

## Data sheet



Customer item no.: P-6248

Quantity: 1

### Etanorm RG 200-260

Volute casing pump in back pull-out design

Number:

Item no.: 100

Date:

Page: 1 / 16

Version no.: 1

### Operating data

Requested flow rate	510.00 m <sup>3</sup> /h	Actual flow rate	510.25 m <sup>3</sup> /h
Operating data determined for	maximum inlet pressure	Actual developed head	15.41 m
Requested developed head	15.40 m	Efficiency	82.4 %
Pumped medium	Water	MEI (Minimum Efficiency Index)	≥ 0.40
	Clean water	Power absorbed	25.85 kW
Pumped medium details	Not containing chemical and mechanical substances which affect the materials	Pump speed of rotation	1485 rpm
Max. ambient air temperature	20.0 °C	NPSH required	4.77 m
Min. ambient air temperature	20.0 °C	Permissible operating pressure	10.00 bar.g
Fluid temperature	35.0 °C	Discharge press.	1.50 bar.g
Fluid density	994 kg/m <sup>3</sup>	Shutoff head	19.20 m
Fluid viscosity	0.72 mm <sup>2</sup> /s	Max. power on curve	27.08 kW
Suction pressure max.	0.00 bar.g	Min. allow. flow for continuous stable operation	164.51 m <sup>3</sup> /h
Suction pressure min.	-0.06 bar.g	Min. allow. mass flow for continuous stable operation	45.42 kg/s
NPSH available	9.00 m	Max. allow. mass flow	205.45 kg/s
Mass flow rate	140.86 kg/s	Performance test	Yes

### Design

Pump standard	EN 733	Material code	Q1BEGG
Design	Baseplate mounted, long-coupled	Sealing plan	A Single-acting mechanical seal (A-type casing cover, taper bore)
Orientation	Horizontal	A liquid free of solids is assumed	
Suction nominal dia.	DN 200	Seal chamber design	Conical seal chamber (A-type cover)
Suction nominal pressure	PN 10	Contact guard	With
Suction position	axial	Wear ring	Casing wear ring
Suction flange drilled according to standard	EN 1092-2	Impeller diameter	249.0 mm
Discharge nominal dia.	DN 200	Direction of rotation from drive	Clockwise
Discharge nominal pressure	PN 10	Bearing bracket construction	Standard (normal)
Discharge position	top (0°/360°) Viewed towards the suction nozzle	Bearing bracket size	WE65
Discharge flange drilled according to standard	EN 1092-2	Bearing seal	Flat gap
Shaft seal	Single acting mechanical seal	Bearing type	Anti-friction bearings
Shaft seal manufacturer	KSB	Lubrication type	Grease
Shaft seal type	4EB	Color	Ultramarine blue (RAL 5002) KSB-blue

## Data sheet



Customer item no.:P-6248

Quantity: 1

Number:

Item no.: 100

Date:

Page: 2 / 16

### Etanorm RG 200-260

Volute casing pump in back pull-out design

Version no.: 1

### Driver, accessories

Coupling Manufacturer	Flender	Rated current	70.1 A
Coupling type	Eupex N	Starting current ratio	8.1
Nominal size	160	Insulation class	F to IEC 34-1
Coupling guard type	Lightweight, not treadproof (ZN79)	Motor enclosure	IP55
Guard size	B254	Cos phi at 4/4 load	0.84
Guard material	Galvanised steel ST TZN	Motor efficiency at 4/4 load	93.9 %
Baseplate type	Etanorm R baseplate	Temperature sensor	3 PTC resistors
Baseplate size	E2	Terminal box position	0°/360° (top)
Driver type	Electric motor	Motor winding	Viewed towards the suction nozzle
Drive standard mech.	IEC	Number of poles	400 / 690 V
Model (make)	KSB-Motor	Connection mode	4
Drive supplied by	Standard motor supplied by KSB - mounted by KSB	Motor cooling method	Delta
Motor const. type	B3	Motor material	Surface cooling
Motor size	225S	Frequency inverter operation allowed	Grey cast iron GG/CAST IRON
Efficiency class	Efficiency class IE3 acc. to IEC60034-30-1	Motor noise pressure level	VFD-suitability only in connection with KSB PumpDrive
Motor speed	1485 rpm	Motor data can vary from type plate information. Motor data describes KSB 's choice functional specification and is used for pump selection.	68 dBa
Frequency	50 Hz	CE-approval	Yes
Rated voltage	400 V	EAC Approval	Yes
Rated power P2	37.00 kW	Ambient temperature	40.0 °C
Available reserve	43.16 %	Max. absolute humidity	30 %
		Temp. sensor mtr. bearing	Without
		UKCA conformity	Yes

### Materials G

Notes		Impeller (230)	Grey cast iron EN-GJL-250
General criteria for a water analysis: pH-value $\geq$ 6,5; chloride content (Cl) $\leq$ 250 mg/kg. Chlorine (Cl2) $\leq$ 0.6 mg/kg.		Bearing bracket (330)	Grey cast iron EN-GJL-250
Volute casing (102)	Grey cast iron EN-GJL-250	Joint ring (411)	DPAFseal plate asbestos free
Casing cover (161)	Grey cast iron EN-GJL-250	Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
Shaft (210)	Tempered steel C45+N	Casing wear ring (502.2)	Grey cast iron GG/CAST IRON

### Packaging

Packaging category	B2 With desiccants in PE-plastic sheeting, heat-sealed water-proof, in wooden/plywood case, outdoor storage up to 12 months	Packaging for country	Germany
Packaging for storage	Indoor	Outdoor storage at -40 °C to +50°C, up to 12 months. Packet must be covered.	
Packaging for transport	Truck		

### Nameplates

Nameplates language	German	Mount customer spec. nameplate	Without
---------------------	--------	--------------------------------	---------

## Data sheet



Customer item no.:P-6248

Quantity: 1

Number: Item no.: 100

Date:

Page: 3 / 16

### Etanorm RG 200-260

Volute casing pump in back pull-out design

Version no.: 1

## Certifications

### Hydraulic performance test

Acceptance standard	ISO 9906 class 2B
Quantity meas. points Q-H	5
Certificate	Inspection cert. 3.1 to EN 10204
Test participation	Non-witnessed
Quantity, non-witnessed	1
Quantity, witnessed	0

### Hydrostatic test (room temp.)

Range	Complete pump with shaft seal
-------	-------------------------------

Test pressure	15.00 bar.g
Test time	10.0 min
Certificate	Inspection cert. 3.1 to EN 10204
Test participation	Non-witnessed

### Final visual inspection

Certificate	Inspection cert. 3.1 to EN 10204
Test participation	Non-witnessed

### Material certificates: Volute casing, casing cover, shaft, impeller (102, 161, 210, 230)

Certificate	Test report 2.2 to EN 10204
-------------	-----------------------------

# Performance curve



Customer item no.:P-6248

Quantity: 1

Number: Item no.:100

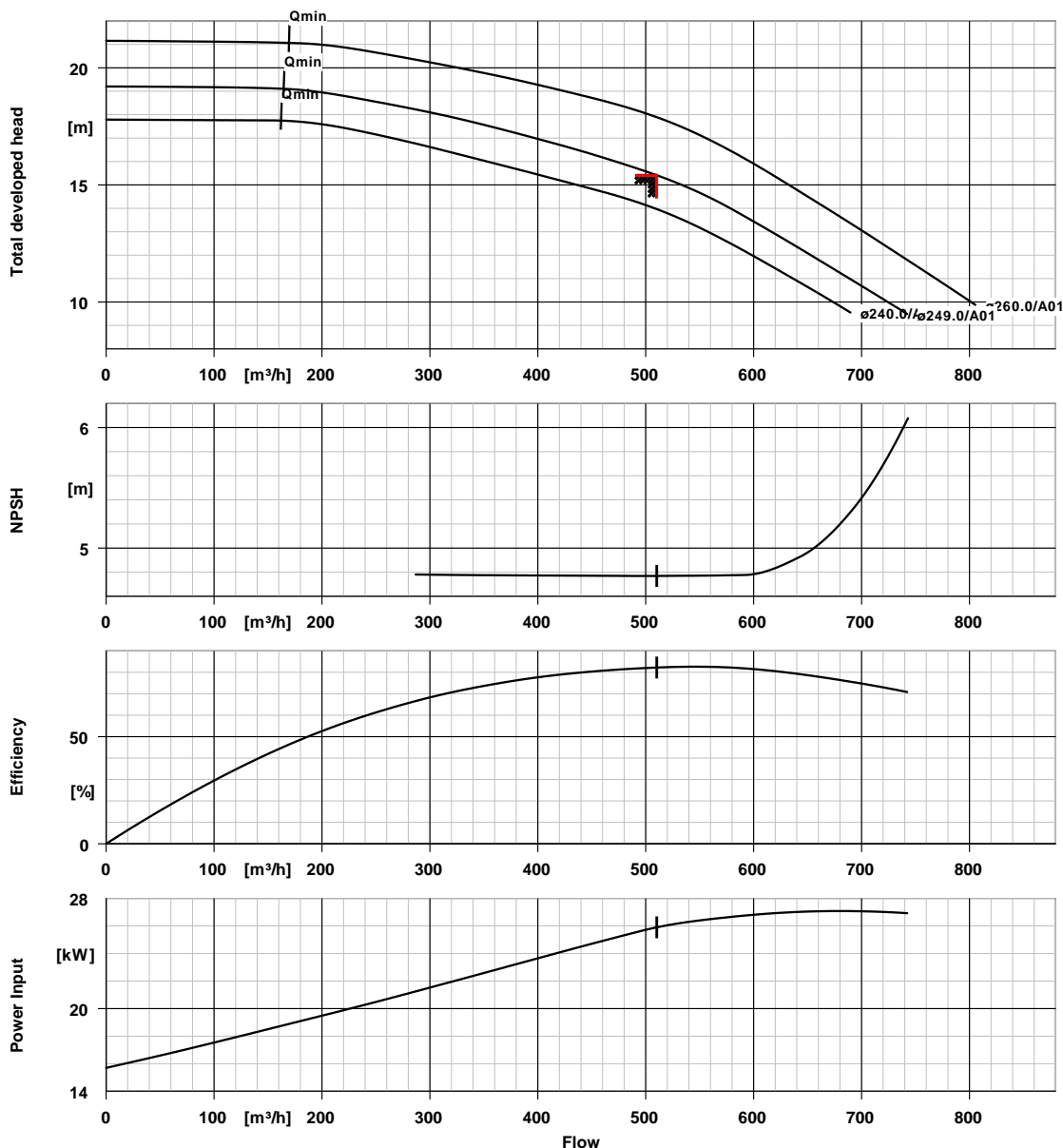
Date:

Page: 4 / 16

## Etanorm RG 200-260

Volute casing pump in back pull-out design

Version no.: 1



### Curve data

Speed of rotation	1485 rpm	Efficiency	82.4 %
Fluid density	994 $kg/m^3$	MEI (Minimum Efficiency Index)	$\geq 0.40$
Viscosity	0.72 $mm^2/s$	Power absorbed	25.85 kW
Flow rate	510.25 $m^3/h$	NPSHR	4.77 m
Requested flow rate	510.00 $m^3/h$	Curve number	K34900
Total developed head	15.41 m	Effective impeller diameter	249.0 mm
Requested developed head	15.40 m	Acceptance standard	ISO 9906 class 2B

# Installation plan



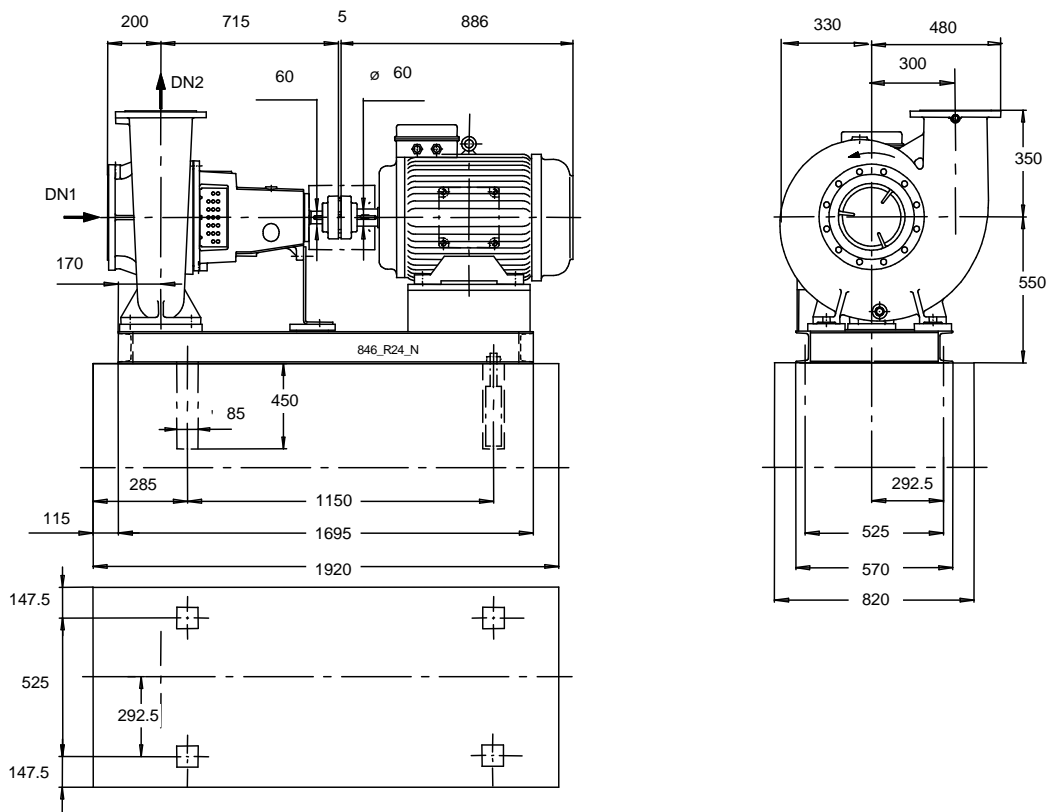
Customer item no.: P-6248  
Quantity: 1

Number: Item no.: 100  
Date:  
Page: 5 / 16

Version no.: 1

## Etanorm RG 200-260

Volute casing pump in back pull-out design



*Drawing is not to scale*

*Dimensions in mm*

# Installation plan



Customer item no.:P-6248

Quantity: 1

Number: Item no.:100

Date:

Page: 6 / 16

## Etanorm RG 200-260

Volute casing pump in back pull-out design

Version no.: 1

### Motor

Motor manufacturer	KSB-Motor
Motor size	225S
Motor power	37.00 kW
Number of poles	4
Speed of rotation	1485 rpm
Position of terminal box	0°/360° (top) Viewed towards the suction nozzle

### Baseplate

Design	Etanorm R baseplate
Size	E2
Material	Steel ST
Leakage drain baseplate (8B)	Rp1, Without
Baseplate drain piping execution	Without
Foundation bolts	M20x400 (required but not scope of supply)

### Connections

Suction nominal size DN1	DN 200 / EN 1092-2
Discharge nominal size DN2	DN 200 / EN 1092-2
Nominal pressure suct.	PN 10
Rated pressure disch.	PN 10

### Coupling

Coupling manufacturer	Flender
Coupling type	Eupex N
Coupling size	160
Spacer	0.0 mm

### Weight net

Pump	355 kg
Baseplate	202 kg
Coupling	10 kg
Coupling guard	3 kg
Motor	392 kg
Total	962 kg

### Connect pipes without stress or strain!

Dimensional tolerances for shaft axis height:  
Dimensions without tolerances, middle tolerances to:  
Connection dimensions for pumps:  
Dimensions without tolerances - welded parts:  
Dimensions without tolerances - gray cast iron parts:

DIN 747  
ISO 2768-m  
EN735  
ISO 13920-B  
ISO 8062-CT9

**For auxiliary connections see  
separate drawing.**

# Connection plan

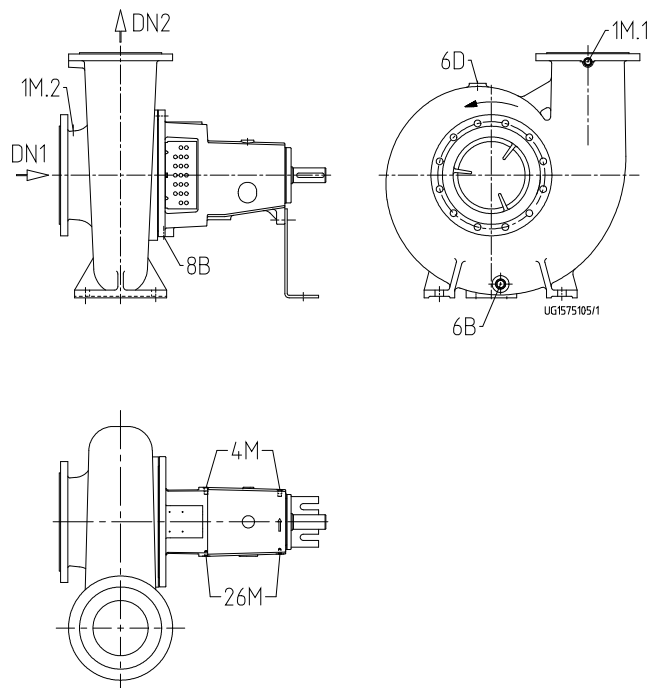


Customer item no.:P-6248  
 Quantity: 1

Number: Item no.:100  
 Date:  
 Page: 7 / 16

**Etanorm RG 200-260**  
 Volute casing pump in back pull-out design

Version no.: 1



## Connections

1M.1 Pressure gauge connection	G 1/2	Drilled and plugged.
1M.2 Pressure gauge connection	G 1/2	Drilled and plugged.
6B Pumped liquid drain	G 3/4	Drilled and plugged.
6D Pumped medium - filling / venting	G 3/4	Drilled and plugged.
8B Leakage drain	G 3/4	Drilled
26M Shock pulse measurement connection		Not executed
4M Temperature measurement connection		Not executed

# Force and Moment Limits



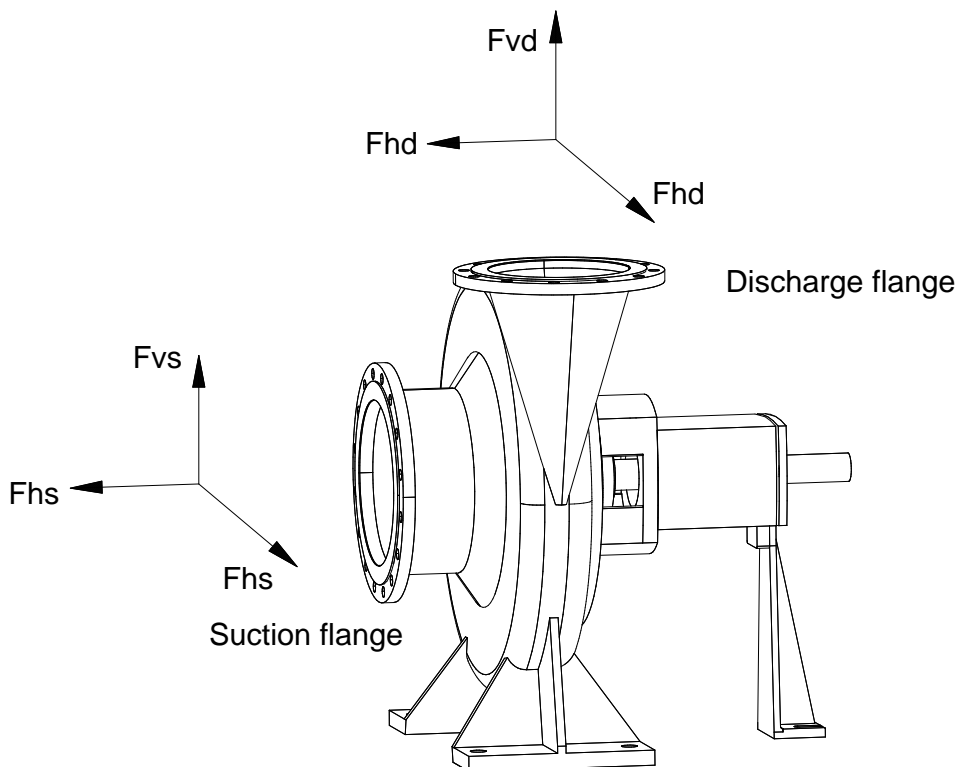
Customer item no.:P-6248  
Quantity: 1

Number: Item no.:100  
Date:  
Page: 8 / 16

## Etanorm RG 200-260

Volute casing pump in back pull-out design

Version no.: 1



Drawing is not to scale

### Force and Moment Limits

Suction flange		Discharge flange	
Fvs	4000 N	Fvd	4000 N
Fhs	5600 N	Fhd	5600 N
Mts	2400 Nm	Mtd	2400 Nm
Valid for temperature	35.0 °C		

The allowable resulting forces are to be determined by

$$\left[ \frac{\sum |F_v|}{|F_{v\max}|} \right]^2 + \left[ \frac{\sum |F_H|}{|F_{H\max}|} \right]^2 + \left[ \frac{\sum |M_T|}{|M_{T\max}|} \right]^2 \leq 1$$

using the sums of the absolute values of the respective loads acting on the nozzles.

The given forces and torques are the sums of the absolute values of the forces acting on the respective flange.

The sum of the forces is calculated regardless of their direction.

The given force and torque limits are only applicable for static pipe loads.

The values apply for installation on completely grouted baseplates bolted to a rigid, level foundation



## Data sheet



Customer item no.:P-6231

Quantity: 1

Number: Item no.: 200

Date:

Page: 9 / 16

### Etanorm RG 250-400

Volute casing pump in back pull-out design

Version no.: 1

## Operating data

Requested flow rate	885.00 m <sup>3</sup> /h	Actual flow rate	884.99 m <sup>3</sup> /h
Requested developed head	31.80 m	Actual developed head	31.80 m
Pumped medium	Water	Efficiency	83.1 %
	Clean water	MEI (Minimum Efficiency Index)	≥ 0.40
Pumped medium details	Not containing chemical and mechanical substances which affect the materials	Power absorbed	91.65 kW
		Pump speed of rotation	1489 rpm
Max. ambient air temperature	20.0 °C	NPSH required	8.41 m
Min. ambient air temperature	20.0 °C	Permissible operating pressure	10.00 bar.g
Fluid temperature	35.0 °C		
Fluid density	994 kg/m <sup>3</sup>	Discharge press.	3.10 bar.g
Fluid viscosity	0.72 mm <sup>2</sup> /s	Shutoff head	44.91 m
Suction pressure max.	0.00 bar.g	Min. allow. flow for continuous stable operation	234.16 m <sup>3</sup> /h
Mass flow rate	244.32 kg/s	Min. allow. mass flow for continuous stable operation	64.65 kg/s
Max. power on curve	93.43 kW	Performance test	Yes
Max. allow. mass flow	310.28 kg/s		

## Design

Pump standard	EN 733	Material code	Q1BEGG
Design	Baseplate mounted, long-coupled	Sealing plan	A Single-acting mechanical seal (A-type casing cover, taper bore)
Orientation	Horizontal		
Suction nominal dia.	DN 300	A liquid free of solids is assumed	
Suction nominal pressure	PN 10	Seal chamber design	Conical seal chamber (A-type cover)
Suction position	axial	Contact guard	With
Suction flange drilled according to standard	EN 1092-2	Wear ring	Casing wear ring
Discharge nominal dia.	DN 250	Impeller diameter	366.0 mm
Discharge nominal pressure	PN 10	Direction of rotation from drive	Clockwise
Discharge position	top (0°/360°)	Bearing bracket construction	Standard (normal)
	Viewed towards the suction nozzle	Bearing bracket size	WE65
Discharge flange drilled according to standard	EN 1092-2	Bearing seal	Flat gap
Shaft seal	Single acting mechanical seal	Bearing type	Anti-friction bearings
		Lubrication type	Grease
Shaft seal manufacturer	KSB	Color	Ultramarine blue (RAL 5002)
Shaft seal type	4EB		KSB-blue

## Data sheet



Customer item no.:P-6231

Quantity: 1

Number: Item no.: 200

Date:

Page: 10 / 16

### Etanorm RG 250-400

Volute casing pump in back pull-out design

Version no.: 1

### Driver, accessories

Coupling Manufacturer	Flender	Rated current	202.8 A
Coupling type	Eupex N	Starting current ratio	7.8
Nominal size	200	Insulation class	F to IEC 34-1
Coupling guard type	Lightweight, not treadproof (ZN79)	Motor enclosure	IP55
Guard size	B254	Cos phi at 4/4 load	0.86
Guard material	Galvanised steel ST TZN	Motor efficiency at 4/4 load	95.4 %
Baseplate type	Etanorm R baseplate	Temperature sensor	3 PTC resistors
Baseplate size	E7	Terminal box position	0°/360° (top)
Driver type	Electric motor	Motor winding	Viewed towards the suction nozzle
Drive standard mech.	IEC	Number of poles	400 / 690 V
Model (make)	KSB-Motor	Connection mode	4
Drive supplied by	Standard motor supplied by KSB - mounted by KSB	Motor cooling method	Delta
Motor const. type	B3	Motor material	Surface cooling
Motor size	315S	Motor noise pressure level	Grey cast iron GG/CAST IRON
Efficiency class	Efficiency class IE3 acc. to IEC60034-30-1	Motor data can vary from type plate information. Motor data describes KSB 's choice functional specification and is used for pump selection.	75 dBa
Motor speed	1489 rpm	CE-approval	Yes
Frequency	50 Hz	EAC Approval	Yes
Rated voltage	400 V	Ambient temperature	40.0 °C
Rated power P2	110.00 kW	Max. absolute humidity	30 %
Available reserve	20.02 %	Temp. sensor mtr. bearing	Without
		UKCA conformity	Yes

### Materials G

Notes

General criteria for a water analysis: pH-value  $\geq 6,5$ ; chloride content (Cl)  $\leq 250$  mg/kg. Chlorine (Cl<sub>2</sub>)  $\leq 0,6$  mg/kg.

Volute casing (102)	Grey cast iron EN-GJL-250
Casing cover (161)	Grey cast iron EN-GJL-250
Shaft (210)	Tempered steel C45+N

Impeller (230)	Grey cast iron EN-GJL-250
Bearing bracket (330)	Grey cast iron EN-GJL-250
Joint ring (411)	DPAFseal plate asbestos free
Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
Casing wear ring (502.2)	Grey cast iron GG/CAST IRON

### Packaging

Packaging category	B2 With desiccants in PE-plastic sheeting, heat-sealed water-proof, in wooden/plywood case, outdoor storage up to 12 months	Packaging for transport	Truck
Packaging for storage	Indoor	Outdoor storage at -40 °C to +50°C, up to 12 months. Packet must be covered.	

### Nameplates

Nameplates language	German	Mount customer spec. nameplate	Without
---------------------	--------	--------------------------------	---------

## Data sheet



Customer item no.:P-6231

Quantity: 1

Number: Item no.: 200

Date:

Page: 11 / 16

### Etanorm RG 250-400

Volute casing pump in back pull-out design

Version no.: 1

## Certifications

### Hydraulic performance test

Acceptance standard	ISO 9906 class 2B
Quantity meas. points Q-H	5
Certificate	Inspection cert. 3.1 to EN 10204
Test participation	Non-witnessed
Quantity, non-witnessed	1
Quantity, witnessed	0

### Hydrostatic test (room temp.)

Range	Complete pump with shaft seal
-------	-------------------------------

Test pressure	15.00 bar.g
Test time	10.0 min
Certificate	Inspection cert. 3.1 to EN 10204
Test participation	Non-witnessed

### Final visual inspection

Certificate	Inspection cert. 3.1 to EN 10204
Test participation	Non-witnessed

### Material certificates: Volute casing, casing cover, shaft, impeller (102, 161, 210, 230)

Certificate	Test report 2.2 to EN 10204
-------------	-----------------------------

# Performance curve

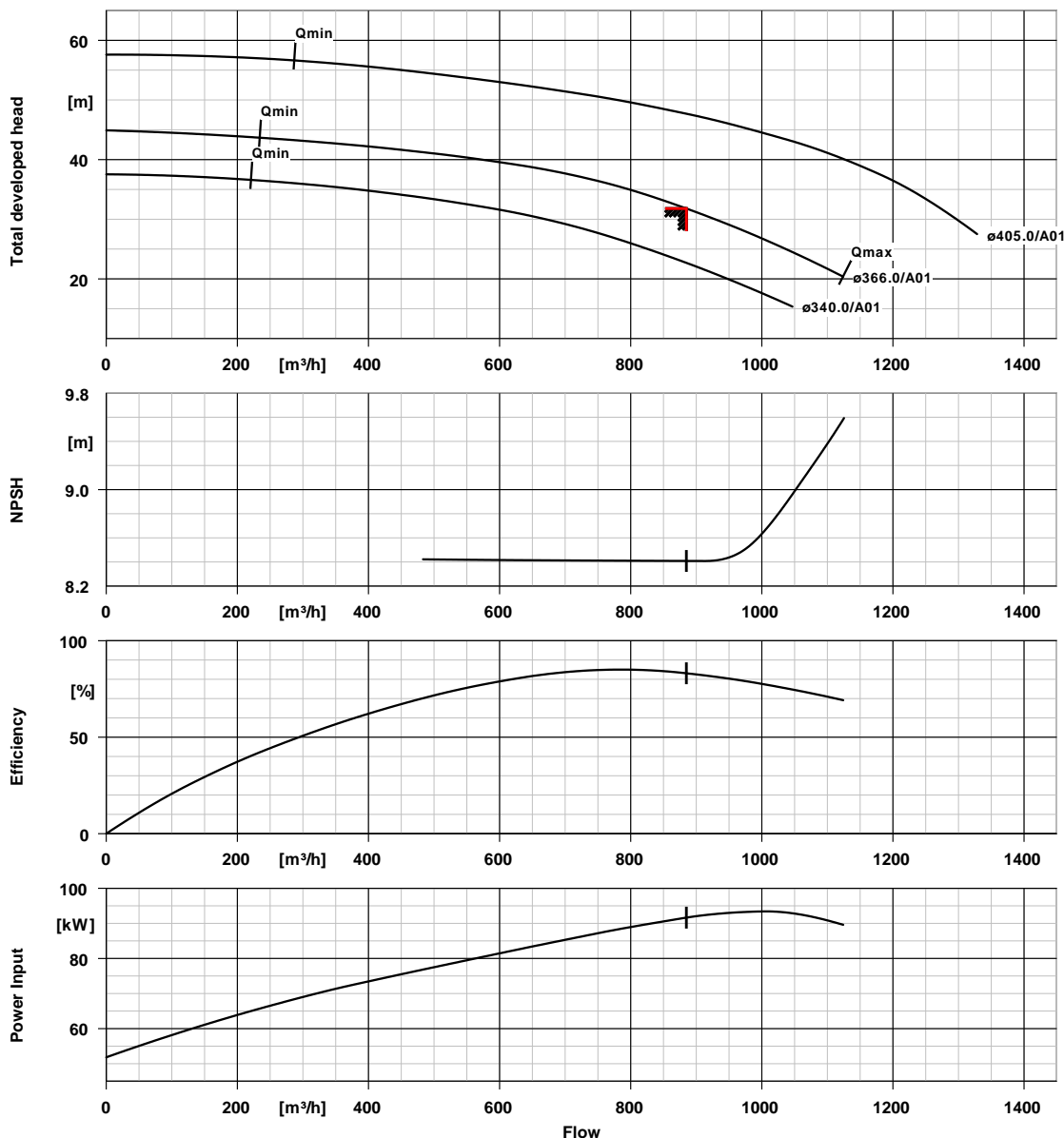


Customer item no.:P-6231  
 Quantity: 1

Number: Item no.:200  
 Date:  
 Page: 12 / 16

**Etanorm RG 250-400**  
 Volute casing pump in back pull-out design

Version no.: 1



### Curve data

Speed of rotation	1489 rpm	Efficiency	83.1 %
Fluid density	994 $kg/m^3$	MEI (Minimum Efficiency Index)	$\geq 0.40$
Viscosity	0.72 $mm^2/s$	Power absorbed	91.65 kW
Flow rate	884.99 $m^3/h$	NPSHR	8.41 m
Requested flow rate	885.00 $m^3/h$	Curve number	K34700
Total developed head	31.80 m	Effective impeller diameter	366.0 mm
Requested developed head	31.80 m	Acceptance standard	ISO 9906 class 2B

# Installation plan



Customer item no.:P-6231

Quantity: 1

**Etanorm RG 250-400**

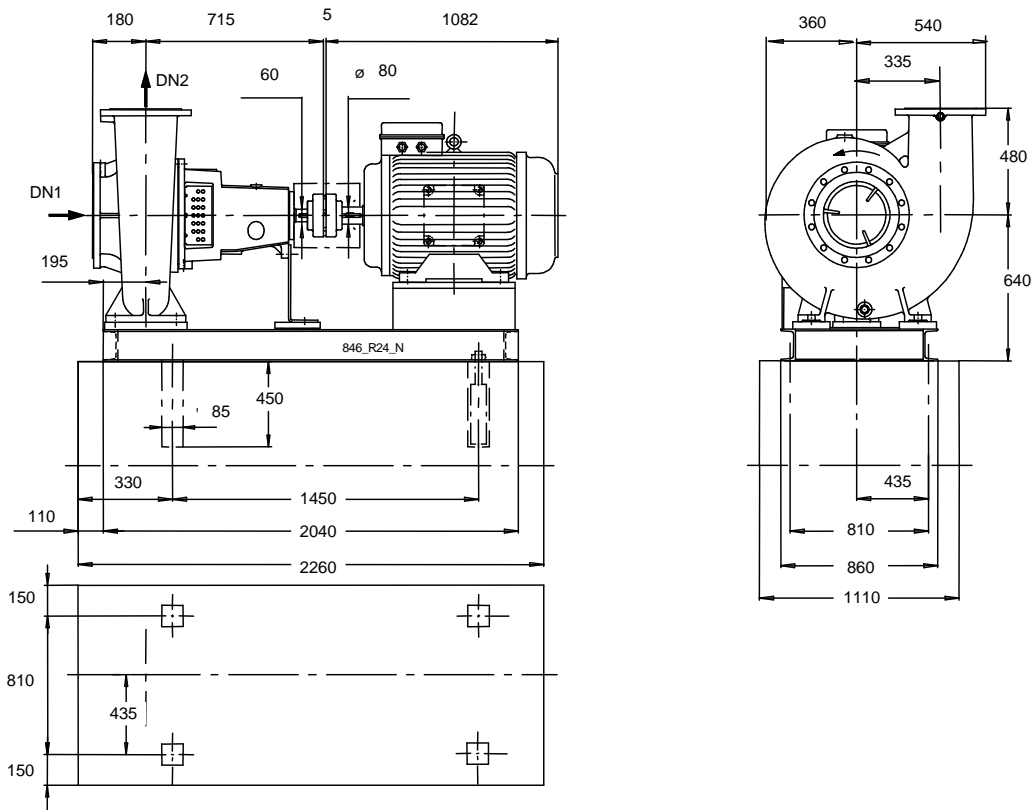
Number: Item no.:200

Date:

Page: 13 / 16

Version no.: 1

Volute casing pump in back pull-out design



*Drawing is not to scale*

*Dimensions in mm*

# Installation plan



Customer item no.:P-6231  
Quantity: 1

Number: Item no.:200  
Date:  
Page: 14 / 16

## Etanorm RG 250-400

Volute casing pump in back pull-out design

Version no.: 1

### Motor

Motor manufacturer	KSB-Motor
Motor size	315S
Motor power	110.00 kW
Number of poles	4
Speed of rotation	1489 rpm
Position of terminal box	0°/360° (top) Viewed towards the suction nozzle

### Baseplate

Design	Etanorm R baseplate
Size	E7
Material	Steel ST
Leakage drain baseplate (8B)	Rp1, Without
Baseplate drain piping execution	Without
Foundation bolts	M20x400 (required but not scope of supply)

### Connections

Suction nominal size DN1	DN 300 / EN 1092-2
Discharge nominal size DN2	DN 250 / EN 1092-2
Nominal pressure suct.	PN 10
Rated pressure disch.	PN 10

### Coupling

Coupling manufacturer	Flender
Coupling type	Eupex N
Coupling size	200
Spacer	0.0 mm

### Weight net

Pump	460 kg
Baseplate	343 kg
Coupling	20 kg
Coupling guard	3 kg
Motor	1010 kg
Total	1836 kg

### Connect pipes without stress or strain!

Dimensional tolerances for shaft axis height:  
Dimensions without tolerances, middle tolerances to:  
Connection dimensions for pumps:  
Dimensions without tolerances - welded parts:  
Dimensions without tolerances - gray cast iron parts:

DIN 747  
ISO 2768-m  
EN735  
ISO 13920-B  
ISO 8062-CT9

**For auxiliary connections see  
separate drawing.**

# Connection plan



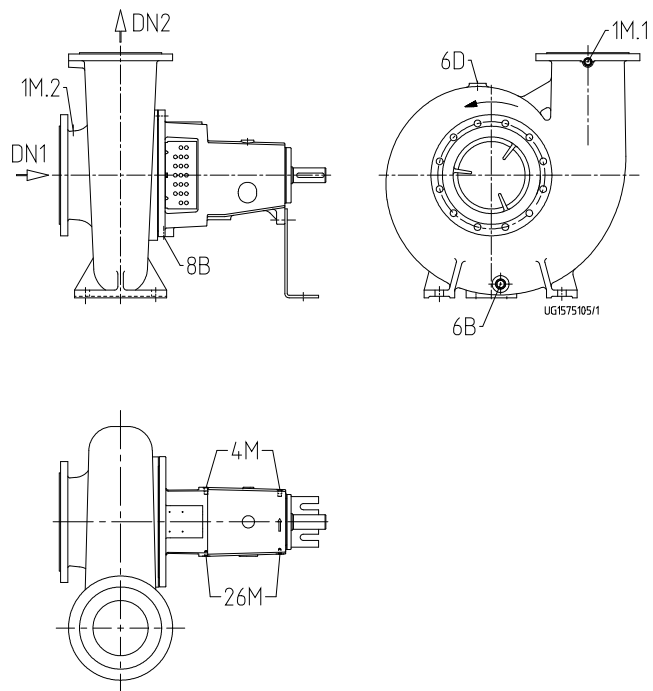
Customer item no.:P-6231  
 Quantity: 1

Number: Item no.:200  
 Date:  
 Page: 15 / 16

## Etanorm RG 250-400

Volute casing pump in back pull-out design

Version no.: 1



### Connections

1M.1 Pressure gauge connection	G 1/2	Drilled and plugged.
1M.2 Pressure gauge connection	G 1/2	Drilled and plugged.
6B Pumped liquid drain	G 3/4	Drilled and plugged.
6D Pumped medium - filling / venting	G 3/4	Drilled and plugged.
8B Leakage drain	G 3/4	Drilled
26M Shock pulse measurement connection		Not executed
4M Temperature measurement connection		Not executed

# Force and Moment Limits

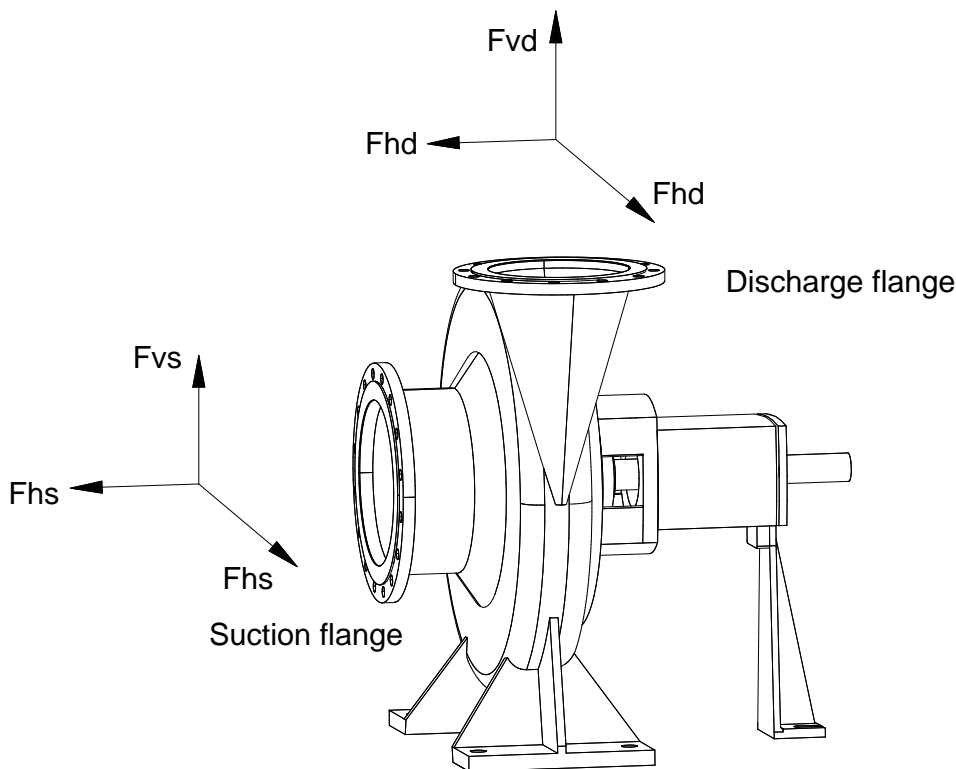


Customer item no.:P-6231  
 Quantity: 1

Number: Item no.:200  
 Date:  
 Page: 16 / 16

**Etanorm RG 250-400**  
 Volute casing pump in back pull-out design

Version no.: 1



*Drawing is not to scale*

## Force and Moment Limits

Suction flange		Discharge flange	
Fvs	5000 N	Fvd	5000 N
Fhs	7000 N	Fhd	7000 N
Mts	6200 Nm	Mtd	3800 Nm
Valid for temperature	35.0 °C		

The allowable resulting forces are to be determined by

$$\left[ \frac{\sum |F_v|}{|F_{vmax}|} \right]^2 + \left[ \frac{\sum |F_H|}{|F_{Hmax}|} \right]^2 + \left[ \frac{\sum |M_T|}{|M_{Tmax}|} \right]^2 \leq 1$$

using the sums of the absolute values of the respective loads acting on the nozzles.  
 The given forces and torques are the sums of the absolute values of the forces acting on the respective flange.  
 The sum of the forces is calculated regardless of their direction.  
 The given force and torque limits are only applicable for static pipe loads.  
 The values apply for installation on completely grouted baseplates bolted to a rigid, level foundation



General assembly drawings

General assembly drawing with list of components

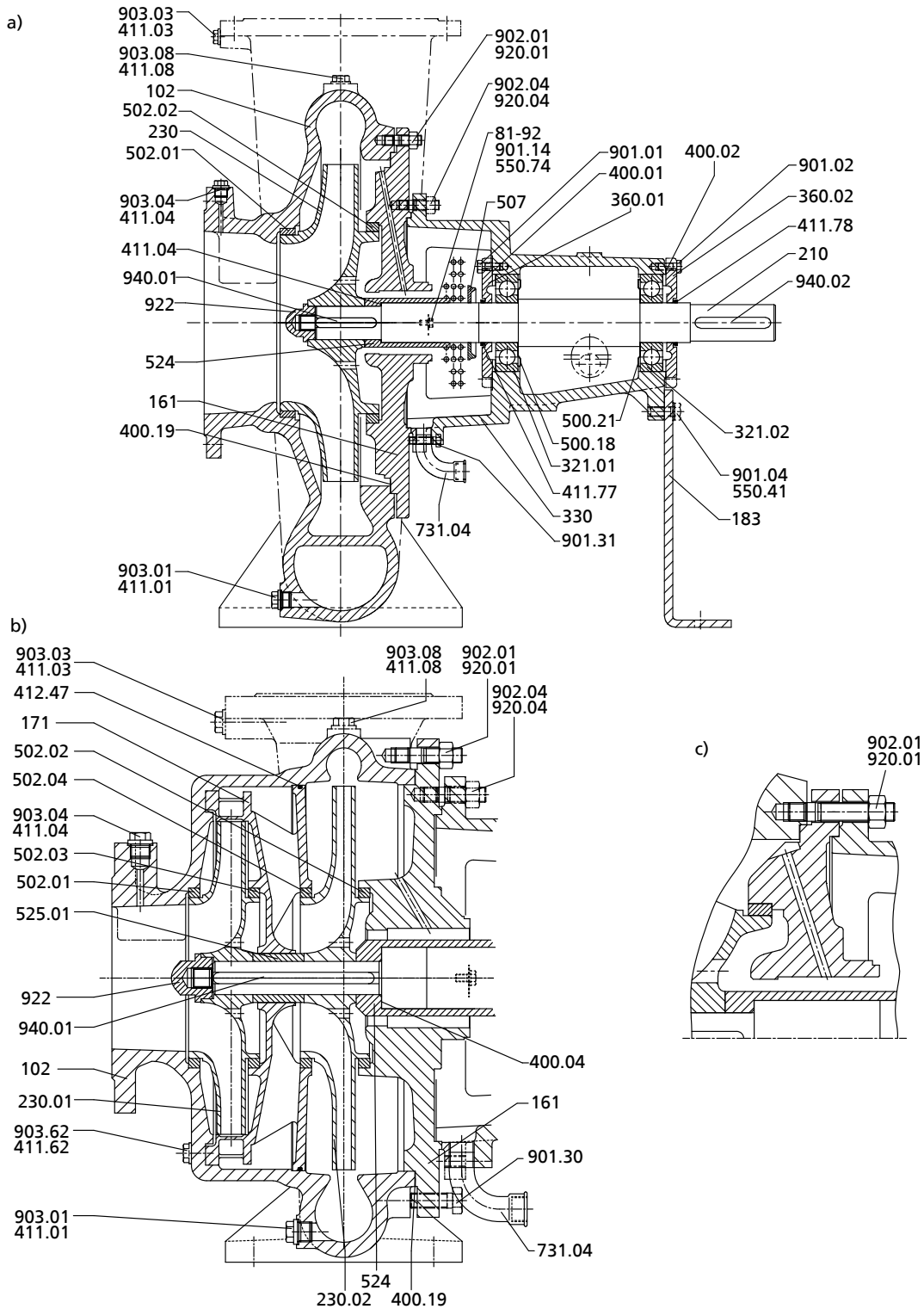


Fig. 7: a) Etanorm-R (single-entry) b) Etanorm-R (two-stage) c) Clamped casing cover<sup>20)</sup>

<sup>20)</sup> On sizes 200-250, 200-260, 200-330, 250-300, 250-330 only