

Flexispec®
Fiber Probes for Process Spectroscopy
Catalog 2026

art photonics
MEMBER OF THE NYNOMIC GROUP

Fiber Optic Probes
when accuracy and accessibility matter

Fiber optic probes are the ideal solution for monitoring real-time chemical reactions, analyzing large or irregularly shaped samples, measuring in vivo, and any other application where bringing the sample to the spectrometer is difficult. Due to their flexibility and user-friendliness, fiber optic probes have become one of the most widespread tools in modern spectroscopy.

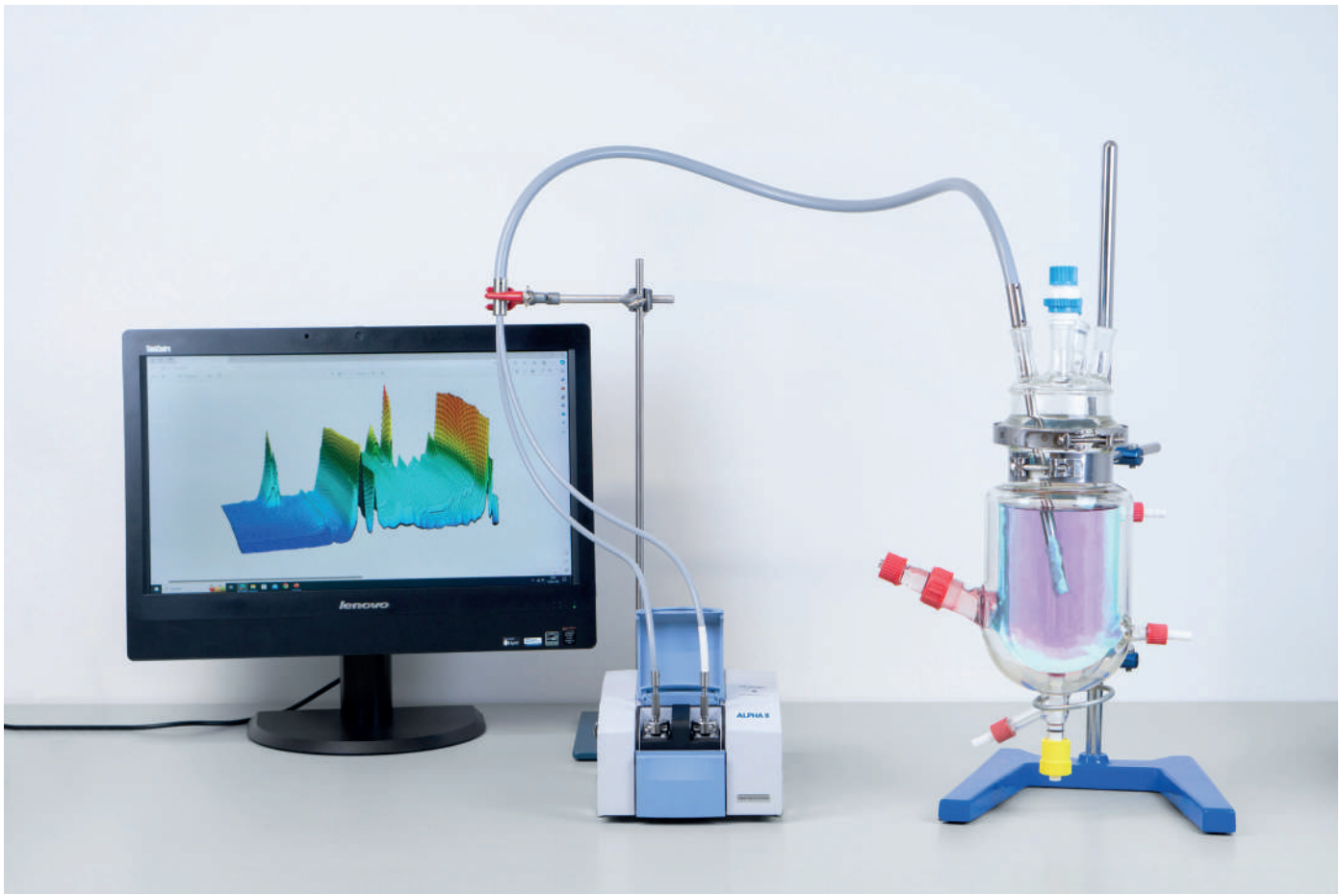
Probe is perfect tool for substance spectrum measurements (pastes, pulver, solid, liquid or gaseous solutions) aimed to determine their composition as well as change of composition during chemical reaction. The measurements are carried out by the system „Probe + Spectrometer". The probe can be attached to the spectrophotometer directly or via a coupler and mounted on a clamp or flange to measure the analyzed mixture inside a reactor vessel.

Fiber Optic probes utilize optical fibers to transmit and receive light to and from a sensitive element, enabling precise non-invasive measurements especially in challenging environments. The core function of fiber optic probes involves delivering light to a target area and collecting the resulting signal for analysis.

A large array of parameters per unit time is a result of the measurements. This data show a broader picture of the chemical reaction comparing with data obtained from sensors.

We offer a comprehensive range of fiber optic probes designed to meet the needs of both laboratory research and industrial process monitoring. For laboratories focused on analyzing process changes and optimizing product or composite formulations, Mid-IR range probes are the preferred choice, delivering precise, real-time data for accurate decision-making. In industrial environments, fiber optic probes are a game-changer for process monitoring. They deliver critical real-time reaction data that drives smarter decisions—saving energy and raw materials, boosting production efficiency, and supporting sustainability by reducing harmful emissions. With fiber optic technology, you achieve better results while caring for the environment.

Resistance to harsh environments and immunity to electromagnetic interference are another advantages of this kind of probes.



Intelligent Solutions
or optical analytics and process control

About us

Founded in 1998, art photonics GmbH is a global leader in fiber optic technologies, delivering intelligent solutions for a wide range of applications — from process monitoring to spectroscopy in both industrial and medical fields. Our unique technology for producing Polycrystalline Mid-Infrared (PIR) fibers positions us at the forefront of innovation, making us a world leader in the development and manufacturing of specialized fiber products. With the expertise of our Research & Development team, we create tailored solutions to meet your specific requirements — from simple fiber cables to advanced fiber optic systems and new technology concepts. Our services include consulting and product desig, prototype development, OEM fiber product manufacturing and complete fiber optic systems solutions.
art photonics GmbH is your ideal partner for advanced fiber solutions in:

- **Chemical and Petrochemical Industry**
- **Pharmacy and Life Science**
- **Food Industry**
- **Polymers production process monitoring**

Our core competence

- R&D of customized Fiber Optic Systems in a broad spectral range from 190 nm to 17 µm, including feasibility tests
- R&D of customized fiber delivery systems for Diode, Solid State, CO- and CO_2-lasers used in medical and industrial applications, including fiber bundle combiners
- R&D of customized spectroscopic fiber probes for all key spectroscopy methods: ATR-absorption, UV-Vis-NIR Transmission & Diffuse Reflection, Raman and Fluorescence, including customized combi-probes for multi-spectral applications and probe couplers to match various spectrometers

Technological capabilities

Development & production of customized Mid-IR fiber cables, probes and bundles for scientific, medical, industrial and space applications in the range from 2 to 17 µm

Our Service Solutions

art photonics GmbH provides a full range of professional services to support your fiber optic applications:

- Customer sample analysis in our spectral lab or at your site
- Spectroscopy fiber probes and couplers installation and calibration at the customers location
- Maintenance and repair of fiber optic products
- Rental and leasing of standard spectroscopy fiber probes and probe couplers
- Professional training on fiber product usage — at our company or at your sitein our company or at customer site

Building of Product Codes

Ensure that you review the encoding format used for probe names in order to correctly identify and select the appropriate product within the tables.

Building of Product Codes

Building Blocks for ATR Probes

ATR-P-ZnSeC-12-30-150/50-HT

Probe Type
- ATR - Attenuated Total Reflection

Fiber Type
- UV - Silica for UV - VIS
- NIR - Silica for Near-IR
- C - Chalcogenide for 1-6 µm range
- P - Polycrystalline for 3-17 µm range

ATR Crystal Material
- D - Diamond
- S - Sapphire
- Si - Silicon
- Ge - Germanium
- ZnSe - Zink Selenide
- ZrO2 - Cubic Zirconia
- AgX - Silver Halide

Crown (optional)
- C - Protective Crown around ATR Crystal

Shaft Diameter, mm

Shaft Length, cm

Total Length, cm / Legs Length, cm

Optional

High Temperature / Shaft-in-Shaft / Laboratory Designs

Building Blocks for Probes

TR-NIR-S-12-30-150/50-SS

Probe Type
- TR - Transflection
- RS - Raman Scattering
- R - Reflection
- DR - Diffuse Reflection

Fiber Type
- UV - Silica for UV - VIS
- NIR - Silica for Near-IR
- C - Chalcogenide for 1-6 µm range
- P - Polycrystalline for 3-17 µm range

Window Material
- S - Sapphire
- Q - Fused Silica

Shaft Diameter, mm

Shaft Length, cm

Total Length, cm / Legs Length, cm

Optional

Shaft Material / Focusing Distance / Instrument Connection

Fiber Optic Probes
for optical analytics and process control

ATR Fiber Probes

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Chemical compatibility of ATR crystals

If you have any doubts, check the chemical compatibility of ATR crystals with the chemicals you use. Different crystal materials exhibit significantly different resistance levels to acids, bases, oxidizing agents, and complexing compounds. For example, diamond crystals are highly chemically inert and compatible with nearly all media, whereas ZnSe is vulnerable to both acidic and basic solutions and can degrade in the presence of complexing agents. Germanium crystals remain stable in non-oxidizing acids but are not resistant to concentrated bases or oxidizing/complexing acids. Ensuring compatibility helps prevent crystal surface degradation, spectral artifacts, or complete failure of the ATR element. We are always ready to answer your technical questions and assist in selecting the optimal crystal for your application.

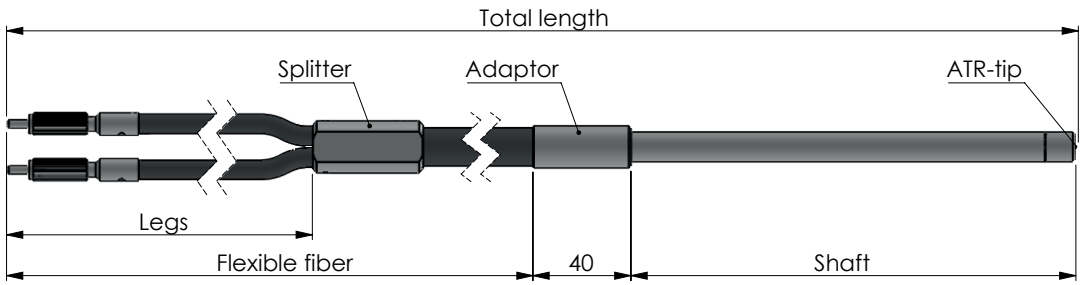
Material	Properties	Comments
Diamond	stable in any liquid	mind the restriction of using PEEK (sealing material)
Silizium	pH = 1÷10	presence of oxidizing agents reduces stability in an alkaline medium
Germanium	pH= 1÷14	presence of oxidizing agents reduces stability in an alkaline medium
ZnSe	pH = 5÷9	solutions of complexing agents can damage the crystall
ZrO2	any medium except concentrated alkalies	mind the restriction of using PEEK (sealing material)
Al2O3 sapphire	any medium except concentrated alkalies	mind the restriction of using PEEK (sealing material)
AgHal detachable loops	pH = 5÷9 no metal no S2O3- and Br - groups	solutions of complexing agents can damage the crystal

Standard ATR Fiber Probes

Probe Type	ATR-probe
Tip Protection	crown sized (optional)
Probe Shaft	L = 300 ± 5 mm
Shaft Material	Hastelloy C22
Total Length	1.5 ± 0.05 m
Flexible fiber	1.2 m, 2 legs of 0.5 m length each
Terminations	2 x SMA905
Protection tubing	Stainless Steel with polymer coating



Product Code	Article-No.	Tip Material	Shaft OD	Spectral Range	Sealing	Fiber Type	Pressure, Temperature
ATR-P-D-6-30-150/50	AP10232	Diamond	6.3 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-DC-6-30-150/50	AP10705	Diamond	6.3 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-Si-6-30-150/50	AP10551	Silicon	6.3 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-SiC-6-30-150/50	AP11100	Silicon	6.3 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-Ge-6-30-150/50	AP10929	Germanium	6.3 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-P-GeC-6-30-150/50	AP11101	Germanium	6.3 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-C-ZrO2-6-30-150/50	AP10423	Cubic Zirconia	6.3 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
ATR-C-ZrO2C-6-30-150/50	AP11102	Cubic Zirconia	6.3 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
ATR-NIR-ZrO2-6-30-150/50	AP12xxx	Cubic Zirconia	6.3 mm	400 - 2200 nm	PEEK	NIR 600/660	100 Bar, -150 - +200 °C
ATR-NIR-ZrO2C-6-30-150/50	AP12xxx	Cubic Zirconia	6.3 mm	400 - 2200 nm	PEEK	NIR 600/660	100 Bar, -150 - +200 °C
ATR-UV-S-6-30-150/50	AP12xxx	Sapphire	6.3 mm	260 - 1300 nm	PEEK	UV 600/660	100 Bar, -150 - +200 °C
ATR-UV-SC-6-30-150/50	AP12xxx	Sapphire	6.3 mm	260 - 1300 nm	PEEK	UV 600/660	100 Bar, -150 - +200 °C
Product Code	**Article-No.**	**Tip Material**	**Shaft OD**	**Spectral Range**	**Sealing**	**Fiber Type**	**Pressure, Temperature**
ATR-P-D-12-30-150/50	AP10241	Diamond	12 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-DC-12-30-150/50	AP10323	Diamond	12 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-Si-12-30-150/50	AP10920	Silicon	12 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-SiC-12-30-150/50	AP10916	Silicon	12 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-Ge-12-30-150/50	AP10930	Germanium	12 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-P-GeC-12-30-150/50	AP10931	Germanium	12 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-P-ZnSe-12-30-150/50	AP10399	Zinc Selenide	12 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +140 °C
ATR-P-Z-SeC-12-30-150/50	AP10425	Zinc Selenide	12 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +140 °C
ATR-C-ZrO2-12-30-150/50	AP10400	Cubic Zirconia	12 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
ATR-C-ZrO2C-12-30-150/50	AP10424	Cubic Zirconia	12 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
ATR-NIR-ZrO2-12-30-150/50	AP12xxx	Cubic Zirconia	12 mm	400 - 2200 nm	PEEK	NIR 600/660	100 Bar, -150 - +200 °C
ATR-NIR-ZrO2C-12-30-150/50	AP12xxx	Cubic Zirconia	12 mm	400 - 2200 nm	PEEK	NIR 600/660	100 Bar, -150 - +200 °C
ATR-UV-S-12-30-150/50	AP12830	Sapphire	12 mm	260 - 1300 nm	PEEK	UV 600/660	100 Bar, -150 - +200 °C
ATR-UV-SC-12-30-150/50	AP12xxx	Sapphire	12 mm	260 - 1300 nm	PEEK	UV 600/660	100 Bar, -150 - +200 °C

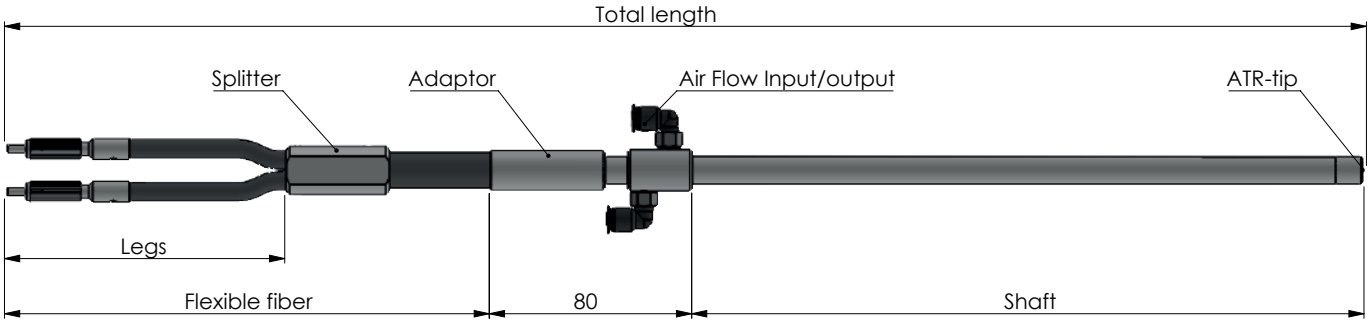


High Temperature ATR Fiber Probes

Probe Type	ATR-probe gas cooling design
Sealing Material	PEEK
Tip Protection	crown sized (optional)
Probe Shaft	L = 300 ± 5 mm
Shaft Material	Hastelloy C22
Total Length	2.0 ± 0.05 m
Flexible fiber	1.7 m, 2 legs of 0.5 m length each
Terminations	2 x SMA905
Protection tubing	Stainless Steel with polymer coating

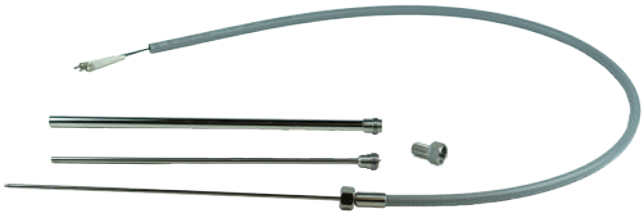


Product Code	Article-No.	Tip Material	Shaft OD	Spectral Range	Fiber Type	Pressure	Temperature
ATR-P-D-6-30-200/50-HT	AP12114	Diamond	6.3mm	600 - 1900cm-1	PIR 900/1000	200 Bar	-150 - +230°C
ATR-P-DC-6-30-200/50-HT	AP12690	Diamond	6.3mm	600 - 1900cm-1	PIR 900/1000	200 Bar	-150 - +230°C
ATR-P-Si-6-30-200/50-HT	AP12129	Silicon	6.3mm	600 - 3100cm-1	PIR 900/1000	100 Bar	-150°- +230°C
ATR-P-SiC-6-30-200/50-HT	AP12664	Silicon	6.3mm	600 - 3100cm-1	PIR 900/1000	100 Bar	-150°- +230°C
ATR-C-ZrO2-6-30-200/50-HT	AP13xxx	Cubic Zirconia	6.3mm	1550 - 9000cm-1	CIR 500/550	100 Bar	-150°- +180°C
ATR-C-ZrO2C-6-30-200/50-HT	AP12146	Cubic Zirconia	6.3mm	1550 - 9000cm-1	CIR 500/550	100 Bar	-150°- +180°C
Product Code	**Article-No.**	**Tip Material**	**Shaft OD**	**Spectral Range**	**Fiber Type**	**Pressure**	**Temperature**
ATR-P-D-12-30-200/50-HT	AP10344	Diamond	12mm	600 - 1900cm-1	PIR 900/1000	200 Bar	-150 - +250°C
ATR-P-DC-12-30-200/50-HT	AP10928	Diamond	12mm	600 - 1900cm-1	PIR 900/1000	200 Bar	-150 - +250°C
ATR-P-Si-12-30-200/50-HT	AP10932	Silicon	12mm	600 - 3100cm-1	PIR 900/1000	100 Bar	-150 - +250°C
ATR-P-SiC-12-30-200/50-HT	AP10512	Silicon	12mm	600 - 3100cm-1	PIR 900/1000	100 Bar	-150 - +250°C
ATR-C-ZrO2-12-30-200/50-HT	AP10935	Cubic Zirconia	12mm	1550 - 9000cm-1	CIR 500/550	100 Bar	-150 - +200°C
ATR-C-ZrO2C-12-30-200/50-HT	AP10936	Cubic Zirconia	12mm	1550 - 9000cm-1	CIR 500/550	100 Bar	-150 - +200°C

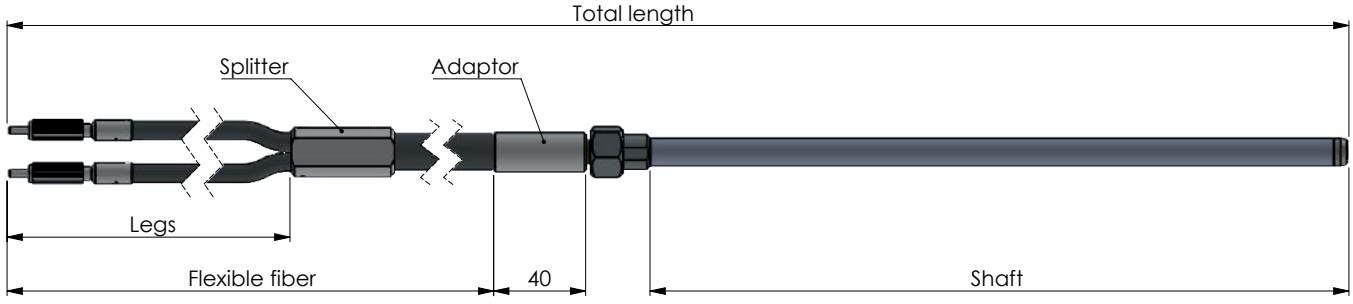


Sterilizable ATR Fiber Probes

Probe Type	sterilizable ATR-probe Shaft-in-Shaft-Design
Sealing Material	PEEK
Tip Protection	crown sized (optional)
Probe Shaft	L = 300 ± 5 mm
Shaft Material	Hastelloy C22
Total Length	1.5 ± 0.05 m
Flexible fiber	1.2 m, 2 legs of 0.5 m length each
Terminations	2 x SMA905
Protection tubing	Stainless Steel with polymer coating

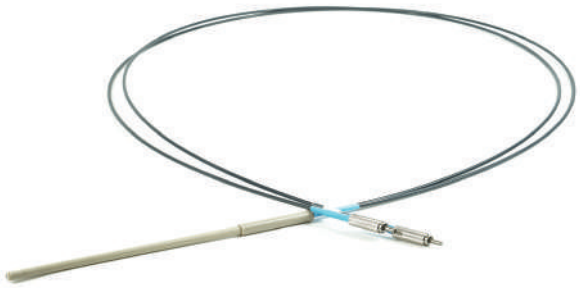


Product Code	Article-No.	Tip Material	Shaft OD	Spectral Range	Sealing	Fiber Type	Pressure, Temperature
ATR-P-D-6-30-150/50-SiS	AP10937	Diamond	6.3 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-DC-6-30-150/50-SiS	AP12xxx	Diamond	6.3 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-Si-6-30-150/50-SiS	AP10938	Silicon	6.3 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-SiC-6-30-150/50-SiS	AP12xxx	Silicon	6.3 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-Ge-6-30-150/50-SiS	AP10939	Germanium	6.3 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-P-GeC-6-30-150/50-SiS	AP12xxx	Germanium	6.3 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-C-ZrO2-6-30-150/50-SiS	AP10940	Cubic Zirconia	6.3 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
ATR-C-ZrO2C-6-30-150/50-SiS	AP12xxx	Cubic Zirconia	6.3 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
Product Code	**Article-No.**	**Tip Material**	**Shaft OD**	**Spectral Range**	**Sealing**	**Fiber Type**	**Pressure, Temperature**
ATR-P-D-12-30-150/50-SiS	AP10798	Diamond	12 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-DC-12-30-150/50-SiS	AP12xxx	Diamond	12 mm	600 - 1900 cm-1	PEEK	PIR 900/1000	200 Bar, -150 - +140 °C
ATR-P-Si-12-30-150/50-SiS	AP10727	Silicon	12 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-SiC-12-30-150/50-SiS	AP12xxx	Silicon	12 mm	600 - 3100 cm-1	PEEK	PIR 900/1000	100 Bar, -150 - +140 °C
ATR-P-Ge-12-30-150/50-SiS	AP10941	Germanium	12 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-P-GeC-12-30-150/50-SiS	AP12xxx	Germanium	12 mm	600 - 3100 cm-1	PTFE	PIR 900/1000	10 Bar, -150 - +90 °C
ATR-C-ZrO2-12-30-150/50-SiS	AP10942	Cubic Zirconia	12 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C
ATR-C-ZrO2C-12-30-150/50-SiS	AP12xxx	Cubic Zirconia	12 mm	1550 - 9000 cm-1	PEEK	CIR 500/550	100 Bar, -150 - +90 °C

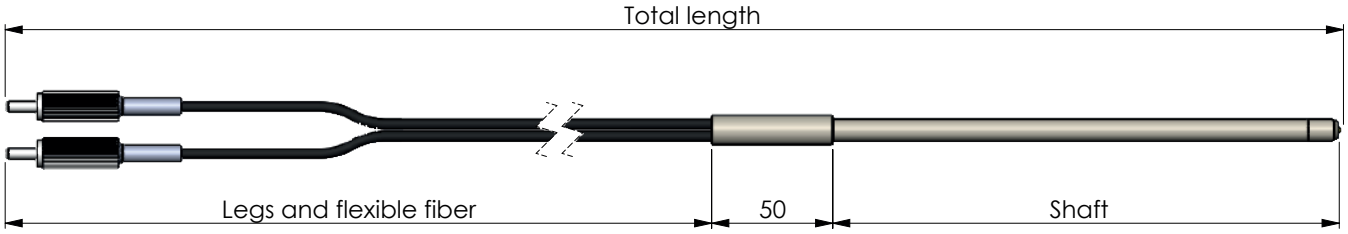


Laboratory ATR Fiber Probes

Probe Type	ATR-probe for Laboratory
Sealing Material	PTFE
Probe Shaft	OD = 6.3 mm, L = 150 ± 5 mm
Shaft Material	PEEK
Total Length	1.5 ± 0.05 m
Flexible fiber	2 legs of 1.35 m length each
Terminations	2 x SMA905
Protection tubing	PEEK



Product Code	Article-No.	Tip Material	Shaft	Spectral Range	Fiber Type	Temperature
ATR-P-D-6-15-150-Lab	AP12496	Diamond	150	600 - 1900 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-DC-6-15-150-Lab	AP10xxx	Diamond	150	600 - 1900 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-D-6-30-150-Lab	AP12698	Diamond	300	600 - 1900 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-DC-6-30-150-Lab	AP12756	Diamond	300	600 - 1900 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-Si-6-15-150-Lab	AP10906	Silicon	150	600 - 3000 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-SiC-6-15-150-Lab	AP13132	Silicon	150	600 - 3000 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-Si-6-30-150-Lab	AP12697	Silicon	300	600 - 3000 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-SiC-6-30-150-Lab	AP12931	Silicon	300	600 - 3000 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-Ge-6-15-150-Lab	AP10917	Germanium	150	600 - 3100 cm-1	PIR 900/1000	-100 - +80 °C
ATR-P-GeC-6-15-150-Lab	AP12xxx	Germanium	150	600 - 3100 cm-1	PIR 900/1000	-100 - +80 °C
ATR-P-Ge-6-30-150-Lab	AP12696	Germanium	300	600 - 3100 cm-1	PIR 900/1000	-100 - +80 °C
ATR-P-GeC-6-30-150-Lab	AP12929	Germanium	300	600 - 3100 cm-1	PIR 900/1000	-100 - +80 °C
ATR-P-ZnSe-6-15-150-Lab	AP10812	Zinc Selenide	150	600 - 3100 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-ZnSeC-6-15-150-Lab	AP12xxx	Zinc Selenide	150	600 - 3100 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-ZnSe-6-30-150-Lab	AP12695	Zinc Selenide	300	600 - 3100 cm-1	PIR 900/1000	-100 - +140 °C
ATR-P-ZnSeC-6-30-150-Lab	AP12xxx	Zinc Selenide	300	600 - 3100 cm-1	PIR 900/1000	-100 - +140 °C
ATR-C-ZrO2-6-15-150-Lab	AP10799	Cubic Zirconia	150	1550 - 9000 cm-1	CIR 500/550	-100 - +90 °C
ATR-C-ZrO2C-6-15-150-Lab	AP12xxx	Cubic Zirconia	150	1550 - 9000 cm-1	CIR 500/550	-100 - +90 °C
ATR-C-ZrO2-6-30-150-Lab	AP12692	Cubic Zirconia	300	1550 - 9000 cm-1	CIR 500/550	-100 - +90 °C
ATR-C-ZrO2C-6-30-150-Lab	AP12691	Cubic Zirconia	300	1550 - 9000 cm-1	CIR 500/550	-100 - +90 °C
ATR-NIR-ZrO2-6-15-150-Lab	AP11679	Cubic Zirconia	150	400 - 2200 nm	NIR 600/660	-100 - +140 °C
ATR-NIR-ZrO2C-6-15-150-Lab	AP13072	Cubic Zirconia	150	400 - 2200 nm	NIR 600/660	-100 - +140 °C
ATR-NIR-ZrO2-6-30-150-Lab	AP12xxx	Cubic Zirconia	300	400 - 2200 nm	NIR 600/660	-100 - +140 °C
ATR-NIR-ZrO2C-6-30-150-Lab	AP12xxx	Cubic Zirconia	300	400 - 2200 nm	NIR 600/660	-100 - +140 °C
ATR-UV-S-6-15-150-Lab	AP12497	Sapphire	150	260 - 1300 nm	UV 600/660	-100 - +140 °C
ATR-UV-SC-6-15-150-Lab	AP12xxx	Sapphire	150	260 - 1300 nm	UV 600/660	-100 - +140 °C
ATR-UV-S-6-30-150-Lab	AP12xxx	Sapphire	300	260 - 1300 nm	UV 600/660	-100 - +140 °C
ATR-UV-SC-6-30-150-Lab	AP12xxx	Sapphire	300	260 - 1300 nm	UV 600/660	-100 - +140 °C

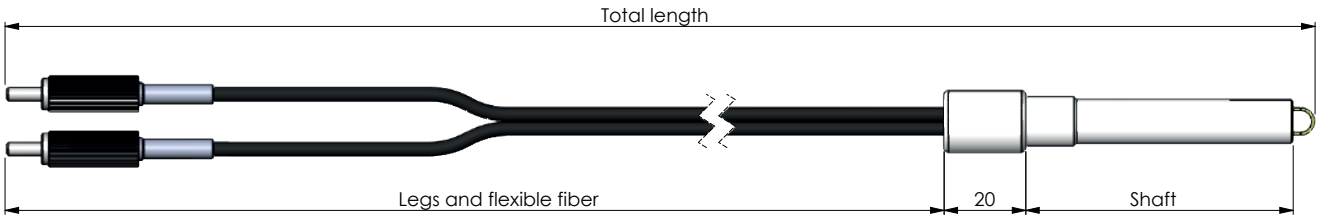


ATR Detachable Loop Fiber Probes

Probe Type	ATR for Detachable-PIR-Loops
Probe Shaft	OD = 10 mm, L = 80 mm
Shaft Material	PEEK
Total Length	1.1 ± 0.05 m
Flexible fiber	2 legs of 1.0 m length each
Terminations	2 x Ti-SMA905
Protection tubing	PEEK
Temperature	0 - +80°C
Pressure	0 - 3 Bar



Product Code	Article-No.	Tip Material	Spectral Range	Fiber Type
ATR-P-AgX-10-8-110/100	AP10100	PIR-fiber loop	600 - 3100 cm-1	PIR 900/1000
ATR-C-AgX-10-8-110/100	AP10106	PIR-fiber loop	1550 - 5000 cm-1	CIR 500/550



Detachable Loop Tips



Product Code	Quantity	Article-No.	Fiber Type	Loop length
Detachable Single PIR-Loops for DL-Probe	5 pcs	AP10109	PIR 700	5 ± 0,5 mm
Detachable Single PIR-Loops for DL-Probe	10 pcs	AP10031	PIR 700	5 ± 0,5 mm
Detachable Dual PIR-Loops for DL-Probe	5 pcs	AP10110	PIR 700	7 ± 0,5 mm
Detachable Dual PIR-Loops for DL-Probe	10 pcs	AP10111	PIR 700	7 ± 0,5 mm
Detachable Triple PIR-Loops for DL-Probe	5 pcs	AP10191	PIR 700	9 ± 0,5 mm
Detachable Triple PIR-Loops for DL-Probe	10 pcs	AP10238	PIR 700	9 ± 0,5 mm

Touch Diamond ATR Fiber Probes

Probe Type	ATR-probe
Sealing Material	Gold
Probe Shaft	OD = 6.3 mm
Shaft Material	Hastelloy C22
Total Length	1.5 ± 0.05 m
Flexible fiber	1.2 m, legs of 0.5 m length each
Terminations	2 x SMA905
Protection tubing	Stainless Steel with polymer coating



Product Code	Article-No.	Tip Material	Shaft OD	Spectral Range	Sealing	Fiber Type	Pressure, Temperature
ATR-P-DF-6-30-150/50	AP11938	Diamond	6.3 mm	600 - 1900 cm-1	Gold	PIR 900/1000	100 Bar, -150 - +140 °C

Fiber Probe Couplers

Fiber Probe Couplers are designed to connect Fiber Optic Probes with FTIR spectrometers and to perform the remote analysis and reaction monitoring. Mirror design of FlexiSpec® Fiber Probe Couplers provides high coupling efficiency for any probe used for process-spectroscopy in broad spectral range 1.5 - 17 µm.

Product Code	Article-No.	Compatible with	
Fiber Probe Coupler FPC-2M for iS5	AP10285	•Nicolet Summit FTIR •Nicolet iS 5 FTIR	
Fiber Probe Coupler FPC-2M for iS5N	AP11394	•Nicolet iS 5N FTIR	
Fiber Probe Coupler FPC-6M	AP10307	•Nicolet iS 10 FT-IR •Nicolet iS 20 FT-IR •Nicolet iS 50 FT-IR •Nicolet 5700/6700 •Nexus 670 (ThermoFischer Scientific) •Nexus 360 (ThermoFischer Scientific) •Equinox 55 (Bruker)* •Vector 22 (Bruker)* •IFS 25, 55, 66, 66V, 88 (Bruker)*	
Fiber Probe Universal Coupler	AP11380	any FTIR spectrometer •VERTEX 70v (Bruker) •Tensor 27, 37 (Bruker) •FP-8600 (JASCO) •IRSpirit (Schimadzu) •Agilent 600 Serie	
Fiber Probe Coupler for Cary 630	AP12312	Agilent Cary 630	
Fiber Probe Coupler for Spectrum Two	AP11586	Perkin Elmer Spectrum Two	
Fiber Probe Coupler for Alpha	AP11505	Bruker Alpha Bruker Alpha II	

Reference Cables

Product Code	Article No.	Termination	Fiber
Fiber Cable PIR400/500-50-TI/SMA-TI/SMA-MP37	AP10680	2 x SMA 905 connector, titanium ferrule	PIR 400/500, NA = 0,30 ±0.03
Fiber Cable CIR250/300-50-SMA-SMA-MP37	AP11124	2 x SMA 905 connector	CIR 250/300, NA = 0,30 ±0.03
Fiber Cable NIR200/220-50-SMA-SMA-MP37	AP11140	2 x SMA 905 connector	NIR 200/220, NA = 0,22 ±0,02

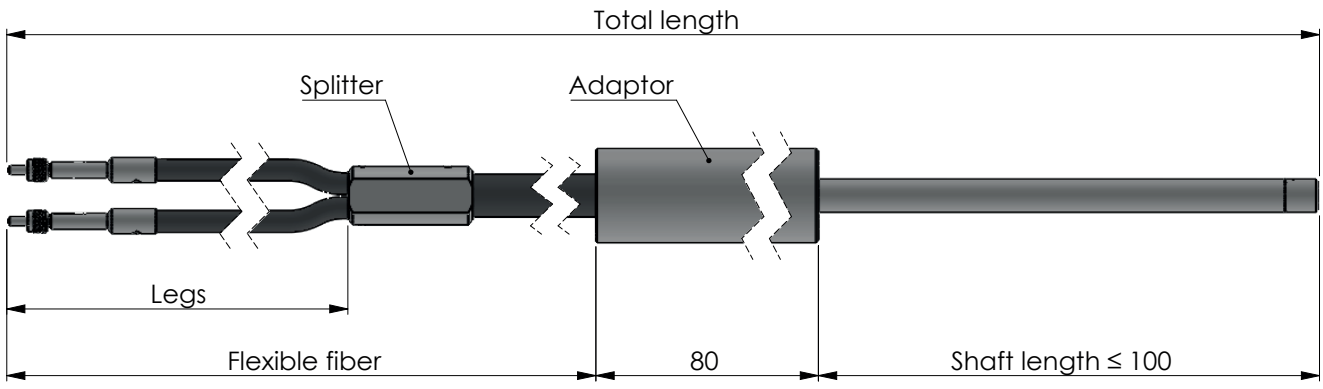
Raman Scattering Probes

Probe Type	Raman	Raman 3A standard
		
Window Sealing Material	Epoxy glue (optionaly PTFE or PEEK or Soldering)	Gold soldering
Window	Sapphire	Sapphire
Standard Laser Wavelengths*	532 and 785 nm	532 and 785 nm
Standard Spectral Range Cut-off**	190 cm-1 for 532 nm; 130 cm-1 for 785 nm	190 cm-1 for 532 nm; 130 cm-1 for 785 nm
Filter Efficiency	OD > 8 for Laser Rejection	OD > 8 for Laser Rejection
Illumination (Laser) Fiber	NIR105/125, NA = 0.22	NIR105/125, NA = 0.22
Collection (Detector) Fiber	NIR200/220, NA = 0.22	NIR200/220, NA = 0.22
Shaft Material	Stainless Steel 1.4404 / 316L	Stainless Steel 316L
Shaft Sealing Material	FPM	Welding
Total Length	2 ± 0.05 m	2 ± 0.05 m
Flexible fiber	1.7 m incl. legs 0.5m each	1.7 m incl. legs 0.5m each
Protection tubing	Stainless Steel with polymer coating	Stainless Steel with polymer coating
Terminations	FC/PC for Laser, SMA905 for Detector	FC/PC for Laser, SMA905 for Detector
Temperature	0 - +120 °C	0 - +120 °C
Pressure	0 - 20 Bar	0 - 20 Bar

* on request 532, 633, 830, 1064 nm and others

** on request 70 and 150cm-1

Product Code	Article-No.	Shaft OD	Shaft Length	Laser Spot
RS-785-S-12-20-200/50-FS	AP13XXX	12 mm	200 ± 5 mm	0.2mm at the tip
RS-532-S-12-20-200/50-FS	AP13XXX	12 mm	200 ± 5 mm	0.2mm at the tip
RS-785-S-6-10-200/50-FS	AP12941	6 mm	100 ± 5 mm	0.2mm at the tip
RS-532-S-6-10-200/50-FS	AP12784	6 mm	100 ± 5 mm	0.2mm at the tip
RS-785-S-12-10-500/50-FS-HY	AP12991	12 mm	100 ± 5 mm	0.2mm at the tip



Transflection Probes

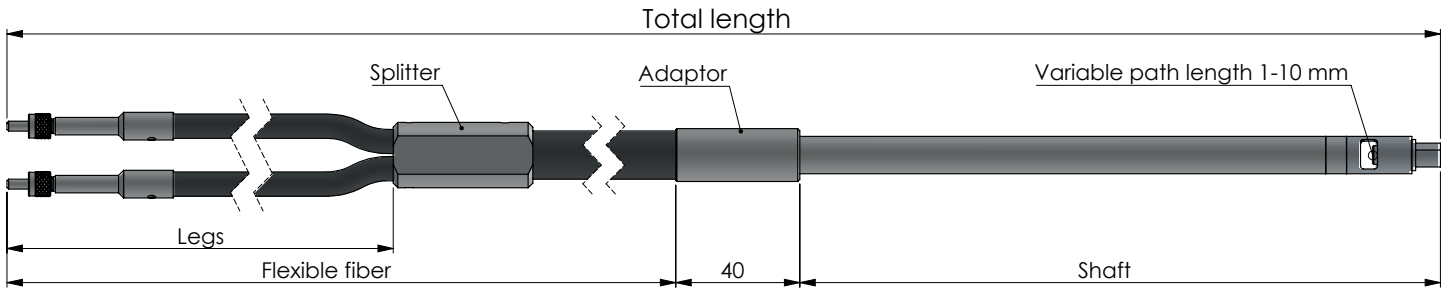
Probe Type	Transflection	
Configuration	variable optical path	fixed optical path tips
Optical Path	variable 0 - 10 mm	2; 5; 10mm gap (4; 10; 20mm path)
Sealing Material	PTFE	
Window	Sapphire	
Total Length	2 ± 0.05 m	
Flexible fiber	1.3 m, legs of 0.5 m length each	
Terminations	2 x SMA905	
Protection tubing	Metal, PVC coated	
Temperature	0 - +200 °C	
Pressure	0 - 50 Bar	
Industrial application	shaft connectection with extention cables; any type of flange	





Product Code	Article-No.	Shaft OD	Shaft Length	Shaft Material	Spectral Range *	Fiber Type
TF-NIR-S-12-20-200/50-SS	AP12406	12 mm	200 ± 5 mm	Stainless Steel 316L	400 - 2200 nm	NIR 600/660
TF-NIR-S-12-20-200/50-H	AP12279	12 mm	200 ± 5 mm	Hastelloy C22	400 - 2200 nm	NIR 600/660
TF-NIR-S-25-50-200/50-SS industrial	AP13xxx	25.4 mm	500 ± 5 mm	Stainless Steel 316L	400 - 2200 nm	NIR 600/660
TF-NIR-S-25-50-200/50-H industrial	AP13xxx	25.4 mm	500 ± 5 mm	Hastelloy C22	400 - 2200 nm	NIR 600/660

***** on request for UV-Vis spectral range (260 - 1200 nm)



3A-certified Transflection Probes

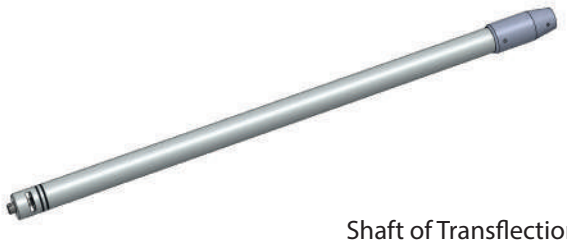
Probe Type	Transflection
Optical Path	0.5 mm (1 mm) standard; 2; 5; 10 mm (4; 10; 20 mm) on request
Sealing technology	gold soldered (Au-Sn)
Window	Sapphire
Probe Shaft	OD = 20mm, L = 21mm
Shaft Material	electro polished stainless steel 316L
Total Length	2 ± 0.05 m
Terminations	2 x SMA905
Protection tubing	hygienic food grade conduit and fittings
Temperature	5 - +200 °C
Pressure	0 - 50 Bar



Product Code	Article-No.	Spectral Range	Fiber type
TR-UV-S-20-7-200/30 Hygienic	AP 13xxx	0,2 – 1,3 µm	Silica UV-VIS 600/660 µm
TR-NIR-S-20-7-200/30 Hygienic	AP 12965	0.4 - 2.2 µm	Silica VIS-NIR 600/660 µm

Transflection and Transmission Shafts Industrial Design

Probe Type	Transflection		Transmission
Configuration	variable optical path	fixed optical path tips	fixed optical path
Optical Path	variable 0 - 10 mm	2; 5; 10mm gap (4; 10; 20mm path)	2 or 5 mm
Sealing Material	PTFE/gold		
Window	Sapphire/Silica		
Shaft Length	300-1000mm		
Terminations	2 x SMA905 adapters		
Temperature	0 - +200 °C		
Pressure	0 - 50 Bar		
Features	shaft connectection with extention silica cables 2-300m length; any type of flange		



Shaft of Transflection Probe



Shaft of Transmission Probe

Product Code	Article-No.	Shaft OD	Standard Shaft Length	Shaft Material	Spectral Range
TR-NIR-S-25-50-SS	AP12746	25 mm	500± 5mm	Stainless Steel 316L	400 - 2200 nm
TR-NIR-S-25--50-H	AP12xxx	25 mm	500± 5mm	Hastelloy C22	400 - 2200 nm
TF-NIR-S-25-50-SS	AP13xxx	25 mm	500± 5mm	Stainless Steel 316L	400 - 2200 nm
TF-NIR-S-25-50-H	AP13xxx	25 mm	500± 5mm	Hastelloy C22	400 - 2200 nm

Extention Silica cables

Spectral ranges	0.35–2.2µm (VIS-NIR)
Silica Fiber core\clad diameter	600\660 µm
Numerical Aperture	0.22 ± 0.02
Cable protective tube	double layer PVC tubing with Kevlar strain relief, OD=5,5mm, yellow, gas tight gel filling between layers
Connector Type	SMA 905 (hexagonal nut)
Cable length	2- 300m



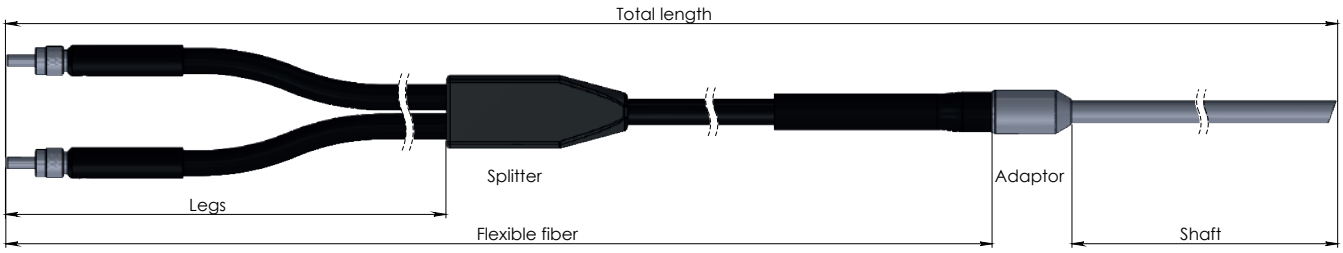
Product Code	Article-No.	Termination	Fiber type
Fiber Cable NIR600/660-xxxxx-SMA-SMA-PVC55+G	AP 1xxxx	2 x SMA 905 connector hex	NIR600/660, NA = 0,22 ±0.02

Reflection Probes

Probe Type	Reflection
Sealing Material	Glue EPOTEK 353 ND
Window	Sapphire, 20° angle
Probe Shaft	OD = 6 mm, L = 150 mm
Shaft Material	Stainless Steel 316L
Total Length	2 ± 0.05 m
Flexible fiber	1.35 m, legs of 0.5 m length each
Terminations	2 x SMA905
Protection tubing	Metal, PVC coated
Temperature	0 - +150 °C
Pressure	0 - 10 Bar



Product Code	Spectrometer Type	Article-No.	Bundle Arrangement	Spectral Range	Fiber Type
R-NIR-S-6-15-200/50-FT	FTIR (FT)	AP12488	3 + 4	380 - 2500 nm	NIR 600/660
R-NIR-S-6-15-200/50-DG	Diffraction Grating (DG)	AP12490	6 + 1	380 - 2500 nm	NIR 400/440
R-UV-S-6-15-200/50-DG	Diffraction Grating (DG)	AP12xxx	6 + 1	200 - 1200 nm	UV 400/440



Diffuse Reflection Probes

Probe Type	Reflection
Window	Sapphire
Sealing Material	PTFE
Probe Shaft	OD = 12 mm, L = 200 mm
Shaft Material	Hastelloy C22
Total Length	2 ± 0.05 m
Flexible fiber	1.3 m, legs of 0.5 m length each
Fiber Type	NIR 400/440
Bundle Arrangement	19 around 1
Terminations	2 x SMA905
Protection tubing	Metal, PVC coated
Temperature	0 - +200 °C
Pressure	0 - 50 Bar





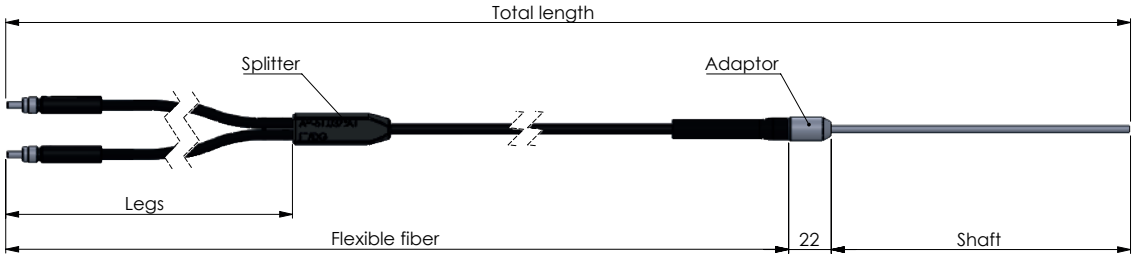
Product Code	Article-No.	Spectral Range
DR-NIR-S-12-20-200/50	AP12353	400 - 2200 nm
Side Line Reflection Probe 12-20-200/50	AP11049	400 - 2200 nm
Side Reflection Probe 12-20-200/50	AP10017	400 - 2200 nm

Reflection Fluo Probes

Probe Type	Reflection
Sealing Material	Glue EPOTEK 353 ND
Window	No
Probe Shaft	OD = 3.5 mm, L = 150 mm
Shaft Material	Stainless Steel 316L
Total Length	2 ± 0.05 m
Flexible fiber	1.55 m, legs of 0.3 m length each
Terminations	2 x SMA905
Protection tubing	KSP-4N, OD = 7 mm
Temperature	0 - +150 °C
Pressure	0 - 10 Bar



Product Code	Article-No.	Bundle Arrangement	Spectral Range	Detection Fiber Type	Illumination Fiber Type
R-NIR-3-15-200/30	AP10773	1 + 7	380 - 2500 nm	1 x NIR400/440	7 x NIR 400/440
R-UV-3-15-200/30	AP12xxx	1 + 7	200 - 1200 nm	1 x UV-VIS/AL 400/440	7 x UV-VIS400/440

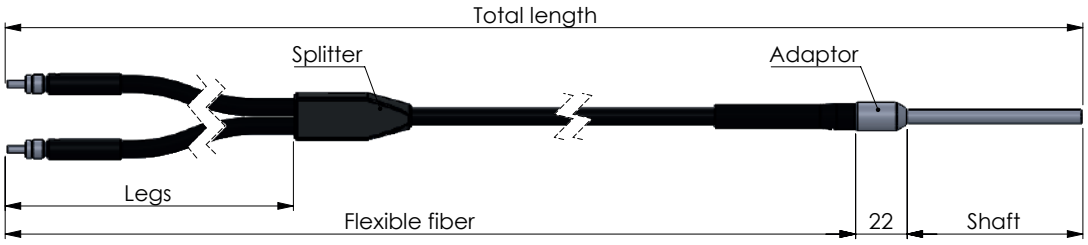


Reflection Mid-IR Probes

Probe Type	Mid-IR Reflection
Sealing Material	No
Probe Shaft	OD = 6.3 mm, L = 75 mm
Shaft Material	Stainless Steel 316L
Total Length	1.5 ± 0.05 m
Flexible fiber	0.9 m, legs of 0.5 m length each
Terminations	2 x SMA905
Protection tubing	Stainless Steel, OD = 7 mm
Temperature	0 - +80 °C
Pressure	1 Bar



Product Code	Article-No.	Bundle Arrangement	Spectral Range	Detection Fiber Type	Illumination Fiber Type
R-C23-6-7-150/50	AP12661	1 + 7	1600 - 7000 cm-1	1 x CIR 500/550	7 x CIR 250/300
R-P67-6-7-150/50	AP12xxx	1 + 7	600 - 2500 cm-1	1 x PIR 900/1000	7 x PIR 600/700
R-P45-6-7-150/50	AP12317	1 + 7	600 - 2500 cm-1	1 x PIR 900/1000	7x PIR 400/500



Reflection Probes Extruder design

Probe Type	Reflection
Sealing Material	PEEK
Window	Sapphire
Probe Shaft	1/2-20 UNF
Shaft Material	Stainless Steel 316L
Total Length	2 ± 0.05 m
Flexible fiber	1.8 m, legs of 0.3 m length each
Terminations	2 x SMA905
Protection tubing	KSP-4N, OD = 7 mm
Temperature	0 - +230 °C
Pressure	0 - 100 Bar



Product Code	Article-No.	Bundle Arrangement	Spectral Range	Detection Fiber Type	Illumination Fiber Type
R-NIR-10-15-200/30	AP12xxx	1 + 1	380 - 2500 nm	1 x NIR 1000/1100	1 x NIR 1000/1100

NIRaman Multichannel Combi Probes

Probe Shaft	
Sealing Material	Glue EPOTEK 353 ND
Window	Sapphire
Probe Shaft	OD = 19 +0/-0.1 mm, L = 170 mm
Shaft Material	Stainless Steel 316L
Total Length	3 ± 0.05 m
Protection tubing	Liquid Tight Protection (LTP)
Temperature	0 - +150 °C
Pressure	0 - 10 Bar
NIR Diffuse Reflectance Channel	
Illumination Bundle	19 x NIR400/440, NA=0.22 ± 0.02
Detection Fiber	1 x NIR400/440, NA=0.22 ± 0.02
Terminations	2 x SMA905
Raman Channel	
Laser Wavelength	785 nm
Excitation Fiber	1 x NIR105/125, NA=0.22 ± 0.02
Detection Fiber	1 x NIR200/220, NA=0.22 ± 0.02
Terminations	FC/PC, SMA905



Product Code	Article-No.
NIRaman Combi Probe	AP12242

ATR-Raman-Transflection Multichannel Combi Probes

Probe Shaft	
Sealing Material	FFKM O-Rings
Probe Shaft	OD = 25 +0/-0.1 mm, L = 505 ±5 mm
Shaft Material	Hastelloy C22
Total Length	shaft + fiber = 6.5±0.05m
Protection tubing	PVC coated steel tubing
Temperature	0 - +120 °C for shaft 0 - +60 °C for legs
Pressure	0 - 10 Bar
NIR Transflection Channel	
Spectral Range	900-2500 nm (12000-4000cm-1)
Fiber Type	low OH Fused Silica NIR600/660µm
Tip material	Sapphire Window
Optics	Hastelloy C22 mirror; Optical pathlength: 2mm; Gap: 1mm
Terminations	2 x SMA905
Raman Channel	
Spectral Range	100-3200cm-1 @785nm laser
Fiber Type	low OH Fused Silica: NIR105/125µm for illumination NIR300/330 for collection
Tip material	Sapphire Window
Optics	Optical filters and mirrors for Raman setup with 785nm excitation laser
Terminations	2 x FC/PC
Silicon ATR Channel / Diamond ATR Channel	
Spectral Range	3.2-17µm (3100 - 600cm-1) / 5.2-17µm (1900-600cm-1)
Fiber Type	silver halide AgClBr fibers 900/1000µm
Tip material	Silicon / Diamond
Optics	Silicon or Diamond
Terminations	2 x SMA905





ATR-Transflection 2 channels version

Product Code	Article-No.
ATR Raman Transflection NIR Combi Probe	AP12571
ATR Transflection NIR Combi Probe	AP12570

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art photonics GmbH
Rudower Chaussee 46
12489 Berlin
Germany
Telefon +49 (0) 30-6779 887-0
Telefax +49 (0) 30-6779 887-99
E-Mail sales@artphotonics.com