



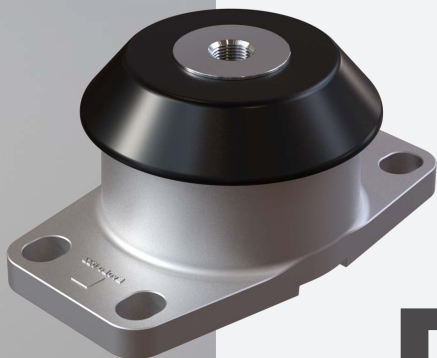
Trelleborg Antivibration Solutions

Product Portfolio

Quality, innovation, productivity.

Noise and vibration in machinery at sea causes damage to equipment and discomfort to people, whether they're traveling or working. A global leader in polymer engineering, Trelleborg Antivibration Solutions specializes in minimizing these effects and delivering improvements people can physically feel. Calling on over 100 years' experience in the marine sector, we work closely with manufacturers and authorities to deliver off-the-shelf products and bespoke solutions which add value to the world's marine vessels and equipment. Found in everything from propulsion engines and exhaust systems to generator sets and auxiliary machinery, all our solutions are modeled, tested and certified in our state-of-the-art Centre of Excellence. Our reputation rests on our ability to deliver compliant and pioneering solutions which enhance equipment, comfort and safety, while reducing downtime, maintenance and long-term cost of ownership.

It's a difference you can truly feel across your operations, and in your brand reputation.



Product Portfolio

8. Anti-vibration Mounts	102. J-Type Mounts
9. Evolo Series	105. Wire Rope Isolators (WRI)
44. Cushyfoot Mounting	106. Leaf Spring Mounts (X&Y)
46. Cushyfloat Mounting	110. L and M Type Mounts
47. RA Mounting	112. D-Series Mounting
48. RAB Mounting	113. DX Mount
49. RAEM Mounting	114. Super D Mounting
51. Rubber Expansion Joints	115. Sandwich Mounting
52. ERV Series	117. SAW Mounting
65. Silicone Bellows	120. Application Questionnaire
66. Silicone Bellow Expansion Joints	122. Notes
73. Stainless Steel Expansion Joints	
74. Balance Series	
97. Shock Mounts	
98. HAT Element	
100. New2C	
101. Constant Positioning Mount	



Working on water never felt better.

Trelleborg Antivibration Solutions specializes in isolation, attenuation and suspension solutions of unshakable quality and reliability. Trelleborg's products are specified by leading shipbuilders, marine energy builders and manufacturers of ship borne equipment and machinery. We also work closely with European naval forces to supply anti-vibration and shock mountings for use on surface fighting ships, submarines and supply vessels.

Marine design is constantly evolving, as is the technology used to reduce excessive vibration and noise. Trelleborg Antivibration Solutions is continuing to lead the way in this crucial area of marine engineering. Our marine product range is extensive and expanding. It includes mounting systems for use with main propulsion engines of all weights, generator sets, auxiliary machinery and exhaust systems. Metalastik® mounts isolate deckhouses and cabins from the hull on cruise liners, ferries, workboats and luxury yachts, ensuring comfort and noise isolation in accommodation areas. For defense applications, our mounting systems are used to protect sensitive equipment and improve safety and comfort levels for all crew members.

In the marine industry, logistics can be a challenge, especially as project locations get more remote. What's more, minimum order values and quantities can be restrictive and make it difficult for you to get exactly what you need, which is not the case with Trelleborg. Our strong, global supply chain and dedicated service can adapt to and support your logistics, making us a supplier you can rely on.



– WE ARE EASY TO DO BUSINESS WITH

Our market-leading range of high quality solutions are fully tested and compliant with all international standards. The breadth and depth of our global service and support network means we're accessible in all territories. Our technology offers sustainability environmentally and operationally. And from design and testing through to installation and training, we'll work with you to optimize your application. In terms of choice, quality, support and logistics, we offer a complete, end-to-end service. We don't just make life feel better. We make it feel easier, too. Our capabilities cover:

- **Solutions against vibration.** Our vibration isolation technology and solutions takeaway the stress caused by vibration to protect your investment and create safer and better places to work
- **Solutions against noise.** Our range of passive and active systems protect people in even the most challenging environments, ensuring both their safety and the continued operation of machinery
- **Solutions against shock.** Our range of products and services protect people, equipment and buildings from damaging impacts caused by drops, collision, explosion and even seismic activity.

A global service and support network.

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Antivibration Mounts

**HIGH-QUALITY VIBRATION ISOLATORS FOR
HEAVY MARINE AND MACHINERY APPLICATIONS.**



Evolo series

EVOLVO 600 SERIES

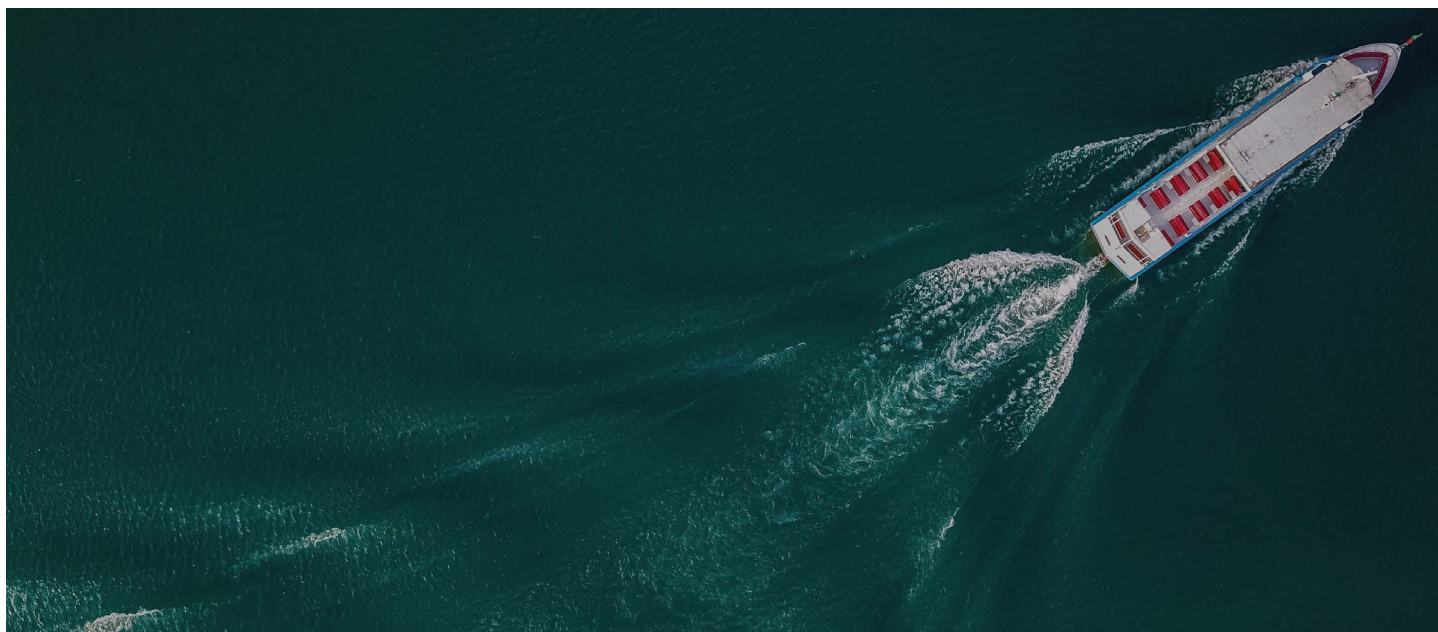
As a leading vibration isolation specialist, Trelleborg Antivibration Solutions has developed a wide range of heavy duty conical vibration isolators: the Evolo 600 series. Designed for heavy marine and machinery applications, these isolators ensure an optimal solution under the most demanding circumstances.

Developed using carefully selected materials and expert knowledge in polymer engineering, our extensive range of antivibration mounts have been carefully designed to remove unwanted vibration and noise for key industries across the globe. With over 100 years experience in delivering the highest quality products to market, you can be confident that we'll deliver a solution that you can rely on.

All isolators in the Evolo 600 series are made of high-quality natural rubber and capable of handle both vertical and horizontal forces. Each isolator is available in various types and stiffness grades. Characterized by high maximum marine loads, various type approvals, and easy installation, Evolo vibration isolators offer the best value for money.

CHARACTERISTICS

- High level of vibration and sound isolation
- Suitable for a range of applications
- Easily fitted



Evol 611 Grade A-D

APPLICATION

Optimum vibration isolation for a wide range of applications.

For smaller, light-weighted equipment that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pumps, small diesel engines, compressor units, ventilators, measuring equipment, etc.

MATERIAL

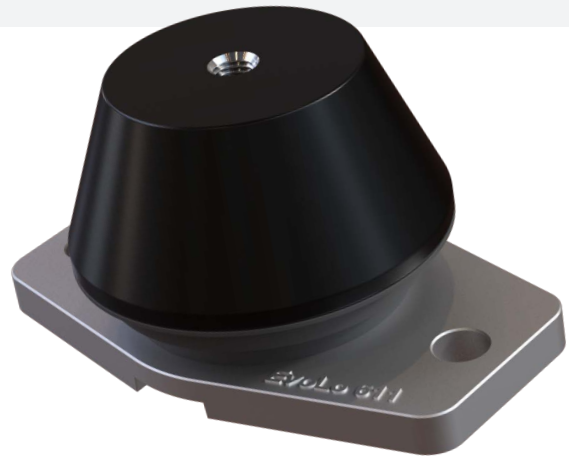
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Metal: Aluminum

IDENTIFICATION

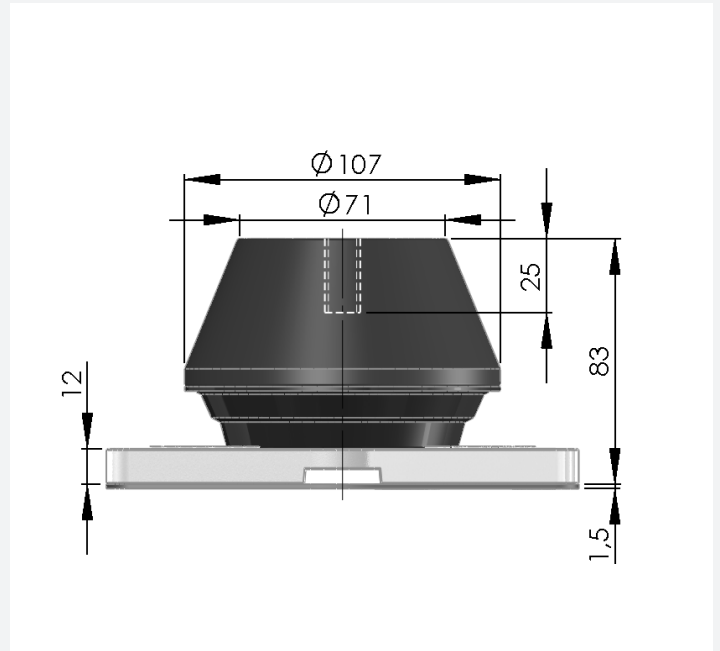
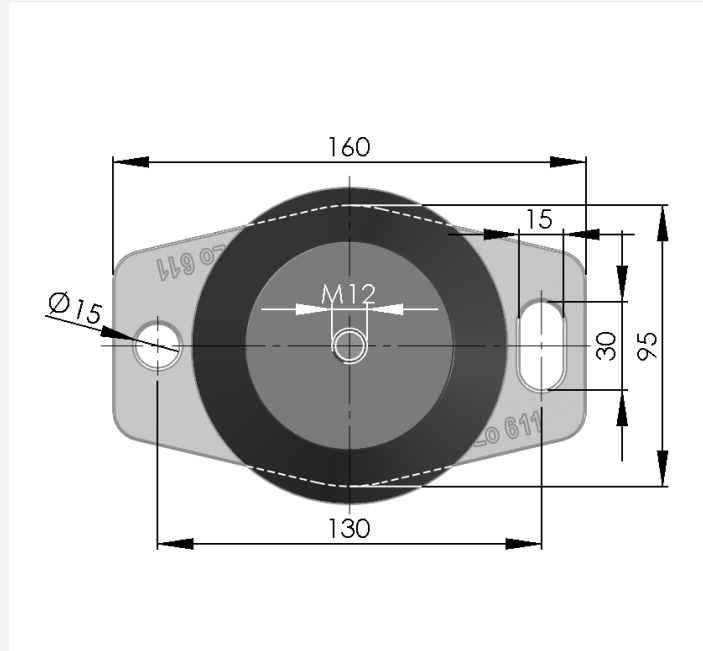
The type is marked in the mounting plate

ADVANTAGES

- Approved by Lloyd's Register
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 50 and 400 kg
- Stock item.



TECHNICAL DRAWING

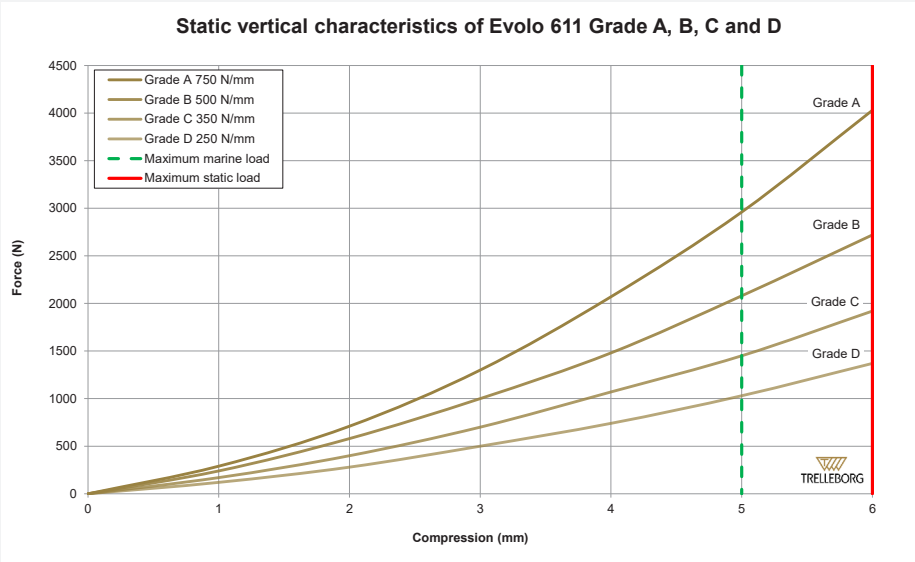


Evolo 611 Grade A-D

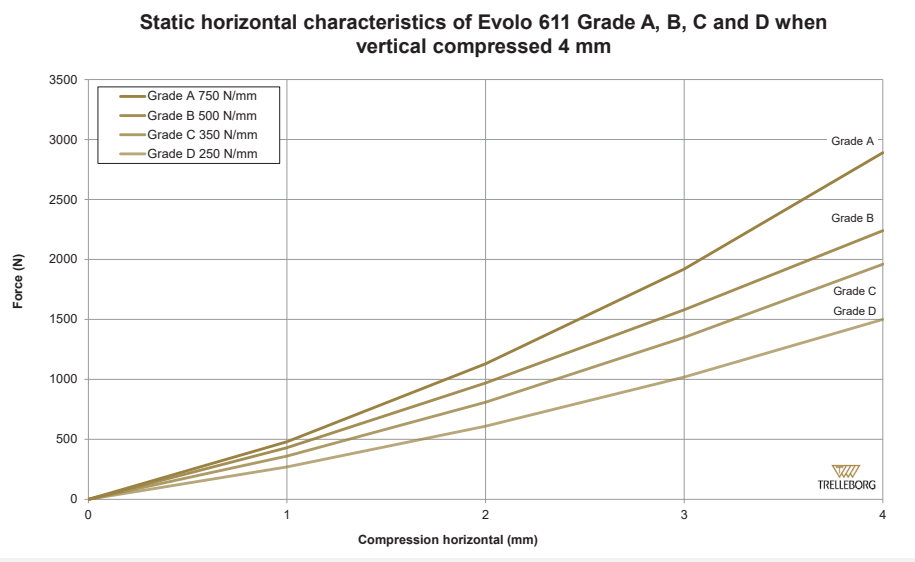
TECHNICAL DATA

ARTICLE NO.	GRADE	MAXIMUM LOAD
1030611A0	A	4000 N
1030611B0	B	2750 N
1030611C0	C	1900 N
1030611D0	D	1300 N

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRECOMPRESSED 4 MM



EVOL 611 Height Adjustable: GRADE A-D

APPLICATION

Optimum vibration isolation for a wide range of applications.

For smaller, light-weighted equipment that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pumps, small diesel engines, compressor units, ventilators, measuring equipment, etc.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

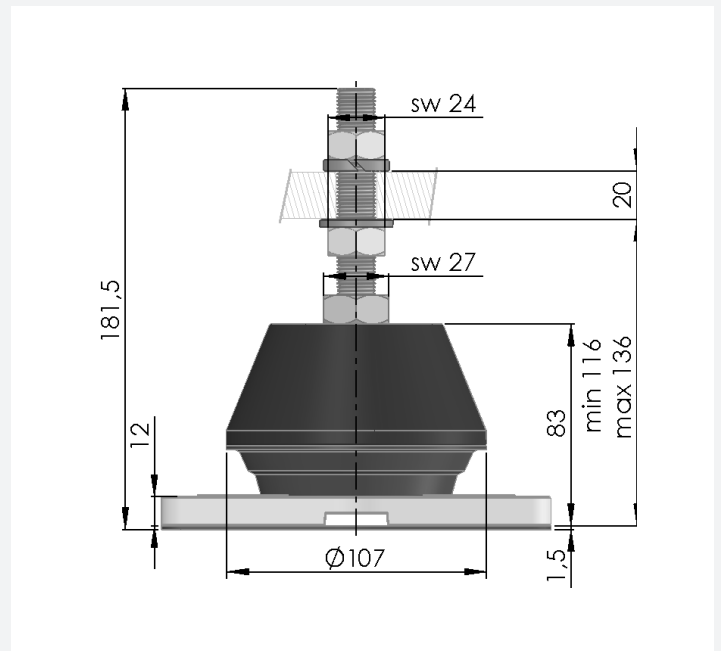
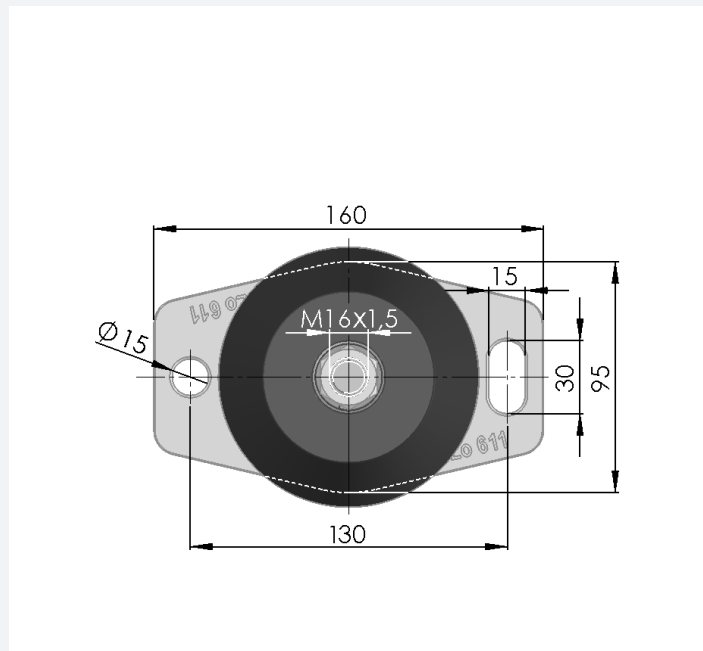
The type is marked in the mounting plate.

ADVANTAGES

- Approved by Lloyd's Register
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 50 and 400 kg
- Stock item



TECHNICAL DRAWING

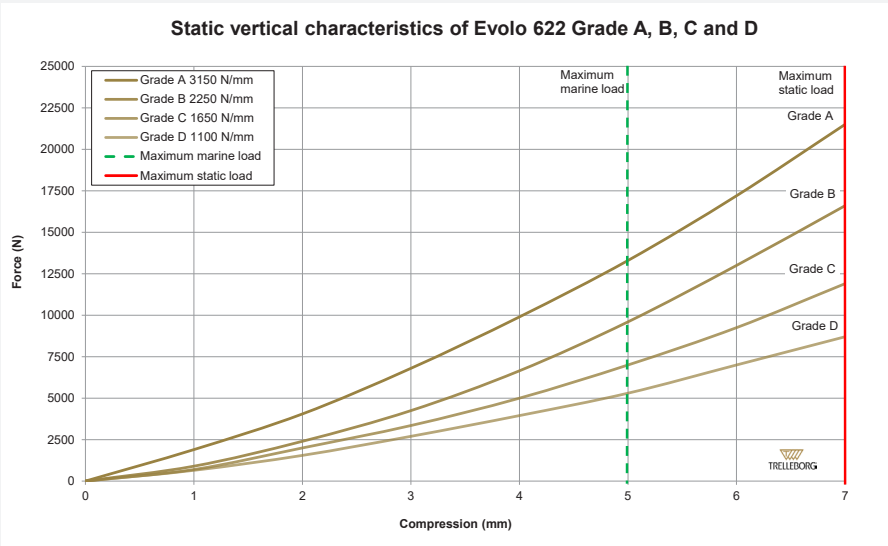


EVOLLO 611 Height Adjustable GRADE A-D

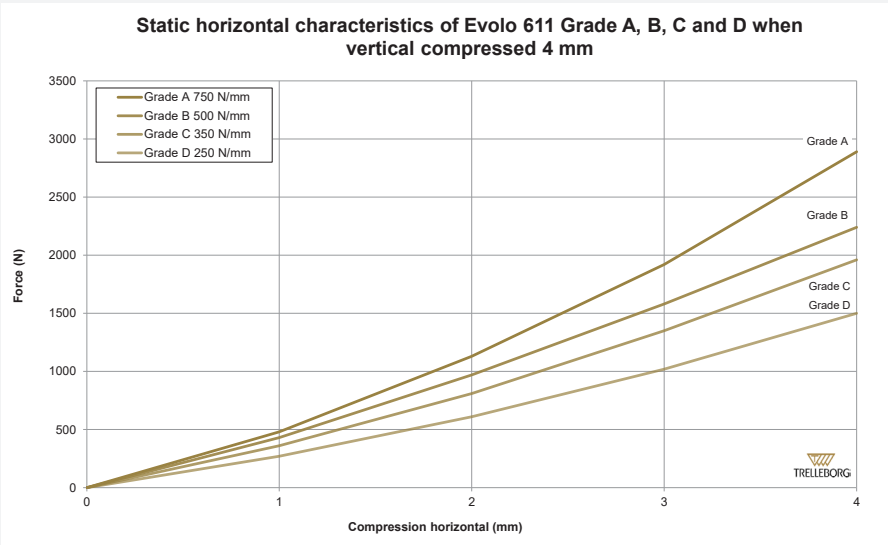
TECHNICAL DATA

ARTICLE NO. WITH HEIGHT ADJUSTMENT	GRADE	MAXIMUM LOAD
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1030611B1	B	2750 N
1030611C1	C	1900 N
1030611D1	D	1300 N

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 4 MM



EVOLO 622 GRADE A-H

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, medium-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pumps, diesel engines, compressor units, ventilators, measuring equipment, small deck houses, cabins, cooling units, etc.

MATERIAL

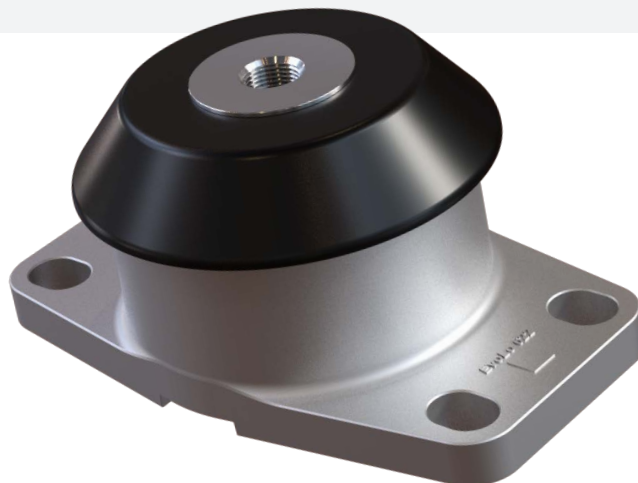
Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

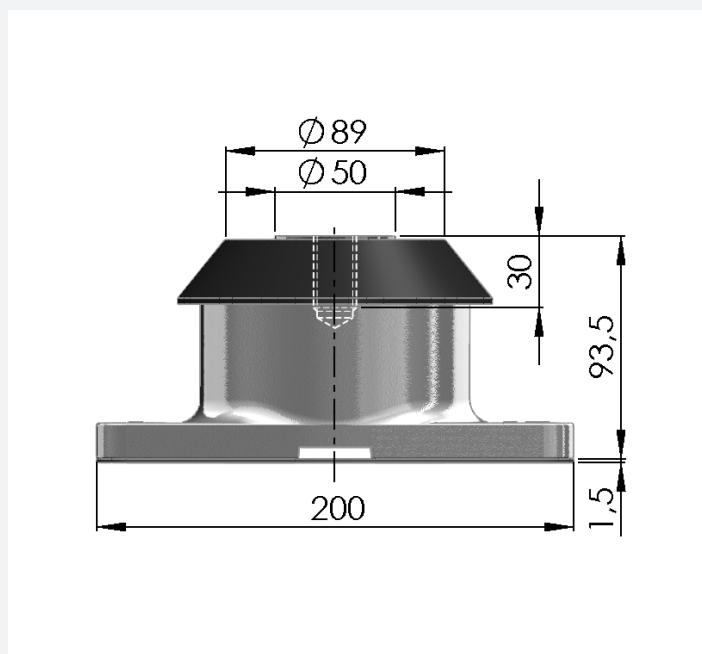
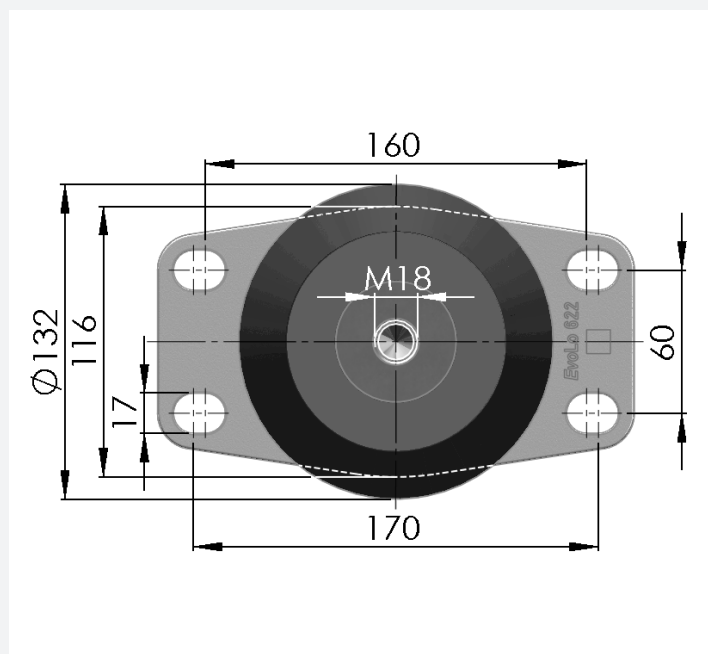
The type is marked in the mounting plate.

ADVANTAGES

- Approved by Lloyd's Register
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 50 and 2200 kg
- Stock item



TECHNICAL DRAWING

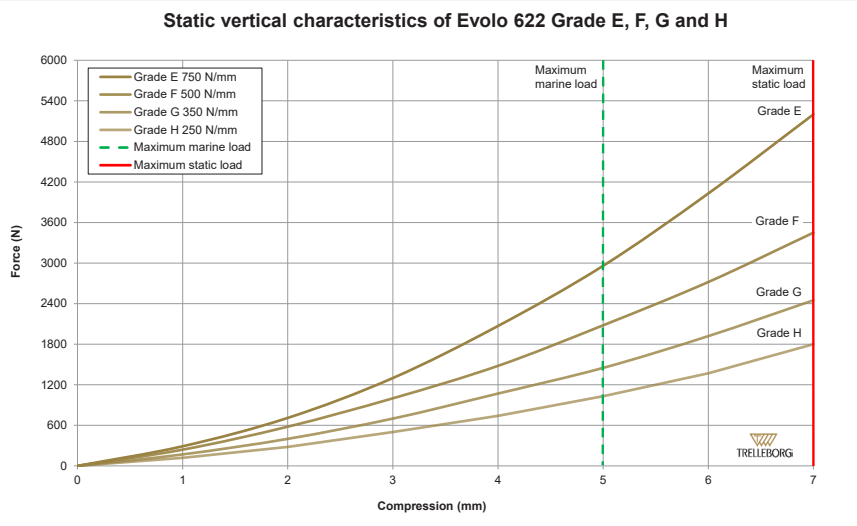
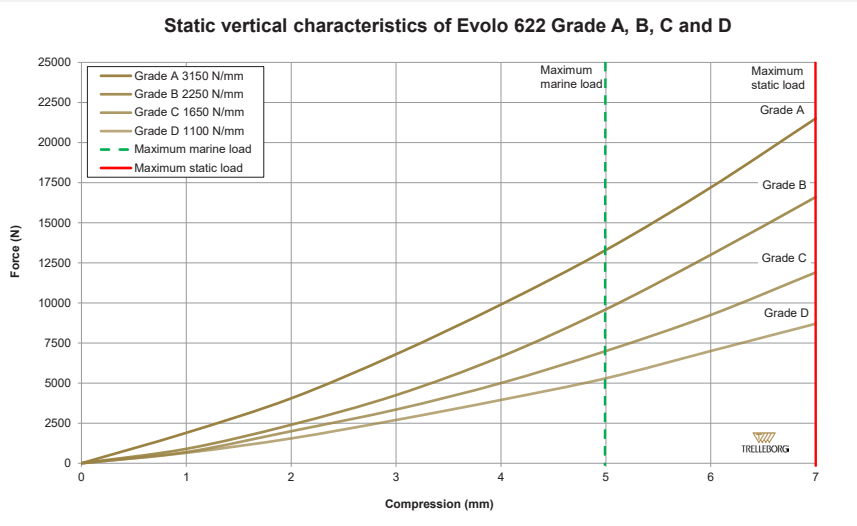


EVOLO 622 GRADE A-H

TECHNICAL DATA

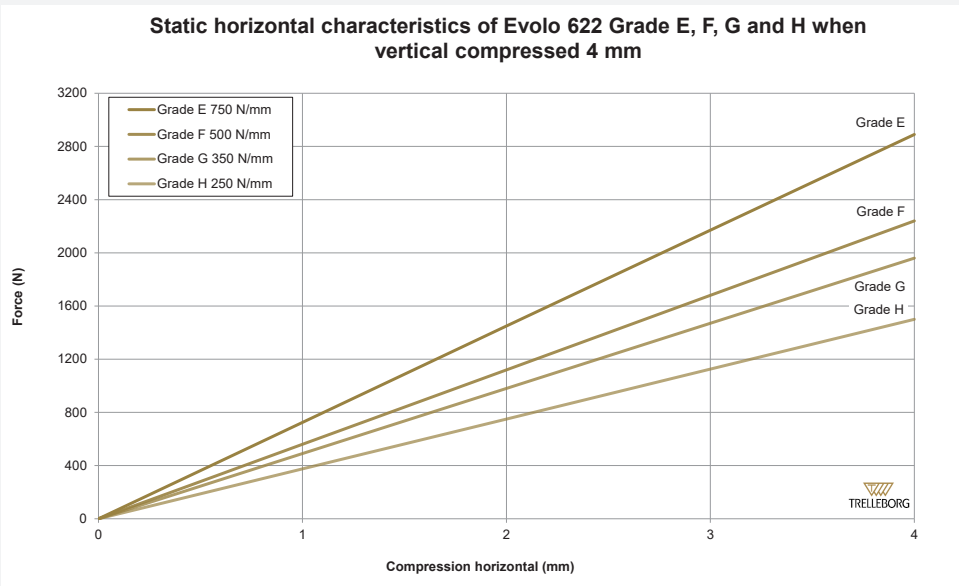
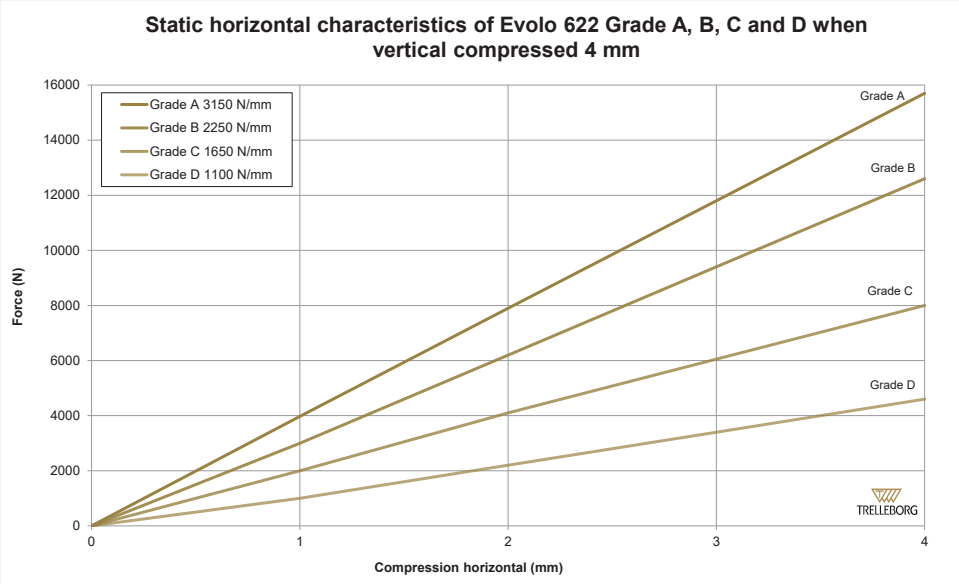
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1030622B0	B	16500 N
1030622C0	C	12000 N
1030622D0	D	8500 N
1030622E0	E	4000 N
1030622F0	F	2750 N
1030622G0	G	1900 N
1030622H0	H	1300 N

STATIC VERTICAL CHARACTERISTICS



EVOL 622 GRADE A-H

HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 4 MM



EVOLO 622 HEIGHT ADJUSTABLE GRADE A-H

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, medium-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pumps, diesel engines, compressor units, ventilators, measuring equipment, small deck houses, cabins, cooling units, etc.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

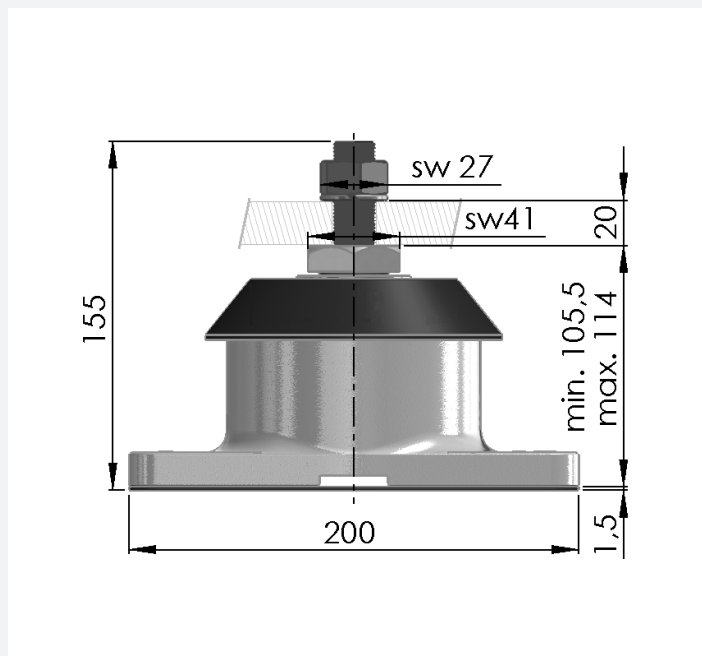
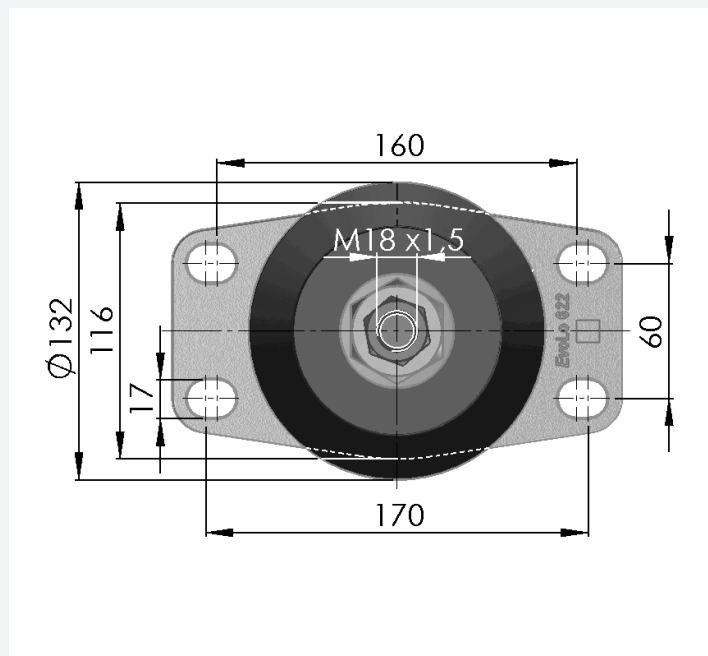
The type is marked in the mounting plate.

ADVANTAGES

- Approved by Lloyd's Register
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 50 and 2200 kg
- Stock item



TECHNICAL DRAWING

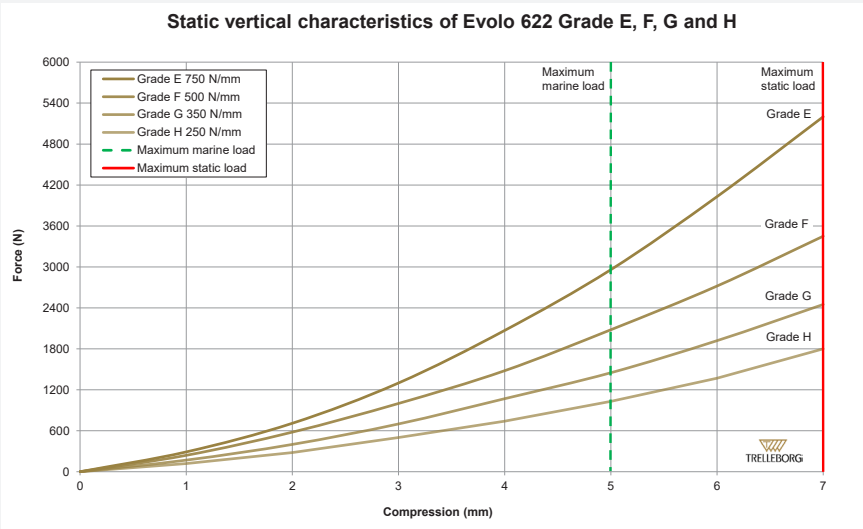
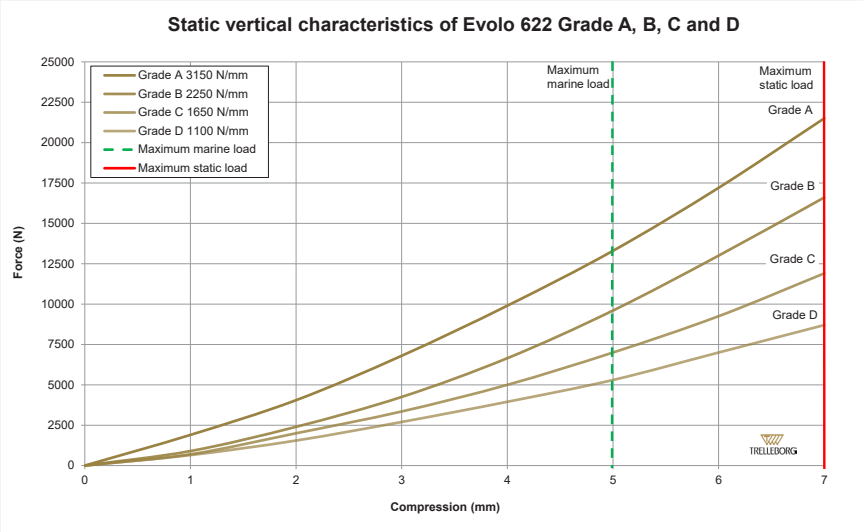


EVOLO 622 HEIGHT ADJUSTABLE GRADE A-H

TECHNICAL DATA

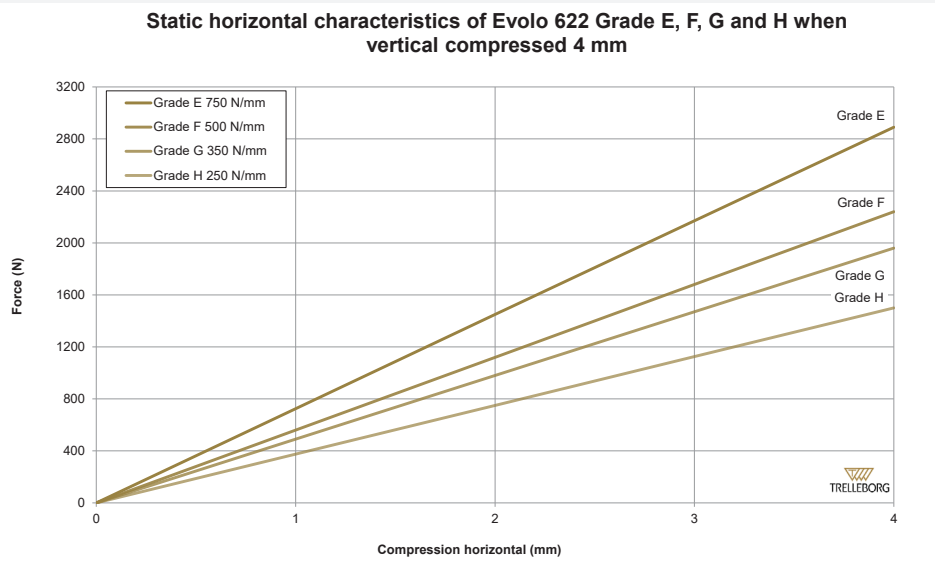
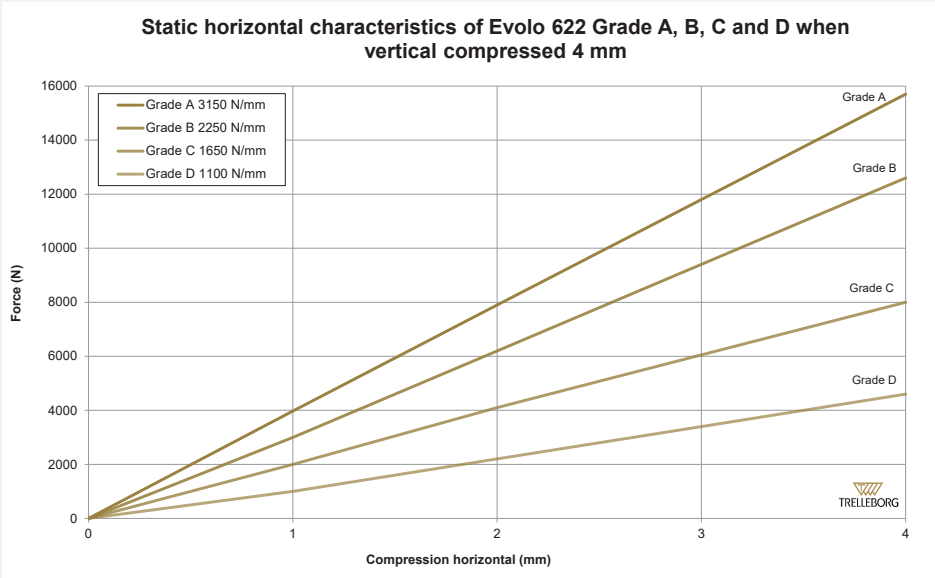
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1030622B1	B	16500 N
1030622C1	C	12000 N
1030622D1	D	8500 N
1030622E1	E	4000 N
1030622F1	F	2750 N
1030622G1	G	1900 N
1030622H1	H	1300 N

STATIC VERTICAL CHARACTERISTICS



EVOLO 622 HEIGHT ADJUSTABLE GRADE A-H

HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 4 MM



EVOLo 631 GRADE A-F

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

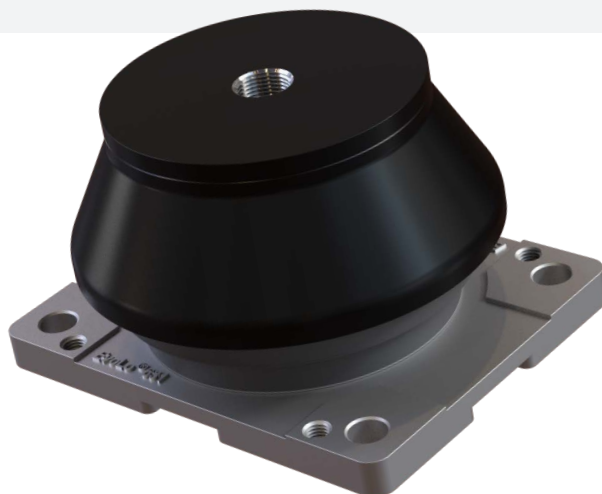
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Metal: Aluminum

IDENTIFICATION

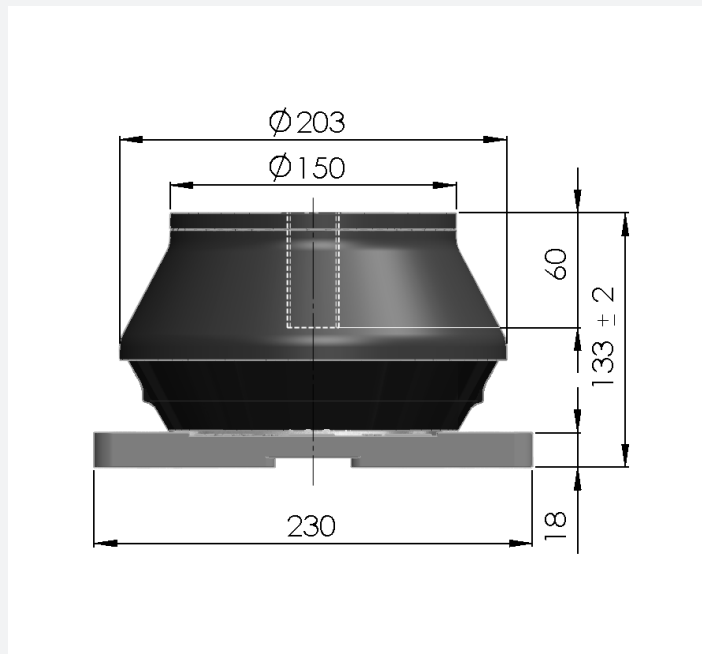
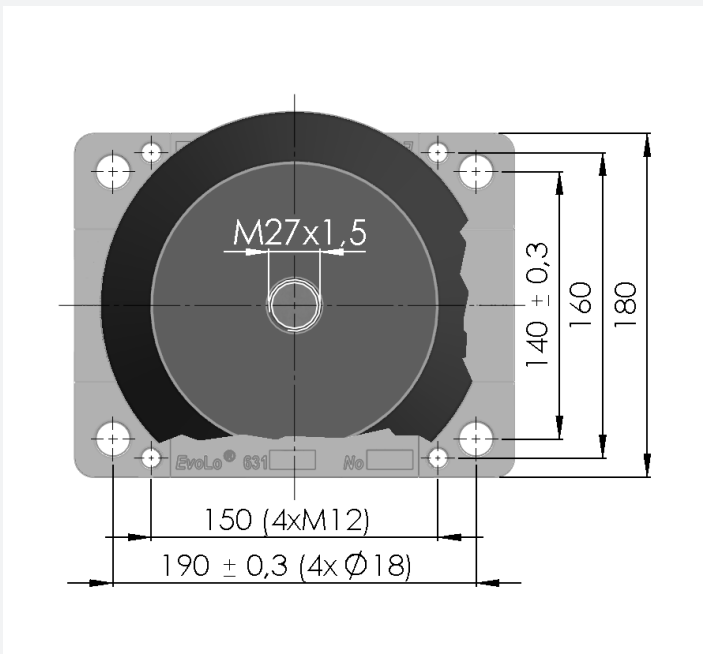
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 1000 and 6000 kg
- Stock item



TECHNICAL DRAWING

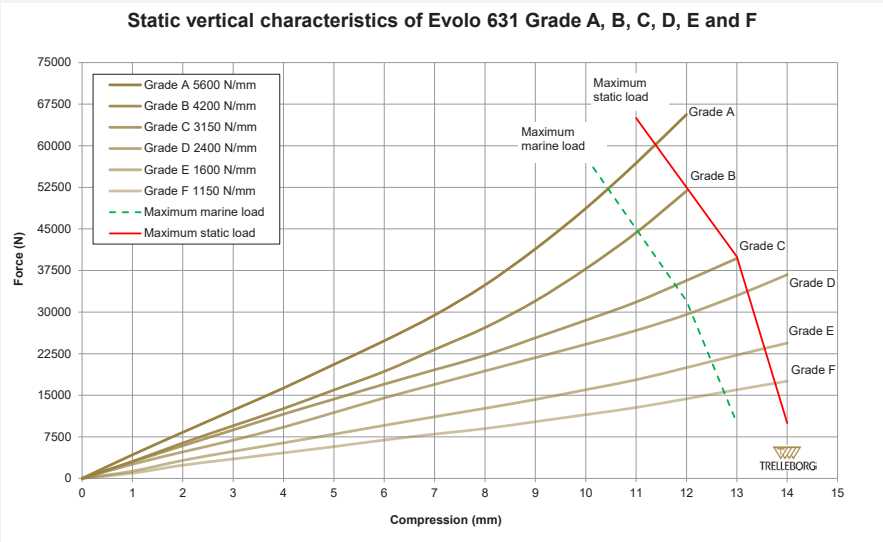


EVOLO 631 GRADE A-F

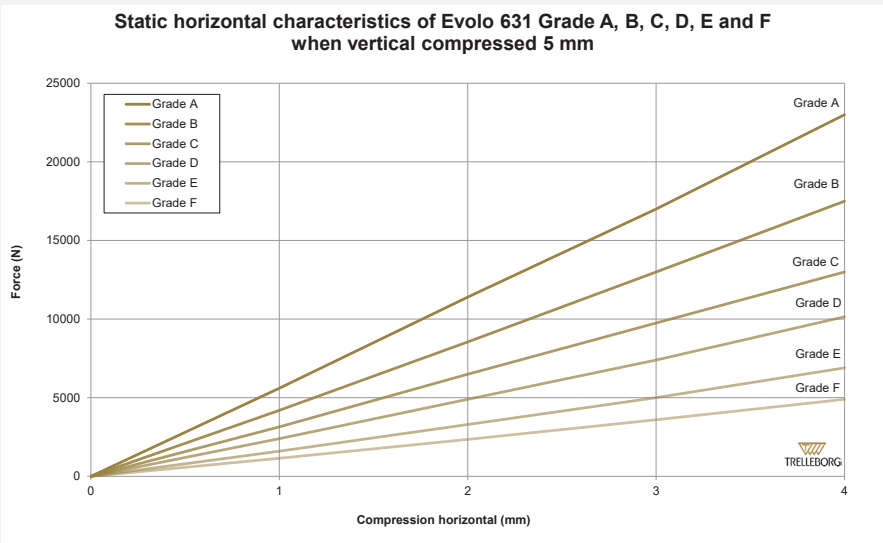
TECHNICAL DATA

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1030631B0	B	50 kN
1030631C0	C	40 kN
1030631D0	D	33 kN
1030631E0	E	23 kN
1030631F0	F	17 kN

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 5 MM



EVOLO 631 GRADE AA-AC

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

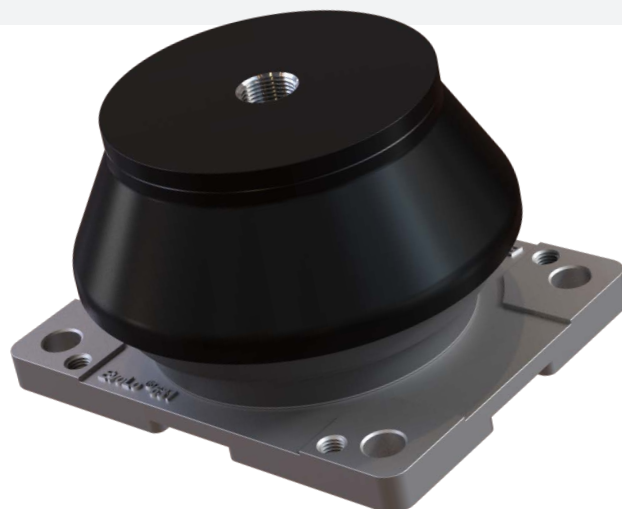
Rubber part: Highest quality natural rubber
Metal: Aluminum

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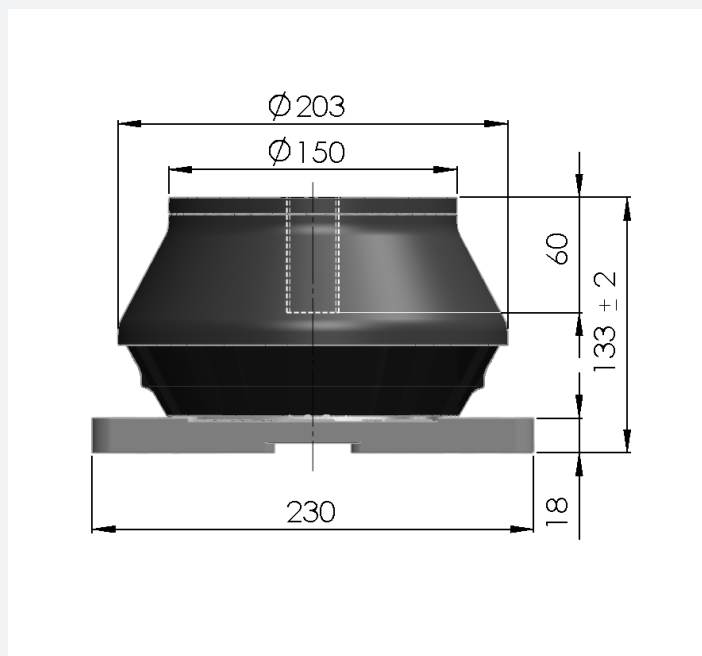
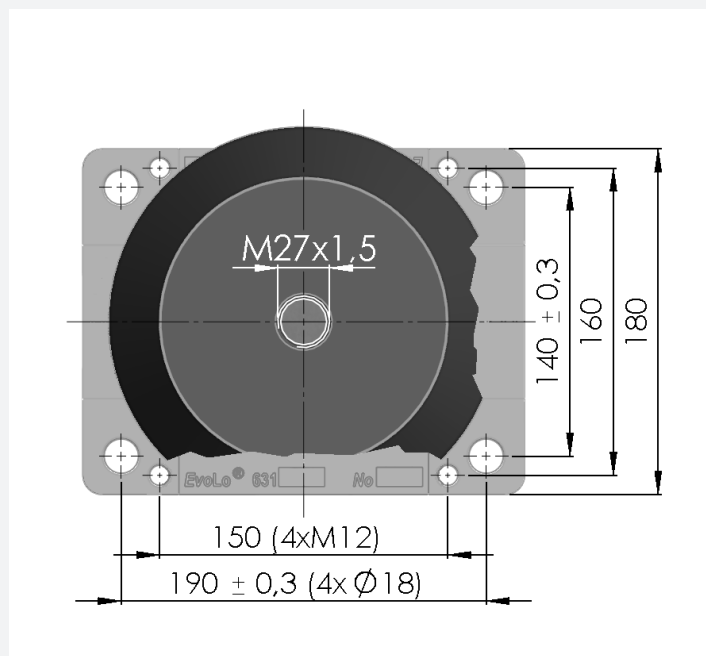
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 1000 and 6000 kg
- Stock item



TECHNICAL DRAWING

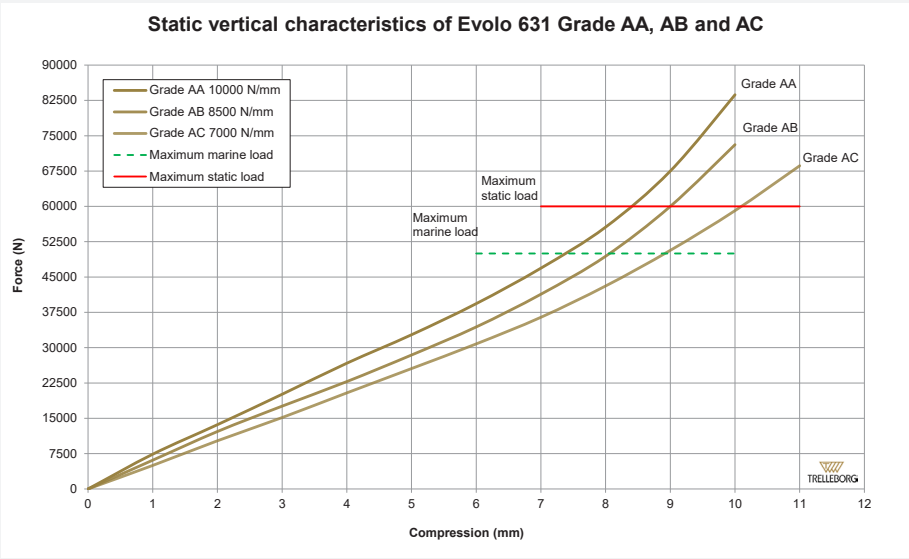


EVOLO 631 GRADE AA-AC

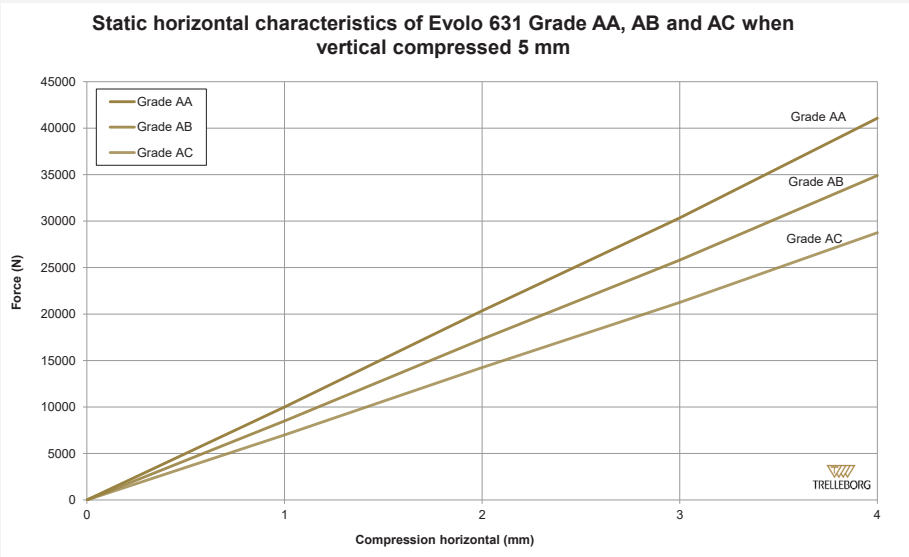
TECHNICAL DATA

ARTICLE NO.	GRADE	MAXIMUM LOAD
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103631AB0	AB	60 kN
103631AC0	AC	60 kN

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 5 MM



EVOLO 631 HEIGHT ADJUSTABLE GRADE A-F

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

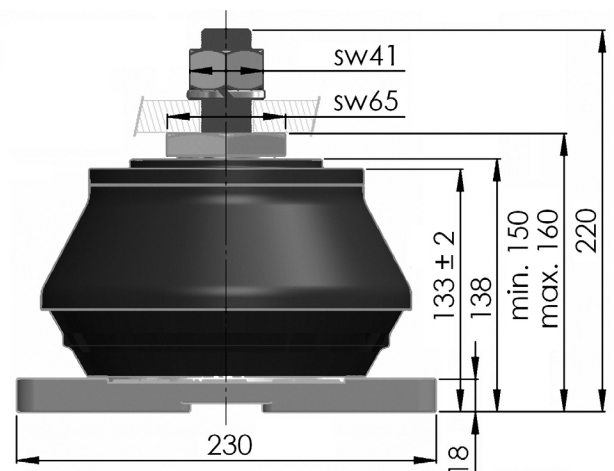
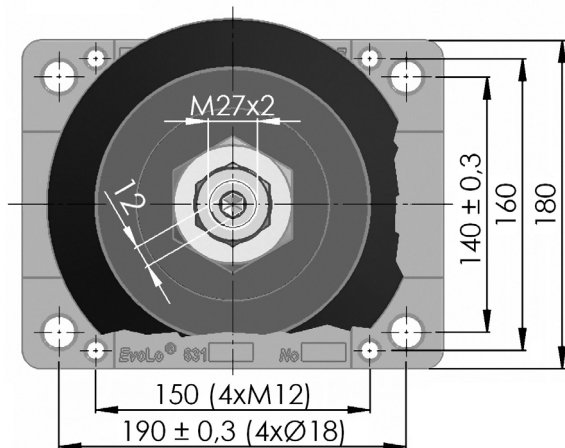
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 1000 and 6000 kg
- Stock item



TECHNICAL DRAWING

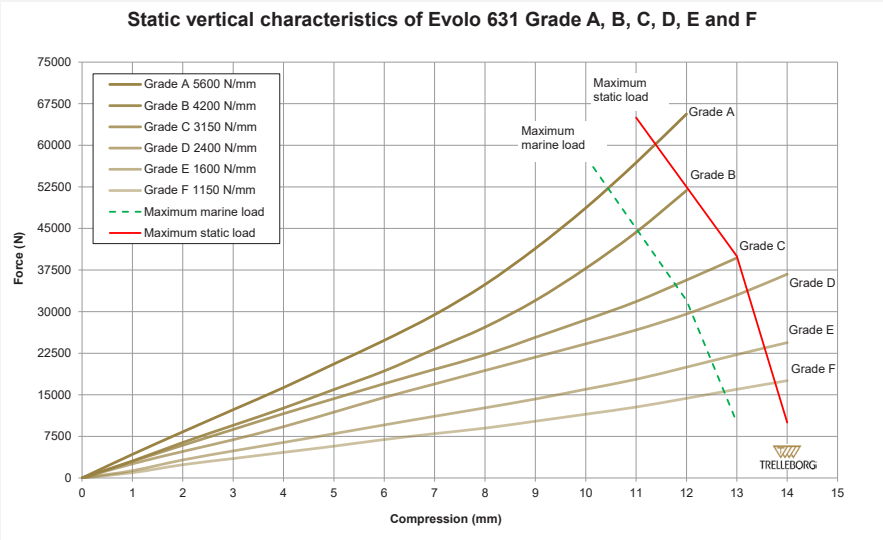


EVOLO 631 HEIGHT ADJUSTABLE GRADE A-F

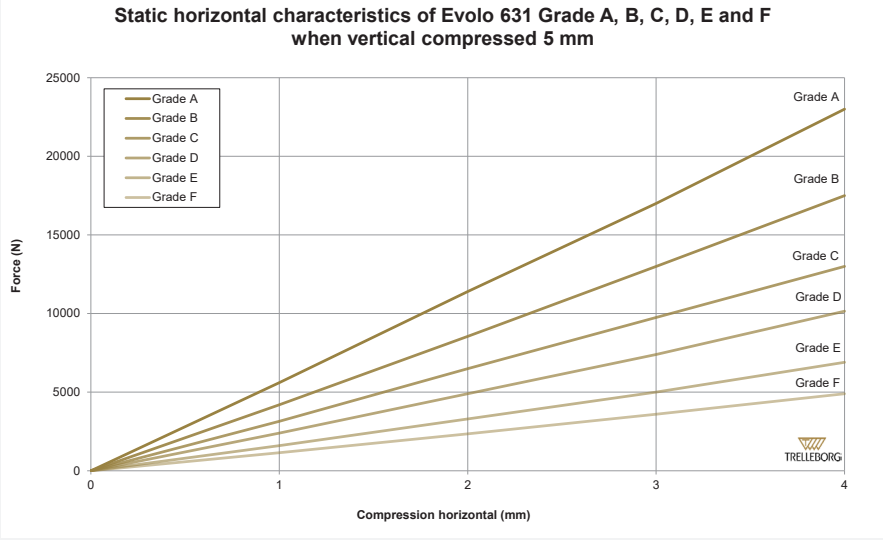
TECHNICAL DATA

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1030631B1	B	50 kN
1030631C1	C	40 kN
1030631D1	D	33 kN
1030631E1	E	23 kN
1030631F1	F	17 kN

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 5 MM



EVOLO 631 HEIGHT ADJUSTABLE GRADE AA-AC

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

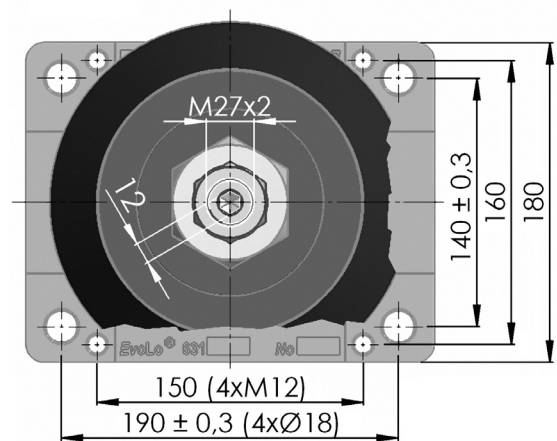
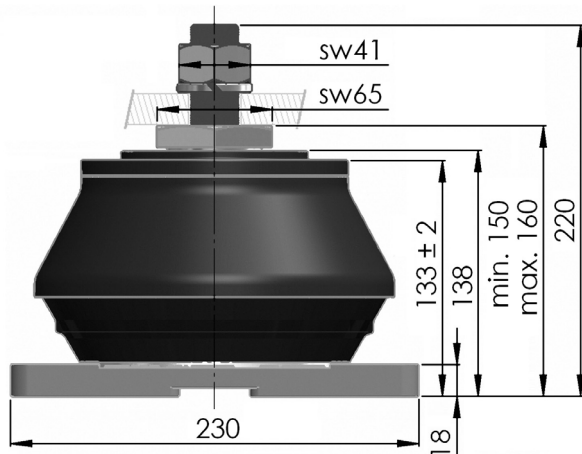
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 1000 and 6000 kg
- Stock item



TECHNICAL DRAWING

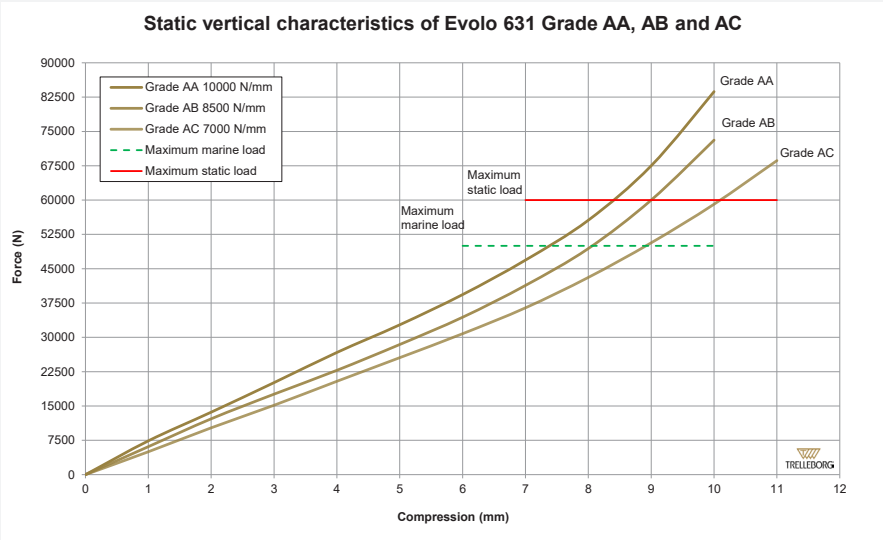


EVOLO 631 HEIGHT ADJUSTABLE GRADE AA-AC

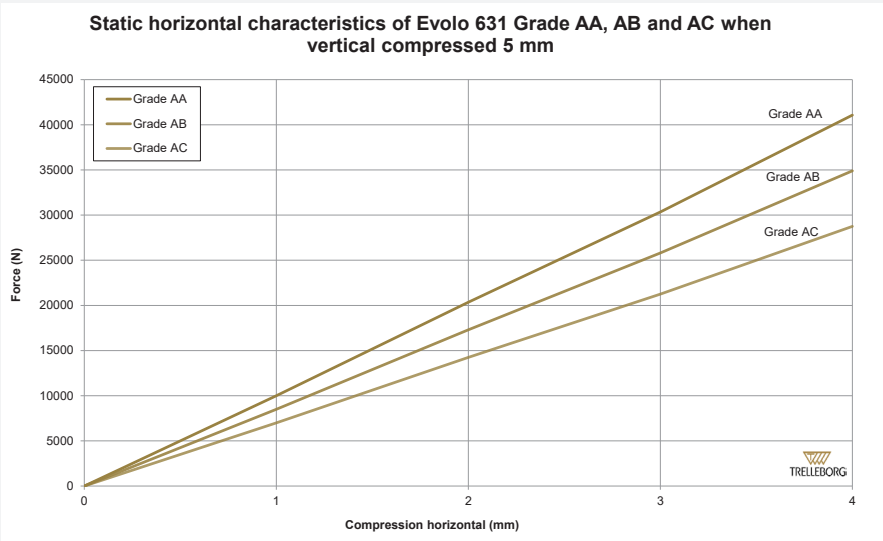
TECHNICAL DATA

ARTICLE NO. WITH HEIGHT ADJUSTMENT	GRADE	MAXIMUM LOAD
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103631AB1	AB	60 kN
103631AC1	AC	60 kN

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRECOMPRESSED 5 MM



EVOLO 631 DIVIDED SPINDLE GRADE A-F

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pump units, large diesel engines, compressor/cooling units, gear boxes, windmills, deck house mountings, control cabins.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

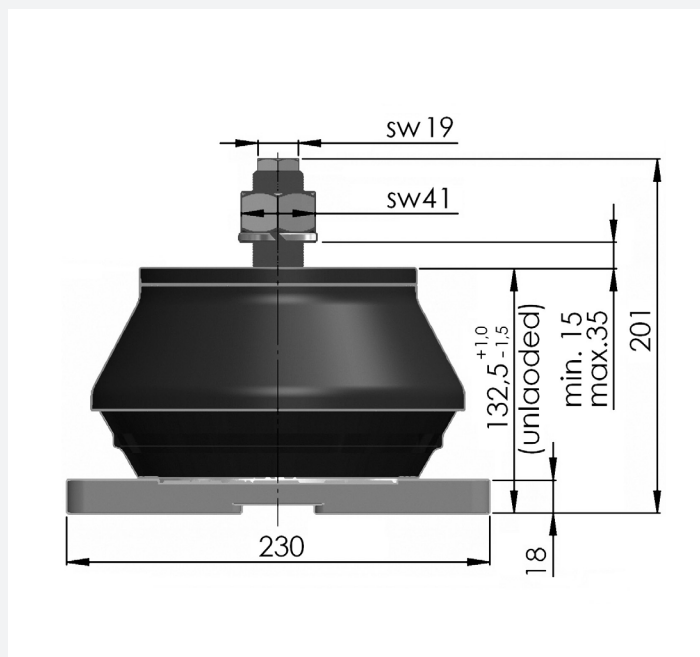
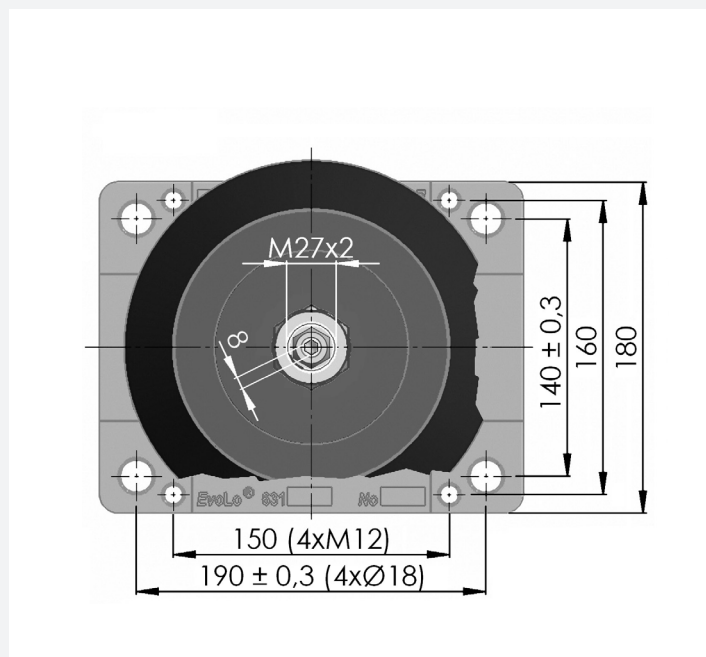
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 1000 and 6000 kg
- Stock item



TECHNICAL DRAWING

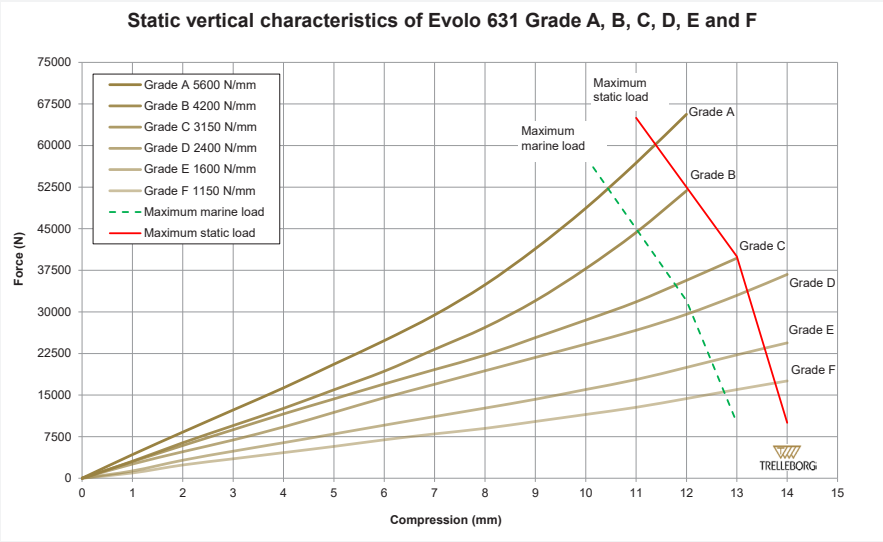


EVOLO 631 DIVIDED SPINDLE GRADE A-F

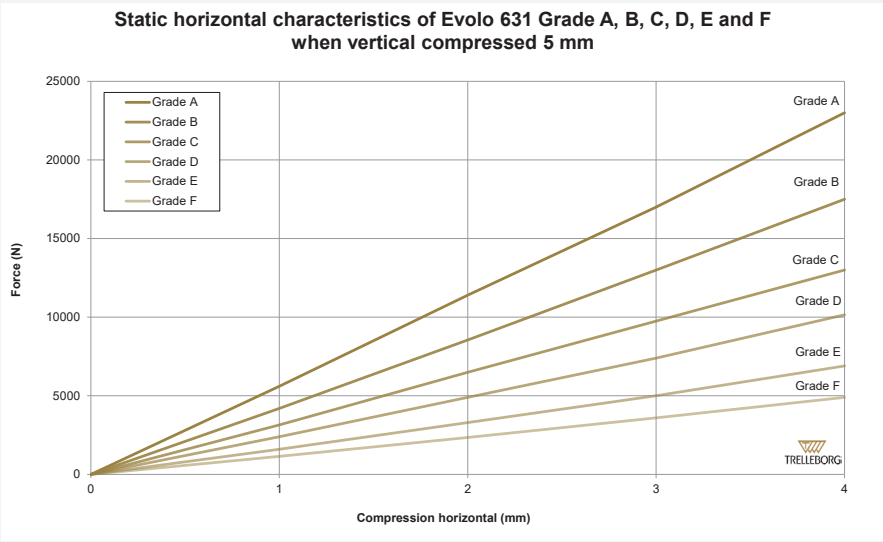
TECHNICAL DATA

ARTICLE NO.	GRADE	MAXIMUM LOAD
1030631A4	A	60 kN
1030631B4	B	50 kN
1030631C4	C	40 kN
1030631D4	D	33 kN
1030631E4	E	23 kN
1030631F4	F	17 kN

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 5 MM



EVOLO 631 DIVIDED SPINDLE GRADE AA-AC

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as generator sets, pump units, large diesel engines, compressor/cooling units, gear boxes, windmills, deck house mountings, control cabins.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

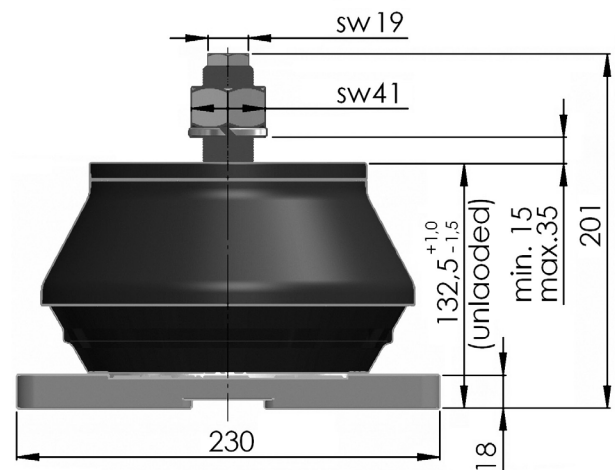
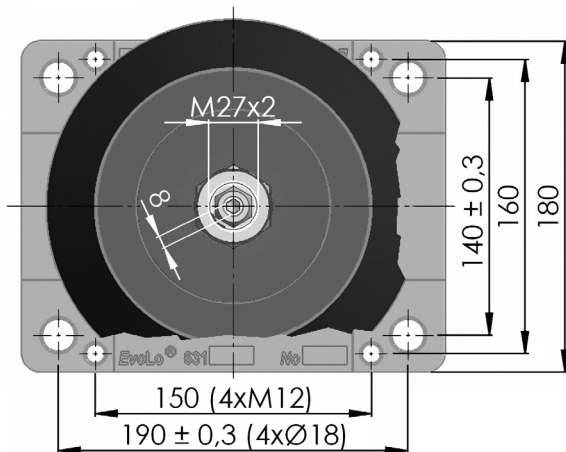
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- Stock item



TECHNICAL DRAWING

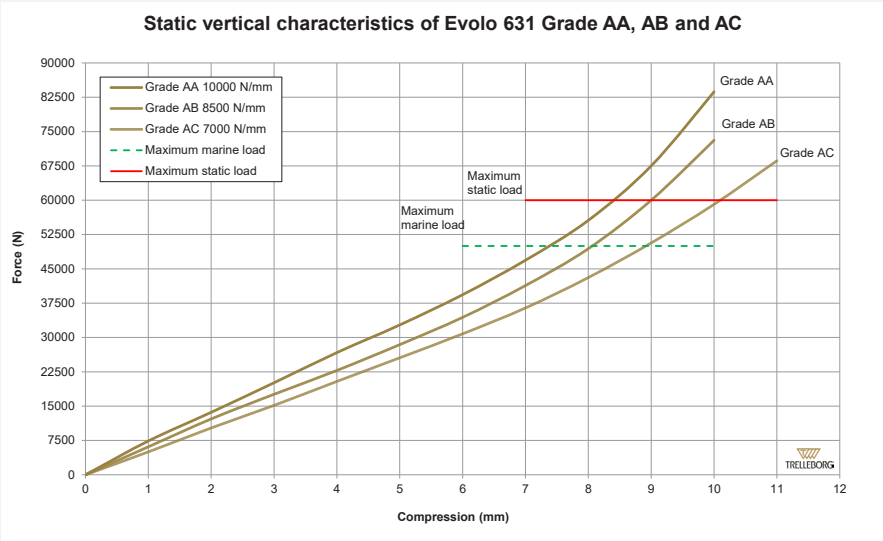


EVOLO 631 DIVIDED SPINDLE GRADE AA-AC

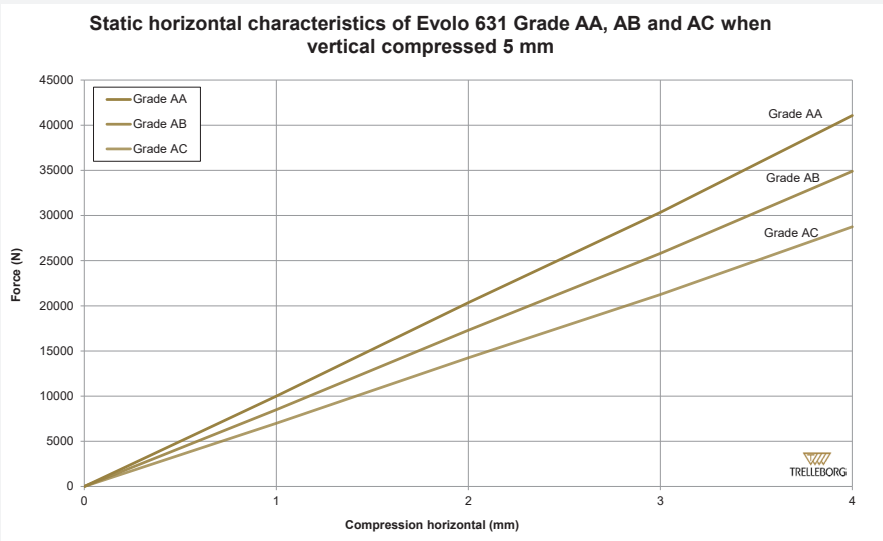
TECHNICAL DATA

ARTICLE NO.	GRADE	MAXIMUM LOAD
103631AA4	AA	60 kN
103631AB4	AB	60 kN
103631AC4	AC	60 kN

STATIC VERTICAL CHARACTERISTICS



HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 5 MM



EVOLo 633 GRADE A1-H

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as large generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

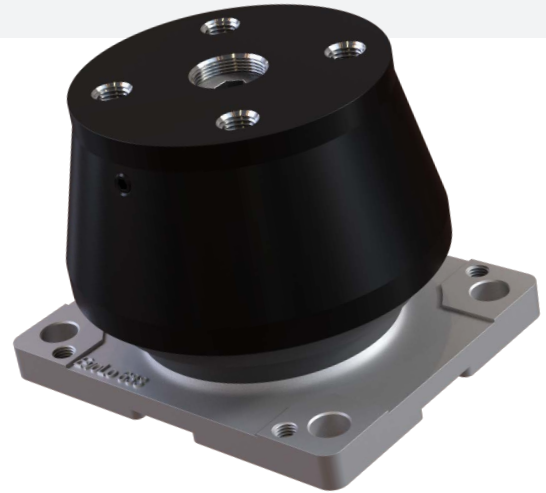
Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

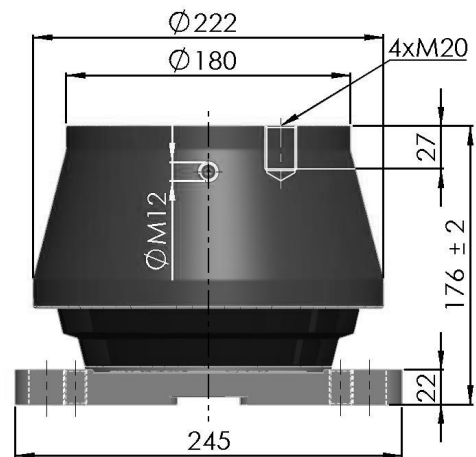
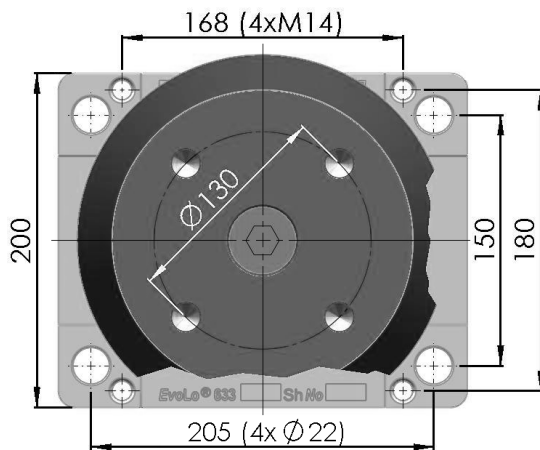
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- For loads between 2750 and 12.000 kg
- Stock item



TECHNICAL DRAWING

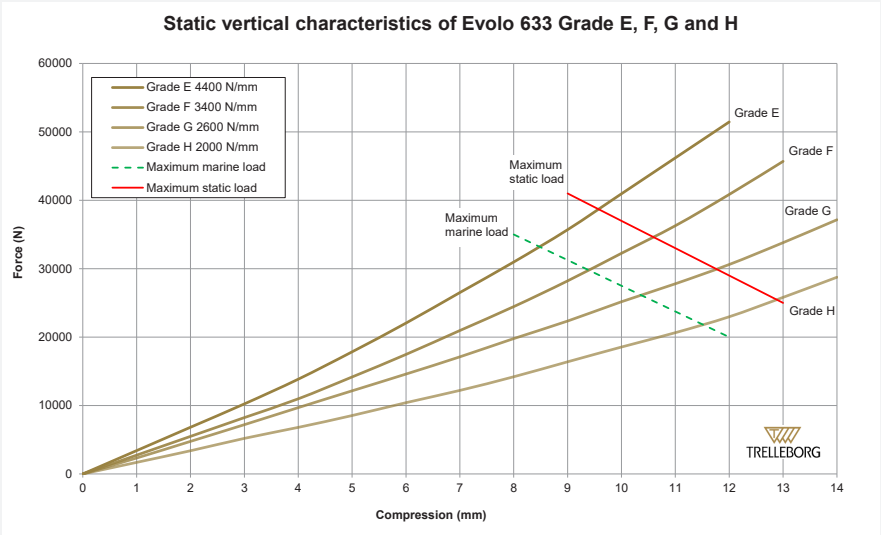
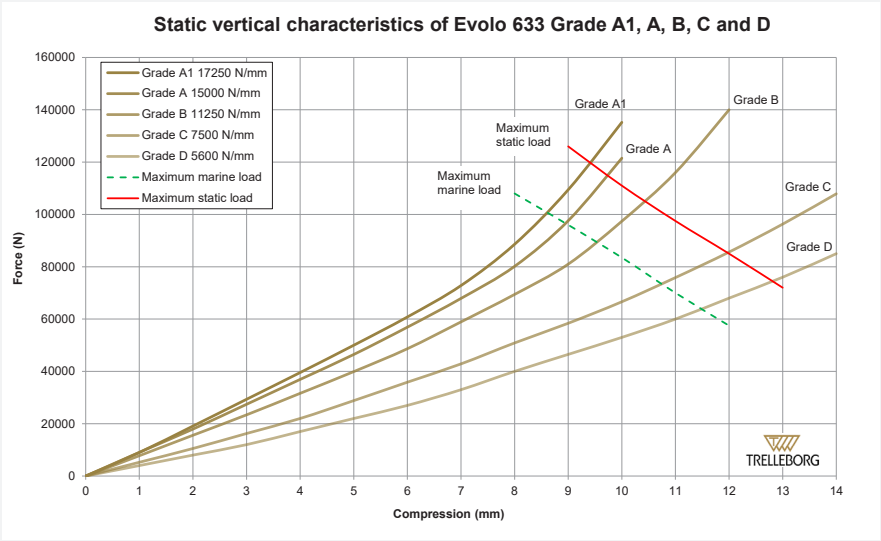


EVOLO 633 GRADE A1-H

TECHNICAL DATA

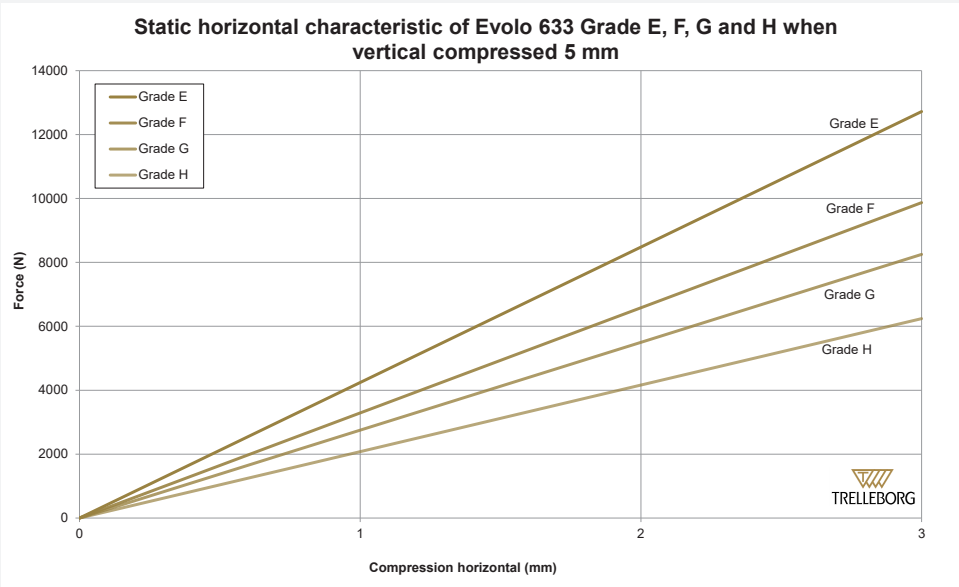
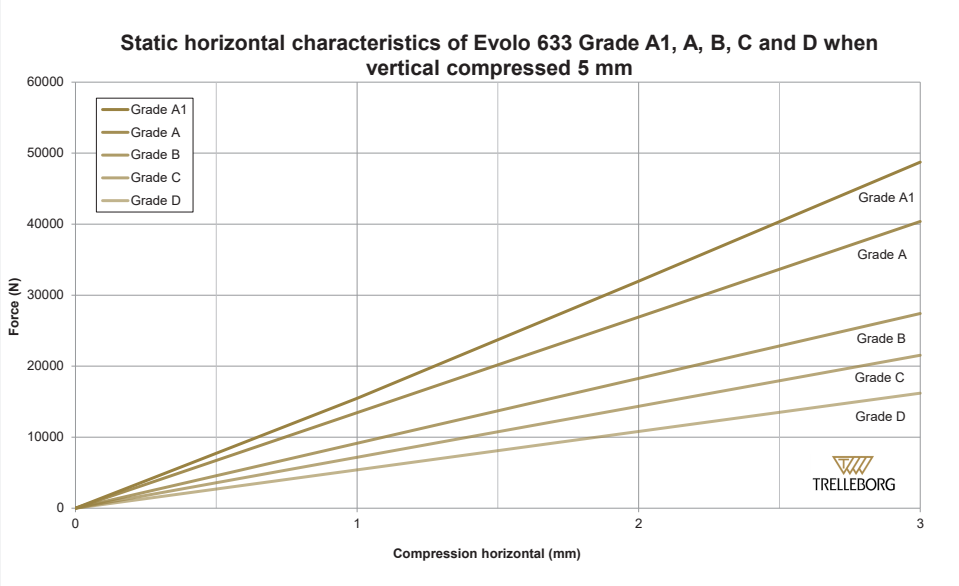
ARTICLE NO.	GRADE	MAXIMUM LOAD
1030633A1	A1	118 kN
1030633A0	A	118 kN
1030633B0	B	104 kN
1030633C0	C	85 kN
1030633D0	D	72 kN
1030633E0	E	38 kN
1030633F0	F	34 kN
1030633G0	G	30 kN
1030633H0	H	27 kN

STATIC VERTICAL CHARACTERISTICS



EVOLLO 633 GRADE A1-H

HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 4 MM



EVOL0 633 HEIGHT ADJUSTABLE GRADE A1-H

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as large generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

Rubber part:	Highest quality natural rubber
Metal:	Aluminum/Steel

IDENTIFICATION

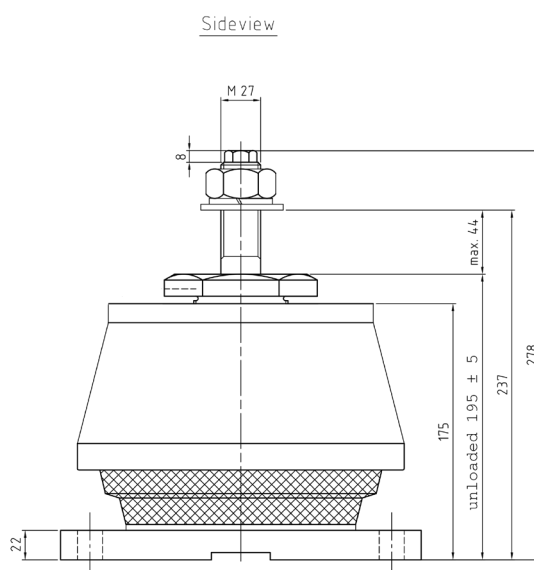
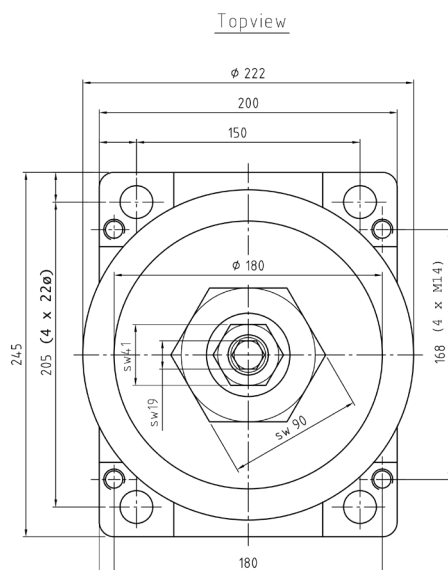
The type is marked in the mounting plate.

ADVANTAGES

- No need for additional shims due to compensation of any height differences in set-up
- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- For loads between 2750 and 12.000 kg
- Stock item



TECHNICAL DRAWING

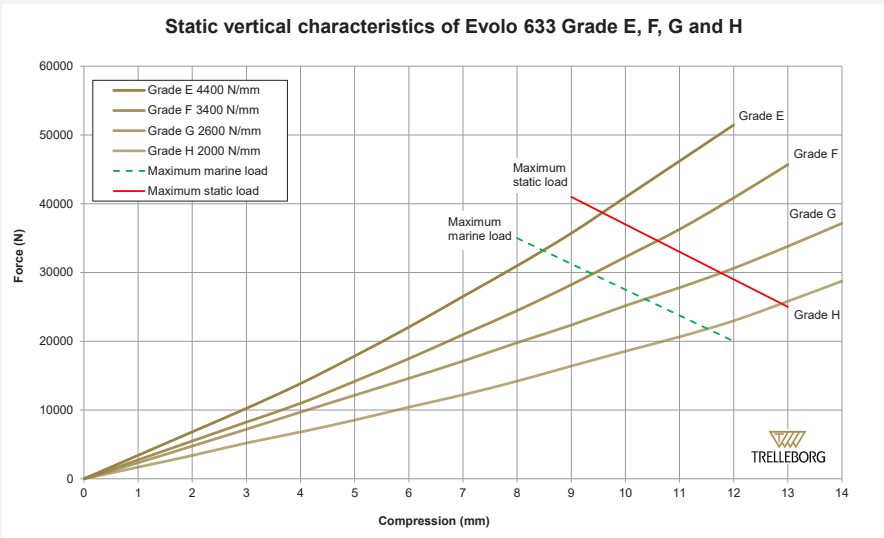
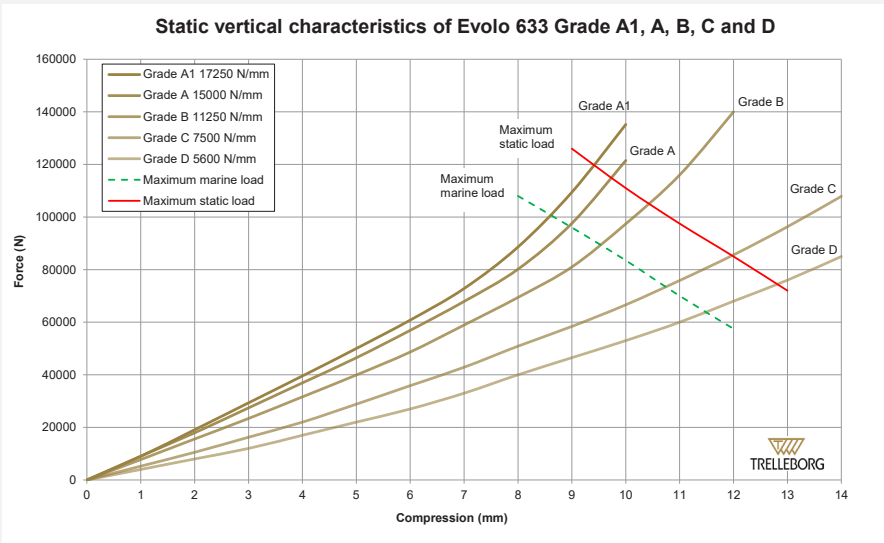


EVOLO 633 HEIGHT ADJUSTABLE GRADE A1-H

TECHNICAL DATA

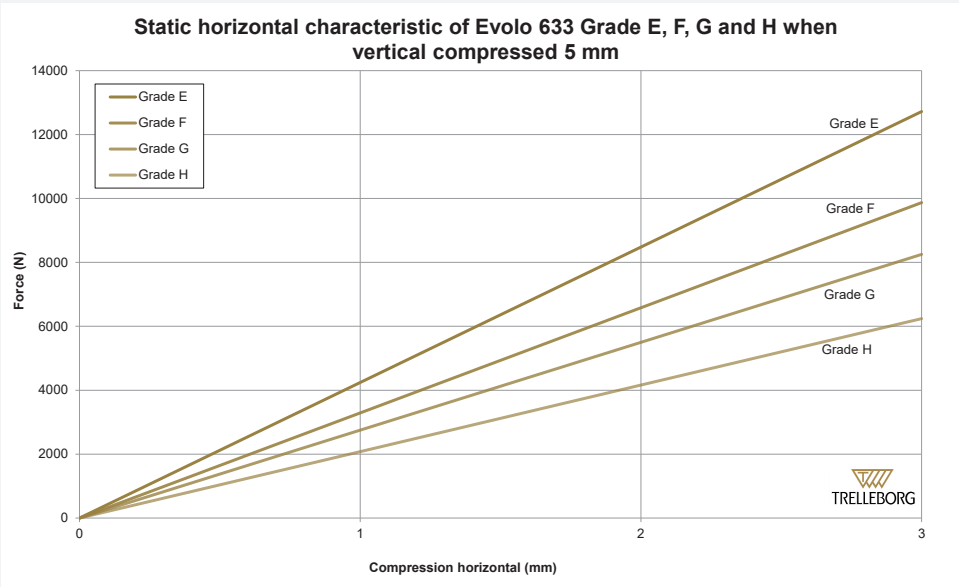
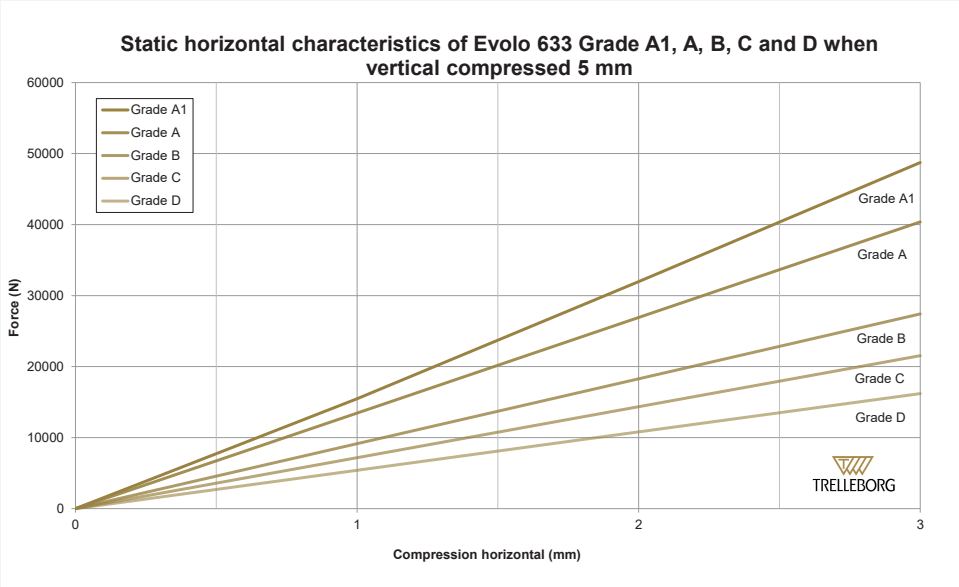
ARTICLE NO.	GRADE	MAXIMUM LOAD
10306331H	A1	118 kN
1030633AH	A	118 kN
1030633BH	B	104 kN
1030633CH	C	85 kN
1030633DH	D	72 kN
1030633EH	E	38 kN
1030633FH	F	34 kN
1030633GH	G	30 kN
1030633HH	H	27 kN

STATIC VERTICAL CHARACTERISTICS



EVOLO 633 HEIGHT ADJUSTABLE GRADE A1-H

HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 4 MM



EVOL 633 SPINDLE GRADE A1-H

APPLICATION

Optimum vibration isolation for a wide range of applications. For larger, heavy-weighted equipment under extreme conditions that needs optimal vibration isolation at both high and low frequencies, such as large generator sets, pump units, large diesel engines, compressor/cooling units, gearboxes, windmills, deck house mountings, control cabins.

MATERIAL

Rubber part: Highest quality natural rubber
Metal: Aluminum/Steel

IDENTIFICATION

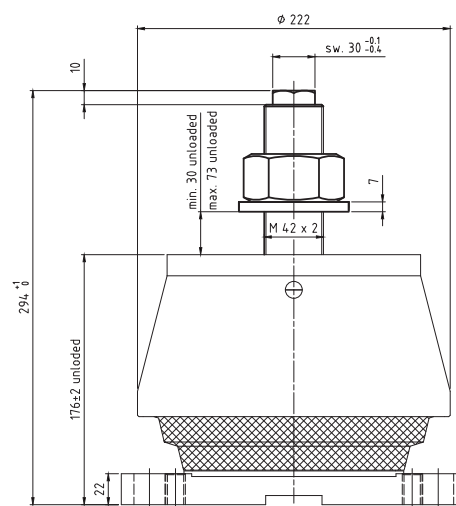
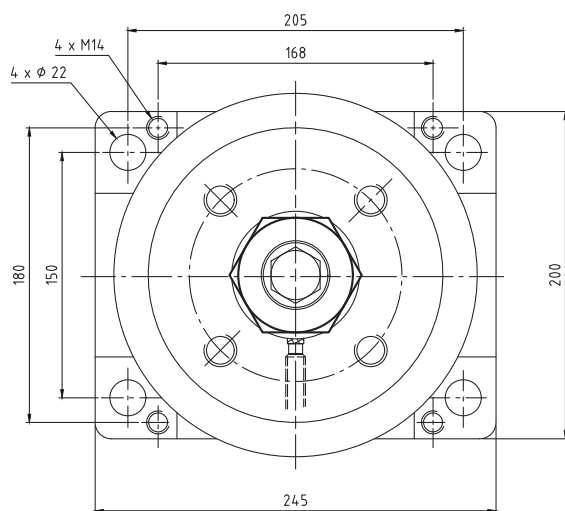
The type is marked in the mounting plate.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- For loads between 2.750 and 12.000 kg
- Stock item



TECHNICAL DRAWING

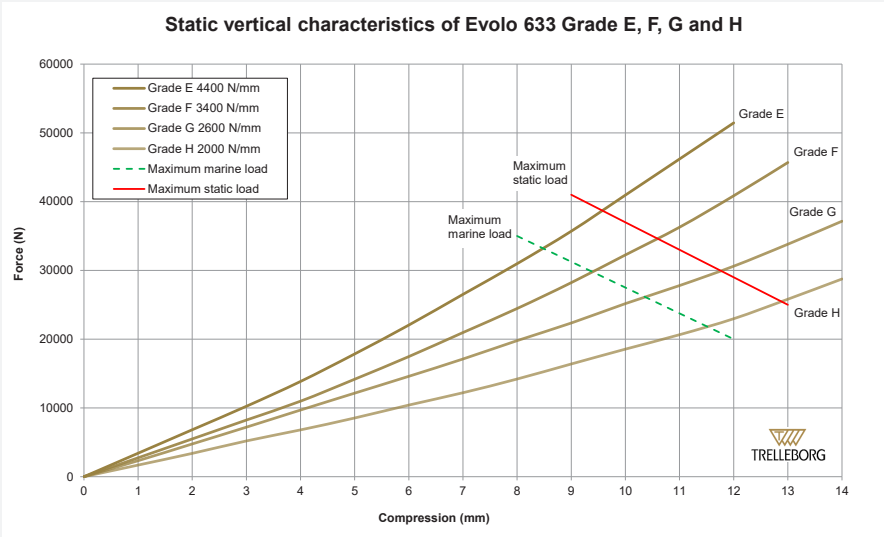
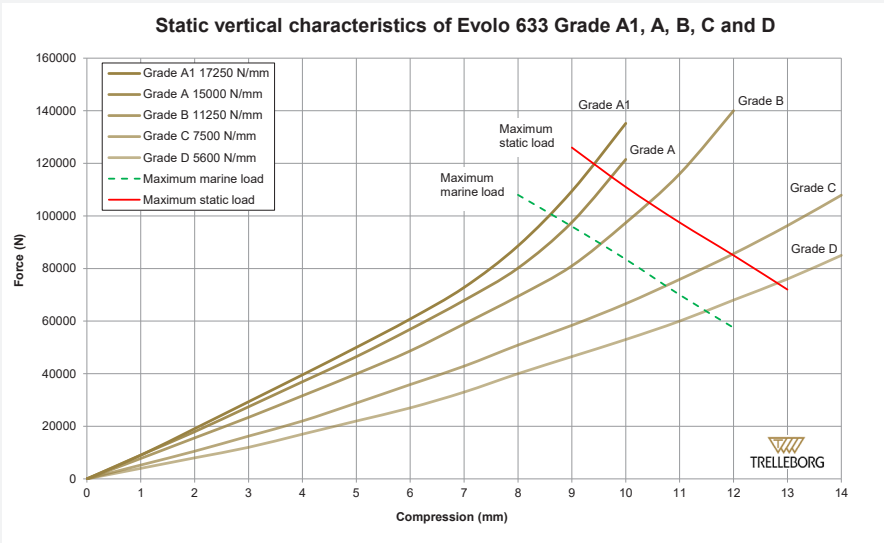


EVOLO 633 SPINDLE GRADE A1-H

TECHNICAL DATA

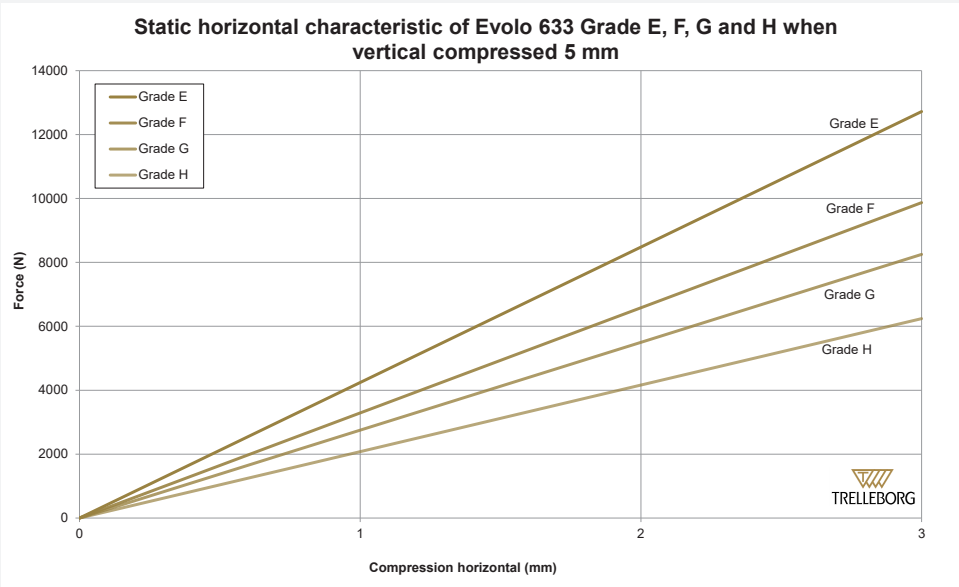
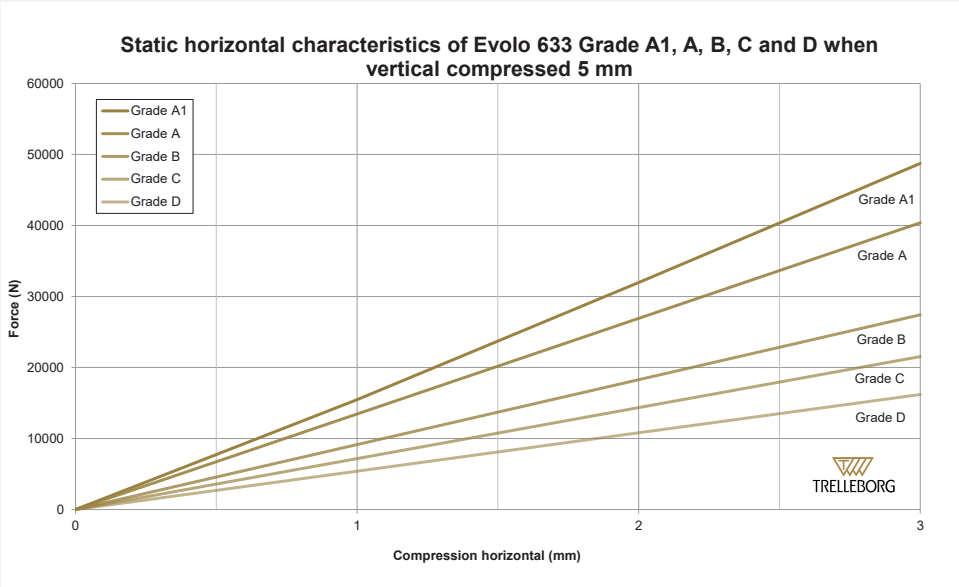
ARTICLE NO.	GRADE	MAXIMUM LOAD
1031633A7	A1	118 kN
1030633A7	A	118 kN
1030633B7	B	104 kN
1030633C7	C	85 kN
1030633D7	D	72 kN
1030633E7	E	38 kN
1030633F7	F	34 kN
1030633G7	G	30 kN
1030633H7	H	27 kN

STATIC VERTICAL CHARACTERISTICS



EVOLo 633 SPINDLE GRADE A1-H

HORIZONTAL CHARACTERISTICS WHEN PRECOMPRESSED 4 MM



EVOLO 633 TWISTLOCK GRADE A-H

INTRODUCTION

The innovative Trelleborg EvoLo 633 TwistLock for modular and skid based units solve the vibration issues causing potential damage and noise in the units, while the flexibility and easy handling of the TwistLock is maintained.

Personnel on offshore platforms are often facing vibration challenges caused by modular and skid based units. These vibrations are transmitted throughout the steel structure and may result in unforeseen damage or failure. Additionally, these vibrations affect the living and working environments of offshore workers. Eventually, this will negatively affect production, as poor working conditions often lead to inefficiency, a decrease of morale on the platform, and noncompliance with working conditions and safety regulation.

Trelleborg already successfully applied her innovative EvoLo vibration mounts in various market segments. In the offshore industry, many permanent offshore units are isolated against vibration with the EvoLo 633. However, the standard EvoLo 633 vibration mount can not be used in this case, as modular and skid based units must be secured safely whilst their deployment remains flexible. The EvoLo 633 TwistLock is the result of the combination of our vibration isolation expertise, high-quality products, and innovative capabilities. It has all the benefits of easy and quick installation of the TwistLock widely used in the offshore market, combined with the perfect vibration isolation qualities of the EvoLo 633 vibration mount. It is the ideal vibration isolator for modular and skid based units, as it protects the offshore unit from dangerous and annoying vibrations coming through and from the platform.

Trelleborg's EvoLo 633 TwistLock improves safety by preventing the unit and structure from hazardous and inconvenient vibrations. Additionally, it substantially increases working and living conditions on the offshore platform similar to our solutions for permanent offshore units. The business benefits are legion: increased efficiency, improved morale, and compliance with offshore working conditions and safety regulation.



MATERIAL

Rubber part:	Highest quality natural rubber
Metal:	Steel (St. 37 electrolytic galvanized)

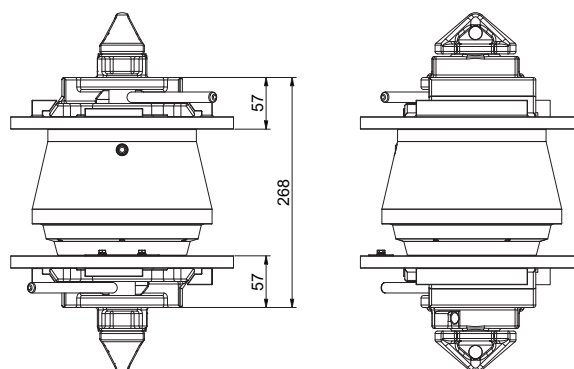
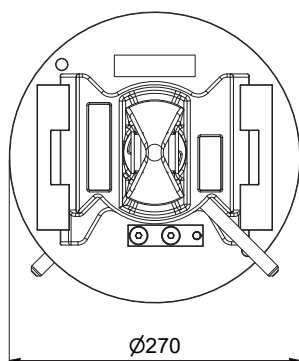
IDENTIFICATION

The type is marked in TAG/ Identification.

ADVANTAGES

- Type approvals available on request
- Optimum vibration isolation
- Easy and quick installation
- Build in end-limiter to protect against overload
- Capable of handling both vertical and horizontal forces
- Natural rubber gives maximum vibration isolation
- One type fits all weights between 1400 and 11800 kg
- Stock item

TECHNICAL DRAWING

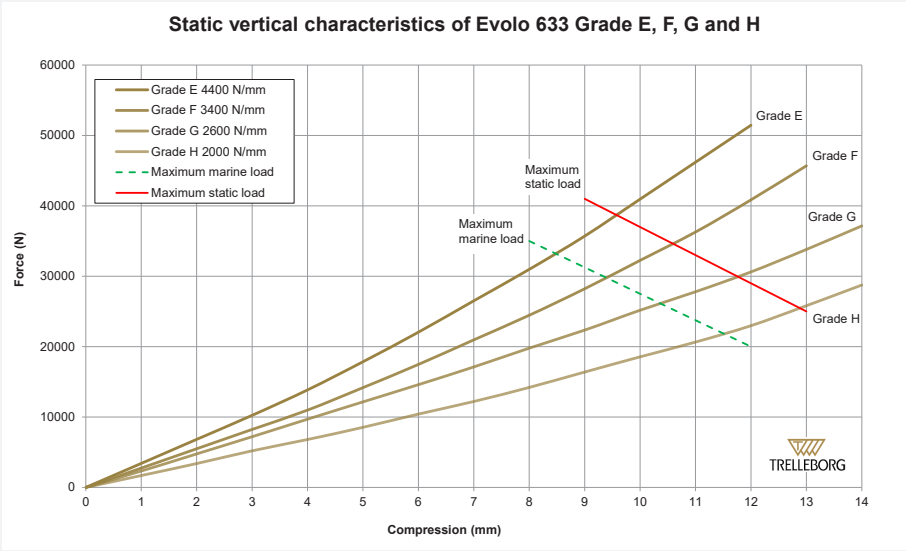
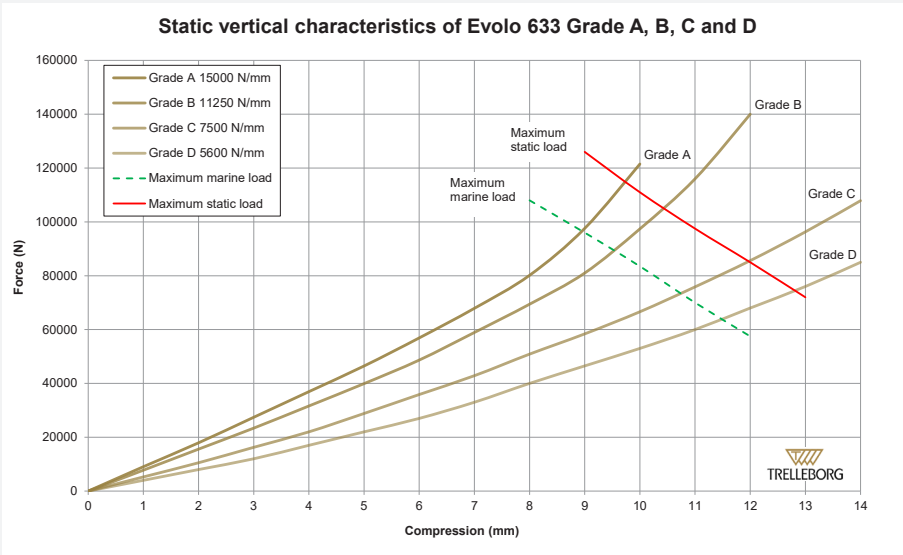


EVOLO 633 TWISTLOCK GRADE A-H

TECHNICAL DATA

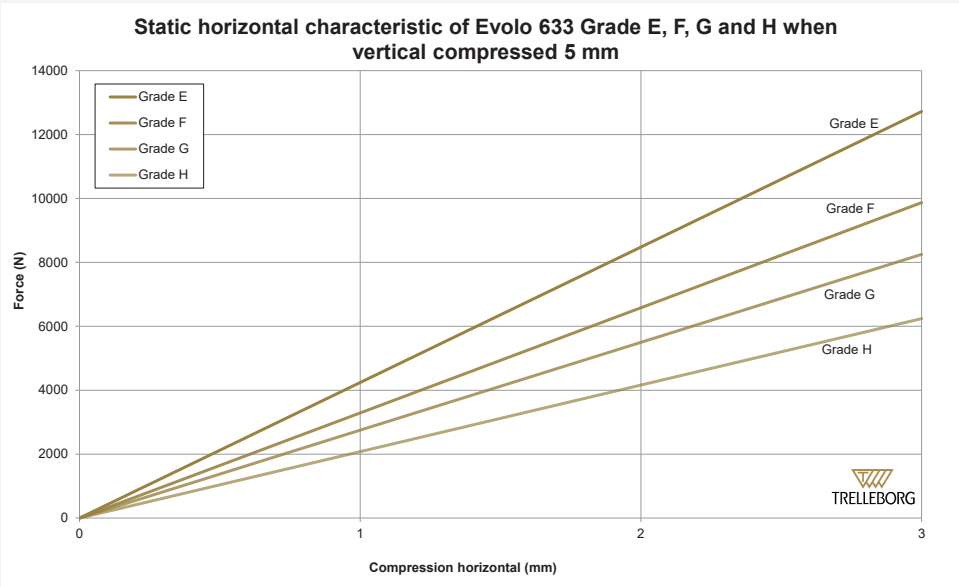
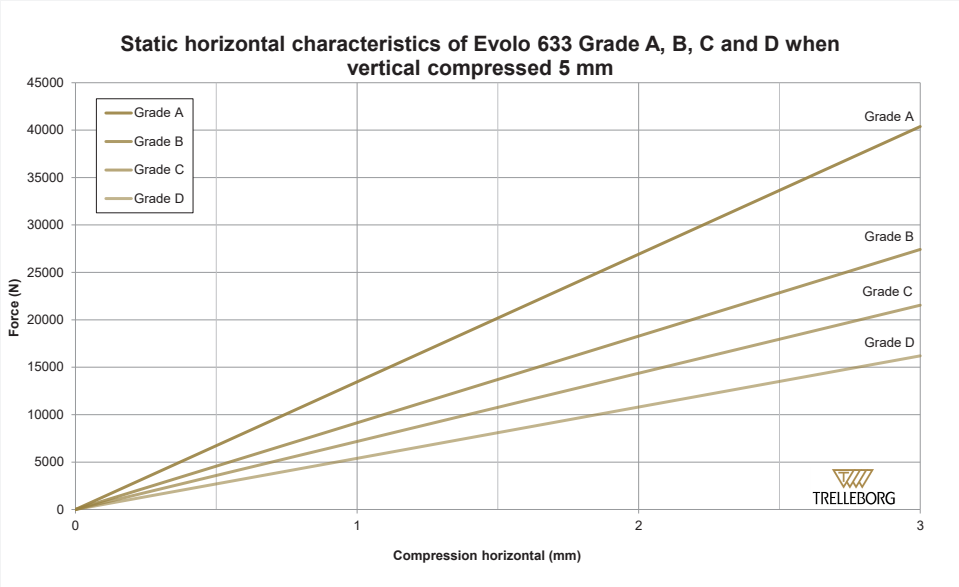
ARTICLE NO.	GRADE	MAXIMUM LOAD
1030633AT	A	118 kN
1030633BT	B	104 kN
1030633CT	C	85 kN
1030633DT	D	72 kN
1030633ET	E	38 kN
1030633FT	F	34 kN
1030633GT	G	30 kN
1030633HT	H	27 kN

STATIC VERTICAL CHARACTERISTICS



EVOLO 633 TWISTLOCK GRADE A-H

HORIZONTAL CHARACTERISTICS WHEN PRE-COMPRESSED 4 MM



Cushyfoot Mounting

Cushyfoot mountings have two rubber elements, used in shear and compression, to provide excellent stiffness characteristics for the isolation of a wide range of vibration frequencies.

There are three sizes, 17-0290 for loads up to 230 kg per mounting, 17-0213 for loads up to 1250 kg and 17-0346, which will carry up to 1280 kg per mounting, will provide up to 16 mm static deflection.

The Cushyfoot mounting benefits from the following features:

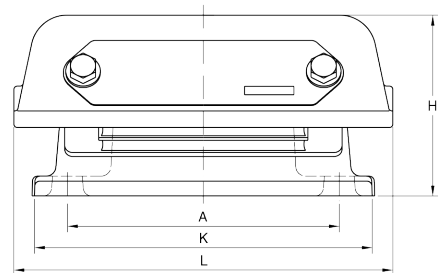
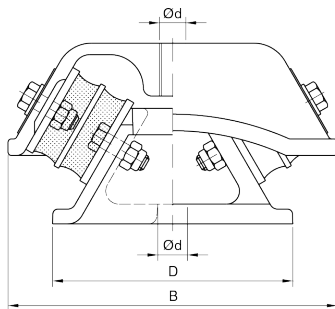
- A wide load range from 50 to 1280 kg
- Strong casting for safety and reliability
- Dissimilar horizontal stiffness gives optimum isolation and motion control

Typical applications Include:

- Diesel engines
- Generator sets
- Compressors
- Fans
- Hydraulic units
- Lift machinery



TECHNICAL DRAWING



Cushyfoot Mounting

PRODUCT DATA

Drawing NO.	PART NO.	TYPE	DIMENSIONS (mm)								MAX. LOAD (kg)
			L	B	A	K	H	D	Ød	G	
17-0290-1	20-00689	45 °IRHD	122	132	90	114	72	82	13	M16	115
050 18 001	96808	45 NR 511	121	127	90	115	72	83	11	M12	150
	49047069	45 NR 511								M16	
	96806	50 NR 511								M12	190
	49041129	50 NR 511								M16	
17-0290-1	10-04251	60 °IRHD	122	132	90	114	72	82	13	M16	230
050 18 001	96809	65 NR 511	121	127	90	115	72	83	11	M12	310
	49047070	65 NR 511								M16	
17-0290-1	10-04116	70 °IRHD	122	132	90	114	72	82	13	M16	340
050 18 004	596744	45 NR 511	228	203	165	203	120	146	17.5	M16	500
050 18 001	96807	75 NR 511	121	127	90	115	72	83	11	M12	530
	49047071	75 NR 511								M16	
17-0213	10-04106	45 °IRHD	230	204	165	205	110	148	18	M16	590
050 18 002	96802	45 NR 511	228	203	165	203	110	146	17.5	M16	650
17-0346-1	10-04123	45 °IRHD	230	204	165	205	123	148	18	M16	630
050 18 004	96800	58 NR 511	228	203	165	203	120	146	17.5	M16	850
050 18 002	96805	58 NR 511					110				950
050 18 004	96920	65 NR 511					120				
050 18 002	96804	65 NR 511					110				1250
050 18 004	96801	75 NR 511					120				
17-0213	10-04104	60 °IRHD	230	204	165	205	110	148	18	M16	1250
17-0346-1	10-04120	60 °IRHD					123			M16	1280
050 18 002	96803	75 NR 511	228	203	165	203	110	146	17.5	M16	1600



Cushyfloat Mounting

The Cushyfloat mounting is a general purpose unit designed to provide effective isolation of vibration and noise arising from both static and mobile equipment. Originally designed for use with marine engines, the Metalastik Cushyfloat is a simple to install, compact, low profile mounting. It combines 3 way control of the suspended equipment with relatively large static deflections where the rubber is loaded in shear and compression.

The design incorporates bump and rebound control features which limits excessive movement under shock loading. Top metal gives protection against oil contamination and the protective finish resists corrosion attack. Propeller thrust on marine applications is accommodated.

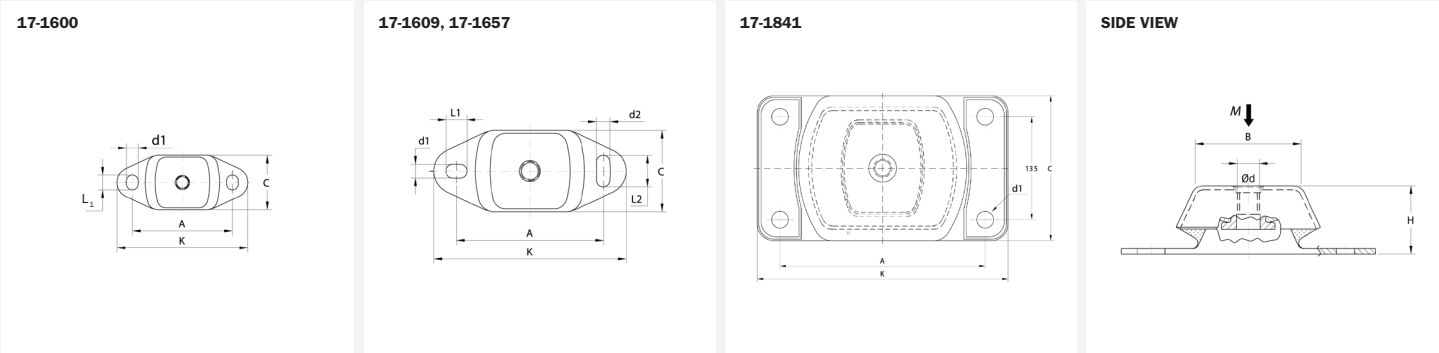
There are four sizes in the standard range with varying degrees of rubber hardness catering for point loads from 32Kg to 3000kg. Natural frequencies as low as 8Hz are possible.



Typical Applications Include:

- Marine/Industrial vehicle engines
- Generator sets
- Pumps and compressors

TECHNICAL DRAWING



*When used in marine engine application when thrust forces are involved, the maximum load capacity is substantially reduced.

PRODUCT DATA

DRAWING NO.	PART NO.	TYPE	DIMENSIONS (mm)										MAX. LOAD (kg)		MAX. THRUST LOAD (N)	MAX. BOLT TORQUE (Nm)
			B	C	A	K	H	d ₁	L ₁	d ₂	L ₂	Ød	VERTICAL	*VERTICAL WITH THRUST		
17-1600-1	10-00535	45 °IRHD	62	60	100	120	38-40.5	11	14	11	14	M12	50	35	370	25
	10-00536	55 °IRHD											65	55	560	25
	10-00537	65 °IRHD											100	80	830	25
	10-04525	75 °IRHD											145	115	1200	25
17-1609-1	10-00545	45 °IRHD	76	75	140	183	49	13	20	13	30	M16	150	95	1000	50
	10-00546	55 °IRHD											210	140	1500	50
	10-00547	65 °IRHD											300	210	2300	50
	10-00548	75 °IRHD											450	315	3300	50
17-1657-1	10-00557	45 °IRHD	72	112.5	182	228	70	18	26	18	34	M20	300	250	2800	100
	10-00558	55 °IRHD											520	370	4200	100
	10-00559	65 °IRHD											800	560	6400	100
	10-00560	75 °IRHD											1000	700	11800	100
17-1841-2	10-00605	40 °IRHD	120	190	270	330	112	22	-	-	-	M24	950	630	5300	200
	10-00606	50 °IRHD											1400	945	7100	200
	10-00607	60 °IRHD											2200	1575	12500	200
	10-00608	70 °IRHD												2100	18000	200

RA Mounting

RA mount uses the rubber profile in shear and compression to obtain good vertical flexibility with the advantage of horizontal stability. For normal speeds of approx. 1500 RPM, the RA provides a degree of isolation of 75-85%. For better isolation, the alternative RAEM or M-Series can be chosen.

The RA are a high performance mount, with a number of advantages:

- Rubber features are utilized effectively combining compression and shear wide load rating options, 40-2100 kg
- Corrosion protected to cope with arduous environments on land or marine applications
- Domed shape cover to protect against oil contamination
- Fitted as standard with an integral fail-safe device with resilient stop, making the RA ideal for use in mobile applications
- The RA mounts can accommodate occasional vertical shock loads up to 5G and shock loads up to 2G in other directions

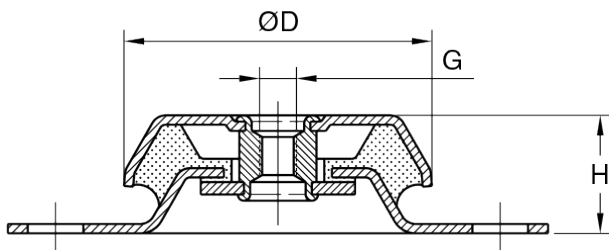
Typical Applications Include:

- Pumps
- Fans
- Converters
- Compressors
- Combustion engines
- Industrial and Marine gensets
- Generators
- Also suitable for use with presses, punches and other work shop machines

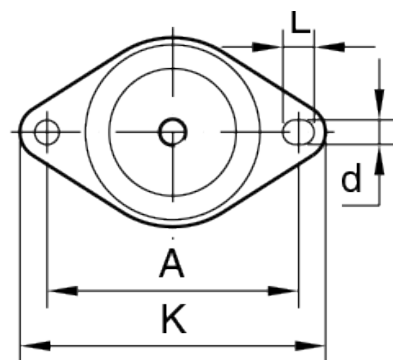


TECHNICAL DRAWING

RA100, RA200, RA500, RA800, 17-1463



RA100, RA200, RA500, RA800, 17-1463



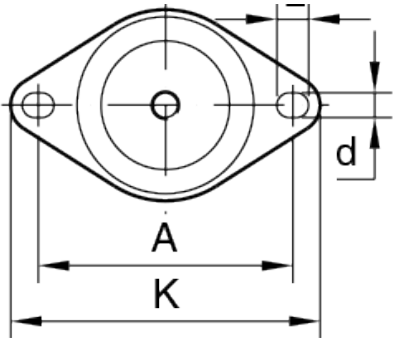
RA Mounting

PRODUCT DATA

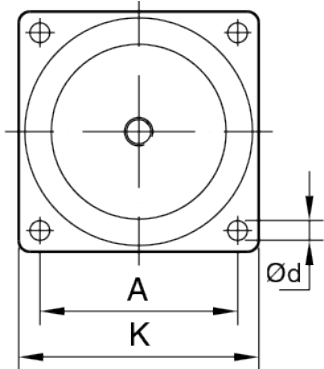
TYPE	HARDNESS	DRAWING NO.	PART NO.	DIMENSIONS (mm)							MAX. LOAD (kg)	MAX. BOLT TORQUE (Nm)	WEIGHT (kg)
				ØD	A	K	H	Ød	L	G			
RA 100	40 °IRHD	17-2320-1	10-00106	79	110	130	30	9	12	M10	105	15	0.33
	60 °IRHD	17-2321-1	10-00107								240		
	40 °IRHD	17-2322-3	10-00166	79	110	130	30	9	12	M12	105	25	0.33
	60 °IRHD	17-2323-1	10-00167								240		
RA 200	40 °IRHD	17-2326-1	10-00110	94	124	150	35	10	15	M10	180	15	0.47
	60 °IRHD	17-2327-1	10-00111								280		
	40 °IRHD	17-2328-3	10-00165	94	124	150	35	10	15	M12	180	25	0.47
	60 °IRHD	17-2329-1	10-00091								280		
RA 350	40 °IRHD	17-2330-3	10-00172	101	140-148	175	38	14	18	M12	250	25	0.74
	60 °IRHD	17-2331-1	10-00173								450		
	40 °IRHD	17-2332-2	10-00112	101	140-148	175	38	14	18	M16	250	50	0.74
	60 °IRHD	17-2333-1	10-00113								450		
RA 500	40 °IRHD	17-2334-1	10-00116	123	158	192	42	14	18	M16	450	50	1.02
	60 °IRHD	17-2335-1	10-00117								700		
RA 800	40 °IRHD	17-4016-1	10-00118	144	182	216	46	14	18	M16	750	50	1.59
	60 °IRHD	17-4017-1	10-00119								1300		
RA 1200	40 °IRHD	17-4031-1	10-00154	161	140	170	58	14	-	M20	900	100	2.19
	60 °IRHD	17-4032-2	10-00155								1600		
RA 1800	40 °IRHD	17-4033-2	10-00156	181	160	190	66.5	14	-	M20	1300	100	2.33
	60 °IRHD	17-4034-1	10-00157								2100		

TECHNICAL DRAWING

RA350



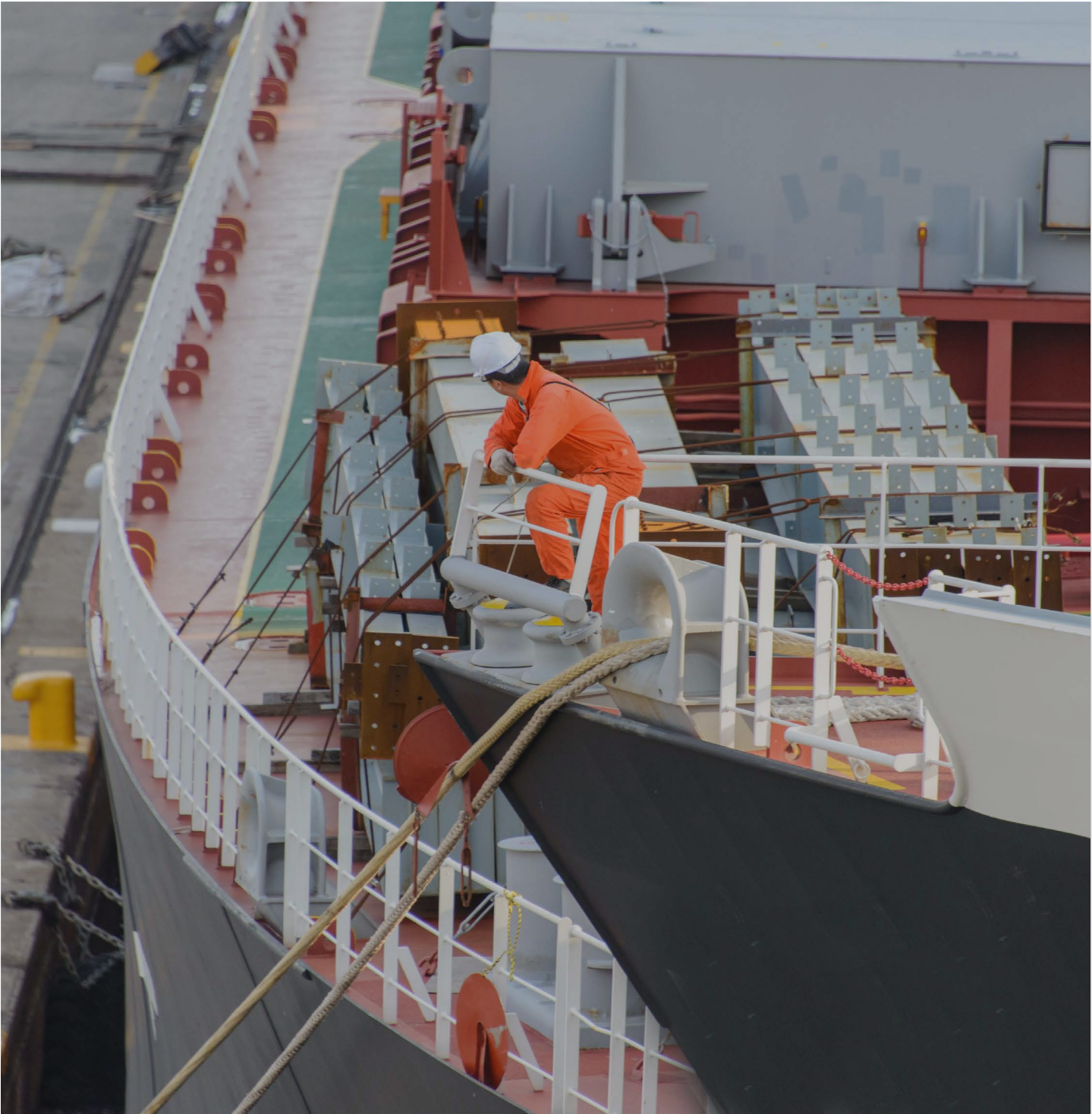
RA1200, RA1800



RA Mounting

PRODUCT DATA

DRAWING NO.	PART NO.	TYPE	DIMENSIONS (mm)							MAX. LOAD (kg)	MAX. BOLT TORQUE (Nm)	WEIGHT (kg)
			D	A	H	K	d	L	G			
17-1463-1	10-00503	35 °IRHD	65	76.2	35	94	8.5	10	M12	55	25	0.22
	10-00504	45 °IRHD								80		
	10-00506	70 °IRHD								240		



RAB Mounting

Similar in design to the RA and RAEM range, the RAB uses rubber in shear and compression for optimum stiffness characteristics and horizontal stability. Especially effective on small 1, 2 and 3 cylinder diesel engines where the special compound employed provides effective isolation of vibration while eliminating much of the excessive movement normally associated with 1-3 cylinder engines.

The RAB are a high performance mount which have a number of advantages:

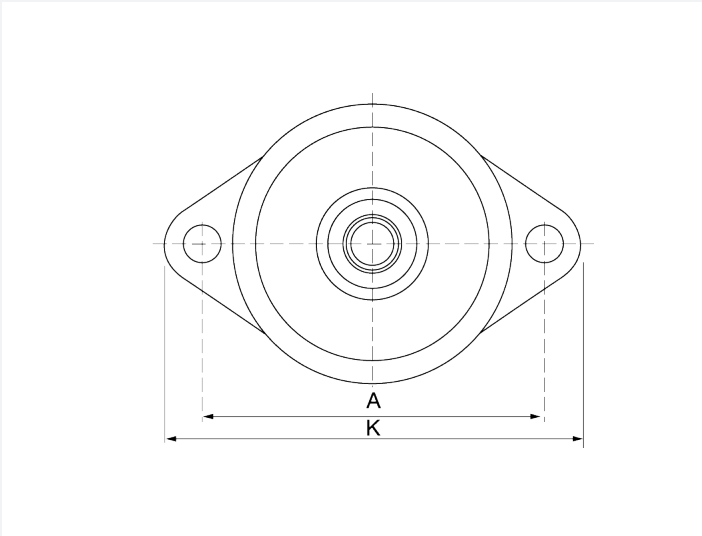
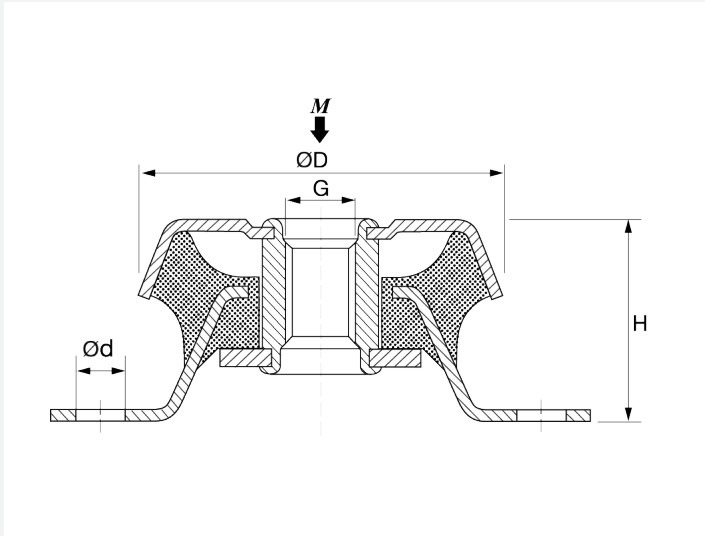
- Rubber features are utilized effectively combining compression and shear
- Tight tolerances on dynamic stiffness rate for accurate vibration calculations
- Loading rating options, 10-130 kg
- Corrosion protected to cope with arduous environments on land or marine applications
- Fitted as standard with an integral fail-safe device with resilient stop, making the RA ideal for use in mobile applications
- Domed shape cover to protect against oil contamination

Typical Applications Include:

- Pumps
- Diesel engines
- Marine gensets
- Industrial gensets
- Emergency power packs



TECHNICAL DRAWING



PRODUCT DATA

DRAWING NO.	PART NO.	TYPE	DIMENSIONS (mm)						MAX. LOAD (kg)	MAX. BOLT TORQUE (Nm)
			ØD	A	H	K	Ød	G		
17-4004-1	10-00180	RAB 3	63	76	35	93.5	8.5	M12	70	25
17-4141-1	10-00179	RAB 2	63	76	35	93.5	8.5	M12	105	25
17-4092-1	10-00178	RAB 0	63	76	35	93.5	8.5	M12	130	25

RAEM Mounting

The RAEM is a universal mounting for applications demanding maximum vibration isolation. It is a further development of the RA mount, where EM stands for 'extra movement' and is suitable for both light and heavy machines.

For normal speeds of 1500 RPM the RAEM type provides a degree of isolation of 85-95%, and gives good isolation with low frequency machines.

RAEM is a high performance mount, with a number of advantages:

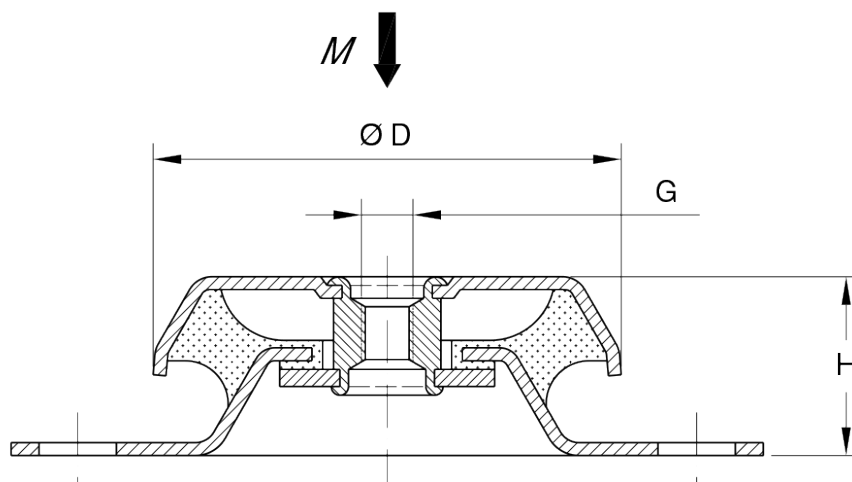
- RAEM offers nominally 70% extra deflection over standard RA mounts
- Wide load rating options, 30-3400 kg
- Corrosion protected to cope with arduous environments on land or marine applications
- Fitted as standard with an integral fail-safe device with resilient stop, making the RA ideal for use in mobile applications
- Domed shape cover to protect against oil contamination

Typical Applications Include:

- HVAC units
- Marine gensets
- Industrial gensets
- Refiners
- Compressors
- Industrial fans
- Large milling machinery



TECHNICAL DRAWING



RAEM Mounting

PRODUCT DATA

TYPE	HARDNESS	DRAWING NO.	PART NO.	DIMENSIONS (mm)							MAX. LOAD (Kg)	MAX. BOLT TORQUE (Nm)
				D	A	H	K	d	L	G		
RAEM 40	40 °IRHD	17-4023-1	10-00122	64	88	35.5	110	9	12	M10	30	15
	60 °IRHD	17-4024-1	10-00123								60	
RAEM 60	40 °IRHD	17-4025-1	10-00183	63	100	35.5	120	11	15	M12	60	25
	60 °IRHD	17-4026-2	10-00184								120	
RAEM 125	40 °IRHD	17-2336-1	10-00108	84	110	35.5	135	11	15	M10	80	15
	60 °IRHD	17-2338-1	10-00109								180	
	40 °IRHD	17-2336-2	10-00168							M12	80	25
	60 °IRHD	17-2338-2	10-00169								180	
RAEM 350	40 °IRHD	17-2341-1	10-00174	110	140-148	42	175	14	18	M12	200	25
	60 °IRHD	17-2342-1	10-00175								400	
	40 °IRHD	17-2341-2	10-00114							M16	200	50
	60 °IRHD	17-2342-2	10-00115								400	
RAEM 800	40 °IRHD	17-2347-2	10-00120	155	182	54	216	14	18	M16	450	50
	60 °IRHD	17-2348-1	10-00121								800	
RAEM 1500	40 °IRHD	17-4020-1	10-00158	182	146	85	180	14	-	M20	900	100
	60 °IRHD	17-4018-1	10-00159								1700	
RAEM 2500	40 °IRHD	17-4021-2	10-00160	224	180	105.5	220	17.5	-	M24	1700	200
	60 °IRHD	17-4022-1	10-00161								3400	

TECHNICAL DRAWING

RAEM30 , RAEM40, RAEM125, RAEM800

RAEM60

RAEM1500, RAEM2500

Rubber Expansion Joints

**FLEXIBLE PARTS TO ENSURE FLAWLESS
OPERATION OF PIPELINE SYSTEMS.**



ERV Series

Pipeline systems are exposed to temperature variations, chemicals, setting in foundations, forces, and deformations causing movement and/or stress in the system. To ensure flawless operation of the system it is necessary to insert flexible parts to absorb the movements preventing structural damage.

To provide the vibration isolation and flexibility necessary, Trelleborg offers excellent rubber expansion joints. Our portfolio consists of a wide program of expansion joints for various applications. The expansion joint approvals are available upon request.

For every situation Trelleborg has the appropriate qualified-rubber expansion joints that can:

- Compensate movement and expansion
- Absorb stress in the system
- Reduce noise transmissions and vibration
- Compensate ground and foundation settling
- Compensate inaccurate assembly
- Serve as dismantling joints on fittings

Our rubber expansion joints are used worldwide for various applications.

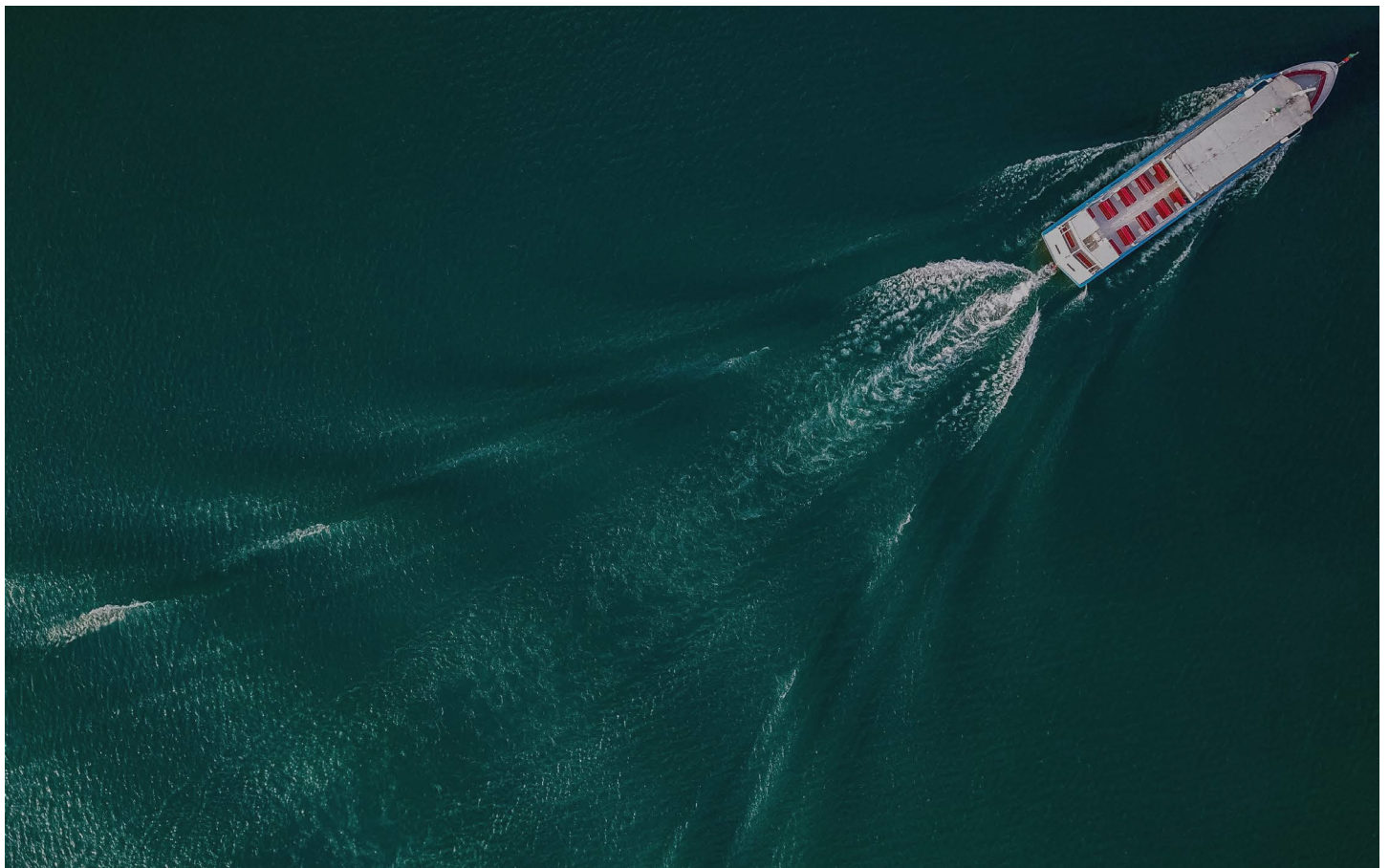
APPLICATION EXAMPLES

- High-pressure pipelines
- Oil contaminated water pipelines
- Various chemical pipelines



ADVANTAGES

- Suitable for high pressures up to 16 bar
- Various variations available (dimensions, medium, pressure)
- Most sizes available in different neutral lengths
- Also available for vacuum
- Flanges according to DIN or ASA (fixed or rotating)
- Available with fire protection cover
- Type approval by classification societies



ERV GREEN DN25-600

INTRODUCTION

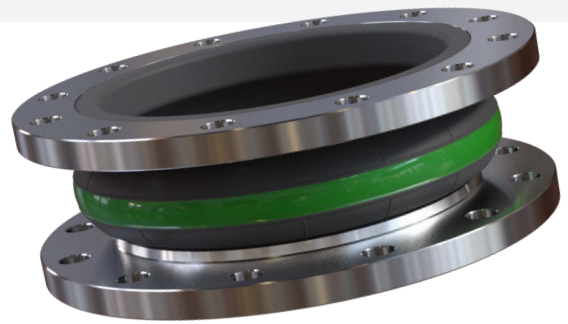
The ERV Green rubber expansion joint is used for flexible connections in pipeline systems for chemicals, acids, alkalies, and chemically aggressive wastewater. The flanges of the ERV Green are rotating and standard available in DIN PN10 and PN16. The maximum working pressure is 16 bar or 10 bar for larger diameters. The operating temperature of this expansion joint ranges from -20° to 100 °C. Additionally, the ERV green can also be used for applications with oil-contaminated air with temperatures up to 90 °C.

CONSTRUCTION

- Durable seamless Hypalon (CSM) inner wall
- PA-textile reinforced bellows
- Hypalon (CSM) outer wall
- Electrically non-conductive
- Rotating flanges, galvanized steel

APPROVALS

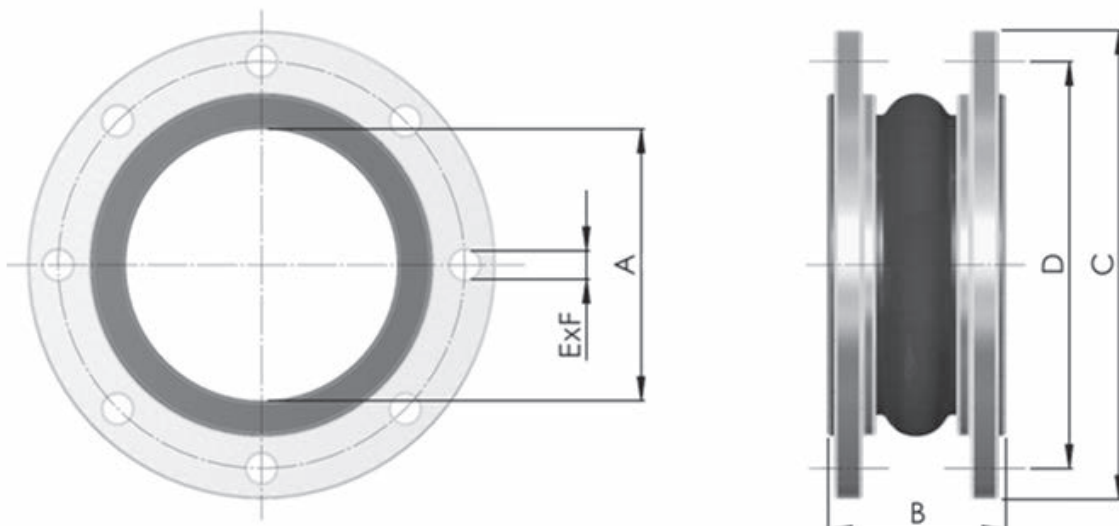
Approved by DNV-GL



OPTIONS

- Most sizes available in different neutral lengths
- Flanges according to DIN PN6, PN25, PN40, ASA 50 lbs or BS10
- Flanges in stainless steel or bronze
- Tie rods
- PTFE lining
- Vacuum support rings
- Fire protection cover

TECHNICAL DRAWING



ERV GREEN DN25-600

PRODUCT DATA

PART NO.	INSIDE DIAMETER A (MM)	LENGTH B (MM)	WORKING PRESSURE (BAR)	FLANGE DIMENSIONS CLASS	OUTSIDE DIAMETER C (MM)	PITCH D (MM)	E x F (NUMBER x MM)
300 044 025	25	130	16	DIN PN10/16	115	85	4x14
300 044 032	32	130	16	DIN PN10/16	140	100	4x18
300 044 040	40	130	16	DIN PN10/16	150	110	4x18
300 044 050	50	130	16	DIN PN10/16	165	125	4x18
300 044 065	65	130	16	DIN PN10/16	185	145	4x18
300 044 080	80	130	16	DIN PN10/16	200	160	8x18
300 044 100	100	130	16	DIN PN10/16	220	180	8x18
300 044 125	125	130	16	DIN PN10/16	250	210	8x18
300 044 150	150	130	16	DIN PN10/16	285	240	8x22
300 044 201	200	130	10	DIN PN10	340	295	8x22
300 044 200	200	130	16	DIN PN16	340	295	12x22
300 044 251	250	130	10	DIN PN10	395	350	12x22
300 044 250	250	130	16	DIN PN16	405	355	12x26
300 044 301	300	130	10	DIN PN10	445	400	12x22
300 044 300	300	130	16	DIN PN16	460	410	12x26
300 044 351	350	200	10	DIN PN10	505	460	16x22
300 044 401	400	200	10	DIN PN10	565	515	16x26
300 044 501	500	200	10	DIN PN10	670	620	20x26
300 044 601	600	200	10	DIN PN10	780	725	20x30

MOVEMENTS

The maximum movements for the ERV Green expansion joint stated below apply to the neutral length for operating temperatures up to +50 °C and are not in combination (no lateral/axial movements simultaneously). The permissible movements are reduced by 25% for temperatures between +50 °C and +70 °C and by 40% for temperatures between +70 °C and +90 °C. The use of the optional vacuum ring leads to a reduction of 50%.



NOMINAL DIAMETER (MM)	COMPRESSION (MM)	ELONGATION (MM)	LATERAL (MM)	ANGULAR (DEGREES)
25-80	30	20	± 30	± 30
100-150	30	20	± 30	± 20
200	25	30	± 30	± 10
250-300	10	30	± 15	± 5
350-600	40	35	± 30	± 8

ERV RED DN25-1000

ERV RED

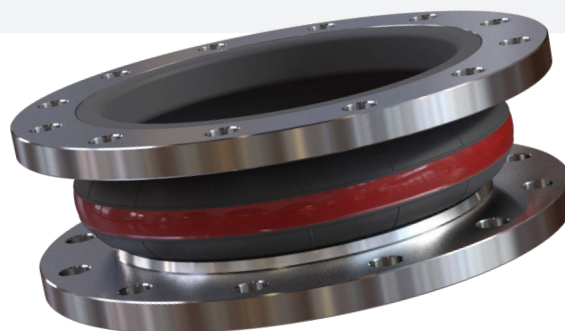
The ERV Red rubber expansion joint is used for flexible connections in pipeline systems for hot water, drinking water (DVGW W270 and ACS certified), hot cooling water and hot wastewater. This expansion joint is also suitable for use with additives such as weak acids, alkalies, salt solutions, technical alcohols, esters and ketone, and a wide range of other chemicals. The ERV Red is not suitable for oil products. The flanges of the ERV Red are rotatable and standard available in DIN PN10 and PN16. The operating temperatures depend on the medium and range from -40 °C to +100 °C. The maximum working pressure is 16 bar or 10 bar for larger diameters.

CONSTRUCTION

- Seamless Butyl/EPDM inner wall, low diffusion
- PA-textile reinforced, butyl-coated bellows
- EPDM outer wall, ozone- and heat-resistant
- Electrically conductive
- Rotating flanges, galvanized steel

APPROVALS

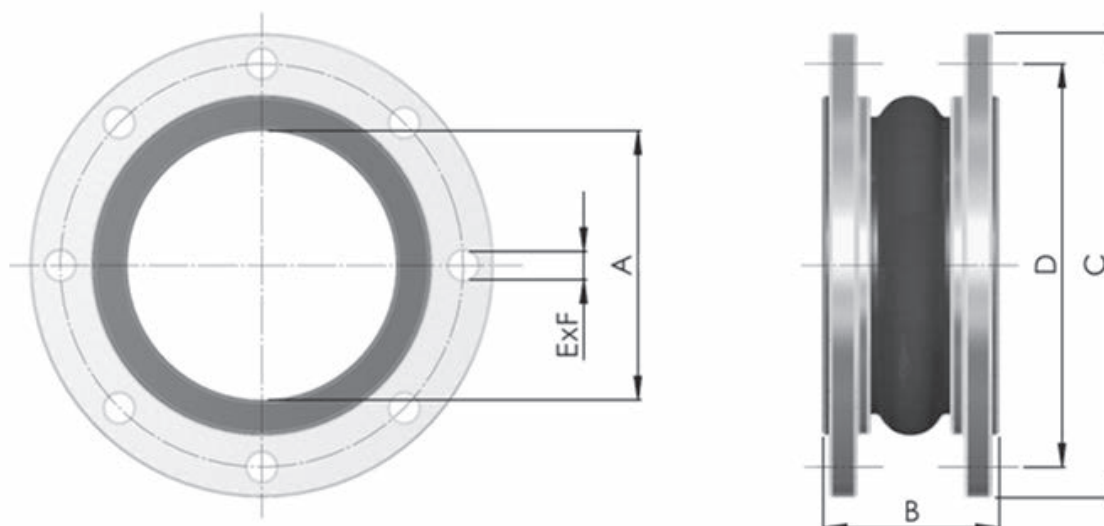
Approved by DNV-GL, Lloyd's Register, Bureau Veritas, RINA, ABS, CCS, BWB, DVGW, ACS, and WRAS.



OPTIONS

- Most sizes available in different neutral lengths
- Flanges according to DIN PN6, PN25, PN40 or ASA 150 lbs
- Flanges in stainless steel or bronze
- Tie rods
- PTFE lining
- Vacuum support rings
- Fire protection cover

TECHNICAL DRAWING



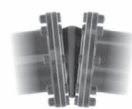
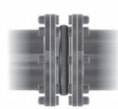
MOVEMENTS

The maximum movements for the ERV Green expansion joint stated below apply to the neutral length for operating temperatures up to +50 °C and are not in combination (no lateral/axial movements simultaneously). The permissible movements are reduced by 25% for temperatures between +50 °C and +70 °C and by 40% for temperatures between +70 °C and +90 °C. Use of the optional vacuum ring leads to a reduction of 50%.

ERV RED DN25-1000

PRODUCT DATA

PART NO.	INSIDE DIAMETER A (MM)	LENGTH B (MM)	WORKING PRESSURE (BAR)	FLANGE DIMENSIONS CLASS	OUTSIDE DIAMETER C (MM)	PITCH D (MM)	E x F (NUMBER x MM)
300 040 025	25	130	16	DIN PN10/16	115	85	4x14
300 040 032	32	130	16	DIN PN10/16	140	100	4x18
300 040 040	40	130	16	DIN PN10/16	150	110	4x18
300 040 050	50	130	16	DIN PN10/16	165	125	4x18
300 040 065	65	130	16	DIN PN10/16	185	145	4x18
300 040 080	80	130	16	DIN PN10/16	200	160	8x18
300 040 100	100	130	16	DIN PN10/16	220	180	8x18
300 040 125	125	130	16	DIN PN10/16	250	210	8x18
300 040 150	150	130	16	DIN PN10/16	285	240	8x22
300 040 201	200	130	10	DIN PN10	340	295	8x22
300 040 200	200	130	16	DIN PN16	340	295	12x22
300 040 251	250	130	10	DIN PN10	395	350	12x22
300 040 250	250	130	16	DIN PN16	405	355	12x26
300 040 301	300	130	10	DIN PN10	445	400	12x22
300 040 300	300	130	16	DIN PN16	460	410	12x26
300 040 351	350	200	10	DIN PN10	505	460	16x22
300 040 401	400	200	10	DIN PN10	565	515	16x26
300 040 501	500	200	10	DIN PN10	670	620	20x26
300 040 601	600	200	10	DIN PN10	780	725	20x30
300 040 701	700	260	10	DIN PN10	895	840	24x30
300 040 801	800	250	10	DIN PN10	1015	950	24x33
300 040 901	900	300	10	DIN PN10	1115	1050	28x33
300 040 902	1000	300	10	DIN PN10	1230	1160	28x36



NOMINAL DIAMETER (MM)	COMPRESSION (MM)	ELONGATION (MM)	LATERAL (MM)	ANGULAR (DEGREES)
25-80	30	20	± 30	± 30
100-150	30	20	± 30	± 20
200	25	30	± 30	± 10
250-300	10	30	± 15	± 5
350-600	40	35	± 30	± 8
700	40	30	± 30	± 5
800	40	35	± 35	± 5
900-1000	40	40	± 40	± 5

ERV ROTEX DN25-1000

The ERV Rotex rubber expansion joint is used for flexible connections in pipeline systems for hot water, cooling water and hot air. It is not suitable for use with drinking water, oil-contaminated cooling water, oil-contaminated air and the continuous transport of steam. Its flanges are rotatable and standard available in DIN PN10 and PN16. The operating temperature depends on the medium and ranges from -40 °C to +130 °C. The maximum working pressure is 10 bar up to 100 °C, 6 bar up to 110 °C.

CONSTRUCTION

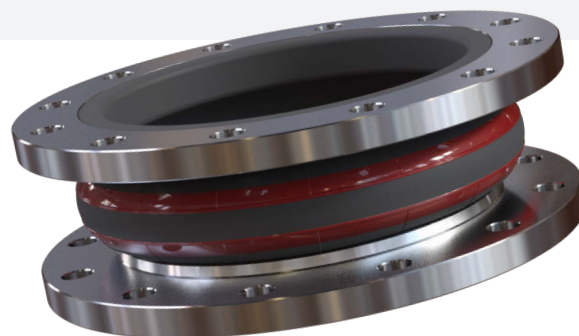
- Durable EPDM inner wall, seamless, hot water resistant
- Polymer textile reinforced, hot water and hydrolysis-proof
- EPDM outer wall, ozone and heat resistant
- Electrically conductive
- Rotating flanges, galvanized steel

APPROVALS

Approved by DNV-GL, Lloyd's Register, RINA and TÜV.

MOVEMENTS

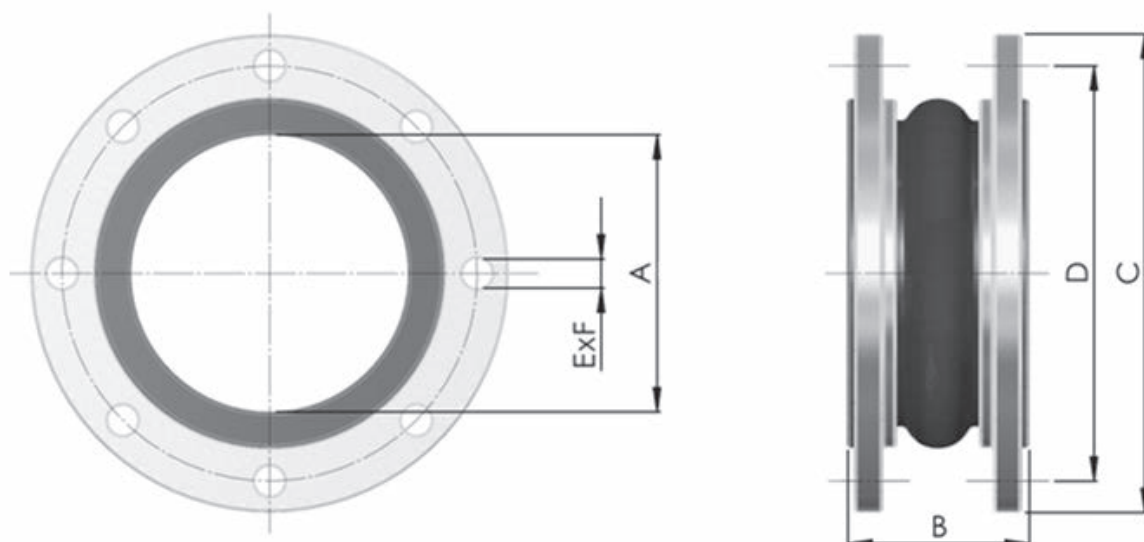
The maximum movements for the ERV Rotex expansion joint stated below apply to the neutral length for operating temperatures up to +70 °C and are not in combination (no lateral/axial movements simultaneously). The permissible movements are reduced by 25% for temperatures between +70 °C and +100 °C and by 50% for temperatures between +100 °C and +130 °C. The use of the optional vacuum ring leads to a reduction of 50%.



OPTIONS

- Most sizes available in different neutral lengths
- Flanges according to DIN PN6, PN25, PN40 or ASA 150Lbs
- Flanges in stainless steel or bronze
- Tie rods
- PTFE lining
- Vacuum support rings
- Fire protection cover.

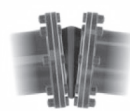
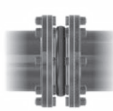
TECHNICAL DRAWING



ERV ROTEX DN25-1000

PRODUCT DATA

PART NO.	INSIDE DIAMETER A (MM)	LENGTH B (MM)	WORKING PRESSURE (BAR)	FLANGE DIMENSIONS CLASS	OUTSIDE DIAMETER C (MM)	PITCH D (MM)	E x F (NUMBER x MM)
300 043 025	25	130	16	DIN PN10/16	115	85	4x14
300 043 032	32	130	16	DIN PN10/16	140	100	4x18
300 043 040	40	130	16	DIN PN10/16	150	110	4x18
300 043 050	50	130	16	DIN PN10/16	165	125	4x18
300 043 065	65	130	16	DIN PN10/16	185	145	4x18
300 043 080	80	130	16	DIN PN10/16	200	160	8x18
300 043 100	100	130	16	DIN PN10/16	220	180	8x18
300 043 125	125	130	16	DIN PN10/16	250	210	8x18
300 043 150	150	130	16	DIN PN10/16	285	240	8x22
300 043 201	200	130	10	DIN PN10	340	295	8x22
300 043 200	200	130	16	DIN PN16	340	295	12x22
300 043 251	250	130	10	DIN PN10	395	350	12x22
300 043 250	250	130	16	DIN PN16	405	355	12x26
300 043 301	300	130	10	DIN PN10	445	400	12x22
300 043 300	300	130	16	DIN PN16	460	410	12x26
300 043 351	350	200	10	DIN PN10	505	460	16x22
300 043 401	400	200	10	DIN PN10	565	515	16x26
300 043 501	500	200	10	DIN PN10	670	620	20x26
300 043 601	600	200	10	DIN PN10	780	725	20x30
300 043 701	700	260	10	DIN PN10	895	840	24x30
300 043 801	800	250	10	DIN PN10	1015	950	24x33
300 043 901	900	300	10	DIN PN10	1115	1050	28x33
300 043 902	1000	300	10	DIN PN10	1230	1160	28x36



NOMINAL DIAMETER (MM)	COMPRESSION (MM)	ELONGATION (MM)	LATERAL (MM)	ANGULAR (DEGREES)
25-80	30	20	± 30	± 30
100-150	30	20	± 30	± 20
200	25	30	± 25	± 10
250-300	15	30	± 25	± 5
350-600	40	25	± 25	± 8
700-800	40	30	± 25	± 5
900-1000	40	35	± 30	± 5

ERV WHITE DN25-600

ERV White

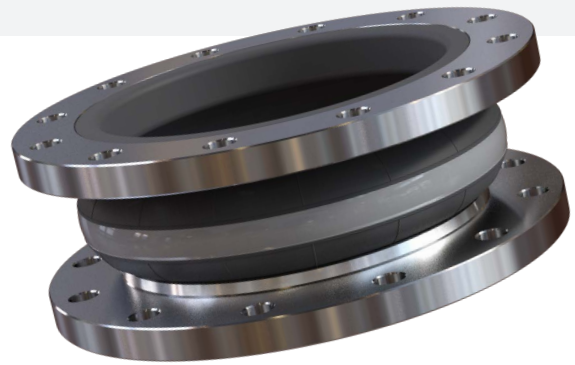
The ERV White rubber expansion joint is used for flexible connections in pipeline systems for food applications. The inner wall of this expansion joint complies with German legislation on food-processing and is suitable for vegetable oils and fats. The expansion joint is not suitable for drinking water. The flanges of the ERV White are rotatable and standard available in DIN PN10 and PN16. The operating temperature depends on the medium and ranges from -20 °C to +90 °C. The maximum working pressure is 16 bar, 10 bar for larger diameters.

CONSTRUCTION

- Durable white nitrile rubber (NBR) inner wall, seamless
- PA textile reinforced
- Chloroprene (CR) outer wall
- Electrically non-conductive
- Rotating flanges, galvanized steel

APPROVALS

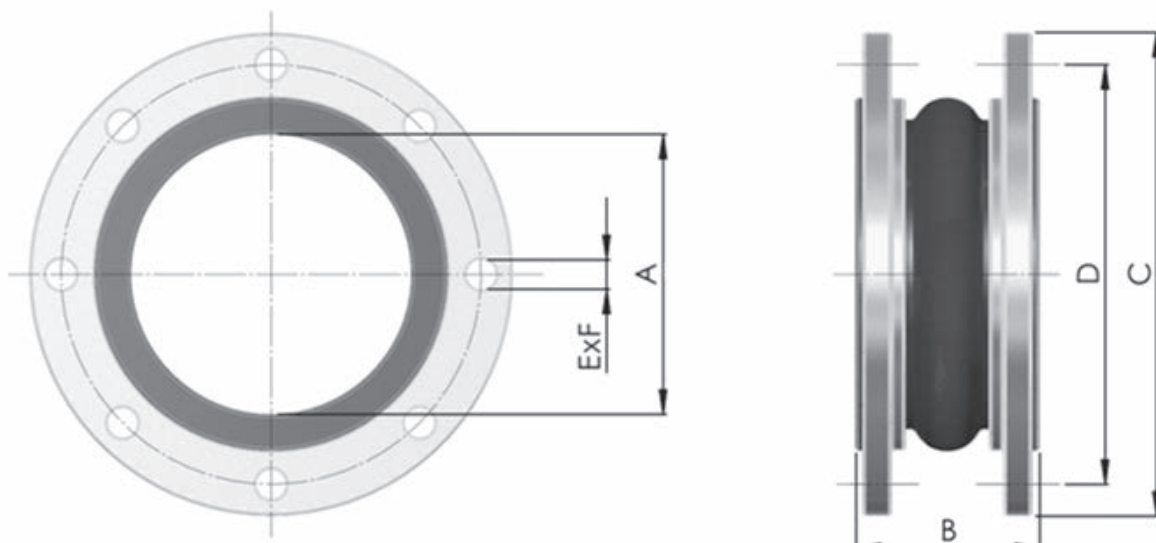
Approved by DNV-GL



Options

- Most sizes available in different neutral lengths
- Flanges according to DIN PN6, PN25, PN40, ASA 150 lbs or BS10
- Flanges in stainless steel or bronze
- Tie rods
- PTFE lining
- Vacuum support rings
- Fire protection cover

TECHNICAL DRAWING



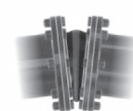
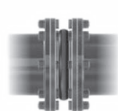
ERV WHITE DN25-600

PRODUCT DATA

PART NO.	INSIDE DIAMETER A (MM)	LENGTH B (MM)	WORKING PRESSURE (BAR)	FLANGE DIMENSIONS CLASS	OUTSIDE DIAMETER C (MM)	PITCH D (MM)	E x F (NUMBER x MM)
300 045 025	25	130	16	DIN PN10/16	115	85	4x14
300 045 032	32	130	16	DIN PN10/16	140	100	4x18
300 045 040	40	130	16	DIN PN10/16	150	110	4x18
300 045 050	50	130	16	DIN PN10/16	165	125	4x18
300 045 065	65	130	16	DIN PN10/16	185	145	4x18
300 045 080	80	130	16	DIN PN10/16	200	160	8x18
300 045 100	100	130	16	DIN PN10/16	220	180	8x18
300 045 125	125	130	16	DIN PN10/16	250	210	8x18
300 045 150	150	130	16	DIN PN10/16	285	240	8x22
300 045 201	200	130	10	DIN PN10	340	295	8x22
300 045 200	200	130	16	DIN PN16	340	295	12x22
300 045 251	250	130	10	DIN PN10	395	350	12x22
300 045 250	250	130	16	DIN PN16	405	355	12x26
300 045 301	300	130	10	DIN PN10	445	400	12x22
300 045 300	300	130	16	DIN PN16	460	410	12x26
300 045 351	350	200	10	DIN PN10	505	460	16x22
300 045 401	400	200	10	DIN PN10	565	515	16x26
300 045 501	500	200	10	DIN PN10	670	620	20x26
300 045 601	600	200	10	DIN PN10	780	725	20x30

MOVEMENTS

The maximum movements for the ERV White expansion joint stated below apply to the neutral length for operating temperatures up to +50 °C and are not in combination (no lateral/axial movements simultaneously). The permissible movements are reduced by 25% for temperatures between +50 °C and +70 °C and by 40% for temperatures between +70 °C and +90 °C. The use of the optional vacuum ring leads to a reduction of 50%.



NOMINAL DIAMETER (MM)	COMPRESSION (MM)	ELONGATION (MM)	LATERAL (MM)	ANGULAR (DEGREES)
25-80	30	20	± 30	± 30
100-150	30	20	± 30	± 20
200	25	30	± 30	± 10
250-300	10	30	± 15	± 5
350-600	40	35	± 30	± 8

ERV YELLOW DN25-1000

ERV Yellow

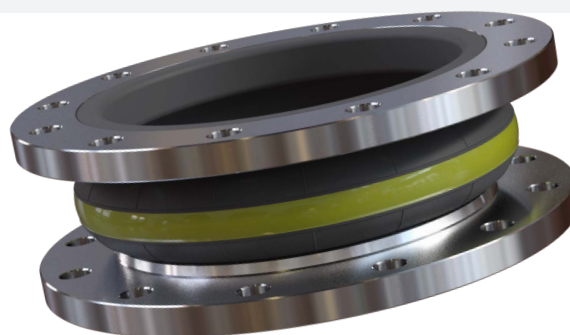
The ERV Yellow rubber expansion joint is used for flexible connections in pipeline systems for petrochemical applications. It is suitable for use with fuels, fuels with ethanol additives such as E85, DIN fuels with up to 50% aromatics and natural gas. The ERV Yellow is not suitable for Liquefied Petrol Gas (LPG). The flanges of the ERV Yellow are rotatable and standard available in DIN PN10 and PN16. The operating temperature depends on the medium and ranges from -20 °C to +90 °C. The maximum working pressure is 16 bar, 10 bar for larger diameters.

CONSTRUCTION

- Durable nitrile rubber (NBR) inner wall, seamless
- PA textile reinforced
- Chloroprene (CR) outer wall
- Electrically conductive
- Rotating flanges, galvanized steel

APPROVALS

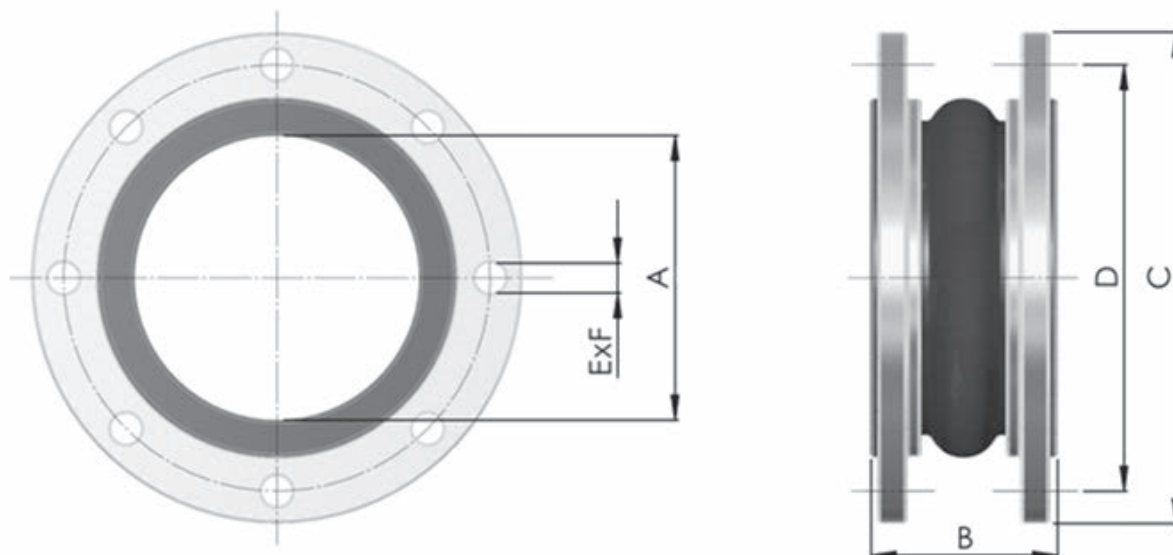
Approved by DNV-GL, Lloyd's Register, Bureau Veritas, RINA, ABS, CCS, BWB and DVGW. Complies with the DIN VG 95958/9 standard.



Options

- Most sizes available in different neutral lengths
- Flanges according to DIN PN6, PN25, PN40, ASA 150 lbs or BS10
- Flanges in stainless steel or bronze
- Tie rods
- PTFE lining
- Vacuum support rings
- Fire protection cover

TECHNICAL DRAWING



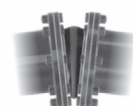
MOVEMENTS

The maximum movements for the ERV Yellow expansion joint stated below apply to the neutral length for operating temperatures up to +50 °C and are not in combination (no lateral/axial movements simultaneously). The permissible movements are reduced by 25% for temperatures between +50 °C and +70 °C and by 40% for temperatures between +70 °C and +90 °C. Use of the optional vacuum ring leads to a reduction of 50%.

ERV YELLOW DN25-1000

PRODUCT DATA

PART NO.	INSIDE DIAMETER A (MM)	LENGTH B (MM)	WORKING PRESSURE (BAR)	FLANGE DIMENSIONS CLASS	OUTSIDE DIAMETER C (MM)	PITCH D (MM)	E x F (NUMBER x MM)
300 041 025	25	130	16	DIN PN10/16	115	85	4x14
300 041 032	32	130	16	DIN PN10/16	140	100	4x18
300 041 040	40	130	16	DIN PN10/16	150	110	4x18
300 041 050	50	130	16	DIN PN10/16	165	125	4x18
300 041 065	65	130	16	DIN PN10/16	185	145	4x18
300 041 080	80	130	16	DIN PN10/16	200	160	8x18
300 041 100	100	130	16	DIN PN10/16	220	180	8x18
300 041 125	125	130	16	DIN PN10/16	250	210	8x18
300 041 150	150	130	16	DIN PN10/16	285	240	8x22
300 041 201	200	130	10	DIN PN10	340	295	8x22
300 041 200	200	130	16	DIN PN16	340	295	12x22
300 041 251	250	130	10	DIN PN10	395	350	12x22
300 041 250	250	130	16	DIN PN16	405	355	12x26
300 041 301	300	130	10	DIN PN10	445	400	12x22
300 041 300	300	130	16	DIN PN16	460	410	12x26
300 041 351	350	200	10	DIN PN10	505	460	16x22
300 041 401	400	200	10	DIN PN10	565	515	16x26
300 041 501	500	200	10	DIN PN10	670	620	20x26
300 041 601	600	200	10	DIN PN10	780	725	20x30
300 041 701	700	260	10	DIN PN10	895	840	24x30
300 041 801	800	250	10	DIN PN10	1015	950	24x33
300 041 901	900	300	10	DIN PN10	1115	1050	28x33
300 041 902	1000	300	10	DIN PN10	1230	1160	28x36



NOMINAL DIAMETER (MM)	COMPRESSION (MM)	ELONGATION (MM)	LATERAL (MM)	ANGULAR (DEGREES)
25-80	30	20	± 30	± 30
100-150	30	20	± 30	± 20
200	25	30	± 30	± 10
250-300	10	30	± 15	± 5
350-600	40	35	± 30	± 8
700	40	30	± 30	± 5
800	40	35	± 35	± 5
900-1000	40	40	± 40	± 5

ERV YELLOWSTEEL DN25-600

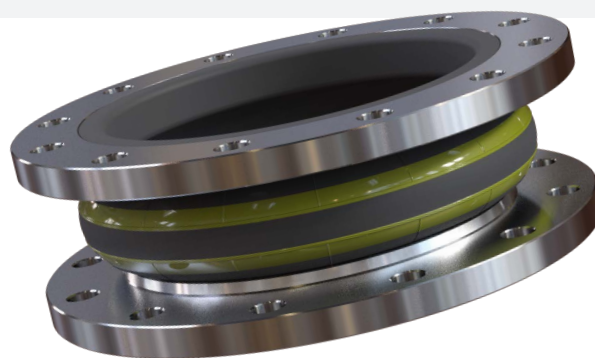
The ERV Yellowsteel rubber expansion joint is used for flexible connections in high-pressure pipeline systems for petrochemical applications. It is suitable for use with fuels, DIN fuels with up to 50% aromatics, oil-contaminated cooling water, lubricant, hydraulic oil, and saltwater. The flanges of the ERV Yellowsteel are rotatable and standard available in DIN PN10 and PN16. The operating temperature depends on the medium and ranges from -20 °C to +90 °C. The ERV Yellowsteel is flame-resistant for 30 minutes at 800 °C, allowing machine chamber applications without using the optional fire protection cover. The maximum working pressure is 16 bar, 10 bar for the largest diameters.

CONSTRUCTION

- Durable nitrile rubber (NBR) inner wall, seamless
- Steel wire reinforced
- Chloroprene (CR) outer wall
- Electrically conductive
- Rotating flanges, galvanized steel

APPROVALS

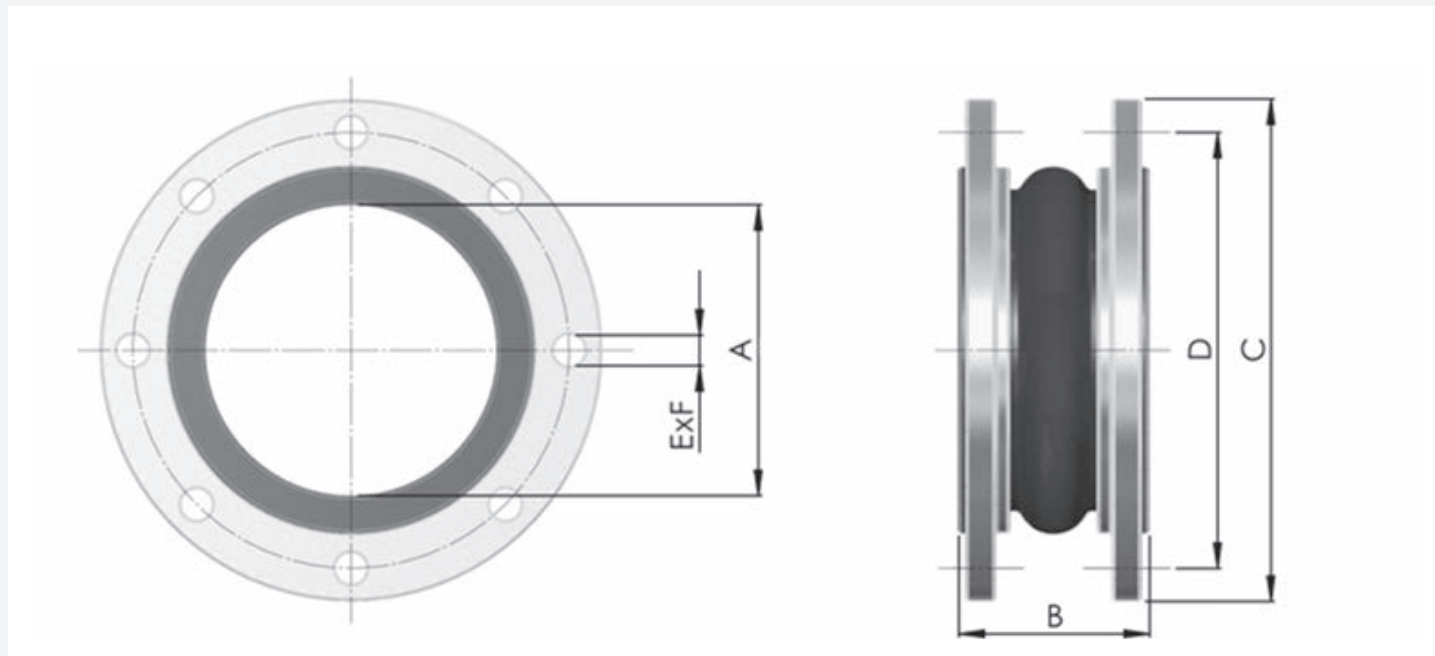
Approved by DNV-GL, Lloyd's Register, Bureau Veritas, RINA, ABS, Nippon Kaiji Kyokai, CCS and Marine Equipment Directive.



Options

- Most sizes available in different neutral lengths
- Flanges according to DIN PN6, PN25, PN40, ASA 150 lbs or BS10
- Flanges in stainless steel or bronze
- Tie rods
- PTFE lining
- Vacuum support rings
- Fire protection cover

TECHNICAL DRAWING



ERV YELLOWSTEEL DN25-600

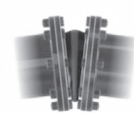
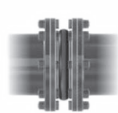
PRODUCT DATA

PART NO.	INSIDE DIAMETER A (MM)	LENGTH B (MM)	WORKING PRESSURE (BAR)	FLANGE DIMENSIONS CLASS	OUTSIDE DIAMETER C (MM)	PITCH D (MM)	E x F (NUMBER x MM)
300 042 025	25	130	16	DIN PN10/16	115	85	4x14
300 042 032	32	130	16	DIN PN10/16	140	100	4x18
300 042 040	40	130	16	DIN PN10/16	150	110	4x18
300 042 050	50	130	16	DIN PN10/16	165	125	4x18
300 042 065	65	130	16	DIN PN10/16	185	145	4x18
300 042 080	80	130	16	DIN PN10/16	200	160	8x18
300 042 100	100	130	16	DIN PN10/16	220	180	8x18
300 042 125	125	130	16	DIN PN10/16	250	210	8x18
300 042 150	150	130	16	DIN PN10/16	285	240	8x22
300 042 201	200	130	10	DIN PN10	340	295	8x22
300 042 200	200	130	16	DIN PN16	340	295	12x22
300 042 251	250	130	10	DIN PN10	395	350	12x22
300 042 250	250	130	16	DIN PN16	405	355	12x26
300 042 301	300	130	10	DIN PN10	445	400	12x22
300 042 300	300	130	16	DIN PN16	460	410	12x26
300 042 351	350	200	10	DIN PN10	505	460	16x22
300 042 401	400	200	10	DIN PN10	565	515	16x26
300 042 501	500	200	10	DIN PN10	670	620	20x26
300 042 601	600	200	10	DIN PN10	780	725	20x30

MOVEMENTS

The maximum movements for the ERV Yellowsteel expansion joint stated below apply to the neutral length for operating temperatures up to +100 °C and are not in combination (no lateral/axial movements simultaneously).

The use of the optional vacuum ring leads to a reduction of 50%.



NOMINAL DIAMETER (MM)	COMPRESSION (MM)	ELONGATION (MM)	LATERAL (MM)	ANGULAR (DEGREES)
25-80	30	15	± 15	± 20
100-150	30	15	± 15	± 15
200-300	15	20	± 10	± 5
300-350	30	30	± 25	± 10
400-600	40	30	± 25	± 5

Silicone Bellows

**FLEXIBLE PARTS TO ENSURE FLAWLESS
OPERATION OF PIPELINE SYSTEMS.**



Silicone Bellows Expansion Joints

Vibration transmission through connections within pipeline systems must be avoided to minimize risks and damage to the system, equipment, and personnel. To ensure flawless operation of the system it is necessary to insert flexible parts to the pipeline system to reduce these vibrations.

For pipeline systems with relatively small diameters and pressures up to 4 bar, Trelleborg offers cost-effective silicone bellows to provide the vibration isolation and flexibility necessary. Our portfolio consists of many affordable bellows for various applications. Trelleborg provides the appropriate bellows that compensate movement, expansion or misalignment in the system.

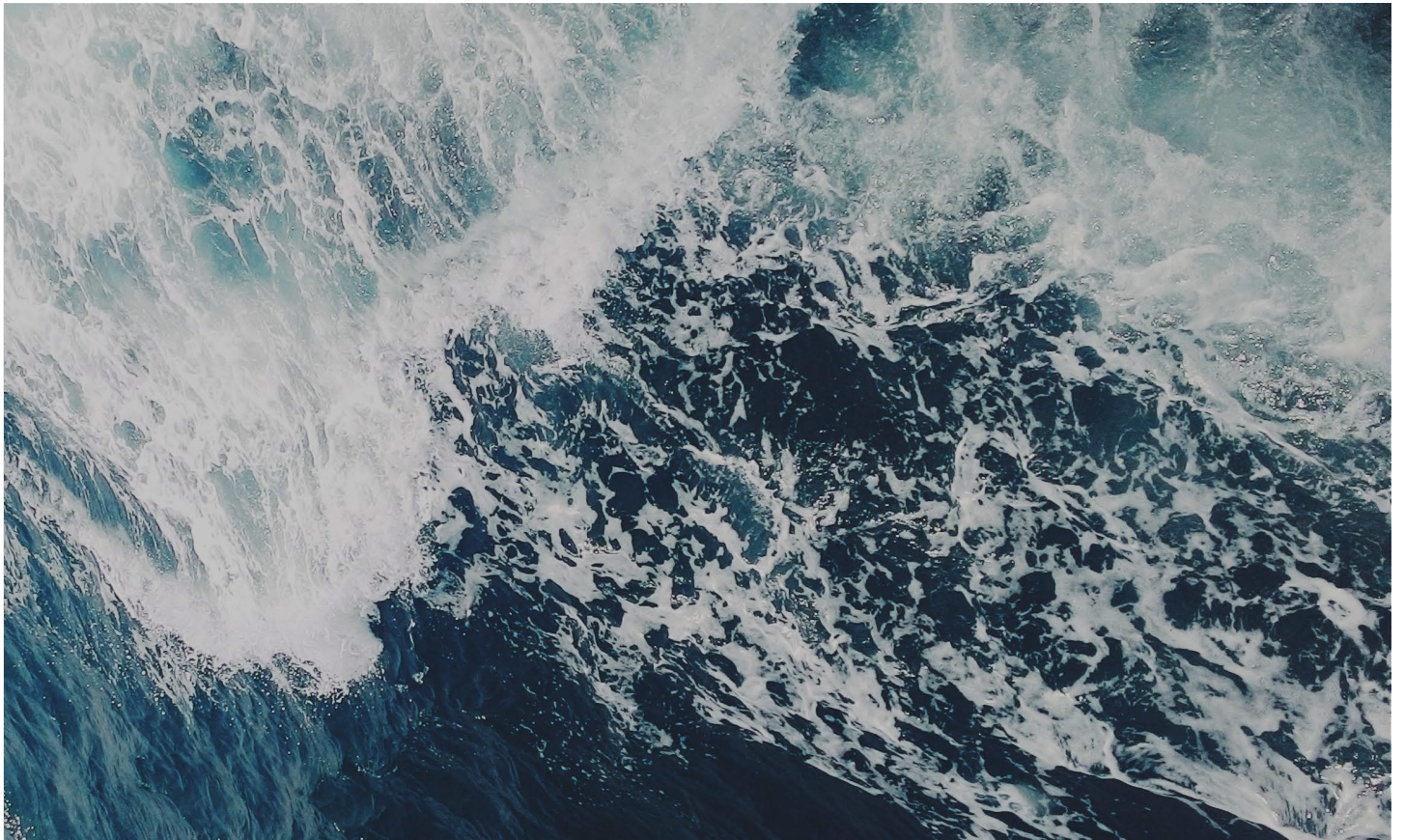
Our silicone bellows are commonly used as connectors in various applications like cooling water systems, air supply systems and pipelines for oil and solvents.

ADVANTAGES

- Suitable for relatively high temperatures
- Various variations available (dimensions, medium)
- Versions with reinforcement rings available
- Special versions for use with saltwater, oils, chemicals, and solvents
- Easy installation with PARI clamps
- Stock item

APPLICATION EXAMPLES

- Cooling water systems
- (Clean) air supply systems
- Turbo air charge systems
- Pipeline systems for chemicals



TWINFIT FLUOR BLUE & CLAMPING BANDS

APPLICATION

Twinfit Fluor Blue silicone bellows provide an extremely flexible connection for cooling water systems, clean air supply, and turbo air charge systems. This type is oil resistant and suitable for applications with very high temperatures.

- Temperature range from -60°C up to $+250^{\circ}\text{C}$
- Maximum working pressure 4 bar at 120°C

CONSTRUCTION

The Twinfit silicone bellows are constructed with:

- High-quality Black Fluor silicone rubber inner tube
- Heavy-duty DuPont Nomex cord reinforcement
- Blue silicone rubber cover
- Three stainless steel reinforcement rings on the outside
- Special beads on each end for positioning the clamping bands

CLAMPING BANDS

We recommend using our heavy-duty clamping bands. The clamping bands are either made of zinc-plated carbon steel or full stainless steel.

MOVEMENTS

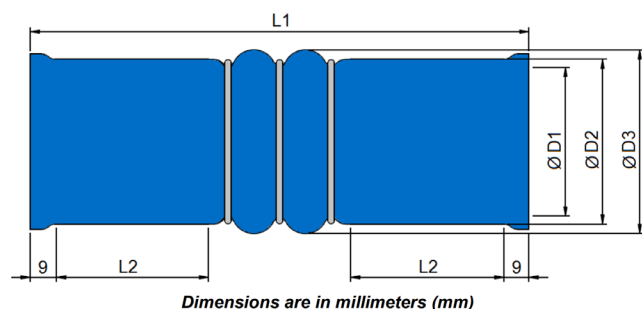
Compression and elongation 13 mm. Lateral 3 mm.

GENERAL

A minimum distance of 50 or 69 mm, depending on bellow size, between the pipe ends is needed for secure operation. On a TwinFit Fluor Blue clamping bands should be used.



TECHNICAL DRAWING



I-1 part



II-2 parts



TWINFIT FLUOR BLUE & CLAMPING BANDS

PRODUCT DATA: TWINFIT FLUOR BLUE

PART NO.	INSIDE DIAMETER D1 [MM]	OUTSIDE DIAMETER D2 [MM]	BELLOWS DIAMETER D3 [MM]	NEUTRAL LENGTH L1 [MM]	CUFF LENGTH L2[MM]
300 062 034	34	39	42	178	55
300 062 038	38	44	47	178	55
300 062 042	42	48	55	178	55
300 062 048	48	53	60	178	55
300 062 054	54	59	66	178	55
300 062 060	60	65	69	185	60
300 062 076	76	80	90	188	60
300 062 080	80	85	90	214	65
300 062 089	89	94	106	214	65
300 062 108	108	112	124	217	65
300 062 114	114	118	124	217	65
300 062 133	133	138	144	217	65
300 062 139	139	144	154	217	65

PRODUCT DATA: CLAMPING BANDS

FOR BELLOW PART NO.	CLAMP TYPE	CLAMP ST.37 ZINC-PLATED PART NO.	CLAMP STAINLESS STEEL AISI 304 PART NO.	REQUIRED QUANTITY
300 062 034	I-1 part	300 070 040	300 071 040	4
300 062 038	I-1 part	300 070 045	300 071 045	4
300 062 042	I-1 part	300 070 050	300 071 050	4
300 062 048	I-1 part	300 070 055	300 071 055	4
300 062 054	I-1 part	300 070 060	300 071 060	4
300 062060	I-1 part	300 070 065	300 071 065	4
300 062 076	I-1 part	300 070 080	300 071 085	4
300 062 080	I-1 part	300 070 085	300 071 085	4
300 062 089	II-2 parts	300 080 095	300 081 095	4
300 062 108	II-2 parts	300 080 115	300 081 115	4
300 062 114	II-2 parts	300 080 125	300 081 120	4
300 062 133	II-2 parts	300 080 140	300 081 140	4
300 062 139	II-2 parts	300 080 150	300 081 150	4

TYPE A-BLUE & CLAMPING BANDS

APPLICATION

Trelleborg Type A-Blue silicone bellows provide an extremely flexible connection for general purposes. These all-round silicone bellows are typically used in cooling water systems and pipe systems for clean air. The Type A-Blue silicone bellow is suitable for applications with very high temperatures.

- Temperature range from –60°C up to +180°C.
- Maximum working pressure 4 bar at 20°C.

CONSTRUCTION

Type A-Blue silicone bellows are constructed with:

- Red silicone rubber inner tube
- Polyester reinforcements
- Blue silicone outer cover

GENERAL

Due to its construction, the required distance between the two pipe ends connected by the bellows may vary from 5 to 15 mm for secure operation. On a Type A-Blue silicone bellow, the use of heavy-duty clamping bands is recommended.



PRODUCT DATA: TYPE A BLUE

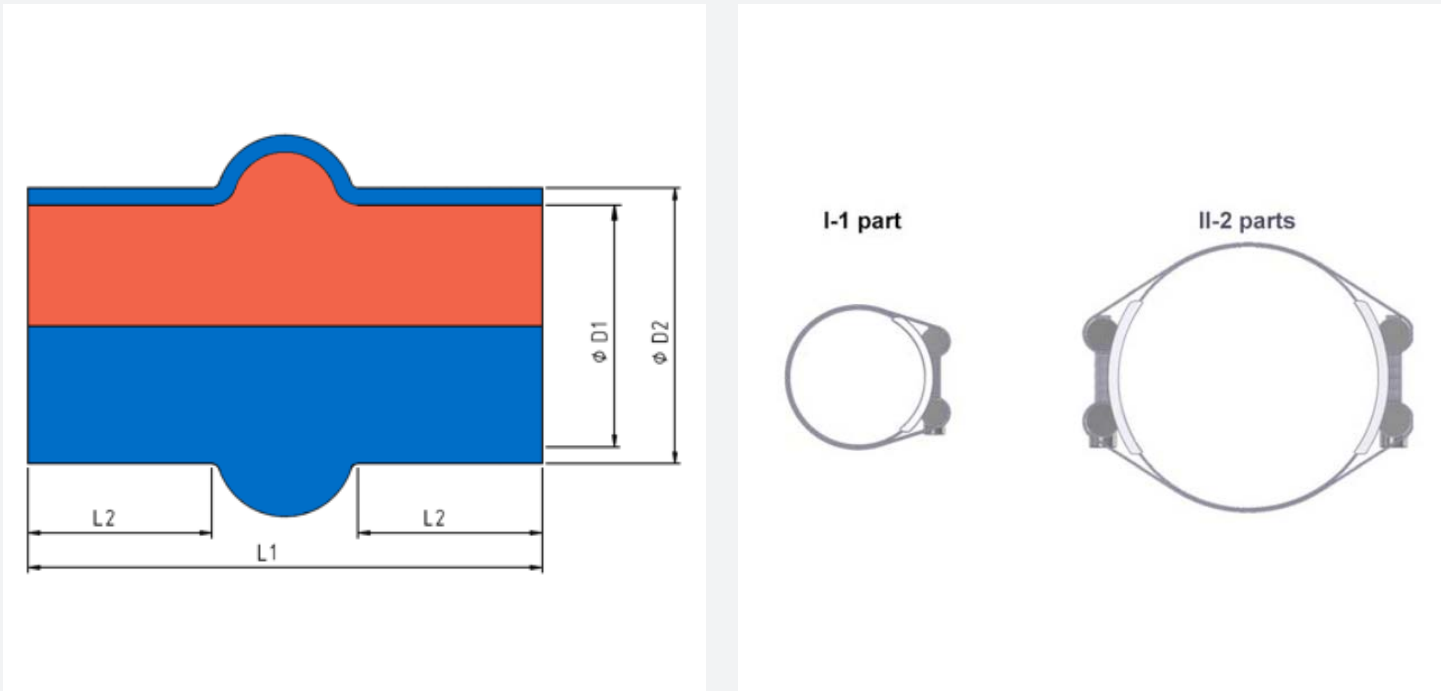
PART NO.	INSIDE DIAMETER D1 [MM]	OUTSIDE DIAMETER D2 [MM]	NEUTRAL LENGTH L1 [MM]	CUFF LENGTH L2 [MM]
300 060 034	34	45	130	47
300 060 038	38	49	130	47
300 060 042	42	53	130	47
300 060 048	48	59	130	47
300 060 054	54	64	130	47
300 060 057	57	69	130	47
300 060 060	60	71	130	47
300 060 064	64	75	130	47
300 060 070	70	81	170	62
300 060 076	76	87	170	62
300 060 080	80	91	170	62
300 060 085	85	97	170	62
300 060 089	89	101	170	62
300 060 108	108	120	170	62
300 060 114	114	126	170	62
300 060 133	133	145	170	62
300 060 139	139	152	170	62

TYPE A-BLUE & CLAMPING BANDS

PRODUCT DATA: CLAMPING BANDS

FOR BELLOW PART NO.	CLAMP TYPE	CLAMP ST.37 ZINC-PLATED PART NO.	CLAMP STAINLESS STEEL AISI 304 PART NO.	REQUIRED QUANTITY
300 060 034	I-1 part	300 070 045	300 071 045	2
300 060 038	I-1 part	300 070 050	300 071 050	2
300 060 042	I-1 part	300 070 055	300 071 055	2
300 060 048	I-1 part	300 070 060	300 071 060	2
300 060 054	I-1 part	300 070 065	300 071 065	4
300 060 057	I-1 part	300 070 070	300 071 070	4
300 060 060	I-1 part	300 070 075	300 071 075	4
300 060 064	I-1 part	300 070 080	300 071 080	4
300 060 070	I-1 part	300 070 085	300 071 085	4
300 060 076	I-1 part	300 070 090	300 071 090	4
300 060 080	II-2 parts	300 080 095	300 081 095	4
300 060 085	II-2 parts	300 080 100	300 081 100	4
300 060 089	II-2 parts	300 080 105	300 081 105	4
300 060 108	II-2 parts	300 080 125	300 081 125	4
300 060 114	II-2 parts	300 080 130	300 081 130	4
300 060 133	II-2 parts	300 080 150	300 081 150	4
300 060 139	II-2 parts	300 080 160	300 081 160	4

TECHNICAL DRAWING



TYPE A-GREEN & CLAMPING BANDS

TYPE A-GREEN & CLAMPING BANDS

Trelleborg Type A-Green silicone bellows provide an extremely flexible connection for applications with fluids like saltwater, oils, chemicals, and solvents. Additionally, this specific type of bellows is also suitable for drinking water systems and applications with very high temperatures.

- Temperature range from -60°C up to $+180^{\circ}\text{C}$.
- Maximum working pressure 4 bar at 20°C .

CONSTRUCTION

Type A-Green silicone bellows are constructed with:

- Special blue fluor-silicone inner tube
- Polyester reinforcements
- Green silicone outer cover

GENERAL

Due to its construction, the required distance between the two pipe ends connected by the bellows may vary from 5 to 15 mm for secure operation. On a Type A-Green silicone bellow, the use of heavy-duty clamping bands is recommended.

MOVEMENTS

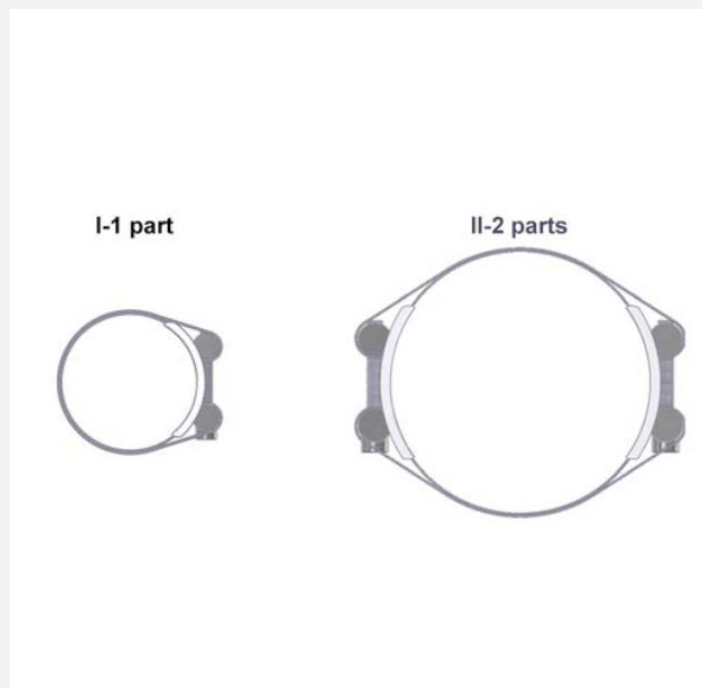
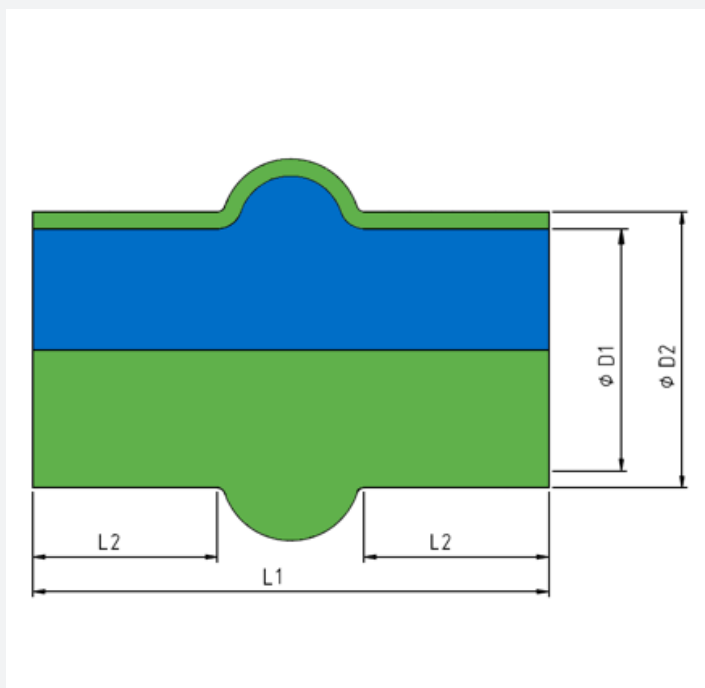
Compression and elongation 3 mm. Lateral 2 mm.



CLAMPING BANDS

To ensure the operation and safety of this type of bellow, the use of our heavy-duty clamping bands is strongly recommended. These clamping bands are available in zinc-plated carbon steel or full stainless steel.

TECHNICAL DRAWING



TYPE A-GREEN & CLAMPING BANDS

PRODUCT DATA: TYPE A-GREEN

PART NO.	INSIDE DIAMETER D1 [MM]	OUTSIDE DIAMETER D2 [MM]	NEUTRAL LENGTH L1 [MM]	CUFF-LENGTH L2 [MM]
300 050 030	30	43	130	45
300 050 034	34	46	130	45
300 050 038	38	51	130	45
300 050 042	42	55	130	52
300 050 044	44	57	130	52
300 050 048	48	61	130	60
300 050 054	54	67	165	60
300 050 057	57	70	165	60
300 050 060	60	73	165	60
300 050 076	76	89	200	75
300 050 089	89	102	200	75
300 050 108	108	121	200	75
300 050 114	114	131	200	75
300 050 133	133	149	200	75
300 050 139	139	163	200	75

PRODUCT DATA: CLAMPING BANDS

FOR BELLOW PART NO.	CLAMP TYPE	STEEL CLAMP ST.37 ZINC-PLATED PART NO.	CLAMP STAINLESS STEEL AISI 304 PART NO.	REQUIRED QUANTITY
300 050 030	I-1 part	300 070 043	300 071 045	2
300 050 034	I-1 part	300 070 050	300 071 050	2
300 050 038	I-1 part	300 070 050	300 071 050	2
300 050 042	I-1 part	300 070 055	300 071 055	2
300 050 044	I-1 part	300 070 060	300 071 060	2
300 050 048	I-1 part	300 070 060	300 071 060	2
300 050 054	I-1 part	300 070 070	300 071 070	4
300 050 057	I-1 part	300 070 075	300 071 070	4
300 050 060	I-1 part	300 070 075	300 071 075	4
300 050 076	I-1 part	300 070 090	300 071 090	4
300 050 089	II-2 parts	300 080 105	300 081 105	4
300 050 108	II-2 parts	300 080 130	300 081 120	4
300 050 114	II-2 parts	300 080 130	300 081 130	4
300 050 133	II-2 parts	300 080 155	300 081 150	4
300 050 139	II-2 parts	300 080 170	300 081 170	4

Stainless steel expansion joints.

**FLEXIBLE PARTS TO ENSURE FLAWLESS
OPERATION OF PIPELINE SYSTEMS.**



Balance Series

Pipeline systems are exposed to temperature variations, settling in foundations, forces, and deformations causing movement and/or stress in the system. To ensure flawless operation of the system it is necessary to insert flexible parts to absorb the movements preventing structural damage.

To provide excellent vibration isolation and flexibility to the pipeline system Trelleborg offers top of the line stainless steel expansion joints, the Balance series. With the Balance series, Trelleborg offers a complete program of expansion joints for various applications. The expansion joints are available with one or more approvals by certification societies as ABS, Bureau Veritas, and German Lloyds. For each situation we can offer you solutions (without affecting the pipeline system) with Trelleborg qualified expansion joints that can:

- Compensate movement and expansion
- Absorb stress in the system
- Reduce noise transmissions and vibration
- Compensate ground and foundation settling
- Compensate inaccurate assembly
- Serve as dismantling joints on fittings

Our complete portfolio consists of standard expansion joints as well as our special customized expansion joints Balance series expansion joints are used worldwide for various applications like exhaust gas lines, low and high pressure pipelines.



ADVANTAGES

- Suitable for high temperatures
- Various variations available (dimensions, medium, pressure)
- Also available for vacuum
- Flanges according to DIN or ASA (fixed or rotating)
- Customization possible (to meet customer demands)
- Stock item up to DN1200
- Type approval by classification societies

APPLICATION EXAMPLES

- Exhaust gas pipeline systems
- High-pressure pipelines (steam, liquids)
- Large heating pipeline systems



Balance I: DN25-400

BALANCE I: DN25-400

The Balance I is a stainless steel expansion joint with carbon steel weld ends. It is used to accommodate axial movements and relatively small lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators.

APPROVALS

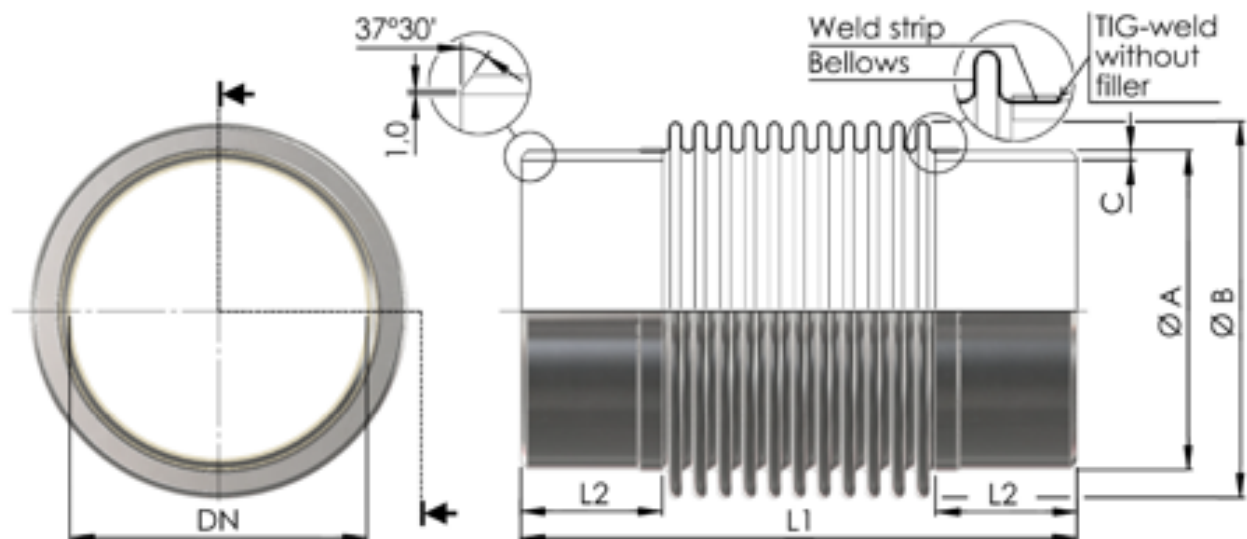
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Double-ply bellows material
- Standard length
- Carbon steel weld ends
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (50 °C)
- Stock item



TECHNICAL DRAWING



Balance I: DN25-400

PRODUCT DATA¹

PART NO.	DN	L1	BELLOWS (MATERIAL: AISI 321)			WELDING ENDS (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Plies	Thickness (mm)	A (mm)	C (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 000 025	25	205	42,0	1	0,2	33,7	2,9	45	28	15	18	57
330 000 032	32	205	52,0	1	0,3	42,4	2,6	50	28	15	50	186
330 000 040	40	205	60,3	1	0,3	48,3	2,6	50	28	15	36	143
330 000 050	50	245	78,3	2	0,3	60,3	2,9	63	28	15	49	214
330 000 065	65	245	96,7	2	0,3	76,1	2,9	63	28	14	40	206
330 000 080	80	245	109,7	2	0,3	88,9	3,2	63	28	13	46	261
330 000 090	90	245	122,2	2	0,3	101,6	3,2	63	35	10	46	337
330 000 100	100	245	140,5	2	0,3	114,3	3,6	63	35	10	35	281
330 000 125	125	245	165,7	2	0,3	139,7	3,6	63	35	9	42	389
330 000 150	150	245	200,5	2	0,3	168,3	4,0	63	35	9	35	365
330 000 175	175	245	225,9	2	0,3	193,7	4,5	63	35	9	35	365
330 000 200	200	245	251,1	2	0,3	219,1	4,5	63	35	6	43	610
330 000 250	250	245	305,2	2	0,3	273,0	5,0	63	35	5	54	924
330 000 300	300	295	360,9	2	0,3	323,9	5,6	75	40	6	42	698
330 000 350	350	295	392,6	2	0,3	355,6	5,6	75	40	5	48	870
330 000 400	400	295	443,4	2	0,3	406,4	5,6	75	40	3	52	1157

Note:

- 1. Other stainless steel grades and diameters available on request
- 2. Axial and lateral movements are not to be used in combination



BALANCE I WITH INNER SLEEVE: DN450-1000

BALANCE I WITH INNER SLEEVE: DN450-1000

The Balance I with inner sleeve is a stainless steel expansion joint with carbon steel weld ends and a stainless steel inner sleeve. It is used to accommodate axial movements and relatively small lateral misalignments in piping systems with large diameters.

Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance I with inner sleeve is +550 °C, the maximum working pressure 2,5 bar (50 °C).

APPROVALS

Type approval available on request.

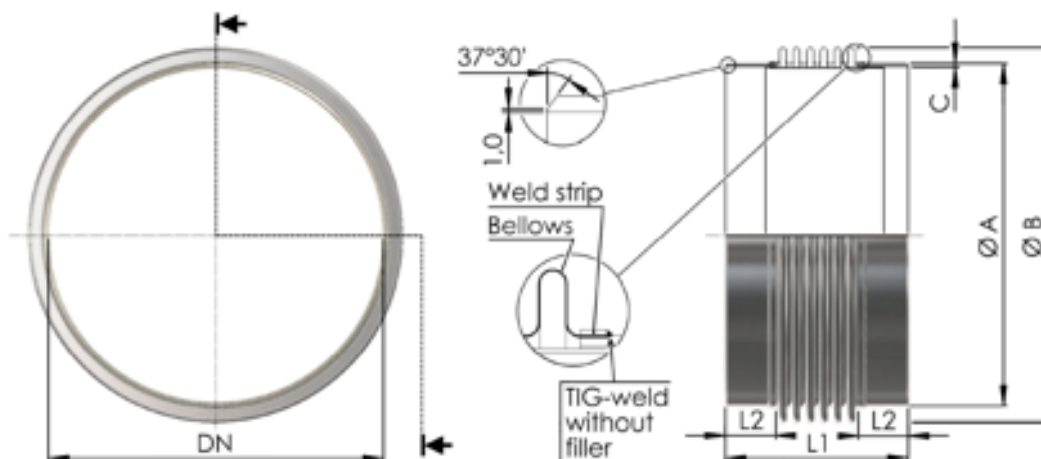
CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Double-ply bellows material
- Standard length
- Stainless steel inner sleeve
- Carbon steel weld ends
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (50 °C)
- Stock item



Figures stated are for natural rubber hardness 60° IRH. Other hardness grades are available upon request. The technical values are to be used for info only. If you have any questions, please contact TAVS. Other dimensions on special demand with minimum quantity and/or order value.

TECHNICAL DRAWING



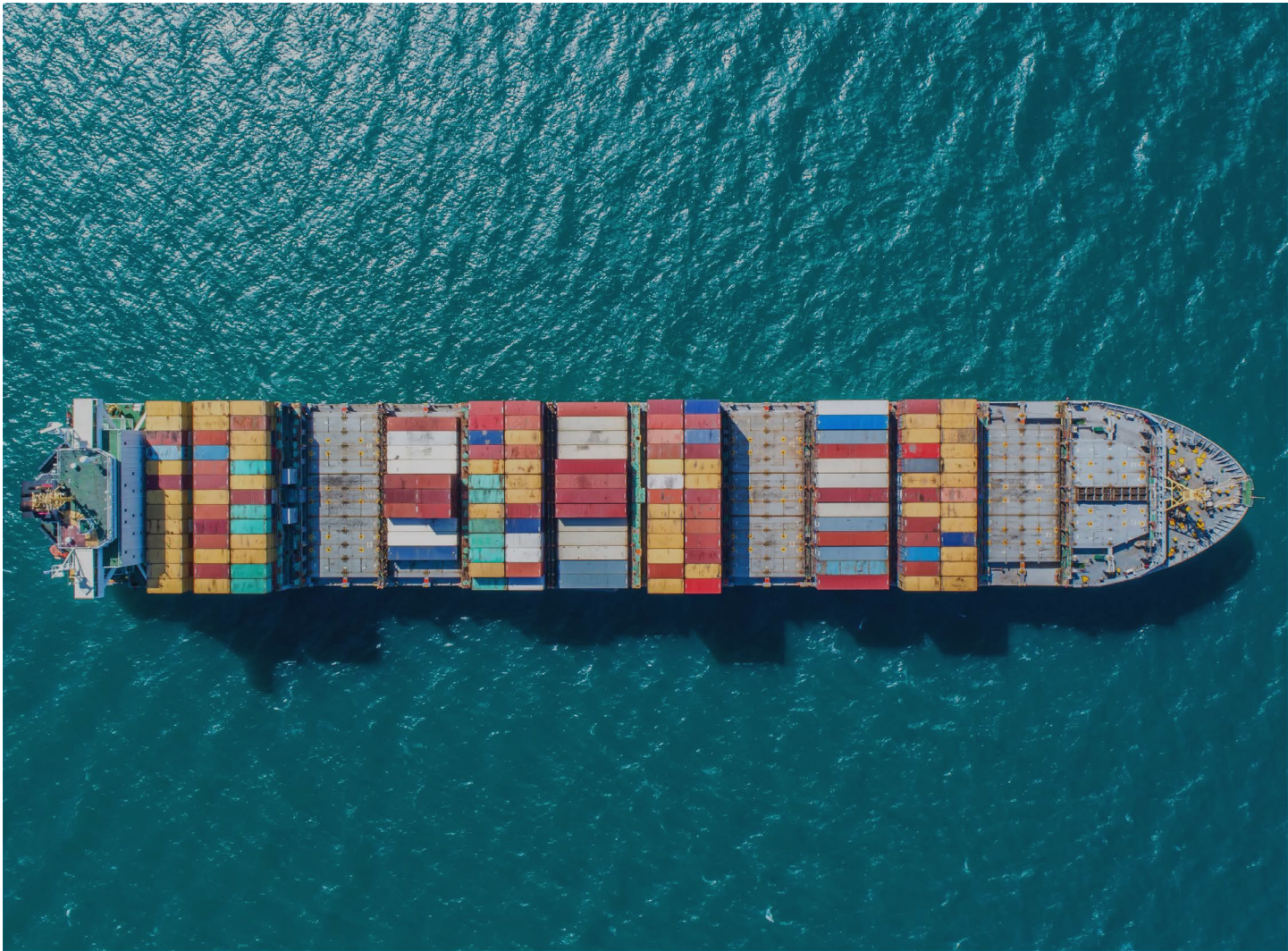
BALANCE I WITH INNER SLEEVE: DN450-1000

PRODUCT DATA¹

PART NO.	DN	L1	BELLOWS (MATERIAL: AISI 321)			WELDING ENDS (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Plies	Thickness (mm)	A (mm)	C (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 010 450	450	300	509,2	2	0,4	457,2	8	65	40	3	26	575
330 010 500	500	340	564	2	0,4	508	8	65	48	3	21	437
330 010 600	600	340	669,6	2	0,4	609,6	8	65	48	3	20	452
330 010 700	700	380	779	2	0,4	711	8	105	36	3	25	739
330 010 800	800	380	889	2	0,4	813	8	105	36	3	21	629
330 010 900	900	380	998	2	0,4	914	8	105	36	3	22	737
330 011 000	1000	380	1108	2	0,5	1016	8	105	36	3	19	628

Note:

- 1. Other stainless steel grades and diameters available on request
- 2. Axial and lateral movements are not to be used in combination



BALANCE II TWIN: DN40-300

BALANCE II TWIN: DN40-300

The Balance II is a stainless steel expansion joint with carbon steel weld ends. It is used to accommodate axial movements and relatively large lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance II is +550 °C, the maximum working pressure 2,5 bar (50 °C).

APPROVALS

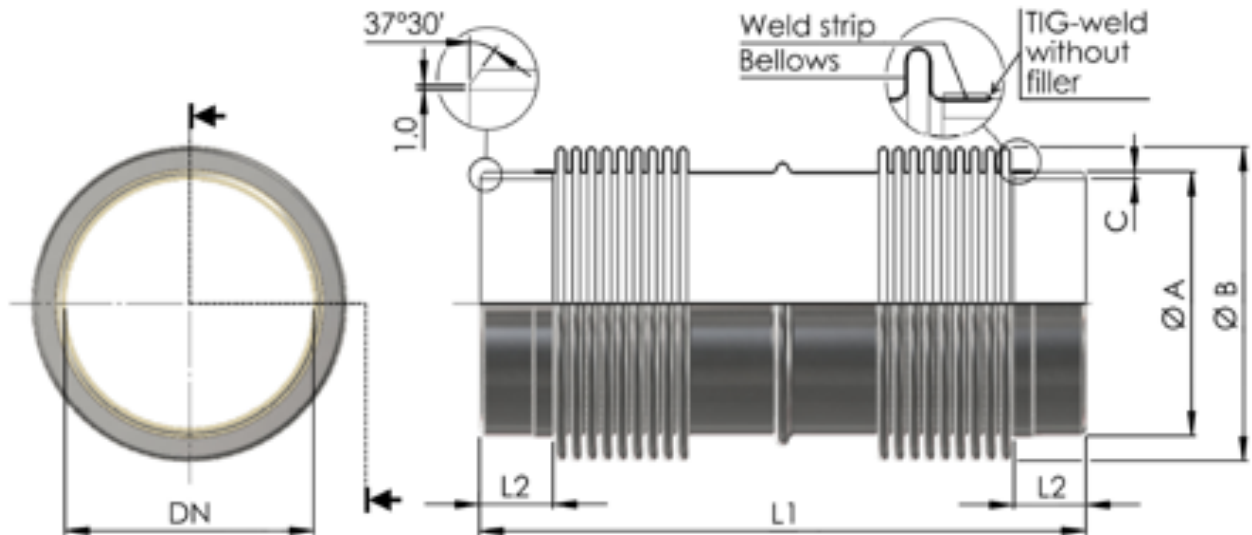
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Twin bellows construction
- Double-ply bellows material
- Standard length
- Carbon steel weld ends
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (50 °C)
- Stock item



TECHNICAL DRAWING



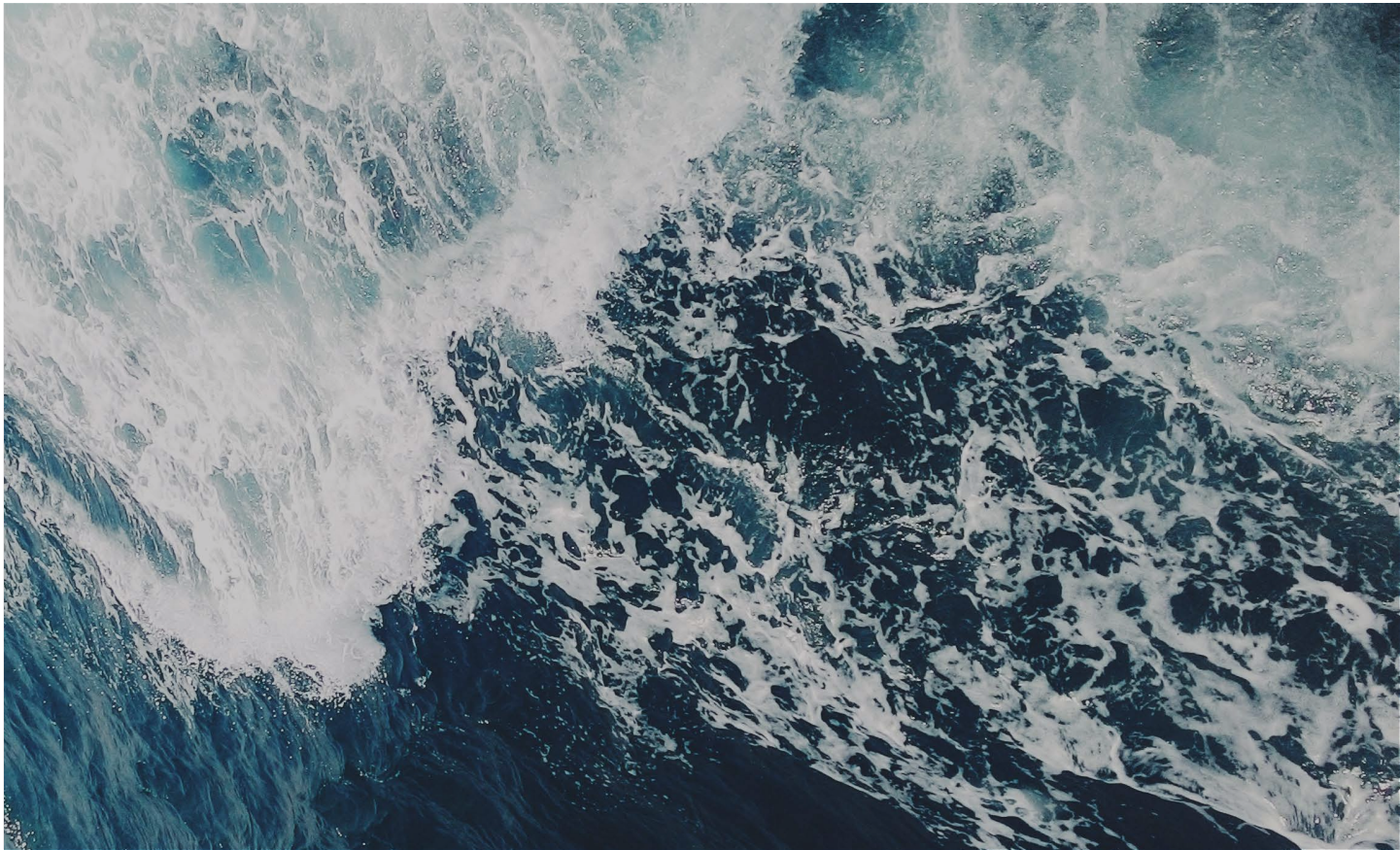
BALANCE II TWIN: DN40-300

PRODUCT DATA¹

PART NO.	DN	L1	BELLOWS (MATERIAL: AISI 321)			WELDING ENDS (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Plies	Thickness (mm)	A (mm)	C (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 020 040	40	375	60,3	1	0,3	48,3	2,6	40	30	73	21	8
330 020 050	50	375	77,0	2	0,3	60,3	2,9	40	32	65	23	11
330 020 065	65	345	95,0	2	0,3	76,1	2,9	40	54	54	32	19
330 020 080	80	380	111,0	2	0,3	88,9	3,2	40	38	63	20	13
330 020 100	100	330	140,0	2	0,3	114,3	3,6	40	36	46	25	23
330 020 125	125	320	168,0	2	0,3	139,7	3,6	40	32	33	23	28
330 020 150	150	395	200,5	2	0,4	168,3	4,0	50	45	46	38	24
330 020 175	175	395	227,8	2	0,4	193,7	4,5	50	44	40	36	23
330 020 200	200	405	255,1	2	0,4	219,1	4,5	50	49	42	43	27
330 020 250	250	405	315,0	2	0,4	273,0	5,0	50	47	33	39	37
330 020 300	300	415	371,9	2	0,4	323,9	5,0	70	45	18	37	64

Note:

- 1. Other stainless steel grades and diameters available on request
- 2. Axial and lateral movements are not to be used in combination



Balance III: DN100-350

BALANCE III: DN100-350

The Balance III is a stainless steel expansion joint with carbon steel weld ends. It is used to accommodate axial movements and relatively large lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance III is +550 °C, the maximum working pressure 2,5 bar (50 °C).

APPROVALS

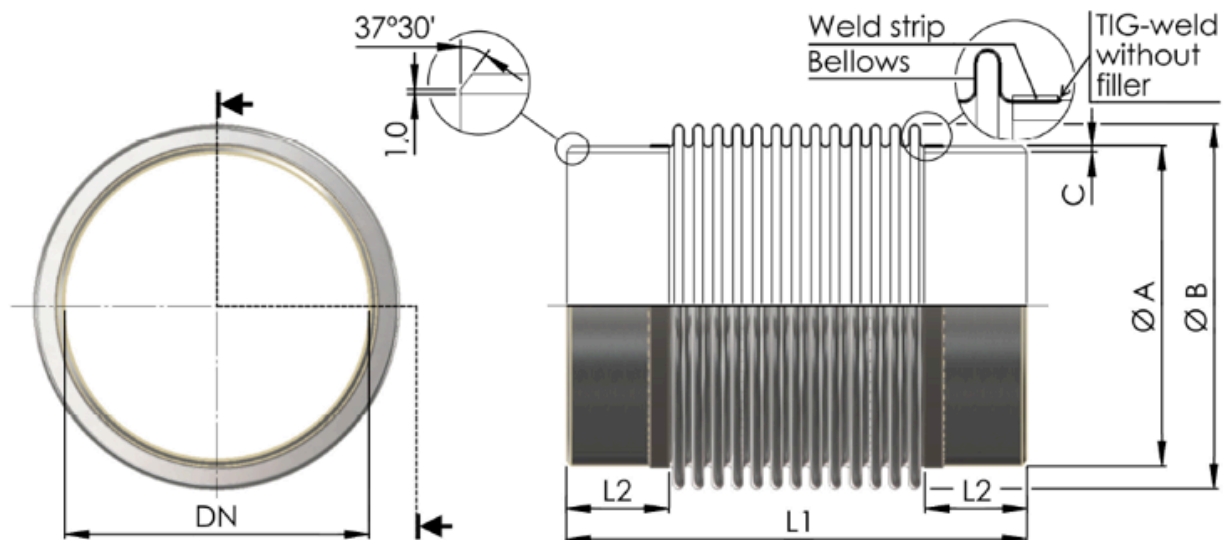
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Long length
- Double-ply bellows material
- Extended length
- Carbon steel weld ends
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (50 °C)
- Stock item



TECHNICAL DRAWING



Balance III: DN100-350

PRODUCT DATA¹

PART NO.	DN	L1	BELLOWS (MATERIAL: AISI 321)			WELDING ENDS (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Plies	Thickness (mm)	A (mm)	C (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 030 100	100	285	140,5	2	0,3	114,3	3,6	60	45	20	28	150
330 030 125	125	295	165,7	2	0,3	139,7	3,6	65	45	20	33	200
330 030 150	150	295	200,5	2	0,3	168,3	4,0	60	45	20	26	170
330 030 200	200	315	251,1	2	0,3	219,1	4,5	70	45	20	32	247
330 030 250	250	315	305,2	2	0,3	273,0	5,0	70	45	20	40	357
330 030 300	300	345	360,9	2	0,3	323,9	5,6	68	50	15	31	307
330 030 350	350	345	392,6	2	0,3	355,6	5,6	68	50	15	34	351

Note:

1. Other stainless steel grades and diameters available on request
2. Axial and lateral movements are not to be used in combination



BALANCE IV: DN40-300

BALANCE IV: DN40-300

The Balance IV is a relatively short stainless steel expansion joint with carbon steel weld ends. It is used to accommodate axial movements and lateral misalignments in piping systems in situations with limited installation space. Despite its short length, it can accommodate small lateral movements. Due to the double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance IV is +550 °C, the maximum working pressure 2,5 bar (50 °C).

APPROVALS

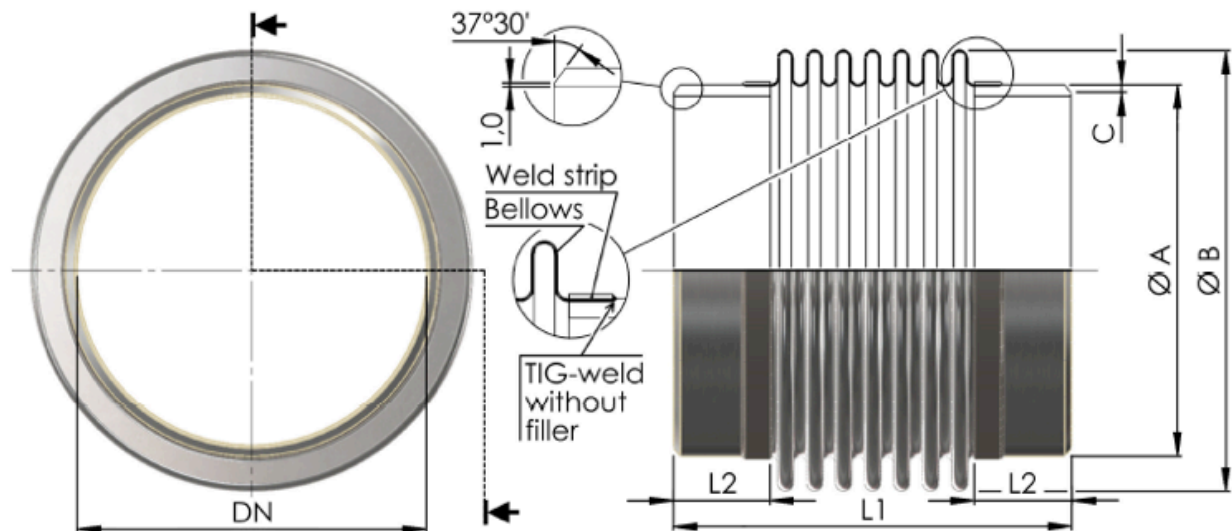
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Double-ply bellows material
- Short length
- Carbon steel weld ends
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (50 °C)
- Stock item



TECHNICAL DRAWING



BALANCE IV: DN40-300

PRODUCT DATA¹

PART NO.	DN	L1	BELLOWS (MATERIAL: AISI 321)			WELDING ENDS (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Plies	Thickness (mm)	A (mm)	S2 (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 040 040	40	150	60,3	1	0,3	48,3	2,6	30	25	8	47	89
330 040 050	50	150	78,3	2	0,3	60,3	2,9	30	25	8	68	166
330 040 065	65	150	96,7	2	0,3	76,1	2,9	30	25	8	56	169
330 040 080	80	150	109,7	2	0,3	88,9	3,2	30	25	8	63	219
330 040 100	100	150	140,5	2	0,3	114,3	3,6	37	25	6	59	293
330 040 125	125	150	165,7	2	0,3	139,7	3,6	35	25	5	71	420
330 040 150	150	150	200,5	2	0,3	168,3	4	35	25	5	56	389
330 040 200	200	150	251,1	2	0,3	219,1	4,5	35	25	5	69	608
330 040 250	250	150	305,2	2	0,3	273	5	35	25	4	86	933
330 040 300	300	150	360,9	2	0,3	323,9	5,6	35	25	4	81	1042

Note:

1. Other stainless steel grades and diameters available on request
2. Axial and lateral movements are not to be used in combination



BALANCE V: DN40-400

BALANCE V: DN40-400

The Balance V is a stainless steel expansion joint with fixed carbon steel flanges according to DIN PN 10. It is used to accommodate axial movements and relatively small lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance V is +550 °C, the maximum working pressure 2,5 bar (50 °C).

APPROVALS

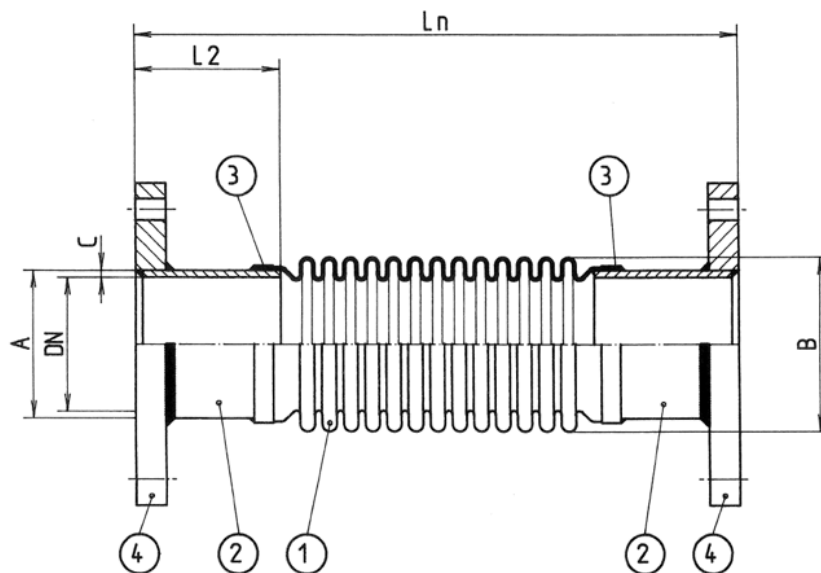
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Double-ply bellows material
- Standard length
- Fixed carbon steel flanges according to DIN PN 10
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (50 °C)
- Stock item



TECHNICAL DRAWING



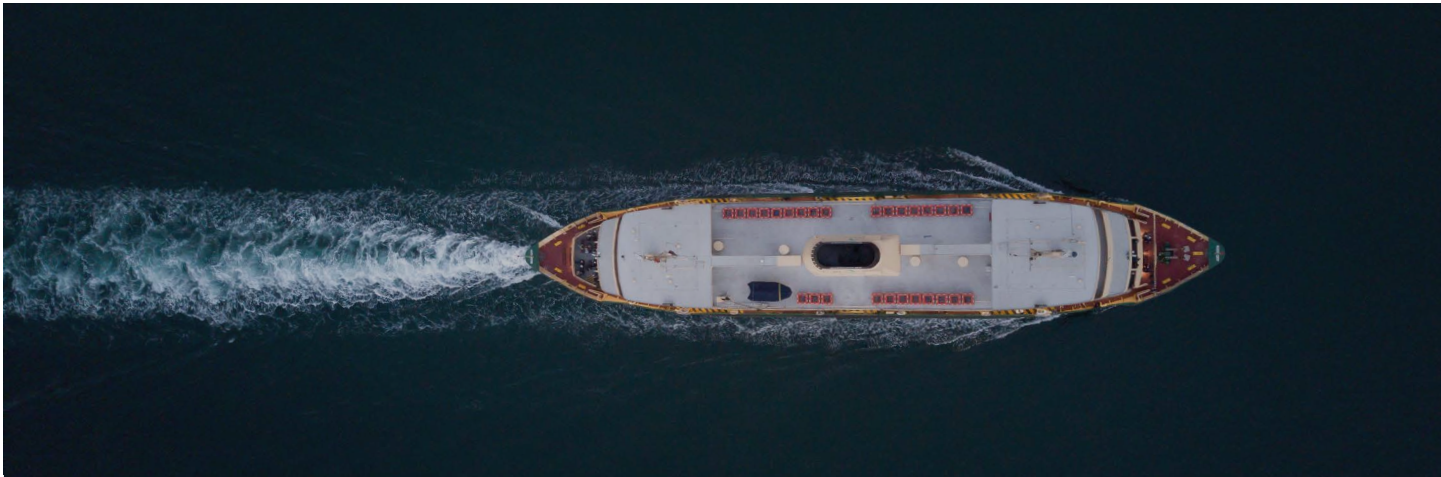
BALANCE V: DN40-400

PRODUCT DATA¹

POSITION		QUANTITY	DESCRIPTION				MATERIAL			DIMENSIONS			
1		1	Bellows				AISI 321						
2		2	Weld end				Carbon steel						
3		2	Weld strip				AISI 321						
4		2	Flange				Carbon steel			DIN PN 10			

PART NO.	DN	Ln	BELLOWS (MATERIAL: AISI 321)				WELDING ENDS (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Conv.	Plies	Thickness (mm)	A (mm)	C2 (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 410 040	40	215	60,3	22	1	0,3	48,3	2,6	55	28	15	36	143
330 410 050	50	255	78,3	13	2	0,3	60,3	2,9	68	28	15	49	214
330 410 065	65	255	96,7	13	2	0,3	76,1	2,9	68	28	14	40	206
330 410 080	80	255	109,7	13	2	0,3	88,9	3,2	68	28	13	46	261
330 410 100	100	255	140,5	11	2	0,3	114,3	3,6	68	35	10	35	281
330 410 125	125	255	165,7	11	2	0,3	139,7	3,6	68	35	9	42	389
330 410 150	150	255	200,5	9	2	0,3	168,3	4,0	68	35	9	35	365
330 410 200	200	255	251,1	9	2	0,3	219,1	4,5	68	35	6	43	610
330 410 250	250	255	305,2	9	2	0,3	273,0	5,0	68	35	5	54	924
330 410 300	300	305	360,9	9	2	0,3	323,9	5,6	80	40	6	42	698
330 410 350	350	305	392,6	9	2	0,3	355,6	5,6	80	40	5	48	870
330 410 400	400	305	443,4	9	2	0,3	406,4	5,6	80	40	3	52	1157

- Note:**
- 1. Other stainless steel grades and diameters available on request
 - 2. Axial and lateral movements are not to be used in combination



BALANCE VI: DN40-250

BALANCE VI: DN40-250

The Balance VI is a stainless steel expansion joint with rotating galvanized carbon steel flanges according to DIN PN 16. It is used for compensating axial movements in piping systems under high pressure. Due to its double-ply bellows, this compensator can compensate axial movements effectively. The maximum operating temperature of the Balance VI is +300 °C, the maximum working pressure 16 bar (120 °C).

APPROVALS

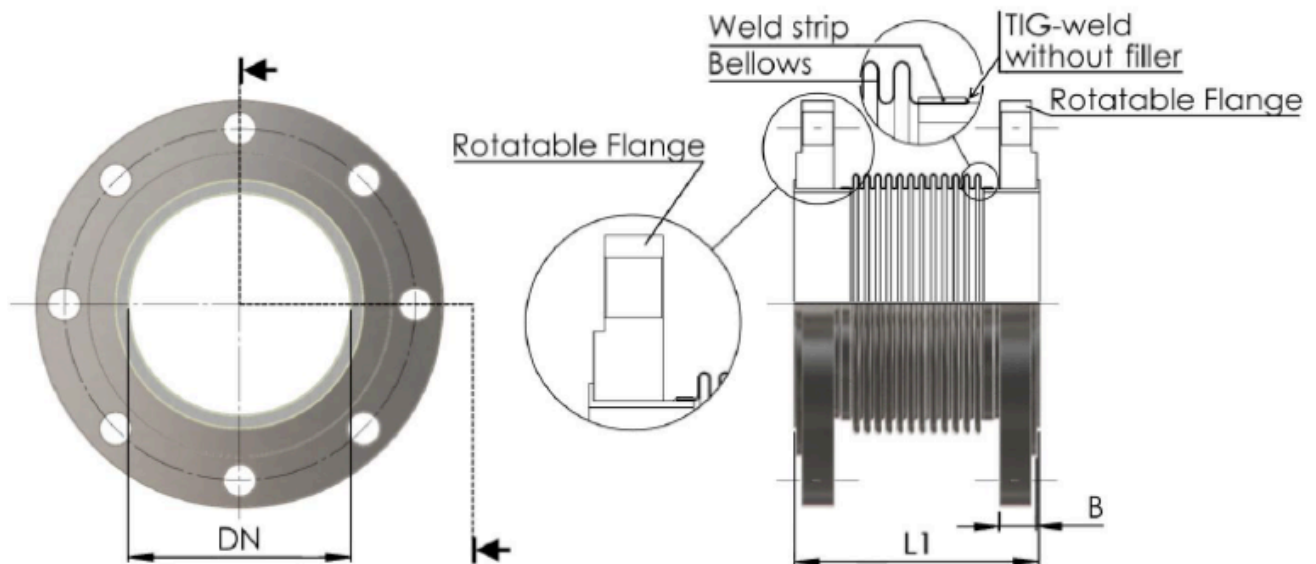
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- Galvanized carbon steel flanges acc. DIN PN 16
- Rotating flanges
- Double-ply bellows material (except DN40)
- Standard length L=130
- Max. temperature: 300 °C
- Max. pressure: 16 bar (120 °C)
- Stock item



TECHNICAL DRAWING



BALANCE VI: DN40-250

PRODUCT DATA¹

PART NO.	DN	L	BELLOWS (MATERIAL: AISI 321)			FLANGE (MATERIAL: CARBON STEEL)					MOVEMENT	SPRINGRATE
			CONV.	Plies	Thickness (mm)	D Outside (mm)	K	D Inside (mm)	Holes x d	B	Axial (mm)	N/mm
300 231 040	40	130	20	1	0,3	150	110	48,3	4 x 18	16	± 12	82
300 231 050	50	130	16	2	0,3	165	125	60,3	4 x 18	18	± 17	60
300 231 065	65	130	14	2	0,3	185	145	76,1	4 x 18	18	± 20	50
300 231 080	80	130	13	2	0,3	200	160	88,9	8 x 18	20	± 23	41
300 231 100	100	130	12	2	0,3	220	180	114,3	8 x 18	20	± 29	37
300 231 125	125	130	12	2	0,3	250	210	139,7	8 x 18	22	± 32	35
300 231 150	150	130	12	2	0,4	285	240	168,3	8 x 22	22	± 27	69
300 231 200	200	130	8	2	0,4	340	295	219,1	12 x 22	24	± 32	95
300 231 250	250	130	7	2	0,4	405	355	273	12 x 22	26	± 35	83

Notes:

1. Other SS grades and diameters available upon request



BALANCE VII: DN40-600

BALANCE VII: DN40-600

The Balance VII is a stainless steel expansion joint with stainless steel weld ends. It is used to accommodate axial movements and relatively small lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance VII is +550 °C, the maximum working pressure 2,5 bar (120 °C).

APPROVALS

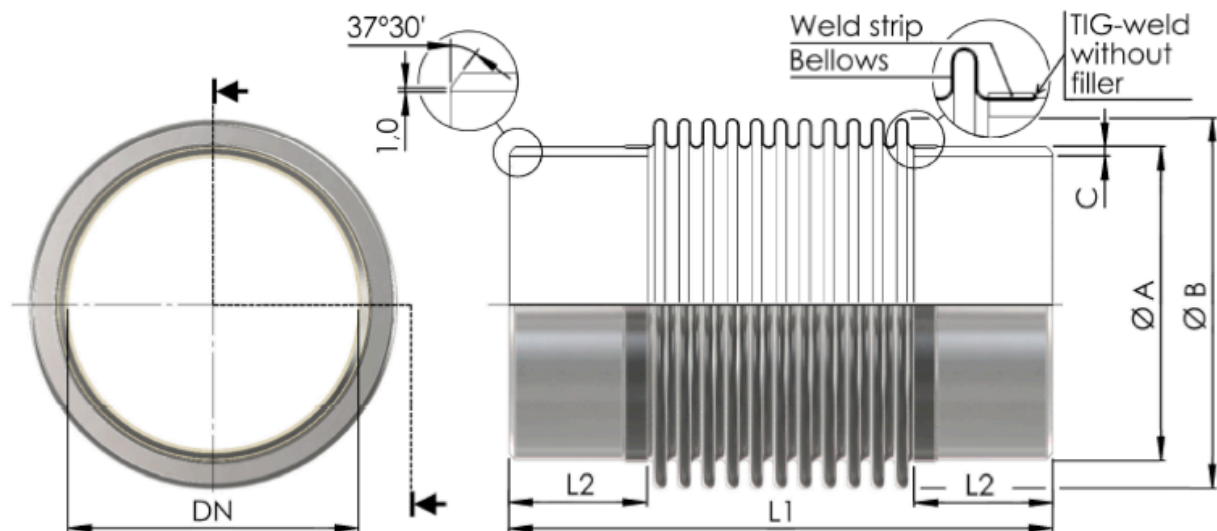
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 316 TI
- Stainless steel weld ends AISI 316 TI
- Double-ply bellows material
- Standard length
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (120 °C)
- Stock item



TECHNICAL DRAWING



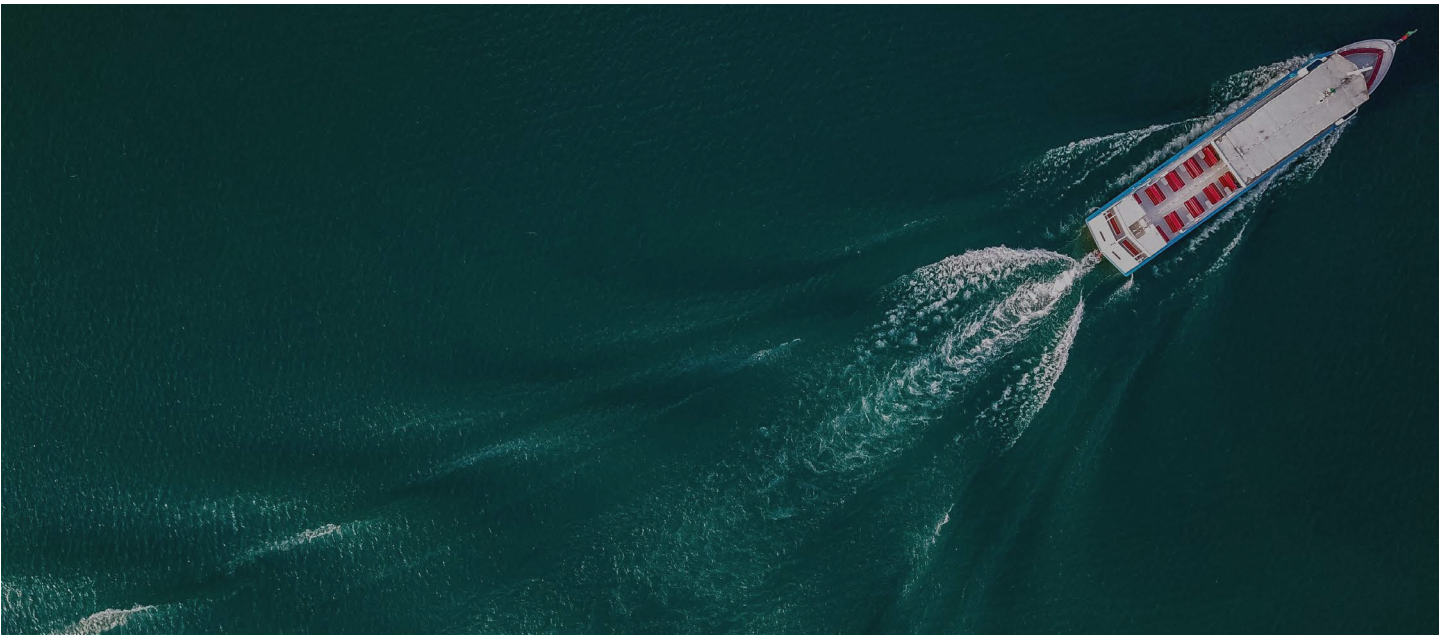
BALANCE VII: DN40-600

PRODUCT DATA¹

PART NO.	DN	L1	BELLOWS MATERIAL: AISI 316Ti (1.4571)				WELDING ENDS MATERIAL: CARBON STEEL			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B (mm)	Conv	Plies	Thickness (mm)	A (mm)	C (mm)	L2 (mm)	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
300 250 040	40	245	57,7	22	1	0,3	48,3	2	50	29	18	30	7
300 250 050	50	245	69,7	13	2	0,3	60,3	2	50	29	15	34	11
300 250 065	65	245	87,5	13	2	0,3	76,1	2	50	32	15	56	50
300 250 080	80	245	100,3	13	2	0,3	88,9	2	50	38	15	53	35
300 250 100	100	245	129,8	11	2	0,3	114,3	2	50	44	10	34	40
300 250 125	125	245	157,8	11	2	0,3	139,7	2	50	33	10	86	122
300 250 150	150	245	186,6	9	2	0,3	168,3	2	50	38	10	91	229
300 250 200	200	245	239,7	9	2	0,3	219,1	2	50	27	10	108	465
300 250 250	250	245	293,6	9	2	0,3	273	2	50	38	8	76	509
300 250 300	300	295	346,5	9	2	0,3	323,9	2	50	45	7	76	773
300 250 350	350	295	378,2	9	2	0,3	355,6	2	70	44	6	112	1330
300 250 400	400	295	435	9	2	0,3	406,4	2	60	50	3	91	1144
300 250 450	450	300	487,8	8	2	0,4	457	2	60	50	3	101	1081
300 250 500	500	340	585,6	9	2	0,4	508	3	70	73	2	89	1526
300 250 600	600	330	642,6	9	2	0,4	610	3	70	68	2	119	2027

Note:

1. Other stainless steel grades and diameters available on request
2. Axial and lateral movements are not to be used in combination



BALANCE VIII: DN80-1600

BALANCE VIII: DN80-1600

The Balance VIII is a relatively short stainless steel expansion joint with rotating flanges. It is used to accommodate axial movements and lateral misalignments in piping systems in situations with limited installation space. Due to its double-ply bellows and rotating flanges, this compensator is still able to compensate relatively large movements. The Balance VIII is supplied at pre-stressed length to reduce the reaction forces to the foundation in operating conditions (high temperature). The maximum operating temperature of the Balance VIII is +550 °C, the maximum working pressure 2,5 bar (120 °C).

APPROVALS

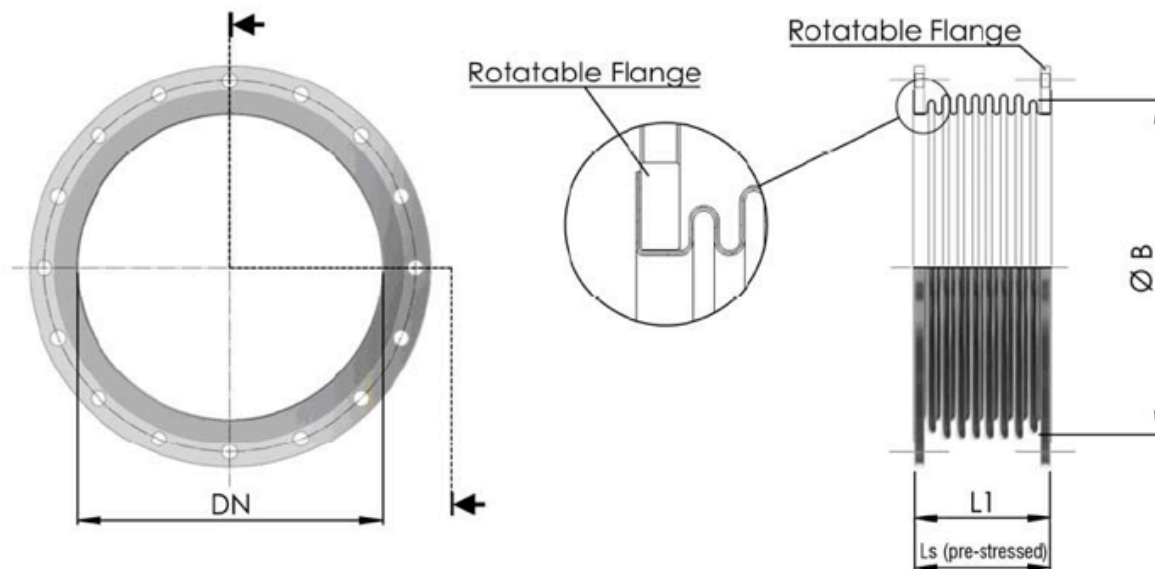
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- With rotating flanges acc. DIN 86044 (<DN200 - PN10)
- Double-ply bellows material
- Standard length
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (120 °C)
- Alternative flange dimensions available
- Stock item
- Supplied at pre-stressed length



TECHNICAL DRAWING



Note:

1. Other stainless steel grades and diameters available on request
2. Axial and lateral movements are not to be used in combination

BALANCE VIII: DN80-1600

DN	ARTICLE NO.	L1	LS	BELLOWS (AISI 321) (MM)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)		FLANGE (CARBON STEEL) (MM)		
				B	THICK- NESS	PLIES	AXIAL	LATERAL	AXIAL +/-	LATERAL +/-	D OUTSIDE	BOLT CIRCLE	HOLE X d
80	302 610 080		200	100	0,3	2	+ 10 / - 50	+/- 15	35	25	200	160	8 X 18
	302 610 081	180					+/- 30						
100	302 610 100		170	152	0,3	2	+ 13 / - 53	+/- 10	22	41	220	180	8 X 18
	302 610 101	150					+/- 33						
125	302 610 125		210	182	0,3	2	+ 10 / - 60	+/- 11	26	43	250	210	8 X 18
	302 610 126	185					+/- 35						
150	302 610 150		225	208	0,3	2	+ 15 / - 65	+/- 12	30	60	285	240	8 X 22
	302 610 151	200					+/- 40						
175	302 610 175		230	238	0,3	2	+ 15 / - 65	+/- 10	28	67	315	270	8 X 22
	302 610 176	205					+/- 40						
200	302 610 200		215	258	0,3	2	+ 14 / - 74	+/- 10	21	69	320	280	8 X 18
	302 610 201	185					+/- 44						
250	302 610 250		215	315	0,4	2	+ 12 / - 72	+/- 8	41	210	375	335	12 X 18
	302 610 251	185					+/- 42						
300	302 610 300		210	368	0,4	2	+ 15 / - 75	+/- 7	40	329	440	395	12 X 22
	302 610 301	180					+/- 45						
350	302 610 350		210	409	0,4	2	+ 14 / - 74	+/- 6	39	384	490	445	12 X 22
	302 610 351	180					+/- 44						
400	302 610 400		265	466	0,4	2	+ 20 / - 110	+/- 10	26	195	540	495	16 X 22
	302 610 401	220					+/- 65						
450	302 610 450		215	520	0,4	2	+ 15 / - 85	+/- 5	33	483	595	550	16 X 22
	302 610 451	180					+/- 50						
500	302 610 500		280	571	0,4	2	+ 23 / - 123	+/- 9	33	347	645	600	20 X 22
	302 610 501	230					+/- 73						
550	302 610 550		290	623	0,4	2	+ 23 / - 123	+/- 8	36	417	703	650	20 X 22
	302 610 551	240					+/- 73						
600	302 610 600		275	675	0,4	2	+ 23 / - 123	+/- 7	40	633	754	700	20 X 22
	302 610 601	230					+/- 68						
700	302 610 700		275	773	0,4	2	+ 18 / - 108	+/- 5	40	902	856	800	24 X 22
	302 610 701	230					+/- 63						
800	302 610 800		275	873	0,5	2	+ 21 / - 111	+/- 5	59	1637	958	900	24 X 22
	302 610 801	230					+/- 66						
900	302 610 900		275	983	0,5	2	+ 21 / - 111	+/- 4	62	2286	1060	1010	28 X 22
	302 610 901	230					+/- 66						
1000	302 611 000		275	1083	0,5	2	+ 21 / - 111	+/- 4	65	2689	1162	1110	32 X 22
	302 611 001	230					+/- 66						
1100	302 611 100		275	1183	0,6	2	+ 21 / - 111	+/- 3	68	3152	1266	1210	32 X 22
	302 611 101	230					+/- 66						
1200	302 611 200		275	1283	0,6	2	+ 21 / - 111	+/- 3	83	4625	1366	1310	36 X 22
	302 611 201	230					+/- 66						
1300	302 611 300		275	1383	0,8	2	+ 21 / - 111	+/- 3	90	5880	1466	1410	40 X 22
	302 611 301	230					+/- 66						
1400	302 611 400		275	1483	0,8	2	+ 21 / - 111	+/- 2	225	17721	1566	1510	40 X 22
	302 611 401	230					+/- 66						
1500	302 611 500		275	1583	0,8	2	+ 21 / - 111	+/- 2	241	21875	1666	1610	44 X 22
	302 611 501	230					+/- 66						
1600	302 611 600		275	1683	0,8	2	+ 21 / - 111	+/- 2	257	26630	1766	1710	48 X 22
	302 611 601	230					+/- 66						

BALANCE IX TWIN: DN80-1600

BALANCE IX TWIN: DN80-1600

The Balance IX Twin is a relatively long stainless steel expansion joint with twin bellows construction and rotating flanges. It is used to accommodate axial movements and relatively large lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The Balance IX Twin is supplied at pre-stressed length to reduce the reaction forces to the foundation in operating conditions (high temperature). The maximum operating temperature of the Balance IX is +550 °C, the maximum working pressure 2,5 bar (120 °C).

APPROVALS

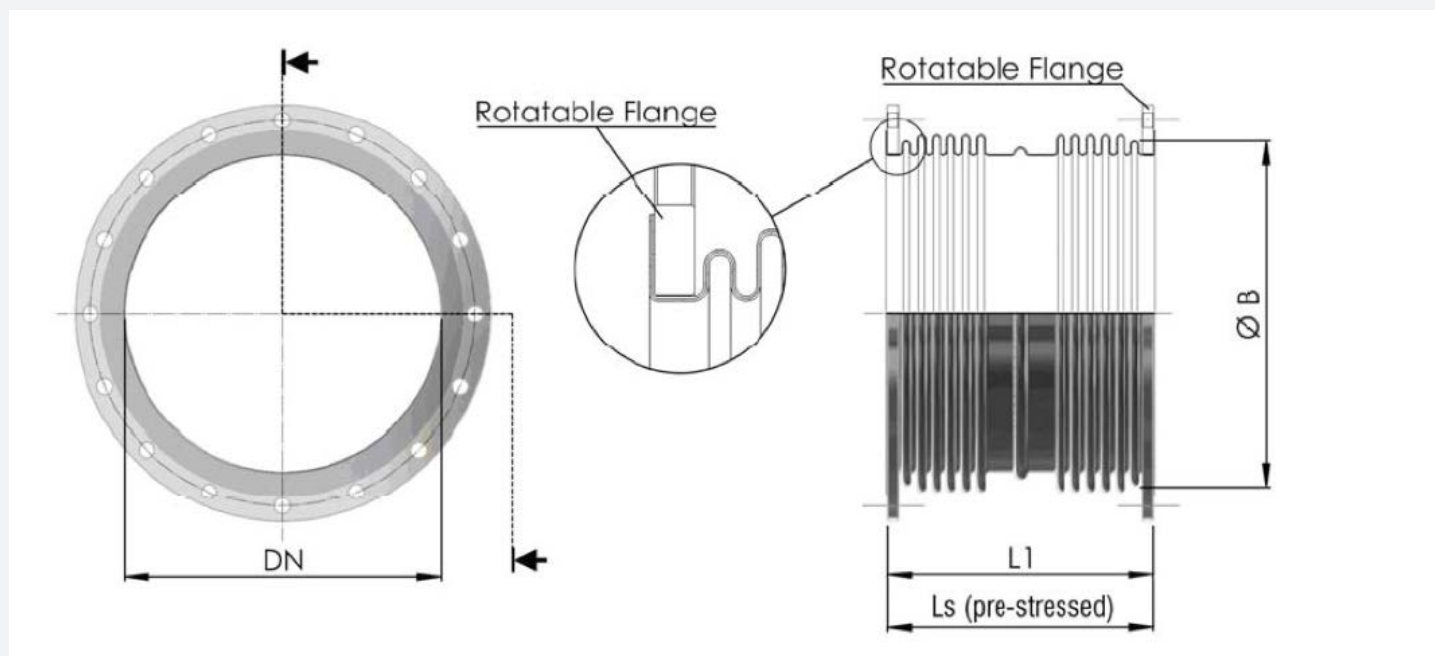
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- With rotating flanges acc. DIN 86044 (<DN200 - PN10)
- Twin bellows construction
- Double-ply bellows material
- Standard length
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (120 °C)
- Alternative flange dimensions available
- Stock item
- Supplied at pre-stressed length



TECHNICAL DRAWING



Note:

1. Other stainless steel grades and diameters available on request
2. Axial and lateral movements are not to be used in combination

BALANCE IX TWIN: DN80-1600

DN	ARTICLE NO.	L1	LS	BELLOWS (AISI 321) (MM)			MOVEMENTS² (MM)		SPRINGRATE (N/MM)		FLANGE (CARBON STEEL) (MM)		
				B	THICK- NESS	PLIES	AXIAL	LATERAL	AXIAL +/-	LATERAL +/-	D OUTSIDE	BOLT CIRCLE	HOLES X d
80	300 270 080		365	100	0,3	2	+ 13 / - 63	+/- 63	26	2	200	160	8 X 18
	300 270 081	340					+/- 38						
100	300 270 100		315	141	0,3	2	+ 11 / - 61	+/- 42	22	5	220	180	8 X 18
	300 270 101	290					+/- 36						
125	300 270 125		305	168	0,3	2	+ 12 / - 52	+/- 30	28	10	250	210	8 X 18
	300 270 126	285					+/- 32						
150	300 270 150		370	196	0,3	2	+ 15 / - 75	+/- 46	25	9	285	240	8 X 22
	300 270 151	340					+/- 45						
175	300 270 175		375	224	0,3	2	+ 14 / - 74	+/- 40	26	12	315	270	8 X 22
	300 270 176	345					+/- 44						
200	300 270 200		365	244	0,4	2	+ 19 / - 79	+/- 40	40	22	320	280	8 X 18
	300 270 201	335					+/- 49						
250	300 270 250		365	299	0,4	2	+ 17 / - 77	+/- 30	28	25	375	335	12 X 18
	300 270 251	335					+/- 47						
300	300 270 300		345	353	0,4	2	+ 15 / - 85	+/- 26	30	46	440	395	12 X 22
	300 270 301	310					+/- 50						
350	300 270 350		345	400	0,4	2	+ 15 / - 85	+/- 24	29	54	490	445	12 X 22
	300 270 351	310					+/- 50						
400	300 270 400		425	450	0,5	2	+ 23 / - 123	+/- 35	33	53	540	495	16 X 22
	300 270 401	375					+/- 73						
450	300 270 450		430	500	0,5	2	+ 21 / - 121	+/- 30	43	82	595	550	16 X 22
	300 270 451	380					+/- 71						
500	300 270 500		390	550	0,5	2	+ 22 / - 102	+/- 24	47	125	645	600	20 X 22
	300 270 501	350					+/- 62						
550	300 270 550		400	600	0,5	2	+ 22 / - 102	+/- 22	51	169	703	650	20 X 22
	300 270 551	360					+/- 62						
600	300 270 600		490	650	0,5	2	+ 22 / - 122	+/- 31	42	108	754	700	20 X 22
	300 270 601	440					+/- 72						
700	300 270 700		520	750	0,5	2	+ 24 / - 134	+/- 31	53	151	856	800	24 X 22
	300 270 701	465					+/- 79						
800	300 270 800		520	850	0,5	2	+ 24 / - 134	+/- 27	41	153	958	900	24 X 22
	300 270 801	465					+/- 79						
900	300 270 900		520	950	0,5	2	+ 24 / - 134	+/- 25	46	210	1060	1010	28 X 22
	300 270 901	465					+/- 79						
1000	300 271 000		520	1050	0,5	2	+ 24 / - 134	+/- 21	58	309	1162	1110	32 X 22
	300 271 001	465					+/- 79						
1100	300 271 100		520	1150	0,6	2	+ 24 / - 134	+/- 19	70	451	1266	1210	32 X 22
	300 271 101	465					+/- 79						
1200	300 271 200		520	1250	0,6	2	+ 24 / - 134	+/- 17	75	571	1366	1310	36 X 22
	300 271 201	465					+/- 79						
1300	300 271 300		520	1350	0,8	2	+ 24 / - 134	+/- 12	140	1069	1466	1410	40 X 22
	300 271 301	465					+/- 79						
1400	300 271 400		520	1450	0,8	2	+ 24 / - 134	+/- 11	151	1320	1566	1510	40 X 22
	300 271 401	465					+/- 79						
1500	300 271 500		520	1550	0,8	2	+ 24 / - 134	+/- 10	161	1607	1666	1610	44 X 22
	300 271 501	465					+/- 79						
1600	300 271 600		520	1650	0,8	2	+ 24 / - 134	+/- 10	171	1932	1766	1710	48 X 22
	300 271 601	465					+/- 79						

BALANCE X: DN80-450

BALANCE X: DN80-450

The Balance X is a stainless steel expansion joint with rotating flanges according to DIN PN 6. It is used to accommodate axial movements and lateral misalignments in piping systems. Due to its double-ply bellows, this compensator is more flexible in comparison to similar single-ply compensators. The maximum operating temperature of the Balance X is +550 °C, the maximum working pressure 2,5 bar (120 °C).

APPROVALS

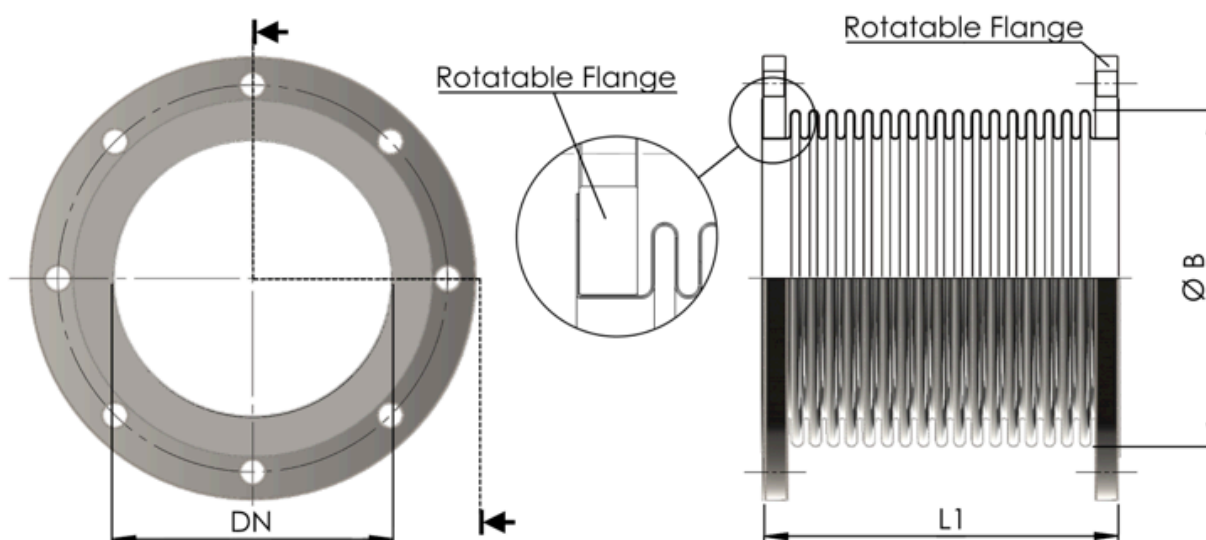
Type approval available on request.

CHARACTERISTICS

- Stainless steel expansion joint AISI 321
- With rotating flanges acc. DIN PN 6
- Double-ply bellows material
- Standard length
- Max. temperature: 550 °C
- Max. pressure: 2,5 bar (120 °C)
- Stock item



TECHNICAL DRAWING



BALANCE X: DN80-450

PRODUCT DATA¹

PART NO.	DN	L1	BELLAWS (MATERIAL: AISI 321)			FLANGE (MATERIAL: CARBON STEEL)			MOVEMENTS ² (MM)		SPRINGRATE (N/MM)	
			B	Plies	Thickness (mm)	D Outside	Bolt Circle	Holes x d	Axial +/-	Lateral +/-	Axial +/-	Lateral +/-
330 420 080	80	255	100.2	2	0,3	190	150	4 x 18	50	19	24	41
330 420 100	100	255	132.2	2	0,3	210	170	4 x 18	50	15	27	44
330 420 125	125	255	159.2	2	0,3	240	200	8 x 18	48	15	48	80
330 420 150	150	255	183.2	2	0,3	265	225	8 x 18	50	13	53	95
330 420 175	175	255	211	2	0,3	295	255	8 x 18	49	12	63	148
330 420 200	200	255	242	2	0,4	320	280	8 x 18	60	14	50	154
330 420 250	250	255	303	2	0,4	375	335	12 x 18	60	11	58	278
330 420 300	300	305	359	2	0,4	440	395	12 x 22	65	10	59	418
330 420 350	350	305	393	2	0,4	490	445	12 x 22	63	8	64	548
330 420 400	400	305	447	2	0,4	540	495	12 x 22	76	11	44	308
330 420 450	450	310	501	2	0,4	595	550	12 x 22	76	11	50	350

Note:

1. Other stainless steel grades and diameters available on request
2. Axial and lateral movements are not to be used in combination





Shock Mounts

PROTECTING EQUIPMENT FROM SHOCK IMPACT AND VIBRATIONS.

The marine world is fraught with critical challenges for life and work at sea. We're the team to turn to for solving these challenges, in every marine sector from offshore, energy and defense. Through cutting-edge engineered solutions and a marine team with world-leading knowledge, we deliver advanced vibration isolation and shock control to keep vessels and equipment performing reliably and efficiently; safeguarding human lives and extending service lives, enhancing comfort and streamlining operations. All so life and work at sea never felt better.

HAT Element

PRODUCT DATA

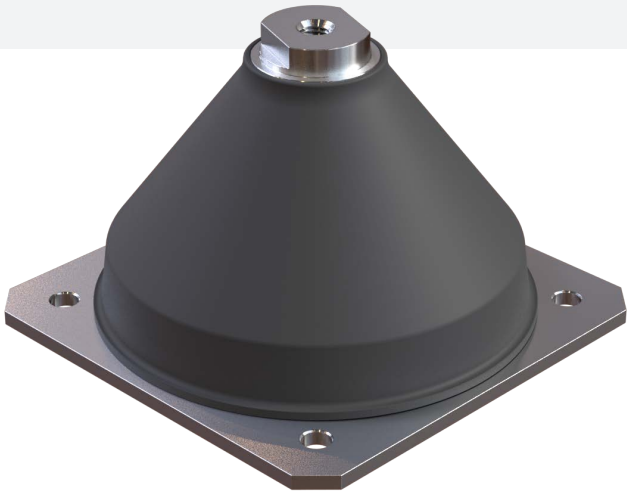
Shocks can be defined as sudden changes in an object's position, velocity, and acceleration for a short period of time. Trelleborg's shock mounts are designed to protect structures and equipment from destructive consequences of the shock wave and vibrations.

GENERAL

High Deflection Mounts are available in many different sizes and various characteristics. These mounts cover a wide range of applications, from mounting heavy equipment like engines and generator sets to electronic devices and sensitive equipment. By using the same type of element in different stiffness grades, it is possible to get a low natural frequency and still have enough permissive deformation left for protection against shocks. Rubber shock mounts with symmetric constructions have identical characteristics in all horizontal directions as an additional advantage. Our High Deflection Mounts are produced by vulcanizing high-quality natural rubber onto metal parts. The metal parts are standard delivered in galvanized S235, however non-magnetic stainless steel versions, as well as other rubber qualities, are also available.

APPLICATION EXAMPLES

- Switch cabinets
- Electronic equipment
- Small ventilation systems
- Equipment with vibration source

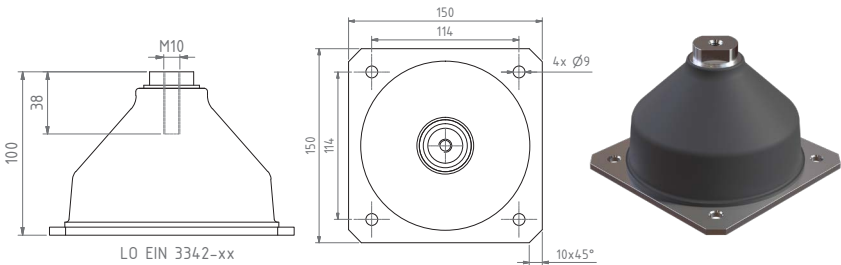


CHARACTERISTICS

- Optional variations in stainless steel, silicon, CR, and NBR
- Affordable, relatively low pricing
- Good overall vibration isolation
- Good overall sound isolation
- Low plastic deformation when exposed to shock
- Captive design (optional)
- Wide variation of dimensions and load ranges (standard & custom-made) available
- Non-magnetic optional
- NATO Stock Numbers (NSN) available

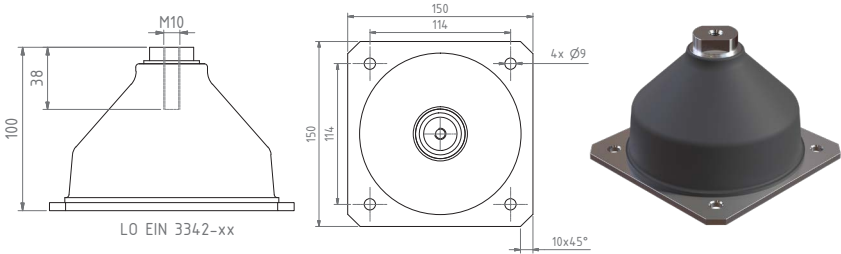
TYPE LO-E1N-3342

CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/mm)			PERMISSIVE DEFORMATION (mm)		
		X	Y	Z	X	Y	Z
005	10-20	13	13	16	55	55	55
01	15-30	15	15	25	55	55	55
02	25-55	35	35	40	55	55	55



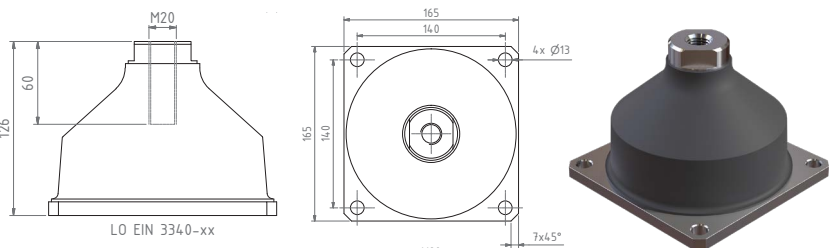
TYPE LO-E1N-3341/DIN 95365-D

CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/mm)			PERMISSIVE DEFORMATION (mm)		
		X	Y	Z	X	Y	Z
01	30-60	40	40	65	55	55	55
02	40-80	70	70	90	55	55	55
03	75-150	125	125	165	55	55	55



TYPE LO-E1N-3340/DIN 95365-D

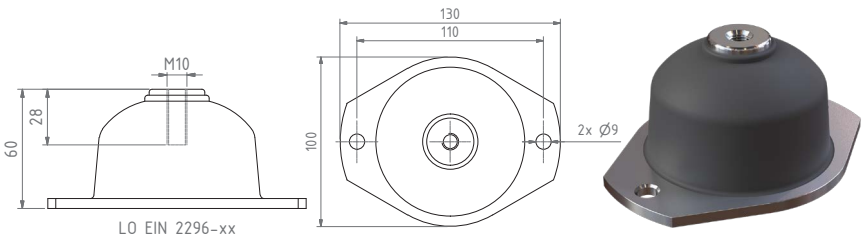
CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/mm)			PERMISSIVE DEFORMATION (mm)		
		X	Y	Z	X	Y	Z
005	40-80	60	60	115	60	60	60
01	70-130	80	80	145	60	60	60
02	185-350	215	215	380	60	60	60
03	200-400	390	390	450	60	60	60



HAT Element

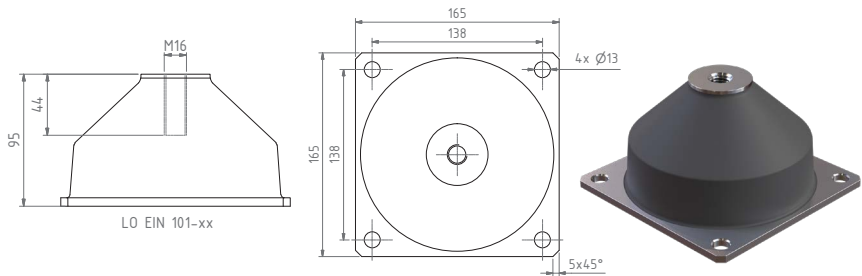
TYPE LO-E1N-2296/DIN 95365-B

CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/MM)			PERMISSIVE DEFORMATION (mm)		
		X	Y	Z	X	Y	Z
S01	15-30	21	21	30	18	18	18
S02	20-40	28	28	40	18	18	18
S03	30-60	42	42	60	18	18	18
21	35-75	49	49	70	25	25	25
01	40-80	56	56	80	25	25	25
22	50-100	70	70	100	25	25	25
02	65-140	91	91	130	25	25	25
23	80-170	84	84	160	25	25	25
03	110-220	147	147	210	25	25	25



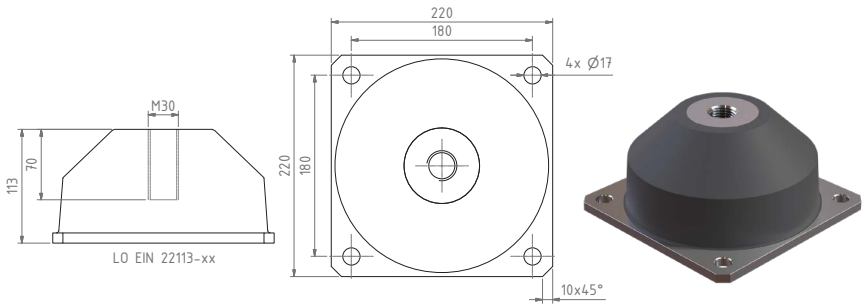
TYPE LO-E1N-101/DIN 95365-C

CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/mm)			PERMISSIVE DEFORMATION (mm)		
		X	Y	Z	X	Y	Z
01	30-70	70	70	70	40	40	38
02	55-120	120	120	120	40	40	38
03	75-150	150	150	150	40	40	38
04	110-220	210	210	210	40	40	38
05	150-320	310	310	310	40	40	38
06	230-500	470	470	470	40	40	38



TYPE LO-E1N-22113

CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/mm)			PERMISSIVE DEFORMATION (mm)		
		X	Y	Z	X	Y	Z
A	280-650	117	117	57	30	30	35
B	600-1100	228	228	114	30	30	35
C	175-350	83	83	40	30	30	35



New2C

PRODUCT DATA

APPLICATION

Shock can be defined as sudden changes of an object's position, velocity and acceleration in a short period of time. Trelleborg's shock mounts are designed to protect structures and equipment from destructive consequences of the shock wave. The revolutionary New2C shock mount has been developed by Trelleborg to meet the most stringent requirements in shock and vibration isolation and covers a wide range of applications like electronic devices and sensitive equipment. New2C has a soft elastic characteristic under shock deformation as well as a low natural frequency under normal vibration conditions; it can, therefore, meet both shock and vibration requirements at a very high level at the same time. Additionally, New2C has the natural sound isolation qualities of an elastomer (rubber) element and is standard non-magnetic. The maximum deformation New2C allows is at least -55 to +55 mm in all directions. It is suitable for frequency ranges of 5 Hz to 9 Hz. New2C is entirely maintenance-free.

New2C has a soft elastic characteristics under shock deformation as well as a low natural frequency under normal vibration conditions. As a result, high levels of both shock and vibration are isolated. Additionally, New2C has the natural sound isolation qualities of an elastomer (rubber) element and is non-magnetic.

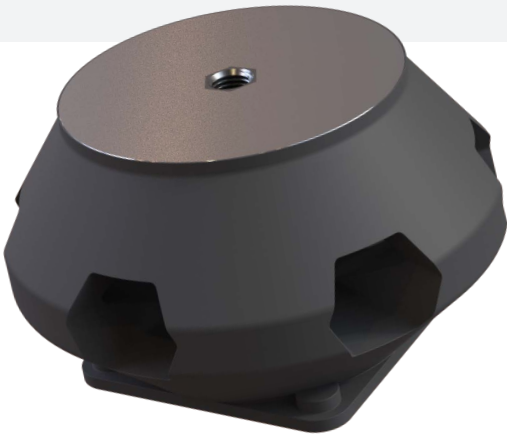
CHARACTERISTICS

New2C consists of a special rubber-to-metal structure with a special inner and outer form of the rubber cavity. The rubber parts are natural rubber, the metal parts are aluminum. It is suitable for frequency ranges of 5 Hz to 9 Hz.

GENERAL

New2C is registered under NATO Stock Number NSN 5340-12-335-2370 to -2375 for classes 1 to 6 respectively and 5340-12-335-6202 for class 7.

For more information about this product, please contact us via antivibration@trelleborg.com.



MATERIALS

- Elastomer Spring
- Standard design in natural rubber (NR)
- Alternative: Chloroprene (CR)
- Metal part: Aluminum

ADVANTAGES

- Affordable, relatively low pricing
- Good sound isolation
- Low plastic deformation when exposed to shock
- Captive design (optional)
- Applicable in various load ranges
- Standard non-magnetic
- Available with NATO Stock Numbers (NSN)

APPLICATION EXAMPLES

- Switch cabinets
- Electronic equipment
- Small ventilation systems
- Equipment with vibration source

CLASS	STATIC LOAD (KG)	AVERAGE STIFFNESS (N/MM)			PERMISSIVE DEFORMATION (MM)		
		X	Y	Z	X	Y	Z
005	5-20	10	10	17	55	55	55
01	10-35	27	27	21	55	55	55
02	25-50	44	44	36	55	55	55
03	32-75	65	65	54	55	55	55
04	40-90	8	82	70	55	55	55
05	50-130	143	143	124	55	55	55
06	60-160	175	175	152	55	55	55
07	80-180	224	224	196	55	55	55
08	150-300	160	160	330	55	55	55

Constant Positioning Mount (CPM)

PRODUCT DATA

APPLICATION

Sensitive equipment such as navigation and communications facilities in some cases require a rigid connection to the ship's foundation and accurate repositioning after heavy shock impact. Trelleborg's Marine Center developed the highly innovative constant positioning shock mount (CPM) as a solution to ensure flawless operation of high-precision applications during regular sea-going conditions as well as after being exposed to shock. It has relatively small dimensions and the ability to reduce shocks from all directions. It provides highly accurate repositioning after the impact in both vertical and horizontal direction.

For the vibration excitation, the relative displacement of the equipment is zero and the CPM will behave rigidly. In case the shock excitation force is higher than a predefined value, the CPM will absorb the shock and the equipment will be positioned into its original position after the shock. CPM is the ultimate in constant positioning: shocks from all directions can be reduced from 250g to 4g or less with repositioning deviations of less than 0,5 mm. These qualities make CPM an excellent shock mount for navigation and guided weapons systems as well as other military and civilian high-precision applications where a constant positioning is important.

Each CPM solution is completely tailored to meet specific requirements and military standards. For many navies worldwide Trelleborg delivered the CPM specifically according customer requirements based on shock inputs, allowed rest shock level, size and weight of equipment.

For more information about this product, please contact us via antivibration@trelleborg.com.

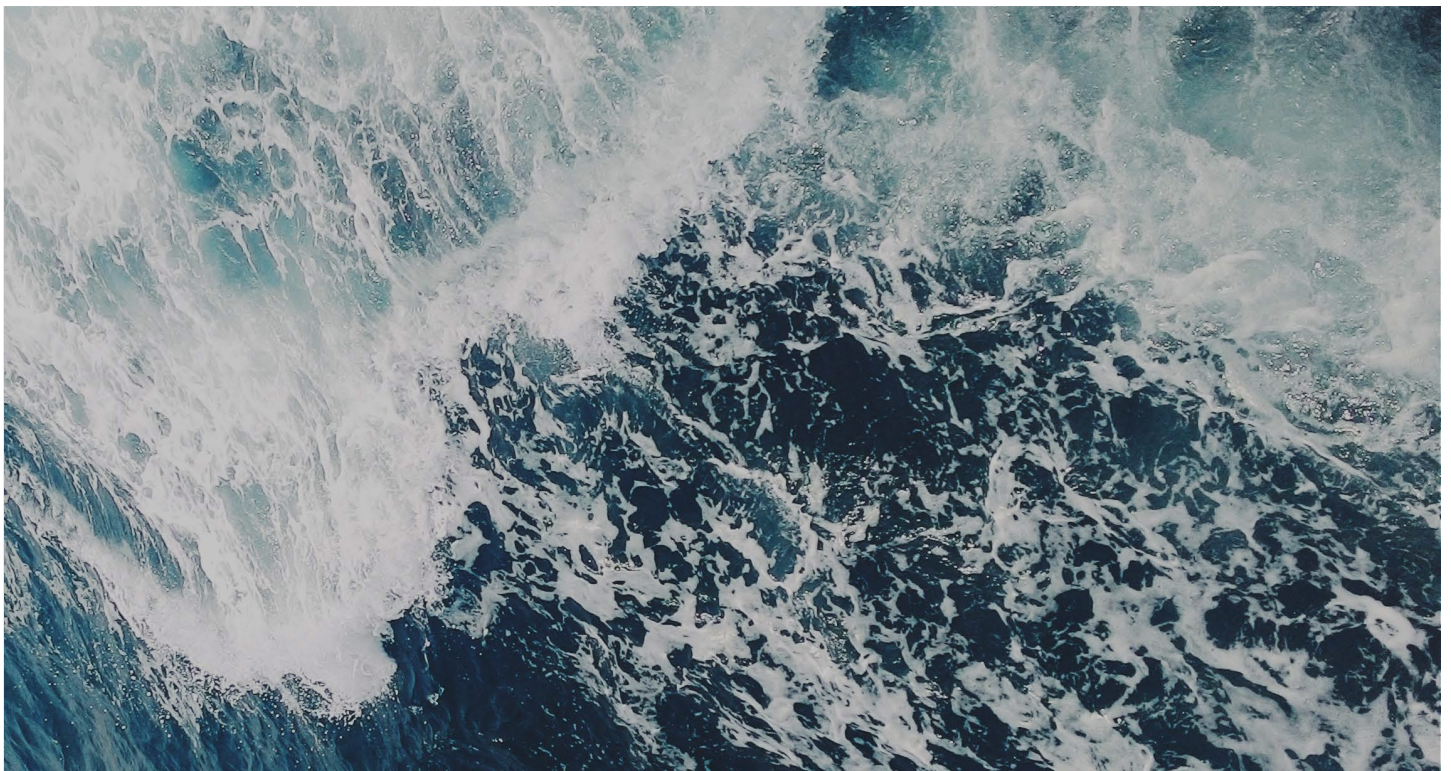


GENERAL

Every CPM is designed according to the specific customer requirements and it therefore does not have a NATO Stock Number.

TECHNICAL INFORMATION

- Zero relative displacement of the equipment from vibration excitation
- Active protection of the equipment when shock excitation exceeds a predefined value
- Adjustment of both predefined values and maximum deformation as needed
- Retention of equipment's fixed position during low-frequency swings in the structure, e.g. ship movements



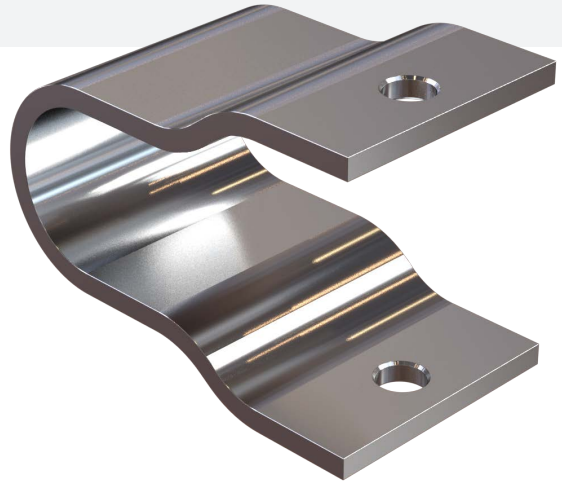
J-Type Deck

PRODUCT DATA

Trelleborg AVS defense portfolio includes both “deck” and “bulkhead” versions of J-Type shock mounts. Like other shock mounts, all J-Type shock mounts are registered under NATO Stock Numbers (NSN). Trelleborg AVS-NL CAGE code is H0040.

The J-Type, also known as the “yielding strap”, cost-effectively protects equipment against shock. It is a curved steel strap designed to yield a predetermined load in any direction. The symmetric version of the J-Type is often referred to as the “regular” or “deck” version. The asymmetric version of the J-Type is often referred to as the “bulkhead” version because of its shape that requires less installation space. These J-Types are highly efficient shock isolators as their lifetime is limited by the event of the shock itself and their replacement inexpensive. After being exposed to shock the J-Type needs to be replaced to re-ensure protection of the equipment.

The J-Type is the right solution for shock mount applications when realignment with other equipment or the vessel's structure after impact is not required and vibration and sound isolation are also of minor importance. The J-Type is often used for non-vital equipment without a vibration source, such as switch cabinets and electronic equipment.



CHARACTERISTICS

- Steel strap, non-magnetic versions available
- Symmetric “deck” and asymmetric “bulkhead” version
- Captive design
- Suitable for high temperatures
- Nominal load range: 2 to 135 kg
- Relative high damping grade
- Cost-effective, single-use shock solution
- Easy installation, equipped with locking plate

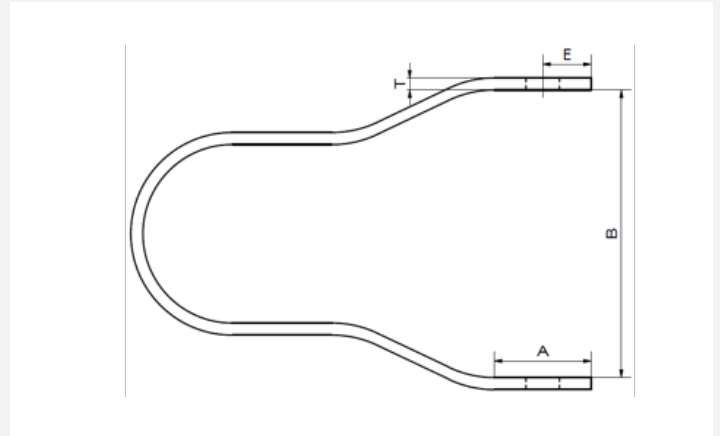
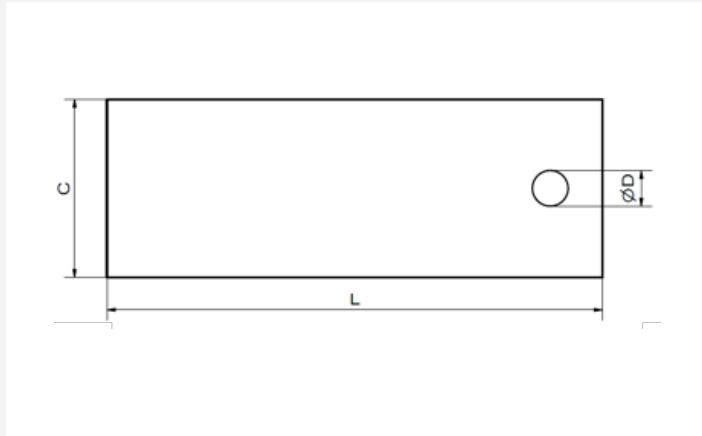
J-TYPE STANDARD VERSION

PART NO.	NATO STOCK NUMBER	CLASS BR 3021	CLASS DIN 95408	DIMENSIONS (MM)						
				L	T	A	B	C	ØD	E
116100J03A	5430-99-539-6795	03A	J1	151	2	38	95	55	9	19
116100J02A	5430-99-539-6794	02A	J2	152	3	38	95	55	9	19
116100J01A	5430-99-539-6793	01A	J3	153	4	38	95	55	11	19
116100J1A	5430-99-539-2588	1A	J4	154	5	38	95	70	11	19
116100J2A	5430-99-539-2589	2A	J5	154	5	38	95	90	11	19
116100J3A	5430-99-539-2590	3A	J6	155	6	38	95	85	13	19
116100J4A	5430-99-539-2591	4A	J7	155	6	38	95	105	13	19
116100J5A	5430-99-539-2592	5A	J8	157	8	38	95	95	17	19
116100J6A	5430-99-539-2593	6A	J9	159	10	38	95	85	21	19

PART NO.	STATIC LOAD RANGE (KG)	PERMISSIVE DEFORMATION (MM)			MAX TRANSMITTED ACCELERATION AT STATIC LOAD (M/S ²)	
		X	Y	Z	MIN. MASS	MAX. MASS
116100J03A	2 - 5	82	82	82	190	90
116100J02A	5 - 10	82	82	82	190	112
116100J01A	10 - 20	79	79	79	140	58
116100J1A	20 - 35	79	79	79	100	50
116100J2A	35 - 45	79	79	79	100	50
116100J3A	45 - 60	75	75	75	100	50
116100J4A	60 - 80	75	75	75	100	50
116100J5A	80 - 115	70	70	70	100	80
116100J6A	115 - 180	64	64	64	180	110

J-Type Deck

TECHNICAL DRAWING



J-TYPE YS-SS (STAINLESS STEEL VERSION)

TYPE	DIMENSIONS (MM)						
	L	T	A	B	C	ØD	E
YS-SS 2 - 5	105	2	24	71	40	9	12
YS-SS 5 - 10	105	3	24	71	45	9	12
YS-SS 10 - 20	110	4	26	75	50	11	13
YS-SS 20 - 35	110	5	26	75	60	11	13
YS-SS 35 - 45	110	5	26	75	80	11	13
YS-SS 45 - 60	118	6	30	79	80	13	15
YS-SS 60 - 80	118	6	30	79	85	13	15
YS-SS 80 - 115	132	8	34	87	85	17	17
YS-SS 115 - 180	143	10	38	95	85	21	19

STATIC LOAD RANGE (KG)	PERMISSIVE DEFORMATION (MM)			MAX TRANSMITTED ACCELERATION AT STATIC LOAD (M/S ²)	
	X	Y	Z	MIN MASS	MAX MASS
2 - 5	55	55	55	250	100
5 - 10	55	55	55	250	130
10 - 20	55	55	55	240	120
20 - 35	55	55	55	220	130
35 - 45	55	55	55	170	130
45 - 60	55	55	55	180	140
60 - 80	55	55	55	130	110
80 - 115	55	55	55	170	120
115 - 180	55	55	55	180	110

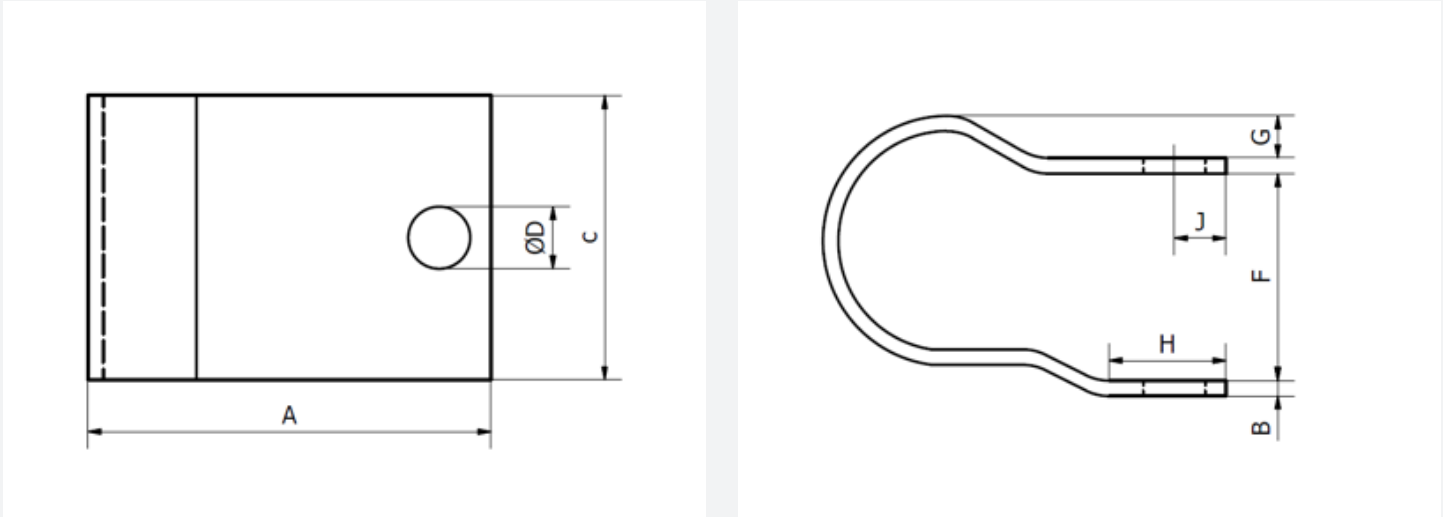
J-Type Bulkhead

BULKHEAD

Trelleborg AVS defense portfolio includes both “deck” and “bulkhead” versions of J type shock mounts. Like other shock mounts, all J-type shock mounts are registered under NATO Stock Numbers (NSN). Trelleborg AVS-NL CAGE code is H0040. The asymmetric version of the J-mount is often referred to as the “bulkhead” version because of its shape that requires less installation space. These J-mounts are highly efficient shock isolators as their lifetime is limited by the event of the shock itself and their replacement inexpensive. After being exposed to shock the J-mount needs to be replaced to re-ensure protection of the equipment. The J-mount is often used for non-vital equipment without a vibration source, such as switch cabinets and electronic equipment.



TECHNICAL DRAWING



CLASS	NATO STOCK NUMBER (NSN)	DIMENSIONS (MM)							
		A	B	C	ØD	F	G	H	J
1	5340-99-533-2576	69	2	55	M10	38	6	25	13
2	5340-99-533-2577	69	3	55	M10	38	6	25	13
3	5340-99-533-2578	76	4	55	M12	40	8	25	13
4	5340-99-533-2579	105	6	70	M16	49	15	32	16
5	5340-99-533-2580	125	8	90	M20	67	9	44	22
6	5340-99-533-2581	159	12	85	M24	83	11	57	25

CLASS	STATIC LOAD RANGE (KG)	PERMISSIVE DEFORMATION (MM)			MAX TRANSMITTED ACCELERATION AT STATIC LOAD (M/S2)	
		X	Y	Z	MIN. MASS	MAX. MASS
1	2 - 5	22	55	55	360	180
2	5 - 10	22	55	55	340	180
3	10 - 20	22	55	55	280	130
4	20 - 35	24	55	55	280	160
5	35 - 70	36	55	55	240	120
6	70 - 135	47	55	55	260	140

Wire Rope Isolators (WRI)

PRODUCT DATA

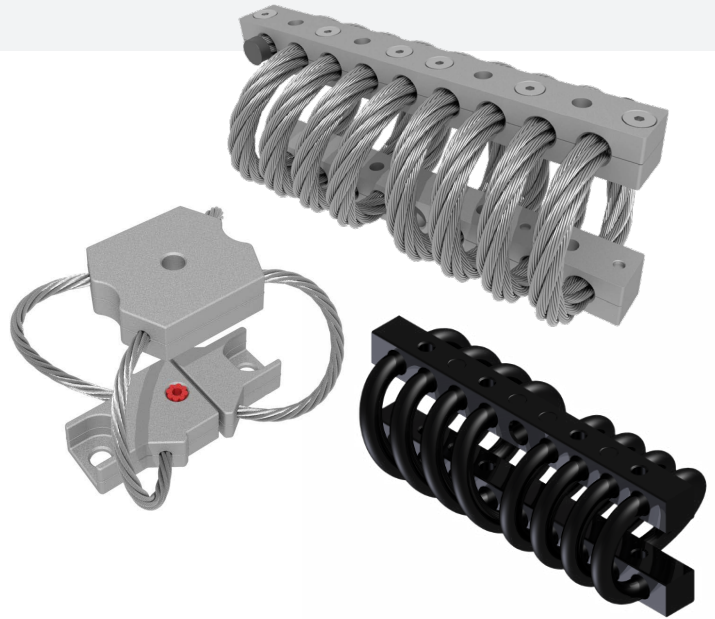
APPLICATION

To ensure safe and continuous operation, or for instance flawless and safe transport of (highly) sensitive equipment, adequate shock and vibration protection is essential. The adequate level of protection is typically predominated by combining the appropriate shock mounts, thorough calculation and understanding of the application. The advantages of the WRI, also know as wire rope mount, lie in its ability to combine a high level of isolation while taking up relatively little space. WRI are captive by their construction and may, for this reason, be loaded in any direction without the risk of malfunctioning. WRI are not subject to aging due to external factors such as oil, saltwater, chemicals, and heat or cold. Most applications of WRI can be found in situations where equipment needs to be mounted against shocks or vibration, but where sound isolation is of minor importance.

CONSTRUCTION

WRI are constructed using an ingenious but relatively simple design. Steel wires are twisted into a cable, which is mounted between bars. Changing the thickness of the cable, the number of loops and the angle of mounting gives a specific behavior under a given shock and/or vibration load. This way of constructing make sit possible to fine-tune the product to the specific requirements, even in case of low quantities. WRI can be supplied according to an almost unlimited number of specifications. Wire rope isolators are maintenance-free and are not subject to aging due to external factors like oil, salt water, chemicals and variations in temperature. Wire rope isolators are captive by their own construction.

For more information about these products, please contact us via antivibration@trelleborg.com.

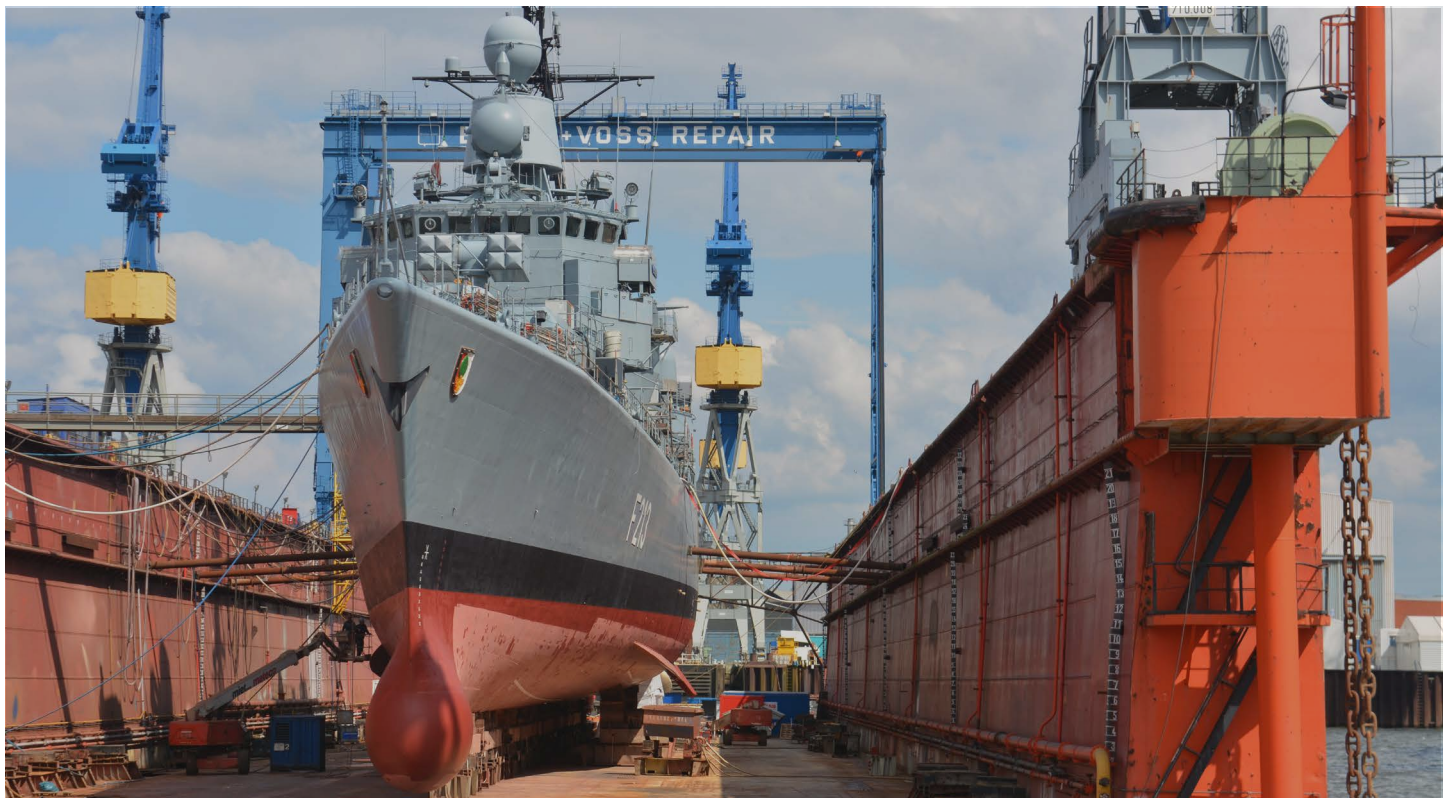


ADVANTAGES

- Suitable for high temperatures
- Temperature independent performance
- Captive design
- Many variations available (dimensions, stiffness)
- Relative high damping grade
- Optionally coated for use in cleanrooms

APPLICATION EXAMPLES

- Switch cabinets
- Electronic equipment
- Small ventilation systems
- Equipment without vibration-source



Leaf Spring Mounts (X-Mount)

PRODUCT DATA

APPLICATION

The Leaf Spring Mount (LSM) was primarily designed to protect shipborne equipment from underwater explosions but has during the years found a large number of applications in both military and civilian use. Although the LSM nowadays is often replaced by newly developed shock mounts, there are some applications where it is still the most effective solution.

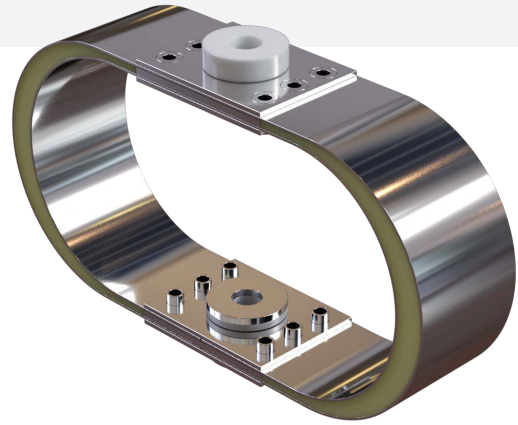
CONSTRUCTION

The basic design uses two or more high-tensile stainless steel U-formed leaves, that together form an elliptical shape when joined together in the center with plates. The spaces between the U-formed leaves are filled with a special epoxy resin compound with high damping properties. The characteristics of the mount under shock load are determined by the chosen metal construction, while the efficiency of the damping is obtained by the epoxy resin. The Y-Mount distinguishes itself from the X-Mount by an additional rubber element at the top which improves sound isolation significantly.

GENERAL

Optional rubber mounting washers/rings instead of nylon inserts are available to improve sound isolation. All LSM-mounts are registered under a NATO Stock Number. Trelleborg AVS-NL CAGE code is H0040.

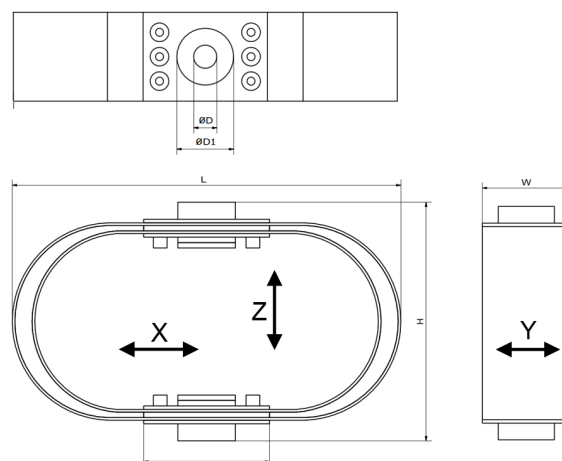
Typical applications of the LSM include but are not limited to engines, switch cabinets, electronic equipment and floating floors on board of various types of naval ships worldwide.



CHARACTERISTICS

- Stainless steel U-formed leaves
- Easily fitted
- Stainless steel leaf and washer
- Epoxy resin compound
- Elastomer and nylon bushes
- Multi-directional shock mount with relatively high damping grade
- Transmitted acceleration limited to 5 G (longitudinal) and to 15 G (vertical and transversal)
- Displacement up to 60mm (vertical) and 40mm (radial)
- Nominal load range: 10 to 450 kg
- Captive design
- Good sound isolation (with optional rubber inserts)
- Temperature range: -20 °C to +40 °C
- Registered under NATO stock numbers (NSN)

TECHNICAL DRAWING



Leaf Spring Mounts (X-Mount)

NOMINAL LOAD (KG)	STATIC LOAD RANGE (KG)	STATIC STIFFNESS (N/mm)			STATIC DEFLECTION ² (mm)	
		X	Y	Z	MIN	MAX
10	9-18	7	17	13	6,2	8,6
20	18-35	14	35	26	6,2	8,6
45	35-55	24	58	44	8,6	11,6
70	55-90	39	91	70	8,2	11,2
110	90-135	61	149	120	7,7	10,5
180	135-250	175	665	350	4,3	5,9
320	250-380	219	788	500	5,4	7,4
450	380-550	385	1400	875	4,3	5,9

NOMINAL LOAD (KG)	ARTICLE NUMBER	NATO STOCK NUMBER (NSN)	DIMENSIONS ¹ (mm)				
			L	H	W	Ø D	Ø D1
10	116001010	5340-99-923-5717	203	114	51	9 (M8)	32
20	116001020	5340-99-923-5718	203	114	51	9 (M8)	32
45	116001045	5340-99-923-5719	216	133	51	13 (M12)	32
70	116001070	5340-99-923-5720	216	133	51	13 (M12)	32
110	116001110	5340-99-923-5721	216	133	51	13 (M12)	32
180	116001180	5340-99-923-5729	297	190	102	21 (M20)	64
320	116001320	5340-99-923-5728	297	190	102	21 (M20)	64
450	116001450	5340-99-923-5727	297	190	102	21 (M20)	64

1 The dimensions are stated in millimeters and apply for an unloaded leaf spring mount.

2 Static deflection of the leaf spring mount at nominal load.

TYPE	PERMISSIVE DEFORMATION (mm)			MAX. TRANSMITTED ACCELERATION AT STATIC LOAD (M/S ²)		
	X	Y	Z	X	Y	Z
All types	± 40	± 40	± 60	50	150	150

RUBBER INSERTS

FOR X-TYPE	INDOOR USE			OUTDOOR USE		
	BUFFER TYPE	ARTICLE NUMBER	NATO STOCK NUMBER (NSN)	BUFFER TYPE	ARTICLE NUMBER	NATO STOCK NUMBER (NSN)
10	7455	146000455	5365-17-100-3500/5340-17-105-5811	7456	146000456	5365-17-100-3501/5340-17-105-5810
20	7455	146000455	5365-17-100-3500/5340-17-105-5811	7456	146000456	5365-17-100-3501/5340-17-105-5810
45	7457	146000457	5365-17-100-3502/5340-17-104-7523	7458	146000458	5365-17-100-3503/5340-17-104-7522
70	7457	146000457	5365-17-100-3502/5340-17-104-7523	7458	146000458	5365-17-100-3503/5340-17-104-7522
110	7457	146000457	5365-17-100-3502/5340-17-104-7523	7458	146000458	5365-17-100-3503/5340-17-104-7522
180	7459	146000459	5340-17-105-5813/5340-17-105-5813	7460	146000460	5365-17-100-3505/5340-17-105-5812
320	7459	146000459	5340-17-105-5813/5340-17-105-5813	7460	146000460	5365-17-100-3505/5340-17-105-5812
450	7459	146000459	5340-17-105-5813/5340-17-105-5813	7460	146000460	5365-17-100-3505/5340-17-105-5812

Leaf Spring Mounts (Y-Mount)

PRODUCT DATA

APPLICATION

The Leaf Spring Mount (LSM) was primarily designed to protect shipborne equipment from underwater explosions but has during the years found a large number of applications in both military and civilian use. Although the LSM nowadays is often replaced by newly developed shock mounts, there are some applications where it is still the most effective solution.

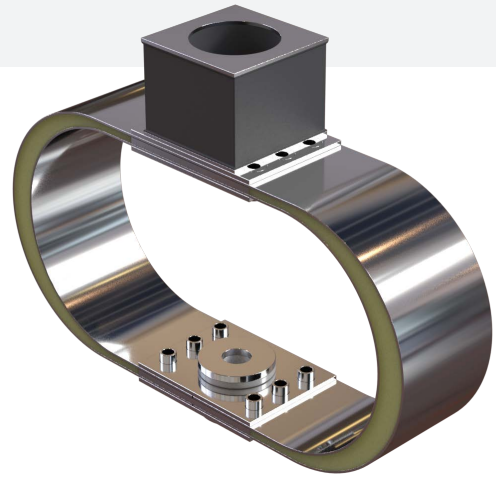
CONSTRUCTION

The basic design uses two or more high-tensile stainless steel U-formed leaves, that together form an elliptical shape when joined together in the center with plates. The spaces between the U-formed leaves are filled with a special epoxy resin compound with high damping properties. The characteristics of the mount under shock load are determined by the chosen metal construction, while the efficiency of the damping is obtained by the epoxy resin. The Y-Mount distinguishes itself from the X-Mount by an additional rubber element at the top which improves sound isolation significantly.

GENERAL

Optional rubber mounting washers/rings instead of nylon inserts are available to improve sound isolation. All LSM-mounts are registered under a NATO Stock Number. Trelleborg AVS-NL CAGE code is H0040.

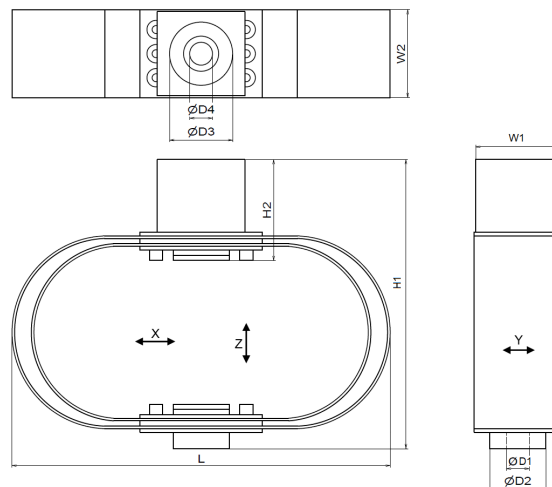
Typical applications of the LSM include but are not limited to engines, switch cabinets, electronic equipment and floating floors on board of various types of naval ships worldwide.



CHARACTERISTICS

- Stainless steel U-formed leaves
- Easily fitted
- Stainless steel leaf and washer
- Epoxy resin compound
- Elastomer and nylon bushes
- Multi-directional shock mount with relatively high damping grade
- Transmitted acceleration limited to 5 G (longitudinal) and to 15 G (vertical and transversal)
- Displacement up to 60mm (vertical) and 40mm (radial)
- Nominal load range: 10 to 450 kg
- Captive design
- Good sound isolation (with optional rubber inserts)
- Temperature range: -20 °C to +40 °C
- Registered under NATO stock numbers (NSN)

TECHNICAL DRAWING



Leaf Spring Mounts (Y-Mount)

NOMINAL LOAD (KG)	STATIC LOAD RANGE (KG)	STATIC STIFFNESS (N/mm)			STATIC DEFLECTION (mm)	
		X	Y	Z	MIN.	MAX.
10	9-18	7	17	13	6,2	8,6
20	18-35	14	35	26	6,2	8,6
45	35-55	24	58	44	8,6	11,6
70	55-90	39	91	70	8,2	11,2
110	90-135	61	149	120	7,7	10,5
180	135-250	175	665	350	4,3	5,9
320	250-380	219	788	500	5,4	7,4
450	380-550	385	1400	875	4,3	5,9

NOMINAL LOAD (KG)	ARTICLE NUMBER	NATO STOCK NUMBER (NSN)	DIMENSIONS ¹ (mm)								
			L	H	H2	W	W2	D	D2	D3	D4
10	116005010	5340-99-778-9769	203	134	41	48	51	9 (M8)	32	36	M6
20	116005020	5340-99-778-9770	203	134	42	48	51	9 (M8)	32	36	M6
45	116005045	5340-99-778-9771	216	166	56	48	51	13 (M12)	32	36	M10
70	116005070	5340-99-778-9772	216	166	57	48	51	13 (M12)	32	36	M10
110	116005110	5340-99-778-9773	216	166	58	48	51	13 (M12)	32	36	M10
180	116005180	5340-99-778-9774	297	229	77	96	102	21 (M20)	64	72	M16
320	116005320	5340-99-778-9775	297	229	79	96	102	21 (M20)	64	72	M16
450	116005450	5340-99-778-9776	297	229	81	96	102	21 (M20)	64	72	M16

1 The dimensions are stated in millimeters and apply for an unloaded leaf spring mount.

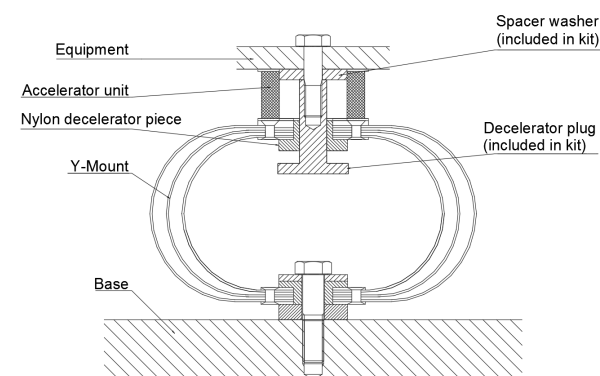
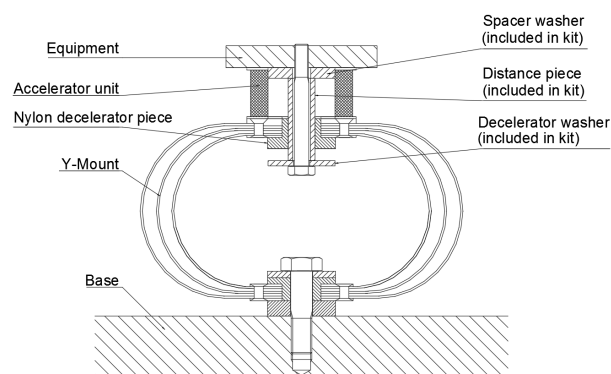
2 Static deflection of the leaf spring mount at nominal load.

TYPE	PERMISSIVE DEFORMATION (mm)			MAX. TRANSMITTED ACCELERATION AT STATIC LOAD (M/S ²)		
	X	Y	Z	X	Y	Z
All types	± 45	± 45	± 60	50	150	150

Y-TYPE SHOCK MOUNT WITH FIX KIT “TYPE 1” AND “TYPE 2”

FOR Y-TYPE	ARTICLE NUMBER	NATO STOCK NUMBERS	
		Y-MOUNT	FIX KIT 1
10	116005016	5340-99-778-9769	5340-99-861-9603
20	116005026	5340-99-778-9770	5340-99-861-9603
45	116005046	5340-99-778-9771	5340-99-702-0730
70	116005076	5340-99-778-9772	5340-99-702-0730
110	116005116	5340-99-778-9773	5340-99-702-0730
180	116005186	5340-99-778-9774	5340-99-968-1694
320	116005326	5340-99-778-9775	5340-99-968-1694
450	116005456	5340-99-778-9776	5340-99-968-1694

FOR Y-TYPE	ARTICLE NUMBER	NATO STOCK NUMBERS	
		Y-MOUNT	FIX KIT 2
10	116005017	5340-99-778-9769	5340-99-131-1422
20	116005027	5340-99-778-9770	5340-99-131-1422
45	116005047	5340-99-778-9771	5340-99-551-2649
70	116005077	5340-99-778-9772	5340-99-551-2649
110	116005117	5340-99-778-9773	5340-99-551-2649
180	116005187	5340-99-778-9774	5340-99-968-1695
320	116005327	5340-99-778-9775	5340-99-968-1695
450	116005457	5340-99-778-9776	5340-99-968-1695



PRODUCT DATA

Shock can be defined as sudden changes of an object's position, velocity and acceleration in a short period of time. Trelleborg's shock mounts are designed to protect structures and equipment from destructive consequences of the shock wave. L and M Type shock mounts are vertical shock mounts that consist of an accelerator and a decelerator. These two components combined protect equipment by absorbing the energy from a shock wave. These mounts are a proven and cost-effective solution for the shock-proof suspension that also provides good vibration isolation, which is ideal for rotating equipment.

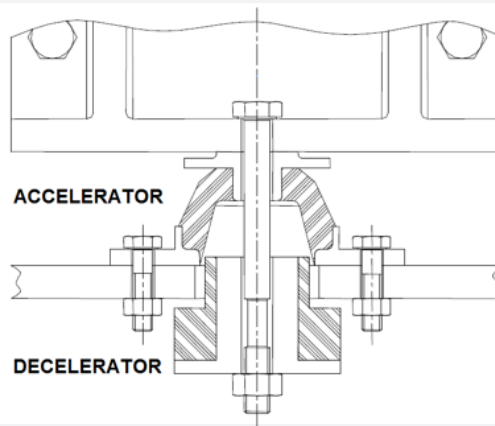
Like other shock mounts from the Trelleborg portfolio, all L and M Type shock mounts are registered under NATO Stock Numbers (NSN). Trelleborg AVS-NL CAGE code is H0040.

CHARACTERISTICS

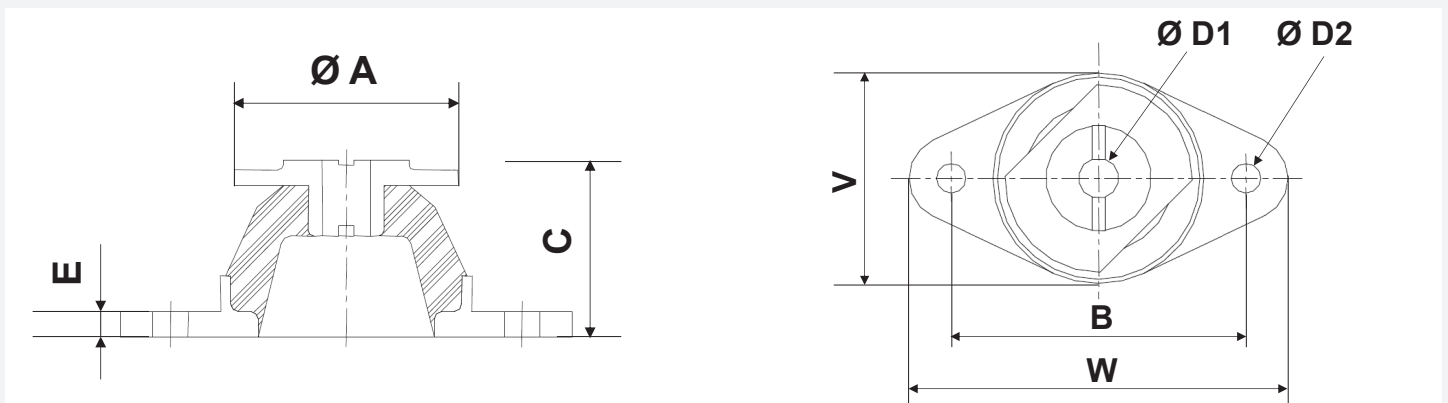
- Made of natural rubber and aluminum bronze
- Captive design (if mounted as illustrated)
- Non-magnetic
- Good vibration isolation
- Painted rubber part (black/standard)
- Nominal load range: from 10 to 450 kg.
- Temperature range: from -30 to 70 °C



TECHNICAL DRAWING

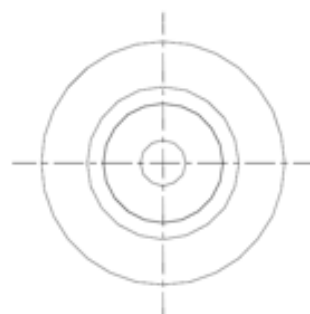
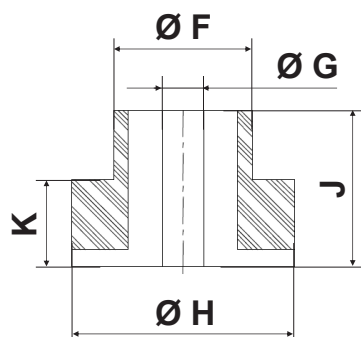


ACCELERATOR



L and M Type Mounts

DECELERATOR



TYPE	ARTICLE NO.	NATO STOCK NO.	DIMENSIONS (MM)								MATCHES DECELERATOR
			Ø A	B	C	Ø D1	Ø D2	E	V	W	
L	115400204	5340-99-541-2542	44	70	35	9,5	7	6	54	86	115400206
L	115400304	5340-99-541-2543	49	76	37	11	7	6	60	92	115400306
L	115400404	5340-99-541-2544	57	89	40	14	11	6	67	111	115400406
L	115400604	5340-99-541-2545	59	92	41	14	11	6	68	114	115400606
L	115401004	5340-99-541-2546	70	105	49	14	11	8	83	127	115401006
L	115401504	5340-99-541-2547	83	124	57	19,5	14	10	95	152	115401506
L	115402504	5340-99-541-2548	89	130	59	21	14	13	102	158	115402506
M	115410004	5340-99-531-8247	168	238	114	22	13,5	25	195	289	115410006

TYPE	ARTICLE NO.	NATO STOCK NO.	DIMENSIONS (MM)					MATCHES DECELERATOR
			Ø F	Ø G	Ø H	J	K	
L	115400206	5340-99-541-2549	32	9,5	51	32	16	115400204
L	115400306	5340-99-541-2550	32	11	51	33	16	115400304
L	115400406	5340-99-541-2551	38	14,5	57	36	19	115400404
L	115400606	5340-99-541-2552	38	14,5	57	38	19	115400604
L	115401006	5340-99-541-2553	45	14,5	67	39	19	115401004
L	115401506	5340-99-541-2554	45	17,5	67	43	19	115401504
L	115402506	5340-99-541-2555	48	20,5	70	44	19	115402504
M	115410006	5340-99-531-8248	44,5	22	82,6	44,4	19	115410004

TYPE	ACCELERATOR/DECELERATOR COMBINATION		NOMINAL LOAD (KG)	STATIC DEFLECTION (MM)	AXIAL NATURAL FREQUENCY (HZ)	MAX. SHOCK DEFLECTION	
						ACCELERATION (MM)	DECELERATION (MM)
L	115400204	115400206	10	3,8	8 / 10	19	9,5
L	115400304	115400306	14	2,8	8 / 10	19	9,5
L	115400404	115400406	18	4,1	9 / 10	19	9,5
L	115400604	115400606	27	4,6	8,5 / 9	19	9,5
L	115401004	115401006	45	5,2	7,5 / 9	25	9,5
L	115401504	115401506	70	5,5	7 / 8	25	9,5
L	115402504	115402506	115	6,0	6,5 / 8	25	9,5
M	115410004	115410006	450	16	4,1 / 5,1	31,7	9,5

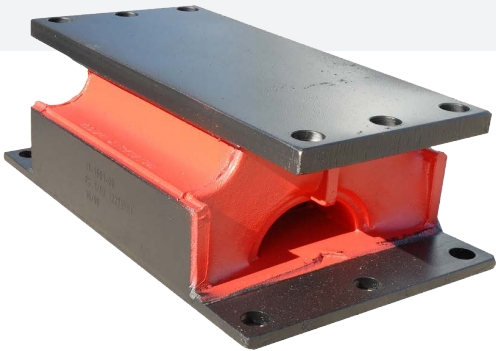
D-Series Mounting

D-SERIES MOUNTING

Metalastik D Series Mountings are suitable for the suspension of heavy equipment or machinery where insulation against low-frequency vibration is required with the additional benefit of excellent high-frequency acoustic attenuation.

- Medium-speed diesel engines
- Marine main propulsion engines
- Marine auxiliaries

The relatively large rubber volume ensures high degrees of insulation against low-frequency disturbing vibrations. Differing stiffness rates in the two horizontal modes optimize suspension characteristics through appropriate mounting orientation. The mountings can be used in conjunction with additional bonded rubber buffers to limit movement of the suspended equipment under shock loading. Parts can be supplied to meet naval specification requirements or with plain flanges for additional drilling.

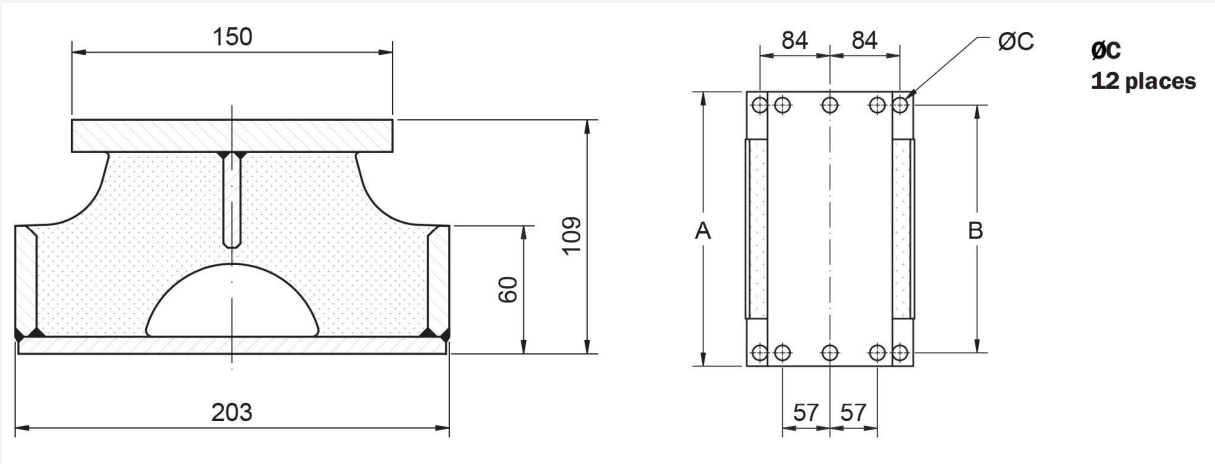


Applications include :

- Medium-speed marine propulsion engines
- Generator sets
- Gearboxes
- Pumps
- Compressors and refrigeration systems

TYPE	A	B	C	WEIGHT (kg)	STATIC VERTICAL STIFFNESS (kN/mm)	DYNAMIC VERTICAL STIFFNESS (N/mm)	MAXIMUM STATIC LOAD (kN)
17/1601	330	298	18	15	880	1010	14.2
17/1601					1315	1640	21
17/1601					1960	2650	31.4
17/1602	267	235	12	12	805	920	12.75
17/1602					1200	1520	19
17/1602					1710	2320	27.5
17/1603	210	178	9	9	410	470	6.6
17/1603					610	755	9.5
17/1603					900	1215	14.2
VERTICAL	LATERAL		LONGITUDINAL				
1	0.95		0.17				

TECHNICAL DRAWING



DX Mount

DX MOUNT

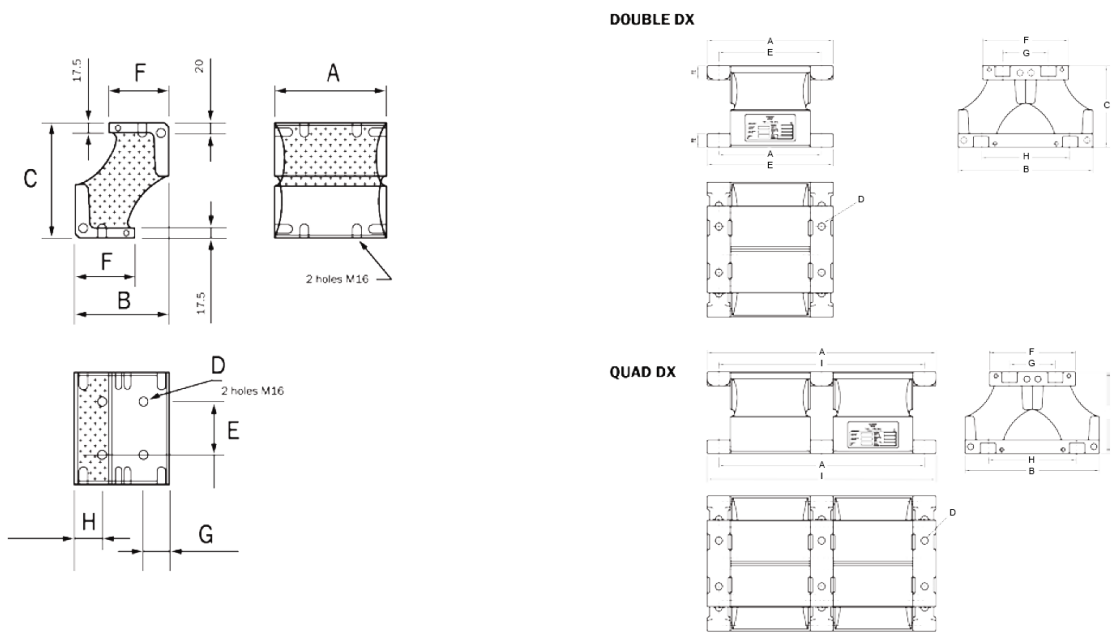
DX mountings complement the other two mounting types in the range and provide an extended shock deflection capability of up to 100 mm in the vertical direction. This allows non-ruggedised equipment to be used in military marine applications.

The DX mounting can be used as a single element in confined spaces. The loading and stiffness properties shown in the graphs refer to a mounting assembly comprised of four bonded rubber/metal elements. Each element is generally similar to product no. 17-2196, which may be used in pairs to provide substantially the same vertical and horizontal stiffness rates. This is similar to two sandwich mountings inclined at 45 degrees but with flat fixing surfaces resulting in simplified and compact installation.



TYPE	DIMENSIONS (mm)								HARDNESS	MAX LOAD (kN)	WEIGHT (kg)
	A	B	C	D	E	F	G	H			
Single DX 17/2196	210	177	211	M16	100	113	50	50	50	10	17
									60	15	
									70	22	
Double DX 17/2266	330	353	211	18	270	226	120	230	50	20	50
									60	30	
									70	45	
Quad DX 17/2267	600	353	211	18	540	226	120	230	50	40	94
									60	60	
									70	90	

TECHNICAL DRAWING



Super D Mounting

SUPER D MOUNTING

The "Super D" mounting range is designed primarily for heavy marine installations requiring increased shock capacity. These mountings operate at a nominal static deflection of 23 mm and can accommodate up to 50 mm shock excursions in any direction. Buffer 15-3671 with low-friction contact pad is often used with Super D mounts to limit movement under extreme shock forces, particularly as a nonmetallic rake and ramming stop.



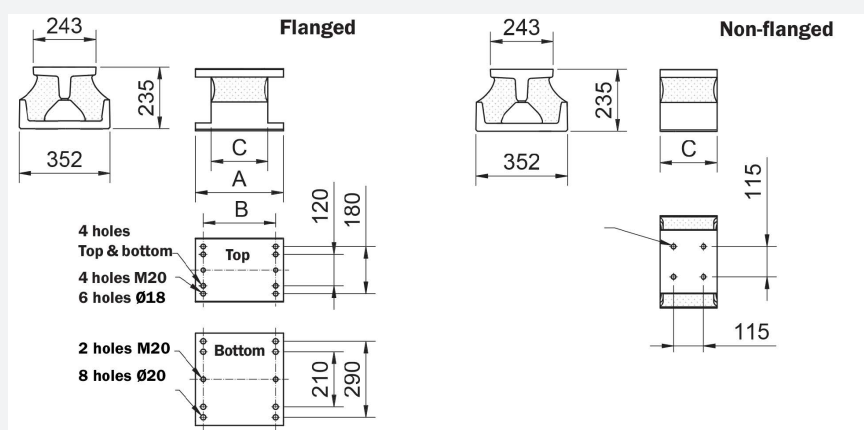
TYPE FLANGED	A	B	C	WEIGHT (kg)	RUBBER HARDNESS	STATIC VERTICAL STIFFNESS (N/mm)	DYNAMIC VERTICAL STIFFNESS (N/mm)	MAXIMUM STATIC LOAD (kN)
17-1736	340	280	220	65	45	620	710	14.2
					55	920	1160	21
					65	1375	1965	31.5
17-1737	410	350	290	81	45	835	960	19
					55	1275	1180	29.5
					65	1960	2650	44
17-1738	480	420	420	97	45	1325	1520	30.5
					55	1960	2450	45
					65	2940	3975	67.8

VERTICAL	LATERAL	LONGITUDINAL
1	0.95	0.17

TYPE NON-FLANGED	A	B	C	WEIGHT (kg)	RUBBER HARDNESS	STATIC VERTICAL STIFFNESS (N/mm)	DYNAMIC VERTICAL STIFFNESS (N/mm)	MAXIMUM STATIC LOAD (kN)
17-1661	-	-	220	48.5	45	620	710	14.2
					55	920	1160	21
					65	1375	1965	31.5
17-1662	-	-	290	64	45	835	960	19
					55	1275	1180	29.5
					65	1960	2650	44
17-1663	-	-	360	80	45	1325	1520	30.5
					55	1960	2450	45
					65	2940	3975	67.8

VERTICAL	LATERAL	LONGITUDINAL
1	1	0.22

TECHNICAL DRAWING

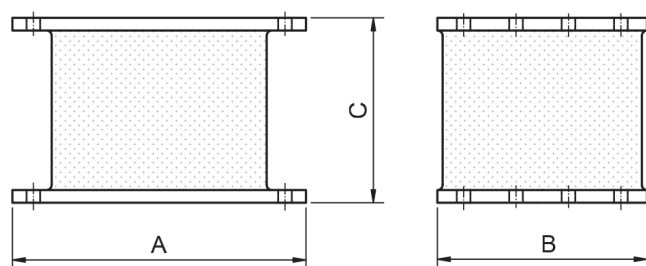


Sandwich Mounting

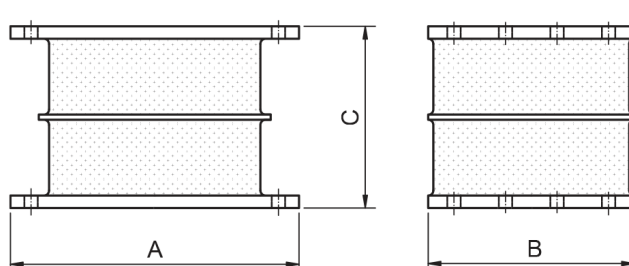
This range of mountings is suited to the suspension of heavy equipment and machinery, and is extensively used as a flexible mounting for large medium speed diesel marine propulsion units. The ratio of compression to shear stiffness rates can be varied by incorporating rigid interleave plates in the rubber section, thereby enabling the overall suspension properties to be optimized to isolate the major disturbing vibrations. The mountings are usually installed in a vee arrangement and when correctly positioned, afford a high level of vibration isolation whilst at the same time keeping movement of the suspended equipment, under the action of external forces, to a minimum.



Non interleaved



Interleaved



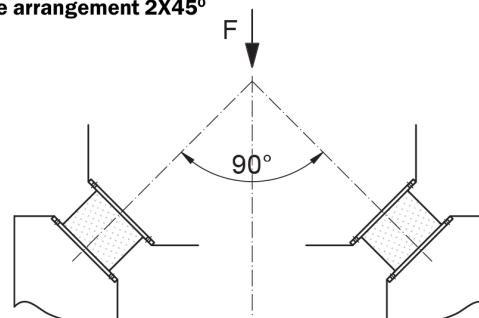
DRAWING NO.	TYPE	DIMENSIONS (MM)			NO. OF INTER-LEAVES	MAX. LOAD COMPRESSION (MM)	MAX. STATIC DEFLECTION COMPRESSION (MM)	COMPRESSION STIFFNESS (N/MM)		SHEAR STIFFNESS (N/MM)		VEE ARRANGEMENT 2X45°		WEIGHT (KG)
		A	B	C				STATIC	DYN	STATIC	DYN	MAX. VERTICAL LOAD (K/N)	MAX. VERTICAL DEFLECTION (MM)	
17-1666	45 IRH	280	200	175	-	11.8	15	890	1000	120	150	20.5	21	17.2
	60 IRH	280	200	175	-	22		1650	2170	250	325	38	21	
17-1742	45 IRH	280	200	127	-	13.2	10	1600	1840	200	230	24	14	14
	60 IRH	280	200	127	-	24.5		3000	3900	375	490	46	14	
17-1783	45 IRH	460	268	109	-	46	8.5	5750	6610	600	690	69	11	29.8
	60 IRH	460	268	109	-	84		10750	14000	1125	1460	132	11	
17-2181	45 IRH	460	268	109	1	83	8	13500	15500	515	590	147	10.5	30.5
	60 IRH	460	268	109	1	155		25500	33200	965	1255	280	10.5	
17-0434	45 IRH	460	268	109	2	224	7.5	28750	33000	575	660	310	10.5	34
	60 IRH	460	268	109	2	417		53900	70000	1080	1400	584	10.5	

N.B in many cases, the horizontal shear stiffness rates will reduce under compressive forces, - see graph overleaf

Vee arrangements 2 x 45 degree

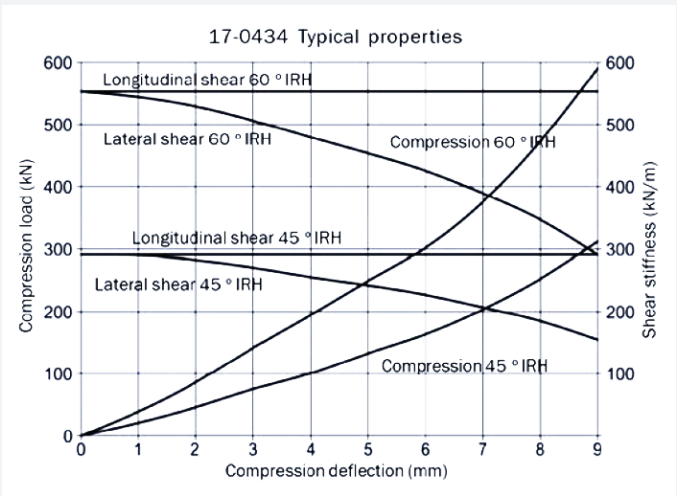
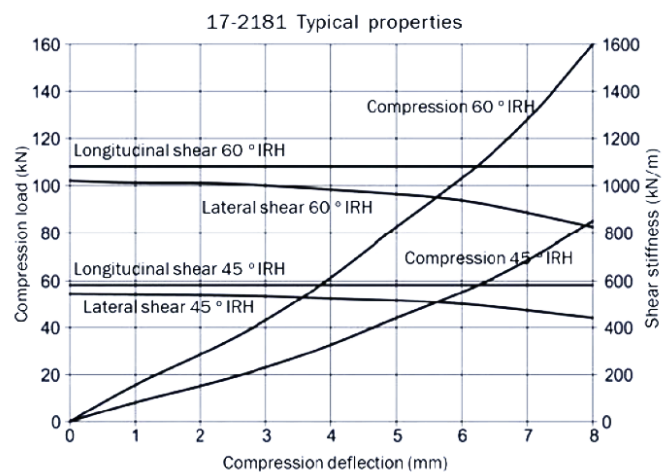
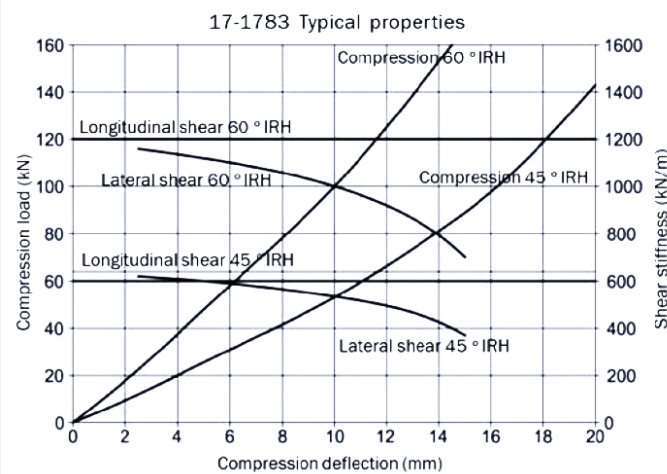
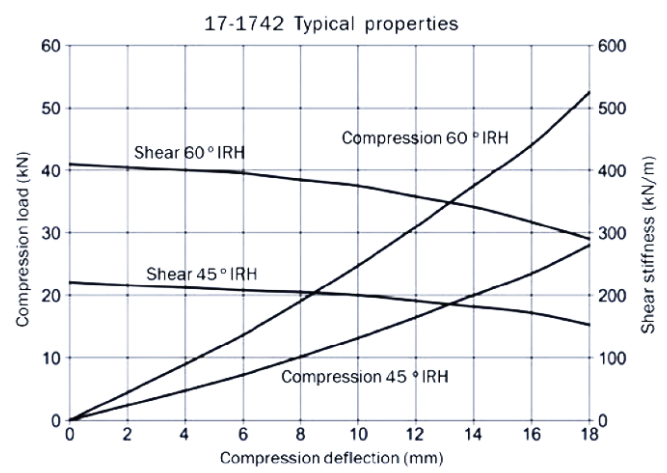
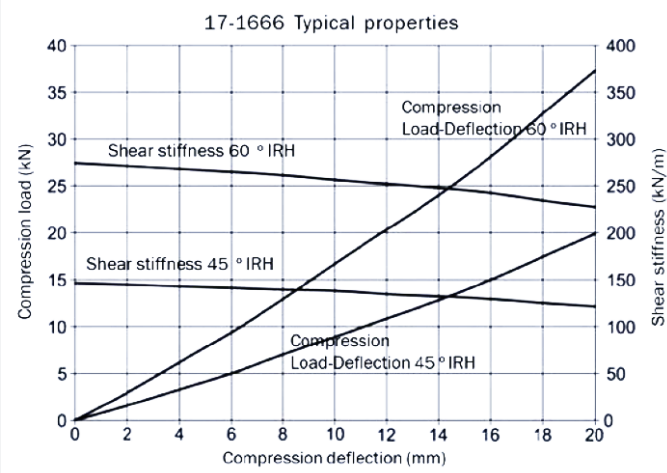
DRAWING NO.	RUBBER HARDNESS	MAX. STATIC VERTICAL LOAD (KN)	MAX. STATIC VERTICAL DEFLECTION (MM)
17-1666	45	20.5	21
	60	38	
17-1742	45	24	14
	60	46	
17-1783	45	69	11
	60	132	
17-2181	45	147	10.5
	60	280	
17-0434	45	310	10.5
	60	584	

Vee arrangement 2X45°



Sandwich Mounting

TECHNICAL DRAWING

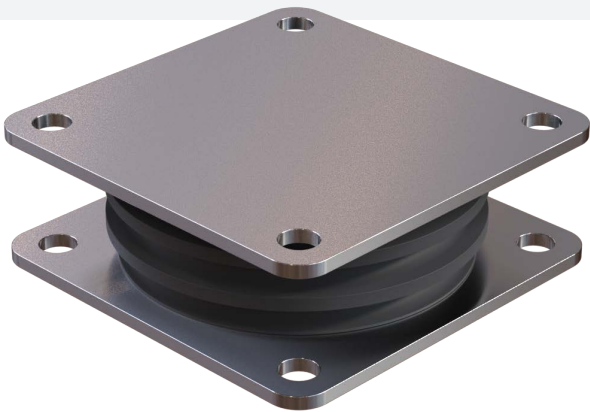


SAW Mounting

PRODUCT DATA

SAW mounts are heavy duty mountings for static and shock loads in compression. The mounts provide high isolation in the horizontal shear direction.

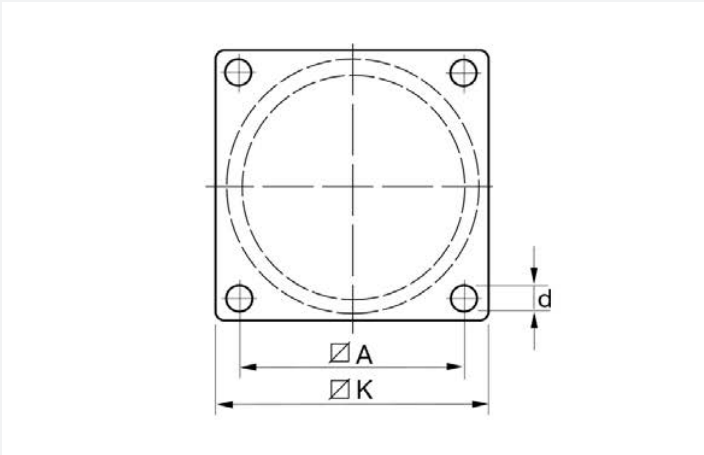
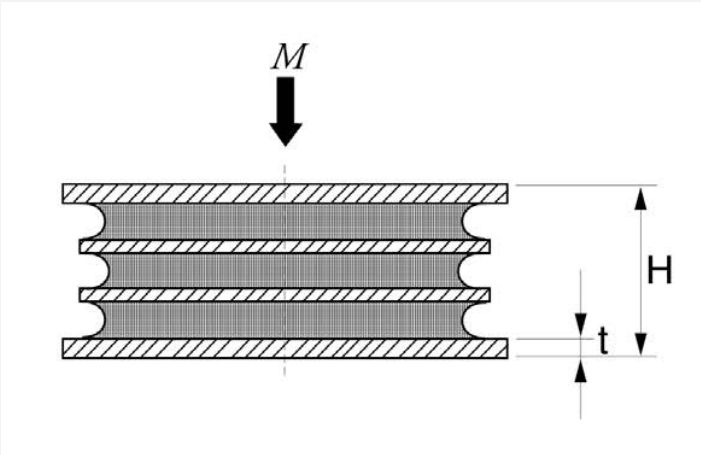
SAW mountings consist of a cylindrical shaped rubber section with integrally bonded inter-leaf metal plates, bonded between two square heavy duty outer metal fixing plates. Designed for large compressive forces with minimum deformation, while providing low shear stiffness rates. The combination of a stable low installation height, high compressive strength and low shear stiffness makes SAW a versatile high performance anti-vibration mounting. The 4 clearance holes in each fixing plate allow easy installation.



By connecting two SAW-elements in a series, i.e. one on top of the other, an increased isolation efficiency is achieved in both shear and compression planes. Where larger deflections are required in the vertical plane, SAW mountings are mounted at a calculated angle configuration to provide the optimum spring rate.

- Typical Applications Include:**
- Crushers
 - Edge Runners
 - Mills
 - Hoppers and feeders
 - Grinders
 - Vibratory rollers
 - Screens

TECHNICAL DRAWING



DRAWING NO.	PART NO.	TYPE	DIMENSIONS (MM)					MAX LOAD M (KG)	WEIGHT (KG)
				K	H	D	T		
17-4058	10-00141-01	SAW 125 40 IRH	118	148	52	13.5	5	2250	2.6
17-4058	10-00142-01	SAW 125 60 IRH	118	148	52	13.5	5	4500	2.6
17-4059	10-00143-01	SAW 150 40 IRH	136	166	63	13.5	6	3750	4.1
17-4059	10-00144-01	SAW 150 60 IRH	136	166	63	13.5	6	7500	4.1
17-4060	10-00075-01	SAW 200 40 IRH	184	220	82	17	8	6000	9.2
17-4060	10-00076-01	SAW 200 60 IRH	184	220	82	17	8	12000	9.2
17-4061	10-00077-01	SAW 300 40 IRH	270	310	120	22	10	15000	27
17-4060	10-00078-01	SAW 300 60 IRH	270	310	120	22	10	30000	27

SAW Mounting (Rectangular)

Rectangular SAW mountings are also known as 'Sandwich' mountings because they feature a rubber section sandwiched between plates of metal.

This arrangement allows a large difference between the compression and shear stiffnesses, thus providing the potential to 'tune' a mounting system by rotating the mountings.

The Rectangular SAW Mountings have the following features:

- Available with plate or stud fixings
- Can be loaded in compression or shear, or a combination of both, for example in a 'Vee' arrangement
- Can be manufactured with or without interleaves to change the ratio of shear to compression stiffness

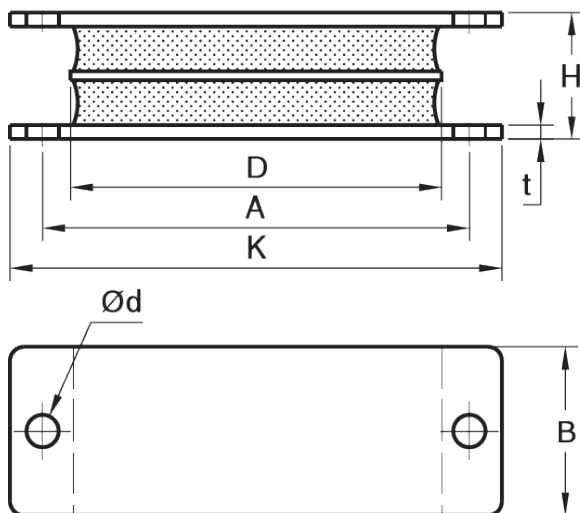
Typical Applications Include:

- Low frequency machinery
- Vibratory screens
- Crushing equipment
- Engine mounts

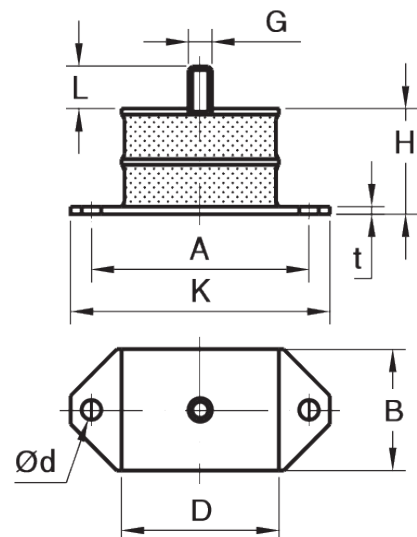


TECHNICAL DRAWING

PLATE FIXING



BOLT FIXING



SAW Mounting (Rectangular)

PRODUCT DATA

DRAWING NO.	PART NO.	TYPE	DIMENSIONS (mm)								MAX. LOAD (Kg)		STIFFNESS (N/mm)	
			A	B	K	H	D	Ød	t	Offsets	COMPRESSION	SHEAR	COMPRESSION	SHEAR
SAW (RECTANGULAR PLATE FIXING)														
31-0322	10-00658	45 °IRHD	89	57	108	43	63.5	11	5	-	180	50	895	36
	10-00659	60 °IRHD									360	75	1530	72
31-0242	10-00648	45 °IRHD	146	57	168	43	127	11	5	-	450	120	1765	80
	10-00651	60 °IRHD									900	150	3408	160
	10-00652	70 °IRHD									1050	150	6343	240
31-0285	10-00656	45 °IRHD	14	57	168	43	127	11	5	-	275	150	767	72
	10-00657	60 °IRHD									546	150	1655	144
051 18 004	96787	45 NR 11	146	57	168	51	117.5	10.8	4	11	140	110	400	70
	96788	55 NR 11									280	190	800	130
	96789	60 NR 11									306	200	870	150
	96790	70 NR 11									470	220	1340	200
051 18 723	49038296	60NR11	295	112	322	90	-	14	8	12	800	550	2700	460
051 18 002	96791	45 NR 11	146	57	168	43.2	127	10.8	4	-	740	170	2740	130
	96793	55 NR 11									900	220	3330	200
	96792	65 NR 11									1510	240	5590	240
	96794	70 NR 11									1890	300	7000	380
051 18 719	49002463	60 NR 11	-	110	290	50	240	-	10	-	2500	580	12500	480
051 18 720	49002649	45 NR 11	235	170	255	49	140	9	6	-	4100	400	20500	500
	49002650	60 NR 11									9800	750	49000	940

DRAWING NO.	PART NO.	TYPE	DIMENSIONS (mm)									MAX. LOAD (kg)		STIFFNESS (N/mm)	
			A	B	K	H	ØD	Ød	t	G	L	COMPRESSION	SHEAR	COMPRESSION	SHEAR
SAW (RECTANGULAR BOLT FIXING)															
31-0406	10-00661	45 °IRHD	74.5	41	89	36	54	6.5	2.5	M8	14	90	40	290	29
	10-00971	60 °IRHD										180	70	560	57
	10-00663	70 °IRHD										250	90	832	85
051 18 001	96796	45 NR 11	75	41	90	35.8	54	6.5	2.5	M8	14	120	44	500	40
	96797	50 NR 11										150	50	630	50
	96798	60 NR 11										230	60	960	80
	96745	70 NR 11										300	80	1250	110

Application Questionnaire

CUSTOMER INFORMATION

Inquiry from	
Telephone NO.	
Fax NO.	
E-mail Address	
End User	

APPLICATION DETAILS

Application Description	
Mobile or Stationary	
Total Number of Installations	
Minimum temperature @ mountings (°C)	
Maximum temperature @ mountings (°C)	
Environmental Conditions	

EQUIPMENT DETAILS

Manufacturer						
Model						
Weight (kg)						
Speed Range (rpm)						
NO. of Cylinders						
Cylinder Configuration						
Mass Moments of Inertia (kg/mm ²)	Ixx		Iyy		Izz	
C.O.G from datum RFOB (mm)	X		Y		Z	
Block Sizes (mm)	X		Y		Z	

TRANSMISSION DETAILS (FOR SELF-EXCITATION EQUIPMENT)

Manufacturer						
Model						
Weight (kg)						
NO. of Cylinders						
Cylinder Configuration						
Mass Moments of Inertia (kg/mm ²)	Ixx		Iyy		Izz	
C.O.G position from Datum (mm)	X		Y		Z	
Block Size (mm)	X		Y		Z	

MOUNT INFORMATION

Mount Number	Position from datum (RFOB)		
	X	Y	Z
1			
2			
3			
4			
5			
6			

FURTHER INFORMATION

Please supply a drawing of proposed layout.
Have all suspended masses been detailed?
Are there any mounting point restrictions?

Please fax, scan or post the completed questionnaire back to your sales contact or our technical center. Contact details are available on the back cover of this catalogue.

Alternatively you can contact us via our website www.trelleborg.com/anti-vibration-solutions/contact or via our app MountFinder Pro.

Notes

MountFinder Pro

Find your perfect anti-vibration mount with the new MountFinder Pro mobile application.

MountFinder Pro directly measures your machines RPM to help determine the very best anti-vibration solution for your application.

Available for download now from iTunes and the Google Play store.





Using advanced polymer technology, Trelleborg's Antivibration Solutions (AVS) operation specializes in the field of rubber-to-metal bonding for the removal of unwanted noise and vibration. Part of the Industrial Solutions division of Trelleborg Group, we harness over 100 years of experience to solve a wide range of application and environmental challenges in sectors including rail, marine, industrial and off-highway. Focused on isolation, attenuation and suspension solutions of unrivalled quality and reliability, we have a reputation for high quality, outstanding performance and long service life. Our commitment and expert polymer technologies optimize comfort, health and safety while creating maximum business value through improved longevity, productivity and cost effectiveness.

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