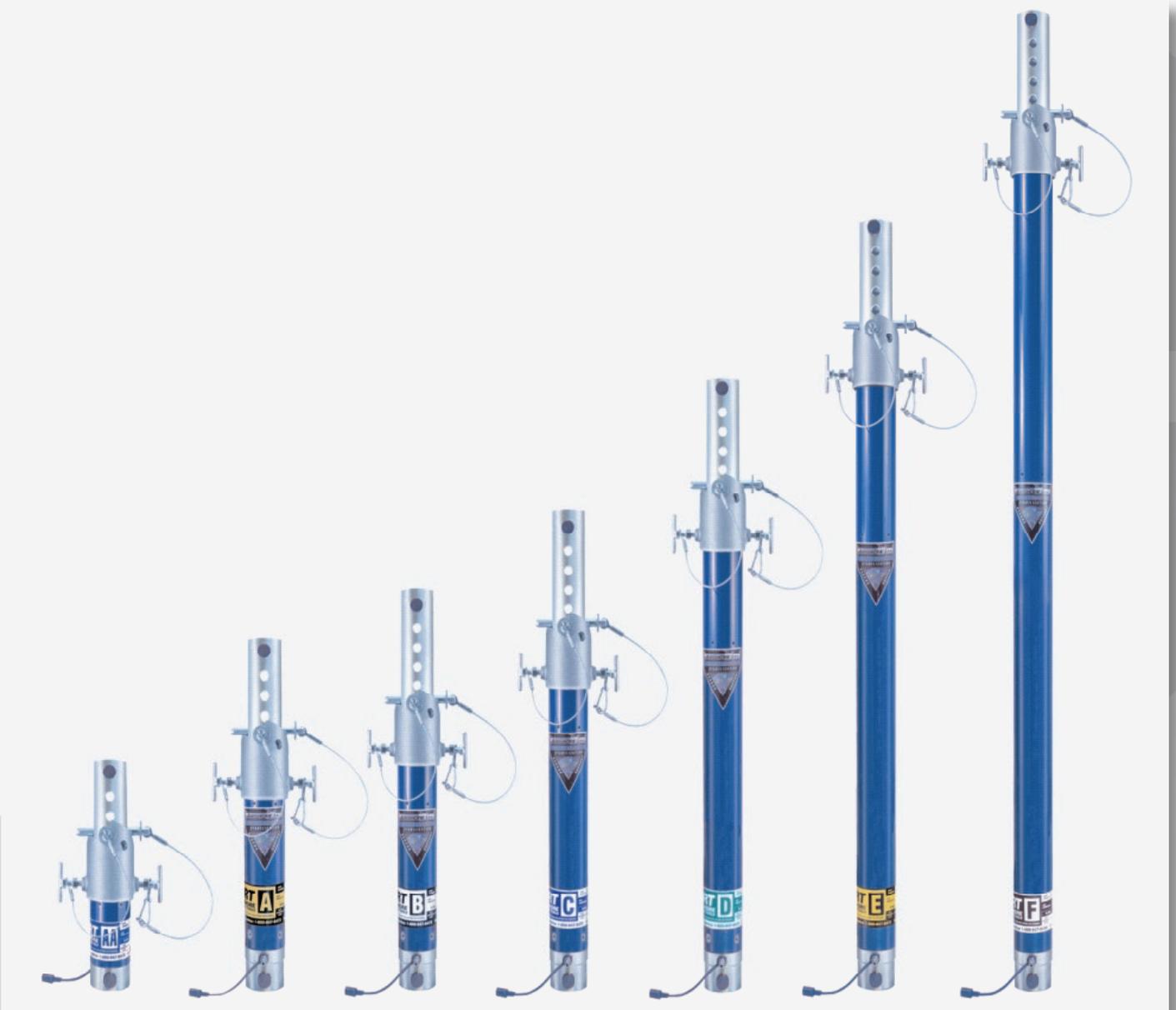


# OPERATING INSTRUCTIONS

## AIRSHORE ART Struts and Accessories



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## 1. Important preliminary remarks

Only a knowledge and exact adherence to this operating manual will guarantee correct and perfect operation, achieve the best possible use and uphold claims made within the framework of the Vetter warranty.

AIRSHORE ART Struts and Accessories must only be used by trained, reliable staff. Operational usage of ART Struts and Accessories is to be made under the condition that operators have an exact knowledge of this operating manual and that they observe all the information contained in it.

The operating instructions given here are to be regarded as part of the product and are to be kept for the complete life duration of the product. In case the product should be passed on to a successive user then the operating instructions must also be included.

## 2. Product description

- ✓ Due to its simple and sturdy design the Airshore Rescue Tool can be perfectly used under unfavourable rugged conditions. Contamination by mud, sand, earth or water do not present any difficulty.
- ✓ Costly maintenance work is not necessary. Regular cleaning is sufficient.
- ✓ All struts are made of high quality Aluminium 6061-T6, fatigue-free galvanized steel and stainless steel.
- ✓ The weight of the ART struts is approximately between 7 kg and 24 kg depending on the size.
- ✓ Airshore ART struts can be manually or pneumatically operated.
- ✓ Assembly and mounting of individual components is easy and reliable, no special tool is required.
- ✓ Form-fit locking. Unnoticeable slippage in the course of time is therefore eliminated.
- ✓ Test safety

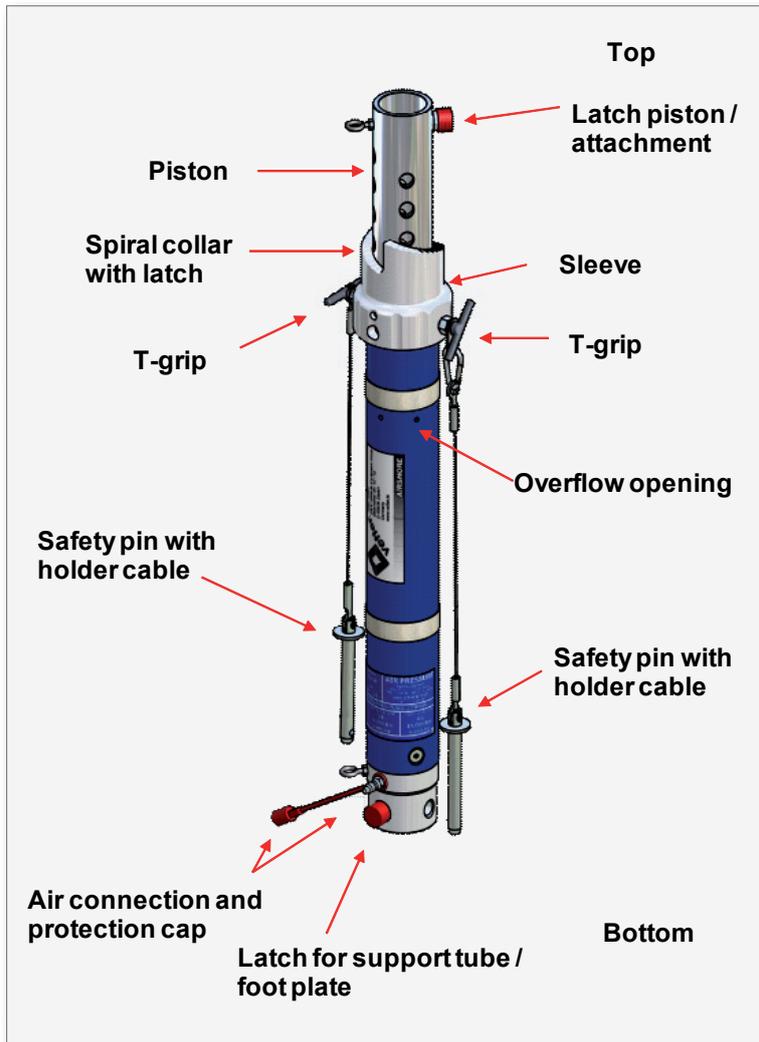
Tests confirm the following pressure resistance values using two safety stages for the following attachment lengths:

27,700 kg - up to a length of - 1.20 m

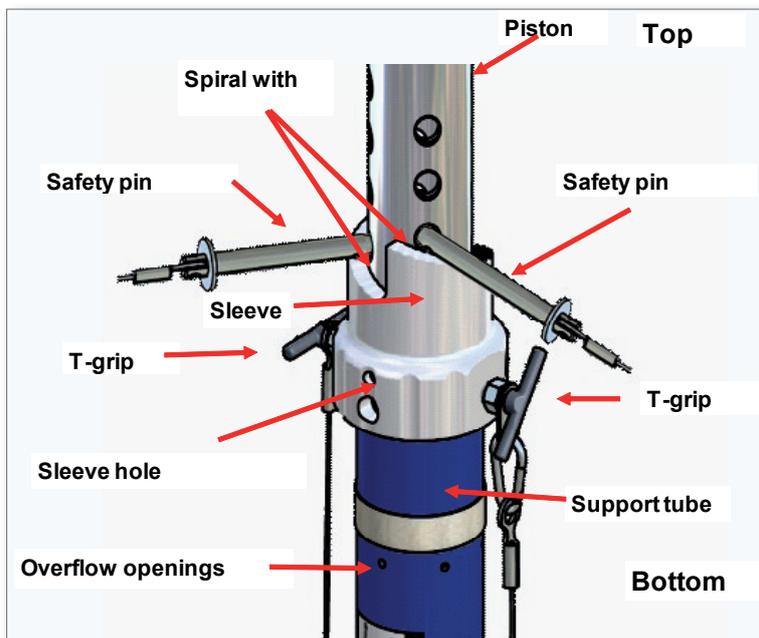
22,200 kg - up to a length of - 2.40 m

19,000 kg - up to a length of - 3.60 m

## 2.1 AIRSHORE ART Struts



## 2.2 Detail ART Struts



## 2.3 Area of application

The Airshore Rescue Tool is a light form-fit strut element made of aluminium that can be manually or pneumatically operated. The detachable attachments, angle pieces and base plates are suitable for all shapes, surfaces and situations. The Airshore Rescue Tool was developed for stabilizing and shoring in the vertical and/or in the horizontal line and in angled positions thus enabling a safe base for working in all situations.

The Airshore Rescue Tool is a reliable support suitable for a number of combinations and configurations due to the large number of attachments, angle pieces and base plates.

## 2.4 Correct handling and usage

The Airshore ART-System must only be used manually with compressed air or with CO<sub>2</sub> (in gas form)! No inflammable gases or other dangerous gases must be used!

The Airshore ART System is designed to be used for trench shoring, shoring of buildings as well as shoring and stabilizing vehicles. Serious consequences will occur when it is used for other purposes and/or for provisional applications.

## 2.5 Safety instructions

The Airshore ART-System must only be used by qualified and trained persons who are conversant with the corresponding devices and situations! Persons not participating are not to remain in the work area.

With stabilization and shoring (manually or with compressed air) all pertinent accident prevention and work safety regulations must be observed!

Before operation it must be ensured that the Airshore ART System is complete and in perfect condition! The Airshore ART System must not be used if there are any signs of damage!

If you have any questions or are in any doubt about the safety of the Airshore ART System please contact Vetter GmbH.

## 3. Preparing the product for use

### 3.1 Preparations for operation

1. Determine which type of support and which strut length is required.
2. Select the required accessories (attachments, angle pieces and base plates) and connect these to the Airshore Art struts. Make certain that there is perfect and safe latching of the accessories and positioning of the attachments (**latching of the locks on the struts and the safety pin on the base plate**). If required, an ART strut can be fitted with **a maximum of one** ART extension (see accessories).
3. Make sure that now there are no safety pins in the piston and sleeve.
4. Bring the ART strut into position depending on the situation.



## 4. Operating instructions

### 4.1 Manual operation of the ART struts

Pull out the Airshore Rescue Tool until the attachment and the base plate make contact with the supporting area/load and with the ground. Insert the first safety pin into a free piston hole and turn the sleeve with T-grip, corresponding to the spiral slope, upwards until the safety pin is seated in the last possible latch. Secure the T-grip and insert the second safety pin, offset by 90°, through a free piston hole within the spiral latch.

**Attachments and base plates must be secured, using suitable measures, against slippage! (e.g. nails or screws)**



### 4.2 Pneumatic operation of the ART Strut

The ART struts can be used pneumatically with a compressed air supply and the original accessories: inflation hose and controller. For example the air supply can be a compressed air bottle with a pressure regulator or a vehicle compressor device.

**The maximum permitted input pressures for the pressure stages are to be observed!**



Recommended max. operating pressure for trench shoring: 10.0 bar

Permissible operating pressure with building shoring: max. 2.5 bar

Max. permitted input pressure for controller: 4.0 bar

(only for individual struts and high strength columns)

Connect the corresponding controller (2.5 or 10 bar) and the inflation hose (2.5 or 10 bar) to the ART strut. With the high strength column, the hose kit (Art. No. 7200 001 01) is required as accessory. Operate the controller until the attachment and base plate make contact with the supporting surface, respectively the ground. Insert the first safety pin into a free piston hole and turn the sleeve with T-grip, corresponding to the spiral slope, upwards until the safety pin is seated in the last possible latch. Secure the T-grip and insert the second safety pin, offset by 90°, through a free piston hole within the spiral latch.

Check for perfect seating and the securing of the shoring before proceeding further with work.

## 4.3 Disassembly

### Manual:

Loosen the T-grips and move the sleeve according to the spiral direction downwards so that the safety pin is relieved. Remove the safety pin and shift the piston into the strut tube. The parts can be stowed away after disassembly of the attachments, base plates and after cleaning.

### Pneumatic:

Give the permitted operating pressure on the strut with the inflation hose and the controller. After relief of the safety pin move the sleeve downwards in the spiral direction. The parts can be stowed away after disassembly of the attachments, base plates and after cleaning.

**Note for securing for transport:**  
**By locking the sleeve with a safety pin (hole in the sleeve) the piston and the sleeve are locked for transport and stowage.**



## 4.4 Cleaning and maintenance

The Airshore ART System and the accessories are to be subjected to a visual check for completeness and damage after every operation and/or application. A visual and function inspection is to be made at least once a year on ART struts and accessories.

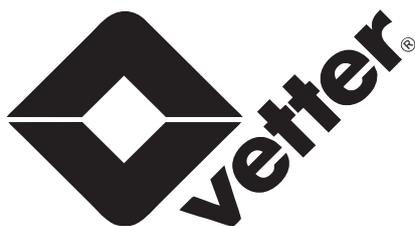
1. Remove the piston (complete with sleeve) out of the strut tube. When cleaning or making a visual inspection, if you insert the safety pin through the hole into the sleeve you will be able pull out the sleeve and the piston together from the ART strut.
2. Clean the ART strut and the accessories from any dirt by washing with a soft brush and soap. Clean out with a high-pressure cleaner should there be great amounts of dirt.

3. Check the ART strut and the accessories for any signs of damage, for completeness and function.
  - ✓ Connection nipple and locking cap - continuity, protection cap
  - ✓ overflow openings - free continuity
  - ✓ Sleeve with T-grips - function and easy movement, check the thread
  - ✓ locking - easy movement and function
  - ✓ Piston sealings - no damage and smooth running
4. Piston sealings must not be cleaned with aggressively acting and/or hydrocarbonated cleaning agents!
5. Assemble the piston and the strut tube together again and check for function and ease of movement.
6. Accessories - attachments, angled pieces and base plates must be inspected at regular intervals! Ensure that all adjustment screws, safety pins and latches are available and that they perfectly function.

### 5. Guarantee

We guarantee all Airshore products against material and manufacturing defects for five years from the date of purchase. Airshore products falling under this guarantee will be repaired or replaced after being correspondingly inspected. Handling in this respect will be made via our representative or by Vetter GmbH.

**Any damage caused by incorrect or non-permitted handling is not covered by this guarantee.**



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## 6. Technical Data

### 6.1 Technical Data ART Struts

Airshore ART Struts			
Art. No.	Type	Length in mm	Weight in kg
7200 0130 01	<b>ART-AA</b>	330 - 450	4.1
7200 0013 02	<b>ART-A</b>	530 - 700	7.0
7200 0015 02	<b>ART-B</b>	660 - 940	8.0
7200 0018 02	<b>ART-C</b>	840 - 1250	9.0
7200 0095 01	<b>ART-D</b>	1150 - 1700	11.0
7200 0024 02	<b>ART-E4.5-7</b>	1370 - 2130	12.9
7200 0004 02	<b>ART-F7-11</b>	2130 - 3350	20.4

All rights reserved for technical changes within the scope of product improvement.

#### Material:

All struts are made of high quality aluminium 6061-T6, anti-fatigue galvanized steel and stainless steel.

### 6.2 Technical Data ART Extensions

Airshore ART Extensions			
Art. No.	Type	Length in mm	Weight in kg
7200 0026 01	<b>ART-E6</b>	150	0.9
7200 0022 01	<b>ART-E12</b>	300	1.8
7200 0098 01	<b>ART-E18</b>	450	2.7
7200 0023 01	<b>ART-E24</b>	610	3.6
7200 0025 01	<b>ART-E48</b>	1220	7.2
7200 0027 01	<b>ART-E72</b>	1830	9.7

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#### Important note!

**Only a maximum of one extension is to be used per strut !**

**For struts AA, A, B, C, D only one extension up to ART-E24 must be used!**

**For struts ART-E and -F only one extension up to ART-E72 must be used!**



### 6.3 Technical Data Attachments

The attachments below have been developed for various applications.

**The application of the attachments is dependent on material quality and the existing statics of the object to be supported!**



<b>C - Grip</b>	ART-CG 4, 100 mm ART-CG 6, 150 mm ART-CG 8, 300 mm	
<b>Point attachment</b>	ART-PT	
<b>Swivel</b>	ART-SL 15 , 15°	
<b>Chain wedge</b>	ART-FB	
<b>Flate base</b>	ART-E24	
<b>L - Grip</b>	ART-LG	
<b>V - Block</b>	ART-VB	

<p><b>Swivel</b></p>	<p>ART-SL 23, 23°</p>	
<p><b>Rhino head attachment</b></p>	<p>ART-RH</p>	
<p><b>Rigid base</b></p>	<p>ART-RB</p>	

The attachments are positioned on the piston tube of the ART strut and fixed by the spring latch in its direction then locked. The direction of the attachment (such as the V-Block and the L-Grip) is, amongst other things, to be observed.

### 6.4 Technical Data Clevises

Clevises are required for connecting the base plates to the ART struts. The various types enable the ART struts to be used one-sided or double-sided in the angled position with the corresponding base plates.

**When using the ART struts in the angled position it is imperative that a safety device be used against catapulting outwards! This can be in the form of square timber and corresponding ground anchoring or, depending on the foundation, with screws or bolts on the base plate.**



22° Clevis	ART-PC	
45° Static Clevis	ART-45SC	
Static Clevis	ART-SC	
45° Clevis	ART-C45	
60° Clevis	ART-C60	

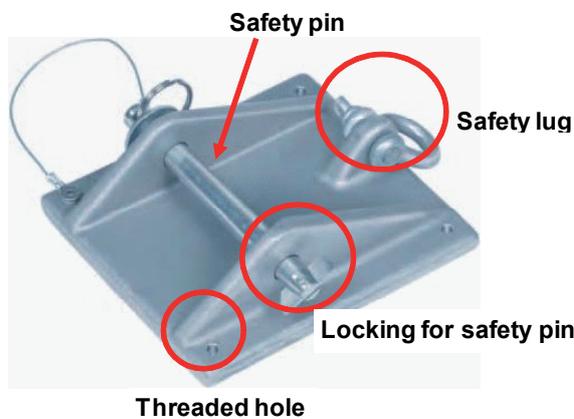
The clevises are positioned on the base plate with their function side and secured with the safety pin to the base plate. The ART strut is positioned on the mounting head of the clevis with the support tube and is also secured and locked by the spring-loaded safety pin of the strut.

## 6.5 Technical Data Base plates

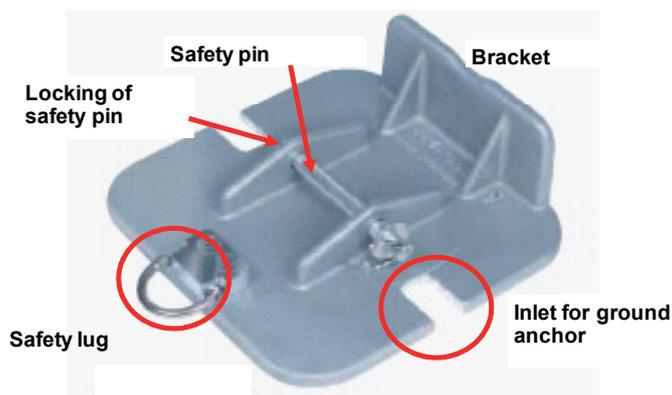
The base plates for the ART struts are supplied in three versions.

<b>ART-BP5 base plate</b> 120 mm	is also used for Airshore rails, refer to wall supporting	
<b>ART-BP6 base plate</b> 150 mm		
<b>ART-BPB12 base plate</b> 300 mm with bracket		
<b>ART-TH tripod head</b>	used for the high-strength column and for the tripod.	

### ART-BP6



### ART-BPB12



**7. Set up example**

Base plate, clevis, strut and angle attachment

<p><b>L-Grip ART-LG</b></p>	
<p><b>ART Strut , 1150 - 1700 mm ART-D</b></p>	
<p><b>Static Clevis ART-SC</b></p>	
<p><b>Base plate 300 mm ART-BPB 12</b></p>	

Base plate, clevis, strut, extension and V-Block

<p><b>B-Block ART-VB</b></p>	
<p><b>Extension 610 mm ART-E 24</b> <b>!NOTE! Only one extension is to be used per strut!</b></p>	
<p><b>ART Strut, 660 - 940 mm ART-B</b></p>	
<p><b>22° Clevis ART-PC</b></p>	
<p><b>Base Plate 150 mm ART-BP6</b></p>	

### 7.1 AIRSHORE ART High-Strength Column

Items of the kit High-Strength Column:			
Art. No.	Type	Qty.	
7200 0004 01	ART-F7-11 Strut, 2130 - 3350 mm	3	
7200 0005 00	ART-TH Head Plate	2	
7200 0043 00	ART-SC Static Clevis	6	

All other ART struts can be used for this application, depending on the height, for shoring of heavy loads.

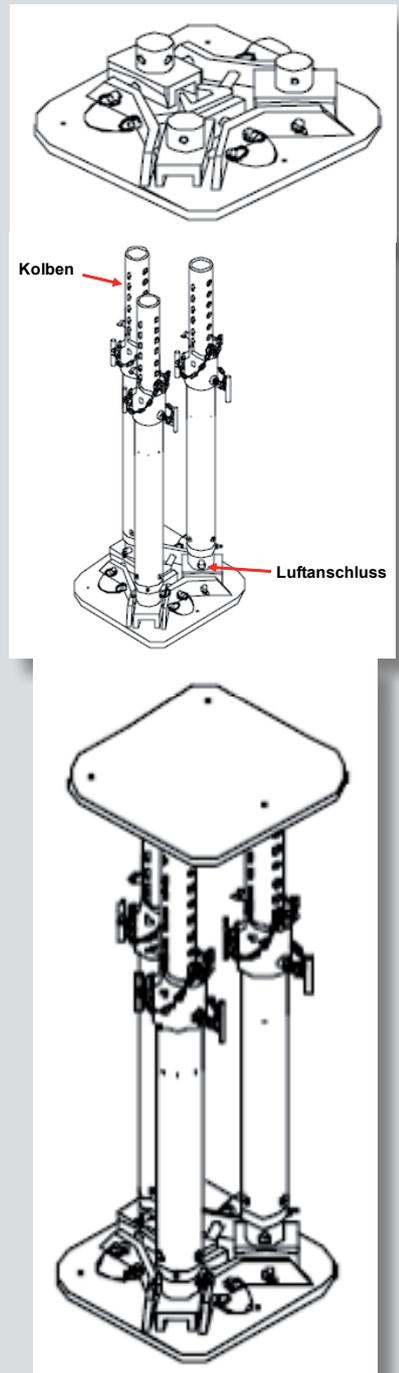


## Assembling the high-strength column:

1. The static clevis ART-SC is positioned on the head plate then secured and locked with the safety pins.
2. The next step is to position the 3 struts ART-F7-11 on the static clevis with the strut tube. The locking with the static clevis must be secured. With pneumatic operation the position of the struts is to be selected so that the hose coupling can be connected.
3. In the third step the second head plate with the mounted and secured static clevises is positioned on the pistons of the ART struts. It is also to be ensured that the locking pins of the piston are latched into the mounts.

After completion of the high-strength column it can be positioned at the intended point and be manually or pneumatically adjusted to the required height (maximum 2.5 bar operating pressure).

**The adjustment, fixing and securing of the ART struts are made as described for each individual strut. All struts of the high-strength column must be secured with two safety pins!**



## 7.2 AIRSHORE ART Tripod

Items of the kit Tripod:			
Art. No.	Type	Qty.	
7200 0004 02	ART-F7-11 Strut, 2130 - 3350 mm	3	
7200 0005 00	ART-TH Head Plate	1	
7200 0006 00	ART-C45 Clevis 45°	6	
7200 0304 00	ART-BPB12 Base Plate 300 mm, with bracket	3	



### Additional accessories:

Securing the base plate is dependent on the composition of the ground.

On solid, level ground the base plates can be fixed under each other with a tension chain or with a tension belt with ratchet against slippage.

However, the base plates can, as already described on Page 16, be secured with square timber and ground anchors on the bracket or with the lug or the inlet of the base plate on the side.

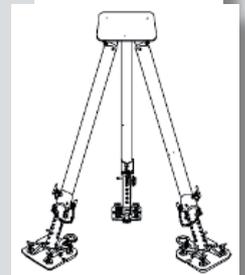
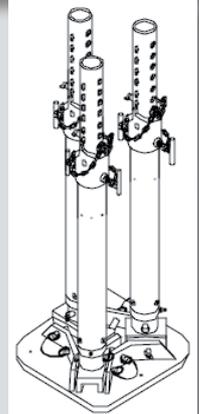
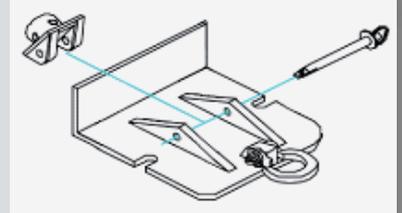
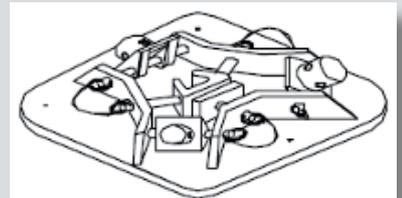
	
Tension chain 3.60 m Art.No.: 7200 0110 00	Tension belt with ratchet Art.No.: 7200 0041 00

## Assembly of the tripod:

1. Three clevises (ART-C45) are positioned with the function surface onto the ART-H head plate then locked and secured with the safety pins.
2. Each clevis is positioned onto the individual base plates (ART-BPB12) with the function surface and also locked and secured with the safety pin.
3. The ART struts (F7-11) are positioned on the mounting head of the clevis into the head plate with the strut tube and latched by the lock of the strut. The strut tube should be positioned so that the air connection points towards the side or points outwards.
4. The base plates are, with the bracket pointing outwards, positioned onto the pistons and latched with the locking of the piston.

The height adjustment of the tripod can be made manually or pneumatically. The maximum permitted operating pressure is 2.5 bar. A controller, a hose and the hose kit for the tripod or high-strength column are required for pneumatic height adjustment.

The Airshore tripod can for example be used for the shaft, height and trench rescue. Additionally for example, a pulley can be attached to the head plate (not contained in the delivery package).



7.3 AIRSHORE ART Wall shoring

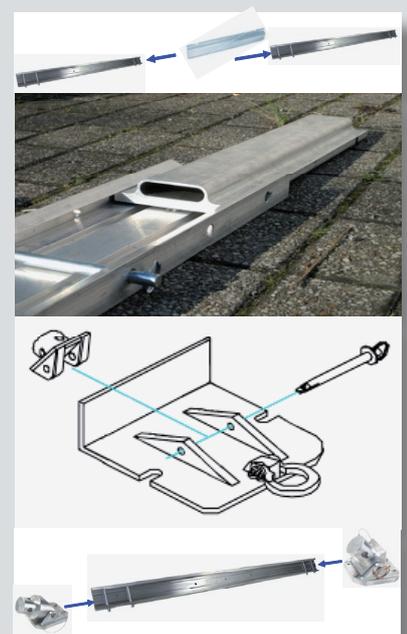
Items of the kit wall shoring:			
Art. No.	Type	Qty.	
7200 0004 02	ART-F7-11 Strut, 2130 - 3350 mm	2	
7200 0006 00	ART-C45 Clevis 45°	2	
7200 0023 01	ART-E24 Extension 610 mm	2	
7200 0024 02	ART-E4.5-7 Strut, 1370 - 2130 mm	2	
7200 0031 00	ART-LDCON Light Duty Rail Connector	2	



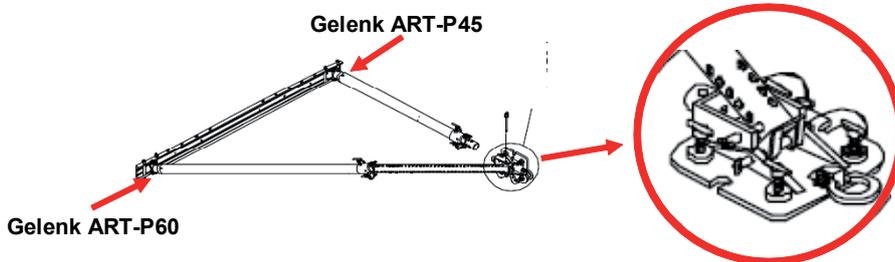
7200 0034 00	ART-P45 Pivot 45°	2	
7200 0035 00	ART-P60 Pivot 60°	2	
7200 0038 00	ART-RR5 Light Duty Raker Rail 1,5 m	4	
7200 0039 00	ART-RRA Raker Rail Adapter	2	
7200 0040 00	ART-RRN Raker Rail Nailer	4	
7200 0304 00	ART-BPB12 Base Plate with Bracket, 300 mm	2	

## Assembly of the ART wall shoring rails:

1. Connect the 2 rail elements (ART-RR5, 1.5 m) with the rail adapter ART-RRA. Insert the adapter into a rail profile then secure and lock this using the safety pin. The second rail element is also arranged in the same way then secured and locked using the safety pin as described.
2. The clevis (ART-C45) is placed with the function surface onto the base plate ART-BPB12 then locked and secured with the safety pin.
3. Each pivot (ART-P45 and ART-P60) is inserted onto the rail ends with their base plates then locked and secured with the safety pins. When assembling the rails with the ART struts the pivot ART-P60 should be fixed onto the upper part of the rails.
4. Position the ART-F7-11 strut with the strut tube onto the mounting head of the ART-P60 pivot and secure the strut with the lock. Connect the piston of the ART-F/-11 strut with the ART-C45 clevis of base plate ART-BPB12 and set the ART-RRA rail adapter into the



last possible position of the piston of the ART-F7-11 strut. Secure and lock with the safety pin. The ART-E4.55-7 strut is positioned onto the mounting head of the ART-P45 pivot with the strut tube and locked.



Position the ART-E24 extension onto the piston of the ART-E4.5-7 and connect it to the mounting head of the ART-RRA adapter.

**Check to see if all locks are latched in and that all safety pins of of the components are in position and locked! Securing of the ART struts must be carried out as described!**

5. Four rail nailers with exchangeable nail surfaces belong to the assembly kit in order to carry out fixing with the corresponding stable and sustainable timber material in transverse and longitudinal directions. The rail nailer plates can be fixed on the strut tube and on the piston with a clamp.

Securing of the wall shoring is carried out as described and as shown on the pictures above. However, the way the securing is made is strongly dependent on local conditions.

