



DELTA PLUS
YOUR **SAFETY** AT WORK

FALL ARREST SYSTEM

04/2015

Lesson nr 1 of 7

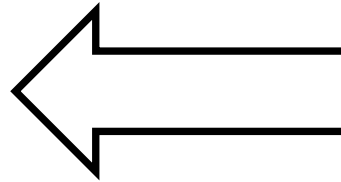
1° Fall arrest system

- 2° Anchor points
- 3° Confined Space
- 4° Rope Access
- 5° Rescue
- 6° Lifeline
- 7° Inspection

WORKING AT HEIGHT



> 2m

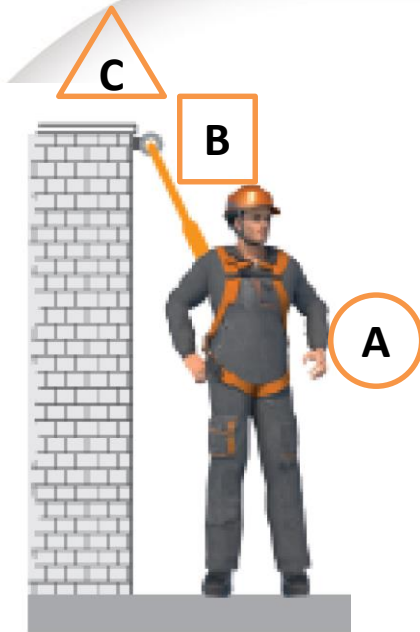


To work at a height more than 2 meters in a place without collective protection, you need a

FALL ARREST SYSTEM



FALL ARREST SYSTEM



A **FALL ARREST SYSTEM**

is composed by at least 3 ELEMENTS

A

HARNESS

B

FALL ARREST DEVICE

C

ANCHOR POINTS

FALL ARREST SYSTEM

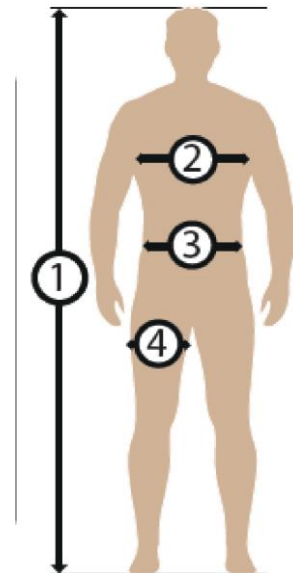


HARNESSES



1

Choose the right SIZE
S-M-L
or
XL-XXL



HARNESSES



2

WEAR IT CORRECTLY



HARNESSES



3

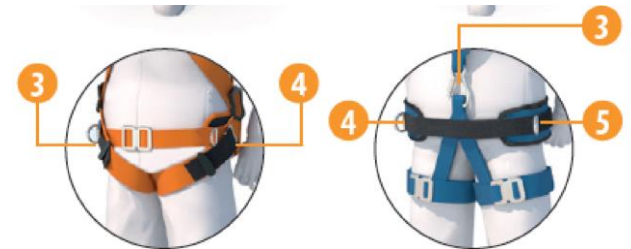
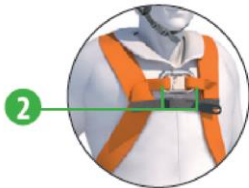
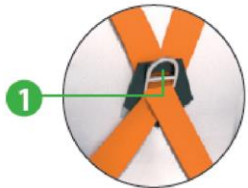
BE AWARE OF THE DIFFERENCE BETWEEN

ANCHOR POINTS

Indicated with «A»

POSITIONNING POINTS

Without marking on the belt



ZOOM ON HARNESS RANGE

HAR...	6	5		4	3	2	1
PREMIUM 3	WAILY  36TC	GALAGO  35TC	EOLIEN  35			ANATOM  32	
				 24	 23	  22	
EVOLUTION 2				 14		 12	   11
ESSENTIAL 1							

ZOOM ON HARNESS RANGE

HAR...	6	5	4	3	2	1
PREMIUM	 36TC	 35TC	 35		 32	
EVOLUTION			 24	 23	 22	
ESSENTIAL			 14		 12	 11

IDENTIFICATION CODES

HAR

0

0

XXX

YY

HAR

For all our harnesses

0

1 = ESS , 2 = EVO , 3 = PRE

0

Anchor and positionning points, from 1 to 6

XXX

GIL if with vest, TC if for rope access

YY

Colour code for vest, OR orange, JA yellow,
NO black

HARNESS RANGE FEATURES

COLOURS to help choice and use

ESSENTIAL	: one side orange, one side black
EVOLUTION	: black/orange for brest black/grey for legs
PREMIUM	: black/orange for brest black/grey for legs
TC	: black and orange (for rope access harnesses)
ANSI	: black/yellow (for Africa & America only)

HARNESS RANGE FEATURES

FOR ALL

2 sizes: **GT** = S-M-L and **XX** = XL-XXL

Protected plastic LABEL for complete traceability:

- production date mm/yy
- batch number
- single serial number
- additional tissue label for annual inspections)

Optionally TESTED at 140 Kg (ESS) or 150 kg (EVO/PRE)



HARNESS RANGE FEATURES

FOR EVOLUTION + PREMIUM

Fall indicator (not on TC range)

Tools holders on belt

Belt with 120° rotation

RIPLIGHT SYSTEM for better confort (EVO only)

HARNESS RANGE FEATURES

FOR PREMIUM

Comfortable PAD removable

Phone pocket

Available with automatic buckles

FALL ARREST DEVICES



FALL ARREST

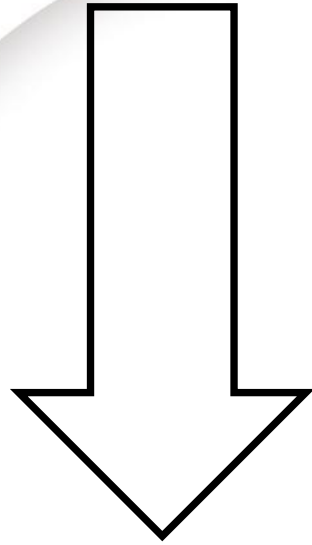


FALL ARREST DEVICES

FALL IMPACT

6 kN maximum tolerance
for the body

10 kN irreversible injuries,
death

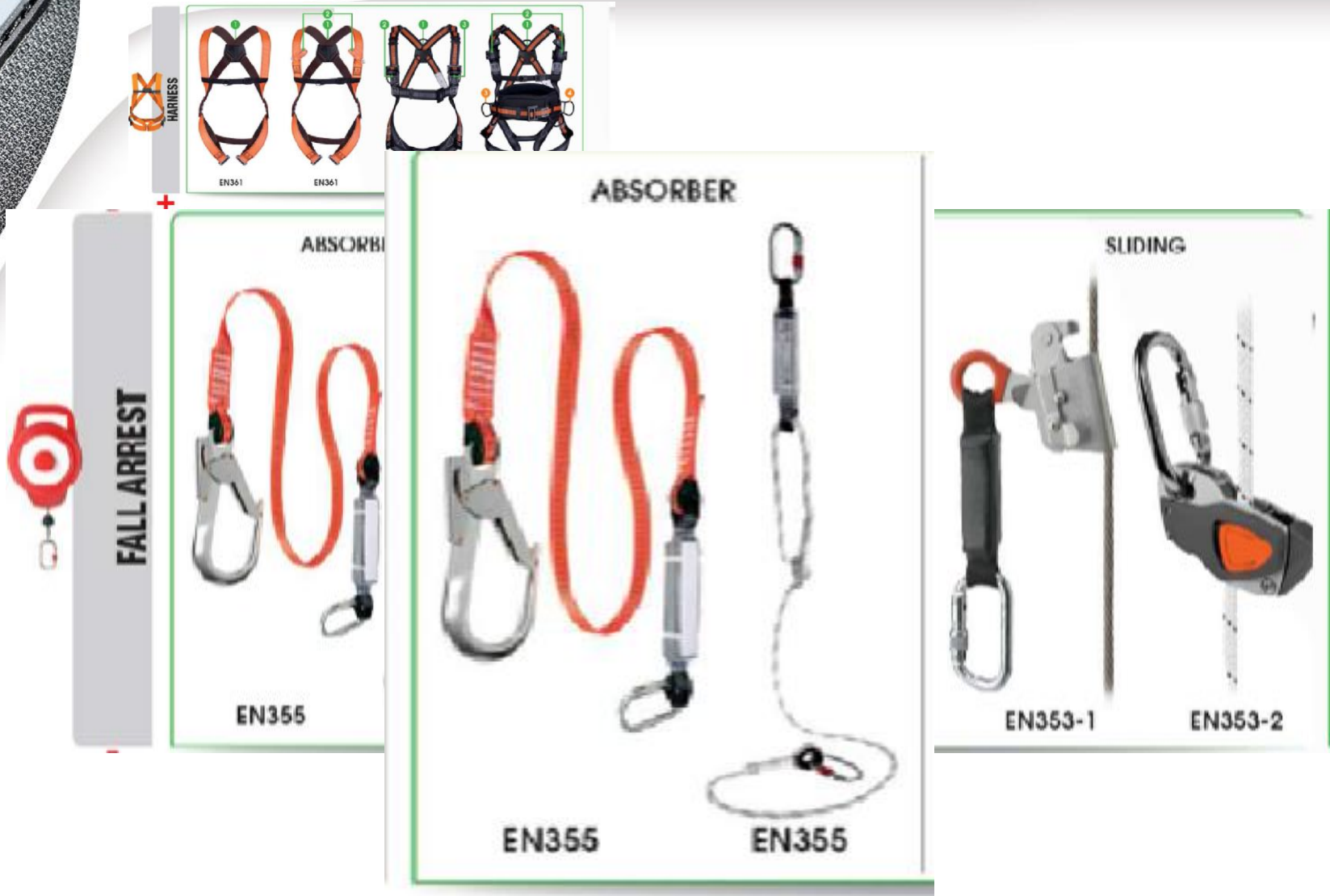


A dummy of 100 kg in free fall reaches a force of

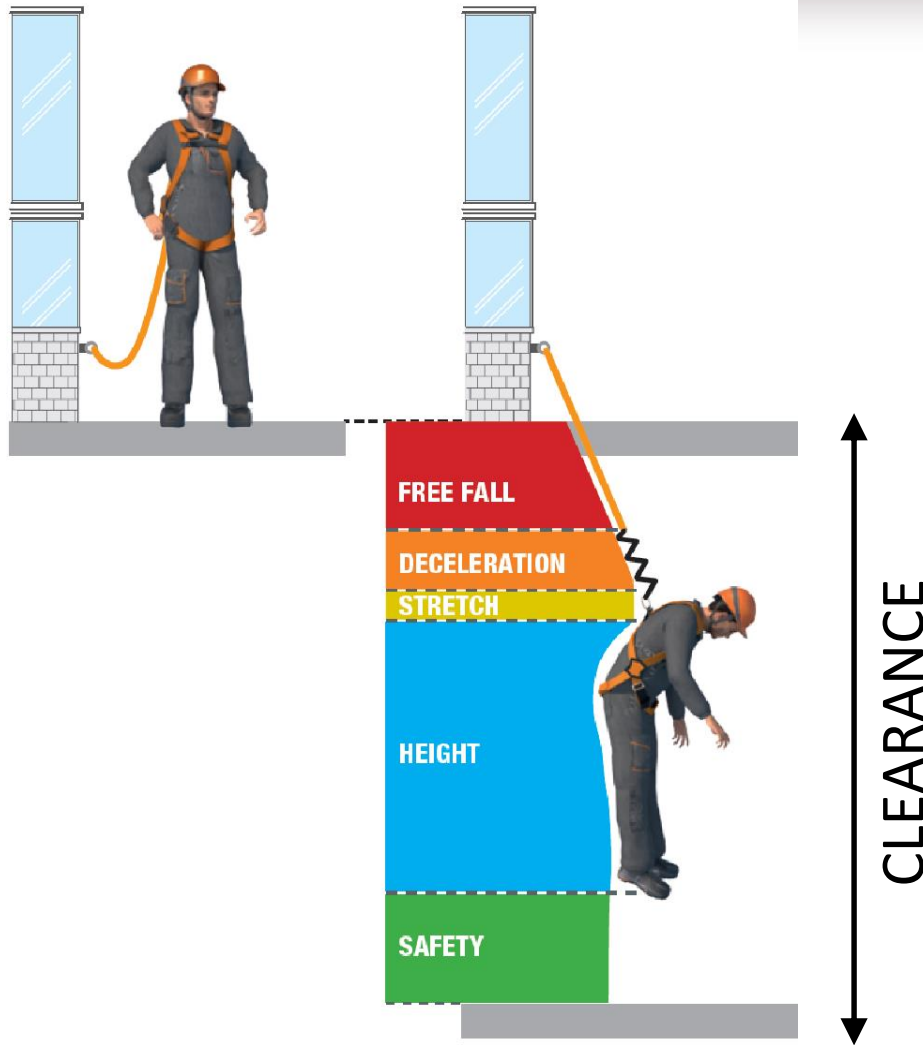
- 6 kN in < 2 mt
- 10 kN in 4 mt

The FALL ARREST SYSTEM must **ABSORB THE IMPACT** and **STOP** the 100 kg dummy without exceeding the force of 6kN

ENERGY ABSORBER



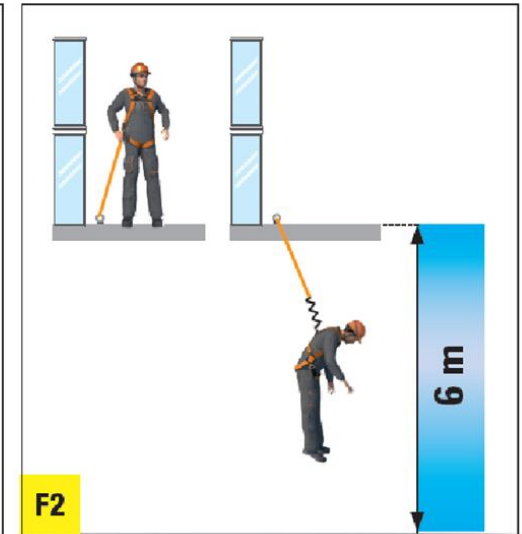
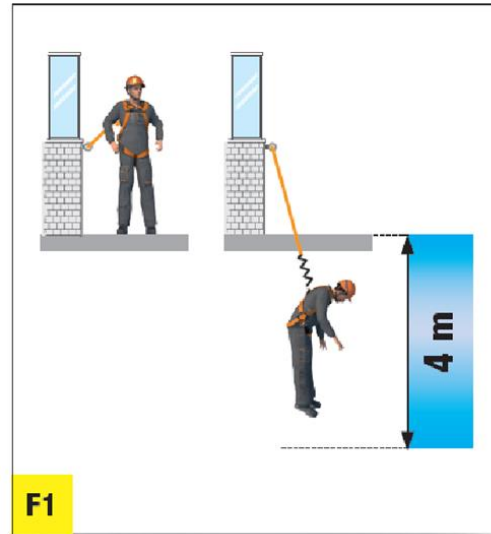
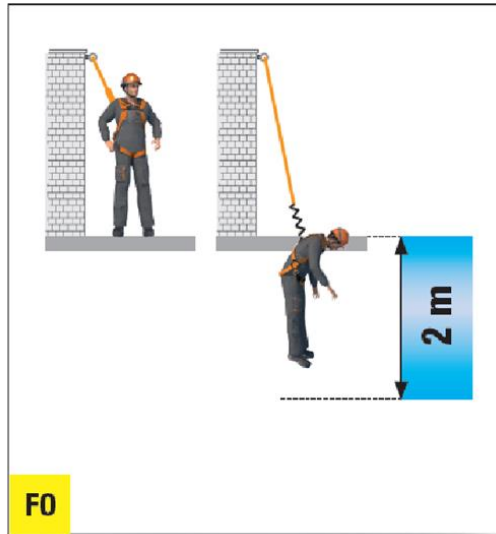
ENERGY ABSORBER



TO **ABSORB THE IMPACT**
AND **STOP** THE
PERSON, THE
SYSTEM NEEDS A
FREE FALL
SPACE, WITHOUT
OBSTACLES,
CALLED
«CLEARANCE»

ENERGY ABSORBER

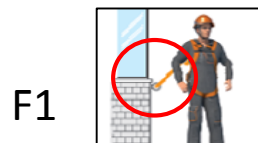
CLEARANCE



ACCORDING TO ANCHOR POSITIONNING:



CLEARANCE = 2m







CLEARANCE = 4 m




CLEARANCE = 6 m

ZOOM ON ENERGY ABSORBERS

AN...	 C +	 C	 D	 CC	 DD
PREMIUM			230 CD		240 CDD
EVOLUTION		208 150 CC	208 R CD	218 150 CCC	218 R CDD
ESSENTIAL		201 200 CC	201 200 CD	211 200 CCC	211 200 CDD
		203 200 CC	203 200 CD	213 200 CCC	213 200 CDD

ZOOM ON ENERGY ABSORBERS

AN...	C +	C	D	CC	DD
PREMIUM			230 CD		240 CDD
EVOLUTION		208 150 CC	208 R CD	218 150 CCC	218 R CDD
ESSENTIAL		201 200 CC	201 200 CD	211 200 CCC	211 200 CDD
		203 200 CC	203 200 CD	213 200 CCC	213 200 CDD

IDENTIFICATION CODES

AN

000

000

XXX

AN

For all FALL ARREST DEVICES

000

Item code, exemple 230 or 203

000

150 or 200 length in centimeters, «R» for adjustable, nothing for elastic

XXX

Codes for 2 or 3 connectors (according to the type of energy absorber, simple or double Y)

C= AM002



D= AM022



ENERGY ABSORBERS FEATURES

MATERIALS

PREMIUM : ELASTIC WEBBING

BLACK/ORANGE

EVOLUTION : BRAIDED ROPE

ESSENTIAL : TWISTED ROPE

ESSENTIAL : ORANGE WEBBING

LENGTHS

- Basically 200 cm in total, maximum for CE standard
- Some items in 150 cm
- Adjustable from 150 to 200 cm
- Elastic is from 140 to 200 cm

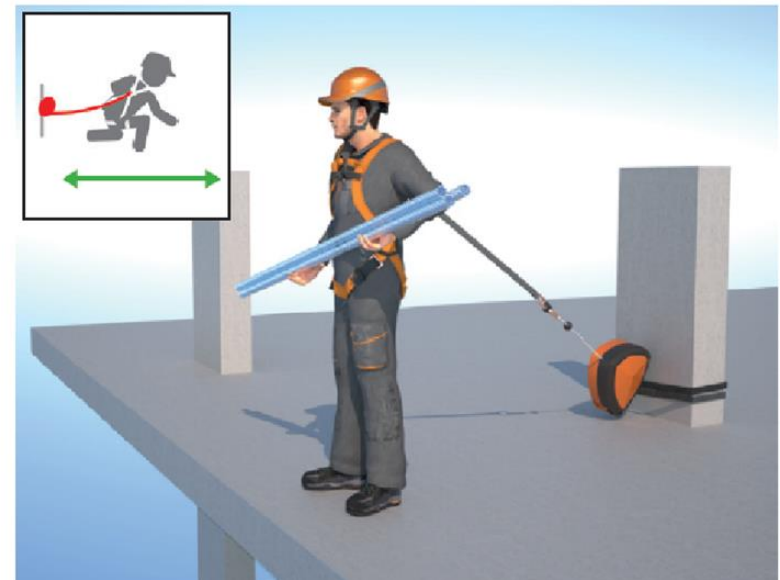
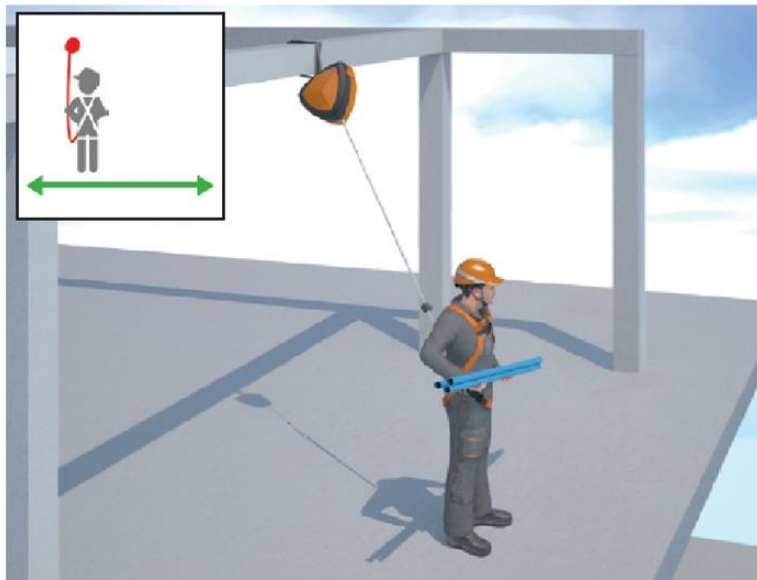
RETRACTABLE FALL ARRESTERS



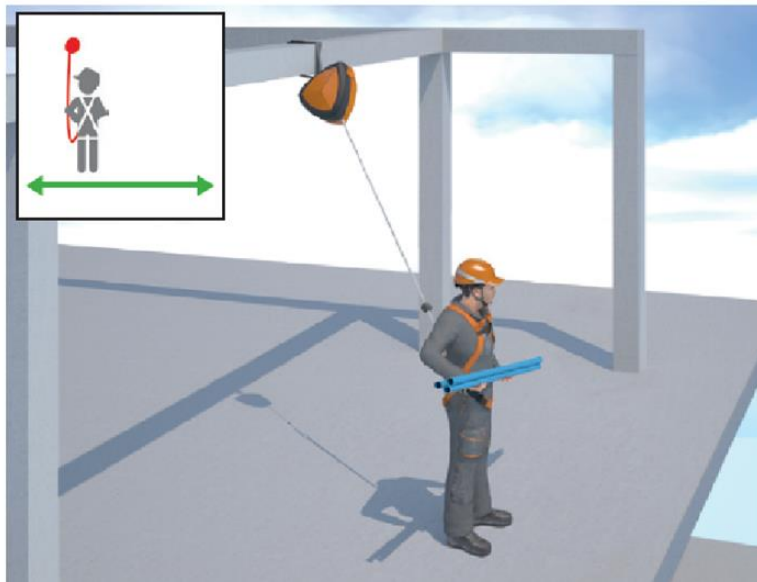
FALL ARREST



RETRACTABLE FALL ARRESTERS



RETRACTABLE FALL ARRESTERS

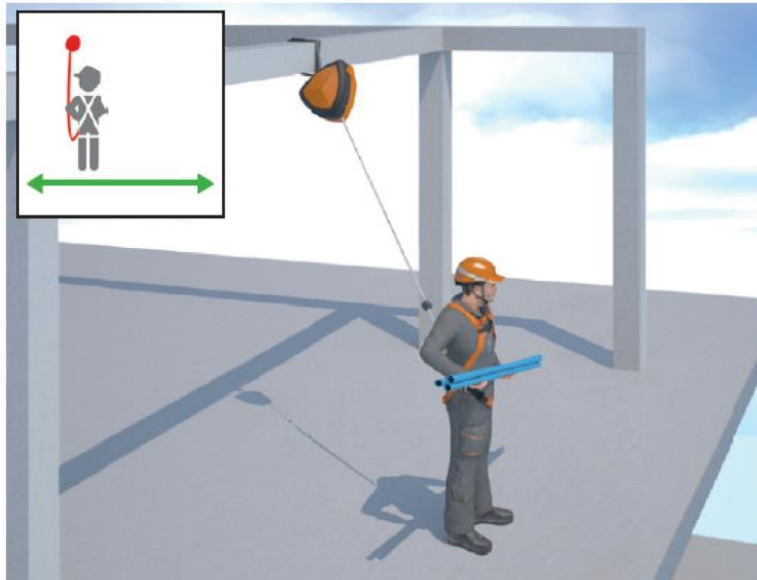


VERTICAL USE

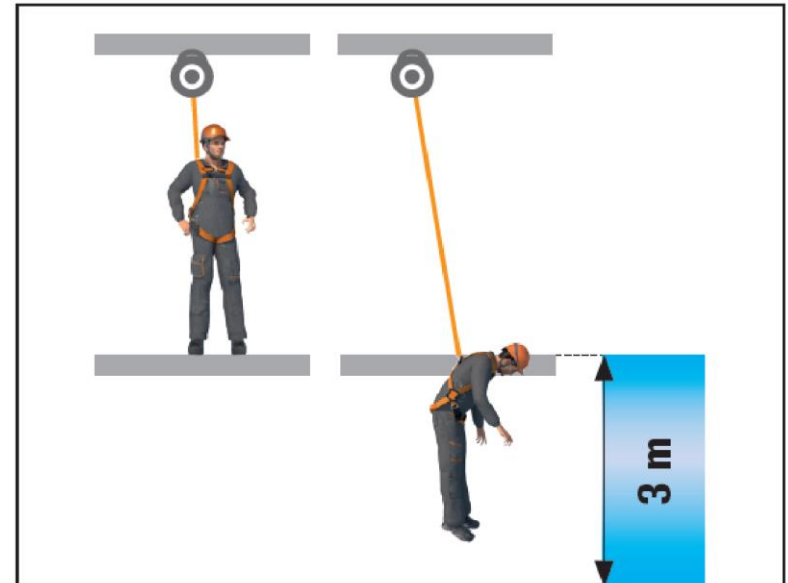


HORIZONTAL USE

RETRACTABLE FALL ARRESTERS

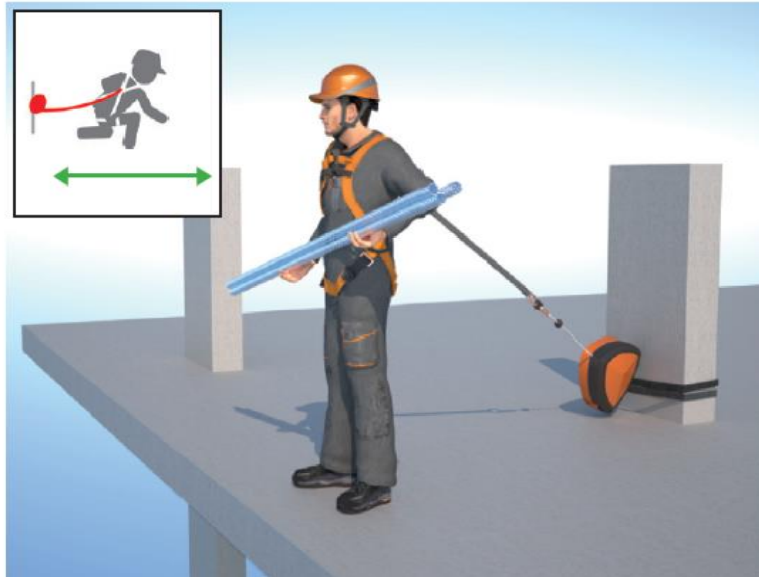


VERTICAL USE

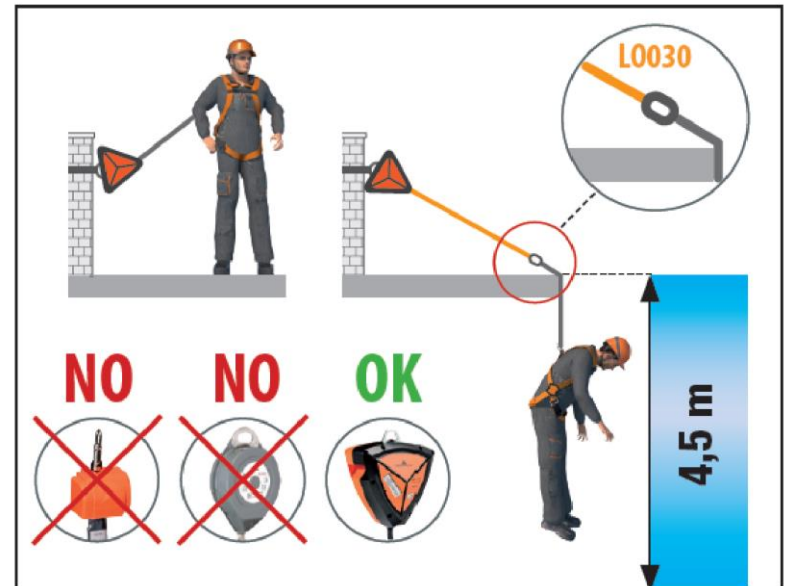


CLEARANCE

RETRACTABLE FALL ARRESTERS









HORIZONTAL USE



CLEARANCE

ZOOM ON RETRACTABLE

 <p>FIXBLOC</p> <p>1,9 m</p> <p>AN105</p>	 <p>MINIBLOC</p> <p>2,5 m</p> <p>AN102</p>	 <p>MEDBLOC</p> <p>6 m</p> <p>AN130 06 C</p>
 <p>PROTECTOR TETRA</p> <p>F T</p>	<p>Ø 4 mm</p> <p>6 m</p> <p>AN152</p> <p>10 m</p> <p>AN153</p> <p>15 m</p> <p>AN154</p>	<p>6 m</p> <p>AN141</p> <p>8 m</p> <p>AN142</p>
 <p>PROTECTOR METAL</p> <p>F T</p>	<p>Ø 4 mm</p> <p>20 m</p> <p>AN115</p> <p>25 m</p> <p>AN116</p> <p>30 m</p> <p>AN117 30</p>	<p>Ø 5 mm INOX</p> <p>23 m</p> <p>AN110 23</p>
 <p>PROTECTOR ELEVATOR</p> <p>F T</p>	<p>Ø 4 mm</p> <p>20 m</p> <p>TR 007</p> <p>30 m</p> <p>TR 017 30</p>	

ZOOM ON SMALL RETRACTABLE

FIXBLOC 1,9 m AN105	MINIBLOC 2,5 m AN102	MEDBLOC 6 m AN130 06 C
PROTECTOR TETRA F T 4 mm 6 m AN152 10 m AN153 15 m AN154 8 m AN142	PROTECTOR METAL F T 4 mm 20 m AN115 25 m AN116 30 m AN117 30 5 mm INOX 23 m AN110 23	PROTECTOR ELEVATOR F T 4 mm 20 m TR 007 30 m TR 017 30

SMALL : 2 ÷ 8 meters
(All with webbing)



AN	device
000	code
000	length
X	connector

meters

AN	AN	AN	AN	AN
105	102	130	141	142
		06		
(C)	(C)	C	F/T	F/T
1,9	2,5	6	6	8

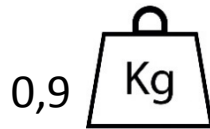
SMALL RETRACTABLE FEATURES



FIXBLOC

1,9 m

AN105



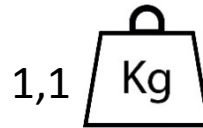
**FALL INDICATOR
VERY COMPACT**



MINIBLOC

2,5 m

AN102



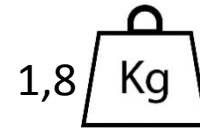
COMPACT



MEDBLOC

6 m

AN130 06 C



**150 KG TESTED
VERY COMPACT**

ZOOM ON LARGE RETRACTABLE

**LARGE : 6 ÷ 30 meters
(All with 4mm cable)**

FIXBLOC 1,9 m AN105	MINIBLOC 2,5 m AN102	MEDBLOC 6 m AN130 06 C
PROTECTOR TETRA F T 4 mm 6 m AN152 10 m AN153 15 m AN154 8 m AN142		
PROTECTOR METAL F T 4 mm 20 m AN115 25 m AN116 30 m AN117 30	5 mm INOX 23 m AN110 23	
PROTECTOR ELEVATOR F T 4 mm 20 m TR 007 30 m TR 017 30		



AN	device
000	code
000	length
X	connector

meters

AN	AN	AN	AN	AN	AN	AN	AN	AN	AN
122	123	124	152	153	154	115	116	117	110
								30	23
T	T	T	F/T	F/T	F/T	F/T	F/T	F/T	F/T
	6	15	6	10	15	20	25	30	23

For Africa&America
only

8mm
INOX
cable

LARGE RETRACTABLE FEATURES



**PROTECTOR
TETRA**

- 2 HANDLES
- INTENSIVE USE
- INTEGRATED ENERGY ABSORBER
- SHOCK RESISTANT
- FALL INDICATOR



**PROTECTOR
METAL**

- VERY RESISTANT
- INTEGRATED ENERGY ABSORBER
- FALL INDICATOR
- AVAILABLE WITH INOX CABLE
- PROTECOR ELEVATOR, for tripod, on lesson 3

SLIDING



SLIDING FALL ARRESTER ON ITS SUPPORT

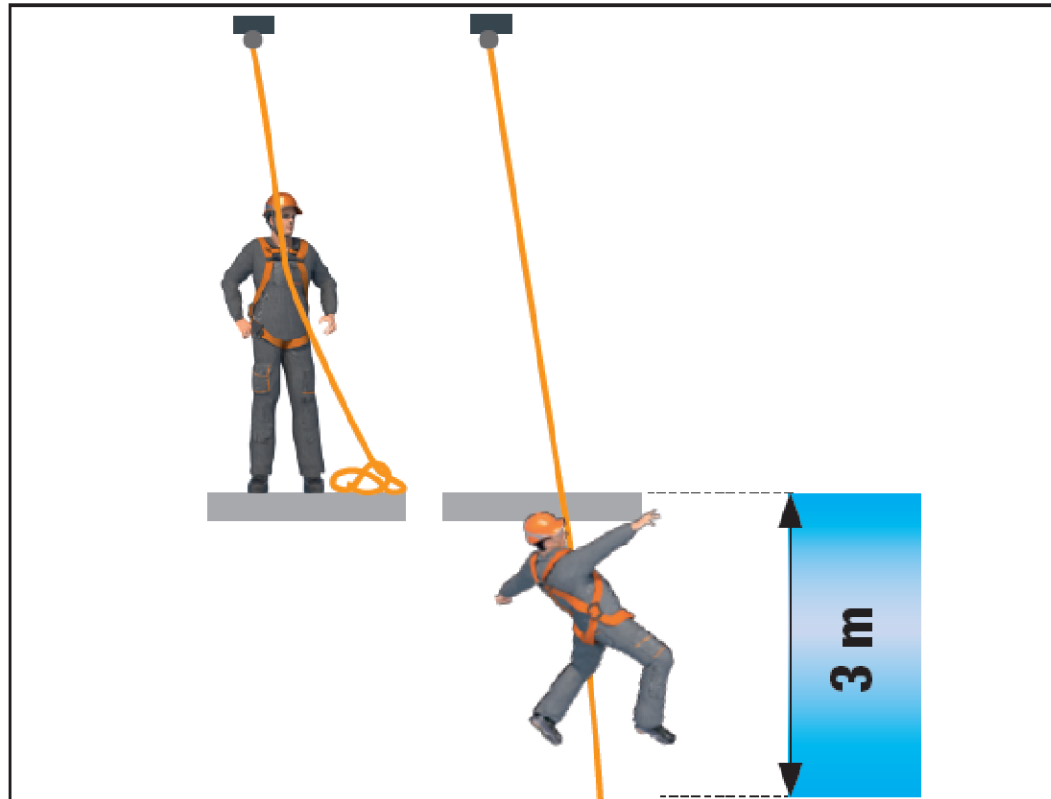


FLEXIBLE











RIGID/CABLE

SLIDING FALL ARRESTER ON ITS SUPPORT











CLEARANCE

ZOOM ON SLIDING FALL ARRESTERS

		10 m	20 m	30 m	>30 m
PREMIUM	<div>CAMELEON[®]</div> <div></div> <div>AN066</div>	<div></div> <div>Ø 10,5 mm</div>			
		AN410	AN420	AN430	AN401
	<div>ASCAB3[®]</div> <div></div> <div>AN070</div>	<div></div> <div>Ø 8 mm INOX</div>			
		AN025 + AN024			
EVOLUTION	<div>ASCORD[®]</div> <div></div> <div>AN060</div>	<div></div> <div>Ø 14 mm</div>			
		AN315	AN317	AN319	
ESSENTIAL	<div>FENNEC[®]</div> <div></div>	<div></div> <div>Ø 12 mm</div>			
		AN063 10	AN063 20	AN063 30	

ZOOM ON SLIDING FALL ARRESTERS

		10 m	20 m	30 m	>30 m
PREMIUM	 <p>CAMELEON[®]</p> <p>AN066</p>		 <p>Ø 10,5 mm</p>		
		AN410	AN420	AN430	AN401
	 <p>ASCAB3[®]</p> <p>AN070</p>		 <p>Ø 8 mm INOX</p>		
		AN025 + AN024			
EVOLUTION	 <p>ASCORD[®]</p> <p>AN060</p>		 <p>Ø 14 mm</p>		
		AN315	AN317	AN319	
ESSENTIAL	 <p>FENNEC[®]</p>		 <p>Ø 12 mm</p>		
		AN063 10	AN063 20	AN063 30	

- 10, 20 or 30 meters are available
- More than 30 meters on demand for CAMELEON and ASCAB2
- FENNEC is assembled on the rope
- All others are opening type sliding devices and are sold separately from rope or cable
- Non inverting devices

FOCUS ON CAMELEON

		10 m	20 m	30 m	>30 m
PREMIUM	CAMELEON [®]				
	AN066				
		AN410	AN420	AN430	AN440
EVOLUTION					
	AN070				
ESSENTIAL					
	AN060				

CAMELEON[®]

A new generation of fall arrester !



3 PRODUCTS IN 1, MULTIPURPOSE

- 1 **FALL ARRESTER** on rope
- 2 **ROPE BLOCKER**
- 3 **WORK POSITIONING** Lanyard

- Double safety opening
- Opening with one hand
- Fall indicator
- Remain attached during disconnection

GUIDED TYPE FALL ARRESTER ON ANCHORAGE LINE

3 PRODUCTS IN 1, MULTIPURPOSE

- > Fall arrester on rope
- > Rope blocker
- > Work positioning lanyard

- Delivered with a connector AM002
- Weight: 330 g

CAMELEON[®]

RECOMMENDED FOR

- > Temporary work at height
- work on framing, scaffolding, tower, roof,...
- > Work suspended on ropes
- > Work positioning

USES

FALL ARREST DEVICE

The opening type device slides on its anchor line (braided rope 10.5mm diam) and ensures safe vertical movement of the user. In the case of a fall, the device automatically locks on the anchorage line and stops the fall of the user.

EN353-2 standard

ROPE CONTROL DEVICE

Type A: adjusting device for security support

Used on the safety support, it accompanies the user during his change of position and automatically locks on the safety support under a static or dynamic load.

EN12841 type A standard

Type B: ascending device for work support

When manually operated on its work support, it locks on under a static or dynamic load in one direction and slides freely on the other way.

EN12841 type B standard

POSITIONING DEVICE

Using the handle in the open position, the device allows adjustment of the distance between the operator (with a work positioning belt) and the structure.

EN358 standard

To increase your safety, the CAMELEON[®] is equipped with an anti upside down feature to avoid positioning the device in the wrong direction of operation on its anchorage line. It also equipped with a fall indicator allowing the user to identify if the device is operational or not.



MAIN FEATURES

- > Opening with one hand
- > Automatic closure and locking
- > Safety: installation without disconnecting from harness
- > Fall indicator
- > Anti upside down feature
- > Strong and light: high alloy structure 330 g

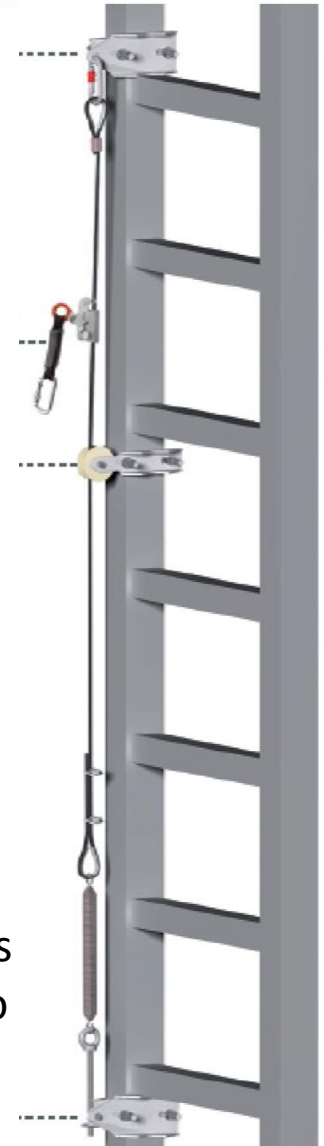


CABLE SLIDING FEATURES

		10 m	20 m	30 m	>30 m
PREMIUM	CARTELEON				
	AN066	AN410	AN420	AN430	AN401
	ASCAB3				
EVOLUTION	AN070				
	ASCABD				
	AN060	AN315	AN317	AN319	
ESSENTIAL					

Upper ANCHOR POINT
EN795-A. Can be used
ALONE or in a vertical
LINE

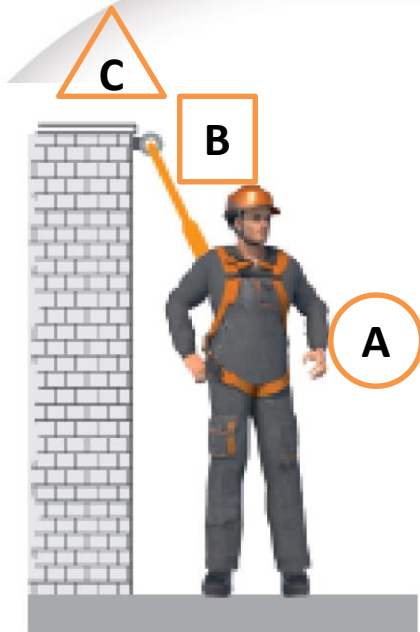
Support every 8 meters.
It is not a PPE



ASCAB, sliding
on cable

Ending FIXING POINT, it's
compulsory combined to
upper anchor point to
have a vertical sliding
LINE

FALL ARREST SYSTEM/ ADAPTED SOLUTION



STARTING from an ANCHOR POINT (see Lesson n 2), how create the right combination of

A

HARNESS

B

FALL ARREST DEVICE



9 SOLUTIONS using ESSENTIAL range



ELARA 320



ELARA 280



ELARA 270



ELARA 320



ELARA 280



ELARA 270



ELARA 140



ELARA 170



ELARA 150



ELARA 140



ELARA 170



ELARA 150



ELARA 190



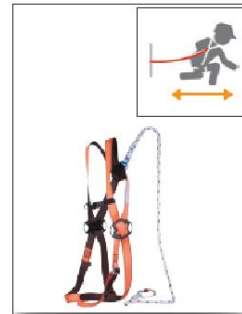
ELARA 130



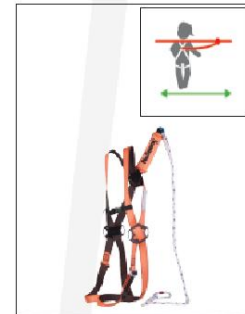
ELARA 160



ELARA 190



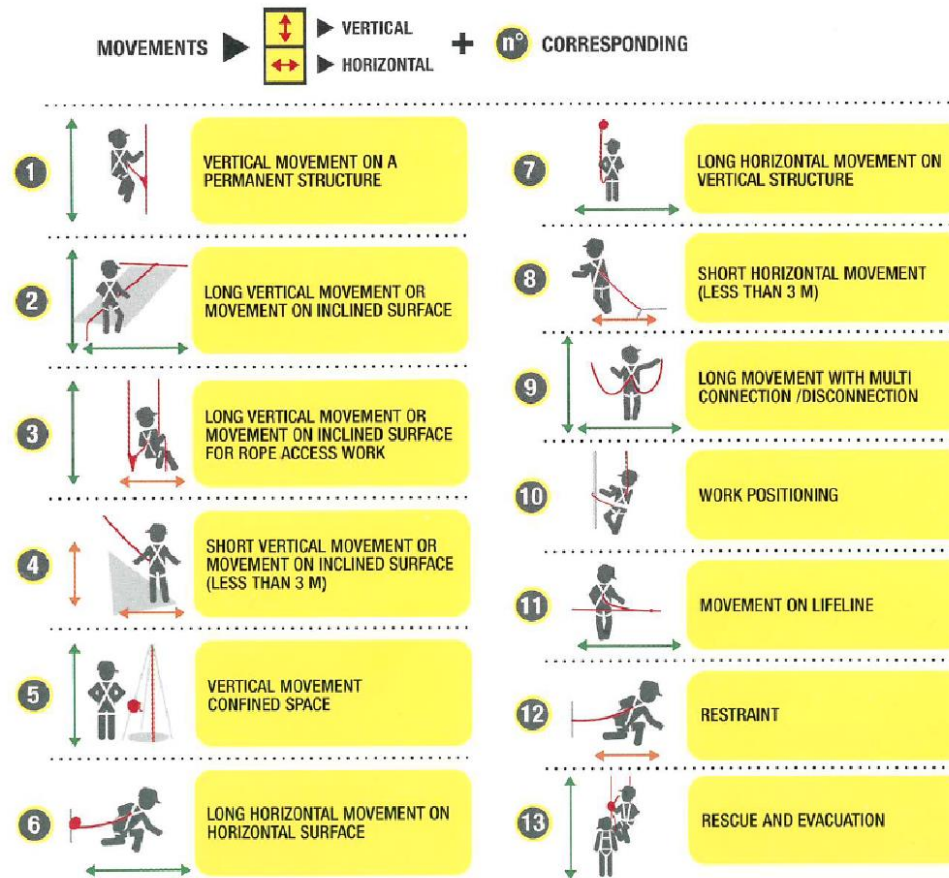
ELARA 130



ELARA 160

ADAPTED SOLUTIONS

To select correct **COMPONENTS** to your **WORK AT HEIGHT SYSTEM**, take care of the **WORKING SITUATIONS** and **MOVEMENTS**



Check first the work environment, then compare with product presentation, on Catalogue or web, and add your experience.

EXEMPLE/TEST

Peter, the electrician, is equipped with Fall arrest to climb the tower, but he also needs

10



Adapted solution:



ANCHOR POINT = it's the TOWER STRUCTURE



ENERGY ABSORBER + RESTRAINT DEVICE = to avoid the FALL see all products on page 324



HARNESS having belt (WAILY, GALAGO, EOLIEN, HAR24, HAR14)

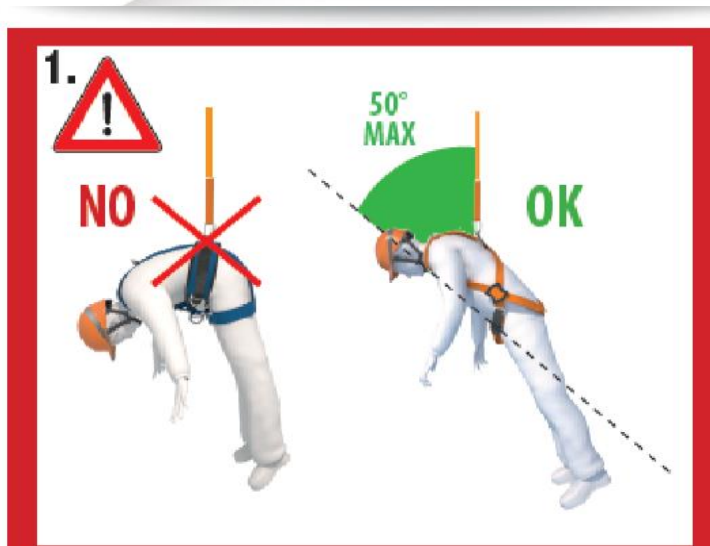
OTHERWISE Peter can use the kit ELARA320 (there's a mistake in the catalogue cause situation number 10 is missing)

The correct solution and the use on FALL ARREST SYSTEM must take care of a lot of

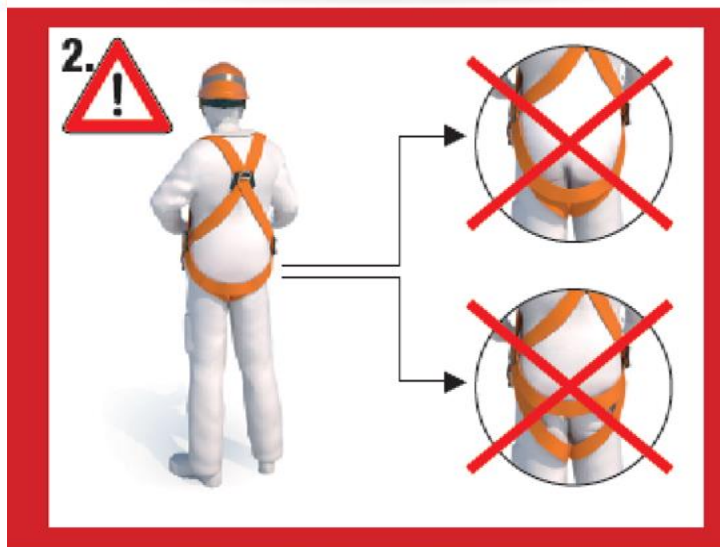
WARNING



WARNING

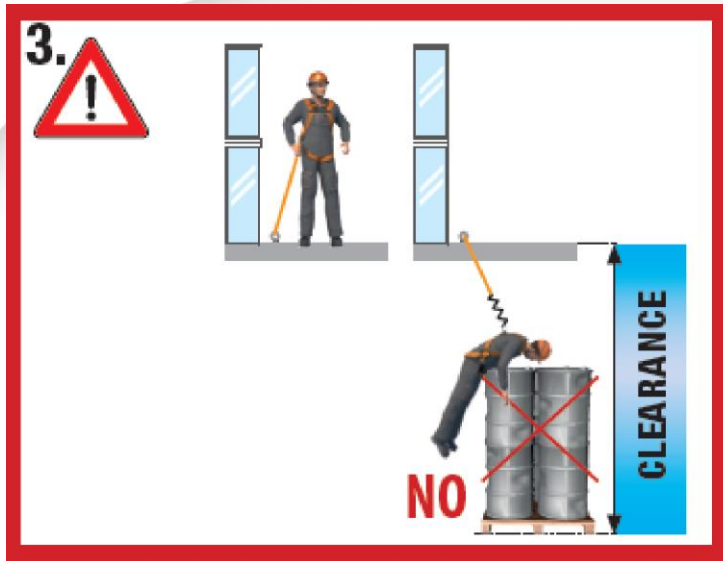


DO NOT ANCHOR ON
POSITIONNING POINTS



USE ALL REGULATION OF THE
HARNESSES IN ORDER TO
ADJUST IT TO YOUR BODY

WARNING



CHECK AND EVALUATE THE CLEARANCE (THERE MUST BE NO OBSTACLES)

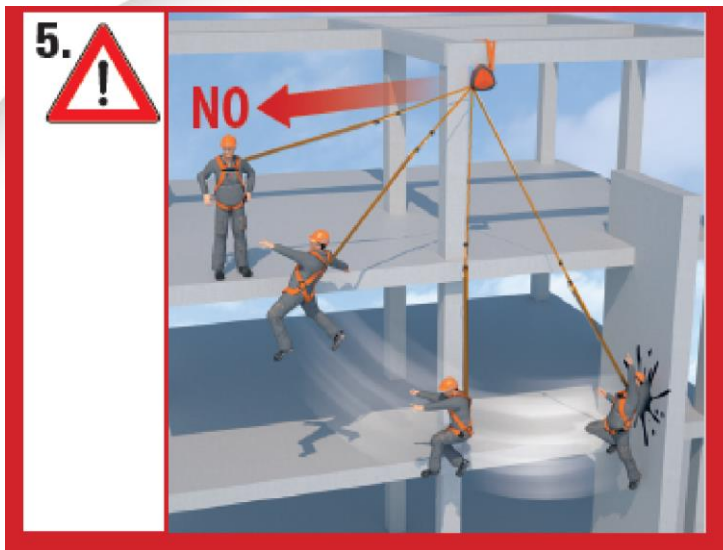


NEVER UNDO THE FALL ARREST SYSTEM



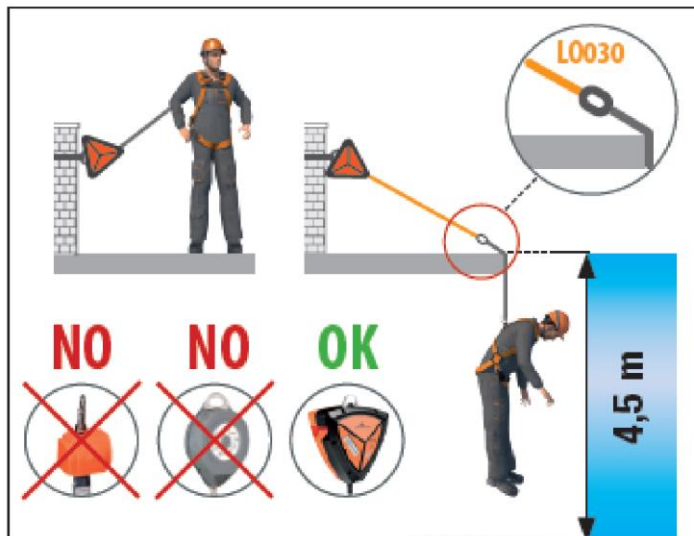
NEVER UNLOCK THE CONNECTOR WITHOUT BEEING IN A SAFE POSITION (MINIMUM 1 POINT TO THE STRUCTURE)

WARNING



PENDULUM EFFECT

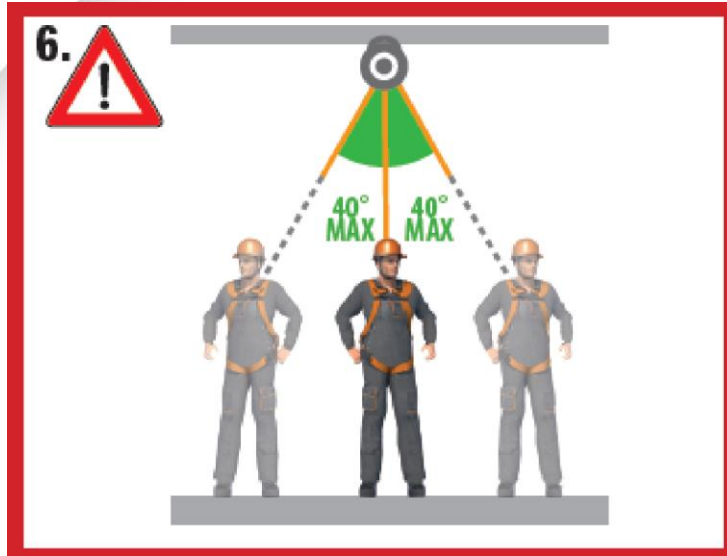
Always check the presence of obstacle, even in case of lateral fall.



HORIZONTAL USE

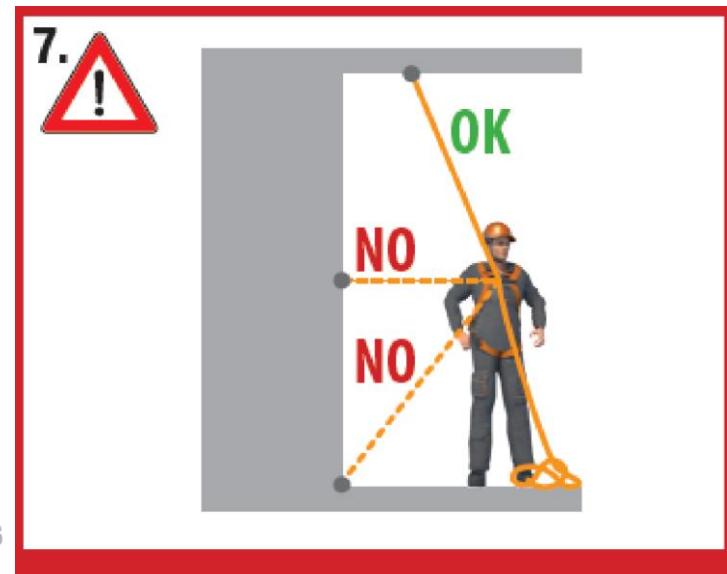
Only some SRL are tested for horizontal use

WARNING



VERTICAL USE

In vertical use do not go over the inclination of max 40°



VERTICAL USE

Slidings on rope are for vertical use only

WARNING



EXTREMITY ANCHORAGE can be dangerous due to potential pendulum effect



The ending part of the rope on a sliding fall arrester must have the **stopping knot**

VIDEOS on this matter



**DELTA PLUS Essential
Harness**



**DELTA PLUS Evolution
Harness**



**DELTA PLUS Eolien
Premium Harness**



**DELTA PLUS Self
retractable fall arrest**



**DELTA PLUS Energy
absorbers**



DELTA PLUS Rescue



DELTA PLUS Fall arrest kits



DELTA PLUS Rope Access



**DELTA PLUS Vertical
Lifeline**



DELTA PLUS telescopic rod



**DELTA PLUS FALL
PROTECTION EQUIPMENT**

END OF LESSON nr 1 of 7

NEXT LESSON nr 2 of 7

ANCHOR POINTS