ZPM®

ZETA POTENTIAL MIXER

DRYDEN AQUA DISTRIBUTION
SUSTAINABLE WATER QUALITY

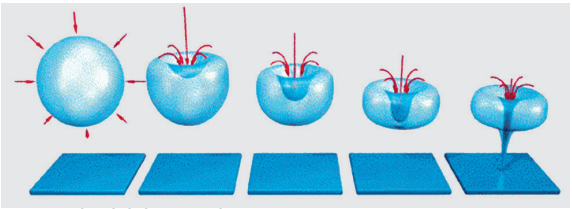
MIXING THROUGH **CAVITATION**

KEY **PRODUCT FEATURES**

- Stainless steel construction for freshwater
- Titanium/PVC for seawater applications
- Sizes from DN15 - DN300
- No movable parts - no wearing out /no chance to break
- Can be flanged into existing systems
- Easy to clean and maintain / no maintenance needed

External Thread
ZPM DN 15 - 65

Flange
ZPM DN 80 - 300



Nano-bubble implosion process

WHAT IS **ZPM® ?**

ZPM by Dryden Aqua stands for Zeta Potential Mixer. As the cavitation effect increases the redox potential, the zeta potential decreases and coagulation as well as mechanical flocculation reactions are initiated. The ZPM amplifies precipitation and coagulation reactions of dissolved organics into small particles.

ZPM's are high efficiency static mixers allowing the direct injection of a coagulant highly increasing the coagulation efficiency. The ZPM's are manufactured from stainless steel for ground and surface water use and with a titanium inner and PVC housing for seawater applications.

UNIQUE **BENEFITS**

Better mixing - less product

The strong turbulence improves mixing, therefore lowering the amount of (coagulant) chemicals needed.

Coagulation by default

Through cavitation and lowering the Zeta potential, the ZPM amplifies coagulation reactions. This vastly improves the eficciency of downstream filtration.

Safety barrier against pathogens

The ZPM before or after the media filter due to it's cavitation effect, can mechanically kill cryptosporidium oocysts and other bacteria and incrase performance of desinfectants such as when using chlorine or hypochlorite.

Small investment – big performance for a lifetime

The ZPM has an unlimited life. It needs no power and has no operating and maintenance costs.

Cavitation process

The water molecules are pulled apart by the cavitation reactions which creates imploding of nano-bubbles. These help disinfecting the water. The greater the pressure differential across a ZPM, the stronger the cavitation reactions. No energy is lost through this reaction as it is returned to the water in the form of heat.

WHY USING A **ZPM®**

- The static mixer for the cavitation of water – optimises coagulation and flocculation: ZPM stands for Zeta Potential Mixer and is a static mixer manufactured in 316L stainless steel or, Titanium for use in Seawater applications.
- The ZPM amplifies coagulation reactions for the conversion and precipitation of dissolved components into small particles. The ZPM provides the perfect mixing and turbulent environment necessary for coagulant as well as flocculant dosing.
- As the redox potential increases, the zeta potential decreases and coagulation as well as mechanical flocculation reactions are initiated.
- The ZPM is a cavitating static mixer, neutralising the electrical charge (Zeta Potential) on dissolved particles. Opposite charges attract and this causes coagulation and flocculation. As the zeta potential drops the redox potential of the water increases. Through ZPM's cavitation mechanism, the water is partially disinfected without the use of any chemicals.

Choose the size of the ZPM according to the pressure loss. Pressure loss should be between 0.1 – 0.2 bar.

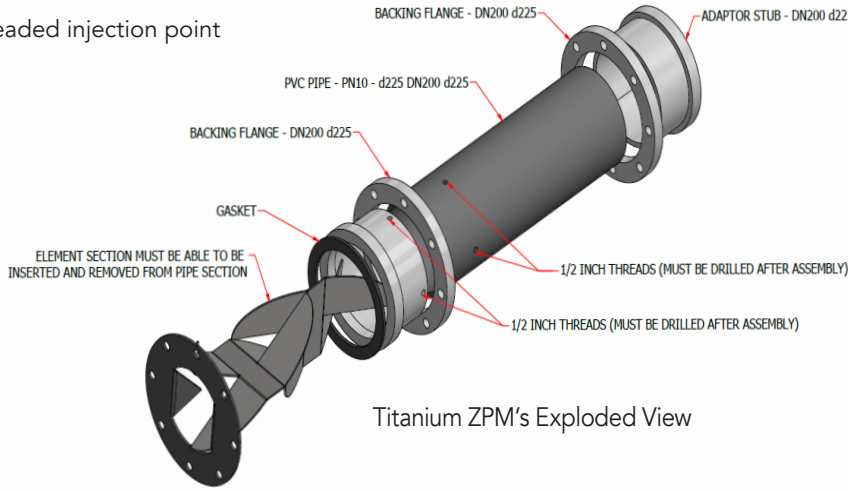
ZPM Zeta Potential Mixer					SS 1.4571 Item No.	Titanium Item No.
		Pressure loss[2]				
Size	Connection[1]	0.2 bar	0.3 bar	0.5 bar		
DN 15	1/2" SK	1.4 m³/h	1.7 m³/h	2.1 m³/h	30030	-
DN 20	3/4" SK	2.5 m³/h	3.0 m³/h	3.8 m³/h	30031	-
DN 32	1" SK	5 m³/h	6 m³/h	7 m³/h	30032	-
DN 40	1½" SK	10 m³/h	12 m³/h	15 m³/h	30001	30101
DN 50	2" SK	15 m³/h	23 m³/h	30 m³/h	30003	30102
DN 65	2½" SK	24 m³/h	30 m³/h	38 m³/h	30014	30114
DN 80	3" FL	40 m³/h	47 m³/h	63 m³/h	30015	30125
DN 100	4" FL	68 m³/h	83 m³/h	108 m³/h	30016	30126
DN 125	5" FL	100 m³/h	125 m³/h	165 m³/h	30017	30127
DN 150	6" FL	160 m³/h	200 m³/h	260 m³/h	30018	30128
DN 200 [3]	8" FL	175 m³/h	220 m³/h	290 m³/h	30008	-
DN 200	8" FL	250 m³/h	370 m³/h	410 m³/h	30019	30129
DN 250 [3]	10" FL	260 m³/h	325 m³/h	420 m³/h	30009	-
DN 250	10" FL	350 m³/h	410 m³/h	525 m³/h	30020	30130
DN 300	12" FL	400 m³/h	500 m³/h	620 m³/h	30021	30131

ZPM Pressure Loss Curves

Notes:
All ZPMs are equipped with ½" BSP, female threaded injection point
[1] 2 fins, SK = Socket / FL = flange
[2] 1 bar ≈ 10 mWS ≈ 10 m H_20 ≈ 15 psi
[3] While stock lasts (3 fins)

Stainless Steel ZPM threaded connection

Stainless Steel ZPM Flange connection



Titanium ZPM's Exploded View