



Grivory G6VX-AP
Advanced Performance

Stiffer – Tougher – Higher Precision

GRIVORY[®]
EMS

■ **Focus on stiffness & precision**



Grivory G6VX-AP (Advanced Performance) – the new generation of high-performance polyamides for high precision components – is characterised by extraordinary stiffness and impact strength with simultaneous high dimensional stability.

Smartphones and tablets, as well as more recently a varied range of wearables such as digital watches, fitness monitors, virtual-reality-glasses, etc., are continuing to show progressive development. Practically every well-known manufacturer now has at least one oversized model in the assortment. This involves displays which have a diagonal size of five or six inches or even more. In addition to the trend towards larger displays, Smartphones and tablets should also be thinner, which enormously increases the requirements on the mechanical properties. The most significant requirements of new high-performance polymers are:

- high dimensional stability
- high stiffness, even with low wall thicknesses
- high impact strength
- high flow capability with simultaneous low flash formation
- low warpage
- excellent surface quality
- simple processability

Grivory G6VX-AP products satisfy all these demands.

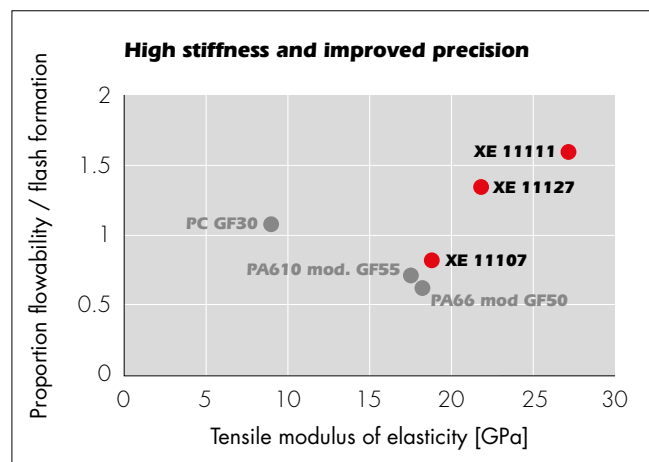
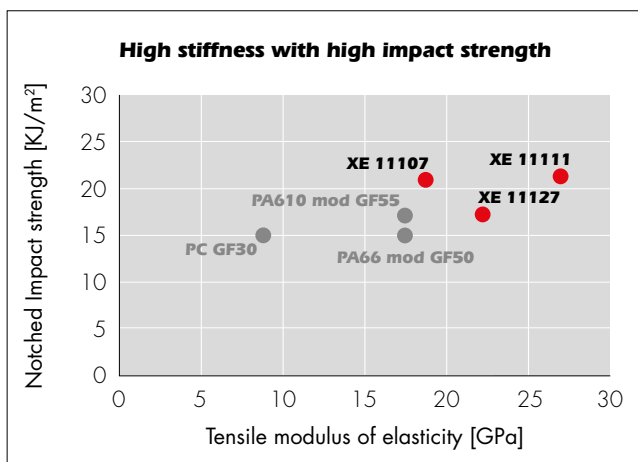
The specialist with a new product group for high precision and light-weight construction

EMS-GRIVORY is specialised in the manufacture of high-performance polyamides for use in mobile and wearable applications. The partially aromatic polyamide Grivory GV grades show practically unchanged stiffness and strength values even in a conditioned state. Reinforced Grivory GV high-performance polyamide grades exhibit very little warpage and are easy to process.

With the new Grivory G6VX-AP products, EMS-GRIVORY takes a further step forward and creates new solution approaches for highly stressed structural components. The Grivory G6VX-AP grades are based on a new partially aromatic polyamide. While conventional construction materials satisfy only a few of the above-mentioned demands, the new Grivory G6VX-AP products fulfil all requirements.

Higher performance with increased precision

This new generation of material is a well thought-out combination of fibres and polymers. These new products show improved dimensional stability, reduced flash formation and excellent surface quality with simultaneous high





mechanical properties. Due to the reduced flash formation of the Grivory G6VX-AP products, no post-treatment is necessary thus allowing cost savings to be achieved. Despite their high mechanical stiffness, the Grivory G6VX-AP grades are very easy flowing and make it possible to use long flow paths with little pressure needed. These products allow efficient manufacturing of complex parts such as, for example, very thin structural frames for Smartphones or tablets.

Superior mechanical properties

The special product properties of Grivory G6VX-AP are the result of close cooperation work between EMS-GRIVORY and its customers. Three contrasting properties, high stiffness, high impact strength and excellent flowability, were optimised in one material. This combination makes the new product group unique. Thanks to the high stiffness values, thin-walled components with high impact and weld line strength can be manufactured. Due to the higher E-modulus and good flowability, components with even thinner-walled dimensions can be designed in future, allowing customers to save both weight and costs.

Tailor-made materials

Grivory G6VX-AP products are elaborately detailed high-performance materials. Based on different requirement catalogues, three products have so far been successfully launched onto the market. Thanks to the unique properties

of the Grivory G6VX-AP grades, these can also be used as „problem solvers“ for successful end products.

Target applications

Grivory G6VX-AP has been developed especially for the manufacture of highly-stressed and complex structural components which also need good surface quality.

The structural frame is the spine of a Smartphone and fulfils the tasks of securing components, making the device stiffer and protecting the display glass from breakage by preventing it from being bent. Due to the continuing reduction in wall thicknesses for Smartphones, the structural frames are also increasingly thinner, only 0.5 mm in some places. Depending on the design, the structural frames are often partially visible making extremely good surface quality necessary. Grivory G6VX-AP makes it possible to manufacture this kind of thin-walled component with simultaneous high mechanical property values.

Besides smartphones and wearables Grivory G6VX -AP products are well suited for parts in any light weight sport devices as well as consumer or professional drones. Target industrial applications are mechatronic components for fluid and motion control such as pneumatic valves, regulators, controllers, drives, sensors and actuators.

Mechanical properties Grivory G6VX-AP

		Standard	Unit	State	Grivory XE 11107	Grivory XE 11127	Grivory XE 11111
Glass-fibre content			%	dry	55	60	70
Tensile E-modulus	1 mm/min	ISO 527	MPa	dry	18'500	22'000	27'000
Strength at break	5 mm/min	ISO 527	MPa	dry	245	250	290
Elongation at break	5 mm/min	ISO 527	%	dry	2.7	2.3	1.5
Impact strength	Charpy, 23°C	ISO 179/1eU	kJ/m ²	dry	>100	100	70
Noched impact strength	Charpy, 23°C	ISO 179/1eA	kJ/m ²	dry	21	17	21
Water absorption	23°C, 24hr	ISO 62	%		0.06	0.05	0.04
Flowability					+	+++	++



EMS-GRIVORY worldwide

www.emsgrivory.com

EMS-GRIVORY - The leading manufacturer of high-performance polyamides

EMS-GRIVORY is the leading manufacturer of high-performance polyamides and the supplier with the widest range of polyamide materials. Our products are well-known throughout the world under the trademarks Grilamid, Grivory and Grilon.

We offer our customers a comprehensive package of high-capacity and high-quality products along with segment-specific advisory competence in distribution and application development. We maintain our market leadership through continual product and application development in all segments.

EMS-GRIVORY Europe

Switzerland

EMS-CHEMIE AG
Business Unit EMS-GRIVORY Europe
Via Innovativa 1
7013 Domat/Ems
Switzerland
Phone +41 81 632 78 88
Fax +41 81 632 76 65
welcome@emsgrivory.com

Germany

EMS-CHEMIE (Deutschland) Vertriebs GmbH
Warthweg 14
64823 Gross-Umstadt
Deutschland
Phone +49 6078 783 0
Fax +49 6078 783 416
welcome@de.emsgrivory.com

France

EMS-CHEMIE (France) S.A.
855 Avenue Roger Salengro
Boîte postale 16
92370 Chaville
France
Phone +33 1 41 10 06 10
Fax +33 1 48 25 56 07
welcome@fr.emsgrivory.com

Great Britain

EMS-CHEMIE (UK) Ltd.
Darfin House, Priestly Court
Staffordshire Technology Park
Stafford ST18 0LQ
Great Britain
Phone +44 1785 283 739
Fax +44 1785 283 722
welcome@uk.emsgrivory.com

Italy

EMS-CHEMIE (Italia) S.r.l.
Via Carloni 56
22100 Como (CO)
Italia
Phone +39 011 0604522
Fax +39 011 0604522
welcome@it.emsgrivory.com

EMS-GRIVORY Asia

China

EMS-CHEMIE (China) Ltd.
227 Songbei Road
Suzhou Industrial Park
Suzhou City 215126
Jiangsu Province
P.R. China
Phone +86 512 8666 8180
Fax +86 512 8666 8210
welcome@cn.emsgrivory.com

EMS-CHEMIE (Suzhou) Ltd.

227 Songbei Road
Suzhou Industrial Park
Suzhou City 215126
Jiangsu Province
P.R. China
Phone +86 512 8666 8181
Fax +86 512 8666 8183
welcome@cn.emsgrivory.com

Taiwan

EMS-CHEMIE (Taiwan) Ltd.
36, Kwang Fu South Road
Hsin Chu Industrial Park
Fu Kou Hsiang
Hsin Chu Hsien 30351
Taiwan, R.O.C.
Phone +886 3 598 5335
Fax +886 3 598 5345
welcome@tw.emsgrivory.com

Korea

EMS-CHEMIE (Korea) Ltd.
#817 Doosan Venturedigm,
415 Heungan Daero,
Dongan-gu, Anyang-si,
Gyeonggi-do, 431-755
Republic of Korea
Phone +82 31 478 3159
Fax +82 31 478 3157
welcome@kr.emsgrivory.com

Japan

EMS-CHEMIE (Japan) Ltd.
EMS Building
2-11-20 Higashi-koujiya
Ota-ku, Tokyo 144-0033
Japan
Phone +81 3 5735 0611
Fax +81 3 5735 0614
welcome@jp.emsgrivory.com

EMS-GRIVORY America

United States of America

EMS-CHEMIE (North America) Inc.
2060 Corporate Way
P.O. Box 1717
Sumter, SC 29151
USA
Phone +1 803 481 61 71
Fax +1 803 481 61 21
welcome@us.emsgrivory.com

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a business unit of the EMS Group

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EMS-GRIVORY