



# SH. MILANDHOO STORM WATER DESIGN

## Storm Water Pump Station Load Calculation

**RAKENTA LLP**  
 Male', Maldives  
 rakenta@gmail.com

### PUMP STATION 1 (DRAWING NUMBER: D-E1-01)

Item Name	Rated Power (W)	Rated Power Factor	Rated Max Current (A)	Rated Starting Current (A)	Starting Method	Load Factor	Load Current (A)	Actual Power (W)
PUMP 1	12700	0.82	24.0	-	VFD	1	24.0	12700
PUMP 2	12700	0.82	24.0	-	VFD	1	24.0	12700
<b>TOTAL</b>							<b>48.0</b>	<b>25400</b>

### PUMP STATION 2 (DRAWING NUMBER: D-E1-02)

Item Name	Rated Power (W)	Rated Power Factor	Rated Max Current (A)	Rated Starting Current (A)	Starting Method	Load Factor	Load Current (A)	Actual Power (W)
PUMP 1	6300	0.85	11.2	81.0	Y/D	1	11.2	6300
PUMP 2	6300	0.85	11.2	81.0	Y/D	1	11.2	6300
<b>TOTAL</b>							<b>22.4</b>	<b>12600</b>

### PUMP STATION 3 (DRAWING NUMBER: D-E1-03)

Item Name	Rated Power (W)	Rated Power Factor	Rated Max Current (A)	Rated Starting Current (A)	Starting Method	Load Factor	Load Current (A)	Actual Power (W)
PUMP 1	8400	0.83	15.1	111.0	Y/D	1	15.1	8400
PUMP 2	8400	0.83	15.1	111.0	Y/D	1	15.1	8400
<b>TOTAL</b>							<b>30.2</b>	<b>16800</b>

### PUMP STATION 4 (DRAWING NUMBER: D-E1-04)

Item Name	Rated Power (W)	Rated Power Factor	Rated Max Current (A)	Rated Starting Current (A)	Starting Method	Load Factor	Load Current (A)	Actual Power (W)
PUMP 1	12700	0.82	24.0	-	VFD	1	24.0	12700
PUMP 2	12700	0.82	24.0	-	VFD	1	24.0	12700
<b>TOTAL</b>							<b>48.0</b>	<b>25400</b>

### PUMP STATION 5 (DRAWING NUMBER: D-E1-05)

Item Name	Rated Power (W)	Rated Power Factor	Rated Max Current (A)	Rated Starting Current (A)	Starting Method	Load Factor	Load Current (A)	Actual Power (W)
PUMP 1	4800	0.72	10.1	65.0	Y/D	1	10.1	4800
PUMP 2	4800	0.72	10.1	65.0	Y/D	1	10.1	4800
<b>TOTAL</b>							<b>20.2</b>	<b>9600</b>

Note: The load calculations are for separate panels which control standalone pumpstations feeding a single pressure main.

### STORM WATER SYSTEM LOAD

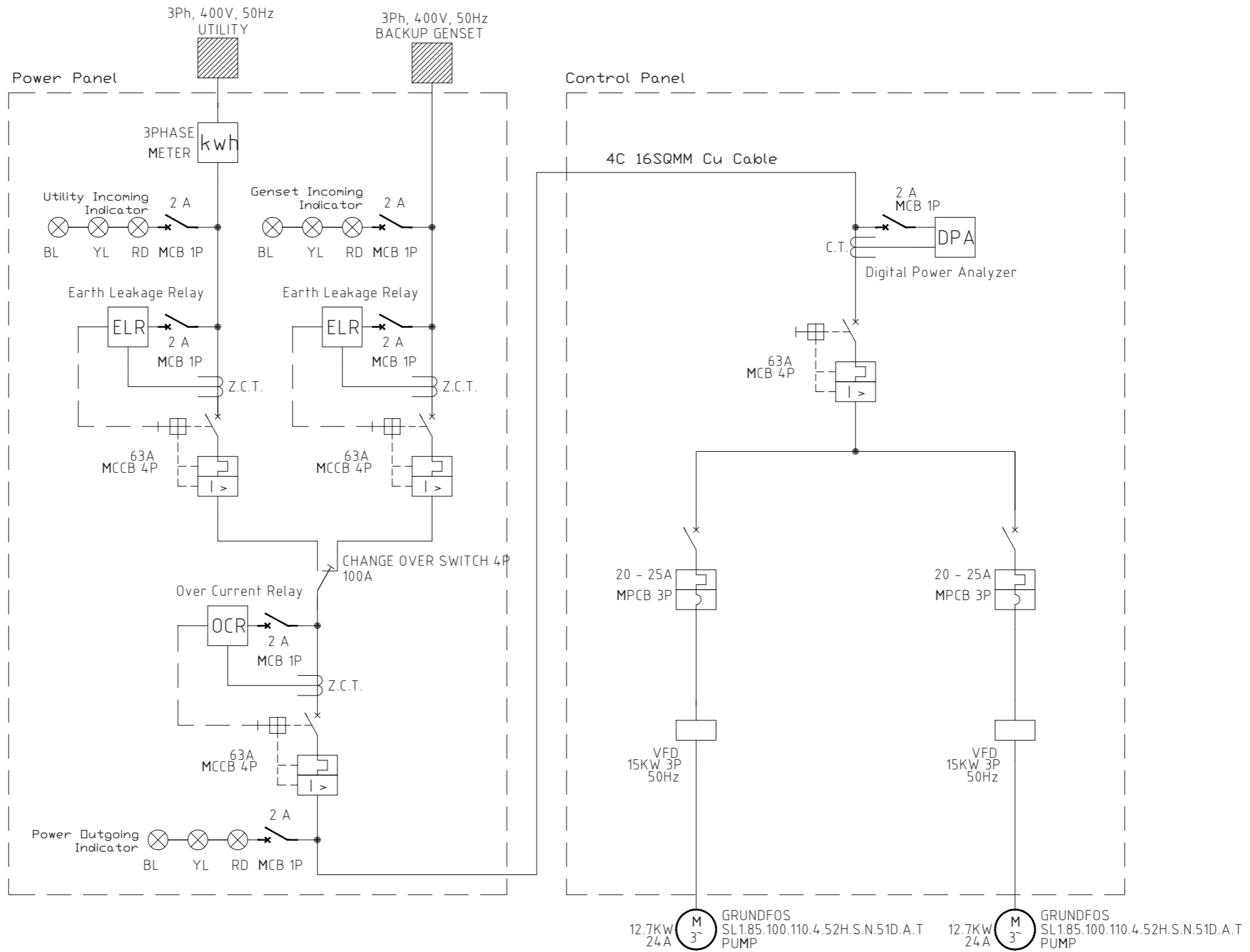
PUMP STATION	Power (kW)	Current (A)
PS1	25.4	48.0
PS2	12.6	22.4
PS3	16.8	30.2
PS4	25.4	48.0
PS5	9.6	20.2
<b>TOTAL</b>	<b>89.8</b>	<b>168.8</b>

CALCULATED BY: YAAMEEN SHAMEEM  
 MEA LICENSE NUMBER: MEA/2020/1964



NTH SIGMA PVT LTD  
 info@nthsigma.com | +9607725919





RAKENTA LLP  
 Bodurasgefaanu Magu  
 Male', Maldives  
 rakenta@gmail.com

PROJECT  
 Design of Storm Water Management Facilities at  
 Sh. Milandhoo

DRAWING NUMBER: D-E1-01

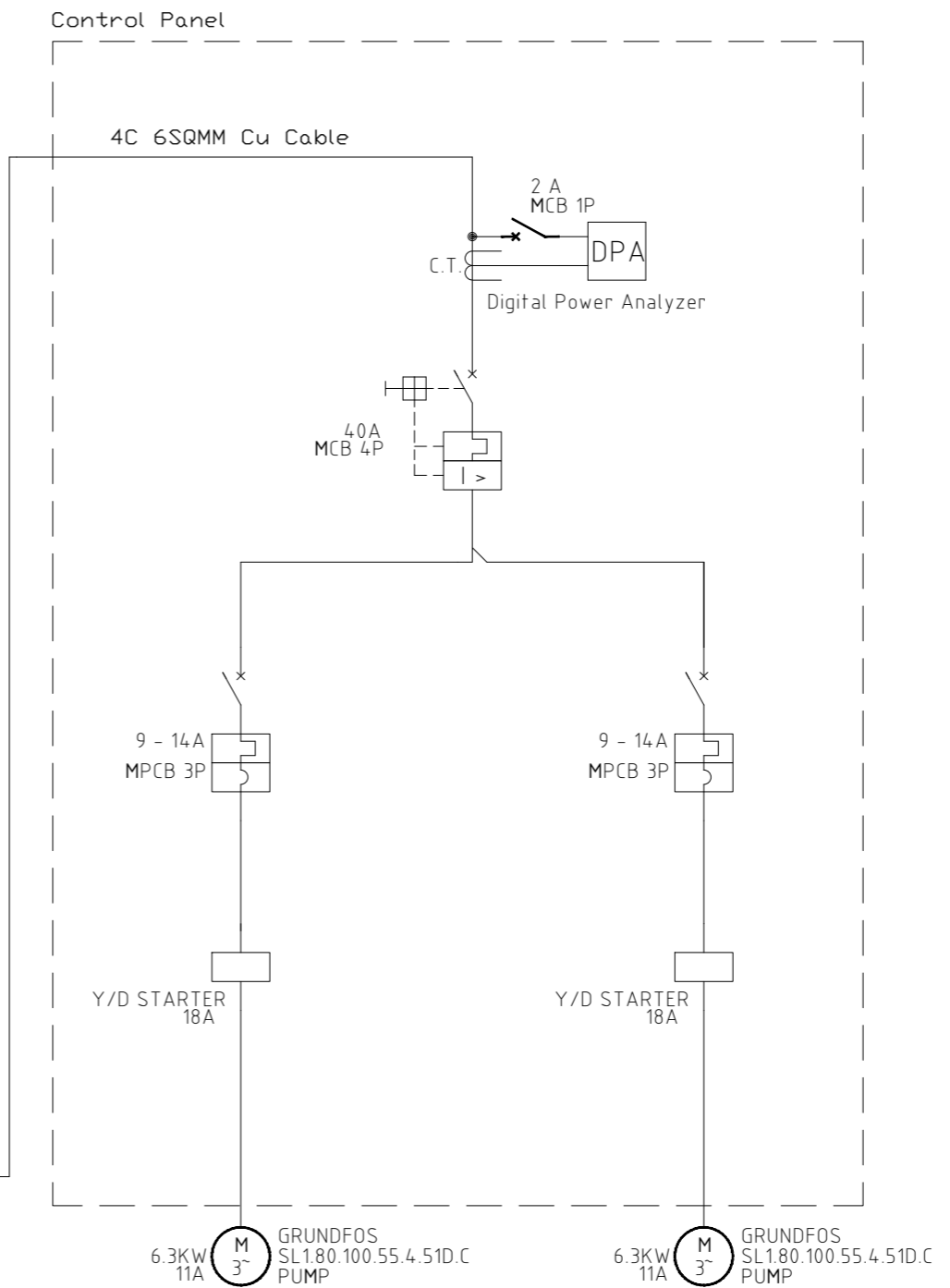
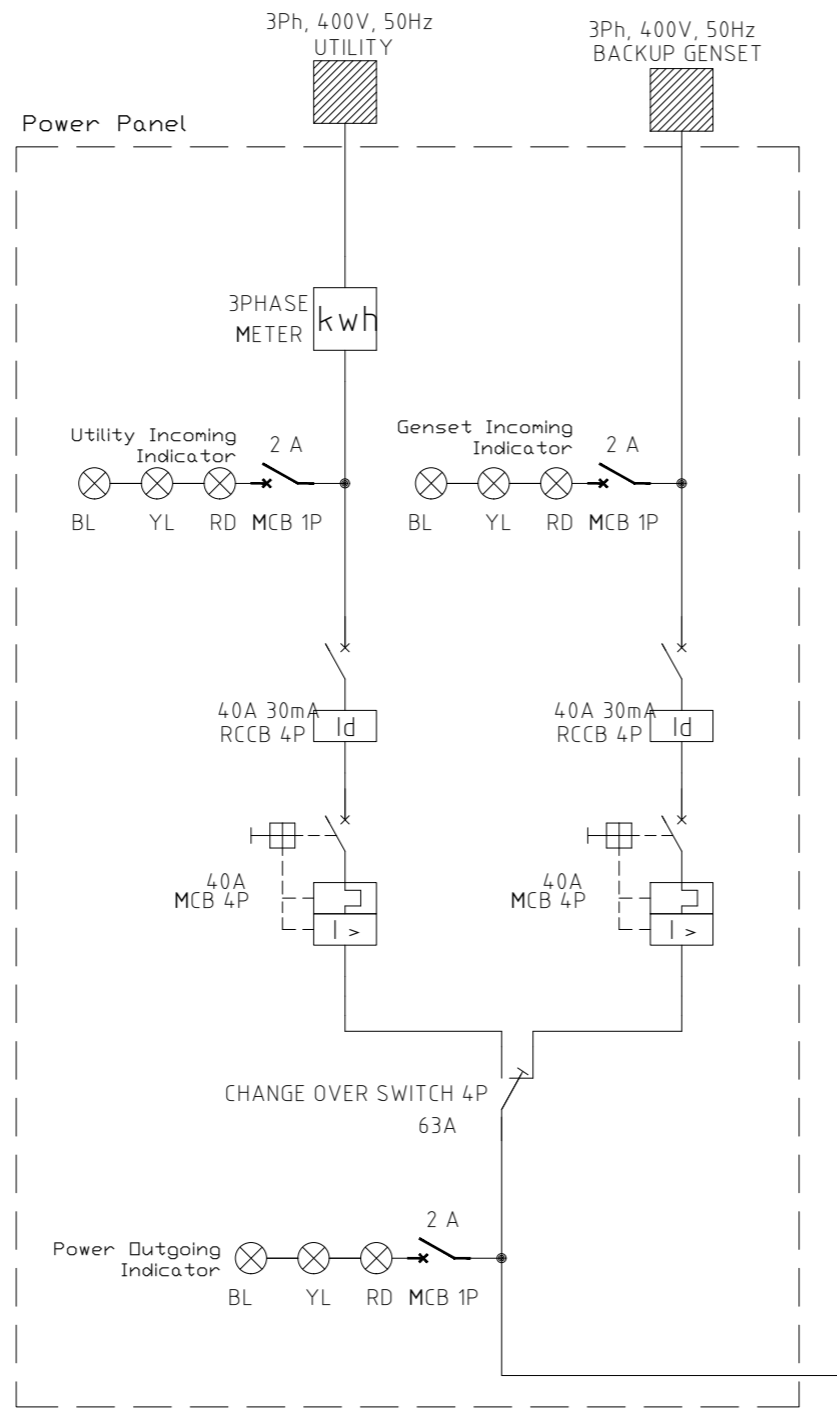
DRAWING CONTENTS  
 Storm Water Pumpstation Single Line Diagram  
 PS1



DATE: 8th July 2021

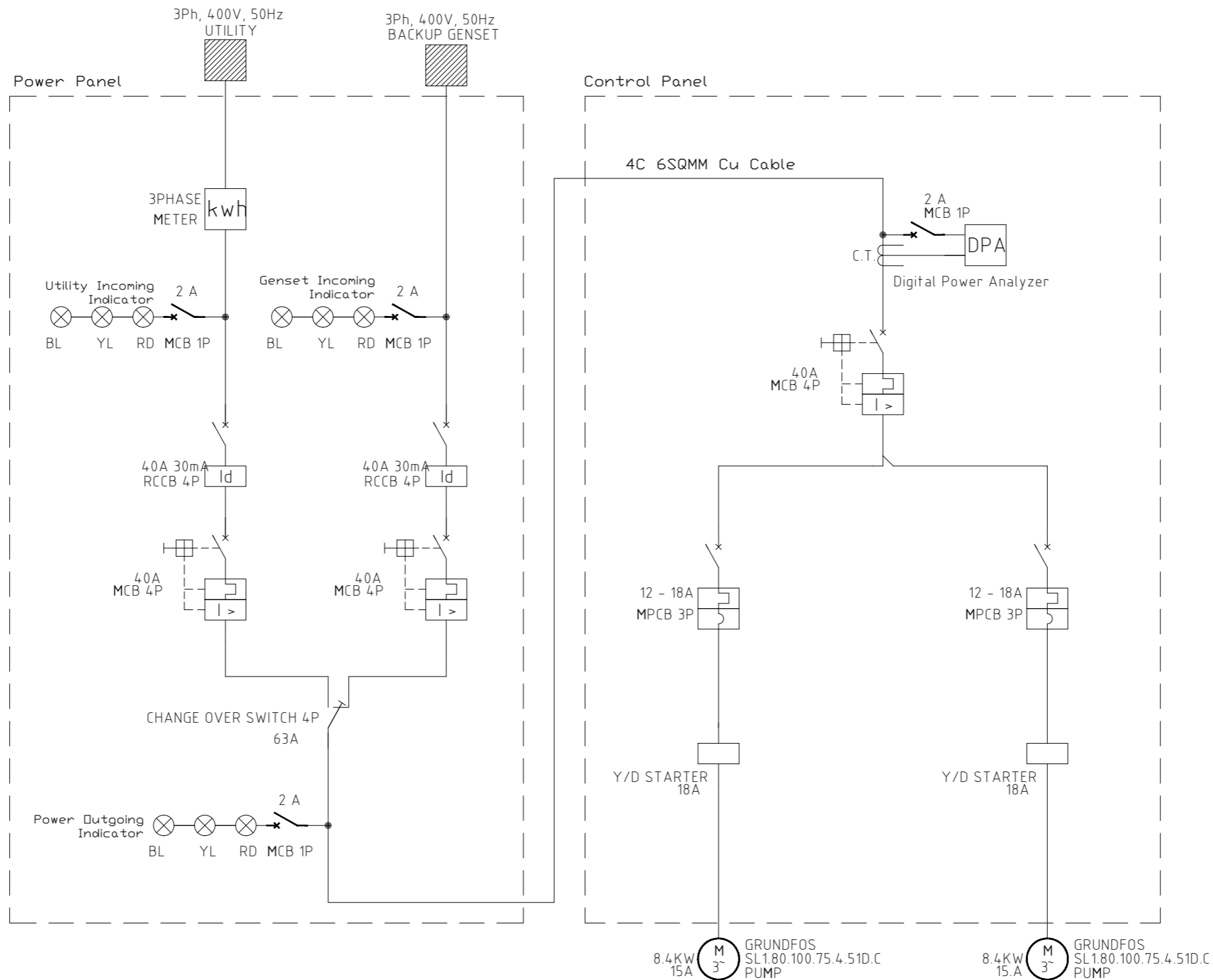
DRAWN BY  
 YAAMEEN SHAMEEM (MEA/2020/1964)  
 NTH SIGMA PVT LTD  
 info@nthsigma.com | +9607725919

SIGNATURE *Yaameen*





 <p>RAKENTA LLP Bodurasgefaanu Magu Male', Maldives rakenta@gmail.com</p>	<p>PROJECT</p> <p>Design of Storm Water Management Facilities at Sh. Milandhoo</p>	<p>DRAWING CONTENTS</p> <p>Storm Water Pumpstation Single Line Diagram PS2</p>	<p>DRAWN BY</p> <p>YAAMEEN SHAMEEM (MEA/2020/1964) NTH SIGMA PVT LTD info@nthsigma.com   +9607725919</p>
	<p>DRAWING NUMBER: D-E1-02</p>	<p>DATE: 13th June 2021</p>	<p>SIGNATURE <i>Yaameen</i></p> 



RAKENTA LLP  
 Bodurasgefaanu Magu  
 Male', Maldives  
 rakenta@gmail.com

PROJECT  
 Design of Storm Water Management Facilities at  
 Sh. Milandhoo

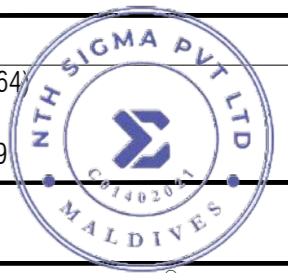
DRAWING NUMBER: D-E1-03

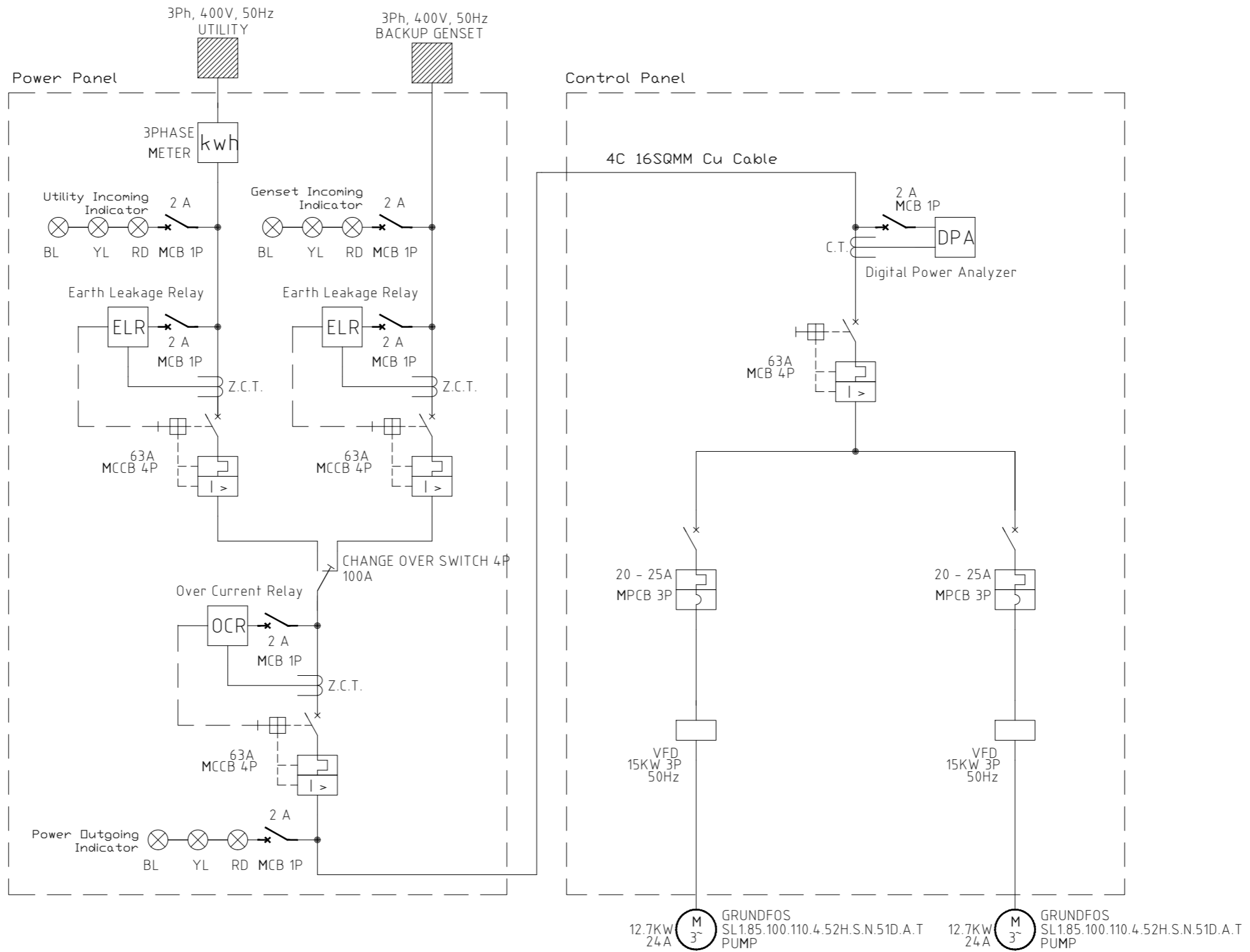
DRAWING CONTENTS  
 Storm Water Pumpstation Single Line Diagram  
 PS3

DATE: 13th June 2021

DRAWN BY  
 YAAMEEN SHAMEEM (MEA/2020/1964)  
 NTH SIGMA PVT LTD  
 info@nthsigma.com | +9607725919

SIGNATURE *Yaameen*





RAKENTA LLP  
 Bodurasgefaanu Magu  
 Male', Maldives  
 rakenta@gmail.com

PROJECT  
 Design of Storm Water Management Facilities at  
 Sh. Milandhoo

DRAWING NUMBER: D-E1-04

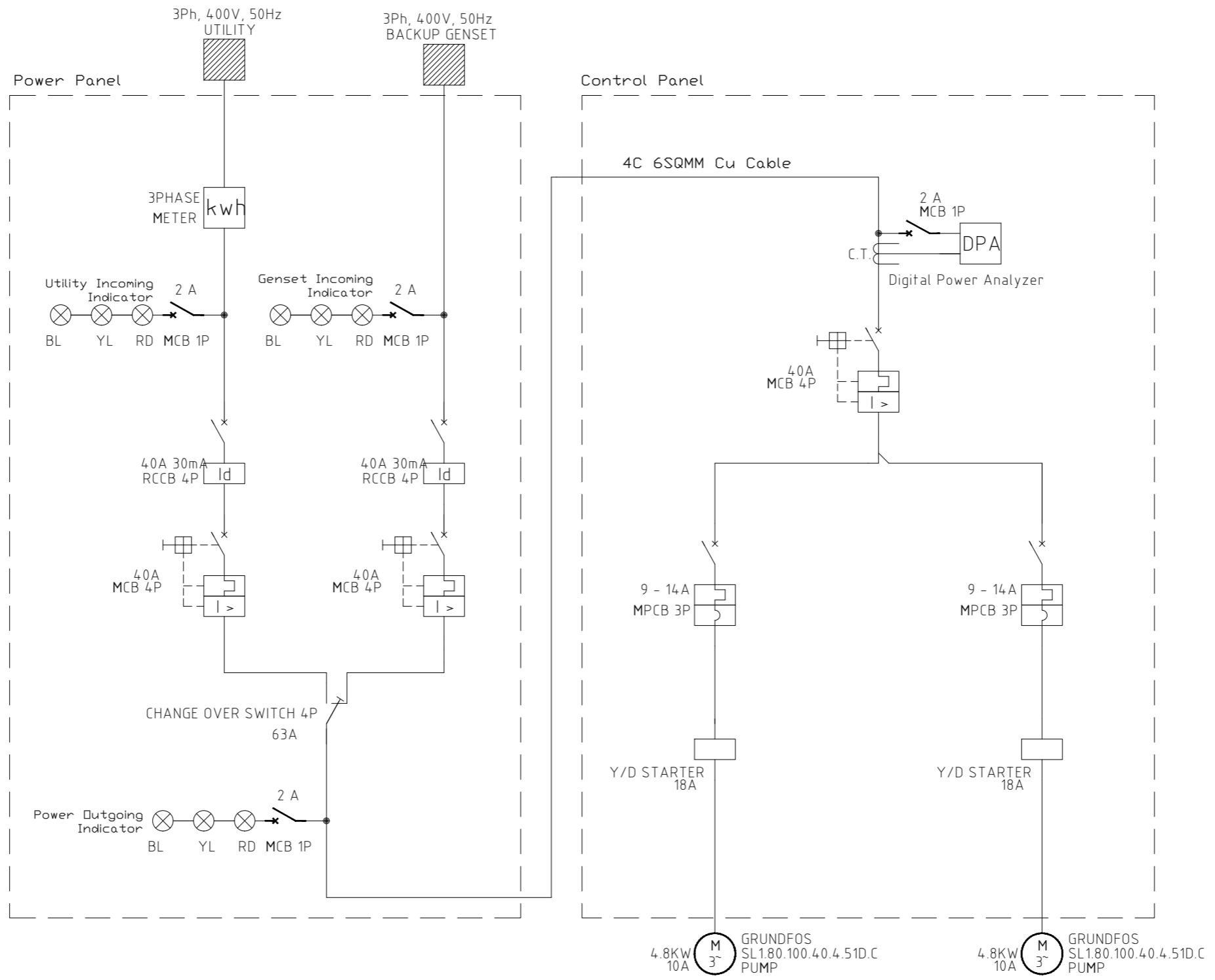
DRAWING CONTENTS  
 Storm Water Pumpstation Single Line Diagram  
 PS4

DATE: 8th July 2021

DRAWN BY  
 YAAMEEN SHAMEEM (MEA/2020/1964)  
 NTH SIGMA PVT LTD  
 info@nthsigma.com | +9607725919

SIGNATURE *Yaameen*





RAKENTA LLP  
 Bodurasgefaanu Magu  
 Male', Maldives  
 rakenta@gmail.com

PROJECT  
 Design of Storm Water Management Facilities at  
 Sh. Milandhoo

DRAWING NUMBER: D-E1-05

DRAWING CONTENTS  
 Storm Water Pumpstation Single Line Diagram  
 PS5

DATE: 13th June 2021

DRAWN BY  
 YAAMEEN SHAMEEM (MEA/2020/1964)  
 NTH SIGMA PVT LTD  
 info@nthsigma.com | +9607725919

SIGNATURE *Yaameen*





**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

**Qty. | Description**

1 | SL1.85.100.110.4.52H.S.N.51D.A.T



Note! Product picture may differ from actual product

Product No.: [99776058](#)

Non-self-priming, single-stage, centrifugal pump designed for handling wastewater, process water and unscreened raw sewage.

The pump is designed for intermittent and continuous operations in submerged installation. The revolutionary S-tube® impeller provides free spherical passage of solids up to 85 mm and suitable for wastewater with a dry matter content of up to 3 %.

A SmartTrim impeller clearance adjustment system makes it possible to maintain maximum performance. For installation on auto coupling, the Grundfos SmartSeal gasket system provides a leak-proof connection. The pump comes with a high efficient Grundfos motor built on IE3 motor components.

Controls:

Moisture sensor: with moisture sensors

Liquid:

Liquid temperature range: 0 .. 40 °C

Selected liquid temperature: 20 °C

Density: 998.2 kg/m<sup>3</sup>

Technical:

Actual calculated flow: 39.1 l/s

Resulting head of the pump: 18 m

Type of impeller: S-TUBE

Maximum particle size: 85 mm

Primary shaft seal: SIC-SIC

Secondary shaft seal: SIC-CARBON

Curve tolerance: ISO9906:2012 3B

Materials:

Pump housing: Cast iron  
EN 1561 EN-GJL-250

Impeller: Cast iron  
EN 1561 EN-GJL-250

Motor: Cast iron



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

**Qty. Description**

EN 1561 EN-GJL-250

**Installation:**

Maximum ambient temperature: 40 °C  
Flange standard: DIN  
Pump inlet: DN 150  
Pump outlet: DN 100  
Pressure rating: PN 10  
Maximum installation depth: 20 m  
Auto-coupling: 96090994  
Base stand: 96102314  
Frame range: 52

**Electrical data:**

Power input - P1: 12.7 kW  
Rated power - P2: 11 kW  
Mains frequency: 50 Hz  
Rated voltage: 3 x 380-415/660-690 V  
Voltage tolerance: +10/-10 %  
Max starts per. hour: 20  
Rated current: 24-22/14-13 A  
Maximum current consumption: 23 A  
Starting current: 210/116 A  
Rated current at no load: 10.4 A  
Rated speed: 1481 rpm  
Motor efficiency at full load: 86 %  
Motor efficiency at 3/4 load: 86 %  
Motor efficiency at 1/2 load: 84 %  
Number of poles: 4  
Start. method: star/delta  
Enclosure class (IEC 34-5): IP68  
Insulation class (IEC 85): H  
Explosion proof: no  
Length of cable: 15 m  
Cable type: S1BN8-F  
Winding resistance: 0.690 Ohm  
Cos phi 1/1: 0.82  
Cos phi 1/2: 0.70  
Cos phi 3/4: 0.76

**Others:**

Net weight: 307 kg



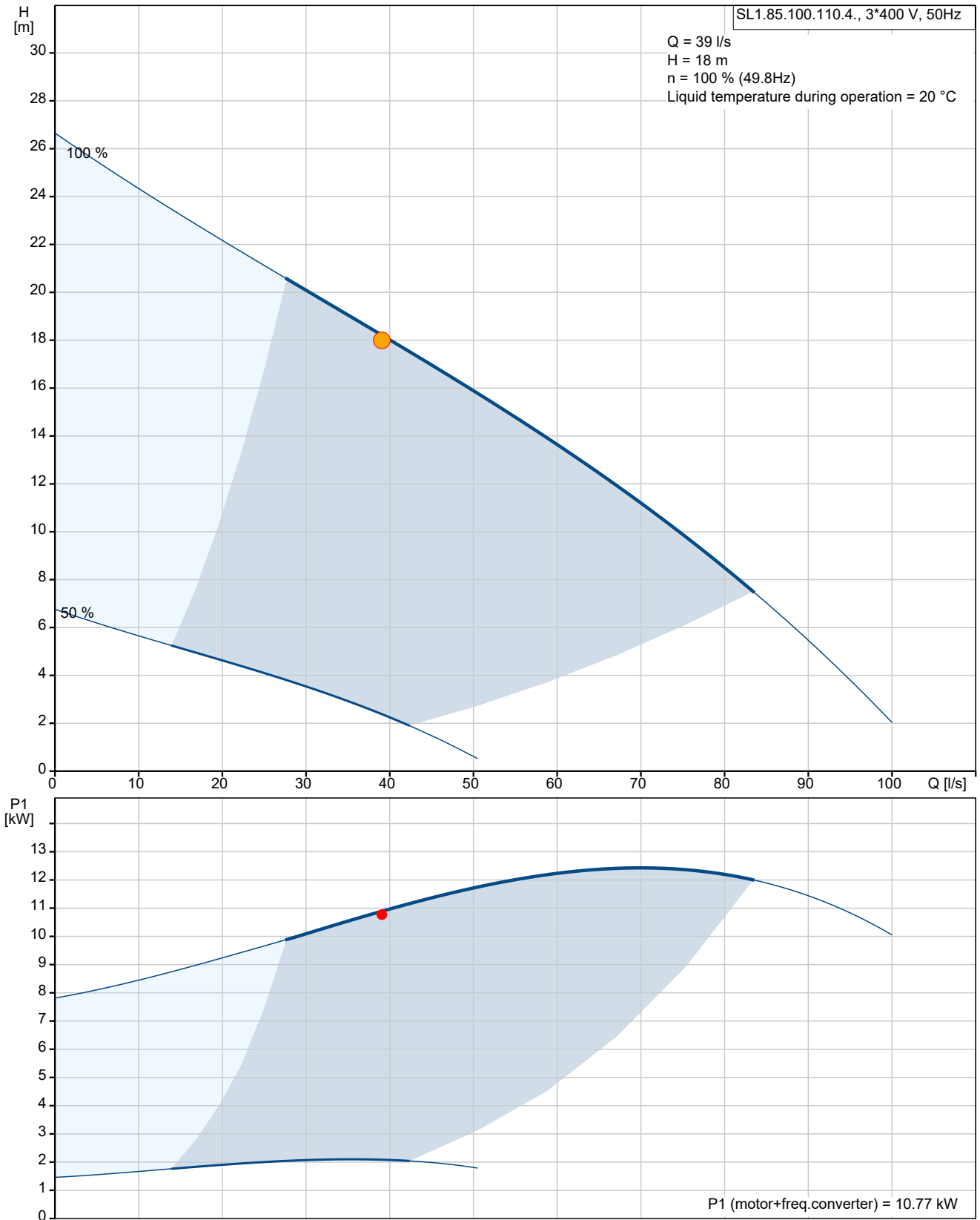


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

### 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



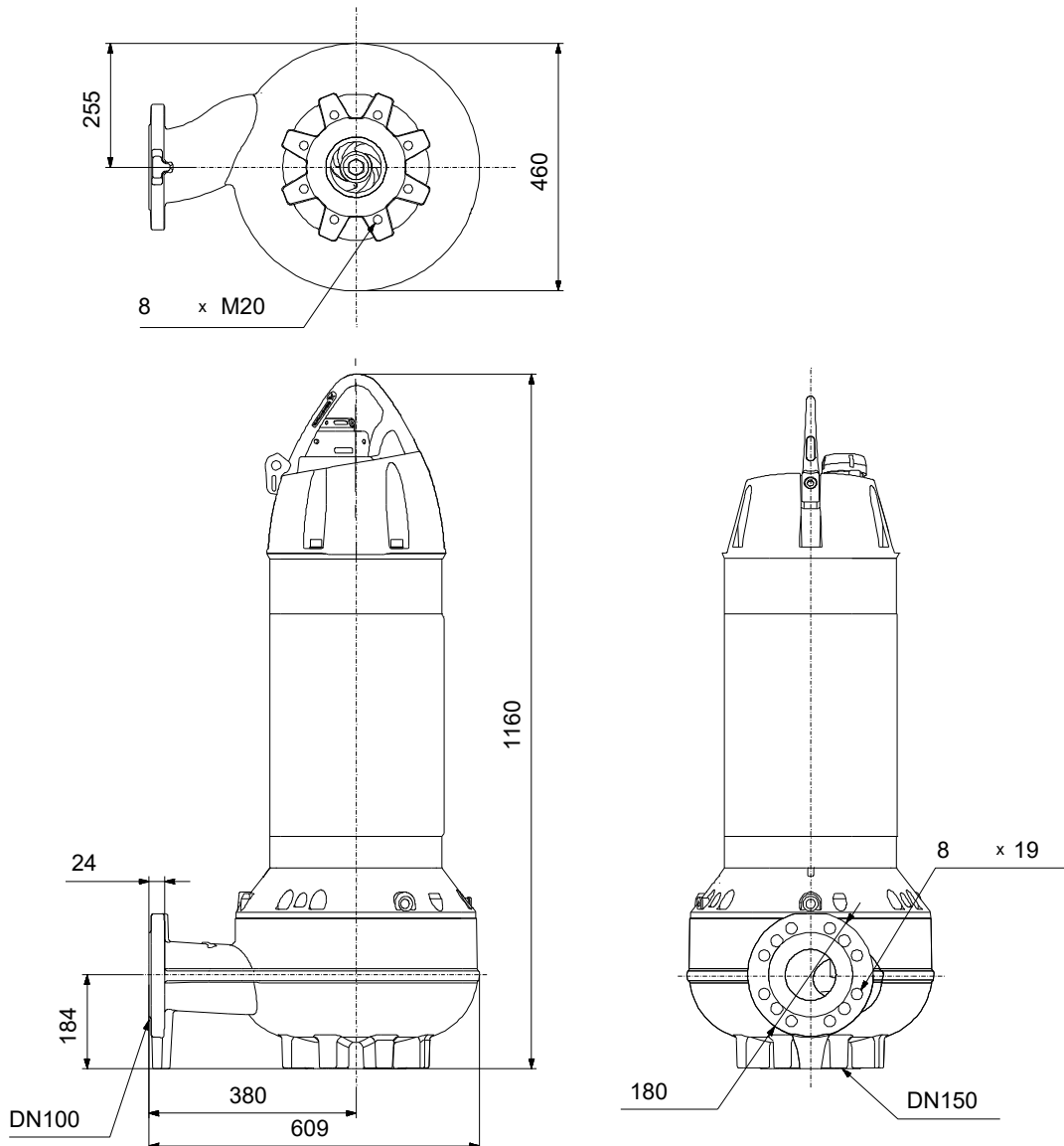


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

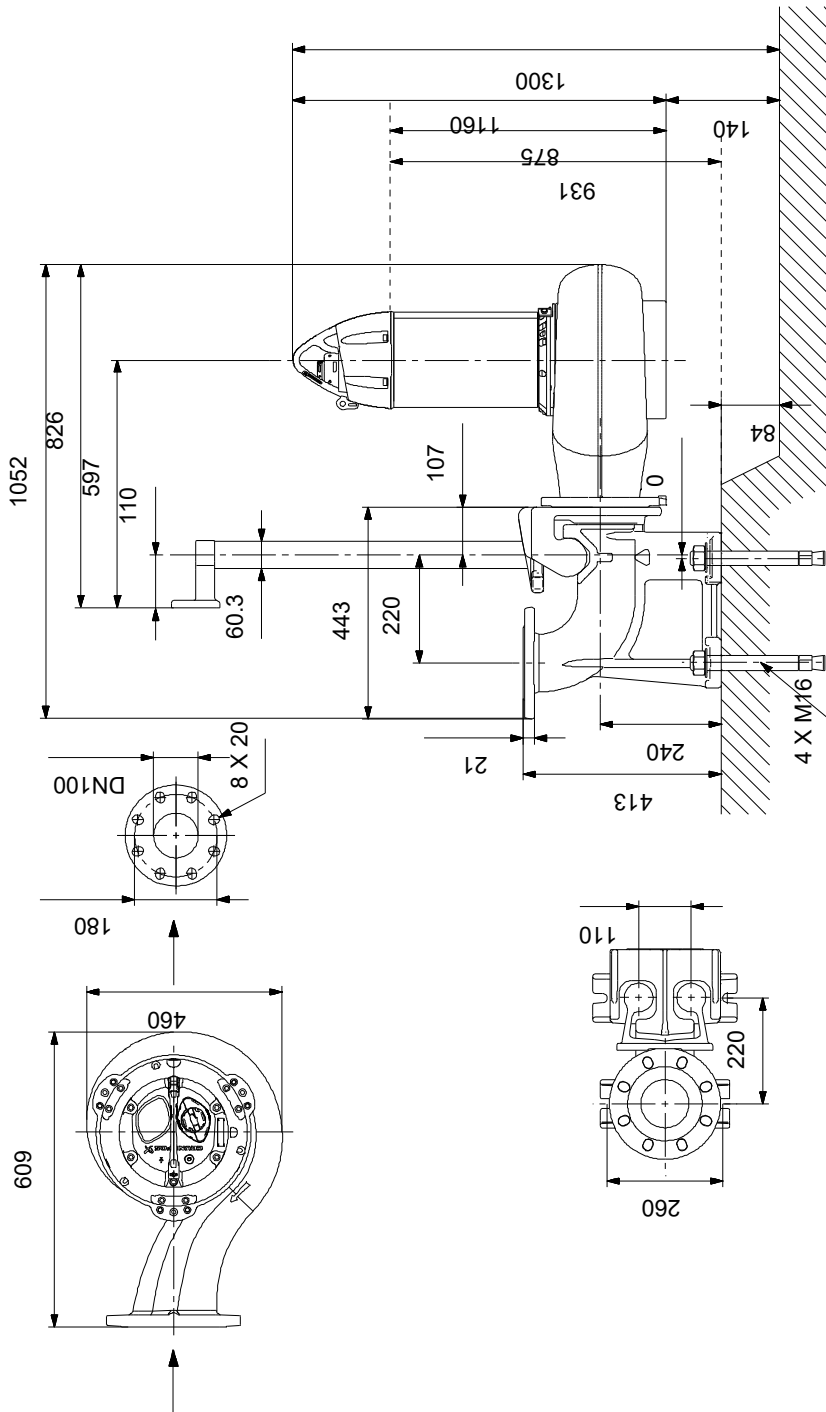


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

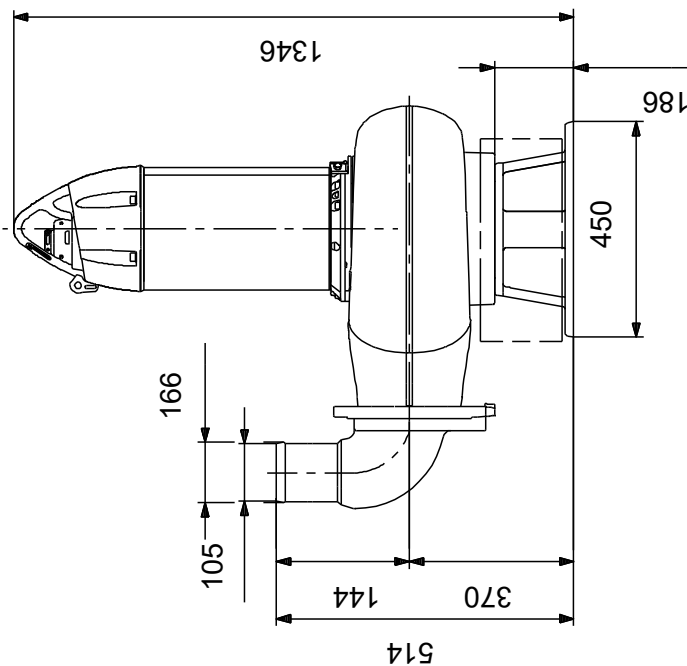
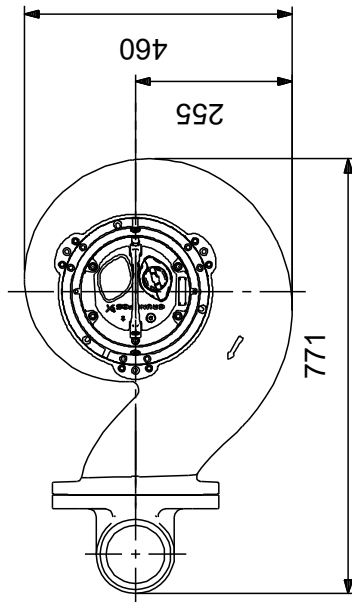


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS1

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz

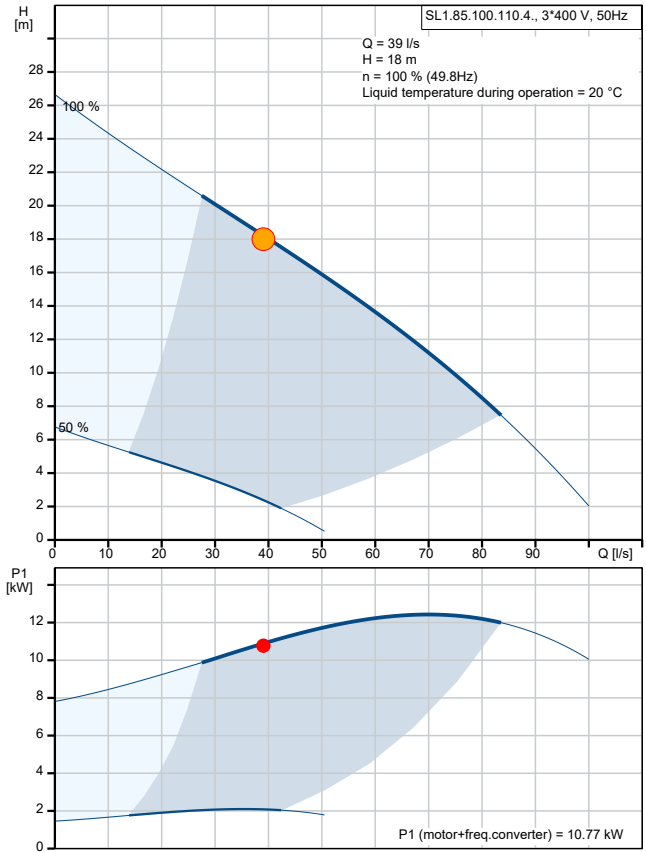
### Input

#### Load Profile

	1	
Flow	100	%
Time	1000	h/a

### Sizing result

Flow	39.1	l/s
Head	18	m
Power P1	10.77	kW
Power P2 required in the duty point	8.963	kW
Eta pump	76.9	%
Eta pump+motor	66.1	% =Eta pump * Eta motor
Energy consumption	10771	kWh/Year
Life cycle cost	43867	EUR /10Years





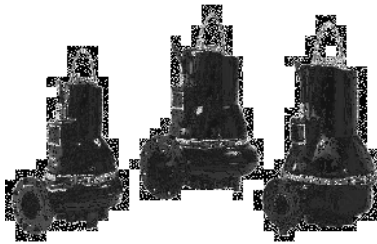
**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

Qty.	Description
------	-------------

1	SL1.80.100.55.4.51D.C
---	-----------------------



Note! Product picture may differ from actual product

Product No.: [98626028](#)

Non-self-priming, single-stage, centrifugal pump designed for handling wastewater, process water and unscreened raw sewage.

The pump is designed for intermittent and continuous operations in submerged installation. The revolutionary S-tube® impeller provides free spherical passage of solids up to 80 mm and is suitable for wastewater with a dry matter content of up to 3 %. A unique stainless-steel clamp assembling system enables quick and easy disassembly of the pump from the motor unit for service and inspection. No special tools are required. Pipework connection is via a DIN flange.

**Controls:**

Moisture sensor: with moisture sensors  
Water-in-oil sensor: without water-in-oil sensor

**Liquid:**

Pumped liquid: Water  
Maximum liquid temperature: 40 °C  
Selected liquid temperature: 20 °C  
Density: 998.2 kg/m<sup>3</sup>

**Technical:**

Actual calculated flow: 41.2 l/s  
Resulting head of the pump: 9.256 m  
Type of impeller: S-TUBE  
Maximum particle size: 80 mm  
Primary shaft seal: SIC/SIC  
Secondary shaft seal: CARBON/CERAMICS  
Approvals on nameplate: CE EN12050-1  
Curve tolerance: ISO9906:2012 3B2

**Materials:**

Pump housing: Cast iron  
EN 5.1301 EN-GJL-250  
Impeller: Cast iron  
EN 5.1301 EN-GJL-250  
Motor: EN-GJL-250

**Installation:**

Maximum ambient temperature: 40 °C  
Flange standard: DIN  
Pump inlet: 100



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

Qty.	Description
	Pump outlet: 100
	Pressure rating: PN 10
	Maximum installation depth: 20 m
	Auto-coupling: 96090994
	Frame range: C
	Electrical data:
	Power input - P1: 6.3 kW
	Rated power - P2: 5.5 kW
	Mains frequency: 50 Hz
	Rated voltage: 3 x 380-415 V
	Voltage tolerance: +10/-10 %
	Max starts per. hour: 20
	Rated current: 11.2-10.6 A
	Starting current: 81 A
	Cos phi - power factor: 0.85
	Cos phi - p.f. at 3/4 load: 0.80
	Cos phi - p.f. at 1/2 load: 0.70
	Rated speed: 1463 rpm
	Motor efficiency at full load: 89.1 %
	Motor efficiency at 3/4 load: 89.6 %
	Motor efficiency at 1/2 load: 89.0 %
	Number of poles: 4
	Start. method: star/delta
	Enclosure class (IEC 34-5): IP68
	Insulation class (IEC 85): H
	Explosion proof: no
	Length of cable: 10 m
	Cable type: LYNIFLEX
	Others:
	Net weight: 160 kg
	Finnish LVI No.: 4836122

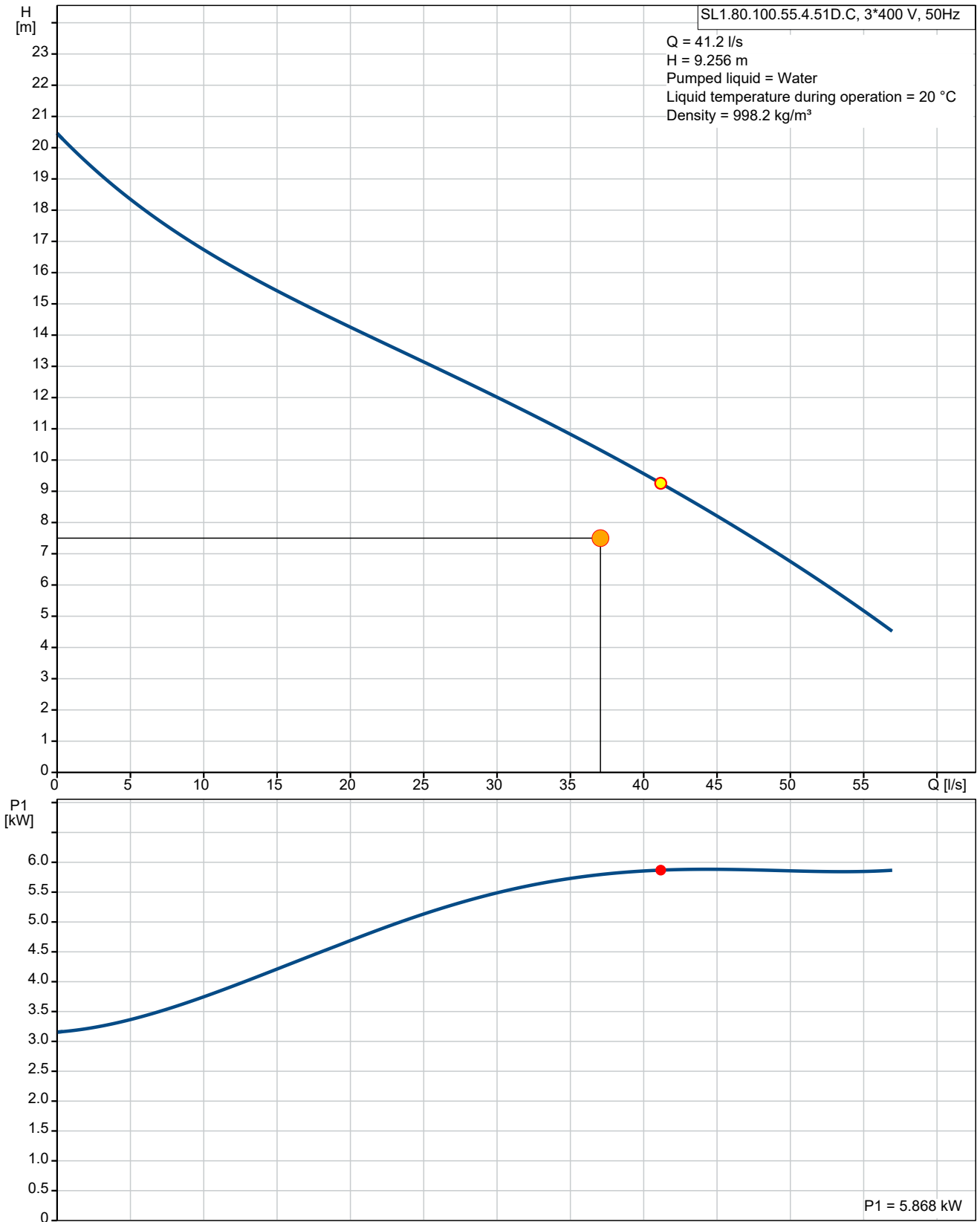


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626028 SL1.80.100.55.4.51D.C 50 Hz





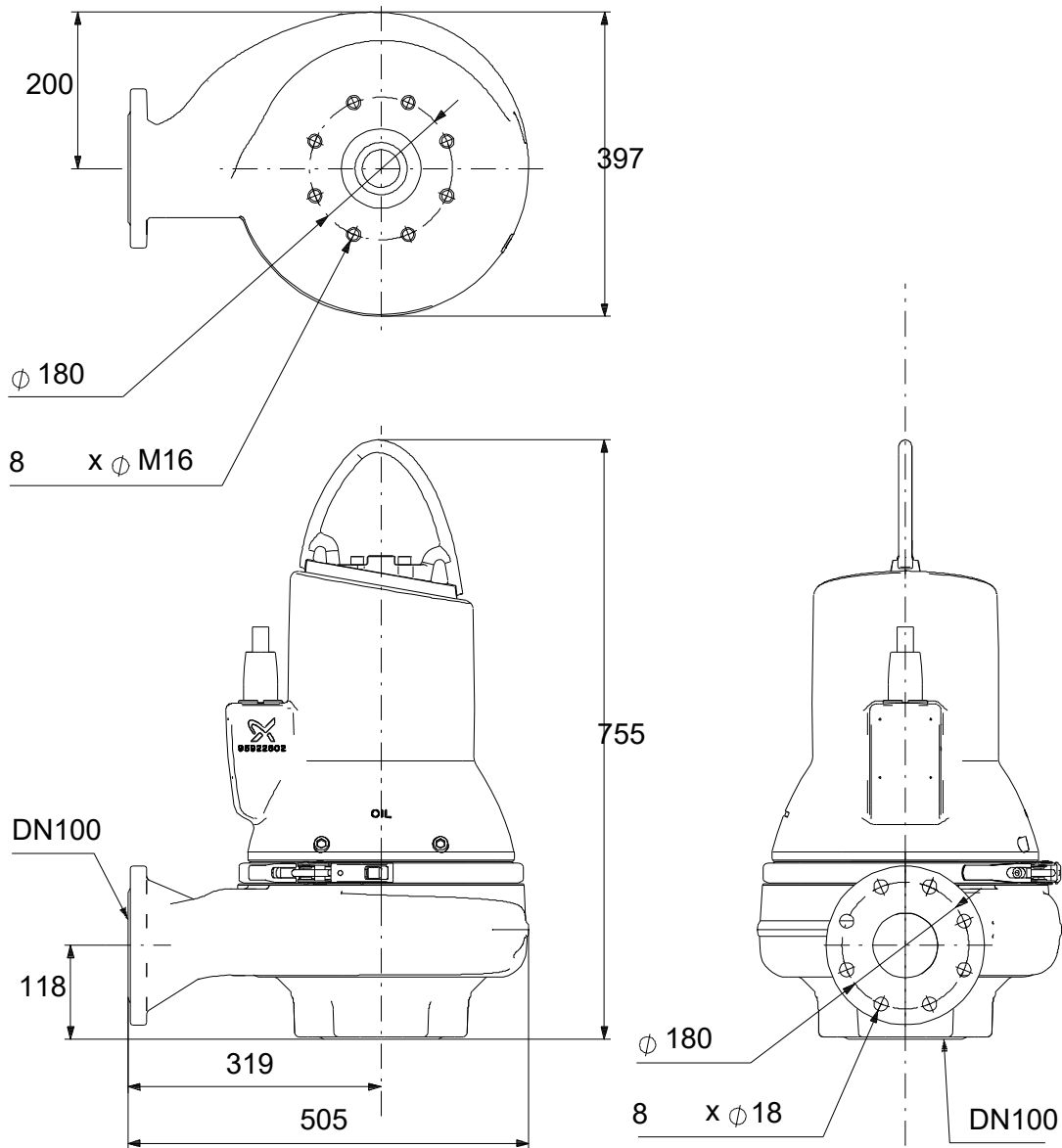


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626028 SL1.80.100.55.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

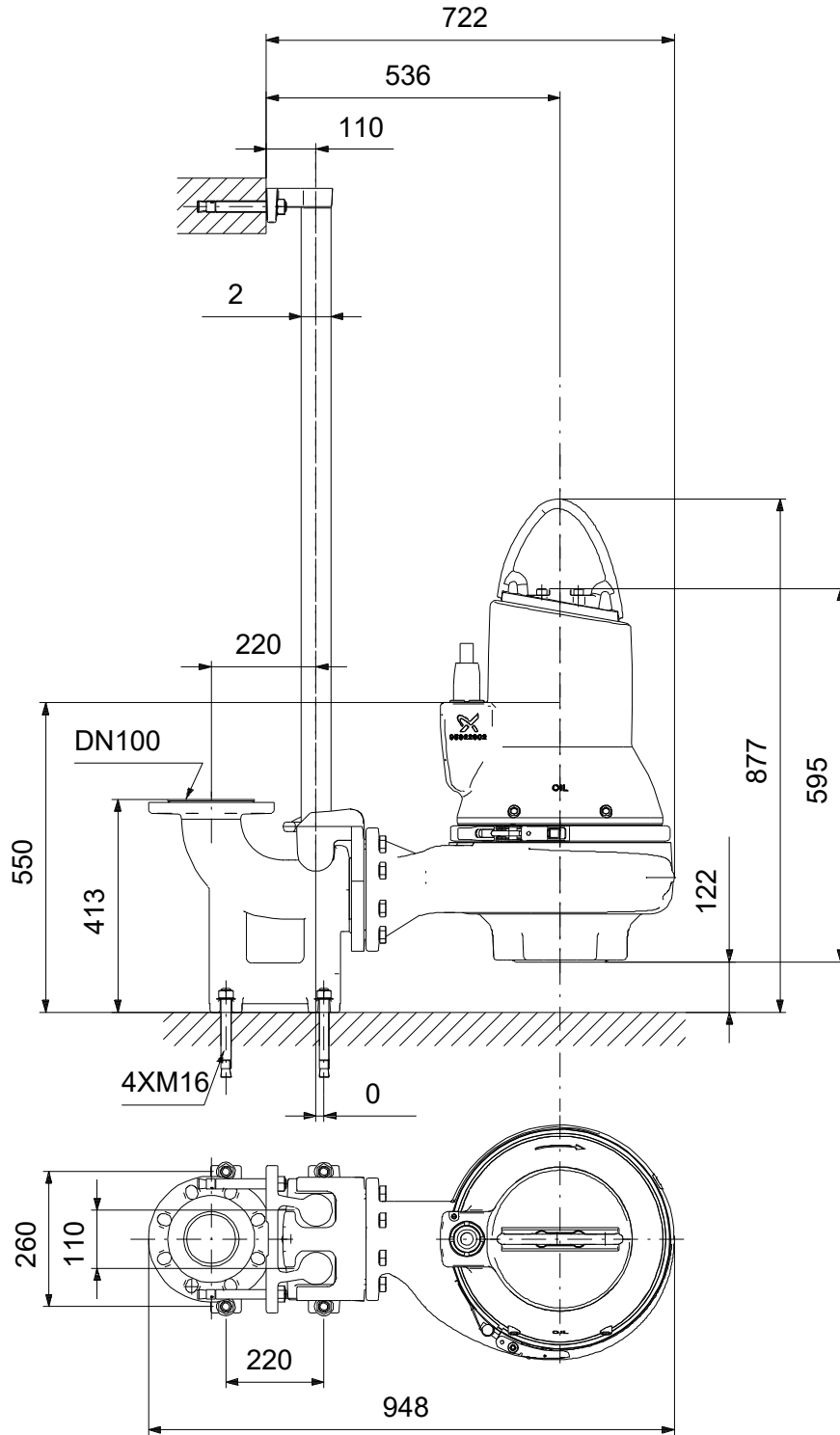


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626028 SL1.80.100.55.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

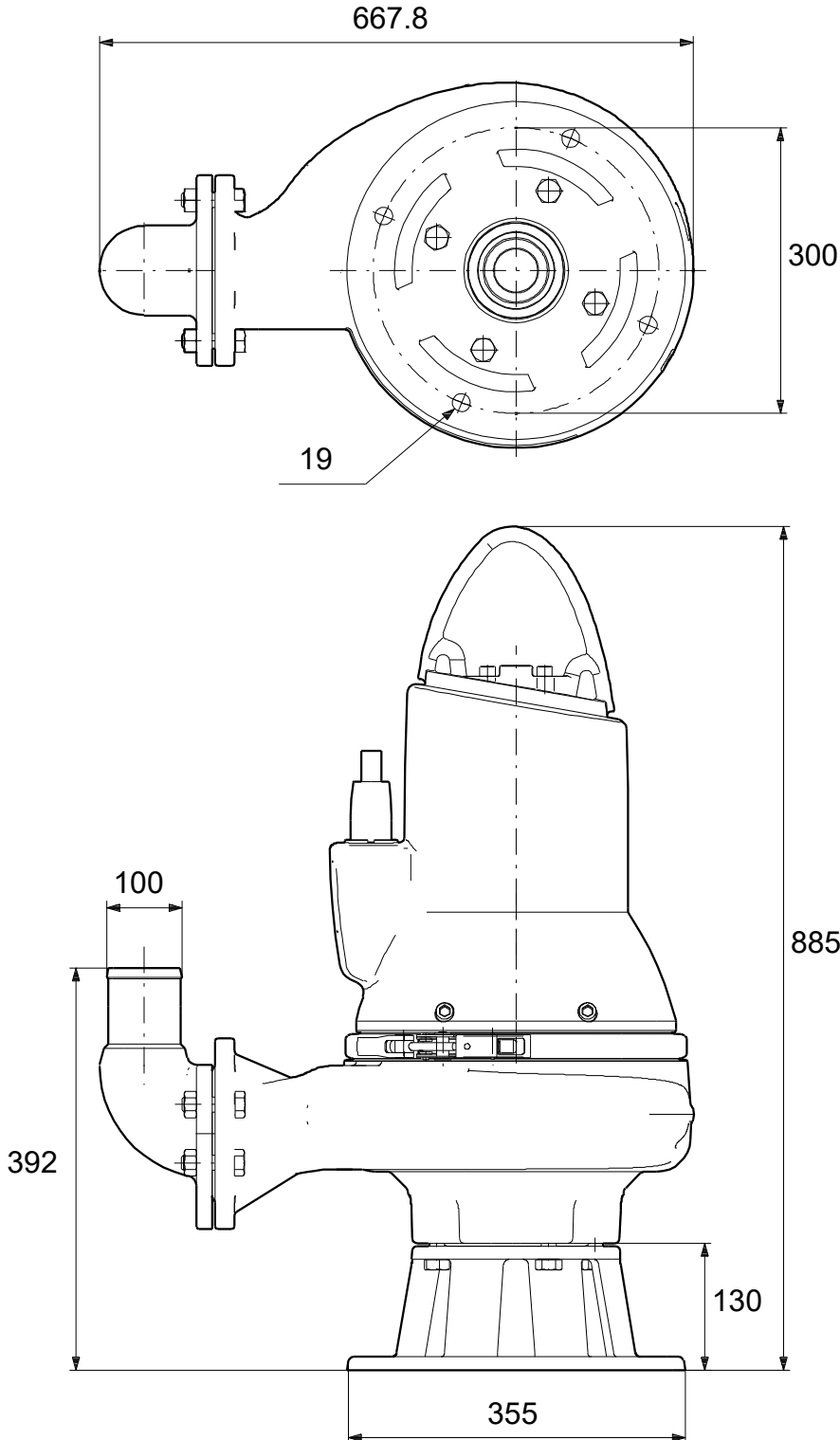


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626028 SL1.80.100.55.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS2

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626028 SL1.80.100.55.4.51D.C 50 Hz

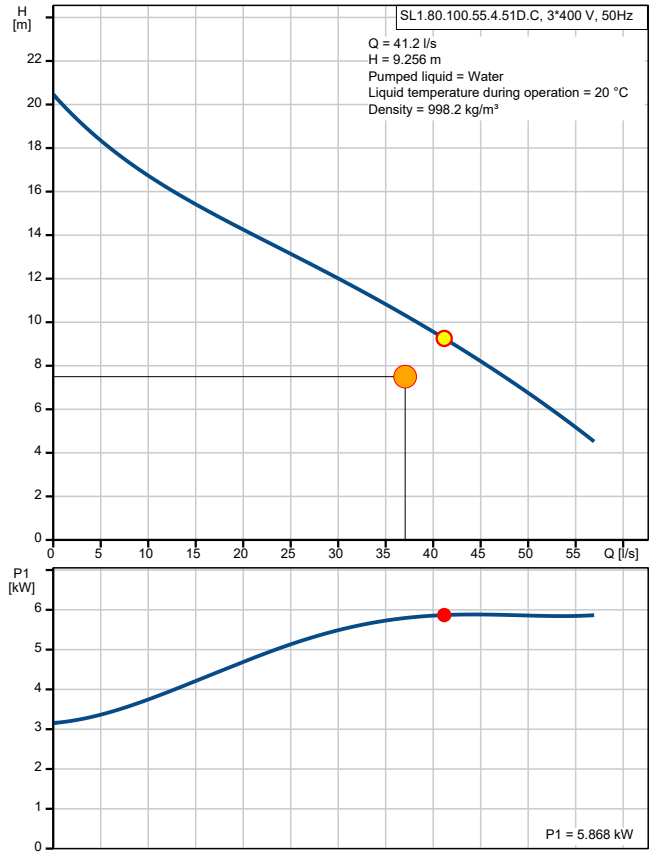
### Input

#### Load Profile

	1	
Flow	100	%
Time	1000	h/a

### Sizing result

Flow	41.2	l/s
Head	9.256	m
Power P1	5.868	kW
Power P2 required in the duty point	5.234	kW
Eta pump	71.4	%
Eta pump+motor	63.7	% =Eta pump * Eta motor
Energy consumption	5282	kWh/Year
Life cycle cost	18593	EUR /10Years





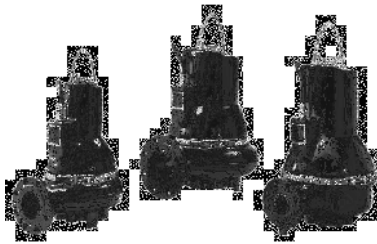
**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS3

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

Qty.	Description
------	-------------

1	SL1.80.100.75.4.51D.C
---	-----------------------



Note! Product picture may differ from actual product

Product No.: [98626066](#)

Non-self-priming, single-stage, centrifugal pump designed for handling wastewater, process water and unscreened raw sewage.

The pump is designed for intermittent and continuous operations in submerged installation. The revolutionary S-tube® impeller provides free spherical passage of solids up to 80 mm and is suitable for wastewater with a dry matter content of up to 3 %. A unique stainless-steel clamp assembling system enables quick and easy disassembly of the pump from the motor unit for service and inspection. No special tools are required. Pipework connection is via a DIN flange.

**Controls:**

Moisture sensor: with moisture sensors  
Water-in-oil sensor: without water-in-oil sensor

**Liquid:**

Pumped liquid: Water  
Maximum liquid temperature: 40 °C  
Selected liquid temperature: 20 °C  
Density: 998.2 kg/m<sup>3</sup>

**Technical:**

Actual calculated flow: 36.3 l/s  
Resulting head of the pump: 15.16 m  
Type of impeller: S-TUBE  
Maximum particle size: 80 mm  
Primary shaft seal: SIC/SIC  
Secondary shaft seal: CARBON/CERAMICS  
Approvals on nameplate: CE EN12050-1  
Curve tolerance: ISO9906:2012 3B2

**Materials:**

Pump housing: Cast iron  
EN 5.1301 EN-GJL-250  
Impeller: Cast iron  
EN 5.1301 EN-GJL-250  
Motor: EN-GJL-250

**Installation:**

Maximum ambient temperature: 40 °C  
Flange standard: DIN  
Pump inlet: 100



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS3

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

Qty.	Description
	Pump outlet: 100
	Pressure rating: PN 10
	Maximum installation depth: 20 m
	Auto-coupling: 96090994
	Frame range: D
	Electrical data:
	Power input - P1: 8.4 kW
	Rated power - P2: 7.5 kW
	Mains frequency: 50 Hz
	Rated voltage: 3 x 380-415 V
	Voltage tolerance: +10/-10 %
	Max starts per. hour: 20
	Rated current: 15.1-14.4 A
	Starting current: 111 A
	Cos phi - power factor: 0.83
	Cos phi - p.f. at 3/4 load: 0.78
	Cos phi - p.f. at 1/2 load: 0.68
	Rated speed: 1462 rpm
	Motor efficiency at full load: 90.5 %
	Motor efficiency at 3/4 load: 91.1 %
	Motor efficiency at 1/2 load: 90.7 %
	Number of poles: 4
	Start. method: star/delta
	Enclosure class (IEC 34-5): IP68
	Insulation class (IEC 85): H
	Explosion proof: no
	Length of cable: 10 m
	Cable type: LYNIFLEX
	Others:
	Net weight: 197 kg
	Finnish LVI No.: 4836123

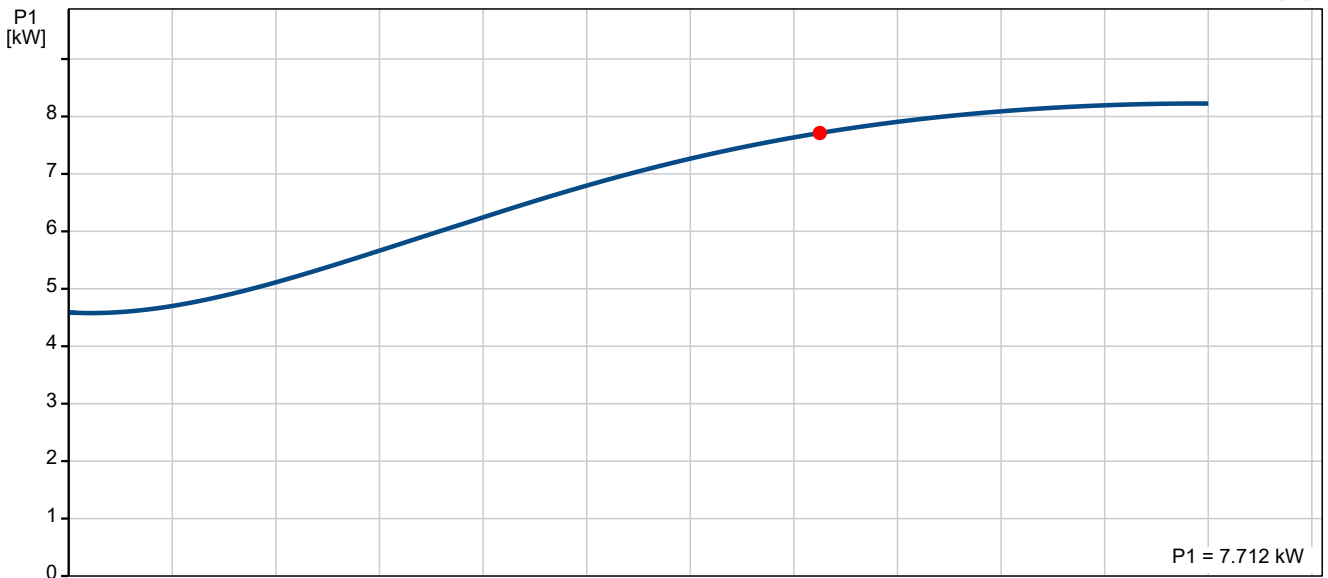
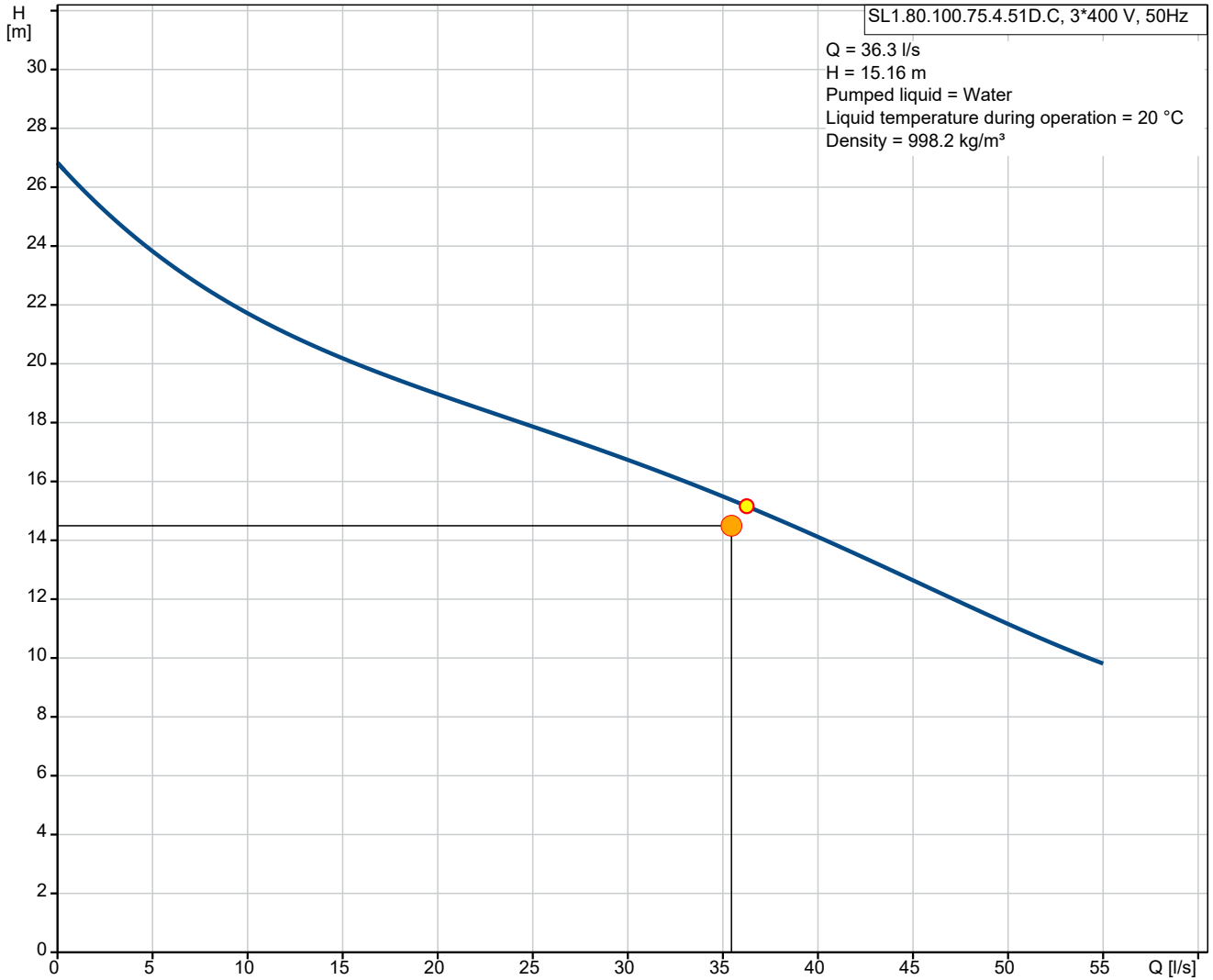


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS3

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626066 SL1.80.100.75.4.51D.C 50 Hz



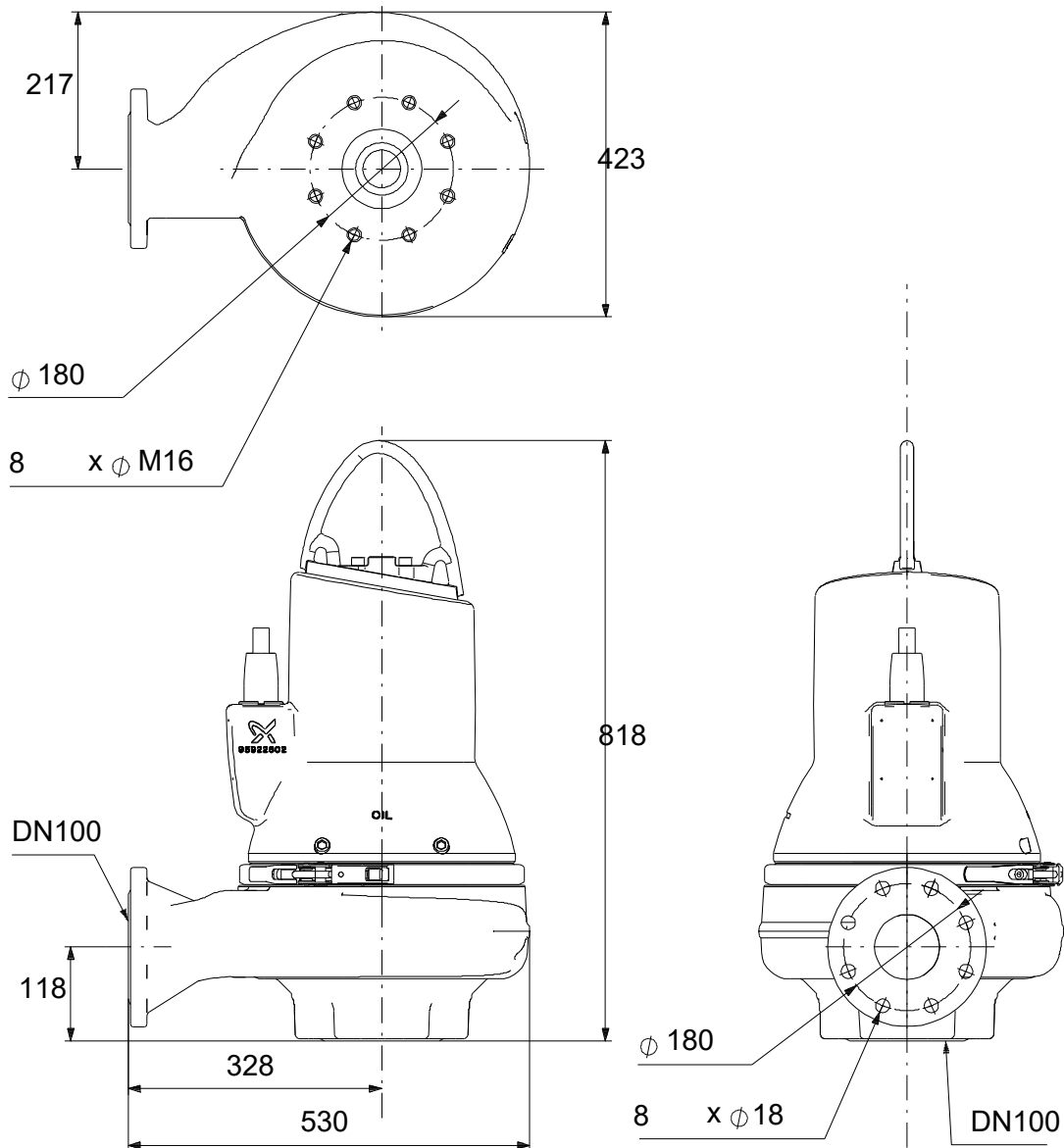


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS3

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626066 SL1.80.100.75.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.



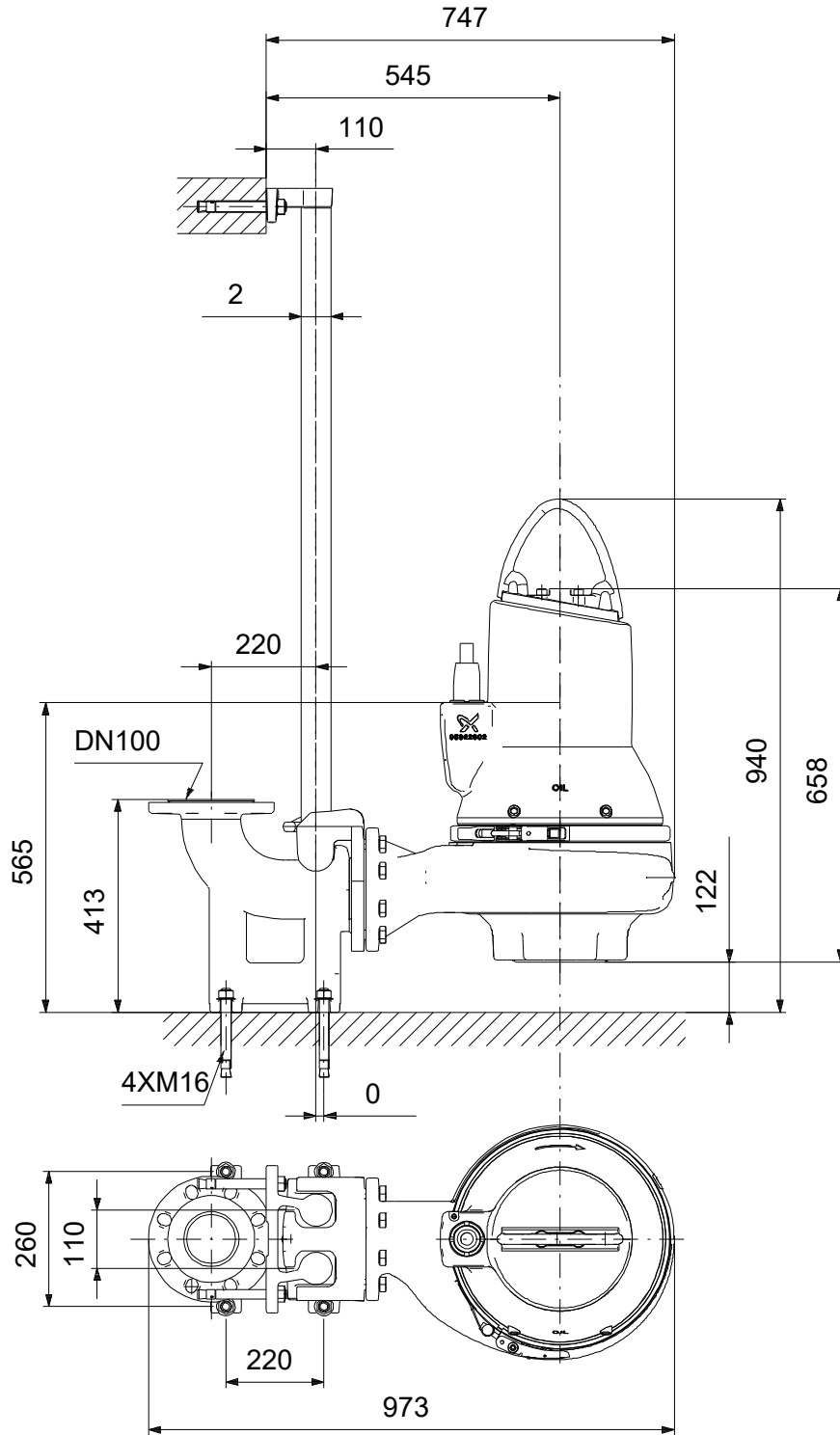


Company name: NTH SIGMA PVT LTD  
Created by: Yaameen Shameem (MEA/2020/1964)  
Phone: +9607725919  
Email: info@nthsigma.com  
Date: 12/06/2021

Project: Sh. Milandhoo Storm Water Design  
Reference Number: PS3

Client: RAKENTA LLP  
Client Number: -  
Contact: +9607763599

## 98626066 SL1.80.100.75.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

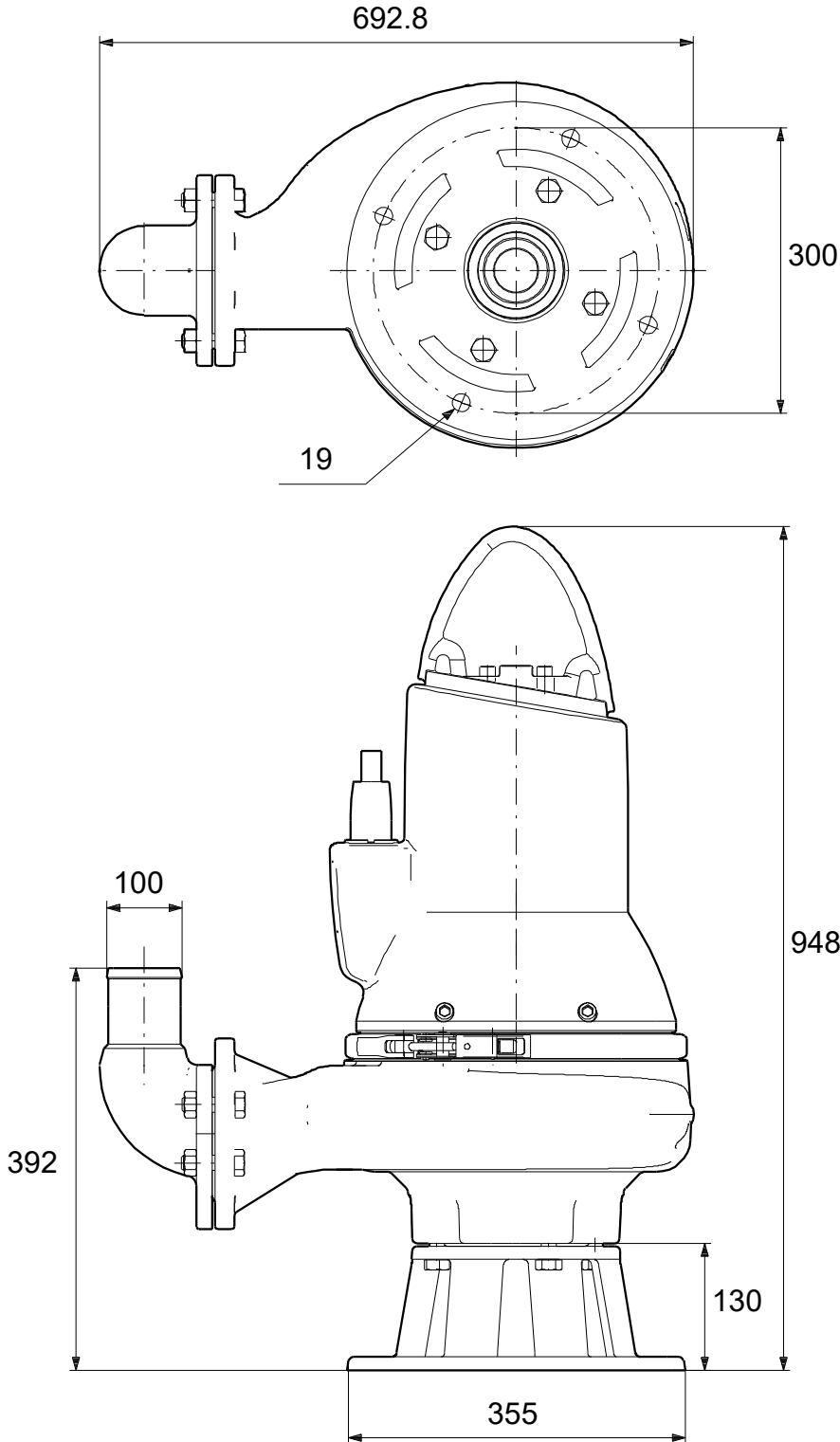


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS3

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626066 SL1.80.100.75.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS3

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626066 SL1.80.100.75.4.51D.C 50 Hz

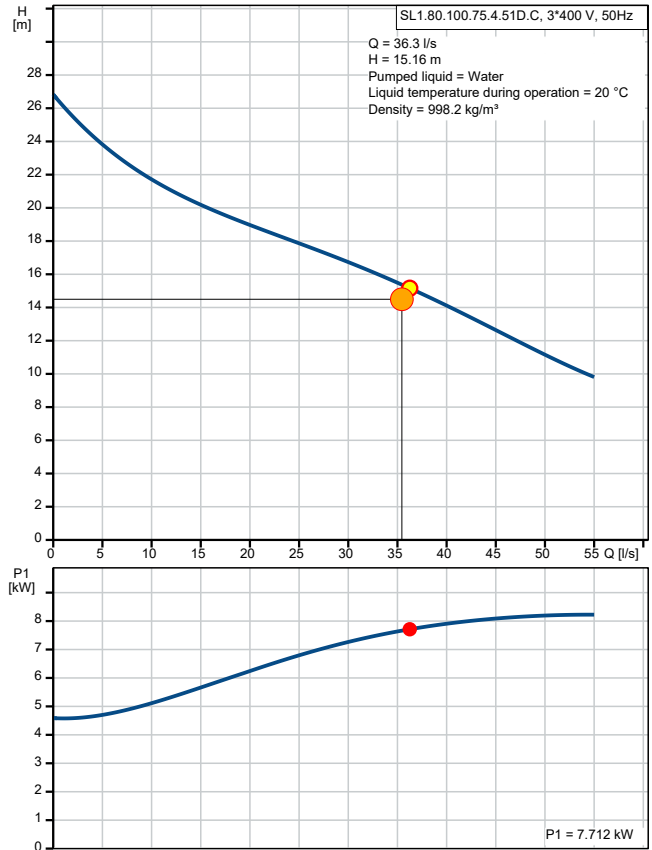
### Input

#### Load Profile

	1	
Flow	100	%
Time	1000	h/a

### Sizing result

Flow	36.3	l/s
Head	15.16	m
Power P1	7.712	kW
Power P2 required in the duty point	6.992	kW
Eta pump	77.1	%
Eta pump+motor	69.9	% =Eta pump * Eta motor
Energy consumption	7542	kWh/Year
Life cycle cost	24366	EUR /10Years





**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

**Qty. | Description**

1 SL1.85.100.110.4.52H.S.N.51D.A.T



**Note! Product picture may differ from actual product**

Product No.: [99776058](#)

Non-self-priming, single-stage, centrifugal pump designed for handling wastewater, process water and unscreened raw sewage.

The pump is designed for intermittent and continuous operations in submerged installation. The revolutionary S-tube® impeller provides free spherical passage of solids up to 85 mm and suitable for wastewater with a dry matter content of up to 3 %.

A SmartTrim impeller clearance adjustment system makes it possible to maintain maximum performance. For installation on auto coupling, the Grundfos SmartSeal gasket system provides a leak-proof connection. The pump comes with a high efficient Grundfos motor built on IE3 motor components.

Controls:

Moisture sensor: with moisture sensors

Liquid:

Liquid temperature range: 0 .. 40 °C

Selected liquid temperature: 20 °C

Density: 998.2 kg/m<sup>3</sup>

Technical:

Actual calculated flow: 38.3 l/s

Resulting head of the pump: 17.5 m

Type of impeller: S-TUBE

Maximum particle size: 85 mm

Primary shaft seal: SIC-SIC

Secondary shaft seal: SIC-CARBON

Curve tolerance: ISO9906:2012 3B

Materials:

Pump housing: Cast iron  
EN 1561 EN-GJL-250

Impeller: Cast iron  
EN 1561 EN-GJL-250

Motor: Cast iron



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

**Qty. Description**

EN 1561 EN-GJL-250

**Installation:**

Maximum ambient temperature: 40 °C  
Flange standard: DIN  
Pump inlet: DN 150  
Pump outlet: DN 100  
Pressure rating: PN 10  
Maximum installation depth: 20 m  
Auto-coupling: 96090994  
Base stand: 96102314  
Frame range: 52

**Electrical data:**

Power input - P1: 12.7 kW  
Rated power - P2: 11 kW  
Mains frequency: 50 Hz  
Rated voltage: 3 x 380-415/660-690 V  
Voltage tolerance: +10/-10 %  
Max starts per. hour: 20  
Rated current: 24-22/14-13 A  
Maximum current consumption: 23 A  
Starting current: 210/116 A  
Rated current at no load: 10.4 A  
Rated speed: 1481 rpm  
Motor efficiency at full load: 86 %  
Motor efficiency at 3/4 load: 86 %  
Motor efficiency at 1/2 load: 84 %  
Number of poles: 4  
Start. method: star/delta  
Enclosure class (IEC 34-5): IP68  
Insulation class (IEC 85): H  
Explosion proof: no  
Length of cable: 15 m  
Cable type: S1BN8-F  
Winding resistance: 0.690 Ohm  
Cos phi 1/1: 0.82  
Cos phi 1/2: 0.70  
Cos phi 3/4: 0.76

**Others:**

Net weight: 307 kg

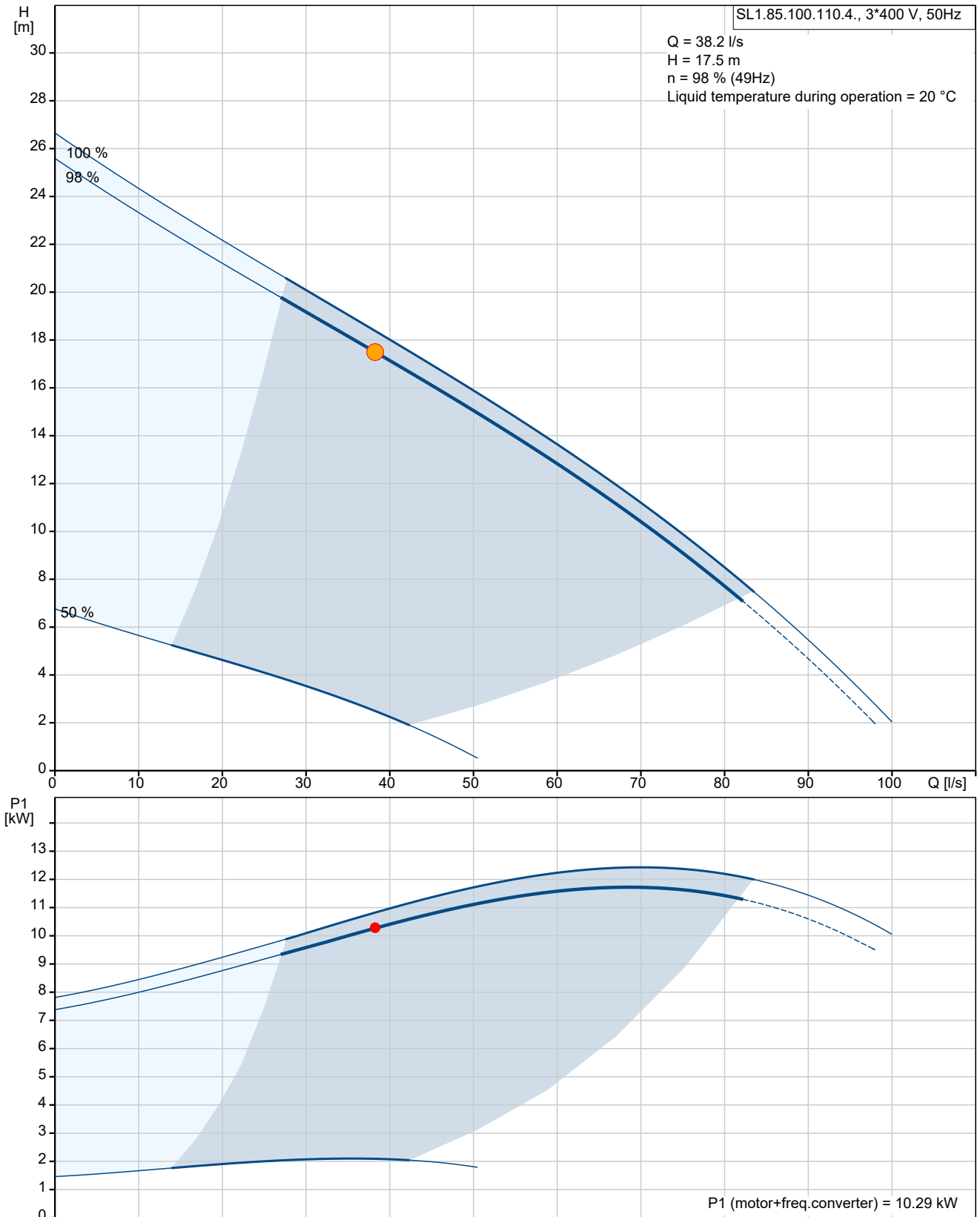


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

### 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



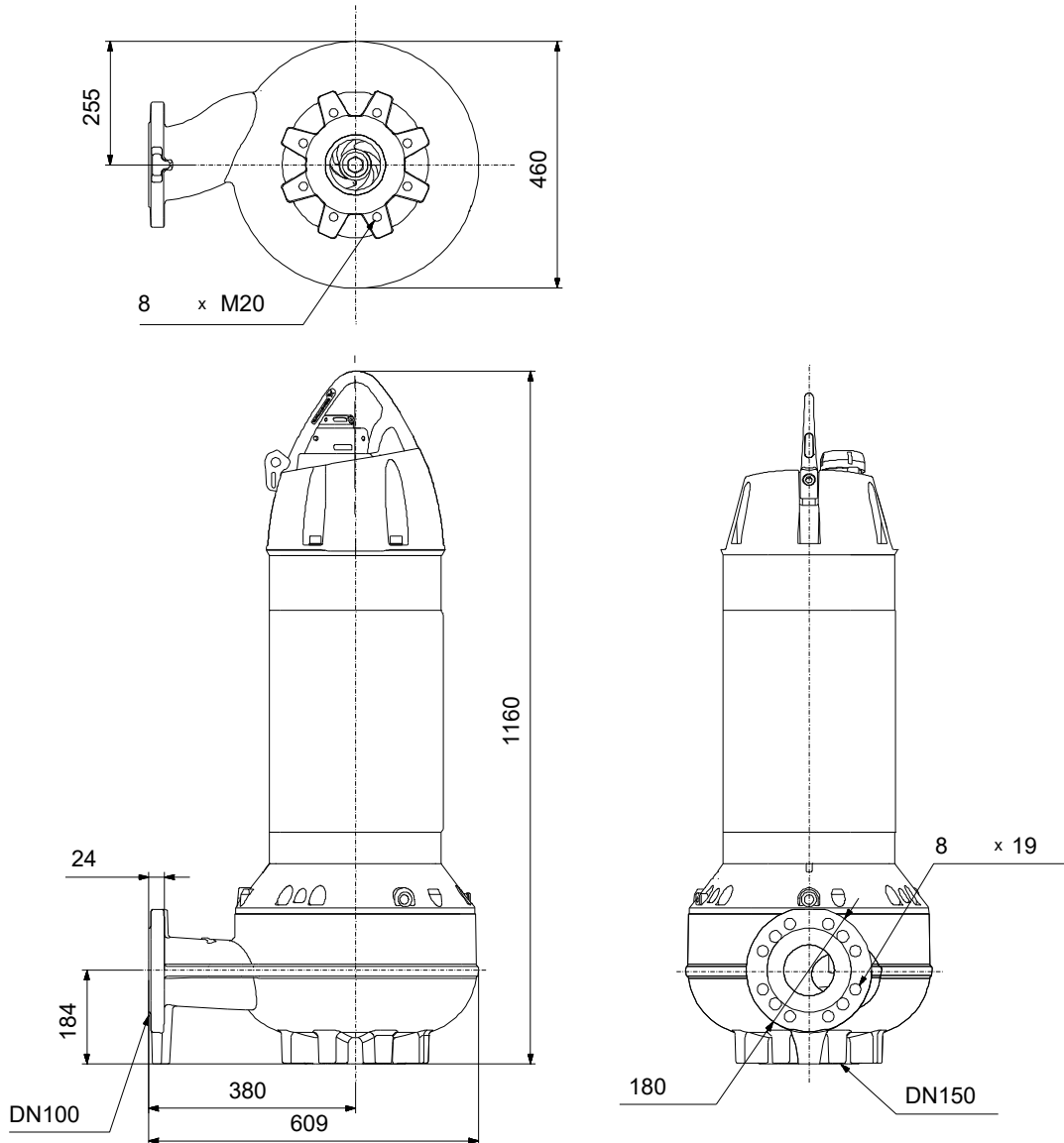


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

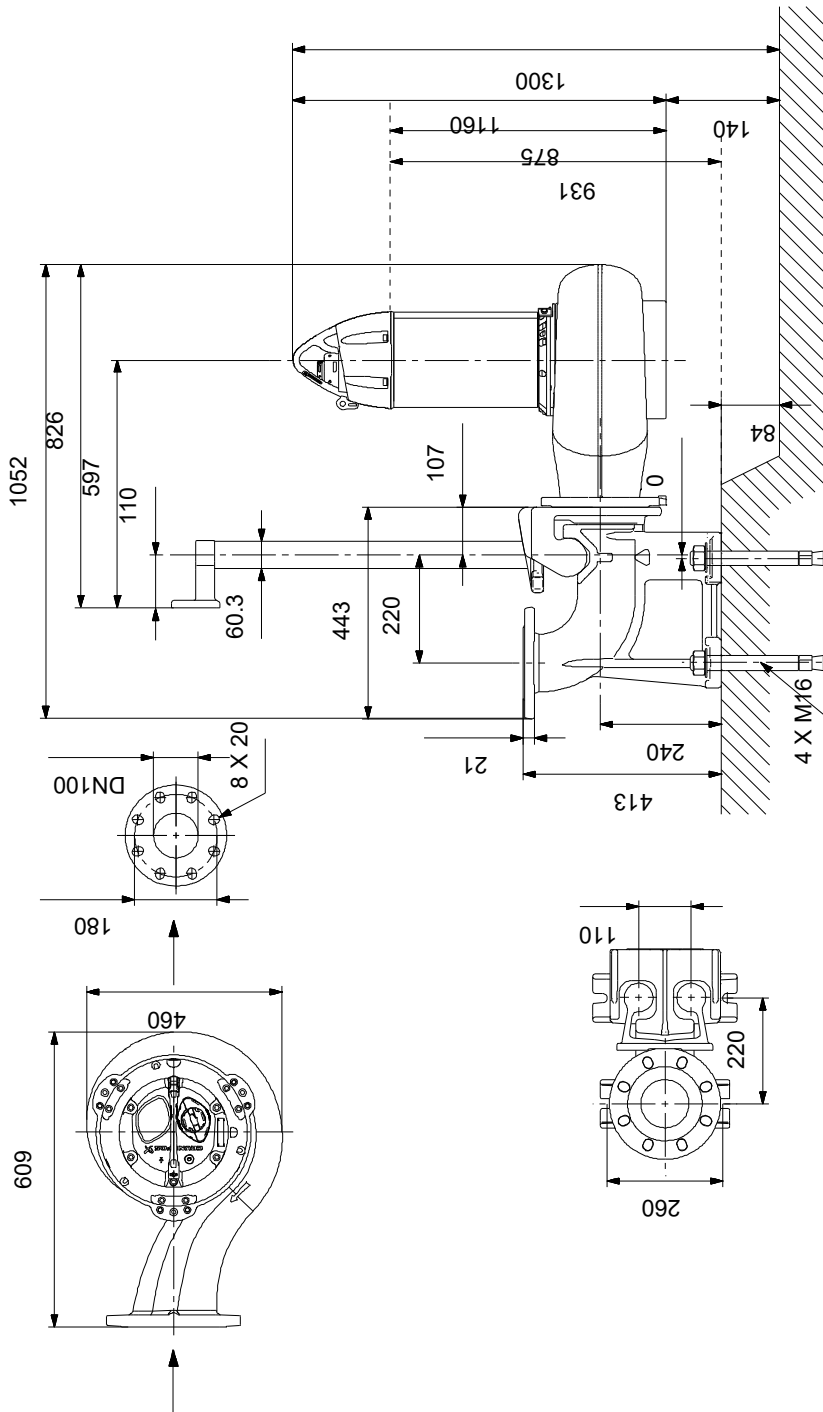


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.



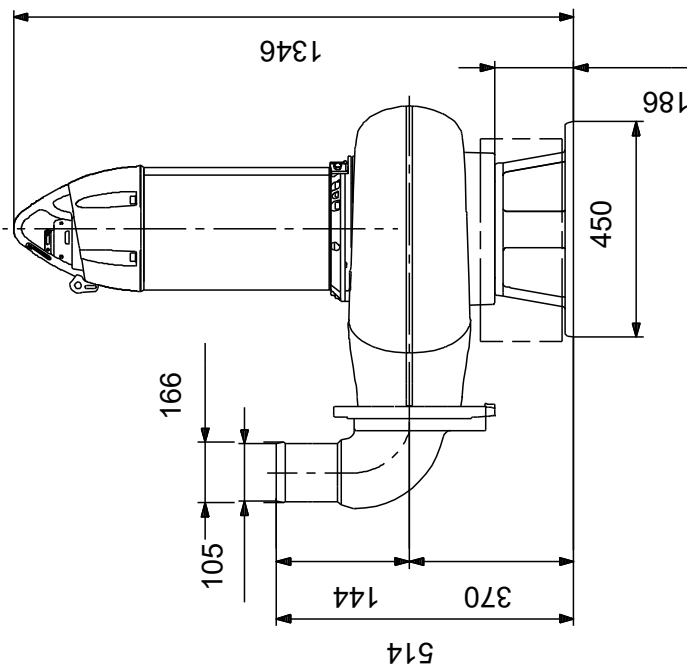
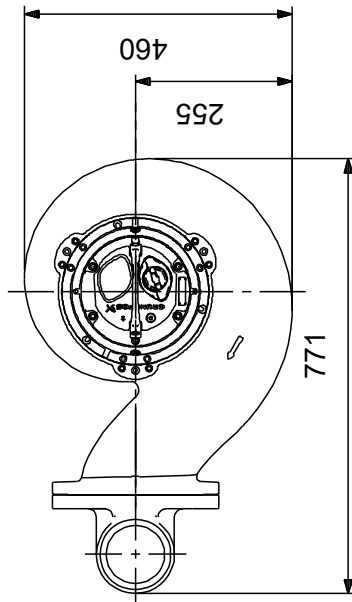


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 08/07/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS4

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 99776058 SL1.85.100.110.4.52H.S.N.51D.A.T 50 Hz

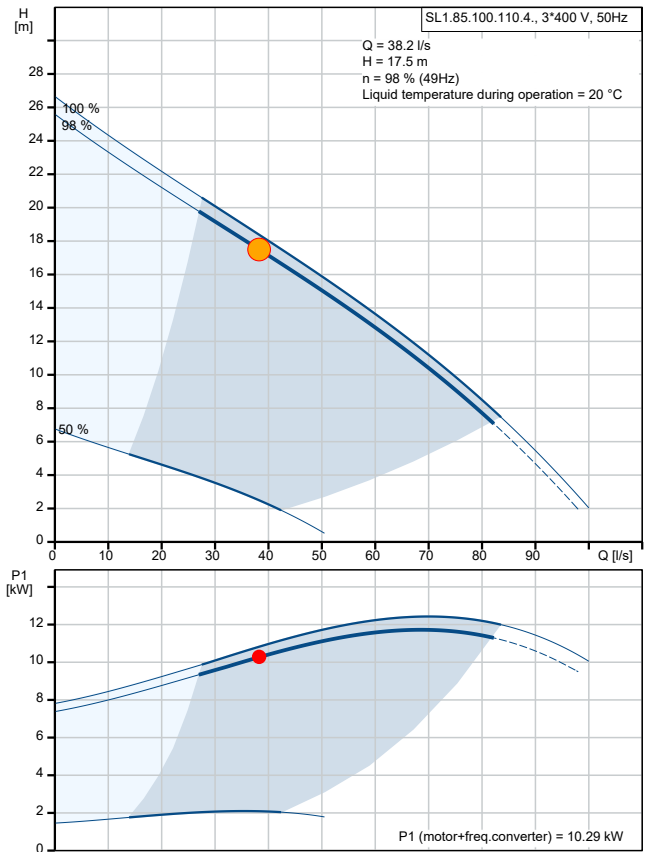
### Input

#### Load Profile

	1	
Flow	100	%
Time	1000	h/a

### Sizing result

Flow	38.3	l/s
Head	17.5	m
Power P1	10.29	kW
Power P2 required in the duty point	8.546	kW
Eta pump	76.8	%
Eta pump+motor	66.1	% =Eta pump * Eta motor
Energy consumption	10285	kWh/Year
Life cycle cost	42764	EUR /10Years





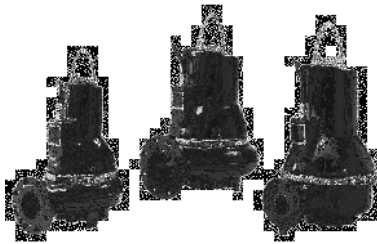
**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

Qty.	Description
------	-------------

1	SL1.80.100.40.4.51D.C
---	-----------------------



Note! Product picture may differ from actual product

Product No.: [98626053](#)

Non-self-priming, single-stage, centrifugal pump designed for handling wastewater, process water and unscreened raw sewage.

The pump is designed for intermittent and continuous operations in submerged installation. The revolutionary S-tube® impeller provides free spherical passage of solids up to 80 mm and is suitable for wastewater with a dry matter content of up to 3 %. A unique stainless-steel clamp assembling system enables quick and easy disassembly of the pump from the motor unit for service and inspection. No special tools are required. Pipework connection is via a DIN flange.

**Controls:**

Moisture sensor: with moisture sensors  
Water-in-oil sensor: without water-in-oil sensor

**Liquid:**

Pumped liquid: Water  
Maximum liquid temperature: 40 °C  
Selected liquid temperature: 20 °C  
Density: 998.2 kg/m<sup>3</sup>

**Technical:**

Actual calculated flow: 23.1 l/s  
Resulting head of the pump: 10.56 m  
Type of impeller: S-TUBE  
Maximum particle size: 80 mm  
Primary shaft seal: SIC/SIC  
Secondary shaft seal: CARBON/CERAMICS  
Approvals on nameplate: CE EN12050-1  
Curve tolerance: ISO9906:2012 3B2

**Materials:**

Pump housing: Cast iron  
EN 5.1301 EN-GJL-250  
Impeller: Cast iron  
EN 5.1301 EN-GJL-250  
Motor: EN-GJL-250

**Installation:**

Maximum ambient temperature: 40 °C  
Flange standard: DIN  
Pump inlet: 100



**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

Qty.	Description
	Pump outlet: 100
	Pressure rating: PN 10
	Maximum installation depth: 20 m
	Auto-coupling: 96090994
	Frame range: C
	Electrical data:
	Power input - P1: 4.8 kW
	Rated power - P2: 4 kW
	Mains frequency: 50 Hz
	Rated voltage: 3 x 380-415 V
	Voltage tolerance: +10/-10 %
	Max starts per. hour: 20
	Rated current: 10.1-10.1 A
	Starting current: 65 A
	Cos phi - power factor: 0.72
	Cos phi - p.f. at 3/4 load: 0.63
	Cos phi - p.f. at 1/2 load: 0.50
	Rated speed: 1464 rpm
	Motor efficiency at full load: 87.4 %
	Motor efficiency at 3/4 load: 87.1 %
	Motor efficiency at 1/2 load: 85.0 %
	Number of poles: 4
	Start. method: star/delta
	Enclosure class (IEC 34-5): IP68
	Insulation class (IEC 85): H
	Explosion proof: no
	Length of cable: 10 m
	Cable type: LYNIFLEX
	Others:
	Net weight: 148 kg
	Finnish LVI No.: 4836157

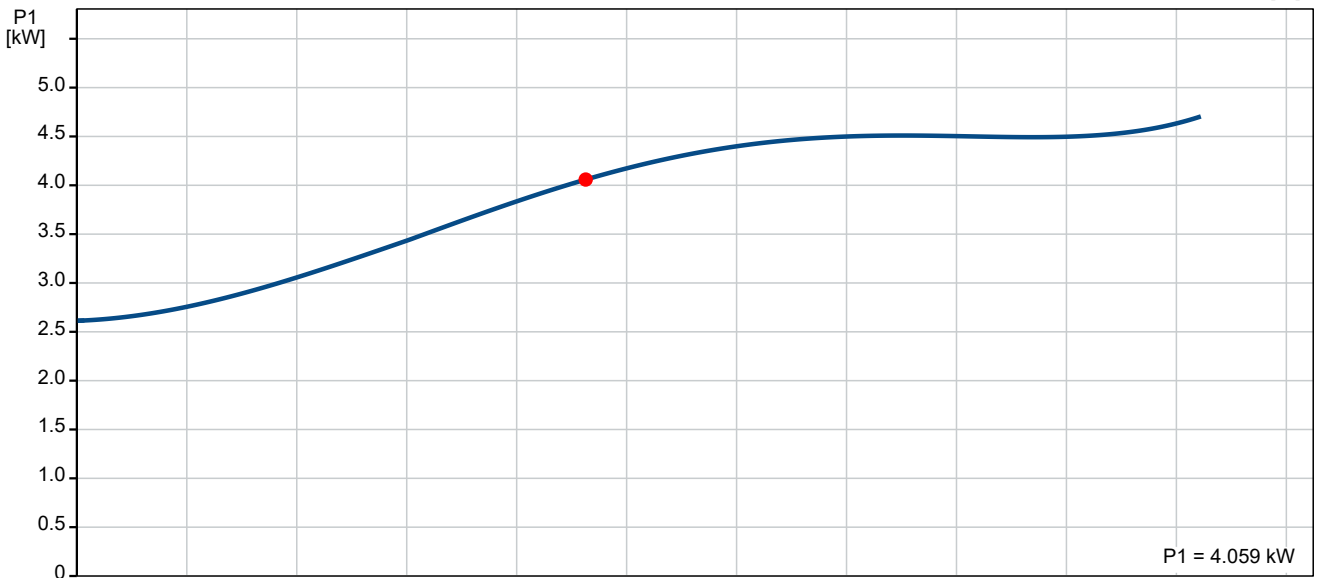
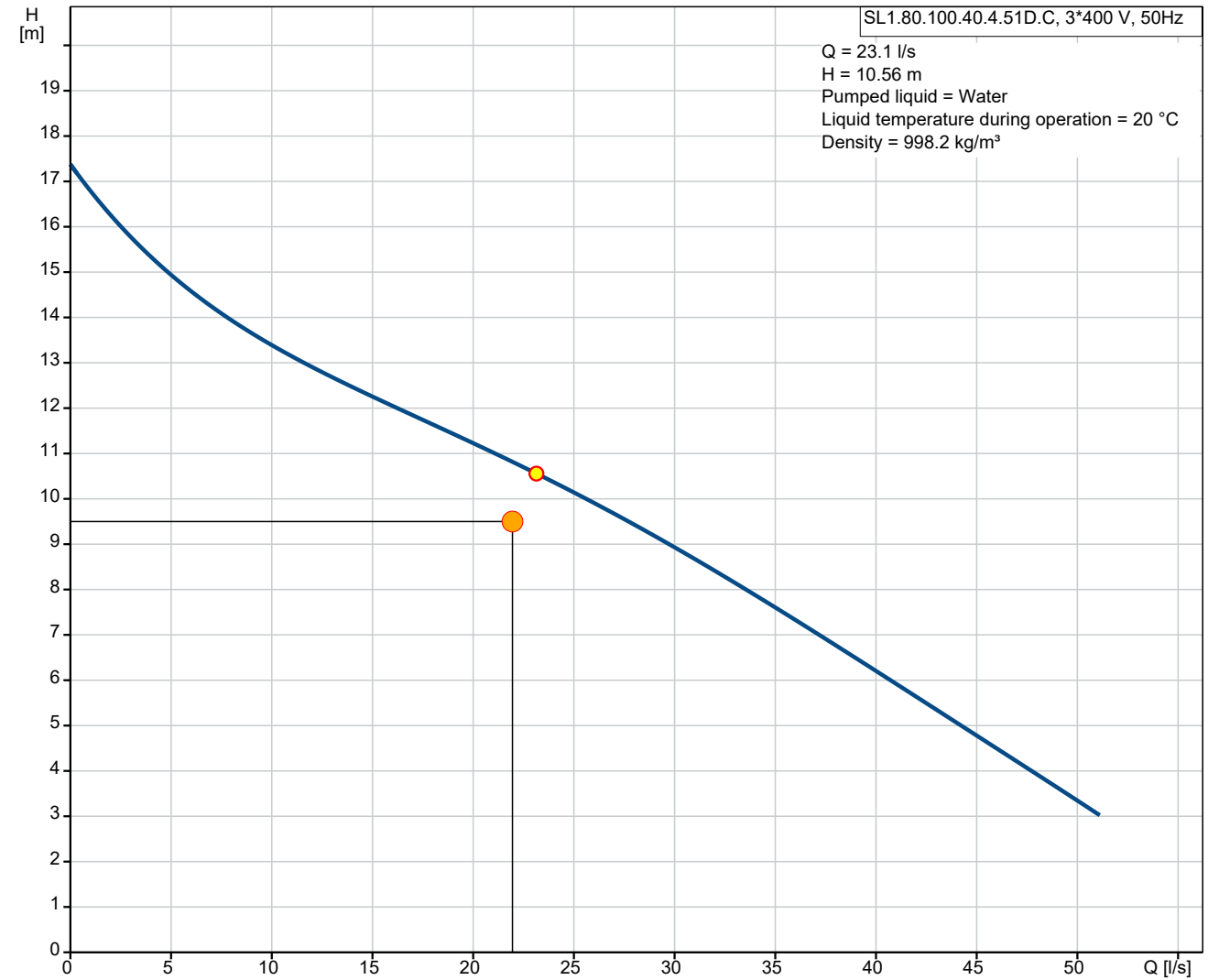


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626053 SL1.80.100.40.4.51D.C 50 Hz



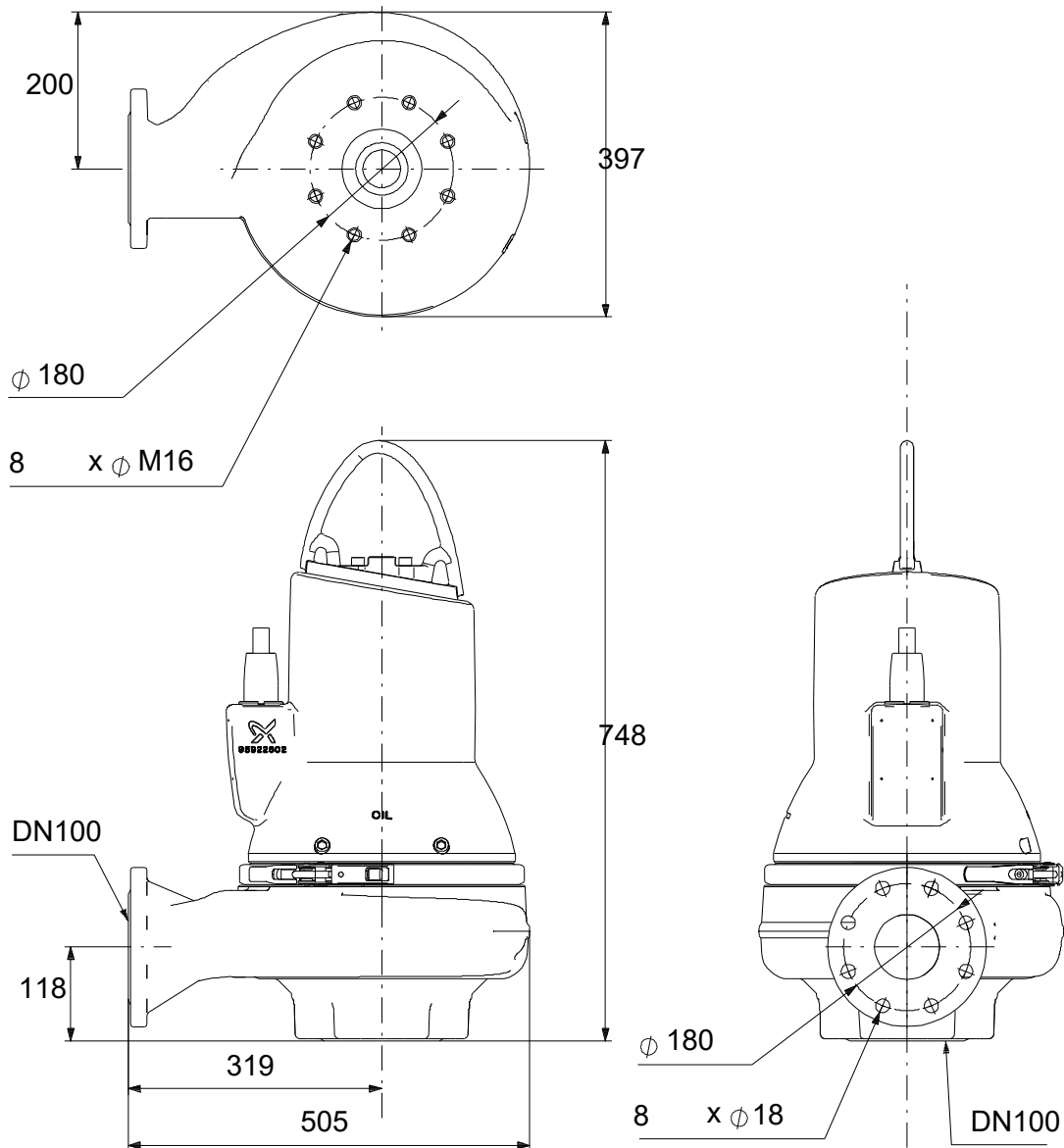


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626053 SL1.80.100.40.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

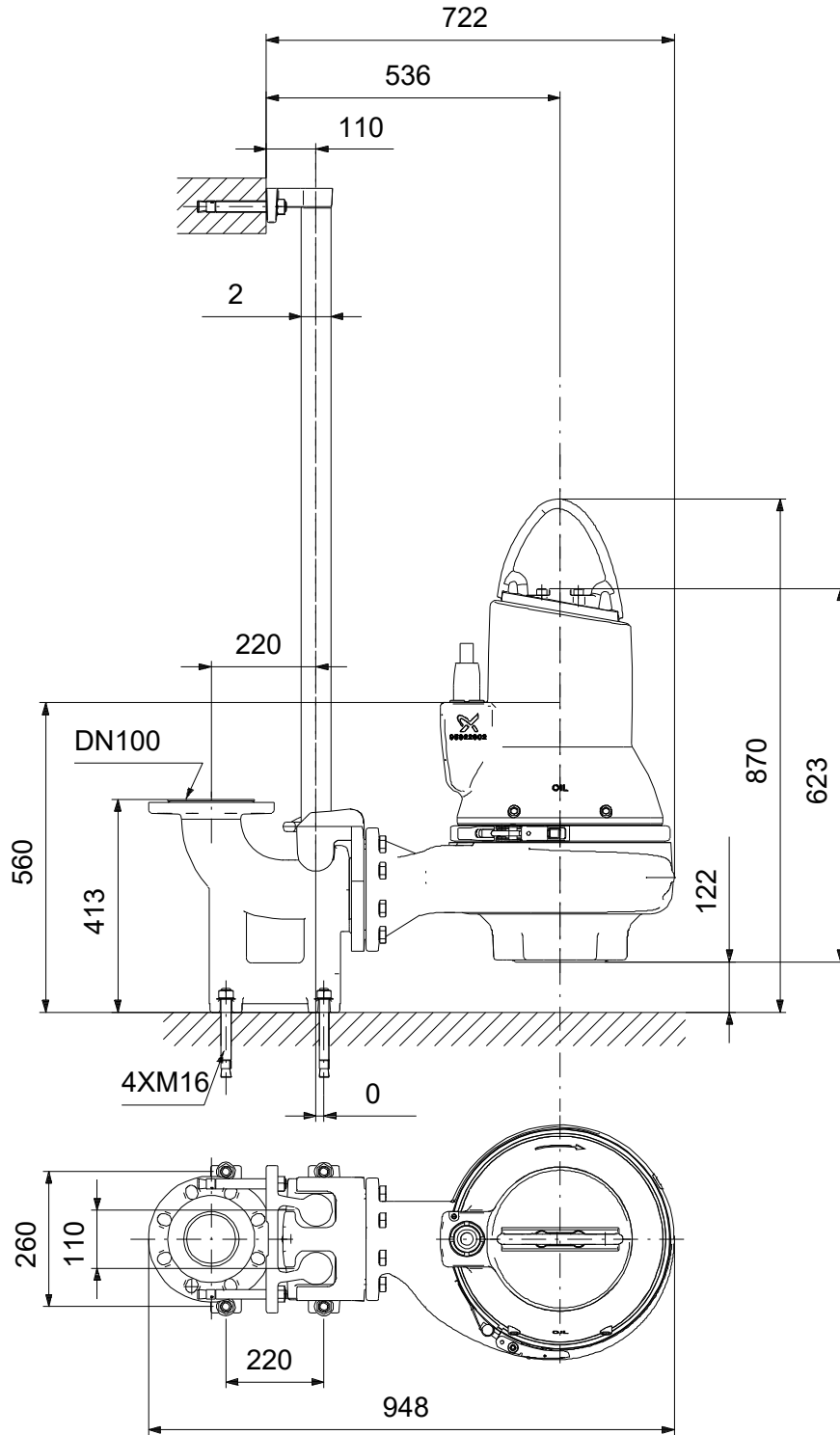


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626053 SL1.80.100.40.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

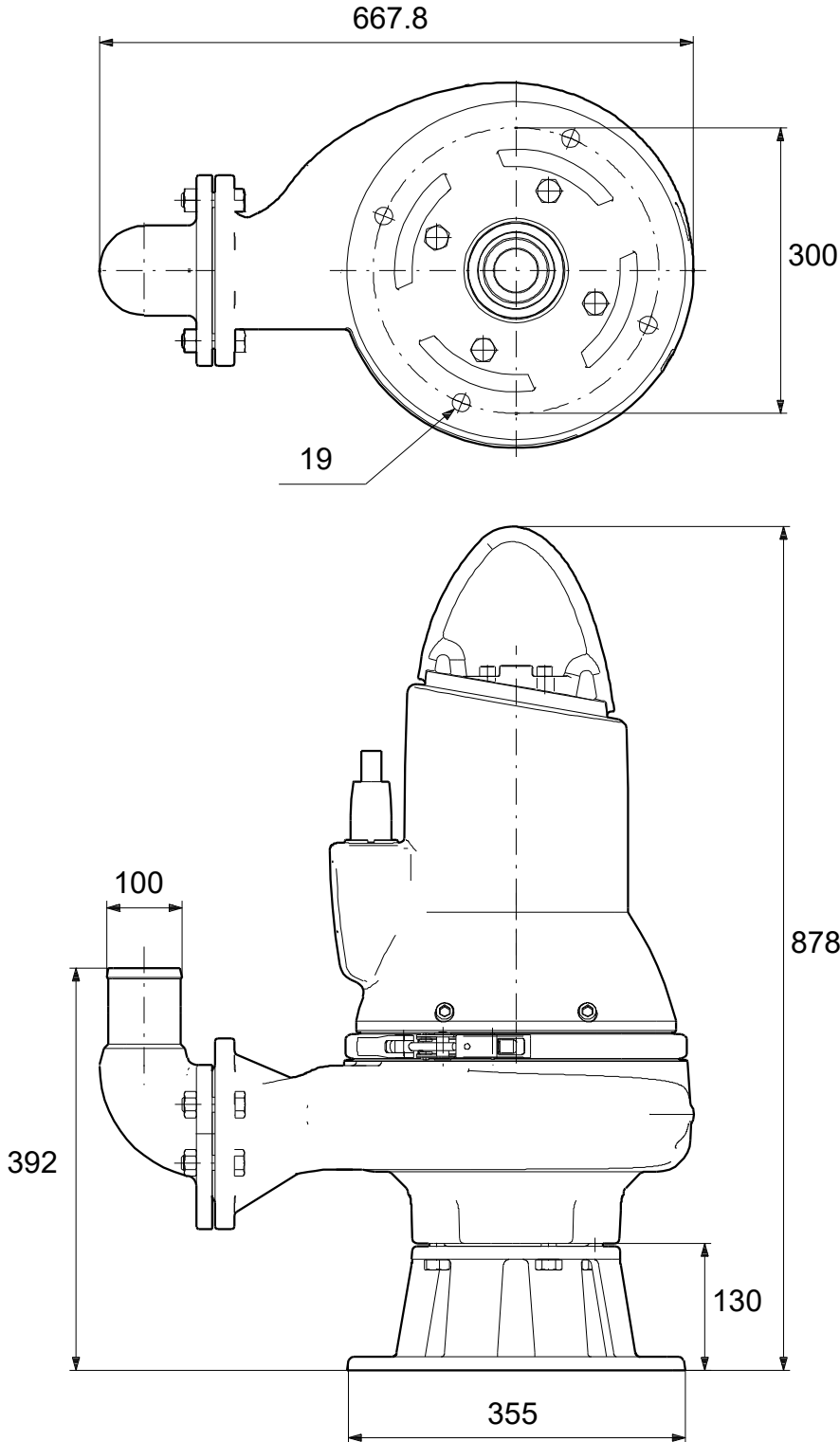


**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626053 SL1.80.100.40.4.51D.C 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.





**Company name:** NTH SIGMA PVT LTD  
**Created by:** Yaameen Shameem (MEA/2020/1964)  
**Phone:** +9607725919  
**Email:** info@nthsigma.com  
**Date:** 12/06/2021

**Project:** Sh. Milandhoo Storm Water Design  
**Reference Number:** PS5

**Client:** RAKENTA LLP  
**Client Number:** -  
**Contact:** +9607763599

## 98626053 SL1.80.100.40.4.51D.C 50 Hz

### Input

#### Load Profile

	1	
Flow	100	%
Time	1000	h/a

### Sizing result

Flow	23.1	l/s
Head	10.56	m
Power P1	4.059	kW
Power P2 required in the duty point	3.542	kW
Eta pump	67.6	%
Eta pump+motor	59.0	% =Eta pump * Eta motor
Energy consumption	3850	kWh/Year
Life cycle cost	15845	EUR /10Years

