

Arena WET HANDBOOK

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Equestrian Systems

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INTRODUCTION

The quality of any equestrian surface stands and falls with its maintenance and irrigation. Given its scarcity in so many parts of the world, the conservation of water is an ever-present issue. That's why agriculture tends to use drip irrigation. ArenaWet brings the advantages of drip irrigation into equestrianism. ArenaWet allows water savings of up to 70 % compared with conventional irrigation to be achieved. ArenaWet classic consists of PVC mats with an integrated hose system. The soft version, made of thermally bonded PU foam, also has a cushioning effect. Both versions offer a combination of irrigation with a separating layer, yet still enable a drainage function. Irrigation with ArenaWet delivers an evenly moistened footing and reduces the formation of dust. Installation is a simple operation, whether in an indoor or outdoor riding arena, in the paddock or on a racecourse. Once the controller has been programmed, irrigation is performed entirely automatically, allowing riding at any time.

ECONOMIC EFFICIENCY AND ECOLOGICAL RESPONSIBILITY

CONTENTS

05 Reference

06-07 General Technical Data & Operating Data

08-09 Preparing the Riding Arena

10-11 Tool & Parts List

12-17 Installation

18-19 Control box & Programming

20-21 Test Run & Repairs

22 Maintenance

23 Quality Statement

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ArenaWET classic

REFERENCE

>> Hi Mr. Bacher,

One year after our project aimed at replacing the sunlit grass field with an all-weather sand arena was completed, we wanted to take a moment to reflect back on it.

Following extensive consultation, the Bülach horseriding club opted for the Arena-Wet irrigation system offered by Bacher.

Our collaboration with the Swiss representatives of Bacher Products – RW Produkte – was professional and focused at all times. Events in disciplines such as show jumping, dressage and carriage driving were held successfully in the very first year of use.

Water consumption more than meets the expectations we had gained after visiting comparable facilities during the consultation phase. The total 4600 m² surface area of the riding area is irrigated evenly and to the desired quantity at all times.

The mechanism for adjusting the intensity of irrigation – for tournament or everyday operation – is also working perfectly. It was very important to us that the arena could also be used during the (automated) irrigation phases, as the system technician is only there periodically.

Thank you for the good work!

Michael Schaad
Bülach horseriding club



GENERAL TECHNICAL DATA & OPERATING DATA

WATER LIMITS

If ArenaWet is to deliver the best possible performance, the water and its quality play a decisive role. Possible sources of water include springs, rainwater or tapwater.* Depending on the size of the arena and the number of circuits, a water tank may be advantageous.

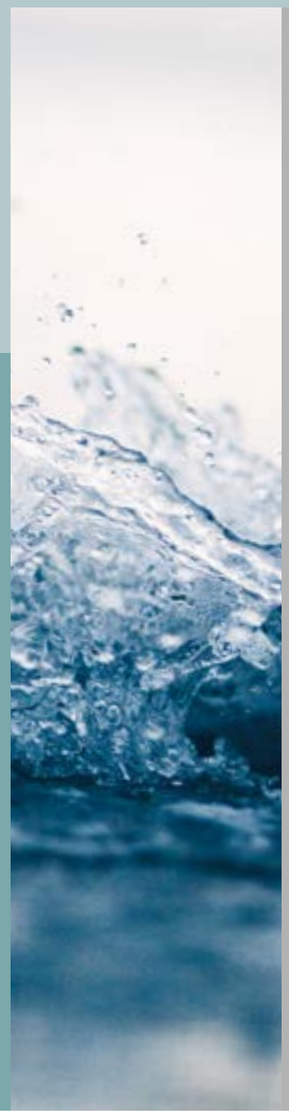
We also recommend having the water source analyzed beforehand by an independent laboratory to ensure it falls below the limits stated in the table. Should individual parameters exceed the limits for high risk, appropriate filter systems must be fitted upstream.

Repeat the analysis at regular intervals.

PARAMETER	RISK		
	LOW	MODERATE	HIGH
SUSPENDED SOLIDS (mg/l)	<50	50-100	>100
DISSOLVED SOLIDS (mg/l)	<500	500-1000	>2000
PH VALUE	<7	7-8	>8
CALCIUM (mg/l)	<10	10-50	>50
CARBONATE (mg/l)	<100	100-200	>200
LANGELIER INDEX	<0	0-0,5	>0,5
IRON FE (mg/l)	<0.1	0.1-1.5	>1.5
MANGANESE MN (mg/l)	<0.1	0.1-1.5	>1.5
HYDROGEN SULFIDES (mg/l) SH_2	<0.5	0.2-1	>2
BACTERIA POPULATION $n°/cm^3$	<10,000	10,000-50,000	>50,000

CALCULATING WATER CONSUMPTION

The water requirement of any riding arena depends on a number of factors, so it is not possible to give a blanket figure. Studies have shown that a moisture content of 20 % offers the ideal conditions for riding. This moisture content can vary, depending on the sand and riding discipline. Wind, sunlight and the intensity of use can also have an impact on the water requirement. ArenaWet offers the advantage that it reduces the amount of water needed to irrigate riding surfaces. Water savings of up to 70 % compared with conventional irrigation systems can be achieved.
The water consumption can be calculated roughly as follows:



TECHNICAL DATA

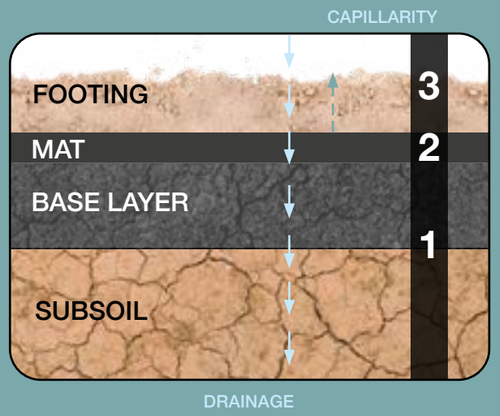
PARAMETER	ArenaWet classic	ArenaWet soft
MAT SIZE (L x W x H)	46.4 x 33.5 x 1.5 in 118 cm x 85 cm x 4 cm	169 x 6.5 ft 60 m x 2 m x approx. 3 cm
WATER VOLUME REQUIRED	4000-8000 l/h, depending on the size of the arena	4000-8000 l/h, depending on the size of the arena
PRESSURE	min. 4 bar max. 6 bar	min. 4 bar max. 6 bar
VOLTAGE FOR THE CONTROL BOX	230 V or 100 V (USA)	230 V or 100 V (USA)
DRIP LINE SPACING	approx. 22 cm	approx. 32 cm
DRIP / MEMBRANE SPACING	30 cm	30 cm
NUMBER OF DRIPS PER M^2	approx. 10	approx. 9
WATER THROUGHPUT PER HOUR PER M^2	1 l/h x 14 drips = 14 l/h	1 l/h x 10 drips = 10 l/h
CONSUMPTION EXAMPLE: IRRIGATION INTERVAL 3 x 3 MIN/DAY	3.5 l/m^2 per day	2.5 l/m^2 per day

* Always adhere to the local regulations governing water quality.

PREPARING THE ARENA SUBBASE

ARENA CONSTRUCTION

The following illustrations are provided for general guidance only. A civil engineer or arena builder will be able to give a precise assessment on site. Depending on the project and local conditions, further structural measures may be required. For this reason you should always think about consulting a specialist.





TRANSPOFIX
FÜGEL EQUESTRIAN CENTER, WOLFSCHLUGEN
ArenaWet classic

1 BASE LAYER

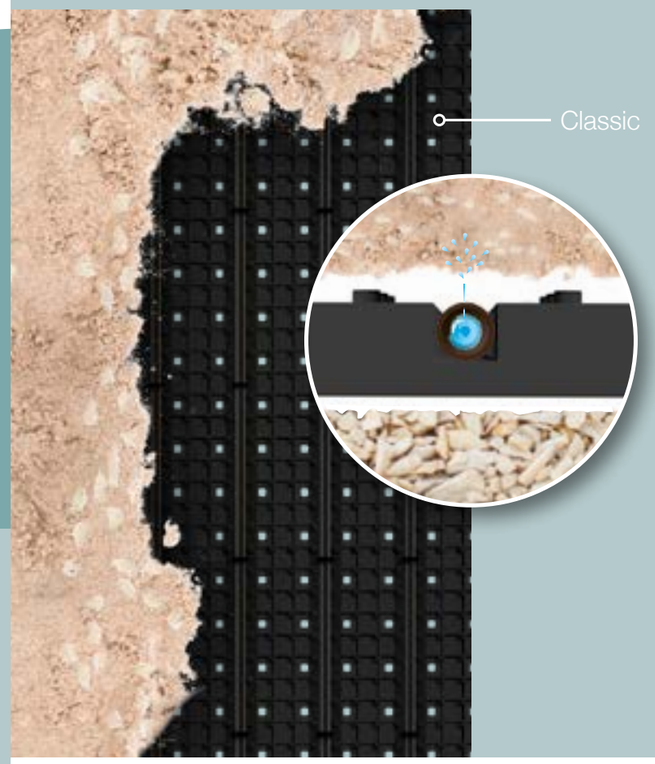
Subsoil and base layer

1. Remove the topsoil
2. Lay the base layer and stabilize it
   Suitable materials include gravel 0/32 frost protection, 0/32 recycling, 0/45 recycling
   Ensure there is a sufficient load-bearing capacity
3. Water-permeable layer (needed for outdoor facilities)
   Suitable materials include 5/32 or similar
   Plan a slope of 0.5 % to max. 1.5 % to allow heavy rain to drain off

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2 ARENAWET CONSTRUCTION

Mats with irrigation system





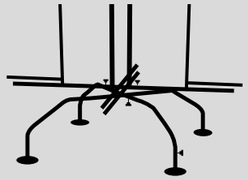


3 FOOTING/SAND

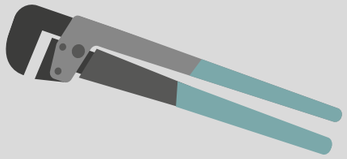
- Choose the sand with or without fabrics and fibers, depending on the intended use
- Make sure the sand has capillary capacity
- Footing min. 10-12 cm when set
- Regular care, with monitoring of moisture levels
- Regular leveling using a laser

TOOL LIST

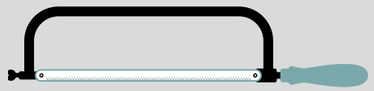
HOSE REEL



PIPE WRENCH



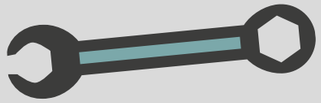
METAL JIG SAW



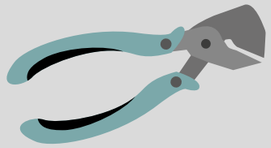
RUBBER HAMMER



30 MM OPEN-ENDED WRENCH



HOSE CUTTER



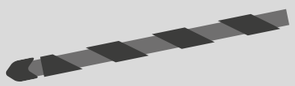
DEBURRER



CORDLESS SCREWDRIVER



DRILL (12 MM)

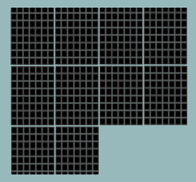


CUTTER/CARPET KNIFE

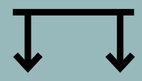


PARTS LIST

- ☐ MAT X-DIRECTION →
- ☐ MAT Y-DIRECTION ↓



- ☐ CLIPS



- ☐ DRIP HOSE ROLLS



- ☐ TAPPING CLAMPS



- ☐ PUSH-ON CONNECTOR



- ☐ SUPPLY PIPES (Ø 32 mm) In rolls or straight lengths



- ☐ CONNECTOR



- ☐ ANGLE CONNECTOR

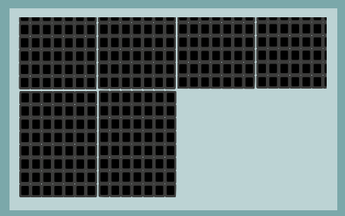


INSTALLATION

1 LAY OUT THE MATS (CLASSIC) / ROLL OUT THE MATS (SOFT)

1

Short side

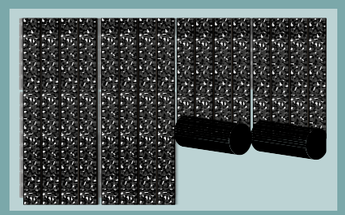


classic

Lay the ArenaWet classic mat with each short side abutting the next. Make sure you have the number of mats indicated on the plan. When laying them out, make sure the grooves in the mats are as straight as possible. Cut the mats to size. The mats can be laid with a joint spacing of approx. 1 cm (0.3 in) and should not be connected using clips.

i Mark out a cross in the middle and fill up with mats from there. The mats can also be laid in groups, but this may result in more waste.

Short side



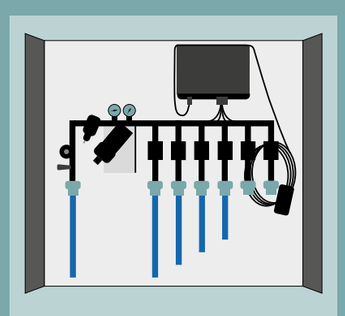
soft

The ArenaWet soft consists of rolls, which also have to be rolled out with each short side abutting the next. Where possible, do not lay offcuts at the end. Weight the sections down after rolling out and connect them using clips where they abut.

TOOLS Wheeled loader with pallet forks for distributing the pallets
Circular saw or jig saw for cutting the mats by hand.

2 POSITION AND SECURE THE CONTROL BOX AND VENT BOX

2



Attach and secure the control box.

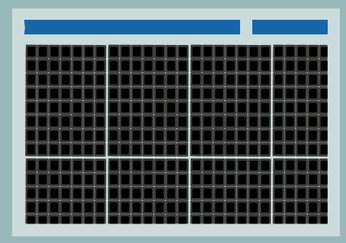
Attach the vent box on the opposite side and secure it in position.

TOOLS Hammer drill, suitable screws, dowels, cordless screwdriver

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3 INSTALL THE WATER SUPPLY STARTING WITH THE CIRCUIT FARTHEST AWAY

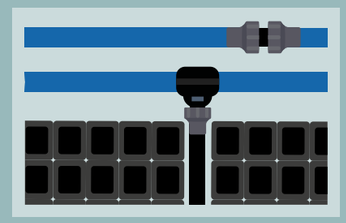
3



Connect the water supply for the individual circuits on the short side.

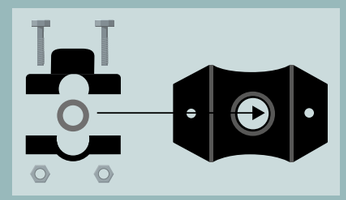
First lay the straight pipes (Ø 32 mm) out in front of the relevant circuit as shown on the plan, then mark the connecting points of the drip lines.

TOOLS Waterproof marker pen

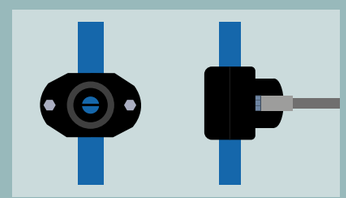


Starting with the circuit farthest away, bury the supply pipe deep without using tapping clamps so that the next circuit does not protrude too far.

You should generally bury it deep so that the drip hose runs slightly downward to the tapping clamp.

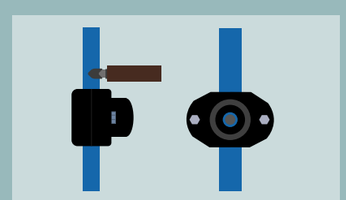


Open the tapping clamps and insert the O-ring to act as a seal.



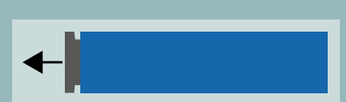
Fit the tapping clamp at the corresponding marking and screw it on. Repeat this process for all drip line markings of the circuit.

TOOLS One-handed clamp, cordless screwdriver, ratchet with 13 mm socket



Use a drill to establish the connection between the straight pipe and the tapping clamp.

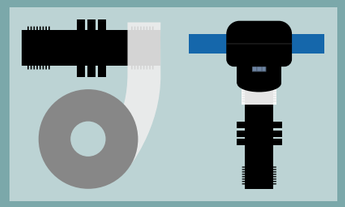
TOOLS Drill with limiter



Open the end cap of the pipe and knock out drilling waste. Fit the appropriate connecting element (e.g. straight coupler/angle connector).

INSTALLATION

3

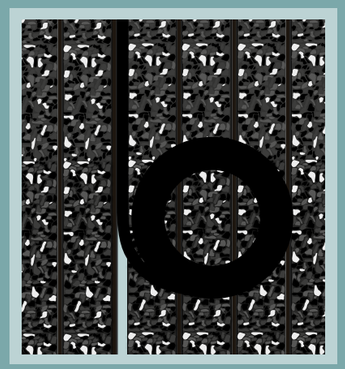


Wrap the plug connector in thread/Teflon tape and screw it into the tapping clamp, making sure that the thread is straight, and tighten carefully.

TOOLS Pipe wrench or open-ended wrench for tightening

4 LAY OUT THE DRIP HOSE

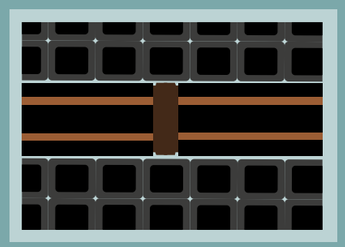
4



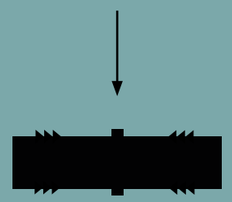
Unwind the drip hose and insert it into the groove, leaving approx. 10 cm of the drip hose projecting beyond the start and end of each line. Repeat this process for all lines.

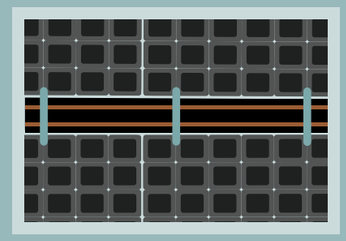
TOOLS Hose cutter, hose reel

i Teamwork! The simplest solution is for the reel to be placed at the start of a line and for someone to run the hose to the opposite short side. The second person makes sure that the drip hose is unwinding evenly and does not kink. If the length of the hose is cut to the appropriate length, it is easy for two people to lay it in the groove. The drip line can lie any way round in the groove.



Drip hoses can be connected to each other using push-in connectors.





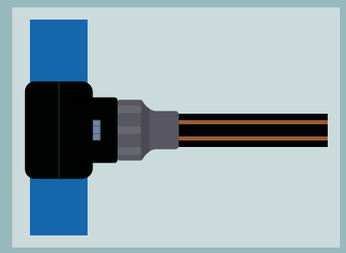
Use clips to secure the drip hoses every 1-1.5 m, but do not use more than 4 for each mat.

TOOLS Rubber hammer



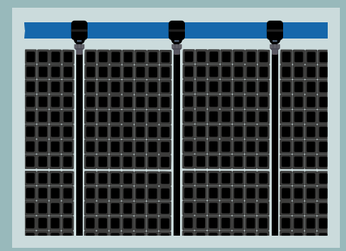
5 CONNECT THE DRIP HOSE TO THE SUPPLY PIPE

5



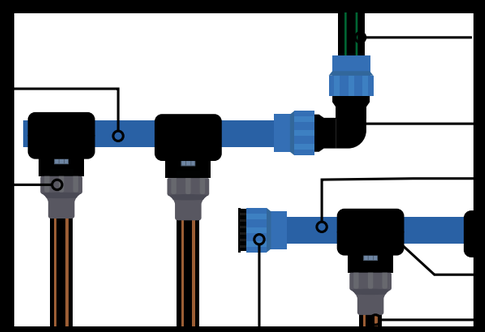
Cut the drip hose to length. Next, detach the gray cap from the push-in connector and pull it over the drip hose. Then fit the drip hose over the push-in connector up to the end. The gray cap can then be screwed back onto the push-in connector.

TOOLS Hose cutter



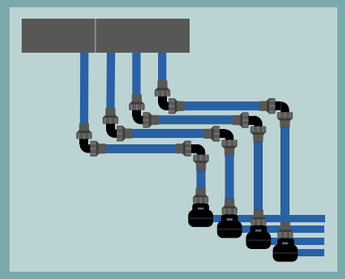
Repeat the process until all drip lines of the circuit are assembled.

OVERVIEW OF THE CONNECTING ELEMENTS OF THE WATER SUPPLY LINE TO THE INDIVIDUAL CIRCUITS



INSTALLATION

5



Establish the connection between the circuit and the control box using rolled pipes of Ø 32 mm.

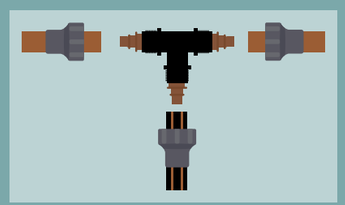
TOOLS Hose cutter up to Ø 40 mm

i Indicate the number of 90° elbows on the layout drawing

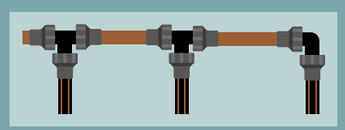
SEE PAGE 18 FOR AN OVERVIEW OF THE SUPPLY-SIDE CONNECTIONS IN THE CONTROL BOX

6 FIT THE VENTILATION LINE OF THIS CIRCUIT TO DRIP HOSES UP TO THE VENTILATION BOX

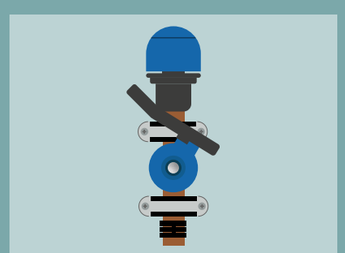
6



For each circuit the ventilation lines are connected to each other on the short side opposite the supply pipe. The hose diameter is 16 mm. T-connectors and 90° elbow connectors corresponding to the number of drip lines are connected to each other and laid up to the ventilation cabinet. Detach the gray cap from the connector and put it on the relevant hose, which must be cut to size at the corresponding place. Then attach the elements and screw them down with the gray cap again.

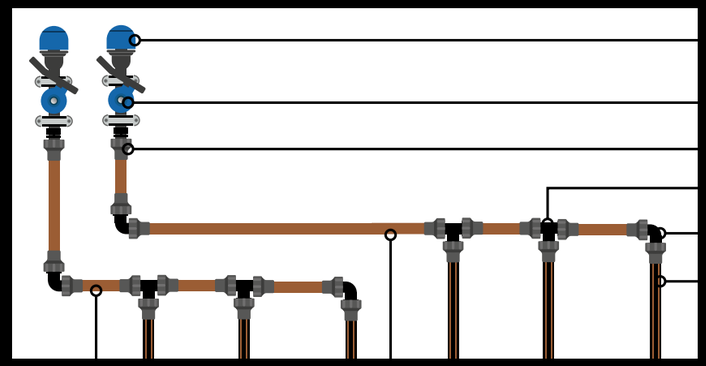


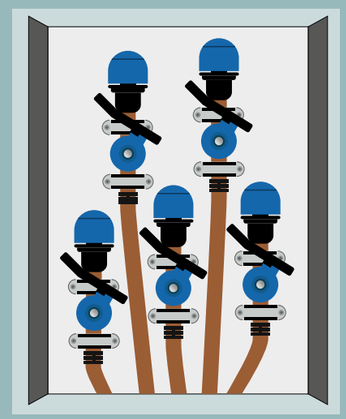
TOOLS Hose cutter



In the ventilation cabinet the Ø 16 mm hose is connected to the air bleed cock of the corresponding circuit.

OVERVIEW OF THE VENTILATION SIDE WITH CONNECTION TO THE VENTILATION CABINET



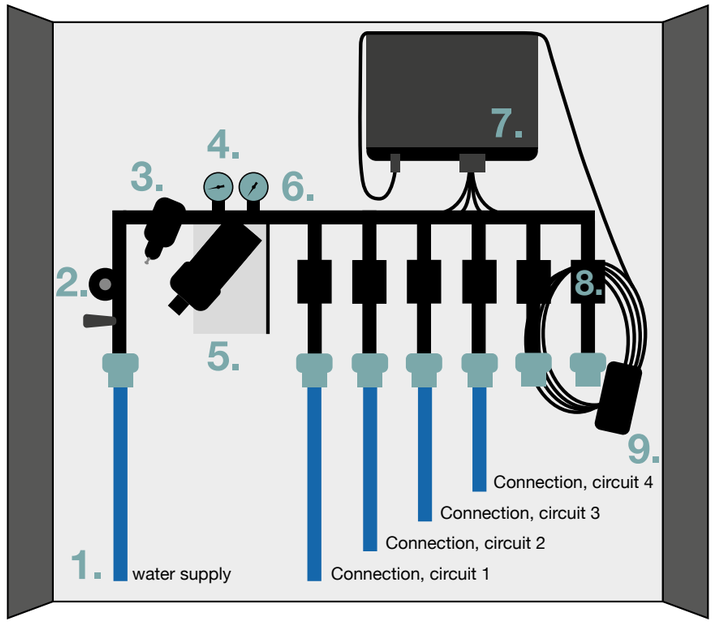


Repeat this process for all circuits.
Open the ball cocks for the test run and close them again.
A hose can be connected to the ¾ inch ball cock to allow the drainage water to be led outside the building.



STEP BY STEP
EXPLAINED IN OUR VIDEO
https://www.youtube.com/watch?v=LuijpKJUObM

CONTROL BOX



① **Water supply** provided by the customer
The size of the connection is Ø 32 mm (up to 1800 m²).
Avoid impact pressure caused by too much air in the line.

② **Compressor connection**
A compressor can be connected here to allow the system to be emptied.

③ **Pressure reducer** (connect the system with water pressure of max. 6 bar)
The inlet pressure is adjusted to the demand of the system.

④ **Manometer**
For checking the inlet pressure on the system.

⑤ **Disk filter**
Filters out small solids and must be cleaned at regular intervals.

⑥ **Manometer**
If this manometer shows a loss of pressure relative to the first manometer, the filter must be cleaned.

⑦ **Hunter ICC2 controller**

⑧ **Magnetic/Solenoid valve** per circuit

⑨ **Power connection** for the controller with fuse

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PROGRAMMING

Once installation has been completed, the irrigation intervals are programmed.

ArenaWet offers the option of regulating the individual preferred riding characteristics of your arena by varying the moisture level. The water required for your riding surface is determined as a function of the footing, wind, sunlight, temperature and intensity of use. As soon as the footing has reached its basic moisture level, all it takes to keep the conditions constant is a few irrigation intervals of a couple of minutes a day.

The basic setting of the irrigation system is programmed for three intervals of three minutes each per irrigation unit.
A rain sensor can be optionally installed outdoors so that the irrigation intervals are suspended if there is rain.

SUMMARY OF HOW TO PROGRAM THE ICC2 CONTROLLER

All settings can be viewed on the display. The plus, minus and arrow keys are used for adjustment.
Up to four different programs can be stored on the controller.

DATE & TIME
Stores the year, month, day and time at which the respective programs are started.

INTERESTING TIP

The controller can be extended with the wifi kit and integrated for convenience into existing Smart Home systems.

Each program requires the following three steps:

START TIMES: This setting specifies when irrigation starts. Up to eight irrigation units can be set to run at different times.
The valves are operated consecutively on each start time.

RUN TIMES: This setting specifies the duration of the respective irrigation intervals for each circuit. If particular circuits are to be irrigated for a longer or a shorter time, the duration can be adjusted accordingly. The total duration of all circuits is indicated on the upstream display.

WATER DAYS: The display can be used to specify the irrigation days for the respective program.

Further information about the Hunter controller can be found here:
www.youtube.com/watch?v=miBj7r7E07E

TEST RUN

As soon as all circuits have been connected with the switch cabinet and the ventilation lines, a test run must be performed before the footing is added.

This requires the water supply to be connected and the pump to have sufficient capacity. The first circuit can be opened by turning the solenoid valve a quarter turn.

All connections of the tapping clamps with the drip hose should be checked for leaks.
The membranes of the drip hoses drip continuously and any necessary repairs can now be made.

The connection elements of the ventilation lines should also be checked. To flush the circuit, open the cock for the circuit in the ventilation cabinet, then close it again afterwards.

Close the solenoid valve of the first circuit again before carrying out the check of the second circuit.



REPAIRS

Should the drip hose or a membrane of the drip hose suffer mechanical damage, water will escape at this point.

1. Depressurize the system
2. Uncover the drip hose and locate the leak
3. The hose section can be cut out with a hose cutter
4. Use a replacement piece of hose and two push-in connectors to connect the drip hose again
5. Make sure that the hose is in the right place in the groove again before putting the footing back



MAINTENANCE

CLEANING THE FILTER

The filter can be unscrewed and cleaned with a brush under flowing water.
Do this about 1x per month.

FROST PROTECTION

Connect the compressor in the control box (max. 5 bar). Open the vent valve and bleed ball cocks. Open the solenoid valves one after the other.

STARTING UP AFTER WINTER
See test run

FLUSHING

Diluted citric acid can be added through a one-inch inlet from the compressor connection or from a tank to flush the lines. To prevent acid flowing back, close the ball cock of the supply pipe.



INSPECTION

Each year, check that the solenoid valves are working properly and that the connecting elements are not leaking.

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ArenaWET

QUALITY STATEMENT

We vouch for the functionality of our underfloor drip irrigation system above and beyond the statutory warranty. ArenaWet is an investment in the future that, if installed and used properly, will provide an effective form of irrigation for your riding surface over many years to come. If maintained properly and at regular intervals, the irrigation system will last for a long time.



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