

URESTORO™ [Overview]

Weather-Resistant Urethane Spring

Pressure Source Components

The URESTORO urethane elastomer spring for press tools is a weather resistant material suitable for most conditions. Ideal for repetitious compression applications, with resistance to high temperature and humidity conditions. Moreover, the product withstands not only high impact loads, but also resistant to certain chemicals. Excellent for pad pressure resistance of press tools.



■ Features

- The durability in extreme environments with high stress levels or humidity has been significantly increased compared to that of the existing USX, USA and USZL specifications.
- The URESTORO series can be easily substituted for existing products.
- The product dimensions have not altered and remain the same as that of the existing USX specifications.
- However, please note that the load deflection curve for that of non-URESTORO products can be different.

Material Characteristics		Performance Values
Material		Urethane Elastomer
Hardness		Shore A 88° ± 3°
Color		Green
Tensile Strength		28.3 MPa
Modulus	100%	6.9 MPa
	300%	11.7 MPa
Elongation		450%
Tear Strength		11.4 N/mm
Impact Resistance		50%

■ Range of Application

	Deflection Rate Limit for Operation	SPM Limit for Operation	Ambient Temperature Limit for Operation
USWA	25%	50SPM	50°C
USWX	30%	40SPM	

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

■ Oil and Chemical Resistance

Lubrication oil	1	Ethyl alcohol	3	Water	2	1 excellent resistance
Turbine oil	1	Grease	1	Methyl alcohol	×	2 good resistance
Gasoline	2	Mineral oil	1	Hydrochloric acid (20%)	3	3 mediocre resistance
Acetone	×	Acetic acid	×	Sulfuric acid (10%)	×	×
Ammonia	2	Brine	1	Benzene	×	×

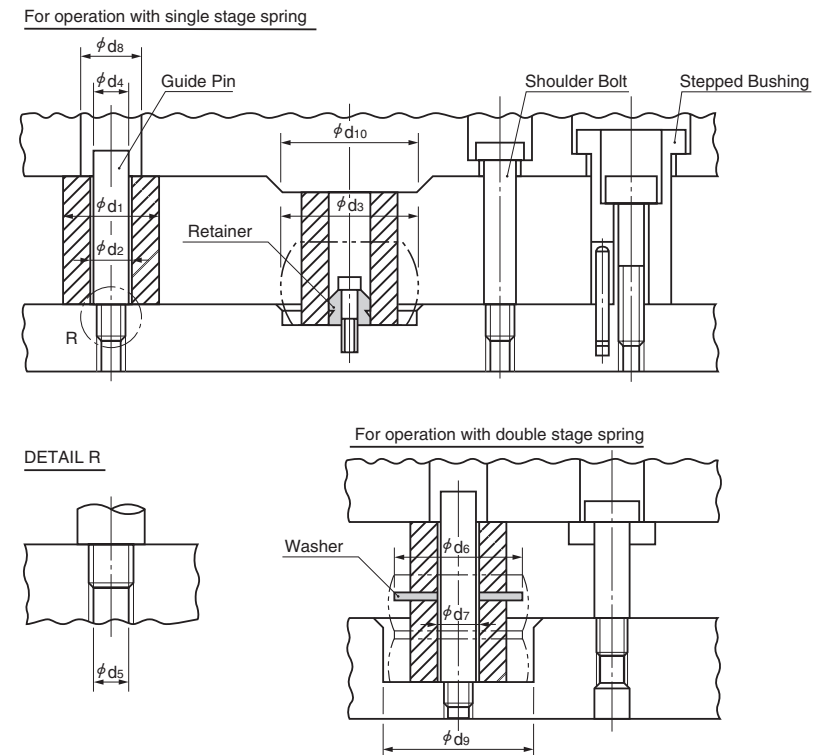
For the use with press tools, 1 or 2 can be considered.

■ 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.

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■ Application Examples [Type X&A]



● Dimension Table (mm) [Type X]

	Urethane Spring			Guide Pin		Washer		Others		
	φd1	φd2	φd3	φd4	φd5	φd6	φd7	φd8	φd9	φd10
USWX50	50	14	58	12	M10	65	13	14	78	70
USWX60	60	20	70	18	M16	80	13	20	90	80
USWX80	80	20	92	18	M16	100	21	20	112	100
USWX100	100	20	114	18	M16	125	21	20	134	120

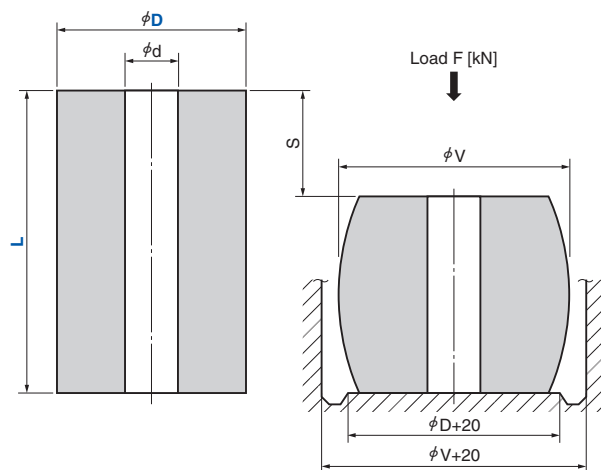
⚠ For USWA, use guide pin φ12 for urethane diameter φ60 or smaller and φ18 for urethane diameter φ70 or larger.

■ 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.

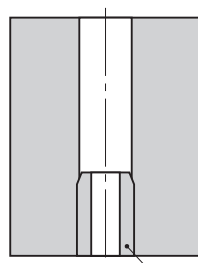
USWA

CAD
FILE



USWAT (with Retainer)

CAD
FILE



SORTA (Retainer) (Material) Urethane Elastomer

Catalog No.	D	L	S = Lx15%			S = Lx25%			V	d
			S	F [kN]		S	F [kN]			
				Initial Strokes	300,000 Strokes		Initial Strokes	300,000 Strokes		
	30	30	4.5	1.2	1.1	7.5	2.5	2.4	36	
		40	6.0	2.0	1.3	10	2.9	2.6		
		50	7.5	2.2	1.5	12.5	3.0	2.9		
		60	9.0	2.2	1.4	15	3.3	3.0		
	40	40	6.0	4.4	3.0	10	6.4	5.8	48	
		50	7.5	4.6	3.1	12.5	6.6	6.0		
		60	9.0	4.4	2.9	15	6.6	6.0		
		80	12.0	3.8	2.6	20	6.1	5.8		14
	50	50	7.5	6.6	5.0	12.5	10.8	9.7	59	
		60	9.0	6.8	4.7	15.0	10.2	9.2		
		80	12.0	7.0	4.6	20	10.0	8.5		
		110	16.5	6.8	4.0	27.5	10.0	8.5		
USWA USWAT	60	50	7.5	10.6	7.0	12.5	16.1	14.4	72	
		60	9.0	10.4	6.4	15.0	15.8	14.2		
		80	12.0	10.2	6.9	20.0	15.2	14.9		
	70	110	16.5	14.6	8.0	27.5	20.1	16.8	82	
		140	21.0	14.0	8.5	35.0	20.6	17.7		
		170	25.5	13.4	7.0	42.5	19.2	16.5		
	80	60	9.0	18.8	12.0	15.0	28.2	24.3	96	
		80	12.0	17.4	11.7	20.0	26.0	24.2		
		100	15.0	16.8	12.0	25.0	25.4	21.8		
	90	110	16.5	23.4	13.8	27.5	34.9	28.2	107	22
140		21.0	23.4	13.0	35.0	33.8	28.4			
170		25.5	22.0	14.0	42.5	32.9	27.6			
200		30.0	24.4	15.0	50.0	35.8	30.1			
100	80	12.0	32.0	18.0	20.0	46.4	39.9	120		
	100	15.0	28.8	19.8	25.0	44.2	38.4			
	120	18.0	31.0	20.0	30.0	46.8	40.2			
	140	21.0	31.8	19.0	35.0	46.2	39.7			
110	140	21.0	37.8	23.0	35.0	54.4	46.8	130		
	200	30.0	34.2	20.0	42.5	51.8	45.0			



Catalog No.	D	—	L
USWA	80	—	100
USWAT	90	—	140

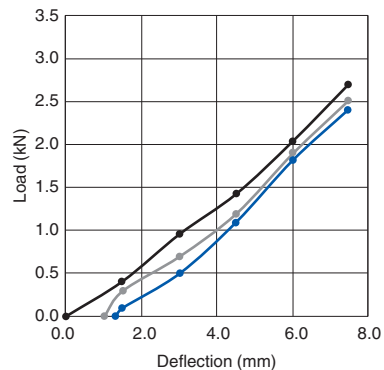
Refer to page 1192 for the spacer for stack use of springs.

For guide pin, use $\phi 12$ for urethane diameter $\phi 60$ or smaller and $\phi 18$ for urethane diameter $\phi 70$ or larger.

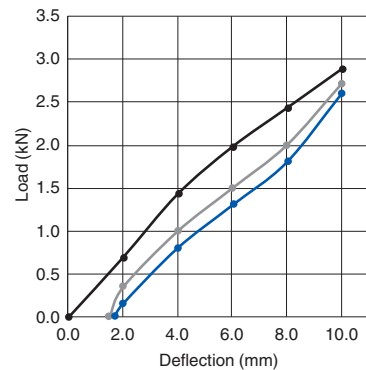
Refer to page 1191 for attached retainer size.

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

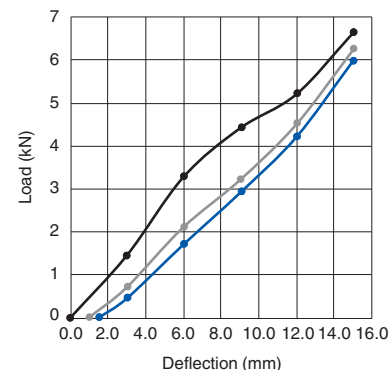
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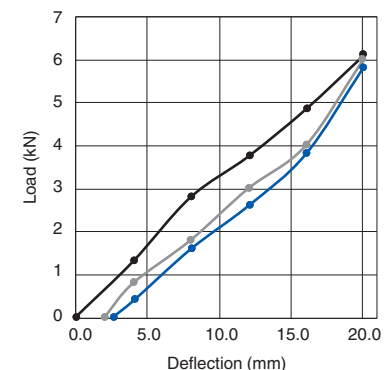
USWA30-40



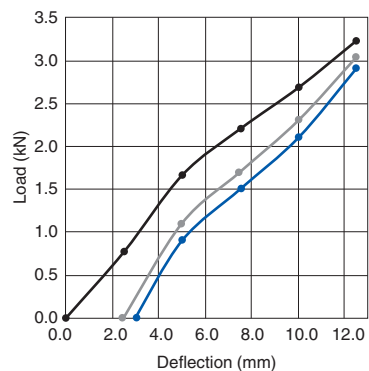
USWA40-60



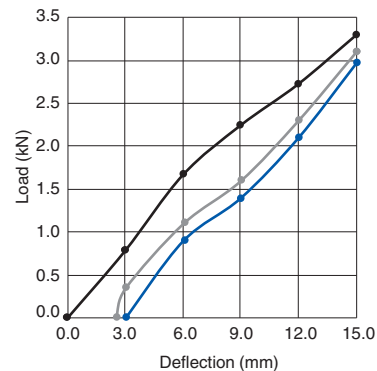
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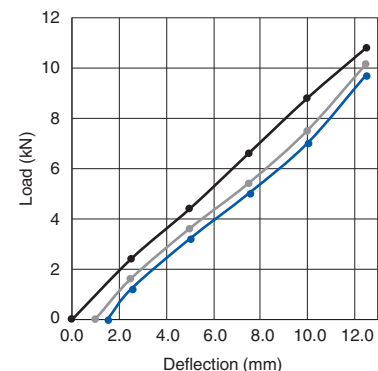
USWA30-50



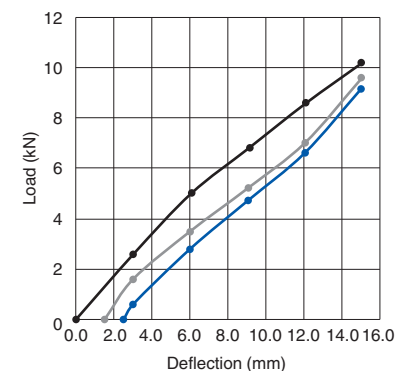
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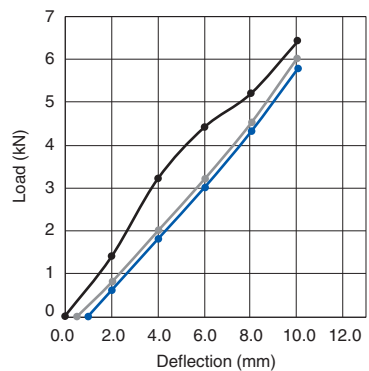
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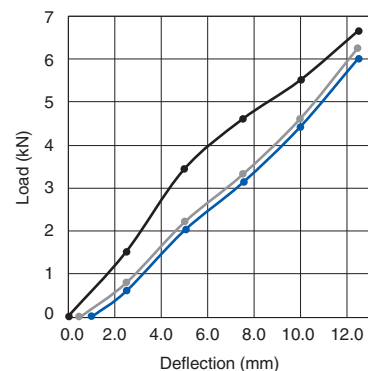
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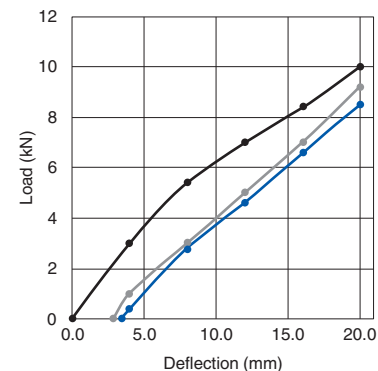
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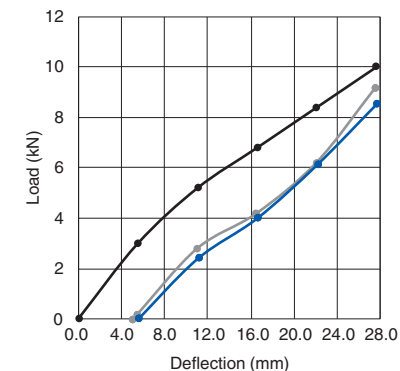
USWA40-50



USWA50-80



USWA50-110



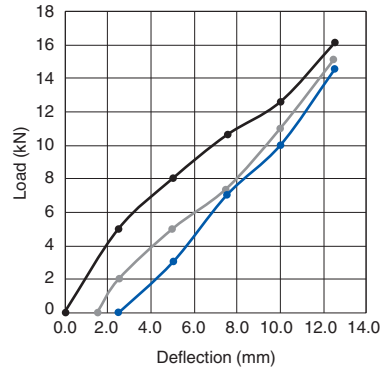
URESTORO™

USWA Load-Deflection Diagrams

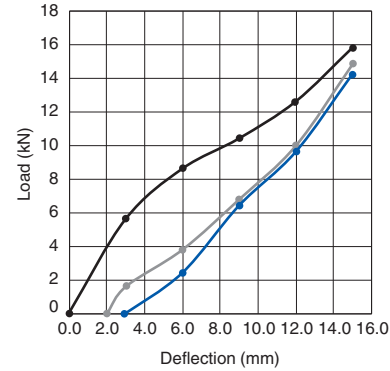
Pressure Source Components

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

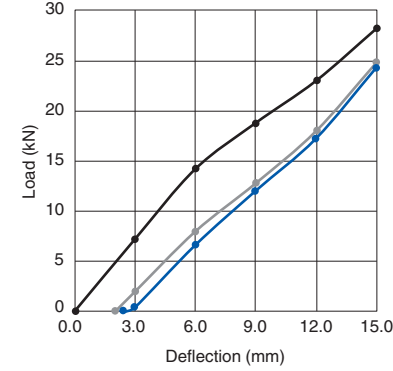
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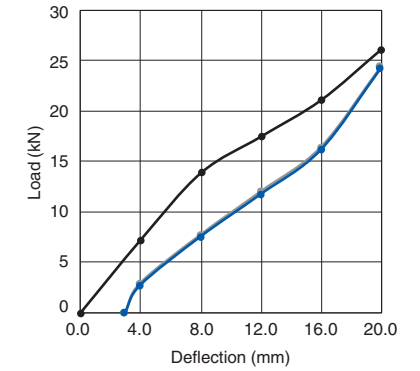
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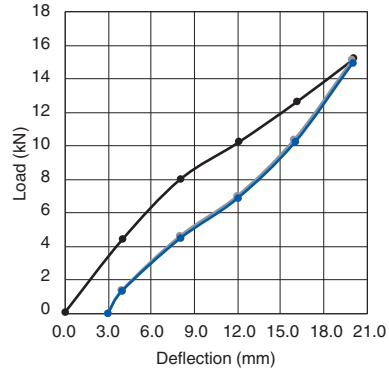
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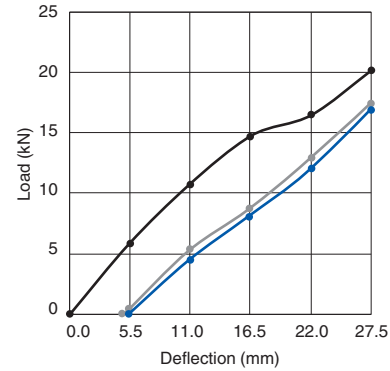
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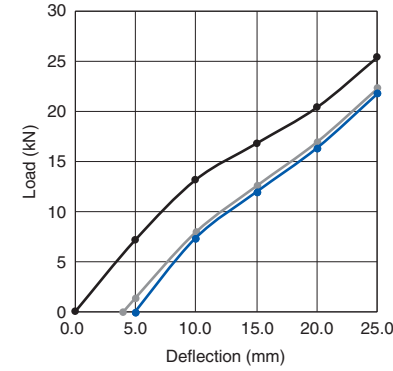
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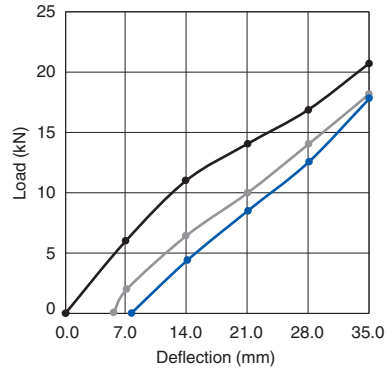
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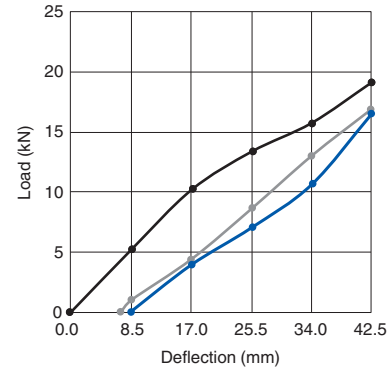
USWA80-100



USWA70-140



USWA70-170



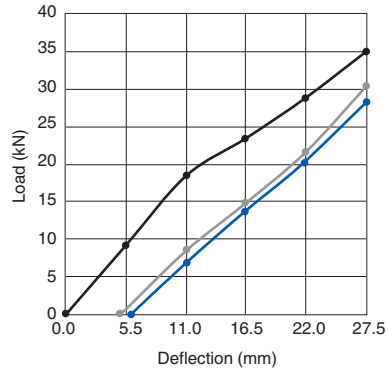
URESTORO™

USWA Load-Deflection Diagrams

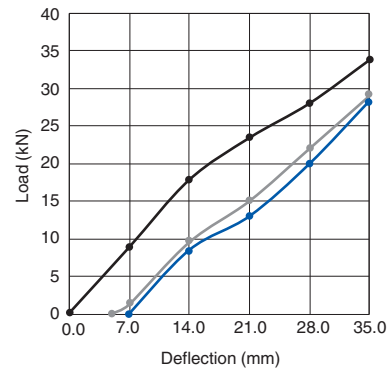
Pressure Source Components

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

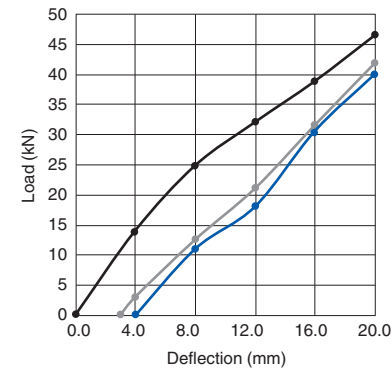
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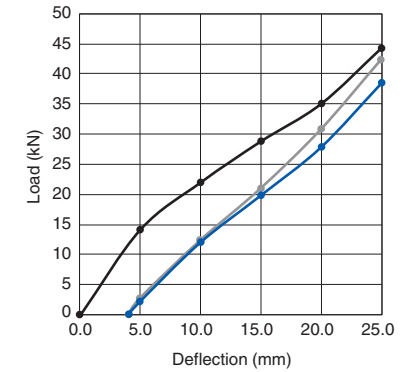
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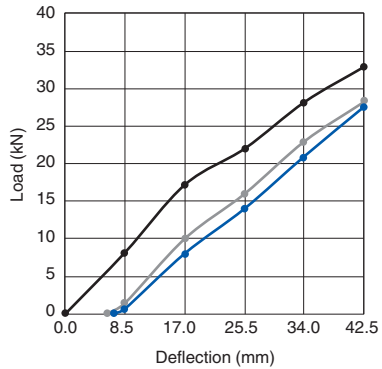
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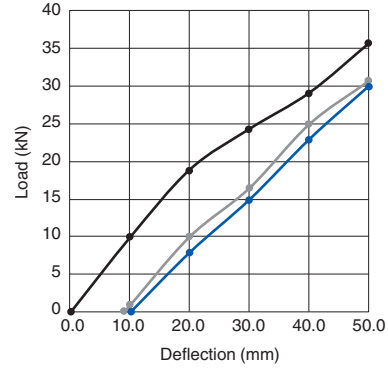
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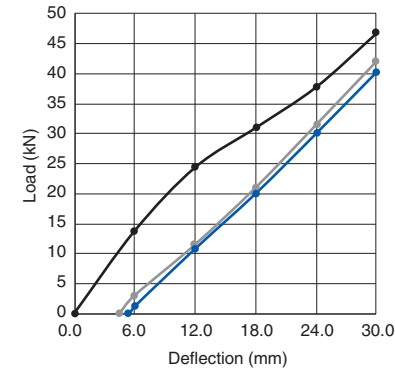
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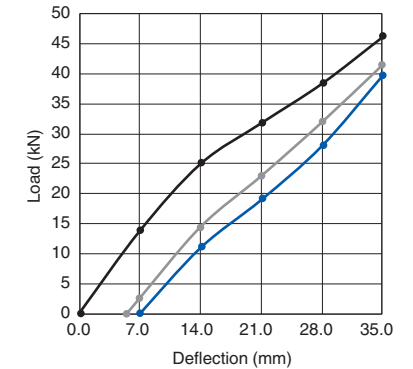
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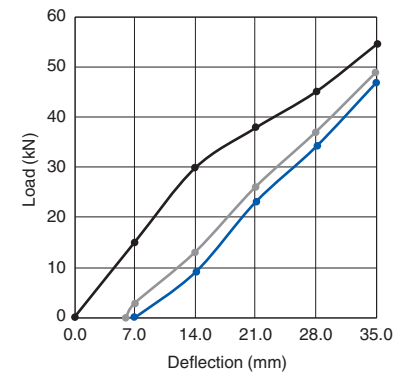
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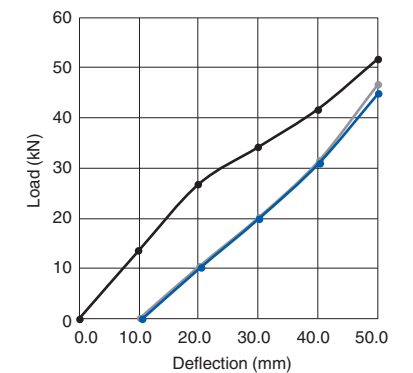
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USWA110-140



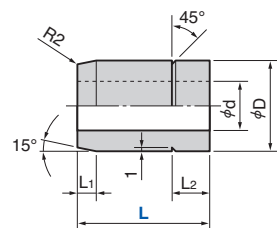
USWA110-200



Retainer, Spacer

Pressure Source Components

SORTA



〈Material〉 SS400 or S25C

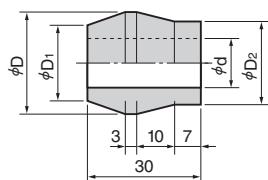
Catalog No.	Nominal	L	D	d	L ₁	L ₂	Applicable Rubber Spring, Urethane Spring	
							Outer Diameter	Length
SORTA	10	10			2	3	30, 40	~40
	14	20	16	9	3	7	30~63	50~63
	20	30	22		5	10	60~	60~125
	22	35	24	13			70~100	60~200



Order

Catalog No.	Nominal	—	L
SORTA	20	—	30

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



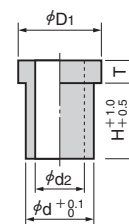
When installing SORTB, set the straight part to the fixed surface side.



Order

Catalog No.	Nominal
SORTB	14

K



〈Material〉 SS400

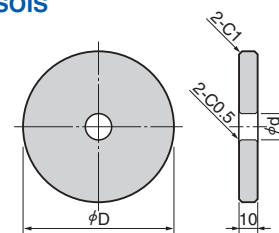
Catalog No.	Nominal	D1	d	d2	H	T
K	10	19.5	15	11	12	5
	12	22	18	13	20	6



Order

Catalog No.	Nominal
K	10

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		30 40 50		
	63	80	13	60 63	14	12
	80	100		70 80	20	
	100	125	21	90 100 110	22	20



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



Order

Catalog No.	Nominal
SOIS	63