



**3-WAY CONTROL VALVE
SOFT SEAT/LOW LEAKAGE
PN16 DN80 - DN200, PN10 DN300/250 - 300mm G3FA**

INSTALLATION & USER MANUAL

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APPROVAL: APPROVED

Clorius
CONTROLS

3-way Control Valve, Soft Seat/Low Leakage PN16, DN80 – DN200/ DN10, DN300/250 – 300mm

WARNING INFORMATION



Warning! Media can be hot and cause burning.
Do use safety goggles and gloves.



Warning! Wrong installation can result in several damage or that the valve is not functioning correctly. These general instructions do not cover all possible operating scenarios.
For a more specific guidance about the usage of the valve or its qualification at the desired use, please contact BROEN.

General safety instructions

The valves must be installed and serviced by fully trained and qualified personnel only, observing the accepted industry codes and practices. Make sure employees or third persons are not exposed to any danger.

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1. Design

Control valves G3FA soft seat are designed for regulating of different types of cooling water systems, including load dependent cylinder liner (LDCL).

The valve components: seats, cone and spindle are made of aluminum bronze.

The valve body is made of nodular cast iron and the flanges are drilled according to EN 1092-2 or (JIS B 2210 as option).

The valve has two balanced seats and the port AB-B is designed 100% tight.

The connection thread for the actuator are screw joints: ISO 228 – G1B and spindle: M10x1.

The valve is available in the sizes DN80, DN100, DN125, DN150, DN200, DN200/175, DN300/250 and DN300.

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2. Technical data

Valve sizes:	DN80 up to DN300
Color:	RAL 7016 (anthracite grey)
Materials:	
Body:	Nodular cast iron EN-GJS-400-15
Seat and cone:	Alu-bronze CuAl10Fe5Ni5
Spindle:	Alu-bronze CuAl10Fe5Ni5
O-ring:	A75H – Gasket Reinz-AFM34
Nominal pressure:	PN16 - DN80-200mm PN10 - DN300/250-300mm
Seats:	Two balanced single seats
Valve characteristic:	Almost Linear
Temperature range:	120/160°C
Flanges:	According to EN 1092-2 PN 16 or ANSI B16.5 Class 150 Option - According to JIS B 2210 10K
Regulating capability:	Kvs/Kvr > 25
Leakage: Port AB-B:	Max 0,01%
Leakage class:	ANSI Class IV

See also data sheet 2.5.19 – 3-way Control Valve Type G3FA

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2. Technical data continued

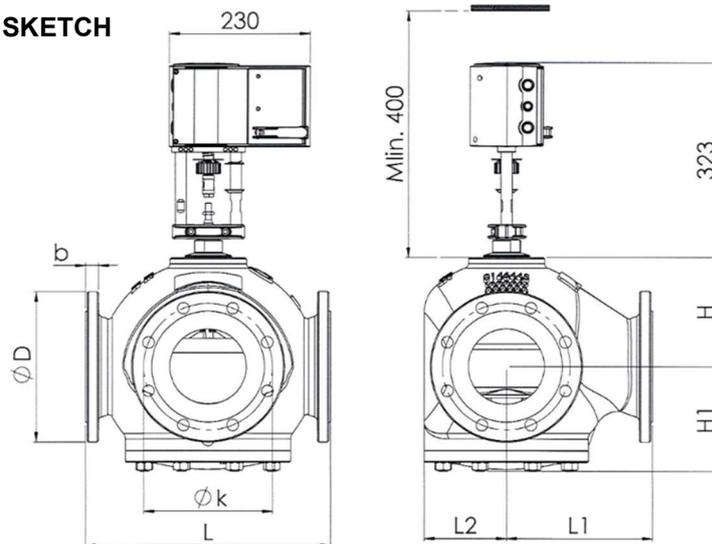
Specifications

DN	Flange connection DN in mm	Opening mm	k _{vs} -value m ³ /h	Lifting high mm
80	80	80	80	11
100	100	100	125	13
125	125	125	215	18
150	150	150	310	20
200/175	200	200	425	22
200	200	200	555	28
300/250	300	300	865	38
300	300	300	1250	45

The stated k_{vs} values apply for mixing valves.

Diverting valves: 0.86 x (k_{vs} -values for mixing valves)

DIMENSION SKETCH



DN	L mm	L1 mm	L2 mm	H mm	H1 mm	b mm	Weight Kg	EN 1092 - 2			JIS B 2210 10K		
								D (dia) mm	K (dia) mm	d mm (dia) number	D (dia) mm	K (dia) mm	d mm (dia) number
80	310	155	102	117	127	19	34	200	160	19x(8)	185	150	19x(8)
100	350	175	112	132	141	19	44	220	180	19x(8)	210	175	19x(8)
125	400	240	138	181	171	19	72	250	210	19x(8)	250	210	23x(8)
150	480	270	165	216	189	24	111	285	240	23x(8)	280	240	23x(8)
200/175	600	325	230	238	238	20	165	340	295	23x(12)	330	290	23x(12)
200	600	325	230	238	238	20	160	340	295	23x(12)	330	290	23x(12)
300/250	850	450	325	305	305	25	306	445	400	23x(12)	445	400	25x(16)
300	850	450	325	305	305	25	290	445	400	23x(12)	445	400	25x(16)

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3. Transport, storage and marking

The valve must be transported and stored dry and clean. In humid rooms, a drying material or heating must be used to avoid condensation.

During transport and intermediate storage the valve should not be exposed to temperatures lower than -10°C.

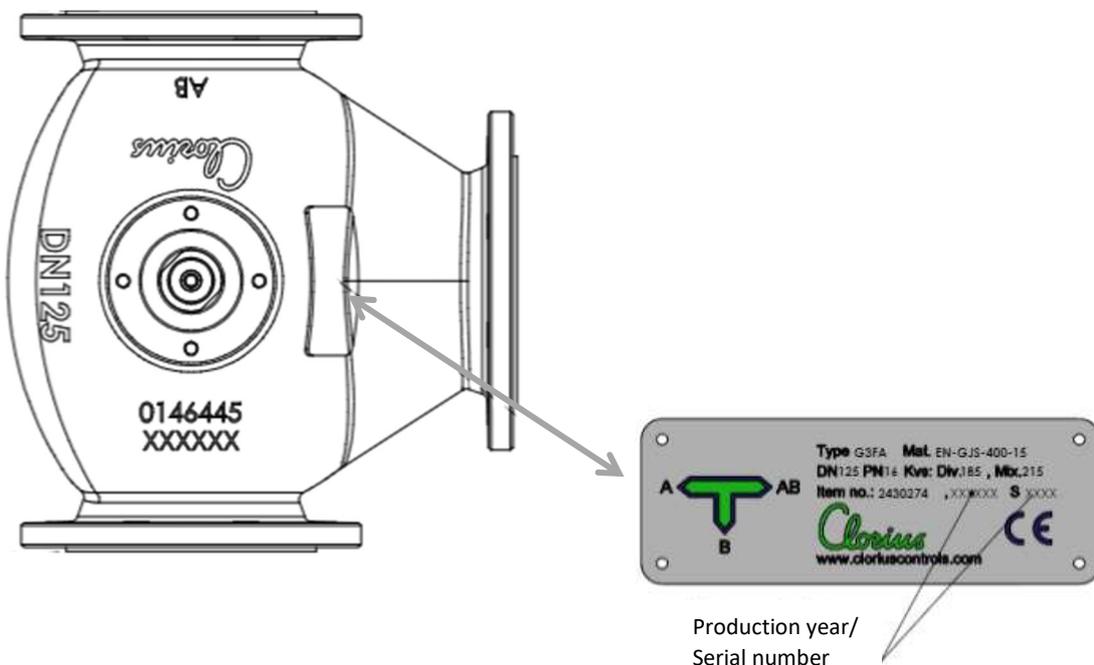
The valves are painted (top coated) on the outside. This coating must remain without damage, otherwise the faulty spots must be repaired immediately.

The standard packaging protects valves and equipment against rain and snow during transport.

For critical transports, such as sea freight, equipment will be protected by VCI (Volatile Corrosion Inhibitor) material.

If protected by VCI do not remove the packaging until the equipment is going to be installed.

Marking (nameplate):



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4. Installation and operation

Installation:

The valves can be installed vertically and horizontally. The valves must be mounted in a way so that the valve motor will be exposed to a minimum of moisture and unnecessary vibrations. Free height above / below the valve must be minimum 400 mm for mounting and operation of the linear electric actuator.

Operation:

The valve cone is firmly connected with the motor spindle. When the valve cone is in the one extreme position by draw on the spindle, connection A-AB is kept fully open and connection B-AB is fully closed. In the other extreme position connection A-AB is fully closed and connection B-AB is fully open. In the intermediate positions the opening degrees change proportionally.

5. Maintenance

Maintenance schedule:

The seals have a durability of approximately 8 years at continuous use. However, it is recommended that the soft seals are inspected and changed every 4 years.

Disable the actuator from the valve:

Follow the separate manual according to the actuator type that are mounted on the valve.

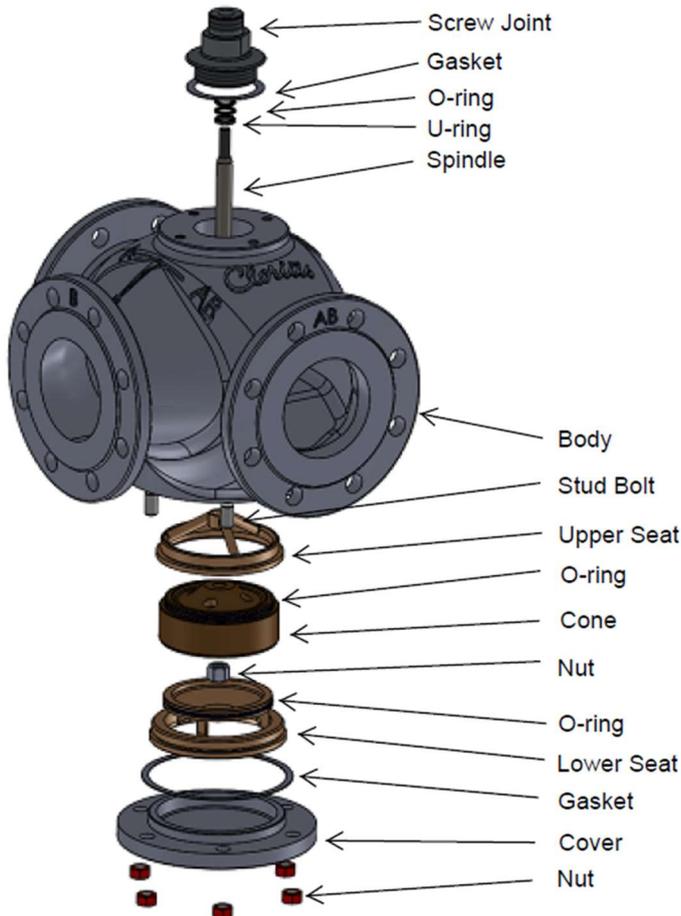
Datasheet No.: 99.70.04 or 99.70.07 AVM/AVF234

Instruction No.: 99.70.04 or 99.70.07 instruction AVM/AVF234

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5. Maintenance continued

Maintenance of the G3FA Soft Seat DN80 –



2 **A.** Remove actuator following the separate actuator instructions

Note: When the actuator is removed the valve will be tight.

B. Remove bottom cover. Replace gasket
See section 6 – page 10, for spare part product numbers

C. It is not necessary to remove stud bolts
Note: Loctite* has been added to bolts for protection against vibrations

D. For DN80-DN100 which have no bolts the seat is screwed tight and Loctite* has been added to the threading.

For DN125 and 150 the bolts must be removed first in order to remove the seat.

E. Remove lower seat. Replace O-ring
See section 6 – page 10, for spare part product numbers

F. Remove screw joint. Note: Loctite* has been added to protect against vibrations.

G. Replace gasket. Replace O-ring
See section 6 – page 10, for spare part product numbers

H. Unscrew spindle. Note: Loctite has been added to protect against vibrations.

I. Remove cone through the bottom opening.

J. Replace cone with new cone if necessary
See section 6 – page 10, for spare part product numbers

K. Replace spindle with new spindle. Connect the cone and spindle - add Loctite*.

L. Mount lower seat and fasten bolts - add Loctite*

M. Mount gasket and cover.
Add Loctite to nuts and fasten them.

N. Mount screw-joint - add Loctite*

O. Follow separate instructions for the actuator how to calibrate and install the actuator.

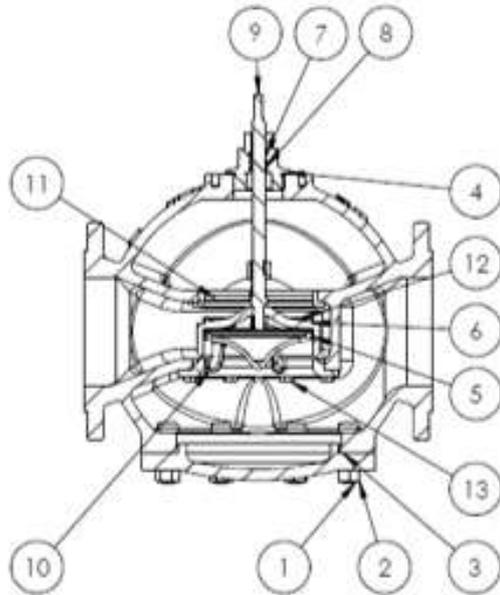
Data sheet: 99.70.04-data sheet AVM/AVF234

Instruction: 99.70.04-Instruction AVM/AVF234

**Use Loctite 272 or similar*

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6. Spare parts



Pos.	Part
1	Stud bolt
2	Nut
3	Gasket
4	Gasket
5	O-ring
6	O-ring
7	O-ring
8	U-ring
9	Spindle
10	Lower seat
11	Upper seat
12	Cone
13	Nut

	Pos	Valve	Product no.
Part pos.	1 to 8	DN80 G3FA with Soft Seat	1-2992757
	1 to 8	DN100 G3FA with Soft Seat	1-2992759
	1 to 8	DN125 G3FA with Soft Seat	1-2992761
	1 to 8	DN150 G3FA with Soft Seat	1-2992763
	1 to 8	DN175/200 G3FA with Soft Seat	on request
	1 to 8	DN200 G3FA with Soft Seat	on request
	1 to 8	DN300 G3FA with Soft Seat	on request

Trim	Pos	Valve	Product no.
Part pos.	1 to 12	DN80 G3FA with Soft Seat	1-2992756
	1 to 12	DN100 G3FA with Soft Seat	1-2992758
	1 to 12	DN125 G3FA with Soft Seat	1-2992760
	1 to 12	DN150 G3FA with Soft Seat	1-2992762
	1 to 12	DN175/200 G3FA with Soft Seat	on request
	1 to 12	DN200 G3FA with Soft Seat	on request
	1 to 12	DN300 G3FA with Soft Seat	on request

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Contact

Clorius Controls: mail@cloriuscontrols.com

See also www.cloriuscontrols.com for further information