
**Agricultural irrigation equipment —
Emitters and emitting pipe —
Specification and test methods**

*Matériel agricole d'irrigation — Distributeurs et tuyaux-distributeurs —
Spécifications et méthodes d'essai*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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ISO 9261 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 18, *Irrigation and drainage equipment and systems*.

This second edition of ISO 9261 cancels and replaces ISO 9261:1991 and ISO 9260:1991, of which it constitutes a technical revision.

Agricultural irrigation equipment — Emitters and emitting pipe — Specification and test methods

1 Scope

This International Standard gives mechanical and functional requirements for agricultural irrigation emitters and emitting pipes, and, where applicable, their fittings, and provides methods for testing conformity with such requirements. It also specifies the data to be supplied by the manufacturer to permit correct information, installation and operation in the field.

It is applicable to emitters, emitting and dripping (trickling) pipes, hoses, including collapsible hoses ("tapes") and tubing of which the emitting units form an integral part, to emitters and emitting units with or without pressure regulation and with flow rates not exceeding 24 l/h per outlet (except during flushing), and to fittings dedicated to the connection of emitting pipes, hoses and tubing. It is not applicable to porous pipe (pipe that is porous along its entire length), nor does it cover the performance of pipes as regards clogging.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3501, *Assembled joints between fittings and polyethylene (PE) pressure pipes — Test of resistance to pull out*¹⁾

ISO 8796:—²⁾, *Polyethylene PE 32 and PE 40 pipes for irrigation laterals — Susceptibility to environmental stress cracking induced by insert-type fittings — Test method and specification*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

emitter

dripper

device fitted to an irrigation lateral and intended to discharge water in the form of drops or continuous flow at flow rates not exceeding 24 l/h except during flushing

3.2

in-line emitter

emitter intended for installation between two lengths of pipe in an irrigation lateral

1) Requirements for connections of insert-type fittings are to be included in a future edition.

2) To be published. (Revision of ISO 8796:1989)

3.3

on-line emitter

emitter intended for installation in the wall of an irrigation lateral, either directly or indirectly by means such as tubing

3.4

multiple-outlet emitter

emitter in which the output flow is divided and directed to several distinctly different locations

3.5

multiple emitter

multiple-outlet emitter in which every outlet is a secondary emitter with its own flow rate

NOTE The pressure relationship ($q = kp^m$), and the flow rate of each outlet is not generally dependent on the flow rate of other emitters.

3.6

emitting pipe

continuous pipe, hose or tubing, including collapsible hose ("tape") with perforations or other hydraulic devices formed or integrated in the pipe, hose or tubing during production and intended to discharge water in the form of drops or continuous flow, at flow rates not exceeding 24 l/h except during flushing

3.7

regulated emitter/emitting pipe

pressure compensating emitter/emitting pipe

emitter/emitting pipe which maintains a relatively constant flow rate at varying water pressures at the emitter/emitting pipe inlet within the limits specified by the manufacturer

3.8

regular emitter/emitting pipe

emitter/emitting pipe whose flow rate is different from zero when the inlet pressure is different from zero

3.9

non-leakage emitter/emitting pipe

emitter/emitting pipe whose flow is zero whenever the pressure at the inlet of the emitter/emitting pipe is lower than a value (other than zero) declared by the manufacturer

3.10

unregulated emitter/emitting pipe

non-pressure compensating emitter/emitting pipe

emitter/emitting pipe whose flow rate varies with inlet water pressure

3.11

flow rate

emission rate of an emitter or an emitting pipe

3.12

minimum working pressure

lowest working pressure at the inlet to an emitter/emitting pipe recommended by the manufacturer to ensure proper operation of the emitter/emitting pipe

3.13

maximum working pressure

highest water pressure at the inlet to an emitter/emitting pipe recommended by the manufacturer to ensure proper operation of the emitter/emitting pipe

3.14

non-reusable emitting pipe

emitting pipe not intended for removal from the field and reinstallation

3.15**reusable emitting pipe**

emitting pipe designed for removal from the field and reinstallation with proper handling from one season to another or under other circumstances

3.16**emitting unit**

section of an emitting pipe, including all its hydraulic devices formed or integrated in the pipe during production and all of the emitter inlets, repeated at intervals, from which water is discharged to one clearly distinguishable location

3.17**unit emitting pipe**

length of emitting pipe containing one emitting unit

3.18**clamping band**

ring-like or band-like device used for obtaining a watertight joint between an emitting pipe and a fitting

3.19**fitting**

connecting device suitable for attachment to an emitting pipe with or without a clamping band

3.20**inlet fitting**

fitting having one end suitable for connection to a standard irrigation pipe or appliance and the other end or ends suitable for connection to an emitting pipe

3.21**in-line fitting**

fitting having both ends suitable for connection to an emitting pipe

3.22**nominal diameter**

numerical designation used to refer to the size of an emitting pipe, approximately equal to the outside diameter of the emitting pipe

3.23**nominal size**

numerical designation used to refer to the size of an in-line emitter, approximately equal to the inside diameter of an irrigation lateral pipe to which it is intended to be connected

3.24**nominal test pressure**

p_n

reference pressure, to be used for test purposes, of 100 kPa at the inlet of an unregulated emitter/emitting unit, or any other pressure as designated in manufacturer's publications

3.25**nominal flow rate**

q_n

⟨unregulated emitter/emitting pipe⟩ flow rate, expressed in litres per hour, of an emitter/emitting unit operating at the nominal test pressure and at a water temperature of 23 ± 3 °C, as specified by the manufacturer

3.26**nominal flow rate**

q_n

⟨regulated emitter/emitting pipe⟩ flow rate, expressed in litres per hour, of an emitter/emitting unit operating in the range of regulation and at a water temperature of 23 ± 3 °C, as specified by the manufacturer