Guidelines for hot runner system assembly

The most important thing in hot runner system assembly is maintaining perfect tightness between nozzles and manifold. Hot runner system when heated should have appr. 0,05 mm grip. In order to achieve such condition proceed as follows:

1. Check nozzle dimensions important for the assembly, first and foremost check the dimensions of nozzle seats.
2. Place the nozzles (without sealing rings PU) in female moulds of matrix plate and measure flange height K. Acceptable K tolerance is ± 0,01.
3. Calculate H dimension of bearing washer PP (fig. 1) so that $H = K - {}^{0}_{0,02}$.
4. Place dowel pin KU in matrix plate (fig. 2).
5. Insert the manifold unit into the mould placing it on bearing washer PP and nozzle flanges.
6. Check whether manifold and spacing beams are parallel – acceptable tolerance is ± 0,01.
7. Calculate thermal expansion of the system

   a   – steel coefficient of expansion: 0,0000125 1/K
   T_w – injection temperature (temperature of hot channel)
   T_f – injection mould temperature
   S   – clearance
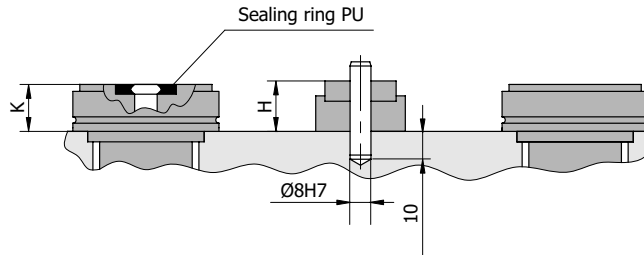   K   – nozzle flange height

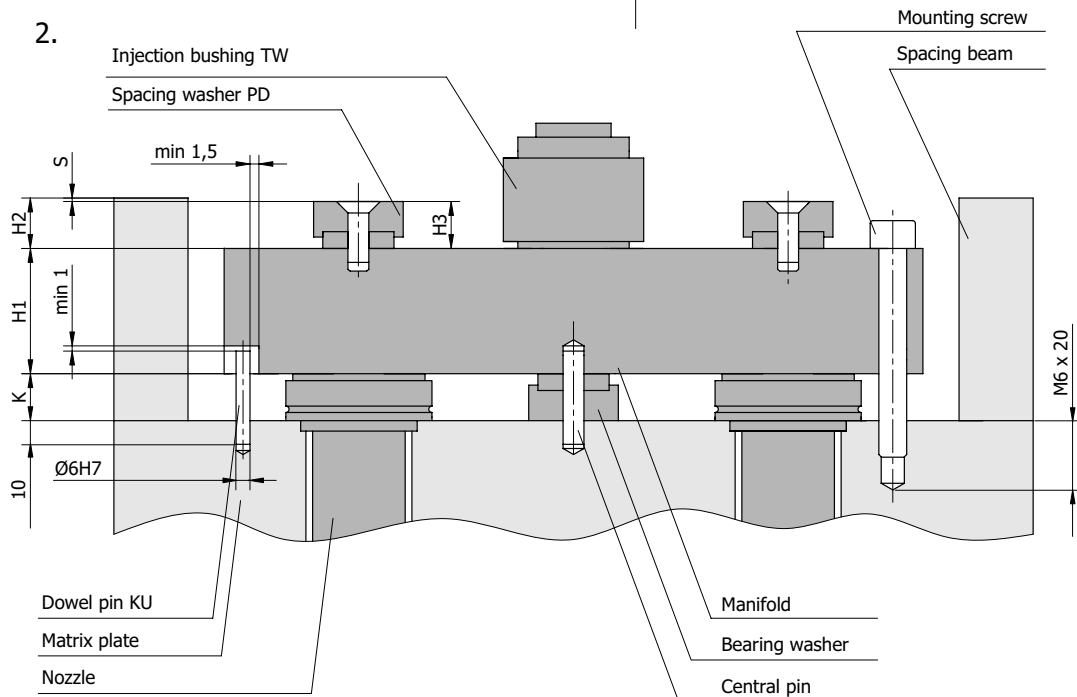H_1 – manifold plate thickness (measured dimension)
z – grip 0,05 mm

$$S = \alpha (K + H_1) \times (T_w - T_f) - z$$

8. Grind spacing washer PD with H_3 dimension to $H_2 - S$ dimension; acceptable tolerance is ±0,01.
9. Remove the manifold from the mould.
10. Insert sealing rings PU into nozzles according to instructions (see p. 31).
11. Place the manifold again in the injection mould and screw it slightly with mounting screws M6. Do not tighten the screws – their function is not to seal hot runner system
12. Use at least two M10 screws class 10,9 for each nozzle to screw the mounting plate of the mould. Torque 80 Nm.

1.

Sealing ring PU

K   H   Ø8H7   10

2.

Mounting screw
Spacing beam

Injection bushing TW
Spacing washer PD

min 1,5
S   H2   H1   K   10
min 1
Ø6H7
H3
M6 x 20

Dowel pin KU
Matrix plate
Nozzle

Manifold
Bearing washer
Central pin

3.

38
min 60
min 10 round the perimeter
Rmax 10