8th July 2014

1300-Series Standardized Waste Water Pumps

By,
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xylem
Let's Solve Water

Agenda

1. Product Features
2. Applications
3. Selection Procedure
4. Submittals
5. Selecting Prices in SF.com and making quotes
6. Catalogues, Videos, White Paper and Brochures
7. Lead Times
8. Distributor wise performance (Order booking and Sales - Units)
9. Key References

Product Features

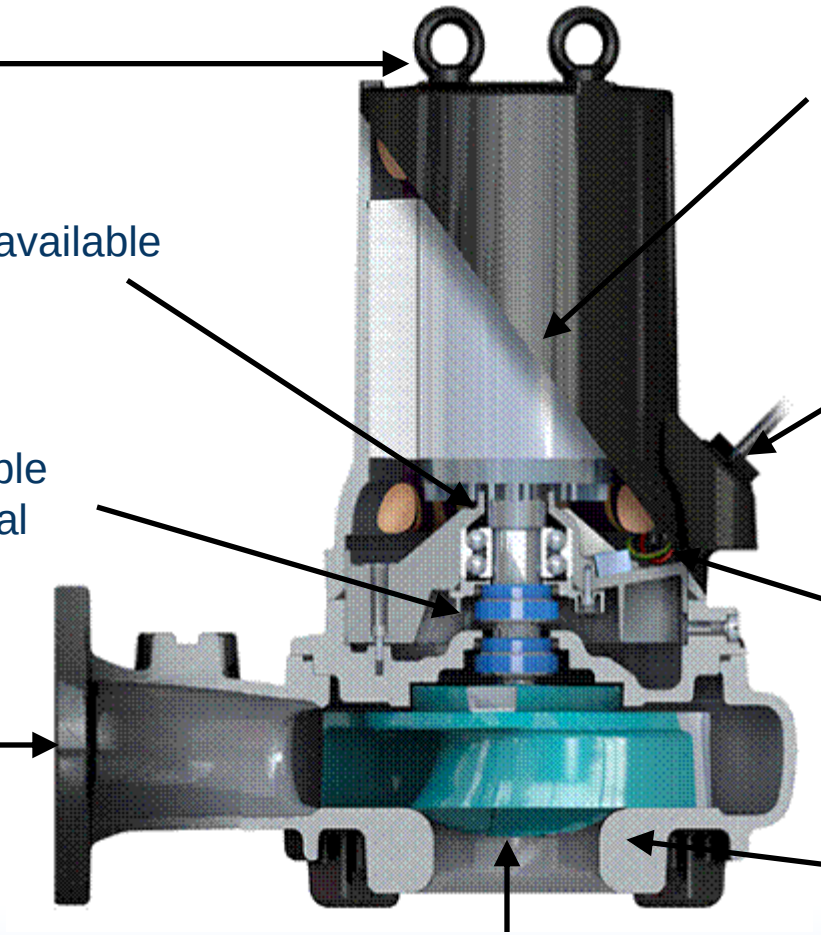
1300 – A new Standardized waste water pump series

The 1300 series is an offer targeting the price competitive segment just below the premium segment in the municipal market. This level corresponds to the premium level in the commercial building market

Brand values

Reliability	Availability	Affordability
A non-clog pump that lowers unplanned costs and meets the customer requirements	Standardized offer that is easy to select and buy	Gives good value for the money, it does the job in an efficient and reliable way

Technical Information

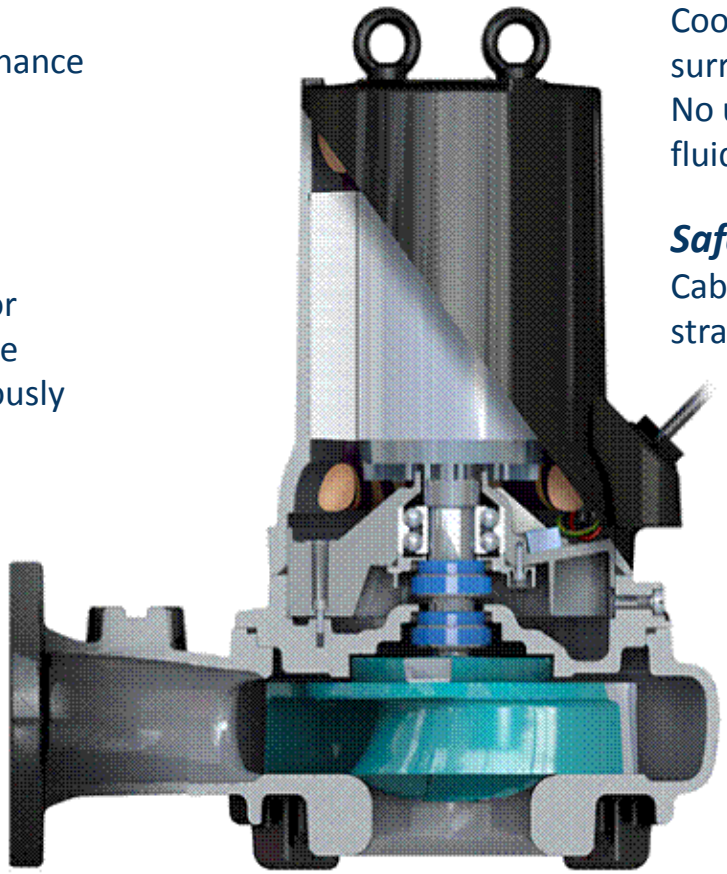


Steady Pumps Features

Robust
All components are made from robust material for easy maintenance and long life

Powerful
Motor is specifically designed for reliable operation in submersible applications. It can run continuously without overheating-a true workhorse

Durable
Heavy duty bearings with long life provide peace of mind



Environmentally Friendly
Cooling system is designed to use surrounding media to cool the pump; No use of environmentally hazardous fluids such as oils

Safe and Straightforward
Cable entry prevents both cable strain and leakage

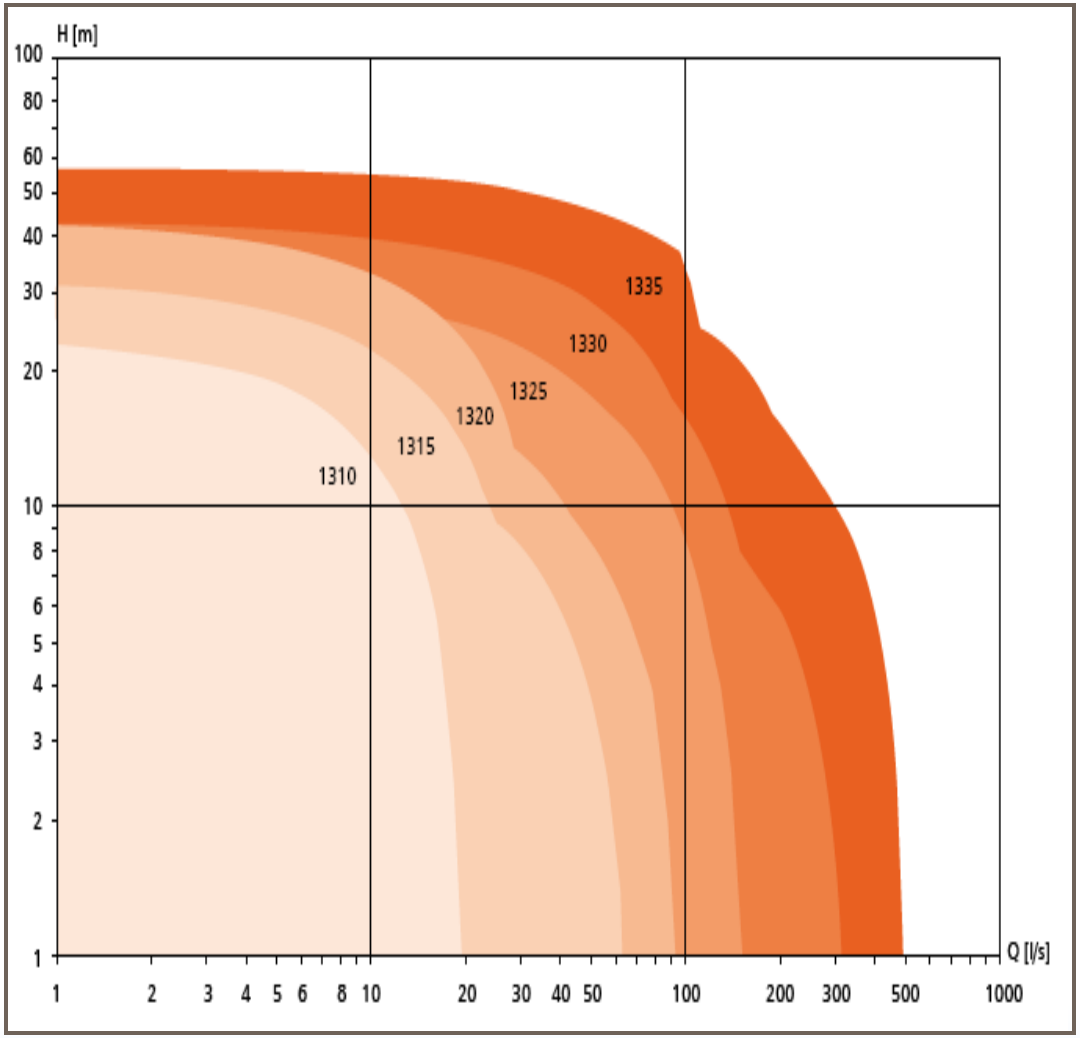
Smooth
The double mechanical seal provides extra reliability and protects against leakage

Flexible
Drilled pump housing ready for any installation method

Product Range Overview

- Product features:
  - Clogging-free impeller design
  - Patented Spin-out TM sealing design, which can discharge particulate out of sealing chamber and protect external sealing
  - Design of short cantilever arm shaft eliminates distortion of shaft, extends usage life of sealing and bearing, and reduces vibration and noise

Product Range Overview….contd



Product Specifications:

- Steady Flow range till 500 l/s
- Steady Pump Head range till 55m
- Steady maximum submergence 20m
- Steady Pumps maximum fluid temperature 40 C
- Steady Pumps Liquid PH range is 5.5 to 14
- Maximum Outlet diameter for pump is 300mm

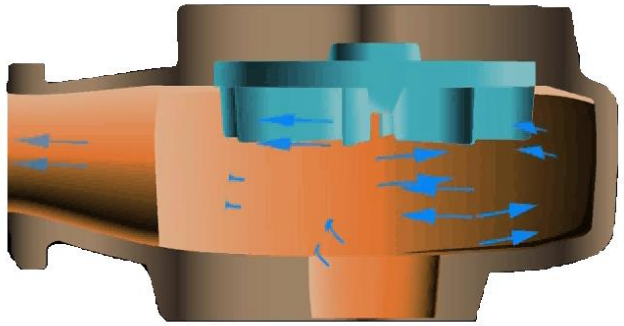
Product Range Overview….contd

Model	DN	Impeller	Installation	Cable M	Power KW
1310	50	Non Clog, Vortex	Wet Well, Free Standing	10, 20	1.0 - 2.4
	65				
	80				
1315	65	Non Clog, Vortex	Wet Well, Free Standing	10, 20	1.8 - 4.4
	80				
	100				
1320	80	Non Clog, Vortex	Wet Well, Free Standing	10, 20	3.5 - 7.5
	100				
1325	80	Non Clog	Free Standing	10, 20	9.0 - 18.0
	100				
	150				
1330	100	Non Clog	Wet Well	10, 20	10.0 - 24.0
	150				
	250				
1335	150	Non Clog	Wet Well	10, 20	18.0 - 50.0
	200				
	300				

Vortex Impeller

The operating principle:

- Simple centrifugal impeller recessed from pump housing
- A strong vortex is created inside the pump
- Large through let
- Low efficiency



Benefits:

- Large through let
- Cheap pumps
- “Less blockage – No down time”

Downbeat:

- Soft clogging – Customer won’t notice it
- Low efficiency

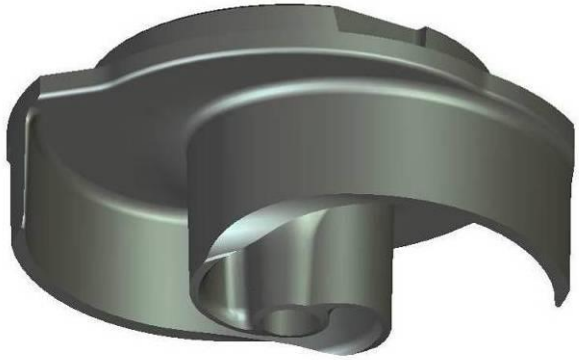
Available in 1310, 1315, and 1320

Non-clog Impeller

This design balances self-cleaning principles and value for money to deliver sustained high efficiency at a competitive price, resulting in both customer interest and satisfaction

Design Principles:

- Based on proven self-cleaning principles
- Optimized design for low cost manufacturing
- Non-hardened back swept-horizontal leading edge
- Relief groove and guide pin cast into pump housing



Resulting effects:

- Self-cleaning capability
- Focus on manufacturing reduces max efficiency possible
- Less wear resistance, not suitable for tough applications
- Self-cleaning capability, wear parts are not easily replaced

Through let Size should not be a parameter for pump selection

Wastewater pump clog resistance cannot be determined by through let size

White Paper For Non Clogging

Product Applications

Applications

Segment

- Building Services
- Waste Water supply
- Light Industry

Applications

- Sewage and waste water pumping
- Industrial effluent handling
- Storm water and irrigation
- Raw water
- Cooling water

Product Selection

Denominations Impeller and installation

Impeller convention

- *Steady* (K impeller)
- *Steady* Vortex (D impeller)

- *Steady* 1300
- *Steady* 1300 Vortex

Installation term

- P
- S

New impeller convention

- *Steady* Non-clog
- *Steady* Vortex

- *Steady* 1300 Non-clog
- *Steady* 1300 Vortex

New installation term

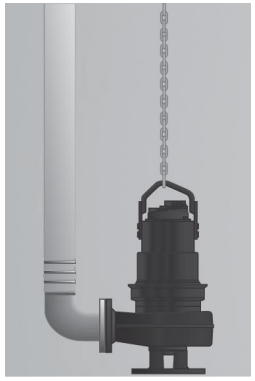
- Wet well
- Free standing

Steady Pump Offering

It has 3 major components

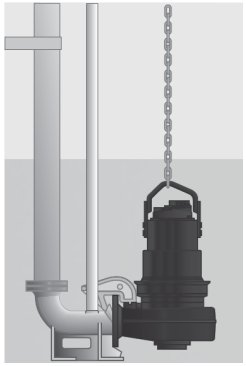
- Pump
- Installation Kit
- Steady Monitoring Relay

Pump



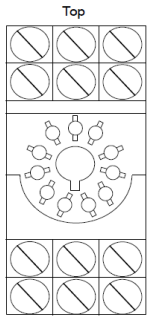
Free Standing Kit

OR



Wet Well Kit

Installation Kit



SMR Base Unit

Steady Monitoring Relay

Complete Offering

Note: SMR and SMR Base Unit to be ordered separately

Pump Protection

We have two controlling system for Steady Pumps

1. SMR
2. PC 20 + LT 20

SMR:

- Protects Pump Motor from Over heating
- Protects pump in case of leakage
- Can be used with Control Panel

PC 20 + LT 20:

- Can Start Stop Pump
- Alternate between two pumps
- Sewage Hi/Low level protection
- Function independently as a control Panel

Steady Nomenclature

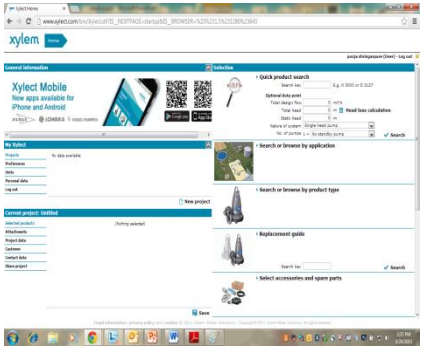
- Sales Force Description For Pumps:

K 1335 HT 456 45kw 50 Hz 3P 415 YD 10M 7G2-132*1.5m

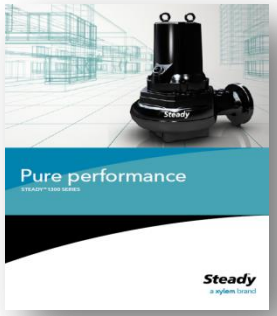
- K –impeller Type (C/K/D)
- 1335 - Steady Pump Series
- HT - Head type
- 456 - Curve No (Here consider last two digits for Brochure)
- 45kw - Kw
- 50Hz - Frequency
- 3P - 3 phase
- 415V - Voltage
- 10m - Cable Length

Steady Selection Procedure- 3 Types

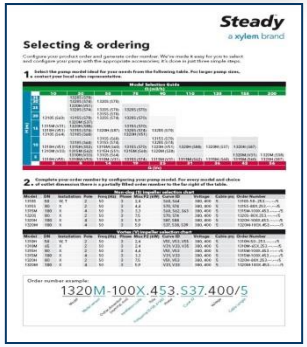
www.xylect.com



Brochure



Selection Sheet



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Step 2: Create Login Id by registering
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General information
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New apps available for iPhone and Android
FLYGT
LOWARA
VOGEL PUMPEN
Google play
App Sto
Selection
search
3000 or D 3127
Total design flow
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m³/h
Total head
0
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Head loss calculation
Static head
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Nature of system
Single head pump
No. of pumps
1 +
No standby pump
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My Xylect
Projects
Preferences
Units
Personal data
Log out
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New project
Search or browse by application
Search or browse by product type
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Replacement guide
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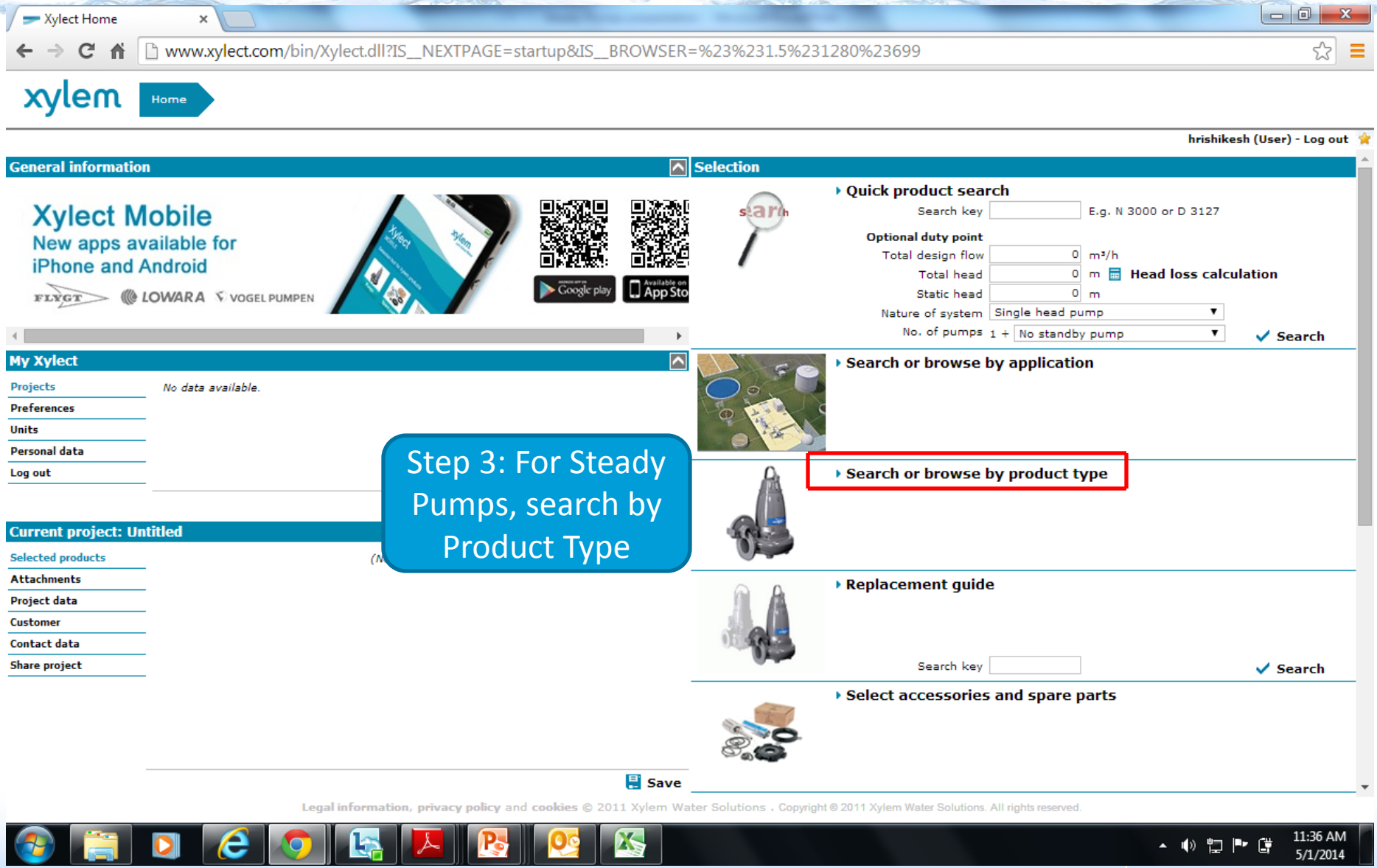
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Selected products
Attachments
Project data
Customer
Contact data
Share project
Save
Selection
Quick product search
Search key
E.g. N 3000 or D 3127
Optional duty point
Total design flow
m³/h
Total head
m
Head loss calculation
Static head
m
Nature of system
Single head pump
No. of pumps
No standby pump
Search
Search or browse by application
Search or browse by product type
Replacement guide
Search key
Search
Select accessories and spare parts
Step 3: For Steady Pumps, search by Product Type
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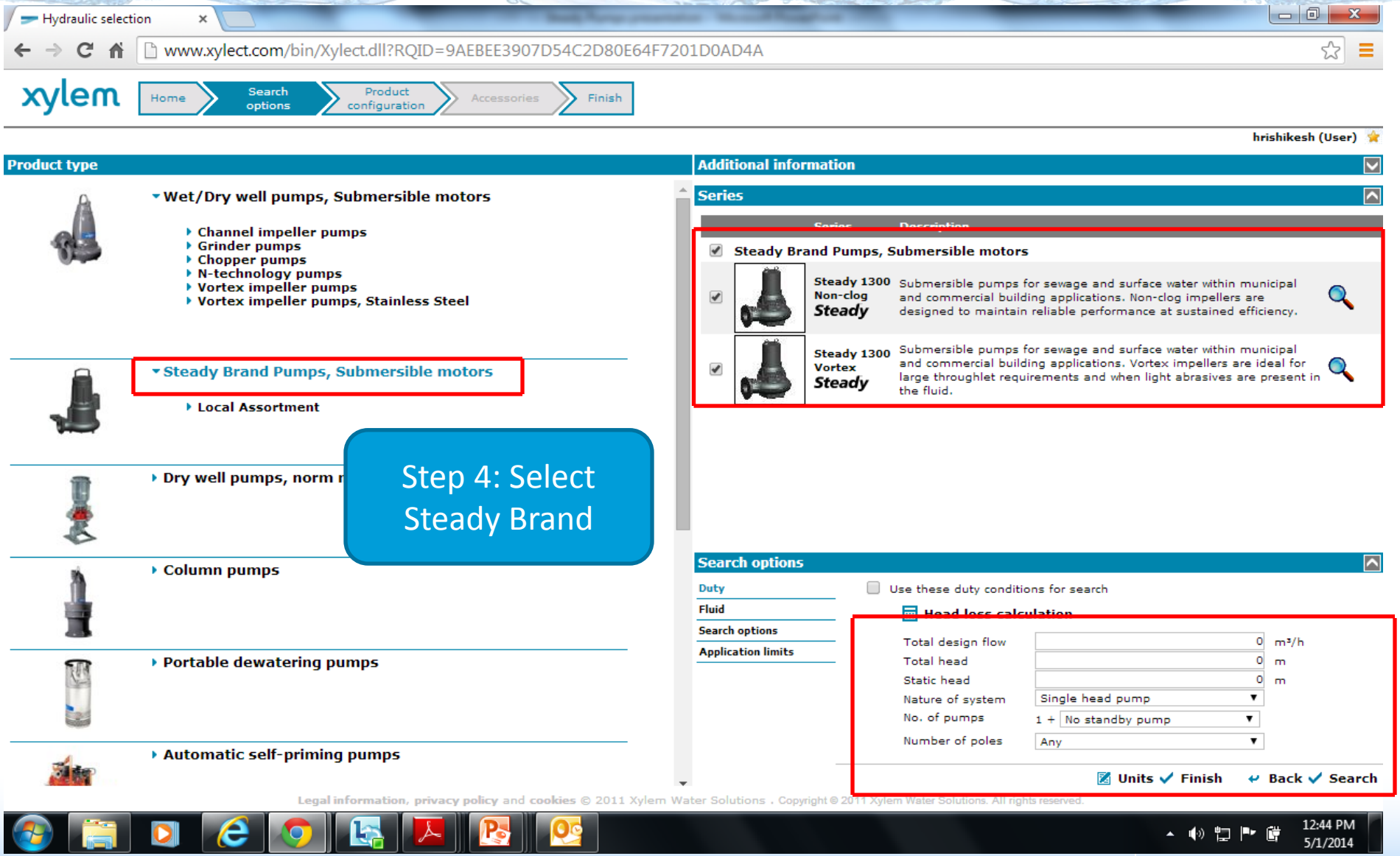
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Accessories
Finish
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Product type
Wet/Dry well pumps, Submersible motors
Channel impeller pumps
Grinder pumps
Chopper pumps
N-technology pumps
Vortex impeller pumps
Vortex impeller pumps, Stainless Steel
Steady Brand Pumps, Submersible motors
Local Assortment
Dry well pumps, norm
Column pumps
Portable dewatering pumps
Automatic self-priming pumps
Step 4: Select Steady Brand
Additional information
Series
Steady Brand Pumps, Submersible motors
Steady 1300 Non-clog Steady
Submersible pumps for sewage and surface water within municipal and commercial building applications. Non-clog impellers are designed to maintain reliable performance at sustained efficiency.
Steady 1300 Vortex Steady
Submersible pumps for sewage and surface water within municipal and commercial building applications. Vortex impellers are ideal for large throughlet requirements and when light abrasives are present in the fluid.
Search options
Duty
Fluid
Search options
Application limits
Use these duty conditions for search
Total design flow
Total head
Static head
Nature of system
Single head pump
No. of pumps
No standby pump
Number of poles
Any
Units
Finish
Back
Search
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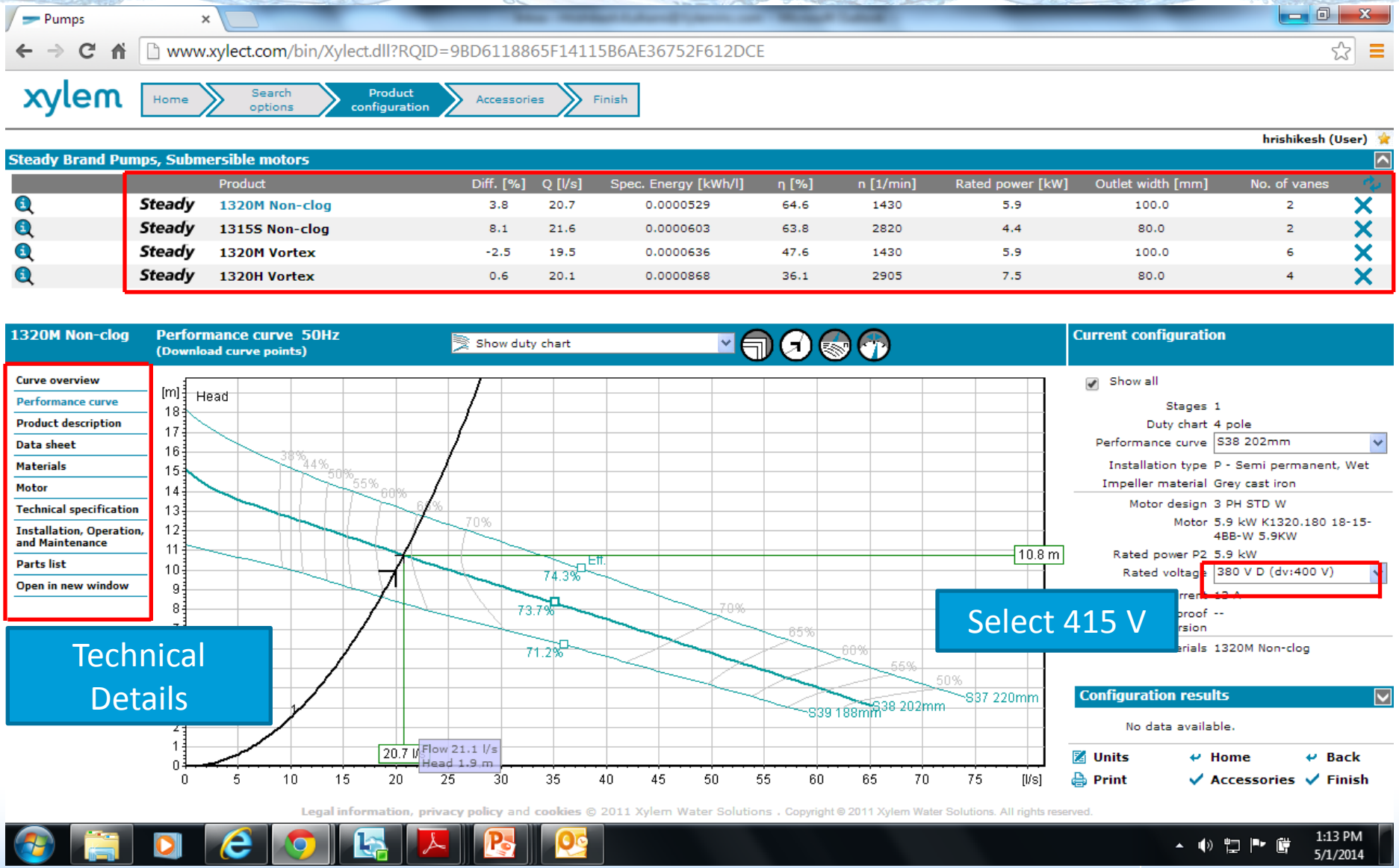
Pumps
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xylem
Home
Search options
Product configuration
Accessories
Finish
hrishikesh (User)
Steady Brand Pumps, Submersible motors
Product | Diff. [%] | Q [l/s] | Spec. Energy [kWh/l] | η [%] | n [1/min] | Rated power [kW] | Outlet width [mm] | No. of vanes
Steady 1320M Non-clog | 3.8 | 20.7 | 0.0000529 | 64.6 | 1430 | 5.9 | 100.0 | 2
Steady 1315S Non-clog | 8.1 | 21.6 | 0.0000603 | 63.8 | 2820 | 4.4 | 80.0 | 2
Steady 1320M Vortex | -2.5 | 19.5 | 0.0000636 | 47.6 | 1430 | 5.9 | 100.0 | 6
Steady 1320H Vortex | 0.6 | 20.1 | 0.0000868 | 36.1 | 2905 | 7.5 | 80.0 | 4
1320M Non-clog
Performance curve 50Hz
(Download curve points)
Show duty chart
Curve overview
Performance curve
Product description
Data sheet
Materials
Motor
Technical specification
Installation, Operation, and Maintenance
Parts list
Open in new window
Head
[m]
[l/s]
Eff.
74.3%
73.7%
71.2%
10.8 m
20.7 l/s
Flow 21.1 l/s
Head 1.9 m
S39 188mm
S38 202mm
S37 220mm
Current configuration
Show all
Stages 1
Duty chart 4 pole
Performance curve S38 202mm
Installation type P - Semi permanent, Wet
Impeller material Grey cast iron
Motor design 3 PH STD W
Motor 5.9 kW K1320.180 18-15-4BB-W 5.9KW
Rated power P2 5.9 kW
Rated voltage 380 V D (dv:400 V)
Configuration results
No data available.
Units
Home
Back
Print
Accessories
Finish
Technical Details
Select 415 V
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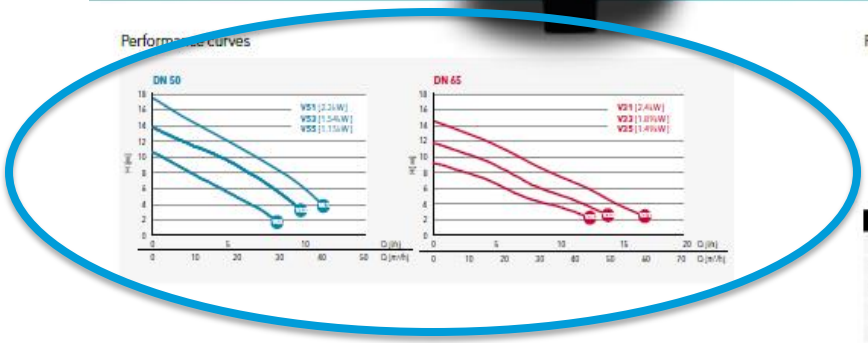
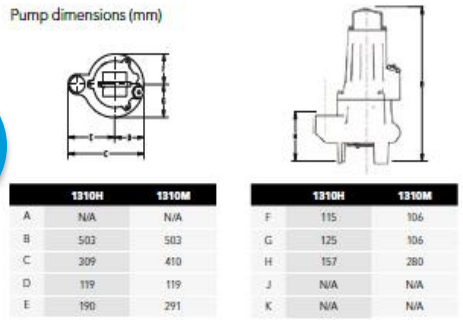
Selection Brochure

- Step 1:

Select Curve and According model from Curves





Selection table*

Model		Outl (in)	Installation	Pole	Freq (Hz)	Phase	Max Shaft Power	Curve no	Voltage	Cable	Order number*
1310H	●	50	P, S	2	50	3	[see chart]	V51, V53, V55	380, 400	5	1310H-50-.253.—.—/S
1310M	●	65	P, S	2	50	3	[see chart]	V31, V33, V35	380, 400	5	1310M-65-.253.—.—/S

Installation kit selection table*

DN	Free-standing	Wet well	Replacement
50	included	1310-50P	1310-50R
65	1310-65S	1310-65P	1310-65R

Selection Brochure

- Step 2:

Select Outlet Diameter

Pump data

Model	1310H	1310M
Impeller Type	Vortex	Vortex
Outlet size (mm)	50	65
Weight (kg), with stand	34	40, 50
Pole	2	2
Insulation Class	F	F
Starts per hour	15	15

Motor data

Voltage	380 V	400 V
Phase	3	3
Model	1310H/M	1310H/M
Starting Amps (A)	25	27
Full Load (A)	5,2	5,1
Full Load Power Factor	0.90	0.86
Connection	Y	Y
Cable	4G1.5	4G1.5

Material data

Impeller	grey cast iron
Pump housing	grey cast iron
Stator housing	grey cast iron
Shaft	stainless steel
Inner mechanical seal	carbon/aluminum oxide
Outer mechanical seal	cemented carbide/aluminum oxide
O-rings	nitrile
Cable sheathing	nitrile

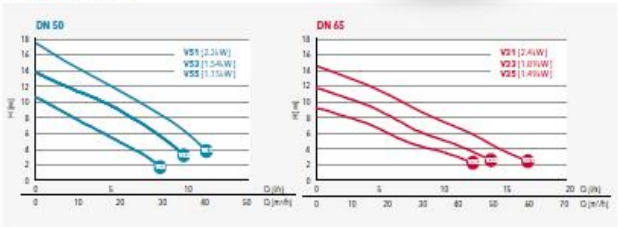
Process data

Max submergence	20 m
Max fluid temp	40 C
pH range of pumped liquid	5,5 - 14

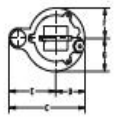
Power cable data

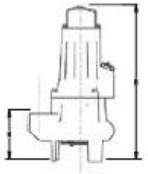
Cable type (mm2)	4G1.5
Outer Diameter (mm)	11.5
Weight (kg/m)	0.20

Performance curves



Pump dimensions (mm)





	1310H	1310M
A	N/A	N/A
B	503	503
C	309	410
D	119	119
E	190	291

	1310H	1310M
F	115	106
G	125	106
H	157	280
J	N/A	N/A
K	N/A	N/A

Selection table*

Model		Outl (in)	Installation	Pole	Freq (Hz)	Phase	Max Shaft Power	Curve no	Voltage	Cable	Order number*
1310H	●	50	P, S	2	50	3	(see chart)	V51, V53, V55	380, 400	5	1310H-50-.253.—.—/S
1310M	●	65	P, S	2	50	3	(see chart)	V31, V33, V35	380, 400	5	1310M-65-.253.—.—/S

Installation kit selection table*

DN	Free-standing	Wet well	Replacement
50	included	1310-50P	1310-50R
65	1310-65S	1310-65P	1310-65R

Selection Brochure

- Step 3:

Select Installation Kits

Selection Brochure

- Step 4: **Make Nomenclature** as per selection and get part number and price from **Sales Force**
- Step 5: Get Nomenclature and price of the installation kits from **Sales Force**
- Step 6: ORDER

One Page Selection Guide

Steady™
a xylem brand

Selecting & ordering

Configure your product order and generate order number. We've made it easy for you to select and configure your pump with the appropriate accessories; it's done in just three simple steps.

1. Select the pump model ideal for your needs from the following table. For larger pump sizes, contact your local sales representative.

Model Selection Guide

Q (m3/h)

H (m)	10	30	50	70	90	110	130	150
35		1320S (S70)						
30		1320S (S74)	1320S (S70)					
25		1320H (V51) 1320S (S74)	1320S (S70)	1320S (S70)				
20	1310S (S60)	1315S (S70) 1320M (S37)	1315S (S70) 1320S (S74)	1320S (S70)				
15	1315M (V31) 1310H (V51) 1310S (S64)	1320H (S88) 1315S (S74) 1310S (S60)	1320H (S87)	1315S (S70) 1320S (S74) 1320H (V51)	1320S (S70)			
10		1310S (S64)	1310S (S60) 1315S (S74)		1315S (S70) 1320S (S74)			
5	1310H (V51) 1310M (V33) 1310H (V55)	1315H (S53) 1315M (S62) 1310H (V33) 1310M (V53)	1315M (S60) 1315H (S51) 1310S (S64) 1310M (V31)	1315S (S70) 1315M (S60) 1315S (S74)	1320H (V51) 1320M (S38) 1315M (V31)	1320H (S88) 1315M (S62)	1320M (S37) 1315M (S60)	1320H (S87) 1320M (V31) 1315M (S60)
	3	8	14	19	25	31	36	42

Q (l/s)

2. Complete your order number by configuring your pump model. For every model and choice of outlet dimension there is a partially filled order number to the far right of the table.

Non-clog (S) impeller selection chart

Model	DN	Installation	Pole	Freq [Hz]	Phase	Max P2 (kW)	Curve ID	Voltage	Cable (m)	Order Numb
1310S	50	W, T	2	50	3	2,4	S60, S64	380, 400	5	1310S-50-.2
1315S	80	X	2	50	3	4,4	S70, S74	380, 400	5	1315S-80X.2
1315M	100	X	4	50	3	3,3	S60, S62, S63	380, 400	5	1315M-100X
1320S	80	X	2	50	3	7,5	S70, S74	380, 400	5	1320S-80X.2
1320H	100	X	4	50	3	5,9	S87, S88	380, 400	5	1320H-100X
1320M	100	X	4	50	3	5,9	S37, S38, S39	380, 400	5	1320M-100X

Vortex (V) impeller selection chart

Model	DN	Installation	Pole	Freq [Hz]	Phase	Max P2 (kW)	Curve ID	Voltage	Cable (m)	Order Numb
1310H	50	W, T	2	50	3	2,4	V51, V53, V55	380, 400	5	1310H-50-.2
1310M	65	X	2	50	3	2,4	V31, V33, V35	380, 400	5	1310M-65X.
1315H	80	X	2	50	3	4,4	V51, V53	380, 400	5	1315M-100X
1315M	100	X	4	50	3	3,3	V31, V33	380, 400	5	1315M-100X
1320H	80	X	2	50	3	7,5	V51, V53	380, 400	5	1320H-80X.
1320M	100	X	4	50	3	5,9	V31, V33	380, 400	5	1320M-100X

Order number example:

1320M-100X.453.S37.400/5

Model · Model variant · Outlet dimension (nominal, mm) · Installation code · Pole · Frequency (5=50, 6=60) · Phase · Curve ID · Voltage · Cable Length

3. Select your accessory kit from the table below.

Model	DN	Wet well	Free Standing*	Replacement
1310	50	1310-50W	Included	Included
	65	1310-65W	1310-65H 1310-65T	1310-65R
1315	80	1315-80W	1315-80H 1315-80T	1315-80R

2. Complete your order number by configuring your pump model. For every model and choice of outlet dimension there is a partially filled order number to the far right of the table.

Non-clog (S) impeller selection chart

Model	DN	Installation	Pole	Freq [Hz]	Phase	Max P2 (kW)	Curve ID	Voltage	Cable (m)	Order Number
1310S	50	W, T	2	50	3	2,4	S60, S64	380, 400	5	1310S-50-.253.---.---/5
1315S	80	X	2	50	3	4,4	S70, S74	380, 400	5	1315S-80X.253.---.---/5
1315M	100	X	4	50	3	3,3	S60, S62, S63	380, 400	5	1315M-100X.453.---.---/5
1320S	80	X	2	50	3	7,5	S70, S74	380, 400	5	1320S-80X.253.---.---/5
1320H	100	X	4	50	3	5,9	S87, S88	380, 400	5	1320H-100X.453.---.---/5
1320M	100	X	4	50	3	5,9	S37, S38, S39	380, 400	5	1320M-100X.453.---.---/5

Vortex (V) impeller selection chart

Model	DN	Installation	Pole	Freq [Hz]	Phase	Max P2 (kW)	Curve ID	Voltage	Cable (m)	Order Number
1310H	50	W, T	2	50	3	2,4	V51, V53, V55	380, 400	5	1310H-50-.253.---.---/5
1310M	65	X	2	50	3	2,4	V31, V33, V35	380, 400	5	1310M-65X.253.---.---/5
1315H	80	X	2	50	3	4,4	V51, V53	380, 400	5	1315M-100X.453.---.---/5
1315M	100	X	4	50	3	3,3	V31, V33	380, 400	5	1315M-100X.453.---.---/5
1320H	80	X	2	50	3	7,5	V51, V53	380, 400	5	1320H-80X.253.---.---/5
1320M	100	X	4	50	3	5,9	V31, V33	380, 400	5	1320M-100X.453.---.---/5

Order number example:

1320M-100X.453.S37.400/5

Model · Model variant · Outlet dimension (nominal, mm) · Installation code · Pole · Frequency (5=50, 6=60) · Phase · Curve ID · Voltage · Cable Length

xylem
Let's Solve Water

Kit number explained

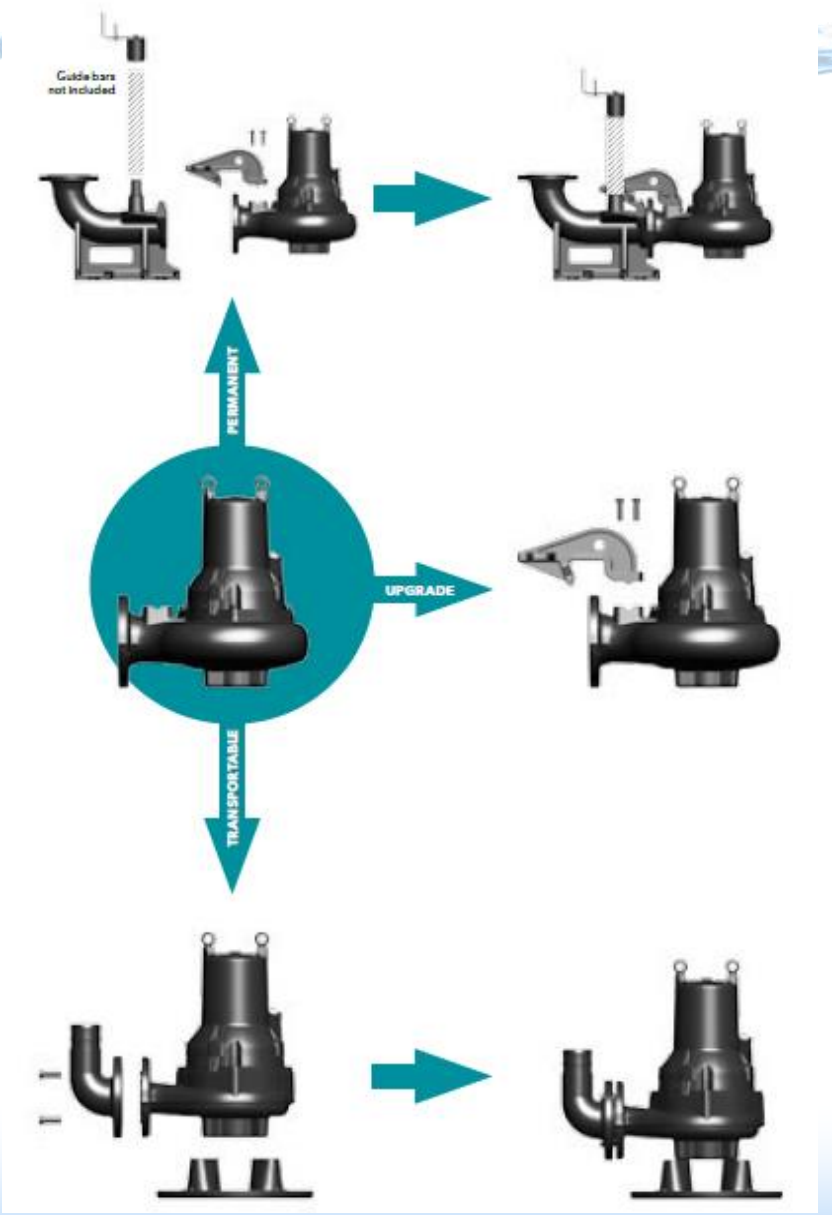
Example of Selection of installation kit:

1. Which model of pump?
   1320
2. Which outlet dimension? (Nominal , mm)
   100
3. Which installation? (Installation code)
   Wet Well Kit – WWK
   Free Standing Kit - FSK

Result :

1320 WWK
or
1320 FSK

Installation kits



Wet-well kit
The pump is installed with twin guide bars on a discharge connection.

Kit contents:
- Discharge connection
- Anchor bolts
- Guide claw with bolts
- Upper guide bar bracket with bolts

Replacement kit
Simple kit to replace an old pump or upgrade to a larger model

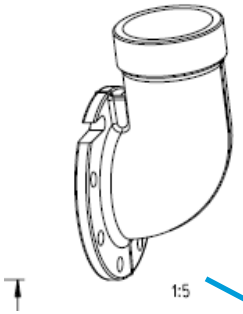
Kit contents:
- Guide claw with bolts

Free-standing kit
Ideal for portability

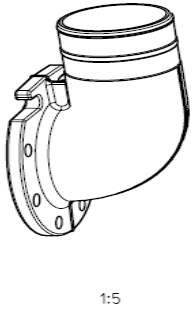
Kit contents:
- Hose connection with bolts
- Stand with bolts

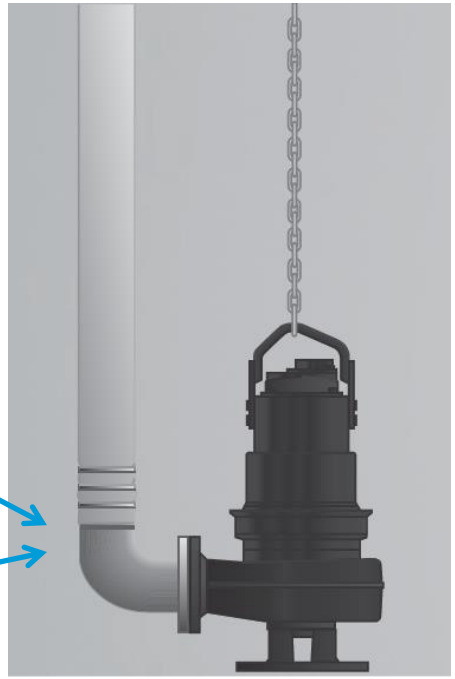
Way of installations

ISO Connection (threaded discharge connection)



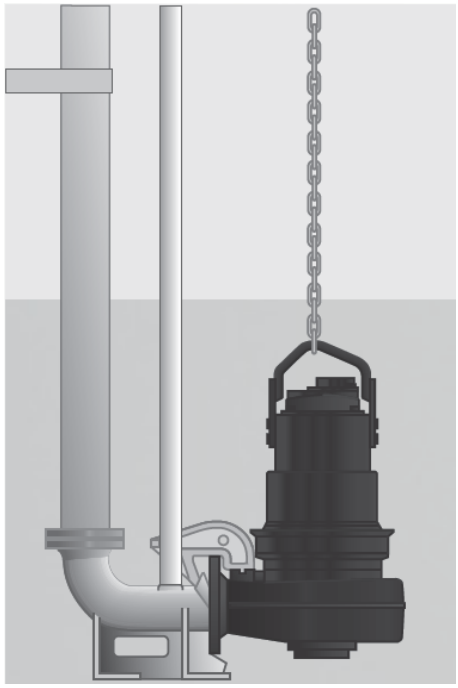
Hose Connection ay discharge connection





FREE STANDING

Together with hose connection ideal for portability



WET WELL

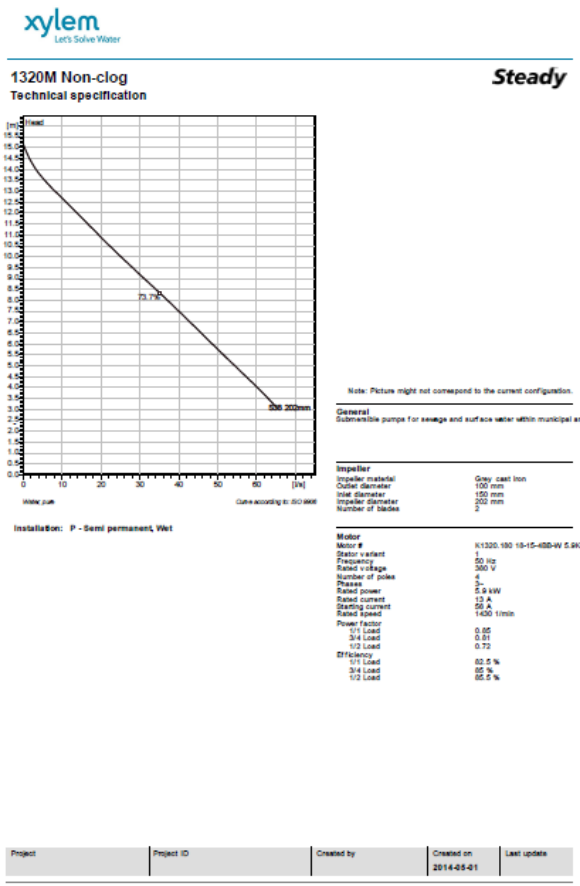
The pump is installed with twin guide bars on a discharge connection

Selection Brochure

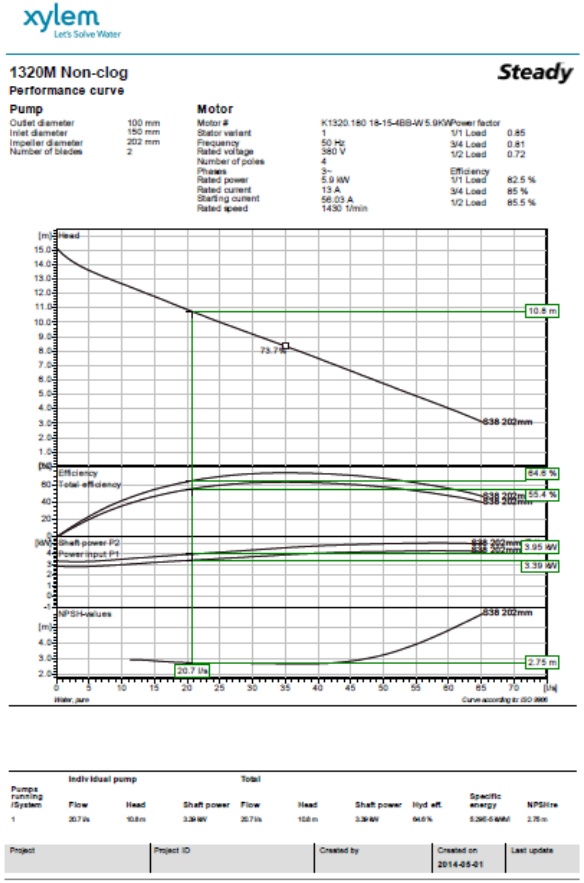
- Step 4: **Make Nomenclature** as per selection and get part number and price from **Sales Force**
- Step 5: Get Nomenclature and price of the installation kits from **Sales Force**
- Step 6: ORDER

Technical Submittals

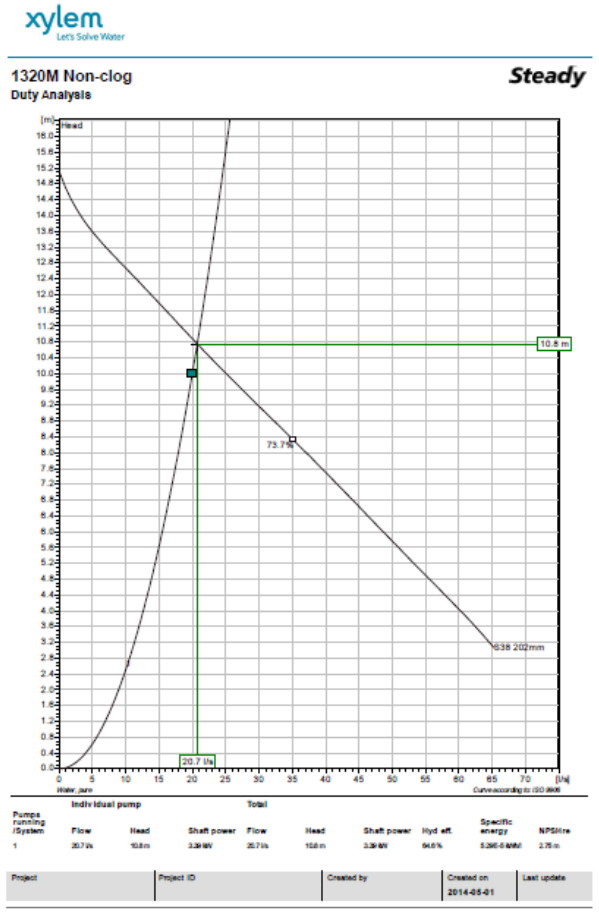
Submittals from Xylect.com



Technical specification



Performance curve



Duty Analysis

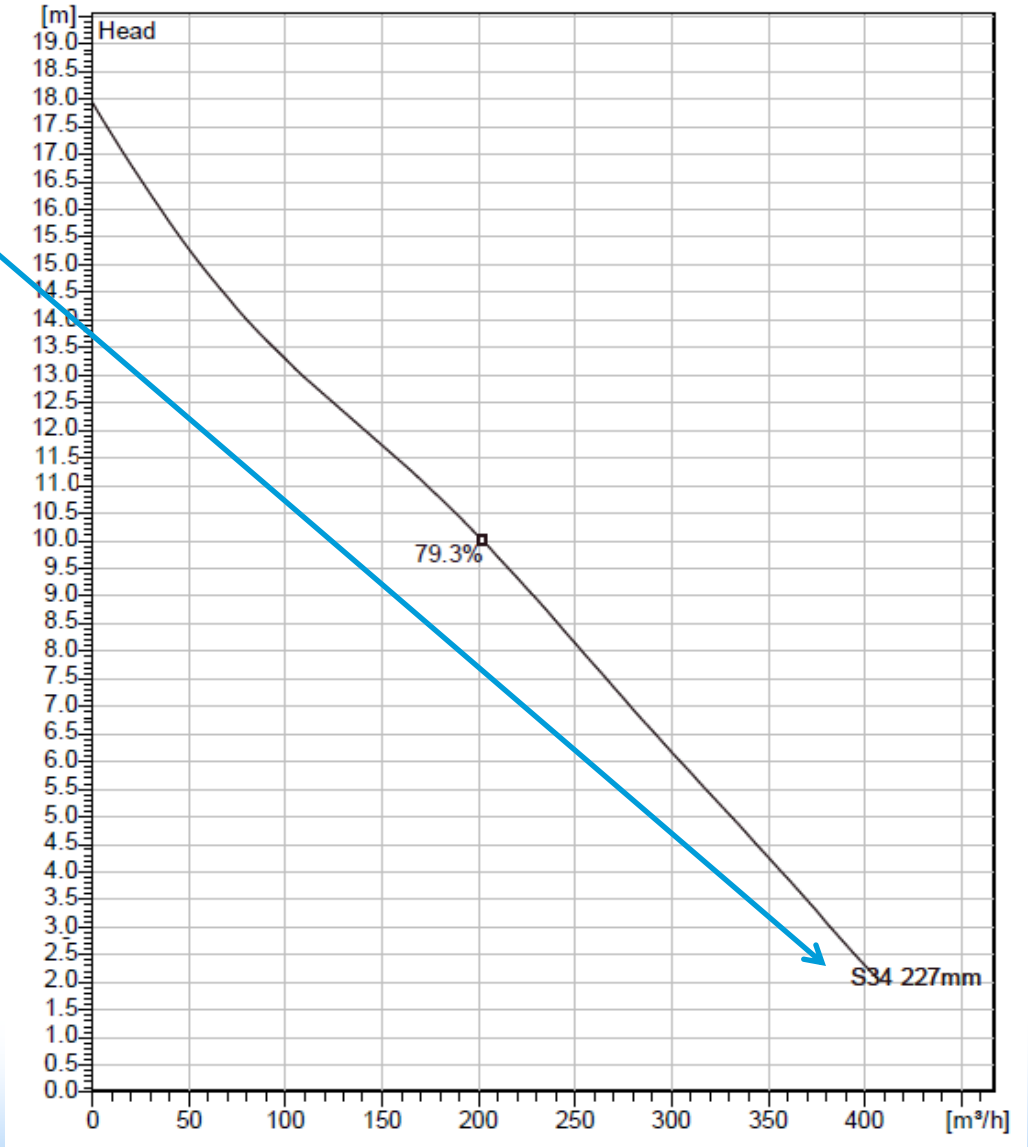
Price Selection from Salesforce

Price Selection from Salesforce

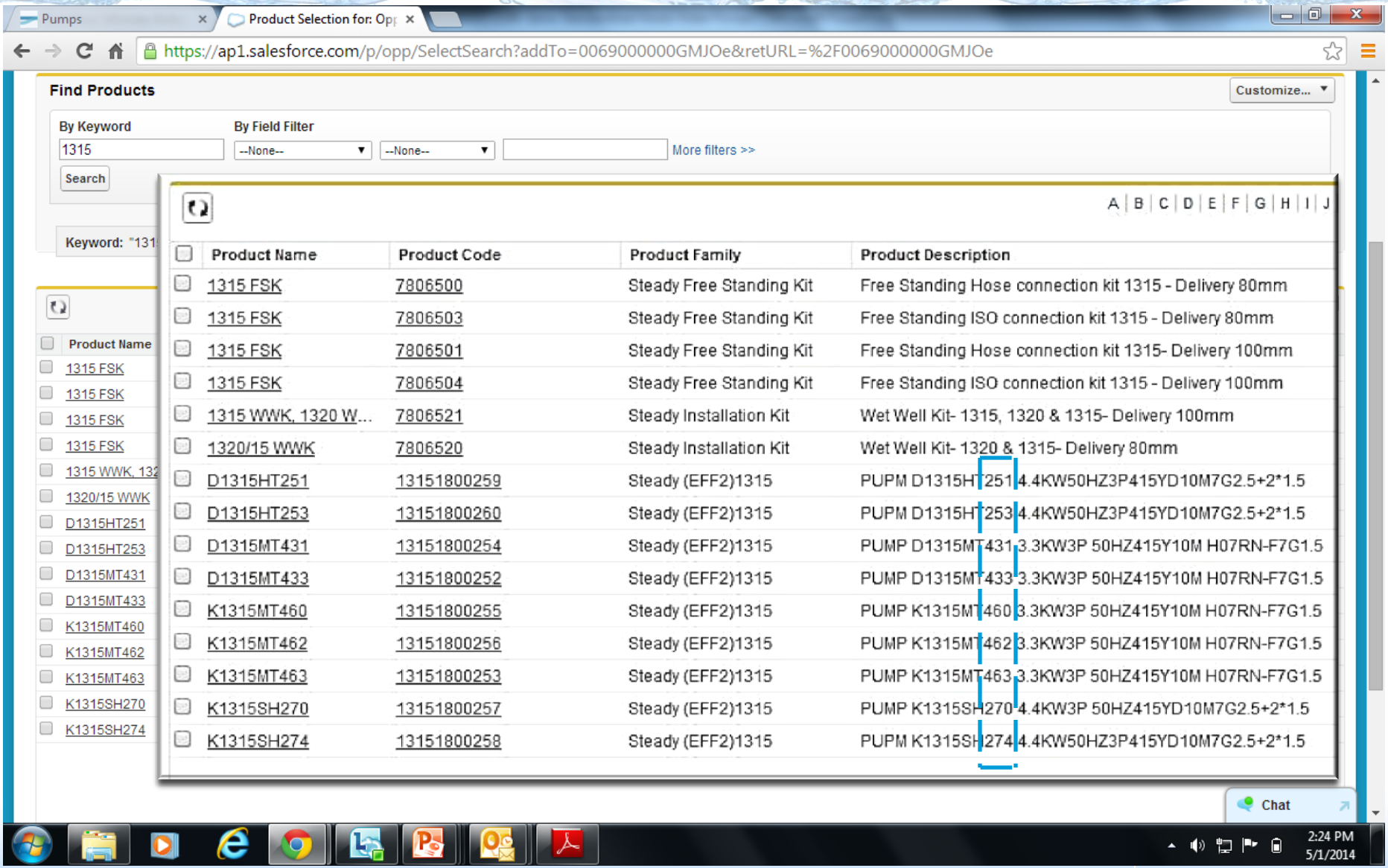
For a selected curve: Eg: S34 227mm

If motor is 4 Pole then curve number becomes 434 227mm

If motor is 2 pole then curve number becomes 234 227mm



Price Selection from Salesforce



Lead Time

Lead Times

Current Lead Times

- From Shenyang – 6 weeks
- From Baroda – 8-9 weeks

What is the lead time required by customers ?

What is the competition offering?

Do they have local stocking of pump assembly units?

Spares Policy

Aftermarket Kits

Steady cable kit
The cable and cable entry are crucial components to keep the motor running and free of water. The Steady cable kit provides all parts needed to replace a cable and make the job as easy as possible.

Kit contents:
- Cable
- Cable sleeve unit
- Cable end-splice and lug

Steady motor kit
The Steady Motor kit contains all the critical parts needed to perform an overhaul of the motor.

Kit contents:
- Bearings
- Mechanical seals
- O-rings

Steady impeller kit
It is important that the impeller is in good condition to ensure reliability and good performance. The Steady impeller kit contains all parts needed to replace an impeller, including the adjustable sleeve, making it easy to mount the impeller in the optimal position.

Kit contents:
- Impeller
- Impeller sleeve/ key
- Screw and washer

Steady parts strategy

Available parts

- General parts offer: General parts offer follows the overall Steady strategy on kits, simplify ordering for the customers.
  Pre-assembled kits are available for the major wear parts.
  Parts included in kits are not separate available
- All other parts: On request. These parts are not marketed, or visible in any communication material to the customer

Stock keeping

- General offer for all pumps supplied in the area is kept locally on stock for fast delivery
- Offer on request is not kept on stock. Lead time is defined when ordered

Part availability after phase out of the product:

Pump size	Availability
< 3.0 kW	5 years
> 3.0 kW	10 years

Key References in India

Cognizant

TATA CONSULTANCY SERVICES

QUALITY ON TIME

Indiabulls REAL ESTATE

Brochures, White Papers and Marcom Material

Steady Brochure

White Paper – Throughlet Size

FLYGT
a xylem brand

WHITE PAPER
Throughlet size
May 2012

Wastewater pump clog resistance cannot be determined by throughlet size

A wastewater pump's throughlet size is frequently used to specify clog resistance, despite data that demonstrates the irrelevance of this measurement. Clogging is a critical and highly undesirable operational problem in wastewater pumping, which results in increased operational costs and emergency calls from the end user. Clogging drastically reduces pump efficiency and causes pump tripping.

The number one requirement of a wastewater pump is its ability to pump wastewater without clogging. This paper will describe the importance of a pump's wet-end design for achieving clog-free operation. This paper will also establish how a pump's throughlet size is a misleading parameter in specifying clog resistance.

Historical perspective
The traditional definition of throughlet size refers to the free passage of matter through a pump impeller. Throughlet size is determined by the largest diameter of a hard, solid, spherical object that can pass through the pump. The concept is old, dating back to 1915, and was developed at a time when energy costs were not of significant importance. Pump manufacturers intuitively believed that pump clogging could be avoided simply by having an internal pump throughlet equal to or larger than what the toilet of the day could pass.

Pump manufactures believed objects would pass through the pump as easily as they did through the pipes. This design is called a large or maximized throughlet size design. The expectation was that large throughlets would increase reliability and reduce unplanned service calls. These hydraulic designs are referred to as *traditional designs* in this paper.

The last few decades of research and development, and experience from hundreds of thousands of pump installations, have proven that the simplistic logic of throughlet size is incorrect and misleading yet prevalent in wastewater pump procurement specifications.

How did manufacturers achieve large throughlet sizes?
The smallest section in a pump is the passage through the impeller.

There are two possible main impeller design options to maximize the throughlet size:

1. Single-vane impellers (open or closed, valid especially for small pumps)
2. Vortex impellers (also known as recessed impeller or torque-flow impeller)

Figure 1: Example of a single-vane impeller

Figure 2: Example of a vortex impeller

These designs suffer from the following drawbacks:

Single-vane impeller:
- Relatively low efficiency (with more impeller vanes, higher efficiencies can be achieved)
- Significant rotating radial forces (this causes high shaft and bearing loads as well as increased vibration and noise)
- Difficulty in balancing (the impeller is water-filled during operation)
- Impeller trimming leads to further imbalance

Vortex impeller:
- Very low efficiency

With decreased pump efficiency, the operational cost for the end user is increased because the pump has to operate for a longer time to handle the inflow. A motor overload or pump trip also adds cost for the end user because it requires a service technician to visit the pumping station in order to clean and restart the pump.

For pumps operating intermittently, back flushing will occur naturally every time the pump is turned off. This cleans the leading edges of the impeller and flushes the accumulated solids through the pump's suction opening back into the pump sump. This flushing phenomenon occurs in systems with and without check valves.

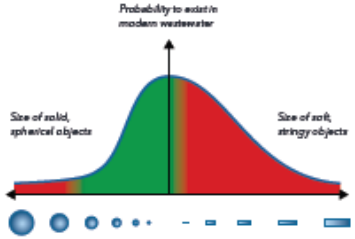


Figure 8

Figure 8 shows the types of solids that can pass through a traditional impeller with a large throughlet. The green area indicates objects with a high probability to pass through the pump. The red area indicates a higher probability of clogging.

Some hydraulic designers claim that vortex impellers are self-cleaning because after back flushing, the impeller is free of solids. In practice, this has not been the case. Even if the back flushing frees the impeller from the stringy objects, they return during normal operation, leading to a significant decrease in efficiency and higher energy bills.

Modern pump hydraulic designs
Today there are better and more advanced hydraulic designs available to increase a wastewater pump's clog resistance and to maintain pump efficiency over time. A state-of-the art self-cleaning design, with substantially backswept leading edges and a relief groove, has proven to be the answer to most clogging problems.

Figure 9: Modern self-cleaning hydraulic design

A standardized clog test was developed by Flygt in the late 1990s and has been used to test many existing hydraulic designs as well as new and innovative ideas. This development, carried out for over 15 years, has resulted in refined wastewater pumps that vastly outperform all traditional wastewater pump designs.

The company's knowledge from the large installed base of wastewater pumps has provided data necessary to develop self-cleaning impeller capability that works for all duty points and for reduced rotational speeds. The function of transporting liquid has been separated from the function of transporting solids. This self-cleaning hydraulic design does not accumulate the typical contaminants present in modern wastewater.

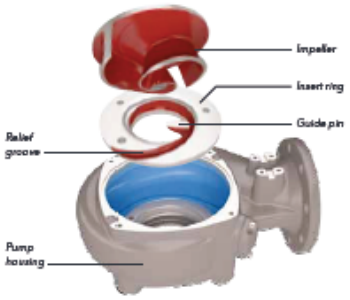
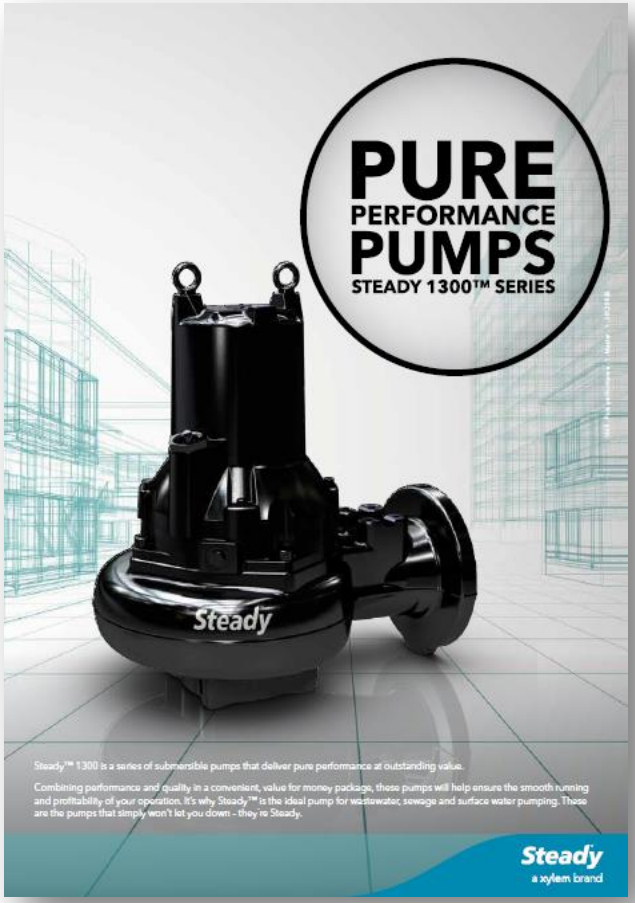


Figure 10

Solids that land on the leading edges of the impeller are continuously pushed towards the periphery and out through the pump discharge via the relief groove located in the insert ring.

Clogging significantly affects pump lifecycle costs

Advertising Material



Steady Ad / Poster

Steady Roll Up

Thank you