

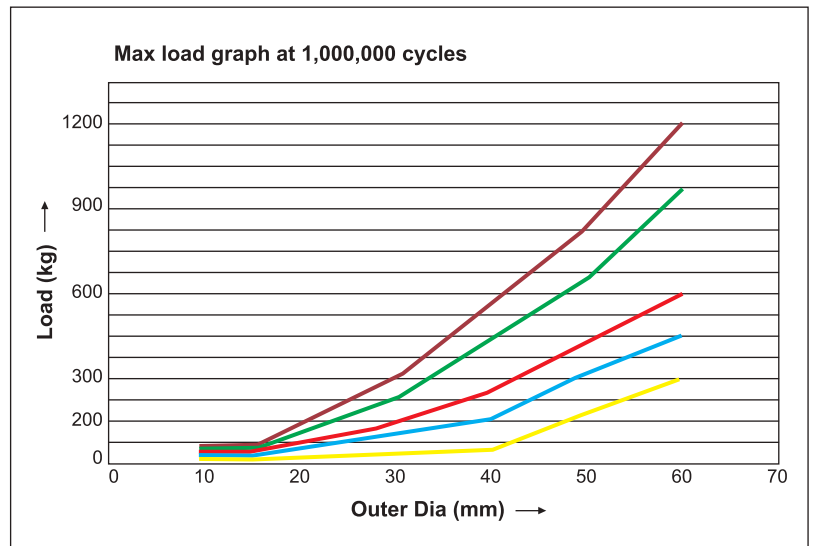
**Section K  
DIE SPRINGS**



# Die Springs

Compressing Proportion: As Per the drawing.

AF	Lighest Load Max	58%
AL	Light Load	48%
AM	Medium Load	38%
AH	Heavy Load	28%
AB	Extra Heavy Load	24%
AR	Light Load (High deflection)	60%



## Permitted size tolerance

Outer-Dia	Inner-Dia	Free length		Load	Coil-Direction	Tilt
		55mm	60mm			
+0 mm -0.1mm	+ 0.2mm - 0 mm	± 0.5 mm	± 1%	± 10%	Right	60mm < 2°

## The Relationship between usage frequency and compression ratio of Die spring

Types	Usage Frequency	1 million (Free length x %)	0.5 million (Free length x %)	0.3 million (Free length x %)	Max. deflection
AF		40%	45%	50%	58%
AL		32%	36%	40%	48%
AM		25%	28%	32%	38%
AH		19%	21%	24%	28%
AB		16%	21%	20%	24%

# JIS Standard Die Spring (Lightest Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AF 8X4	15	AF 16X8	55	AF 22X11	75	AF 30X16	55	AF 50X27.5	175
	20		60		80		60		200
	25		65		90		65		250
	30		70		100		70		300
	35		75		125		75		350
	40		80		150		80		400
	45	25	25	90	450				
	50	30	30	100	500				
	55	35	35	125	70				
	60	40	40	150	80				
AF 10X5	20	AF 18X9	45	AF 25X12.5	45	AF 35X19	175	AF 60X33	90
	25		50		50		40		100
	30		55		55		45		125
	35		60		60		50		150
	40		65		65		55		175
	45		70		70		60		200
	50		75		75		65		250
	55		80		80		70		300
60	90	90	75	350					
AF 12X6	20	AF 20X11	25	AF 27X13.5	100	AF 40X22	80		400
	25		30		125		90		450
	30		35		150		100		500
	35		40		25		125		
	40		45		30		150		
	45		50		35		175		
	50		55		40		200		
	55		60		45		50		
60	65	50	60						
AF 14X7	25	AF 22X11	70	AF 30X16	55	AF 50X27.5	70		
	30		75		60		80		
	35		80		65		90		
	40		90		70		100		
	45		100		75		125		
	50		125		80		150		
	55		25		90		175		
	60		30		100		200		
	65		35		125		250		
	70		40		150		60		
AF 16X8	25	AF 22X11	45	AF 30X16	25	AF 50X27.5	70		
	30		50		30		80		
	35		55		35		90		
	40		60		40		100		
	45		65		45		125		
	50		70		50		150		



ORDERING  
CODE

CATALOG NO.	OD	L
AF	8	40

# JIS Standard Die Spring (Light Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AL 8X4	15	AL 16X8	55	AL 22X11	75	AL 30X15	55	AL 50X25	175
	20		60		80		60		200
	25		65		90		65		250
	30		70		100		70		300
	35		75		125		75		350
	40		80		150		80		400
	45	25	25	90	450				
	50	30	30	100	500				
	55	35	35	125	70				
	60	40	40	150	80				
AL 10X5	20	AL 18X9	45	AL 25X12.5	45	AL 35X17.5	175	AL 60X30	90
	25		50		50		40		100
	30		55		55		45		125
	35		60		60		50		150
	40		65		65		55		175
	45		70		70		60		200
	50		75		75		65		250
	55		80		80		70		300
60	90	90	75	350					
AL 12X6	20	AL 20X10	25	AL 27X13.5	100	AL 40X20	80		
	25		30		125		90	450	
	30		35		150		100	500	
	35		40		25		125		
	40		45		30		150		
	45		50		35		175		
	50		55		40		200		
	55		60		45		50		
60	65	50	60						
AL 14X7	25	AL 22X11	70	AL 30X15	55	AL 50X25	70		
	30		75		60		80		
	35		80		65		90		
	40		90		70		100		
	45		100		75		125		
	50		125		80		150		
	55		25		90		175		
	60		30		100		200		
	65		35		125		250		
	70		40		150		60		
AL 16X8	25	AL 22X11	45	AL 30X15	25	AL 50X25	70		
	30		50		30		80		
	35		55		35		90		
	40		60		40		100		
	45		65		45		125		
	50		70		50		150		



ORDERING  
CODE

CATALOG NO.	OD	L
AL	20	70

# JIS Standard Die Spring (Medium Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AM 8X4	15	AM 16X8	55	AM 22X11	70	AM 30X15	50	AM 50X25	150
	20		60		75		55		175
	25		65		80		60		200
	30		70		90		65		250
	35		75		100		70		300
	40		80		125		75		70
	45	25	150	80	80				
	50	30	25	90	90				
	55	35	30	100	100				
	60	40	35	125	125				
AM 10X5	20	AM 18X9	45	AM 25X12.5	40	AM 35X17.5	150	AM 60X30	150
	25		50		45		175		
	30		55		50		200		
	35		60		55		250		
	40		65		60		300		
	45		70		65				
	50		75		70				
	55		80		75				
60	90	80							
AM 12X6	20	AM 20X10	25	AM 27X13.5	90		AM 40X20		75
	25		30		100	80			
	30		35		125	90			
	35		40		150	100			
	40		45		25	125			
	45		50		30	150			
	50		55		35	175			
	55		60		40	200			
60	65	45	50						
AM 14X7	25	AM 22X11	70	AM 30X15	50	AM 50X25		60	
	30		75		55		70		
	35		80		60		80		
	40		90		65		90		
	45		100		70		100		
	50		125		75		125		
	55		150	80	150				
	60		25	90	175				
	65		30	100	200				
	70		35	125	250				
AM 16X8	25	AM 22X11	40	AM 30X15	150	AM 50X25	60		
	30		45		25		70		
	35		50		30		80		
	40		55		35		90		
	45		60		40		100		
	50		65		45		125		



ORDERING  
CODE

CATALOG NO.	OD	L
AM	18	60

# JIS Standard Die Spring (Heavy Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AH 8X4	15	AH 16X8	55	AH 22X11	75	AH 30X15	55	AH 50X25	175
	20		60		80		60		200
	25		65		90		65		250
	30		70		100		70		300
	35		75		125		75		70
	40	80	150	80	80				
	45	25	25	90	90				
	50	30	30	100	100				
	55	35	35	125	125				
	60	40	40	150	150				
AH 10X5	20	AH 18X9	45	AH 25X12.5	45	AH 35X17.5	175	AH 60X30	175
	25		50		50		40		200
	30		55		55		45		250
	35		60		60		50		300
	40		65		65		55		
	45		70		70		60		
	50		75		75		65		
	55		80		80		70		
60	90	90	75						
AH 12X6	20	AH 20X10	25	AH 27X13.5	100		AH 40X20		80
	25		30		125	90			
	30		35		150	100			
	35		40		25	125			
	40		45		30	150			
	45		50		35	175			
	50		55		40	200			
	55		60		45	50			
60	65	50	60						
AH 14X7	25	AH 22X11	70	AH 30X15	55	AH 50X25		70	
	30		75		60		80		
	35		80		65		90		
	40		90		70		100		
	45		100		75		125		
	50		125	80	150				
	55		25	90	175				
	60		30	100	200				
	65		35	125	250				
	70		40	150	60				
AH 16X8	25	AH 22X11	45	AH 30X15	25	AH 50X25	70		
	30		50		30		80		
	35		55		35		90		
	40		60		40		100		
	45		65		45		125		
	50		70		50		150		



ORDERING CODE	CATALOG NO.	OD	L
	AH	16	45

# JIS Standard Die Spring (Extra Heavy Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AB 8X4	15	AB 16X8	55	AB 22X11	75	AB 30X15	55	AB 50X25	175
	20		60		80		60		200
	25		65		90		65		250
	30		70		100		70		300
	35		75		125		75		70
	40		80		150		80		80
	45	25	25	90	90				
	50	30	30	100	100				
	55	35	35	125	125				
	60	40	40	150	150				
AB 10X5	20	AB 18X9	45	AB 25X12.5	45	AB 35X17.5	175	AB 60X30	175
	25		50		50		40		200
	30		55		55		45		250
	35		60		60		50		300
	40		65		65		55		
	45		70		70		60		
	50		75		75		65		
	55		80		80		70		
60	90	90	75						
AB 12X6	20	AB 20X10	25	AB 27X13.5	100		AB 40X20		80
	25		30		125	90			
	30		35		150	100			
	35		40		25	125			
	40		45		30	150			
	45		50		35	175			
	50		55		40	200			
	55		60		45	50			
60	65	50	60						
AB 14X7	25	AB 22X11	70	AB 30X15	55	AB 50X25		70	
	30		75		60		80		
	35		80		65		90		
	40		90		70		100		
	45		100		75		125		
	50		125		80		150		
	55		25	90	175				
	60		30	100	200				
	65		35	125	250				
	70		40	150	60				
AB 16X8	25	AB 22X11	45	AB 30X15	25	AB 50X25	70		
	30		50		30		80		
	35		55		35		90		
	40		60		40		100		
	45		65		45		125		
	50		70		50		150		



ORDERING  
CODE

CATALOG NO.	OD	L
AB	27	90



# JIS Standard Die Spring (High Deflection type)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	
AR 14.5X9	20	AR 21X13	30	AR 26X16.5	80	AR 32X21	175	AR 46X32	50	
	25		35		90	40	60			
	30		40		100	45	70			
	35		45		125	50	80			
	40		50	150	60	90				
	45		60	AR 39X26	70	100	100			
	50		70		110	110				
AR 17X11	25	80	AR 32X21		125	125	125		125	125
	30	90			140	140	140		140	140
	35	100			155	155	155		155	155
	40	40			170	170	170		170	170
	45	45		185	185	185	185		185	
	50	50		200	200	200	200		200	
	55	60		215	215	215	215		215	
60	70	230	230	230	230	230				

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AY 14.5X9	20	AY 21X13	35	AY 26X16.5	90	AY 39X26	40	AY 46X32	60
	25		40		100		45		70
	30		45		125		50		80
	35		50		150		60		90
	40		60	AY 32X21	70		70		100
	45		70		80		80		110
	50		80		90		90		120
AY 17X11	25	90	100		100		130		
	30	100	110		110		140		
	35	40	120		120		150		
	40	45	130	130	160				
	45	50	140	140	170				
	50	60	150	150	180				
	60	70	160	160	190				
AY 21X13	30	80	175	175	200	200	200	200	



ORDERING CODE	CATALOG NO.	OD	L
AY	AY	21	30



# JIS Standard Round Wire Die Spring

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
ALR 4X2.6	10	ALR 16X10.7	25	ALR 22X14.7	25
	15		30		30
	20		35		35
	25		40		40
	30		45		45
ALR 6X4	15		50		50
	20		55		55
	25		60		60
	30		65		65
	35		70		70
ALR 8X5.4	15	ALR 18X12	75	ALR 25X17	75
	20		80		80
	25		25		90
	30		30		100
	35		35		25
ALR 10X6.5	40		40		30
	45		45		35
	50		50		40
	25		55		45
	30		60		50
ALR 12X8	35	ALR 20X13.5	65		55
	40		70		60
	45		75		65
	50		80		70
	55		90		75
	60		25		80
	25		30		90
	30		35		100
ALR 14X9.3	35		40		
	40		45		
	45	50			
	50	55			
	55	60			
	60	65			
	65	70			
	70	75			



ORDERING CODE	CATALOG NO.	OD	L
	ALR	12	50



# ISO Standard Die Spring (Light Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL		
AJL 10 X 5	25	AJL 20 X 10	139	AJL 40 X 20	127		
	32		152		139		
	38		178		152		
	44		203		178		
	51		305		203		
	64	AJL 25 X 12.5	25		AJL 50 X 25	229	
	76		32			254	
	89		38			305	
	102		44			64	
	305		51			76	
AJL 12.5 X 6.3	25		AJL 32 X 16	64		AJL 63 X 38	89
	32			76			102
	38			89			115
	44			102			127
	51			115			139
	64	127		152			
	76	139		178			
	89	152		203			
	102	178		229			
	115	203		254			
305	229	305					
AJL 16 X 8	25	AJL 40 X 20	305		76		
	32		38		89		
	38		44		102		
	44		51		115		
	51		64		127		
	64		76		152		
	76		89		178		
	89		102		203		
	102		115		229		
	115		127		254		
AJL 20 X 10	127		139		305		
	305		152				
	25		178				
	32		203				
	38		229				
	44		254				
	51		305				
	64		51				
	76		64				
	89		76				
102	89						
115	102						
127	115						



ORDERING  
CODE

CATALOG NO.  
AJL

OD  
40

L  
76

# ISO Standard Die Spring (Medium Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL
AJM 10 X 5	25	AJM 20 X 10	139	AJM 40 X 20	127
	32		152		139
	38		178		152
	44		203		178
	51		305		203
	64	AJM 25 X 12.5	25	AJM 50 X 25	229
	76		32		254
	89		38		305
	102		44		64
	305		51		76
AJM 12.5 X 6.3	25		64		89
	32		76		102
	38		89		115
	44		102		127
	51		115		139
	64	127	152		
	76	139	178		
	89	152	203		
	102	178	229		
	115	203	254		
305	229	305			
AJM 16 X 8	25	AJM 32 X 16	305	AJM 63 X 38	76
	32		38		89
	38		44		102
	44		51		115
	51		64		127
	64		76		152
	76		89		178
	89		102		203
	102		115		229
	115		127		254
AJM 20 X 10	127	AJM 40 X 20	139		305
	305		152		
	AJM 20 X 10		25		178
			32		203
			38		229
		44	254		
		51	305		
	64	51			
	76	64			
	89	76			
102	89				
115	102				
127	115				



ORDERING  
CODE

CATALOG NO.  
AJM

OD  
16

L  
38

# ISO Standard Die Spring (Heavy Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL		
AJH 10 X 5	25	AJH 20 X 10	139	AJH 40 X 20	127		
	32		152		139		
	38		178		152		
	44		203		178		
	51		305		203		
	64	AJH 25 X 12.5	25	AJH 50 X 25	229		
	76		32		254		
	89		38		305		
	102		44		64		
	305		51		76		
AJH 12.5 X 6.3	25		AJH 32 X 16		64	AJH 63 X 38	89
	32				76		102
	38				89		115
	44				102		127
	51				115		139
	64	127		152			
	76	139		178			
	89	152		203			
	102	178		229			
	115	203		254			
305	229	305					
AJH16 X 8	25	AJH 40 X 20	305		76		
	32		38		89		
	38		44		102		
	44		51		115		
	51		64		127		
	64		76		152		
	76		89		178		
	89		102		203		
	102		115		229		
	115		127		254		
AJH 20 X 10	127		139		305		
	305		152				
			25		178		
			32		203		
			38		229		
			44		254		
			51		305		
			64		51		
			76		64		
			89		76		
102		89					
115		102					
127	115						



ORDERING  
CODE

CATALOG NO.	OD	L
AJH	10	89

# ISO Standard Die Spring (Extra Heavy Load)

Spring Code OD X ID	FL	Spring Code OD X ID	FL	Spring Code OD X ID	FL			
AJB 10 X 5	25	AJB 20 X 10	139	AJB 40 X 20	127			
	32		152		139			
	38		178		152			
	44		203		178			
	51		305		203			
	64	AJB 25 X 12.5	25	AJB 50 X 25	229			
	76		32		254			
	89		38		305			
	102		44		64			
	305		51		76			
AJB 12.5 X 6.3	25		AJB 32 X 16		64	AJB 63 X 38	89	
	32				76		102	
	38				89		115	
	44				102		127	
	51				115		139	
	64	127		152				
	76	139		178				
	89	152		203				
	102	178		229				
	115	203		254				
305	229	305						
AJB 16 X 8	25	AJB 40 X 20	305		76			
	32		38		89			
	38		44		102			
	44		51		115			
	51		64		127			
	64		76		152			
	76		89		178			
	89		102		203			
	102		115		229			
	115		127		254			
AJB 20 X 10	127		139		305			
	305		152					
	AJB 20 X 10		25			178		
			32			203		
			38			229		
			44			254		
			51			305		
			64			51		
			76			64		
			89			76		
102		89						
115		102						
127	115							



ORDERING  
CODE

CATALOG NO.	OD	L
AJB	50	152

