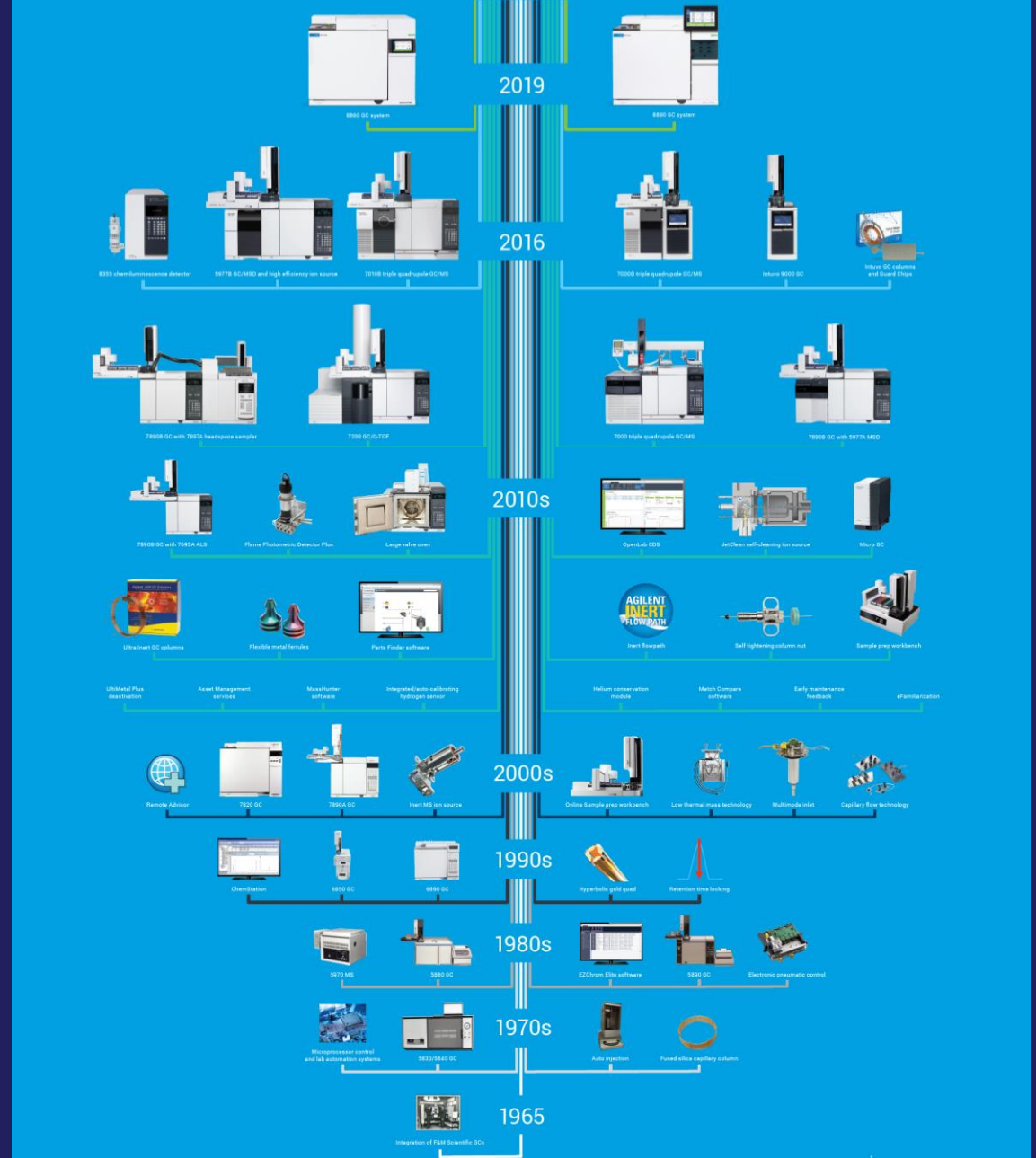


# Nové plynové chromatografy Agilent 8890, 8860 Intuvo 9000



# 3. Chytré technologie



Chytré domy



Chytrá auta



Chytrá města



Chytré přístroje

Chytré přístroje



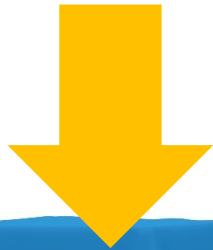
Nižší nároky na obsluhu



Méně odstávek

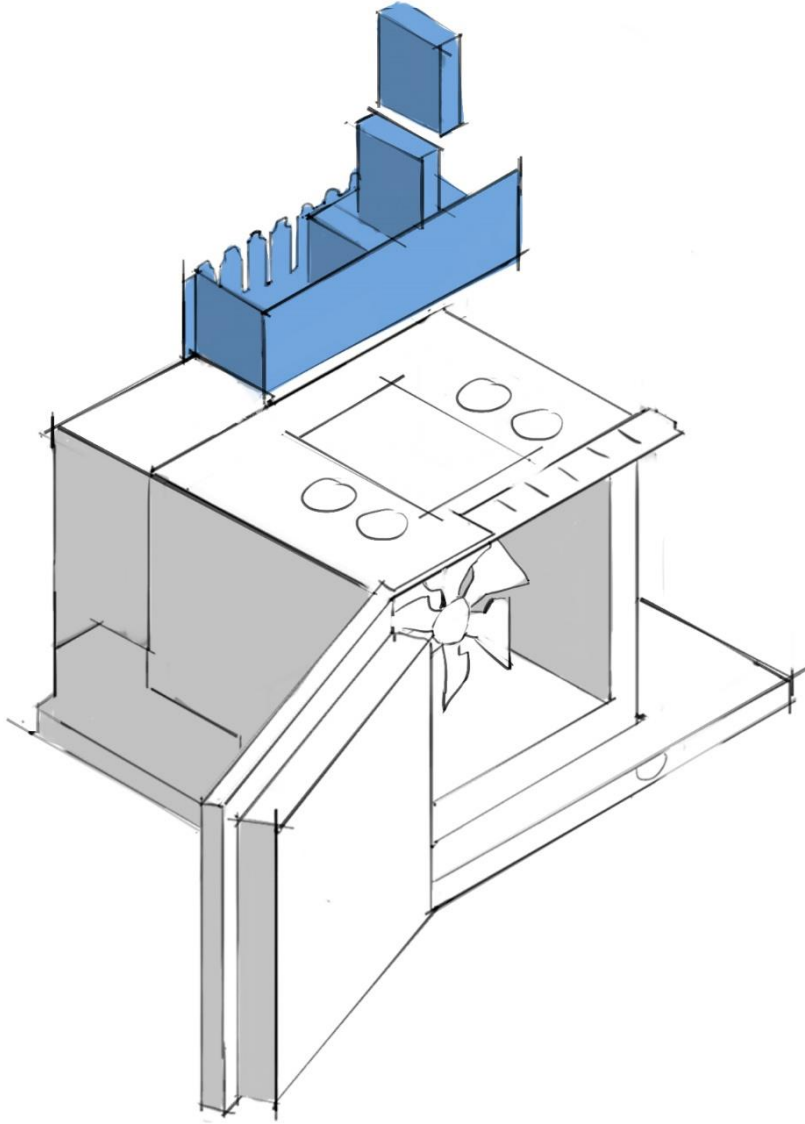


Vyšší produktivita

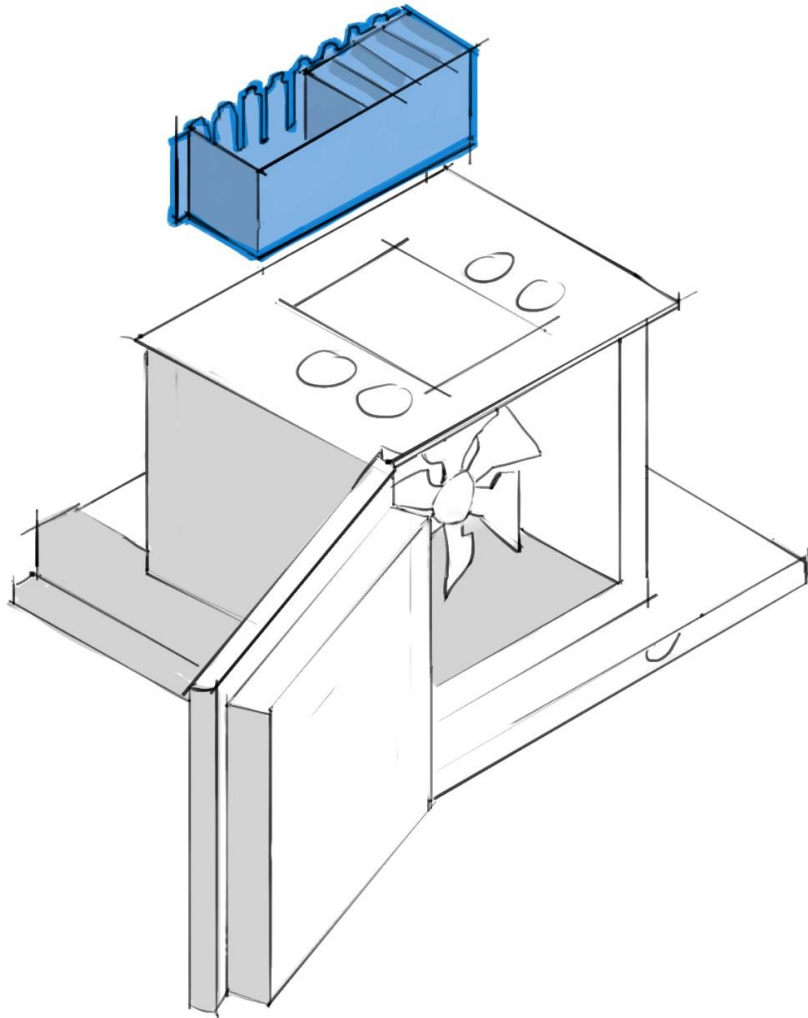


- Využít, co se osvědčilo a funguje výborně
- Zvýšit flexibilitu systému
- Použít moderní soudobé technologie pro usnadnění údržby a obsluhy

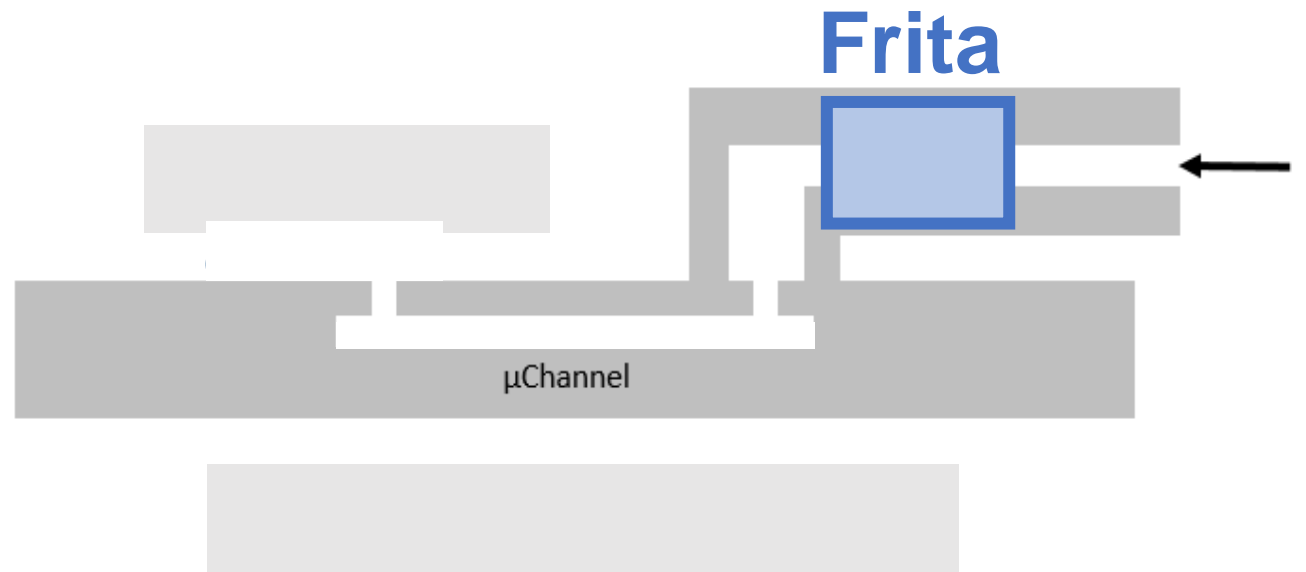




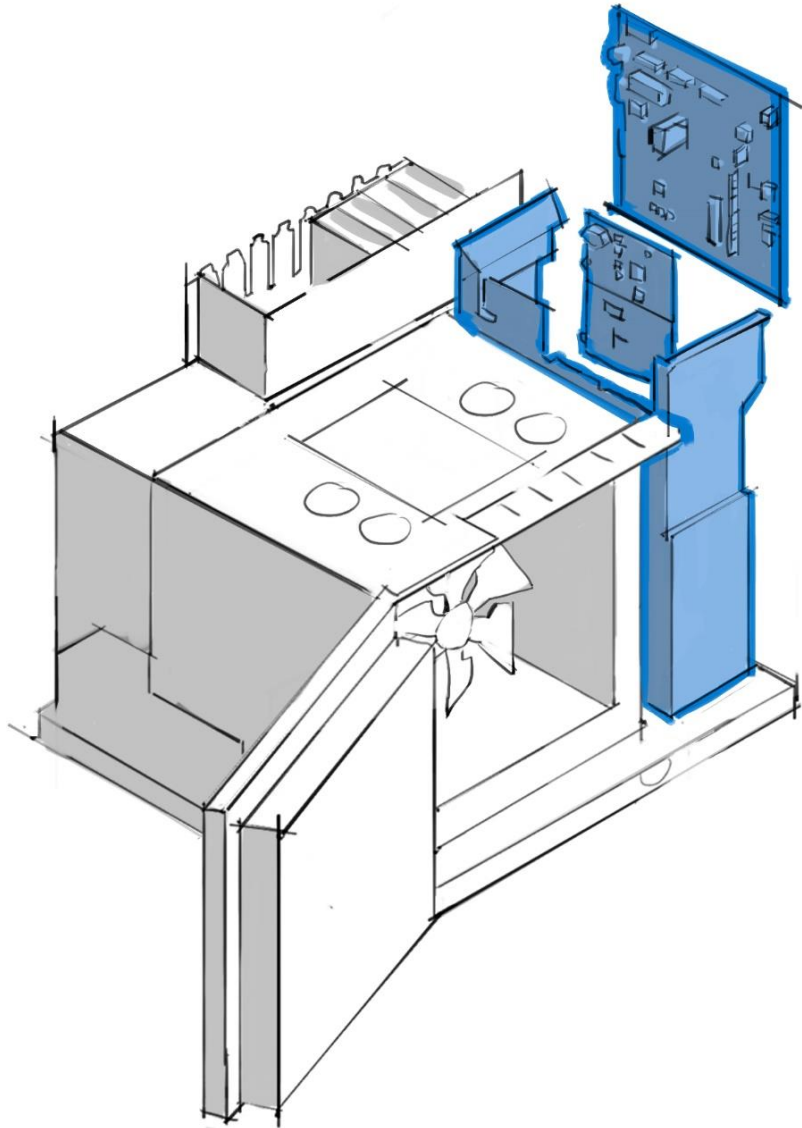
## 6. generace EPC modulů s mikrofluidním uspořádáním



## 6. generace EPC modulů s mikrofluidním uspořádáním

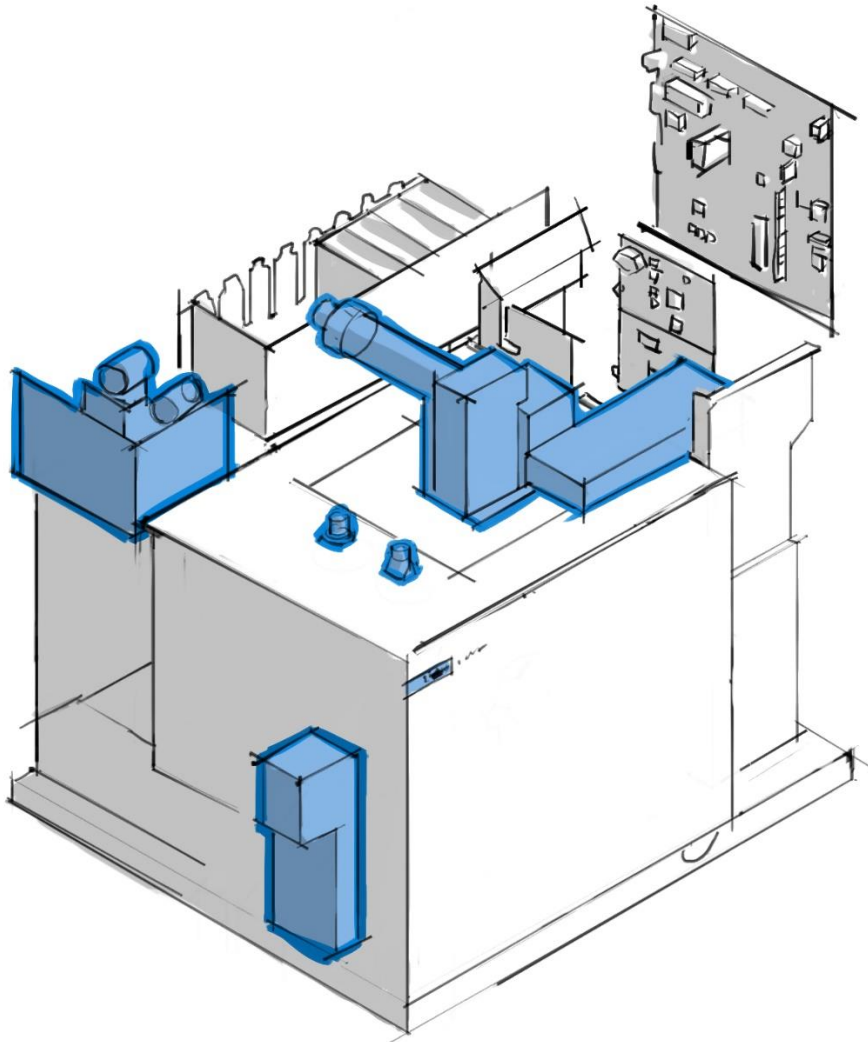






— 6. generace EPC modulů s mikrofluidním uspořádáním

— **Nejnovější elektronika poháněná vestavěným procesorem a ovládána dvěma operačními systémy podporujícími chytré technologie**

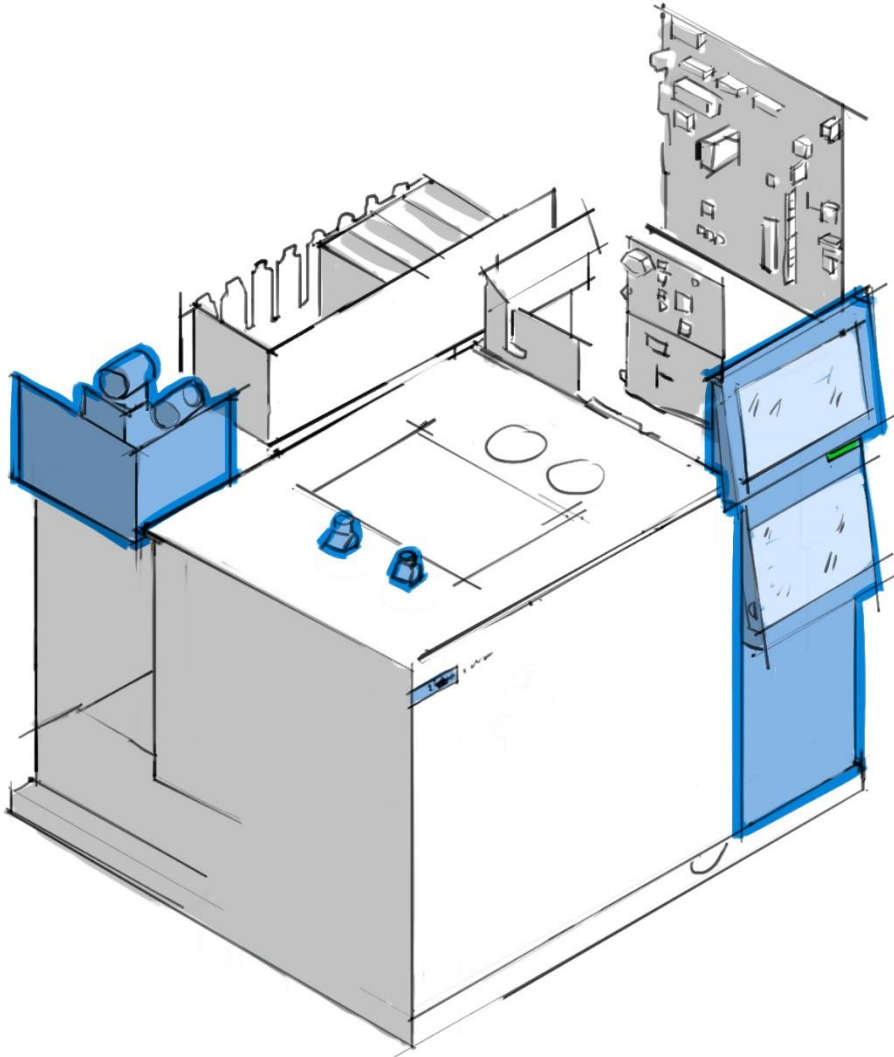


— 6. generace EPC modulů s mikrofluidním uspořádáním

— Nejnovější elektronika poháněná vestavěným procesorem a ovládána dvěma operačními systémy podporujícími chytré technologie

— **8 vyhřívaných zón, 4 detektory, 4 ventily (8890)**





- 6. generace EPC modulů s mikrofluidním uspořádáním

- Nejnovější elektronika poháněná vestavěným procesorem a ovládána dvěma operačními systémy podporujícími chytré technologie

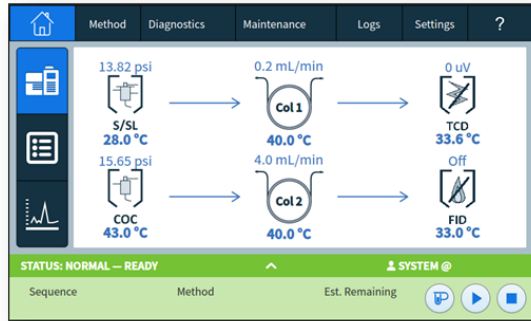
- 8 vyhřívaných zón, 4 detektory, 4 ventily

- **Dotykový panel a chytré klíče (8890)**

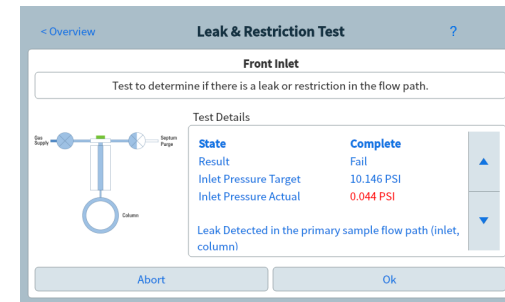
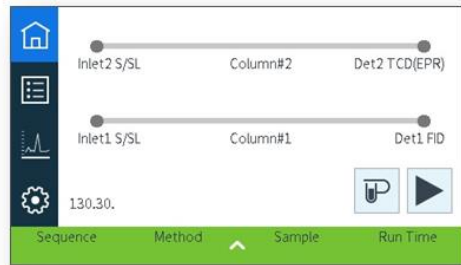


- 6. generace EPC modulů s mikrofluidním uspořádáním
- Nejnovější elektronika poháněna vestavěným procesorem a ovládána dvěma operačními systémy
- 8 vyhřívaných zón, 4 detektory, 4 ventily
- Dotykový panel a chytré klíče
- Přesné nastavení teploty pece spolu s novými EPC moduly zajišťuje přesné výsledky a umožňuje funkci RTL

# Nové funkce

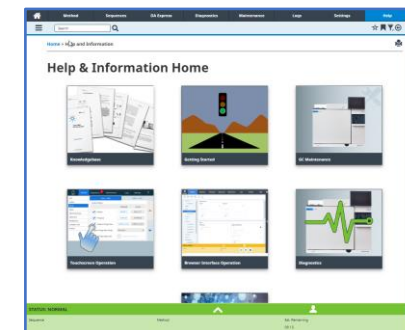


Webové  
rozhraní



Diagnostické  
nástroje

Dotykový  
panel



Knihovna  
návodů



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Distributor

## Dotykové a webové rozhraní



# Dotykové a webové rozhraní

## 1) Status přístroje

**Method** | **Sequences** | **DA Express** | **Diagnostics** | **Maintenance** | **Logs** | **Settings** | **Help**

**25.107 psi**  
S/SL  
250 °C

**6.5 mL/min**

**9.919 pA**  
FID  
300 °C

**0.036 psi**  
OTHER  
52.51 °C

**0.005 mL/min**

**0.06 pA**  
NPD  
61.63 °C

**STATUS: NORMAL**

Sequence	Method	Sample Name	Est. Remaining
GR Test 01	GR Test	Test	12:30
GR Test 01	GR Test	Test	10:45
GR Test 01	GR Test	Test	12:30

**8860** | **8890** | **9000**

# Dotykové a webové rozhraní

- 1) Status přístroje
- 2) Metody
- 3) Sekvence
- 4) DA Express



**25.107 psi**  
S/SL  
250 °C

**6.5 mL/min**  
75 °C

**9.919 pA**  
FID  
300 °C

**0.036 psi**  
OTHER  
52.51 °C

**0.005 mL/min**  
75 °C

**0.06 pA**  
NPD  
61.63 °C

STATUS: NORMAL

	Location	Sample Name	Method	Injection Source	Vial Number	Sample Type	Number of Injections	DA Method	Level	Amount
<input type="checkbox"/>	1	Front					1	X		
<input type="checkbox"/>	2	Front					1	X		
<input type="checkbox"/>	3	Front					1	X		
<input type="checkbox"/>	4	Front					1	X		
<input type="checkbox"/>	5	Front					1	X		
<input type="checkbox"/>	6	Front					1	X		
<input type="checkbox"/>	7	Front					1	X		

STATUS: NORMAL

**Injection**

**Syringe**  
Syringe Size (µL)\*: 10  
Injection Volume (µL)\*: 1

**Dwell Time**  
Pre-Injection (min)\*: 0  
Post-Injection (min)\*: 0

**Multiple Injections**  
Number of Injections\*: 1  
Injection Delay (sec)\*: 0

**Sample Depth**  
 Enable  
Setpoint (mm)\*: 0

**Washes and Pumps**

**Solvent A**  
Pre-Injection\*: 2  
Post-Injection\*: 2  
Volume (µL)\*: [dropdown]

**Solvent B**  
Pre-Injection\*: 0  
Post-Injection\*: 0  
Volume (µL)\*: [dropdown]

**Sample**  
Washes\*: 1  
Volume (µL)\*: [dropdown]  
Pumps\*: 6

**Speeds**

**Plunger Speed**  
Plunger Speed\*: [dropdown]

**Solvent Wash**  
Draw (µL/min)\*: [dropdown]

**Sample Wash**  
Draw (µL/min)\*: [dropdown]

**Injection**  
Viscosity Delay (sec)\*: [dropdown]

STATUS: NORMAL

Chromatogram

Run Info  
Integration Settings  
Calibration Tables  
Report Option

Channel 1

Load standard signal file... **Load STD**

Chromatogram

Detector 1 Signal

120000  
100000  
80000  
60000

0 100 300 500 700 900 1100 1300 1500 1700 1900 2100 2300 2500 2700 2900 3100 3300 3500

**Selector** **Delete** **Add** **Calibrate**

RT.	Compound	Width	ISTD	#	Origin	Factor 0	Factor 1	Factor 2	Factor 3

**Curve Graph** **Curve Table**

STATUS: NORMAL



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# Dotykové a webové rozhraní

- 1) Status přístroje
- 2) Metody
- 3) Sekvence
- 4) DA Express
- 5) Diagnostické testy
- 6) Včasná údržba - EMF
- 7) Protokoly
- 8) Návody na obsluhu a údržbu



Method Sequences DA Express Diagnostics Maintenance Logs Settings Help

Warnings And Errors Available Tests System Health Report Peak Evaluation Reports

Back Detector (1)  
Dark Current Check  
Back Inlet (4)  
Gas Supply Pressure Check  
Leak & Restriction Test  
Pressure Decay Test  
Septum Purge Test  
Front Detector (2)  
Jet Restriction Test  
Leakage Currents Test  
Front Inlet (5)  
Gas Supply Pressure Check  
Leak & Restriction Test  
Pressure Decay Test  
Septum Purge Test  
Split Vent Restriction Test

STATUS: NORMAL  
Sequence Method Est. Remaining 07:51

Method Sequences DA Express Diagnostics Maintenance Logs Settings Help

Maintenance Log Run Log System Log

Home > Help and Information

Help & Information Home

Knowledgebase Getting Started GC Maintenance Touchscreen Operation Browser Interface Operation Diagnostics

STATUS: NORMAL  
Sequence Method Est. Remaining 07:51

Method Sequences DA Express Diagnostics Maintenance Logs Settings Help

< Overview Perform Maintenance Reset All

Part	Status	Est. Remaining	Details	Reset
Gold seal age	✓	15 weeks 3 days 5 hours 54 minutes	Details	Reset
Gold seal injections	✓	63 injections	Details	Reset
Liner age	✓	15 weeks 3 days 5 hours 54 minutes	Details	Reset
Liner injections	✓	63 injections	Details	Reset
Liner o-ring age	✓	15 weeks 3 days 5 hours 54 minutes	Details	Reset
Liner o-ring injections	✓	63 injections	Details	Reset
Septum injections	✓	63 injections	Details	Reset
Split vent trap age	✓	15 weeks 3 days 5 hours 54 minutes	Details	Reset
Split vent trap injections	✓	63 injections	Details	Reset

STATUS: NORMAL  
Sequence Method Est. Remaining 07:51

Method Sequences DA Express Diagnostics Maintenance Logs Settings Help

Maintenance Log Run Log System Log

Date	Notes
Thu Jul 26 14:28:47 2018	Instrument: System Fault - Code: 0x00000800
Thu Jul 26 14:31:40 2018	New condition: System Recovered
Tue Aug 7 16:58:18 2018	Back-ALS: Unmounted
Fri Aug 10 11:25:13 2018	Instrument: System Fault - Code: 0x00000004
Wed Aug 8 8:10:07 2018	New condition: System Recovered
Wed Jun 6 12:08:06 2029	Instrument: High CPU Usage
Mon Aug 20 7:53:36 2018	Instrument: System Fault - Code: 0x00000800
Mon Aug 20 8:11:31 2018	New condition: System Recovered
Mon Aug 20 8:13:23 2018	Instrument: System Fault - Code: 0x00000800
Mon Aug 20 8:37:11 2018	New condition: System Recovered
Mon Aug 20 8:39:03 2018	Instrument: System Fault - Code: 0x00000800
Tue Aug 21 7:13:07 2018	New condition: System Recovered
Tue Aug 21 8:40:38 2018	Instrument: System Fault - Code: 0x00000004
Tue Aug 21 13:22:52 2018	New condition: System Recovered
Fri Aug 24 15:27:56 2018	Instrument: System Fault - Code: 0x00000004
Mon Aug 27 8:06:52 2018	New condition: System Recovered
Mon Aug 27 11:22:21 2018	Instrument: System Fault - Code: 0x00000004
Tue Sep 4 11:20:13 2018	New condition: System Recovered
Thu Sep 6 7:42:30 2018	Instrument: System Fault - Code: 0x00080000
Thu Sep 6 7:48:16 2018	New condition: System Recovered

STATUS: NORMAL  
Sequence Method Est. Remaining 07:51



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## Diagnostické nástroje a monitorování systému

The screenshot displays the diagnostic software interface with several panels:

- Leak & Restriction Test:** Shows test details for the Front Inlet, including a diagram of the inlet system and a "Leak Detected in the pre-column" message.
- Front Inlet - SS:** A configuration panel for the Front Inlet - SS, featuring a "Gas Saver" toggle and a "Pre-Run Flow Test" set to "On".
- Front Inlet: Flow Excess Flow:** A panel showing an error code "1840x000" with details on the cause (pressure controlled pneumatic), effect (gases shut off), and suggested resolution (check for leaks or restrictions).
- Inlets Maintenance:** A panel for "Gold seal age Settings" with a "Service Warning (days)" set to 72 and an "Enable" checkbox.
- Front Inlet - FID:** A panel for detector settings, including "Initial Baseline" and "Baseline Evaluation" fields.

# Diagnostické nástroje

1) Diagnostické testy spouštěné uživatelem



2) Diagnostické testy spouštěné autonomně



3) Nepřetržité monitorování vnitřního systému



4) Monitorování výkonu



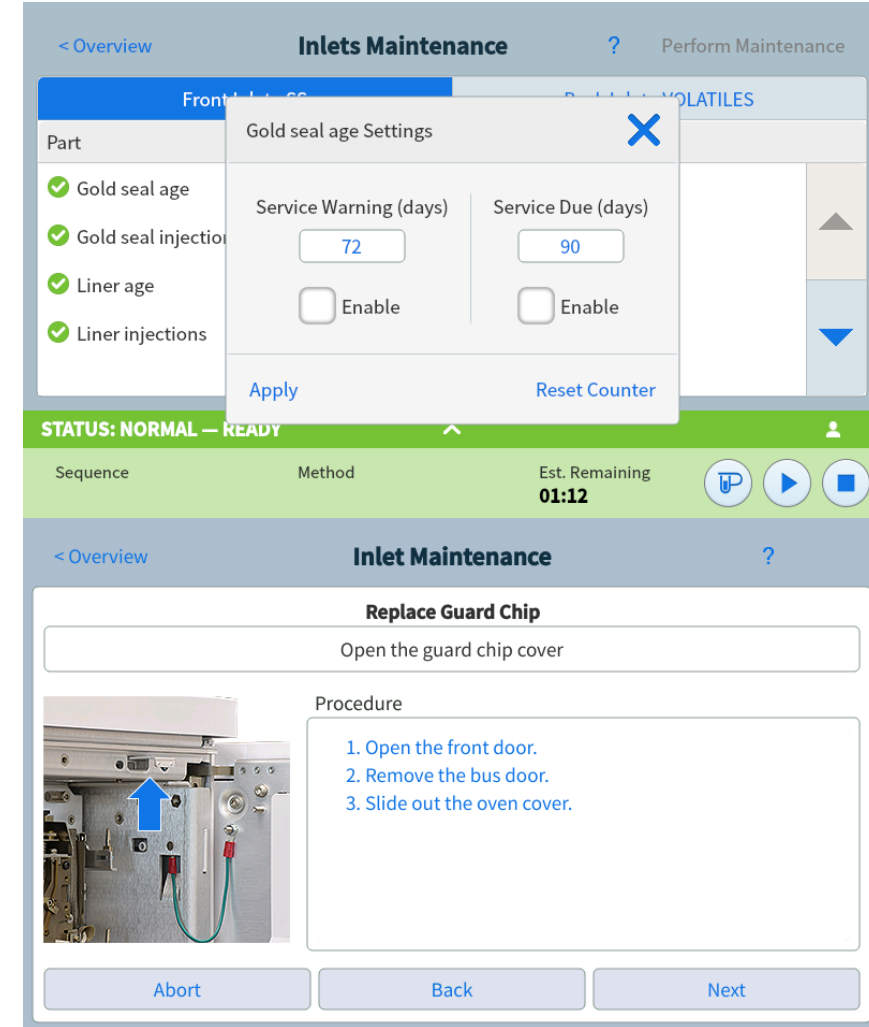
5) Včasná údržba - Early Maintenance Feedback



6) Diagnostika a řešení problémů



7) Instrukce pro provádění údržby



The screenshot displays the 'Inlets Maintenance' interface. A dialog box titled 'Gold seal age Settings' is open, showing a list of parts with checkmarks: Gold seal age, Gold seal injection, Liner age, and Liner injections. The 'Service Warning (days)' is set to 72 and 'Service Due (days)' is set to 90. There are 'Enable' checkboxes for both, which are currently disabled. The dialog has 'Apply' and 'Reset Counter' buttons. Below the dialog, the status is 'NORMAL — READY'. A table shows 'Sequence' and 'Method' columns, with 'Est. Remaining' at 01:12. The main interface shows a procedure for 'Replace Guard Chip' with the instruction 'Open the guard chip cover'. A procedure list includes: 1. Open the front door, 2. Remove the bus door, 3. Slide out the oven cover. There is an image of the device with a blue arrow pointing to a component. At the bottom are 'Abort', 'Back', and 'Next' buttons.

# Diagnostické nástroje

< Available Diagnostics **Front Inlet: Pneumatic Shutdown** ?

**Attention**

User input required to continue.

Tests run with this diagnostic

- Verify EPC Hardware & Communication
- Verify User Zero Calibration
- Verify Gas and Column Configuration
- Verify Temperature and Voltages
- Splitless Leak Test
- Verify Septum Purge Valve

Abort
Next

< Available Diagnostics **Front Inlet: Flow Excess Flow** ?

Front Inlet: Flow Excess Flow

Details

Clear Shutdown - ON: Turns all zones back on.

Clear Shutdown - OFF: Turns all zones back on except for the shutdown zone.

**Error Code** 1840e000

**Cause** The pressure controlled pneumatic channel detected excess flow.

**Effect** All gases are shut off.

**Suggested Resolution**

- Check for leaks or restrictions

Clear Shutdown - ON
Clear Shutdown - OFF

Home
Method
Diagnostics
Maintenance
Logs
Settings
?

- ALS
- Valves
- Inlets
- Columns
- Oven
- Thermal Zones
- Detectors
- Analog Out
- PCMs
- Aux EPCs
- Events

Front Inlet - SS
Back Inlet - PP

Gas Saver

	Setpoint	Time
<input type="checkbox"/> Gas Saver	20.000 mL/min	2.00 min

Pre-Run Flow Test

On

Continue on Failure

Continue

< Overview **Leak & Restriction Test** ?

**Front Inlet**

Test to determine if there is a leak or restriction in the flow path.

Test Details

**State** Complete

**Result** Fail

**Inlet Pressure Target** 10.146 PSI

**Inlet Pressure Actual** 0.044 PSI

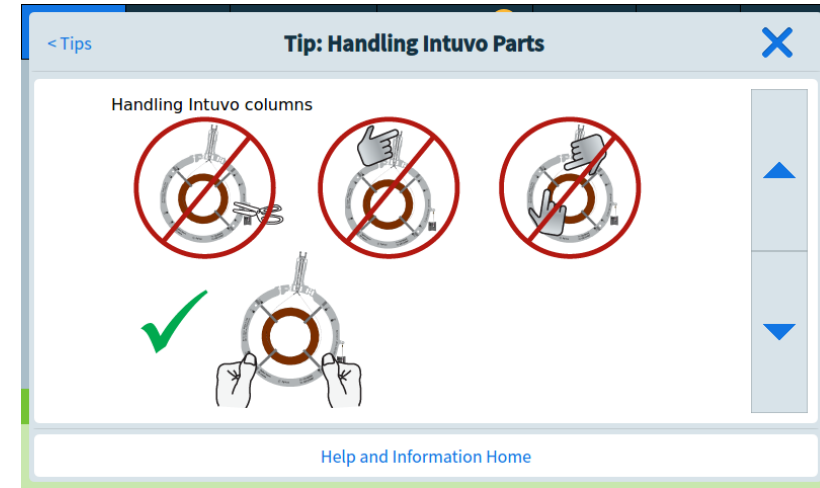
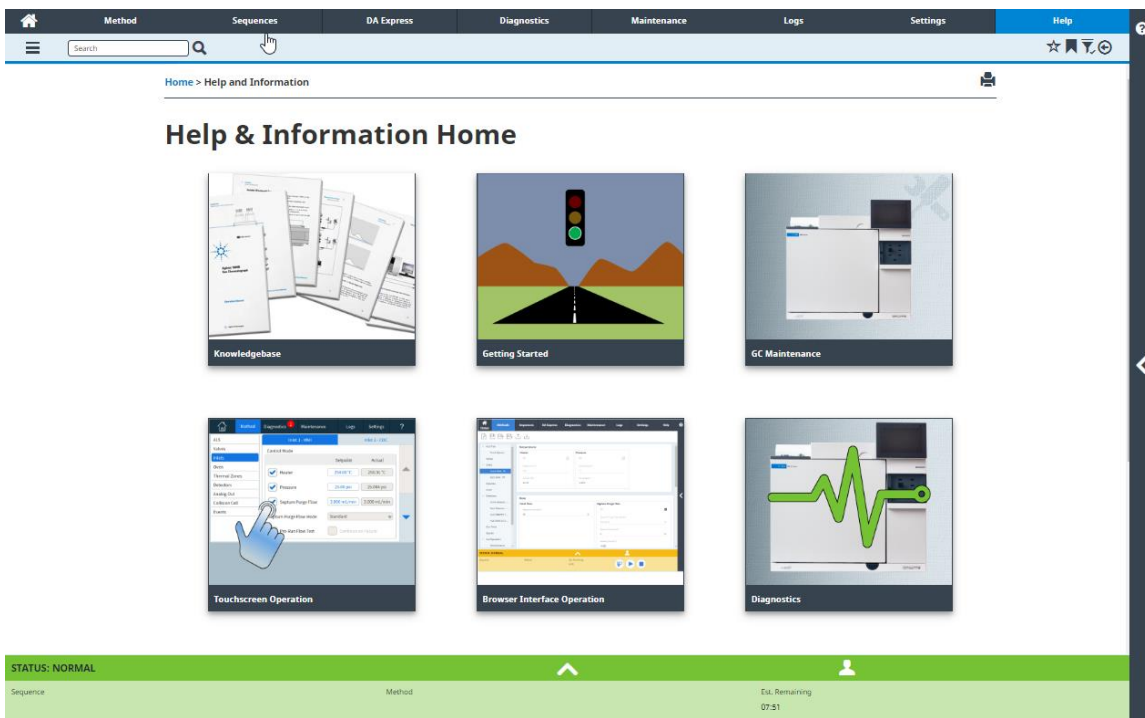
Leak Detected in the primary sample flow path (inlet, column)

Abort
Ok



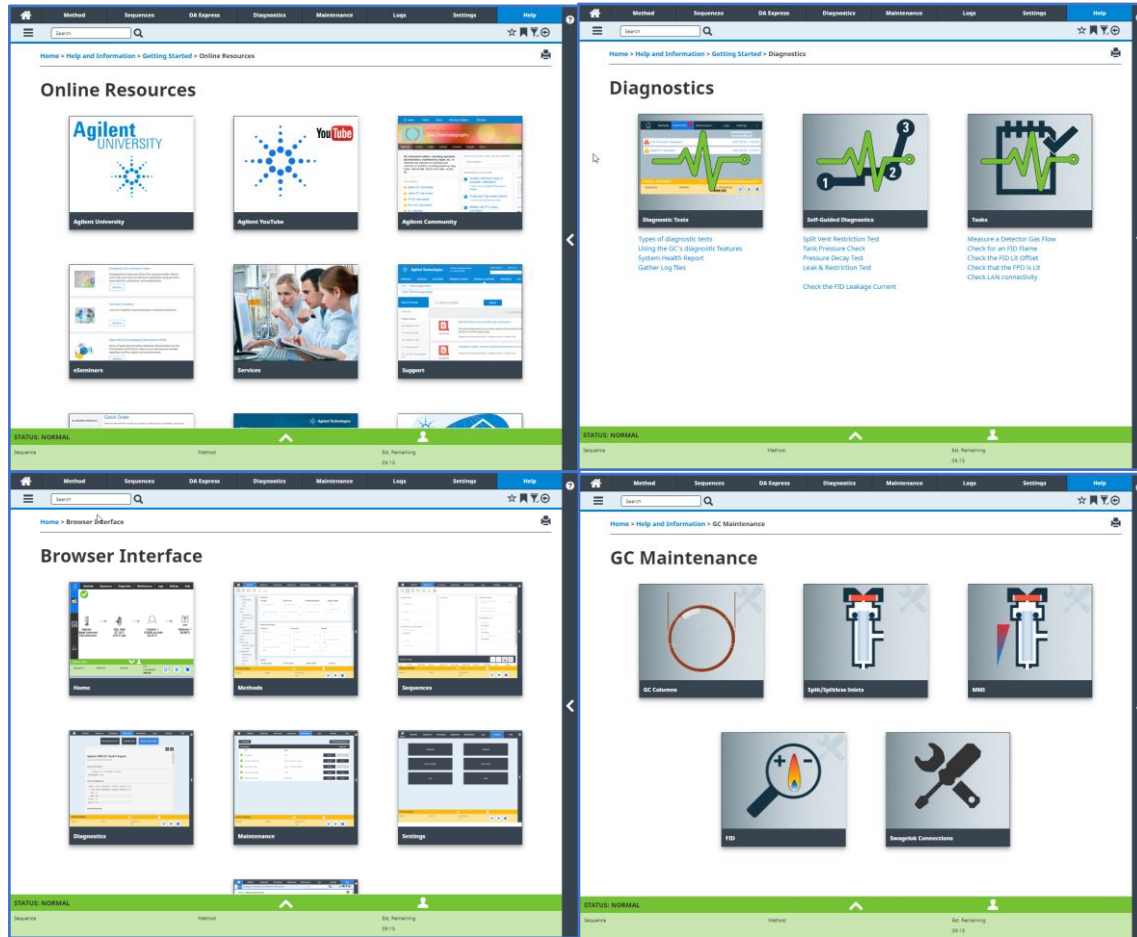
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# Návody na obsluhu a údržbu





# Návody na obsluhu a údržbu



- 1) Veškerá dokumentace
- 2) Návody na obsluhu přístroje
- 3) Návody na údržbu
- 4) Návod na používání dotykového rozhraní
- 5) Návod na používání webového rozhraní
- 6) Návody na provádění diagnostiky
- 7) Přístup k on-line zdrojům



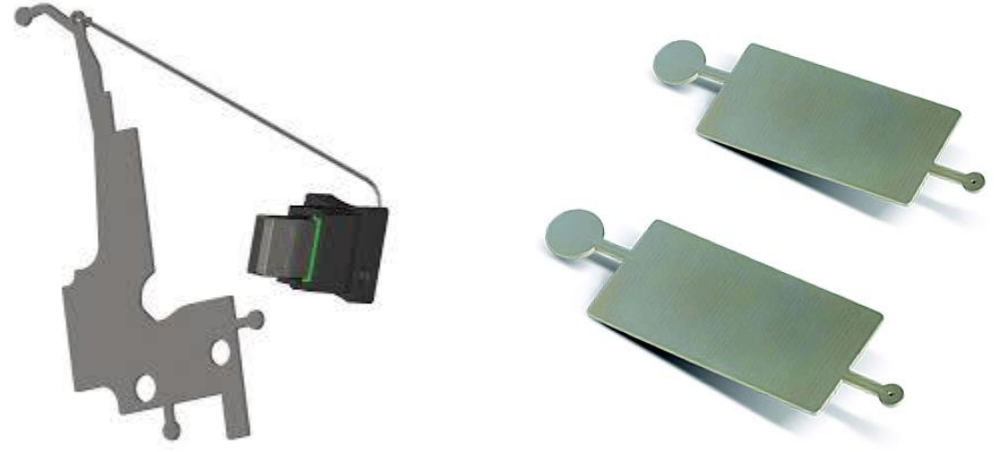
## Princip kontaktního ohřevu kolony



- 1) Prostorově úsporné  
(1/3 objemu běžného GC)
- 2) Energeticky úsporné  
(kontaktní ohřev)
- 3) Časově úsporné  
(rychlejší ohřev, chlazení)
- 4) Nižší nároky na obsluhu  
(bezferulový systém spojů)
- 5) Guard Chip  
(vyjímatelný retenční gap)



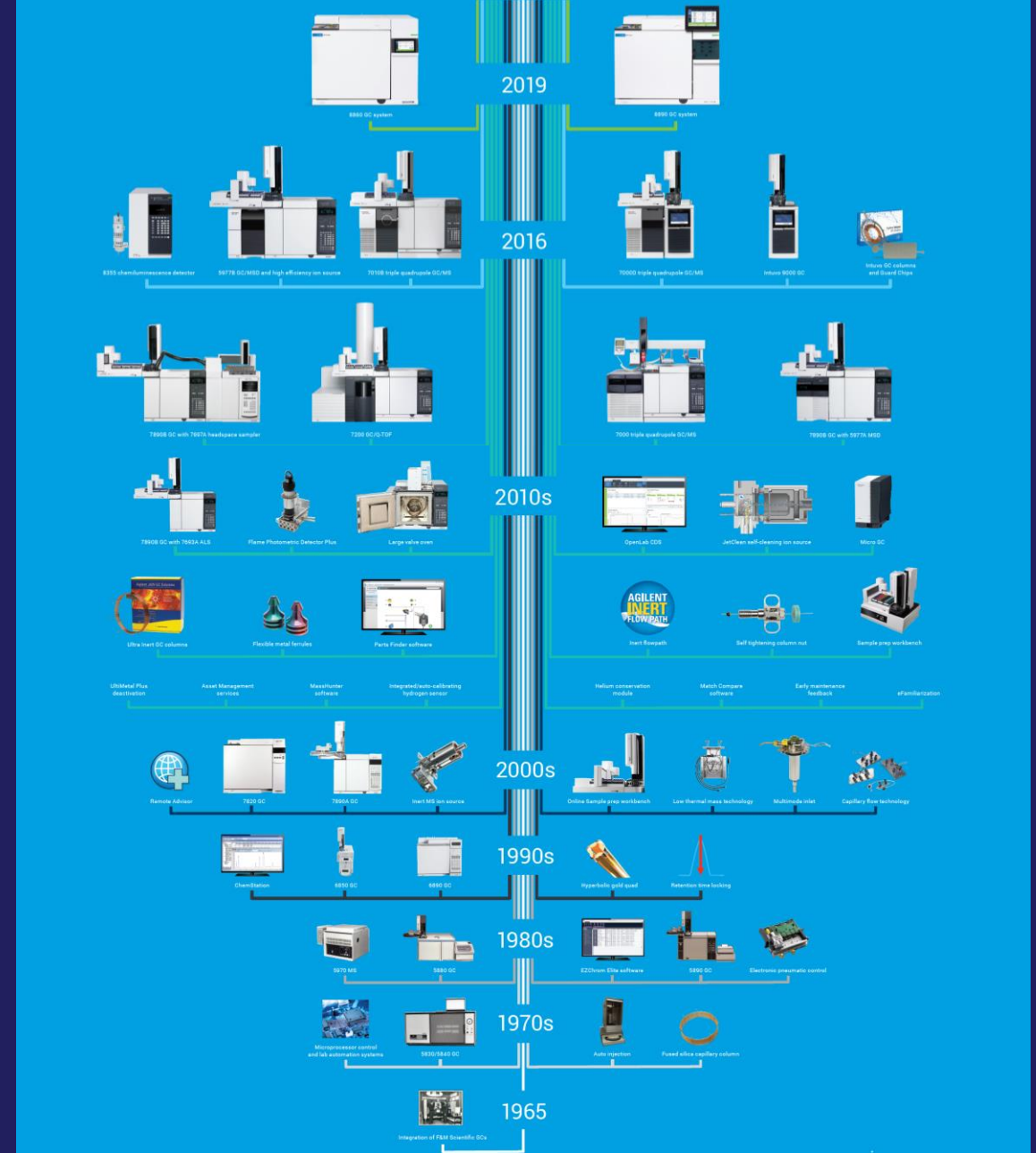
# Intuvo 9000



# Shrnutí



# Děkuji za pozornost



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