

# Pixscope probe 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 probe, i.e. the camera, optical lens and illumination unit, are selected carefully for each application to guarantee superior image quality.

Probes intended for use in reactors and on pipelines with large diameters belong to the Pixscope product family. These probes can be used for imaging in any measurement application, such as particle diagnostics, crystallization and bubble suspensions. The product family consists of probes with various dimensions (diameter and length) and installation flange options.

Typical installation options are illustrated in Figure 1. The optimal installation location is a dedicated inlet on the side wall of a reactor or pipeline. If a suitable side inlet is not available, the system can be installed in an inlet on the lid or top wall of the reactor. This installation location typically requires a longer probe so that the optimal measurement location can be reached.

Due to fundamental imaging principles, shorter probe lengths provide better image quality are preferred when selecting a probe design. Consult Pixact for further details and help in the selection of an optimal imaging solution for you.

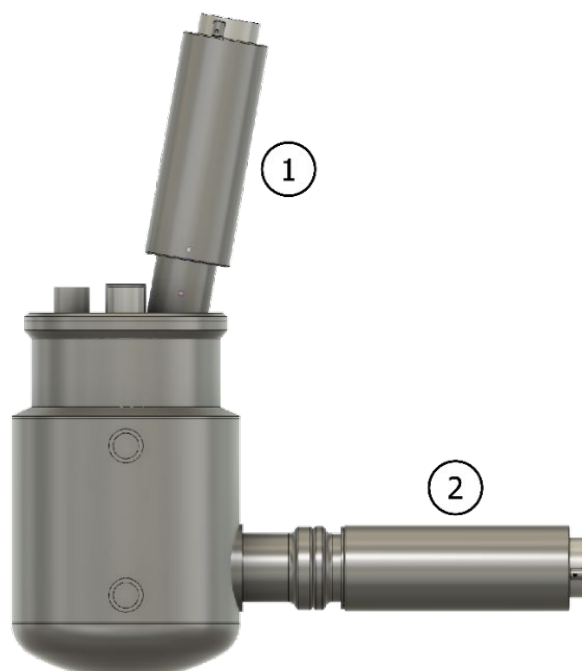
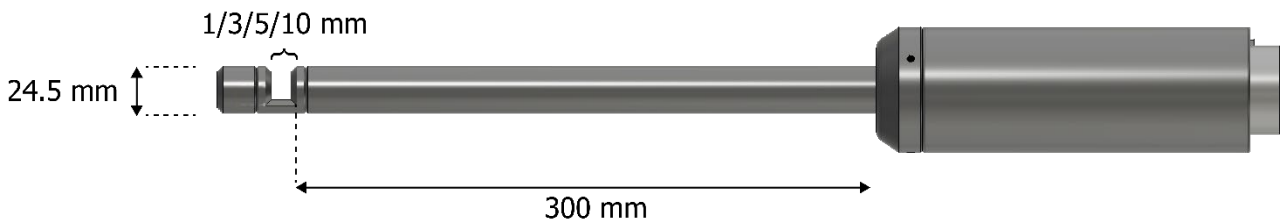


Figure 1. Installation options. (1) Installation in an inlet/port in the lid, (2) installation in a side inlet/port.

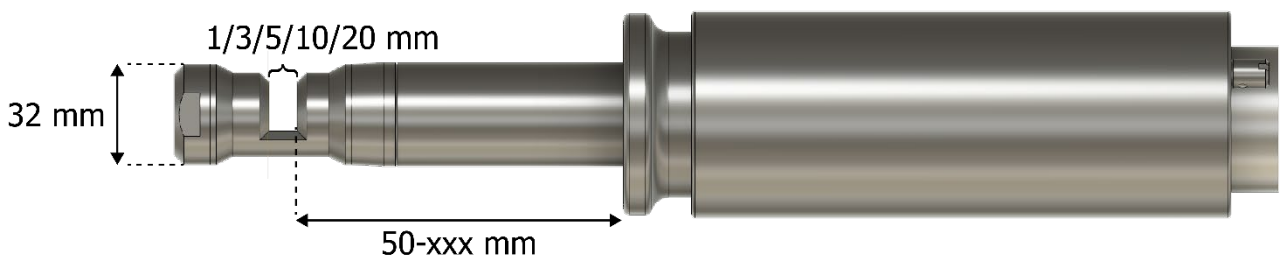
## Pixscope 24-300

The diameter of the submersed section of the Pixscope 24 probe is 24 mm. The probe is available in a length of 300 mm, and the standard measurement gap sizes are 5 and 10 mm. Custom installation flanges are available on request.



## Pixscope 32-xxx

The diameter of the submersed section of the Pixscope 32 probe is 32 mm. The probe is always manufactured on demand, which means that the length of the probe (50-300 mm) can be selected to fit the resolution and magnification requirements of each process (see Table 1 for a list of the probe options). Several types of installation flanges are available for this probe design. Standard installation flanges are listed in Table 2. Custom installation flanges are available on request. The standard measurement gap sizes are 5 and 10 mm.



*Figure 2. Pixscope 32 dimensions. Diameter = 32 mm, measurement gap = 1/3/5/10/20 mm, length from measurement gap to flange = 50 mm and up.*

## Pixscope 38-xxx

The diameter of the submersed section of the Pixscope 38 probe is 38 mm. The probe is always manufactured on demand, which means that the length of the probe (50-300 mm) can be selected to fit the resolution and magnification requirements of each process (see Table 1 for a list of the probe options). Several types of installation flanges are available for this probe design. Standard installation flanges are listed in Table 2. Custom installation flanges are available on request. The standard measurement gap sizes are 5 and 10 mm.

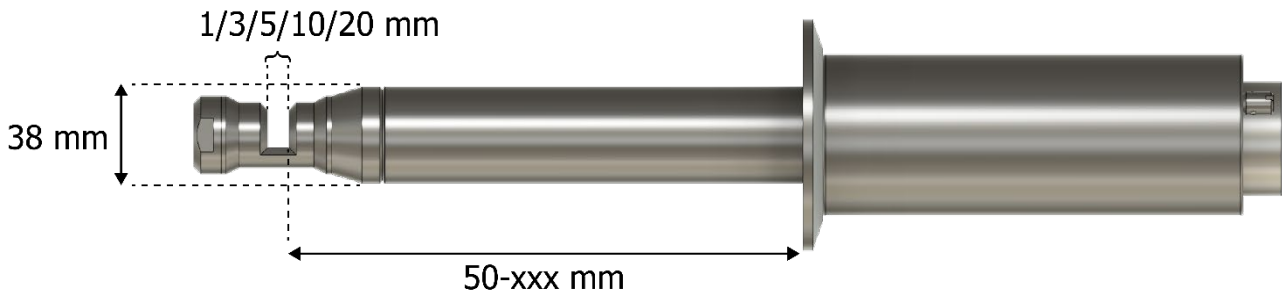




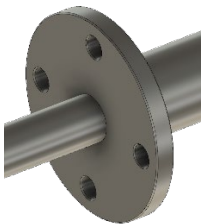
Figure 3. Pixscope 38 dimensions. Diameter = 38 mm, measurement gap = 1/3/5/10/20 mm, length from measurement gap to flange = 50 mm and up.

Table 1. Probe length options for Pixscope 32/38.

Optical magnification/ measurement range	Maximum probe length for <b>standard*</b> temperature range	Maximum probe length for <b>extended*</b> temperature range
M=1 / 20-2000 $\mu\text{m}$	300 mm	300 mm
M=2 / 10-1000 $\mu\text{m}$	200 mm	200 mm
M=4 / 5-500 $\mu\text{m}$	100 mm	50 mm

\*See the technical specification below.

Table 2. Standard installation flanges for Pixscope 32/38.

Tri-Clamp 3"	
DN40p	
DN40/50/65	

## Pixscope 64-xxx

The diameter of the submersed section of the Pixscope 64 probe is 64 mm. In this model the camera is located inside the probe body to provide the best optical performance possible. The probe is always manufactured on demand, and the length can be selected freely in the range 50-2000 mm. This probe is equipped with a DN65 or larger flange. The standard measurement gap sizes are 5 and 10 mm.

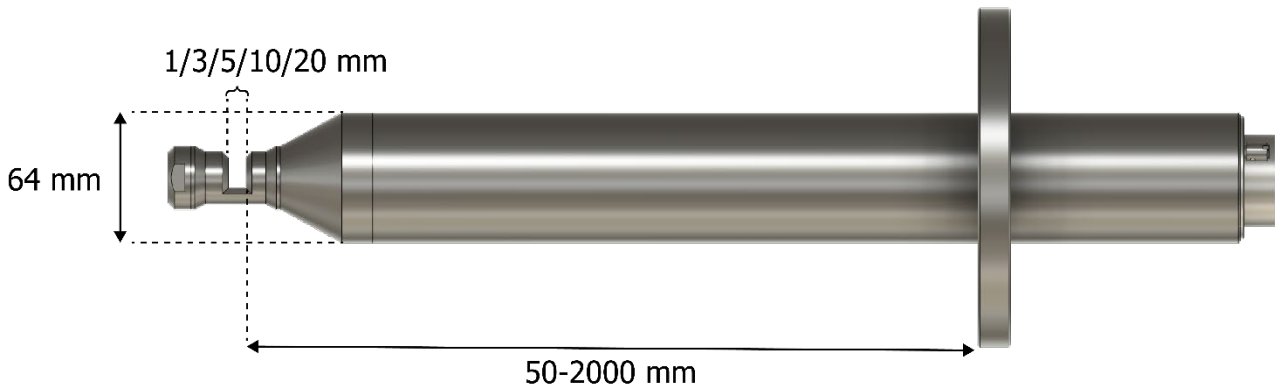


Figure 4. Pixscope 64 dimensions. Diameter = 64 mm, measurement gap = 1/3/5/10/20 mm, length from measurement gap to flange = 50-2000 mm.

## Pixscope 90-xxx

The diameter of the submersed section of the Pixscope 90 probe is 90 mm. In this model the camera is located inside the probe body to provide the best optical performance possible. The probe is always manufactured on demand, and the length can be selected freely in the range 50-2000 mm. This probe is equipped with a DN80 or larger flange. The standard measurement gap sizes are 5 and 10 mm.

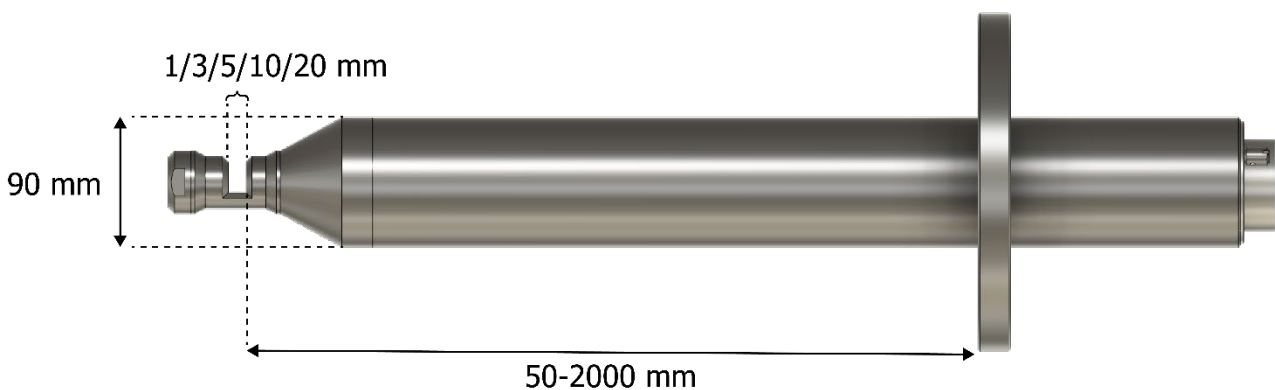


Figure 5. Pixscope 90 dimensions. Diameter = 90 mm, measurement gap = 1/3/5/10/20 mm, length from measurement gap to flange = 50-2000 mm.

Technical specification (Pixscope 24-300)	
Optical configuration options	M=2
Image area [mm]	4.2x3.5
Image resolution [ $\mu\text{m}/\text{pix}$ ]	1.7
Measurement range [ $\mu\text{m}$ ]	10-1000
Environmental protection	IP67, ATEX and IECEx on request
Operating temperature	
Prope tip (standard)	+0 °C to +85 °C (+120 °C short-term)
Housing	+0 °C to +65 °C
Standard operation pressure	Max. 8 bar
Materials	
Probe head	AISI316L
Optical windows	Sapphire
Sealing materials	Kalrez

Technical specification (Pixscope 32/38/64/90)			
Optical configuration options	M=1	M=2*	M=4*
Image area [mm]	8.4x7.0	4.2x3.5	2.1x1.8mm
Image resolution [ $\mu\text{m}/\text{pix}$ ]	3.5	1.7	0.86
Measurement range [ $\mu\text{m}$ ]	20-2000	10-1000	5-500
Environmental protection	IP67, ATEX and IECEx on request		
Operating temperature			
Prope tip (standard)	+0 °C to +85 °C (+120 °C short-term)		
Prope tip (extended-1) **	-20 °C to +150 °C		
Prope tip (extended-2) ***	-20 °C to +200 °C		
Housing	+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		

\* available for some models

\*\* available for Pixscope 64/90, cooling required

\*\*\* available for Pixscope 32/38, cooling required