

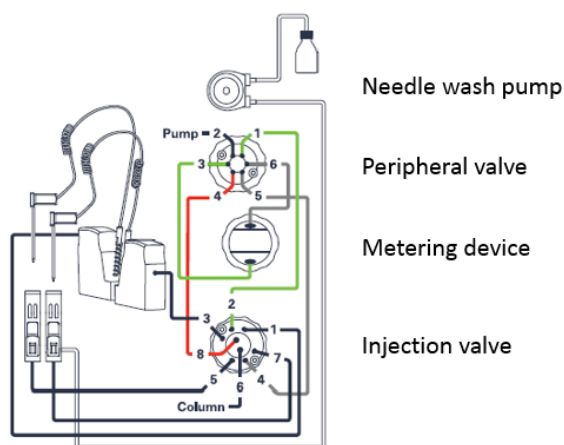
# Agilent 1260 /1290 Infinity II Multisampler

## Dual-needle option

### Quick Reference Sheet

#### Dual-needle option basic information

Agilent Dual-needle technology offers for the first time in an HPLC autosampler two independent flow paths consisting of a sample loop, injection needle and a needle-seat. Both paths are then recombined after the needle seat capillary at the Injection valve. Without a separate bypass, all samples or solvent run either through the left or the right path and then through the separation column.



#### Dual-needle option and typical workflows

- 1) Same loop volumes on both flow paths: running samples alternately through one or the other injection path which **reduces cycle times** especially if overlapped injection is applied. (Eliminating conventional wait times, e.g. large volume loadings, needle-wash)
- 2) Different loop volumes for left and right path: providing the option for **large volume injection** on the one path, **and smallest delay volume** on the other path
- 3) **Application specific use of left or right path**: Separation of sample runs and check-out runs, or path separation based on application or method can reduce the risk of system contamination. As there are two different injection paths (loop, needle and needle-seat) the carryover of matrix or sticky components can be excluded from the unused path.

#### Important aspects to know about use of Dual-needle samplers

##### Sample loops and capillaries

Only specific Agilent Dual-needle sample loops can be used within a Dual-needle Multisampler. Those loops are flexible for moving and calibrated on volume to allow a single calibration for injections from both sides. Left and right loops are different and need to be installed correctly.

Find a list of (1260 Infinity II) parts here: <http://www.agilent.com/chem/1260Multisampler-Ordering>

Find a list of (1290 Infinity II) parts here: <http://www.agilent.com/chem/1290Multisampler-Ordering>

## **Alternating injections with identical loop volumes left and right**

For sequences using alternating injections (left, right, left, Needle and Seat) it is mandatory to have the same loop volume on both paths (e.g. 20 µL loop left and 20 µL loop right). As the loops are calibrated on volume, it is ok to use a single calibration for injections from left and from right path.

## **Different loop volumes used left and right**

Choice of different loop volumes on left or right path allows a wide range of injection volumes.

1260 Infinity II Multisampler: 20 µL up to 900 µL loops

1290 Infinity II Multisampler: 20 µL up to 500 µL loops

As the sampler delay volume will not be influenced by the Metering device (Dual-needle uses exclusively the 100 µL device), only the used loop volume adds delay volume and time.

## **Automated purge of solvent paths**

Both flow paths need to contain the same solvent composition that is identical with the starting conditions of the next run. Therefore, the Multisampler flushes both paths after any change of solvent composition, method, a general change of solvents, or switch off/on of pumps. With large volume loops installed this can take substantial time depending on flow rates used and total volumes. To avoid lengthy flush times during method development or frequent method changes, either use low volume loops on both sides or manually install a specific bypass capillary (Agilent part number 5500-1238) to cut off one of the flow paths.

## **Bypass capillary to shorten purge times of Dual-needle autosampler**

Any Dual-needle system can be shortcut to a Single-needle instrument using a bypass capillary (Agilent part number 5500-1238). This capillary can be installed manually at the valve to cut off one path volume. By this lengthy flush times of the large volume loop path can be cut down to allow faster or frequent change of methods and to speed up method optimization. The **bypass capillary must be configured in the software** after installation – and vice versa after removing!

## **Multi-load mode for large volume injections**

Dual-needle option is not compatible with needle-seat capillary extension (Multi-draw mode) as used for large volume injection with Single-needle Multisampler or with older Agilent autosampler instruments.

Multisampler with Dual-needle instead uses its second valve for large volume injections by multiple loading cycles of the metering device into the enlarged sample-loop. This is quicker than the Multi-draw mode and reduces the delay volume – as there is no seat extension capillary required.



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