Original

Installation and service instruction

Junc Trap (JT)

Stafsjö
SINCE 1666

Original

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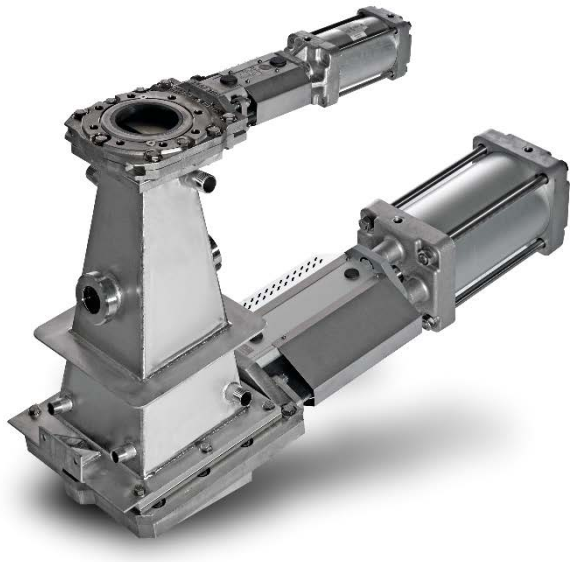

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A) General

In this instruction the complete “Junc Trap” is shortly called “JT” and a knife gate valve is called “valve”.

A1 Symbols

In this instruction notes and warnings are marked with symbols:

 XXXXX	**Danger / Warning** Points out a dangerous situation which may cause personal injuries or death.
	**Advice** Has to be respected.
	**Information** Information useful to follow.

If these notes and warnings are not respected by the user, dangerous situations may occur and may invalidate the warranty of the manufacturer.

A2 JT destination

The Junc Trap is destined – after installation below a flange in a vertical pipe system – to shut off or to open within the admissible pressure/temperature limits.

These pressure and temperature limits depend on the materials of valve body, tank, gate and seat. Temperature limits are defined in the valve data sheet of each type. Maximum working pressure are limited by the tank, see marking.

	The JT is destined to be used only for fluids in group 2 according European regulation 1272/2008/EG.

The flow shall be without vibrations and/or pressure chocks. The surrounding environment should not imply any risk to the JT.

At valve operation respect:

- The manufacturers declaration to EU directives,
- This original installation and service instruction which is supplied together with the valve and the tank.

Stafsjö Valves AB does not accept any responsibility if this “JT destination” is not observed.

A3 Related documents

Further information on the valves is available on www.stafsjo.com.

ds+valve type (i.e. *ds-RKO*) = Data sheet with technical information (dimensions, material specification etc.)
mi+valve type (*i.e. mi-RKO*) = Instructions for maintenance on each valve type.
sp+valve type (*i.e. sp-RKO*) = Specify spare parts for each valve type.
acc+type of accessory (*i.e. acc-SV*) = Accessory for different types of valves. I.e solenoid valve.
stafsjo-valve-spec = Specification of parts and valve combinations.

A4 Valve and tank marking

Each valve and reject tank is labelled as follows:

Stafsjö SINCE 1666 CE 0045

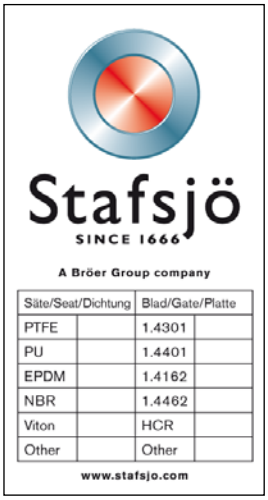
Art.No JTE025V18R30

Ser.No 2016-333133-96084

Max PS Valve body/differential: 6/6 BAR

Valve marking

Ser.No: Serial number consisting of year – individual no - order number.
CE-marking when applicable.



Label for identification of seat and gate material

Additional: Markings on casted valve body:

DN XXXX: (mm) nominal diameter
PN XX: (bar) pressure class of valve body
i.e. GGG50 valve body material

Company AB
Drawing no: 12279 D Max pressure: 6 bar
Fluid group: 2 Id.no: 113989

Reject tank marking

Drawing no: Drawing number and revision,
Id.no: individual no

Stafsjö SINCE 1666

Art.No JTTANK200250M

Ser.No 2016-333133-96084

Max PS Valve body/differential: 6 BAR

Additional label for identification of the TANK

These labels shall not be removed, over coated or otherwise covered.

!	"Max. pressure tank" which is marked on the label (see above) is max. allowed pressure. More information on this is available in the data sheet which can be downloaded from www.stafsjo.com.
i	Refer to the "Serial Number" of the valve or the tank marking at any contact with Stafsjö.

A5 Transport, storage, handling and assembling

Note
Additional requirements may be found in the actuator instruction, if any.

Storage and transport:

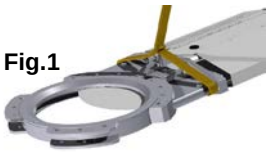
Keep the valves in open position during storage to ensure its function and to protect the polished surface of the gate. Store the JT in a clean and dry environment and protect it against dirt, dust and other contamination. Do not expose the JT to direct sunlight. If the JT is stored outside, it shall be wrapped tightly in a plastic foil or similar to protect it against moisture or any dirt contamination. It should also be stored high enough without any risk to be covered in snow or enclosed by water.

i	The JT has been packed according to the terms of delivery. It is important to make a visual inspection at arrival. If transport damage is detected, report to the transportation company.

Handling:

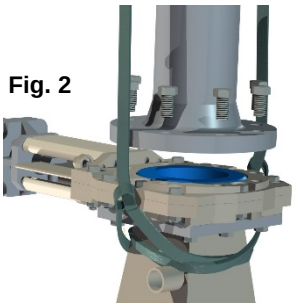
Handling of valves:
Lifting and moving shall be carried out with soft straps. Place and fasten the soft strap on the valve body as shown in fig.1. Make shure that all equipment is designed to hold the weight of the valve.

Fig.1



Handling of <u>assembled</u> JT:
Place and fasten the soft strap under the upper valve (RKO) and around the reject tank (48) as shown in fig 2. Make shure that all equipment is designed to hold the weight of the complete JT.

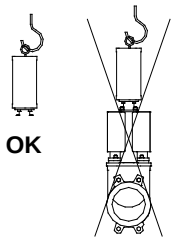
Fig. 2



!	Never place lifting equipment: • On the actuator, accessories or gate guards. • In the bore of the valve, since it might cause damages to the seat and retainer ring.

!	Specifically note that threaded hole on top of pneumatic cylinder type EC, is only for handling the cylinder itself (not for the complete valve or JT). See figure 3.

Fig. 3



OK

Assembling:

The JT can be delivered in two different ways, completely assembled or in parts. When delivered completely assembled, see “Handling of assembled JT” above.

When in parts, connect the valves to the reject tank by using the supplied bolts and gaskets (47, 50), fig. 4. Make sure that the JTV valve (52) is connected in the bottom of the tank (48) with the seat side upwards towards the reject tank (48), at the same time, connect the support bracket (49) with the same screws. Connect the RKO valve (46), with the square side downwards towards the tank. Above assembling would be easiest done on a pallet on the floor. When assembled, the Junc Trap is ready for installation, according section B, below a flange in a vertical pipe. See figure 2.

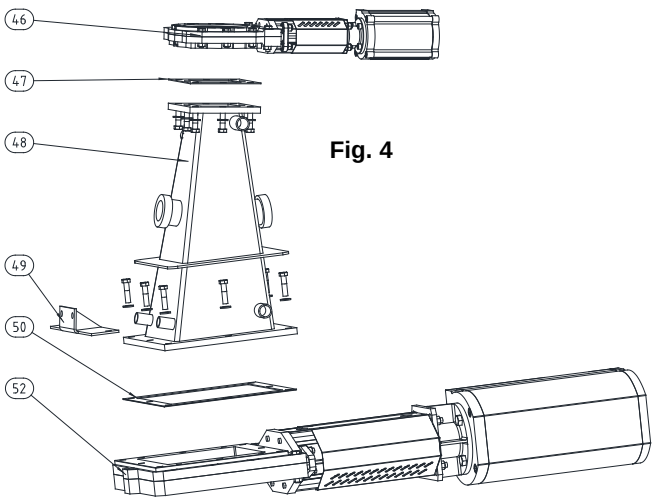


Fig. 4

B) Installation/functional check

	This instruction includes safety recommendations for foreseeable risks at installation into a (pipe) system. The user is responsible to complete this instruction with warning notes for system specific aspects. All requirements of the system shall be observed.

B1 Safety warnings at installation

!	• Installation shall be performed by qualified personal. Qualified are those persons who, due to experience, can judge the risks and execute the work correctly and who are able to detect and eliminate possible risks. • The JT shall only be installed into the system as a complete unit, see above • After installation, the function of the JT shall be in accordance with the JT and the actuators (if any) destinations, see section A2. • At the end of the installation the gland bolting shall be tightened according to Table in section B7.

Danger	**1.** A valve with an actuator shall only be operated if: • The valve is installed between flange and a protective device. • The gate guards are installed on the beams on automatic operated valves. **2.** Always install protective equipment to prevent people getting to close to the JT and being exposed to the media transported in the system when the JT opens. **People's life and health is at stake if this is not observed. Any other action is the responsibility of the user.**

B2 Conditions for installation

Make sure:

- To install the JT according "JT destination", see section A2. Observe valve and tank marking, see section A4.
- That the pipe section is not exposed to vibrations or other mechanical stresses which could deform the JT and affect the valve's tightness and/or ability to operate.
- That the environment does not imply any risk to the JT, the actuator or the accessories.
- That flanges, pipe line and the JT are empty, free from solid and sharp particles.
- The JT is only to be installed **below a flange in vertical pipe** with the RKO valve as the JT's inlet valve
- That the JT is protected against radiant heat, if the JT is placed near a heat source whose temperature exceed maximum allowable temperature for the valves or its actuators.
- The mating (=gasket contact) surface of the flange cover the retainer ring completely. Detailed information on flange drilling, threads, length and number of bolts is available in data sheet on www.stafsjo.com.
- To follow those instructions which are supplied with the valves and actuators (if any).
- The pipe line is free from pressure.
- Additional requirements may be found in the valve and actuator instruction

B3 Pressure, flow direction and valve position

The JT must be installed below a flange in a vertical pipe system. When the JT is open or closed, the pressure may not exceed maximum allowable working or differential pressure according the JT data sheet.

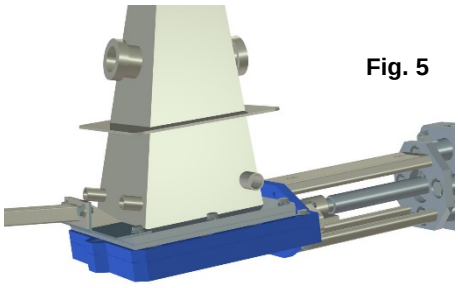
- The JT is only to be installed **below a flange in vertical pipe** with the RKO valve as the JT's inlet valve.

B4 Necessary support for special cases

Valves that are exposed to vibrations or other mechanical stresses can be subject to forces that will affect valves tightness and ability to operate. To ensure proper operation it is necessary to add support to the JT.

Support details are the responsibility of the customer. Stafsjö will assist on request. An example is shown to the right, see fig. 5.

Fig. 5



B5 Steps to install the JT

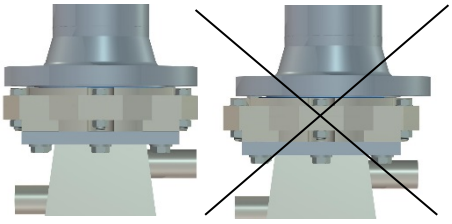
On handwheel operated valves, see original installation and service instruction knife gate valves, in order to assemble the hand wheel properly.

When installing the JT, make sure that:

- The RKO's centre line is on the same centre line as the flange, see fig. 6.
- Flange surfaces of the pipe and valve must be exactly parallel, see fig. 6.

If the flanges and the valve are not centred, the valve may be damaged by erosion and a dirt pocket may occur which can lead to clogging and corrosion of the JT.

Fig. 6



1. Place the gasket between the RKO-valve and the connecting flange. Check that the gasket is well centered and covers the complete surface of the retainer ring.

2. Lubricate the bolts. This allows correct pre-setting of the flange and makes it easier to dismantle the bolting later.

!	*Flange bolts of right length are necessary:* • ***Too long bolts*** could deform the valve body and result in leakage in the flange. • ***Too short bolts*** *could deform the threaded holes in the valve body at installation.* Choose bolts with the correct thread and length according to the flange drilling information in the data sheet.

3. Tighten the bolts first manually and then evenly and crosswise, for a uniform load of the gasket, with a torque as required by the gasket manufacturer.

4. Make sure the JT is supported to avoid vibrations. To ensure life length and proper operation, it is necessary to add a support to the JT, see fig 5.

5. Connect air and water connections, see fig. 7. To ensure endurance and function it is recommended to use water with good quality to the flush/filling connections.

   1. Flush/filling water connection (DN25/R 1").

   2. Flush/filling water connection (DN20/R 3/4").

   3. Flush/filling water connection (DN25/R 1"). (optional)

   4. De-aeration connection (DN25/R 1").

   5. Flush/filling water connection (DN20/R 3/4").

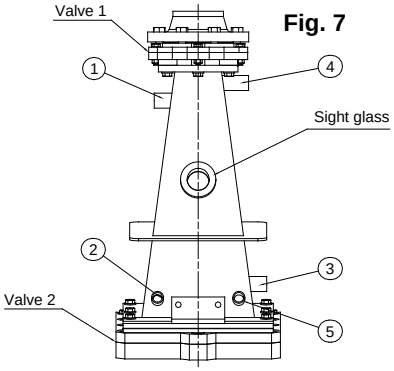


Fig. 7

6. To finish the installation, make an operational test. Observe the valve and actuator (if any) instructions.
   - A valve with electric/pneumatic actuator shall be operated by the plant control signals into its end positions, i.e. OPENED and CLOSED.
   - At connection of an actuator to the plant control system the actuator's instructions shall be followed.

Operation (see also fig 7)

1. Make sure the tank and pipe is cleaned from impurities. To clean the JT, it must be opened 100%.
2. Make sure both valves are closed and the tank is de-aretaed.
3. Filling phase
   a. Fill up the tank. Connections 1-5 opens up to fill up the tank (a visual inspection is possible through the sight glasses).
   b. Close connections 1-5 when the tank is filled (liquid comes from connection 4).
4. Open valve 1.
5. Emptying phase
   a. Close valve 1 and open valve 2. Open connection 4.
6. Open connection 1, 2, 3 (optional) and 5 to wash out the tank.
7. Close valve 2 and repeat step 3-6 when necessary.

The reject level can be visually controlled and optimized through the sight glasses on two sides of the reject tank.

	*Valves with actuator supplied by Stafsjö are exactly adjusted in the end positions:* This adjustment shall not be changed as long as the valve operates correctly.
!	***Only for Valves with electric actuator:*** Ensure that the actuator motor stops by the signal of the limit switch for closed and open position of the actuator. Exceptional force may damage the valve. The signal of the torque switch may be used for signal for faulted conditions. *For further information, see the actuator instruction.*

B7 Pressure testing after installation (if necessary)

Each valve has been pressure tested before delivery by the manufactrurer according to EN12266-1. The tank has been tested by the manufacturer according to manufacturing standard. For pressure test of the pipe section with a JT installed the conditions for the system apply but with the following restrictions:

- The pressure test **shall not exceed 1,5 x max. working pressure of the JT** (see valve and tank marking). The gates shall be open**.**
- Pressure test with JT in closed position shall not exceed **1,1x max. differential pressure in preferred pressure direction,** (see datasheets for the valves) in order to prevent overload of the gate.

	Immediately at this operation check the stuffing box tightness of the valves: In case of leakage: Tighten the gland nuts evenly crosswise and bit by bit until leakage stop. **Do not tighten more than necessary!**

Recommended maximum torque

DN	DN 50 – DN 80	DN 100 – DN 150	DN 200 – DN 300	≥ DN 350
Nm	20	25	30	35
lbf x ft	15	18	22	26

B8 Disassembling the JT

Note:
Additional requirements may be found in the actuator (if any) instruction.

For the JT the same safety instructions apply as for the pipe (system) and for the control system. The respect of these requirements shall be followed.

Danger	Disassembling the JT from the pipe line may only be done when: • the pipe section is free from pressure and is empty • all the electronic and/or pneumatic/hydraulic connections have been disconnected **People's life and health is at stake if this is not observed. Any other action is the responsibility of the user.**

Disassemble the JT in following steps:

1. Depressurise the pipe section and drain it completely.
2. Disconnect all electric and/or pneumatic/hydraulic connections.
3. Fasten and use soft straps as shown in Fig.2, section A5. Make sure not to damage the valves, gates, gate guards or any accessories.
4. Take out the JT from the pipe carefully in order to protect the flange gaskets.
5. At transport and storage observe section A5.

C) Service and maintenance

Note
Additional requirements may be found in the actuator instruction.

The user shall make a risk analysis as per Machinery Directive 2006/42/EC for the pipe system. Stafsjö supplies the following documents for it:

- The original installation and service instruction of the valve and the JT.
- An installation and service instruction of the actuator (if any)
- The manufacturer's declaration(s) to EC Directives.

	This instruction includes safety notes for industrial application for any foreseeable risk at use of the valve. It is the responsibility of the user/planner to complete this instruction with warning notes for plantspecific risks.

Further information on Stafsjö's valves is available on www.stafsjo.com.

C1 Safety warnings at service and maintenance

	• At operation, the function of the JT shall be in compliance with the <JT Destination>, see section A2. • The service conditions of the JT shall be in compliance with the valve and tank markings, see section A4. • Service and maintenance shall be performed by qualified personal. Qualified are those persons who, due to experience, can judge the risk and execute the work correctly and who are able to detect and to eliminate possible risks. • At service the JT shall be inspected on regular basis for leakage or other external effects that could affect the safety for the personnel. • If a fault or problem is detected at an inspection or manoeuvre test, the JT must be maintained as soon as possible • At any start up, the gland box shall be visually inspected for leakage. If any are detected, the nuts shall be tightened according to table in section B7. Except for this action, no maintenance is allowed on the JT when the pipe line is pressurised. • At maintenance or repair of an actuator, it shall be disconnected as described in section B8. The pipe section must be free from pressure and completely drained before any maintenance begins. • The temperature of the exterior parts of the JT depends of the fluid temperature inside – any protective insulation is in the responsibility of the user. • Make sure the Junc Trap is supported to avoid vibrations. To ensure life length of the Junc Trap it is necessary to add support. • Avoid overfilling of the Junc Trap. Damages will occur to the upper valve (RKO) if the Junc Trap is overfilled on a regularly basis.
 **Danger**	1. The gland box packing together with the gland makes sure that no media reaches surrounding environment where the gate exit the valve body. When the gland box packing (braids) shall be changed, the gland bolts must be loosened and the the pipe section **shall be depressurised and empty**. 2. A valve with an actuator shall only be operated if: • The valve is installed between flange and a protective device. • The gate guards are installed on the beams on automatic operated valves. 3. Always install protective equipment to prevent people getting to close to the JT and being exposed to the media transported in the system when the JT opens. **People's life and health is at stake if this is not observed. Any other action is the responsibility of the user.**

C2 Manual and automatic actuation

A valve with automatic actuator is operated following the signals from the plant control system. Valves equipped with actuator supplied by Stafsjö are exactly adjusted to stop in the exact end positions. This adjustment shall not be changed as long as the valve operates correctly.

Valves with infrequent operation:
A test with full actuation movement should be performed once a month, to verify that the valve function correctly.

C3 Maintenance

Seat, guiding pads and box packing are wear parts that have to be replaced regularly. The interval for replacement depends on the application and operating data such as pressure, temperature, erosion, chemical and mechanical effect of the media on the materials in the JT.

As long as the JT is tight the only maintenance that has to be performed is a visual control of the stuffing box tightness. Tighten the gland at any leakage; see section B7 for recommended maximum torque.

C4 Troubleshooting

Problem	Reason	Measure
Leakage from stuffing box packing	Gland bolting too loose* Worn-out box packing Incorrectly installed box packing Damaged gate	See relevant maintenance instructions issued by Stafsjö *Download: www.stafsjo.com*
Leakage at flange connection	Wrong length of bolts in flanges Loose flange bolting Valve not centred at flange connection Valve not parallel to flanges Gasket not centred Wrong gasket material	See this instruction, section B5 and B7 See Stafsjö's maintenance instructions and relevant data sheet *Download: www.stafsjo.com*
Leakage through valve bore	Worn-out seat/sealing profile Valve does not close 100% Damaged seat or gate	See relevant maintenance instructions issued by Stafsjö *Download: www.stafsjo.com* See instruction for actuator (if any)
Gate does not open/close completely	Fault in actuator Fault in limit switch setting Valve clogged Damaged seat/sealing profile or gate	See instruction for actuator/accessories See the relevant maintenance instructions issued by Stafsjö *Download: www.stafsjo.com*
Gate does not open/close in a smooth movement	Fault in actuator Valve clogged Damaged seat/sealing profile or gate Not enough air supply pressure Not enough air flow supply	See the relevant instruction for actuator See relevant maintenance instructions issued by Stafsjö *Download: www.stafsjo.com*
Too large force to open/close the gate (too high hand force as well)	Gland nuts tightened by too high torque Valve exposed to stress/tension Valve clogged or deformed Damaged seat/gate	See the relevant maintenance instructions issued by Stafsjö *Download: www.stafsjo.com*
Leakage in the flange connection valve/tank	Damaged gasket material Wrong length of bolts in flanges Loose flange bolting Valve/Tank not centred at flange connection Valve/Tank not parallel to flanges Gasket not centred Wrong gasket material	See this instruction, section B5 and B7 See Stafsjö's maintenance instructions and relevant data sheet *Download: www.stafsjo.com*

** When tightening the gland box bolts: See Table section B7*

Stafsjö can offer maintenance of valves. Contact Stafsjö or your local representative for further information.

Stafsjö does not accept any responsibility for the product if wear parts not tested and approved by Stafsjö are used on the valve. Stafsjö does not accept any responsibility for the product if maintenance instructions are not followed during maintenance.

Declaration in compliance with EU-Directives

The manufacturer **Stafsjö Valves AB, SE-618 95 Stavsjö Sweden,** declares that valve types **D2G, HG, HL, HP, HX, JTV, MP, MV, RKO, RKS, SLF, SLV, SLH, SLX, TV, XV** and **WB** are manufactured in accordance with the requirements of the following standard and EU-Directives.

- **EN ISO 12100-2010 "Safety of machines Basic terms, general design guidelines"**
- **Pressure Equipment Directive (PED) 2014/68/EU:** The valves comply with this directive and fulfil the requirements in EN 12516. The conformity rating procedure used according to Annex III of the Pressure Equipment Directive 2014/68/EU category I and II module A2. The valve is CE marked when it is applicable.
  Notified body: **TÜV NORD Systems GmbH & Co. KG, Reg.-No. 0045**
- **Machine Directive 2006/42 EC (MD).** Automatically manoeuvred valves fulfil the demands in this directive as a "partly complete machine". This declaration is considered as a declaration of Incorporation. 2006/42 EC (MD) does not apply if the valve is actuated manually – observe the Table below
- **ATEX Directive 2014/34/EU – the directive is fulfilled only when the valve is labelled with EX-marking**
  The valves comply with this directive. The ATEX Directive 2014/34/EU does not apply if the valve is operated manually. The conformity rating procedure used according to EN13463-5:2003 "Non electric equipment intended for use in potentially explosive atmospheres – Part 5: Protection by constructional safety "C"
  - For Group II, 3 G/D (zone 2 or 22)

Product documents are available on the following:

Design documentation, Technical data sheets, catalogue pages

Stavsjö, 2017-07-01

Maria Persson

Maria Persson, General Manager

To comply with the directive above, the following applies:

1. The use of the valve must comply with the <valve destination> defined in the "Original Installation and Service Manual ("IS-VALVES_EN") supplied with the valve and must follow all instructions in this manual.
   If this manual is not followed, the manufacturer may – in serious cases – be released from his product liability.
2. The valve shall not be put into operation (and the fitted actuator if any) until the conformity to all applicable EU directives above of the system into which the valve is fitted has been declared by the persons responsible. A separate declaration is supplied for the actuator named above.
3. Stafsjö Valves AB has made and documented the required risk analysis; the Stafsjö AB employee responsible for this documentation is Ulrika Björn, SE-618 95 Stavsjö.

Manufacturer STAFSJÖ Valves AB SE 61895 Stavsjö, Sweden, declares that a STAFSJÖ knife gate valve complies Directives 2006/42/EC as follows:	
Requirements as per Annex 1 of the Directive 2006/42/EC	
1.1.1, h) Valve destination	See original installation and service instruction.
1.1.2.,c) foreseeable misuse	See original installation and service instruction , section B1 och C1.
1.1.2.,d) protecting measures personnel	Same as the pipe section into which the valve is installed. See original installation and service instruction, section B1.
1.1.2.,e) accessories for maintenance	No special tools are necessary.
1.1.3 material in contact with the fluid	All valve material in contact with media are specified in the order acknowledgement and/or on the valve's marking. The relevant risk analysis is the responsibility of the user.
1.1.5 handling	See original installation and service instruction
1.2 and 6.2. control system	Is the responsibility of the user in combination with the instruction of the actuator.
1.3.2 withstand to stresses	For parts under pressure: See declaration of conformity to the PED 97/23/EC For functional parts: Ensured at contractual use of the valve.
1.3.4 sharp edges or angles	Requirements fulfilled.
1.3.7/.8 risks related to moving parts	Requirements are fulfilled at contractual use of the valve, see original installation and service instruction. Observe the warnings. Delivered gate guards must be installed on the valve. No maintenance is allowed when the pipe line is pressurized or the automatic actuator is connected. If the valve is modified by the customer (new actuator) necessary protective devices shall be installed. Ask Stafsjö for support.
1.5.1 – 1.5.3 energy supply	In the responsibility of the user in combination with the instruction of the actuator.
1.5.5 contact to surface with high/low temp.	See warning in the "Original installation and service instruction"
1.5.7 -explosion	Ex-protection may be necessary. This shall be confirmed in Stafsjö's order acknowledgement. Observe the valve's marking and relevant instruction from Stafsjö.
1.5.13 emission of dangerous substances	Not applicable at not dangerous fluids. For dangerous fluids: pay attention when re-tightening the gland box. Personal safety equipment may be necessary.
1.6. maintenance	See original installation and service instruction
1.7.3 marking	Knife gate valve: see original installation and service instruction Actuator: see actuator instruction
1.7.4 service instruction	See original installation and service instruction and actuator instruction.
Requirements from Annex III	The knife gate valve is not a complete machine. No CE marking for conformity with the directive 2006/42/EG.
Requirements from Annexes IV,VIII to XI	Not applicable.

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