

TECHNICAL REQUIREMENTS
MASK AND GOGGLES

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# **Introduction**

## Scope

This technical specification describes the below products

|  |
| --- |
| **Name** |
| GOGGLES |
| COMPLETE COVERING MASK |

## Areas of use

The mask and goggles will primarily be used for protection against cold environment. To protect the eyes and face while operating snow scooters, other open vehicles and boats in harsh environments can be mentioned especially. The goggles are likely to also be used as general, all-weather driving goggles in all climatic conditions. The mask and goggle may be used separately or combined based on the operating circumstances. When the articles are used combined, they are expected to be compatible and provide protection as an integrated system. The products will be used by all branches of the Norwegian Armed Forces.

## General expectation

The products shall fulfil the expectations according to the Scenario (see attachment B1) and this specification and shall satisfy the product requirements as described in chapter 1.2, as well as the accompanying technical requirements as listed in chapter 4.

# **Term and definitions**

## Supplier

The supplier is the company that supplies goods or services to The Norwegian Armed Forces.

## System

When referring to «system», this is to be understood as the goggle and mask combined.

## Shall-requiremnets

A SHALL-requirement describes the minimum product requirement that SHALL be fulfilled. SHALL requirements are not subject for evaluation, but will be graded *fulfilled* or *not-fulfilled*. Lack of fulfilling a SHALL-requirement may cause rejection of the product.

## Should-requirements

A SHOULD-requirement is a requirement that SHOULD be fulfilled for the product to be in compliance with the function and quality requirements. The fulfilment of should-requirements will be evaluated and scored according to the description in the Del 1 regler for anskaffelsen punkt 5.2.1.

## N/a

Means not applicable. No information/requirement is not given or isn’t relevant.

## Documentation

The documentation requirement indicates how the supplier must document that the requirement is fulfilled. Each requirement will describe the need for documentation. Below follows definitions of the different types of documentation:

### Confirmation

A confirmation is a written statement from the supplier stating that the requirement has been met. May be presented as a checked box, if so is indicated in the specific requirement.

### Supplier’s description

A supplier’s description describes how the requirement is fulfilled. The description is clearly marked with the requirement number it describes.

### Product data sheet

A product data sheet is a document that describes the product and lists specific product properties. The product data sheet shall verify fulfilment of requested properties. If any additional information is required for the product data sheet this will be specified in each requirement.

### Product sample

A product sample is a sample showing the minimum quality that The Norwegian Armed Forces can expect in the event of delivery. If deviations from this definition, eg. if other colours are accepted on product samples, this will be described.

#### Certificate

A certificate is a document issued by a notified body that confirms that the properties of the product are aligned with applicable requirement.

#### Test report

A test report is a report issued by an accredited test laboratory.

### User evaluation

When requirements list the verification as “user evaluation”, applicable Armed Forces unit(s) will perform a user test with an accompanying evaluation. Testing will be designed to verify or evaluate applicable requirements and will be coordinated by NDMA.

## References to standards in the technical requirements

The specific standards, brands, recommendations and guidelines that are referenced in this document are internationally acknowledged testing methods and commonly used in accredited test laboratories. These can as a general rule, not be substituted with other test standards. If it is specifically stated in the requirement that this may be fulfilled by using equivalent standards, brands, recommendations and guidelines, the supplier has to thoroughly document that the alternative fully comply with all items related to the reference given in the requirement.

## Laboratory testing

In cases where it is specified that laboratory tests will be performed, those will be performed by NDMA at an accredited laboratory. In the case of any discrepancies between the submitted documentation and such test reports, the results from the test reports will be applicable.

NDMA will only initiate laboratory tests where this is stated in the column “Documentation requirements”. However, NDMA reserves the right to perform additional testing if required.

# **Technical requirements**

This chapter describes the technical requirements for the products, and contains SHALL- and SHOULD-requirements as defined in chapter 2.

The supplier must document that the specified requirements are fulfilled and the fulfilment must be documented according to the description in the column “Documentation requirements”.

The supplier must include reference on where to find relevant documentation in the column “Documentation reference”

## Requirements breakdown

The requirements are presented in the following tables.

Table 1 contains the specific requirements for the goggles.

Table 2 contains the specific requiremenst for the mask.

Table 3 contains the requirements for the system, i.e. the goggles and mask used together.

###

**The completed tables are to be enclosed with other documentation.**

***Table 1: Goggles***

| **no** | **Type of requirement** | **Requirement** | **Test standard/Verification** | **Documentation requirements** | **documentation reference/Response from supplier** |
| --- | --- | --- | --- | --- | --- |
| 1.01 | Shall | Ballistic protectionThe goggle shall comply with EN 166:2001 – 7.2.2 or equivalent, hereunder providing protection from medium energy impact (B). | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.02 | Shall | Ballistic protection in extremes of temperaturesThe goggle shall comply with EN 166:2001 – 7.3.4 or equivalent, hereunder providing protection from medium energy impact (B). | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.03 | Shall | Technical compatibility with other articlesThe goggles shall not impair with the functionality of helmet mounted with night vision goggles (NVG) and weapon systems/sights (HK416 and MP7 rifles and aimpoint M4 and Micro sights), when used together with these systems. |  User evaluation: The goggles will be tested with the systems mentioned in the requirement  | Product sample |  |
| 1.04 | Shall | LensesThe goggles shall be delivered with three lenses: clear, contrast and dark according to EN 172:1994 or equivalent. | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.05 | Shall | LensesThe goggle shall have mono lens, in all three lenses. | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.06 | Shall | CompatibilityThe goggles shall be possible to use both with and without helmet | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.07 | Shall | InsulationThe goggles shall be design to avoid hard plastic or rubber in direct skin contact when worn. | User evaluation: Goggles will be worn and inspected | Product sample |  |
| 1.08a | Shall | Prescription correctionIt shall be possible to use Rx inserts or similar for prescription correction in the goggles. Such inserts shall be possible to order separately  | Visual inspection of documentation. | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.08b | Shall | Prescription correctionSuch inserts as described in NO. 108a, shall be possible to order separately | Visual inspection of documentation. | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.09 | Shall | MarkingThe goggles lenses and frame shall be marked with relevant technical information according to EN 166:2001 – 9 or equivalent. | Visual inspection | Product sample |  |
| 1.10 | Shall | LensesThe lenses shall be interchangeable without the use of tools | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.11 | Shall | ColourThe goggles shall be delivered in a neutral black/dark colour. | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.12 | Shall | UV radiationThe goggles shall protect the eyes against UV-A and UV-B in accordance with EN170, grade 2/2C protection or equivalent.  | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |
| 1.13 | Shall | Fit for military useThe goggles shall score 5 or more as complete average on all should-requirements to be deemed fit for military use | Final evaluation | N/A |  |
| 1.14 | Shall | Carrying caseThe goggle shall be delivered in a suitable bag/cover to use to protect the goggles and extra lenses when stored and transported. | Visual inspection of documentation | A description from the contractor/supplier on how this requirement is fulfilled  |  |
| 1.15 | Shall | Protective sleeveThe goggle shall have a soft protective cloth to protect the goggle when mounted on helmet | Visual inspection of documentation | A description from the contractor/supplier on how this requirement is fulfilled  |  |
| 1.16 | Should | LensesAll the provided lenses should ensure clear image rendering, without causing image shift or lack of depth perception | User evaluation: Will test image shift and depth perception at various angles and distances. | Product sample |  |
| 1.17 | Should | Attachment to rail systemThe goggles should be possible to attach to the Ops-core helmet rail system (ARC rail system) | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled.  |  |
| 1.18 | Should | Physical compatibility with helmetThe goggles should be usable together Ops-core helmet without impairing fit or function | User evaluation: Goggles will be worn together with helmet while evaluating fit and function | Product sample |  |
| 1.19 | Should | Field of viewThe goggles should be provide unobscured vision with adequate field of view for operational use | User evaluation.Goggles providing the widest side vision will score highest, and remaining products scoring relative to this. | Product sample |  |
| 1.20 | Should | Prescription correctionWith prescription correction solution (as described in ID 1.08) installed, the goggle should still comply with all requirements | User evaluation: All requirement verifications/evaluations will be done with and without prescription correction solution installed | Product sample of prescription solution to be provided together with goggles product sample |  |
| 1.21 | Shall | LensesThe lenses shall be scratch resistant in accordance with MIL-PRF-32432 – 3.6.4.3.1 or equivalent. | Visual inspection of documentation | A description from the contractor/supplier on how this requirement is fulfilled  |  |
| 1.22 | Shall | Lenses The lenses shall be double layered | Visual inspection of documentation | Product data sheet or confirmation from the contractor/supplier describing how the requirement is fulfilled |  |

***Table 2 Mask***

| **no** | **Type of requirement** | **Requirement** | **Test standard/Verification** | **Documentation requirements** | **documentation reference/Response from supplier** |
| --- | --- | --- | --- | --- | --- |
| 2.01 | Shall | InsulationThe mask shall insulate against direct exposure to cold weather (down to -25° C) | Visual inspection of documentation | A description from the contractor/supplier on how this requirement is fulfilled  |  |
| 2.02 | Shall | ColourThe mask shall be delivered in a neutral black/dark colour | Visual inspection of documentation | A description from the contractor/supplier on how this requirement is fulfilled  |  |
| 2.03 | Shall | Fit for military useThe mask shall score 5 or more as complete average on all should-requirements to be deemed fit for military use | Final evaluation | N/A |  |
| 2.04 | Should | Physical compatibility with other articlesThe mask should be useable together with the Ops-core helmet and hearing protection | User evaluation: The mask will be worn together with helmet and hearing protection | Product sample |  |
| 2.05 | Should | Technical compatibility with other articlesThe mask should not impair with the functionality of helmet mounted with night vision goggles (NVG) and weapon systems/sights (HK416 and MP7 rifles and aimpoint M4 and Micro sights), when used together with these systems. | User evaluation: The mask will be tested with the systems mentioned in the requirement  | Product sample |  |
| 2.06 | Should | Two ways communicationThe mask should not impair voice communication, neither direct, or via radio. | User evaluation: The mask will be worn during typical tasks were communication is required.  | Product sample |  |
| 2.07 | Should | InsulationThe mask should cover the complete face, neck and ears against direct exposure to cold weather. Area covered by goggles is not evaluated | User evaluation: The mask will be test fitted on all personnel in test group. | Product sample |  |
| 2.08 | Should | ColorThe mask should also be delivered in white color.  | Visual inspection of documentation | A description from the contractor/supplier on how this requirement is fulfilled  |  |
| 2.09 | Should | VentilationThe mask should provide sufficient ventilation to avoid moisture build up during use, especially around the mouth/nose | User evaluation: The user group will evaluate the products ability to avoid moisture build up during physical activity. | Product sample |  |
| 2.10 | Should | WearingThe mask should be user friendly to put on and take off  | User evaluation: The user group will be asked to grade the products on user friendliness. | Product sample |  |
| 2.11 | Should | TransportThe mask should be foldable and able to fit in front pocket for store and transportation without losing functionality | User evaluation: The mask will be tested by all personnel in test group. | Product sample |  |

***Table 3 System***

| **no** | **Type of requirement** | **Requirement** | **Test standard/Verification** | **Documentation requirements** | **documentation reference/Response from supplier** |
| --- | --- | --- | --- | --- | --- |
| 3.01 | Shall | Interface and coverageThe system shall provide complete coverage of the face, neck and ears when used together. | User evaluation: The system will be test fitted on all personnel in test group. | Product sample |  |
| 3.02 | Shall | Technical compatibility with other articlesThe system shall not impair with the functionality of helmet mounted with night vision goggles (NVG) and weapon systems/sights (HK416 and MP7 rifles and aimpoint M4 and Micro sights), when used together with these systems. | User evaluation: The system will be tested with the articles mentioned in the requirement  | Product sample |  |
| 3.03 | Should | Physical compatibility with helmetThe system should be usable together Ops-core helmet without impairing fit or function | User evaluation: System will be worn together with helmet while evaluating fit and function | Product sample |  |
| 3.04 | Should | InterfaceThe system should be easily put on and taken off together to provide complete coverage | User evaluation: System will be put on multiple times, by all personnel in test group. In dark and light conditions. | Product sample |  |
| 3.05 | Shall | Fit for military useThe system shall score 5 or more as complete average on all should-requirements to be deemed fit for military use | Final evaluation | N/A |  |

# **Drawings**

This technical specification contains no drawings

# **Measurement tables**

This technical specification contains no tables of measurement

# **Packaging and labelling**

Refer to attachment E1 Generelle bestemmelser for artikkelmerking, emballasjemerking, pakking og kvalitetskontroll