

Dynamic Cone Penetrometer 16-T0012/P

PRODUCT MANUAL



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I. Introduction

Below you will find important information on how to use the pneumatic ram probe 16-T0012/P, referred to in the further text 16-T0012/P.

A suitable compressor is required to operate the 16-T0012/P. This compressor must be designed for the operation of the pneumatic ramming probe and have the required performance data.

Appropriate use

The 16-T0012/P is approved and intended only for light and medium-heavy ramming probes in accordance with DIN 22476-2, in combination with a compressor. It may not be used for any other purpose.

Warranty claim and operating licence expire in case of improper use. Operating with a compressor not approved by the manufacturer may result in serious safety defects and the expiry of the operating licence and warranty.

Liability

In the event of improper use or technical modifications, the manufacturer's liability is generally excluded.

Guarantee

The legal warranty is 12 months from the date of purchase. Wear parts are excluded from the warranty. The warranty expires in case of manipulation of the device.

II. Security

Read the following section carefully, which contains important information about your personal safety and product protection.

Responsibility of the user



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As a user of the 16-T0012/P, you are responsible for the intended handling. Conscientiously instruct employees and invite them to read the manual. Never leave the device unattended in the area to prevent abuse by third parties, such as children.

ATTENTION-Note in this manual

Note highlighted "ATTENTION". A "ATTENTION" is always subject to imminent damage to the product caused by improper handling or operation contrary to the information provided in this manual.

WARNING-Note in this manual

Note highlighted "WARNING." A "WARNING" always appears in the event of imminent danger to the user or third parties due to improper handling of the product or an operation contrary to the information provided in this manual.

General safety instructions

In the case of negligent use of the 16-T0012/P, risks of injury are possible, for example:

- Blows due to the falling ramming weight
- Blows by tipping down the 16-T0012/P by breaking a component
- Damage to hearing in case of non-compliance with hearing protection recommendations

Protective equipment

The user of the 16-T0012/P must wear the following protective clothing:

- 1. Helmet
- 2. Hearing protectors

Stay at the device

Maintain a safety distance of at least 1 meter to the 16-T0012/P in operation to prevent injury due



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to the device falling down (e.g. in case of breakage).

Always stay in the immediate range of the regulating valve or compressor unit when operating the 16-T0012/P to enable immediate shutdown in the event of malfunctions or hazards.

Maintenance intervals

The regular operation of the 16-T0012/P requires regular maintenance, which must be carried out daily or at larger intervals, depending on the maintenance point.

A list of the necessary testing and maintenance work can be found in chapter 6.1.

In order to ensure safe operation of the 16-T0012/P, you are obliged to have the work carried out by a qualified person in accordance with the maintenance list.

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WARNING!

Neglecting maintenance intervals can lead to damage to man or machine!

III. Description

Below you will find information on the structure of the 16-T0012/P and the controls.

View and structure





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NO.	Name	NO.	Name	NO.	Name	NO.	Name
1	Cylinder handle	5	B type pin	9	Round nut	13	bolt
2	Briquetting	6	handle	10	Circlip	14	Briquetting
3	20kg hammer	7	Connector	11	piston	15	Cylinder
4	Flat end	8	Trachea joint	12	Nuts		allo.

Scope of delivery and accessories

Packing List

- ♦ 1 10kg weight and cylinder with handle
- 1 set of four-stroke gasoline engine and air compressor, with hose connector, with bracket 1 additional 20kg hammer
- ♦ 1 air hose
- \Rightarrow 12 probe rods φ 22*1000mm, with scale marks every 100mm 1 instruction manual
- ♦ 2 spanners 19mm for 22mm probe 12 threaded connectors M16



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- ♦ 1 set extractor
- ♦ 2 5CM² cone heads
- ♦ 2 10CM² cone heads
- ♦ 20 10CM² disposable cone heads
- ♦ 1 M8 Allen wrench
- ♦ 1 set of safety rod device

Safety components

- ♦ Safety pin with cotter pin to secure the ram probe on the striker.
- \diamond 2 safety bars for guiding the ram probe at the start of the probing.



WARNING!

The use of safety components increases occupational safety and is mandatory.

IV. Operation

The Operation section provides you with the information you need to put the PR13 into operation immediately. Particular attention is drawn to possible dangers for humans or machines. However, read section 2 "Safety" before reading further here and putting the PR13 into operation.

Check rule maintenance

- Is the interior of the cylinder oiled with a suitable lubricant and is the piston rod free of dirt? (see 5.2) Check the resistance-free fall of the ram weight.
- 2. Is the service cone greased?
- 3. Are there safety bolts and cotter pins for the striking piece?
- 4. Is the inner assembly O-ring for the piston lock undamaged and in position? (Slowly pull out the cylinder tube and check the upper stop)



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Location



WARNING!

Operation of a compressor with a combustion engine in closed rooms is excluded and can lead to life-threatening poisoning.

Set up

Screw the striking piece onto the probe rod and place the 16-T0012/P with the anvil on the striking piece. Insert the safety bolt through the holes in the anvil and striker and secure it with the split pin.

Put the open pipe end of the main safety rod over the safety bolt (see picture) and secure with a pin. Insert the open end of the air hose regulating valve into the quick coupling on the safety rod.

For better stability when setting up the ramming probe with additional weight, the auxiliary securing rod can be placed at right angles to the main securing rod on the socket of the main securing rod and secured with a plug. The ram probe can be held and guided safely by 2 people.

WARNING!

Always keep a safety distance of at least 1 meter during operation and wear a hard hat.



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Push the open pipe end over the safety bolt of the ram probe and secure it with apin.

Support socket for auxiliary safety rod, starting at a right angle.

Regulating valve, inserted in the hose section of the safety rod.





DPL operation



Auxiliary safety bar (2-man operation recommended for probing approach with additional weight)

Main safety rod

DPM operation, 2x fuse recommended



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Configure ramming weight (according to DIN 22476-2)

DPL(10kg drop weight X 0.5m drop height):

Operation without additional weight.

DPM (30 kg drop weight x 0.5 m drop height):

Add additional weight with the side of the larger inner diameter forward via the ram probe and place on the impact socket of the 16-T0012/P. Slide the fastening clamp all the way to the additional weight and tighten it well. Make sure that the blow-off hole, which is now behind the additional weight, remains free.

Perform ramming

The compressed air supply line from the appropriate compressed air source (technical data see 5.1) must be provided with the appropriate clutch nipple on the exit side.



Observe the required performance data of the compressed air source (see 5.1). Operating with too high pressure or unsuitable air can lead to damage to the 16-T0012/P and risk of accidents.

- 2. When the compressor is off, spray oil through the plug-in clutch nipple into the hose line, or lift the cylinder tube slightly and spray oil through the now visible gap above the control seal.
- 3. With the regulating valve open, connect the compressed air hose to the brass coupling of the ram probe. The ram probe starts to beat when the regulating valve is closed and can thus be set to the desired number of strokes per minute.

The ram probe must not hit top dead center, but must trigger and fall down before the cylinder is fully extended and strikes. Striking the upper end of the piston rod leads to falsified measurement values and can damage the device and lead to accidents.

WARNING!

If the piston rod limit is broken, there is a risk of injury if the ram cylinder jums out of the piston rod guide.



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ATTENTION!

A lack of lubrication, wear or contamination can lead to malfunctions, e.g. the ramming cylinder comes into contact with the upper end of the piston rod. Bumping against the upper end of the piston rod falsifies the probing result and can break the piston rod limit.

NOTE: Renew the piston rod limitation (see chapter "Maintenance": Mounting O-ring inside 22 x 4 mm,) after each malfunction as described above and remedy the cause. Possible causes can be: Wear of plastic pistons or valve control plates, contamination of the cylinder barrel, insufficient lubrication or wrong lubricant as well as too little or too much air supply.

WARNING!

Keep a safety distance of at least 1 meter from the 16-T0012/P in operation to prevent injuries caused by the device falling down (e.g. in the event of a break); a blow to the head or body can lead to serious injuries.

NOTE: Remove the safety bar (s) as soon as the ram linkage stands alone and straight in the ground. Long- term operation with the safety rod attached considerably increases the wear of the safety bolt.

4. You can stop the ram probe at any time by opening the regulating valve or switching off the compressor unit.

NOTE: Protect the ram probe from contamination. With every probe, check that there is sufficient lubrication (perfect triggering at top dead center and free fall of the ram weight) and lubricate with Spray if necessary.

Transport

Secure the 16-T0012/P for transport with the supplied transport clip. It prevents the ram cylinder from extending unintentionally and protects the piston from dirt and damage. Make sure that the brass coupling is inside the intended hole to protect it from damage. Secure the inserted transport clasp with bolts and split pin.



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Connection coupling turned inwards in a protected position.



V. Technical data

Specifications

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and the second

Resources

Lubricant: available in DIY stores and specialist retailers

Compressed air source: Compressor unit.



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VI. Maintenance

Below you will find information on maintenance and maintenance of the 16-T0012/P. Read this section carefully as inadequate care and inadequate maintenance can result in damage.

NOTE: Always turn off the compressed air source or unplug the hose line before performing maintenance or cleaning.

Service device

Maintenance list

Measure	Interval daily	Interval	see operating instructions chapter
Check cylinder interior oiling and lubrication of the impact cone	• 1/2 Bh	-	6.1.1
Check the function of the upper cylinder stop	•	1050	6.1.2
Disassemble and clean the device	- 52	as needed	6.1.3

Abbreviations: Bh = Hours of operation

 Regular oiling of the interior of the cylinder is necessary for the proper operation of the ram probe. With the compressor switched off, spray Ballistol oil through the disconnected coupling nipple into the hose line, or lift the cylinder tube a little and spray oil through the now visible gap above the control seal.

The conical impact surface of the piston rod should have a thin layer of grease (universal multipurpose grease), the lubrication surface is visible when the cylinder barrel is raised a few centimeters.

2. Check the function of the upper cylinder tube stop before each probing operation. To do this, pull the cylinder tube completely out until it stops and check that the stop is seated consistently. The stop consists of an O-ring held in a groove and can be damaged if the ram probe malfunctions repeatedly (the cylinder strikes the upper end of the piston rod during operation). A damaged O-ring must be replaced immediately. To replace the O-ring, please proceed as described below.



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3. The proper function can be restricted by using an unsuitable lubricating oil (resin spray oils) or by improperly placing the ram probe in the field.

Proceed as follows to dismantle and clean the ram probe:

1. Senkrecht vertically.



.10.00

Ventilschaft

Traverse with Screws M6 x 25 (medium-tight glued)



- 2. Remove two M6 x 25 screws for the traverse. The traverse no
- ③. Lift the cylinder tube a few centimeters and push the val assembly O-ring is exposed. Remove the O-ring from its groove and pull the now exposed



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control head upwards out of the cylinder barrel.

(4). To dismantle the cylinder tube, the locking circlip and the inner assembly O-ring are now removed from the piston rod and the cylinder tube is pulled off upwards. The piston is now in the cylinder barrel and is carefully pushed out with a non-metallic rod (e.g. wooden handle).

NOTE: Do not use sharp objects for cleaning. After cleaning, lubricate all parts with or another non-resinous oil spray.

- (5). Carefully put the cylinder tube back on the piston rod. Carefully guide the impact side of the pipe over the piston rod so as not to damage the plastic lining inside the impact cone. Let the cylinder ear rest on the impact cone.
- (6). Put the piston back on the fit at the upper end of the piston rod and secure it with the inner assembly O-ring and circlip. The circlip must lie all the way around the O-ring in the piston rod groove and must not be able to move axially.



- 7. Reassemble the control head in reverse order. Secure the two M6 x 25 screws of the traverse with medium-strength screw adhesive.
- (8). Let the cylinder ear fall onto the cone several times to check that it falls without resistance. Remove unnecessary lubricants.

Setting the control head

- 1. The total amount of the control valve should be approx. 7 mm. Check the game between open and closed control plate when the cylinder tube is raised. The adjustment is made by the in- or out-turning of the two counter nuts on the valve shaft. Counter the nuts after the setting is finished.
- 2. When the operating condition is in place, the control plate must not be pressed through the piston rod to the valve ring, nor shall it have a gap size greater than 2 mm. The gap size can be adjusted by removing or adding the balancing plate(s). Recommended dimensions:1 2 mm.

If the control plate is pressed to the valve ring despite the removal of all compensating plates, the spring seat must be reworked by a specialist.



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Note: all the above showing pics and sketchs are for reference only



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Warranty Card

Produce Name	Dynamic Cone Penetrometer	Date Of Manufacture		
Produce Code	16-T0012/P	Inspectors		
Warranty Period	The warranty period is 1 year from the date of purchase			

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Packing List

Item.	Label	Number
1	4-stroke gasoline engine and air compressor with hose connector and bracket	1
2	10kg weight and cylinder with handle	1
3	Additional weight 20kg	1
4	Air hose	1
5	Probe rod φ 22*1000mm, with scale mark every 100mm	12
6	user's Guide	1
7	19mm spanner for 22mm probe	2
8	Threaded joint M16	12
9	Extractor	1
9.1	5CM ² cone head	2
10	10CM ² cone head	2
11	10CM ² disposable cone head	20
12	M8 Allen wrench	1
13	Safety rod device	1



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