



ERCEM



Operating principles:

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

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

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 .

- 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.





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.

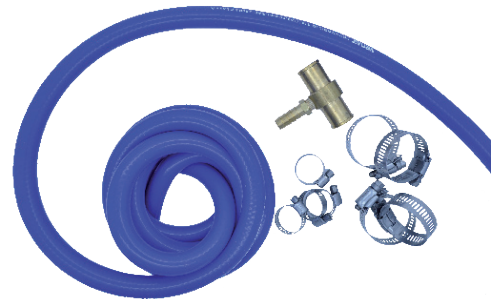
Our range of bellows is tested under high pressure in our workshops to return to our quality criteria.



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

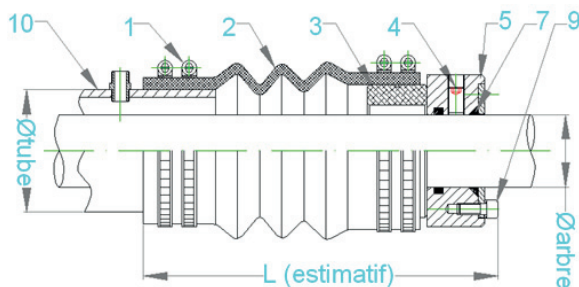
Description:

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	Reinforced Bellow	L	C
20	33/39	ERCCO15002001	110	6			
20	41/46	ERCCO15002003	113	6	ERCCO15002004	153	14
22	33/39	ERCCO15002201	110	6			
22	41/46	ERCCO15002203	113	6	ERCCO15002204	153	14
22	49/56				ERCCO15002205	153	14
25	41/46	ERCCO15002501	113	6	ERCCO15002502	153	14
25	53/62	ERCCO15002503	116	6	ERCCO15002504	170	10
25	64/70				ERCCO15002505	170	10
25.4 (1")	41/46	ERCCO150025401	113	6	ERCCO150025402	153	14
25.4 (1")	53/62	ERCCO150025403	116	6	ERCCO150025404	170	10
25.4 (1")	64/70				ERCCO150025405	170	10
28	41/46	ERCCO15002801	118	6	ERCCO15002802	158	14
28	53/62	ERCCO15002803	121	6	ERCCO15002804	175	10
28	64/70				ERCCO15002805	175	10
28.6(1"1/8)	41/46	ERCCO150028601	118	6	ERCCO150028602	158	14
28.6(1"1/8)	53/62	ERCCO150028603	121	6	ERCCO150028604	175	10
28.6(1"1/8)	64/70				ERCCO150028605	175	10
30	41/46	ERCCO15003001	118	6	ERCCO15003002	158	14
30	53/62	ERCCO15003003	121	6	ERCCO15003004	175	10
30	64/70				ERCCO15003005	175	10
31.75(1"1/4)	41/46	ERCCO150031701	118	6	ERCCO150031702	158	14
31.75(1"1/4)	53/62	ERCCO150031703	121	6	ERCCO150031704	175	10
31.75(1"1/4)	64/70				ERCCO150031705	175	10
34	53/62	ERCCO15003401	121	6	ERCCO15003402	175	10
34	64/70				ERCCO15003404	163	10
34	75/84				ERCCO15003405	173	14
35	53/62	ERCCO15003501	121	6	ERCCO15003502	175	10
35	64/70				ERCCO15003504	163	10
35	75/84				ERCCO15003505	173	14
38.1(1"1/2)	53/62	ERCCO150038101	121	6	ERCCO150038102	175	10

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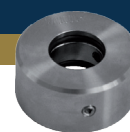
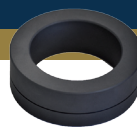


SHAFT Ø	TUBE Ø	Simple Bellow	L	C	Reinforced Bellow	L	C
38.1(1"1/2)	64/70				ERCCO150038104	163	10
38.1(1"1/2)	75/84				ERCCO150038105	173	14
40	53/62	ERCCO15004001	123	6	ERCCO15004002	167	10
40	64/70				ERCCO15004004	165	10
40	75/84				ERCCO15004005	175	14
41.2 (1"5/8)	53/62	ERCCO150041201	123	6	ERCCO150041202	177	10
41.2(1"5/8)	64/70				ERCCO150041204	165	10
41.2(1"5/8)	75/84				ERCCO150041205	175	14
44,45(1"3/4)	64/70				ERCCO150044401	168	10
44,45(1"3/4)	75/84				ERCCO150044402	178	14
45	64/70				ERCCO15004501	168	10
45	75/84				ERCCO15004502	178	14
47.6(1"7/8)	64/70				ERCCO150047601	168	10
47.6(1"7/8)	75/84				ERCCO150047602	178	14
50	75/84				ERCCO15005001	178	14
50	88/93				ERCCO15005002	194	14
50	94/100				ERCCO15005003	194	14
50.8(2")	75/84				ERCCO150050801	178	14
50.8(2")	88/93				ERCCO150050802	194	14
50.8(2")	94/100				ERCCO150050803	194	14

STANDARD ERCEM SEAL SPARE PARTS



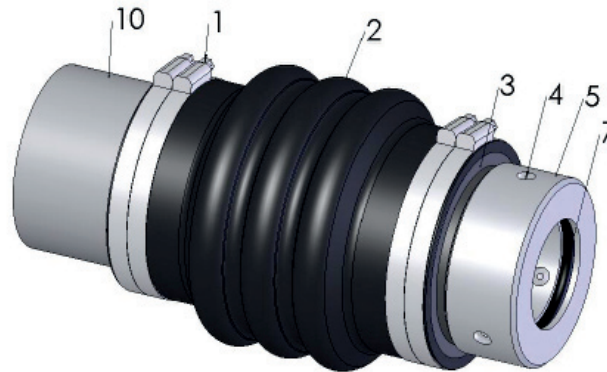
ERCEM REFERENCE	BELLOW	GRAPHITE RING	STAINLESS STEEL RING
ERCCO15002001	ERCSO15100001	ERCBC15200001	ERCBI15302001
ERCCO15002003	ERCSO15100002	ERCBC15200002	ERCBI15302001
ERCCO15002004	ERCSO15100003	ERCBC15200002	ERCBI15302001
ERCCO15002201	ERCSO15100001	ERCBC15200001	ERCBI15302201
ERCCO15002203	ERCSO15100002	ERCBC15200002	ERCBI15302201
ERCCO15002204	ERCSO15100003	ERCBC15200002	ERCBI15302201
ERCCO15002205	ERCSO15100003	ERCBC15200001	ERCBI15302201
ERCCO15002501	ERCSO15100002	ERCBC15200003	ERCBI15302501
ERCCO15002502	ERCSO15100003	ERCBC15200003	ERCBI15302501
ERCCO15002503	ERCSO15100004	ERCBC15200004	ERCBI15302501
ERCCO15002504	ERCSO15100005	ERCBC15200004	ERCBI15302501
ERCCO15002505	ERCSO15100005	ERCBC15200004A	ERCBI15302501
ERCCO150025401	ERCSO15100002	ERCBC15200003	ERCBI153025401
ERCCO150025402	ERCSO15100003	ERCBC15200003	ERCBI153025401
ERCCO150025403	ERCSO15100004	ERCBC15200004	ERCBI153025401
ERCCO150025404	ERCSO15100005	ERCBC15200004	ERCBI153025401
ERCCO150025405	ERCSO15100005	ERCBC15200004A	ERCBI153025401
ERCCO15002801	ERCSO15100002	ERCBC15200005	ERCBI15302801
ERCCO15002802	ERCSO15100003	ERCBC15200005	ERCBI15302801
ERCCO15002803	ERCSO15100004	ERCBC15200006	ERCBI15302801
ERCCO15002804	ERCSO15100005	ERCBC15200006	ERCBI15302801



ERCEM REFERENCE	BELLOW	GRAPHITE RING	STAINLESS STEEL RING
ERCCO15002805	ERCSO15100005	ERCBC15200005	ERCBI15302801
ERCCO150028601	ERCSO15100002	ERCBC15200005	ERCBI153028601
ERCCO150028602	ERCSO15100003	ERCBC15200005	ERCBI153028601
ERCCO150028603	ERCSO15100004	ERCBC15200006	ERCBI153028601
ERCCO150028604	ERCSO15100005	ERCBC15200006	ERCBI153028601
ERCCO150028605	ERCSO15100005	ERCBC15200005	ERCBI153028601
ERCCO15003001	ERCSO15100002	ERCBC15200005	ERCBI15303001
ERCCO15003002	ERCSO15100003	ERCBC15200005	ERCBI15303001
ERCCO15003003	ERCSO15100004	ERCBC15200006	ERCBI15303001
ERCCO15003004	ERCSO15100005	ERCBC15200006	ERCBI15303001
ERCCO15003005	ERCSO15100005	ERCBC15200005	ERCBI15303001
ERCCO150031701	ERCSO15100002	ERCBC15200005A	ERCBI153031701
ERCCO150031702	ERCSO15100003	ERCBC15200005A	ERCBI153031701
ERCCO150031703	ERCSO15100004	ERCBC15200006A	ERCBI153031701
ERCCO150031704	ERCSO15100005	ERCBC15200006A	ERCBI153031701
ERCCO150031705	ERCSO15100005	ERCBC15200005A	ERCBI153031701
ERCCO15003401	ERCSO15100004	ERCBC15200007	ERCBI15303401
ERCCO15003402	ERCSO15100005	ERCBC15200007	ERCBI15303401
ERCCO15003404	ERCSO15100006	ERCBC15200008	ERCBI15303401
ERCCO15003405	ERCSO15100007	ERCBC15200008	ERCBI15303401
ERCCO15003501	ERCSO15100004	ERCBC15200007	ERCBI15303501
ERCCO15003502	ERCSO15100005	ERCBC15200007	ERCBI15303501
ERCCO15003504	ERCSO15100006	ERCBC15200008	ERCBI15303501
ERCCO15003505	ERCSO15100007	ERCBC15200008	ERCBI15303501
ERCCO150038101	ERCSO15100004	ERCBC15200007A	ERCBI153038101
ERCCO150038102	ERCSO15100005	ERCBC15200007A	ERCBI153038101
ERCCO150038104	ERCSO15100006	ERCBC15200008A	ERCBI153038101
ERCCO150038105	ERCSO15100007	ERCBC15200008A	ERCBI153038101
ERCCO15004001	ERCSO15100004	ERCBC15200009	ERCBI15304001
ERCCO15004002	ERCSO15100005	ERCBC15200009	ERCBI15304001
ERCCO15004004	ERCSO15100006	ERCBC15200010	ERCBI15304001
ERCCO15004005	ERCSO15100007	ERCBC15200010	ERCBI15304001
ERCCO150041201	ERCSO15100004	ERCBC15200009	ERCBI153041201
ERCCO150041202	ERCSO15100005	ERCBC15200009	ERCBI153041201
ERCCO150041204	ERCSO15100006	ERCBC15200010	ERCBI153041201
ERCCO150041205	ERCSO15100007	ERCBC15200010	ERCBI153041201
ERCCO150044401	ERCSO15100006	ERCBC15200011	ERCBI153044401
ERCCO150044402	ERCSO15100007	ERCBC15200011	ERCBI153044401
ERCCO15004501	ERCSO15100006	ERCBC15200011	ERCBI15304501
ERCCO15004502	ERCSO15100007	ERCBC15200011	ERCBI15304501
ERCCO150047601	ERCSO15100006	ERCBC15200011	ERCBI153047601
ERCCO150047602	ERCSO15100007	ERCBC15200011	ERCBI153047601
ERCCO15005001	ERCSO15100007	ERCBC15200013	ERCBI15305001
ERCCO15005002	ERCSO15100008	ERCBC15200014	ERCBI15305001
ERCCO15005003	ERCSO15100008	ERCBC15200014A	ERCBI15305001
ERCCO150050801	ERCSO15100007	ERCBC15200013	ERCBI153050801
ERCCO150050802	ERCSO15100008	ERCBC15200014	ERCBI153050801
ERCCO150050803	ERCSO15100008	ERCBC15200014A	ERCBI153050801



STANDARD ERCHEM SHAFT Ø <55MM



OPERATING PRINCIPLE

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

ERCHEM 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 ERCHEM 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 (3) 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 ERCHEM 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** When launching the boat, make sure the air vacuum in the bellow compressing it until the appearance of water.
- 12** When first switched on, ensure that the seal works properly. A break-in period is necessary for the ERCHEM seals to operate normally. 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, Erchem 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	22 to 25.4mm	STHC screw M6x10	5 N.m
4	28 to 41.2mm	STHC screw M8x15	11 N.m
4	44.45 to 50.8mm	STHC screw M10x15	22 N.m
1	All	Stainless Steel A4 Clamps	10 N.m

IMPORTANT

After mounting the ERCHEM, 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

ERCHEM 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.