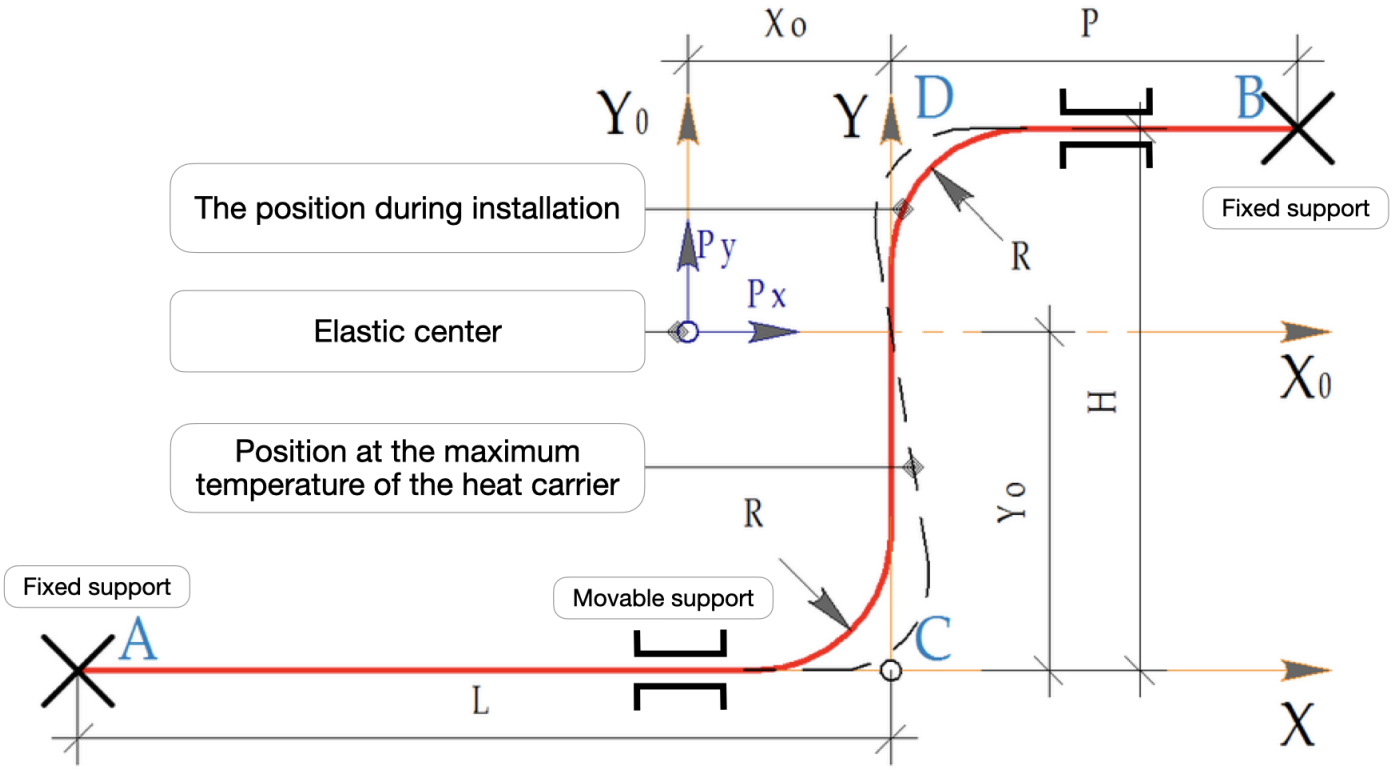
Calculation of the Z-shaped pipe compensator

Initial data

D = 89 mm	outer diameter of the pipeline	**t = 3.5 mm**	pipe wall thickness
L = 30 m	the length of the greater arm	**R = 120 mm**	elbow axis radius
P = 10 m	the length of the shorter arm	**E = 200000 MPa**	modulus of elasticity of steel
H = 5 m	margin		



Calculation results

dL = 48 mm - an increase in the length of the larger arm

dP = 16 mm - an increase in the length of the lower arm

dH = 8 mm - an increase in the length of the overall length

Px = 120 N - the force of elastic deformation is directed along the axis X

Py = 17 N - the force of elastic deformation is directed along the axis Y

-6 MPa*	bending compensating stress at a point A
-10 MPa*	bending compensating stress at a point B
-15 MPa*	bending compensating stress at a point C
16 MPa*	bending compensating stress at a point D

*bending stress within the permissible value of +/-80MPa