

Preventive Maintenance plan RTC

Date	
Instrument SN	
Coupling Cycles	
Sample Counts*	

* Series I instrument has no sample counter. Enter approx. value.

Maintenance work: C = Check or clean R = Replace, change, or lubricate T = Tighten to specified torque
Perform the indicated action after number of sample counts or time interval, whatever is first.

Green: Carried out by the user (needs to be trained during installation).

Blue: Carried out by the Service Engineer during yearly maintenance or in shorter intervals if required.

Maintenance Schedule Maintenance Date	Coupling cycles x1000							Months	
Coupling cycles or months, depending on what occurs first.	15	30	45	60	75	90	105*		Date when done NA if not applicable
X-Y Unit									
Check solvent bottles and tubing								weekly	
Clean all surfaces from instrument								monthly	
Clean and re-grease rails and rollers		R		R		R		12	
Check play between rails and rollers		C		C		C		12	
Check pressure for purge gas		C		C		C		12	
Check for damage on rails		C		C		C		12	
Z-Head RTC									
Replace Plunger-Coupling Kit (W)	R	R	R	R	R	R	R	12	
Clean electrical contact between Tool and Z-Head	C	C	C	C	C	C	C	12	
Replace complete Coupling Kit (V, W and T)		R		R		R		36	
Clean and re-grease rails and rollers		R		R		R		12	
Check play between rails and rollers		C		C		C		12	
Clean z-spindle and bushing (no grease)		C		C		C		12	
Z-spindle-bushing (nut)		C		R		C		36	
Park Station									
Clean green/golden contact surface	After 5'000 head coupling cycles							12	
Check condition of slots and contacts		C		C		C		12	
Verify smooth coupling of the Tool		C		C		C		12	
Check firm contact with -X-Axis		C		C		C		12	
Tools									
Clean golden Tool contacts (upper and lower). Be careful not to bend.	After 5'000 head coupling cycles							monthly	
Clean Tool pins		C		C		C		12	
Check play lower Needle Guide		C		C		C		12	
Check smooth movement of lower Needle Guide		C		C		C		12	

Maintenance Schedule Maintenance Date		Months	
Syringes			
Clean the plunger chip (only Smart syringes)	After 5'000 head coupling cycles	monthly	
Replace syringe if necessary	See Syringe/SPME Arrow/Fiber leaflets for details	12	
Remove and clean plunger**	Weekly or before every long sequence	weekly	
Check for consistent resistance of the plunger in the barrel	Weekly or before every long sequence	weekly	

* Repeat the intervals in the same manner.

** Only for syringes with steel plunger (example: **PAL3-SYH-207807** (non-Smart) or **SF10-57-M-26S-CO** (Smart))

Remarks:

Cleaning of contacts: Use Acetone for the cleaning of the plunger chips only. Isopropanol or another alcohol is recommended to be used for cleaning all other electrical contacts. This can be carried out by the user.

Coupling Issues: If a customer has coupling issues, it is recommended to replace the complete coupling kit.

Smart Syringes (Series II): The Chip of the Smart syringe is designed for a lifetime of 10'000 coupling cycles. Under normal application conditions, the syringe lifetime is the limiting factor. However, if the number of coupling cycles with one syringe has reached 10'000, a correct read out of the chip cannot be guaranteed. The syringe must be replaced in this case.

Syringes (non-Smart): There is no automatic counting of syringe lifetime relevant data, and no alerts are provided to the user. It is important to make an estimation about the lifetime of the syringe. For example, it is important to estimate how many plunger-strokes the customer can do with a syringe depending on the application. A preventive maintenance plan must be defined by the user.

Maintenance Schedule Maintenance Date	Plunger Strokes x1000							Months	
Sample counts or months, depending on what occurs first.	10	20	30	40	50	60	70		Date when done NA if not applicable
LCMS Syringe /Tool									
Check if the flow path of the syringe is free	C	C	C	C	C	C	C	12	
Check the plunger is tight (solvent liquid or dirt behind the plunger)			C			C		12	
Check there is no leak where the syringe is connected to the Tool			C			C		12	
Check if the injection-valve is not clogged	C	C	C	C	C	C	C	12	
Clean the Check Valves			C			C		12	
Check the LCMS pumps are delivering liquid			C			C		12	
Replace the syringe							R	12	
Rotor Seals / LC Injector Valves									
Inject manually liquid into Injector port	Weekly or before every long sequence							weekly	
Replace Rotor Seal	Application dependent. If there is a high back pressure during manually inject.							12	

Depending on the application, the lifetime can be longer or shorter than 70'000 plunger strokes. If the tightness of the Plunger is still given, the syringe can be used longer. Only use the original LCMS Syringe provided by CTC Analytics (PE Plunger head material). See also SN September 2018.