

## **Side channel pumps PN 16**

single-stage, self-priming, gas-entraining  
vertical modular construction, with standard motor

**SVG** - with standard mechanical seal

**SVM** - with magnetic drive



**Technical description**

## Design features

- Vertical modular construction
- In-line pump with horizontally opposing inlet and discharge sockets of the same nominal diameter
- Round flanges conforming to DIN 2533 PN 16. (ANSI 150/300 holes are also possible)
- Use of standard motors
- Range comprises 5 sizes

## Applications

For pumping highly volatile, explosive or inflammable liquids, as well as those which are aggressive, poisonous or valuable but contain no abrasive additives. Such liquids are used in

- the chemical industry
- the petrochemical industry
- air conditioning and refrigeration technology
- environmental technology

and for any industrial applications which require a reliable self-priming capability and/or in which gaseous admixtures are present in the pumped medium.

The pumps are designed, in particular, for pumping fuels, hydrocarbons and hazardous media from underground tanks.

The steep characteristic curve provides excellent control in relation to the pressure. The vertical construction saves space at the installation site.

## Operating data

Nominal diameter:	DN 25 - DN 50
Capacity:	0,3 - 20 m <sup>3</sup> /h
Head:	5 - 52 m
Speed:	max 1800 rpm
Temperature:	-40° C bis + 120° C
Working pressure:	up to 16 bar
Viscosity:	0.3 - 230 mPas
Suction head:	max. 7 m
Gas fraction:	max. 50 %
Max. drive:	7.5 kW
Direction of rotation:	left (looking from the drive to the pump)

## Advantages

In designing the new SVG/SVM series, we placed particular emphasis on an outstanding self-priming capability, high efficiency and low noise while the pump is in use.

The robust design with few components makes the pumps such good value that they can be used in any segment of the market which expects the typical advantages of side channel technology (e.g. for two-phase flows) or which finds other types of pumps too large and thus uneconomical to use.

### SVG with transport security device (DE 199529201)

The newly patented transportation security for the SVG allows a delivery of the pump without motor. A standard motor might easily be mounted on the pump.

## Construction

### 1. Casing

The suction and discharge casings are both housed in a cast iron structure which is closed off by a base.

### 2. Impeller

An open, star-shaped impeller which compensates for axial thrust through relief holes and can be moved axially along the shaft.

### 3. Shaft

The pump is equipped with a particularly rigid shaft, guaranteeing fault-free operation whatever the load.

### Shaft bearing arrangement:

In the **SVG model**, the pump shaft is connected to the motor shaft by means of a rigid sleeve coupling. The coupling is designed to protect the motor bearing against any leaks. A special carbon bearing bush in the base, which is lubricated by the pumped medium, absorbs the bearing forces from the hydraulic system.

In the **SVM model**, the shaft is mounted axially and radially beneath the magnetic drive on a steel bearing in a special carbon bearing bush.

An additional special carbon bearing bush in the base increases the distance between the bearings, thus ensuring a rigid bearing arrangement. All the bearing bushes are lubricated by the pumped medium.

## 4. Shaft seal

### SVG model: Standard mechanical seal conforming to DIN 24960

The pump casing has a crossdrilled hole above the mechanical seal which allows the mechanical seal to be checked for leaks while the pump is in use.

### SVM model: magnet drive split can

The standard split can is made from 1.4571. A cross-drilled hole in the clamping flange allows a PT 100 sensor to be used for monitoring the split can temperature.

## Magnets

The magnets are made of high quality Neodym. This material is characterised in particular by a high magnetic energy density and high thermal stability.

## 5. Motor

The standard versions are equipped with standard three-phase AC motors. The V1 models have locating bearings on the drive side. The motor speed is 1450 rpm at 50 Hz or 1750 rpm at 60 Hz. As standard, the type of protection is IP55, although extra protection using EexellT3 or flame-proof EexdellCT3 fuses is available upon request.

## 6. Adapter ring

The adapter ring incorporates a window which can be used to monitor the direction of rotation.

## 7. Other

The pump can be drained via the base.

Space-saving vertical modular construction

Standard motor for ease of replacement

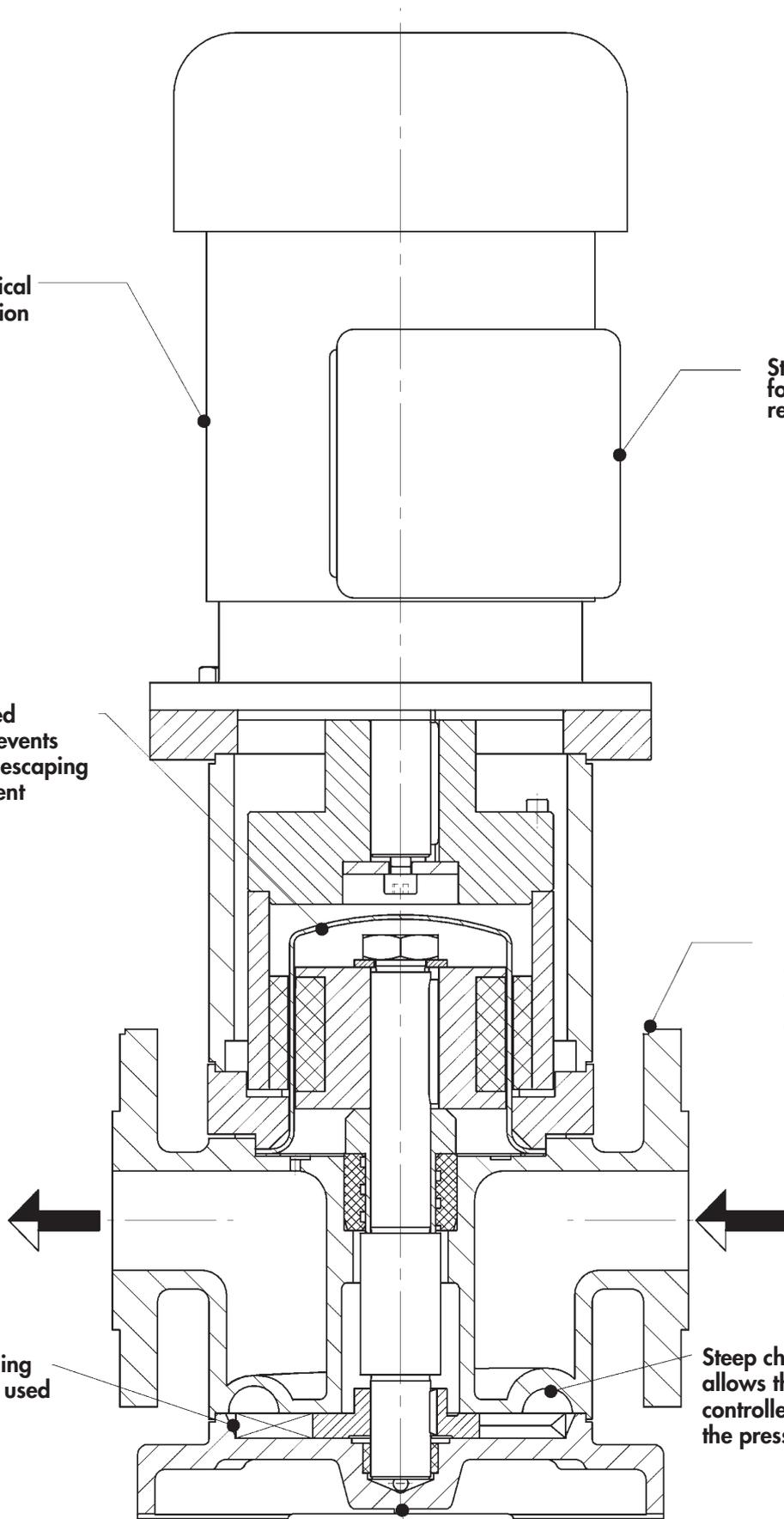
Hermetically-sealed magnetic drive prevents hazardous media escaping into the environment

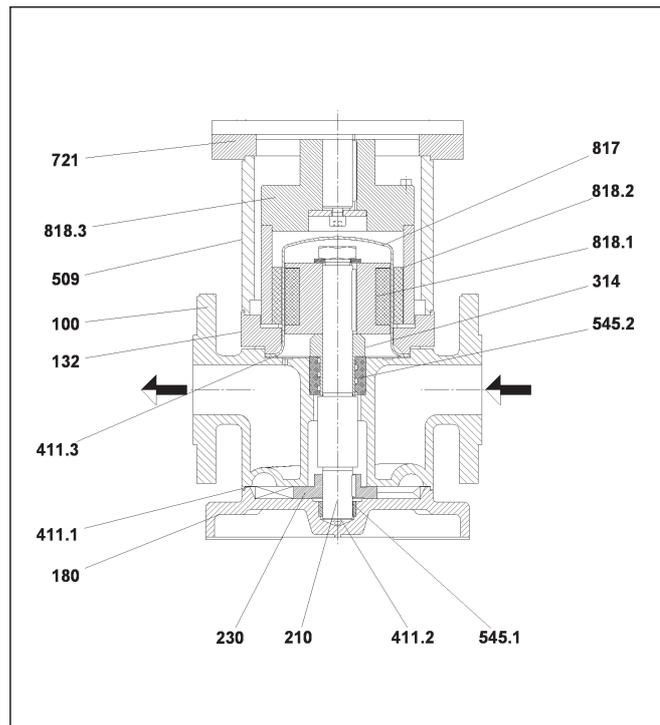
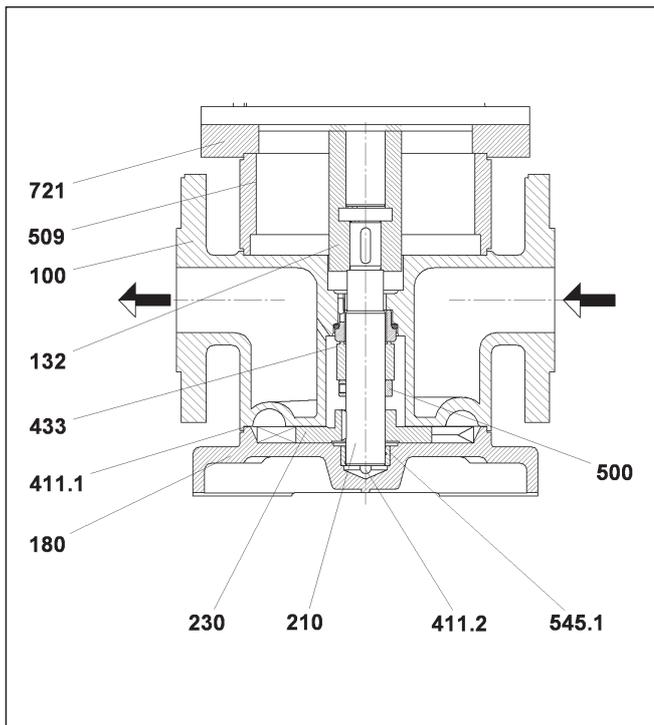
In-line design with circular flanges for ease of installation

Excellent self-priming capability; can be used with underground storage tanks

Steep characteristic curve allows the pump to be controlled in relation to the pressure

Few individual parts make the pump even better value





## Materials

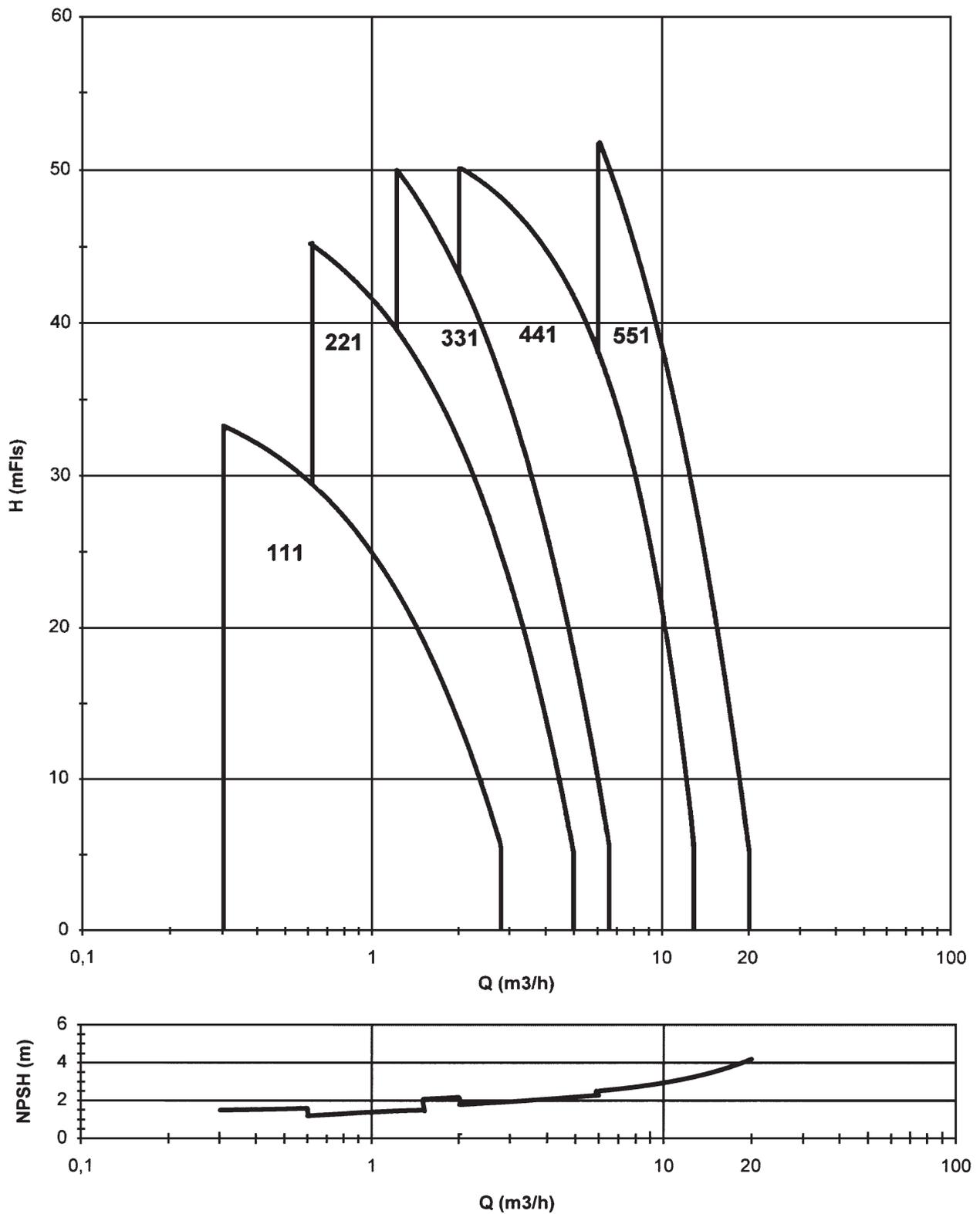
Item	Designation	60	62	32
100	Suction/discharge casing	GGG 40		1.4470
132	Adapter	GG 25		
180	Base	GGG 40		1.4470
210	Shaft	1.4021		1.4571
230	Impeller	brass	1.4059	1.4581
314.1	Thrust bearing	hard carbon / V4A		
314.2	Thrust bearing	hard carbon / V4A		
411.1/.2/.3	Gasket	PTFE, graphite		
433	Mechanical seal	B <sub>1</sub> , V <sub>1</sub> , VGG elastomers also E, M <sub>1</sub>		
509	Adapter ring	Steel		
545.1/.2	Bearing bush	Carbon		
721	Reducing adapter	Steel		
818	Rotor	Steel		
847	Magnetic coupling			
817	Split can	1.4571		
818.1	Inner magnetic rotor	1.4571	Magnets: Neodym	
818.2	Outer magnetic rotor	1.4571	Magnets: Neodym	
849	Sleeve coupling	Steel		

## Explanation of the most important material characteristic numbers

Material characteristic number	Designation according to standard
0.7040	GGG 40
1.4021	X 20 Cr 13
1.4059	G - X 22 Cr Ni17
1.4470	G - X 2 Cr Ni Mo N 22 5 3
1.4571	X 6 Cr Ni Mo Ti 17 12 2
1.4581	G - X 5 Cr Ni Mo Nb 19 11 2

## Performance characteristics

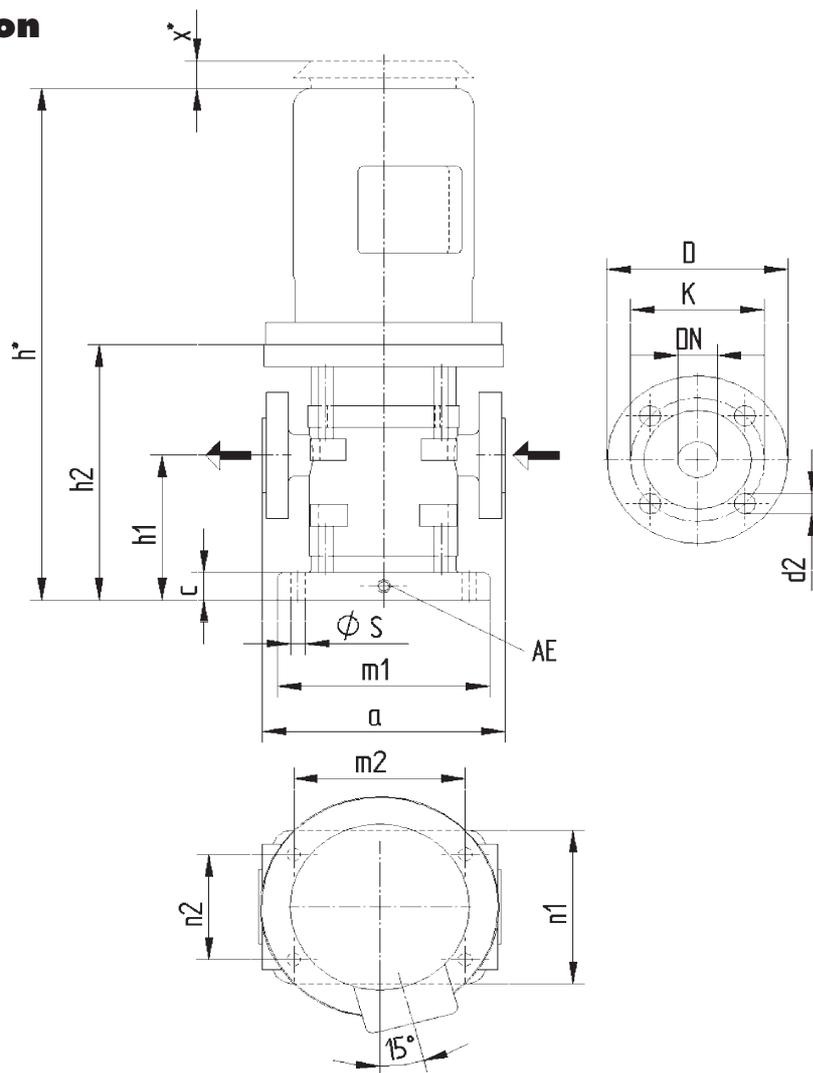
rpm n = 1450 1/min.



The technical documentation includes detailed curves.

Attention: The limit on the left side of the curve represents  $Q_{min}$ . The capacity has not to be continually inferior to this value. Otherwise pump could be damaged. For start-up and during the operation the suction and the discharge valve must always be open. In case of capacity fluctuations we advise to use a by-pass.

## SVG dimension tables:



Size	Motor		Weight (kg) #							Flange				Base						
	Size	kW	I	E	G	h1	a	h2	h*	DN	D	K	d2	n1	n2	m1	m2	c	S	
111	71	0,37	19	19	25	132	205	216	417	25	115	85	14	140	96	180	145	25	12	
	80	0,55	20	21	32															448
	80	0,75	22	24	34															448
221	80	0,55	29	32	41	120	230	227	459	40	150	110	18	162	116	210	168	30	14	
	80	0,75	31	33	43															459
	90S	1,1	33	35	51															471
	90L	1,5	35	37	53															496
331	90S	1,1	33	35	51	120	230	227	471	40	150	110	18	162	116	210	168	30	14	
	90L	1,5	35	37	53															496
	100L	2,2 (2)	39	43	58															530
441	100L	2,2 (2)	48	52	67	180	280	302	605	50	165	125	18	182	140	240	200	40	14	
	100L	3 (2,5)	50	54	79															605
	112M	4 (3,6)	58	60	87															622
551	112M	4 (3,6)	67	69	96	180	280	318	638	50	165	125	18	200	150	250	200	40	15	
	132S	5,5 (5)	84	104	124															723
	132M	7,5 (6,8)	89	119	139															723

\* Dimension x: approx. 20 - 50 mm, depending on the motor size, version and manufacturer

EExe motors generally have a protective cover

Dimension h: dependent on the motor manufacturer

Performance specifications in brackets apply to EExe motors

# I: Weight of the pump unit with type of protection IP 54 for motor

E: Weight of the pump unit with type of protection EExe II T3 for motor

G: Weight of the pump unit with type of protection EEx de II for motor

AE = Connection for draining R 1/4"





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