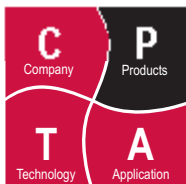
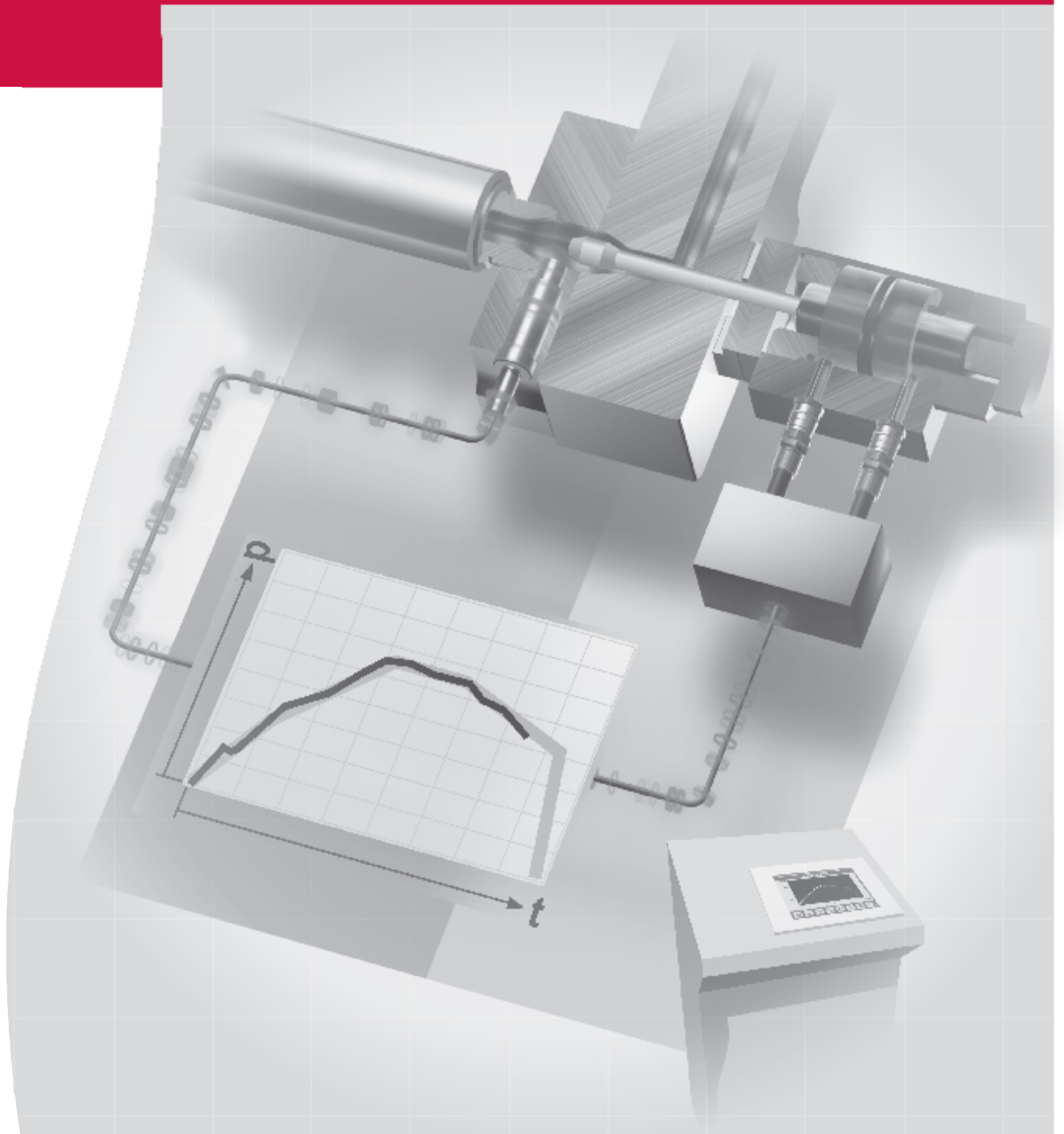


Dynamic Feed[®]

Melt Pressure Control inside Hot Runners



Synventive[®]
molding solutions
A business of BARNES GROUP INC

Illustrations simplified, schematically drawn and not to scale.

Product Type

Components to be added to hot runner systems in order to use them with melt pressure control:

1. Valve gate hot runner system including melt valve module

- a) Valve pin
- b) Pressure transducer
- c) Flow valve block
- d) Hydraulic actuator
- e) Connection box

2. Dynamic Feed control unit

- f) Signal line to the injection molding machine
- g) Signal line to the hot runner system
- h) Signal line to the servo valves

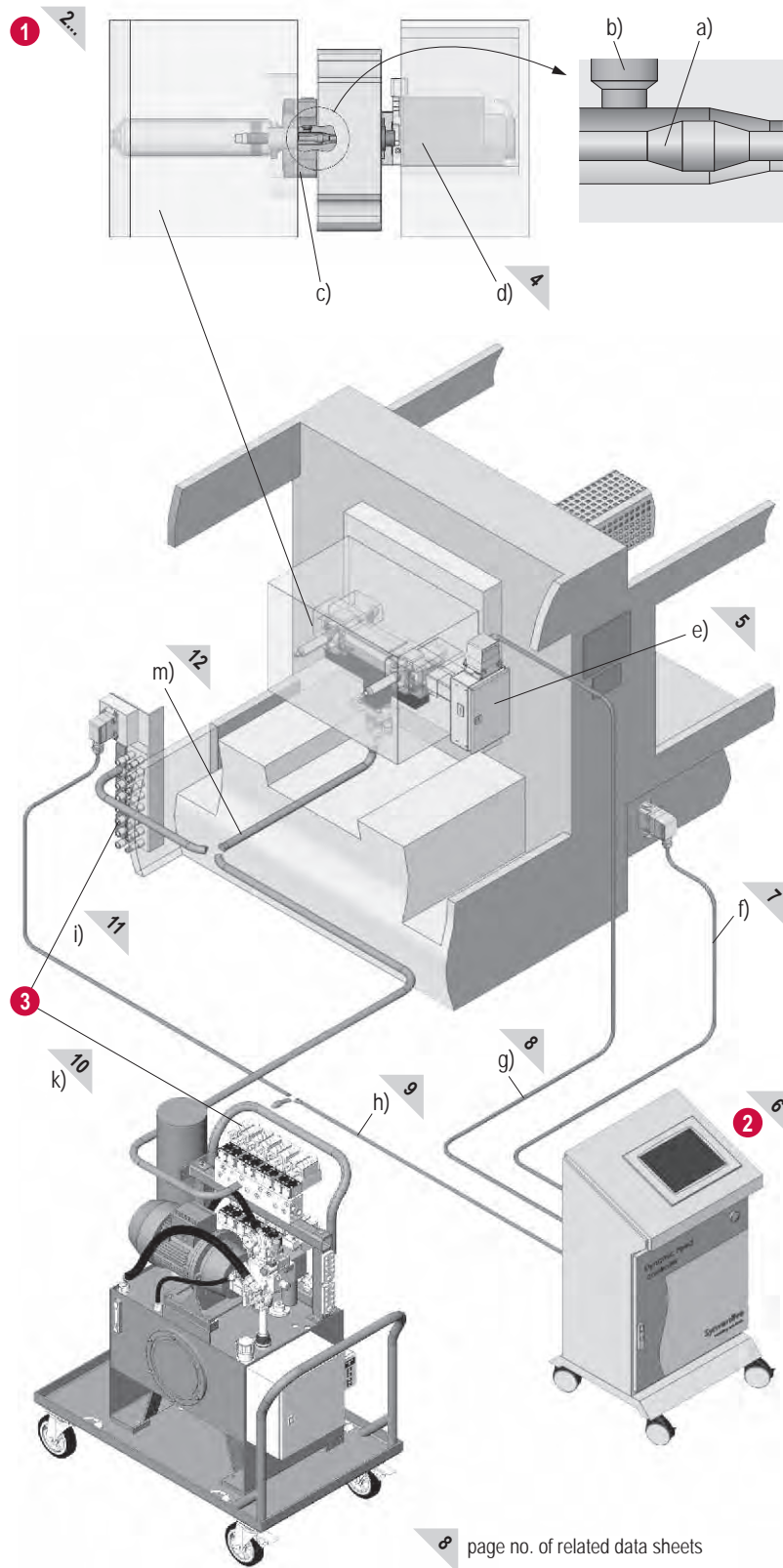
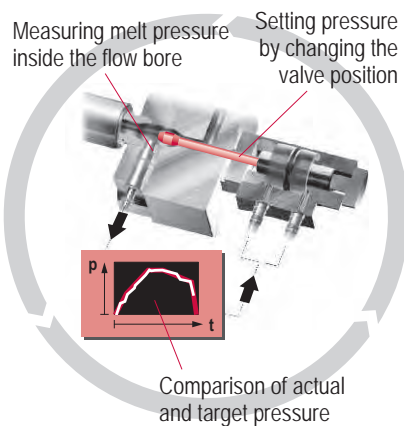
3. Servo valves and pressure source

- i) Pressure supply by injection molding machine
- k) Pressure supply by mobile hydraulic power unit
- m) Hydraulic line to the hot runner system

Operation principle, usage, benefits

The melt pressure control Dynamic Feed works as shown in the sketch below and offers the following possibilities:

- Melt pressure control by the flow valve changing the flow channel cross section infinitely
- Online pressure control during injection
- Individual pressure profile for each nozzle
- Optimum filling conditions for each cavity or each part of the cavity
- Application:
 - Optimise the filling of parts gated at several spots.
 - Increase the quality of molded parts made with multi cavity molds.
 - Balance the runner system inside family molds and modular molds online during production.



Dynamic Feed flow valve module for valve gate nozzles of class **12 E**:
 → Nozzle size **12**: Flow bore-Ø 12 mm
 → Nozzle style **E**: manifold nozzle, screw fit

1. DF TB 12

Flow valve block with valve pin and pressure transducer

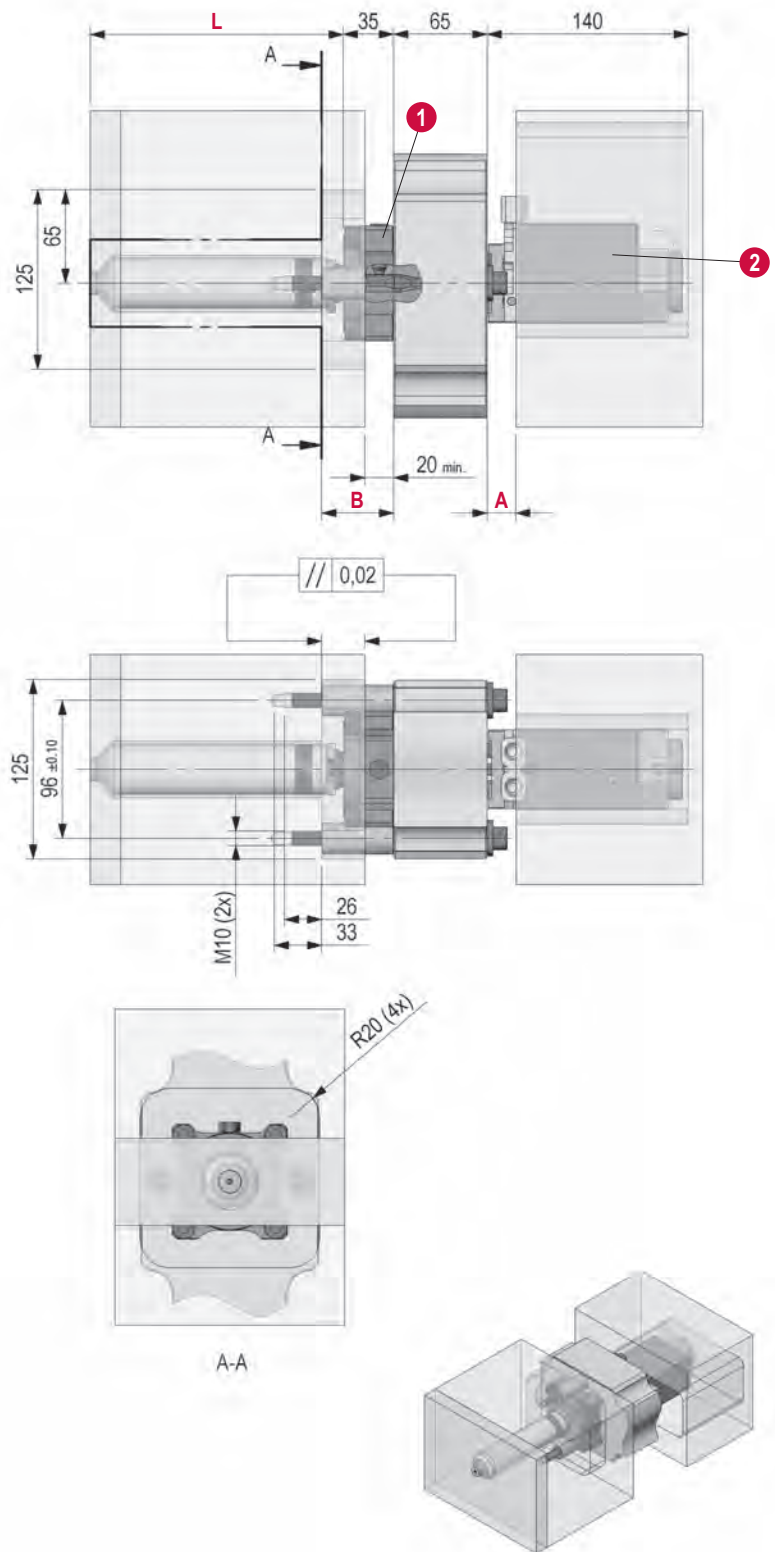
2. HYC 4520M 04

Hydraulic actuator including position sensors

- L** Nozzle length
- A** Cut out manifold
- B** Cut out manifold

Values of the dimensions mentioned above depend on the selected nozzle series and the selected nozzle type. They can be found either in the related nozzle data sheet or in the Synventive Hot Runner Guide.

Illustrations simplified, schematically drawn and not to scale.



Illustrations simplified, schematically drawn and not to scale.

Dynamic Feed flow valve module for valve gate nozzles of the following class:

Class 16 E

- Nozzle size **16**: Flow bore-Ø 16 mm
- Nozzle style **E**: manifold nozzle, screw fit

Class 22 E

- Nozzle size **22**: Flow bore-Ø 22 mm
- Nozzle style **E**: manifold nozzle, screw fit

1. DF TB 16 / DF TB 22

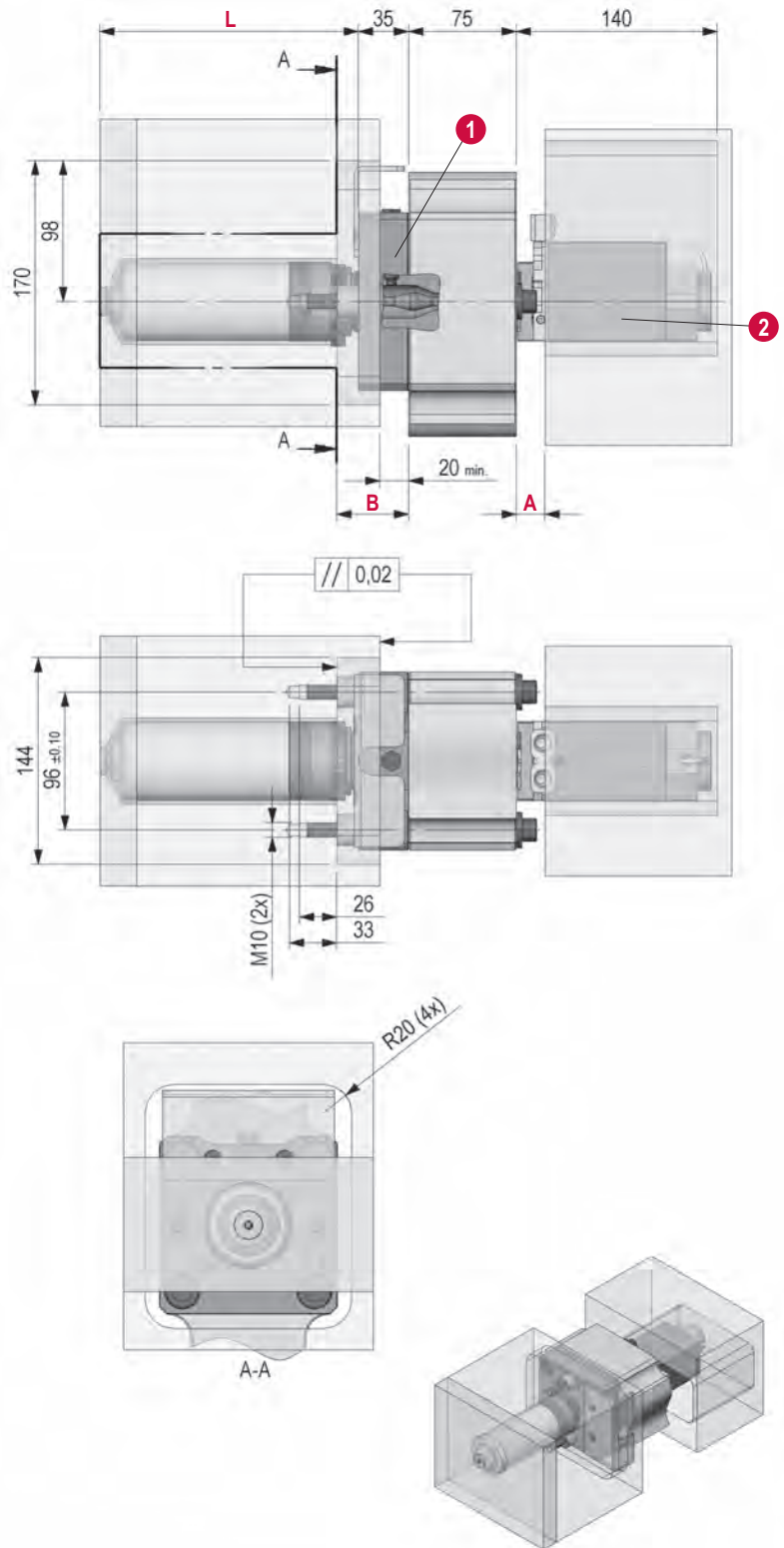
Flow valve block with valve pin and pressure transducer

2. HYC 4520M 04

Hydraulic actuator including position sensors

- L** Nozzle length
- A** Cut out manifold
- B** Cut out manifold

Values of the dimensions mentioned above depend on the selected nozzle series and the selected nozzle type. They can be found either in the related nozzle data sheet or in the Synventive Hot Runner Guide.



Actuator for manifold systems bolted to the manifold. There is a cooling plate between the actuator and the manifold in order to cool the actuator and to thermally separate it from the hot manifold surface.

This actuator has position sensors mounted to it because it is used with the online melt pressure control Dynamic Feed.

Valve Gate Pin

Needle Ø Ø 6 / Ø 8 mm
Attachment quick coupling, anti-rotation
Adjustment ±1.5 mm via adjustment threads from outside

Valve Pin Operation

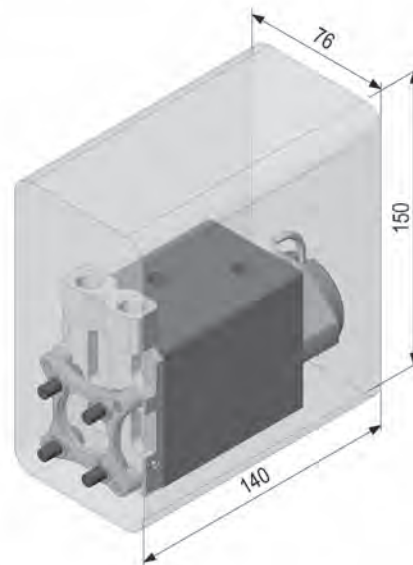
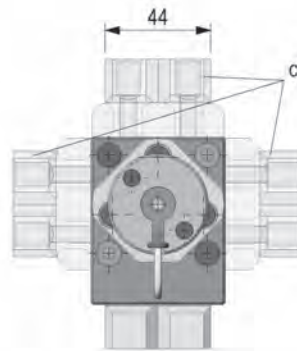
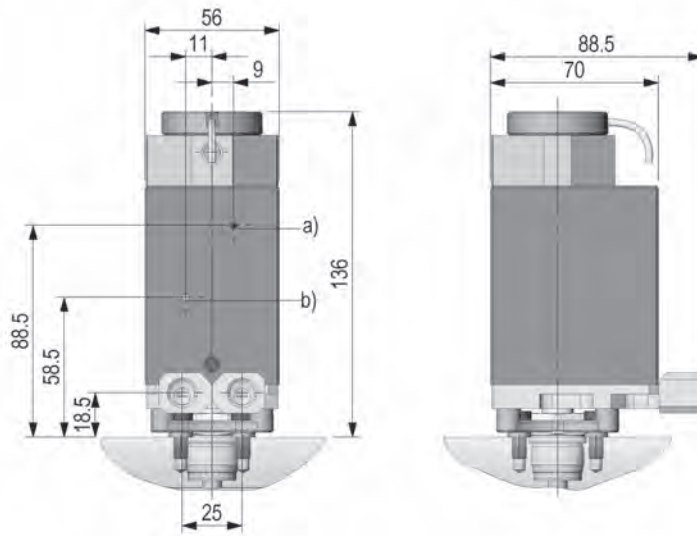
Operation hydraulic
Operation pressure 120 bar
Flow rate 3 l/min / 40 bar
Needle stroke 20 mm
Closing force 14100 N (120 bar)
Opening force 14100 N (120 bar)
Connections M 12 x 1,5 (8-L)
 a) Closing
 b) Opening

Cooling

Medium Cooling water
Flow rate 6 l/min
Temperature 30...60 °C
Connections M 12 x 1,5 (8-L)
 max. 3 actuators in a row
 c) different positions

We recommend to cool the actuator after the end of production for 15 minutes at 30 °C to protect it against overheat due to heat flow from the manifold (No SynCool Option available).

Illustrations simplified, schematically drawn and not to scale.



Connection box for hot runner systems which are equipped with Dynamic Feed.

1. DF JB 4 H02

Connection box for 4 control zones

2. DF JB 8 H02

Connection box for 8 control zones

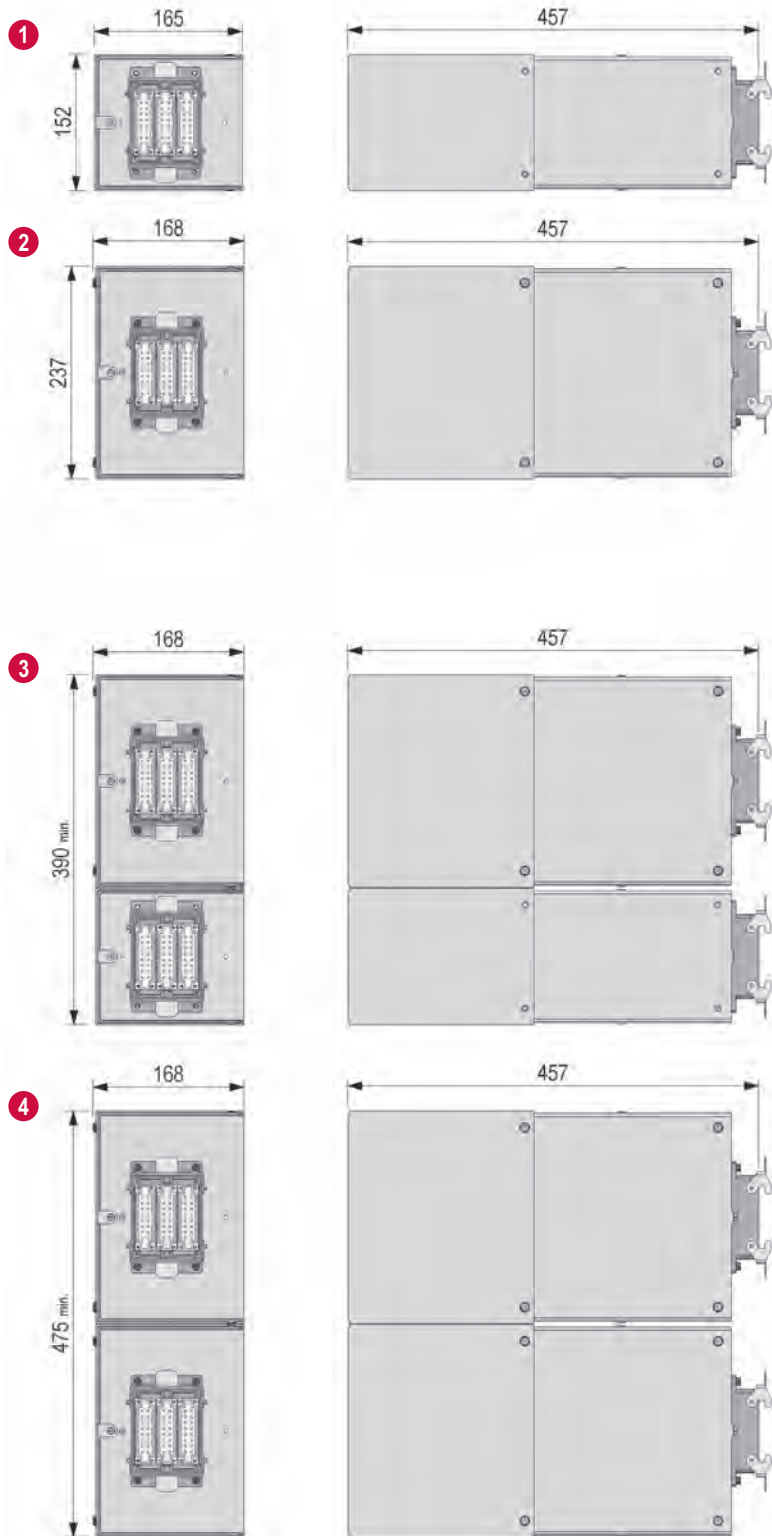
3. DF JB 4 H02 & DF JB 8 H02

Combination for 12 control zones

4. DF JB 8 H02 x 2

Combination for 16 control zones

Illustrations simplified, schematically drawn and not to scale.



Mobile PID control unit with max. 16 control zones which can be used to run hot runner systems with the online melt pressure control Dynamic Feed.

The control unit is delivered including all connection cables with a standard length of 7,5 m.

The control unit is operated by a touch screen which can be mounted in different ways.

Technical Data

Current	1/PE 110 / 230 V AC 50 / 60 HZ 3 A max.
Temperature	5 ... 40 °C
Humidity	0...80% non condensing

1. DF C ... S 01 (Standard)
Screen inside housing

DF C 4 S 01	4 control zones
DF C 8 S 01	8 control zones
DF C 12 S 01	12 control zones
DF C 16 S 01	16 control zones

h x w x d 1145 x 600 x 550 mm

2. DF C ... S SOI 01
Screen mounted on top of housing

DF C 4 S SOI 01	4 control zones
DF C 8 S SOI 01	8 control zones
DF C 12 S SOI 01	12 control zones
DF C 16 S SOI 01	16 control zones

h* x w x d 1575 x 600 x 550 mm

*including screen

3. DF C ... R 01
Remote screen mounted to wall

DF C 4 R 01	4 control zones
DF C 8 R 01	8 control zones
DF C 12 R 01	12 control zones
DF C 16 R 01	16 control zones

h x w x d 1145 x 600 x 550 mm

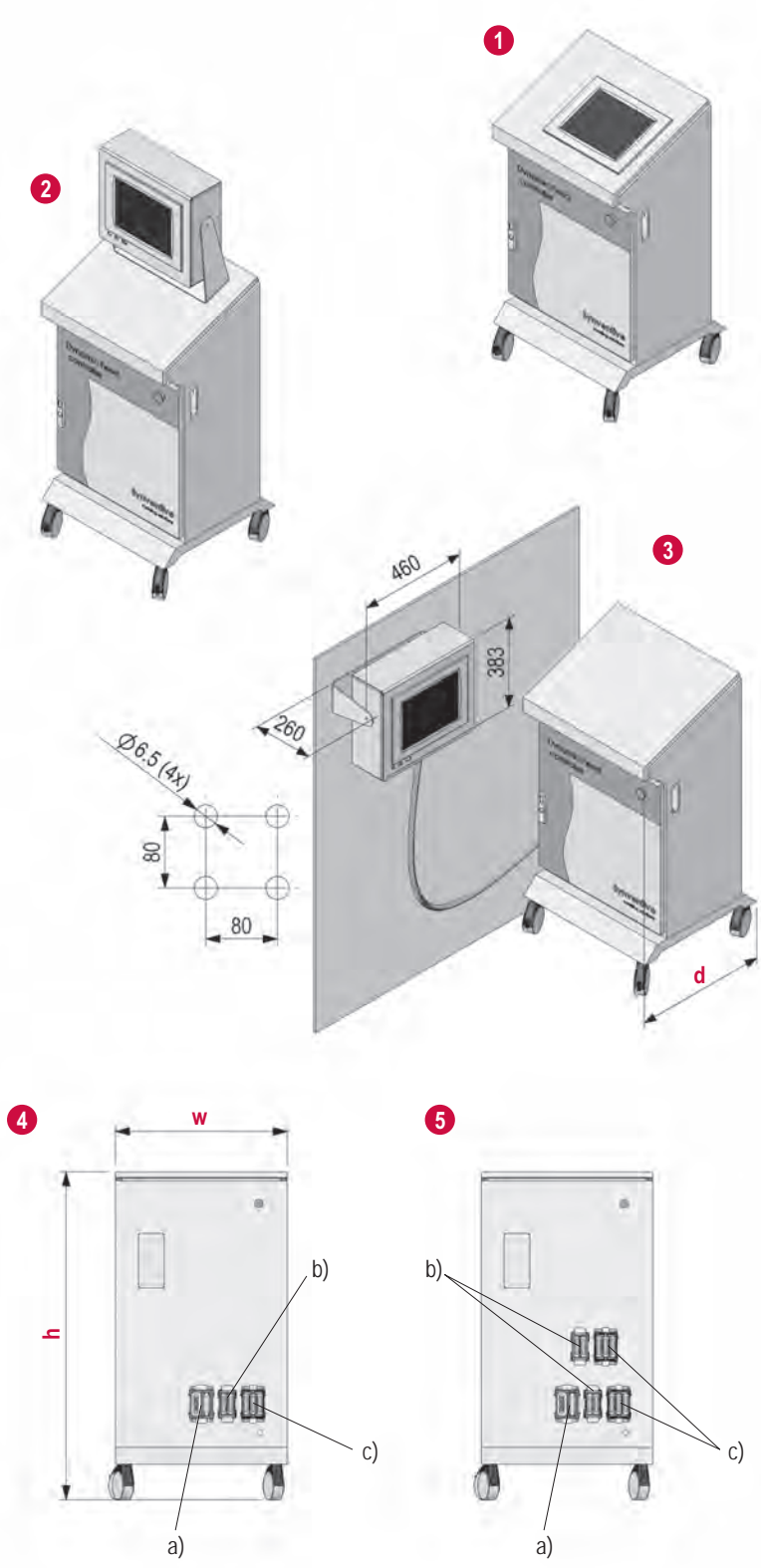
DFCOICAB connection cable,
standard length 15 m

4. Connections for 4 to 8 control zones

5. Connections for more than 8 control zones

- a) Injection molding machine
- b) Servo valves
- c) Hot runner system
(Pressure transducer, position sensors)

Illustrations simplified, schematically drawn and not to scale.



Illustrations simplified, schematically drawn and not to scale.

1. DF CIK

Interface between the Dynamic Feed control unit and the injection molding machine:

- a) Interface base
- b) Jumper to operate the injection molding machine without Dynamic Feed

All data needed to set up the interface can be found in the Dynamic Feed interface specification.

2. DF CAB IMMS

Connection cable to establish the signal line between the following components:

- c) Injection molding machine
- d) Dynamic Feed control unit

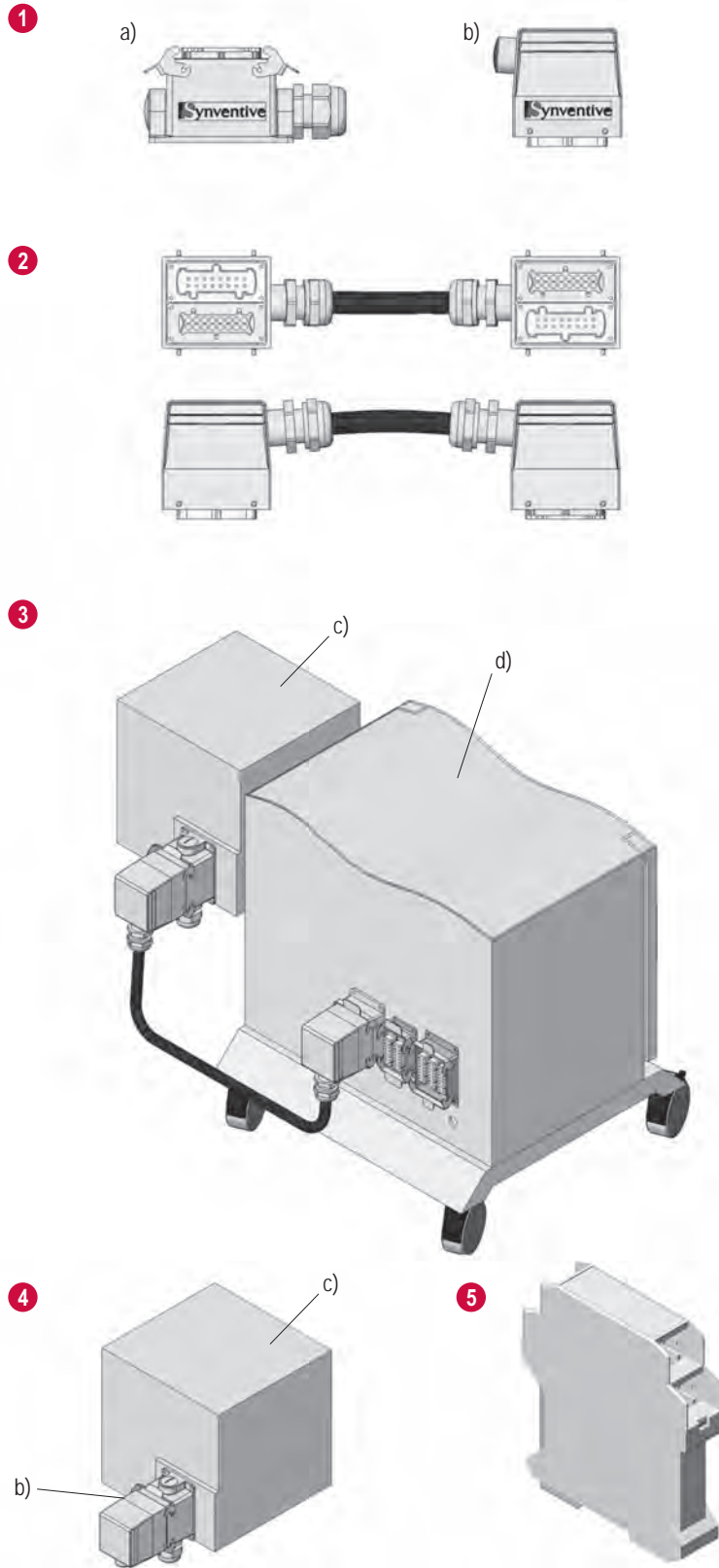
Standard length 7.5 m

3. Connection to the injection molding machine

4. Operation without Dynamic Feed

5. DF AN PWM-030

Signal converter for screw drive at the injection molding machine, converts from analog to digital signals. For the connection situation necessary data see at Dynamic Feed Controller Product Description.



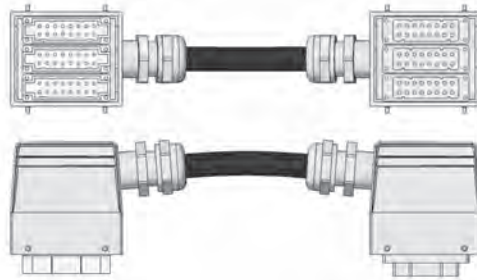
1. DF CAB HRS

Connection cable to establish the signal line between the following components:

- a) Hot runner system
- b) Dynamic Feed control unit

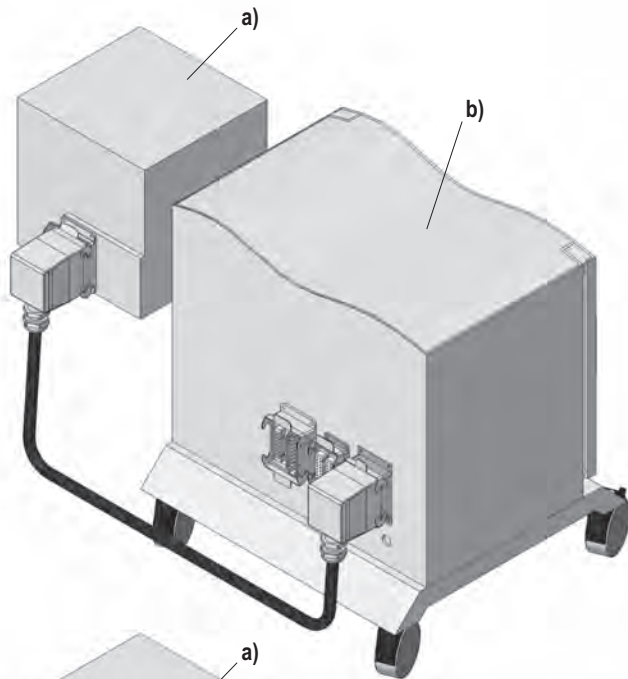
Standard length 7.5 m

1



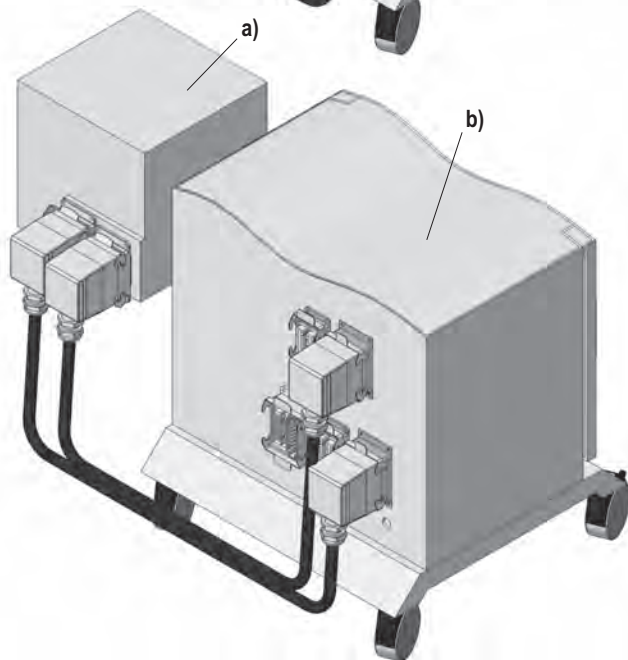
2. Connections for 4 to 8 control zones

2



3. Connections for more than 8 control zones

3



Illustrations simplified, schematically drawn and not to scale.

1. DF CAB HPUS

Connection cable to establish the signal line between the following components:

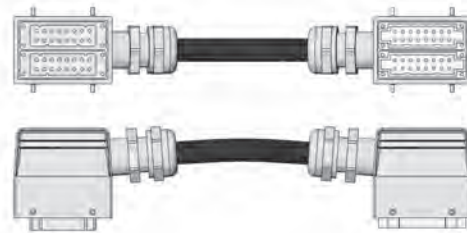
- a) Servo valve block
- b) Dynamic Feed control unit

Standard length 7.5 m

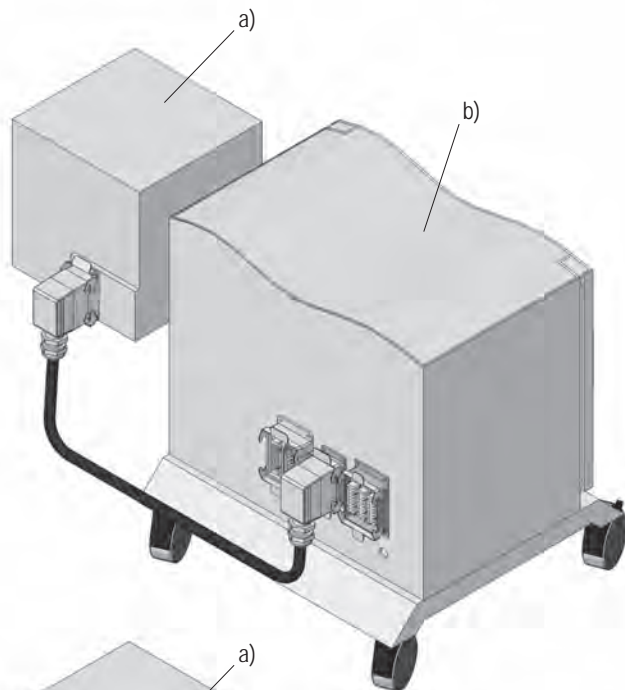
2. Connections for 4 to 8 control zones

3. Connections for more than 8 control zones

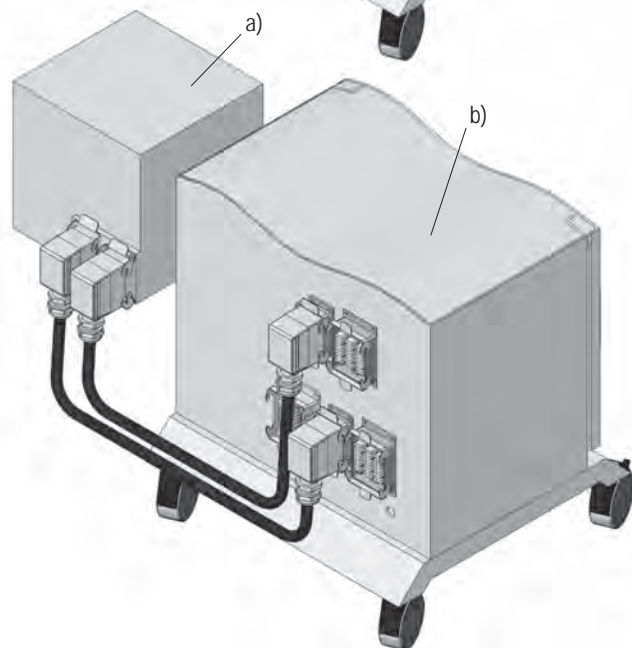
1



2



3



Servo valves to operate the flow valves of hot runner systems in which the melt pressure control Dynamic Feed has been installed.

Servo valves and oil filter are mounted to a valve block. This valve block can either be mounted to the injection molding machine or to a mobile hydraulic power unit - depending which component is used to supply pressure to the actuators in the hot runner system.

The servo Valve block is delivered with hydraulic hoses with a standard length of 2 m.

Operating data

Pressure	120 bar
Flow rate	15 l/min (max. 8 control zones) 26 l/min (more than 8 zones)
Connections	G3/4"
Oil type	Hydraulic oil DIN 51524-2, HLP 32

1. DF VB 02 S01

Valve block for 2 control zones

2. DF VB 04 S01

Valve block for 4 control zones

3. DF VB 08 S01

Valve block for 8 control zones

4. DF VB 12 S01

Valve block for 12 control zones

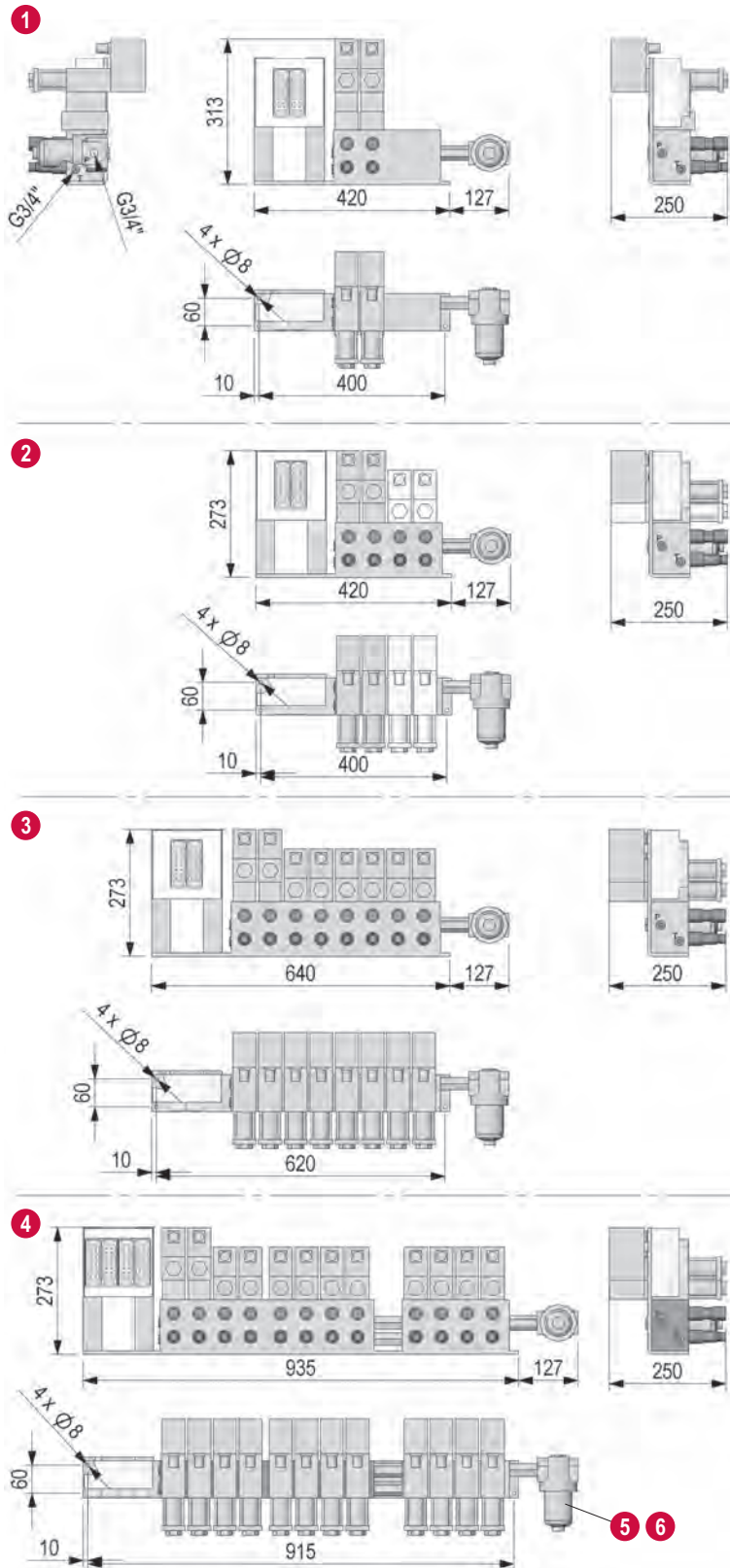
5. DF HF 02

Oil filter

6. DF HFE 02

Filter element

Illustrations simplified, schematically drawn and not to scale.



Illustrations simplified, schematically drawn and not to scale.

Mobile hydraulic power unit to supply pressure to the actuators of hot runner systems in which the melt pressure control Dynamic Feed has been installed.

The hydraulic power unit is delivered with the servo valve block mounted to it including hydraulic hoses with a standard length of 6 m.

Technical Data

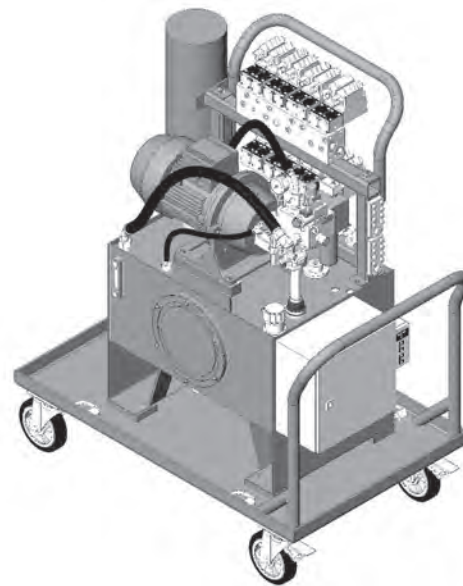
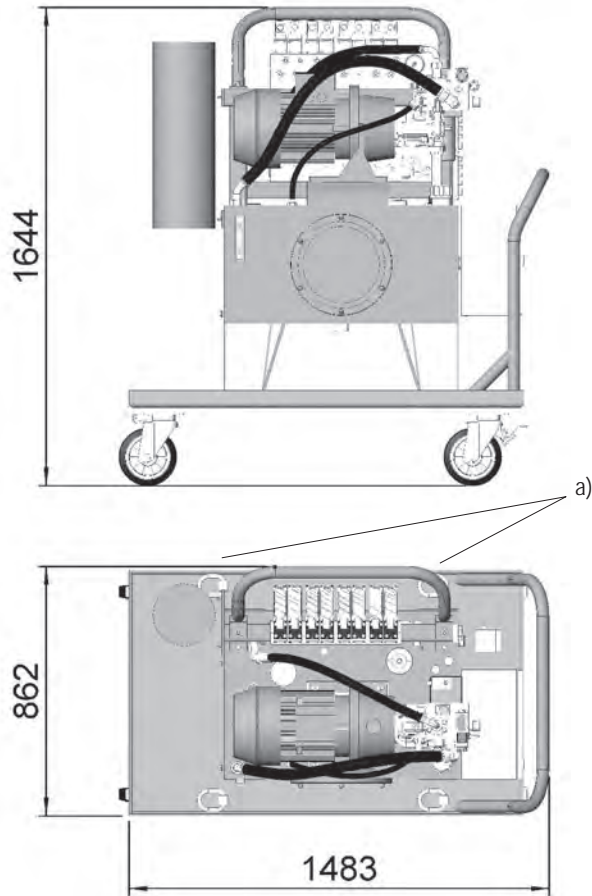
Current	3/PE 400 V AC 50 / 60 Hz 3 x 16 A
Pressure	120 bar
Flow rate	15 l/min (max. 8 control zones) 26 l/min (more than 8 zones)
Connections	G3/4"
Oil type	Hydraulic oil: Mineral oil based hydraulic Oil according DIN 51524-2, HLP 32 (for example: Shell Tellus S3 M46...)
Cooling Connections	15 l/min, max. 20 °C 1/2" BSP
Accumulator Connections	10 L, 90 bar 5/16" - 32 UNF
Scope of supply	without hydraulic oil without nitrogen
Weight	540 kg (without oil)
h x w x d	a) lifting points 1644 x 1483 x 862 mm

DF HPU ...120S, available units

DF HPU 4 120S	4 control zones
DF HPU 8 120S	8 control zones
DF HPU 12 120S	12 control zones
DF HPU 16 120S	16 control zones

Before initial operation

Hydraulic unit has to be filled with oil (filter pump 10 µm) and accumulator with nitrogen.



Illustrations simplified, schematically drawn and not to scale.

1. DF HOSE ...

Hydraulic hose to establish the line between servo valves and the actuators of hot runner systems in which the melt pressure control Dynamic Feed has been installed.

DF HOSE 2 length 2 m

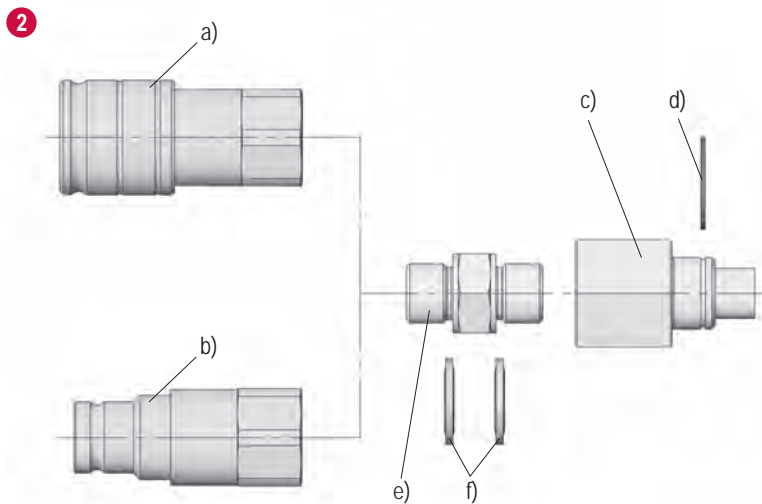
DF HOSE 6 length 6 m

2. Fittings

a) **DF HCF 13** Quick coupling, socket
b) **DF HCM 13** Quick coupling, plug

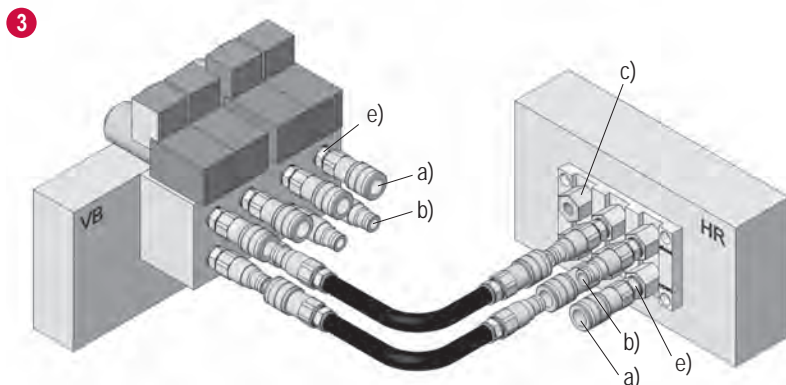
c) **XAP014106** fitting
d) **DIN471 (20x1.2)** retaining ring

e) **XAA106106** fitting
f) **XAQ106000BS** seal



3. Connection of servo valves to the hot runner system

HR Hot runner system (connection plate)
VB Valve block



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