GHA

New line of
ANTIBACTERIAL and
HIGH CORROSION RESISTANCE gearboxes

TRAMEC®
"Perfection is a Masterpiece"

Vermeire
A RUBIX Company

GHA

Tramec has developed an innovative range of products applying, for the first time in the world, the "**GHA**" treatment on gearboxes.
These worm and bevel helical gearboxes, with aluminum alloy housing, are equipped with stainless steel hollow output shaft, bolts and plugs.

The most important feature, which makes these gearboxes unique, is the innovative patented treatment called "**GHA**" applied to the external and internal surfaces of the housings, which confers extraordinary chemical and physical properties.

The GHA gearbox line is an exclusive Tramec patent.

Antibacterial Properties

Thanks to the action of silver ions evenly distributed over their surface, the GHA gearboxes boast unique antibacterial characteristics, confirmed by tests carried out by accredited laboratories in compliance with ISO 22196: 2011, which make them ideal for use in aseptic environments (food and pharmaceutical sector);

Corrosion resistance

The excellent results of NSS salt spray tests performed by accredited laboratories in accordance with ISO 9227: 2017 standard confirm that the GHA Premium gearboxes are ideal for use in the marine environment;

High thermal conductivity

Heat dissipation capacity 35% higher than untreated aluminum and 13 times higher than stainless steel;

High surface hardness

High hardness of the body surface of the Premium series with GHA treatment (HV 500-600).

GHA GEARBOX CLEANING

The numerous laboratory tests on the new **GHA** Premium line, commissioned by **TRAMEC** to accredited laboratories, also include tests relating to the cleaning of the gearboxes. To confirm the durability of the surface treatment properties over time, compatibility tests were performed with the active ingredients of the most common industrial detergents.

Detergent class

Peracetic acid	**Quaternary ammonium salts**	**hypochlorite**	**Sodium hydroxide/potassium**
@ 4000 Washing cycles: ISO 22196: 2011 R = 1.5 (E.c.) 3.8 (S.a.); ISO 4628-1: 2003 Rating = 0	@ 4000 Washing cycles: ISO 22196: 2011 R = 2.1 (E.c.) 3.5 (S.a.); ISO 4628-1: 2003 Rating = 1.5	@ 300 Washing cycles: ISO 22196: 2011 R = 1.7 (E.c.) 3.6 (S.a.); ISO 4628-1: 2003 Rating = 4	@ 20 Washing cycles: ISO 22196: 2011 R = 3.3 (E.c.) 3.62 (S.a.); ISO 4628-1: 2003 Rating = 5
Test with commercial product at 1% of: • peracetic acid 5%, • acetic acid 8%, • 25% hydrogen peroxide	Test with commercial product at 5% of: • 7% didecyl dimethyl ammonium, • monoethanolamine 8%, • 4% ethoxylated isotridecanol • EDTA 2%	Test with commercial product at 6% of: • hypochlorite IC 6%, • 5% potassium hydroxide, • dimethyldodecylamine 3% • 1% dimethyltetradecylamine	Test with commercial product at 6% of: • 20% potassium hydroxide, • 10% sodium hydroxide, • alkyl polyglucoside 8% • EDTA 2%

Rating from 0 (no change) to 5 (deteriorated surface).
Tests carried out with contact times with detergent of 10 min.
- Laboratory tests carried out by: TECNAL SrL, accredited laboratory for UNI CEI EN ISO / IEC 17025: 2005 n.0299.

GHA SERIES MODELS

GHA Premium

- **GHA** worm gearboxes;
- Excellent bactericidal properties;
- Excellent corrosion resistance (over 2016 h in NSS test);
- Special smooth external profile subject to enhanced GHA treatment, minimizes the deposit of dirt and allows better cleaning;
- High hardness of the body surface with **GHA** treatment (HV 500-600);
- High abrasive wear resistance;
- High thermal dissipation;
- AISI 316 stainless steel hollow output shaft, bolts and plugs;
- FDA certified food grade lubricant, oil seals and gaskets;
- Compliant with HACCP Australia / NZ.

GHA Classic

- GKC worm gearboxes and GTF bevel helical gearboxes;
- Excellent bactericidal properties;
- Standard corrosion resistance (250 h in NSS test);
- Same housings of the standard KC and TF models, subjected to GHA treatment;
- AISI 316 stainless steel hollow output shaft, bolts and plugs;
- FDA certified food grade lubricant, oil seals and gaskets;
- Compliant with HACCP Australia / NZ.

GHA Modular

- GXC worm gearboxes;
- Excellent bactericidal properties;
- Standard corrosion resistance (250 h in NSS test);
- Same housings of standard XC models, subject to GHA treatment;
- AISI 316 stainless steel hollow output shaft, bolts and plugs;
- FDA certified food grade lubricant, oil seals and gaskets;
- Compliant with HACCP Australia / NZ.

GHA ELECTRIC MOTORS

Thanks to the partnership with company Carpanelli S.p.A., on request the GHA series gearboxes can also be supplied in combination with **special, dedicated electric motors**, also subjected to GHA treatment and available in two configurations: Classic and Premium.

GHA Premium Motors

- Excellent antibacterial properties;
- Excellent corrosion resistance (over 2016 h in salt spray NSS tests);
- IE4 energy class and IP69K protection;
- V. 230/400/50 - S1 - B14;
- AISI 420 stainless steel output shaft;
- Special aluminum alloy housings subject to enhanced GHA treatment;
- Smooth outer profile minimizes the deposit of dirt and allows better cleaning;
- More hygienic thanks to the absence of a fan;
- High hardness of the GHA-treated surface (HV 500-600);
- High resistance to abrasive wear;
- Excellent thermal dissipation;
- High efficiency;
- Withstand high voltages, thanks to the non-magnetic characteristics;
- Stainless steel nuts and bolts.

GHA Classic Motors

- Excellent antibacterial properties;
- Standard corrosion resistance (250 hours in salt spray NSS);
- IE1 energy class and IP55 protection;
- V. 230/400/50 - B5 or B14;
- Standard housings in die-cast aluminum alloy with GHA treatment;
- Finned external profile;
- Good thermal dissipation;
- Stainless steel nuts and bolts;
- Nylon fan cover.

GHA

GHA ADVANTAGES

What are the **advantages** of **GHA** gearboxes compared to stainless steel gearboxes or subjected to other treatments?

Thanks to the special properties conferred by the patented treatment to which they are subjected, gearboxes and motors of the **GHA** series are an excellent alternative to those exclusively made in stainless steel or treated with other processes (i.e. nickel plating or special paintings).

In detail:

- **External surface actively antibacterial** vs. inert surfaces, which do not prevent bacterial proliferation;
- **1/3 lighter than stainless steel**;
- **Over 13 times higher thermal conductivity** (204 W / m ° C) compared to stainless steel (15 W / m ° C);
- **Cheaper** than the corresponding stainless steel version;
- **Nickel free;**
- **Non-magnetic motors,** capable of withstanding high voltages;
- **Safe and aseptic.**

Fields of **application**

GHA gearboxes are ideal for:

- **food&beverage** industry;
- **chemical-pharmaceutical** industry;
- **marine environment** applications.




Compliance and **certifications**

TRAMEC's **GHA** gearboxes have been tested by accredited laboratories to prove their special characteristics, in accordance with the following standards:

- **ISO 22196:2011** -Antibacterial tests - The lab test results show that, compared to the untreated aluminum sample, the GHA PREMIUM treated sample has reduced by 1000 times the bacterial proliferation of the STAPHYLOCOCCUS AUREUS and by 10.000 times that of ESCHERICHIA COLI.;

- **ISO 9227:2017** - Salt spray corrosion test - NSS Test - After 2016 hours of salt spray exposure, the GHA Premium samples show no signs of corrosion;

- **RES Annex I chapter 2.1. Applicable to Directive 2006/42 / EC** - Food machinery and machines for cosmetic or pharmaceutical products;

- **SO/IEC 17020:2012** - Inspection Certificate;

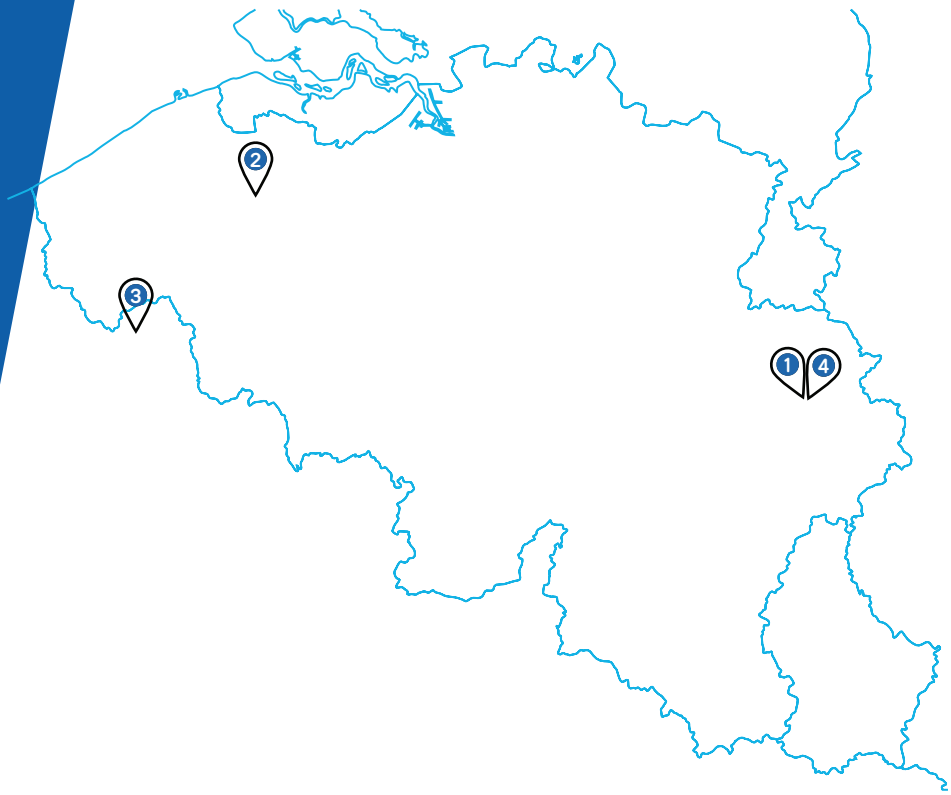
- **FDA** - Food grade lubricant, oil seals and gaskets.

Vermeire

A RUBIX Company

1) VERMEIRE TRANSMISSIONS
Rue de la Filature, 41
B-4800 ENSIVAL (VERVIERS)
T. 32 (0)87 32 23 60
info@vermeire.com
www.vermeire.com

2) VERMEIRE AANDRIJVINGEN
Traktaartweg 17
B-9050 GENT
T. 32 (0)9 222 57 61
gent@vermeire.com
www.vermeire.com



3) SERAX TRANSMISSIONS
Rue Gambetta, 147 BP 115
F-59559 COMINES CEDEX
T. 0 825 827 124
F. 0 825 827 125
serax@vermeire.com
www.serax.fr

4) ACIERS CRUSTIN
RUE SIMON LOBET, 56
B-4800 VERVIERS
T. 32 (0)87 29 23 20
F. 32 (0)87 29 23 29
info@crustin.be
www.crustin.be