

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