

General Description of Urethane Spring

FOR HIGH LOAD

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

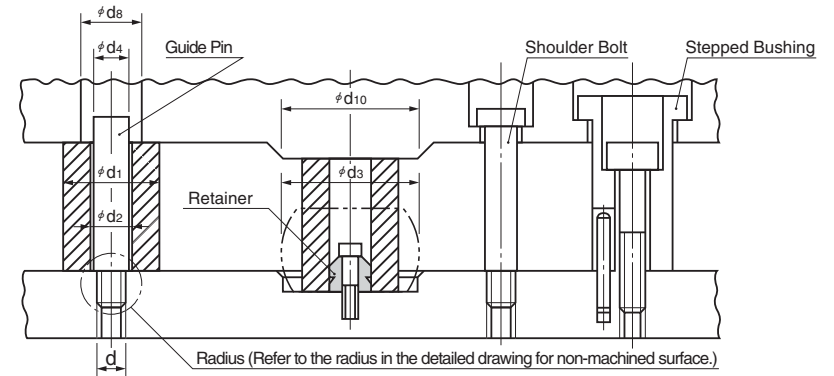
Item	Physical Property Values	
Material	Polyester Based	
Hardness	Shore A 90°	
	HRS 45°	
Color	Navy blue	
Tensile Strength	59MPa	
Modulus	100%	7.53MPa
	300%	15.2MPa
Elongation	510%	
Tensile Strength	109N/mm	
Impact Resilience	28%	

Application Range

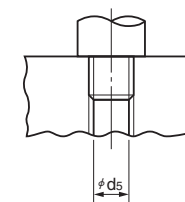
Item	Characteristic Value	
Deflection Rate Limit for Operation	25%	
SPM Limit for Operation	D < φ 90	60SPM
	D ≥ φ 90	40SPM
Ambient Temperature Limit for Operation	50°C	

Application Example

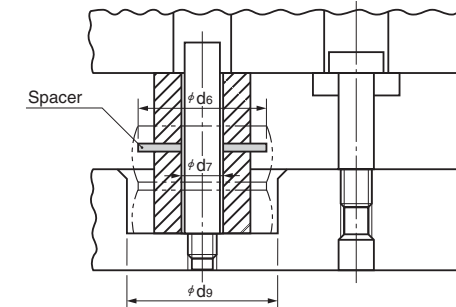
For operation with single stage spring



Detailed Drawing of Radius



For operation with double stage spring



Dimensional table (calculation table based on φd₁)

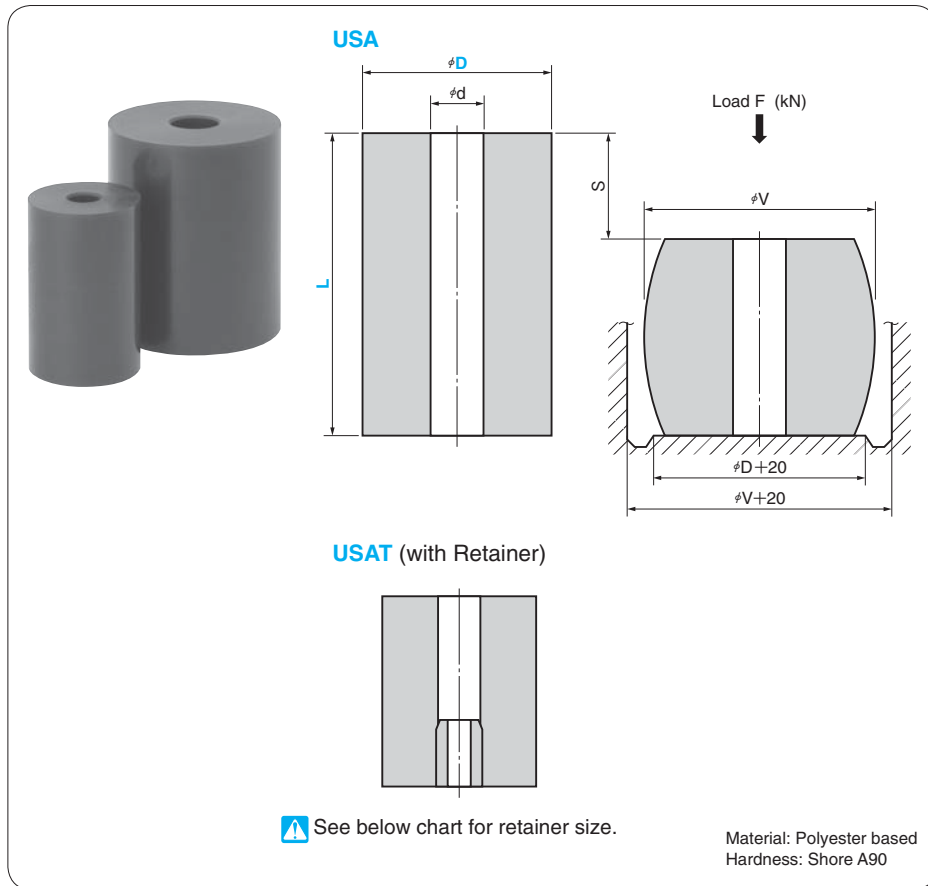
	Urethane Spring			Guide Pin		Spacer		Others		
	φd ₁	φd ₂	φd ₃	φd ₄	φd ₅	φd ₆	φd ₇	φd ₈	φd ₉	φd ₁₀
For φd ₁ = 40	40	14	49	13	M10	50	14	15	60	50
For φd ₁ = 80	80	22	95	20	M16	100	22	22	110	100

⚠ Use φ 18 guide pin for φ60, φ80, φ100 USX type (P.1701).

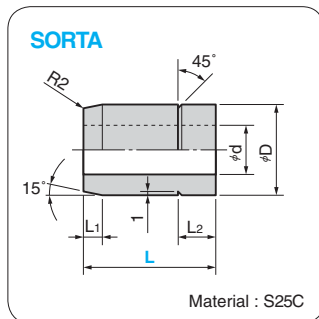
Urethane Spring Type A

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 USAT		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		35.0						140
21.0	46.0	35.0	62.0	130			110	140
30.0		50.0						200

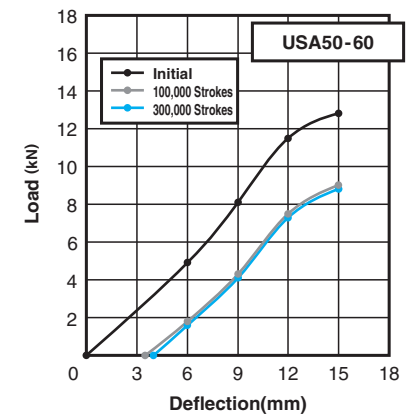
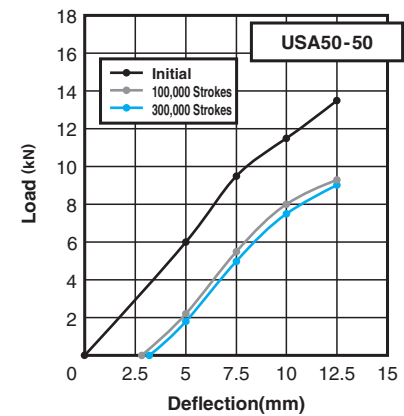
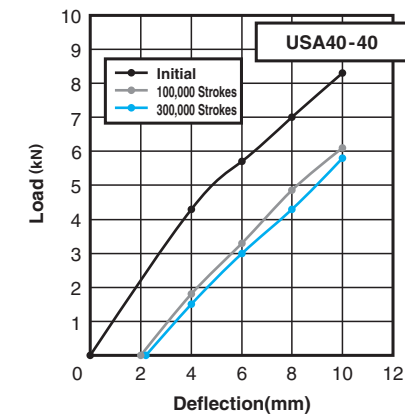
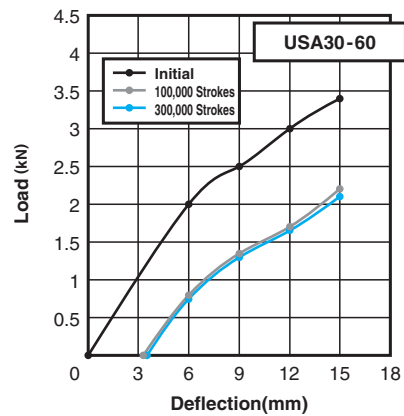
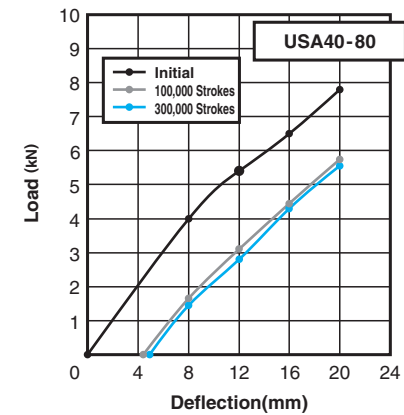
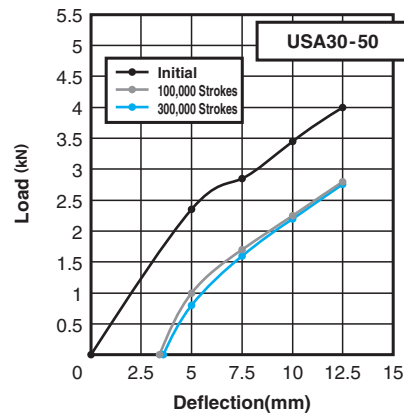
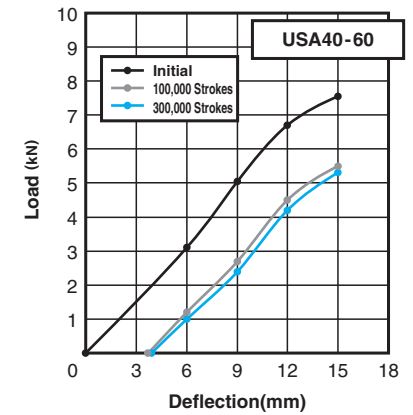
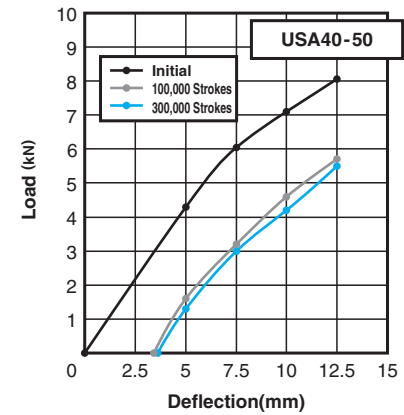
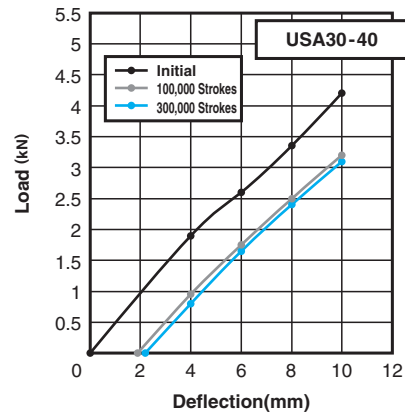
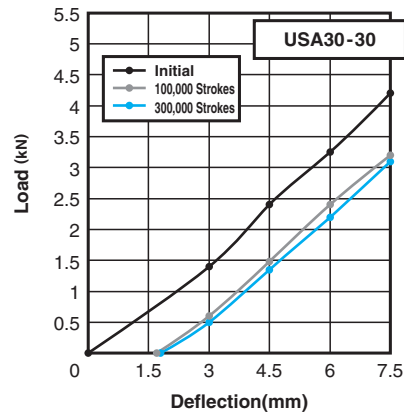
Order	Catalog No.	D	-	L
	USA	80	-	100
	USAT	90	-	140

When it is used in stages, use the spacer on page 528.

Urethane Spring

LOAD - DEFLECTION DIAGRAMS

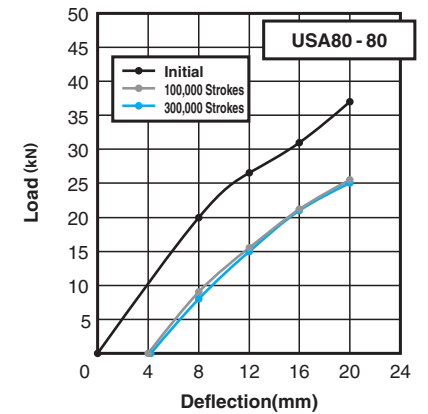
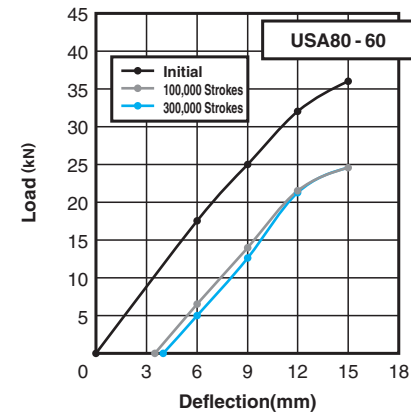
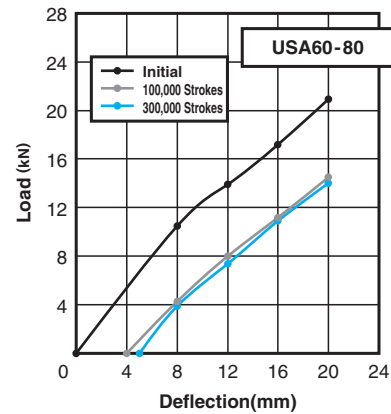
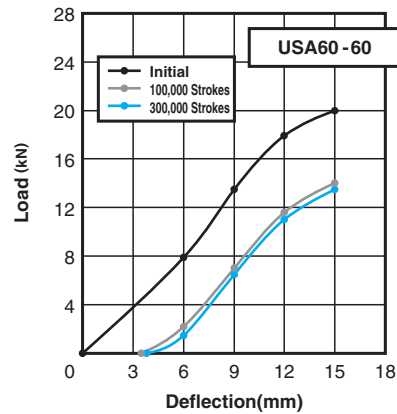
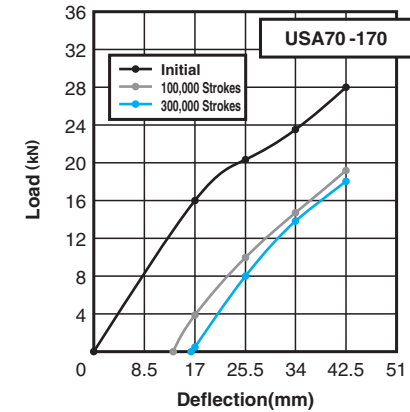
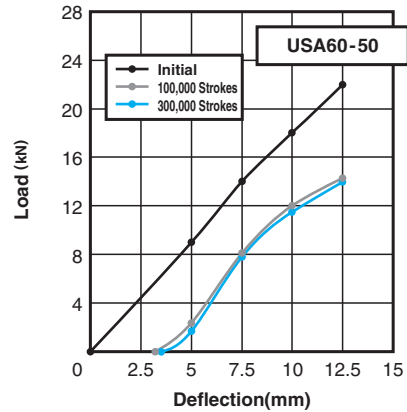
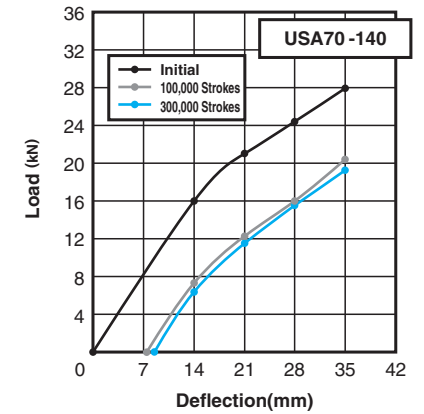
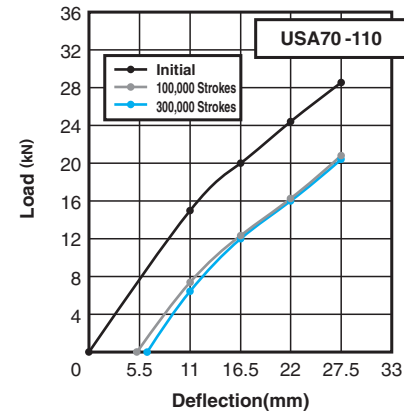
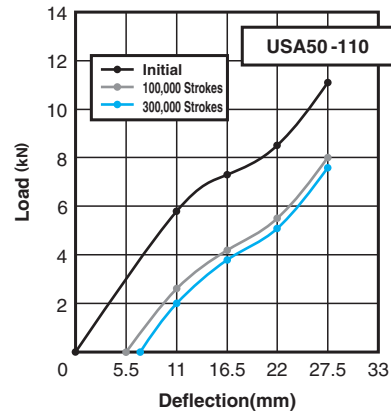
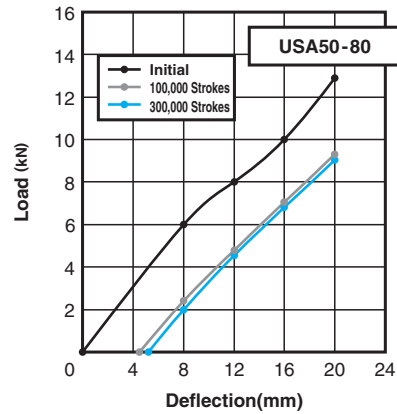
USA Load - Deflection Diagram



Urethane Spring

LOAD - DEFLECTION DIAGRAMS

USA Load - Deflection Diagram



Urethane Spring

LOAD - DEFLECTION DIAGRAMS

USA Load - Deflection Diagram

