



SHINWEON

Press Mold die Spring

경영목표

초일류 기업정신 정착
세계시장 점유율 1위
국제기력경쟁력 1위

경영방침
최상의 품질
생산성 향상
국제경쟁력강화

사
훈
의
동
사
창
협
동

SHINWEON

Press Mold die Spring

자신과의 약속, 고객과의 약속, 사회와의 약속을 지키는 신뢰의 기업



신원금형스프링

제품 소개

신원금형스프링은 와이어링 공정의 치밀한 조직으로 제작되어 길이의 변형과 표면손상이 전혀 발생하지 않아 안심하고 사용할 수 있으며 각종 금형 및 일반 기계장비에 적용, 사용하여도 뛰어난 성능을 발휘할 수 있도록 제작 되었습니다. 또한, 제품옆면에 Lot No.를 사용하여 제품의 효율적인 관리가 이루어 지도록 하고 있습니다.

제품 종류

신원금형스프링은 경소하중(輕少荷重), 경하중(輕荷重), 중하중(中荷重), 중하중(重荷重), 극중하중(極重荷重), 고변형용(高變形用)의 6종류로 구분되어 있고 고객이 쉽게 판별하여 사용할 수 있도록 각각의 색으로 구분하였습니다.

종 류	기 호	색
輕少荷重	A F	노랑색
輕荷重	A L	파랑색
中荷重	A M	빨강색
重荷重	A H	녹색
極重荷重	A B	갈색
高變形用	A R	회색

재질 및 공정

신원금형스프링은 포스코의 SAE 9254소재를 사용하여 제품에 대한 높은 신뢰성을 유지하였으며, 제조 공정에 엄격한 품질기준을 적용하여 제품의 피로도 및 스트레스 지수에 우수한 제품만을 생산, 공급하여 고객의 만족도를 높이는데 최선을 다하고 있습니다.

Lot No.의 의미

- ① 외경 - 자유장
- ② 변형량 (30만회 기준)
- ③ 하중 (30만회 기준)
- ④ 제조일자

60-125	40.0mm	720kg	OH12
①	②	③	④



Shinweon Press Mold die Spring

Introduction to the Product

Shinweon mold spring has been manufactured with precision construction of wiring process. Accordingly, it can be used with piece of mind as there will be absolutely no deformation in length and surface damages. It has been manufactured to display outstanding performances even when applied to and used in various mold and general mechanical equipment. In addition, we have attached Lot No. on the lateral aspect of the product to enable efficient management of the product.

Product Types

Shinweon mold spring is categorized largely into 6 types by their application, namely, Light Small Load, Light Load, Medium Load, Heavy Load, Extremely Heavy Load and High Distortion, all of which can be identified easily by our clients through usage of different color for each type.

Types	Sign	Color
Lightest Load	A F	Yellow
Light Load	A L	Blue
Medium Load	A M	Red
Heavy Load	A H	Green
Ultra Heavy Load	A B	Brown
High Deflection	A R	Gray

Material and Process

SAE 9254 material of POSCO has been used for manufacturing of the shinweon mold spring in order to maintain high level of reliability for the product. We are putting our utmost efforts in elevating the level of satisfaction of our customers by manufacturing and supplying products with excellent fatigue level and stress index.

The meaning of Lot No.

- ① External diameter – free length
- ② Extent of deformation
(based on 300,000 times)
- ③ Load (based on 300,000 times)
- ④ Manufacturing date

60-125	40.0mm	720kg	OH12
①	②	③	④

Square-angled coils for molds



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Specifications

	Type	Type	Color	Outer diameter		Free length		Available Max.Bend	Load * N (kgf)	
				min.	max.	min.	max.		min.	max.
coil spring	 AF AL	AF	Yellow	Ø8 (Ø4)	Ø70	10	500	40% (1)	58.8 (6)	2255.5 (230)
								50% (0.3)	78.5 (8)	2824.3 (288)
	 AL AM	AL	Blue	Ø8 (Ø4)	Ø70	10	500	32% (1)	78.5 (8)	3814.4 (389)
								40% (0.3)	98.1 (10)	4766.0 (486)
	 AM AH	AM	Red	Ø8 (Ø4)	Ø60	10	350	25.6% (1)	107.9 (11)	5638.8 (525)
								32% (0.3)	137.3 (14)	7060.8 (720)
	 AH AB	AH	Green	Ø8 (Ø4)	Ø60	10	350	19.2% (1)	166.7 (17)	8472.9 (864)
								24% (0.3)	205.9 (21)	10591.2 (1080)
	 AB AR	AB	Brown	Ø8 (Ø4)	Ø60	10	350	16% (1)	255.0 (26)	11297.3 (152)
								20% (0.3)	323.6 (33)	14121.6 (1440)
	 AR	AR	Gray	Ø14.5	Ø46	15	300	50% (1)	127.5 (13)	3579.4 (110)
								55% (0.3)	140.2 (14.3)	1078.7 (120.5)

SHINWEON & T (SHINWEON) 의 금형용 사각스프링은 모든공정을 엄정한 품질 기준으로 생산 공급하고 있습니다. 그리고 와이어링 공정의 치밀한 조적으로 제작·생산되어 길이의 변형과 표면 손상이 없으며 피로 및 스트레스에 극히 우수합니다.

A 시리즈 : mm사이즈로 AF-AL-AM-AH-AB-AR 6종의 표준 규격

■주문사항 : 주문 사양의 제작도 가능합니다.

We, SHINWEON guarantee quality standard in accordance with our specification listed in the related patent such as the strict tolerance internationally required in the actual use, especially, we put the strong point on diminishing its fatigue and stress in use through stringent quality control on every process in the manufacturing of the spring.

We also accept any order by customer's specification

PRESS SPRING

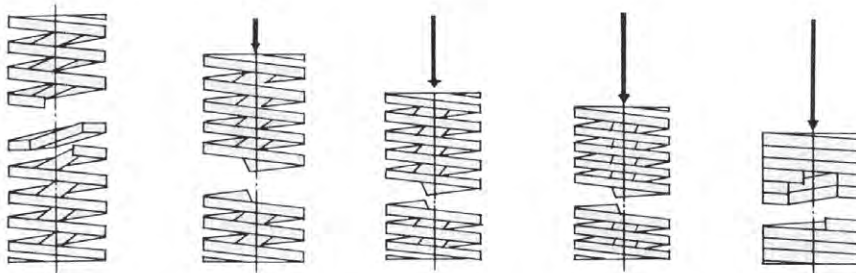


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■ 금형스프링 사용횟수와 압축비 관계 (Relationship between working times of spring and description rate)

사용횟수 Working Times	100만회(자유장%) 1 million (% of free length)	50만회(자유장%) 0.5 million (% of free length)	30만회(자유장%) 0.3 million (% of free length)	최대변형량(자유장%) Max Description (% of free length)	색 별 Color
종류 Deflection					
輕少荷重 Lightest Load	40.0%	45.0%	50.0%	Approx. 58.0%	황색 (Yellow)
輕荷重 Light Load	32.0%	36.0%	40.0%	Approx. 48.0%	청색 (Blue)
中荷重 Medium Load	25.6%	28.8%	32.0%	Approx. 38.0%	적색 (Red)
重荷重 Heavy Load	19.2%	21.6%	24.0%	Approx. 28.0%	녹색 (Green)
極重荷重 Ultra Heavy Load	16.0%	18.0%	20.0%	Approx. 24.0%	갈색 (Brown)
高變形用 High Deflection	50.0%	52.5%	55.0%	Approx. 60.0%	회색 (Gray)

* 최대 변형량은 참고치입니다.



사용불가(Out of Service)

■ 금형스프링 허용공차 (Tolerance of Press Mold die Spring)

외경 외경 Outer Dia.	내경 내경 Inner Dia.	자유장 자유장 Free Length		하중 하중 Load kgf	권방향 권방향 Coil Direction.
		50mm 이하 below 50mm	55mm 이상 over 55mm		
+ 0mm - 0.7mm	+ 0.7mm - 0.1mm	±0.5mm	±1%	±10%	오른쪽 right



AF
輕少荷重
Lightest Load



AL
輕荷重
Light Load



AM
中荷重
Medium Load



AH
重荷重
Heavy Load

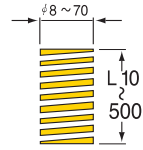
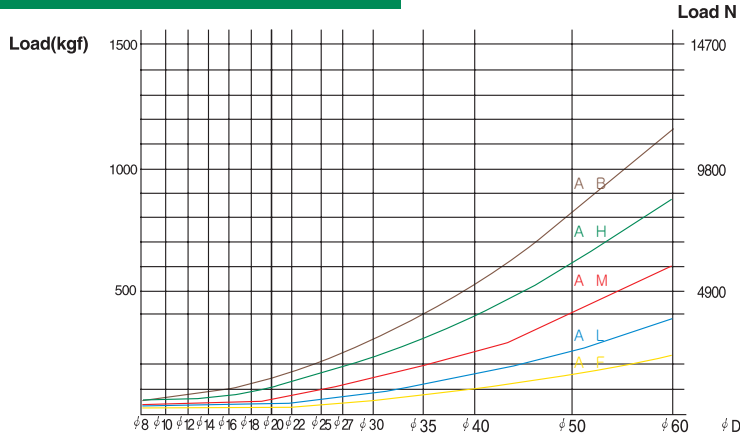


AB
極重荷重
Ultra Heavy Load

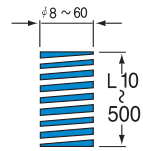


AR
高變形
High Deflection

Numbers of bend : 1 million bend (100 만회)

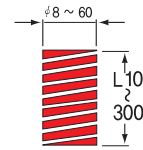
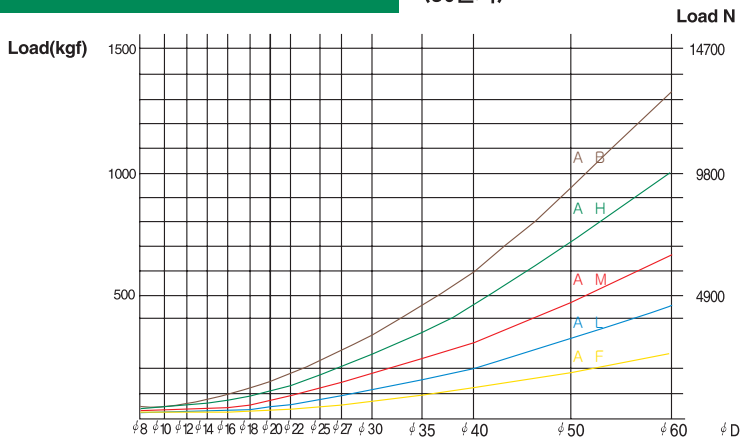


AF Lightest Load	10 thousand bend		
	100 (100만회)	50 (50만회)	30 (30만회)
	40%	45%	50%

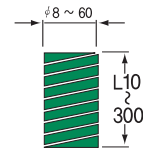


AL Light Load	10 thousand bend		
	100 (100만회)	50 (50만회)	30 (30만회)
	32%	36%	40%

Numbers of bend : 0.5 million bend (50 만회)

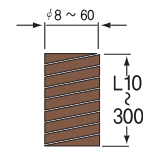
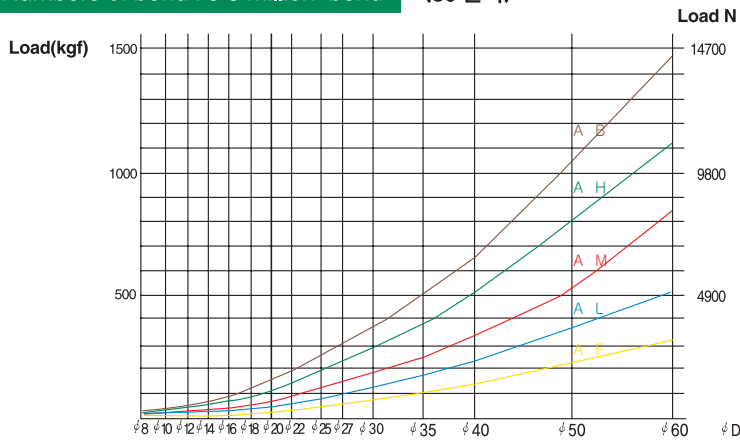


AM Medium Load	10 thousand bend		
	100 (100만회)	50 (50만회)	30 (30만회)
	25%	28.8%	32%



AH Heavy Load	10 thousand bend		
	100 (100만회)	50 (50만회)	30 (30만회)
	19.2%	21.6%	24%

Numbers of bend : 0.3 million bend (30 만회)



AB Ultra Heavy Load	10 thousand bend		
	100 (100만회)	50 (50만회)	30 (30만회)
	16%	18%	20%

스프링하중선정표

		荷重ランク (Load Rank)				
30만회		AF ($\delta=Hf \times 0.5$)	AL ($\delta=Hf \times 0.4$)	AM ($\delta=Hf \times 0.32$)	AH ($\delta=Hf \times 0.24$)	AB ($\delta=Hf \times 0.2$)
外徑 (mm)	8	8	10	14	21	34
	10	10	14	20	30	45
	12	14	21	29	43	58
	14	18	28	39	59	75
	16	21	35	51	77	100
	18	26	43	65	97	125
	20	32	54	80	120	160
	22	40	67	97	145	195
	25	50	84	125	187	245
	27	60	100	146	219	290
	30	72	121	180	270	360
	35	98	165	245	367	490
	40	128	216	320	480	640
50	200	338	500	750	1000	
60	288	486	720	1080	1440	

		荷重ランク (Load Rank)				
50만회		AF ($\delta=Hf \times 0.45$)	AL ($\delta=Hf \times 0.36$)	AM ($\delta=Hf \times 0.288$)	AH ($\delta=Hf \times 0.216$)	AB ($\delta=Hf \times 0.18$)
外徑 (mm)	8	7	9	13	19	30
	10	9	13	18	27	41
	12	13	19	26	38	52
	14	16	25	35	53	68
	16	19	32	46	69	90
	18	23	39	58	87	113
	20	29	49	72	108	144
	22	36	60	87	130	175
	25	45	76	112	169	221
	27	54	90	131	197	261
	30	65	109	161	243	324
	35	88	149	220	330	441
	40	115	194	288	432	576
50	180	304	450	675	900	
60	259	437	647	973	1296	

		荷重ランク (Load Rank)				
100만회		AF ($\delta=Hf \times 0.4$)	AL ($\delta=Hf \times 0.32$)	AM ($\delta=Hf \times 0.256$)	AH ($\delta=Hf \times 0.192$)	AB ($\delta=Hf \times 0.16$)
外徑 (mm)	8	6	8	11	17	27
	10	8	12	16	24	36
	12	11	17	23	34	46
	14	14	22	31	47	60
	16	17	28	41	62	80
	18	21	34	52	78	100
	20	26	43	64	96	128
	22	32	54	78	116	156
	25	40	67	100	150	196
	27	48	80	117	175	232
	30	58	97	144	216	288
	35	78	132	195	293	392
	40	102	173	256	384	512
50	160	270	400	600	800	
60	230	388	575	864	1152	

주 δ =변형량 Hf=자유장

1kgf=9.807N (單位kgf)



How to use the spring effectively

Shinweon spring has been designed with the optimal single surface shape, so it has outstanding endurance. Furthermore we would like to introduce how to use our products safely and effectively.

1. In case it is used without a guide

If a spring is used without a guide, it causes the spring to be bent or curved. Consequently it can be broken as a result of adding a high stress partly to the curved inside. Therefore a spring guide definitely should be used like a shaft or an internal dia. guide. It is most desirable to use a spring with a guide being fully inserted through the internal diameter of the spring.

2. The diameter of a spring and shaft

If the distance between a spring and a shaft is too short, the internal diameter can be worn out by the shaft. It can start to be broken from that part of abrasion. On the contrary, if it's too long a spring can be bent. Accordingly, it's good to set the shaft thickness about 1.0mm less than the internal diameter of the spring. In case of a long spring (longer than free length/external dia=4), add a stepped pulley to a shaft as a figure. 1 not to touch an internal diameter when a spring bends.

3. The external diameter of a spring and a counter bore hole.

If the distance between two is too short, the spring easily gets to expand toward to the external diameter. The high stress on it might break the spring. Therefore it's desirable to set the diameter of counter bore hole so that it may be 0.15mm greater than the external diameter of the spring. For free length springs, the counter bore hole as figure 1 is desirable.

4. In case the shaft length and the depth of the counter bore hole are short.

If the guide length is short, it touches the end of a guide when a spring bends. In this way, the continual abrasion finally causes a guide to be broken. It's desirable to set the guide height over than 1/2 of the initial setting height and trim it at C3 or so.

5. In case it is used more than utmost strain amount in the condition of 300,000 times.

If it is used more than 300,000 times the higher stress than the measured value is added on the surface. It causes a spring to be broken. Besides, if the effective coiling part gradually adheres to close adhesion length, the spring constant increases. Accordingly the load resistance curve is going high as figure.2 so that a high stress causes a spring to be cut or varied. Be sure not to use more than 300,000 times.

6. In case it is used without the initial variation

If there is a gap, the spring moves up and down with a shock and it causes the spring to be bent or curved. If the initial variation is reduced, the upper lower plate of spring gets stable.

7. In case it is used with scrap or the different thing.

If there is a different thing, that part can't be regarded as an effective coiling that is counted as an unexpected variation or reduction of effective coiling times.

8. In case it is used in the place with the bad parallelism

If the parallelism of the plate is bad, a high stress takes place to cause the spring to be bent or extinct. It's the same as the case of bad parallelism of the mold and exceeding use of 300,000 times. Be sure to check the parallelism of the spring plate and not to use more than 300,000.

9. In case the spring is used in the position of lying

In this case, the internal diameter of the spring is worn out by the shaft and it may start to be broken from the part of abrasion.

<figure-1>

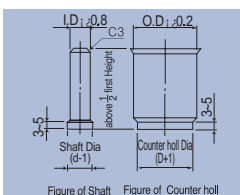
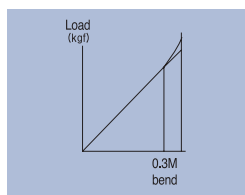
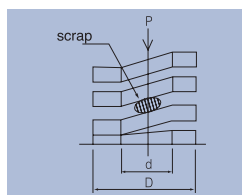


Figure of Shaft Figure of Counter hole

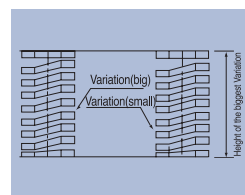
<figure-2>



<figure-3>



<figure-4>



신원스프링 규격사이즈(외경/자유장) (Standardized products)

		외경(外徑O.D)mm															
		8	10	12	14	16	18	20	22	25	27	30	35	40	50	60	70
자유장 (自由長) mm	10	●															
	15	●															
	20	●	●	●													
	25	●	●	●	●	●	●	●	●	●	●	●					
	30	●	●	●	●	●	●	●	●	●	●	●					
	35	●	●	●	●	●	●	●	●	●	●	●	●				
	40	●	●	●	●	●	●	●	●	●	●	●	●	●			
	45	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	55	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	60	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	65	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	70	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	90	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	100		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	125				●	●	●	●	●	●	●	●	●	●	●	●	●
	150							●	●	●	●	●	●	●	●	●	●
	175							●	●	●	●	●	●	●	●	●	●
	200								●	●	●	●	●	●	●	●	●
	225													●	●	●	●
	250													●	●	●	●
	275													●	●	●	●
	300													●	●	●	●
	350														●	●	●
	400														●	●	
	450														●	●	
500														●	●		

輕少荷重
경소하중
LIGHTEST LOAD

AF

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

AF

SHINWEON DIE SPRINGS

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AF 8×10	8	4	10	1.56	5.0	8	4.5	7	4.0	6
15			15	1.04	7.5		6.8		6.0	
20			20	0.78	10.0		9.0		8.0	
25			25	0.62	12.5		11.2		10.0	
30			30	0.52	15.0		13.5		12.0	
35			35	0.44	17.5		15.7		14.0	
40			40	0.39	20.0		18.0		16.0	
45			45	0.35	22.5		20.2		18.0	
50			50	0.31	25.0		22.5		20.0	
55			55	0.28	27.5		24.7		22.0	
60			60	0.26	30.0		27.0		24.0	
65			65	0.24	32.5		29.2		26.0	
70			70	0.22	35.0		31.5		28.0	
75			75	0.21	37.5		33.7		30.0	
80			80	0.20	40.0		36.0		32.0	
90			90	0.17	45.0		40.5		36.0	
AF 10×10	10	5	10	2.00	5.0	10	4.5	9	4.0	8
15			15	1.32	7.5		6.8		6.0	
20			20	1.00	10.0		9.0		8.0	
25			25	0.80	12.5		11.2		10.0	
30			30	0.67	15.0		13.5		12.0	
35			35	0.57	17.5		15.7		14.0	
40			40	0.50	20.0		18.0		16.0	
45			45	0.44	22.5		20.2		18.0	
50			50	0.40	25.0		22.5		20.0	
55			55	0.36	27.5		24.7		22.0	
60			60	0.33	30.0		27.0		24.0	
65			65	0.31	32.5		29.2		26.0	
70			70	0.29	35.0		31.5		28.0	
75			75	0.27	37.5		33.7		30.0	
80			80	0.25	40.0		36.0		32.0	
90			90	0.22	45.0		40.5		36.0	
100	100	0.20	50.0	45.0	40.0					
AF 12×20	12	6	20	1.40	10.0	14	9.0	12.5	8.0	11
25			25	1.12	12.5		11.2		10.0	
30			30	0.93	15.0		13.5		12.0	
35			35	0.80	17.5		15.7		14.0	
40			40	0.70	20.0		18.0		16.0	
45			45	0.62	22.5		20.2		18.0	
50			50	0.56	25.0		22.5		20.0	
55			55	0.51	27.5		24.7		22.0	
60			60	0.47	30.0		27.0		24.0	
65			65	0.43	32.5		29.2		26.0	
70			70	0.40	35.0		31.5		28.0	
75			75	0.37	37.5		33.7		30.0	
80			80	0.35	40.0		36.0		32.0	
90			90	0.31	45.0		40.5		36.0	
100			100	0.28	50.0		45.0		40.0	

輕少荷重
경소하중
LIGHTEST LOAD

AF

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

AF

SHINWEON DIE SPRINGS

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AF 14× 20	14	7	20	1.78	10.0	18	9.0	16	8.0	14.5
25			25	1.44	12.5		11.2		10.0	
30			30	1.20	15.0		13.5		12.0	
35			35	1.03	17.5		15.7		14.0	
40			40	0.90	20.0		18.0		16.0	
45			45	0.80	22.5		20.2		18.0	
50			50	0.72	25.0		22.5		20.0	
55			55	0.65	27.5		24.7		22.0	
60			60	0.60	30.0		27.0		24.0	
65			65	0.55	32.5		29.2		26.0	
70			70	0.51	35.0		31.5		28.0	
75			75	0.48	37.5		33.7		30.0	
80			80	0.45	40.0		36.0		32.0	
90			90	0.40	45.0		40.5		36.0	
100			100	0.36	50.0		45.0		40.0	
125	125	0.29	62.5	56.2	50.0					
AF 16× 20	16	8	20	2.11	10.0	21	9.0	19	8.0	17
25			25	1.68	12.5		11.2		10.0	
30			30	1.40	15.0		13.5		12.0	
35			35	1.20	17.5		15.7		14.0	
40			40	1.05	20.0		18.0		16.0	
45			45	0.94	22.5		20.2		18.0	
50			50	0.84	25.0		22.5		20.0	
55			55	0.77	27.5		24.7		22.0	
60			60	0.70	30.0		27.0		24.0	
65			65	0.65	32.5		29.2		26.0	
70			70	0.60	35.0		31.5		28.0	
75			75	0.56	37.5		33.7		30.0	
80			80	0.53	40.0		36.0		32.0	
90			90	0.47	45.0		40.5		36.0	
100			100	0.42	50.0		45.0		40.0	
125	125	0.34	62.5	56.2	50.0					
AF 18× 20	18	9	20	2.56	10.0	26	9.0	23	8.0	21
25			25	2.08	12.5		11.2		10.0	
30			30	1.74	15.0		13.5		12.0	
35			35	1.49	17.5		15.7		14.0	
40			40	1.30	20.0		18.0		16.0	
45			45	1.16	22.5		20.2		18.0	
50			50	1.04	25.0		22.5		20.0	
55			55	0.95	27.5		24.7		22.0	
60			60	0.87	30.0		27.0		24.0	
65			65	0.80	32.5		29.2		26.0	
70			70	0.74	35.0		31.5		28.0	
75			75	0.70	37.5		33.7		30.0	
80			80	0.65	40.0		36.0		32.0	
90			90	0.58	45.0		40.5		36.0	
100			100	0.52	50.0		45.0		40.0	
125	125	0.42	62.5	56.2	50.0					

輕少荷重
경소하중
LIGHTEST LOAD

AF

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AF 20×20	20	11	20	3.22	10.0	32	9.0	29	8.0	26
25			25	2.56	12.5		11.2		10.0	
30			30	2.13	15.0		13.5		12.0	
35			35	1.83	17.5		15.7		14.0	
40			40	1.60	20.0		18.0		16.0	
45			45	1.42	22.5		20.2		18.0	
50			50	1.28	25.0		22.5		20.0	
55			55	1.16	27.5		24.7		22.0	
60			60	1.07	30.0		27.0		24.0	
65			65	0.98	32.5		29.2		26.0	
70			70	0.91	35.0		31.5		28.0	
75			75	0.85	37.5		33.7		30.0	
80			80	0.80	40.0		36.0		32.0	
90			90	0.71	45.0		40.5		36.0	
100			100	0.64	50.0		45.0		40.0	
125			125	0.51	62.5		56.2		50.0	
150			150	0.43	75.0		67.5		60.0	
175	175	0.37	87.5	78.7	70.0					
AF 22×25	22	11	25	3.20	12.5	40	11.2	36	10.0	32
30			30	2.67	15.0		13.5		12.0	
35			35	2.29	17.5		15.7		14.0	
40			40	2.00	20.0		18.0		16.0	
45			45	1.78	22.5		20.2		18.0	
50			50	1.60	25.0		22.5		20.0	
55			55	1.46	27.5		24.7		22.0	
60			60	1.33	30.0		27.0		24.0	
65			65	1.23	32.5		29.2		26.0	
70			70	1.14	35.0		31.5		28.0	
75			75	1.07	37.5		33.7		30.0	
80			80	1.00	40.0		36.0		32.0	
90			90	0.89	45.0		40.5		36.0	
100			100	0.80	50.0		45.0		40.0	
125			125	0.64	62.5		56.2		50.0	
150			150	0.53	75.0		67.5		60.0	
175			175	0.46	87.5		78.7		70.0	
AF 25×25	25	13.5	25	4.00	12.5	50	11.2	45	10.0	40
30			30	3.33	15.0		13.5		12.0	
35			35	2.85	17.5		15.7		14.0	
40			40	2.50	20.0		18.0		16.0	
45			45	2.22	22.5		20.2		18.0	
50			50	2.00	25.0		22.5		20.0	
55			55	1.82	27.5		24.7		22.0	
60			60	1.67	30.0		27.0		24.0	
65			65	1.54	32.5		29.2		26.0	
70			70	1.43	35.0		31.5		28.0	
75			75	1.33	37.5		33.7		30.0	
80			80	1.25	40.0		36.0		32.0	
90			90	1.11	45.0		40.5		36.0	
100			100	1.00	50.0		45.0		40.0	
125			125	0.80	62.5		56.2		50.0	
150			150	0.67	75.0		67.5		60.0	
175			175	0.57	87.5		78.7		70.0	
200	200	0.50	100.0	90.0	80.0					

輕少荷重
경소하중
LIGHTEST LOAD

AF

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

AF

SHINWEON DIE SPRINGS

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AF 27×25	27	13.5	25	4.80	12.5	60	11.2	54	10.0	48
30			30	4.00	15.0		13.5		12.0	
35			35	3.43	17.5		15.7		14.0	
40			40	3.00	20.0		18.0		16.0	
45			45	2.67	22.5		20.2		18.0	
50			50	2.40	25.0		22.5		20.0	
55			55	2.18	27.5		24.7		22.0	
60			60	2.00	30.0		27.0		24.0	
65			65	1.85	32.5		29.2		26.0	
70			70	1.71	35.0		31.5		28.0	
75			75	1.60	37.5		33.7		30.0	
80			80	1.50	40.0		36.0		32.0	
90			90	1.33	45.0		40.5		36.0	
100			100	1.20	50.0		45.0		40.0	
125			125	0.96	62.5		56.2		50.0	
150			150	0.80	75.0		67.5		60.0	
175			175	0.69	87.5		78.7		70.0	
200	200	0.60	100.0	90.0	80.0					
AF 30×25	30	16	25	5.80	12.5	72	11.2	65	10.0	58
30			30	4.83	15.0		13.5		12.0	
35			35	4.13	17.5		15.7		14.0	
40			40	3.60	20.0		18.0		16.0	
45			45	3.21	22.5		20.2		18.0	
50			50	2.88	25.0		22.5		20.0	
55			55	2.63	27.5		24.7		22.0	
60			60	2.40	30.0		27.0		24.0	
65			65	2.22	32.5		29.2		26.0	
70			70	2.05	35.0		31.5		28.0	
75			75	1.93	37.5		33.7		30.0	
80			80	1.80	40.0		36.0		32.0	
90			90	1.60	45.0		40.5		36.0	
100			100	1.44	50.0		45.0		40.0	
125			125	1.15	62.5		56.2		50.0	
150			150	0.96	75.0		67.5		60.0	
175			175	0.82	87.5		78.7		70.0	
200	200	0.72	100.0	90.0	80.0					
AF 35×35	35	19	35	5.60	17.5	98	15.7	88	14.0	78
40			40	4.90	20.0		18.0		16.0	
45			45	4.36	22.5		20.2		18.0	
50			50	3.92	25.0		22.5		20.0	
55			55	3.56	27.5		24.7		22.0	
60			60	3.26	30.0		27.0		24.0	
65			65	3.02	32.5		29.2		26.0	
70			70	2.80	35.0		31.5		28.0	
75			75	2.61	37.5		33.7		30.0	
80			80	2.45	40.0		36.0		32.0	
90			90	2.17	45.0		40.5		36.0	
100			100	1.96	50.0		45.0		40.0	
125			125	1.57	62.5		56.2		50.0	
150			150	1.30	75.0		67.5		60.0	
175			175	1.12	87.5		78.7		70.0	
200			200	0.98	100.0		90.0		80.0	

輕少荷重
경소하중
LIGHTEST LOAD

AF

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以上 ±0.5m/m
55m/m 以上 ± 1%

AF

SHINWEON DIE SPRINGS

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AF 40×40	40	22	40	6.38	20.0	128	18.0	115	16.0	102
45			45	5.67	22.5		20.2			
50			50	5.12	25.0		22.5			
55			55	4.64	27.5		24.7			
60			60	4.26	30.0		27.0			
65			65	3.93	32.5		29.2			
70			70	3.65	35.0		31.5			
75			75	3.40	37.5		33.7			
80			80	3.20	40.0		36.0			
90			90	2.84	45.0		40.5			
100			100	2.56	50.0		45.0			
125			125	2.04	62.5		56.2			
150			150	1.70	75.0		67.5			
175			175	1.46	87.5		78.7			
200			200	1.28	100.0		90.0			
225			225	1.13	112.5		101.2			
250			250	1.02	125.0		112.5			
275	275	0.93	137.5	123.7						
300	300	0.85	150.0	135.0						
AF 50×50	50	27.5	50	8.00	25.0	200	22.5	180	20.0	160
55			55	7.27	27.5		24.7			
60			60	6.66	30.0		27.0			
65			65	6.15	32.5		29.2			
70			70	5.71	35.0		31.5			
75			75	5.33	37.5		33.7			
80			80	5.00	40.0		36.0			
90			90	4.44	45.0		40.5			
100			100	4.00	50.0		45.0			
125			125	3.20	62.5		56.2			
150			150	2.66	75.0		67.5			
175			175	2.28	87.5		78.7			
200			200	2.00	100.0		90.0			
225			225	1.78	112.5		101.2			
250			250	1.60	125.0		112.5			
275			275	1.45	137.5		123.7			
300			300	1.33	150.0		135.0			
350	350	1.14	175.0	157.5						
400	400	1.00	200.0	180.0						
450	450	0.89	225.0	202.5						
500	500	0.80	250.0	225.0						

輕少荷重
경소하중
LIGHTEST LOAD

AF

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

AF

SHINWEON DIE SPRINGS

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AF 60×60	60	33	60	9.59	30.0	288	27.0	259	24.0	230
70			70	8.22	35.0		31.5		28.0	
80			80	7.19	40.0		36.0		32.0	
90			90	6.40	45.0		40.5		36.0	
100			100	5.76	50.0		45.0		40.0	
125			125	4.60	62.5		56.2		50.0	
150			150	3.84	75.0		67.5		60.0	
175			175	3.29	87.5		78.7		70.0	
200			200	2.88	100.0		90.0		80.0	
225			225	2.56	112.5		101.3		90.0	
250			250	2.30	125.0		112.5		100.0	
275			275	2.09	137.5		123.8		110.0	
300			300	1.92	150.0		135.0		120.0	
350			350	1.65	175.0		157.5		140.0	
400			400	1.44	200.0		180.0		160.0	
450			450	1.28	225.0		202.5		180.0	
500	500	1.15	250.0	225.0	200.0					
AF 70×70	70	38.5	70	11.43	35.0	400	31.5	360	28.0	320
80			80	10.00	40.0		36.0		32.0	
90			90	8.89	45.0		40.5		36.0	
100			100	8.00	50.0		45.0		40.0	
125			125	6.40	62.5		56.2		50.0	
150			150	5.33	75.0		67.5		60.0	
175			175	4.57	87.5		78.7		70.0	
200			200	4.00	100.0		90.0		80.0	
225			225	3.56	112.5		101.3		90.0	
250			250	3.20	125.0		112.5		100.0	
275			275	2.91	137.5		123.8		110.0	
300			300	2.67	150.0		135.0		120.0	
350	350	2.29	175.0	157.5	140.0					

呼稱 호 칭 Model	外徑(mm) Outer Dia.	內徑(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)					
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load				
AL 8×10	8	4	10	2.50	10	4.0	9	3.6	14.4	8	3.2			
15			15	1.67								6.0	5.4	4.8
20			20	1.25								8.0	7.2	6.4
25			25	1.00								10.0	9.0	8.0
30			30	0.83								12.0	10.8	9.6
35			35	0.71								14.0	12.6	11.2
40			40	0.63								16.0	14.4	12.8
45			45	0.56								18.0	16.2	14.4
50			50	0.50								20.0	18.0	16.0
55			55	0.46								22.0	19.8	17.6
60			60	0.42								24.0	21.6	19.2
65			65	0.38								26.0	23.4	20.8
70			70	0.36								28.0	25.2	22.4
75			75	0.33								30.0	27.0	24.0
80			80	0.31								32.0	28.8	25.6
90			90	0.28								36.0	32.4	28.8
AL 10×10	10	5	10	3.61	14.5	4.0	13	3.6	18.0	11.5	3.2			
15			15	2.41								6.0	5.4	4.8
20			20	1.81								8.0	7.2	6.4
25			25	1.45								10.0	9.0	8.0
30			30	1.21								12.0	10.8	9.6
35			35	1.03								14.0	12.6	11.2
40			40	0.90								16.0	14.4	12.8
45			45	0.80								18.0	16.2	14.4
50			50	0.73								20.0	18.0	16.0
55			55	0.66								22.0	19.8	17.6
60			60	0.60								24.0	21.6	19.2
65			65	0.55								26.0	23.4	20.8
70			70	0.51								28.0	25.2	22.4
75			75	0.48								30.0	27.0	24.0
80			80	0.45								32.0	28.8	25.6
90			90	0.40								36.0	32.4	28.8
100	100	0.36	40.0	36.0	32.0									
AL 12×20	12	6	20	2.63	21	8.0	19	7.2	21.6	17	6.4			
25			25	2.10								10.0	9.0	8.0
30			30	1.75								12.0	10.8	9.6
35			35	1.50								14.0	12.6	11.2
40			40	1.32								16.0	14.4	12.8
45			45	1.17								18.0	16.2	14.4
50			50	1.05								20.0	18.0	16.0
55			55	0.96								22.0	19.8	17.6
60			60	0.88								24.0	21.6	19.2
65			65	0.81								26.0	23.4	20.8
70			70	0.75								28.0	25.2	22.4
75			75	0.70								30.0	27.0	24.0
80			80	0.66								32.0	28.8	25.6
90			90	0.58								36.0	32.4	28.8
100			100	0.53								40.0	36.0	32.0

輕荷重
경하중
LIGHT LOAD

AL

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AL 14× 20	14	7	20	3.47	28	8.0	25	7.2	22	6.4
25			2.80	10.0				9.0		8.0
30			2.34	12.0				10.8		9.6
35			2.00	14.0				12.6		11.2
40			1.75	16.0				14.4		12.8
45			1.56	18.0				16.2		14.4
50			1.40	20.0				18.0		16.0
55			1.27	22.0				19.8		17.6
60			1.17	24.0				21.6		19.2
65			1.08	26.0				23.4		20.8
70			1.00	28.0				25.2		22.4
75			0.93	30.0				27.0		24.0
80			0.87	32.0				28.8		25.6
90			0.77	36.0				32.4		28.8
100			0.70	40.0				36.0		32.0
125	0.56	50.0	45.0	40.0						
AL 16× 20	16	8	20	4.44	35	10.0	32	7.2	28	6.4
25			3.50	12.0				9.0		8.0
30			2.92	14.0				10.8		9.6
35			2.50	16.0				12.6		11.2
40			2.19	18.0				14.4		12.8
45			1.95	20.0				16.2		14.4
50			1.75	22.0				18.0		16.0
55			1.60	24.0				19.8		17.6
60			1.46	26.0				21.6		19.2
65			1.35	28.0				23.4		20.8
70			1.25	30.0				25.2		22.4
75			1.17	32.0				27.0		24.0
80			1.10	36.0				28.8		25.6
90			0.98	40.0				32.4		28.8
100			0.88	50.0				36.0		32.0
125	0.70	50.0	45.0	40.0						
AL 18× 20	18	9	20	5.42	43	12.0	39	7.2	34	6.4
25			4.30	14.0				9.0		8.0
30			3.58	16.0				10.8		9.6
35			3.07	18.0				12.6		11.2
40			2.69	20.0				14.4		12.8
45			2.39	22.0				16.2		14.4
50			2.15	24.0				18.0		16.0
55			1.96	26.0				19.8		17.6
60			1.79	28.0				21.6		19.2
65			1.66	30.0				23.4		20.8
70			1.54	32.0				25.2		22.4
75			1.44	36.0				27.0		24.0
80			1.35	40.0				28.8		25.6
90			1.20	50.0				32.4		28.8
100			1.07	50.0				36.0		32.0
125	0.86	50.0	45.0	40.0						

AL

SHINWEON DIE SPRINGS

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AL 20×20	20	10	20	6.81	8.0	54	7.2	49	6.4	43
25			25	5.40	10.0		9.0		8.0	
30			30	4.50	12.0		10.8		9.6	
35			35	3.86	14.0		12.6		11.2	
40			40	3.38	16.0		14.4		12.8	
45			45	3.00	18.0		16.2		14.4	
50			50	2.70	20.0		18.0		16.0	
55			55	2.45	22.0		19.8		17.6	
60			60	2.25	24.0		21.6		19.2	
65			65	2.08	26.0		23.4		20.8	
70			70	1.93	28.0		25.2		22.4	
75			75	1.80	30.0		27.0		24.0	
80			80	1.69	32.0		28.8		25.6	
90			90	1.50	36.0		32.4		28.8	
100			100	1.35	40.0		36.0		32.0	
125			125	1.08	50.0		45.0		40.0	
150			150	0.90	60.0		54.0		48.0	
175	175	0.77	70.0	63.0	56.0					
AL 22×25	22	11	25	6.70	10.0	67	9.0	60	8.0	54
30			30	5.60	12.0		10.8		9.6	
35			35	4.80	14.0		12.6		11.2	
40			40	4.20	16.0		14.4		12.8	
45			45	3.72	18.0		16.2		14.4	
50			50	3.35	20.0		18.0		16.0	
55			55	3.05	22.0		19.8		17.6	
60			60	2.80	24.0		21.6		19.2	
65			65	2.58	26.0		23.4		20.8	
70			70	2.40	28.0		25.2		22.4	
75			75	2.23	30.0		27.0		24.0	
80			80	2.10	32.0		28.8		25.6	
90			90	1.86	36.0		32.4		28.8	
100			100	1.68	40.0		36.0		32.0	
125			125	1.34	50.0		45.0		40.0	
150			150	1.12	60.0		54.0		48.0	
175			175	0.96	70.0		63.0		56.0	
AL 25×25	25	12.5	25	8.40	10.0	84	9.0	76	8.0	67
30			30	7.00	12.0		10.8		9.6	
35			35	6.00	14.0		12.6		11.2	
40			40	5.25	16.0		14.4		12.8	
45			45	4.67	18.0		16.2		14.4	
50			50	4.20	20.0		18.0		16.0	
55			55	3.82	22.0		19.8		17.6	
60			60	3.50	24.0		21.6		19.2	
65			65	3.23	26.0		23.4		20.8	
70			70	3.00	28.0		25.2		22.4	
75			75	2.80	30.0		27.0		24.0	
80			80	2.63	32.0		28.8		25.6	
90			90	2.33	36.0		32.4		28.8	
100			100	2.10	40.0		36.0		32.0	
125			125	1.68	50.0		45.0		40.0	
150			150	1.40	60.0		54.0		48.0	
175			175	1.20	70.0		63.0		56.0	
200	200	1.05	80.0	72.0	64.0					

輕荷重
경하중
LIGHT LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)						
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load					
AL 27×25	27	13.5	25	10.00	10.0	100	9.0	90	8.0	80					
30			8.33	12.0	10.8		9.6								
35			7.14	14.0	12.6		11.2								
40			6.25	16.0	14.4		12.8								
45			5.56	18.0	16.2		14.4								
50			5.00	20.0	18.0		16.0								
55			4.55	22.0	19.8		17.6								
60			4.17	24.0	21.6		19.2								
65			3.85	26.0	23.4		20.8								
70			3.57	28.0	25.2		22.4								
75			3.33	30.0	27.0		24.0								
80			3.13	32.0	28.8		25.6								
90			2.78	36.0	32.4		28.8								
100			2.50	40.0	36.0		32.0								
125			2.00	50.0	45.0		40.0								
150			1.67	60.0	54.0		48.0								
175			1.43	70.0	63.0		56.0								
200			1.25	80.0	72.0		64.0								
AL 30×25			30	15	25		12.11		10.0		121	9.0	109	8.0	97
30					10.08		12.0		10.8			9.6			
35	8.65	14.0			12.6	11.2									
40	7.56	16.0			14.4	12.8									
45	6.73	18.0			16.2	14.4									
50	6.05	20.0			18.0	16.0									
55	5.50	22.0			19.8	17.6									
60	5.04	24.0			21.6	19.2									
65	4.65	26.0			23.4	20.8									
70	4.32	28.0			25.2	22.4									
75	4.03	30.0			27.0	24.0									
80	3.78	32.0			28.8	25.6									
90	3.36	36.0			32.4	28.8									
100	3.02	40.0			36.0	32.0									
125	2.42	50.0			45.0	40.0									
150	2.01	60.0			54.0	48.0									
175	1.72	70.0			63.0	56.0									
200	1.51	80.0			72.0	64.0									
AL 35×35	35	17.5			35	11.78	14.0	165	12.6	149		11.2		132	
40					10.31	16.0	14.4		12.8						
45			9.17	18.0	16.2	14.4									
50			8.25	20.0	18.0	16.0									
55			7.50	22.0	19.8	17.6									
60			6.87	24.0	21.6	19.2									
65			6.35	26.0	23.4	20.8									
70			5.89	28.0	25.2	22.4									
75			5.50	30.0	27.0	24.0									
80			5.15	32.0	28.8	25.6									
90			4.58	36.0	32.4	28.8									
100			4.12	40.0	36.0	32.0									
125			3.30	50.0	45.0	40.0									
150			2.75	60.0	54.0	48.0									
175			2.35	70.0	63.0	56.0									
200			2.06	80.0	72.0	64.0									

輕荷重
경하중
LIGHT LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kg/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AL 40×40	40	20	40	13.50	16.0	216	14.4	194	12.8	173
45			45	12.00	18.0		16.2		14.4	
50			50	10.80	20.0		18.0		16.0	
55			55	9.82	22.0		19.8		17.6	
60			60	9.00	24.0		21.6		19.2	
65			65	8.31	26.0		23.4		20.8	
70			70	7.71	28.0		25.2		22.4	
75			75	7.20	30.0		27.0		24.0	
80			80	6.75	32.0		28.8		25.6	
90			90	6.00	36.0		32.4		28.8	
100			100	5.40	40.0		36.0		32.0	
125			125	4.32	50.0		45.0		40.0	
150			150	3.60	60.0		54.0		48.0	
175			175	3.08	70.0		63.0		56.0	
200			200	2.70	80.0		72.0		64.0	
225			225	2.40	90.0		81.0		72.0	
250			250	2.16	100.0		90.0		80.0	
275			275	1.96	110.0		99.0		88.0	
300			300	1.80	120.0		108.0		96.0	
AL 50×50			50	25	50		16.89		20.0	
55	55	15.35			22.0	19.8	17.6			
60	60	14.08			24.0	21.6	19.2			
65	65	12.99			26.0	23.4	20.8			
70	70	12.07			28.0	25.2	22.4			
75	75	11.26			30.0	27.0	24.0			
80	80	10.56			32.0	28.8	25.6			
90	90	9.38			36.0	32.4	28.8			
100	100	8.45			40.0	36.0	32.0			
125	125	6.76			50.0	45.0	40.0			
150	150	5.63			60.0	54.0	48.0			
175	175	4.82			70.0	63.0	56.0			
200	200	4.22			80.0	72.0	64.0			
225	225	3.75			90.0	81.0	72.0			
250	250	3.38			100.0	90.0	80.0			
275	275	3.07			110.0	99.0	88.0			
300	300	2.81			120.0	108.0	96.0			
350	350	2.41			140.0	126.0	112.0			
400	400	2.11			160.0	144.0	128.0			
450	450	1.88			180.0	162.0	144.0			
500	500	1.69	200.0	180.0	160.0					

輕荷重
경하중
LIGHT LOAD

AL

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AL 60×60	60	30	60	20.25	24.0	486	21.6	437	19.2	389
70			70	17.35	28.0		25.2		22.4	
80			80	15.18	32.0		28.8		25.6	
90			90	13.50	36.0		32.4		28.8	
100			100	12.15	40.0		36.0		32.0	
125			125	9.72	50.0		45.0		40.0	
150			150	8.10	60.0		54.0		48.0	
175			175	6.94	70.0		63.0		56.0	
200			200	6.07	80.0		72.0		64.0	
225			225	5.40	90.0		81.0		72.0	
250			250	4.86	100.0		90.0		80.0	
275			275	4.42	110.0		99.0		88.0	
300			300	4.05	120.0		108.0		96.0	
350			350	3.47	140.0		126.0		112.0	
400			400	3.04	160.0		144.0		128.0	
450			450	2.70	180.0		162.0		144.0	
500			500	2.43	200.0		180.0		160.0	

AL

SHINWEON DIE SPRINGS

中荷重
중하중
MEDIUM LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30方 (0.3 million)		50方 (0.5 million)		100方 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AM 8×10	8	4	10	4.34	3.2	14	2.9	12.5	2.6	11
15			15	2.89	4.8		4.3		3.8	
20			20	2.17	6.4		5.8		5.1	
25			25	1.74	8.0		7.2		6.4	
30			30	1.45	9.6		8.6		7.7	
35			35	1.24	11.2		10.1		9.0	
40			40	1.09	12.8		11.5		10.2	
45			45	0.97	14.4		13.0		11.5	
50			50	0.87	16.0		14.4		12.8	
55			55	0.79	17.6		15.8		14.1	
60			60	0.72	19.2		17.3		15.4	
65			65	0.67	20.8		18.7		16.6	
70			70	0.62	22.4		20.2		17.9	
75			75	0.58	24.0		21.6		19.2	
80			80	0.54	25.6		23.0		20.5	
90			90	0.48	28.8		25.9		23.0	
AM 10×10	10	5	10	6.21	3.2	20	2.9	18	2.6	16
15			15	4.09	4.8		4.4		3.8	
20			20	3.13	6.4		5.8		5.1	
25			25	2.50	8.0		7.2		6.4	
30			30	2.08	9.6		8.6		7.7	
35			35	1.78	11.2		10.1		9.0	
40			40	1.56	12.8		11.5		10.2	
45			45	1.38	14.4		13.0		11.5	
50			50	1.25	16.0		14.4		12.8	
55			55	1.13	17.6		15.8		14.1	
60			60	1.04	19.2		17.3		15.4	
65			65	0.96	20.8		18.7		16.6	
70			70	0.89	22.4		20.2		17.9	
75			75	0.83	24.0		21.6		19.2	
80			80	0.78	25.6		23.0		20.5	
90			90	0.70	28.8		25.9		23.0	
100	100	0.63	32.0	28.8	25.6					
AM 12×20	12	6	20	4.53	6.4	29	5.8	26	5.1	23
25			25	3.62	8.0		7.2		6.4	
30			30	3.02	9.6		8.6		7.7	
35			35	2.58	11.2		10.1		9.0	
40			40	2.27	12.8		11.5		10.2	
45			45	2.01	14.4		13.0		11.5	
50			50	1.81	16.0		14.4		12.8	
55			55	1.64	17.6		15.8		14.1	
60			60	1.51	19.2		17.3		15.4	
65			65	1.39	20.8		18.7		16.6	
70			70	1.29	22.4		20.2		17.9	
75			75	1.20	24.0		21.6		19.2	
80			80	1.13	25.6		23.0		20.5	
90			90	1.01	28.8		25.9		23.0	
100			100	0.91	32.0		28.8		25.6	

中荷重
중하중
MEDIUM LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)					
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load				
AM 14× 20	14	7	20	6.03	39	6.4	39	5.8	35	5.1	31			
25			25	4.87								8.0	7.2	6.4
30			30	4.06								9.6	8.6	7.7
35			35	3.48								11.2	10.1	9.0
40			40	3.04								12.8	11.5	10.2
45			45	2.70								14.4	13.0	11.5
50			50	2.43								16.0	14.4	12.8
55			55	2.21								17.6	15.8	14.1
60			60	2.03								19.2	17.3	15.4
65			65	1.87								20.8	18.7	16.6
70			70	1.74								22.4	20.2	17.9
75			75	1.62								24.0	21.6	19.2
80			80	1.52								25.6	23.0	20.5
90			90	1.35								28.8	25.9	23.0
100			100	1.22								32.0	28.8	25.6
125	125	0.97	40.0	36.0	32.0									
AM 16× 20	16	8	20	7.93	51	6.4	51	5.8	46	5.1	41			
25			25	6.39								8.0	7.2	6.4
30			30	5.32								9.6	8.6	7.7
35			35	4.55								11.2	10.1	9.0
40			40	3.98								12.8	11.5	10.2
45			45	3.54								14.4	13.0	11.5
50			50	3.18								16.0	14.4	12.8
55			55	2.89								17.6	15.8	14.1
60			60	2.65								19.2	17.3	15.4
65			65	2.45								20.8	18.7	16.6
70			70	2.27								22.4	20.2	17.9
75			75	2.11								24.0	21.6	19.2
80			80	1.99								25.6	23.0	20.5
90			90	1.77								28.8	25.9	23.0
100			100	1.59								32.0	28.8	25.6
125	125	1.28	40.0	36.0	32.0									
AM 18× 20	18	9	20	10.00	65	6.4	65	5.8	58	5.1	52			
25			25	8.12								8.0	7.2	6.4
30			30	6.77								9.6	8.6	7.7
35			35	5.80								11.2	10.1	9.0
40			40	5.07								12.8	11.5	10.2
45			45	4.51								14.4	13.0	11.5
50			50	4.06								16.0	14.4	12.8
55			55	3.69								17.6	15.8	14.1
60			60	3.38								19.2	17.3	15.4
65			65	3.12								20.8	18.7	16.6
70			70	2.90								22.4	20.2	17.9
75			75	2.70								24.0	21.6	19.2
80			80	2.53								25.6	23.0	20.5
90			90	2.25								28.8	25.9	23.0
100			100	2.02								32.0	28.8	25.6
125	125	1.62	40.0	36.0	32.0									

中荷重
중하중
MEDIUM LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑(mm) Outer Dia.	內徑(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AM 20×20	20	10	20	12.41	6.4	80	5.8	72	5.1	64
25			25	10.00	8.0		7.2		6.4	
30			30	8.33	9.6		8.6		7.7	
35			35	7.14	11.2		10.1		9.0	
40			40	6.25	12.8		11.5		10.2	
45			45	5.55	14.4		13.0		11.5	
50			50	5.00	16.0		14.4		12.8	
55			55	4.54	17.6		15.8		14.1	
60			60	4.16	19.2		17.3		15.4	
65			65	3.84	20.8		18.7		16.6	
70			70	3.57	22.4		20.2		17.9	
75			75	3.33	24.0		21.6		19.2	
80			80	3.12	25.6		23.0		20.5	
90			90	2.77	28.8		25.9		23.0	
100			100	2.50	32.0		28.8		25.6	
125			125	2.00	40.0		36.0		32.0	
150	150	1.67	48.0	43.2	38.4					
175	175	1.43	56.0	50.4	44.8					
AM 22×25	22	11	25	12.13	8.0	97	7.2	87	6.4	78
30			30	10.10	9.6		8.6		7.7	
35			35	8.65	11.2		10.1		9.0	
40			40	7.57	12.8		11.5		10.2	
45			45	6.74	14.4		13.0		11.5	
50			50	6.06	16.0		14.4		12.8	
55			55	5.50	17.6		15.8		14.1	
60			60	5.05	19.2		17.3		15.4	
65			65	4.66	20.8		18.7		16.6	
70			70	4.33	22.4		20.2		17.9	
75			75	4.04	24.0		21.6		19.2	
80			80	3.78	25.6		23.0		20.5	
90			90	3.36	28.8		25.9		23.0	
100			100	3.03	32.0		28.8		25.6	
125			125	2.42	40.0		36.0		32.0	
150			150	2.01	48.0		43.2		38.4	
175	175	1.73	56.0	50.4	44.8					
AM 25×25	25	12.5	25	15.63	8.0	125	7.2	112	6.4	100
30			30	13.02	9.6		8.6		7.7	
35			35	11.20	11.2		10.1		9.0	
40			40	9.76	12.8		11.5		10.2	
45			45	8.68	14.4		13.0		11.5	
50			50	7.81	16.0		14.4		12.8	
55			55	7.10	17.6		15.8		14.1	
60			60	6.51	19.2		17.3		15.4	
65			65	6.00	20.8		18.7		16.6	
70			70	5.58	22.4		20.2		17.9	
75			75	5.21	24.0		21.6		19.2	
80			80	4.88	25.6		23.0		20.5	
90			90	4.34	28.8		25.9		23.0	
100			100	3.90	32.0		28.8		25.6	
125			125	3.12	40.0		36.0		32.0	
150			150	2.60	48.0		43.2		38.4	
175	175	2.23	56.0	50.4	44.8					
200	200	1.95	64.0	64.0	51.2					

中荷重
중하중
MEDIUM LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AM 27×25	27	13.5	25	18.25	8.0	146	7.2	131	6.4	117
30			30	15.20	9.6		8.6		7.7	
35			35	13.04	11.2		10.1		9.0	
40			40	11.40	12.8		11.5		10.2	
45			45	10.14	14.4		13.0		11.5	
50			50	9.12	16.0		14.4		12.8	
55			55	8.30	17.6		15.8		14.1	
60			60	7.60	19.2		17.3		15.4	
65			65	7.00	20.8		18.7		16.6	
70			70	6.51	22.4		20.2		17.9	
75			75	6.08	24.0		21.6		19.2	
80			80	5.70	25.6		23.0		20.5	
90			90	5.06	28.8		25.9		23.0	
100			100	4.56	32.0		28.8		25.6	
125			125	3.65	40.0		36.0		32.0	
150			150	3.04	48.0		43.2		38.4	
175			175	2.61	56.0		50.4		44.8	
200	200	2.28	64.0	57.6	51.2					
AM 30×25	30	15	25	22.50	8.0	180	7.2	161	6.4	144
30			30	18.75	9.6		8.6		7.7	
35			35	16.10	11.2		10.1		9.0	
40			40	14.06	12.8		11.5		10.2	
45			45	12.50	14.4		13.0		11.5	
50			50	11.25	16.0		14.4		12.8	
55			55	10.23	17.6		15.8		14.1	
60			60	9.37	19.2		17.3		15.4	
65			65	8.65	20.8		18.7		16.6	
70			70	8.03	22.4		20.2		17.9	
75			75	7.50	24.0		21.6		19.2	
80			80	7.03	25.6		23.0		20.5	
90			90	6.25	28.8		25.9		23.0	
100			100	5.62	32.0		28.8		25.6	
125			125	4.50	40.0		36.0		32.0	
150			150	3.75	48.0		43.2		38.4	
175			175	3.21	56.0		50.4		44.8	
200	200	2.81	64.0	57.6	51.2					
AM 35×35	35	17.5	35	21.87	11.2	245	10.1	220	9.0	195
40			40	19.14	12.8		11.5		10.2	
45			45	17.01	14.4		13.0		11.5	
50			50	15.31	16.0		14.4		12.8	
55			55	13.92	17.6		15.8		14.1	
60			60	12.76	19.2		17.3		15.4	
65			65	11.77	20.8		18.7		16.6	
70			70	10.93	22.4		20.2		17.9	
75			75	10.20	24.0		21.6		19.2	
80			80	9.57	25.6		23.0		20.5	
90			90	8.50	28.8		25.9		23.0	
100			100	7.65	32.0		28.8		25.6	
125			125	6.12	40.0		36.0		32.0	
150			150	5.10	48.0		43.2		38.4	
175			175	4.37	56.0		50.4		44.8	
200			200	3.82	64.0		57.6		51.2	

中荷重
중하중
MEDIUM LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AM 40× 40	40	20	40	25.02	12.8	320	11.5	288	10.2	256
45			45	22.26	14.4		13.0		11.5	
50			50	20.00	16.0		14.4		12.8	
55			55	18.15	17.6		15.8		14.1	
60			60	16.60	19.2		17.3		15.4	
65			65	15.40	20.8		18.7		16.6	
70			70	14.28	22.4		20.2		17.9	
75			75	13.34	24.0		21.6		19.2	
80			80	12.50	25.6		23.0		20.5	
90			90	11.11	28.8		25.9		23.0	
100			100	10.00	32.0		28.8		25.6	
125			125	8.00	40.0		36.0		32.0	
150			150	6.66	48.0		43.2		38.4	
175			175	5.71	56.0		50.4		44.8	
200			200	5.00	64.0		57.6		51.2	
225			225	4.44	72.0		64.8		57.6	
250	250	4.00	80.0	72.0	64.0					
275	275	3.64	88.0	79.2	70.4					
300	300	3.33	96.0	86.4	76.8					
AM 50× 50	50	25	50	31.25	16.0	500	14.4	450	12.8	400
55			55	28.41	17.6		15.8		14.1	
60			60	26.04	19.2		17.3		15.4	
65			65	24.04	20.8		18.7		16.6	
70			70	22.32	22.4		20.2		17.9	
75			75	20.83	24.0		21.6		19.2	
80			80	19.53	25.6		23.0		20.5	
90			90	17.36	28.8		25.9		23.0	
100			100	15.62	32.0		28.8		25.6	
125			125	12.50	40.0		36.0		32.0	
150			150	10.41	48.0		43.2		38.4	
175			175	8.92	56.0		50.4		44.8	
200			200	7.81	64.0		57.6		51.2	
225			225	6.94	72.0		64.8		57.6	
250			250	6.25	80.0		72.0		64.0	
275			275	5.68	88.0		79.2		70.4	
300	300	5.20	96.0	86.4	76.8					
350	350	4.46	112.0	100.8	89.6					
AM 60× 60	60	30	60	37.40	19.2	720	17.3	648	15.4	575
70			70	32.10	22.4		20.2		17.9	
80			80	28.12	25.6		23.0		20.5	
90			90	25.00	28.8		25.9		23.0	
100			100	22.50	32.0		28.8		25.6	
125			125	18.00	40.0		36.0		32.0	
150			150	15.00	48.0		43.2		38.4	
175			175	12.85	56.0		50.4		44.8	
200			200	11.25	64.0		57.6		51.2	
225			225	10.00	72.0		64.8		57.6	
250			250	9.00	80.0		72.0		64.0	
275			275	8.18	88.0		79.2		70.4	
300			300	7.50	96.0		86.4		76.8	
350			350	6.43	112.0		100.8		89.6	

重荷重
중하중
HEAVY LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AH 8× 10	8	4	10	8.80	2.4	21	2.2	19	1.9	17
15			15	5.86	3.6		3.2		2.9	
20			20	4.40	4.8		4.3		3.8	
25			25	3.52	6.0		5.4		4.8	
30			30	2.93	7.2		6.5		5.8	
35			35	2.51	8.4		7.6		6.7	
40			40	2.20	9.6		8.6		7.7	
45			45	1.95	10.8		9.7		8.6	
50			50	1.76	12.0		10.8		9.6	
55			55	1.60	13.2		11.9		10.6	
60			60	1.47	14.4		13.0		11.5	
65			65	1.35	15.6		14.0		12.5	
70			70	1.26	16.8		15.1		13.4	
75			75	1.17	18.0		16.2		14.4	
80			80	1.10	19.2		17.3		15.4	
90	90	0.98	21.6	19.4	17.3					
AH 10× 10	10	5	10	12.27	2.4	30	2.2	27	1.9	24
15			15	8.18	3.6		3.3		2.9	
20			20	6.25	4.8		4.3		3.8	
25			25	5.00	6.0		5.4		4.8	
30			30	4.16	7.2		6.5		5.8	
35			35	3.57	8.4		7.6		6.7	
40			40	3.15	9.6		8.6		7.7	
45			45	2.77	10.8		9.7		8.6	
50			50	2.50	12.0		10.8		9.6	
55			55	2.27	13.2		11.9		10.6	
60			60	2.08	14.4		13.0		11.5	
65			65	1.92	15.6		14.0		12.5	
70			70	1.79	16.8		15.1		13.4	
75			75	1.67	18.0		16.2		14.4	
80			80	1.56	19.2		17.3		15.4	
90	90	1.39	21.6	19.4	17.3					
100	100	1.25	24.0	21.6	19.2					
AH 12× 20	12	6	20	8.90	4.8	43	4.3	38	3.8	34
25			25	7.10	6.0		5.4		4.8	
30			30	5.97	7.2		6.5		5.8	
35			35	5.11	8.4		7.6		6.7	
40			40	4.47	9.6		8.6		7.7	
45			45	3.98	10.8		9.7		8.6	
50			50	3.58	12.0		10.8		9.6	
55			55	3.25	13.2		11.9		10.6	
60			60	2.98	14.4		13.0		11.5	
65			65	2.74	15.6		14.0		12.5	
70			70	2.54	16.8		15.1		13.4	
75			75	2.37	18.0		16.2		14.4	
80			80	2.21	19.2		17.3		15.4	
90			90	1.98	21.6		19.4		17.3	
100			100	1.78	24.0		21.6		19.2	

重荷重
중하중
HEAVY LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AH 14×20	14	7	20	12.05	4.8	59	4.4	53	3.8	47
25			25	9.83	6.0		5.4		4.8	
30			30	8.19	7.2		6.5		5.8	
35			35	7.02	8.4		7.6		6.7	
40			40	6.14	9.6		8.6		7.7	
45			45	5.46	10.8		9.7		8.6	
50			50	4.91	12.0		10.8		9.6	
55			55	4.46	13.2		11.9		10.6	
60			60	4.09	14.4		13.0		11.5	
65			65	3.78	15.6		14.0		12.5	
70			70	3.51	16.8		15.1		13.4	
75			75	3.27	18.0		16.2		14.4	
80			80	3.07	19.2		17.3		15.4	
90			90	2.72	21.6		19.4		17.3	
100			100	2.46	24.0		21.6		19.2	
125	125	1.97	30.0	27.0	24.0					
AH 16×20	16	8	20	15.68	4.8	77	4.4	69	3.8	62
25			25	12.83	6.0		5.4		4.8	
30			30	10.69	7.2		6.5		5.8	
35			35	9.16	8.4		7.6		6.7	
40			40	8.02	9.6		8.6		7.7	
45			45	7.12	10.8		9.7		8.6	
50			50	6.41	12.0		10.8		9.6	
55			55	5.83	13.2		11.9		10.6	
60			60	5.34	14.4		13.0		11.5	
65			65	4.93	15.6		14.0		12.5	
70			70	4.58	16.8		15.1		13.4	
75			75	4.28	18.0		16.2		14.4	
80			80	4.01	19.2		17.3		15.4	
90			90	3.57	21.6		19.4		17.3	
100			100	3.21	24.0		21.6		19.2	
125	125	2.57	30.0	27.0	24.0					
AH 18×20	18	9	20	19.77	4.8	97	4.4	87	3.8	78
25			25	16.16	6.0		5.4		4.8	
30			30	13.47	7.2		6.5		5.8	
35			35	11.54	8.4		7.6		6.7	
40			40	10.10	9.6		8.6		7.7	
45			45	8.98	10.8		9.7		8.6	
50			50	8.08	12.0		10.8		9.6	
55			55	7.34	13.2		11.9		10.6	
60			60	6.73	14.4		13.0		11.5	
65			65	6.21	15.6		14.0		12.5	
70			70	5.77	16.8		15.1		13.4	
75			75	5.39	18.0		16.2		14.4	
80			80	5.05	19.2		17.3		15.4	
90			90	4.50	21.6		19.4		17.3	
100			100	4.04	24.0		21.6		19.2	
125	125	3.23	30.0	27.0	24.0					

重荷重
중하중
HEAVY LOAD

AH

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AH 20×20	20	10	20	24.55	4.8	120	4.4	108	3.7	96
25			25	20.00	6.0		5.4		4.8	
30			30	16.66	7.2		6.5		5.8	
35			35	14.28	8.4		7.6		6.7	
40			40	12.50	9.6		8.6		7.7	
45			45	11.11	10.8		9.7		8.6	
50			50	10.00	12.0		10.8		9.6	
55			55	9.09	13.2		11.9		10.6	
60			60	8.33	14.4		13.0		11.5	
65			65	7.69	15.6		14.0		12.5	
70			70	7.14	16.8		15.1		13.4	
75			75	6.67	18.0		16.2		14.4	
80			80	6.25	19.2		17.3		15.4	
90			90	5.55	21.6		19.4		17.3	
100			100	5.00	24.0		21.6		19.2	
125			125	4.00	30.0		27.0		24.0	
150			150	3.33	36.0		32.4		28.8	
175	175	2.86	42.0	37.8	33.6					
AH 22×25	22	11	25	24.16	6.0	145	5.4	130	4.8	116
30			30	20.13	7.2		6.5		5.8	
35			35	17.30	8.4		7.6		6.7	
40			40	15.10	9.6		8.6		7.7	
45			45	13.40	10.8		9.7		8.6	
50			50	12.08	12.0		10.8		9.6	
55			55	10.94	13.2		11.9		10.6	
60			60	10.06	14.4		13.0		11.5	
65			65	9.28	15.6		14.0		12.5	
70			70	8.63	16.8		15.1		13.4	
75			75	8.04	18.0		16.2		14.4	
80			80	7.55	19.2		17.3		15.4	
90			90	6.71	21.6		19.4		17.3	
100			100	6.04	24.0		21.6		19.2	
125			125	4.83	30.0		27.0		24.0	
150			150	4.02	36.0		32.4		28.8	
175			175	3.45	42.0		37.8		33.6	
AH 25×25	25	12.5	25	31.20	6.0	187	5.4	169	4.8	150
30			30	25.97	7.2		6.5		5.8	
35			35	22.38	8.4		7.6		6.7	
40			40	19.47	9.6		8.6		7.7	
45			45	17.40	10.8		9.7		8.6	
50			50	15.58	12.0		10.8		9.6	
55			55	14.20	13.2		11.9		10.6	
60			60	12.98	14.4		13.0		11.5	
65			65	12.00	15.6		14.0		12.5	
70			70	11.13	16.8		15.1		13.4	
75			75	10.40	18.0		16.2		14.4	
80			80	9.73	19.2		17.3		15.4	
90			90	8.65	21.6		19.4		17.3	
100			100	7.79	24.0		21.6		19.2	
125			125	6.23	30.0		27.0		24.0	
150			150	5.20	36.0		32.4		28.8	
175			175	4.46	42.0		37.8		33.6	
200	200	3.90	48.0	43.2	38.4					

重荷重
중하중
HEAVY LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AH 27×25	27	13.5	25	36.40	6.0	219	5.4	197	4.8	175
30			30	30.41	7.2		6.5		5.8	
35			35	26.20	8.4		7.6		6.7	
40			40	22.81	9.6		8.6		7.7	
45			45	20.30	10.8		9.7		8.6	
50			50	18.25	12.0		10.8		9.6	
55			55	16.50	13.2		11.9		10.6	
60			60	15.20	14.4		13.0		11.5	
65			65	14.00	15.6		14.0		12.5	
70			70	13.03	16.8		15.1		13.4	
75			75	12.10	18.0		16.2		14.4	
80			80	11.40	19.2		17.3		15.4	
90			90	10.13	21.6		19.4		17.3	
100			100	9.12	24.0		21.6		19.2	
125			125	7.30	30.0		27.0		24.0	
150			150	6.08	36.0		32.4		28.8	
175			175	5.21	42.0		37.8		33.6	
200	200	4.56	48.0	43.2	38.4					
AH 30×25	30	15	25	45.00	6.0	270	5.4	243	4.8	216
30			30	37.50	7.2		6.5		5.8	
35			35	32.26	8.4		7.6		6.7	
40			40	28.12	9.6		8.6		7.7	
45			45	25.00	10.8		9.7		8.6	
50			50	22.50	12.0		10.8		9.6	
55			55	20.40	13.2		11.9		10.6	
60			60	18.75	14.4		13.0		11.5	
65			65	17.30	15.6		14.0		12.5	
70			70	16.07	16.8		15.1		13.4	
75			75	15.00	18.0		16.2		14.4	
80			80	14.06	19.2		17.3		15.4	
90			90	12.50	21.6		19.4		17.3	
100			100	11.25	24.0		21.6		19.2	
125			125	9.00	30.0		27.0		24.0	
150			150	7.50	36.0		32.4		28.8	
175			175	6.42	42.0		37.8		33.6	
200	200	5.62	48.0	43.2	38.4					
AH 35×35	35	17.5	35	43.68	8.4	367	7.6	330	6.7	293
40			40	38.22	9.6		8.6		7.7	
45			45	33.98	10.8		9.7		8.6	
50			50	30.58	12.0		10.8		9.6	
55			55	27.80	13.2		11.9		10.6	
60			60	25.48	14.4		13.0		11.5	
65			65	23.53	15.6		14.0		12.5	
70			70	21.84	16.8		15.1		13.4	
75			75	20.39	18.0		16.2		14.4	
80			80	19.11	19.2		17.3		15.4	
90			90	16.99	21.6		19.4		17.3	
100			100	15.29	24.0		21.6		19.2	
125			125	12.23	30.0		27.0		24.0	
150			150	10.19	36.0		32.4		28.8	
175			175	8.73	42.0		37.8		33.6	
200			200	7.64	48.0		43.2		38.4	

重荷重
중하중
HEAVY LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AH 40×40	40	20	40	50.00	9.6	480	8.6	432	7.7	384
45			45	44.44	10.8		9.7		8.6	
50			50	40.00	12.0		10.8		9.6	
55			55	36.36	13.2		11.9		10.6	
60			60	33.33	14.4		13.0		11.5	
65			65	30.77	15.6		14.0		12.5	
70			70	28.57	16.8		15.1		13.4	
75			75	26.67	18.0		16.2		14.4	
80			80	25.00	19.2		17.3		15.4	
90			90	22.22	21.6		19.4		17.3	
100			100	20.00	24.0		21.6		19.2	
125			125	16.00	30.0		27.0		24.0	
150			150	13.33	36.0		32.4		28.8	
175			175	11.42	42.0		37.8		33.6	
200			200	10.00	48.0		43.2		38.4	
225			225	8.89	54.0		48.6		43.2	
250			250	8.00	60.0		54.0		48.0	
275	275	7.27	66.0	59.4	52.8					
300	300	6.67	72.0	64.8	57.6					
AH 50×50	50	25	50	62.50	12.0	750	10.8	675	9.6	600
55			55	56.82	13.2		11.9		10.6	
60			60	52.08	14.4		13.0		11.5	
65			65	48.08	15.6		14.0		12.5	
70			70	44.64	16.8		15.1		13.4	
75			75	41.67	18.0		16.2		14.4	
80			80	39.06	19.2		17.3		15.4	
90			90	34.72	21.6		19.4		17.3	
100			100	31.25	24.0		21.6		19.2	
125			125	25.00	30.0		27.0		24.0	
150			150	20.83	36.0		32.4		28.8	
175			175	17.85	42.0		37.8		33.6	
200			200	15.62	48.0		43.2		38.4	
225			225	13.89	54.0		48.6		43.2	
250			250	12.50	60.0		54.0		48.0	
275			275	11.36	66.0		59.4		52.8	
300			300	10.41	72.0		64.8		57.6	
350	350	8.93	84.0	75.6	67.2					

重荷重
중하중
HEAVY LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kg/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AH 60×60	60	30	60	75.00	14.4	1080	13.0	973	11.5	864
70			70	64.28	16.8		15.1		13.4	
80			80	56.25	19.2		17.3		15.4	
90			90	50.00	21.6		19.4		17.3	
100			100	45.00	24.0		21.6		19.2	
125			125	36.00	30.0		27.0		24.0	
150			150	30.00	36.0		32.4		28.8	
175			175	25.71	42.0		37.8		33.6	
200			200	22.50	48.0		43.2		38.4	
225			225	20.00	54.0		48.6		43.2	
250			250	18.00	60.0		54.0		48.0	
275			275	16.36	66.0		59.4		52.8	
300			300	15.00	72.0		64.8		57.6	
350			350	12.86	84.0		75.6		67.2	

極重荷重
극중하중
Ultra Heavy LOAD

AB

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AB 8×10	8	4	10	16.94	2.0	35	1.8	31	1.6	26
15			15	11.30	3.0		2.7		2.4	
20			20	8.47	4.0		3.6		3.2	
25			25	6.78	5.0		4.5		4.0	
30			30	5.65	6.0		5.4		4.8	
35			35	4.84	7.0		6.3		5.6	
40			40	4.24	8.0		7.2		6.4	
45			45	3.77	9.0		8.1		7.2	
50			50	3.39	10.0		9.0		8.0	
55			55	3.08	11.0		9.9		8.8	
60			60	2.82	12.0		10.8		9.6	
65			65	2.61	13.0		11.7		10.4	
70			70	2.42	14.0		12.6		11.2	
75			75	2.26	15.0		13.5		12.0	
80			80	2.12	16.0		14.4		12.8	
90			90	1.88	18.0		16.2		14.4	
AB 10×10	10	5	10	22.78	2.0	45	1.8	41	1.6	36
15			15	15.19	3.0		2.7		2.4	
20			20	11.25	4.0		3.6		3.2	
25			25	9.00	5.0		4.5		4.0	
30			30	7.50	6.0		5.4		4.8	
35			35	6.43	7.0		6.3		5.6	
40			40	5.63	8.0		7.2		6.4	
45			45	5.00	9.0		8.1		7.2	
50			50	4.50	10.0		9.0		8.0	
55			55	4.09	11.0		9.9		8.8	
60			60	3.75	12.0		10.8		9.6	
65			65	3.47	13.0		11.7		10.4	
70			70	3.21	14.0		12.6		11.2	
75			75	3.00	15.0		13.5		12.0	
80			80	2.82	16.0		14.4		12.8	
90			90	2.50	18.0		16.2		14.4	
100	100	2.25	20.0	18.0	16.0					
AB 12×20	12	6	20	14.50	4.0	58	3.6	52	3.2	46
25			25	11.60	5.0		4.5		4.0	
30			30	9.67	6.0		5.4		4.8	
35			35	8.29	7.0		6.3		5.6	
40			40	7.25	8.0		7.2		6.4	
45			45	6.44	9.0		8.1		7.2	
50			50	5.80	10.0		9.0		8.0	
55			55	5.27	11.0		9.9		8.8	
60			60	4.83	12.0		10.8		9.6	
65			65	4.44	13.0		11.7		10.4	
70			70	4.13	14.0		12.6		11.2	
75			75	3.85	15.0		13.5		12.0	
80			80	3.61	16.0		14.4		12.8	
90			90	3.22	18.0		16.2		14.4	
100			100	2.90	20.0		18.0		16.0	

AB

SHINWEON DIE SPRINGS

極重荷重
극중하중
Ultra Heavy LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AB 14×20	14	7	20	18.89	4.0	75	3.6	68	3.2	60
25			25	15.00	5.0		4.5		4.0	
30			30	12.50	6.0		5.4		4.8	
35			35	10.72	7.0		6.3		5.6	
40			40	9.38	8.0		7.2		6.4	
45			45	8.34	9.0		8.1		7.2	
50			50	7.50	10.0		9.0		8.0	
55			55	6.82	11.0		9.9		8.8	
60			60	6.25	12.0		10.8		9.6	
65			65	5.77	13.0		11.7		10.4	
70			70	5.36	14.0		12.6		11.2	
75			75	5.00	15.0		13.5		12.0	
80			80	4.69	16.0		14.4		12.8	
90			90	4.17	18.0		16.2		14.4	
100			100	3.75	20.0		18.0		16.0	
125	125	3.00	25.0	22.5	20.0					
AB 16×20	16	8	20	25.00	4.0	100	3.6	90	3.2	80
25			25	20.00	5.0		4.5		4.0	
30			30	16.67	6.0		5.4		4.8	
35			35	14.29	7.0		6.3		5.6	
40			40	12.50	8.0		7.2		6.4	
45			45	11.11	9.0		8.1		7.2	
50			50	10.00	10.0		9.0		8.0	
55			55	9.09	11.0		9.9		8.8	
60			60	8.34	12.0		10.8		9.6	
65			65	7.69	13.0		11.7		10.4	
70			70	7.14	14.0		12.6		11.2	
75			75	6.67	15.0		13.5		12.0	
80			80	6.25	16.0		14.4		12.8	
90			90	5.56	18.0		16.2		14.4	
100			100	5.00	20.0		18.0		16.0	
125	125	4.00	25.0	22.5	20.0					
AB 18×20	18	9	20	31.39	4.0	125	3.6	113	3.2	100
25			25	25.00	5.0		4.5		4.0	
30			30	20.84	6.0		5.4		4.8	
35			35	17.86	7.0		6.3		5.6	
40			40	15.63	8.0		7.2		6.4	
45			45	13.89	9.0		8.1		7.2	
50			50	12.50	10.0		9.0		8.0	
55			55	11.37	11.0		9.9		8.8	
60			60	10.42	12.0		10.8		9.6	
65			65	9.62	13.0		11.7		10.4	
70			70	8.93	14.0		12.6		11.2	
75			75	8.34	15.0		13.5		12.0	
80			80	7.82	16.0		14.4		12.8	
90			90	6.95	18.0		16.2		14.4	
100			100	6.26	20.0		18.0		16.0	
125	125	5.00	25.0	22.5	20.0					

極重荷重
극중하중
Ultra Heavy LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AB 20×20	20	10	20	40.00	4.0	160	3.6	144	3.2	128
25			25	32.00	5.0		4.5		4.0	
30			30	26.67	6.0		5.4		4.8	
35			35	22.86	7.0		6.3		5.6	
40			40	20.00	8.0		7.2		6.4	
45			45	17.78	9.0		8.1		7.2	
50			50	16.00	10.0		9.0		8.0	
55			55	14.55	11.0		9.9		8.8	
60			60	13.33	12.0		10.8		9.6	
65			65	12.31	13.0		11.7		10.4	
70			70	11.43	14.0		12.6		11.2	
75			75	10.67	15.0		13.5		12.0	
80			80	10.00	16.0		14.4		12.8	
90			90	8.89	18.0		16.2		14.4	
100			100	8.00	20.0		18.0		16.0	
125			125	6.40	25.0		22.5		20.0	
150			150	5.33	30.0		27.0		24.0	
175	175	4.57	35.0	31.5	28.0					
AB 22×25	22	11	25	39.00	5.0	195	4.5	176	4.0	156
30			30	32.50	6.0		5.4		4.8	
35			35	27.86	7.0		6.3		5.6	
40			40	24.38	8.0		7.2		6.4	
45			45	21.67	9.0		8.1		7.2	
50			50	19.50	10.0		9.0		8.0	
55			55	17.73	11.0		9.9		8.8	
60			60	16.25	12.0		10.8		9.6	
65			65	15.00	13.0		11.7		10.4	
70			70	13.93	14.0		12.6		11.2	
75			75	13.00	15.0		13.5		12.0	
80			80	12.19	16.0		14.4		12.8	
90			90	10.83	18.0		16.2		14.4	
100			100	9.75	20.0		18.0		16.0	
125			125	7.80	25.0		22.5		20.0	
150			150	6.50	30.0		27.0		24.0	
175			175	5.57	35.0		31.5		28.0	
AB 25×25	25	12.5	25	49.00	5.0	245	4.5	221	4.0	196
30			30	40.80	6.0		5.4		4.8	
35			35	35.00	7.0		6.3		5.6	
40			40	30.60	8.0		7.2		6.4	
45			45	27.20	9.0		8.1		7.2	
50			50	24.50	10.0		9.0		8.0	
55			55	22.30	11.0		9.9		8.8	
60			60	20.40	12.0		10.8		9.6	
65			65	18.80	13.0		11.7		10.4	
70			70	17.50	14.0		12.6		11.2	
75			75	16.30	15.0		13.5		12.0	
80			80	15.30	16.0		14.4		12.8	
90			90	13.60	18.0		16.2		14.4	
100			100	12.30	20.0		18.0		16.0	
125			125	9.80	25.0		22.5		20.0	
150			150	8.17	30.0		27.0		24.0	
175			175	7.00	35.0		31.5		28.0	
200	200	6.13	40.0	36.0	32.0					

極重荷重
극중하중
Ultra Heavy LOAD

AB

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AB 27×25	27	13.5	25	58.00	290	261	232	4.5	4.0	
30			30	48.33				6.0	5.4	4.8
35			35	41.43				7.0	6.3	5.6
40			40	36.25				8.0	7.2	6.4
45			45	32.22				9.0	8.1	7.2
50			50	29.00				10.0	9.0	8.0
55			55	26.36				11.0	9.9	8.8
60			60	24.17				12.0	10.8	9.6
65			65	22.31				13.0	11.7	10.4
70			70	20.71				14.0	12.6	11.2
75			75	19.33				15.0	13.5	12.0
80			80	18.13				16.0	14.4	12.8
90			90	16.11				18.0	16.2	14.4
100			100	14.50				20.0	18.0	16.0
125			125	11.60				25.0	22.5	20.0
150			150	9.67				30.0	27.0	24.0
175			175	8.28				35.0	31.5	28.0
200	200	7.25	40.0	36.0	32.0					
AB 30×25	30	15	25	72.00	360	324	288	4.5	4.0	
30			30	60.00				6.0	5.4	4.8
35			35	51.43				7.0	6.3	5.6
40			40	45.00				8.0	7.2	6.4
45			45	40.00				9.0	8.1	7.2
50			50	36.00				10.0	9.0	8.0
55			55	32.72				11.0	9.9	8.8
60			60	30.00				12.0	10.8	9.6
65			65	27.69				13.0	11.7	10.4
70			70	25.71				14.0	12.6	11.2
75			75	24.00				15.0	13.5	12.0
80			80	22.50				16.0	14.4	12.8
90			90	20.00				18.0	16.2	14.4
100			100	18.00				20.0	18.0	16.0
125			125	14.40				25.0	22.5	20.0
150			150	12.00				30.0	27.0	24.0
175			175	10.28				35.0	31.5	28.0
200	200	9.00	40.0	36.0	32.0					
AB 35×35	35	17.5	35	69.94	490	441	392	6.3	5.6	
40			40	61.25				8.0	7.2	6.4
45			45	54.44				9.0	8.1	7.2
50			50	49.00				10.0	9.0	8.0
55			55	44.54				11.0	9.9	8.8
60			60	40.83				12.0	10.8	9.6
65			65	37.69				13.0	11.7	10.4
70			70	35.00				14.0	12.6	11.2
75			75	32.67				15.0	13.5	12.0
80			80	30.62				16.0	14.4	12.8
90			90	27.22				18.0	16.2	14.4
100			100	24.50				20.0	18.0	16.0
125			125	19.60				25.0	22.5	20.0
150			150	16.33				30.0	27.0	24.0
175			175	14.00				35.0	31.5	28.0
200			200	12.25				40.0	36.0	32.0

極重荷重
극중하중
Ultra Heavy LOAD



하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AB 40×40	40	20	40	80.00	8.0	640	7.2	576	6.4	512
45			45	71.11	9.0		8.1		7.2	
50			50	64.00	10.0		9.0		8.0	
55			55	58.18	11.0		9.9		8.8	
60			60	53.33	12.0		10.8		9.6	
65			65	49.23	13.0		11.7		10.4	
70			70	45.71	14.0		12.6		11.2	
75			75	42.67	15.0		13.5		12.0	
80			80	40.00	16.0		14.4		12.8	
90			90	35.55	18.0		16.2		14.4	
100			100	32.00	20.0		18.0		16.0	
125			125	25.60	25.0		22.5		20.0	
150			150	21.33	30.0		27.0		24.0	
175			175	18.28	35.0		31.5		28.0	
200			200	16.00	40.0		36.0		32.0	
225			225	14.22	45.0		40.5		36.0	
250			250	12.80	50.0		45.0		40.0	
275			275	11.64	55.0		49.5		44.0	
300			300	10.67	60.0		54.0		48.0	
AB 50×50			50	25	50		100.00		10.0	
55	55	90.91			11.0	9.9	8.8			
60	60	83.33			12.0	10.8	9.6			
65	65	76.92			13.0	11.7	10.4			
70	70	71.42			14.0	12.6	11.2			
75	75	66.67			15.0	13.5	12.0			
80	80	62.50			16.0	14.4	12.8			
90	90	55.55			18.0	16.2	14.4			
100	100	50.00			20.0	18.0	16.0			
125	125	40.00			25.0	22.5	20.0			
150	150	33.33			30.0	27.0	24.0			
175	175	28.57			35.0	31.5	28.0			
200	200	25.00			40.0	36.0	32.0			
225	225	22.22			45.0	40.5	36.0			
250	250	20.00			50.0	45.0	40.0			
275	275	18.18			55.0	49.5	44.0			
300	300	16.66			60.0	54.0	48.0			
350	350	14.29			70.0	63.0	56.0			

極重荷重
극중하중
Ultra Heavy LOAD

AB

하중 荷重 ±10%
직각도 直角度 2° 以下
자유장 自由長 50m/m 以下 ±0.5m/m
55m/m 以上 ± 1%

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	30万 (0.3 million)		50 万 (0.5 million)		100万 (1 million)	
					變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load	變形量 변형량(mm) Deflection	荷重 하중(kgf) Load
AB 60×60	60	30	60	120.00	12.0	1440	10.8	1296	9.6	1152
70			70	102.86	14.0		12.6		11.2	
80			80	90.00	16.0		14.4		12.8	
90			90	80.00	18.0		16.2		14.4	
100			100	72.00	20.0		18.0		16.0	
125			125	57.60	25.0		22.5		20.0	
150			150	48.00	30.0		27.0		24.0	
175			175	41.14	35.0		31.5		28.0	
200			200	36.00	40.0		36.0		32.0	
225			225	32.00	45.0		40.5		36.0	
250			250	28.80	50.0		45.0		40.0	
275			275	26.18	55.0		49.5		44.0	
300			300	24.00	60.0		54.0		48.0	
350			350	20.57	70.0		63.0		56.0	

AR

몰드형의 나선용

FOR MOLD RETURN PIN

AR 사이즈의 특징

1. 최대 편차는 자유장의 60%와 마찬가지로 선정되어 얻어지고 이 경우 내구성은 반복된 압축에서 300,000회이다.
2. 자유장 편차 50%일때 반복된 압축에서 내구성은 100만회가 된다.
3. 사용 온도 200. C에서 자유장 감소율은 2%임(50% 사용 시)
4. AR 사이즈는 7가지 규모의 전체 71가지 종류로 분류되어 있다.

AR 사이즈의 특징

1. The maximum deflection obtainable is calculated as 60% of the free length. In this case, durability is 300,000 cycles for repeated compression.
2. Durability becomes 1-million cycles for repeated compression when deflection is 50% of the free length.
3. The free length reduction factor is 2% at a working temperature of 200.C (deflection 50% of free length).
4. AR size consist of a total of 71 items classified according to seven types.

허용도 To larence

판경 Pin dia	외경 Outer-dia(mm)	내경 Inner-dia(mm)	자유장 Free Length(mm)	나선방향 Coil Direction	직각도 Squareness	하중 Load(kgf/mm)	밀착장 Solid Length(mm)
8Ø	14.5 ⁺⁰ / _{-0.4}	9 ^{+0.4} / ₋₀	50이하 ±0.5 55이상 ±2%	Right	2'이하	±10%	±0
10Ø	17 ⁺⁰ / _{-0.6}	11 ^{+0.6} / ₋₀		Right			
12Ø	21 ⁺⁰ / _{-0.8}	13 ^{+0.8} / ₋₀		Right			
16Ø	26 ⁺⁰ / ₋₁	16.5 ⁺¹ / ₋₀		Right			
20Ø	32 ⁺⁰ / ₋₁	21 ⁺¹ / ₋₀		Right			
25Ø	39 ⁺⁰ / ₋₁	26 ⁺¹ / ₋₀		Right			
30Ø	46 ⁺⁰ / _{-1.2}	32 ^{+1.2} / ₋₀		Right			

밀착시의 외경의 직경 Outside diametral at the time of tightness

AR14.5	AR17	AR21	AR26	AR32	AR39	AR46
+0.15	+0.1	+0.1	+0.15	+0.2	+0.26	+0.4

AR 몰드 MOLD

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	偏差 편차(mm) Deflection	荷重 하중(kgf) Load	밀착장(mm) Solid Length
AR 14.5×20	14.5	9	20	1.10	10.0	13	8
25			25	0.88	12.5		10
30			30	0.73	15.0		12
35			35	0.63	17.0		14
40			40	0.55	20.0		16
45			45	0.49	22.5		18
50			50	0.44	25.0		20
55			55	0.40	27.5		22
60			60	0.37	30.0		24
65			65	0.34	32.5		26
70			70	0.31	35.0		28
75			75	0.29	37.0		30
80			80	0.28	40.0		32
90			90	0.24	45.0		36
100			100	0.22	50.0		40
125			125	0.18	62.5		50

呼稱 호 칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	偏差 편차(mm) Deflection	荷重 하중(kgf) Load	밀착장(mm) Solid Length
AR 17×25	17	11	25	1.52	12.5	20	10
30			30	1.27	15.0		12
35			35	1.09	17.5		14
40			40	0.95	20.0		16
45			45	0.84	22.5		18
50			50	0.76	25.0		20
55			55	0.69	27.5		22
60			60	0.63	30.0		24
65			65	0.58	32.5		26
70			70	0.54	35.0		28
75			75	0.51	37.5		30
80			80	0.48	40.0		32
90			90	0.42	45.0		36
100			100	0.38	50.0		40
125			125	0.30	62.5		50
150	150	0.25	75.0	60			
AR 21×30	21	13	30	1.40	15.0	30	12
35			35	1.20	17.5		14
40			40	1.05	20.0		16
45			45	0.93	22.5		18
50			50	0.84	25.0		20
55			55	0.76	27.5		22
60			60	0.70	30.0		24
65			65	0.65	32.5		26
70			70	0.60	35.0		28
75			75	0.56	37.5		30
80			80	0.53	40.0		32
90			90	0.47	45.0		36
100			100	0.42	50.0		40
125			125	0.34	62.5		50
150			150	0.28	75.0		60
AR 26×30	26	16.5	30	2.73	15.0	40	12
35			35	2.34	17.5		14
40			40	2.05	20.0		16
45			45	1.82	22.5		18
50			50	1.64	25.0		20
55			55	1.49	27.5		22
60			60	1.37	30.0		24
65			65	1.26	32.5		26
70			70	1.17	35.0		28
75			75	1.09	37.5		30
80			80	1.03	40.0		32
90			90	0.91	45.0		36
100			100	0.82	50.0		40
110			110	0.75	55.0		44
125			125	0.66	62.5		50
150	150	0.55	75.0	60			
175	175	0.47	87.5	70			
200	200	0.41	100.0	80			

呼稱 호칭 Model	外徑 외경(mm) Outer Dia.	內徑 내경(mm) Inner Dia.	自由長 자유장(mm) Free length	定數 정수(kgf/mm) spring constant	偏差 편차(mm) Deflection	荷重 하중(kgf) Load	밀착장(mm) Solid Length
AR 32×40	32	21	40	2.55	20.0	51	16
			45	2.27	22.5		18
			50	2.04	25.0		20
			60	1.70	30.0		24
			70	1.46	35.0		28
			80	1.28	40.0		32
			90	1.13	45.0		36
			100	1.02	50.0		40
			110	0.93	55.0		44
			125	0.82	62.5		50
			150	0.68	75.0		60
			175	0.58	87.5		70
			200	0.51	100.0		80
			250	0.41	125.0		100
			300	0.34	150.0		120
			AR 39×40	39	26		40
45	2.44	22.5				18	
50	2.20	25.0				20	
60	1.83	30.0				24	
70	1.57	35.0				28	
80	1.38	40.0				32	
90	1.22	45.0				36	
100	1.10	50.0				40	
110	1.00	55.0				44	
125	0.88	62.5				50	
150	0.73	75.0				60	
175	0.63	87.5				70	
200	0.55	100.0				80	
250	0.44	125.0				100	
300	0.37	150.0				120	
AR 46×50	46	32				50	2.48
			60	2.04	30.0	24	
			70	1.77	35.0	28	
			80	1.55	40.0	32	
			90	1.38	45.0	36	
			100	1.24	50.0	40	
			110	1.13	55.0	44	
			125	0.99	62.5	50	
			150	0.83	75.0	60	
			175	0.71	87.5	70	
			200	0.62	100.0	80	
			250	0.50	125.0	100	
			300	0.41	150.0	120	