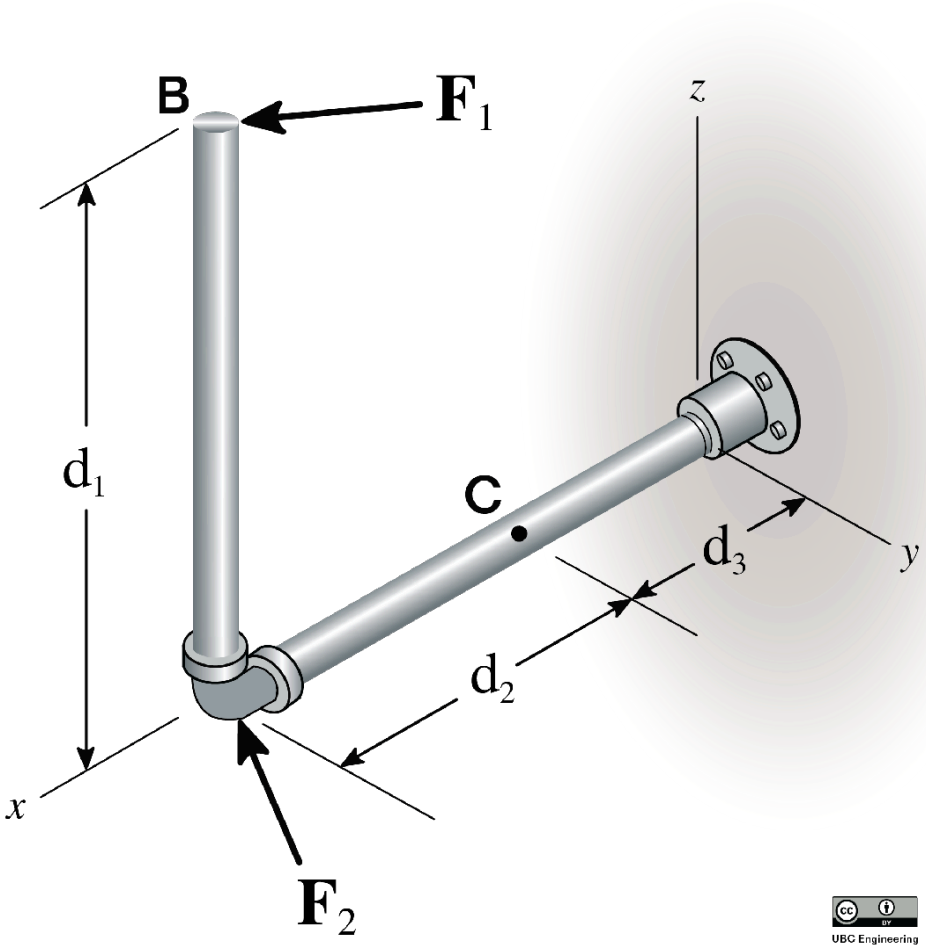


A pipe fixed on a wall supports two loads $F_1$ and $F_2$ as shown above. Find the force and moment components in the pipe at point $C$. Ignore the mass of the pipe. Let the component be positive if it points along the positive axes.

$\Sigma F_x = 0 \rightarrow C_x + F_{1x} + F_{2x} = 0$

$\Rightarrow C_x = -F_{1x} - F_{2x}$

$\Sigma F_y = 0 \rightarrow C_y + F_{1y} + F_{2y} = 0$

$\Rightarrow C_y = -F_{1y} - F_{2y}$

$\Sigma F_z = 0 \rightarrow C_z + F_{1z} + F_{2z} = 0$

$\Rightarrow C_z = -F_{1z} - F_{2z}$

$\Sigma (M_x)_C = 0 \rightarrow (M_C)_x - d_1 \cdot F_{1y} = 0$

$\Rightarrow (M_C)_x = d_1 \cdot F_{1y}$

$$\Sigma(M_y)_C = 0 \rightarrow (M_C)_y + d_1 \cdot F_{1x} - d_2 \cdot (F_{1z} + F_{2z}) = 0$$
$$\Rightarrow (M_C)_y = d_2 \cdot (F_{1z} + F_{2z}) - d_1 \cdot F_{1x}$$

$$\Sigma(M_z)_C = 0 \rightarrow (M_C)_z + d_2 \cdot (F_{1y} + F_{2y}) = 0$$
$$\Rightarrow (M_C)_z = -d_2 \cdot (F_{1y} + F_{2y})$$