

Valid only on the Jacobsen® Eclipse™ 322 Riding Greens Mower

Redeemable from Your Local Dealer

# GOOD FOR ONE LIFETIME FREE OF HYDRAULIC LEAKS

Featuring an electric traction drive, electric steering and electric reels, the Eclipse 322 has no hydraulics and no leak points; resulting in lower labor costs, fewer parts to maintain and healthier turf.

**JACOBSEN**  
A Textron Company  
*When Performance Matters.™*



## Introducing the industry's only hydraulic-free riding greens mower.

One look at the new Jacobsen® Eclipse™ 322 and you'll see a greens mower that's completely hydraulic free and can be customized to meet the specific requirements of your course. There are no oil leaks, valves or hoses to worry about. Instead, it features a programmable frequency of clip, individual reel control, Classic XP™ Reels with Advanced Relief Technology™ and an array of features designed to reduce your operating costs by up to 86%. Use the Cost Calculator at [www.Eclipse322.com](http://www.Eclipse322.com) and see how the Eclipse 322 can help your bottom line.

Contact your Jacobsen dealer for a demo, or go to [www.Eclipse322.com](http://www.Eclipse322.com) for more information.

**JACOBSEN**  
A Textron Company



The Official Turf Equipment Supplier to The PGA of America and  
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**When Performance Matters.™**

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## Staying Power

*Continued from page 30*

Joan Christensen has bought into the company's customer-first philosophy. The amiable Christensen, who began at Standard Golf in 1996, is administrator of SG Express, a department created to deal with end-users one-on-one. Standard Golf sells its products through distributors, but it does take some orders directly from end-users and then passes those orders on to the customer's distributor of choice.

"We do whatever it takes to satisfy customers," Christensen says. "I can have the worst day in the world, but I'm still courteous and nice when taking care of a customer's problem."

Of course, a company's customer service is only as good as its employees, which brings us back to Standard Golf's workforce. Hurley, whom Voorhees has trusted to run the company's day-to-day operations, says Standard Golf's employees are the reason he comes to work every day.

"I love these people," says Hurley, noting the average employee has worked at the company for 15 years. "They are my passion."

With dedicated employees like "Red" Elliott, it's easy to understand where Hurley's coming from. Elliott is 68 and old enough to retire, but he enjoys working at Standard Golf too much to give up his job. "I've been told I can stick around as long as I'm an asset," Elliott says with a smile.

While people like Elliott have provided veteran leadership, Voorhees and Hurley realize the company needs some young bucks to bring in new ideas. That's one of the reasons they added 29-year-old Jim Nygren, who joined about two years ago as a market analyst. Nygren isn't only the youngest employee in the corporate office, he's the only one with a master's degree in business.

"I offer a little different perspective than people who have been here a long time," Nygren says. "I might challenge the status quo a tad."

Nygren doesn't mean to sound cocky; he just wants to make use of his smarts. Nygren also realizes he has a lot to learn from the company's veterans.

"The knowledge they have isn't something you can just pick up from a text book," he says.

### The future

No matter how long they've been there, most all employees wonder about Standard Golf's future. That's because Voorhees is 62 and has no children to take over the company as fourth-generation owners. There's talk of Voorhees selling the company eventually or turning it over to the employees. All of that said, Voorhees vows he's not yet ready to retire.

"I enjoy what I'm doing," he says. "You can only play golf and go fishing so much."

That's the sentiment of most of Standard Golf's employees, who love to come to work every morning, even on Mondays.

Here's to 100 years — and many more. ■



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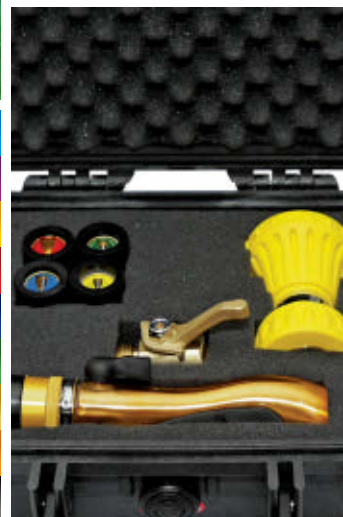




Products that work...smart.™

**INSIDE:**  
How to **SAVE MILLIONS**  
of gallons of water **EVERY YEAR!**

W A T E R I N G   P R O D U C T S   2 0 1 0



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An industry leader in innovative watering products all over the world, Underhill brings over 30 years of know-how in developing our inventory of "Products that work...smart.™"

golf sprinkler nozzles

## Profile™

### SOLID METAL GOLF SPRINKLER NOZZLES

Upgrade your Toro® or Rain Bird® sprinklers with our perfect-fit Profile™ nozzles and you will see improved results immediately. Water distribution so uniform that you can cut back watering times to **save millions** of gallons of water **every year**. Over time, since Profile solid metal nozzles resist wear and clogging, you'll enjoy these superior results for the life of your sprinkler...never needing to change out nozzles again.

Call us to request our **free video** on Profile solid metal golf sprinkler nozzles! Or watch it online at [www.underhill.us](http://www.underhill.us)



- Cut watering times significantly
- No more worn out / clogged plastic nozzles
- Eliminate wet and dry spots
- Improve course playability
- **Stop wasting water**

Test your sprinkler performance with AuditMaster™. Easy-to-use and highly accurate measuring kits.

See Page 4

*"We've had Profile nozzles in for about two years now with outstanding results and excellent water savings. We're way past break-even on ROI."*

*"...consistently uniform distribution. The nozzles perform the same today as when we first installed them."*



**UPGRADE**  
AND SAVE MILLIONS  
of gallons of water EVERY YEAR!



Profile nozzles for **Toro®**

**730 SERIES**

Part #	Nozzle Color # range / spreader	Toro Nozzle #s
T730-3313	Brown 33 / Gray 13	33
T730-3413	Blue 34 / Gray 13	34
T730-3515	Violet 35 / Red 15	---
T730-3515L (50 psi)	Green 35 / Red 15*	35
T730-3615	Red 36 / Red 15*	36
T730-3617	Red 36 / Lavender 17	



\* For square spacing, specify #17 (lavender) nozzle with the #35 and #36 range nozzles

**760 and 860 SERIES**

Part #	Nozzle Color: midrange / close-in
T760-GY	Gray / Yellow
T860-GY	Gray / Yellow

**830 and 834S SERIES**

Part #	Nozzle Color: midrange / close-in	Toro Series
T830-GY	Gray / Yellow	830
T834-GY	Gray / Yellow	834S

**835S SERIES** Full Circle: Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange / close-in
T835S-WP	White / Plug

**630 SERIES** CALL FOR AVAILABILITY



Profile nozzles for **Rain Bird®**

**EAGLE 700 SERIES**

Full Circle: Midrange/Close-in Nozzles

Part #	Nozzle Color midrange / close-in	Rain Bird Nozzle #s
R70028-RG	Blue / Gray	28
R70032-RG	Red / Gray	32
R7003640-GG	Blue / Gray	36/40 and larger

Our NEW low-angle 12° wind-fighting spreader nozzle delivers exceptional close-in uniformity for all Eagle 700 series sprinklers on either triangular or square spacing.



**670 SERIES** Full Circle: Rear Nozzles

Part #	Nozzle Color: midrange / close-in
T670-BY	Black / Yellow



**690 SERIES** Full Circle: Rear Nozzle

Part #	Nozzle Color: spreader
T690-G	Gray



**750 SERIES** Full Circle: Front/Rear Nozzle Set

Part #	Nozzle Color # range / spreader	Toro Nozzle #s
T750-5617	Red 56 / Lavender 17	56
T750-5717	Gray 57 / Lavender 17	57



**780 and 854S SERIES** Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange / close-in	Toro Series
T780-BY	Black / Yellow	780
T854-BY	Black / Yellow	854S



**855S SERIES** Full Circle: Midrange/Close-in Nozzle Set

Part #	Nozzle Color: midrange / close-in
T855S-PP	Pink / Plug

**650 SERIES** CALL FOR AVAILABILITY



**900 EAGLE SERIES** Full Circle: Close-in Nozzle

Part #	Nozzle Color
R900-M	Maroon



**91 SERIES BRASS IMPACTS** Full Circle: Close-in Nozzle

Part #	Nozzle Color
R91-G	Gray



**51 SERIES BRASS IMPACTS** Full Circle: Front/Rear Nozzles

Part #	Nozzle Color # range / spreader	Rain Bird Nozzle #s
R51-1411.5	White 14 / Gray 11.5	14 / 11.5
R51-1611.5	Blue 16 / Gray 11.5	16 / 11.5
R51-1811.5	Yellow 18 / Gray 11.5	18 / 11.5
R51-2011.5	Red 20 / Gray 11.5	20 / 11.5
R51-2213	Green 22 / Black 13	22 / 13
R51-2413	Black 24 / Black 13	24 / 13

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## NEW! AuditMaster™

### EXPERT SPRINKLER PERFORMANCE TESTING KITS

Poorly performing sprinklers waste a lot of water as watering times are increased to compensate. Accurately measuring sprinkler application rates with Underhill™ AuditMaster™ will maximize your customer's water savings.



**AuditMaster Combo ST/LT Kit** pictured, includes large CatchCanPro cups (blue) and CatchCanPro Mini cups (30 each).

**AuditMaster ST Kit** excludes the large CatchCanPro cups. This kit is ideal for **SMALL TURF** audits.

**AuditMaster LT Kit** excludes the CatchCanPro Mini cups, 3/4" Hose Bib and Gauge, or the Spray Head Tester w/Gauge. This kit is optimized for golf courses, sports fields and other **LARGE TURF** audits.

## CatchCan Pro™

### features

- Self standing - easily anchors into turf, even on slopes
- Measures sprinkler application in inches or centimeters
- Unique design allows for shorter duration test
- Made of durable polypropylene engineered plastic
- Can be stacked for easy storage
- Each 10 pack kit comes with instructions

CatchCan Pro (CCPK-10) for **LARGE TURF** audits. Measures ml, cm, inches.

CatchCan Pro Mini (CCPMK-10) for **SMALL TURF** audits. Measures inches.

### ordering

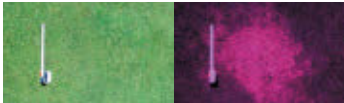
Part # AUD-ST	AuditMaster ST Kit	Part # A-HBG-160K	3/4" POC Hose Bib w/Gauge
Part # AUD-LT	AuditMaster LT Kit	Part # A-PHG-160K	Pitot Tube, 30" Flex Hose w/Gauge
Part # AUD-STLT	AuditMaster Combo ST/LT Kit	Part # A-SHG-160K	Spray Head Tester w/Gauge
Part # SALES-PRO4	AuditMaster Wheeled Carry Case	Part # MT-100	Fiberglass Measuring Tape: 100'
Part # CCPK-10	CatchCan Pro (Blue) - 10 Pack	Part # A-STW	Stop Watch
Part # CCPMK-10	CatchCan Pro Mini - 10 Pack	Part # A-WIND	Anemometer (Wind Gauge)
		Part # A-FLAG-50	Marking Flags - 50 Pack



# TurfSpy™

## EARLY STRESS DETECTION GLASSES

Disease, drought and weed invasion are plant and turf killers. But by the time you see them it can be too late. TurfSpy™ glasses, with stress detection technology developed by NASA, lets you “see into the future” to identify problems 2-10 days before they are visible to your naked eye. Keep your turf and vegetation healthy BEFORE serious problems arise.



**fusarium patch**



**pythium blight**



**yellow patch (rhizoctonia)**



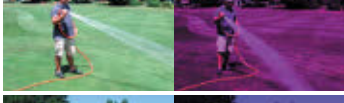
**brown patch**



**anthracnose**



**get a jump on broken or poor-performing sprinklers**



**highly efficient spot watering saves time and labor costs**



**superior weed location and spraying saves time and money**

## features

- Shatterproof/polycarbonate stress detection lens (ANSI approved safety lens)
- Wrap-around lens limits ambient light for optimal detection
- Sports frame with adjustable ear piece
- Lightweight case included

## HOW IT WORKS

Dying vegetation absorbs and reflects sunlight differently than when it's healthy. The earliest signals occur at the outer limits of the human visual spectrum, and are rendered invisible compared to the predominant middle wavelengths. TurfSpy™ filters the light in the center so that fringe spectra, which show early plant stress, become visible.



## ordering

Part # NG655-01 TurfSpy™ Glasses and Deluxe Case

# HeadChecker™

## NOZZLE DISCHARGE PRESSURE GAUGE

Use our liquid-filled 160 psi gauge with a solid brass Pitot tube, hose bib, or spray head adapter to measure water pressure at discharge points or in the pipeline.



## ordering

- |                 |  |
|-----------------|--|
| Part # A-HCGPK  | HeadChecker™ 160 psi gauge and Pitot tube  |
| Part # A-PG160L | Pressure gauge only                        |
| Part # A-HCP    | Pitot tube only                            |
| Part # A-PH     | 30" Flex Hose For Pitot tube/gauge         |
| Part # A-HBT    | 3/4" Hose Thread x 1/4" Brass Hose Bib Tap |
| Part # A-SHA    | Spray Head Adapter                         |





## Magnum™

### SOLID METAL HOSE NOZZLE

Underhill™ Magnum™ contains no plastic internal parts to break, stick or wear out. Our unique ratchet mechanism easily adjusts from gentle fan to powerful jet stream and prevents over-tightening damage. Precision-machined, incredibly smooth operation and outstanding distribution patterns make it ideal for high-demand areas like greens and tees. Magnum™ is also an excellent equipment wash-down nozzle.

### features

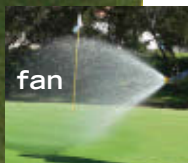
- Built for 1" and 3/4" flow rates
- Fire hose quality nozzle feels great in your hands
- Ultra-durable construction withstands any abuse
- Solid metal internal - no plastic parts to break or wear out
- Beautiful, consistent spray patterns for life
- Ratchet mechanism prevents over-tightening damage
- Multi-pattern sprays - effortless control with hydraulic assist on/off



Magnum™ nozzle pictured with 1" brass adapter (sold separately on Page 7)



**solid metal internal body**  
Won't stick...won't break



fan



jet



soak

### specifications

Materials: stainless steel, aluminum, TPR rubber  
Flow: 37 GPM at 80 psi  
Inlet: 3/4" hose thread  
(1" brass adapter available, see Page 7)



## CoolPro™

### COOL WITHOUT OVER WATERING - NO ROOT DAMAGE

A hot summer day can be murder on your greens. Use too much water and you risk damage to the roots. CoolPro™ is the first nozzle specifically designed for the single purpose of lightly misting the turf canopy to cool without over watering. And its 25 foot fogging pattern gets the job done quickly.

### features

- 3/4" inlet (1" brass adapter available, see Page 7)
- Ergonomic handle/valve provides easy grip and variable on/off control.
- Durable solid metal design: zinc, aircraft aluminum and stainless steel.
- Patented Precision™ nozzle fogs at 70 psi to deliver a 25 ft. pattern with only 4-6 GPM

### ordering

Part # NG450	MAGNUM™ Hose Nozzle
Part # HNC075	CoolPro™ Valve and Nozzle
Part # CV075L	CoolPro™ Valve only

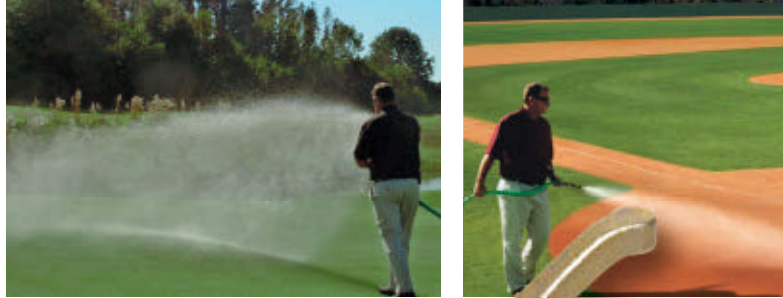
Perfect for tournament play, CoolPro™ puts down only enough water to cool the turf canopy. It prevents wilting while maintaining good ball speed. CoolPro is a great tool for protecting grass on hot days without damaging roots.



# Precision™

## SOLID METAL, SPECIFIC TASK HOSE NOZZLES

Underhill Precision™ nozzles deliver millions of soft, uniform droplets to provide rapid yet surprisingly gentle water application over a huge range of flow rates. From soft watering to powerful drenching, patented Precision nozzles are designed with ideal flow rates and droplet sizes to fully irrigate without disturbing turf, dirt, seeds, etc., providing a precise solution for every hand watering application.



**NEW!**

### NozzlePro KIT

MAGNUM, CoolPro, the entire Precision nozzle series and a high-flow brass valve - kept safe and secure in an unbreakable, lockable, corrosion-proof case.



### choose your nozzle by flow rate or specific task

NOZZLE NAME (color)	GPM	VALVE	TASKS
Rainbow™ (yellow)	15	CoolPro	Greens, tees, sensitive landscaping, transplants, seed beds
Rainmaker™ (green)	23	High-Flow	Syringe and spot watering turf and hardy landscaping
Cloudburst™ (blue)	48	High-Flow	Dry spots, high volume drenching and application of wetting agent
Cyclone™ (red)	50+	High-Flow	Pre-game skins watering, heavy watering of large areas

Note: GPM will vary with pressure at nozzle.

### high-flow valves



#### SOLID BRASS

- 3/4" hose thread inlet/outlet
- up to 50 GPM

#### COMPOSITE / STAINLESS STEEL

- 3/4" hose thread inlet/outlet
- oversized handle
- up to 55 GPM

### hose adapters / quick-connectors



### ordering

Part # HP-K1	NozzlePro Kit
Part # HN1500	Precision™ Rainbow™ Hose Nozzle
Part # HN2300	Precision™ Rainmaker™ Hose Nozzle
Part # HN4800	Precision™ Cloudburst™ Hose Nozzle
Part # HN5000	Precision™ Cyclone™ Hose Nozzle
Add "-CV" to part numbers to include brass high-flow valve and 1" adapter (as pictured above).	
Part # CV075H	High-Flow 3/4" Valve - Brass
Part # A-BV77FM	High-Flow 3/4" Valve - Composite/Steel
Part # A-BA107FM	1" FHT x 3/4" MHT Brass Hose Adapter
Part # A-BA107MF	1" MHT x 3/4" FHT Brass Hose Adapter
Part # A-BQ7M	3/4" Quick-Connect, male end
Part # A-BQ7F	3/4" Quick-Connect, female end
Part # HN075W	replacement washer, 3/4" hose

## PelletPro™

### APPLICATOR GUN FOR SOLID WETTING AGENT TABLETS

We outfitted our heavy-duty surfactant applicator with a high-flow composite/stainless steel valve and a Precision™ Cloudburst™ nozzle to produce the finest wetting agent gun available. The PelletPro™ accepts all wetting agent tablets and is designed to provide powerful, yet ultra-soft spray when watering or applying surfactants to tight, hydrophobic soils.

### features

- 48 GPM capability gets the job done faster!
- Ultra Heavy-Duty - brass fittings, aircraft aluminum, stainless steel, and precision engineered glass-filled materials
- Patented Precision™ Cloudburst™ nozzle delivers large droplets in an outstanding fan pattern
- Pellet rotation (1 RPS) evenly dissolves/applies tablets



With the included 1" FHT x 3/4" MHT brass adapter, PelletPro™ works with both 3/4" and 1" hoses.

PelletPro™ rotates pellets at 1 revolution per second (RPS) to evenly dissolve/apply wetting agent

### 2 products in 1!

Remove the PelletPro™ bowl and you have a superb syringe nozzle combo: the patented, 48 GPM Precision™ Cloudburst™ with our high-flow, oversized handle valve.



PelletPro's bowl, also sold individually, works perfectly as a replacement in-line filter bowl for most spray rigs. Heavy-duty, transparent plastic shows fluids. (No more cracked bowls during winter storage!)

### ordering

Part # A-PPWA50K PelletPro™ Applicator Gun  
Part # A-PPB In-line Filter Bowl  
Part # A-PPBG Gasket



# LiquidPro™

## APPLICATOR GUN FOR LIQUID WETTING AGENT

This popular “liquid” version of the PelletPro™ features the proven combination of our Precision™ Cloudburst™ nozzle and the high-flow composite/stainless steel valve. Adding a chemical-resistant, UV-protected, lightweight siphon/mixing system produces an applicator gun which can cover 1000 square feet in less than a minute. Now, with unmatched speed and uniformity, you can virtually “paint” your turf with liquid wetting agent, fertilizers, and micronutrients. And like the PelletPro, LiquidPro disassembles easily to create the Cloudburst™ High-Flow Valve syringe nozzle.



With the included 1" FHT x 3/4" MHT brass adapter, LiquidPro™ works with both 3/4" and 1" hoses.

### features

- Patented Precision™ Cloudburst™ nozzle evenly distributes wetting agent ensuring uniform coverage. Made of aircraft aluminum and stainless steel.
- Lightweight, durable nylon construction weighs only 3 lbs., UV-protected and chemical resistant.
- High-density polybottle has full quart capacity with easy-to-read measurements in fluid ounces and milliliters.
- Needle Valve Metering Chamber: Engineered venturi siphon mixes proper amount of wetting agent into the water flow.
- Pistol grip design with textured handle provides sure grip surface and reduces operator fatigue.
- Adjustable metering dial offers 10 additive settings including “Water Only.”
- Metering dial can be removed to prevent tampering with a predetermined setting.



### 2 products in 1!

The Precision™ Cloudburst™ nozzle and high-flow valve can be quickly assembled to create a powerful, 48 GPM syringe nozzle.

### a real time saver!

Bring plenty of wetting agent, fertilizers, and micronutrients to the field all at once with our 6-pack of polybottles.



### ordering

- Part # A-LPWA50K - LiquidPro™ Applicator Gun
- Part # A-LPWAB-6 - 6-Pack of 32 oz. Polybottles and Carrier

## RollerPro™

### PORTABLE SPRINKLER BASE

The 22" wide stainless steel roller of RollerPro™ provides a stable field position for supplemental watering. Designed for years of hard use, it is ideal for watering dry spots and newly seeded areas.

### features

- 22" wide stainless steel roller is weighted to prevent movement during use.
- Standard 1" FHT inlet x 1" female NPT outlet.
- 3/4" inlet and outlet adapters included.

RollerPro™ works with both 1" and 3/4" hoses and sprinklers using the included adapters. Sprinklers sold separately on page 12-13.



### ordering

Part # A-RP221 RollerPro™

## HoseTap™

### SOLID METAL HOSE ADAPTER

HoseTap™ gives you a hose connection anywhere you have a Toro® or Rain Bird® electric, valve-in-head sprinkler...ideal for fast connections when quick-couplers or hose bibs are not available. Aircraft aluminum body won't break or wear out like plastic, and is anodized with color for easy sprinkler manufacturer identification. Each HoseTap™ includes the precision metal disc, o-ring, and riser. Brass swivels sold separately (see Page 12).

Order with brass swivel for extra savings!

### ordering

Part # HN-T100 - HoseTap™ for Toro® 1" inlet golf sprinklers  
 Part # HN-T150 - HoseTap™ for Toro® 1-1/2" inlet golf sprinklers  
 Part # HN-R125 - HoseTap™ for Rain Bird® Eagle 700 Series golf sprinklers  
 Add "B" to part numbers to specify BSP thread  
 Add "S" to part numbers to include 1" brass swivel  
 Add "S75" to part numbers to include 3/4" brass swivel

### REPLACEMENT O-RINGS

Part # OR-100 Fits Toro® 1" inlet and Rain Bird® Eagle 700 Series golf sprinklers / HoseTap  
 Part # OR-150 Fits Toro® 1-1/2" inlet golf sprinklers / HoseTap



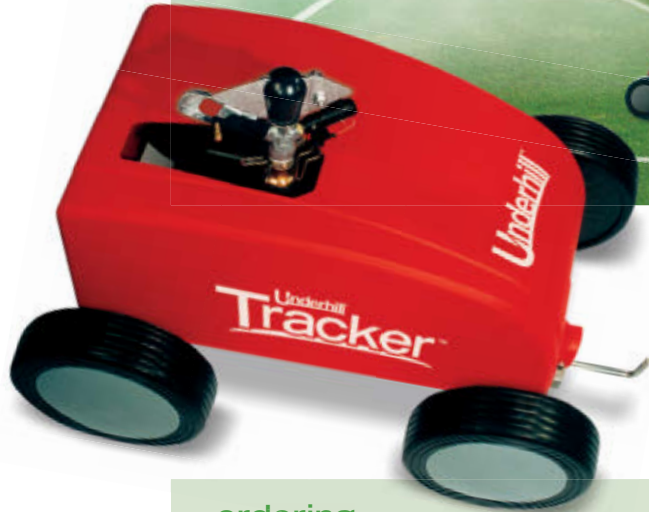
## Tracker™

### PORTABLE IRRIGATION MACHINE

The Tracker™ offers a very economical solution for supplementing seasonal watering needs of 1/4 acre to 2 acre areas. It is also ideal for irrigating athletic fields, cemeteries, golf course roughs, or other large areas where an underground system is impractical. Built to last with precision German engineering and high quality materials, this portable powerhouse can irrigate an entire football field in just two passes.

### specifications

- Weight: 58 lbs.
- Size: Length 33", Width 22", Height 22"
- Materials: Aluminum, Brass, ABS
- Minimum Water Pressure: 50 psi
- Hose Required: 1"
- Includes 1" brass quick-connect adapter



### ordering

Part # T-400 Tracker™ Portable Irrigation Machine

## Mirage™

### HUGE THROW, HIGH-PERFORMANCE LARGE TURF SPRINKLERS

Underhill Mirage pop-up turf sprinklers, featuring precision German engineering and huge throws, can be installed completely outside the playing area of sports fields.

**M-160:** With its powerful **174 ft. throw radius**, the Mirage™ M-160 is a worldwide favorite for sports fields, golf driving ranges and other large area turf or dust control applications.

**M-125:** A very impressive long-throw sprinkler in its own right with a **125 ft. radius**, the M-125 is perfect for installation in the out-of-play areas of large turf fields.

**M-115:** For areas where irrigation must be installed within the playing area, the M-115's deep sod cup cover holds a 9" (220 mm) diameter section of natural grass to "disappear" when not in use, staying out of the way of athletes and mowers.



**CALL FOR DETAILS!**

## 2WIRE

### YOU PICK THE CONTROLLER...WE CAN MAKE IT 2WIRE!

Underhill™ decoder modules can convert controllers to 2-wire operation - with no field grounding and no special wire - so you can use your favorite clock to lower the cost and simplify the installation of your next irrigation project. Control up to 48 stations with a single module. More affordable than what you are using now (save a ton on wiring costs alone!), easier to use, and ultra-reliable (15 years and 150,000+ field successes).



## Quick Coupler Valves & Keys

### SOLID BRASS, SINGLE SLOT/LUG ESSENTIALS

Built to last, Underhill valves and keys are constructed of solid red brass and stainless steel. Valves incorporate rugged one-piece design.



Valve: Part # QV-075R  
(3/4" FPT inlet)

Key: Part # QK-075  
(3/4" MPT x 1/2" FPT outlet)

Valve: Part # QV-100R  
(1" FPT inlet)

Key: Part # QK-100  
(1" MPT x 3/4" FPT outlet)

Valve: Part # QV-150R  
(1-1/2" FPT inlet)

Key: Part # QK-150  
(1-1/2" MPT x 1-1/4" FPT outlet)



### hose swivels

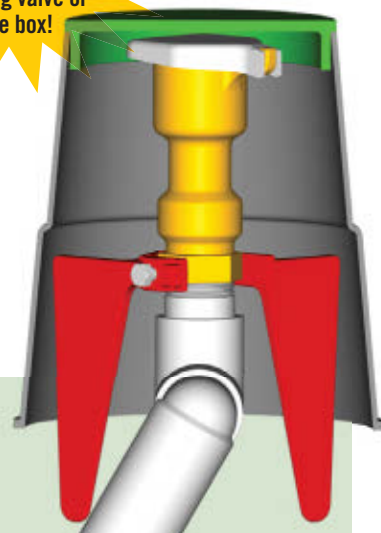
Part # HS-075 3/4" FPT x 3/4" MHT outlet  
Part # HS-100 1" FPT x 3/4" MHT outlet  
Part # HS-101 1" FPT x 1" MHT outlet  
Part # HS-151 1-1/2" FPT x 1" MHT outlet

## The Claw™

### QUICK COUPLER MOTION RESTRAINT

When quick coupler valves become unscrewed from swing joints, it's more than just a hassle - it can be dangerous. The Claw™, new from Underhill, offers a simple solution. Embedded in the soil below the quick coupler, and then securely attached to its base, The Claw provides significant resistance to rotational, vertical and horizontal motion, preventing the valve from moving. Made from high strength ductile iron, this compact anchor attaches easily with a single steel bolt.

**EASY RETROFIT**  
Installs without  
removing valve or  
valve box!



The Claw™ pictured with 1" quick coupler, key and hose swivel.

### ordering

Part # QCA-075100 The Claw™ for 3/4" and 1" valves  
Part # QCA-150 The Claw™ for 1-1/2" valves



# Impact Sprinklers

## SOLID BRASS, ULTRA-RELIABLE WORKHORSES

For reliable, trouble-free, high-performance year after year, you just can't beat our brass impact sprinklers. Available in full circle and full/part circle, in inlet sizes of 3/4", 1" and 1-1/4".

### features

- Solid brass construction
- Stainless steel drive spring
- Bearing assembly hood for longer wear life
- Chemical resistant bearing seals
- Solid brass nozzle



Underhill's SI100F 1" inlet brass impact atop the portable base RollerPro™ (see page 10) puts a powerful sprinkler anywhere you can run a hose.



**3/4"**  
Flow: 5-15 GPM  
Spacing: 40-60 ft.



**1"**  
Flow: 15-45 GPM  
Spacing: 50-80 ft.



**1-1/4"**  
Flow: 25-120 GPM  
Spacing: 75-110 ft.

### ordering

		GPM	Radius (ft.)
Part # SI075F	3/4" MPT Full Circle Sprinkler	13	57
Part # SI075P	3/4" MPT Part/Full Circle Sprinkler	11	48
Part # SI100F	1" MPT Full Circle Sprinkler	23	71
Part # SI100P	1" MPT Part/Full Circle Sprinkler	23	71
Part # SI125F	1-1/4" MPT Full Circle Sprinkler	51	96
Part # SI125P	1-1/4" MPT Part/Full Circle Sprinkler	54	78

Performance data shown at 80 psi. GPM and radius will vary with pressure at sprinkler



**NEW!**

## Splice Kit

### DIRECT BURY SPLICE KIT

Developed by 3M Company, each kit includes a single wire connector which can accommodate wire sizes from 18-10 gauge, and a waterproof gel case. Excellent for golf, commercial and residential applications.



### ordering

Part # DBRY-4	Direct Bury Splice Kit - 4 Pack
Part # VL-6	VersaLid™ 6"-7" valve box lid

## VersaLid™

### VALVE BOX UNIVERSAL REPLACEMENT LID

VersaLid™ is the easy solution for broken or missing valve box lids. No need to guess what brand a buried box is or even worse - dig it up to find out - VersaLid's locking system fits all 6"-7" round valve boxes.

### features

- Stepped locking system
- Fits all 6"-7" round boxes
- Interchangeable, easy to install
- Greater top-load strength and more UV-resistant than structural foam lids

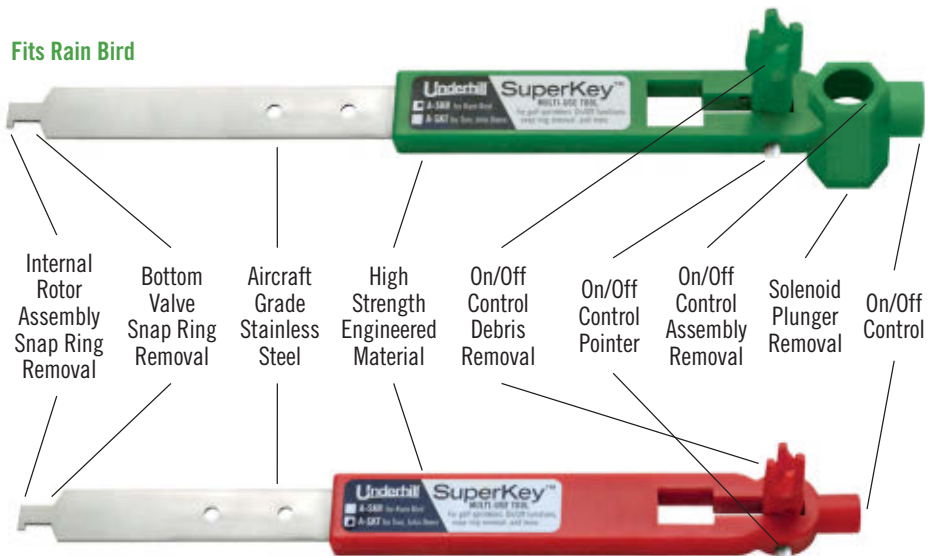


**NEW!** SuperKey™

**MULTI-PURPOSE GOLF SPRINKLER TOOL**

This ultimate multi-purpose tool designed for Rain Bird®, Toro® and John Deere® golf sprinklers is a must have. Made of stainless steel and composite material, it effortlessly turns Electric-Valve-In-Heads on and off, removes internal assembly snap rings and performs many other sprinkler maintenance chores.

**Fits Rain Bird**



**Fits Toro, John Deere**

**ordering**

- Part # A-SKR SuperKey™ for Rain Bird® golf sprinklers
- Part # A-SKT SuperKey™ for Toro® and John Deere® golf sprinklers

**DeepDrip™**

**TREE WATERING STAKES**

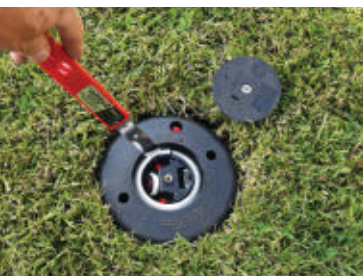
DeepDrip™ stakes allow you to water and fertilize your trees at the roots, encouraging deeper roots and healthier trees. Water gets underground fast, so you can water for shorter periods and enjoy considerable water conservation. They also help to aerate the soil with oxygen, and you can add fertilizer into the shaft to direct nutrients to the root zone.



DeepDrip comes in three sizes, each designed for use with automatic landscape drip systems or a hose. The 14.5" unit is ideal for small trees and shrubs with shallow roots, like rose bushes and ornamental trees (or in commercial use for boxed trees). The 24.5" stake is best for most tree varieties except for palms and other deeper rooted trees, which will benefit from the longer 36" stakes.

**ordering**

- Part # A-DD14 DeepDrip™ 14.5" watering stake
- Part # A-DD24 DeepDrip™ 24.5" watering stake
- Part # A-DD36 DeepDrip™ 36" watering stake





# NEW! Gulp™ Ultra Pumps

## HIGH-CAPACITY WATER REMOVAL SUCTION PUMPS

Whether you need to remove water from sprinklers and valve boxes or displace gallons of standing water in the field, the Underhill Gulp™ Ultra series of water removal hand pumps has the right tool for the job. Constructed from heavy-duty, corrosion-proof materials, these pumps are self-priming and easy to clean. The Gulp Syringe™ Ultra and Gulp™ Ultra are ideal for carrying on maintenance carts for small, routine needs. For larger water removal jobs, BigGulp™ Ultra can pump well over a gallon of water in only three strokes!

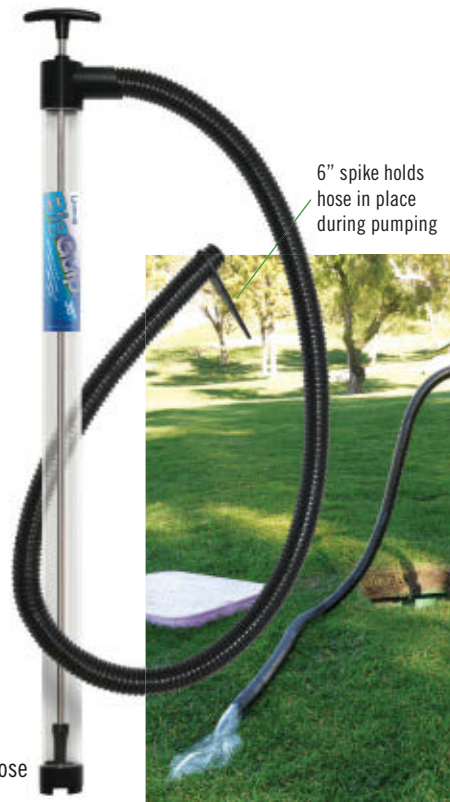
### special features

- Extra Volume Pump Capacity
- Easy cleaning twist-off inlet and exit caps
- Replacement Wiper Seal and Bottom Check Valve (Big Gulp/Gulp)
- Dual Wiper Seal (Replaceable)
- Extra Strength Pump Tube Material
- Stainless Steel Pump Shaft
- Self Priming



### BIG GULP ULTRA

- 47 oz./stroke
- 36" clear pump chamber
- 72" or 36" x 1-1/2" outlet hose



6" spike holds hose in place during pumping



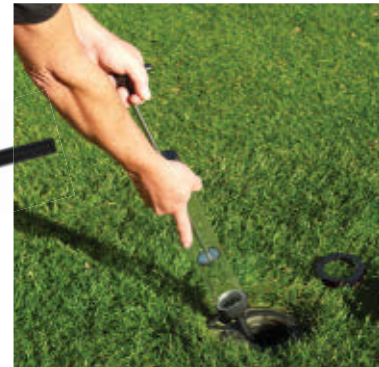
### GULP ULTRA

- 12 oz./stroke
- 12" clear pump chamber
- 24" outlet hose



### GULP SYRINGE ULTRA

- 12 oz./stroke
- 12" clear pump chamber



## Gulp™ Classic



### GULP

- 8 oz./stroke
- 12" pump chamber
- 10" outlet pipe



### GULP SYRINGE

- 8 oz./stroke
- 12" pump chamber

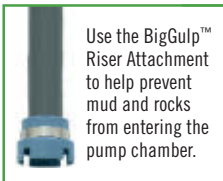
### SUPER GULP

- 16 GPM pumping capability
- 4" dia. x 2 ft. pump chamber
- 3" dia. x 3 ft. outlet hose
- 3" dia. x 7 ft. inlet hose



### BIG GULP

- 35 oz./stroke
- 36" chamber
- 72" or 36" outlet hose



Use the BigGulp™ Riser Attachment to help prevent mud and rocks from entering the pump chamber.

## ordering

### GULP ULTRA SERIES

- Part # A-G12-C Gulp™ Ultra
- Part # A-G12S-CK Gulp™ Syringe Ultra
- Part # A-G3636CK BigGulp™ Ultra with 36" outlet hose
- Part # A-G3672CK BigGulp™ Ultra with 72" outlet hose

### GULP CLASSIC SERIES

- Part # A-G12 Gulp™
- Part # A-G12S Gulp™ Syringe
- Part # A-G3636K BigGulp™ with 36" outlet hose
- Part # A-G3672K BigGulp™ with 72" outlet hose
- Part # A-G2484 SuperGulp™ with 84" outlet hose
- Part # A-G01 BigGulp™ Riser Attachment



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# Whetting Their Appetite

Superintendents increase surfactant use as water concerns heighten and products improve

By John Walsh,  
Contributing Editor

**T**he impact that water use has on golf course management continues to ripple through superintendents' maintenance practices.

Golf course superintendents use more wetting agents now than they did just five years ago, and there's no question it stems from a desire to use water more efficiently. Superintendents are using surfactants in multiple conditions, other than when it's dry because they help balance water and air in the soil by moving water down through the profile.

"The biggest reason superintendents use more wetting agents is because the cost of water and labor has increased and the amount of available labor has decreased," says certified golf course superintendent Don Sutton, sales manager for

AmegA Sciences. "There's not as much hand-watering occurring because of improved wetting agent performance."

The positive trend for soil surfactants also is a result of superintendents' continued understanding that managing water is becoming more important. Wetting agents help irrigation efficiency by using less water.

Superintendents also use wetting agents in conjunction with fungicides to treat fairy ring and patch diseases, says Don Spier, vice president of the turf and horticulture business for Precision Laboratories. There's also an increased use of wetting agents with insecticides to make sure pesticides get to where they need to be, Spier notes.

Some superintendents apply wetting agents in the fall to help move water through the soil profile in the spring to dry out the surface from rain and snow.

"It's more difficult to manage turf in wet conditions than in dry conditions," says Andy Moore, director of marketing and business development for Aquatrols.

Surfactant use in wet conditions  
*Continued on page 39*

## Terminology

The words **wetting agent** and **surfactant** are interchangeable, although surfactant is used more nowadays because superintendents can do more with them than just wet a dry spot. Technically, surfactant is a broader term that can include emulsifiers, adjuvants and penetrants.



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## Whetting Their Appetite

*Continued from page 37*

often changes a superintendent's opinion about them. Another example: A superintendent managing a flat course with drainage problems saw positive results in the spring after applying a wetting agent in the fall. He was able to open the course sooner than he did when he didn't use surfactants.

"If we improve how water moves through the soil, we're also helping superintendents fertilize more efficiently," Sutton adds.

### Saving water and energy

Surfactants can save water, energy and money if used regularly throughout the growing season. However, there will be differences year to year based on rainfall, Moore says.

"Superintendents can see a marked difference — a 20- to 40-percent reduction in irrigation," he says. "You can keep more of the golf course watered because you're stretching water's use further."

Sutton cites a superintendent in Delaware, Ohio, who had never used wetting agents. He was hand-watering six hours a day (two workers, three hours each) for 90 days. The following year, he used wetting agents (applied monthly) and only hand-watered twice. "It was a huge labor savings," Sutton says.

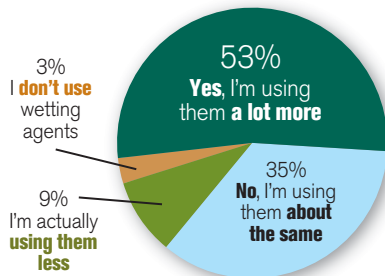
Because the cost of water isn't going to be cheaper and it's being restricted in some areas of the country with more restrictions on the way, more superintendents will look to see how wetting agents can be incorporated into their programs. Another factor contributing to more wetting agent use is the green movement, which is forcing superintendents to analyze their water use more closely.

The market will continue to see wetting agent use grow as water becomes a bigger issue than it is now, Spier says, adding that there will be more players in the market with products. "It's all driven by water restrictions," he says.

The most common use of wetting agents is on greens, but some superin-

## More Wetting Agents, Please

According to the Golf Course Superintendents Association of America, 92 percent of superintendents use soil wetting agents to conserve water. **We asked superintendents: Are you using soil wetting agents differently than you did five years ago?**



Source: Based on a Golfdom survey of 473 superintendents.

tendents are extending their use to tees and fairways depending on budgets and philosophies. Most are applying them monthly during the most stressful times of the year, working them into the spray rotation, Moore says.

Superintendents want greens to be as uniform as possible. They can use various wetting agents for each situation and spend \$1,000 to \$10,000 a year. A typical greens program costs between \$2,000 and \$3,000 a year with Southern courses spending more because of the longer season, Moore says.

"Through market research, we're seeing more use on fairways which translates to course-wide," Moore says, adding there's an increasing number of superintendents who are using surfactants course-wide through irrigation systems. "Our products focused on that area have had growth the past 10 years."

Says Spier: "Thirty to 40 percent of our customers are using soil surfactants in the fairways in addition to the greens. Five years ago it was 10 to 15 percent."

Moore says there's more wetting agent use in the West but not so much in the South because budgets are more limited than in the Midwest and Northeast, where there's a higher concentration of private clubs. However, the Southern market has grown, mainly because the season is longer.

Sutton says about half of Amega Sciences' customers are treating fairways

*Continued on page 40*

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## Whetting Their Appetite

*Continued from page 39*


with surfactants. “The benefits of wetting agents might dictate more use in fairways,” he says.

### Addressing skepticism

Even though wetting-agent use has increased, superintendents had to overcome (some are still overcoming) skepticism about their effectiveness. Sutton began using wetting agents in 1995 as an assistant superintendent when there were only a few products on the market.

“The older products had a potential to burn the turf,” he says. “Some superintendents had bad experiences. Wetting agents became more popular because of improvement in performance, reduced phytotoxicity and better understanding of their benefits.”

Skepticism still exists because of the confusion and differences among the many products on the market.



Can you guess which side of turf received a dose of wetting agents and which didn't?

“Unfortunately, a lot of products don't have the research to back up their claims,” Moore says. “This creates confusion in the field.”

Despite that skepticism, about 92 percent of superintendents say they use wetting agents, according to a survey by the Golf Course Superintendents Association of America.

Spier says superintendents are less suspicious of wetting agents because some companies constantly conduct wetting-agent trials to validate them. But some confusion still exists because there are so many surfactants, and superintendents end up using products that perform differently.

Moore says Aquatrols helps superintendents understand what's in the jug

without getting into the detailed molecular structures of the products, explaining the differences between chemistries so they're better-educated buyers.

“[Superintendents] should ask for enough clear information so they know what they're buying and what the differences are between the products,” he says.

Superintendents should also know the water quality at their courses and how it affects soil structure and conditions, Sutton says. Wetting agents play a part in that.

“I didn't pay enough attention to water quality when I was a superintendent,” he says. “But more superintendents should pay close attention to it. It's an important part of the whole picture, and wetting agents are part of the bigger picture of water quality and how it affects soil structure.”

Better tools exist for researchers to monitor soil to determine volumetric moisture content. In the past, technology such as time-domain reflectometry wasn't available to paint a clear picture of what wetting agents would do in soils.

“We can answer questions better about how they're performing and can measure how these products perform better,” Sutton says. “These type of tests allow a superintendent to pick a moisture percentage range and choose a wetting agent to meet that moisture rate.”

Surfactants' new chemistries allow superintendents to use them as a foundational tool.

“Water will work better for them,” Moore says. “Wetting agents are an integral part of superintendents' turfgrass management programs and less of a problem-solving tool. However, this is an evolution, and we still have a long way to go.” ■

*Walsh, a contributing editor to Golfdom, resides in Cleveland.*



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