Appendix
Bypass regulation with circulation

General

The system pressure of adhesive application system is determined by three factors :

- Nozzle diameter
- Viscosity of the adhesive
- Pump capacity

The pressure range of the system must be set to a value that the pressure relief valve will not open during normal operation. Only with a closed pressure relief valve the adhesive amount can be controlled and adjusted properly.

The over-pressure valve has only a safety function and should not be used for the adjustment of adhesive amounts.

When is a bypass regulation with circulation necessary?

It is necessary in all applications where the system pressure and the related adhesive quantity has to be constant for a certain period of time ; i.e. intermittent application with relatively long delays or machine stop and re-start of the machine.

What happens without bypass regulation with circulation?

Is the application head closed and the pump continues to run the system pressure raises until

1. the over pressure valve opens
   or
2. the application head will be opened

In both cases, no precise adhesive application is assured.

If the over pressure valve has opened and the head opens at the same time there is not enough adhesive and in case of overpressure there will be too much glue when the head opens the next time.

To avoid his negative effect the bypass regulation with circulation is used. This can be realized in two ways.

- Using high speed machines the circulation has to be done at the application head to achieve a short reaction time
- For standard intermittent application a circulation at the hopper manifold is sufficient

How does the circulation work?

If the application head is closed a so called circulation module is opened and the adhesive that is supplied by the pump is re-circulated into the hopper.

This requires that the pressures in both switching states are equal; that means pre- and post-pressure have to be of the identical value.

This is achieved by an additional throttle which is connected behind the circulation valve.

How to adjust the circulation?

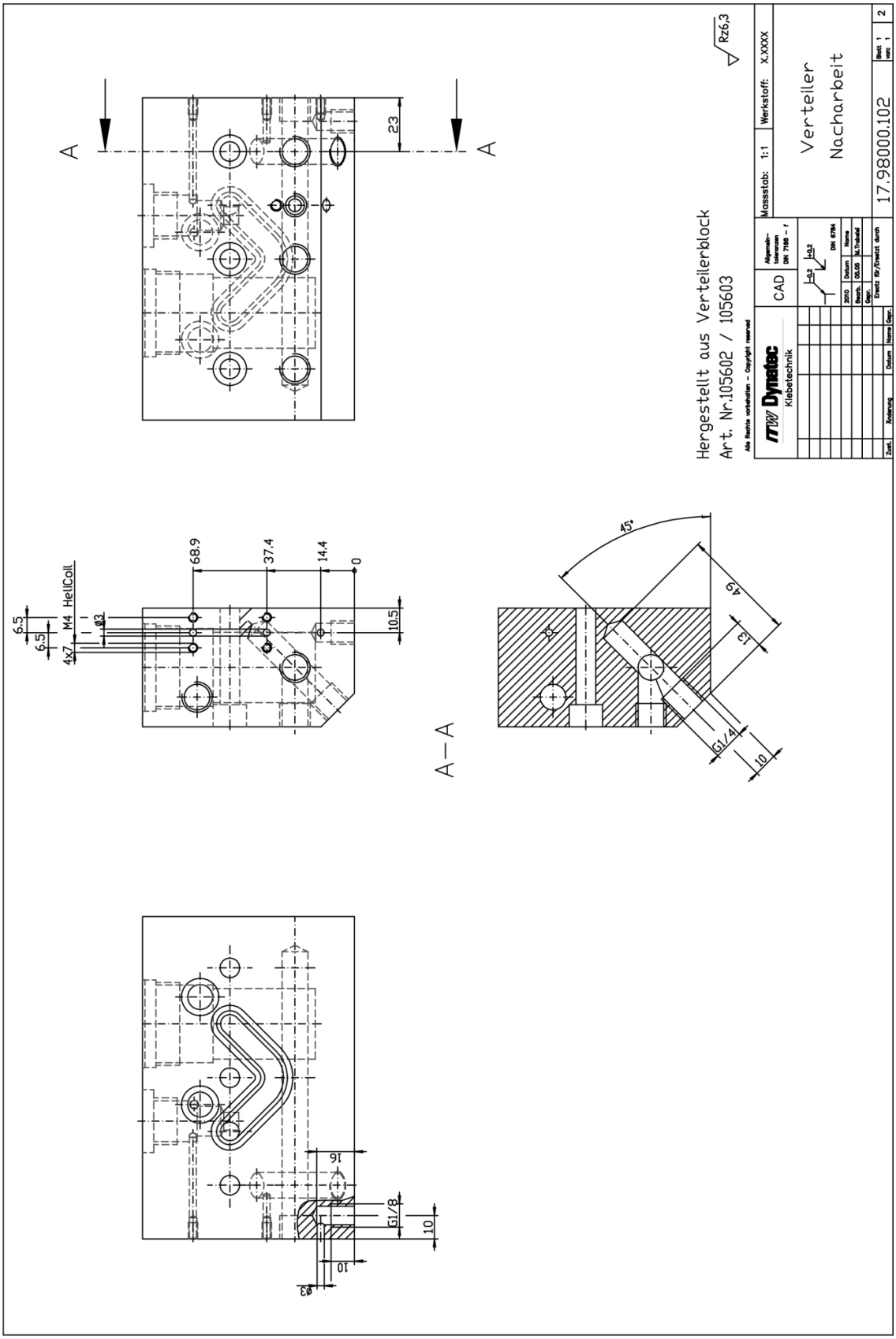
The most accurate way to measure the pressure is an electronic pressure sensor with digital display (optional) and to adjust pre- and post-pressure in the system to an identical value using the throttle of the circulation valve.

For standard application the pressure adjustment can be done with analogue pressure gauges (optional).

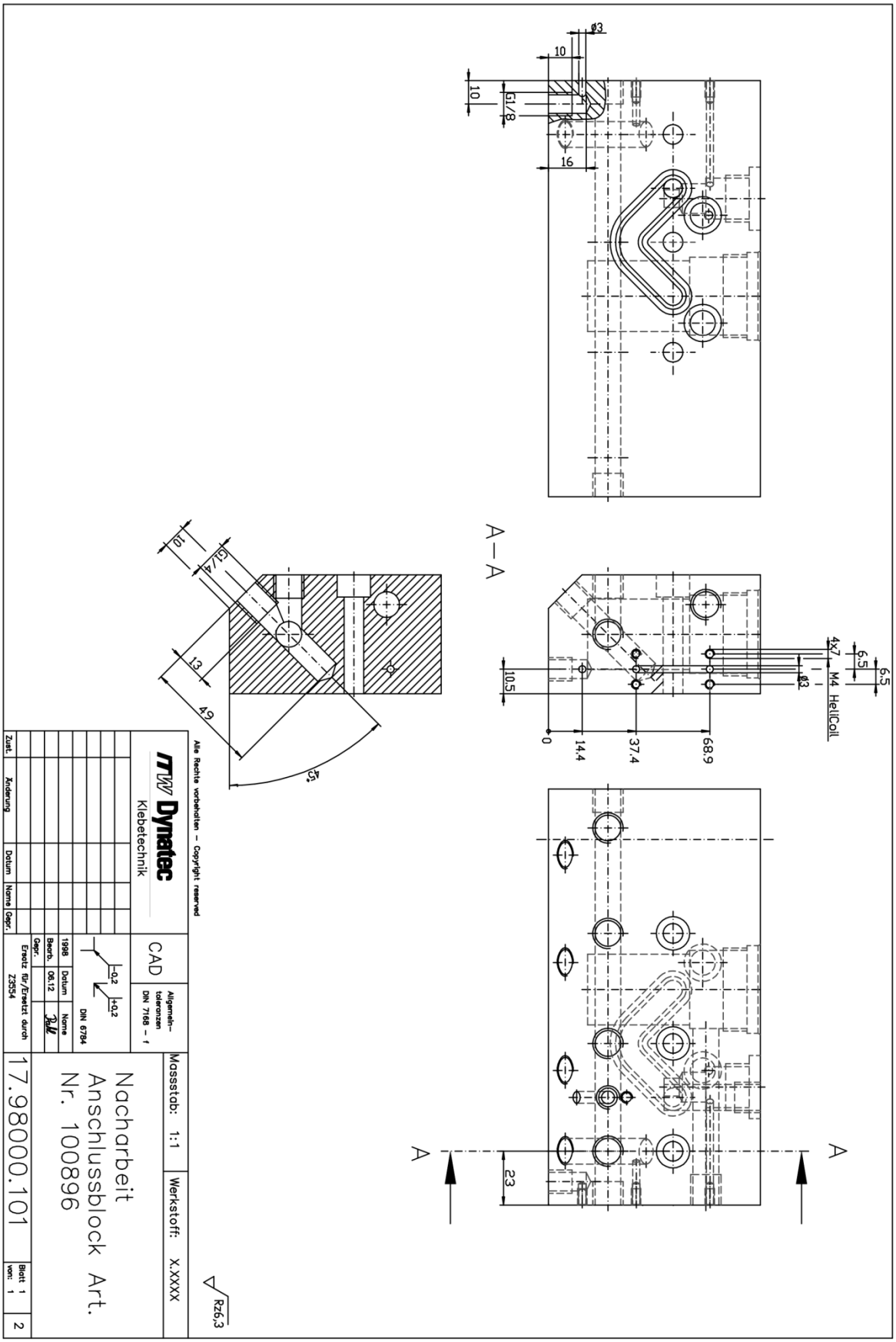
This ensures that the amount of adhesive pressure is constant and the adhesive amount uniform.

Spare parts

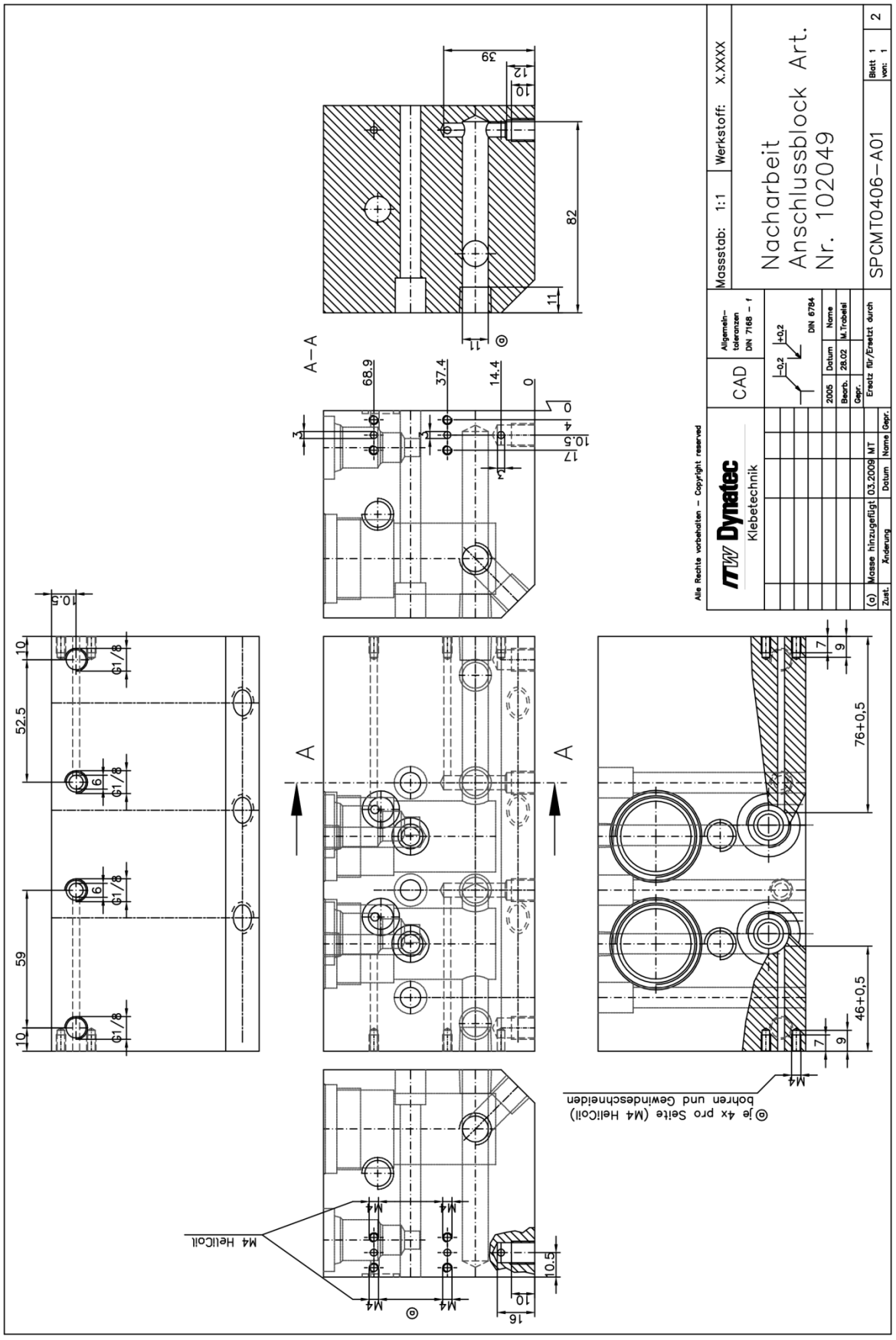
Manifold for units with single pump and 2 hose connections



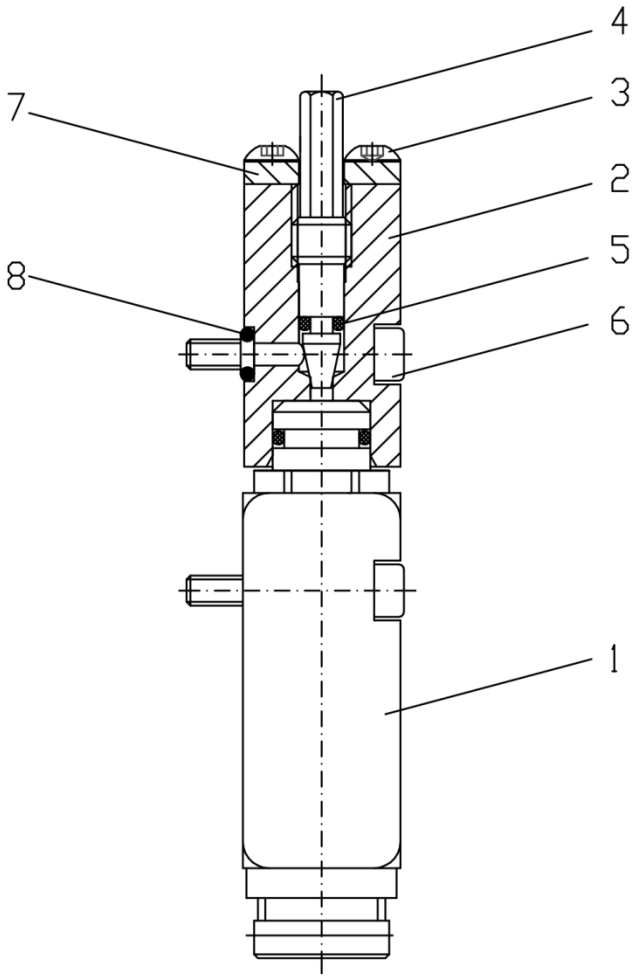
Manifold for units with single pump and 4 to 6 hose connections



Manifold for unit with dual pump and 4 hose connections



Bypass circulation module



Position	Art.-Nr.	Article	l
	71.00700.750	Bypass circulation module with throttle	
1	71.00700.702	Application module complete	1
2	71.00700.163	Circulation block	1
3	00.10408.738	Allen screw M4 x 8 mm	2
4	71.00290.006	Reducer screw	1
5	06.00290.006	O-Ring	3
6	00.10425.912	Allen screw M4 x 25 mm	4
7	71.00700.164	Plate	1
8	06.00368.007	O-Ring	1

Schematic for connection

Zahnradpumpe	=	Gear pump
Druckanzeige	=	Pressure gauge
Drosselventil	=	Throttle
Schlauchanschluß	=	Hose connection
Rücklaufmodule	=	Recirculation valve
6 Bar Luftdruck	=	6 Bar air pressure
3/2 Wege-Ventil	=	3/2 –ways –solenoid
Stomlos offen	=	Normally open
Behälter Tankgerät	=	Hopper Application Unit