



**WOMA 700ZWG ECOMASTER  
ADVANCED PUMP TECHNOLOGY**



Water as a tool

**WOMA**<sup>®</sup>  
GLOBAL SOLUTIONS LOCAL INGENUITY

**AUSJET / ADCVA INNOVATION SAFETY AWARDS SUPPLIER CATEGORY**

**WOMA (Australia) Pty Ltd**

**Author: Rebecca (Bec) Fowler**

**August 30<sup>th</sup> 2024**

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## WOMA (AUSTRALIA) SUBMISSION

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### **Supplier Award Category:**

*Awarded to an organisation that has improved industry safety through innovation, via the introduction of new products or the enhancement of existing products or services.*

*To enter this category an organisation must demonstrate how they improved safety through innovation.*

### **SUBMISSION DETAILS**

WOMA 700ZWG Ecomaster – Advanced High-Pressure Pump Technology

### **CONTACT DETAILS**

Ms. Rebecca (Bec) Fowler  
Personal Assistant to MD  
+61 8 9434 6622  
hpwater@woma.com.au

### **DECLARATION**

I hereby declare the information enclosed herein and all attachments to be true and complete to the best of my knowledge.

I understand that any information provided in relation to this Award will be used by AUSJET and the Assessment Panel for the award judging process.

Upon request and authorization by WOMA (Australia) Pty Ltd, WOMA may authorise the use and public release of all information contained within this submission by AUSJET for promotional purposes.

I declare the organisation I am lodging the submission on behalf of does not have any current or ongoing major incident cases open at the time of lodgment. I understand I must notify AUSJET of any incidents and accidents to ensure the betterment of safety and productivity in our industry.

Name: **Rebecca Fowler**

Date: **30.08.2024**

Signature: **B Fowler**

## WOMA (AUSTRALIA) PTY LTD

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**WOMA** Australia is an agile, bespoke original Industrial Equipment Manufacturer (OEM). **WOMA's** focus on seamlessly integrating positive displacement, high pressure, steam, vacuum, pneumatic, hydraulic, compressor, generator, explosion protection and related robotic automation technologies with industry is well proven. We offer experienced and dedicated Engineering, Manufacturing, Service, Training, Rental and Customer Support services driven to provide direct technical and problem solving solutions to our valuable clients. Your critical deliverable is our concern and **WOMA** has the experience, knowledge, resources and skills you can rely on to meet your ESG, Technical and Productivity benchmarks. We aspire to provide improved service to pro-active and dynamic customers working in hazardous & non-hazardous working environments. **WOMA** is a steadfast business partner in the resources sector (Oil & Gas, Mining & Minerals processing), Waste & Recycling, Manufacturing (Cement, Sugar, Fertilizer, Food & Beverage), Shipping, Marine, Defence, Municipal & Civil Construction.



**Truck-Mounted version - WOMA 700ZWG EcoMasterpecific.**

## EXECUTIVE SUMMARY

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The **WOMA 700ZWG ECOMASTER** – represents optimised safety and flexibility with high performance and low consumption. This development and successful market release is the result of exhaustive industry consultation and development and represents the very cutting edge of High Pressure water technology.

This particular EcoMaster ZWG is regulated by an integrated intermediate, automatic gearbox in a power range of 50 to 500 kW. This machine combines the complete range of high-pressure applications in industry with optimised fuel consumption, pressure and flow selection and reduced wearing of pressure regulating parts.

# WOMA - CULTURE AND LEADERSHIP

**WOMA** has worked extremely diligently to develop an open-minded, transformative Company culture focused on Customer deliverables and appropriate product development. Specifically, **WOMA promotes;**

- **Positive safety, product development and customer-focus culture**, including demonstrated engagement of internal business unit managers and external business partners with the hosting on an Annual Strategic Planning Event
- **Demonstrated company-wide focus on safety performance** with regular Toolbox Safety Meetings
- **Demonstrated consultation and engagement with its workforce, contractors and customers** with regular WOMA / Client Continuous Improvement Consultations
- **Support to Staff (e.g. induction, training and professional development), including Technical & Leadership development training**
  - **WOMA** does not overlook the importance of workforce training in process optimization. We equip our team with the skills and knowledge they need to embrace new technologies and methodologies. Continuous training ensures that everyone is proficient in the latest techniques and tools, which is essential for maintaining an innovative and competitive edge in production and as an industry technology partner.
- **Contribution to Industry and Industry Associations** for example AUSJET, ACRA, ACA, CCI and other industry leading entities
- **ESG & Sustainability Focus** - innovation isn't just about efficiency—it's also about sustainability. **WOMA** designs processes that are not only cost-effective but also environmentally responsible. We look for ways to reduce energy consumption, minimize waste, and use materials more efficiently. Sustainable practices can lead to significant long-term savings and a stronger brand reputation for WOMA, its clients, their clients and for future generations.



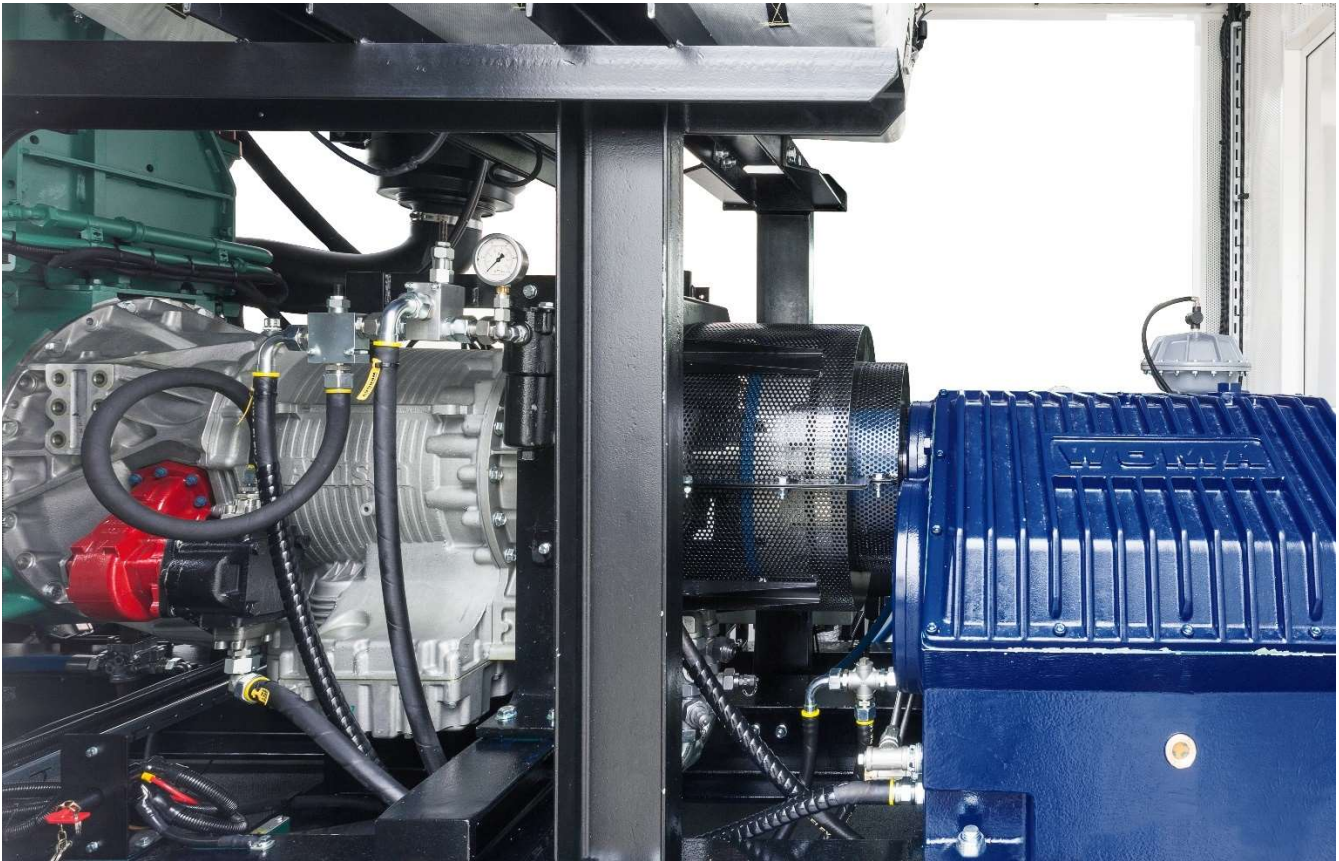
## WOMA – PRODUCT DEVELOPMENT

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**WOMA** as an OEM works diligently to develop an open-minded, transformative Company culture focused on Customer deliverables and appropriate product development. Specifically, **WOMA promotes the following Principle stages;**

- **Industry Consultation & Collaboration** – by analyzing the data available to us; via Site consultation or Scope of Work (SoW) briefings and documentation, we draw on leading edge global solutions and apply local-knowledge and ingenuity to innovate operational processes and solutions for our clients.
- **Design Concept & Modelling** - tools like Siemens Solid Edge 3-Dimensional (3D) Design software and associated Finite Elemental Analysis (FEA) or Computational Fluid Dynamics (CFD), enable monitoring and analysis of structure and design options, identifying areas of advantage, waste and inefficiency.
  - FEA is the process of predicting an object's behavior based on calculations made with the finite element method (FEM) analyses and optimizes our designs with weld modeling, complex load path analysis, and more. Advanced technology allows for quick and precise structural and thermal analysis.
  - In a CFD software analysis, fluid flow and its associated physical properties, such as velocity, pressure, viscosity, density, and temperature, are calculated based on defined operating conditions. In order to arrive at an accurate, physical solution, these quantities are calculated simultaneously.
- **Early Concept Primary Design Review** – clear understanding of the current state of a client's operational intent and a 3D designed solution model, enables the development of targeted strategies for solution improvement. This stage enables cross-checking and refinement both internally and externally with their own client and the operational challenges at hand.
- **Prototype Manufacture & Market Testing** - embraces lean manufacturing principles to eliminate waste and optimize our production processes. This approach focuses on value creation for the end customer with minimal waste. We identifying non-value-added aspects or activities and find ways to reduce or eliminate them.
- **Secondary Design Review** - adopting a mindset of continuous improvement is a cornerstone of industrial engineering. **WOMA** encourages small, incremental changes on a regular basis rather than waiting for a major overhaul. This philosophy fosters a culture of innovation and helps to sustain gains in efficiency and productivity over time. Employing FEA, CFD and other automation technologies, we can optimize production. Integrating semi-automation and full robotics automation, we can increase safety, precision and operational consistency while reducing human error and labor costs. Automation also allows **WOMA** and its clients to collect data in real-time, providing valuable insights that can drive further innovation in our processes and solutions.
- **Product Development and Market Release – WOMA's Roadmap to Release** is multi-staged, as best as possible ensuring that the Refine and Release stage is perfecting the product based on real-world feedback and then launching it into the market in a way that maximizes its chances of success. It's not just the end of the product development process, but also the start of the product's life in the market.

**SAFETY THROUGH INNOVATION AND EXTERNAL ADVOCACY**



**Advantages at a glance:**

The **WOMA** EcoMaster ZWG features a reliable, multi-stage intermediate gear with additional overdrive function. This enables the fuel consumption to be minimised due to the engine working at a low engine speed (RPM). This ensures that the right machine size (Pressure & Flow combination) is always available for every application.

Using the overdrive function provides a remarkably low fuel consumption at maximum output. The machine can be operated at full power with optimal efficiency and still retain comparatively low fuel consumption when compared to direct demand systems of the same kW output.

Noise emission is considerably reduced due to the speed reduction of the engine and due to a range of other measures that have been applied to the exhaust system and to the general housing.

Gear shifting is conveniently controlled via an automated PLC display and takes place seamlessly without load during operation.

The machine has a soft start function in idle mode, which protects the pump, increases the service life and reduces wear and tear.

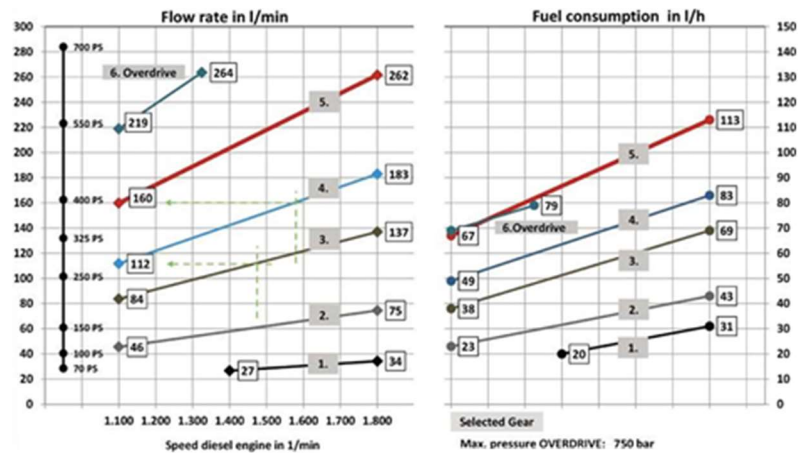
Specific power output and fuel consumption are constantly indicated to allow full control over operating costs.

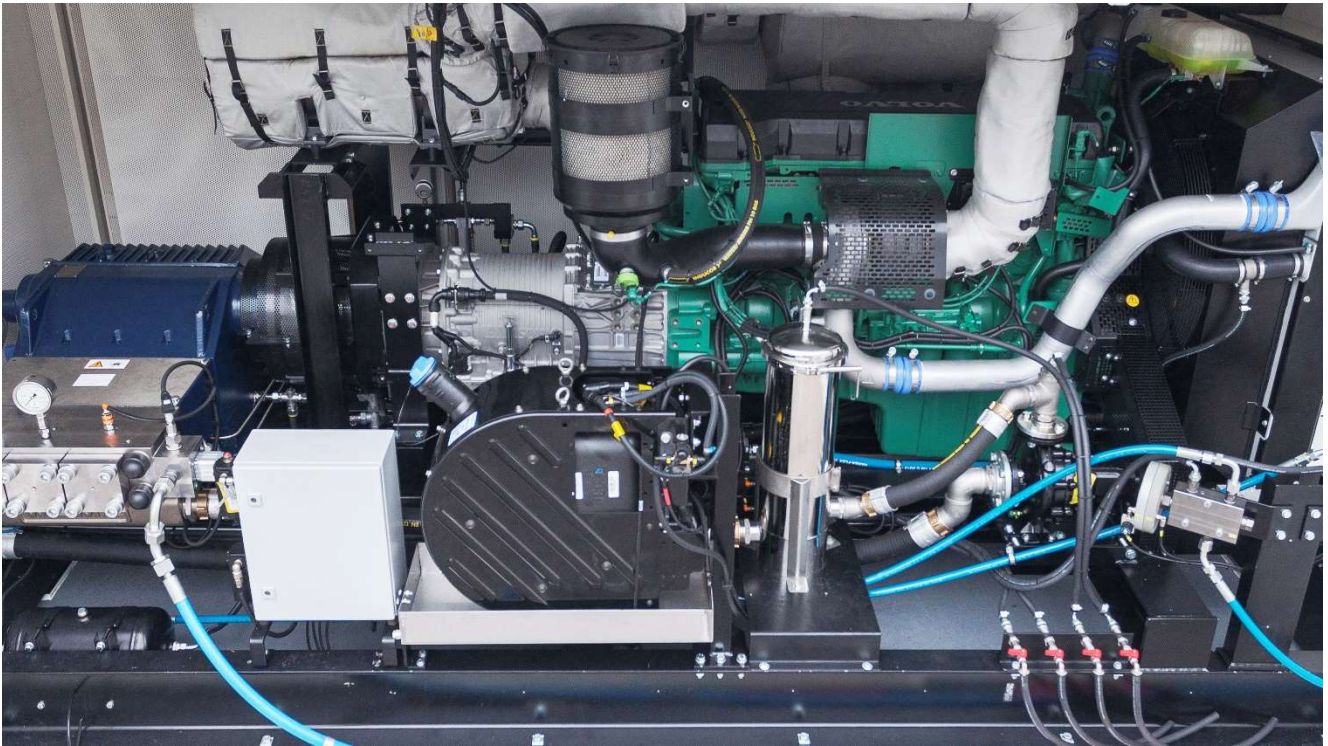


**Image Above:** Specific power output and fuel consumption are constantly indicated to allow full control by the Contractor over operating costs.

Technical data					
High-pressure unit	700Z	550Z	400Z	550M	400M
Max. Pressure	750 - 1.500 bar	850 - 1.500 bar	1.000 - 1.500 bar	2.000 - 3.000 bar	2.000 - 3.000 bar
Volume flow	27 - 264 l/min	25 - 259 l/min	23 - 131 l/min	62 - 105 l/min	42 - 67 l/min

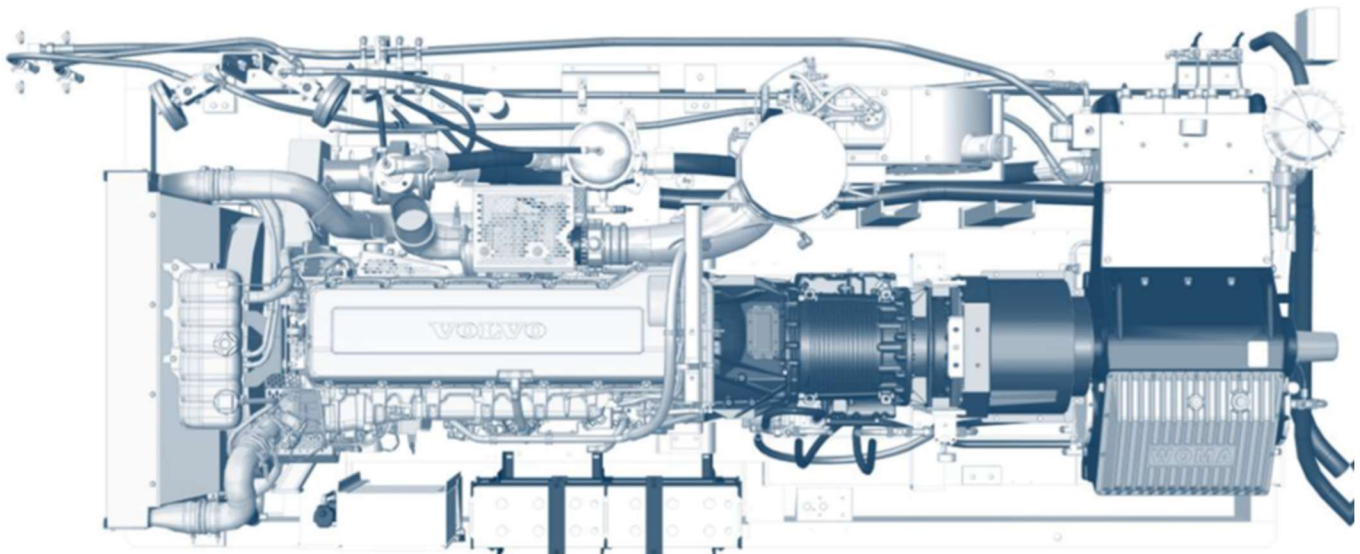
**Image Right:** Volume (per minute flow) and fuel consumption (Litres per hour) depending on gear at 1000 bar based on the example of the WOMA EcoMaster D 700Z 1000/262 ZWG. This example a demonstrated lower cost solution for more efficient and improved performance. The Automated PLC and programming demonstrate the application of and ability to interpret and apply data and analytics, ensuring that operational applications can be data-logged for future retrieval and application on the same and similar taskings.





**Image Above:** Employing a Tier 6 Engine with Add Blue displays a commitment to supporting industry-wide performance improvement via the application of technology to manage and reduce fuel consumption and emissions.

**Image Below:** The **WOMA Ecomaster** series demonstrates innovation far beyond that of other comparative High and Ultra High-pressure pumps available to the Global market. The team at WOMA have applied automation, digitization and applied technological innovation.





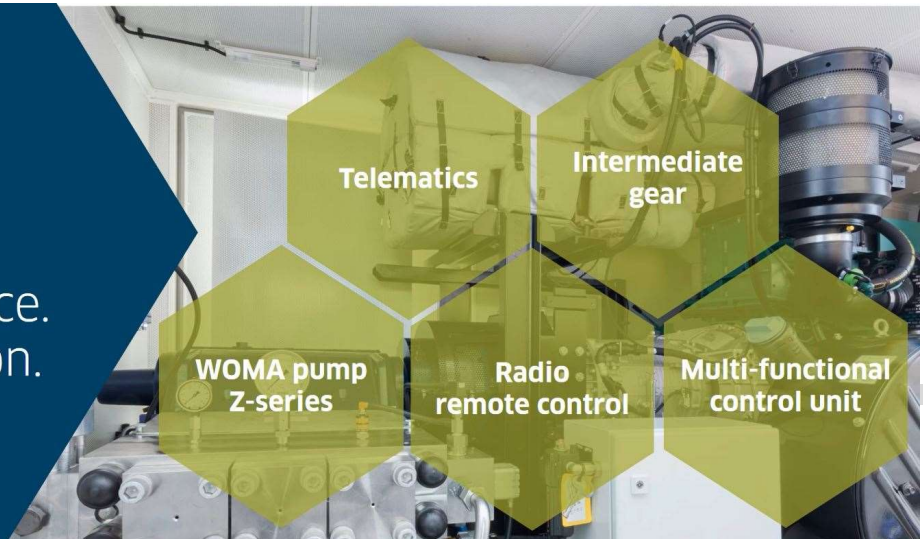
**Image Below:** Operational application, performance and diagnostic information stored in the **WOMA Ecomaster** series' PLC can be accessed directly or via telematic intervention. This ensures that learnings become Intellectual property for the Contractor and can be shared with the workforce, relevant stakeholders, and industry peers/clients as required.



**Image Below:** The patented **WOMA Ecomaster** 'system' represents the successful result and application of substantial research and development and patently indicates WOMA's ongoing commitment to supporting industry-wide performance improvement, from safety to productivity and from environmental custodianship to quality operations.

# WOMA EcoMaster 700Z ZWG

High performance.  
Low consumption.



WOMA  
pump  
Z-series

Operating  
pressures  
up to  
1.500 bar

Flow rates  
up to  
264 l/min



## SUPPORTING INFORMATION

**WOMA** has worked diligently to ensure availability of this global leading-edge technology for the Australasian market with complete containerised new Units available immediately on both the West and East coasts of Australia.

Please refer to the video below for a brief overview of the entire system which will be on display at AUSJET24.

- **Video Ecomaster 700 Z WG**