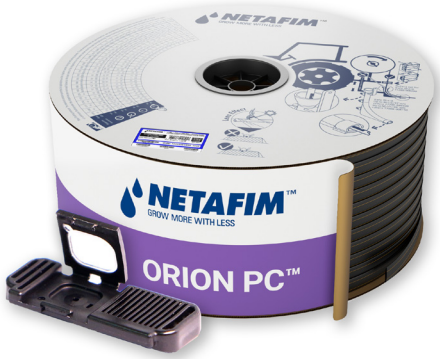
Orion PC™

The Orion PC™ dripper represents a groundbreaking innovation in agriculture, making the magic of pressure-compensated (PC) irrigation accessible to all.

→ 12060 - 12080 - 12100 - 12125 - 16060 - 16080
16100 - 16125 - 22060 - 22080 - 22100 - 22125



Pressure-compensated

Self-flushing mechanism

Wide filtration area

Benefits & Features

→ Pressure-compensated	Precise and equal amounts of water delivered over a broad pressure range, ensuring 100% uniformity of water and nutrient distribution along the laterals.
→ Continuously self-flushing	Flushes debris throughout operation, while ensuring constant dripper operation even with challenging water quality.
→ Wide filtration area	Ensures optimal performance even under harsh water conditions, preventing the entrance of sediment into the labyrinths.
→ Wide water passages	TurbuNext™ labyrinth ensures wide water passages, large deep and wide cross-section that improves clogging resistance.
→ ReGen™ (optional*)	ReGen™, the highest quality recycled dripline ever made, successfully addressing the supply chain sustainability needs of today's growers.

Specifications

- Pressure-compensated range: 0.2 - 1.8 bar.
- Recommended filtration: 130 micron / 120 mesh. Filtration method selected based on the kind and concentration of dirt particles contained in the water. Wherever sand exceeding 2 ppm exists in the water, a Hydrocyclone should be installed before the main filter. Where sand/silt/clay solids exceed 100 ppm, pre treatment it should be applied following Netafim expert instructions.
- TurbuNext™ labyrinth with superior performance.
- Weldable into thin wall driplines (0.15, 0.20, 0.25, 0.31 mm).
- Single part injected dripper, very low CV with injected membrane.
- High UV resistant. Resistant to standard nutrients used in agriculture.
- Compliance ISO 9261 international standards.

*ReGen™ is currently available in few markets, and we are in the process of making it available in all the markets.
Please consult your local Netafim™ representative for availability.

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→ Drippers technical data

Flow rate* (l/h)	Working pressure range (bar)	Water passages dimensions width-depth-length (mm)	Filtration area (mm²)	Constant K	Exponent* X	Recommended filtration (micron)/(mesh)
1.05	0.2 - 1.8	0.65 x 0.68 x 9	29	1.05	0	130/120

*Within working pressure range

→ Driplines technical data

Model	Inside diameter (mm)	Wall thickness (mm)	Outside diameter (mm)	Max. working pressure (bar)	Max. flushing pressure (bar)	KD
12060	11.80	0.15	12.10	1.8*	2.5	0.32
12080	11.80	0.20	12.20	1.8*	2.5	0.32
12100	11.80	0.25	12.30	1.8*	2.5	0.32
12125	11.80	0.31	12.42	1.8*	2.5	0.32
16060	16.20	0.15	16.50	1.0	1.2	0.08
16080	16.20	0.20	16.60	1.2	1.4	0.08
16100	16.20	0.25	16.70	1.4	1.6	0.08
16125	16.20	0.31	16.82	1.8	2.1	0.08
22060	22.20	0.15	22.50	0.8	0.9	0.05
22080	22.20	0.20	22.60	1.0	1.2	0.05
22100	22.20	0.25	22.70	1.1	1.3	0.05
22125	22.20	0.31	22.82	1.2	1.4	0.05

* The maximum working pressure is defined by the dripper

→ Driplines package data (on carton coil)

Model	Wall thickness (mm)	Distance between drippers (m)	Coil length (m)	Average* coil weight (kg)	Coils per pallet (units)	Coils in a 40 feet container (units)	Total in a 40 feet container (m)
12060	0.15	0.15 to 0.25	2000	16.2	16	640	1280000
		0.30 to 1.00	2200	16.5			1408000
12080	0.20	0.15 to 0.25	1600	16.1	16	640	1024000
		0.30 to 1.00	1800	16.8			1152000
12100	0.25	0.15 to 0.25	1400	16.3	16	640	896000
		0.30 to 1.00	1500	16.4			960000
12125	0.31	0.15 to 0.25	1100	15.5	16	640	704000
		0.30 to 1.00	1200	16.0			768000
16060	0.15	0.15 to 0.25	1800	18.4	16	640	1152000
		0.30 to 1.00	2000	18.9			1280000
16080	0.20	0.15 to 0.25	1600	19.9	16	640	1024000
		0.30 to 1.00	1800	21.0			1152000
16100	0.25	0.15 to 0.25	1400	21.0	16	640	896000
		0.30 to 1.00	1600	22.8			1024000
16125	0.31	0.15 to 0.25	1300	23.5	16	640	832000
		0.30 to 1.00	1400	24.2			896000
22060	0.15	0.15 to 0.25	1500	19.7	16	640	960000
		0.30 to 1.00	1600	19.9			1024000
22080	0.20	0.15 to 0.25	1300	21.7	16	640	832000
		0.30 to 1.00	1400	22.3			896000
22100	0.25	0.15 to 0.25	1000	20.4	16	640	640000
		0.30 to 1.00	1100	21.6			704000
22125	0.31	0.15 to 0.25	900	22.0	16	640	576000
		0.30 to 1.00	1000	23.7			640000

* Calculated weight average. For further details see “Average Coil Weight Disclaimer”.

Drippers flow rate vs working pressure

In order to calculate the right flow rate of each dripper, under different working pressures, we use the following formula:
$Q = K * P^X$

Where:
Q = Dripper flow rate (liters/hour)
K = Constant (each dripper has his singular constant and must be defined by the dripper producer)
P = Real working pressure (meter)
X = Exponent (each dripper has its singular exponent and must be declared and defined by the dripper producer)

*ISO 9261 require from the manufacturer to declare the constant K and dripper exponent

In all Netafim™ pressure-compensated drippers - including Orion PC™ (shown in this document) – the dripper exponent X is equal to 0 [zero] (within the pressure range defined for each of the drippers), so the right flow rate of the dripper will be always equal (+/- 7% as defined by the international standard: ISO 9261).

Each dripper has a compensation range which includes minimum and maximum pressure; under the minimum pressure defined, the dripper will perform as non-pressure-compensated dripper and provide flow that increases with the pressure increase until reaching the minimum defined limit working pressure.

If the Netafim™ pressure-compensated drippers are exposed to a higher pressure than the defined maximum pressure, the drippers will continue to regulate the flow rate, but become more sensitive to clogging, usually the maximum working pressure of the drippers are determined by the driplines limitations (diameter and wall thickness) and most importantly the pipe and its associated connections.

Max. lateral length

Flow Variation (FV) expresses the flow variation between the dripper “sensing” the highest pressure and the one “sensing” the lowest pressure in an irrigation block (zone).

These drippers will not always be the first and last drippers on the dripline.
$FV\ \% = (Q_{max} - Q_{min}) / Q_{max} * 100$

*International standards define 10% flow variation to be considered as uniform irrigation.

In order to calculate the maximum run lengths that can be planned for specific dripline (considering all the hydraulic factors influencing the flow within the same dripline), we use a calculation software that was developed by Netafim™ based on Darcy-Waisbach formulas + years of design experience and cooperation with academic institutes.

All the tables presented in this document are for initial reference only; the exact run length of the driplines is obtained from design software that considers various hydraulic factors in the entire system.

There might be small variance between the different software’s in the market due to the calculation method and assumptions each software is using. For an initial estimate of the dripline length, the data that is presented in this document (within the tables shown) is sufficiently accurate.

As we have already seen, pressure-compensated drippers of Netafim™ will provide equal flow irrespective of the working pressure, therefore, the factors that are affecting the dripline run lengths will be: the dripline inlet pressure, the minimum working pressure set for the dripper and the slope.

Max. lateral length (meter) at different inlet pressure and different slopes

Orion PC™ 12060/12080/12100/12125 • ID 11.8 mm • Kd 0.32 • Flow rate 1.05 l/h

	Distance between drippers (meter)					
	Inlet pressure (bar)	0.2	0.3	0.4	0.5	0.6
Uphill 2%	0.8	75	98	116	132	145
	1.0	84	111	133	151	167
	1.2	92	122	146	168	186
	1.6	105	139	168	194	217
	1.8	110	147	178	205	229
Flat terrain	0.8	86	116	144	169	191
	1.0	94	128	158	186	211
	1.2	101	138	171	201	228
	1.6	113	155	191	225	255
	1.8	119	162	200	235	267
Downhill 2%	0.8	100	146	194	248	318
	1.0	108	156	207	263	335
	1.2	115	166	218	276	349
	1.6	126	181	236	298	373
	1.8	131	188	245	307	384

Minimum considered pressure 0.2 bar

Max. lateral length (meter) at different inlet pressure and different slopes

Orion PC™ 16060/16080/16100/16125 • ID 16.2 mm • Kd 0.08 • Flow rate 1.05 l/h

	Distance between drippers (meter)					
	Inlet pressure (bar)	0.2	0.3	0.4	0.5	0.6
Uphill 2%	0.8	128	158	180	198	211
	1.0	147	183	212	234	253
	1.2	162	204	238	265	288
	1.4	176	223	260	292	318
Flat terrain	0.8	163	215	262	305	343
	1.0	179	238	289	336	379
	1.2	193	256	312	362	409
	1.4	205	273	332	386	435
Downhill 2%	0.8	234	239	300	358	386
	1.0	248	260	325	387	427
	1.2	260	277	346	411	461
	1.4	271	292	364	432	490

Minimum considered pressure 0.2 bar

Max. lateral length (meter) at different inlet pressure and different slopes

Orion PC™ 22060/22080/22100/22125 • ID 22.2 mm • Kd 0.05 • Flow rate 1.05 l/h

	Distance between drippers (meter)					
	Inlet pressure (bar)	0.2	0.3	0.4	0.5	0.6
Uphill 2%	0.6	146	165	176	183	187
	0.8	189	221	241	254	263
	1.0	222	266	295	316	331
Flat terrain	0.6	246	325	394	458	517
	0.8	282	373	452	525	593
	1.0	310	411	499	580	653
Downhill 2%	0.6	307	427	535	650	**
	0.8	340	469	586	705	**
	1.0	367	504	628	754	**

Minimum considered pressure 0.2 bar

** In such a cases where the head losses are minor, due to low flow rate associated with wide drippers spacing and positive slope (downhill), the driplines lengths that we determines to achieve effective lateral flushing. In these cases, if it is possible, we using smaller diameter driplines.