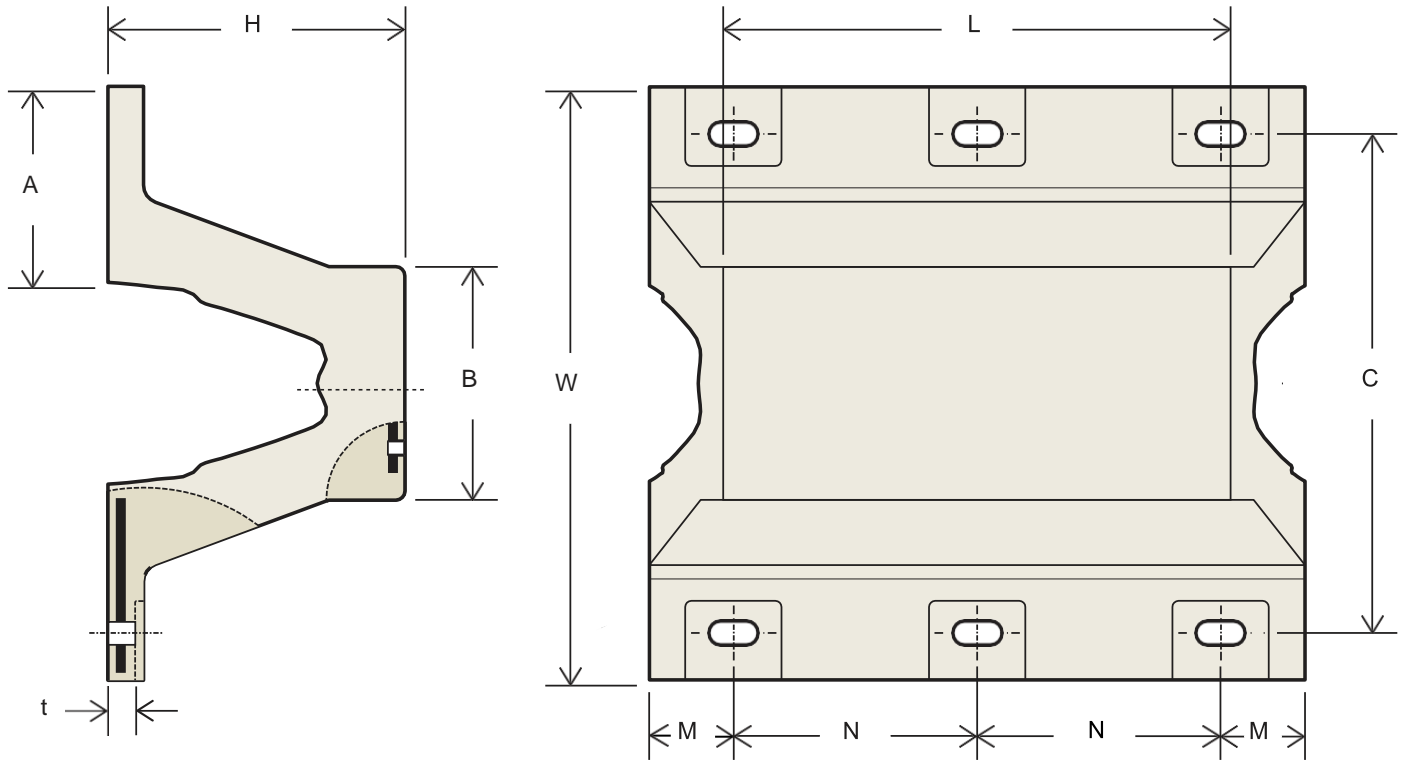


Bencros BAS Arch Fenders have a robust design, making them ideal for general-purpose berths, exposed locations and many other applications.

Minimal maintenance means they enjoy a long and trouble-free service life with low cost of ownership.

BAS Arch Fenders are commonly installed horizontally or vertically, onto new or existing structures.

Many sizes and compounds are available, whilst custom sizes and lengths, fixing configurations can be provided on request. Please speak to Bencros.



H	W	A	B	C	Slot	Fixings	L _{MIN}	1000	1500	2000	2500	3000	3500
250	500	178	200	400	58 x 29	M24	500	✓	✓	✓	✓	✓	✓
300	600	213	240	480	70 x 35	M30	600	✓	✓	✓	✓	✓	✓
400	800	285	320	640	82 x 41	M36	800	✓	✓	✓	✓	✓	✓
500	1000	358	400	800	82 x 41	M36	1000	✓	✓	✓	✓	✓	✓
600	1200	425	480	960	94 x 47	M42	1000	✓	✓	✓	✓	✓	X
800	1500	520	640	1300	100 x 50	M48	1000	✓	✓	✓	✓	✓	
1000	1800	610	800	1550	100 x 50	M48	1000	✓	✓	✓	✓	✓	

H	L = 1000			L = 1500			L = 2000			L = 2500			L = 3000			L = 3500		
	M	N	Weight	M	N	Weight	M	N	Weight	M	N	Weight	M	N	Weight	M	N	Weight
250	113	900	88	113	700	129	118	630	169	113	800	211	113	725	251	113	680	293
300	125	900	122	125	700	178	130	630	234	125	800	290	125	725	345	125	680	402
400	150	900	206	150	700	298	155	630	389	150	800	482	150	725	573	150	680	666
500	175	900	332	175	700	475	180	630	617	175	800	762	175	725	904	175	680	1048
600	200	900	476	200	700	676	205	630	875	200	800	1076	200	725	1276	Please ask Bencros		
800	250	900	840	250	700	1175	255	630	1510	250	800	1848	250	725	2183			
1000	300	900	1363	300	700	1879	305	630	2395	300	800	2918	300	725	3434			

Dimensions are in millimetres. Weights are in kilogrammes per fender. Cross sectional tolerance is ±5% and length tolerance is ±40mm, unless otherwise agreed. ✓ Standard lengths; For non-standard lengths, please ask Bencros.

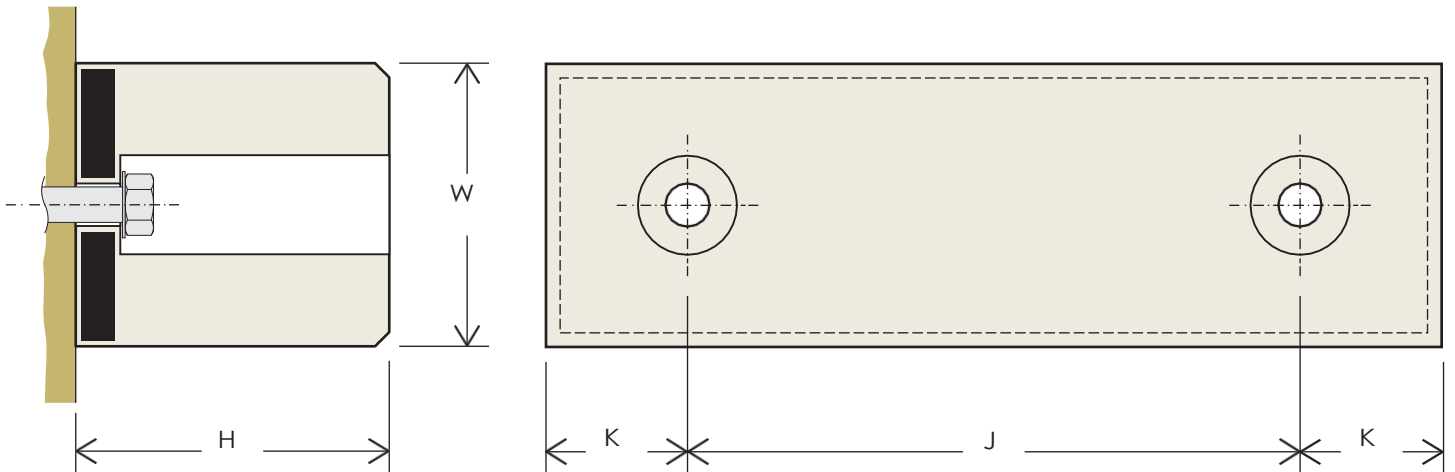
Bencros BFB Fender Bars are simple and ultra durable - ideal for fishing harbours and small boat berths.

Their internally vulcanised steel plate offers a low-profile fixing which resists the rigours of heavy impacts.

Fender Bars are also popular for bridge buttress protection, loading bays or similar applications.

Units come in a selection of sizes and lengths to suit all come in a wide selection of sizes and lengths.

Please ask Bencros for further details.



W	H	J	K	L	Anchors	Weight	E	R
150	150	1 x 500	250	1000	2 x M24	38	16.7	638
150	150	2 x 500	250	1500	3 x M24	56	24.5	961
150	200	1 x 500	250	1000	2 x M24	43	16.7	441
150	200	2 x 500	250	1500	3 x M24	65	24.5	667
200	200	1 x 500	250	1000	2 x M30	65	26.5	824
200	200	2 x 500	250	1500	3 x M30	98	40.2	1236
200	250	1 x 500	250	1000	2 x M30	77	26.5	657
200	250	2 x 500	250	1500	3 x M30	116	40.2	991
200	300	1 x 500	250	1000	2 x M30	88	26.5	530
200	300	2 x 500	250	1500	3 x M30	132	40.2	795

Dimensions are in millimetres, weights are in kilogramme per fender.
 Performance tolerance is $\pm 20\%$.
 Energy and reaction are per fender and for Bencros C1 (standard) rubber grade.

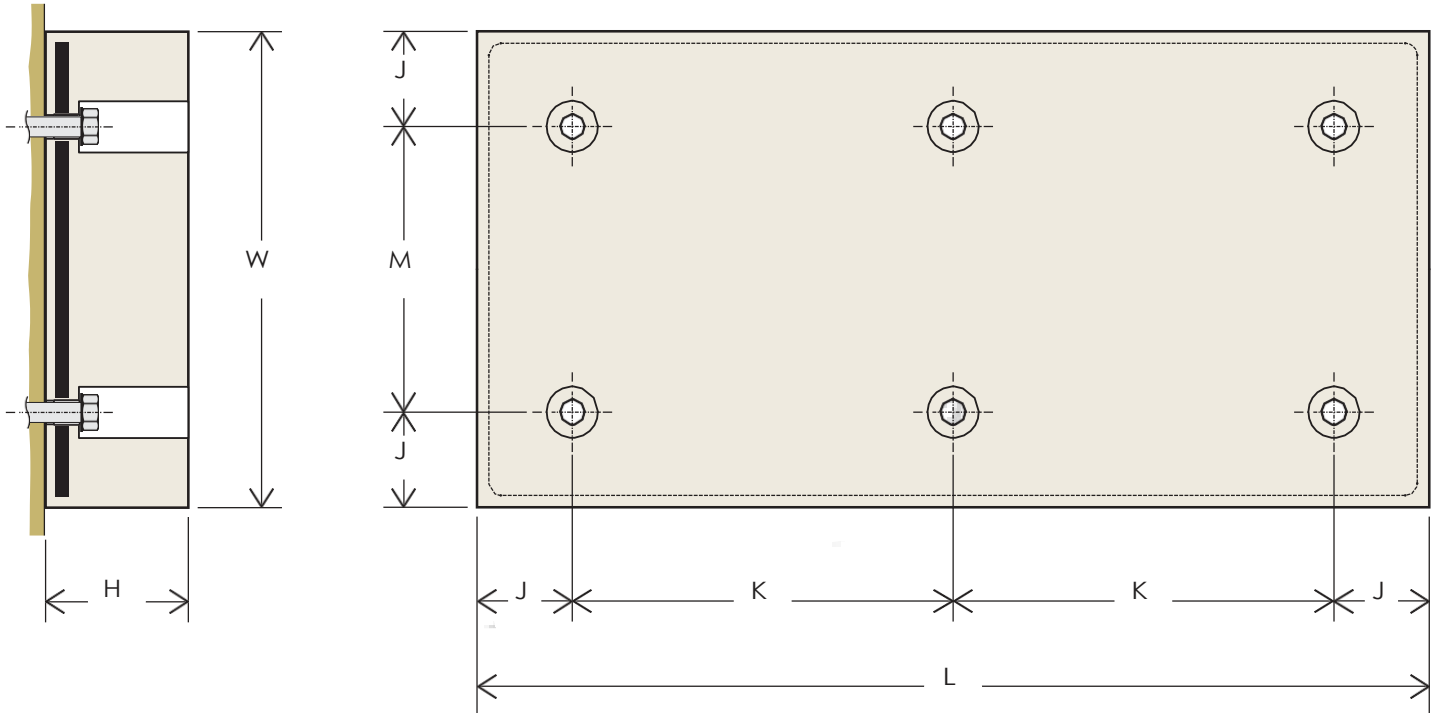
Bencros BPP are resilient panels fitted to berths where small vessels moored. They protect both the dock face and the vessel from abrasion.

MPP are ideally suited to situations where the distance between the boat and berth must be minimised, reducing the risk of cargo dropping through the gap.

The internally vulcanised steel plate ensures a strong fixing to the structure, whilst the low profile means low bending moments in the bolts.

Bencros BPP panels come with a flat face as standard, with the option of a textured face where high friction is desirable.

Please ask Bencros for further details.



H	W	L	J	K	M	Anchors	Weight
50	500	1000	100	800	300	4 x M20	46
50	600	1000	150	700	300	4 x M20	55
50	750	1000	150	700	450	4 x M20	69
50	500	1500	100	650	300	6 x M20	69
50	600	1500	150	600	300	6 x M20	83
50	750	1500	100	600	450	6 x M20	104
75	500	1000	100	800	300	4 x M20	61
75	600	1000	150	700	300	4 x M20	73
75	750	1000	150	700	450	4 x M20	91
75	500	1500	100	650	300	6 x M20	91
75	600	1500	150	600	300	6 x M20	109
75	750	1500	100	600	450	6 x M20	137
100	500	1000	100	800	300	4 x M20	75
100	600	1000	150	700	300	4 x M20	91
100	750	1000	150	700	450	4 x M20	114

H	W	L	J	K	M	Anchors	Weight
100	500	1500	100	650	300	6 x M20	113
100	600	1500	150	600	300	6 x M20	136
100	750	1500	100	600	450	6 x M20	170
125	500	1000	100	800	300	4 x M20	90
125	600	1000	150	700	300	4 x M20	108
125	750	1000	150	700	450	4 x M20	136
125	500	1500	100	650	300	6 x M20	135
125	600	1500	150	600	300	6 x M20	163
125	750	1500	100	600	450	6 x M20	204
150	500	1000	100	800	300	4 x M20	105
150	600	1000	150	700	300	4 x M20	126
150	750	1000	150	700	450	4 x M20	158
150	500	1500	100	650	300	6 x M20	157
150	600	1500	150	600	300	6 x M20	189
150	750	1500	100	600	450	6 x M20	237

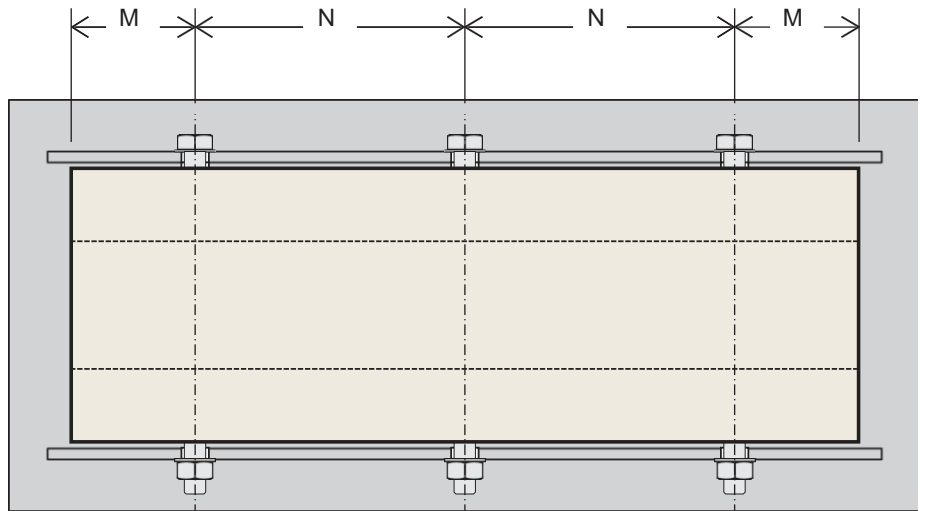
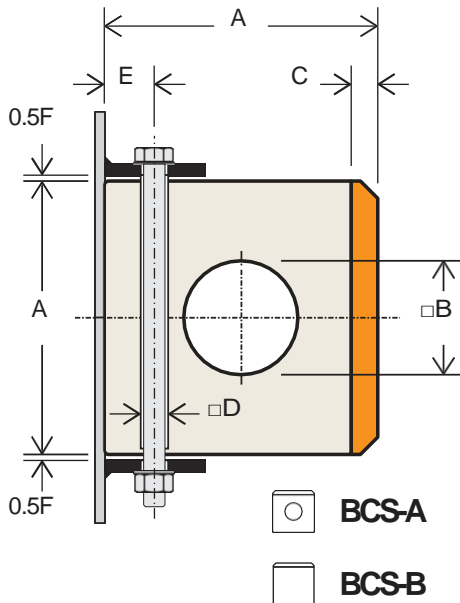
Dimensions are in millimetres, weights are in kilogramme per fender. For other sizes, fixing details and custom features, please ask Bencros.

Bencros BCS Composite Fenders are moulded rubber profiles with integrally vulcanised UHMW-PE face plate.

They are hard wearing and low-friction fenders, ideal for beltings on workboats, tugs and barges, as well as impact protection for canal locks, ports and bridges.

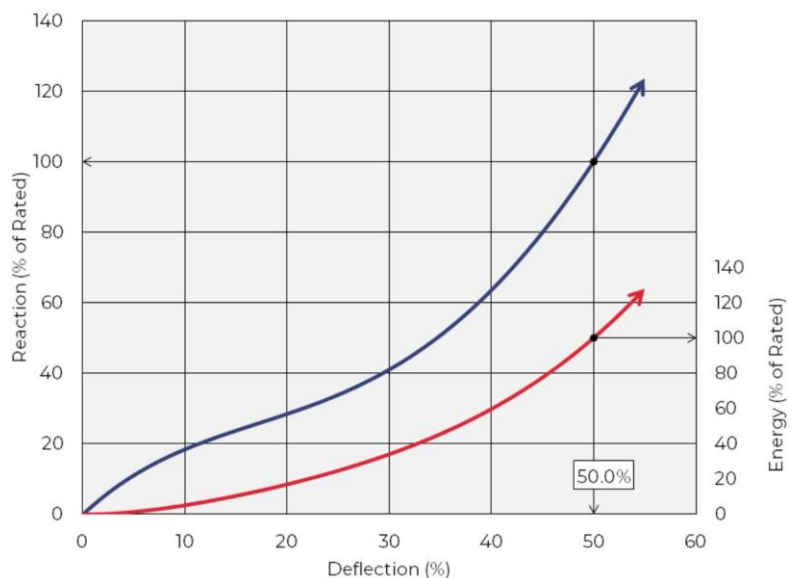
UHMW-PE plate comes in black as standard, or other colours on request. Composite fenders can be supplied pre-drilled and machined with a variety of mounting options.

Please ask Bencros for further details.



A	ØB	ØD	C	E	F	M	N	Flat Bar	Anchors	Weight	
										BCS-A	BCS-B
100	30	18	20	25	10	90-130	200-300	40 x 5	M12	10	11
150	65	24	20	30	12	110-150	250-350	60 x 8	M16	22	27
200	75	30	25	45	20	130-180	300-400	80 x 10	M20	40	48
250	100	36	30	50	25	140-200	350-400	90 x 12	M24	60	75
300	125	36	30	60	30	140-200	350-400	110 x 12	M24	92	108

Performance tolerance is $\pm 20\%$.
 Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade.
 For other sizes, fixing details and other custom features, please ask Bencros.

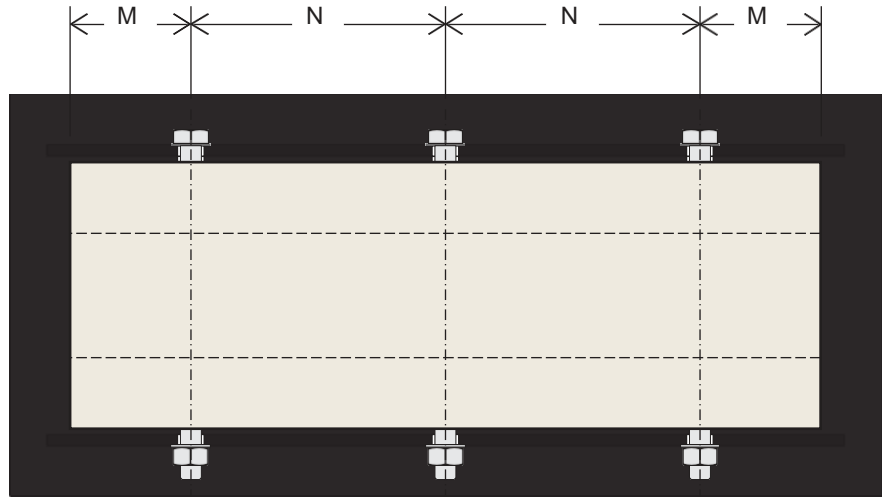
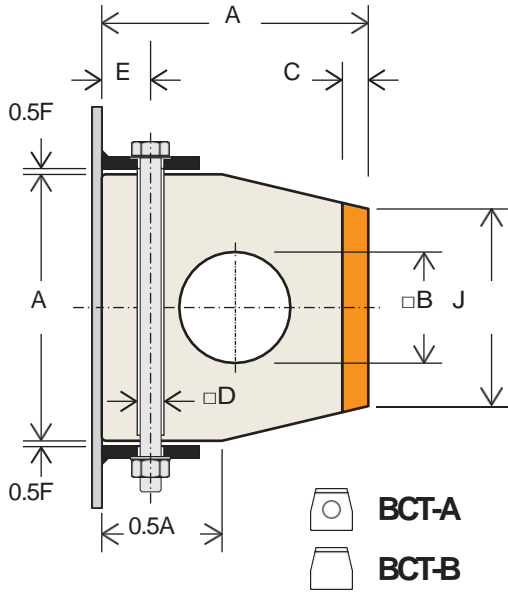


Bencros BCT Composite Fenders are moulded rubber profiles with integrally vulcanised UHMW-PE face plate.

UHMW-PE plate comes in black as standard, or other colours on request. Composite fenders can be supplied pre-drilled and machined with a variety of mounting options.

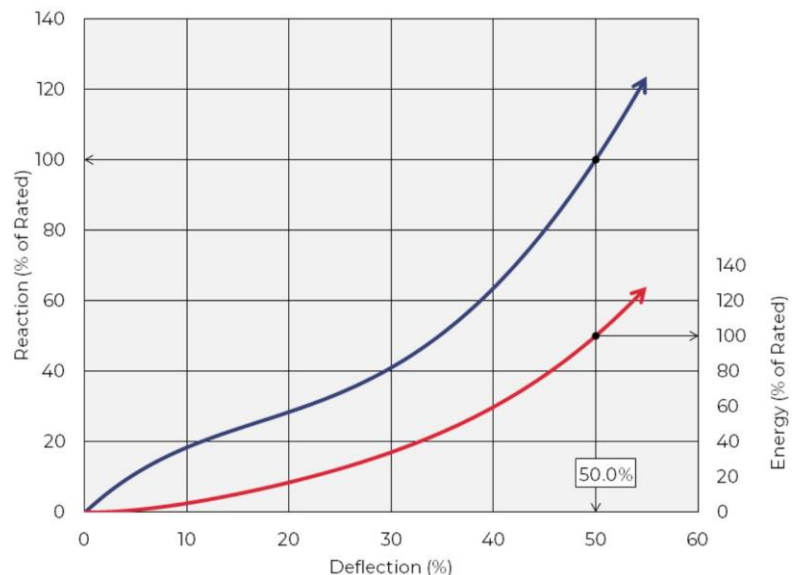
They are hard wearing and low-friction fenders, ideal for beltings on workboats, tugs and barges, as well as impact protection for canal locks, ports and bridges.

Please ask Bencros for further details.



A	ØB	C	ØD	E	F	J	M	N	Flat Bar	Anchors	Weight	
											BCS-A	BCS-B
80	42	10	18	25	6	60	90-130	200-300	30 x 5	M12	5.4	7.0
100	45	10	18	25	8	74	90-130	200-300	40 x 5	M12	8.4	11
120	62	12	24	30	10	88	110-150	250-350	50 x 6	M16	12	16
150	110	15	24	30	12	110	110-150	250-350	60 x 8	M16	20	25

Performance tolerance is ±20%.
 Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade.
 For other sizes, fixing details and other custom features, please ask Bencros.

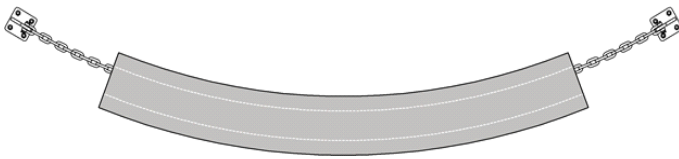
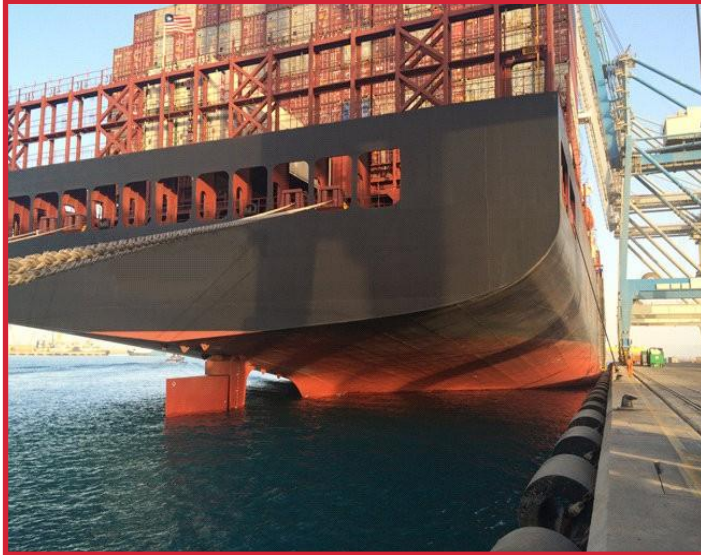


Bencros BCY cylindrical fenders are hard wearing and have protected hulls and berths for decades. They are used in all operating conditions around the world.

Our versatile processes include extrusion, wrapping and moulding. This allows Bencros to

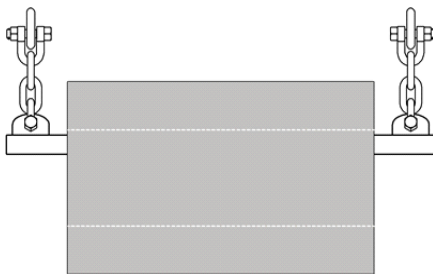
create nearly any permutation of cylindrical fender diameter and length.

Performance values are based on the standard C1 grade, but harder (high energy) and softer (low reaction) compounds are also available on request.



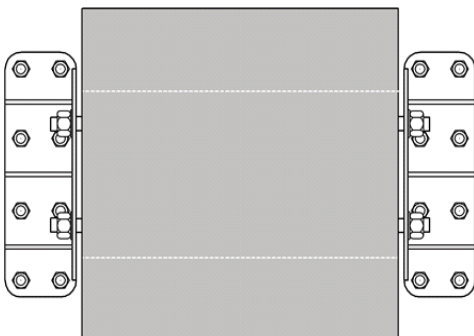
$OD \leq 600\text{mm}$

Small cylindrical fenders are commonly suspended using chains, shackles and brackets.



$600\text{mm} \leq OD \leq 1600\text{mm}$

Medium cylindrical fenders can be supported with solid round or circular hollow steel bars. Chains and shackles connect to brackets or U-anchors on the structure. End stop plates are optional.



$OD \geq 1600\text{mm}$

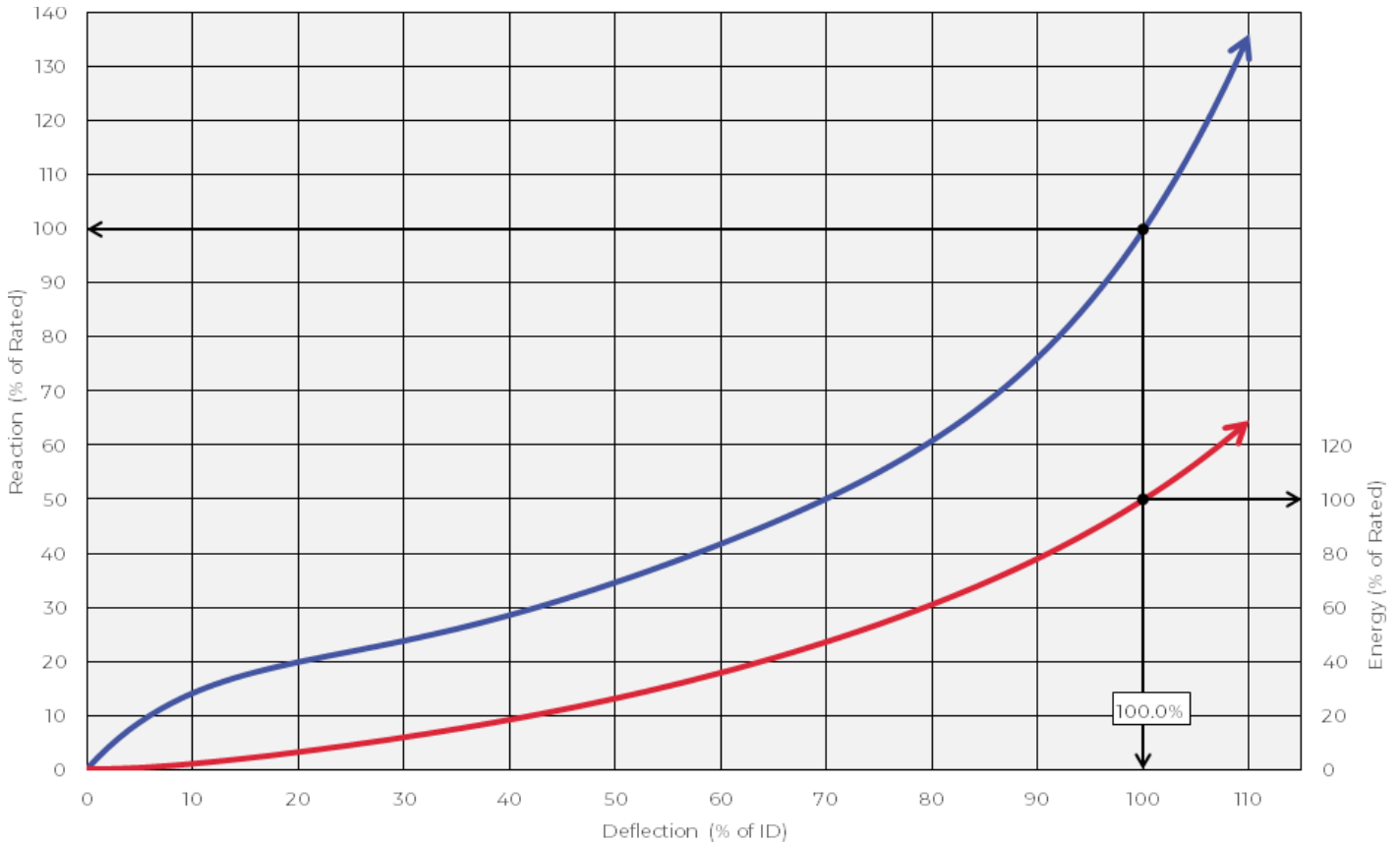
Large cylindrical fenders are mounted on robust brackets with central ladder retaining. Due to the special requirements for large cylindrical fenders, fixings are specially designed for each application. Ask Bencros for details.

Bencros BCY cylindrical fenders are hard wearing and have protected hulls and berths for decades. They are used in all operating conditions around the world.

Our versatile processes include extrusion, wrapping and moulding. This allows Bencros to

create nearly any permutation of cylindrical fender diameter and length.

Performance values are based on the standard C1 grade, but harder (high energy) and softer (low reaction) compounds are also available on request.



OD	ID	E (kNm)	R (kN)	P (kN/m ²)
100	50	1.1	55.0	701
125	65	1.7	65.4	694
150	75	2.5	82.5	701
175	75	3.7	117	747
200	100	4.5	110	701
250	125	7.0	138	701
300	150	10.1	165	701
380	190	16.2	209	701
400	200	18.0	220	701
450	225	22.8	248	701
500	250	28.1	275	701
600	300	40.5	330	701
800	400	71.9	440	701
900	450	91.0	495	701
1000	500	112	550	701

OD	ID	E (kNm)	R (kN)	P (kN/m ²)
1100	600	131	541	689
1200	600	162	660	701
1300	700	184	650	690
1400	700	220	770	701
1400	800	208	649	689
1500	750	253	825	701
1500	800	246	760	691
1600	800	288	880	701
1600	900	273	757	688
1800	900	364	990	701
2000	1000	450	1101	701
2000	1200	415	871	693
2200	1200	524	1083	689
2400	1200	647	1321	701
2700	1300	833	1559	709

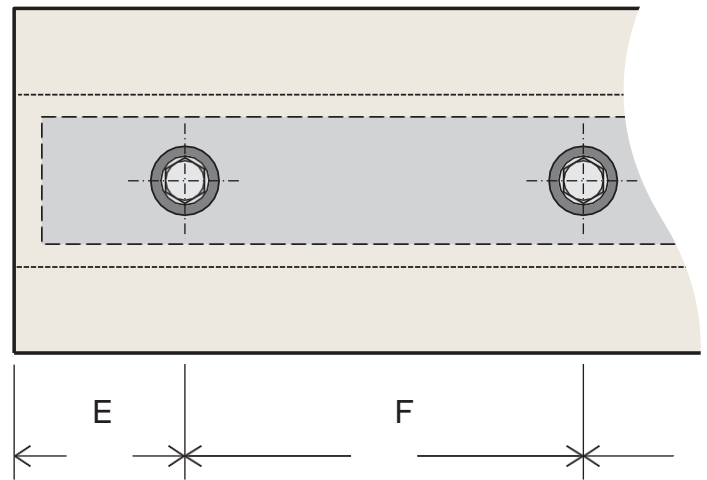
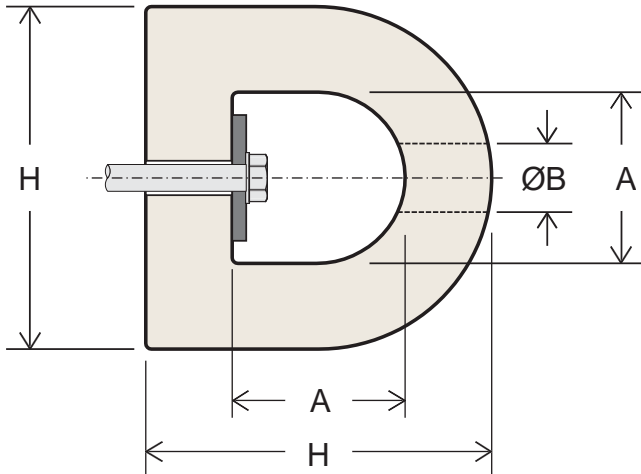
Performance tolerance is ±10%. Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade. For special requirements and extra large diameters, please ask Bencros.

Bencros DD fenders are highly durable. They provide excellent impact protection in many applications, including jetties and wharfs, tugs and loading bays.

Moulded and extruded variants are available, cut to length, pre-drilled, ends chamfered and

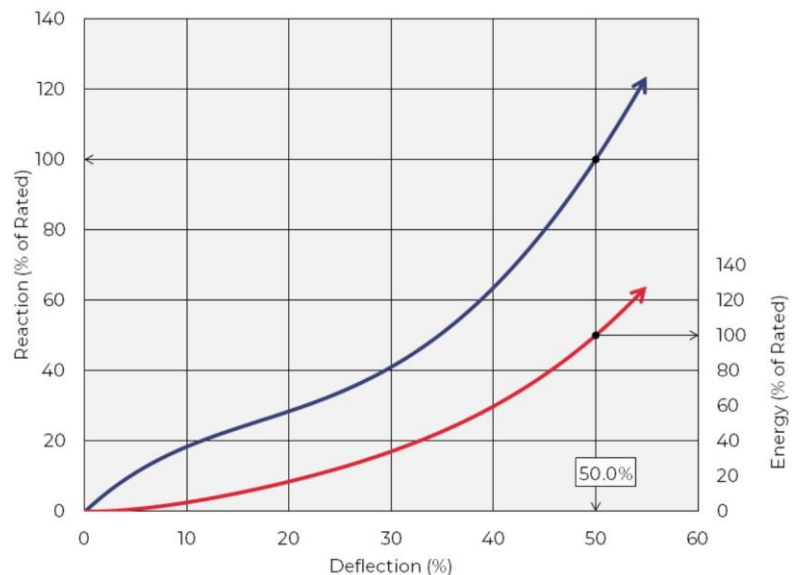
with pre-curved or even angle bends, as the project demands. Bencros DD performance values are based on the standard C1 grade, but harder (high energy) and softer (low reaction) compounds are also available on request.

Please ask Bencros for further details.



H	A	ØB	E	F	Flat Bar	Anchors	Weight	Energy	Reaction
100	50	30	90-130	200-300	40 x 5	M12	8.0	1.4	77
150	75	40	110-150	250-350	60 x 8	M16	18	3.2	115
200	100	50	130-180	300-400	80 x 10	M20	32	5.7	153
250	125	60	140-200	350-450	90 x 12	M24	50	9.0	192
300	150	60	140-200	350-450	110 x 12	M24	72	12.9	230
350	175	75	140-200	350-450	130 x 15	M30	98	17.6	268
380	190	75	140-200	350-450	140 x 15	M30	116	20.7	291
400	200	75	140-200	350-450	150 x 15	M30	129	23.0	306
500	250	90	160-230	400-500	180 x 20	M36	201	35.9	383

Performance tolerance is $\pm 20\%$.
 Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade.
 EPDM, polyurethane and other compound types are available.
 For other sizes, fixing details and other custom features, please ask Bencros.

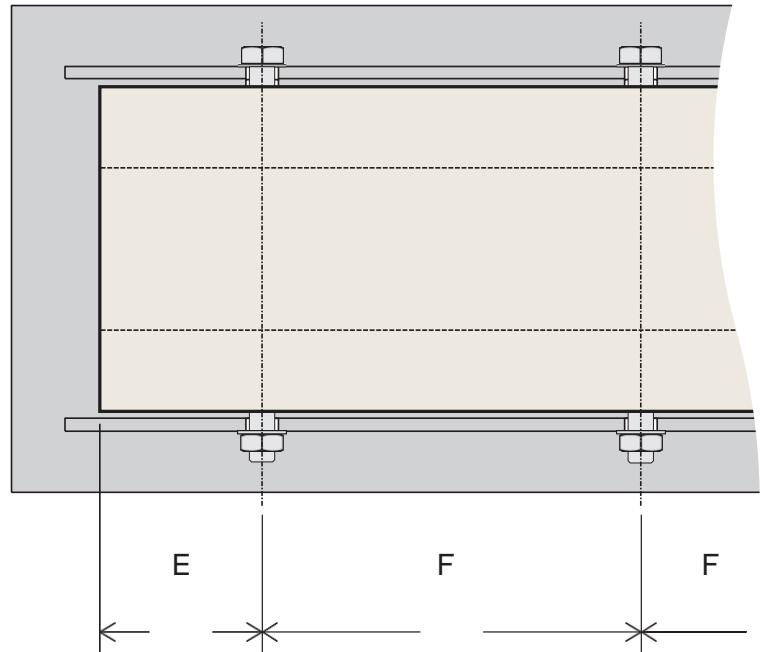
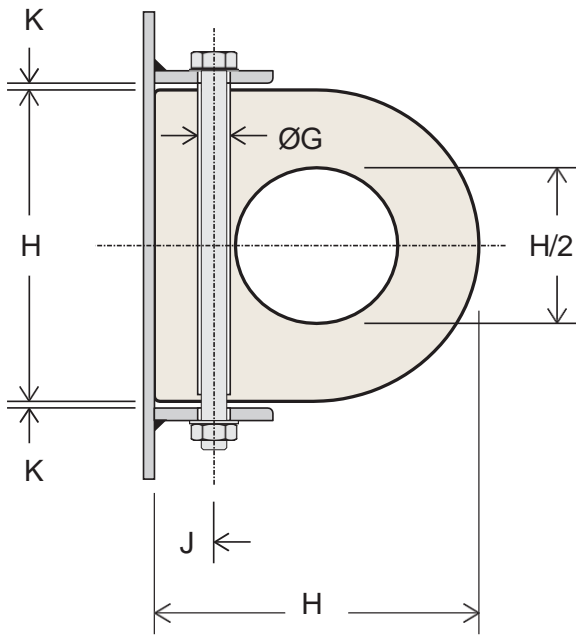


Bencros DC fenders are highly durable. They provide excellent impact protection in many applications, including jetties and wharfs, tugs and loading bays.

with pre-curved or even angle bends, as the project demands. Bencros DC performance values are based on the standard C1 grade, but harder (high energy) and softer (low reaction) compounds are also available on request.

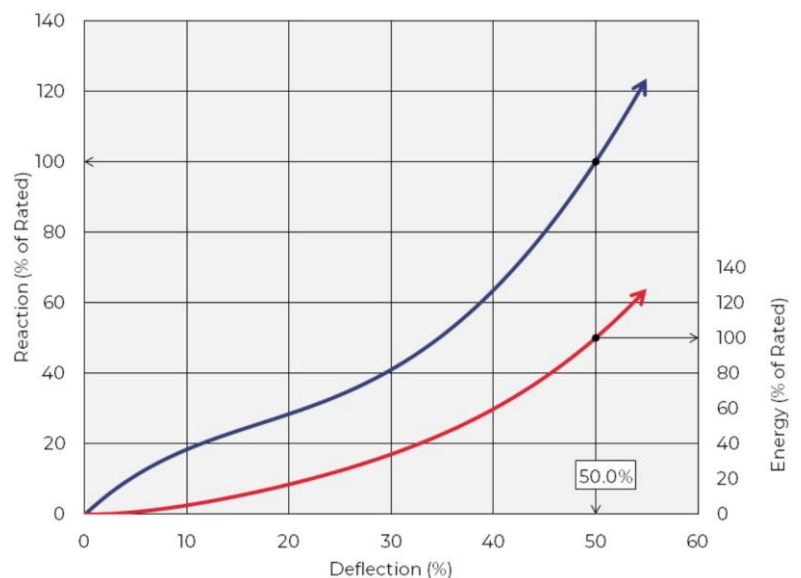
Moulded and extruded variants are available, cut to length, pre-drilled, ends chamfered and

Please ask Bencros for further.



H	ØG	E	F	J	K	Flat Bar	Bolts	Weight	Energy	Reaction
100	18	90-130	200-300	25	5	40 x 5	M12	8.4	1.8	157
150	24	110-150	250-350	30	6	60 x 8	M16	19	4.1	236
200	30	130-180	300-400	45	8	80 x 10	M20	33	7.4	314
250	36	140-200	350-450	50	10	90 x 12	M24	52	11.5	393
300	36	140-200	350-450	50	12	110 x 12	M24	75	16.6	471
350	45	140-200	350-450	60	12	130 x 15	M30	102	22.5	550
400	45	140-200	350-450	80	15	150 x 15	M30	134	29.4	628
500	54	160-230	400-500	90	20	180 x 20	M36	209	46.0	785

Performance tolerance is $\pm 20\%$.
 Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade.
 EPDM, polyurethane and other compound types are available.
 For other sizes, fixing details and other custom features, please ask Bencros.



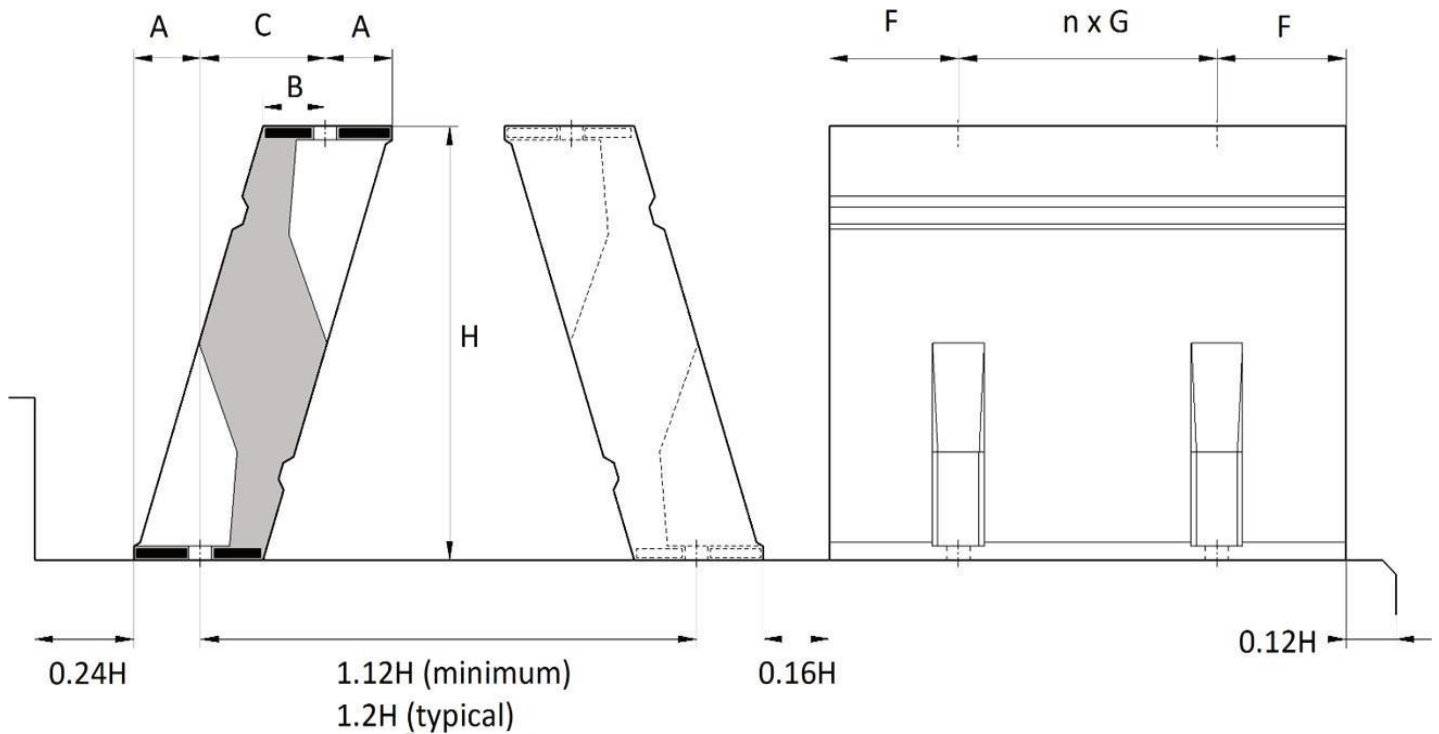
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 🌐 www.bencros.com

Bencros BME Element legs are compression moulded modular buckling column fenders with a high-performance geometry, internal steel mounting plates and concealed bolts.

BME Elements are simple to install and need very little maintenance. Many configurations

are possible: as a simple V-fender with UHMW-PE face shield or complex arrays in multiple fender systems using steel panels.

Standard and custom lengths are available in different rubber grades to suit most berth types and applications.



H	A	B	F	n x G	T	Fixings	Weight	L _{MIN}	600	900	1000	1200	1500	2000
250	40	40	F = 0.5 x [L - (n x G)]	300	17	M20	30	400	✓	✓		✓	✓	
300	47	47		400	17	M20	46	600	✓	✓		✓	✓	
400	63	62		500	17	M24	66	750			✓		✓	✓
500	87	71		500	20	M30	111	750			✓		✓	✓
550	87	85		500	20	M30	132	800			✓		✓	✓
600	87	101		500	20	M30	153	800			✓		✓	✓
700	113	112		500	26	M36	222	800			✓		✓	✓
750	118	117		500	26	M36	239	800			✓		✓	✓
800	129	121		500	26	M36	268	800			✓		✓	✓
900	145	144		500	31	M42	367	900			✓		✓	○
1000	162	160		500	31	M42	454	900		✓	✓		✓	○
1200	195	195		500	36	M48	625	900		✓	✓		✓	○
1250	202	199		500	36	M48	639	900			✓		✓	○
1400	220	220		500	41	M48	846	1000			✓		✓	○
1450	228	226		500	41	M48	873	1000			✓		✓	○
1600	261	246		500	50	M56	1114	1000			✓		✓	○

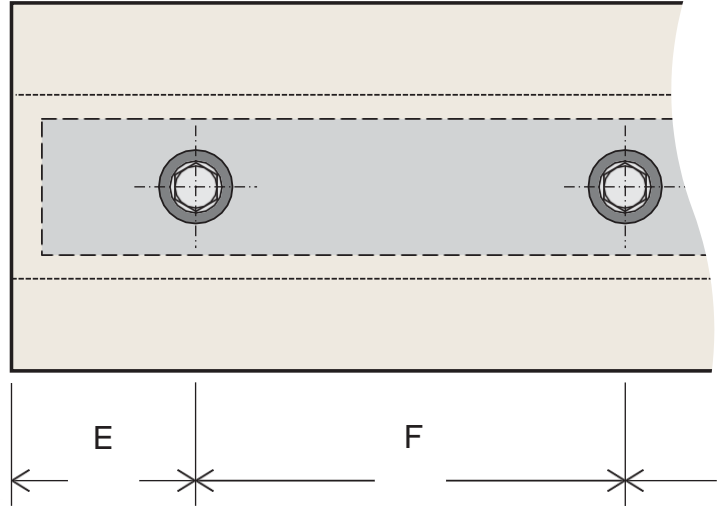
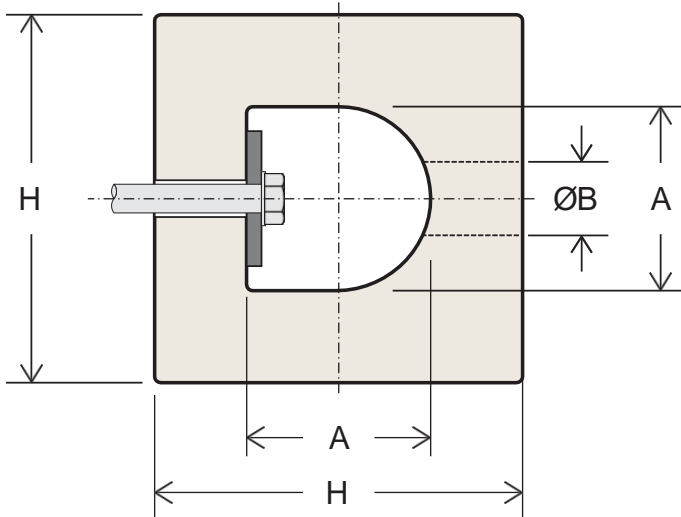
Dimensions are in millimetres. Weights are in kilogrammes per element, per metre. Cross sectional tolerance is $\pm 5\%$ and length tolerance is $\pm 40\text{mm}$, unless otherwise agreed. ✓ Standard lengths; ○ Non-standard lengths (please ask Bencros).

Bencros SD fenders are highly durable. They provide excellent impact protection in many applications, including jetties and wharfs, tugs and loading bays.

Moulded and extruded variants are available, cut to length, pre-drilled, ends chamfered and

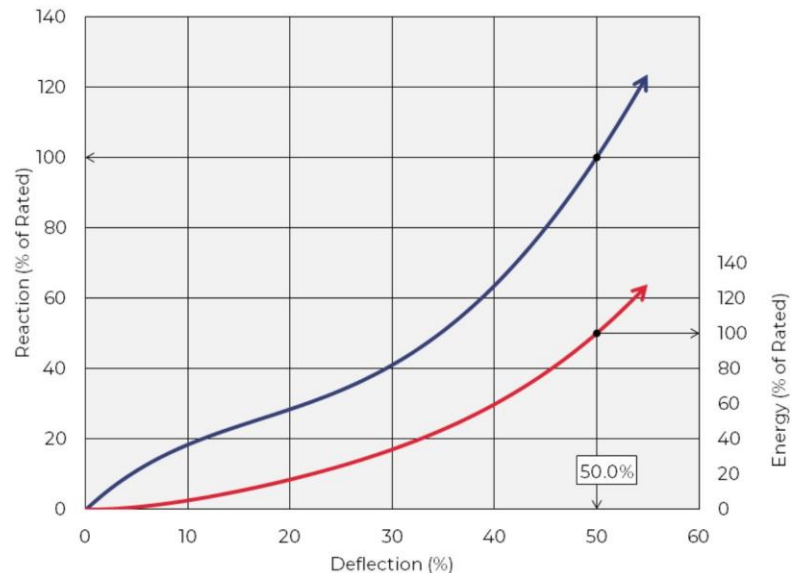
with pre-curved or even angle bends, as the project demands. Bencros SD performance values are based on the standard C1 grade, but harder (high energy) and softer (low reaction) compounds are also available on request.

Please ask Bencros for further details.



H	A	ØB	E	F	Flat Bar	Anchors	Weight	Energy	Reaction
100	50	30	90-130	200-300	40 x 5	M12	9.3	2.8	147
150	75	40	110-150	250-350	60 x 8	M16	21	6.4	221
200	100	50	130-180	300-400	80 x 10	M20	37	11.3	294
250	125	60	140-200	350-450	90 x 12	M24	58	17.7	368
300	150	60	140-200	350-450	110 x 12	M24	84	25.5	442
350	175	75	140-200	350-450	130 x 15	M30	114	34.6	515
400	200	75	140-200	350-450	150 x 15	M30	149	45.2	589
500	250	90	160-230	400-500	180 x 20	M36	233	70.7	736

Performance tolerance is $\pm 20\%$.
 Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade.
 EPDM, polyurethane and other compound types are available.
 For other sizes, fixing details and other custom features, please ask Bencros.

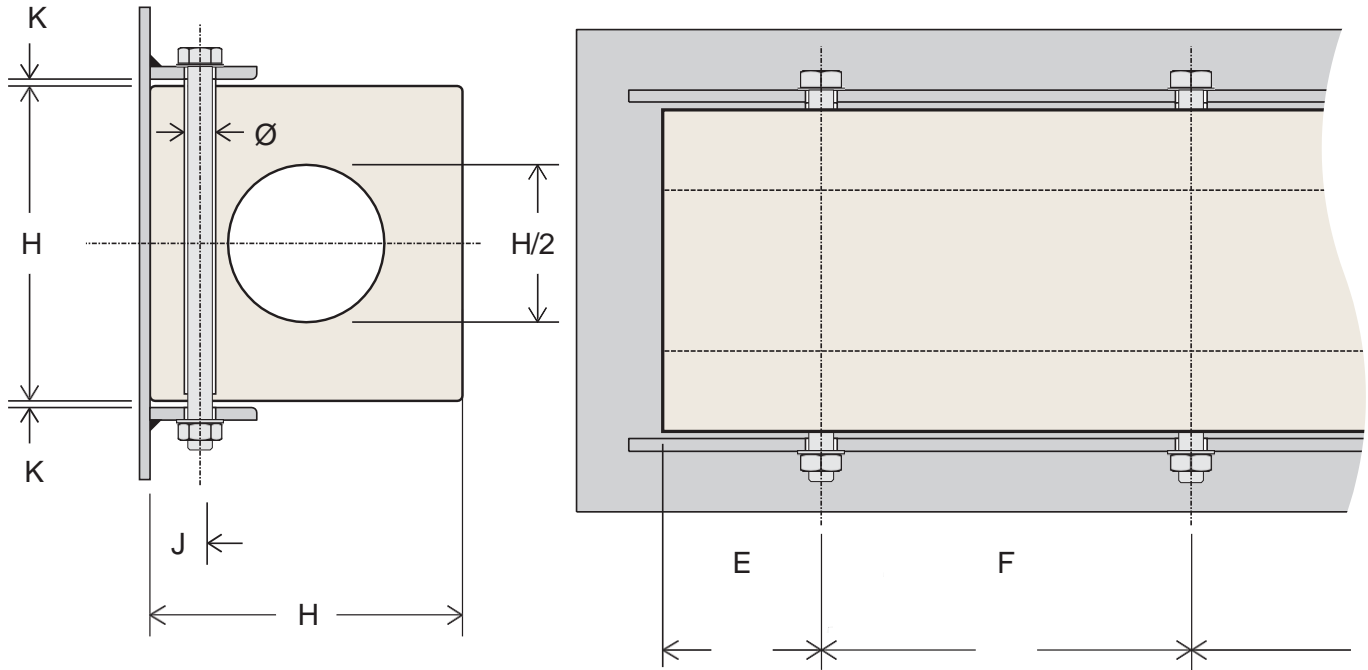


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 www.bencros.com

Bencros SC fenders are highly durable. They provide excellent impact protection in many applications, including jetties and wharfs, tugs and loading bays. Moulded and extruded variants are available, cut to length, pre-drilled, ends chamfered and

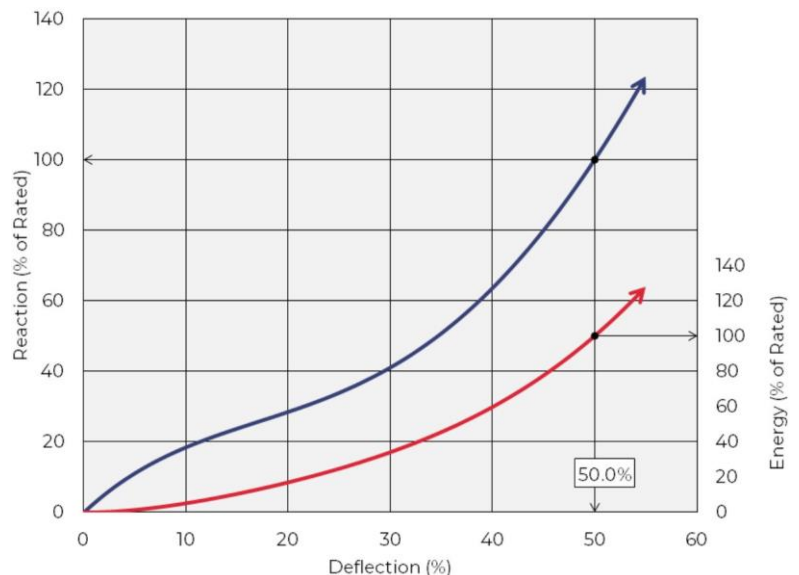
with pre-curved or even angle bends, as the project demands. Bencros SC performance values are based on the standard C1 grade, but harder (high energy) and softer (low reaction) compounds are also available on request.

Please ask Bencros for further.



H	E	F	ØG	J	K	Flat Bar	Bolts	Weight	Energy	Reaction
100	90-130	200-300	18	25	5	40 x 5	M12	9.6	2.8	173
150	110-150	250-350	24	30	6	60 x 8	M16	22	6.3	259
200	130-180	300-400	30	45	8	80 x 10	M20	39	11.3	345
250	140-200	350-450	36	50	10	90 x 12	M24	60	17.6	432
300	140-200	350-450	36	50	12	110 x 12	M24	87	25.4	518
350	140-200	350-450	45	60	12	130 x 15	M30	118	34.5	604
400	140-200	350-450	45	80	15	150 x 15	M30	154	45.1	690
500	160-230	400-500	54	90	20	180 x 20	M36	241	70.5	863

Performance tolerance is $\pm 20\%$.
 Energy and reaction are per metre length and for Bencros C1 (standard) rubber grade.
 EPDM, polyurethane and other compound types are available.
 For other sizes, fixing details and other custom features, please ask Bencros.



Bencros UHMW-PE facings protect fender panels from impact and lower friction against vessel hulls.

UHMW-PE facings are also useful for impact protection where fenders are not installed.

UHMW-PE is also used as V-fender shields and in the manufacture of Composite fenders.

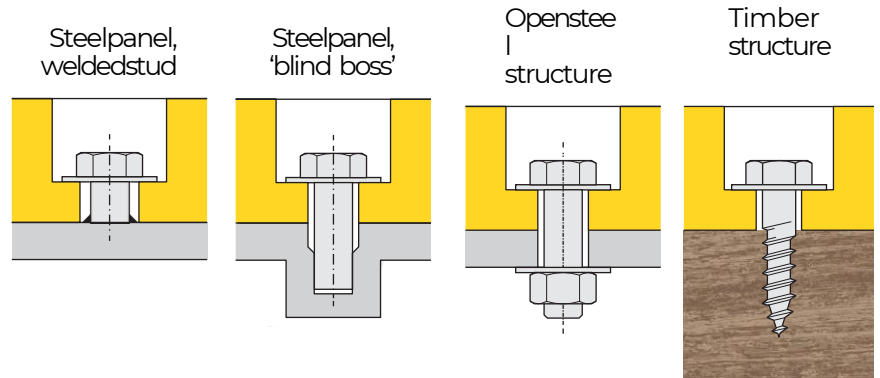
It does not rot or split. It is resistant to UV or ozone, and can be fully recycled at the end of its useful service life.

The low-friction surface and bevelled edges guard against snagging and abrasion.

Please ask Bencros for further details.

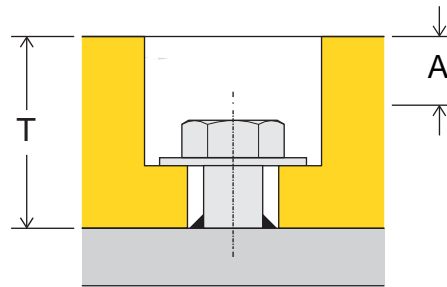
FIXINGS

Fixings should match the underlying structure. Steel panels require welded studs or, ideally, 'blind boss' fixings for extra strength. We recommend oversize for bolting through open steel structures. Please ask Bencros about steel grades and finishes.



WEAR ALLOWANCE

Increasing the thickness (T) of a UHMW-PE facing provides more wear allowance (A), extending its working life, protecting the fender or substrate for longer and reducing routine maintenance.



T	A
30	5
40	10
50	15
70	25
100	40

PROPERTIES

The properties for Virgin (FQ1000) and regenerated grades are provided for reference. Virgin materials are available in black and other colours (red, white, blue etc). Regenerated grades offer a good compromise between price and longevity.

Property	Standard	Unit	Virgin Grade	Regenerated Grade
Density	ISO 1183-1	g/cm ³	0.93–0.94	0.94–0.96
Molecular Weight	Viscosimetric Method	g/mol	~5,000,000	3,000,000–6,000,000
Friction Coefficient	ISO 8295	–	0.15–0.20	0.15–0.20
Tensile Strength	ISO 527	N/mm ²	≥17	≥17
Breaking Strength	ISO 527	N/mm ²	>40	>30
Elongation at Break	ISO 527	%	≥50	≥50
Ball Hardness	ISO 1239-1	N/mm ²	38	38
Shore Hardness	ISO 868	Shore D	61–63	64–66
Impact Strength (V)	ISO 11542-2	mJ/mm ²	≥180 (coloured)	≥70
Abrasion Resistance	ISO 15527	–	100	130–150
Temperature Range	–	°C	–200 to +80	–100 to +80
Melting Point	ISO 3146-C	°C	133–136	133–136
Linear Expansion	DIN 53752	K ⁻¹	~2x10 ⁻⁴	~2x10 ⁻⁴

FRICITION

UHMW-PE friction coefficient (μ) varies according to the contact pressure and opposing contact surface. Typical coefficients are provided for guidance (Source: BS6349-4: 2014)

Material	μ Against Steel
UHMW-PE	0.15–0.2
HD-PE	0.3
Nylon	0.2
Rubber	0.6–0.7
Timber	0.4
Steel	0.5