BECKER CLAW PUMP LINE
VACUUM

Customer Information

Content
Becker BC line

Claw pump

- Basic principle of claw pumps
- **B**ECKER **C**law **V**acuum: BCV
  - Basic design
  - Characteristic curves & data sheets
  - Power supply & motor power
  - Easy maintenance
  - Advantages



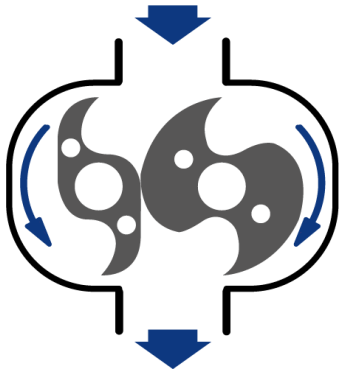
Claw pump
Basic principle

Claw pump
Displacement pump with two shafts

Claw pumps belong to the group of dry running positive displacement pumps.
The pump operates with dry compression, that means there is no liquid (oil or grease) in the pumping chamber. The two rotors have the shape of claws and they rotate contact free.
Only the gear box with the timing gear and the bearings, which is separated from the pumping chamber, contains oil.

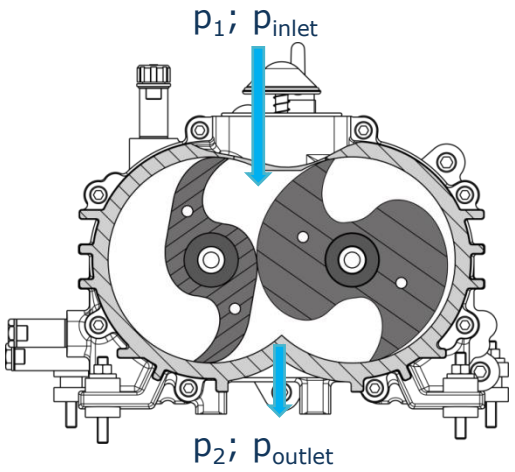
Claw pumps are used for rough vacuum applications.

Characteristics of claw pumps
dry / oil free compression
Touchless
high efficiency
proved design
compact unit
low maintenance



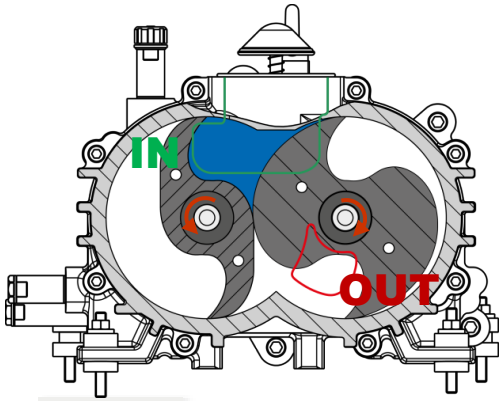
Claw pump
Basic principle

Dry running displacement pump with two shafts

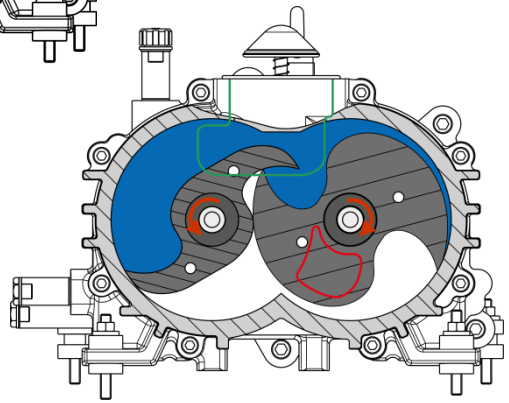


- **Two claw rotors rotate touchless** with the same speed in opposite directions
- Bigger main rotor is directly driven by the motor
  Smaller secondary rotor runs with the same speed by using a **timing gear**
- **Dry compression chamber**
- **Gear box with timing gear and bearings contains oil.**
  Oil has to be exchanged according to the maintenance plan.
- **Inner compression** (i.e. during the rotation of the rotors the volume of the pumping chamber is decreased)
- Small clearances are necessary to minimize internal leakage and thus to achieve **high efficiency**

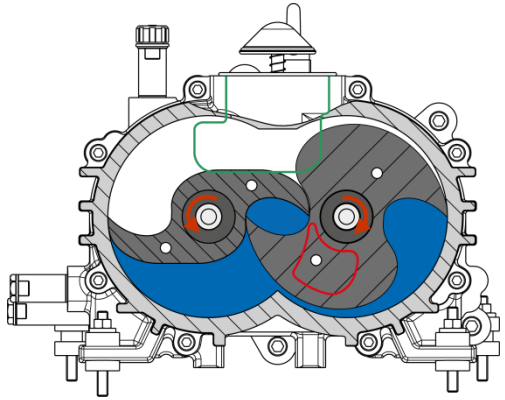
Claw pump
Basic principle



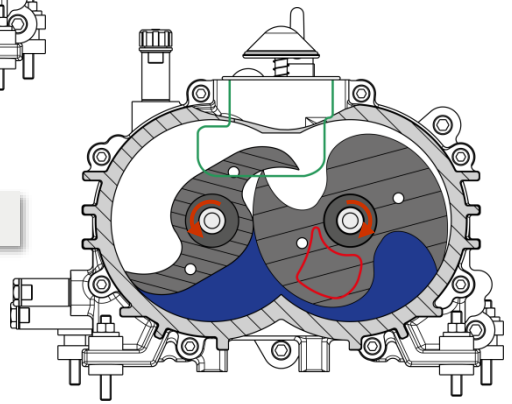
suction



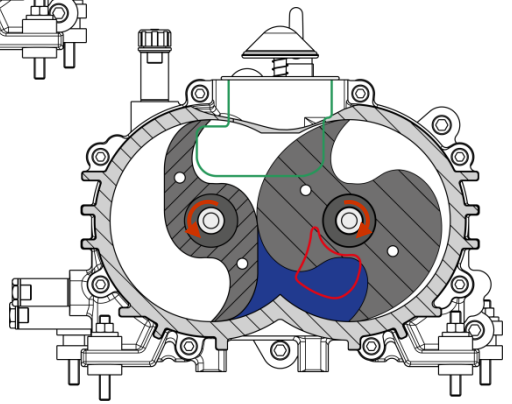
transport



compression

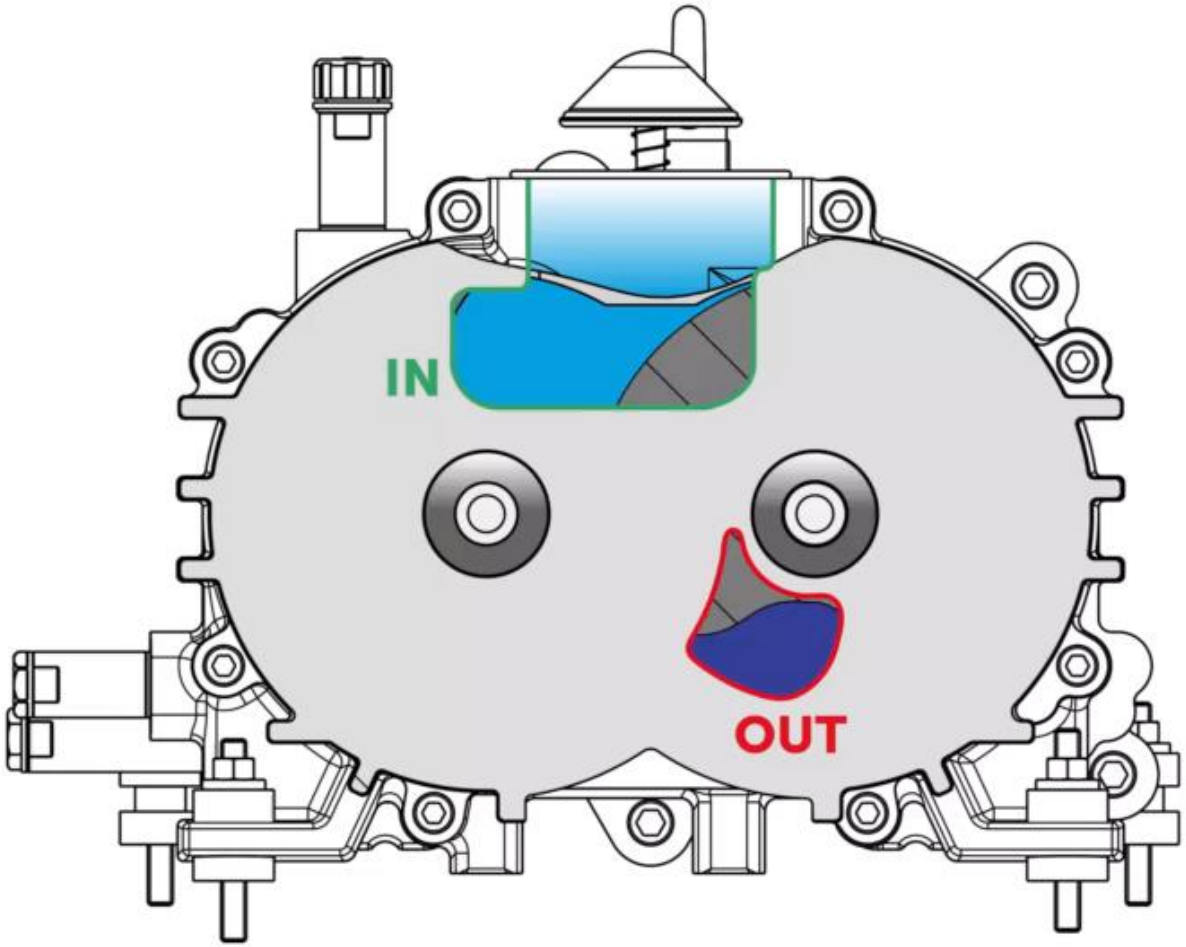


outlet



BECKER

Claw pump
Basic principle



BECKER Claw pump in three frame sizes
BCV line with or w/o frequency converter

Standard	ultimate vacuum	Nominal capacity 50 Hz / 60 Hz
BCV 100	50 mbar abs	100 m³/h / 120 m³/h
BCV 150	100 mbar abs (safety valve)	150 m³/h / 180 m³/h
BCV 300	150 mbar abs (safety valve)	275 m³/h / 325 m³/h

VARIAIR Unit	ultimate vacuum	Nominal capacity 30 Hz … 60 Hz (min … max motor speed)
VAU BCV 100	50 mbar abs	60 … 120 m³/h
VAU BCV 150	100 mbar abs (safety valve)	90 … 180 m³/h
VAU BCV 300	150 mbar abs (safety valve)	160 … 325 m³/h

All pumps are equipped with

- **integrated filtration**
- **integrated exhaust silencer**



VAU BCV 300 / BCV 300



VAU BCV 150 / BCV150



VAU BCV 100 / BCV100

BECKER

BECKER Claw Pump
BCV line – air flow through the pump

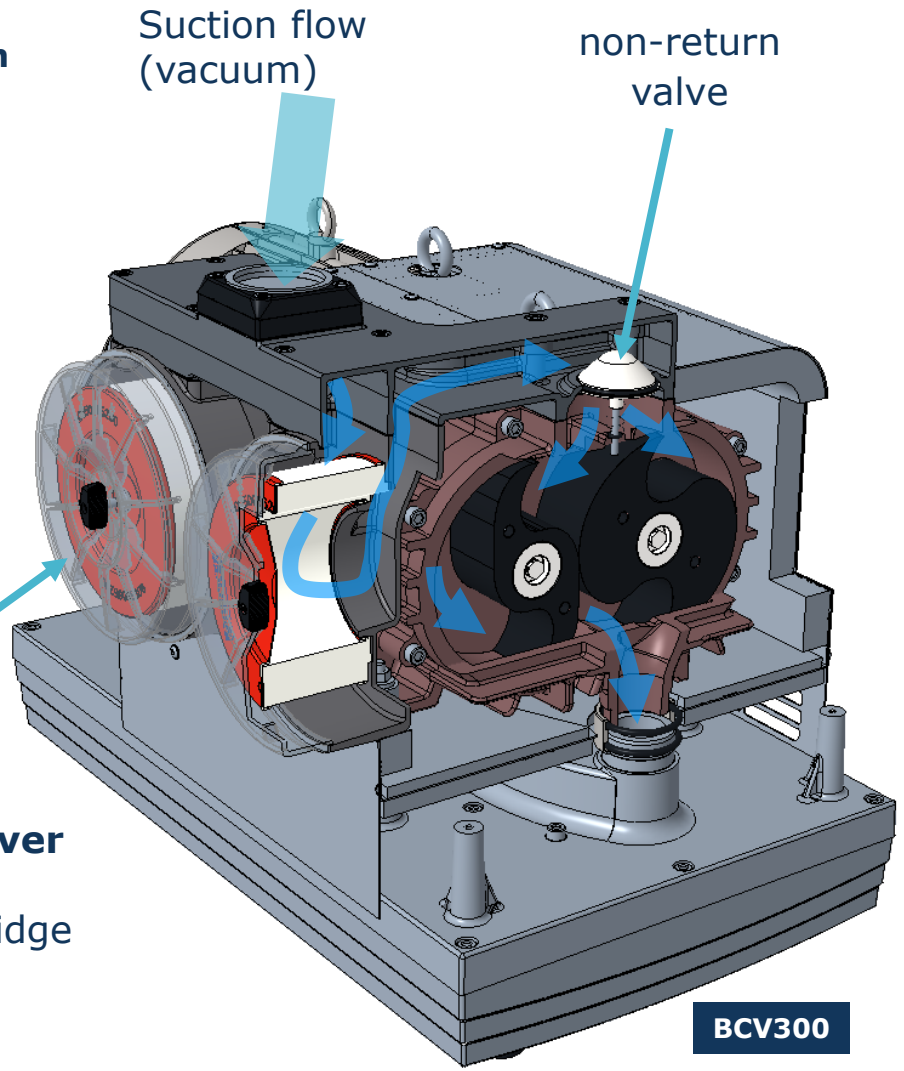
Excellence of integrated filtration solution with paper cartridges

BCV 300: nominal filter flow
2*464 m³/h ⇔ factor 3.5
BCV 150: nominal filter flow
464 m³/h ⇔ factor 3.3
BCV 100: nominal filter flow
464 m³/h ⇔ factor 5.2

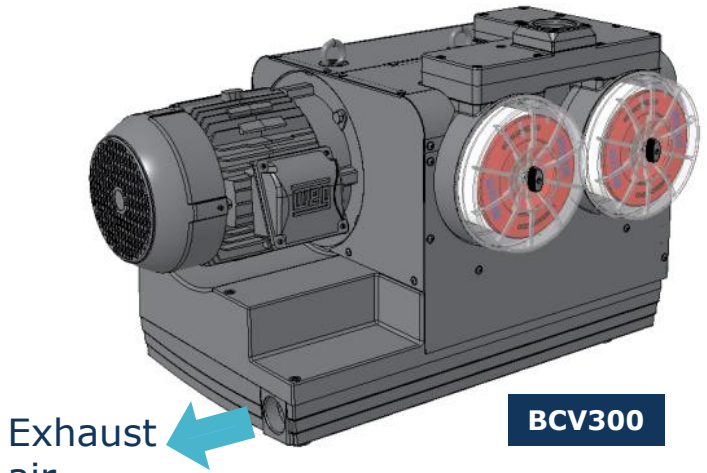
➔ **extended maintenance intervals**
➔ **less service costs**

Transparent filter cover
➔ **easy visual filter control**

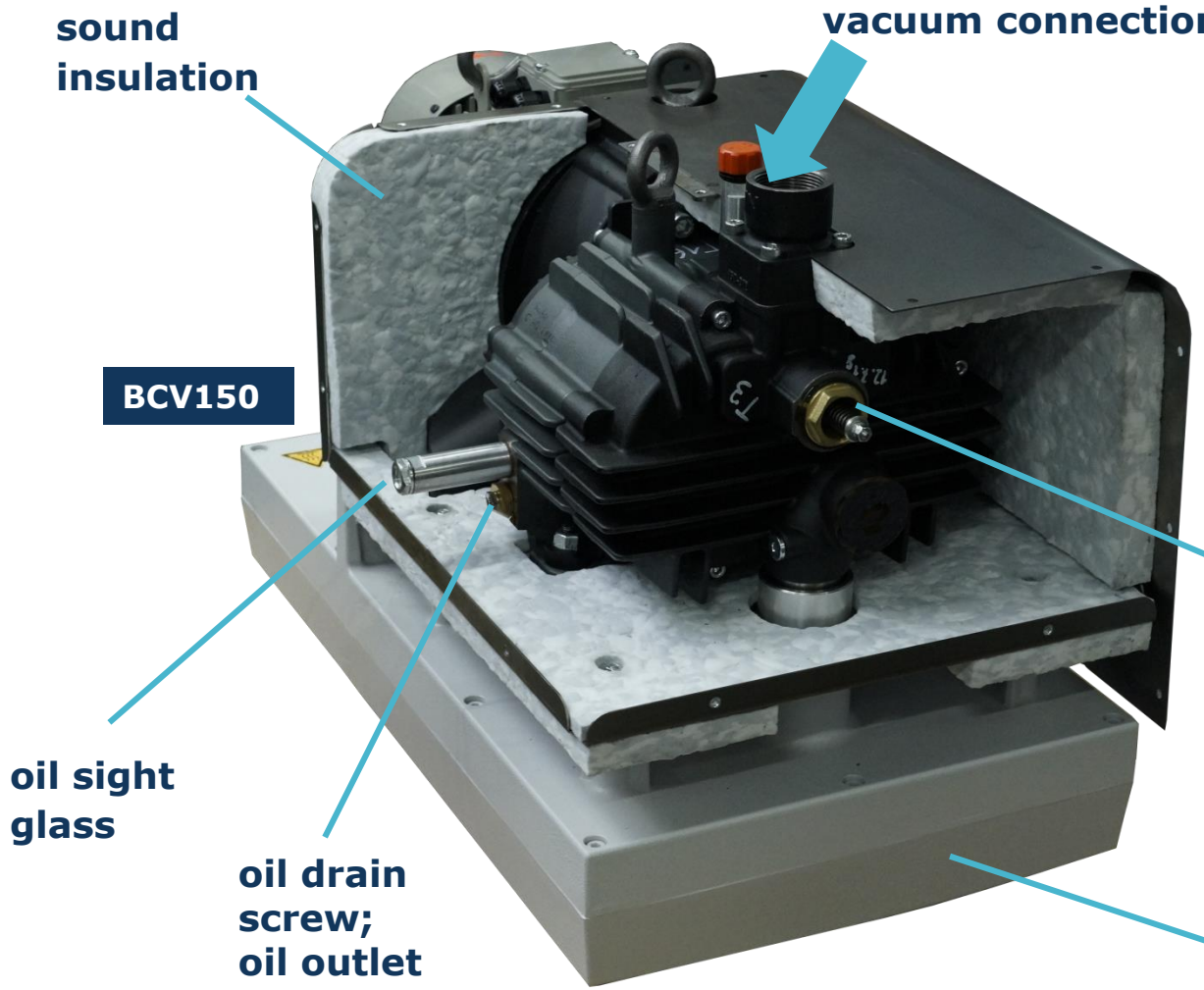
Polyester filter available



filter with transparent filter cover
(VAU)BCV300: 2 filter cartridges
(VAU)BCV100 & 150: 1 filter cartridge



BECKER Claw pump
BCV line – basic design



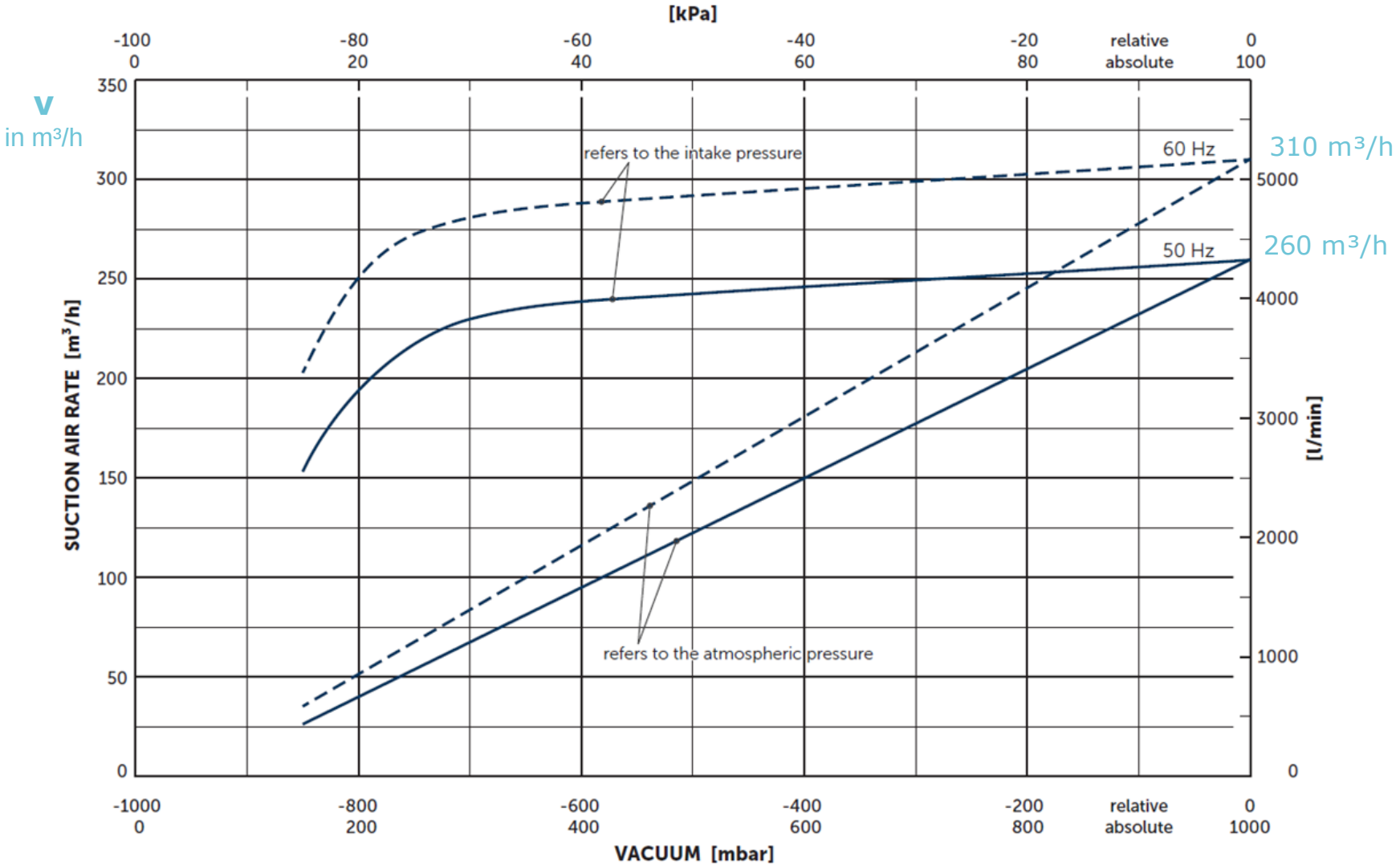


VAU BCV line

Including converter and integrated pressure sensor

BECKER

BCV 300
Characteristic curves – data sheet



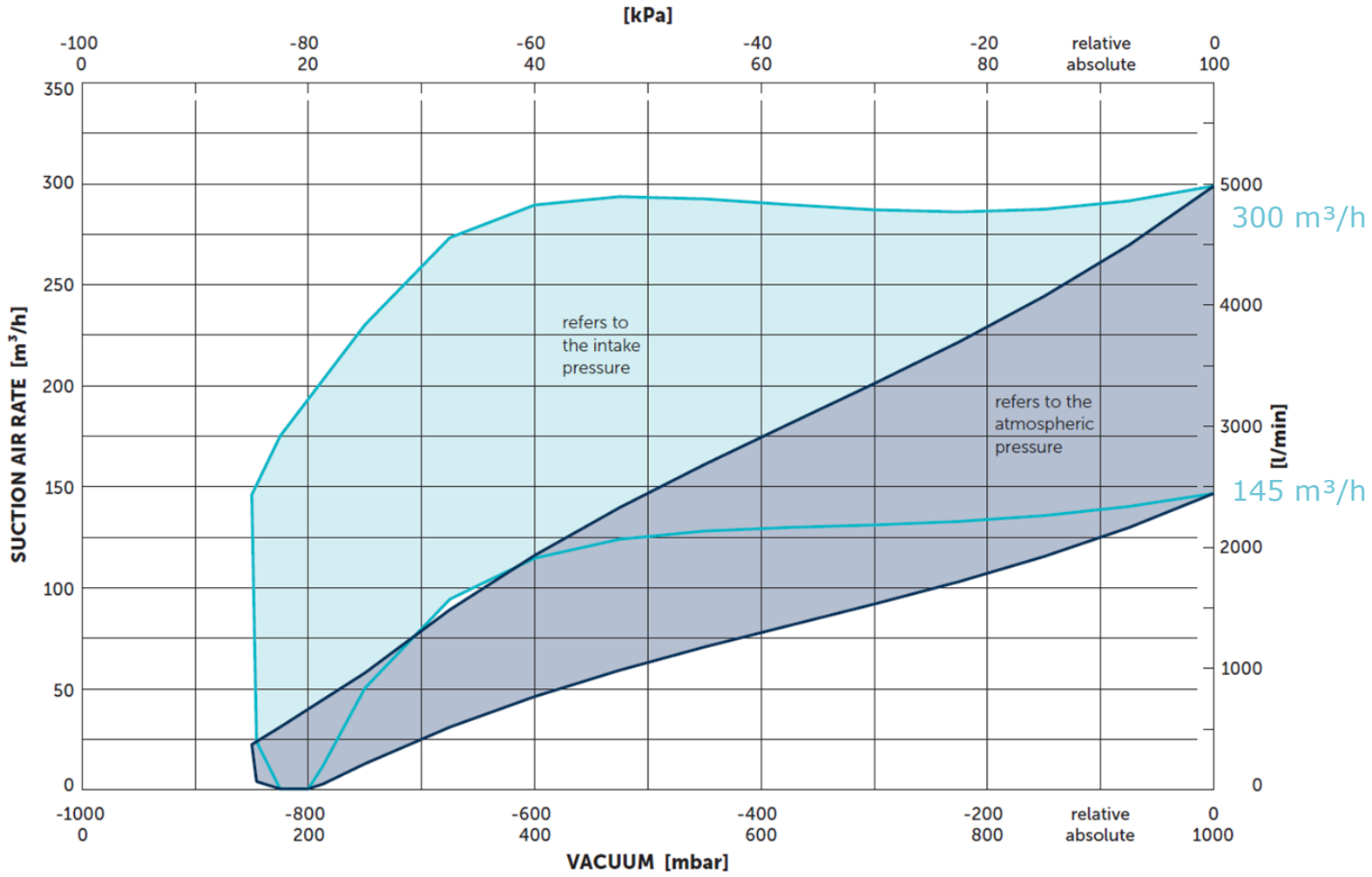


BCV300

BECKER

VAU BCV 300
Characteristic field – data sheet

v
in m³/h



300 m³/h

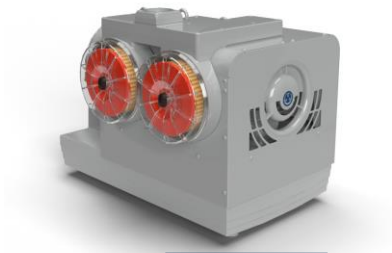
145 m³/h



VAU BCV 300

BECKER

Power supply
Motor power



BCV 300

BCV 100 BCV 150 BCV 300	VAU BCV 100 VAU BCV 150 VAU BCV 300
Standard flange motor	
Fits to global grid ➔ Motors with 4 different voltages available For detailed information see datasheet	mains voltage 400…480 V 50;60 Hz
all motors incl. frequency converter UL/CSA	
all motors CC (except Europe motor)	



VAU BCV 300

Required shaft power of BCV line

		BCV 100	BCV 150	BCV 300
shaft power	50Hz	2.2 kW	3.0 kW	5.5 kW
	60Hz	2.6 kW	3.6 kW	6.6 kW

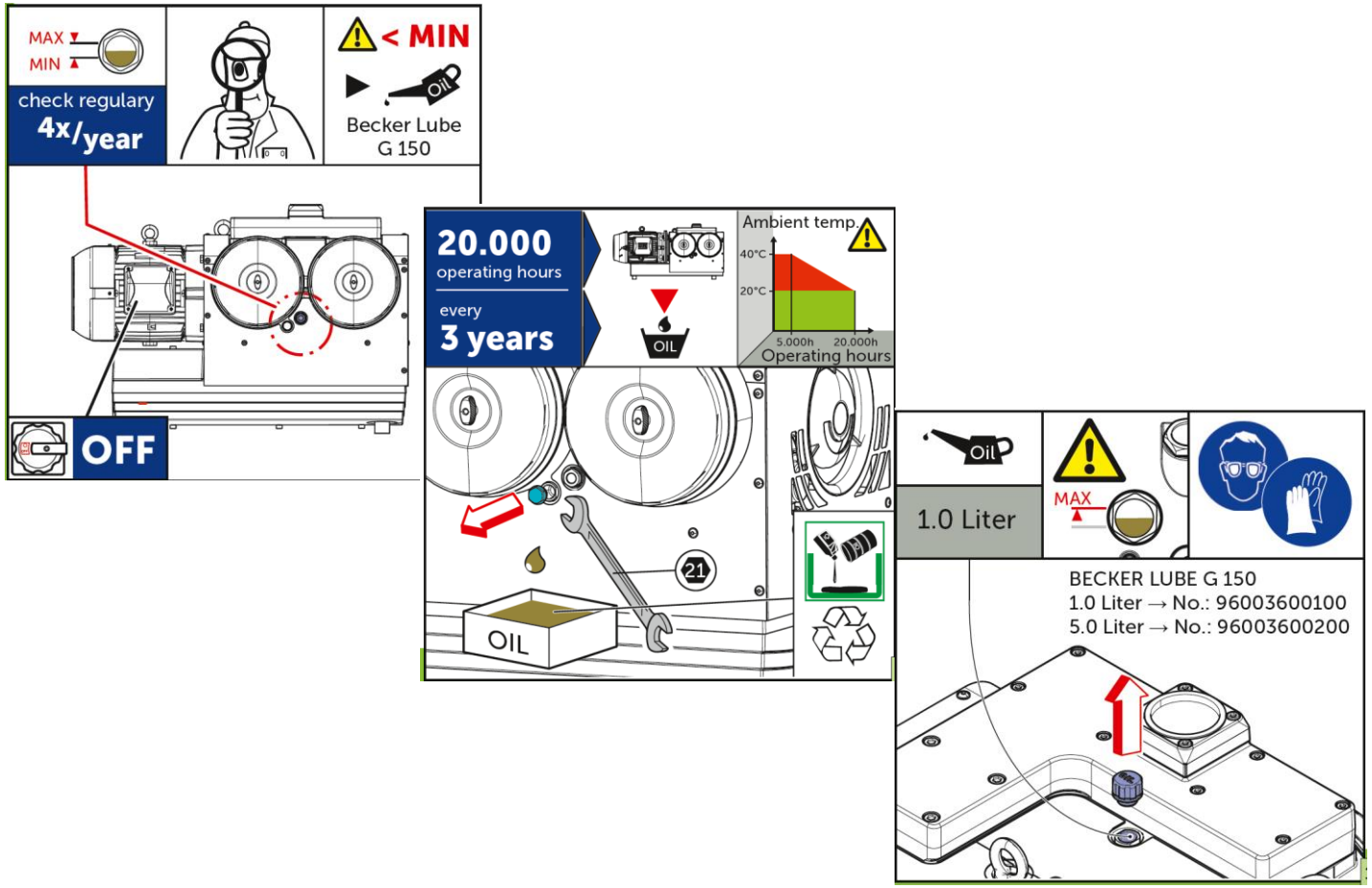
Required shaft power of VAU BCV line

		VAU BCV 100	VAU BCV 150	VAU BCV 300
shaft power	30..60Hz	O.75 … 2.9 kW	1.95 … 4.0 kW	3.3 … 7.5 kW

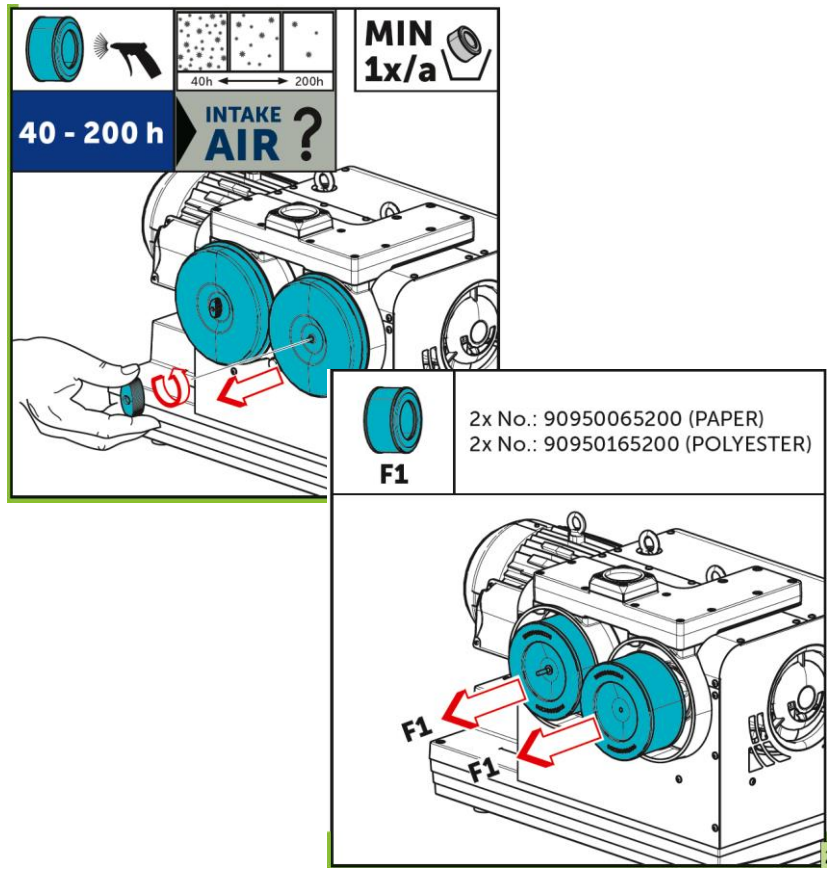
BECKER

BCV line
Easy maintenance

check oil



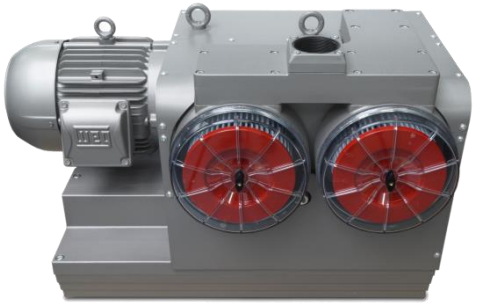
check filtration



BECKER

Becker Claw Pump
What makes it unique?

- **Integrated filtration for complete BC line**
  → no additional accessories required
  - Improved filter performance for either paper and polyester
    → extended maintenance intervals
    → low service effort and costs
  - Transparent filter housing
    → easy visual filter control



- **Easy access concept**
  → filter cartridges
  → compression element

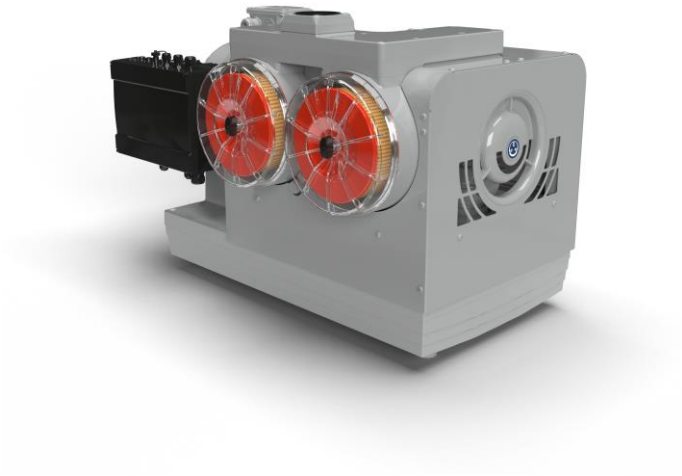
- **Integrated vacuum safety valve sheltered by air-guide**
  → most of environmental dust particles will pass the valve due to directed ventilation air

- **Compact solution with small pump dimensions**
  → small footprint for standard and VARIAIR Unit

- **Low noise level for each frame size independent the load you operate the unit**
  → no additional silencer required

- **Low heat emission**
  → low exhaust air temperature keeps ambient air cooler
  → low surface temperature prevents from any heat radiation
  this leads into a really cool (running) pump!

Becker Claw Pump
VARIAIR Unit – features



- **Operation point always to its optimum**
  - Create 20% more flow in 50Hz mains
  - Const. pressure mode
  - Device protection based on individual pump characteristics
  - Energy savings
  - Easy adaption to load changes
  - First choice for BECKER **R**ough **V**acuum **S**ystems (RVS)

- **Benefitials of VARIAIR converter characteristics**
  - Excellent soft start performance
  - Fieldbus interfaces available
  - 400/480 V / 50/60 Hz mains voltage
  - Easy integration into Becker systems with VARIAIR Controller+

- **Silent operation**
  - Operation always under minimal necessary speed

For detailed information please refer to Becker Claw Pump Flyer

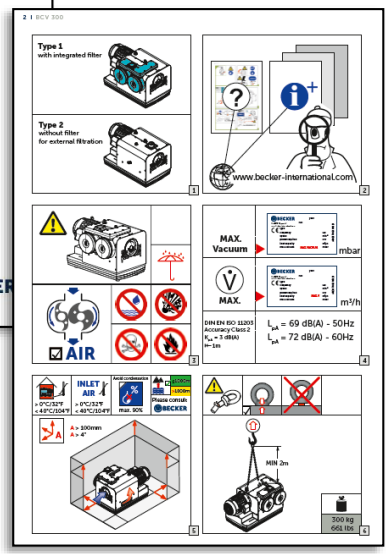
Available documentation
www.becker-international.com

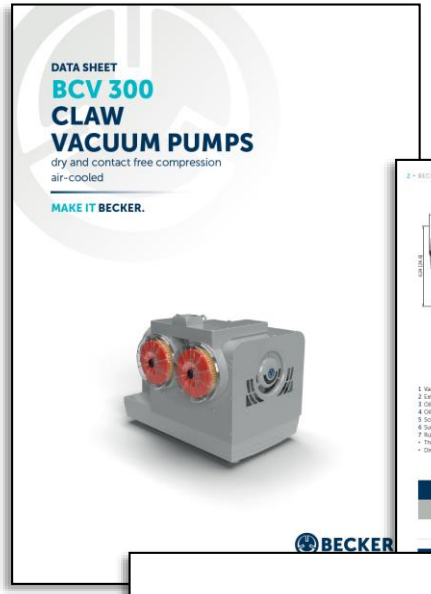
Documents:

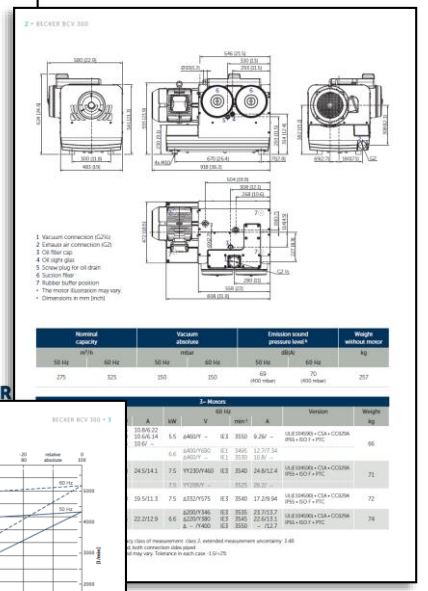
- **Data Sheets** (metric & imperial)
- **Operating Instructions**
- **Spare Parts Lists**
- **Product flyer**

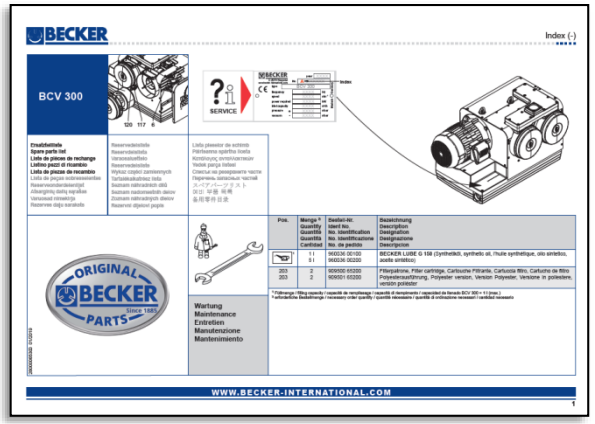


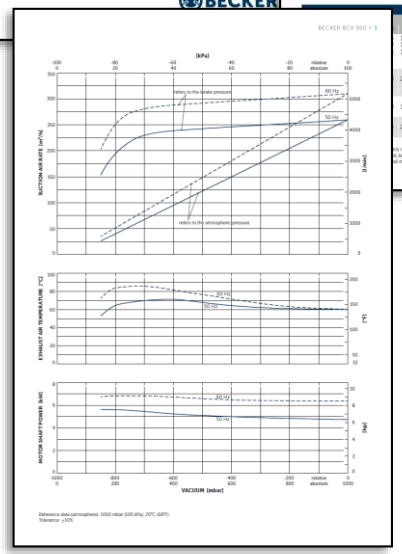












BECKER

MAKE IT
INNOVATIVE

MAKE IT BECKER.

Stefan Beierlein
Product Manager
T +49 202 697-106
Beierlein@Becker-International.com