

Optimum for pad pressure of press tools

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.
- Since it is excellent in oil resistance, weather resistance and aging resistance, the service life is long.
- Additional cutting and grinding can be made with ease.
- Shape is a thick wall round pipe and is easy to handle.

■ Physical Properties

| Item | Physical Property Values | |
|-------------------|--------------------------|---------|
| Material | Polyester Based | |
| Hardness | Shore A 90° | |
| | HRS 45° | |
| Color | Navy blue | |
| Tensile Strength | 59MPa | |
| Modulus | 100% | 7.53MPa |
| | 300% | 15.2MPa |
| Elongation | 510% | |
| Tensile Strength | 109N/mm | |
| Impact Resilience | 28% | |

■ Storage

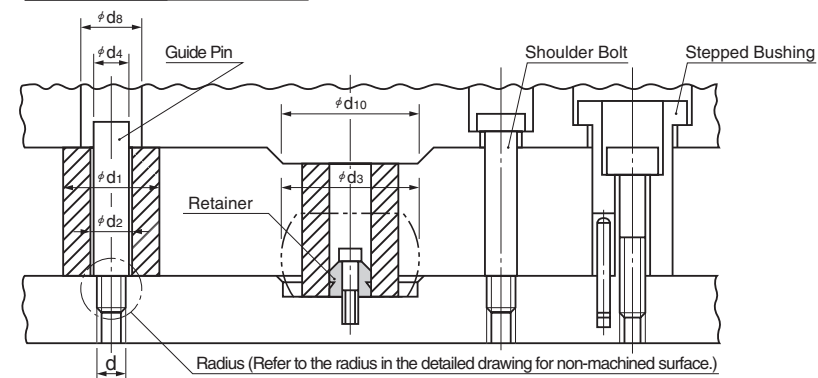
- In order to protect against ultraviolet rays, store away from direct sunlight.
- Deterioration is faster under conditions of high temperature or humidity. We recommend putting a desiccant in the container and storing in as cool a location as possible.

■ Application Range

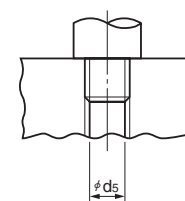
| Item | Characteristic Value | |
|---|----------------------|-------|
| Deflection Rate Limit for Operation | 25% | |
| SPM Limit for Operation | $D < \phi 90$ | 60SPM |
| | $D \geq \phi 90$ | 40SPM |
| Ambient Temperature Limit for Operation | 50°C | |

■ Application Example

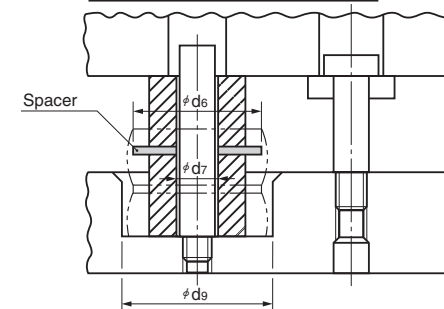
For operation with single stage spring



Detailed Drawing of Radius



For operation with double stage spring



● Dimensional table (calculation table based on ϕd_1)

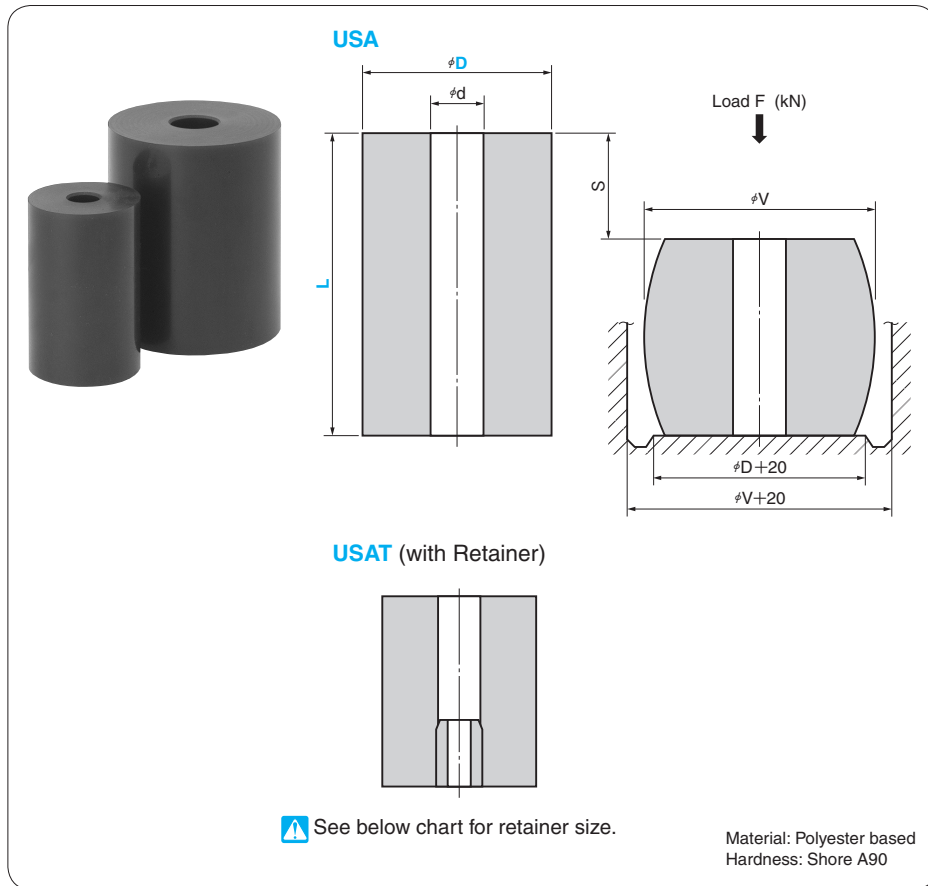
| | Urethane Spring | | | Guide Pin | | Spacer | | Others | | |
|---------------------|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|
| | ϕd_1 | ϕd_2 | ϕd_3 | ϕd_4 | ϕd_5 | ϕd_6 | ϕd_7 | ϕd_8 | ϕd_9 | ϕd_{10} |
| For $\phi d_1 = 40$ | 40 | 14 | 49 | 13 | M10 | 50 | 14 | 15 | 60 | 50 |
| For $\phi d_1 = 80$ | 80 | 22 | 95 | 20 | M16 | 100 | 22 | 22 | 110 | 100 |

⚠ Use $\phi 18$ guide pin for $\phi 60$, $\phi 80$, $\phi 100$ USX type (P.533).

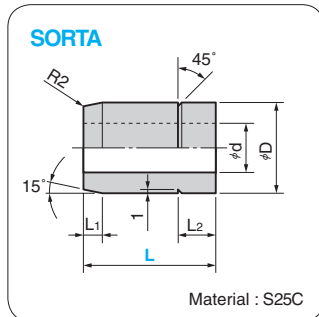
Urethane Spring Type A

FOR HIGH LOAD

CAD FILE



Retainer



| D | d | L1 | L2 | Applicable Urethane | | Catalog No. | Nominal Size | L |
|----|----|----|----|---------------------|------------|-------------|--------------|----|
| | | | | Outer Diameter | Length | | | |
| 16 | 9 | 3 | 7 | 30 ~ 40 | 40 or less | SORTA | 14 | 10 |
| | | | | 30 ~ 60 | 50 | | | 20 |
| | | | | 30 ~ 60 | 60 or more | | | 30 |
| 24 | 13 | 5 | 10 | 70 ~ | 60 ~ 200 | | 22 | 35 |

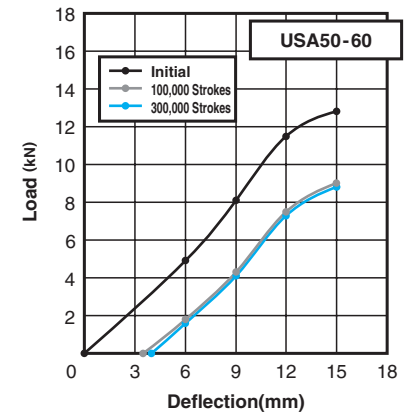
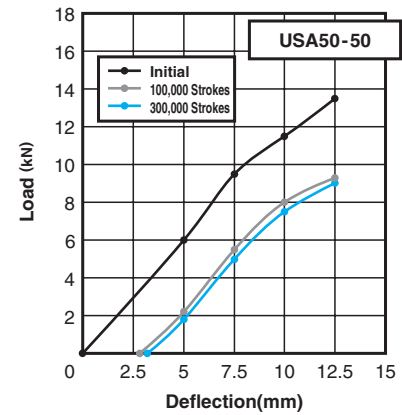
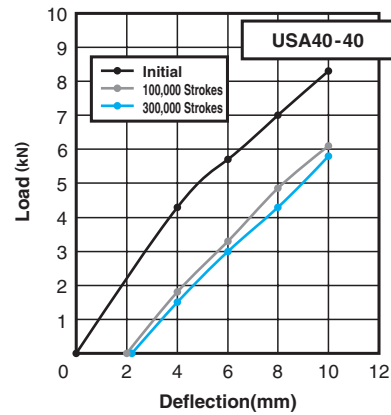
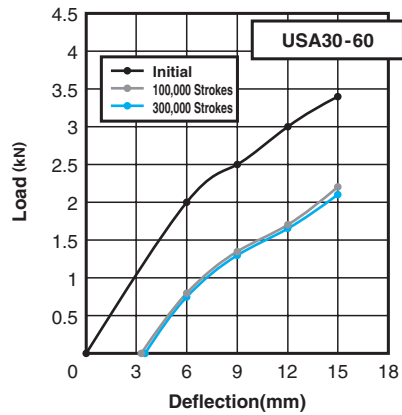
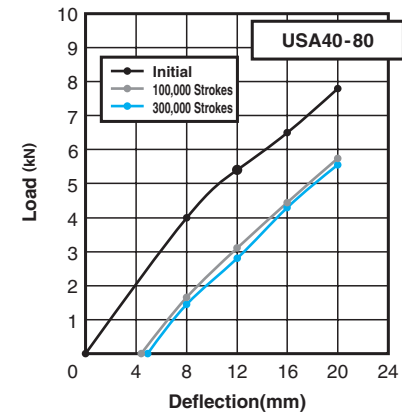
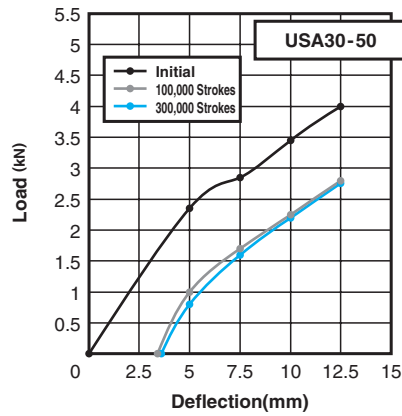
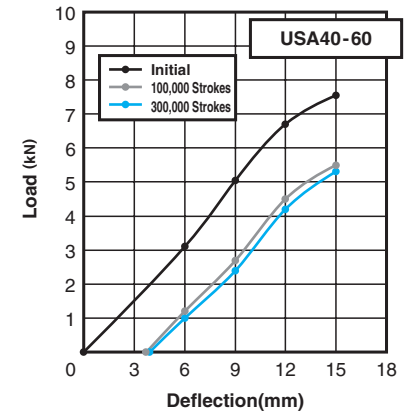
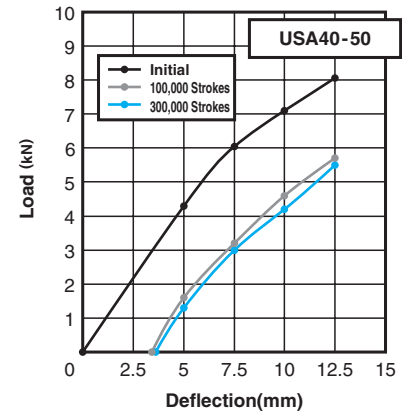
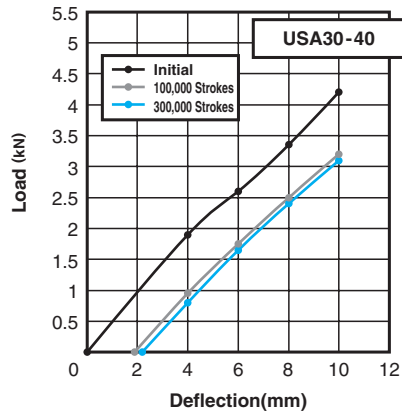
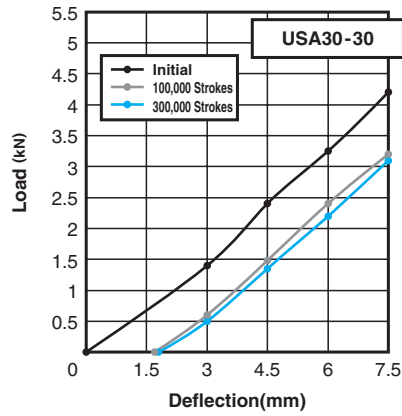
| Order | Catalog No. | Nominal Size | - | L |
|-------|-------------|--------------|---|----|
| | SORTA | 14 | - | 20 |

| S=L×15% | | S=L×25% | | | d | Catalog No. | D | L |
|---------|--------|---------|--------|-----|----|-------------|-----|-----|
| S | F (kN) | S | F (kN) | V | | | | |
| 4.5 | 2.6 | 7.5 | 3.6 | 36 | | | 30 | 30 |
| 6.0 | | 10.0 | | | | | | 40 |
| 7.5 | | 12.5 | | | | | | 50 |
| 9.0 | | 15.0 | | | | | | 60 |
| 6.0 | 4.6 | 10.0 | 6.4 | 48 | | | 40 | 40 |
| 7.5 | | 12.5 | | | | | | 50 |
| 9.0 | | 15.5 | | | | | | 60 |
| 12.0 | | 20.0 | | | 14 | | | 80 |
| 7.5 | 8.0 | 12.5 | 11.0 | 59 | | | 50 | 50 |
| 9.0 | | 15.0 | | | | | | 60 |
| 12.0 | | 20.0 | | | | | | 80 |
| 16.5 | | 27.5 | | | | | | 110 |
| 7.5 | 13.0 | 12.5 | 18.0 | 72 | | | 60 | 50 |
| 9.0 | | 15.0 | | | | | | 60 |
| 12.0 | | 20.0 | | | | | | 80 |
| 16.5 | | 27.5 | | | | USA | | 110 |
| 21.0 | 18.0 | 35.0 | 24.0 | 82 | | | 70 | 140 |
| 25.5 | | 42.5 | | | | | | 170 |
| 9.0 | | 15.0 | | | | | | 60 |
| 12.0 | 22.0 | 20.0 | 30.0 | 96 | | | 80 | 80 |
| 15.0 | | 25.0 | | | | | | 100 |
| 16.5 | | 27.5 | | | | | | 110 |
| 21.0 | 28.0 | 35.0 | 38.0 | 107 | 22 | | 90 | 140 |
| 25.5 | | 42.5 | | | | | | 170 |
| 30.0 | | 50.0 | | | | | | 200 |
| 12.5 | 37.0 | 20.0 | 51.0 | 120 | | | 100 | 80 |
| 15.0 | | 25.0 | | | | | | 100 |
| 18.0 | | 30.0 | | | | | | 120 |
| 21.0 | 46.0 | 35.0 | 62.0 | 130 | | | 110 | 140 |
| 21.0 | | 35.0 | | | | | | 140 |
| 30.0 | | 50.0 | | | | | | 200 |

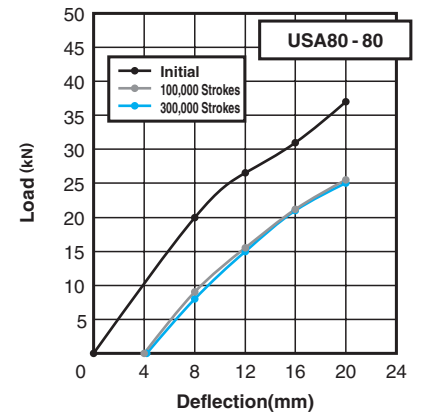
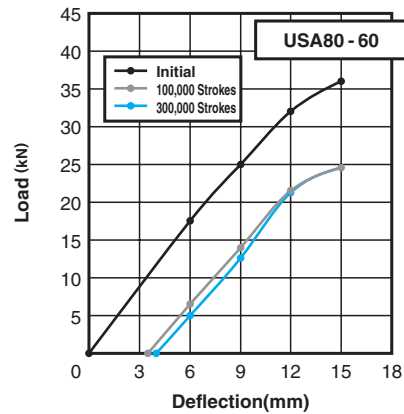
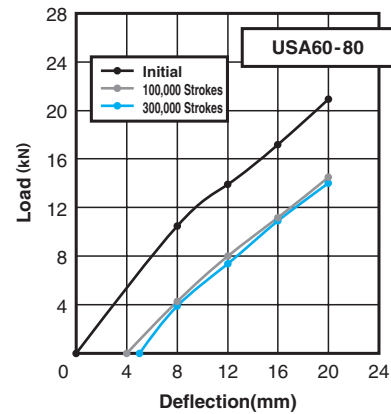
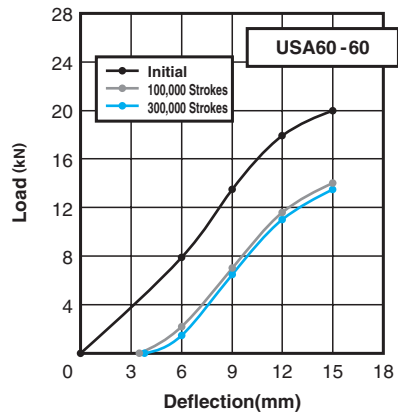
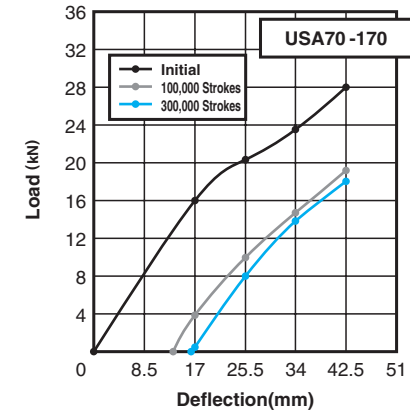
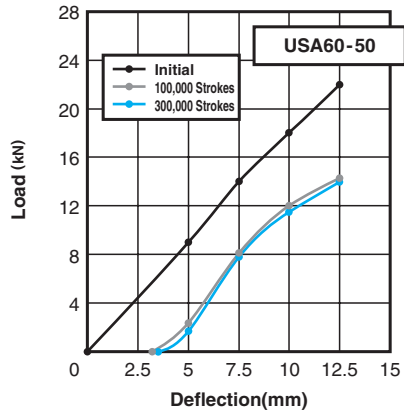
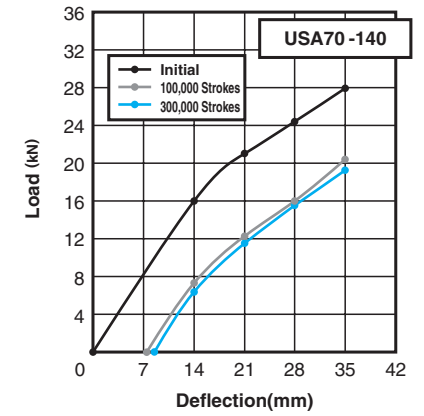
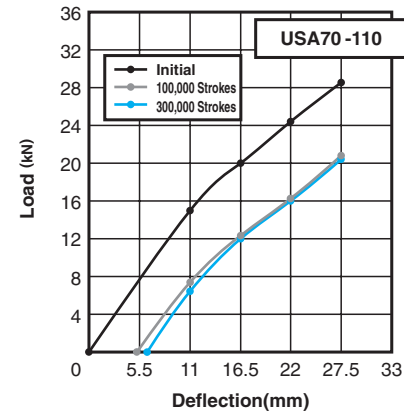
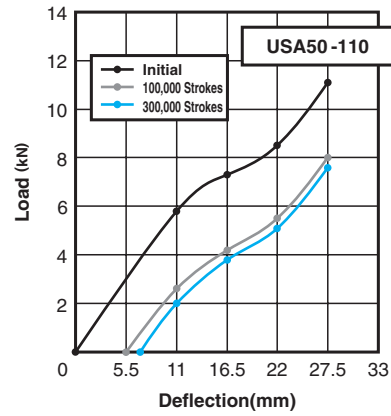
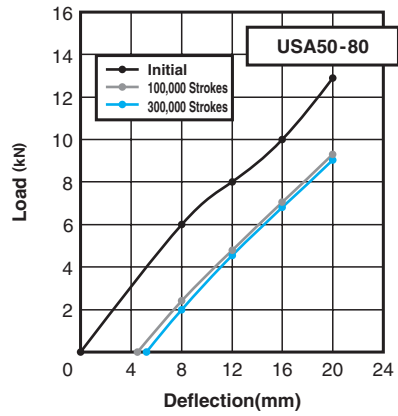
| Order | Catalog No. | D | - | L |
|-------|-------------|----|---|-----|
| | USA | 80 | - | 100 |
| | USAT | 90 | - | 140 |

When it is used in stages, use the spacer on page 534.

USA Load - Deflection Diagram



USA Load - Deflection Diagram



USA Load - Deflection Diagram

