



PAL3 Autosampler Accessories & Smart Consumables



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Liquid Tools & Syringes



Liquid Tools & Syringes

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-TH-D757	Liquid syringe tool for syringes of 1.2 µL - 100 µL with a needle length of 57 mm syringe not included, requires FW version 1.3.0 or higher	X	X
PAL3-TH-D785	Liquid syringe tool for syringes of 1.2 µL - 100 µL with a needle length of 85 mm syringe not included, requires FW version 1.3.0 or higher	X	X
PAL3-TH-D857	Liquid syringe tool for syringes of 250 µL - 1000 µL with a needle length of 57 mm syringe not included, requires FW version 1.3.0 or higher	X	X
PAL3-TH-D885	Liquid syringe tool for syringes of 250 µL - 1000 µL with a needle length of 85 mm syringe not included, requires FW version 1.3.0 or higher	X	X
PAL3-TH-D1857	Liquid syringe tool for syringes of 2500 µL - 10000 µL with a needle length of 57 mm syringe not included, requires FW version 1.3.0 or higher	X	X



Recommended GC Liquid Injection and GC Sample Prep Syringes:

Part No.	Description	Tool compatibility
SF1-57-B-25P-CO	1.2 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, gauge 25P, scale length 36 mm, point style conical	D7/57
SF1-85-B-26P-CO	1.2 µL Smart syringe with fixed needle for tool D7/85 needle length 85 mm, gauge 26P, scale length 36 mm, point style conical	D7/85
SF10-57-M-26S-CO	10 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, metal plunger, gauge 26S, scale length 54 mm, point style conical	D7/57
SF10-57-M-23S-CO	10 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, metal plunger, gauge 23S, scale length 54 mm, point style conical	D7/57
SF10-57-T-26S-CO	10 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 26S, scale length 60 mm, point style conical	D7/57
SF10-57-T-23S-CO	10 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 23S, scale length 60 mm, point style conical	D7/57
SF10-85-M-23S-CO	10 µL Smart syringe with fixed needle for tool D7/85 needle length 85 mm, metal plunger, gauge 23S, scale length 54 mm, point style conical	D7/85
SF10-85-M-26S-CO	10 µL Smart syringe with fixed needle for tool D7/85 needle length 85 mm, metal plunger, gauge 26S, scale length 54 mm, point style conical	D7/85
SF10-85-T-26S-CO	10 µL Smart syringe with fixed needle for tool D7/85 needle length 85 mm, PTFE plunger, gauge 26S, scale length 60 mm, point style conical	D7/85
SF100-57-T-23S-CO	100 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 23S, scale length 60 mm, point style conical	D7/57
SF100-57-T-26S-CO	100 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 26S, scale length 60 mm, point style conical	D7/57
SF100-85-T-26S-CO	100 µL Smart syringe with fixed needle for tool D7/85 needle length 85 mm, PTFE plunger, gauge 26S, scale length 60 mm, point style conical	D7/85
SF250-57-T-26-CO	250 µL Smart syringe with fixed needle for tool D8/57 needle length 57 mm, PTFE plunger, gauge 26, scale length 60 mm, point style conical	D8/57
SF250-85-T-26-CO	250 µL Smart syringe with fixed needle for tool D8/85 needle length 85 mm, PTFE plunger, gauge 26, scale length 60 mm, point style conical	D8/85
SF1000-57-T-23-CO	1000 µL Smart syringe with fixed needle for tool D8/57 needle length 57 mm, PTFE plunger, gauge 23, scale length 60 mm, point style conical	D8/57

CAUTION: SYRINGES FOR LABORATORY USE ONLY - NOT FOR HUMAN IN VIVO USE
Requiring FW 3.n or higher and PAL RTC/PAL RSI Series II for Smart functionality

Recommended LC Injection and LC Sample Prep Syringes:

Part No.	Description	Tool compatibility
SF10-57-T-22S-FL	10 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 22S, scale length 60 mm, point style flat	D7/57
SFX25-57-T-22S-FL	25 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 22S, scale length 60 mm, point style flat, x-type	D7/57
SFX100-57-T-22-FL	100 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 22, scale length 60 mm, point style flat, x-type	D7/57
SFX100-57-T-22S-FL	100 µL Smart syringe with fixed needle for tool D7/57 needle length 57 mm, PTFE plunger, gauge 22S, scale length 60 mm, point style flat, x-type	D7/57
SF250-57-T-22-FL	250 µL Smart syringe with fixed needle for tool D8/57 needle length 57 mm, PTFE plunger, gauge 22, scale length 60 mm, point style flat	D8/57
SF1000-57-T-22-FL	1000 µL Smart syringe with fixed needle for tool D8/57 needle length 57 mm, PTFE plunger, gauge 22, scale length 60 mm, point style flat	D8/57
SC2500-57-PE-22-FL	2500 µL Smart Syringe with fixed needle for tool D18/57 needle length 57 mm, Polyethylene plunger, gauge 22, scale length 60 mm, point style flat	D18/57
SC5000-57-T-22-FL	5000 µL Smart syringe with fixed needle for tool D18/57 needle length 57 mm, PTFE plunger, gauge 22, scale length 60 mm, point style flat	D18/57

Recommended Sample Prep Syringes (exchangeable needle):

Part No.	Description	Tool compatibility
SE25-T	25 µL Smart syringe body for exchangeable needles for tool D8/57 or D8/85 depending on needle length, PTFE plunger, requires ND25-* needles, needles not included	D8/57 or D8/85
SE100-T	100 µL Smart syringe body for exchangeable needles for tool D8/57 or D8/85 depending on needle length, PTFE plunger, requires ND25-* needles, needles not included	D8/57 or D8/85
SE1000-T	1000 µL Smart syringe body for exchangeable needles for tool D8/57 or D8/85 depending on needle length, PTFE plunger, requires ND1000-* needles, needles not included	D8/57 or D8/85
SCE5000-T	5000 µL Smart syringe body for exchangeable needles for tool D18/57, PTFE plunger, requires ND1000-57-* needles, needles not included	D18/57
SE10000-T	10000 µL Smart syringe body for exchangeable needles for tool D18/57, PTFE plunger, requires ND10000-* needles, needles not included	D18/57

Liquid Smart Syringe Needles:

Part No.	Description	Syringe compatibility
ND25-57-22S-FL	Exchangeable needle for liquid syringes with body type 25 - 100 µL, needle length 57 mm, gauge 22S, point style flat, pack of 3 pcs	SE25-T, SE100-T
ND25-57-23-CO	Exchangeable needle for liquid syringes with body type 25 - 100 µL, needle length 57 mm, gauge 23, point style conical, pack of 3 pcs	SE25-T, SE100-T
ND25-57-23S-CO	Exchangeable needle for liquid syringes with body type 25 - 100 µL, needle length 57 mm, gauge 23S, point style conical, pack of 3 pcs	SE25-T, SE100-T
ND25-57-26S-CO	Exchangeable needle for liquid syringes with body type 25 - 100 µL, needle length 57 mm, gauge 26S, point style conical, pack of 3 pcs	SE25-T, SE100-T
ND25-85-22-FL	Exchangeable needle for liquid syringes with body type 25 - 100 µL, needle length 85 mm, gauge 22, point style flat, pack of 3 pcs	SE25-T, SE100-T
ND25-85-23-CO	Exchangeable needle for liquid syringes with body type 25 - 100 µL, needle length 85 mm, gauge 23, point style conical, pack of 3 pcs	SE25-T, SE100-T
ND1000-57-22-FL	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 57 mm, gauge 22, point style flat, pack of 3 pcs	SE1000-T, SCE5000-T
ND1000-57-22-SP	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 57mm, gauge 22, point style sideport, pack of 3 pcs	SE1000-T, SCE5000-T
ND1000-57-22-CO	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 57 mm, gauge 22, point style conical, pack of 3 pcs	SE1000-T, SCE5000-T

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Part No.	Description	Syringe compatibility
ND1000-57-23-CO	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 57 mm, gauge 23, point style conical, pack of 3 pcs	SE1000-T, SCE5000-T
ND1000-57-23-SP	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 57 mm, gauge 23, point style sideport, pack of 3 pcs	SE1000-T, SCE5000-T
ND1000-85-19-SP	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 85 mm, gauge 19, point style sideport, pack of 3 pcs	SE1000-T
ND1000-85-22-FL	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 85 mm, gauge 22, point style flat, pack of 3 pcs	SE1000-T
ND1000-85-23-CO	Exchangeable needle for liquid syringes with body type 1000 - 5000 µL, needle length 85 mm, gauge 23, point style conical, pack of 3 pcs	SE1000-T
ND10000-57-19-FL	Exchangeable needle for liquid syringes with body type 10000 µL, needle length 57 mm, gauge 19, point style flat, pack of 3 pcs	SE10000-T
ND10000-57-22-FL	Exchangeable needle for liquid syringes with body type 10000 µL, needle length 57 mm, gauge 22, point style flat, pack of 3 pcs	SE10000-T
ND10000-57-23-CO	Exchangeable needle for liquid syringes with body type 10000 µL, needle length 57 mm, gauge 23, point style conical, pack of 3 pcs	SE10000-T

µSPE Tool

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-TH-D857-uSPE	µSPE syringe tool for syringes of 250 µL, 500 µL or 1000 µL, needle length of 57 mm Syringe not included For PAL System cartridges syringes with gauge 22/22S and point style flat are required. Requires FW version 2.3 to 3.n	X	



Dilutor Tool

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-TH-Dilutor	Dilutor tool for PAL3-Dilutor modules Attention: does not include needles and tubing Requires FW version 2.1.0 or higher	X	X



Recommended Syringes and Needles

Part No.	Description	Tool compatibility
PAL3-SYDIL-21834	Dilutor syringe 100 µL, scale 60 mm, PTFE plunger, ZDV (Zero Dead Volume)	Dilutor
PAL3-SYDIL-21835	Dilutor syringe 1000 µL, scale 60 mm, PTFE punger, ZDV (Zero Dead Volume)	Dilutor
PAL3-SYDIL-21836	Dilutor syringe 5000 µL, scale 60 mm, PTFE plunger, ZDV (Zero Dead Volume)	Dilutor
PAL3-SYDIL-21837	Dilutor syringe 10000 µL, scale 60 mm, PTFE plunger, ZDV (Zero Dead Volume)	Dilutor
PAL3-LCMS-Ndl	Needle for PAL LC/MS tool, gauge 22 PST 3, length 51 mm, (incl. needle retaining nut), 3 pcs per pack	Dilutor
PAL3-LCMS-Ndl-C	Coated needle for PAL LC/MS tool, gauge 22 PST 3, length 51 mm, (incl. needle retaining nut), 3 pcs per pack	Dilutor
PAL3-LCMS-Ndl-T	Titanium needle for PAL LC/MS tool, gauge 22 PST 3, length 51 mm, (incl. needle retaining nut)	Dilutor

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LC/MS Tool

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-TH-SLCMS-P-100	LC/MS-P-100 tool consisting of: 1 pc LC/MS-P tool incl. 100 uL Smart syringe, needle and FEP loop 1 pc Pump module 1 pc PAL Bus connection cable 1 pc PFA transfer tube 1/16" 2 pc Solvent bottle 1000 mL 2 pcs Aspirating tube 1/8" Attention: LC/MS Wash module not included, requires check valve kit Compatible with all PAL RTC/PAL RSI models from FW version 2.4.52 or higher.	X	X
PAL3-TH-SLCMS-AWC-100	PAL System LC/MS setup consisting of: 1 pc LC/MS-P tool incl. 100 uL Smart syringe, needle and FEP loop 1 pc 2-channel volumetric pump module incl. PAL Bus connection cable 1 pc Wash Cup 1 pc PFA transfer tube 1/16" (for up to 850 m) 2 pc Solvent bottle 1000 mL 2 pcs Aspirating tube 1/8" Attention: Does NOT require LC/MS wash module and check valve kit. For x-rails longer than 850 mm PAL3-TubeLCMS-X is required (to be ordered separately). Requires PAL Series II with FW 4.n	X	X



Part No	Description	Compatible with:	
		RTC	RSI
PAL3-TH-SLCMS-P-250	LC/MS-P-250 tool consisting of: 1 pc LC/MS-P tool incl. 250 uL Smart syringe, needle and FEP loop 1 pc Pump module 1 pc PAL Bus connection cable 1 pc PFA transfer tube 1/16" 2 pc Solvent bottle 1000 mL 2 pcs Aspirating tube 1/8" Attention: LC/MS Wash module not included, requires check valve kit Compatible with all PAL RTC/PAL RSI models from FW version 2.4.52 or higher.	X	X
PAL3-TH-SLCMS-AWC-250	PAL System LC/MS setup consisting of: 1 pc LC/MS-P tool incl. 250 uL Smart syringe, needle and FEP loop 1 pc 2-channel volumetric pump module incl. PAL Bus connection cable 1 pc Wash Cup 1 pc PFA transfer tube 1/16" (for up to 850 m) 2 pc Solvent bottle 1000 mL 2 pcs Aspirating tube 1/8" Attention: Does NOT require LC/MS wash module and check valve kit. For x-rails longer than 850 mm PAL3-TubeLCMS-X is required (to be ordered separately). Requires PAL Series II with FW 4.n	X	X



Recommended Syringes and Needles

Part No.	Description	Tool compatibility
SLCMS-100-PE	100 µL Smart LC/MS syringe for LC/MS tool, PE plunger, gastight, scale length 60 mm, thread 1/4-28 UNF, removable needle not included	LC/MS-P-100
SLCMS-250-PE	250 µL Smart LC/MS syringe for LC/MS tool, PE plunger, gastight, scale length 60 mm, thread 1/4-28 UNF, removable needle not included	LC/MS-P-250
PAL3-LCMS-Ndl	Needle for PAL LC/MS tool, gauge 22 PST 3, length 51 mm (incl. needle retaining nut) 3 pcs per pack	LC/MS
PAL3-LCMS-Ndl-C	Coated needle for PAL LC/MS tool, gauge 22 PST 3, length 51 mm (incl. needle retaining nut) 3 pcs per pack	LC/MS
PAL3-LCMS-Ndl-T	Titanium needle for PAL LC/MS tool, gauge 22 PST 3, length 51 mm (incl. needle retaining nut)	LC/MS

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Headspace Tools & Syringes

Headspace Tools & Syringes

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-TH-HS1000	Headspace syringe tool for a 1000 µL syringe needle length of 65 mm, syringe not included, requires FW version 1.3.0 or higher	X	X
PAL3-TH-HS2500	Headspace syringe tool for a 2500 µL syringe needle length of 65 mm, syringe not included, requires FW version 1.3.0 or higher	X	X
PAL3-TH-HS5000	Headspace syringe tool for a 5000 µL syringe needle length of 65 mm, syringe not included, requires FW version 1.3.0 or higher	X	X



Recommended GC Headspace Injection Syringes

Part No.	Description	Tool compatibility
Standard Headspace Syringes (Glue option)		
SH1000-65-T-23-SP	1000 µL Smart headspace syringe (4 °C-100 °C) with glue fixed needle for tool HS1000, needle length 65 mm, PTFE plunger, gauge 23, point style sideport	HS1000
SH2500-65-T-23-SP	2500 µL Smart headspace syringe (4 °C-100 °C) with glue fixed needle for tool HS2500, needle length 65 mm, PTFE plunger, gauge 23, point style sideport	HS2500
SH5000-65-T-23-SP	5000 µL Smart headspace syringe (4 °C-100 °C) with glue fixed needle for tool HS5000, needle length 65 mm, PTFE plunger, gauge 23, point style sideport	HS5000
High Temparture Headspace Syringe (Gluefree option)		
SHGF2250-T-23-SP	2250 µL Smart headspace syringe gluefree (4 °C-150 °C) with fixed needle for tool HS2500, needle length 65 mm, PTFE plunger, gauge 23, point style sideport	HS2500
Recommended Sample Prep Syringes (exchangeable needle)		
SHE2500-T	2500 µL smart syringe body for exchangeable needles for tool HS2500 PTFE plunger, requires NDH1000-* needles, needles not included	HS2500

Headspace Smart Syringe Needles:

Part No.	Description	Syringe compatibility
NDH1000-65-23-SP	Exchangeable needle for body type 2500 µL headspace syringe, needle length 65 mm, gauge 23, point style sde port, pack of 3 pcs	SHE2500-T
NDH1000-65-22-SP	Exchangeable needle for body type 2500 µL headspace syringe, needle length 65 mm, gauge 22, point style sde port, pack of 3 pcs	SHE2500-T

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Pipette and Gripper Tools

Pipette Tools

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-TH-Pip20	Pipette tool for 20 µL tips to use with PAL disposable tips: PAL3-PipTip-20 Tips and racks for tips are not included, requires FW version 2.4.x or higher	X	
PAL3-TH-Pip200	Pipette tool for 200 µL tips to use with PAL disposable tips: PAL3-PipTip-200 and PAL3-PipTip-200F Tips and racks for tips are not included, requires FW version 2.4.x or higher	X	
PAL3-TH-Pip1000	Pipette tool for 1000 µL tips to use with PAL disposable tips: PAL3-PipTip-1000 and PAL3-PipTip-1000F Tips and racks for tips are not included, requires FW version 2.4.x or higher	X	



Recommended Pipette Tips

Part No.	Description	Tool compatibility
PAL3-PipTip-20	Pipette tips 20 µL without filter, 10 pcs with 96 tips each	TH-Pip20
PAL3-PipTip-200	Pipette tips 200 µL without filter, 10 pcs with 96 tips each	TH-Pip200
PAL3-PipTip-200F	Pipette tips 200 µL with filter, 10 pcs with 96 tips each	TH-Pip200
PAL3-PipTip-1000	Pipette tips 1000 µL without filter, 10 pcs with 96 tips each	TH-Pip1000
PAL3-PipTip-1000F	Pipette tips 1000 µL with filter, 10 pcs with 96 tips each	TH-Pip1000

Recommended Rack for Pipette Tips

Part No.	Description
PAL3-Rack-Pip-Tip	Tip rack for 96 PAL pipette tips, tips not included

Gripper Tool

		RTC	RSI
PAL3-TH-Gripper	PAL3 Gripper tool, consisting of 1 pc PAL3 Gripper tool 1 pc Teaching adapter for gripper tool 2 pcs Gripping adapter with 4 pins, type: vial adp. 11 mm 1 pc Optional magnet, i.e. for handling of Stack or Decapper Requires FW version 2.5 or higher The provided 4-pin standard adapter (vial adp. 11mm) is intended for gripping objects and vials with a diameter of 5-24 mm, in VT54, VT15 and R60 Racks. The 4-pin adapter is not intended to transport vials into agitating modules, such as Agitator, Vortex Mixer, or Heatex Stirrer.	X	X





μSPE Options

μSPE Hardware Kit

Part No.	Description	Compatible with cartridges:	
		ITSP μSPE	PAL μSPE
PAL3-Kit-uSPE54	<p>μSPE hardware kit for ITSP cartridges and PAL RTC, consisting of:</p> <ul style="list-style-type: none"> 1 pc μSPE liquid tool D8/57 with needle guide for μSPE cartridges 2 pcs Liquid smart syringe 1000 μL (SF1000-57-T-22-FL), gauge 22, flat tip 1 pc Tray holder 2 pcs VT54 rack (PAL3-Rack-VT54) 1 pc μSPE cartridge tray, 54 position, aluminum 1 pc μSPE elution tray cover, 54 position aluminum 1 pc Waste receptacle with drain 4 pcs ITSP μSPE cartridges for initial installation, teaching 1 pc USB stick with installation guide <p>Requires 2 mL vials with split septa and PAL RTC FW version 2.3 to 3.n, ITSP μSPE cartridges need to be purchased separately.</p>	X	
PAL3-HW-uSPE54	<p>μSPE hardware kit for PAL System μSPE cartridges and PAL RTC, consisting of:</p> <ul style="list-style-type: none"> 1 pc μSPE liquid tool D8/57 with needle guide for μSPE cartridges 2 pcs Liquid smart syringe 1000 μL (SF1000-57-T-22-FL), gauge 22, flat tip 1 pc Tray holder 2 pcs VT54 rack (PAL3-Rack-VT54) 1 pc μSPE cartridge tray, 54 position, aluminum 1 pc μSPE elution tray cover, 54 position aluminum 1 pc Waste receptacle with drain 4 pcs PAL μSPE cartridges for initial installation, teaching 1 pc USB stick with installation guide and scripts <p>Requires 2 mL vials with split septa and PAL RTC FW version 2.3 to 3.n, PAL System μSPE cartridges need to be purchased separately.</p>		X

μSPE Accessories

Part No.	Description	Compatible with cartridges:	
		ITSP μSPE	PAL μSPE
PAL3-Vial-Lock-uSPE54	μSPE elution tray cover to lock 2 mL vials in place, matching VT54 rack for use with uSPE cartridges	X	X
PAL3-Wasterecept-uSPE	μSPE waste receptacle to hold μSPE cartridge tray 54 or 96 positions includes waste adapter for mounting on bottom of tray holder	X	X
PAL3-Rack-Cart-uSPE54	Cartridge tray to hold 54 μSPE cartridges - also used for optional cartridge conditioning	X	X
PAL3-Rack-Cart-uSPE96-B	Cartridge tray to hold 96 μSPE cartridges in blister		X
PAL3-Rack-Cart-uSPE96	Cartridge tray to hold 96 μSPE cartridges	X	X

Recommended Option

Part No.	Description	Compatible with cartridges:	
		ITSP μSPE	PAL μSPE
PAL3-WashFast	<p>Fast Wash module for two solvents (needle gauge 19 to 26), consisting of:</p> <ul style="list-style-type: none"> 1 pc Wash module with two wash positions and one waste position 1 pc Pump module with two solvent pumps 2 pcs Solvent bottles 1 L with tubings and frits 1 pc PALbus connection cable <p>Requires FW version 2.0 or higher</p>	X	X

μSPE Cartridge Kits & Vials

Part No.	Description	Design	
		ITSP μSPE	PAL μSPE
Cart-uSPE-LC-QUECHERS	Consumables for LC QuEChERS for 216 samples (four loads of VT54), incl LC cartridges 30 mg, 1.5 mL clear glass vials 12x32 mm and magnetic screw caps	X	
Cart-uSPE-GC-QUECHERS	Consumables for GC QuEChERS for 216 samples (four loads of VT54), incl GC cartridges 45 mg, 1.5 mL clear glass vials 12x32 mm and magnetic screw caps	X	
Cart-uSPE-LC-QUE-0.3mL	Consumables for LC QuEChERS for 216 samples (four loads of VT54), incl cartridges, 0.3 mL PP vials with conical insert, and caps	X	
Cart-uSPE-GC-QUE-0.3mL	Consumables for GC QuEChERS for 216 smples (four loads of VT54), incl cartridges, 0.3 mL PP vials with conical insert, and caps	X	
Vial-1.5ND9-CG-100	Vial 2CV, 1.5 mL clear glass with label,12x32 mm, 1st class hydrolytic glass, fits ND9 Sscrew caps	X	X
Vial-0.3-ND9-PP-100	Micro-vial 2CV, 0.3 mL clear PP, 12x32 mm, with conical insert, fits ND9 screw caps	X	X
Cap-ND9-St-SP10Sb-100	Screw cap 2CV. ND9, magnetic, Gold, Silicone/PTFE/Starburst-Slitted septum 1.0 mm, pack of 100 pcs	X	X
Cap-ND9-PP-SP10S-100	Screw sap 2CV. ND9, PP, Silicone/PTFE/I-Slitted septum 1.0 mm, pack of 100 pcs	X	X

μSPE Cartridges only

Part No.	Description	Design	
		ITSP μSPE	PAL μSPE
PAL3-uSPE-45-UCMPC-V	ITSP μSPE GC QuEChERS cartridges 45 mg, 108 pcs	X	
PAL3-uSPE-30-UC18HC-V	ITSP μSPE LC QuEChERS cartridges 30 mg, 108 pcs	X	
uSPE-LCQuE1-30-T	PAL System μSPE cartridge-LC QuEChERS sorbent mix – 30 mg 96 pcs in blister type 01-03A, requires FW version 4.x or higher		X
uSPE-GCQuE1-45-V	PAL System μSPE cartridge - GC QuEChERS sorbent mix 1, 45 mg 108 pcs type 01-05B, requires FW version 4.x or higher		X
uSPE-GCQuE2-44-V	PAL System μSPE cartridge - GC QuEChERS sorbent mix 1, 44 mg 108 pcs type 01-19A, requires FW version 4.x or higher		X
uSPE-GCQuE3-45-V	PAL System μSPE cartridge - GC QuEChERS sorbent mix 3, 45 mg 108 pcs type 01-14A, requires FW version 4.x or higher		X
uSPE-SAX-50-V	PAL System μSPE cartridge - Strong Anion Exchange (SAX) 50 mg 108 pcs type 01-20A, requires FW version 4.x or higher		X



ITEX DHS

ITEX DHS Kit

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-SITEX-Kit	PAL Smart ITEX DHS Kit consisting of: 1 pc ITEX DHS tool 1 pc Smart ITEX syringe 1.3 mL (SITEX-1300-T) 2 pcs ITEX trap TENAX TA 80/100 mesh (PAL3-ITEX-Trap-TXTA100) Compatible with all PAL RTC/PAL RSI models from FW version 2.3 or higher.	X	X

ITEX Traps

Part No.	Description	Tool compatibility
PAL3-ITEX-Trap-Carb-S3	PAL3 ITEX trap Carbosieve SIII -60/ 80 mesh	ITEX
PAL3-ITEX-Trap-Carb1000	PAL3 ITEX trap Carboxen 1000 -60/ 80 mesh	ITEX
PAL3-ITEX-Trap-CarbC	PAL3 ITEX trap Carbopack - C 80/100 mesh	ITEX
PAL3-ITEX-Trap-TxGR	PAL3 ITEX trap Tenax GR - 80/100 mesh	ITEX
PAL3-ITEX-Trap-TXTA100	PAL3 ITEX trap Tenax TA 80/100 mesh	ITEX
PAL3-ITEX-Trap-Mix-1	PAL3 ITEX trap Mix1 Tenax TA : Carboxen1000 (Bottom: Top - 1: 1)	ITEX
PAL3-ITEX-Trap-Mix-2	PAL3 ITEX trap Mix2 Carbopack C : Carbosieve SIII (Bottom: Top - 2: 1)	ITEX
PAL3-ITEX-Trap-Mix-3	PAL3 ITEX trap Mix3 Tenax GR : Carbosieve SIII (Bottom: Top - 1: 1)	ITEX

ITEX Syringe

Part No.	Description	Tool compatibility
SITEX-1300-T	Smart ITEX syringe 1300 µL for ITEX tool, trap not included.	ITEX

Requiring FW 3.n or higher and PAL RTC/PAL RSI Series II for Smart functionality



Smart SPME Arrow



Smart SPME Fiber



PAL Smart SPME Fiber

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-SPME-SFib-Kit	Smart SPME Fiber kit, consisting of: 1 pc SPME tool 1 pc SPME Fiber assortment kit (SFIB-SEL5-S2) 1 pc SPME performance evaluation mix Requires FW version 2.3. or higher	X	X



PAL SPME Fibers

Part No.	Description	Tool compatibility
SFIB-A-85/10-*	Smart SPME Fiber Polyacrylate fiber thickness 85 µm, fiber length 10 mm, color code: gray	SPME Fiber
SFIB-C-WR-95/10-*	Smart SPME Fiber C-WR/PDMS (Carbon Wide Range / Polydimethylsiloxane) fiber thickness 95 µm, fiber length 10 mm, color code: dark blue	SPME Fiber
SFIB-DVB-65/10-*	Smart SPME Fiber DVB/PDMS (Divinylbenzene / Polydimethylsiloxane) fiber thickness 65 µm, fiber length 10 mm color code: violet	SPME Fiber
SFIB-DVB/C-WR-80/10-*	Smart SPME Fiber DVB/C-WR/PDMS (Divinylbenzene / Carbon Wide Range / Polydimethylsiloxane) fiber thickness 50/30 µm, fiber length 10 mm color code: dark gray	SPME Fiber
SFIB-P-100/10-*	Smart SPME Fiber PDMS (Polydimethylsiloxane) fiber thickness 100 µm, fiber length 10 mm, color code: red	SPME Fiber
SFIB-P-30/10-*	Smart SPME Fiber PDMS (Polydimethylsiloxane) fiber thickness 30 µm, fiber length 10 mm, color code: golden	SPME Fiber
SFIB-P-7/10-*	Smart SPME Fiber PDMS (Polydimethylsiloxane) fiber thickness 7 µm, fiber length 10 mm, color code: green	SPME Fiber
SFIB-SEL5-S1	Collection of five different Smart SPME Fibers with fiber length of 10mm and fiber thickness of: PDMS: 7µm, 30 µm & 100 µm Polyacrylate: 85 µm C-WR: 95 µm	SPME Fiber
SFIB-SEL5-S2	Collection of five different Smart SPME Fibers with fiber length of 10 mm and fiber thickness of: PDMS: 100 µm DVB: 65 µm C-WR: 95 µm Polyacrylate: 85 µm DVB/C-WR/PDMS: 80 µm	SPME Fiber

*All PAL Smart SPME Fibers are available as single fiber (P1) pack of 3 fibers (P3) and pack of 5 fibers (P5)

Smart Fibers are fully backward compatible with non smart SPME Fibers (any generation of PAL3 Systems).

Requiring FW 3.n or higher and PAL RTC/PAL RSI Series II for Smart functionality

PAL Smart SPME Arrows

Part No.	Description	Compatible with:	
		RTC	RSI
PAL3-SPME-SArr-Kit	Smart SPME Arrow kit without GC adaption kit consisting of: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix Requires adaptation kit for GC specific injector Requires FW version 2.3. or higher	X	X



PAL SPME Arrows

Part No.	Description	Tool compatibility
Standard Arrows 1.10 mm diameter:		
SARR11-A-100/20-*	Smart SPME Arrow 1.10 mm: Polyacrylate phase thickness 100 µm, phase length 20 mm, color code: grey	SPME Arrow
SARR11-C-WR-120/20-*	Smart SPME Arrow 1.10 mm: C-WR/PDMS (Carbon Wide Range) phase thickness 120 µm, phase length 20 mm, color code: light blue	SPME Arrow
SARR11-DVB-120/20-*	Smart SPME Arrow 1.10 mm: DVB/PDMS (Divinylbenzene) phase thickness 120 µm, phase length 20 mm, color code: violett	SPME Arrow
SARR11-DVB/CWR120/20-*	Smart SPME Arrow 1.10 mm: DVB/C-WR/PDMS (Divinylbenzene / Carbon Wide Range / Polydimethylsiloxane), phase thickness 120 µm, phase length 20 mm, color code: dark gray	SPME Arrow
SARR11-P-100/20-*	Smart SPME Arrow 1.10 mm: PDMS (Polydimethylsiloxane) phase thickness 100 µm, phase length 20 mm, color code: red	SPME Arrow
Widesleeve Arrows 1.50 mm diameter:		
SARR15-C-WR-120/20-*	Smart SPME Arrow 1.50 mm wide sleeve: C-WR/PDMS (Carbon Wide Range / Polydimethylsiloxane) phase thickness 120 µm, phase length 20 mm, color code: light blue	SPME Arrow
SARR15-DVB-120/20-*	Smart SPME Arrow 1.50 mm wide sleeve: DVB/PDMS (Divinylbenzene / Polydimethylsiloxane) phase thickness 120 µm, phase length 20 mm, color code: violett	SPME Arrow
SARR15-DVB/CWR120/20-*	Smart SPME Arrow 1.50 mm wide sleeve: DVB/C-WR/PDMS (Divinylbenzene/Carbon Wide Range/Polydimethylsiloxane) phase thickness 120 µm, phase length 20 mm, color code: dark gray	SPME Arrow
SARR15-P-100/20-*	Smart SPME Arrow 1.50 mm wide sleeve: PDMS (Polydimethylsiloxane) phase thickness 100 µm, phase length 20 mm, color code: red	SPME Arrow
Special Arrow 1.50 mm diameter:		
SARR15-P-250/20-*	Smart SPME Arrow 1.5 mm: PDMS (Polydimethylsiloxane) phase thickness 250 µm, phase length 20 mm, color code: black	SPME Arrow
SARR1115-SEL5-S2	Collection of five different Smart SPME Arrows with phase length of 20 mm: 1 pc Smart SPME Arrow 1.10 mm Polyacrylate, pase thickness 100 µm 1 pc Smart SPME Arrow 1.10 mm C-WR/PDMS, phase thickness 120 µm 1 pc Smart SPME Arrow 1.10 mm DVB/PDMS, phase thickness 120 µm 1 pc Smart SPME Arrow 1.10 mm PDMS, phase thickness 100 µm 1 pc Smart SPME Arrow 1.10 mm DVB/Carbon WR/PDMS, phase thickness 110 µm	SPME Arrow

*All PAL Smart SPME Arrows are available as single arrow (P1) pack of 3 arrows (P3) and pack of 5 arrows (P5)

Smart SPME Arrows are fully backward compatible with non smart SPME Arrows (any generation of PAL3 Systems).

Requiring FW 3.n or higher and PAL RTC/PAL RSI Series II for Smart functionality

PAL SPME Arrow Accessories

Part No.	Description	Compatible with:		
		RTC	RSI	LSI
PAL3-SPME-ArrowCond	SPME conditioning module for the conditioning of SPME Arrows and SPME Fibers includes a second position for conditioning a replacement SPME Arrow or SPME Fiber Requires FW version 2.3 or higher	X	X	
PAL3-AgiHeatex-Kit	Agitator and Heatex Stirrer kit consisting of: 1 pc Agitator for the incubation and agitation of up to 6 x 20 mL vials 1 pc Heatex Stirrer for intensive heating and stirring of 1 x 20 mL vial without stir bar Specific Heatex Stirrer insert for 10 mL vials available (not included) Specific Agitator insert for 10 mL vials available (not included) Requires FW version 2.3 or higher and adapters for 10 mL vials	X	X	
PAL3-Agitator	Agitator for the incubation and agitation of up to 6 x 20 mL vials Requires FW version 1.3.0 or higher	X	X	X
PAL3-Heatex-Ins-10mL	Specific insert for the Heatex Stirrer to stir one 10 mL vial	X	X	
PAL3-Heatex-Ins-2mL	Specific insert for the Heatex Stirrer to stir one 2 mL vial	X	X	
PAL3-SARR-Start-6890LCh	Starter kit Smart SPME Arrow for Agilent GC 6890 with large charcoal filter consisting of: 1 pc Adaptation for the split/splitless injector with large charcoal filter of AGILENT GC 6890 (ARR-SSL-Inj-GC6890-LCh) 2 pcs SPME Arrow liner for SSL injector of Agilent GC 6890 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-6890Std	Starter kit Smart SPME Arrow for Agilent GC 6890 with standard Assy consisting of: 1 pc Adaptation for the split/splitless injector with standard Assy of AGILENT GC 6890 (ARR-SSL-Inj-GC6890-STD) 2 pcs SPME Arrow liner for SSL injector of Agilent GC 6890 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-GC2010	Starter kit Smart SPME Arrow for Shimadzu GC-2010 Plus consisting of: 1 pc Adaptation for the split/splitless injector of SHIMADZU GC-2010 Plus (ARR-SSL-Inj-GC2010) 1 pc Liner Nut 1 pc Screw Cap 2 pcs SPME Arrow liner ARRLIN13-GC2010 / 2 pcs ARRLIN17-GC2010 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix (only for SHIMADZU GC-2010 Plus, not suitable for use with GC-2010)	X	X	

All Starter Kits are compatible with all PAL RTC/PAL RSI models from FW version 2.3. or higher, requiring FW version 3.n or higher and PAL RTC/PAL RSI Series II for Smart functionality

Part No.	Description	Compatible with:		
		RTC	RSI	LSI
PAL3-SARR-Start-GC2030	Starter kit Smart SPME Arrow for Shimadzu GC-2030 consisting of: 1 pc Adaptation for the split/splitless injector of Shimadzu GC-2030 (ARR-SSL-Inj-GC2030) 2 pcs SPME Arrow liner ARRLIN13-GC2010 / 2 pcs ARRLIN17-GC2010 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-GC7890	Starter kit Smart SPME Arrow for Agilent GC 7890 consisting of: 1 pc Adaptation for the split/splitless injector of AGILENT GC 7890 (ARR-SSL-Inj-GC7890) 2 pcs SPME Arrow liner for SSL injector of Agilent GC 7890 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-GC8890	Starter kit Smart SPME Arrow for Agilent GC 8890 / 8860 consisting of: 1 pc Adaptation for the split/splitless injector of AGILENT GC (ARR-SSL-Inj-GC8890) 2 pcs SPME Arrow liner for SSL injector of Agilent GC 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-Tr1300	Starter kt Smart SPME Arrow for Thermo GC Trace1300/1310 consisting of: 1 pc Adaptation for the split/splitless injector of Thermo GC Trace1300/1310 (ARR-SSL-Inj-Trace1300) 2 pcs SPME Arrow liner for SSL injector of Thermo GC Trace1300/1310 Pk of 2 pcs 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-TrUltra	Starter kit Smart SPME Arrow for Thermo GC TraceUltra consisting of: 1 pc Adaptation for the split/splitless injector of Thermo GC TraceUltra (ARR-SSL-Inj-TraceUltra) 2 pcs SPME Arrow liner for SSL injector of Thermo GC TraceUltra 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	
PAL3-SARR-Start-Intuvo	Starter kit Smart SPME Arrow for Agilent GC Intuvo consisting of: 1 pc Adaptation for the split/splitless injector of AGILENT GC Intuvo (ARR-SSL-Inj-GCIntuvo) 2 pcs SPME Arrow liner for SSL injector of Agilent GC 1 pc PAL Smart SPME Arrow kit (PAL3-SPME-SArr-Kit) incl: 1 pc SPME Arrow tool 1 pc Smart SPME Arrow assortment kit (SARR1115-SEL5-S2) 1 pc SPME performance evaluation mix	X	X	

All Starter kits are compatible with all PAL RTC/PAL RSI models from FW version 2.3. or higher, requiring FW version 3.n or higher and PAL RTC/PAL RSI Series II for Smart functionality







PAL SPME Arrow liner

Part No.	Description
ARR-Liner-CondModule	Liner for SPME Arrow conditioning module, pack of 3 pcs
ARRLIN13-GC2010-*	SPME Arrow liner ID 1.3mm, for SSL Injector of SHIMADZU GC 2010, only for SMPE Arrow OD 1.1mm
ARRLIN13-GC6890-*	SPME Arrow liner ID 1.3mm, for SSL Injector of AGILENT GC 6890, only for SPME Arrow with OD 1.1mm
ARRLIN13-GC7890-*	SPME Arrow liner ID 1.3mm, for SSL Injector of AGILENT GC 7890, only for SMPE Arrow with OD 1.1mm
ARRLIN13-Trace1300-*	SPME Arrow liner ID 1.3mm, for SSL Injector of Thermo GC Trace1300, only for SPME Arrow with OD 1.1mm
ARRLIN17-GC2010-*	SPME Arrow liner ID 1.7mm, for SSL Injector of SHIMADZU GC 2010, for any SPME Arrow
ARRLIN17-GC6890-*	SPME Arrow liner ID 1.7mm, for SSL Injector of AGILENT GC 6890, for any SPME Arrow
ARRLIN17-GC7890-*	SPME Arrow liner ID 1.7mm, for SSL Injector of AGILENT GC 7890, for any SPME Arrow
ARRLIN17-Trace1300-*	SPME Arrow liner ID 1.7mm, for SSL Injector of Thermo GC Trace1300, for any SPME Arrow
ARRLIN20-TraceUltra-*	SPME Arrow liner ID 2.0mm, for SSL Injector of Thermo GC TraceUltra, for any SPME Arrow

*All PAL SPME Arrow liners are available as single liner (1) and as pack of 3 liners (3).



Modules

Part No.	Description	Compatible with:			
		RTC	RSI	LSI	
PAL3-Agitator	<p>Agitator for the incubation and agitation of up to 6 x 20 mL vials, consisting of:</p> <ul style="list-style-type: none"> 1 pc Agitator module 1 pc PALbus connection cable <p>Requires FW version 1.3.0 or higher</p>	X	X	X	
PAL3-BarcodeReader	<p>Barcode reader with 2 active laser scanners for all standard vials containing 1 dimension (1-D) barcodes in a horizontal orientation, consisting of:</p> <ul style="list-style-type: none"> 1 pc Barcode reader module 1 pc PALbus connection cable <p>Requires FW version 1.3.0 or higher</p>	X	X	X	
PAL3-Centrifuge-2mL	<p>Centrifuge for the centrifugation of up to 8 x 2 mL vials, maximum speed of 7200 rpm, this corresponds to a RCF of 2600 x g, consisting of:</p> <ul style="list-style-type: none"> 1 pc Centrifuge 2 mL module 1 pc PALbus connection cable 1 pc Power cable <p>Requires FW versions: 3.1.19.1 or higher for PAL3 series II 2.5.57.2 or higher for PAL3 series with iMX6 board PAL Sample Control users need PAL Sample Control SW Version 2.5 or higher or Chronos</p>	X	X	X	
PAL3-Centrifuge-10mL	<p>Centrifuge for the centrifugation of up to 6 x 10 mL vials, maximum speed of 5200 rpm, this corresponds to a RCF of 5000 x g, consisting of:</p> <ul style="list-style-type: none"> 1 pc Centrifuge 10 mL module 1 pc PALbus connection cable 1 pc Power cable <p>Requires FW versions: 3.1.19.1 or higher for PAL3 series II 2.5.57.2 or higher for PAL3 series with iMX6 board PAL Sample Control users need PAL Sample Control SW Version 2.5 or higher or Chronos</p>	X	X	X	
PAL3-Centrifuge-Combi	<p>Centrifuge for the centrifugation of up to 2 x 10 mL vials, 2 x 20 mL vials or up to 4 x 2 mL vials maximum speed of 4800 rpm, this corresponds to a RCF of 2000 x g, consisting of:</p> <ul style="list-style-type: none"> 1 pc Centrifuge Combi module 1 pc PALbus connection cable 1 pc Power cable <p>Requires FW versions: 3.1.19.1 or higher for PAL3 series II 2.5.57.2 or higher for PAL3 series with iMX6 board PAL Sample Control users need PAL Sample Control SW Version 2.5 or higher or Chronos</p>	X	X	X	
PAL3-Decapper	<p>Decapper for opening and closing of initially closed 2mL, 10mL or 20mL vials, consisting of:</p> <ul style="list-style-type: none"> 1 pc Decapper module 1 pc PALbus connection cable 1 pc Vial Sample Set <p>Requires FW version 2.4 or higher</p>	X	X	X	


Part No	Description	Compatible with:			
		RTC	RSI	LSI	
PAL3-DilutorMulti	<p>Dilutor module, consisting of:</p> <ul style="list-style-type: none"> 1 pc Dilutor module 1 pc Dilutor tool 1 pc Dilutor syringe 1 mL and needles 1 pc PFA Transfer tube 1/16" 5 pcs Solvent bottle 1000 mL 5 pcs PAL DilAspKit 1 pc PALbus connection cable <p>Requires FW version 2.1.0 or higher</p>	X	X		
PAL3-DilutorSingle	<p>Dilutor module, consisting of:</p> <ul style="list-style-type: none"> 1 pc Dilutor module 1 pc Dilutor tool 1 pc Dilutor syringe 1 mL and needles 1 pc PFA transfer tube 1/16" 1 pc Solvent bottle 1000 mL 1 pc PAL DilAspKit 1 pc PALbus connection cable <p>Requires FW version 2.1.0 or higher</p>	X	X		
PAL3-FlowCell	<p>Flow Cell module to accommodate up to 6 flow cells, consisting of:</p> <ul style="list-style-type: none"> 1 pc Holder 88 mm 1 pc Flow-Cell Stainless Steel 316 with connectors Swagelok 1/4" 5 pcs Inlet septa 	X	X		
PAL3-HeatexStirrer	<p>Heatex Stirrer for intensive heating and stirring of 1 x 20 mL vial without stir bar, consisting of:</p> <ul style="list-style-type: none"> 1 pc Heatex Stirrer module 1 pc PALbus connection cable <p>Requires FW version 2.3 or higher (use in combination with existing PAL3-Agitator)</p>	X	X		
PAL3-MHE-Module	<p>Multiple Headspace Extraction module, consisting of:</p> <ul style="list-style-type: none"> 1 pc MHE module 1 pc MHE tool 1 pc MHE needle gauge 22/5 <p>Requires FW version 2.1.0 or higher</p>	X	X		
PAL3-SPME-ArrowCond	<p>SPME Arrow Conditioning module for the conditioning of SPME Arrows and SPME Fibers, consisting of:</p> <ul style="list-style-type: none"> 1 pc SPME Arrow Conditioning module 1 pc PALbus connection cable <p>Requires FW version 2.3 or higher</p>	X	X		






Part No.	Description	Compatible with			
		RTC	RSI	LSI	
PAL3-ValveDrive-R	Valve drive for Rheodyne valve (without valve) consisting of: 1 pc Valve drive module for Rheodyne valves 1 pc PALbus connection cable Requires FW version 1.4.0 or higher	X	X	X	
PAL3-ValveDrive-V	Valve drive for Valco valve (without valve) consisting of: 1 pc Valve drive module for Valco valves 1 pc PALbus connection cable Requires FW version 1.4.0 or higher	X	X	X	
PAL3-VortexMixer	Vortex Mixer for the intensive mixing of 1 x 2 mL, 10 or 20 mL vials with an agitation speed between 0 - 2000 rpm, consisting of: 1 pc Vortex Mixer module 1 pc PALbus connection cable Requires FW version 1.3.0 or higher	X	X	X	
PAL3-ParkStation-RTC	Park Station for the storage and robotic tool change of up to three PAL tools like Liquid, HS, SPME, consisting of: 1 pc Park Station 1 pc PALbus connection cable	X			
PAL3-WashFast-HF	HF (High-Flow) Fast Wash module for two solvents (needle gauge 19 to 26), recommended for syringe size: 250 µL - 10 mL, consisting of: 1 pc Wash module with two wash positions and one waste position 1 pc Pump module with two high flow solvent pumps 2 pcs Solvent bottle 1000 mL 2 pcs Aspiration tubing (PFA Tube and Glass Frit 40um pore size) 1 pc Waste tube for Fast Wash module 1 pc PALbus connection cable Requires FW version 2.4.x or higher	X	X	X	
PAL3-WashFast	Fast Wash module for two solvents (needle gauge 19 to 26), recommended syringe size: 10 - 100 µL consisting of: 1 pc Wash module with two wash positions and one waste position 1 pc Pump module with two solvent pumps 2 pcs Solvent bottle 1000 mL 2 pcs Aspiration tubing (PFA Tube and Glass Frit 40um pore size) 1 pc Waste tube for Fast Wash module 1 pc PALbus connection cable Requires FW version 2.0 or higher	X	X	X	
PAL3-SolventModule	Solvent module, consisting of: 1 pc Vial holder 3 pcs Wash vials 100 mL with septum cap 2 pcs Clip caps Requires FW version FW 1.4 or higher	X	X	X	




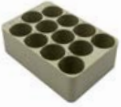


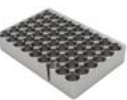



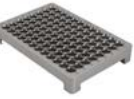

Part No.	Description	Compatible with			
		RTC	RSI	LSI	
PAL3-WashLarge	Large Wash module, consisting of: 1 pc Vial holder 2 pcs Wash vials 100 mL with septum cap 2 pcs Clip caps 1 pc Waste tube for Fast Wash module Requires FW version 1.4 or higher	X	X		
PAL3-WashLCMS	Wash module for LC/MS tool, consisting of: 1 pc Wash module with two wash positions and one waste position 1 pc Waste tube for Fast Wash module Requires FW version 2.0.x or higher	X	X	X	
PAL3-WashStd	Standard Wash module, consisting of: 4 pcs Solvent vials 10 mL 1 pc Waste vial 10 mL 5 pcs Clip caps for PAL Wash modules Requires FW version 1.4 or higher		X	X	
PAL3-ActWashCup-2ChV	Wash Cup setup, consisting of: 1 pc 2-channel volumetric pump incl PAL Bus cable 1 pc Wash Cup 1 pc PFA transfer tube 1/16" for up to 850 mm 2 pcs Solvent bottle 1000 mL 2 pcs Aspiring tube 1/8" 1 pc PALbus connection cable Requires FW version 4.n	X	X		
PAL3-LCMS-PumpMod	PAL3 LC/MS pump module consisting of: 2 pcs Pumps 1 pc Electronic board 1 pc Aluminum housing with PALbus connectors 1 pc PALbus connection cable (without bracket and tubing) Requires FW version 2.1 or higher	X	X		
PAL3-WashPip	Wash module for pipette tool, consisting of: 1 pc Valve Wash module pipette tool 1 pc Pump module 1 pc Cheminert injection valve PAL3-C2V-2006-CTC 2 pcs Aspiration Tubing (PFA Tube and Glass Frit 40um pore size) 2 pcs Solvent bottle 1000 mL Requires injection loop and PAL3-ValveDrive-V Requires FW version 2.4 or higher	X			
PAL3-Terminal	Terminal for PAL3 Systems	X	X	X	



Tray Holders, Stacks and Racks

Part No	Description	Compatible with			
		RTC	RSI	LSI	
PAL3-TrayCooler	<p>Tray Cooler, temperature range 4 °C - 40 °C, including power supply.</p> <p>Capacity:</p> <ul style="list-style-type: none"> 3 x MTP (Multi Titer Plate) or 3 x DW (Deep Well Plate) or 3 x VT15 (15 x 10 / 20 mL) or 3 x VT54 (54 x 2 mL) or 3 x VT70 (70 x 1 mL) or Combinations <p>Depending on vial type inserts are required: PAL3-TrayC-Ins-1mL for 1 mL vials (for VT70 racks) PAL3-TrayC-Ins-2mL for 2 mL vials (for VT54 or VT54-AI racks) PAL3-TrayC-Ins-10mL for 10 mL vials (for VT15 racks) PAL3-TrayC-Ins-MTP for MTPs 14.5 mm high</p> <p>Requires FW 3.1.21 or higher</p>	X	X		
PAL3-LiqCooler	<p>Tray holder and sample tray for housing up to 32 vials of 20 mL in the temperature range between 4 °C- 70 °C</p> <p>External circulator bath for heating/cooling not included</p>	X	X	X	
PAL3-Trayholder	<p>Tray holder for sample storage at room temperature.</p> <ul style="list-style-type: none"> 3 x MTP (Multi Titer Plate) or 3 x DW (Deep Well Plate) or 3 x VT15 (15 x 10/20 mL) or 3 x VT54 (54 x 2 mL) or 3 x VT70 (70 x 1 mL) or 1 x R60 or Combinations <p>A PAL with extended x-axis length can hold up to 7 tray holders.</p>	X	X	X	
PAL3-Trayplate	<p>Tray plate for sample storage at room temperature</p> <ul style="list-style-type: none"> 3 x MTP (Multi Titer Plate) or 3 x DW (Deep Well Plate) or 3 x VT15 (15 x 10/20 mL) or 3 x VT54 (54 x 2 mL) or 3 x VT70 (70 x 1 mL) 	X	X	X	

Part No	Description	Compatible with			
		RTC	RSI	LSI	
PAL3-PeltierStack12MT	<p>Peltier Stack 12MT 4 °C- 40 °C for 12 x MTP (Multi Titer Plate), including power supply and cables</p> <p>Requires FW version 1.5.0 or higher</p>	X	X	X	
PAL3-PeltierStack2DW	<p>Peltier Stack 2 DW 4 °C- 40 °C for sample storage of:</p> <ul style="list-style-type: none"> 2 x MTP (Multi Titer Plate) or 2 x DW (Deep Well Plate) or 2 x VT15 (15 x 10 mL) or 2 x VT 54 (54 x 2 mL) or 2 x VT70 (70 x 1 mL) or Combinations <p>Including power supply and cables</p> <p>Requires FW version 1.4.0 or higher</p>	X	X	X	
PAL3-PeltierStack6DW	<p>Peltier Stack 6DW 4 °C- 40 °C for sample storage of:</p> <ul style="list-style-type: none"> 6 x MTP (Multi Titer Plate) or 6 x DW (Deep Well Plate) or 6 x VT15 (15 x 10 mL) or 6 x VT54 (54 x 2 mL) or 6 x VT70 (70 x 1 mL) or Combinations <p>Including power supply and cables</p> <p>Requires FW version 1.5.0 or higher</p>	X	X	X	
PAL3-Stack12MT	<p>Stack 12MT for sample storage at room temperature:</p> <p>12 x MTP (Multi Titer Plate)</p> <p>Requires FW version 2.2.0 or higher</p>	X	X	X	
PAL3-Stack6DW	<p>Stack 6DW for sample storage at room temperature:</p> <ul style="list-style-type: none"> 6 x MTP (Multi Titer Plate) or 6 x DW (Deep Well Plate) or 6 x VT15 (15 x 10 mL) or 6 x VT54 (54 x 2 mL) or 6 x VT70 (70 x 1 mL) or Combinations <p>Requires FW version 2.2.0 or higher</p>	X	X	X	

Part No	Description	Compatible with			
		RTC	RSI	LSI	
PAL3-Kit-VT15	<p>Sample rack for 15 vials 10/20 mL</p> <p>Vials are not included, pack of 3 pcs</p>	X	X	X	
PAL3-Kit-VT54	<p>Sample rack for 54 vials 2 mL</p> <p>Vials are not included, pack of 3 pcs</p>	X	X	X	
PAL3-Rack-R60	<p>Sample rack for 60 vials of 10/20 mL, Aluminum</p> <p>Vials not included</p>	X	X	X	
PAL3-Rack-VT12	<p>Sample rack for 12 vials of 40 mL</p> <p>Vials are not included</p>	X	X	X	
PAL3-Rack-VT15	<p>Sample rack for 15 vials of 10/20 mL</p> <p>Vials are not include</p>	X	X	X	
PAL3-Rack-VT54	<p>Sample rack for 54 vials of 2 mL</p> <p>Vials are not included</p>	X	X	X	
PAL3-Rack-TV54-Alu	<p>Aluminum sample rack TV 54 for up to 54x 2 mL tapered vials can also be used with 2 mL standard vials. Recommended also for work with temperated samples in a Stack Cooler.</p> <p>Vials are not included</p>	X	X	X	
PAL3-Rack-VT70	<p>Sample rack for 70 vials of 1 mL</p> <p>Vials are not included</p>	X	X	X	
PAL3-Rack-Cart-uSPE54	<p>Cartridge tray to hold 54 µSPE cartridges, also used for optional cartridge conditioning</p>	X			
PAL3-Rack-Cart-uSPE96-B	<p>Cartridge tray to hold 96 µSPE cartridges in blister</p>	X			
PAL3-Rack-Cart-uSPE96	<p>Cartridge tray to hold 96 µSPE cartridges</p>	X			
PAL3-Rack-Pip-Tip	<p>Tip rack for 96 PAL pipette tips</p> <p>Tips are not included</p>	X			



Accessories

LC Valves & Valve Accessories

Part No.	Description	Compatible with:		
		RTC	RSI	LSI
PAL3-C2V-2006D-CTC-K	Cheminert injection valve 6-port 0.40 mm bore size incl. PAL LCInjector with seal one-piece G22, waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-C2V-3006D-CTC-K	Cheminert injection valve 6-port 0.75 mm bore size 5000 psi, 345 bar incl. PAL LCInjector with seal one-piece G22 and KitLCVlv-19 prep application, flow rate 5 to 100 mL/min	X	X	X
PAL3-C82VU-1676DCTC1-K	Cheminert injection valve 6-port ports 3,4,5,6: 0.25 mm bore size ports 1, 2: 0.40 mm bore size 20000 psi, 1379 bar incl. PAL LCInjector with seal one-piece G22, waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-C82VU-6676D-CTC-K	Cheminert injection valve, 6-port 0.15 mm bore size 18500 psi, 1275bar incl. PAL LCInjector with seal one-piece G22, waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-C82VX-1676D-CTC-K	Cheminert injection valve 6-port 0.25 mm bore size 15000 psi, 1034 bar incl. PAL LCInjector with seal one-piece G22, waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-C82VX-1676DCTC1-K	Cheminert injection valve, 6-port Ports 3,4,5,6: 0.25 mm, Ports 1, 2: 0.40 mm 16000 psi, 1100 bar incl. PAL LCInjector with seal one-piece G22, waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-DCI4WK.5/1-CTC-K	Valco W-Type LC-valve 4-port internal sample loop 0.5/1.0 µL 0.40 mm bore size 5000 psi, 345 bar incl. needle guide, needle seal and kit LCVlv	X	X	X
PAL3-ColSel6	Column selector valve for up to 6 columns, consists of 2 pcs 6-port Cheminert valves bore size 0.25 mm	X	X	X
PAL3-ColumnHolder	Column holder for Valve drive with clamps for columns OD 4.6 mm	X	X	X
PAL3-NdlSeal-2	PAL needle seal press-fit gauge 22 for Valco and Rheodyne valves, pack of 5 pcs	X	X	X
PAL3-LCInj-V-G19	Standard needle guide for Vici valves, gauge 19	X	X	
PAL3-LCInj-G22	Standard needle guide for Rheodyne/ Vici valves, gauge 22	X	X	
PAL3-LCInj-Seal-G22-2	PAL LCInjector with needle seal press-fit (preassembled), gauge 22, incl. 1 spare needle seal	X	X	
PAL3-LCInj20mL-G19	Needle guide for Vici valves gauge 19, designed for tools with 20 mL magnet	X	X	X
PAL3-LCInj20mL-G22	Needle guide for Rheodyne / Vici valves gauge 22, designed for tools with 20 mL magnet	X	X	X
PAL3-MountClaw-Vv	Mounting claw valve drive	X	X	X

Mounting kits

Part No.	Description	Compatible with:		
		RTC	RSI	LSI
PAL3-Kit-5890	Mounting kit for Agilent GC 5890	X	X	X
PAL3-Kit-5975T	Mounting kit for Agilent GC 5975T	X	X	X
PAL3-Kit-6850	Mounting kit for Agilent GC 6850	X	X	X
PAL3-Kit-7820-D	Mounting kit for Agilent GC 7820 (deck mounting)	X	X	X
PAL3-Kit-7890-D	Mounting kit for Agilent GC 6890/7890 (deck mounting)	X	X	X
PAL3-Kit-7890-S	Mounting kit for Agilent GC 6890/7890 (side mounting)	X	X	X
PAL3-Kit-88xx-D	Mounting kit for Agilent GC 6890/7890/8860/8890 with longer legs (deck mounting)	X	X	X
PAL3-Kit-88xx-S	Mounting kit for Agilent GC 6890/7890/8860/8890 with longer legs (side mounting)	X	X	X
PAL3-Kit-Intuvo-L	Mounting kit for Agilent Intuvo GC 9000 with additional long leg	X	X	X
PAL3-Kit-S2010	Mounting kit for Shimadzu GC2010	X	X	X
PAL3-Kit-S2014	Mounting kit for Shimadzu GC2014	X	X	X
PAL3-Kit-S2025	Mounting kit for Shimadzu GC2025	X	X	X
PAL3-Kit-S2030	Mounting kit for Shimadzu GC2030	X	X	X
PAL3-Kit-Trace	Mounting kit for Thermo Trace GC Ultra	X	X	X
PAL3-Kit-Trace1300	Mounting kit for Thermo Trace GC 1300/1310/1600/1610	X	X	X
PAL3-Kit-YL6500	Mounting kit for YoungIn GC 6500	X	X	X
PAL3-Kit-Standalone	Standard support PAL3, 215 mm, incl. PAL Interface cable, 2 pcs	X	X	X

Other Accessories

Part No.	Description	Compatible with:		
		RTC	RSI	LSI
PAL3-Adap-7890/6890	Adapter for Agilent GC 7890/6890	X	X	X
PAL3-Adap-GC2010	Adapter for Shimadzu GC2010 Plus	X	X	X
PAL3-Adap-GC2030	Adapter for Shimadzu GC2030	X	X	X
PAL3-Adap-Trace1300-GC	Adapter for Thermo Trace GC 1300 injectors, suitable for SSL or PTV injector	X	X	X
PAL3-Adap-TraceUltra	Adapter for Thermo Trace 1300 Ultra injector	X	X	X
PAL3-AdapStdWash-2ml	Adapter for Standard Wash Station to place 2 mL vial instead of the 10 mL wash vial	X	X	X
PAL3-AdapStdWash-Waste	Waste adapter for Standard Wash module	X	X	X
PAL3-Adapters-TraceGC	Kit of adapters for Thermo Trace GC Ultra injectors: consists of one adapter for SSL/ packed/purge packed injector and one adapter for PTV	X	X	X
PAL3-Adapters-FocusGC	Adapter kit for Thermo Focus GC injectors: consists of one adapter for SSL/packed/purge packed injector	X	X	X
PAL3-Agi-InsSet-10ml	Set of 6 x inserts for the Agitator to place 10 mL vials instead of 20 mL vials	X	X	X
PAL3-Agi-InsSet-2ml	Set of 6 x inserts for the Agitator to place 2 mL vials instead of 20 mL vials	X	X	X
PAL3-FoilCutter	Foil cutter to pierce either aluminum or plastic foils prior to the needle penetration into microtiter or deep well plates (Requires PAL3-LCInj-V-G19 or PAL3-LCInj-G22)	X	X	
PAL3-InterfaceCable	PAL Interface cable 3 m, 15-pin, open end	X	X	X



Vials, Vial Caps

Vials

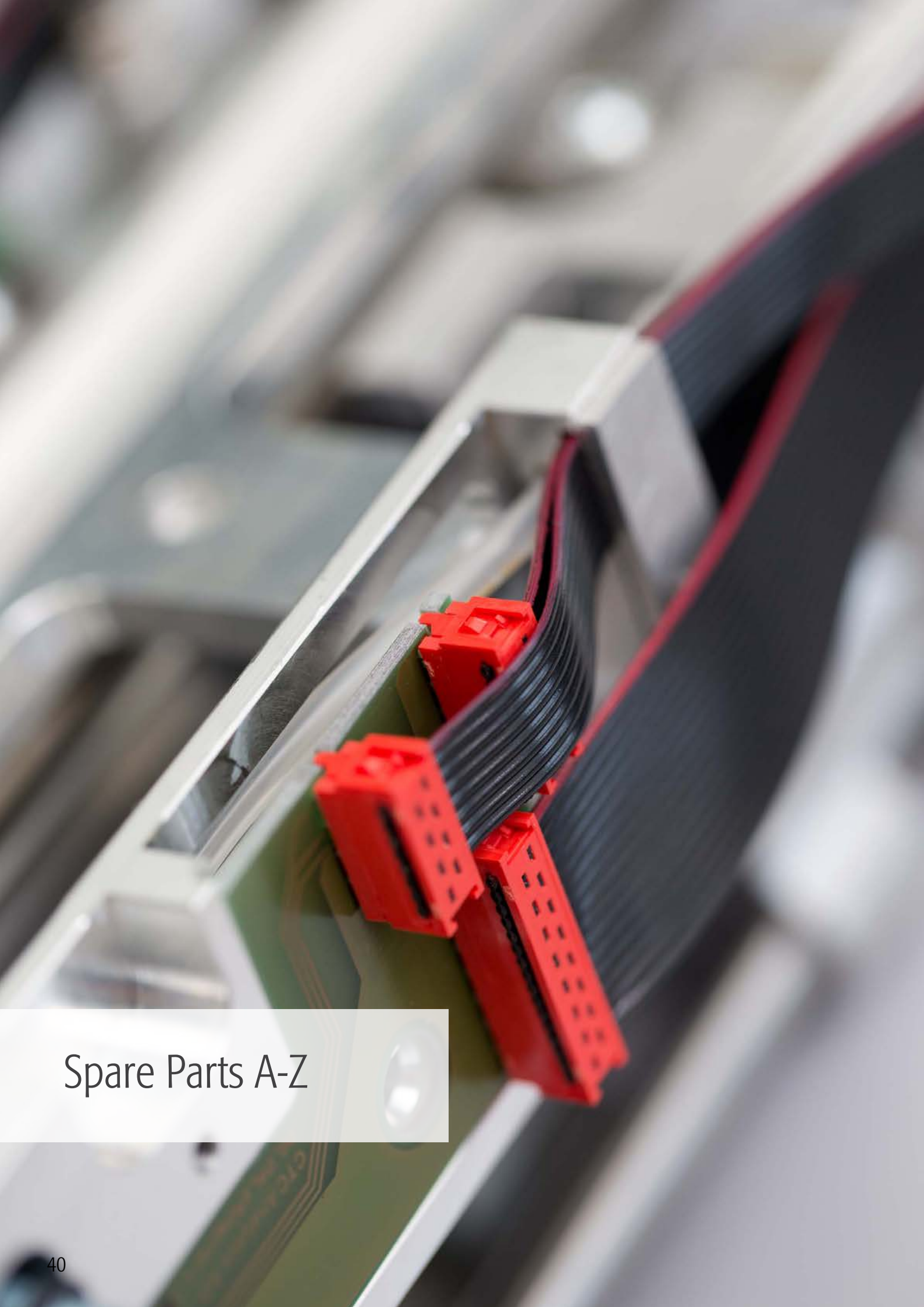
Part No.	Description	Compatible with PAL options:					
		Agitator	Centrifuge	Decapper	Heatex-Stirrer	Vortex-Mixer	uSPE
Vial-0.3-ND9-PP-100	PAL System micro-vial 2CV, 0.3 mL clear PP, designed for the PAL Autosampler, 12 x 32 mm, with conical insert, fits ND9 screw caps, pack of 100 pcs	X	X	X		X	X
Vial-1.5-ND9-AG-100	PAL System vial 2CV, 1.5 mL amber glass with label, designed for the PAL Autosampler, 12 x 32 mm, 1st class hydrolytic glass, fits ND9 screw caps, pack of 100 pcs	X	X	X		X	X
Vial-1.5-ND9-CG-100	PAL System vial 2CV, 1.5 mL clear glass with label, designed for the PAL Autosampler, 12 x 32 mm, 1st class hydrolytic glass, fits ND9 screw caps, pack of 100 pcs	X	X	X		X	X
Vial-1.5-ND9-PP-100	PAL System vial 2CV, 1.5 mL clear PP, designed for the PAL Autosampler, 12 x 32 mm, with filling lines, fits ND9 screw caps, pack of 100 pcs	X	X	X		X	X
Vial-10-ND18-AG-100	PAL System vial 10CV, 10 mL amber glass with label, designed for the PAL Autosampler, 46 x 22.5 mm, 1st class hydrolytic glass, with flat finish for better sealing, fits ND18 screw caps, pack of 100 pcs	X	X	X	X	X	
Vial-10-ND18-CG-100	PAL System Vial 10CV, 10 mL clear glass with label, designed for the PAL Autosampler, 46 x 22.5 mm, 1st class hydrolytic glass, with flat finish for better sealing, fits ND18 Screw Caps, pack of 100 pcs	X	X	X	X	X	
Vial-20-DC20-AG-100	PAL System vial 20CV, 20 mL amber glass with label, designed for the PAL Autosampler, 75.5 x 22.5 mm, 1st class hydrolytic glass, with flat finish for better sealing, DIN-crimp Neck, pack of 100 pcs	X			X	X	
Vial-20-DC20-CG-100	PAL System vial 20CV, 20 mL clear glass with label, designed for the PAL Autosampler, 75.5 x 22.5 mm, 1st class hydrolytic glass, with flat finish for better sealing, DIN-crimp Neck, pack of 100 pcs	X			X	X	
Vial-20-ND18-AG-100	PAL System vial 20CV, 20 mL clear glass with label, designed for the PAL Autosampler, 75.5 x 22.5 mm, 1st class hydrolytic glass, with flat finish for better sealing, fits ND18 screw caps, pack of 100 pcs	X		X	X	X	
Vial-20-ND18-CG-100	PAL System vial 20CV, 20 mL amber glass with label, designed for the PAL Autosampler, 75.5 x 22.5 mm, 1st class hydrolytic glass, with flat finish for better sealing, fits ND18 screw caps, pack of 100 pcs	X		X	X	X	
Vial-40-ND24-CG-100	PAL System vial 40CV, 40 mL clear glass with label, designed for the PAL Autosampler, 95 x 27.5 mm, 1st class hydrolytic glass, with flat top for optimized sealing,, fits ND24 screw caps, pack of 100 pcs			X		X	

Vial Caps

Part No.	Description	Compatible with vials:				
		Vial 2CV-ND9	Vial 10CV-ND18	Vial 20CV -ND18	Vial 40CV-ND24	DIN-crimp Neck
Cap-ND9-PP-SP10-100	PAL System screw cap 2CV designed for the PAL Autosampler, ND9, Silicone/PTFE septa 1.0 mm, pack of 100 pcs	X				
Cap-ND9-PP-SP10S-100	PAL System screw cap 2CV designed for the PAL Autosampler, ND9, Silicone/PTFE/I-Slitted septa 1.0 mm, pack of 100 pcs	X				
Cap-ND9-St-SP10-100	PAL System screw cap 2CV designed for the PAL Autosampler, ND9, magnetic, Gold, Silicone/PTFE septa 1.0 mm, pack of 100 pcs	X				
Cap-ND9-St-SP10Sb-100	PAL System screw cap 2CV, designed for the PAL Autosampler, ND9, magnetic, Gold, Silicone/PTFE/Starburst, Slitted septa 1.0 mm, pack of 100 pcs	X				
Cap-ND18-StC-SP20-100	PAL System screw re-cap 10CV and 20CV designed for the PAL Autosampler, optimized for the use with the PAL Decapper module, ND18 magnetic cap with PTFE metal coating, Silicone/PTFE septa, red color, 2.0 mm, pack of 100 pcs		X	X		
Cap-ND18-St-SP15-100	PAL System screw cap 10CV and 20CV designed for the PAL Autosampler, optimized for SPME Fiber, ND18 magnetic, Silver, Silicone/PTFE septa, Blue/white color, 1.5 mm, pack of 100 pcs		X	X		
Cap-DC20-St-SP15-100	PAL System crimp cap for headspace, SPME Fiber and SPME Arrow, 20 mm with 8 mm center hole, Silicone / PTFE septa 3.0 mm with thinned center 1.5 mm pack of 100 pcs					X
Cap-DC20-St-SP30-100	PAL System crimp cap for headspace and SPME Arrow, 20 mm with 8 mm center hole, Silicone / PTFE septa 3.0 mm, pack of 100 pcs					X
Cap-ND24-PP-SP32-100	PAL System screw cap 40CV designed for the PAL Autosampler, ND24, Silicone/PTFE septa 3.2 mm, pack of 100 pcs				X	

Vial and Cap Kits for Wash Modules

Part No.	Description	RTC	RSI	LSI
Vial-10-DC20-CG-100	PAL System vial 10CV, 10 mL clear glass with label for PAL Wash modules. 46 x 22.5 mm, 1st class hydrolytic glass, DIN-Crimp neck, pack of 100 pcs	X	X	X
Cap-DC20-PE8-SP13Y-100	PAL System clip cap for PAL Wash modules 22 mm PE with 8 mm center hole, Silicone/PTFE/Y-Slitted septa 1.3 mm, pack of 100 pcs	X	X	X
PAL3-Kit-WashVial-Caps	Snap cap (PE) and septum (Silicon/PTFE) for 10 mL/100 mL vials for Standard Wash module (set of 10)	X	X	X
PAL3-Kit-WashVial-10ml	10mL solvent vial for Standard Wash module completed with snap caps and seals (set of 10)	X	X	X



Spare Parts A-Z

Part No.	Description	Compatible with:		
		RTC	RSI	LSI
PAL3-Agi-TeachAdap	Agitator teaching tool, 2 pcs	X	X	X
PAL3-AgiOpen	Bumper for RSI injection head to open the Agitator lid, consisting of: 1 pc Bumper 2 pcs Screws for connection	X	X	
PAL3-AgiTopSPME	Agitator top cover, with holes for SPME application	X	X	
PAL3-BusCable-250mm	Standard PALbus cable (14 pin), length 250 mm	X	X	X
PAL3-BusCable-850mm	Standard PALbus cable (14 pin), length 850 mm	X	X	X
PAL3-BusCable-1500mm	Standard PALbus cable (14 pin), length 1500 mm	X	X	X
PAL3-DilAspKit	Aspiration tubing consisting of: 1 pc Tube PFA 1 pc 28 mm VitraPOR glass frit 40 um pore size 1 pc Plug with feed-through holes	X	X	
PAL3-DC-Cable-2m	Power cable (3 pin, shielded) for connection between PAL Power Supply and PAL System cable length 2 m.	X	X	X
PAL3-DilAspKit-170	Aspiration tubing 170 cm consisting of: 1 pc Tube PFA 1 pc 28 mm VitraPOR glass frit 40 um pore size 1 pc Plug with feed-through holes	X	X	
PAL3-GuardBrack	Safety guard holding bracket, incl. screws	X	X	X
PAL3-HS1000-Oring-kit	Spares for headspace 1.0 mL tool consisting of: 4 pcs O-ring 7x1.5 MVQ for syringe fixation 2 pcs O-ring 3x1.0 MVQ for gas connection 1 pc Syringe removing tool	X	X	
PAL3-HS2500-Oring-kit	Spares for headspace 2.5 mL and ITEX 1.3 mL tool consisting of: 4 pcs O-ring 9.25x1.78 MVQ for syringe fixation 2 pcs O-ring 3x1.0 MVQ for gas connection 1 pc Syringe removing tool	X	X	
PAL3-HS5000-Oring-kit	Spares for headspace 5.0 mL tool consisting of: 4 pcs O-ring 13x1.5 MVQ for syringe fixation 2 pcs O-ring 3x1.0 MVQ for gas connection 1 pc Syringe removing tool	X	X	
PAL3-HS1000-Syr-kit	Syringe accessories for headspace tool 1.0 mL consisting of: 1 pc Nut M27 for syringe fixation 1 pc O-ring 7.0x1.5 MVQ (Silicone) for syringe 1 pc Syringe removing tool	X	X	
PAL3-HS2500-Syr-kit	Syringe accessories for headspace tool 2.5 mL consisting of: 1 pc Nut M27 for syringe fixation 1 pc O-ring 9.25x1.78 MVQ (Silicone) for syringe 1 pc Syringe removing tool	X	X	
PAL3-HS5000-Syr-kit	Syringe accessories for headspace tool 5.0 mL consisting of: 1 pc Nut M27 for syringe fixation 1 pc O-ring 13x1.5 MVQ (Silicone) for syringe 1 pc Syringe removing tool	X	X	
PAL3-KIT-LCVlv	Kit waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-Kit-ChkVlve	Check valve set for protection of LC/MS-P pumps 2 pcs Check valves outlet 0.2 bar (3 psi) 1 pc Plastic syringe for purging of pumps 1 pc Adapter for check valve	X	X	

Part No.	Description	Compatible with		
		RTC	RSI	LSI
PAL3-Kit-HDPE-100mL	Replacement of 100 mL vial holder, set of 3 pcs for Solvent module or Large Wash module for aggressive media like BF3, acids and bases material: High Density Poly Ethylene (HDPE) Incl. 6 x screws for fixation			
PAL3-LCMSLoop	Kit PAL3 LC/MS holding loop with fittings	X	X	
PAL3-LSI-PM-Kit	Preventive maintenance kit for PAL LSI consisting of: 1 pc Vial teaching kit 1 pc Test label barcode 1 pc Lubricant 1 pc Brush 3 pcs Spare screw for fixation of PALhead 1 pc Spare screw for fixation of cover 1 pc Kit Wash vials Soft tissue for outer surface cleaning Rough tissue for degreasing X-,Y-,Z-Axes or guide rollerss			X
PAL3-LubKit	PAL lubrication kit including brush	X	X	X
PAL3-LC-Syr-Kit	Syringe accessory kit for liquid tools (1.2-1000 uL) Consisting of: 1 pc Bajonet Cap for syringe fixation 1 pc Replacement O-ring for syringe 3 pcs Labels for syringe identification (1.2-1000 uL)	X	X	X
PAL3-LSI-Bajonet-cap	Bajonet cap for syringe fixation in PAL LSI and RSI, pack of 4pcs			X
PAL3-LSI-CblClam	Clamp for fixation of z-Ribbon cable, incl. screw			X
PAL3-MM-015-01	Tube connector from pressure regulator to tubing 1/8"	X	X	
PAL3-MM-09-01	Connector PAL3 x-rail to pressure regulator	X	X	
PAL3-PM-GC-KIT	Preventive maintenance kit for PAL System GC configuration, consisting of: 1 pc Vial reaching kit 2 pcs Driving belt Agitator 1 pc Test label barcode 1 pc Lubricant 1 pc Brush 1 pc Spare screw for fixation of PALhead cover 1 pc Spare screw for fixation of PALhead with O-ring 1 pc Kit wash vials Soft Tissue for outer surface cleaning Rough Tissue for degreasing X-,Y-,Z-Axes or guide rollers	X	X	
PAL3-PM-LC-KIT	Preventive maintenance kit for PALSystem LC configuration, consisting of: 1 pc Vial teaching kit 1 pc Test label barcode 1 pc Lubricant 1 pc Brush 5 pcs PALseal 1 pc Spare screw for fixation of PALhead cover 1 pc Spare screw for fixation of PALhead with O-rng 1 pc Kit Waste-Tubing for VICI and Rheodyne valves Soft Tissue for outer surface cleaning Rough Tissue for degreasing X-,Y-,Z-Axes or guide rollers	X	X	
PAL3-POWERSUPPLY	Main power supply for PAL System, input voltage 100-240 V	X	X	X
PAL3-PressureRegulator	Pressure regulator	X	X	X
PAL3-RSI-LSI-Z-Cover	PAL cover for RSI and LSI injection unit, consisting of: 1 pc Cover complete with cover window		X	X
PAL3-RSI-LSI-Z-Oring	Replacement buffer O-ring for Z-Head of PAL3 RSI or LSI, Pk of 10 pcs		X	X

Part No.	Description	Compatible with		
		RTC	RSI	LSI
PAL3-RTC-Z-Cover	PAL RTC cover for injection unit consisting of: 1 pc Cover complete with cover window	X		
PAL3-SafetyGuard120	Plexiglas safety guard for PAL3 System X1200	X	X	X
PAL3-SafetyGuard85	Plexiglas safety guard for PAL3 System X85	X	X	X
PAL3-SafetyGuard50	Plexiglas safety guard for PAL3 System X50	X	X	X
PAL3-TubeDilutor	Transfer tubing kit for Dilutor	X	X	
PAL3-TubeDilutor-X	Transfer tubing for Dilutor X120	X	X	
PAL3-TubeFastWash	Tubing Kit for Fast Wash module	X	X	X
PAL3-TubeVlWaste	Waste-tubing for VICI and Rheodyne valves	X	X	X
PAL3-TubeWaste	Waste tube PE corrugated hose for Wash module	X	X	X

PFAS-free Upgrade Kits

Part No.	Description	To use with
PAL3-LCMS100Up-PFCFr-S	PFAS-free upgrade kit for LC/MS tools with membrane pump and 100 uL loop, for up to 85 cm systems	LC/MS tool
PAL3-LCMS100Up-PFCFr-X	PFAS-free upgrade kit for LC/MS tools with membrane pump and 100 uL loop, for up to 120 cm systems	LC/MS tool
PAL3-LCMS250Up-PFCFr-S	PFAS-free upgrade kit for LC/MS tools with membrane pump and 250 uL loop, for up to 85 cm systems	LC/MS tool
PAL3-LCMS250Up-PFCFr-X	PFAS-free upgrade kit for LC/MS tools with membrane pump and 250 uL loop, for up to 120 cm systems	LC/MS tool
PAL3-LCMS100VP-PFCFr-S	PFAS-free upgrade kit for LC/MS tools with volumetric pump and 100 uL loop, for up to 85 cm systems	LC/MS tool
PAL3-LCMS100VP-PFCFr-X	PFAS-free upgrade kit for LC/MS tools with volumetric pump and 100 uL loop, for up to 120 cm systems	LC/MS tool
PAL3-LCMS250VP-PFCFr-S	PFAS-free upgrade kit for LC/MS tools with volumetric pump and 250 uL loop, for up to 85 cm systems	LC/MS tool
PAL3-LCMS250VP-PFCFr-X	PFAS-free upgrade kit for LC/MS tools with volumetric pump and 250 uL loop, for up to 120 cm systems	LC/MS tool
PAL3-FWashHFUp-PFCFr	PFAS-free upgrade kit for PAL3 high flow fast wash	Fast wash-HF
PAL3-FWashUp-PFCFr	PFAS-free upgrade kit for PAL3 fast wash	Fast wash
PAL3-DilSinUp-PFCFr-S	PFAS-free upgrade kit for PAL3 dilutor, for up to 85 cm systems	Dilutor single
PAL3-DilSinUp-PFCFr-X	PFAS-free upgrade kit for PAL3 dilutor, for up to 120 cm systems	Dilutor single
PAL3-DilMuUp-PFCFr-S	PFAS-free upgrade kit for PAL3 dilutor, for up to 85 cm systems	Dilutor multi
PAL3-DilMuUp-PFCFr-X	PFAS-free upgrade kit for PAL3 dilutor, for up to 120 cm systems	Dilutor multi



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