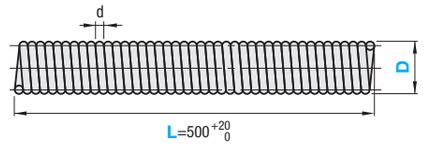
Tension Springs / Hooks
Long, Medium Load

■Tension Springs Long, Medium Load

RoHS 10

Type	Material
LWS	JIS-SWP-A
LUS	EN 1.4301 (WPB) Equiv.



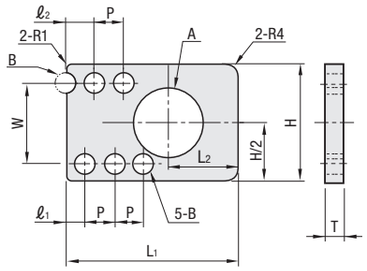
Part Number		Spring Constant N/mm	Wire Dia. dmm	Initial Tension N	Max. Deflection %	Applicable Hook	Unit Price	
Type	D-L						LWS	LUS
LWS LUS	5-500	0.020	0.6	1.57	50	HBFK□5		
	6-500	0.050	0.8	3.53		HBFK□6		
	8-500	0.060	1.0	4.9		HBFK□8		
	10-500	0.075	1.2	5.49		HBFK□10		
	12-500	0.190	1.6	14.71		HBFK□12		
LWS	14-500	0.210	1.8	16.67		HBFK□14		-
	16-500	0.230	2.0	19.61		HBFK□16		
	18-500	0.340	2.3	27.46		HBFK□18		

Load {kgf} = Load N x0.101972

■Hooks

RoHS 10

Type	Material	Surface Treatment
HBFKN	EN 1.0330 Equiv.	Black Oxide
HBFKS	EN 1.4301 Equiv.	-



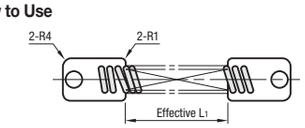
Part Number		W	A	B	P	L1	L2	H	T	ℓ1	ℓ2	Unit Price	
Type	No.											HBFKN	HBFKS
HBFKN HBFKS	5	4.1	5	1.0	2.0	24	6	10	1.0	1.0	2.0		
	6	4.9											
	8	6.6	6	1.5	2.6	26	7	15		1.5	2.8		
	10	8.4											
	12	9.9	7	2.2	3.2	30	7.5	18	2.0	2.0	3.6		
	14	12.2			3.6			20		2.3	4.1		
	16	14.0	9	2.5	4.0	34	8.5	22		2.5	4.5		
	18	15.7		2.9	4.6			25		2.9	5.2		

Please choose the same number as D Dimension of LWS or LUS.

Ordering Example

Part Number
LWS10-500
HBFKN10

■How to Use



Springs can be cut to desired lengths.
Use the hook HBFKN by inserting the springs in its five holes.
Do not exceed 50% of the max. deflection for full length L1 when cutting.

Spring Constant should be $\frac{L}{L_1}$ times.

Tension Springs
Inserted Hooks

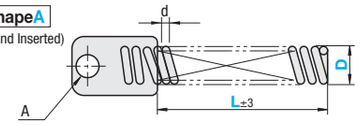
■Tension Springs Inserted Hooks

RoHS 10

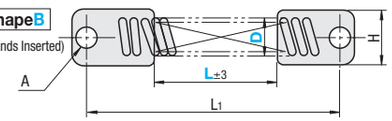
Type	Material		Surface Treatment
	Springs	Hooks	Hooks
LWSH	JIS-SWP-A	EN 1.0330 Equiv.	Black Oxide
LUSH	EN 1.4301 (WPB) Equiv.	EN 1.4301 Equiv.	-

- JIS-SWP-A comes with EN 1.0330 Equiv. hook, and EN 1.4301 (WPB) Equiv. comes with the EN 1.4301 Equiv. hook.
- Load Formula
  Load = Spring Constant x Deflection mm + Initial Tension
- The springs for LWSH and LUSH are different from that for LWS and LUS.

ShapeA
(One End Inserted)



ShapeB
(Both Ends Inserted)



Part Number		D	L 10mm Increment	Wire Dia. dmm	A	H	Max. Deflection %	L1	Initial Tension (N)		Standard Spring Constant (N/mm)	
Type	Shape								LWSH	LUSH	LWSH	LUSH
LWSH LUSH	A B	5	200 ~ 500	0.6	5	10	70	L+36	1.01	1.32	0.045	0.040
		6		0.8					2.28	2.96	0.114	0.101
		8		1.0	6	15		L+38	3.04	4.26	0.145	0.128
		10		1.2					4.31	6.03	0.183	0.163
		12		1.6	7	18	60	L+45	8.72	12.21	0.470	0.415
		14		1.8		20			10.6	14.84	0.525	0.465
		16		2.0	9	22		L+51	12.6	17.64	0.593	0.525
		18		2.3		25			18.7	26.18	0.850	0.753

■Shape A

D	Unit Price											
	L200~250		L260~300		L310~350		L360~400		L410~450		L460~500	
	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH
5												
6												
8												
10												
12												
14												
16												
18												

■Shape B

D	Unit Price											
	L200~250		L260~300		L310~350		L360~400		L410~450		L460~500	
	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH	LWSH	LUSH
5												
6												
8												
10												
12												
14												
16												
18												

Ordering Example

Part Number	-	D	-	L
LWSHA	-	5	-	500

- Standard Spring Constant
  Standard spring constant is the value when the L Dimension is 200 on shape B.
  For other dimensions, use the formula below for calculation.

$$\text{Spring Constant (N/mm)} = \frac{200\ (\text{Reference L Dimension})}{\text{Configurable L Dimension}} \times \text{Standard Spring Constant}$$

Ex.) LWSHB-8-400

$$0.0725(\text{N/mm}) = \frac{200}{400} \times 0.145$$

kgf=Nx0.101972