



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.

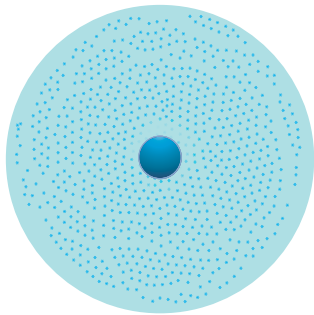
Spray: water jet around an axis forming a circle.

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.



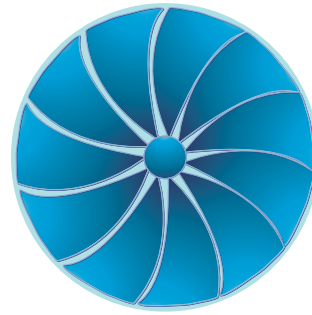
Wet area according to jet exit



DIFFUSER



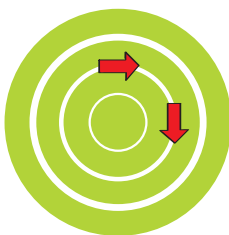
SPRAY



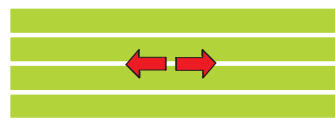
ROTATIONAL

Different types of Pivot irrigation

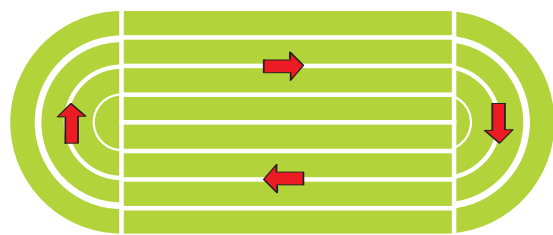
- **Central pivot:** the irrigated area forms a circle around a central axis, the water intake.
- **Lateral pivot:** the irrigated area looks like a rectangle
- **Racetrack shaped pivot:** the irrigated area looks like a racecourse, combining the two systems described before, with rotation and movement 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 8° 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.
- 3/4" M base thread
- Two main nozzles
- 8° Nozzle trajectory angle
- Pressure range: 20-80 PSI
- Nozzle range: 9/64"-15/64"
- 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 compression spring.



F4444

	Pressure (psi)	Nozzles	Vanes
HIGH	60	3PRN ó 3FCN	30 V
MEDIUM	40	3PRN ó 3FCN	WITHOUT VANE
LOW	30	3PRN	30RV
VERY LOW	20	3PRN	30BV



F4444	PRESSURE (PSI)	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"	
		GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)
TWO NOZZLES	20	5.01	30.8	6.09	33.1	7.23	32.5	8.34	32.5	9.49	32.8	10.65	32.8	11.82	32.8
	25	5.60	31.8	6.81	33.5	8.07	33.5	9.32	33.8	10.60	33.8	11.91	33.8	13.24	33.8
	30	6.12	32.5	7.45	33.8	8.82	34.1	10.19	34.4	11.61	34.4	13.05	34.4	14.52	34.4
	35	6.80	33.5	8.03	34.1	9.51	34.4	11.0	34.8	12.54	35.1	14.11	35.1	15.69	35.1
	40	7.04	33.8	8.57	34.4	10.16	34.8	11.75	35.1	13.40	35.4	15.08	35.8	16.79	35.8
	45	7.46	34.1	9.08	34.8	10.76	35.1	12.46	35.4	14.21	35.8	16.00	36.1	17.82	36.1
	50	7.86	34.4	9.57	35.1	11.33	35.4	13.12	35.8	14.97	36.1	16.87	36.1	18.79	36.4
	55	8.23	34.8	10.03	35.4	11.87	35.8	13.75	36.1	15.70	36.4	17.70	36.4	19.73	36.7
	60	8.59	35.1	10.46	35.8	12.39	36.1	14.36	36.4	16.40	36.7	18.49	36.7	20.61	37.1
	65	8.94	35.4	10.87	35.8	12.89	36.4	14.94	36.4	17.07	37.1	19.25	37.1	21.46	37.4
	70	9.27	35.4	11.27	36.1	13.37	36.4	15.50	36.7	17.71	37.1	19.98	37.4	22.29	37.7
75	9.59	35.8	11.65	36.1	13.83	36.7	16.04	37.1	18.33	37.4	20.68	37.7	23.08	38.1	
80	9.90	35.8	12.02	36.4	14.27	36.7	16.56	37.1	18.92	37.4	21.36	37.7	23.84	38.1	

F4444P	PRESSURE (PSI)	NOZZLES 9/64"		NOZZLES 5/32"		NOZZLES 11/64"		NOZZLES 3/16"		NOZZLES 13/64"		NOZZLES 7/32"		NOZZLES 15/64"	
		GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)
ONE NOZZLE AND PLUG	20	2.56	30.8	3.14	33.1	3.78	32.5	4.48	32.5	5.23	32.8	6.03	32.8	6.89	32.8
	25	2.86	31.8	3.51	33.5	4.22	33.5	5.00	33.8	5.83	33.8	6.73	33.8	7.68	33.8
	30	3.13	32.5	3.84	33.8	4.62	34.1	5.46	34.4	6.38	34.4	7.36	34.4	8.40	34.4
	35	3.37	33.5	4.14	34.1	4.98	34.4	5.90	34.8	6.88	35.1	7.93	35.1	9.06	35.1
	40	3.60	33.8	4.42	34.4	5.32	34.8	6.30	35.1	7.35	35.4	8.47	35.8	9.67	35.8
	45	3.82	34.1	4.69	34.8	5.64	35.1	6.67	35.4	7.78	35.8	8.97	36.1	10.25	36.1
	50	4.02	34.4	4.94	35.1	5.94	35.4	7.03	35.8	8.20	36.1	9.45	36.1	10.79	36.4
	55	4.22	34.8	5.17	35.4	6.23	35.8	7.37	36.1	8.59	36.4	9.91	36.4	11.30	36.7
	60	4.40	35.1	5.40	35.8	6.50	36.1	7.69	36.4	8.97	36.7	10.34	36.7	11.80	37.1
	65	4.58	35.4	5.62	35.8	6.76	36.4	8.00	36.4	9.33	37.1	10.75	37.1	12.27	37.4
	70	4.75	35.4	5.83	36.1	7.01	36.4	8.29	36.7	9.67	37.1	11.15	37.4	12.72	37.7
75	4.91	35.8	6.03	36.1	7.25	36.7	8.58	37.1	10.00	37.4	11.53	37.7	13.16	38.1	
80	5.08	35.8	6.23	36.4	7.49	36.7	8.85	37.1	10.33	37.4	11.91	37.7	13.58	38.1	

F4444V	PRESSURE (PSI)	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"	
		GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)
TWO NOZZLES AND VANE TO HIGH RANGE	35	6.80	35.1	8.03	35.8	9.51	36.1	11.00	36.4	12.54	36.7	14.11	36.7	15.69	36.7
	40	7.04	35.8	8.57	36.1	10.16	36.4	11.75	36.7	13.40	37.1	15.08	37.4	16.79	37.4
	45	7.46	36.1	9.08	36.4	10.76	36.7	12.46	37.1	14.21	37.4	16.00	37.7	17.82	37.7
	50	7.86	36.4	9.57	36.7	11.33	37.1	13.12	37.4	14.97	37.7	16.87	37.7	18.79	38.1
	55	8.23	36.7	10.03	37.1	11.87	37.4	13.75	37.7	15.70	38.1	17.70	38.1	19.73	38.4
	60	8.59	37.1	10.46	37.4	12.39	37.7	14.36	38.1	16.40	38.4	18.49	38.4	20.61	39.0
	65	8.94	37.4	10.87	37.4	12.89	38.1	14.94	38.1	17.07	39.0	19.25	39.0	21.46	39.4
	70	9.27	37.7	11.27	37.7	13.37	38.1	15.50	38.4	17.71	39.0	19.98	39.4	22.29	39.7
	75	9.59	37.7	11.65	37.7	13.83	38.4	16.04	39.0	18.33	39.4	20.68	39.7	23.08	40.0
	80	9.90	38.1	12.02	38.1	14.27	38.4	16.56	39.0	18.92	39.4	21.36	39.7	23.84	40.0

F4444PV	PRESSURE (PSI)	NOZZLES 9/64"		NOZZLES 5/32"		NOZZLES 11/64"		NOZZLES 3/16"		NOZZLES 13/64"		NOZZLES 7/32"		NOZZLES 15/64"	
		GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)	GPM	R(ft)
ONE NOZZLE, PLUG AND VANE TO HIGH RANGE	35	3.37	35.1	4.14	35.8	4.98	36.1	5.90	36.4	6.88	36.7	7.93	36.7	9.06	36.7
	40	3.60	35.8	4.42	36.1	5.32	36.4	6.30	36.7	7.35	37.1	8.47	37.4	9.67	37.4
	45	3.82	36.1	4.69	36.4	5.64	36.7	6.67	37.1	7.78	37.4	8.97	37.7	10.25	37.7
	50	4.02	36.4	4.94	36.7	5.94	37.1	7.03	37.4	8.20	37.7	9.45	37.7	10.79	38.1
	55	4.22	36.7	5.17	37.1	6.23	37.4	7.37	37.7	8.59	38.1	9.91	38.1	11.30	38.4
	60	4.40	37.1	5.40	37.4	6.50	37.7	7.69	38.1	8.97	38.4	10.34	38.4	11.80	39.0
	65	4.58	37.4	5.62	37.4	6.76	38.1	8.00	38.1	9.33	39.0	10.75	39.0	12.27	39.4
	70	4.75	37.7	5.83	37.7	7.01	38.1	8.29	38.4	9.67	39.0	11.15	39.4	12.72	39.7
	75	4.91	37.7	6.03	37.7	7.25	38.4	8.58	39.0	10.00	39.4	11.53	39.7	13.16	40.0
	80	5.08	38.1	6.23	38.1	7.49	38.4	8.85	39.0	10.33	39.4	11.91	39.7	13.58	40.0

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 35.2 MCA)
 Throw radius jets achieved with the 0.9m lift. Shaded areas not recommended.
 (*) Standard Nozzle.

PSI: Pounds per Square Inch
 GPM: Gallons Per Minute
 R(ft): Throw Radius in feet

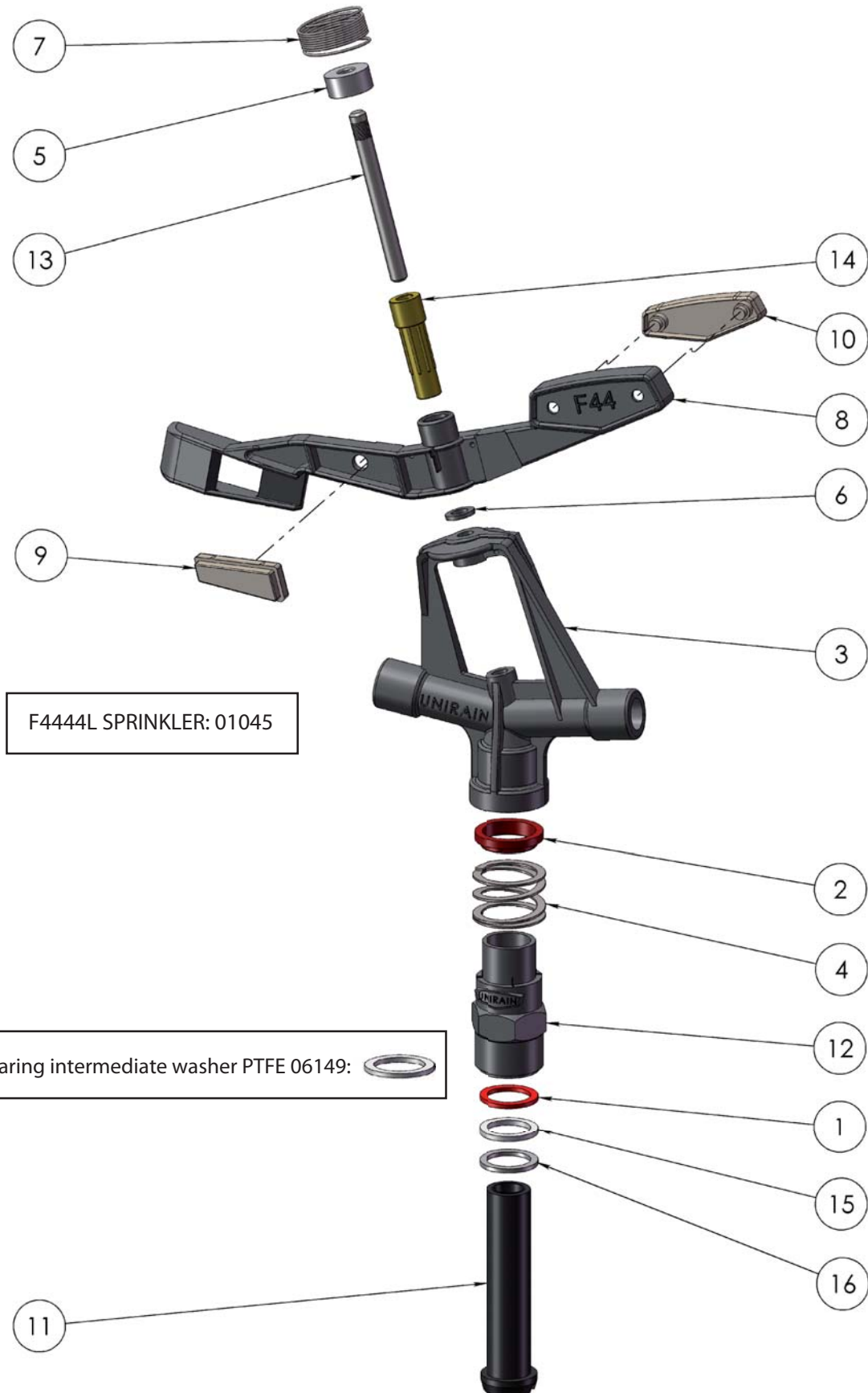
Due to the large number of possible combinations of nozzles, only the most common ones are represented.
 To find information relating to other combinations, please advise factory.

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.



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 UNIRAIN	Size A3	Material	Code 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 WRITING.		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.

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

PSR Y PSR-2 DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range
PSR-2-15	15 psi (1,03 bar)	95 psi (6,55 bar)	0,5 - 15 gpm 114 - 3407 L/hr
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.

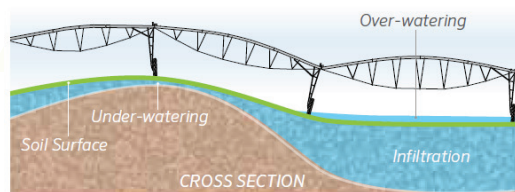
CAUTION: Always install downstream from all shut-off valves. Not NSF certified. Recommended for outdoor use only.

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 of an irrigation system.

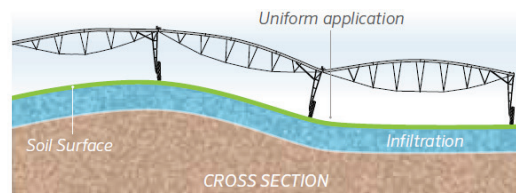
Without Pressure Regulators

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



CAUTION:
Always install
downstream
from all shut
off valves.

LF-CMS



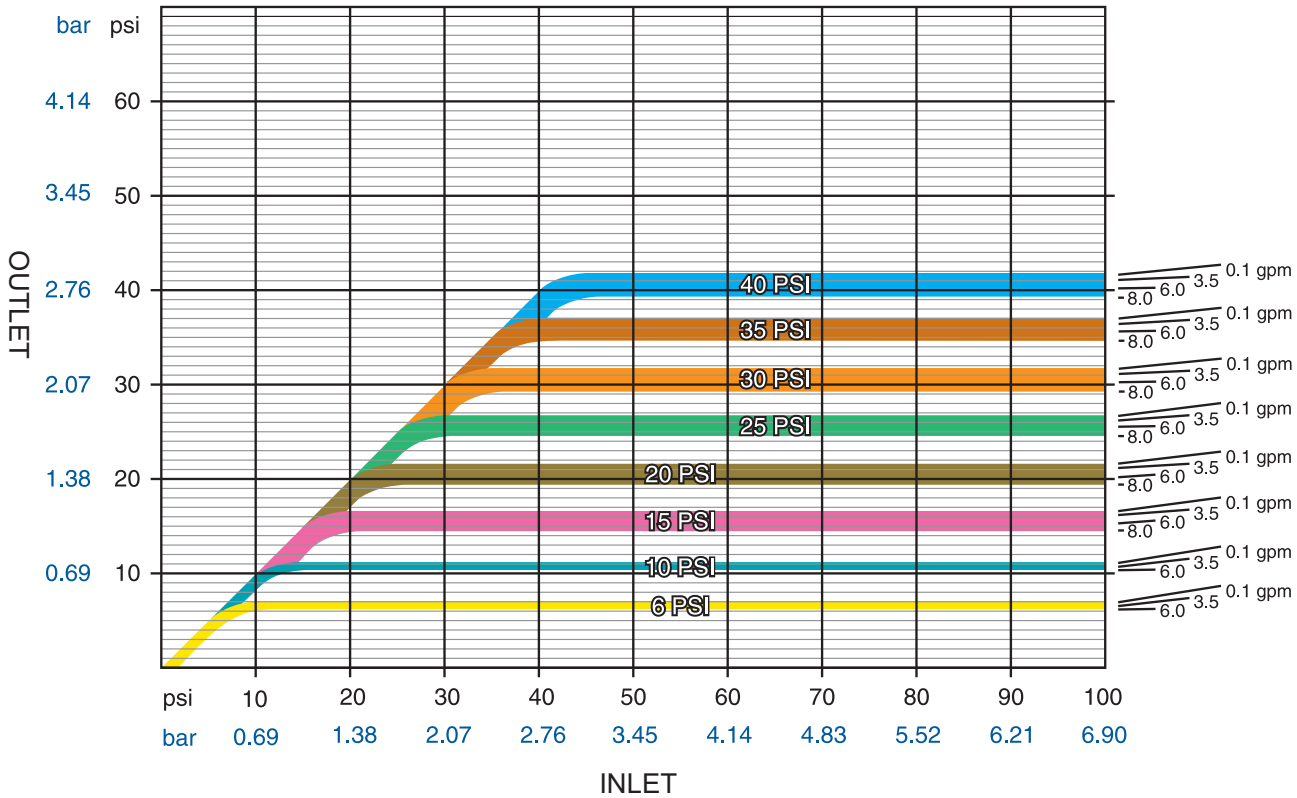
LF-EFF



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



CAUTION:
Always install
downstream
from all shut
off valves.



MF-CMS

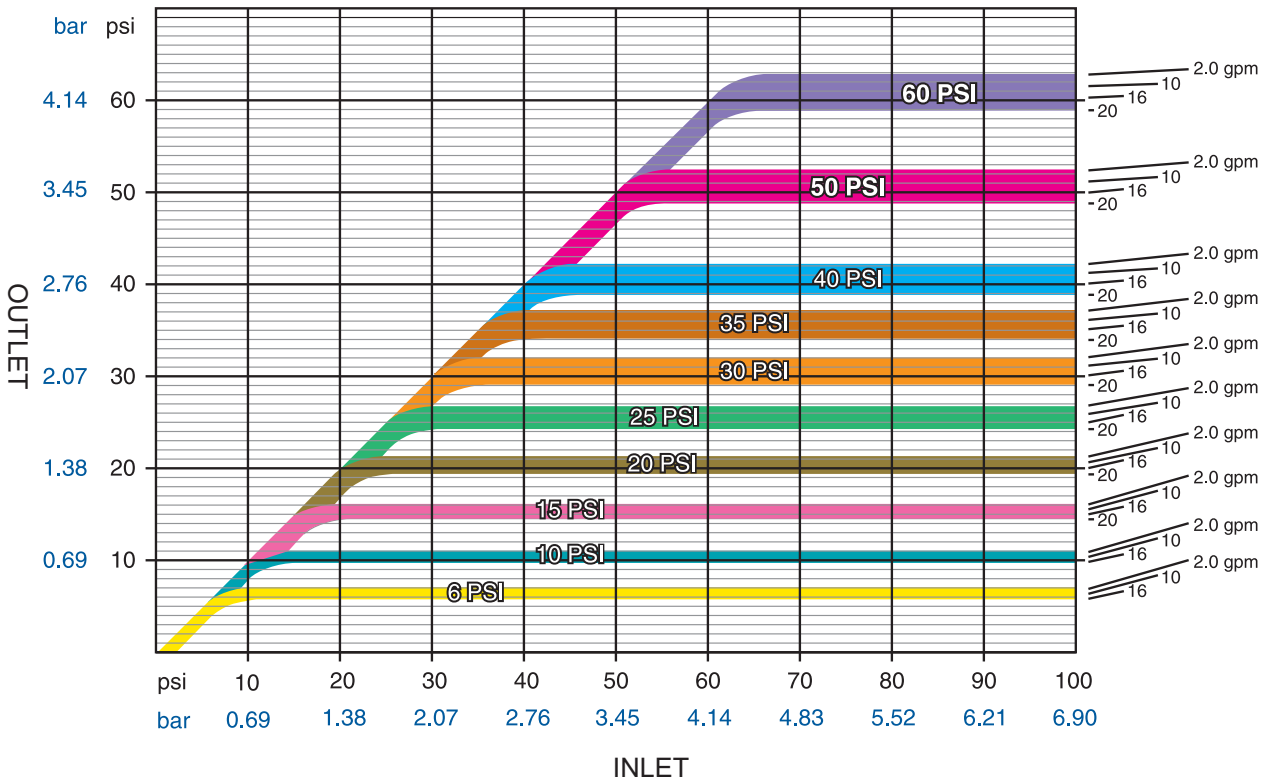


MF-EFF



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



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-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.

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

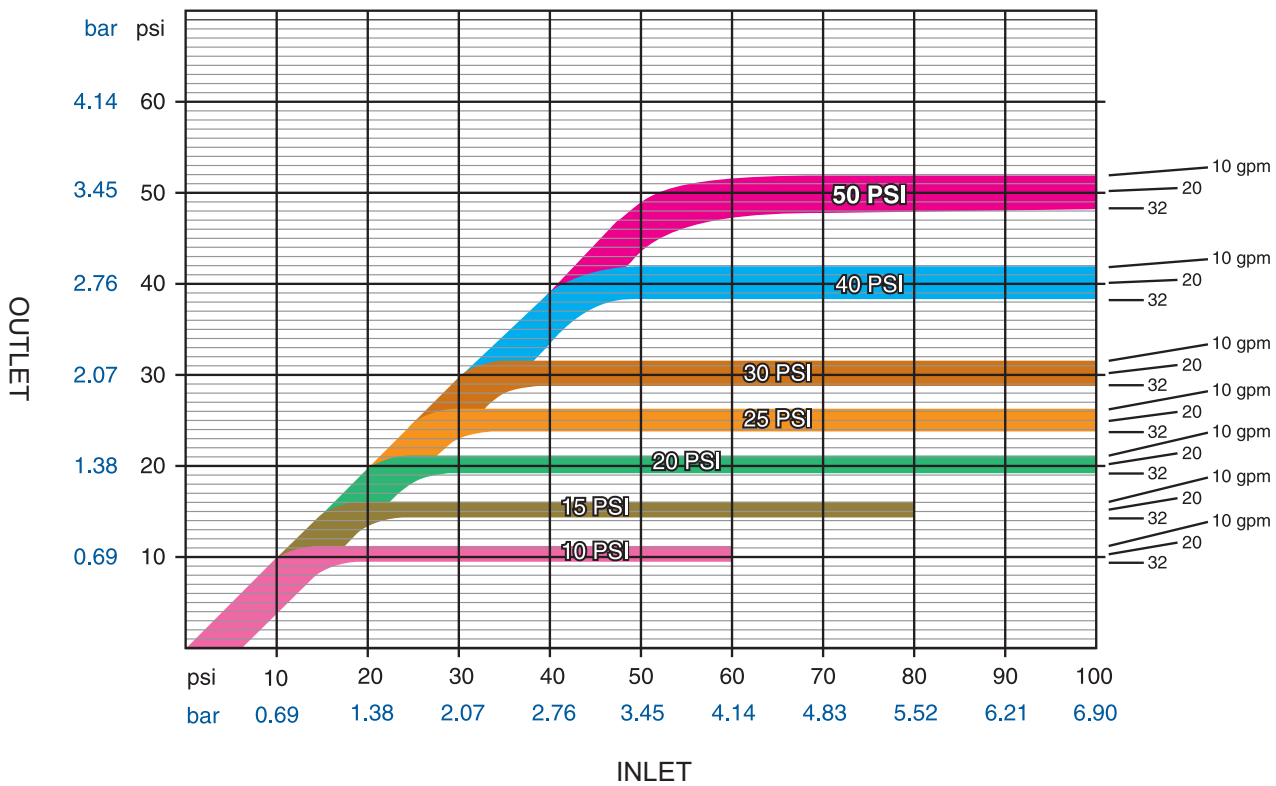
↑ % Flow Variation ↓



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



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



3RN

Notes

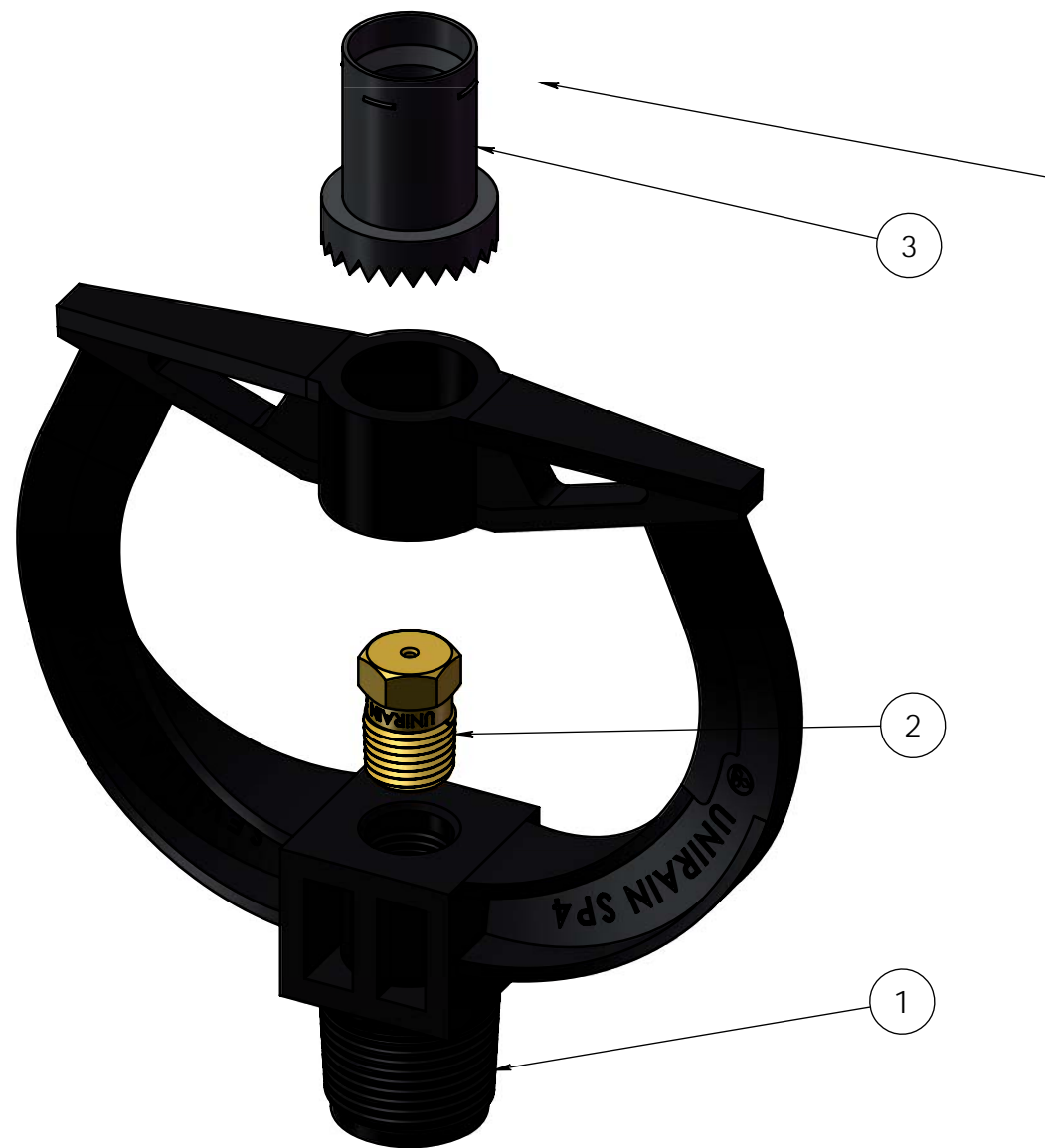
WARRANTY AND EXCLUSIONS

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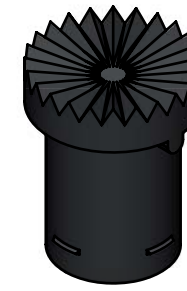
COMPONENT NUMBER	SPARE CODE	DESCRIPTION	MATERIAL	QUANTITY
1	00026	Body SP4 Unirain Spray	PA6+Fiber Glass+UV	1
2	00071	3RN Nozzle (#4 - #25)	Brass	1
3	00023	Grooved Flat Wearpad	Polyurethane (PU)	1



CVX/L
SMOOTH CONVEX WEARPAD
(00024)



PL/L
SMOOTH FLAT WEARPAD
(00022)



PL/R
GROOVED FLAT WEARPAD
(00023)



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

MODELS OF DEFLECTOR TO CHOOSE ACCORDING TO NEEDS

Notes

Process/Manufacturer <i>Unirain</i>	Size A3	Material	Code SP4
	Scale 1:1	Name SP4	
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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 be 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 180°.

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, combined with a wide range and unbeatable uniformity.

Technical specifications

- Modular Spray.
- 3/4" M base thread.
- Leak-Proof Pad.
- Pressure range: 6-50 PSI.
- 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 3/4 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:

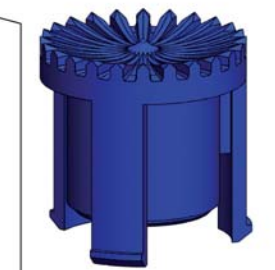
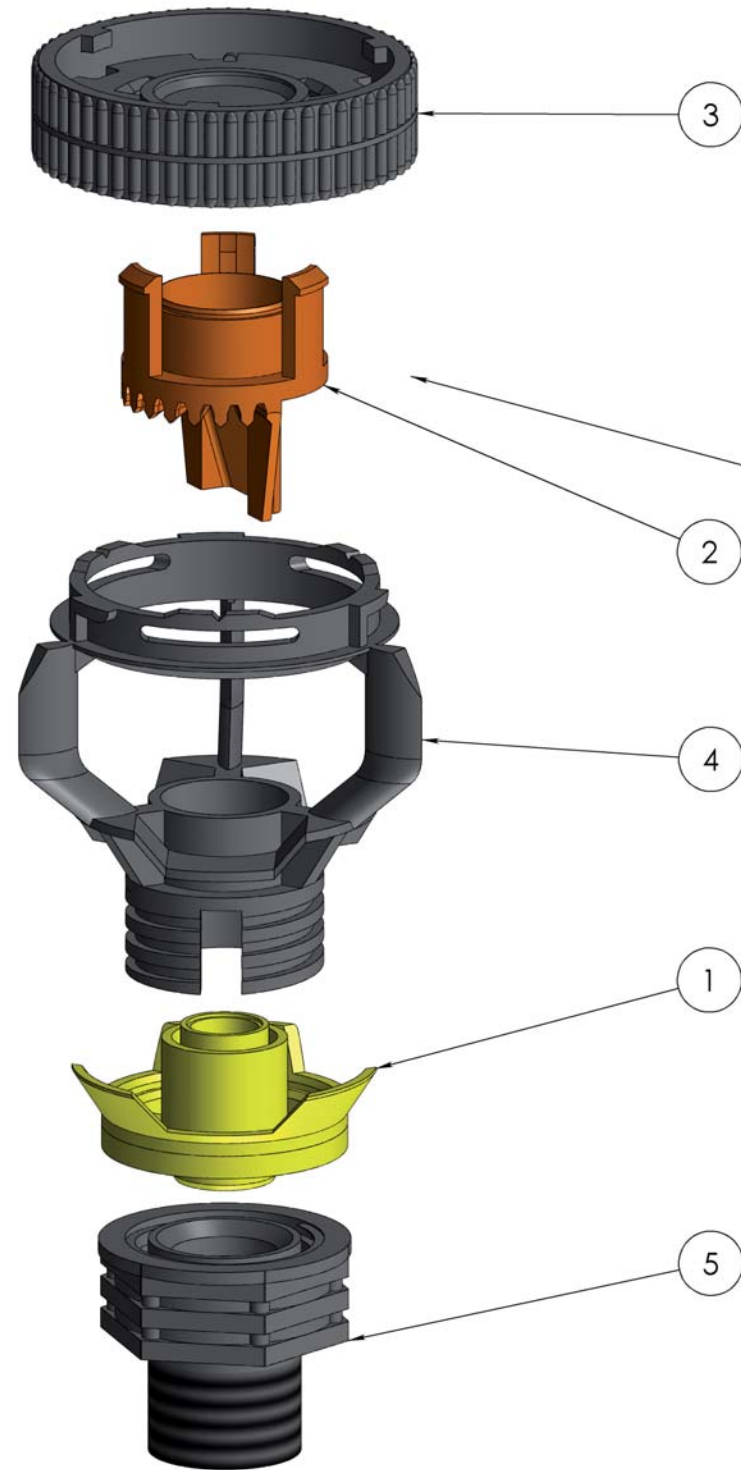
- 1 meter
- 1,2 meters
- 1,5 meters

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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	180° Flat smooth 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	
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	J.N.E.		

Unirain MP5

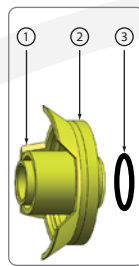
Nozzles



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.

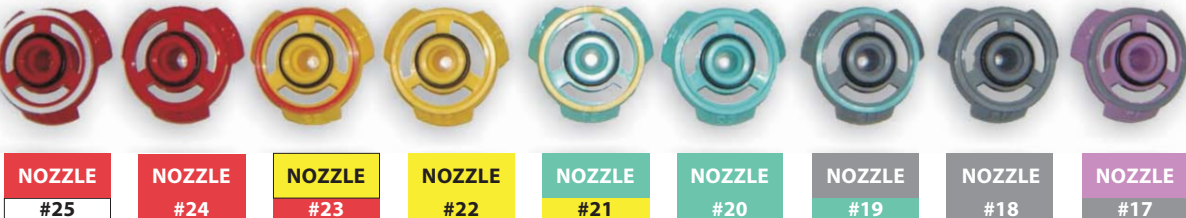
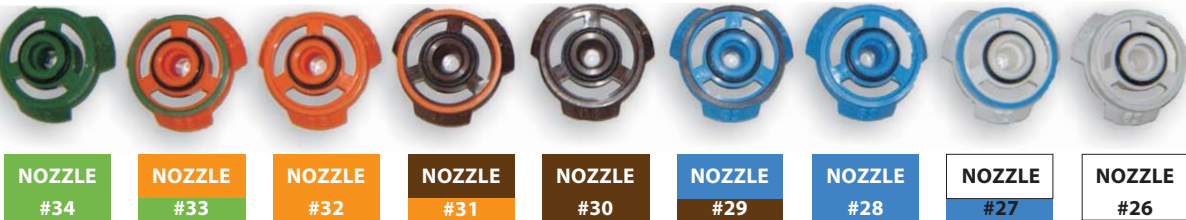
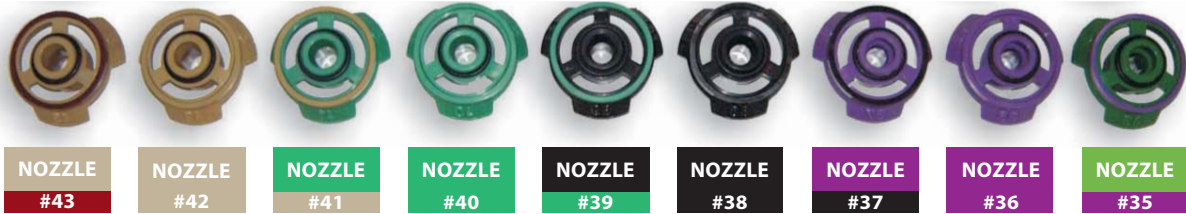
PRESSURE	NOZZLE #8	NOZZLE #9	NOZZLE #10	NOZZLE #11	NOZZLE #12	NOZZLE #13	NOZZLE #14	NOZZLE #15	NOZZLE #16	NOZZLE #17	NOZZLE #18	NOZZLE #19
psi	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM
6	0.25	0.32	0.40	0.50	0.60	0.71	0.83	0.96	1.09	1.21	1.39	1.56
10	0.32	0.41	0.52	0.64	0.77	0.91	1.07	1.23	1.41	1.57	1.80	2.00
15	0.39	0.50	0.64	0.78	0.94	1.12	1.30	1.51	1.73	1.94	2.20	2.45
20	0.45	0.58	0.73	0.90	1.08	1.29	1.50	1.74	1.99	2.25	2.53	2.83
25	0.50	0.65	0.82	1.01	1.21	1.44	1.68	1.94	2.22	2.54	2.83	3.16
30	0.55	0.71	0.90	1.10	1.33	1.57	1.84	2.13	2.43	2.80	3.10	3.46
40	0.63	0.82	1.03	1.27	1.53	1.82	2.12	2.46	2.81	3.25	3.57	3.99
50	0.71	0.92	1.16	1.42	1.71	2.03	2.37	2.74	3.14	3.66	3.99	4.45

PRESSURE	NOZZLE #20	NOZZLE #21	NOZZLE #22	NOZZLE #23	NOZZLE #24	NOZZLE #25	NOZZLE #26	NOZZLE #27	NOZZLE #28	NOZZLE #29	NOZZLE #30
psi	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM
6	1.73	1.91	2.09	2.29	2.48	2.69	2.91	3.13	3.37	3.60	3.85
10	2.22	2.45	2.70	2.95	3.19	3.46	3.74	4.03	4.33	4.64	4.96
15	2.72	3.00	3.30	3.60	3.90	4.23	4.58	4.93	5.30	5.67	6.06
20	3.14	3.46	3.80	4.15	4.50	4.88	5.28	5.69	6.11	6.54	6.98
25	3.50	3.87	4.25	4.63	5.03	5.45	5.89	6.35	6.82	7.30	7.80
30	3.84	4.23	4.65	5.06	5.50	5.97	6.45	6.95	7.47	7.99	8.53
40	4.42	4.88	5.36	5.84	6.35	6.88	7.44	8.01	8.61	9.22	9.84
50	4.94	5.45	5.99	6.52	7.09	7.68	8.31	8.95	9.62	10.29	10.99

PRESSURE	NOZZLE #31	NOZZLE #32	NOZZLE #33	NOZZLE #34	NOZZLE #35	NOZZLE #36	NOZZLE #37	NOZZLE #38	NOZZLE #39	NOZZLE #40	NOZZLE #41
psi	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM
6	4.11	4.37	4.65	4.93	5.22	5.52	5.82	6.14	6.46	6.79	7.13
10	5.29	5.63	5.98	6.34	6.72	7.10	7.49	7.89	8.31	8.73	9.17
15	6.46	6.88	7.31	7.75	8.20	8.67	9.15	9.64	10.15	10.66	11.19
20	7.45	7.93	8.42	8.93	9.46	9.99	10.54	11.11	11.69	12.29	12.89
25	8.32	8.85	9.41	9.97	10.56	11.16	11.77	12.40	13.05	13.71	14.39
30	9.10	9.69	10.29	10.91	11.55	12.21	12.88	13.57	14.28	15.00	15.74
40	10.49	11.17	11.87	12.58	13.31	14.07	14.84	15.64	16.45	17.29	18.14
50	11.71	12.47	13.25	14.05	14.87	15.71	16.57	17.46	18.37	19.30	20.25

PRESSURE	NOZZLE #42	NOZZLE #43	NOZZLE #44	NOZZLE #45	NOZZLE #46	NOZZLE #47	NOZZLE #48	NOZZLE #49	NOZZLE #50	NOZZLE #51	NOZZLE #52
psi	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM	GPM
6	7.47	7.83	8.18	8.53	8.87	9.21	9.56	9.91	10.27	10.63	10.99
10	9.61	10.06	10.51	10.96	11.40	11.84	12.28	12.73	13.19	13.65	14.11
15	11.73	12.28	12.83	13.38	13.91	14.45	14.99	15.54	16.09	16.65	17.21
20	13.52	14.15	14.78	15.42	16.02	16.84	17.26	17.89	18.52	19.17	19.82
25	15.08	15.79	16.49	17.20	17.88	18.56	19.26	19.96	20.66	21.38	22.10
30	16.50	17.28	18.04	18.82	19.55	20.30	21.06	21.82	22.60	23.38	24.17
40	19.01	19.90	20.78	21.68	22.52	23.38	24.26	25.13	26.02	26.92	27.83
50	21.22	22.21	23.19	24.19	25.13	26.09	27.06	28.03	29.02	30.03	31.04

GPM (EE.UU)



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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



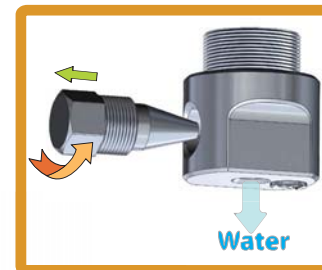
assembly in wheel gearboxes

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.

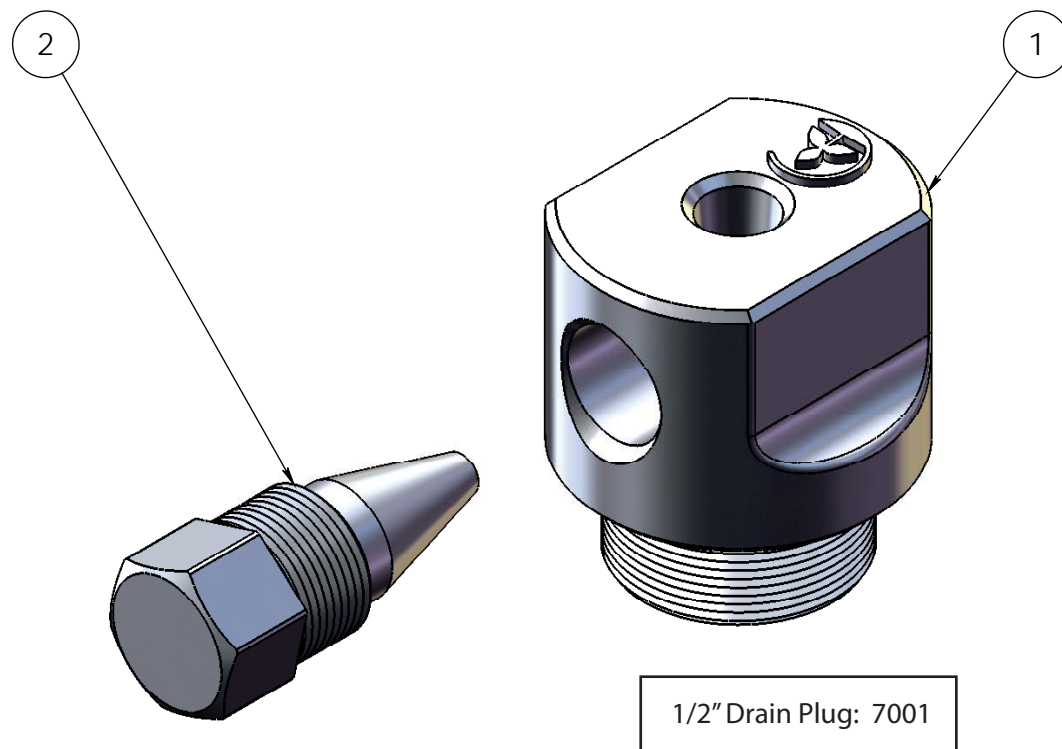
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PART NUMBER	CODES	DESCRIPTION	MATERIAL	QUANTITY
1	07002	3/4" Drain Body	Aluminium	1
2	07000	Drain cock (locking screw)	Aluminium	1



Notes

Process/Manufacturer UNIRAIN	Size A3	Material Aluminium	Code 07010
	Scale 3:2	Name Unirain PIVOT-Drainage	
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	E.G.B.		