



# Hyper heavy Load Die Spring-Black

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<b>Material</b>	<b>Color</b>	<b>Code</b>		
Equivalent to SWOSC-V	black	<b>SIMG</b>		
<b>Content</b>	<b>Error</b>			
Load	±10%			
Shape angle	Below 2°			
<b>Free length</b>	<b>Tolerance</b>			
15~50	±0.5			
55~350	±1%			

Code No.			cycle life			1 million		0.5 million		0.3 million	
Code	Outer Dia. (mm)	Free length (mm)	Inner Dia. (mm)	Spring rate N/mm(Kgf/mm)	Soild height (mm)	F=Lx16%		F=Lx18%		F=Lx20%	
						Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)
SIMG	10	15	5	163(16.7)	11.4	2.4	392 (40.0)	2.7	441 (45.0)	Out of bounds	
		20		123(12.5)	15	3.2		3.6		4	
		25		98(10.0)	19	4		4.5		5	
		30		82(8.3)	22.8	4.8		5.4		6	
		35		70(7.1)	26.6	5.6		6.3		7	
		40		61(6.3)	30.4	6.4		7.2		8	
		45		54(5.6)	34.2	7.2		8.1		9	
		50		49(5.0)	38	8		9		10	
		55		45(4.5)	41.8	8.8		9.9		11	
		60		41(4.2)	45.6	9.6		10.8		12	
		65		38(3.8)	49.4	10.4		11.7		13	
		70		35(3.6)	53.2	11.2		12.6		14	
		75		33(3.3)	57	12		13.5		15	
		80		31(3.1)	60.8	12.8		14.4		16	
		90		27(2.8)	68.4	14.4		16.2		18	
		100		25(2.5)	76	16		18		20	

Code No.			cycle life			1 million		0.5 million		0.3 million	
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						Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)
SIMG	12	15	6	245 (25.0)	11.4	2.4	588 (60.0)	2.7	662 (67.5)	Out of bounds	735 (75.0)
		20		184(18.8)	15	3.2		3.6		4	
		25		147(15.0)	19	4		4.5		5	
		30		123(12.5)	22.8	4.8		5.4		6	
		35		105(10.7)	26.6	5.6		6.3		7	
		40		92(9.4)	30.4	6.4		7.2		8	
		45		82(8.3)	34.2	7.2		8.1		9	
		50		74(7.5)	38	8		9		10	
		55		67(6.8)	41.8	8.8		9.9		11	
		60		61(6.3)	45.6	9.6		10.8		12	
		65		57(5.8)	49.4	10.4		11.7		13	
		70		53(5.4)	53.2	11.2		12.6		14	
		75		49(5.0)	57	12		13.5		15	
		80		46(4.7)	60.8	12.8		14.4		16	
		90		41(4.2)	68.4	14.4		16.2		18	
100	37(3.8)	76	16	18	20						
SIMG	14	20	7	238(24.3)	15.2	3.2	761 (77.6)	3.6	856 (87.3)	Out of bounds	951 (97.0)
		25		190(19.4)	19	4		4.5		5	
		30		159(16.2)	22.8	4.8		5.4		6	
		35		136(13.9)	26.6	5.6		6.3		7	
		40		119(12.1)	30.4	6.4		7.2		8	
		45		106(10.8)	34.2	7.2		8.1		9	
		50		95(9.7)	38	8		9		10	
		55		86(8.8)	41.8	8.8		9.9		11	
		60		79(8.1)	45.6	9.6		10.8		12	
		65		73(7.5)	49.4	10.4		11.7		13	
		70		68(6.9)	53.2	11.2		12.6		14	
		75		63(6.5)	57	12		13.5		15	
		80		59(6.1)	60.8	12.8		14.4		16	
		90		53(5.4)	68.4	14.4		16.2		18	
		100		48(4.9)	76	16		18		20	

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						Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)
SIMG	16	20	8	318 (32.5)	15.2	3.2	1020 (104.0)	3.6	1147 (117.0)	Out of bounds	1275 (130.0)
		25		255 (26.0)	19	4		4.5		5	
		30		212 (21.7)	22.8	4.8		5.4		6	
		35		182 (18.6)	26.6	5.6		6.3		7	
		40		159 (16.2)	30.4	6.4		7.2		8	
		45		142 (14.4)	34.2	7.2		8.1		9	
		50		127 (13.0)	38	8		9		10	
		55		116 (11.8)	41.8	8.8		9.9		11	
		60		106 (10.8)	45.6	9.6		10.8		12	
		65		98 (10.0)	49.4	10.4		11.7		13	
		70		91 (9.3)	53.2	11.2		12.6		14	
		75		85 (8.7)	57	12		13.5		15	
		80		80 (8.1)	60.8	12.8		14.4		16	
		90		71 (7.2)	68.4	14.4		16.2		18	
		100		64 (6.5)	76	16		18		20	
SIMG	18	20	9	392 (40.0)	15.2	3.2	1255 (128.0)	3.6	1412 (144.0)	Out of bounds	1569 (160.0)
		25		314 (32.0)	19	4		4.5		5	
		30		261 (26.7)	22.8	4.8		5.4		6	
		35		224 (22.8)	26.6	5.6		6.3		7	
		40		196 (20.0)	30.4	6.4		7.2		8	
		45		174 (17.8)	34.2	7.2		8.1		9	
		50		157 (16.0)	38	8		9		10	
		55		143 (14.5)	41.8	8.8		9.9		11	
		60		131 (13.3)	45.6	9.6		10.8		12	
		65		121 (12.3)	49.4	10.4		11.7		13	
		70		112 (11.4)	53.2	11.2		12.6		14	
		75		105 (10.7)	57	12		13.5		15	
		80		98 (10.0)	60.8	12.8		14.4		16	
		90		87 (8.9)	68.4	14.4		16.2		18	
		100		78 (8.0)	76	16		18		20	

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						Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)
SIMG	20	20	10	514 (52.5)	15.2	3.2	1648 (168.0)	3.6	1853 (189.0)	Out of bounds	2059 (210.0)
		25		412 (42.0)	19	4		4.5		5	
		30		343 (35.0)	22.8	4.8		5.4		6	
		35		294 (30.0)	26.6	5.6		6.3		7	
		40		257 (26.2)	30.4	6.4		7.2		8	
		45		229 (23.3)	34.2	7.2		8.1		9	
		50		206 (21.0)	38	8		9		10	
		55		187 (19.1)	41.8	8.8		9.9		11	
		60		171 (17.5)	45.6	9.6		10.8		12	
		65		158 (16.1)	49.4	10.4		11.7		13	
		70		147 (15.0)	53.2	11.2		12.6		14	
		75		137 (14.0)	57	12		13.5		15	
		80		129 (13.1)	60.8	12.8		14.4		16	
		90		114 (11.7)	68.4	14.4		16.2		18	
		100		103 (10.5)	76	16		18		20	
125	82 (8.4)	95	20	22.5	25						
SIMG	22	20	11	78 (8.16)	15.2	3.2	1883 (192.0)	3.6	2118 (216.0)	Out of bounds	2354 (240.0)
		25		78 (8.17)	19	4		4.5		5	
		30		78 (8.18)	22.8	4.8		5.4		6	
		35		78 (8.19)	26.6	5.6		6.3		7	
		40		78 (8.20)	30.4	6.4		7.2		8	
		45		78 (8.21)	34.2	7.2		8.1		9	
		50		78 (8.22)	38	8		9		10	
		55		78 (8.23)	41.8	8.8		9.9		11	
		60		78 (8.24)	45.6	9.6		10.8		12	
		65		78 (8.25)	49.4	10.4		11.7		13	
		70		78 (8.26)	53.2	11.2		12.6		14	
		75		78 (8.27)	57	12		13.5		15	
		80		78 (8.28)	60.8	12.8		14.4		16	
		90		78 (8.29)	68.4	14.4		16.2		18	
		100		78 (8.30)	76	16		18		20	
125	78 (8.31)	95	20	22.5	25						

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						Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)
SIMG	25	20	12.5	78 (8.32)	15.2	3.2	2432 (248.0)	3.6	2736 (279.0)	Out of bounds	3040 (310.0)
		25		78 (8.33)	19	4		4.5		5	
		30		78 (8.34)	22.8	4.8		5.4		6	
		35		78 (8.35)	26.6	5.6		6.3		7	
		40		78 (8.36)	30.4	6.4		7.2		8	
		45		78 (8.37)	34.2	7.2		8.1		9	
		50		78 (8.38)	38	8		9		10	
		55		78 (8.39)	41.8	8.8		9.9		11	
		60		78 (8.40)	45.6	9.6		10.8		12	
		65		78 (8.41)	49.4	10.4		11.7		13	
		70		78 (8.42)	53.2	11.2		12.6		14	
		75		78 (8.43)	57	12		13.5		15	
		80		78 (8.44)	60.8	12.8		14.4		16	
		90		78 (8.45)	68.4	14.4		16.2		18	
		100		78 (8.46)	76	16		18		20	
125	78 (8.47)	95	20	22.5	25						
SIMG	27	20	13.5	907 (92.5)	15.2	3.2	2903 (296.0)	3.6	3266 (330.0)	Out of bounds	3628 (370.0)
		25		725 (74.0)	19	4		4.5		5	
		30		604 (61.7)	22.8	4.8		5.4		6	
		35		518 (52.9)	26.6	5.6		6.3		7	
		40		453 (46.3)	30.4	6.4		7.2		8	
		45		403 (41.1)	34.2	7.2		8.1		9	
		50		363 (37.0)	38	8		9		10	
		55		330 (33.6)	41.8	8.8		9.9		11	
		60		302 (30.8)	45.6	9.6		10.8		12	
		65		279 (28.5)	49.4	10.4		11.7		13	
		70		259 (26.4)	53.2	11.2		12.6		14	
		75		242 (24.7)	57	12		13.5		15	
		80		227 (23.1)	60.8	12.8		14.4		16	
		90		201 (20.6)	68.4	14.4		16.2		18	
		100		181 (18.5)	76	16		18		20	
125	145 (14.8)	95	20	22.5	25						
150	121 (12.3)	114	24	27	30						

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						Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)	Max compression F(mm)	Load N (kgf)
SIMG	30	20	15	1176 (120.0)	15.2	3.2	3766 (384.0)	3.6	4236 (432.0)	Out of bounds	4707 (480.0)
		25		941 (96.0)	19	4		4.5		5	
		30		784 (80.0)	22.8	4.8		5.4		6	
		35		672 (68.6)	26.6	5.6		6.3		7	
		40		588 (60.0)	30.4	6.4		7.2		8	
		45		523 (53.3)	34.2	7.2		8.1		9	
		50		470 (48.0)	38	8		9		10	
		55		428 (43.6)	41.8	8.8		9.9		11	
		60		392 (40.0)	45.6	9.6		10.8		12	
		65		362 (36.9)	49.4	10.4		11.7		13	
		70		336 (34.3)	53.2	11.2		12.6		14	
		75		314 (32.0)	57	12		13.5		15	
		80		294 (30.0)	60.8	12.8		14.4		16	
		90		261 (26.7)	68.4	14.4		16.2		18	
		100		235 (24.0)	76	16		18		20	
		125		188 (19.2)	95	20		22.5		25	
		150		157 (16.0)	114	24		27		30	
175	134 (13.7)	133	28	31.5	35						
200	118 (12.0)	152	32	36	40						
SIMG	35	30	17.5	1029 (105.0)	22.8	4.8	4943 (504.0)	5.4	5560 (567.0)	6	6178 (630.0)
		35		882 (90.0)	26.6	5.6		6.3		7	
		40		772 (78.7)	30.4	6.4		7.2		8	
		45		686 (70.0)	34.2	7.2		8.1		9	
		50		617 (63.0)	38	8		9		10	
		55		561 (57.3)	41.8	8.8		9.9		11	
		60		514 (52.5)	45.6	9.6		10.8		12	
		65		475 (48.5)	49.4	10.4		11.7		13	
		70		441 (45.0)	53.2	11.2		12.6		14	
		75		412 (42.0)	57	12		13.5		15	
		80		386 (39.4)	60.8	12.8		14.4		16	
90	343 (35.0)	68.4	14.4	16.2	18						

		100		309 (31.5)	76	16		18		20	
		125		247 (25.2)	95	20		22.5		25	
		150		206 (21.0)	114	24		27		30	
		175		176 (18.0)	133	28		31.5		35	
		200		154 (15.7)	152	32		36		40	
SIMG	40	35	20	1148 (117.1)	26.6	5.6	6433 (656.0)	6.3	7237 (738.0)	7	8041 (820.0)
		40		1005 (102.5)	30.4	6.4		7.2		8	
		45		893 (91.1)	34.2	7.2		8.1		9	
		50		804 (82.0)	38	8		9		10	
		55		731 (74.5)	41.8	8.8		9.9		11	
		60		670 (68.3)	45.6	9.6		10.8		12	
		65		618 (63.1)	49.4	10.4		11.7		13	
		70		574 (58.6)	53.2	11.2		12.6		14	
		75		536 (54.7)	57	12		13.5		15	
		80		502 (51.3)	60.8	12.8		14.4		16	
		90		446 (45.6)	68.4	14.4		16.2		18	
		100		402 (41.0)	76	16		18		20	
		125		321 (32.8)	95	20		22.5		25	
		150		268 (27.3)	114	24		27		30	
		175		230 (23.4)	133	28		31.5		35	
		200		201 (20.5)	152	32		36		40	
SIMG	50	50	25	1225 (125.0)	39	8	9807 (1000.0)	9	11032 (1125.0)	10	12258 (1250.0)
		55		1114 (113.6)	43	8.8		9.9		11	
		60		1021 (104.2)	47	9.6		10.8		12	
		65		942 (96.2)	51	10.4		11.7		13	
		70		875 (89.3)	54	11.2		12.6		14	
		75		817 (83.3)	58	12		13.5		15	
		80		766 (78.1)	61	12.8		14.4		16	
		90		681 (69.4)	66	14.4		16.2		18	
		100		613 (62.5)	74	16		18		20	
		125		490 (50.0)	89	20		22.5		25	
		150		408 (41.7)	105	24		27		30	
		175		350 (35.7)	133	28		31.5		35	
		200		306 (31.3)	152	32		36		40	