system (0.5 kN)

Products	Field size [m]	Cable deflection [m]
GREENLINE GES 3,	6	0.40
GREENLINE GES 3 L,	7.5	0.45
GREENLINE GES 3 PLUS,	10	0.5
GREENLINE GES 3 L PLUS	15	0.75

5 System labelling / type plate (standard)

On each anchor device there is a system sign with the following information:

- Personal fall protection system conforming to EN 795:2012 Type C
- Note that the instructions for use for the anchor device are to be observed.
- Max. number of users
- Information on using a fall arrester
- Information on max. cable deflection
- Installation firm
- Date of installation
- Date of the next test (min. every 12 months)
- GRÜN cable sliders used

Note:

If the identification of the anchor device is no longer accessible/legible after installation, additional marking is recommended in the vicinity of the anchor device.

6 Documentation

The installer is obliged to document the installation, including photos of details that will no longer be visible.

Installation documentation and maintenance documentation form available at:
(<https://gruen-gmbh.de/de/absturzsicherung/downloads/>)

Digital documentation with GRÜN DOKU possible at:
(<https://documentation.gruen-gmbh.de>)



MA_GREENLINE_en_25_12

GRÜN

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