

# Quote

**NKT Photonics GmbH**

Schanzenstrasse 39, Bldg D9-D13  
51063 Cologne, Germany

**HiLASE Centre - Inst of Physics ASCR**

Att: Martin Smrz

Za Radnicí 828  
Dolní Brezany 25241  
CZ - Czech Republic

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SWIFT Code DABADEHH  
IBAN No. DE88203205004989039946

Customer number:  
Customer VAT no.:

Quote No: 6311  
Date: June 16, 2016  
Salesperson: Cato Fagermo  
caf@nktphotonics.com  
+45 2428 3832

Dear Martin

Thank you for your enquiry. We are pleased to offer you the following:

| Line No.               | Item No.      | Description  | Quantity | Price/unit  | Amount      |
|------------------------|---------------|--|----------|-------------|-------------|
| 1                      | C410-104-9980 | aeroGAIN-ROD-MODULE-2.0<br>PM85, 80cm[0°@1.0/0°@1.0] | 1,00     | € 10.995,00 | € 10.995,00 |
| 2                      | E203-440-150  | aeroGAIN FLEX 1.5 DC-200/40-<br>PZ-Yb, 1.5m, SMA-905 | 1,00     | € 4.495,00  | € 4.495,00  |
| 3                      | K50-050-24    | DC-200/40-PZ-Yb Bare fiber                           | 2,00     | € 1.920,00  | € 3.840,00  |
| 4                      | K50-1200      | Handling and shipping Freight<br>Fiber Components    | 1,00     | € 100,00    | € 100,00    |
| <b>Total Excl. VAT</b> |               |  |          |             | -           |

All prices in Euro

Delivery time is approximately 2 weeks ARO. If you need further information, please do not hesitate to contact us.

Best regards,

  
Cato Fagermo  
Sales Manager

Specifications according to attached datasheet(s)

Payment Terms: Net 30 days

Incoterms 2010: DAP end user destination

Country of origin: DENMARK

This offer is valid 30 days from today and is subject to NKT Photonics' General Terms & Conditions (attached)

# aeroGAIN-ROD module

High power PM ytterbium ROD fiber gain module

- Diffraction limited beam quality
- High peak power damage threshold
- Compact format
- High NA pump cladding
- AR coated end-caps
- Optimized for 1030-1040nm range
- Supports PM and non-PM amplification



## Applications

- Ultrafast high power pulsed lasers

aeroGAIN-ROD module is the ultimate in fiber amplification for pulsed lasers with a power handling previously only available in solid state configurations. With a  $3300 \mu\text{m}^2$  mode field area and high pump absorption, the aeroGAIN-ROD module offers up to ten times the performance of our aeroGAIN-FLEX and -BASE models. The excellent mode quality and easy coupling makes the aeroGAIN-ROD module an ideal gain medium for high power amplifiers.

The rugged aluminum body makes the module easy to handle and mount for both OEM integration and scientific laboratory setups. Integrated water cooling with quick coupling ensures efficient thermal management and a long maintenance-free lifetime of thousands of hours.

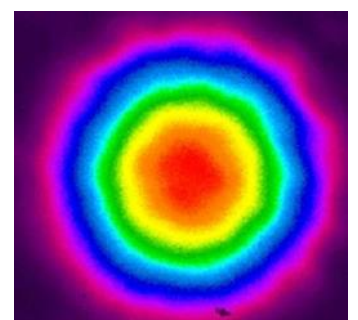
The pump light is guided by our proven airclad technology, with high reliability, high damage threshold and large NA. The modules comes standard with high power AR coated end-caps.

| Model | Signal core diameter | Mode field diameter ( $1/e^2$ @ 1040 nm) | Pump cladding diameter               |
|-------|----------------------|--|--------------------------------------|
| 1.0   | ~55 $\mu\text{m}$    | 45 $\mu\text{m} \pm 4 \mu\text{m}$       | 200 $\mu\text{m} \pm 10 \mu\text{m}$ |
| 2.0   | ~85 $\mu\text{m}$    | 65 $\mu\text{m} \pm 5 \mu\text{m}$       | 260 $\mu\text{m} \pm 15 \mu\text{m}$ |

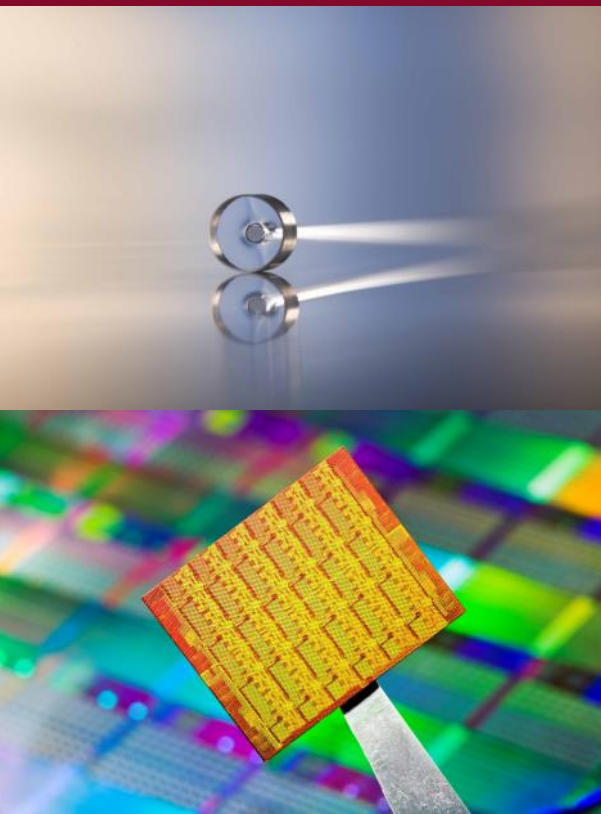
All aeroGAIN-ROD models are true single-mode gain modules leading to several advantages compared to standard multimode LMA fibers:

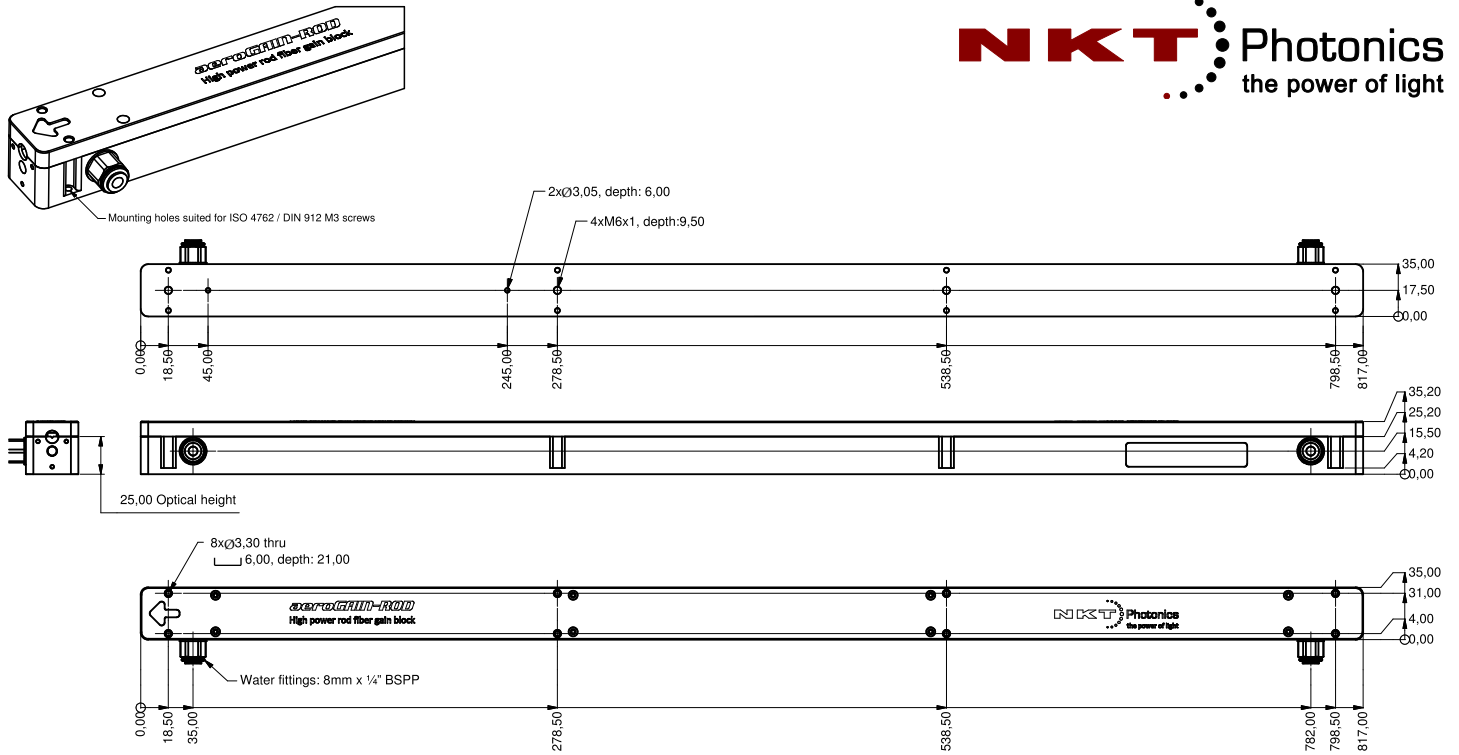
- Better output stability
- Excellent beam quality
- No coiling-induced mode area compression

See more at our website:  
[www.nktphotonics.com/aerogain-rod](http://www.nktphotonics.com/aerogain-rod)



Example of near field recorded at 1032 nm





## Specifications

|                                 |                   |
|---------------------------------|-------------------|
| Signal wavelength               | 1030-1040 nm      |
| Pump cladding NA (FWHM@950nm)   | ≥ 0.50            |
| Gain fiber length               | 804 mm ± 3 mm     |
| Cladding absorption@915nm       | 5 dB ± 0.5 dB     |
| Cladding absorption@976nm       | ~15 dB (nominal)  |
| Typical PER*                    | ≥15 dB            |
| Typical optical efficiency*     | ≥60%              |
| Typical M <sup>2</sup>          | ≤ 1.3             |
| End-cap dimensions (DxL)        | 6X5 mm            |
| End-cap coating R@ 1030 nm      | ≤ 0.2%            |
| End-cap coating R@ 976 nm       | ≤ 0.3 %           |
| End-cap angle                   | ≤ 0.5°            |
| Signal average power            | ≤ 100 W           |
| Dimensions (WxLxH)              | 35x817x35.2 mm    |
| Weight                          | 2.5 kg            |
| Water cooling connection        | 8 mm x 1/4" BSPP  |
| Recommended water flow**        | >2 L/min          |
| Recommended water temperature** | 20°C              |
| Operating temperature           | 20-30°C (ambient) |
| Storage temperature             | -20°C - +60°C     |

\*Seed level 5W @ 1032 nm, 80 cm rod length, 976nm pumping

\*\*We recommend using DI water containing an anticorrosive additive to protect the aluminum cooling circuit. Required water flow and water temperature depends on the actual optical system parameters.

All NKT Photonics products are produced under our quality management system certified in accordance with the ISO 9001:2008 standard.



aeroGAIN-ROD\_module-141103

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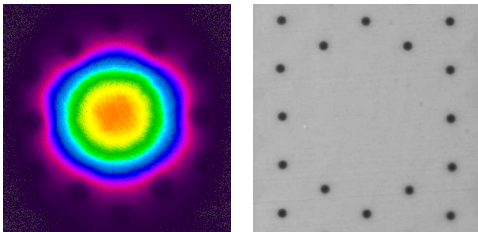
**NKT Photonics Inc.**  
 1400 Campus Drive West  
 Morganville NJ 07751, USA  
 Phone: +1 732 972 9937



# DC-200/40-PZ-Yb

Single-mode, polarizing double-clad Ytterbium-fiber with large mode area

- Single mode, single polarization
- Large mode area
- High NA circular pump core
- High pump absorption - no skew rays
- Coil Control\* ensuring excellent stability



With a mode area of more than  $700 \mu\text{m}^2$ , the DC-200/40-PZ-Yb represents the best in flexible single-mode ytterbium fibers and the single polarization core improves PER compared to normal PM fibers.

The multimode pump light is guided by our proven airclad technology, ensuring low loss, high damage threshold and a large NA. The large NA relaxes tolerances on coupling optics and facilitates the use of lower brightness diodes.

The combination of robust single-mode guidance, excellent PER and a large mode-area, has made the DC-200/40-PZ-Yb the preferred choice for many industrial fiber laser manufactures in the high end segment.

Also available with high power SMA connectors in our aeroGAIN FLEX range.

## Specifications

### Signal core

|                               |                             |
|-------------------------------|-----------------------------|
| Mode properties               | Single mode                 |
| $M^2$ @ 1064 nm (typical)     | $\leq 1.3$                  |
| Mode field diameter @ 1064 nm | $31 \pm 2 \mu\text{m}$      |
| Mode field area (calculated)  | $760 \pm 100 \mu\text{m}^2$ |
| NA @ 1064 nm                  | $\sim 0.03$                 |

### Multimode pump core

|                                    |                         |
|------------------------------------|-------------------------|
| Numerical aperture @ 950 nm        | $0.60 \pm 0.05$         |
| Pump absorption @ 915 nm           | $\sim 3.5 \text{ dB/m}$ |
| Pump absorption @ 976 nm (nominal) | $\sim 10 \text{ dB/m}$  |

### Polarization Parameters

|   |                        |
|---|------------------------|
| Birefringence $\Delta n$ @ 1100 nm                | $\geq 1 \cdot 10^{-4}$ |
| Polarization Extinction Ratio (typical) @ 1064 nm | $\geq 15 \text{ dB}$   |

### Physical Properties

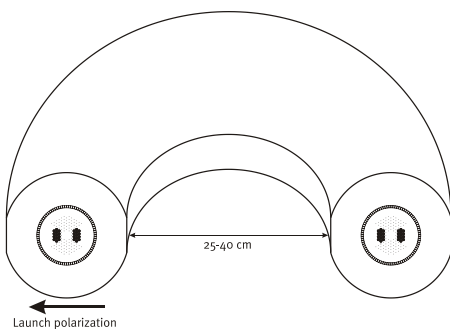
|                                   |                           |
|-----------------------------------|---------------------------|
| Signal core diameter              | $\sim 40 \mu\text{m}$     |
| Inner cladding diameter           | $200 \pm 2 \mu\text{m}$   |
| Outer cladding diameter           | $450 \pm 20 \mu\text{m}$  |
| Coating diameter                  | $540 \pm 30 \mu\text{m}$  |
| Outer and inner cladding material | Pure silica               |
| Coating material, single layer    | High temperature acrylate |

**\*Coil Control** ensures that the fiber coils in one plane leading to superior mode stability and easy use. We recommend a 25-40 cm coiling diameter and operating the fiber in the slow (in-plane) axis. Degradation of PER and efficiency can occur if the fiber is forced to coil in a different plane or twisted in the coil.

## The single mode advantage

All our fibers are single-mode leading to several advantages compared to standard multimode LMA fibers:

- Better output stability
- Excellent beam quality
- No need for tight coiling



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## *aeroGAIN-FLEX*

*DC-200/40-PZ-Yb assemblies with high power terminations*



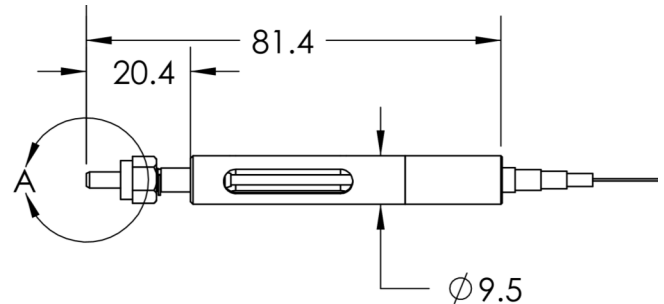
- Single-mode with very large mode area
- Easy to use SMA-905 termination
- Configurations for 915 nm and 975 nm pumping
- End-sealed for high reliability
- Coil Control ensuring excellent stability

The *aeroGAIN-FLEX* assemblies include our most popular flexible fiber used for high power 1 micron amplification. The fiber offers performance beyond conventional fibers, with truly single mode operation, large mode area for high power handling and low nonlinearities, superior beam quality, and polarization features. The fibers are sealed and connectorized with SMA-905 high power connectors, offering a hermetic and robust end treatment.

These assemblies are offered in several standard configurations based on the most common customer requests, and are off-the-shelf for reduced lead times. Please contact us if you are interested in an alternative configuration.

### Applications

- High pulse energy fiber amplifiers
- Fiber lasers



The High Power SMA-905 Connector (dimensions in mm— see separate data sheet for more details)

### End sealing

As a part of the connectorization process, the fiber is hermetically sealed at the end. This is done by collapsing the air-filled microstructure. The sealing prevents contamination from entering the fiber through the holes and provides a cleanable solid interface.

The sealing length is  $50 \pm 49 \mu\text{m}$  and does not affect the high NA of the pump cladding.

### Configuration Parameters

| Configuration      | <i>aeroGAIN-FLEX</i> 1.5        | <i>aeroGAIN-FLEX</i> 2.5        | <i>aeroGAIN-FLEX</i> 3.0        | <i>aeroGAIN-FLEX</i> 5.0        |
|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Fiber Type*        | DC-200/40-PZ-Yb-03              | DC-200/40-PZ-Yb-03              | DC-200/40-PZ-Yb-03              | DC-200/40-PZ-Yb-03              |
| Fiber Length       | 1.5m +5/-2 cm                   | 2.5m $\pm$ 5 cm                 | 3.0m $\pm$ 5 cm                 | 5.0m $\pm$ 10 cm                |
| End 1 Termination* | Sealing + SMA-905<br>5 $\pm$ 1° | Sealing + SMA-905<br>5 $\pm$ 1° | Sealing + SMA-905<br>5 $\pm$ 1° | Sealing + SMA-905<br>5 $\pm$ 1° |
| End 2 Termination* | Sealing + SMA-905<br>5 $\pm$ 1° | Sealing + SMA-905<br>5 $\pm$ 1° | Sealing + SMA-905<br>5 $\pm$ 1° | Sealing + SMA-905<br>5 $\pm$ 1° |

\* Please refer to the individual fiber and termination product sheets for detailed specifications

aeroGAIN-FLEX-110902

# SMA-905 High Power Connector

- High power capability
- Cladding mode stripper
- Sealed, cleanable ends
- Damage resistant polish
- Compatible with SMA hardware
- Angle polish available
- PM fiber alignment

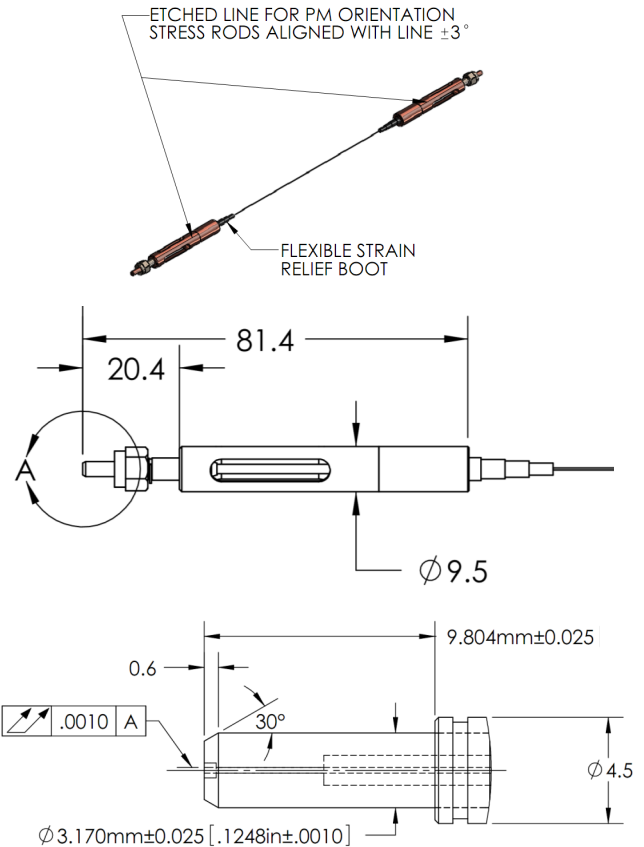
The SMA-905 connector is made to be used with solid core Photonic Crystal Fibers (PCF) at applications requiring high power levels.

The connector has an end which is sealed and polished to an exceptional surface finish, and the sides of the connector features an effective stripping of excess pump light.

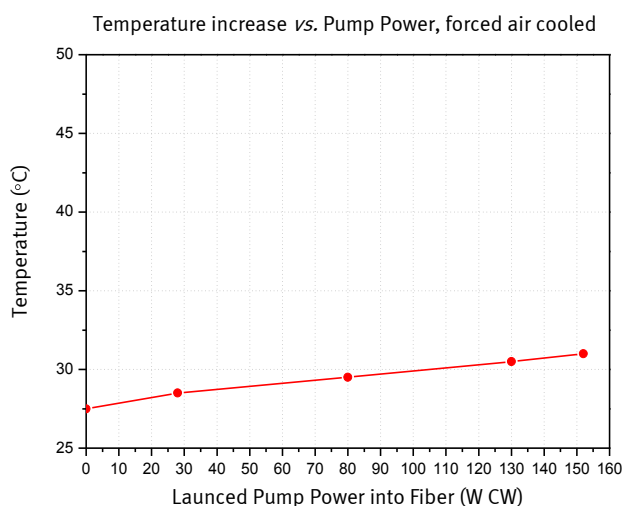
The connector is made from precision machined copper to increase thermal conductivity for reliable operation and a high power handling capability.

It is specially optimized for use with high power diode laser pump sources, such as those commonly used to pump active airclad fiber lasers/-amplifiers.

The connector can also be used with Large Mode Area and High NA fibers.



## Temperature behaviour of connector



## End sealing and end-caps

As a part of the connectorization process, the fiber is hermetically sealed at the end. This can be done by collapsing the microstructure (traditional sealing) or by splicing on a pure silica end-cap with the same diameter as the fiber itself.

The sealing causes the mode to diverge towards the end facet, resulting in a higher damage threshold of the fiber due to the lower intensity on the facet.

The sealing does not affect the high NA of the pump cladding.

## Custom Options\*

- Angle polishing 0-8°
- fiber sealing length 50-10,000 µm
- Rotational alignment

\* Exact options available depend on the fiber to be connectorized

SMA-905 high-power connector-110816

**General Terms**  
**NKT Photonics GmbH**  
*Valid as of May 22<sup>nd</sup>, 2013*

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**1. Scope and Applicability**

NKT Photonics GmbH, [www.nktphotonics.com](http://www.nktphotonics.com), Commercial Register Cologne HRB 65845, ("NKT Photonics") is engaged in the development, manufacture and sale of microstructured fibres, high power amplifiers, ultra precise DFB fibre lasers, fibre based white light lasers and related products ("Products"). Unless otherwise expressly agreed in writing, these General Terms ("Terms") shall apply between NKT Photonics and its customers ("Customers") with respect to all Products sold and any Services performed by NKT Photonics. NKT Photonics shall not be liable for issues occurring as a result of wear and tear

**2. Delivery of Products**

Products are delivered FCA (Incoterms 2000) Birkerød (3460), Denmark. If NKT Photonics undertakes to engage a freight forwarder on the Customer's behalf, the passing of risk and other consequences of the prescribed delivery term shall not be altered thereby. If NKT Photonics realises that an agreed delivery date cannot be adhered to, NKT Photonics shall without undue delay inform the Customer thereof and indicate the expected duration of the delay. THE CUSTOMER SHALL BE ENTITLED TO FIRST CANCEL A DELAYED ORDER, IF THE DELAY IS MATERIAL AND PROVIDED THE CUSTOMER HAS GIVEN NKT PHOTONICS IN WRITING A NOTICE TO HAVE THE DELAY REMEDIED WITHIN A REASONABLE PERIOD OF TIME. ANY CLAIM FOR DAMAGES DUE TO DELAY OF DELIVERY BY NKT PHOTONICS SHALL BE LIMITED TO 5% OF THE PRICE FOR THE DELAYED PRODUCTS. ANY CLAIM FOR DAMAGES LAPSES, IF NOT FORWARDED TO NKT PHOTONICS WITHOUT UNDUE DELAY. ANY FURTHER CLAIMS DUE TO DELAY SHALL BE EXCLUDED. With respect to continuous deliveries of Products, the Customer shall not be entitled to cancel parts of such orders that are not delayed.

**3. Performance of R&D Services ("Services")**

NKT Photonics shall ensure that ordered Services are performed conscientiously and with the optimum utilisation of the expertise at NKT Photonics' disposal. If a budget has been agreed, NKT Photonics shall obtain the Customer's consent before incurring costs that can reasonably be expected to exceed the total budget. During the performance of the Services, NKT Photonics shall produce periodic information containing a summary of the type of work performed and results achieved, as well as an assessment of the progress made towards completion of the Services.

If employees of the Customer are to be based at NKT Photonics in connection with performance of Services or otherwise work closely together with NKT Photonics, such employees shall at any time comply with NKT Photonics' operating and safety instructions, and upon request sign personal non-disclosure agreements. Such employees shall remain the Customer's liability.

If it becomes apparent that a milestone or deadline will be materially exceeded, NKT Photonics shall inform the Customer of the fact and the parties shall agree on reasonable measures to be applied.

NKT PHOTONICS SHALL UNDER NO CIRCUMSTANCES BE LIABLE IN THE EVENT OF DELAY OF SERVICES, NOR IF THE OBJECTIVE OF THE SERVICES IS NOT OBTAINED.

**4. Built to Order Deliveries**

Customer may request delivery of custom built products based on the specifications and instructions of the Customer. It is inherent to such orders that the successful outcome of NKT Photonics' development efforts cannot be guaranteed. Provided NKT Photonics has used professional and reasonable efforts in performing the order NKT Photonics shall not be liable for any failure to meet Customer specifications and instructions. NKT Photonics shall be entitled to payment for development efforts undertaken and any products delivered based on such efforts, irrespective of the outcome of such efforts.

**5. Permitted Variations**

It is understood that target specifications and approximate values only shall be understood as an obligation on behalf of NKT Photonics to make reasonable and professional endeavours to reach such specifications and values.

**6. Intellectual Property Rights**

NKT Photonics retains all right, title and interest in and to (i) all inventions, ideas, processes, methods, know-how, skills and techniques embodied in or represented by Products, Services, specifications and materials provided by NKT Photonics to the Customer; and (ii) all inventions, ideas, processes, methods, know-how, skills and techniques developed, discovered or conceived by NKT Photonics or its employees in connection with or used for the development and/or manufacture of Products and Services, including, but not limited to, patent rights, copyrights, trade secret rights, mask work, design rights, trademark rights and/or other proprietary rights throughout the world.

The sale of any product or service by NKT Photonics shall not in any way confer upon the Customer, or upon anyone claiming under the Customer, any express or implied license to any intellectual property rights of NKT Photonics.

**7. Confidentiality**

The Customer shall maintain as confidential and refrain from using or misappropriating any information of NKT Photonics provided to the Customer by NKT Photonics which in writing or orally is designated as being confidential or which is of a confidential nature.

**8. Prices and Payment**

All prices are exclusive of any applicable sales or value added taxes as well as transportation and insurance charges. Such taxes and charges will be stated separately on invoices. Services shall be paid for according to (i) an agreed payment schedule with respect to lump sums or, in the absence thereof, (ii) monthly invoices based on NKT Photonics' hourly rates (calculated in half-hour intervals) and rates for the use of special equipment plus expenses incurred for materials, travel, deliveries from sub-suppliers etc. Prices and rates may be adjusted once a year as of 1<sup>st</sup> January. All payments shall be effected in EUR no later than 30 days from the date of the invoice. In the event of delayed payment, NKT Photonics shall upon giving one week's notice be entitled to terminate all, or some, pending deliveries or Services. Simultaneously, all outstanding amounts shall fall due regardless of previously granted terms of credit. On delayed payments an interest of 2.5% per commenced month is accrued. Until payment has been received in full by NKT Photonics, title to the Products shall remain with NKT Photonics, and in the event of non-payment, NKT Photonics shall, in addition to all other rights and remedies available to it, be entitled to recover possession of the Products.

**9. Limited Warranty**

NKT Photonics warrants that its Products shall be manufactured in accordance with good workmanship. THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. NKT PHOTONICS DOES NOT WARRANT ANY functionality of designs, etc. furnished by the Customer. The Customer shall examine the Products upon receipt and any alleged breach of warranty shall be notified to NKT Photonics immediately. THE SOLE LIABILITY OF NKT PHOTONICS FOR BREACH OF WARRANTY SHALL BE THE PROMPT REPLACEMENT OF NON-CONFORMING PRODUCTS. If such corrective actions fail within a reasonable period of time, the Customer shall be entitled to a price reduction or to cancel the purchase of the non-conforming Products. THE WARRANTY EXPIRES 12 MONTHS AFTER THE DELIVERY OF PRODUCTS. In case of a warranty claim where the product(s) must be returned to NKT Photonics the customer will bear the cost of freight to our service point (Blokken 84, 3460 Birkerød - Denmark), whereas NKT Photonics will bear the cost of return freight to the customer. The customer has to bear the freight both ways if the product is out side of warranty period.

**10. Infringement**

NKT Photonics warrants that to the best of its knowledge off-the-shelf Products and the production processes applied for manufac-

**General Terms**  
**NKT Photonics GmbH**  
**Valid as of May 22<sup>nd</sup>, 2013**

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turing such Products will not infringe any third party's copyrights, patents, trade secrets, or other proprietary rights. NKT Photonics, at its expense, will defend the Customer against any claim based on an allegation of such infringement, and NKT Photonics will pay any resulting costs and damages awarded against the Customer that are attributable to such infringement and will pay the part of any settlement that is attributable to such infringement provided that (1) the Customer notified NKT Photonics promptly in writing of the claim; (2) NKT Photonics was permitted full control of the defence or settlement of the claim; and (3) the Customer cooperated reasonably in such defence or settlement at NKT Photonics' expense. In its defence or settlement of any such claim, NKT Photonics may at its discretion: (A) procure for the Customer a right to continue using or selling the Products; (B) modify the manufacturing process so that the use or selling of the Products becomes non-infringing but still retains at least the same form, fit and level of functionality and performance; or (C) replace the Products with equivalent devices not subject to such claim.

NKT PHOTONICS' DUTY OF INDEMNIFICATION IS IN LIEU OF ANY AND ALL OTHER REMEDIES OF THE CUSTOMER WITH RESPECT TO INFRINGEMENT AND SHALL ONLY BE VALID IN COUNTRIES DESIGNATED BY THE CUSTOMER WHEN PURCHASING PRODUCTS.

NKT PHOTONICS DOES NOT WARRANT THAT THE RESULTS OF ITS SERVICES DO NOT INFRINGE ANY THIRD PARTY'S COPYRIGHTS, PATENTS, TRADE SECRETS, OR OTHER PROPRIETARY RIGHTS.

NKT Photonics shall not be liable for nor shall NKT Photonics have any obligation to defend and/or settle any claim for any infringement or other violation of any third party's copyrights, patents, trade secrets, or other proprietary rights (i) arising from compliance with or use of the Customer's specifications, designs or instructions, or (ii) relating to the Customer's use of any product furnished hereunder in combination with any other item(s), whether or not furnished by NKT Photonics. The Customer shall indemnify and hold NKT Photonics harmless in respect of any claim made against NKT Photonics relating to (i) or (ii) above. NKT Photonics shall not be liable towards the Customer for failure to deliver Products due to circumstances described under (i) and (ii) above.

#### **11. General Limitations of Liability**

NKT PHOTONICS SHALL IN NO EVENT BE LIABLE FOR ANY LOSS OR DAMAGE ARISING, DIRECTLY OR INDIRECTLY, FROM THE USE OF THE PRODUCTS OR THE SERVICES OR FOR ANY SPECIAL, INCIDENTAL, INDIRECT, EXEMPLARY OR CONSEQUENTIAL LOSS OR DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF OPPORTUNITY, USE, INCOME OR PROFIT, OR INTERRUPTED OPERATION, NOR SHALL NKT PHOTONICS BE LIABLE FOR ANY POST-PROCESSING OR MISAPPROPRIATE USE, HANDLING OR EXPOSURE OF THE PRODUCTS OR BASED ON THE SERVICES. NKT PHOTONICS CANNOT BE HELD RESPONSIBLE IF NKT PHOTONICS' PRODUCTS OR SERVICES FAIL TO PRODUCE THE REQUIRED OR EXPECTED RESULT NOR FOR COSTS DEFRAID IN VAIN.

NKT PHOTONICS' AGGREGATE LIABILITY WHETHER IN CONTRACT, WARRANTY, TORT OR OTHERWISE, ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM THE PERFORMANCE OR NON-PERFORMANCE OF ANY AGREEMENT SHALL IN NO EVENT EXCEED THE LESSER OF SUMS PAID BY THE CUSTOMER TO NKT PHOTONICS DURING THE 12 MONTHS PRIOR TO THE CUSTOMER BECOMING AWARE OF THE BASIS FOR A CLAIM TOWARDS NKT PHOTONICS, OR EUR 50,000.

NKT PHOTONICS CANNOT BE HELD LIABLE FOR ANY LOSS OR DAMAGES UNLESS A WRITTEN REQUEST FOR COMPENSATION IS MADE WITHIN 6 MONTHS AFTER THE DELIVERY OF THE PRODUCTS OR THE PERFORMANCE OF THE SERVICES TO WHICH THE LIABILITY RELATES.

#### **12. Indemnification – Product Liability et al**

THE CUSTOMER SHALL BE ENTIRELY RESPONSIBLE FOR THE USE TO WHICH IT PUTS THE PRODUCTS OR THE SERVICES. For personal injuries and damage to consumers' goods, NKT Photonics remains liable in accordance with applicable mandatory laws, however, NKT Photonics disclaims all liability for damage arising from the fact that recognised scientific and technical expertise later proves to be incorrect or defective. THE CUSTOMER SHALL, NONE-THE-LESS, INDEMNIFY

NKT PHOTONICS FOR ANY LOSS OR DAMAGE RESULTING FROM THE CUSTOMER'S, ITS EMPLOYEES' AND ITS CUSTOMERS' USE OF THE PRODUCTS AND THE SERVICES, OR CAUSED BY THE PRODUCTS OR THE SERVICES, INCLUDING PRODUCT LIABILITY, AS WELL AS ANY DAMAGES IN EXCESS OF THE GENERAL LIMITATION SET OUT IN THE ABOVE CLAUSE.

#### **13. Termination**

In the absence of any other written agreement, each party may terminate the performance of Services with one month's written notice. If it becomes apparent to NKT Photonics that a successful outcome of its Services is unlikely, NKT Photonics may terminate its performance of Services with immediate notice.

#### **14. Force Majeure**

NKT Photonics shall not be liable for any delay or failure to perform, if such delay or failure results from fire, explosion, labour dispute, earth quake, casualty or accident, lack or failure of transportation facilities, epidemic, flood, drought, or by reason of war, declared or undeclared, revolution, civil commotion, the act of a public enemy, blockade or embargo, act of God, any inability to obtain any requisite license, permit or authorization, or by reason of law, proclamation, regulation, ordinance, demand, or requirement of any government, late or defective deliveries from sub-suppliers or by reason of any other cause whatsoever, whether similar or dissimilar to the enumerated, beyond the reasonable control of NKT Photonics. With respect to labour disputes, NKT Photonics shall not be obliged to accede to any demands being made by employees or other personnel. All such causes entitle NKT Photonics to a postponement of the performance of its duties equal to the delay resulting from such cause. However, the Customer shall be entitled to terminate an affected order or delivery if and when the delay has exceeded 90 days.

#### **15. Survival of Certain Provisions**

All obligations, liabilities and limitations that, by their nature, are intended to survive expiration or termination shall remain in effect beyond any expiration or termination.

#### **16. Disputes and Choice of Law**

Unless the parties agree otherwise and except as stated below, any dispute arising out of or in connection with the present contract shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said Rules ([www.iccwbo.org/court/english/arbitration/rules.asp](http://www.iccwbo.org/court/english/arbitration/rules.asp)). German law, except its choice of law rules, shall apply. The place of Arbitration shall be Cologne, Germany.

Notwithstanding the above, as an alternative to arbitration NKT Photonics may at its discretion and only prior to instigation of arbitration proceedings elect to sue the Customer in an ordinary court of law having jurisdiction over the matter.

#### **17. Export Control & Other Legislative Requirements/Restrictions**

Products of NKT Photonics might be subject to national or international export control legislation and other legislative requirements/restrictions. Accordingly, it might be necessary for NKT Photonics to - in collaboration with Customer - obtain approvals from relevant national and/or international authorities prior to shipment. Accordingly, NKT PHOTONICS RETAINS THE RIGHT TO CANCEL AND/OR POSTPONE ANY ORDERS FOR WHICH ALL NECESSARY EXPORT CONTROL AND/OR OTHER PUBLIC APPROVALS, REGISTRATIONS AND/OR FILINGS HAVE NOT OR CANNOT BE PERFORMED, OBTAINED AND/OR APPROVED BY RELEVANT AUTHORITIES OR PUBLIC BODIES. NKT Photonics shall not be liable, whatsoever, for any loss or damage of the Customer arising out of NKT Photonics' cancellation of an order based on this Clause.