

TECHNICAL SUBMITTAL SHEET

Project Name:	Digital Realty – LHR19		
Project No:	GB7102	Rev:	00
Tech Sub Ref:	GB7102-GBL-M-TS-ZZ-0003		
Issued to:	Deems Consulting and DRT	Issue date:	28/03/19
		Approval date:	11/04/19
Description of equipment:	<u>Basement – system pumps including cold water booster set</u> - Primary (sea condition) pumps including VSD's, bellows and inertia bases - Secondary side pumps including VSD's and inertia bases - Cold water storage tank will duty/standby pumps including auto-surge valve for the top of the domestic cold water riser		
Locations where equipment is to be used:	2 number AHU's 50/50 duty located on the roof.		
Manufacturer / Supplier:	Grundfos		
Specification clause references and deviations:	- LHR19 Building Services Specification - B01 Mechanical Services Project Particulars - LHR19 Building Services Specification - S10 Cold Water - LHR19 Building Services Specification - Z15 Schedule of pumps		
Drawing details:	- DE-SC-DRG-M-101_T01 - DE-SC-DRG-PH-101_T01 - DE-BA-DRG-PH-200_T01 - DE-BA-DRG-M-400_T01		
Enclosures / samples attached:	N/A		
Additional information:	N/A		

TECHNICAL SUBMITTAL SHEET

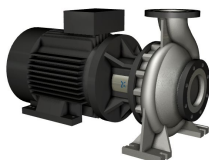
Project Name:	Digital Realty – LHR19		
Project No:	GB7102	Rev:	00
Tech Sub Ref:	GB7102-GBL-M-TS-ZZ-0003		
APPROVALS			
Company	Date	Status (A-B-C)	Comments
MAIN CONTRACTOR:	Gratte Brothers Ltd.		
STATUS A-B-C	COMMENTS		
Signature:		Date:	
* The equipment described within this Technical Submittal is ROHS compliant			

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

Qty.	Description
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1	NBG 150-125-315/336 AF2LBQQE
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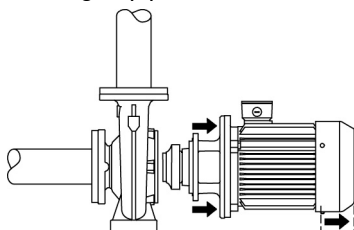


Product No.: [98309948](#)

The pump is close-coupled to a fan-cooled asynchronous motor.

Further product details

The back pull-out design means that the pump can be serviced by a single person without disturbing the pump housing or pipe work.



Cast-iron parts have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An integral part of the process is a pretreatment. The entire process consists of these elements:

- 1) Alkaline-based cleaning.
 - 2) Zinc phosphating.
 - 3) Cathodic electro-deposition.
 - 4) Curing to a dry film thickness 18-22 my m.
- The colour code for the finished product is NCS 9000/RAL 9005.

Pump

The pump housing has both a priming and a drain hole closed by plugs.

The impeller is a closed impeller with double-curved blades with smooth surfaces. The impeller is statically balanced according to ISO 1940-1 class G6.3 and hydraulically balanced to compensate for axial thrust.

The pump is fitted with an unbalanced rubber bellows seal with torque transmission across the spring and around the bellows. Due to the bellows, the seal does not wear the shaft, and the axial movement is not prevented by deposits on the shaft.

Primary seal:

- Rotating seal ring material: silicon carbide (SiC)
- Stationary seat material: silicon carbide (SiC)

This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.

Secondary seal material: EPDM (ethylene-propylene rubber)

EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.

Motor

The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards. Electrical tolerances comply with IEC 60034.

The motor efficiency is classified as IE3 in accordance with IEC 60034-30-1.

The motor has thermistors (PTC sensors) in the windings in accordance with DIN 44081/DIN 44082. The protection reacts to both slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

Qty.	Description
	Thermal switches must be connected to an external control circuit in a way which ensures that the automatic reset cannot cause accidents. The motors must be connected to a motor-protective circuit breaker according to local regulations. Technical data Controls: Frequency converter: NONE Liquid: Pumped liquid: Water Liquid temperature range: -25 .. 120 °C Liquid temperature during operation: 20 °C Density: 998.2 kg/m³ Technical: Actual calculated flow: 50 l/s Rated flow: 72.84 l/s Resulting head of the pump: 240 kPa Actual impeller diameter: 336 mm Nominal impeller diameter: 315 mm Shaft seal arrangement: Single Code for shaft seal: BQQE Curve tolerance: ISO9906:2012 3B Max power P2 along the curve: 36.33 kW Materials: Pump housing: Stainless steel EN 1.4517 ASTM CD4MCuN Wear ring: Stainless steel Flange: Cast iron EN-GJS-500-7 ASTM 70-50-05 Impeller: Stainless steel EN 1.4517 ASTM CD4MCuN Shaft: Stainless steel EN 1.4462 SAF 2205 Installation: Maximum ambient temperature: 55 °C Maximum operating pressure: 16 bar Pipe connection standard: EN 1092-1 Size of inlet connection: DN 150 Size of outlet connection: DN 125 Pressure rating for pipe connection: PN 16 Pump housing with feet: Y Support block: N Electrical data: IE Efficiency class: IE3 P2: 37 kW Mains frequency: 50 Hz Rated voltage: 3 x 380-420D/660-725Y V Rated current: 69,0-64,0/39,5-37,0 A

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

Qty.	Description
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	Starting current: 640-640 %
	Cos phi - power factor: 0.9
	Rated speed: 1480 rpm
	Efficiency: IE3 93,9%
	Motor efficiency at full load: 93.9-93.9 %
	Motor efficiency at 3/4 load: 94.5-94.5 %
	Motor efficiency at 1/2 load: 94.4-94.4 %
	Number of poles: 4
	Enclosure class (IEC 34-5): 55 Dust/Jetting
	Insulation class (IEC 85): F

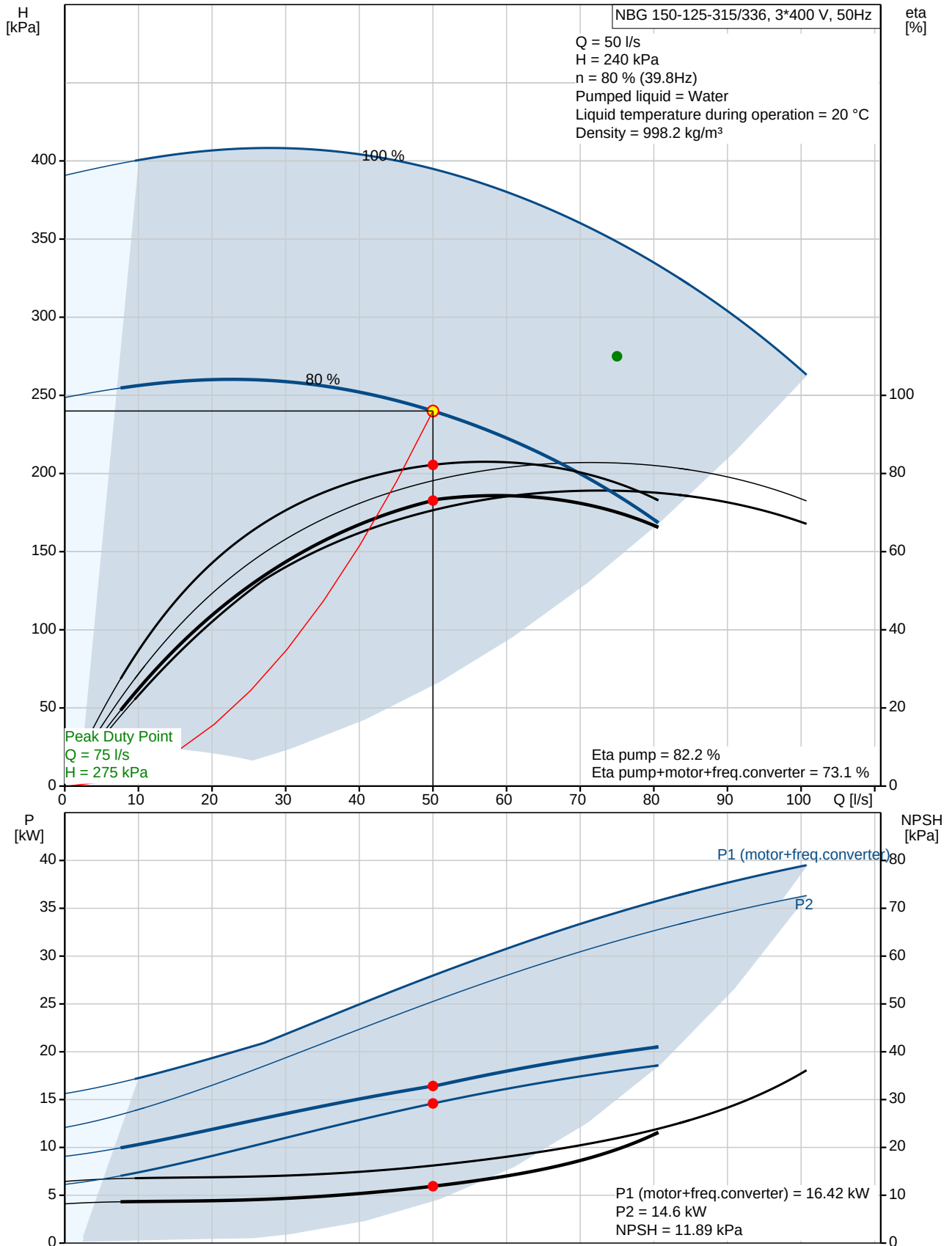
Others:

Minimum efficiency index, MEI $\hat{\alpha}\%$: 0.68
Net weight: 473 kg
Gross weight: 505 kg
Shipping volume: 0.951 m³

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

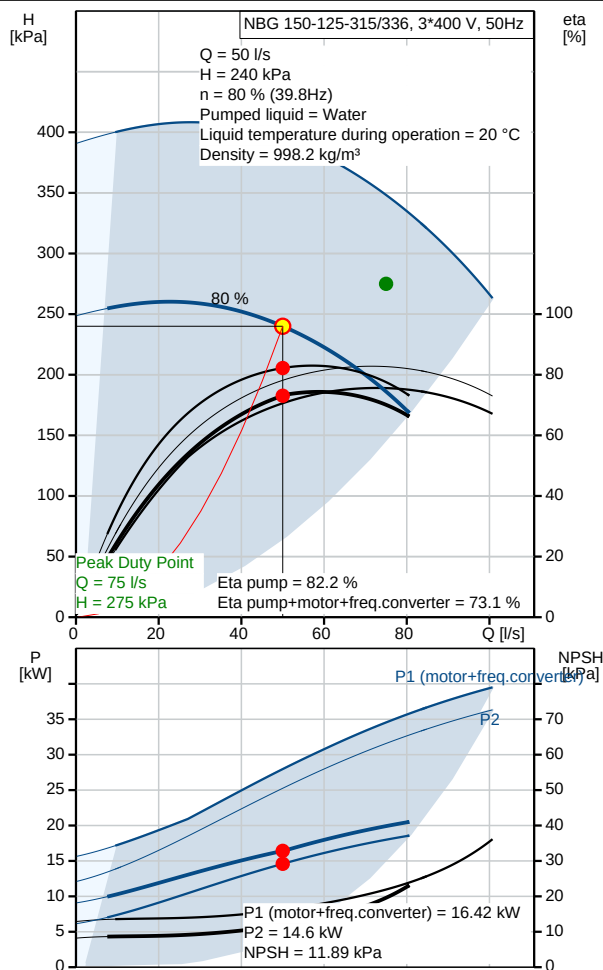
98309948 NBG 150-125-315/336 AF2LBQQE 50 Hz



Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

Description	Value
General information:	
Product name:	NBG 150-125-315/336 AF2LBQQE
Product No:	98309948
EAN number:	5711492827369
Technical:	
Actual calculated flow:	50 l/s
Rated flow:	72.84 l/s
Resulting head of the pump:	240 kPa
Actual impeller diameter:	336 mm
Nominal impeller diameter:	315 mm
Shaft seal arrangement:	Single
Shaft diameter:	42 mm
Code for shaft seal:	BQQE
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Max power P2 along the curve:	36.33 kW
Materials:	
Pump housing:	Stainless steel EN 1.4517
	ASTM CD4MCuN
Wear ring:	Stainless steel
Flange:	Cast iron EN-GJS-500-7
	ASTM 70-50-05
Impeller:	Stainless steel EN 1.4517
	ASTM CD4MCuN
Shaft:	Stainless steel EN 1.4462
	SAF 2205
Material code:	L
Installation:	
Maximum ambient temperature:	55 °C
Maximum operating pressure:	16 bar
Pipe connection standard:	EN 1092-1
Size of inlet connection:	DN 150
Size of outlet connection:	DN 125
Pressure rating for pipe connection:	PN 16
Pump housing with feet:	Y
Support block:	N
Connect code:	F2
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-25 .. 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m ³
Electrical data:	
IE Efficiency class:	IE3
P2:	37 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380-420D/660-725Y V
Rated current:	69,0-64,0/39,5-37,0 A
Starting current:	640-640 %
Cos phi - power factor:	0.9
Rated speed:	1480 rpm



Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

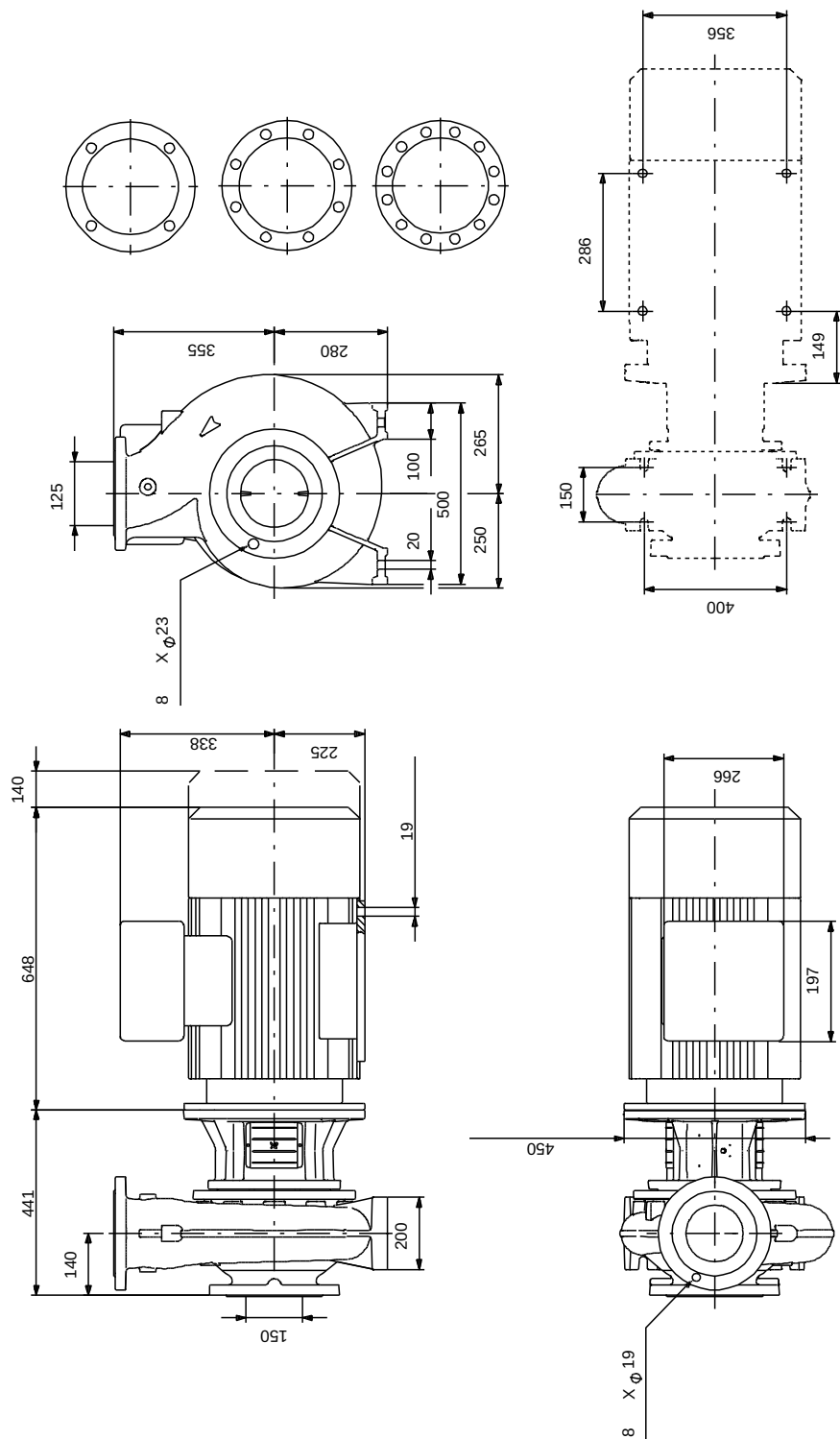
Client:
Client Number:
Contact:

Description	Value
Efficiency:	IE3 93,9%
Motor efficiency at full load:	93.9-93.9 %
Motor efficiency at 3/4 load:	94.5-94.5 %
Motor efficiency at 1/2 load:	94.4-94.4 %
Number of poles:	4
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	99032202
Mount. design. acc. IEC 34-7:	IM B35
Controls:	
Frequency converter:	NONE
Others:	
Minimum efficiency index, MEI â%¥:	0.68
Net weight:	473 kg
Gross weight:	505 kg
Shipping volume:	0.951 m³

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

98309948 NBG 150-125-315/336 AF2LBQQE 50 Hz

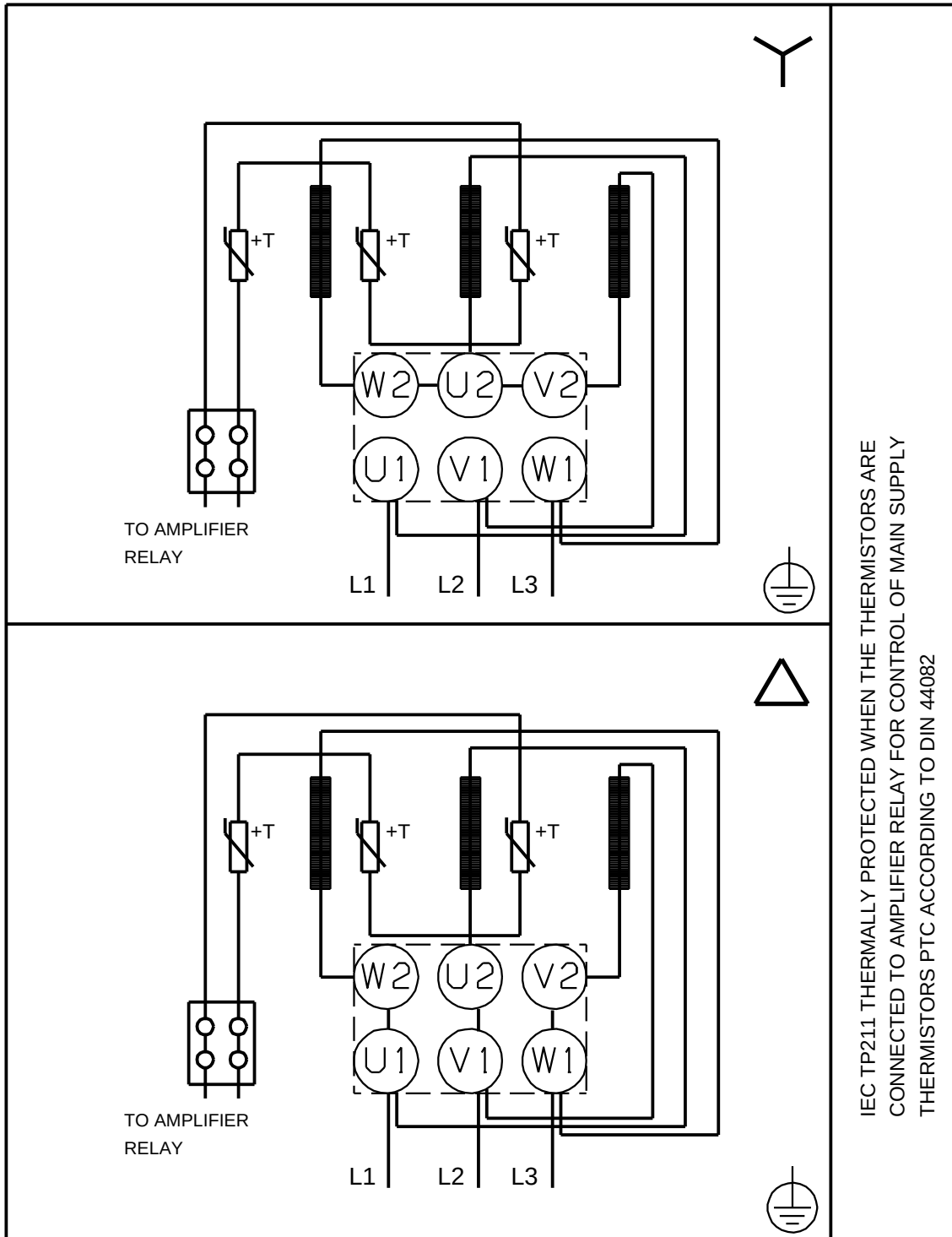


Note! All units are in [mm] unless others are stated.
 Disclaimer: This simplified dimensional drawing does not show all details.

Project: LHR19 Phase1 (Digital Realty)
 Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
 Client Number:
 Contact:

98309948 NBG 150-125-315/336 AF2LBQQE 50 Hz



Note! All units are in [mm] unless others are stated.

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

Qty.	Description
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1	CUE 3X380-500V IP55 37KW 73A/6
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Note! Product picture may differ from actual product

Product No.: [96754728](#)

CUE is a complete range of external frequency converters designed for speed control of a wide range of Grundfos pumps. CUE has a built-in PI controller and offers the same functionality and user-interface as Grundfos E-pumps. CUE solutions can thus be seen as an extension to the E-pump range.

By choosing a CUE-solution, you will get the following benefits:

- Grundfos E-pump functionality and user-interface
- application- and pump-family-related functions
- increased comfort compared to fixed-speed pumps
- very easy installation and commissioning compared to standard frequency converters
- speed control of pumps up to 250 kW
- speed control of pumps installed in potentially explosive environments.

CUE offers the following inputs and output:

- RS-485 GENIbus
- an analog 0-10 V input for external setpoint
- an analog 0/4-20 mA input for sensor
- four digital inputs for various functions, for instance external start/stop
- two signal relays (C/NO/NC).

Accessories:

Input/output add-on board

Provides additional input:

- one 0/4-20 mA analog input for an additional sensor
- one 0-20 mA analog output
- two inputs for Pt100/Pt1000 temperature sensors, for instance for bearing monitoring.

Motor filters:

For reduction of dU/dt and peak voltages to the motor windings and for reduction of the acoustic noise generated in the motor, a number of motor filters are offered:

- dU/dt filters , 11-250 kW
- Sine wave filters, 0.55-250 kW.

Technical:

Approvals on nameplate: CE, CULUS, C-TICK

Installation:

Range of ambient temperature: 0 .. 45 °C

Relative humidity: 5-95 %

Electrical data:

Rated power - P2: 37 kW

Mains frequency: 50 Hz



Client:
Client Number:
Contact:

Printed from Grundfos Product Centre [2019.01.000]

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Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

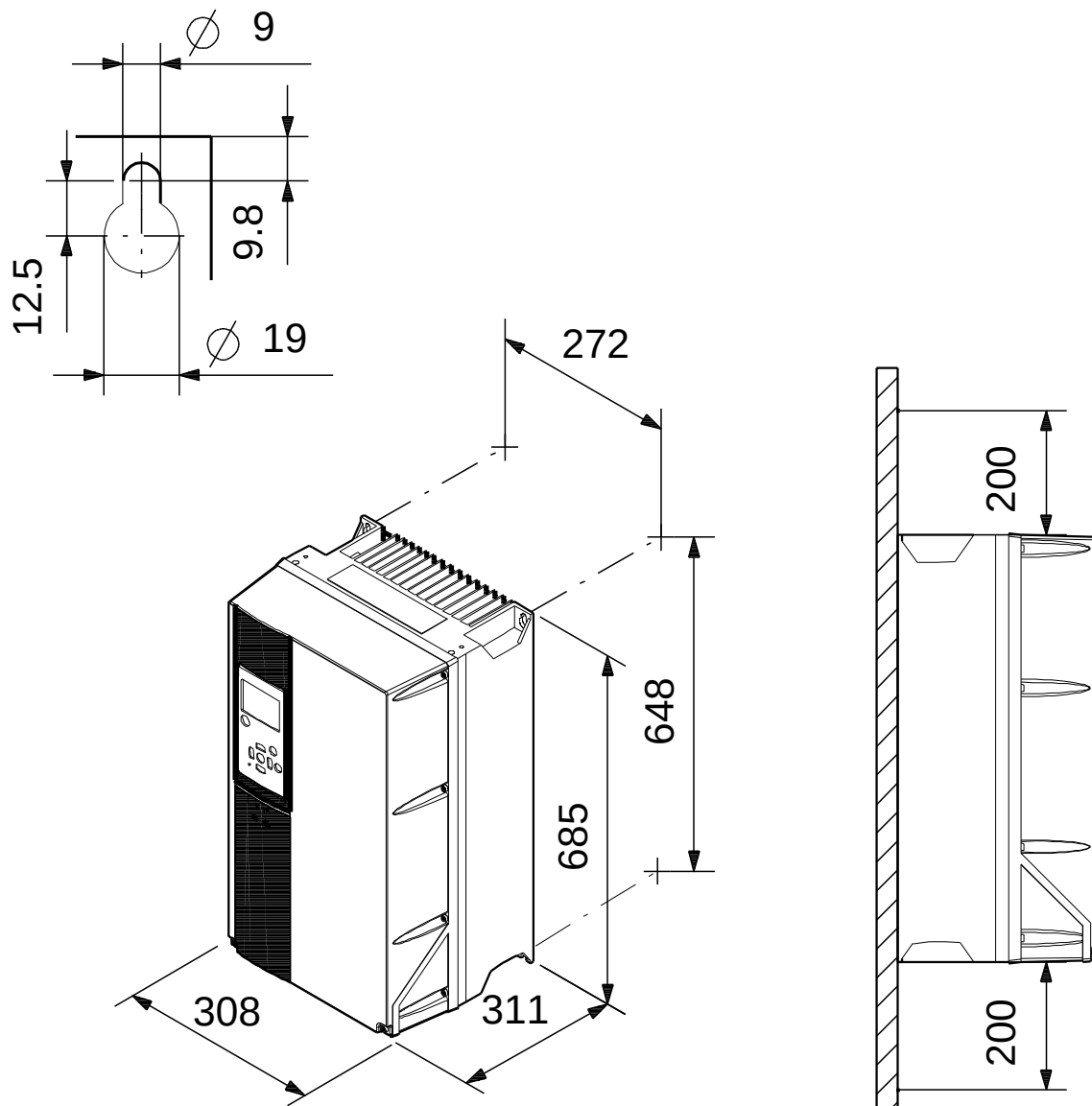
Client:
Client Number:
Contact:

Description	Value
General information:	
Product name:	CUE 3X380-500V IP55 37KW 73A/6
Product No:	96754728
EAN number:	5700838636369
Technical:	
Approvals on nameplate:	CE, CULUS, C-TICK
Installation:	
Range of ambient temperature:	0 .. 45 °C
Relative humidity:	5-95 %
Mounted on:	Wall
Electrical data:	
Rated power - P2:	37 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380 - 440 / 441 - 500 V
Rated current:	73-65 A
Maximum current consumption:	73 A
Efficiency at full load:	98 %
Enclosure class (IEC 34-5):	IP55
Motor protec:	YES
Thermal protec:	external
Cable length:	150/300 m
Others:	
Net weight:	45 kg
Country of origin:	GB
Custom tariff no.:	85371098

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

96754728 CUE 3X380-500V IP55 37KW 73A/6 50 Hz

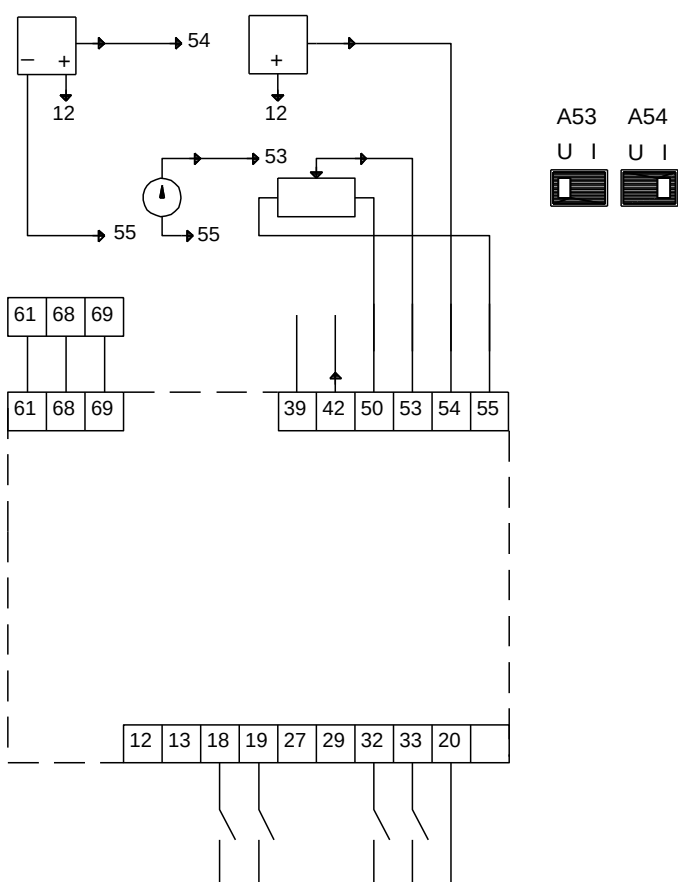
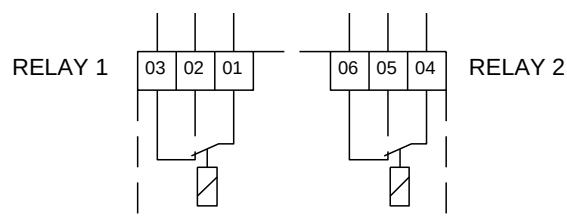
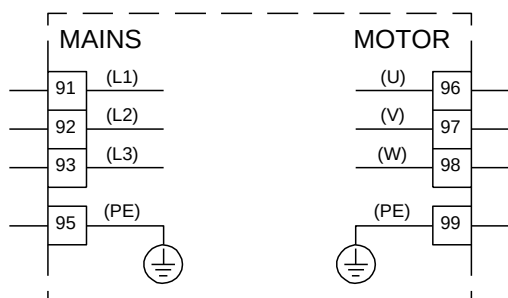


Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PChWP/A/1&2 ; PChWP/B/1&2 - DWC Primary Side

Client:
Client Number:
Contact:

96754728 CUE 3X380-500V IP55 37KW 73A/6 50 Hz



Note! All units are in [mm] unless others are stated.

INERTIA BASE DATA SHEET

CUSTOMER: GRATTE BROTHERS	YOUR REF: DIGITAL REALITY LHR19
	GRUNDFOS REF: 1003730833
	ITEM NO: 1
	ITEM REF:
	MODEL: NBG 150-125-315/336
DATE: 07/03/2019	QUANTITY: 4

NOTES:

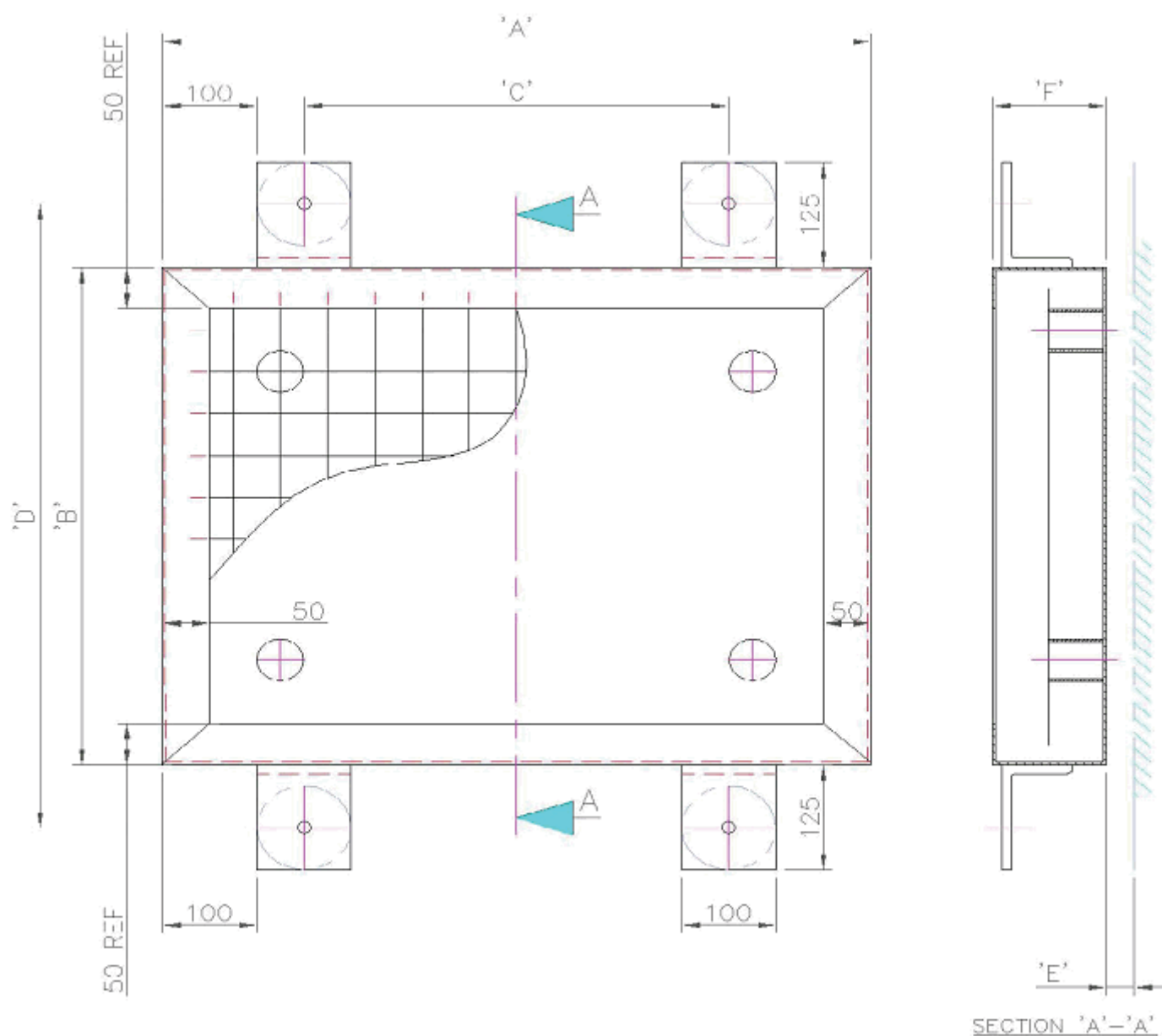
- Base to be filled with concrete by contractor.
We recommend using the following mix:-
4 parts Gravel : 2 parts Sand : 1 part Cement
- Fixing holes in the Inertia Base for 'Equipment' to be determined by the contractor.
- Fixing holes in the floor to be determined by the contractor.
- Number of spring Anti-Vibration Mounts required: **4 off Type**
of spring Anti-Vibration Mount selected: **NSM-B Green**
(Maximum deflection at optimum load: 20 mm)
- Mountings to be fitted under height saving support brackets before the 'Equipment' is fitted. The assembly can then be levelled using the levelling device on each of the Anti-Vibration Mountings.
The overall depth of the Inertia Base is: 300 mm.
- Finish: One coat of primer
- All to be manufactured from mild steel to BS EN 10025 S275.
- Total Inertia Base weight including concrete and equipment (approx): **1396.98 kg**
(Weight of Inertia Base Steelwork only: 70.88 kg)
- Each mounting will have a point load of approximately: **349.20 kg**
- Refer to the relevant data sheets for base details of the Anti-Vibration Mountings.

INSTALLATION INSTRUCTIONS:

- Ensure the Inertia Base is standing on a level surface prior to filling with concrete
- We recommend using the mix as detailed above
- Allow at least 24 hours for the concrete to set.
- Position the Anti-Vibration Mountings to the details shown in our 'Approved' drawing and lower the Inertia Base onto them.
- Line the 'Equipment' up onto the Inertia Base centrally and mark on the concrete the fixing bolt positions
- Lower the 'Equipment' onto the Inertia Base and fix into place using rawl bolts
- Level each mount as detailed in our separate data sheet 'NSM & NSM-B' installation instructions.
(Please note: DO NOT level above the maximum working height as shown in our data sheet).

Dimensions:	A: 1400 mm	D: 1000 mm
	B: 850 mm	E: 30 mm
	C: 1100 mm	F: 300 mm

4 MOUNT INERTIA BASE DATA SHEET



Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW Secondary

Client:
Client Number:
Contact:

Qty.	Description
1	TPE 125-400/4-NC A-F-A-BQQE  Note! Product picture may differ from actual product Product No.: 99473946 Single-stage, close-coupled, volute pump with in-line suction and discharge ports of identical diameter. The pump is of the top-pull-out design, i.e. the power head (motor, pump head and impeller) can be removed for maintenance or service while the pump housing remains in the pipework. The pump is fitted with an unbalanced rubber bellows seal. The shaft seal is according to EN 12756. Pipework connection is via PN 16 DIN flanges (EN 1092-2 and ISO 7005-2). The pump is fitted with a fan-cooled asynchronous motor. The pump includes a frequency converter and PI controller. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement. Controls: VFD product number: 99448799 Frequency converter: Built-in Type of frequency converter: CUE 3X380-500V IP55 RUG 30KW Appr. for VFD: CE, CULUS, C-TICK Liquid: Pumped liquid: Water Liquid temperature range: -25 .. 120 °C Liquid temperature during operation: 22 °C Density: 997.8 kg/m³ Kinematic viscosity: 0.95 mm²/s Technical: Pump speed on which pump data are based: 1470 rpm Actual calculated flow: 50 l/s Resulting head of the pump: 360 kPa Actual impeller diameter: 334 mm Primary shaft seal: BQQE Curve tolerance: ISO9906:2012 3B Materials: Pump housing: Cast iron EN-JL1040 ASTM A48-40 B Impeller: Cast iron EN-JL1030 ASTM A48-30 B Installation: Range of ambient temperature: -20 .. 55 °C Minimum ambient temperature: 0 °C Maximum operating pressure: 16 bar Flange standard: DIN Pipe connection: DN 125 Pressure rating: PN 16



Company name: Grundfos Pumps Ltd
Created by: Gabriel Companis
Phone: 01525 850000
Email: grundfos-uk@sales.grundfos.com
Date: 07/03/2019

Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW
Secondary

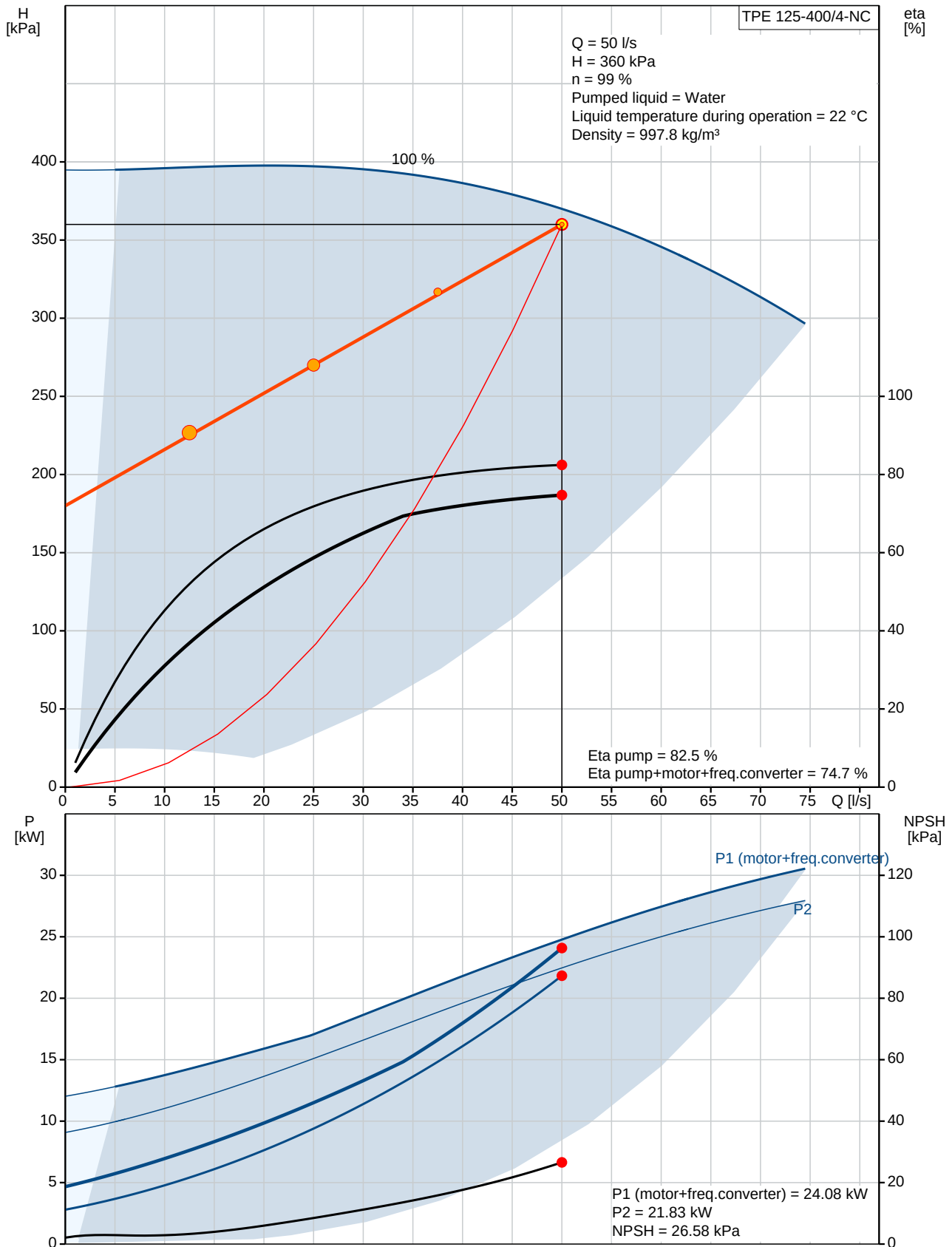
Client:
Client Number:
Contact:

Qty.	Description
	Port-to-port length: 800 mm Flange size for motor: FF350 Electrical data: Motor type: SIEMENS IE Efficiency class: IE3 Rated power - P2: 30 kW Mains frequency: 50 Hz Rated voltage: 3 x 380-420D/660-725Y V Rated current: 57,5-54,0/33,5-31,5 A Cos phi - power factor: 0.8 Rated speed: 1470 rpm Efficiency: IE3 93,6% Motor efficiency at full load: 93.6-93.6 % Efficiency at full load: 98 % Motor efficiency at 3/4 load: 94.3-94.3 % Motor efficiency at 1/2 load: 94.4-94.4 % Number of poles: 4 Enclosure class (IEC 34-5): 55 Dust/Jetting Insulation class (IEC 85): F Others: Minimum efficiency index, MEI η_{min} : 0.7 ErP status: EuP Standalone/Prod. Net weight: 500 kg Gross weight: 550 kg Shipping volume: 1.5 m ³ Country of origin: HU Custom tariff no.: 84137051

Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW
 Secondary

Client:
Client Number:
Contact:

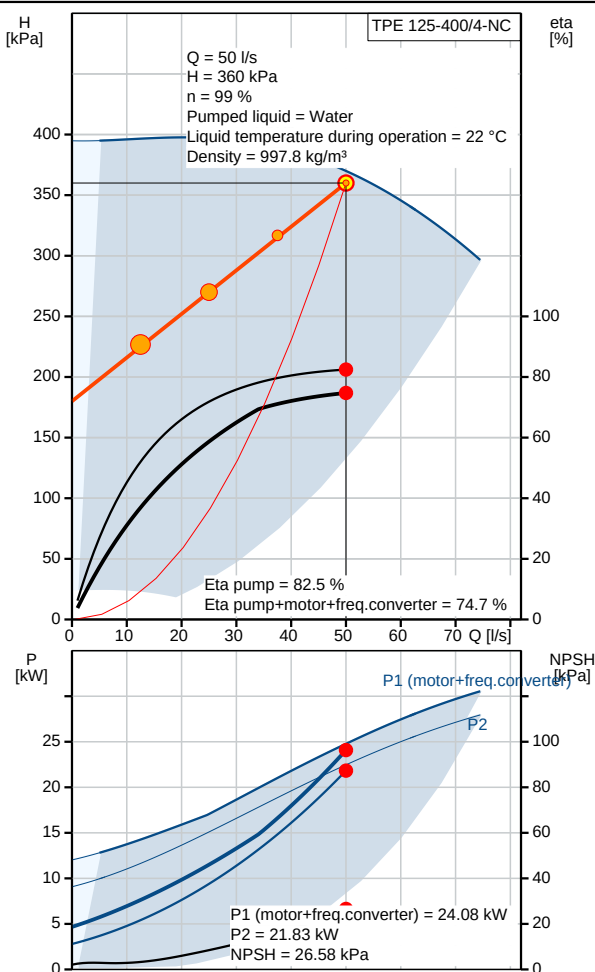
99473946 TPE 125-400/4-NC A-F-A-BQQE 50 Hz



Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW
 Secondary

Client:
Client Number:
Contact:

Description	Value
General information:	
Product name:	TPE 125-400/4-NC A-F-A-BQQE
Product No:	99473946
EAN number:	5713829699243
Technical:	
Pump speed on which pump data are based:	1470 rpm
Actual calculated flow:	50 l/s
Resulting head of the pump:	360 kPa
Head max:	400 dm
Actual impeller diameter:	334 mm
Primary shaft seal:	BQQE
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	A
Materials:	
Pump housing:	Cast iron EN-JL1040 ASTM A48-40 B
Impeller:	Cast iron EN-JL1030 ASTM A48-30 B
Material code:	A
Installation:	
Range of ambient temperature:	-20 .. 55 °C
Minimum ambient temperature:	0 °C
Maximum operating pressure:	16 bar
Flange standard:	DIN
Pipe connection:	DN 125
Pressure rating:	PN 16
Port-to-port length:	800 mm
Flange size for motor:	FF350
Connect code:	F
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-25 .. 120 °C
Liquid temperature during operation:	22 °C
Density:	997.8 kg/m ³
Kinematic viscosity:	0.95 mm ² /s
Electrical data:	
Motor type:	SIEMENS
IE Efficiency class:	IE3
Rated power - P2:	30 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380-420D/660-725Y V
Rated current:	57,5-54,0/33,5-31,5 A
Cos phi - power factor:	0.8
Rated speed:	1470 rpm
Efficiency:	IE3 93,6%
Motor efficiency at full load:	93.6-93.6 %
Efficiency at full load:	98 %
Motor efficiency at 3/4 load:	94.3-94.3 %
Motor efficiency at 1/2 load:	94.4-94.4 %
Number of poles:	4
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F





Company name: Grundfos Pumps Ltd
Created by: Gabriel Companis
Phone: 01525 850000
Email: grundfos-uk@sales.grundfos.com
Date: 07/03/2019

Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW
Secondary

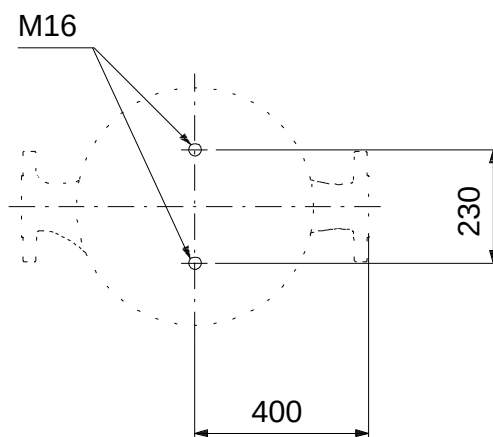
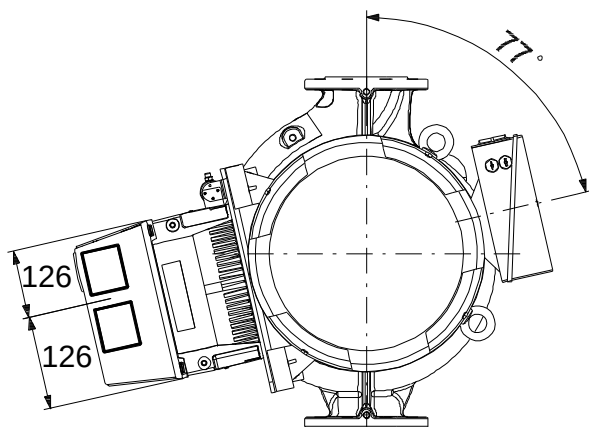
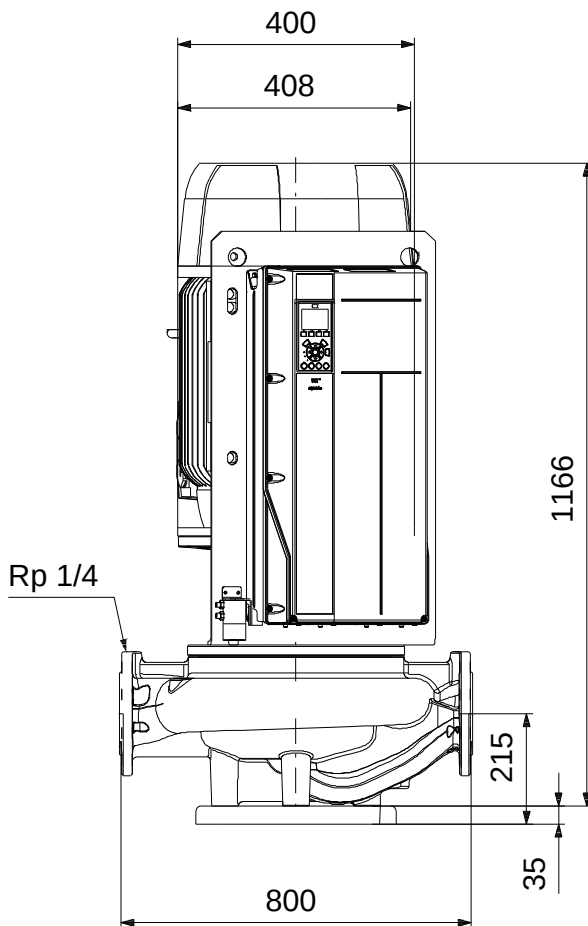
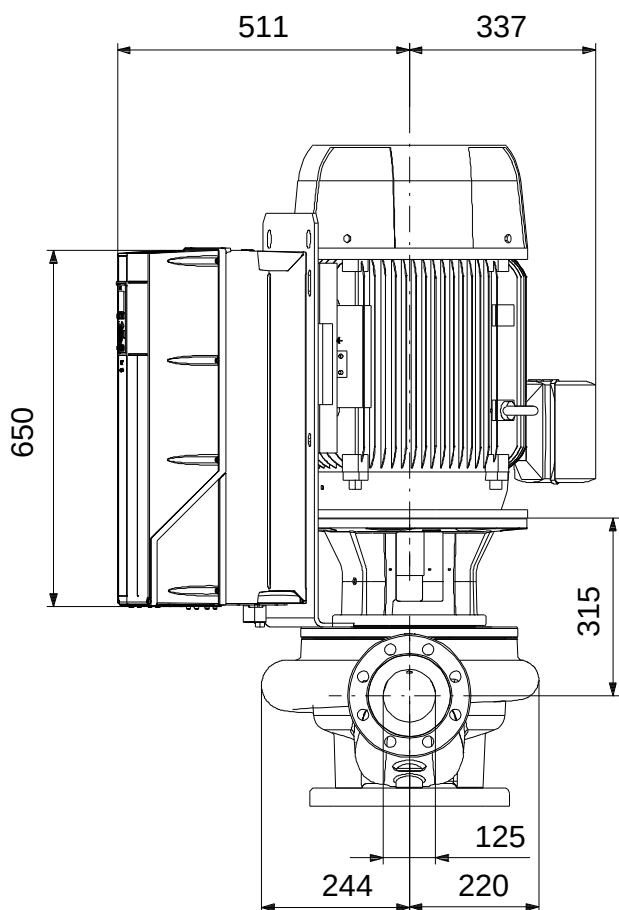
Client:
Client Number:
Contact:

Description	Value
Motor protec:	PTC
Motor No:	99454135
Controls:	
VFD product number:	99448799
Frequency converter:	Built-in
Type of frequency converter:	CUE 3X380-500V IP55 RUG 30KW
Appr. for VFD:	CE, CULUS, C-TICK
Others:	
Minimum efficiency index, MEI â%¥:	0.7
ErP status:	EuP Standalone/Prod.
Net weight:	500 kg
Gross weight:	550 kg
Shipping volume:	1.5 m³
Config. file no:	99465398
Country of origin:	HU
Custom tariff no.:	84137051

Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW
 Secondary

Client:
Client Number:
Contact:

99473946 TPE 125-400/4-NC A-F-A-BQQE 50 Hz

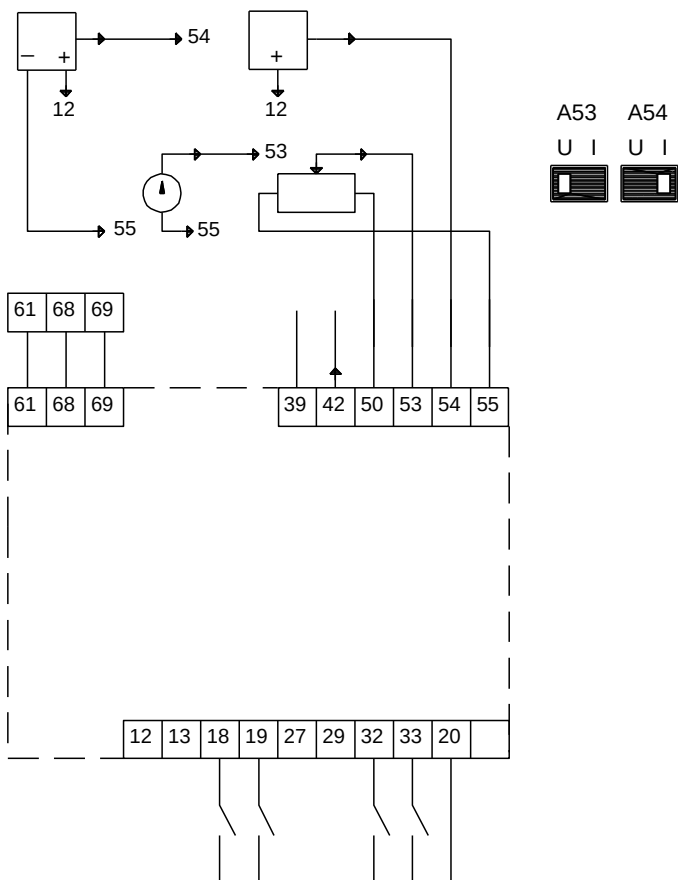
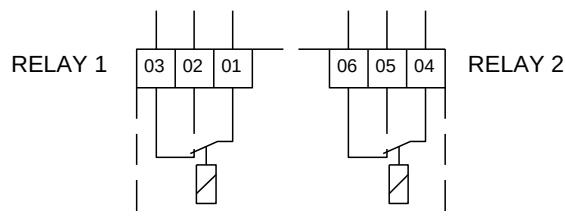
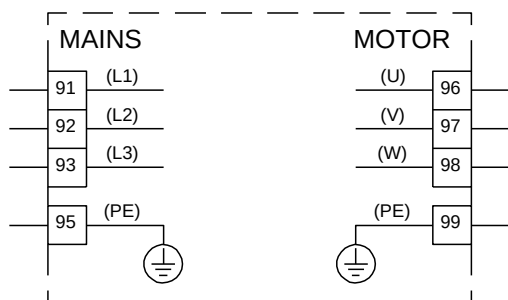


Note! All units are in [mm] unless others are stated.
 Disclaimer: This simplified dimensional drawing does not show all details.

Project: LHR19 Phase1 (Digital Realty)
Reference Number: SChWP/1; SChWP/2; SChWP/3 - CHW
 Secondary

Client:
Client Number:
Contact:

99473946 TPE 125-400/4-NC A-F-A-BQQE 50 Hz



Note! All units are in [mm] unless others are stated.

INERTIA BASE DATA SHEET

CUSTOMER: GRATTE BROTHERS	YOUR REF: DIGITAL REALITY LHR19
	GRUNDFOS REF: 1003730833
	ITEM NO: 2
	ITEM REF:
	MODEL: TPE 125-400/4-SC
DATE: 08/03/2019	QUANTITY: 3

NOTES:

- Base to be filled with concrete by contractor.
We recommend using the following mix:-
4 parts Gravel : 2 parts Sand : 1 part Cement
- Fixing holes in the Inertia Base for 'Equipment' to be determined by the contractor.
- Fixing holes in the floor to be determined by the contractor.
- Number of spring Anti-Vibration Mounts required: **4 off**
Type of spring Anti-Vibration Mount selected: **NSM-B Green**
(Maximum deflection at optimum load: 20 mm)
- Mountings to be fitted under height saving support brackets before the 'Equipment' is fitted. The assembly can then be levelled using the levelling device on each of the Anti-Vibration Mountings.
The overall depth of the Inertia Base is: 300 mm.
- Finish: One coat of primer
- All to be manufactured from mild steel to BS EN 10025 S275.
- Total Inertia Base weight including concrete and equipment (approx): **1495.50 kg**
(Weight of Inertia Base Steelwork only: 72.65 kg)
- Each mounting will have a point load of approximately: **373.90 kg**
- Refer to the relevant data sheets for base details of the Anti-Vibration Mountings.

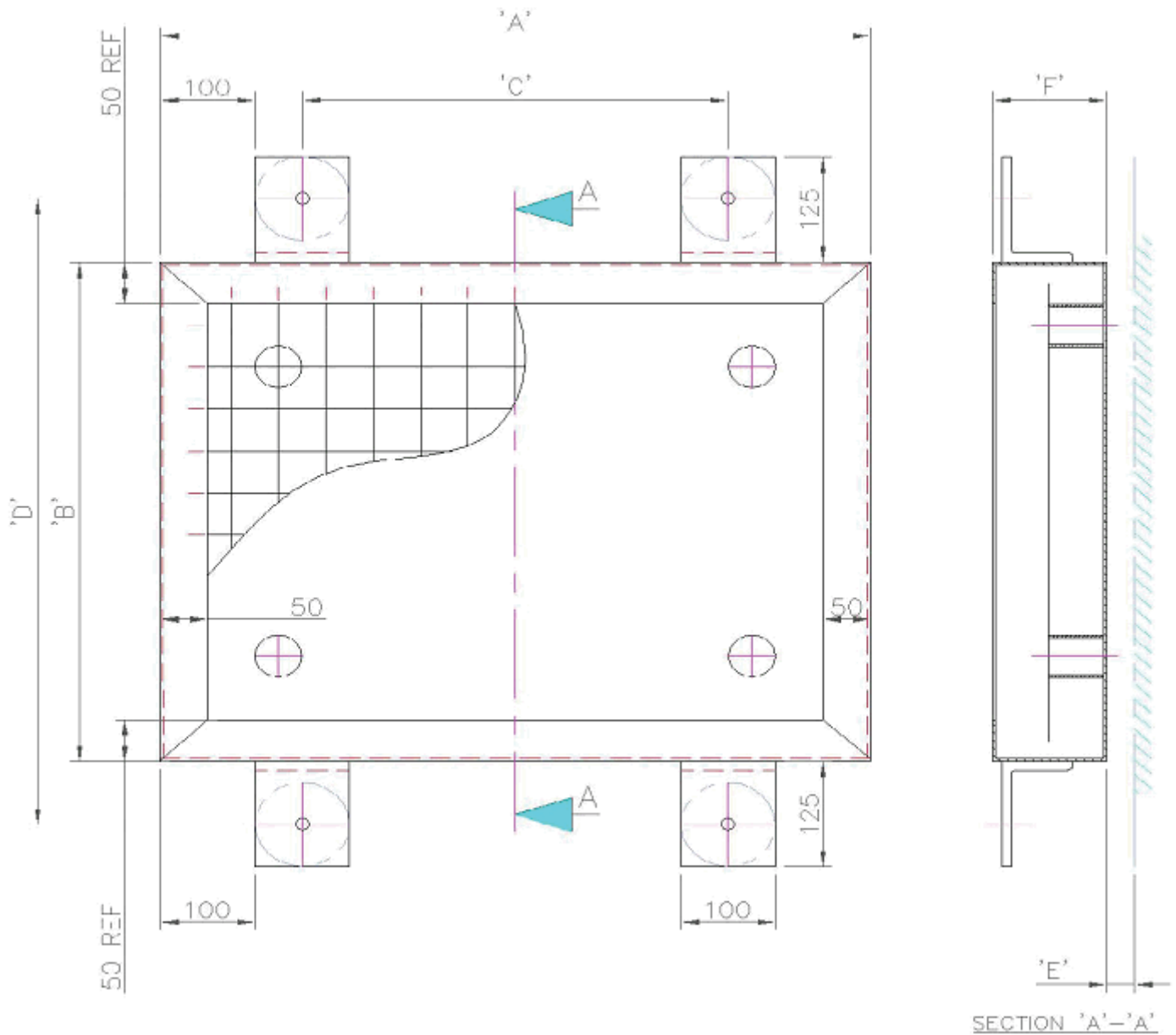
INSTALLATION INSTRUCTIONS:

- Ensure the Inertia Base is standing on a level surface prior to filling with concrete
- We recommend using the mix as detailed above
- Allow at least 24 hours for the concrete to set.
- Position the Anti-Vibration Mountings to the details shown in our 'Approved' drawing and lower the Inertia Base onto them.
- Line the 'Equipment' up onto the Inertia Base centrally and mark on the concrete the fixing bolt positions
- Lower the 'Equipment' onto the Inertia Base and fix into place using rawl bolts
- Level each mount as detailed in our separate data sheet 'NSM & NSM-B' installation instructions.
(Please note: DO NOT level above the maximum working height as shown in our data sheet).

Dimensions:	A: 1150 mm	D: 1250 mm
	B: 1100 mm	E: 30 mm
	C: 850 mm	F: 300 mm



4 MOUNT INERTIA BASE DATA SHEET



Grundfos Break tank & Booster sets (frame mounted - Tank above to the booster set) type
S-Hydro MPC-E 2 CRIE 3.8 1000 - CIM500 / Cat5 with variable speed pumps.

The Water package skid include:

Break Tank - Piece Cold Water Storage Tank

Model ref – PW1000 - GRP one piece water storage tank fully equipped with cover, screened vent + insulation.

- WRAS Approval - Cert No 1310060
- Internal dimensions - 1000 x 1000 x 1000mm high
- External dimensions – 1185 x 1185 x 1380mm high (including AB Air Gap Ball Valve Housing)

Nominal capacity – 1000 litres

Actual capacity – 825 litres

- Integral insulation – 25 mm
- Manway – Included , Inspection Hatch: 400mm diameter
- Raised float valve Chamber - Included c/w screened spill over weir
- Air Gap Designation - AB

Division - None

Internal Weir plate - None

Immersion Heater - None

Connections per tank including fitting

- 1 No 28mm Equilibrium valve c/w drop arm & float-
- 1 No 50mm screened overflow
- 1 No 22mm screened warning pipe
- 1 No 50mm PN16 flanged tank connector - outlet
- 1 No 1"mm drain kit c/w ¼ turn valve & cap
- 1 No 22mm screened lid vent
- All connections are WRAS Approval No 9-04-04

Connections or ancillary items not listed above

2 No 1" BSPF tank connectors (to suit level sensors)

2 No Level switch – MAC3KEY3-5 Low & High Level Switch

- All above items are WRAS Approval

Steel Support Frame

Quantity - 1 No

Dimensions - 2100 x 1100 x 1150mm high overall

Material - Steel box section

Construction - Fully welded

Finish - Painted Blue

Ply base board – Included

Booster Set

Grundfos fully packaged, skid mounted variable speed booster set type **Hydro MPC-E 2 CRIE 3-8**. Both the suction and discharge manifolds come complete with isolating valves on the suction and isolating valves and non return valves on the discharge of each pump.

Fully WRAS Approved Booster Set

- Pumps and pipework fittings are one base plate and the control panel is mounted on a separate base plate

- Control panel with Intelligent Multi-Pump Controller and colour screen display.

- **CIM 500 - Modbus ETHERNET interface – Factory Fitted**

- Q = 1 l/s ; H = 4 bar

- OPERATION MODE: Duty / Standby - each pump is rated at 1.0 litres/sec.

- 2" Stainless steel suction and discharge manifolds

- P = 2 x 1.1 kW / 1 x 220-240 V / 50 Hz

- Max closed valve pressure 7.24 bar.

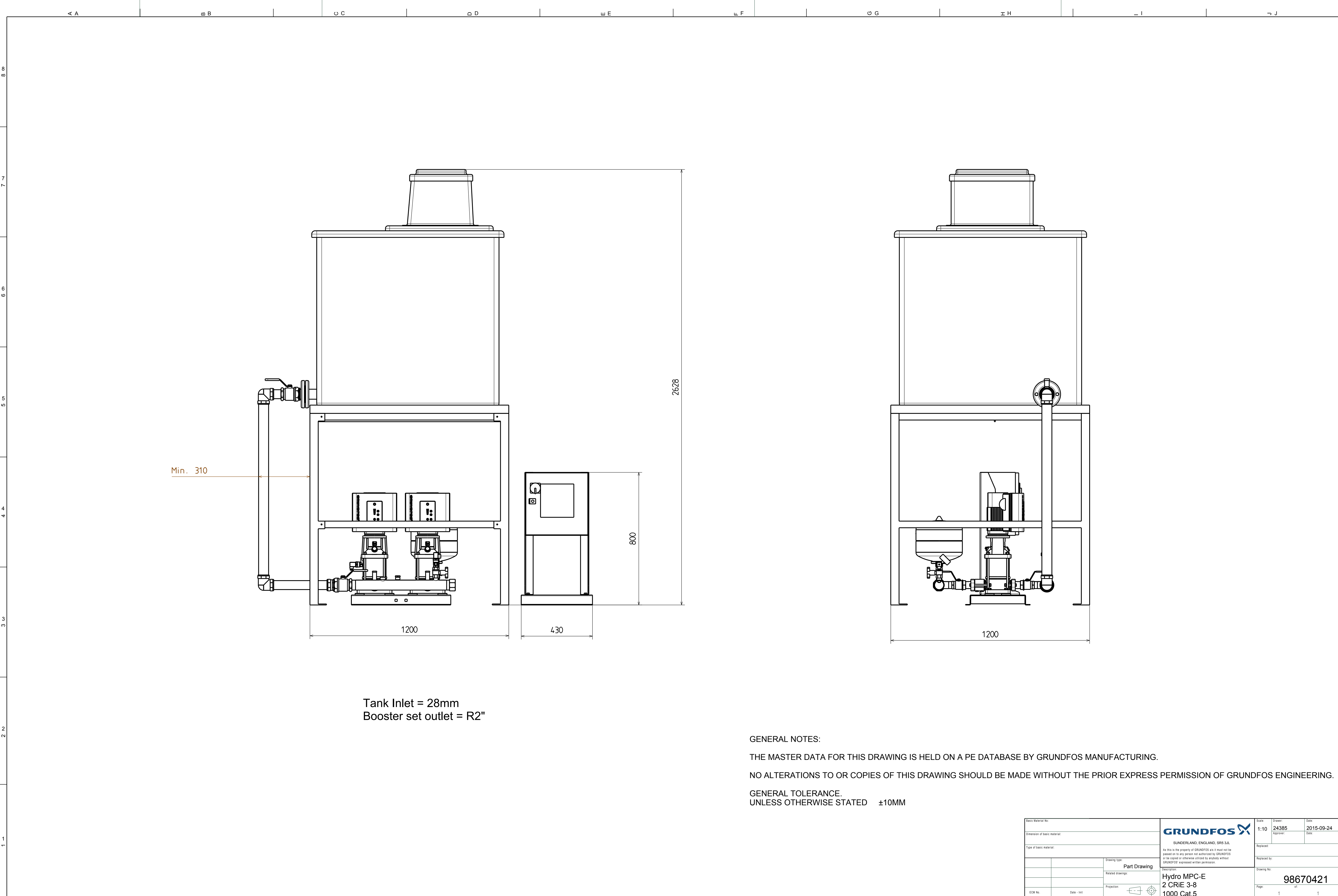
- Unit with BMS communication protocol

ADDITIONAL EXPANSION VESSEL IS NOT REQUIRED

The water package break tank & booster dimensions:

L x W x H : 2100 x 1100 x 2555 mm





GENERAL NOTES:

THE MASTER DATA FOR THIS DRAWING IS HELD ON A PE DATABASE BY GRUNDFOS MANUFACTURING.

NO ALTERATIONS TO OR COPIES OF THIS DRAWING SHOULD BE MADE WITHOUT THE PRIOR EXPRESS PERMISSION OF GRUNDFOS ENGINEERING.

GENERAL TOLERANCE.
UNLESS OTHERWISE STATED ±10MM

Basic Material No:		Scale:		Drawn:	Date:
Dimension of basic material:		1:10	24385	2015-09-24	
Type of basic material:		As this is the property of GRUNDFOS a/s it must not be passed on to any person not authorized by GRUNDFOS or be copied or otherwise utilized by anybody without GRUNDFOS' expressed written permission.		Replaced:	
Drawing type:		Part Drawing		Replaced by:	
Revised drawings:		Description:		Drawing No:	98670421
Projection:		Hydro MPC-E 2 CRIE 3-8 1000 Cat.5		Page:	1
ECM No:	Date - Iss:	Part Version		Doc. Revision	1

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PMP-CW-001 & 002 - Boosted Cold Water

Client:
Client Number:
Contact:

Position	Qty.	Description
	1	Hydro MPC-E 2 CRIE3-8  Note! Product picture may differ from actual product Product No.: 98426899 Pressure booster system supplied as compact assembly according to DIN standard 1988/T5. All pumps are speed-controlled. From 0.37 to 11 kW, the booster system is equipped with CR, CRE, CRI, CRIE pumps with electronically commutated permanent-magnet motors with extremely high efficiency. The total efficiency of the motor including the frequency converter applies to IE5 level in IEC60034-31. From 15 to 22 kW, the booster system is equipped with CR, CRE, CRI, CRIE pumps with motors with integrated frequency control. The total efficiency of the motor including the frequency converter is better than the IE3 level in IEC60034-31, even though this standard only applies to the motor. * Hydro MPC-E maintains a constant pressure through continuous adjustment of the speed of the pumps. * The system performance is adapted to the demand through cutting in/out the required number of pumps and through parallel control of the pumps in operation. * Pump changeover is automatic and depends on load, time and fault. The system consists of these parts: * Pump parts in contact with the pumped liquid are made of stainless steel EN DIN 1.4301 * Pump bases and heads are of either cast iron/stainless steel (CRI) or cast iron EN-GJS-500-7 (CR), depending on pump type; other vital parts are made of stainless steel EN DIN 1.4301 * The pumps are equipped with a service-friendly cartridge shaft seal, HQQE (SiC/SiC/EPDM) * Two stainless steel manifolds to EN DIN 1.4571 * Stainless steel base frame to EN DIN 1.4301 up to CR 64. Above CR 64 the pumps are placed on a galvanized C-profile frame * One non-return valve (POM) and two isolating valves for each pump * Non-return valves are certified according to DVGW, isolating valves according to DIN and DVGW * Adapter with isolating valve for connection of diaphragm tank * Pressure gauge and pressure transmitter (analog output 4-20 mA) * Control MPC in a steel cabinet, IP54, including main switch, all required fuses, motor protection, switching equipment and microprocessor-controlled CU 352. Dry-running protection and diaphragm tank are available according to the list of accessories. Pump operation is controlled by Control MPC with the following functions: * Intelligent multipump controller, CU 352. - Constant-pressure control through continuously variable adjustment of the speed of each individual pump. - PID controller with adjustable PI parameters ($K_p + T_i$). - Constant pressure at setpoint, independent of inlet pressure. - Soft pressure build-up (To prevent water hammer during startup). - On/off operation at low flow. - Automatic cascade control of pumps for optimum efficiency.



Company name: Grundfos Pumps Ltd
Created by: Gabriel Companis
Phone: 01525 850000
Email: grundfos-uk@sales.grundfos.com
Date: 16/10/2018

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PMP-CW-001 & 002 - Boosted Cold Water

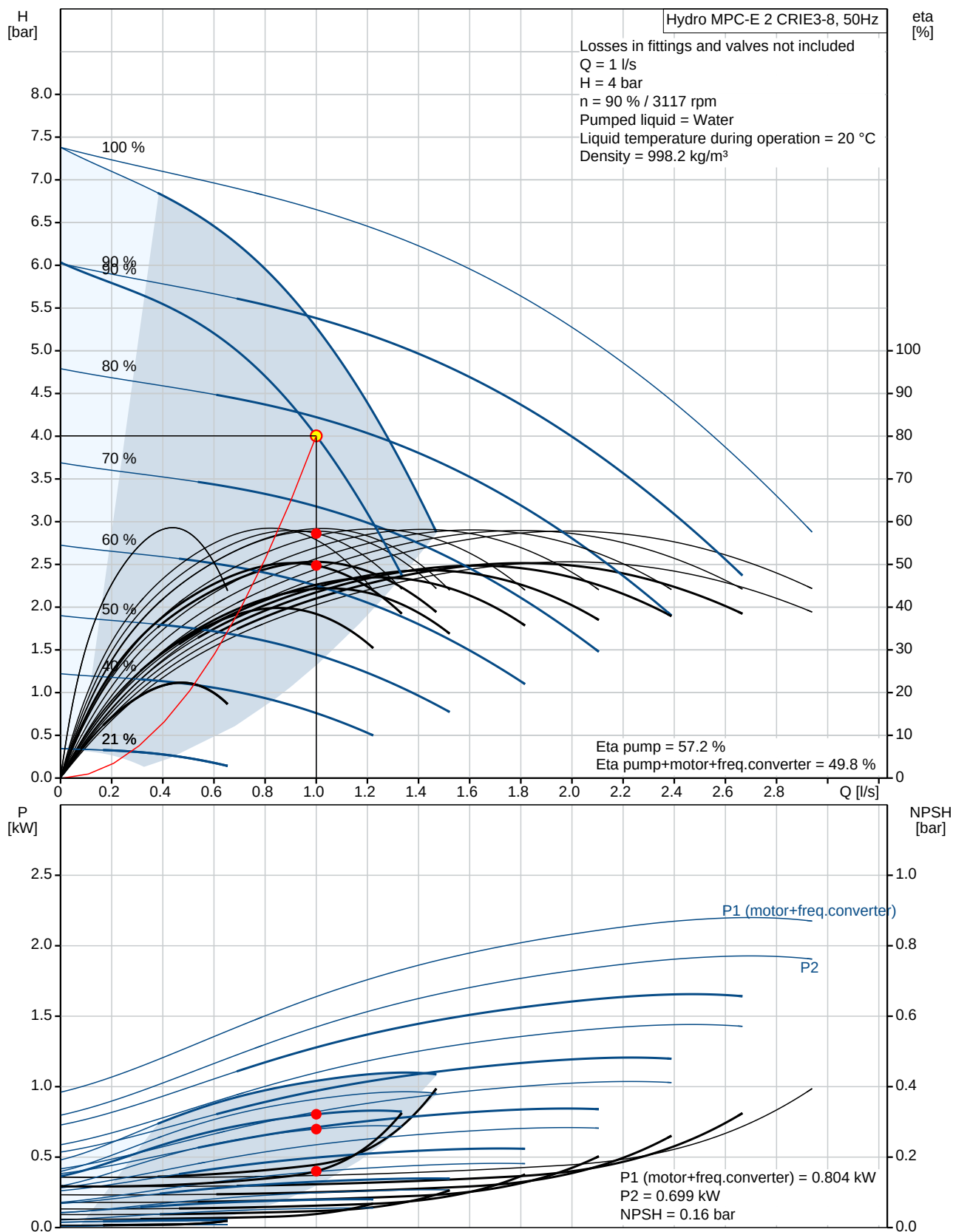
Client:
Client Number:
Contact:

Position	Qty.	Description
		Selection of min. time between start/stop, automatic pump changeover and pump priority. Automatic pump test function to prevent idle pumps from seizing up. Possibility of standby pump allocation. Possibility of backup sensor (redundant primary sensor). Secondary sensor (Possible to switch to another sensor/setpoint). Multi-sensor (up to 6 sensors to influence the setpoint). Manual operation. Possibility of external setpoint influence. Log function. Setpoint ramp. Possibility of digital remote-control functions: System on/off. Max., min. or user-defined duty. Up to 6 alternative setpoints. Digital inputs and outputs can be configured individually. Pump and system monitoring functions: Minimum and maximum limits of current value. Inlet pressure. Non-return valve monitoring. Motor protection. Sensors and cables monitored for malfunction. Alarm log with the previous 24 warnings/alarms. Display and indication functions: Colour screen display. Green indicator light for operating indications and red indicator light for fault indications Potential-free changeover contacts for operation and fault. Grundfos bus communication.
		It is possible to add CIM communication modules for communicating with Scada/BMS.
		Pumps, piping, cabling complete as well as Control MPC are mounted on the base frame. The booster system has been preset and tested.
		Flow media: Water Allowed liquid temp.: 5 °C .. 60 °C System pressure max.: 16 bar Flow (Plant): 3.056 l/s Flow without one stand-by pump acc. DIN 1988/T5: 1.389 l/s Flow (Pump): 1 l/s Head: 4 bar Mains supply: 220-240 V Nom. current of plant: 9,8A-230V Nominal power: 1.1 kW Net weight: 99 kg
		Maximum head: 7.244 bar Maximum flow: 3.056 l/s

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PMP-CW-001 & 002 - Boosted Cold Water

Client:
Client Number:
Contact:

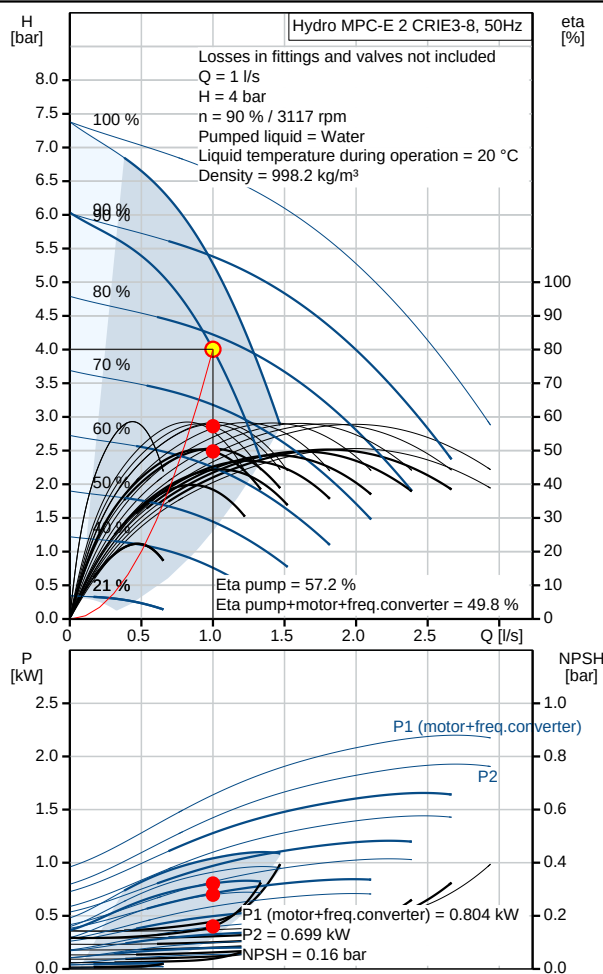
98426899 Hydro MPC-E 2 CRIE3-8 50 Hz



Project: LHR19 Phase1 (Digital Realty)
Reference Number: PMP-CW-001 & 002 - Boosted Cold Water

Client:
Client Number:
Contact:

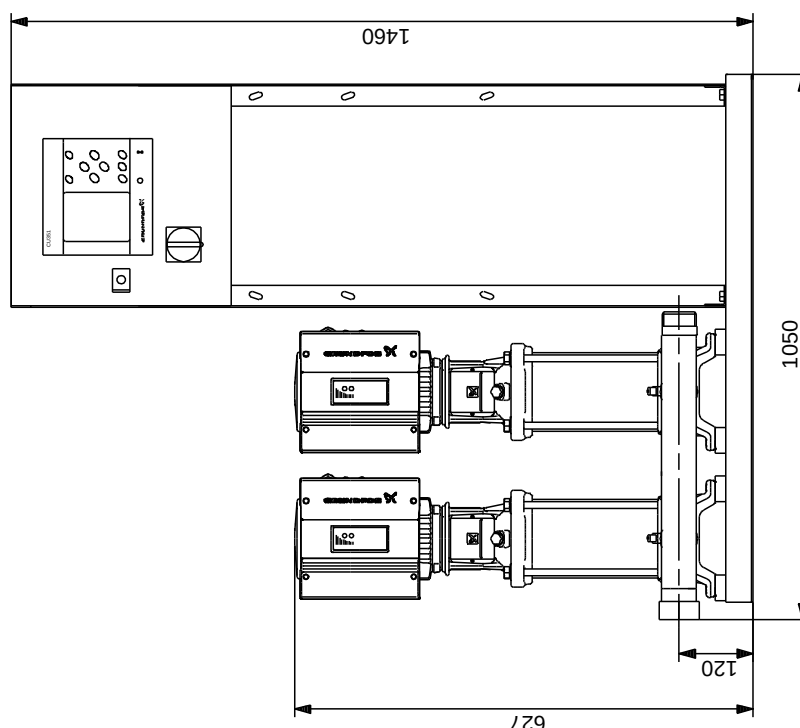
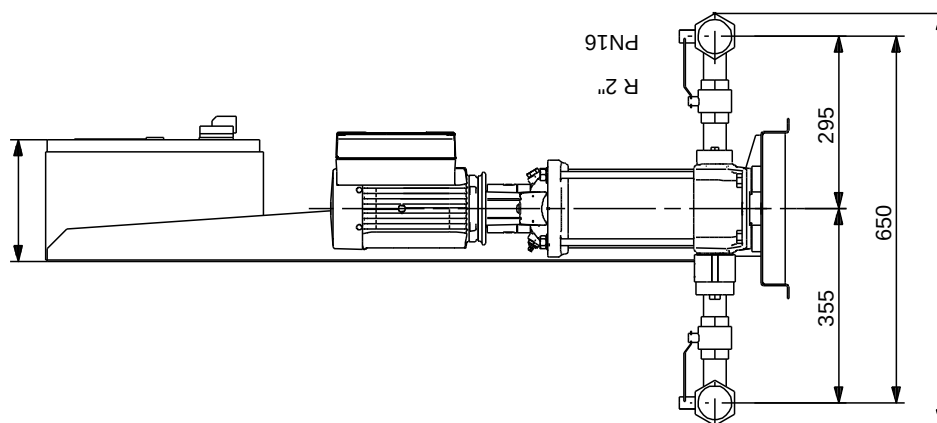
Description	Value
General information:	
Product name:	Hydro MPC-E 2 CRIE3-8
Product No:	98426899
EAN number:	5711494818037
Technical:	
Actual calculated flow:	1 l/s
Min flow system:	0.8333 l/s
Max flow:	3.056 l/s
Max flow system:	1.389 l/s
Resulting head of the pump:	4 bar
Head max:	7.244 bar
Main pump name:	CRIE3-8
Main pump No:	98389729
Number of pumps:	2
Non-ret. valve:	at discharge side
Materials:	
Manifolds:	EN/DIN 1.4571/ AISI 316 TI
Installation:	
Maximum operating pressure:	16 bar
Maximum inlet pressure:	13.2 bar
Manifold inlet:	R 2"
Manifold outlet:	R 2"
Pressure rating:	PN16
Earth connectio:	N, PE
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	5 .. 60 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m ³
Electrical data:	
Power (P2) main pump:	1.1 kW
Mains frequency:	50 Hz
Rated voltage:	1 x 220-240 V
Rated current of system:	9,8A-230V
Start. method:	electronically
Enclosure class (IEC 34-5):	IP54
Radio interference supression:	EMC DIRECTIVE(2014/30/EU)
Controls:	
Control type:	E
Tank:	
Diaphragm tank:	Yes
Others:	
Basis plant:	Y
Net weight:	99 kg
Gross weight:	120 kg
Product range:	GB
Config.file Control MPC:	98271946
Config.file Hydro MPC:	98272014
Country of origin:	GB
Custom tariff no.:	84137075



Project: LHR19 Phase1 (Digital Realty)
Reference Number: PMP-CW-001 & 002 - Boosted Cold Water

Client:
Client Number:
Contact:

98426899 Hydro MPC-E 2 CRIE3-8 50 Hz



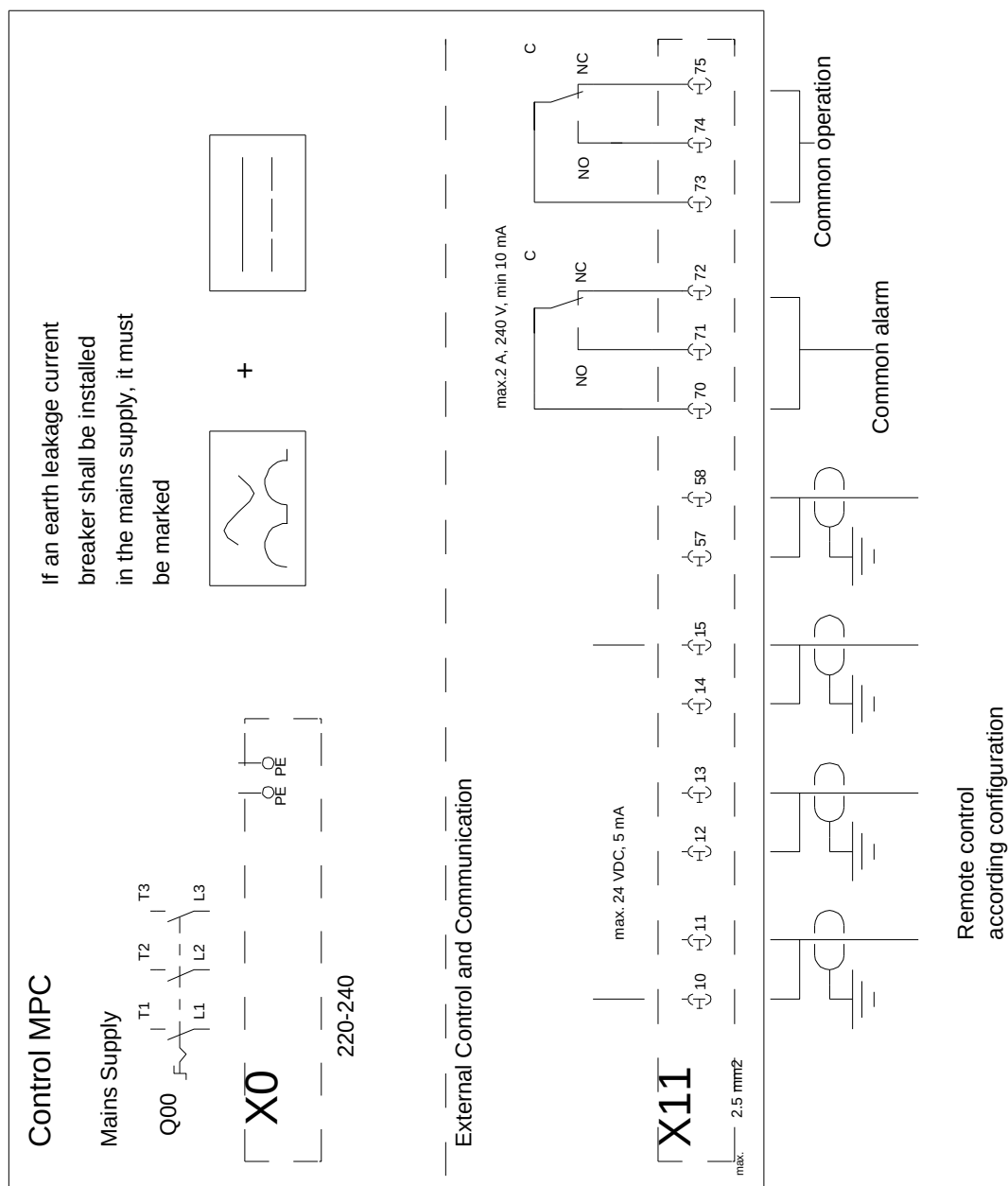
Note! All units are in [mm] unless others are stated.
 Disclaimer: This simplified dimensional drawing does not show all details.

Project: LHR19 Phase1 (Digital Realty)
Reference Number: PMP-CW-001 & 002 - Boosted Cold Water

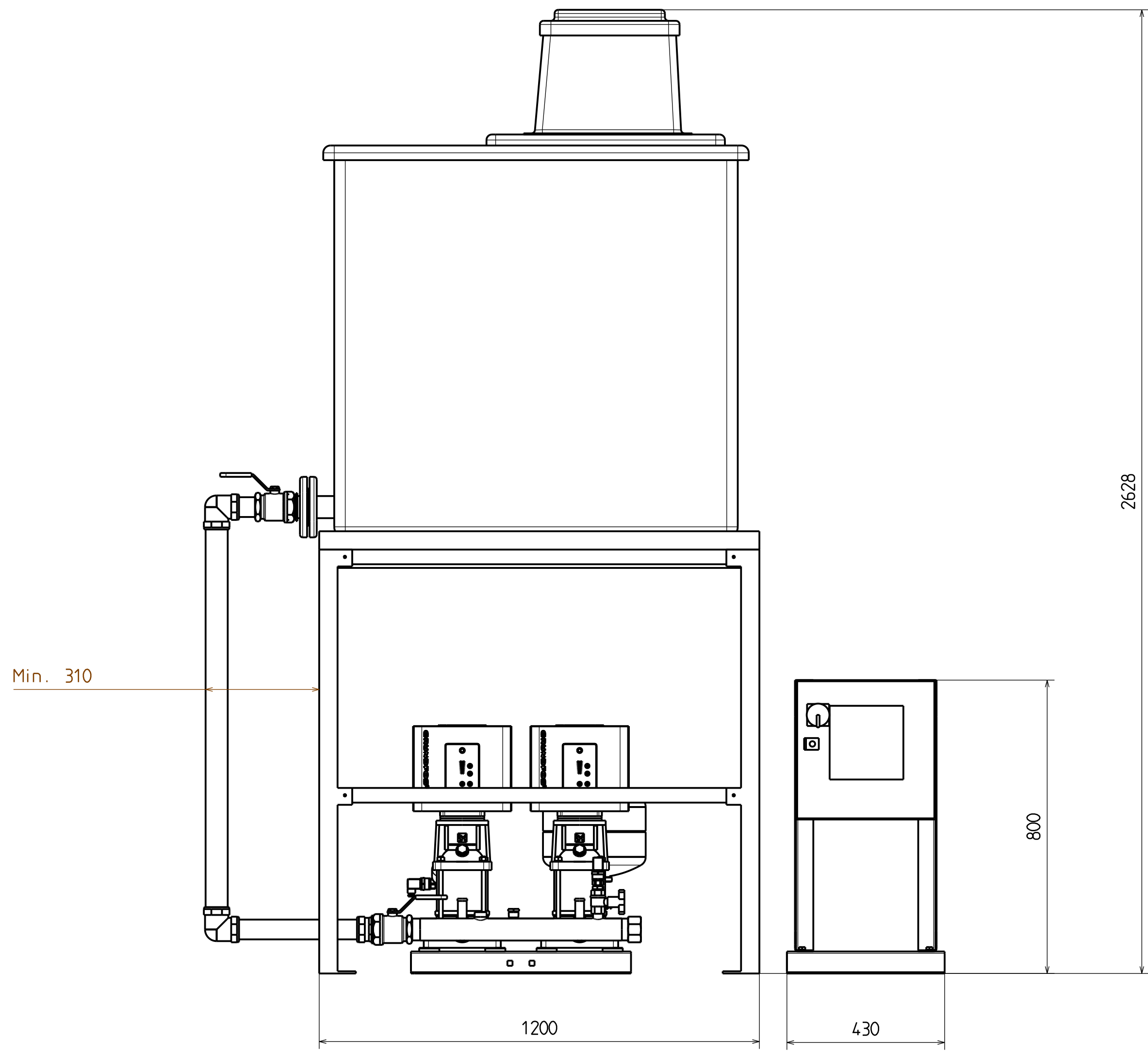
Client:
Client Number:
Contact:

98426899 Hydro MPC-E 2 CRIE3-8 50 Hz

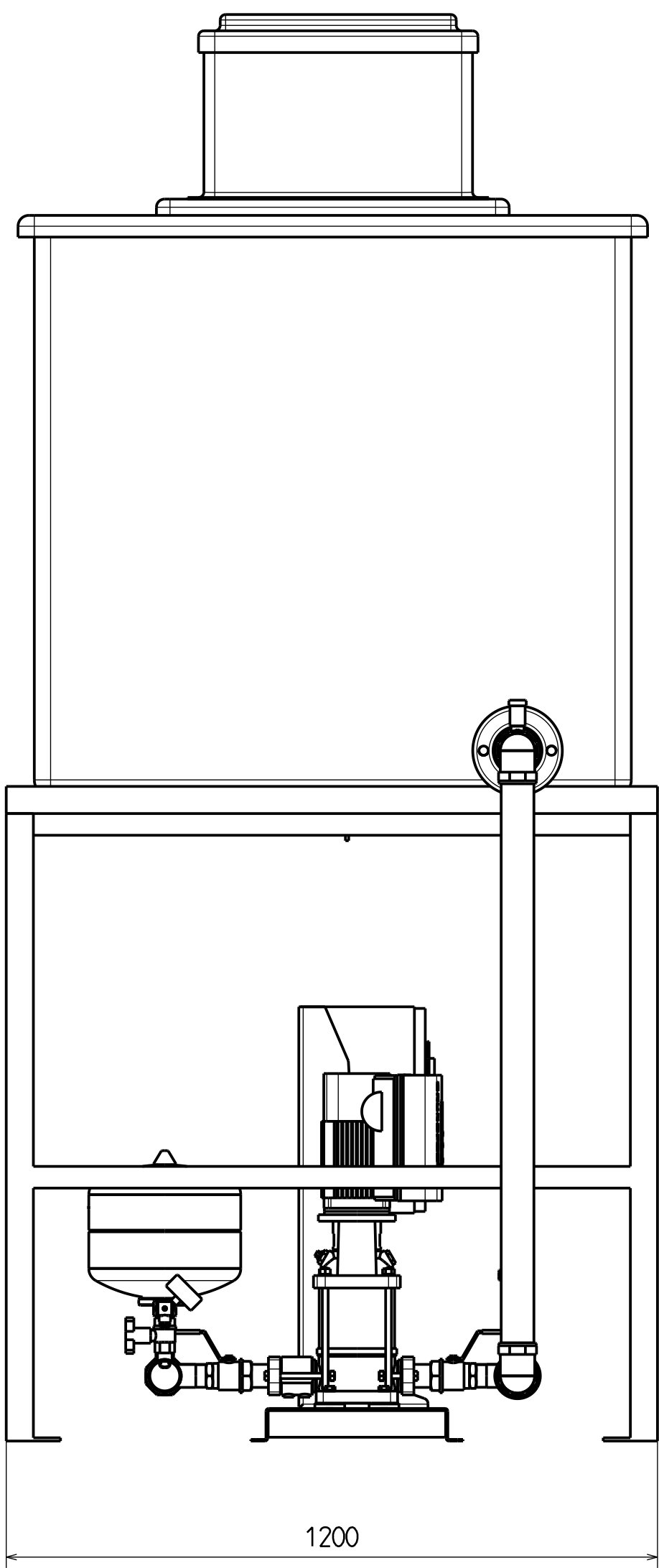
Field Wiring



Note! All units are in [mm] unless others are stated.



Tank Inlet = 28mm
Booster set outlet = R2"



GENERAL NOTES:
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GENERAL TOLERANCE.
UNLESS OTHERWISE STATED ±10MM

Basic Material No:		Scale: 1:10		Drawn: 24385	Date: 2015-09-24
Dimension of basic material:		SUNDERLAND, ENGLAND, SR5 3JL		Approved:	Date:
Type of basic material:		As this is the property of GRUNDFOS a/s it must not be passed on to any person not authorized by GRUNDFOS or be copied or otherwise utilized by anybody without GRUNDFOS' expressed written permission.		Replaced:	
Drawing type: Part Drawing		Description: Hydro MPC-E 2 CRIE 3-8 1000 Cat.5		Replaced by:	
Revised drawings:		Projection:		Drawing No: 98670421	
ECM No:		Date - Iss:		Page: 1 of 1	
				Part Version: 1 Doc. Revision: 1	

Grundfos 'AnTi-Shock' & "Surge Anticipation" Valve

PIPE SYSTEM PROTECTOR!

- Dampens effect of Water-Hammer at pump startup
- Provides vacuum protection when the pump stops and the riser drains

- **Automatic Surge Protection**

The unique Grundfos "AnTi-Shock" valve incorporates as standard, three design features to automatically protect building risers under all operating conditions, from the destructive surge and water hammer phenomena. These features are independent of any mechanical devices ensuring reaction in a very low milli second time span.

- **Vacuum Protection**

The Grundfos "AnTi-Shock" valve utilises the large orifice to admit air in the riser thus preventing vacuum occurring when the booster set is down (powered off).

- **Effective Air Release**

During filling, air is forced through an "Anti-Shock" orifice resulting in the deceleration of the approaching water column due to the resistance of rising air pressure in the valve. This dampens potential pressure transients when the air valve closes. The "AnTi-Shock" valve design, ensures effective de-aeration under all pipeline flow and operating conditions, via either one of three discharge orifices.

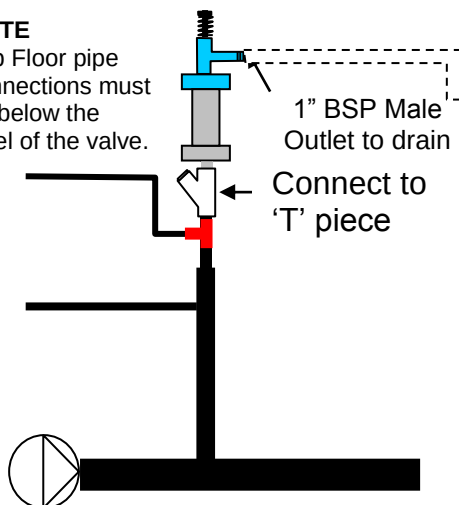
- **Guaranteed Performance**

The Grundfos "AnTi-Shock" valve has been designed and developed to provide the optimum usable and safe performance relative to all functions. Selection data has been substantiated through third party testing and can therefore be confidently referenced.



NOTE

Top Floor pipe connections must be below the level of the valve.



TYPICAL ARRANGEMENT

The Grundfos "AnTi-Shock" valve must be installed at the top of *each* riser to ensure adequate Water-Hammer protection. A suitable isolating valve should also be installed to facilitate maintenance.

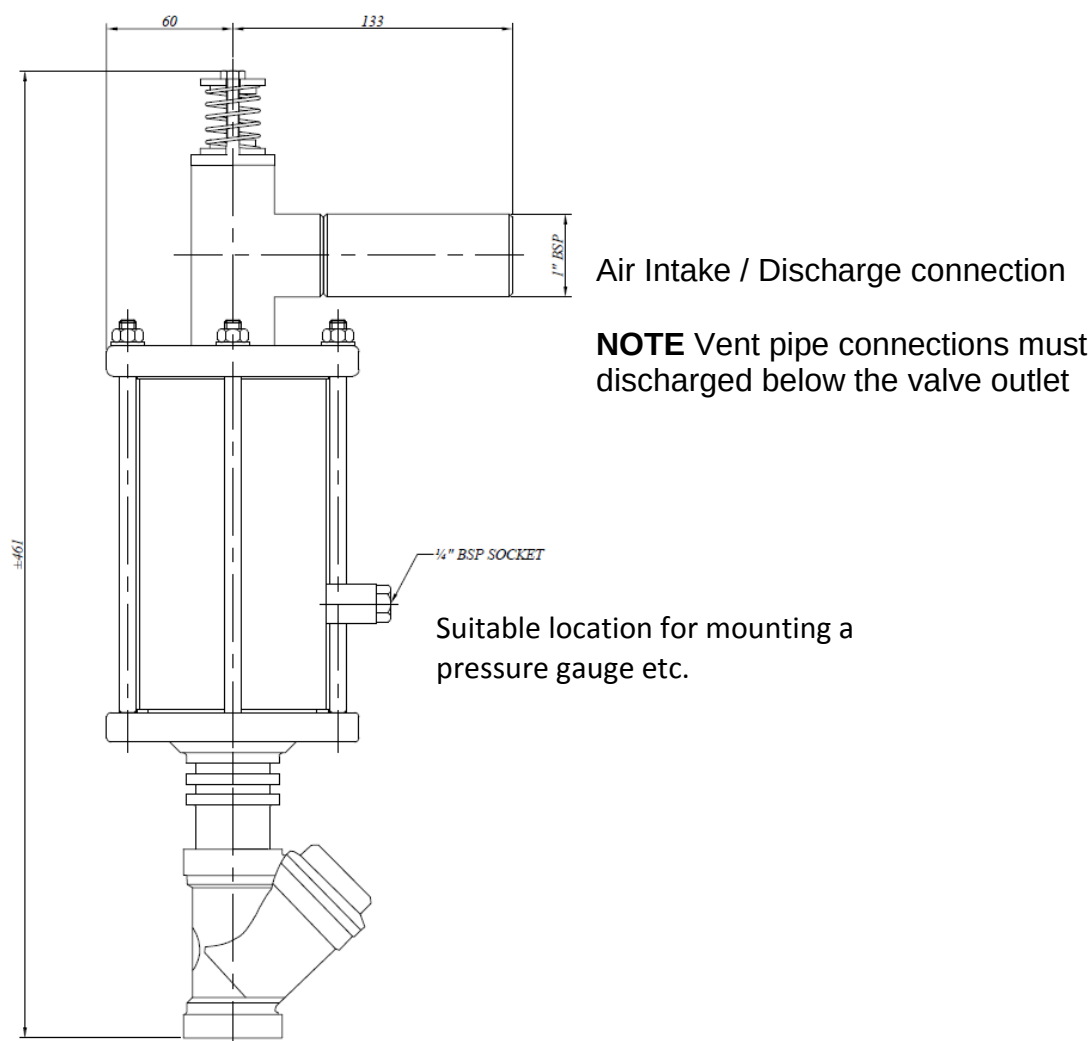
NOTE

- To ensure proper operation the pipeline must be adequately flushed prior to installation.
- Valve must be mounted directly to 'T' connection supplying the final branch of the riser. Refer to WRAS IRN R535 note for installation guidance

GRUNDFOS®



Grundfos “AnTi-Shock” Valve



TECHNICAL DATA

Minimum operating pressure									0.5 Bar g	
Maximum operating pressure									25 Bar g	
End connections (With fitted strainer)									1" BSP Female	
Size		Grundos Model No.	Pressure Rating	A mm	B mm	C mm	D mm	E mm	Weight Kg.	Maximum (Riser) Pipe Dia. mm
mm	In.									
25	1"	"AnTi-Shock"	PN25	60	461 +/- 3	133	1" BSP Male	1" BSP Female	6	200

WRAS APPROVAL NO: 1712050

IRN R535 - The length of connecting pipework to this fitting should be kept to a minimum to prevent stagnation



This certifies that

CLA-VAL UK LTD.

*has had the undermentioned product examined, tested and found,
when correctly installed, to comply with the requirements of the
United Kingdom Water Supply (Water Fittings) Regulations and
Scottish Water Byelaws.*

**RBX & RBXB SERIES OF AUTOMATIC AIR VENTING VALVES
(FOR MODELS COVERED, PLEASE REFER TO THE WRAS
PRODUCT APPROVALS DIRECTORY OR THE ACCOMPANYING
APPROVAL LETTER)**

*The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current
status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)*

The product so mentioned will be valid until the end of:

December 2022

1712050

Certificate No.

A handwritten signature in black ink, appearing to read 'J. Furnival'.

Secretary

A handwritten signature in black ink, consisting of several vertical strokes followed by a horizontal line.

Chairman, Product Assessment Group



23rd April 2018

Cla-Val UK Ltd.
Dainton House,
Goods Station Road,
Tunbridge Wells,
Kent
TN1 2DH

Water Regulations Advisory Scheme Ltd.
Unit 13, Willow Road,
Pen y Fan Industrial Estate,
Crumlin,
Gwent,
NP11 4EG

Approval Number: 1712050

Dear Sir/Madam

1. Production samples of the products described in Approval Information ("Products") have been subjected to relevant mechanical and water quality tests contained in the "Regulators' Specifications" for the purposes of your application for WRAS Approval.
2. After considering the test reports and examining the Product/s, The Water Regulations Advisory Scheme Ltd. ("WRAS Ltd" / "WRAS") finds that their use, when correctly installed (see paragraph 3) complies with the requirements of The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and all other applicable WRAS requirements from time to time.

The non-metallic materials of construction, in contact with the water, are suitable for contact with wholesome water intended for domestic purposes having met the requirements of BS 6920-1: 2000 and/or 2014 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.

WRAS Approvals are granted subject to and in accordance with the Standard Terms and Conditions of WRAS Fittings Approval as amended from time to time ("**Standard Terms of Approval**"). You have confirmed your acceptance of the Standard Terms of Approval by submitting your application for WRAS Approval. A copy of the current Standard Terms of Approval are attached to this letter as Appendix B and are also available from the WRAS website: www.wras.co.uk.

Terms defined in the Standard Terms of Approval shall have the same meaning in this letter unless the context otherwise requires.

3. Installation Requirements & Notes (IRNs) are set out in Appendix A. WRAS Product Approvals may include one or more IRNs, which must be followed by the installer to ensure that the product is installed correctly to comply with The Regulations and Byelaws. Since the incorrect installation of products could result in contravention of the Regulations or Byelaws requirements, **the attention of your customers should be drawn to any IRNs.**
4. Please note that the use of the Products described in any particular area of supply is at the discretion of the Water Undertaker in that area.
5. Approval Holders may quote in their sales literature that **WRAS finds that the use of these products, when correctly installed, will not contravene the requirements of** The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.
6. The "WRAS Approved Product" logos are certification marks registered under the Trade Marks Acts 1994 ("**Certification Marks**"). Approval Holders may use the Certification Marks in accordance with the Standard Terms of Approval.
7. Please verify the details of your Product as set out in the approval information and advise us of any discrepancies by no later than **23rd May 2018**

Yours Faithfully

A handwritten signature in dark ink, appearing to read 'Jason Furnival', written in a cursive style.

Jason Furnival
Secretary, Product Approval Group

APPROVAL INFORMATION

Validity dates: This approval is valid for fittings (as listed below in model) manufactured AND installed between December 2017 & December 2022

Section Number: **1980**

Section title: **VALVES - AIR VENTING.**

Installation requirement notes: **R001**
(IRN's are set out in Appendix A)

Product description: Range of automatic air venting valves with stainless steel bodies.
Maximum operating pressure (2511 models) 25.0 bar & (1601 models) 16.0 bar.
Cold water use only.

Identification Marking: Vent o mat, model and pressure on data plate on body.

Manufacturer: Dynamic Fluid Control (Pty) LTD. (Vent-O-Mat)

Factor: Cla-Val UK Ltd.

Model: RBX Series – BSP/NPT:
025RBX2511CS4 (DN25) - 1" BSP/NPT (M) Inlet &
050RBX2511CS4 (DN50) - 1½" BSP/NPT (M) Inlet. – Okay for now until changes made between us and NSF

RBX Series – Flanged:
080RBX1601 - DN80,
100RBX1601 - DN100,
150RBX1601 - DN150 &
200RBX1601 - DN200.

RBXB Series:
025RBXB2511CS4 (DN25) - 1" BSP/NPT (M) Inlet &
050RBXB2511CS4 (DN50) - 1½" BSP/NPT (M) Inlet/Outlet.

RBXB Series:
025RBXB2511CS4TO (DN25) - 1" BSP/NPT (M) Inlet/Outlet.
050RBXB2511CS4TO (DN50) - 1½" BSP/NPT (M) Inlet/Outlet.



This certifies that

GRUNDFOS HOLDING A/S

*has had the undermentioned product examined, tested and found,
when correctly installed, to comply with the requirements of the
United Kingdom Water Supply (Water Fittings) Regulations and
Scottish Water Byelaws.*

**'HYDRO MPC' RANGE OF BOOSTER SETS (FOR MODELS AND SIZES COVERED BY THE
SCOPE OF THE APPROVAL PLEASE CONSULT THE ACCOMPANYING WRAS APPROVAL
LETTER AND/OR WRAS ONLINE DIRECTORY)**

*The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current
status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)*

The product so mentioned will be valid until the end of:

October 2023

1810901

Certificate No.

A handwritten signature in black ink, appearing to read 'J Funnell', written over a horizontal line.

Secretary

A handwritten signature in black ink, consisting of several vertical strokes followed by a horizontal line, written over a horizontal line.

Chairman, Product Assessment Group

Type JP23VS Tied Stainless Steel Flanged Pump Connector.

Now Available With Precision Fit Flexible Lagging Jackets To Suit JP23VS.

Specification Tied stainless steel pump connector consisting of multiply stainless steel grade 321 bellows assembly and mating surfaces (stainless steel wetted parts) fitted with zinc plated carbon steel van stone oval flanges complete with fully threaded tie bars and rubber top hat washers. Drilled to BS4504 NP16.

Application Tied Stourflex stainless steel pump connectors are designed to reduce noise and vibration from pumps and reciprocating machinery. They are suitable for use on HWS, L.T.H.W., M.T.H.W., Steam, Gasses and other non ferrous applications.

Maximum working temperature 120°C when supplied with rubber top hat washers.
Maximum working temperature 300°C when supplied with steel conical nuts and washers.
Maximum working pressure 16 bar.
Stourflex tied stainless steel flanged pump connectors should not be used at both their maximum working temperature and pressure respectively.
Maximum test pressure = 1.5 x working pressure or 1.5 x flange rating, whichever the lower.



WRAS
APPROVED
PRODUCT

Lagging - Stourflex are now able to offer a tailor made flexible lagging jacket to help reduce heat losses on LTHW systems and heat gains & condensation on CHW systems. Please ask for more information.

Part number	N.B. (mm)	Installed Length (mm)	Axial Movement +/- (mm)	Lateral Movement (+/-mm)	Max Working Pressure (bar)	Max. Cold Test Pressure (bar)
JP23VS-32	32	130	3	2	16	24
JP23VS-40	40	130	3	2	16	24
JP23VS-50	50	130	3	2	16	24
JP23VS-65	65	130	3	2	16	24
JP23VS-80	80	130	3	2	16	24
JP23VS-100	100	130	3	2	16	24
JP23VS-125	125	130	3	2	16	24
JP23VS-150	150	130	3	2	16	24
JP23VS-200	200	200	5	2	16	24
JP23VS-250	250	200	5	2	16	24
JP23VS-300	300	200	5	2	16	24

Where vacuum conditions or pressure and temperatures exist above those stated, please check with us the suitability of and effects on service life of Stourflex products.

Tie bar assemblies can be fitted with, rubber top hat, steel conical, or steel mesh washers, to suit application and temperature up to 300°C.

Stourflex Type JP23VS tied stainless steel flanged pump connectors are available with stainless steel 321 internal flow sleeve on request.

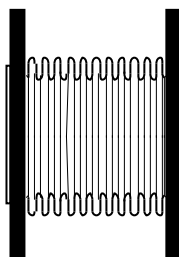
Alternative flange materials and drillings are available on request, Including WRAS approved 25bar rated JP23VS, please contact us for details.

Please refer to guidance notes for the correct use and installation of Stourflex tied pump connectors.

Installation, Operation and Maintenance Instructions For Stainless Steel Pump Connectors Tied and Untied

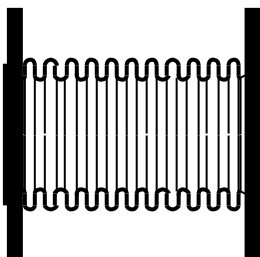
- Storage** Stainless steel flanged pump connectors should be stored in a clean dry area and be protected from damage caused by other items of plant and equipment.
- Inspection** Stainless steel flanged pump connectors should be inspected for external damage to the stainless steel convolutions prior to installation
- Selection** Check that the correct stainless steel flanged pump connector has been selected for the operating conditions that exist. If the pump connector is being used on potable or domestic hot water services ensure the unit has been supplied with stainless steel flanges.
- Installation** Stainless steel flanged pump connectors should be fitted at their correct installation length. They should not be compressed or extended. Pipework should be true and straight and adjustments made if dimensions exceed movement capabilities of the pump connectors being installed.

Correct Installation Length



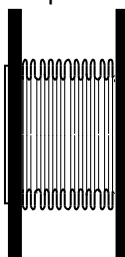
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Extension



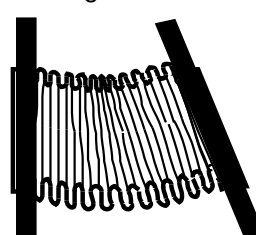
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Compression



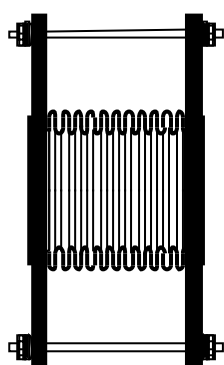
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Angulation



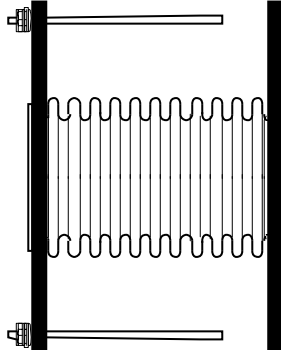
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Correct Installation Length



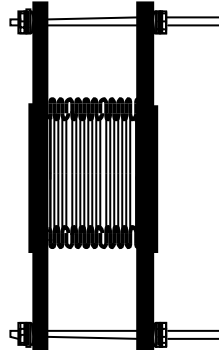
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Extension



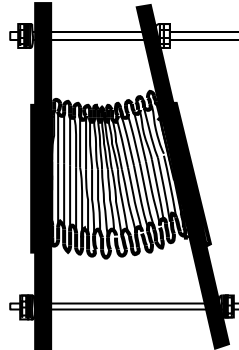
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Compression



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Angulation

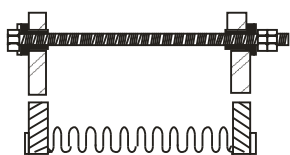


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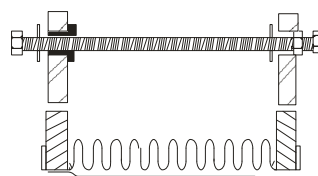
Installation, Operation and Maintenance Instructions For Stainless Steel Pump Connectors Tied and Untied Continued

Installation Continued

When tied stainless steel flanged pump connectors are being used they must be installed at their correct installation length. Ensure that the steel washers and rubber top hat washers have been correctly fitted. Tie bar assemblies should be uniformly tightened and bolts rechecked after approximately seven days.



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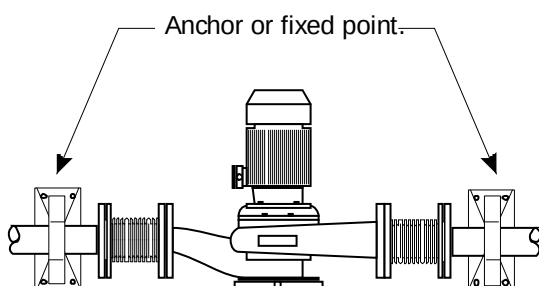
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Test Pressure

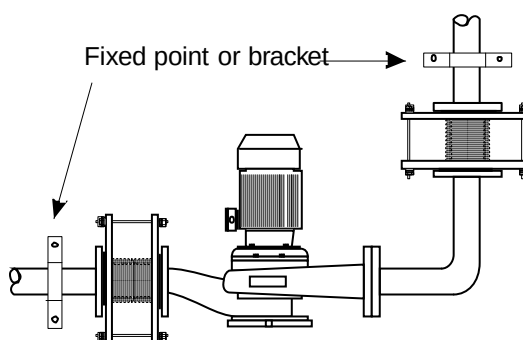
If a hydraulic pressure test is to be carried out on a system containing pump connectors ensure that the anchors have been correctly fitted before the test is carried out. Also ensure that the test pressure (usually 1.5 working) does not exceed the test pressure of the pump connector being installed.

Anchoring

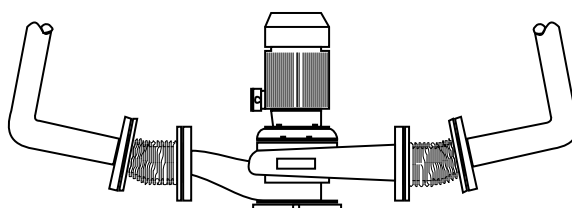
Stainless steel flanged pump connectors must be anchored to ensure their correct performance.



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Stainless steel flanged pump connectors will exert a pressure thrust in service and must be anchored to protect adjacent pipework and equipment. Stainless steel flanged pump connectors will extend under pressure and must be anchored to prevent this happening.

Maintenance

When properly installed and used at their correct operating temperature and pressure stainless steel flanged pump connectors will give many years of trouble free service. However they should be periodically inspected for signs of deterioration. End connections and flange bolts should also be checked and re-tightened if necessary. If insulation is to be used this should be removable to allow inspection to be carried out.