

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Cable Gland

with type designation(s)
SYNTEC, PROGRESS GFK, GFK Multi, SYNTEC mit Knickschutz

Issued to
AGRO AG
Hunzenschwil, AG, Switzerland

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Material	Suitable for open deck	Suitable for Hazardous areas
SYNTEC	Non-Metallic	Yes	No
PROGRESS GFK, GFK Multi	Non-Metallic	Yes	No
SYNTEC mit Knickschutz	Non-Metallic	Yes	No

Issued at **Hamburg** on **2019-09-23**

This Certificate is valid until **2024-09-22**.
DNV GL local station: **Augsburg**

Approval Engineer: **Uwe Supke**



for **DNV GL**

Digitally Signed By: **Schaarmann, Arne**
Location: **DNV GL SE Hamburg, Germany**
Signing Date: **2019-09-24**

Arne Schaarmann
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology Long and short entry thread metric With one piece sealing ring VDE Approval No.: 40027945 Appendix No.: 100A & 101A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 Light grey RAL7035 Dark grey RAL7001 Black RAL 9005
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	with cable anchorage type A M16-M25 Impact category 1-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M16-M25
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric one-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 100A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 Light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M8-M12 With cable anchorage type A: M12-M63 Impact category 3-7

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6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M8-M63
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric two-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 101A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 Light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M16-M63 Impact category 4-7
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M16-M63
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric one-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 102A
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6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 Dark grey RAL7001
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M8-M12 With cable anchorage type A: M12-M63 Impact category 3-7
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M8-M63
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric two-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 103A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 dark grey RAL7001
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M16-M63 Impact category 4-7
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M16-M63
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric one-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 104A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 Black RAL9005
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M8-M12 With cable anchorage type A: M12-M63 Impact category 3-7
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M8-M63
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric two-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 105A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 Black RAL9005
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M16-M63 Impact category 4-7
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	

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6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M16-M63
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric one-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 106A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 White RAL9010
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M20 Impact category 4
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M20
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric two-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 107A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 White RAL9010
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M16-M25

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anchorage – type A, B , impact category)	Impact category 4-5
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M16-M25
Seal material	TPE

Type designation	PROGRESS GFK Synthetic cable glands PROGRESS GFK entry thread metric two-piece sealing insert VDE Approval No.: 40019689 Appendix No.: 108A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 green grey RAL7009
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M16-M32 Impact category 4-5
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M16-M32
Seal material	TPE

Type designation	PROGRESS GFK Multi Synthetic cable glands PROGRESS GFK for installation of multiple cables entry thread metric one-piece sealing insert
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	VDE Approval No.: 40019689 Appendix No.: 109A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 GF30 light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	With cable anchorage type A: M16-M32 Impact category 4-5
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-20°C up to +100°C
Gland sizes [mm]	M16-M32
Seal material	TPE

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology. short entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 100A remark: only M12 and M32
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 Light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12 with cable anchorage type A M32 Impact category 1-5
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C

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Gland sizes [mm]	M12 and M32 M16-M25 see VDE Approval No.:40027945 Appendix 100A and 101A
Seal material	CR

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology. short entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 101A remark: only M12 and M32
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 dark grey RAL7001
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12 with cable anchorage type A M32 Impact category 2 and 5
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12 and M32 M16-M25 see VDE Approval No.:40027945 Appendix 100A and 101A
Seal material	CR

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology. short entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 102A remark: only M12 and M32
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6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 black RAL9005
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12 with cable anchorage type A M32 Impact category 2 and 5
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12 and M32 M16-M25 see VDE Approval No.:40027945 Appendix 100A and 101A
Seal material	CR

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology. long entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 103A remark: only M12 and M32-M63
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12 with cable anchorage type A M32-M63 Impact category 2 and 6
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to	-30°C up to +100°C

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+65C	
Gland sizes [mm]	M12 and M32-M63 M16-M25 see VDE Approval No.:40027945 Appendix 100A and 101A
Seal material	CR

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology. long entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 104A remark: only M12 and M32-M63
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 dark grey RAL7001
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12 with cable anchorage type A M32-M63 Impact category 2 and 6
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12 and M32-M63 M16-M25 see VDE Approval No.:40027945 Appendix 100A and 101A
Seal material	CR

Type designation	SYNTEC Synthetic cable glands SYNTEC with lamellar technology. long entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 105A
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	remark: only M12 and M32-M63
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 black RAL9005
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12 with cable anchorage type A M32-M63 Impact category 2 and 6
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12 and M32-M63 M16-M25 see VDE Approval No.:40027945 Appendix 100A and 101A
Seal material	CR

Type designation	SYNTEC mit Knickschutz Synthetic cable glands SYNTEC with lamellar technology and antikink nozzle short entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 106A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12-M20 with cable anchorage type A M20 Impact category 2-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	N/A
6.4.1 IP class	IP68 1 bar 30'

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6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12-M20
Seal material	CR

Type designation	SYNTEC mit Knickschutz Synthetic cable glands SYNTEC with lamellar technology and antikink nozzle short entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 107A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 dark grey RAL7001
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12-M20 with cable anchorage type A M20 Impact category 2-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12-M20
Seal material	CR

Type designation	SYNTEC mit Knickschutz Synthetic cable glands SYNTEC with lamellar technology and antikink nozzle short entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 108A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 black RAL9005

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6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12-M20 with cable anchorage type A M20 Impact category 2-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12-M20
Seal material	CR

Type designation	SYNTEC mit Knickschutz Synthetic cable glands SYNTEC with lamellar technology and antikink nozzle long entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 109A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 light grey RAL7035
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12-M20 with cable anchorage type A M20 Impact category 2-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12-M20
Seal material	CR

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Type designation	SYNTEC mit Knickschutz Synthetic cable glands SYNTEC with lamellar technology and antikink nozzle long entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 110A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 dark grey RAL7001
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12-M20 with cable anchorage type A M20 Impact category 2-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444
6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12-M20
Seal material	CR

Type designation	SYNTEC mit Knickschutz Synthetic cable glands SYNTEC with lamellar technology and antikink nozzle long entry thread metric With one piece sealing ring VDE Approval No.: 40019696 Appendix No.: 111A
6.1 Material (Metallic, Non-metallic, composite)	Polyamide PA6 black RAL9005
6.2 Mechanical properties (without or with cable anchorage – type A, B , impact category)	Without cable anchorage: M12-M20 with cable anchorage type A M20 Impact category 2-3
6.3 Electrical properties (with electric continuity or insulating characteristics)	According to EN 62444

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6.4 Resistance to external influences	
6.4.1 IP class	IP68 1 bar 30'
6.4.2 Temperature range if different from -20C to +65C	-30°C up to +100°C
Gland sizes [mm]	M12-M20
Seal material	CR

Application/Limitation

For use in non-hazardous areas, only.
The manufacturer's installation description to be followed.

Type Approval documentation

Test reports / certificates:

VDE Certificate no. 40019689, appendix 100A, 101A, 102A, 103A, 104A, 105A, 106A, 107A, 108A, 109A.
VDE Certificate no. 40019696, appendix 100A, 101A, 102A, 103A, 104A, 105A, 106A, 107A, 108A, 109A, 110A, 111A.

Data sheets / drawings:

Relevant pages from Agro's product catalogue.

Tests carried out

Type tests in accordance with EN 62444 carried out by VDE.
Refer to product description for each cable gland type for certificate number.

Marking of product

Agro - type designation.

In addition the thread size on the types Syntec, Syntec MS, Progress GFK, Progress GFK Multi, Syntec and Syntec mit Knickschutz.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the periodical assessment are:

- Inspection of factory samples, selected at random from the production line (where practicable)
- Results from production sample tests (PST) and routine tests (RT) to be checked (if not available tests according to PST and RT to be carried out)
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE