

Pixcell flow-through cuvette selection guide

8/2020

Introduction

Pixact measurement systems are designed for inline installation in production lines, pilot facilities and laboratory equipment. The optical components of the measurement system, i.e. the camera, optical lens and illumination unit, are selected carefully for each application to guarantee superior image quality.

Flow-through measurement cuvettes intended for use on pipelines belong to the Pixcell product family. These cuvettes can be used for imaging in any measurement application, such as particle diagnostics, crystallization and bubble suspensions. The product family includes flow-through cuvettes with various sizes, optical paths and fittings.

The Pixcell measurement cuvettes are installed directly in process lines or dedicated sampling lines. Typical installations are illustrated in Figure 1. All measurement cuvette designs are available with a selection of optical magnifications and illumination units. Consult Pixact for further details and help in the selection of an optimal imaging solution for you.

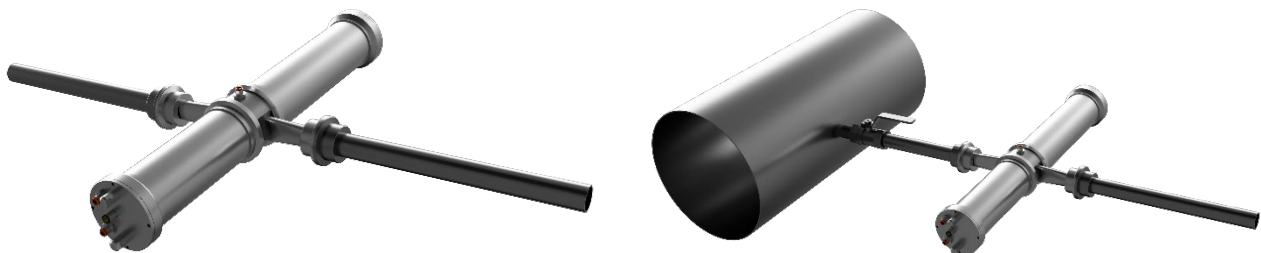


Figure 1. Installation options. LEFT: installation in a process line, RIGHT: installation in a sampling line.

Pixcell DN06-OP2

The Pixcell DN06 is designed for pipes with an inner diameter of 3-6 mm. The standard optical path is 2.0 mm (OP2) and the cross-sectional area in the measurement volume is 30.0 mm². Several installation flanges and fittings are available for Pixcell DN06. The standard installation flanges and fittings are listed in Table 1. Custom flanges and fittings are available on request.

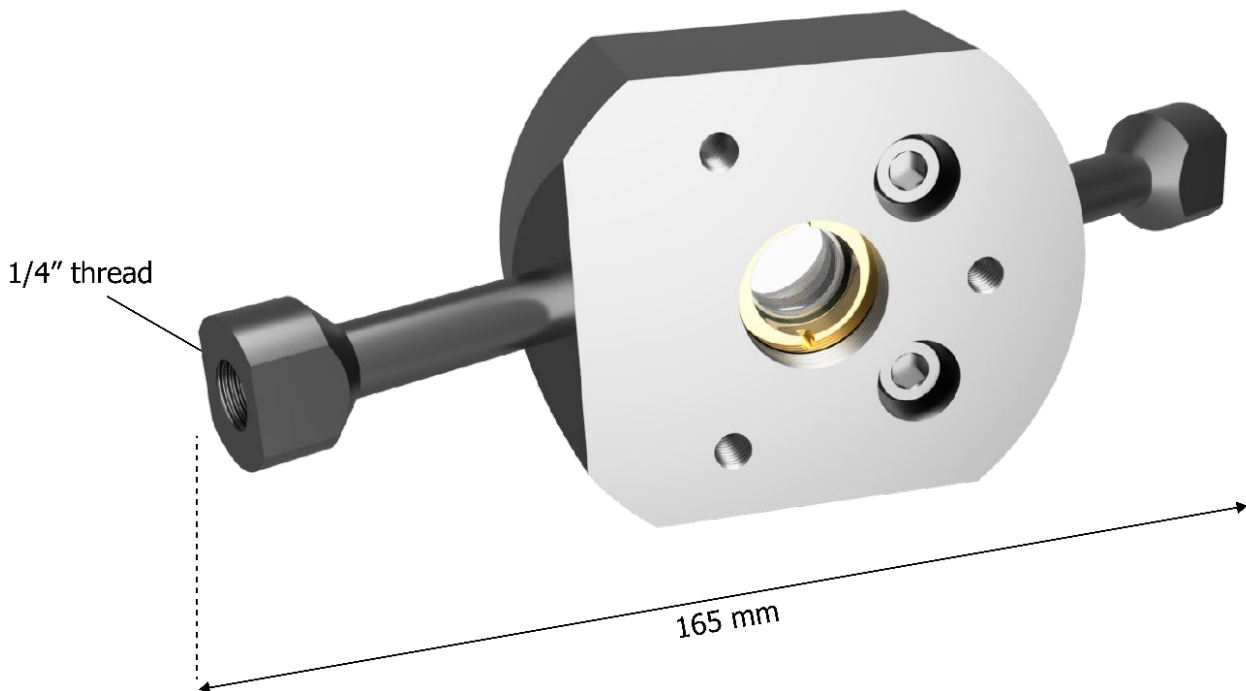


Figure 2. Pixcell DN06 dimensions. Length = 165 mm.

Table 1. Installation flanges/fittings for Pixcell DN06.

Flange/fitting
1/4" inner thread
1/2" Tri-Clamp

Pixcell DN08-OP4

The Pixcell DN08 is designed for pipes with an inner diameter of 6-12 mm. The standard optical path is 4 mm (OP4) and the cross-sectional area in the measurement volume is 60 mm². Several installation flanges and fittings are available for Pixcell DN08. The standard installation flanges and fittings are listed in Table 2. Custom flanges and fittings are available on request.

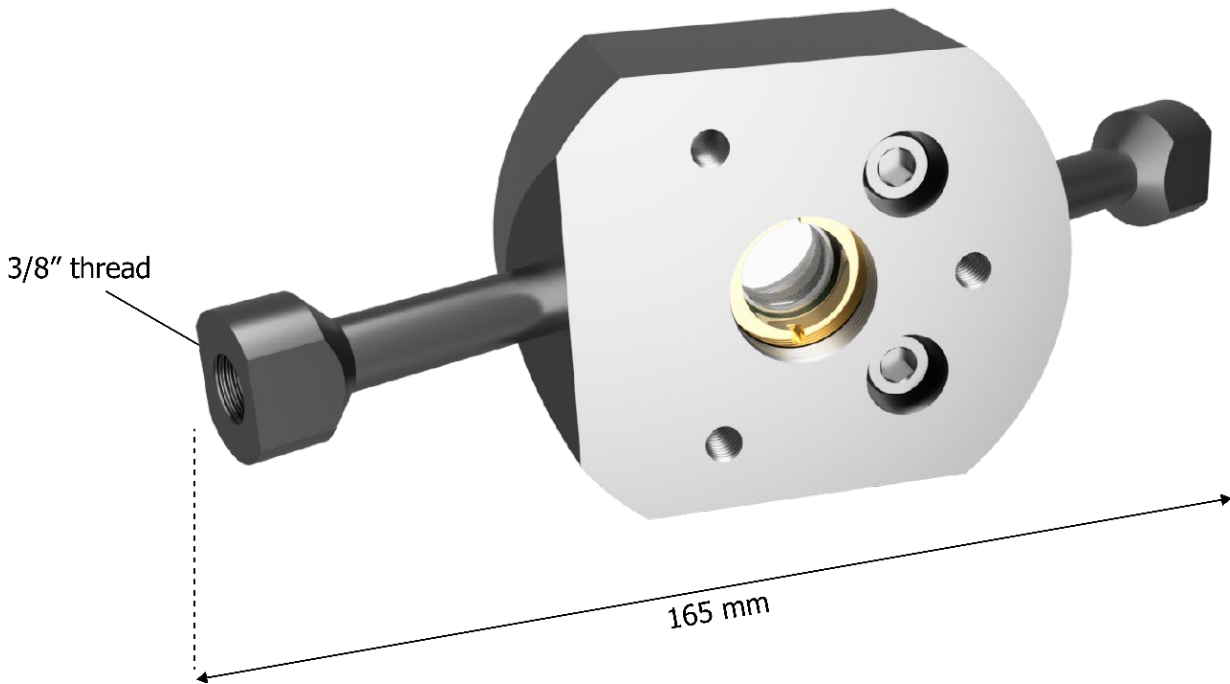


Figure 3. Pixcell DN08 dimensions. Length = 165 mm, inner threads of inlet and outlet fittings = 3/8".

Table 2. Installation flanges/fittings for Pixcell DN08.

Flange/fitting
3/8" inner thread
DN10 flange
1.0" Tri-Clamp

Pixcell DN15-OP5

The Pixcell DN15 is designed for pipes with an inner diameter of 12-20 mm. The standard optical path is 5 mm (OP5) and the cross-sectional area in the measurement volume is 200 mm². Several installation flanges/fittings are available for Pixcell DN15. The standard installation flanges and fittings are listed in Table 3. Custom flanges and fittings are available on request. The cuvette is always manufactured on demand, which means that the length of the cuvette (250-500 mm) can be selected to meet the requirements of each installation location.

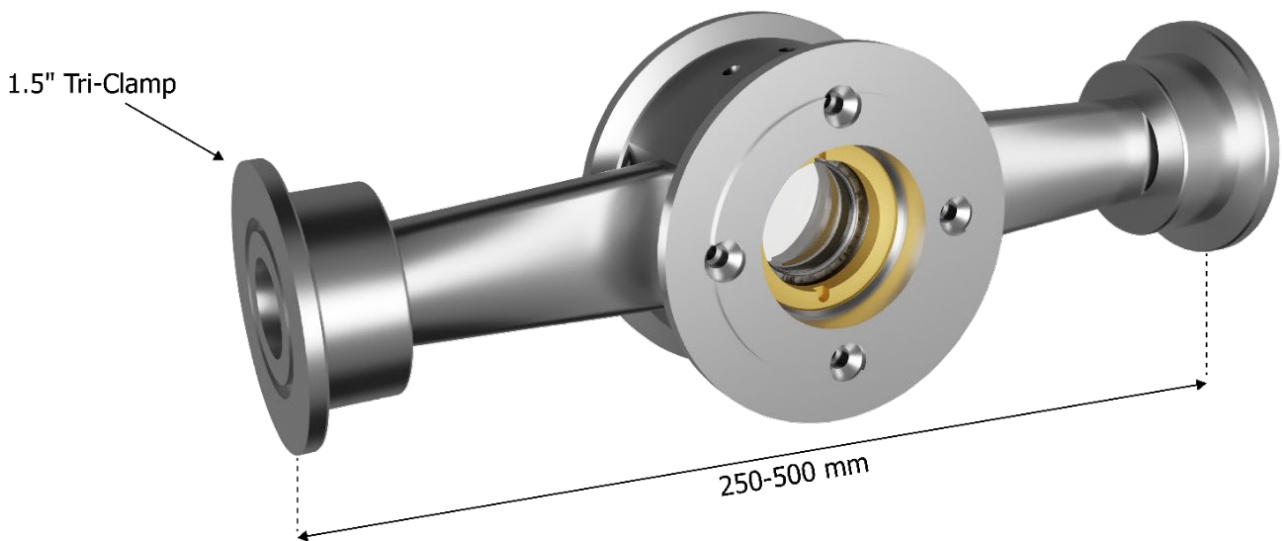


Figure 4. Pixcell DN15 dimensions. Length = 250-500 mm, inlet and outlet fittings = 1.5" Tri-Clamp.

Table 3. Installation flanges/fittings for Pixcell DN15.

Flange/fitting
1/2" inner thread
DN15 flange
Tri-Clamp 1.5"

Pixcell DN20-OP10

The Pixcell DN20 is designed for pipes with an inner diameter of 20-25 mm. The standard optical path is 10 mm (OP10) and the cross-sectional area in the measurement volume is 400 mm². Several installation flanges/fittings are available for Pixcell DN20. The standard installation flanges and fittings are listed in Table 4. Custom flanges and fittings are available on request. The cuvette is always manufactured on demand, which means that the length of the cuvette (300-600 mm) can be selected to meet the requirements of each installation location.

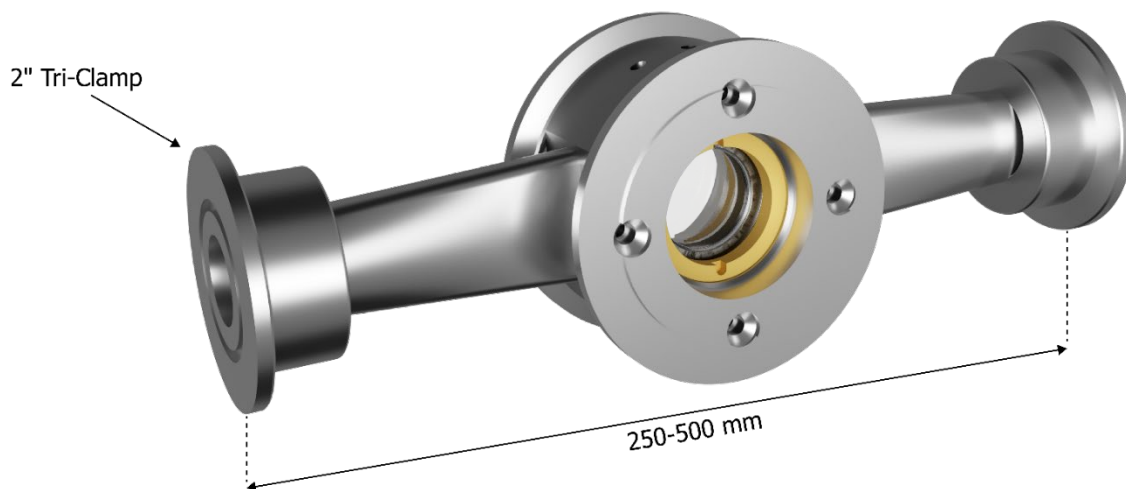


Figure 5. Pixcell DN20 dimensions. Length = 250-500 mm, inlet and outlet fittings = 2" Tri-Clamp.

Table 4. Installation flanges/fittings for Pixcell DN20.

Flange/fitting
3/4" inner thread
DN20
2" Tri-Clamp

Pixcell DN50-OP50

The Pixcell DN50 is designed for pipes with an inner diameter of 50 mm. The standard optical path is 50 mm (OP50) and the cross-sectional area in the measurement volume is 2500 mm². This cuvette is typically not used with a transillumination setup due to the large optical path, but instead front illumination is preferred. Several installation flanges/fittings are available for Pixcell DN50. The standard installation flanges and fittings are listed in Table 5. Custom flanges and fittings are available on request. The cuvette is always manufactured on demand, which means that the length of the cuvette (400-600 mm) can be selected to meet the requirements of each installation location.

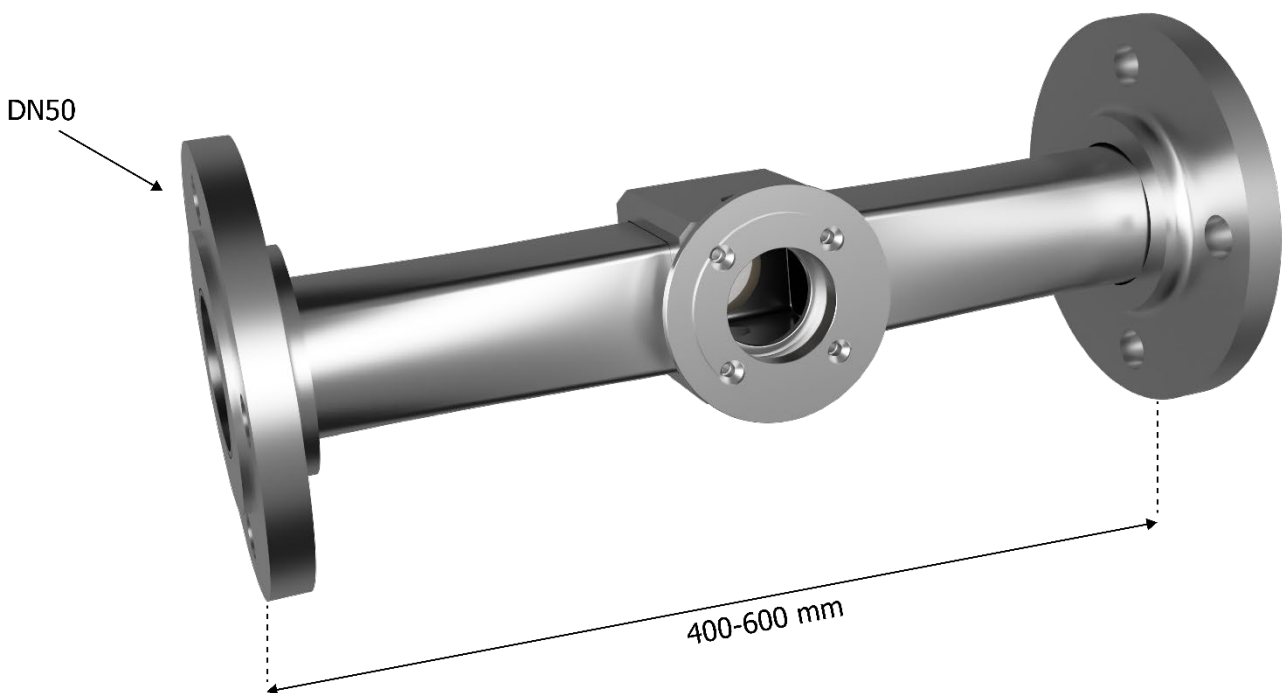


Figure 6. Pixcell DN50 dimensions. Length = 400-600 mm, inlet and outlet fittings = DN50.

Table 5. Installation flanges/fittings for Pixcell DN50.

Flange/fitting
2" inner thread
DN50
3" Tri-Clamp

Technical specification (Pixcell DN06/08/15/20/50)					
Dimensions	DN06	DN08	DN15	DN20	DN50
Pipe I.D. [mm]	3-6	6-12	12-20	20-25	50
Optical path	2	4	5	10	50
Meas. vol. cross section [mm ²]	30	60	200	400	2500
Flange-flange length	165	165	250-500	250-500	400-600
Optical configuration options	M=0.5*	M=1	M=2	M=4	
Image area [mm]	17.0x14.0	8.4x7.0	4.2x3.5	2.1x1.8mm	
Image resolution [μm/pix]	6.9	3.5	1.7	0.86	
Measurement range [μm]	40-4000	20-2000	10-1000	5-500	
Environmental protection	IP67, ATEX on request				
Operating temperature					
Flow medium (standard)	+0 °C to +85 °C (+120 °C short-term)				
Flow medium (extended) **	-20 °C to +150 °C				
Housing temperature	+0 °C to +65 °C				
Standard operation pressure	Max 8 bar				
Materials					
Probe head	AISI316L, AISI904L				
Optical windows	Sapphire, borosilicate				
Sealing materials	NBR, FPM, EPDM, silicone, Kalrez				

* Not available for DN06/08

** Cooling required