

# NEPTUNE HW

## Heavy Wall Flat Emitter Drip Line

Neptune HW is the heavy drip line with flat emitter designed for irrigating multi-year and seasonal crops.

The turbulent flow Emitter with wide flow path ensures the Neptune HW has a high resistance to clogging. The use of top-quality polymers ensures high durability and resistance to possible mechanical damage.

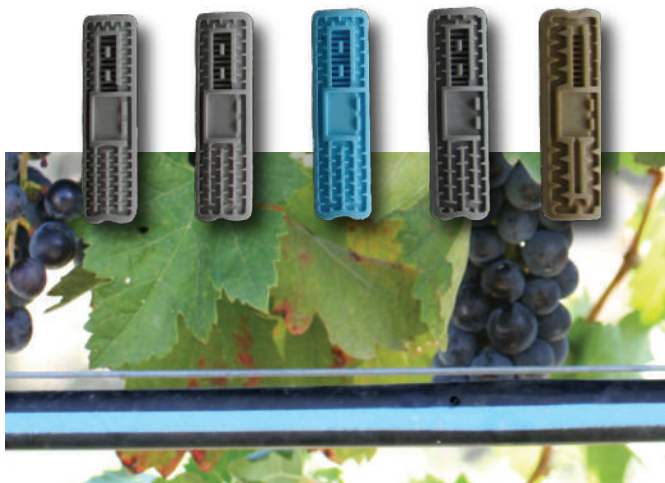
Neptune HW has been designed and produced according to the highest possible quality standards and represents an accessible but top performance economic investment.



## RANGE

**The five different flat emitters, the different diameters and thicknesses, and the availability of various types of spacing allow Neptune HW to be offered in a complete range of configurations:**

- Diameter 16 mm (I.D. 13.8 mm)
  - Wall thickness 35 mil (0.9 mm)
  - Wall thickness 39 mil (1.0 mm)
  - Wall thickness 43 mil (1.1 mm)
- Diameter 20 mm (I.D. 17.6 mm)
  - Wall thickness 35 mil (0.9 mm)
  - Wall thickness 39 mil (1.0 mm)
  - Wall thickness 47 mil (1.2 mm)
- Emitter spacing 20/25/30/40/50/60/70/75/80/90/100 cm (other Emitter spacing available on request)
- Grouped spacing (optional)
- 5 different emitters:
  - 0.67 l/h @ 0.7 bar (0.8 l/h @ 1 bar)
  - 1.08 l/h @ 0.7 bar (1.3 l/h @ 1 bar)
  - 1.30 l/h @ 0.7 bar (1.5 l/h @ 1 bar)
  - 1.99 l/h @ 0.7 bar (2.4 l/h @ 1 bar)
  - 3.16 l/h @ 0.7 bar (3.8 l/h @ 1 bar)



## MAIN FEATURES

The Emitter in the Neptune HW drip line ensures durability and excellent performance even in the most adverse conditions. Neptune HW has the following advantages:

- High resistance to accidental blows and/or impacts allowing for a quick easy installation (shorter laying times and therefore lower labour costs and less risk of damaging the product);
- High resistance to clogging, thanks to the turbulent flow Emitter with wide flow path and optimised for multi-year applications;
- The emitter inlet filter prevents sediment deposits from entering the emitter;
- Outlet hole made using precision mechanical technology;
- High efficiency, allowing implementing long side lines with very uniform water distribution;
- Excellent CV (Coefficient of Variation);
- Blue line for easy identification;
- Product ID code engraved on the tubing;
- Extrusion process with simultaneous insertion of the Emitter to guarantee uniform dimensions and mechanical characteristics.

# APPLICATIONS

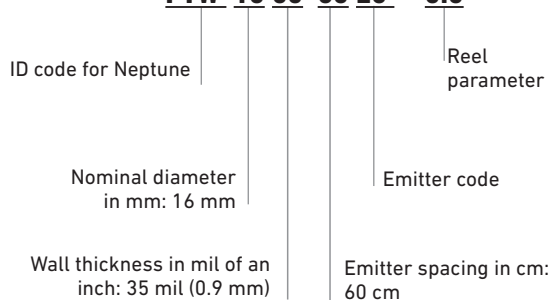
The Neptune HW drip line is ideal for irrigating permanent and seasonal crops such as:

- Vitaceae (wine and table grapes);
- Oleaceae (olive tree);
- Rosaceae (apples, pears, plums, damsons, peaches, apricots, cherries, cherry plums, almonds, medlars, quinces);
- Rutaceae (oranges, lemons, clementines, citrons, grapefruit, tangerines, limes, tangelo, pomelo);
- Corylaceae (hazelnuts);
- Juglandaceae (walnuts, pecans);
- Actinidiaceae (kiwi);
- Anacardiaceae (pistachio, mango, cashew);
- Punicaceae (pomegranate);
- Ebenaceae (persimmon);
- Musaceae (banana);
- Rubiaceae (coffee);
- Sterculiaceae (cocoa)
- Moraceae (figs);
- Aracaceae (coconut, dates);
- Lauraceae (avocado);
- Caricaceae (papaya);
- Small fruits (bilberry, blackberry).

Available emitters					
Flow rate l/h @ 1 bar	0.80	1.30	1.50	2.40	3.80
Flow rate l/h @ 0.7 bar	0.67	1.08	1.30	1.99	3.16
Emitter code	06	11	14	20	32

## Codification

**PTW 16 35 60 20 - 5.0**



Code	Emitter spacing (cm)	Individual Emitter Flow Rate (l/h) @		Flow rate per metre (l/h/m) @		Required filtration mesh
		0.7 bar	1.0 bar	0.7 bar	1.0 bar	
<b>Emitter (3.16 l/h)</b>						
PTWXXxx2032-yy	20	3.16	3.80	15.80	19.00	120
PTWXXxx2532-yy	25	3.16	3.80	12.64	15.20	
PTWXXxx3032-yy	30	3.16	3.80	10.53	12.67	
PTWXXxx4032-yy	40	3.16	3.80	7.90	9.50	
PTWXXxx5032-yy	50	3.16	3.80	6.32	7.60	
PTWXXxx6032-yy	60	3.16	3.80	5.27	6.33	
PTWXXxx7032-yy	70	3.16	3.80	4.51	5.43	
PTWXXxx7532-yy	75	3.16	3.80	4.21	5.07	
PTWXXxx8032-yy	80	3.16	3.80	3.95	4.75	
PTWXXxx9032-yy	90	3.16	3.80	3.51	4.22	
PTWXXxx10032-yy	100	3.16	3.80	3.16	3.80	
<b>Emitter (1.99 l/h)</b>						
PTWXXxx2020-yy	20	1.99	2.40	9.95	12.00	120
PTWXXxx2520-yy	25	1.99	2.40	7.96	9.60	
PTWXXxx3020-yy	30	1.99	2.40	6.63	8.00	
PTWXXxx4020-yy	40	1.99	2.40	4.98	6.00	
PTWXXxx5020-yy	50	1.99	2.40	3.98	4.80	
PTWXXxx6020-yy	60	1.99	2.40	3.32	4.00	
PTWXXxx7020-yy	70	1.99	2.40	2.84	3.43	
PTWXXxx7520-yy	75	1.99	2.40	2.65	3.20	
PTWXXxx8020-yy	80	1.99	2.40	2.49	3.00	
PTWXXxx9020-yy	90	1.99	2.40	2.21	2.67	
PTWXXxx10020-yy	100	1.99	2.40	1.99	2.40	
<b>Emitter (1.30 l/h)</b>						
PTWXXxx2014-yy	20	1.30	1.50	6.50	7.50	120
PTWXXxx2514-yy	25	1.30	1.50	5.20	6.00	
PTWXXxx3014-yy	30	1.30	1.50	4.33	5.00	
PTWXXxx4014-yy	40	1.30	1.50	3.25	3.75	
PTWXXxx5014-yy	50	1.30	1.50	2.60	3.00	
PTWXXxx6014-yy	60	1.30	1.50	2.17	2.50	
PTWXXxx7014-yy	70	1.30	1.50	1.86	2.14	
PTWXXxx7514-yy	75	1.30	1.50	1.73	2.00	
PTWXXxx8014-yy	80	1.30	1.50	1.63	1.88	
PTWXXxx9014-yy	90	1.30	1.50	1.44	1.67	
PTWXXxx10014-yy	100	1.30	1.50	1.30	1.50	
<b>Emitter (1.08 l/h)</b>						
PTWXXxx2011-yy	20	1.08	1.30	5.40	6.50	120
PTWXXxx2511-yy	25	1.08	1.30	4.32	5.20	
PTWXXxx3011-yy	30	1.08	1.30	3.60	4.33	
PTWXXxx4011-yy	40	1.08	1.30	2.70	3.25	
PTWXXxx5011-yy	50	1.08	1.30	2.16	2.60	
PTWXXxx6011-yy	60	1.08	1.30	1.80	2.17	
PTWXXxx7011-yy	70	1.08	1.30	1.54	1.86	
PTWXXxx7511-yy	75	1.08	1.30	1.44	1.73	
PTWXXxx8011-yy	80	1.08	1.30	1.35	1.63	
PTWXXxx9011-yy	90	1.08	1.30	1.20	1.44	
PTWXXxx10011-yy	100	1.08	1.30	1.08	1.30	
<b>Emitter (0.67 l/h)</b>						
PTWXXxx2006-yy	20	0.67	0.80	3.35	4.00	120
PTWXXxx2506-yy	25	0.67	0.80	2.68	3.20	
PTWXXxx3006-yy	30	0.67	0.80	2.23	2.67	
PTWXXxx4006-yy	40	0.67	0.80	1.68	2.00	
PTWXXxx5006-yy	50	0.67	0.80	1.34	1.60	
PTWXXxx6006-yy	60	0.67	0.80	1.12	1.33	
PTWXXxx7006-yy	70	0.67	0.80	0.96	1.14	
PTWXXxx7506-yy	75	0.67	0.80	0.89	1.07	
PTWXXxx8006-yy	80	0.67	0.80	0.84	1.00	
PTWXXxx9006-yy	90	0.67	0.80	0.74	0.89	
PTWXXxx10006-yy	100	0.67	0.80	0.67	0.80	

# NEPTUNE HW

## Drip line with Flat Emitter Drip Line

### PERFORMANCE

The following tables indicate the maximum length of the lines in relation to the inflow water pressure.

**Note:**

When determining the maximum line length, the maximum inflow pressure as indicated in the "Technical Data" table must be complied with.

### DIAMETER 20 MM - Land slope 0%

Code	Dripper Flow rate @ 0.7 bar	Dripper spacing	Distribution uniformity (EU)	Maximum lengths in metres @ 1.0 bar
PTW20xx2032-yy	3.16 l/h	20 cm	90%	59
PTW20xx2532-yy	3.16 l/h	25 cm	90%	69
PTW20xx3032-yy	3.16 l/h	30 cm	90%	78
PTW20xx4032-yy	3.16 l/h	40 cm	90%	96
PTW20xx5032-yy	3.16 l/h	50 cm	90%	111
PTW20xx6032-yy	3.16 l/h	60 cm	90%	126
PTW20xx2020-yy	1.99 l/h	20 cm	90%	84
PTW20xx2520-yy	1.99 l/h	25 cm	90%	99
PTW20xx3020-yy	1.99 l/h	30 cm	90%	112
PTW20xx4020-yy	1.99 l/h	40 cm	90%	137
PTW20xx5020-yy	1.99 l/h	50 cm	90%	159
PTW20xx6020-yy	1.99 l/h	60 cm	90%	180
PTW20xx2014-yy	1.30 l/h	20 cm	90%	106
PTW20xx2514-yy	1.30 l/h	25 cm	90%	124
PTW20xx3014-yy	1.30 l/h	30 cm	90%	141
PTW20xx4014-yy	1.30 l/h	40 cm	90%	172
PTW20xx5014-yy	1.30 l/h	50 cm	90%	200
PTW20xx6014-yy	1.30 l/h	60 cm	90%	226
PTW20xx2011-yy	1.08 l/h	20 cm	90%	126
PTW20xx2511-yy	1.08 l/h	25 cm	90%	147
PTW20xx3011-yy	1.08 l/h	30 cm	90%	165
PTW20xx4011-yy	1.08 l/h	40 cm	90%	204
PTW20xx5011-yy	1.08 l/h	50 cm	90%	237
PTW20xx6011-yy	1.08 l/h	60 cm	90%	267
PTW20xx2006-yy	0.67 l/h	20 cm	90%	182
PTW20xx2506-yy	0.67 l/h	25 cm	90%	214
PTW20xx3006-yy	0.67 l/h	30 cm	90%	243
PTW20xx4006-yy	0.67 l/h	40 cm	90%	296
PTW20xx5006-yy	0.67 l/h	50 cm	90%	345
PTW20xx6006-yy	0.67 l/h	60 cm	90%	389

### DIAMETER 16 MM - Land slope 0%

Code	Emitter Flow rate @ 0.7 bar	Emitter spacing	Distribution uniformity (EU)	Maximum lengths in metres @ 1.0 bar
PTW16xx2032-yy	3.16 l/h	20 cm	90%	39
PTW16xx2532-yy	3.16 l/h	25 cm	90%	46
PTW16xx3032-yy	3.16 l/h	30 cm	90%	52
PTW16xx4032-yy	3.16 l/h	40 cm	90%	63
PTW16xx5032-yy	3.16 l/h	50 cm	90%	73
PTW16xx6032-yy	3.16 l/h	60 cm	90%	83
PTW16xx2020-yy	1.99 l/h	20 cm	90%	56
PTW16xx2520-yy	1.99 l/h	25 cm	90%	66
PTW16xx3020-yy	1.99 l/h	30 cm	90%	75
PTW16xx4020-yy	1.99 l/h	40 cm	90%	91
PTW16xx5020-yy	1.99 l/h	50 cm	90%	105
PTW16xx6020-yy	1.99 l/h	60 cm	90%	119
PTW16xx2014-yy	1.30 l/h	20 cm	90%	71
PTW16xx2514-yy	1.30 l/h	25 cm	90%	83
PTW16xx3014-yy	1.30 l/h	30 cm	90%	94
PTW16xx4014-yy	1.30 l/h	40 cm	90%	114
PTW16xx5014-yy	1.30 l/h	50 cm	90%	132
PTW16xx6014-yy	1.30 l/h	60 cm	90%	149
PTW16xx2011-yy	1.08 l/h	20 cm	90%	82
PTW16xx2511-yy	1.08 l/h	25 cm	90%	98
PTW16xx3011-yy	1.08 l/h	30 cm	90%	111
PTW16xx4011-yy	1.08 l/h	40 cm	90%	135
PTW16xx5011-yy	1.08 l/h	50 cm	90%	156
PTW16xx6011-yy	1.08 l/h	60 cm	90%	176
PTW16xx2006-yy	0.67 l/h	20 cm	90%	122
PTW16xx2506-yy	0.67 l/h	25 cm	90%	143
PTW16xx3006-yy	0.67 l/h	30 cm	90%	162
PTW16xx4006-yy	0.67 l/h	40 cm	90%	197
PTW16xx5006-yy	0.67 l/h	50 cm	90%	228
PTW16xx6006-yy	0.67 l/h	60 cm	90%	257

Other emitter spacing available on request. The Irrloc application allows you to quickly and easily dimension your irrigation system, including on uneven land. With Irrloc you can also dimension the drip line feed manifold and view delivery uniformity on the line and the irrigation block.  
Free download: [www.toro-ag.it](http://www.toro-ag.it)

## Technical and Logistical data

Nominal diameter	Inner diameter	Wall thickness		Outer diameter	Min pressure	Max pressure	Reel length
16 mm	13.8 mm	35 mil	0.9 mm	15.6 mm	0.41 bar	3.5 bar	450 m
		39 mil	1.0 mm	15.8 mm		3.5 bar	
		43 mil	1.1 mm	16.0 mm		4.0 bar	
20 mm	17.6 mm	35 mil	0.9 mm	19.4 mm		3.0 bar	300 m
		39 mil	1.0 mm	19.6 mm		3.3 bar	
		47 mil	1.2 mm	20.0 mm		4.0 bar	

	Container 20'	Container 40'	Container 40' HC	Truck 13.6 m
Quantity of reels	160	320	360	400

