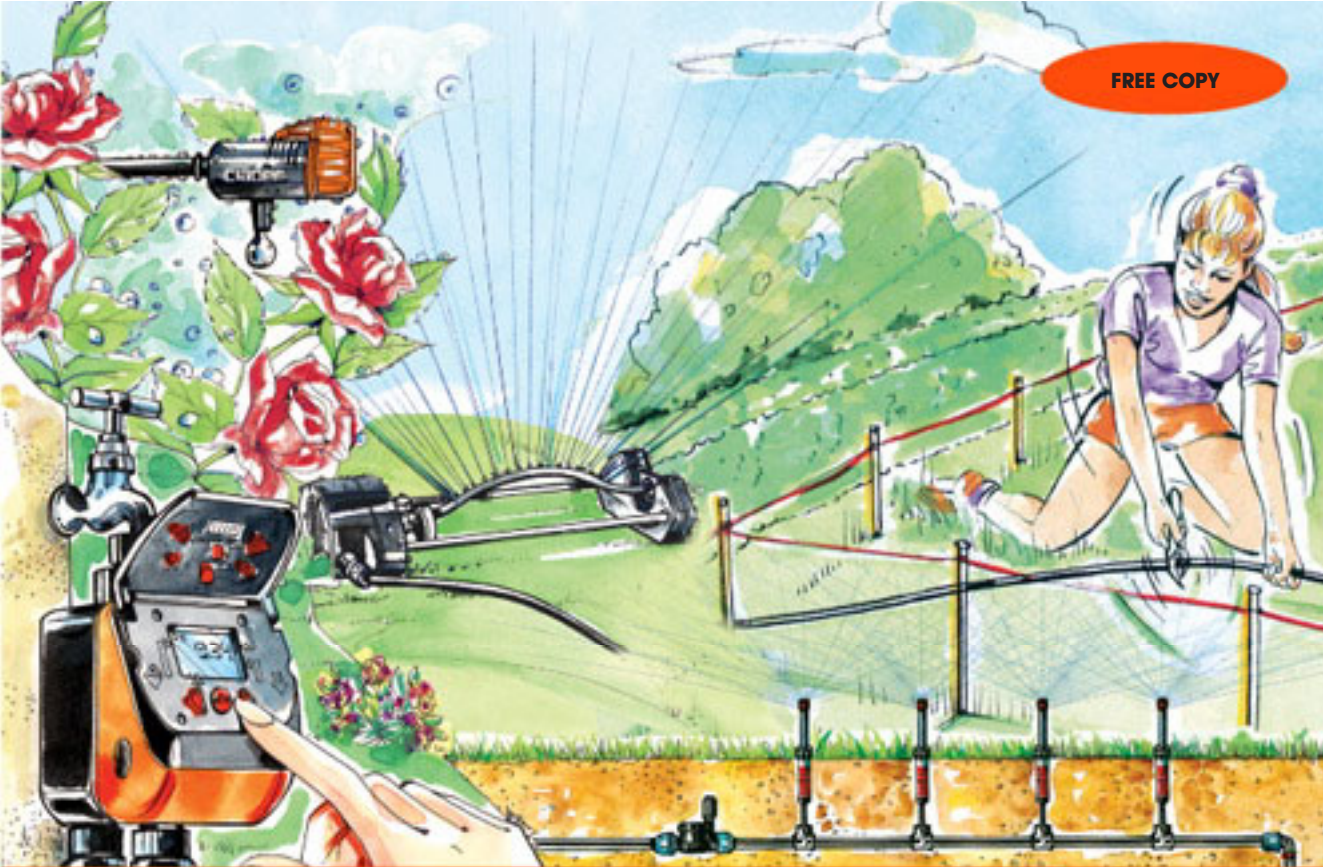


FREE COPY



“DO-IT-YOURSELF” IRRIGATION GUIDE

**claber**



## CLABER EXPERIENCE

### A VITAL SOLUTION

Water is vital for the garden, for all nature. That's why Claber helps us to use this basic resource in the best possible way, by proposing an extensive range of home watering solutions; whether it be for above-ground, drip or underground irrigation, you'll find the answer to all your needs and those of your plants. All thanks to Claber's unique expertise and ongoing pursuit of innovation.

### THE ASSURANCE OF A LEADING NAME

Established in 1967, Claber was the first Italian company in the irrigation industry to obtain the ISO 9001 Total Quality Certification. Over the years, the head office based in

Fiume Veneto (PN) has been joined by: the Clabermeteo professional division, specialised in the production of remote-controlled irrigation systems for large parks, farming applications and golf courses; International branches located, in France, UK and in USA; the Water School in Pasiano (PN), dedicated to applied research and the production of hydroelectricity; not to mention the new plant recently opened in Maniago (PN). Claber products are today used in no less than 75 countries: a guarantee of quality as big as the world itself.

### EFFICIENT, PRACTICAL, ECOLOGICAL

Of all the water on the planet, only 2% of it is usable for

human activities, including gardening. Claber shows how to use water better, saving time, work and above all precious water. All Claber products, the results of scientific research, are tested and guaranteed 100%. In addition, Claber offers you this Guide, full of useful information and advice on how to make your own personalised irrigation system, from the simple watering hose to the underground installation fitted with electronic water timers. You'll discover all the secrets

of the simple, efficient, cost-saving home irrigation system!

### ON THE INTERNET

Claber know-how and advice are available on the website [www.claber.it](http://www.claber.it), where you can read all about Claber products, take part in the interactive forum or get a preview of all the latest innovations. Thanks to Claber, irrigation of tomorrow is taking shape today: who else can give you more?



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# ABOVE-GROUND IRRIGATION

Water is carried by hoses, with an inside diameter proportional to the quantity of water and the distance covered. In medium-size gardens, the diameter is normally 12 or 14 mm: a larger diameter is suitable if the garden is bigger, or when water pressure is low.



## FLEXYFORT

The extra strong hose made to last; the secret lies in the choice of materials and the strong mesh inside reinforcement.



## ELEGANT

The quality of the materials and the special internal structure make it light and particularly suitable for garden use.



## TOP BLACK

The non-toxic hose made from 100% pure material, with black exterior to prevent the formation of algae, and transparent interior to guarantee total water purity.



## AQUAVIVA

The strong and easy to handle hose, thanks to the special reinforcement, with anti-algae interior to ensure best water quality, ready for all garden uses.

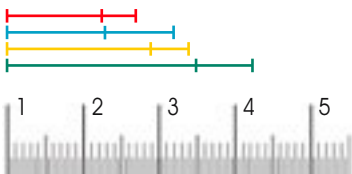


## SILVERGREEN

The exclusive multilayer structure makes it remarkably pliable, elastic and easy to handle. The total anti-UV protection prevents the formation of algae.

### Trade measurements in inches and mm

	inches	mm $\varnothing$ inside	mm $\varnothing$ outside
●	1/2"	12.5	17
●	5/8"	14 / 16	19 / 22
●	3/4"	19	24
●	1"	25	32.5



How to immediately find the diameter in inches of a hose. Use this practical conversion table for inside and outside diameters. There is also a graduated scale along the edge of the page: place it against the inside diameter, then compare it with the length of the coloured lines. The red line corresponds to 1/2", the blue to 5/8", the yellow to 3/4" and the green to 1".



# SPRAY NOZZLES

A family of products designed to "launch" water over a distance. With these spray nozzles, you can adjust the water flow according to specific needs: from completely closed to concentrated, open, through to a fine sprinkle. For extra practical use, flow control is positioned on the handle. Or for even greater versatility, select a washing pistol with instant control trigger.



## SPRAY NOZZLE

Practical and rugged, this nozzle allows the water jet to be adjusted from fully closed to fully open.



## FAN SPRAYER

Delivers water in pattern of small jets. This model is particularly recommended for gently watering localized areas (flower beds, vases, etc.), respecting the young plants. They also have a handy valve on the grip.



## LONG FAN SPRAY

Ideal for easily watering plants in hard to reach places.



## SPRAY PISTOL

Professional heavy duty spray pistol with lever adjustment of water flow and patented blocking device for desired jet.



## "ERGO-GARDEN" SPRAY PISTOL

Multi-Jet spray pistol with practical ergonomic grip. Rotate the pistol head for different jets: from jet to soft fan wise - gentle soaker - shower and aerator spray (jet mixed with air bubbles). Very useful for watering potted plants. Selector device and lock for required jet.



## BALCONY

Shower pistol with aerator, new anatomical rubber grip and convenient front on-off flow button. Knob at rear adjusts strength of water jet. Rubber lined lock nut for protection against impact, for easy opening, inspection and cleaning of pistol.



*Claber spray nozzles are available individually, or complete with hose and tap connectors.*



# STATIONARY AND ROTATING SPRINKLERS



Stationary sprinklers are the simplest, without moving parts which increase the watering range. The water is delivered through one or more nozzles, with sprinkle or spray jets. These models offer excellent results with normal domestic water pressure. The rotating arm sprinklers are the most used. With fixed or adjustable nozzles with different jets, they allow the watering range to be varied and the best working position to be found, depending on the pressure.



360°

## AQUALUX 2000

Rotating sprinkler with adjustable nozzles for excellent results, even with low water pressure. Waters round areas with a light sprinkle.



8685

## IDROJET 2000

Sprinkler with adjustable nozzle for excellent results at any water pressure. Sprays water in a circular pattern with light rain effect.



8694

## IDROSPRAY 2000

With "fan" nozzles for an even spray and splendid fountain effects.



8675

## TURBOSPIKE

With a plastic spike for sticking into the ground, waters with sprinkle effect. Excellent for flower beds.



8660

## ROLLINA

The exclusive 5-blade rotor breaks the water jets to create a fine natural sprinkle.



8656

## TURBOSPRUZZO

Stationary sprinkler produces a fine spray for watering round areas.



8658



## MULTIFUNCTION SPRINKLER

Made entirely from ABS, the special round shape makes it easy to drag over lawns. Shaped upper section for easy holding and selecting 6 different functions.



8654



# PULSATING SPRINKLERS

The so-called "pulsating" sprinklers have a striker that breaks the water jet to distribute it more evenly. An original adjustment ring nut selects the areas to be irrigated. These sprinklers provide the longest range, and are used for watering large, obstacle-free areas.



## IMPACT HEAD 3/4" F

Pulsating sprinkler head for watering sectors or with full rotation.

8705



## IMPACT TRIPOD

Impact sprinkler on an aluminium tripod.

8709



## IMPACT ON SPIKE

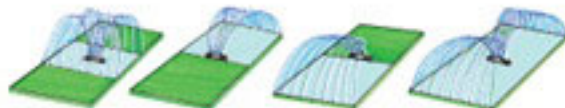
Impact sprinkler mounted on a steady two-pronged spike.

8707



# OSCILLATING SPRINKLERS

Oscillating sprinklers cover rectangular areas, watering only where necessary. The area can be varied with the selector. The swinging arm sprays a fan of water into the air, which falls gently just like natural rain. The handy plug accessory can be removed for periodic cleaning of the nozzles.



8740

## COMPACT 160 PROMO

Aluminium arm with 14 precision holes guaranteeing even water jets, just like natural rain.



8753

## COMPACT-20 AQUA CONTROL

ABS swinging arm with exclusive "aqua control" system for varying the breadth of the watered area.



8744

## COMPACT-18 SUPER METAL

Swinging arm with 18 nozzles, hydraulic motor and new large-diameter turbine.

# HOSE CARTS

The hose is an important asset that will only last if cared for properly: after use, it must be drained of all residual water and put in a dry place, out of the sunlight.

To store your garden hose neatly, without bends and twists, and to carry it without dragging, there's nothing better than a hose-cart. Claber hose-carts also allow continuous water flow without having to extract the hose. Just unwind the length required: water flows through the hose-cart hub into the wound hose and out the other end.

Your hose will last even longer on sturdy and rigid wall-mounted reels. Designed for outdoors, they have rustproof aluminium frames, resin drums, and come in a simple kit for assembly without tools.

## AQUA PONY

This exceptionally compact model is ideal for terraces and small gardens.



8887

## KIROS KIT

Wall-mounted hose-reel with 20 metres of  $\varnothing$  12-17 mm hose, 3/4" tap connector with 1/2" reduction, 4 automatic fittings and spray nozzle.

8945



**SILVER-AL**

The new ergonomic handle makes this cart easy to carry and even more compact when storing. Sturdy, lightweight rustproof aluminium frame. Reel drum mounted in delrin for frictionless winding. Grooved, semi-enclosed wheels for crossing narrow spaces.



8977

**GENIUS 60**

The ideal hose-cart for medium-size gardens. Hose fitting supplied.



8862

**AQUAPASS SET**

Hose cassette: only unwind the length required; it rewinds after use.



8974

**METAL 60**

Total metal structure with epoxy resin coating to ensure a lifetime of efficient use. Quick and easy to assemble, able to carry up to 70 m of 1/2" hose, it is ideal for medium-sized gardens.



8891

**METAL GEMINI**

All metal structure with epoxide resin surface treatment to ensure lasting protection. Large diameter wheels facilitate moving and guarantee stability on every ground surfaces.



8894



## SHOWERS

After summer gardening, or even holidaying or camping, cool off under the tripod shower. Usable on all surfaces, this corrosionproof all-aluminium shower connects directly to a water hose. Completely dismantles, thus taking up very little space.



### MALIBU SHOWER

Shower for the terrace, garden or camping. The steady tripod allows it to be installed on any surface. Height 200 cm.

### RIVIERA SHOWER

Shower with spike for camping and the garden. Height 230 cm.



## CARRY CART

The carry cart for cleaning up and collecting leaves, grass cuttings and rubbish in disposable PVC bags: another great Claber gardening idea!

Completely rustproof, Carry Cart can be left outside, and uses the strong Claber bags or others commercially available.



## "WIPPY-SYSTEM" WASH BRUSHES

What else can you do with water? Wash the car, the terrace or garden paths, clean the boat or the camper. All this while minimizing water consumption with Claber "Wippy-System" water-cleaning ideas.

### WIPPY TURBO

The water pressure causes the inside bristles to turn, for a powerful effortless washing force, without splashing. Complete with 120 cm jointed aluminium handle and adjustment valve.



### WIPPY CAR

Comes in two versions: with rounded bristles for car washing, or extra-stiff for masonry surfaces, pavements, terraces, planking, and more. With 120 cm aluminium handle and adjustment valve.



# DRIP IRRIGATION

Supplying just the right amount of water to each plant, just when and where it's needed - this is the fundamental idea behind drip irrigation. A new technology, with a whole range of advantages for you and your garden friends!

Frequent watering with a perfectly measured amount of water, without waste, increases oxygenation of the soil, and favours vigorous plant growth. Now you can create your own made-to-measure irrigation system, large or small, to satisfy all your garden

watering demands. The starting point of the system is the PROGRAMMABLE WATER TIMER, which automatically measures the amount and frequency of daily watering operations. Water is supplied to the DRIPPERS and the MICRO-SPRINKLERS, which guarantee continuous, accurate flow.

Drippers can also be adjusted, to distribute just the right amount of water to suit the requirements of your plants, while accounting for the nature of the soil.














## SAVING WATER

Drip irrigation will not only help you save time, but also that most precious resource for nature, and of course for your garden: water. The pressure required by the system is in fact lower than that of conventional systems. You can also program

a lower irrigation frequency for CLAY SOIL, where water penetrates less than in SANDY SOIL. In this way, distributed water is used right to the very last... drip.

## Irrigation time and frequency

Excessive or insufficient watering can seriously damage your plants. The VERSATILITY of drip irrigation now solves that problem; just observe the right watering procedure for the particular soil, plant and climate type, as indicated in the table below.

	 summer	 spring	 autumn	
	 33/h.-1 BAR	<b>30</b> min. every day	<b>20</b> min. 4 times a week	<b>10</b> min. 2-3 times a week
	 33/h.-1 BAR	<b>20</b> min. every day	<b>15</b> min. 4 times a week	<b>10</b> min. 2-3 times a week
	 78/h.-1 BAR	<b>30</b> min. every day	<b>20</b> min. 4 times a week	<b>15</b> min. 2-3 times a week
	 40/h.-1 BAR	<b>30</b> min. every day	<b>20</b> min. 3 times a week	<b>15</b> min. 1-2 times a week
	 2/h.-1 BAR	<b>10</b> min. every day	<b>10</b> min. 2-3 times a week	<b>5</b> min. 2-3 times a week

## POTTED PLANTS

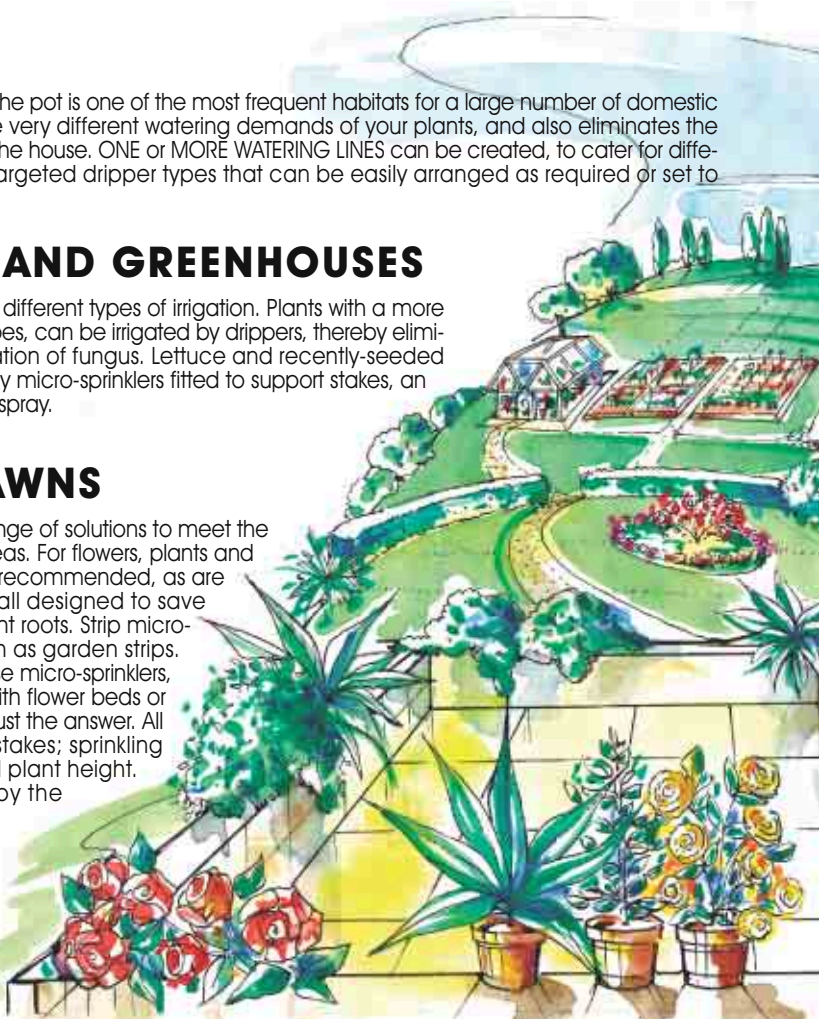
Around the house, on the balcony or the patio, the pot is one of the most frequent habitats for a large number of domestic plants. Drip irrigation is the single solution to the very different watering demands of your plants, and also eliminates the problem of shifting and relocating pots around the house. ONE or MORE WATERING LINES can be created, to cater for different irrigation time and frequency, thanks to targeted dripper types that can be easily arranged as required or set to operate at specific times.

## VEGETABLE GARDENS AND GREENHOUSES

In vegetable gardens, different plants demand different types of irrigation. Plants with a more fragile disposition towards water, such as tomatoes, can be irrigated by drippers, thereby eliminating the risk of water build-up and the formation of fungus. Lettuce and recently-seeded ground however require watering from above by micro-sprinklers fitted to support stakes, an arrangement designed to deliver a fine rain-like spray.

## FLOWER BEDS AND LAWNS

Drip and micro-sprinkler systems offer a wide range of solutions to meet the requirements of all plants types and garden areas. For flowers, plants and shrubs, 90°, 180° and 360° micro-sprinklers are recommended, as are adjustable flow and self-regulating drippers, all designed to save water, because it is directed straight to the plant roots. Strip micro-sprinklers are best for long, narrow areas, such as garden strips. Small surfaces or plants with delicate flowers? Use micro-sprinklers, for a fine, natural rain-like effect. Large areas with flower beds or lawn sections? Rotary 360° micro-sprinklers are just the answer. All sprinklers can be installed on robust support stakes; sprinkling height can be adjusted as required to actual plant height. Micro-sprinkler jets may also be modified by the special adjustment valve.



## aquadue DUPLO

These battery-powered timers are the brains behind the RainJet system. All it takes is a few seconds to set a customised program on two separate lines; the timer will automatically control watering operations at set times, even when you're away at work or on vacation.

### AQUADUE DUPLO

Automatic two-way water timer. Provides up to three irrigations a day for each line. Featuring just three buttons for easy programming. Weekly watering cycles may also be programmed with the exception of the days you wish to omit. It is also possible to display the cycles programmed and delete those cycles no longer required.



### HYDRAULIC PERFORMANCES

BAR	0.5	1.0	2.0	2.5	3.0	4.0	5.0
l/min	14	18	24	27	30	31	33

## aquauno plus

Claber presents its extensive, innovative family of electronic water timers. Constructed in sturdy ABS, their attractive rounded forms reflect the very latest trends in ergonomic design. And take a look at their other original features, such as the valve with diaphragm with no mechanical parts, meaning no wear and minimal consumption – in fact a single 9V battery provides enough power for a whole year. Operating pressure in all models between 0.1 and 10 BAR.

### AQUAUNO PRATICO PLUS

It's easy to use. Simply press the green button to start the program, then the red button when watering is sufficient. Pratico memorises the time that has elapsed between the two operations and repeats the program (maximum duration 60 minutes) at the same time every day. A led indicates all programming phases and can display the times you have set at any moment.



8414

**claber**

### AQUAUNO LOGICA BALCONY PLUS

Automatic one-way timer with 15 predefined programmes, specially designed for balcony and terrace plant requirements. Simply by turning the knob to any one of the 15 numbered notches you can set the program required in a matter of seconds. All the programs available are summarized in a diagram printed on the cover.



8415

### AQUAUNO LOGICA PLUS

A totally revolutionary automatic one-line water timer containing 15 preset cycles selected using an exclusive control rotary knob. Simply by turning the knob to any one of the 15 numbered notches you can set the program required in a matter of seconds. All the programs available are summarized in a diagram printed on the cover. A led lights up when the timer is in operation..



8411

### AQUAUNO VIDEO-6 PLUS

Using this automatic one-line water timer you can set 6 watering cycles for a day. Featuring just three buttons for easy programming, the large display clearly communicates to the user all the information required by means of easy-to-understand symbols and numbers. 6 Water cycle times vary from 1 min. to 23 hours and 59 min. Weekly watering cycles may also be programmed with the exception of the days you wish to omit. It is also possible to display the cycles programmed and delete those no longer required.



8413

### AQUAUNO VIDEO-2 PLUS

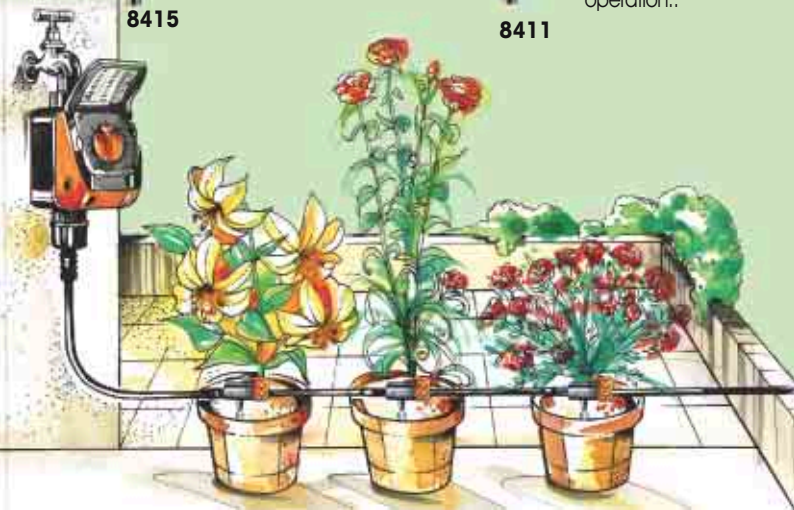
Using this automatic one-line water timer you can set 2 watering cycles a day. Featuring just three buttons for easy programming, the large display clearly communicates to the user all the information required by means of easy-to-understand symbols and numbers. 2 Water cycle times vary from 1 min. to 23 hours and 59 min. Weekly watering cycles may also be programmed with the exception of the days you wish to omit. It is also possible to display the cycles programmed and delete those cycles no longer required.



8412

### HYDRAULIC PERFORMANCES

BAR	0.2	1.0	2.0	2.5	3.0	4.0	5.0
l/min	4.5	16	22	25	27	31	35



# aquauno

## AQUAUNO PRATICO

It's easy to use. Simply press the green button to start the program, then the red button when watering is sufficient. Pratico memorises the time that has elapsed between the two operations and repeats the program (maximum duration 60 minutes) at the same time every day. A led indicates all programming phases and can display the times you have set at any moment.



8493

## AQUAUNO LOGICA

The first - and most imitated - one-line water timer, offering 15 different preset watering programs available at the turn of a knob, each created on the basis of specific feedback from gardening enthusiasts and the input of botanical and irrigation experts. Yet another successful issue of Claber quality and research.



8444

## HYDRAULIC PERFORMANCES

BAR	0.2	1.0	2.0	2.5	3.0	4.0	5.0
l/min	4.5	16	22	25	27	31	35



8454



8456

## AQUAUNO VIDEO 2 E VIDEO 6

The first timers to feature interactive "pages" on their generous display, selected by only



three keys. Two/six irrigation cycles per day (according to the model), each with a duration of 59 minutes, varying between one minute and 23 hours. Different programs can be set throughout the week, even skipping certain days.



# claber

# ACCESSORIES FOR 1/2" (13-16 MM) MAIN TUBE

Everything you need for simple, efficient connection of irrigation hoses to the main tube and the tap.



91040

## PRESSURE REDUCER

Automatically reduces and maintains inlet water pressure at a constant pressure of 1 bar (max. 10 bar). Connects to 3/4" (20/27 mm) threaded taps.



91002

## MULTI-THREAD TAP CONNECTOR

To connect automatic "Quick-Click" tap fittings; female 3/4" (20-27 mm) thread and 1/2" (15-21 mm) adaptor.



91001

## AUTOMATIC COUPLING

To connect 1/2" (13-16 mm) main tube to an outlet with automatic "Quick-Click" tap fitting.



91494

## 3/4" AUTOMATIC ADAPTOR

Used to connect the pressure reducer, 1/2" (13-16 mm) main hose adaptor, 1/4" (4-6 mm) threaded hose adaptor, and other accessories with 3/4" female thread to electronic timers.



91031

## IN-LINE FILTER FOR 1/2" HOSE

For water filtering in dripper or microirrigation systems. Installed in-line, directly on the 1/2" main hose. Easy-to-clean mesh filter.



91045

## DOUBLE TAP CONNECTOR

With double independent adjustment for connection of two lines to a single water tap. Screwed onto taps with 3/4" (20-27 mm) or 1/2" (15-21 mm) thread.



91589

## 3/4" MALE THREADED TWO-WAY ADAPTOR

For taps with 3/4" thread; enables assembly of two electronic timers, pressure reducers, etc.



91071

## 1/2" TEE

Enables coupling of three 1/2" (13-16 mm) main tube sections. Blister of 2 pcs.



91345

### 1/2" 1/4" HOSE THREADED ADAPTOR

For direct connection of 1/2" (13-16 mm) and 1/4" (4-6 mm.) tubes to taps with 3/4" (20-27 mm) thread.



91280

### 1/2" SHUT-OFF VALVE

For water flow supply, shut-off and adjustment.  
For installation between two 1/2" - (13-16 mm) main tube sections.



91066

### 1/2" H. 3/4"-1" THREADED COUPLING

To connect 1/2" (13-16 mm) main tube to an outlet with 3/4" (20-27 mm) or 1" (26-34 mm) female thread (E.G. Solenoid valves).

91090

### 1/2" SUPPORT STAKE

Enables secure ground fixture of the 1/2" (13-16 mm) main tube.  
Blister of 8 pcs.



91081

### 1/2" ELBOW COUPLING

Enables coupling of two 1/2" (13-16 mm) main tube sections. Blister of 2 pcs.



91086

### 1/2" END STOPPER

To shut off water flow at the end of 1/2" (13-16 mm) main tube. Blister of 4 pcs.



91076

### 1/2" COUPLING

Enables coupling of two 1/2" (13-16 mm) main tube sections. Blister of 4 pcs.



caber

# ACCESSORIES FOR 1/4" (4-6 MM) FEEDING TUBE



91155

## 1/4" 2-WAY COUPLING

Used to branch off 1/4" (4-6 mm) feeding tube sections from 1/2" (13-16 mm) main tube or to join two feeding tube sections. Blister of 10 pcs..



91141

## 1/4" TEE

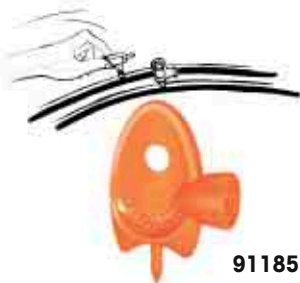
Enables coupling of three 1/4" (4-6 mm) feeding tube sections. Blister of 10 pcs.



91145

## 1/4" 4-WAY COUPLING

Enables coupling of four 1/4" (4-6 mm) feeding tube sections. Blister of 10 pcs.



91185

## HOLE PUNCHER/SPANNER

Used to punch holes in 1/2" (13-16 mm) main tube. Also enables tightening and adjustment of micro-sprinklers.



91270

## 1/4" SHUT-OFF VALVE

For 1/4" (4-6 mm) feeding tube. Enables water flow adjustment and shut-off. Blister of 5 pcs.



91170

## HOLE PLUGS

For sealing holes on 1/2" (13-16 mm) main tube or ends of 1/4" (4-6 mm) feeding tube. Blister of 10 pcs.

91265

## MICRO-SPRINKLER SUPPORT STAKE

Used for overhead installation of micro-sprinklers according to various plant heights. Header bag of 2 pcs.



## FITTED RIGID RISERS

Allows to rise the micro-sprinklers and micro-sprayers at 30 cm. Screwed directly into the 1/2" (13-16 mm) main tube. Header bag of 10 pcs.



91260

## 1/2" SUPPORT STAKE

Enables secure ground fixture of the 1/2" (13-16 mm) main tube. Blister of 8 pcs.

91190

# MICRO-SPRINKLERS



91256



91255



91254



91257

BAR	0.5	1	1.5	2	2.5
l/h	22	34	46	52	72
Øm	3.0	3.5	4.5	4.0	4.0

BAR	0.5	1	1.5	2	2.5
l/h	17	33	45	59	61
Rm	1.2	2.0	2.2	2.2	2.5

BAR	0.5	1	1.5	2	2.5
l/h	17	33	45	58	61
Rm	1.5	2.2	2.7	3.0	3.2

BAR	0.5	1	1.5	2	2.5
l/h	17	33	45	58	61
m	3.2	5.5	7.2	8.5	9

## 360° MICRO-SPRINKLER

Used either directly into the 1/2" (13-16 mm) main tube or on fitted rigid risers for overhead installation. Blister of 10 pcs.

## 180° MICRO-SPRINKLER

For installation into the 1/2" (13-16 mm) main tube, the 1/4" (4-6 mm) feeding tube, or on fitted rigid risers. Suitable for watering semi-circular areas. Blister of 10 pcs.

## 90° MICRO-SPRINKLER

For watering right-angled corners. Used either into the 1/2" (13-16 mm) main tube or on fitted rigid risers for overhead installation. Blister of 10 pcs.

## MICRO-SPRINKLER STRIP

For watering flower beds and flower boxes. Used either into the 1/2" (13-16 mm) main tube or on fitted rigid risers for overhead installation. Blister of 10 pcs.

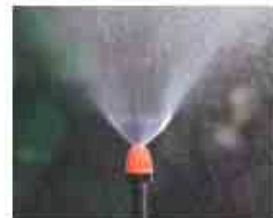


91258

BAR	0.5	1	1.5	2	2.5
l/h	32	61	83	112	122
Øm	1.0	1.5	2.0	2.5	2.5

## 360° MICRO-MIST SPRAYER

For light mist sprinkling. Used either into the 1/2" (13-16 mm) main tube or on fitted rigid risers for overhead installation. Blister of 10 pcs.



# ADJUSTABLE MICRO-SPRINKLERS

## 180°-360° ADJUSTABLE MICRO-SPRINKLER

(cod. 91246 - 91247)

Used either directly into the 1/2" (13-16 mm) main tube or on fitted rigid risers for overhead installation. Equipped with adjustment and shut-off valve. Blister of 5 pcs.

360° 180°



91249  
91248

360°



91250

## 360° ADJUSTABLE MICRO-SPRINKLER

(cod. 91252)

For installation into the 1/2" (13-16 mm) main tube, the 1/4" (4-6 mm) feeding tube, or on fitted rigid risers. Suitable for watering circular areas. Equipped with flow adjustment and shut-off valve.



91249

BAR	0.5	1.0	1.5	2.0	2.5
l/h	22	34	46	52	72
Øm	3.0	3.5	4.5	4.0	4.0

91248

BAR	0.5	1.0	1.5	2.0	2.5
l/h	17	33	45	59	61
Øm	1.2	2.0	2.2	2.2	2.5

91250

BAR	0.5	1.0	1.5	2.0	2.5
l/h	48	90	120	142	165
Øm	3.0	5.0	6.5	7.5	8.5

## 0-33 L/H STAKE-MOUNTED DRIPPER

Flow rate is adjustable from 0 to 33 Litres per hour. Ensures precise and localised irrigation at plant base. Flow rate is adjustable according to various plant requirements. Easily disassembled for cleaning. Rinse head under running water to clean.

91228



POSIZIONE	4	10	14	18	22
l/h	4	13	22	34	38
Øm		1.7	2.7	2.8	



## 4 L/H STAKE-MOUNTED DRIPPER

Ensures precise and localised irrigation at plant roots. Fitted with open/shut-off valve and easily disassembled for cleaning under running water. Install at the end of 1/4" (4-6 mm) feeding tube.

91227



BAR	0.5	1.0	1.5	2.0
l/h	2.8	4.0	4.9	5.6



# DRIPPERS

For every type of system, terrace or garden, from seedlings to flower beds, there is a dripper suited to all your needs: with fixed or adjustable flow rate, directly installed onto the main or feeding tube, in series, or fitted on a stake.



## 0-6 L/H LINE-END DRIPPER

Adjustable from 0 to 6 litres for calibrated irrigation, to plants' different needs and soil type.



91209  
91211  
91213



## 0-6 L/H IN-LINE DRIPPER

Adjustable from 0 to 6 litres for calibrated irrigation, to plants' different needs and soil type.



91217

## 0-40 L/H ADJUSTABLE DRIPPER

For direct installation into the 1/2" (13-16 mm) main tube or into the 1/4" (4-6 mm) feeding tube. Flow rate adjustable from 0 to 40 litres per hour. Easily disassembled for cleaning.



91225

## 0-6 L/H IN-LINE DRIPPER

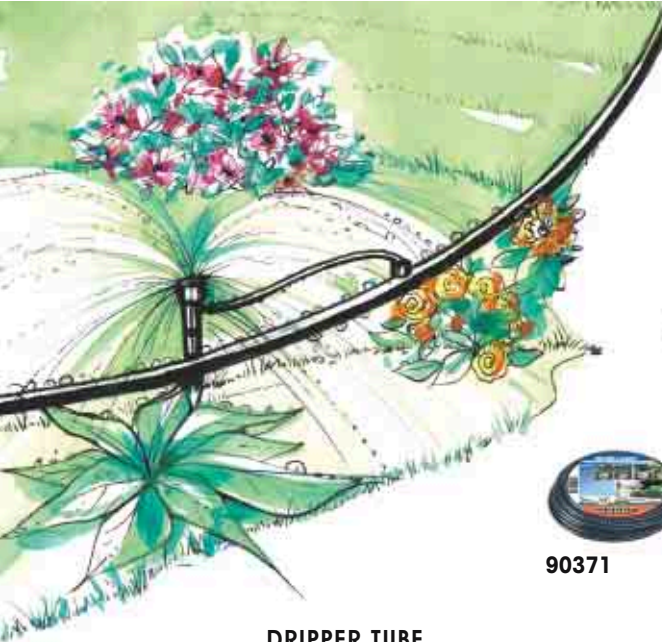
Adjustable from 0 to 6 litres for calibrated irrigation, to plants' different needs and soil type.



91222

claber





# HOSES

The main and feeding tubes make up the backbone of the entire system: a veritable water way that can be equipped with all accessory types, drippers or micro-sprinklers. The dripper tubes and soaker hoses are exceptionally efficient water distributors, connectable by means of QUICK-CLICK couplings.

## MAIN TUBE

1/2" (13-16 mm) polyethylene tube for the main line. Flexible and resistant to algae formation, low temperatures and solar radiation, 25 m and 50 m coil.



90366

90365

## FEEDING TUBE

1/4" (4-6 mm) tube for branching off the main tube. Supplies the in-line and end-of-line drippers. Flexible and resistant to algae formation, low temperatures and solar radiation. 5 m and 20 m coil.



90371

90370

## DRIPPER TUBE

1/2" (13-16 mm) polyethylene tube. Fitted with internal 2 l/h labyrinth drippers at 33 cm intervals which ensure even irrigation over the entire cultivated area. Reduced water consumption: operating 0.5-1 bar. 25 m and 50 m coil.



90355

90357

BAR	0.5	1.0	1.5	2.0
l/h	1.2	2.2	2.6	3.1

## SOAKER HOSE

Slowly diffuses the water through its capillary walls. Strong but flexible, designed to be laid around plants or with covering of soil. Continuous drainage even in freezing conditions. Suitable for low flow rates: operating pressure 0.5-1 bar. 15 m and 25 m coil.



90351

90350

BAR	0.5	1.0	1.5	2.0
l/h x m	5.5	48	66	83



**Oasis**  
Self-Watering-System



25 litres of water



## AN OASIS OF WELL-BEING FOR YOUR PLANTS

Holiday time, time for trips away, time for OASIS: the easy, versatile, definitive solution to the problem of watering plants when away from home. OASIS is the CLABER water distributor that guarantees made-to-measure watering for all requirements, in complete independence. It is equipped with an electronic system offering a choice of 4 different irrigation programs. A LED lights up to indicate when the distributor is in operation. A special internal device guarantees calibrated, constant watering. And all this with no taps left on, with no electrical connections and with no installation problems. You see to your holidays; OASIS will see to your plants!

	Description	Pcs.
	Distribution system	1
	Drippers	20
	Circuit hose	10 m
	Fixing stakes	20



# PRACTICAL “DIY” INSTALLATION

Installing a drip irrigation system is easy! For best results, simply follow the steps below:



1 Fit the electronic water timer with the pressure reducer (code 91040) to the tap. The water is supplied through a 1/2" hose or directly by a 1/4" feeding tube; connect it to the water timer by means of the automatic threaded connector (code 91494) and the coupling (code 91345).



2 The 1/2" hose can be used to create a veritable watering circuit ideal for large balconies; in this case, use the 1/4" feeding tube to connect each of the drippers.



3 The Claber hole puncher makes hose holes with the exact diameter required, for watertight connections between the hose and feeding tubes. The tool can also be used to adjust and tighten drippers.



Cut lengths of the 1/4" hose to measure. After making holes in the 1/2" tube for each branching, connect each length to the 1/2" tube by means of the 2-way connector (code 91155). For greater flexibility and control of water flow to each branching, a tap can also be used for each feeding tube.



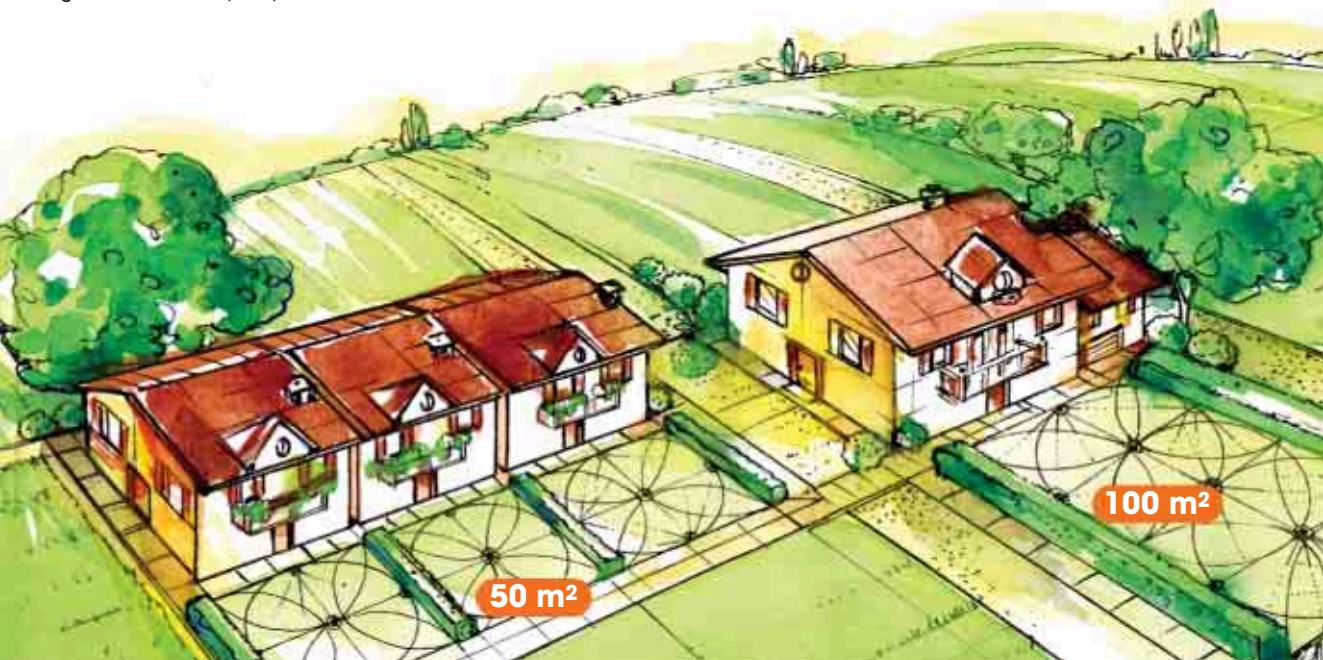
Fit the drippers to the 1/4" tube in such a way that they are near the plants to be watered, along the path of the tube marked out by the stakes. Once installation has been completed, all you have to do is set the water timer (and don't forget to turn on the tap)!

# COLIBRÌ SYSTEM

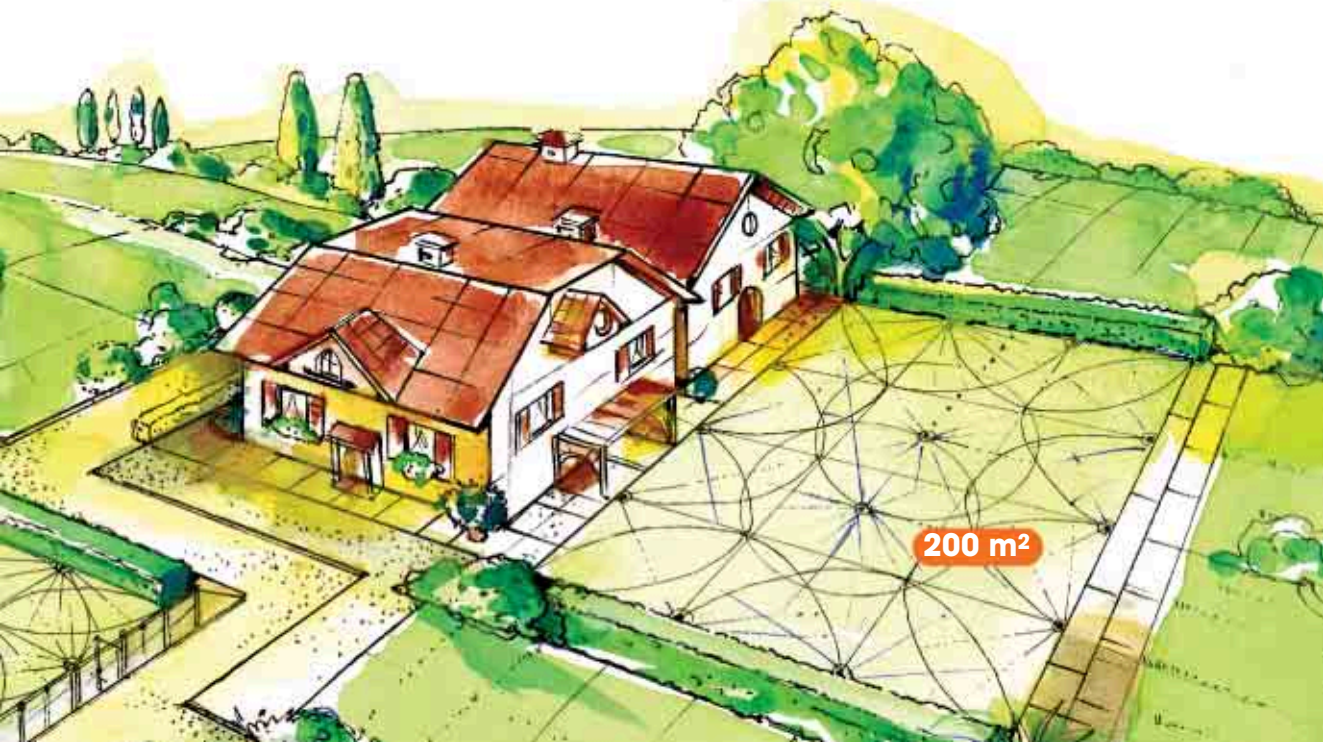
With the new Colibri System, all the advantages of the underground irrigation system are finally accessible for small gardens too. A simple, convenient idea, designed with DIY in mind, it comes complete with everything the gardener needs: from the new Colibri pop-up micro-sprinklers, 1/2" polyethylene tube, the push-on couplings for all types of lay-outs, through to the drainage valve (to protect the system from even the coldest winters) and battery-powered timers, to ensure that lawns and gardens are watered at the best time of the day, even when the owner is away or on vacation. All this, with one extra advantage: total Claber quality, certified ISO 9001.

## Daily water requirement (in litres)

	1st system	full development
lawn	4 l per sq m	
hedge	4 l/running m	8 l/running m
shrubs	8-16 l/running m	as per lawn
garden	3 l per square metre	



The Colibri System has been designed especially for gardens between **50 m<sup>2</sup> and 200 m<sup>2</sup>**. As the examples show, all areas can be covered perfectly by selecting and combining different micro-sprinkler types: 90°, 180° and 360°. Irrigating with the right amount of water is good for the garden, and for the gardener's pocket. Water is without doubt a precious resource - and thanks to the versatility, watering uniformity and low pressure requirements of Colibri System micro-sprinklers, you'll be able to use it to maximum advantage, down to the last drop. And you can also program the system watering cycles for the best possible time, whatever the climatic conditions or the type of garden, with the help of the table shown on this page.



# PRODUCTS



91494

## 3/4" AUTOMATIC ADAPTOR

Used to connect the pressure reducer, 1/2" (13-16 mm) main hose adaptor, 1/4" (4-6 mm) threaded hose adaptor, and other accessories with 3/4" female thread to electronic timers.



91345

## 1/2" 1/4" HOSE THREADED ADAPTOR

For direct connection of 1/2" (13-16 mm) and 1/4" (4-6 mm.) tubes to taps with 3/4" (20-27 mm) thread.



91589

## 3/4" MALE THREADED TWO-WAY ADAPTER

For taps with 3/4" thread; enables assembly of two electronic timers, pressure reducers, etc.



91082

## 1/2" (15-21 MM) THREADED ELBOW

Used for end line connection of "Colibri" underground micro-sprinklers (cod. 90210 - 90220 - 90230). With 1/2" (13-16 mm) to main hose. Blister of 2 pcs.



91071

## 1/2" TEE

Enables coupling of three 1/2" (13-16 mm) main tube sections. Blister of 2 pcs.



91072

## 1/2" (15-21 MM) THREADED 3-WAY CONNECTOR

Used for connecting underground "Colibri" micro-sprinklers in series (cod. 90210 - 90220 - 90230). With 1/2" (13-16 mm) main hose. Blister of 2 pcs.



91096

## TUBE CLAMP

For use when pressure in the 1/2" (13-16 mm) main tube exceeds 1.5 Bar. Blister of 10 pcs.



91081

## 1/2" ELBOW COUPLING

Enables coupling of two 1/2" (13-16 mm) main tube sections. Blister of 2 pcs.



91076

## 1/2" COUPLING

Enables coupling of two 1/2" (13-16 mm) main tube sections. Blister of 4 pcs.



90250

## GUARD COLLAR

For optimum installation of "Colibri" micro sprinklers traps sand and pebbles from the soil. 1 Pc bag



91086

## 1/2" END STOPPER

To shut off water flow at the end of 1/2" (13-16 mm) main tube. Blister of 4 pcs.

For more information on watering timers, see page 13.





90365

90366

**MAIN TUBE**

1/2" (13-16 mm) polyethylene tube for the main line. Flexible and resistant to algae formation, low temperatures and solar radiation, 25 and 50 m coil.



90230

**90° - 2"**

**MICRO-SPRINKLER**  
Underground micro-sprinkler with low water consumption. Ideal for watering vegetable patches and small gardens, even at low pressure. Gear-driven device made from acetal resin. Stainless steel range adjustment screws. Gentle rain effect over a 90° area. Micro-sprinkler is connected

to the 1/2" (13-16 mm) main hose by means of 1/2" (15-21 mm) threaded 3-way connector (cod. 91072) or 1/2" (15-21 mm) threaded elbow (cod. 91082).



90220

**180° - 2"**

**MICRO-SPRINKLER**  
Underground micro-sprinkler with low water consumption. Ideal for watering vegetable patches and small gardens, even at low pressure. Gear-driven device made from acetal resin. Stainless steel range adjustment screws. Gentle rain effect over a 180° semi-circular area. Micro-sprinkler is

connected to the 1/2" (13-16 mm) main hose by means of the 1/2" (15-21 mm) threaded three way connector (cod. 91072) or 1/2" (15-21 mm) threaded elbow (cod. 91082).



90210

**360° - 2"**

**MICRO-SPRINKLER**  
Underground micro-sprinkler with low water consumption. Ideal for watering vegetable patches and small gardens, even at low pressure. Gear-driven device made from acetal resin. Stainless steel range adjustment screws. Gentle rain effect over 360° circular area. The micro-sprinkler is

connected to the 1/2" (13-16 mm) main hose by means of the 1/2" (15-21 mm) threaded 3-way connector (cod. 91072) or 1/2" (15-21 mm) threaded elbow (cod. 91082).



90920

**THREADED DRAINAGE VALVE**

Used for automatic drainage of the hose circuit.

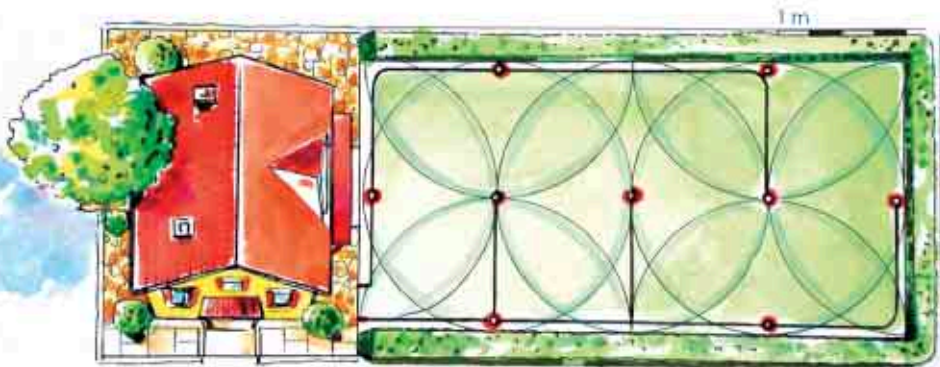
Recommended for zones subject to cold winters.

With connector for 1/2" (13-16 mm) hose. Blister of 1 pcs.

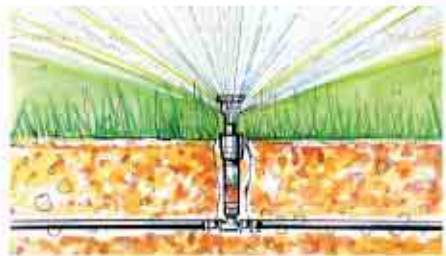
# PLANNING

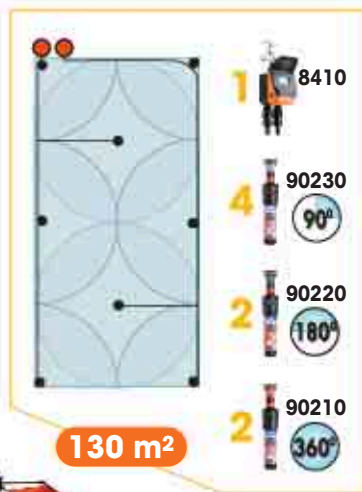
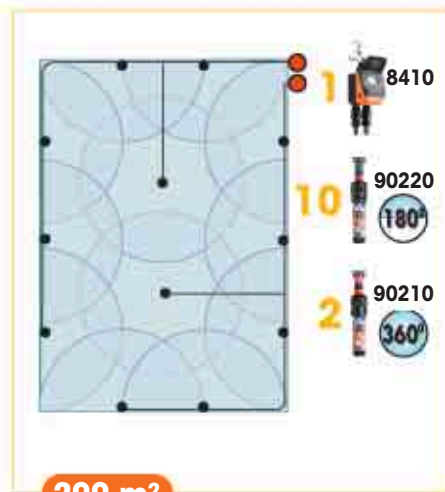
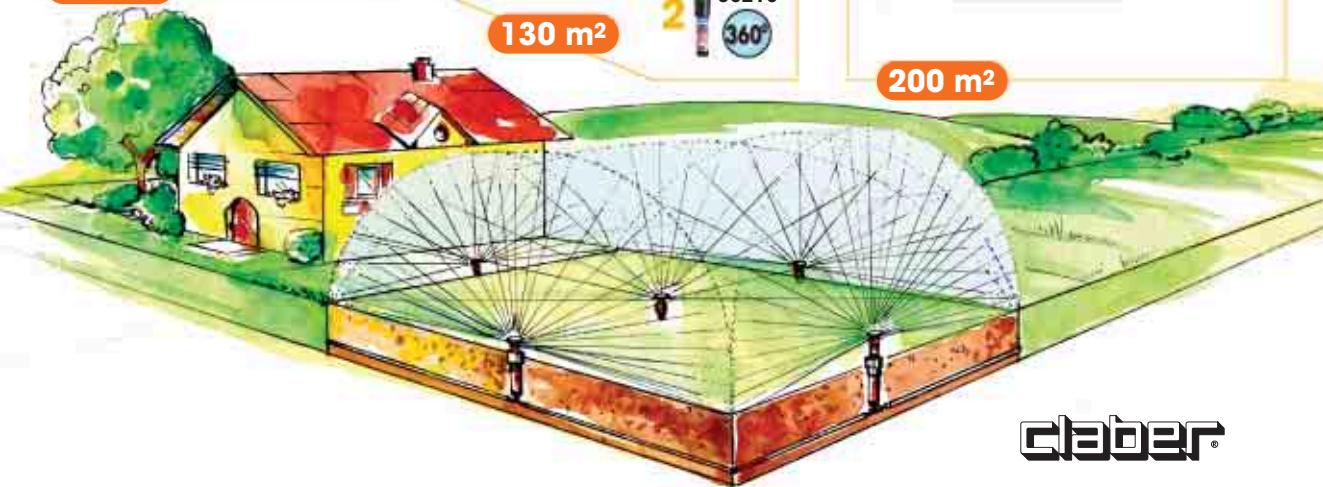
To plan your own system, prepare a scale plan of your garden and use a compass to mark the circles (360°) or sectors (90° and 180°) of the areas to be watered, as shown in the example alongside. For best results, position the 90° sprinklers in the corners, the 180° sprinklers along the perimeter of the garden or the house, and the 360° sprinklers in open spaces.

Now trace the path of the main tube to establish the required length. Refer to the table below for operating water pressure and performance data of each sprinkler.



	BAR	l/min	r.	m <sup>2</sup>
90°	1,5	1,1	4,2 m	13,8
	2,0	1,3	4,5 m	15,9
	2,5	1,5	4,7 m	17,3
180°	1,5	1,7	4,0 m	25,1
	2,0	2,0	4,5 m	31,8
	2,5	2,3	4,7 m	34,7
360°	1,5	3,3	3,7 m	50
	2,0	3,7	4,2 m	64
	2,5	4,2	4,5 m	71



50 m<sup>2</sup>130 m<sup>2</sup>200 m<sup>2</sup>

claber

# INSTALLATION GUIDE



To install the Colibri System, proceed as follows. First of all, plant a stake at each point where a sprinkler is to be installed. Now join the stakes with string to trace the path that will be followed by the main tube. At this stage, use a spade to mark out a trench along the path, pushing the blade to full depth. There's no need to dig; simply work the blade back and forth, as illustrated, to make a space in the ground that is sufficient for the tube, without actually removing any soil or damaging the turf.

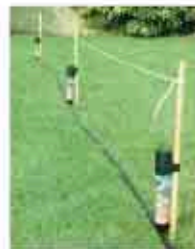


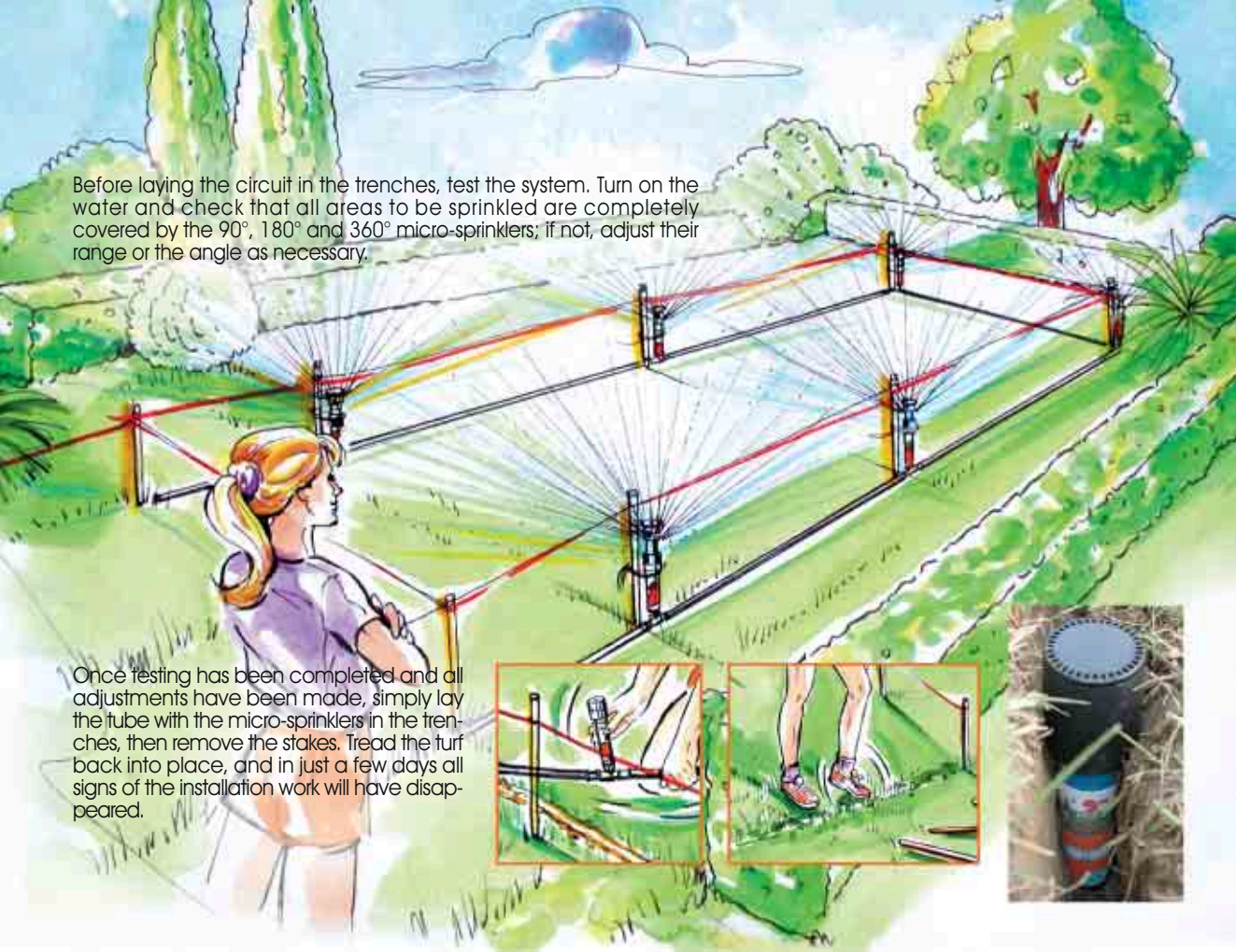


Once the path has been marked out, connect the 1/2" tube to the timer, then unroll it along the path and up to the first stake. Cut the tube to length with a pair of scissors, then fit the threaded tee (the connection can be made even more secure by using a clamp).



Screw the sprinkler onto the tee and set it temporarily on the stake, for example with a turn of insulating tape. Proceed with another length of tube and the next micro-sprinkler, and so on, until you have completed the entire circuit with the last sprinkler (or with the drainage valve or the plug).





Before laying the circuit in the trenches, test the system. Turn on the water and check that all areas to be sprinkled are completely covered by the 90°, 180° and 360° micro-sprinklers; if not, adjust their range or the angle as necessary.

Once testing has been completed and all adjustments have been made, simply lay the tube with the micro-sprinklers in the trenches, then remove the stakes. Tread the turf back into place, and in just a few days all signs of the installation work will have disappeared.



Colibri System micro-sprinklers are designed for easy and precise adjustment both of the watering range (i.e. the distance covered by the water jet) and of the operating position (for 90° and 180° models). To adjust the

watering range, simply disassemble the top of the micro-sprinkler and rotate the screw with a 3 mm Allen key. To alter the jet angle, raise and rotate the micro-sprinkler shaft.

Remember to carry out these operations before laying the circuit in the trenches; bear in mind also that the micro-sprinkler is factory-set to the maximum range.



For best results when installing Colibri sprinklers, fit a collar (code 90250) as shown in the example, to protect them against sand and pebbles in the ground.



# UNDERGROUND IRRIGATION

## Reasons for choosing a Claber Rainjet underground irrigation system

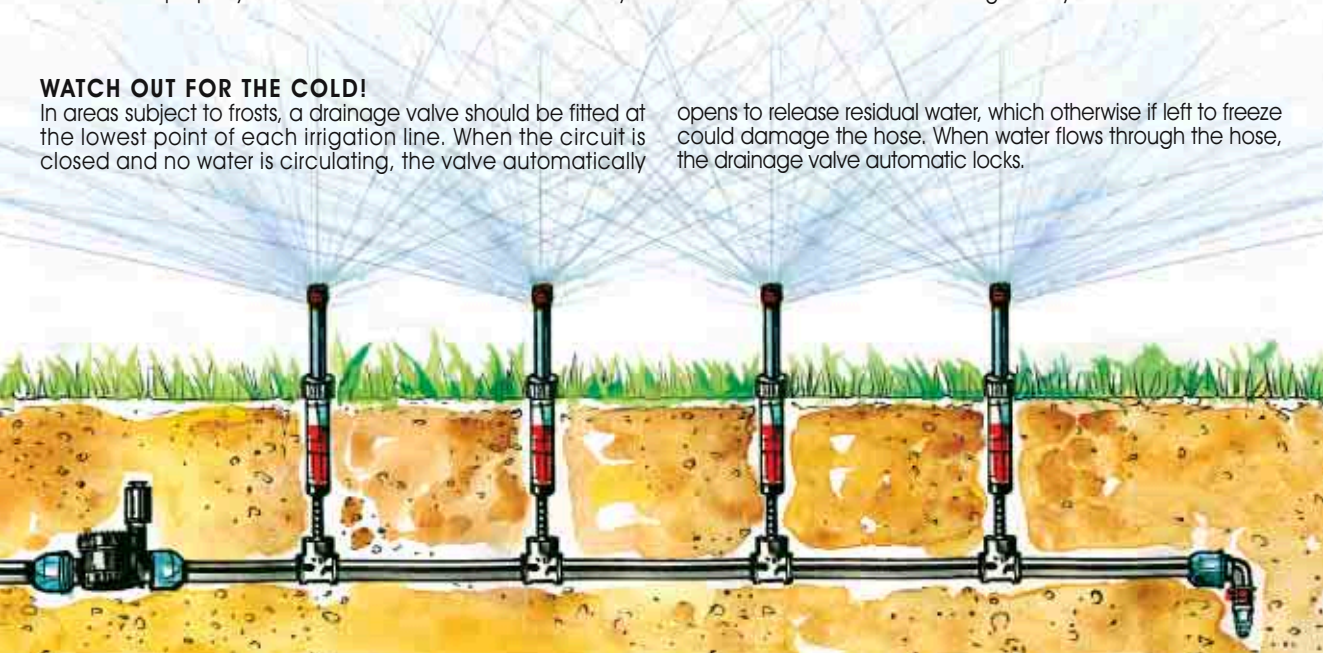
There are a lot of good reasons for installing an underground automatic irrigation system:

- the convenience of having your garden automatically watered, even when you're away or on holiday (no need to find someone to come and look after the garden);
- the knowing that all areas of the garden will get the necessary amount of water, without waste, assuring maximum economy;
- no hoses above ground to get in the way of the lawn mower – sprinklers are flush to the level of the lawn and are hardly noticeable;
- silent operation, causing no disturbance to neighbouring homes;
- increased property value – no well-tended lawn can today afford to do without an automatic irrigation system.

## WATCH OUT FOR THE COLD!

In areas subject to frosts, a drainage valve should be fitted at the lowest point of each irrigation line. When the circuit is closed and no water is circulating, the valve automatically

opens to release residual water, which otherwise if left to freeze could damage the hose. When water flows through the hose, the drainage valve automatic locks.



## MULTIPLA DC 9 V

Easy-to-program 6-line electronic timer: just turn the 6 dials to set the required irrigation schedule: 5 - 10 - 15 - 20 - 30 - 60 minutes. There is a frequency control for selecting the repetition of the watering programme at predefined intervals.



**8018**  
**8020**

## COMETA TIMER

Large liquid crystal display to facilitate reading of set data. 3-button programming system. Duration of irrigation from 1 minute to 4 hours on each line.

Two daily programs with 4-6 start-ups per day Weekly programming facility (from 1 to 15 days). Water budget facility to adjust set time by 10-150%. Rain-stop push-button to interrupt programs in the event of rain.



**8014**  
**8016**

## 9 V SOLENOID VALVE

Works with the Multipla 9 V timer or with the 9 V control unit. With 1" and 3/4" inlet and outlet thread. Stainless steel metal components. Solenoid with faston type connectors. Operating pressure from 0,5 to 12 bar.

**90882**  
**90883**  
**90884**



## 24 V SOLENOID VALVE

Operates with all types of multi-line timers at 24 v. ac. With 1" and 3/4" inlet and outlet thread. Body in fibre glass reinforced nylon. Optional manual opening/shut-off control. Solenoid with faston type connectors. Operating pressure from 0.5 to 12 bar.

**90892**  
**90893**  
**90894**



## 1" E 3/4" PROGRAM. SOLENOID VALVE

Can be installed directly on the tap or water well outlet. Operates with a 9 v. battery; sufficient for an entire season.

**90895**  
**90896**



## RAIN SENSOR

Suitable for all watering systems, the rain sensor avoids unnecessary wastage of water by turning the sprinklers off when it is raining.

**90915**



## SEALED CONNECTOR

For connecting the solenoid valves to the water timer. Guarantees a perfectly water-tight seal. Header bag of 2 pcs.



**90035**

# COMPRESSION CONNECTORS AND ACCESSORIES

Circuit installation is made easy by compression connectors, with lock rings to ensure a watertight fit and long life. No glue or clamps required. For 3/4" and 1" polythene tubes.



90808

## 1" F. X 1" M. ELBOW

For connecting solenoid valves in series o-ring seal.



90807

## 1" F. X 1" M. ELBOW

For connecting a solenoid valve o-ring seal.



90805

## 1" M. X 1" M. NIPPLE

For connecting solenoid valves with o-ring seal connectors code 90807 - 90808.



## MAIN TUBE CONNECTOR

For connecting 1" input thread solenoid valves in series. Allows quick no tool/no teflon tape fitting.



90426-90427

## ELBOW CONNECTOR

For installation on main polyethylene tube after cutting and joining two tube sections. Used with 3/4" threaded extension



90274  
90424  
90374  
90524

## CONNECTOR F. 3/4" AND 1" THREAD

For connecting a polyethylene tube to a 3/4" threaded tap or solenoid valve with male 3/4" and 1" thread.  
For branching off a 1/2" polyethylene tube with 3/4" threaded male connector.



90271  
90420  
90421

## 1" AND 3/4" COUPLING

For connecting a polyethylene tube to a female threaded water supply or solenoid valve.

## THREADED EXTENSION

For fitting sprinklers to the polyethylene tubes (with compression connectors). Can be cut to the height desired. With 3/4"-3/4" or 3/4"-1/2" thread.



90756  
90765  
90757



90275  
90419

## 1" E 3/4" COUPLING

For connecting two polyethylene tubes or repairing a punctured tube.



### “T” WITH Ø 1” AND 3/4”CONNECTORS

For connecting three polyethylene tubes to create a branch.



90272  
90422

### Ø 1” AND 3/4” “T” WITH 3/4” THREAD

For installation on main polyethylene tube after cutting and joining two tube sections. Used with 3/4” female threaded adapter



90416  
90418

### Ø 1” AND 3/4” ELBOW CONNECTOR

For joining two polyethylene tubes at right angles.



90270  
90417

### Ø 1” AND 3/4” ELBOW WITH F. 3/4” THREAD

For connecting a threaded coupling or drainage valve to the end of the line.



90273  
90423

### Ø 1” AND 3/4” END-OF-LINE PLUG

For closing off one end of the polyethylene tube.



90277  
90425

### Ø 1”AND 3/4” BRACKET COUPLING

For installing a sprinkler on the main line without cutting the tube. Female 3/4” threaded connector.



90276  
90450



90910

### DRAINAGE VALVE

For automatic circuit draining. Especially useful in areas with cold winters. Bronze with 3/4” male thread and reducer to 1/2”.



90500

### CIRCULAR VALVE BOX

Circular valve box with snap closure lid. Lateral openings at the base. (Max. 1 valve).



90510 - 90515

### RECTANGULAR VALVE BOX

Rectangular valve box with tamper-proof lid. Resistant to high and low temperatures and UV radiation. 90510 Max 5 valves. 90515 Max 4 valves.



90380 - 90385  
90390 - 90395

### PE TUBE

Coils of PN6 polyethylene tube for compression connectors. Flexible, resistant to algae formation and low temperatures. 25 and 50 m coil. 3/4” and 1” thread.

**cleber**



90474

### MEDIUM-JET TURBINE SPRINKLER

Medium-jet turbine sprinklers with interchangeable nozzles. A working range that can be adjusted from 40° to 360°, with just a simple cross-head screwdriver. Internal removable filter. Screw base from 1/2" up to 4" (10cm).



90478

### GEAR DRIVE SPRINKLER

Long range jet rotating sprinkler with interchangeable nozzles. Adjustable from 30° to 360° without extraction of the mechanism. Slits for eliminating any sand in the water. Removable internal filter. Silent operation due to internal lubrication. 3/4" Threaded base - 4" (10 cm) riser. Adjusting spanner supplied..



90460



4,9-6,4 m

90462

90464



7,6-9,1 m

90466

Dynamic professional sprinkler, low water consumption with an adjustable 90-210° jet. Excellent wind resistance, uniform and constant fall at all working angles or selected radius. Steel cross-head screws for jet regulation, special knurled ring for manual adjustment of the work arc without use of tools. Washable, visible filter.



90139

### MULTI-JET TURBINE

Exclusive system that allows you to rapidly rotate the pop-up sprinkler rod and select 8 nozzles with different flows and jet ranges suitable for any area requiring watering. The special adjustment screw allows you to vary the angle of rise of the jets: standard angle 26° - low angle 12°. The operating sector can be varied from 35° to 360°. Extractable internal filter. Height from ground 5" (12.5 cm). 3/4" female threaded base. Adjusting spanner provided.





The new range of Claber "Pop-Up" sprinklers are based on professional experience. Designed to meet all watering requirements, they combine simplicity of use with outstanding functional characteristics.

### 0-350° ADJUSTABLE POP-UP

Professional static sprinkler with 0-350° adjustable head. The nozzle has a specially designed profile to ensure uniform and balanced water distribution. The standard 1/2" female connector allows it to be mounted on existing systems.



BAR	90°	180°	270°	360°	RADIUS	
	l/min	l/min	l/min	l/min	m	m
1,5	2,8	5,3	7,7	9,2	4,0	5,7
2	3,3	5,8	9,0	10,8	4,5	6,4
3	4,0	6,9	10,8	13,0	5,0	7,1

✓ = SPACING (m)



**90041-42-43**



**90044**

BAR	l/min	m <sup>2</sup>	RADIUS m	
			✓	✓
1,5	8,2	43,0	3,7	5,3
2	9,5	50,3	4,0	5,7
3	11,5	56,7	4,3	6,0



**90133**



**90134**

BAR	l/min	m <sup>2</sup>	SIDES m	
			✓	✓
1,5	8,9	36,0	6x6	5,5
2	10,3	49,0	7x7	6,3
3	12,6	64,0	8x8	7,3

**90007**



### ADJUSTABLE HEAD

Made of shock-resistant ABS plastic. Filter with support provided. Stainless steel jet range adjustment screw. Compatible with other brand sprinklers.



**90053-54-55**



**90056**

BAR	l/min	m <sup>2</sup>	RADIUS m	
			✓	✓
1,5	5,1	25,1	4,0	5,7
2	6,0	29,0	4,3	6,0
3	7,1	31,8	4,5	6,4



**90109**



**90110**

BAR	l/min	m <sup>2</sup>	SIDES m	
			✓	✓
1,5	6,8	13,2	12,0x1,1	1,2
2	8,2	17,2	13,2x1,3	1,2
3	10,2	20,3	13,5x1,5	1,2



**90095-96-97**



**90098**

BAR	l/min	m <sup>2</sup>	RADIUS m	
			✓	✓
1,5	2,8	8,6	3,3	4,6
2	3,2	9,6	3,5	4,9
3	3,9	12,6	4,0	5,7



**90121**



**90122**

BAR	l/min	m <sup>2</sup>	SIDES m	
			✓	✓
1,5	3,8	8,0	8,0x1,0	1,1
2	4,4	9,1	8,3x1,1	1,1
3	5,4	11,2	9,3x1,2	1,1

✓ = SPACING (m)

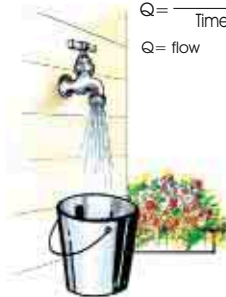
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# HOW TO PLAN AN UNDERGROUND IRRIGATION SYSTEM

## CHECK THE AVAILABILITY OF WATER

### MEASURE THE WATER PRESSURE

Close all household taps. Fit a pressure gauge to an outdoor tap, then open it completely (STATIC pressure). Ask your plumber to lend you a pressure gauge, or hire one. Take the measurement at different times during the day and night.



$$Q = \frac{\text{Container capacity (e.g. 10 litres)}}{\text{Time taken (e.g. 20 seconds)}} \times 60 = \frac{10}{20} \times 60 = 30 \text{ litres/min}$$

$Q = \text{flow}$

### MEASURE THE AVAILABLE WATER FLOW

Simply time how long it takes to fill a recipient with known volume.



## PLANNING

Use a compass to mark the circumference or circle sectors reached by each sprinkler, until the entire surface is covered. For best results, position the 90° sprinklers in the corners of the patches to be watered, 180° sprinklers along garden strips, and 360° sprinklers in open spaces. The examples given in this booklet show the arrangement necessary to cover long and narrow areas evenly. The circumferences, as seen in the examples, meet to guarantee total coverage of ground and the even distribution of water in all points. When arranging the sprinklers, refer to the recommended spacing indicated in the tables on page 40.

## DIVIDE THE AREA INTO CIRCUITS

Referring to the sprinkler output table, write in the water consumption (in l/min.) next to each sprinkler. Group the sprinklers into distinct areas (use different colours), summing progressively the water consumption.

Make sure that the water consumption in each area does not exceed the available flow. You should aim at creating a well-balanced system, i.e. each circuit should have the same water consumption.



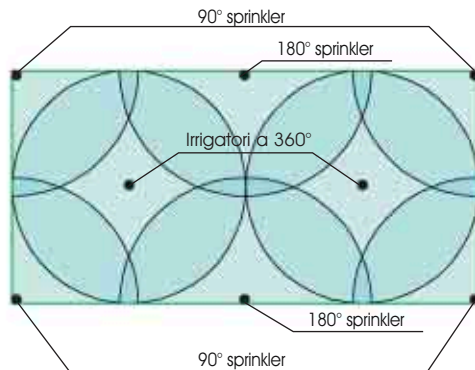
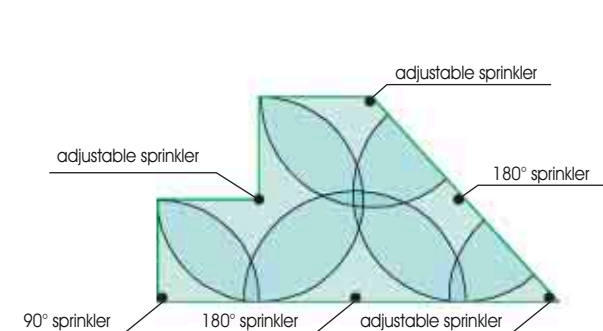


## MARK THE LAYOUT OF TUBES

Starting from the point where the solenoid valves controlling each single circuit will be installed, mark in the tube connecting each valve to the sprinklers (previously grouped into areas), thereby drawing independent valve circuits. Since trenches will have to be dug to lay the pipes, mark in straight lines, avoiding as far as possible driveways, terraces and other obstacles.

The diagrams on the following pages give examples of the positioning of sprinklers. Bear in mind that:

- 90° sprinklers should be positioned in garden corners;
- 180° sprinklers should be positioned along garden strips;
- adjustable sprinklers are best used for 270° or irregular angles;
- 360° sprinklers should be positioned in central open spaces.



## FLOW RESISTANCE

Don't forget pipe FLOW RESISTANCE: refer to the pressure loss table indicating the values to be subtracted from the original static pressure available.

The DYNAMIC pressure obtained should be sufficient to guarantee correct sprinkler operation.

### FLOW RESISTANCE IN 3/4" AND 1" DIAMETER TUBES (IN BAR) FOR EVERY 10 METRE LENGTH

Flow l. / min	Int. diam. 3/4"	Int. diam. 1"
18	0.0592	0.0202
24	0.0997	0.0341
30	0.1493	0.0511
36	0.2078	0.0712
42	0.2747	0.0941



## PRACTICAL "DIY" INSTALLATION

Go into the garden and turn your project into an efficiently operating reality. A set of solenoids controls the opening and closing of irrigation circuits.



The water supply line to the valves is subject to the entire amount of static pressure (when the circuit is closed); for this reason it should be made from a watertight metal pipe.



As a rule, the diameter of the tube connecting the valves to the service line should not be less than the diameter of the valves.



It is also a good idea to fit a gate valve upstream to shut off the entire system when necessary, for example when maintenance work is required.

Once the solenoid valves have been connected to the main water supply pipe, take your plan and mark the path of tubes of each sprinkler circuit.

Plant a stake at each point where a sprinkler is to be installed. Now join the stakes with string (or with chalk powder on the ground) to trace the line of each circuit tube, from the solenoid valve to the sprinklers.



Unroll the polyethylene coil, from the valves to the stakes, along the marked path. Put the "T" or connector couplings and the drainage valves in the position for installation. Straighten the tube properly before cutting it to length (better too long than too short). Use a hacksaw to cut the tube; clean cut ends with a scraper before fitting compression connectors to ensure a completely watertight connection.

To avoid damaging the lawn, heap the dug earth on plastic sheeting, then remove when finished.



Use a spade to dig a trench at least 20-25 cm deep. This won't take much of an effort, and should be enough to protect the pipes against winter frost.



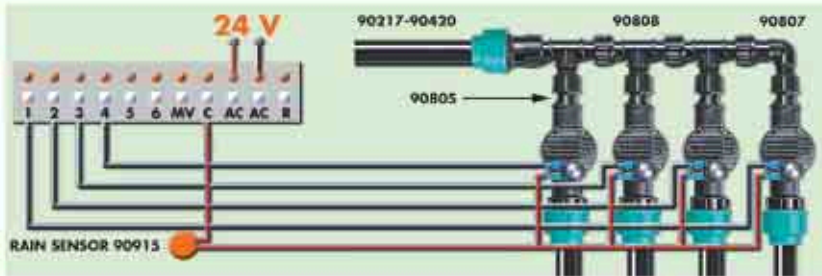
At each stake, place a sprinkler and the threaded bracket extension coupling (before applying the extension, drill a hole in the tube with a 10 mm bit) on the ground.



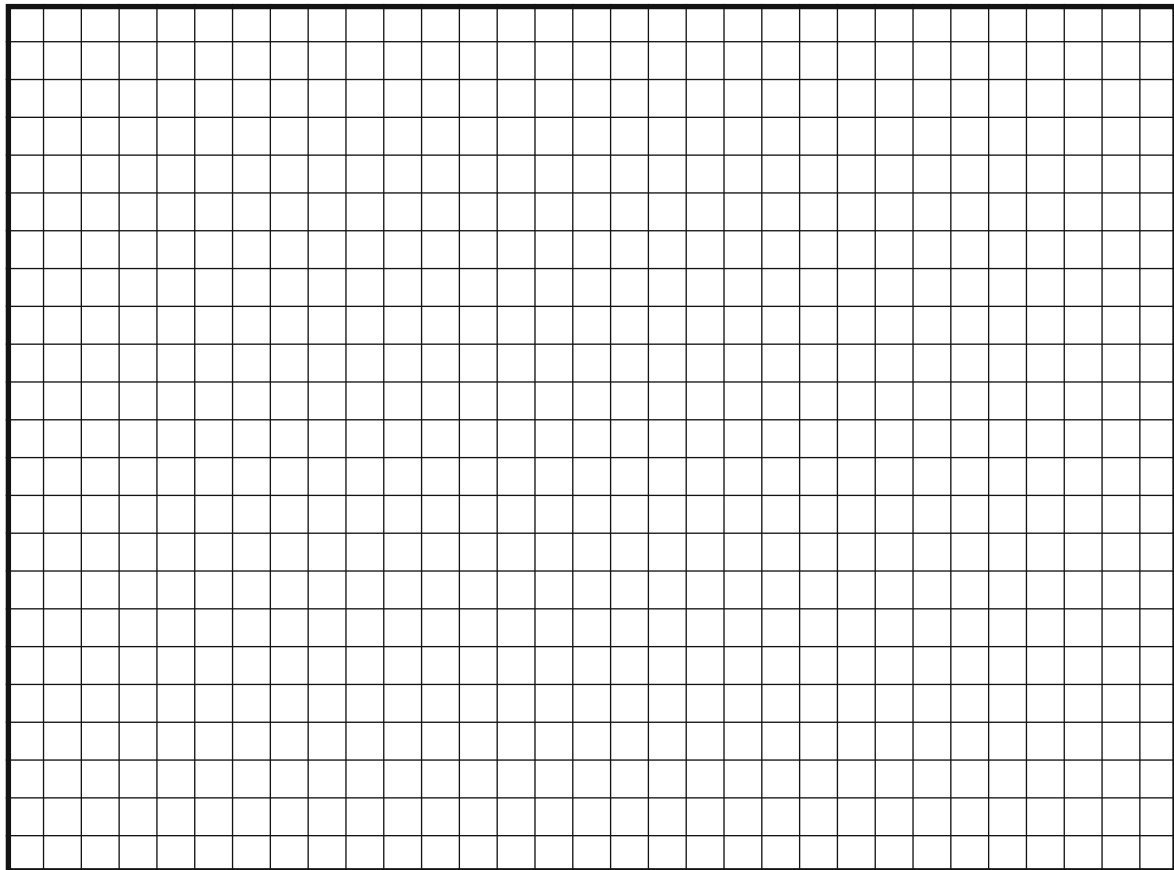


Once the desired coverage is obtained and the circuits have been arranged, lay the tube in the trenches. Make sure that the sprinklers are positioned flush to the terrain surface; the threaded extension supporting the sprinkler can be segmented to adjust sprinkler height. Now connect up all tube lengths

between the sprinklers and the valves. Fix the sprinklers in a vertical position (tie them to the stakes with string), then open the valve (in sequence) to test circuit operation. Shift the sprinklers as required to achieve perfect coverage of the watered ground.



At the end of installation, the circuit should be emptied of all residues and earth. To do so, simply unscrew the head from each sprinkler and open the valves; the water pressure will flush the circuit clean. Screw the heads back on the sprinklers, then fill in the trenches and level to the surrounding area (and the upper edge of the sprinklers). Your irrigation system is now complete and ready for operation, controlled by an automatic watering timer.



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