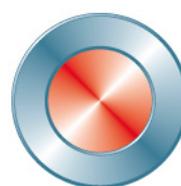


ATEX installation and service instruction

2014/34/EU for Cat 2 Zone 1/21

Knife gate valves series

XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV, D2G



Stafsjö
SINCE 1666

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0 General

The purpose of this instruction is to make installation, service and maintenance easy for the user of Stafsjö Knife Gate Valves in series XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G in -area.

	If these notes and warnings are not respected by the user, dangerous situations may occur and may invalidate the warranty of the manufacturer. The manufacturer will answer any questions. For addresses, see chapter 3.
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1 Service destination

1.1 General destination

Stafsjö valve types XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G are destined - after installation between flange(s) in a pipe system – to shut off, to open or - in particular cases - control the flow within the admissible pressure/temperature limits.

Further information on the valves; see Stafsjö Original Installation and Service Instruction Knife Gate Valves

1.2 Service in - zone area

If Stafsjö valves types XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G are used in areas classified in accordance with Directive 1999/92/EG (ATEX 118a):

- The safety warnings below must be imperatively followed
- The *Stafsjö Original Installation and Service Instruction Knife Gate Valves* must be followed to its full extent by the user.
- Can, if necessary, Stafsjö- document:< Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G,> be consulted.
- A separate risk analysis must be done by the end user, as well as corresponding precautions for the combination valve/actuator/solenoid valve (depending on what is present) and the (usually electric) control system. The analysis must at least correspond to demand described in the directive 1999/92/EG (ATEX 118a) and DIN EN 13463, part 1 and 5

2 Safety requirements

2.1 General safety requirements

For the valves the same safety regulations apply as for the pipe (system) and for the components in the control system necessary for actuation. This instruction includes only such safety warnings which are extra important to pay attention to in use of the valves in -areas.

2.2 Instruction to the user

It is the user's responsibility to secure that the valve is being used according to the regulations in chapter 1.

	The knife gate valves in its total (valve, actuator, accessories) is only destined for use in designated areas according the marking of the valve.
	The valve may not be changed in any way by the user. The manufacturer will not take any responsibility if the features of the valve have been changed.

2.2.1 Specific conditions for safe use, Dust

The potentially explosive products handled must have the following safety parameters. The maximum permitted minimum ignition and smoulder temperatures depend directly on the conveying temperature T_F of the products handled.

 Danger	Seat	Max. permitted conveying temperature TF	Ignition temperature $\geq \frac{3}{2} \cdot TF$	Smoulder temperature $\geq TF + 75^\circ\text{C}$	Min.-ignition energy
	EPDM MV, WB	120°C	$\geq 180^\circ\text{C}$	$\geq 195^\circ\text{C}$	>1mj
	Nitrile MV, WB	100°C	$\geq 150^\circ\text{C}$	$\geq 175^\circ\text{C}$	
	Viton (FKM Black) MV, WB	180°C	$\geq 270^\circ\text{C}$	$\geq 255^\circ\text{C}$	
	PTFE with O-ring nitrile* XV, MV, MP, HG, HL, HX, RKO, D2G	100°C	$\geq 150^\circ\text{C}$	$\geq 175^\circ\text{C}$	
	PTFE with O-ring viton (FKM black)* XV, MV, MP, HG, HL, HX, RKO, D2G	180°C	$\geq 270^\circ\text{C}$	$\geq 255^\circ\text{C}$	
	PTFE with O-ring EPDM* XV, MV, MP, HG, HL, HX, RKO, D2G	120°C	$\geq 180^\circ\text{C}$	$\geq 195^\circ\text{C}$	
	Metal with Grafoil MV, HG, HL	300°C	$\geq 450^\circ\text{C}$	$\geq 375^\circ\text{C}$	
	Polyurethane JTV	90°C	$\geq 135^\circ\text{C}$	$\geq 165^\circ\text{C}$	

* It is the material of the O-ring that limits the temperature.

 Danger	Min. ignition energy	According to SS EN 13821
	Ignition temperature	According to SS EN 50281-2-1
	Smoulder temperature	According to SS EN 50281-2-1

2.2.2 Specific conditions for safe use, Gas

The potentially explosive products must have the following safety parameters. The maximum permitted minimum ignition and smoulder temperatures depend directly on the conveying temperature TF of the products handled.

 Danger	Seat	Max. permitted conveyed temperature TF	Ignition temperature $\geq 1,25 \cdot TF$	Explosionsgroup
	EPDM MV, WB	120°C	$\geq 150^\circ\text{C}$	IIA, IIB, IIC
	Nitrile MV, WB	100°C	$\geq 125^\circ\text{C}$	
	Viton MV, WB	180°C	$\geq 225^\circ\text{C}$	
	PTFE with nitrile XV, MV, MP, HG, HL, HX, RKO, D2G	100°C	$\geq 125^\circ\text{C}$	
	PTFE with viton	180°C	$\geq 225^\circ\text{C}$	

	XV, MV, MP, HG, HL, HX, RKO, D2G			
	PTFE with EPDM XV, MV, MP, HG, HL, HX, RKO, D2G	120°C	≥ 150°C	
	Metal with grafoil MV, HG, HL	300°C	≥ 375°C	
	Polyurethane JTV	90°C	≥ 112,5°C	

 Danger	Explosion group	According to SS EN 60079-20-1
	Ignition temperature	According to SS EN 14522

For safe use in explosive hazardous atmosphere, zone 1 only goods that are not rechargeable may be transported. The goods are not rechargeable if its specific inner resistivity is less than $10^8 \Omega m$.

2.3 Safety requirements for use of the valve in -area

2.3.1 Safety warnings at service and maintenance of the valve

 Advice	The equipment may only be used in  -areas as long as the safety requirements are followed and the valve is correctly installed. Installation and maintenance may not be done in -areas , this to avoid potentially explosions due to ignitable sparks caused by internal friction or external strain, such as stroke impact
 Danger	Wear parts must be regularly checked and immediately exchanged when worn out.

2.3.2 Hazards arising from surface overheating on valve body

 Danger	A high temperature on the conveyed material must not cause the surface temperature of the valve high enough to ignite. The manufacturer Stafsjö cannot mark the valve with temperature class according to EN 13463-1:2009 table 1, but instead must provide this designation "TX" due to that the surface temperature of the valve depends directly on the service temperature of the products handled. The user must make an ignition risk analysis. It is the user's responsibility to make sure to fulfill the regulations according to EN 13463-1:2009 chapter 6.2.5 and 6.2.7.
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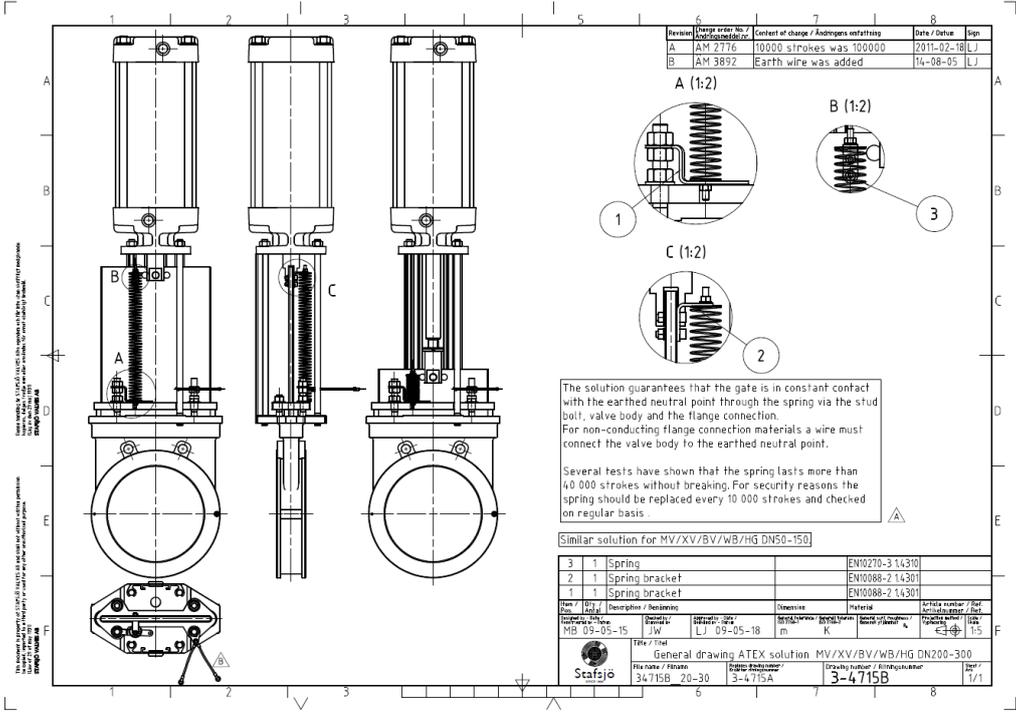
2.3.3 Inflammable medium in the valve: Hazards arising from leakage at the valve body

 Danger	If the valve is built in to a pipe system transporting an ignitable medium, could this at an eventually leakage from the valve end up in the surrounding environment. A leakage could also - if an ignition source exists nearby the valve – become a hazard. In this type of application the user must perform maintenance on the valve periodically in accordance with <i>Stafsjö Original Installation and Service Instruction Knife Gate Valve</i> , in such a way that the valve, <ul style="list-style-type: none"> • and, in particular glandbox packing (at the gate), • as well as the bolting of the two valve bodie halves (when applicably)
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	<p>is inspected in respect of risk of leakage. The user must inspect the tightness when taking in service and thereafter establish monitoring periods and change of wear parts depending on the risk of ignition in the system.</p> <p>At gaseous medium with a temperature <50°C a suitable method of testing is to spray a foaming liquid all over the exterior of the valve.</p> <p>The manufacturer Stafsjö can on demand send a spare part kit for every valve. This kit includes all the usual wear parts.</p>
	<p>Reference: <i>Stafsjö</i>-Document: Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G chapter 4.3, table 3</p>

2.3.4 Hazards arising from electrostatic charge and discharge

 Danger	<p>According to regulations, a metal valve must be fastened close on to metal pipework, which leads to the valve conducting electricity. If the valve is not grounded through this connection (this is not likely), there is a potential risk of ignition. The valve body must therefore be <u>grounded separately</u> according to SS-EN13463-1:2009 chapter 6.7.2. On the valve there is an earthing cable for this purpose. The user has to make sure that an installed valve is correctly grounded and that the valve's function throughout its useful life is ensured.</p>
	<p>Reference: <i>Stafsjö</i>-Document: Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G chapter 4.3, table 3</p>

 Danger	<p>Make sure that the speed of the moving gate is less than 1m/s, to avoid the risk of ignitable sparks caused by impact or friction. But since it is not possible to rule out electrical charge of the gate at high flow speed, valve designated for - use is equipped with a spring unit, i.e. from the factory.</p>																						
																							
	<p>The solution guarantees that the gate is in constant contact with the earthed neutral point through the spring via the stud bolt, valve body and the flange connection. For non-conducting flange connection materials a wire must connect the valve body to the earthed neutral point.</p> <p>Several tests have shown that the spring lasts more than 40 000 strokes without breaking. For security reasons the spring should be replaced every 10 000 strokes and checked on regular basis.</p> <p>Similar solution for MV/XV/BV/WB/HG DN50-150</p> <table border="1" style="width: 100%;"> <tr> <td>3</td> <td>1</td> <td>Spring</td> <td>EN10270-3 1,4310</td> </tr> <tr> <td>2</td> <td>1</td> <td>Spring bracket</td> <td>EN10088-2 1,4301</td> </tr> <tr> <td>1</td> <td>1</td> <td>Spring bracket</td> <td>EN10088-2 1,4301</td> </tr> </table> <table border="1" style="width: 100%;"> <tr> <td>Rev / Part</td> <td>Description / Revision</td> <td>Quantity</td> <td>Material</td> <td>Part Number / Part</td> </tr> <tr> <td>MB 05-05-15</td> <td>JW</td> <td>1</td> <td>LJ 09-05-18</td> <td>3-4715B</td> </tr> </table> <p>Stafsjö Title / Final General drawing ATEX solution MV/XV/BV/WB/HG DN200-300 Part name / Revision 34715B 20-30 Part number / Revision 3-4715A Drawing number / Drawing date 3-4715B 1/1</p>	3	1	Spring	EN10270-3 1,4310	2	1	Spring bracket	EN10088-2 1,4301	1	1	Spring bracket	EN10088-2 1,4301	Rev / Part	Description / Revision	Quantity	Material	Part Number / Part	MB 05-05-15	JW	1	LJ 09-05-18	3-4715B
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MB 05-05-15	JW	1	LJ 09-05-18	3-4715B																			
	<p>Caution! The installation must be checked at suitable periods to verify that the spring has full function and that it so remains. By safety reasons must the spring be replaced after 10 000 strokes of the gate.</p>																						

	<p>The manufacturer Stafsjö Valves supplies this kind of spare parts.</p> <p style="text-align: center;"></p> <p>A gate on a valve where the spring is broken must not have any contact with the medium handled, i.e. the gate must not be operated, since it can be a risk of ignition in the separation between the isolating gate and the handled medium, this because of electrostatic charging. Without grounding there must not be any friction/any flow around the gate. The spring must be replaced immediately.</p>
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 Advice	<p>If the valve is equipped with pneumatic actuator, type Stafsjö AC, the cylinder pipe of the actuator must be connected to the top end cap by a contact spring, alternative mounted on a connecting coupling. This because the cylinder pipe is sealed with a gasket and therefore contact cannot be secured by certainty. At installation it must be ensured that</p> <ul style="list-style-type: none"> • this contact spring is replaced after changing the gaskets • that the contact spring continuously have contact with the metal wall on the cylinder pipe of the actuator <p>Reference: Stafsjö-Document: Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G, chapter 4.3, table 3</p>
 Danger	<p>The valve body is in most cases in cast iron or in cast steel and are delivered, if appropriate, painted with a conductive coating 140-200 µm from the manufacturer. The total painting layer must not exceed 0.2 mm to avoid discharging due to friction on the exterior of the valve body.</p> <p>Reference: Stafsjö-Document: Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G, chapter 4.3, table 3</p>

2.3.5 Danger at overload

 Danger	<p>The valve are equipped with a stem/piston rod wich connection to the actuator/ the gate can breake at excessivelly overload. If this happens suddenly, there is a risk of ignition. Stafsjö eliminates this risk by</p> <ol style="list-style-type: none"> a. specifying the maximum force for the actuator to what is stated in data sheet under pneumatic actuator. These values are valid regardless of type of actuator. Any deviation from these values has to be approved by Stafsjö. b. the valve in  - execution are delivered with a stem in ductile material with ultimate elongation >20%. At overload the threads are deformed and will block. <p style="text-align: center;"></p> <p>Warning! If such a situation should arise, all operating must immediately stop.</p> <p style="text-align: center;"></p> <p>Warning! Modification of the valve parts made by the user can pose a risk of ignition and is strictly prohibited.</p> <p>Reference: Stafsjö-Document: Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G, chapter 4.3, table 3</p>
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2.3.6 Danger of dust deposits

 Danger	<p>Dust deposits in the split between the gate and the box packing: Any dust must periodically be brushed off with a brush of the appropriate size, or even better sucked up with a vacuum cleaner.</p> <p>Avoid using compressed air because the dust that swirls up can cause a - atmosphere.</p> <p>The higher the operating temperature and the actuation frequency are and the greater the dust deposit are, the more frequently must the valve be cleaned. The dust deposits thickness may not be more than 5mm to avoid underpass safety distance to the filament temperature as described in paragraph 2.2.1.</p>
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2.3.7 Instructions for use of the valve

 Danger	<p>In - environments may only valves with - marking from the manufacturer, Stafsjö Valves, be used to indicate that the manufacturer has approved them for use in the -environment.</p>		<p>Ser.No: Serial number consisting of year – individual no - order number. CE-marking.</p>
<p>Reference: <i>Stafsjö</i>-Document: Assessment of risk of ignition XV, MV, MP, HG (HP), HL, HX, WB (WB11, 12, 14), RKO, JTV and D2G, chapter 3.2</p>			

3 Complementary information

This instruction, the mentioned Stafsjö brochures and other information and details can be found on www.stafsjo.com. The material can also be ordered from following address:

Stafsjö Valves AB
Störningsväg
SE-618 95 Stavsjö

+46 (0)11 39 31 00
Fax +46 (0)11 39 30 67

www.stafsjo.com
info@stafsjo.se

Declaration of conformity with EU-Directives ATEX, cat. 2

Within the meaning of the European directive 2014/34/EU, issued on February 26th 2014 and its current legal version, as well as for its implementation enacted legal regulations, the manufacturer declares, that the products

Type: Knife Gate Valves
Series: XV, MV, HG, HL, (HP), HX, WB (WB, WB11, WB12, WB14), RKO, JTV, D2G

Based on European directive 2014/34/EU and its harmonized European Standards SS EN 13463 "Non-electrical equipment for use in potentially explosive atmospheres"

13463-1:2009, Part 1: Basic method and requirements
13463-5:2011, Part 5: Protection by constructional safety 'c'

Were tested by performing a conformity assessment procedure with the following result:

- The Knife Gate valves can be used in EX- areas according to 2014/34/EU, group II, category 2, provided that the valve is labeled and equipped accordingly.
This is in accordance with European directive 1999/92/EC

2 GD* as well as 3 GD

) Category 2 is fulfilled through a deposit of the documents at Notified Body DEKRA EXAM GmbH No 0158 respective to article 8 (1) b ii) of EU- Directive 2014/34/EU with its number **BVS 15 ATEX H/B 045*

The Knife Gate valves are labeled according:

For 2GD

For 3GD

 II 2GD ⁴⁾ c ²⁾ TX ³⁾ -20 °C ≤ T _a ≤ +60 °C	 II 3GD ⁴⁾ c ²⁾ TX ³⁾ -20 °C ≤ T _a ≤ +60 °C
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1)	CE stamp is followed by the number by the no. of the notified body.
2)	The marking "c" is the symbol for the ignition protection class "constructional safety" according to EN 13463-5:2011, chapter 1)
3)	Footnote "TX": As the outer temperature is not dependent on the actual product, but only on the operating conditions (the temperature of the medium in the pipeline), the manufacturer are not allowed to mark a temperature class (T1 to T6), acc. to SS EN 13463-1, section 6.2.5, chart 3
4)	The category identification of the delivered valves is in accordance to the purchase order. When operating only dust or gas may be present, the use in hybrid mixtures is not permitted.

This manufacturer certification is valid for the above mentioned type and series. Other configurations, in particular as an assembly with an actuator, requires a separate ATEX certification of the actuator according to the European directive 2014/34/EU

Pneumatic actuator according to SS EN 13463-1
Electrical actuator according to SS EN 6079-0

Stafsjö, July 2018



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