



Application Bulletin



ROTAMASS Total Insight

Coriolis Flow Meter

Flow, Density and Concentration Measurement



For low flow applications

Typical line sizes: DN15, DN25, DN40, 1/4", 3/8", 1/2", 1", 1 1/2"

Maximum mass flow up to 1.5 t/h



Versatility with lowest cost of ownership

Typical line sizes: DN15, DN25, DN40, DN50, DN65, DN80, 1/4", 1/2", 1", 1 1/2", 2"

Maximum mass flow up to 80 t/h



Superior performance under demanding conditions

Typical line sizes: DN15, DN25, DN40, DN50, DN65, DN80, DN100, DN125, 1/4", 1/2", 1", 1 1/2", 2", 3", 4", 5"

Maximum mass flow up to 170 t/h



For high pressure applications

Typical line sizes: 1/2", 1", 2"

Maximum mass flow up to 50 t/h



For food & beverage, biotechnology and pharmaceutical utility

Typical line sizes: DN15, DN25, DN40, DN50, DN65, DN80, 1/2", 1", 1 1/2", 2"

Maximum mass flow up to 80 t/h



Flexible installation for high flow applications

Typical line sizes: DN100, DN125, DN150, DN200, 4", 5", 6", 8"

Maximum mass flow up to 600 t/h





Just because flow rate is small doesn't mean that it shouldn't be accurate. The Rotamass Nano is perfectly balanced in all aspects of its design to deliver consistent repeatable and accurate measurement.



The ROTAMASS TI series Coriolis flow meters is the most technologically advanced mass flow meter yet. By combining the superior design of the application specific flow sensor and transmitters with the Total Insight philosophy and functionality, the flexibility of the Rotamass to adapt to changing requirements guarantees performance throughout the lifecycle of the process measurement.

Good things come in small packages

Laboratory conditions do not happen in industrial environments, so your flow device should be designed to handle real-world conditions. With measuring tubes being so small, every consideration was taken in the design to ensure best performance. Rotamass Nano versatility is supported by its high pressure immunity and ability to handle a large range of temperatures. This is further enhanced by specifically engineered insulation when required.

It's not a matter of size - it's about performance

The main challenge for small Coriolis flow meters is that they are more susceptible to environmental and process changes. Proper selection of measuring

tube material and the unique inline temperature measurement minimize such effects on the measurement, allowing for a continually repeatable and accurate reading.

Better safe than sorry

Having a precise measurement is no longer enough. Continuous and reliable operation is just as important as the measurement being taken. The Rotamass Nano ensures uninterrupted measurement by design from the inside out. From the material of the tubes to the reinforced stainless steel housing, the physical integrity of the unit will not be compromised. Combined with the advanced diagnostics available, not only will you know before issues arise, but Total Insight has the ability to manage the situation.



Precision Chemical Dosing

- Unlimited aeration handling capability offers continuous control and effective chemical usage.
- Dual bent tube design ensures stable zero stability and highest accuracy reducing operating cost, maintenance and downtime
- Construction allows for no additional inaccuracies with large temperature swings.



Batch Processing

- High resolution measurement reduces batching errors and product losses
- Rotamass Smart Power Management ensures optimum performance under extreme aeration conditions
- Self-draining design which is on-line cleanable (CIP/SIP) and eliminates product contamination

Methanol Injection (Hydration Inhibition)

- The unique design for inline temperature measurement guarantees stable zero, stable mass flow and density measurements
- The absence of gasket combined with seamless tubes reduce the risk of leakage to the minimum
- Sound design with measuring tubes made of alloy C-22, all stainless steel, welded and gas tight sensor housing ensure a high level of safety



When every drop counts

Dedicated Functionality

- Pre-programmable parameter sets
- Batching capabilities
- Trending and recording
- Event management
- In-line verification & reporting
- Tube health check
- Customizable concentration curves
- Intuitive user tools

Max Flow Rate: 1.5 t/h
Process Connection: Up to 40mm (1.5")

Material of Construction:

- Wetted: Nickel alloy C22
- External: Stainless Steel

ROTAMASS

prime

Rotamass Prime offers best price to performance ratio with versatility to meet your process needs. Even after installation, lowest pressure drop continues to increase your return on investment.



The ROTAMASS TI series Coriolis flow meters is the most technologically advanced mass flow meter yet. By combining the superior design of the application specific flow sensor and transmitters with the Total Insight philosophy and functionality, the flexibility of the Rotamass to adapt to changing requirements, guarantees performance throughout the lifecycle of the process measurement.

Performance without compromise

No longer is Coriolis based measurement restricted to your high-end applications. Rotamass Prime delivers highly accurate, true multivariable measurement for the same cost as traditional single variable measurement devices such as positive displacement meter. Along with reducing your capital expenditure, ROTAMASS Prime continually reduces operational cost with benefits such as lowest pressure drop and lifecycle management support.

Tailor-made to fit

The freedom to select a meter that suits your process without compromise is now possible with the Rotamass Prime. Already with the multi flange concept, you can select the best sized meter for your process and not be restricted by your line size connection. Add to that the ability to customize your transmitter package for every aspect, from I/O configuration to a universal power supply to fit any installation.

The flexibility continues even after installation. As your process requirements change, so does the need for additional features. With Features on Demand (FOD), the Rotamass Prime is truly future-proof!

It's a matter of trust

Don't just have faith that your readings are correct — you need to trust what you see. With the Rotamass Prime, integrity is not an option and you have the technology to back it up. Advanced diagnostic capabilities allow for continual monitoring of the health and functionality of the unit, including the flow tubes, without any interruption to the flow measurement.

Combining the NAMUR compliant data management with the Process Guard function allows for complete insight into event upsets, changes and data recording. Don't be surprised, the Rotamass Prime allows for complete insight into your process with better control.



Fuel Consumption Monitoring

- More performance for your CAPEX budget. Best investment to performance ratio.
- Reduce errors and increase efficiency with direct mass flow measurement
- Reduce OPEX and downtime with non-moving mechanical parts

Skid / OEM

- Compact design with no up or down stream piping requirements (smaller footprint)
- Major approvals and universal power supply global adaptation anywhere
- Multiple I/O configurations allowing for customizable solutions. Save time with data mobility, allowing for easy setup and transfer of configuration between devices



High Viscous Polymer

- Reduced pressure loss design is ideal for high viscous fluids
- Reliable and repeatable measurements with entrained gas fluids
- On-line direct density and mass measurement allowing for continual product quality monitoring and control



Dedicated Functionality

- Features on Demand
- Trending and recording
- Event management
- NAMUR
- Viscosity measurement
- Data mobility
- Batching functionality
- In-line verification & reporting
- Tube health check
- Customizable concentration curves
- Intuitive user tools

Max Flow Rate: 76 t/h
Process Connection: Up to 80mm (3")

Material of Construction:

- Wetted: Stainless Steel
- External: Stainless Steel



With over 20 years of Coriolis experience, technology and field proven results have all converged to deliver the most advanced meter yet in the Rotamass Supreme. The field tested design, combined with the latest functionality and features available, deliver a superior solution that sets a new benchmark.



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Measurement accuracy

Precise operation and control requires precision tools, there is no room for error. Every drop counts and this is no more prevalent than in a balanced system. The Rotamass Supreme maintains the same performance in its measurement down to a level not previously achievable. With specialized density calibration allowing for the same high level performance for volume flow, density and concentration measurements, the performance is continued in all aspects of the measurements, not limited by multiphase fluid.

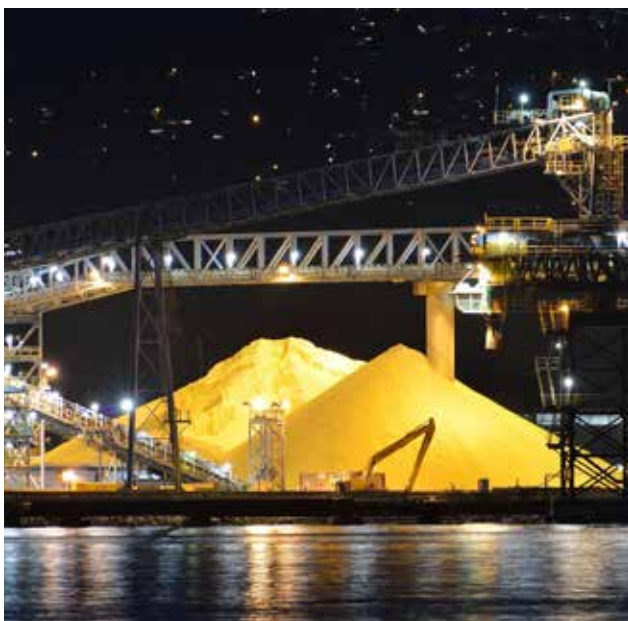
Functionality

Your requirements are not always the same, so why should your measurement devices functions be limited. With Features on Demand (FOD), the Rotamass Supreme is compatible to your needs. Add to that the ability to customize your transmitter package, from I/O configuration to integrated trending and recording functionality, it can fit any installation.

It is highly likely that your process will change, as is the case with batch production. This means downtime and considerable setup changes. With the capability to store multiple process parameters and concentration sets in the same unit, switching from one process to another is now as simple as pressing the button.

Reliability

Having a precise measurement is no longer enough. Continuous and reliable operation is just as important as the measurement being taken. The Rotamass Supreme ensures uninterrupted measurement by design, from cryogenic to high temperatures. Combined with the most advanced diagnostics available, not only will you know before issues arise, but with Total Insight including NAMUR recommendation, it has the ability to manage them.



Molten Sulphur

- Factory-fitted insulation and heat tracing ensuring heating continuity for increased field reliability
- Patented* "Tube Health Check" function and "Total Health Check" for in-line meter verification without disturbing running measurements
- Box-in-box design limits the effects of external forces on the core measuring element to give a consistently repeatable accurate reading.

Batching Operations

- High resolution measurement reduces batching errors and product losses
- Smart Power Management ensures optimum performance under extreme aeration conditions
- High density calibration for the most accurate in-line density, concentration and volume flow measurement



Feed and Product Control

- Highest flat spec accuracy for optimal final product quality
- Maintain confidence with full meter verification, tube integrity check and NAMUR compliance
- Pre-programmable parameter sets for quick product changeover with minimal downtime



Dedicated Functionality

- Best-in-class accuracy and unbeatable zero stability
- Box-in-box design
- Switchable concentration sets
- Pre-programmable parameter sets
- Batching capabilities
- Trending and recording
- In-line verification & reporting
- Advanced power management for aeration
- Customizable concentration curves
- Intuitive user tools
- Factory fitted heat tracing and insulation

Max Flow Rate: 170 t/h
Process Connection: Up to 150mm (6")

Material of Construction:

- Wetted: Stainless Steel
Nickel alloy C22
- External: Stainless Steel



Safety in your system is just as critical as an accurate high pressure measurement. Rotamass Intense design encompasses all requirements of a high pressure application to guarantee the best possible result available. Every consideration has been implemented to combine functionality and the highest level of safety.



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Performing under pressure

Achieving accurate measurement in demanding applications is difficult enough, but when high pressure is involved it becomes even more challenging. Rotamass Intense dedicated functionalities deliver your industry required performance over the entire range. Variation of process conditions no longer need to be of concern as all variables are taken into consideration to ensure and achieve a more reliable reading.

Process insurance

When operating at high pressures, safety is always a priority. Rotamass Intense design incorporates thick seamless measuring tubes coupled with secondary containment and leak detection, giving peace of mind to the safety of your application. Additionally the

patented* tube integrity and total health check gives more insight into your process, hence reducing down time.

Installation made easy

Changing high pressure piping is never done by choice, but it's often required. Rotamass Intense minimizes the necessity of additional work and cost when installing by the ability to match the connection size of the unit to line size. The specialized design installation requirements are not as rigorous as traditional Coriolis meters. Installation location is simplified by not requiring additional straight run.

*JP 4952820 B2



Hydraulic Systems

- Robust, reliable and accurate solution for high pressure/temperature water inlet to maintain efficiency of the overall system
- Optimizing performance of measurement by compact in-house designed insulation + heat trace

Gas Transfers

- Continual precise measurement under dynamic process pressure
- Best-in-class performance in high pressure environment



Chemical Injection

- Optimizing the efficiency of the overall system with accurate usage of chemicals
- Increased process control by negating pulsating effects in the flow
- Cost saving with high accuracy in HP conditions



Dedicated Functionality

- Pre-programmable parameter sets
- Batching capabilities
- Trending and recording
- In-line verification & reporting
- Dynamic pressure compensation
- Tube integrity
- Leak detection
- Density calibration
- Total health check
- Intuitive user tools

Max Flow Rate: 50 t/h
 Process Connection: Up to 50mm (2")
 Pressure Rating: Up to ASME flange class 1500

Material of Construction:
 • Wetted: Nickel alloy C22
 • External: Stainless Steel



Rotamass Hygienic has been uniquely designed for the food & beverage industry. It encompasses modern hygienic design standards, meeting the requirements of today's industries, including self-draining and low pressure drop.



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Designed to standards you can trust

Hygienic standards are taken into consideration in every aspect of the design. With approvals for internationally recognized standards such as 3A and EHEDG, and CIP/SIP considered in every aspect of construction, you can be assured that your process will remain clean and to a quality you can rely on.

Product quality monitoring

Ensuring a consistent product is as important as making it. With visibility into your process measurement, control and higher levels of quality is more obtainable. With a high resolution density measurement, integrated trending and recording functionality, not only can product consistency be

maintained, but it can also be proactively controlled.

Keep your process running

Don't lose productivity when making process changes. More times than not, the best suited flow meter does not match your line size. This is not a concern with the Rotamass multi-process connection concept. It allows for a unit to be installed with a connection that matches your line size.

It is highly likely that your process will change, as is the case with batch production. This means downtime and considerable setup changes. With the capability to store multiple process parameters and concentration sets in the same unit, switching from one process to another is now as simple as pressing the button.



Product Loading/Unloading

- Maximize delivery of products with precise mass measurement even under changing process conditions
- Ensure product quality by employing on-line monitoring of process density
- Rotamass unique excitation frequency ensures no damage to complex cellular structures

On-line Concentration Measurement

- High accuracy density and temperature measurement enables on-line BRIX measurement
- Minimize operating costs via low pressure losses even on high viscosity liquids



Batching Operations

- High resolution measurement reduces batching errors and product losses
- Rotamass Smart Power Management ensures optimum performance under extreme aeration conditions
- Self-draining design which is on-line cleanable (CIP/SIP) eliminates product contamination



With Pure Dedication

Dedicated Functionality

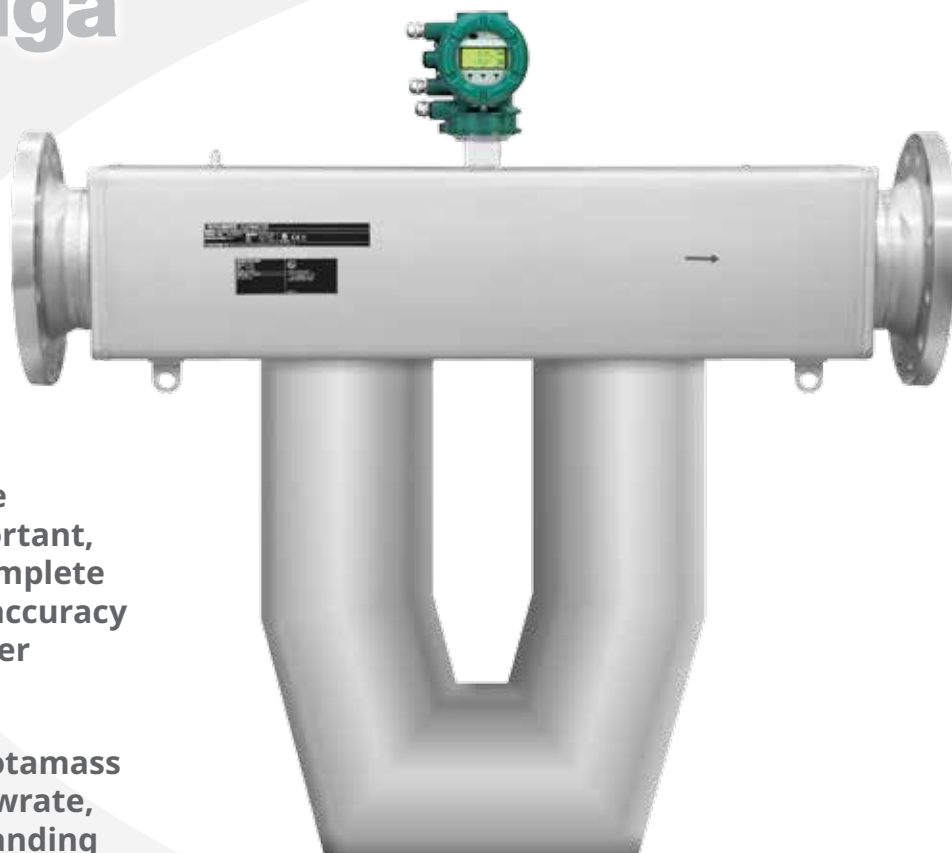
- Switchable concentration sets
- Pre-programmable parameter sets
- Batching capabilities
- Trending and recording
- In-line verification & reporting
- Advanced power management for aeration
- Customizable concentration curves
- Intuitive user tools
- Multiple I/O configurations
- Pressure compensation

Max Flow Rate: 76 t/h
Process Connection: Up to 80mm (3")

Material of Construction:

- Wetted: Stainless Steel
- External: Stainless Steel

ROTAMASS giga



For higher flow rates where precision and space is important, Rotamass Giga provides complete solution. The best-in-class accuracy is maintained over the larger measuring range.

With more functionality, Rotamass Giga can measure mass flowrate, net oil, density, etc. withstanding entrained gas content.

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Brain with brawn

Multi-parameter monitoring comes easy with Rotamass Giga. It can be used not only for measuring mass flow rate, but also for net oil, concentration, density, etc. With batching functionality, the modification can be done at site by programming the unit.

Easy to install and maintain

With larger devices, the most common challenge is the difficulty to install and maintain units of such size. Despite measuring high flow rate, Rotamass Giga is small in foot-print. In addition, you can select the meter size connection that matches your piping without the need for modification. It can be installed easily with no straight runs requirement.

With the health check running in parallel to measurement, you no longer face the hassles of removing the unit and sending it for recalibration unnecessarily. You can predict the maintenance and avoid unnecessary shutdown.

Solution delivered

It is common to have to oversize your unit to meet the pressure requirements of your system. This will typically result in loss of accuracy at the lower end. With Rotamass Giga, you maintain the accuracy throughout the flow range to the lower flow rates, which was previously unachievable. The other challenge associated with viscous fluid is thermal management of the pipe run. When required, Rotamass Giga offers factory design and fitted heat tracing delivers plug and play solution.



Product Loading/Unloading

- Maximize delivery of products with precise mass measurement even under changing process conditions
- Ensure product quality by employing on-line monitoring of process density
- Rotamass unique excitation frequency ensures no damage to complex cellular structures

Metering Solutions

- Accurately determine the hydrocarbon oil or gas flow
- In-line verification to allow for periodic verification without disruption to your measurement.
- Data trending and recording to ensure total visibility in case of lost communication



Asphalt & Cement Manufacturing

- Thick tubes allow for easy handling of heavy slurry flow
- Rotamass Smart Power Management ensures optimum performance regardless of entrained gases
- High density calibration and customized calibration curves allow for consistent product every time



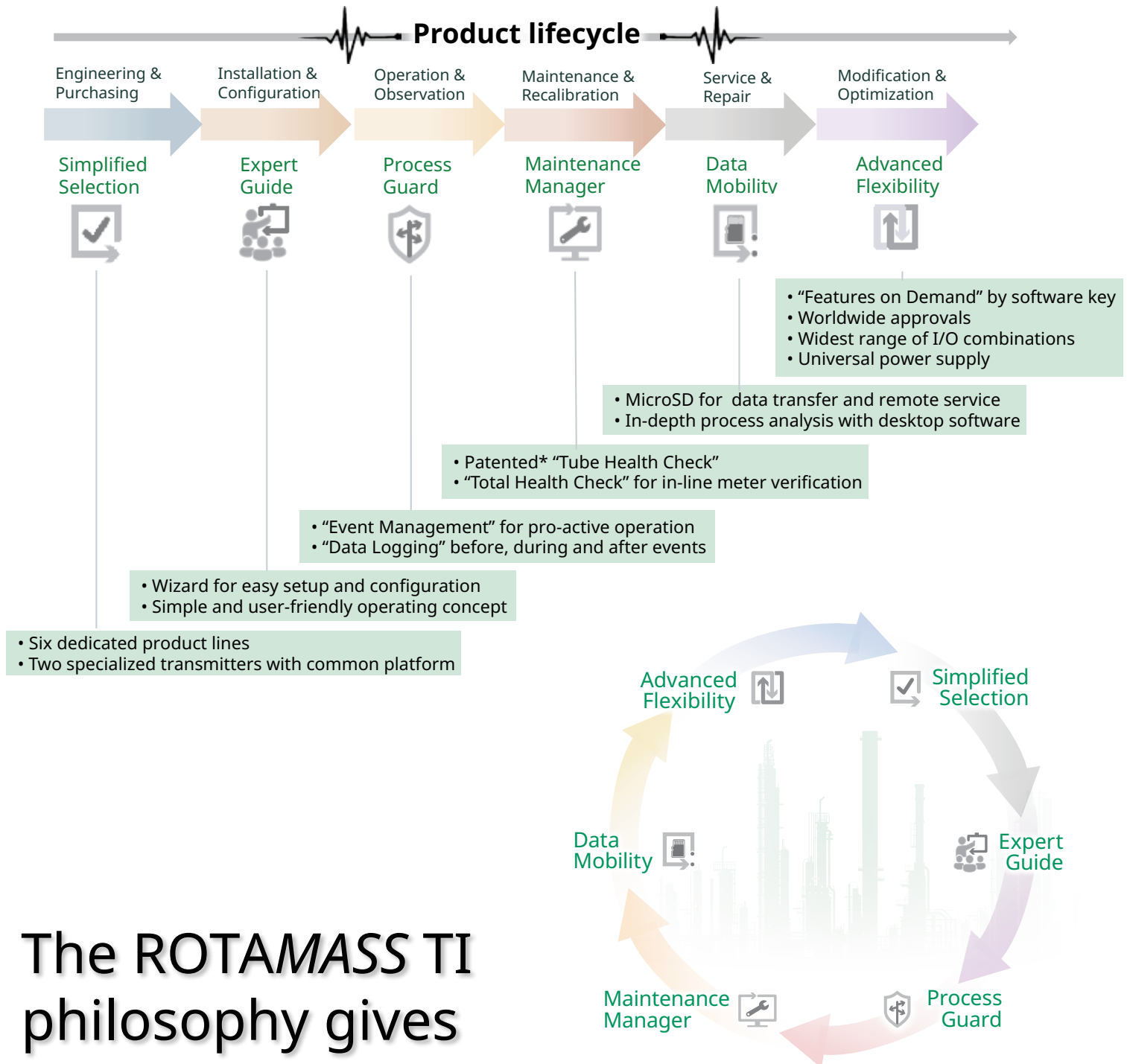
Dedicated Functionality

- Switchable concentration sets
- Pre-programmable parameter sets
- Batching capabilities
- Trending and recording
- In-line verification & reporting
- Advanced power management for aeration
- Customizable concentration curves
- Intuitive user tools

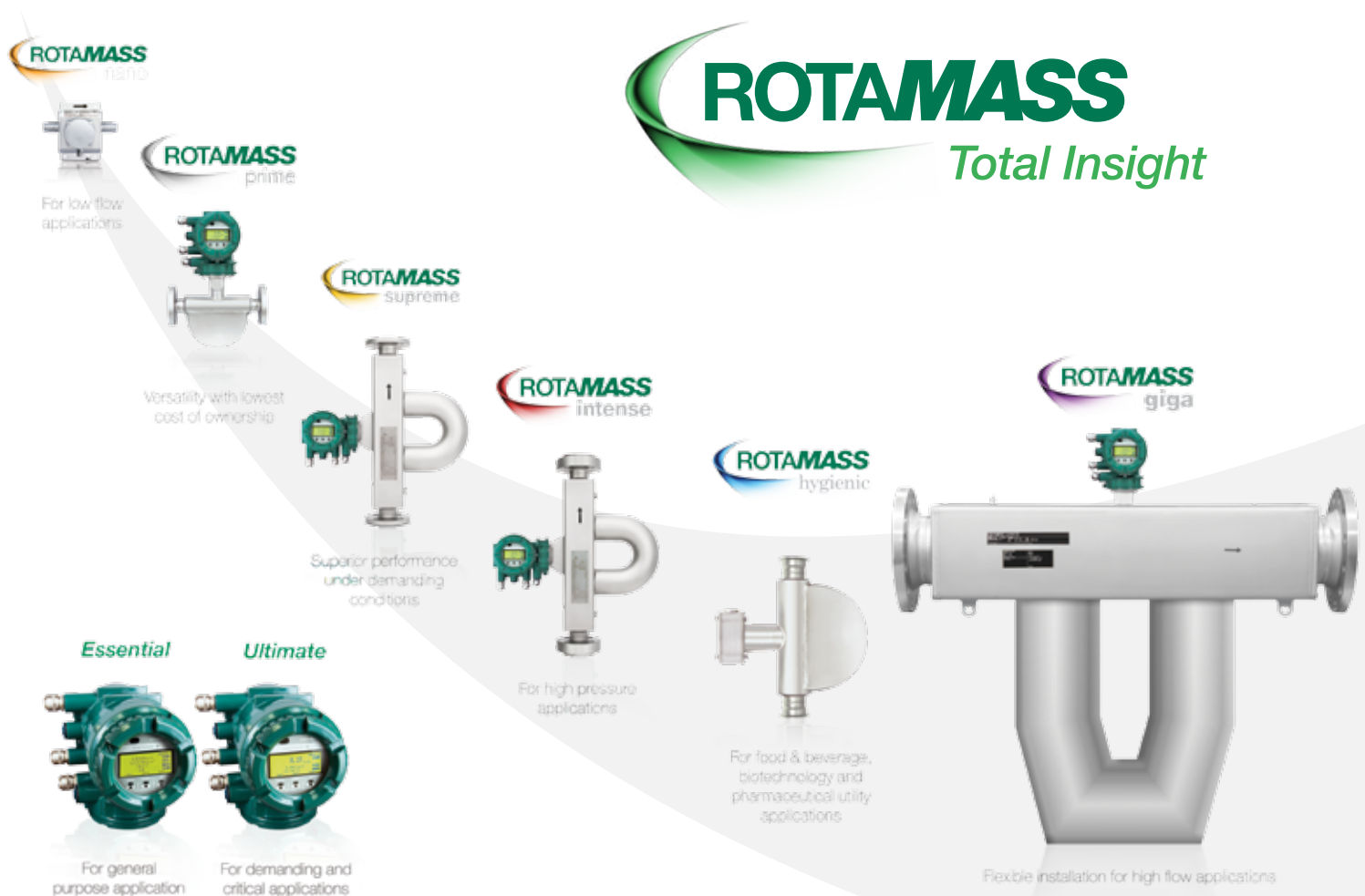
Max Flow Rate: 600 t/h
Process Connection: Up to 200mm (8")

Material of Construction:

- Wetted: Stainless Steel
- External: Stainless Steel



The ROTAMASS TI philosophy gives **total insight** throughout the entire lifecycle



For more information
visit: www.rotamass.com

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