Cálculos del Helicoil y tornillo

$$D_{HC} \leq \frac{s_{min}}{1.75} \leq \frac{42}{1.75} \leq 24mm$$

Obtendríamos un Helicoil M20, no es realista,

por lo que empezaremos a tantear en M12.

$$M12 \rightarrow D_{HC} = 14.27, P = 1.75$$

$$a_{min} = 0.375 \times 14.27 = 5.35mm$$

$$a = \frac{s}{2} - \frac{D_{HC}}{2} = 13 - \frac{14.27}{2} = 5.865mm \rightarrow a > a_{min}$$

$$M12 \rightarrow d = 13.5; e_2 \geq 1.5 \times 13.5 \geq 20.25$$
$$d = 13; e_2 \geq 1.5 \times 13 \geq 19.5$$

$$e_2 = 13\ NO\ CUMPLEN$$

$$M10 \rightarrow D_{HC} = 11.95, P = 1.5$$

$$M10 \rightarrow d = 11; e_2 \geq 1.5 \times 11 \geq 16.5$$
$$d = 10.5; e_2 \geq 1.5 \times 10.5 \geq 15.75$$

$$e_2 = 13\ NO\ CUMPLEN$$

$$M8 \rightarrow D_{HC} = 9.62, P = 1.25$$

$$M8 \rightarrow d = 9; e_2 \geq 1.5 \times 9 \geq 13.5$$
$$d = 8.4; e_2 \geq 1.5 \times 8.4 \geq 12.6$$

$$e_2 = 13\ \ CUMPLE\ "d = 8.4"$$

Diámetro de la cabeza del tornillo M8 $\rightarrow D = 13$

Diámetro de la arandela del tornillo M8 $\rightarrow D = 16$

Espesor de la arandela del tornillo M8 $\rightarrow h = 1.6$

$$j \geq 1.5 D_{HC} \geq 14.43$$

$$t_5 = 0.5P = 0.625mm$$

Helicoil M8 2d $\rightarrow l_H = 16mm$

j = 16.625mm

p = j + 4P = 21.625mm

$$q = p + e_1 = 21.75 + 6.2 = 27.825mm$$

Longitud del tornillo $l \leq l_1 + h + t_3 = 5 + 1.6 + 15.4 = 22 \rightarrow l = 20mm$