

Stay Connected

Agilent PAL3 smart syringes

Every Agilent PAL3 smart syringe comes equipped with an embedded read/write chip containing predefined parameters, ranges, usage monitoring, and a distinctive serial number. The PAL system automatically identifies the syringe, loading crucial parameters to ensure maximum precision and process safety.

Explore our extensive catalog of preconfigured syringes and accessories tailored to suit every workflow, providing a convenient solution for a wide range of applications.

General information

Tool compatibility

All tools are compatible with either the PAL robotic tool change (RTC) or robotic sample injection (RSI) sample handling systems.

Needle point style

Conical (C): Used for autosampler syringes, the non-coring needle point is recommended for septum penetration.

Flat (F): Blunt needle point for use with HPLC injection valves and for sample pipetting.

Sideport (SP): Conical needle with sideport for penetration of septa, thin-gauged vinyls, and plastics without coring.

Needle length

57 mm: Standard needle length for most liquid sampling applications.

85 mm: Offers extended reach necessary for use with certain applications and sample containment vessels.

65 mm: Default needle option for headspace sampling applications.

COC: Standard needle for on-column injection using the Agilent COC inlet.

Flange type

Fixed needle: Direct attachment of the needle to the barrel, offering the lowest RSDs and carryover per injection. Recommended for sample introduction onto the GC or sample preparation.

Fixed needle (glue-free, cemented): Designed for headspace applications, the needle is adhered using an adhesive-free cement. The needle attachment is chemically inert, limiting reactivity with organic or chlorinated solvents, and offers temperature stability up to 150 °C.

Removable needle: Retained by a spring against the needle hub, this termination style offers the end user greater flexibility in needle selection. Syringe barrels will accommodate either 57 or 85 mm needle lengths based on the PAL tool. The inherently larger hub design requires use of the larger D8 syringe tool for syringe volumes up to 1,000 µL. Recommended primarily for sample preparation. Needle-barrel compatibility dependent on needle flange size.

Plunger type

Stainless steel (SST): Fitted to the glass barrel to create a liquid-tight seal ideal for dispensing solvents and homogenous liquid sample matrices.

Plunger in needle (PIN): Intended for dispensing minute liquid volumes, the end of the plunger has a tungsten wire extension that fits the entire length of the needle all the way to the tip, resulting in zero dead volume.

Gas tight (PTFE): Gas-tight sealing of the plunger tip, for use with most solvents and chemicals. Ideal for injection of gaseous or heterogeneous sample matrices including dissolved particles.

Gas tight (PE): Offers greater durability than PTFE when working with saline solutions.

PAL3 smart syringe plungers are matched to the barrel and not interchangeable.

Color code

Each liquid-handling syringe plunger head is color-coded for easy identification.



Needle gauge

Lower nominal I.D. is recommended for reduced needle dead volume and coring during small-volume injections. Greater nominal I.D. and wall thickness are ideal for large volume injections and sample preparation.

Gauge Number	Needle Nominal O.D. (mm)	Needle Nominal I.D. (mm)	Needle Wall Thickness (mm)
19	1.067	0.686	0.191
22	0.718	0.413	0.152
22S	0.718	0.168	0.279
23	0.642	0.337	0.152
23S	0.642	0.116	0.267
26	0.464	0.26	0.102
26S	0.474	0.127	0.178

Liquid sampling

Liquid sampling, smart syringes—liquid handling tools

Agilent P/N	Volume Range (µL)	Reference OEM P/N	Product Description
G7372-60000	Up to 100	PAL3-TH-D757 D7/57	Small-volume liquid syringe tool for fixed needle syringes up to 100 µL with a needle length of 57 mm.
G7373-60000	250–1,000	PAL3-TH-D785 D7/85	Small-volume liquid syringe tool for fixed needle syringes up to 100 µL with a needle length of 85 mm.
G7374-60000	250–1,000	PAL3-TH-D857 D8/57	Large-volume liquid syringe tool for fixed needle syringes from 250–1,000 µL and all removable needle syringes up to 1,000 µL with a needle length of 57 mm.
G7375-60000	250–1,000	PAL3-TH-D885 D8/85	Large-volume liquid syringe tool for fixed needle syringes from 250–1,000 µL and all removable needle syringes up to 1,000 µL with a needle length of 85 mm.
G7374-60001	2,500–10,000	PAL3-TH-D1857 D18/57	XL-volume liquid syringe tool for fixed and removable needle syringes from 2,500–10,000 µL with a needle length of 57 mm.

Liquid sampling, smart syringes—fixed needle

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Dimensions	Tool Compatibility
1.2	8010-1301	SF1-57-B-25P-CO	SST	26/57/C	D7/57
	8010-1302	SF1-85-B-26P-CO	SST	26/85/C	D7/85
10	8010-1303	SF10-57-M-23S-CO	SST	23s/57/C	D7/57
	8010-1304	SF10-57-M-26S-CO	SST	26s/57/C	D7/57
	8010-1305	SF10-57-T-22S-FL	PTFE	22s/57/F	D7/57
	8010-1306	SF10-57-T-23S-CO	PTFE	23s/57/C	D7/57
	8010-1307	SF10-57-T-26S-CO	PTFE	26s/57/C	D7/57
	8010-1308	SF10-85-M-26S-CO	SST	26s/85/C	D7/85
	8010-1309	SF10-85-T-26S-CO	PTFE	26s/85/C	D7/85
25	8010-1312	SFX25-57-T-22S-FL	PTFE	22s/57/F	D7/57
100	8010-1315	SF100-57-T-26S-CO	PTFE	26s/57/C	D7/57
	8010-1316	SF100-57-T-23S-CO	PTFE	23s/57/C	D7/57
	8010-1317	SF100-85-T-26S-CO	PTFE	26s/85/C	D7/85
	8010-1318	SFX100-57-T-22-FL	PTFE	22/57/F	D7/57
	8010-1319	SFX100-57-T-22S-FL	PTFE	22s/57/F	D7/57
250	8010-1320	SF250-57-T-26-CO	PTFE	26/57/C	D8/57
	8010-1321	SF250-85-T-26-CO	PTFE	26/85/C	D8/85
	8010-1322	SF250-57-T-22-FL	PTFE	22/57/F	D8/57
1,000	8010-1325	SF1000-57-T-22-FL	PTFE	22/57/F	D8/57
	8010-1326	SF1000-57-T-23-CO	PTFE	23/57/C	D8/57
2,500	8010-1327	SC2500-57-PE-22-FL	PE	22/57/F	D18/57
5,000	8010-1331	SC5000-57-T-22-FL	PTFE	22/57/F	D18/57



8010-1301



8010-1308



8010-1320



8010-1331

Liquid sampling, smart syringes—plunger in needle

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Dimensions	Tool Compatibility
1.0	8010-1343	SE1-B-57-23P-CO	SST, PIN	23/57/C	D8/57



8010-1343

Liquid sampling, smart syringes—removable needle syringe barrels

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Flange	Tool Compatibility
10	8010-1345	SE10-M	SST	F10	D8/57 or D8/85
	8010-1346	SE10-T	PTFE	F10	D8/57 or D8/85
25	8010-1347	SE25-T	PTFE	F25	D8/57 or D8/85
100	8010-1349	SE100-T	PTFE	F25	D8/57 or D8/85
1,000	8010-1352	SE1000-T	PTFE	F1000	D8/57 or D8/85
2,500	8010-1353	SCE2500-T	PTFE	F1000	D18/57 or D18/85
5,000	8010-1354	SCE5000-T	PTFE	F1000	D18/57 or D18/85
10,000	8010-1355	SE10000-T	PTFE	F10000	D18/57 or D18/85



8010-1354

Barrel only, needles sold separately. Needle compatibility dependent on flange size.

Liquid sampling, smart syringes—standard replacement needles

Needle Flange	Agilent P/N	Reference OEM P/N	Needle Dimensions	Tool Compatibility
F5	8010-1360	ND5-57-26S-CO	26s/57/C	D8/57
F10	8010-1364	ND10-57-23S-CO	23s/57/C	D8/57
	8010-1365	ND10-57-26S-CO	26s/57/C	D8/57
	8010-1366	ND10-85-23S-CO	23s/85/C	D8/85
	8010-1367	ND10-85-26S-CO	26s/85/C	D8/85
F25	8010-1370	ND25-85-23S-CO	23s/85/C	D8/85
	8010-1371	ND25-85-23-CO	23/85/C	D8/85
	8010-1373	ND25-85-22-FL	22/85/F	D8/85
	8010-1374	ND25-57-26S-CO	26s/57/C	D8/57
	8010-1376	ND25-57-23S-CO	23s/57/C	D8/57
	8010-1377	ND25-57-23-CO	23/57/C	D8/57
	8010-1378	ND25-57-22S-FL	22s/57/F	D8/57
F1000	8010-1381	ND1000-57-22-FL	22/57/F	D8/57 or D18/57
	8010-1382	ND1000-57-22-SP	22/57/S	D8/57 or D18/57
	8010-1383	ND1000-57-23-CO	23/57/C	D8/57 or D18/57
	8010-1384	ND1000-57-23-SP	23/57/S	D8/57 or D18/57
	8010-1387	ND1000-85-19-SP	19/85/S	D8/85 or D18/85
	8010-1388	ND1000-85-22-FL	22/85/F	D8/85 or D18/85
	8010-1390	ND1000-85-23-CO	23/85/C	D8/85 or D18/85
F10000	8010-1393	ND10000-57-19-FL	19/57/F	D18/57
	8010-1395	ND10000-57-22-FL	22/57/F	D18/57
	8010-1397	ND10000-57-23-CO	23/57/C	D18/57
	8010-1399	ND10000-85-19-SP	19/85/S	D18/85
	8010-1401	ND10000-85-22-SP	22/85/S	D18/85
	8010-1403	ND10000-85-23-SP	23/85/S	D18/85



Headspace sampling

Headspace sampling, smart syringes—headspace tools

Agilent P/N	Reference OEM P/N	Product Description
G7376-60000	PAL3-TH-HS1000 HS1000	Headspace syringe tool for 1,000 µL syringes with a needle length of 65 mm
G7376-60001	PAL3-TH-HS2500 HS2500	Headspace syringe tool for 2,500 µL syringes with a needle length of 65 mm
G7376-60002	PAL3-TH-HS5000 HS5000	Headspace syringe tool for 5,000 µL syringes with a needle length of 65 mm

Headspace sampling, smart syringes—fixed needle

Volume (µL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Dimensions	Tool Compatibility
1,000	8010-1337	SH1000-65-T-23-SP	PTFE	23/65/S	HS1000
2,500	8010-1338	SH2500-65-T-23-SP	PTFE	23/65/S	HS2500
5,000	8010-1339	SH5000-65-T-23-SP	PTFE	23/65/S	HS5000
2,250	8010-1340	SHGF2250-T-23-SP	PTFE	23/65/S; Cemented	HS2500
4,500	8010-1341	SHGF4500-T-23-SP	PTFE	23/65/S; Cemented	HS5000



Headspace sampling, smart syringes—removable needle syringe barrels

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Flange	Tool Compatibility
1,000	8010-1356	SHE1000-T	PTFE	HS1000	HS1000
2,500	8010-1357	SHE2500-T	PTFE	HS1000	HS2500

Barrel only, needles sold separately.



8010-1357

Headspace sampling, smart syringes—replacement needles

Needle Flange	Agilent P/N	Reference OEM P/N	Needle Dimensions	Tool Compatibility
HS1000	8010-1386	NDH1000-65-23-SP	23/65/SP	HS1000, HS2500, HS5000



8010-1386

On-column injection

On-column injection, smart syringes—on-column tool

Agilent P/N	Reference OEM P/N	Product Description
G7373-60010	PAL3-TH-COC-AGI	On-column injection syringe tool for 10 μL syringes with a multi-taper (26-32) COC needle.

On-column injection, smart syringes—removable needle syringe barrels

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Flange	Tool Compatibility
5	8010-1270	NA, Agilent only	SST	F10	COC-AGI

On-column injection, smart syringes—replacement needles

Needle Flange	Agilent P/N	Reference OEM P/N	Needle Dimensions	Tool Compatibility
F10	5182-0831	NA, Agilent only	0.32 mm ID columns	COC-AGI
	5182-0832	NA, Agilent only	0.53 mm ID columns	COC-AGI
	5182-0833	NA, Agilent only	0.25 mm ID columns	COC-AGI

P/Ns 8010-1270 (10 μL RN COC syringe) and 8010-1345/6 (10 μL RN liquid sampling syringe) are not interchangeable.
COC replacement needles are not compatible with standard 10 μL syringe (8010-1345/6).

ITEX injection (in-tube extraction, dynamic headspace)

ITEX sampling, smart syringes—ITEX tool

Agilent P/N	Reference OEM P/N	Product Description
G7385-64100	PAL3-SITEX-KIT	ITEX syringe tool for 1.3 mL HD syringe with removeable ITEX-2 trap. SITEX-KIT includes a smart ITEX syringe (p/n 8010-1336) qty. 1 and ITEX Tenax TA trap (p/n G7385-67001) qty. 2.

ITEX sampling, smart syringes—removable needle syringe barrels

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Flange	Tool Compatibility
1,300	8010-1336	SITEX-1300-T	SST	ITEX	SITEX



8010-1336

ITEX sampling, smart syringes—ITEX traps

Needle Flange	Agilent P/N	Reference OEM P/N	Needle Dimensions	Tool Compatibility
ITEX	G6500-60700	TXTA100, Qty. 1	Tenax TA 80/100	SITEX
ITEX	G6500-60701	TXTA100, Qty. 3	Tenax TA 80/100	SITEX

The ITEX smart syringe is compatible with any OEM ITEX-2 sorbent trap including: Carboxieve SIII 60/80 (PAL3-ITEX-TRAP-CARB-S3), Carboxen 1000 60/80 (PAL3-ITEX-TRAP-CARB1000), Carboxen 80/100 (PAL3-ITEX-Trap-CARBC), Tenax TA 80/100 (PAL3-ITEX-TXTA100), Tenax GR 80/100 (PAL3-ITEX-TXGR), Tenax TA | Carboxen 1000 1:1 (PAL3-ITEX-TRAP-MIX-1), Carboxen C | Carboxieve SIII 2:1 (PAL3-ITEX-TRAP-MIX-2), Tenax GR | Carboxieve SIII 1:1 (PAL3-ITEX-TRAP-MIX-3).

LC/MS sampling

LC/MS, smart syringes—removable needle syringe barrels

Volume (μL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Flange	Tool Compatibility
100	8010-1332	SLCMS-100-PE	PE	1/4-28 UNF Thread	LCMS-P-100
250	8010-1334	SLCMS-250-PE	PE	1/4-28 UNF Thread	LCMS-P-250



8010-1332

LC/MS, smart syringes—replacement needles

Needle Flange	Agilent P/N	Reference OEM P/N	Needle Dimensions	Tool Compatibility
IT 1/4-28 UNF Thread EX	G6074-80000	PAL3-LCMS-NDL	22/51/F	LCMS-P-100, LCMS-P-250

Single, multistream dilutor

Single, multistream dilutor—syringe pump syringes

Volume (µL)	Agilent P/N	Reference OEM P/N	Plunger Type	Needle Flange	Tool Compatibility
100	G7386-67004	PAL3-SYDIL-21834	PTFE	1/4" – 28 UNF	Single, multistream dilutor module
1,000	G7386-67003	PAL3-SYDIL-21835	PTFE	1/4" – 28 UNF	Single, multistream dilutor module
5,000	G7386-67002	PAL3-SYDIL-21835	PTFE	1/4" – 28 UNF	Single, multistream dilutor module
10,000	G7386-67001	PAL3-SYDIL-21836	PTFE	1/4" – 28 UNF	Single, multistream dilutor module

Single, multistream dilutor—replacement needles

Needle Flange	Agilent P/N	Reference OEM P/N	Needle Dimensions	Tool Compatibility
1/4-28 UNF thread	G6074-80000	PAL3-LCMS-NDL	22/51/F	PAL dilutor tool

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