



Quality Tools for Smart Cleaning

HiFlo™ CARBONTEC SYSTEM

PATENT PENDING!

Professional Cleaning of Solar Panels

HiFlo™ CarbonTec – the most efficient cleaning solution

- **EFFICIENT:** up to 30% higher solar output
- **ENVIRONMENTALLY FRIENDLY:** Cleaning without chemistry
- **SECURE:** No ladders necessary

HiFlo™ CARBONTEC
The Cleaning System for Solar Panels



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HiFlo™ CARBONTEC SYSTEM

ENVIRONMENTALLY FRIENDLY: Cleaning without chemistry!
HiFlo CarbonTec is the chemistry free and environmentally friendly cleaning system for all solar systems!



Especially at farms the solar output can be increased due to the high soilage by dust and dirt.



The HiFlo System is particularly effective on mixed glass / solar facades.



Extremely quick and easy cleaning of modules in residential areas.



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EFFICIENT: Up to 30% higher solar output! Even solar panels soil: Yield losses due to pollution!

Even if some manufacturers claim that solar stations are self-cleaning – the opposite is the truth! Dirt from the clouds and the atmosphere like dust, oil etc. are absorbed by the rain and deposited on the panels (see pic. 2). It is true that rain removes part of the existing dirt, but it also deposits new dirt on the surface. The effect is that some of the sunlight is stopped by that soilage and can no longer produce electrical energy (see pic. 3).

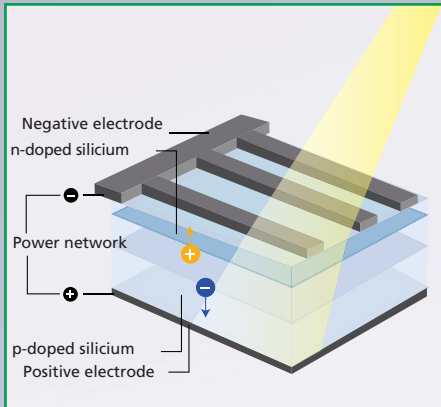


Fig. 1: Functional principle

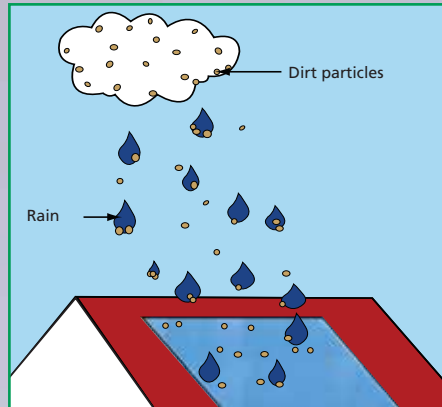


Fig. 2: Soilage

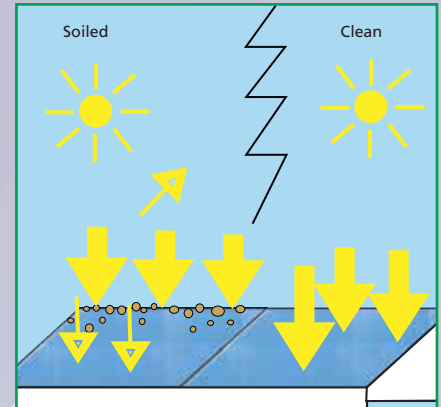
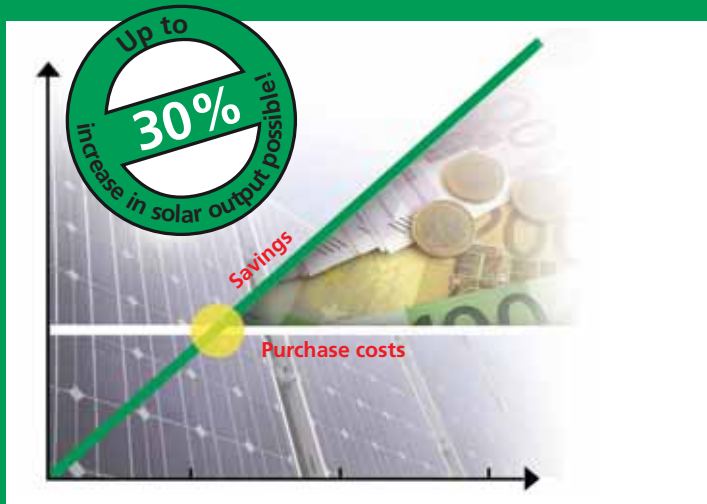


Fig. 3: Reduced incidence of light

Efficient – Saving right from the beginning!



The purchasing costs of the HiFlo- CarbonTec system amortize themselves – depending on the size and the frequency of usage of the solar panels – within a very short period of time. Saving of time due to easy and quick cleaning as well as the increased solar output due to the now possible shorter cleaning intervals lead to major savings.

The high-quality manufacturing of HiFlo™ CarbonTec results in long durability and low maintenance costs.



Quality Tools for Smart Cleaning

HiFlo™ CARBONTEC SYSTEM

CONVENIENT AND SECURE: No ladders needed!
Regular cleaning with HiFlo™ CarbonTec increases the solar output by up to 30%!

With HiFlo™ CarbonTec the cleaning of solar panels becomes quick, easy and effective. Without using ladders or cranes and even without walking on the roofs, the modules can be cleaned in no time. The cleaning results are immediately visible and the solar output already rises considerably during the cleaning itself.

Easy, quick and secure cleaning for immediately visible increased solar output.



For optimum accessibility even without ladders or climbing on roofs.

Immediately visible cleaning results – quick and easy removal of dirt.



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HiFlo™ RO-REVERSE OSMOSIS FILTER & HiFlo™ DI-DEIONISATION FILTER

Professional Reverse Osmosis Filter

HiFlo™ RO MOBIL

CONVENIENT • MOBILE • INNOVATIVE

The HiFlo™ RO by Unger is perfect for mobile use and for water production on site.

The physical reverse osmosis process removes approx. 98% of minerals from the water. Because of this it is possible to clean glass without any detergents, only with a water pole and a brush. In especially hard cases cleaning detergent can be introduced.

- Flow rate up to 300l / hr.
- Immediate reverse osmosis action.
- Mounted on trolley with big rubber wheels.

Complete with:

- Standard hose connectors
- 2 pressure gauges
- 2 pre-filters
- Pump (230V)
- Dosing pump for introduction of glass cleaner (i.e. Unger Liquid)



HiFlo™ RO MOBIL

The mobile reverse osmosis filter.



15335 15336

- High flow rate.
- Can be used mobile on site.
- Very low maintenance costs (change of pre-filter, conservation).

| Art. No. | Version | VPE |
|----------|---------------------------------|-----|
| RO30G | With dosing pump for cleaner | 1 |
| 15336 | Filter cartridge 5µm (textile) | 6 |
| 15335 | Filter cartridge 60µm (plastic) | 6 |

Ion exchange resin filter 25l + 50l

HiFlo™ DI RESIN FILTER

QUICK • MOBILE • EFFECTIVE

The Unger resin filter produces 100% pure water immediately. Ideal for mobile and quick use.

By way of a chemical process, water is being purified and desalted. This allows glass cleaning without any detergents, using only a water pole and a brush.

- 2 Bottle sizes available: 25l, 50l.
- Water production (at a water hardness of 10 dH):
25 litre bottle = 4,000 litre
50 litre bottle = 8,000 litre
- Produces 100% Ultra-pure water (<10µS/cm).
- Including fine filter, for pre-filtering of the water.
- Immediately usable on site.
- Mounted on convenient trolley with big rubber wheels and anti-tipping device.
- No electricity required.
- Standard hosepipe connection.
- Resin regeneration: Please speak to your authorized dealer or to a water conditioning specialist.

Now with water quality tester



HiFlo™ DI FILTER

The mobile resin filter.

NEW:
Improved handling

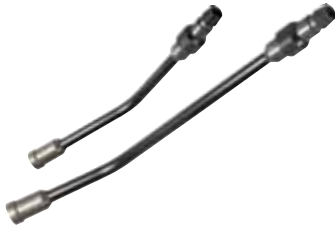
- Produces 100% Ultra-pure water.
- Including fine filter, for pre-filtering of the water.
- No electricity required.

| Art. No. | Version | VPE |
|----------|----------------------|-----|
| DI400 | 25l, 4.000l capacity | 1 |
| DI800 | 50l, 8.000l capacity | 1 |



HiFlo™ MultiLink

- THE ULTIMATE ADAPTER SYSTEM



**HiFlo™ MultiLink
ANGLE JOINT**
Aluminium angle adapter.

- Strong: Anodized aluminium, secure connection.
- Convenient: Always turns the brush in the correct angle to the surface.
- Compatible: Can be combined with all MultiLinks.

| Art. No. | Size | VPE |
|----------|-------|-----|
| FTMGS | Short | 1 |
| FTMGL | Long | 1 |



**HiFlo™ MultiLink
EXTENSION**
Aluminium extension adapter.

- Strong: Anodized aluminium, secure connection.
- Convenient: Extends the angle adapter to the required distance.
- Compatible: Can be combined with all MultiLinks.

| Art. No. | VPE |
|----------|-----|
| FTPLS | 1 |



**HiFlo™ MultiLink
CARBONTEC ADAPTER**
Aluminium adapter that brings HiFlo™ CarbonTec to the diameter of MultiLink.

- Strong: Anodized aluminium, secure connection.
- Complete: Incl. connection adapter for hose.
- With water outlet.

| Art. No. | VPE |
|----------|-----|
| FTGOA | 1 |



**HiFlo™ MultiLink
CONE ADAPTER**
Aluminium adapter for classical cleaning tools.



- Strong: Anodized aluminium, secure connection.
- Compatible: Fits on the ErgoTec safety cone – all tools can be connected to the HiFlo™ poles.
- Compatible: Fits on all MultiLink angle adapters and the extension.

| Art. No. | VPE |
|----------|-----|
| FTLCA | 1 |



HiFlo™ MultiLink ADAPTER
Plastic adapter; always the correct work angle.

- Pre-mounted.
- Simple to adjust.
- Robust.

| Art. No. | VPE |
|----------|-----|
| FTGOS | 1 |

Choose your Pole, MultiLink Gooseneck and Brush in any combination.



The new Unger HiFlo™ MultiLink System – Ultra Flexible:

With the HiFlo™ MultiLink Gooseneck system, all Unger brushes can be attached to all pole systems, thereby allowing multiple angles and distances to be achieved, making the safe and thorough cleaning of hard to reach surfaces possible.



Quality Tools for Smart Cleaning

HiFLO™ BRUSHES

THE RIGHT BRUSH FOR ANY PURPOSE

NEW



HiFLO™ Brush OVAL SOFT

Soft polyester brush.

HARD

Hard, whole polyester bristles.

- Ideal for surfaces, corners and frames.
- Soft polyester bristle, spliced.
- Complete with hose connection.

| Art. No. | Size | VPE |
|----------|------------|-----|
| FTO27 | Soft 27 cm | 1 |
| FTO40 | Soft 40 cm | 1 |
| FBO27 | Hard 27 cm | 1 |
| FBO40 | Hard 40 cm | 1 |

NEW



HiFLO™ SOLAR BRUSH SOFT

Soft, spliced bristles.

- Ideal for photovoltaic panels.
- High dirt intake due to spliced bristles.
- Complete with hose-connection.

| Art. No. | Size | VPE |
|----------|-------|-----|
| FTSOY | 27 cm | 1 |

NEW



HiFLO™ ANGLE BRUSH SOFT

Soft polyester brush, angled

HARD

Hard, whole polyester bristles..

- Ideal for surfaces, corners and frames.
- Soft polyester bristle, spliced.
- Complete with hose connection.

| Art. No. | Size | VPE |
|----------|------------|-----|
| FTR27 | Soft 27 cm | 1 |
| FBR27 | Hard 27 cm | 1 |

NEW



HiFLO™ Brush RECTANGULAR SOFT

Soft polyester brush.

HARD

Hard, whole polyester bristles.

- Ideal for surfaces, corners and frames.
- Soft polyester bristle, spliced.
- Complete with hose connection.

| Art. No. | Size | VPE |
|----------|------------|-----|
| FTS27 | Soft 27 cm | 1 |
| FBS27 | Hard 27 cm | 1 |

NEW



HiFLO™ CARBONTEC BOARS BRISTLE BRUSH WITH ADAPTER

A lightweight brush, aggressive premium grade boars hair brush. Complete with hose connection.

- Back made of mahogany – extra strong, no warping.
- Extra cleaning power due to natural bristles.
- Lightweight, durable.

| Art. No. | Size | VPE |
|----------|-------|-----|
| CB27A | 27 cm | 1 |
| CB40A | 40 cm | 1 |

NEW



HiFLO™ MULTILINK CARBONTEC BRUSH ADAPTER

Aluminium adapter for the connection of CarbonTec brushes to the MultiLinks.

- Strong: Anodized aluminium, secure connection.
- Complete: Including 2 nozzles and hoses.
- To be attached to the CarbonTec brushes with the nozzles.

| Art. No. | VPE |
|----------|-----|
| FTCBA | 1 |

NEW



HiFLO™ CARBONTEC BRUSHES WITH ADAPTER

Nylon grey bristles, solid green plastic back.

- Special nylon bristles allow for glass cleaning with pure water.
- Available in two sizes.

| Art. No. | Size | VPE |
|----------|-------|-----|
| CT27A | 27 cm | 1 |
| CT40A | 40 cm | 1 |

HiFlo™ CARBONTEC SYSTEM

Complete kit consisting of poles and all accessories (see table).



- Cleaning up to 15 m / 9 m height from ground level possible.
- End cap with rubber cap for secure positioning of pole.
- Convenient carrier- or shoulder bag.

| Art. No. | Content | VPE |
|----------|---|-----|
| CTKI3 | Complete in Gear bag: 10 x CT15B, 1 x CT27A, 1 x FTMGS, 1 x FTGOA, 1 x CTWFC, 1 x CTH10 & 1 x CTECP | 1 |
| CTKI6 | Complete in Gear bag: 6 x CT15B, 1 x CT27A, 1 x FTMGS, 1 x FTGOA, 1 x CTWFC, 1 x CTH10 & 1 x CTECP | 1 |
| CTBA2 | Gear bag (H 20 x W 160 x D 30 cm) | 1 |
| CT15B | HiFlo™ CarbonTec Pole 1.50 m | 1 |
| CT075 | HiFlo™ CarbonTec Pole 0.75 m | 1 |
| CTH10 | HiFlo™ CarbonTec Hose, complete 10 m | 1 |
| CTH25 | HiFlo™ CarbonTec Hose, complete 25 m | 1 |
| CTWFC | HiFlo™ CarbonTec Waterfeed adapter | 1 |
| CTECP | HiFlo™ CarbonTec End Cap | 1 |

HiFlo™ CARBONTEC TELESCOPIC

Flexible and long carbon fibre telescopic poles which can reach up to 20 metres. Comes complete with Hose Lock Connector, Internal Hose & Aluminium Adapter.

Ready to use for the New MultiLink Gooseneck System.

- Stiff and robust. Entirely made from carbon fibre.
- High accessibility, work up to 20 metres high.
- Easy to use: convenient height adjustment with clamps.

| Art. No. | Version | Elemente | Material | Size | VPE |
|----------|-----------------------------|-------------|--------------|---------|-----|
| FT5XC | HiFlo™ CarbonTec Telescopic | 9 Elemente | Carbon Fibre | 13,50 m | 1 |
| FT6XC | HiFlo™ CarbonTec Telescopic | 9 Elemente | Carbon Fibre | 16,00 m | 1 |
| FT7XC | HiFlo™ CarbonTec Telescopic | 10 Elemente | Carbon Fibre | 20,00 m | 1 |

HiFlo™ ADVANCE STANGEN

Die HiFlo™ Advancepoles by Unger allow you to work safely up to 13,50 m metres height and are extremely flexible in the process.

- Very solid and lightweight due to carbon and glass fibre.
- Resistant against chemicals.
- Solid clamps permit one-handed operation.

| Art. No. | Version | Elemente | Material | Size | VPE |
|----------|-----------------|------------|----------------------|---------|-----|
| FT28G | HiFlo™ Advance | 2 Elemente | Glass Fibre | 2,80 m | 1 |
| FT40G | HiFlo™ Advance | 3 Elemente | Glass Fibre | 4,00 m | 1 |
| FT52G | HiFlo™ Advance | 4 Elemente | Glass Fibre | 5,20 m | 1 |
| FT70G | HiFlo™ Advance | 5 Elemente | Glass Fibre | 7,00 m | 1 |
| FT84G | HiFlo™ Advance | 6 Elemente | Glass Fibre | 8,40 m | 1 |
| FT84H | HiFlo™ Advance+ | 6 Elemente | Glass Fibre + Carbon | 8,40 m | 1 |
| FT94H | HiFlo™ Advance+ | 7 Elemente | Glass Fibre + Carbon | 9,40 m | 1 |
| FT1XH | HiFlo™ Advance+ | 8 Elemente | Glass Fibre + Carbon | 10,00 m | 1 |
| FT2XH | HiFlo™ Advance+ | 8 Elemente | Glass Fibre + Carbon | 13,50 m | 1 |