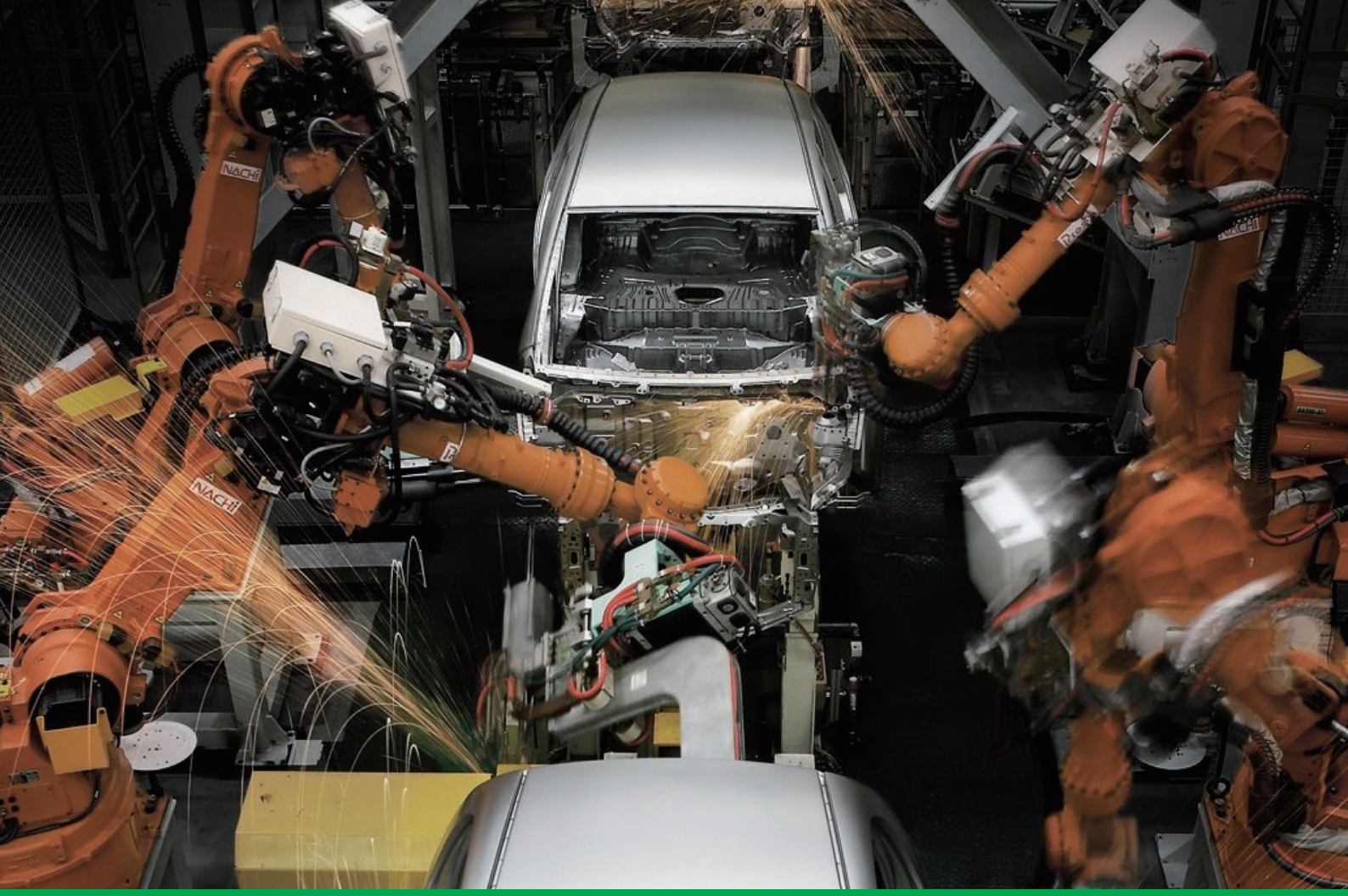
力科丹普

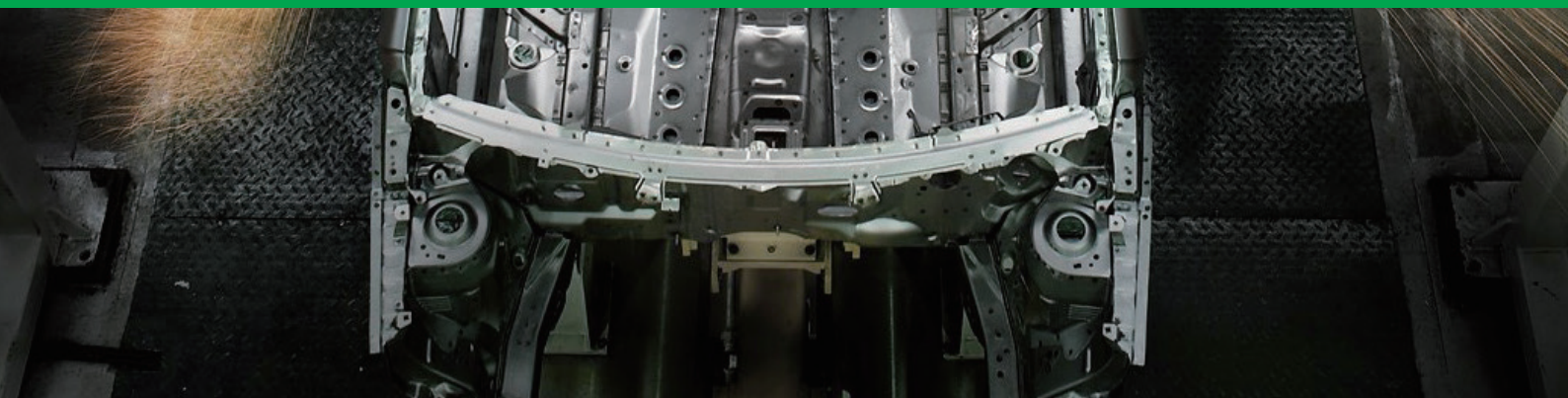
Energy Absorption
Vibration Control

Special Vibration Isolator



EKD

FOCUSES ON COST-EFFECTIVE ENERGY ABSORPTION AND VIBRATION ISOLATION SOLUTIONS.



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Special Vibration Isolators

EXCELLENT IN QUALITY AND VALUE FOR ENERGY ABSORPTION AND VIBRATION ISOLATION PRODUCTS

BRAND PROFILE

Originating from American design and technology, EKD specializes in research and development, manufacture, testing and solutions of energy absorption and vibration control products like hydraulic shock absorbers, viscous dampers, wire rope vibration isolators, polyurethane cushions etc. R&D and manufacture are based in Wuxi, Jiangsu Province. Currently, EKD has 4 complete product lines and the leading product testing lab in the industry.

EKD product's differences and features:

- Leading product design in the world.
- All the key components use top brand products in the industry, more than 60% components are originally from US.
- Standardized assembly process.
- High precision, testing of whole series equipments, testing rate of finished products as high as 100%.

EKD's Brand Advantages:

- Excellent working life and performance.
- Prompt product delivery, enough safety inventories.
- Quick and good technical supports such as product sizing, product testing, and solutions.
- On-site service support from domestic professionals within 24 hours.

Materials and Finishes:

Standard: Wire rope: Stainless steel 302 / 304
Mount bars: Aluminum alloy surface (Anodized)
Hardware: Alloy steel, Zinc Plated
Thread: Stainless Steel Self Clinching Insert(WR2-WR8 Series),
Threaded Bar(WR12-WR40 Series)

Special: HGGS Series all stainless steel products / HGGN Series anti-vibration high energy vibration isolators

Isolator Options:

Mounting: EKD offers a full range of mounting combinations of thru hole, countersunk and threaded bars.

Loops: EKD's wire rope vibration isolators can be purchased with the full number of loops, or as few as 2 loops. The number of loops is indicated in the isolator part number. Performance is provided for full loop isolators. Performance for reduced loop isolators can be obtained by a simple ratio.

Bellmouth: EKD's wire rope isolators are available with a "bellmouth" option. The bellmouth feature includes mount bars with radii manufactured into the wire rope hole edges. This option is recommended for high fatigue applications. Add an "R" to the end of the part number.

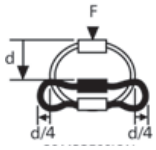
Performance:

Stiffness(KV or KS) :

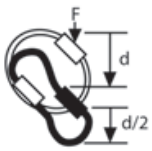
Wire rope vibration isolators exhibit non-linear stiffness behavior. Small deflections, usually associated with vibration isolation, will have a different spring rate than larger shock deflections. EKD company publishes typical vibration stiffness value(Kv), and average shock stiffness values(Ks) within the catalog. These values can be used with the provided equations listed later to predict system performance. The stiffness values listed in the catalog are for full-loop versions. For reduced loop versions, ratio the stiffness by dividing the number of desired loops by the number of full loops.

Isolator Axes:

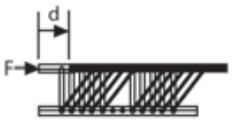
Wire Rope Vibration Isolators are multi-axis vibration isolators. The diagram below includes load axis definitions and deflection considerations.



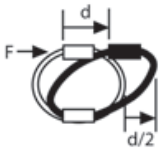
COMPRESSION



45° COMPRESSION/ ROLL



FIXED SHEAR

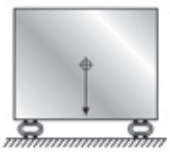


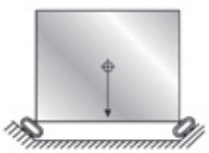
FIXED ROLL

Damping: Typically 5-15%, depending on size and input level. The performance of HGGN Series anti-vibration high energy vibration isolator is significantly improved. For specific damping considerations, please consult EKD company.

Mounting Orientation:

The diagrams below illustrate typical mounting orientations.


COMPRESSION


45° COMPRESSION/ ROLL


FIXED SHEAR

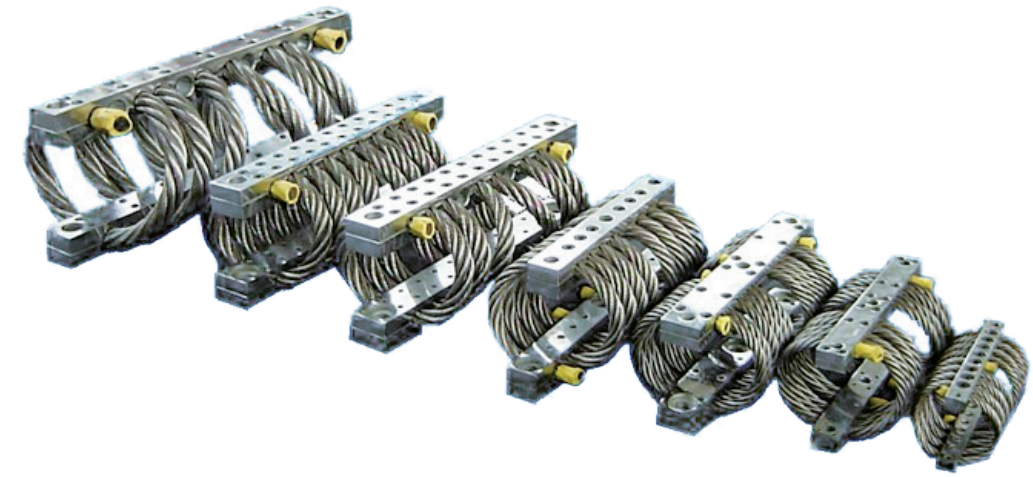

FIXED ROLL

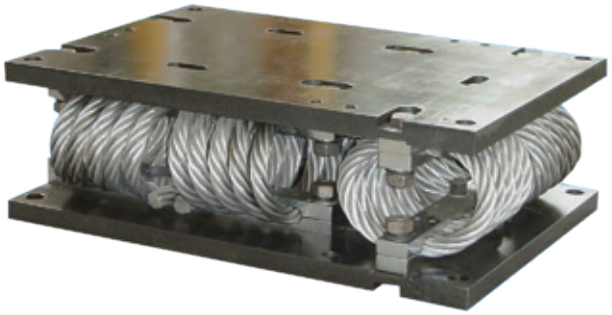
Stabilizer:

Stabilizers are used to control deflections of tall supported masses. Stabilizers are typically recommended when the height equals 2-times the width or depth dimension. In most applications, the quantity of stabilizers required is half as many as the base isolators, and select one size softer than the base isolators. Stabilizers are usually side mounted.

Applications Worksheet

	METRIC
PART I SYSTEM DATA	
1. Total Supported Load(W_T): W_T = _____ Kg x 9.81 = _____ N	
2.Number of Isolators(N): n = _____	W= _____N*
3.Static Load per Isolator(w): $W = \frac{W_T}{n}$	Load Axis
4.Load Axis: Compression Shear/Roll 45° Compression/ Roll	
PART II VIBRATION SIZING	
1. Input Excitation Frequency (f_i)= _____Hz = $\left(\frac{rpm}{60}\right)$	
2.System Response Natural Frequency for 80% isolation $(f_n) = \frac{(f_i)}{30}$ = _____Hz	
3.Maximum Isolator Vibration stiffness(Kv): $K_v = \frac{W(2\pi f_n)}{g}$ g =9.81 m/sec^2	K_V=_____N/m
4. Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator. a.) Calculated "W" must be less than the isolator's maximum static load. b.) Isolator's vibration stiffness value must be less than the calculated maximum Kv.	
PART III Shock Sizing:	
1.Maximum Allowable Transmitted Acceleration: A_T = _____G 's	
2.Shock Input Velocity: V = _____m/sec	
Free Fall Impact: $V = \sqrt{2gh}$ g = 9.81 m/sec^2 h = Drop Height (m)	
3.Minimum Isolator Response Deflection: $D_{min} = \frac{V^2}{g(A_T)}$	
4.Maximum Isolator Shock Stiffness: $K_s = \frac{W(V/D_{min})^2}{g}$	
5.Select an isolator by comparing calculated values with technical data for the desired load axis provided in tables for each isolator. a.) Calculated "W" must be less than the isolator's maximum static load. b.) Calculated Dmin must be less than the isolator's maximum deflection. Note: Metric deflections are calculated in meters(m) and technical data is in millimeters(mm). c.) Isolator's shock stiffness must be less than the calculated maximum "Ks".	D_{min}=_____m K_S= _____N/m
6.Check actual deflection using "KS" from technical data to ensure that the isolator's deflection is not exceeded. $D_{actual} = \frac{V}{\sqrt{\frac{K_s(\text{Isolator})\,g}{W}}}$	
7. If isolator's maximum deflection is exceeded, select another isolator and repeat Steps 5 and 6.	





Features, Benefits and Scope of Applications

Stiffness is non-linear, long service life. Corrosion resistant, water resistant, salt fog resistant, oil proof and sunshine proof. Several mounting options like flatwise mounting, side mounting and 45° mounting. This Series product is suitable for vibration isolation for marine power equipments and general electrical equipments.

Design, Manufacture and Technical Responsibility Unit

This Series product was designed by Naval University of Engineering, and was appraised by experts in relevant units like Chinese Academy of Sciences and Shanghai Jiaotong University. Technical responsibility unit is Naval University of Engineering.

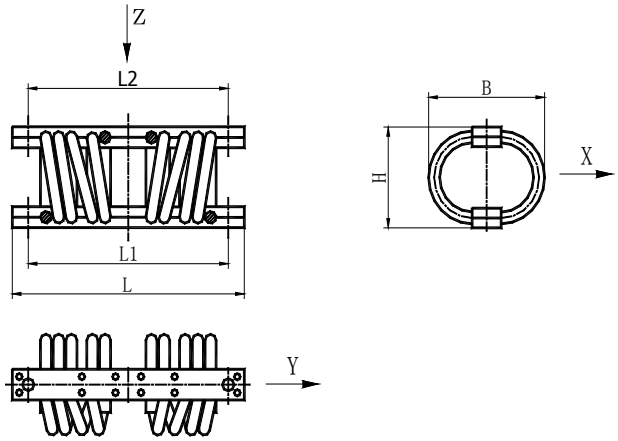


Diagram 1 HGGS-5 ～ HGGS-20、HGGS-80 ～ HGGS-600

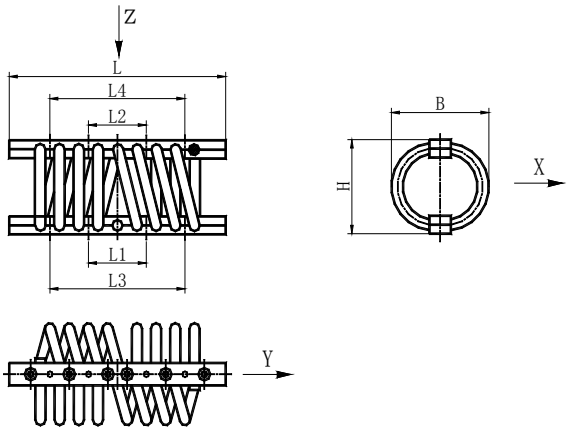


Diagram 2 HGGS-30 ～ HGGS-80

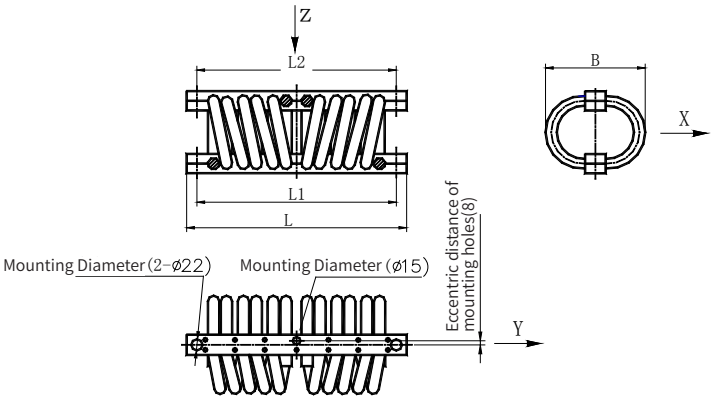


Diagram 3 HGGS-800 ～ HGGS-1200

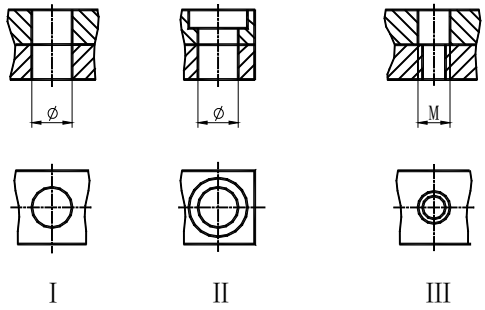


Diagram 4 Interface Options

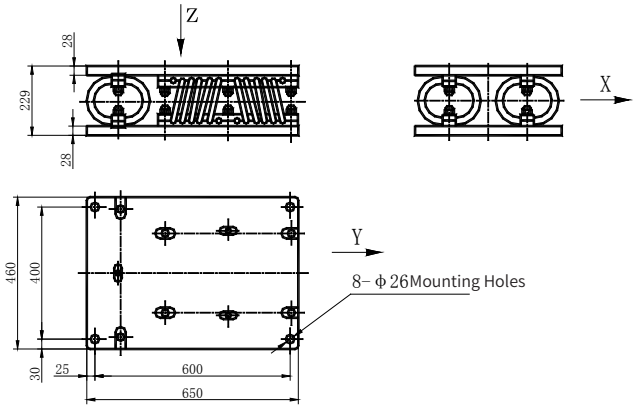


Diagram 5 HGGS-3600Z

HGGS

Nominal Load, Static deflection with nominal load, Static Stiffness

Model	Nominal Load N			Static deflection with nominal load mm	Static Stiffness N/mm		
	Z	X	Y	Z	Z	X	Y
HGGS-5	50	23.5	23.5	1±0.4	70	26	26
HGGS-6	60	28.2	28.2	1±0.4	87	32	32
HGGS-10	100	47	47	1±0.4	130	48	48
HGGS-20	200	94	94	1±0.4	213	78	78
HGGS-30	300	141	141	1±0.4	336	123	123
HGGS-50	500	235	235	1±0.4	392	144	144
HGGS-60	600	282	282	1±0.4	732	269	269
HGGS-80	800	376	376	7±2	150	58	58
HGGS-100	1000	470	470	7±2	184	63	63
HGGS-150	1500	705	705	8±2	226	87	87
HGGS-200	2000	940	940	9±2	278	92	92
HGGS-300	3000	1410	1410	10±2	341	112	112
HGGS-400	4000	1880	1880	10±2	418	279	279
HGGS-600	6000	2820	2820	10±2	513	245	245
HGGS-800	8000	3760	3760	16±2	629	178	178
HGGS-1000	10000	4700	4700	16±2	772	246	246
HGGS-1200	12000	5640	5640	15±2	948	327	327
HGGS-3600Z	36000	16920	16920	15±2	2844	980	980

Dynamic Stiffness, Inherent Frequency and Damping Ratio

Model	Dynamic Stiffness N/mm			Inherent Frequency Hz			Damping Ratio C/C_c
	Z	X	Y	Z	X	Y	
HGGS-5	230	92	92	25±3	23±3	23±3	≥0.18
HGGS-6	255	102	102	25±3	23±3	23±3	
HGGS-10	98	40	40	14±3	13±3	13±3	
HGGS-20	172	69	69	14±3	14±3	14±3	
HGGS-30	298	120	120	13±3	12±3	12±3	
HGGS-50	348	140	140	11±3	10±3	10±3	
HGGS-60	549	221	221	15±3	14±3	14±3	
HGGS-80	296	120	120	9±2	8±2	8±2	
HGGS-100	342	140	140	8±2	8±2	8±2	
HGGS-150	357	144	144	8±2	7±2	7±2	
HGGS-200	439	176	176	7±2	7±2	7±2	
HGGS-300	800	321	321	7±2	7±2	7±2	
HGGS-400	1418	570	570	8±2	8±2	8±2	
HGGS-600	1724	694	694	8±2	7±2	7±2	
HGGS-800	980	394	394	5±2	5±2	5±2	
HGGS-1000	1264	507	507	5±2	5±2	5±2	
HGGS-1200	1545	620	620	5±2	5±2	5±2	
HGGS-3600Z	4635	1863	1863	5±2	5±2	5±2	

Note: Dynamic stiffness and inherent frequency are measured when the excitation amplitude is about 0.3 times of static deflection with nominal load.

Shock Stiffness and Maximum Allowable Deflection

Model	Shock Stiffness N/mm			Maximum Allowable Deflection mm			Damping Ratio C/C_c
	Z	X	Y	Z	X	Y	
HGGS-5	78	34	34	10	11	11	≥0.18
HGGS-6	87	38	38	11	12	12	
HGGS-10	97	42	42	23	24	24	
HGGS-20	105	45	45	24	25	25	
HGGS-30	112	48	48	28	29	29	
HGGS-50	160	69	69	25	26	26	
HGGS-60	228	98	98	27	28	28	
HGGS-80	110	47	47	36	37	37	
HGGS-100	120	52	52	36	37	37	
HGGS-150	187	80	80	36	37	37	
HGGS-200	202	87	87	36	37	37	
HGGS-300	317	136	136	37	38	38	
HGGS-400	476	205	205	38	40	40	
HGGS-600	525	226	226	38	40	40	
HGGS-800	432	186	186	73	76	76	
HGGS-1000	570	245	245	73	76	76	
HGGS-1200	710	305	305	73	76	76	
HGGS-3600Z	2134	918	918	73	76	76	

Boundary Dimensions, Connecting Dimensions and Weight

Model	Z – dimension Nominal Load N	Boundary Dimensions Free State mm			Mounting Hole Distance mm				Mounting Diameter mm	Number of mounting holes per bar	Weight kg	Interface Arrangement Options	Interface Options (Diagram4)
		Length	Width	Height									
		L	B	H	L1	L2	L3	L4	(Ø or M)				
HGGS-5	50	113	38	32.5	97	97	–	–	M5 or Ø5.5	2	0.16	Diagram1	I
HGGS-6	60	133	40	32.2	117	117	–	–	M5 or Ø5.5	2	0.185		
HGGS-10	100	146	72	68.2	132	132	–	–	M6 or Ø6.5	2	0.34		
HGGS-20	200	146	75	70	132	132	–	–	M6 or Ø6.5	2	0.415		
HGGS-30	300	182	87	82	54	54	126	126	M6 or Ø6.5	4	0.77	Diagram2	III
HGGS-50	500	182	89	80.3	54	54	126	126	M6 or Ø6.5	4	0.815		
HGGS-60	600	182	91	78.7	54	54	126	126	M6 or Ø6.5	4	0.91		
HGGS-80	800	200	109	94	172	172	–	–	Ø10	3	1.5	Diagram1	I
HGGS-100	1000	200	109	94	172	172	–	–	Ø10	3	1.7		
HGGS-150	1500	250	116	96	220	220	–	–	Ø13.5	3	3.5		II
HGGS-200	2000	250	116	96	220	220	–	–	Ø13.5	3	3.8		
HGGS-300	3000	230/300	124	107	200	200	–	–	Ø13.5	3	4.5		
HGGS-400	4000	320	147	125	283	283	–	–	Ø17.5	2	7.5		
HGGS-600	6000	320	147	125	283	283	–	–	Ø17.5	2	8		
HGGS-800	8000	428	195	173	388	388	–	–	Diagram3	3	14	Diagram3	I
HGGS-1000	10000	428	195	173	388	388	–	–		3	16		
HGGS-1200	12000	428	195	173	388	388	–	–		3	18		
HGGS-3600Z	36000	Diagram5											

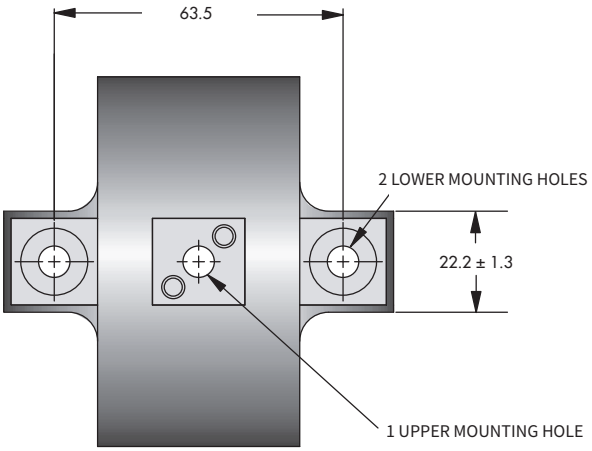
Note: "/" refers to upper bar parameters / lower bar parameters

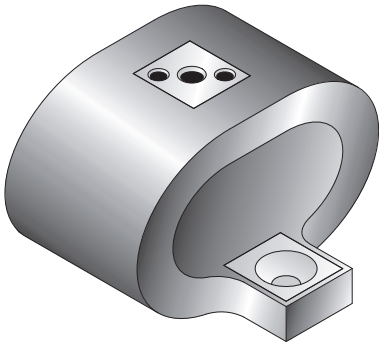
Features, Benefits and Scope of Applications

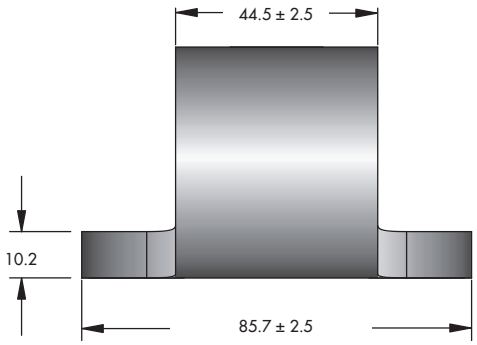
HGGN Series High Energy Anti-Impact Vibration Isolator incorporates the use of helical wire rope isolator encased in a proprietary elastomeric compound. The stainless steel cable of the mount provides for a rugged construction, while the elastomer provides additional damping and stiffness, with a significantly enhanced energy absorption efficiency. This Series product is particularly suitable for vibration isolation in shipboard equipments. The isolator has proven particularly strong in low natural frequency “soft deck” applications of 12-16 Hz, reducing output G's to below 15 G's.

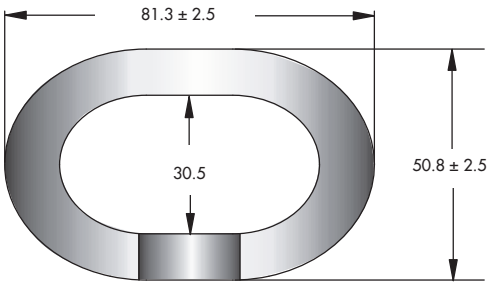
Design, Manufacture and Technical Responsibility Unit

This Series product was designed by Naval University of Engineering. Technical responsibility unit is Naval University of Engineering. This series product provides excellent performance in bearing capacity, maximum energy absorption capacity and maximum available deflection. The effect of shock absorption is obviously superior to that of other vibration isolators.









Note: Dimensions are in mm / Tolerances are ±0.25mm

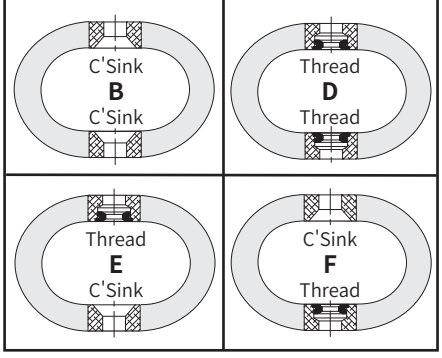
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	Thread mm	C'Sink Metric
HGGN6-600	0.2	B, D, E, F	Ø 6.9	M6 X 1.0	90°
HGGN6-400	0.2				
HGGN6-200	0.2				

Ordering Example

HGGN6 - 200 - B L M

- Add "M" for Metric
- Threaded Hole Options
  [L] - Helical Inserts, Self-Locking
  [H] - Helical Inserts, Free Running
- Mounting Options See chart
- Isolator Size See Sizing Table

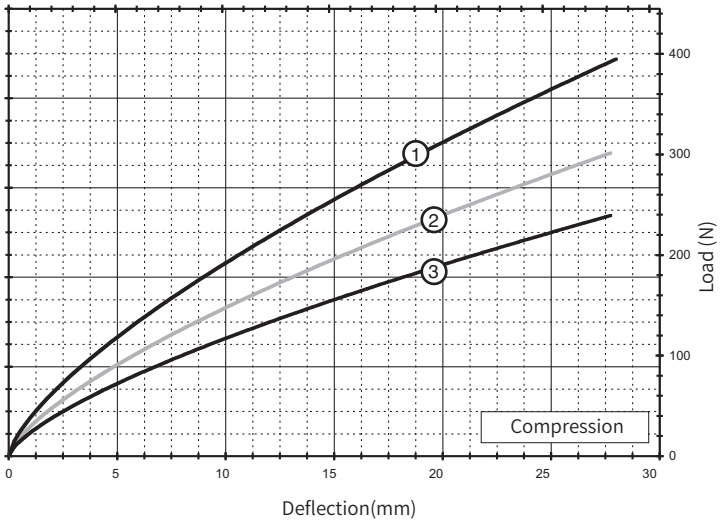
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

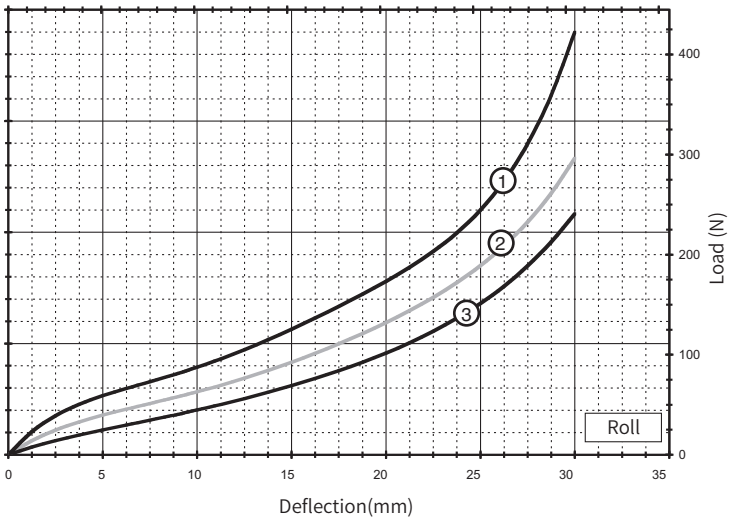
HGGN

Static Load vs Deflection



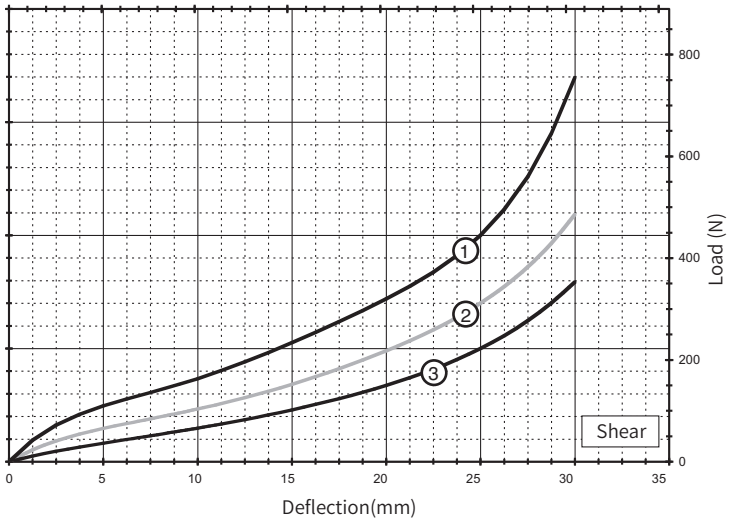
Compression

Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN6-600	107	28.4	38	25
2	HGGN6-400	80	28.4	29	19
3	HGGN6-200	62	28.4	23	15



Roll

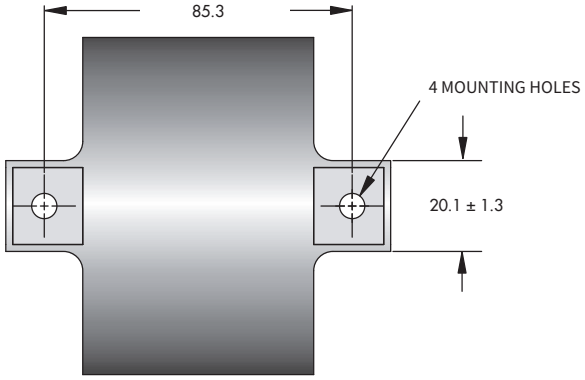
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN6-600	80	30.5	20	15
2	HGGN6-400	58	30.5	13	11
3	HGGN6-200	40	30.5	7	9

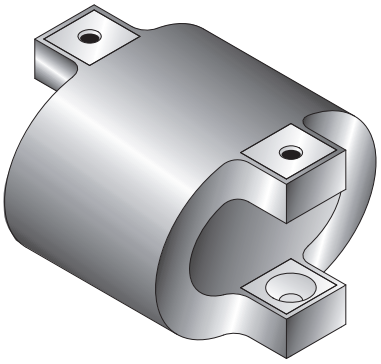


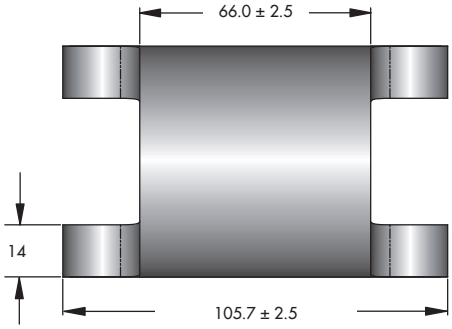
Shear

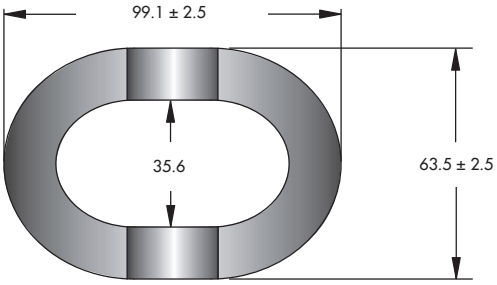
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN6-600	151	30.5	37	26
2	HGGN6-400	89	30.5	21	18
3	HGGN6-200	58	30.5	11	12

Note: Do not extrapolate plotted curves.









HGGN

Note: Dimensions are in mm / Tolerances are ±0.25mm

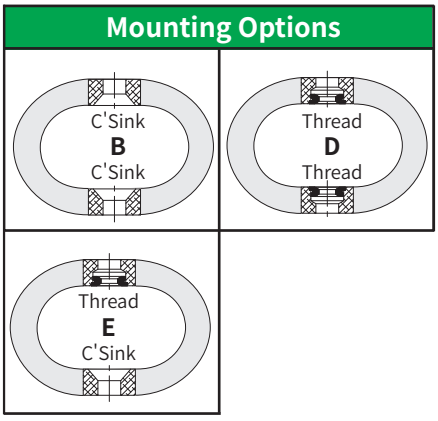
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	Thread mm	C'Sink Metric
HGGN8-600	0.4	B, D, E	Ø 6.9±0.13	M6 X 1.0	90°
HGGN8-400	0.4				
HGGN8-200	0.4				

Ordering Example

HGGN8 -200 - B L M

- M — Add "M" for Metric
- L — Threaded Hole Options
  [L] - Helical Inserts, Self-Locking
  [H] - Helical Inserts, Free Running
- B — Mounting Options See chart
- 200 — Isolator Size See Sizing Table

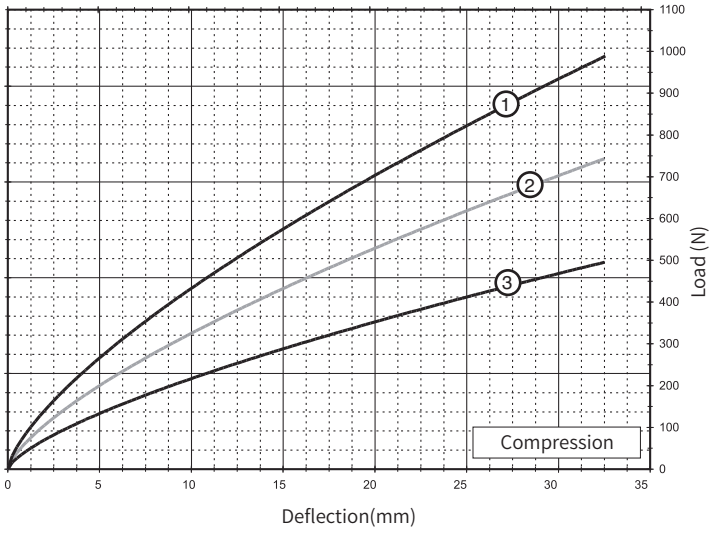
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

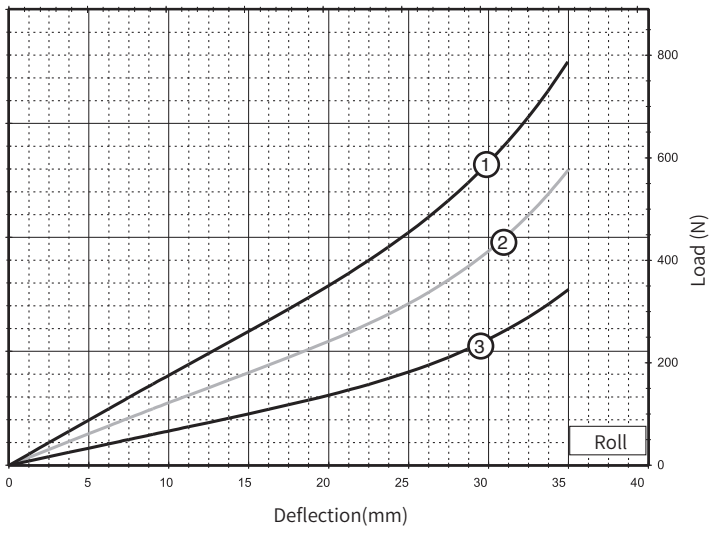
HGGN

Static Load vs Deflection



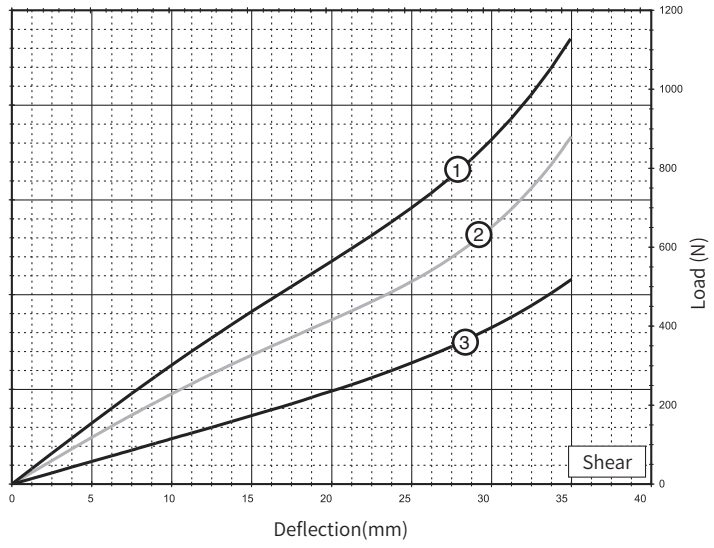
Compression

Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN8-600	267	33.1	84	53
2	HGGN8-400	191	33.1	61	39
3	HGGN8-200	133	33.1	41	26



Roll

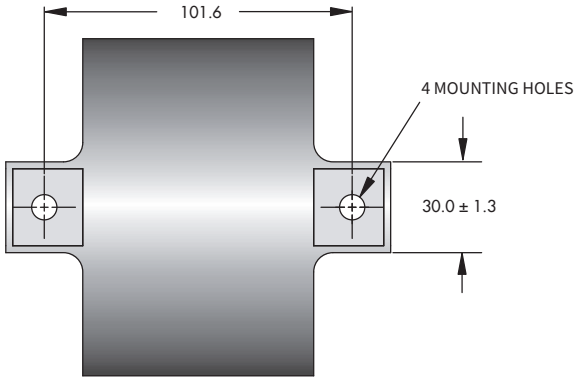
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN8-600	178	35.6	23	28
2	HGGN8-400	120	35.6	16	19
3	HGGN8-200	67	35.6	9	11

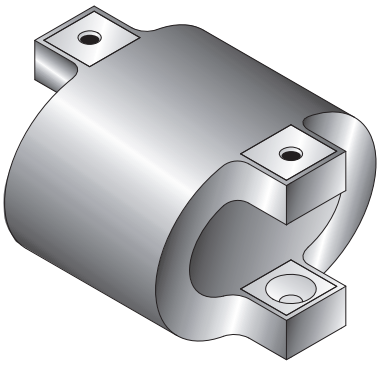


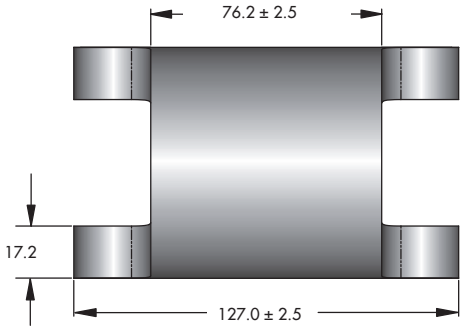
Shear

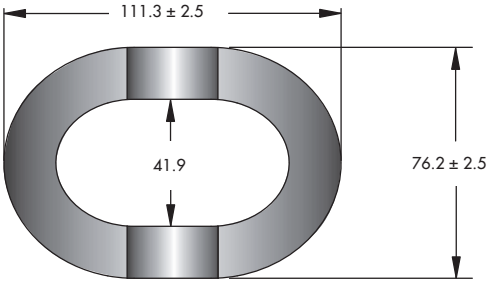
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN8-600	302	35.6	40	43
2	HGGN8-400	214	35.6	28	30
3	HGGN8-200	107	35.6	14	17

Note: Do not extrapolate plotted curves.









Note: Dimensions are in mm / Tolerances are ±0.25mm

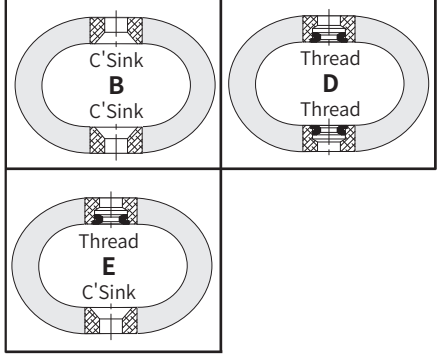
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	Thread mm	C'Sink Metric
HGGN12-600	0.8	B, D, E	Ø 9.0±0.13	M8 X 1.25	90°
HGGN12-400	0.8				
HGGN12-200	0.8				

Ordering Example

HGGN12 - 200 - B L M

- Add "M" for Metric
- Threaded Hole Options
  [L] - Helical Inserts, Self-Locking
  [H] - Helical Inserts, Free Running
- Mounting Options See chart
- Isolator Size See Sizing Table

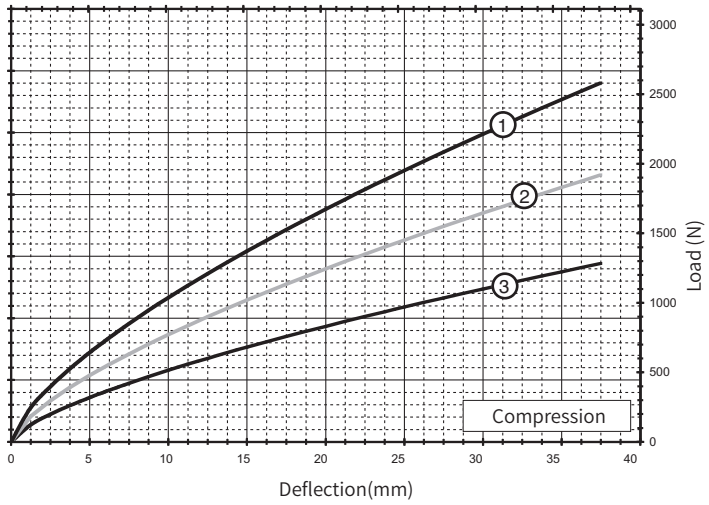
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

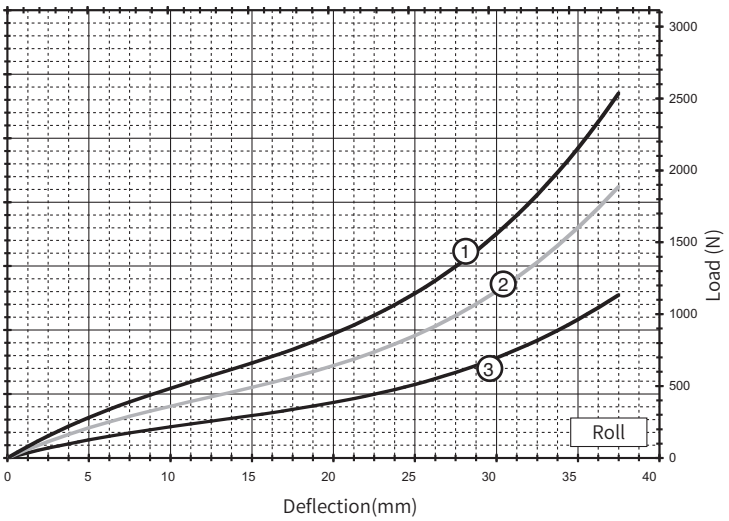
HGGN

Static Load vs Deflection



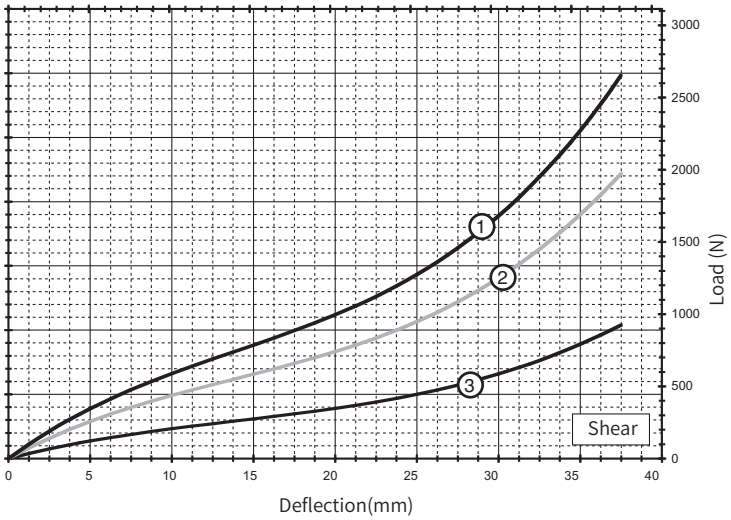
Compression

Curve	Model	Max. Static Load N	Max. Deflection mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN12-600	689	38.1	204	121
2	HGGN12-400	512	38.1	151	89
3	HGGN12-200	356	38.1	102	60



Roll

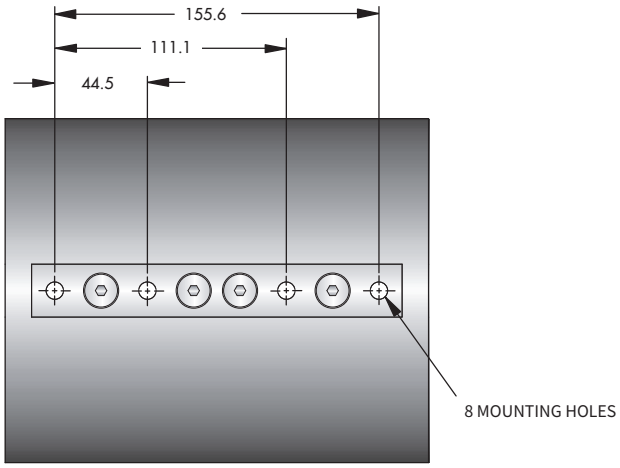
Curve	Model	Max. Static Load N	Max. Deflection mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN12-600	534	38.1	79	75
2	HGGN12-400	400	38.1	59	57
3	HGGN12-200	245	38.1	35	34

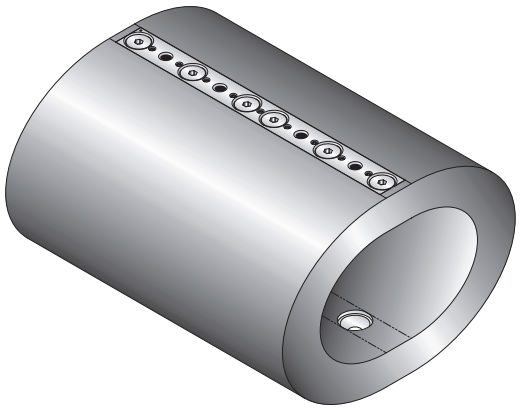


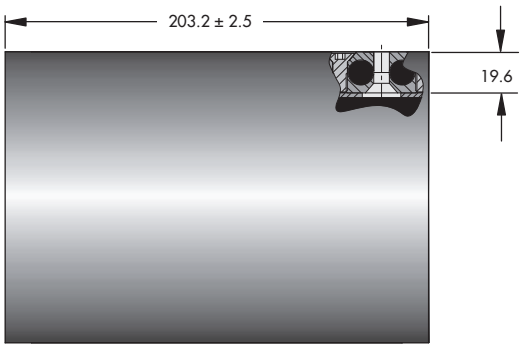
Shear

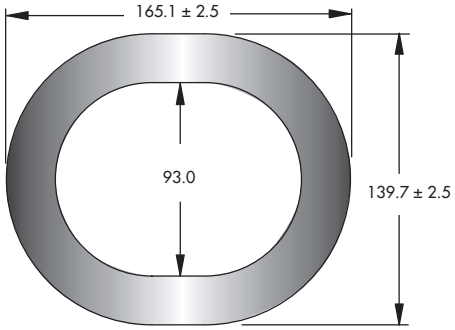
Curve	Model	Max. Static Load N	Max. Deflection mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN12-600	645	38.1	97	84
2	HGGN12-400	467	38.1	72	63
3	HGGN12-200	222	38.1	34	30

Note: Do not extrapolate plotted curves.









Note: Dimensions are in mm / Tolerances are ±0.25mm

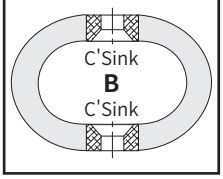
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	C'Sink Metric
HGGN16-606	4.0	B	Ø 8.3 $^{+0.13}_{-0.38}$	82°
HGGN16-406	3.4			
HGGN16-206	2.7			

Ordering Example

HGGN16 -206 - B

- B — Mounting Options — See chart
- 206 — Isolator Size — See Sizing Table

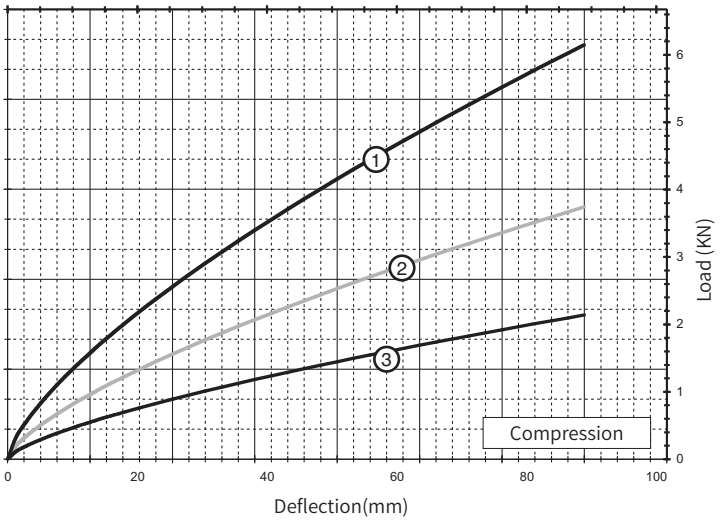
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

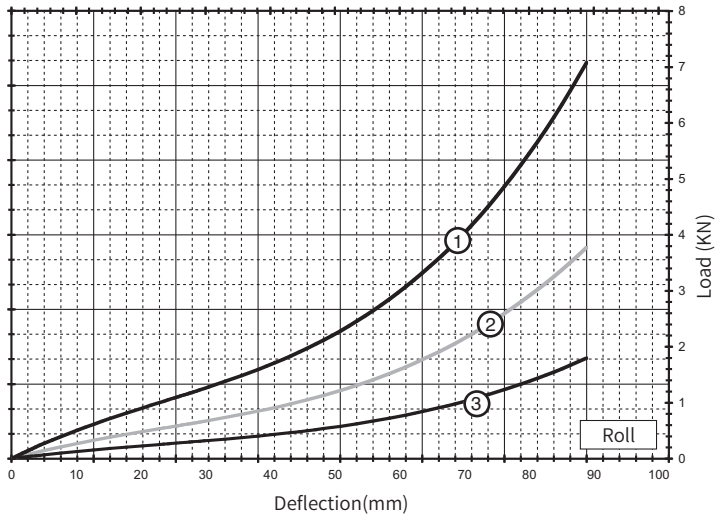
HGGN

Static Load vs Deflection



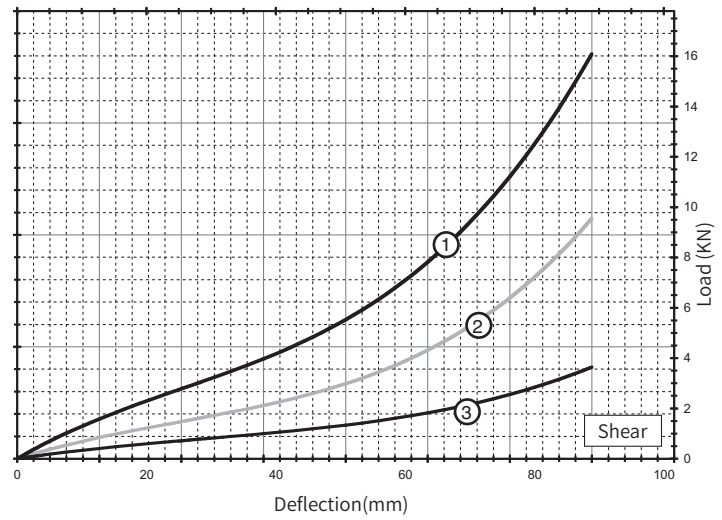
Compression

Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN16-606	1 624	88.9	261	123
2	HGGN16-406	1 001	88.9	159	74
3	HGGN16-206	556	88.9	91	43



Roll

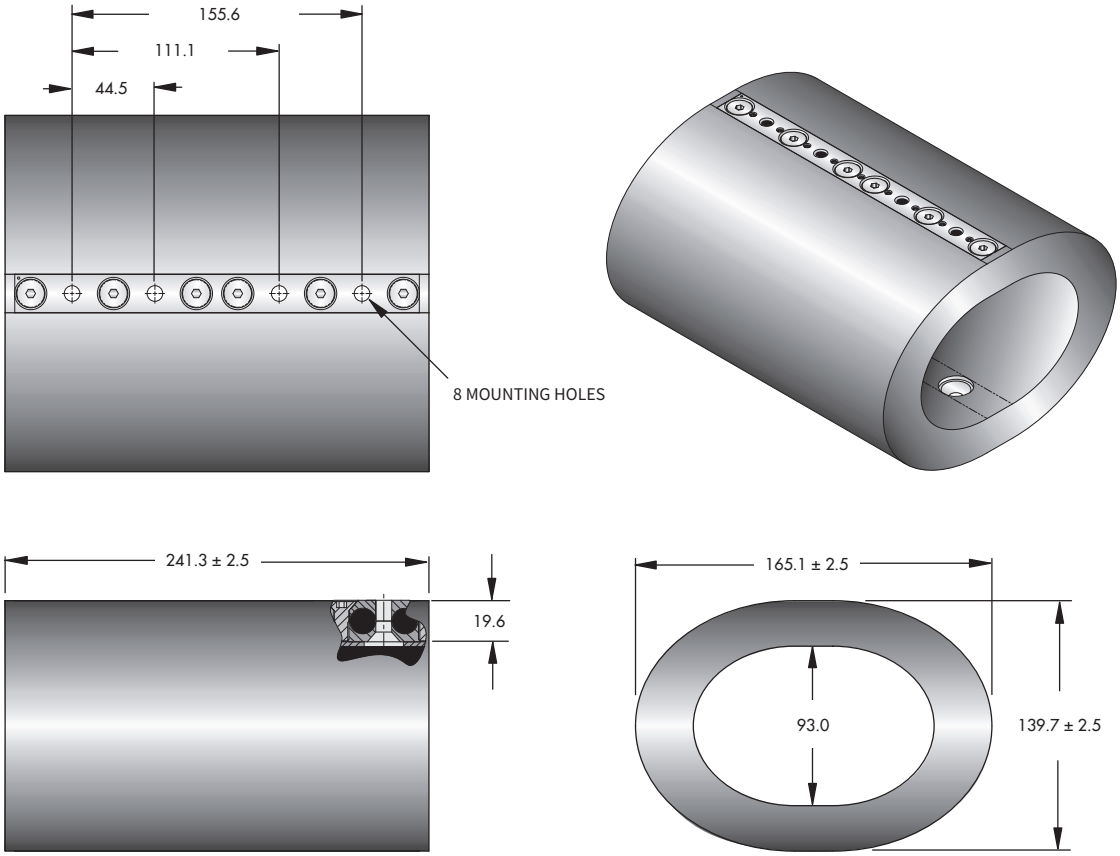
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN16-606	1 134	88.9	73	83
2	HGGN16-406	601	88.9	39	44
3	HGGN16-206	289	88.9	18	21



Shear

Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN16-606	2 891	88.9	187	195
2	HGGN16-406	1 535	88.9	99	121
3	HGGN16-206	734	88.9	48	45

Note: Do not extrapolate plotted curves.



Note: Dimensions are in mm / Tolerances are ±0.25mm

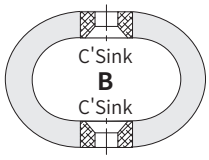
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	C'Sink Metric
HGGN16-600	4.8	B	Ø 8.3 $^{+0.13}_{-0.38}$	82°
HGGN16-400	4.1			
HGGN16-200	3.4			

Ordering Example

HGGN16 -200 - B

- B — Mounting Options — See chart
- 200 — Isolator Size — See Sizing Table

Mounting Options



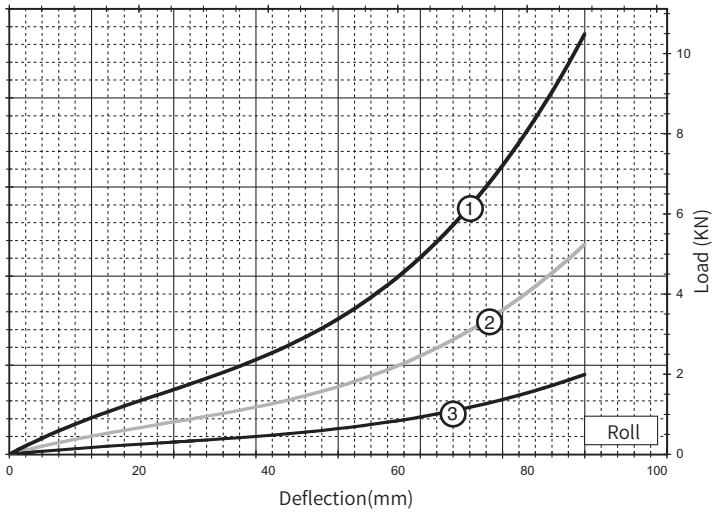
*Standard characteristics. Delivery time may be postponed for non-standard products.

HGGN

Static Load vs Deflection

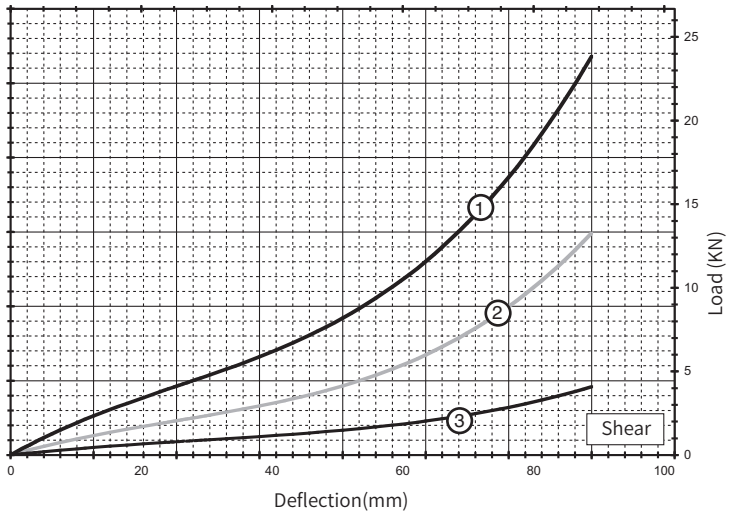
Compression

Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN16-600	2 424	88.9	389	181
2	HGGN16-400	1 379	88.9	221	103
3	HGGN16-200	623	88.9	100	47



Roll

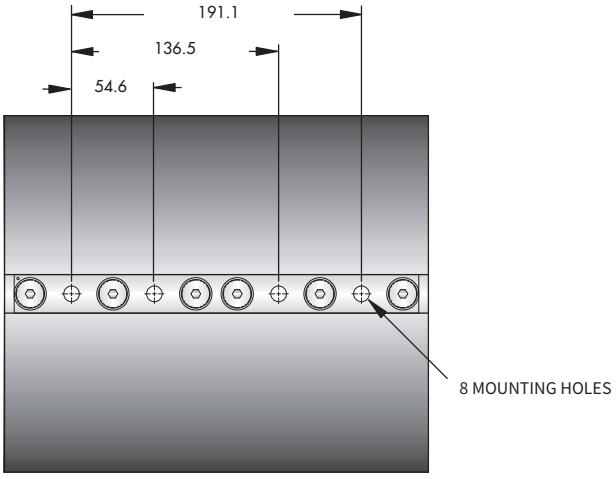
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN16-600	1 668	88.9	108	123
2	HGGN16-400	823	88.9	53	61
3	HGGN16-200	311	88.9	20	24

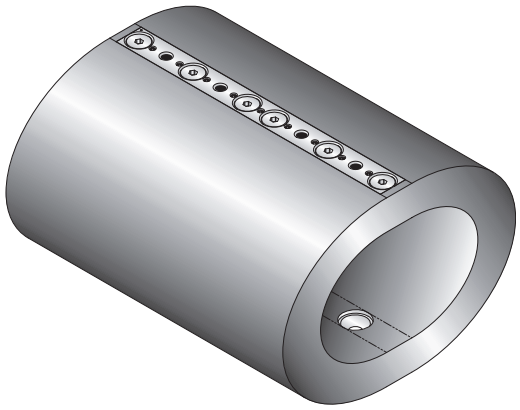


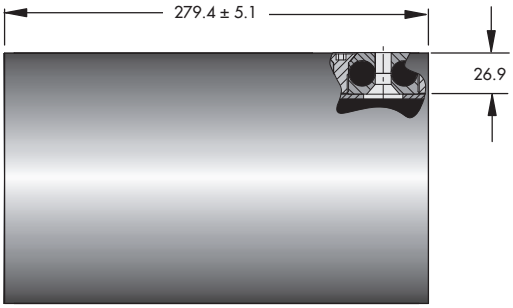
Shear

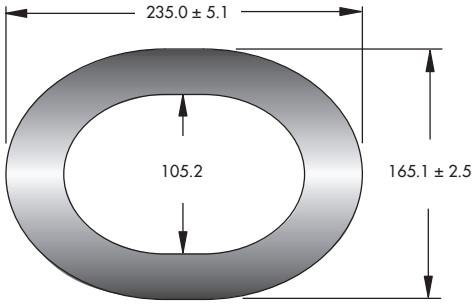
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN16-600	4 270	88.9	276	290
2	HGGN16-400	2 135	88.9	138	152
3	HGGN16-200	823	88.9	53	52

Note: Do not extrapolate plotted curves.









Note: Dimensions are in mm / Tolerances are ±0.25mm

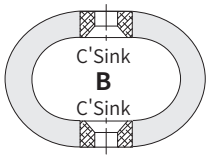
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	C'Sink Metric
HGGN20-600	9.5	B	Ø 10.3 $^{+0.13}_{-0.38}$	82°
HGGN20-400	8.2			
HGGN20-200	6.4			

Ordering Example

HGGN20 -200 - B

- B — Mounting Options — See chart
- 200 — Isolator Size — See Sizing Table

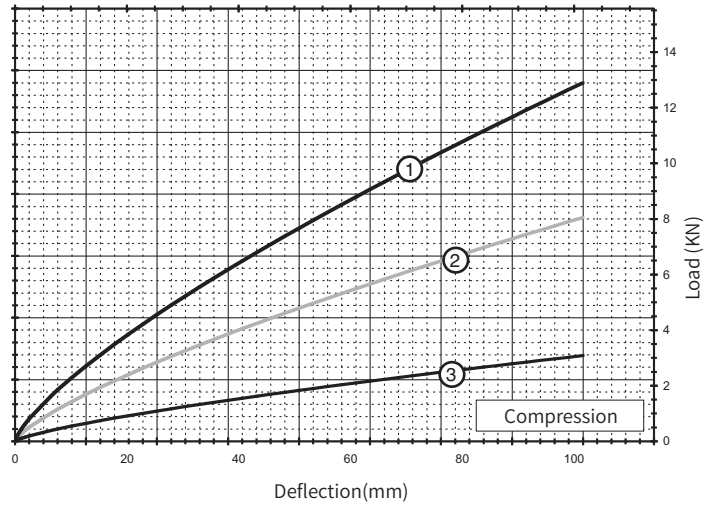
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

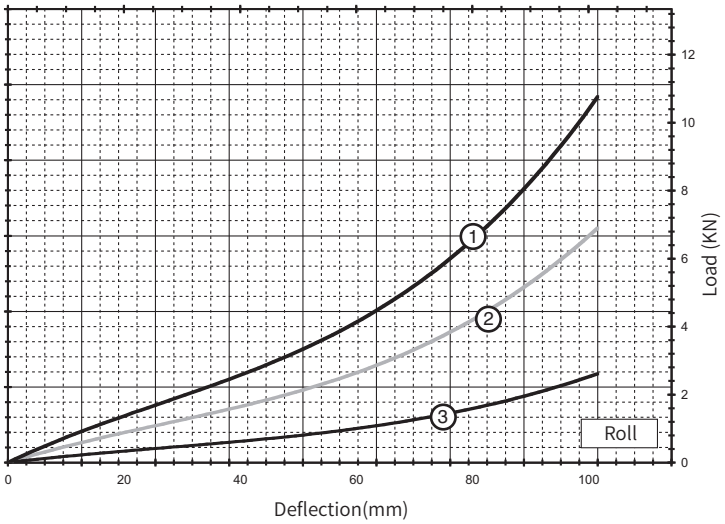
HGGN

Static Load vs Deflection



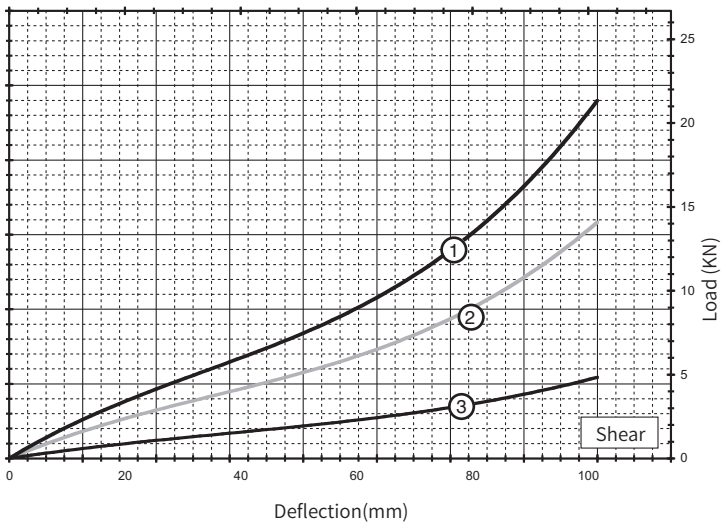
Compression

Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN20-600	3 114	101.6	415	218
2	HGGN20-400	1 935	101.6	259	136
3	HGGN20-200	734	101.6	99	52



Roll

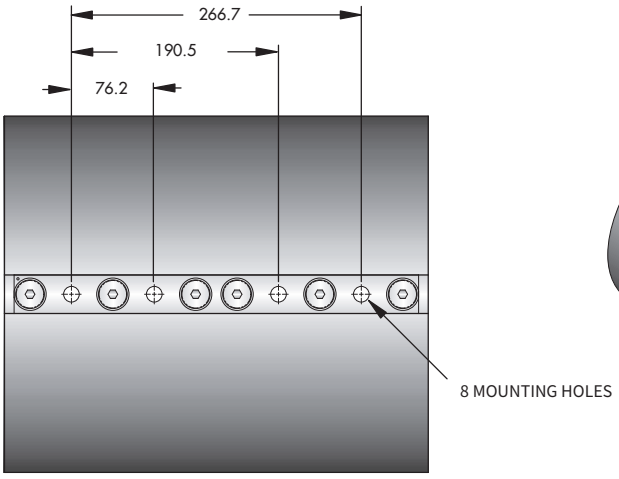
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN20-600	1 601	101.6	103	118
2	HGGN20-400	1 023	101.6	67	76
3	HGGN20-200	400	101.6	25	29

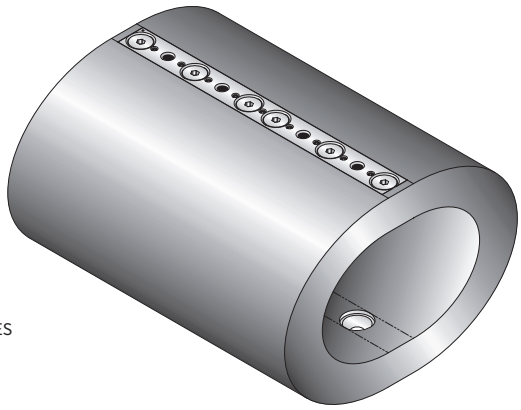


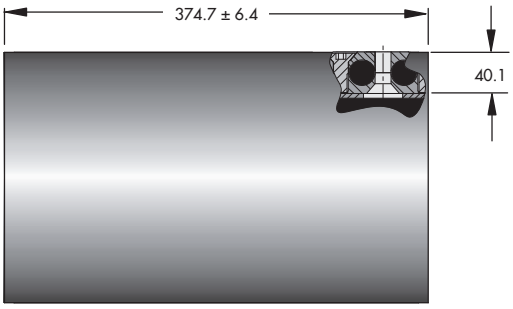
Shear

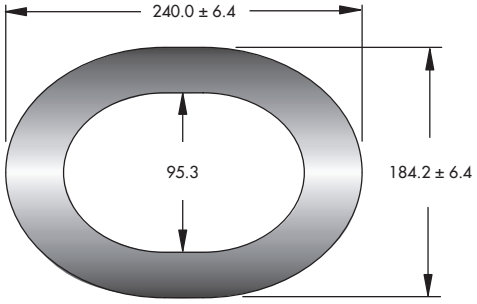
Curve	Model	Max. Static Load N	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN20-600	4 115	101.6	265	252
2	HGGN20-400	2 869	101.6	186	170
3	HGGN20-200	1 023	101.6	67	62

Note: Do not extrapolate plotted curves.









Note: Dimensions are in mm / Tolerances are ±0.25mm

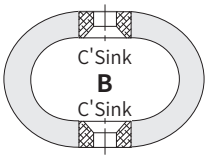
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	C'Sink Metric
HGGN28-600	23	B	Ø 13.5 $^{+0.13}_{-0.38}$	82°
HGGN28-400	18			
HGGN28-200	14			

Ordering Example

HGGN28 - 200 - B

- B — Mounting Options — See chart
- 200 — Isolator Size — See Sizing Table

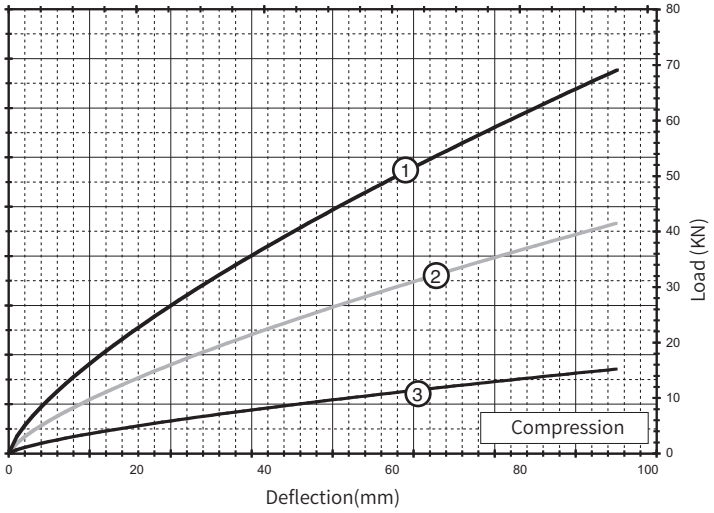
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

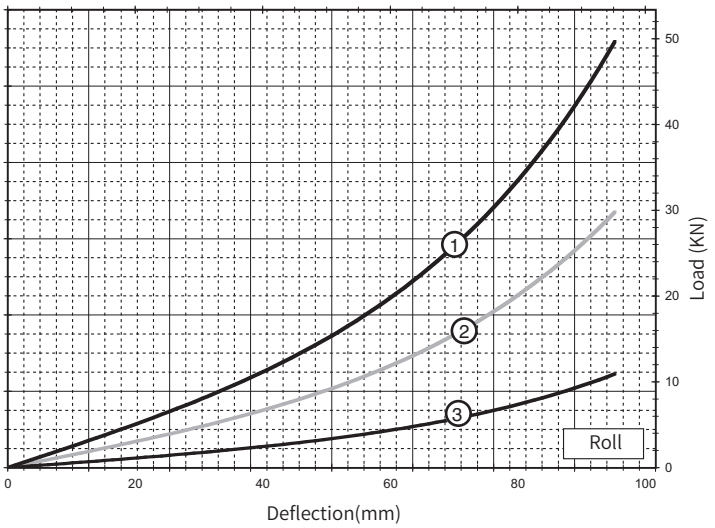
HGGN

Static Load vs Deflection



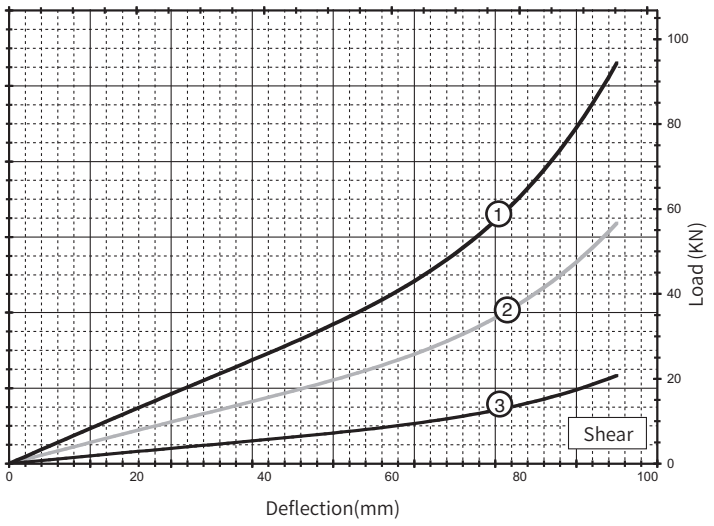
Compression

Curve	Model	Max. Static Load KN	Max. Deflection mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN28-600	17.79	95.3	2 603	1 266
2	HGGN28-400	10.56	95.3	1 562	759
3	HGGN28-200	3.87	95.3	573	278



Roll

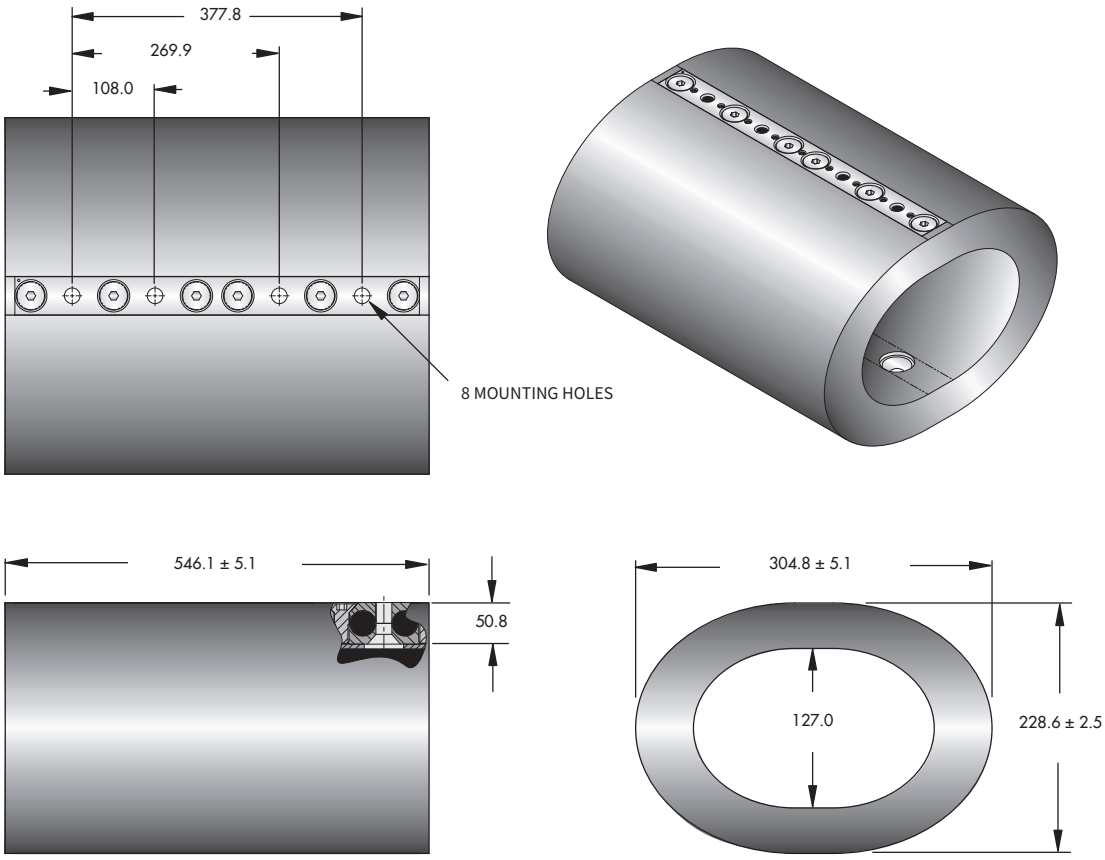
Curve	Model	Max. Static Load KN	Max. Deflection mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN28-600	4.94	95.3	319	549
2	HGGN28-400	2.98	95.3	192	329
3	HGGN28-200	1.09	95.3	70	121



Shear

Curve	Model	Max. Static Load KN	Max. Deflection mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN28-600	13.26	95.3	854	1 106
2	HGGN28-400	7.96	95.3	512	664
3	HGGN28-200	2.91	95.3	187	244

Note: Do not extrapolate plotted curves.



Note: Dimensions are in mm / Tolerances are ±0.25mm

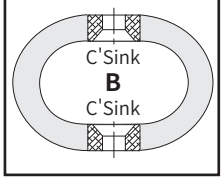
Model	Unit Weight Kg	Mounting Options	Thru Hole mm	C'Sink Metric
HGGN40-600	45	B	Ø 19.8 $^{+0.13}_{-0.38}$	82°
HGGN40-400	38			
HGGN40-200	30			

Ordering Example

HGGN40 -200 - B

- B — Mounting Options — See chart
- 200 — Isolator Size — See Sizing Table

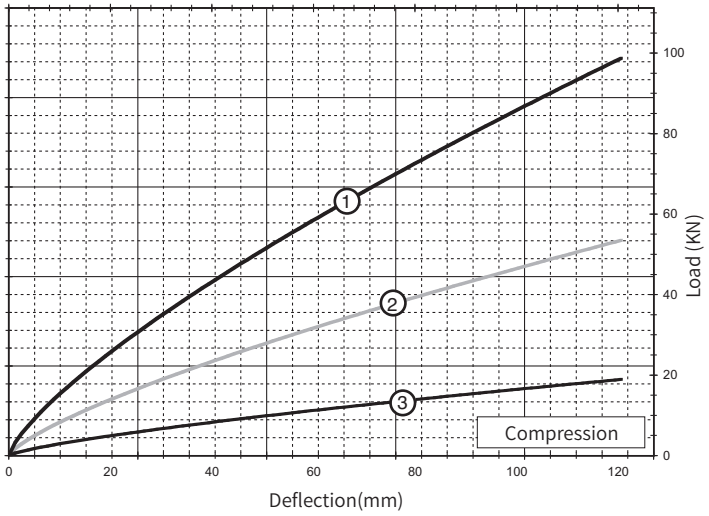
Mounting Options



*Standard characteristics. Delivery time may be postponed for non-standard products.

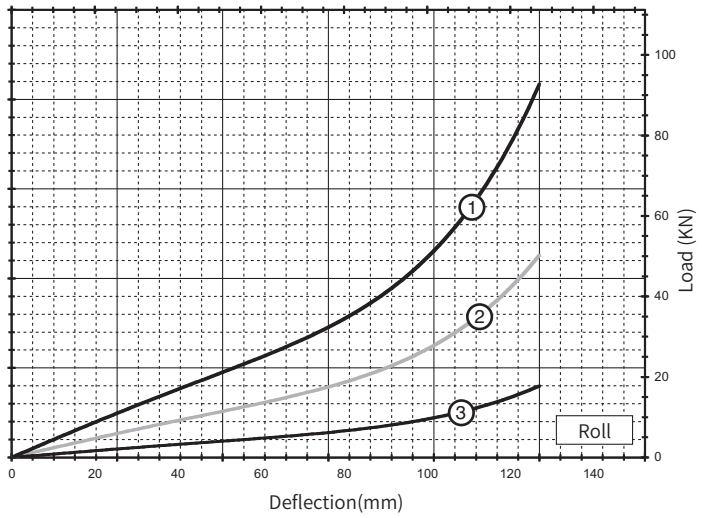
HGGN

Static Load vs Deflection



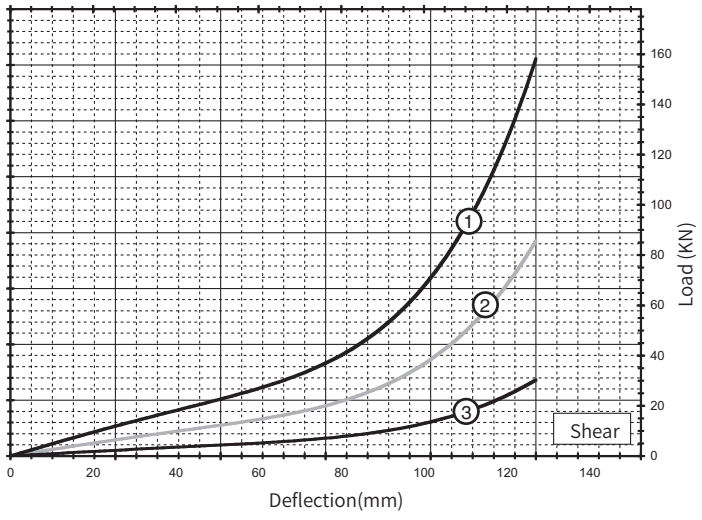
Compression

Curve	Model	Max. Static Load KN	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN40-600	23.80	120.7	2 793	1 403
2	HGGN40-400	12.90	120.7	1 513	760
3	HGGN40-200	4.56	120.7	535	269



Roll

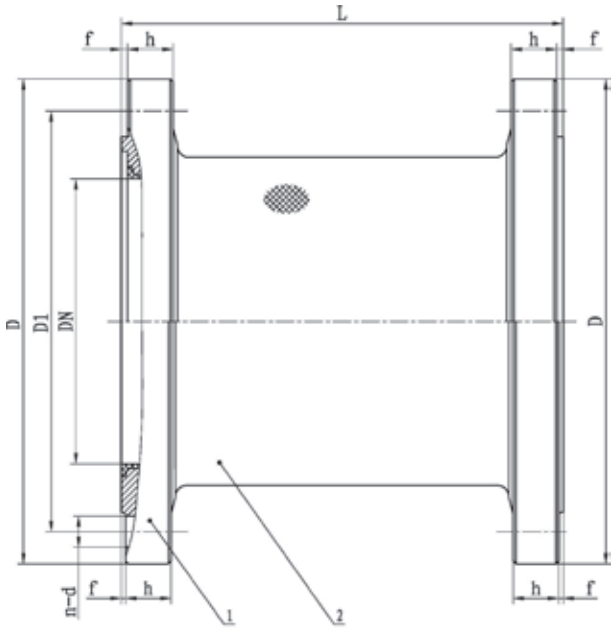
Curve	Model	Max. Static Load KN	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN40-600	8.90	127	574	758
2	HGGN40-400	4.83	127	311	427
3	HGGN40-200	1.71	127	110	149



Shear

Curve	Model	Max. Static Load KN	Max. Deflec-tion mm	Kv (Vibration) kN/m	Ks (Shock Stiffness) kN/m
1	HGGN40-600	9.74	127	628	1 012
2	HGGN40-400	5.29	127	341	551
3	HGGN40-200	1.87	127	120	189

Note: Do not extrapolate plotted curves.



1-FLANGE 2-FLEXIBLE CONNECTING PIPE

Model	Nominal Diameter DN	Flange Outer Diameter D	Diameter of Center Circle of Bolt Hole D1	Number and Diameter of Bolt Hole n-d	Sealing Surface Height f	Total Length L	Flange Thickness h	Interface Standard
JYXR(P)XXX065X-LEA	65	175	137	8-Φ17	3	166	26	GB569-65
JYXR(P)XXX080X-LEA	80	190	152	8-Φ17	3	210	26	
JYXR(P)XXX100X-LEA	100	225	181	10-Φ21	4	220	30	
JYXR(P)XXX125X-LEA	125	250	206	10-Φ21	4	-	30	
JYXR(P)XXX150X-LEA	150	280	236	12-Φ21	4	280	30	
JYXR(P)XXX200X-LEA	200	345	296	14-Φ26	4	310	35	
JYXR(P)XXX250X-LEA	250	415	360	14-Φ28	4	-	36	
JYXR(P)XXX300X-LEA	300	480	420	16-Φ31	4	450	36	
JYXR(P)XXX032X-LEC	32	140	100	4-Φ14	2	150	25	GB2501-89
JYXR(P)XXX040X-LEC	40	150	110	4-Φ18	3	190	25	
JYXR(P)XXX050X-LEC	50	165	125	4-Φ18	3	166	25	
JYXR(P)XXX065X-LEC	65	185	145	4-Φ18	3	166	26	
JYXR(P)XXX080X-LEC	80	200	160	8-Φ18	3	210	26	
JYXR(P)XXX100X-LEC	100	220	180	8-Φ18	3	220	28	
JYXR(P)XXX125X-LEC	125	250	210	8-Φ18	3	-	28	
JYXR(P)XXX150X-LEC	150	285	240	8-Φ22	3	280	28	
JYXR(P)XXX200X-LEC	200	340	295	8-Φ22	3	310	30	
JYXR(P)XXX250X-LEC	250	395	350	12-Φ22	3	-	30	
JYXR(P)XXX300X-LEC	300	445	400	12-Φ22	4	450	30	

Note:
1. Flange outer diameter, diameter of center circle of bolt hole, number and diameter of bolt holes of products with interface standard GB569-65 are listed based on 4.0MPa nominal pressure with GB569-65.
2. Flange outer diameter, diameter of center circle of bolt hole, number and diameter of bolt holes of products with interface standard GB2501-89 are listed based on 1.0MPa nominal pressure with GB2501-89.
3. Other nominal pressure is based on product interface datas and corresponding standard design.
4. Total length of standard product is a fixed data and cannot be altered.

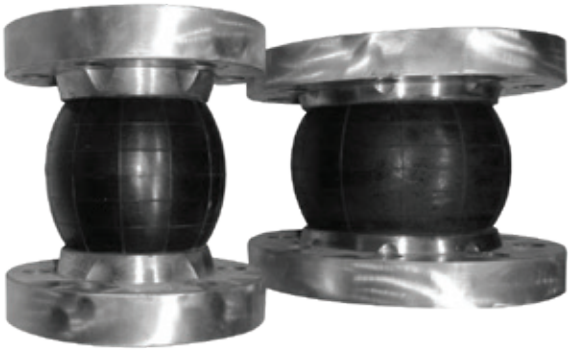
Model	Nominal Diameter mm	Working Pressure MPa	Axial Deflection under Working Pressure	Displacement Compensating Capacity mm	Insertion Loss dB	Interface Standard
JYXR(P)XXX065X-LEA	65	0～4.0	Axial deflection is ≤1mm when total length is ≤450mm	24	≥10dB at 20Hz～2kHz	GB569-65 Waterline or Tenon Sealing Surface
JYXR(P)XXX080X-LEA	80					
JYXR(P)XXX100X-LEA	100					
JYXR(P)XXX125X-LEA	125					
JYXR(P)XXX150X-LEA	150					
JYXR(P)XXX200X-LEA	200					
JYXR(P)XXX250X-LEA	250					
JYXR(P)XXX300X-LEA	300					
JYXR(P)XXX032X-LEC	32	0～4.0	Axial deflection is ≤1mm when total length is ≤450mm	24	≥10dB at 20Hz～2kHz	GB2501-89 Waterline Sealing Surface
JYXR(P)XXX040X-LEC	40					
JYXR(P)XXX050X-LEC	50					
JYXR(P)XXX065X-LEC	65					
JYXR(P)XXX080X-LEC	80					
JYXR(P)XXX100X-LEC	100					
JYXR(P)XXX125X-LEC	125					
JYXR(P)XXX150X-LEC	150					
JYXR(P)XXX200X-LEC	200					
JYXR(P)XXX250X-LEC	250					
JYXR(P)XXX300X-LEC	300					
JYXR(P)XXX032X-LEC1	32	4.0	Axial deflection is ≤1mm when total length is ≤450mm	24	≥10dB at 20Hz～2kHz	GB2501-89 Tenon Sealing Surface
JYXR(P)XXX040X-LEC1	40					
JYXR(P)XXX050X-LEC1	50					
JYXR(P)XXX065X-LEC1	65					
JYXR(P)XXX080X-LEC1	80					
JYXR(P)XXX100X-LEC1	100					
JYXR(P)XXX125X-LEC1	125					
JYXR(P)XXX150X-LEC1	150					
JYXR(P)XXX200X-LEC1	200					
JYXR(P)XXX250X-LEC1	250					
JYXR(P)XXX300X-LEC1	300					

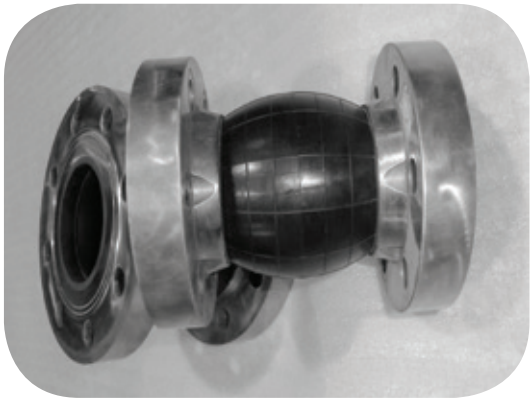
Note:
1. The anterior "XXX" in product model refers to working pressure level, "006" - 0.6MPa, "040" - 4MPa, etc.
2. The latter "X" in product model refers to working medium, R- Fuel oil, H-Slide oil, Y-Hydraulic oil, S- water.

Ordering Example

JYXR (P) XXX XXX X–XXX XX

- XX — Interface Options: EA—GB569-65Waterline or Tenon Sealing Surface; EB—Customized upon customer's request; EC—GB2501-89Waterline Sealing Surface; EC1—GB2501-89Tenon Sealing Surface
- X–XXX — Total Length
- X — Working Medium: Y-Hydraulic oil, R- Fuel oil, H-Slide oil, S- Water
- XXX — Nominal Diameter: 065-DN65; 150-DN150, etc
- XXX — Nominal Pressure: 006-0.6MPa; 040-4.0MPa, etc
- (P) — Balanced
- JYXR — Marine Rubber Hose





Model	Nominal Diameter mm	Working Pressure MPa	Displacement Compensating Capacity mm/m	Working Medium	Interface Standard Sealing Options
JYXR(H)XXX040X-155EC	40	0.6 1.0 1.6 2.5 4.0	Axial Direction ≥ 24 Radial Direction ≥ 20	Water Fuel Oil Slide oil Hydraulic oil	GB2501-2010 Waterline Sealing
JYXR(H)XXX050X-165EC	50				
JYXR(H)XXX065X-175EC	65				
JYXR(H)XXX080X-175EC	80				
JYXR(H)XXX100X-225EC	100				
JYXR(H)XXX125X-225EC	125				
JYXR(H)XXX150X-225EC	150				
JYXR(H)XXX065X-175EA	65	0.6 1.0 1.6 2.5			GB569-65 Waterline Sealing
JYXR(H)XXX080X-175EA	80				
JYXR(H)XXX100X-225EA	100				
JYXR(H)XXX125X-225EA	125				
JYXR(H)XXX150X-225EA	150				
JYXR(H)040065X-175EA	65	4.0			GB569-65 Tenon Sealing
JYXR(H)040080X-175EA	80				
JYXR(H)040100X-225EA	100				
JYXR(H)040125X-225EA	125				
JYXR(H)040150X-225EA	150				

Note:
1. Rights reserved for development organization to improve its interior structure, on conditions that flexible connecting pipe interface and performance are ensured.
2. Total length listed in the chart is a fixed data and cannot be altered. A flexible connecting pipe with “EB” interface can be customized upon customer's request.

Ordering Example

JYXR (H) XXX XXX X–XXX XX

- XX — Interface Options: EA—GB569-65Waterline or Tenon Sealing Surface; EB—Customized upon customer's request; EC—GB2501-2010Waterline Sealing Surface
- X–XXX — Total Length
- X — Working Medium: Y-Hydraulic oil, R- Fuel oil, H-Slide oil, S- Water
- XXX — Nominal Diameter: 065-DN65; 150-DN150, etc
- XXX — Nominal Pressure: 006-0.6MPa; 040-4.0MPa, etc
- JYXR — Flexible Connecting Pipes with great deflection capability
- (H) — Marine Rubber Hose

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