



ROCAL PRO 2

ROCAL PRO 2



EN Instructions for use



www.rothenberger.com

Dear Customer, thank you for choosing a Rothenberger descaling – flushing pump.

MANUAL

This manual is a safe guide for the use of the pump. Please read it carefully in full before use.
This manual contains important information for the correct operation and use of the equipment.

Rothenberger reserve the right to introduce any future changes without notice or replacement.

PRELIMINARY INSPECTION

Upon receipt of the pump, remove from the carton and check it is in perfect condition. Also check that the data on the info plate is correct. Any abnormality must be advised immediately.



PRECAUTIONS

Only use Rothenberger chemicals in order to ensure good performance and avoid damaging the equipments.

Once the lifetime of the pump has expired, do not dispose of it with household waste. The pump must be recycled in authorized centres and can be treated as a household appliance.



During handling lift the pump and do not drag it to avoid damage to the tank.

Temperature of the descaling solution must never exceed 50 °C.

Flexible hoses and fittings can damage in time, check the seals whenever using the pump, as indicated in the pump preparation instructions.



SAFETY INSTRUCTIONS

- Avoid using the pump in places where there are liquids, gases, flammable powders or with risk of explosion.
- Before plugging in the pump, make sure the main switch on the machine is off.
- Only use CE-marked outlets.
- Use (CE) approved extensions, only if necessary.
- Do not use plug adapters. Do not carry out any modifications to the plug nor to the electrical cable.
- Pump shall always be kept in perfect efficiency.
- During maintenance operations, check the switch is off and the plug is not connected.
- Maintenance operations must be carried out by the authorized Rothenberger Technician..
- Only use Rothenberger original spare parts.
- Do not carry out any modifications to the pump if not authorized by Rothenberger Technical Department (ask for written authorization).
- Keep children and unauthorized persons away from the pump.
- Keep the pump out of reach of children and unauthorized persons.
- Do not use the pump if tired or under the effect of alcohol, medicines or drugs.
- When using the pump, wear overalls, do not wear jewellery, keep hair away from the pump.
- When handling chemicals, take care.
- Always use Personal Protection Equipment (PPE).
- Equipment can be used by children under 8 years and by people with reduced physical, mental, sensorial capacity, or by people without experience or the necessary know-how, provided they are supervised or have received adequate training, which should include the correct use of the equipment and the risks that may arise from its use.
- Please ensure that children do not play with the appliance.
- Cleaning and maintenance are intended to be performed by the user and must not be carried out by children without supervision.
- If power cord is damaged, it must be replaced by the manufacturer or by Rothenberger Service Technician or a similarly qualified person, in order to avoid any hazard."

CONTENTS

1 - INTRODUCTION.....p.	2
2 - REGULATIONS – CE MARK.....p.	2
3 - DESCRIPTION.....p.	3
4 - TECHNICAL FEATURESp.	3
5 - USE.....p.	3
6 - CHEMICALS.....p.	5
7 - DIRECTIONS FOR DISPOSALp.	5
8 - CUSTOMER SERVICES.....p.	5

1 - INTRODUCTION

With time and, above all, temperature increase, magnesium and calcium salts contained in water form microcrystals and settle on metallic surfaces of pipes, plant coils and heat exchangers, thus reducing flow rate and thermal efficiency.

To remove scale deposits it is necessary to flush the inside the pipes, by using a Rothenberger descaling pumps, the chemicals which react with scale, make it soluble and thus removed. Rothenberger produces a wide range of products for descaling systems and heat exchangers etc.
All products are made from high quality base materials in order to get

2 - REGULATIONS – CE MARK

Declaration of Conformity

The pumps are in conformity with the following European Directives, Laws and Regulations:

Low Voltage Directive:

73/23/EEC
93/68/EEC

Electromagnetic Compatibility Directive:

89/336/EEC
92/31/EEC
93/68/EEC
93/97/EEC

Directives RoHS and WEEE:

02/98/EEC
02/96/EEC
03/108/EEC



QUALITY

The pump is built with high-quality acid resistant materials and submitted to severe operating tests.
Follow these instructions to avoid any operating and servicing problems.

3 - DESCRIPTION

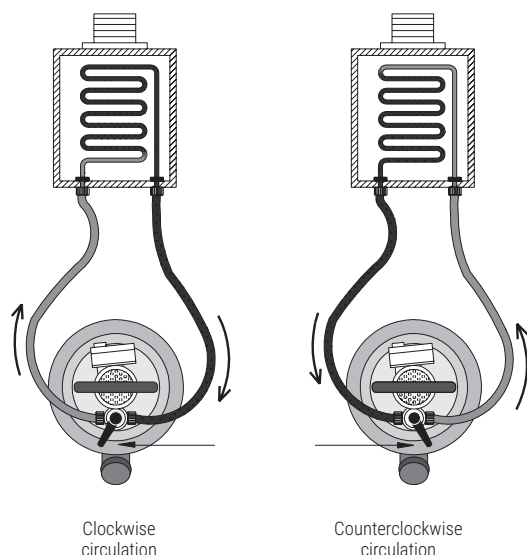
Vertical axis pump with tank and on-off valves for cleaning and flushing small systems or parts of big systems by circulating specific non-acid flushing chemicals and/or acid descaling solutions.

Exclusive pump design with tank. Highly portable format, with handle and wheels for easy transportation.

Thanks to the automatic flow reverser function (Rothenberger patent), it attacks scale in both directions, thus making descaling more effective and fast (as the chemical dissolving action is combined with the removal of flakes of scale, which is aided by the two way flow), even when pipes and exchangers are almost totally blocked.

Deposits which can be removed with the pump ROCAL PRO 2:

- scale deposits.
- calcium and silica deposits.
- iron and/or manganese oxides.
- iron bacteria and/or sulfate-reducing bacteria.
- organic substances and/or mucilages and algae.



4 - TECHNICAL FEATURES

Vertical axis pump

Motor:

Power supply:

Degree of protection:

Max. temperature:

Flow rate:

Head:

Connections:

Tank capacity:

Dimensions (LxHxZ):

Weight:

Hp 0,75

230 V - 50 Hz

IP 54

50° C

102 l/min.

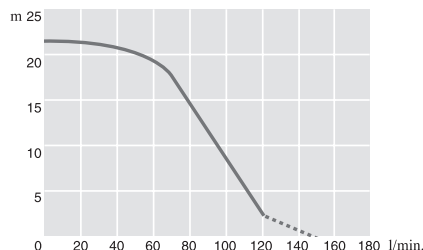
18 m

1" F

40 l

40 x 95 x 70 cm

9 Kg



*BOILER FLUSHING

Please consult boiler manufacturer prior to flushing, regarding warranties and suitability of use.

5 - USE

DESCALING WITH FLOW REVERSER

For descaling boilers and heat exchangers. Fill the tank with the correct volume of descaling chemical according to the size and type of system, and enough water to ensure that the liquid level is between the minimum "MIN" and maximum "MAX" level.

TEMPERATURE OF THE DESCALING SOLUTION MUST NEVER EXCEED 50 °C.

Connect the outer ends of the flexible reinforced hoses to the equipment to be descaled.

Connect the power cable to a single-phase 230 V - 50 Hz power supply.

During operation, the tank cap should remain open to allow for the venting of the fumes produced during descaling. Check that the foam level does not exceed the maximum filling level.

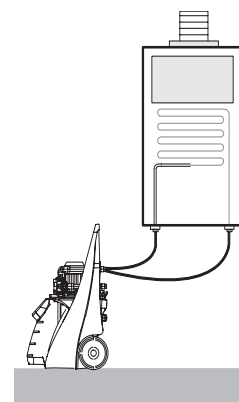
Set the 2 three-way valves as shown in the figure below, close the clean water inlet tap and switch on the pump.

Rotate the flow reverser lever right and left regularly to aid descaling and make flushing more effective.

When water colour starts changing, immediately refill, as the solution is exhausted.

Scale removal can be considered complete when bubbles no longer form in the return pipe and the solution is still acidic.

After descaling flush the system with the product NEUTRALIZING for removing residual acidity, once the pump has been emptied of the product.



Important: Do not leave the descaling solution inside the tank for any reason.



5.1 POWER FLUSHING

Pre-flushing with water

Pump is suitable for power flushing and descaling boilers*, heat exchangers as well as radiator, underfloor and solar heating systems. To carry out the pre-flushing with water (and then the power flushing), operate as follows:

- 1) Connect the ends of the flexible hoses to the system to be flushed.
- 2) Connect the overflow hose to a suitable drain.
- 3) Connect the power supply cable to a single-phase 230 V / 50 Hz socket.
- 4) Open the tank cap to visually check water level in the tank.
- 5) Set the valves and flow reverser as per Figure 1, open the clean water inlet tap, open the dump and switch on the pump.

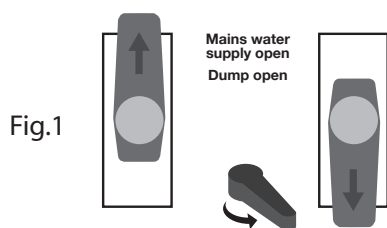


Fig.1

Notice: The direction of the longer part of the valve knob must be as shown in Fig. 1.

- 6) Circulate water in the system for approximately 2 minutes to remove the rough deposits present in the pipes.
- 7) Set the valves and reverse the flow.

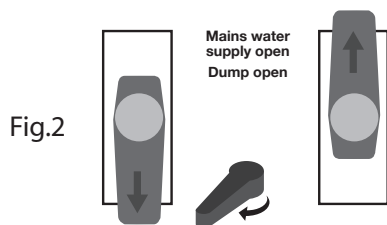


Fig.2

- 8) Switch on the pump and circulate water in the system for approximately 2 minutes to remove the rough deposits present in the pipes.
- 9) Repeat the pre-flushing to right and left until dump water is free from rough deposits.

Power flushing with chemical (ROCLEAN RESTORER)

To power flush the system with the chemical (Long Life 800), operate as follows:

- 1) Make sure the ends of the flexible hoses are connected to the system to be power flushed.
- 2) Make sure that the overflow hose is connected to a suitable drain.
- 3) Make sure that the power supply cable is connected to a single-phase 230 V / 50 Hz socket.
- 4) Close the mains water inlet supply tap and close the dump.
- 5) Make sure that the tank cap is open to visually check fluid level in the tank.
- 6) Set the valves as per Figure 3 and add the chemical into the tank.

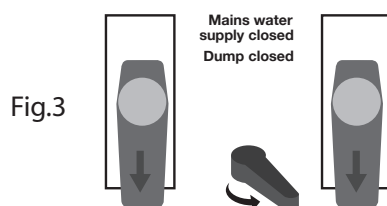


Fig.3

- 7) Circulate the chemical solution in the system circuit for approximately 5-10 minutes.
- 8) After 5-10 minutes reverse the flow.

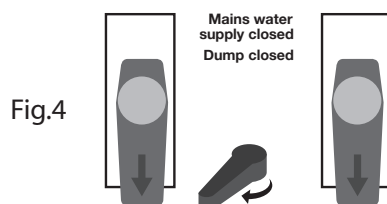


Fig.4

- 9) Circulate the chemical in the system circuit for approximately 5-10 minutes.
- 10) Repeat the power flushing operations switching the flow to right and left, until the colour of the flushing solution changes, for a minimum working time of 2-3 hours.

Rinsing with water

To rinse with water after power flushing, operate as follows:

- 1) Make sure that the overflow hose is connected to a suitable drain.
- 2) Make sure that the power supply cable is connected to a single-phase 230 V / 50 Hz socket.
- 3) Make sure that the tank cap is open to visually check water level in the tank.
- 4) Open the dump.
- 5) Set the valves as per Figure 5, open the clean water inlet tap and switch on the pump.

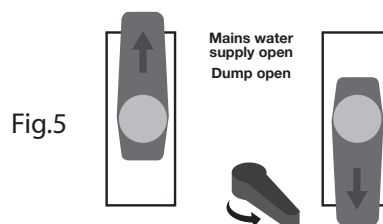


Fig.5

- 6) Circulate water in the system for some minutes to remove the flushing residues present in the pipes.
- 7) Set the valves as per Figure 6 and reverse the flow.

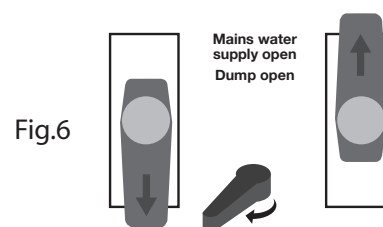


Fig.6

- 8) Switch on the pump and circulate water in the system for a few minutes to remove the flushing residues present in the pipes.
- 9) Measure conductivity of the mains water at the inlet and dump water at the outlet.
- 10) Repeat the rinsing operations until the dump water runs clear.

Chemical filling (ROCLEAN INHIBITOR)

- 1) Close mains water supply tap.
- 2) Close dump
- 3) Set the valves as per Figure 7.
- 4) Add chemical (corrosion inhibitor and/or biocide-sanitizer) into the tank.
- 5) Switch on the pump for a few minutes.

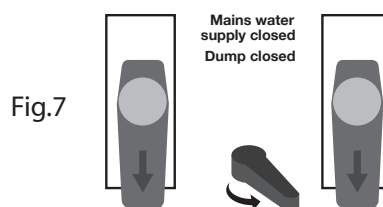


Fig.7

5.2 DESCALING

Descaling with chemicals

To carry out descaling with chemicals, operate as follows:

- 1) Connect the ends of the flexible hoses to the system to be descaled.
- 2) Connect the overflow hose to a suitable drain.
- 3) Connect the power supply cable to a single-phase 230 V / 50 Hz socket.
- 4) Make sure the tank cap is open, to allow any fumes formed during descaling to escape.
- 5) Set the valves as per Figure 3, add the chemical into the tank.
- 6) Circulate the chemical in the system circuit for approximately 5-10 minutes.
- 7) Once this time has passed, reverse the flow leaving the position of valves as they are.
- 8) Should the chemical be changing its initial colour, it should be refilled immediately as exhausted.
- 9) Repeat the operations until the colour of the flushing solution is changes, for a minimum working time of 2-3 hours.
- 10) After descaling, open the dump to evacuate residual acid caused by descaling and go to the next step (Neutralization after descaling).

Notice: Use descaling chemicals suitable for the system materials.

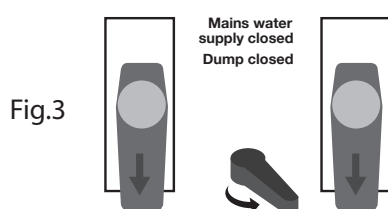


Fig.3

Neutralization

To neutralize the system with NEUTRALIZING, operate as follows:

- 1) Make sure the tank cap is open to visually check water level in the tank.
- 2) Pour a 2-3% amount of NEUTRALIZING by referring to the warnings on the packaging and product label.
- 3) Set the valves and flow reverser as per Figure 5. Open the clean water inlet tap and switch on the pump.

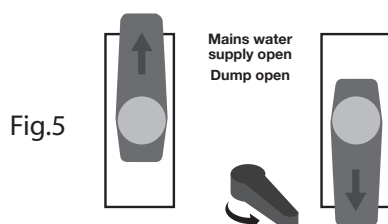


Fig.5

- 4) Circulate the neutralizing solution in the system for approximately 2 minutes to neutralize residual acidity present in the equipment.
- 5) Once this time has passed, set the valves and flow reverser as per Figure 6.

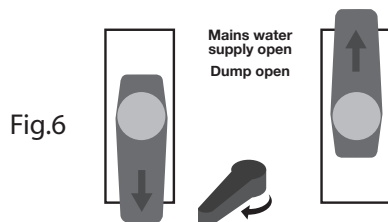


Fig.6

- 6) Circulate the neutralizing solution in the system for approximately 2 minutes to remove residual acidity present in the equipment.
- 7) Repeat the operations until dump water is free from any chemical residues.
- 8) Dump the neutralizing solution used.

6 - CHEMICALS

6.1 - CONDITIONING CHEMICALS

Suitable for all materials

ROCLEAN INHIBITOR

Corrosion inhibitor. Non acid product to control corrosion and scale in boilers and heating systems.

ROCLEAN RESTORER

Restorer. Flushing product to remove sludge, corrosion residues and iron deposits built over time in heating systems. Suitable for traditional heating systems.

7 - DIRECTIONS FOR DISPOSAL

Components of the unit are made from recyclable material and should be put to recycled. For this purpose registered and certified recycling companies are available. For an environmental friendly disposal of the non-recyclable parts (e.g. electronic waste) please contact your local waste disposal authority.

For EU countries only:

Do not dispose electric tools with domestic waste. In accordance with the European Directive 2012/19/EC the disposal of electrical and electronic equipment and its implementation as national law, electric tools that are no longer serviceable must be collected separately and utilised for environmentally compatible recycling.



10 - CUSTOMER SERVICES

The ROTHENBERGER service locations are available to help you (see listing in catalog or on-line) and replacement parts and service are also available through these same service locations.

Order your accessories and spare parts from your specialist retailer or using our service-after-sales hotline:

Phone: 01536 310300

Fax: 01536 310600

Email: sales@rothenberger.co.uk

www.rothenberger.co.uk

EU-KONFORMITÄTSERLÄRUNG

Wir erklären in alleiniger Verantwortung, dass dieses Produkt mit den angegebenen Normen und Richtlinien übereinstimmt.

EU-DECLARATION OF CONFORMITY

We declare on our sole accountability that this product conforms to the standards and guidelines stated.

DECLARATION EU DE CONFORMITÉ

Nous déclarons sous notre propre responsabilité que ce produit est conforme aux normes et directives indiquées.

DECLARACION DE CONFORMIDAD EU

Declaramos, bajo nuestra responsabilidad exclusiva, que este producto cumple con las normas y directivas mencionadas.

DICHARAZIONE DI CONFORMITÀ EU

Dichiariamo su nostra unica responsabilità, che questo prodotto è conforme alle norme ed alle direttive indicate.

EU-KONFORMITEITSVERKLARING

Wij verklaren in eigen verantwoordelijkheid dat dit product overeenstemt met de van toepassing zijnde normen en richtlijnen.

DECLARAÇÃO DE CONFORMIDADE EU

Declaramos, sob responsabilidade exclusiva, que o presente produto está conforme com as Normas e Directivas indicadas.

DEKLARACJA ZGODNOŚCI EU

Oświadczamy z pełną odpowiedzialnością, że produkt ten odpowiada wymaganiom następujących norm i dokumentów normatywnych.

EU-PROHLÁŠENÍ O SHODĚ

Se vši zodpovědností prohlašujeme, že tento výrobek odpovídá následujícím normám a normativním dokumentům.

EU UYGUNLUK BEYANI

Tek sorumlu olarak bu ürünün yönetmelik hükümleri uyarınca aşağıdaki normlara ve norm dokümanlarına uygunluğunu beyan ederiz.

EU-AZONOSSÁGI NYILATKOZAT

Teljes felelősségünk tudatában kijelentjük, hogy jelen termék megfelel a következő szabványoknak vagy szabványossági dokumentumoknak.

DECLARAȚIE DE CONFORMITATE EU

Declarăm pe propria răspundere că acest produs este conform cu standardele și directivele enumerate.

EL VASTAVUSDEKLARATSIOON

Me deklareerimine ainuiskuliselt vastutades, et kõnealune toode ühildub esitatud normide ja direktiividega.

EU ATITIKTIES DEKLARACIJA

Prisiimdami visą atsakomybę deklaruojame, kad šis gaminys atitinka visus nurodytus standartus ir direktyvas.

ES ATBILSTĪBAS DEKLARĀCIJA

Mēs uz savu atbildību darām zināmu, ka šī prece atbilst norādītajiem standartiem un direktīvām

ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ СТАНДАРТАМ EU.

Мы заявляем что этот продукт соответствует следующим стандартам.



2014/30/EU, 2014/35/EU, 2011/65/EU
EN 60335-1, EN 60335-2-41, EN 55014-1,
EN 55014-2, EN 61000-3-2, EN 61000-3-3

Herstellerunterschrift
Manufacturer/ authorized representative signature

ppa. Thorsten Bühl Kelkheim, 06.06.2016
Director Corporate Technology

Technische Unterlagen bei/ Technical file at:
ROTHENBERGER Werkzeuge GmbH
Spessartstrasse 2-4
D-65779 Kelkheim/Germany

ROTHENBERGER Worldwide

Australia	ROTHENBERGER Australia Pty. Ltd. Unit 6 • 13 Hoyle Avenue • Castle Hill • N.S.W. 2154 Tel. + 61 2 / 98 99 75 77 • Fax + 61 2 / 98 99 76 77 rothenberger@rothenberger.com.au www.rothenberger.com.au	Italy	ROTHENBERGER Italiana s.r.l. Via G. Reiss Romoli 17-19 • I-20019 Settimo Milanese Tel. + 39 02 / 33 50 601 • Fax + 39 02 / 33 50 0151 info@rothenberger.it • www.rothenberger.it
Austria	ROTHENBERGER Werkzeuge- und Maschinen Handels-gesellschaft m.b.H. Gewerbeparkstraße 9 • A-5081 Anif Tel. + 43 62 46 / 7 20 91-45 • Fax + 43 62 46 / 7 20 91-15 office@rothenberger.at • www.rothenberger.at	Netherlands	ROTHENBERGER Nederland bv Postbus 45 • NL-5120 AA Rijen Tel. + 31 1 61 / 29 35 79 • Fax + 31 1 61 / 29 39 08 info@rothenberger.nl • www.rothenberger.nl
Belgium	ROTHENBERGER Benelux bvba Antwerpsesteenweg 59 • B-2630 Aartselaar Tel. + 32 3 / 8 77 22 77 • Fax + 32 3 / 8 77 03 94 info@rothenberger.be • www.rothenberger.be	Poland	ROTHENBERGER Polska Sp.z o.o. Ul. Annopol 4A • Budynek C • PL-03-236 Warszawa Tel. + 48 22 / 2 13 59 00 • Fax + 48 22 / 2 13 59 01 biuro@rothenberger.pl • www.rothenberger.pl
Brazil	ROTHENBERGER do Brasil LTDA Av. Fagundes de Oliveira, 538 - Galpão A4 09950-300 - Diadema / SP - Brazil Tel. + 55 11 / 40 44- 4748 • Fax + 55 11 / 40 44- 5051 spacante@rothenberger.com.br • www.rothenberger.com.br	Russia	ROTHENBERGER Russia Avtosavodskaya str. 25 115280 Moscow, Russia Tel. + 7 495 / 792 59 44 • Fax + 7 495 / 792 59 46 info@rothenberger.ru • www.rothenberger.ru
Bulgaria	ROTHENBERGER Bulgaria GmbH Boul. Sitnjakovo 79 • BG-1111 Sofia Tel. + 35 9 / 2 9 46 14 59 • Fax + 35 9 / 2 9 46 12 05 info@rothenberger.bg • www.rothenberger.bg	South Africa	ROTHENBERGER-TOOLS SA (PTY) Ltd. P.O. Box 4360 • Edenvale 1610 165 Vanderbijl Street, Meadowdale Germiston Gauteng (Johannesburg), South Africa Tel. + 27 11 / 3 72 96 31 • Fax + 27 11 / 3 72 96 32 info@rothenberger.co.za • www.rothenberger.co.za
China	ROTHENBERGER Pipe Tool (Shanghai) Co., Ltd. D-4, No.195 Qianpu Road, East New Area of Songjiang Industrial Zone, Shanghai 201611, China Tel. + 86 21 / 67 60 20 61 • + 86 21 / 67 60 20 67 Fax + 86 21 / 67 60 20 63 • office@rothenberger.cn	Spain	ROTHENBERGER S.A. Ctra. Durango-Elorrio, Km 2 • E-48220 Abadiano (Vizcaya) (P.O. Box) 117 • E-48200 Durango (Vizcaya) Tel. + 34 94 / 6 21 01 00 • Fax + 34 94 / 6 21 01 31 export@rothenberger.es • www.rothenberger.es
Czech Republic	ROTHENBERGER CZ Prumyslova 1306/7 • 102 00 Praha 10 Tel. +420 271 730 183 • Fax +420 267 310 187 prodej@rothenberger.cz • www.rothenberger.cz	Sweden	ROTHENBERGER Sweden AB Hemvärmsgatan 22 • S- 171 54 Solna, Sverige Tel. + 46 8 / 54 60 23 00 • Fax + 46 8 / 54 60 23 01 roswe@rothenberger.se • www.rothenberger.se
Denmark	ROTHENBERGER Scandinavia A/S Smødevænget 8 • DK-9560 Hadsund Tel. + 45 98 / 15 75 66 • Fax + 45 98 / 15 68 23 roscan@rothenberger.dk	Switzerland	ROTHENBERGER (Schweiz) AG Herostr. 9 • CH-8048 Zürich Tel. + 41 44 / 435 30 30 • Fax + 41 44 / 401 06 08 info@rothenberger-werkzeuge.ch
France	ROTHENBERGER France S.A. 24, rue des Drapiers, BP 45033 • F-57071 Metz Cedex 3 Tel. + 33 3 / 87 74 92 92 • Fax + 33 3 / 87 74 94 03 info-fr@rothenberger.com • www.rothenberger.fr	Turkey	ROTHENBERGER TÜRKİYE ROTHENBERGER Center, Barbaros Bulvarı No:9 TR-34775 Serifali / Ümraniye-Istanbul Tel. + 90 / 216 449 24 85 • Fax + 90 / 216 449 24 87 rothenberger@rothenberger.com.tr www.rothenberger.com.tr
Germany	ROTHENBERGER Deutschland GmbH Industriestraße 7 • D-65779 Kelkheim/Germany Tel. + 49 61 95 / 800 81 00 • Fax + 49 61 95 / 800 37 39 verkauf-deutschland@rothenberger.com www.rothenberger.com ROTHENBERGER Plastic Technologies GmbH Lilienthalstraße 71- 87 • D-37235 Hessisch-Lichtenau Tel. + 49 56 02 / 93 94-0 • Fax + 49 56 02 / 93 94 36	UAE	ROTHENBERGER Middle East FZCO PO Box 261190 • Jebel Ali Free Zone Dubai, United Arab Emirates Tel. + 971 / 48 83 97 77 • Fax + 971 / 48 83 97 57 office@rothenberger.ae ROTHENBERGER EQUIPMENT TRADING & SERVICES LLC PO Box 91208 • Mussafah Industrial Area Abu Dhabi, United Arab Emirates Tel. + 971 / 25 50 01 54 • + 971 / 25 50 01 53 uaesales@rothenberger.ae
Greece	ROTHENBERGER Hellas S.A. Agias Kyriakis 45 • 17564 Paleo Faliro • Greece Tel. + 30 210 94 02 049 • +30 210 94 07 302 / 3 Fax + 30 210 / 94 07 322 ro-he@otenet.gr • www.rothenberger.com	UK	ROTHENBERGER UK Limited 2, Kingsthorpe Park, Henson Way, Kettering • GB-Northants NN16 8PX Tel. + 44 15 36 / 31 03 00 • Fax + 44 15 36 / 31 06 00 info@rothenberger.co.uk
Hungary	ROTHENBERGER Hungary Kft. Gubacsi út 26 • H-1097 Budapest Tel. + 36 1 / 3 47- 50 40 • Fax + 36 1 / 3 47- 50 59 info@rothenberger.hu • www.rothenberger.hu	USA	ROTHENBERGER USA LLC 7130 Clinton Road • Loves Park, IL 61111, USA Tel. +1 / 80 05 45 76 98 • Fax + 1 / 81 56 33 08 79 pipetools@rothenberger-usa.com www.rothenberger-usa.com
India	ROTHENBERGER India Pvt. Ltd. Plot No 17, Sector - 37, Pace city-I Gurgaon, Haryana - 122 001, India Tel. 91124- 4618900 • Fax 91124- 4019471 contactus@rothenbergerindia.com www.rothenberger.com		ROTHENBERGER Werkzeuge GmbH Industriestraße 7 D- 65779 Kelkheim / Germany Telefon + 49 (0) 61 95 / 800 - 0 Fax + 49 (0) 6195 / 800 - 3500 info@rothenberger.com