

P+S

IMPACT BUFFERS AND DAMPERS



P+S Polyurethan-Elastomere GmbH & Co. KG
Kielweg 17 · DE-49356 Diepholz



P+S POLYURETHAN-ELASTOMERE GMBH & CO. KG

The **dynamic and highly resilient** construction elements made of polyurethane elastomers have been impressing customers from a wide range of industries since 1972.

Both compact and foamed elastomers are characterised by outstanding technical properties. Customers from all over the world rely on the environmentally friendly elastomers from P+S.

Creative solution competence, a **strong knowledge of the industry**, modern polyurethane materials, as well as a **high degree in adherence to**

lead times and service orientation, are essential components of our corporate culture.

With the achievement of our **certifications**:

- ISO 9001:2015 (Quality Management)
- ISO 14001:2015 (Environmental Management)
- ISO 45001:2018 (Occupational Health and Safety)

we are regularly confirmed that we design our processes to be efficient as well as sustainable and energy-saving.





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IMPACT BUFFERS MADE OF DIEPOCELL® BM

Description, instructions for use and versions available

DESCRIPTION:

Discover the outstanding properties of **P+S impact buffers and dampers**, made from the innovative DIEPOCELL® BM polyurethane foam. This unique material combines exceptionally high damping and impressive load absorption with remarkable robustness.

DIEPOCELL® BM impact buffers are characterised not only by their resistance to many oils and greases, but also to ozone, UV radiation and ageing. They are hydrolytically stable, which means that they can also be used in areas with high humidity, such as harbour areas and tropical climates.

With an operating temperature range from -40 to

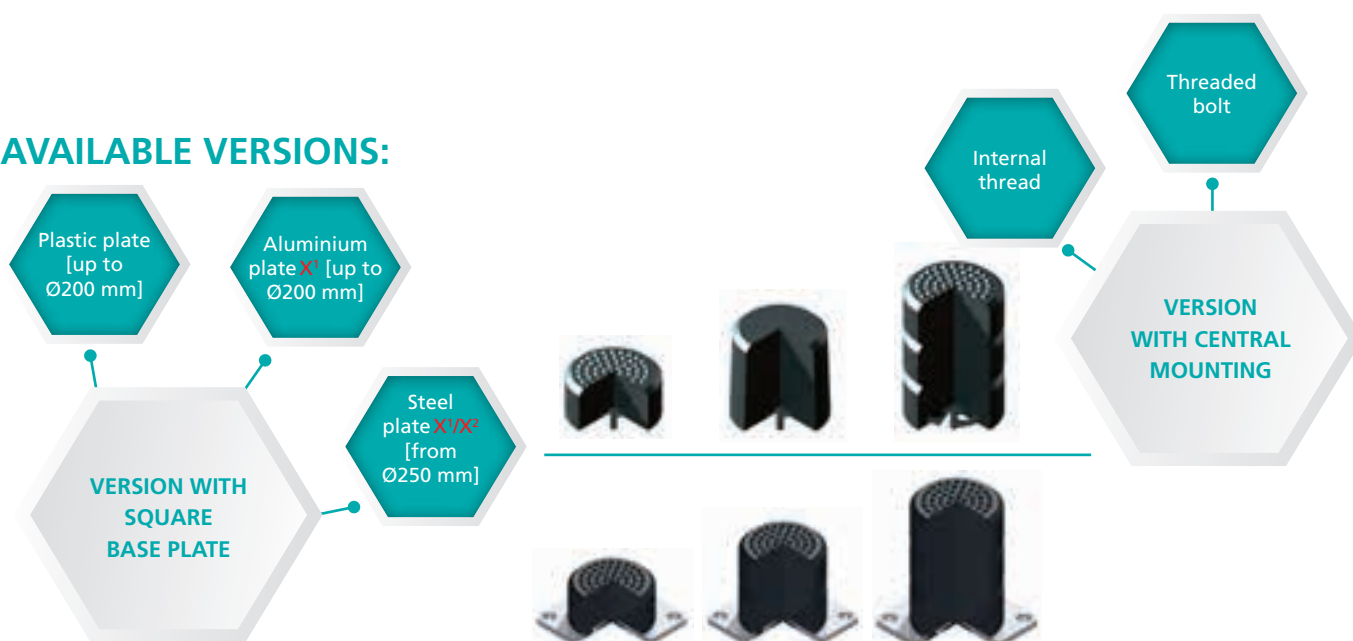
+80 °C, the impact buffers are extremely versatile. Short-term temperature peaks of up to +100 °C are also permissible. However, it should be noted that use at temperatures below 0 °C can lead to hardening of the material, affects the load limits accordingly.

You can rely on the proven quality and performance of **P+S impact buffers and dampers made from DIEPOCELL® BM**. Whether in industrial applications or in demanding environments, these products offer you the reliability and durability you need. Check the wide range of possible applications and benefit from the outstanding properties of this unique material.

NOTES ON THE USE OF P+S IMPACT BUFFERS AND DAMPERS:

- We recommend using the buffer elements in the range of 20 – 70 % deflection.
- Buffer elements with central mounting and a height of ≤ 100 mm must never be loaded above 70 %, as there is a risk of permanent deformation.
- A transverse expansion of the buffers of up to approx. 50 % under full load must be taken into account.
- When using a **P+S buffer element**, a full-surface contact area and counter-pressure area must be guaranteed in order to achieve the technical load values specified later.
- We advise not to use buffer elements against each other (buffer on the crane against buffer on the stop), as this can cause buckling effects.
- Information on the calculation and design of the impact buffers is provided on the following page.
- Technical load curves and recommended load ranges can be found from page 7 onwards.

AVAILABLE VERSIONS:



^{X1} Impact buffers from size Ø160 mm are optionally available with additional cable safety device.

^{X2} Impact buffers with steel plate are optionally available with hot-dip galvanised base plate or additional painting of the base plate.

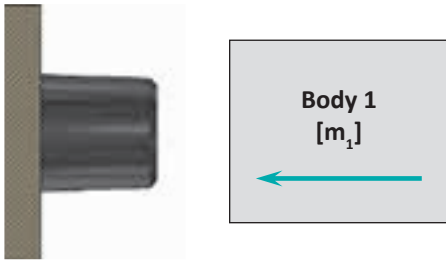


CALCULATION BASIS FOR VARIOUS SITUATIONS:

MOVING MASS AGAINST FIXED STOP:

$$W = 0.5 * m_1 * v_1^2$$

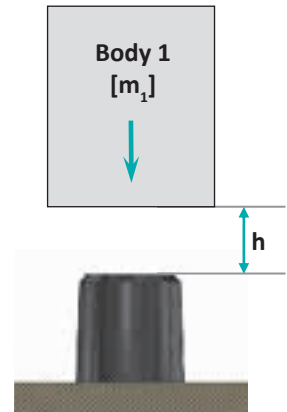
W = kinetic energy [J]
 m_1 = mass of body 1 [kg]
 v_1 = velocity of body 1 [m/s]



FREE FALL:

$$W = m_1 * g * h$$

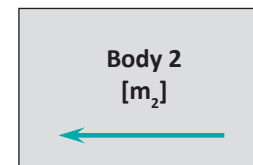
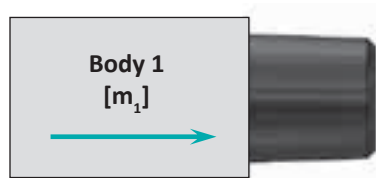
W = kinetic energy [J]
 m_1 = mass of body 1 [kg]
 g = gravitational acceleration (9.81) [m/s²]
 h = distance from mass to buffer [m]



MOVING MASS AGAINST MOVING MASS:

$$W = \frac{m_1 * m_2 * (v_1 + v_2)^2}{2 * (m_1 + m_2)}$$

W = kinetic energy [J]
 m_1 = mass of body 1 [kg]
 m_2 = mass of body 2 [kg]
 v_1 = velocity of body 1 [m/s]
 v_2 = velocity of body 2 [m/s]



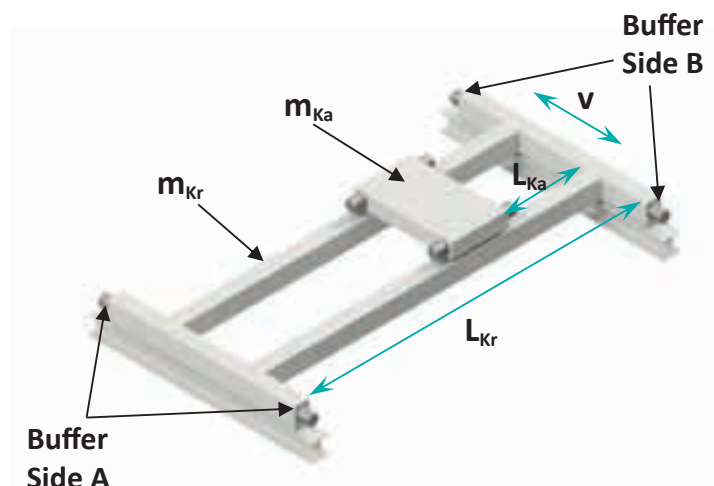
CRANE BUFFER CALCULATION (TROLLEY):

$$W_B = 0.5 * m_B * v^2$$

$$m_B = \frac{m_{Kr}}{2} + \frac{m_{Ka} * (L_{Kr} - L_{Ka})}{L_{Kr}}$$

A = buffer on side A of the crane
 B = buffer on side B of the crane
 W_B = kinetic energy at buffer side B [J]
 m_B = mass to be taken into account on buffer side B [kg]
 v = acting velocity [m/s]

m_B = mass to be taken into account on side B [kg]
 m_{Kr} = mass of crane base body [kg]
 m_{Ka} = trolley mass [kg]
 L_{Kr} = distance from side A to side B [m]
 L_{Ka} = distance trolley to side B [m]



Attention:

Oscillating masses are not taken into account in this calculation. Reduced speeds in accordance with applicable DIN standards should also be taken into account. Any momentum in the application should also be taken into account.

IMPACT BUFFERS MADE OF DIEPOCELL® BM

Overview of load values

NOMINAL SIZE	DIMENSIONS		RECOMMENDED LOAD RANGE						LINK TO THE LOAD DIAGRAM
	ØD	HEIGHT	BUFFER DEFLECTION		STATIC LOAD		DYNAMIC LOAD WITH 1 – 4 m/s		
	[mm]	[mm]	[%]	[mm]	Work intake [kJ]	Final force [kN]	Work intake [kJ]	Final force [kN]	
70	70	70	20	14	0.01	1.75	0.04	6.40	Page 7
			70	49	0.34	14.00	1.24	50.00	
80	80	40	20	8	0.01	2.30	0.03	6.70	Page 8
			70	28	0.28	20.00	0.85	60.00	
	80	80	20	16	0.02	1.90	0.05	5.80	
			70	56	0.41	15.00	1.25	44.00	
	80	120	20	24	0.02	1.80	0.07	5.60	
			70	84	0.60	14.00	1.80	42.00	
100	100	50	20	10	0.02	3.50	0.05	10.50	Page 9
			70	35	0.55	31.00	1.65	95.00	
	100	100	20	20	0.04	3.00	0.09	9.00	
			70	70	0.80	23.00	2.45	70.00	
	100	150	20	30	0.04	2.90	0.13	8.80	
			70	105	1.15	21.00	3.45	66.00	
125	125	63	20	13	0.03	5.50	0.10	16.40	Page 10
			70	44	1.10	50.00	3.30	148.00	
	125	125	20	25	0.06	4.70	0.17	14.10	
			70	88	1.60	36.00	4.75	108.00	
	125	190	20	38	0.08	4.50	0.26	13.70	
			70	133	2.30	34.00	6.85	103.00	
160	160	80	20	16	0.07	8.90	0.22	26.80	Page 11
			70	56	2.25	81.00	6.80	243.00	
	160	160	20	32	0.12	7.70	0.37	23.20	
			70	112	3.30	59.00	9.90	178.00	
	160	240	20	48	0.18	7.50	0.54	22.40	
			70	168	4.70	56.00	14.10	168.00	
200	200	100	20	20	0.14	14.00	0.42	42.00	Page 12
			70	70	4.40	127.00	13.30	380.00	
	200	200	20	40	0.24	12.00	0.72	36.00	
			70	140	6.50	93.00	19.40	278.00	
	200	300	20	60	0.35	11.60	1.00	35.00	
			70	210	9.30	88.00	27.70	264.00	
250	250	125	20	25	0.27	22.00	0.82	66.00	Page 13
			70	88	8.80	198.00	26.00	595.00	
	250	250	20	50	0.47	19.00	1.40	57.00	
			70	175	12.70	145.00	38.00	435.00	
	250	375	20	75	0.69	18.00	2.10	55.00	
			70	263	18.00	137.00	54.00	412.00	
315	315	158	20	32	0.55	35.00	1.60	105.00	Page 14
			70	111	17.00	314.00	52.00	944.00	
	315	315	20	63	0.94	30.00	2.80	90.00	
			70	221	25.00	230.00	76.00	690.00	
	315	475	20	95	1.40	29.00	4.10	87.00	
			70	333	35.00	210.00	104.00	627.00	
400	400	200	20	40	1.10	56.00	3.40	168.00	Page 15
			70	140	36.00	508.00	106.00	1532.00	
	400	400	20	80	1.90	48.00	5.80	144.00	
			70	280	52.00	370.00	155.00	1113.00	
	400	600	20	120	2.80	46.00	8.40	140.00	
			70	420	74.00	351.00	221.00	1054.00	
500	500	250	20	50	2.20	87.00	6.60	260.00	Page 16
			70	175	70.00	793.00	209.00	2380.00	
	500	500	20	100	3.80	76.00	11.40	226.00	
			70	350	101.00	580.00	305.00	1741.00	
	500	750	20	150	5.50	73.00	16.40	219.00	
			70	525	144.00	550.00	432.00	1650.00	
600	600	300	20	60	3.80	126.00	11.40	378.00	Page 17
			70	210	120.00	1140.00	360.00	3430.00	
	600	600	20	120	6.50	109.00	19.50	326.00	
			70	420	175.00	834.00	525.00	2500.00	
	600	900	20	180	9.40	105.00	28.40	315.00	
			70	630	250.00	791.00	748.00	2370.00	

IMPACT BUFFERS - STANDARD PROGRAMM

Case study & nominal size Ø70 - DIEPOCELL® BM (anthracite)



CALCULATION OF AN APPLICATION AND EVALUATION OF THE DIAGRAMS:

Application: Mass against stop

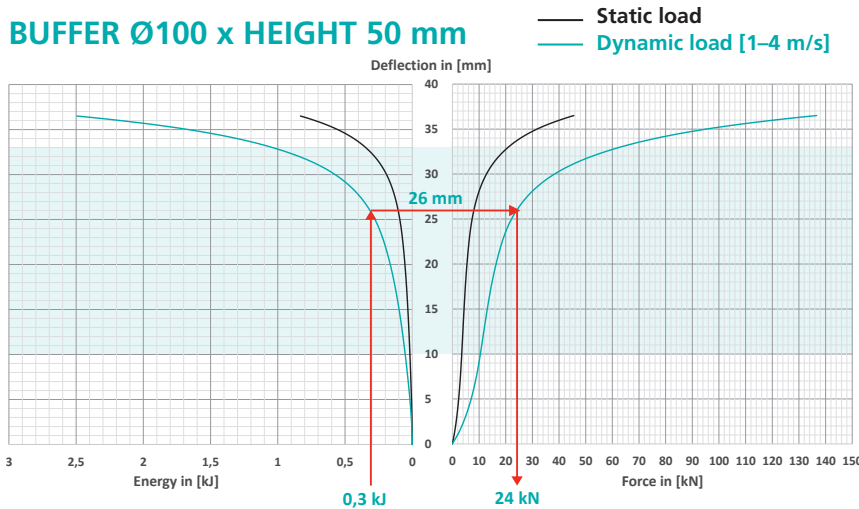
Calculation according to formula $[W = \frac{1}{2} \times m \times v^2]$ -> see p. 5

Specifications: Mass (m) = 150 kg

Calculation: $W = \frac{1}{2} \times 150 \text{ kg} \times (2 \text{ m/s})^2$

Velocity (v) = 2 m/s = **300 J or 0.3 kJ**

BUFFER Ø100 x HEIGHT 50 mm



Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
Static	20	10	0.02	3.50
	70	35	0.55	31.00
Dynamic [1–4 m/s]	20	10	0.05	10.50
	70	35	1.65	95.00

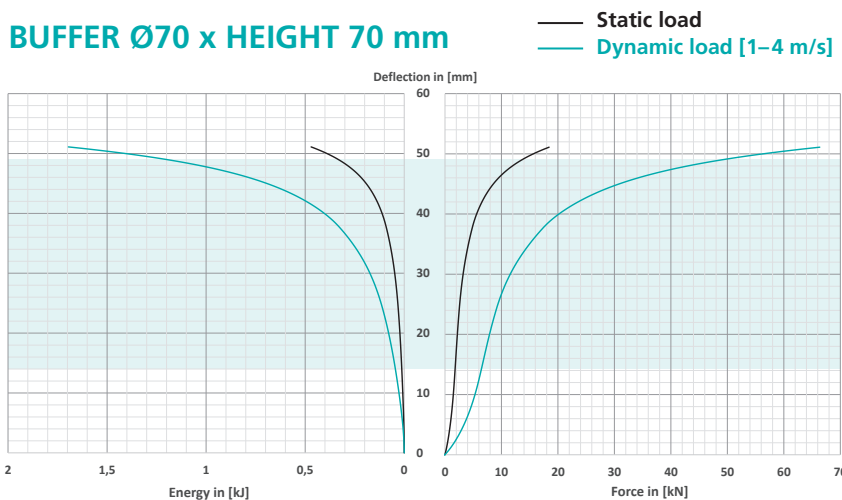
Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233101074
		Central fastening M12	235101074
Plastic plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)	Central fastening M12	255101074
		Central fastening M12	202101074
Aluminium plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)	Central fastening M12	255101074
		Central fastening M12	202101074
Steel plate	-	Central fastening M12	-
		Central fastening M12	-

Step-by-step instructions:

1. Start by finding the calculated work intake (W) on the X-axis of the left-hand graph.
2. Trace vertically from this point to the corresponding graph (dynamic – green).
3. Then follow the X-axis horizontally to determine the deflection.
4. Continue your horizontal movement to get to the matching curve in the diagram on the right.
5. Then go from the point of intersection with the graph perpendicular to the X-axis of the right-hand graph to read off the final force.

LOAD DIAGRAMS:

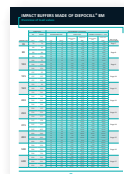
BUFFER Ø70 x HEIGHT 70 mm



Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
Static	20	14	0.01	1.75
	70	49	0.34	14.00
Dynamic [1–4 m/s]	20	14	0.04	6.40
	70	49	1.24	50.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233701074
		Central fastening M12	235701074
Plastic plate	-	Central fastening M12	-
		Central fastening M12	-
Aluminium plate	-	Central fastening M12	-
		Central fastening M12	-
Steel plate	-	Central fastening M12	-
		Central fastening M12	-

To the load overview

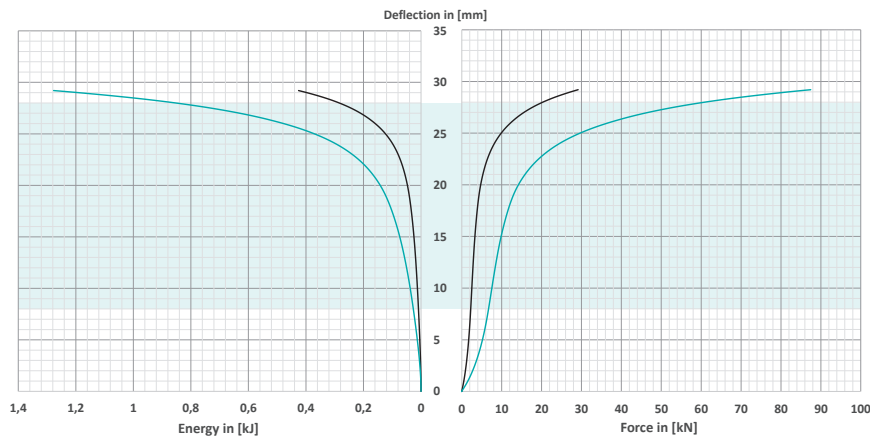


IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø80 - DIEPOCELL® BM (anthracite)

BUFFER Ø80 x HEIGHT 40 mm

— Static load
— Dynamic load [1–4 m/s]

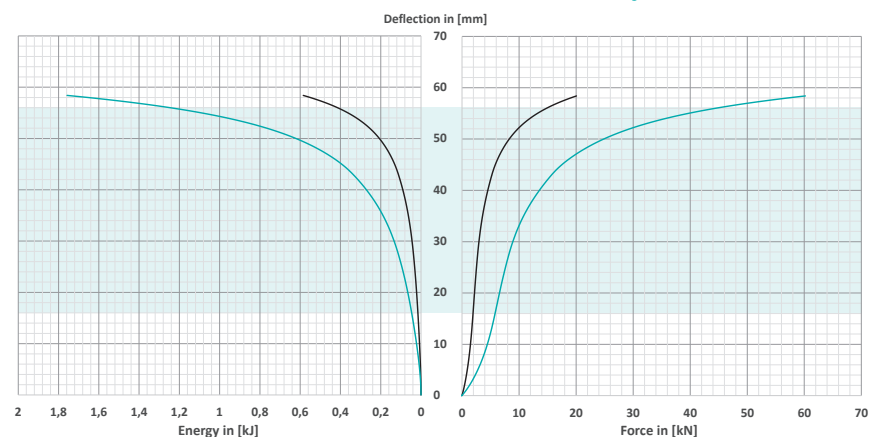


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	8	0.01	2.30
	70	28	0.28	20.00
Dynamic [1–4 m/s]	20	8	0.03	6.70
	70	28	0.85	60.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	Central fastening M12 x 35	233801074
	Internal thread	Central fastening M12	235801074
	Plastic plate	Square base plate 110 x 110 x 10 mm with 4 holes Ø14 (distance = 80 mm)	255801074
	Aluminium plate	Square base plate 110 x 110 x 10 mm with 4 holes Ø14 (distance = 80 mm)	202801074
Steel plate		–	–

BUFFER Ø80 x HEIGHT 80 mm

— Static load
— Dynamic load [1–4 m/s]

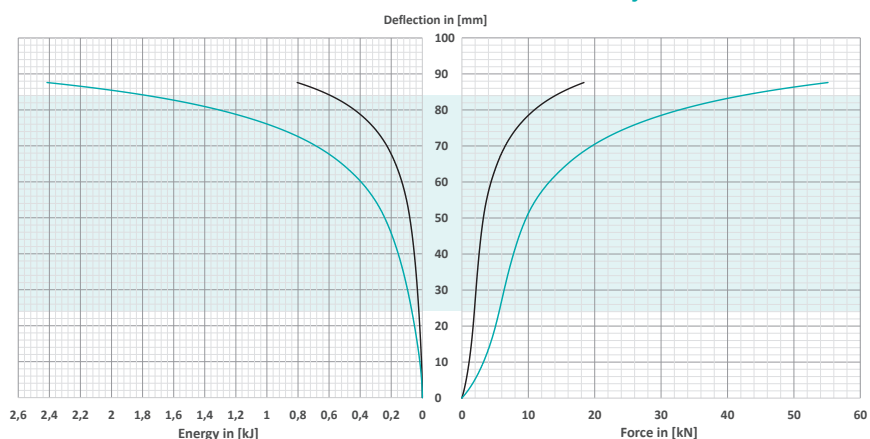


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	16	0.02	1.90
	70	56	0.41	15.00
Dynamic [1–4 m/s]	20	16	0.05	5.80
	70	56	1.25	44.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	Central fastening M12 x 35	233802074
	Internal thread	Central fastening M12	235802074
	Plastic plate	Square base plate 110 x 110 x 10 mm with 4 holes Ø14 (distance = 80 mm)	255802074
	Aluminium plate	Square base plate 110 x 110 x 10 mm with 4 holes Ø14 (distance = 80 mm)	202802074
Steel plate		–	–

BUFFER Ø80 x HEIGHT 120 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	24	0.02	1.80
	70	84	0.60	14.00
Dynamic [1–4 m/s]	20	24	0.07	5.60
	70	84	1.80	42.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	Central fastening M12 x 35	233803074
	Internal thread	Central fastening M12	235803074
	Plastic plate	Square base plate 110 x 110 x 10 mm with 4 holes Ø14 (distance = 80 mm)	255803074
	Aluminium plate	Square base plate 110 x 110 x 10 mm with 4 holes Ø14 (distance = 80 mm)	202803074
Steel plate		–	–

To the load overview



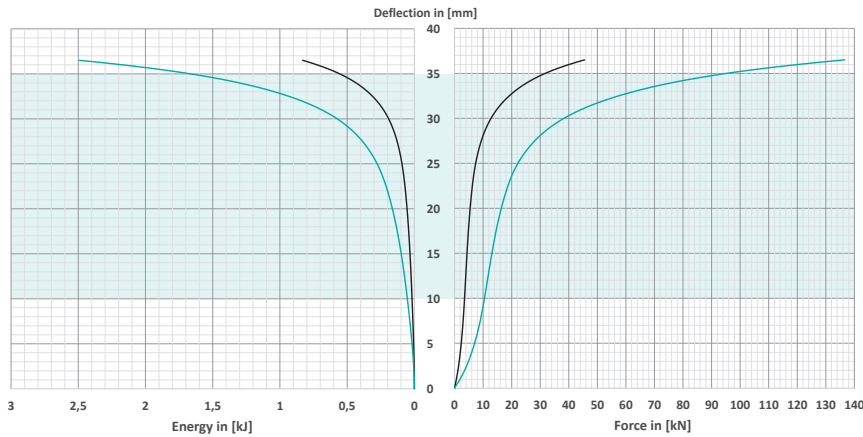
IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø100 - DIEPOCELL® BM (anthracite)



BUFFER Ø100 x HEIGHT 50 mm

— Static load
— Dynamic load [1–4 m/s]

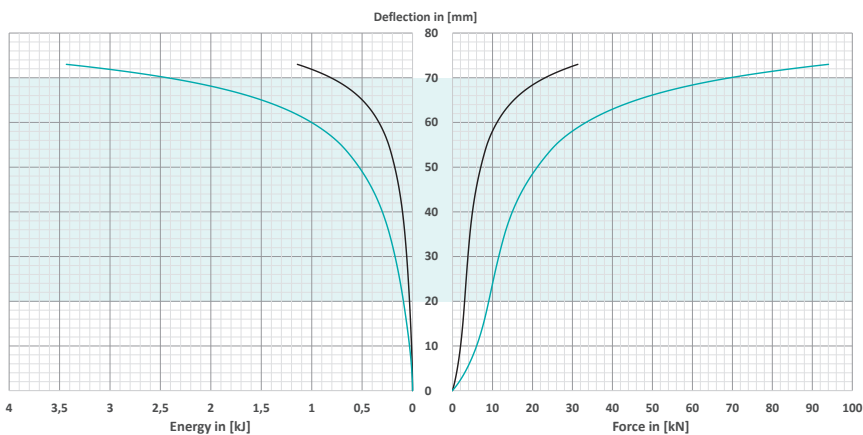


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	10	0.02	3.50
	70	35	0.55	31.00
Dynamic [1–4 m/s]	20	10	0.05	10.50
	70	35	1.65	95.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233101074
		Central fastening M12	235101074
Plastic plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)		255101074
Aluminium plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)		202101074
Steel plate	—		—

BUFFER Ø100 x HEIGHT 100 mm

— Static load
— Dynamic load [1–4 m/s]

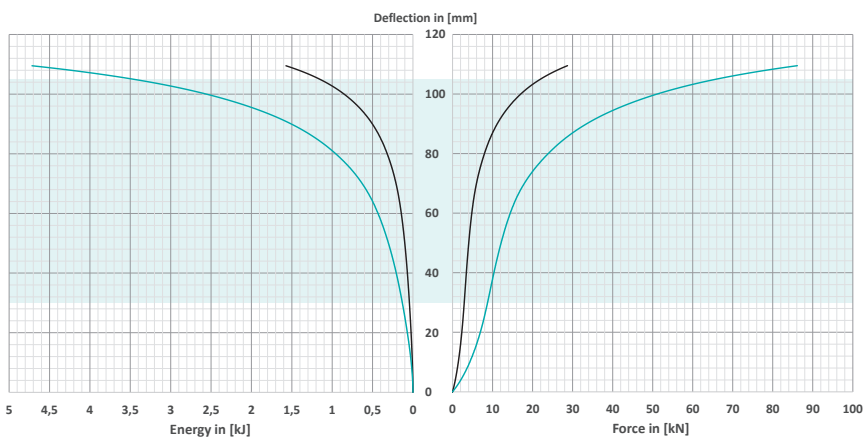


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	20	0.04	3.00
	70	70	0.80	23.00
Dynamic [1–4 m/s]	20	20	0.09	9.00
	70	70	2.45	70.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233102074
		Central fastening M12	235102074
Plastic plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)		255102074
Aluminium plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)		202102074
Steel plate	—		—

BUFFER Ø100 x HEIGHT 150 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	30	0.04	2.90
	70	105	1.15	21.00
Dynamic [1–4 m/s]	20	30	0.13	8.80
	70	105	3.45	66.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233103074
		Central fastening M12	235103074
Plastic plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)		255103074
Aluminium plate	Square base plate 125 x 125 x 10 mm with 4 holes Ø14 (distance = 100 mm)		202103074
Steel plate	—		—

To the load overview

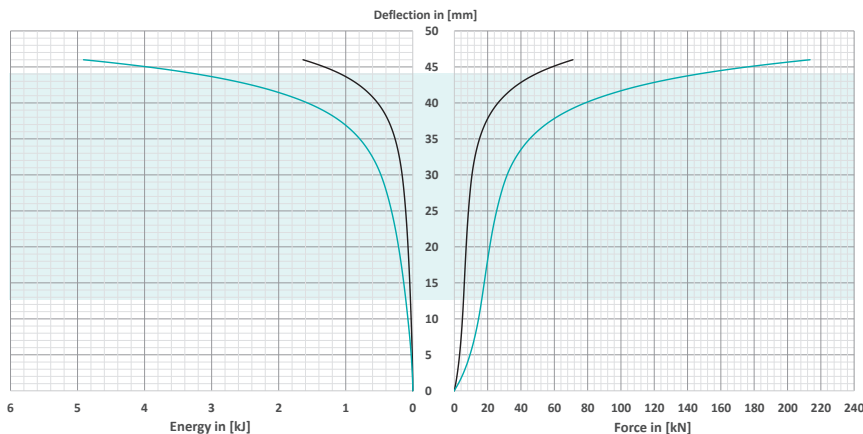


IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø125 - DIEPOCELL® BM (anthracite)

BUFFER Ø125 x HEIGHT 63 mm

— Static load
— Dynamic load [1–4 m/s]

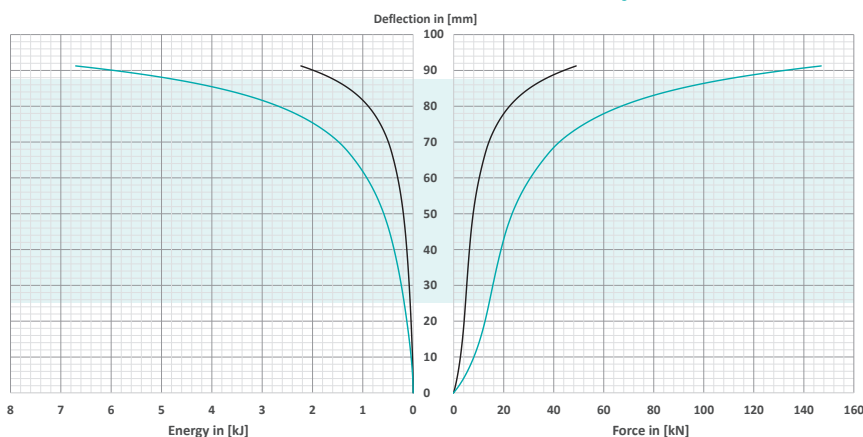


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	13	0.03	5.50
	70	44	1.10	50.00
Dynamic [1–4 m/s]	20	13	0.10	16.40
	70	44	3.30	148.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35		233121074
Internal thread	Central fastening M12		235121074
Plastic plate	Square base plate 160 x 160 x 12 mm with 4 holes Ø18 (distance = 125 mm)		255121074
Aluminium plate	Square base plate 160 x 160 x 12 mm with 4 holes Ø18 (distance = 125 mm)		202121074
Steel plate	—		—

BUFFER Ø125 x HEIGHT 125 mm

— Static load
— Dynamic load [1–4 m/s]

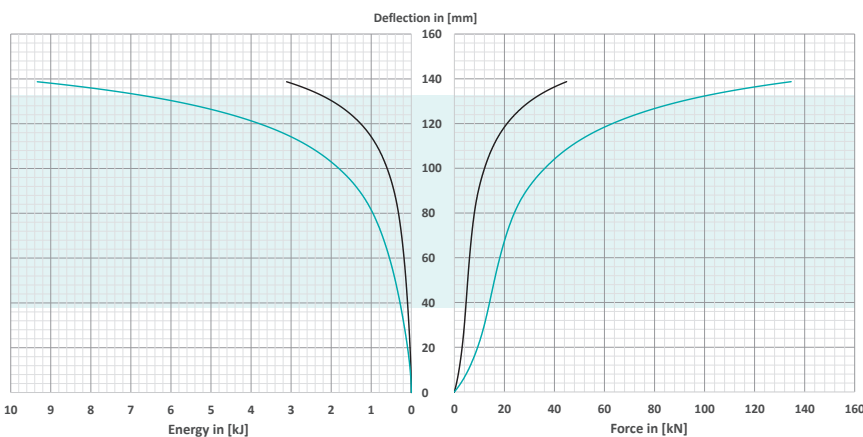


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	25	0.06	4.70
	70	88	1.60	36.00
Dynamic [1–4 m/s]	20	25	0.17	14.10
	70	88	4.75	108.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35		233122074
Internal thread	Central fastening M12		235122074
Plastic plate	Square base plate 160 x 160 x 12 mm with 4 holes Ø18 (distance = 125 mm)		255122074
Aluminium plate	Square base plate 160 x 160 x 12 mm with 4 holes Ø18 (distance = 125 mm)		202122074
Steel plate	—		—

BUFFER Ø125 x HEIGHT 190 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	38	0.08	4.50
	70	133	2.30	34.00
Dynamic [1–4 m/s]	20	38	0.26	13.70
	70	133	6.85	103.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35		233123074
Internal thread	Central fastening M12		235123074
Plastic plate	Square base plate 160 x 160 x 12 mm with 4 holes Ø18 (distance = 125 mm)		255123074
Aluminium plate	Square base plate 160 x 160 x 12 mm with 4 holes Ø18 (distance = 125 mm)		202123074
Steel plate	—		—

To the load overview



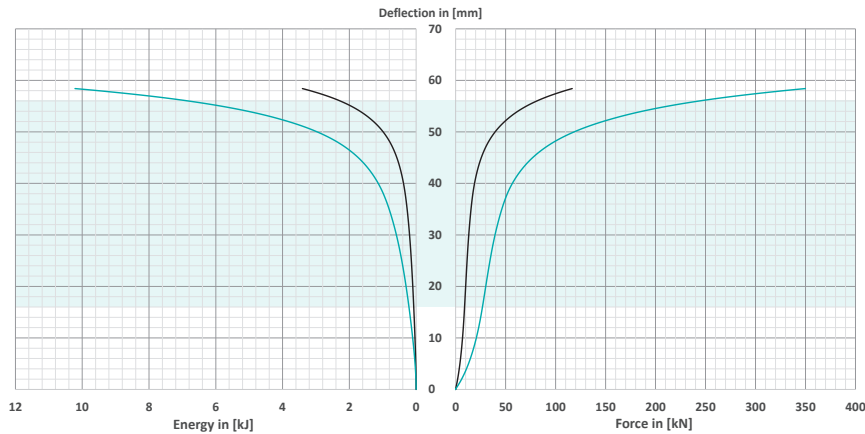
IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø160 - DIEPOCELL® BM (anthracite)



BUFFER Ø160 x HEIGHT 80 mm

— Static load
— Dynamic load [1–4 m/s]

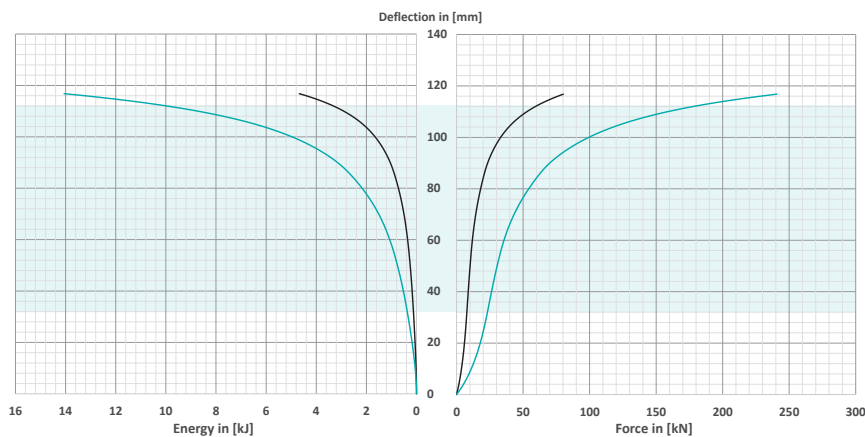


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	16	0.07	8.90
	70	56	2.25	81.00
Dynamic [1–4 m/s]	20	16	0.22	26.80
	70	56	6.80	243.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233161074
	Internal thread	Central fastening M12	235161074
Plastic plate	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	255161074
Aluminium plate	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	202161074
Steel plate	—	—	—

BUFFER Ø160 x HEIGHT 160 mm

— Static load
— Dynamic load [1–4 m/s]

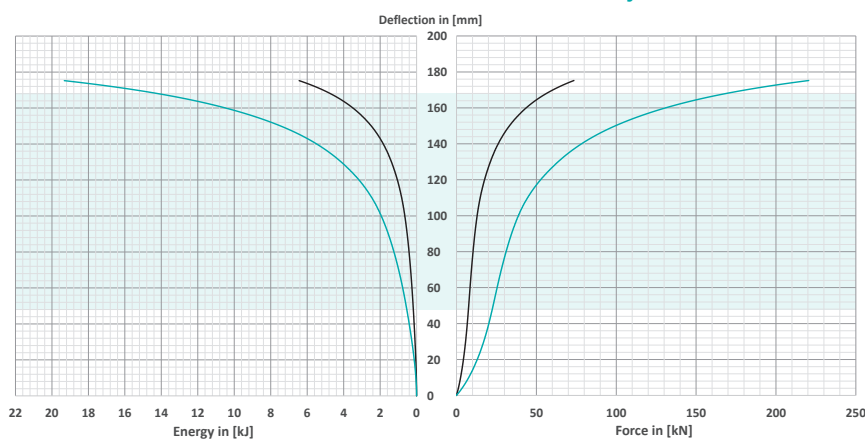


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	32	0.12	7.70
	70	112	3.30	59.00
Dynamic [1–4 m/s]	20	32	0.37	23.20
	70	112	9.90	178.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233162074
	Internal thread	Central fastening M12	235162074
Plastic plate	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	255162074
Aluminium plate	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	202162074
Steel plate	—	—	—

BUFFER Ø160 x HEIGHT 240 mm

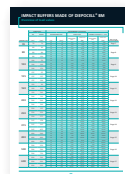
— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	48	0.18	7.50
	70	168	4.70	56.00
Dynamic [1–4 m/s]	20	48	0.54	22.40
	70	168	14.10	168.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M12 x 35	Central fastening M12	233163074
	Internal thread	Central fastening M12	235163074
Plastic plate	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	255163074
Aluminium plate	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	Square base plate 200 x 200 x 12 mm with 4 holes Ø18 (distance = 160 mm)	202163074
Steel plate	—	—	—

To the load overview

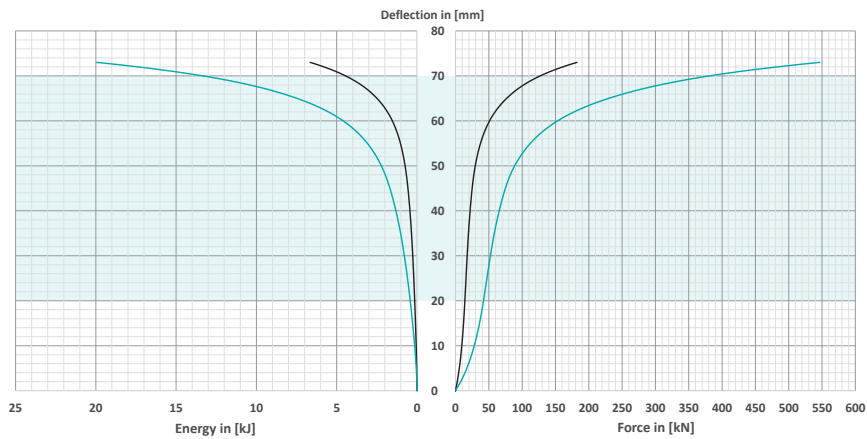


IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø200 - DIEPOCELL® BM (anthracite)

BUFFER Ø200 x HEIGHT 100 mm

— Static load
— Dynamic load [1–4 m/s]

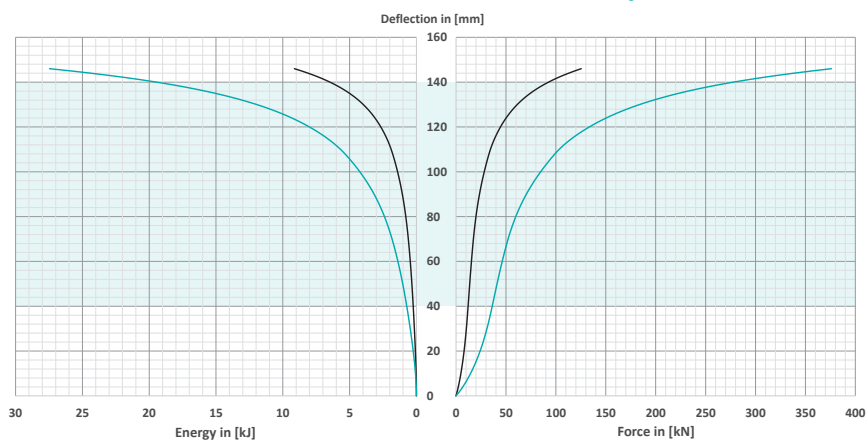


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	20	0.14	14.00
	70	70	4.40	127.00
Dynamic [1–4 m/s]	20	20	0.42	42.00
	70	70	13.30	380.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt		Central fastening M12 x 35	233201074
Internal thread		Central fastening M12	235201074
Plastic plate		Square base plate 250 x 250 x 14 mm with 4 holes Ø22 (distance = 200 mm)	255201074
Aluminium plate		Square base plate 250 x 250 x 14 mm with 4 holes Ø22 (distance = 200 mm)	202201074
Steel plate		–	–

BUFFER Ø200 x HEIGHT 200 mm

— Static load
— Dynamic load [1–4 m/s]

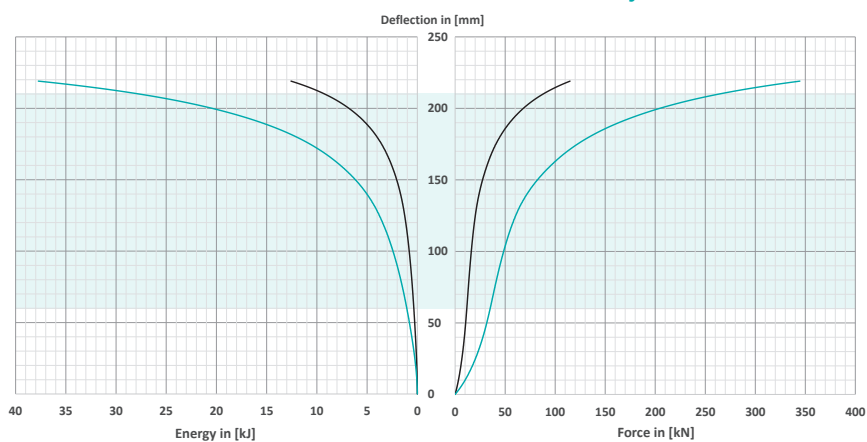


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	40	0.24	12.00
	70	140	6.50	93.00
Dynamic [1–4 m/s]	20	40	0.72	36.00
	70	140	19.40	278.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt		Central fastening M12 x 35	233202074
Internal thread		Central fastening M12	235202074
Plastic plate		Square base plate 250 x 250 x 14 mm with 4 holes Ø22 (distance = 200 mm)	255202074
Aluminium plate		Square base plate 250 x 250 x 14 mm with 4 holes Ø22 (distance = 200 mm)	202202074
Steel plate		–	–

BUFFER Ø200 x HEIGHT 300 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	60	0.35	11.60
	70	210	9.30	88.00
Dynamic [1–4 m/s]	20	60	1.00	35.00
	70	210	27.70	264.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt		Central fastening M12 x 35	233203074
Internal thread		Central fastening M12	235203074
Plastic plate		Square base plate 250 x 250 x 14 mm with 4 holes Ø22 (distance = 200 mm)	255203074
Aluminium plate		Square base plate 250 x 250 x 14 mm with 4 holes Ø22 (distance = 200 mm)	202203074
Steel plate		–	–

To the load overview



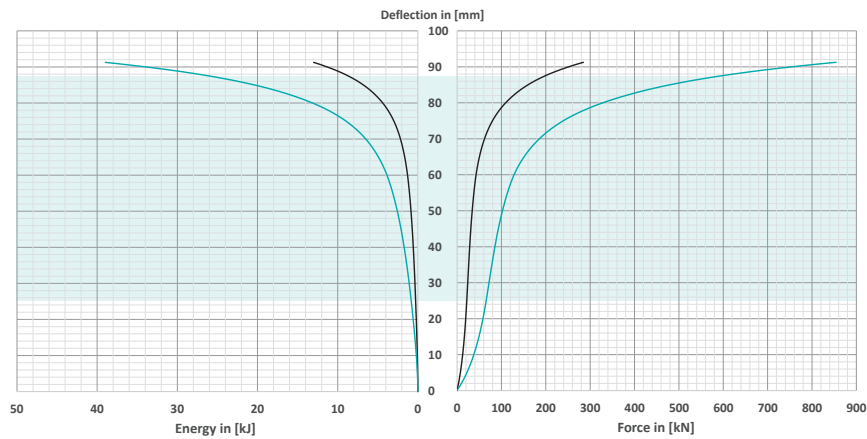
IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø250 - DIEPOCELL® BM (anthracite)



BUFFER Ø250 x HEIGHT 125 mm

— Static load
— Dynamic load [1–4 m/s]

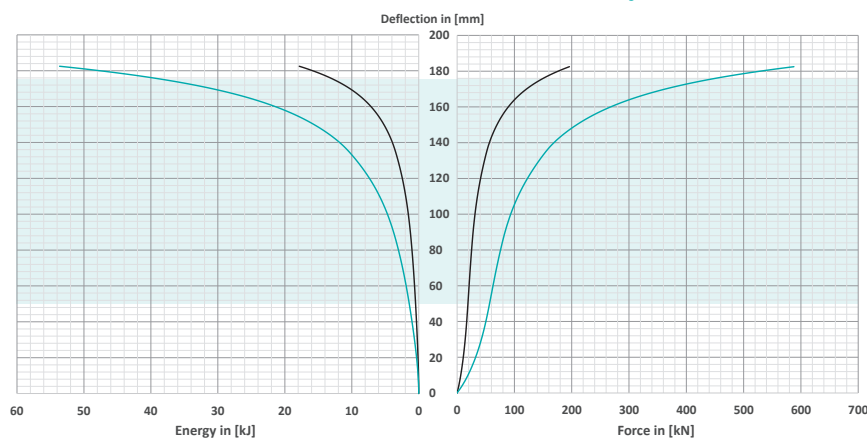


Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
Static	20	25	0.27	22.00
	70	88	8.80	198.00
Dynamic [1–4 m/s]	20	25	0.82	66.00
	70	88	26.00	595.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	Central fastening M24 x 80	233251074
	Internal thread	Central fastening M24	235251074
	Plastic plate	–	–
	Aluminium plate	–	–
Steel plate	Square base plate 315 x 315 x 15 mm with 4 holes Ø22 (distance = 250 mm)		202251074

BUFFER Ø250 x HEIGHT 250 mm

— Static load
— Dynamic load [1–4 m/s]

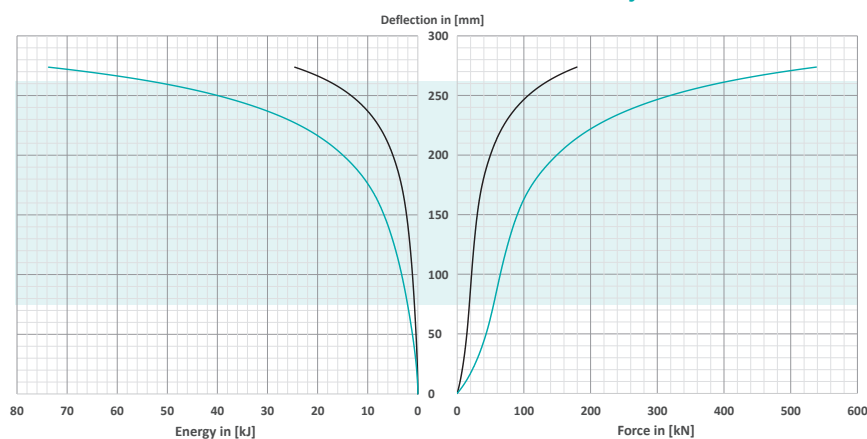


Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
Static	20	50	0.47	19.00
	70	175	12.70	145.00
Dynamic [1–4 m/s]	20	50	1.40	57.00
	70	175	38.00	435.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	Central fastening M24 x 80	233252074
	Internal thread	Central fastening M24	235252074
	Plastic plate	–	–
	Aluminium plate	–	–
Steel plate	Square base plate 315 x 315 x 15 mm with 4 holes Ø22 (distance = 250 mm)		202252074

BUFFER Ø250 x HEIGHT 375 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
Static	20	75	0.69	18.00
	70	263	18.00	137.00
Dynamic [1–4 m/s]	20	75	2.10	55.00
	70	263	54.00	412.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	Central fastening M24 x 80	233253074
	Internal thread	Central fastening M24	235253074
	Plastic plate	–	–
	Aluminium plate	–	–
Steel plate	Square base plate 315 x 315 x 15 mm with 4 holes Ø22 (distance = 250 mm)		202253074

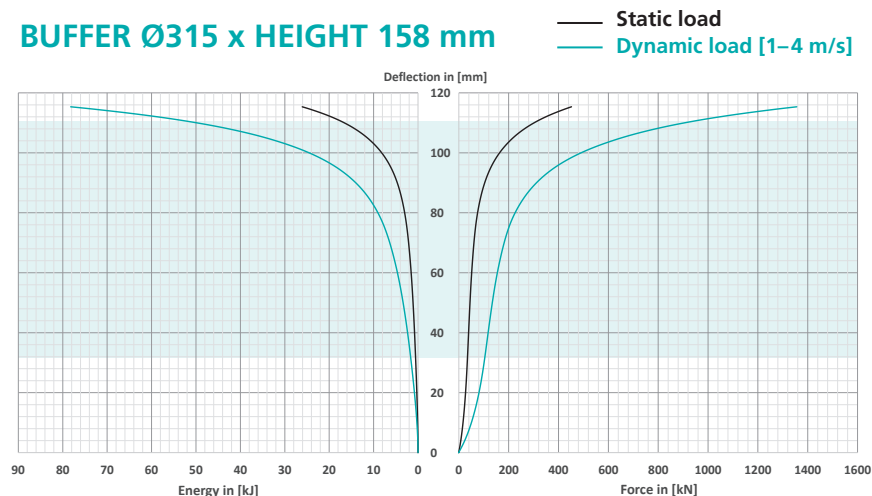
To the load overview



IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø315 - DIEPOCELL® BM (anthracite)

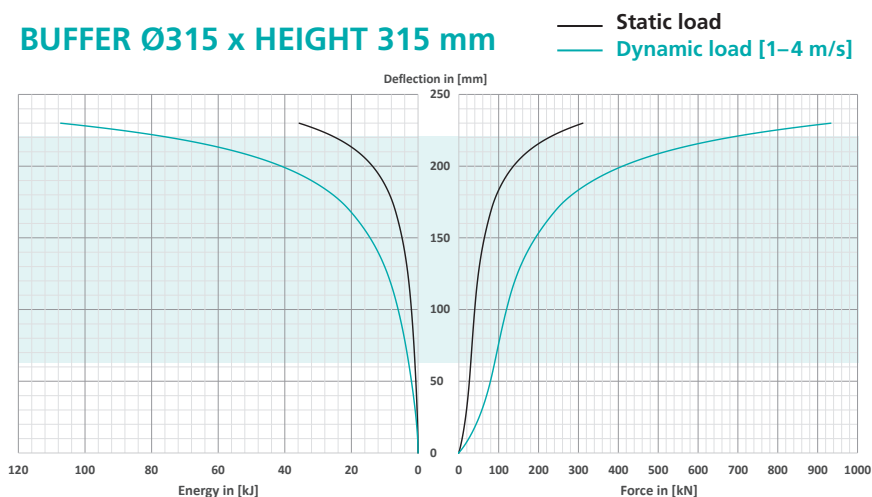
BUFFER Ø315 x HEIGHT 158 mm



Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
	Static	20 70	0.55 17.00	35.00 314.00
Dynamic [1–4 m/s]	20	32	1.60	105.00
	70	111	52.00	944.00

DIMENSIONS / MOUNTING		ITEM NO.
Available versions	Threaded bolt	Central fastening M24 x 80
	Internal thread	Central fastening M24
	Plastic plate	–
	Aluminium plate	–
	Steel plate	Square base plate 400 x 400 x 15 mm with 4 holes Ø22 (distance = 315 mm)

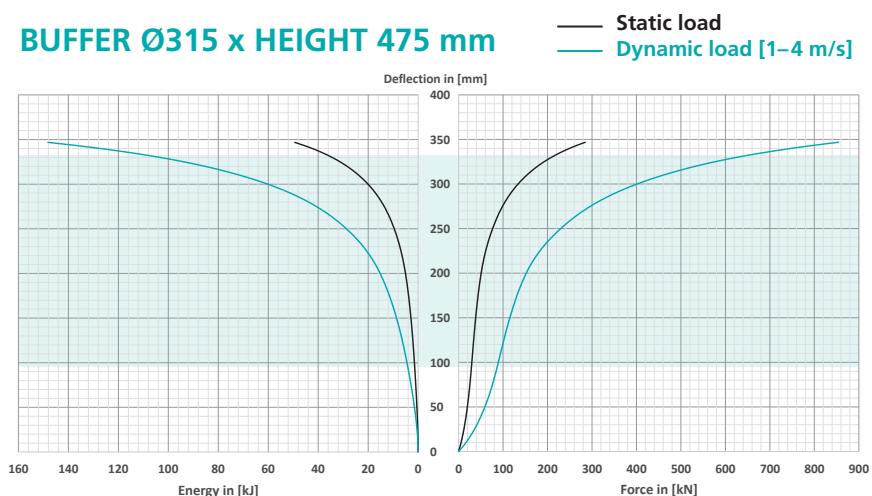
BUFFER Ø315 x HEIGHT 315 mm



Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
	Static	20 70	0.94 25.00	30.00 230.00
Dynamic [1–4 m/s]	20	63	2.80	90.00
	70	221	76.00	690.00

DIMENSIONS / MOUNTING		ITEM NO.
Available versions	Threaded bolt	Central fastening M24 x 80
	Internal thread	Central fastening M24
	Plastic plate	–
	Aluminium plate	–
	Steel plate	Square base plate 400 x 400 x 15 mm with 4 holes Ø22 (distance = 315 mm)

BUFFER Ø315 x HEIGHT 475 mm



Recommended load range	BUFFER TRAVEL		WORK INTAKE [kJ]	FINAL FORCE [kN]
	[%]	[mm]		
	Static	20 70	1.40 35.00	29.00 210.00
Dynamic [1–4 m/s]	20	95	4.10	87.00
	70	333	104.00	627.00

DIMENSIONS / MOUNTING		ITEM NO.
Available versions	Threaded bolt	Central fastening M24 x 80
	Internal thread	Central fastening M24
	Plastic plate	–
	Aluminium plate	–
	Steel plate	Square base plate 400 x 400 x 15 mm with 4 holes Ø22 (distance = 315 mm)

To the load overview



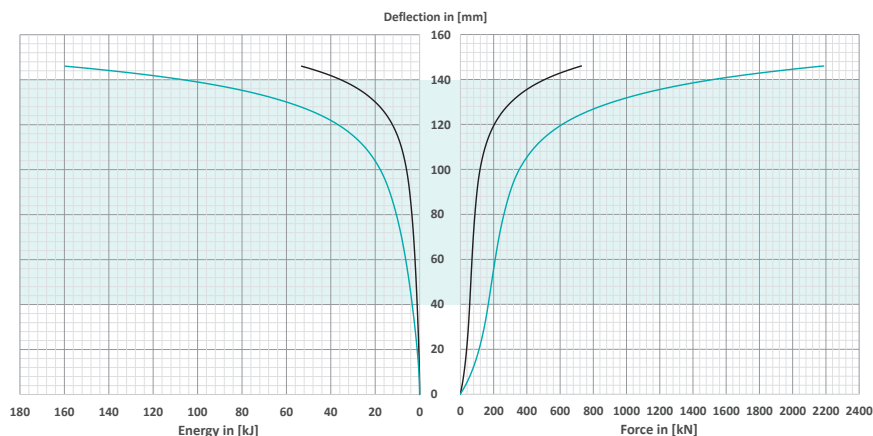
IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø400 - DIEPOCELL® BM (anthracite)



BUFFER Ø400 x HEIGHT 200 mm

— Static load
— Dynamic load [1–4 m/s]

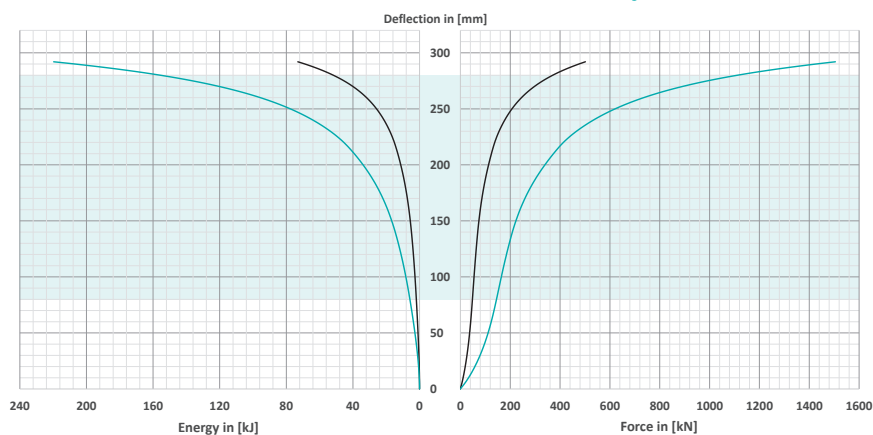


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	40	1.10	56.00
	70	140	36.00	508.00
Dynamic [1–4 m/s]	20	40	3.40	168.00
	70	140	106.00	1532.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M30 x 80		233401074
Internal thread	Central fastening M30		235401074
Plastic plate	–		–
Aluminium plate	–		–
Steel plate	Square base plate 500 x 500 x 20 mm with 4 holes Ø26 (distance = 400 mm)		202401074

BUFFER Ø400 x HEIGHT 400 mm

— Static load
— Dynamic load [1–4 m/s]

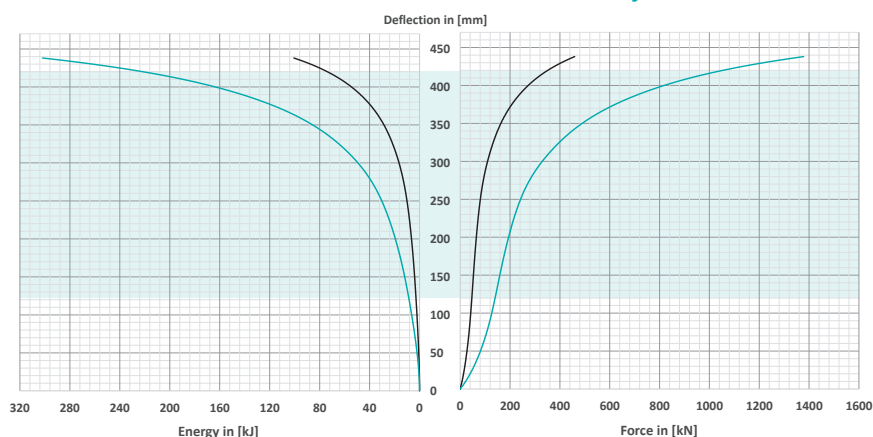


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	80	1.90	48.00
	70	280	52.00	370.00
Dynamic [1–4 m/s]	20	80	5.80	144.00
	70	280	155.00	1113.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M30 x 80		233402074
Internal thread	Central fastening M30		235402074
Plastic plate	–		–
Aluminium plate	–		–
Steel plate	Square base plate 500 x 500 x 20 mm with 4 holes Ø26 (distance = 400 mm)		202402074

BUFFER Ø400 x HEIGHT 600 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	120	2.80	46.00
	70	420	74.00	351.00
Dynamic [1–4 m/s]	20	120	8.40	140.00
	70	420	221.00	1054.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt	Central fastening M30 x 80		233403074
Internal thread	Central fastening M30		235403074
Plastic plate	–		–
Aluminium plate	–		–
Steel plate	Square base plate 500 x 500 x 20 mm with 4 holes Ø26 (distance = 400 mm)		202403074

To the load overview

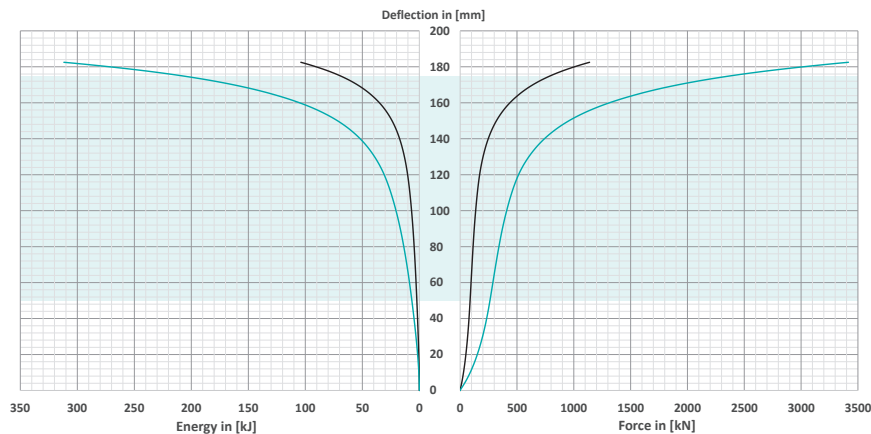


IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø500 - DIEPOCELL® BM (anthracite)

BUFFER Ø500 x HEIGHT 250 mm

— Static load
— Dynamic load [1–4 m/s]

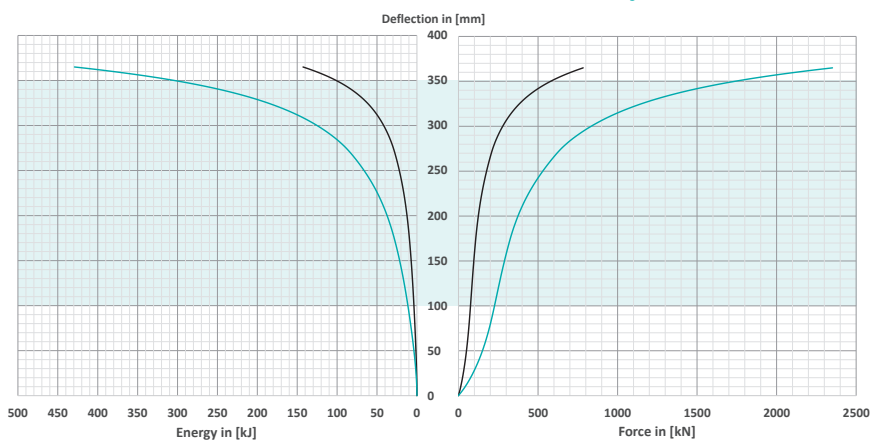


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
	20	50	2.20	87.00
Static	70	175	70.00	793.00
Dynamic [1–4 m/s]	20	50	6.60	260.00
	70	175	209.00	2380.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	–	–
	Internal thread	–	–
	Plastic plate	–	–
	Aluminium plate	–	–
	Steel plate	Square base plate 630 x 630 x 20 mm with 4 holes Ø26 (distance = 500 mm)	202501074

BUFFER Ø500 x HEIGHT 500 mm

— Static load
— Dynamic load [1–4 m/s]

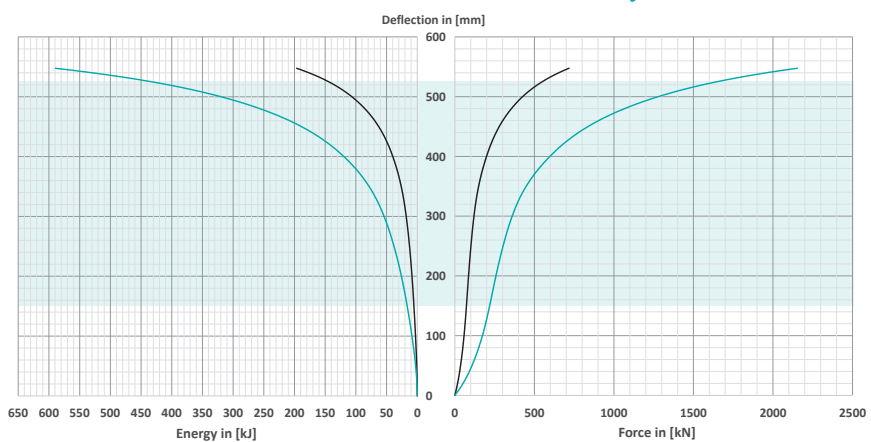


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
	20	100	3.80	76.00
Static	70	350	101.00	580.00
Dynamic [1–4 m/s]	20	100	11.40	226.00
	70	350	305.00	1741.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	–	–
	Internal thread	–	–
	Plastic plate	–	–
	Aluminium plate	–	–
	Steel plate	Square base plate 630 x 630 x 20 mm with 4 holes Ø26 (distance = 500 mm)	202502074

BUFFER Ø500 x HEIGHT 750 mm

— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
	20	150	5.50	73.00
Static	70	525	144.00	550.00
Dynamic [1–4 m/s]	20	150	16.40	219.00
	70	525	432.00	1650.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Available versions	Threaded bolt	–	–
	Internal thread	–	–
	Plastic plate	–	–
	Aluminium plate	–	–
	Steel plate	Square base plate 630 x 630 x 20 mm with 4 holes Ø26 (distance = 500 mm)	202503074

To the load overview



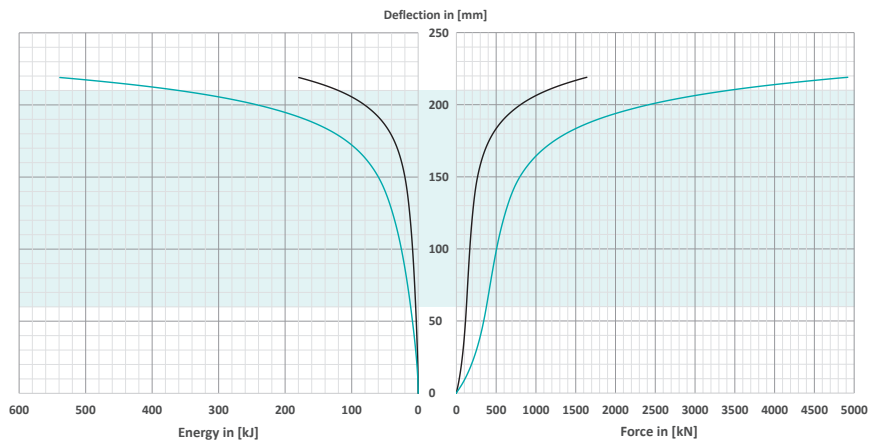
IMPACT BUFFERS - STANDARD PROGRAMM

Nominal size Ø600 - DIEPOCELL® BM (anthracite)



BUFFER Ø600 x HEIGHT 300 mm

— Static load
— Dynamic load [1–4 m/s]

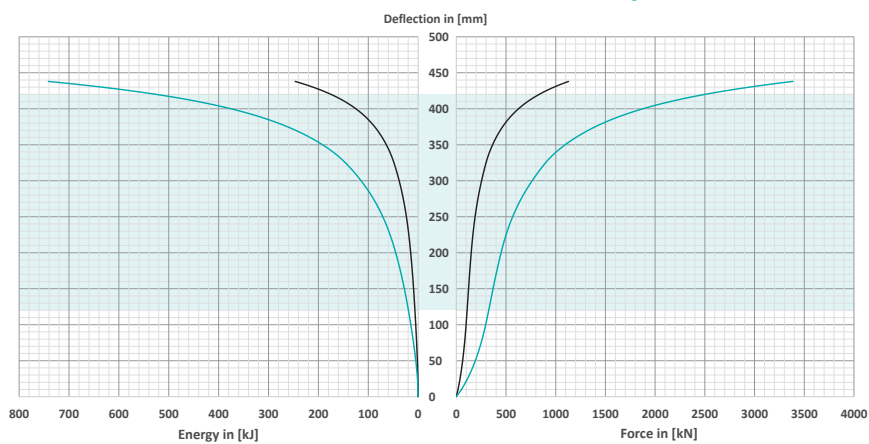


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	60	3.80	126.00
	70	210	120.00	1140.00
Dynamic [1–4 m/s]	20	60	11.40	378.00
	70	210	360.00	3430.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt		–	–
Internal thread		–	–
Plastic plate		–	–
Aluminium plate		–	–
Steel plate		Square base plate 730 x 730 x 20 mm with 4 holes Ø26 (distance = 600 mm)	202601074

BUFFER Ø600 x HEIGHT 600 mm

— Static load
— Dynamic load [1–4 m/s]

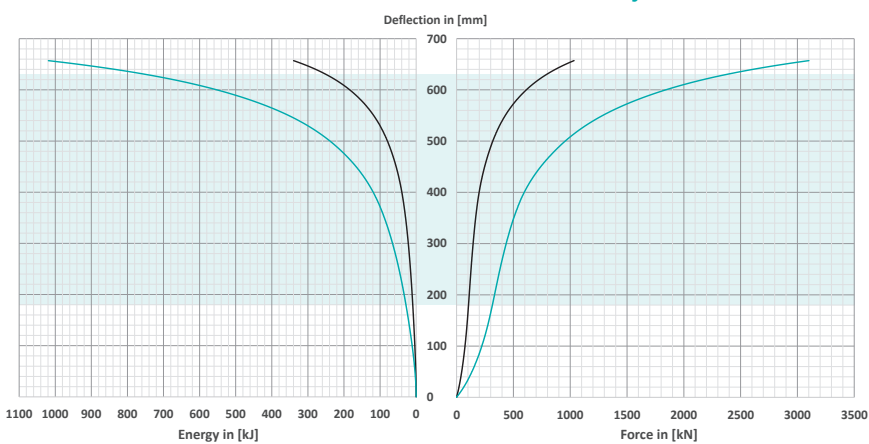


Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	120	6.50	109.00
	70	420	175.00	834.00
Dynamic [1–4 m/s]	20	120	19.50	326.00
	70	420	525.00	2500.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt		–	–
Internal thread		–	–
Plastic plate		–	–
Aluminium plate		–	–
Steel plate		Square base plate 730 x 730 x 20 mm with 4 holes Ø26 (distance = 600 mm)	202602074

BUFFER Ø600 x HEIGHT 900 mm

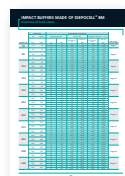
— Static load
— Dynamic load [1–4 m/s]



Recommended load range	BUFFER TRAVEL		WORK INTAKE	FINAL FORCE
	[%]	[mm]	[kJ]	[kN]
Static	20	180	9.40	105.00
	70	630	250.00	791.00
Dynamic [1–4 m/s]	20	180	28.40	315.00
	70	630	748.00	2370.00

Available versions		DIMENSIONS / MOUNTING	ITEM NO.
Threaded bolt		–	–
Internal thread		–	–
Plastic plate		–	–
Aluminium plate		–	–
Steel plate		Square base plate 730 x 730 x 20 mm with 4 holes Ø26 (distance = 600 mm)	202603074

To the load overview



CUSTOMISED SOLUTIONS

What options are there?

BASIC DESCRIPTION:

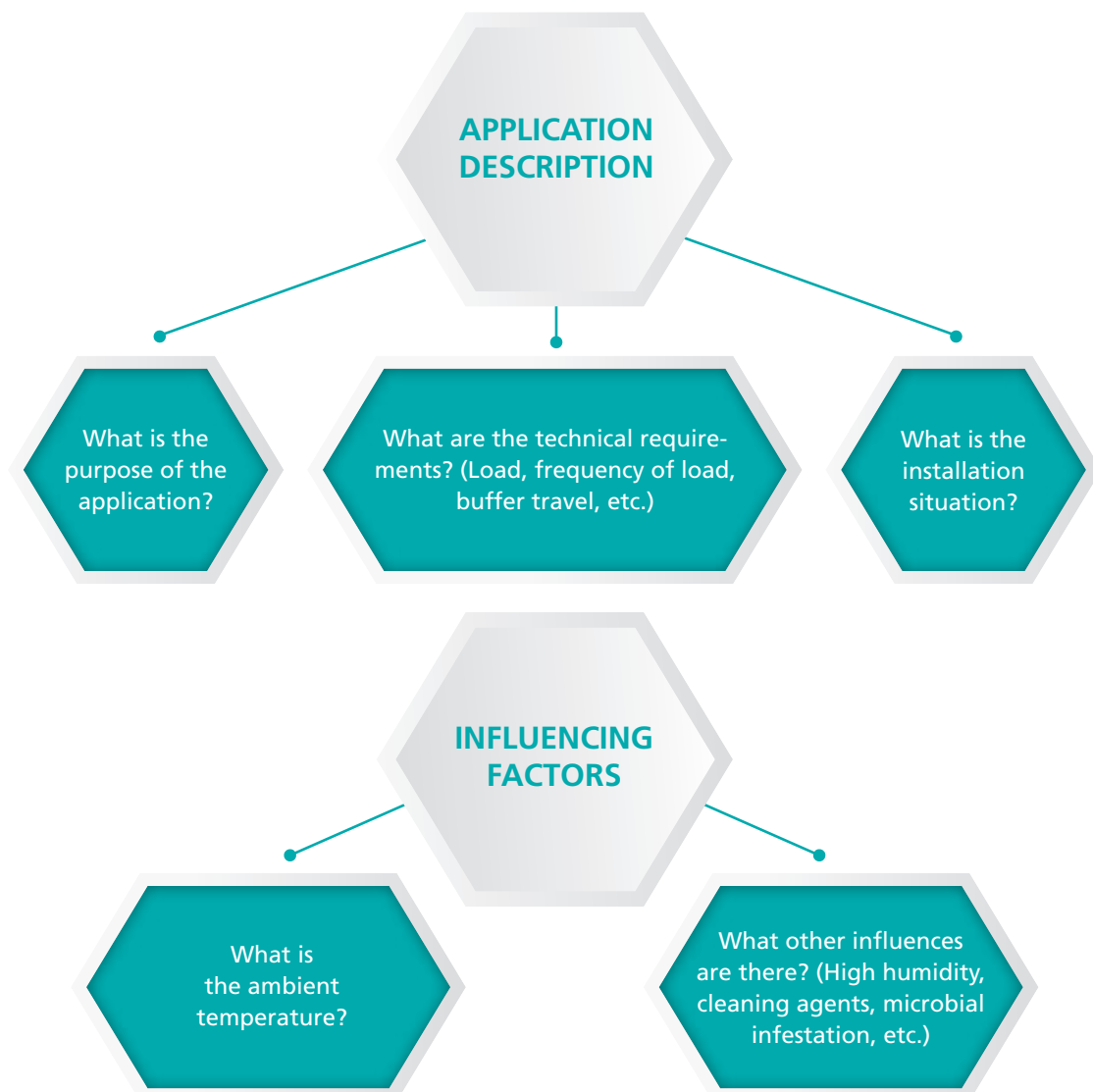
Our company can supply a wide standard programme of buffers, dampers and springs. We do, however, understand that these may not be suitable for all customer applications. For this reason, we have a technical department and a variety of different materials to ensure that we can help you customise a component to the exact requirements of your specific application. Irrespective of whether you require special loads, special areas of application, small installation spaces or special resistance to external influences, we are able to fulfil your requirements. Our experts are on hand to provide you with support in selecting the right ma-

terial, contouring the component and combining it with other materials in order to achieve outstanding design results.

Our many years of experience and specialised expertise enable us to assist you from design and toolmaking through to the creation of samples with precise approval processes. We also provide our support for series production of the component.

Put your trust in our expertise and let us work together to fulfil your individual requirements. Contact us today to find out more about our customised solutions.

INFORMATION REQUIRED FOR DESIGN:





Damping guide in a packaging system



End stops in large tensile testing machines



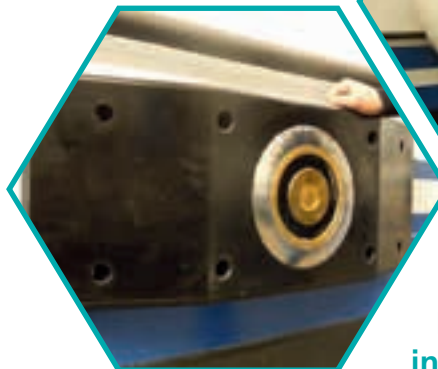
Miniature dampers in light weight aircraft



End stops in automatic storage systems



Rollers and buffer elements in cable trolleys



Impact dampers in boats and ferries

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