

# 12 CENTRIFUGAL, SLUDGE PUMPS

## DESCRIPTION

**NEVER USED, NEVER ASSEMBLED:** Set of 12 KSB centrifugal sludge pumps. Ten (10) of the pumps are **VERTICAL SUBMERSIBLE** pumps, KSB Amarex N model series with an “F” (Free Flow) impeller. Two (2) of the pumps are dry installed KSB Sewatec model pumps with an “F” impeller. See attached appendices to review the detailed specifications and drawings.

The package of 12 includes:

- Four (4) KSB Amarex NF 50-170 /022ULG-130
  - (See Tag #s 1200-PU-4110 A & B and 1250-PU-4110 A & B)
- Two (2) KSB Amarex NF 50-220 /022ULG-140
  - See Tag #s 1200-PU-1610 A & B in attached details
- Two (2) KSB Amarex NF 50-170 /022ULG-107
  - See Tag #s. 1250-PU-1221 A & B in attached details
- Two (2) KSB Amarex NF 50-220 /042ULG-150
  - See Tag #s 1250-PU-1610 A & B in attached details
- Two (2) Sewatec F 50-250G
  - See Tag #s 1200-PU-1430 / 1430 X in attached details

I.D.	16C-AR01
OEM	KSB
YOM	2014
Location	Indoor Warehouse Dunkirk, France
Condition	NEVER USED
Packaging	Original Packaging

TAG No.	FLOW SPEC
1200-PU-4110 A & B	9.8 m3/h @ 13.84 m
1250-PU-4110 A & B	9.97 m3/h@ 15.97m
1200-PU-1610A/B	6.74 m3/h@ 22.05 m
1250-PU-1221A/B	5.74 m3/h@ 11.70m
1250-PU-1610A/B	10 m3/h@ 25 m
1200-PU-1430/X	2.98 m3/h @ 10.84 m

Amarex N Model



Sewatec Model



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
[info@amking.com](mailto:info@amking.com)

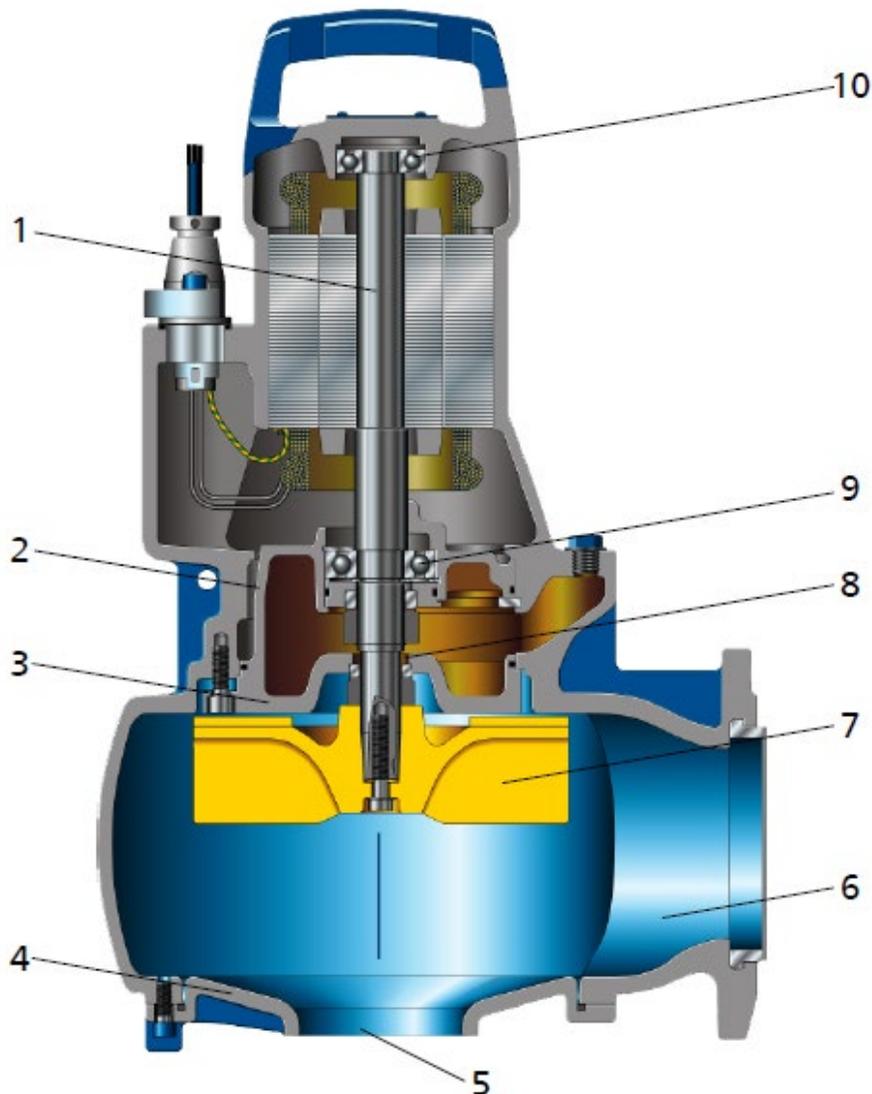
# 12 CENTRIFUGAL, SLUDGE PUMPS

## KSB AMAREX N MODEL

The pump is axial suction and radial delivery. The hydraulics are mounted on the extended motor shaft. The tree is housed in a common bearing.

The pumped liquid enters axially into the pump through the suction port (5). It is accelerated by the rotating wheel (7) which creates a cylindrical flow towards outside. The flow profile of the pump body transforms kinetic energy pumped liquid into pressure energy and guides it to the discharge (6) where it leaves the pump. On the back of the hydraulics, the shaft (1) crosses the discharge cover (4) which delimits the hydraulic chamber. The passage of the shaft through the cover is sealed by the shaft seal (8). It is guided in the roller bearings (9 and 10) which are supported by the bearing bracket (2) connected to the pump body and / or at the discharge end.

The pump is sealed by two mechanical seals mounted in tandem, independent of the direction of rotation. A liquid chamber between the mechanical seals provides cooling and the lubrication of these.



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
info@amking.com

Pre-Owned Mining, Processing & Construction Equipment Since 1979

# 12 CENTRIFUGAL, SLUDGE PUMPS

## KSB SEWATEC MODEL FEATURES

### 1. Reliable Operation

- Non-clogging impellers with large free passages, optimized for every type of wastewater

### 2. Energy Savings

- Optimized hydraulic system yields high efficiency
- In combination with the motor, the operating costs can be markedly reduced

### 3. Dependability

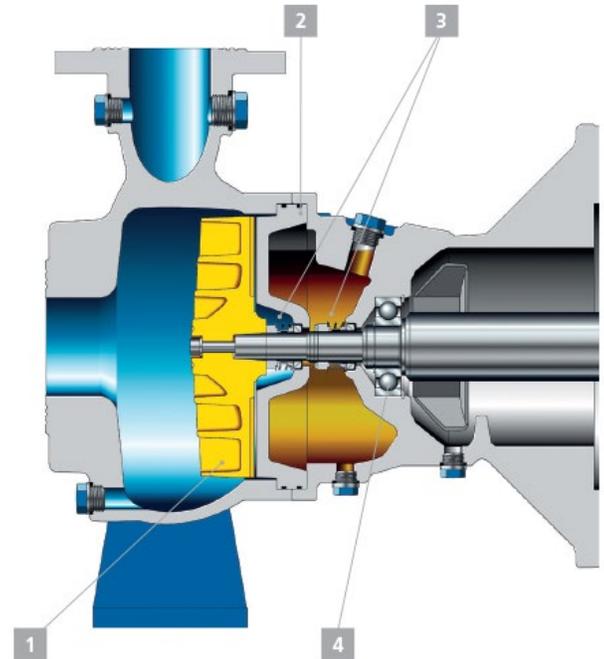
- Two bi-directional mechanical seals with oil reservoir

### 4. Cost Efficiency

- Maintenance reduced by rolling element bearings (up to 504) grease-packed for life (higher than 504) re-greasable
- Optimized spare parts inventories: Standardized components are interchangeable within this type series and with the submersible pumps of the Amarex KRT type series

### 5. Flexibility

- Various installation types to suit different site conditions
- Easy to install and remove with maintenance skid for Sewabloc
- New generation of impellers (F-max, E-max, K-max) with improved efficiencies and steeper characteristic curves



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
info@amking.com

# APPENDICES

## TABLE OF CONTENTS

- APPENDIX A ORIGINAL OEM PACKING LIST
- APPENDIX B DATA SHEETS
- APPENDIX C DRAWINGS
- APPENDIX D MOTOR DATA SHEETS



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
[info@amking.com](mailto:info@amking.com)

**APPENDIX A**

**SET OF 12 KSB CENTRIFUGAL PUMPS**

**ORIGINAL OEM PACKING LIST**



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
info@amking.com



**APPENDIX B**

**SET OF 12 KSB CENTRIFUGAL PUMPS**

**DATA SHEETS**



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
[info@amking.com](mailto:info@amking.com)

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	'001	0

Rev. A

6 Client:	<b>TREATED OILY WATER PUMP</b>	Total quantity: <b>2</b>
7 Site:	Item No : <b>1250-PU-1221 A/B</b>	Quantity running: <b>1 (A) Electrical</b>
8 Unit: <b>1200, Sanitary Water Treatment</b>	<b>CENTRIFUGAL VERTICAL, SUBMERGED (4)</b>	Quantity spare: <b>1 (B) Electrical</b>
9 Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built	Process reference : <b>9806J-1200-PDS-0910-001-Rev.B</b>	
10 Vendor: <b>KSB</b>	Service: <b>Sludge Pump</b>	Installation: <input type="checkbox"/> horizontal <input checked="" type="checkbox"/> vertical
11 Manufacturer:	Duty: <input type="checkbox"/> continuous <input checked="" type="checkbox"/> batch <input type="checkbox"/> other	<input checked="" type="checkbox"/> flooded <input type="checkbox"/> self priming <input checked="" type="checkbox"/> submersible
12 Model: <b>Amarex NF 50-170 /022ULG-107</b>	Location: <input checked="" type="checkbox"/> outdoor <input type="checkbox"/> exposed to elements <input type="checkbox"/> under shelter	Electrical area classification: <b>Non classified area</b>
13 Serial number:	<input type="checkbox"/> indoor <input type="checkbox"/> heated <input type="checkbox"/> unheated	

HANDLED PRODUCTS		REQUIRED OPERATING DATA (per pump)			
15 Fluid: <b>Sanitary Water (3)</b>		Flow (m3/h): mini	normal: <b>5</b>	rated: <b>5</b>	maxi:
16 <input type="checkbox"/> corrosive <input type="checkbox"/> abrasive <input type="checkbox"/> explosive <input type="checkbox"/> flammable <input type="checkbox"/> toxic <input type="checkbox"/> other:		Discharge pressure (bar g.): <b>1.1 (1)</b>			
17 Gas content: <input type="checkbox"/> no <input type="checkbox"/> yes		Suction pressure (bar g.): <b>0</b> maxi:			
18 Solids content: <input type="checkbox"/> no <input type="checkbox"/> yes		Differential pressure (bar): <b>1.1</b>			
19 Pumping temperature Tp (°C): mini: normal: <b>5 / 47</b> maxi:		Total head (m of LC): <b>1.1</b>			
20 Specific gravity at TP: mini: normal: <b>1,0</b> maxi:		Available NPSH (m): <b>9</b>			
21 Dynamic viscosity at Tp (Cp): normal: <b>0,72</b> maxi:		Garanteed point : <b>5.74 m3/h @ 11.70 m (1)</b>			
22 Vapour pressure at TP (bar a.): mini: normal: <b>0,106</b> maxi:		Speed control: <b>No</b>			
23 Atmospheric boiling temperature (°C):		Start-up conditions: <b>Open Valve</b>			
24 Specific heat (kJ/ kg/ °C):		Dry run requirements:			
25		Parallel/ serie operation:			
26		Basic material (wetted parts):			

<b>PUMP DESIGN (Vendor to complete)</b>					
28 Type: <input checked="" type="checkbox"/> classic volute <input type="checkbox"/> segmented <input type="checkbox"/> barrel(HP) <input type="checkbox"/> in-can <input type="checkbox"/> in-line	Remark:				
29 <input type="checkbox"/> priming volute <input type="checkbox"/> side chanel <input type="checkbox"/> high speed <input type="checkbox"/> w/separate priming					
30 <input checked="" type="checkbox"/> monostage <input type="checkbox"/> multistage <input type="checkbox"/> hygienic construction	<b>PERFORMANCES (per pump) (Vendor to complete)</b>				
31 Basic design: <input checked="" type="checkbox"/> Std Manufacturer <input type="checkbox"/> other:	Rotation facing coupling: <input checked="" type="checkbox"/> Clockwise <input type="checkbox"/> Counter Clockwise				
33 Nominal pressure (bar g. @ °C): <b>6</b> at <b>50 (°C)</b> :	Performance curve reference: <b>K2563-52-13S</b>				
34 Casing type: <input checked="" type="checkbox"/> moulded <input type="checkbox"/> fabricated <input type="checkbox"/> lined <input type="checkbox"/> other:	Pump speed: <b>2928</b>				
35 <input checked="" type="checkbox"/> single volute <input type="checkbox"/> double volute <input type="checkbox"/> jacketed	Allowable speed range: -				
36 <input type="checkbox"/> with diffuser <input type="checkbox"/> with wear ring <input type="checkbox"/> with throat bushing	Maximum Allowable Working Pressure (bar g.): <b>6</b> at <b>40 (°C)</b>				
37 Casing nozzles Orient. Size Rating Facing Remarks:	Maximum Allowable Temperature (°C): <b>40</b>				

Performances with offered diameter						mini	normal	rated
38 Suction	Bottom	65						5.74
39 Discharge	Top	50	150					11.70
40 Drain	N/A							flooded
41 Vent	N/A							25.1

42 Casing split: <input checked="" type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> none	Required power at driver shaft (kW): <b>0.75</b>				
43 Casing support <input type="checkbox"/> foot <input type="checkbox"/> centerline <input type="checkbox"/> bearing frame <input checked="" type="checkbox"/> Discharge Elbow	Shut off head (m): <b>13.9</b>				
44 Shaft: <input checked="" type="checkbox"/> solid (no sleeve) <input type="checkbox"/> sleeved	Flow at Best Efficiency point (m3/h): <b>42.5</b>				
45 Impeller: <input type="checkbox"/> closed <input type="checkbox"/> semi open <input checked="" type="checkbox"/> open <input type="checkbox"/> with wear ring	Impeller diameter (mm): mini: maxi: installed:				
46 <input type="checkbox"/> single flux <input type="checkbox"/> double flux <input checked="" type="checkbox"/> vortex <input type="checkbox"/> vane wheel	Dry run capability: <b>90 140 107</b>				
47 <input checked="" type="checkbox"/> radial <input type="checkbox"/> mixed flow <input type="checkbox"/> axial					

<b>SHAFT SEAL (Vendor to complete)</b>					
50 Impeller attachment: <input type="checkbox"/> screwed <input type="checkbox"/> keyed <input checked="" type="checkbox"/> Screwed on cone	<input type="checkbox"/> None <input type="checkbox"/> Packing <input type="checkbox"/> Labyrinth <input type="checkbox"/> Hydrodynamic				
51 Bearing type/ lubrif.: Drive End /					
52 Non Drive End /					
53 Baseplate: <input type="checkbox"/> none <input type="checkbox"/> under pump and drive system <input checked="" type="checkbox"/> anchored <input type="checkbox"/> stilt mounted	<input checked="" type="checkbox"/> Mechanical seal: <input type="checkbox"/> single <input checked="" type="checkbox"/> dual <input type="checkbox"/> cartridge				
54 <input type="checkbox"/> moulded <input type="checkbox"/> bended sheet <input type="checkbox"/> fabricated	<input type="checkbox"/> contact <input type="checkbox"/> without contact				
55	<input type="checkbox"/> spring(s) <input type="checkbox"/> bellow				
56 <b>MATERIALS (Vendor to complete) (2)</b>	Mounting: <input type="checkbox"/> face to face <input type="checkbox"/> back to back <input checked="" type="checkbox"/> tandem				
57 Casing(s)/ Cover: <b>Grey Cast Iron JL 1040</b>	<input type="checkbox"/> rotating flexible element <input type="checkbox"/> stationary flexible element				
58 Casing liner: <b>N/A</b>					
59 Impeller: <b>Grey Cast Iron JL0140</b>	Pressurisation: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> buffer fluid <input type="checkbox"/> barrier fluid				
60 Shaft: <b>Chrome Steel 1.4021</b>	fluid: pressure: circulation by:				
61 Stuffing box: <b>N/A</b>	Seal chamber: <input type="checkbox"/> cylindrical <input type="checkbox"/> tapped (enlarged) <input type="checkbox"/> jacketed				
62 Wetted bolting: <b>1.4571</b>	<input checked="" type="checkbox"/> integral with casing <input type="checkbox"/> internal <input type="checkbox"/> external <input type="checkbox"/> with throttle bushing				
63 Baseplate: <b>Grey Cast Iron JL0140</b>	Seal manufacturer/ Model: <b>Burgmann /</b> API Plan <b>NA</b>				

<b>DRIVE SYSTEM DESCRIPTION (Vendor to complete)</b>																					
66 Driver: <b>Electrical</b>	<table border="1"> <tr> <th>Product side</th> <th>Atmospheric side</th> </tr> <tr> <td>Diaphragm</td> <td></td> </tr> <tr> <td>Max allow pressure</td> <td></td> </tr> <tr> <td>Belanping</td> <td></td> </tr> <tr> <td>Spring Below</td> <td></td> </tr> <tr> <td>O-Ring gaskets</td> <td></td> </tr> <tr> <td>Cartridge sleeves</td> <td></td> </tr> <tr> <td>End plate:</td> <td></td> </tr> </table>					Product side	Atmospheric side	Diaphragm		Max allow pressure		Belanping		Spring Below		O-Ring gaskets		Cartridge sleeves		End plate:	
Product side	Atmospheric side																				
Diaphragm																					
Max allow pressure																					
Belanping																					
Spring Below																					
O-Ring gaskets																					
Cartridge sleeves																					
End plate:																					
67 <input checked="" type="checkbox"/> fixed speed <input type="checkbox"/> Variable speed																					
68 supplied/ mounted by: <b>ksb</b> / <b>ksb</b>																					
69 manufacturer/ model: <b>ksb</b> /																					
70 nameplate power/ speed: <b>2,3 / 2780</b>																					
71 Connection driver/ pump: <input type="checkbox"/> pulley/ belts <input checked="" type="checkbox"/> direct (close coupled)																					
72 <input type="checkbox"/> direct(separately coupled) <input type="checkbox"/> gears <input type="checkbox"/> other:																					
73																					
74 Electrical utility data:																					
75 Volts: <b>400</b> Hertz: <b>50</b> Phase: <b>3</b>																					
76																					
77																					
78																					

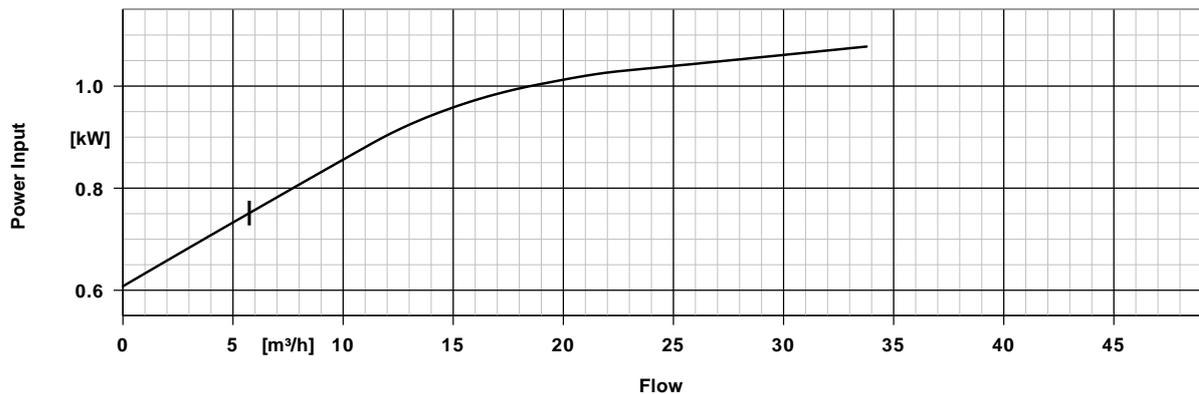
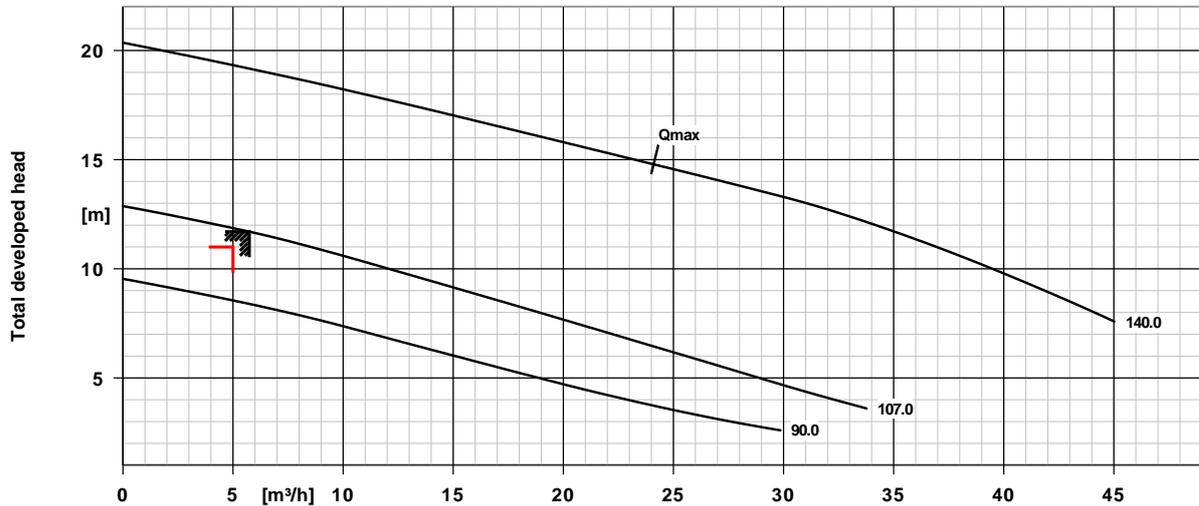


Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	001	0

Rev.  
A

Client:	<b>TREATED OILY WATER PUMP</b>	Total quantity: 2
Site:	Item No : 1250-PU-1221 A/B	Quantity running: 1
Unit: 1200		Quantity spare: 1
Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built		Process reference : 9806J-1200-PDS-0910-001-Rev.A

**Amarex NF 50-170/022ULG-107**



**Curve data**

Speed of rotation	2928 rpm	Requested developed head	11.00 m
Fluid density	1030 kg/m³	Efficiency	25.1 %
Viscosity	0.66 mm²/s	Power absorbed	0.75 kW
Flow rate	5.74 m³/h	Curve number	K2563-52-13S
Requested flow rate	5.00 m³/h	Effective impeller diameter	107.0 mm
Total developed head	11.70 m	Acceptance standard	ISO 9906 class 3B; below 10 kW acc. to paragraph 4.4.2

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	'001	0

Rev.

A

6	Client:	<b>TREATED OILY WATER PUMP</b>	Total quantity: <b>2</b>
7	Site:	Item No : <b>1250-PU-1221 A/B</b>	Quantity running: <b>1</b>
8	Unit: <b>1200</b>		Quantity spare: <b>1</b>

9 Mechanical Data Sheet for:  Inquiry  Purchase  As built Process reference : **9806J-1200-PDS-0910-001-Rev.A**

10 **VERTICAL PUMP (Vendor to complete)**

13 Pump configuration: **Vertical Submersible Pump**

14  Cantilever

15  With wetted bearing(s): number: location: material:

16  pumpage lub

17  externally lub fluid: flow: pressure:

18  Suction can and discharge head

19 diameter (mm): total length: suction/ discharge flange:

20 material:

22 Pump discharge  through driving column  through elbow and separate column

23  under setting level  above setting level

24  vertical flange  horizontal flange

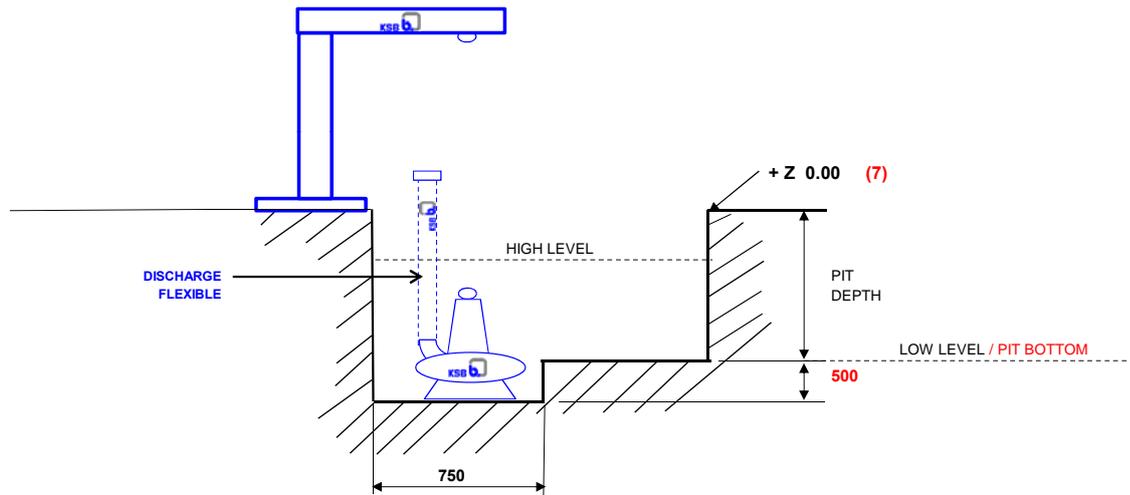
26 Line shaft :  Open  Enclosed

28 Specific accessories :

29  Strainer

30  Bellmouth

31



56 ● PIT DEPTH **2200** (mm) (4)

58 ○ PIT DIMENSION (mm)

60 ○ SUBMERGENCE REQUIRED (mm)

66 **KSB Scope (by pump)**

66 **KSB Scope (one for all plant submerged pump)**

67	Pump	1 commun Chain hoist	1200-PU-1610
68	Transportable installation (3 Feets)		1200-PU-4110
69	Elbow + Flanged bend		1250-PU-1221
70	Local Control panel (commun for 2 pump)		1250-PU-1610
71	Support for local Control panel (commun for 2 pump)		1250-PU-4110
72	2 Float switches with 10 m cable		
73	Level swith support (commun for 2 pump)		
74	10 m flexible reinforced hose with rigid spiral		
75	Flange DN 50 150#		
76	Rotating lifting crane (commun for 2 pump)		
77	Pump lifting chain (Stainless steel)		

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	001	0

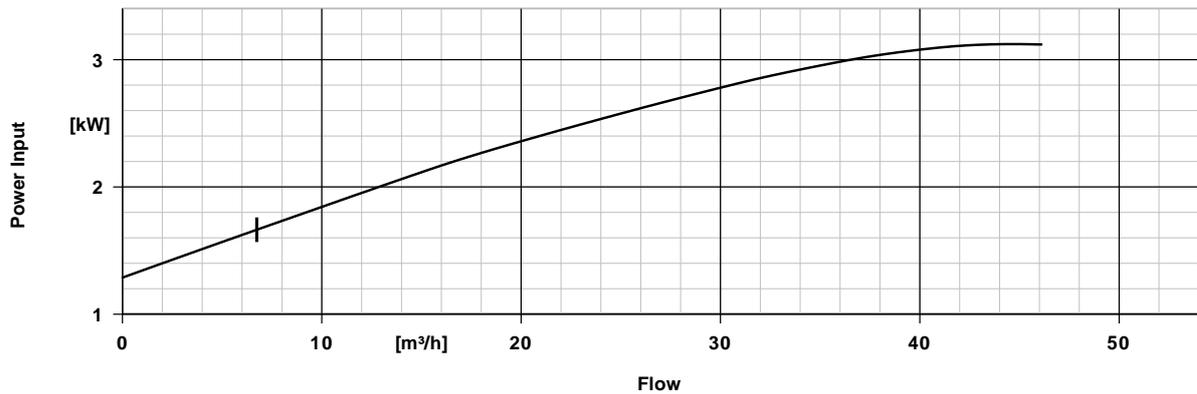
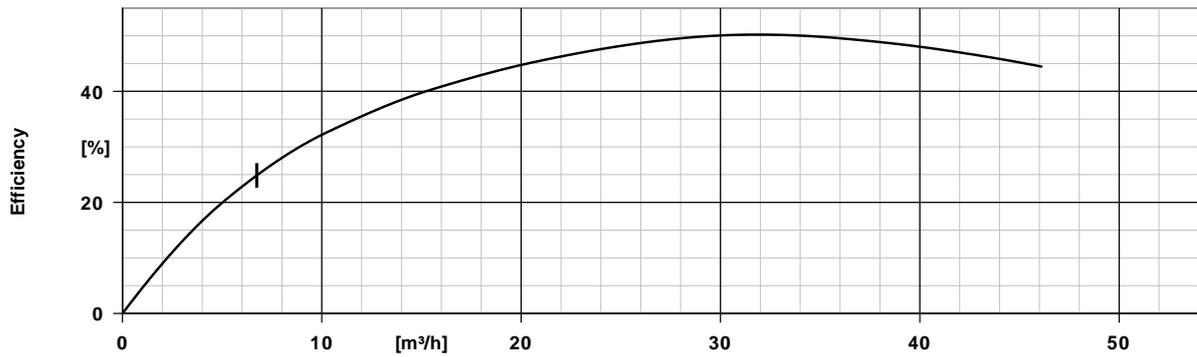
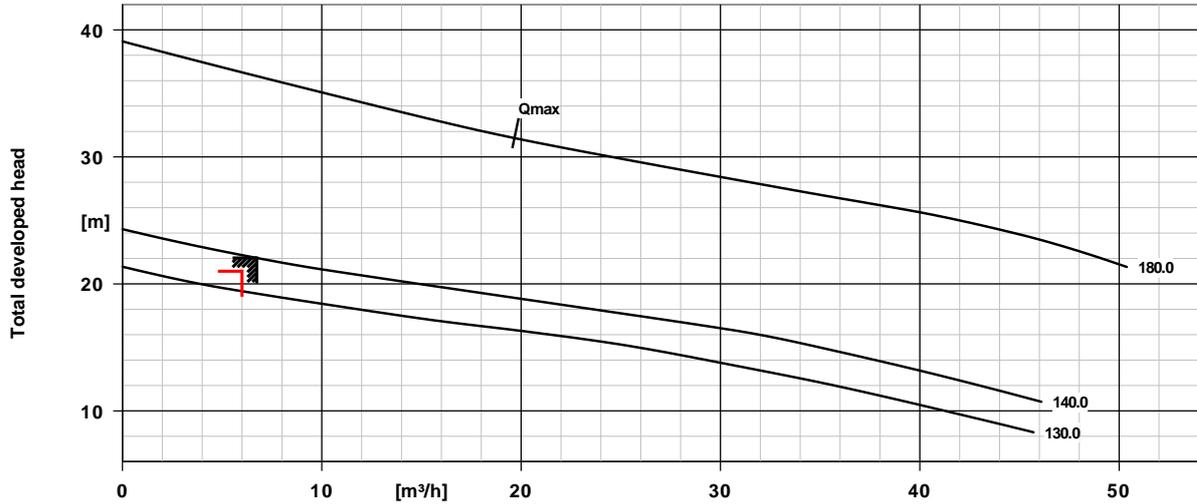
1					Rev.
2					A
3					
4					
5					
6	Client: <b>SW RECEIVING PIT PUMP</b>		Total quantity: <b>2</b>		
7	Site: Item No : <b>1200-PU-1610 A/B</b>		Quantity running: <b>1 (A) Electrical</b>		
8	Unit: <b>1200, Sanitary Water Treatment</b>		CENTRIFUGAL VERTICAL, SUBMERGED (4)		Quantity spare: <b>1 (B) Electrical</b>
9	Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built Process reference : <b>9806J-1200-PDS-0910-001-Rev.B</b>				
10	Vendor: <b>KSB</b>	Service: <b>Sludge Pump</b>		Installation: <input type="checkbox"/> horizontal <input checked="" type="checkbox"/> vertical	
11	Manufacturer:	Duty: <input type="checkbox"/> continuous <input checked="" type="checkbox"/> batch <input type="checkbox"/> other		<input checked="" type="checkbox"/> flooded <input type="checkbox"/> self priming <input checked="" type="checkbox"/> submersible	
12	Model: <b>Amarex NF 50-220 /042ULG-140</b>	Location: <input checked="" type="checkbox"/> outdoor <input type="checkbox"/> exposed to elements <input type="checkbox"/> under shelter		Electrical area classification: <b>Non classified area</b>	
13	Serial number:	<input type="checkbox"/> indoor <input type="checkbox"/> heated <input type="checkbox"/> unheated			
14	<b>HANDLED PRODUCTS</b>			<b>REQUIRED OPERATING DATA (per pump)</b>	
15	Fluid: <b>Sanitary Water (3)</b>			Flow (m3/h): mini normal: <b>10</b> rated: <b>10</b> maxi:	
16	<input type="checkbox"/> corrosive <input type="checkbox"/> abrasive <input type="checkbox"/> explosive <input type="checkbox"/> flammable <input type="checkbox"/> toxic <input type="checkbox"/> other:			Discharge pressure (bar g.): <b>2.1 (1)</b>	
17	Gas content: <input type="checkbox"/> no <input type="checkbox"/> yes			Suction pressure (bar g.): <b>0</b> maxi:	
18	Solids content: <input type="checkbox"/> no <input type="checkbox"/> yes			Differential pressure (bar): <b>2.1</b>	
19	Pumping temperature Tp (°C): mini: normal: <b>5 / 47</b> maxi:			Total head (m of LC): <b>21</b>	
20	Specific gravity at TP: mini: normal: <b>1,0</b> maxi:			Available NPSH (m): <b>9</b>	
21	Dynamic viscosity at Tp (Cp): normal: <b>0,72</b> maxi:			Guaranteed point : <b>6.74 m3/h @ 22.05 m (1)</b>	
22	Vapour pressure at TP (bar a.): mini: normal: <b>0,106</b> maxi:			Speed control: <b>No</b>	
23	Atmospheric boiling temperature (°C):			Start-up conditions: <b>Open Valve</b>	
24	Specific heat (kJ/ kg/ °C):			Dry run requirements:	
25				Parallel/ serie operation:	
26				Basic material (wetted parts):	
27	<b>PUMP DESIGN (Vendor to complete)</b>				
28	Type: <input checked="" type="checkbox"/> classic volute <input type="checkbox"/> segmented <input type="checkbox"/> barrel(HP) <input type="checkbox"/> in-can <input type="checkbox"/> in-line				
29	<input type="checkbox"/> priming volute <input type="checkbox"/> side chanel <input type="checkbox"/> high speed <input type="checkbox"/> w/separate priming				
30	<input checked="" type="checkbox"/> monostage <input type="checkbox"/> multistage <input type="checkbox"/> hygienic construction				
31	<b>PERFORMANCES (per pump) (Vendor to complete)</b>				
32	Basic design: <input checked="" type="checkbox"/> Std Manufacturer <input type="checkbox"/> other:				
33	Nominal pressure (bar g. @ °C): <b>6</b> at <b>50 (°C)</b> :				
34	Casing type: <input checked="" type="checkbox"/> moulded <input type="checkbox"/> fabricated <input type="checkbox"/> lined <input type="checkbox"/> other:				
35	<input checked="" type="checkbox"/> single volute <input type="checkbox"/> double volute <input type="checkbox"/> jacketed				
36	<input type="checkbox"/> with diffuser <input type="checkbox"/> with wear ring <input type="checkbox"/> with throat bushing				
37	Casing nozzles Orient. Size Rating Facing Remarks:				
38	Suction	Bottom	65		
39	Discharge	Top	50	150	
40	Drain	N/A			
41	Vent	N/A			
42	Casing split: <input checked="" type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> none				
43	Casing support <input type="checkbox"/> foot <input type="checkbox"/> centerline <input type="checkbox"/> bearing frame <input checked="" type="checkbox"/> Discharge Elbow				
44	Shaft: <input checked="" type="checkbox"/> solid (no sleeve) <input type="checkbox"/> sleeved				
45	Impeller: <input type="checkbox"/> closed <input type="checkbox"/> semi open <input checked="" type="checkbox"/> open <input type="checkbox"/> with wear ring				
46	<input type="checkbox"/> single flux <input type="checkbox"/> double flux <input checked="" type="checkbox"/> vortex <input type="checkbox"/> vane wheel				
47	<input checked="" type="checkbox"/> radial <input type="checkbox"/> mixed flow <input type="checkbox"/> axial				
48					
49	Impeller mount: <input checked="" type="checkbox"/> overhang <input type="checkbox"/> between bearings <input type="checkbox"/> with inducer				
50	Impeller attachment: <input type="checkbox"/> screwed <input type="checkbox"/> keyed <input checked="" type="checkbox"/> Screwed on cone				
51	Bearing type/ lubrif.: Drive End /				
52	Non Drive End /				
53	Baseplate: <input type="checkbox"/> none <input type="checkbox"/> under pump and drive system <input checked="" type="checkbox"/> anchored <input type="checkbox"/> stilt mounted				
54	<input type="checkbox"/> moulded <input type="checkbox"/> bended sheet <input type="checkbox"/> fabricated				
55					
56	<b>MATERIALS (Vendor to complete) (2)</b>				
57	Casing(s)/ Cover: <b>Grey Cast Iron JL 1040</b>		Casing wear ring: <b>N/A</b>		
58	Casing liner: <b>N/A</b>		Casing gasket: <b>FPM</b>		
59	Impeller: <b>Grey Cast Iron JL0140</b>		Impeller wear ring: <b>N/A</b>		
60	Shaft: <b>Chrome Steel 1.4021</b>		Shaft sleeve: <b>N/A</b>		
61	Stuffing box: <b>N/A</b>		Gland: <b>N/A</b>		
62	Wetted bolting: <b>1.4571</b>		Bearing housing: <b>Grey Cast Iron JL 1040</b>		
63	Baseplate: <b>Grey Cast Iron JL0140</b>				
64					
65	<b>DRIVE SYSTEM DESCRIPTION (Vendor to complete)</b>				
66	Driver: <b>Electrical</b>				
67	<input checked="" type="checkbox"/> fixed speed <input type="checkbox"/> Variable speed				
68	supplied/ mounted by: <b>ksb</b> / <b>ksb</b>				
69	manufacturer/ model: <b>ksb</b> /				
70	nameplate power/ speed: <b>4.2 / 2835</b>				
71	Connection driver/ pump: <input type="checkbox"/> pulley/ belts <input checked="" type="checkbox"/> direct (close coupled)				
72	<input type="checkbox"/> direct(separately coupled) <input type="checkbox"/> gears <input type="checkbox"/> other:				
73					
74	Electrical utility data:				
75	Volts: <b>400</b> Hertz: <b>50</b> Phase: <b>3</b>				
76					
77					
78					



Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	'001	0

Client:	<b>SW RECEIVING PIT PUMP</b>	Total quantity: 2
Site:	Item No : 1200-PU-1610 A/B	Quantity running: 1
Unit: 1200		Quantity spare: 1
Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built		Process reference : 9806J-1200-PDS-0910-001-Rev.A

**Amarex NF 50-220/042ULG-140**



**Curve data**

Speed of rotation	2935 rpm	Requested developed head	21.00 m
Fluid density	1030 kg/m³	Efficiency	25.1 %
Viscosity	0.66 mm²/s	Power absorbed	1.66 kW
Flow rate	6.74 m³/h	Curve number	K2563-52-04S
Requested flow rate	6.00 m³/h	Effective impeller diameter	140.0 mm
Total developed head	22.05 m	Acceptance standard	ISO 9906 class 3B; below 10 kW acc. to paragraph 4.4.2

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	'001	0

Rev.  
A

6	Client:	<b>SW RECEIVING PIT PUMP</b>	Total quantity: <b>2</b>
7	Site:	Item No : <b>1200-PU-1610 A/B</b>	Quantity running: <b>1</b>
8	Unit: <b>1200</b>		Quantity spare: <b>1</b>

9 Mechanical Data Sheet for:  Inquiry  Purchase  As built Process reference : **9806J-1200-PDS-0910-001-REV.A**

10 **VERTICAL PUMP (Vendor to complete)**

13 Pump configuration: **Vertical Submersible Pump**

14  Cantilever

15  With wetted bearing(s): number: location: material:

16  pumpage lub

17  externally lub fluid: flow: pressure:

18  Suction can and discharge head

19 diameter (mm): total length: suction/ discharge flange:

20 material:

22 Pump discharge  through driving column  through elbow and separate column

23  under setting level  above setting level

24  vertical flange  horizontal flange

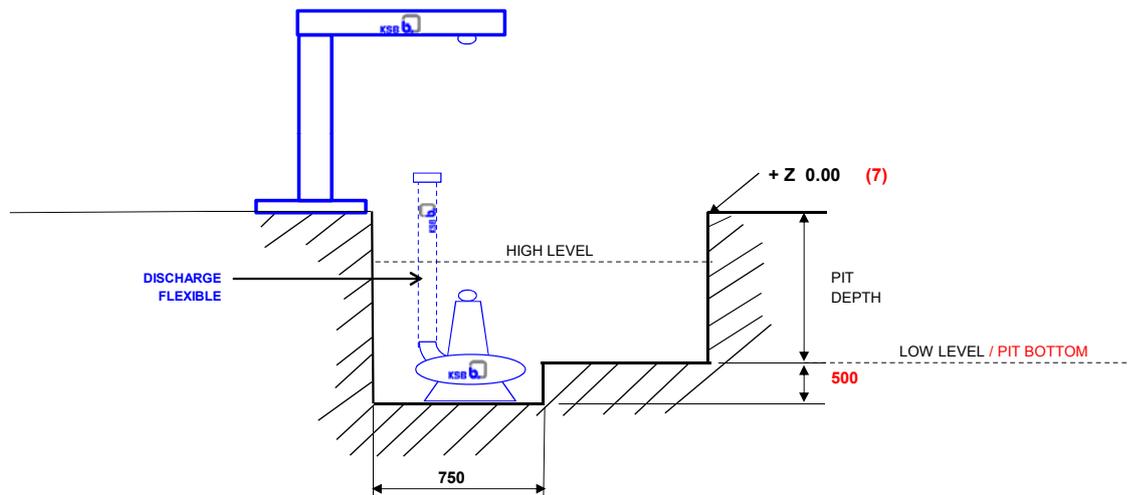
26 Line shaft :  Open  Enclosed

28 Specific accessories :

29  Strainer

30  Bellmouth

31



56 ● PIT DEPTH **4600** (mm) (4)

58 ○ PIT DIMENSION (mm)

60 ○ SUBMERGENCE REQUIRED (mm)

66 **Scope (by pump)**

66 **Scope (one for all plant submerged pump)**

67	Pump	1 commun Chain hoist	1200-PU-1610
68	Transportable installation (3 Feets)		1200-PU-4110
69	Elbow + Flanged bend		1250-PU-1221
70	Local Control panel (commun for 2 pump)		1250-PU-1610
71	Support for local Control panel (commun for 2 pump)		1250-PU-4110
72	2 Float switches with 10 m cable		
73	Level swith support (commun for 2 pump)		
74	10 m flexible reinforced hose with rigid spiral		
75	Flange DN 50 150#		
76	Rotating lifting crane (commun for 2 pump)		
77	Pump lifting chain (Stainless steel)		

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1250	SP	0910	003	0

1										
2										
3										
4										
5										
6	Client:		<b>O W RECEIVING PUMP</b>		Total quantity: 2					
7	Site:		Item No : 1250-PU-1610 A/B		Quantity running: 1 (A) Electrical					
8	Unit: 1250		CENTRIFUGAL VERTICAL, SUBMERGED (4)		Quantity spare: 1 (B) Electrical					
9	Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built		Process reference : 9806J-1250-PDS-0910-001-Rev.B							
10	Vendor: <b>KSB</b>		Service: <b>Sludge Pump</b>		Installation: <input type="checkbox"/> horizontal <input checked="" type="checkbox"/> vertical					
11	Manufacturer:		Duty: <input type="checkbox"/> continuous <input checked="" type="checkbox"/> batch <input type="checkbox"/> other		<input type="checkbox"/> flooded <input type="checkbox"/> self priming <input checked="" type="checkbox"/> submersible					
12	Model: <b>Amarex NF 50-220 /042ULG-15</b>		Location: <input checked="" type="checkbox"/> outdoor <input type="checkbox"/> exposed to elements <input type="checkbox"/> under shelter		Electrical area classification: <b>Non classified area</b>					
13	Serial number:		<input type="checkbox"/> indoor <input type="checkbox"/> heated <input type="checkbox"/> unheated							
14	<b>HANDLED PRODUCTS</b>				<b>REQUIRED OPERATING DATA (per pump)</b>					
15	Fluid: <b>Oily Water</b> (3)				Flow (m3/h): mini By vendor normal: 10 rated: 10 maxi:					
16	<input type="checkbox"/> corrosive <input type="checkbox"/> abrasive <input type="checkbox"/> explosive <input type="checkbox"/> flammable <input type="checkbox"/> toxic <input type="checkbox"/> other:				Discharge pressure (bar g.): <b>2,5 (1)</b>					
17	Gas content: <input type="checkbox"/> no <input type="checkbox"/> yes				Suction pressure (bar g.): 0 maxi:					
18	Solids content: <input type="checkbox"/> no <input type="checkbox"/> yes				Differential pressure (bar): <b>2,5</b>					
19	Pumping temperature Tp (°C): mini: normal: <b>5 / 47</b> maxi:				Total head (m of LC): <b>25</b>					
20	Specific gravity at TP: mini: normal: <b>1,0</b> maxi:				Available NPSH (m): 9					
21	Dynamic viscosity at Tp (Cp): mini: normal: <b>0,72</b> maxi:				Garanteed point : <b>10 m3/h @ 25 m (1)</b>					
22	Vapour pressure at TP (bar a.): mini: normal: <b>0,106</b> maxi:				Speed control: <b>No</b>					
23	Atmospheric boiling temperature (°C):				Start-up conditions: <b>Open Valve</b>					
24	Specific heat (kJ/ kg/ °C):				Dry run requirements:					
25					Parallel/ serie operation:					
26					Basic material (wetted parts):					
27	<b>PUMP DESIGN (Vendor to complete)</b>									
28	Type: <input type="checkbox"/> classic volute <input type="checkbox"/> segmented <input type="checkbox"/> barrel(HP) <input type="checkbox"/> in-can <input type="checkbox"/> in-line				<b>Remark:</b>					
29	<input type="checkbox"/> priming volute <input type="checkbox"/> side chanel <input type="checkbox"/> high speed <input type="checkbox"/> w/separate priming									
30	<input type="checkbox"/> monostage <input type="checkbox"/> multistage <input type="checkbox"/> hygienic construction				<b>PERFORMANCES (per pump) (Vendor to complete)</b>					
31					Rotation facing coupling: <input type="checkbox"/> Clockwise <input type="checkbox"/> Counter Clockwise					
32	Basic design: <input checked="" type="checkbox"/> Std Manufacturer <input type="checkbox"/> other:				Performance curve reference:					
33	Nominal pressure (bar g. @ °C): <b>By Vendor</b> at (°C):				Pump speed:					
34	Casing type: <input type="checkbox"/> moulded <input type="checkbox"/> fabricated <input type="checkbox"/> lined <input type="checkbox"/> other:				Allowable speed range:					
35	<input type="checkbox"/> single volute <input type="checkbox"/> double volute <input type="checkbox"/> jacketed				Maximum Allowable Working Pressure (bar g.): at (°C)					
36	<input type="checkbox"/> with diffuser <input type="checkbox"/> with wear ring <input type="checkbox"/> with throat bushing				Maximum Allowable Temperature (°C):					
37	Casing nozzles	Orient.	Size	Rating	Facing	Remarks:	Performances with offered diameter	mini	normal	rated
38	Suction						Stable flow (m3/h)			
39	Discharge	<b>Top</b>	<b>50</b>	<b>150</b>			Total Head (m)			
40	Drain	<b>N/A</b>					Required NPSH (m)			
41	Vent	<b>N/A</b>					Hydraulic impeller efficiency (%)			
42	Casing split: <input type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> none				Required power at driver shaft (kW):					
43	Casing support <input type="checkbox"/> foot <input type="checkbox"/> centerline <input type="checkbox"/> bearing frame <input type="checkbox"/> other:				Shut off head (m):					
44	Shaft: <input type="checkbox"/> solid (no sleeve) <input type="checkbox"/> sleeved				Flow at Best Efficiency point (m3/h):					
45	Impeller: <input type="checkbox"/> closed <input type="checkbox"/> semi open <input type="checkbox"/> open <input type="checkbox"/> with wear ring				Impeller diameter (mm): mini: maxi: installed:					
46	<input type="checkbox"/> single flux <input type="checkbox"/> double flux <input type="checkbox"/> vortex <input type="checkbox"/> vane wheel				Dry run capability:					
47	<input type="checkbox"/> radial <input type="checkbox"/> mixed flow <input type="checkbox"/> axial									
48										
49	Impeller mount: <input type="checkbox"/> overhang <input type="checkbox"/> between bearings <input type="checkbox"/> with inducer				<b>SHAFT SEAL (Vendor to complete)</b>					
50	Impeller attachment: <input type="checkbox"/> screwed <input type="checkbox"/> keyed <input type="checkbox"/> other:				<input type="checkbox"/> None <input type="checkbox"/> Packing <input type="checkbox"/> Labyrinth <input type="checkbox"/> Hydrodynamic					
51	Bearing type/ lubrif.:		Drive End /							
52			Non Drive End /							
53	Baseplate: <input type="checkbox"/> none <input type="checkbox"/> under pump and drive system <input type="checkbox"/> anchored <input type="checkbox"/> stilt mounted				<input type="checkbox"/> Mechanical seal: <input type="checkbox"/> single <input type="checkbox"/> dual <input type="checkbox"/> cartridge					
54	<input type="checkbox"/> moulded <input type="checkbox"/> bended sheet <input type="checkbox"/> fabricated				<input type="checkbox"/> contact <input type="checkbox"/> without contact					
55					<input type="checkbox"/> spring(s) <input type="checkbox"/> bellow					
56	<b>MATERIALS (Vendor to complete) (2)</b>				Mounting: <input type="checkbox"/> face to face <input type="checkbox"/> back to back <input type="checkbox"/> tandem					
57	Casing(s)/ Cover:		Casing wear ring:		<input type="checkbox"/> rotating flexible element <input type="checkbox"/> stationary flexible element					
58	Casing liner:		Casing gasket:							
59	Impeller:		Impeller wear ring:		Pressurisation: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> buffer fluid <input type="checkbox"/> barrier fluid					
60	Shaft:		Shaft sleeve:		fluid: pressure: circulation by:					
61	Stuffing box:		Gland:		Seal chamber: <input type="checkbox"/> cylindric <input type="checkbox"/> tapped (enlarged) <input type="checkbox"/> jacketed					
62	Wetted bolting:		Bearing housing:		<input type="checkbox"/> integral with casing <input type="checkbox"/> internal <input type="checkbox"/> external <input type="checkbox"/> with throttle bushing					
63	Baseplate:				Seal manufacturer/ Model: <b>By Vendor</b> API Plan NA					
64					Product side		Atmospheric side			
65	<b>DRIVE SYSTEM DESCRIPTION (Vendor to complete)</b>									
66	Driver: <b>Electrical</b>				Norme					
67	<input checked="" type="checkbox"/> fixed speed <input type="checkbox"/> Variable speed				Max allow. pressure					
68	supplied/ mounted by: <b>By Vendor / By Vendor</b>				Balancing					
69	manufacturer/ model: <b>Submerged</b>				Spring/ Bellow					
70	nameplate power/ speed: <b>4,2 / 3000</b>				O'Ring/ gaskets					
71	Connection driver/ pump: <input type="checkbox"/> pulley/ belts <input type="checkbox"/> direct (close coupled)				Cartridge sleeve:					
72	<input type="checkbox"/> direct(separately coupled) <input type="checkbox"/> gears <input type="checkbox"/> other:				End plate:					
73										
74	Electrical utility data:									
75	Volts: <b>400</b>		Hertz: <b>50</b>		Phase: <b>3</b>					
76										
77										
78										



9806J – IMOURAREN - URANIUM PROJECT

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1250	SP	0910	003	0

Rev.

**ACCESSORIES (Vendor to complete)** **SUPPLY BY**

7	Pulleys/ belts:		
8	Coupling(s):		
9			
10	Safety guards:		
11	Gear box: Type: _____ Nameplate power/ speed: _____ Service factor: _____		
12	Manufacturer/ model: _____		
13			
14			
15	Seal pot: Material: _____ Design/ fabric. code: _____ <input type="checkbox"/> baseplate mounted <input type="checkbox"/> stand alone		
16	Available connections: <input type="checkbox"/> filling <input type="checkbox"/> drain <input type="checkbox"/> flushing inlet <input type="checkbox"/> flushing outlet <input type="checkbox"/> pressurisation		
17	<input type="checkbox"/> inlet coil <input type="checkbox"/> outlet coil <input type="checkbox"/> gauge <input type="checkbox"/> other		
18	Type of connections: <input type="checkbox"/> threaded <input type="checkbox"/> flanged <input type="checkbox"/>		
19	Baseplate, with <input type="checkbox"/> drip recovery (D=25 mm mini) <input checked="" type="checkbox"/> handling devices (5) <input checked="" type="checkbox"/> earthing lugs <input type="checkbox"/>		<b>VENDOR</b>
20	<input type="checkbox"/> equipotential connections <input type="checkbox"/> anchor bolts <input type="checkbox"/> Cooler support		
21	Control/ Instrumentation: <input checked="" type="checkbox"/> (6)		<b>VENDOR</b>
22	Humidity sensor in motor housing		
23	Support Local operating panel with sun protection		
24			
25			
26	Variable Speed Drive :		
27			

**AUXILLIARY CIRCUITS DESCRIPTION (Vendor to complete)**

29	Function	Fluid/ Flow ( name / m3/hr)	Material	P/ T design (kPa g. / °C)	Main features
30					
31					
32					
33					
34					
35					
36					

**INSPECTION AND TESTS (Vendor to complete)**

38	Shop inspection	<input type="checkbox"/> no <input checked="" type="checkbox"/> yes		By Vendor
39	Material certificates	<input type="checkbox"/> no <input type="checkbox"/> yes	Type 3,1 for Stainlee Steel parts, Type 2.2 for other parts (according to EN 10204)	By Vendor
40	Hydraulic test	<input type="checkbox"/> no <input type="checkbox"/> yes	with (1,5 x nominal pressure) during 30 minutes.	By Vendor
41	NPSH test	<input type="checkbox"/> no <input type="checkbox"/> yes	Required only if difference between NPSHa and NSPHr < 1m at rated point	By Vendor
42	Performance test	<input type="checkbox"/> no <input checked="" type="checkbox"/> yes	5 points of measurement. Standard Vendor procedure	By Vendor
43	Balancing test	<input type="checkbox"/> no <input type="checkbox"/> yes	Vendor to detail procedure, according to ISO 1940 G 6.3	By Vendor
44	Vibrations measurement	<input type="checkbox"/> no <input type="checkbox"/> yes	at guaranteed point with limit indicated in 9806J-0000-JSS-0910-001	By Vendor
45	Sound level measurement	<input type="checkbox"/> no <input type="checkbox"/> yes	85 dB(a) @ 1m	By Vendor
46	Dismantling after test	<input type="checkbox"/> no <input type="checkbox"/> yes	only if required after defects are measured	By Vendor
47				
48				

**MISCELLANEOUS (Vendor to complete)**

50	Painting: <input checked="" type="checkbox"/> Standard Vendor <input type="checkbox"/> Other: Final color : RAL 5002	By Vendor
51	Tracing/ Insulation:	
52	Special tools: <b>If required</b>	By Vendor
53		
54	Weights (kg): <input type="checkbox"/> Bare pump: _____ <input type="checkbox"/> Driver: _____ <input type="checkbox"/> Baseplate: _____ <input type="checkbox"/> Total: <b>50</b>	
55		
56		

**NOTES:**

- 58 (1) Discharge pressure at Low level / Pit bottom
- 59 (2) Material : Cast Iron
- 60 (3) Sanitary Water: water mixed with soap, feces, toilet paper.(Impeller free space 40 mm)
- 61 (4) Installed in pit 1250-TK-1600, 2700 mm depth.
- 62 (5) Rotating Crane for lifting and lifting chain + chain hoist (Load : 120 kg minimum)
- 63 (6) Configuration
- 64 Start pump 1 / Start pump 2
- 65 Alarm (general default)
- 66 General stop
- 67 Automatic permutation
- 68
- 69
- 70
- 71
- 72



Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	001	0

1					Rev.
2					A
3					
4					
5					
6	Client: <b>MINE PIT HEAD AREA SW PUMP</b>		Total quantity: <b>2</b>		
7	Site: Item No : <b>1200-PU-4110 A/B</b>		Quantity running: <b>1 (A) Electrical</b>		
8	Unit: <b>1200, Sanitary Water Treatment</b>		CENTRIFUGAL VERTICAL, SUBMERGED (4)		Quantity spare: <b>1 (B) Electrical</b>
9	Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built Process reference : <b>9806J-1200-PDS-0910-001-Rev.B</b>				
10	Vendor: <b>KSB</b>	Service: <b>Sludge Pump</b>		Installation: <input type="checkbox"/> horizontal <input checked="" type="checkbox"/> vertical	
11	Manufacturer:	Duty: <input type="checkbox"/> continuous <input checked="" type="checkbox"/> batch <input type="checkbox"/> other		<input checked="" type="checkbox"/> flooded <input type="checkbox"/> self priming <input checked="" type="checkbox"/> submersible	
12	Model: <b>Amarex NF 50-170 /022ULG-130</b>	Location: <input checked="" type="checkbox"/> outdoor <input type="checkbox"/> exposed to elements <input type="checkbox"/> under shelter		Electrical area classification: <b>Non classified area</b>	
13	Serial number:	<input type="checkbox"/> indoor <input type="checkbox"/> heated <input type="checkbox"/> unheated			
14	<b>HANDLED PRODUCTS</b>		<b>REQUIRED OPERATING DATA (per pump)</b>		
15	Fluid: <b>Sanitary Water (3)</b>		Flow (m3/h): mini normal: <b>10</b> rated: <b>10</b> maxi:		
16	<input type="checkbox"/> corrosive <input type="checkbox"/> abrasive <input type="checkbox"/> explosive <input type="checkbox"/> flammable <input type="checkbox"/> toxic <input type="checkbox"/> other:		Discharge pressure (bar g.): <b>1,4 (1)</b>		
17	Gas content: <input type="checkbox"/> no <input type="checkbox"/> yes		Suction pressure (bar g.): <b>0</b> maxi:		
18	Solids content: <input type="checkbox"/> no <input type="checkbox"/> yes		Differential pressure (bar): <b>1,4</b>		
19	Pumping temperature Tp (°C): mini: normal: <b>5 / 47</b> maxi:		Total head (m of LC): <b>14</b>		
20	Specific gravity at TP: mini: normal: <b>1,0</b> maxi:		Available NPSH (m): <b>9</b>		
21	Dynamic viscosity at Tp (Cp): normal: <b>0,72</b> maxi:		Garanteed point : <b>9.8 m3/h @ 13.84 m (1)</b>		
22	Vapour pressure at TP (bar a.): mini: normal: <b>0,106</b> maxi:		Speed control: <b>No</b>		
23	Atmospheric boiling temperature (°C):		Start-up conditions: <b>Open Valve</b>		
24	Specific heat (kJ/ kg/ °C):		Dry run requirements:		
25			Parallel/ serie operation:		
26			Basic material (wetted parts):		
27	<b>PUMP DESIGN (Vendor to complete)</b>				
28	Type: <input checked="" type="checkbox"/> classic volute <input type="checkbox"/> segmented <input type="checkbox"/> barrel(HP) <input type="checkbox"/> in-can <input type="checkbox"/> in-line				
29	<input type="checkbox"/> priming volute <input type="checkbox"/> side chanel <input type="checkbox"/> high speed <input type="checkbox"/> w/separate priming				
30	<input checked="" type="checkbox"/> monostage <input type="checkbox"/> multistage <input type="checkbox"/> hygienic construction				
31	<b>PERFORMANCES (per pump) (Vendor to complete)</b>				
32	Basic design: <input checked="" type="checkbox"/> Std Manufacturer <input type="checkbox"/> other:				
33	Nominal pressure (bar g. @ °C): <b>6</b> at <b>50 (°C)</b> :				
34	Casing type: <input checked="" type="checkbox"/> moulded <input type="checkbox"/> fabricated <input type="checkbox"/> lined <input type="checkbox"/> other:				
35	<input checked="" type="checkbox"/> single volute <input type="checkbox"/> double volute <input type="checkbox"/> jacketed				
36	<input type="checkbox"/> with diffuser <input type="checkbox"/> with wear ring <input type="checkbox"/> with throat bushing				
37	Casing nozzles		Remarks:		
38	Suction	Bottom	65		
39	Discharge	Top	50	150	
40	Drain	N/A			
41	Vent	N/A			
42	Casing split: <input checked="" type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> none				
43	Casing support <input type="checkbox"/> foot <input type="checkbox"/> centerline <input type="checkbox"/> bearing frame <input checked="" type="checkbox"/> Discharge Elbow				
44	Shaft: <input checked="" type="checkbox"/> solid (no sleeve) <input type="checkbox"/> sleeved				
45	Impeller: <input type="checkbox"/> closed <input type="checkbox"/> semi open <input checked="" type="checkbox"/> open <input type="checkbox"/> with wear ring				
46	<input type="checkbox"/> single flux <input type="checkbox"/> double flux <input checked="" type="checkbox"/> vortex <input type="checkbox"/> vane wheel				
47	<input checked="" type="checkbox"/> radial <input type="checkbox"/> mixed flow <input type="checkbox"/> axial				
48					
49	Impeller mount: <input checked="" type="checkbox"/> overhang <input type="checkbox"/> between bearings <input type="checkbox"/> with inducer				
50	Impeller attachment: <input type="checkbox"/> screwed <input type="checkbox"/> keyed <input checked="" type="checkbox"/> Screwed on cone				
51	Bearing type/ lubrif.: Drive End /				
52	Non Drive End /				
53	Baseplate: <input type="checkbox"/> none <input type="checkbox"/> under pump and drive system <input checked="" type="checkbox"/> anchored <input type="checkbox"/> stilt mounted				
54	<input type="checkbox"/> moulded <input type="checkbox"/> bended sheet <input type="checkbox"/> fabricated				
55					
56	<b>MATERIALS (Vendor to complete) (2)</b>				
57	Casing(s)/ Cover: <b>Grey Cast Iron JL 1040</b>		Casing wear ring:		
58	Casing liner: <b>N/A</b>		Casing gasket:		
59	Impeller: <b>Grey Cast Iron JL0140</b>		Impeller wear ring:		
60	Shaft: <b>Chrome Steel 1.4021</b>		Shaft sleeve:		
61	Stuffing box: <b>N/A</b>		Gland:		
62	Wetted bolting: <b>1.4571</b>		Bearing housing:		
63	Baseplate: <b>Grey Cast Iron JL0140</b>				
64					
65	<b>DRIVE SYSTEM DESCRIPTION (Vendor to complete)</b>				
66	Driver: <b>Electrical</b>				
67	<input checked="" type="checkbox"/> fixed speed <input type="checkbox"/> Variable speed				
68	supplied/ mounted by: <b>ksb</b> / <b>ksb</b>				
69	manufacturer/ model: <b>ksb</b> /				
70	nameplate power/ speed: <b>2,3 / 2780</b>				
71	Connection driver/ pump: <input type="checkbox"/> pulley/ belts <input checked="" type="checkbox"/> direct (close coupled)				
72	<input type="checkbox"/> direct(separately coupled) <input type="checkbox"/> gears <input type="checkbox"/> other:				
73					
74	Electrical utility data:				
75	Volts: <b>400</b> Hertz: <b>50</b> Phase: <b>3</b>				
76					
77					
78					

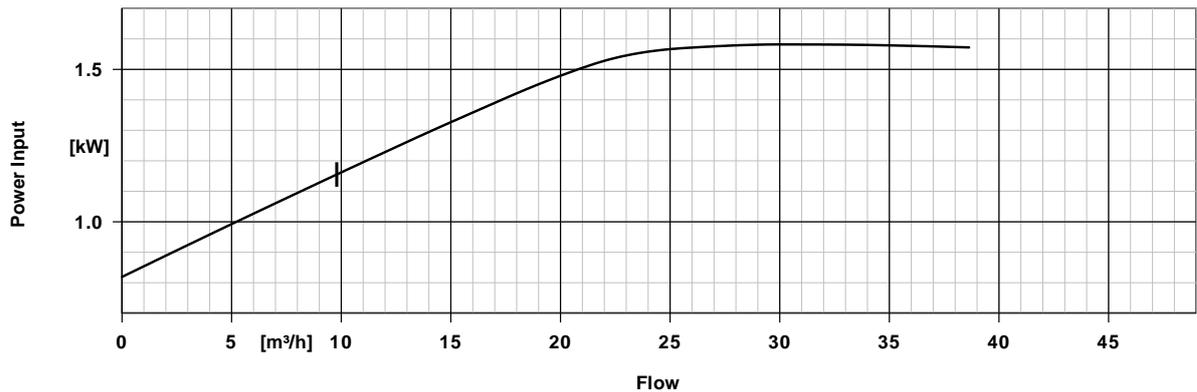
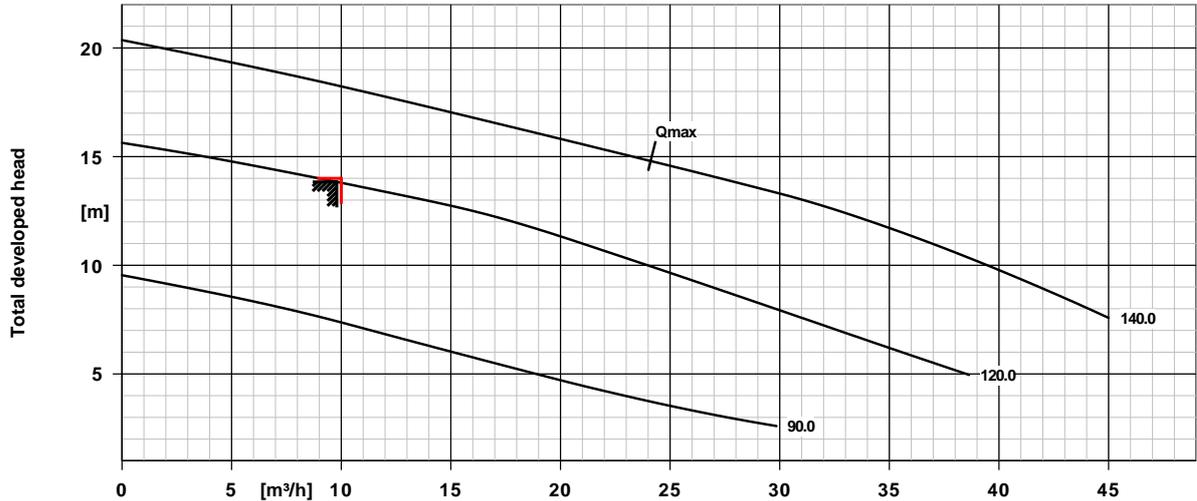


Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	001	0

Client:	MINE PIT HEAD AREA SW PUMP	Total quantity: 2
Site:	Item No : 1200-PU-4110 A/B	Quantity running: 1
Unit: 1200		Quantity spare: 1

Mechanical Data Sheet for:  Inquiry  Purchase  As built Process reference : 9806J-1200-PDS-0910-001-Rev.A

### Amarex NF 50-170/022ULG-120



#### Curve data

Speed of rotation	2890 rpm	Requested developed head	14.00 m
Fluid density	1030 kg/m³	Efficiency	33.1 %
Viscosity	0.66 mm²/s	Power absorbed	1.16 kW
Flow rate	9.80 m³/h	Curve number	K2563-52-13S
Requested flow rate	10.00 m³/h	Effective impeller diameter	120.0 mm
Total developed head	13.84 m	Acceptance standard	ISO 9906 class 3B; below 10 kW acc. to paragraph 4.4.2

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	001	0

Rev.  
A

6	Client:	<b>MINE PIT HEAD AREA SW PUMP</b>	Total quantity: <b>2</b>
7	Site:	Item No : 1200-PU-4110 A/B	Quantity running: <b>1</b>
8	Unit: <b>1200</b>		Quantity spare: <b>1</b>

9 Mechanical Data Sheet for:  Inquiry  Purchase  As built Process reference : **9806J-1200-PDS-0910-001-REV.A**

10 **VERTICAL PUMP (Vendor to complete)**

13 Pump configuration: **Vertical Submersible Pump**

14  Cantilever

15  With wetted bearing(s): number: location: material:

16  pumpage lub

17  externally lub fluid: flow: pressure:

18  Suction can and discharge head

19 diameter (mm): total length: suction/ discharge flange:

20 material:

22 Pump discharge  through driving column  through elbow and separate column

23  under setting level  above setting level

24  vertical flange  horizontal flange

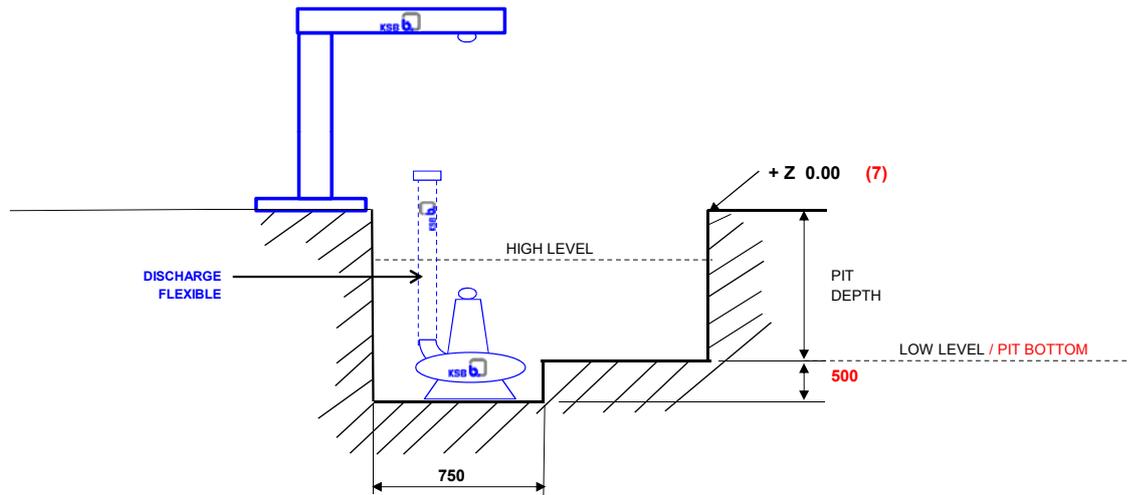
26 Line shaft :  Open  Enclosed

28 Specific accessories :

29  Strainer

30  Bellmouth

31



56 ● PIT DEPTH **4600** (mm) (4)

58 ○ PIT DIMENSION (mm)

60 ○ SUBMERGENCE REQUIRED (mm)

66 **KSB b** Scope (by pump)

66 **KSB b** Scope (one for all plant submerged pump)

67	Pump	1 commun Chain hoist	1200-PU-1610
68	Transportable installation (3 Feets)		1200-PU-4110
69	Elbow + Flanged bend		1250-PU-1221
70	Local Control panel (commun for 2 pump)		1250-PU-1610
71	Support for local Control panel (commun for 2 pump)		1250-PU-4110
72	2 Float switches with 10 m cable		
73	Level swith support (commun for 2 pump)		
74	10 m flexible reinforced hose with rigid spiral		
75	Flange DN 50 150#		
76	Rotating lifting crane (commun for 2 pump)		
77	Pump lifting chain (Stainless steel)		

Project - Unit	Document type	Material code	Serial number	Revision
9806J-1200	SP	0910	004	0

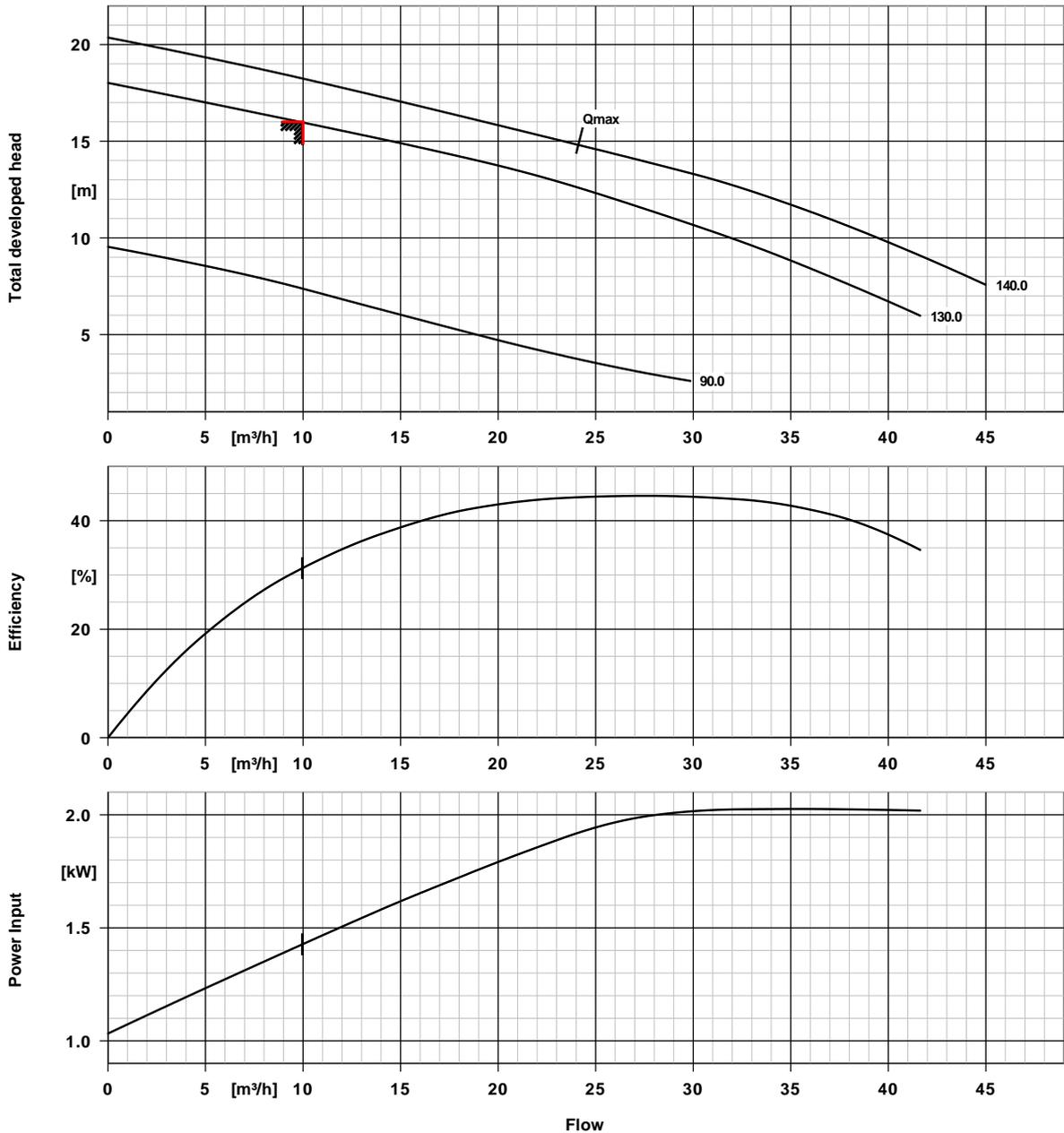
1					Rev.
2					A
3					
4					
5					
6	Client: <b>MINE PIT HEAD AREA OILY WATER PUMP</b>		Total quantity: <b>2</b>		
7	Site: Item No : <b>1250-PU-4110 A/B</b>		Quantity running: <b>1 (A) Electrical</b>		
8	Unit: <b>1250, Sanitary Water Treatment</b>		CENTRIFUGAL VERTICAL, SUBMERGED (4)		Quantity spare: <b>1 (B) Electrical</b>
9	Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built Process reference : <b>9806J-1250-PDS-0910-004-Rev.B</b>				
10	Vendor: <b>KSB</b>	Service: <b>Sludge Pump</b>		Installation: <input type="checkbox"/> horizontal <input checked="" type="checkbox"/> vertical	
11	Manufacturer:	Duty: <input type="checkbox"/> continuous <input checked="" type="checkbox"/> batch <input type="checkbox"/> other		<input checked="" type="checkbox"/> flooded <input type="checkbox"/> self priming <input checked="" type="checkbox"/> submersible	
12	Model: <b>Amarex NF 50-170 /022ULG-130</b>	Location: <input checked="" type="checkbox"/> outdoor <input type="checkbox"/> exposed to elements <input type="checkbox"/> under shelter		Electrical area classification: <b>Non classified area</b>	
13	Serial number:	<input type="checkbox"/> indoor <input type="checkbox"/> heated <input type="checkbox"/> unheated			
14	<b>HANDLED PRODUCTS</b>			<b>REQUIRED OPERATING DATA (per pump)</b>	
15	Fluid: <b>Sanitary Water (3)</b>			Flow (m3/h): mini normal: <b>10</b> rated: <b>10</b> maxi:	
16	<input type="checkbox"/> corrosive <input type="checkbox"/> abrasive <input type="checkbox"/> explosive <input type="checkbox"/> flammable <input type="checkbox"/> toxic <input type="checkbox"/> other:			Discharge pressure (bar g.): <b>1,4 (1)</b>	
17	Gas content: <input type="checkbox"/> no <input type="checkbox"/> yes			Suction pressure (bar g.): <b>0</b> maxi:	
18	Solids content: <input type="checkbox"/> no <input type="checkbox"/> yes			Differential pressure (bar): <b>1.6</b>	
19	Pumping temperature Tp (°C): mini: normal: <b>5 / 47</b> maxi:			Total head (m of LC): <b>16</b>	
20	Specific gravity at TP: mini: normal: <b>1,0</b> maxi:			Available NPSH (m): <b>9</b>	
21	Dynamic viscosity at Tp (Cp): normal: <b>0,72</b> maxi:			Garanteed point : <b>9.97 m3/h @ 15.97 m (1)</b>	
22	Vapour pressure at TP (bar a.): mini: normal: <b>0,106</b> maxi:			Speed control: <b>No</b>	
23	Atmospheric boiling temperature (°C):			Start-up conditions: <b>Open Valve</b>	
24	Specific heat (kJ/ kg/ °C):			Dry run requirements:	
25				Parallel/ serie operation:	
26				Basic material (wetted parts):	
27	<b>PUMP DESIGN (Vendor to complete)</b>				
28	Type: <input checked="" type="checkbox"/> classic volute <input type="checkbox"/> segmented <input type="checkbox"/> barrel(HP) <input type="checkbox"/> in-can <input type="checkbox"/> in-line				
29	<input type="checkbox"/> priming volute <input type="checkbox"/> side chanel <input type="checkbox"/> high speed <input type="checkbox"/> w/separate priming				
30	<input checked="" type="checkbox"/> monostage <input type="checkbox"/> multistage <input type="checkbox"/> hygienic construction				
31	<b>PERFORMANCES (per pump) (Vendor to complete)</b>				
32	Basic design: <input checked="" type="checkbox"/> Std Manufacturer <input type="checkbox"/> other:				
33	Nominal pressure (bar g. @ °C): <b>6</b> at <b>50 (°C)</b> :				
34	Casing type: <input checked="" type="checkbox"/> moulded <input type="checkbox"/> fabricated <input type="checkbox"/> lined <input type="checkbox"/> other:				
35	<input checked="" type="checkbox"/> single volute <input type="checkbox"/> double volute <input type="checkbox"/> jacketed				
36	<input type="checkbox"/> with diffuser <input type="checkbox"/> with wear ring <input type="checkbox"/> with throat bushing				
37	Casing nozzles			Rotation facing coupling: <input checked="" type="checkbox"/> Clockwise <input type="checkbox"/> Counter Clockwise	
38	Suction	Bottom	65	Rating	Remarks:
39	Discharge	Top	50	150	
40	Drain	N/A			
41	Vent	N/A			
42	Casing split: <input checked="" type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> none			Performances with offered diameter	
43	Casing support <input type="checkbox"/> foot <input type="checkbox"/> centerline <input type="checkbox"/> bearing frame <input checked="" type="checkbox"/> Discharge Elbow			Stable flow (m3/h)	
44	Shaft: <input checked="" type="checkbox"/> solid (no sleeve) <input type="checkbox"/> sleeved			Total Head (m)	
45	Impeller: <input type="checkbox"/> closed <input type="checkbox"/> semi open <input checked="" type="checkbox"/> open <input type="checkbox"/> with wear ring			Required NPSH (m)	
46	<input type="checkbox"/> single flux <input type="checkbox"/> double flux <input checked="" type="checkbox"/> vortex <input type="checkbox"/> vane wheel			Hydraulic impeller efficiency (%)	
47	<input checked="" type="checkbox"/> radial <input type="checkbox"/> mixed flow <input type="checkbox"/> axial			Required power at driver shaft (kW): <b>1.43</b>	
48				Shut off head (m): <b>18</b>	
49	Impeller mount: <input checked="" type="checkbox"/> overhang <input type="checkbox"/> between bearings <input type="checkbox"/> with inducer			Flow at Best Efficiency point (m3/h): <b>28</b>	
50	Impeller attachment: <input type="checkbox"/> screwed <input type="checkbox"/> keyed <input checked="" type="checkbox"/> Screwed on cone			Impeller diameter (mm): mini: maxi: installed:	
51	Bearing type/ lubrif.: Drive End /			Dry run capability: <b>90 140 130</b>	
52	Non Drive End /				
53	Baseplate: <input type="checkbox"/> none <input type="checkbox"/> under pump and drive system <input checked="" type="checkbox"/> anchored <input type="checkbox"/> stilt mounted			<b>SHAFT SEAL (Vendor to complete)</b>	
54	<input type="checkbox"/> moulded <input type="checkbox"/> bended sheet <input type="checkbox"/> fabricated			<input type="checkbox"/> None <input type="checkbox"/> Packing <input type="checkbox"/> Labyrinth <input type="checkbox"/> Hydrodynamic	
55				<input checked="" type="checkbox"/> Mechanical seal: <input type="checkbox"/> single <input checked="" type="checkbox"/> dual <input type="checkbox"/> cartridge	
56	<b>MATERIALS (Vendor to complete) (2)</b>			<input type="checkbox"/> contact <input type="checkbox"/> without contact	
57	Casing(s)/ Cover: <b>Grey Cast Iron JL 1040</b>		Casing wear ring: <b>N/A</b>	<input type="checkbox"/> spring(s) <input type="checkbox"/> bellow	
58	Casing liner: <b>N/A</b>		Casing gasket: <b>FPM</b>	Mounting: <input type="checkbox"/> face to face <input type="checkbox"/> back to back <input checked="" type="checkbox"/> tandem	
59	Impeller: <b>Grey Cast Iron JL0140</b>		Impeller wear ring: <b>N/A</b>	<input type="checkbox"/> rotating flexible element <input type="checkbox"/> stationary flexible element	
60	Shaft: <b>Chrome Steel 1.4021</b>		Shaft sleeve: <b>N/A</b>	Pressurisation: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> buffer fluid <input type="checkbox"/> barrier fluid	
61	Stuffing box: <b>N/A</b>		Gland: <b>N/A</b>	fluid: pressure: circulation by:	
62	Wetted bolting: <b>1.4571</b>		Bearing housing: <b>Grey Cast Iron JL 1040</b>	Seal chamber: <input type="checkbox"/> cylindrical <input type="checkbox"/> tapped (enlarged) <input type="checkbox"/> jacketed	
63	Baseplate: <b>Grey Cast Iron JL0140</b>			<input checked="" type="checkbox"/> integral with casing <input type="checkbox"/> internal <input type="checkbox"/> external <input type="checkbox"/> with throttle bushing	
64				Seal manufacturer/ Model: <b>Burgmann /</b> API Plan <b>NA</b>	
65	<b>DRIVE SYSTEM DESCRIPTION (Vendor to complete)</b>				
66	Driver: <b>Electrical</b>				
67	<input checked="" type="checkbox"/> fixed speed <input type="checkbox"/> Variable speed				
68	supplied/ mounted by: <b>ksb</b> / <b>ksb</b>				
69	manufacturer/ model: <b>ksb</b> /				
70	nameplate power/ speed: <b>2,3 / 2780</b>				
71	Connection driver/ pump: <input type="checkbox"/> pulley/ belts <input checked="" type="checkbox"/> direct (close coupled)				
72	<input type="checkbox"/> direct(separately coupled) <input type="checkbox"/> gears <input type="checkbox"/> other:				
73					
74	Electrical utility data:				
75	Volts: <b>400</b> Hertz: <b>50</b> Phase: <b>3</b>				
76					
77					
78					



Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	004	0

Client	MINE PIT HEAD AREA OILY WATER PUMP	Total quantity: 2
Site:	Item No : 1250-PU-4110 A/B	Quantity running: 1
Unit: 1200		Quantity spare: 1
Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built		Process reference : 9806J-1250-PDS-0910-004-Rev.A

**Amarex NF 50-170/022ULG-130**



**Curve data**

Speed of rotation	2863 rpm	Requested developed head	16.00 m
Fluid density	1030 kg/m³	Efficiency	31.3 %
Viscosity	0.66 mm²/s	Power absorbed	1.43 kW
Flow rate	9.97 m³/h	Curve number	K2563-52-13S
Requested flow rate	10.00 m³/h	Effective impeller diameter	130.0 mm
Total developed head	15.97 m	Acceptance standard	ISO 9906 class 3B; below 10 kW acc. to paragraph 4.4.2

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	001	0

Rev.  
A

6	Client:	<b>MINE PIT HEAD AREA OILY WATER PUMP</b>	Total quantity: <b>2</b>
7	Site:	Item No : <b>1250-PU-4110 A/B</b>	Quantity running: <b>1</b>
8	Unit: <b>1200</b>		Quantity spare: <b>1</b>

9 Mechanical Data Sheet for:  Inquiry  Purchase  As built Process reference : **9806J-1250-PDS-0910-004-REV.A**

10 **VERTICAL PUMP (Vendor to complete)**

13 Pump configuration: **Vertical Submersible Pump**

14  Cantilever

15  With wetted bearing(s): number: location: material:

16  pumpage lub

17  externally lub fluid: flow: pressure:

18  Suction can and discharge head

19 diameter (mm): total length: suction/ discharge flange:

20 material:

22 Pump discharge  through driving column  through elbow and separate column

23  under setting level  above setting level

24  vertical flange  horizontal flange

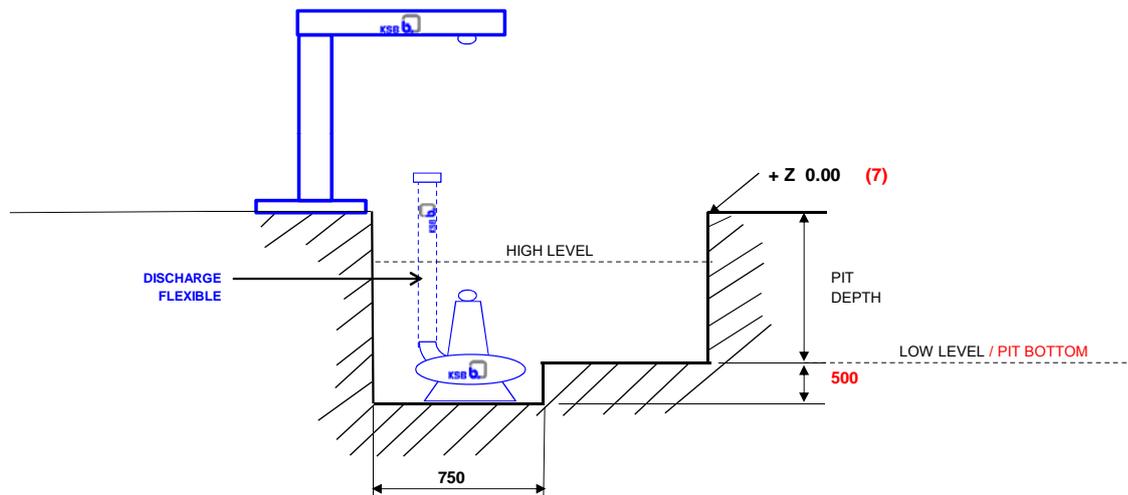
26 Line shaft :  Open  Enclosed

28 Specific accessories :

29  Strainer

30  Bellmouth

31



56 ● PIT DEPTH **5400** (mm) (4)

58 ○ PIT DIMENSION (mm)

60 ○ SUBMERGENCE REQUIRED (mm)

66 **Scope (by pump)**

66 **Scope (one for all plant submerged pump)**

67	Pump	1 commun Chain hoist	1200-PU-1610
68	Transportable installation (3 Feets)		1200-PU-4110
69	Elbow + Flanged bend		1250-PU-1221
70	Local Control panel (commun for 2 pump)		1250-PU-1610
71	Support for local Control panel (commun for 2 pump)		1250-PU-4110
72	2 Float switches with 10 m cable		
73	Level swith support (commun for 2 pump)		
74	10 m flexible reinforced hose with rigid spiral		
75	Flange DN 50 150#		
76	Rotating lifting crane (commun for 2 pump)		
77	Pump lifting chain (Stainless steel)		

Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	004	0

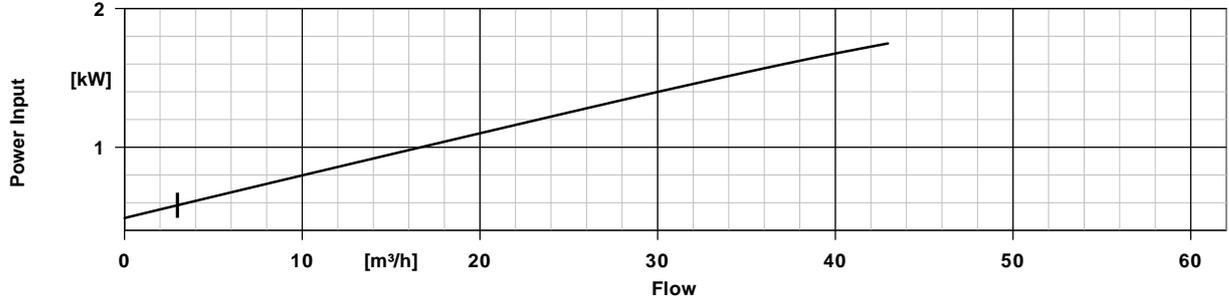
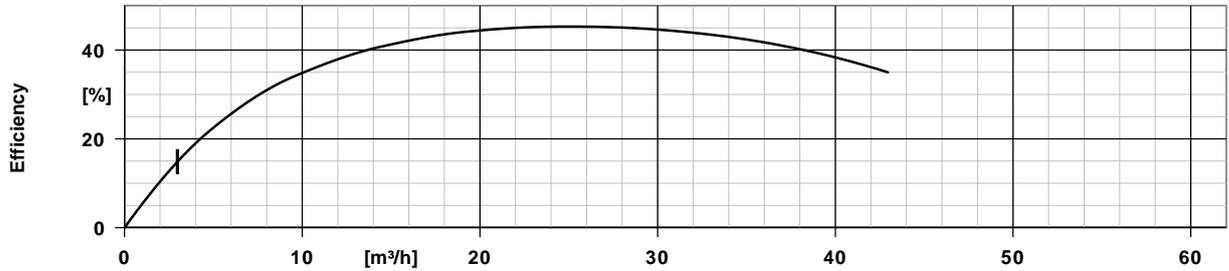
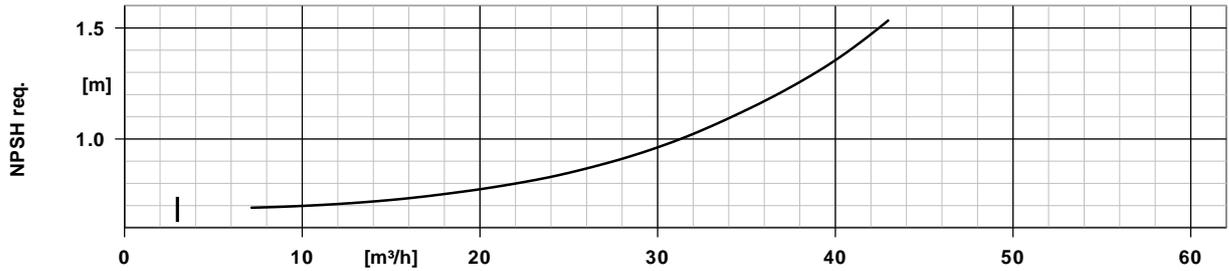
1				Rev. <b>C</b>																								
2																												
3																												
4																												
5																												
6	Client:		<b>CENTRIFUGAL PUMP DATA SHEET</b>	Total quantity: <b>2</b>																								
7	Site:		Item No : <b>1200-PU-1430 A/X</b>	Quantity running: <b>1 (A) Electrical</b>																								
8	Unit: <b>1200, Sanitary Water Treatment</b>		CENTRIFUGAL PUMP (4)	Quantity spare: <b>1 (B) Electrical</b>																								
9	Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built		Process reference : <b>9806J-1200-PDS-0910-001-B</b>																									
10	Vendor: <b>KSB</b>	Service: <b>Sludge Pump</b>		Installation: <input checked="" type="checkbox"/> horizontal <input type="checkbox"/> vertical																								
11	Manufacturer: <b>KSB</b>	Duty: <input type="checkbox"/> continuous <input checked="" type="checkbox"/> batch <input type="checkbox"/> other		<input type="checkbox"/> flooded <input type="checkbox"/> self priming <input type="checkbox"/> submersible																								
12	Model: <b>Sewatec F 50-250G 3ENH 100L 04</b>	Location: <input checked="" type="checkbox"/> outdoor <input type="checkbox"/> exposed to elements <input type="checkbox"/> under shelter		Electrical area classification: <b>Non classified area</b>																								
13	Serial number:	<input type="checkbox"/> indoor <input type="checkbox"/> heated <input type="checkbox"/> unheated																										
14	<b>HANDLED PRODUCTS</b>		<b>REQUIRED OPERATING DATA (per pump)</b>																									
15	Fluid: <b>Sanitary Water (3)</b>		Flow (m3/h): mini normal: <b>3</b> rated: <b>3</b> maxi:																									
16	<input type="checkbox"/> corrosive <input type="checkbox"/> abrasive <input type="checkbox"/> explosive <input type="checkbox"/> flammable <input type="checkbox"/> toxic <input checked="" type="checkbox"/> other: <b>Erosive</b>		Discharge pressure (bar g.): <b>1.1</b>																									
17	Gas content: <input type="checkbox"/> no <input type="checkbox"/> yes		Suction pressure (bar g.): <b>-0.01</b> maxi:																									
18	Solids content: <input type="checkbox"/> no <input checked="" type="checkbox"/> yes		Differential pressure (bar): <b>1.1</b>																									
19	Pumping temperature Tp (°C): mini: normal: <b>5</b> maxi: <b>47</b>	Total head (m of LC): <b>11</b>																										
20	Specific gravity at TP: mini: normal: <b>1</b> maxi: <b>1.05</b>	Available NPSH (m): <b>8</b>																										
21	Dynamic viscosity at Tp (Cp): normal: <b>1</b> maxi: <b>20</b>	Guaranteed point : <b>2.98 m3/h @ 10.84 m</b>																										
22	Vapour pressure at TP (bar a.): mini: normal: <b>0,106</b> maxi:	Speed control: <b>No</b>																										
23	Atmospheric boiling temperature (°C):	Start-up conditions: <b>Open Valve</b>																										
24	Specific heat (kJ/ kg/ °C):	Dry run requirements:																										
25		Parallel/ serie operation:																										
26		Basic material (wetted parts):																										
27	<b>PUMP DESIGN (Vendor to complete)</b>																											
28	Type: <input checked="" type="checkbox"/> classic volute <input type="checkbox"/> segmented <input type="checkbox"/> barrel(HP) <input type="checkbox"/> in-can <input type="checkbox"/> in-line		Remark:																									
29	<input type="checkbox"/> priming volute <input type="checkbox"/> side chanel <input type="checkbox"/> high speed <input type="checkbox"/> w/separate priming																											
30	<input checked="" type="checkbox"/> monostage <input type="checkbox"/> multistage <input type="checkbox"/> hygienic construction		<b>PERFORMANCES (per pump) (Vendor to complete)</b>																									
31	Basic design: <input checked="" type="checkbox"/> Std Manufacturer <input type="checkbox"/> other:		Rotation facing coupling: <input checked="" type="checkbox"/> Clockwise <input type="checkbox"/> Counter Clockwise																									
32	Nominal pressure (bar g. @ °C): <b>6</b> at <b>50</b> (°C):		Performance curve reference: <b>K42418</b>																									
33	Casing type: <input checked="" type="checkbox"/> moulded <input type="checkbox"/> fabricated <input type="checkbox"/> lined <input type="checkbox"/> other:		Pump speed: <b>1488</b>																									
34	<input checked="" type="checkbox"/> single volute <input type="checkbox"/> double volute <input type="checkbox"/> jacketed		Allowable speed range: <b>-</b>																									
35	<input type="checkbox"/> with diffuser <input type="checkbox"/> with wear ring <input type="checkbox"/> with throat bushing		Maximum Allowable Working Pressure (bar g.): <b>6</b> at <b>40</b> (°C)																									
36	Casing nozzles Orient. Size Rating Facing Remarks:		Maximum Allowable Temperature (°C): <b>40</b>																									
37	Suction <b>Bottom</b> <b>65</b> <b>150</b> <b>RF</b>	Performances with offered diameter mini normal rated																										
38	Discharge <b>Top</b> <b>50</b> <b>150</b> <b>RF</b>	Stable flow (m3/h) <b>(3) 0.45</b> <b>2.98</b>																										
39	Drain	Total Head (m) <b>10.84</b>																										
40	IVent <b>Plugged</b>	Required NPSH (m) <b>.68</b>																										
41	IVent <b>Plugged</b>	Hydraulic impeller efficiency (%) <b>14.5</b>																										
42	Casing split: <input checked="" type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> none	Required power at driver shaft (kW): <b>0.58</b>																										
43	Casing support <input checked="" type="checkbox"/> foot <input type="checkbox"/> centerline <input type="checkbox"/> bearing frame <input type="checkbox"/>	Shut off head (m): <b>11.1</b>																										
44	Shaft: <input checked="" type="checkbox"/> solid (no sleeve) <input type="checkbox"/> sleeved	Flow at Best Efficiency point (m3/h): <b>25</b>																										
45	Impeller: <input type="checkbox"/> closed <input type="checkbox"/> semi open <input checked="" type="checkbox"/> open <input type="checkbox"/> with wear ring	Impeller diameter (mm): mini: maxi: installed:																										
46	<input type="checkbox"/> single flux <input type="checkbox"/> double flux <input checked="" type="checkbox"/> vortex <input type="checkbox"/> vane wheel	Dry run capability: <b>150</b> <b>200</b> <b>170</b>																										
47	<input checked="" type="checkbox"/> radial <input type="checkbox"/> mixed flow <input type="checkbox"/> axial																											
48																												
49	Impeller mount: <input checked="" type="checkbox"/> overhang <input type="checkbox"/> between bearings <input type="checkbox"/> with inducer	<b>SHAFT SEAL (Vendor to complete)</b>																										
50	Impeller attachment: <input type="checkbox"/> screwed <input type="checkbox"/> keyed <input checked="" type="checkbox"/> Screwed on cone	<input type="checkbox"/> None <input type="checkbox"/> Packing <input type="checkbox"/> Labyrinth <input type="checkbox"/> Hydrodynamic																										
51	Bearing type/ lubrif.: Drive End /																											
52	Non Drive End /																											
53	Baseplate: <input type="checkbox"/> none <input checked="" type="checkbox"/> under pump and drive system <input checked="" type="checkbox"/> anchored <input type="checkbox"/> stilt mounted	<input checked="" type="checkbox"/> Mechanical seal: <input type="checkbox"/> single <input checked="" type="checkbox"/> dual <input type="checkbox"/> cartridge																										
54	<input type="checkbox"/> moulded <input type="checkbox"/> bended sheet <input checked="" type="checkbox"/> fabricated	<input type="checkbox"/> contact <input type="checkbox"/> without contact																										
55		<input checked="" type="checkbox"/> spring(s) <input checked="" type="checkbox"/> bellow																										
56	<b>MATERIALS (Vendor to complete) (2)</b>		Mounting: <input type="checkbox"/> face to face <input type="checkbox"/> back to back <input checked="" type="checkbox"/> tandem																									
57	Casing(s)/ Cover: <b>Grey Cast Iron JL 1040</b>	Casing wear ring: <b>Grey Cast Iron JL0140</b>	<input type="checkbox"/> rotating flexible element <input type="checkbox"/> stationary flexible element																									
58	Casing liner: <b>N/A</b>	Casing gasket: <b>NBR</b>																										
59	Impeller: <b>Grey Cast Iron JL0140</b>	Impeller wear ring: <b>N/A</b>	Pressurisation: <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> buffer fluid <input type="checkbox"/> barrier fluid																									
60	Shaft: <b>Chrome Steel 1.4021</b>	Shaft sleeve: <b>N/A</b>	fluid: pressure: circulation by:																									
61	Stuffing box: <b>N/A</b>	Gland: <b>N/A</b>	Seal chamber: <input type="checkbox"/> cylindrical <input type="checkbox"/> tapped (enlarged) <input type="checkbox"/> jacketed																									
62	Wetted bolting: <b>1.4571</b>	Bearing housing: <b>Grey Cast Iron JL 1040</b>	<input checked="" type="checkbox"/> integral with casing <input type="checkbox"/> internal <input type="checkbox"/> external <input type="checkbox"/> with throttle bushing																									
63	Baseplate: <b>Steel</b>		Seal manufacturer/ Model: <b>Burgmann /</b> API Plan <b>NA</b>																									
64																												
65	<b>DRIVE SYSTEM DESCRIPTION (Vendor to complete)</b>																											
66	Driver: <b>Electrical</b>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">Product side</td> <td style="text-align: center;">Atmospheric side</td> </tr> <tr> <td>Damage</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Max allow pressure</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Bolting</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Spring/Bellow</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>O-Ring gaskets</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Cartridge sleeves</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>End plate</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> </table>			Product side	Atmospheric side	Damage	X	X	Max allow pressure	X	X	Bolting	X	X	Spring/Bellow	X	X	O-Ring gaskets	X	X	Cartridge sleeves	X	X	End plate	X	X
	Product side	Atmospheric side																										
Damage	X	X																										
Max allow pressure	X	X																										
Bolting	X	X																										
Spring/Bellow	X	X																										
O-Ring gaskets	X	X																										
Cartridge sleeves	X	X																										
End plate	X	X																										
67	<input checked="" type="checkbox"/> fixed speed <input type="checkbox"/> Variable speed																											
68	supplied/ mounted by: <b>ksb</b> / <b>ksb</b>																											
69	manufacturer/ model: <b>Leroy Somer</b> / <b>FLSC 100 LK</b>																											
70	nameplate power/ speed: <b>2.2</b> / <b>1455</b>																											
71	Connection driver/ pump: <input type="checkbox"/> pulley/ belts <input type="checkbox"/> direct (close coupled)																											
72	<input checked="" type="checkbox"/> direct(separately coupled) <input type="checkbox"/> gears <input type="checkbox"/> other:																											
73																												
74	Electrical utility data:																											
75	Volts: <b>400</b>	Hertz: <b>50</b>	Phase: <b>3</b>																									
76																												
77																												
78																												



Project - Unit	Document type	Material code	Serial number	Revision
9806J -1200	SP	0910	'004	0

Client:	<b>CENTRIFUGAL PUMP DATA SHEET</b>	Total quantity: 2
Site:	Item No : 1200-PU-1430 A/X	Quantity running: 1
Unit: 1200		Quantity spare: 1
Mechanical Data Sheet for: <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Purchase <input type="checkbox"/> As built		Process reference : 9806J-1200-PDS-0910-001-B

**Sewatec F 50-250G 3ENH 100L 04**



**Curve data**

Speed of rotation	1488 rpm	Efficiency	14.5 %
Fluid density	1021 kg/m³	Power absorbed	0.58 kW
Viscosity	3.27 mm²/s	NPSH required	0.68 m
Flow rate	2.98 m³/h	Curve number	K42418
Requested flow rate	3.00 m³/h	Effective impeller diameter	170.0 mm
Total developed head	10.84 m	Acceptance standard	ISO 9906 class 2B
Requested developed head	11.00 m		

4.6 Noise characteristics

Table 9: Surface sound pressure level  $L_{pA}$ <sup>5)</sup>

Rated power input $P_N$	Pump			Pump set		
	2900 rpm (3500 rpm)	1450 rpm (1750 rpm)	960/760 rpm (1160/875 rpm)	2900 rpm (3500 rpm)	1450 rpm (1750 rpm)	960/760 rpm (1160/875 rpm)
[kW]	dB	dB	dB	dB	dB	dB
1,5	53,5	52,0	51,0	62,5	56,5	55,0
2,2	55,0	53,0	52,0	65,0	58,5	57,5
3,0	56,5	55,0	53,5	67,0	60,5	59,0
4,0	58,0	57,0	55,0	68,5	62,0	60,5
5,5	59,5	57,5	57,0	70,0	63,5	63,0
7,5	61,0	58,5	57,5	71,0	65,0	63,5
11,0	62,5	60,5	59,5	72,5	67,0	65,5
15,0	64,0	61,5	60,5	73,5	68,0	66,5
18,5	64,5	62,5	61,5	74,0	68,5	67,5
22,0	65,5	63,5	62,5	74,5	69,0	68,0
30,0	67,0	65,0	63,5	75,0	70,5	69,0
37,0	68,0	65,5	64,5	76,0	71,0	69,5

<sup>5)</sup> Measured at a distance of 1 m from the pump outline (as per DIN 45635 Part 1 and 24)

**APPENDIX C**

**SET OF 12 KSB CENTRIFUGAL PUMPS**

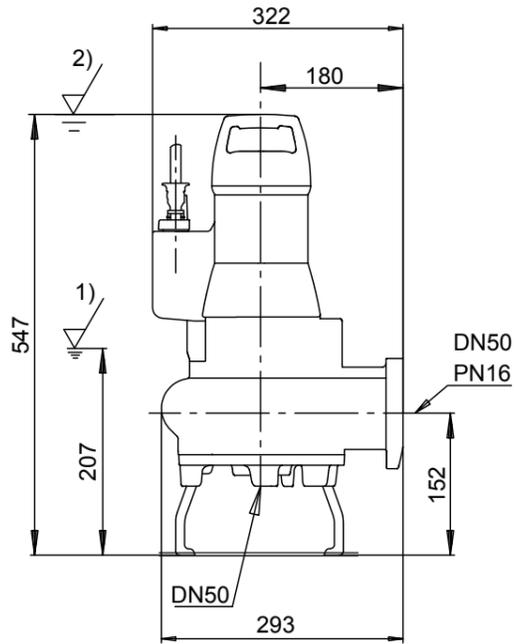
**DRAWINGS**



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
info@amking.com

**1 Amarex NF 50-170/022ULG-107**



**2 Power & Control Cable**

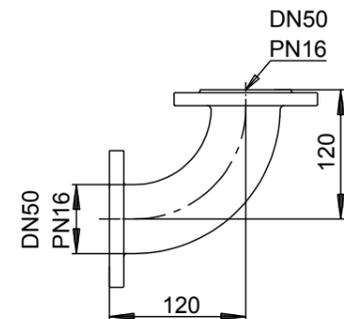
Tefzel 8 x 1.5 mm<sup>2</sup> - 10 m

**3 Pump Lifting Chain**

SS 316 - max. 160 kg - 10 m

**4 Flanged Discharge Elbow**

SS 304L



**5 Flexible Reinforced Hose**



Construction :

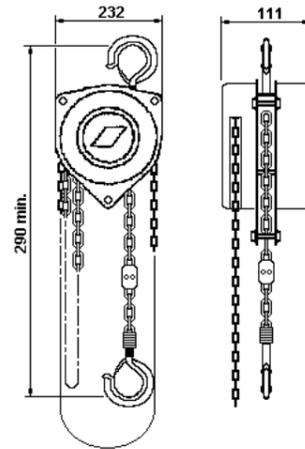
Tube : black, smooth, antistatic  
 Reinforcement : high tenacity textile sheets with embedded steel spiral  
 Cover : NBR, black, electrically conductive  
 Temperature : -30 ° C to +80 ° C

Dimensions :

Outer Diameter : 61 mm  
 Inner Diameter : 51 mm  
 Connection : DN50 PN10

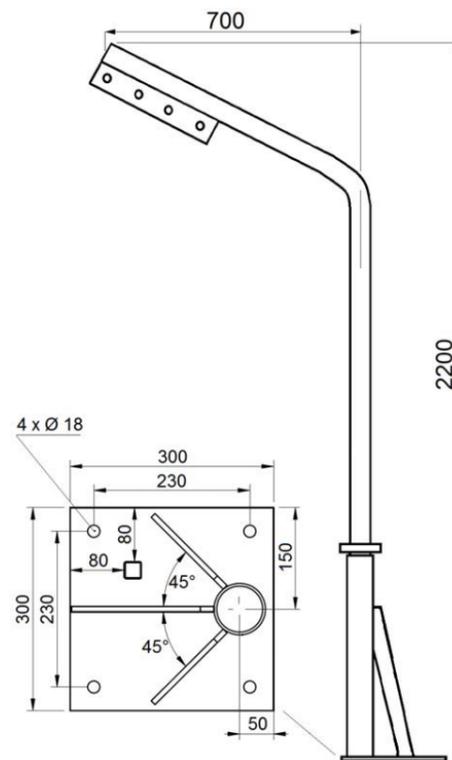
**6 Common Chain Hoist (Bezlift)**

500 daN - Weight : 7.5 kg



**7 Rotating Lifting Crane with Rudder and Foot**

SS 304L - 150 daN



**8 2 Pumps Local Control Panel with Support**

For Cubicle :  
 See 9972511912-LWD-001  
 For Support :  
 See 9972511912-ADC-001

**9 2 Level Switches with Support**

Level Switches :



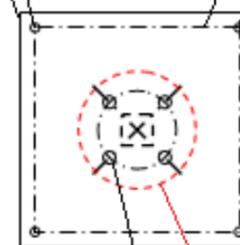
3G1 - 10 m - Hypalon

Level Switches Support :

SS 304 - Length = 2380 mm



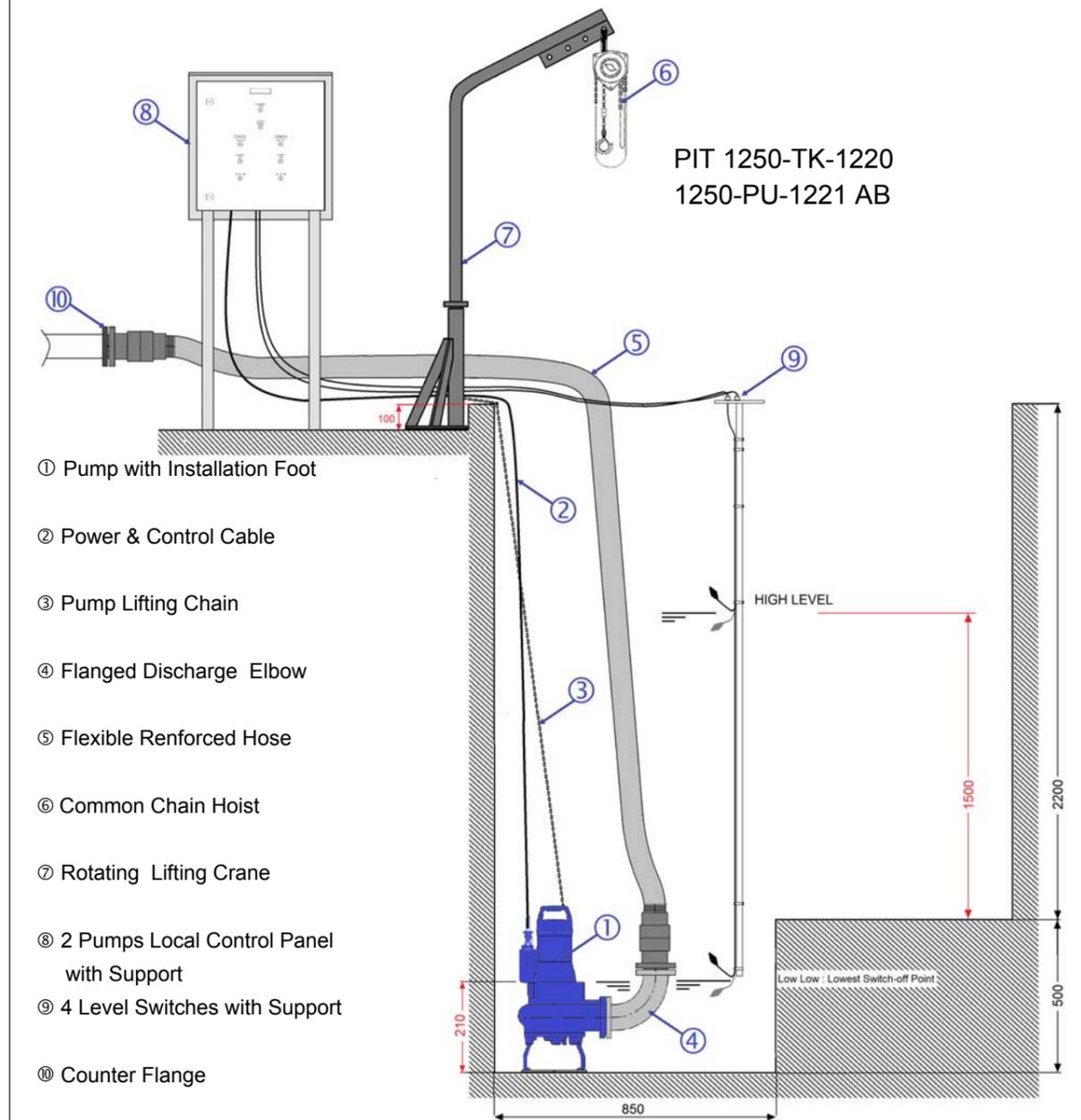
300 x 300 260 x 260  
 4 x holes dia. 12



4 Gland Packing  
 Opening in cover : Ø 150

**10 Counter Flange**

Ø 200 x 100 x 10  
 4 x Ø 12

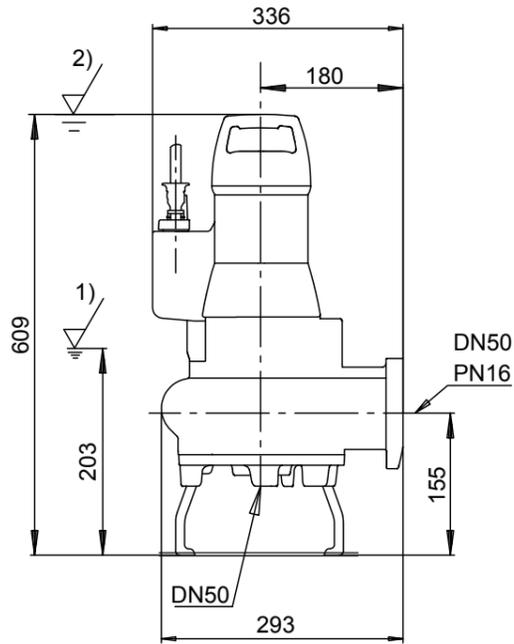


- ① Pump with Installation Foot
- ② Power & Control Cable
- ③ Pump Lifting Chain
- ④ Flanged Discharge Elbow
- ⑤ Flexible Reinforced Hose
- ⑥ Common Chain Hoist
- ⑦ Rotating Lifting Crane
- ⑧ 2 Pumps Local Control Panel with Support
- ⑨ 4 Level Switches with Support
- ⑩ Counter Flange

PIT 1250-TK-1220  
 1250-PU-1221 AB

**TREATED OILY WATER PUMP  
 1250-PU-1221 AB  
 AMAREX NF 50-170/022ULG-107**

**① Amarex NF 50-220/042ULG-140**



**② Power & Control Cable**

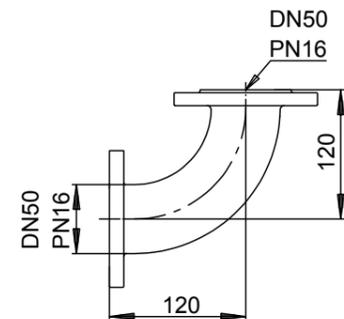
Tefzel 8 x 1.5 mm<sup>2</sup> - 10 m

**③ Pump Lifting Chain**

SS 316 - max. 160 kg - 10 m

**④ Flanged Discharge Elbow**

SS 304L



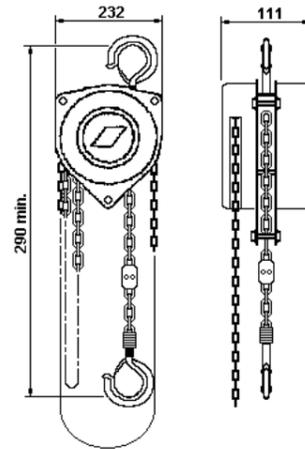
**⑤ Flexible Reinforced Hose**



Construction :  
 Tube : black, smooth, EPDM base  
 Reinforcement : braided textile with steel spiral  
 Cover : black, EPDM base  
 Temperature : -30 ° C to +80 ° C  
 Dimensions :  
 Outer Diameter : 61 mm  
 Inner Diameter : 51 mm  
 Connection : DN50 PN16

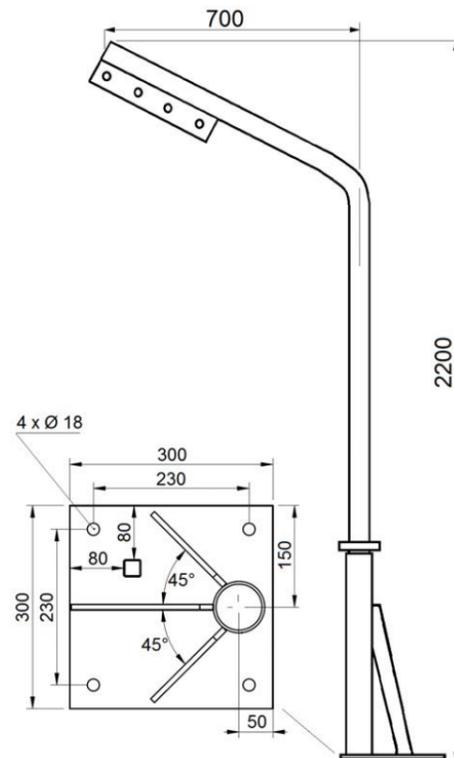
**⑥ Common Chain Hoist (Bezalift)**

500 daN - Weight : 7.5 kg



**⑦ Rotating Lifting Crane with Rudder and Foot**

SS 304L - 150 daN

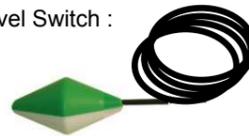


**⑧ 2 Pumps Local Control Panel with Support**

For Cubicle :  
 See 9972511912-LWD-001  
 For Support :  
 See 9972511912-ADC-001

**⑨ 1 Level Switch with Support**

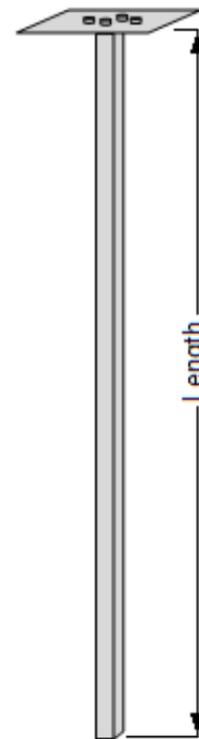
Level Switch :



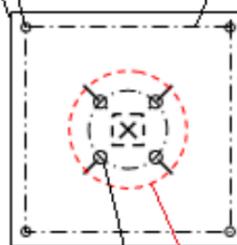
3G1 - 10 m - PVC / Nitril

Level Switches Support :

SS 304 - Length = 4780 mm



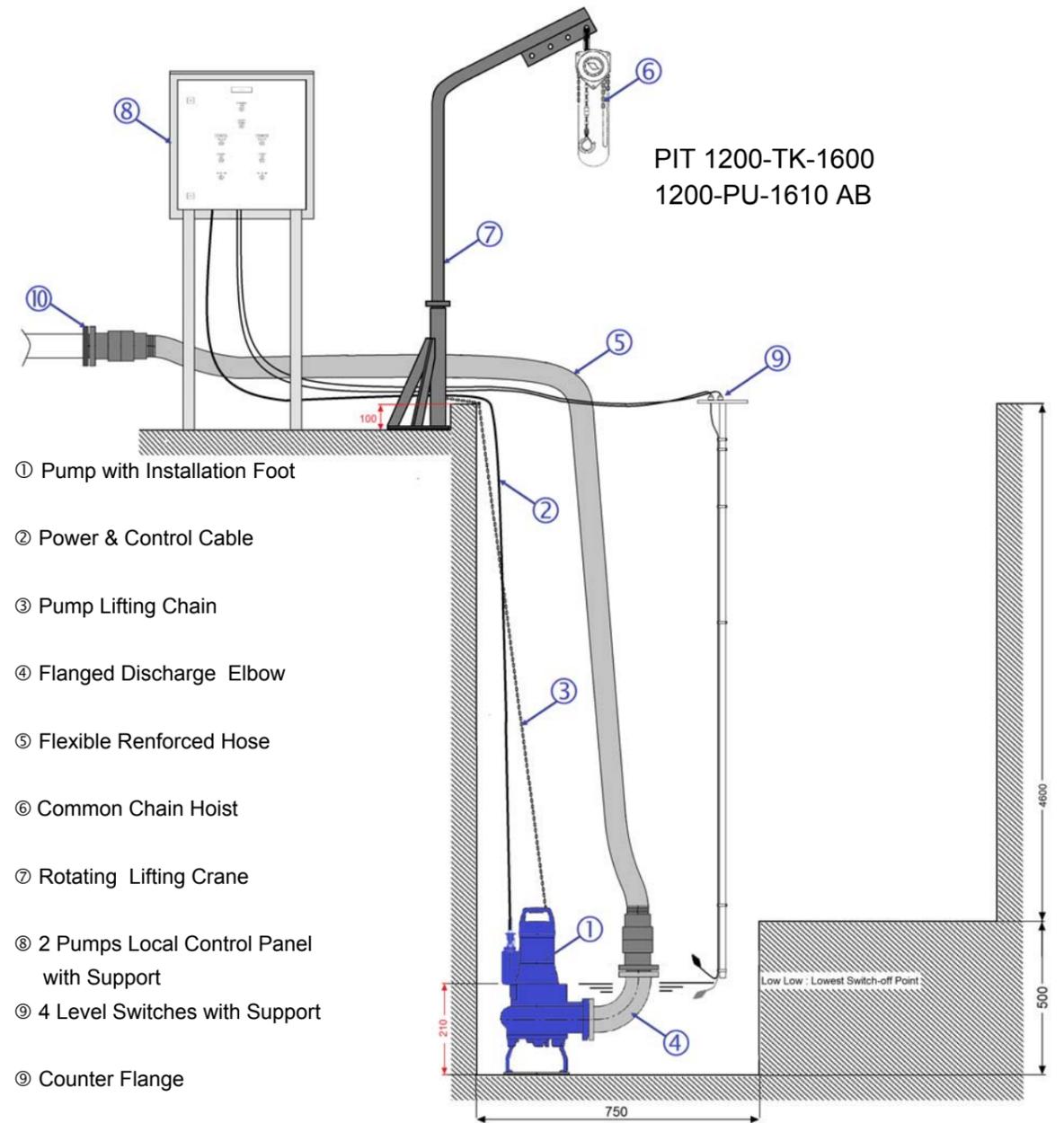
300 x 300 260 x 260  
 4 x holes dia. 12



4 Gland Packing  
 Opening in cover : Ø 150

**⑩ Connection**

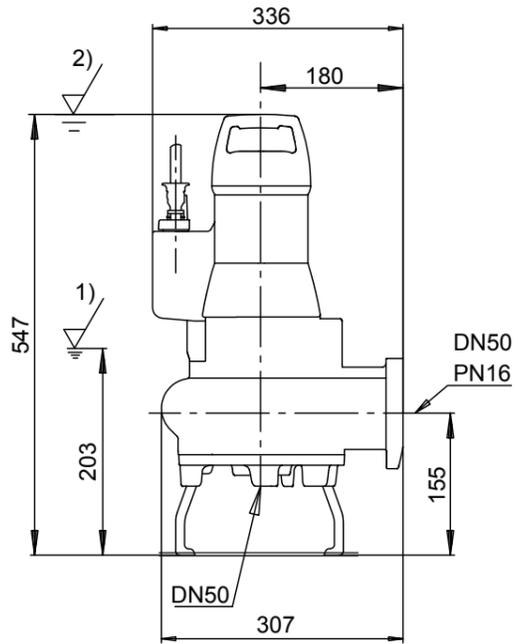
DN 50 - PN 16



- ① Pump with Installation Foot
- ② Power & Control Cable
- ③ Pump Lifting Chain
- ④ Flanged Discharge Elbow
- ⑤ Flexible Reinforced Hose
- ⑥ Common Chain Hoist
- ⑦ Rotating Lifting Crane
- ⑧ 2 Pumps Local Control Panel with Support
- ⑨ 4 Level Switches with Support
- ⑩ Counter Flange

**SW RECEIVING PIT PUMP  
 1200-PU-1610 AB  
 AMAREX NF 50-220/042ULG-140**

**① Amarex NF 50-220/042ULG-150**



**② Power & Control Cable**

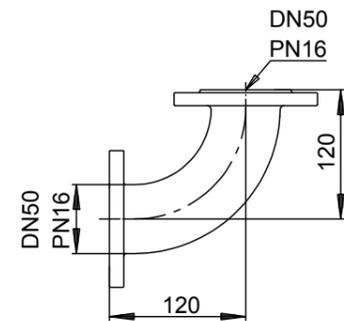
Tefzel 8 x 1.5 mm<sup>2</sup> - 10 m

**③ Pump Lifting Chain**

SS 316 - max. 160 kg - 10 m

**④ Flanged Discharge Elbow**

SS 304L



**⑤ Flexible Reinforced Hose**



Construction :

Tube : black, smooth, antistatic  
Reinforcement : high tenacity textile sheets with embedded steel spiral  
Cover : NBR, black, electrically conductive

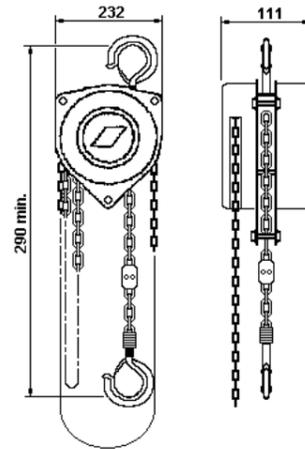
Temperature : -30 ° C to +80 ° C

Dimensions :

Outer Diameter : 61 mm  
Inner Diameter : 51 mm  
Connection : DN50 PN10

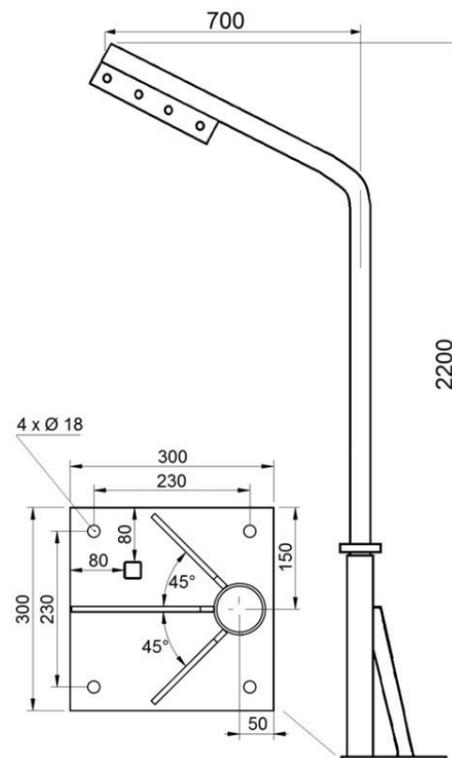
**⑥ Common Chain Hoist (Bezalift)**

500 daN - Weight : 7.5 kg



**⑦ Rotating Lifting Crane with Rudder and Foot**

SS 304L - 150 daN



**⑧ 2 Pumps Local Control Panel with Support**

For Cubicle :  
See 9972511912-LWD-002  
For Support :  
See 9972511912-ADC-002

**⑨ 2 Level Switches with Support**

Level Switches :



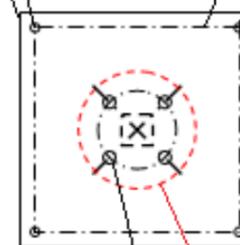
3G1 - 10 m - Hypalon

Level Switches Support :

SS 304 - Length = 4860 mm



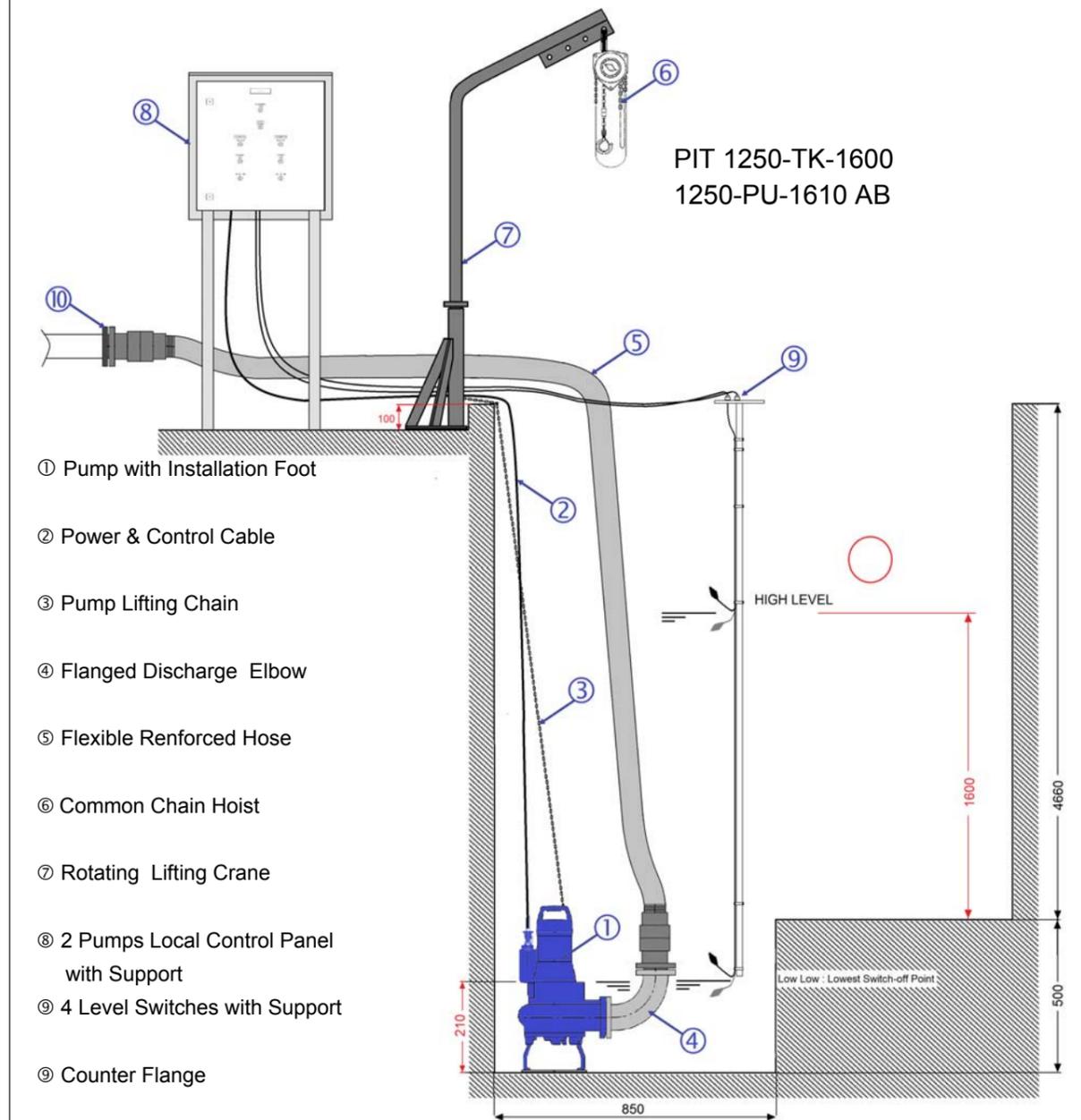
300 x 300 260 x 260  
4 x holes dia. 12



4 Gland Packing  
Opening in cover : Ø 150

**⑩ Counter Flange**

Flange DN50 - PN16  
+ Counter Flange + gasket + bolts



① Pump with Installation Foot

② Power & Control Cable

③ Pump Lifting Chain

④ Flanged Discharge Elbow

⑤ Flexible Reinforced Hose

⑥ Common Chain Hoist

⑦ Rotating Lifting Crane

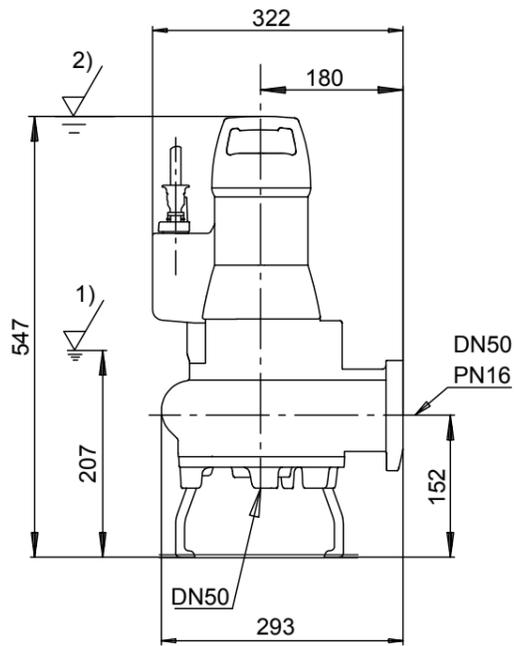
⑧ 2 Pumps Local Control Panel with Support

⑨ 4 Level Switches with Support

⑩ Counter Flange

**OILY WATER RECEIVING PUMP  
1250-PU-1610 AB  
AMAREX NF 50-220/042ULG-150**

**① Amarex NF 50-170/022ULG-120**



**② Power & Control Cable**

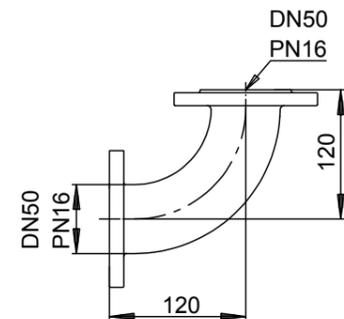
Tefzel 8 x 1.5 mm<sup>2</sup> - 10 m

**③ Pump Lifting Chain**

SS 316 - max. 160 kg - 10 m

**④ Flanged Discharge Elbow**

SS 304L



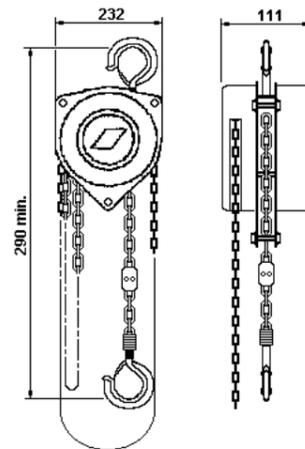
**⑤ Flexible Reinforced Hose**



Construction :  
 Tube : black, smooth, EPDM base  
 Reinforcement : braided textile with steel spiral  
 Cover : black, EPDM base  
 Temperature : -30 ° C to +80 ° C  
 Dimensions :  
 Outer Diameter : 61 mm  
 Inner Diameter : 51 mm  
 Connection : DN50 PN16

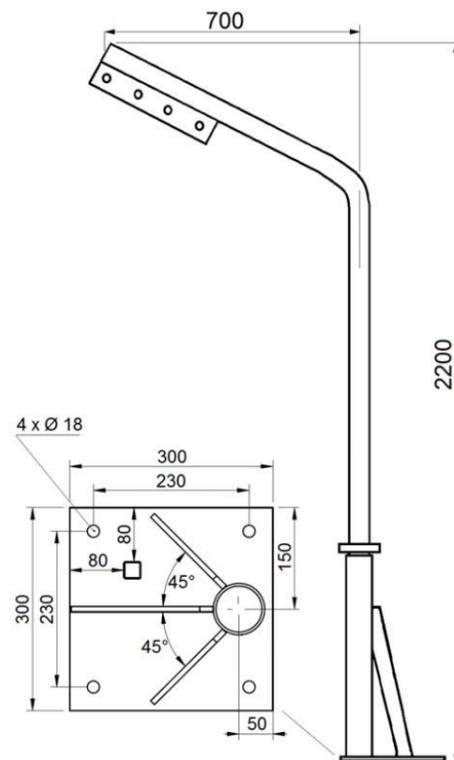
**⑥ Common Chain Hoist (Bezalift)**

500 daN - Weight : 7.5 kg



**⑦ Rotating Lifting Crane with Rudder and Foot**

SS 304L - 150 daN



**⑧ 2 Pumps Local Control Panel with Support**

For Cubicle :  
 See 9972511912-LWD-001  
 For Support :  
 See 9972511912-ADC-001

**⑨ 2 Level Switches with Support**

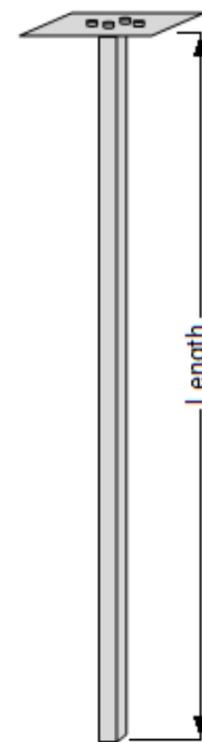
Level Switches :



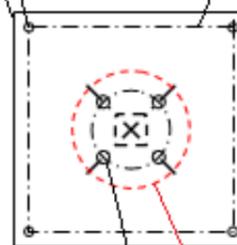
3G1 - 10 m - PVC / Nitril

Level Switches Support :

SS 304 - Length = 4750 mm



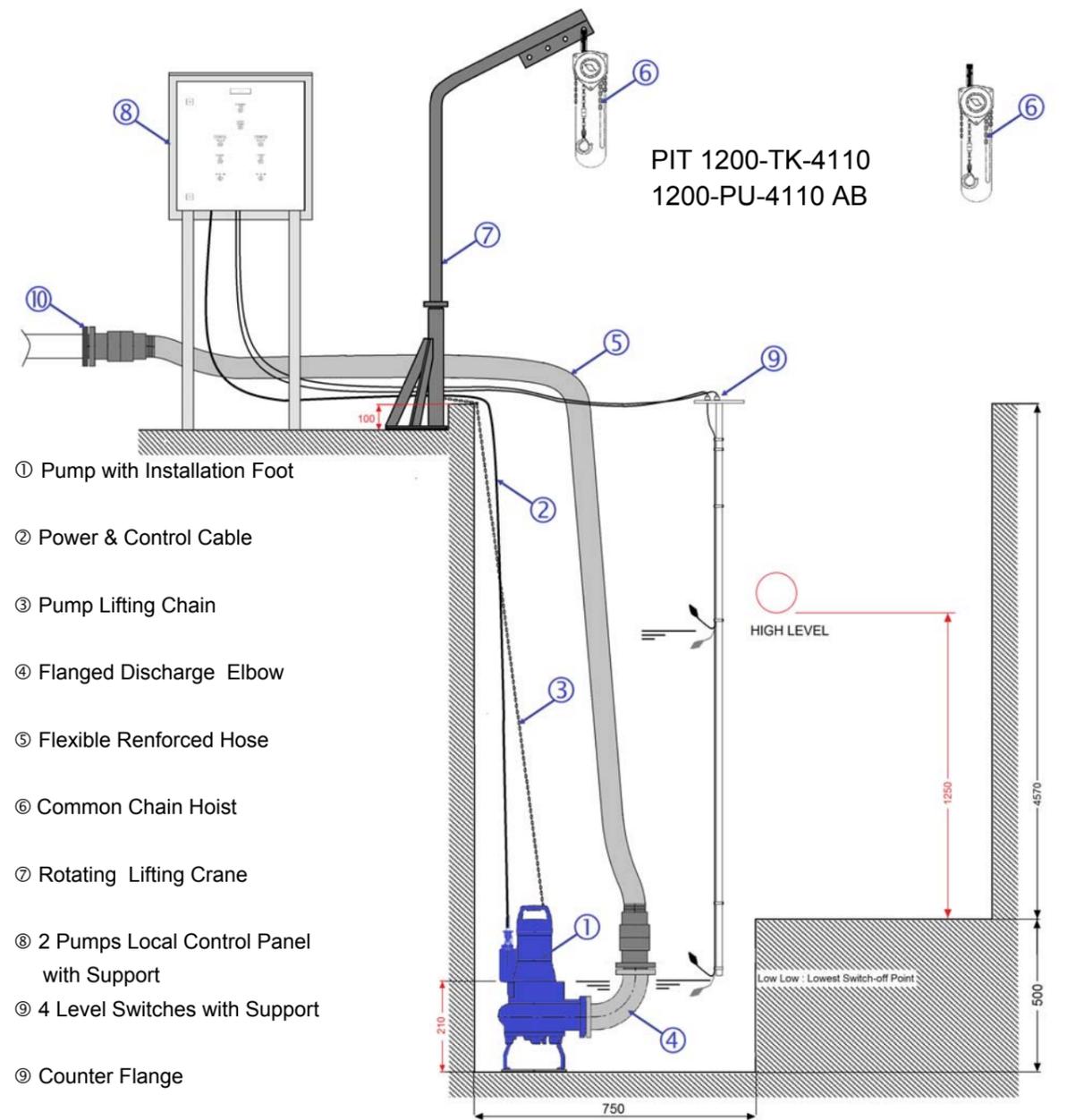
300 x 300 260 x 260  
 4 x holes dia. 12



4 Gland Packing  
 Opening in cover : Ø 150

**⑩ Connection**

2" - NPT Male



① Pump with Installation Foot

② Power & Control Cable

③ Pump Lifting Chain

④ Flanged Discharge Elbow

⑤ Flexible Reinforced Hose

⑥ Common Chain Hoist

⑦ Rotating Lifting Crane

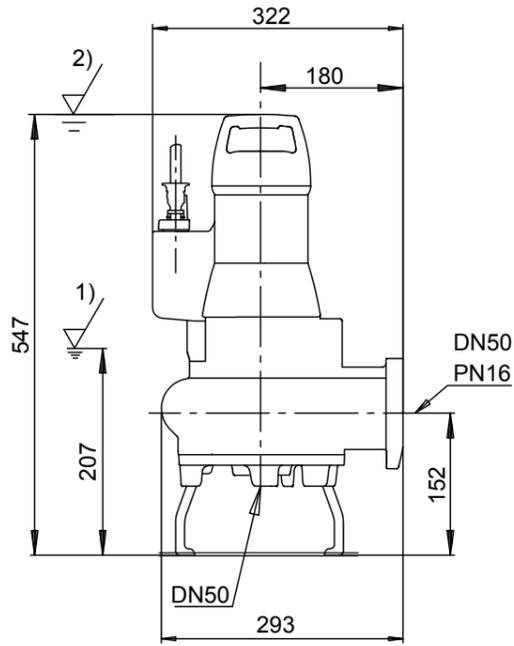
⑧ 2 Pumps Local Control Panel with Support

⑨ 4 Level Switches with Support

⑩ Counter Flange

**MINE PIT HEAD AREA SW PUMP  
 1200-PU-4110 AB  
 AMAREX NF 50-170/022ULG-120**

**① Amarex NF 50-170/022ULG-130**



**② Power & Control Cable**

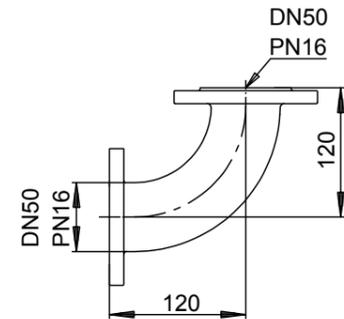
Tefzel 8 x 1.5 mm<sup>2</sup> - 10 m

**③ Pump Lifting Chain**

SS 316 - max. 160 kg - 10 m

**④ Flanged Discharge Elbow**

SS 304L



**⑤ Flexible Reinforced Hose**



Construction :

Tube : black, smooth, antistatic

Reinforcement : high tenacity textile sheets with embedded steel spiral

Cover : NBR, black, electrically conductive

Temperature : -30 ° C to +80 ° C

Dimensions :

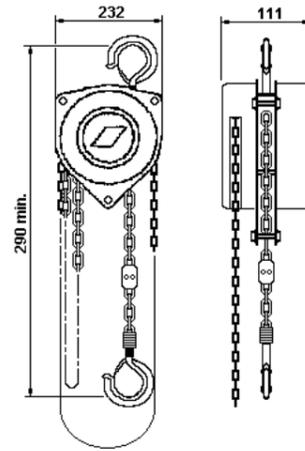
Outer Diameter : 61 mm

Inner Diameter : 51 mm

Connection : DN50 PN10

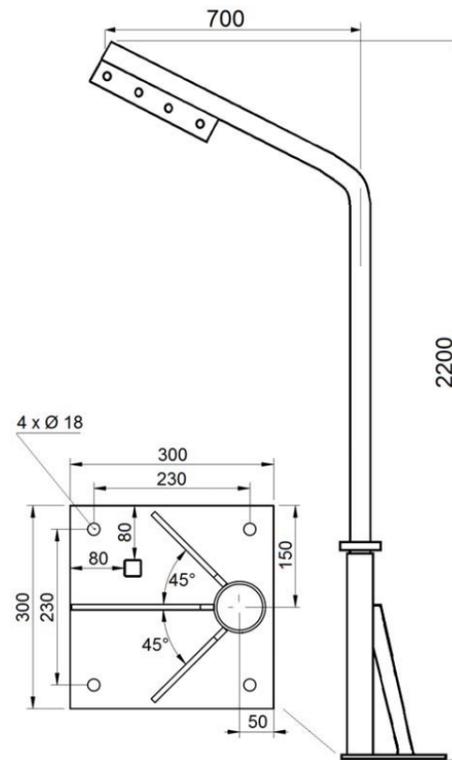
**⑥ Common Chain Hoist (Bezalift)**

500 daN - Weight : 7.5 kg



**⑦ Rotating Lifting Crane with Rudder and Foot**

SS 304L - 150 daN



**⑧ 2 Pumps Local Control Panel with Support**

For Cubicle :

See 9972511912-LWD-001

For Support :

See 9972511912-ADC-001

**⑨ 2 Level Switches with Support**

Level Switches :



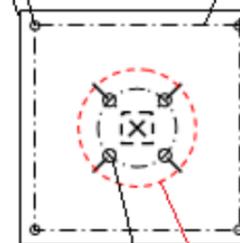
3G1 - 10 m - Hypalon

Level Switches Support :

SS 304 - Length = 6010 mm



300 x 300 260 x 260  
4 x holes dia. 12

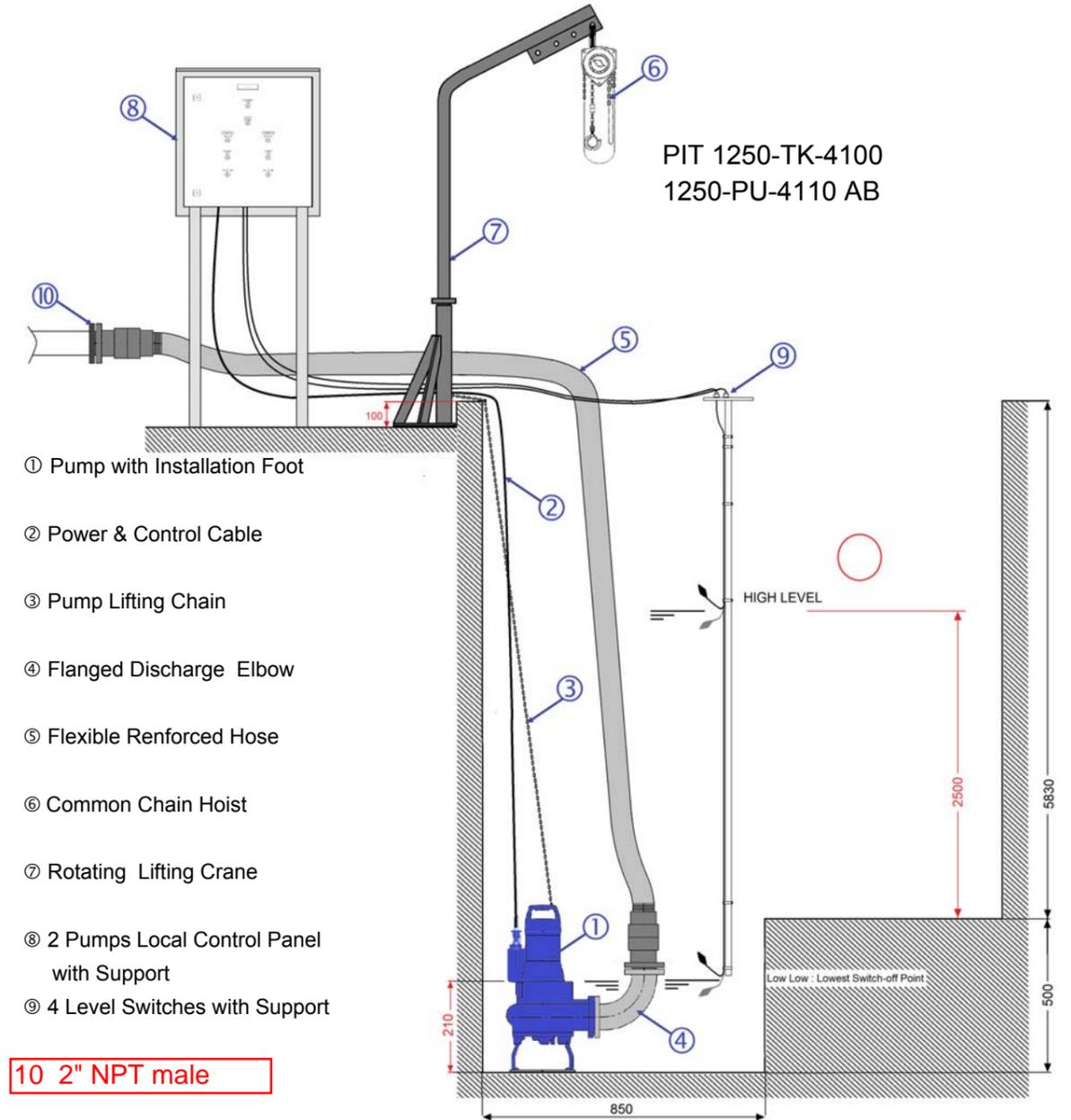


4 Gland Packing

Opening in cover : Ø 150

**⑩ Connection**

2" NPT Male



① Pump with Installation Foot

② Power & Control Cable

③ Pump Lifting Chain

④ Flanged Discharge Elbow

⑤ Flexible Reinforced Hose

⑥ Common Chain Hoist

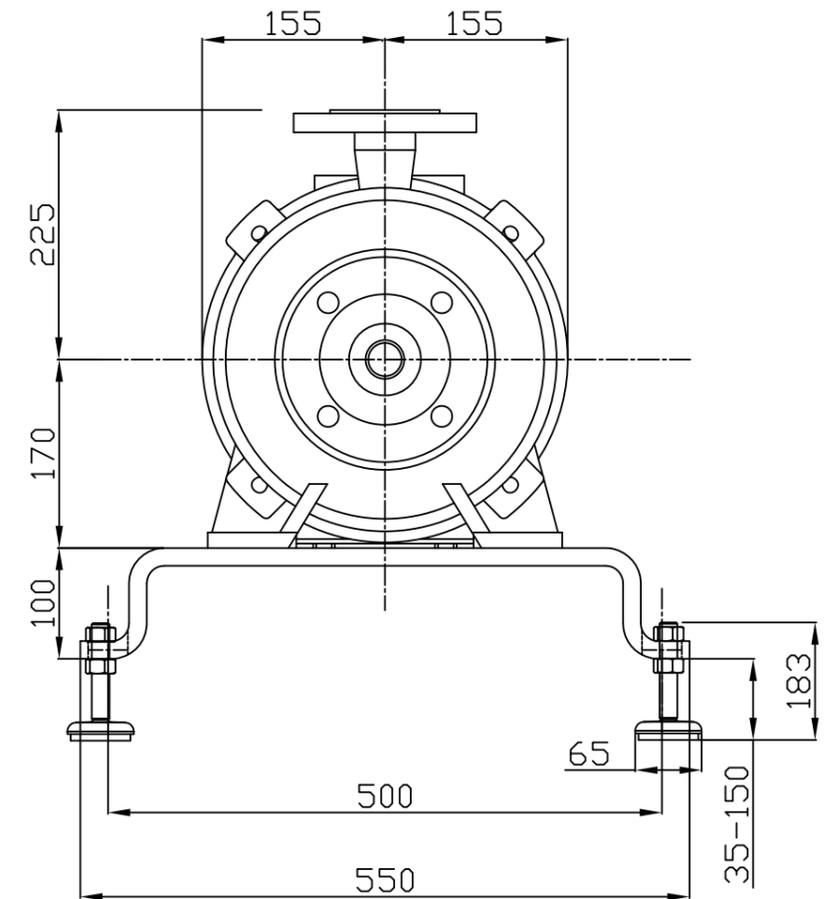
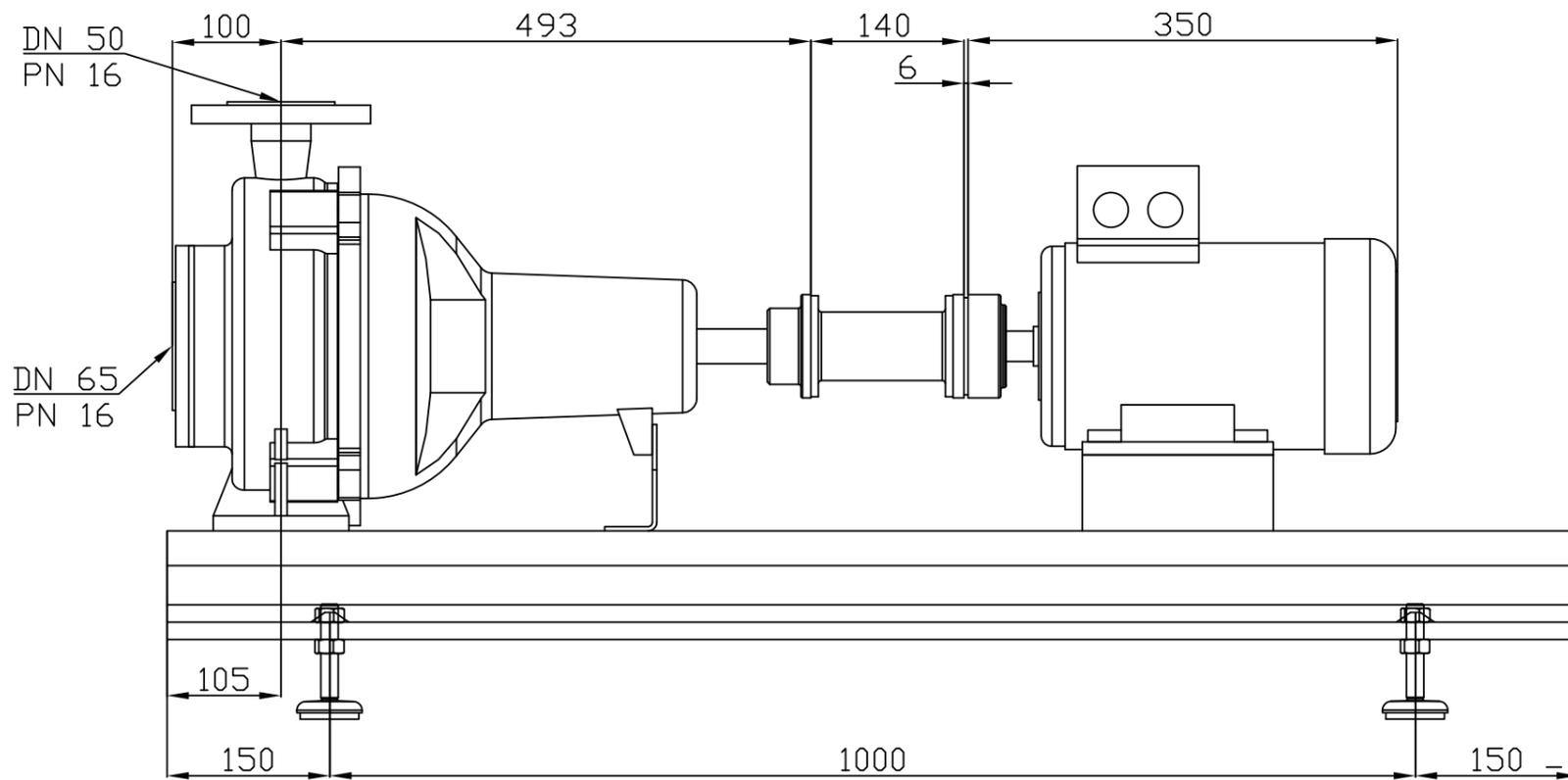
⑦ Rotating Lifting Crane

⑧ 2 Pumps Local Control Panel with Support

⑨ 4 Level Switches with Support

10 2" NPT male

**MINE PIT HEAD AREA OILY WATER PUMP  
1250-PU-4110 AB  
AMAREX NF 50-170/022ULG-130**



## SEWATEC F 50-250 3ENH 100L4

### Connections

1M.1 Pressure gauge connection	G 1/2	Drilled and plugged.
6B Pumped liquid drain	G 1/2	Drilled and plugged.
6D Pumped medium - filling / venting	G 1/2	Drilled and plugged.
8B Leakage drain	G 3/8	Drilled and plugged.
13B Oil drain	G 3/8	Drilled and plugged.
13D Refill / venting	G 1/2	Drilled and plugged.

### Force and Moment Limits

Suction flange		Discharge flange	
Fx s	1150 N	Fx d	700 N
Fy s	750 N	Fy d (+)	450 N
Fz s	900 N	Fy d (-)	900 N
Fres s	1200 N	Fz d	600 N
Mx s	750 Nm	Fres d	900 N
My s	550 Nm	Mx d	500 Nm
Mz s	400 Nm	My d	400 Nm
Valid for temperature 40.0 °C		Mz d	250 Nm

### Weight

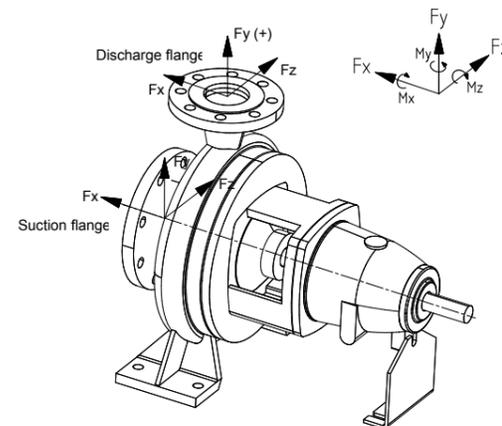
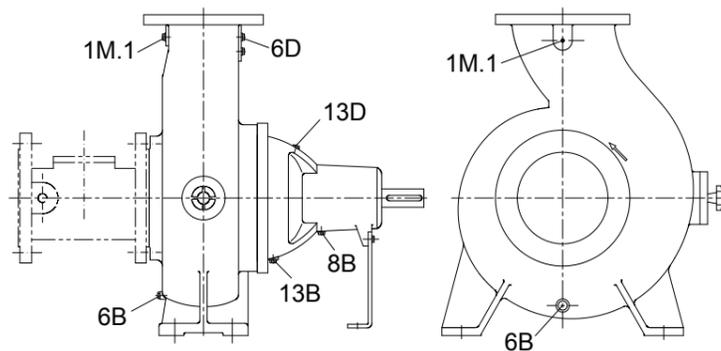
Pump	11 kg
Baseplate	1 kg
Coupling	1 kg
Coupling Guard	= 4 kg
Motor	= 11 kg
Total	= 28 kg

### Coupling

Shaft diameter	40 mm
Shaft length	140 mm
Shaft material	Stainless steel
Shaft finish	Polished
Shaft tolerance	h7/k6
Shaft surface treatment	None
Shaft marking	None
Shaft inspection	None
Shaft storage	None
Shaft handling	None
Shaft disposal	None

### Motor

Motor type	3-phase asynchronous
Motor power	2.2 kW
Motor speed	2850 rpm
Motor efficiency	85%
Motor power factor	0.85
Motor insulation class	F
Motor protection class	IP54
Motor mounting	IC411
Motor marking	None
Motor inspection	None
Motor storage	None
Motor handling	None
Motor disposal	None





	PROJECT DESIGNATION DESIGNATION PROJET <b>9806J - PLANT PROJECT</b>
	TSU PO NUMBER COMMANDE TSU NUMERO <b>9806J-0600-PO-0910-003-03 - IM22030</b>
	TSU DESIGNATION DESIGNATION TSU <b>MINE PIT HEAD AREA SW PUMP SW RECEIVING PIT PUMP TREATED OILY WATER PUMP OILY WATER RECEIVING PUMP MINE PIT HEAD AREA OILY WATER PUMP</b>
	DOCUMENT CODE CODE DOCUMENT <b>A1101</b>
	TSU ITEM NUMBER REPERE TSU <b>1200-PU-4110 A / B - 1200-PU-1610 A / B 1250-PU-1221 A / B - 1250-PU-1610 A / B 1250-PU-4110 A / B</b>
	KSB ITEM NUMBER REPERE KSB <b>9972511912 / 1200 / 1300 / 1500 9972511912 / 1600 / 1700</b>
	KSB PUMP DESCRIPTION DESIGNATION POMPE KSB <b>AMAREX NF 50-170 / 022 ULG - 120 AMAREX NF 50-220 / 042 ULG - 140 AMAREX NF 50-170 / 022 ULG - 107 AMAREX NF 50-220 / 042 ULG - 150 AMAREX NF 50-170 / 022 ULG - 130</b>

--	--

DOCUMENT NUMBER DOCUMENT NUMERO	<b>9972511912-CSD-001</b>
------------------------------------	---------------------------

SECONDARY DOC REF	<b>9806J-0000-DW-0910-00709</b>
-------------------	---------------------------------

TITRE TITRE	<b>Cross Sectional Assembly (with Part List) 1200-PU- 4110-1610 - 1250-PU-1221-1610-4110</b>
----------------	--

Page	1 /	i
------	-----	---

REVISION REVISION	DATE DATE	REVISIONS MODIFICATIONS	DRAWN BY DESSINE PAR	CHECKED BY VERIFIE PAR	APPROVED BY APPROUVE PAR
A	21/01/2014	First issue	S.Buriller	X. Felix	J.-M. Delahaye

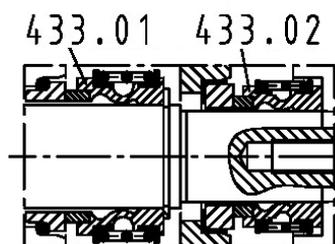
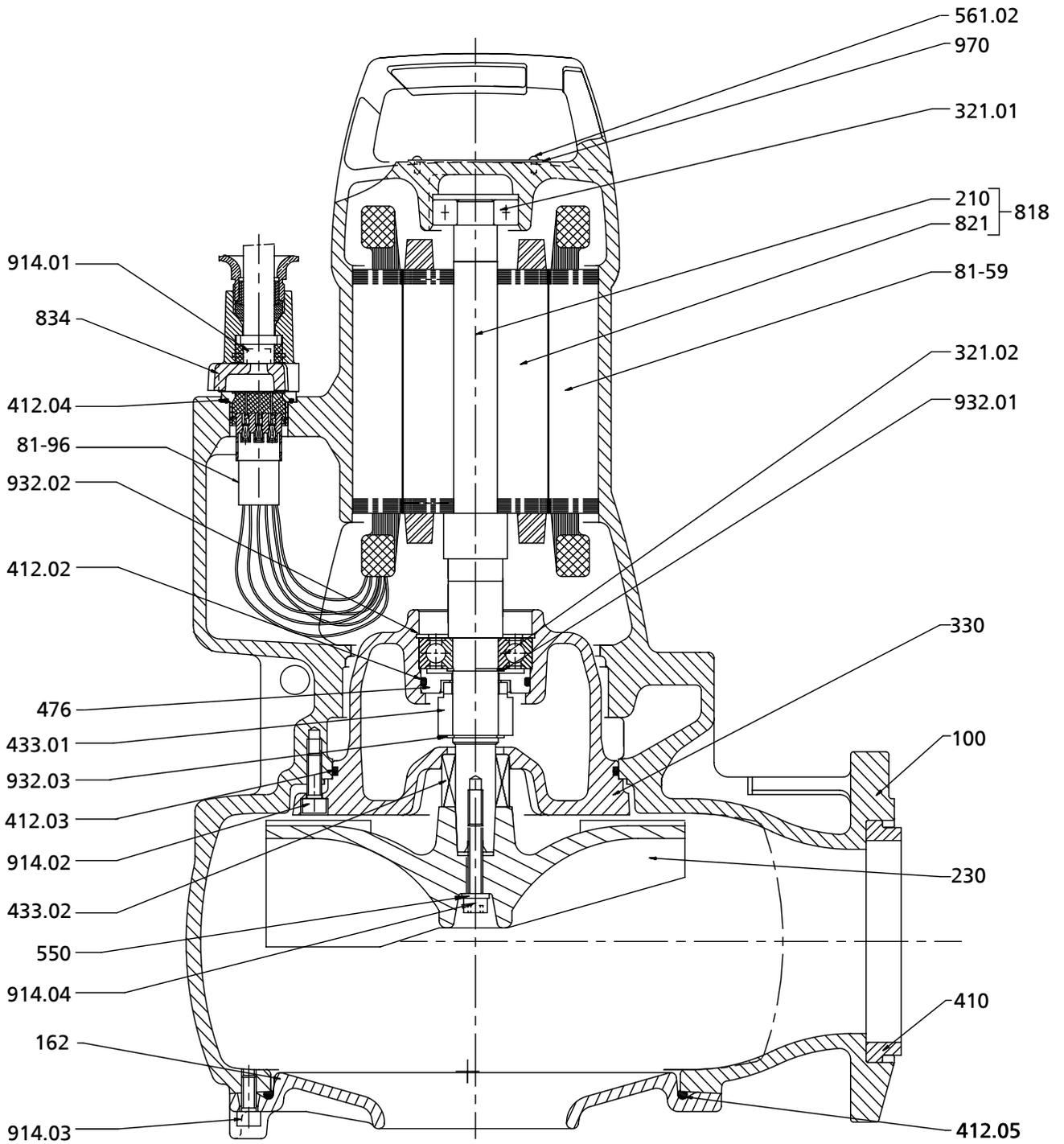
© 2013 All rights reserved.

PARTS LIST		Amarex NF 50-220/042ULG-140 ④ Amarex NF 50-220/042ULG-150 ⑤			
Order Number / Pos.		Customer Item			Date
9972511912 / 1300 9972511912 / 1600		1200-PU-1610 A/B ④ 1250-PU-1610 A/B ⑤			22.01.2014
Part Nb	Qty/Pump	Designation		Material	
100	1	CASING	F-S50-220UG STATOR BRUT	JL1040	
162	1	SUCTION COVER	NF50-42829-00	JL1040	
210	1	SHAFT	F50-170	1.4021+QT800	
230	1	IMPELLER	F50-220 ④ = Ø140 ⑤ = Ø150	JL1040	
321.01	1	BALL BEARING	6204-2 RS C3	ST	
321.02	1	ROLLER BEARING	6305-2 RS C3	ST	
330	1	BEARING BRACKET		JL1040	
410	1	PROFILE JOINT	DN50	FPM 70	
412.02	1	O-RING	53,57 X 3,53	FPM	
412.03	1	O-RING	145.64 X 3,53-N-B-256	FPM	
412.04	1	O-RING	33.5 X 2 N	FPM	
412.05	1	O-RING	196,22 X 6,99-N-B-444	FPM	
433.01	1	MOTOR SIDE MECHANICAL SEAL	FG1025T3	BV2PGG	
433.02	1	PUMP SIDE MECHANICAL SEAL	022S-MG1 G36	Q1Q1VGG	
476	1	MECHANICAL SEAL SEAT	AMAREX 4KW UG	11SMNPB30+C	
550	1	WASHER	8-200 HV	A4	
561.02	2	GROOVED PIN	3 X 6	A2	
81-59	1	STATOR	BRUT 400V 135-2P	-	
818	1	ROTOR (210 + 821)	S/E 135 2P ULG+SONDE	1.4021+QT800	
821	1	ROTOR CORE PACK	135 2P	-	
834	1	CABLE GLAND	TEFZ. FS-10M	1.4571 + TEFZEL	
914.01	2	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 20	A2-70	
914.02	3	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 20	A2-70	
914.03	3	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 20	A2-70	
914.04	1	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 40	A4-80	
932.01	1	CIRCLIP	25 X 1.2	ST	
932.02	1	CIRCLIP	62 X 2	ST	
932.03	1	CIRCLIP	25 X 1.2	ST	
970	2	NAMEPLATE	FIRME AMAREX N ULG	1.4301	

PARTS LIST		Amarex NF 50-170/022ULG-120 ① Amarex NF 50-170/022ULG-107 ② Amarex NF 50-170/022ULG-130 ③		
Order Number / Pos.		Customer Item	Date	
9972511912 / 1200 9972511912 / 1500 9972511912 / 1700		1200-PU-4110 A/B ① 1250-PU-1221 A/B ② 1250-PU-4110 A/B ③	22.01.2014	
Part Nb	Qty/Pump	Designation		Material
100	1	CASING	F-S50-170UG STATOR BRUT	JL1040
162	1	SUCTION COVER	NF50-42829-00	JL1040
210	1	SHAFT	F50-170	1.4021+QT800
230	1	IMPELLER	F50-170 ① = Ø120 ② = Ø107 ③ = Ø130	JL1040
321.01	1	BALL BEARING	6204-2 RS C3	ST
321.02	1	ROLLER BEARING	6305-2 RS C3	ST
330	1	BEARING BRACKET	CPS PAL DBLE SUP ULG/1-2KW	JL1040
410	1	PROFILE JOINT	DN50	FPM 70
412.02	1	O-RING	53,57 X 3,53	FPM
412.03	1	O-RING	132.94 X 3,53-N-B-252	FPM
412.04	1	O-RING	33.5 X 2 N	FPM
412.05	1	O-RING	196,22 X 6,99-N-B-444	FPM
433.01	1	MOTOR SIDE MECHANICAL SEAL	FG1025T3	BV2PGG
433.02	1	PUMP SIDE MECHANICAL SEAL	022S-MG1 G36	Q1Q1VGG
476	1	MECHANICAL SEAL SEAT	AMAREX 4KW UG	11SMNPB30+C
550	1	WASHER	8-200 HV	A4
561.02	2	GROOVED PIN	3 X 6	A2
81-59	1	STATOR	BRUT 400V 125-2P	-
818	1	ROTOR (210 + 821)	S/E 125 2P ULG+SONDE	1.4021+QT800
821	1	ROTOR CORE PACK	125 2P	-
834	1	CABLE GLAND	TEFZ. FS-10M	1.4571 + TEFZEL
914.01	2	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 20	A2-70
914.02	3	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 20	A2-70
914.03	3	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 20	A2-70
914.04	1	HEXAGON SOCKET HEAD CAP SCREW	M 8 X 40	A4-80
932.01	1	CIRCLIP	25 X 1.2	ST
932.02	1	CIRCLIP	62 X 2	ST
932.03	1	CIRCLIP	25 X 1.2	ST
970	2	NAMEPLATE	FIRME AMAREX N ULG	1.4301

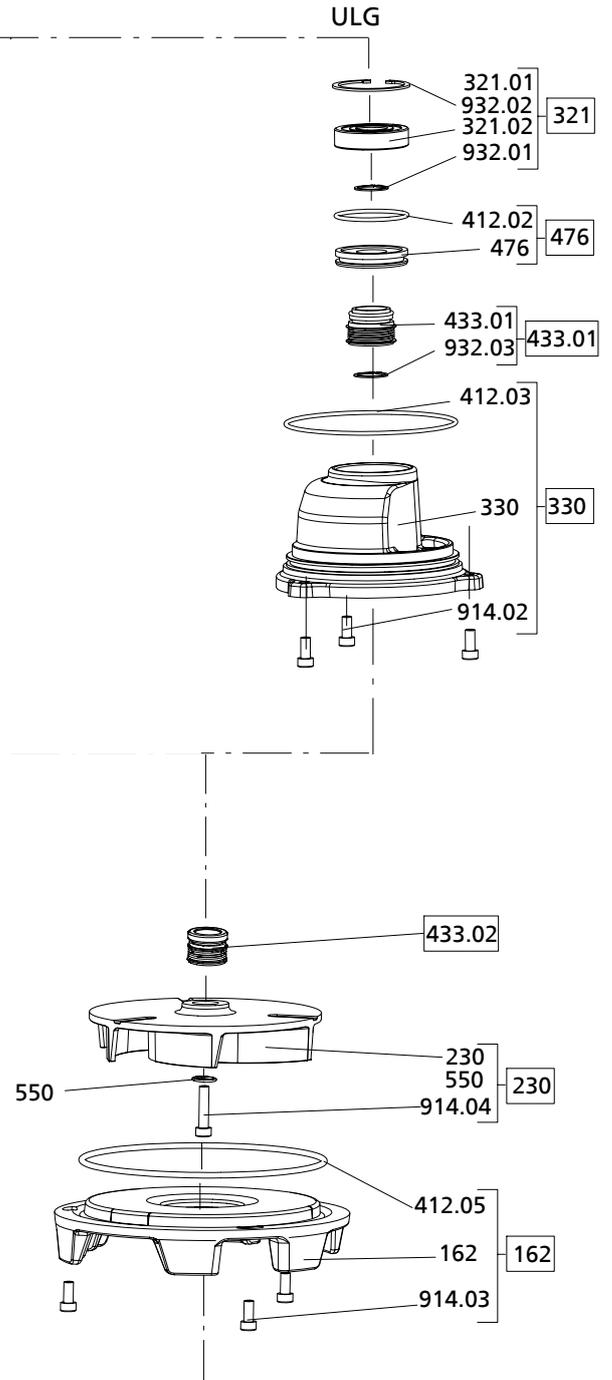
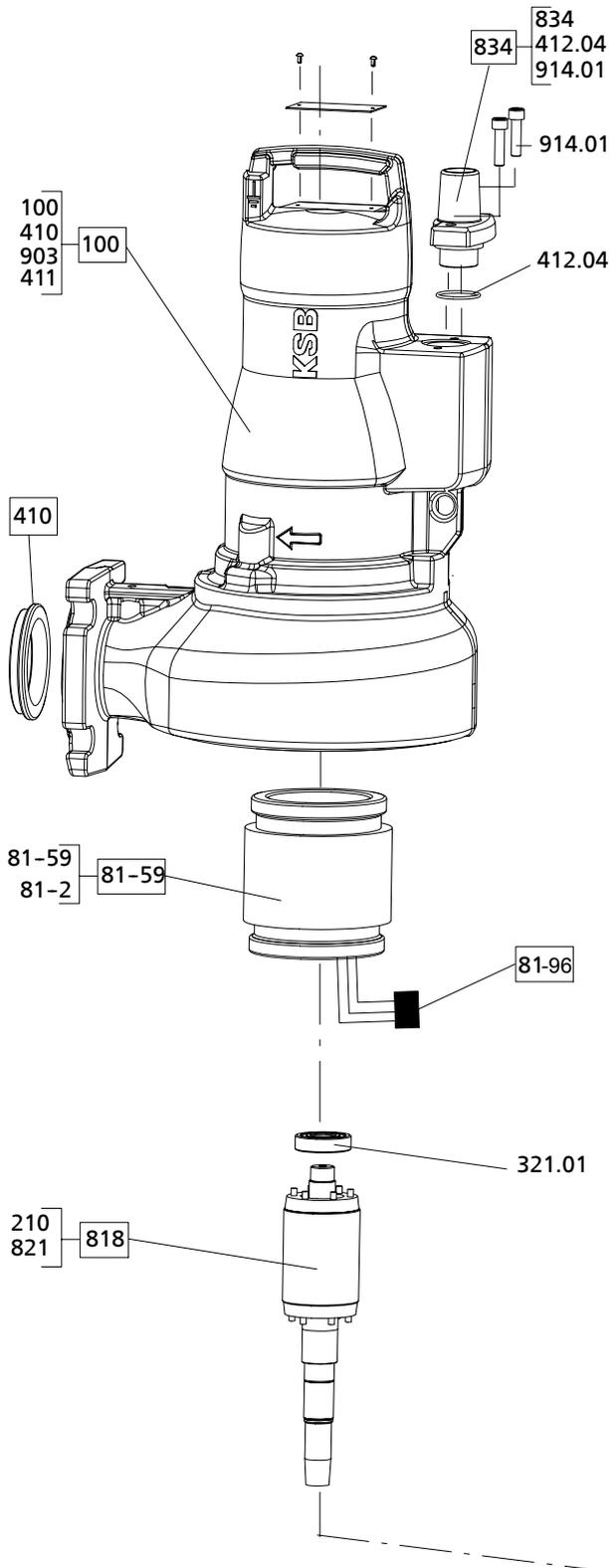
# Cross Sectional Assembly

- Amarex NF 50-170/022ULG
- Amarex NF 50-220/042ULG



# Exploded View

- Amarex NF 50-170/022ULG
- Amarex NF 50-220/042ULG





	PROJECT DESIGNATION DESIGNATION PROJET <b>9806J - PLANT PROJECT</b>
	TSU PO NUMBER COMMANDE TSU NUMERO <b>9806J-0600-PO-0910-003-03 - IM22030</b>
	TSU DESIGNATION DESIGNATION TSU  <b>SLUDGE PUMP</b>
	DOCUMENT CODE CODE DOCUMENT <b>A1101</b>
	TSU ITEM NUMBER REPERE TSU  <b>1200-PU-1430 / X</b>
	KSB ITEM NUMBER REPERE KSB <b>9972511912 / 700 &amp; 800</b>
	KSB PUMP DESCRIPTION DESIGNATION POMPE KSB  <b>SEWATEC F 50-250 3ENH 100L4</b>

--

DOCUMENT NUMBER DOCUMENT NUMERO	<b>9972511912-CSD-002</b>
------------------------------------	---------------------------

SECONDARY DOC REF	<b>9806J-0000-DW-0910-00710</b>
-------------------	---------------------------------

TITRE TITLE	<b>Cross Sectional Assembly (with Part List)</b>
----------------	--

Page	1 /	I
------	-----	---

REVISION REVISION	DATE DATE	REVISIONS MODIFICATIONS	DRAWN BY DESSINE PAR	CHECKED BY VERIFIE PAR	APPROVED BY APPROUVE PAR
A	22/01/2014	First Issue	S.Buriller	X. Felix	J.-M. Delahaye
B	04/02/2014	Second Issue	S.Buriller	X. Felix	J.-M. Delahaye

**PARTS LIST**

**Sewatec F 50-250G 3ENH 100L 04**  
**Sewatec F 50-250G H**

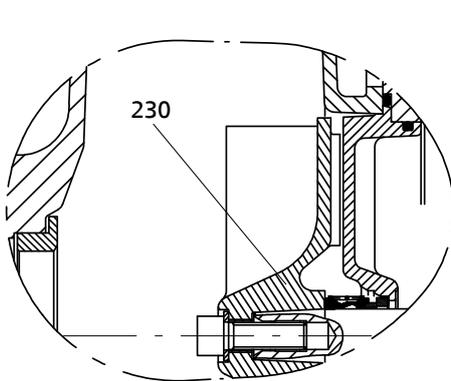
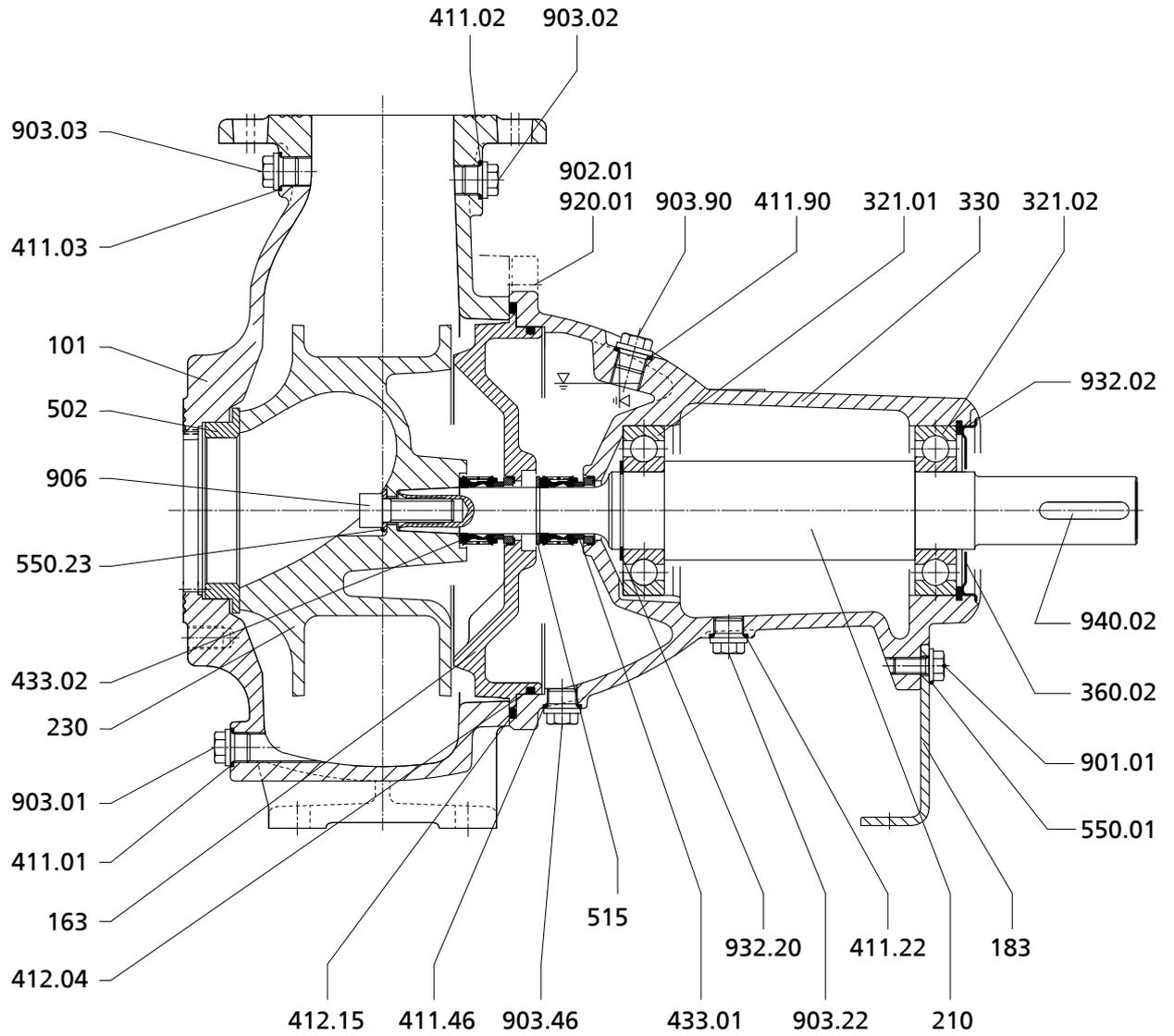


Order Number / Pos.		Customer Item		Date
9972511912 / 0700 9972511912 / 0800		1200-PU-1430 A 1200-PU-1430 X		22.01.2014
Part Nb	Qty/Pump	Designation		Material
101	1	PUMP CASING	KRXK 50-250	JL1040
163	1	DISCHARGE COVER	KRX 100-250	JL1040
183	1	SUPPORT FOOT	50X250	ST
210	1	SHAFT	KRX 100-250 WE35	1.4021+QT800
230	1	IMPELLER	170/F100-240	JL1040
321.01	1	GROOVED BALL BEARING	6307-2Z C3	ST
321.02	1	GROOVED BALL BEARING	6307-2Z C3	ST
330	1	BEARING BRACKET	KRX 100-250	JL1040
360.02	1	BEARING COVER	36/85X 14	DC01-A
411.01	1	SEALING RING	C 21 X 26	1.4571
411.02	1	SEALING RING	C 21 X 26	1.4571
411.03	1	SEALING RING	C 21 X 26	1.4571
411.22	1	SEALING RING	C 17 X 21	1.4571
411.46	1	SEALING RING	C 17 X 21	1.4571
411.90	1	SEALING RING	C 21 X 26	1.4571
412.04	1	O-RING	247.02 X 5.33-N-B-376	NBR80
412.15	1	O-RING	260.00X 7.00-N-B	NBR80
433.01	1	MECHANICAL SEAL	MG1/025S-G34	BV8PGG
433.02	1	MECHANICAL SEAL	MG1/022S-G36	Q1Q1VGG
502	1	CASING WEAR RING	KRX F 50-250	JL 1040
515	1	TAPER LOCK RING	KRX F 100-250	JL 1040
550.01	1	WASHER	12-200 HV	A4
550.23	1	WASHER	12-200 HV	A4
901.01	1	HEXAGON HEAD SCREW	M 12 X X25	A4-70
902.01	4	STUD	M 16 X 40	A4-70
903.01	1	SCREWED PLUG	G 1/2 A	ST
903.02	1	SCREWED PLUG	G 1/2 A	ST
903.03	1	SCREWED PLUG	G 1/2 A	ST
903.22	1	SCREWED PLUG	G 3/8 A	ST
903.46	1	SCREWED PLUG	G 3/8 A	ST
903.90	1	SCREWED PLUG	G 1/2 A	ST
906	1	IMPELLER SCREW	M 10 X 30	A4-70
920.01	4	HEXAGONAL NUT	M 16	A4
932.02	1	CIRCLIP	80 X 2.5	ST
932.20	1	CIRCLIP	35 X 1.5	ST
940.02	1	PARALLEL KEY	A 10X 8X 56	C45+C

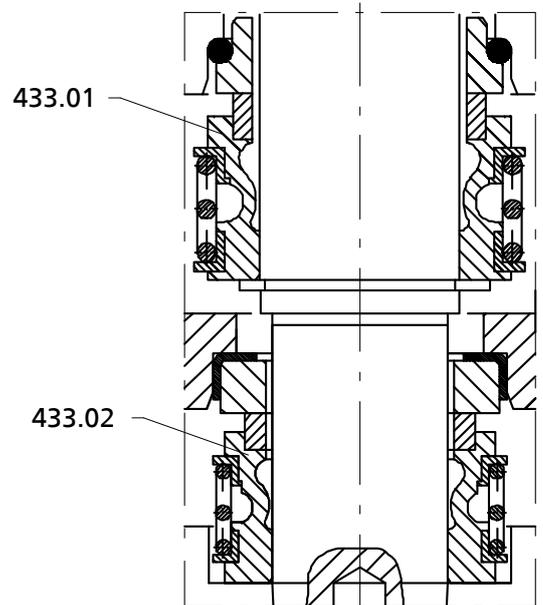
# Cross Sectional Assembly



- GYk UHYW: ') \$!&) \$; ` <

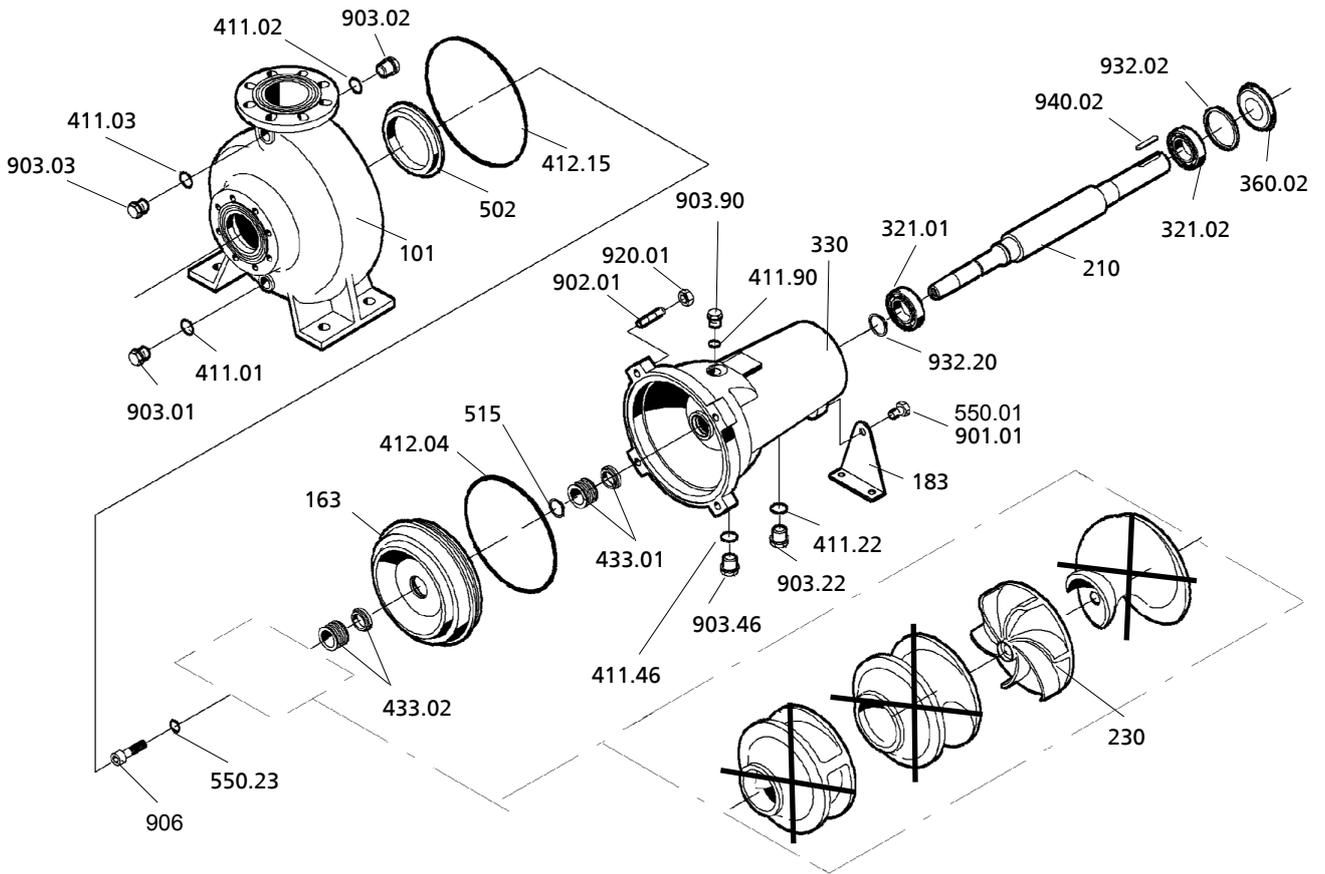


F impeller



9I d`cXYX`JYk

- GYk UHYW: `) \$!&) \$; `<



**APPENDIX D**

**SET OF 12 KSB CENTRIFUGAL PUMPS**

**MOTOR DATA SHEETS**



**YOU MINE. WE SELL.**

+1 (530) 534-7965  
[info@amking.com](mailto:info@amking.com)

**DATA SHEET LOW VOLTAGE INDUCTION MOTOR**

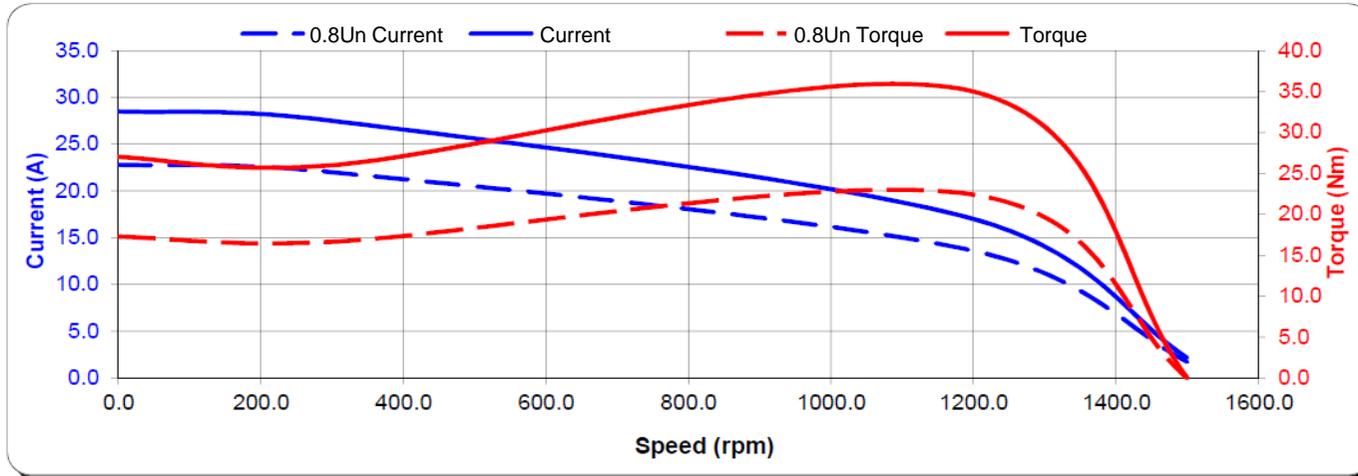
PROJECT :		PROJECT N°:	UNIT	DOCT. CODE	SERIAL N°	REV	SHEET
CLIENT:		<b>9806J</b>	<b>1200</b>	<b>SP 0910</b>	<b>005</b>	<b>0</b>	
MECHANICAL SUPPLIER: <b>KSB</b>		<b>MOTOR ITEM</b>					
EQUIPMENT: <b>Motor LEROY SOMER 4P FLSC 100 LK</b>		EQUIPMENT TAG NUMBER		CONSUMER TYPE		SERIAL N°	
		<b>1200-PU-1430-AM</b>					
REV	DATE	STATUS			WRITTEN	CHECKED	APPROVED
1	ITEM:	<b>1200-PU-1430</b>	QUANTITY:	<b>1</b>	MR		
2	General specification	<b>9806J-0440-JSS-1691-001</b>	Standards, codes:	<b>IEC</b>			
3	Supplier:	<b>KSB</b>	Manufacturer:	<b>LEROY SOMER</b>			
4							
5	<b>ENVIRONMENTAL CONDITIONS</b>						
6	Installation (indoor/outdoor) / Ambient Type:	<b>Dusty and Corrosive</b>					
7	Ambient Design Temperature	Max:	<b>47 °C</b>	Min:	<b>5°C</b>		
8	Altitude (if > 1000m)/Relative Humidity	a.s.l.:	<b>&lt;1000</b>	m	<b>70%</b>		
9	Area Classification	<b>Tropic-Proofed</b>					
10	Hazardous area (Zone)/ Gas Group/Temperature	<b>According to package requirements</b>					
11	<b>DRIVEN MACHINE DATA</b>						
12	Manufacturer/Machine Type (fan, pump, compressor,...)	<b>KSB</b>		<b>Centrifugal Pump</b>			
13	Maxi shaft power / Shaft power at operating point	<b>1.75</b>	kW	<b>0.58</b>	kW		
14	Coupling type / To be designed for restarting	<b>Flexible + Spacer</b>		Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
15	Thrust (vertical) Up/Down	Up	<b>NA</b>	kg	Down	<b>NA</b>	kg
16	Driven Machine Inertia (WR2)			<b>0.273</b>	kg.m2		
17	Brake torque curve* / Required starting brake torque			<b>23.6</b>	N.m		
18	* To be supplied only if available						
19	<b>MOTOR GENERAL CHARACTERISTICS</b>						
20	Rated power/ Poles number	<b>2.2</b>	kW	N°:	<b>4</b>		
21	Voltage/Frequency/Phases	<b>690</b>	V	<b>50</b>	Hz	N°:	<b>3</b>
22	Service condition (S1,S2,...)	<b>S1</b>					
23	Mounting (IM1001,3001,3011,1011,...)	<b>IM B3</b>					
24	Protection degree: Enclosure / terminal box	IP:	<b>55</b>	IP:	<b>55</b>		
25	Protection Ex(n), Ex(d), Ex(e): Motor / terminal box	<b>N/A</b>		<b>N/A</b>			
26	Gas group (IIB,...) / Temperature class (T3,...)	<b>N/A</b>		<b>N/A</b>			
27	Enclosure cooling (fan cooled, air to air, air to water,...)	<b>IC411</b>					
28	Starting Method (loaded, unloaded / DOL, soft start,VSD,...)	Loaded	<input type="checkbox"/>	DOL	<input checked="" type="checkbox"/>	Soft start	<input type="checkbox"/>
29	Starting voltage (full, reduced x%) / Max. voltage drop at starting			20 %			
30	Nb of consecutive starts within 1 hour	Cold	<b>3</b>	Hot	<b>2</b>		
31	Min. Insulation Class (B,F,...)/Max Temperature Rise	<b>F</b>		<b>B</b>			
32	Direction of Rotation (looking at motor coupling)	CW	<input checked="" type="checkbox"/>	CCW	<input type="checkbox"/>	Bidirectionnal	<input type="checkbox"/>
33	Position of Main / Auxiliary terminal box	Main	<b>TOP</b>	Auxiliary	<b>TOP</b>		
34	Cable Type, Size and Overall Diameter on Main terminal box	Type :	<b>XLPE Arm</b>	Size(mm <sup>2</sup> )	Diam. mm		
35	Cable Type, Size and Overall Diameter on Aux terminal box	Type :	<b>XLPE Arm</b>	Size(mm <sup>2</sup> )	Diam. mm		
36	Terminal boxes provided with cable glands	Yes	<input checked="" type="checkbox"/>	Metallic	No	<input type="checkbox"/>	
37	Painting (Mfr standard,... / color)	<b>RAL 7031</b>					
38	Noise Level at 1 m	<b>52</b>	dB(A)		dB(A)		
39							
40	<b>MOTOR MANUFACTURER'S DATA</b>						
41	Manufacturer type / Frame Size / -	<b>FLSC</b>	<b>100 LK</b>				
42	Winding Connection (star, delta)/Nb terminals brought out	<b>STAR</b>	N°:	<b>6</b>			
43	Full Load Speed	<b>1455</b>		rpm			
44	Rated Current (690V) / No load current / Locked Rotor Current	<b>2.7</b>	A	<b>2.2</b>	A	<b>6.3</b>	Ist / In
45	Starting Time (% of Voltage) at full load	100%:	-	s	80%:	-	s
46	Allowable Locked Rotor withstand Time	Cold:	<b>8</b>	s	Hot:	<b>4</b>	s
47	Thermal Time Constant	Cooling:	<b>111</b>	min	Heating:	<b>27</b>	min
48	Efficiency	4/4	<b>83.8%</b>	3/4	<b>84.4%</b>	2/4	<b>82.9%</b>
49	Power Factor	4/4	<b>0.83</b>	3/4	<b>0.77</b>	2/4	<b>0.66</b>
50	Locked Rotor Power Factor	<b>0.62</b>					
51	Full load Torque	<b>14.4</b>	N.m				
52	Locked/Pull Up/Breakdown Torque	L	<b>187%</b>	PU	<b>175%</b>	BD	<b>243%</b>
53	Rotor Motor Inertia (WR2)	<b>0.0094</b>		kg.m2			
54	Bearing Type (Drive End/Non Drive End)	DE:	<b>6206 ZZ C</b>		NDE:	<b>6205 ZZ C3</b>	
55	Lubrication Type/Interval	<b>POLYREX EM103</b>		<b>N/A</b> hours			
56	Windings Temperature Sensors PT100	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	1 set of 3	<input checked="" type="checkbox"/>
57		Alarm			Tripping		
58	Temperature setting of winding sensors	<b>150</b>	°C	<b>155</b>	°C		
59							
60	Ground lug size	<b>M5</b>		mm <sup>2</sup>			
61	Motor Weight	<b>44</b>	kg				
62	Certifying authority / certificate Nr	<b>N/A</b>		<b>N/A</b>			
63							
64							
65							

TO BE COMPLETED BY MANUFACTURER

This is the user's responsibility to check that this version is updated.  
 The above mentioned data are for information, and should be subject to a special agreement from LEROY-SOMER to become contractual.  
 If the above mentioned motor as never been built before, LEROY-SOMER is reserving the right to change these data without previous notice and according to the result of final test.

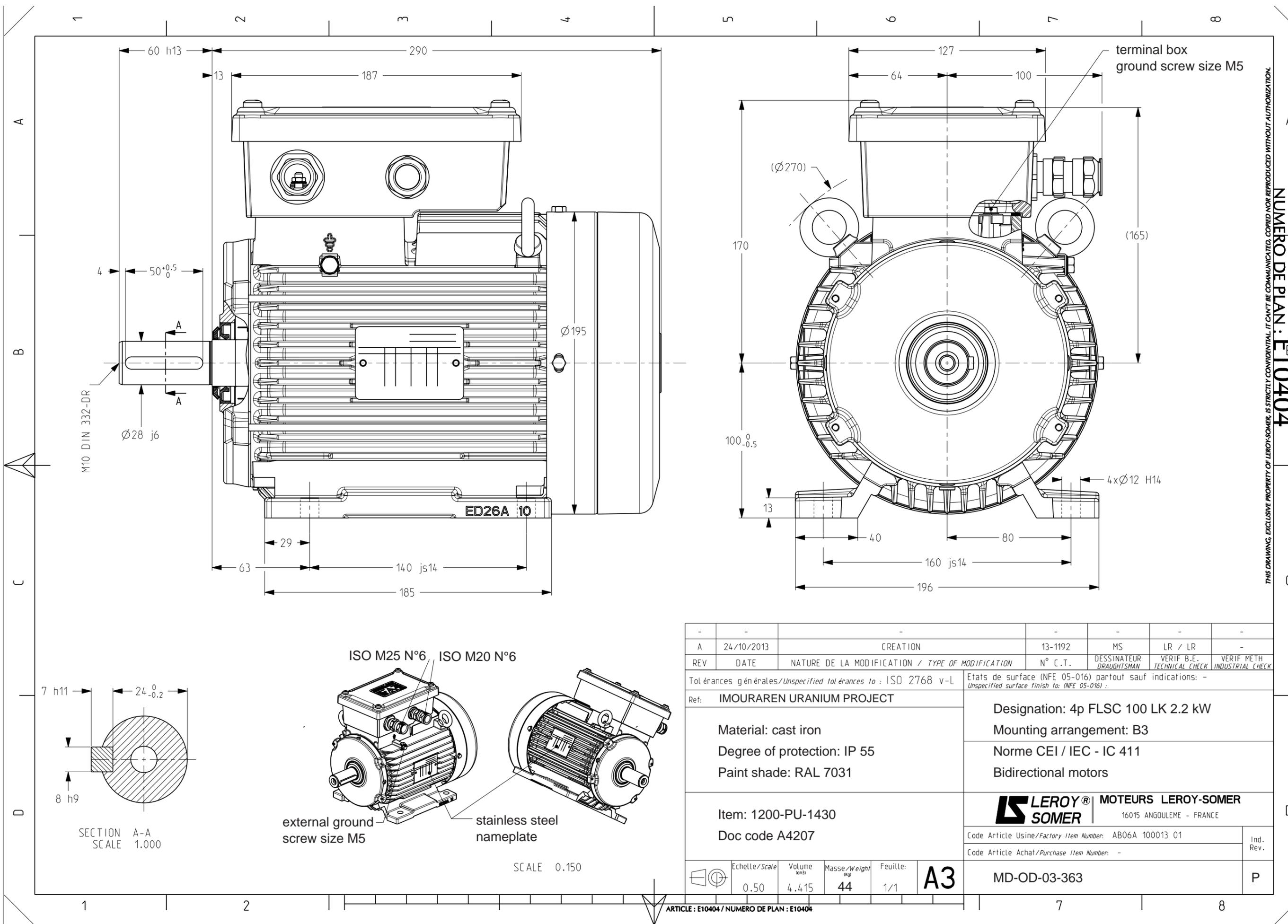
## Torque and Current vs Speed Curves

Item Number	1200-PU-1430	Document Number	MD-TC-03-363
Project	Imouraren - Niger	Starting Current Is for 690V Supply	17.0 A
Motor Designation	4p FLSC 100 LK 2.2 kW	Rated Current In for 690V Supply	2.7 A
Motor Connection	400VD/690VY 50Hz	Starting Current Is for 400V Supply	29.0 A
		Rated Current In for 400V Supply	5 A



Document Code A4104

It is the user's responsibility to check that this version is updated. The above mentioned data are for information, and should be subject to a special agreement from LEROY-SOMER to become contractual. If the above mentioned motor as never been built before, LEROY-SOMER is reserving the right to change these data without previous notice and according to the result of final test.

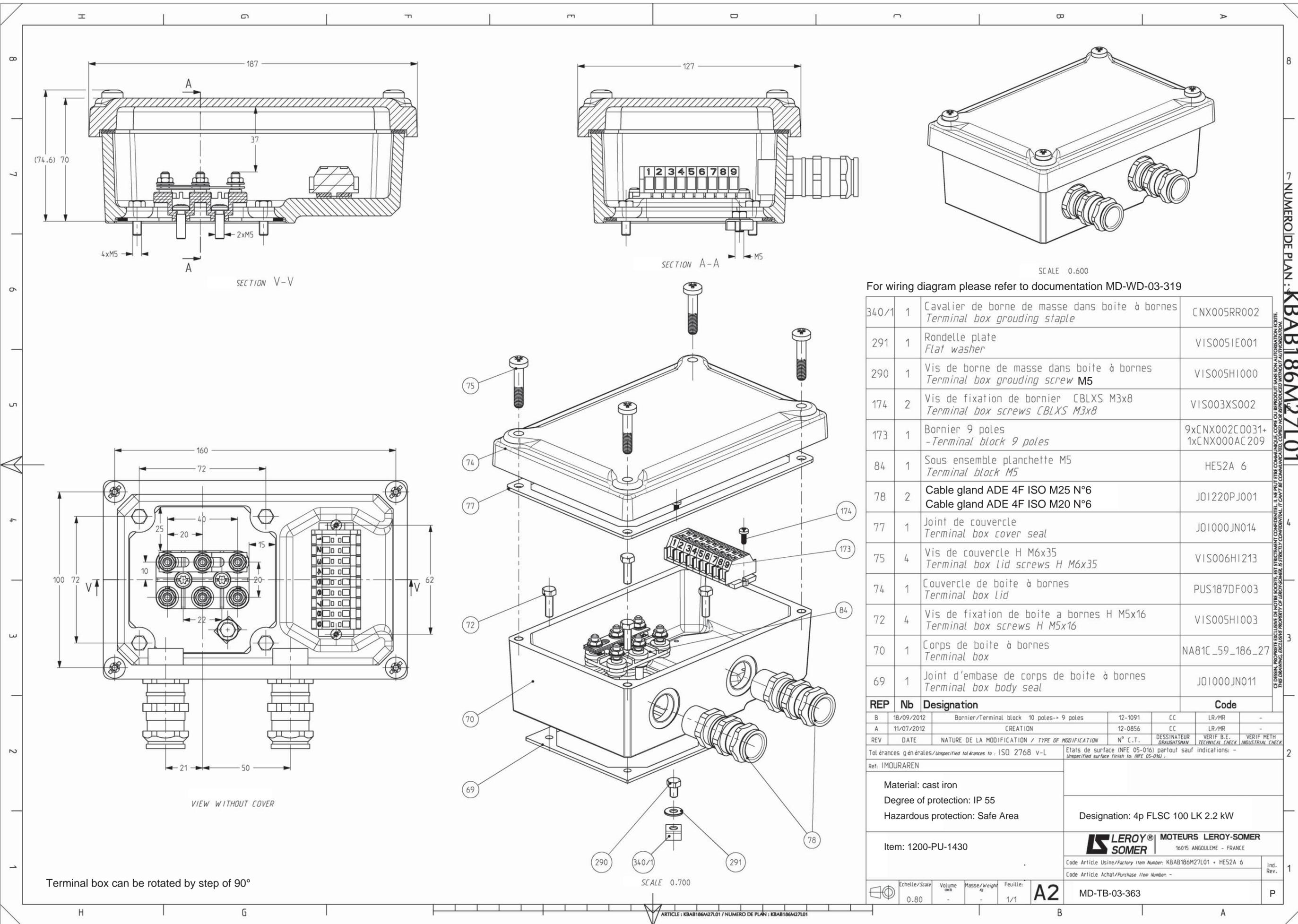


THIS DRAWING, EXCLUSIVE PROPERTY OF LEROY-SOMER, IS STRICTLY CONFIDENTIAL. IT CAN'T BE COMMUNICATED, COPIED NOR REPRODUCED WITHOUT AUTHORIZATION.

NUMERO DE PLAN : E10404

-	-	-	-	-	-	-
A	24/10/2013	CREATION	13-1192	MS	LR / LR	-
REV	DATE	NATURE DE LA MODIFICATION / TYPE OF MODIFICATION	N° C.T.	DESSINATEUR DRAUGHTSMAN	VERIF B.E. TECHNICAL CHECK	VERIF METH INDUSTRIAL CHECK
Tolérances générales/Unspecified tolerances to : ISO 2768 v-L			Etats de surface (NFE 05-016) partout sauf indications : - Unspecified surface finish to: (NFE 05-016) :			
Ref: IMOURAREN URANIUM PROJECT			Designation: 4p FLSC 100 LK 2.2 kW			
Material: cast iron			Mounting arrangement: B3			
Degree of protection: IP 55			Norme CEI / IEC - IC 411			
Paint shade: RAL 7031			Bidirectional motors			
Item: 1200-PU-1430			<b>LEROY SOMER</b> MOTEURS LEROY-SOMER 16015 ANGOULEME - FRANCE			
Doc code A4207			Code Article Usine/Factory Item Number: AB06A 100013 01			Ind. Rev.
			Code Article Achat/Purchase Item Number: -			
Echelle/Scale	Volume (dm <sup>3</sup> )	Masse/Weight (kg)	Feuille:	<b>A3</b>	MD-OD-03-363	P
0.50	4.415	44	1/1			

ARTICLE : E10404 / NUMERO DE PLAN : E10404



For wiring diagram please refer to documentation MD-WD-03-319

340/1	1	Cavalier de borne de masse dans boîte à bornes <i>Terminal box grounding staple</i>	CNX005RR002
291	1	Rondelle plate <i>Flat washer</i>	VIS005IE001
290	1	Vis de borne de masse dans boîte à bornes <i>Terminal box grounding screw M5</i>	VIS005HI000
174	2	Vis de fixation de bornier CBLXS M3x8 <i>Terminal box screws CBLXS M3x8</i>	VIS003XS002
173	1	Bornier 9 poles <i>-Terminal block 9 poles</i>	9xCNX002C0031+ 1xCNX000AC209
84	1	Sous ensemble planchette M5 <i>Terminal block M5</i>	HE52A 6
78	2	Cable gland ADE 4F ISO M25 N°6 Cable gland ADE 4F ISO M20 N°6	JO1220PJ001
77	1	Joint de couvercle <i>Terminal box cover seal</i>	JO1000JN014
75	4	Vis de couvercle H M6x35 <i>Terminal box lid screws H M6x35</i>	VIS006HI213
74	1	Couvercle de boîte à bornes <i>Terminal box lid</i>	PUS187DF003
72	4	Vis de fixation de boîte à bornes H M5x16 <i>Terminal box screws H M5x16</i>	VIS005HI003
70	1	Corps de boîte à bornes <i>Terminal box</i>	NA81C_59_186_27
69	1	Joint d'embase de corps de boîte à bornes <i>Terminal box body seal</i>	JO1000JN011

REP	Nb	Designation	Code
B	18/09/2012	Bornier/Terminal block 10 poles-> 9 poles	12-1091 CC LR/MR -
A	11/07/2012	CREATION	12-0856 CC LR/MR -
REV	DATE	NATURE DE LA MODIFICATION / TYPE OF MODIFICATION	N° C.T. DESSINATEUR VERIF B.E. VERIF METH

Tolérances générales/Unspecified tolerances to: ISO 2768 v-L  
Etats de surface (NFE 05-016) partout sauf indications: -  
Unspecified surface finish to: (NFE 05-016)

Ref: IMOURAREN  
Material: cast iron  
Degree of protection: IP 55  
Hazardous protection: Safe Area  
Designation: 4p FLSC 100 LK 2.2 kW

Item: 1200-PU-1430  
**LEROY SOMER** MOTEURS LEROY-SOMER  
16015 ANGOULEME - FRANCE  
Code Article Usine/Factory Item Number: KBAB186M27L01 + HE52A 6  
Code Article Achat/Purchase Item Number: -

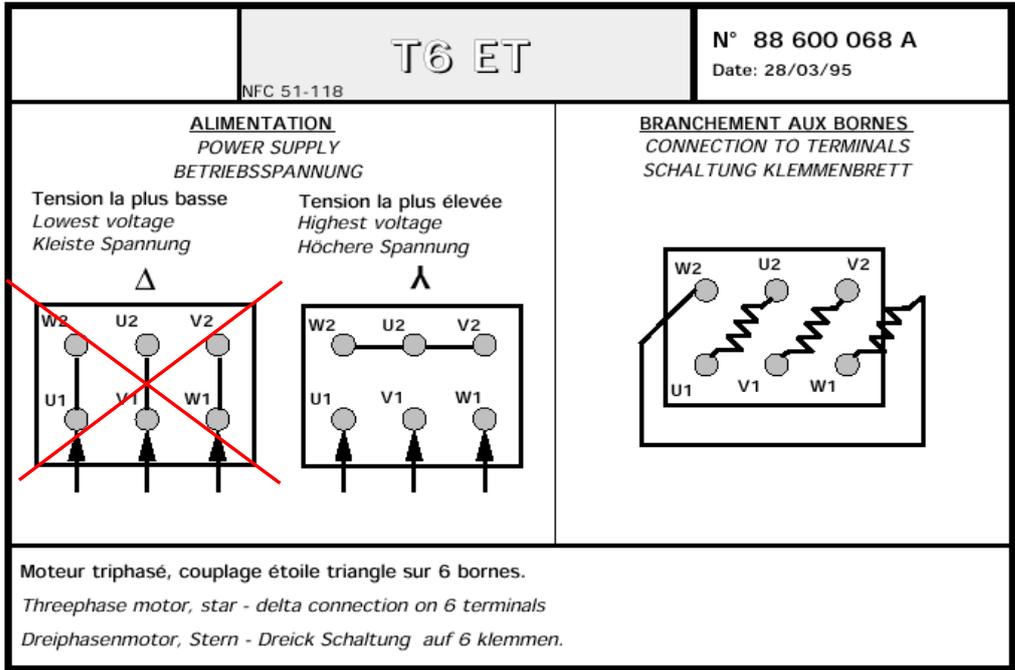
Echelle/Scale	Volume	Masse/Weight	Feuille	<b>A2</b>	MD-TB-03-363	Ind. Rev.
0.80	-	-	1/1			P

NUMERO DE PLAN : KBAB186M27L01  
 CE Dessin, PROPRETE EXCLUSIVE DE NOTRE SOCIETE, EST STRICTEMENT CONFIDENTIEL. IL NE PEUT ETRE COMMUNIQUE, COPIE OU REPRODUIT SANS SON AUTORISATION ECRITE.  
 THIS DRAWING, EXCLUSIVE PROPERTY OF LEROY-SOMER, IS STRICTLY CONFIDENTIAL. IT CAN'T BE COMMUNICATED, COPIED NOR REPRODUCED WITHOUT AUTHORIZATION.

Item: 1200-PU-1430

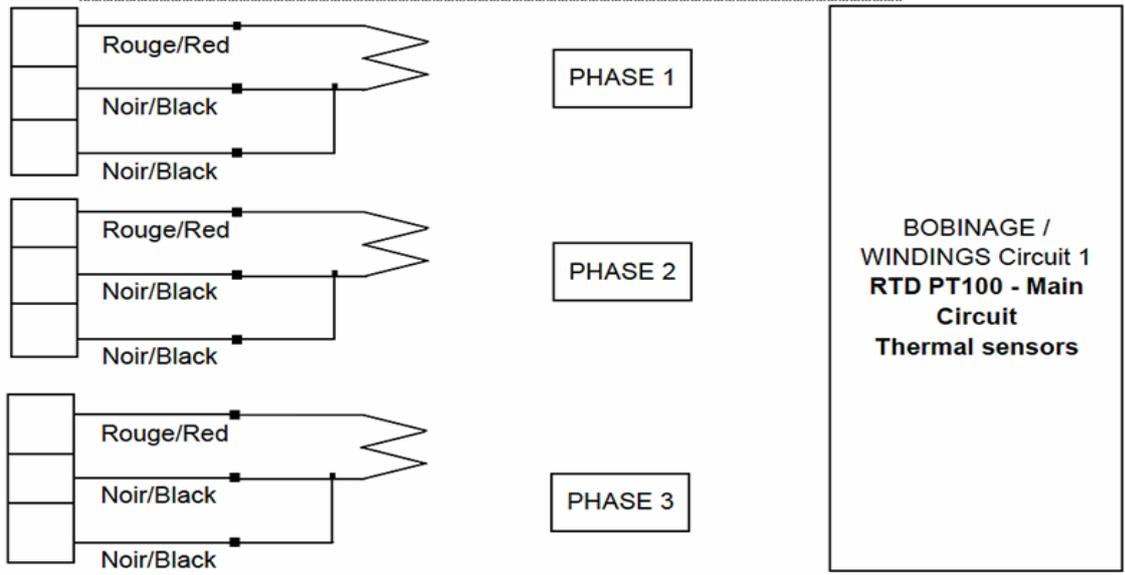
Document Number MD-WD-03-363

Main connections / Power supply



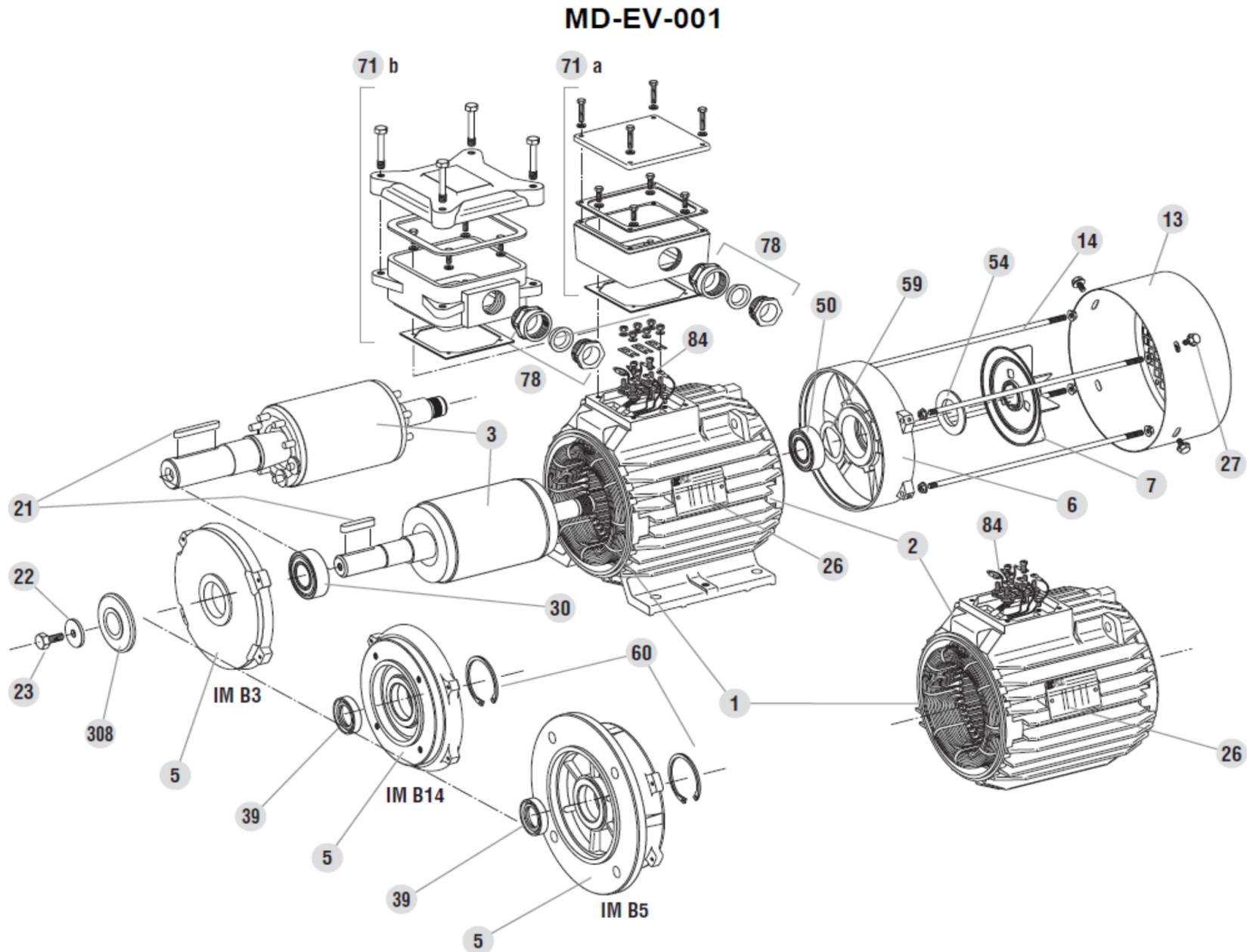
**Color Code**  
W2 - Brown  
U1 - Black  
U2 - Yellow  
V1 - Red  
V2 - Blue  
W1 - White

Auxilliary connections in main terminal box up to frame size 132 and in separate terminal box for frame size ≥ 160



# 3-phase TEFV induction motors cast iron

## Identification, exploded views and parts list



### Frame size: 80 to 132

Ref.	Description	Ref.	Description	Ref.	Description
1	Wound stator	21	Shaft extension key	54	Non drive end seal
2	Housing	22	Shaft extension washer	59	Preloading (wavy) washer
3	Rotor	23	Shaft extension screw	60	Circlip
5	Drive end shield (DE)	26	Nameplate	71a	FLS terminal box
6	Non-drive end shield (NDE)	27	Fan cover screw	71b	FLSC terminal box
7	Fan	30	Drive end bearing	78	Cable gland
13	Fan cover	39	Drive end seal	84	Terminal block
14	Tie rods	50	Non drive end bearing	308	Labyrinth seal

Note: The above illustration of parts does not necessarily show details, forms and volumes accurately.

**DATA SHEET LOW VOLTAGE INDUCTION MOTOR**

PROJECT :		PROJECT N°:	UNIT	DOCT. CODE	SERIAL N°	REV	SHEET
CLIENT:		9806J	1200/1250	SP 0910	004/003	0	2 / 3
MECHANICAL SUPPLIER: <b>KSB</b>		<b>MOTOR ITEM</b>					
EQUIPMENT: <b>Motor KSB DKN 92.2-4U -(042ULG)</b>		EQUIPMENT TAG NUMBER		CONSUMER TYPE		SERIAL N°	
		<b>1200-PU-1610A/B - 1250-PU-1610A/B</b>					
REV	DATE	STATUS			WRITTEN	CHECKED	APPROVED
1	ITEM:	<b>1200-PU-1610A/B - 1250-PU-1610A/B</b>		QUANTITY:	<b>4</b> MR		
2	General specification	<b>9806J-0440-JSS-1691-001</b>		Standards, codes:	<b>IEC</b>		
3	Supplier:	<b>KSB</b>		Manufacturer:	<b>KSB</b>		
4							
5	<b>ENVIRONMENTAL CONDITIONS</b>						
6	Installation (indoor/outdoor) / Ambient Type	<b>Flooded</b>					
7	Ambient Design Temperature	<b>40°C</b>		Max:	<b>40 °C</b>	Min:	<b>5°C</b>
8	Altitude (if > 1000m)/Relative Humidity	a.s.l.: <b>&lt;1000</b>		m	<b>Flooded</b>		
9	Area Classification	<b>Tropic-Proofed</b>					
10	Hazardous area (Zone)/ Gas Group/Temperature	<b>According to package requirements</b>					
11	<b>DRIVEN MACHINE DATA</b>						
12	Manufacturer/Machine Type (fan, pump, compressor,...)	<b>KSB</b>		<b>Centrifugal Pump</b>			
13	Maxi shaft power / Shaft power at operating point	<b>2.03</b>		kW	<b>1.43</b>		kW
14	Coupling type / To be designed for restarting	<b>Closed</b>		Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
15	Thrust (vertical) Up/Down	Up	<b>NA</b>	kg	Down	<b>NA</b>	kg
16	Driven Machine Inertia (WR2)			<b>0.022</b>		kg.m <sup>2</sup>	
17	Brake torque curve* / Required starting brake torque					N.m	
18	* To be supplied only if available						
19	<b>MOTOR GENERAL CHARACTERISTICS</b>						
20	Rated power/ Poles number	<b>4.2</b>		kW	N°:	<b>2</b>	
21	Voltage/Frequency/Phases	<b>400</b>	V	<b>50</b>	Hz	N°:	<b>3</b>
22	Service condition (S1,S2,...)	<b>S1</b>					
23	Mounting (IM1001,3001,3011,1011,...)	<b>N.A.</b>					
24	Protection degree: Enclosure / terminal box	IP:	<b>68</b>	IP:	<b>68</b>		
25	Protection Ex(n), Ex(d), Ex(e): Motor / terminal box	<b>N/A</b>		<b>N/A</b>			
26	Gas group (IIB,...) / Temperature class (T3,...)	<b>N/A</b>		<b>N/A</b>			
27	Enclosure cooling (fan cooled, air to air, air to water,...)	<b>FLOODED</b>					
28	Starting Method (loaded, unloaded / DOL, soft start,VSD,...)	Loaded	<input type="checkbox"/>	DOL	<input checked="" type="checkbox"/>	Soft start	<input type="checkbox"/>
29	Starting voltage (full, reduced x%) / Max. voltage drop at starting			20		%	
30	Nb of consecutive starts within 1 hour	Cold	<b>10</b>	Hot	<b>5</b>		
31	Min. Insulation Class (B,F,...)/Max Temperature Rise	<b>F</b>		<b>B</b>			
32	Direction of Rotation (looking at motor coupling)	CW	<input checked="" type="checkbox"/>	CCW	<input type="checkbox"/>	Bidirectionnal	<input type="checkbox"/>
33	Position of Main / Auxiliary terminal box	Main	<b>SIDE</b>	Auxiliary			
34	Cable Type, Size and Overall Diameter on Main terminal box	Type :	<b>TEHSITE</b>	Size(mm <sup>2</sup> )	<b>8 x 1.5</b>	Diam. mm	<b>11.8-13.2</b>
35	Cable Type, Size and Overall Diameter on Aux terminal box	Type :	<b>N.A.</b>	Size(mm <sup>2</sup> )	Diam. mm		
36	Terminal boxes provided with cable glands	Yes	<input checked="" type="checkbox"/>	Metallic	No	<input type="checkbox"/>	
37	Painting (Mfr standard,... / color)	<b>RAL 5002</b>					
38	Noise Level at 1 m	<b>flooded</b>	dB(A)		dB(A)		
39							
40	<b>MOTOR MANUFACTURER'S DATA</b>						
41	Manufacturer type / Frame Size / -	<b>DKN 92.2-4U</b>		<b>042ULG</b>			
42	Winding Connection (star, delta)/Nb terminals brought out	<b>STAR</b>		N°:	<b>3</b>		
43	Full Load Speed	<b>2835</b>		rpm			
44	Rated Current (400VY) / No load current / Locked Rotor Current	<b>8.8</b>	A	<b>3.8</b>	A	<b>5.7</b>	Ist / In
45	Starting Time (% of Voltage) at full load	100%:	-	s	80%:	-	s
46	Allowable Locked Rotor withstand Time	Cold:	<b>15</b>	s	Hot:	<b>5</b>	s
47	Thermal Time Constant	Cooling:	-	min	Heating:	<b>40</b>	min
48	Efficiency	4/4	<b>79.0%</b>	3/4	<b>78.2%</b>	2/4	<b>74.2%</b>
49	Power Factor	4/4	<b>0.87</b>	3/4	<b>0.83</b>	2/4	<b>0.73</b>
50	Locked Rotor Power Factor	<b>0.6</b>					
51	Full load Torque	<b>19.5</b>		N.m			
52	Locked/Pull Up/Breakdown Torque	L	-	PU	-	BD	-
53	Rotor Motor Inertia (WR2)	<b>0.015</b>		kg.m <sup>2</sup>			
54	Bearing Type (Drive End/Non Drive End)	DE:	<b>6305-2 RS C3</b>		NDE:	<b>6204-2 RS C3</b>	
55	Lubrication Type/Interval	<b>Grease</b>		<b>N/A</b>		hours	
56	Windings Temperature Sensors PTC	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	1 set of 2	<input checked="" type="checkbox"/>
57		Alarm		Tripping			
58	Temperature setting of winding sensors	<b>155</b>		°C		°C	
59							
60	Ground lug size	<b>M6</b>					
61	Motor Weight	<b>see pump</b>		kg			
62	Certifying authority / certificate Nr	<b>N/A</b>		<b>N/A</b>			

# DATA SHEET LOW VOLTAGE INDUCTION MOTOR

PROJECT : CLIENT :	PROJECT N°.    UNIT    DOCT. CODE    SERIAL N°    REV    SHEET 9806J    1200/1250    SP 0910    004/003    0    3 / 3				
MECHANICAL SUPPLIER: <b>KSB</b>  EQUIPMENT: <b>Motor KSB DKN 92.2-4U -(042ULG)</b>	<b>MOTOR ITEM</b> EQUIPMENT TAG NUMBER    CONSUMER TYPE    SERIAL N° <div style="border: 1px solid black; padding: 2px; display: inline-block;"> <b>1200-PU-1610A/B - 1250-PU-1610A/B</b> </div>				
REV	DATE	STATUS	WRITTEN	CHECKED	APPROVED

## Amarex NF 50-220/042ULG-xxx

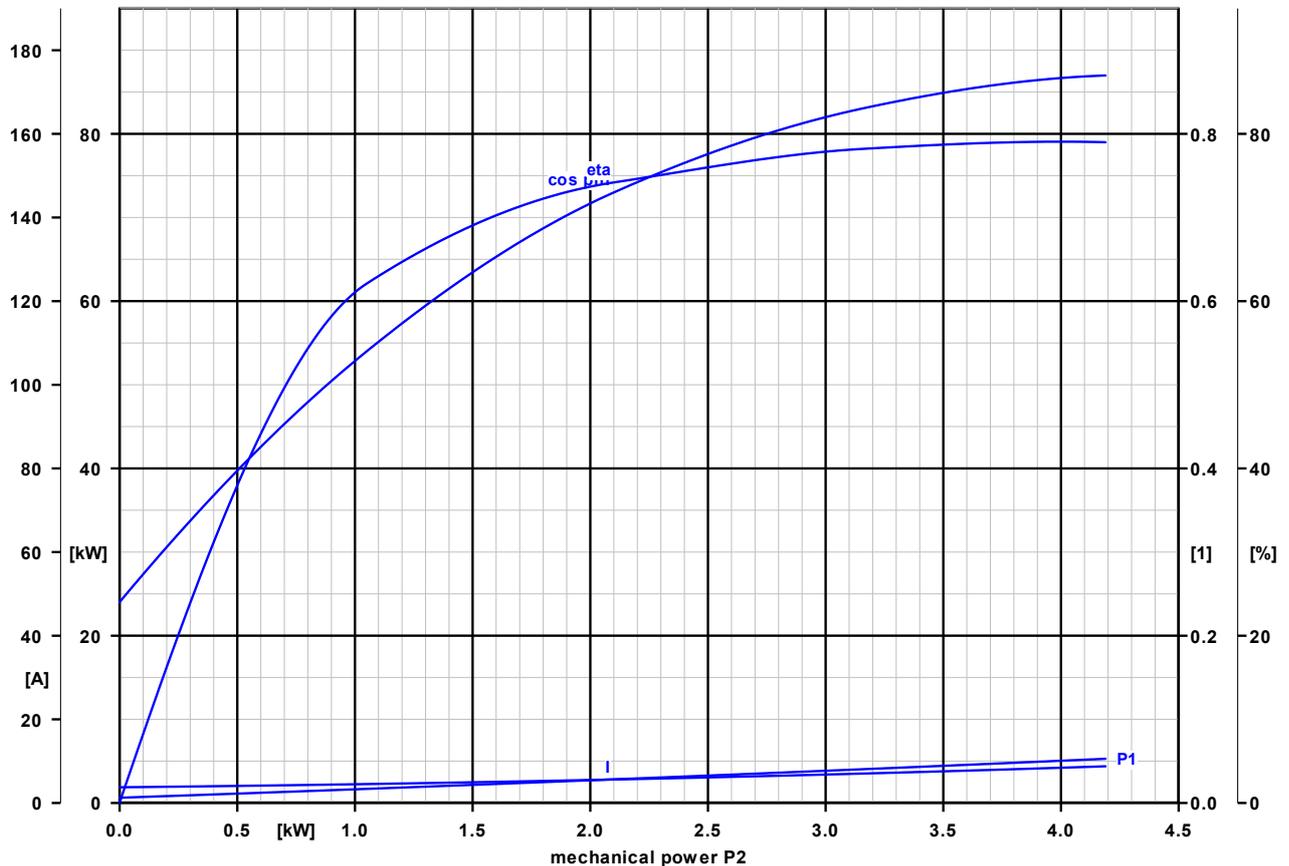
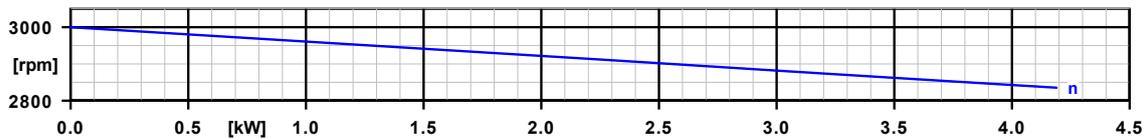
### Motor data

Motor material	Grey cast iron JL 1040	Starting mode	Direct-on-line starting
Voltage	400 V	Power cable	TEHSITE 8x1.5
Frequency	50 Hz	Number of power cables	1
Motor power	4.20 kW	Power cable Ø min.	11.8 mm
Rated current	8.8 A	Power cable Ø max.	13.2 mm
Rated speed	2835 rpm	Cable standard	VDE
Starting current ratio	5.7		

### Curve data

The no-load point is not a guarantee point within the meaning of IEC 60034

	0.0 %	25.0 %	50.0 %	75.0 %	100.0 %
Load	0.0 %	25.0 %	50.0 %	75.0 %	100.0 %
P2	0.00 kW	1.05 kW	2.10 kW	3.15 kW	4.20 kW
n	3000 rpm	2959 rpm	2918 rpm	2876 rpm	2835 rpm
P1	0.63 kW	1.69 kW	2.83 kW	4.03 kW	5.30 kW
I	3.8 A	4.5 A	5.6 A	7.0 A	8.8 A
Eta	0.0 %	62.1 %	74.2 %	78.2 %	79.0 %
cos phi	0.24	0.54	0.73	0.83	0.87



## DATA SHEET LOW VOLTAGE INDUCTION MOTOR

PROJECT :		PROJECT N°:	UNIT	DOCT. CODE	SERIAL N°	REV	SHEET	
CLIENT:		9806J	1200/1250	SP 0910	001/001-004	0	2/2	
MECHANICAL SUPPLIER: <b>KSB</b>		<b>MOTOR ITEM</b>						
EQUIPMENT: <b>Motor KSB DKN 82.2-2U -(022ULG)</b>		EQUIPMENT TAG NUMBER		CONSUMER TYPE		SERIAL N°		
		<b>1200-PU-4110A/B - 1250-PU-1221A/B - 1250-PU-4110A/B</b>						
REV	DATE	STATUS			WRITTEN	CHECKED	APPROVED	
<b>B</b>	1	ITEM: <b>1200-PU-4110A/B - 1250-PU-1221A/B - 1250-PU-4110A/B</b>		QUANTITY: <b>6</b>		MR		
	2	General specificator <b>9806J-0440-JSS-1691-001</b>		Standards, codes: <b>IEC</b>				
	3	Supplier: <b>KSB</b>		Manufacturer: <b>KSB</b>				
	4							
	5	<b>ENVIRONMENTAL CONDITIONS</b>						
	6	Installation (indoor/outdoor) / Ambient Type <b>Flooded</b>						
	7	Ambient Design Temperature <b>40°C</b>		Max: <b>40 °C</b>	Min: <b>5°C</b>			
	8	Altitude (if > 1000m)/Relative Humidity		a.s.l.: <b>&lt;1000</b>	m		<b>Flooded</b>	
	9	Area Classification		<b>Tropic-Proofed</b>				
	10	Hazardous area (Zone)/ Gas Group/Temperature		<b>According to package requirements</b>				
	11	<b>DRIVEN MACHINE DATA</b>						
	12	Manufacturer/Machine Type (fan, pump, compressor,...)		<b>KSB</b>		<b>Centrifugal Pump</b>		
	13	Maxi shaft power / Shaft power at operating point		<b>1.58</b> kW		<b>1.23</b> kW		
	14	Coupling type / To be designed for restarting		<b>Closed</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
	15	Thrust (vertical) Up/Down		Up <b>NA</b>	kg		Down <b>NA</b>	kg
	16	Driven Machine Inertia (WR2)				<b>0.02</b> kg.m2		
	17	Brake torque curve* / Required starting brake torque				N.m		
	18	* To be supplied only if available						
	19	<b>MOTOR GENERAL CHARACTERISTICS</b>						
	20	Rated power/ Poles number		<b>2.3</b> kW		N°: <b>2</b>		
	21	Voltage/Frequency/Phases		<b>400</b> V	<b>50</b> Hz	N°: <b>3</b>		
	22	Service condition (S1,S2,...)		<b>S1</b>				
	23	Mounting (IM1001,3001,3011,1011,...)		<b>N.A.</b>				
	24	Protection degree: Enclosure / terminal box		IP: <b>68</b>	IP: <b>68</b>			
	25	Protection Ex(n), Ex(d), Ex(e): Motor / terminal box		<b>N/A</b>		<b>N/A</b>		
	26	Gas group (IIB,...) / Temperature class (T3,...)		<b>N/A</b>		<b>N/A</b>		
	27	Enclosure cooling (fan cooled, air to air, air to water,...)		<b>FLOODED</b>				
	28	Starting Method (loaded, unloaded / DOL, soft start,VSD,...)		Loaded <input type="checkbox"/>	DOL <input checked="" type="checkbox"/>	Soft start <input type="checkbox"/>	VSD <input type="checkbox"/>	
	29	Starting voltage (full, reduced x%) / Max. voltage drop at starting				20 %		
	30	Nb of consecutive starts within 1 hour		Cold <b>10</b>	Hot <b>5</b>			
	31	Min. Insulation Class (B,F,...)/Max Temperature Rise		<b>F</b>		<b>B</b>		
	32	Direction of Rotation (looking at motor coupling)		CW <input checked="" type="checkbox"/>	CCW <input type="checkbox"/>	Bidirectionnal <input type="checkbox"/>		
	33	Position of Main / Auxiliary terminal box		Main <b>SIDE</b>		Auxiliary		
	34	Cable Type, Size and Overall Diameter on Main terminal box		Type: <b>TEHSITE</b>	Size(mm²) <b>8 x 1.5</b>	Diam. mm <b>11.8-13.2</b>		
	35	Cable Type, Size and Overall Diameter on Aux terminal box		Type: <b>N.A.</b>	Size(mm²)	Diam. mm		
	36	Terminal boxes provided with cable glands		Yes <input checked="" type="checkbox"/>	Metallic		No <input type="checkbox"/>	
	37	Painting (Mfr standard,... / color)		<b>RAL 5002</b>				
	38	Noise Level at 1 m		<b>flooded</b> dB(A)		dB(A)		
	39							
	40	<b>MOTOR MANUFACTURER'S DATA</b>						
41	Manufacturer type / Frame Size / -		<b>DKN 82.2-2U</b>		<b>022ULG</b>			
42	Winding Connection (star, delta)/Nb terminals brought out		<b>STAR</b>		N°: <b>3</b>			
43	Full Load Speed		<b>2780</b>		rpm			
44	Rated Current (400VY) / No load current / Locked Rotor Current		<b>5.1</b> A	<b>2.3</b> A	<b>3.9</b> Ist / In			
45	Starting Time (% of Voltage) at full load		100%: -	s		80%: -	s	
46	Allowable Locked Rotor withstand Time		Cold: <b>15</b>	s		Hot: <b>5</b>	s	
47	Thermal Time Constant		Cooling: -	min		Heating: <b>40</b>	min	
48	Efficiency		4/4 <b>77.0%</b>	3/4 <b>76.0%</b>	2/4 <b>73.2%</b>			
49	Power Factor		4/4 <b>0.86</b>	3/4 <b>0.79</b>	2/4 <b>0.67</b>			
50	Locked Rotor Power Factor		<b>0.61</b>					
51	Full load Torque		<b>15.5</b>		N.m			
52	Locked/Pull Up/Breakdown Torque		L -	PU -	BD -			
53	Rotor Motor Inertia (WR2)		<b>0.012</b> kg.m2					
54	Bearing Type (Drive End/Non Drive End)		DE: <b>6305-2 RS C3</b>	NDE: <b>6204-2 RS C3</b>				
55	Lubrication Type/Interval		<b>Grease</b>		<b>N/A</b> hours			
56	Windings Temperature Sensors PTC		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	1 set of 2 <input checked="" type="checkbox"/>	2 sets of 3 <input type="checkbox"/>		
57	Temperature setting of winding sensors		<b>155</b> °C		°C			
58	Alarm		<b>155</b> °C		Tripping			
59								
60	Ground lug size		<b>M6</b> mm²					
61	Motor Weight		<b>see pump</b> kg					
62	Certifying authority / certificate Nr		<b>N/A</b>		<b>N/A</b>			
63								
64								
65								

# DATA SHEET LOW VOLTAGE INDUCTION MOTOR

PROJECT : CLIENT :	PROJECT N°.    UNIT    DOCT. CODE    SERIAL N°    REV    SHEET 9806J    1200/1250    SP 0910    001/001-004    0    3 / 3				
MECHANICAL SUPPLIER: <b>KSB</b>  EQUIPMENT: <b>Motor KSB DKN 82.2-2U -(022ULG)</b>	<b>MOTOR ITEM</b> EQUIPMENT TAG NUMBER    CONSUMER TYPE    SERIAL N° <b>1200-PU-4110A/B - 1250-PU-1221A/B - 1250-PU-4110A/B</b>				
REV	DATE	STATUS	WRITTEN	CHECKED	APPROVED

## Amarex NF 50-170/022ULG-xxx

### Motor data

Motor material	Grey cast iron JL 1040	Starting mode	Direct-on-line starting
Voltage	400 V	Power cable	TEHSITE 8x1.5
Frequency	50 Hz	Number of power cables	1
Motor power	2.30 kW	Power cable Ø min.	11.8 mm
Rated current	5.1 A	Power cable Ø max.	13.2 mm
Rated speed	2780 rpm	Cable standard	VDE
Starting current ratio	3.9		

### Curve data

The no-load point is not a guarantee point within the meaning of IEC 60034

Load	0.0 %	25.0 %	50.0 %	75.0 %	100.0 %
P2	0.00 kW	0.57 kW	1.15 kW	1.73 kW	2.30 kW
n	3000 rpm	2945 rpm	2890 rpm	2835 rpm	2780 rpm
P1	0.36 kW	0.93 kW	1.57 kW	2.27 kW	3.06 kW
I	2.3 A	2.8 A	3.4 A	4.2 A	5.1 A
Eta	0.0 %	61.7 %	73.2 %	76.0 %	76.0 %
cos phi	0.22	0.49	0.67	0.79	0.86

