



**PIANIFICARE ATTIVITÀ E
RISORSE PER GARANTIRE
EFFICIENZA E QUALITÀ DEL
PROCESSO PRODUTTIVO E
DELLA GESTIONE FORNITORI**

**STEFANO ZECCHINATO
CHIEF OPERATING OFFICER**



Leading global designer and manufacturer of generators and electric motors with a long history of delivering innovative solutions



Products & Services



Generators



Motors



Aftermarket Service

Key Sectors

Cogeneration



Marine



Hydropower



Generator Sets & Dynamic UPS Systems



Oil & Gas



Industrial Manufacturing



Marelli serves Customers in 120 countries

Long Standing History

- Strong brand heritage since its inception in 1891, when Ercole Marelli founded the company
- Merged with Pellizzari in 1901
- 1996 became part of FKI PLC
- 2008 became part of Melrose Industries PLC
- 2011 established manufacturing facility in Malaysia
- 2013 became part of "The Carlyle Group"

Significant Achievements



Access to customers in over 120 countries across diverse end markets

Geographic presence



Comments

- Global reach with established sales and distribution network across four continents
- Focus on increasing growth and global footprint worldwide with the support of the new Shareholder “The Carlyle Group”

Marelli offer evolution

FROM



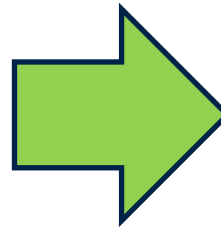
STANDARD PRODUCTS



TO



WIDER RANGE
PORTFOLIO

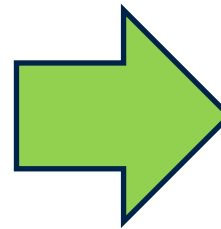


FROM

TO

ONE SINGLE

- QUOTATION MODEL,
- ORDER FLOW,
- ONE PRODUCTION STD.
- ONE DELIVERY PROCESS



CUSTOMIZED

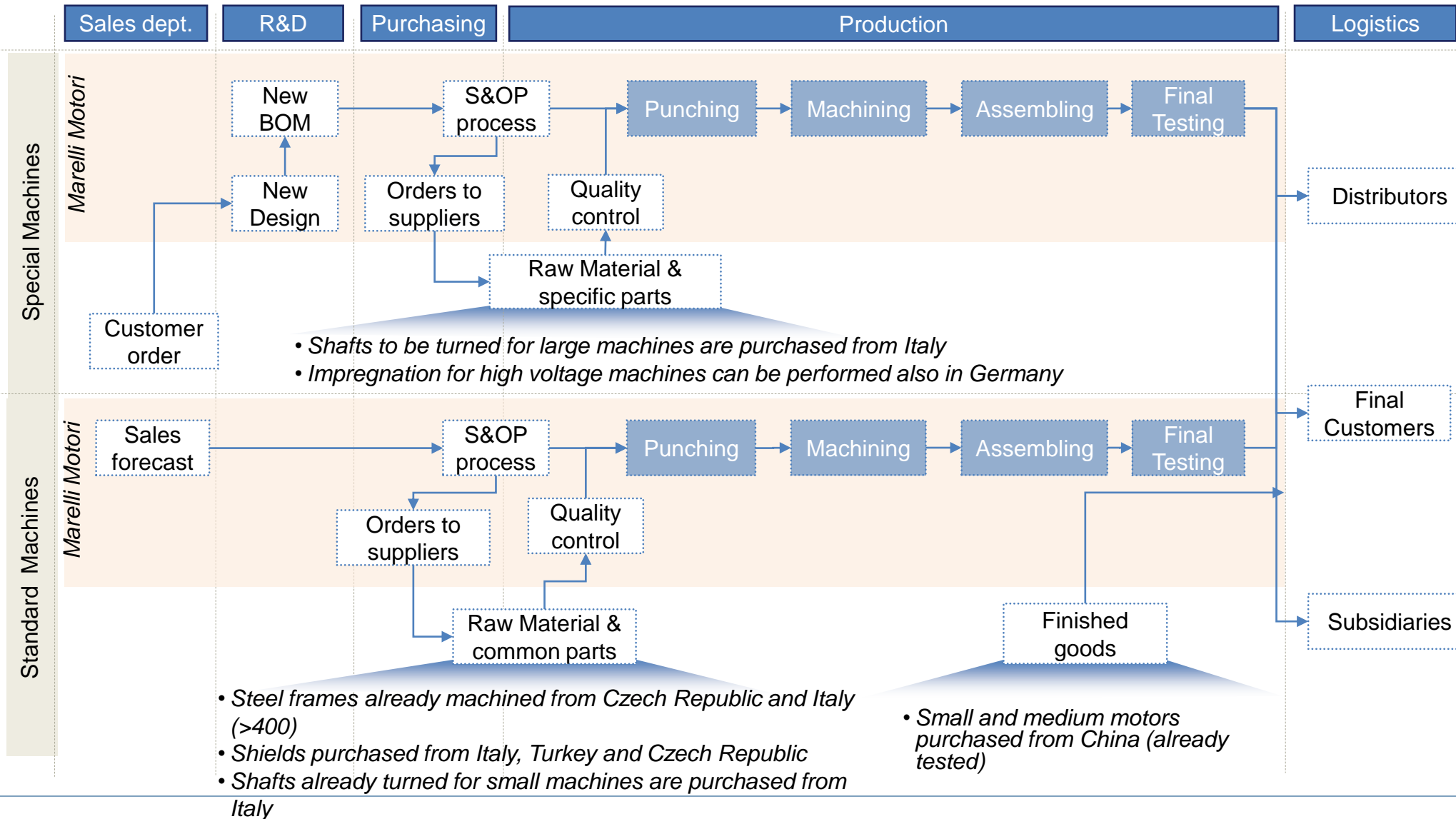
- QUOTATION
- ORDER
- DESIGN
- PRODUCTION
- DELIVERY
- PROCESSES

(standard)

**PRODUCTION DRIVEN
ORGANIZATION**

**MARKET DRIVEN
ORGANIZATION**

Vertically integrated manufacturing process



The production process

PUNCHING



MACHINING



WINDING



IMPREGNATION



PAINTING



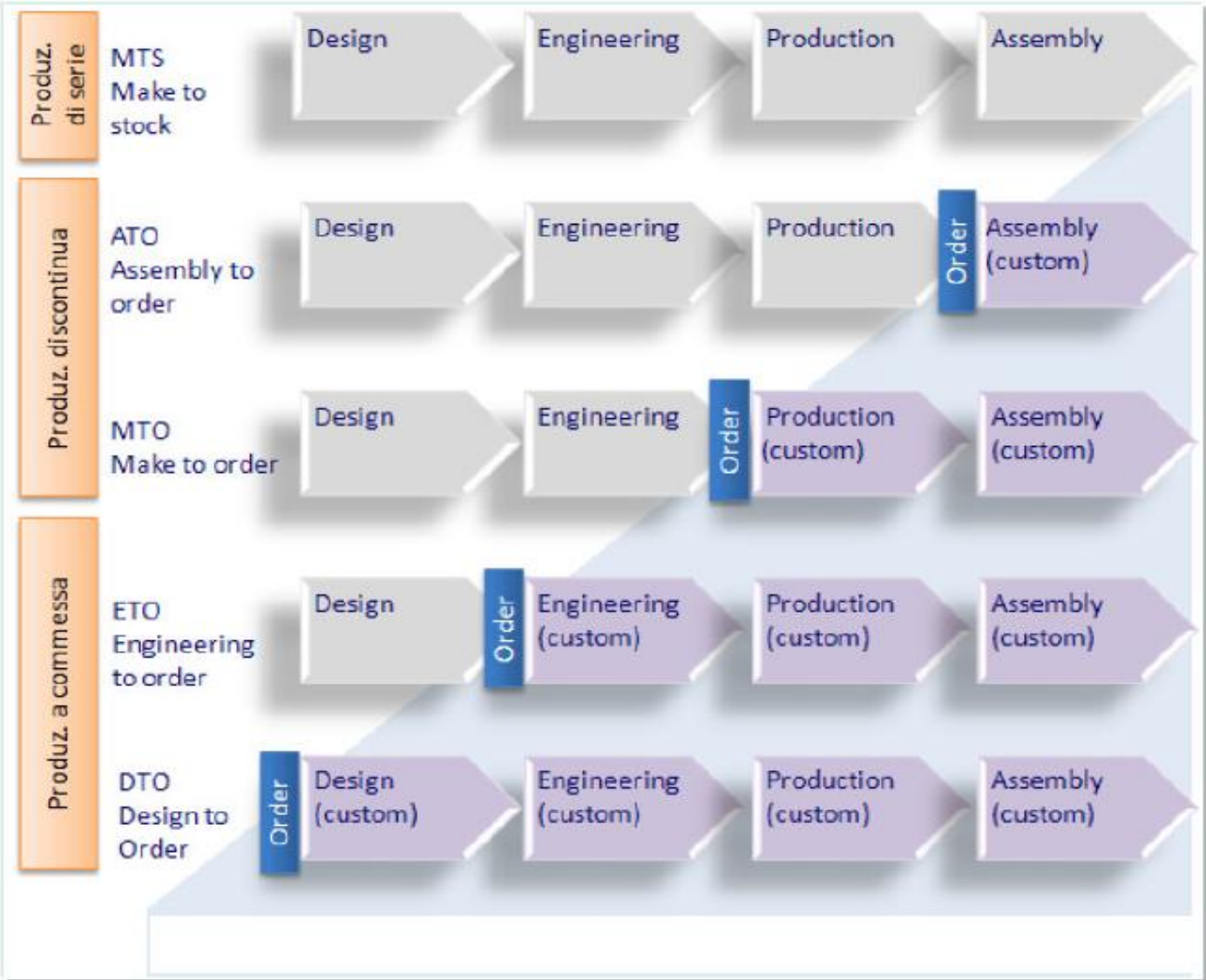
TESTING



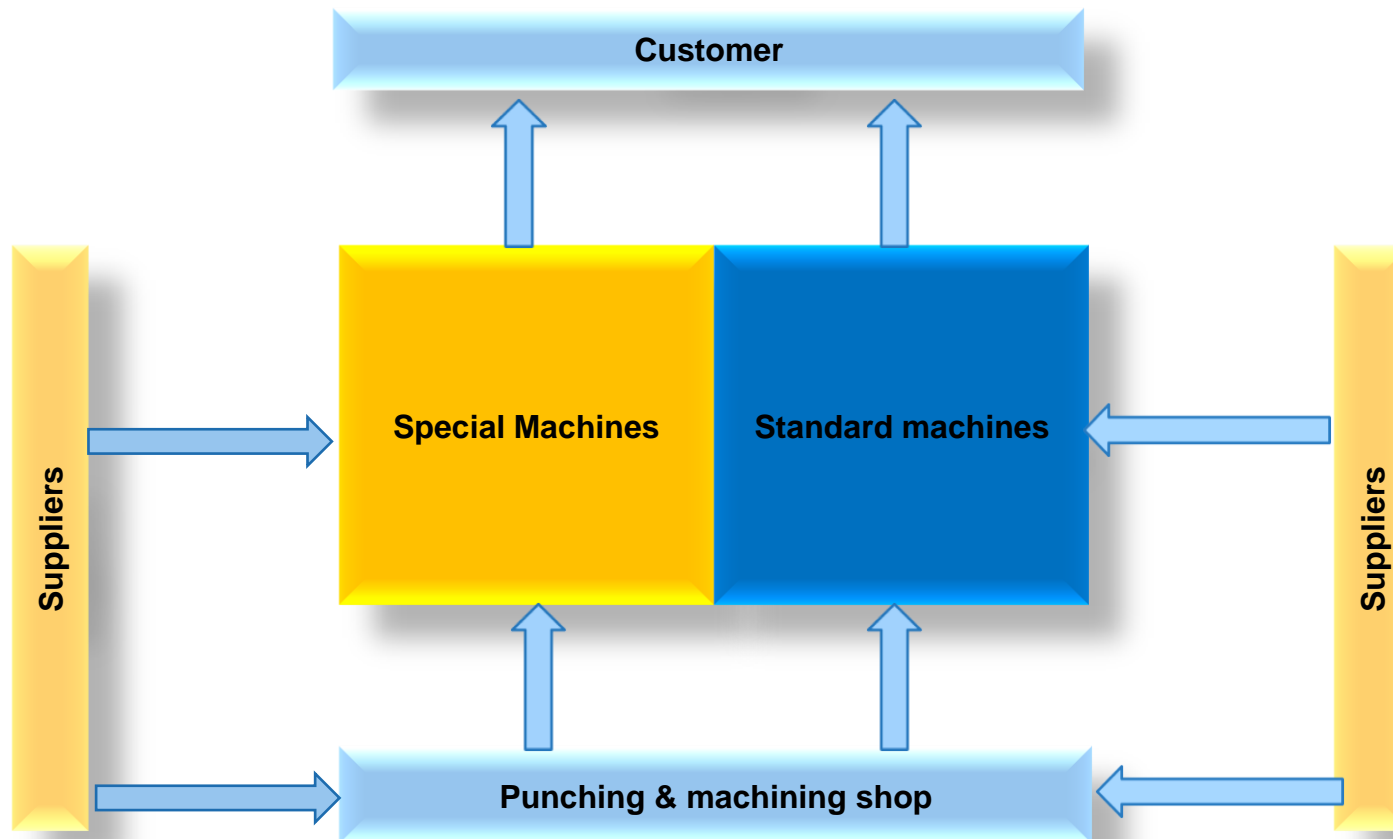
ASSEMBLING



Production models – inside the same organization



Marelli Motori Manufacturing Model



Internal constraints

- Equipments
- Skills
- Manufacturing plan stability

External constraints

- Suppliers capability
- Supplier flexibility & responsiveness

GOALS:

- Synchronization between material availability & manuf. plan
- Better resources utilization
- On time assembly and delivery @ expected cost



Pull orders with Suppliers: Synchronize processes

MRP methodology → too high PO maintenance

PULL methodology to manage PO lines was introduced at the end of 2009

The procedure allow the synchronization of the Marelli Motori Production Plan with the Supplier production Plan.
Initially developed for the standard items, in 2012 has been extended to manage the priorities of special components

GOALS:

- Better coordination between Purchase office and suppliers
- More than 100 suppliers involved – 1000 items/week
- Work optimization (- 15.000 PO lines per year)
- On time material availability
- Stock reduction
- Better rotation indexes (96 days @ Jan '08 – 70 days @ July '13)



Pull orders with Suppliers : How the system works

Through a dedicated internet access, suppliers can retrieve MM weekly needs for their items



The system reports the current week needs and a rolling forecast for 8 weeks based on the real production plan





Suppliers will deliver what is necessary for the subsequent week
For special items a dedicated delivery plan is issued two weeks before assembly



Operating a flexible and productive manufacturing model from two high quality facilities

Overview of Manufacturing Capabilities

Facility		Arzignano, Italy	Shah Alam, Malaysia
			
Year Established		<ul style="list-style-type: none"> ■ 1974 	<ul style="list-style-type: none"> ■ Established in 2010 ■ Production commenced in 2011
Key Product Lines		<ul style="list-style-type: none"> ■ Large and Medium-Sized Generators ■ Large Electric Motors ■ Specialised Electric Motors and Generators 	<ul style="list-style-type: none"> ■ Medium Generators
Key Metrics	Coverage Area	<ul style="list-style-type: none"> ■ Shop Floor : 45,000m² ■ Office Space: 3,300m² ■ Other: 6,700m² ■ Total Coverage Area: 55,000m² 	<ul style="list-style-type: none"> ■ Shop Floor:6,720m² ■ Office Space: 1,300m² ■ Total Coverage Area:8,020m²
	Employees	<ul style="list-style-type: none"> ■ Approximately 650 	<ul style="list-style-type: none"> ■ Approximately 250



Cogeneration

- **Product:** Gas-diesel engine, gas-steam turbine alternators
- **Application:** CHP, hospitals, banks, markets, waste to energy plants
- **Ratings:** Ratings up to 9MVA (Low, Medium and High Voltage)
- **Overview:**
 - Reliability and efficiency 365 days operation
 - Pre-engineered solutions
 - UL & IEC
 - Marelli proprietary digital regulation
 - Several options available



Hydropower

- **Product:** Water turbine direct driving the generator
- **Ratings:** Vertical and horizontal up to 7MVA (Low, Medium and High Voltage)
- **Overview:**
 - Fully customized
 - Co-design to maximize plant performance
 - In-house design and testing capabilities
 - Mechanical and electrical options
 - Several accessories available

Main Generators

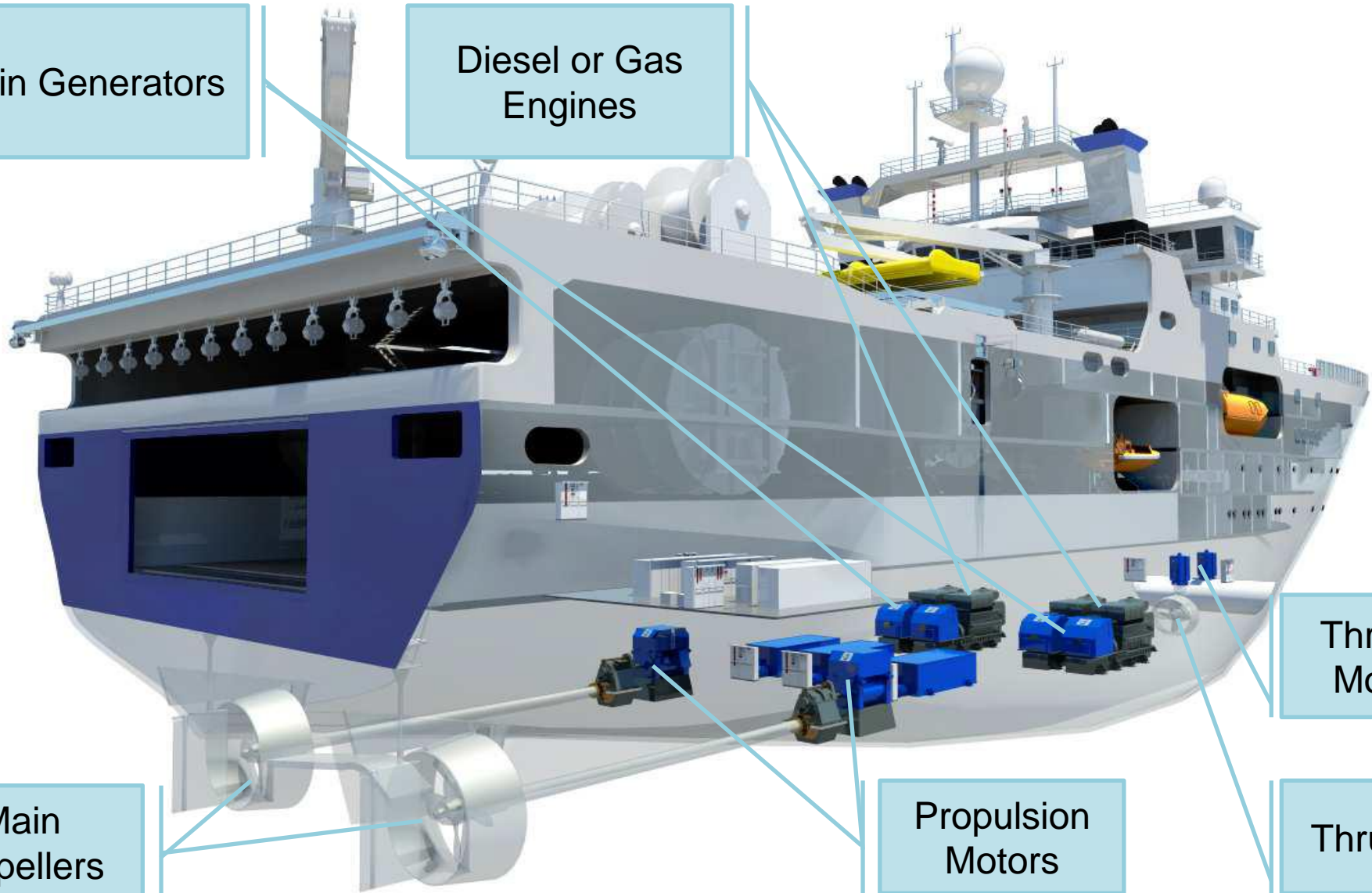
Diesel or Gas Engines

Thruster Motors

Main Propellers

Propulsion Motors

Thrusters





Motors

- **Product:** Compact high efficiency water jacket motors
- **Applications:** Main Propulsion, thruster and aux
- **Overview:**
 - 7MW (ODP), 3.2MW (water jacket), 7MW (TEWAC)
 - Pre-engineered solutions
 - Vertical, horizontal, inclined
 - Options available
 - Full load testing capabilities at variable speed
 - TAC



Generators

- **Product:** Designed to meet genset requirements
- **Ratings:** up to 7MVA (Low, Medium and High Voltage)
- **Overview:**
 - Reinforced design severe duty service
 - Mechanical and electrical options
 - Emergency and transient mode capabilities
 - Extensive testing
 - Bespoke solutions



Motors

- **Applications:** Compressors, fans, pumps, HVAC, cement, pulp & paper, metals, ropeways
- **Overview:**
 - 7MW (ODP), 3.2MW (water jacket), 7MW (TEWAC)
 - Catalogue and special
 - Variable speed
 - High Efficiency IE2 available – IE3 by end of 2013
 - Mechanical and electrical options
 - Full load testing capabilities at variable speed



Generators

- **Product:** Generator sets-prime power, peak and stand by
- **Ratings:** up to 9 MVA (Low, Medium and High Voltage)
- **Overview:**
 - Dynamic UPS
 - Emergency special power packs for O&G back up power
 - Extensive testing
 - Standard and customized solutions
 - Proprietary analogue and digital AVR



Motors

- **Applications:** From desert to arctic environments
- **Ratings:** 560kW (LV) and 350kW (MV) – 750 kW in 2014
- **Overview:**
 - High Technology and quality
 - Manufacturing process and product approved under ATEX IEC scheme
 - Certified for variable speed service
 - From single units to whole plants
 - Genuine spares





THANK YOU!