

Button and Pot on-line drippers

On-line non-pressure-compensated dripper, designed for simple and flexible irrigation in greenhouses, nurseries pots and container applications.

Provides a cost-effective solution where pressure variations are limited and system simplicity is preferred.



Benefits & Features

Hydraulic performance adaptability

Flow rate varies with pressure, following pressure-dependent flow characteristics that enable flexible system design under specific field conditions.

A low exponent (X) allows improved irrigation uniformity and enables longer dripline lengths under similar operating conditions.

Long-lasting, high clogging resistance

Ensures reliable performance even under challenging water quality conditions through a self-cleaning labyrinth that continuously flushes debris during operation.

The TurboNet™ labyrinth features wide, deep flow passages with large cross-sections that enhance clogging resistance.

Water is drawn from the center of the flow stream, helping to minimize suspended particle ingress and maintain consistent performance.

Flexible system design and installation

Emitters can be positioned precisely where required, enabling accurate adaptation to the irrigation layout.

Available with a range of outlet options, including flat, straight barbed or press-fit connections, supporting flexible system design and compatibility with "Spider" assemblies.

Flow rate is color-coded for quick identification and the nominal flow rate is marked directly on the emitter, simplifying installation and operation.

Applications



Open field



Orchards



Protected crops

- Suitable for on-surface installation.
- Delivers stable hydraulic performance in flat terrain and slightly sloping fields.
- Ideal for irrigation in greenhouses, nurseries, pots and container applications.



Specifications

- Maximum operating pressure: 2.0 bar.
- Filtration requirements: A filtration grade of 130 micron / 120 mesh is recommended to ensure long-term operational reliability. When sand content exceeds 2 ppm, a Hydrocyclone must be installed upstream of the main filter. For sand/silt/clay solids above 100 ppm, apply pre-treatment in line with Netafim™ expert guidelines.
- TurboNet™ labyrinth with enhanced clogging resistance and stable hydraulic performance.
- Insertable into thick-wall PE pipes: 0.90, 1.00 and 1.20 mm.
- Injection-molded dripper with low coefficient of variation (CV) for reliable uniformity.
- High UV resistance and compatible with standard agricultural nutrients and fertilizers.
- Compliant with ISO 9261 international standards.
- Button dripper: barbed inlet connection for direct insertion into the distribution pipe.
- Pot dripper: tapered threaded outlet for connection to a 3 mm ID micro-tube.

Drippers technical data

Button dripper

Flow rate* (l/h)	Water passages dimensions width-depth-length (mm x mm x mm)	Filtration area (mm²)	Constant K	Exponent X	Recommended filtration (micron)/(mesh)	Base color code	Upper body color code
2.0	0.98 x 0.89 x 50	2.0	0.662	0.48	130/120	Red	Black
3.0	1.05 x 0.95 x 50	2.0	0.993	0.48	130/120	Blue	Black
4.0	1.27 x 1.20 x 50	2.0	1.325	0.48	130/120	Black	Black
8.0	1.55 x 1.55 x 50	2.0	2.649	0.48	130/120	Green	Black

* Nominal flow rate at 1.0 bar.

Pot dripper

Flow rate* (l/h)	Water passages dimensions width-depth-length (mm x mm x mm)	Filtration area (mm²)	Constant K	Exponent X	Recommended filtration (micron)/(mesh)	Base color code	Upper body color code
2.0	0.98 x 0.89 x 50	2.0	0.662	0.48	130/120	Red	Black
4.0	1.27 x 1.20 x 50	2.0	1.325	0.48	130/120	Black	Black
8.0	1.55 x 1.55 x 50	2.0	2.649	0.48	130/120	Green	Black

* Nominal flow rate at 1.0 bar.

Both the K constant and the X exponent are fundamental hydraulic parameters used to calculate the actual flow rate of each dripper at a given operating pressure as detailed in the following pages.

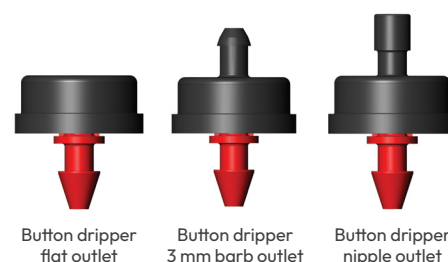


Kd (minor losses) – insertion barb in the distribution pipe

PE pipe	Inner diameter (mm)	Kd
12/4	9.80	1.65
16/4	13.20	0.39
20/4	17.00	0.13
25/4	21.20	0.10

Blank dripline	Inner diameter (mm)	Kd
12009 - 12010	10.60	1.61
16010 - 16012	14.20	0.37
20010 - 20012	17.50	0.12

Kd: A barbed inlet connector installed inside the pipe creates a localized disturbance in the water flow, generating minor head losses (Kd) as its shape and volume partially obstruct the internal flow path. The lower the Kd value for a given inner diameter, the longer the driplines can be designed under similar operating conditions.



Drippers package data (on carton box)

Button dripper	Quantity p/box (units)	Box dimensions (cm x cm x cm)	Average* box weight (kg)	Boxes p/pallet (units)	Pallet dimensions (cm x cm x cm)	Average* pallet weight (kg)
Flat outlet	10000	57 x 28 x 27	13.0	32	114 x 114 x 112	427
Barb outlet	9500		10.4			344
Nipple outlet	8500		12.0			395

*Values shown are average weights and may vary due to injection tolerances. Refer to the official Netafim™ disclaimers for details.

Pot dripper	Quantity p/box (units)	Box dimensions (cm x cm x cm)	Average* box weight (kg)	Boxes p/pallet (units)	Pallet dimensions (cm x cm x cm)	Average* pallet weight (kg)
Flat outlet	10000	57 x 28 x 27	13.0	32	114 x 114 x 112	427
Nipple outlet	8500		12.0			395

*Values shown are average weights and may vary due to injection tolerances. Refer to the official Netafim™ disclaimers for details.



Catalog numbers

Because of the wide range of available configurations (different flow rates and additional specifications), the final catalog number must be confirmed with your local Netafim™ representative after completing the product definition.

Complete the product specification using the options provided in the following flow chart.

How to use: Select one option from each category in the chart to define the most appropriate product configuration for your application.

Product name	Flow rate (l/h)	Outlet type	Emitters per package
Button dripper	2.0	Flat	1
	3.0	Barb 3 mm	25
	4.0	Nipple	50
	8.0		100
			250
			500
			1000
			According to the dripper model

BUTTON 4.0L/H NIP 100/BAG

Catalog description example

Product name	Flow rate (l/h)	Outlet type	Emitters per package
Pot dripper	2.0	Flat	1
	4.0	Nipple	25
	8.0		50
			100
			250
			500
			1000
			According to the dripper model

POT 2.0L/H FLT 50/BAG

Catalog description example

Drippers flow rate vs working pressure

To determine the actual flow rate of a dripper under different operating pressures, the following equation is applied:
 $Q = K \times P^X$

Where:

Q = Dripper flow rate (liters per hour)

K = Dripper-specific flow constant (manufacturer-defined)

P = Actual working pressure (meters of water column)

X = Dripper-specific exponent (manufacturer-defined)

In accordance with ISO 9261, manufacturers must declare both the K constant and the X exponent for each dripper model.

Non-pressure-compensated drippers deliver a flow rate that varies with operating pressure, following the relationship defined by the formula presented above.

To provide a general understanding of how flow rate responds to changes in operating pressure, tables are provided showing the dripper flow rate at different working pressures for each model in this document.

Button drippers flow (l/h) vs pressure (bar)

Dripper	Flow rate* (l/h)	Working pressure (bar)									
		0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
Button drippers	2.00	0.92	1.29	1.56	1.80	2.00	2.18	2.35	2.51	2.65	2.79
	3.00	1.38	1.93	2.35	2.69	3.00	3.27	3.52	3.76	3.98	4.18
	4.00	1.85	2.58	3.13	3.60	4.00	4.37	4.70	5.01	5.31	5.58
	8.00	3.69	5.15	6.26	7.19	8.00	8.73	9.40	10.02	10.61	11.16

* Nominal flow rate at 1.0 bar.

Pot drippers flow (l/h) vs pressure (bar)

Dripper	Flow rate* (l/h)	Working pressure (bar)									
		0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
Pot drippers	2.00	0.92	1.29	1.56	1.80	2.00	2.18	2.35	2.51	2.65	2.79
	4.00	1.85	2.58	3.13	3.60	4.00	4.37	4.70	5.01	5.31	5.58
	8.00	3.69	5.15	6.26	7.19	8.00	8.73	9.40	10.02	10.61	11.16

* Nominal flow rate at 1.0 bar.

Maximum driplines length

To determine the maximum feasible run length for a given dripline, considering all hydraulic factors that influence flow within the dripline, Netafim™ uses proprietary design software based on the Darcy-Weisbach equations, supported by decades of engineering expertise and long-standing collaboration with leading academic institutions.

The precise maximum run length for any installation must be calculated using this dedicated design software, which evaluates all relevant hydraulic parameters across the system.

Minor differences may occur between design tools available on the market, due to variations in calculation methodologies and underlying design assumptions.

To calculate the maximum feasible dripline length, taking into account the required variables, such as flow rate and emitter spacing, pipe inner diameter, field slope, inlet pressure and other parameters, Netafim™ HydroCalc design software can be used.



The following tables present the maximum dripline lengths that can be used in driplines to achieve optimal performance.

The values provided here are intended to offer a preliminary reference. The actual maximum dripline length must be calculated by a hydraulic engineer responsible for designing the complete system, in order to account for additional constraints and site-specific limitations.

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 16/4 • ID 13.2 mm • Kd 0.39 • Flow rate 2.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	45	69	86	97	113	132	140
	1%	48	78	101	118	146	198	235
Flat terrain	0	52	87	117	143	188	297	415
Downhill	-1%	55	96	132	166	228	399	615
	-2%	58	104	147	189	269	204	155

Max. dripline length (meters) at different slopes - 10% flow variation

Button drippers • On PE pipe 16/4 • ID 13.2 mm • Kd 0.39 • Flow rate 3.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	36	57	71	82	98	123	135
	1%	38	62	80	95	120	168	210
Flat terrain	0	40	68	90	110	146	231	325
Downhill	-1%	42	73	100	124	170	291	440
	-2%	43	78	108	137	194	354	175

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 16/4 • ID 13.2 mm • Kd 0.39 • Flow rate 4.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	30	49	62	72	87	114	130
	1%	32	52	68	81	104	150	190
Flat terrain	0	33	56	75	92	122	192	270
Downhill	-1%	34	60	82	101	138	234	350
	-2%	36	63	88	111	155	276	440

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 16/4 • ID 13.2 mm • Kd 0.39 • Flow rate 8.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	20	33	43	51	65	90	110
	1%	21	35	46	55	71	105	140
Flat terrain	0	21	36	48	59	78	126	175
Downhill	-1%	22	38	51	63	86	141	210
	-2%	22	39	53	67	92	159	245

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 20/4 • ID 17.0 mm • Kd 0.13 • Flow rate 2.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	69	96	112	121	132	144	145
	1%	78	118	145	166	197	246	270
Flat terrain	0	87	142	187	226	296	462	645
Downhill	-1%	96	165	227	284	396	717	360
	-2%	104	187	267	345	212	153	150

Max. dripline length (meters) at different slopes - 10% flow variation

Button drippers • On PE pipe 20/4 • ID 17.0 mm • Kd 0.13 • Flow rate 3.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	56	82	97	108	122	138	145
	1%	62	95	119	138	168	219	250
Flat terrain	0	67	109	144	174	228	357	500
Downhill	-1%	72	123	168	209	288	507	790
	-2%	77	137	191	245	350	165	150

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 20/4 • ID 17.0 mm • Kd 0.13 • Flow rate 4.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	48	72	86	98	113	132	140
	1%	52	81	102	120	147	198	235
Flat terrain	0	56	91	120	145	191	300	415
Downhill	-1%	59	101	137	170	231	402	615
	-2%	63	110	152	194	273	201	155

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 20/4 • ID 17.0 mm • Kd 0.13 • Flow rate 8.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	33	50	63	73	89	114	130
	1%	34	54	70	83	105	150	190
Flat terrain	0	36	59	77	94	123	192	270
Downhill	-1%	37	63	84	104	140	234	350
	-2%	39	67	91	114	156	279	440

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 25/4 • ID 21.2 mm • Kd 0.10 • Flow rate 2.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	90	117	129	135	141	147	150
	1%	108	157	188	209	237	273	285
Flat terrain	0	127	207	272	330	431	678	940
Downhill	-1%	145	256	358	456	650	345	310
	-2%	163	306	449	175	158	150	145

Due to lateral filling time and flushing effectiveness it is not recommended to exceed 800 meters lateral length

Max. dripline length (meters) at different slopes - 10% flow variation

Button drippers • On PE pipe 25/4 • ID 21.2 mm • Kd 0.10 • Flow rate 3.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	75	103	118	126	135	144	150
	1%	86	129	158	180	210	255	275
Flat terrain	0	98	160	210	255	333	522	730
Downhill	-1%	109	189	261	330	462	849	330
	-2%	119	218	314	409	174	153	145

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 25/4 • ID 21.2 mm • Kd 0.10 • Flow rate 4.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	66	93	108	118	129	141	145
	1%	73	112	139	159	191	240	265
Flat terrain	0	81	133	175	212	278	435	605
Downhill	-1%	89	153	210	264	366	657	390
	-2%	96	173	245	317	461	156	150

Max. dripline length (meters) at different slopes - 10% flow variation

Button and Pot drippers • On PE pipe 25/4 • ID 21.2 mm • Kd 0.10 • Flow rate 8.0 l/h • Inlet pressure 1.5 Bar

	Distance between drippers (meter)							
	Slope	0.25	0.50	0.75	1.00	1.50	3.00	5.00
Uphill	2%	46	68	83	94	110	132	140
	1%	49	77	97	114	141	192	230
Flat terrain	0	52	86	113	137	179	282	390
Downhill	-1%	56	94	128	158	215	372	570
	-2%	58	102	142	179	252	468	160