MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 90/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			90/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	96
Tolerance (1)		kN/m	-6
Strip tensile strength T_{ch} - MD (1)		kN	16.2
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	954
Physical Properties			
Strip reinforcement polymer - MD			PET
Strip coating polymer			PE
Strip width - MD (3)		mm	45
Mesh size (internal aperture) (3)		mm	940x135
Roll length (2)		m	100
Roll width (2)		m	4.50
Roll diameter (3)		m	0.42
Roll weight (2)		kg	200
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 7.10E-01
Acidification potential (AP) (4)		mol H+ Eq.	≤ 1.71E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 2.16E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 5.18E-04
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 5.66E-03
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.

MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 100/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			100/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	106
Tolerance (1)		kN/m	-6
Strip tensile strength T_{ch} - MD (1)		kN	18.0
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	1060
Physical Properties			
Strip reinforcement polymer (longitudinal)			PET
Strip coating polymer			PE
Strip width - MD (3)		mm	45
Mesh size (internal aperture) (3)		mm	940x135
Roll length (2)		m	150
Roll width (2)		m	4.50
Roll diameter (3)		m	0.52
Roll weight (2)		kg	280
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 7.48E-01
Acidification potential (AP) (4)		mol H+ Eq.	≤ 1.80E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 2.27E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 5.45E-04
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 5.96E-03
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.

MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 125/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			125/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	135
Tolerance (1)		kN/m	-10
Strip tensile strength T_{ch} - MD (1)		kN	22.5
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	1325
Physical Properties			
Strip reinforcement polymer - MD			PET
Strip coating polymer			PE
Strip width - MD (3)		mm	46
Mesh size (internal aperture) (3)		mm	940x134
Roll length (2)		m	130
Roll width (2)		m	4.50
Roll diameter (3)		m	0.51
Roll weight (2)		kg	270
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 8.58E-01
Acidification potential (AP) (4)		mol H+ Eq.	≤ 2.06E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 2.61E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 6.25E-04
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 6.82E-03
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.

MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 150/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			150/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	160
Tolerance (1)		kN/m	-10
Strip tensile strength T_{ch} - MD (1)		kN	27.0
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	1590
Physical Properties			
Strip reinforcement polymer - MD			PET
Strip coating polymer			PE
Strip width - MD (3)		mm	46
Mesh size (internal aperture) (3)		mm	940x134
Roll length (2)		m	150
Roll width (2)		m	4.50
Roll diameter (3)		m	0.57
Roll weight (2)		kg	330
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 1.06E+00
Acidification potential (AP) (4)		mol H+ Eq.	≤ 2.58E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 3.17E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 7.81E-04
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 8.51E-03
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.

MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 175/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			175/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	185
Tolerance (1)		kN/m	-10
Strip tensile strength T_{ch} - MD (1)		kN	31.5
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	1855
Physical Properties			
Strip reinforcement polymer - MD			PET
Strip coating polymer			PE
Strip width (longitudinal) (3)		mm	46
Mesh size (internal aperture) (3)		mm	940x134
Roll length (2)		m	150
Roll width (2)		m	4.50
Roll diameter (3)		m	0.59
Roll weight (2)		kg	370
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 1.15E+00
Acidification potential (AP) (4)		mol H+ Eq.	≤ 2.75E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 3.50E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 8.34E-04
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 9.10E-03
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.

MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 200/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			200/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	212
Tolerance (1)		kN/m	-12
Strip tensile strength T_{ch} - MD (1)		kN	36.0
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	2120
Physical Properties			
Strip reinforcement polymer - MD			PET
Strip coating polymer			PE
Strip width - MD (3)		mm	47
Mesh size (internal aperture) (3)		mm	940x133
Roll length (2)		m	160
Roll width (2)		m	4.50
Roll diameter (3)		m	0.65
Roll weight (2)		kg	410
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 1.26E+00
Acidification potential (AP) (4)		mol H+ Eq.	≤ 3.02E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 3.86E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 9.17E-04
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 1.00E-02
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.

MACCAFERRI

TECHNICAL DATA SHEET

Rev: 04, Date 28.06.2024

PARAGRID™ HF 250/5

STRIP BONDED GEOGRIDS WITH HIGH TENACITY POLYESTER CORE

PARAGRID™ HF geogrids are planar structures consisting of a biaxial array of composite geosynthetic strips characterised by a new geometry to optimise the bonding performance. The strips comprise of a core of high tenacity polyester (longitudinal) tendons encased in a polyethylene sheath.

PARAGRID™ HF			250/5
Mechanical Properties			
UTS - longitudinal (1)	EN ISO 10319	kN/m	265
Tolerance (1)		kN/m	-15
Strip tensile strength T_{ch} - MD (1)		kN	45.0
UTS - transverse (1)		kN/m	6
Tolerance (1)		kN/m	-1
Nominal strain at T_{ch} - MD (2)		%	9.5
Modulus at 5% strain - MD (2)		kN/m	2650
Physical Properties			
Strip reinforcement polymer - MD			PET
Strip coating polymer			PE
Strip width - MD (3)		mm	48
Mesh size (internal aperture) (3)		mm	940x132
Roll length (2)		m	140
Roll width (2)		m	4.50
Roll diameter (3)		m	0.67
Roll weight (2)		kg	430
Durability, Environmental and Sustainability Properties			
Content of SVHC	ISO 14025 EN 15804	%	≤ 0.1
Global Warming Potential Total (GWP) (4)		kg CO_2 Eq.	≤ 1.55E+00
Acidification potential (AP) (4)		mol H+ Eq.	≤ 3.69E-03
Eutrophication Potential freshwater (EP-fr) (4)		kg P Eq.	≤ 4.73E-06
Eutrophication Potential marine (EP-mar) (4)		kg N Eq.	≤ 1.12E-03
Eutrophication Potential terrestrial (EP-ter) (4)		mol N Eq.	≤ 1.22E-02
Durability	Annex B - hEN	Covered within one month after installation. Predicted to be durable for more than 120 years in natural soils with 4<pH<11 and soil temperatures <30 °C	

NOTES:

1. Short-term tests accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength (T_{ch}) in accordance with EN 13251;
2. Nominal value;
3. Typical values, a standard tolerance of 10% on the reported values is admitted.
4. Values reported in the EPD certificate KIWA-EE- 000373-EN issued in accordance with EN15804+A2: 2019 and ISO14025 with validity till April 2029. The reported values are selected among the 13 mandatory certified values (EN 15804+A2:2019) and referred to the Product Stage A1-A3. Additional environmental impact indicators and different Product Stages valid for Life Cycle Assessment are reported in the full EPD certificate of the product.

For LTDS and safety factors please contact the Maccaferri technical dept.
Special products can be manufactured on request for specific projects.

Officine Maccaferri S.p.A.
Global Headquarter
E: info.hq@maccaferri.com
Web site: maccaferri.com

Bureau Veritas Certified Quality System Company
With ACCREDIA's and UKAS's accreditation.