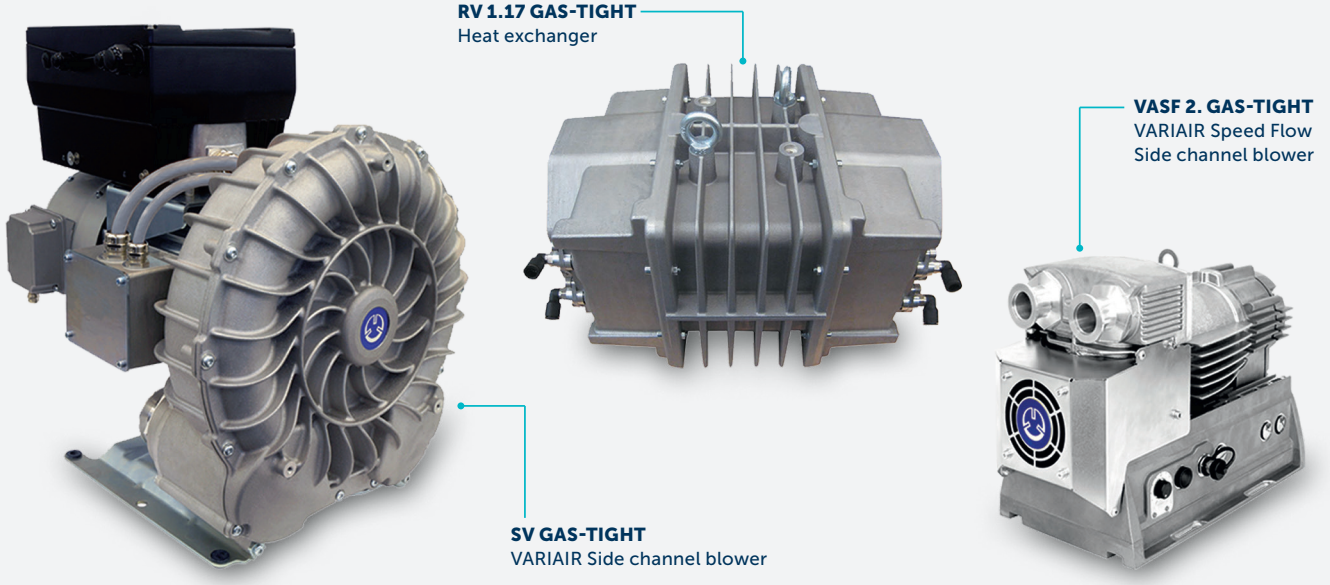
GAS-TIGHT BLOWERS & COMPONENTS FOR

ADDITIVE MANUFACTURING

MAKE IT BECKER.



BECKER GAS-TIGHT BLOWERS AND COMPONENTS FOR PREMIUM-QUALITY 3D METAL PRINTING

Additive Manufacturing offers huge potential and possibilities, while specifications are evermore demanding. In an optimized manufacturing process for high quality industrial metal 3D-printing, the gas recirculation and pneumatic conveying under inert conditions should meet the same high level requirements. Opt for gas-tight blowers and heat exchangers in your Additive Manufacturing machines.

EFFICIENCY

- Reduced Total Cost of Ownership
- No loss of inert gas
- Tightness 100% leak tested
- VARIAIR frequency inverter control for optimized adaptation to variable process conditions

CUSTOMIZATION

- Customer specific solutions for premium 3D metal printers
- Support and consulting in all project phases of AM machine R&D, design, and production

ADVANTAGES

Blowers and heat exchangers Made in Germany for

- Small to largest 3D metal printers
- Optimal inert gas atmosphere without oxygen entry
- Prevention of oxidation and lack-of-fusion defects
- Optimal temperature level in build chamber
- Powder transport with inert gas
- 3D metal parts of highest quality
- Best process quality
- Optimal systems integration

VARIAIR

BECKER

SPECIFICATIONS BLOWERS & HEAT EXCHANGERS

GAS-TIGHT BLOWERS FOR INERT GAS VOLUME FLOWS (ARGON AND NITROGEN) UP TO 930 M^3/H						
	VASF 2.50/1	VASF 2.80/1	VASF 2.120/1	VARIAIR SV 201/1	VARIAIR SV 300/1	VARIAIR SV 500/1
m^3/h	47	91	143	370	600	930
p/p (max.)	1.29	1.28	1.23	1.3	1.38	1.315
Hz	50–300	50–250	50–200	10–100	10–100	10–100
kW	0.65	1.1	1.4	4.0	7.5	11–22
	VASF 2.50/2	VASF 2.80/2	VASF 2.120/2	SV 300/2		
m^3/h	24	45	71	280		
p/p (max.)	1.56	1.57	1.46	1.52		
Hz	50–300	50–250	50–200	10–100		
kW	0.65	1.1	1.4	7.5		

GAS-TIGHT HEAT EXCHANGERS FOR NOMINAL COOLING CAPACITIES UP TO 9.5 KW			
	RV 1.17-0-114-04	RV 1.17-0-114-05	RV 1.17-0-114-06
kW (max.)	3.8	7.5	9.5

- p/p (max.) of blowers → inlet pressure ≤ 1050 mbar
- Gas-tight: leakage rate $<1x10^{-5}$ mbar l / s ($<1x10^{-6}$ Pa m^3/s) measured with a helium leak detector, integral for the complete unit
- Volume flow and pressure measured for air (VASF) and argon (SV), respectively, at reference data (1000 mbar, 20°C)

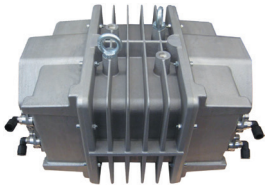
THE BECKER SOLUTIONS

As a leader in the field of suction and blast air as well as decades of experience in gas recirculation we offer

- Gas-tight blowers and components for individual machine integration,
- Vacuum pumps (not gas-tight) for evacuation services and
- Customer focused systems solutions for high efficient inert gas recirculation and pneumatic powder conveying in Additive Manufacturing machines.

VARIAIR SPEED FLOW

VASF 2. gas-tight



Heat exchanger RV 1.17 gas-tight

VARIAIR UNIT

SV gas-tight

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BECKER

GAS RECIRCULATION- AND FILTER SYSTEM FOR

ADDITIVE MANUFACTURING

MAKE IT BECKER.

ENABLING THE NEXT LEVEL OF PREMIUM-QUALITY 3D METAL PRINTING

Rethinking the entire laser powder bed fusion process lead us to the development of a new gas recirculation- and filter system for AM machines.

EFFICIENCY

Reduced cost of ownership by use of cleanable filters and by the gas-tight system.

CUSTOMIZATION

Modular concept for customer specific stand-alone- or integrated system solutions with variable number of filter modules.

ADVANTAGES

- Higher productivity through uninterrupted long build jobs
- Best 3D parts quality through optimal constant inert atmosphere in the build chamber
- Capable to operate with lower density inert gases

CYCLEAM

BECKER

THE BECKER AM SYSTEM SOLUTION

FEATURES OF THE NEW CYCLEAM

Gas Recirculation- and Filter System

MODULAR
- Optimal system solution for medium-size to largest 3D metal printing machines

CLEANABLE
- Long-life filters for cleaning between, or interference-free, during ongoing build jobs

COOLED
- Heat exchanger for optimal temperature level in the build chamber (optional)

SAFE – GAS-TIGHT – VACUUM-RESISTANT
- Safe inert atmosphere
- Safe and easy removal of filtrate
- No oxygen entry from outside into the process
- Evacuation of the system possible for a faster inerting of the machine
- Capable of handling lower density inert gases

INTELLIGENT AND FULLY AUTOMATED
- Gas recirculation blower with flow control for constant process gas flow
- Interference-free filter cleaning process supported by integrated vacuum generation

CUSTOMIZED
- Customer-specific system-design and interfaces for optimized adaption to the 3D metal printing machine

CYCLEAM
Gas Recirculation-and Filter System

MORE BECKER AM SOLUTIONS

With decades of experience in gas recirculation, we are among the pioneers in 3D metal printing. For individual AM machine integration we offer the following components:

- Gas-tight blowers and heat exchangers for inert gas recirculation
- Vacuum pumps (not gas-tight) for evacuation services
- Pumps and blowers for pneumatic conveying of metal powder
- Vacuum-tight filters for smaller-size 3D metal printers

VASF 2.
gas-tight

Heat exchanger RV 1.17
gas-tight

SV
gas-tight

Filter CSL
vacuum-tight

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