

# BADU JET smart Universel

Built-in counter current unit



Installation and  
operation manual

# Installation and operation manual

## **BADU Jet** smart model universel

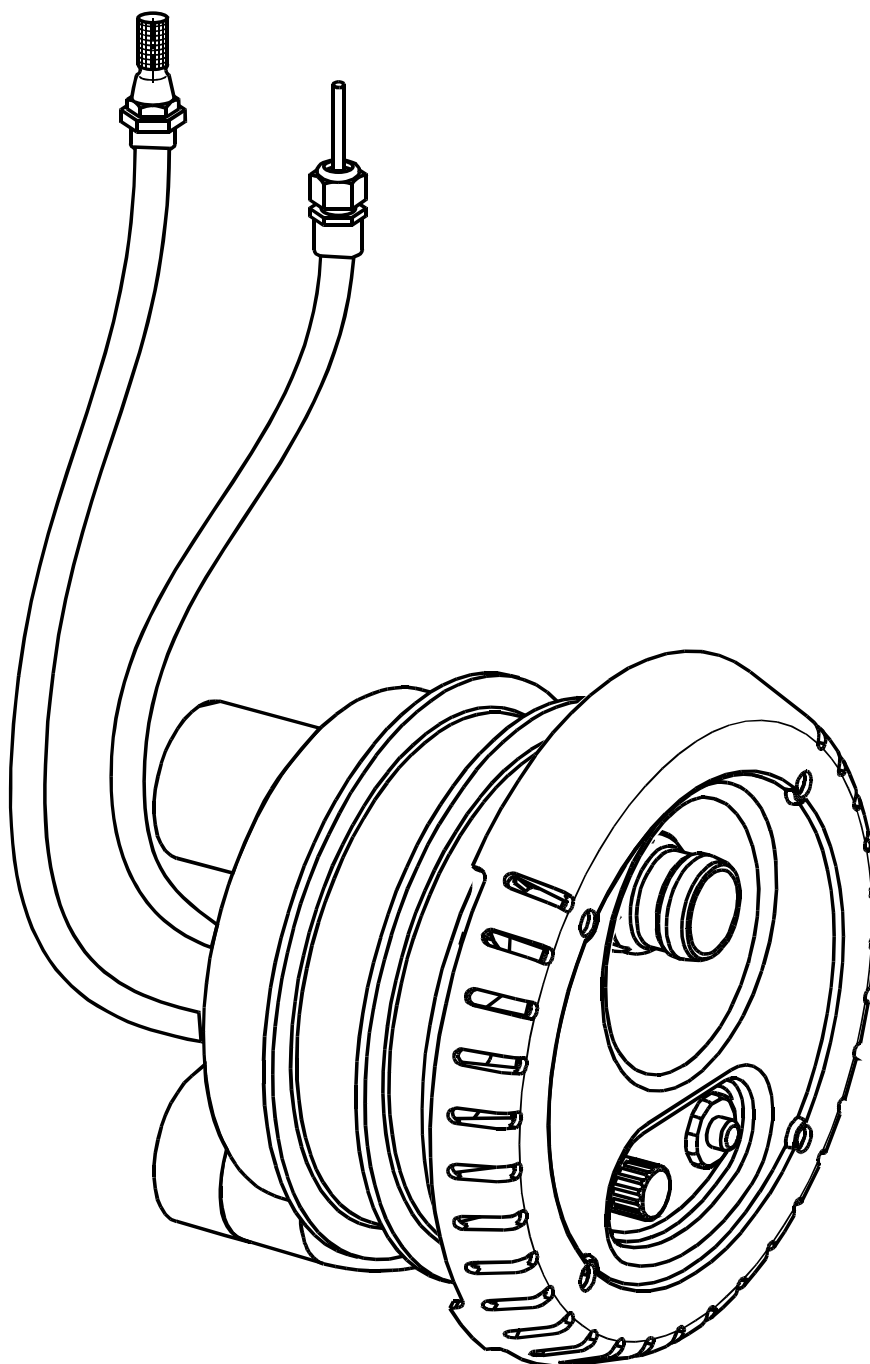
### 1. **General information**

Speck-Pumpen Verkaufsgesellschaft Karl Speck GmbH & Co., Lauf

Country of origin: Federal Republic of Germany

Applications:

Installation in all types of swimming pools as an attraction, for fitness, as wave or air-bubble bath, for underwater massage (after medical advice) and swimming without turn



## 2. Safety

This operation manual gives basic instructions which are to be observed during installation, operation and maintenance of the pump. It is therefore imperative that this manual be read by the responsible personnel/operator prior to assembly and commissioning. It is always to be kept available at the installation site.

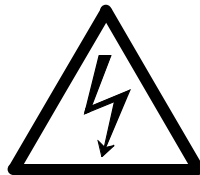
It is not only the general safety instructions contained under this main heading safety that are to be observed but also the specific information provided under the other main headings.

### 2.1 Identification of safety instructions in the operating manual

Safety instructions given in this manual non-compliance with which would affect safety are identified by the following symbol:



see DIN 4844-W9  
or where electrical safety is involved, with



see DIN 4844-W 8.

For safety warnings which, when ignored, may constitute a hazard for the machine and its functions, the word

**ATTENTION**

is added.

It is imperative that signs affixed to the machine, e.g.

- arrow indicating the direction of rotation
- symbols indicating fluid connections

be observed and kept legible.

## **2.2 Qualification and training of operating personnel**

The personnel responsible for operation, maintenance, inspection and assembly must be adequately qualified. Scope of responsibility and supervision of the personnel must be exactly defined by the plant operator. If the staff does not have the necessary knowledge, they must be trained and instructed, which may be performed by the machine manufacturer or supplier on behalf of the plant operator, moreover, the plant operator is to make sure that the contents of the operation manual are fully understood by the personnel.

## **2.3 Hazards in the event of non-compliance with the safety instructions**

Non-compliance with the safety instructions may produce a risk to the personnel as well as to the environment and the machine and results in a loss of any right to claim damages.

For example, non-compliance may involve the following hazards:

- Failure of important functions of the machines/plant
- Failure of specified procedures of maintenance and repair
- Exposure of people to electrical, mechanical and chemical hazards
- Endangering the environment owing to hazardous substances being released.

## **2.4 Compliance with regulations pertaining to safety at work**

When operating the pump, the safety instructions contained in this manual, the relevant national accident prevention regulations and any other service and safety instructions issued by the plant operator are to be observed.

## **2.5 Safety instructions relevant for operation**

- If hot or cold machine components involve hazards, they must be guarded against accidental contact.
- Guards for moving parts (e. g. coupling) must not be removed from the machine while in operation.
- Any leakage of hazardous (e. g. explosive, toxic, hot) fluids (e. g. from the shaft seal) must be drained away so as to prevent any risk to persons or the environment. Statutory regulations are to be complied with.
- Hazards resulting from electricity are to be prevented (see for example, the VDE Specifications and the bye-laws of the local power supply utilities).

## 2.6 Safety instructions relevant for maintenance, inspection and assembly work

It shall be the plant operator's responsibility to ensure that all maintenance, inspection and assembly work is performed by authorized and qualified personnel who have adequately familiarized themselves with the subject matter by studying this manual in detail.

Any work on the machine shall only be performed when it is at a standstill, it being imperative that the procedure for shutting down the machine described in this manual be followed.

Pumps and pump units which convey hazardous media must be decontaminated. On completion of work all safety and protective facilities must be re-installed and made operative again.

Prior to restarting the machine, the instructions listed under „Initial Commissioning“ are to be observed.

## 2.7 Unauthorized alterations and production of spare parts

Any modification may be made to the machine only after consultation with the manufacturer. Using spare parts and accessories authorised by the manufacturer is in the interest of safety. Use of other parts may exempt the manufacturer from any liability.

## 2.8 Unauthorized modes of operation

The reliability of the machine delivered will be only guaranteed if it is used in the manner intended, in accordance with clause 1 - General of this manual. The limit values specified in the data sheet must under no circumstances be exceeded.

### Cited Standards/Norms and other Documentation

DIN 4844 Part 1                                      Safety marking; Safety symbol W 8  
Supplement 13

DIN 4844 Part 1                                      Safety marking; Safety symbol W 9  
Supplement 14

## 3. Transport and intermediate storage

To prevent damage to and loss of detached parts, open original packing only immediately before the installation.

## 4. Description

BADU Jet smart is a counter current unit which can be installed in every swimming pool.

A powerful jet pump is connected to the suction inlet and the return outlet of the flush-mounted plastic jet housing in the pool wall (no risk of injury as no parts protrude into the basin).

The pool water is taken in by the jet pump at low flow speed through the circular ring channel in the housing and pumped back into the basin at high pressure through the nozzle. The jet pump is switched on and off by means of a pneumatic 'push button' installed in the jet housing.

The adjustable nozzle permits selecting the volume of flow and thus the efficiency of the counter current unit. A venturi valve permits adding air to the water jet, if desired.

A plug-on massage nozzle, a massage hose with pulsating head and a plug-on pulsating head are optional.

## 5. **Assembly and installation**

The control box and the pump must be installed in a dry location.

### **A bottom drain must be provided.**

The distance between pool and control box must not exceed 10 m to ensure perfect functioning of the pneumatic push button.

The pneumatic tube must be laid in a protective conduit to allow for easy replacement, if necessary.

### **The electrical connection of the unit must be made only by a qualified electrician.**

It must be ensured that the electrical installation is equipped with a disconnecting switch permitting all-pole disconnection from the mains with a minimum contact gap of 3 mm. The BADU Jet smart counter current unit is designed for safety class 1. The ambient temperature must not exceed 40° max. The single- and three-phase AC motors incorporated in the counter current units are protected by a corresponding motor protection thermal cut-out switch in the original control box. Before commissioning, the setting amperage must be checked with the nominal amperage indicated on the motor label. The electrical system must be protected in compliance with applicable standards with applicable standards with an RCCB of  $I_{FN} \geq 30$  mA.

## 6. **Initial Start-up**

When three-phase AC is used, the sense of rotation must be checked by switching the motor on briefly. The motor must rotate in the sense indicated by the arrow on the fan cover.

Checking the sense of the rotation is especially important with three-phase motors as the pump may also turn in the wrong direction. If this is the case, interchange two of the phases and repeat this check.

## 7. **Servicing / maintenance**

In the event of imminent frost during the winter season, the water level in the pool must to be lowered to the bottom edge of the jet body to allow for emptying of the suction and discharge lines.

It is recommended to remove the pump during the winter season and to store it in a dry room.

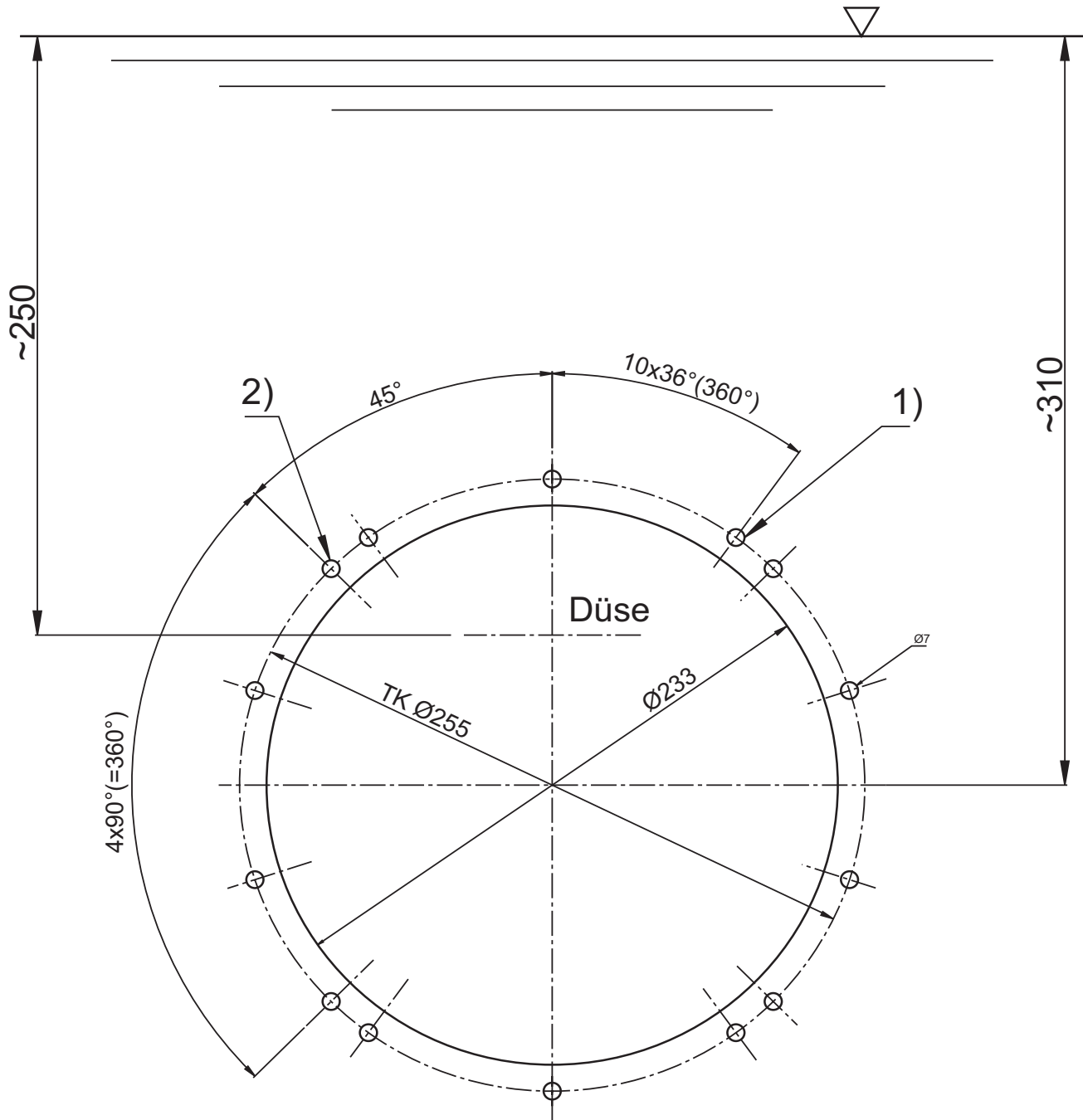
## 8. Malfunctions

The jet pump is equipped with a mechanical seal between motor and pump. If water leaks out permanently under the pump, the mechanical seal must be replaced.

To dismantle the pump, proceed as follows:

Switch off the pump and disconnect safely from the mains. Replacement should only be effected by a specialist. Detach the pump, which is connected to the suction line by means of a threaded union and to the pressure line by means of a rubber elbow, from the jet housing and dismantle in compliance with the separate installation instructions, replace the mechanical seal and reassemble in reverse order.

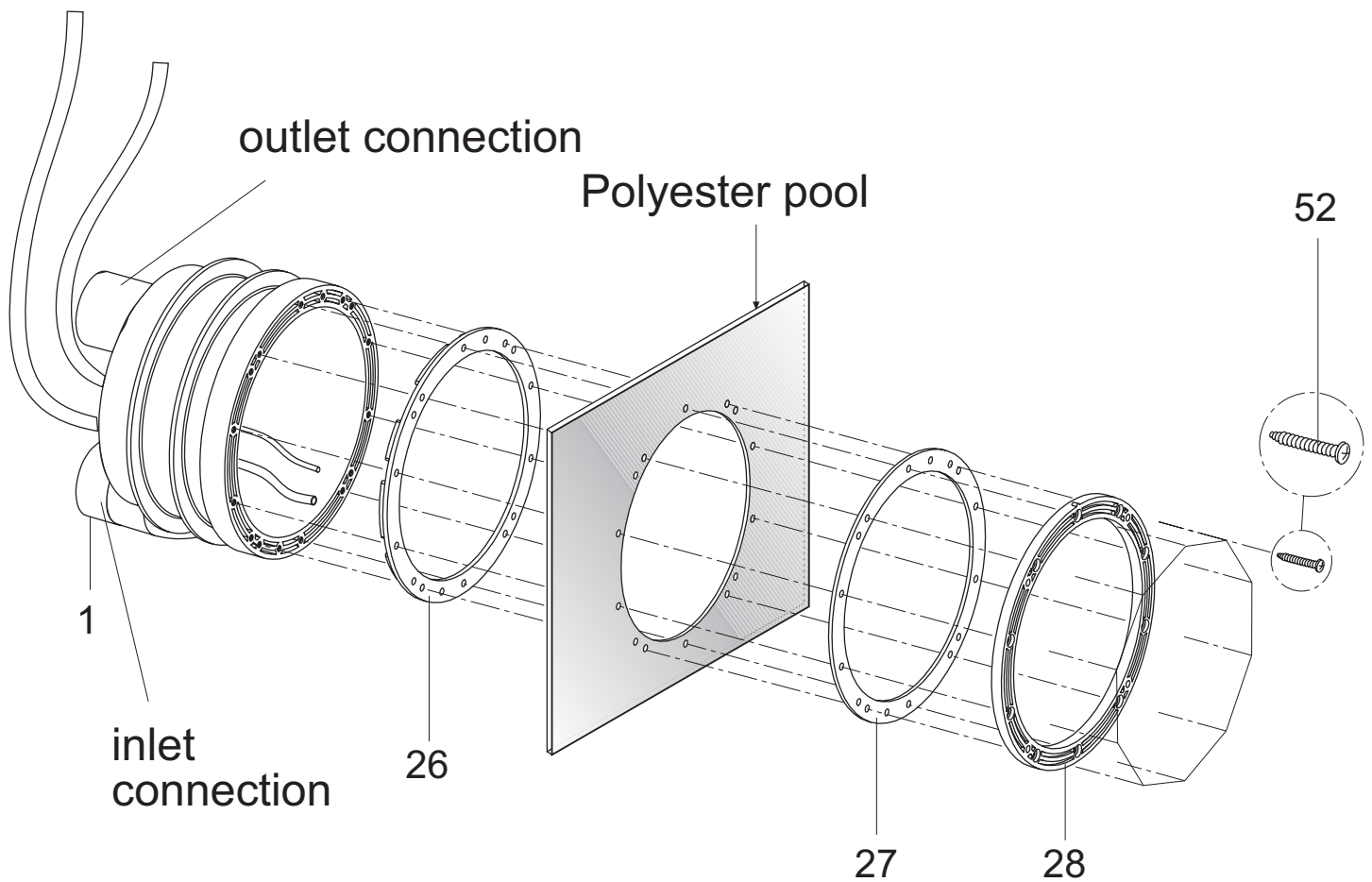
# Pool wall preparation for polyester pools



- 1) Fastening holes for clamping ring and jet housing(10x)
- 2) Fastening holes for jet nozzle (4x)



# Fitting of the jet housing in polyester pools



Press knob gasket (26) into jet housing (1) and place against the back of the pool wall.

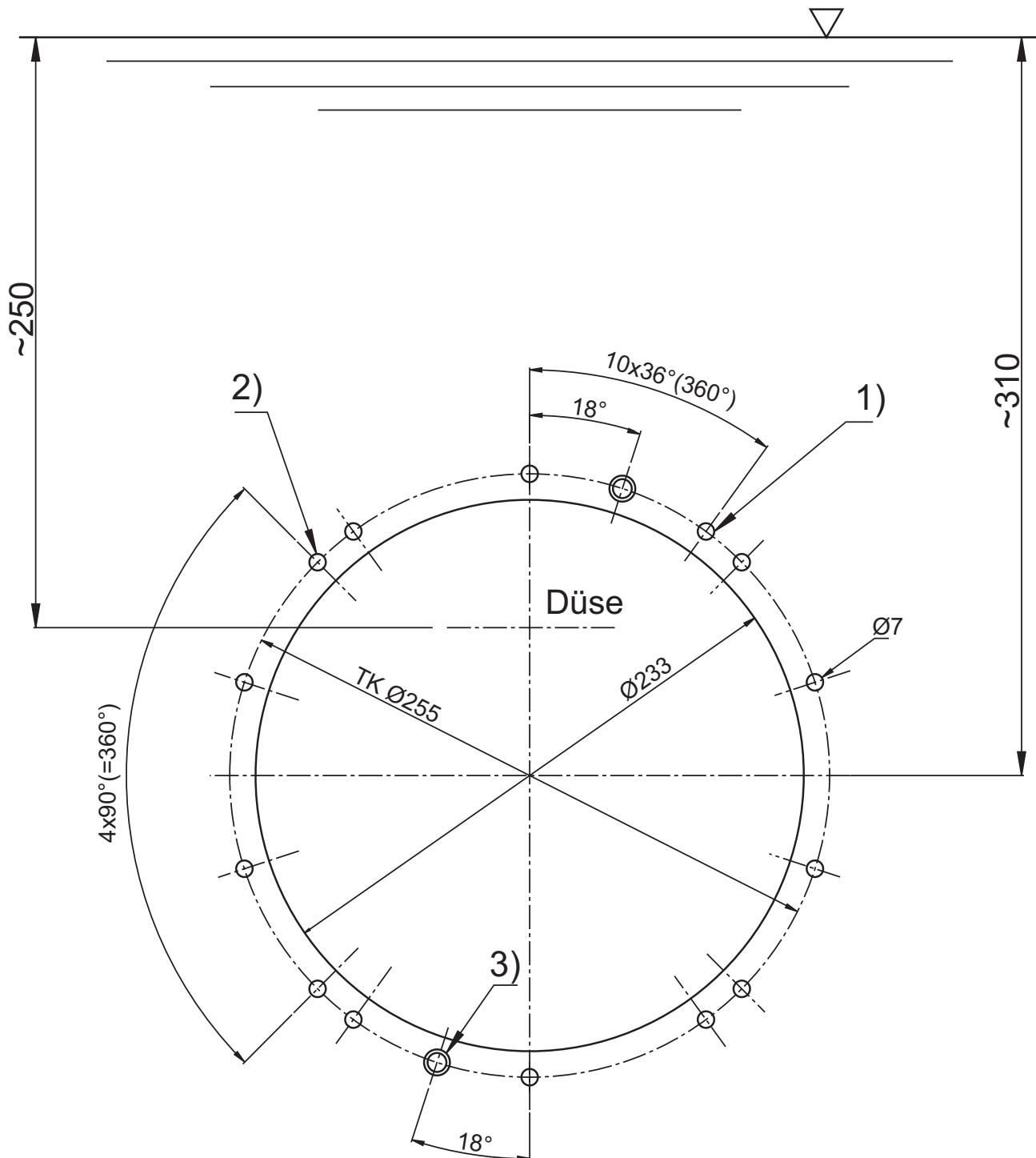
Fix the jet housing from the front with ten self-tapping screws (52) through clamping ring (28) and clamping ring gasket (27) to the pool wall.

**Attention:** Tighten the self-tapping screws only by hand. Do not use force.

## **ATTENTION:**

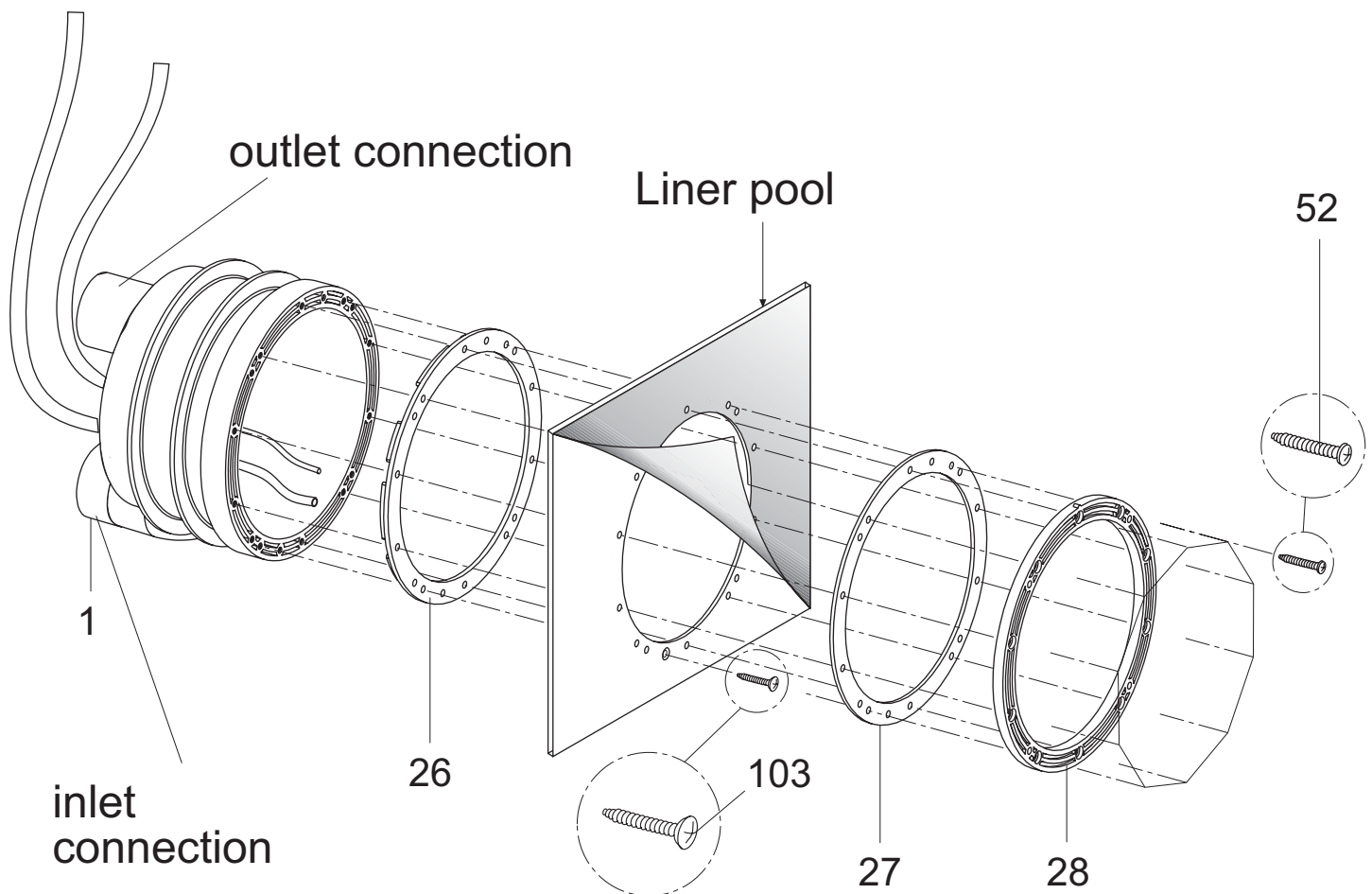
The jet housing is moulded in ABS. If the suction and pressure tubes are to be glued into the housing when the housing is already in place, a minimum drying time of 12 hours must be observed.

# Pool wall preparation for liner pools



- 1) Fastening holes for clamping ring and jet housing (10x)
- 2) Fastening holes for jet nozzle (4x)
- 3) Pre-mounting holes for jet housing (2x)

## Fitting of the jet housing in liner pools



Press knob gasket (26) into jet housing (1) and place against the back of the pool wall.

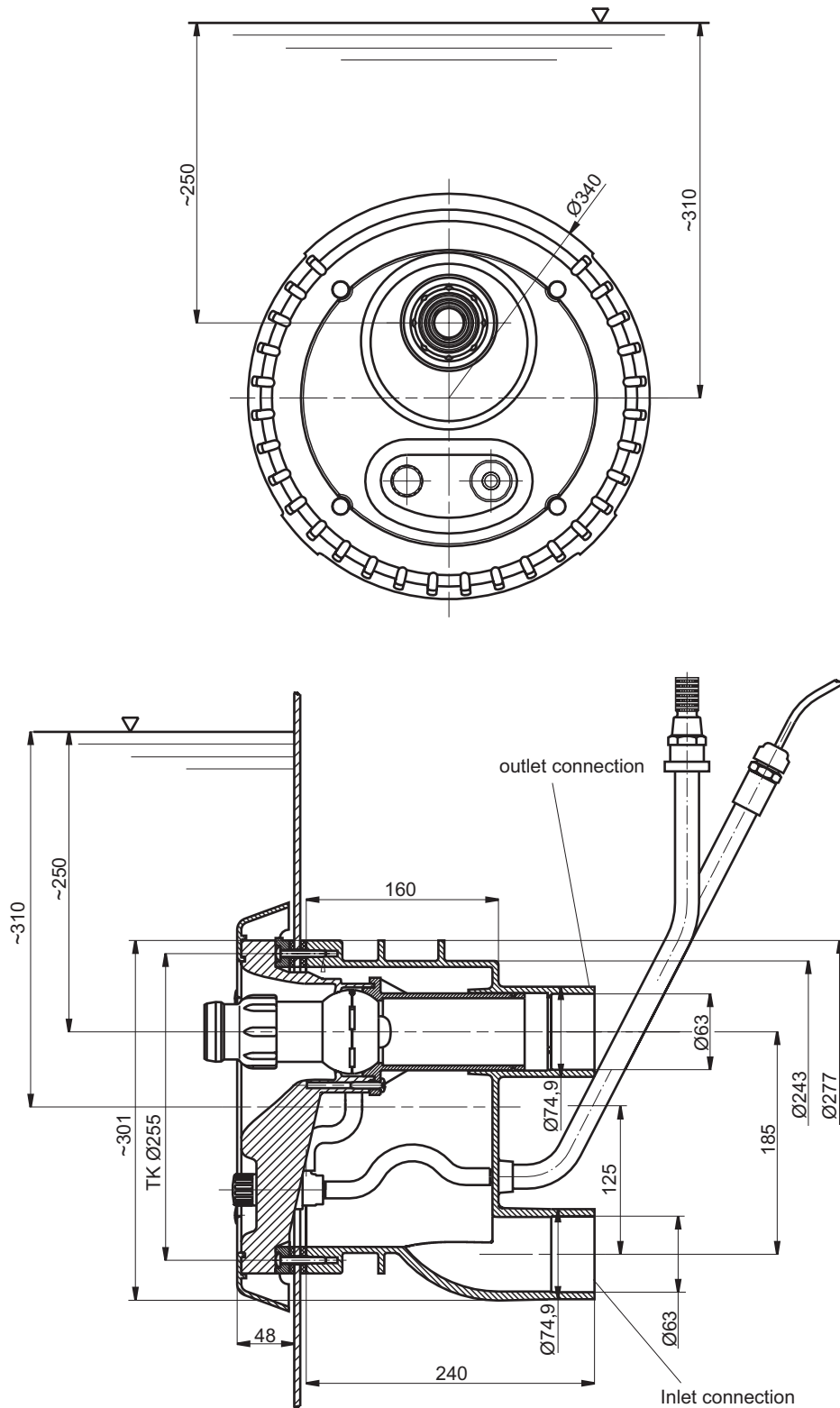
Fix the jet housing (1) from the front with the two self-tapping screws (103) to the pool wall (without liner).

After installing the liner, fix the jet housing with the ten self-tapping screws (52) through clamping ring (28) and clamping ring gasket (27) to the pool wall.

**Attention: Tighten the self-tapping screws only by hand. Do not use force.**

### **ATTENTION:**

**The jet housing is made of ABS. If the suction and pressure tubes are to be glued into the housing when the housing is already in place, a minimum drying time of 12 hours must be observed.**



28.04.2005 TB-b mz smart\_rund\_universel\_engl.fh11

## ATTENTION:

The jet housing is moulded in ABS. If the suction and pressure tubes are to be glued into the housing when the housing is already in place, a minimum drying time of 12 hours must be observed.

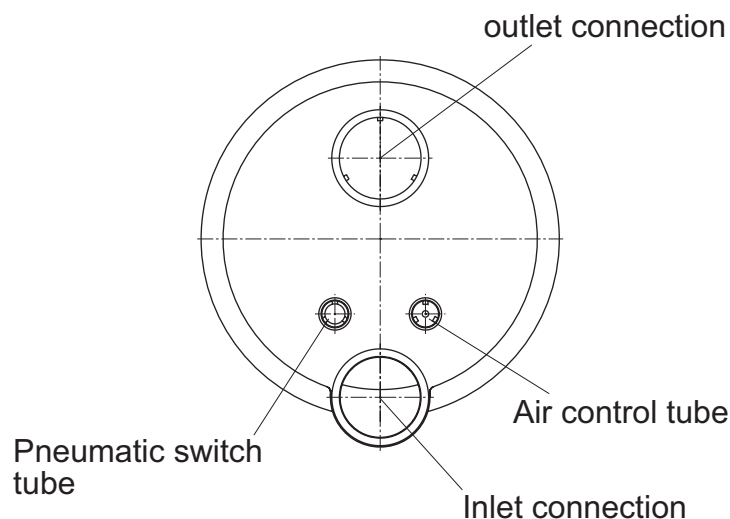
## Final assembly of the BADU Jet smart unit

- 1) After installation of the jet housing:
- 2) Place the complete nozzle housing (102.1) against the jet housing (1).
- 3) Slide pneumatic tube through protective conduit and seal up conduit with cable gland (20).
- 4) Attach air tubing with clip (8) to air control valve (21)
- 5) Fasten complete nozzle housing (102.1) with 4 self-tapping screws (95) on jet housing (1).

**Attention: Tighten the self-tapping screws only by hand.  
Do not use force.**

- 6) Connect jet pump (92) with threaded half-union (98, 99, 100), rubber elbow (79) and the pertaining hose clips (75) to the suction and pressure tubes of the jet housing.
- 7) Connect the pump motor as shown in the wiring diagram.  
**If a 3-phase AC supply is used, the correct sense of rotation must be ensured.**
- 8) The pump is switched on and off from the pool by means of pneumatic pushbutton (38/1).
- 9) The air control valve (21) can be used to inject air into the water jet, if desired.

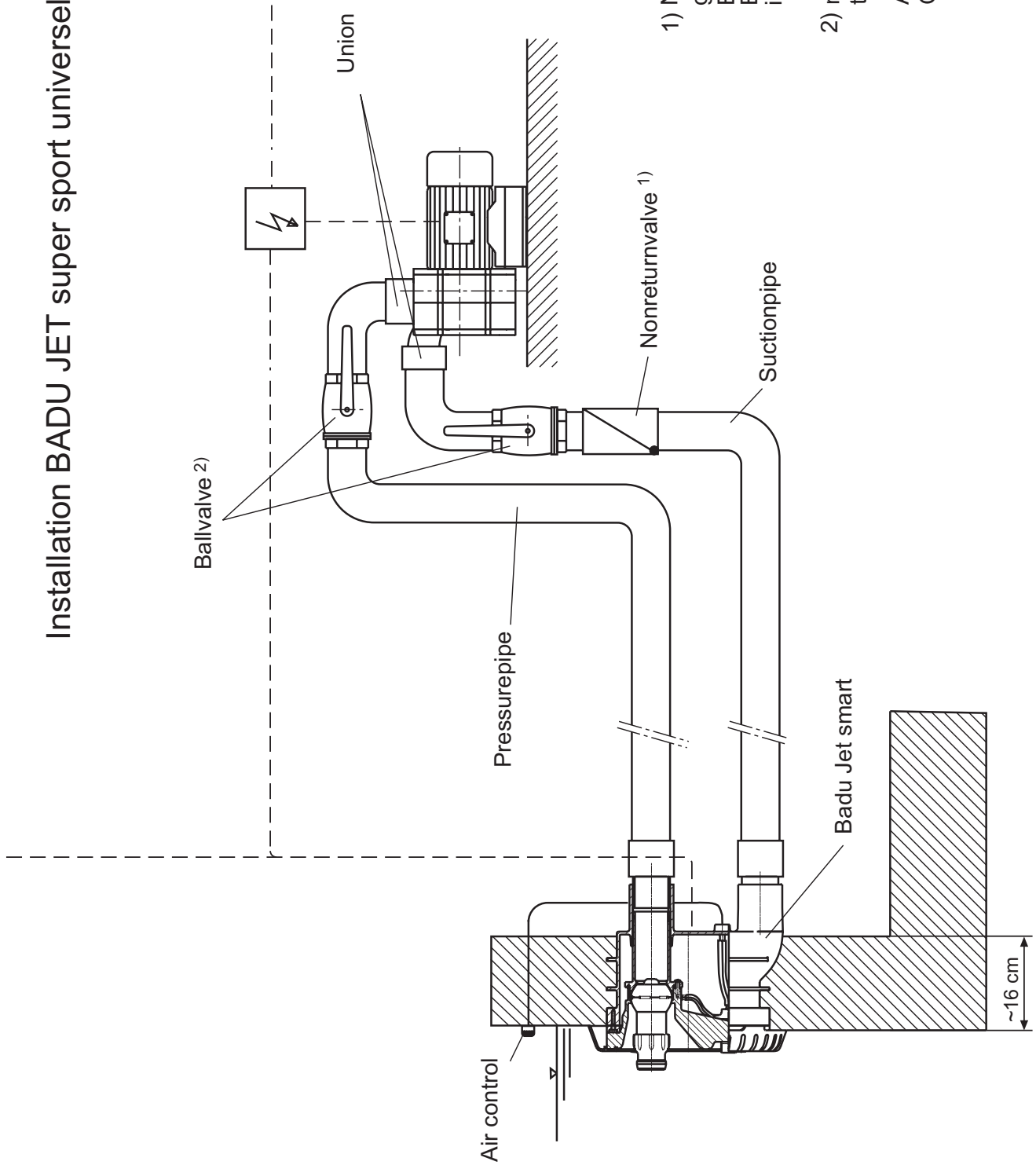
### BADU Jet smart jet housing as seen from behind



### **ATTENTION:**

**The jet housing is moulded in ABS. If the suction and pressure tubes are to be glued into the housing when the housing is already in place, a minimum drying time of 12 hours must be observed.**

# Installation BADU JET super sport universel



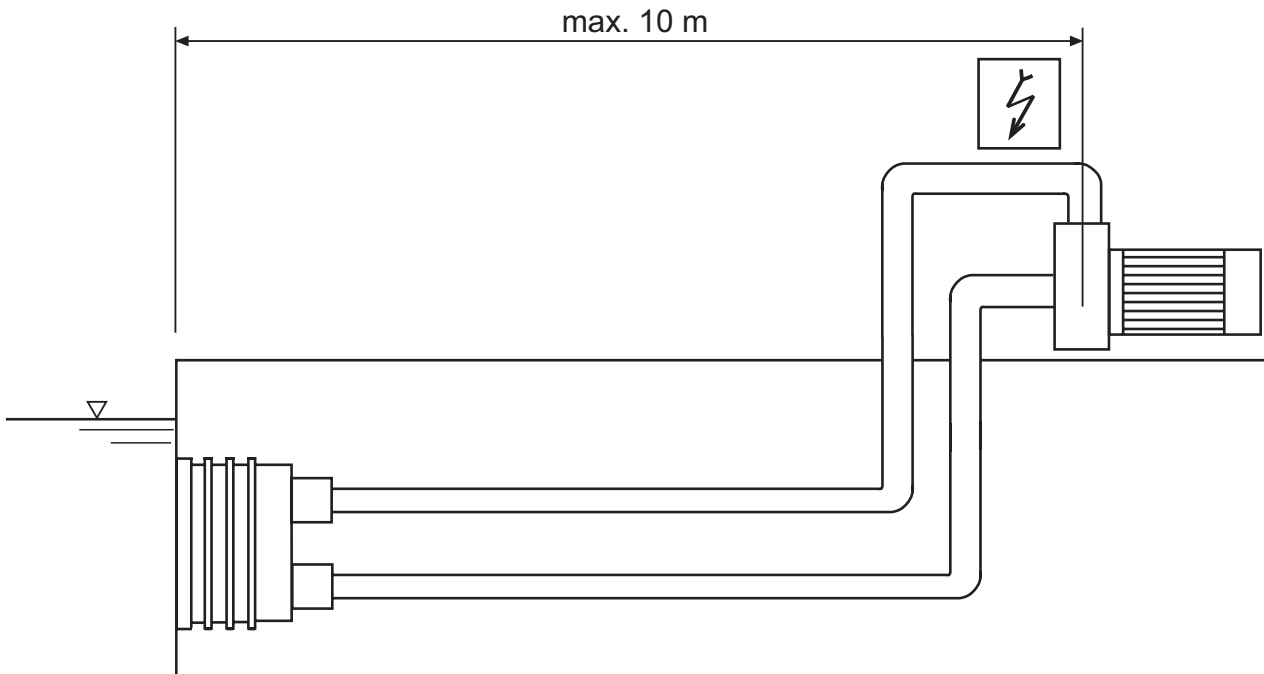
1) Nonreturnvalve is necessary generally at Badu Badu 21-50/44 3~ and Badu 21-50/43 1~ if they are installed over the waterlevel

2) necessary if the pump is installed under the waterlevel

Attention!  
Only use bend in the pipe

# BADU JET smart universel

## Ø pipeline PVC



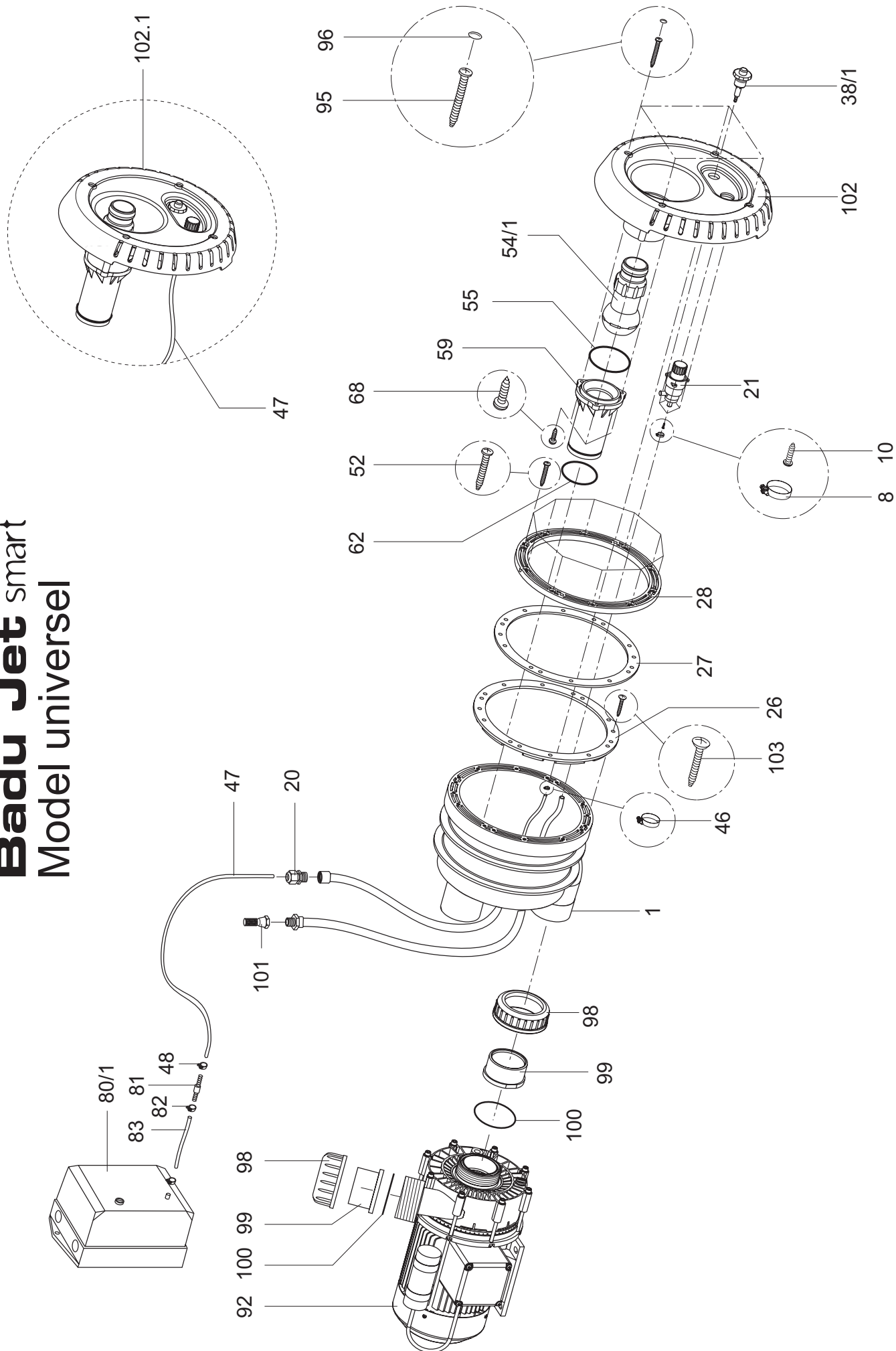
Suctionpipe with 2 bends  
Pressurepipe with 3 bends

Distance in m

Q (m <sup>3</sup> /h)		5 m	7,5 m	10 m
30	S	d 90	d 90	d 110
	P	d 90	d 90	d 90
40	S	d 110	d 110	d 125
	P	d 110	d 110	d 110
55	S	d 140	d 140	d 160
	P	d 140	d 140	d 140
75	S	d 160	d 160	d 160
	P	d 140	d 140	d 140

# Badu Jet smart

## Model universal



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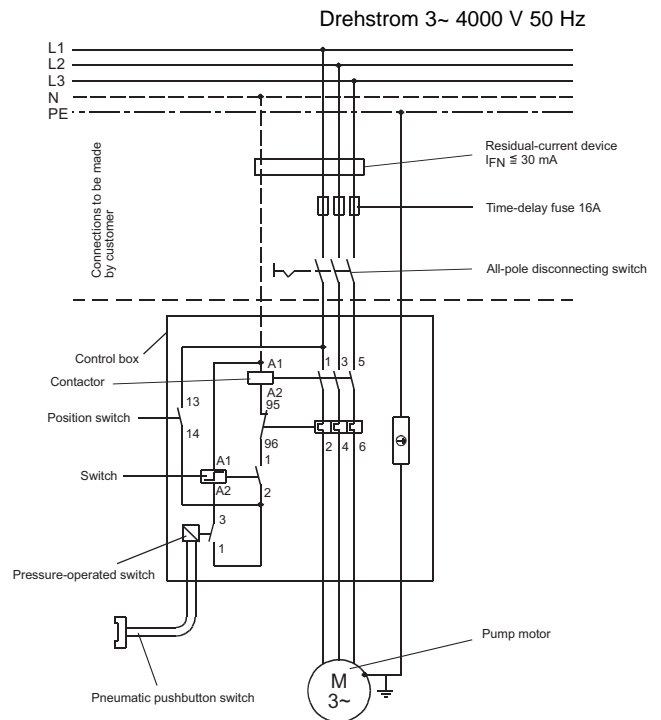
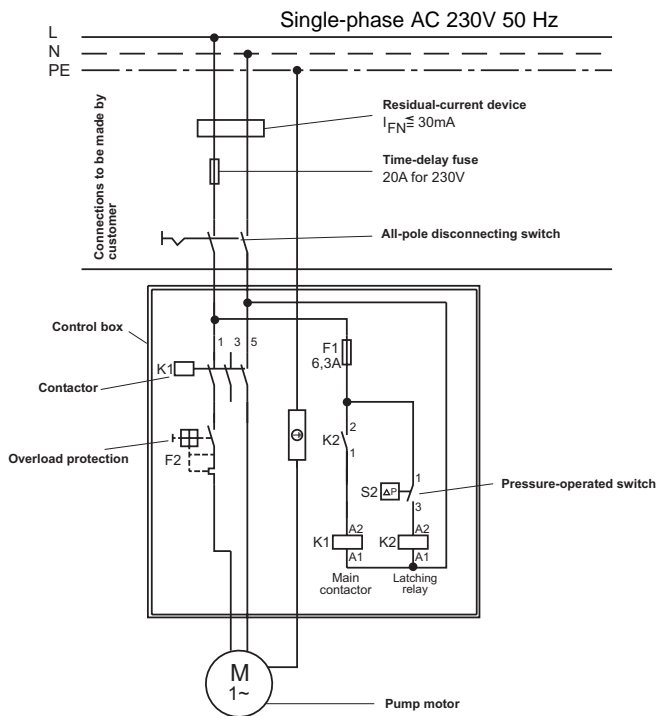
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# Badu Jet smart model universel

Teil Part	St. Qty.	Benennung	Description	Artikel-Nr. Article no.
1	1	Einbaugehäuse, WG 2350011-1	Jet-housing, WG 2350011-1	2300.101.001
20	1	Kabelverschraubung, M 20 x 1,5, schwarz	Screwed cable gland, M 20 x 1,5, black	5882.502.015
98	2	PVC-Überwurfmutter 2 3/4"	Union nut 2 3/4"	5863.374.081
99	2	Bundbuchse, 63 mm	Flange sleeve, 63 mm	5863.390.064
100	2	O-Ring, 67 x 4 mm, Perb.	O-ring, 67 x 4 mm, Perb.	2923.641.270
101	1	Rückflussverhinderer, D 1/2"	Nonreturn valve, D 1/2"	5030.000.105
26	1	Noppendichtung	Gasket with knobs	2300.200.010
27	1	Spannringdichtung	Gasket for clamping ring	2300.200.020
28	1	Spannring	Clamping ring	2300.200.030
52	10	Ejot-PT-Schraube, KB 60 x 35, A 2	Ejot-PT-screw, KB 60 x 35, A 2	5879.006.035
103	2	Senkkopfschraube, 5,5 x 19, A 4	Countersunk head screw, 5,5 x 19, A4	5879.825.520
102.1	1	<i>Düsengehäuse kpl., bestehend aus:</i>	<i>Nozzle housing cpl., consisting of:</i>	2300.202.000
10	3	Linienblechschraube, 2,9 x 9,5, A 2, Form F	Pan-head tapping screw, 2,9 x 9,5, A 2, form F	5879.812.996
21	1	Luftregulierung kpl.	Air control, cpl.	2300.407.000
38/1	1	Pneumatiktaster kpl.	Pneumatik push botton cpl.	2300.401.700
46	1	Ein-Ohr-Klemme	Hose clamp	2302.001.046
47	10	mtr. PVC-Schlauch, 4 x 1,5 mm, glasklar, ohne Gewebe	mtr. PVC hose, 4 x 1,5 mm, clear	2302.001.047
54/1	1	regelbare Kugeldüse, 40 mm	Adjustable nozzle, 40 mm	2302.002.854
55	1	O-Ring, 73 x 2,5 mm	O-ring, 73 x 2,5 mm	2300.202.051
59	1	Düsenrohr, WG2350015	Blast pipe, WG2350015	2300.202.010
62	1	O-Ring, 59 x 2,5 mm	O-ring, 59 x 2,5 mm	2300.202.052
68	3	Ejot-PT-Schraube, KB 60 x 22, A 2	Ejot-PT-screw, KB 60 x 22, A 2	5879.006.022
102	1	Düsengehäuse, WG2350014-1	Düsengehäuse, WG2350014-1	2300.202.002
8	1	Schlauchselle SM 9 14 B-W5, A 4	Hose clamp SM 9 14 B-W5, A 4	5873.011.409
48	1	Schlauchklemme, S 7/7 ZY	Hose clamp, S7/7 ZY	2302.001.048
80/1 - 83	1	Schaltkasten kpl., Dr. (6 - 10 A) Schaltkasten kpl., We. (10 - 16 A)	Control box, cpl. 3~ (6 - 10 A) Control box, cpl. 1~ (10 - 16 A)	2336.002.546 2336.002.544
81	1	Schlauchtülle, GRS 6 - 4, KS	Hose socket, GRS 6 - 4, plastic	2302.080.081
82	2	Schlauchklemme, S 9/9 ZY	Hose clamp, S 9/9 ZY	2302.080.082
83	0,22	mtr. PVC-Schlauch, 6 x 1,5 mm, glasklar, ohne Gewebe	mtr. PVC hose, 6 x 1,5 mm, clear	2302.080.083
92	1	<b>Bei Drehstrom-Ausführung:</b> Jet-Pumpe Typ 21-50/44 G mit Dr. Motor 2,2 kW	<b>For three-phase, 3~:</b> Jet-pump type 21-50/44 in 3-phase 2,2 kW	2350.440.137
92	1	<b>Bei Wechselstrom-Ausführung:</b> Jet Pumpe Typ 21-50/43 G, mit We. Motor 1,6 kW	<b>For single-phase, 1~:</b> Jet-pump type 21-50/43 G; in 1-phase 1,6 kW	2350.430.138
95	4	Ejot-PT-Schraube, KB 60 x 40, A 2	Ejot-PT-screw, KB 60 x 40, A 2	5879.006.040
96	4	Zierkappe	Decorative cap	2300.100.050

# Electrical connection for **Badu Jet smart**



The electrical connection of the unit must be made by a qualified electrician and in observance of the DIN VDE 0100 regulations T1 and T702. The electrical equipment is to be installed as fixed-mounted unit and outside the safety zone in a dry place (in a shaft or at least 3.5 m away from edge of pool).

The equipment is wired ready for connection. The connections must be made in accordance with the connection diagram.

1. Power consumption  $P_1$  of the pump motor is approx. 2.72 kW for three-phase AC operation and approx. 2.27 kW for the single-phase AC pump motor.
2. The motor protection relay is to be set to the nominal current indicated on the motor rating plate.
3. The sense of rotation (for 3-phase AC only) must be checked during commissioning. If the pump turns in the wrong direction, interchange phases.
4. Connect the control tube from the pneumatic pushbutton with the one from the control box.

## Connections to be made by customer

1. Residual-current device,  $I_{FN} = 30\text{mA}$
2. Electrical protection 1 ~ 230 V / 3 ~ 400 V with fuse 20A / 16A, time-delay, or type-K automatic circuit breaker
3. All-pole disconnecting switch with positions marked '0' and '1'
4. Equipotential bonding for connection of grounding strap must be provided.

For more information please refer to the connection diagram.

These devices are not included in the scope of supply and must be provided by the customer before the installation of the unit.

## EG-Konformitätserklärung

Déclaration CE de conformité / EC declaration of conformity / Dichiarazione CE di conformità /  
EG-verklaring van overeenstemming / EU-yhtäpitävyyssilmoitus / Declaracion de conformidad

### im Sinne der EG-Maschinenrichtlinie 89/392/EWG, Anhang II A

conformément à la directive CE relative aux machines 89/392/CEE, Annex II A / as defined by machinery directive 89/392/EEC Annexe II A / ai sensi della direttiva CE 89/392 relativa a macchinari, Appendice II A / inzake richtlijn van de raad betreffende machines 89/392/EEG, bijlage II A / määriteltynä konedirektiivin 89/392/EEC liite II mukaan / segun se define en la directriz para maquinas de la CE 89/392/CEE, Anexo II A

Hiermit erklären wir, dass das Pumpenaggregat

Par la présente, nous déclarons le groupe moteur-pompe / Herewith we declare that the pump unit / Si dichiara, che la pompa / hiermede verklaren wij, dat het pompaggregaat / Täten ilmoitamme, että pumpupulaite / Por la presente declaramos que la unidad de bomba:

Type: \_\_\_\_\_

Type: / Type: / Tipo: / Type: / Malli: / Tipo:

Auftrags- Nr: \_\_\_\_\_

N° d'ordre: / Order no.: / Numero d'ordine: / Opdracht-Nr.: / Tilausnumero: / N° pedido:

Baureihe

Série: / Series: / Serie: / Serie: / Mallisarja: / Serie:

### BADU Jet smart

#### folgenden einschlägigen Bestimmungen entspricht:

correspond aux dispositions pertinentes suivantes: / complies with the following provisions applying to it: / è conforme alle sequenti disposizioni pertinenti: / in de door ons geleverde uitvoering voldoet aan de eisen van de in het vervolg genoemde bepalingen: / cumple las siguientes disposiciones pertinentes: / vastaa seuraavia asiaan kuuluvia määräyksiä:

EG-Maschinenrichtlinie 98/37/EG:

CE-Directives européennes 98/37/CE: / EC-machinery directive 98/37/EC: / CE-Direttiva Macchine 98/37/CE: / EG-Machineryrichtlijn 98/37/EG: / EU-konedirektiivi 98/37/EU: / directiva europea de maquinaria 98/37 CEE:

#### EMV-Richtlinie 89/336/EWG, i.d.F. 93/68/EEC:

Directives relatives à la basse tension 89/336/CEE modifiées par 93/68/CEE: / EMC-machinery directive 89/336/EEC, in succession 93/68/EEC / Direttiva di compatibilità elettromagnetica 89/336/CEE mod.93/68/CEE: / Richtlijn 89/336/EEG, gewijzigd door 93/68/EEG: / Sähkömagneettinen yhteensopivuus (EMC) konedirektiivi 89/336/EEC, jota on muutettu direktiivillä 93/68/EEC: / directiva 89/336/CEE: /

#### EG-Niederspannungsrichtlinie 73/23/EWG i.d.F. 93/68/EEG:

CE-Directives basse tension 73/23/CEE suivies de 93/68/CEE: / EC-Low voltage directive 73/23/EEC in succession 93/68/EEC: / CEE-Direttiva di bassa tensione 73/23/CEE mod. 93/68/CEE: / EG-laagspanningsrichtlijn 73/23/EEG in dit geval 93/68/EEG: / EU-pienjännittdirektiivi 73/23/EEC, jota on muutettu direktiivillä 93/68/EEC: / directiva de baja tension 73/23/CEE:

Angewendete harmonisierte Normen, insbesondere

Normes harmonisées utilisées, notamment: / Applied harmonized standard in particular / Norme armonizzate applicate in particolare / Gebruikte geharmoniseerde normen, in het bijzondere / Käytettyjä harmonisoituja normeja, erityisesti / Normas armonizadas aplicadas, especialmente

EN 809	EN 50081-1-2
EN 292 T 1,	EN 50082-1-2
EN 292 T 2	EN 60335-2-41:1990/A1
EN 60335-1	
EN 60335-2	

D-91205 Lauf,	10.03.2003
Ort	Datum
Fait à	le
Place	date
Localita	data
Plaats	Datum
Paikka	Päiväys
Lugar	Fecha



ppa. R. Josua  
(Technischer Leiter)  
(Directeur Technique)  
(Technical director)  
(Direttore tecnico)  
(Technisch directeur)  
(Teknillinen johtaja)  
(Director tecnico)



i.V. A. Herger

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