BAUER KOMPRESSOREN

Quality. Our DNA

GAS INJECTION TECHNOLOGY

INNOVATIVE AND END-TO-END SOLUTIONS

SAFETY PRECISION INDEPENDENCE WORLDWIDE

75 1946 – 2021 BAUER KOMPRESSOREN

GIT – GAS INJECTION TECHNOLOGY FROM BAUER – ONE-STOP SOLUTIONS

GIT - OVERVIEW

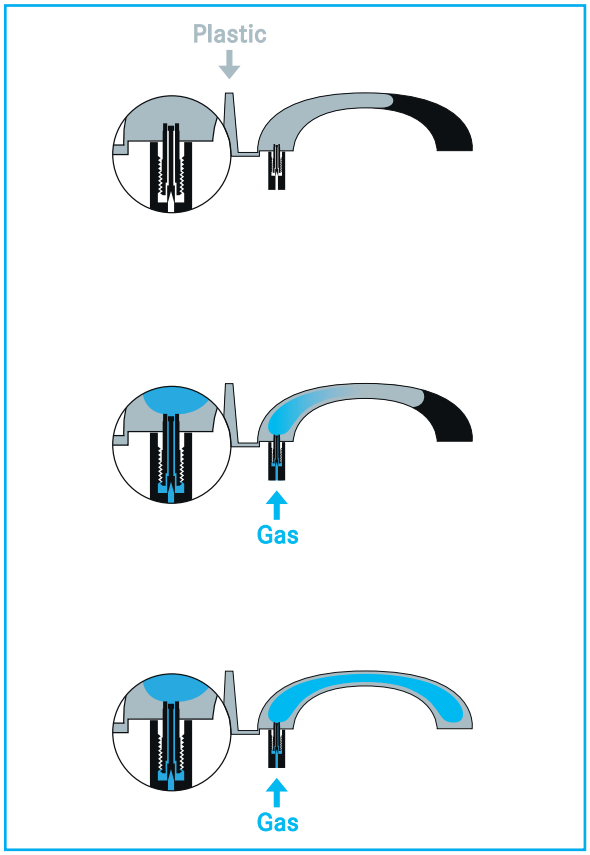
A procedure similar to GIT was described for the first time in 1972. With proven reliability, this technology showed market growth from the 1980s onwards.

GIT denotes the method of blowing gas, especially nitrogen, into plastic to create a hollow tubular pipe. In previous methods plastic was melted and injected into a mould; however, this method was unable to produce a thick-walled flattened bubble.

GIT TECHNIQUES

There are at least 10 variants of GIT, based on the type of piece produced and its needs. In brief, the two most commonly used techniques are as follows:

- The partial fill method – the original process – which involves filling 50%-90% of the cavity with plastic. Gas is then introduced to fill the cavity completely, distributing the mass of hot plastic to create a hollow tubular channel. Gas pressure is maintained during the holding phase, which is part of the cooling phase, and is only relieved immediately before the mould is opened.
- The overflow cavity method, which requires the addition of an annex cavity in the tool. The part cavity is completely filled with polymer and gas is injected under pressure; the excess plastic is displaced into the overflow cavity. Gas pressure is maintained during the holding phase, which is part of the cooling phase, and is only relieved immediately before the mould is opened.



BENEFITS OF GIT

Gas injection technology enables technical parts of superior quality to be produced. The manufacturing process is also more efficient, improving productivity and thus significantly increasing profitability.

- Injected parts are of higher quality
  - High strength and rigidity
  - Dimensional stability, no warpage
  - Elimination of sink marks
  - No assembly, single parts
- Simplification of tools
- More versatile design
- Lower clamping force (in partial method)
- Reduced cycle time
- Material savings
- Possibility of producing hollow (tubular) parts

BAUER EXPERIENCE

Our outstanding expertise in purifying gases, coupled with software-based control technology developed by our BAUER specialists, assures you outstanding product quality which will improve your profitability.

HIGH-PRESSURE COMPRESSOR AND BOOSTER UNITS

- Ready for use; compact and autonomous
- Compression of high-quality nitrogen with our P-Purification system
- Booster units with low power consumption using the inlet pressure of a nitrogen generator or evaporator
- Safe, secure operation with integrated control unit (B-CONTROL)

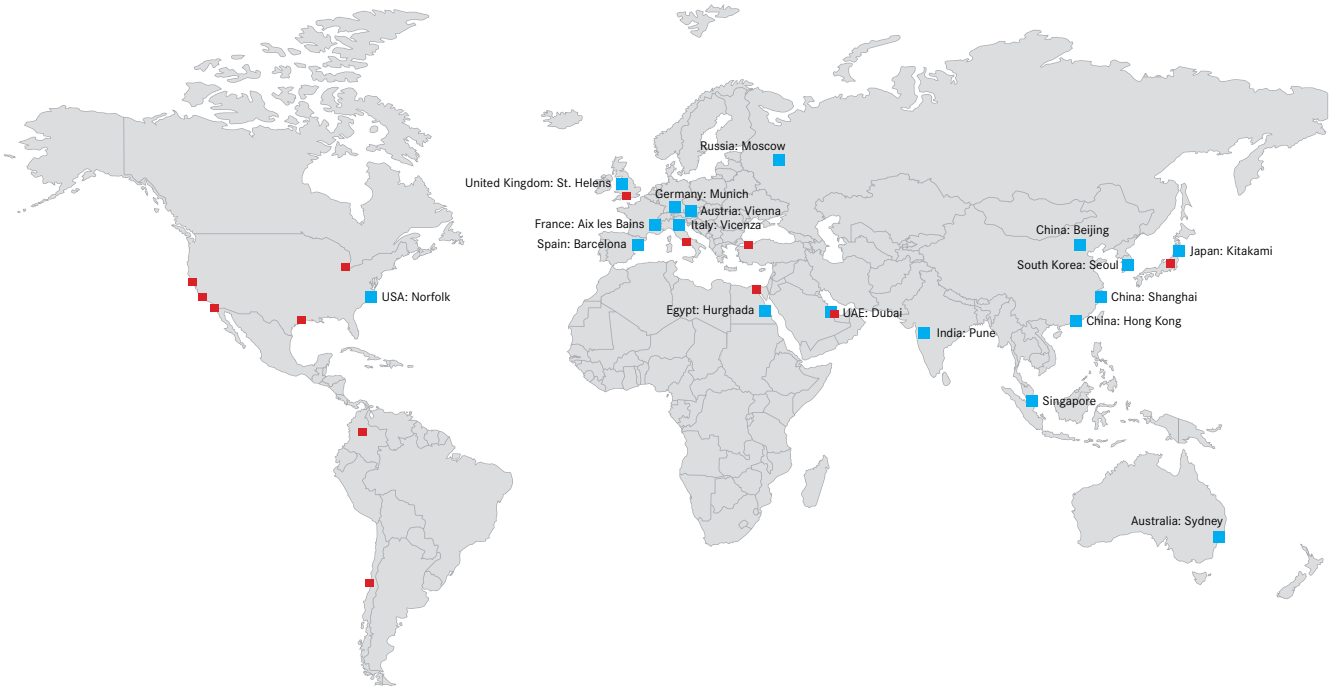
FCC CONTROL UNIT

- Compact mobile panel.
- Adaptive control for ultra-precise results (reactivity adjustable).
- Easy and intuitive programming.
- Full connectivity for file transfer (USB and Ethernet).
- Continuous process monitoring with quality data storage.

EXCELLENT SERVICE ASSURED

For BAUER, “quality„ does not end with the production and delivery of the system. Wherever their installation is located, our customers benefit from our excellent and comprehensive after-sales service support:

- All major spare parts, including wearing parts, for all models are permanently in stock and available for immediate dispatch. Parts are available for up to 25 years after delivery of the GIT system.
- An integrated distribution network comprising 22 subsidiaries plus 360 support distributors is permanently available to support our customers.
- Maintenance kits for all systems are available worldwide.



SYSTEM STRUCTURE

BAUER KOMPRESSOREN offers Gas Injection Technology as a solution to the problems of plastic part production.

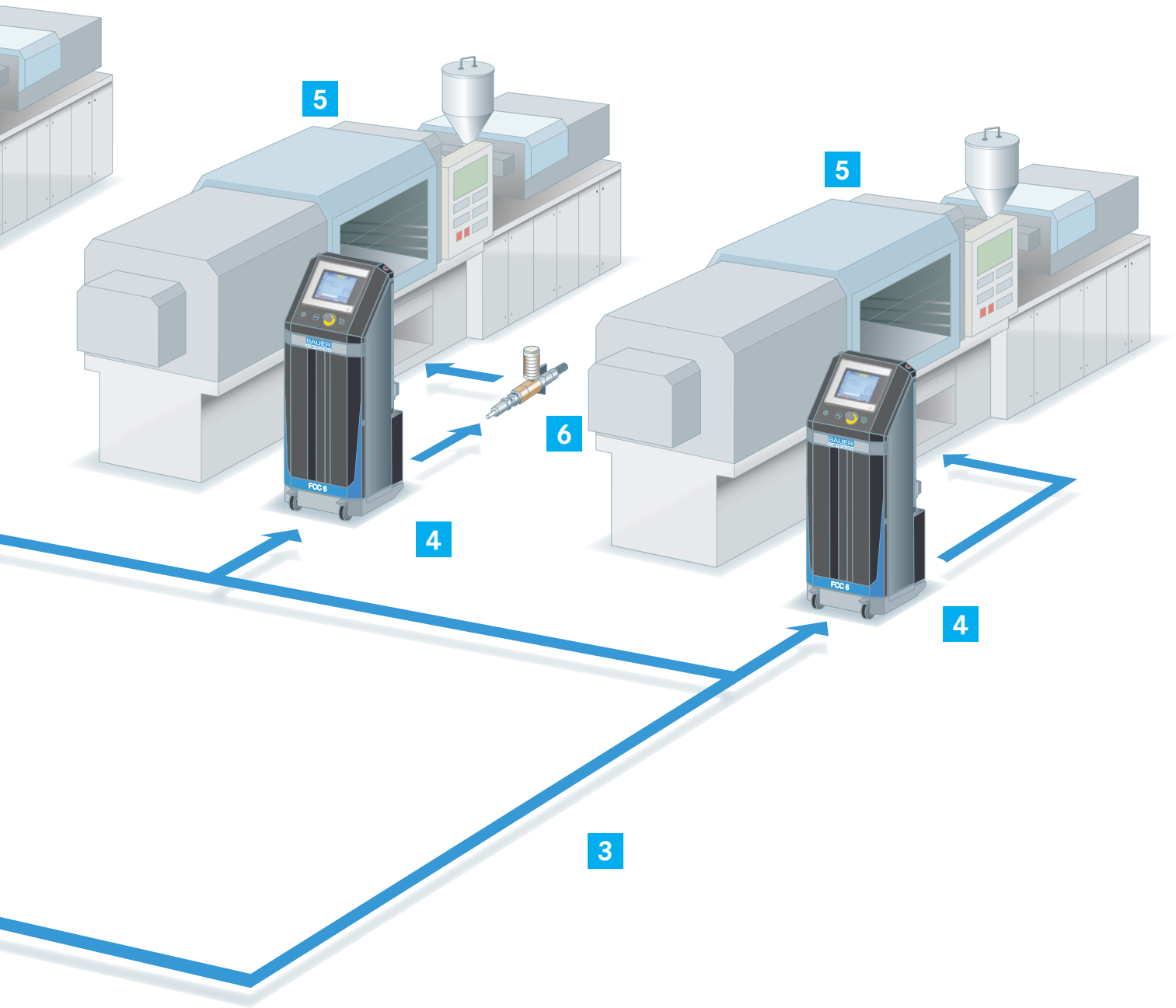
End-users will benefit from BAUER's years of manufacturing experience in the field of GIT and compressor technology with tailor-made systems from a single source. BAUER's products range from starter packs to complex large-scale systems.

1 Nitrogen source: nitrogen bottles, nitrogen generator or liquid tank

2 A high-pressure compressor with a suitably dimensioned gas receiver facility for compression and safe storage of nitrogen at high pressures

3 High-pressure lines to transport the nitrogen

4 Distribution panel that generates a pressure/time profile for nitrogen dispensing



5 Gas injectors to fill nitrogen into plastic parts for hollowing

6 Optional bypass valve to prevent ingress of dirt into the proportional regulating valve

MINI-VERTICUS & VERTICUS FOR NITROGEN COMPRESSION

The new generation of stationary compressors from the MINI-VERTICUS and VERTICUS series once again demonstrates BAUER's leading-edge technological status.

The MINI-VERTICUS and VERTICUS series has been developed and built specifically to meet high performance requirements in continuous operation in professional applications.

The new MINI-VERTICUS and VERTICUS combine the legendary BAUER compressor blocks with improved components and ultra-modern design. These redesign models focus on ergonomics, making operation as easy as possible, reducing noise and boosting efficiency.

The advanced B-CONTROL MICRO is more powerful and ready to communicate with the B-CLOUD and B-APP for remotely controlling and monitoring the compressor.

B CLOUD READY

MINI-VERTICUS - Super Silent with storage

- **3 – 7.5 kW**
- **85 – 475 l/min**
- **90 – 420 bar**

VERTICUS - Super Silent with storage

- **7.5 – 15 kW**
- **340 – 950 l/min**
- **90 – 525 bar**

FEATURES

- Now significantly quieter thanks to the new anti-vibration frame and noise-optimised Super Silent housing
- Fully automatic B-CONTROL MICRO compressor control with colour display
- Long system life: all materials used are high quality and optimised for continuous operation
- Very easy to maintain: alarms for oil and condensate levels (integrated storage of 14l). The tension of the V-belt does not have to be adjusted
- Multi-stage piston compressor/booster units, lubricated, with a final separator and P61/P81 purification system to produce high-purity compressed gas
- Complete system is mounted on skids with up to two HP cylinders

BOOSTER

Model	F.A.D.[1]			Intake pressure	Max. operating pressure[2]		No. of stages	Speed approx.	Motor output	Net weight approx.	
	l/min	m³/h	cfm	bar	bar	psig		rpm	kW	kg	lbs
MINI-VERTICUS - BOOSTER 90 - 365 bar											
GIB 10.2-7.5-MV	290-385	17.4-23.1	10.2-13.6	2-3	365	5300	3	1350	7.5	351	774
GIB 12.2-5.5-MV	200-475	12-28.5	7-17	5-11	365	5300	2	1300	5.5	333	734
VERTICUS - BOOSTER 90 - 365 bar											
GIB 15.3-11-V	510-950	30.6-57	18-33.5	7-10	365	5300	2	1140	11	404	891
GIB 15.3-11-V HF	660-950	39.6-57	23.3-33,5	7-10	365	5300	2	1440	15	414	913
GIB 15.41-15-V	430-830	25.8-49.8	15.2-29.3	2-4	365	5300	3	1350	15	416	917
GIB 15.41-15-V HF	490-830	29.4-49.8	17.3-29.3	2-4	365	5300	3	1530	15	416	917

COMPRESSOR

Model	F.A.D.[1]			Max. operating pressure[2]		No. stages	Speed approx.	Motor output	Net weight approx.	
	l/min	m³/h	cfm	bar	psig		rpm	kW	kg	lbs
MINI-VERTICUS 90 - 365 bar										
I 100-3-MV	85	5.1	3	365	5300	3	900	3	316	697
I 100-4-MV	125	7.5	4.4	365	5300	3	1270	4	324	714
I 120-4-MV	170	10.2	6	365	5300	3	1200	4	324	714
I 120-5.5-MV	215	12.9	7.6	365	5300	3	1470	5.5	333	734
I 12.14-7.5-MV	300	18	10.6	365	5300	4	1450	7.5	350	772
VERTICUS 90 - 365 bar										
I 15.1-7.5-V	340	20.4	12	365	5300	4	1050	7.5	384	847
I 15.1-11-V	420	25.2	15	365	5300	4	1320	11	402	886
I 150-11-V	500	30	18	365	5300	4	1230	11	402	886
I 180-15-V	610	36.6	21	365	5300	4	1320	15	416	917

1 Volume flow rate in accordance with ISO 1217. Variances in ambient conditions will result in differing perfomance values. Values are valid for 50 Hz.
2 Max. operating pressure = max. pressure setting for safety valve; shutdown pressure is lower.

THE FCC 6 - OUR LATEST FIRST-CLASS CONTROLLER

BAUER distribution panels have been in operation worldwide for the past 25 years. Their mature and well-proven control systems deliver maximum reliability with minimum downtime for users.

The sixth generation of BAUER controllers makes operation exceptionally user-friendly and intuitive. Thanks to optimised software, operation and technical possibilities have been significantly enhanced, with new features including an integrated volume option to control the process and up to 8 independent valves.

INTERFACE AND CONTROL

- 10” colour touchscreen display
- Password protection (3 profiles)
- Seven time/pressure levels with ramp function
- 1, 2, 4, 6 or 8 independent valves
- Cleaning cycle of injector
- Cleaning cycle of mould (OXYPURGE)
- Leakage detection
- Graphic displays of pressure versus time
- Display of relevant current values and last 100 cycles
- Alarms (message, light, sound, cycle stopped) with log
- Programs and data quality storage on internal memory card, USB key or via Ethernet
- Screen service with maintenance log and display technician diagnosis system
- Real-time Internet-based support and diagnosis

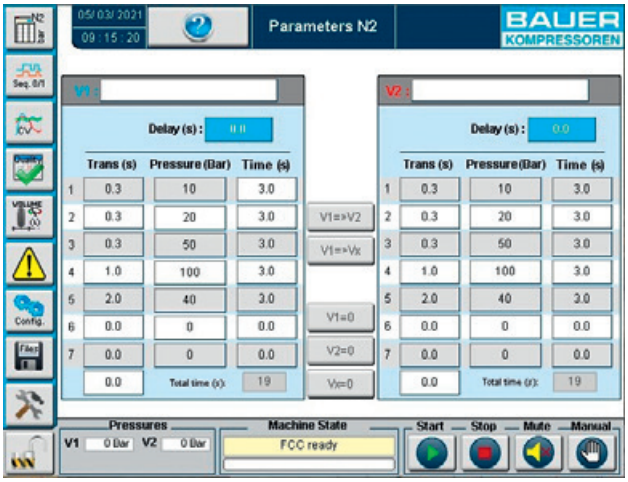
CONNECTIONS

- Start signal: start of plastic injection
- 1 to 8 independent valves
- Compatible with all injection moulding machines including EUROMAP 62 and EUROMAP 77 standard

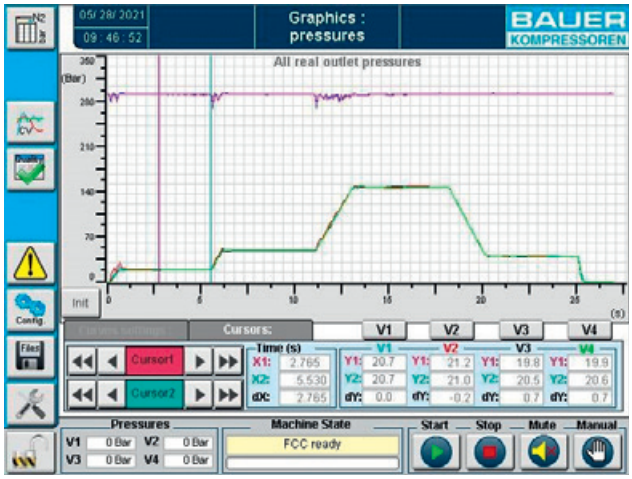
FCC 6

ALL INFORMATION AT A GLANCE!

The high-resolution touchscreen shows all relevant parameters. It provides clear user guidance and can display a comprehensive range of settings for controlling and monitoring the process.



Time/pressure levels are easy to program.

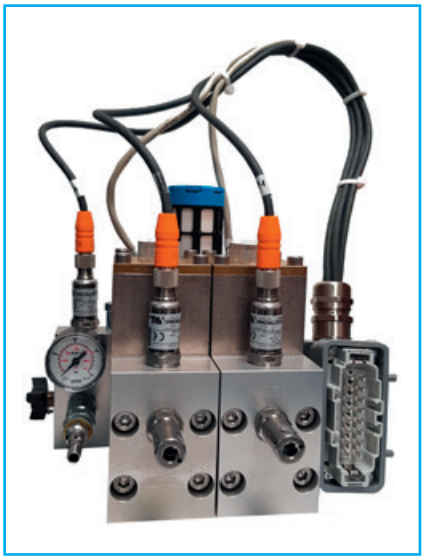


The actual graph provides information about the process quality.

REGULATING MODULE

This rugged high-precision proportional valve has delivered proven reliability for over 20 years.

- Electrical proportional regulating valve
- Piloted by PLC with a numeric closed loop
- Adjustable reactivity and autotuning
- High precision from 5 to 400 bar
- The standard module has 2 valves; a 1-valve version is optionally available
- Module can be built into FCC 6 or positioned close to the mould
- Integrated filtration of 25 µm
- Low maintenance costs with fast service support



2-valve module

OPTIONAL FEATURES

- Can accommodate 2 additional valves to be ready for future projects
- Sequential piloting to control up to 4 external hydraulic actuators (with control of oil level and temperature and 8 position sensors in the mould)
- Interface allows one FCC 6 to be used with 2 injection moulding machines at the same time
- Integrated volume flow monitoring iV:
  - Monitors the exact consumption of the gas of each channel: quality and cost control.
  - Evaluates of required compressor flow rate
  - Detects leaks and can save nitrogen consumption
  - Calculates and survey the gas pin flow
  - Monitor process repeatability with alarm function

Optional integrated volume

LCC II – LIGHT CLASS CONTROLLER

Available as 1-, 2- or 4-valve versions, this compact distribution panel is programmed via an external laptop. The LCC II can be directly mounted on the injection moulding machine, minimizing nitrogen consumption.

INTERFACE AND PLC

- Programmed via Ethernet port of external laptop, which can be disconnected during production
- Same interface as FCC 6
- Remote control for Start, Injector test and Reset IP adress functions. Green and red lights display information on the panel status (Ready, Cycle in progress, alarms etc.)
- Compatible with all injection moulding machines including EUROMAP 62 and EUROMAP 77 standard

LCC II, 2 valves with protection

REGULATING MODULE

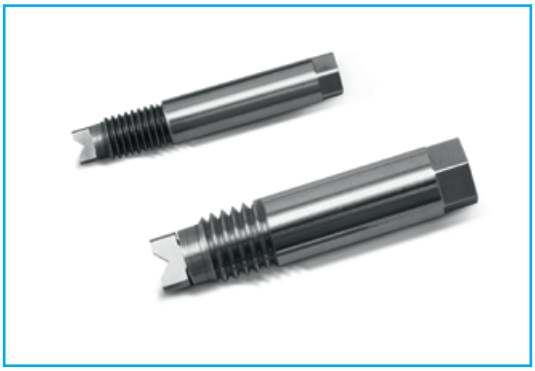
- As with the FCC 6, valves have protective housings

ACCESSORIES

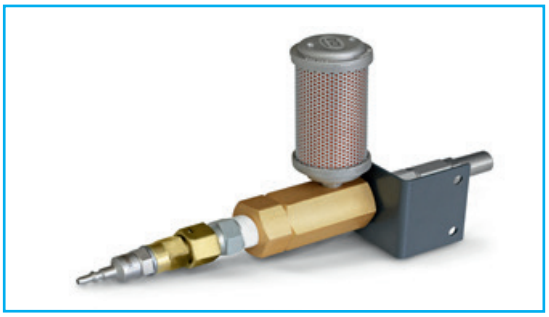
GAS INJECTORS

These injectors can be used for all gas injection processes.

- No penetration of melt
- Diameter: 2 – 12 mm
- Quick and easy-clean
- Compact
- Optional with seal
- Specific size on demand



BAUER gas injectors



Bypass valve

BYPASS VALVE

The bypass valve is placed between the mould and the distribution panel.

- Protects the valve module from plastic degassing pollution
- No external energy needed
- Increases system availability

ARE YOU INTERESTED IN ONE OF OUR PRODUCTS?

**PLEASE GET IN TOUCH –
WE WILL BE HAPPY TO ASSIST YOU.**

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