

ISO 24120-3:2025-12 (E)

Agricultural irrigation equipment - Guidelines on the implementation of pressurized irrigation systems - Part 3: Sprinkler irrigation

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Micro-sprinkler irrigation — Micro-sprinklers, sprayers, misters, foggers.....	3
4.1 Agricultural applications of micro-sprinklers.....	3
4.1.1 General.....	3
4.1.2 Micro-sprinkler selection principles.....	3
4.2 Control head.....	3
4.2.1 General.....	3
4.2.2 Water meters.....	3
4.2.3 Valves.....	4
4.3 Pumps.....	6
4.3.1 General.....	6
4.3.2 Power source for the pump.....	6
4.3.3 Centrifugal pumps.....	6
4.3.4 Pump capacity.....	7
4.3.5 Pump selection.....	7
4.3.6 Constraints.....	7
4.3.7 Performance curve.....	8
4.4 System design principles.....	8
4.4.1 General.....	8
4.4.2 Water application rate.....	8
4.4.3 Water distribution uniformity.....	8
4.4.4 Irrigation lateral maximum length.....	9
4.4.5 Head loss in tube and accessories.....	9
4.4.6 System head pressure.....	9
4.4.7 Filtration system.....	9
4.5 Micro-sprinkler system installation.....	9
4.5.1 Installation of a micro-sprinkler irrigation lateral.....	9
4.5.2 Installation of accessories.....	10
4.5.3 Connecting micro-sprinklers to an irrigation lateral.....	10
4.6 Fertigation and chemigation.....	10
4.6.1 General.....	10
4.6.2 Fertilizers.....	10
4.6.3 Fertigation.....	11
4.6.4 Chemigation.....	11
4.6.5 Dosing unit.....	11
4.6.6 Benefits of fertigation and/or chemigation.....	11
4.6.7 Chemical application units.....	11
4.7 Testing the micro-sprinkler system.....	12
4.7.1 General.....	12
4.7.2 Checking pressure.....	12
4.7.3 Comparing the design to installation in the field.....	12
4.8 Micro-sprinkler system maintenance.....	12
4.8.1 Filtration unit cleaning.....	12
4.8.2 Chemical treatment of micro-sprinklers.....	12

5	Sprinkler irrigation	13
5.1	Agricultural applications of sprinklers.....	13
	5.1.1 General.....	13
	5.1.2 Sprinkler selection principles.....	13
5.2	Control head.....	13
	5.2.1 General.....	13
	5.2.2 Water meters.....	14
	5.2.3 Valves.....	14
5.3	Pumps.....	14
5.4	System design principles.....	14
	5.4.1 General.....	14
	5.4.2 Water application rate.....	14
	5.4.3 Water distribution uniformity.....	15
	5.4.4 Evaporation loss during sprinkler irrigation.....	15
	5.4.5 Soil infiltration rate.....	15
	5.4.6 Irrigation lateral maximum length.....	15
	5.4.7 Pressure head reduction in the riser.....	16
	5.4.8 System head pressure.....	16
	5.4.9 Filtration system.....	16
5.5	Sprinkler system installation.....	16
	5.5.1 Installation of sprinkler irrigation lateral and riser.....	16
	5.5.2 Connecting the sprinkler to the irrigation lateral.....	17
5.6	Fertigation and chemigation.....	17
5.7	Sprinkler system operation.....	17
5.8	Sprinkler system maintenance.....	17
	5.8.1 General.....	17
	5.8.2 Irrigation laterals.....	18
	Annex A (informative) Head loss versus pressure loss equation	19
	Bibliography	20