Minimum Quantity Lubrication
System AerosolMaster 4000 Cryolub

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AerosolMaster™

Issue 03-2022

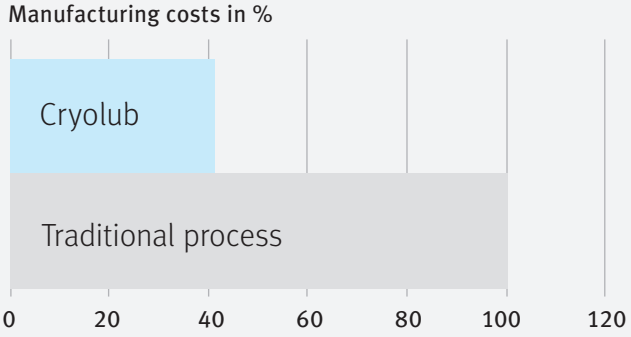
4000 Cryolub

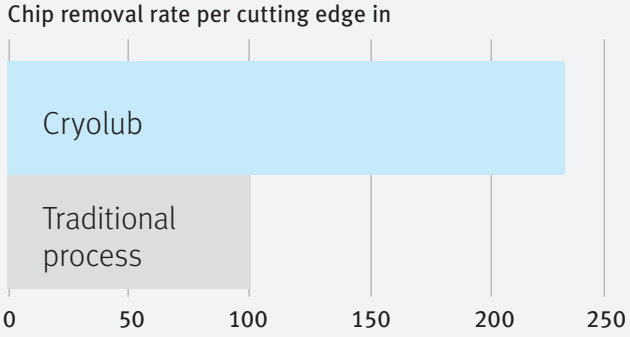
Properties	Benefits
Percentage of oil and air pressure with 30 programmes can be adjusted as needed	• Defined aerosol quality and constant aerosol flow, also with rotating tools • No pressure fluctuations at the tool • High process reliability • Long tool life, short machining cycles • Low air and oil consumption • Simple handling
Very fine and homogeneous aerosol	• Low-loss lubrication
Almost dry machining	• No adhesions • Low cleaning effort for parts and machines
Immediate availability of aerosol and CO_2 at the cutting edge after spindle start	• No wait times • High process reliability
Long aerosol lines up to 50 m possible	• Flexible installation
Optional machine connection via ProfiBus or ProfiNet	• Quick and variable NC programming • Little adaptation effort • Very user-friendly
CO_2 quantity can be adjusted as needed	• Low consumption • Optimal tool temperature • Workpiece temperature = Room temperature
Aerosol and CO_2 can be adjusted independently of each other	• Cost-effective and resource-friendly

Application

The KNOLL AerosolMaster 4000 Cryolub is a minimum quantity lubrication system with cryogenic cooling technology for production processes with geometrically determined cutting edges, e.g., on machining centres, transfer lines, turning, milling, drilling, and sawing machines.
Thanks to the unique ATS technology combined with the cryogenic cooling technology Cryolub, the system is suitable for demanding machining processes of technical plastics and titanium and nickel base alloys (e.g. implants), Inconel, composite materials (e.g. carbon) in medical technology, aviation and the energy industry.

Performance





Equipment using the example of AerosolMaster 4000 Cryolub

30 selectable programmes for the aerosol setting of the tools	●
Integrated PLC (Siemens S7-1200)	●
Electrical connection, digital via inputs/outputs	○
Electrical connection via ProfiBus	○
Electrical connection via ProfiNet	○
Assembly frame with wheels	○
Ball valve, 2-way	○
Ball valve, 3-way (for second medium, e.g. cooling lubricant)	○
External CO_2 nozzles	○
Automatic refilling unit 10 litres for 1 AerosolMaster	○
Automatic refilling unit 25 litres for maximum 6 AerosolMaster	○
Pressure module 10 bar	○
Pressure module 16 bar	○
Handheld terminal	○

● Basic equipment
○ Option

Product overview

	AerosolMaster 4000 Cryolub
Application	demanding (e.g. machining centres)
Programmes	30 (automatic)
Control	own and/or machine
Filling	automatic
Refilling unit	yes
Cooling gas	yes
Cooling capacity	up to -78 °C
Internal cooling ducts	‹ 0.2 - 6 mm

Combination options

Cryolub combination	Medium outside the lance	Medium inside the lance	Tool sing-le-chan-nel	Tool dual-channel
Air	Air		X	
Air + CO_2 liquid	Air	CO_2		X
MQL	MQL		X	
MQL + CO_2 liquid	MQL	CO_2		X
CO_2 liquid		CO_2	X	

Technical specifications

	AerosolMaster 4000 Cryolub
Dimensions (HWD)	600x600x210 mm
Space required (HWD)	750x640x830 mm
Weight	43 kg
Fill quantity	2.3 l
Power supply	24 VDC
Power consumption	4 A
Input pressure	4-10/16 bar
Compressed air quality	ISO 8573-1
Compressed air connected load	1 Nm³/min at 6 bar
Air consumption	10-1300 Nl/min
Amount of oil	0-350 ml/h
Fill level monitoring	4-point, 24 VDC
Aerosol pressure	0.5-9/15 bar
Cooling gas supply	45-65 bar
Cooling gas consumption	**** 3-10kg/h

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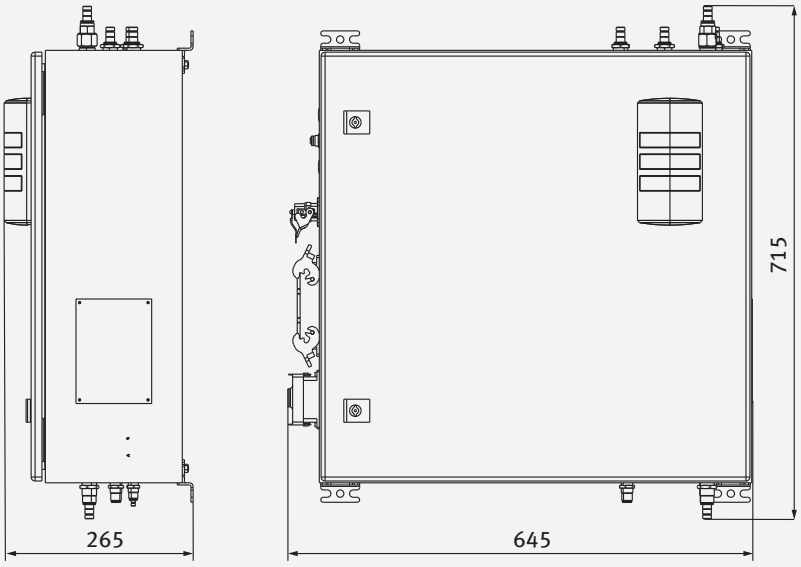
AerosolMaster
4000 Cryolub

Dimensions

AerosolMaster™ 4000 Cryolub



Options

Refilling units guarantee uninterrupted continuation of the machining process. They aim to improve safety at work and are very user-friendly.

Refilling units	Container volume (l)	Number of AerosolMaster™
ARU 10	10	1
ARU 25	25	maximum 6

Pressure modules are used if the existing mains pressure is not sufficient for optimal chip removal, e.g., for deep-hole boring. The process-dependent activation/deactivation of the pressure modules ensures optimised air consumption.

Pressure module	Air throughput (l/min)	Output pressure (bar)
PBM 10	200 bzw. 400	10
PBM 16	100	16

AerosolMaster™ lubricant is designed especially for ATS technology. The oil enables resource-friendly and energy-efficient manufacturing with minimal consumption.

Product	Application	Properties
AM lubricant basic	Soft materials (e.g. aluminium with Si < 1%)	-
AM lubricant c-al	Aluminium, plastic, non-ferrous metal, steel	Cryolub-resistant up to -78 °C
AM lubricant c-st	Heavy-duty cutting and machining, steel, Inconel	Cryolub-resistant up to -78 °C
AM lubricant c-ti	Titanium	Cryolub-resistant up to -78 °C
AM lubricant ht	Universal	High-temperature-resistant

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