

USER'S MANUAL

HANDMATIC



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RIONED has the right to change parts of the machine at any time without any prior or direct warning to the client. Similarly, the contents of this manual can also be changed without any prior warning.

This manual is to be used only for this machine.

For extra information on adjustments, maintenance and repair, contact the technical department of your dealer.

Foreword

This user's manual is a manual for the professional user.

This user's manual has the purpose to control the machine in a safety manner and must be saved with the machine.

The photos and drawings help you understand the text easier.

First the user's manual gives you an overview of the most important safety aspects. Then we explain how the machine is built up and the global working of the machine.

Chapter "Technical specifications" gives you information about the working characteristics, performance under normal use and construction specifications.

"Control" is the next chapter. This chapter explains how to use the machine systematically.

In the chapter "Maintenance", the user can do small maintenance on the machine.

Chapter "Trouble shooting" has the purpose to solve simple defects.

With the "Exploded views" you can order original spare parts, are also useful for mounting, and disassemble the machine.

Finally gives the chapter "Appendix" information about electrical and/or hydraulic connections.

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1 INTRODUCTION

RIONED thanks you for your purchase of the RIONED drain and sewer-clearing machine. We recommend that you read this manual thoroughly and see that the machine is handled and maintained in the proper manner. If your machine should give trouble and need servicing, when you want to order parts, or if you have any questions, contact your RIONED dealer.

The machine is built by:

RIONED
P.O. Box 5070
5004 EB Tilburg
The Netherlands
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Your machine is specifically designed to clean drain- and sewer pipes with a diameter from \varnothing 12 mm to \varnothing 75 mm by using specially manufactured cleaning springs with a diameter of \varnothing 6 mm, \varnothing 8 mm or \varnothing 10 mm diameter.

The Handmatic can be delivered with:

1. Springs of \varnothing 6-mm diameter for pipes from \varnothing 12 to \varnothing 32 mm.
2. Springs of \varnothing 8-mm diameter for pipes from \varnothing 20 to \varnothing 50 mm.
3. Springs of \varnothing 10-mm diameter for pipes from \varnothing 40 to \varnothing 75 mm.

Authorised personnel may only use the machine.

The machine can not be used in an explosive environment.

In this manual, you will find all necessary information concerning operation and maintenance of your machine. If handled properly, your machine is guaranteed according the general delivery conditions.

1.1 Use

The drill machine drives the main axle. On this axle the spring drum is mounted. The drum contains the spring which is to be lead into the drain or sewer opening. By means of the spring transporter and the rotation direction the spring can be:

- A Fed out of the drum.
- B Fed into the drum.
- C Kept in place.

2 SECURITY

Be responsible for other people when you are working with this machine.

This manual contains instructions for fundamental conditions that must be followed by use and maintenance of this machine.

That is why it is necessary that authorised and qualified personnel must read the user's manual and the user's manual must always be available with the machine. Near the general regulations in this chapter, you must also follow the security regulations in the other chapters.

2.1 Instruction indications in this manual The in this manual containing security instructions, which are dangerous if they are not obeyed, are marked with general security signs.



Security sign DIN 4844-W9

2.2 Descriptions security measures

• Security covers

This machine is equipped with several security covers over parts that are rotating. It is forbidden to remove these security covers during operating this machine. You can only remove them if there is maintenance on the machine. Stop the machine and take the plug out of the wall socket.

2.3 Personnel protection outfit

- Protection looking glasses
- Ear protection
- Gloves (Recommended)
- Dust cover (Recommended)

2.4 Warnings

Never take the spring when turning.

Do not let the spring turn outside (swing of the spring).

Do not start the machine with switched in feed unit.

Never block the control lever, unless this is mentioned.

Do not wear cloth that hangs loose.

Please note safety instructions (*see chapter 10.4 "Safety instructions" page: 32!*)

Dust that arises when working on material containing asbestos or stonework containing crystalline silicic acid is harmful to the health. Please follow accident prevention regulations.

Do not pierce the motor housing as this could damage the double insulation (use adhesives).

Keep mains lead clear from working range of the machine. Always lead the cable away behind you.

Never touch the spring if it is rotating. Not even with auxiliaries or other tools.

Never let the spring rotate outside a sewer, drain or pipe.

2.5 Personnel qualification and education Personnel that use, maintain and inspect the machine must have the right qualifications for this job.

Responsibility and authorisation of the personnel and the supervision on the personnel must be embedded. If the knowledge is not present, the user must provide for the necessary education.

2.6 Danger that can occur if the security regulations aren't observed If the security regulations are not observed, danger can occur for personnel and for the environment. No amends are given if the regulations are not observed.

If the regulations are not observed, this can result in:

- Failure of important functions of the machine.
- Failure of prescribed methods for maintenance.
- Exposure of persons to dangers of electrical or mechanical failures

2.7 Working safely The in this manual named security prescriptions, the national prescriptions to prevent accidents and the internal labour, company and security prescriptions must be followed by the user.

2.8 Security regulations for the user and technical service

- Protections of moving parts (for example couplings) may not be removed if the machine is working.
- Leakage of dangerous mediums must be disposed in a manner that there is no danger for the personnel and environment. Statutory regulations must be followed.
- Danger caused by electricity must be excluded.

2.9 Security regulations for maintenance, inspection and mounting activities

- The user sees to it that qualified technicians do all maintenance, inspection and mounting activities. They must study the manual thoroughly.
- Maintenance may only be done when the machine is not functioning and the plug is out of the wall socket.
- In the user's manual mentioned handling to stop the machine must be notified.
- Directly after maintenance of the machine, all the security and protection facilities must be functionally.
- Before starting the machine again, you must follow the instructions correctly.

2.10 Making changes and fabricate spare parts Changes to the machine are only permitted if Rioned has given written authorisation. The use of original spare parts and accessories are for the safety necessary. Rioned is not responsible for injuries or damages if other spare parts are used.

2.11 Improper use The security during working with the machine is only guaranteed if the use of the machine is conform the user's manual. The limits that are written in chapter "Technical Specifications" and "Appendix" may never be overstept the limits.

If the machine does not work or give troubles, it is forbidden to work further with the machine. Telephone your dealer or the technical department of Rioned

Telephone: +31 (0) 13-5479100

This manual contains all the necessary information concerning control and maintenance. If the device is positioned correctly, properly controlled, and regularly maintained, a warranty will be given according to the general conditions of delivery. However, should it arise that the control and maintenance procedures are not diligently followed, the warranty will become invalid.

3 TECHNICAL SPECIFICATIONS

3.1 General

Description (<i>symbol</i>)	Unit
Type	: Handmatic
Total length (<i>l</i>)	: 0,360 m
Total height (<i>h</i>)	: 0,290 m
Total width (<i>b</i>)	: 0,220 m (only spring drum)
Weight (dry) (<i>m</i>)	: 3,5 kg
Spring length (<i>l</i>)	: 7,5 m and 10 m
Maximum spring length (<i>l</i>)	: 10 m, spring Ø 10, Ø 8, Ø 6 mm
Springs suitable for sewer diameter (<i>d</i>)	: Ø 12 mm - Ø 75 mm
Place type plate	: Side spring drum
Measured sound value	: (<i>see chapter 10.3 Sound level report page: 31</i>)
Position	: (<i>see chapter 10.3 Sound level report page: 31</i>)
Measured vibration value	: Still in research
In and out speed spring (<i>v</i>)	: Variable (Max. 10 m/min)
Rotation direction	: Left and right
Number of revolutions main axle (no spring) (<i>n</i>)	: 0-1940 min ⁻¹
Year of construction (<i>month/year</i>)	: 08/12.

3.2 Drilling machine

Description (<i>symbol</i>)	Unit
Type	: AEG
Number of revolutions (n)	: 0- . . . min-1
Power (P)	: . . . W / . . . PK
Voltage (U)	: 110 V
Frequency (f)	: 50/60 Hz.
Current (I)	: . . A
Measured sound value	: >85 dB(A)  WEAR EAR PROTECTORS!
Measured vibration value	: < 2,5 m/s ²
Radio suppression complies with the European standard:	EN 55014
Isolation class	: DIN 57 740VDE 0740 and CEE 20

Type	: AEG BE 630 R Super Torque (0508 M2003)
Number of revolutions (n)	: 0-950 min-1
Power (P)	: 630 W / 0,85 PK
Voltage (U)	: 220-240 V~
Frequency (f)	: 50/60 Hz.
Current (I)	: 2,9 A
Measured sound value	: >85 dB(A)  WEAR EAR PROTECTORS!
Measured vibration value	: < 2,5 m/s ²
Radio suppression complies with the European standard:	EN 55014
Isolation class	: DIN 57 740VDE 0740 and CEE 20

Type	: SKIL 6550
Number of revolutions (n)	: 0-850 -1/min D=13mm (type plate drilling machine) 850 -1/min (under load)
Power (P)	: 0,360 kW 0,480 HP
Voltage (U)	: 230 V~
Frequency (f)	: 50-60 Hz.
Current (I)	: 2,5 A
Measured sound value	: Typically the A-weighted sound level of the tools is

74 dB(A), the noise level when working can exceed 85 dB(A).



WEAR EAR PROTECTORS!

Measured vibration value : < 2,5 m/s²

Radio suppression complies with the European standard: EN 55014

Isolation class : DIN 57 740 VDE 0740 and CEE 20

Type : Hitachi

Number of revolutions (n) : 0-2800 -1/min D=13mm (type plate drilling machine) 1200 -1/min (under load)

Power (P) : 0,450 kW 0,60 HP

Voltage (U) : 230 V~

Current (I) : 2,1 A

Frequency (f) : 50 Hz.

Measured sound value : Typically the A-weighted sound level of the tools is 74 dB(A), the noise level when working can exceed 85 dB(A).



WEAR EAR PROTECTORS!

Measured vibration value : < 2,5 m/s²

Radio suppression complies with the European standard: EN 55014

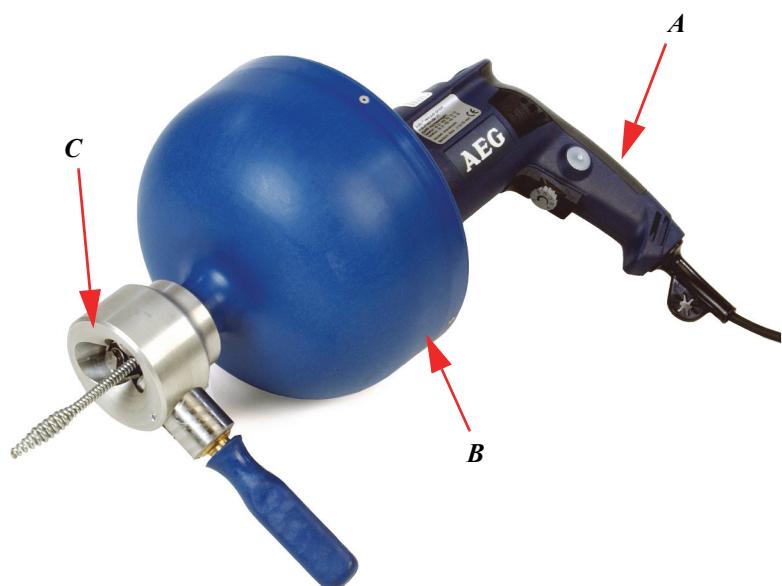
Isolation class : DIN 57 740 VDE 0740 and CEE 20

For more information concerning the drilling machine you can find it in the book delivered with this machine.

4 CONSTRUCTION

The machine contains the following main parts:

- A Electric drilling machine
- B Spring drum
- C Feed unit



5 CONTROL



If you control, maintain or inspect the machine, you must have the right qualifications for this job. If you do not have the necessary knowledge, you may not use the machine. Further, you must convince yourself that you understand this manual thoroughly.

5.1 Transport

See to it before you transport the machine that the plug is out of the wall socket and the wire is rolled up. Place the Handmatic in the metal case (*see chapter 8.1 "Accessories:" page: 25*).

5.2 Controls

See **Illustration 5.2.1**

- A Reversing lever:
For changing from forward to reverse rotation - due to a lockout mechanism, switching the lever is only possible if the On-/Off switch is not depressed.
- B Adjuster wheel:
For speed presetting.
- C Switch trigger:
For switching the machine on and off, and for smooth starting and varying speed.
- D Lock button:
Not in use.
- E Handgrip feed unit:
For loosening and fastening of the spring, so that the spring can be fed in or fed out (depending on the rotation direction).

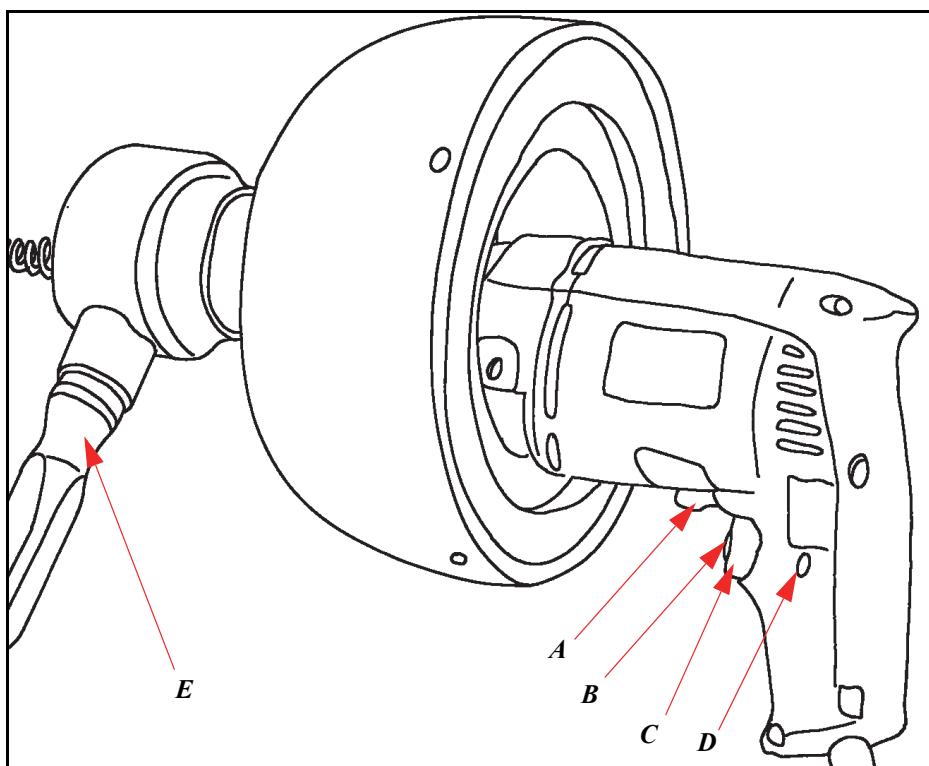


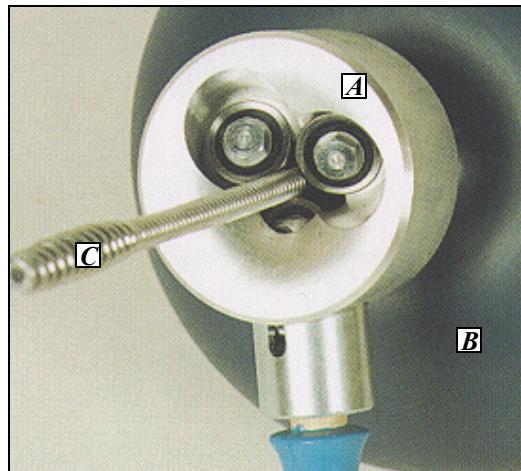
Illustration 5.2.1
Controls

5.3 Before unblock- 1. ing

Choose the right spring:

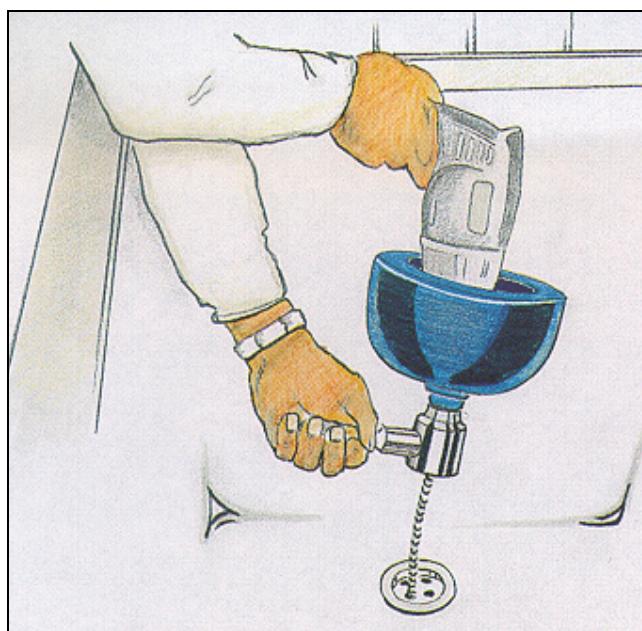
- a Tubes of Ø12 to Ø32 mm diameter, spring Ø6 mm.

- b Tubes of Ø20 to Ø50 mm diameter, spring Ø8 mm.
 - c Tubes of Ø30 to Ø75 mm diameter, spring Ø10 mm.
Maximum spring length is 10 m!
2. Push the right spring via the feed unit (*Illustration 5.3.1 A*) fully in the spring drum (*Illustration 5.3.1 B*), so that only the drill head (*Illustration 5.3.1 C*) or coupling (*see chapter 8.1 "Accessories:" page: 25*) is still outside the feed unit. The spring rolls up automatically in the spring drum.



*Illustration 5.3.1
Spring in drum.*

3. Put the reversing lever (*Illustration 5.2.1A*) to the right.
4. Turn the adjuster wheel (*Illustration 5.2.1B*) fully to the minus - (see picture on the switch).
5. Loosen the handgrip (*Illustration 5.2.1E*) so that the spring is free.
6. Keep the machine as close as possible by the inlet (*Illustration 5.3.2*).



*Illustration 5.3.2
Spring in drain.*

7. Push the spring into the pipe that must be cleaned. Use the auxiliaries (*see chapter 8.2 "Auxiliaries that can be coupled:" page: 25*), if necessary.
8. Push the spring as far as possible into the pipe.
9. Loosen the spring!
10. Make sure that there is ±10 cm spring between the spring machine and the inlet.

5.4 Unblocking

1. Hold the spring machine as shown in the picture (*Illustration 5.3.2*).
2. Pull the switch trigger (*Illustration 5.2.1C*) of the drilling machine. The spring drum and spring starts to rotate.

3. Fasten the handgrip (*Illustration 5.2.1E*). Now you can speed up the number of revolutions.
4. Do not use any force to get the spring into the pipe. Remove the obstacle only by means of turning the spring. Move the spring, if necessary, several times fore and backward.
5. Only when the dirt is disappeared, you can stop the unblocking.



Caution!

Reverse the direction only to get the spring into the drum. Do not do this to get the spring out of the blockage.

For security reasons, you must always turn the spring slowly by starting the drilling.

6. After unblocking, you put the reversing lever to the left. The spring shall now come out of the pipe and go in the drum.
7. Loosen the handgrip (*Illustration 5.2.1E*) when the end of the spring is in sight. Loose the switch trigger of the drill machine.

Without any auxiliaries, you can replace the spring by another spring with a different diameter. Remove the spring by pulling the spring fully out of the spring drum. Then push the other spring with different diameter again in the drum.

If slip occurs during the drilling, release the switch immediately. Reverse the rotation direction and pull the switch trigger again.

If the slip does not disappear, the spring must be pulled out of the pipe.

Clean the press rollers after several unblocking. Use an anti oxidation spray (*Illustration 5.4.1*) to protect against oxidation. The spray can also be used protect the springs against oxidation.



Illustration 5.4.1
Anti oxidation spray.

6 MAINTENANCE



Warning!

Always stop the engine and take the plug out of the wall socket before serving or repairing the machine.

6.1 General

The machine is maintenance free except the feed Unit.

Use only original spare parts (*See Chapter 9.1 "Exploded view." page: 27*).

6.2 Lubrication press roll below

Check regularly if there is enough grease in the press roll (*See Chapter 9.1 "Exploded view." page: 27 Pos 10*). You prevent that the press roll gets blocked in the feed unit.

Lubricate also 1x per 6 months the feed unit (*See Chapter 9.1 "Handmatic." page: 27 Pos 35*).

6.3 Changing the press rolls

(*See Chapter 9.1 "Exploded view." page: 27*)

1. Loosen bolt (*Pos 2*) with a socket spanner.
2. Remove the press roll (*Pos 3*) with the two rings (*Pos 4*).
3. Place the new press roll (*Pos 3*):
 - a Place first ring (*Pos 4*).
 - b Then place the press roll against the first ring.
 - c Place second ring against press roll.
4. Fasten bolt (*Pos 2*).
Point 1 t/m 4 are also mentioned for the other press roll!
5. If you must change the press roll below, it is recommended that you change the complete press piece (*Pos 6,9 and 14*).
Proceed as follows:
 - a Loosen screw (*Pos 7*).
 - b Loosen the handgrip (*Pos 10*).
 - c Remove the complete press piece (*Pos 6,9 and 14*).
 - d Remove the press roll axle (*Pos 6*).
 - e Change the press roll.
 - f Place axle back with a rubber hammer.
 - g Mount everything in opposite order.

6.4 Changing the drum bearings

Proceed as follows:

1. Remove the spring out of the drum.
2. Loosen the three bolts (*Pos 19*).
3. Demount the drill machine (*Pos 20*) by loosen the lock nut (*Pos 18*).
4. Remove the lock ring (*Pos 13*).
5. Slide the spring drum (*Pos 17*) from the feed unit (*Pos 1*) with a rubber hammer.

Tip!

You can remove the drum easier by preheating the feed unit with a blowlamp.

6. Remove lock ring (*Pos 13*).
7. Slide the bearings from the spring drum.
8. Clean all parts.

9. Mount the new bearings.
10. Mount everything in opposite order.

6.5 Extensive periodical maintenance Have the machine checked and maintained from time to time by the technical service of your dealer. In this way, long life and quality will be guaranteed.

6.6 Maintenance schedule	Description	Interval
	Cleaning the feed unit	: By strong pollution.
	Checking press rolls	: Once a month. Change by wastage.
	Cleaning the spring drum	: By strong pollution.
	Lubrication press roll below	: At least once every 6 months.

7 TROUBLESHOOTING



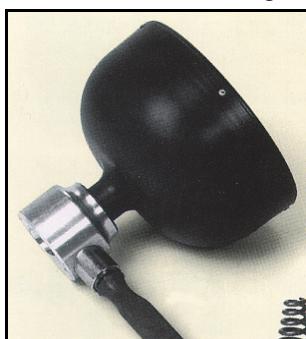
Follow the security instructions! (See chapter 2 "Security" page: 9)

Failure	Cause	Solution
Drilling machine does not turn or stops suddenly	Plug not in socket	Put the plug in the socket
	Fuse damaged	Replace the defected fuse. If the problem still arise, contact your local dealer.
	Coal brushes damaged	Replace the coal brushes
	Switch damaged	Replace the switch
	Wire damaged	Replace
	Drilling machine damaged	Contact your dealer
Spring does not come in/out of the spring transporter	End of spring is reached	Use a longer spring
	Press roll pushes not against the spring	Carefully fasten the handgrip.
	Wrong rotation direction	Change the reverse switch
	Press roll damaged	Replace
Spring does not enter the spring drum	The end of the spring lays on the lock nut	Move the spring a little bit sideways and push further
	Press roll below to far in spring transporter	Unscrew the hand grip
	Spring transporter polluted	Clean the spring transporter
	Diameter spring to big	Use smaller spring diameter

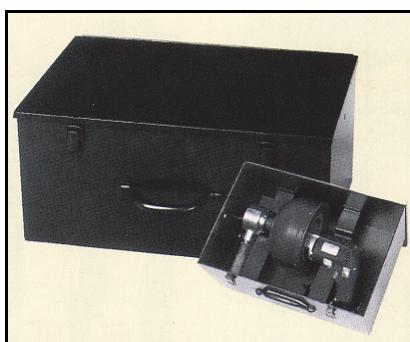
8 ACCESSORIES

8.1 Accessories:

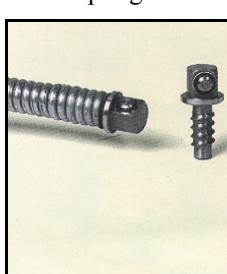
1. Set-up unit:
For use with own drilling machine.



2. Metal case.



3. Spring with coupling:
For coupling the auxiliaries on to it.

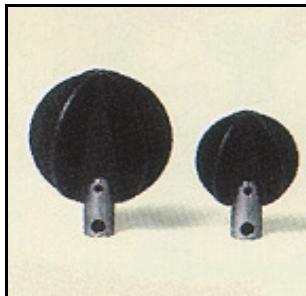


8.2 Auxiliaries that can be coupled:

- Bulbous head flexible:
For light unblocking in polluted pipes.



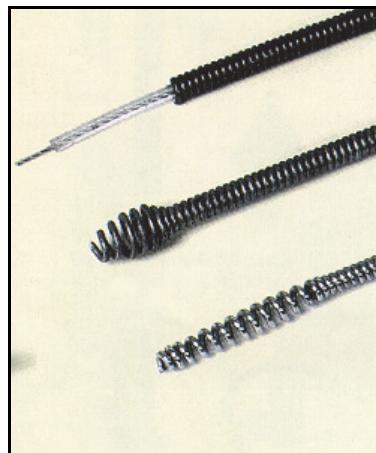
2. 4-blade drill and 6-blade drill:
To mill pipes that are clogged with frying fat.



3. Cutting knife:
To mill big pipes. The knife diameter can be chosen for the right kind of sewer.

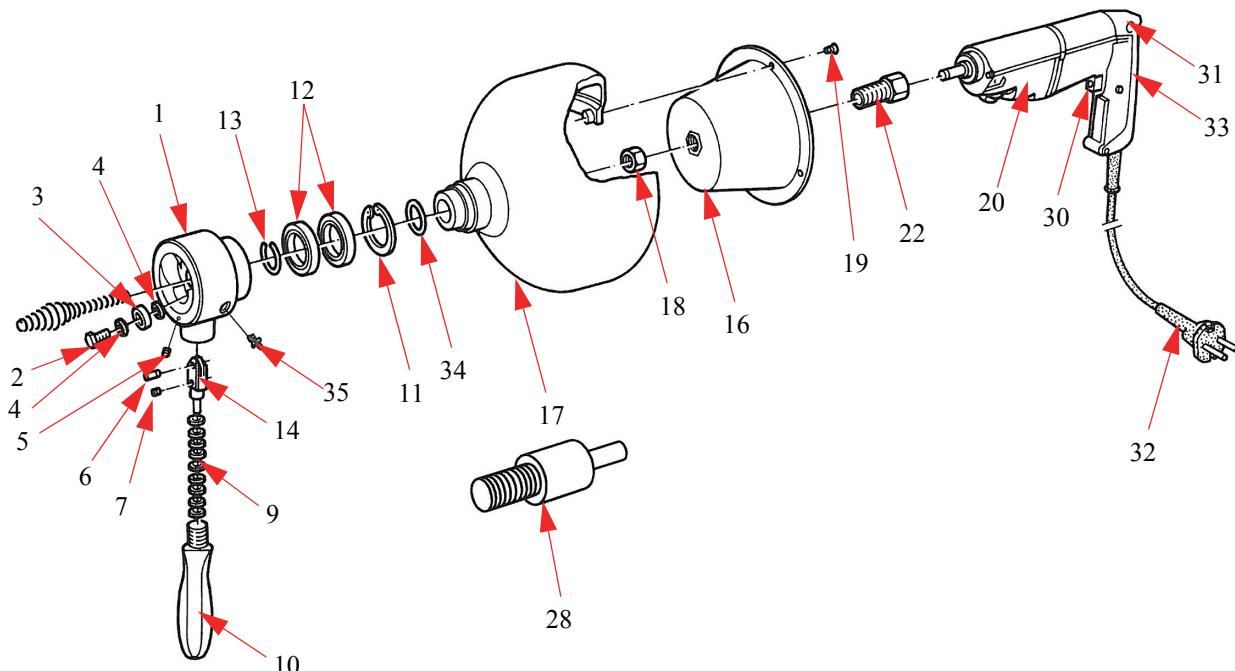


4. Springs with bulbous heads.



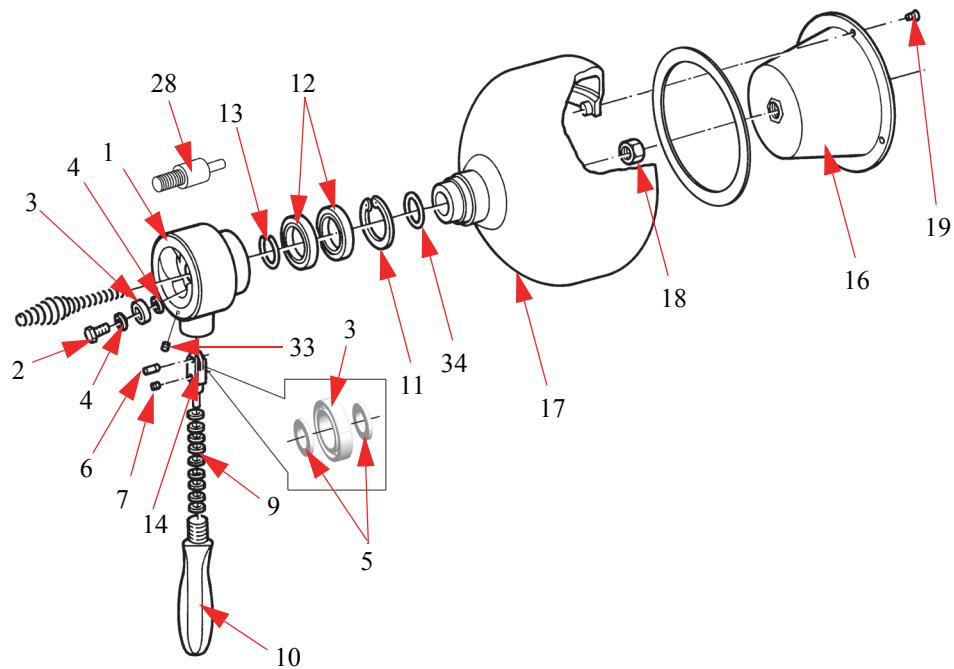
9 EXPLODED VIEWS / EXPLOSIONSZEICHNUNGEN UND ERSATZTEILLIST

9.1 Handmatic.



Pos	Bestelnummer	Aantal	Omschrijving
1	13.250.002.001	1	veertransporteurhuis leeg Handmatic 1990
2	13.250.002.002	2	borstbout M7 x 17 Handmatic 1990
3	45.004.000.608	3	looprol lr 608 nppu 8 x 24 x 7 tbv Handmatic 1990
4	13.250.002.104	4	messing shim 12 x 8 x 2 tbv VT Handmatic
5	32.211.006.006	1	imbus stelschroef DIN 916 M6 x 6
6	13.250.002.004	1	drukrol as tbv Handmatic model
7	32.211.006.012	1	imbus stelschroef DIN 916 M6 x 12
8	13.250.002.005	10	drukstuk onder kpl tbv Handmatic 1990
9	31.151.126.207	1	schotelveer DIN 2093 12,5 x 6,2 x 0,7
10	13.250.002.006	1	handgreep Handmatic 1990
11	31.025.500.150	1	seegerring DIN 472 j 50
12	45.000.061.807	2	groefkogellager 61807 2rs com 35 x 47 x 7
13	31.026.072.140	1	borgring r 72140 DIN 905
14	13.250.002.014	1	drukstuk leeg handm Skil model 9
15	13.250.005.000	1	aandrijfunit AEG model 2003
	13.250.001.046	1	aandrijfunit AEG atlas copca 9,6 volt
	13.250.005.015	1	aandrijfunit Bosch 110V
16	13.250.001.016	1	aandrijfkonus
17	13.250.001.017	1	veertrommel Handmatic leeg blauw
18	13.250.001.018	1	contramoer
19	32.214.005.010	3	bolvormige schroef DIN 964 M5 x 10
20	85.050.500.130	1	boormachine AEG 2003 tbv Handmatic
	85.050.500.120	1	boormachine 220V Hitachi
22	13.250.001.022	1	negatieve konus AEG boormachine
23	13.250.002.023	1	veertransporteur kpl Handmatic model 1990
24	13.250.001.028	1	opzetas boormachine
25	85.050.500.111	1	schakelaar AEG 110 220 v
	85.050.500.117	1	schakelaar Handmatic atlas copco
	85.050.500.122	1	schakelaar 230V tbv Hitachi boormachine
28	85.050.500.113	1	koolborstelassam AEG 220v mod 89/9
	85.050.500.112	1	koolborstelset 220 volt skil
	85.050.500.114	1	koolborstelset 110v AEG
	85.050.500.121	1	koolborstelset 230V tbv Hitachi boormachine
32		1	stekker met kabel
33	85.050.500.140	1	afdichtdop 13,2 mm, kunststof tbv gat handgreep AEG boormachine
34	13.250.001.019	1	o ring 21,82 x 3,53 pu 90shore tbv afdichting Handmatic lagers
35	64.072.180.006	1	smeernippel 180 gr M6
*	85.050.500.115	1	acculader 9,6 volt voor AEG boormachine
*	85.050.500.116	1	kunststof inzetting tbv trommel Handmatic
*	13.250.001.027	1	stalen opbergkoffer Handmatic met inzetstuk, Rioned
*	13.250.001.036	1	opbergkoffer Handmatic zonder inzetstuk

9.2 Opzet Handmatic / Put up Handmatic



10 APPENDIX

10.1 EC declaration Of Conformity For Machinery RIOR B.V. / RIONED
Centaurusweg 45, Tilburg, The Netherlands,

Herewith declares that:

Spring cleaning machine Handmatic,

- is in compliance with the Machinery Directive (2006/42/EC);
- is in conformity with the provisions of the following other EEC directives:
2004/108/EC, 2006/95/EC
- the following harmonized standards have been applied:

NEN-EN-ISO 12100-1, NEN-EN-ISO 12100-2, NEN-EN-ISO 13850,
NEN-EN-ISO 13857, NEN-EN-349, EN 61029-1 and EN 60204-1

Tilburg, The Netherlands, Tuesday 3 April 2012

A handwritten signature in black ink, appearing to read "J. Pieters". The signature is written in a cursive style with a horizontal line underneath it.

J.Pieters
Managing Director

10.2 Sales Managers EXPORT

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REPAIR

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10.3 Sound level report

Results of the sound level measurements “Handmatic”.

Tools:

Realistic 42-3019 sound level meter

Accuracy:

± 2 dB (A) at a sound level of 114 dB (A)

Frequency range:

500 - 10.000 Hz, curve A

Response:

Slow

Measuring positions “Handmatic”:

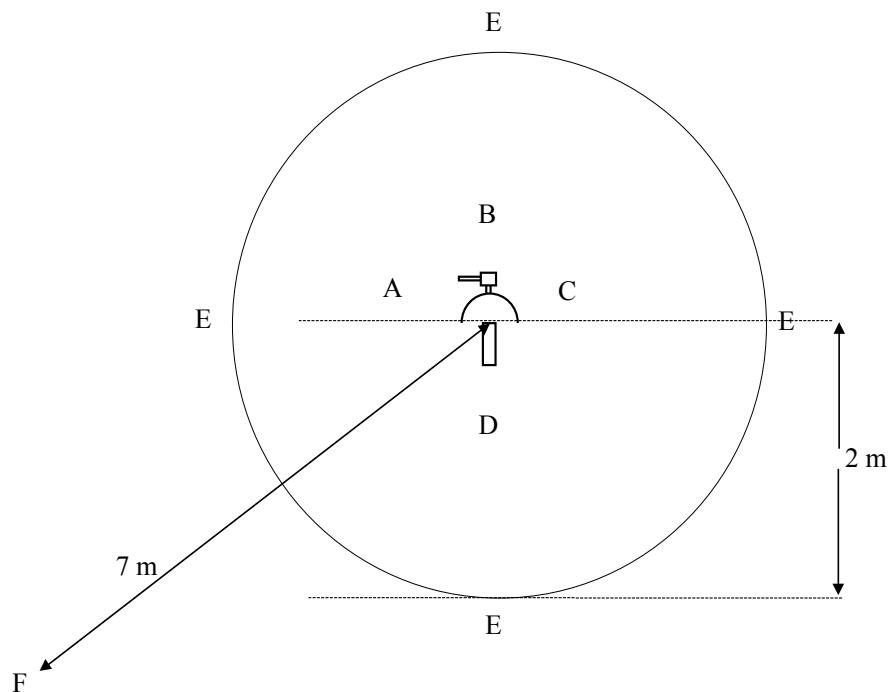
All the measure points are representative for the circumstances by use of this machine.

Measured spring-cleaning device: **Handmatic**

Date: Thursday 27 February 1997

Position	Description	Sound level
A	Left	96
B	Front	92
C	Right	95
D	Back	96
E	at 2 m (average)	86
F	at 7 m (average)	77

Units in dB (A)



10.4 Safety instructions



Warning: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following. Read all these instructions before attempting to operate this product and safe these instructions.

For safe operation:

1. **Keep working area clean.**
Cluttered areas and benches invite injuries.
2. **Consider working area environment.**
Don't expose electric tools to rain. Don't use electric tools in damp or wet locations. Keep working areas well lit. Do not use tool in presence of flammable liquids or gases.
3. **Guard against electric shock.**
Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.
4. **Keep children and visitors away.**
Do not let visitors contact tool or extension cord. All visitors should be kept away from work area.
5. **Store idle tools.**
When not in use, tools should be stored in dry, and high or locked place - out of reach of children.
6. **Don't force tool.**
It will do the job better and safer at the rate for which it was intended.
7. **Use right tool.**
Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended - for example - don't use circular saw for cutting tree limbs or logs.
8. **Dress properly.**
Do not wear loose clothing or jewellery. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
9. **Use safety glasses.**
Also use face or dust mask if cutting operation is dusty.
10. **Don't abuse cable.**
Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
11. **Secure work.**
Use clamps or a vice to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **Don't overreach.**
Keep proper footing and balance at all times.
13. **Maintain tools with care.**
Keep tools sharp ~ clean for better and safer performance. Follow instructions for lubricating and -changing accessories. Inspect tool cords periodically and if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean, and free from oil and grease.
14. **Disconnect tools.**
When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. **Remove adjusting keys and wrenches.**
Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **Avoid unintentional starting.**
Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **Outdoor use extension cords.**
When tool is used outdoors, use only extension cords intended for use outdoors and so marked.

- 18. Stay alert.**
Watch what you are doing. Use common sense. Do not operate tool when you are tired.
- 19. Check damaged parts.**
Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it would operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service centre unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by authorized service centre. Do not use tool if cannot be turned on and off by the switch.
- 20. Warning.**
The use of any other accessory or attachment other than recommended in this operating instruction or the catalogue may present a risk of personal injury and could invalidate any guarantee.
- 21. Tool repairing by expert only.**
This electric tool is in accordance with the relevant safety rules. Repairing of electric tools may be carried out only by experts, otherwise it may cause considerable danger for the user.

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