

GARDENA Planning brochure 2013

GARDENA Sprinklersystem



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(www.gardena.de/service)



Work in simple steps

Easier than you think

Using this planning document you can plan your own irrigation system yourself step by step. Using a garden as an example, we will show you how to go about it.

What you need to do

First of all, draw a ground plan of your garden. Following our instructions, you will be able to add all the system components you need to your plan. At the end, you can then enter the products you have chosen in the shopping list on page 12.

What you need

Not much! Collect together a few coloured pens, pencil and a pair of compasses. And off you go.

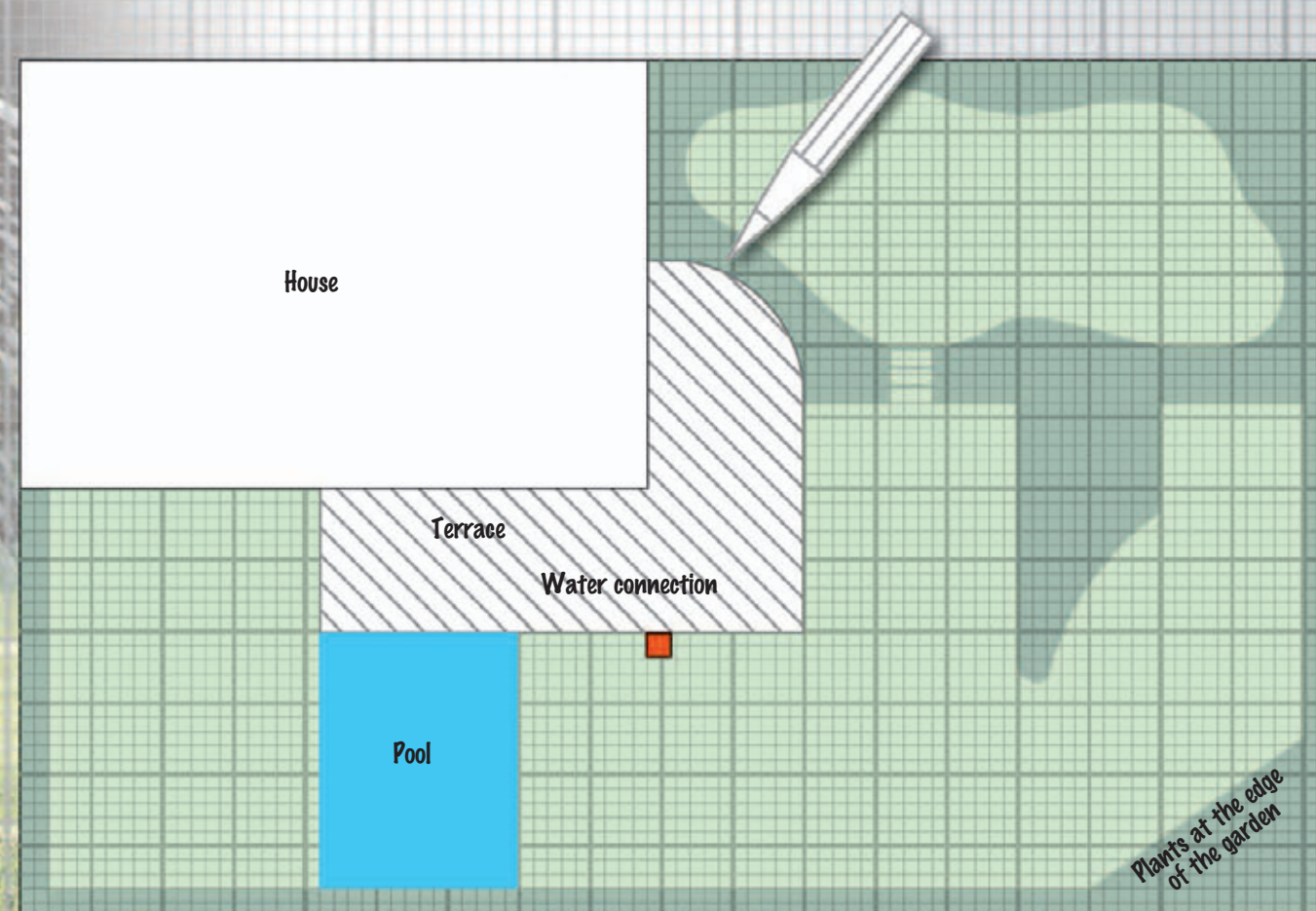


1. Which area is to be watered?

Draw a plan of your land – ideally on graph paper with mm squares – on a scale of 1:100 (1 cm = 1 m) or 1:200 (1 cm = 2 m)

Mark areas to be watered and not to be watered.

Enter the location of the water connection on the drawing (water tap, well, underground tank).



Scale 1:200 (1 cm = 2 m)

2. Which/how many sprinklers are needed?

Select the right sprinklers from page 5. We recommend the following proceeding: Use pop-up oscillating sprinklers for square and rectangular areas. Use large-area pop-up irrigation AquaContour automatic to water individually shaped areas. Cover other areas with Circular Sprinklers. Use a pair of compasses to draw the Circular Sprinklers on your plan.

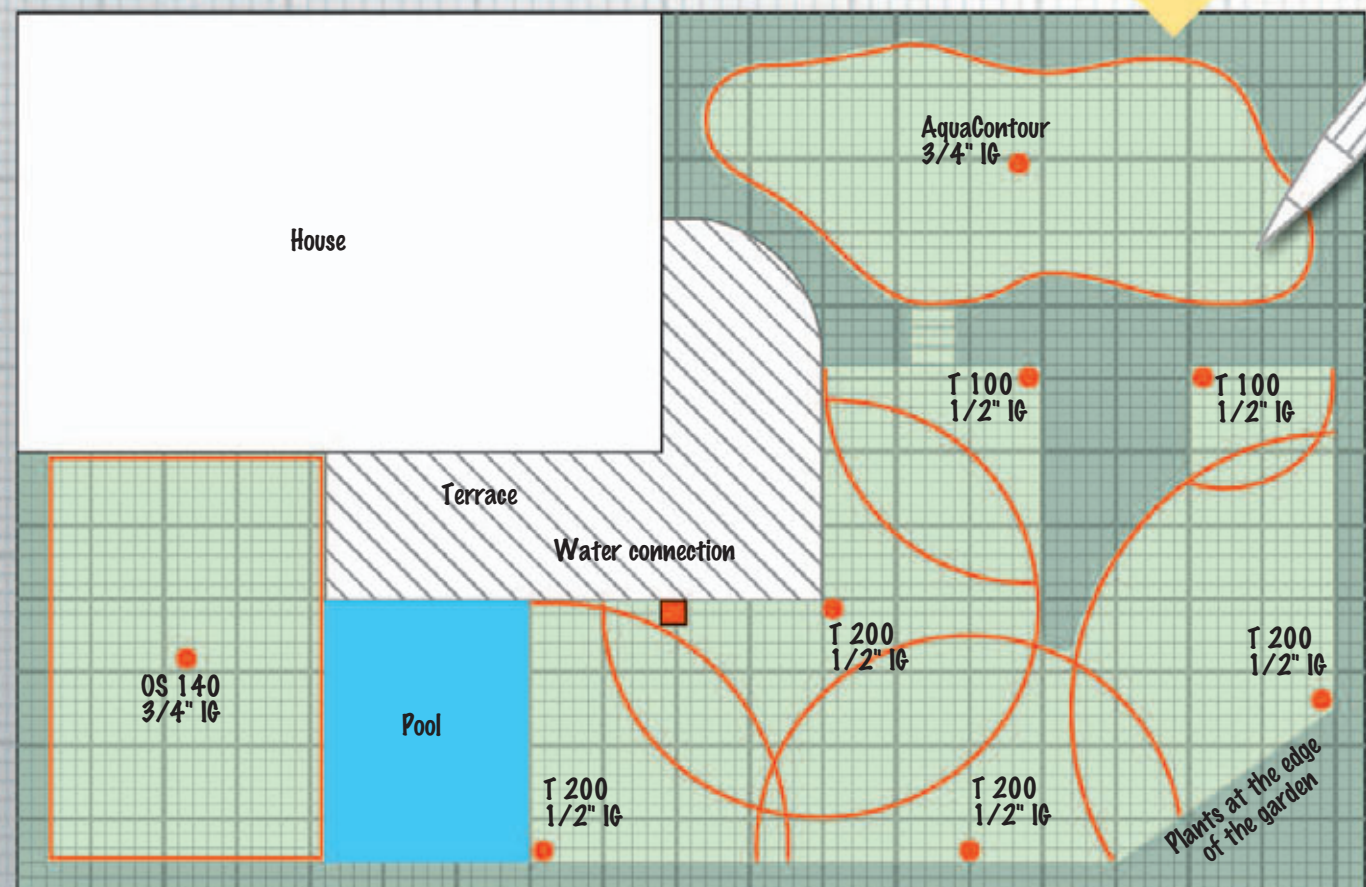
- Draw 90° or 270° sprinklers in the corner areas.
- Plan 180° or other partial sectors for the edges of your garden.
- Cover the remaining areas in the centre with 360° sprinklers.

Enter the number of sprinklers needed in the summary on page 5 first and then in your shopping list on page 12.

Tip:






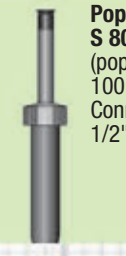

In windy areas, reduce the space between sprinklers to allow for drifting.

Select the correct sprinkler on the right and draw it on your plan. Add the sprinkler description and the sprinkler thread!



Scale 1:200 (1 cm = 2 m)

IG = Female thread, AG = Male thread

individually shaped areas	 AquaContour automatic Connecting: 3/4" female thread	Planning range 2.5–9 m	Sector 25–360°	Art. No. 1559	Number <input type="text"/>	Enter the number of sprinklers in the shopping list
rectangular areas	 Oscillating Pop-up Sprinkler OS 140 Connecting: 3/4" female thread	Range 2–15 m	Width of spray 1–9.5 m	Art. No. 8220	Number <input type="text"/>	
other areas from 150 m ²	 Turbo-driven Pop-up Sprinkler T 100 Connecting: 1/2" female thread	Planning range Radius: 4–5.5 m	Distance between sprinklers Approx. 5–8 m	Sector 70–360°	Art. No. 8201	Number <input type="text"/>
	 Turbo-driven Pop-up Sprinkler T 200 Connecting: 1/2" female thread	Planning range Radius: 5–7.5 m	Distance between sprinklers Approx. 7.5–10 m	Sector 25–360°	Art. No. 8203/1539	Number <input type="text"/>
	 Turbo-driven Pop-up Sprinkler T 380 Connecting: 3/4" female thread	Planning range Radius: 6–10.5 m	Distance between sprinklers Approx. 9–15 m	Sector 25–360°	Art. No. 8205/1551	Number <input type="text"/>
other areas up to 150 m ²	 Pop-up Sprinkler S 80 (pop-up height 100 mm) Connecting: 1/2" female thread	Planning range Radius: 2.5–4.5 m	Distance between sprinklers Approx. 4–7 m	Sector 5–360°	Art. No. 1569	Number <input type="text"/>
for taller plants	 Pop-up Sprinkler S 80/300 (pop-up height 300 mm) Connecting: 3/4" male thread	Planning range Radius: 2.5–4.5 m	Distance between sprinklers Approx. 4–7 m	Sector 5–360°	Art. No. 1566	Number <input type="text"/>

3. Calculating the supply lines

Connection value of the water tap

You must determine the connection value of your tap so that you know how many sprinklers you can connect to each supply line. Turn on the tap to which you are planning to connect your irrigation system. Make sure that the tap is turned on full. Fill a 10-litre bucket. Measure the time in seconds it takes to fill the bucket.

If you are planning to operate your irrigation system using a pump, connect a piece of 19 mm (3/4") hose approximately 1 m in length to the pump using a GARDENA "Profi" System Connector Set (Art. No. 1505) to measure the filling time.

Add additional time for distance

Measure the distance between the tap/pump and the sprinkler that is furthest from the tap/

pump. Add 1 second to the filling time for each 25 m between the tap/pump and the furthest sprinkler. With a filling time of under 14 seconds and the use of a Water Computer, an automatic Water Distributor or a 2- or 4-Channel Water Distributor (see p. 10), an additional 3 seconds are to be added to the filling time. Find the correct filling time in the table and enter your connection value in the white box.
Example: (without Water Computer)

Filling time in seconds	= 10
Distance 20 m	= 1
Total value	= 11
11 seconds correspond to a connection value of 80	
Seconds	Connection value
-9	100
10-13	80
14-19	60
20-24	40
25-30	20
Your connection value =	80

Supply lines

To calculate the number of lines, first of all mark the individual sprinklers in your planning sketch using the sprinkler consumption values on page 7. Do not connect more sprinklers to a line than add up to the connection value you determined in step 3. Add up the individual

consumption values for the sprinklers. Then enter the total of the sprinkler consumption values per section including the length of the pipe in the table "Total sprinkler consumption values per section" (p. 7). At the same time, draw the pipelines, starting at the water supply (e.g. tap, pump) in your plan and transfer the pipe lengths

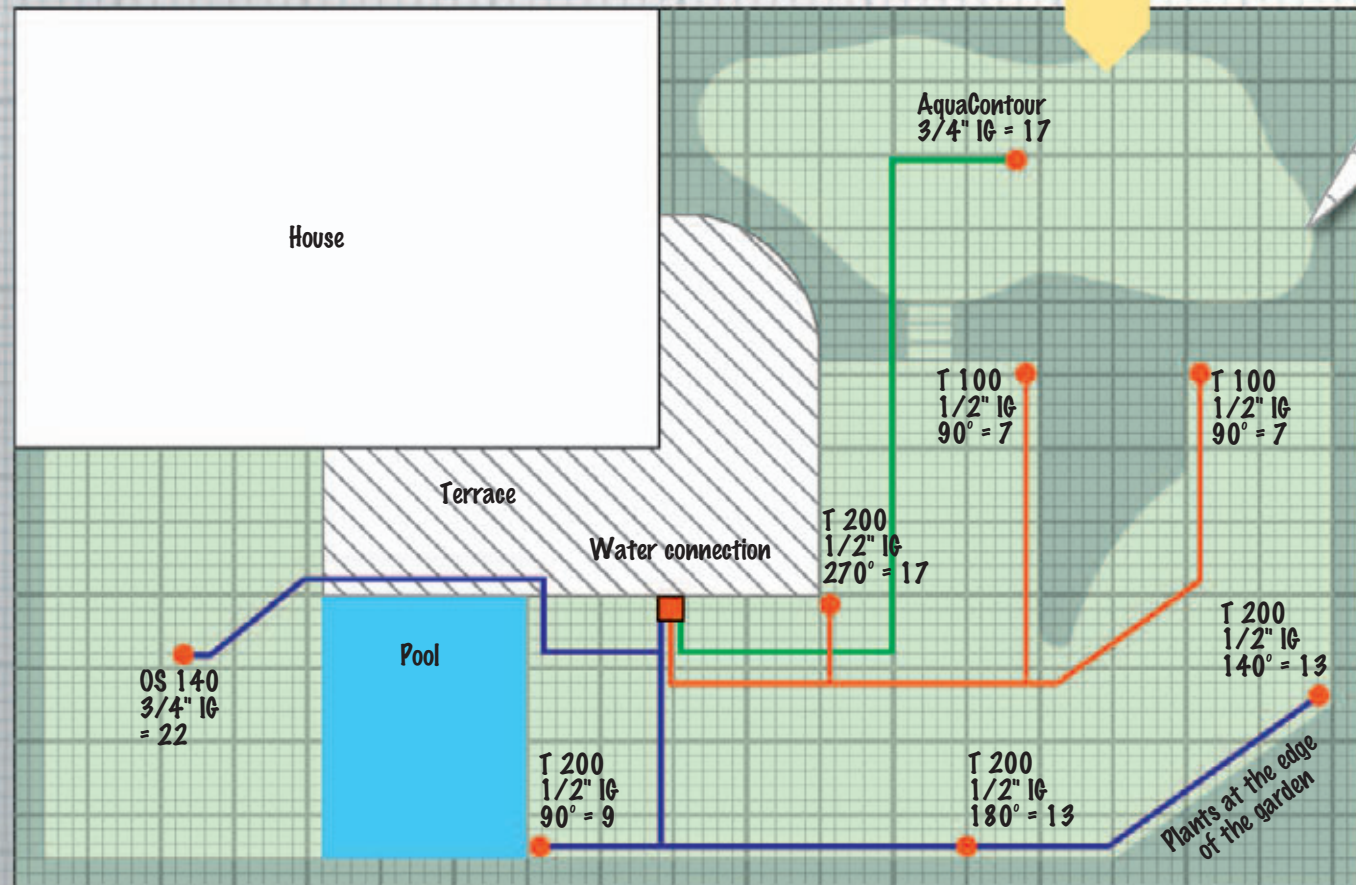
you have calculated to the "Pipe length" table on p. 7.
Note: With the AquaContour automatic, not more than 1 sprinkler can be connected to a supply pipe. Reason: As the pressure conditions change with the sector setting an accurate programming of several AquaContour automatic

sprinklers within one supply pipe is not possible.
Important: Always include separate pipelines for pop-up sprinklers (S models), turbo-driven pop-up sprinklers (T models) and oscillating pop-up sprinklers (OS models) because they produce different levels of precipitation.

Add up the consumption values for the sprinklers below

	25-90°	91-180°	181-270°	271-360°
T 380	= 15	= 20	= 25	= 30
T 200	= 9	= 13	= 17	= 20
T 100	= 7	= 10	= 14	= 17
S 80/300	= 13	= 21	= 29	= 35
S 80	= 9	= 17	= 25	= 32
OS 140	= 22			
AquaContour automatic	= 17			

Scale 1:200 (1 cm = 2 m)



Enter sprinkler consumption values from page 7 and draw in supply lines.

Total of sprinkler consumption values per section

Line section	Resulting connection value* =	Pipe length
1	22+9+13+13 = 57	42 m
2	17+7+7 = 31	32 m
3	17 = 17	22 m
	=	m
	=	m
	=	m
	=	m
	=	m
etc.		etc.

* This value may not exceed the added together sprinkler consumption values of a pipeline section!

Enter the pipe lengths calculated in the shopping list.

4. Connecting the pipes

Possible pipe connections:



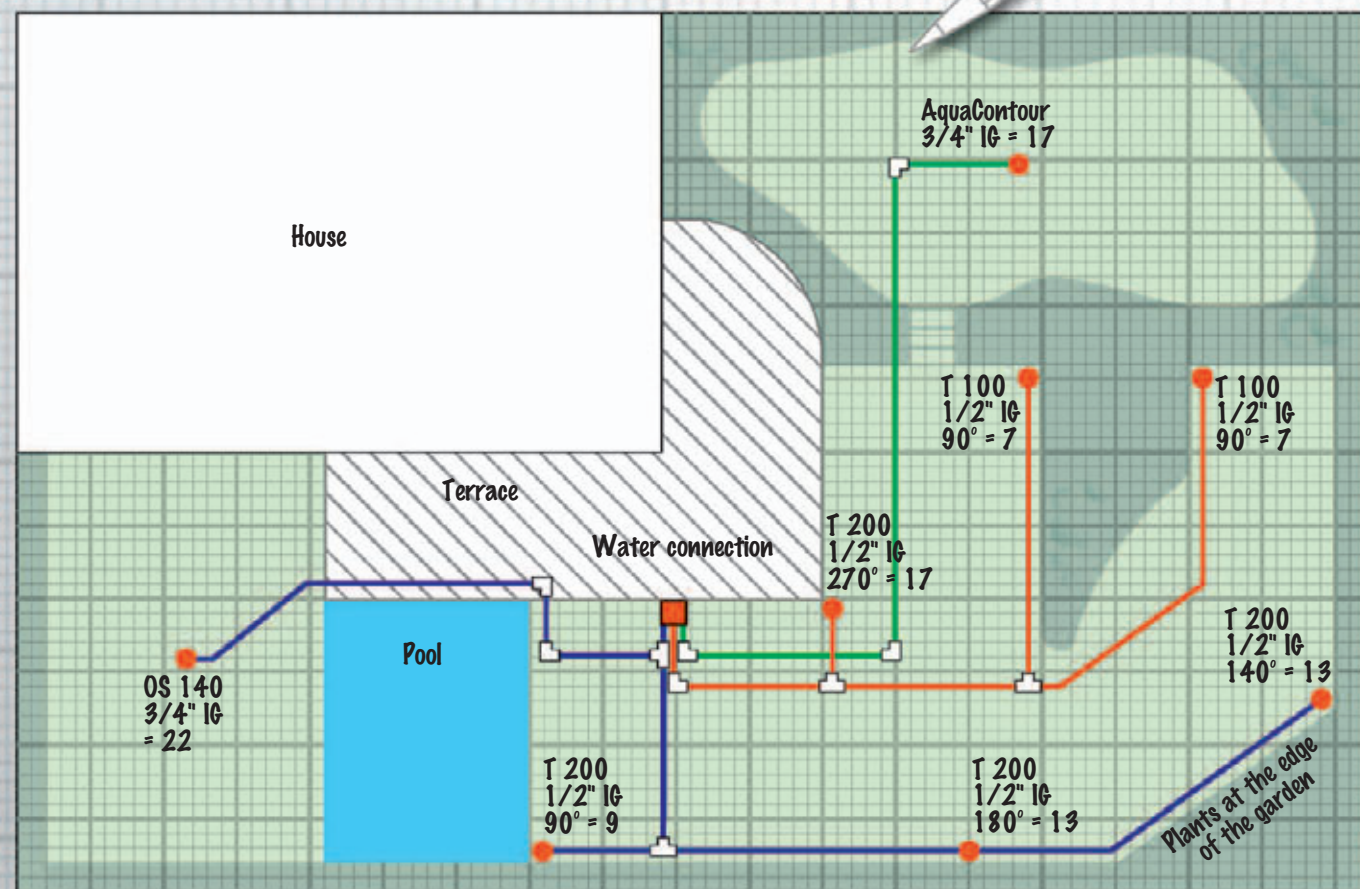
Connector
25 mm
Art. No. 2775

L-piece
25 mm
Art. No. 2773

T-piece
25 mm
Art. No. 2771

End-piece
25 mm
Art. No. 2778

Decide on the connectors for the pipe connections and enter the quantities calculated in the shopping list.



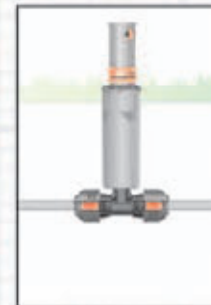
Scale 1:200 (1 cm = 2 m)

Symbols for pipe connections:

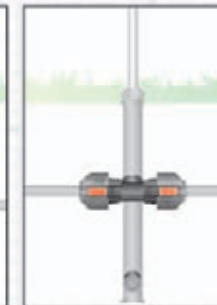


5. Connecting the sprinklers

Possible sprinkler connections within the pipeline:



Use T-piece 25 mm with 1/2" male thread Art. No. 2786 or 3/4" male thread Art. No. 2787



Connecting Pop-up Sprinkler S 80/300: Use T-piece with 3/4" female thread 25 mm Art. No. 2790

Sprinkler connection in corner area:

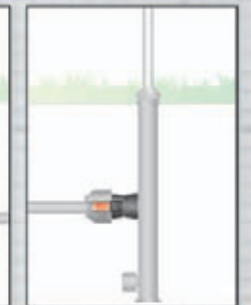


With Angle Piece 25 mm with 1/2" male thread Art. No. 2782 with 3/4" male thread Art. No. 2783

Possible sprinkler connections at the end of the pipe:



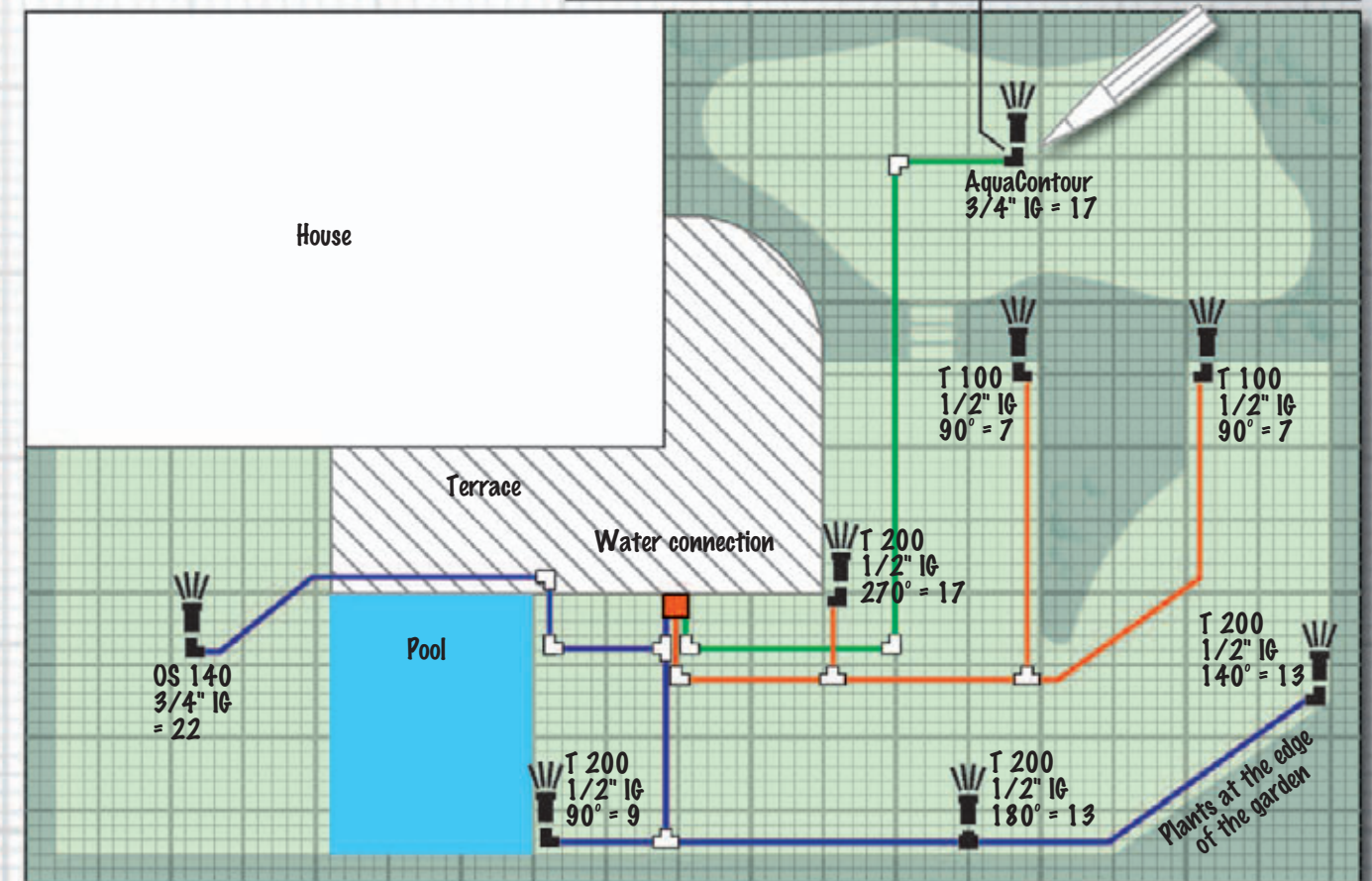
Use L-piece 25 mm with 1/2" male thread Art. No. 2780 with 3/4" male thread Art. No. 2781



Connecting Pop-up Sprinkler S 80/300: Use Connector with 3/4" female thread 25 mm Art. No. 2761

Now decide on the connecting components for the sprinkler connections and enter them in the shopping list.

Warning: Ensure when you select the sprinkler connection components that the thread sizes match the sprinkler threads shown on your plan. So in this example it would be an L-piece 25 mm, Art. No. 2781 with 3/4" male thread.



Scale 1:200 (1 cm = 2 m)

Symbols for sprinkler connections: T piece with thread L-piece with thread

Enter the system components calculated in the enclosed shopping list.

6. Frost protection / drain valve

In the pipeline:



T-piece 25 mm 3/4" female thread Art. No. 2790 with Drain Valve Art. No. 2760

At the end of the pipe:



Connector 25 mm 3/4" female thread Art. No. 2761 with Drain Valve Art. No. 2760

Note: To protect the system from frost damage, place drain valves at the lowest points of the individual pipelines. Note installation tips on page 13.

7. Connection possibilities



Manual control

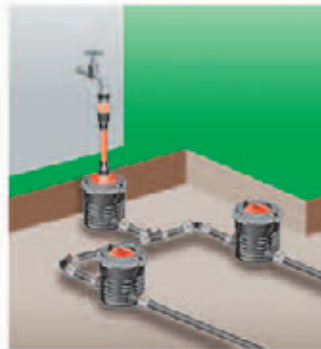
Connection to the tap is made via a **Connecting Point (Art. No. 2722)** with **Connector 25 mm x 3/4" female thread (Art. No. 2761)**, a **"Profi" Connector Set (Art. No. 1505)** with **19 mm (3/4") garden hose** or a **Connection Set (Art. No. 2713)**.

Note: Connection Pieces (Art. No. 1512, 1516, 1517, 1518) are available with different sized threads (see shopping list) for connecting your irrigation system directly to the domestic water supply (please observe installation instructions).



Multi-connection

Several supply lines can be connected using the **Twin-Tap Connector (Art. No. 8193)** or the **Four Channel Water Distributor (Art. No. 8194)**. As an alternative to the distributors, the individual supply lines can be manually operated via **Regulator and Shut-off Valves**.



Automatic control

Water Computer C 1060 plus, C 1060 solar plus
Up to 6 programmed irrigation cycles per day. Alternatively **Water Timers T 1030/T 1030 plus** or **Water Computer C 1030 plus** can be connected to control a single irrigation line.

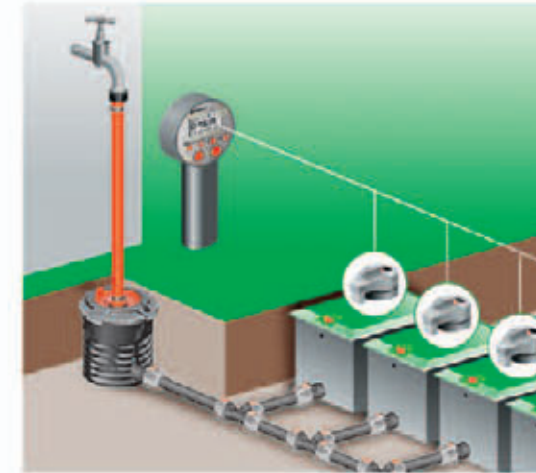


Multi-control

Water Computer C 2030 duo plus
Control of two irrigation lines
Water Distributor automatic
Control of up to 6 irrigation lines in combination with the **Water Computer C 1060 plus** or **C 1060 solar plus**.



and automatic control



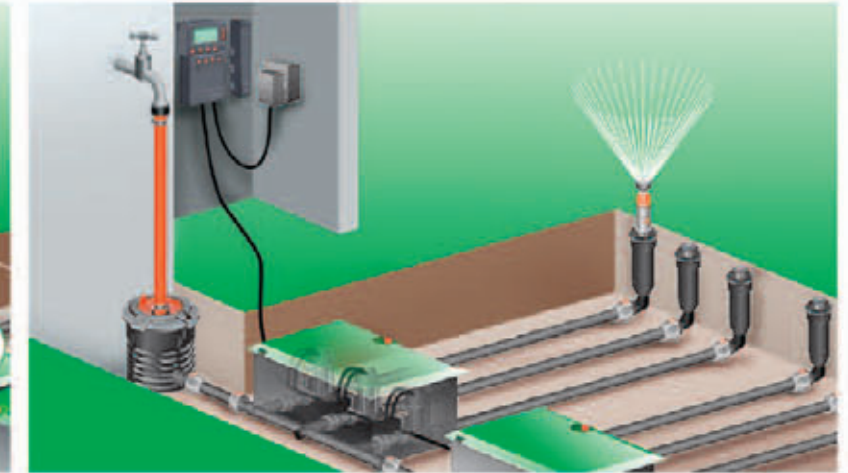
Direct programming

For fully automatic, cable-free control of any number of irrigation lines. Up to 6 programmed watering sessions per day and per line.

Programming Unit for programming the **Controller**. The Controller is mounted on the **Irrigation Valves 9 V**. The **Soil Moisture Sensor** and **Rain Sensor** can be connected as optional extras.

Valve Box V1 and V3
For installing 1 or up to 3 **Irrigation Valves** underground. Telescopic screw-connection makes it easy to install and remove the valves. With 1" male thread.

Pipe connection via 1" Connector Art. No. 2762.
Irrigation Valve 9 V
For programming the watering system directly. Energy-saving electromagnetic technology.



Watering control by cable

Fully automatic control of up to 12 irrigation valves/lines. Cable connection to the valves. Also suitable for automatic operation of a pump, e.g. for economical use of rainwater.

Irrigation Control System 4040 modular
For connection of up to 4 24 V Irrigation Valves. Suitable for indoor and outdoor use. 4 programmes per valve possible. Can be extended with **Expansion Module 2040** for up to 12 valves.

Expansion Module 2040
Plugs into **Irrigation Control System 4040 modular**. Connection of up to 2 24 V Irrigation Valves.

Irrigation Control Systems 4030 and 6030
For use indoors or in rain-protected areas, control up to 4 or 6 **Irrigation Valves 24 V**.

24 V Irrigation Valve
Manual opening/closing possible. Self-cleaning fine filter for uninterrupted pipe control technology.

24 V Connection Cable
Length 15 m. Connection of up to 6 24 V **Irrigation Valves**.

24 V Cable Clip
For connecting the **Connection Cable** to the **Valve Box V1**.

Valve Box V1 and V3
For underground installation of 1 or up to 3 **Irrigation Valves**.

Telescopic screw connection for simple fitting/removal of the valves.

Valve Box V3 with cable connection box protected from water for simple, clear 24 V-cable connection. With 1" male thread. Pipe connection via 1" connector Art. No. 2762.

24 V Pump Control System
With 10 m cable. For pumps up to 2000 W.

Connecting Point

For supplying water to the underground irrigation system.
Art. No. 2722



System Connector Set

Profi system fittings
Art. No. 1505 (without hose)



Connection Set

2 m garden hose 19 mm (3/4") with Profi system fittings
Art. No. 2713



Connector

Art. No. 2761/2762/2763



Twin-Tap Connector

For connecting two supply lines.
Art. No. 8193



Four Channel Water Distributor

For connecting up to four supply lines.
Art. No. 8194



Regulator and Shut-off Valve

Art. No. 2724



Water Computer C 1060 plus, C 1060 solar plus

Automatic irrigation control
Art. No. 1864/1866



Water Computer C 2030 duo plus

Automatically water two garden areas
Art. No. 1874



Water Distributor automatic

For use together with **Water Computer C 1060 plus, C 1060 solar plus**
Art. No. 1197



Irrigation Valve 9 V

Art. No. 1251



Valve Box V1 (without valve)
Art. No. 1254



Controller

For use together with the **Programming Unit**.
Art. No. 1250



Valve Box V3 (without valves)
Art. No. 1255



Programming Unit
Art. No. 1242



Irrigation Control System 4030

Art. No. 1283



Irrigation Control System 4040 modular

Art. No. 1276



24 V Cable Clip (Contents: 6 clips)
Art. No. 1282



Expansion Module 2040

Art. No. 1277



Valve Box V1 (excluding valve)
Art. No. 1254



Irrigation Control System 6030

Art. No. 1284



24 V Irrigation Valve

Art. No. 1278



Valve Box V3 (excluding valve)
Art. No. 1255



24 V Connection Cable

Art. No. 1280



24 V Pump Control System
Art. No. 1273



Shopping list

Art. No. Description Quantity

Pop-up Sprinklers

1569	Pop-up Sprinkler S 80	
1566	Pop-up Sprinkler S 80/300	
8201	Turbo-driven Pop-up Sprinkler T 100	
8203	Turbo-driven Pop-up Sprinkler T 200	
8205	Turbo-driven Pop-up Sprinkler T 380	
8220	Pop-up Oscillating Sprinkler OS 140	
1559	Large-Area Pop-up Irrigation AquaContour automatic	

Sprinkler Connection

2780	L-piece 25 mm x 1/2" male thread	
2781	L-piece 25 mm x 3/4" male thread	
2782	Angle Piece 25 mm x 1/2" male thread	
2783	Angle Piece 25 mm x 3/4" male thread	
2786	T-piece 25 mm x 1/2" male thread	
2787	T-piece 25 mm x 3/4" male thread	

Supply Line:

2718	Connecting Pipe 25 mm, 10 m	
2700	Connecting Pipe 25 mm, 25 m	
2701	Connecting Pipe 25 mm, 50 m	

Connecting Pieces:

2771	T-piece 25 mm	
2773	L-piece 25 mm	
2775	Connector 25 mm	
2778	End-piece 25 mm	
2761	Connector 25 mm x 3/4" female thread	
2762	Connector 25 mm x 1" female thread	
2763	Connector 25 mm x 1" male thread	
2790	T-piece 25 mm x 3/4" female thread	
2760	Drain Valve	
8250	Water Connector	

System Connection:

1513	Adapter Piece 26,5 mm (G3/4")/33,3 mm (G1")	
1505	"Profi" System Connector Set	
2713	"Profi" Maxi-Flow System Connection Set	
2722	Connecting Point	
8193	Twin-Tap Connector	
8194	Four Channel Water Distributor	
2724	Regulator and Shut-off valve	
1510	Central Filter	

System Control:

1197	Water Distributor automatic	
1866	Water Computer C 1060 solar plus	
1864	Water Computer C 1060 plus	
1874	Water Computer C 2030 duo plus	
1862	Water Computer C 1030 plus	
1860	Water Timer T 1030 plus	
1825	Water Timer T 1030 D	
1835	Automatic Watering Set A 1020 Sensor	
1189	Rain Sensor electronic	
1188	Soil Moisture Sensor	
1186	Extension Cable for Rain- and Soil Moisture Sensor, 10 m	
1242	Programming Unit	
1250	Controller	
1254	Valve Box V1	
1255	Valve Box V3	
1251	Irrigation Valve 9 V	
1283	Irrigation Control System 4030	
1284	Irrigation Control System 6030	
1276	Irrigation Control System 4040 modular	
1277	Expansion Module 2040	
1278	Irrigation Valve 24 V	
1280	24 V Connection Cable, 15 m	
1282	24 V Cable Clip (Contents: 6 clips)	
1273	24 V Pump Control System	

Note:

If you require a connection which is permanently stable under pressure between the water tap and the connecting point with a drain valve downstream to protect the pipeline, use Tap Connector Art. No. 1513

Enter connection and control material in the white boxes and transfer to the shopping list



Installation tips



Lay out all the parts of your irrigation system according to your plan. Begin by installing the parts at the start of the system.



Cut the pipes to the correct length and connect the components. Make sure you keep soil out of the ends of the pipes.

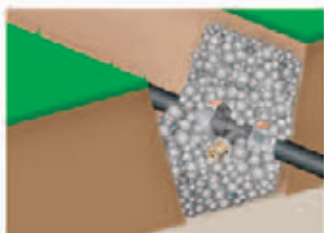
When connecting, push the pipes over the o-ring in the connection part (insert pipe approx. 6 cm in the connection part). Only this way, a non-leaking connection is ensured. Deburr pipe before, if necessary.



Set the spray direction, sectors, and the range of the sprinklers. Test the system **before you install it under ground**.



Dig a spade into your lawn to mark out a V-shaped trench approx. 20–25 cm deep. Carefully remove the turf and dig out the trench. Remove any stones from the trench. Mowing and watering your lawn beforehand will make it easier to install your irrigation system.



Install the drain valves at the lowest points of the system. On slopes, the height difference between the different drain valves must not exceed 2 m. Install several drain valves on slopes if necessary. To improve drainage and to protect the drain valve underlay it with a seeping water drain packing (washed, coarse gravel, approx. 20 x 20 x 20 cm).



Lay the network of pipes with the sprinklers and other components connected in the trench. To avoid damaging your irrigation system when mowing your lawn, for example, all sprinklers, Connecting Points, and Water Connectors must be installed slightly below the surface to allow for settlement.



Fill in the trench with soil, roll out the turf and tread down. Watering the trench and lawn beforehand will help the grass take root more quickly.



Changing from the previous to the new system
For changing from the 19 mm inner diameter connecting pipe to the 25 mm outer diameter pipe, use the Adapter Piece Art. No. 1513 combined with the Connector 25 mm x 1" male thread Art. No. 2763.

Disconnect your irrigation system from the supply line before the first frost sets in. Observe the notes on frost protection for the individual products.

If the irrigation system receives its water supply via a pump, it can happen that sand enters the pipeline system and impairs the function of the sprinklers. Therefore the pump should always be used in combination with a filter upstream of it.

The sprinklers and pipes are approved for an operating pressure of up to 6 bar. If the water pressure is higher, a pressure reduction unit must be fitted. For questions regarding correct connection to the domestic water supply network, please ask your local sanitary works specialist.

Note: If you want to release the screwed fastening of the pipe connectors completely, you may turn past the stop (position "open") of the screwed fastening e.g. if you use pipe pliers. This will not impair its subsequent ability to function.

All you need to know about Watering Systems

Would you like an individual watering system in your garden and you're not sure what you need for this? In addition to this planning brochure, GARDENA offers you several options:

- on the GARDENA website you will find the watering planner with which you can arrange your own individual Sprinklersystem or purchase what you need for your Micro-Drip-System right away online.
- refer to our GARDENA customer service for comprehensive information on Watering Systems.
- you can receive planning and installation tips, as well as live videos of the products from the DVD Watering Systems. This is available for 4.99 € (incl. VAT and shipping) through our replacement part service at ++ 49 (0)731 490-123 (Art.-No. 47200-00).

As we do not carry out the installation ourselves, we ask for your understanding that we do not assume any liability or guarantee for costs and damages possibly arising during implementation of the planning.

Should you be interested in our planning- and/or installation service, please contact us directly or ask your trader.

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Changes, also product changes,
may be made.

