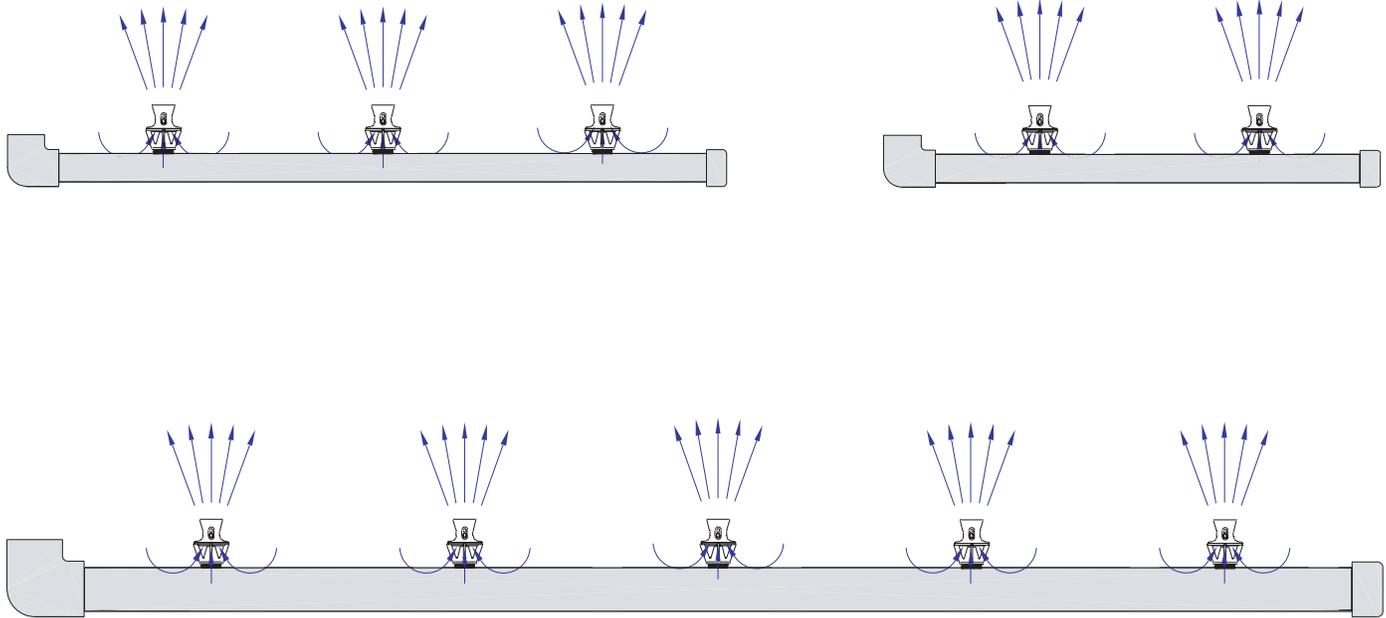


Series PES Penductor Systems

Installation & Maintenance

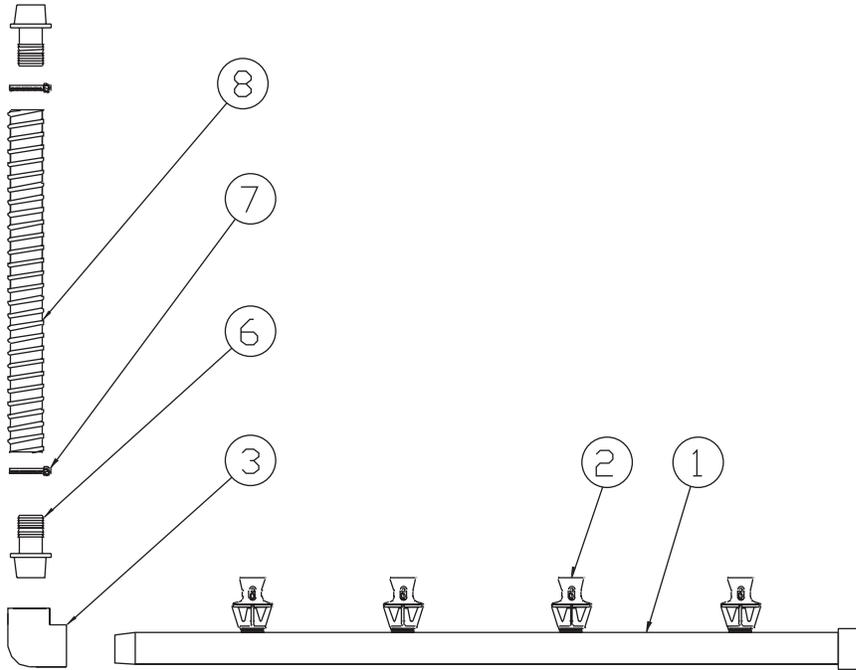


Introduction

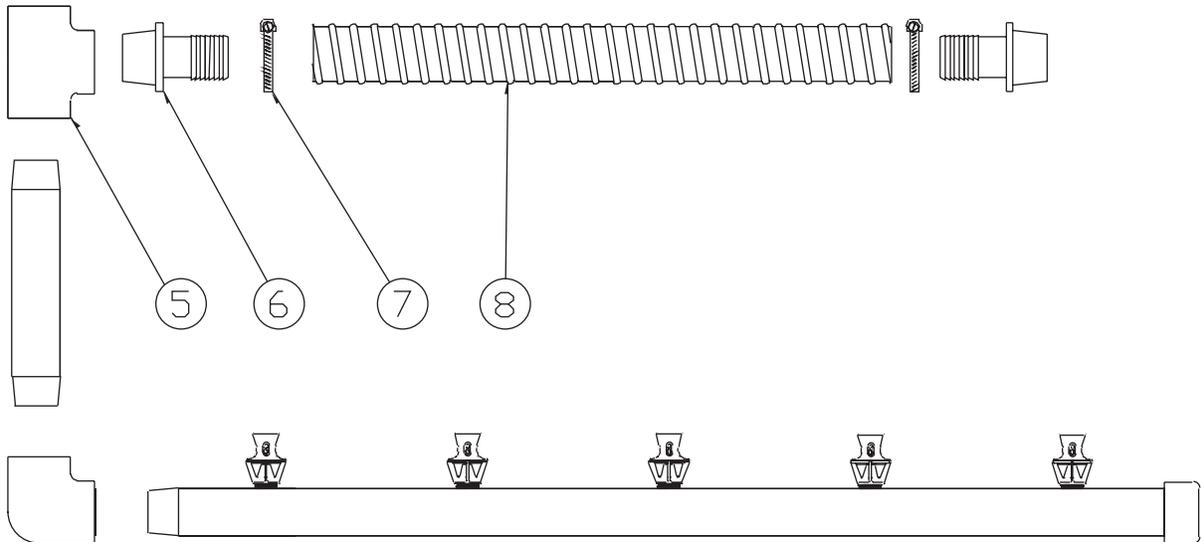
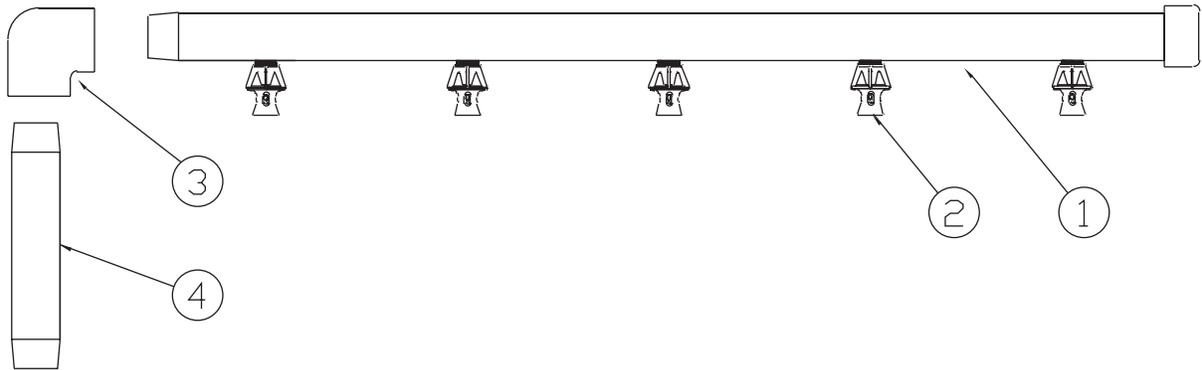
Penguin Penductor Systems are designed for in-tank mixing using the tank fluid as the mixing medium for solution agitation. Simple in design, these systems are easy to install, operate, and maintain. Simplex systems consist of one (1) Penductor manifold assembly, hose clamps, and 10 feet of hose. Duplex systems consist of two (2) Penductor manifold assemblies, two (2) nipples, tee, hose clamps, and 10 feet of hose. Some assembly is required on both of these systems.

Penductors utilize the fluid inside the tank reservoir as the “motive” fluid, which is defined as the fluid flowing through the Penductor nozzle. The high velocity motive fluid entrains the liquid near the suction openings of the Penductor, and mixes this liquid thoroughly as it passes through the diffuser. The resulting plume of mixed fluid, flowing at an intermediate velocity, now proceeds to mix and agitate the remaining tank liquid.

Series PES Spare Parts List



Simplex System



Duplex System

Series PES Spare Parts List

System Model	Item #1 Manifold CPVC	Item #2 Pendorctor Polypro	Item #3 Elbow CPVC	Item #4 Nipple CPVC	Item #5 Tee CPVC	Item #6 Hose Barb Polypro	Item #7 Hose Clamp SS	Item #8 Hose PVC	
PES-1 1/2-2	PES-112-2A	PE-3/4MB (2)	ELB-015-81A	N/A	N/A	HB-015-17B (2)	HC-015-01A (2)	HOS-015-10 (10')	
PES-1 1/2-3	PES-112-3A	PE-3/4MB (3)							
PES-1 1/2-4	PES-112-4A	PE-3/4MB (4)							
PES-1 1/2-5	PES-112-5A	PE-3/4MB (5)							
PES-1 1/2-2x2	PES-112-2A	PE-3/4MB (4)							
PES-1 1/2-2x3									
PES-1 1/2-2x4									
PES-1 1/2-2x5									
PES-1 1/2-3x2	PES-112-3A	PE-3/4MB (6)		TBE-015-08A (2)	TEE-112-01A				
PES-1 1/2-3x3				TBE-015-12A (2)					
PES-1 1/2-3x4				TBE-015-20A (2)					
PES-1 1/2-3x5	TBE-015-25A (2)								
PES-1 1/2-4x2	PES-112-4A	PE-3/4MB (8)		TBE-015-08A (2)					
PES-1 1/2-4x3				TBE-015-12A (2)					
PES-1 1/2-4x4				TBE-015-20A (2)					
PES-1 1/2-4x5	PES-112-5A	PE-3/4MB (10)		TBE-015-25A (2)					
PES-1 1/2-5x2				TBE-015-08A (2)					
PES-1 1/2-5x3				TBE-015-12A (2)					
PES-1 1/2-5x4	PES-112-5A	PE-3/4MB (10)		TBE-015-20A (2)					
PES-1 1/2-5x5				TBE-015-25A (2)					
PES-2-2	PES-200-2A	PE-1MB (2)	ELB-020-81A	N/A		N/A	HB-020-18B (2)	HC-020-01A (2)	HOS-020-10 (10')
PES-2-3	PES-200-3A	PE-1MB (3)							
PES-2-4	PES-200-4A	PE-1MB (4)							
PES-2-5	PES-200-5A	PE-1MB (5)							
PES-2-6	PES-200-6A	PE-1MB (6)							
PES-2-2x2	PES-200-2A	PE-1MB (4)		TBE-020-07A (2)	TEE-020-01A				
PES-2-2x3				TBE-020-13A (2)					
PES-2-2x4				TBE-020-19A (2)					
PES-2-2x5				TBE-020-25A (2)					
PES-2-2x6				TBE-020-31A (2)					
PES-2-3x2	PES-200-3A	PE-1MB (6)		TBE-020-07A (2)					
PES-2-3x3				TBE-020-13A (2)					
PES-2-3x4				TBE-020-19A (2)					
PES-2-3x5				TBE-020-25A (2)					
PES-2-3x6				TBE-020-31A (2)					
PES-2-4x2	PES-200-4A	PE-1MB (8)		TBE-020-07A (2)					
PES-2-4x3				TBE-020-13A (2)					
PES-2-4x4				TBE-020-19A (2)					
PES-2-4x5				TBE-020-25A (2)					
PES-2-4x6				TBE-020-31A (2)					
PES-2-5x2	PES-200-5A	PE-1MB (10)		TBE-020-07A (2)					
PES-2-5x3				TBE-020-13A (2)					
PES-2-5x4				TBE-020-19A (2)					
PES-2-5x5				TBE-020-25A (2)					
PES-2-5x6				TBE-020-31A (2)					
PES-2-6x2	PES-200-6A	PE-1MB (12)		TBE-020-07A (2)					
PES-2-6x3				TBE-020-13A (2)					
PES-2-6x4				TBE-020-19A (2)					
PES-2-6x5				TBE-020-25A (2)					
PES-2-6x6				TBE-020-31A (2)					

Installation, Operation & Maintenance Instructions

Installation

Penductor systems are shipped partially assembled and do not include a pump.

Simplex System Assembly:

1. Secure the Penductor header assembly to the tank while aligning the Penductor nozzles in the desired direction.
2. Attach the hose to the hose barb located near the end of the Penductor header assembly.
3. Secure with hose clamp.
4. Route the hose to system or pump discharge piping.

Duplex System Assembly:

1. Wrap teflon tape on the threads of the two nipples.
2. Screw one nipple into the header assembly with the elbow attached.
3. Screw the tee onto the other end of this nipple.
4. Screw the remaining nipple into the other end of the tee.
5. Screw on the elbow.
6. Screw on the remaining Penductor header assembly, being careful not to strip the threads.
7. Secure the duplex header assembly to tank, making sure the Penductor nozzles are pointed in the proper direction.
8. Attach the hose to the hose barb at the end of the Penductor header assembly.
9. Secure with hose clamp.
10. Route the hose to system or pump discharge piping.

Note: The two (2) Penductor manifold assemblies are shipped loose and must be connected to each other using the two (2) nipples and tee provided.

Operation

Check all plumbing and the pump for proper installation prior to initial start-up. Fill the tank until all Penductors are fully submerged; the more fluid there is above the Penductors, the less chance of drawing in air. Turn on the pump to start motive flow which, in turn, starts the mixing action. Immediately check the flow pattern making sure the Penductor nozzles are properly aligned.

Maintenance

Penductor systems are relatively maintenance-free. As long as the motive fluid is moving past the suction openings in the Penductor, the Penductor should be operating correctly. If not, check for blockages at or near the Penductor suction and inlet regions. All rigid plumbed connections should be checked occasionally, especially if employed at elevated temperatures. Monitoring a system can be most easily done by checking the header pressures. For dedicated Penductor systems, the pressure in the manifold should remain constant unless there is a problem.



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