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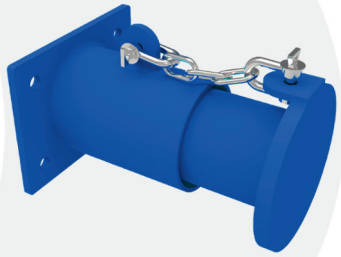
Metal Buffers
Type K



Metal buffer type K

Product description

The function of the buffer, applied on lifting and travelling systems (Bridge cranes), is to absorb kinetic energy and, in case of limit switches' failure, to deaden the impact of the bridge or the trolley against the stoppers at the end of the rails.

The buffers consist of a base and a head joined by a central rod and welded on telescopic tubes, which contain some rings in natural rubber working in series to compression, separated by metal plates.

Operating environment

They are suitable for both in- and outdoors use, with a temperature between -20 ° and +50 ° C. The coating of the metal body is made by the polyester powder painting cycle for exterior gray color. The safety chain and shackle are galvanized.

Range of application

The function of buffers is to slow down and stop the course of a moving mass by absorbing the kinetic energy, according to the values given in the datasheets on the following pages. Any other use is considered improper.

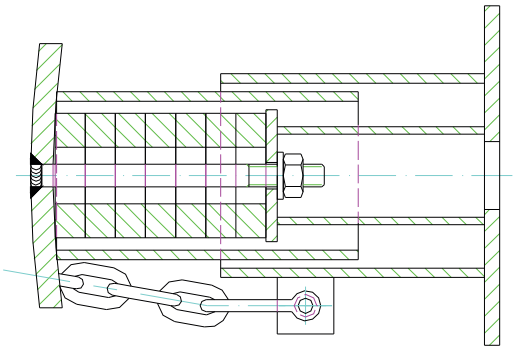
Versions

Available versions: according to the energy that they are able to absorb and depending on the length of the stroke, different buffer types are available:

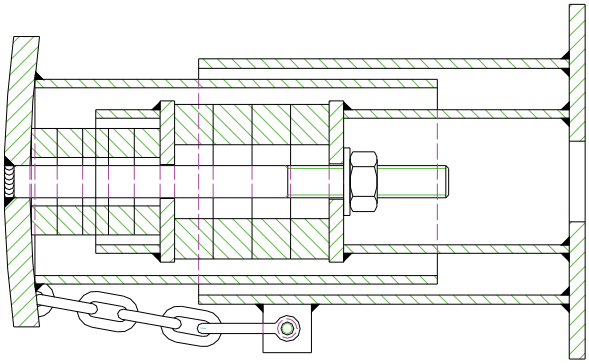
The „A" type suitable for standard applications.

The „C" type with longer stroke is particularly suitable for high speed cranes, as it returns a lower reaction force in relation to the absorbed energy.

Type K/A



Type K/C



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Buffer selection

Select the buffer according to the energy that must be absorbed by the buffers themselves. If mounting a pair of buffers on the head-boards of the bridge crane, the distinct values of the bridge and the trolley's mass and the travelling speed of the crane are necessary elements for the dimensioning.

When determining these elements, take in account what follows:

The value of the crane's mass must also include any non- oscillating load, while excluding the suspended load to the ropes, as required by laws CNR -UNI 10021-73, section I FEM, DIN 15018.

When determining the impact speed, if means of speed reduction are provided, it can be multiplied by a reduction coefficient of 0.7, as required by the previously quotaded laws. Otherwise, for a higher security, this coefficient can be ignored.

The kinetic energy of the impacting mass is equally distributed just when the trolley, as well as the structure's center of gravity, are in central position. Otherwise one of the buffers will be more stressed than the other one. Each of them is not going to absorb just half of the total kinetic energy, the most critical position of the impacting mass must be considered.

Apply the following formula to quickly calculate the energy developed by the impact on the single buffer of the bridge:

Energy [J] = (0,5 * bridgemass [t] + trolleymass [t]) * (bridgespeed [m/min'])2 *0,142

Apply the following formula to quickly calculate the energy developed by the impact on the single buffer of the trolley:

Energy [J] = (0,5 * trolleymass [t]) * (trolleyspeed [m/min'])2 * 0,142

They derive from a variety of mathematical simplifications of the formula E = ½ m * s2, where „m" is the impacting mass expressed in Kg, resulting from the ratio between weight and coeff. 9,81 m/s2, while „s" is the speed at the moment of contact expressed in m/sec.

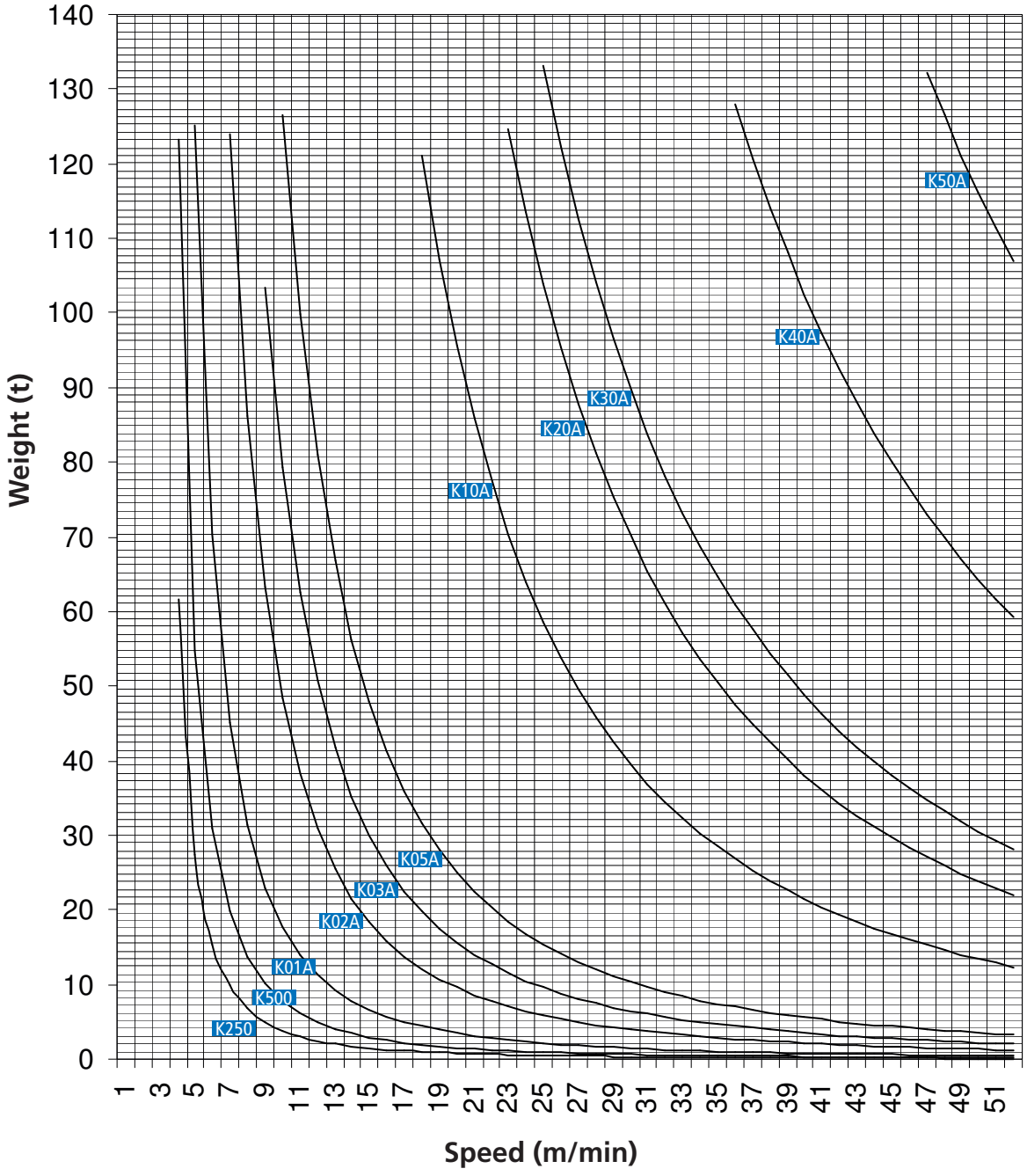
To determine the type of the buffer more easily, diagrams on the following pages can be used.

WARNING

In case of bridge cranes with overhanging beams it is necessary to take into account the higher energy which goes on the buffer.

Research diagram

To find the correct buffer series type „**K/A**“, cross-check the values of the speed and the impacting mass. The energy curve located to the right of the determined point identifies the suitable type of buffer.



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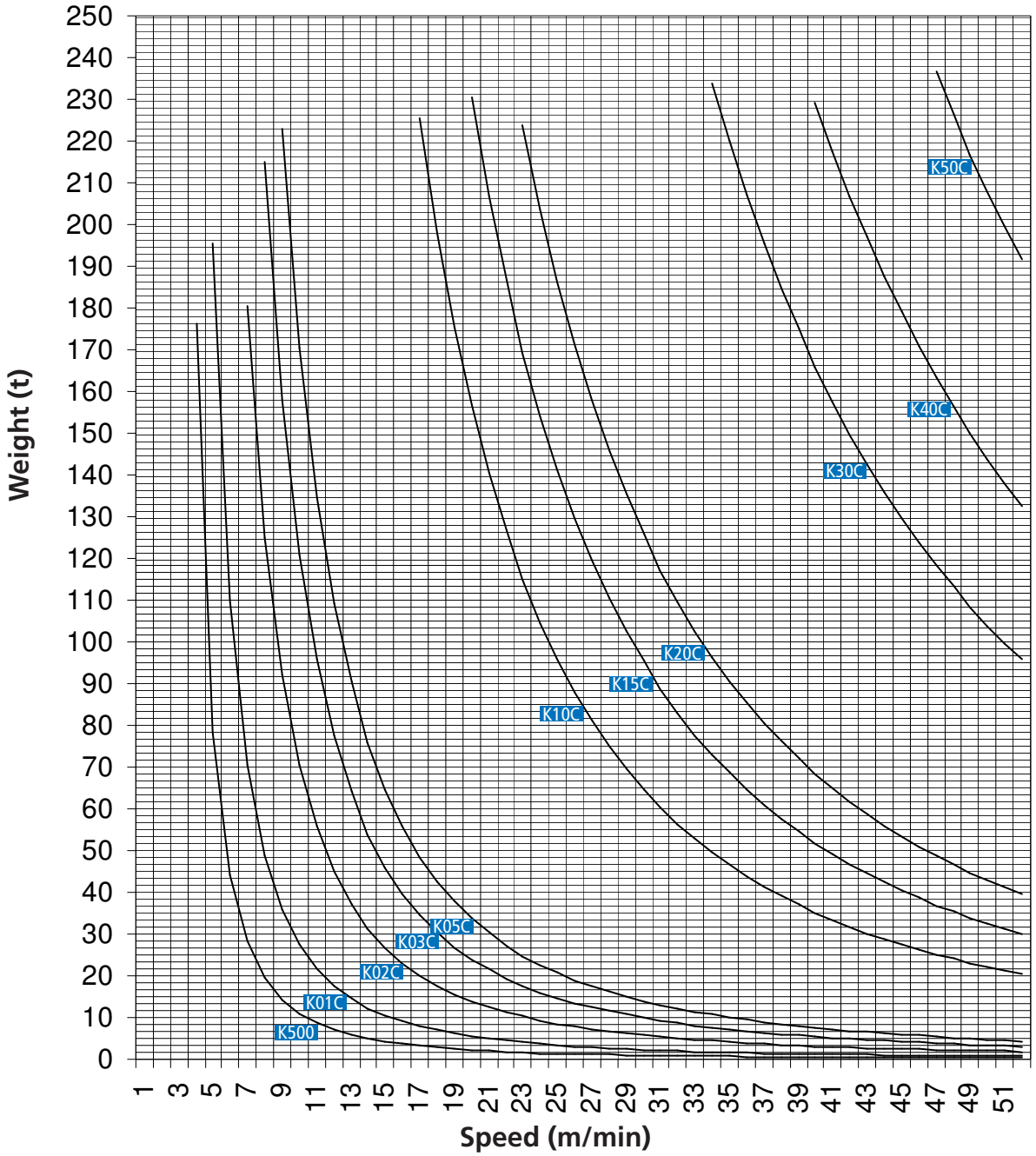
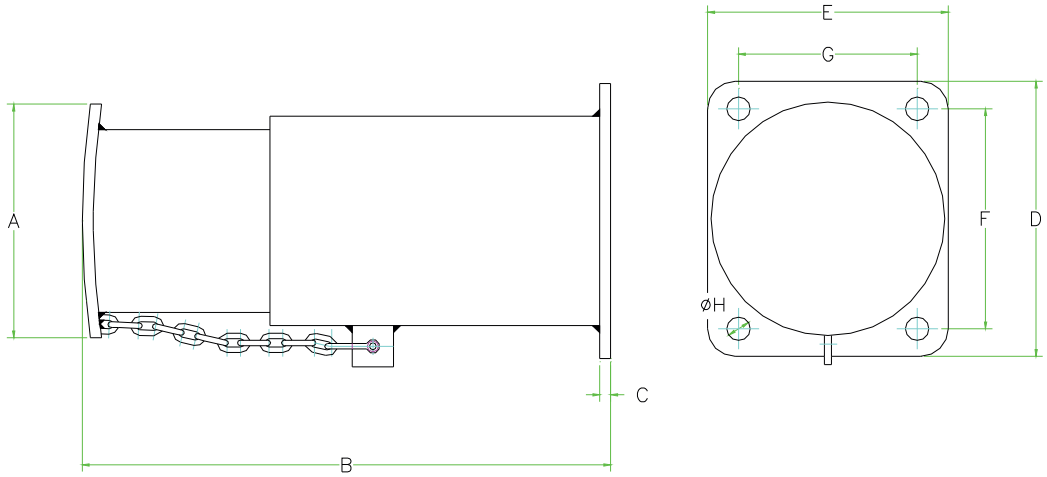
Research diagram

To find the correct buffer series type „**K/C**", cross-check the values of the speed and the impacting mass. The energy curve located to the right of the determined point identifies the suitable type of buffer.



Buffer specifications type K/A



Type	Max. Stroke [mm]	Load [daN]	Energy [J]	DIMENSIONS [mm]								Mass [kg]
				A	B	C	D	E	F	G	H	
K250	20	250	35	75	120	4	90	70	65	45	7	1,0
K500	25	500	70	90	130	5	110	90	80	60	9	1,8
K01A	25	1.000	160	120	140	6	135	115	105	85	11	3,9
K02A	50	2.000	440	160	230	8	170	150	130	110	13	8,3
K03A	50	3.000	720	170	240	8	205	175	160	130	15	11,7
K05A	50	5.000	1.150	200	260	8	230	200	175	145	17	14,0
K10A	75	10.000	4.400	260	360	10	310	260	260	210	19	31,6
K15A	75	15.000	7.800	320	380	12	360	310	300	250	21	48,0
K20A	80	20.000	10.000	350	390	12	410	350	340	280	27	64,0
K30A	100	30.000	21.000	370	470	15	410	350	340	280	27	75,0
K40A	150	40.000	38.000	370	600	15	440	380	370	310	34	111,0
K50A	200	50.000	46.000	370	700	15	440	380	370	310	34	142,0

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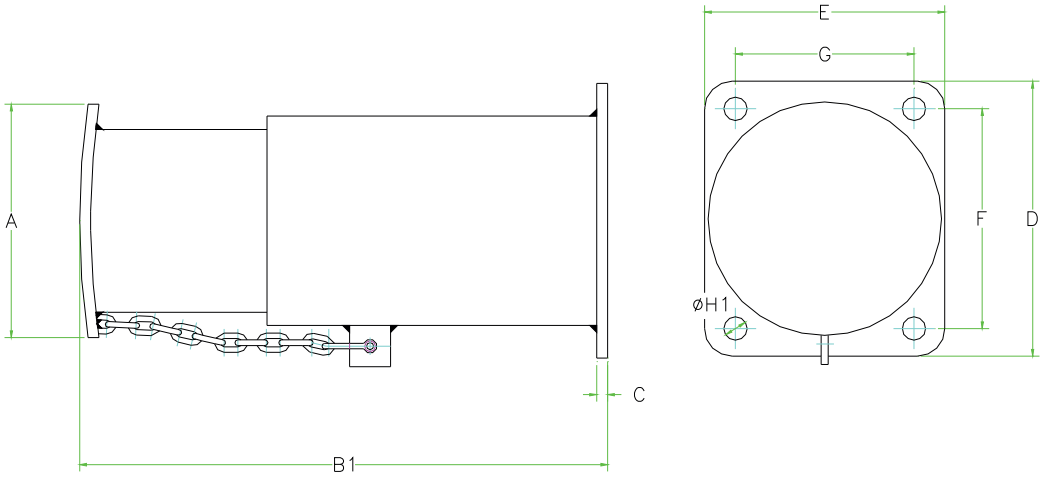
Buffer specifications type K/C



Type	Max. Stroke [mm]	Load [daN]	Energy [J]	DIMENSIONS [mm]								Mass [kg]
				A	B1	C	D	E	F	G	H1	
K01C	50	1.000	250	120	220	6	135	115	105	85	13	5,2
K02C	100	2.000	640	160	365	8	170	150	130	110	15	11,5
K03C	100	3.000	1.100	170	385	8	205	175	160	130	17	15,8
K05C	100	5.000	1.550	200	400	8	230	200	175	145	20	19,0
K10C	150	10.000	7.200	260	500	10	310	260	260	210	26	42,3
K15C	150	15.000	10.600	320	610	12	360	310	300	250	32	66,0
K20C	160	20.000	14.000	350	640	12	410	350	340	280	35	82,8
K30C	180	30.000	34.000	370	730	15	410	350	340	280	35	115,0
K40C	220	40.000	47.000	370	900	15	440	380	370	310	40	157,0
K50C	300	50.000	68.000	370	1.000	15	440	380	370	310	40	169,0

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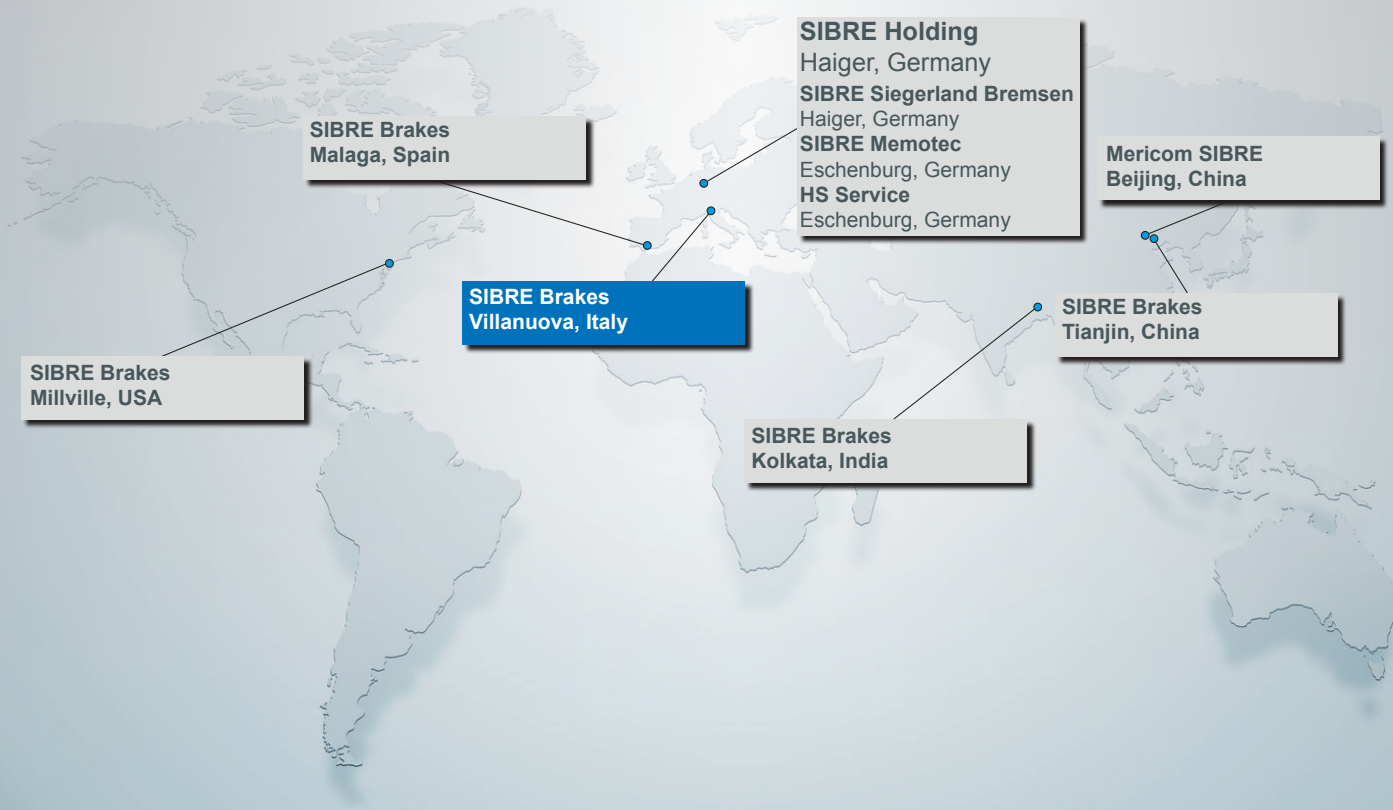

SIBRE Italia s.r.l.

Via Fibbia 1 • I-25080 Villanuova sul Clisi Bs
phone +39 0365 63699 • fax +39 0365 556062
mail info@sibre.it • home www.sibre.it

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