



ROTHER
TECHNOLOGIE

**INNOVATIVE
PRODUCTIVE
SUSTAINABLE**

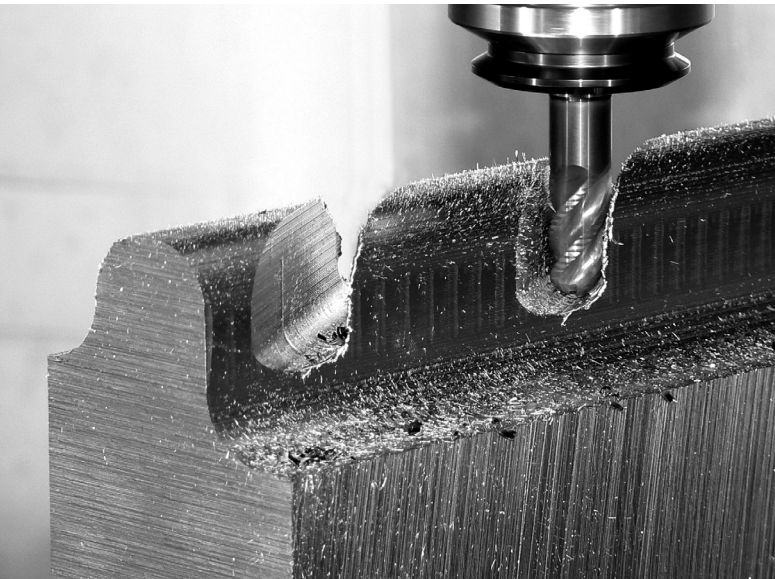
ATS[®] AEROSOL
TROCKENSCHMIERUNG

PRODUCT RANGE
INNOVATIVE, PRODUCTIVE, SUSTAINABLE
01/2016

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AEROSOL MASTER®

THE LUBRICATION SYSTEM WHICH SETS NEW STANDARDS

Less adaptation is required to increase productivity considerably in the range of chip removal production of machining centres, transfer lines, turning lathes, milling and drilling machines by applying the aerosol dry lubrication (ATS®) – our future technology.

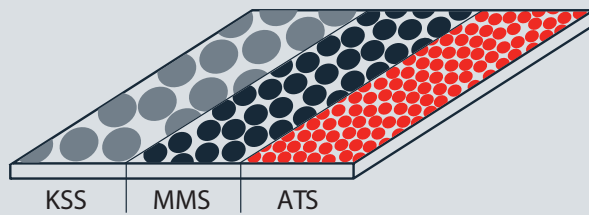
Competently on the way within a large material spectrum : the AEROSOL MASTER creates an extremely fine aerosol with lubricant particles in the microscale. Our slogan – preventing heat instead of fighting heat – has a great influence on productivity and quality:

- low maintenance
- easy to handle
- easy adaptation
- continuous aerosol production
- no pressure fluctuations at the tool

An oil-aerosol is created outside of the machine tool. For this purpose compressed air is led to the aerosol assembly. The aerosol is produced in the tank which comprises a certain supply of lubrication medium. The liquid level of this tank is monitored via an integrated control system.

Depending on the type, refilling is effected manually or automatically via a refilling assembly. Single channel systems depend to a great extent both on the differential pressure at the nozzle and on the transport speed. The lower the differential pressure the greater is the abstracted oil quantity which depends to a considerable extent on the cooling channel diameter and the air supply.

With the AEROSOL MASTER® the aerosol production and transport air are decoupled to the greatest possible extent. The differential pressure is controlled, whereas continuous aerosol production and constant aerosol flow are guaranteed and thus no system-induced pressure fluctuations will develop at the tool.



Comparison lubricant application

AEROSOL DRY LUBRICATION (ATS®)

OUR SLOGAN FOR ATS® (AEROSOL DRY LUBRICATION):
PREVENTING HEAT INSTEAD OF FIGHTING HEAT

Smallest lubrication quantities create a very fine aerosol which is led constantly controlled to the tool's cutting edge. An optimum layer of lubricant particles effectively reduces the development of frictional heat.

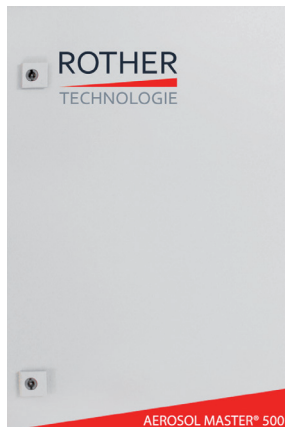
- Aerosol constantly fed through the spindle up to 42.000 rpm
- Hardly any friction
- No process critical temperature development

ATS[®] AEROSOL
TROCKENSCHMIERUNG



**LUBRICATION
SOLUTION**

TECHNOLOGY



AEROSOL MASTER® 500

THE ANSWER TO CONSTANT REQUIREMENTS – DIRECT ACTIVATION

The AEROSOL MASTER® is a variant for easy machining where a constant aerosol quantity is required as e.g. with drilling or sawing.

The AEROSOL MASTER® 500 is activated via machine control. It is possible to adjust the aerosol quantity manually and so it is ideally adapted to the chipping process.

Up to maximum six AEROSOL MASTER® 500 can be refilled automatically with one refilling assembly.



AEROSOL MASTER® 800

THE ANSWER TO DIFFERENT REQUIREMENTS – DIRECT ACTIVATION

The AEROSOL MASTER® 800 is appropriate for machining processes where three different aerosol quantities are sufficient.

The AEROSOL MASTER® 800 is activated via machine control. It is possible to adjust the aerosol quantity manually in three different ways and so it is ideally adapted to the chipping process.

Up to maximum six AEROSOL MASTER® 800 can be refilled automatically with one refilling assembly.



AEROSOL MASTER® 1000

THE ANSWER TO CONSTANT REQUIREMENTS

The AEROSOL MASTER® is a variant for easy machining where an always constant aerosol quantity is required as e.g. with drilling or sawing.

The AEROSOL MASTER® 1000 disposes of a small control and the possibility to adjust the aerosol quantity manually and thus to adapt it exactly to the actual requirement. Filling of the AEROSOL MASTER® is effected manually.



AEROSOL MASTER® 4000

THE SOLUTION FOR COMPREHENSIVE MACHINING

The AEROSOL MASTER® 4000 is appropriate for machining processes where a lot of different aerosol quantities are demanded. It is possible to pre-select 30 programmes which can be called from the machine by direct connection. This assembly is best suited for comprehensive machining tasks as it is the case e.g. with machining centres.

The AEROSOL MASTER® 4000 disposes of an efficient control system as well as the option of a ProfiBus or ProfiNet connection for the communication to the machine.

Up to maximum six AEROSOL MASTER 4000/4000cryolub® can be refilled automatically with one refilling assembly.





**CRYOGENIC
SOLUTION**

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AEROSOL MASTER 4000cryolub®

NEW: HI-TECH INNOVATION FOR
HI-TECH CHIP REMOVAL

The AEROSOL MASTER 4000cryolub® comprises the combination of ATS® and the cryogenic cooling technology cryolub®.

If the primary function ATS® for process cooling is not sufficient enough for special applications, the AEROSOL MASTER 4000cryolub® comes into play. This is a combination of ATS® (aerosol dry lubrication) with a special cooling gas (AKZ/IKZ). With this new cooling lubrication technology cryolub® it is possible to cool down the chip removal contact zone to -78°C .

It is possible to adjust both the cooling performance and the aerosol saturation according to demand, to the part and to the material.

Both the AEROSOL MASTER 4000cryolub® and the AEROSOL MASTER® 4000 are appropriate for machining processes where a lot of different aerosol quantities are required. It is possible to pre-select 30 programmes which can be called from the machine by direct connection. These assemblies are best suited for comprehensive machining tasks as it is the case e.g. with machining centres.

The AEROSOL MASTER 4000cryolub® disposes of a an efficient control system as well as the option of a ProfiBus or ProfiNet connection for the communication to the machine.

OVERVIEW

AEROSOL MASTER® PRODUCT RANGE

	AEROSOL MASTER® 500	AEROSOL MASTER® 800	AEROSOL MASTER® 1000	AEROSOL MASTER® 4000	AEROSOL MASTER 4000cryolub®
Adjustment	manually, single	manually, triple	manually, single	automatically	automatically
Programmes	-	-	-	30	30
Filling	automatically	automatically	manuell	automatically	automatically
Filling assembly	yes	yes	no	yes	yes
Cooling gas	no	no	no	no	yes
Cooling capacity	-	-	-	-	down to -78°C
Interior cooling channels	0,5-6,0mm	0,5-6,0mm	0,5-6,0mm	< 0,5-6,0mm	< 0,5-6,0mm

TECHNICAL DATA

AEROSOL MASTER®

	AEROSOL MASTER® 500	AEROSOL MASTER® 800	AEROSOL MASTER® 1000	AEROSOL MASTER® 4000	AEROSOL MASTER 4000cryolub®
Dimension (HWD)	600x400x210 mm	600x600x210 mm	600x600x210 mm	600x600x210 mm	600x600x210 mm
Space (HWD)	750x440x630 mm	750x640x830 mm	750x640x830 mm	750x640x830 mm	750x640x830 mm
Weight	30 kg	35 kg	38 kg	40 kg	43 kg
Capacity	2,3 l	2,3 l	2,3 l	2,3 l	2,3 l
Use amount	1,7 l	1,7 l	1,7 l	1,7 l	1,7 l
Power supply	24 VDC	24 VDC	230 VAC 1~	24 VDC	24 VDC
Power consumption					
Input pressure	1,5 A	2,5 A	0,5 A	4 A	4 A
Compressed air	6-10 bar	6-10 bar	6-10 bar	6-10 bar	6-10 bar
Quality class	5 ISO 8573-1	5 ISO 8573-1	5 ISO 8573-1	5 ISO 8573-1	5 ISO 8573-1
Power of compressed air connection	1 Nm ³ /min at 6 bar	1 Nm ³ /min at 6 bar	1 Nm ³ /min at 6 bar	1 Nm ³ /min at 6 bar	1 Nm ³ /min at 6 bar
Air consumption*	10-1000 NI/min	10-1000 NI/min	10-1000 NI/min	10-1300 NI/min	10-1300 NI/min
Oil quantity **	0-250 ml/h	0-250 ml/h	0-250 ml/h	0-350 ml/h	0-350 ml/h
Cooling gas consumption ***					3kg/h-10 kg/h
Cooling gas supply					min. 55 max. 65 bar
Level monitoring	4-point, 24 VDC	4-point, 24 VDC	4-point, 24 VDC	4-point, 24 VDC	4-point, 24 VDC
Aerosol tank pressure	max. 10 bar	max. 10 bar	max. 10 bar	max. 10 bar	max. 10 bar
Aerosol pressure	0,5-9 bar	0,5-9 bar	0,5-9 bar	0,5-9 bar	0,5-9 bar

* dependent on the internal cooling channel diameter and tank pressure

** dependent on the internal cooling channel diameter, tank pressure and lubricant

*** dependent on material to be cut by chip removal and the applied nozzles/ tools

LIST OF PARAMETERS

AEROSOL MASTER®

Cooling channel diameter (mm)	<0,5		0,5-1,5		1,5-2,5		2,5-3,0		3,0-3,5		3,5-4,0		4,0-4,5		4,5-5,0		5,0-6,0	
AEROSOL MASTER®	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)	Nozzle pressure (bar)	Tank pressure (bar)
Programme no.																		
1 (variable)	-	-																
2 (variable)	-	-																
3 (variable)	-	-																
4			*	5,4														
5			**	5,4														
6			***	5,4														
7					*	4,7												
8					**	4,7												
9					***	4,7												
10							*	4,0										
11							**	4,0										
12							***	4,0										
13									*	3,3								
14									**	3,3								
15									***	3,3								
16											*	2,6						
17											**	2,6						
18											***	2,6						
19													*	1,9				
20													**	1,9				
21													***	1,9				
22															*	1,2		
23															**	1,2		
24															***	1,2		
25																	*	0,5
26																	**	0,5
27																	***	0,5
28	Air programme (25%)																	
29	Air programme (50%)																	
30	Air programme (75%)																	

NOTE: The nozzle pressure must be higher than the tank pressure

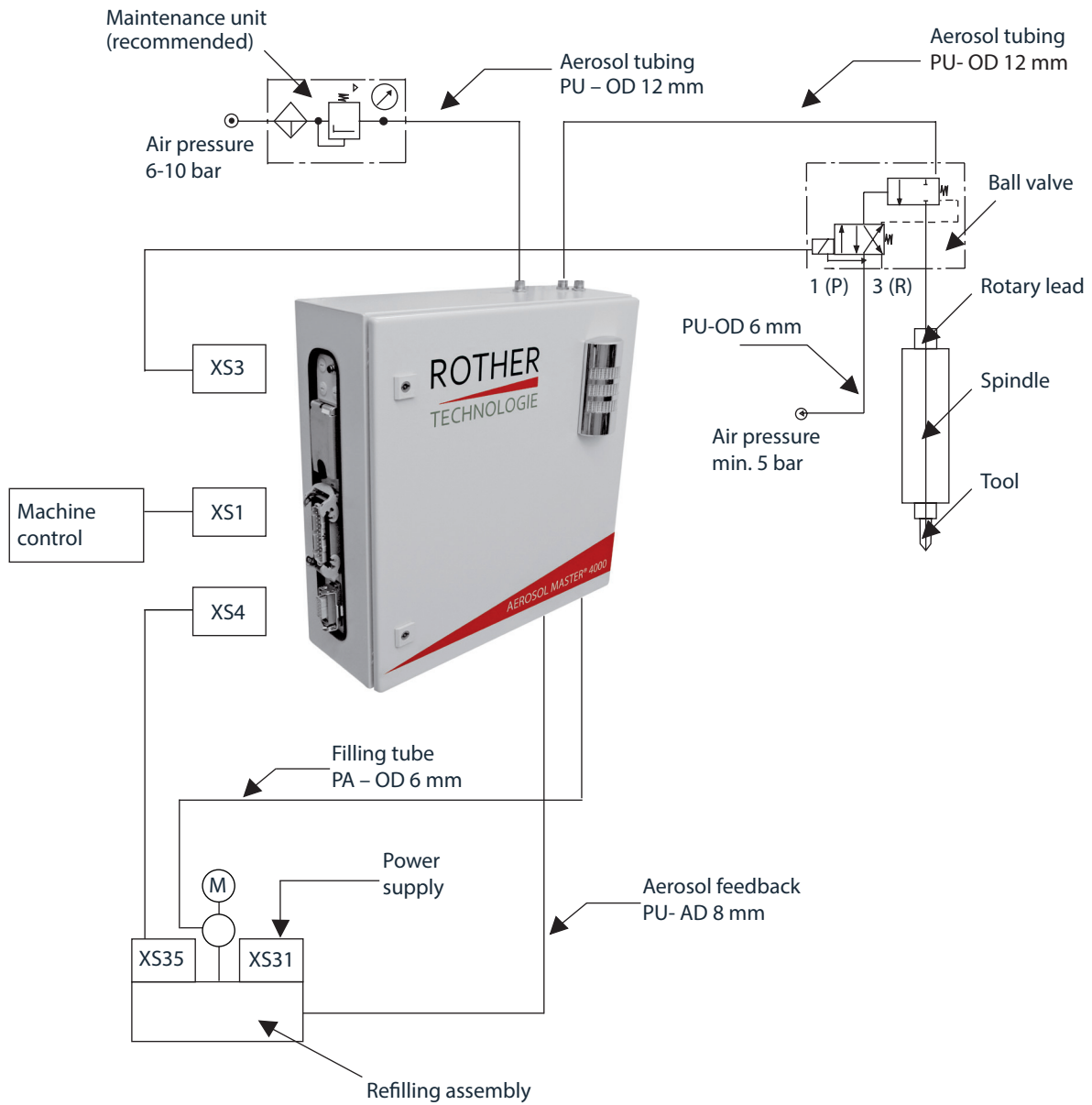
* Oil portion: low

** Oil portion: medium

*** Oil portion: high

INSTALLATION PLAN

EXAMPLE OF AEROSOL MASTER® 4000



REFILLING ASSEMBLIES

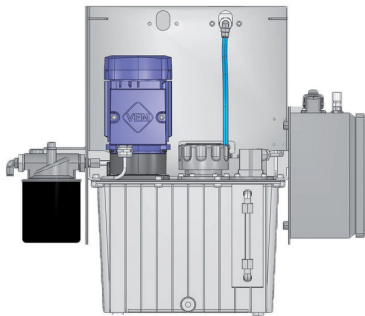
GUARANTEE OF PROCESS SECURITY

Our refilling assemblies guarantee a continuous operation of the machining process. They serve for safety at work and are very user friendly.

REFILLING ASSEMBLIES	TANK CONTENTS	AEROSOL FEED BACK
NFA 1 for 1 AEROSOL MASTER 4000/4000cryolub®	10 Liter	yes
NFA 4 for 4 AEROSOL MASTER 4000/4000cryolub®	27 Liter	yes
FA 5 for 5 AEROSOL MASTER 4000/4000cryolub®	27 Liter	yes
NFA 6 for 6 AEROSOL MASTER 4000/4000cryolub®	27 Liter	yes

TECHNICAL DATA

REFILLING ASSEMBLY (10 LITRES)



Dimension ((HWD)	494x553x364 mm
Weight	approx. 22 kg
Tank capacity	10 l (NG12)
Ambient temperature	0 °C - 40 °C
Protection	IP 55
Flow	0,375 l/min
Pressure	25 bar
Fineness oil – filter	12 µ
Power supply	400 VAC 3~/N/PE
Fuse	6 A
Level monitoring	2- point, 24 VDC

OIL

ATS® – OIL FOR LUBRICATION AND COOLING

AEROSOL MASTER lubricant c is our own development for the ATS-Technology. It makes energy-efficient production as well as low usage of lubricant and is suited for cold aerosol down to -78°C.



SERVICE

THE SECRET OF SUCCESS IS TO UNDERSTAND THE POINT OF VIEW OF OTHERS Henry Ford

Our concern is to know and to understand our customers' requirements. This helps us to provide customised services to optimize chipping processes and increase productivity. We aim to ensure longlasting business relations based on trust and esteem.

By cooperating with research institutes we gain insight into the machining world of tomorrow and can take our customers into the future. INNOVATIVE, PRODUCTIVE, SUSTAINABLE.



We received an award for the high economic, technological, social and ecological benefit of our technology.

ROTHER
TECHNOLOGIE

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