

Service Information no. 208

Service Guideline concerning Advanced Block

To improve the durability and to extend the lifetime between services, we have developed a guideline, which is now available for download at www.Nilfiskfood.com.

This updated service guideline is regarding troubleshooting and maintenance and we call it **“Service Matrix regarding causes and remedy”** This matrix is aimed to be a support tool when doing service on the Advanced block and has information in both text and pictures on how to trouble shoot and make solutions for the block.

Service Matrix regarding causes and remedy

In the below matrix, you will see (from the left) a description of the failure modes and the next column is a list of the most seen errors in a prioritized order and finally the remedy column, where you will see rated solutions (A, B, C). The guideline is created as a support tool to guide during error findings.

	Causes (What is wrong)	Most seen error condition (1=most likely – 4=likely)						Remedy Numbers below refers to detailed description on the next pages									
		A	B	C	D	E	F	1	2	3	4	5	6	7	8	9	10
		The O-rings at the rinse channels are damaged	The block and piston has fine deposits	Insufficient air pressure	The O-rings on the chemical side of the piston has mechanical wear	The O-rings on the chemical side of the piston has chemical corrosion	Injector is blocked by lime	Inspect block inside for machining errors = Change block if damaged	Select other O-ring compound	Limit the water flow through the block	Inspect and lower the water temperature if it is too high	De-lime block and piston - make procedure for prevention of lime	De-lime injector	Increase air pressure	Consider alternative chemistry	Pressing in test (Hard Spring)	Pressing in test (If on piston ring)
1	The block will not return back from Foam to Rinse position	3	2		4	2		C		B(A)	A					X	
2	The block is switching, however very slow and uneven		1	2				A	A				A		C(B)	B	X
3	The block will not switch into Foamy/Sanitizer. (the block has to be activated multiple times)		1	2		3						A		A			
4	The block is not picking up chemical (switch over is ok)				3	2	1		B	C				A		A	X
		Use this section to help finding the cause of errors (most seen errors) NOTE! Other conditions than the on mentioned here might also have influence of the operation of the block						When you have identified the error and the cause of error, use this section to help determine the action needed. Be aware that depending on error type, there might be more actions that you can do.									

Should you need any further information do not hesitate to contact Nilfisk-ALTO Food Division sales department, direct tel. No.: +45 7218 2000.

Best regards
Nilfisk-ALTO Food Division

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		The O-ring at the rinse channels are damaged	The block and piston has lime deposits	Insufficient air pressure	The O-rings on the chemical side of the piston has mechanical ware	The O-rings on the chemical side of the piston has chemical corroded	Injector is blocked by lime		Inspect block inside for machining errors – Change block if damaged	Select other O-ring compound	Limit the water flow through the block	Inspect and lower the water temperature if it is to high	De-lime block and piston - make procedure for preventive de-liming	De-lime injector	Increase air pressure	Consider alternative chemistry	Pending in test (Hard Spring)	Pending in test (Teflon piston rings)
1	The block will not return back from Foam to Rinse position	3	1		4			C		B(A)	A						X	
						2		A	A						B(A)			X
2	The block is switching, however very slow and uneven		1									A		C(B)	B		X	
				2										A				
3	The block will not switch into Foam/Sanitizer. (the block has to be activated multiple times)		1									A						
				2										A				
					3			B	C						B			X
4	The block is not picking up chemical (switch over is ok)						1							A				
					2				B						A			X
				3				A										X
		Use this section to help finding the cause of errors (most seen errors) NOTE! Other conditions then the on mentioned here might also have influence of the operation of the block						When you have identified the error and the cause of error, use this section to help determine the action needed. Be aware that depending on error type, there might be more actions that you can do.										

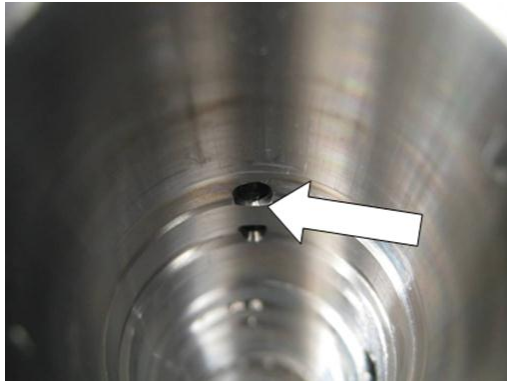
1 Inspect block inside for machining errors – Change block if damaged

When removing the piston, it would be possible to see the inside of the block. If the block has some damages on the surface the block should be exchanged.

Also look for that the small holes inside the cylinder is positioned correct. They must be placed in the bottom of the machined grooves, not on the sides!

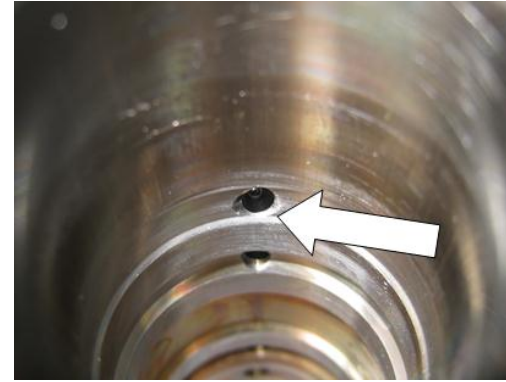
Picture left: Wrong machined block, the hole is penetrating the block on the surface where the O-ring is moving.

Picture Right: Correct machined block, the hole is positioned correct.



Picture left:
Wrong machined block, the hole is penetrating the block on the surface where the O-ring is moving.

Picture Right:
Correct machined block, the hole is positioned correct.



2 Select other O-ring compound

The block is as standard equipped with a PUR O-ring, this O-ring is chosen because it is the best general compound. However, if there are seen problems with chemical corrosion on this O-ring, it is possible to choose from two optional compounds as well, EPDM and FKM. Please refer to the chemical compatibility list for best choice!

Pictures displays PUR O-rings corrode by chemical (In this case with Topax 19)



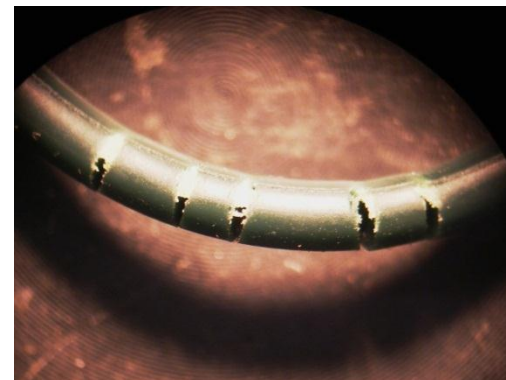
Item No.

EPDM 18x2
Item No. 110002093

EPDM 16x2
Item No. 110002094

FKM 18x2
Item No. 110000770

FKM 16x2
Item No. 110000771



3 Limit the water flow through the block

If the user is using a high capacity nozzle to rinse, the water flow that passes the O-ring will lift the O-ring from the piston and if the user then switches the block while still rinsing, the O-ring might be pinched or jammed. This problem will be intensified as the water temperature increases (see Ref. No. 4) If the water usage is high +40 l/min. use limitation nozzle to reduce the flow to 30-35 l/min..

Left picture displays a pinched O-ring caused by Hot water and High flow



Item No.

Flow limiter 50 l/min @25 bar
Item No. 110000420

Flow limiter without pre drilled hole
Item No. 110001933

Right Picture displays Flow limitation nozzle



4 Inspect and lower the water temperature if it is to high

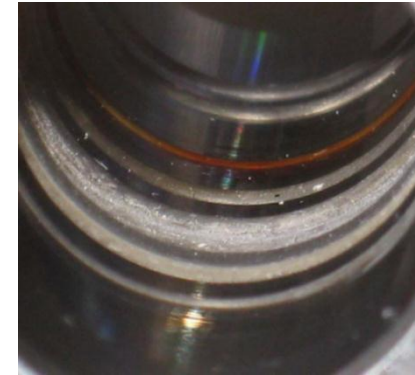
Lime deposit increases with increasing temperature. Optimal temperature is in the area of 50 -55°C - If the temperature gets below 50°C the risk of legionella in the water line will occur.

5 De-lime block and piston - make procedure for preventive de-liming

Depending on the onside conditions (water quality and chemical product used), lime deposit can occur inside the block. If this is the case it is necessary to implement a de-liming procedure to prevent malfunction in the operation of the block.

The recommended procedure is:

1. Initially perform a manual and chemical cleaning of the block and piston (Ecolab during service).
2. Once a month run an acid product through both the injectors and leave the product to react for 10 minutes.
3. flush both injectors with clean water



6 De-lime injector

The lime build up in the injector nozzle is caused by the same mechanism as described under section 5.

Therefore use the same maintenance procedure as described.

An alternative solution could also be to remove the injector nozzles and de-lime the Nozzles in a 3 – 5% acid solution, until the lime has dissolved.



7 Increase air pressure

The block requires that the minimum operational air pressure is 5 bar. The block is able to operate up to 10 bars. By increasing the air pressure, the block will have a more robust switchover.

8 Consider alternative

In some situations, the water and chemistry reacts in a way that might cause problems with scaling. If this is the case it's recommended to use an alternative product.

9 Pending in test (Hard spring)

If the block has problems switching back to rinse position after it has been in foam or sanitizer position, this could be related to higher friction between the O-ring on the piston and the surface inside the block.

(This situation could be caused by scaling)

In this situation the time between services could be extended by using a hard spring.

The new harder spring has twice the force as the normal spring and is still pending in test. With the harder spring mounted the required air pressure must, at any time, not be below 6 bar.



Standard spring

Item No 0636038

Heavy duty spring

Item No. 110002270

(Minimum operational air pressure is 6 bar)

10 Pending in test (Teflon Piston rings)

The Sharp seal rings are an alternative to the ordinary O-ring solution and have a high mechanical stability and the solution consists of the sharp seal ring and a backup O-ring. The O-ring comes in two different variants. One in FKM and one in EPDM.

The sharp seals are to be mounted on the 4 O-ring grooves, in the chemical section.
Arrows indicate mounting area.

