# DEVELOPMENT – MANUFACTURING – SERVICE FFG – A PROVEN TRACK RECORD







## **THE BEST SOLUTIONS, INHERENTLY**

FFG – high technology – traditional German engineering



The home of FFG is the 750 year-old trade and port city of Flensburg. For more than 400 years, the fortunes of the city were determined by Copenhagen, and even today, Flensburg still has strong cultural and economic ties with its Scandinavian neighbours. Unique merchants' houses and monumental churches are a testament to the riches of the ancient trade routes. A carefully redeveloped town centre with a modern industrial infrastructure position Flensburg as a popular holiday destination and focus for high technology.

FFG's core skills include the development, manufacture, modification and optimisation of armoured tracked and wheeled vehicles. We also provide the full spectrum of through life support, repairs, spares and maintenance and safety concepts for crew protection as well as mine and ballistic protection.

Another speciality is FFG's aluminium capability from the manufacture of individual components up to complex assemblies, as well as the construction and production of aluminium bodies for a wide range of vehicles. In terms of environmental technology, FFG leads the way with highly specialised rinsing and suction water and waste management vehicles.

To help you overcome any future challenges, we are continuously developing and upgrading our products. This ensures that we can always offer you the optimum solutions for your needs.

FFG - your versatile and reliable partner.

### FFG's long history in three words **INNOVATION, QUALITY, TRUST**

Founded in 1872, the Flensburger Schiffbau Gesellschaft (FSG) produced steamships. Commercial success demanded continuous investments in new technology with an emphasis on reliable machinery, a key requirement for any growing shipyard. These investments paid off when the German Armed Forces were looking for a partner to service their military vehicles and

equipment in the 1960s. The company was able to impress with its highly developed know-how and years of experience. Initially a tracked vehicle division within the FSG, FFG was founded in 1980 as an independent company in its own right.

Today, FFG is an international high tech company that sets new standards with innovations in both

the civil and military fields. From Flensburg, upgraded M113 vehicles go to Denmark, Drive System Kits to Australia, WiSENT 2 armoured engineer vehicles to Canada and the Middle East, and spare parts all around the world. M60 armoured bridge layers come from US stock to Flensburg for maintenance



#### 1872 – when it all began

One vear after FSG was founded, the first steamship was laid down.

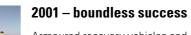


1995 – upgrade specialist With its M113 upgrades, FFG sets new national and international standards



#### 1989 – success as a vehicle manufacturer

The FA 13: the first freely available transport vehicle with a self-supporting aluminium chassis.



### Armoured recovery vehicles and

other support vehicles are supplied to the Republic of Chile.



2007 – specialists in the Hindu Kush WiSENT armoured recovery

vehicles support the Danish Leopard 2 in Afghanistan.



#### 2009 – new routes to success Start of development

of the PMMC G5.

# 



1963 – beginnings of military technology

Founding of the tracked vehicle department within FSG.

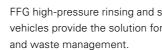


1991 – for a clean environment



of the armed forces The last performanceenhanced AIFV Marder 1 A3





FFG high-pressure rinsing and suction vehicles provide the solution for water



Danish M113s modernised by FFG are used in Iraq.



2001 – let's go down under

Australia is the fourth nation to

choose FFG's M113 upgrades.



### leaves FFG.

and overhaul. The WiSENT ARV has been deployed on active service in Afghanistan, and elephant flushing vehicles clean the sewer systems in Turkey.

In brief: clients from over 40 countries are satisfied partners of FFG.



2013 – extended MRO portfolio The German Government orders

depot level maintenance for the Bergepanzer 3.



#### 2015 – future-orientated qualification

The HIL and the German Government certify FFG as an official GTK Boxer maintenance provider.



#### 2015 – international success

After Qatar and UAE, Norway makes up the fourth country to order the WiSENT 2.



#### 2012 – onwards to Canada

The Canadian Government selects FFG to provide the WISENT 2 AEV

### SATISFIED CUSTOMERS ALL AROUND THE WORLD

### Expertise in over 40 countries

Customer satisfaction is our key to success. To stay competitive, we are partners to our customers in over 40 countries around the world. For FFG, our full service solution means full commitment to support our customers – everywhere and anywhere they need us.

With customers in over 40 countries all around the world, we are acustomed to a wide variety of cultures and have had to have an open mind, requiring new ways of thinking.

In the last two decades, FFG has grown organically into the system house of its products and is well prepared for the challenges of the future.





6 | 7

# **SHARP MINDS – SHARP PEOPLE**



#### FFG – people at the heart of the company

FFG brings individual solutions and the highest quality requirements in line with one another. Our employees combine know-how and passionate commitment – whether it is trainees who take personal responsibility for themselves and their environment, or the loyal employees whose creative solutions and holistic approach form the basis for the continous development of FFG and of themselves.

The personality, qualifications and motivation of each individual employee form the basis of our success. Our motto for daily work is 'encourage and challenge'. This has rewarded FFG with excellence: numerous remarkable careers within FFG and innovative developments are just two features of this exceptional company.

Each and every employee is a highly qualified specialist in their field. Together, they find optimum solutions for our clients. In this way, with our diverse employees, we can offer everything from one source – from development to manufacturing to installation and on-site servicing.



### UNEQUALLED POWER UNDER THE TOUGHEST CONDITIONS

WiSENT 2 – the support vehicle platform

Unstoppable: the WiSENT 2 is the world's most advanced multi-functional vehicle platform. It is based on the Leopard 2 – one of the world's most successful tracked vehicles. Thus the WiSENT 2 benefits from a completely mature design that has proven itself in combat with absolute safety and reliability. With the WiSENT 2, FFG provides a support vehicle that was specially developed for current operations and deployment scenarios. The WiSENT 2 can be configured as a recovery or engineer vehicle in a few hours and vice versa.

Its armoured recovery vehicle configuration makes the WiSENT 2 a real powerhouse: with a crane for loads of up to 32 tons, a 40 ton main winch and an auxiliary winch. Combat recovery equipment enables the recovery and towing of equipment under armoured protection.

In its armoured engineer vehicle configuration, the WiSENT 2 is right on target with a modern hinged excavator arm for moving 300 cubic metres of earth per hour, and a special high-performance dozer blade.

Even in basic configuration, the crew is highly protected against ballistic and mine threats. The integrated mine protection ensures safety for the crew. The whole concept of the WiSENT 2 is rounded off with numerous additional equipment features such as add-on armour, RPG protection (Rocket Propelled Grenade) and a huge variety of tools for engineering and recovery purposes.





10 | 11



# **MISSION POSSIBLE**

### PMMC G5 – highest flexibility through a wide variety of mission kits and variants

With the PMMC G5 (Protected Mission Module Carrier), FFG developed a vehicle that can carry additional loads thanks to its spacious interior and flexible deployment options.

The very high level of protection sets new standards in its weight class. Even in its basic configuration the PMMC G5 provides an exceptionally high level of protection against mines and IEDs. The ballistic protection can be increased with the quick and easy installation of add-on armour.

The PMMC G5 provides maximum flexibility and is an excellent investment in the future of modern Armed Forces. The huge internal space and the versatile interior design allow the configuration of the PMMC G5 for almost any mission task. The interior kits use standardised parts and components and can easily be modified, adapted, or replaced by other kits within a very short time.

The combination of the basic vehicle platform G5 and the standardized mission kits assure the accurate configuration of the vehicle into the variant that best fulfills the given mission requirements.





### POWERHOUSE FOR ALL THE MOST DIFFICULT JOBS



#### WiSENT – the upgrade for ARV 2

Prepared for every challenge: with the proven WiSENT ARV and AEV, FFG provides the best answer to structural changes in many armies across the globe and is ready to meet future challenges. The flexible configuration options range from the Armoured Recovery Vehicle (ARV) with a 30 ton crane arm to the Armoured Engineer Vehicle (AEV) with a modern hinged excavator arm. The WiSENT can switch from dozer blade to a powerful mine plough for fast and safe tactical demining. Both configurations have a 35 ton main winch with constant pull and an auxiliary winch.

Both variants boast excellent performance data: the engine provides 960 hp and a top speed of 62 km/h. This means the WiSENT can easily follow the tank corps even over difficult terrain.

The ballistic protection level as well as the integrated protection against mines provide high crew safety in conflict areas.

Whether with a weapon station, additional RPG protection (Rocket Propelled Grenade), a heat-reflecting camouflage net or the other optional packages available – the WiSENT provides excellence with modularity, mobility and a high level of protection. This makes it a perfect companion for combat vehicles.



# **ALWAYS UP TO DATE**

#### Modular upgrade solutions for vehicle modernisation

For several decades, FFG specialists have been setting new standards in the field of combat efficiency and service life extension. With the development of the first M113 modernisation concept for the Federal Armed Forces of Germany, FFG proved its unique abilities for the first time. Today, we provide upgrade and modernisation solutions for all kinds of armoured vehicles worldwide.

From powerpack solutions, hull modifications, additional armour, protection packages, climate control and life extension packages, our development team can draw on a wealth of experience from numerous modernisation projects.

Extending and lengthening hulls can result in existing platforms being repurposed for other roles, providing excellent value for money.

In this way, we develop sophisticated solutions that are perfectly tailored to the needs of each customer. This approach extends the capability of current defence forces by ensuring that existing platforms today are ready for the challenges of tomorrow.





► 16 | 17

# THE FULL ALPHABET OF ENGINEERING SOLUTIONS THE ENTIRE SERVICE CHAIN

In order to meet national and international tasks and requirements, FFG provides complete solutions from A to Z: from development, construction and configuration management, manufacture and modernisation, and maintenance on-site to on-time global delivery and after-sales service around the clock. FFG has a global network for spare parts logistics – which means all parts are available everywhere quickly and reliably. Should something be missing, we can cost-effectively manufacture high-quality assemblies and components ourselves.



# **ALWAYS WELL PREPARED**

### FFG – expertise in servicing and modernisation

FFG has been a partner of the German Federal Armed Forces for more than 50 years in all aspects of wheeled and tracked vehicles. Our key competencies for general overhaul and extensive repairs as well as retrofitting armoured vehicles range from single components to main and sub-assemblies and also complete systems.

The core skills of FFG are in the maintenance of military equipment up to depot level, where the company is distinguished by an especially high level of in-depth and wide-ranging maintenance expertise. This is in contrast to traditional vehicle manufacturers who primarily assemble components and sub-assemblies. In addition to maintenance, FFG has also mastered the production of many of these components.

The FFG specialists know most of the NATO vehicles inside out – from the technology of the turret with a gun and fire control system, to on-board communications, transmissions, hulls and subsystems.

The versatility of FFG enables the Federal Armed Forces and military customers from other nations to flexibly and economically plan.





► 20 I 21

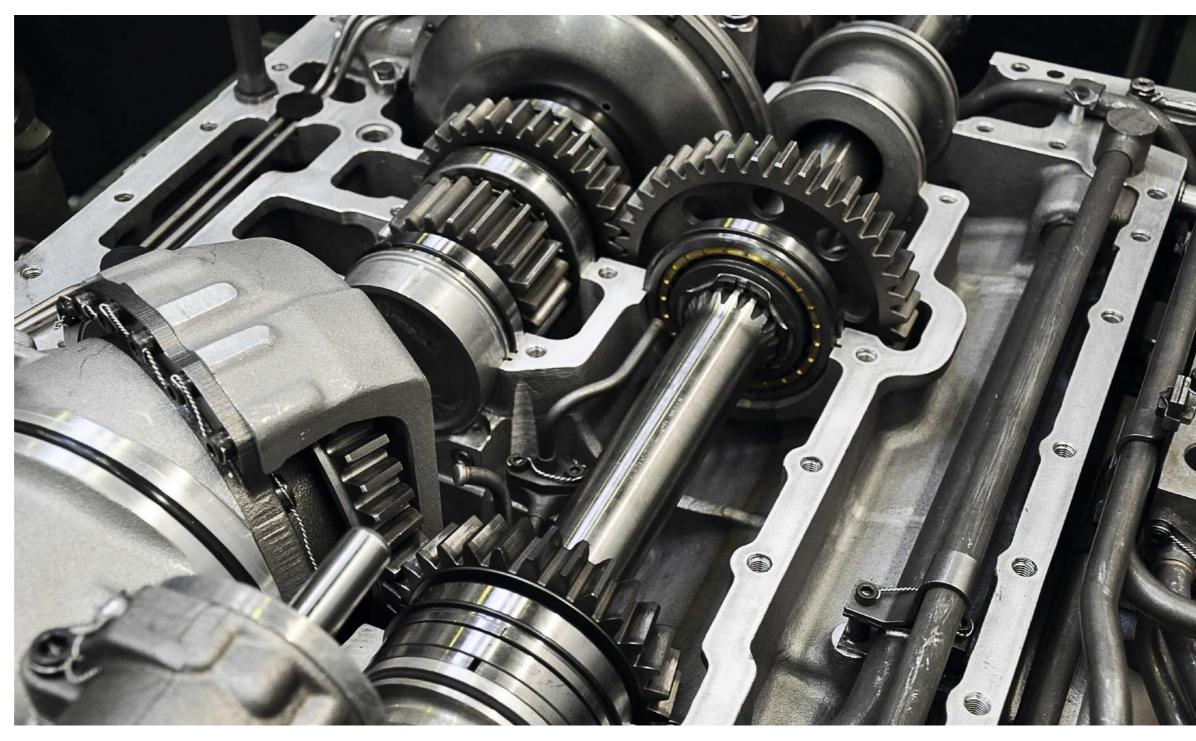
### PERFECTION IS OUR DRIVING FORCE

#### FFG drive technology

One of FFG's core competences is our Drive Technology department. Built up over many years of experience in processing and installing components with unusual dimensions and using modern testing equipment, FFG is your perfect partner for all scales of drive technology.

Be it for mobile or stationary use, on- or off-shore applications – the experienced employees and engineers at FFG understand how to implement virtually every requirement in the field of drive technology. Innovative solutions of the highest quality that go beyond the ordinary, as well as integrated service, form its basic provision.

As well as the development and advancement of entire drive solutions, FFG's service spectrum also includes the maintenance of various engine and transmission variants with extraordinarily deep repair expertise.





► 22 | 23

## **MAXIMUM PERFORMANCE** WITH HIGH TECH

From individual components to complex systems

FFG stands for the highest level of precision in individual structural parts as well as in highly complex integrated systems. One example is the launch vehicle we developed and manufactured for the KZO, an advanced reconnaissance Unmanned Aerial Vehicle (UAV). The vehicle operates autonomously and requires no external support or auxiliary systems. The launch procedure is digitally controlled in all sequences and guarantees fast and safe deployment.

A further outstanding example of precision and high tech are the FFG-made structural parts of the launcher container and the complete loader units of the RAM and SeaRAM air defence systems that are used in the navies of many countries.







# **ALWAYS READY**

### FFG's worldwide service

You can rely on FFG: 24 hours a day 7 days a week. Our customer service for military wheeled and tracked vehicles is there on demand for customers worldwide. We flexibly adapt our services to your needs.

Our customer service technicians are well equipped for any occasion with mobile testing, maintenance and repair equipment. They ensure reliable operational readiness of vehicles and devices at all times. Our skilled teams ensure that downtime is kept to a minimum by conducting scheduled servicing. In addition to maintenance our service teams also carry out system-related testing, accident repairs and the installation of technical modifications. On-site, to suit you, of course.









# **TOMORROW'S SOLUTIONS TODAY**

#### Innovative development work at FFG

FFG innovations ensure that you can overcome future challenges with our solutions. That applies to new developments as well as to detailed improvements and the optimisation of entire systems. In conjunction with universities, colleges and material testing institutes, our engineers, designers, manufacturers, quality control specialists, electronic engineers and programmers are constantly developing innovative solutions. The results are evident, and include the versatile PMMC G5, the concept of the WiSENT 2, the construction of the aluminium bodywork of the Flensburger Koffer or the development of customer-specific solutions for the elephant high-pressure rinsing and suction vehicle.

Targeted technical creativity and many years of experience are the best pre-conditions for FFG's success in the future. But new solutions are not always necessary – it is often more useful to develop intelligent improvements and additions. This is where the unique expertise of FFG lies: the optimisation and performance improvement of proven systems and setting new standards.



# ISO CERTIFICATION – QUALITY MANAGEMENT TOTAL COMMITMENT FOR BEST QUALITY

Meeting and exceeding our customers' requirements is our daily goal. That is why we do everything to ensure our products and services remain high quality. The flexibility and individual performance of each and every employee contributes to this. Continuous improvement and innovation in all working processes are an integral part of our company philosophy.

Intercompany exchange with all suppliers at all levels of production is a part of our integrated quality management system. We guarantee a quality standard which is documented by our certification in accordance with DIN EN ISO 9001 – and which also meets much higher standards in many other areas. QUALITY

PLANNING







Scan the QR code for more information and the FFG website.

www.ffg-flensburg.de

#### FFG FLENSBURGER FAHRZEUGBAU GESELLSCHAFT MBH

Werftstraße 24 D-24939 Flensburg

PO Box 15 64 D-24905 Flensburg Phone +49 (461) 48 12-0 Fax +49 (461) 48 12-100

info@ffg-flensburg.de www.ffg-flensburg.de