



ERCEM



Operating principles:

ERCEM seal is a mechanical seal which operate thanks to the friction of the

O-rings mounted in the stainless steel ring and radial by pressing the carbon and stainless steel ring .

Our ERCEM sealing are mounted on propeller shaft but also on rudders .

rotating stainless steel ring and static carbon ring. The nitrile bellows fixed to the stern tube with collars 316L provides compression between the steel ring and the carbon ring . The rotating seal ERCEM tolerate misalignment and provides a perfect axial sealing thanks to the two

- The standard model without inlet manufactured , used and recognized for several decades .
Availability: Any diameter of metric or imperial shaft 22 to 115mm
Application: Sailing - Fishing - Passenger boats - fast boats ...

CARBON/GRAPHITE RING

Rings are produced with Isomolded, very fine grain, high strength, high density, isotropic graphite resin impregnated for high mechanical and sealing applications.

This material may tolerate temperatures up to 200 ° Celsius. Rings are produced on CNC machines to ensure a glossy surface state on the contact face.

Depending on the application, the carbon ring may be provided with polyamide fitting to provide better lubrication in water or air vent. We use a non-metallic material to avoid electrolytic phenomena.



STAINLESS STEEL RING

316L stainless steel rings are machined on CNC machine to ensure a perfect surface condition and exacting tolerances. The rings are slipped onto the shaft and held in place by 3 setscrews cup end in stainless steel 316L.

The rings are also equipped with two O-rings in nitrile to ensure a perfect seal.

Concerning stainless steel rings for shaft above Ø55mm, they are composed of two parties to facilitate mounting.



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BELLOW

ERCEM can be fitted with two different types of bellows :

- First one, simple bellows are made of an elastomer and is particularly used for recreational with shaft diameters up to 41.275mm (1" 5/8).

- Second one, reinforced bellows are made of high strength reinforced nitrile covered by Aramid more known as Kevlar®. It can be mounted on our entire range. Its advantages are increased resistance to petrochemicals products, UV, cuts, strains and also to high temperatures.

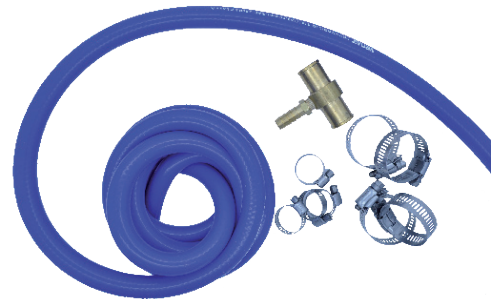
Our range of bellows is tested under high pressure in our workshops to return to our quality criteria.



WATER PICK UP KITS

Water Pick-Up Kits include everything needed to connect your ERCEM to a point in the engine's raw water cooling system: Brass Tees, hose and 316L clamps.

Reference	Référence
Water pick up kits- Tee 3/4"	ERCKIT1
Water pick up kits-- Tee 1"	ERCKIT2
Water pick up kits-- Tee 1"1/4	ERCKIT3
Water pick up kits-- Tee 1"1/2	ERCKIT4



ERCEM SEALS IN FEW WORDS

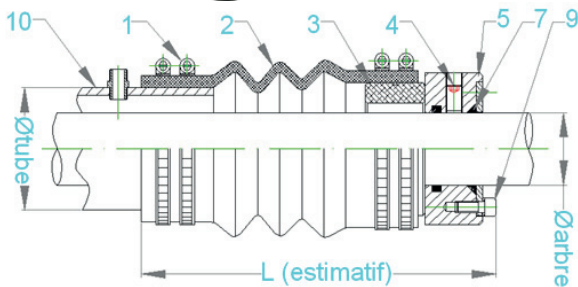
- The ERCEM is a 100% French origin
- With an experience of several decades, it is known for its reliability.
- Ecological: no lubrication using petrochemical material.
- Economic:
 - * No maintenance required
 - * No greasing
 - * No lip seals replacement
 - * No braid packing to tighten the stuffy box
 - * No shaft wear due to friction of lip seals or braid
- Tolerates misalignment and offers perfect axial sealing

They trust us:

ALLAIS - ALLURES YACHTING - ALUTECH - CATANA - COUACH - CNB - CHANTIER NAVAL DELAVERGNE - DINTRA BV - H2X - OCEA - MICHIGAN WHEEL MARINE EUROPE - NSI - SIBIRIL - STX FRANCE - TRANSMETAL INDUSTRIE - UFAST - UFIN ...



COMPLETE STANDARD ERCEM SHAFT Ø > 55MM



Description:

L = total length (the dimension 'L' is given as "indicative" without compression)

C = compression

+ or - 2 mm (simple)

+ or - 4 mm (reinforced)

(1) Stainless steel clamps (2) Simple or reinforced bellow (3) Carbon ring (4) Stainless steel screw (5) Stainless steel ring (6) Water inlet (7) O'rings

Depending on the application, a water inlet or an air inlet (6) must be fitted to the tube as close to the seal as possible (consult us).

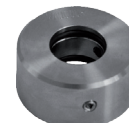
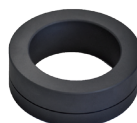
SHAFT Ø	TUBE Ø	Simple Bellow	L	C
55	75/84	ERCCO15005501	186	14
55	88/93	ERCCO15005502	202	14
55	94/100	ERCCO15005503	202	14
55	104/114	ERCCO15005504	257	25
57.15(2"1/4)	75/84	ERCCO150057101	186	14
57.15(2"1/4)	88/93	ERCCO150057102	202	14
57.15(2"1/4)	94/100	ERCCO150057103	202	14
57.15(2"1/4)	104/114	ERCCO150057104	257	25
60	88/93	ERCCO15006001	202	14
60	94/100	ERCCO15006002	202	14
60	104/114	ERCCO15006003	257	25
63.5(2"1/2)	88/93	ERCCO150063501	202	14
63.5(2"1/2)	94/100	ERCCO150063502	202	14
63.5(2"1/2)	104/114	ERCCO150063503	257	25
65	88/93	ERCCO15006501	202	14
65	94/100	ERCCO15006502	202	14
65	104/114	ERCCO15006503	257	25
69.85(2"3/4)	104/114	ERCCO150069801	257	25
69.85(2"3/4)	122/132	ERCCO150069802	268	25
70	104/114	ERCCO15007001	257	25
70	122/132	ERCCO15007002	268	25
75	104/114	ERCCO15007501	257	25

SHAFT Ø	TUBE Ø	Simple Bellow	L	C
75	122/132	ERCCO15007502	268	25
76.2 (3")	104/114	ERCCO150076201	257	25
76.2 (3")	122/132	ERCCO150076202	268	25
80	104/114	ERCCO15008001	257	25
80	122/132	ERCCO15008002	268	25
82.55 (3"1/4)	104/114	ERCCO150082501	257	25
82.55 (3"1/4)	122/132	ERCCO150082502	268	25
85	122/132	ERCCO15008501	268	25
88.9 (3"1/2)	122/132	ERCCO150088901	268	25
90	122/132	ERCCO15009001	268	25
92.07 (3"5/8)	150/155	ERCCO15009201	278	25
95	150/155	ERCCO15009501	278	25
95.25 (3"3/4)	150/155	ERCCO150095201	278	25
100	150/155	ERCCO15010001	278	25
101.6 (4")	150/155	ERCCO150101601	278	25
110	160/165	ERCCO15011001	278	25
110	170/175	ERCCO15011002	298	25
114.3 (4"1/2)	160/165	ERCCO15011401	278	25
114.3 (4"1/2)	170/175	ERCCO15011402	298	25
115	160/165	ERCCO15011501	278	25
115	170/175	ERCCO15011502	298	25
120	170/175	ERCCO15012001	298	25

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STANDARD ERCEM SEAL SPARE PARTS

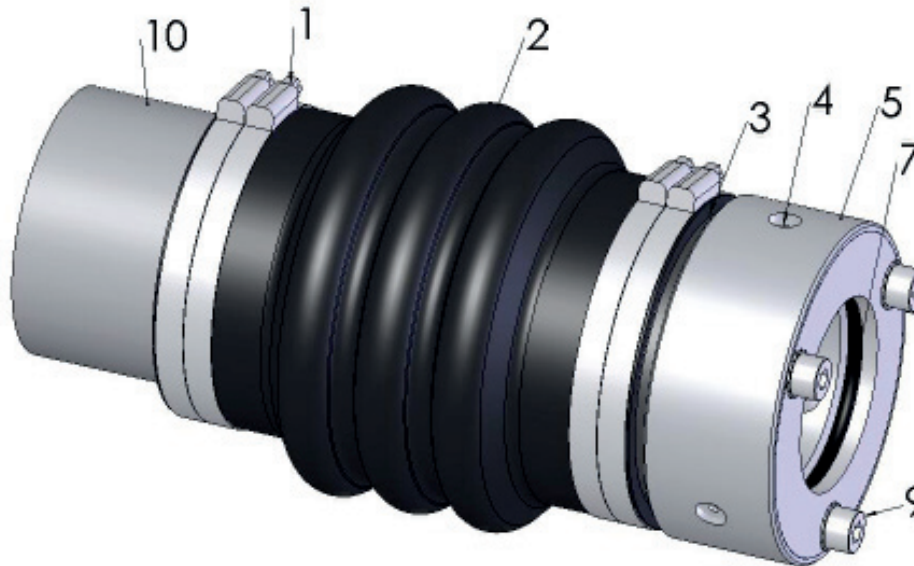


ERCEM REFERENCE	BELLOW	GRAPHITE RING	STAINLESS STEEL RING
ERCCO15005501	ERCSO15100007	ERCBC15200013A	ERCBI15305501
ERCCO15005502	ERCSO15100008	ERCBC15200014B	ERCBI15305501
ERCCO15005503	ERCSO15100008	ERCBC15200014C	ERCBI15305501
ERCCO15005504	ERCSO15100009	ERCBC15200016	ERCBI15305501
ERCCO150057101	ERCSO15100007	ERCBC15200013A	ERCBI153057102
ERCCO150057102	ERCSO15100008	ERCBC15200014B	ERCBI153057102
ERCCO150057103	ERCSO15100008	ERCBC15200014C	ERCBI153057102
ERCCO150057104	ERCSO15100009	ERCBC15200016	ERCBI153057102
ERCCO15006001	ERCSO15100008	ERCBC15200015	ERCBI15306001
ERCCO15006002	ERCSO15100008	ERCBC15200015A	ERCBI15306001
ERCCO15006003	ERCSO15100009	ERCBC15200016	ERCBI15306001
ERCCO150063501	ERCSO15100008	ERCBC15200015	ERCBI153063501
ERCCO150063502	ERCSO15100008	ERCBC15200015A	ERCBI153063501
ERCCO150063503	ERCSO15100009	ERCBC15200016	ERCBI153063501
ERCCO15006501	ERCSO15100008	ERCBC15200015B	ERCBI15306501
ERCCO15006502	ERCSO15100008	ERCBC15200015C	ERCBI15306501
ERCCO15006503	ERCSO15100009	ERCBC15200016B	ERCBI15306501
ERCCO150069801	ERCSO15100009	ERCBC15200017	ERCBI153069801
ERCCO150069802	ERCSO15100010	ERCBC15200019	ERCBI153069801
ERCCO15007001	ERCSO15100009	ERCBC15200017	ERCBI15307001
ERCCO15007002	ERCSO15100010	ERCBC15200019	ERCBI15307001
ERCCO15007501	ERCSO15100009	ERCBC15200017A	ERCBI15307501
ERCCO15007502	ERCSO15100010	ERCBC15200019A	ERCBI15307501
ERCCO150076201	ERCSO15100009	ERCBC15200018	ERCBI153076201
ERCCO150076202	ERCSO15100010	ERCBC15200020	ERCBI153076201
ERCCO15008001	ERCSO15100009	ERCBC15200018	ERCBI15308001
ERCCO15008002	ERCSO15100010	ERCBC15200020	ERCBI15308001
ERCCO150082501	ERCSO15100009	ERCBC15200018A	ERCBI153082501
ERCCO150082502	ERCSO15100010	ERCBC15200020	ERCBI153082501
ERCCO15008501	ERCSO15100010	ERCBC15200020A	ERCBI15308501
ERCCO150088901	ERCSO15100010	ERCBC15200021	ERCBI153088901
ERCCO15009001	ERCSO15100010	ERCBC15200021A	ERCBI15309001
ERCCO15009201	ERCSO15100011	ERCBC15200022	ERCBI15309201
ERCCO15009501	ERCSO15100011	ERCBC15200024	ERCBI15309501
ERCCO150095201	ERCSO15100011	ERCBC15200024	ERCBI153095201
ERCCO15010001	ERCSO15100011	ERCBC15200022	ERCBI15310001
ERCCO150101601	ERCSO15100011	ERCBC15200022	ERCBI153101601
ERCCO15011001	ERCSO15100012	ERCBC15200023	ERCBI15311001
ERCCO15011002	ERCSO15100013	ERCBC15200023	ERCBI15311001
ERCCO15011401	ERCSO15100012	ERCBC15200023A	ERCBI15311401
ERCCO15011402	ERCSO15100013	ERCBC15200023A	ERCBI15311401
ERCCO15011501	ERCSO15100012	ERCBC15200023A	ERCBI15311501
ERCCO15011502	ERCSO15100013	ERCBC15200023A	ERCBI15311501
ERCCO15012001	ERCSO15100013	ERCBC15200023B	ERCBI15312001

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STANDARD ERCEM SHAFT Ø >50MM



OPERATING PRINCIPLE

ERCEM GV shaft seal is a technology derived from submarine seals adapted to marine shafts.

ERCEM is composed of an elastomer simple or reinforced Kevlar bellow (2) which is mounted on the sterntube (10) with 2 hose clamps (1). A graphite ring (3) is mounted on the other side of the bellow with two hose clamps. The stainless steel ring (5), fastened to the shaft by 3 grub screws (4) compress the graphite ring thereby sealing between these two parts. Sealing between the stainless steel ring (5) and the propeller shaft is formed by two O-rings (7).

PRECAUTIONS

- ➔ Mounting of the ERCEM and any maintenance interventions must be carried the boat out of the water.
- ➔ During unpacking and installing the seal, take care not to damage the stainless steel ring and the graphite ring, the contact faces sealing must be clean and scratch free.
- ➔ Check for missing parts before installing the seal(see parts list above).



ASSEMBLING INSTRUCTION

- 1** Remove coupling from shaft and back off the propeller shaft to exit the old seal.
- 2** Clean carefully the propeller shaft with fine sand paper (600 grit) so that it is no longer any rough edges that could damage the O-rings in the stainless steel ring during assembly. Be especially attentive to keyways who need to be carefully deburred.
- 3** Slide bellow (2) with graphite ring (5) and the clamps (1) over the shaft to the sterntube (10), graphite ring (3) on engine side.
- 4** Slide bellow (2) on the sterntube (10) along the length of the sleeve. The length of the bellow mounted on the tube must be sufficient so that the two clamps (1) provide a clamping on the tube (10).
- 5** Visually align the bellows (2) and graphite ring (3) with the propeller shaft, the graphite ring (3) must not be in contact on the shaft.
- 6** Tighten the two clamps (1) sterntube (10) side on the cuff of the bellow (2) (tightening torque 10 Nm).
- 7** Place the stainless steel ring (5) gently on the propeller shaft with the O-rings (7) mounted, polished face on the graphite ring side. To facilitate installation, use soapy water. Do not lubricate the shaft with oil or grease.
- 8** Bring the stainless steel ring (5) in contact with the graphite ring (3) without applying a compression on the bellow. Mark this position on the shaft with a marker just in front of the stainless steel ring to identify the neutral position (no compression).
- 9** Slide the stainless steel ring aft on the shaft to obtain the compression dimension C shown in the table attached in relation to the mark made earlier on the propeller shaft, in correspondence with your ERCSEM model.
- 10** Hold the stainless steel ring with this compression and tightened, using the Allen key supplied, the 3 screws (4) alternatively without applying the tightening torque on a single screw. The tightening of the 3 screws must be alternately and gradually to the required torque (see table below). The 3 screws need to be secured with a low brake fluid thread Loctite type or Omnifit.
- 11** ERCSEM seals for propeller shaft greater than 50 mm in diameter has a lid to facilitate mounting. For these models the cover and the O-rings must be removed before the assembly of the stainless steel ring on the shaft. Once the stainless steel ring compression stuck to his score, mount the O-rings and the cover. Fasten with the 3 screws CHC (9) and lock washers to the requested torque (see table below).
- 12** When launching the boat, make sure the air vacuum in the bellow compressing it until the appearance of water.
- 13** When first switched on, ensure that the seal works properly. A break-in period is necessary for the ERCSEM seals to operate normaly. It is normal to see projections of graphite or fine water spray during this period. This phenomenon should disappear after a few hours. Make sure the water in the bellows is continuous, Ercem seal must always be supplied with water.



MAINTENANCE

At every launching of the boat including after beaching:

- Check the cleanliness of the contacting surfaces of graphite and stainless steel rings
- Ensure the empty air in the bellows compressing it until the appearance of water
- Check the bellow compression

Every years:

- Check the good condition of the bellow
- Replacement of the bellows is recommended from 3 years for simple bellows, 5 years for reinforced bellows
- Check the wear of the graphite ring
- The wear of graphite rings vary depending on applications, configurations and operating conditions. In all cases, the graphite ring must be changed:
 - If large water jets are detected
 - When the wear of the latter exceeds 4mm in thickness
 - In case of damage

TROUBLESHOOTING

Premature wear of the graphite ring with strong projections:

- Check the compression of the bellow and adjust if necessary
- Check the surface condition of the contact surfaces of graphite and stainless steel rings, clean the stainless steel ring with a clean cloth or replace parts as necessary.
- Check and control the flow rate and the water supply pressure in the graphite ring. The maximum pressure allowed by the ERCHEM seals is 0.7 bar.

Leak at rest:

- Check the surface condition of the contact surfaces of graphite and stainless steel rings, clean the stainless steel ring with a clean cloth or replace parts as necessary.

The bellow and graphite ring oscillate in operation:

- Check the stainless steel ring is properly perpendicular to the propeller shaft using a square and correct the position if necessary.
- Check the graphite ring does not touch the propeller shaft and that it is not warped.

TORQUES

Item	Shaft Ø	Designation	Torque
4	55 to 115 mm	STHC screw M12x20	38 N.m
9	55 to 115 mm	CHC screw M8x16	11 N.m
1	All	Stainless Steel A4 Clamps	10 N.m



IMPORTANT

After mounting the ERCEM, do not forget to rub the water inside the bellows up slightly compressing it until visual appearance. Make sure the water in the bellows is continuous, Ercem seal must always be supplied with water.

WARRANTY

ERCER seals are guaranteed for a period of 1 year against defects or hidden defects or missings after shipping. The warranty applies only to the only replacement of the offending goods or missing after the joint inspection, with no compensation whatsoever and provided a claim is made within 10 days after receipt of the goods.

Taking guarantee can be requested when the seals have been modified, improperly installed / maintained or are not appropriate to the application.

For more information, see our terms of sale.