

Type S030 HT

High Temperature INLINE fitting



Operating Instructions

Bedienungsanleitung
Manuel d'utilisation

We reserve the right to make technical changes without notice.
Technische Änderungen vorbehalten.
Sous réserve de modifications techniques.

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Operating Instructions 1712/04_EU-ML 00563877 / ORIGINAL_FR

MAN 1000290428 EN Version: E Status: RL (released | freigegeben) printed: 11.12.2017

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1. ABOUT THESE OPERATING INSTRUCTIONS

The Operating Instructions describe the entire life cycle of the product. Please keep the Operating Instructions in a safe place, accessible to all users and any new owners.

The Operating Instructions contain important safety information.

Failure to comply with these instructions can lead to hazardous situations. Pay attention in particular to the chapters [3. Basic safety information](#) and [2. Intended use](#).

- Whatever the version of the product, the Operating Instructions must be read and understood.

Symbols used



Warns against an imminent danger.

- Failure to observe this warning can result in death or in serious injury.

**WARNING**

Warns against a potentially dangerous situation.

- ▶ Failure to observe this warning can result in serious injury or even death.

**CAUTION**

Warns against a possible risk.

- ▶ Failure to observe this warning can result in substantial or minor injuries.

NOTICE

Warns against material damage.



Indicates additional information, advice or important recommendations.



Refers to information contained in this manual or in other documents.

- ▶ Indicates an instruction to be carried out to avoid a danger, a warning or a possible risk.
- Indicates a procedure to be carried out.

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English

Definition of the term product

The term "product" used in these Operating Instructions always refers to the fitting type S030 HT.

2. INTENDED USE

Use of the product that does not comply with the instructions could present risks to people, nearby installations and the environment.

The S030 HT fitting is intended to measure the flow rate of clean fluids in the piping thanks to its paddle wheel. The fitting S030 HT can be combined with an electronic module SE30 HT to build a flowmeter 8030 HT.

- ▶ Use the product in compliance with the characteristics and commissioning and use conditions specified in the contractual documents, in these Operating Instructions and in the Operating Instructions for the device which is inserted into it.
- ▶ Safe and trouble-free operation of the product depends on its proper transport, storage and installation, as well as careful operation and maintenance.
- ▶ Only use the product as intended.

English

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3. BASIC SAFETY INFORMATION

This safety information does not take into account any contingencies or occurrences that may arise during installation, use and maintenance of the product.

The operating company is responsible for the respect of the local safety regulations including for the staff safety.



Danger due to high pressure in the installation.

Danger due to high temperatures of the fluid.

Danger due to the nature of the fluid.



Various dangerous situations

- ▶ Prevent any unintentional power supply switch-on.
- ▶ Only qualified and skilled staff can carry out the installation and maintenance work.
- ▶ Guarantee a defined or controlled restarting of the process, after a power supply interruption.



Various dangerous situations (continued)

- ▶ Observe the general technical rules when installing and using the product.
- ▶ Only operate a product in perfect working order and in compliance with the instructions provided in the Operating Instructions.
- ▶ Do not use the product in explosive atmospheres.
- ▶ Do not use fluid that is incompatible with the materials the product is made of.
- ▶ Do not use the product in an environment incompatible with the materials it is made of.
- ▶ Do not subject the product to mechanical stress.
- ▶ Do not make any modifications to the product.

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English

English

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NOTICE

The product may be damaged by the fluid in contact with.

- ▶ Systematically check the chemical compatibility of the component materials of the product and the fluids likely to come into contact with the materials (for example: alcohols, strong or concentrated acids, aldehydes, alkaline compounds, esters, aliphatic compounds, ketones, halogenated aromatics or hydrocarbons, oxidants and chlorinated agents).

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English

5. DESCRIPTION**Area of application**

The S030 HT fitting is intended to measure the flow rate of clean fluids in DN6 to DN50 pipes thanks to its paddle-wheel. Its combination with an SE30 HT electronic module builds a flowmeter 8030 HT.

The electronic module can be removed without opening the piping or stopping the process.

Measuring principle

The fluid flowing in the piping makes the paddle-wheel turn. The paddle-wheel rotational frequency f is proportional to the flow rate.

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English

4. GENERAL INFORMATION

To contact the manufacturer of the product, use following address:

Bürkert SAS

Rue du Giessen

BP 21

F-67220 TRIEMBACH-AU-VAL

You may also contact your local Bürkert sales office.

The addresses of our international sales offices are available on the Internet at: www.burkert.com

Warranty conditions

The condition governing the legal warranty is the conforming use of the product in observance of the operating conditions specified in these Operating Instructions.

Information on the Internet

You can find the Operating Instructions and technical data sheets regarding the type S030 HT at: www.burkert.com

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English

6. TECHNICAL DATA**Conditions of use**

Ambient temperature (operating)	-15...+80 °C, if the fitting is combined with an SE30 HT electronic module
Pressure class	<ul style="list-style-type: none"> ▪ PN40 if $-15\text{ °C} < T_{\text{fluid}} < 90\text{ °C}$ ▪ PN25 if $90\text{ °C} < T_{\text{fluid}} \leq 125\text{ °C}$
Fluid temperature	-15...+125 °C

Conformity to standards and directives

The applied standards, which verify conformity with the EU directives, can be found on the EU-type examination certificate and/or the EU declaration of conformity (if applicable).

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English

Conformity to the pressure equipment directive

The product conforms to article 4§1 of the pressure equipment directive 2014/68/EU under following conditions:

- The product can only be used in the following cases (depending on the maximum pressure, the DN of the pipe and the fluid):

Type of fluid	Conditions
Fluid group 1, art. 4 §1.c.i	only DN ≤ 25
Fluid group 2, art. 4 §1.c.i	DN ≤ 32 or PNxDN ≤ 1000
Fluid group 1, art. 4 §1.c.ii	DN ≤ 25 or PNxDN ≤ 2000
Fluid group 2, art. 4 §1.c.ii	DN ≤ 200 or PN ≤ 10 or PNxDN ≤ 5000

Fluid data

Max. Fluid viscosity	300 cSt
Type of fluid	Clean, neutral or slightly aggressive
Rate of solid particles in the fluid	max. 1 %
Max. particle size	0.5 mm
Measurement range	0.5...10 m/s
Measurement deviation	
▪ with K-factor determined with a Teach-In procedure	▪ ±1% of the measured value * (at the value of the Teach-In flow rate)
▪ with standard K-factor	▪ ±2.5 % of the measured value *
Linearity	±0.5 % of the full scale (10 m/s)*
Repeatability	±0.4 % of the measured value *

* determined in the following reference conditions: medium = water, water and ambient temperatures 20 °C, min. upstream and downstream distances respected, appropriate pipe dimensions.

Materials

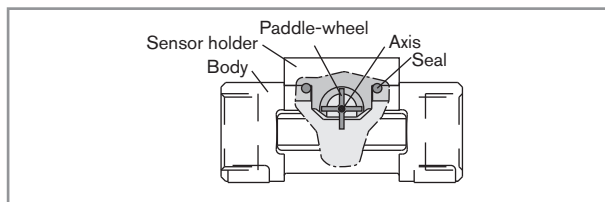


Fig. 1 : Sectional drawing of the S030 HT fitting

Component	Material
Seal	FKM EPDM on request
Body	Stainless steel (316L - 1.4404)
Screws	Stainless steel (316L - 1.4404)
Paddle-wheel	Stainless steel
Axis	Ceramics (Al ₂ O ₃)
Bearings	Iglidur®

Dimensions of device

→ Please refer to the technical data sheets regarding the type 8030 HT available at: www.burkert.com

K factors (pulse/litre)

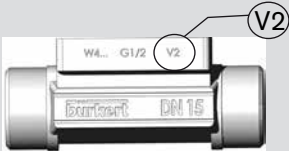
The K factors have all been determined under the following reference conditions: medium = water, water and ambient temperatures 20 °C, min. upstream and downstream distances respected, appropriate pipe dimensions.



To convert a K factor given in pulse/litre, use one of the following formulae:

- K factor in pulse/US gallon = K factor in pulse/litre x 3.785 to obtain a flow rate value in US gallon/time unit.
- K factor in pulse/UK gallon = K factor in pulse/litre x 4.546 to obtain a flow rate value in UK gallon/time unit.

! Two versions of the S030 HT in DN15 and DN20 exist, having different K factors.
Only version 2, identified by the "v2" marking, is available from March 2012. The "v2" marking can be found on the side of the DN15 or DN20 fitting in metal:



! If the fitting is combined with an SE30 HT electronic module in the sinus version, increase the given K factor by a factor of 2.

! The names of the following norms have changed in the Operating Instructions:

- for the welding ends, norm BS 4825 is renamed BS 4825-1.
- for the clamp connections, norm BS 4825 is renamed BS 4825-3.
- for the flange connections, norm EN 1092-1 is renamed EN 1092-1/B1.

!

- The norm for the clamp connections ISO has been replaced by norm DIN 32676 serie B.
- The norm for the clamp connections, DIN 32676 serie A has been added.

Type of connections and standard	K factors (pulse/litre)		
	DN6	DN8	DN15
Weld ends acc. to:			
▪ SMS 3008	-	-	-
▪ DIN 11866 serie C / BS 4825-1 / ASME BPE	-	-	-
▪ DIN 11850 serie 2 / DIN 11866 serie A / EN 10357 serie A	-	278	106
▪ DIN 11866 serie B / ISO 1127 / ISO 4200	-	-	106
External threads acc. to:			
▪ SMS 1145	-	-	-
▪ G	440	278	106
Internal threads acc. to:			
▪ G, Rc, NPT	-	-	106

K factors (pulse/litre)						
DN15 v2 ¹⁾	DN20	DN20 v2 ¹⁾	DN25	DN32	DN40	DN50
-	-	-	66.9	-	31.1	19.9
-	106	73.0	66.9	49.0	31.1	19.9
73.0	106	73.0	66.9	49.0	31.1	19.9
73.0	66.5	-	49.0	31.8	19.8	11.4
External threads acc. to:						
-	-	-	66.9	-	31.1	19.9
73.0	66.5	-	49.0	31.8	19.8	11.4
Internal threads acc. to:						
73.0	66.5	-	49.0	31.8	19.8	11.4

¹⁾ See page 16.

Type of connections and standard	K factors (pulse/litre)		
	DN6	DN8	DN15
Clamp acc. to:			
▪ SMS 3017	-	-	-
▪ BS 4825-3 / ASME BPE	-	-	-
▪ DIN 32676 series A	-	278	106
▪ DIN 32676 series B	-	-	106
Flanges acc. to:			
▪ EN 1092-1 / B1 / PN16	440	-	106
▪ ANSI B16-5			
▪ JIS 10K			

K factors (pulse/litre)						
DN15 v2 ¹⁾	DN20	DN20 v2 ¹⁾	DN25	DN32	DN40	DN50
-	-	-	66.9	-	31.1	19.9
-	106	73.0	66.9	-	31.1	19.9
73.0	106	73.0	66.9	-	31.1	19.9
73.0	66.5	-	49.0	31.8	19.8	11.4
73.0	66.5	-	49.0	31.8	19.8	11.4

¹⁾ See page 16.

7. INSTALLATION

Safety instructions

DANGER

Risk of injury due to high pressure in the installation.

- ▶ Stop the circulation of fluid, cut-off the pressure and drain the pipe before loosening the process connections.

Risk of burn injury due to high fluid temperatures.

- ▶ Use safety gloves to handle the product.
- ▶ Stop the circulation of fluid and drain the pipe before loosening the process connections.

Risk of injury due to the nature of the fluid.

- ▶ Respect the prevailing regulations on accident prevention and safety relating to the use of dangerous fluids.

WARNING

Risk of injury due to non-conforming installation.

- ▶ The fluid installation can only be carried out by qualified and skilled staff with the appropriate tools.
- ▶ Observe the installation instructions for the measuring device inserted into the fitting.

Risk of injury due to an uncontrolled restart.

- ▶ Ensure that the restart of the installation is controlled after any interventions on it.

WARNING

Risk of injury if the fluid pressure/temperature dependency is not respected.

- ▶ Take account of the fluid pressure/temperature dependency according to the nature of the materials the fitting and the measuring device used are made of (see the relevant Operating Instructions).
- ▶ Comply with the pressure equipment directive 2014/68/EU.

→ Select an appropriate fitting regarding to the flow velocity and the flow rate of the fluid in the piping, see the following charts:

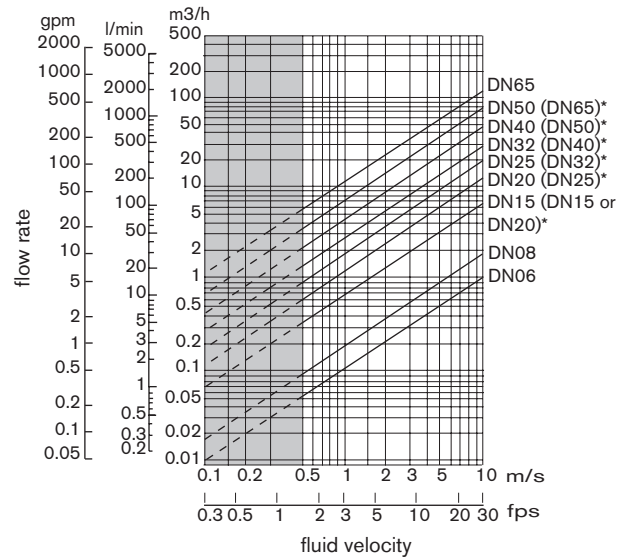
The graph is used to determine the DN of the pipe and the fitting appropriate to the application, according to the fluid velocity and the flow rate.

Selection example:

- **Specification:** if the nominal flow is 10 m³/h, the dimensioning of the optimal flow rate must be contained in 2 to 3 m/s.
- **Solution:** on the graph, the intersection of flow rate and flow velocity gives the appropriate diameter, DN40 or DN50 for fittings with (*).

* For fittings:

- with external threads according to SMS 1145,
- with weld ends according to SMS 3008, BS 4825-1 / ASME BPE / DIN 11866 series C, DIN 11850 series 2 / DIN 11866 series A / EN 10357 series A,
- Clamp according to SMS 3017, BS 4825-3 / ASME BPE, DIN 32676 series A.



! To reduce the water hammer effects, install a special device such as an 80 bar calibrated exhaust valve within the circuit.

→ Install the fitting on the pipe to comply with the upstream and downstream distances defined by standard EN ISO 5167-1 (see Fig. 2).

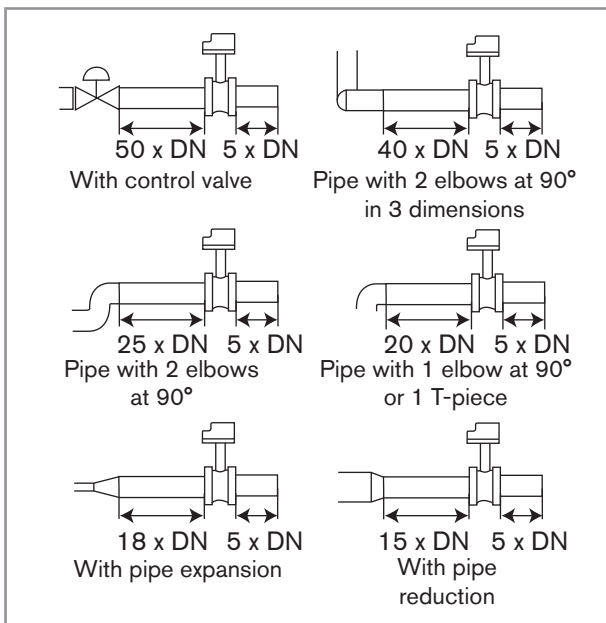


Fig. 2 : Upstream and downstream distances depending on the design of the pipes.

- Use a flow conditioner, if necessary, to obtain the best accuracy.
- Prevent the formation of air bubbles in the pipe (see Fig. 3).
- Ensure the pipe is always filled with liquid (see Fig. 4).

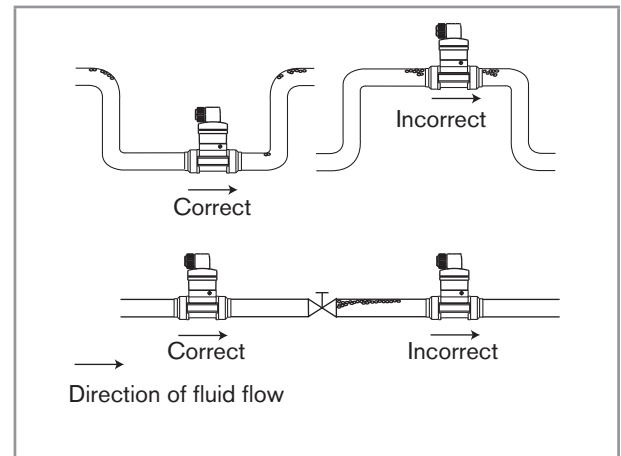


Fig. 3 : Additional recommendations on installation

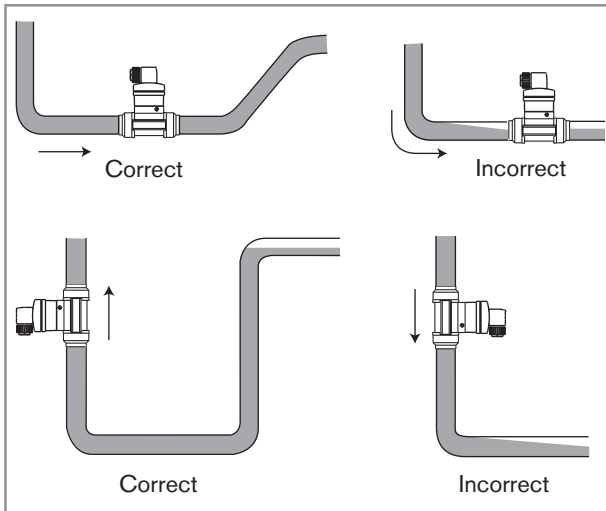


Fig. 4 : Additional recommendations on installation

Installing a fitting with weld ends



Follow the previously described general installation recommendations.

NOTICE

The seal on the fitting with weld-end connections may be damaged during welding.

- Before welding the weld-ends, unscrew the 4 tightening screws.
- Remove the sensor holder.
- Remove the seal.
- Weld the weld-ends.
- After welding, correctly replace the seal in the groove.
- Replace the sensor holder.
- Tighten the 4 screws in an alternating pattern, applying a nominal tightening torque of 1.5 N·m (1.11 lbf·ft).

8. MAINTENANCE

Safety instructions



DANGER

Risk of injury due to high pressure in the installation.

- ▶ Stop the circulation of fluid, cut-off the pressure and drain the pipe before loosening the process connections.

Risk of burn injury due to high fluid temperatures.

- ▶ Use safety gloves to handle the product.
- ▶ Stop the circulation of fluid and drain the pipe before loosening the process connections.
- ▶ Keep all easily flammable fluid or material away from the fitting.

Risk of injury due to the nature of the fluid.

- ▶ Respect the prevailing regulations on accident prevention and safety relating to the use of dangerous fluids.



WARNING

Risk of injury due to non-conforming maintenance.

- ▶ Maintenance must only be carried out by qualified and skilled staff with the appropriate tools.
- ▶ Ensure that the restart of the installation is controlled after any interventions.

Cleaning

NOTICE

The product may be damaged by the cleaning product.

- ▶ Clean the product with a cloth dampened with water or a detergent compatible with the materials the product is made of.

9. SPARE PARTS AND ACCESSORIES



CAUTION

Risk of injury and/or damage caused by the use of unsuitable parts.

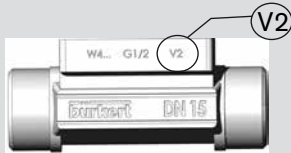
Incorrect accessories and unsuitable spare parts may cause injuries and damage the fitting and the surrounding area.

- ▶ Use only original accessories and original spare parts from Bürkert.



Two versions of the S030 HT in DN15 and DN20 exist, having different K factors.

Only version 2, identified by the "v2" marking, is available from March 2012. The "v2" marking can be found on the side of the DN15 or DN20 fitting in metal:



Spare parts	Order code
Sensor holder in stainless steel	
With stainless steel paddle-wheel, FKM seal, screws and certificate, for DN06, DN08, DN15 v2 and DN20 v2	449 723
With stainless steel paddle-wheel, FKM seal, screws and certificate, for DN15 (except DN15 v2 and DN20 v2) to DN50	551 764
With stainless steel paddle-wheel, EPDM seal, screws and certificate, for DN06, DN08, DN15 v2 and DN20 v2	449 724
With stainless steel paddle-wheel, EPDM seal, screws and certificate, for DN15 (except DN15 v2 and DN20 v2) to DN50	551 763
Set of O-rings (DN6 to DN50) for metal fittings (see Fig. 5)	
FKM	426 340
EPDM	426 341



Fig. 5 : Position of O-ring in an S030 HT fitting

Accessory	Order code
Inspection certificate 3.1 acc. to EN 10204	803 723
Test report 2.2 acc. to EN 10204	803 722
Certificate with the surface finish value	804 175
3-point calibration certificate (S030 HT combined with the flowmeter inserted)	550 676

10. PACKAGING, TRANSPORT, STORAGE

CAUTION

Damage due to transport

Transport may damage an insufficiently protected product.

- ▶ Transport the product in shock-resistant packaging and away from humidity and dirt.
- ▶ Do not expose the product to temperatures that may exceed the admissible storage temperature range.

Poor storage can damage the product.

- ▶ Store the product in a dry place away from dust.
- ▶ Storage temperature of the product: $-15...+100\text{ }^{\circ}\text{C}$.

Damage to the environment caused by parts contaminated by the fluid.

- ▶ Dispose of the product and its packaging in an environmentally-friendly way.
- ▶ Comply with the national and/or local regulations which concern the area of waste disposal.