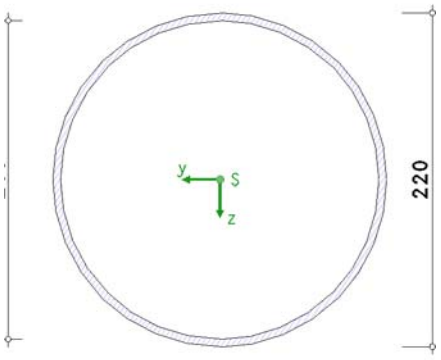
POS. 5: FIRE DESIGN EX. 4.2 (PIPE)

fire design EC 3-1-2 (12.10), NA: Deutschland

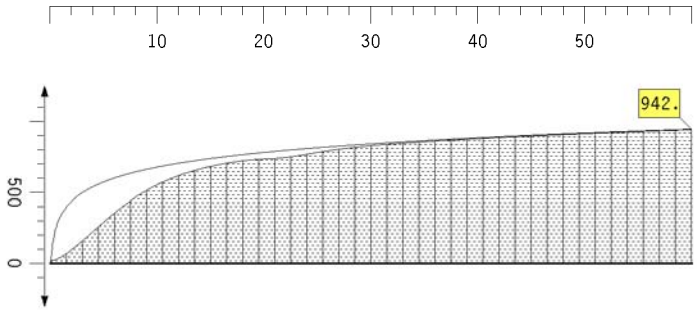
1. input report



steel
steel grade S235
geometry
section parameters (pipe):
diameter d = 220.0 mm, wall thickness t = 5.0 mm
cross-section temperature
thermal action due to the standard curve, fire resistance time t = 60 min
all sides flamed
correction factor to take into account shadow effects due to the cross-section itself k_{sh} = 1.000

2. cross-section temperature

surface of the section exposed to fire A_m = 691.2 mm²/mm
section factor of the unprotected component A_m/V = 691.2 / 3377.2 ·10³ = 204.7 1/m
temperature development:



temperature in °C
fire time in min
max T_a = 941.9°C
max t = 60 min

cross-section temperature acc. to t = 60 min: T_a = 941.9 °C