Application: irrigation

Extrusion lines for drip irrigation pipes
Manufacturing process for irrigation pipes

The extrusion of irrigation pipe is a high-speed process. Modern equipment today reaches production speeds of up to 200 m/min. To set the intervals between drippers flexibly along the whole speed range, the perforation method is one of the decisive factors. For this, battenfeld-cincinnati offers individual solutions for highest productivity.

Your advantages:
- Patented production process
- No minimum intervals needed between drippers, even at maximum line speeds
- Very easy handling of the whole line and the perforating unit

Our offer:
- High-performance extruders
- Vacuum tanks for constant vacuum designed specifically for this application
- Robust design

Schematic diagram of a complete line / example of line configuration for irrigation pipe:

On-line drippers: drippers are manually inserted into the finished pipe from the outside, enabling the combination of different types of drippers

In-line drippers: drippers are inserted into the interior of the pipe in the cross-head die
Irrigation pipes in use

Due to climate change and world population growth, water consumption for the irrigation of arable land will rise by about 14% from 2000 to 2030. Consequently, there will be a rising demand for irrigation systems that enable targeted water supply to plants even in regions with little rainfall. Intelligent, efficient irrigation systems made of plastics will help to meet these challenges.

Agricultural irrigation has been practiced for thousands of years, but drip irrigation systems have existed only for the last few decades. These systems basically consist of plastic pipes made of PE and fitted with outlets at regular intervals. Polyolefin pipes can be produced in large quantities very easily and at low cost. They are resistant to weathering and UV radiation and lend themselves to flexible laying.

battenfeld-cincinnati offers systems for the production of irrigation pipe lines for agricultural use (e.g. greenhouses, field cultivation, viticulture, tobacco, tea growing), horticulture and landscaping, as well as the mining industry (leaching).
In a drip irrigation system the water is distributed directly to the plants’ root areas by integrated (in-line) or inserted (on-line) drippers in pipe lines laid above ground or underground. Through targeted moistening of the area around the plant, or rather its root area, no water can seep away into the surrounding soil or evaporate above ground. In drip irrigation, the degree of irrigation efficiency or water utilization efficiency is extremely high with more than 80%.

This enables:
- Yield increases and savings thanks to targeted use of fertilizers
- Prevention of soil salinization - this is particularly important in countries with arid climates

A distinction is made between thick-walled drip pipe lines with pressure compensation and thin-walled drip pipe lines without pressure compensation. In drip pipes with pressure compensation, the drippers are fitted with membranes that close at a certain pressure and thus prevent complete emptying of the drip pipe. To ensure constant water supply to every dripper, different types of drippers are used, for instance round drippers, flat drippers or drip tapes.

The preferred materials are compounds consisting of several different types of polyethylene, in most cases with carbon black pigments for UV protection. Irrigation pipes are subjected to only relatively low pressures from about 0.1 bar to a maximum of 4 bar.

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**Irrigation with plastic pipes**

Irrigation in a glasshouse (Photo: istock)  
Close-up on-line dripper (Photo: istock)
Drip irrigation systems from a single source

A drip irrigation system consists of pumps, filters and water treatment facilities, through which the water flows into the distribution lines.

The pipes and tubes made from plastics that bring the water to the plants and are manufactured on battenfeld-cincinnati equipment are shown in green.

Together with its partner HydroTech Engineering, battenfeld-cincinnati offers its customers complete packages for the production of irrigation pipes:

- Consulting about the design of the complete irrigation system for different end-use applications
- Individual design of drippers and irrigation pipes
- Independent production of the drippers
Our production locations

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We offer you energy-efficient equipment and production solutions. Find out more in our brochure or online.

Here you see a schematic layout of an irrigation pipe line, with the components supplied by battenfeld-cincinnati in green.

In the list you will find all our brochures PO pipe production:

- Single screw extruders
- PO pipe heads
- Pipe downstream
- FDC - fast inline dimension change for pipe extrusion