PIVOT
Equipment

Introduction:

Pivot equipment is a system which works with a short rod or shaft on which a related part rotates or swings.
It is useful for low pressure conditions of work and semi fixed systems of irrigation.
The objective of such system is to obtain uniform and fine droplets, regulating the pressure and type of jet.

Advantages:

- Better storage of water because of protection against wind.
- Less evaporation as it is low flow irrigation and that allows humidity of soils.
- It avoids waste of water.
- It is not necessary to use a lot employees for large soils, and that saves costs.
- Easy to use
- Low investment costs
- Possibility to irrigate by night at less evaporation hours.

Recommended uses:

It is almost exclusively used for crops like corn, soybeans, potato or sunflower and also for forage crops such as alfalfa, or industrial plant use (cotton).
It is more profitable to use pivot where there is not much slope.

Components:

Diffuser: water jet, circular small jet.
Spray: water jet around an axis forming a circle.
Rotational spray : water jet around an axis forming a complete circle.
Pressure regulator: mechanism that maintains constant pressure of the water contained in the installation of irrigation systems to obtain uniformity of jet water and to avoid over pressure in the pipes.

Wet area according to jet exit

DIFFUSER SPRAY ROTATIONAL

Different types of Pivot irrigation

- **Central pivot:** the irrigated area forms a circle around a central axis, the water intake.
- **Lateral pivot:** the irrigated area looks like a rectangle
- **Racetrack shaped pivot:** the irrigated area looks like a racecourse.,combining the two systems described before, with rotation and movement in a single irrigation system.

CENTRAL LATERAL RACETRACK

Unirain F4444

Full Circle Impact Sprinkler
Low and Medium flow Plastic

Application

For general agricultural use, medium and high flows, it is designed specially for travelling systems, mainly CENTER PIVOT and LINEAR MOVES. The special conditions of these machines suggest using a kind of sprinklers that differs from those traditionally used on solid sets.
It is also recommended for undertree irrigation.

Advantajes

- Two twin water outlets, both for main nozzles. This eliminates secondary nozzle plugging and provides a higher flow per sprinkler, which means a lower number of sprinklers in use.
- Its 8º water stream angle greatly minimises the effects of wind when installed on PIVOTS (10 to 14ft high), reducing evaporation and improving uniformity.
- Three different types of water guide vanes to achieve the desired coverage and spray balance according to the available system pressure.

Technical specifications

- Full circle impact sprinkler.
- ¾" M base thread
- Two main nozzles
- 8º Nozzle trajectory angle
- Pressure range: 1,38 - 5,52 Bar
- Nozzle range: 9/64" (3,57mm) - 15/64" (5,95mm)
- Acetal resin body and bearing.
- Polyamide fibreglass arm.
- Protection cap against UV radiation.
- Fulcrum pin and springs made of stainless steel.
- Expanded fulcrum,pin upper end diameter for a better fitting into the sprinkler body.
- Color-coded anti abrasive acetal resin nozzles carved in millimetres and inches for a better identification.
- It can be assembled with plastic or brass nozzles.
- Backturn lock between the sprinkler body and the compresion spring.

F4444

	Pressure (bar)	Nozzles	Vanes
HIGH	4.14	3PRN ó 3FCN	30 V
MEDIUM	2.76	3PRN ó 3FCN	WITHOUT VANE
LOW	2.10	3PRN	30RV
VERY LOW	1.38	3PRN	30BV

F4444	PRESSURE	NOZZLES 9/64" + 9/64"		NOZZLES 5/32" + 5/32"		NOZZLES 11/64" + 11/64"		NOZZLES 3/16" + 3/16"		NOZZLES 13/64" + 13/64"		NOZZLES 7/32" + 7/32"		NOZZLES 15/64" + 15/64"	
	(Bar)	L/H	R(m)	L/H	R(m)	L/H	R(m)	L/H (*)	R(m)	L/H	R(m)	L/H	R(m)	L/H	R(m)
TWO NOZZLES	1.38	1138	9.4	1383	10.1	1641	9.9	1895	9.9	2155	10.0	2419	10.0	2685	10.0
	1.72	1271	9.7	1546	10.2	1832	10.2	2116	10.3	2408	10.3	2706	10.3	3006	10.3
	2.07	1389	9.9	1691	10.3	2003	10.4	2315	10.5	2637	10.5	2965	10.5	3297	10.5
	2.41	1498	10.2	1824	10.4	2161	10.5	2499	10.6	2847	10.7	3204	10.7	3564	10.7
	2.76	1599	10.3	1947	10.5	2307	10.6	2669	10.7	3043	10.8	3426	10.9	3813	10.9
	3.10	1695	10.4	2063	10.6	2444	10.7	2829	10.8	3227	10.9	3634	11.0	4048	11.0
	3.45	1785	10.5	2174	10.7	2574	10.8	2980	10.9	3401	11.0	3832	11.0	4269	11.1
	3.79	1870	10.6	2278	10.8	2697	10.9	3124	11.0	3566	11.1	4020	11.1	4480	11.2
	4.14	1952	10.7	2375	10.9	2815	11.0	3262	11.1	3724	11.2	4199	11.2	4682	11.3
	4.48	2030	10.8	2469	10.9	2928	11.1	3393	11.1	3876	11.3	4371	11.3	4875	11.4
	4.83	2105	10.8	2560	11.0	3036	11.1	3520	11.2	4022	11.3	4537	11.4	5062	11.5
	5.17	2178	10.9	2646	11.0	3141	11.2	3642	11.3	4162	11.4	4697	11.5	5241	11.6
	5.52	2248	10.9	2731	11.1	3242	11.2	3760	11.3	4298	11.4	4851	11.5	5415	11.6

F4444P	PRESSURE	NOZZLES 9/64"		NOZZLES 5/32"		NOZZLES 11/64"		NOZZLES 3/16"		NOZZLES 13/64"		NOZZLES 7/32"		NOZZLES 15/64"	
	(Bar)	L/H	R(m)	L/H	R(m)	L/H	R(m)	L/H (*)	R(m)	L/H	R(m)	L/H	R(m)	L/H	R(m)
ONE NOZZLE AND PLUG	1.38	581	9.4	713	10.1	859	9.9	1017	9.9	1187	10.0	1370	10.0	1564	10.0
	1.72	649	9.7	797	10.2	959	10.2	1135	10.3	1325	10.3	1528	10.3	1745	10.3
	2.07	710	9.9	872	10.3	1049	10.4	1241	10.5	1449	10.5	1671	10.5	1908	10.5
	2.41	766	10.2	940	10.4	1132	10.5	1339	10.6	1563	10.7	1802	10.7	2057	10.7
	2.76	818	10.3	1004	10.5	1209	10.6	1430	10.7	1669	10.8	1924	10.9	2196	10.9
	3.10	867	10.4	1065	10.6	1281	10.7	1515	10.8	1768	10.9	2038	11.0	2327	11.0
	3.45	914	10.5	1121	10.7	1349	10.8	1596	10.9	1862	11.0	2147	11.0	2450	11.1
	3.79	958	10.6	1175	10.8	1414	10.9	1673	11.0	1951	11.1	2250	11.1	2567	11.2
	4.14	1000	10.7	1227	10.9	1476	11.0	1746	11.1	2037	11.2	2348	11.2	2679	11.3
	4.48	1040	10.8	1276	10.9	1535	11.1	1816	11.1	2118	11.3	2442	11.3	2786	11.4
	4.83	1079	10.8	1324	11.0	1592	11.1	1883	11.2	2197	11.3	2532	11.4	2889	11.5
	5.17	1116	10.9	1370	11.0	1647	11.2	1948	11.3	2272	11.4	2619	11.5	2988	11.6
	5.52	1153	10.9	1414	11.1	1701	11.2	2011	11.3	2346	11.4	2704	11.5	3084	11.6

F4444V	PRESSURE	NOZZLES 9/64" + 9/64"		NOZZLES 5/32" + 5/32"		NOZZLES 11/64" + 11/64"		NOZZLES 3/16" + 3/16"		NOZZLES 13/64" + 13/64"		NOZZLES 7/32" + 7/32"		NOZZLES 15/64" + 15/64"	
	(Bar)	L/H	R(m)	L/H	R(m)	L/H	R(m)	L/H (*)	R(m)	L/H	R(m)	L/H	R(m)	L/H	R(m)
TWO NOZZLES AND VANE TO HIGH RANGE	2.41	1498	10.7	1824	10.9	2161	11.0	2499	11.1	2847	11.2	3204	11.2	3564	11.2
	2.76	1599	10.9	1947	11.0	2307	11.1	2669	11.2	3043	11.3	3426	11.4	3813	11.4
	3.10	1695	11.0	2063	11.1	2444	11.2	2829	11.3	3227	11.4	3634	11.5	4048	11.5
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	4.14	1952	11.3	2375	11.4	2815	11.5	3262	11.6	3724	11.7	4199	11.7	4682	11.9
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	4.83	2105	11.5	2560	11.5	3036	11.6	3520	11.7	4022	11.9	4537	12.0	5062	12.1
	5.17	2178	11.5	2646	11.5	3141	11.7	3642	11.9	4162	12.0	4697	12.1	5241	12.2
	5.52	2248	11.6	2731	11.6	3242	11.7	3760	11.9	4298	12.0	4851	12.1	5415	12.2

F4444PV	PRESSURE	NOZZLES 9/64"		NOZZLES 5/32"		NOZZLES 11/64"		NOZZLES 3/16"		NOZZLES 13/64"		NOZZLES 7/32"		NOZZLES 15/64"	
	(Bar)	L/H	R(m)	L/H	R(m)	L/H	R(m)	L/H (*)	R(m)	L/H	R(m)	L/H	R(m)	L/H	R(m)
ONE NOZZLE, PLUG AND VANE TO HIGH RANGE	2.41	766	10.7	940	10.9	1132	11.0	1339	11.1	1563	11.2	1802	11.2	2057	11.2
	2.76	818	10.9	1004	11.0	1209	11.1	1430	11.2	1669	11.3	1924	11.4	2196	11.4
	3.10	867	11.0	1065	11.1	1281	11.2	1515	11.3	1768	11.4	2038	11.5	2327	11.5
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	5.52	1153	11.6	1414	11.6	1701	11.7	2011	11.9	2346	12.0	2704	12.1	3084	12.2

Data obtained under ideal test conditions. It can be affected by wind, bad hydraulic conditions or other adverse factors.
Highest point of the jet above the nozzle: 0.8 m (using standard nozzle 3 / 16 "to 3.45 Bar)
Throw radius jets achieved with the 0.9m lift. Shaded areas not recommended.
(*) Standard Nozzle.

Due to the large number of possible combinations of nozzles, only the most common ones are represented.
To find information relating to other combinations , please advise factory.

L/H: Liters Per Minute
R(m): Throw Radius (meter)

WARRANTY AND EXCLUSIONS

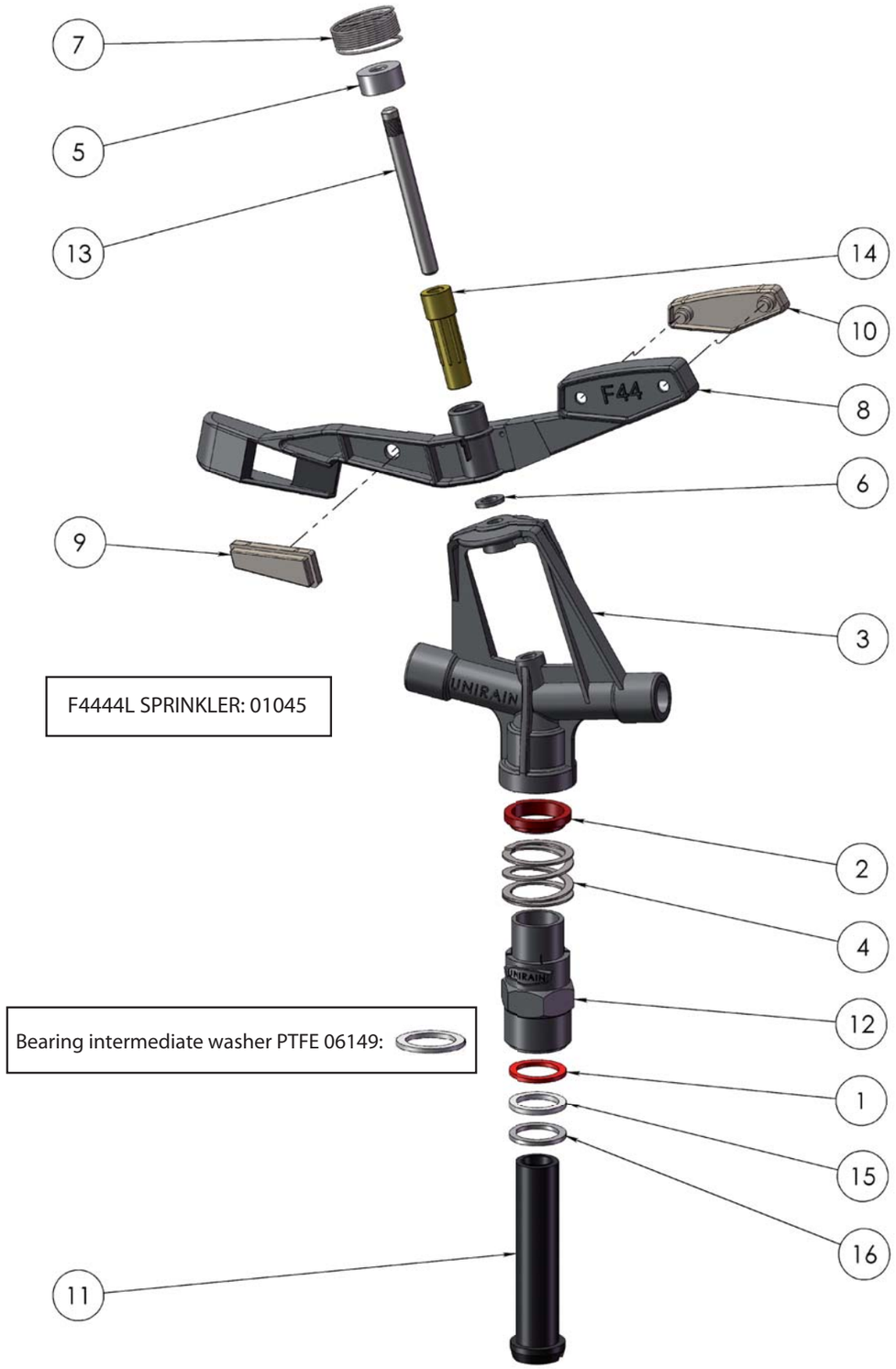
The manufacturer guarantees its products for direct customer against any defects in materials or manufacture for a period of two years from the original date of purchase, only when the products have been used under normal operating conditions. The manufacturer assumes no responsibility for installation, removal or repairs carried out by unauthorised personnel. The manufacturer's liability under this warranty is limited to the replacement or repair of defective parts and the manufacturer does not accept responsibility for damages to crops or any other consequential damages deriving from defects in the products covered by this warranty.

THE PRESENT WARRANTY SUPERCEDES AND VOIDS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES OR ANY OTHER ATTRIBUTING LIABILITY TO THE MANUFACTURER.

No agent, employee or representative of the manufacturer is authorised to void, alter or add to the conditions contained in this warranty, nor to take responsibility for, nor to make guarantees not specified herein.

F4444

ASSEMBLY



F4444L SPRINKLER: 01045

Bearing intermediate washer PTFE 06149:

COMPONENT NUMBER	CODE	DESCRIPTION	MATERIAL	QUANTITY
1	00252	Bearing Upper Washer	Anti Hydrolisis PU	1
2	00255	Bearing Body Lock	High Density PE	1
3	00326	Sprinkler BodyF4444	POM	1
4	06151	Bearing Spring	Stainless Steel	1
5	06161	Swing Arm Cap	PE	1
6	06162	Swing Arm Support Washer	NBR	1
7	06183	Arm Spring 3/4” Series	Stainless Steel	1
8	06514	F44 Sprinkler Arm F44	PA6 + Fiber Glass	1
9	06515	Front Counterweight	ZAMAK	1
10	06516UNI	Unirain Back Counterweight	ZAMAK	1
11	06517	Bearing pin P45 / F44	POM	1
12	06518UNI	Bearing body F44	POM	1
13	06519	fulcrum pin	Stainless Steel	1
14	06636	Arm Bearing	POM	1
15	06736	Bearing Intermediate washer	High Density PE	1
16	07459	Bearing Lower washer	NBR	1

Notes

Process/Manufacturer	Size	Material	Code
UNIRAIN	A3		01044
	Scale 1:2	Name F4444 Sprinkler	
PRIVATE AND CONFIDENTIAL THE INFORMATION CONTAINED ON THIS PLAN IS FOR UNIRAIN USE ONLY. FORBIDDEN CHANGE OR AMENDMENT OF VALUES OF THE PLAN WITHOUT A CONSENT IN WRITTING.	24/06/09 E.G.B.	unirain IRRIGATION PRODUCTS	

Senninger PSR & PSR-2

Pressure regulators PSR20; PSR-2-15 y PSR-2-30

Senninger pressure regulators maintain a constant preset outlet pressure that can be matched to the applicator design, regardless of variations in inlet pressure. This helps maintain sprinkler pattern integrity and performance.

The patented PSR-2 is ideal for systems pumping surface water.

Senninger introduced the first high-quality in-line pressure regulator to the irrigation industry in 1966.

PSR Y PSR-2 DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range	Outlet-Inlet Sizes
PSR-2-15	15 psi (1,03 bar)	95 psi (6,55 bar)	0,5 - 15 gpm 114 - 3407 L/hr	3/4"-3/4" Female NPT
PSR - 20	20 psi (1,38 bar)	100 psi (6,89 bar)		
PSR-2-30	30 psi (2,07 bar)	110 psi (7,58 bar)		

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar)above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

CAUTION: *Always install downstream from all shut-off valves. Not NSF certified. Recommended for outdoor use only.*

FEATURES

- Flows: 0.5 to 15 gpm (114 to 3407 L/hr) allows the use of the same model along the entire machine.
- Each regulator maintains a constant preset outlet pressure based on its flow/inlet pressure.
- Outlet pressures: 6 to 50 psi (0.41 to 3.45 bar)
- Tamper-proof housing
- Very low hysteresis and friction losses
- 100% pressure tested to ensure quality and performance

DESIGN PRESSURE	Pressure Variations			
	1 psi (0,69 bar)	2 psi (1,38 bar)	3 psi (2,07 bar)	5 psi (2,76 bar)
6 psi (0,41 bar)	8,3%	16,7%	25,0%	41,7%
10 psi (0,69 bar)	5,0%	10,0%	15,0%	25,0%
15 psi (1,03 bar)	3,3%	6,7%	10,0%	16,7%
20 psi (1,38 bar)	2,5%	5,0%	7,5%	12,5%
% Flow Variation				

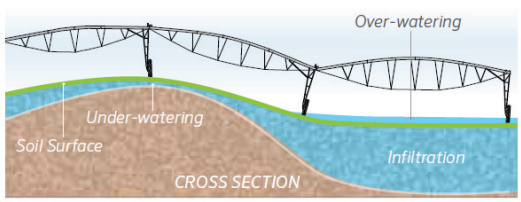
Pressure regulators are recommended if there is a 10% pressure and/or a 5% flow variation. The lower a system's design pressure, the more critical it is to accurately control its pressure.

APPLICATION INTENSITY

Uncontrolled pressure fluctuations in irrigation systems result in unwanted flow deviations and over and under-watering. These fluctuations occur with the cycling on/off of an end gun, activation of a corner arm, variations in field elevation or water supply. Proper use of pressure regulators helps maintain the overall efficiency.

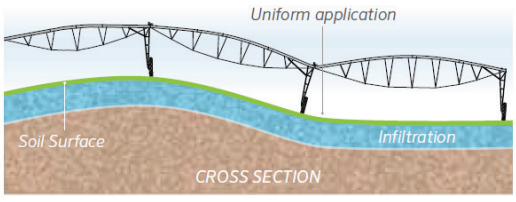
Without Pressure Regulators

Many irrigation systems have the potential to experience elevation and pressure changes, which cause flow fluctuations on unregulated systems.



With Pressure Regulators

Distribution remains uniform even as elevation changes.



Senninger PMR-LF

Pressure Regulators

Application

Pressure Regulator is designed to automatically regulate water pressure in pipes or tubing downstream and it is ideal for installations such as solid set, drip or other low volume irrigation as well as center pivot and other mechanical-move systems.

The correct use of pressure regulators prevents pressure fluctuations and helps maintaining distribution uniformity, saving water and improving production.

Ideal for Flows: 0.1 to 8.0 gpm (22.7-1814.4L/hr) for installations as solid set, drip as well as center pivot and other mechanical-move systems.

Advantages

- Senninger regulators maintain a preset outlet pressure while handling constant inlet pressures.
- Very low hysteresis and friction
- Maximum flow path resistant to plugging
- 100% water-tested for accuracy. No adjustments ever needed
- Built for strength and durability using high impact engineering-grade thermoplastics
- Models are available for low, medium and high flow.
- Can be installed above or below ground.

Technical specifications

- Maintains a constant preset outlet pressure while handling varying inlet pressures.
- All Senninger pressure regulators are constructed of durable high-impact engineering-grade thermoplastics with a high quality stainless steel compression spring and securing screws.
- PMR-LF CMS models are designed specifically for mining applications where pH solutions are less than or equal to 4.0.
- PMR-LF EFF models (lavender top) are designed specifically for wastewater applications.

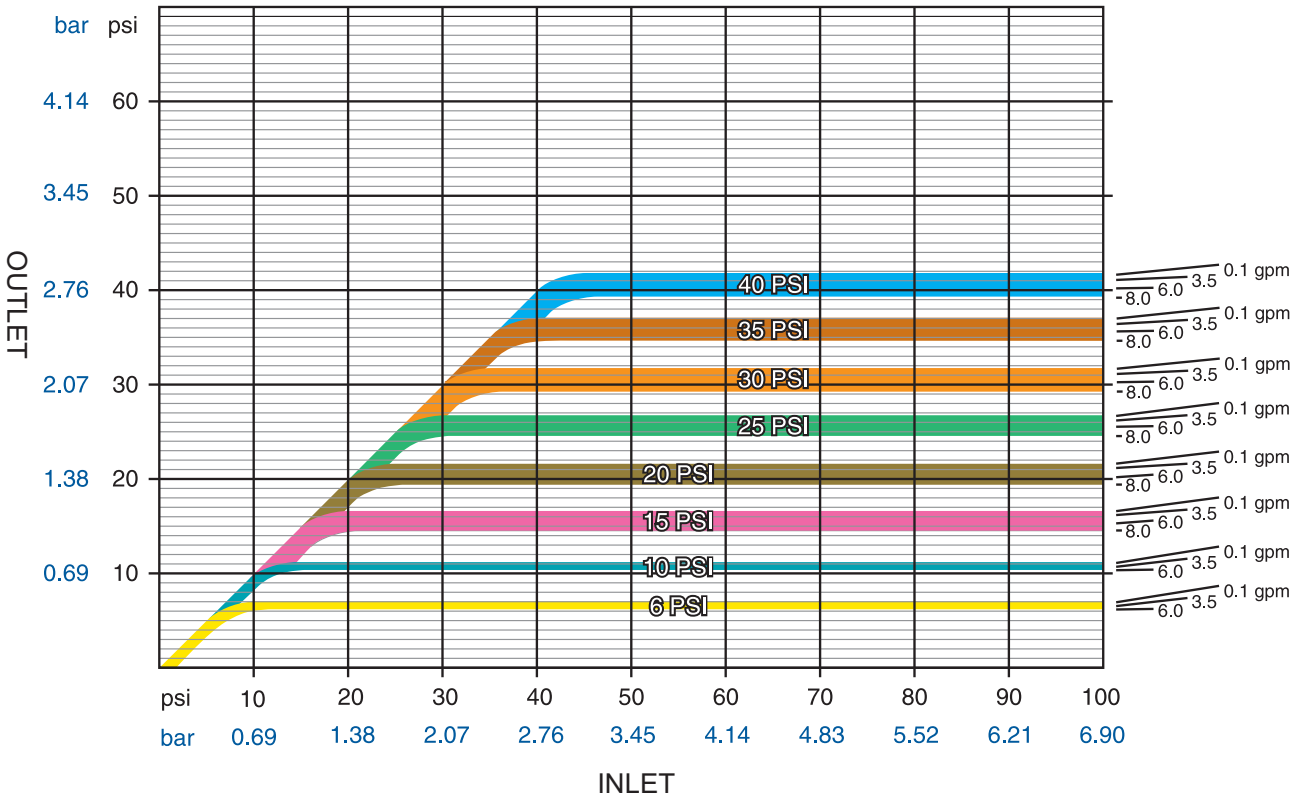
LF

LF-CMS LF-EFF

Model	Preset operating pressure		Maximum inlet pressure		Flow Range		Inlet Sizes	Outlet Sizes
	PSI	bar	PSI	bar	gpm	L/hr		
PMR - 15 LF	15	1.04	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR - 20 LF	20	1.38	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT

Regulated pressure is 1/2 psi [0.03 bar] higher with increasing inlet pressure than with decreasing inlet pressure

Performance chart



WARRANTY, TERMS AND CONDITIONS

Senninger products are warranted for 2 years from date of original sale to be free of defective material and workmanship when used within the working specifications for which the products were designed and under normal use and Service.
The manufacturer assumes no responsibility for assembling, dismantling or repair by unauthorized personnel.
The manufacturer 's liability under this warranty is limited to replacement or repair of defective parts and the manufacturer will not be liable for damage in crops or any other consequential damages resulting from misuse of the product covered by this warranty.
This warranty is expressly in lieu of all other warranty , expressed or implied, including the warranties of merchantability and fitness for particular purposes and of all other obligations or liabilities of the manufacturer.
No agent, employee or representative of the manufacturer has authority to change, alter or add to the provisions of this warranty nor to make any representations or warranty not stipulated herein.

Senninger PMR-MF

Pressure Regulators

Application

It is designed to automatically regulate water pressure in pipes or tubing downstream.
These regulators fit very well for low volume irrigation as well as center pivot and other mechanical-move systems.
Senninger pressure regulators maintain distribution uniformity by preventing pressure fluctuations . This helps save water and increase production.
Ideal for Flows: 2 to 20 gpm (453.6 - 4536.0 L/hr) for installations such as solid set, drip , center pivot and other mechanical-move systems.

Advantages

- Maintains a preset outlet pressure while handling constant inlet pressures
- Very low hysteresis and friction.
- Maximum flow path resistant to plugging
- 100% water-tested for accuracy. No adjustments ever needed
- Built for strength and durability using high impact engineering-grade thermoplastics material.
- Models are available for low, medium and high flow.
- Can be installed above or below ground.

Technical specifications

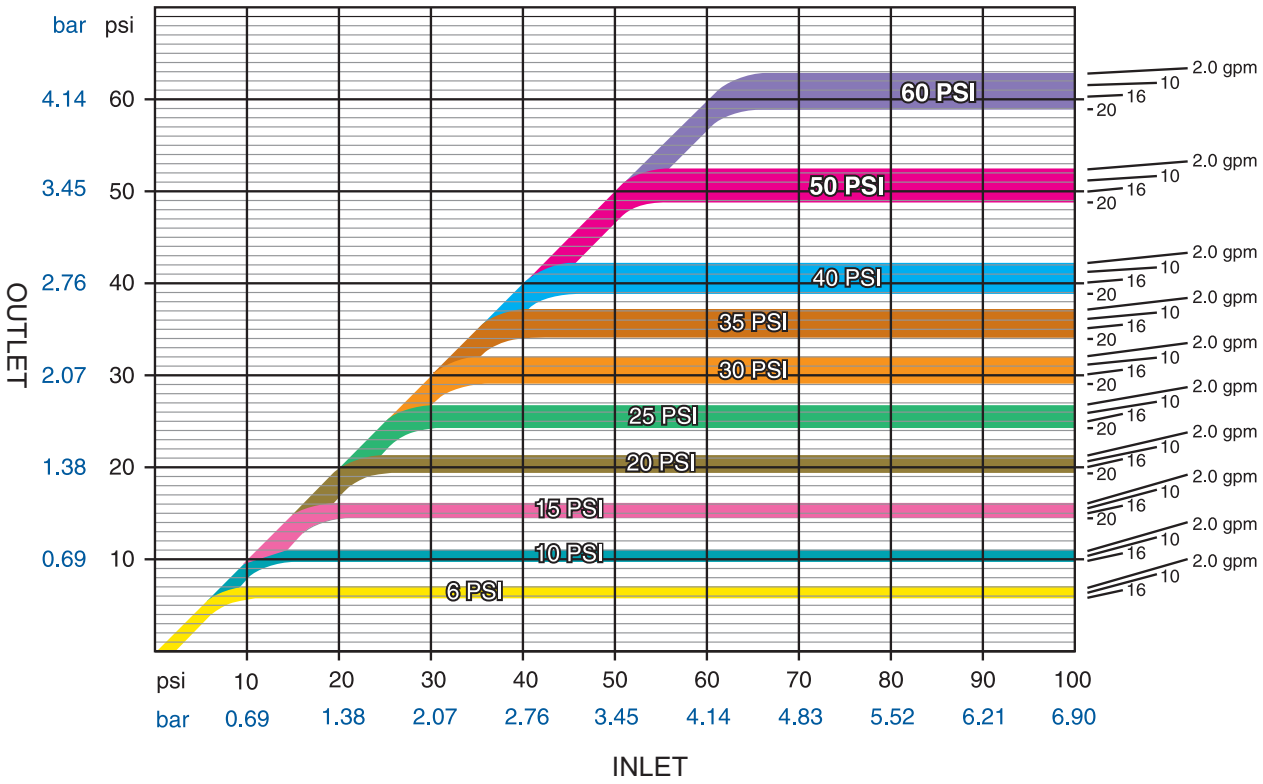
- Maintains a constant preset outlet pressure while handling varying inlet pressures.
- All Senninger pressure regulators are constructed of durable high-impact engineering-grade thermoplastics with a high quality stainless steel compression spring and securing screws.
- PMR-MF CMS models are designed specifically for mining applications where pH solutions are less than or equal to 4.0.
- PMR-MF EFF models (lavender top) are designed specifically for wastewater applications.

MF

MF-CMS MF-EFF

Model	Preset operating pressure		Maximum inlet pressure		Flow Range		Inlet Sizes	Outlet Sizes
	PSI	bar	PSI	bar	gpm	L/hr		
PMR - 6 MF	6	0.41	100	6.90	4 - 16	907.2 - 3628.8	3/4" F NPT	3/4" F NPT
PMR - 10 MF	10	0.69	120	8.28	4 - 16	907.2 - 3628.8	3/4" F NPT	3/4" F NPT
PMR - 12 MF	12	0.83	135	9.31	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 15 MF	15	1.04	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 20 MF	20	1.38	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 25 MF	25	1.73	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 30 MF	30	2.07	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 35MF	35	2.42	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 40MF	40	2.76	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 50 MF	50	3.45	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT
PMR - 60 MF	60	4.14	150	10.35	2 - 20	453.6 - 4536.0	3/4" F NPT	3/4" F NPT

Performance curves



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The manufacturer 's liability under this warranty is limited to replacement or repair of defective parts and the manufacturer will not be liable for damage in crops or any other consequential damages resulting from misuse of the product covered by this warranty.
This warranty is expressly in lieu of all other warranty , expressed or implied, including the warranties of merchantability and fitness for particular purposes and of all other obligations or liabilities of the manufacturer.
No agent, employee or representative of the manufacturer has authority to change, alter or add to the provisions of this warranty nor to make any representations or warranty not stipulated herein.

Senninger PMR-HF

Pressure regulator

Application

It is designed to automatically regulate water pressure in pipes or tubing downstream.
These products are very effective for low volume manifolds and mechanical-move irrigation systems.
The correct use of Senninger pressure regulators helps maintaining distribution uniformity by preventing pressure fluctuations . This helps save water and increase production.
Ideal for Flows: 10 to 32 gpm (2271 - 7268 L/hr) including solid set, drip or other low volume irrigation as well as center pivot and other mechanical-move systems.

Advantages

- Maintains a preset outlet pressure while handling constant inlet pressures
- Very low hysteresis and friction losses
- Maximum flow path resistant to plugging
- 100% water-tested for accuracy. No adjustments ever needed
- Built for strength and durability using high impact engineering-grade thermoplastics material.
- Models are available for low, medium and high flow.

HF

Technical specifications

- Maintains a constant preset outlet pressure while handling varying inlet pressures.
- All Senninger pressure regulators are constructed of durable high-impact engineering-grade thermoplastics with a high quality stainless steel compression spring and securing screws.
- Regulators pressure are necessary when it exists 10% of pressure and/or a 5% flow variation. The lower the system pressure is , more accurate must be the pressure control.

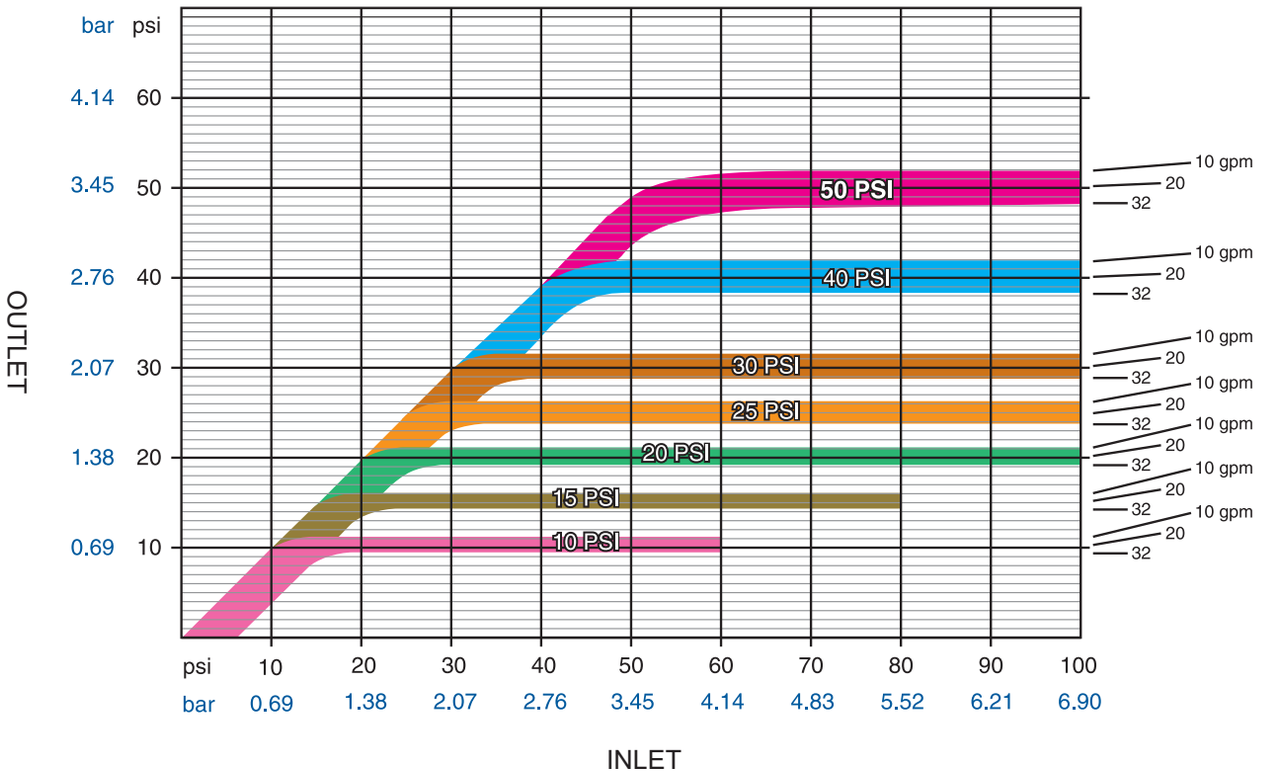
DESIGN PRESSURE	PRESSURE VARIATIONS				
	1 PSI (0.069 bar)	2 PSI (0.138 bar)	3 PSI (0.207 bar)	4 PSI (0.276 bar)	5 PSI (0.345 bar)
6 PSI (0,41 bar)	8.3	16.7	25.0	33.3	41.7
10 PSI (0,69 bar)	5.0	10.0	15.0	20.0	25.0
15 PSI (1,03 bar)	3.3	6.7	10.0	13.3	16.7
20 PSI (1,38 bar)	2.5	5.0	7.5	10.0	12.5

% Flow Variation

Model	Preset operating pressure		Maximum inlet pressure		Flow Range		Inlet Sizes	Outlet Sizes
	PSI	bar	PSI	bar	gpm	L/hr		
PR - 10 HF	10	0.69	60	4.14	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT
PR - 15 HF	15	1.04	80	5.52	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT
PR - 20 HF	20	1.38	100	6.90	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT
PR - 25 HF	25	1.73	100	6.90	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT
PR - 30 HF	30	2.07	100	6.90	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT
PR - 40 HF	40	2.76	100	6.90	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT
PR - 50 HF	50	3.45	100	6.90	10 - 32	2271 - 7268	1¼" F NPT	1" F NPT

Regulated pressure is 1/2 psi [0.03 bar] higher with increasing inlet pressure than with decreasing inlet pressure

Performance curves



WARRANTY, TERMS AND CONDITIONS

Senninger products are warranted for 2 years from date of original sale to be free of defective material and workmanship when used within the working specifications for which the products were designed and under normal use and Service.
The manufacturer assumes no responsibility for assembling, dismantling or repair by unauthorized personnel.
The manufacturer 's liability under this warranty is limited to replacement or repair of defective parts and the manufacturer will not be liable for damage in crops or any other consequential damages resulting from misuse of the product covered by this warranty.
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Unirain SP4

PIVOT Spray

Application

Fixed sprayhead designed to equip travelling irrigation systems, such as CENTER PIVOTS or LINEAR MOVES.

Advantages

- Nozzle system easy to change.
- Long wear life components.

Technical specifications

- It's composed by just three parts: body, wearpad and nozzle.
  The body is made of fiber-glass reinforced polyamide and treated for protection against the UV radiation. The wearpad is made of antiabrasive polyurethane. It provides an almost unlimited durability. The nozzle is made of brass. A wide range on nozzle sizes will help achieving the desired flow.
- Large nozzle range.
- There are four different wearpads that can be used with the SP4, including 180° part circle one:

  - Grooved Flat (PL/R): The standard wearpad can be used on drops or on top of the pipe. Up from 20 psi working pressure.
  - Smooth Flat (PL/L): The alternative to the PL/R when the working pressure is not enough (10-15 psi).
  - Smooth Convex (CVX/L): Just as the PL/L, this is the low pressure alternative to the CVX/R.
  - 180° Grooved Flat (PL/R 180°): Half circle Grooved Flat wearpad. Perfect to prevent water from reaching control boxes or wheels.

SP4

PL-R

PL-L

CVX-L

PL-R 180º

3RN

Notes

WARRANTY AND EXCLUSIONS

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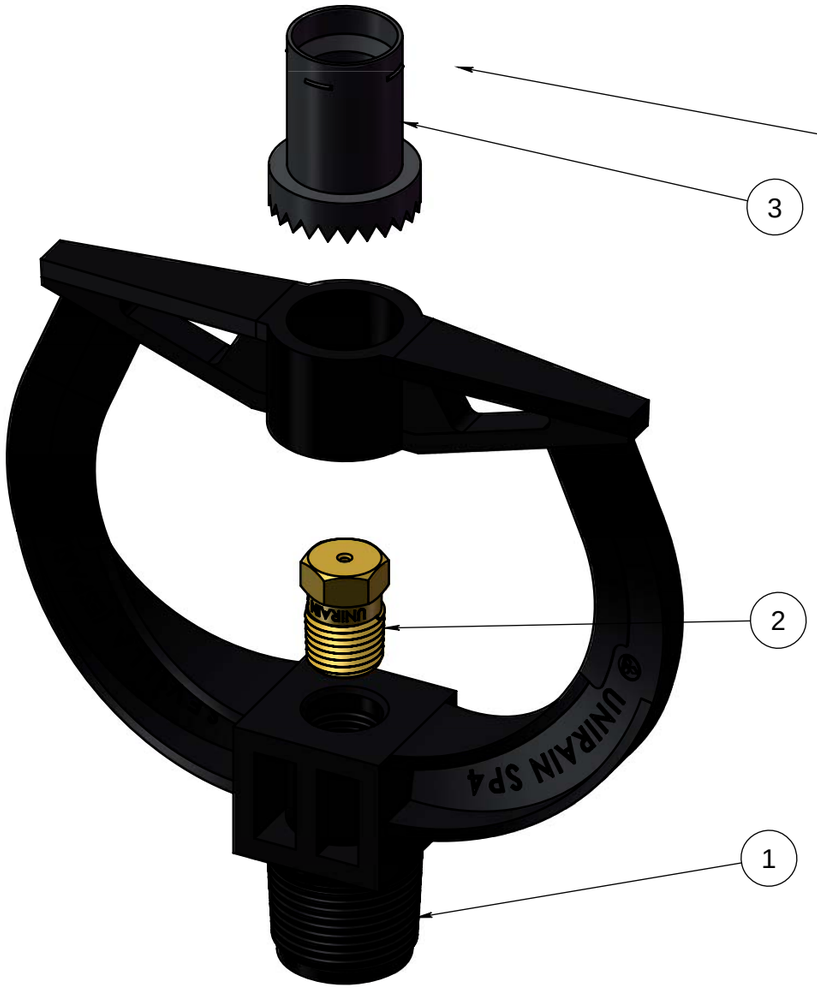
SP4

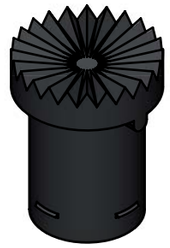
ASSEMBLY

COMPONENT NUMBER	SPARE CODE	DESCRIPTION	MATERIAL	QUANTY
1	00026	Body SP4 Unirain Spray	PA6+Fiber Glass+UV	1
2	00071	3RN Nozzle (#4 - #25)	Brass	1
3	00023	Grooved Flat Wearpad	Polyurethane (PU)	1



CVX/L
SMOOTH CONVEX WEARPAD
(00024)

PL/L
SMOOTH FLAT WEARPAD
(00022)



PL/R
GROOVED FLAT WEARPAD
(00023)

PL/R 180º
180º GROOVED FLAT
WEARPAD PL/R
(00027)

MODELS OF DEFLECTOR TO CHOOSE ACCORDING TO NEEDS

Notes

Process/Manufacturer: *Unirain*	Size: A3	Material:	Code: SP4
	Scale: 1:1	Name: SP4	
PRIVATE AND CONFIDENTIAL THE INFORMATION CONTAINED ON THIS PLAN IS FOR UNIRAIN USE ONLY. FORBIDDEN CHANGE OR AMENDMENT OF VALUES OF THE PLAN WITHOUT A CONSENT IN WRITTING.	20/05/21 A.M.R	unirain IRRIGATION PRODUCTS	

Unirain MP5

PIVOT Spray

Application

Fixed spray head designed to equip self-propelled irrigation systems, such as CENTER PIVOTS or LATERAL. High resistance and durability, and excellent performance in adverse conditions. Thanks to its modularity, it can adapted to various kind of crops just by changing the plate. It can also be installed in center pivots in which there are components or areas that must not get wet, with a plate limiting the irrigated area to 180º.

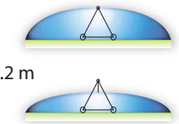
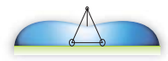
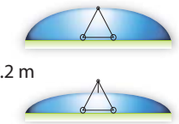
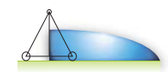
Advantages

- With a total of 45 available nozzle sizes, it guarantees the highest water application precision when preparing the Center Pivot or Lateral.
- Easy identification: each nozzle is identified by a colour and its size is carved in two of the three raised mould fins.
- the ring of the corresponding complementary colour is pre-fitted to the body of the nozzle, avoiding screen-printing, which disappears over time and with the action of sunlight.
- Thanks to his three-legged body, together with the leak-proof pads, greater distribution of water in the close-in area is achieved
- the plate-holder can hold a different plate on each side, allowing the water distribution pattern to be changed just by flipping the plate-holder.
- The pads have been designed for an efficient water distribution across the irrigation machines, combi ned with a wide range and unbeatable uniformity.

Technical specifications

- Modular Spray.
- ¾" M base thread.
- Leak-Proof Pad.
- Pressure range: 6-50 PSI (0,42-4,14 kg/cm^2).
- Nozzle range: #8(1/16"-1.59mm) - #52 (13/32"-10.32mm.)
- Three legged body.
- Highy-resistant UV-treated thermoplastic.
- Capacity to mount two plates on the same unit.
- Coarse Groove (RG) for a standard irrigation, and Smooth Groove (RF) for germination and sensitive crops that require smaller droplets.
- Easy identification of nozzle sizes.
- Easy maintenance required, can be disassembled without any tools.

MP5

		Description	Nozzles Range	Pressure	Assembly	Flow Range (ø)
Flat Smooth Groove Pad		Recommended for Germination and Irrigation. Working pressure: 10 – 30 PSI. Better water pulverization. Designed for drop or up-top mounting	#8-#52	10 - 30 PSI (0.7 - 2.1 bar)	with or without Drops	4.9 m-12.2 m 
Concave Smooth Groove Pad		Recommended for Germination and Irrigation. Working pressure: 10 – 30 PSI. Designed for drop mounting.	#8-#52	15 - 40 PSI (1 - 2.8 bar)	with Drops	6 m-13 m 
Flat Coarse Groove Pad		Recommended for Irrigation. This is the recommended standard pad. Longer throw radius. Working pressure: 15 – 40 PSI. Designed for drop or up-top mounting.	#8-#52	10 - 30 PSI (0.7 - 2.1 bar)	with or without Drops	4.9 m-12.2 m 
Concave Coarse Groove Pad		Recommended for Irrigation. Working pressure: 15 – 40 PSI. Designed for drop mounting.	#8-#52	15 - 40 PSI (1 - 2.8 bar)	with Drops	6 m-13 m 
180 Part Circle and Flat Smooth Groove Pad		Recommended for Germination and Irrigation. Working pressure: 10 – 30 PSI Better water pulverization. To fix near towers and to avoid water on wheels path.	#10-#48	10 - 30 PSI (0.7 - 2.1 bar)	with Drops	4.5 m-8 m 

Now with the ¾ adapter for MP5, an improved irrigation coverage is possible.
The uniformity and performance of irrigation water can be optimized with it. It can be adapted to the required height:

- 1 meter
- 1,2 meters
- 1,5 meters

WARRANTY AND EXCLUSIONS

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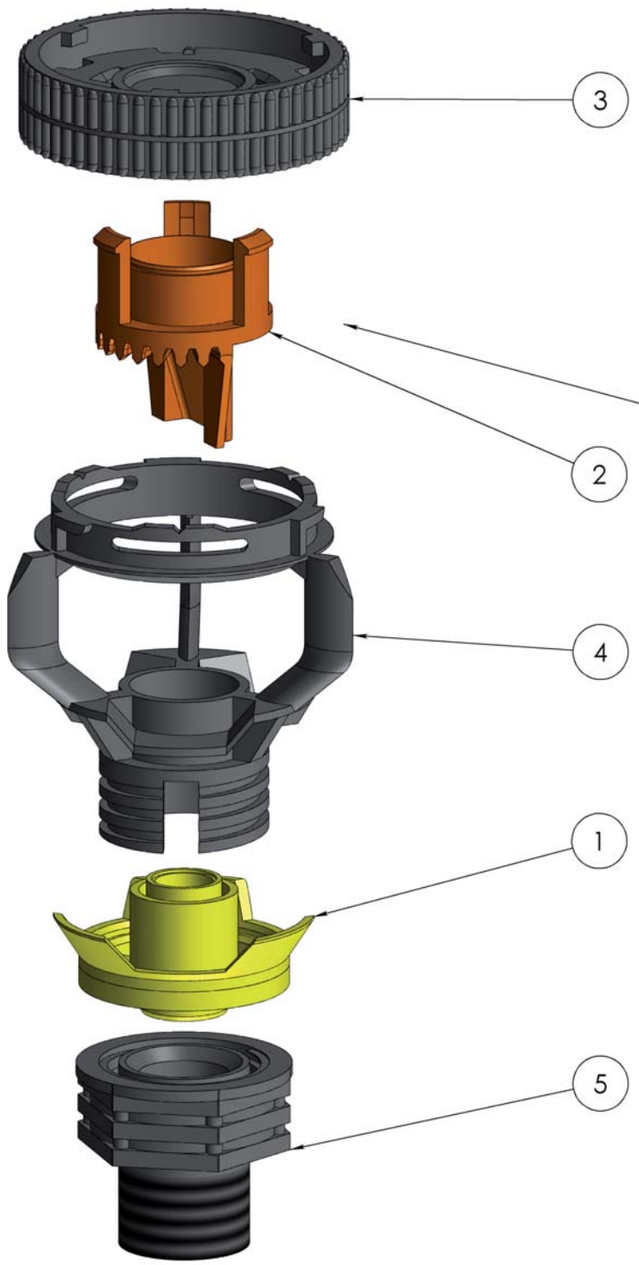
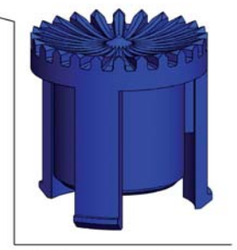
ASSEMBLY





SEE THE MODELS IN
THE TECHNICAL SHEET

COMPONENT NUMBER	PART NUMBER	DESCRIPTION	MATERIAL	QUANTITY
1	04308 - 04352	MP5 Full Nozzle (#8 - #52) Nozzle + Seal + O-Ring	Polypropylene/NBR	1
2	04226	180º Flat smoothe Groove Pad	Polyoxymethylene (POM)	1
3	04210	MP5 Top	Polyoxymethylene (POM)	1
4	04201	Mp5 Spray Body	Polyoxymethylene (POM)	1
5	04000	MP5 Base Adapter	Polyoxymethylene (POM)	1

Notes

Process/Manufacturer UNIRAIN	Size A3	Material	Code
	Scale 1:1	Name MP5 Spray	
	19/11/07 J.N.E.	unirain IRRIGATION PRODUCTS	

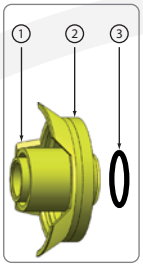
Unirain MP5

Nozzles

Features

Each nozzle has three elements:

1- Nozzle
2- Color coded ring
3- O-Ring



Made of anti-abrasive acetal resin and colour-coded with measurements in inches to a scale of 1/128" (0.198 mm). Covers the widest range of measurements in its category, from #8 (1/16" - 1.59 mm) to #52 (13/21" - 10.32 mm) consecutively.

In addition a colour-coded ring identifies odd-numbered measurements, taking the colour of the measurement immediately above.

PRESSURE Bar	NOZZLE #8 L/H	NOZZLE #9 L/H	NOZZLE #10 L/H	NOZZLE #11 L/H	NOZZLE #12 L/H	NOZZLE #13 L/H	NOZZLE #14 L/H	NOZZLE #15 L/H	NOZZLE #16 L/H	NOZZLE #17 L/H	NOZZLE #18 L/H	NOZZLE #19 L/H
0,41	56	72	91	113	135	161	188	217	249	276	316	353
0,69	72	93	118	145	175	207	242	280	320	358	408	455
1,03	88	114	144	177	214	253	296	343	392	441	499	556
1,38	102	132	166	205	246	292	342	395	452	512	575	642
1,72	114	147	186	229	275	326	382	442	505	576	643	717
2,07	125	161	204	250	301	357	418	483	553	635	703	785
2,76	144	186	235	289	348	412	558	558	638	738	811	905
3,45	161	208	262	323	388	461	623	623	713	830	906	1011

PRESSURE Bar	NOZZLE #20 L/H	NOZZLE #21 L/H	NOZZLE #22 L/H	NOZZLE #23 L/H	NOZZLE #24 L/H	NOZZLE #25 L/H	NOZZLE #26 L/H	NOZZLE #27 L/H	NOZZLE #28 L/H	NOZZLE #29 L/H	NOZZLE #30 L/H
0,41	392	433	475	520	563	610	660	712	764	819	874
0,69	505	557	613	669	725	786	850	916	984	1054	1126
1,03	618	682	749	817	887	961	1039	1120	1203	1288	1376
1,38	712	786	864	942	1023	1108	1198	1292	1387	1485	1586
1,72	796	878	965	1051	1142	1238	1338	1442	1550	1659	1771
2,07	871	961	1056	1150	1250	1355	1465	1579	1696	1815	1938
2,76	1005	1109	1218	1325	1442	1563	1689	1820	1956	2093	2235
3,45	1122	1239	1360	1480	1610	1745	1887	2033	2184	2337	2496

PRESSURE Bar	NOZZLE #31 L/H	NOZZLE #32 L/H	NOZZLE #33 L/H	NOZZLE #34 L/H	NOZZLE #35 L/H	NOZZLE #36 L/H	NOZZLE #37 L/H	NOZZLE #38 L/H	NOZZLE #39 L/H	NOZZLE #40 L/H	NOZZLE #41 L/H
0,41	934	993	1055	1119	1185	1253	1322	1394	1467	1541	1619
0,69	1201	1278	1358	1440	1525	1612	1701	1793	1887	1983	2082
1,03	1468	1562	1660	1760	1863	1969	2078	2190	2304	2421	2542
1,38	1692	1801	1913	2029	2148	2270	2395	2524	2655	2790	2928
1,72	1889	2011	2136	2265	2398	2534	2674	2817	2964	3115	3268
2,07	2067	2201	2338	2479	2624	2773	2925	3082	3243	3407	3575
2,76	2382	2537	2695	2857	3024	3196	3371	3552	3737	3926	4120
3,45	2660	2833	3009	3190	3376	3568	3764	3965	4171	4383	4598

PRESSURE Bar	NOZZLE #42 L/H	NOZZLE #43 L/H	NOZZLE #44 L/H	NOZZLE #45 L/H	NOZZLE #46 L/H	NOZZLE #47 L/H	NOZZLE #48 L/H	NOZZLE #49 L/H	NOZZLE #50 L/H	NOZZLE #51 L/H	NOZZLE #52 L/H
0,41	1697	1777	1857	1937	2015	2092	2170	2252	2332	2413	2495
0,69	2182	2285	2387	2490	2589	2689	2789	2892	2996	3100	3205
1,03	2664	2790	2914	3040	3160	3281	3404	3528	3654	3781	3909
1,38	3070	3214	3356	3501	3639	3779	3920	4063	4207	4353	4500
1,72	3426	3587	3746	3907	4061	4216	4374	4532	4693	4856	5020
2,07	3748	3924	4097	4274	4441	4611	4783	4956	5132	5310	5489
2,76	4318	4520	4719	4923	5115	5311	5509	5707	5909	6114	6320
3,45	4819	5045	5266	5494	5707	5926	6147	6366	6592	6820	7051

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Unirain PIVOT-Drainage

Drain for PIVOT wheel Gearbox

Application

Drain Plug to join in the wheel gearboxes or in central gearmotors, to make easy the purge of condensed water. Thanks to its compact and strong design is not necessary to unscrew completely the drain cock, this is to avoid complications during the removal operation of accumulated water inside.

Advantages

- No need to remove the screw completely: This will prevent unwanted situations such as the screw loss in the farmlands or the repetition of the tapping operation.
- Minimum wear of the threads in the gearbox.
- Opening and Closing with a simple and quick movement.
- We can loosen and tighten the drain cock with the same wrench used for the nozzles (standard wrench 13mm).

Technical specifications

- Two parts: Drain Body and Drain cock.
- Two threads sizes available to join in the gearbox (1 / 2" or 3 / 4").
- Drain cock with hex head to use the 13 mm standard wrench or the same wrench used for sprinklers nozzles.

PIVOT-Drainage

assembly in wheel gearboxes

assembly in central gearmotor

Steps

Replace the standard plug of the wheel gearbox or central gearmotor by the PIVOT Drain Plug.

Unscrew the drain cock by hand or using a standard wrench (13mm) for the extraction of condensed water. **No need to remove the screw completely, just loosen the cock and the water will start to escape.**

Finally, just tighten with a standard wrench (13) the drain cock when oil starts to escape.