

Urethane Spring [Overview]

Pressure Source Components

Urethane spring USA and USX for press tools use polyester based cast urethane elastomer which is heat resistant. It is excellent in repeated compression. It also has high impact resilience, impact resistance, weather resistance, and load resistance. It is the optimum product for pad pressure source of press tools.



■ Features

- Since material is hard and elastic, it is excellent in impact resistance and shows a strong performance as a spring.

Material Characteristics		Performance Values
Material		Polyester Based
Hardness		Shore A90° HRS45°
Color		Navy blue
Tensile Strength		59 MPa
Modulus	100%	7.53 MPa
	300%	15.2 MPa
Elongation		510%
Tensile Strength		109 N/mm
Impact Resistance		28%

■ Range of Application

	Deflection Rate Limit for Operation	SPM Limit for Operation	Ambient Temperature Limit for Operation
USA	25%	50SPM	50°C
USX	30%	40SPM	

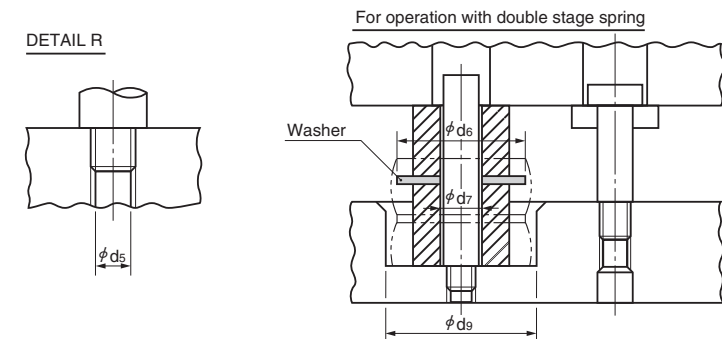
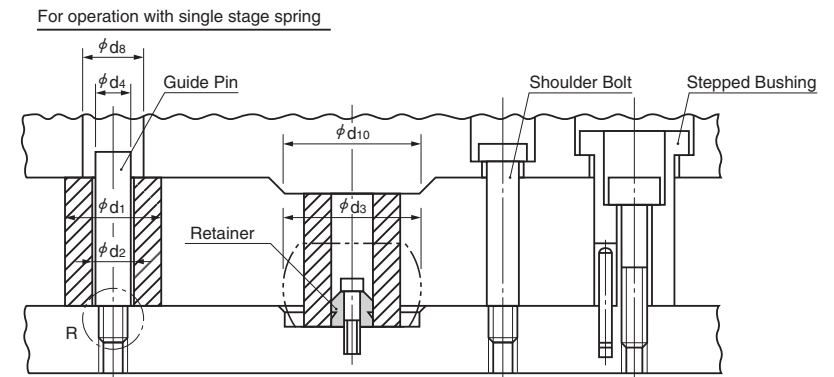
Specification limit SPM varies depending on the deflection ratio. Please contact our sales representatives for details.

■ Storage

- In order to protect against ultraviolet rays, store away from direct sunlight.
- Deterioration is faster under conditions of high temperature or humidity.
We recommend putting a desiccant in the container and storing in as cool a location as possible.

For use under high temperature and humidity conditions, we recommend URESTORO (P.1171), which has excellent hydrolysis performance.

■ Application Example [Type X&A]



● Dimension Table (mm) [Type A]

	Urethane Spring		Guide Pin	Washer		Others				
	φd1	φd2	φd3	φd4	φd5	φd6	φd7	φd8	φd9	φd10
USA40	40	14	48	12	M10	65	13	14	68	60
USA80	80	22	96	18	M16	100	21	22	116	100

For USX, use guide pin φ12 for urethane diameter φ50 or smaller and φ18 for urethane diameter φ60 or larger.

■ Conditions for Use

- Use at or below the stated deflection ratio.
- The urethane spring seating surface requires an external diameter of > 20 mm.
- The clearance around each spring must be sufficient to prevent any contact with the neighboring components.
- Exposure to ultraviolet and sunlight must be avoided.
- Guide pins should be S25C equivalent or better and finished within Ra1.6.

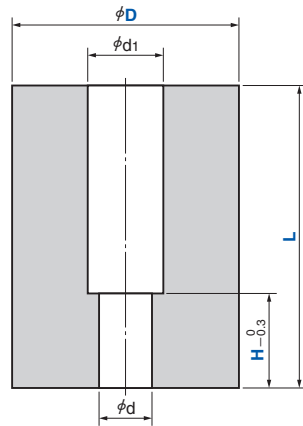
Urethane Spring

High Load Counterbore Hole Type

Pressure Source Components

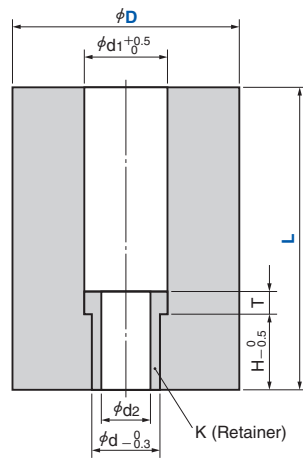
USZL

CAD FILE



USZLK (with Retainer)

CAD FILE



L/D=2 or less is recommended.

(Material) Polyester based

Catalog No.	D	L 1 mm increments	H 1 mm increments	d	d ₁	Applicable Bolt
USZL	30	20~100*1	5 ≤ H < L	9	14	M8
	40					
	50	25~150*1		11	18	M10
	60					
	70					
	80	25~200*1		14	20	M12
	90					
100						

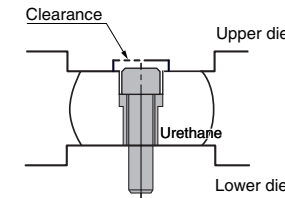
Catalog No.	D	L 1 mm increments	d	d ₁	d ₂	D ₁	T	H	Applicable Bolt	
USZLK	40	35~150*1	15	20	11	19.5	5	12	M10	
	50									
	60									
	70									
	80		35~200*1	18	22	13	22	6	20	M12
	90									
	100									



Order

Catalog No.	D	-	L	-	H
USZL	50	-	65	-	20
USZLK	70	-	85	-	

- *1 · When using D=40, 50 L<40 mm, D=60 to 100 L<55 mm, be careful of interference between retainer mounting bolts and urethane spring receiving seat surface. Please take measures such as relief processing on the urethane spring receiving seat surface.
- Note that products with short L dimensions may not ensure a maximum deflection ratio of 25%.



Refer to page 1192 for attached retainer size.

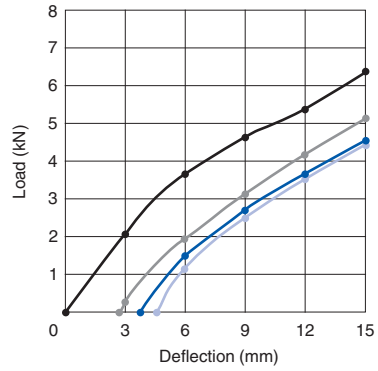
Urethane Spring

USZLK Load-Deflection Diagrams

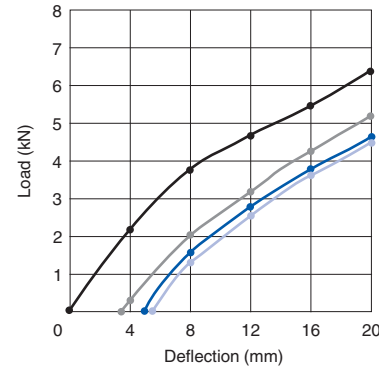
Pressure Source Components

—●— Initial —●— 10,000 Strokes —●— 100,000 Strokes —●— 300,000 Strokes

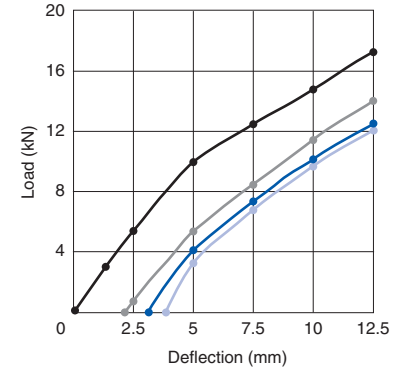
USZLK40-60



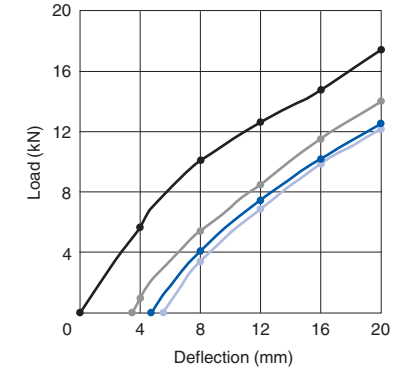
USZLK40-80



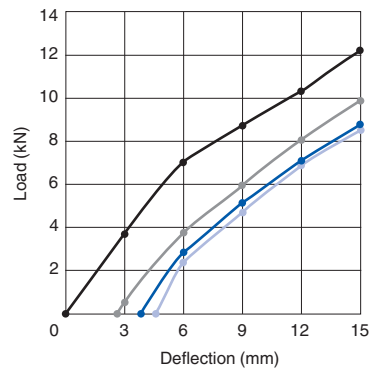
USZLK60-50



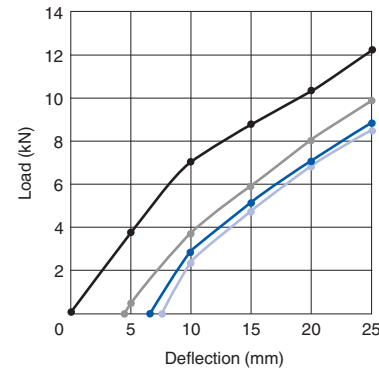
USZLK60-80



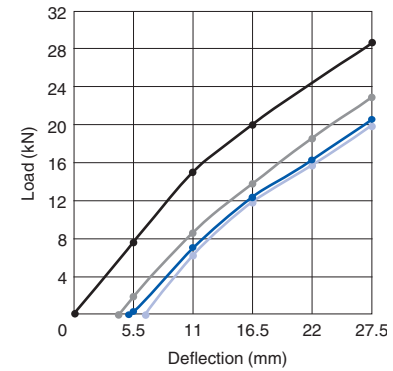
USZLK50-60



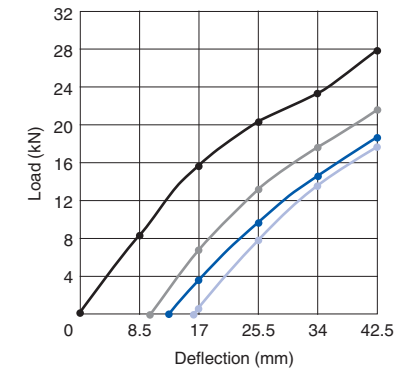
USZLK50-100



USZLK70-110



USZLK70-170

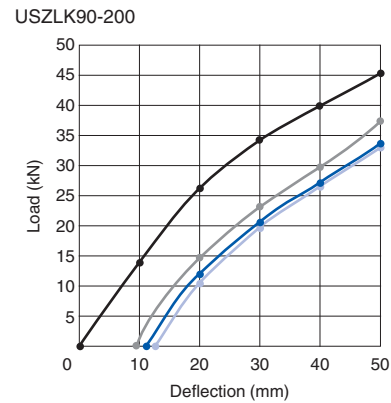
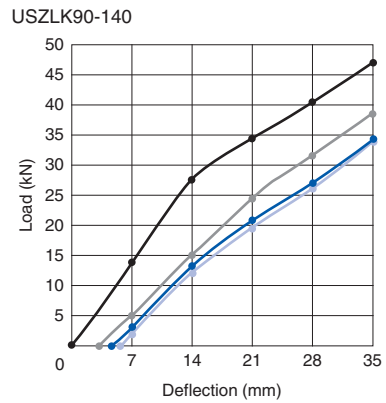
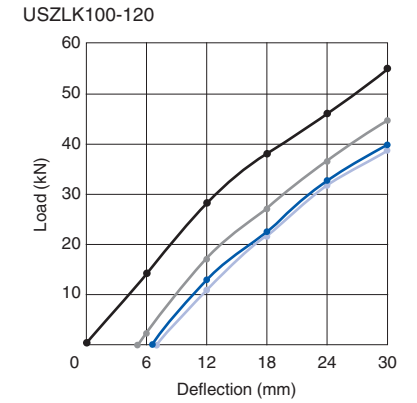
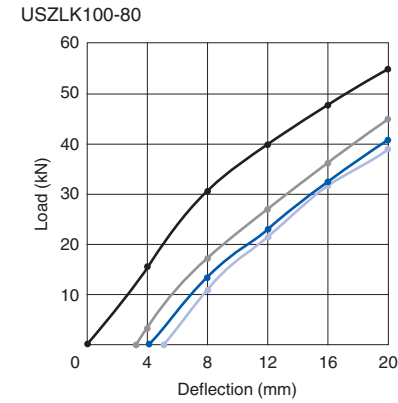
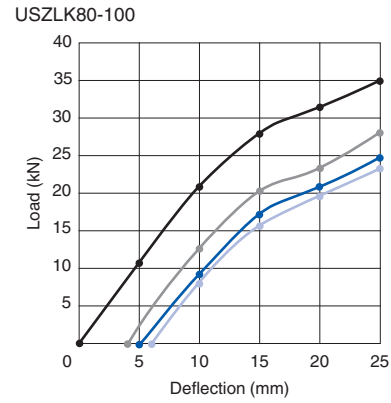
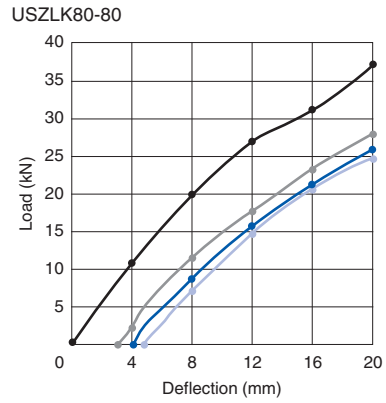


Urethane Spring

USZLK Load-Deflection Diagrams

Pressure Source Components

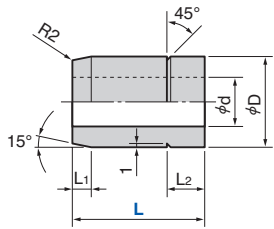
—●— Initial —●— 10,000 Strokes —●— 100,000 Strokes —●— 300,000 Strokes



Retainer, Spacer

Pressure Source Components

SORTA

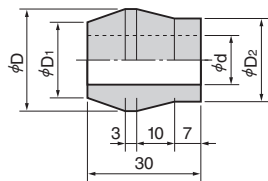


〈Material〉 SS400 or S25C

Catalog No.	Nominal	L	D	d	L ₁	L ₂	Applicable Rubber Spring, Urethane Spring	
							Outer Diameter	Length
SORTA	14	10	16	9	2	3	30, 40	~40
		20			3	7	30~63	50~63
	20	30	22	13	5	10	60~	60~125
		35			24		70~100	60~200



Catalog No. **SORTA** Nominal **20** — L **30**
 Order

SORTB



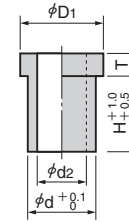
〈Material〉 SS400 or S25C

Catalog No.	Nominal	D	D ₁	D ₂	d	Outer Diameter	
SORTB	14	19	13	14	9	50	63
	22	27	20	22	13	80	100

 When installing SORTB, set the straight part to the fixed surface side.



Catalog No. **SORTB** Nominal **14**
 Order

K

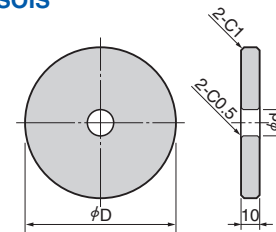


〈Material〉 SS400

Catalog No.	Nominal	D ₁	d	d ₂	H	T
K	10	19.5	15	11	12	5
	12	22	18	13	20	6


Catalog No. **K** Nominal **10**
 Order

SOIS



〈Material〉 Neodel (#25-61N)

Catalog No.	Nominal	D	d	Applicable Rubber Spring, Urethane Spring					
				Outer Diameter	Inner Diameter	Guide Pin Diameter			
SOIS	50	65	13	30	40	50	14	12	
	63	80		60	63				
	80	100	125	21	70	80		20	20
					90	100	110		

 Guide pins should be S25C equivalent or better and finished within Ra1.6.


Catalog No. **SOIS** Nominal **63**
 Order