



Quality Tools for Smart Cleaning

Ion exchange resin filter
Ionentauscher-Harzfilter
Filtre résine échangeur d'ions
Ionen-uitwisselaar-harsfilter
Filtro in resina a scambio ionico
Filtro de resina de intercambio de iones

**HYDRO
POWER®**
ULTRA



DIUH1



DIUH2



DIUH3

ENGLISH

DEUTSCH

FRANCAIS

ITALIANO

ESPAÑOL

NEDELANDS

OPERATING INSTRUCTIONS • BEDIENUNGSANLEITUNG
MODE D'EMPLOI • BEDIENINGSHANDLEIDING
INSTRUCCIONES DE MANEJO • ISTRUZIONI PER L'USO



Quality Tools for Smart Cleaning

HydroPower® Ultra Content

ENGLISH

..... 4

DEUTSCH

..... 16

FRANCAIS

..... 28

ITALIANO

..... 40

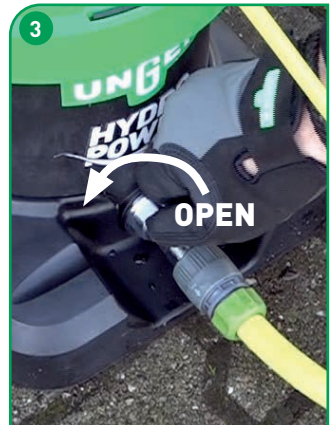
ESPAÑOL

..... 52

NEDELANDS

..... 64

HydroPower® Ultra Quick Guide





Quality Tools for Smart Cleaning

HydroPower® Ultra Table of contents

1. Introduction 5

2. Safety regulations 6

3. Shipping & Packing 8

4. System Overview 9

5. Installation & Operating instructions 10

6. Resin Change 12

7. Technical data 14

Tips for cleaning with pure water 15

⚠ DANGER

Contents under pressure can cause severe injury or death from tank rupture.

When starting system:

- Check system for cracks.
- Be sure cover is in locked position.
- Do not exceed pressure of 8 Bar (116 psi).
- Keep discharge line open and hold yellow lever down to remove trapped air from system.
- For use only with drinking water

Before servicing system:

- Shut off drinking water supply and open waterfed pole tubing discharge line.
- Disconnect water supply and allow tank to drain.
- Prior to opening vessel housings, turn off water and relief pressure in hose. Press yellow opening lever to get pressure out of the housings.

- Spilled resin is a slipping hazard. Clean up spilled resin immediately.
- Resin can cause skin irritation. Avoid skin contact.
- Wash hands thoroughly after use.
- Can cause eye irritation. Avoid eye contact. Wear safety goggles. In case of eye contact, immediately flush eyes thoroughly with clean water. Consult doctor if symptoms persist.
- Do not drink the water produced by this system. This water is too pure and will rob the body of vital minerals.

READ MANUAL BEFORE USING PRODUCT!

STORAGE: Do not store resin in open or unlabelled containers. Store in a cool, dry place (5°C to 40°C).

DISPOSAL: Dispose of in accordance with applicable federal, state/provincial, and local regulations. All HydroPower® Ultra units require the use of mixed bed ion exchange resin (commonly referred to as de-ionizing resin). This resin will require replacement and handling.

HydroPower® Ultra

Introduction

1. Introduction

When choosing UNGER complete desalination as water treatment system, you have decided in favour of a high-quality product.

Complete desalination is based on the principle of ion exchange. The minerals responsible for producing hardness and the conductivity (TDS value) are removed from the water.

The application of this treatment filter has the following advantages:

- A water fed pole and a brush are all that is needed for glass cleaning.
- Prior to system installation and start-up it is essential that you observe the safety regulations and instructions for installation and maintenance contained in these instructions.
- The manufacturer is not liable for the malfunction of the device:
 - When handling is not in compliance with regular use.
 - When used for applications not mentioned in the manual (use other than intended),
 - When failing to comply with safety regulations.

There is a risk of damage to the treatment filter if:

- Operating and installation errors.
- Usage of loose resin (Overfill, expansion of resin, resin flows into waterline)
- Vessel is opened incorrectly.
- Replacing spare parts that are not included in the official UNGER spare parts pricelist.
- Performing unauthorised modifications to the design.
- Non-compliance with safety regulations (e.g. anti-freeze protection).
- Use of chemical additives.
- Insufficient maintenance.

Use only original spare parts by UNGER (according to spare parts list).

For all inquiries and spare parts orders it is important to provide detailed information on the device.



Quality Tools for Smart Cleaning

HydroPower® Ultra

Safety regulations

2. Safety regulations

2.1 General

Please observe the applicable rules and regulations, as well as the effective accident prevention regulations. Unger is not liable for any occurring water damage.

Make sure that the area of application has sufficient water drainage.

Close feed valve in case of prolonged shut-down times (e.g. weekends).

Transportation: Ensure HydroPower® Ultra tanks and cart models are properly secured to trailer, van or truck bed.

The window cleaning contractor shall meet all applicable local, state/provincial, federal licensing and registration requirements. He also shall strictly adhere to all applicable local, state/provincial and federal labour laws and safety codes and standards.

2.2 Intended use

This device may cause danger if it is improperly installed, not regularly maintained or not used as intended. Use this device only for water treatment to reach an optimal water quality for glass cleaning. Any other use, especially water treatment for food production (e.g. beverages) is considered as non-intended and not allowed.

When operating with a tap waterline, it must be assured that the connected watertap is equipped with a **rebound valve** to prevent water flowing back into drink water line!

When operating with water other than from drinking water system, e.g. from a well, a water analysis must be performed prior to application to determine if the water is suitable. Excess impurities in the water may have an adverse effect on system performance and cleaning result.

2.3 Operating temperatures, pressures and connections

The system must be protected against frost. The temperatures in the service room must be at least 4°C. The water temperature may not exceed 30°C, and maximum operating pressure is 8 bar.

2.4 Conversions and modifications to the device

Due to safety reasons, unauthorised modifications are not allowed. Original parts and accessories are specifically designed for this device. Any liability by the manufacturer for damages resulting from modifications to the device or from using parts other than original parts is excluded.

Safety regulations

2.5 Attention (General hazards)

Purified water is delivered to the waterfed pole by flexible hose from the HydroPower® Ultra system. This introduces a risk of tripping both to worker and general public. Identify work area with appropriate signage.

Any surface that becomes wet must be identified with appropriate signage to direct pedestrians and workers away from work area. During wintertime, it is important to avoid water pooling, which could freeze, creating a dangerous slip hazard.

General hazards associated with the use of water fed poles and deionization equipment¹:

- Trip hazard to the general public when using trailing hoses.
- Slip hazard presented from wet pathways.
- Slip hazard for operator when concentrating on work.
- Falls from height when working on flat roofs.
- Electrocution from poles coming into contact with overhead power source.
- Injuries to others from falling poles or fabric of the building that may be dislodged.
- Injury to others from falling poles caused by incorrect handling or failure of pole.
- Injury through incorrect manual handling of poles and other equipment.
- Spread of legionella disease through poor maintenance of system.
- Hazards from carrying tanks, systems and equipment that are overloaded, unstable, unsecured or incorrectly installed within a vehicle.

1. British Window Cleaning Academy (BWCA): Safety in window cleaning using waterfed pole systems



Quality Tools for Smart Cleaning

HydroPower® Ultra Shipping & Packing

3. Shipping & Packing

3.1 Receiving inspection of Ultra Resin Packs

UNGER Ultra Resin Packs are carefully checked and packed prior to dispatch. However, damages caused by shipment cannot be ruled out.

Check packing for exterior damage while delivering person is still present.

3.2 Receiving inspection of entire unit

- Check device for completeness based on illustration (page 7).
Based on your ordered part number following parts may be not included:
Cart **(8)**
- Visual inspection of device for shipping damages.

3.3 Claims

Have delivering person from the transport company confirm any damages to the packing. Save packing and shipping carton for possible return.

Reports of shipping damages that have not been confirmed by the transport company cannot be accepted.

Damage detected only after start-up must be reported to the dealer without undue delay. The dealer's invoice is absolutely necessary to confirm the date of purchase.

In addition, the general terms and conditions of UNGER apply.

HydroPower® Ultra System Overview

4. System Overview

4.1 What is Pure Water?

Pure Water is water in its purest form, physically processed to remove the minerals that would otherwise lead to limescale spots and streaks. Such impurities are referred to as TDS (Total Dissolved Solids) and are measured in ppm (parts per million). The water is considered 100% demineralised (pure) when its TDS is measured at 0 ppm, whilst the 180 ppm is considered as average water hardness.

The HydroPower® Ultra offers you a bundle of great benefits, delivered through innovative features plus 30% more resin efficiency compared to other systems.

4.2 HydroPower® Ultra



- 1. Water IN connection,**
chrome-plated brass, including valve
- 2. Water OUT connection**
chrome-plated brass
- 3. FastLock opening lever**
to release pressure off the vessel and to open the vessel
- 4. Handles**
to carry and open the vessel.
- 5. TDS-Meter**
to check the water quality
- 6. Vessel**
- 7. Ultra Resin Pack**
- 8. Cart** (only DIUH3)

4.3 Ultra Resin Packs



green = upper position
in all filters

red = middle and lower
position in DIUH2 and DIUH3



Quality Tools for Smart Cleaning

HydroPower® Ultra

Installation & Start-up

5. Installation and start-up

5.1 New Machine Set-Up

- **Unpack unit:** Inspect HydroPower® Ultra system and all components. Read warnings and operating manual.
- **Inspection & Scope of Delivery:** Refer to illustration; perform visual inspection and take inventory of the following items that should be shipped with the system, then test system for functionality:
 - TDS Meter functional (powers on/off)
 - Fast Lock lever (yellow) – depress lever, rotate in clockwise direction and remove top cap assembly.
 - Ultra Resin Packs installed in unit.
 - DIUH1 - One green Ultra Resin Pack
 - DIUH2 - One green two red Ultra Resin Packs
 - DIUH3 - One green two red Ultra Resin Packs,
- **Water supply connection**
 - The inflowing water must comply with the applicable local Drinking Water Ordinance.
 - It must be assured that the connected watertap is equipped with a rebound valve to prevent water flowing back into drink water line.
 - Inflowing water temperature max. 30°C
 - Temperature on site 5° to 40°C; not in immediate vicinity of heater.
 - Do not operate in the immediate vicinity of heat sources or in direct sun.
 - Depending on the composition of the raw water, the treated water is more or less aggressive. Thus, the parts getting in contact with the treated water must be made of suitable material (e.g. glass, plastic or aluminium). Copper and other non-ferrous metals are not suitable.

5.2 Start-up

1. Locate jobsite drinking water supply.
2. Before window cleaning can begin, the system must be connected to a drinking water supply (see page 7 **(1)**). If well water system is source, it is recommended water quality analysis be performed prior to application.
3. UNGER recommends testing the onsite water supply for TDS (total dissolved solids) **(5)** prior to working. Higher TDS levels reduce the DI system's capacity. Conversely, lower TDS levels will increase the amount of water the system is able to produce.
4. Inspect system – ensure UNGER'S Ultra Resin Packs **(7)** are properly installed: the red coded units must always be at center and bottom position and the green unit on top. In DIUH1 only use the green Ultra Resin Pack.

Installation & Start-up

- a. **NOTE:** The performance of HydroPower®Ultra is optimized for the usage with Ultra Resin Packs. Never use with loose resin as then the tightness of the unit is not guaranteed.
5. Set up system in upright position. Choose a stable onsite location; best to locate near work area.
6. Connect hoses to system (tap water **(1)** and waterfed pole tubing **(2)**, (fig. A).
7. Ensure all waterfed pole on/off valves are in "OPEN" position.
8. Turn on tap water supply slowly.
9. Inspect system as it pressurizes and begins producing pure water. Keep discharge line open and hold down yellow lever **(3)** to remove trapped air from system (fig. B). Use only with drinking water.
10. Turn on TDS meter **(5)** and inspect pure water quality (fig. C).
For first time use, the TDS meter should read 000.
Stop use when TDS meter reads 010 ppm and change resin.
Adjust flow at waterfed pole brush head by:
 - a. Tap water valve or
 - b. Waterfed pole control (on/off) valve (e.g. UNGER HiFlo Control).
11. You are ready to start cleaning.



5.3 During operation

1. Periodically inspect the HydroPower®Ultra system during use. Ensure hoses are properly attached. Inspect system for leaks and proper fit of top cap assembly.
2. Take care when working to ensure there is enough slack in waterfed pole tubing. This tubing is connected to the top of the unit, and excessive tugging may cause the system to tip over.
3. Drinking water flows into the system's lower connection port via tap pressure and flows upwards through the HydroPower®Ultra vessel. Pure Water exits through the top connection. When plumbing line pressures fall below 3 bar (44psi), a reduction in flow rates will be noticeable.
4. Use the included water valve on Water IN valve **(8)** to regulate the water stream inside the HydroPower®Ultra.
 - After a **longer non-usage** period, **flush** the filter thoroughly so that only fresh water is in.



Quality Tools for Smart Cleaning

HydroPower® Ultra Resin change

6. Resin Change

6.1 Capacity

Since the HydroPower® Ultra resin filter is used at different water filling points with various degrees of hardness, the available quantity of completely desalinated water differs.

The conductivity measurement is used to monitor water quality.

If a conductivity measurement indicates a value of >10 ppm, the resin is depleted. The Ultra Resin Pack must be replaced.

Raw water quality can be determined in various ways:

- a) Information from responsible water works (indication of overall hardness).
- b) By measuring the mineral content with UNGER TDS-Meter (5).

6.2 Resin Change - Ultra Resin Pack

REMOVE USED ULTRA RESIN PACKS

1. Close the water line.
2. Close the valve at bottom Water In of the filter (fig. A) and disconnect the hose.
3. Open the valve again, to let the water out of the system (fig. B).
4. Now remove the upper hose.
5. Press yellow FastLock Opening lever (fig. C) to get pressure out of the vessel.
6. Fix the base unit with your feet, press the top cap slightly down and use a counter-clockwise 1/8 turn to release top cap assembly; remove and set aside (fig. D).
7. Reach into housing and remove exhausted Ultra Resin Pack(s) by hand with the rubber handle (fig. E); discard according to local regulations. Be sure that the valve at the bottom is still open as this simplifies the removal of the resin packs.



REPLACE ULTRA RESIN PACKS

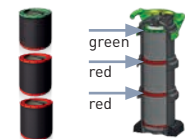
Install new Ultra Resin Packs by hand (fig. F) – be sure to seat bags with handle facing up!

One stage unit (DIUH1):

- 1x green Ultra Resin Pack
(never use red Ultra Resin Pack in this unit!)

Three stage unit (DIUH2, DIUH3):

- 1x green Ultra Resin Pack (top position)
- 2x red Ultra Resin Packs (middle + bottom position)



HydroPower® Ultra

Resin change

1. Insert the new Ultra Resin Packs with circular movements until they are completely seated in the tank (fig. F).
CHECK: The green border of the upper resin pack must sit flat on the inner edge.
2. Stamp the tank on the floor, so that Resin Pack can settle (fig. G)
3. Tap on the green frame to check correct fit. **It must no longer wiggle, otherwise the cover cannot be closed.**



The green ring on upper Ultra Resin Pack seals the system, ensuring optimum resin performance.
Never use other resin in this system! This leads to have water spillage in the top cap and resin spillage in the hose!

4. Replace the cover. Press it down slightly and then turn it clockwise 1/8 without pressing the yellow lever. Fix the device with your feet.
 - If the cover is difficult to rotate, lubricate the sealing ring with silicone grease.
 - If the cover does not close, stamp the unit on the floor again and check that the resin packs are seated correctly.
5. First connect the upper (fig H) and then the lower hose.
6. Turn "ON" water supply at tap (fig. I).
7. Hold down yellow lever to remove trapped air from system. (Abb. J).
8. Test the TDS value (fig. K) The value should be at **000**.



Dynamic Flow Control Technical Data

6.3 Dynamic Flow Control

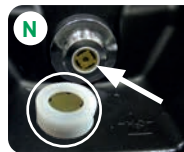
The ideal water flow for regular glass cleaning in this system is 120l/hour. Depending on the regional water pressure it is possible that more water is produced than consumed.

To make the performance of HydroPower® Ultra independent from incoming water supply pressure, the dynamic water flow controller included with the filter can be used. It reduces the water flow to 2l/minute (= 120l/hour). Optimising the water flow in this way allows you to use less water, extending the lifetime and performance of a single resin refill.

You can easily insert the Dynamic Flow Control:

1. Remove the bottom connector. You will need a 30mm and a 19mm wrench (fig. L).
2. Use the 19mm wrench to hold the front nut and the 30mm wrench to loosen the rear nut (Fig. M). Loosen the rest by hand and remove the front part of the connector.
3. Insert the dynamic water flow control into the opening, wide white rim towards the inside. (Fig.N)
4. Mount the adapter again using the two wrenches. Tighten the two nuts by hand.

If you want to remove the dynamic water flow regulator proceed in the same way and push it out from behind in step 3 with a screwdriver carefully. (Fig.O)



Note:

By reducing the flow it will take longer to fill a pure water vessel / storage tank.

7. Technical Data

Factor	DIUH1	DIUH2	DIUH3
Weight incl resin	10 kg	22 kg	31 kg
Height	35 cm	76,5 cm	107 cm
Inner Diameter	20 cm	20 cm	20 cm
Dimension of base	28 x 30cm	28 x 30cm	28 x 30cm
Ultra Resin Packs	1x ●	1x ●, 2x ●	1x ●, 2x ●
Max. permanent pressure (bar)	max. 8	max. 8	max. 8
Max. water temp. (°C)	30	30	30
Min. water temp. (°C)	5	5	5

Tips for cleaning with pure water

After cleaning I see stains or smudges on the window. What could be causing this ?

The cleaning was not thorough enough:

Make sure to wash off all visible dirt and residues. Rinse thoroughly.

Cleaning detergent residues on the surface:

If the window was previously cleaned using traditional method, it may take up to 2-3 rounds of cleaning with pure water to achieve perfect results to remove all residues of soap out of the glass.

Insufficient water flow:

An optimum level of between 120-150l per hour is ideal for regular glass cleaning. Make sure that the entire glass surface has been rinsed thoroughly.

The water is not 100% pure:

Water is considered pure when its TDS measure is 0 ppm - use the TDS meter to check this. The resin should be changed when the TDS measure rises up to 10ppm to ensure spot-free finish. Consider the overall quality of incoming water, e.g. well water may contain contaminants that make it unsuitable for window cleaning.

Wrong movement of the brush:

Always wash and rinse from top to bottom.

Dirt around the frames:

Over time, dirt may accumulate in and around the frames, especially when silicone joints and rubber seals are not watertight. Water can loosen and transfer the dirt onto glass, so wash and rinse thoroughly.

How do I clean wooden window frames?

Avoid glazed or oiled frames

Pure water dissolves the oils or tannin.

Varnished window frames:

Avoid using pure water as it may accelerate stripping of these coatings.

Other sources of errors

Damage to laminated and coated glass:

Test on a small area first and allow to dry. Check the results before cleaning the entire glass surface. Water beading on the surface may indicate hydrophobic glass – change to Fan Jets for better results.

High air pollution:

Dirt particles present in the air, especially in heavy traffic or high pollen count areas, may affect cleaning results – you may need to dry the window with a squeegee.

Dirty Brush:

Clean the brush to avoid transferring any impurities back onto the window.

Post construction cleaning:

This may require removal of plaster, stucco, concrete, paint, texture, taping mud, mortar, silicone, stickers and tape from glass. Generally, traditional glass cleaning methods are recommended for this type of cleaning.

Scratching of Plexi & Acrylic:

Surface dirt retained through static charge can produce scratches in the soft material. Apply plenty of pure water and use a soft brush such as a boar bristle brush. Contact the client to advise of the risk of scratching.



Quality Tools for Smart Cleaning

HYDRO POWER[®] ULTRA

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