

**To:** Dealer/OEM World-Wide, PAL Systems  
**Platform:** PAL-xt System  
**From:** Toni Eberwein  
**Date:** March 6, 2017  
**Subject:** Design change for Cheminert UHPLC Valves

## CTC Analytics Service Note March 2017 PAL-xt: Design change for Cheminert UHPLC C72 type valves

### Valve Change:

#### Overview:

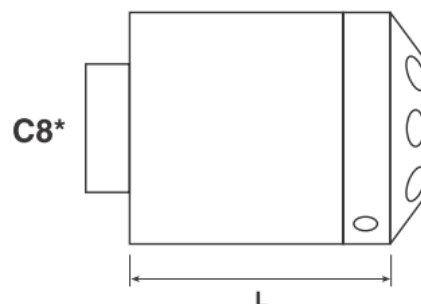
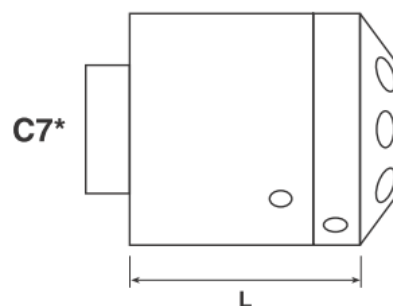
Vici Valco informed that C7\* UHPLC (high pressure) injectors, switching valves, and selectors with 1/32" and 1/16" fittings have been upgraded to the C8\* design. The only modification is a longer body to accommodate a slightly different spring arrangement. The new arrangement provides more consistent spring force, resulting in better performance and lifetime. For CTC only the valves beginning with "C72VX, C72VU and C72X are affected by this change. For the PAL3 platform this change was implemented in August 2016 already.

The temperature and pressure specifications, port sizes, rotors, and stators remain identical.

Valves with 360 micron fittings remain unchanged, and retain the C7\* part number designation.

#### Length dimensions (L)

Number of ports or positions	C7* (older)		C8* (current)	
4	38.15 mm	1.5"	44.45 mm	1.75"
6	38.15 mm	1.5"	44.45 mm	1.75"
8	40.15 mm	1.58"	44.45 mm	1.75"
10	40.15 mm	1.58"	44.45 mm	1.75"



Obviously it is necessary to teach the new Injector position when the valve is changed from C7 to C8. The complete teaching process is described in the PAL-xt User Manual.

All PNs containing C72VX and C72VU will be automatically transferred to C82VX and C82VU during this year.

There are four valves affected by the change. See details in "table 1" on the last page. Existing parts in our stock will be sold as long as available. There will be no change regarding the application compatibility and pricing.

You will find the PN of the new valves and the correct replacement PN in the list below.

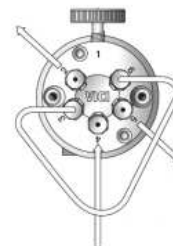
The change will become effective immediately however, valves currently in stock will still be shipped until stock runs out. Thereafter orders for the old PNs will be automatically converted to the new part number. Please update your ERP with the new PNs in order to prevent additional administrative work.

## Key and Remarks to the Table 1 (on the next page):

P/N:

- "CTC" refers to specific modifications for CTC Analytics
- "-K" indicates a kit, containing Nuts, Ferrules, Needle Guide, Needle seal and Teflon waste Tubing.
- **P/N highlighted with bold characters are recommended valve types.** These valves can be considered as standard valves. Most of them are stock items.
- All other valves have been used for specific applications, see the remarks.

- **C=Cheminert** Type: Flat Plate Rotary Valve, VICI/Valco.



Stator:

- N60: sst = stainless steel, (Nitronic, comparable to sst 316)
- N60C Stator coated for high pressure use.
- PAEK Polymer related to well known PEEK material
- HC= Hastelloy C (corrosion resistant)

Rotor Material:

- Valcon H: Reinforced carbon fibre composite PTFE lubricated inert engineering polymer. Standard material for VICI/Valco.
- Valcon E: Polyaryletherketone/Teflon (PAEK/Teflon). Material if biocompatibility is required
- Valcon E3 Reinforced high molecular weight PAEK

For material specific information and limitations consult VICI/Valco product information bulletin.

Pressure Rating:

If not specially mentioned: 5000 psi (340 bar)

See list of all currently affected valves on the next page.

PAL-xt High Pressure Valve Type (UHPLC) with 0.25 mm Bore Size   Narrow Bore Application (Column up to 2 mm ID)   Flow Rate 10 µl/min to 500 µl/min						
Valve P/N	Nr. of Ports Valve Type Vertical Port	Valve Bore Size mm	Tube Connect. in inch	Stator P/N Material	Rotor P/N Material	Remarks
<del>C72VX-1676D-CTC-K</del>	<del>6 Cheminert Vertical Port</del>	<del>0.25</del>	<del>1/16</del>	<del>C72V-1C76 N60C</del>	<del>C72-16R6 Valcon-E3</del>	<del>VICI/Valco high-pressure injection valve 15'000 psi (approx. 1000 bar) 75°C. Valve Volume (port-to-port = 1026 nL)</del>
<del>C72VX-1670D-CTC-K</del>	<del>10 Cheminert Vertical Port</del>	<del>0.25</del>	<del>1/16</del>	<del>C72V-1C70 N60C</del>	<del>C72-16R0 Valcon-E3</del>	<del>VICI/Valco high-pressure valve 15'000 psi (approx. 1000 bar) Valve Volume (port-to-port = 1036 nL).</del>
C82VX-1676D-CTC-K	6 Cheminert Vertical Port	0.25	1/16	C72V-1C76 N60C	C72-16R6 Valcon E3	VICI/Valco high pressure valve injection valve 15'000 psi (approx. 1000 bar) 75°C. Valve Volume (port-to-port = 1026 nL)
C82VX-1670D-CTC-K	10 Cheminert Vertical Port	0.25	1/16	C72V-1C70 N60C	C72-16R0 Valcon E3	VICI/Valco high pressure valve 15'000 psi (approx. 1000 bar) Valve Volume (port-to-port = 1036 nL).
High Pressure Valve Type (UHPLC) with 0.15 mm Bore Size   Micro Bore Application   Flow Rate Range 100 nL/min to 100 µl/min						
<del>C72VU-6676D-CTC-K</del>	<del>6 Cheminert Vertical Port</del>	<del>0.15</del>	<del>1/16</del>	<del>C72V-6C76 N60C</del>	<del>C72-66R6 Valcon-E3</del>	<del>Vici/Valco Ultra-High-Pressure-LC valve. 18'500 psi (aprox. 1275bar). Inlet port with hole pattern in two stages: Bore size 0.30 mm for inlet path until last mm to narrow down to 0.15 mm to fit engraving of rotor. Volume inlet port: 476 nL Shipped with 2 and 20 µL Loops, 20 µL Loop installed.</del>
<del>C72VX-6670D-CTC-K</del>	<del>10 Cheminert Vertical Port</del>	<del>0.15</del>	<del>1/16</del>	<del>C72V-6C70 N60C</del>	<del>C72-66R0 Valcon-E3</del>	<del>Vici/Valco Ultra-High-Pressure-LC valve. 15'000 psi (aprox. 1275bar). Inlet port with hole pattern in two stages: Bore size 0.30 mm for inlet path until last mm to narrow down to 0.15 mm to fit engraving of rotor. Volume inlet port: 476 nL Shipped with 2 and 20 µL Loops, 20 µL Loop installed. High torque valve drive needed, see Service Note # 03/2007.</del>
C82VU-6676D-CTC-K	6 Cheminert Vertical Port	0.15	1/16	C72V-6C76 N60C	C72-66R6 Valcon E3	Vici/Valco Ultra-High-Pressure-LC valve. 18'500 psi (aprox. 1275bar). Inlet port with hole pattern in two stages: Bore size 0.30 mm for inlet path until last mm to narrow down to 0.15 mm to fit engraving of rotor. Volume inlet port: 476 nL Shipped with 2 and 20 µL Loops, 20 µL Loop installed.
C82VX-6670D-CTC-K	10 Cheminert Vertical Port	0.15	1/16	C72V-6C70 N60C	C72-66R0 Valcon E3	Vici/Valco Ultra-High-Pressure-LC valve. 15'000 psi (aprox. 1275bar). Inlet port with hole pattern in two stages: Bore size 0.30 mm for inlet path until last mm to narrow down to 0.15 mm to fit engraving of rotor. Volume inlet port: 476 nL Shipped with 2 and 20 µL Loops, 20 µL Loop installed. High torque valve drive needed, see Service Note # 03/2007.

**Table 1:** PAL-xt valves affected by the design change (obsolete valves marked red)