

### Calculation:

Formula for selecting spring **241.18.**:

$$F_L = [l - (l_2 + (l_1 - l_3))] \times 1,1$$

Formula for calculating the block length  $L_{BL}$  of the selected spring:

$$L_{BL} = (l_0 \times d : s) + 2 \times d$$

$F_L$  = Length of compressed spring

$l$  = Length of guide pillar (Customer specified)

$l_1$  = Cage length (Customer specified)

$l_2$  = Compression length of guide pillar (Customer specified)

$l_3$  = Ball cage retainer size (Customer specified)

1.1 = Safety factor

$l_0$  = Length of uncompressed spring

$d$  = Spring wire diameter

$s$  = Pitch

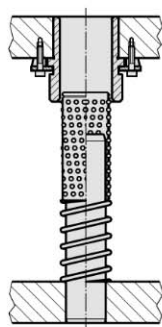
### 241.18. Helical spring for ball cage retention

$d_1$	$d_2$	$d_3$	$s$	$d$	$l_0$	Gradation $l_0$
19/20	20.5	22.5	14	1	40 - 140	10
24/25	25.5	27.9	14	1.2	40 - 160	10
30/32	32.5	35.7	16	1.6	50 - 230	10
38	38.5	42.5	18	2	60 - 230	10
40	40.5	45.1	20	2.3	60 - 230	10
48/50	50.5	55.7	20	2.6	70 - 280	10
60	60.5	66.9	20	3.2	80 - 250	10
63	63.5	69.9	20	3.2	80 - 250	10

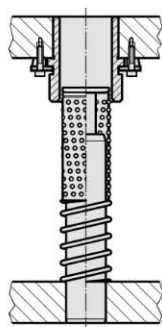
### Ordering Code (example):

Helical spring for ball cage retention	=	<b>241.18.</b>
Inside diameter $d_2$	40.5 mm =	405.
Length $l_0$	60 mm =	060
Order No	=	<b>241.18.</b> 405.060

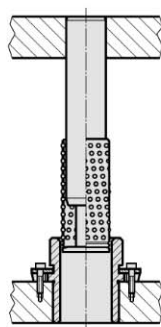
### Mounting example



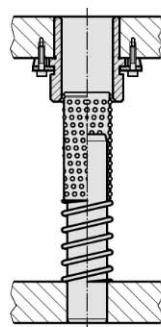
Without ball cage retainer



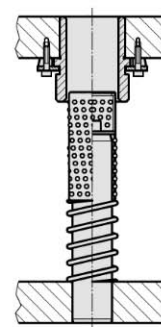
With ball cage retainer  
202.91.



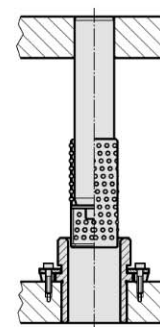
With ball cage retainer  
202.91.



Without ball cage retainer



With ball cage retainer  
202.92.1.



With ball cage retainer  
202.92.1.

### Mounting example