Schwank
INNOVATIVE HEATING SOLUTIONS

# novoSchwank

## Radiant Tube Heater

## 15 U / 20 U / 30 U / 40 U / 50 U

# Technical Manual

Technical Instructions
Operating Instructions
Legal Requirements
Assembly Instructions
Installation Instructions
Commissioning
Service Guide

AGA Certificate 7652

CE 0085BO0037

Version 002 novoSchwank shape U Australia 02/11
Technical specification subject to change

## Content




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# 1 Introduction

Thank you for choosing a SCHWANK radiant tube for your heating-system.

Your novoSchwank is a modern radiant tube for an economic and comfortable heating in large rooms and industrial buildings.

Structure and operation of the heater are according to the requirements of the existing standards.

Please read this manual carefully before using the heater. Pay attention to notes and warnings. The manufacturer will not be held responsible for damages resulting from installation errors or failure to comply with the manufacturer's instructions.

Please pay attention to the warnings in chapter 2 "Your Safety".

The radiant tube novoSchwank must be exclusively used for the purpose it was intended. Any other use is to be considered improper and therefore dangerous. Its observance is imperative for the proper operation of our devices, and is thus the condition for our warranty.

# 2 Your Safety

You will find the following symbols in this manual:

**Danger!**
Note that you and others can be hurt.

**Attention!**
Note that the appliance can be damaged.

**Danger!**
Note that electrical shocks can be highly dangerous. Pay attention while working at electrical equipment.

## Notes for your safety

This appliance is constructed according to the requirements of the existing standards. Nevertheless it's possible that dangers for you and others result from installation and operation errors.

To avoid this please read the following notes carefully.

### General Notes

Only use the radiant tube if it's in technical faultless condition.

This manual is an integral and essential part of the product and must be given to the user. Keep the manual near the heater.

Pay attention that any person who do the following works have red this manual:

- operation
- mounting
- installation
- putting into operation
- maintenance / trouble shooting

You need an explicit permission from the manufacturer for any kind of changes and reconstructions.

Use original spare parts only.

### Safety for the electrical equipment

Danger of electrical shocks!
Electrical shocks can be highly dangerous!
The electrical installation must be carried out by a qualified service engineer following the existing national and international standards.

Check the electrical equipment regularly.
Defect wires etc. must be replaced immediately.

The appliance must be cut off from power supply while working with the electrical equipment. Make sure that nobody can connect the appliance to the power supply while you are working..

### After-sale service

For all installation operations, start-up, gas changes, etc. always consult a qualified service engineer.

In case of doubt, please contact:

**Mr John Balass**
**Devex Systems Pty Limited**
**5/83 Bassett St**
**Mona Vale NSW 2103**
**Australia**

**Tel: 02 9997 2811**
**Fax: 02 9997 7852**
**Internet: info@devexsystems.com.au**

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# 3 Scope of Delivery

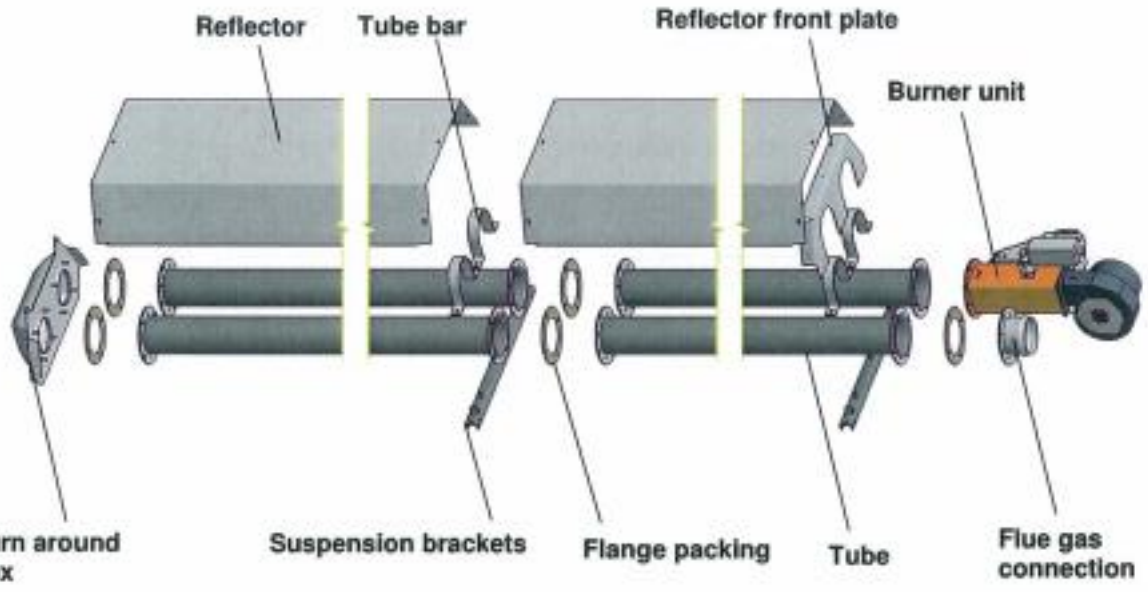


**Fig. 1: Radiant tube novoSchwank 30/40U**

## Scope of Delivery

The radiant tube novoSchwank consists of:

- Burner-unit with gas-burner, pre mixing chamber, ignition and control unit, firing device, gas combination valve, air differential pressure switch, electrical connection board, fan
- Radiant tubes with turn around box, flange packing
- Corrosion resistant reflector with end cap and brackets for hanging

## Accessories

- Control box with on/off switch and indicator lamp
- Control with temperature and time programs
- Gas cock (gas connection)
- Gas hose connection
- Gas filter
- Supply air/exhaust-flue-system
- Support brackets for angled position (15-30°) for novoSchwank U
- Flue gas diverter (Type A)
- Quick-hanger kits (System Gripple)
- Ball protection grids (for sport halls)
- Reflector elongations
- Set for angled mounting
- Water protection cover (stainless steel)

**Structure of the burner unit**

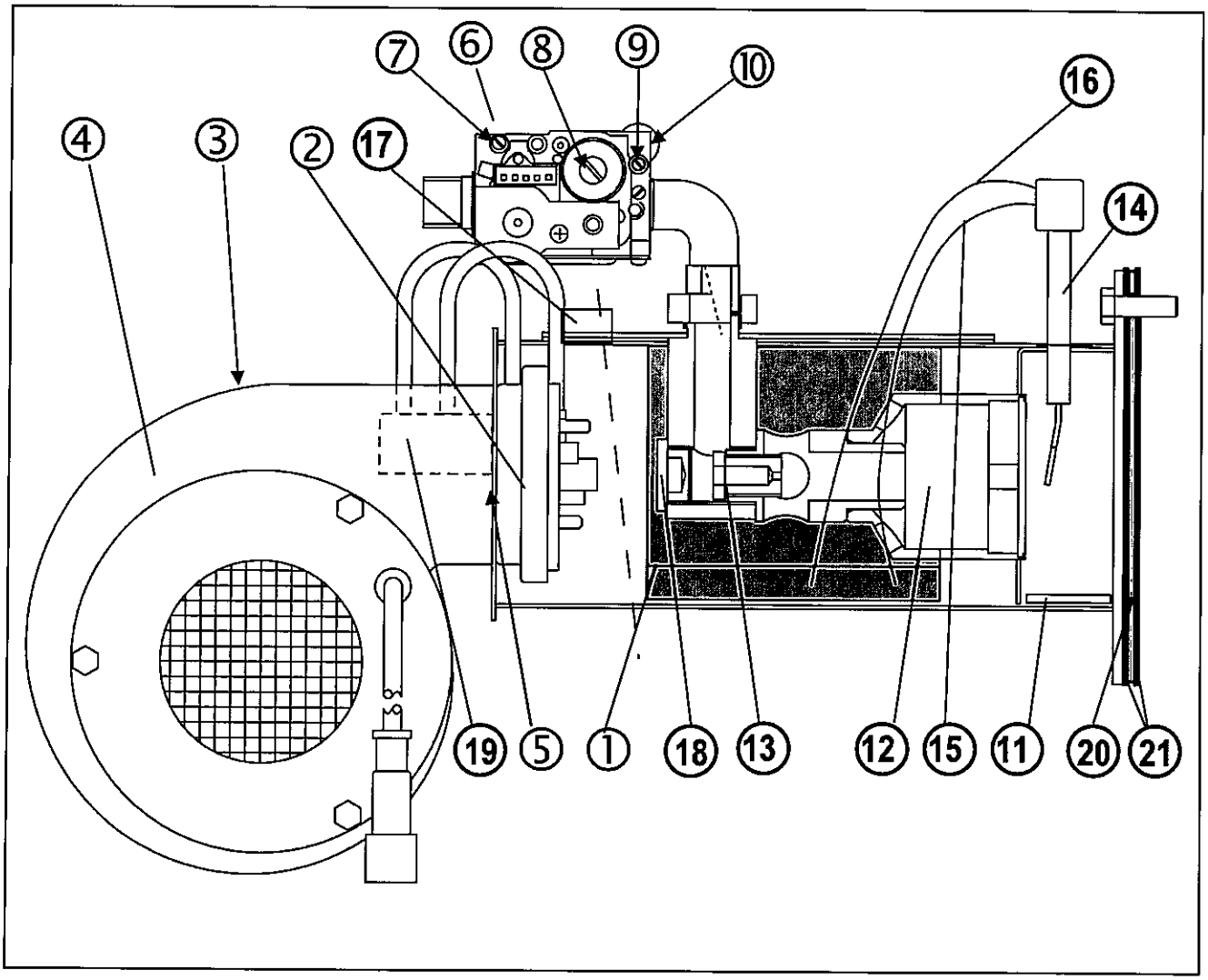


**Fig. 2: burner unit**

1. Controller
2. Air differential pressure switch
3. Fan air restrictor plate
4. Fan
5. Air baffle plate (only 15 / 20 / 30U)
6. Gas combination valve
7. Test nipple (connection pressure)
8. Adjustment screw (gas pressure)
9. Test nipple (orifice pressure)
10. Adjustment screw (valve)
11. Inspection glass
12. Burner head
13. Burner nozzle
14. Ignition and ionisation electrode
15. Ignition cable
16. Ionisation cable
17. 3-pin power supply plug
18. Locking screw
19. Venturi
20. Burner baffle (only 15 / 20U)
21. Gasket

# 4 Planning

### Controlling of the room temperature

Radiant tube heating-systems must be equipped with a temperature control.

Section heating is allowed without temperature control.

## Position of suspension

### Hanging heights

Radiant tubes must be positioned so that persons in the radiation area are not subjected to an unreasonably high heat level. This is ensured when the minimum hanging heights shown in the following table are adhered to:

| Nominal thermal load in MJ/h (type) | Suspension height in m (max. radiation 200 W/m²) | |
|---|---|---|
| | A = horizontal | B = angled (30°) |
| 60 (15U) | 3.5m | 3.1m |
| 75.9 (20U) | 4.0m | 3.6m |
| 115.9 (30U) | 4.8m | 4.3m |
| 155.8 (40U) | 5.5m | 4.9m |
| 195.8 (50U) | 6.8m | 6.2m |

**Tab. 1: Minimum suspension heights**

**Key:**

A = Minimum height when hanging horizontally

B = Minimum height when hanging angled

| Type | a [cm] | b [cm] | c [cm] | d [cm] |
|---|---|---|---|---|
| 15U | 110 | 20 | 50 | 15 |
| 20U | 110 | 20 | 50 | 15 |
| 30U | 130 | 20 | 50 | 15 |
| 40U | 170 | 25 | 50 | 25 |
| 50U | 230 | 35 | 70 | 35 |

**Tab. 2: Safe distances**

**Key:**

a = Minimum radial safety distance (inside radiation area)

b = Minimum upper safety distance when hanging horizontally

c = Minimum upper safety distance when hanging angled

d = Minimum lateral distance to supply pipes outside radiation area

### Distances to flammable materials in the radiant area

Radiant tubes must be positioned so that the surface temperature of

- components with flammable materials,
- flammable equipment, stored flammable materials

never rises above 85° C.

**Do not place articles on or against this appliance.**

**Do not use or store flammable materials near this appliance.**

**Do not spray aerosols in the vicinity of this appliance while it is in operation.**

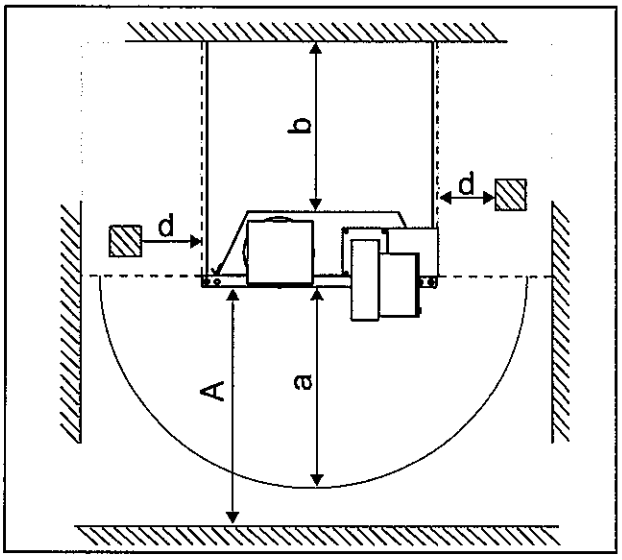


**Fig. 3: Suspension heights and distances for horizontal application**

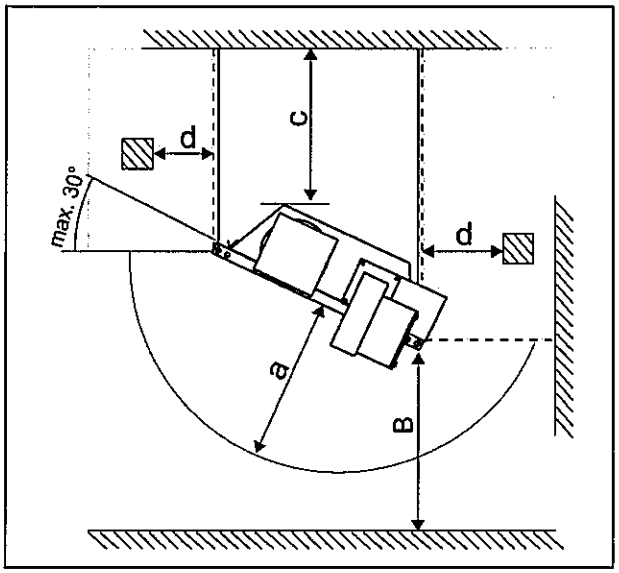


**Fig. 4: Suspension heights and distances for angled application**

### Direction of radiation

Radiant tubes novoSchwank can be positioned horizontal or at an angle (max. 30° from vertical). For this purpose suspension steel chains and cables are installed at the suspension brackets.

## Positioning

The radiant tube can be mounted with

- chains (links min. 4 mm)
- adjustable steel cable (Schwank accessories)

If you chose chains please use bolts with lock nuts for fixing the chain to the suspension bracket.

**The radiant tube has to be fixed by vertical chains etc. to the roof or to supporting devices.**

**Chains and steel cables have to be fixed in vertical direction or slightly diagonally outwards above the fixing points of the suspension brackets to the roof or to supporting devices. Fixing of the suspension cables or chains diagonally inwards to the centre of the heater is not permitted (see Fig 5).**

**Please note that the radiant tube being in operation expands several centimetres because of thermal expansion. Avoid therefore inflexible suspension.**

**Do not use fixing elements like open hooks etc.**

Hang the heater in balance. We recommend the use of turnbuckles or adjustable steel cable grips for ease of adjustment and balance.

Fixing points for chains or steel cables on the heater are shown in **Fig. 7 and 8** on **pages 13 and 14**.

**Attention!**
**If you do not align the burner unit correctly the device can be damaged.**

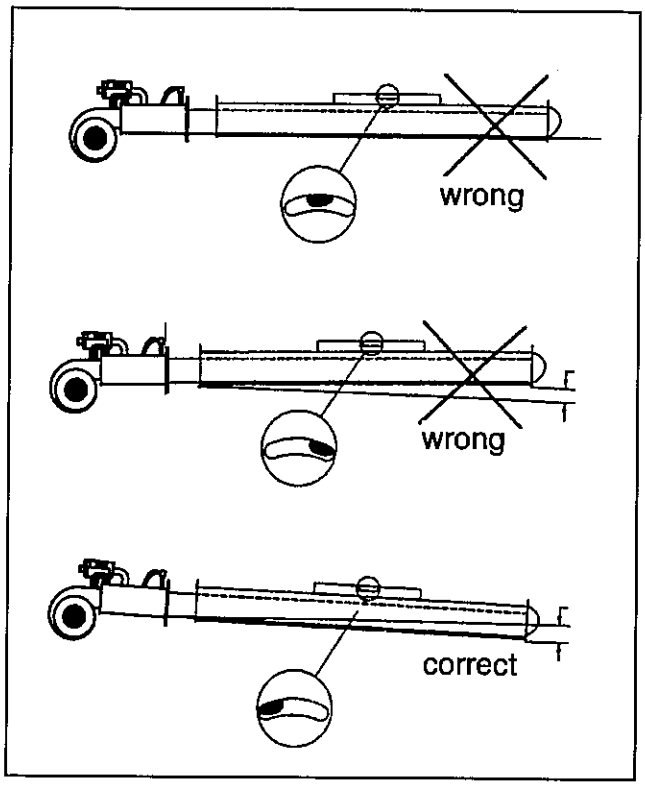


Fig. 6: Slope of radiant tube heater

**SCHWANK GmbH will not accept liability for damages caused by incorrect mounting of the burner box. Correct mounting is the responsibility of the installer.**

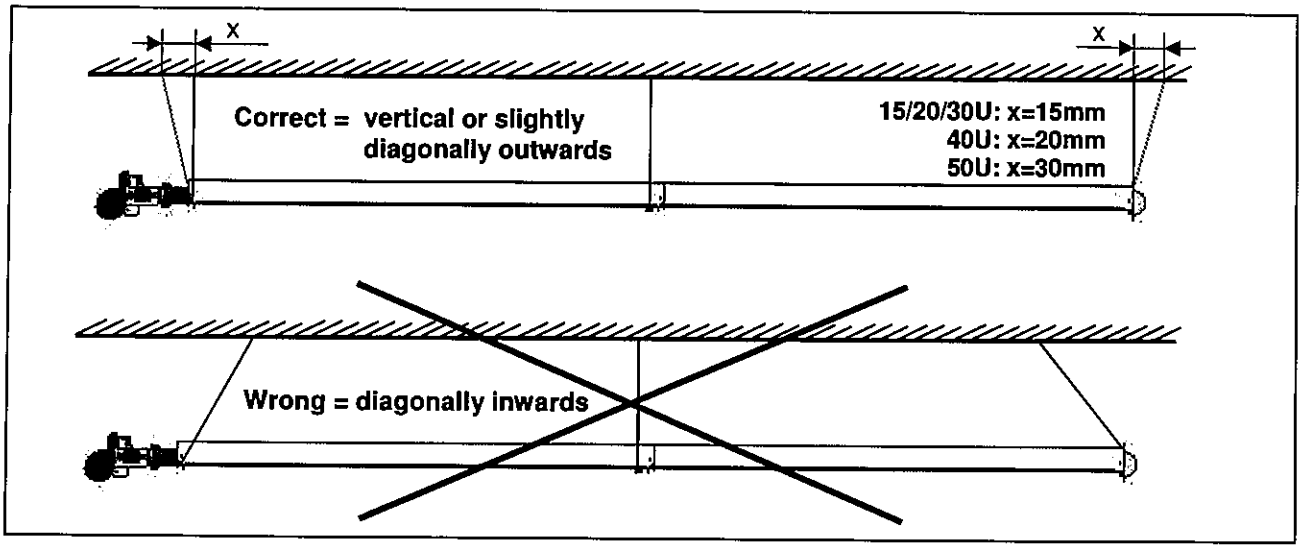


Fig. 5: Chains and steel cable mounting

## Air supply / Exhaust Requirements

The calculation of air supply / exhaust requirements of a building heated by radiant tube heaters is subject of Australia Standard AS 5601. Please follow local by-laws as well.

Please note the max. length for combustion air supply and exhaust flue on page 9 (Point 3, Tab. 3).

### Place of Installation

Note that the room in which the heater is installed must have an air volume of 10 m³ for each kW of heat input / nominal thermal load.

### Air supply (combustion air from inside the room, types A3 and B23)

Installation systems with combustion air from inside the room are only allowed in rooms without strong pollution of the combustion air. Otherwise use system with combustion air from outside (type C).

In halls and buildings with a normal air change by means of joints and spaces it is not necessary to install additional equipment to guarantee the combustion air supply.

### Air/exhaust-systems

For the radiant tube novoSchwank the following 4 air/exhaust-systems are possible:

1. **Indirect flue into the room (Type A3 without exhaust system, combustion air from inside the room)**
2. **Flued with individual exhaust system, combustion air from inside the room (Type B23)**
3. **Flued with individual exhaust system, combustion air from outside the room (Type C)**
4. **Flued with flue collecting system and central flue fan**
   (according to EN 777, Type D)

**1. Indirect flue into the room (Type A3 without exhaust system, combustion air from inside the room)**

Exhaust air of the heaters has to be conducted from inside the room to outside the area. Exhaust air leaves the heater, mixes with the air inside the room and leaves the building.

Conduction of the exhaust air may be carried out with one of the following 3 methods:

a) **Thermal ventilation: Combustion air and exhaust air are diverted through** fixed outlets positioned on the roof or on the walls of the building.

b) **Mechanical ventilation: Combustion air and exhaust air are diverted through** one or more fans positioned on the roof or on the walls of the building.

c) **Natural ventilation: Combustion air and exhaust air are diverted through** outlets as a result of differences in pressure and in temperature between the internal and external side of a building.

**For exact dimensioning and positioning of supply air and exhaust air outlet of the building according to AS 5601 please contact:**

**Mr John Balass**
**Devex Systems Pty Limited**
**5/83 Bassett St**
**Mona Vale NSW 2103**
**Australia**

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**Internet: info@devexsystems.com.au**

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**2. Exhaust flue with individual exhaust system combustion air from inside the room (Type B23)**

Only use this kind of installation in rooms without pollution of the combustion air and without relevant pressure differences to the outside. Otherwise use type C.

**3. Exhaust flue with individual exhaust system combustion air from outside the room (Type C)**

Combustion air and exhaust air are diverted through a temperature stable, concentric tube with a roof or wall outlet.

Max. length of air and exhaust flue until the concentric tube with a roof or wall outlet is 6 m each plus two 90° elbow.

The tube which leads the combustion air to the burner box must be **flexible** and easy to remove for maintenance. Don't use valves and dampers in the exhaust flue.

| novoSchwank U | | |
|---|---|---|
| **Max. length between heater and roof/wall outlet** | **max. number of elbows (90°)** | **Ø of air/exhaust flue** |
| 6 m | 2 | 100 mm |

**Tab. 3: Air/exhaust routing**

**4. Exhaust flue with flue collecting system and central flue fan**
(according to EN 777, Type D)

The whole system consists of max.10 radiant tubes. A central flue fan collects the exhaust of the several heaters in a central exhaust tube and diverts it to an outlet.
If installing systems without individual flue fans of several heaters it could be necessary to integrate dampers into the connecting pipes to ensure the operation and exhaust flue of all heaters.

**See technical instruction novoSchwank with flue collecting system**

## Indirect flue into the room with flue gas diverter

**Installation with indirect flue into the room must be mounted with flue gas diverter to avoid flow back of flue gas in combustion air stream.**

**Note that the flue gas diverter (accessory code no. 126 7018 0) is mounted in a position so that the flue gas is diverted from the burner.**

**To prevent $CO_2$ impingement on wall when configured as an indoor flue less appliance a clearance of 1200mm from the flue outlet is required**

**flue gas diverter with right mounting position**

Fig. 7: Flue less appliance with flue gas diverter

# 5 Legal Requirements

We recommend that these installation guidelines should be observed with the relevant Building Standards Regulations of the corresponding country. Comply with any local bylaws and the current IEE Wiring Regulations.

Notwithstanding their limited scope, the appliance should be installed by a competent person in accordance with the relevant provisions of the Gas Safety (Installation and Use) Regulations. Due account should also be taken of any obligations arising from the Health and Safety at Work Act. Full compliance with all relevant regulations, including amendments, in force at the time of installation is a pre-requisite of our warranty.



# 6 Operating

**The installation must be carried out by a qualified engineer following the manufacturer's instructions.**

**SCHWANK GmbH will not accept liability damages caused by incorrect putting into operation of the heater. Correct putting into operation is the responsibility of the installer.**

## Switching on the heater

⇨ Switch on the heater. The main switch is on the control box. After a pre-purge period of about 25 sec. the ignition starts.

## Switching off the heater

⇨ Switch off the heater.

If the radiant tube is controlled by a thermostat the heater switches on and off automatically.

## Fault

If no flame is reported during the pre-purge period and the safety time (ca. 30 sec.) the heater repeats the ignition process. If there is no flame after the second ignition process the radiant tube switches off automatically and interlocks.

Investigation and repair must be carried out by authorized people. After clearance of the fault the interlock can be reset.

**Interlock release (Reset)**

⇨ Interrupt the electric power supply for 3 sec.

## Maintenance

Servicing of the heater is essential for continued efficient operation. Servicing should be carried out not less than once a year by a qualified service engineer. After any servicing the heater must be recommissioned as detailed in **Chapter 12.**

# 7 Technical specification

**Appliance** Automatic heating device, heat transfer mainly by mean of infrared dark radiation.

**Fuels** Natural gas
Propane

**Minimum connection pressure in front of valve**

| Type | 15-50U |
|---|---|
| Natural Gas | 1.13kPa |
| LPG | 2.75kPa |

**Attention!**
**Max. connection pressure: 5.0kPa**

**Electrical connection**

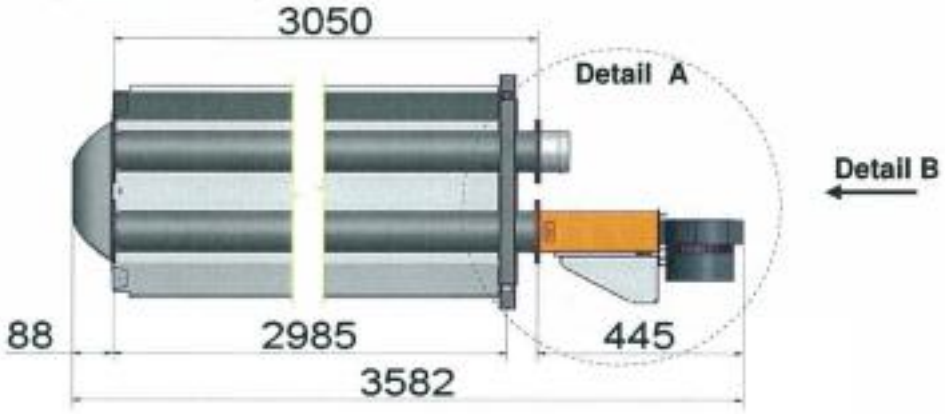
Single phase A.C. 230 V, N, PE - 50Hz (cycles) (approx. 80 VA)

Power supply for heater and flue fan are connected to a socket at the casing of the burner unit. To set burner unit free of voltage it is only necessary to remove the plug of the power supply.

**Exhaust gas connection** Flue pipe connection Ø 100 at exit of tube

**Gas connection** 15-30U R=1/2" male
40-50U R=3/4" male

**novoSchwank 15U / 20U**
*(all dimensions in mm)*




**novoSchwank 30U / 40U**
*(all dimensions in mm)*

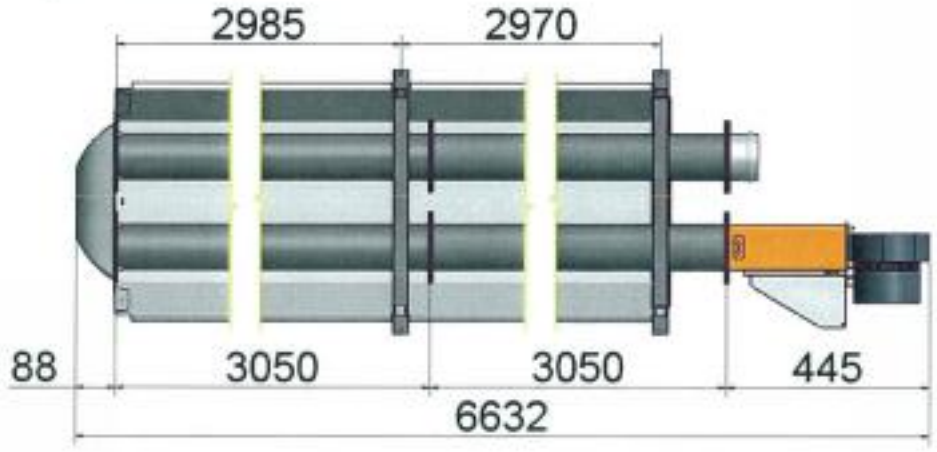



**Fig. 8: Dimensions novoSchwank 15U / 20U / 30U / 40U** *(view from below)*

## novoSchwank 50U

*(all dimensions in mm)*

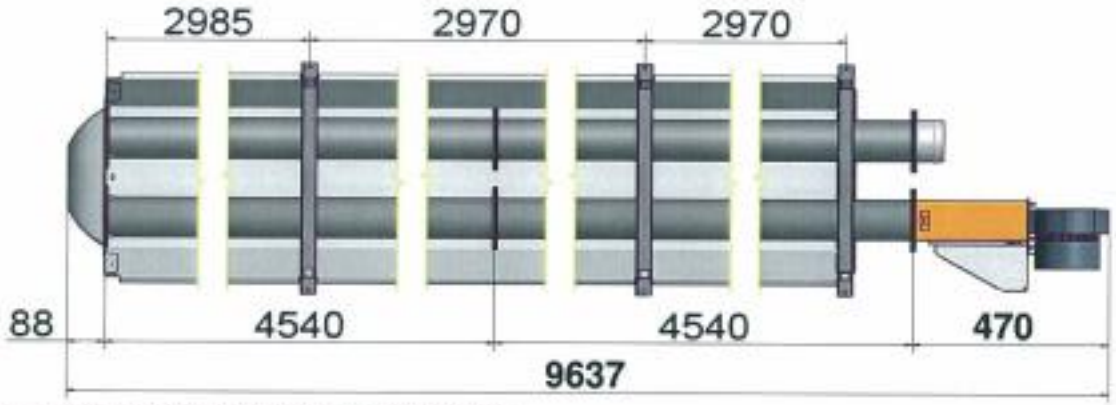
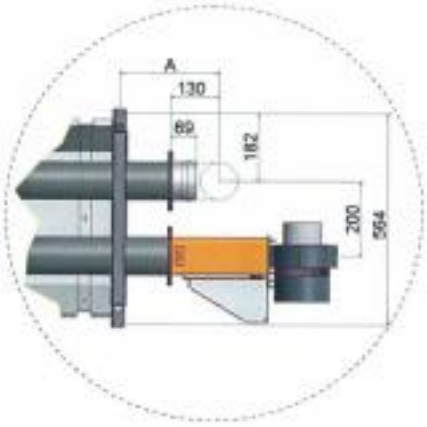



**Fig. 9: Dimensions novoSchwank 50U** *(view from below)*



**Detail A**

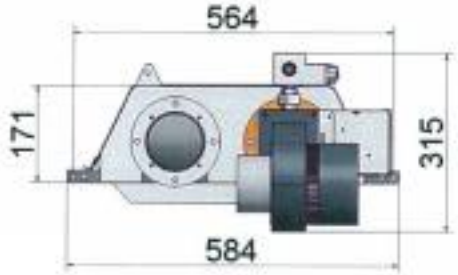
Dimensions connection at heater




A = 195mm, novo 15/20 U
A = 275mm, novo 30/40 U
A = 285mm, novo 50 U

**Detail B**

Cross dimensions
valid for all types



## Technical data

| Gas | | novoSchwank | | | | |
|---|---|---|---|---|---|---|
| | | 15U | 20U | 30U | 40U | 50U |
| Natural gas H G 20 1) | Gas consumption [MJ/h] | 59.9 | 75.9 | 115.9 | 155.8 | 195.8 |
| Propane G 31 2) | Gas consumption [MJ/h] | 58.7 | 74.4 | 113.5 | 152.6 | 191.7 |
| | Weight [kg] | 54 | 54 | 92 | 92 | 132 |
| | Ø of air/exhaust flue [mm] | Ø 100 | | | | |
| | Electrical consumption [W] | 104 | | | | 91 |
| | Electrical protection | IP 20 | | | | |
| | Gas connection (male thread) | R½" | | | R¾" | |
| | Electrical supply | 230 V/ 50 Hz ~ | | | | |
| | Ignition / Control | Spark ignition and ionisation control by automatic controller system | | | | |
| | AGA Certification no. | 7652 | | | | |
| | CE-Identification | CE - 0085 BO 0037 | | | | |

1) $H_{i,B}$ = 37.8 MJ/m³ / 2) $H_{i,B}$ = 95.8 MJ/m³

**Tab. 4: Technical data novoSchwank U**

| Gas | | novoSchwank | | | | |
|---|---|---|---|---|---|---|
| | | 15U | 20U | 30U | 40U | 50U |
| Natural gas H G 20 1) | Burner nozzle [mm] | 3.50 | 4.10 | 5.35 | 5.85 | 6.90 |
| | Fan air restrictor plate | N 15 | N 20 | N 30 | N 40 | N 50 + IA* |
| | Air baffle plate | N 15 | N 20 | N 30 | / | / |
| | Burner baffle plate | Ø 50 | Ø 65 | / | / | / |
| | Nozzle pressure [kPa] | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| | Start step pressure [kPa] | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 |
| | Start step adjustment [°] | 90 | 90 | 90 | 0 | 0 |
| Propane G 31 2) | Burner nozzle [mm] | 2.30 | 2.50 | 3.15 | 3.60 | 4.00 |
| | Fan air restrictor plate | N 15 | N 20 | N 30 | N 40 | N 50 + IA* |
| | Air baffle plate | N 15 | N 20 | N 30 | / | / |
| | Burner baffle plate | Ø 50 | Ø 65 | / | / | / |
| | Nozzle pressure [mbar] | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| | Start step pressure [mbar] | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| | Start step adjustment [°] | 270 | 270 | 270 | 270 | 270 |

1) $H_{i,B}$ = 37.8 MJ/m³ / 2) $H_{i,B}$ = 95.8 MJ/m³ ***) IA= inlet angle plate**

**Tab. 5: Function parts burner unit novoSchwank U**

# 8 Operating description

### Start-up

If heat demand exists the fan will start up. A differential pressure builds up in the burner casing, which is reported to the ignition unit via the differential pressure switch.

After a pre-purge period of about 25 seconds the automatic ignition starts (max. ignition time 5 sec.). The twin solenoid valve with pressure regulator opens in 2 steps the gas supply to the burner. The burner flame is controlled by an ionisation electrode. The ignition is switched off, if the ionisation electrode reports a flame to the ignition and control unit during the safety time.

If the ignition process fails the ignition unit repeats the start-up for one time.

### Operation

A superbly long laminar flame is created in the first tube by the special burner construction. The hot flue heats the tube surface while being fed through the tubes by the fan. The hot tubes emit long-waved infrared radiation which is directed to the room by the reflector construction.

The radiant tube novoSchwank works with a closed combustion system. The combustion air is taken from the room or from outside. The flue is evacuated indirectly into the room or directly by exhaust pipe or by a special air/exhaust pipe system.

### Fault

If no flame is reported during the pre-purge period (including 1 repetition of ignition process) the ignition unit will switch off the radiant tube and will interlock.

Investigation and repair must be carried out by authorized people. After clearance of the fault the interlock can be reset.

The interlock release is carried out by interruption of the electric power supply for 3 sec. A new start-up begins. If no flame signal is reported to the firing device during operation the solenoid valve shuts and stops the gas supply immediately. A new start-up process is repeated.

**Troubleshooting: page 24**

### Monitoring of the combustion air supply

The combustion air supply is permanently controlled by the differential pressure switch during the operation.
If the differential pressure switch is not in rest position during the start-up the operation won't start. If the operating contact isn't closed during the pre-purge the system will set in interference release.
If combustion air supply failed during operation (lack of air) the differential pressure switch will close the gas combination valve and stop the gas supply. A new start-up process is repeated.

# 9 Assembly instructions

## novoSchwank 15U / 20U

**Tools you need**
- **hexagonal wrench (width: 10, 13**
- **hexagonal spinner (width: 7 and 8)**

## Note before mounting

- Note the distance measure of suspension brackets.
- Flanges are mounted with flange packing (each 4 screws/washers/lock washers/nuts M8).
- Turn welding line of the tubes to the side.
- Start mounting the heater at the turn around box connection.
- Tube bars have to be fixed by nuts/lock washers/3D-washers M8 on the suspension bracket.
- First the reflector will be fixed on the turn around box connection by self-tapping screws.
- The other reflector ending will be shoved under the clip of the suspension brackets. Reflector and front plate have to be fixed by self-tapping screws.
- Mounting of burner unit with valve on the top.

- **Flue gas connection (Type B23, C):**
  Note that the connection of the flue system is mounted at the end of the tube.

- **Flue gas diverter (Type A):**
  **(Accessory code no. 126 7018 0)**
  Note that the flue gas diverter is mounted in a position so that the flue gas is diverted from the burner.

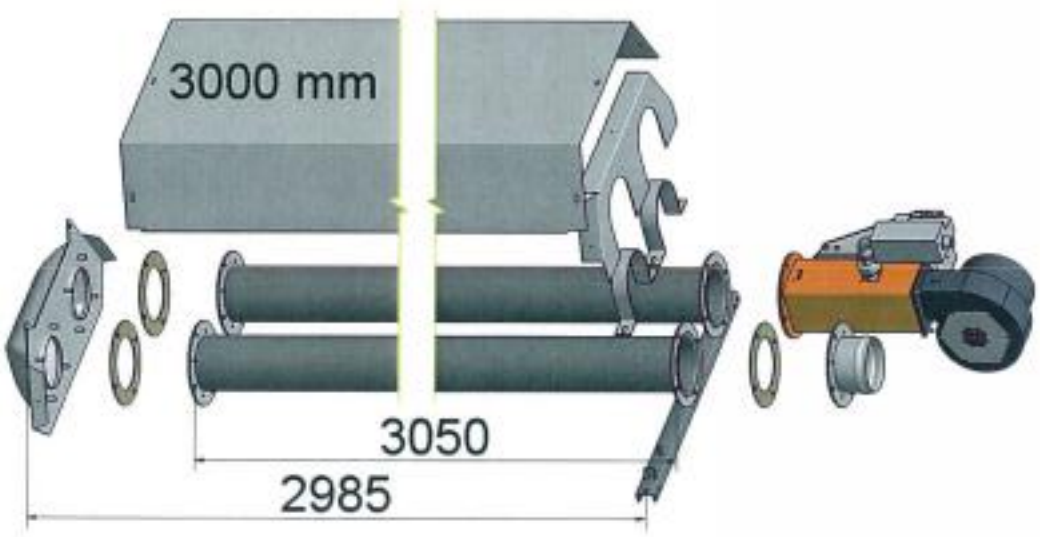



**Fig. 10: Mounting novoSchwank 15U / 20U**
*(all dimensions in mm)*

# Assembly

## novoSchwank 30U / 40U

**Tools you need**
- **hexagonal wrench (width: 10, 13)**
- **hexagonal spinner (width: 7 and 8)**
- **hand rivet tool, drill machine, drill Ø 4.9mm**

## Note before mounting

- Note the distance measure of suspension brackets.
- Flanges are mounted with flange packing (each 4 screws/washers/lock washers/nuts M8).
- Turn welding line of the tubes to the side.
- Start mounting the heater at the turn around box connection.
- Tube bars have to be fixed by nuts/lock washers/3D-washers M8 on the suspension bracket.
- **Supporting sleeve for first flange connection:** Insert half of the supporting sleeve into first heater tube (slot on top). Drill Ø 4.9mm hole through the tube and sleeve and fix it by rivet. Mount the second tube and fix the sleeve by the rivet as well. Fix the rivets always in the opposite position lateral to the tube. Use only stainless rivets.
- First the reflector will be fixed on the turn around box connection by self-tapping screws.
- The other reflector endings will be shoved under the clip of the suspension brackets. Reflector and front plate have to be fixed by self-tapping screws.
- Mounting of burner unit with valve on the top.
- **Flue gas connection (Type B23, C):** Note that the connection of the flue system is mounted at the end of the tube.
- **Flue gas diverter (Type A): (Accessory code no. 126 7018 0)** Note that the flue gas diverter is mounted in a position so that the flue gas is diverted from the burner.

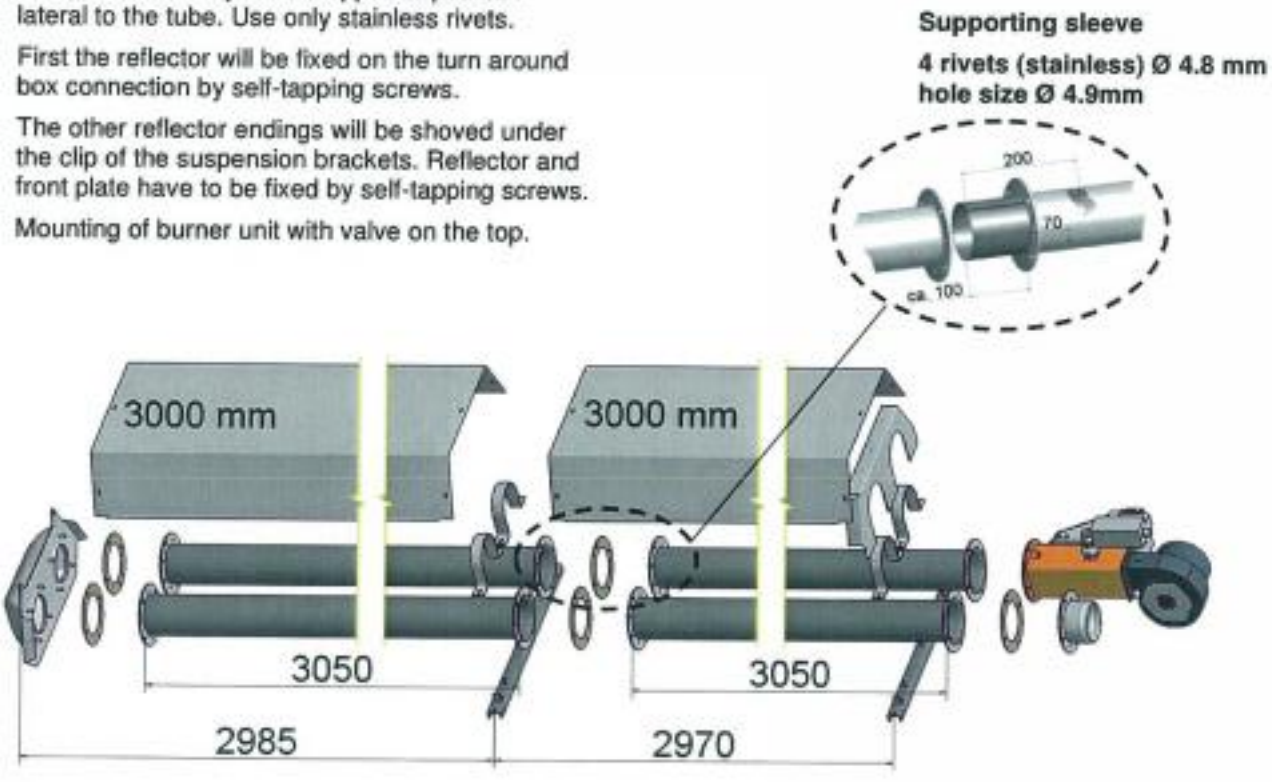



**Fig. 11: Mounting novoSchwank 30U / 40U**
*(all dimensions in mm)*

# Assembly

## novoSchwank 50U

**Tools you need**
- **hexagonal wrench (width: 10, 13)**
- **hexagonal spinner (width: 7 and 8)**
- **hand rivet tool, drill machine, drill Ø 4.9mm**

### Note before mounting

- Note the distance measure of suspension brackets.
- Flanges are mounted with flange packing (each 4 screws/washers/lock washers/nuts M8).
- Turn welding line of the tubes to the side.
- Start mounting the heater at the turn around box connection.
- Tube bars have to be fixed by nuts/lock washers/3D-washers M8 on the suspension bracket.
- **Supporting sleeve for first flange connection:**
  Insert half of the supporting sleeve into first heater tube (slot on top). Drill Ø 4.9mm hole through the tube and sleeve and fix it by rivet. Mount the second tube and fix the sleeve by the rivet as well. Fix the rivets always in the opposite position lateral to the tube. Use only stainless rivets.
- First the reflector will be fixed on the turn around box connection by self-tapping screws.
- The other reflector endings will be shoved under the clip of the suspension brackets. Reflector and front plate have to be fixed by self-tapping screws.
- Mounting of burner unit with valve on the top.
- **Flue gas connection (Type B23, C):**
  Note that the connection of the flue system is mounted at the end of the tube.
- **Flue gas diverter (Type A):**
  **(Accessory code no. 126 7018 0)**
  Note that the flue gas diverter is mounted in a position so that the flue gas is diverted from the burner.

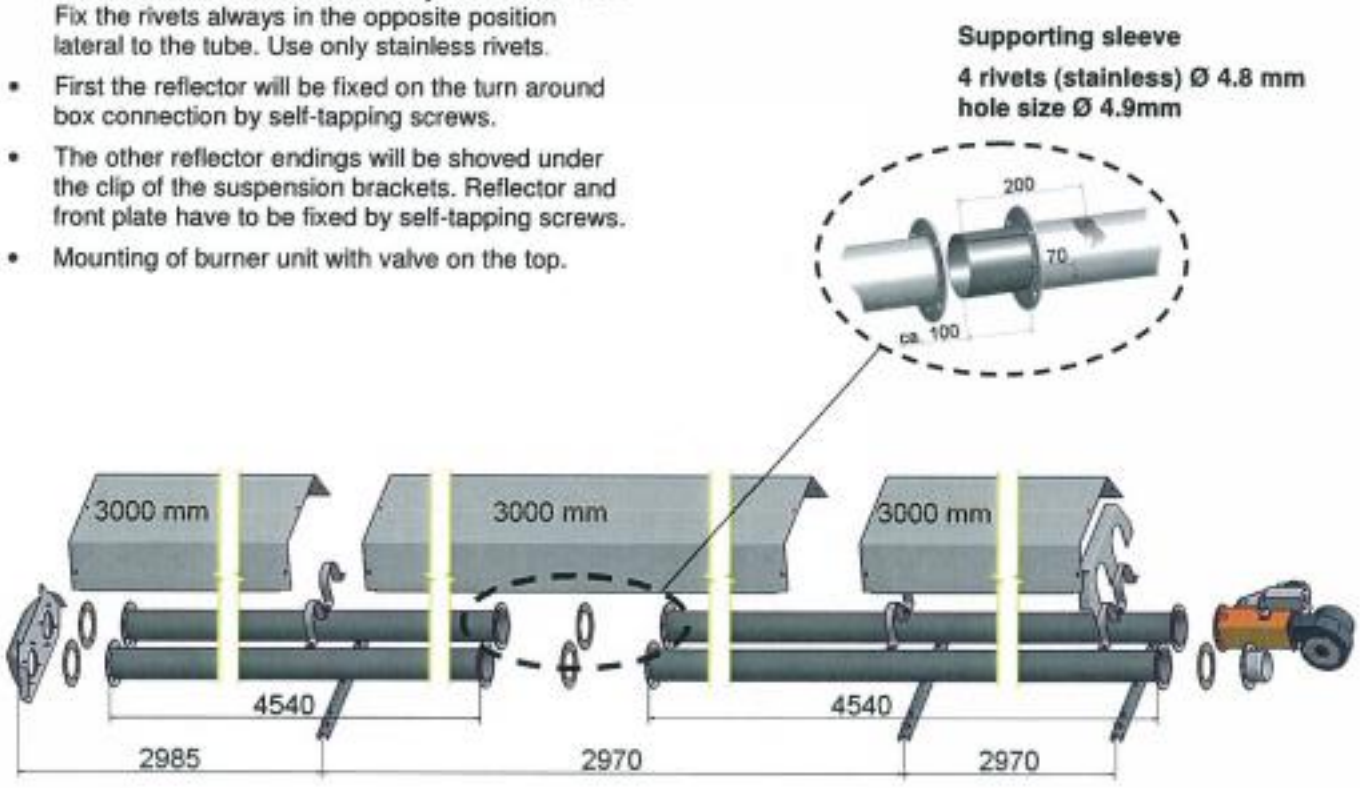



**Fig. 12:** **Mounting novoSchwank 50U**
*(all dimensions in mm)*

# 10 Installation instructions

**Danger of fire and explosion! Unprofessional handling with gas pipes, gas connections and supplied devices can produce gas leaks. It is highly dangerous if gas is ignited! Working with gas pipes and supplied appliances is only allowed by approved installers.**

**Mount the flexible connection so that it can compensate the longitudinal expansion of the tube.**

**Only use flexible connections for the radiant tube regarding:**
- **gas**
- **electricity and**
- **air (if necessary)**

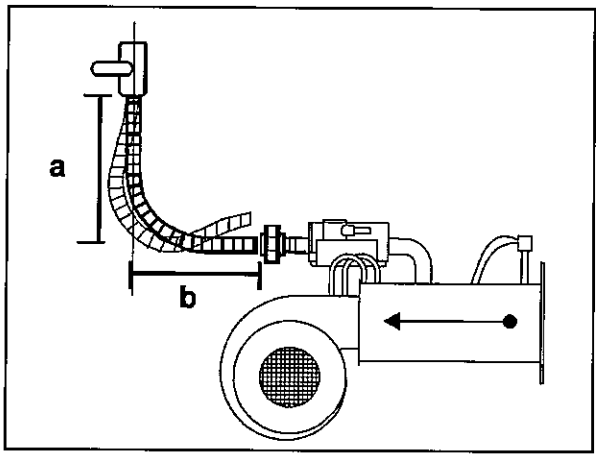



**Fig. 13: Longitudinal expansion**

## Gas-pipe-system and mounting of heaters

Assembling of gas pipes to the appliance, supply and the mounting of the appliance is only allowed by a competent person who is registered, holding a current certificate of competence and in accordance with the relevant provisions of the gas safety (installation and use) regulations.

Additional installation notices of national or local institutions must be observed. The pipe must be dimensioned in that way that the minimum connection pressure in front of the gas combination valve of the individual devices are available at the nominal thermal load of the entire system, according to table 6.

Please consider the pressure drop of the upstream mounted gas connection and gas filter. For the detailed pressure drop value of the Schwank gas-pipe-systems see table 7.

**Minimum connection pressures in front of valve**

| novoSchwank U | | | | |
|---|---|---|---|---|
| | type | min. connection pressure [kPa] | nozzle pressure | start step pressure [kPa] |
| Natural gas* | 15 - 50U | 1.13 | 0.87 | 0.4 - 0.5 |
| Propane* | 15 - 50U | 2.75 | 2.40 | 1.2 |

* Natural gas: $H_{S,B}$: 37,8 MJ/m³ Propane: $H_{S,B}$ 95.8 MJ/m³

**Tab. 6: min. connection pressures in front of gas combination valve**

**Pressure drop Schwank flexible gas-pipe-systems**

| novoSchwank U | | | |
|---|---|---|---|
| | type | gas pipe system | pressure drop [kPa] |
| Natural gas | 15 - 30U | 1/2" / L=800mm | 0.2 |
| | 40 - 50U | 3/4" / L=800mm | 0.25 |
| Propane | 15 - 30U | 1/2" / L=800mm | 0.1 |
| | 40 - 50U | 3/4" / L=800mm | 0.1 |

**Tab. 7: Pressure drop Schwank flexible gas-pipe-systems**

**The max. connection pressure is 5.0kPa!**

**In case of contaminated gas pipes and generally at gas pipes of welded black steel have to be mounted gas filter-groups directly in front of the heater (see page 28).**

Flexible final connections to the heater must either

a) hose assembly to AS/NZS 1869 of a suitable size, temperature and pressure rating or

b) a limited flexibility connector to AS 4631 of a suitable size.

**Note the following points while installing the gas-pipe-system:**

- ⇨ Use only gas lines as per national standards.
- ⇨ Never hang heaters on the gas pipes.
- ⇨ Mount a manual gas cock upstream of every radiant tube.
- ⇨ Close all gas cocks before carrying out the leak test and disconnect the connection between the gas cock and the burner to avoid damages to the gas regulator and gas combination valve.
- ⇨ Clean gas pipes before the installation of the heater. Reconnection after pressure control and expansion.

**Please observe the national standards.**

**Connect the heater with an approve flexible hose.**

- ⇨ Use the following hose length:

| | | |
|---|---|---|
| **15-30U** | **R ½"** | **length 800mm** |
| **40-50U** | **R ¾"** | **length 800mm** |

- ⇨ Mount only a flexible hose with 90° bend or with 2 x 90° elbow with 180° bend according to **Fig. 14, 15 and 16.**
- ⇨ Keep the specified installation dimensions.
- ⇨ Wrong mounting of flexible hoses shown in **Fig. 17** (sketches ① to ③)

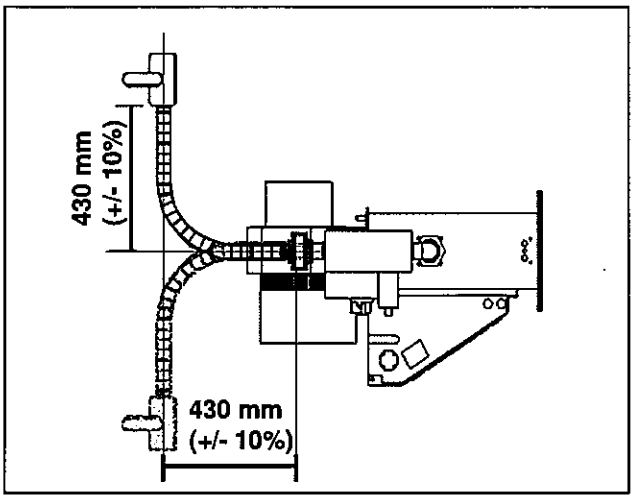



**Fig. 15: lateral connection 90° bend**

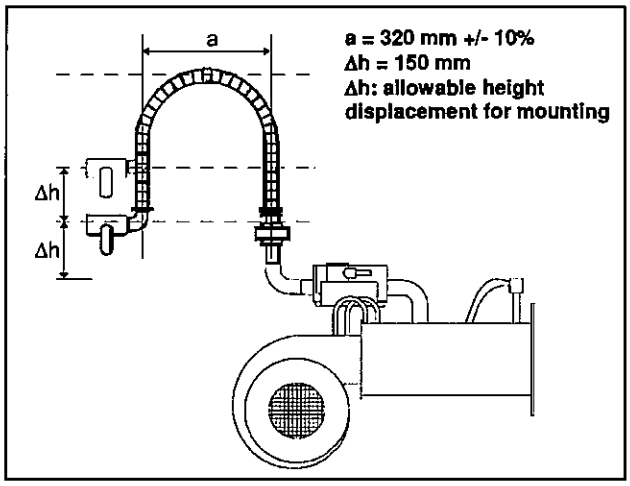



**Fig. 16: Alternative flexible hose 180°-bend with 2 x 90° elbow**

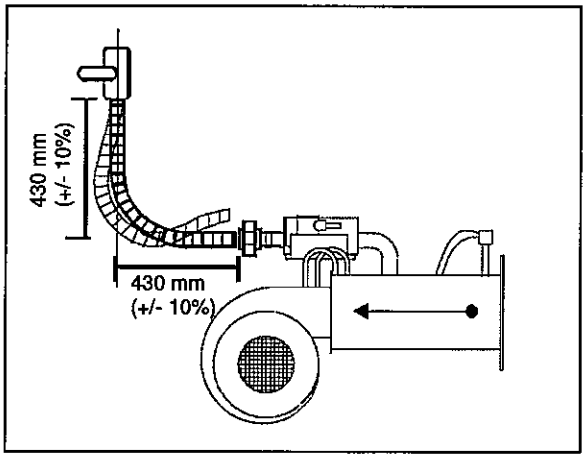



**Fig. 14: Stand connection 90° bend**

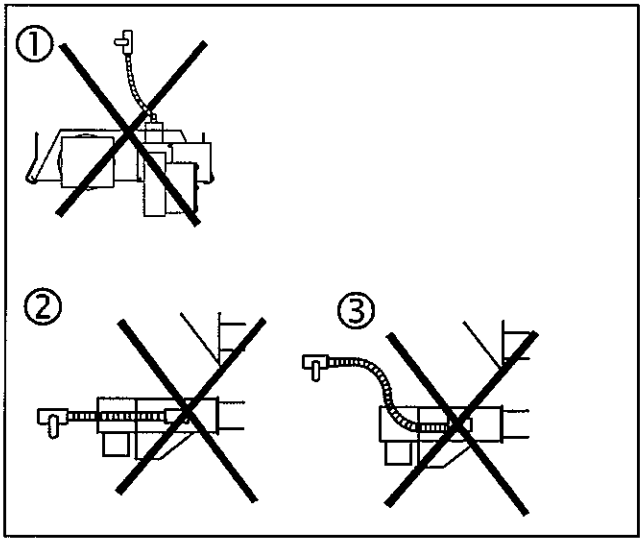



**Fig. 17: Wrong mounting of flexible hoses**

## Flue installation

The flue system is available as accessories to the radiant tube novoSchwank. The flue system is connected at the end of the radiant tube. Note to information in **Chapter 4 „Planning“.**

## Electrical installation (wiring diagram)

**Danger of electric shock! Electric shocks are dangerous! Working at the electrical equipment of the appliance is only allowed by competent persons observing the current IEE regulations.**

**Isolate the electrical supply while working at the electrical equipment of the appliance.**

**The gas supply and electrical cable must be situated on the outside of the area of the heater radiation or it's combustion products. Only use heat-resistant cables near the tubes.**

### Electrical connection

- ⇨ Route the connection cable (power supply) to the three-pin plug and connect cables.
- ⇨ Put the three-pin plug into the socket at the burner casing.
- ⇨ Connect the plug of the fan into the corresponding socket at the burner casing.

**Pay attention of correct polarity! If polarity is incorrect the firing device will not register ionisation signal!**

**You find the three-pin socket for the electrical supply in the burner box.**

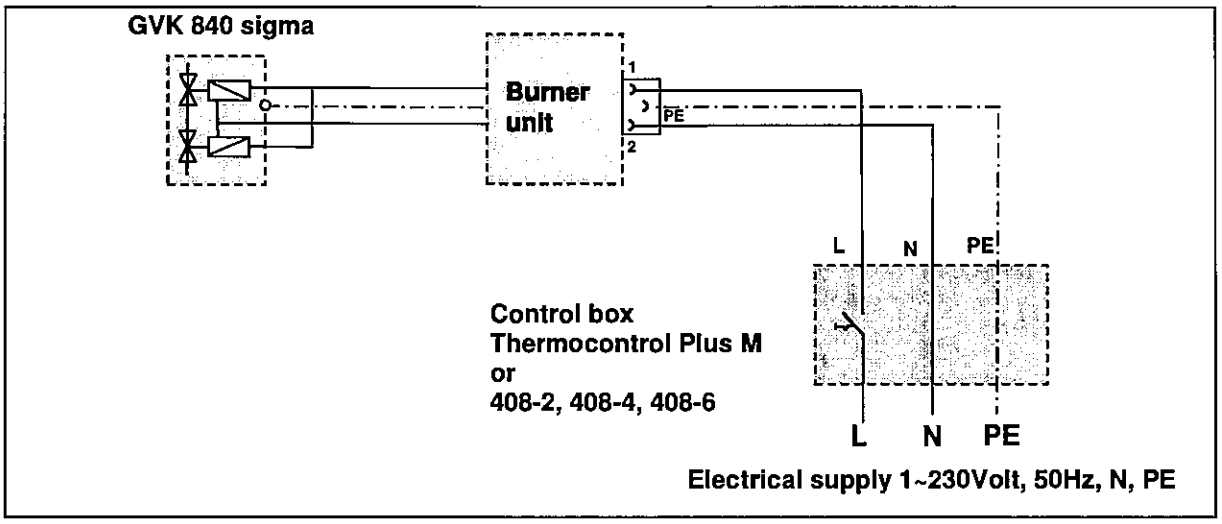



Fig. 18: Connecting diagram novoSchwank U

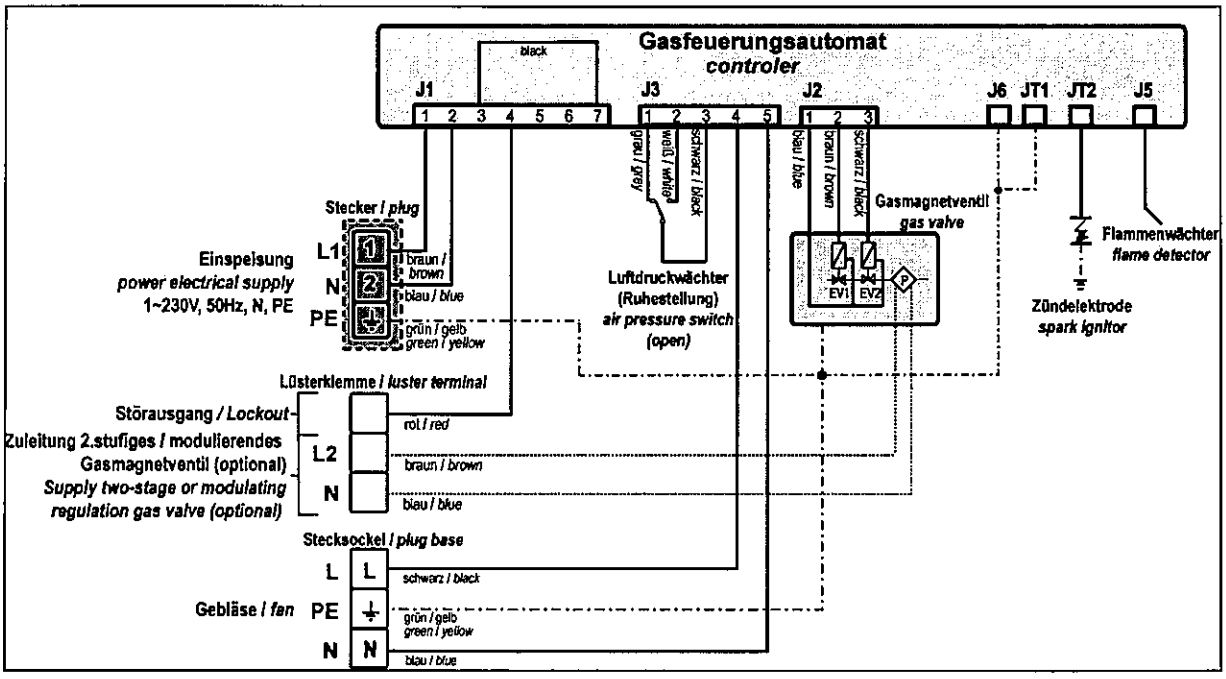



Fig. 19: Wiring diagram burner unit novoSchwank U

# 11 Commissioning instructions

### Before commissioning

**Only authorised personnel can curry out this operation.**

The correct operation and fixing of the heater is prerequisite for the warranty. Checking gas lines and flue system is not included in this service.

Check the function of the following equipment:

- Exhaust flue
- Combustion air supply
- Control unit
- Safety equipment
- Safety of electrical circuit

**Pay attention after putting into operation! Vaporization of remaining grease of metal units may cause greasy mist. This kind of mist disperses after approx. 30 minutes. During this time the room has to be ventilated.**

## Adjusting nominal thermal load

**Attention!**
**The pressure control unit is pre-adjusted on natural gas. Do not put the appliance into operation without controlling.**

### Adjusting the nozzle pressure

1. Open first the gas cock which is at the end of the flexible gas hose (Fig. 20).
2. Open the test nipple connection pressure. Connect the pressure measuring instrument to the test nipple and determine the connection pressure. **Close the test nipple after the measurement!**
3. Open the test nipple nozzle pressure. Connect the pressure measuring instrument to the test nipple and determine the nozzle pressure.
4. Turn the adjusting screw on the pressure regulator slowly in the "+" or "-" -direction while continuously watching the pressure measuring instrument. Stop turning as soon as the required nozzle pressure is reached. The required nozzle pressure for natural gas H ($W_{S,B}$ =50.0 MJ/m$^3$) is shown in Tab. 5, page 14.
5. Remove the protection cap **A** (see Fig. 21).
6. Put the radiant tube into operation.
7. Turn the adjusting screw **B** (see Fig. 21) on the pressure regulator slowly in the "+" or "-" -direction while continuously watching the pressure measuring instrument. Stop turning as soon as the required nozzle pressure is reached.
8. Put the protection cap **A** on the valve after the adjusting.
9. **Close the test nipple after the measurement!**

### Checking adjustment

1. Turn the adjustment screw slightly to "-" -direction. Orifice pressure must drop immediately. If this does not happen, you must readjust the orifice pressure until the point is reached at which a decrease or increase in the nozzle pressure is noticeable on the measuring instrument when the adjustment screw is turned slightly to "+" or "-" direction.
2. **Close test nipple after the measurement!**
3. Remove the measuring instrument and check if the test nipple is gastight.

**Fig. 20: Gas cock with integrated TSD**

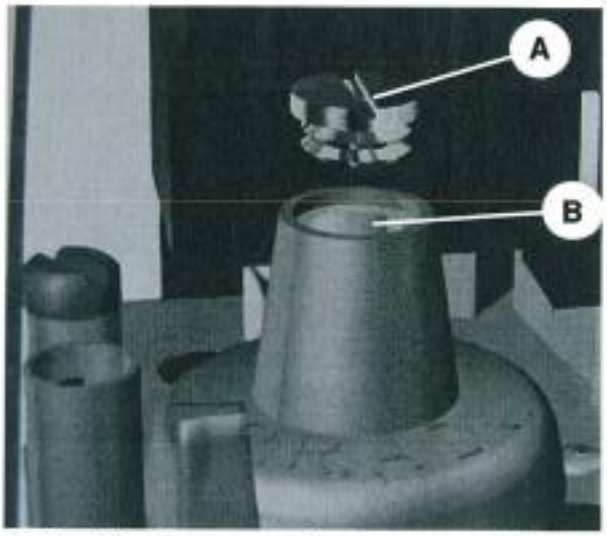



**Fig. 21: Adjusting screw nozzle pressure gas combination valve**

# 12 Service guide / Trouble shooting

### Maintenance and annual check

A regular maintenance is assumption for a faultless operation of the appliance.

According to the national Standard Regulations heating-systems with radiant tubes must be checked minimum once a year.

Maintenance and trouble shooting is only allowed by persons who are competent and instructed in radiant tubes.

**Before the beginning on works on the heater the gas cock is to be closed.**

Maintenance must include the following checks:

- Check the surface of radiant tubes
- Check the pollution and sooting of tubes ⇨ clean (if necessary)
- Check tightness of the tube system including connection to the burner unit
- Check the air/flue-system ⇨ clean (if necessary)
- Check the gas connection ⇨ Leakage-test
- Check the connection pressure, nozzle pressure and start step
- Check gas filter in case of reduced line pressure, in case of pollution change filter set
- Check the safety functions of the ignition- and ionisation-controls
- Check the valve functions
- Check the function of the pressure switch
- Check the electrical connections
- Check the slope of the tubes (3 mm/m in direction of the turn around box connection)
- Check the flexible gas hose and electrical connection to the burner unit
- Check the room temperature control
- Check the distances to any flammable materials
- Check the air/flue ventilation of the room
- Remove condensation water in the tube
- Check correct connection of the reflectors
- Check if the fan impeller runs correctly and is free of any damages
- Check the tight fit of the fan venturi
- Check connection and tightness of the fan to the burner unit

Works which are necessary must be done immediately. Defect parts must be changed directly.

Pressure switches, pressure regulators, valves and safety- and ignition devices can only be maintained by the manufacturer or authorized people.

### Trouble shooting

| fault | reason |
|---|---|
| burner doesn't start | • no gas (check pre- and nozzle pressure)<br>• fault in electrical supply<br>• thermostat "OFF"<br>• connection of ignition- and ionisation electrode is wrong<br>• differential pressure switch is defect or out of order (contact must be open) |
| control goes in fault position during the pressure time | • flame signal is pretended by electrical defect of control<br>• underpressure is not sufficient |
| control goes in fault position during the safety time | • no flame (no ignition, valve doesn't open, no gas)<br>• none or poor flame signal (flame doesn't stick, bad insulation of the flame detector, no contact between burner and earth connection)<br>• wrong polarity |
| control goes in fault position during the operation | • flame is off<br>• contact of differential pressure switch doesn't open<br>• flame signal is to poor |

In case of doubt, please contact:

**Mr John Balass**
**Devex Systems Pty Limited**
**5/83 Bassett St**
**Mona Vale NSW 2103**
**Australia**

**Tel: 02 9997 2811**
**Fax: 02 9997 7852**
**Internet: info@devexsystems.com.au**

# 13 Change of gas family

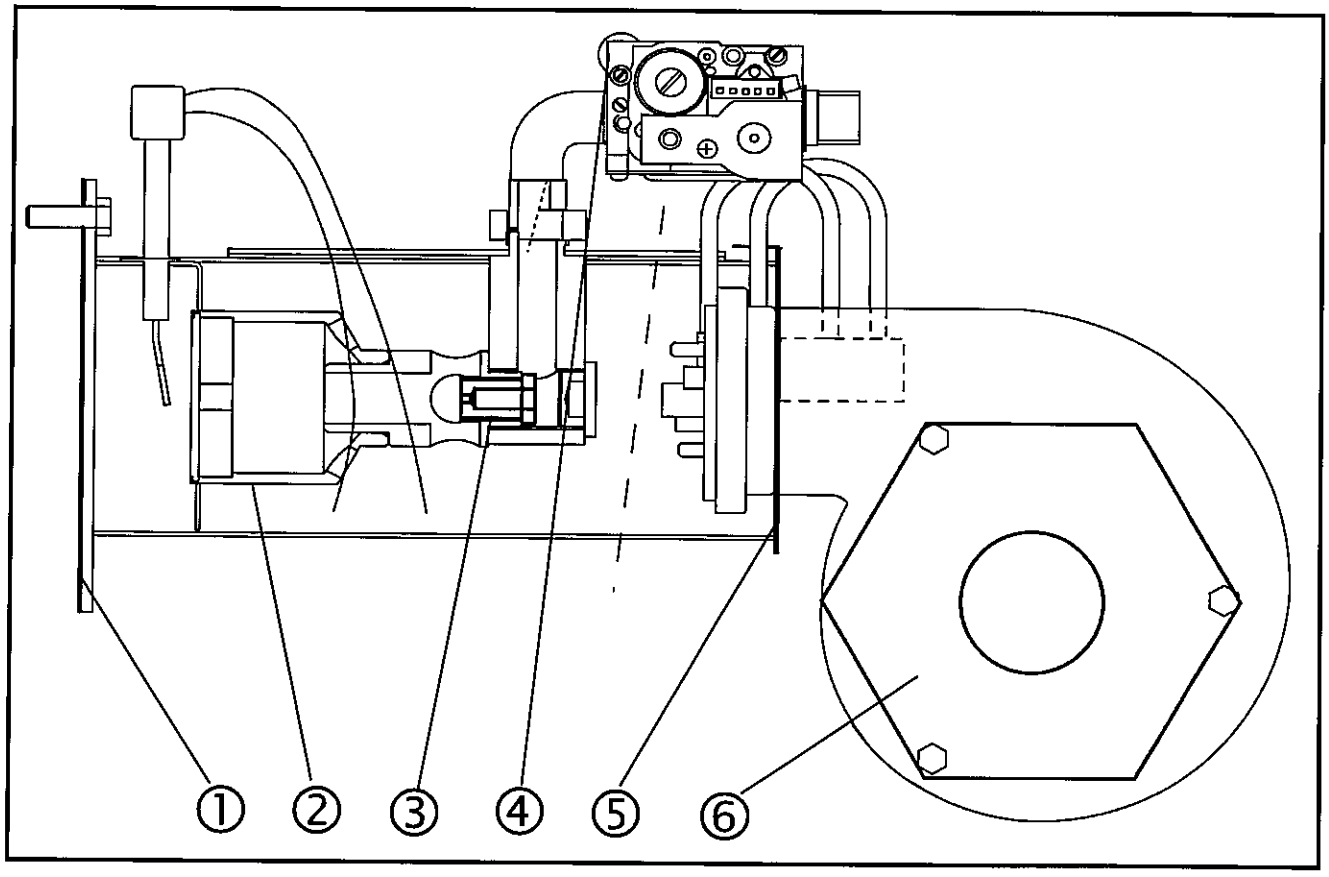



**Fig. 22: Change of gas family**

① Burner baffle (only 15 / 20U)

② Burner cup

③ Burner nozzle

④ Regulation screw start step

⑤ Air baffle plate (only 15 / 20 / 30U)

⑥ Fan air restrictor

## Instruction to change the gas family

1. Change the burner nozzle
2. Change the burner ceramic tile or the whole burner cup only for 50U
3. Adjust the new nozzle pressure (see Tab. 5, page 14)
4. Adjust the new start step pressure (see Tab 8, page 25 )
5. Stick on the new rating label

## Instruction to adjust start step pressure

1. Adjust the start step pressure with the regulation screw, the pressure rise and the opening time can be changed between set limits.
2. The start step pressure must be set as the specified values in Tab 8. Turn it clockwise with a screwdriver to increase the start step.

| novoSchwank U | | | |
|---|---|---|---|
| gas | type | adjustment regulation screw | start step pressure [kPa] |
| Natural gas | 15 - 30U | 90° | 0.4 |
| | 40 - 50U | 0° | 0.3 |
| Propane | 15 - 50U | 270° | 1.2 |

**Tab 8: Setting regulation screw start step**

# 14 Accessories

## Ball guards

Ball protection grids acc.18032-3 for using heaters in sport halls (grid 40x40mm).

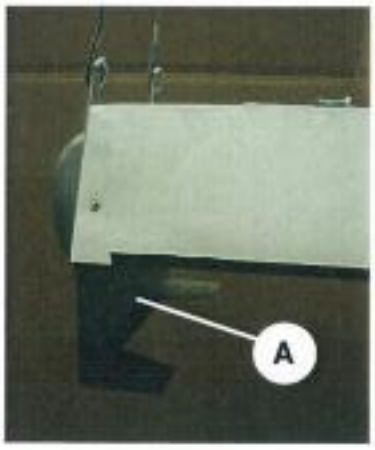
### Delivery scope

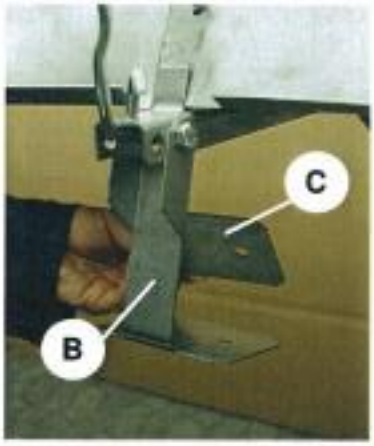
Mounting set complete for each type of heater:

- Numbers of grid
- 1 x end bracket
- 1 x tube hanger / clamps
- number of angled brackets
- 1 x protection grid burner top
- 1 x protection grid burner side
- fixing material

### Assembling

1. Mounting heater as usually acc. manual (see chapter 9, page 17-19).
2. Fix end bracket **A** at inner side of turn around box (open and close again 4 nuts M8.
3. Fix additional tube hanger with clamps at tube between first and second hanger on burner side, hanger is moveable axially.
4. Fix two angled brackets **B** at each tube hanger (screws M8 x 60, 2 nuts).
5. Fix protection grid L=2963mm between end bracket and angled bracket at next hanger with clamp **C** (screw M8, nut).
6. Fix next protection grid L=1843mm, end of grid on angled bracket at additional tube hanger, angled bracket connects each two grids.
7. The two short protection grids L=1843mm mounting in front of the heater.
8. First short protection grid seat on the additional tube hanger.
9. Second short protection grid reaches burner's end.
10. Mount protection grid burner top **D**, one side at angled bracket, end side with wire or similar at bottom protection grid.
11. Protection grid burner top has to be cut on site with holes for flue system and may be gas line.
12. Mount protection grid burner side with wire or similar.



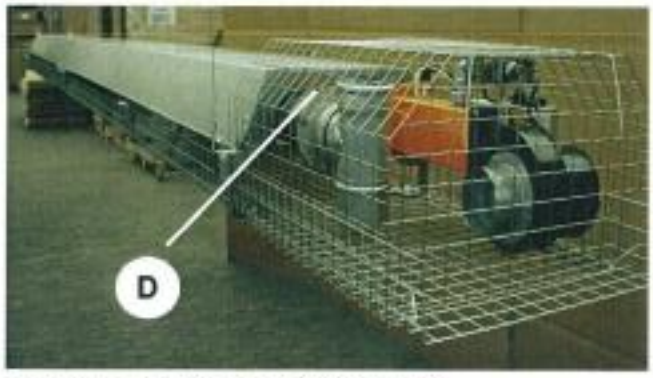




**Fig. 23-26: Assembling order of ball guards**

## Reflector elongation

Vertical elongation of reflectors b=415mm for thermal protection. The numbers reflector elongation (single sheets) is depend on required protection (one side both side, protection length) and the power of the radiant heater.

### Delivery scope

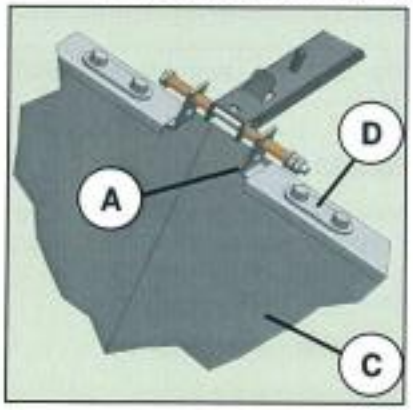
Reflector elongation consist of:

- numbers of sheet reflector elongation
- mounting material

### Assembling

1. Assembling and mounting tubes with reflectors complete acc. manual (see chapter 9, page 17-19).
2. Fix screws with distance sleeve and mounting angles **A** at hangers as required.
3. Mount end bracket **B** at turn around box.
4. Put reflector elongation sheet **B** on mounting angle **A.** Screw both parts together with the added clip **C** and screw/nut M8 and lock a nut to ensure the reflector elongation sheets.
5. Fix reflector elongation sheets to another with screw/nut M8.

**At heaters with axial reflector elongation the last suspension bracket on the burner side must be mounted at the junction point reflector/reflector end plate.**



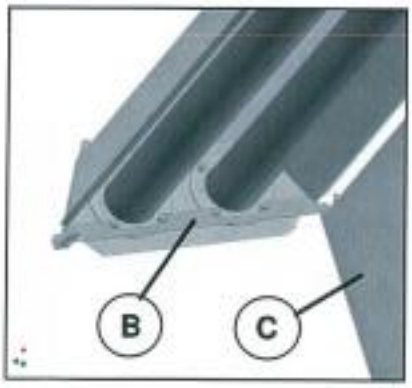




Fig. 27, 28: Assembling order reflector elongation

## Set angled mounting tubes

Bracket to ensure form and position of reflectors when the heater is mounted angled (>15°). Bracket to mount at each junction point reflector/reflector, not at reflector end caps.

### Delivery scope

Mounting set consist of:

- numbers of brackets
- mounting material

### Assembling

1. Assembling and mounting of tubes complete (without reflectors) acc. manual (see chapter 9, page 17-19).
2. Lay first reflector on turn around box and first hanger, fix it at turn around box with two screws.
3. Fix angled bracket **D** with screws and nuts M8 at first hanger, bracket under reflector.
4. Put on next reflector, reflectors are fixed to another by 3 screws/nuts M5, middle screw through angled bracket.
5. Further assembling as usually acc. to manual.

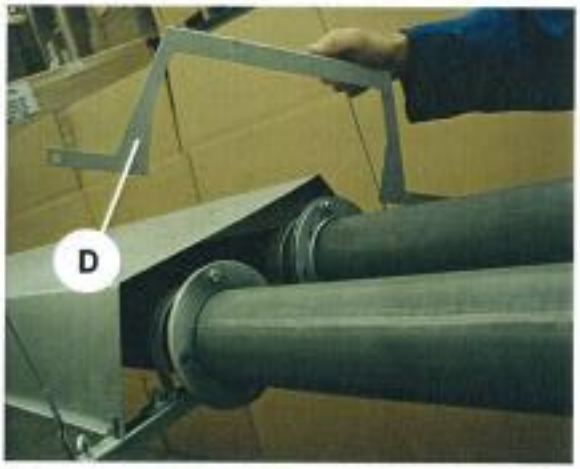



Fig. 29, 30: Assembling order set angled mounting

## Water protection cover

Protection cover of the burner unit 15-40U with electrical protection class IP 55 against water or aggressive mediums, cover complete in stainless steel.

In delivery scope a mounting set existing of:

- protection box with air inlet adapter mounted and sealed
- cover plate
- gasket
- assembling material
- gas inlet connection
- inlet adapter for fan (short)
- gasket

### Assembly instruction

1. Inlet adapter mounted at the fan has to be demounted, mount short adapter at this position
2. Fix speed nuts (flat surface outside) at openings of cover box front.
3. Fix black gasket over front edge of cover box including speed nuts, cut gasket carefully to cover the complete length without hole
4. Mount loose part screw joint of supplied gas inlet connection on male ½" gas connection burner unit
5. Mount complete burner including flame baffle (only 15/20/30 kW) into protection box, front fixing bolt at burners flange reaches through front of the protection box
6. Mount gas inlet connection through back opening of the box
7. Mount complete box with burner inside at radiant tube flange, green gasket between tube flange and protection box.
8. Assemble electrical connection through second back opening
9. Start tube heater, check gas pressures
10. Assemble protection cover front plate with screws

**Fig. 31: Burner unit in water protection cover (without cover plate)**

## Gas filter - groups

To avoid technical problems with the gas combination valves which are caused by pollution of dust or rust coming out of the gas pipe have to be mounted a gas filter-group ¾" (gas filter + premounted double nipple) for each tube heater 50U.

For tube heaters 15-30U a similar gasfilter-group ½" has to be ordered in case the gas pipe is made of black steel (welded).

| | |
|---|---|
| **gas filter-group Rp ½" for 15-30kW** | **code no: 192 0756 0** |
| **gas filter-group Rp ¾" for 40-50kW** | **code no: 192 0757 9** |

### Assembly instruction

Direct installation between flexible gas pipe and valve burner unit, with a slight radial slope for better cleaning the filter bottom! In case of strong polluted filter pad use the corresponding spare part set for gas filter.

Pay attention to the flow direction of the filter!

**Fig. 32: Mounted gas filter-group at tube heater**

# 15 Spare parts

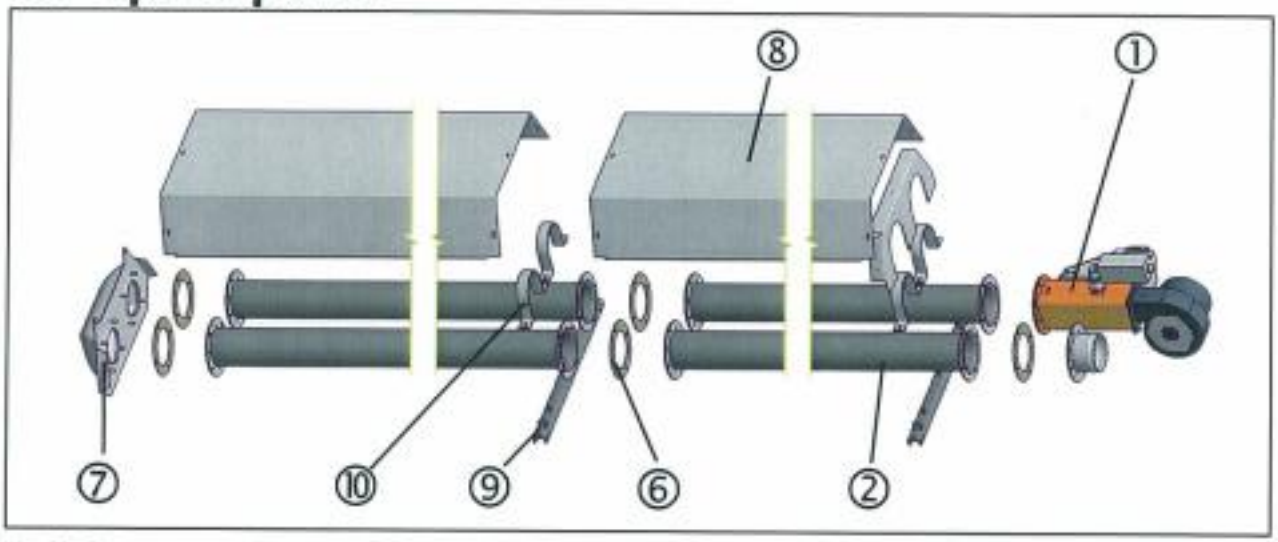



**Fig. 33: Spare parts novoSchwank 30U**

## Spare parts novoSchwank 15-50U

| Pos. | Part | Art.-No. |
|---|---|---|
| 1 | Burner unit novoSchwank 15 Natural gas | 126 7150 0 |
| | Burner unit novoSchwank 20 Natural gas | 126 7185 0 |
| | Burner unit novoSchwank 30 Natural gas | 126 7187 0 |
| | Burner unit novoSchwank 40 Natural gas | 126 7189 0 |
| | Burner unit novoSchwank 50 Natural gas | 126 7191 0 |
| 2 | Radiant tube L 3050mm novoSchwank | 126 7020 0 |
| 3 | Radiant tube L 4540mm novoSchwank *(not in Fig. 32)* | 126 4722 0 |
| 4 | Radiant tube L 3050mm with burner flange *(not in Fig. 32)* [only for heringbone systems] | 126 7069 0 |
| 5 | Radiant tube L 3050mm with burner flange *(not in Fig. 32)* [only for heringbone systems] | 126 7070 0 |
| 6 | Gasket between tubes and burner novoSchwank | 126 7048 0 |
| 7 | Turn around box | 126 7015 0 |
| 8 | Reflector novoSchwank shape U (L 3000mm) | 126 7011 0 |
| 9 | Hanger novoSchwank shape U | 126 7012 0 |
| 10 | Tube clamp | 126 4529 5 |
| 11 | Mounting set novoSchwank 15/20U *(not in Fig. 32)* | 126 7102 0 |
| 12 | Mounting set novoSchwank 30/40U *(not in Fig. 32)* | 126 7103 0 |
| 13 | Mounting set novoSchwank 50U *(not in Fig. 32)* | 126 7114 0 |

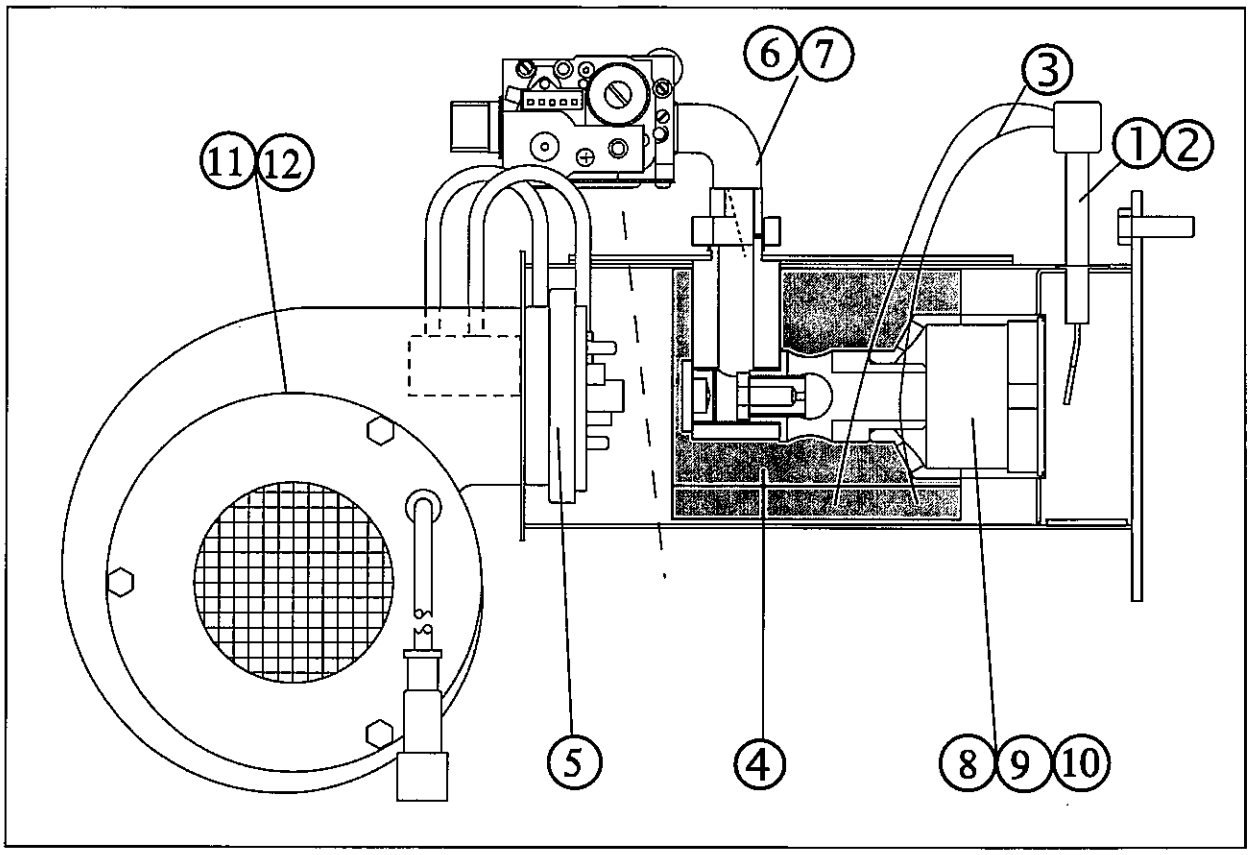



**Fig. 34: Spare parts burner unit**

## Spare parts burner unit novoSchwank 15-50U

| Pos. | Part | Art.-No. |
|---|---|---|
| 1 | Spark igniter with ionisation cable novoSchwank 15, 20, 40, 50U | 127 0246 9 |
| 2 | Spark igniter with ionisation cable novoSchwank 30U | 126 5004 0 |
| 3 | Ignition wiring with plug | 126 7021 0 |
| 4 | Control Microgas P25 for novoSchwank | 126 7495 0 |
| 5 | Pressure switch DL1E with nozzle | 192 0217 8 |
| 6 | Gas valve assembled novoSchwank 15-30U / 1-stage | 126 7034 0 |
| 7 | Gas valve assembled novoSchwank 40-50U / 1-stage | 126 7125 0 |
| 8 | Burner head aluminum complete novoSchwank 15-30U | 126 7239 0 |
| 9 | Burner head steel complete novoSchwank 40U natural gas, 50U propane | 126 7219 0 |
| 10 | Burner head steel complete novoSchwank 50U natural gas | 126 7468 0 |
| 11 | Fan complete with venturi novoSchwank 15-40U with transport lock | 126 7684 0 |
| 12 | Fan complete with venturi novoSchwank 50U | 126 7053 0 |
| 13 | Gas filter complete ½" (for novoSchwank 15–30U) *(not in Fig. 33)* | 192 0756 0 |
| 14 | Gas filter complete ¾" (for novoSchwank 40–50U) *(not in Fig. 33)* | 192 0757 9 |
| 15 | Spare part kit for gas filter ½" *(not in Fig. 33)* | 192 0758 0 |
| 16 | Spare part kit for gas filter ¾" *(not in Fig. 33)* | 192 0759 0 |

# 16 AGA Certification

## AGA CERTIFIED PRODUCT

| | |
|---|---|
| Certificate Holder: | **SCHWANK GmbH** |
| ABN/ACN No. (If applicable): | **N/A** |
| Manufacturer: | **Schwank GmbH** |
| Agent (If applicable): | **Northwest Gas Pty Ltd** |
| Type of Appliance: | **Overhead Radiant Tube Gas Heaters (Flueless)** |
| Model No. & Description: *(Refer www.aga.asn.au for more details)* | **Schwank InfraSchwank D & CalorSchwank D 15U, 20U, 30U, 40U, 50U, 60U**<br>**NovoSchwank 15U, 20U, 30U, 40U, 50U** |
| Relevant Standard(s): | **AS 4643 - 2007** |
| Gas Type(s): | **Natural & Propane** |

This is to certify that the particular **APPLIANCE** specifically described herein and supplied to The Australian Gas Association (hereafter called the AGA) by the Certificate Holder named above has been subject to "type-testing" and assessed by the AGA to comply with the requirements of the AGA's Product Certification Scheme for Type Tested Gas Products.

**This Certificate is issued on the express conditions that:**

(i) The Certificate Holder undertakes to comply with the Rules Governing The AGA's Product Certification Scheme (hereafter called the Rules Governing);

(ii) The Certificate Holder undertakes to affix the AGA's Certification Badge (an image of which is endorsed hereon) to every appliance of the above-named model(s) throughout the currency of the certification;

(iii) This Certificate remains the property of the AGA; and

(iv) The AGA reserves the right to cancel this Certificate in accordance with the Rules Governing, and in such an event the Certificate Holder undertakes to surrender the Certificate and Certification Badges to the AGA upon request.

MAKER'S WARRANTY
This appliance complies with a design certified by the AGA
Type-Tested Certification
Not to be copied
AGA
APPLIANCE

**Reviewing Officer** **Certificate Authorised**

Certificate first issued: **27 April 2010** Certificate No: **7652**

QF711/10 This copy valid from: **27 April 2010** Refer specification issue: **01**

This Certificate issued by The Australian Gas Association ABN 98 004 206 844

# 17 EC type examination certificate

CE 0085

DVGW CERT GMBH

## EG-Baumusterprüfbescheinigung

## *EC type examination certificate*

**CE-0085BO0037**
Produkt-Identnummer
*product identification no.*

| | |
|---|---|
| **Anwendungsbereich**<br>*field of application* | EG-Gasgeräterichtlinie (2009/142/EG)<br>*EC Gas Appliances Directive (2009/142/EC)* |
| **Zertifikatinhaber**<br>*owner of certificate* | Schwank GmbH<br>Bremerhavener Straße 43, D-50735 Köln |
| **Vertreiber**<br>*distributor* | Schwank GmbH<br>Bremerhavener Straße 43, D-50735 Köln |
| **Produktart**<br>*product category* | Heating or air conditioning appliances: Radiant heater (dark) (3311) |
| **Produktbezeichnung**<br>*product description* | Single burner gas-fired overhead radiant tube heater, which can be combined to a multi-burner system D or F |
| **Modell**<br>*model* | novoSchwank...; infra/calorSchwank D... |
| **Bestimmungsländer**<br>*countries of destination* | AT, BE, BY, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, RU, SE, SI, SK, TR, UA |
| **Prüfberichte**<br>*test reports* | supplement test: B10/08/1250 EU from 09.08.2010 (DBI) |
| **Prüfgrundlagen**<br>*basis of type examination* | EU/2009/142/EG (30.11.2009)<br>DVGW VP 118 (01.09.1999)<br>DIN EN 777-1 (01.03.2003)<br>DIN EN 777-3 (01.03.2003)<br>DIN 3372-6 (01.12.1988)<br>DIN EN 416-1 (01.09.2009)<br>DIN EN 416-1/A1 (01.02.2001)<br>DIN EN 416-2 (01.10.2006) |
| **Aktenzeichen**<br>*file number* | 10-0526-GEA |

13.09.2010 Bonn, [illegible]
Datum, Ausstellungsort, Leiter der Zertifizierstelle
*date, issued at, head of certification body*

DVGW CERT GmbH - von der Deutschen Bundesregierung benannte und von der Europäischen Kommission offiziell registrierte Stelle für die Konformitätsbewertung von Gasgeräten

*DVGW CERT GmbH - notified by the government of the Federal Republic of Germany and officially registered by the European Commission for conformity assessment of gas appliances*

ZLS

ZLS-ZE-527/07

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Telefax: +49 228 91 88-990
eMail: info@dvgw-cert.com

A-2/2

**CE-0085BO0037**

| Gerätekategorien<br>*appliance categories* | Versorgungsdrücke<br>*supply pressures* | Bestimmungsländer<br>*countries of destination* | Bemerkungen<br>*remarks* |
|---|---|---|---|
| I2E(R) | 20/25 mbar | BE | |
| I2E+ | 20/25 mbar | BE | |
| I3+ | 28-30/37 mbar | BE, IT, PT | |
| I3+ | 50/67 mbar | BE, PT | |
| I3B/P | 30 mbar | CY, IS, MT | |
| I3B/P | 50 mbar | CY, IS, MT | |
| I3P | 37 mbar | BE | |
| II2E Lw3P | 20, 37 mbar | PL | |
| II2E+3+ | 20/25, 28-30/37 mbar | FR | |
| II2E+3+ | 20/25, 29/37 mbar | BE | |
| II2E3B/P | 20, 37 mbar | PL | |
| II2ELL3B/P | 20, 50 mbar | DE | |
| II2ELL3P | 20, 50 mbar | DE | |
| II2Er3P | 20/25, 50 mbar | FR | |
| II2H3B/P | 20, 30 mbar | DK, FI, LU, SE | |
| II2H3B/P | 20, 50 mbar | AT, CH, CZ, GR, LU, RO | |
| II2H3B/P | 25, 50 mbar | HU | |
| II2H3P | 20, 30 mbar | EE, GR, LT, LV, NO, SK | |
| II2H3P | 20, 37 mbar | ES, FR, GB, GR, HR, IE, IT, PT, SI, TR | |
| II2H3P | 20, 50 mbar | CH, CZ, ES, FR, GB | |
| II2HS3B/P | 25, 50 mbar | HU | |
| II2L3P | 25, 50 mbar | NL | |

| Typ<br>*type* | Technische Daten<br>*technical data* | Bemerkungen<br>*remarks* |
|---|---|---|
| novoSchwank 15/... U/L;<br>infraSchwank D 15/... U/L;<br>calorSchwank D 15/... U/L | heat input (Hi): 11,2...15,0 kW | radiation factor (U/L):<br>55,7%/55,7% (infraSchwank) and<br>65,3%/67,2% (calorSchwank) |
| novoSchwank 20/... U/L;<br>infraSchwank D 20/... U/L;<br>calorSchwank D 20/... U/L | heat input (Hi): 14,3...19,0 kW | radiation factor (U/L):<br>57,6%/56,9% (infraSchwank) and<br>66,8%/70,2% (calorSchwank) |
| novoSchwank 25/... U/L;<br>infraSchwank D 25/... U/L;<br>calorSchwank D 25/... U/L | heat input (Hi): 18,8...25,0 kW | |
| novoSchwank 30/... U/L;<br>infraSchwank D 30/... U/L;<br>calorSchwank D 30/ U/L;<br>calorSchwank D 30/... U ST | heat input (Hi): 22,0...29,0 kW | radiation factor (U/L):<br>59,3%/59,9% (infraSchwank) and<br>70,2%/69,8% (calorSchwank) as<br>well as 79,3 % (calorSchwank...ST) |
| novoSchwank 40/... U/L;<br>infraSchwank D 40/... U/L;<br>calorSchwank D 40/... U/L | heat input (Hi): 30,0...39,0 kW | radiation factor (U/L):<br>57,8%/59,1% (infraSchwank) and<br>66,3%/72,7% (calorSchwank) |
| novoSchwank 50/... U/L;<br>infraSchwank D 50/... U/L;<br>calorSchwank D 50/... U/L | heat input (Hi): 38,0...49,0 kW | radiation factor (U/L):<br>58,2%/60,2% (infraSchwank) and<br>70,8%/71,4% (calorSchwank) |
| novoSchwank 60/... U/L;<br>infraSchwank D 60/... U/L;<br>calorSchwank D 60/... U/L | heat input (Hi): 48,0...60,0 kW | radiation factor (U/L):<br>57,6%/59,4% (infraSchwank) and<br>70,6%/70,2% (calorSchwank) |

**Verwendungshinweise / Bemerkungen**
***hints of utilization / remarks***

Tube form ...U: radiant pipe in U-form; tube form ...L: radiant pipe in streched or wounded form
Type variations regarding power control: .../1: 1-stage, .../2: 2-stage, .../M: modulating
Installation codes: A3, B23, C13, C33 and C63
Installation codes B23, C13 and C33: with flue system Z-7.2-1602, 0432-BPR-119933 (Fa. Muelink & Grol) as well as 0432-CPD-219952, 0432-CPD-219983 (Fa. Schräder)
The different models can be combined to a multi-burner system D and F according to DIN EN 777
The flue system can be implemented with a flue-gas heat exchanger.
The lay-out of the multi-burner systems D and F with their arm pipes, exhaust collecting pipes, exhaust chimneys and exhaust fans will be carried out by the Schwank GmbH.
Equipment: flexible hoses according to DIN 3384; types RS 331L (NG-4602AR0643, Fa. Witzenmann), MW 22 U (NG-4602BL0115, Fa. Berghöfer) and WSO (NG-4602BL0002, Fa. AZ-Pokorny)
Additionally tested appliance categories, supply pressures and countries of destination: BY, RU, UA: II2H3P (20, 37 mbar)
In Belarus, Croatia, in the Ukraine and in the Russian Federation the CE-marking will be accepted as conformaty approval if the Gas Appliance Directive (2009/142/EC) is transferred into national law by Belarus, Croatia, Ukraine and Russian Federation.

Version 002 novoSchwank shape U Australia 02/11 Technical specification subject to change

# 18 EC declaraction of conformity

Schwank
INNOVATIVE HEATING SOLUTIONS

## EC Declaration of Conformity

### for type examined heaters

We declare that the following heaters are in conformance with the basic security and health requirements according to EC directives due to their conception and design.

Changes or modifications of the heaters without our authorization terminate the validity of this declaration.

| | |
|---|---|
| **Description:** | **Gas-fired Patio Heater** |
| **Model / Type:** | **infraSchwank D / calorSchwank D / novoSchwank 15 / 20 / 25 / 30 / 35 / 40 / 50 / 60** |
| **Applied EC-Directives:** | -EC-Directive 89/392 EWG [98/37/EWG]<br>-EC-Directive 73/23/EWG version 93/68/EWG<br>-EC-Directive 89/336/EWG<br>-EC-Gas Appliance Directive 90/396/EWG |
| **EC-Type Examination Certificate:** | **CE-0085 BO 0037** |
| **Issued by:** | **DVGW Bonn / Germany** |
| **Basis of Harmonized Standards:** | **DIN EN 416-1, DIN EN 416-2 DIN EN 777-1 and DIN EN 777-3** |
| **Basis of National Standards:** | **DIN 3372-6 [12.1988]** |

SCHWANK GMBH
Cologne, 2010-05-17

O. Schwank
Managing Director

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