

GSA-USA is excited to announce two collaborative projects. The first was launched in the autumn of 2008 in partnership with the Sports Turf Managers of New York (STMONY). GSA-New York is working with STMONY to manage a new feature on the STMONY website called "The GREEN Corner," which reports on GSA activities and focuses on up-to-date 'sports and the environment' information, a valuable resource for progressive sports enthusiasts.

The second collaboration involves the Sports Turf Managers Association. At the STMA board meeting in March, a Memorandum of Cooperation was signed by the presidents of the two organizations that opens the door to opportunities to work together for the benefit of our industry and our environment. Initially, a new link on the STMA website leads to GSA's "Global Forum for Sports and the Environment" (G-ForSE), the world's largest database on the topic. It can be found on the Environmental Stewardship page under the Resources Technical Info tab. This webpage also provides the "Green" Sports Event Guidelines, jointly issued by the STMA and GSA-USA. This document is a useful checklist for anyone wishing to soften the environmental impact of a sports event.

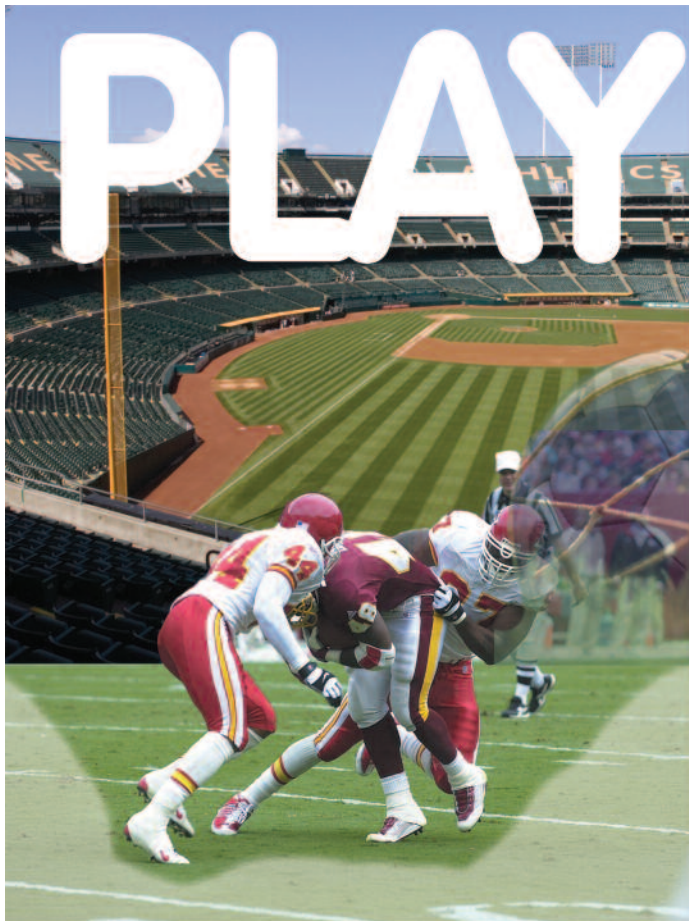
We're hopeful that these resources will provide ideas and inspiration to guide sports facilities managers in amending programs as

needed to lessen our impact and to achieve our individual and institutional environmental goals. Even small changes, implemented industry-wide, would change the face of sports and recreation. Environmental stewardship is a team sport and must surely be a guiding principle in the management of society's recreational space.

We can look forward to forging new partnerships with those who share our commitment to 'consider the environment' in the world of sports. We can address environmental problems by being part of the solution and by doing so, clarify and elevate our professional image. We can work proactively and transparently in these challenging economic times to ensure that our contributions to society are recognized as a necessity, not a luxury—providing skilled management of vital sports and recreation facilities and serving as dedicated, expert stewards of the Earth. Our work is representative of tomorrow's eco-realism, where humankind's quality of life is a palpable factor in the sustainability equation.

The world is changing. What an incredible opportunity we have! ■

Kevin Trotta, BS, MA, is a sports turf manager, New York Team Captain of the Global Sports Alliance and principal proponent of Environmental Turf Craft.



BALL!

FOOTBALL, BASEBALL, SOFTBALL, SOCCER

Any sport played on natural grass is a natural for TifSport Bermudagrass. If you're looking for a sports turf that can handle non-stop action, a transition zone climate and heavy overseeding, TifSport's your answer. It's ideal for intramural fields, practice fields and game-day venues, where everything has to be perfect.

Coaches and players love the way it looks and plays and you and your crew will appreciate how easy it is to manage. TifSport can only be sold as certified sod or sprigs and only by licensed members of the TifSport Growers Association. For more information visit us at www.tifsport.com, or call 706 542-5640.

TIFSPORT  
 CERTIFIED BERMUDAGRASS
www.tifsport.com

Establishing thresholds for turfgrass management

THRESHOLD. We heard the term when we prepared to take the test for a pesticide license. We refer to it when we discuss Integrated Pest Management (IPM). Thresholds are benchmarks for determining when to take an action

involves the use of chemical or nonchemical methods, good stewardship begins with an established threshold. As managers of our sites, we initiate an action when a threshold is crossed.

correct a problem. Like pain thresholds or risk thresholds, it is different for everybody. But whether the problem is pests, the grass is the wrong shade or the soil is too wet or dry, the question is: how do you arrive at that limit and set the threshold?

There are different kinds of thresholds. When IPM was originally developed, control measures were based on *economic* thresholds. Pest population and the resulting damage had to exceed a threshold where the costs to apply a pest management treatment was worth the benefit of reduced yield loss. There had to be an economic gain for treatment to be worthwhile. If the pest population (and the resulting damage) was low enough, it would not pay to take control measures.

In the green industry, we consider two additional types of thresholds: *injury* and *aesthetic*. Injury threshold refers to the level of damage a plant can tolerate. Injury thresholds tend to be more precise because the level of damage associated with a specific pest density is known. For example, how many white grubs per square foot of turf are acceptable? A few might not be a concern on low maintenance turf grass. Sites that use a biological control such as milky spore disease for Japanese beetle control would desire a small Japanese beetle population to help sustain the milky spore culture in the soil. But, on a sports field where footing is critical, the turf manager may be concerned that the strength of the turf could be compromised by even a small number of grubs per square foot.

Aesthetics are subjective, so what “looks good enough” at one site might not be acceptable elsewhere. The amount of aesthetic quality decline that a field can tolerate is referred to as the aesthetic threshold. Because aesthetic

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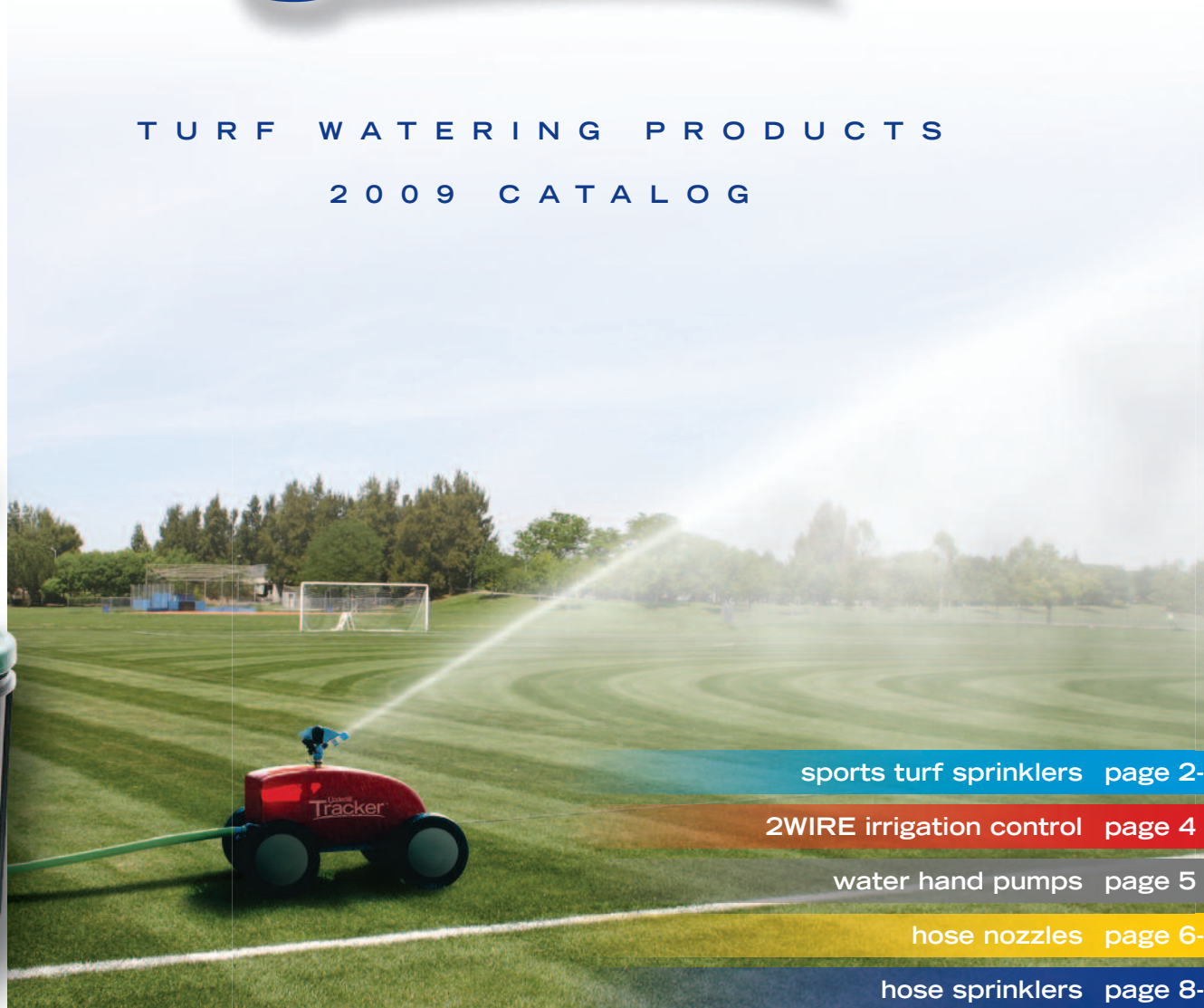
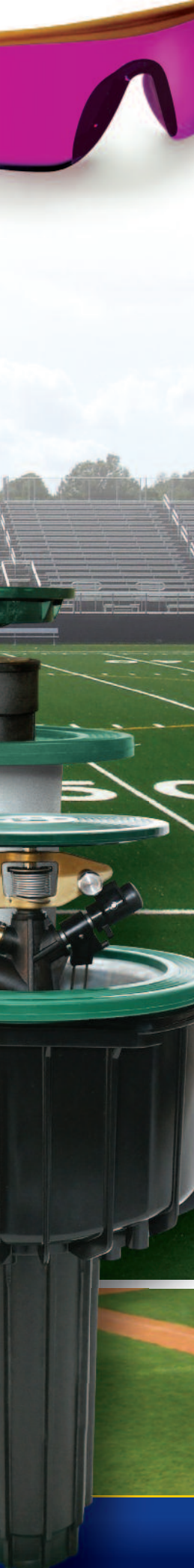
to make a change. Subjective and arbitrary, thresholds are lines in the sand.

Site specific sports field and landscape management is built around thresholds. Whether our decision to use a control

A threshold is a valuable tool for a grounds manager because it sets a parameter. A threshold becomes a component of policy and quantifies when a corrective action must be made using resources (time and money) to



TURF WATERING PRODUCTS
2009 CATALOG



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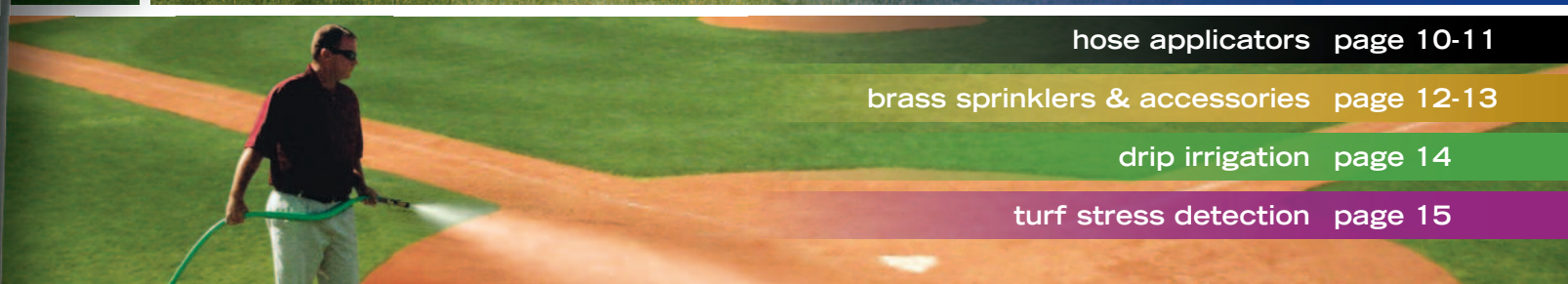
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Products that work...smart.™



An industry leader in innovative watering products for golf, sports field and other large turf areas, Underhill brings 30 years of know-how in developing our inventory of “Products that work...smart.”™

sports turf sprinklers

Mirage™

HUGE THROW, HIGH-PERFORMANCE SPORTS TURF SPRINKLERS

Underhill Mirage pop-up turf sprinklers, featuring precision engineering and huge throw radius, can be installed completely outside the playing area of sports fields. Employing precision German engineering in design and manufacture, Underhill offers the finest large turf sprinklers in the world.

M-160: With its powerful **164 ft. throw radius**, the Mirage™ M-160 is a worldwide favorite for cooling and cleaning synthetic sports fields, dust control and irrigation. Featuring ultra-precise rotation speed adjustment, these piston-drive cannons get the job done quickly and efficiently.

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 artificial turf fields, or in the out-of-play areas of natural turf fields.

M-115: For areas where irrigation must be installed within the playing area, the M-115's large 4" (101 mm) deep sod cup cover, which holds a 9" (220 mm) diameter section of natural grass, “disappears” when not in use, staying out of the way of athletes and mowers.

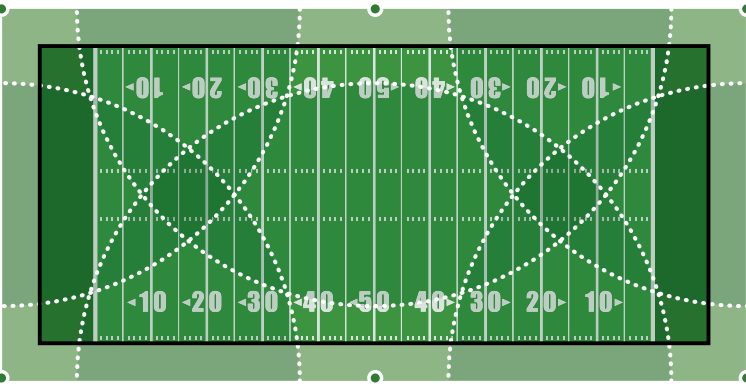


This little module converts irrigation controllers to 2-wire. You'll save a ton in wiring costs, installation and maintenance.

See Page 4

Mirage M-160 pictured at right with artificial turf lid covering to blend in with surroundings when not in use.

Incredible but true... with its huge 164 ft. radius throw, the M-160 can shower a regulation size football field with only 6 heads!



model selection guide

	M-115	M-125	M-160
Max Radius	115 ft. (35 m)	125 ft. (38 m)	164 ft. (50 m)
Valve Type	In Head or Block	In Head or Block	3" Sleeve Valve
Lid Cover	Sod Cup - Natural Grass 4" (101mm) Depth 9.5" (242 mm) Diameter	7" (180 mm) Diameter	15.6" (395 mm) Diameter
Typical Applications	Natural Turf: Play Areas	Artificial Turf: Sideline Areas Natural Turf: Sidelines	Positioned at Sidelines: Artificial Turf Cooling Natural Turf Irrigation
Field Usage Examples	All Sports	All Sports	Football, Soccer, Race Tracks
Nozzle #s (mm)	7, 8, 9, 10, 11, 12 13, 14, 15	7, 8, 9, 10, 11, 12 13, 14, 15, 16, 17.5	16, 18, 20, 22, 24, 26
Pop-Up Height	8.1" (206 mm)	4" (99 mm)	2 3/4" (70 mm)
Arc	30 - 360 degrees	30 - 360 degrees	30 - 360 degrees
Trajectory	22 degrees	22 degrees	23 degrees
Rotation Speed	60 seconds	60 seconds	Precision Adjustable 100-240 seconds
Inlet (Specify)	1 1/2"	1 1/2"	2 1/2" side inlet
Height	26.7" 678 mm	17.7" 450 mm	24.5" 622 mm



The superior characteristics of Mirage sprinklers is proven daily around the world: from the futuristic Allianz Arena in Munich, to the Olympic stadiums in Athens 2004 and Beijing 2008, to large collegiate sports complexes in the United States.

ordering

- Part # M160-FP Mirage™ 160 full/part circle
- Part # M160-EP Mirage™ 160 full/part circle, with 3" electric valve
- Part # M125-EF Mirage™ 125 full circle, valve-in-head
- Part # M125-EP Mirage™ 125 full/part circle, valve-in-head
- Part # M125-BF Mirage™ 125 full circle, block
- Part # M125-BP Mirage™ 125 full/part circle, block
- Part # M115-EF Mirage™ 115 full circle, valve-in-head
- Part # M115-EP Mirage™ 115 full/part circle, valve-in-head
- Part # M115-BF Mirage™ 115 full circle, block
- Part # M115-BP Mirage™ 115 full/part circle, block



2Wire

JUST TWO WIRES AND ONE MODULE FOR CONTROL OF UP TO 48 STATIONS

With over 150,000 field successes, Underhill™ 2WIRE irrigation control systems are a proven leader in converting controllers like the Hunter® ICC to the simplicity and low cost of two-wire technology. Installation is a breeze and after your system is in, you'll enjoy reduced maintenance costs and unbelievably easy system expansion (just splice into the 2-wire path and add a decoder). Add the Hunter® IRC remote control and you've created the ultimate (and most affordable) way to syringe anywhere on your field at the press of a button.

EXPAND EXISTING MULTI-WIRE SYSTEMS

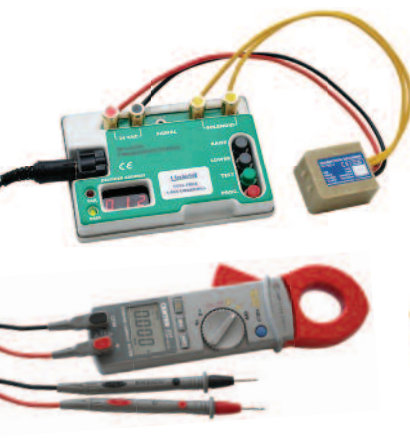
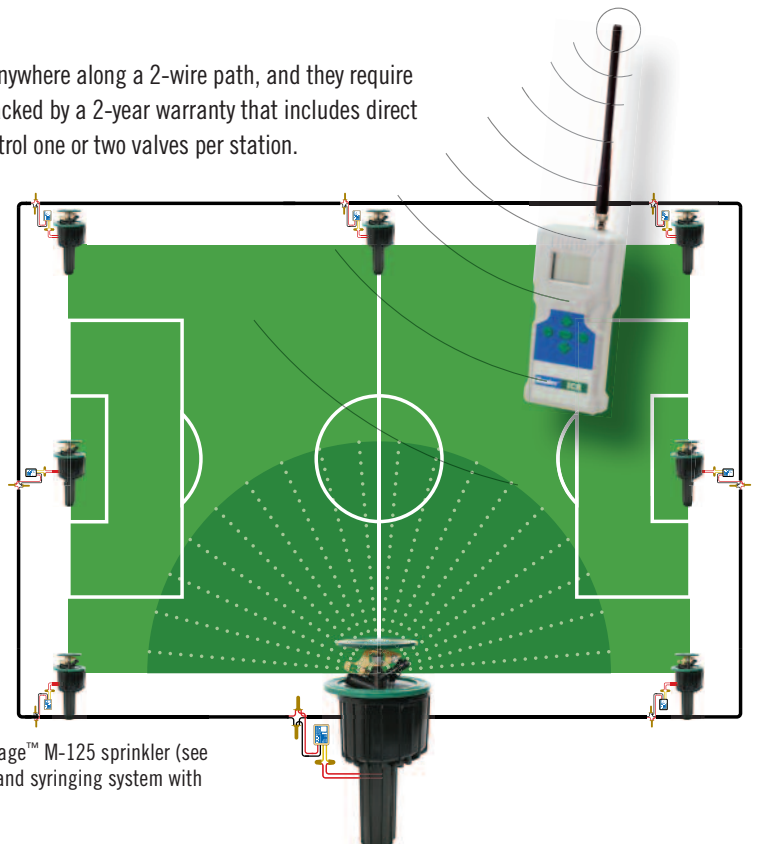
To run a 2WIRE system in tandem with your existing system, simply install the decoder module into the controller, run a 2-wire path to the new valves, and operate your ICC as normal for all stations (up to 48 total). To add stations in hard to reach areas (across a road, path, parking lot, etc.), you can even "piggyback" onto the existing system out in the field and avoid trenching back to the controller!

NO GROUNDING NECESSARY

Underhill™ decoders quickly install anywhere along a 2-wire path, and they require no grounding. So reliable, they are backed by a 2-year warranty that includes direct lightning hits! Each decoder can control one or two valves per station.



An irrigation installation featuring the powerful Mirage™ M-125 sprinkler (see page 2-3) and 2Wire decoders becomes an on-demand syringing system with the Hunter® IRC remote control.



Setting up stations is a breeze with our portable decoder programmer. And for troubleshooting wiring in the field, the digital clamp meter measures AC volts, current and resistance, and the faultfinding transformer adds the proper voltage to the two-wire path.

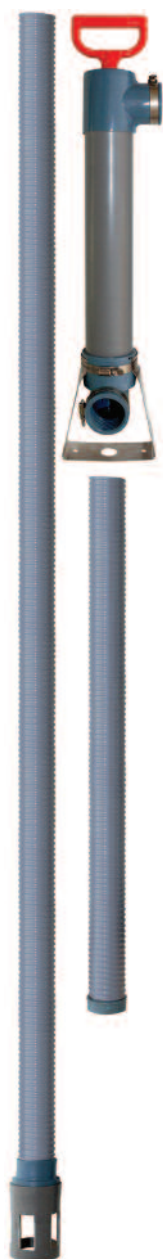
ordering

Part # TW-ICC-48	ICC Decoder Module
Part # TW-TK-DEC-1	2WIRE Decoder (includes 4 DBY connectors)
Part # DEC-PROG-115	Portable decoder programmer, 115V
Part # DEC-PROG-240	Portable decoder programmer, 240V
Part # TW-DCM	Digital Clamp Meter
Part # Transfrmr-115	Faultfinding Transformer 30V, 5A
Part # TW-2C-14-1000	2-conductor, 14 AWG wire reel, 1000 ft.
Part # TW-2C-14-2500	2-conductor, 14 AWG wire reel, 2500 ft.

Gulp™ Series Pumps

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™ 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™ and Gulp™ are ideal for carrying on maintenance carts for small, routine needs. For larger water removal jobs, BigGulp™ pumps a gallon of water in only four strokes and SuperGulp™ can move 16 gallons of water in one minute.



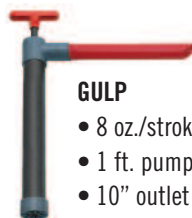
SUPER GULP

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



BIG GULP

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



GULP

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



GULP SYRINGE

- 8 oz./stroke
- 1 ft. pump chamber
- 11" outlet tube



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

ordering

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



SuperGulp™



BigGulp™



Gulp™



Gulp™ Syringe

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 sports fields. 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 body - 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

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)



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



solid metal internal

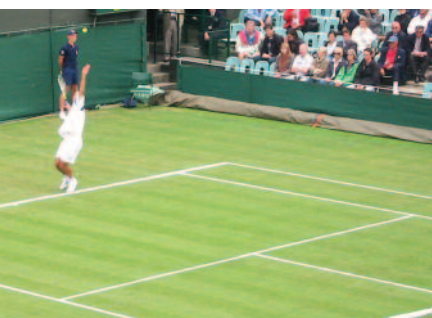
Won't stick...won't break



fan

jet

soak



CoolPro™

Cool Without Over Watering - No Root Damage

A hot summer day can be murder on high quality turf areas (like baseball infields and golf 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.
- Solid metal design for durability: zinc, aircraft aluminum and stainless steel.
- Patented Precision™ nozzle fogs at 70 psi to deliver a 25 ft. pattern with only 4-6 GPM

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.

ordering

Part # NG450

Part # HNC075

MAGNUM Hose Nozzle

CoolPro™ Hose Nozzle



Precision™

PATTERNS SO REMARKABLE, NOZZLES SO GOOD... THEY'RE PATENTED.

It's hard to beat a variable spray nozzle for versatility...unless you have this set of solid metal fixed spray hose nozzles precisely engineered for specific watering needs. Millions of soft, uniform droplets provide rapid yet surprisingly gentle water application. From watering fragile seed beds to drenching sports fields, Precision™ spray patterns are designed with ideal flow rates and droplet sizes to offer you the ultimate solution for every hand watering application.



Rainbow™

LOW FLOW RATE: LANDSCAPING, LIGHT WATERING
Ideal for watering transplants and seed beds.
Excels at lower pressure flows. **15 GPM @ 80 psi.**



Rainmaker™

LOW TO MEDIUM FLOW: SYRINGE AND SPOT WATERING
Perfect for syringing and great for hand watering turf and landscape with 3/4" hose at lower pressures. **23 GPM @ 80 psi.**



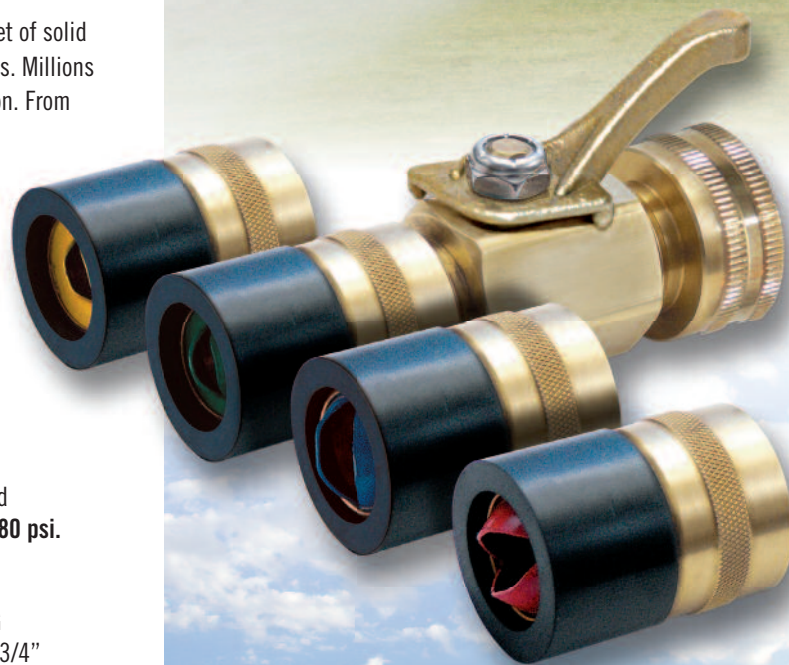
Cloudburst™

MEDIUM TO HIGH FLOW: SUPPLEMENTAL TURF WATERING
High volume drenching and syringing. Ideal flow rate for 3/4" and 1" hoses. **48 GPM @ 80 psi.**



Cyclone™

HIGH FLOW RATE: PRE-GAME SKINS WATERING, SOAKING
Powerful fan-shaped spray covers a HUGE area - gets heavy watering jobs done quickly. Ideal flow rate for 1" hoses. **50+ GPM @ 80 psi.**
GPM will vary with pressure at nozzle.



high-flow valves



HIGHEST
FLOW VALVES
AVAILABLE

COMPOSITE / STAINLESS STEEL

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

SOLID BRASS

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

hose adapters / quick-connectors



ordering

Part # HN1500 Precision™ **Rainbow™** Hose Nozzle
Part # HN2300 Precision™ **Rainmaker™** Hose Nozzle
Part # HN4800 Precision™ **Cloudburst™** Hose Nozzle
Part # HN5000 Precision™ **Cyclone™** Hose Nozzle

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 # HN-075W replacement washer, 3/4" hose

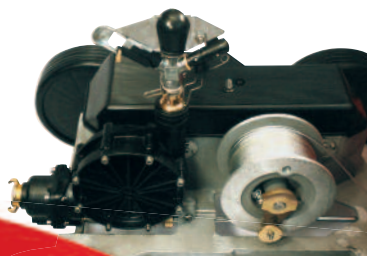
Tracker™

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.

Tracker™ requires minimal labor to operate. Powered by water, it pulls itself along a nylon cable, dragging up to 360 ft. of 1" reinforced heavy-duty hose (sold separately). Each pass irrigates about 2/3 acre per 8 hours of operations.

Precision German engineering, high quality components...built to last!



features

- Adjustable Speed Control: 20-70 ft./hr.
- 360 ft. nylon cable provides maximum irrigated length of 400 ft.
- Standard full or part circle sprinkler (8-15 GPM)
- 70-85 ft. pass width
- Automatic shut-off at end of pass
- Galvanized anchor stake
- Water turbine drive and gear box
- Includes 1" brass quick-connect adapter



specifications

- Weight: 58 lbs.
- Size: Length 33", Width 22", Height 22"
- Materials: Aluminum, Brass, ABS



Use Tracker™ to help irrigate sports fields, golf courses, driving ranges, or supplement watering in other areas where an irrigation system is not available. Tracker's maximum 400 ft. irrigation path makes it also ideal for large campuses and corrals and its compact size allows it to operate in narrow spaces such as cemetery rows.

ordering

Part # T-400	Tracker™ Portable Irrigation Machine
Part # A-BQ7M	3/4" Quick-Connect, male end
Part # A-BQ7F	3/4" Quick-Connect, female end



Solid brass one-piece quick coupler valves and valve keys can help you get your Tracker™ set up quickly.

See Pages 12-13