



Note: Read the corresponding technical documentation for handling and safety reasons.

Running-in procedure for pump heads

1. Scope

This supplement will introduce the correct specification of a running-in procedure of KNAUER pump heads. It is mandatory to perform a running-in procedure after a pump head maintenance, or if new pump heads are installed on a pump.

If a pump was not in operation for a long time, e.g. after shipment, a running-in procedure might be necessary to obtain the best pump performance. The pump head underwent this procedure during the manufacturing process. If the pump is performing within specification, or during intensive operation, it is not necessary to perform this procedure.

2. Procedure

For an optimal running-in of the pump head, the pump needs a specific back pressure. This pressure will be produced by a restriction capillary connected after the pressure sensor. Depending on the dimensions of this capillary, different values of the back pressure can be generated.

Refer to the tables below for correct running-in parameters. If you have questions please contact the KNAUER Technical Support. Phone: +49 30 809727-111, E-Mail info@knauer.net.



Note: All pump heads were filled with **Isopropanol** prior to delivery. Ensure to connect the correct solvent as described in the specification table.

NOTICE

Component defect

Damage to the pump head in case that the running-in procedure has not been performed correctly.

➔ Set the correct backpressure and flowrate for the running-in procedure of the pump head.

Prerequisite The pump head has been installed.

Process

Steps

1. Choose suitable restriction capillaries and install them.
2. Connect the pump inlet to the solvent.
3. Turn on the pump.
4. Open the venting screw, purge the pump until the tubing and the pump head is filled with eluent. Stop the pump and close the venting screw. Now start the pump and let it run with the running-in parameters mentioned below.

Steps
5. Optional: If the pump head was not calibrated, perform a pump head calibration (This has to be performed by a certified KNAUER technician).

Result After the running-in procedure has been completed, the desired solvent can be used.

3. Running-in parameters



Note: Using a degasser or a degassed solvent is recommended.

Preparative pumps

Pump head type	100 ml	250 ml	500 ml	1000 ml
Article no.	E4023-1 E4023V1 E4023V2 E4023V3 E4023V5	E4021-1 E4021V1 E4021V2	E4037-1 E4037V2	E4022-1 E4022V1 E4022V2
Material*	SSt/Ti	SSSt/Ti	SSSt/Ti	SSSt/Ti
Pmax [bar]	400	225	100	75
Backpressure	$\frac{2}{3}$ - $\frac{3}{4}$ of Pmax (valid for all pump head types)			
Flowrate [% of max. flow]	15 - 30 %	15 - 30 %	15 - 30 %	15 - 30 %
Running-in time [min]	20	20	20	20
Solvent	EtOH 100 %	EtOH : H ₂ O 80:20	EtOH : H ₂ O 80:20	EtOH : H ₂ O 80:20

Analytical pumps

Pump head type	5 ml	10 ml	10 ml	50 ml	50 ml
Article no.	EHA60	E3111 E3121 E3122 EHB40 EHB40XA EHB40BA EHB40CA	E3120 EHB32 EHB32DA EHB43	EHC20 EHC20CA	EHC22
Material*	SSSt	SSSt/Ti	C/HC	SSSt	C
Pmax [bar]	1000	700	400	300/350	200
Pmax [bar] for AZURA P 2.1S/P 4.1S	-	400	350	150	150
Backpressure	$\frac{2}{3}$ - $\frac{3}{4}$ of Pmax (valid for all pump head types)				
Flowrate [% of max. flow]	20 - 50	15 - 40 %	15 - 40 %	10 - 25 %	10 - 25 %
Running-in time [min]	15	15	15	60	60

Pump head type	5 ml	10 ml	10 ml	50 ml	50 ml
Solvent	EtOH	EtOH	EtOH	EtOH	EtOH

Analytical pumps (Smartline I only)

Pump head type	10 ml	10 ml	50 ml	50 ml
Article no.	E4038xx	E4038xx	E4039xx	E4039xx
Material*	SSt/Ti/C	Kel-F®	SSt/Ti/C	SSt/Ti/C
Pmax. [bar]	350/400	200	150	150
Backpressure	$\frac{2}{3}$ - $\frac{3}{4}$ of Pmax (valid for all pump head types)			
Flowrate [% of max. flow]	15 - 40 %	15 - 40 %	10 - 25 %	10 - 25 %
Running-in time [min]	30	30	30	45
Solvent	EtOH	EtOH	EtOH	EtOH

* SSt = stainless steel, C = ceramic, Ti = titanium, HC = Hastelloy C®