# WALI PIPELINE HIGH SHEAR DISPERSING EMULSIFIER

HD Process NZ LTD
Specialists in sanitary process equipment

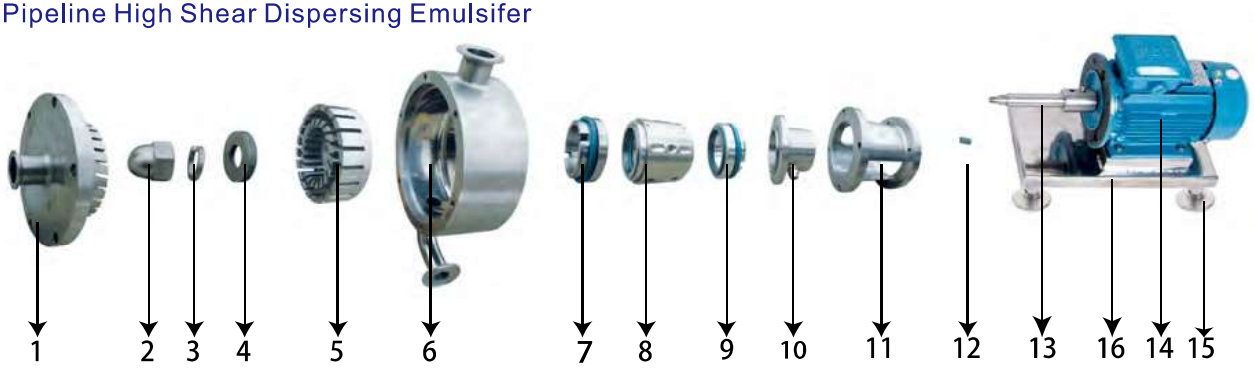
Unit 1, 10c Maurice Rd, Penrose, Auckland New Zealand
PO Box 2082, Shortland St, Auckland 1140
Tel 09-580 2520 Fax 09-580 2525
Email mail@hdprocess.co.nz

## Working Principle

Pipeline high shear dispersing emulsifier is a high performance equipment used for continuous prod-uction or circulated treatment of fine material.In the small chamber,there are 1-3 sets of paired and clutched stators and rotor. Driven by motor,the rotor revolve quickly and produces a strong axial suctionforce which intakes the material to the chamber. The machine disperses, shears and emulsifiesthe material in shortest time , and the diameter range .of the particles gets smaller so that fine and stable products are produced.

High Shear Dispersing Emulsifier System

## Pipeline High Shear Dispersing Emulsifer




1.Stator 2.Screw cap 3.Flexible gasket 4.Flat gasket 5.Rotor 6.Pump cavity 7. Mechanical seal (stationary ring) 8.Mechanical seal (moving ring) 9.Mechanical seal (stationary ring) 10.Seal cool seat 11.Pump seat 12.Pin 13.Pump shaft 14.Motor 15 .Support 16. Frame

# WAL1 PIPELINE HIGH SHEAR DISPERSING EMULSIFIER

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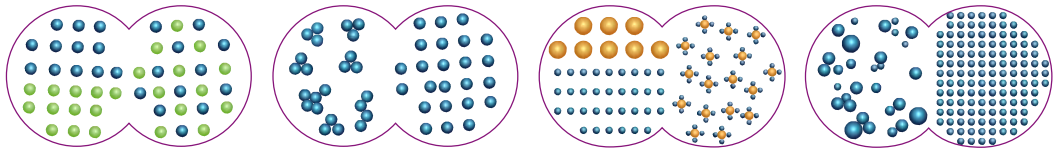
## High Shear Dispersing Emulsifier Is Applied In Many Fie.....



Mixing Dispersing Emulsifying Homogenizing

| | |
|---|---|
| Mixing dissolving | Soluble solid or liquid blends together with liquid in the state of the molecule or the gum Crystallization powder,salt,suguar,ether sulphate ,abrasive ,hydrolysising colloid,CMC thixotropy,rubber,natural and synthetic resin |
| Dispersed suspension: | Unsoluble solid or liquid forms finer partical blended solution or suspended solution Catalyst,flatting agent ,pigment ,graphite,paint coating,printing ink |
| Emulsification | Unsoluble liquid together with liquid does not separate Cream ,ice cream , animal oil ,vegetable oil ,protein ,silicon oil ,light oil ,mineral oil ,paraffin |
| Homogeneity : | Make emulsification and suspended grain size finer with more even distributionCream,flavouring,fruitjuicejam,condiment,cheese,fatmilk,toot |
| Thick liquid : | Cell' s tissue ,organic tissue,the animal and plant tissues |
| Chemical reaction : | Nanometer material,inflating with higher speed ,synthesization with higher speed |
| Extraction: | The vortex extr action |
| Depolymerization: | Nanometer powder ,dough powder |

## Applications

Fine chemical: pigment,glue ,sealing compound,resin emulsifying,germicidal agent,coagulating agent

Petroleum chemical: lubricating grease,diesel emulsifying, asphalt modification,catalyst,parafin emulsification

Bio-pharmacy: injection, antibiotic, ointment, biopreparate,capsule emulsification,sugar coating

Coating&oil inks: printing ink,emulsion coating,construction coating,auto paint,coating auxiliary agent

Pesticides: bactericidal agent, seed coating agent,herbicide,pesticide emulsified oil,ertilizer,biological pesticide

Nanometer material: dispersing and dispolymerizing nanometer material,extracting nanometer products in chemical reaction

Food industry: juice,jam,elly,ice cream,dairy products,additive,tea drinking

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## Advantages Of Pipeline High Shear Dispersing Emulsifier

Mass production suitable for continuous production of industrialized assembly line

Small diameter range,and highly even

Time saving,highly efficient and energy saving

Low noise,stable operation

Reduced quality difference between lots

Material is fully dispersed snd sheared

Daliver in short distancc with low lift

Easy operation,convenient maintenance

Automatic control

Rough teeth:
beat, shatter, shear,dissolve, rough disperse

Middle teeth:
disperse，refine, solutize, emulsify

Fine teeth:
superfine dis perse, emulsify, homogenize, pulpify

Experimental emulsion pump

Fixed emulsion pump

Movable emulsion pump

Main Parameter

| Model | ( KW ) Power | ( r/min ) Rotation speed | ( $m^3$/h ) Capacity |
|---|---|---|---|
| WRL1-80 | 1.5 | 2900 | 0-1.5 |
| WRL1-100 | 2.2 | 2900 | 0-3 |
| WRL1-120 | 4 | 2900 | 0-4 |
| WRL1-140 | 5.5/7.5 | 2900/2900 | 0-5 |
| WRL1-165 | 7.5/11 | 2900/2900 | 0-8 |
| WRL1-180 | 11/15 | 2900/2900 | 0-12 |
| WRL1-185 | 15/18.5 | 2900/2900 | 0-18 |
| WRL1-200 | 22 | 2900 | 0-25 |
| WRL1-210 | 30 | 2900 | 0-35 |
| WRL1-230 | 45 | 2900 | 0-50 |
| WRL1-245 | 55 | 2900 | 0-75 |
| WRL1-260 | 75 | 2900 | 0-90 |
| WRL1-275 | 90 | 2900 | 0-110 |
| WRL1-280 | 132 | 2900 | 0-130 |

# WRL1 PIPELINE HIGH SHEAR DISPERSING EMULSIFIER

- SANITARY S VERSION WITH QUICK ACCESS INTERCHANGEABLE HEAD

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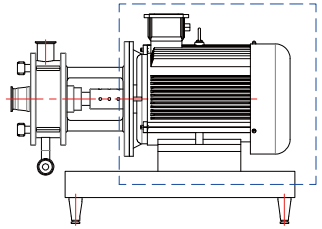

Easy dismantle emulsion pump

## Main Parameter

| Model | ( KW ) Power | ( r/min ) Rotation speed | ( $m^3/h$ ) Capacity |
|---|---|---|---|
| WRL1-S-80 | 1.5 | 2900 | 0-1.5 |
| WRL1-S-100 | 2.2 | 2900 | 0-3 |
| WRL1-S-120 | 4 | 2900 | 0-4 |
| WRL1-S-140 | 5.5/7.5 | 2900 | 0-5 |
| WRL1-S-165 | 7.5/11 | 2900 | 0-8 |
| WRL1-S-180 | 11/15 | 2900 | 0-12 |
| WRL1-S-185 | 15/18.5 | 2900 | 0-18 |
| WRL1-S-200 | 22 | 1450/2900 | 0-25 |
| WRL1-S-210 | 30 | 1450/2900 | 0-35 |
| WRL1-S-230 | 45 | 1450/2900 | 0-50 |
| WRL1-S-245 | 55 | 1450/2900 | 0-75 |
| WRL1-S-260 | 75 | 1450/2900 | 0-90 |
| WRL1-S-275 | 90 | 1450/2900 | 0-110 |
| WRL1-S-280 | 132 | 1450/2900 | 0-130 |

# WRL3 PIPELINE HIGH SHEAR DISPERSING EMULSIFIER
- 3 STAGE

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Unit 1, 10c Maurice Rd, Penrose, Auckland New Zealand
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## Principle Of Dynamics

1. Medium sucked in by strong axial suction force.
2. Single phase liquid, multi-phase liquid or suspended particles are pumped in though single-stage, double-stage or three-stage rotor and stators.
3. No matter what medium property is, pump will evenly shear all the liquid
with high-intensity and controllable force.
4. Shearing rate is constant, different sizes depends on gear of rotor and stator and speed of rotor.

## Main Parameter

| Model | ( KW ) Power | ( RPM ) Rotation speed | W ( $m^3/h$ ) Capacity |
|---|---|---|---|
| WRL3-80 | 4 | 2900 | 0-1.5 |
| WRL3-100 | 5.5 | 2900 | 0-3 |
| WRL3-120 | 7.5 | 2900 | 0-4 |
| WRL3-140 | 11 | 2900 | 0-5 |
| WRL3-165 | 18.5 | 2900 | 0-8 |
| WRL3-180 | 22 | 2900 | 0-12 |
| WRL3-185 | 30 | 2900 | 0-18 |
| WRL3-200 | 45 | 2900 | 0-25 |
| WRL3-210 | 55 | 1470 | 0-35 |
| WRL3-230 | 75 | 1470 | 0-50 |
| WRL3-245 | 90 | 1470 | 0-75 |
| WRL3-260 | 110 | 1470 | 0-90 |
| WRL3-275 | 132 | 1470 | 0-110 |

# WRL3 PIPELINE HIGH SHEAR DISPERSING EMULSIFIER
3 STAGE - cont;

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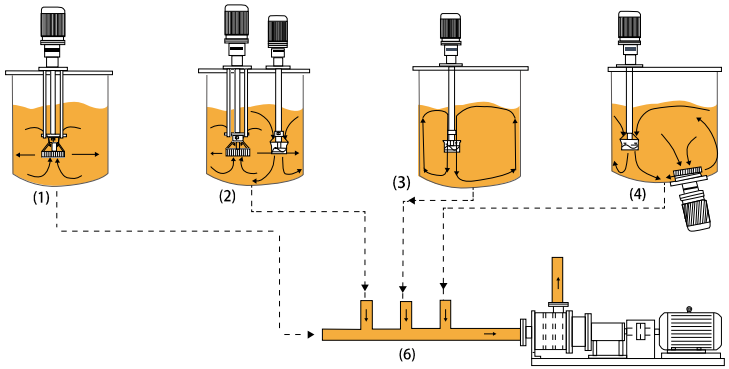
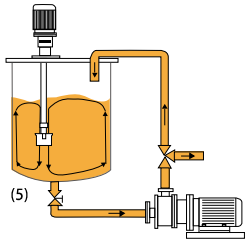
## Working Principle

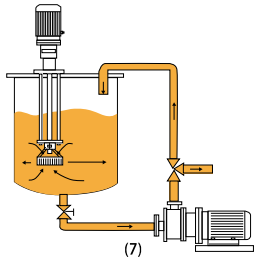
Three sets of stators and rotors are equipped in working cavity. Driving shaft in working cavity is an arm, electrical motor and the shaft in bearing cabinet can be connected by spring coupling to improve the operation quality of driving shaft. Seal form can be selected in different conditions. It is fit for .middle-large scale on-line continuous production or circulated treatment production process.

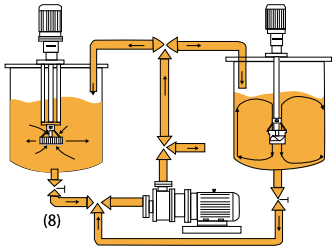
## Optimized Combination Makes The System Reach The Best State

There are equipments in different forms and combine in optimization for different flow processes, to make the system reach the best state. Common process flows are as below:



# WRL-H SHEAR-PUMP

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## Introduction

In a wide range of products from simple to demanding applications to blend,emulsify, disperse, dissolve and homogenize, TRL-H series with unique impeller-vane, inducer design enablles quick dissolution and hydration of stablizers, gums, powders, sugars and any fluids requiring sensitive shearing.

## Features

The TRL-H Series blenders are ideally suitable for various applications of skimmimg milk， formulating, toppings, puddings, making sauces, mixing ice-cream, blending sugar and dressing salad. Also, TRL-H Series are designed to blend, emulsify, disperse, dissolve and homogenize.

Supremely eficient and rapid in operation to shorten processing time by up to 90% when compared to conventional paddles or agitators due to configuring impeller-vane design in line with fluid shear rate.

All contact parts are AISI316 stainless steel for pump and funnel.

CIP's ability being suitable for hygienic and clean process reduces downtime consuming hand cleaning and labor intanse of man hours besides the risk of equipment damage from COP.

Highest capacity and heaviest duty with compact size being accomplished with state-of-art technology and know-how.The shear blender can deliver capacities up to 80m3/hr.

Impellers with excellent suction capacity ensure thattasks are optimally realised during homogenisingand emulsifying.

TRL-H with hopper: for mixing sugar, flour, salts, spices, etc. powder with liquid.

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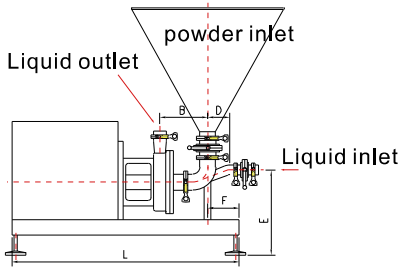
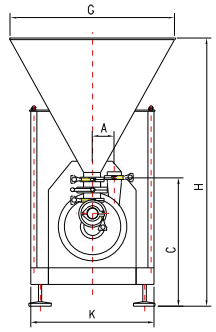
## Advantages

Enormous savings in time,Suitable for extremely varied batch sizes,Low noise, stable operation,For applications where low stress on products is important,Easy to clean:CIP/SIP or manual,Simple maintenance,Different sealing materials.




## Main Parameter

| Model | Outlet X liquid inlet | Range of capacity (T/H) | Powder inlet | Elec ctrica power (KW) | Rotation speed (r/min) | Powder Suction capacity (T/H) | Remarks |
|---|---|---|---|---|---|---|---|
| WRL-H-100 | 1.5 " x1.2 " | 0-5 | 2″ | 3/4 | 2900 | 0-1.5 | The flow in the table refers to the data tested taking water as the medium.With different viscosity and density of medium will use different electrical power |
| TRL-H-130 | 2 " x1.5 " | 0-10 | 2.5″ | 5.5/7.5 | 2900 | 0-2 | |
| WRL-H-160 | 2.5 " x2 " | 0-20 | 3″ | 11/15/18.5 | 2900 | 0-3 | |
| WRL-H-190 | 2.5 " x2 " | 0-30 | 3.5″ /4″ | 22/30 | 2900 | 0-4 | |
| WRL-H-210 | 3 " x2.5 " | 0-40 | 4″ /5″ | 30/37 | 2900 | 0-5 | |

## Shape Size

| Model | Outlet X liquid inlet ( KW ) | Dimension | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | K | L | H | G |
| WRL-H-100 | 3/4 | 73 | 172 | 425 | 135 | 320 | 75 | 350 | 600 | 920 | 450 |
| WRL-H-130 | 5.5/7.5 | 91 | 175 | 455 | 155 | 405 | 150 | 450 | 8900 | 1100 | 600 |
| WRL-H-160 | 11/15/18.5 | 91 | 159 | 495 | 155 | 435 | 200 | 500 | 1000 | 1250 | 600 |
| WRL-H-190 | 22/30 | 114 | 159 | 495 | 185 | 435 | 200 | 500 | 1000 | 1250 | 750 |
| WRL-H-210 | 30/37 | 114 | 159 | 535 | 185 | 435 | 250 | 600 | 1000 | 1250 | 750 |

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## Operation Principle

TRL-B efficient online mixer system is the latest generation of solid and liquid,liquid and the liquid fast, efficient hybrid systems equipment. The system has powerful Central vacuum of power system to ensure operation of the system efficient, safe and reliable, but also the clever design of a set of precise and bite Rotor will close subsystems, making efficient online mixer with a variety of unique and mutual reunification of the Function. In the unique and compact structure of the system, two systems synergy, working together,so that non-homogeneous materials in a small space rapidly and thoroughly mixed and heterogeneous, and may even be a meticulous verification of stability to repeat Production results.

## Main Parameter

| Model | Flow rate ( T/H ) | Powder suction capacity ( T/H ) | Layer of rotor- sator | Power of in-line mixer ( KW ) | Rotation speed of inline mixe r and self-priming pump ( r/min ) | Remarks |
|---|---|---|---|---|---|---|
| WRL-B-120 | 0.5-5 | 0-1 | 4 | 4 | 2900/1450 | The flow in the table refers to the data tested taking water as the medium.The feeding pump will be used different type accoridng to medium' S property |
| WRL-B-140 | 1-8 | 0-1.5 | 6 | 5.5/7.5 | 2900/1450 | |
| WRL-B-165 | 1-12 | 0-2 | 6 | 7.5/11 | 2900/1450 | |
| WRL-B-180 | 1-15 | 0-3 | 6 | 11/15 | 2900/1450 | |
| WRL-B-180 | 1-12 | 0-3 | 8 | 15/18.5 | 2900/1450 | |
| WRL-B-200 | 1-20 | 0-3.5 | 8 | 18.5/22 | 2900/1450 | |
| WRL-B-200 | 1-18 | 0-3.5 | 10 | 22/30 | 2900/1450 | |
| WRL-B-230 | 2-30 | 0-4 | 10 | 30 | 2900/1450 | |
| WRL-B-250 | 2-40 | 0-5 | 10 | 37 | 2900/1450 | |

# TRL—8 EFFICIENT ONLINE MIXER SYSTEM

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## System Portfolio

Table system: according to different application requirementsv, select SUS304 or 316L stainless steel manufacturing. The relatively closed system equipment, cleaning, sanitation, safety, aesthetics, easy to operate;

Dry powder feeding: v-dry powder for solid feeding the mouth of Health with adjustable valves. Can choose manual or pneumatic control;

Control Valve: Yes conditioning systems must be part of the system at the same time to adjust the volume and velocity;

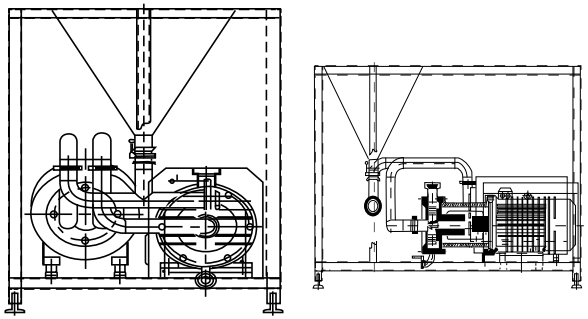
Endoscopic: (choose to instal): To observe the entire system operators provide a convenient working conditions and visual instructions.

System emptying system (based on customer requirements choose to install); can be used for cleaning, emptying and sampling.

Eficient mixer: the system is the core components, the ingenious design of a precise and bite Rotor will close subsystems, making efficient online mixer with a variety of unique and reunification of the functions of each other.

They are asked to the relatively high rate of high-speed rotation, but not direct contact with each other, not wear. Health centrifugal pump shape the structure from the structure, shaft, mechanical seals, seals and other imports are Germany; rotor, stator, the whole cavity are forging a stainless steel high-precision CNC machining centers from processing; system strong, secure,efficient, safe and reliable;

High effective dosing machine



# WRL—C SUCTION—POWDER MIXING DISPERSING EMULSIFIE

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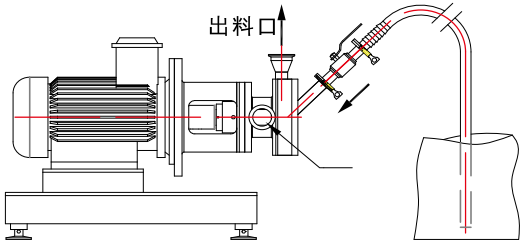
## Operation Principle

WRL-C system is the use of special high-speed rotation of the rotor have a vacuum, the powder evenly inhalation chamber work, and it evenly distributed in the rapid flow of sap flow, the flow in the blink Secretary powder was completely wet, do not have a massive reunion Of. Then liquid and powder through a high-shear structure for the rotor to any possible spread of the block-poly, the last fully wet) and Yan evenly distributed the materials.




## Main Parameter

| Model | ( KW ) Power | ( r/min ) Rotation speed | ( $m^3$/h ) Capacity | ( Bar ) Outlet pressure | ( kgs ) Powder Suction capacity |
|---|---|---|---|---|---|
| WRL-C-100 | 4 | 2900 | 0-5 | 1 | 0-200 |
| WRL-C-120 | 5.5/7.5 | 2900 | 0-10 | 1.5 | 0-500 |
| WRL-C-140 | 11/15 | 2900 | 0-20 | 1.5 | 0-1000 |
| WRL-C-150 | 18.5/22 | 2900 | 0-30 | 2 | 0-1500 |
| WRL-C-165 | 30/37 | 2900 | 0-40 | 2.5 | 0-2000 |
| WRL-C-180 | 45/55 | 2900 | 0-50 | 2.5 | 0-2500 |
| WRL-C-200 | 75/90 | 1450/2900 | 0-70 | 3 | 0-3000 |
| WRL-C-220 | 110/132 | 1450/2900 | 0-100 | 4 | 0-5000 |