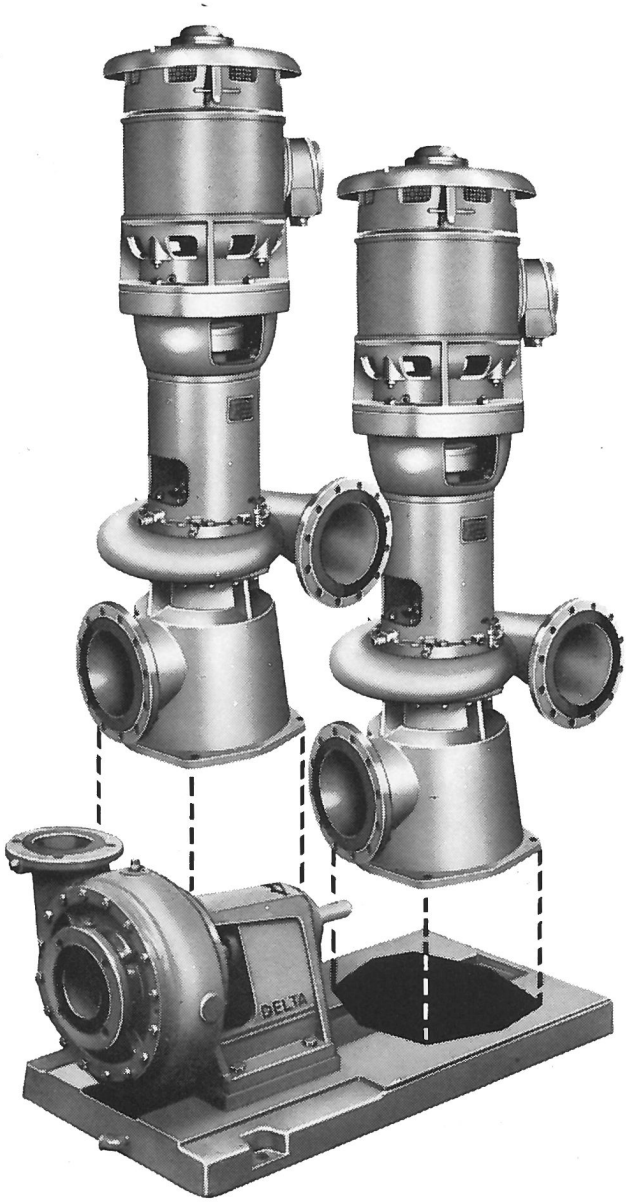
RODELTA®

PUMP SOLUTIONS FOR DRINKING WATER SUPPLY AND INDUSTRY

Dedicated Solutions for Leading Industries

distinctive vision

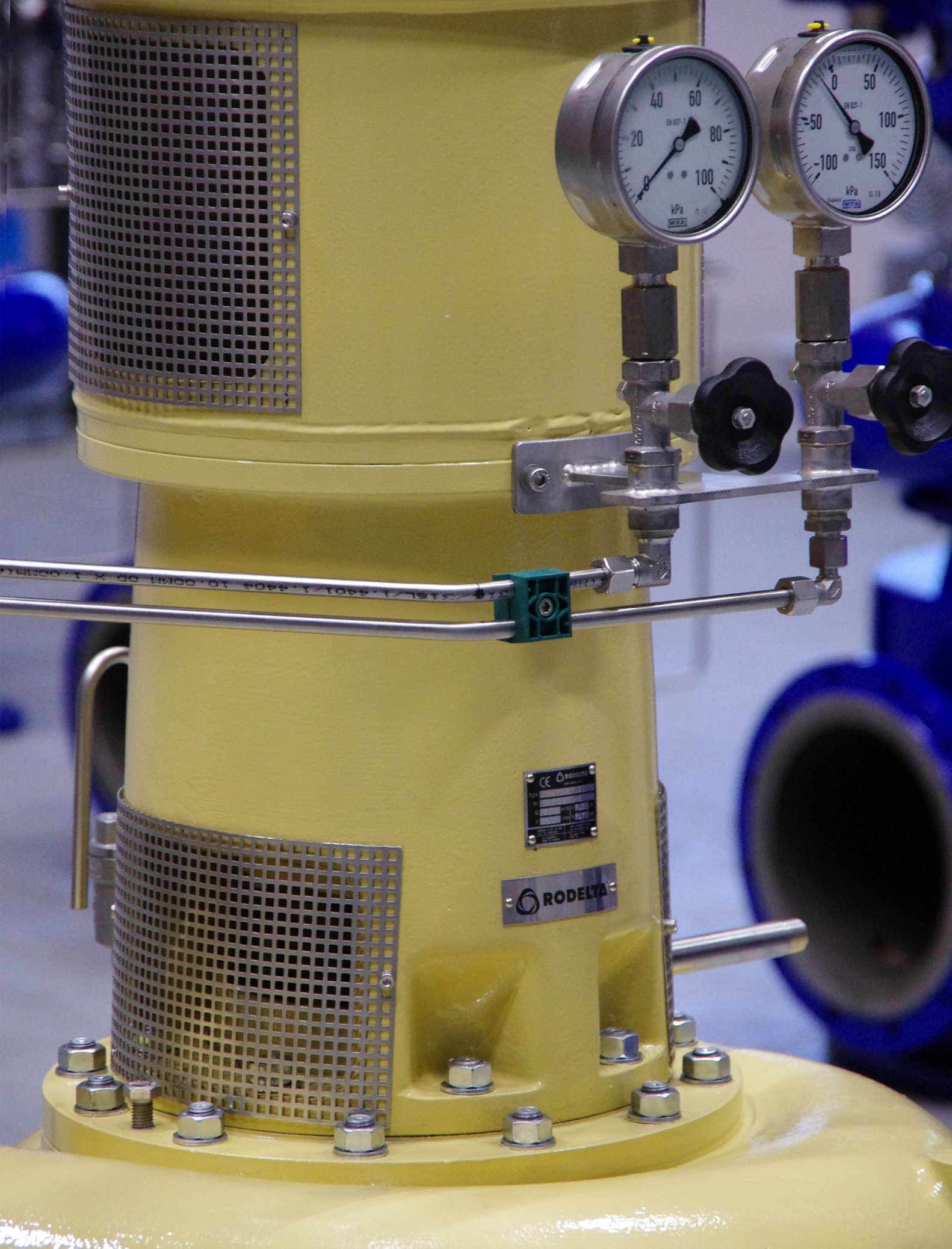
RODELTA'S DRINKING WATER PUMPS



Rodelta pumps formerly named Delta pumps

Since 1946, Rodelta Pumps International delivers solutions based on quality and functionality.

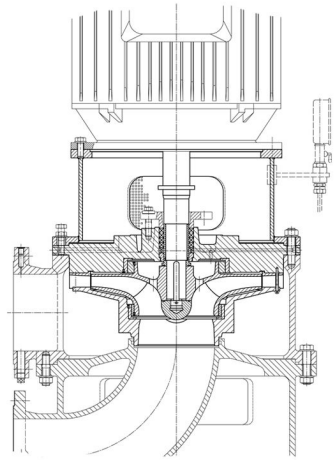
Over the years, Rodelta has proven to be a reliable supplier in, among others, the drinking water market. The pump lines NS, NSM, LS, LSM and SPV are therefore known as robust and highly reliable pump lines with a high efficiency and a long service life. The vertical design provides a small floor area and therefore offers the possibility to build smaller pump stations. Rodelta, with its vision regarding robust and reliable pumps, was already ahead of its time. Total cost of ownership is therefore one of the basic principles for designing Rodelta pumps. Also, the possibility of upgrading for example an LS by placing an extra stage is often a surprising discovery for the end user which saves him a lot of money and time with regard to system adjustments. Furthermore, the vertical pump arrangement provides many possibilities with respect to the piping connections, as the suction and delivery flanges can be rotated in many steps relative to each other. This ensures great flexibility in the pumping station and contributes to a well-organized piping layout.


RODELTA
kPa
WIKA

A vertical pump unit has many practical advantages

Advantages of the vertical construction in general are.

- Little floor area required, resulting in a considerable economization in civil-engineering projects.
- No heavy and expensive base plate required.
- Enables quick inspection and dismantling without disconnecting the pipelines.



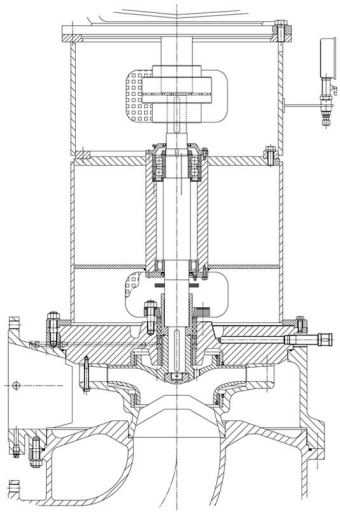
Close coupled

Specific advantages of the close coupled unit

- Cost-saving, because no coupling is required between pump and motor.
- Pump and motor need not be realigned at site.
- Compact construction.
- Few parts subject to wear.

Specific advantages of the vertical pump with bearing frame.

- Suitable for any commercially available standard motor.
- The weight of the pump rotor is fully carried by the pump bearing.
- The possibility of using an intermediate shaft enables the motor to be installed at a higher level to prevent accidental flooding.



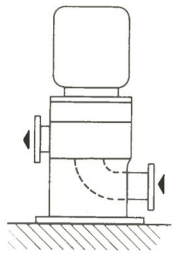
Bearing frame

Although the widest range of applications of the vertical pump is found with drinking water, other branches of industry are also more and more beginning to realize the advantages of the vertical units. The Rodelta pump lines are also used,as:

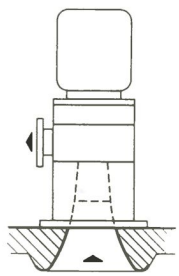
- Transport pumps
- Cooling water pumps
- Circulation pumps
- Bilge pumps in dry-docks
- Firefighting pumps

AMPLE INSTALLATION POSSIBILITIES

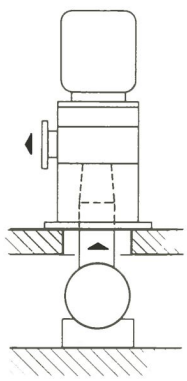
A pump with inlet elbow can be connected to pipelines lying above the floor and mounted at a number of different angles with respect to the discharge line.



With bottom inlet the pump can be placed on an inlet piece embedded in the concrete of the water cellar. The connection to the discharge line can be at any desired angle.



The pump with bottom inlet can also be connected to a suction line under the floor or, if placed on raised concrete supports, to a suction manifold situated above the floor.



An additional possibility that should be mentioned here is installation in the open air. In recent years various practical applications have proved that in some situations the advantages of outdoor installation more than offset the drawbacks

The mention of so many installation possibilities does not imply that Rodelta would not design a special pump solution. In cases where requirements are not covered by the possibilities mentioned in this brochure, Rodelta are always ready to design a pump solution for your configuration. These requirements may be concerned with such aspects as:

- Construction materials
- Variable speed drive
- Inlet conditions
- Adaptation to existing installations
- Painting and preservation
- Shaft sealing
- Optimal pump selections for working area pumping stations
- Bearings
- Lubrication
- Installation on site
- Capacities and heads
- Quality inspection during production
- Testing

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SELECTION

When making a choice between a diffuser, volute or mixed-flow type pump, the future operating conditions constitute the most decisive factors. The capacity/ head ratio already gives an indication of the type of pump giving most favorable efficiency.
As the operating ranges of the types of pumps mentioned partly overlap, other factors - such as the nature of the liquid or the inlet conditions - may be decisive in case of values lying in these overlapping areas.
Whether a close coupled pump or a pump with bearing frame is to be used will largely depend on the requirements imposed with respect to the location.

WATER SUPPLY

NS
Vert. Volute

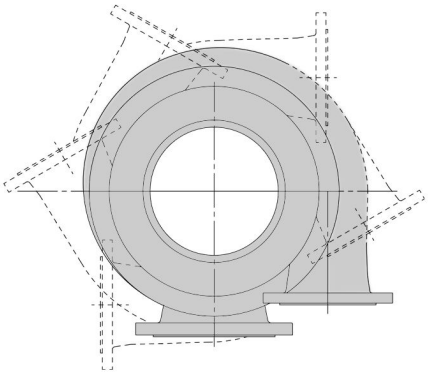
NS	EU	US
Design	Vertical Volute pumps	
Features	Single casing, one stage, enclosed impeller.	
Capacity	Upto 2200 m3/hr	9600 Gpm
Head	Upto 90 m	Upto 295 feet
Temperature Range	-20 to 80 Deg C	-4 to 176 Deg F
Discharge Pressure	upto PN 10	upto Class 125
Material (Casing/Impeller)	Cast Iron, Bronze, SS, Duplex, Super Duplex	
Nozzle Orientation (suc/dis)	Bottom elbow suction / Side delivery(Vertical execution)	
Standard Motor Sync. Speed	1000 / 1500 / 3000 rpm	1200 / 1800 / 3600 rpm
Options	Gland packing / Mechanical Seal	
Flange drilling standard	BS EN/DIN/ANSI /ASA	

For alternative specifications, other than above, please contact us.

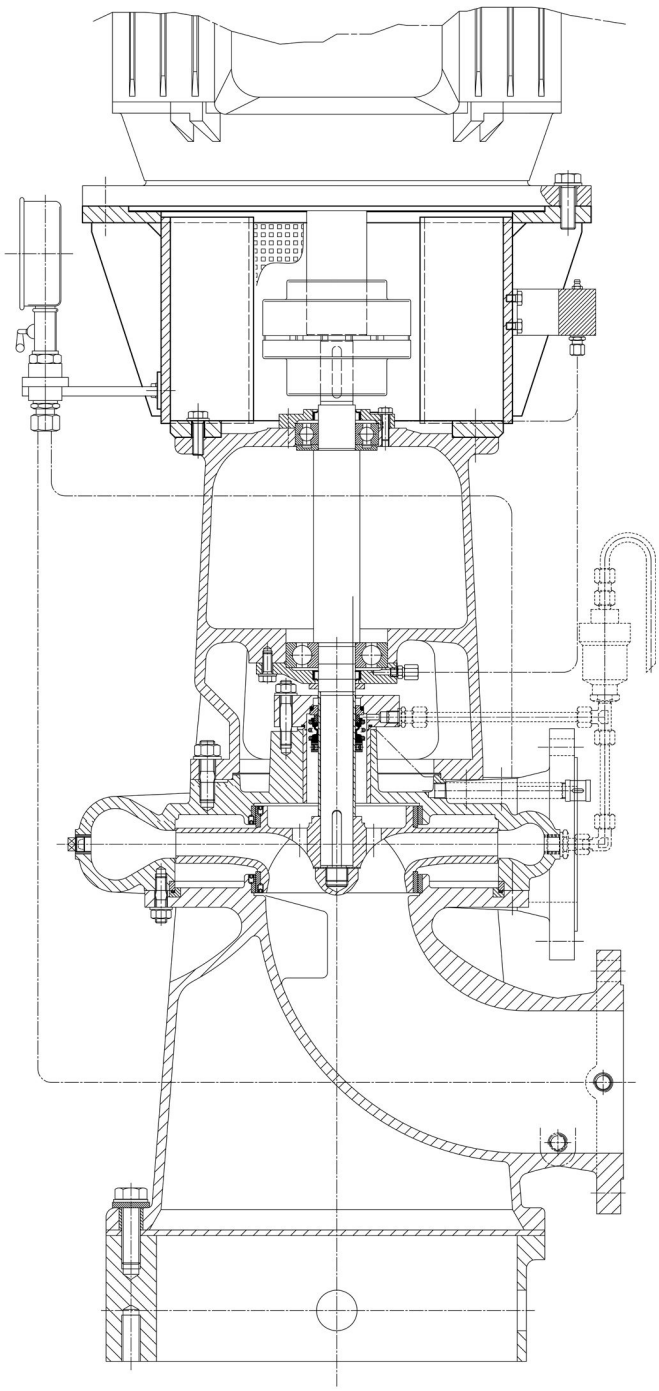
The pump type NS is a vertical overhung, flexible coupled pump. The hydraulics comply with and exceed the hydraulic design parameters stated in EN733 (ISO 2858). These pumps are suitable of clean or slightly contaminated liquids. For heads above 45m at 1450rpm a number of sizes are available with a second stage, and include a diffuser to gently guide the flow from the first stage to the second. This design is available with bearing housing and spacer coupling.

FEATURES:

- High efficiency – smooth suction entry
- Well known for low NPSH required
- Minimal flow distortion
- Bottom suction side discharge
- Renewable wear rings
- Bearings grease lubricated
- Mechanical seal acc. to EN12756
- Discharge orientation variable
- Water Industry coatings available



Press and suction pipe are adjustable for different connection possibilities



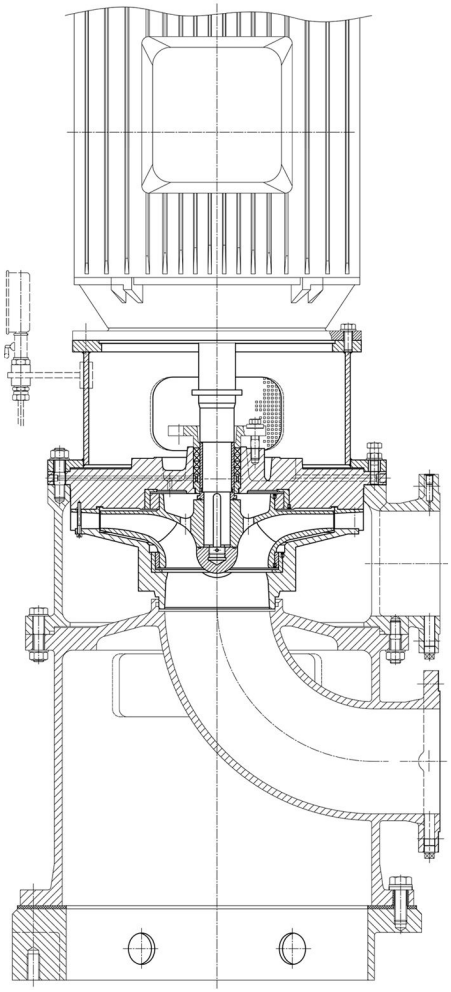
WATER SUPPLY

NSM
Vert. Volute

NSM	EU	US
Design	Vertical Volute pumps	
Features	Single casing, one stage, enclosed impeller. Closed coupled version of NS	
Capacity	Upto 2200 m3/hr	9600 Gpm
Head	Upto 90 m	Upto 295 feet
Temperature Range	-20 to 80 Deg C	-4 to 176 Deg F
Discharge Pressure	upto PN 10	upto Class 125
Material (Casing/Impeller)	Cast Iron, Bronze, SS, Duplex, Super Duplex	
Nozzle Orientation (suc/dis)	Bottom elbow suction / Side delivery(Vertical execution)	
Standard Motor Sync. Speed	1000/1500/3000 rpm	1200/1800/3600 rpm
Options	Gland packing / Mechanical Seal	
Flange drilling standard	BS EN/DIN/ANSI /ASA	

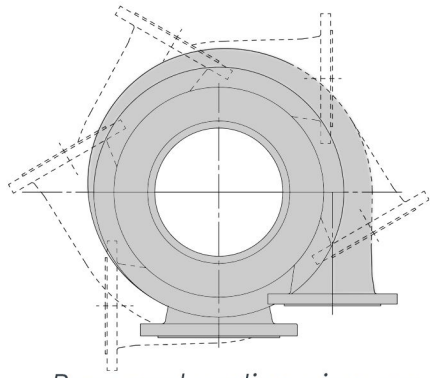
For alternative specifications, other than above, please contact us.

The pump type NSM is a vertical overhung, close coupled pump. The hydraulics comply with and exceed the hydraulic design parameters stated in EN733 (ISO 2858). These pumps are suitable of clean or slightly contaminated liquids. For heads above 45m at 1450rpm a number of sizes are available with a second stage, and include a diffuser to gently guide the flow from the first stage to the second. This design is available with bearing housing and is close coupled for use where space is restricted.



FEATURES:

- Close coupled (impeller directly attached to the motor shaft)
- High efficiency – smooth suction entry
- Well known for low NPSH required (Minimal flow distortion)
- Back pull out Minimal flow distortion
- Bottom suction side discharge
- Renewable wear rings
- Bearings oil or grease lubricated
- Mechanical seal acc. to EN12756
- Discharge orientation variable
- Water Industry coatings available



Press and suction pipe are adjustable for different connection possibilities

WATER SUPPLY

LS
Vert. Diffuser

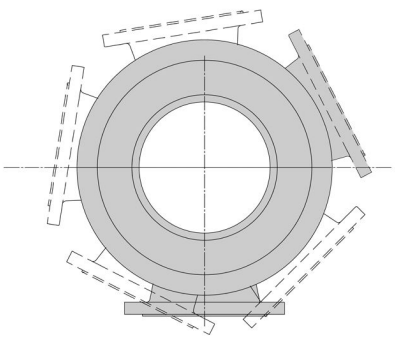
LS	EU	US
Design	Vertical diffuser pumps	
Features	Single or multi stage, enclosed impeller, top pullout	
Capacity	Upto 3500 m3/hr	15400 Gpm
Head	Upto 220 m	Upto 720 feet
Temperature Range	-20 to 80 Deg C	-4 to 176 Deg F
Discharge Pressure	PN 16/PN 20	Class 125/150
Material (Casing/Impeller)	Cast Iron, Bronze, SS, Duplex, Super Duplex	
Nozzle Orientation (suc/dis)	Vertical execution - 45° or 90° discharge mounting options	
Standard Motor Sync. Speed	750/1000/1500 rpm	720/900/1200 rpm
Options	Gland packing / Mechanical Seal	
Flange drilling standard	BS EN/DIN/ANSI /ASA	

For alternative specifications, other than above, please contact us.

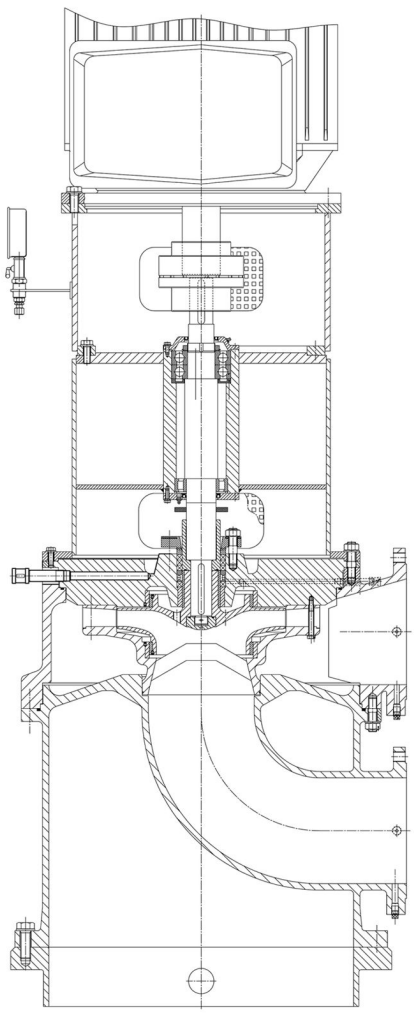
The LS series of pumps are suitable for clean or slightly contaminated liquids. The compact construction and ability to position the suction and discharge connections in 45° steps from each other, offers flexible mounting when space is limited. The LS with bearing housing and flexible coupling, or spacer coupling variant offering top (back) pull out, this construction is suitable for temperatures up to 80°C The LS series are diffuser pumps.

FEATURES:

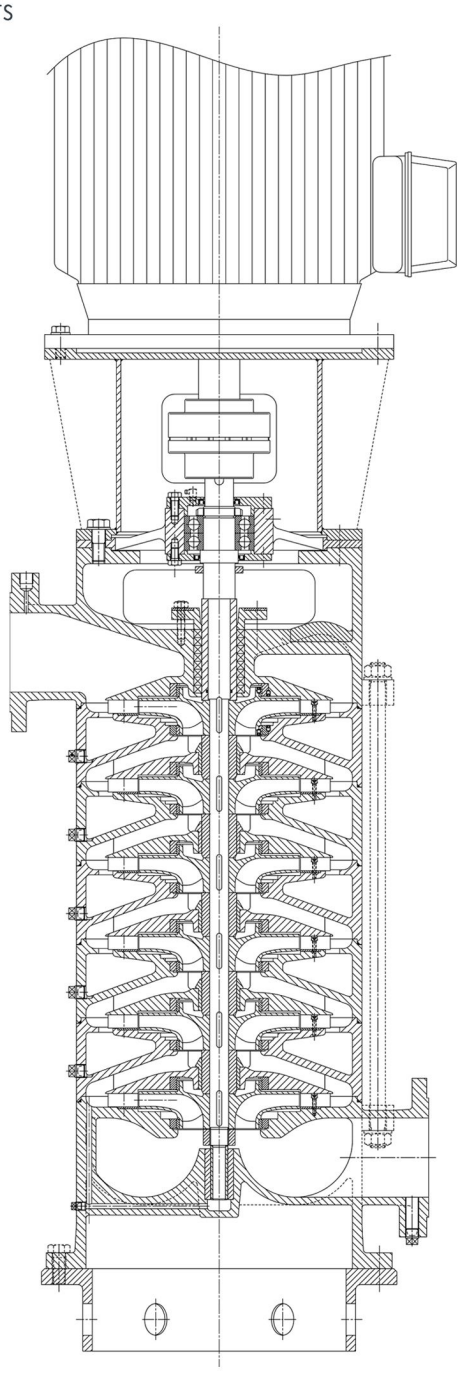
- Vertical design, pump can be easily installed. No foundation baseplate required.
- Closed Impeller with diffuser casing, single or Multi stage
- Diffuser/impeller combination reduces radial loads; Easier to match to customer system; Optimizes efficiency
- Robust construction due to low pump rotor load, minimum shaft deflection, smooth running, high availability, reduced stock of spares
- Low noise emissions
- High hydraulic efficiency
- Hydraulic performance to DIN 24255
- Space saving construction
- No alignment required when installing the pump thereby reducing installation costs



Press and suction pipe are adjustable for different connection possibilities



Single stage



Multi stage

WATER SUPPLY

LSM
Vert. Diffuser

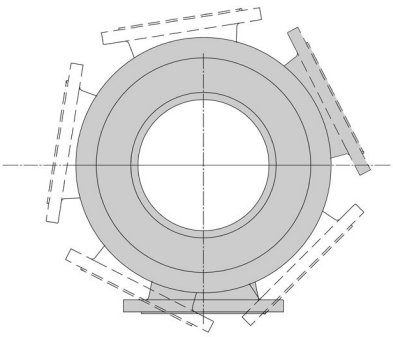
LSM	EU	US
Design	Vertical diffuser pumps	
Features	Single or multi stage, enclosed impeller, closed coulped version of LS	
Capacity	Upto 3500 m3/hr	15400 Gpm
Head	Upto 220 m	Upto 720 feet
Temperature Range	-20 to 80 Deg C	-4 to 176 Deg F
Discharge Pressure	PN 16 / PN 20	Class 125 /150
Material (Casing/Impeller)	Cast Iron, Bronze, SS, Duplex, Super Duplex	
Nozzle Orientation (suc/dis)	Vertical execution - 45° or 90° discharge mounting options	
Standard Motor Sync. Speed	750 / 1000 / 1500 rpm	720 / 900 / 1200 rpm
Options	Gland packing / Mechanical Seal	
Flange drilling standard	BS EN/DIN/ANSI /ASA	

For alternative specifications, other than above, please contact us.

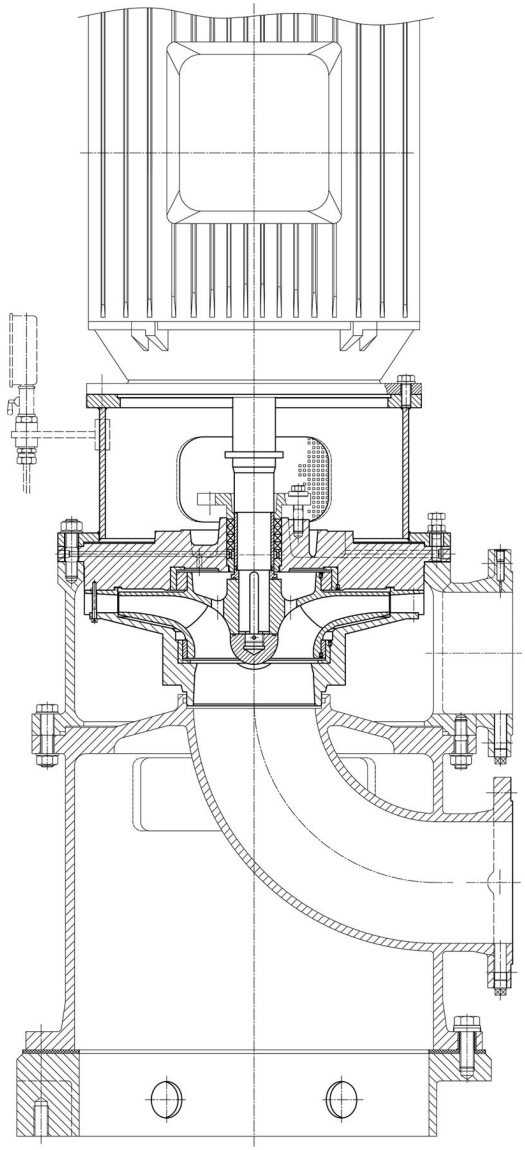
The LSM series of pumps are suitable for clean or slightly contaminated liquids. The compact construction and ability to position the suction and discharge connections in 45° steps from each other, offers flexible mounting when space is limited. The LSM is a close coupled version also offering top pull out and is suitable for temperatures up to 80°C The LS series are diffuser pumps.

FEATURES:

- Vertical design, pump can be easily installed. No foundation baseplate required.
- Closed Impeller with diffuser casing, single or Multi stage
- Diffuser/impeller combination reduces radial loads; Easier to match to customer system; Optimizes efficiency
- Robust construction due to low pump rotor load, minimum shaft deflection, smooth running, high availability, reduced stock of spares
- Low noise emissions
- High hydraulic efficiency
- Hydraulic performance to DIN 24255
- Space saving construction
- No alignment required when installing the pump thereby reducing installation costs



Press and suction pipe are adjustable for different connection possibilities



WATER SUPPLY

SPV
Vert. Volute

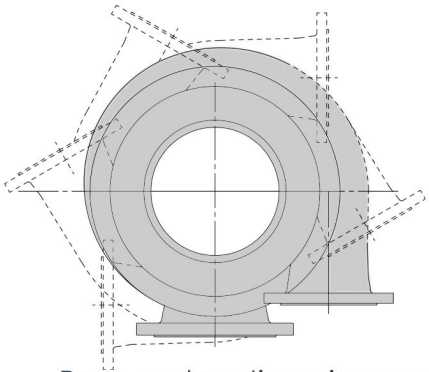
SPV	EU	US
Design	OH1 Over Hung, Non clog pumps	
Features	Volute type,mixed flow- semi open/enclosed type impeller, top pull-out	
Capacity	Upto 7000 m3/hr	30825 Gpm
Head	Upto 30 m	Upto 100 feet
Temperature Range	-20 to 90 Deg C	-4 to 194 Deg F
Discharge Pressure	upto PN 10	upto 145 psig
Material (Casing/Impeller)	Cast Iron, Bronze, SS, Duplex, Super Duplex	
Nozzle Orientation (suc/dis)	Bottom elbow suction / Side delivery(Vertical execution)	
Standard Motor Sync. Speed	upto 1500 rpm	upto 1800 rpm
Options	Gland packing / Mechanical Seal	
Flange drilling standard	BS EN/DIN/ANSI /ASA	

API material options available, ATEX approvals available on request

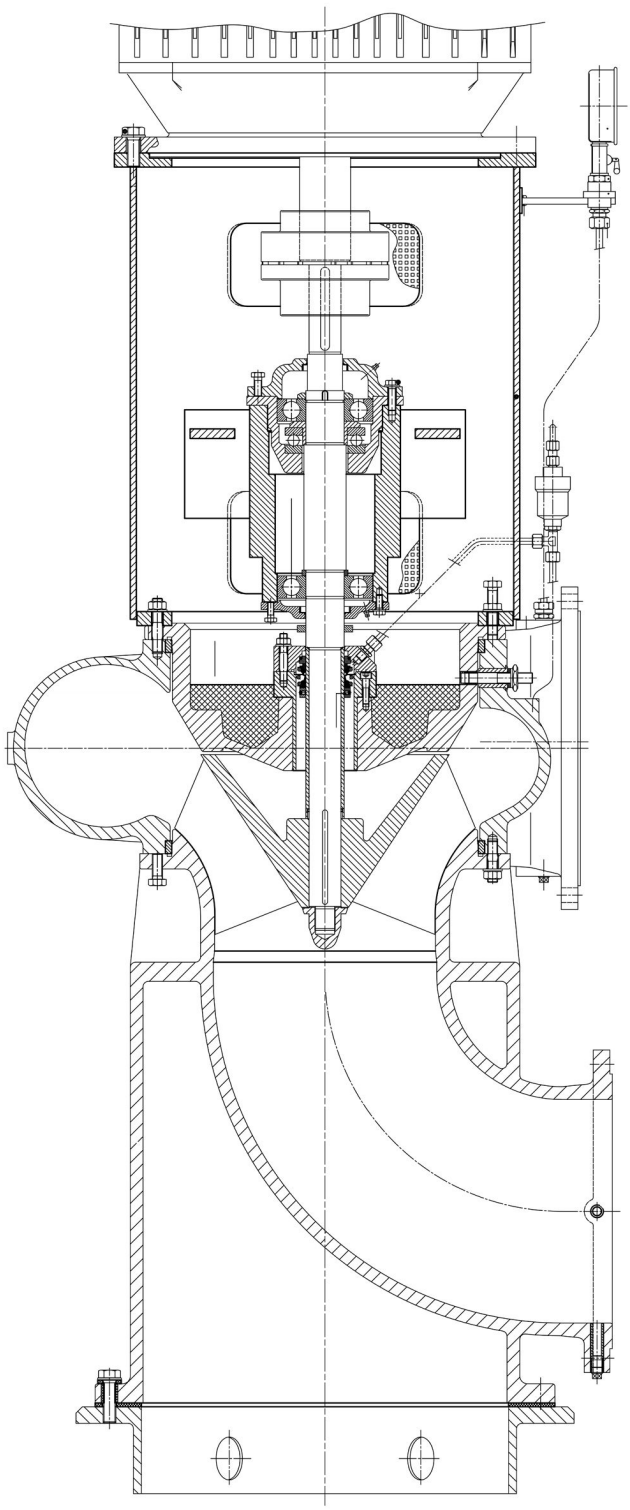
The pump type SPV is an overhung single-stage mixed flow centrifugal pump (vertical) suitable for clean or contaminated liquids of high volume and low head. Access for impeller maintenance can be achieved with either back pull out or suction flange removal.

FEATURES:

- High efficiency = Low Power consumption
- Axial suction & tangential discharge
- Uniform power requirement over range
- Large solids handling ability
- Integral cast feet for greater stability
- Back pull out
- Suction flange access to impeller
- Packed gland or Mech. Seal options
- Electric or diesel driven



Press and suction pipe are adjustable for different connection possibilities



PUMP APPLICATIONS DRINKING WATER CHAIN

In addition to supplying transport and distribution pumps, Rodelta has a much broader range of products for the drinking water market. For example, Rodelta can also supply pumps for water intake stations. These can consist of tailor made solutions with concrete volute pumps, vertical turbine pumps or large axial pumps.

Already for many years the Rodelta FN pump range has proven to be the perfect solution f or descaling installations. These pumps can be supplied with a inside rubberized layer that contributes to a long service life and optimal operation. If chemicals need to be added to the process of producing water of drinking quality pumps of the Rodelta CNP pump line are available. These pumps have been developed in accordance to the applicable ISO standards for the chemical industry. If water has to be pumped over long distances, Rodelta is also your partner. With our between bearings products (BB1 type pumps) we have been supplying successful products for this market for many years. Of course, series for pumping rinse water do not fail in the Rodelta pump line. For contaminated environments or for flushing your system, the SPV in vertical version or the SPP in horizontal version are perfect solutions. The final choice depends on the available installation space and pumping station lay out.

The naming of all the opportunities that Rodelta can offer with regard to the drinking water market is too wide to be addressed in this brochure. If you have any questions about products or pumping solutions, please contact Rodelta. We will gladly help you to find the best pumping solution for your specific situation.

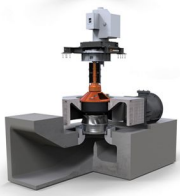
Example of
pump intake station

On the next two pages you will get an indication of a drinking water chain and their possible pump applications.

Below you will find the relevant product names. For more specific information about each pump type, please refer to our website: www.rodelta.com

EHT

BHR,BHQ,BHM,BHMa



CVP

BHA

UP(E) UP(M) UP Large

SPP

ES

FN

LS

LSM

NS

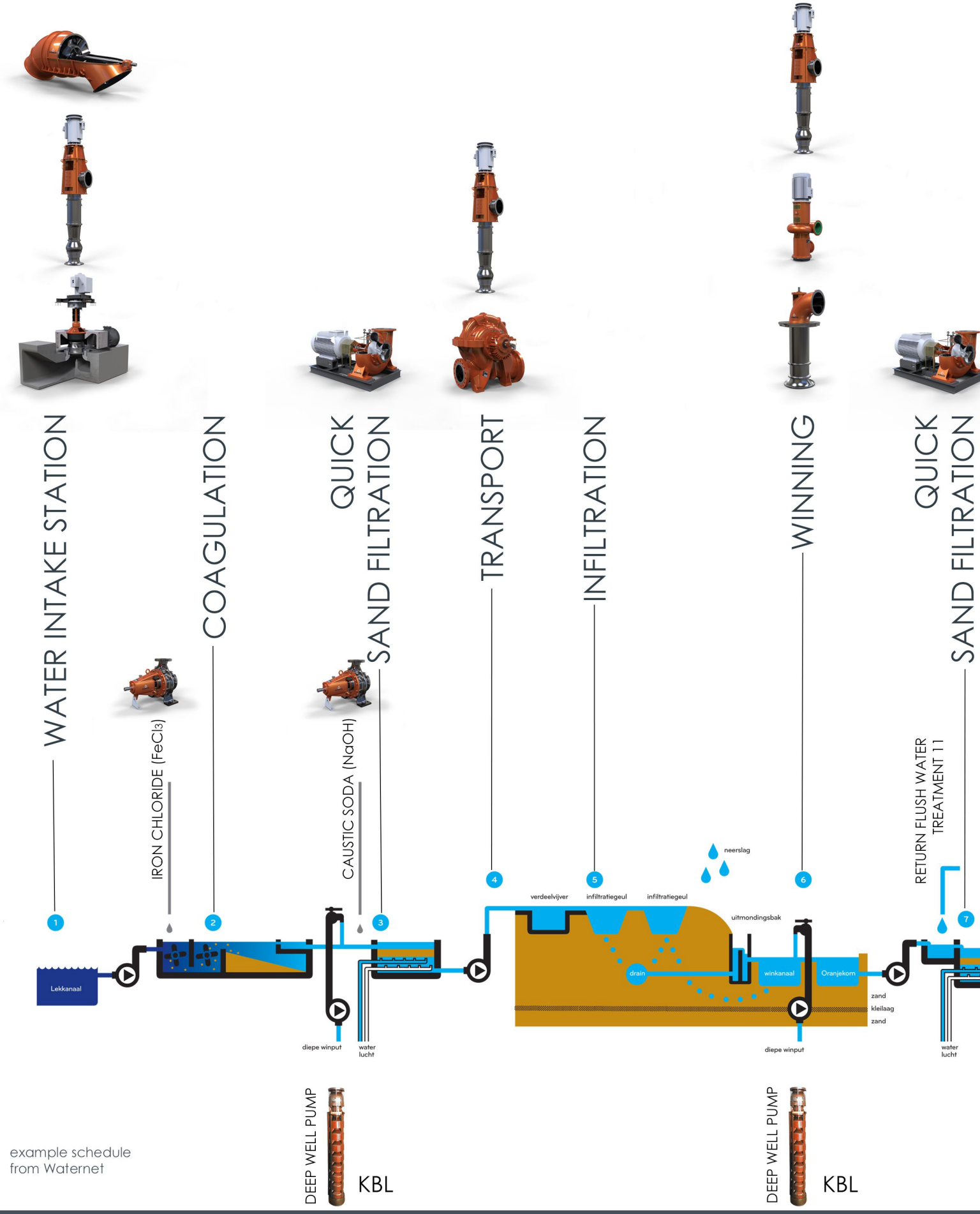
NSM

SPV

TAE,TAF,TAN

CNP,CNP+

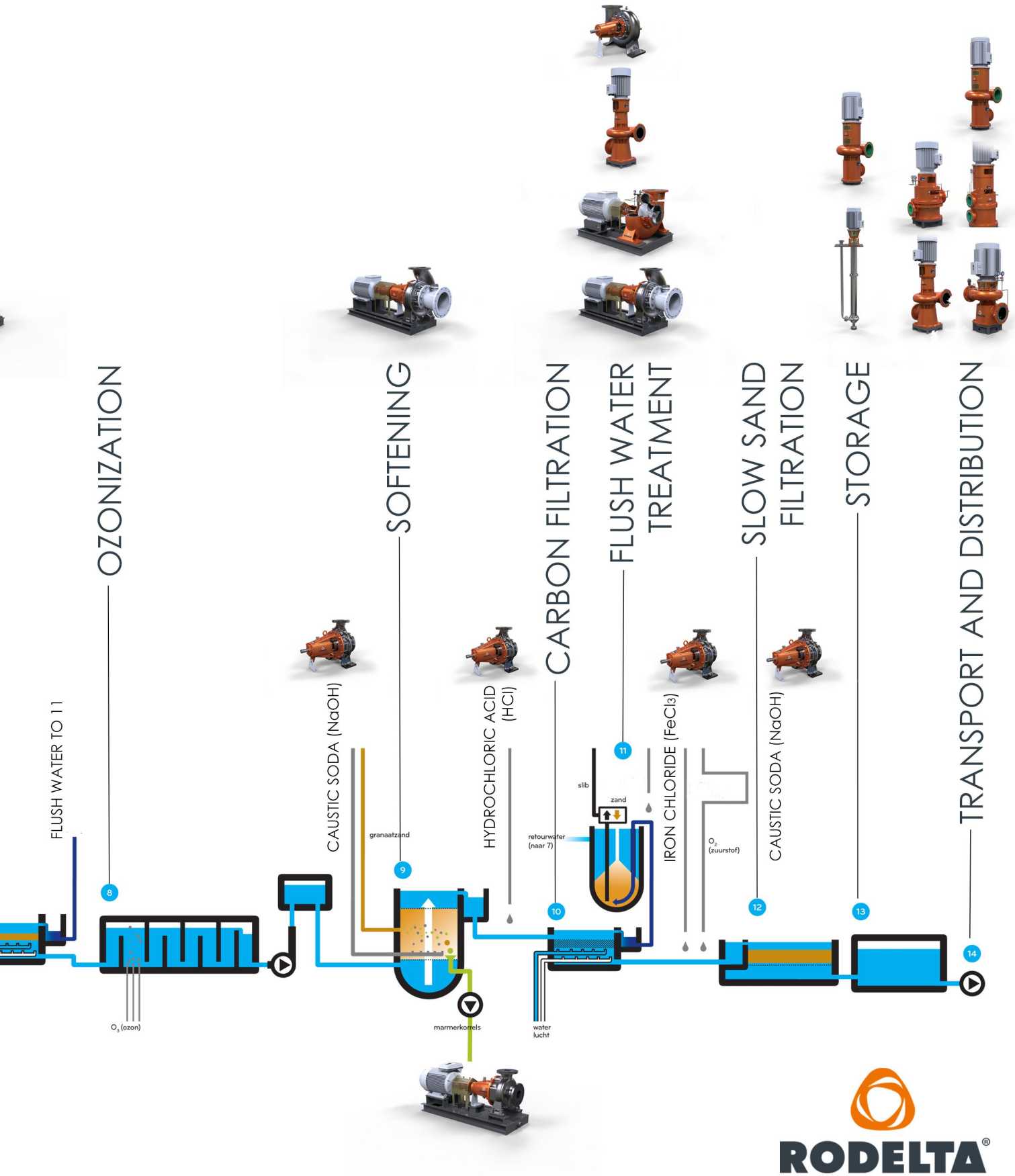
WN+,WNL+



example schedule
from Waternet

EXAMPLE

PUMP APPLICATIONS FOR DRINKING WATER STATIONS



RODELTA®

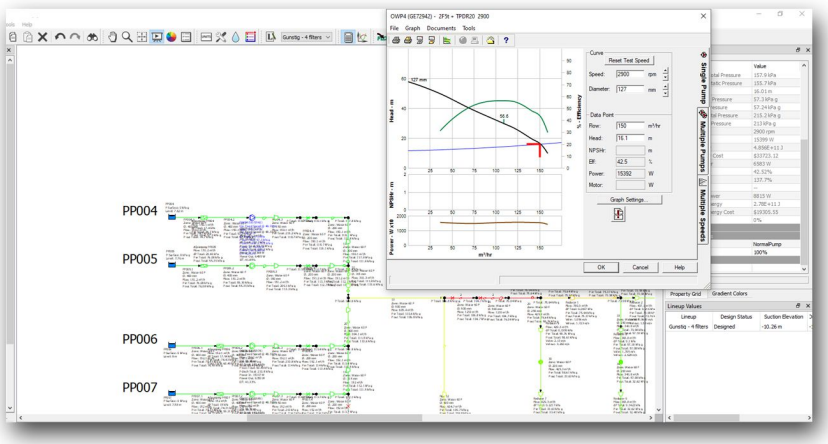
RELIEVE CUSTOMERS FROM ENGINEERING PROBLEMS AND OFFER TOTAL SYSTEM SOLUTIONS.

EXCEPTIONAL VALUE: OUR DISTINCTIVE VISION

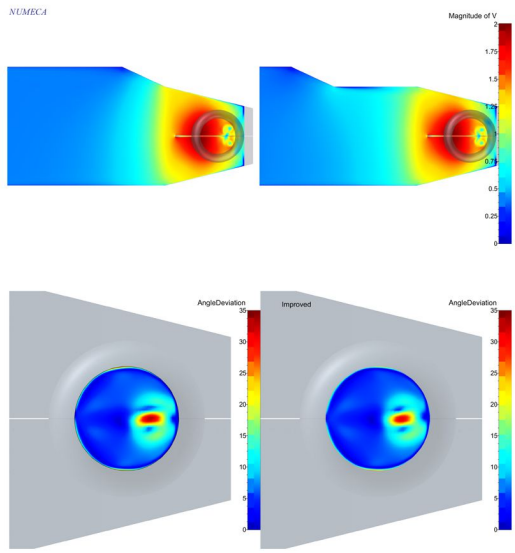
We believe our responsibility starts with recommending the right pump based on system criteria as the pump is the heart of the system. We find that there is a need for expertise and knowledge to keep systems running as smoothly and efficiently as possible. Rodelta therefore also provides performance audits in which we screen pump systems and provide advice regarding usage and possible energy reductions. Rodelta also advises in the design phase with regard to pump selections, piping and flow solutions. This results in smaller stations with less depth. Factors that have a major impact on the total construction costs.

Another service besides offering solutions is continuous support after delivery of the equipment. Rodelta offers maintenance, repairs and upgrades as well as support for spare and wear parts. Our organisation and resources are strongly focused on completely relieving customers with regard to pump systems. Our goal is to deliver pumping systems that operate smoothly, predictably and at lower cost.

DISTINCTIVE VISION



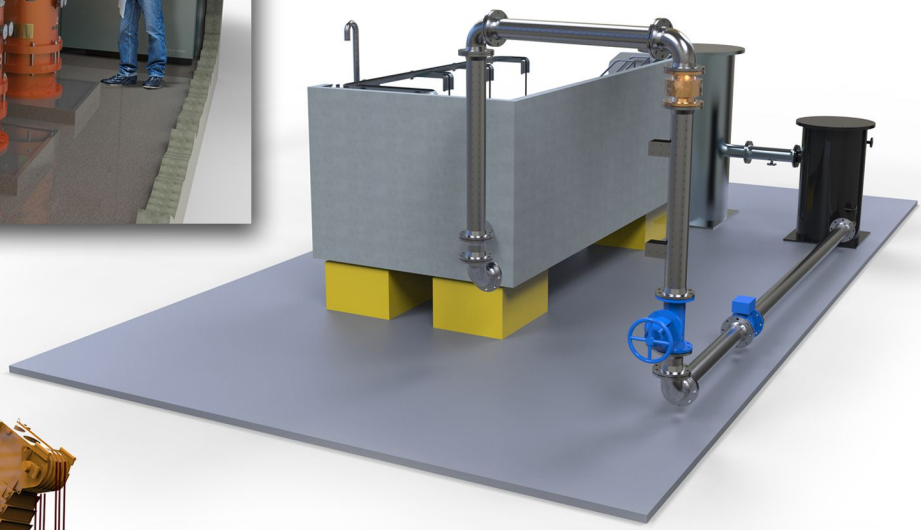
Tools for performance audits

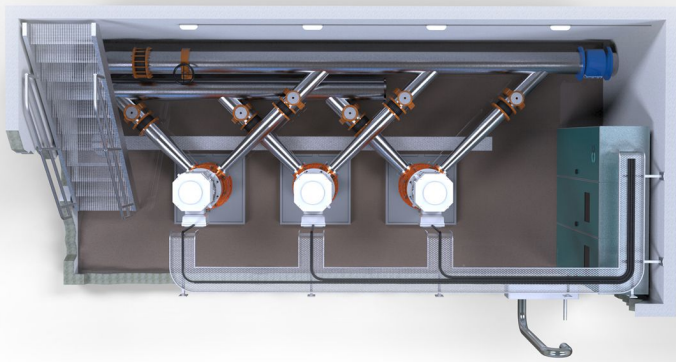


CONCEPT DISTRIBUTION STATION
CLEAN WATER STORAGE

PREFAB PUMP BOOST STATION

Complete prefabricated boost pump station can be tested on Rodelta test stand.
No more delays on site





RELIEVE CUSTOMERS FROM
ENGINEERING PROBLEMS
AND OFFER TOTAL SYSTEM SOLUTIONS.

RODELTA
SERVICE

ROTASERVE®

Your Service Partner

Diagnostic and consulting Services
Energy scans- On-site inspections

Maintenance and support services
Spare part fast track- On-site service - Workshop service
Preventive and corrective maintenance

Technical and economic optimization
Upgrades - Modifications - Pump hydraulic optimization

For more info www.rotaserve.com

ROTASERVE, RODELTA'S DEDICATED SERVICE PARTNER

EXCEPTIONAL VALUE: A TOTAL SERVICE AND SOLUTIONS PROVIDER

At Rodelta, we like to think in terms of a system instead of just the pump when selecting the appropriate solution. However, selecting a pump is only a first step. To ensure long pump lifetime, low down time and minimized maintenance and operation costs, it is important that pumps are installed and aligned properly. Rotaserve, Rodelta's dedicated service partner takes care of all pump installation activities. The team consists of highly skilled service engineers, who have all the required knowledge and experience in hand. Furthermore, they are widely qualified for on-site jobs and API pumps.

In addition, Rotaserve provides a wide range of pump service jobs, including aligning and balancing, on-site inspection and preventive and corrective maintenance. Please contact Rotaserve, has many possibilities for overhauling old and damaged pumps, instead of replacing them entirely. Parts can be repaired and restored to its original new condition. They can also supply spare parts directly from stock, or reproduce specific parts, even for old discontinued pump types. Rotaserve can perform pump upgrades, if you need increased capacity or efficiency for instance. This can be achieved by replacing parts or by creating a completely new custom hydraulic design. Rotaserve gets your old pumps up and running again! For more info go to Rotaserve

RODELTA®

Pump solutions for drinking water supply

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distinctive vision