

microbulk Product Lines



Auguste Cryogenics

microbulk Product Lines



Continuity. Reliability. Quality.
We are **Auguste Cryogenics**.

Experience the reliability and convenience of Auguste Cryogenics *microbulk* tanks

The Auguste Cryogenics *microbulk* product line offers an alternative to high-pressure and liquid cylinder distribution in an easy to install and easy to operate platform. Expertly designed and built for safety and performance, these vessels provide uninterrupted supply of liquified technical gases. Auguste Cryogenics incorporates the GOLD standard of vacuum technology for maximum hold time and protects that vacuum integrity with a 5 year warranty.

The Auguste Cryogenics *microbulk* product line offers MBC (MicroBulk) tanks between 1,000 and 3,000 liter capacity that are fully PED compliant. The TCC (Transportable Cold Converters) vessels are available in 750 and 1,000 liters. These tanks are equipped with a stainless steel frame for extra protection and optimized transportability. The TCC vessels are TPED approved.

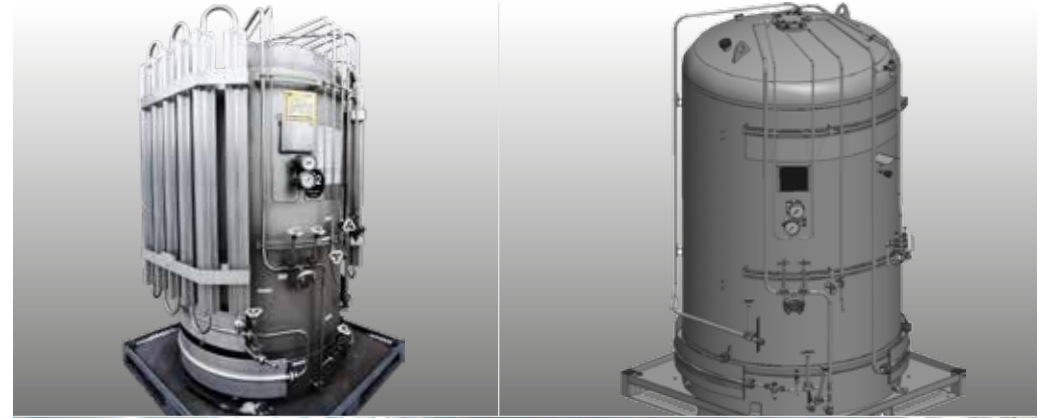
On-site *microbulk* storage from Auguste Cryogenics helps you maximize safety, quality and efficiency in your operations:

- Mode change - no more swapping full-for-empty cylinder handling
- Dedicated cylinder set up for your application
- Permanent connection, perfectly dialed in Pressure Building regulator
- Product Range from high pressure gas to low pressure liquid delivery
- Built around application unlike high pressure bottle or liquid cylinder
- Ideal for liquid withdrawal (especially when tied into AC Medical family of products)
- Right sized for 1 fill per week or 1 fill per month simplifying inventory management
- With right sizing no need for excess cylinder inventory (leads to vent loss)
- Accurate contents gauge and ability to digitally tie into SCADA system or telemetry remote monitoring to eliminate emergency deliveries by monitor and report status and fill needs
- Proactive delivery of consistent high purity liquid to eliminate potential contamination
- "Universal" fill system is compatible with all *microbulk* and bulk delivery transports

Why buy Auguste Cryogenics *microbulk*?

Because Auguste Cryogenics knows cryogenics customers' needs and has provided quality products for over 50 years. The *microbulk* product line features:

- Standard sizes between 750 to 3,000 liters and working pressures of up to 37 bar.
- Quality Materials: Durable stainless steel, super insulated, digital gauges.
- Automatic fill shut-off: Functions with most *microbulk* delivery trucks.
- Reliable: Built to last, 5 year vacuum warranty.
- Telemetry Ready: Plug into your network or build new to suit



Building the **GOLD standard** of service and quality in cryogenic storage equipment.

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In 2016 Auguste Cryogenics acquired the European Operations of Taylor-Wharton International. Our production plant in Košice, Slovakia and the distribution center in Husum, Germany have influenced the European cryogenic industry continuously for more than 50 years. We carry the tradition of the people, practices and intellectual property for which the company has been built while investing in innovative solutions for tomorrow.

Auguste Cryogenics produces an extensive line of cryogenic storage equipment for mobile and stationary applications for the energy, medical and industrial markets. The energy portfolio ranges from LNG solutions to liquid hydrogen delivery systems. With our healthcare product line we can support the full range of applications from hospital oxygen supply to cryogenic tissue preservation. Auguste's industrial pressure vessels are used for every technical gas purpose imaginable. These vacuum insulated storage tanks are engineered to the limits of what is technically feasible.

GOLD standard vacuum technology is at the core of every vessel produced by Auguste Cryogenics. Our principle of complete thermal performance drives both inner and outer vessel design and material construction. You can't cheat the heat but we don't let it in.

See for yourself that we are building the GOLD standard in cryogenic storage equipment every day.

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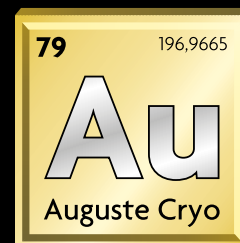
Visit our website at

www.augustecryogenics.com



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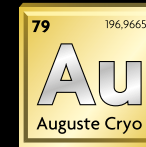


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Auguste Cryogenics *microbulk* product lines | Technical data

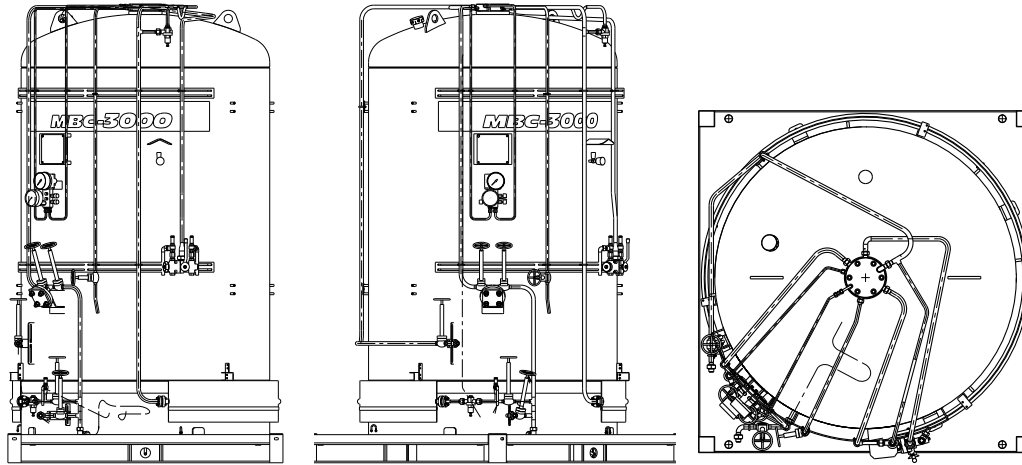
Specification Standard Pressures (MAWP): 8.0 bar¹ – 24.0 bar – 37.0 bar

¹ 8.0 bar with TCC line only



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SLOVAKIA



| microbulk Product Lines General Specifications | |
|--|--|
| Outer vessel | Stainless steel |
| Inner vessel | Stainless Steel |
| Insulation | Multilayer Super Insulation, Gold Standard vacuum w/ 5 years warranty |
| Cleaning | For oxygen service |
| Pressure range | Standard MAWP 8.0** – 24.0 – 37.0 bar (** = 8.0 bar on TCC line only) |
| Features | <ul style="list-style-type: none"> • Steel pallet optimized for fork lift operation • TCC vessels with steel frame for additional protection • PED (for MBC) and TPED (for TCC) approval • Optional features and components available on request |

Auguste Cryogenics MBC *microbulk* line | Specifications

| | | Type | MBC-1000 | MBC-1500 | MBC-2000 | MBC-2500 | MBC-3000 |
|---|----------|-------------------------------|-----------|-----------|-----------|-----------|-----------|
| Volume* (l) | 24.0 bar | gross | 1000 | 1530 | 2070 | 2570 | 2940 |
| | | net (95%) | 950 | 1450 | 1960 | 2440 | 2790 |
| | 37.0 bar | gross | 990 | 1510 | 2050 | 2540 | 2910 |
| | | net (95%) | 940 | 1430 | 1940 | 2410 | 2760 |
| Average loss rate/day (N ₂ /%/Day) | | 24.0 bar | 0,84 | 0,80 | 0,75 | 0,75 | 0,70 |
| | | 37,0 bar | 0,81 | 0,79 | 0,72 | 0,75 | 0,68 |
| Auto Pressure building | | | yes | yes | yes | yes | yes |
| Dimensions (mm) | | Height, incl. standard pallet | 2150 | 2180 | 2680 | 2510 | 2770 |
| | | Diameter | 1100 | 1300 | 1300 | 1500 | 1500 |
| | | Pallet size | 1260x1430 | 1460x1500 | 1460x1500 | 1660x1850 | 1660x1850 |
| Weight** (kg) | 24.0 bar | empty | 870 | 1080 | 1270 | 1590 | 1720 |
| | | full (N ₂) | 1670 | 2320 | 2940 | 3670 | 4090 |
| | 37.0 bar | empty | 960 | 1240 | 1450 | 1850 | 2000 |
| | | full (N ₂) | 1760 | 2460 | 3110 | 3900 | 4350 |

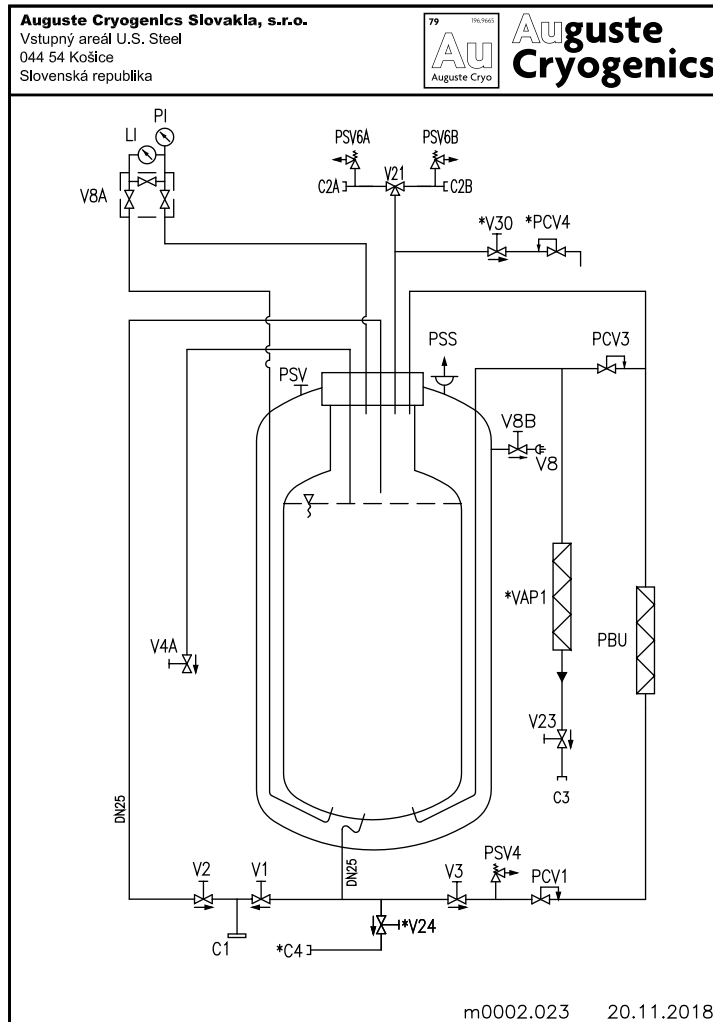
* Volumes can deviate as consequence of the cold stretching process. | ** Weight includes standard pallet.

Auguste Cryogenics TCC *microbulk* line | Specifications

| | | Type | TCC-750 | TCC-1000 |
|---|----------|-------------------------------|-----------|-----------|
| Volume* (l) | 8.0 bar | gross | 810 | 990 |
| | | net (95%) | 770 | 950 |
| | 24.0 bar | gross | 810 | 990 |
| | | net (95%) | 770 | 940 |
| | 37.0 bar | gross | 800 | 980 |
| | | net (95%) | 760 | 930 |
| Average loss rate/day (N ₂ /%/Day) | | 8,0 bar | 1,55 | 1,50 |
| | | 24,0 bar | 1,55 | 1,50 |
| | | 37,0 bar | 1,51 | 1,49 |
| Gas withdrawal rate (m ³ /hr) | | | 30 | 30 |
| Auto Pressure building | | | yes | yes |
| Dimensions (mm) | | Height, incl. standard pallet | 2000 | 2220 |
| | | Diameter | 1100 | 1100 |
| | | Pallet size | 1300x1500 | 1300x1500 |
| Weight** (kg) | 8.0 bar | empty | 800 | 880 |
| | | full (N ₂) | 1450 | 1680 |
| | 24.0 bar | empty | 840 | 920 |
| | | full (N ₂) | 1490 | 1720 |
| | 37.0 bar | empty | 940 | 1040 |
| | | full (N ₂) | 1590 | 1830 |

*Volumes can deviate as consequence of the cold stretching process. | ** Weight includes standard pallet and frame.

Auguste Cryogenics MBC/TCC tank lines | P&ID



| POS. | DESCRIPTION | DETAILS |
|-------|--|---------------------|
| C1 | Inlet Connection | G 3/4" DN25/PN40 |
| C2 | Gas Outlet Connection | |
| C2A | Check Connection | NPT 1/4" |
| C2B | Check Connection | NPT 1/4" |
| C3 | Gas Outlet Connection Liquid Outlet Connection | NPT 1/2" |
| *C4 | *Liquid Withdrawal Connection | NPT 1/2" (OPTIONAL) |
| PI | Pressure Gauge | |
| LI | Liquid Level Gauge | |
| V1 | Bottom Fill/Liquid Withdrawal | DN15 |
| V2 | Top Fill | DN15 |
| V3 | PBU Isolation Valve | |
| V4A | Trycock 95% | DN15 |
| V8 | Vacuum Probe | |
| V8A | DP Gauge Manifold | |
| V8B | Vacuum Probe Valve | |
| V21 | Diverter | |
| V23 | Liquid Withdrawal Gas Withdrawal | DN15 |
| *V24 | Liquid Withdrawal | |
| *V30 | Shut-off Valve for Process Protection | |
| *VAP1 | *Vaporiser | (OPTIONAL) |
| PBU | Pressure Building Coil | |
| PCV1 | PBU Regulator | |
| PCV3 | Regulator – Economiser | |
| *PCV4 | Bleed regulator | |
| PSV6A | Safety Relief Valve | 1/2" |
| PSV6B | Safety Relief Valve | 1/2" |
| PSS | Vacuum Burst Disk Outer Tank | |
| PSV | Evacuation Connection | |
| PSV4 | Thermal Relief Valve | |

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