

## Case Study

### Motor-gear-unit housing of Pocan B 3233 HR for automated parking brake systems (APB)



Fig. 1 Motor-gear-unit housing for actuator  
Photo with kind permission of IMS Gear

IMS Gear began operating 150 years ago as a precision engineering supplier. Even then the company produced the special tools for the gearing of clock components itself. It has retained this core competence until today, providing the basis for innovative transmission solutions.<sup>1</sup>

One of these solutions is reflected in the structure of an automated parking brake (APB).

Compared to conventional cable-based parking brake systems, APBs offer:

- Improved safety and comfort
- Easy assembly and maintenance

The APB is integrated into the disc brake caliper and therefore subject to high stress regarding mechanical load, temperature and moisture.

Because of the combination of temperature and moisture, and the stringent specifications regarding dimensional stability, IMS Gear opted to use Pocan B 3233 HR as the material for the housing. It is a PBT with 30 % glass fiber reinforcement and additional hydrolysis stabilization.

**Tier-1 supplier:** [Chassis Brakes International](#)

**Grade:** Pocan® B 3233 HR

**Manufacturer:** IMS Gear, Germany

This Pocan grade is also characterized by:

- High stiffness
- Good strength
- Heat resistance up to 220 °C
- Abrasion resistance
- Dimensional stability

As part of the overall process, the company is also able to successfully integrate the ring wheel for the planetary gear, insert the plug sockets and overmold the various inserts (e.g. the integration of plugs).

The motor-gear-unit housing and cover are joined together by laser welding.

<sup>1</sup> Source: IMS Gear GmbH, Homepage Company's History



The ability to save weight in vehicles by using plastics such as Durethan<sup>®</sup>, Pocan<sup>®</sup> and Tepex<sup>®</sup> makes an important contribution to fuel-savings and the associated reduction in CO<sub>2</sub> emissions.

---

Durethan<sup>®</sup> and Pocan<sup>®</sup> are registered trademarks of LANXESS Deutschland GmbH

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee, and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

#### Typical Properties

Property data is provided as general information only. Property values are approximate and are not part of the product specifications.

#### Health and Safety

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling LANXESS products mentioned in this publication. Before working with these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets (MSDS) and product labels. Consult your LANXESS Corporation representative or contact the Product Safety and Regulatory Affairs Department at LANXESS. For materials that are not LANXESS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturer(s) must be followed.

#### Regrind

Where end-use requirements permit, regrind may be used with virgin material in quantities specified in individual product information bulletins, provided that the material is kept free of contamination and is properly dried (see maximum permissible quantities and drying conditions in product information bulletins). Any regrind used must be generated from properly molded/extruded parts, sprues, runners, trimmings and/or film. All regrind used must be clean, uncontaminated, and thoroughly blended with virgin resin prior to drying and processing. Under no circumstances should degraded, discolored, or contaminated material be used for regrind. Materials of this type should be discarded. Improperly mixed and/or dried regrind may diminish the desired properties of a particular LANXESS product. It is critical that you test finished parts produced with any amount of regrind to ensure that your end-use performance requirements are fully met. Regulatory or testing organizations (e.g., UL) may have specific requirements limiting the allowable amount of regrind. Because third party regrind generally does not have a traceable heat history or offer any assurance that proper temperatures, conditions, and/or materials were used in processing, extreme caution must be exercised in buying and using regrind from third parties. The use of regrind material should be avoided entirely in those applications where resin properties equivalent to virgin material are required, including but not limited to color quality, impact strength, resin purity, and/or load-bearing performance.

#### Note:

The information contained in this publication is current as of September, 2013. Please contact LANXESS Corporation to determine if this publication has been revised.

© = LANXESS Corporation 2013 | Pittsburgh, PA 15275 | HPM Business Unit | all rights reserved

<http://us.durethan.com>

X **Durethan<sup>®</sup>** X **Pocan<sup>®</sup>** X **HiAnt**

Page 2 of 2 - this document contains important information and must be read in its entirety

Edition 10.09.2013 | TI 2013-003 US