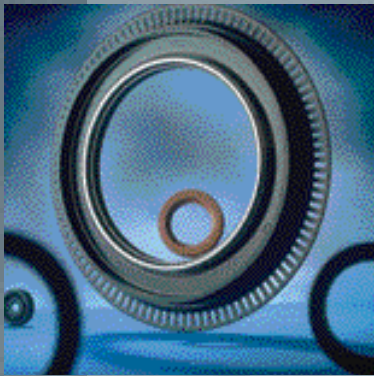


- New range with bare outer ring reinforced : CSEL® SEALS

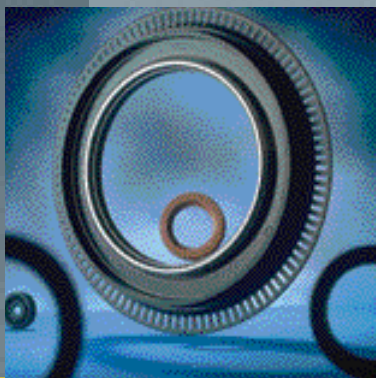


DYNAMIC SEALING

PAULSTRA



- New range with bare outer ring reinforced : CSEL® SEALS



DYNAMIC SEALING

PAULSTRA



DYNAMIC SEALING

Page

CONTENTS

I - GENERAL	
I.1	What is a seal ? 3
I.2	Types of seals 4
I.3	Description of lip seals 5
II - SEAL CROSS SECTIONS	
II.1	External shapes and their evolution 6
II.2	Ridged seals 6
II.3	Moulded li seals 7
II.4	Seals with mini-lips 7
II.5	Seals with an integrated track 8
II.6	Seals with teflon lips 9
II.7	Other PAULSTRA sealing products 9
III - MATERIALS USED	
III.1	Outer ring 11
III.2	Spring 11
III.3	Elastomer 11
IV - SELECTION OF A SEAL FOR A ROTATING SHAFT	
IV.1	Type of fluid 12
IV.2	Shaft speed 14
IV.3	Pressure 14
V - CONDITIONS FOR A GOOD OPERATION	
V.1	The housing 15
V.2	The shaft 16
V.3	Eccentricity between the housing and the shaft 16
V.4	Whipping and out of true 17
V.5	Power absorbed due to friction 17
VI - ASSEMBLY OF SEALS	
VI.1	Assembly on a shaft without splines 18
VI.2	Assembly on a shaft with splines or a shoulder 18
VI.3	PAULSTRA recommendations for the shape of the shaft 19
VI.4	Axial positioning and alignment 19
VI.5	Recommendations for the assembly tool 20
VI.6	Lubrication during assembly 21
VI.7	Reminder of the main principles of assembly 21
VII - MANUFACTURE AND TESTING	22
VIII - CLASSIFICATION OF THE MAIN PROFILES OF LIP SEALS	23
CATALOGUE OF SEALS FOR ROTATING SHAFTS	24
CATALOGUE OF SEALS FOR SLIDING SHAFTS	41

See current price list for availability of items.
We reserve the right to modify the design and manufacture of the products and materials described in this catalogue.

The pictures of the products are supplied for information only.

The order comprises :

- the contract signed by both parties, or the purchase order and the acknowledgement of receipt,
- eventually, special or specific additional conditions,
- sale general conditions, available upon request are part of the order.

I - GENERAL

I.1 - WHAT IS A SEAL ?

An element forms a sealing function when it prevents the passage of a fluid from a one enclosure to another. Such elements are called "Seals".

If the object is to prevent the flow of a fluid from an enclosure into a neighbouring enclosure, **the seal is called a single seal**. If the seal must prevent the flow of another fluid which may be in the second enclosure into the first, **the seal is called a double seal**.

If the two mechanical parts between which the leakage is likely to occur are fixed with relation to each other, **the seal is called a static seal**. If one or both of these parts is moving relative to the other, **the seal is called a dynamic seal**.

In this document, we will only be dealing with **dynamic seals**.

In practice, we only meet two sorts of relative movement, which may or may not be combined :

- linear translation (such as the sliding of a piston in a cylinder),
- rotation (the relative rotation about a common axis of a shaft in a hub or a crank case).



I.2 - TYPES OF SEALS

Many different methods have been or are still used for sealing, such as :

- labyrinth glands,
- stuffing-boxes,
- O-rings,
- lip seals,
- surface seals.

- **Labyrinth glands**, are frictionless seals. They do not provide total sealing and do not seal if completely immersed in the fluid.
- **Stuffing-boxes** work by packing fibrous material which may or may not be braided, tightly around a shaft by means of axial pressure applied by a screw cap or a flange tightened by a bolt, for many years they have been the most common type of seals used. They produce a high frictional torque and absorb a relatively high amount of power. Although for many applications they have been replaced by lip seals or “surface” seals , they are still used a great deal, especially in the case of fluids under high pressure.
- **O-rings** are rings of synthetic elastomer of various cross-sections, most often circular (hence the name), but sometimes in the form of an X or a cross. They are most often used for static seals, but can also be used in some cases as seals for rotating shafts, particularly at low speeds. They also give rise to a high frictional torque.
- **Lip seals for rotating shafts.** Lip seals first appeared about fifty years ago. They consisted of a leather cuff (which could be chromed) whose lip was kept in contact with the rotating shaft by an annular spring. In order to keep both the spring and the leather cuff in position, the parts were encased in a set of metallic collars and rings (normally at least three) which were crimped into each other. The external collar would usually be ground to size and “hard” mounted in a fixed hub.

This type of seal was used a great deal, but its life was restricted, as the leather wore out, particularly in high temperatures. Nowadays the leather has been replaced by synthetic elastomers, which appeared on the market some forty years ago and gradually took over the role of the leather.

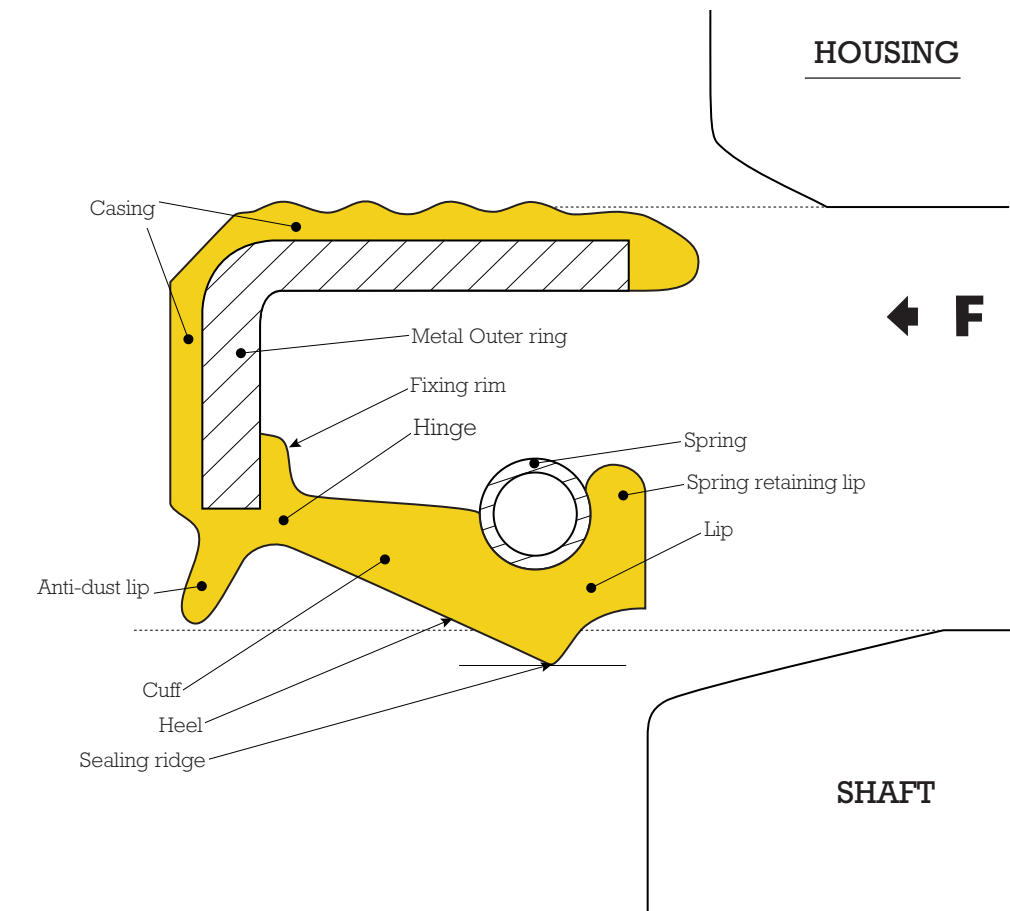
The first of these elastomers to appear is today known as N.B.R. (Nitrile Butadiene Rubber), and was noted for its resistance to organic solvents, in particular liquid fuels and lubricating oils, even at high temperatures. The first seals manufactured had the same structure as the leather seal with its three crimped metal rings. The development of processes which ensure a very good bonding of N.B.R. to metal has enabled the structure of the seal to be simplified and has given it its present classic general shape.

The discovery of new elastomers enables us to offer the user an increasingly varied range of seals, which are capable of solving increasingly difficult problems.



Segré's Plant
(Maine-et-Loire)
ISO 9001

I.3 - DESCRIPTION OF LIP SEALS



In outline, a seal for a rotating shaft consists of three essential parts :

- The Outer ring.
- The elastomer.
- The spring.

- **The Outer ring** usually consists of a metal ring in stamped steel with a right-angled cross-section.

- **The elastomer** is itself made up of 3 parts :

- The casing.
- The cuff.
- The lip.

- The casing (from the front surface to the back of the seal) is the part of the elastomer which is bonded to the Outer ring. It can cover it more or less entirely on the interior and/or the exterior.

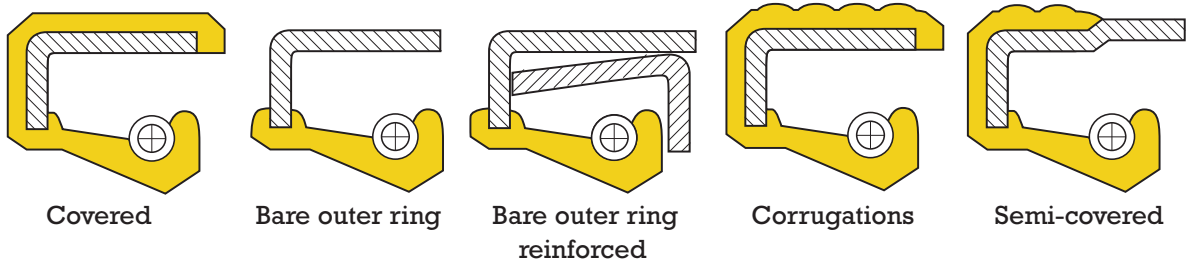
- The cuff is cylindrical or slightly conical in shape, and joins the Outer ring and the casing to the lip. It ensures a static seal, and due to its elasticity - which is greater as it is longer - it allows slight movement of the lip, due to movement of the shaft other than rotation.

- The lip is the element which ensures the dynamic seal by direct frictional contact with the shaft. It is made up of an annular beading including a double bevel forming a sharp ridge which is concentric with the perpendicular axis of the seal. The inclination of the surfaces of the bevel is designed to ensure the seal against leakage of a fluid situated on the side marked **F**.

- **The spring** is a spiral prestressed spring. It forms an annular ring. The join is usually effected by screwing into one end the conical spiral parts of the other end. The spring is fitted by light pressure into a groove in the beading of the lip.

II - SEAL CROSS SECTIONS

II.1 - EXTERNAL SHAPES AND THEIR EVOLUTION



Bare outer ring reinforced

- Good resistance to deformation which is important for large diameters.
- Good resistance to backing out and accurate positioning in the housing.
- Easy assembly for large diameters.
- Protects the seal during pulsating pressures.

Corrugations

- Create a reserve of lubricant and by so doing they make fitting easier.
- Greatly reduce the risk of backing out after fitting.
- An insertion force the same as a smooth shape with a much higher extraction force.

Semi-covered

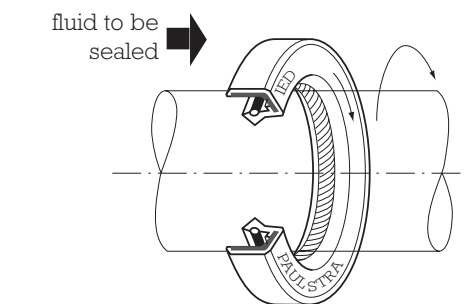
This form combines the qualities of the bare outer ring, that is to say :

- **no backing out.**
- **better positioning.**
- **higher extraction force.**

with that of covered outer ring, which is :

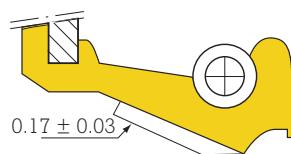
- **good static sealing.**

II.2 - RIDGED SEALS

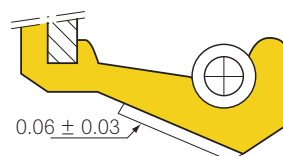


Rear view of the seal :

- Direction of the arrow = direction of rotation of the shaft.
- Ridges to the right (letter D) = clockwise.
- Ridges to the left (letter G) = anticlockwise.
- Bi-directional ridges (letter V).



Truncated ridge



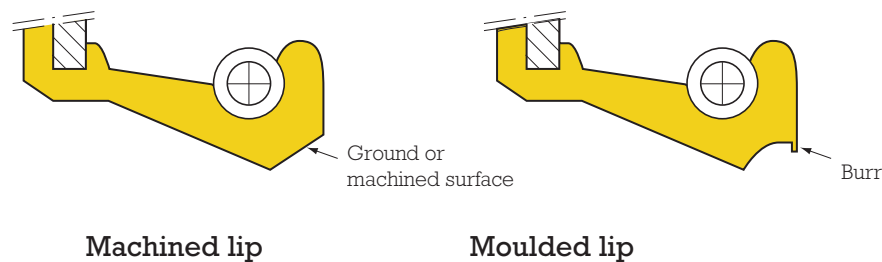
Salient ridge

The efficiency of the ridge increases with its size.

A salient ridge is limited in height by the requirement for continuous contact between the shaft and the lip, which is obtained by the radial load compressing the rubber.

The dimensional limits of a truncated ridge depend essentially on the capability to machine it after moulding. Its manufacture demands much more precision than that of the salient ridge.

II.3 - MOULDED LIP SEALS



A moulded lip guarantees a **better geometrical fit of the sealing lip** by eliminating the machining tolerances on :

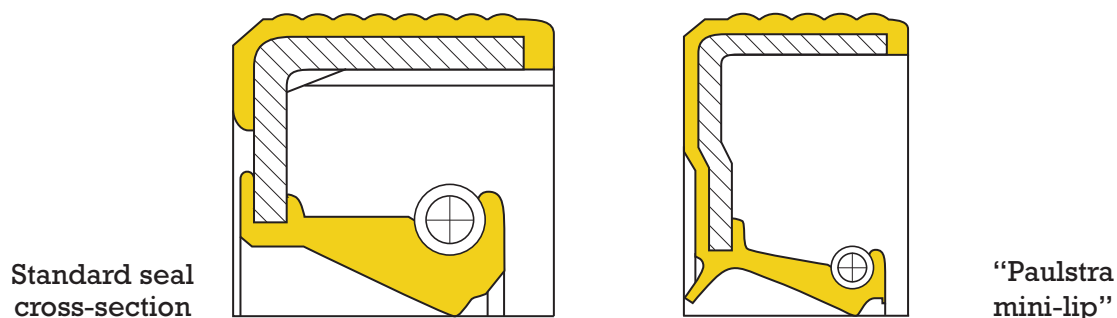
- the lip angle on the fluid side,
- the distance between the edge of the lip and the axis of the spring,
- the length of the lip (i.e. the distance between the fixing rim and the sealing edge).

It **avoids “irregularities” in the sealing ridge** which could be caused by the machine tool.

Nowadays, the moulded lip has become a standard technique, thanks to :

- more accurate machining of the mould,
- suitable means of testing,
- improved vacuum moulding techniques.

II.4 - SEALS WITH MINI-LIPS



The mini-lip has many advantages :

- Reduced dimensions

The decrease in height and the difference between the internal and external diameters allow type IE seals to be used for applications where only type IO used to be possible. The reduced dimensions also mean less weight.

- Less energy loss due to friction

The radial load is smaller, which leads to a decrease of about 30% of the friction torque, which results in :

- a gain in power for the prime mover.
- less heating.

- Increased life

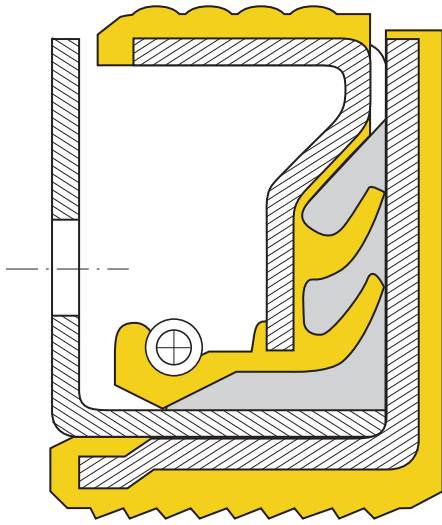
The decrease in heating due to friction results in a lower temperature, which :

- improves the life of the elastomer.
- slow carbonisation, which causes leaks by producing irregularities and stiffening the lip.

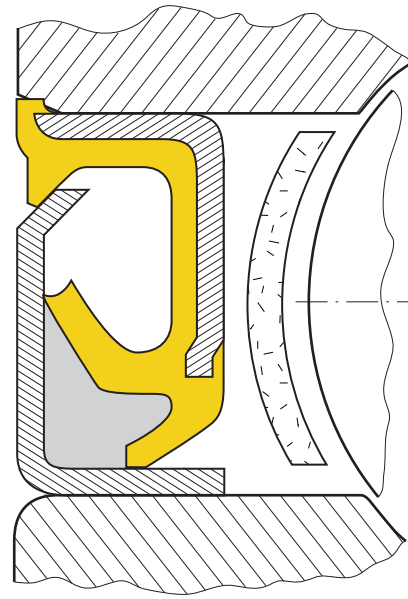
In addition, the reduction of both temperature and carbonisation leads to less wear of the shaft and the seal.

The life of a seal with a mini-lip is thus increased by about 30%.

II.5 - SEALS WITH AN INTEGRATED TRACK



Seal with an
integrated track



Car wheel seal

This type of seal has its own friction track.

Its main advantages are :

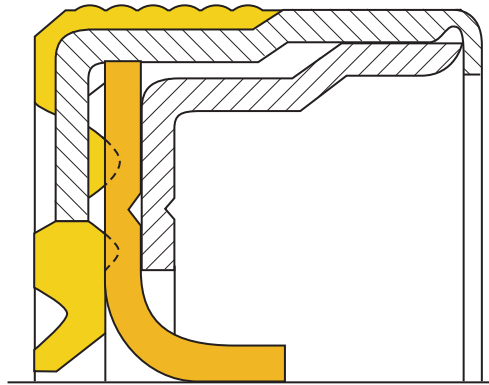
- **reduces the need to grind the shaft,**
- **treatment of only one part,**
- **no shaft wear,**
- **protection of the lip** in storage and handling,
- in a bearing, it can serve as a supporting element until it is fitted in the unit.

The use of this seal is limited by the rotating speed. At present, it is used at up to about 5 m/s.



Integrated track seal
with
Anti-Lock Brakes
detection ring.

II.6 - SEALS WITH TEFLON LIPS



Teflon has the following advantages :

- a very low coefficient of friction.
- resistance to aggressive products.

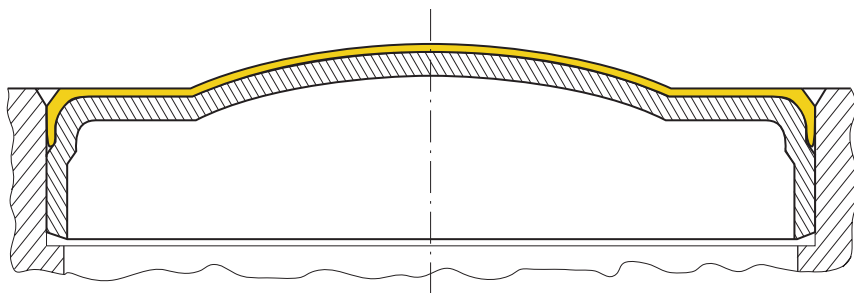
The life of this type of seal is much longer than that of elastomer lip seals.

As teflon does not have elastomeric properties, the seal is ensured by the hydrodynamic effect of the ridges.

The static seal is ensured by the pressure of the teflon on a beading of elastomer. The use of this type of seal is limited to applications which do not need to be sealed at rest.

II.7 - OTHER PAULSTRA SEALING PRODUCTS

COVERS



In a crankcase, it is sometimes necessary to have temporary access in order to :

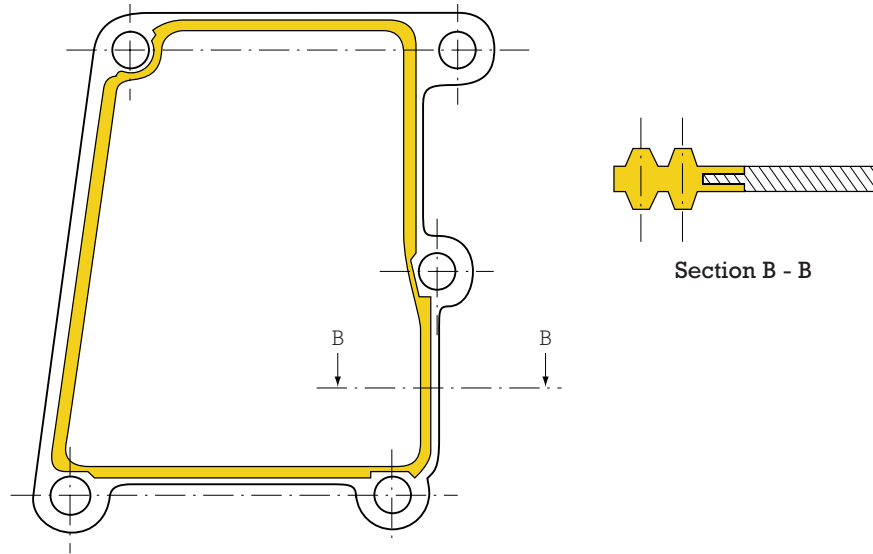
- machine an internal shape which is otherwise inaccessible.
- carry out a mechanical adjustment at the time of assembly.

This type of temporary passage is usually closed by a screwed plate with a flat seal or an O-ring.

Instead of the metal plate, Paulstra offers a rubberised cover which has the following advantages :

- only a simple shape needs to be machined in the crankcase.
- only one part needs to be fitted to ensure the closure of the crankcase with a perfect seal.

FLAT SEALS



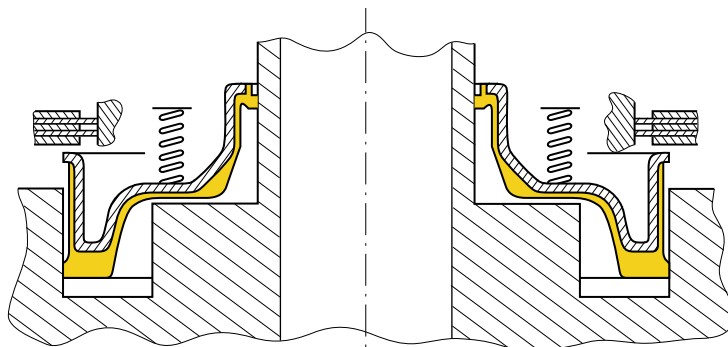
When the fixing screws of a crankcase are being tightened, the reaction of the sealing element (paste or paper) can cause a deformation of the flatness of the seal. This deterioration of flatness often causes leaks when expansion occurs.

To solve this problem, Paulstra offers a metallic-elastomeric seal.

The metal part consists of a thin sheet. The fixing screws which act on this rigid material have no effect on the flatness of the crankcase.

The seal is assured by a beading of elastomer fitted to the inside or the outside of the sheet. The shape of the beading and its attachment to the sheet are designed in such a way that the compression of the elastomer absorbs the faults in the flatness and deformation due to expansion while remaining within acceptable stress constraints.

PISTONS FOR AUTOMATIC GEARBOXES



In an automatic gearbox, the setting in motion and the changing of gears are done by clutches on which pistons, moved by oil pressure, act.

Up to the present, these pistons were in moulded aluminium alloy or steel. The sealing for aluminium pistons was done by elastomer seals of various shapes fitted into the grooves or, for steel pistons, kept in position by outer rings.

Since the seal had to be both interior and exterior, each piston was made up of from 3 to 5 parts, which meant high stocks along with fitting problems, quite apart from being of mediocre efficiency under pressures of 10 to 20 bars.

The type of piston produced by PAULSTRA consists of only one piece of stamped steel onto which are bonded 2 sealing lips. The shape of these lips is adapted to ensure a good seal with little friction and to avoid extrusion.

III - MATERIALS USED

III.1 - ARMATURE

Standard material : sheet steel of XE quality (AFNOR standard A 36 401)
 Special outer rings can be produced using other materials for special applications.

III.2 - SPRING

Standard : Stabilised XC 70 steel
 On request: Z10 CN 18-09 stainless steel (AFNOR standard A 35 586).

NOTA : All the PAULSTRA range of fluorinated elastomer seals fluorocarbon (FKM) are equipped with stainless steel springs.

III.3 - ELASTOMER

	Mixes	Symbols	Temperature range*
STANDARD MIXES	NITRILE (acrylo-nitrile butadiene) This material is particularly resistant to the action of mineral oils and grease. Suitable in most other cases.	NBR	- 30°C to + 110°C
	FLUOROCARBON ELASTOMER This elastomer has the best chemical and heat resistant characteristics. The new fluorocarbon formula offers very low abrasion and : - low shaft and lip wear. - resistance to ageing.	FKM	- 20°C to + 200°C

	Mixes	Symbols	Temperature range*
OTHERS MIXES	POLYACRYLATE Polyacrylate based elastomers have a good temperature resistance, even in the presence of EP oils.	ACM	- 20°C to + 170°C
	SILICONE Covers a very wide temperature range with acceptable mechanical characteristics. Silicone seals must : - be fitted with care ; - not be used in the presence of EP oils ; - be used with care in ATF and hydraulic oils.	MVQ	- 60°C to + 200°C

* Temperatures on samples
 Other mixes can be used on request :
 • Styrene - butadiene (SBR)

• Ethylene - propylene (EPDM)
 • Ethylene - acrylique (EA) (for example Vamac)
 • Nitrile hydrogene (HNBR) (for example Therban)

IV - THE SELECTION OF A SEAL FOR A ROTATING SHAFT*

IV.1 - THE TYPE OF FLUID TO BE SEALED

The fluids in contact with each face of the seal can be gases or liquids which are more or less viscous, even pasty (in the case of greases). They must not have too aggressive an action on the materials which make up the seal (the outer ring, spring and elastomer).

IV.1.1 - ARMATURE AND SPRING

The armature and spring of standard seals are steel, so they have a good resistance to all the chemical solvents which are currently used in industry, with the exception of water and aqueous liquids which can cause rust and corrosion.

For any other kind of material, please consult our Technical Services.

IV.1.2 - ELASTOMER

Chemical resistance

The standard seals made from a nitrile elastomer based mix have been designed to resist most current lubricating oils.

For more aggressive fluids, a formula based on fluorinated elastomer fluorocarbon (FKM) would be more appropriate.

FLUIDS	ELASTOMERS				FLUIDS	ELASTOMERS			
	Nitrile	Fluoro-carbon elastomer	Poly-acrylate	Silicone		Nitrile	Fluoro-carbon elastomer	Poly-acrylate	Silicone
Acetone	D	D	D	B	ASTM3 oil at 100°C	A	A	C	D
Acetic acid	A	D	D	A	ASTM3 oil at 150°C	D	A	C	D
10% Hydrochloric acid	A	A	D	C	Gear oil at 100°C	A	A	A	D
Concentrated Hydrochloric acid	D	A	D	D	Gear oil at 130°C	D	A	A	D
20% Nitric acid	D	A	C	B	EP hypoid oil at 100°C	A	A	A	D
10% Sulphuric acid	A	A	D	D	EP hypoid oil at 130°C	D	A	A	D
Concentrated Sulphuric acid	D	A	D	D	ATF oil at 100°C	A	A	A	B
Atmospheric air at 100°C	C	A	A	A	ATF oil at 150°C	D	A	A	D
Atmospheric air at 200°C	D	A	D	A	Mineral motor oil at 100°C	A	A	A	A
Concentrated Ethyl alcohol	A	B	D	A	Mineral motor oil at 150°C	D	A	A	C
Methyl alcohol	A	B	D	A	Synthetic motor oil at 100°C	A	A	A	A
Propyl alcohol	A	B	D	D	Synthetic motor oil at 150°C	D	A	A	D
Ammonia	C	A	C	B	Silicone oil	A	A	A	D
Benzene	D	B	C	D	Isooctane fuel (Fuel A)	A	A	C	C
Butter	A	A	D	A	Isooctane-toluene (Fuel B)	B	A	C	C
Butane	A	A	A	C	Kerosene JP 1	A	A	A	D
Petrol	A	A	D	D	Milk	A	A	D	A
Super petrol	C	A	D	D	Antifreeze (water + glycol)	B	B	D	C
Chlorine	B	A	D	D	Brake fluid (Lockheed)	D	C	D	A
Cyclohexane	B	A	B	D	Brake fluid (Lockheed) at 50°C	D	D	D	A
Water	A	A	C	A	Ozone	D	A	A	A
Sewage	A	B	C	A	Paraffin	A	A	A	C
Concentrated Eau de Javel	C	A	C	B	Propane	A	A	D	C
Sea water	A	A	D	A	Saline aluminium solutions	A	A	D	A
Freon	C	C	D	D	Magnesium salt solutions	A	A	D	A
Freon 12	B	B	C	D	Sodium chloride solutions	A	A	D	A
Carbonic gas	A	A	A	A	Soda	C	A	C	B
Smoke	C	A	D	C	Toluene	C	A	C	D
Diesel oil	A	A	C	C	Trichlorethylene	D	A	C	D
Diesel oil at 100°C	C	A	D	D					
Glycerine	A	A	D	A					
Cereal oils	A	A	C	C					
ASTM1 oil at 100°C	A	A	A	A					
ASTM1 oil at 150°C	D	A	A	A					
ASTM2 oil at 100°C	A	A	B	C					
ASTM2 oil at 150°C	D	A	B	C					

A: Good chemical resistance B: Average performance C: Acceptable (depending on conditions of use) D: Unsuitable

* For rotating housing applications consult us.

Mechanical resistance

The new brown colored fluorocarbon (FKM) formula presents a very low abrasivity and :

- low shaft and lip wear ;
- resistance to ageing.

Heat resistance

For good performance an elastomeric seal must be used within its operating temperature range. The standard elastomeric mix is not only sensitive to high temperatures which harden it, causing cracks and fissures, but also to intense cold which makes it hard and hardens it. The temperature which must be considered is that at the contact lip. It must be borne in mind that this gets much hotter than the ambient fluid, due to friction. For example, the temperature of the lip of a seal which seals the motor oil of a crankcase, where the shaft is rotating at high velocity (more than 8 m/s), can increase by about fifty degrees after a few minutes of service, whereas the oil, even next to the seal, will only warm up by a few degrees in the same period. The temperature displayed by a thermometer dipped into the crankcase oil is not therefore a determining factor.

In addition to the shaft speed, which is the most important factor, other parameters influence the heating of the lip, such as the condition of the shaft surface, the tightness of the seal, the ventilation of the crankcase, and so on, so that it is very difficult to know the temperature of the lip in continuous operation.

The temperatures indicated in the table below are only valid if the fluid being sealed is not degraded at these temperatures.

Where high temperatures exceed the values shown in the table below, use seals in fluorinated elastomer.

Our technical services are at your disposal to reply to your questions about the properties of various mixes.

		NBR		FKM		ACM		MVQ	
Low temperature in °C (1)		- 40		- 30		- 30		- 50	
Temperature in °C		Av. (2)	Max (3)	Av. (2)	Max (3)	Av. (2)	Max (3)	Av. (2)	Max (3)
Products to be sealed									
Mineral oil based	Motor oils	100	120	150	175	130	150	-	
	Gear box oils	90	110	130	150	120	150	--	
	Hypoid gear oils	90	110	130	150	120	150	--	
	ATF oils	100	120	150	175	130	150	-	
	Hydraulic oils	100	120	150	175	130	150	-	
	EL and L diesel oils	90	100	+		+		+	
	Greases	100	120	150	175	130	150	-	
Hydraulic liquids hard to ignite	HSB oil/water emulsion	80	100	-		--		-	
	HSC aqueous solution	80	100	-		--		-	
	HSD non-aqueous solution	--		130	150	--		-	
Other products	Water	80	100	+		--		-	
	Detergents	80	100	+		--		-	
	Brake fluid	--		--		--		--	

(1) Temperature at which the seal continues to function.

(2) Average operating temperature.

(3) Maximum permissible temperature for not more than 10 hours over the life of the seal.

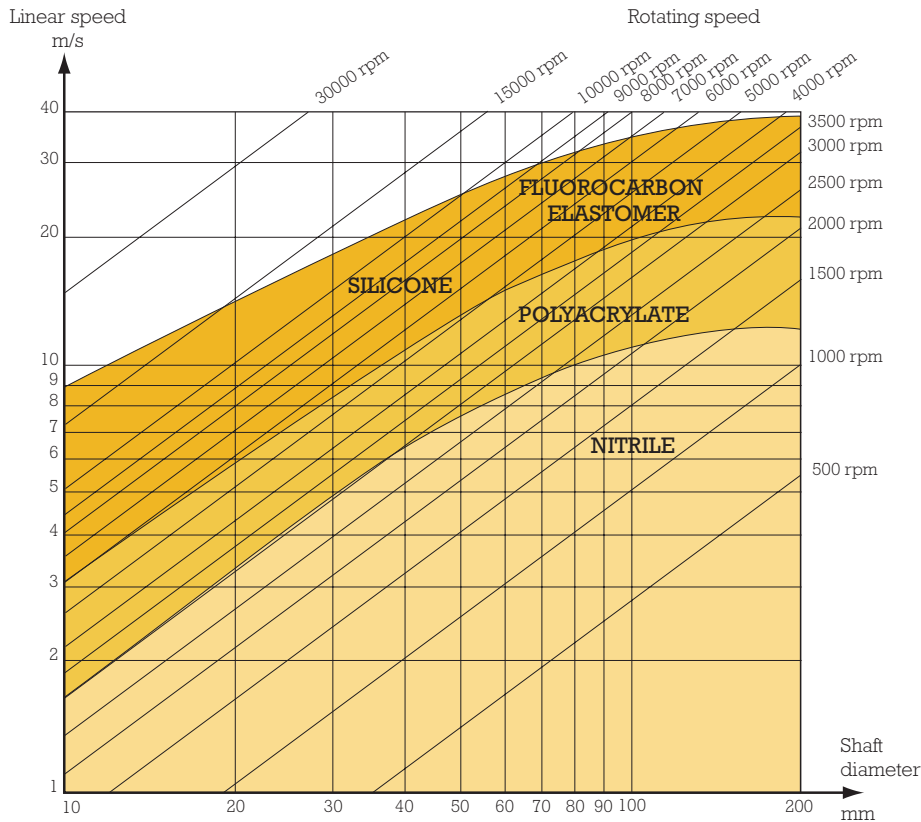
+ Resistant, but normally not used.

- Resistant, under certain conditions.

-- Does not resist.

IV.2 - SHAFT SPEED

The graph below gives an indication of the rotary or linear velocity of the shaft in relation to various elastomers which are permissible under normal conditions of use.

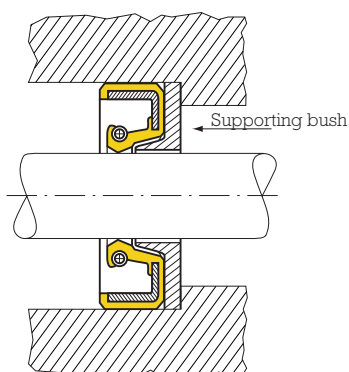


IV.3 - PRESSURE

The effective pressure to which a seal is submitted is the difference between the pressures of the fluids on each of its two sides (one of which is often the atmosphere). It is clear that the sealing lip should be found on the side which has the higher pressure. In theory, the lip seal for rotary shafts is not a pressure seal.

However, most PAULSTRA seals will resist pressures of the order of 0.5 bars without special precautions, if the velocities do not exceed 3 m/s. At higher pressures, there is a risk that the lip may be turned back on itself or pressed onto the shaft with a force which gives rise to an unacceptable tightness and frictional torque. At low velocities most PAULSTRA seals will bear pressures of up to 3 or 4 bars with the addition of a supporting bush. This is not provided by PAULSTRA, but it can be made up by the customer according to PAULSTRA's drawings.

The effective pressure is not necessarily constant. If the variations are slow and remain within the limits above, this is not a big problem. On the other hand, if they pulsate rapidly they can interfere with the performance of the seal.



You are advised to consult our Technical Services for any application which involves an effective pressure greater than 0.5 bars or a pulsating pressure.

V - CONDITIONS FOR GOOD OPERATION

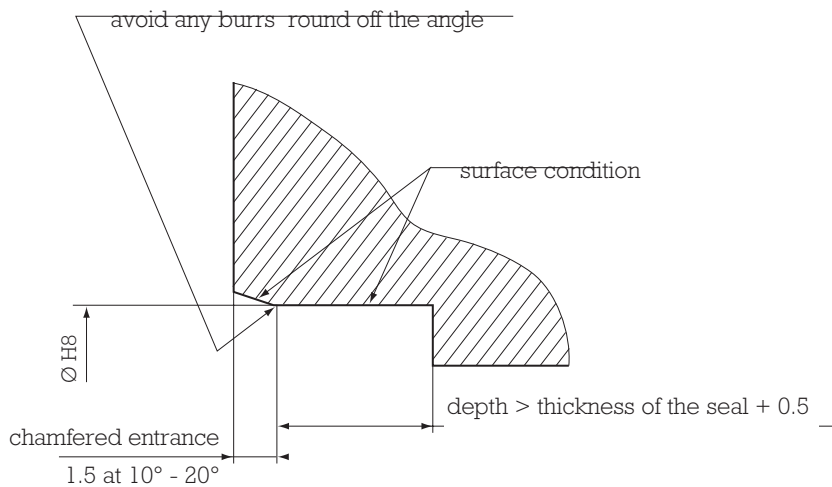
V.1 - THE HOUSING

It is extremely important that there be no sharp edges.

Our recommendations are shown on the figure below :

recommended shape of the housing :

- for a covered seal :
 $R = 4$ to 12.5μ
 $Ra = 1.6$ to 4μ
- for an external outer ring :
 $R = 3$ to 8μ
 $Ra = 1.2$ to 2.5μ



Note: if the housing is made of a material with a high coefficient of expansion, this must be taken into consideration when defining the interference (tightness) with the seal.

The lack of a chamfer, or too small a chamfer can cause :

- A deterioration of the exterior of the seals (cutting of the elastomer or stripping of the sealing lacquer).
- A big increase in the force of insertion, which could cause deformation of the outer ring.
- A defective axial positioning.

A surface with a very rough finish can cause the same problems and can therefore also be the reason for a leak. On the other hand, if the finish is too smooth the extraction force may be too low.

V.2 - THE SHAFT

The PAULSTRA recommendations are as follows :

- **Tolerance on the diameter** : h 11.
- **Surface state** : $R = 0.4$ to 1.2 ED (so $R_a \approx 0.2$ to 0.5).
- **Hardness** : if $V \leq 4$ m/s : 45 HRC minimum (say 455 HV or 155 kg/mm^2),
if $V > 4$ m/s : 55 HRC minimum (say 625 HV or 195 kg/mm^2).
- **Thickness of the treated zone** : 0.3 mm minimum.
- **Circularity** : 5 microns.
- **Neutrality** : All machined surfaces have grooves from the machining process. If these grooves are inclined in relation to the axis of the shaft, they form a helix which will produce a hydrodynamic action.

The bearing surfaces of a seal must be neutral (i.e. there must be no orientation of the machining grooves).

It is possible to orient the machine grooves deliberately to produce pumping from the exterior to the interior of the mechanism. However, **we advise against this as there will be increased wear of the seal.**

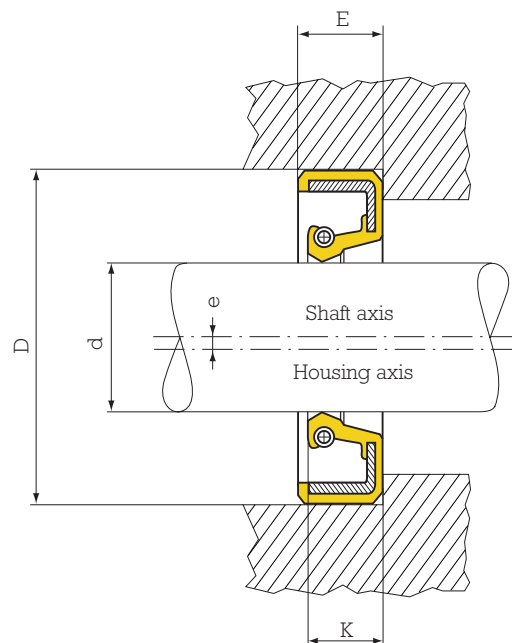
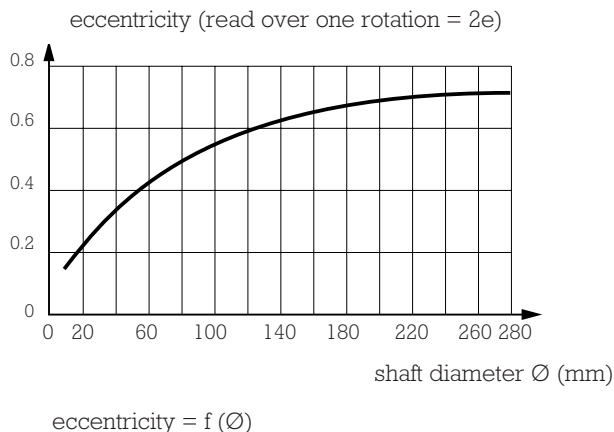
Hard chroming is also not to be recommended, unless it is of sufficient thickness and quality.

V.3 - ECCENTRICITY BETWEEN THE HOUSING AND THE SHAFT

The housing and the shaft should be centred on one another as precisely as possible. If there is a radial displacement between the axis of the seal and the axis of the shaft, the suppleness of the rubber lip enables assembly without "yawning" within certain limits.

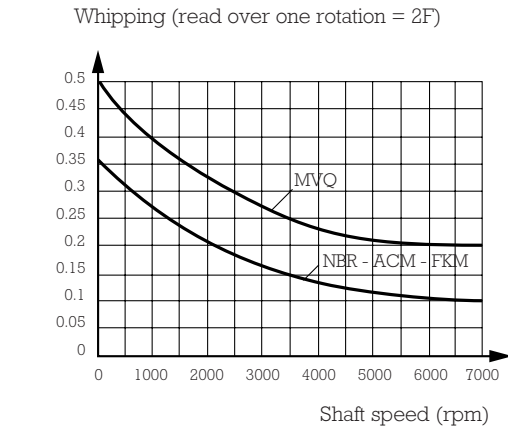
The eccentricity is the distance between the axis of the seal housing and the axis of the shaft, the two axes being parallel to each other.

The curve below shows the maximum permitted eccentricities as a function of the shaft diameter.

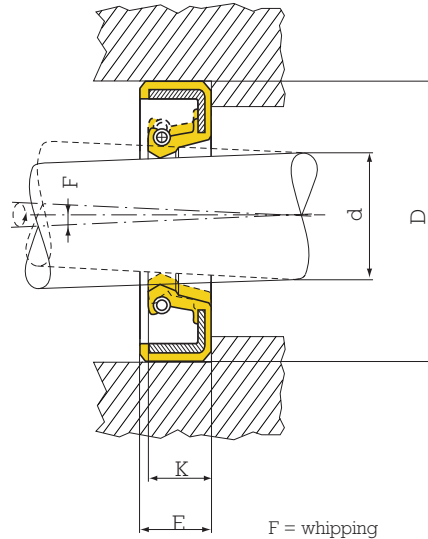


V.4 - WHIPPING OR OUT OF TRUE

This phenomenon occurs when the geometric axis of the shaft does not coincide exactly with the rotational axis. This can be the result, for example, of a worn bearing or the bending of the shaft. The amplitude of whipping increases with distance from a bearing, so the seal should be placed as near as possible to the bearings. Whipping is measured in mm, by the radius of the circle described by a point on the axis of the shaft which is in the same plane as the lip. The curve below shows the maximum whipping permissible as a function of the rotational velocity of the shaft.

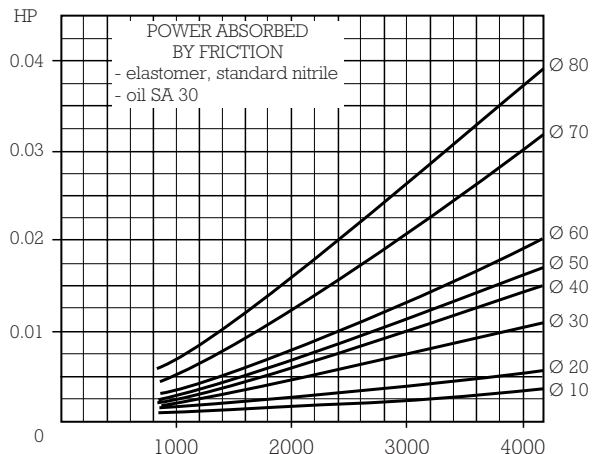
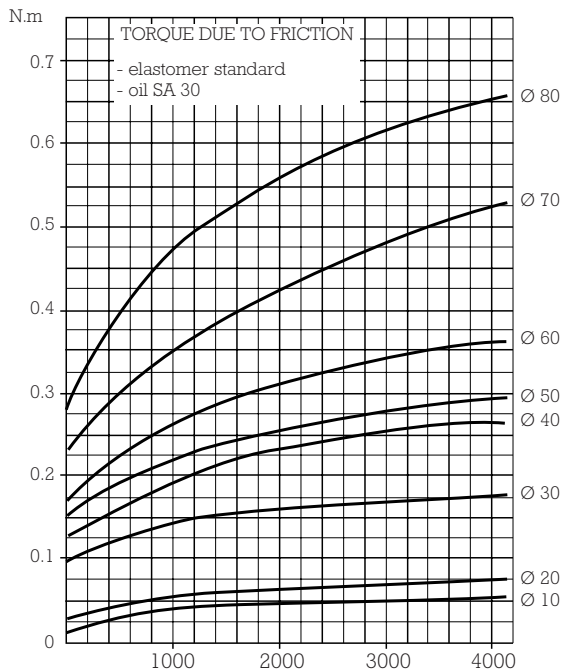


whipping = f (v)



V.5 - ABSORBED POWER - TORQUE DUE TO FRICTION

Due to its design, a lip seal produces friction which will provide some resistance to the rotation of the shaft. For a chosen speed, the resisting torque is function of : the shape of the seal, the friction coefficient and other environment factors such as (materials, tightness of the seal on the shaft, roughness of the shaft, wear, lubrication, temperature ...).



The curves above gives a first indication for the standard Nitrile elastomer. They were plotted under average working conditions using a standard seal with little wear and a lubricated shaft with good surface finish and running temperature of less than 100°C.

VI - THE ASSEMBLY OF SEALS

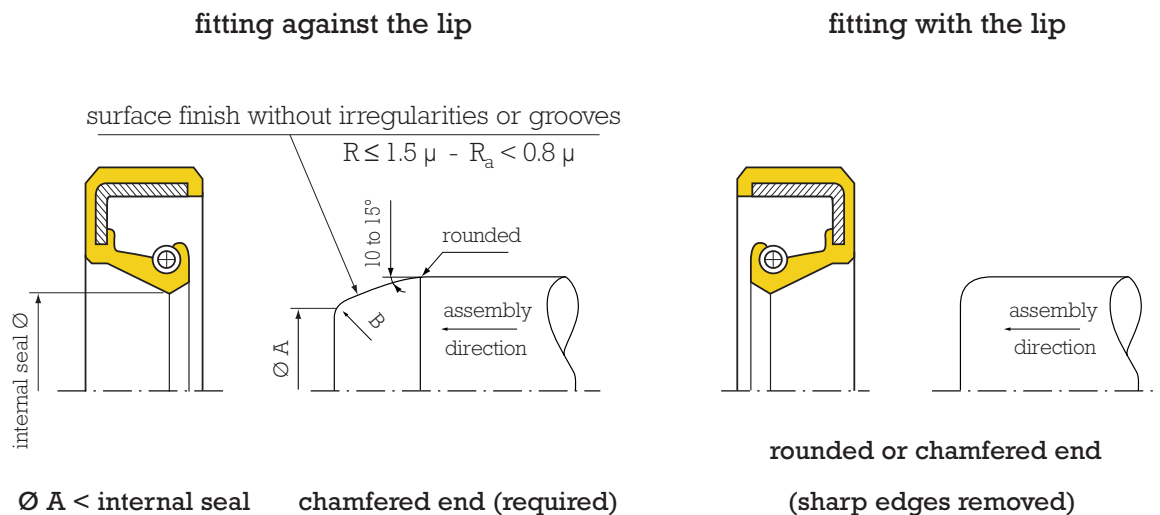
The assembly of seals is a very delicate operation which can ruin the efficiency of a very good product if it is not done properly.

The assembly of a seal must be done in accordance with the following rules :

- Avoid damage to the lip.
- Avoid damage to the cover of the external diameter.
- Lubricate the sealing ridge to avoid damage at the first start-up.
- Position the seal correctly :
 - misalignment (the seal must be perpendicular in relation to the axis),
 - axial position.

The information given below should help constructors to put these rules into practice.

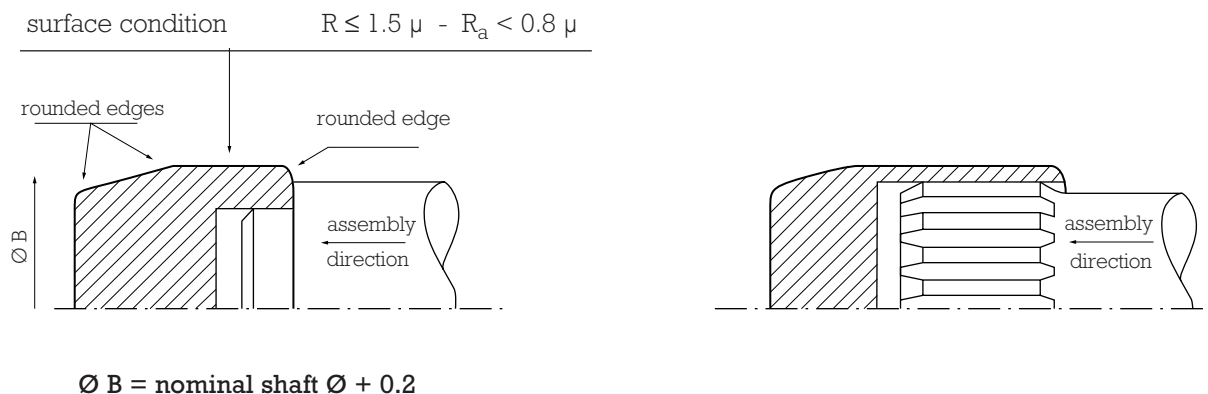
VI.1 - ASSEMBLY ON A SHAFT WITHOUT SPLINES



VI.2 - ASSEMBLY ON A SHAFT WITH SPLINES OR A SHOULDER

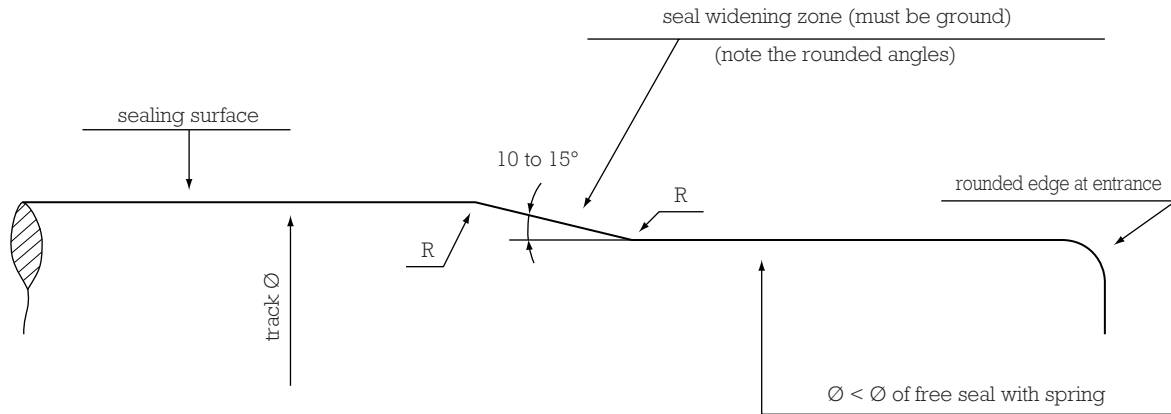
assembly tool for shouldered shaft

assembly tool for splined shaft



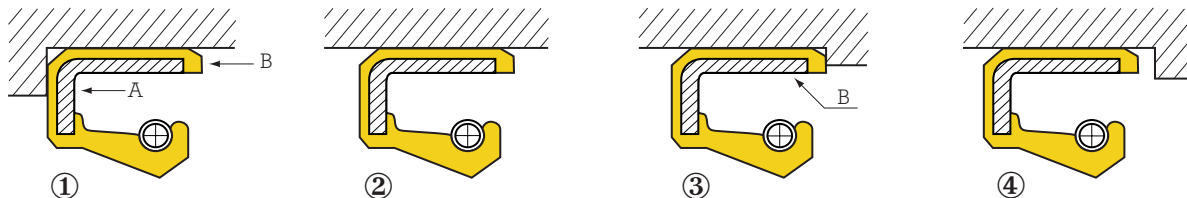
The use of these assembly tools is helpful. However, we recommend the use of a lead-in on the shaft whenever possible.

VI.3 - OUR RECOMMENDATIONS FOR THE SHAPE OF THE SHAFT



mounting sleeves are unnecessary, as the shaft has a lead-in

VI.4 - AXIAL POSITIONING AND ALIGNMENT



- ① The seal is mounted against a stop on the rear side. This presents no particular problem, provided that pressure is applied at "A" to insert it and not at "B".
- ② Here there is no axial stop. The mounting tool positions the seal both axially and perpendicularly.
- ③ The seal is mounted against a stop on the front side. This should be avoided as the elastomer at B could be compressed and the seal will tend to move out of position.
- ④ the housing has a shoulder as in ③, but the seal is positioned by the mounting tool. This case is preferable to case ③.

The mounting tool should be designed to position the seal correctly both axially and perpendicularly, but its shape should be such as to allow deformation of the elastomer covering the outer ring towards the rear, thus avoiding cutting the covering at the time of insertion. In some cases, the bead "C" does not get cut off and sticks between the housing and the assembly mandrel, in which case it is impossible to locate the seal, when the seals have an anti-dust lip, care should be taken that the mounting tools do not turn it back on itself.

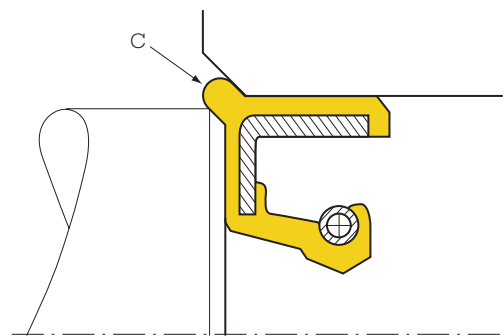
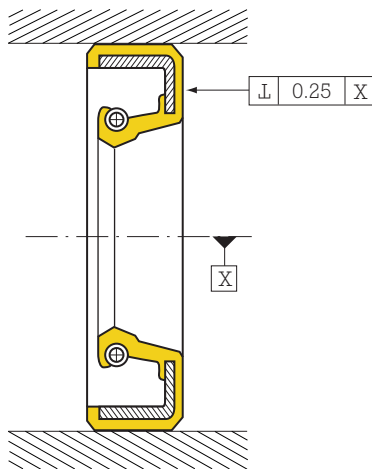
While it is true that modern seal design (corrugations on the outside, pre-centred shape, chamfers without burrs, etc.) tends to reduce problems during assembly, the comments made are still worth noting.

Also, the elastomer part of a semi-covered seal behaves in the same way as a fully covered seal.

- Time should be allowed during assembly to allow in order to allow the elastomer time to settle.
- The seal must be held in position for a few seconds once mounted, to avoid too large a return movement.

We recommend the following :

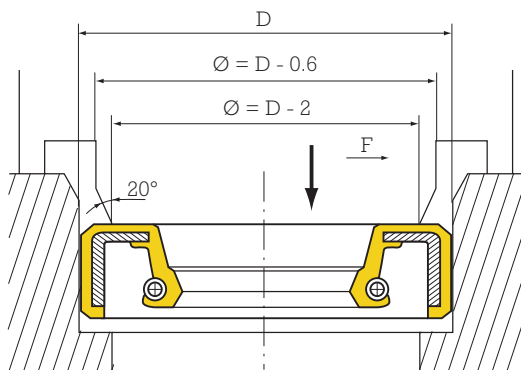
- $V = 1200 \text{ mm/mn}$ (maximum : 1500 mm/mn),
- time held in position: 5 seconds (minimum 2 seconds).



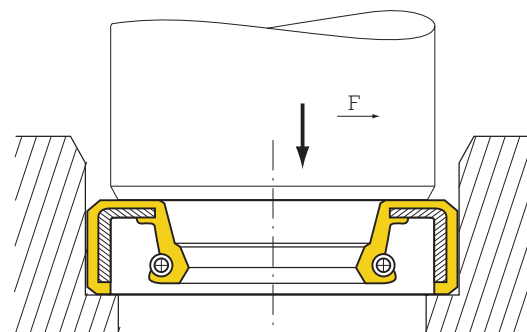
Formation of the bead

Perpendicular tolerance

VI.5 - RECOMMENDATIONS FOR THE ASSEMBLY TOOL



GOOD



TO BE AVOIDED

VI.6 - LUBRICATION AT ASSEMBLY

While the first means of avoiding damage to the outside of the seal is **to pay attention to the housing characteristics**, the second means, which is just as important, is **lubrication** :

- be it of the housing,
- or the outside of the seals,
- or both at the same time.

This not only avoids damage to the seal, but also ensures a better axial positioning.

A seal whose outside diameter is not lubricated will certainly be damaged on the outside when it is mounted in a dry housing (elastomer cover cut or ripped, sealing lacquer removed).

Also, when the unit is started up, the oil will always take some time before it reaches the lip of the seal (from a few seconds to a few tenths of seconds depending to the application).

If it is the first start, and if the lip has not been lubricated at assembly, it will function "dry" dynamically, which will lead to great wear and the risk of total deterioration.

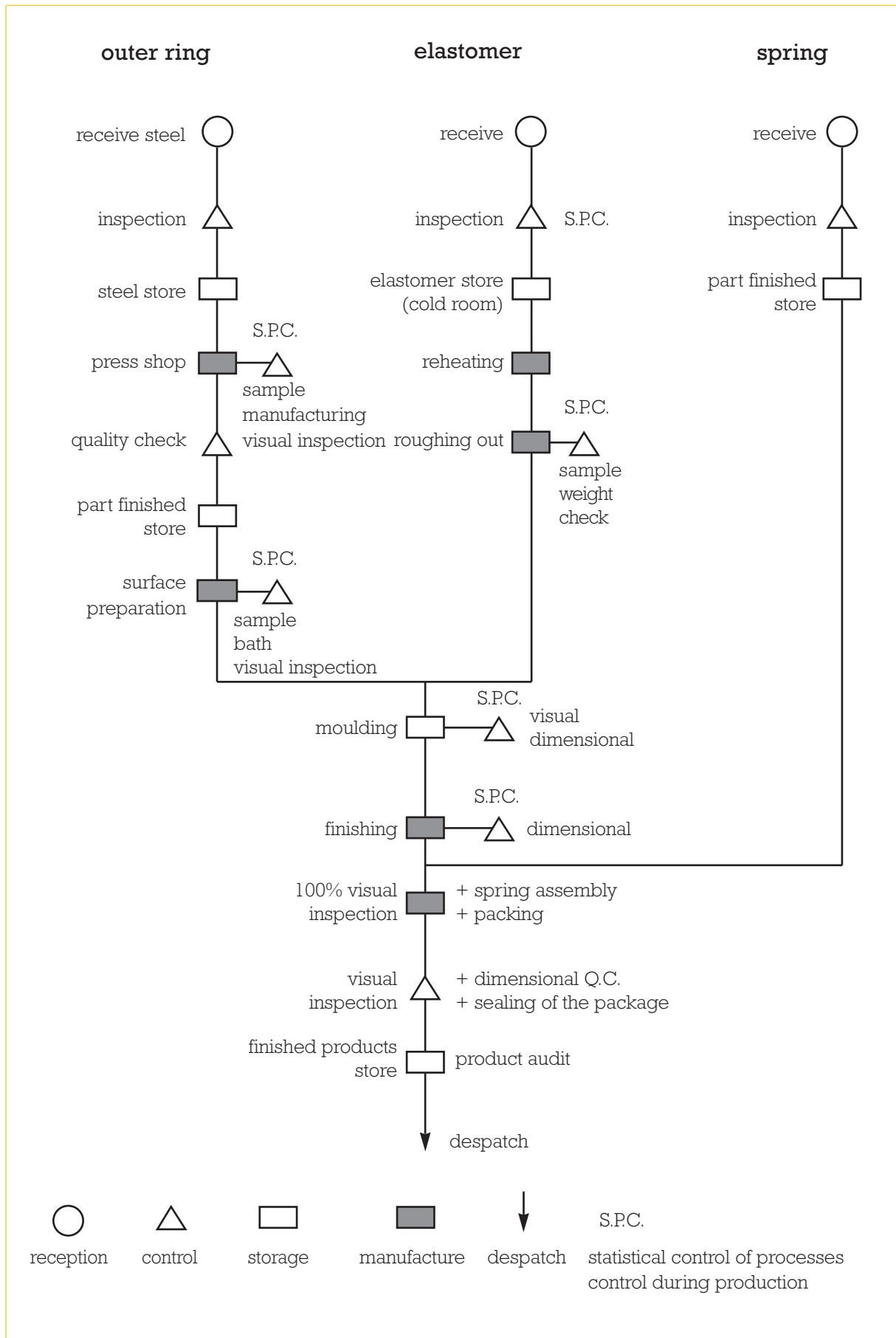
It is therefore essential to lubricate the sealing ridge.

For later starts, the problem is different, because a film of oil will be retained under the lip by capillarity action.

VI.7 - REMINDER OF THE MAIN PRINCIPLES OF ASSEMBLY

- Protect the lip and the outside of the seal by paying attention to the recommendations for the shaft and the housing.
- Apply the insertion force to the rigid part of the outer ring.
- Centre the seal correctly in relation to the housing and/or the shaft.
- Lubricate the outside diameter and/or the housing.
- Lubricate the sealing ridge.

VII - MANUFACTURE AND TESTING



VIII - CLASSIFICATION OF THE MAIN PROFILES OF LIP SEALS

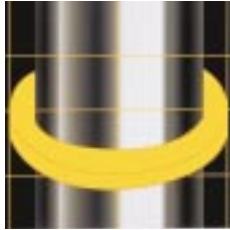
	SPRING			CORRU-GATED COVER (W)	ANTI-DUST LIP		RIDGES		
	embedded (I)	visible (E)	none (O)		WITHOUT SPRING (L)	WITH SPRING (R)	to the left (G)	to the right (D)	bi-direct. (V)
I Covered outer ring	II 	IE 	IO 	IEW 	IEL 	IELR 	IEG 	IED 	IEV
E Bare outer ring	-	EE 	EO 	-	EEL 	EELR 	EEG 	EED 	EEV
CS Bare outer ring reinforced	-	-	-	-	CSEL 	-	-	-	-
M Semi-covered outer ring	-	ME 	MO 	MEW 	MEWL 	MEWLR 	MEG 	MED 	MEV

Note : other cases are available
 X = exterior lip
 S = special cross-section
 P = protector

New range :
CSEL
 seals with bare outer ring reinforced

CLASSIFICATION EXAMPLE

M Semi-covered	M Semi-covered	M Semi-covered
E Spring visible	E Spring visible	O No spring
W With corrugations	W With corrugations	W With corrugations
LR Anti-dust lip with spring	G Ridges to the left	L Anti-dust lip

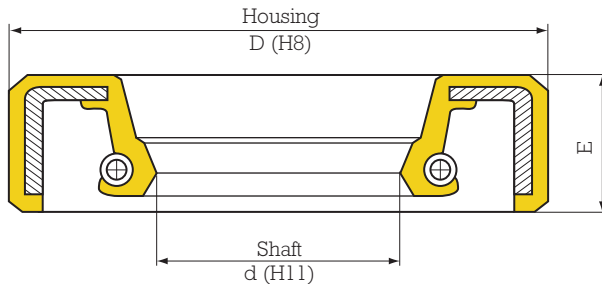


SEALS FOR ROTATING SHAFTS



New !
CSEL Seals

SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER



- The part numbers indicated in bold type are normally kept in stock.
- Special elastomers are available on request.

Part numbers ending in 81 are fitted with a STAINLESS STEEL SPRING.

Due to low demand we have now stopped making the II/III range of seals (with moulded in spring). Please refer to our cost effective standard range of seals (IE/IEL or CSEL type in both Nitrile or Fluorocarbon elastomer) to find the nearest equivalent. Our Technical support service is at your disposal to help you.

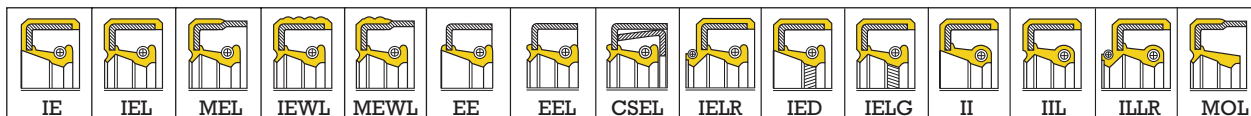
d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
5	15	6	IE	NBR	722034
	15	6	IEL	NBR	792593
	16	5	IO	NBR	723218
5.5	16	7	IE	FKM	772145
6	12	3.5	IE	NBR	772315
	15	7	IE	NBR	772309
	16	7	IE	NBR	722987
	22	7	IE	NBR	722196
	22	7	IOS	NBR	726167
6.3	19	5	IEW	NBR	772402
	19	6.3	IE	NBR	722416
	19	6.3	IE	FKM	772122
7	16	7	IE	NBR	722290
	19	6	IE	NBR	722399
	22	7	IE	NBR	722721
8	11.5	2.5	OOS	NBR	727093
	14	3	IO	NBR	723227
	14	3	IO	NBR	723250
	14	3	IO	NBR	723279
	15	5	IE	NBR	772233
	16	6.5	IE	NBR	722455
	16	6.5	IO	NBR	723216
	18	5	IE	NBR	722477
	18	5	IE	FKM	722477
	18	5	IEL	NBR	795694
	22	6	IEWL	NBR	725696
	22	7	IE	NBR	772023
	22	7	IEL	NBR	792595
	22	8	IE	NBR	722211
	22	8	IE	FKM	722907
24	7	IE	NBR	772024	
8.4	16	6.5	IE	NBR	722061
9	22	7	IE	NBR	722981
	24	7	IE	NBR	772026
	25	8	IE	NBR	722273
	26	7	IE	NBR	772028
	28	8	IE	NBR	772330
9.2	19	5.3	IE	NBR	722003
9.8	18	5	IOS	NBR	726787

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
10	16	5	IE	FKM	722393
	18	5	IE	NBR	722495
	19	7	IE	NBR	722164
	22	7	IE	NBR	722940
	22	7x8	IELS	NBR	725331
	22	8	IE	NBR	722294
	25	8	IE	NBR	722267
	26	7	IE	NBR	722983
	28.5	8	IE	NBR	722783
	35	8	IE	NBR	722784
	10.3	22	8	IE	NBR
10.8	22.2	6.3	IE	NBR	722417
11	17	4	IE	NBR	772379
	17	4	IEWL	NBR	725694
	22	7	IE	NBR	772010
	24	8	IEL	NBR	725183
	25	8	IE	NBR	722065
	26	7	IE	NBR	772027
	26.9	8	IE	NBR	722007
	28.5	8	IE	NBR	722785
12	18	4	IOS	NBR	726024
	18.2	4	IOS	NBR	726072
	19	5	IE	NBR	792700
	20	5x6	EELS	NBR	725519
	22	4	IE	NBR	722372
	22	4	IE	NBR	772314
	22	4	IE	NBR	792701
	22	4	IEL	NBR	792596
	22	4.5	IE	NBR	722303
	22	7	IE	NBR	722660
	22	7	IE	FKM	722660/81
	22	7	IEL	NBR	792507
	22	8	IE	NBR	722295
	24	6.5	IE	NBR	722395
	24	6.5	IEL	NBR	792597
	24	7	IE	NBR	772204
	24	7	IE	FKM	772204/81
26	8	IE	NBR	722109	
26	8	IEL	NBR	725352	
26	8x13	IES	NBR	726223	
26	10	IELRS	NBR	725735	
28	7	IE	NBR	722992	
28	7	IE	NBR	772346	

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.





d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
12	28	8	IE	NBR	722268	15	35	7	IE	NBR	772007
	28	8	IEL	NBR	725589		35	7	IE	FKM	772007/81
	28.5	8	IE	NBR	722786		35	7	IEL	NBR	792602
	30	7	IE	NBR	772011		35	8	IE	NBR	722316
	30	8	IE	NBR	722189		35	10	IE	NBR	722300
	30	8x13	IELS	NBR	725492		35	10	IEL	NBR	725739
	30	8x13	IOS	NBR	726342		42	8	IE	NBR	722296
	32	8x13	IES	NBR	726594						
	32	8	IE	NBR	722320	15.2	30	4.6	IOS	NBR	726188
	32	10	IE	NBR	792702						
	32.9	5	EOS	NBR	726407						
	35.9	5	EOS	NBR	726397						
12.5	22	4.5	IE	NBR	722810	15.6	25	7	IE	NBR	722006
	22	8	IE	NBR	722545	15.7	25.5	4.6	IE	NBR	722021
13	24	7	IEL	NBR	725330	15.8	28.5	9.5	IE	NBR	722104
	25	8x14	IELS	NBR	725134		28.5	9.5	IEL	NBR	725045
	26	6	IE	NBR	792703						
	26	9	IEL	NBR	725297	15.9	28.6	9.5	IE	NBR	722150
	26	9	IOS	NBR	726075		35	8x11.5	IOIS	NBR	723260
	30	8	IE	NBR	722013						
	35	10	IE	NBR	772345	16	22	3	IOS	NBR	726280
14	22	4	IE	NBR	722234		22	3	IOS	NBR	726303
	22	4	IE	NBR	772308		22	4	EE	NBR	720047
	22	4	IEL	NBR	792598		22	4	EEL	NBR	726353
	22	4	IOS	NBR	726385		22.7	4.2	IE	NBR	772278
	22	7	IE	NBR	722453		24	6	IEL	NBR	725659
	24	6	IEL	FKM	725628		24	7	IE	NBR	722769
	24	7	IE	NBR	722659		26	7	IEL	NBR	725811
	24	7	IE	FKM	722659/81		26	7	IEL	NBR	792603
	26	8	IE	NBR	722177		28	7	IEL	NBR	792603
	26	8x10	IELS	NBR	725342		28	7	IE	NBR	772012
	28	7	IE	NBR	722986		28	8	IE	NBR	722613
	30	7	IE	NBR	772029		28	8	IE	NBR	722742
	30	8	IE	NBR	722451		28	8	IE	NBR	722256
	30	10	IEL	NBR	725140		28.5	6.3	IE	NBR	722141
	35	7	IE	NBR	772030		28.7	9.5	IE	NBR	722141
	43	10	IELS	NBR	725566		30	4.5	IE	NBR	722184
	45.9	10	IELS	NBR	725512		30	7	IE	NBR	772021
14.5	24	7	IE	NBR	722249		30	7	IE	FKM	772021/81
15	21	4	IO	NBR	723412		30	10	IE	FKM	772291
	21	4.4	EEL	NBR	725333		32	7	IE	NBR	772031
	23	4	IEWL	NBR	725691		32	7	IE	FKM	772031/81
	24	4.5	IE	NBR	772303		33	8	IE	NBR	722717
	24	4.5x5.5	IELS	NBR	725611		35	6x6.5	IES	NBR	726339
	24	7	IE	NBR	722266		35	7	IE	NBR	722043
	24	7	IE	FKM	722266/81		35	7	IEL	NBR	792604
	24	7	IE	FKM	772289		35	10	IEL	NBR	725141
	24	7	IEL	FKM	725658		38	4	IE	NBR	722593
	24	7	IEL	NBR	792599	16.8	24	4	IO	NBR	723801
	25	5	IE	NBR	792704		47	7	IE	NBR	722798
	25.5	4.6	IE	NBR	722494	17	26	6	IE	NBR	792707
	25.5	4.6	IE	NBR	772344		27	6	IEL	NBR	725668
	25.5	4.6	IE	FKM	772344		28	6	IE	NBR	722445
	26	6	EEL	NBR	725483		28	6	IE	NBR	772288
	26	7	IE	NBR	722616		28	6x6.3	IELV	FKM	704020
	26	7	IE	NBR	722832		28	7	IE	NBR	722969
	26	7	IE	FKM	722616/81		28	7	IE	FKM	722969/81
	26	9	EEL	NBR	725443		28	7	IEL	NBR	725602
	26.5	4.6	IE	NBR	772326		28	7x13	EESD	NBR	702224
	26.5	4.6	IE	FKM	772326/81		28	8	IELR	FKM	725649
	28	4	IE	NBR	722001		28	8	IELR	FKM	725661
	28	4	IEL	NBR	792600		29	7x13	EESG	NBR	702225
	28	9	IE	NBR	792706		30	7	IE	NBR	722726
	30	4.5	IE	NBR	722257		30	7	IEL	NBR	792509
	30	6	IE	NBR	722780		30	7	IE	FKM	722726/81
	30	7	IE	NBR	722106		32	7	IE	NBR	722123
	30	7	IE	FKM	722106/81		32	7	IE	FKM	722123/81
	30	7	IEL	NBR	792601		32	9	IE	NBR	722696
	30	8	IE	NBR	722788		34	4	IE	NBR	722603
	32	7	IE	NBR	722165		35	7	IE	NBR	722989
	32	7	IE	FKM	772130		35	7	IE	NBR	772385
	32	7	IEL	NBR	792508		35	7	IE	FKM	722989/81
	33	5.5	IE	NBR	722787		35	7	IEL	NBR	792605
	33	7	IE	NBR	722042		35	8	IE	NBR	722201
	33	8	IE	NBR	722347		35	8	IEL	NBR	725351
	33	10	IEL	NBR	725669		35	8	IED	NBR	702003
							35	8x13	IESG	NBR	702012
							35	8x13	IESD	NBR	702066
							40	7	IE	NBR	722735
							40	7	IEL	NBR	792606

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

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SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER

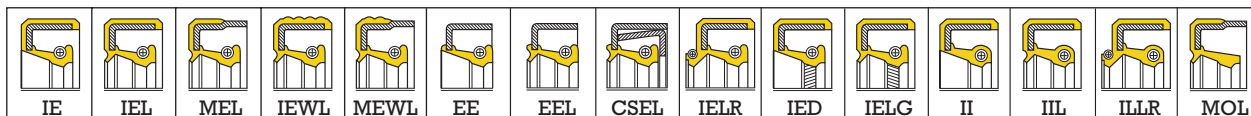
New !
CSEL Seals

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
17	40	8	IE	NBR	722315	20	40	7	IE	NBR	722642
	40	10	IE	NBR	722314		40	7	IE	NBR	772185
	47	8	IE	NBR	722674		40	7	IE	FKM	722642/81
17.5	34	8x15	IESD	NBR	702051		40	7	IEL	NBR	792512
17.7	30	5	IO	NBR	723264		40	7	IES	NBR	726104
17.9	35.5	8.2	IEL	NBR	725652		40	7	EES	NBR	726139
18	25	7	IE	NBR	722628		40	8	IE	NBR	722226
	26	4.5	IE	NBR	772389		40	8	IEL	NBR	725682
	28	6	IE	NBR	722774		40	10	IE	NBR	722119
	28	7	IEL	NBR	792607		40	10	IELS	NBR	725455
	30	5	IELD	NBR	702177		42	6	IE	NBR	722772
	30	5	IOS	NBR	726302		42	6	IEL	NBR	792609
	30	7	IE	NBR	722107		43	8.5	II	NBR	721250
	32	5	IE	NBR	722663		45	10	IELS	NBR	725503
	32	7	IE	NBR	722105		46	10	EELS	NBR	725535
	32	7	IE	FKM	722105/81		46.4	10	EELS	NBR	725541
	33	8	IE	NBR	722120		46.4	10	EELS	NBR	725561
	35	7	IE	NBR	772102		46.5	10	IELS	NBR	725328
	35	8	IE	NBR	722026		47	7	IE	NBR	722671
	35	10	IE	NBR	722252		47	7	IE	FKM	722671/81
	40	7	IE	NBR	772032		47	7	IEL	NBR	792513
	40	10	IEL	NBR	725142		47	10	IE	NBR	722083
	43	8.5	IE	NBR	722015		52	10	IE	NBR	722155
	43	9.5	IES	NBR	726140		52	10	IEL	NBR	792610
18.6	30	4.7	IOS	NBR	726461		52	10	IE	FKM	772432/81
19	27	6	IE	NBR	722384		57	6.5	EES	NBR	726963
	27	6	IE	NBR	792708		62	6.5	IES	NBR	726134
	30	7	IEL	NBR	725648	20.5	35	8x13	IEL	NBR	725286
	34.9	6	IE	NBR	722143	20.8	32	8	IE	NBR	722419
	36	8	IE	NBR	722009	21	31	3.5x4.5	IES	FKM	726380
	40	8	IE	NBR	722346		31	3.5x4.5	IES	NBR	726309
	43	8	IEL	NBR	725681		31	8	IE	NBR	722360
19.3	30	4.7	IOS	NBR	726462		35	8	IE	NBR	772121
19.6	31.1	8	IE	NBR	722244	21.9	47	8	EED	FKM	702356
19.8	38	9.9	IE	NBR	722600	22	32	4.6	IEL	NBR	725614
19.9	28	5	IEW	NBR	772408		32	4.6	IOS	NBR	726017
20	28	4	IE	NBR	792709		32	7	IE	NBR	722850
	28	7	IE	NBR	722133		32	7	IE	NBR	772310
	30	3	IO	NBR	723551		32	7	IE	FKM	722850/81
	30	4.5	IES	NBR	726304		32	7	IE	NBR	772123
	30	4.6	IOS	NBR	726187		32	7	IE	NBR	792514
	30	4.7	IE	NBR	722342		33	7	IE	NBR	792710
	30	4.7	IE	NBR	722146		35	5	IE	NBR	722732
	30	5	IEL	NBR	725349		35	5	IEL	NBR	792611
	30	5	IEL	NBR	792608		35	7	IE	FKM	722727
	30	7	IE	NBR	722258		35	7	IE	NBR	722727/81
	30	7	IE	FKM	722258/81		35	7	IEL	NBR	792515
	30	7	IEL	NBR	792510		35	7	II	NBR	721676
	30	7	IEL	FKM	725660		35	8	IE	NBR	722675
	31	8	IEWLD	FKM	702416		35	8	IEL	NBR	725027
	32	7	IE	NBR	722479		35	10	IE	NBR	722285
	32	7	IE	FKM	722479/81		38	8	IE	NBR	792500
	32	7	IEL	NBR	725280		40	7	IE	NBR	722520
	33	8	IE	NBR	722002		40	7	IE	FKM	772179
	33	8	IEWLG	FKM	702415		40	7	IE	FKM	772338/81
	33.2	8	EOS	NBR	726155		40	7	IE	FKM	772366
	35	6	IO	NBR	723626		40	7	IEL	NBR	725438
	35	7	IE	NBR	722952		40	7	II	NBR	721404
	35	7	IE	FKM	722952/81		40	8	IE	NBR	722519
	35	7	IEL	NBR	792511		40	8	IE	FKM	722519/81
	35	8	IE	NBR	722506		40	8	IEL	NBR	725421
	35	8	II	NBR	721220		40	8	II	NBR	721165
	35	10	IE	NBR	722521		40	8x10	IELS	NBR	725191
	35	10	II	NBR	721182		40	10	IE	NBR	722024
	36.5	8x15	IESPD	NBR	702254		40	13x15.5	IES	NBR	726142
	37	8	IE	NBR	722789		43	8	IE	NBR	722699
	38	6	IE	NBR	722773*		45	7	IEWLG	FKM	702623
	38	8	IE	NBR	722163		45	8	IOS	NBR	726168
	38	8	IEL	NBR	725476		47	7	IE	NBR	772033
	40	6x10	IELS	NBR	725120		47	10	IE	NBR	792711
						22.2	38.2	9.7	IE	NBR	722920
						23	33	4.8	IOS	NBR	726143
							36	6.5	EED	FKM	732373
							38.5	8	II	NBR	721173

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

The part numbers indicated in bold type are kept in stock. Abbréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.





d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
23	40	10	IE	NBR	792712
23.5	29.5	3.3	IO	NBR	723283
24	30	4	IOS	NBR	726050
	30	5.4	IOLS	NBR	726288
	34.4	5	IES	NBR	726079
	34.6	14.3x19.5	EES	NBR	726472
	35	7	IE	NBR	772034
	35	7	IEL	NBR	792612
	36	7	IE	NBR	772328
	36	8x12	IESD	NBR	702028
	37	7	IE	NBR	722909
	37	7	IE	FKM	722909/81
	38.5	7	IIL	NBR	724028
	38.5	10	IE	NBR	722227
	38.5	10	IED	NBR	702005
	40	7	IE	NBR	772035
	40	8	IEL	NBR	725406
	42	8	IE	NBR	792713
	46	10	IE	NBR	722028
	47	7	IE	NBR	722977
	47	7	IE	FKM	772367
	47	10	IE	NBR	722176
	50	10	IE	NBR	792714
	50.5	11	II	NBR	721151
24.5	40	8.4	IEWD	FKM	702565
	42	6	IED	FKM	702598
24.7	35	4.8	IOS	NBR	726313
	40	7	IEL	NBR	725205
	40	7	II	NBR	721009
24.8	42	8	IE	NBR	722584
24.9	40	8	IELD	NBR	702231
25	33	7	IE	NBR	722132
	35	5	IE	NBR	722401
	35	5	IE	FKM	722702
	35	6	IE	NBR	722771
	35	7	IE	NBR	722670
	35	7	IE	FKM	722670/81
	35	7	IEL	NBR	725301
	35	7	IEL	NBR	725638
	35	5	IEL	NBR	792613
	35	7	IELR	NBR	725703
	35	7	IELR	FKM	725705
	35	10	IE	NBR	722161
	35	10.5	IEDP	NBR	702275
	36	7	IE	NBR	792715
	36	8	IOS	NBR	726123
	36	8	OOS	NBR	727034
	36	10	IE	NBR	722588
	37	6	IE	NBR	792716
	38	7	IE	NBR	722259
	38	7	IEL	NBR	792614
	38.3	10	IE	NBR	722147
	40	6	IE	NBR	722761
	40	7	IE	NBR	722799
	40	7	IE	FKM	722799/81
	40	7	IEL	NBR	725767
	40	8	IE	NBR	722508
	40	8	IE	FKM	722505/81
	40	8	IEL	NBR	725067
	40	8	II	NBR	721174
	40	10	IE	NBR	792717
	40	5x75	IELS	NBR	725650
	42	7.5	IE	NBR	722439
	42	7	IE	NBR	772201
	42	7	IEL	NBR	792516
	42	7	IEL	NBR	792615
	42	7	IEWLD	FKM	702621
	42	8	IE	NBR	722517
	42	8	IE	FKM	722517/81
	42	8	IEL	NBR	725621
	42	8	IED	FKM	702410
	42	10	IEL	NBR	792501
	42	10.3x11	IELS	NBR	725466
43	7	IE	NBR	722091	

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
25	43	8	IE	NBR	722683
	45	7	IE	NBR	722310
	45	11	IE	NBR	722866
	45	11	II	NBR	721898
	46	7	IE	NBR	792718
	46	7.5	II	NBR	721153
	47	7	IE	NBR	722523
	47	7	IE	FKM	772339/81
	47	7	IEL	NBR	792517
	47	7	II	NBR	721353
	47	10	IE	NBR	722524
	47	10	II	NBR	721016
	47	13.5	IELS	NBR	725400
	49	10	IE	NBR	722117
	50	10	IE	NBR	722260
	52	7	IE	NBR	722910
	52	7	IEL	NBR	792518
	52	7	IEL	NBR	792616
	52	7	IE	FKM	722910/81
	52	8	IEL	NBR	725037
	52	8	II	NBR	721044
	52	10	IE	NBR	792719
	62	10	IE	NBR	792720
25.4	41.2	11	II	NBR	721657
	42.9	5	IE	NBR	772220
	44.4	5	IE	NBR	722094
26	36	7	IE	NBR	792721
	37	7	IE	NBR	722990
	37	7	IE	FKM	722990/81
	42	7	IE	NBR	772036
	42	8	IE	NBR	722411
	42	8	IEL	NBR	725080
	42	8	IEWLD	FKM	702554
	47	7	IE	NBR	772037
	52	8	IE	NBR	792722
26.7	46.5	11.3	IE	NBR	722757
	46.5	11.3	II	NBR	721172
27	37	7	IE	NBR	722171
	42	10	IEL	NBR	725733
	42	10x13	IED	NBR	702014
	45	6	IE	NBR	722790
	47	7	IE	NBR	722797
	47	8	IE	NBR	722509
	47	8	II	NBR	723104
27.5	34	4	IO	NBR	723800
	35	4	IO	NBR	723277
28	36	8	IE	NBR	722031
	36	8	IEL	NBR	792617
	37	7	IEWL	NBR	725685
	38	7	IE	NBR	772164
	38	7	IE	NBR	792723
	38	7	IEWG	FKM	702549
	40	7	IE	NBR	722212
	40	7	IE	NBR	772312
	40	7	IE	FKM	722212/81
	40	7	IEL	NBR	792519
	40	7	IEWD	NBR	702497
	42	8	IE	NBR	722193
	43	8	II	NBR	721456
	43	10	IE	NBR	792724
	43	10	IEL	NBR	725131
	45	8	IE	NBR	722967
	45	8	IE	FKM	722967/81
	45	8	IEL	NBR	792618
	45	11.5	EESF	NBR	726348
	47	7	IE	NBR	722911
	47	7	IED	NBR	702257
	47	7	IEL	NBR	792619
	47	10	IE	NBR	722490
	47	10	IEL	NBR	725606
	47	10	II	NBR	721194
	47	10	IIL	NBR	724229
	50	10	IE	NBR	792725
	52	7	IE	NBR	772038
52	10	IEL	NBR	792819**	

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The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.



SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER

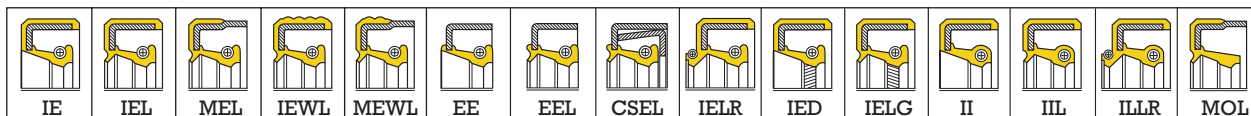
New ! CSEL Seals

d (mm)	D (mm)	E (mm)	Type	Elastomere	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomere	Reference	
28	52	10	II	NBR	721222	30	62	7	IE	NBR	772040	
	52	10	IOS	NBR	726323		62	7	IE	FKM	772040/81	
	52	10x11	IELS	NBR	725377		62	7	IEL	NBR	792527	
	65	10	IE	NBR	772286		62	8	IES	NBR	726113	
28.5	45	8.5	IE	NBR	725062		62	10	IE	NBR	792730	
							62	10	IEL	NBR	792624	
28.6	38.1	6.3	IE	NBR	722305		72	10	IE	NBR	792731	
							39.6	4.7	IOS	NBR	726311	
28.8	46.5	11.2	IE	NBR	722959		30.1	50.7	11	II	NBR	721329
	46.5	11.2	II	NBR	725950		31	42	8	IE	NBR	722691
	46.5	11.2	II	NBR	721022			47	7	IE	NBR	722672
	46.5	11.2	IE	NBR	724215			55	10	II	NBR	721156
29	46	10	IE	NBR	722966		31.7	42.9	4.7	IOS	NBR	726463
	46	10	II	NBR	721183	32		42	7	IEW	FKM	702498
	46.4	12	II	NBR	721148			45	6	IE	NBR	792732
	50	10	IE	NBR	722066			45	7	IE	NBR	722913
29.8	47	9.9	IEL	NBR	725631			45	7	IEL	NBR	792528
								47	9.9	ESWLD	NBR	702686
29.9	48.4	6.3	IOS	NBR	726566			45	10	IEG	NBR	702240
								30	46	7	IE	NBR
40	7	IE	FKM	722623/81	46				7x9.7	IELS	NBR	725563
40	7	IEL	NBR	792520	47				7	IE	NBR	772013
40	7	IED	FKM	702409	47				7	IE	FKM	772013/81
40	7	IEWLD	FKM	702622	47				7	IEL	NBR	792625
41	4.7	IOS	NBR	726312	47				8	IE	NBR	722617
42	5.7	IE	NBR	722583	47				8	IEL	NBR	792626
42	6	IEWL	NBR	725637	47	8	II		NBR	721046		
42	6x6.5	IELV	NBR	704033	47	12	IELR		NBR	724851		
42	7	IE	NBR	722737	48	8	IE		NBR	792734		
42	7	IE	FKM	722737/81	50	8	IE		FKM	722518/81		
42	7	IEL	NBR	792521	50	8	IE		NBR	722518		
42	7	IEW	FKM	772409	50	8	IEL		NBR	792529		
42	8	IE	NBR	722722	50	8	II	NBR	721067			
42	8	IEL	NBR	725143	50	9	IOS	NBR	726015			
42	8	IEG	NBR	702107	50	10	IE	NBR	722607			
42	8	IELD	NBR	702408	50	10	II	NBR	721185			
42	8	IOS	NBR	726236	50	10	IELS	NBR	725408			
45	8	IE	NBR	722402	52	7	IE	NBR	772202			
45	8	IEL	NBR	792620	52	7	IEL	NBR	792628			
45	8	IE	NBR	722684	52	7	IE	FKM	772202/81			
45	8	IE	NBR	722684	52	7.5	IE	NBR	722478			
45	8	IEL	NBR	792621	52	7.5	II	NBR	721154			
45	10	IE	NBR	722541	52	7.5x13.5	IELR	NBR	725897			
45	10	II	NBR	721175	52	10	IEL	NBR	725565			
45	13	IEL	NBR	725085	52	10	IEL	NBR	792627			
47	6	IEWD	FKM	702522	52	10	IEG	NBR	702342			
47	7	IE	NBR	772039	52	12	IE	NBR	722557			
47	7	IE	FKM	772039/81	54	8	IE	NBR	722039			
47	7	IEL	NBR	792522	54	8	II	NBR	721068			
47	8	IE	NBR	722204	55	10	IE	NBR	792735			
47	8	IEL	NBR	725293	55	10	IEL	NBR	792818**			
47	10	IE	NBR	792726	56	10	II	NBR	721162			
48	8	IE	NBR	722500	56	12	IE	NBR	722038			
48	8	IE	NBR	722500**	56	12	II	NBR	721096			
48	8	IE	NBR	722901	62	10	IE	NBR	792736			
48	8	IE	FKM	722500/81	33	45	7	IE	NBR	792737		
48	8	IEL	NBR	792523		48	8	IE	NBR	722971		
48	10	IE	NBR	792727		48	8	II	NBR	721145		
50	7	IEW	FKM	772410		50	8	IE	NBR	722994		
50	7	MEWLD	FKM	702540		33.5	47	4	IO	NBR	723252	
50	10	IE	NBR	722836			34	46	8	IE	NBR	792738
50	10	IEL	NBR	792524				50	10	IE	NBR	792739
50	10	II	NBR	721184				52	7	IE	NBR	792814
50	11	II	NBR	721149				52	7.5	IE	NBR	722511
52	7	IE	NBR	722912				52	7.5	II	NBR	721279
52	7	IE	FKM	722912/81				54	9	IE	NBR	722092
52	7	IEL	NBR	792525				54	10	IE	NBR	722685
52	10	IE	NBR	792728		54		12.5	IEL	NBR	725775	
52	10	IEL	NBR	792622	34.8	50	7	IE	FKM	772400		
55	7	IE	NBR	772342		34.9	54	11	IE	NBR	722023	
55	10	IE	NBR	722892			55.8	9.3	IELG	NBR	702299	
55	10	IEL	NBR	792526	57.2		12.7	IE	NBR	722985		
55	10	II	NBR	721102	57.2		12.7	II	NBR	721468		
56	10	IEL	NBR	792623								
60	10	IE	NBR	792729								

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d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
34.9	58	9.8	IE	NBR	772276	36	54	7.5	IE	NBR	722496
	63.5	12.5	IELG	NBR	702183		54	7.5	IE	NBR	722895
35	45	6	IE	NBR	722400		54	7.5	II	NBR	721278
	45	6	IE	FKM	722400/81		54	11	EESF	NBR	726349
	45	7	IEL	NBR	792629		58	15	IEL	NBR	725494
	47	6	IEWLD	FKM	702535		62	7	IE	NBR	722404
	47	7	IE	NBR	722915		62	12	II	NBR	721117
	47	7	IE	FKM	722915/81		62	12.5	II	NBR	721076
	47	7	IEL	NBR	725411		68	10	IEL	NBR	792639
	47	8	IE	NBR	722554		83	12	II	NBR	721129
	50	5	IE	NBR	722266	37	50	10	IE	NBR	792744
	50	5.8	IE	NBR	722484		58	13	IE	NBR	792745
	50	7	IE	NBR	722022		58	13	IEL	NBR	725568
	50	7	IE	FKM	772022/81		58	13	II	NBR	721444
	50	7	IEL	NBR	792530		70	13	IE	NBR	722804
	50	7	MEWD	FKM	702371		70	13	IE	FKM	722904
	50	8	IE	NBR	722389	38	50	7	IE	NBR	792746
	50	8	IEL	NBR	725489		52	7	IE	NBR	722338
	50	8	IED	NBR	702239		52	7	IE	FKM	722338/81
	50	10	IIL	NBR	724001		52	7	IEL	NBR	792640
	50	10	IEL	NBR	792630		52	8	IE	NBR	722791
	50	12	IE	NBR	722525		52	8	IE	NBR	722293
	50	12	II	NBR	721069		54	5	IE	NBR	721212
	52	7	IE	NBR	772014		54	10	II	NBR	772103
	52	7	IE	FKM	772014/81		55	7	IE	NBR	722641
	52	7	IEL	NBR	792531		55	10	IE	NBR	722641/81
	52	8	IE	NBR	722778		55	10	IE	FKM	725486
	52	8	IEL	NBR	792532		55	10	IEL	NBR	721029
	52	8	IES	NBR	726705		55	10	II	NBR	772226
	52	10	IE	NBR	722526		55	12	IE	NBR	792747
	52	10	IEL	NBR	725026		56	10	IE	NBR	721142
	52	10	IEL	NBR	725747		56	10	II	NBR	792641
	52	10	IELR	NBR	792504		60	10	IEL	NBR	722606
	52	10	II	NBR	721008		61	12	IE	NBR	772042
	52	10	IIL	NBR	724198		62	7	IE	NBR	722556
	52	10.5	IIS	NBR	726640		62	7	IE	FKM	792642
	54	10	IE	NBR	722893		62	10	IE	NBR	722368
	54	10	II	NBR	721195	38.1	52.5	11.1	IE	NBR	722921
	55	8	IE	NBR	792740		60.3	19	IEL	NBR	725212
	55	10	IE	NBR	722192		63.5	12.7	IE	NBR	722251
	55	10	IE	NBR	792741		73	11	IE	NBR	722558
	55	10	IEL	NBR	792631		78	11	IE	NBR	722667
	56	10	IE	NBR	722499	38.7	50.8	6.4	IES	NBR	726073
	56	10	II	NBR	721192	39	55	8	IE	NBR	722665
	56	10	IEWL	FKM	702496		61	12	II	NBR	721134
	59	12x14	IES	NBR	726718	39.3	63.7	12.8	II	NBR	721140
	60.3	12.5	II	NBR	721206	39.7	63.6	12.7	IE	NBR	722151
	62	7	IE	NBR	722918	39.8	65	8	IEW	FKM	772406
	62	7	IEL	NBR	792934		65	8	IEWD	FKM	702504
	62	7	IE	FKM	722918/81	40	46	4	IOS	NBR	726098
	62	10	IE	NBR	792742		48	4	EO	NBR	727124
	62	10	IEL	NBR	792632		52	7	IE	NBR	722325
	62	12	IE	NBR	722493		52	7	IE	FKM	722325/81
	62	12	IEL	NBR	792633		52	7	IEL	NBR	792505
	64	7	IEWLD	FKM	702531		52	7	IEL	NBR	725363
	65	10	IE	NBR	722288		52	7	IED	FKM	702546
	68	6	IE	NBR	722815		52	7	IEWLD	FKM	702511
	68	6	IE	NBR	792634		52	9	IEWL	FKM	702532
	68	10	IE	FKM	772244		55	6.5	IE	NBR	722746
	68	10x12	IEL	NBR	725608		55	7	IE	NBR	722919
	72	7	IE	NBR	722245		55	7	IE	FKM	722919/81
	72	7	IE	NBR	792635		55	7	IEL	NBR	792535
	72	10	IE	NBR	722170		55	7	IE	NBR	722792
	72	10	IEL	NBR	792636		55	8	IEL	NBR	725355
	72	10	IEL	NBR	792636**		55	10	IE	NBR	722166
	72	12	IE	NBR	792743		55	10	IE	NBR	772364
	72	12	IEL	NBR	792637		55	10	II	NBR	721070
35.1	58	11.5	IE	NBR	722560		55	10	IEWG	NBR	702298
	58	11.5	II	NBR	721457		56	8	IE	NBR	792748
36	47	7	IE	NBR	722950		56	8	IEL	NBR	792644
	48	10	IE	NBR	722084		56	8	IE	NBR	722152
	50	7	IE	NBR	772041		56	10	IE	NBR	
	50	7	IEWLD	FKM	702659						
	52	4	IOX	NBR	726394						
	52	7	IE	NBR	722991						
	52	7	IE	FKM	722991/81						
	52	7	IEL	NBR	792638						
	52	10	II	NBR	721309						

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.



SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER

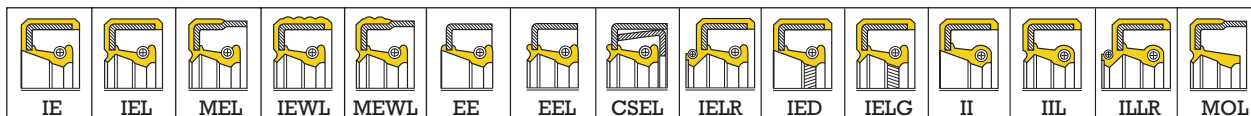
New !
CSEL Seals

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	
40	56	10	IEL	NBR	792643	42	60	14	IEL	NBR	725919	
	58	10	IE	NBR	722501**		60	14	IIL	NBR	724121	
	58	10	IE	NBR	722501		62	7	IEL	NBR	725552	
	58	10	IE	FKM	722501/81		62	7	EEL	NBR	725544	
	58	10	IEL	NBR	725123		62	8	IE	NBR	722931	
	58	10	IELV	NBR	704031		62	8	IE	FKM	722931/81	
	58	10	IELWG	FKM	702476		62	8	IEL	NBR	792540	
	58	10x14	IESPD	NBR	702222		62	8	IELD	FKM	702406	
	58	15	IELR	NBR	725745		62	10	IE	NBR	722057	
	58	15	IILR	NBR	724087		63	8	IEWLGC	FKM	702526	
	60	7	IE	NBR	792749		64	7	IE	NBR	722640	
	60	7	IEWLGC	FKM	702536		65	8.3x13	IELR	NBR	725016	
	60	10	IE	NBR	792750		65	10	IE	NBR	722064	
	60	10	IEL	NBR	792645		65	10	IEL	NBR	792649	
	60	12	II	NBR	721301		65	10	II	NBR	721093	
	61	12	IE	NBR	722498		67	10	IEL		725435	
	61	12	II	NBR	721100		71.5	13	II	NBR	721143	
	62	7	IE	NBR	772043		72	8	IE	NBR	772046	
	62	7	IE	FKM	772043/81		72	8	IEL	NBR	792541	
	62	7	IEL	NBR	792536		42.1	63.6	14.4	II	NBR	721018
	62	8	IE	NBR	722454		42.8	69.9	12.7	II	NBR	721469
	62	10	IE	NBR	722505		43	58	7	MEWD	FKM	702370
	62	10	IE	FKM	722505/81			58	13.5	IE	NBR	722522
	62	10	IE	FKM	722828			58	13.5	II	NBR	721204
	62	10	IEL	NBR	725802			60	10	IE	NBR	722136
	62	10	IELR	NBR	792503			60	10	IE	NBR	792754
	62	10	II	NBR	721031			60	10	IEL	NBR	725975
	62	10	MEWLC	NBR	702369			65	10	IE	NBR	722958
	62	10x11	IELS	NBR	725467			65	10	II	NBR	721440
	62	12	IE	NBR	722972		43	66	10	IEL	NBR	792650
	62	12	II	NBR	721168			75	10	II	NBR	721441
	62	11x13.5	IELS	NBR	725401		44	59.2	12	IEL	NBR	725642
	62	10.25x13	IELS	NBR	725600			62	10	IE	NBR	792755
	65	12	IE	NBR	722135			72	12	IE	NBR	722741
	65	12	II	NBR	721123			78	7	IE	NBR	722190
	68	7	IEL	NBR	792537		44.4	54	4.8	IE	NBR	722036
	68	8	IE	NBR	722174		44.5	62	8	IEL	NBR	725442
	68	10	IE	NBR	792751			81	10	IE	NBR	722210
	70	12	IE	NBR	722203			81	11.1	IE	NBR	722022
	70	12	II	NBR	721251		44.7	54	6x7.9	EOLS	NBR	727111
	71.5	12	II	NBR	721144			54	6x8.5	IOLS	NBR	723258
	72	7	IE	NBR	772044		44.8	61.4	11.7	II	NBR	721201
	72	7	IEL	NBR	792538		45	57	7	IEWLD	FKM	702567
	72	7	IE	FKM	772044/81			58	7	IE	NBR	792756
	72	8	IE	NBR	722169			58	7	IEWD	FKM	702775
	72	10	IEL	NBR	792646			60	5	IE	NBR	722185
	72	12	II	NBR	721467			60	6.5	IE	NBR	722121
	80	10	IE	NBR	792752			60	6.5	IEL	NBR	792651
	80	10	IEL	NBR	792647			60	6.5x8.1	IOB	NBR	729009
	85	13	IEL	NBR	725376			60	7	IE	NBR	722306
	90	8	IEL	NBR	792648			60	8	IE	NBR	772115
								60	8	IE	FKM	772115/81
								60	8	IEL	NBR	792542
41	54	12	EEL	NBR	725615			60	10	IE	NBR	722516
	63.4	6	IE	NBR	722550			60	10	IE	FKM	722516/81
	63.6	14	II	NBR	721108			60	10	IE	FKM	722988
	70	13	IE	NBR	722647			60	10	IE	FKM	722988
41.2	60.3	9.5	IEL	NBR	725204			60	10	IEL	NBR	792543
	63.5	12.7	IE	NBR	772317			60	10	II	NBR	721248
41.3	62.1	19	IE	NBR	725042			60	10	IEWLD	FKM	702614
41.4	57.1	6.5	IE	NBR	722723			60	12	II	NBR	721071
	57.1	12.2	IES	NBR	726744			62	7	IEL	NBR	725459
	62	12.2	IES	NBR	726115			62	7	EEL	NBR	725547
42	52	4	IOS	NBR	726151			62	8	IE	NBR	772018
	55	7	IED	FKM	702223			62	8	IE	FKM	772018/81
	55	7	IEWLD	FKM	702545			62	8	IEL	NBR	725407
	55	8	IE	NBR	772045			62	8	EEL	NBR	725549
	55	8	IE	FKM	772045/81			62	8	IE	NBR	772018
	55	8	IEL	NBR	792539			62	8	IE	FKM	772018/81
	56	7	IE	NBR	772386			62	8	IEL	NBR	725407
	56	7	IE	NBR	792753			62	8	EEL	NBR	725549
	58	7	IEL	NBR	725387			62	8	IEWLD	FKM	702465
	58	7	EEL	NBR	725543			62	8	IE	NBR	722621
	58	9	IE	FKM	772265			62	10	IEL	NBR	725748
	58	10x11.5	IELS	NBR	725184			62	10	IEL	NBR	725315
	58	11	IESF	FKM	726483			62	10	IEL	NBR	725748**
	60	10	IE	NBR	722682			62	10	IIL	NBR	724011
	60	12	IE	NBR	722763			62	10			

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

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d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
45	62	12	IE	NBR	722504	48	72	7	IE	NBR	722272
	62	12	IEL	NBR	792544		72	8	IE	NBR	722200
	62	12	II	NBR	721020		72	8	IEL	NBR	792659
	65	8	IE	NBR	772019		72	10	IE	NBR	722209
	65	8	IE	FKM	772019/81		72	10	IED	FKM	702364
	65	8	IEL	NBR	792652		72.2	12.5	IE	NBR	722656
	65	8	II	NBR	721101		72.2	12.5	II	NBR	721146
	65	8	IEX	NBR	726157		72.5	10	IEL	NBR	725369
	65	9	IEWLD	FKM	702508		75	8	EED	FKM	702334
	65	10	IE	NBR	722764		80	10	IE	NBR	792768
	65	10	EELD	FKM	702251						
	65	12	IE	NBR	722858	49	65	10	IE	NBR	792769
	65	12	II	NBR	721217						
	65	15	IIL	NBR	724449	49.7	65	10	IE	NBR	722960
	66	6	IE	NBR	792757		65	10	IE	FKM	722725
	66	9	IEWL	FKM	702478						
	67	8	IEWLD	FKM	702467						
	68	10	IE	NBR	792758	50	62	10	IE	NBR	792770
	70	12	IE	NBR	792760		65	8	IE	NBR	722710
	70	12.5	II	NBR	721341		65	8	IE	FKM	722710/81
	70	12.5	IEL	NBR	792828**		65	8	IEL	NBR	792546
	70	12.5	IIL	NBR	724447		65	10	IE	NBR	722887
	70	12.5	IELS	NBR	725794		65	10	IEL	NBR	792547
	72	8	IE	NBR	772104		65	10	II	NBR	721073
	72	8	IEL	NBR	792653		65	10	IEX	NBR	726357
	72	8	IE	FKM	772104/81		67.5	13.5	EEL	NBR	725572
	72	8.3x9	IELS	NBR	725468		68	8	IE	NBR	772047
	72	10	IE	NBR	792761		68	8	IE	FKM	772047/81
	75	9	IEWLD	FKM	702515		68	8	IEL	NBR	792548
	75	10	IE	NBR	792762		68	8	IEWLD	FKM	702620
	75	10	IELD	NBR	702126		68	10	IE	NBR	792771
	75	10	EELD	FKM	702250		68	10	IEL	NBR	792660
	80	10	IE	NBR	792763		70	10	IE	NBR	722219
	80	10	IEL	NBR	792654		70	10	IE	NBR	792772
	85	8	IEL	NBR	792655		70	10	IEL	NBR	792661
	100	8	IEL	NBR	792656		70	10	IEL	NBR	792661**
							70	12	IEL	NBR	792820**
							70	13.5	EEL	NBR	725473
46	60	10X16	IES	NBR	726378		72	6	IE	NBR	722287
	64	8	IE	NBR	792764		72	8	IE	NBR	772199
	65	10	IE	NBR	722793		72	8	IE	FKM	772199/81
	65	10	IEL	NBR	792657		72	8	IEL	NBR	792549
	65.5	9x13.5	IELS	NBR	725306		72	10	IE	NBR	722756
	78	9	IELS	FKM	725590		72	10	IEL	NBR	792550
46.9	62	8	IE	NBR	722271		72	10	IEL	NBR	792662
47	62	6	IE	NBR	792765		72	12	IE	NBR	722503
47.2	60.3	6.3	IE	NBR	772120		72	12	IE	FKM	722503/81
47.5	60.5	10	IEL	NBR	725220		72	12	IEL	NBR	792551
47.6	58.8	9.6	IE	NBR	722292		72	12	EELD	FKM	702387
	66.7	9.3	IED	NBR	702245		72	15	IELR	NBR	725003
	69.8	16.7	IEL	NBR	725006		72	15	II	NBR	721322
	69.8	19	IIL	NBR	724003		72	15	IILR	NBR	724088
	69.8	19	IIL	NBR	724428		74	10	IE	NBR	722906
	70	8	IEWLD	FKM	702544		75	8	IEWL	FKM	702521
	70.2	15	II	NBR	721082		75	10	IE	NBR	772337
	71.5	9.5	IE	NBR	772316		75	10	IE	FKM	772337/81
	73.5	16.7	IEL	NBR	725100		76.2	12.2	IE	NBR	722650
48	58	4	IOS	NBR	726046		78	10	IE	NBR	792773
	62	7	IE	NBR	772322		80	8	IE	NBR	772048
	62	8	IE	NBR	722899		80	8	IEL	NBR	792552
	62	8	IE	FKM	722899/81		80	8	IE	FKM	772048/81
	62	8	IEL	NBR	725263		80	9	IEWLD	FKM	702530
	62	8	IEWG	FKM	702587		80	9	MEWLD	FKM	702624
	63.5	12	II	NBR	721072		80	10	IE	NBR	792774
	65	10	IE	NBR	722513		80	10	IEL	NBR	792663
	65	10	IEL	NBR	792545		80	13	IE	NBR	722512
	65	10	II	NBR	721078		80	13	IEL	NBR	725779
	65	10	IELS	NBR	725118		80	13	EELD	FKM	702263
	65	10	IOS	NBR	726010		80	13	IEWLD	FKM	702477
	65.1	10	IOS	NBR	726286		80	16	IELR	NBR	725612
	68	8	IEL	NBR	792658		80	16	IIL	NBR	724089
	68	12	IE	NBR	722873		87	10	IE	NBR	722447
	68	12	II	NBR	721166		90	8	IEL	NBR	792664
	68	12x15	IELS	NBR	725092		90	10	IE	NBR	722888
	68	14	IEL	NBR	725890		90	10	IEL	NBR	792665
	70	10	IE	NBR	792767		90	10x14	IES	FKM	726460
						50.7	69.8	9.5	IE	NBR	722596
							76.1	17.5	II	NBR	721209
						50.8	69.8	12.7	IE	NBR	722035
							70	12.7	IE	NBR	722206

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SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER

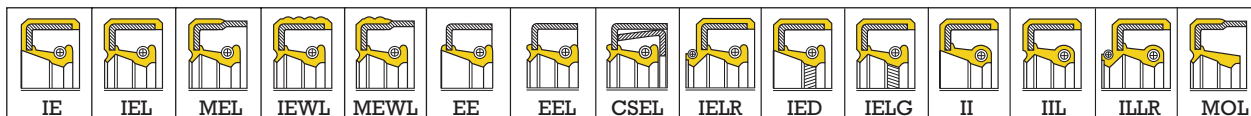
New !
CSEL Seals

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
50.8	73.4	17	III	NBR	724308	55	70	8	IE	FKM	722938
	81	11.9	II	NBR	721355		70	8	IEL	NBR	792554
50.9	101.8	11.5	II	NBR	721171		70	8x14	IELR	NBR	725896
							70	9	II	NBR	721239
51	65	6.5	IEWD	FKM	702491		70	10	IE	NBR	722528
							76	19	II	NBR	702381
51.4	69	10	IEL	NBR	725373		70	10	EEL	FKM	702381
							71.5	10	II	NBR	721349
52	68	7	IEL	NBR	725412		72	8	IE	NBR	772015
							68	8	IE	NBR	722236
	68	8	IE	FKM	722236/81		72	8	IEL	NBR	792555
	68	8	IEL	NBR	792553		72	10	IE	NBR	722808
	68	8	II	NBR	721047		72	10	IEL	NBR	792556
	68	8	IEWLG	FKM	702552		72	10	IEWLD	FKM	702615
	69	10	IEL	NBR	725064		72	13	II	NBR	721138
	69	10	IEL	FKM	725064		75	10	IEL	NBR	725102
	69	10	IELS	NBR	725119		75	12	IE	NBR	722749/81
	69	10	IOS	NBR	726009		75	12	IEL	NBR	725072
	69	10	IOS	NBR	726269		75	12	II	NBR	721081
	72	8	IE	NBR	772049		75	16	III	NBR	724448
	72	8	IEWD	FKM	702588		75.4	12	II	NBR	721253
	72	10	IE	NBR	722281		76	6.5x8.1	IOB	NBR	729008
	72	12	IE	NBR	722611		76	8	IEWLD	FKM	702534
	72	12	IE	FKM	772137		76	11	IE	NBR	722649
	72	12	IEL	NBR	792666		76	12	IE	NBR	722712
	72	12	II	NBR	721199		76	12	IELS	NBR	725713
	75	12	IE	NBR	722502		76	12	IELS	FKM	725713/81
	75	12	IE	FKM	772345		78	10	IE	FKM	722392/81
	75	12	II	NBR	721015	80	8	IE	NBR	722008	
	75	15	IEL	NBR	725673	80	8	IE	FKM	722008/81	
	75	16	III	NBR	724562	80	8	IEL	NBR	792557	
	78	15	IELR	NBR	725610	80	8	II	NBR	721013	
	78	15	III	NBR	724261	80	10	IE	NBR	792778	
	80	8	IE	NBR	792506	80	10	IEL	NBR	792668	
	80	10	IE	NBR	722824	80	12	IE	NBR	726711	
	80	10	II	NBR	721048	80	13	II	NBR	721167	
	80	13	IE	NBR	722514	82	12	IE	NBR	722655	
	80	13	II	NBR	721176	85	8	IE	NBR	772050	
	85	10	IE	NBR	792775	85	10	IE	NBR	792779	
52.5	72.7	8.5	II	NBR	721019	85	12	IE	NBR	722222	
	80	11	IE	NBR	722652	90	10	IE	NBR	792780	
53	60	4	IEL	NBR	725679	90	10	IEL	NBR	792669	
						68	10.5	IE	NBR	722605	
						68	10.5	II	NBR	721128	
						68	13	IEL	NBR	725048	
						68	13	III	NBR	724284	
						80	13	IE	NBR	722996	
						97	10	IE	NBR	772281	
53.6	73.1	19	IEL	NBR	725043	90	13	IEL	NBR	725061	
	77.8	13	IEL	NBR	725108	90	13	II	NBR	721318	
54	68	10.5	IE	NBR	722167	90	13	IEL	NBR	792822**	
						70	10	IE	NBR	792776	
						70	12	IE	NBR	722874	
						72	5	IE	NBR	722738	
						72	5x12.5	IES	NBR	726643	
						72	10	IE	NBR	722448	
						72	10	IEL	NBR	725202	
						72	10	IED	FKM	702363	
						72.5	9	IEL	NBR	725499	
						72.5	9	EELS	NBR	725509	
						72.5	9	EELS	NBR	725592	
						72.5	9	EELS	NBR	725604	
						75	7	IEL	NBR	725559	
						76.2	12.5	II	NBR	721307	
						77.7	12.7	IE	NBR	722025	
						81	10	IEL	NBR	725651	
85	10	IEL	NBR	725501							
54.2	73.1	6	IE	NBR	726158	90	13	IEL	NBR	725760	
55	68	4	IOS	NBR	726285	57	73	8	IEWLG	FKM	702561
						68	8	IE	NBR	721247	
						68	8	IEL	NBR	722067	
						68	8	IEL	NBR	725625	
						70	7	IEWV	FKM	704039	
						70	8	IE	NBR	722938/81	
55.1	73	12.7	II	NBR	721259	75.6	12	II	NBR	722067	
						76.2	12.7	IEL	NBR	725127	
						80	12	IE	NBR	722067	
						85	15	IELR	NBR	725625	
						85	15	III	NBR	724306	
						90	13	IE	NBR	722728	
						90	13	IEL	NBR	725760	
						57.1	73	12.7	II	NBR	721259
						58	72	8	IE	NBR	722359
						76.2	12.7	IEL	NBR	725127	
58	72	8	IE	FKM	722359/81	72	8	IE	NBR	792558	
						72	8	IEL	NBR	722622	
						75	5	IE	NBR	792783	
						75	10	IE	NBR	722707	
						80	5	IE	NBR	722939	
						80	8	IE	NBR	792559	
						80	8	IEL	NBR	722200	
						80	10	IE	NBR	792784	
						80	10	IE	NBR	721437	
						80	10	II	NBR	721437	

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.





d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
58	80	10	IEL	NBR	792825**	63	83	12	IE	NBR	772375
	80	12	IE	NBR	722005		85	10	IE	NBR	772057
	80	12	IE	FKM	722005/81		85	10	IE	FKM	772057/81
	80	12	IEL	NBR	792670		90	10	IE	NBR	772105
	80	12	II	NBR	721059		90	12	IE	NBR	722648
	81	5	IE	NBR	722254	63.5	80	5.5	IOS	NBR	726816
	83.2	17	II	NBR	721210		90	11.5	II	NBR	721207
	85	10	IE	NBR	722559	64	80	13	IE	NBR	722984
	85	10	II	NBR	721135		80	13	II	NBR	721097
	85	12	II	NBR	721124		85	16	IEL	NBR	725891
	90	10	IEL	NBR	792672		85	16	IIL	NBR	724090
	102	10	IE	NBR	772282		90	12	II	NBR	721125
59	72	12	MEWL	NBR	725588		90	13	IE	NBR	792791
	72	7	EELS	NBR	725358	65	73.5	4	IOS	NBR	726049
	80	12x13	IE	NBR	792785		80	8	IE	NBR	722507
59.5	75	8	IE	NBR	722587		80	8	IE	FKM	722507/81
60	71.5	8	IE	NBR	772365		80	8	IE	FKM	772119
	75	8	IE	NBR	722997		80	8	IEL	NBR	792675
	75	8	IE	NBR	722997**		80	8	II	NBR	721049
	75	8	IE	FKM	722997/81		80	10	IEL	NBR	725434
	75	8	IEL	NBR	792560		80	12	IE	NBR	722093
	75	10	II	NBR	721221		82	10	II	NBR	721319
	78	8.8	EEL	NBR	725307		85	10	IE	NBR	722591
	78	10	IE	NBR	792786		85	10	IE	FKM	722591/81
	78	10	IEWLG	FKM	702502		85	10	IEL	NBR	725575
	80	8	IE	NBR	772016		85	12	IE	NBR	722770
	80	8	IE	FKM	772016/81		85	12	IE	FKM	722770/81
	80	8	IEL	NBR	725361		85	12	IEL	NBR	725709
	80	8	IEWLG	FKM	702564		85	12	II	NBR	721064
	80	10	EEL	NBR	725545		85	13	IEL	NBR	792676
	80	10	IE	NBR	722213		85	16	IEL	NBR	725598
	80	10	IEL	NBR	725163		85	16	IIL	NBR	724561
	80	10	IEL	FKM	725163/81		85.2	8	IEL	NBR	725513
	80	12	IE	NBR	722459		90	10	IE	NBR	772017
	80	12	IE	FKM	722459/81		90	10	IEL	NBR	792563
	80	12	IEL	NBR	792671		90	10	IE	FKM	772017/81
	80	12	IEL	NBR	725058		90	12	IE	NBR	722859
	80	12	IIL	NBR	724540		90	12	II	NBR	721126
	80	12	IEX	NBR	726262		95	10	IE	NBR	792792
	80	13	IE	NBR	722686		100	10	IE	NBR	722794
	80	13	II	NBR	721275		100	10	IEL	NBR	792564
	82	12	IEX	NBR	726498		100	10	IE	FKM	722794/81
	85	8	IE	NBR	772055		100	12	II	NBR	721483
	85	8	IEL	NBR	792561	66	88.5	12.5	II	NBR	721202
	85	8	IEWLD	FKM	702555	66.5	102	11	IE	NBR	722651
	85	12	II	NBR	721244	66.7	92	11.9	IE	NBR	722027
	85	12	IEL	NBR	725107	67	85	8	IEWLD	FKM	702529
	86	13	IEL	NBR	792821**	68	90	10	IE	NBR	722751
	90	8	IE	NBR	772056		90	10	IE	FKM	722751/81
	90	8	IEL	NBR	792562		90	10	IEL	NBR	792565
	90	8	IE	FKM	772056/81		90	10	II	NBR	721050
	90	13	IE	NBR	722876		90	10	II	NBR	702211
	90	13	II	NBR	721238		90	13	IELD	FKM	702211
	95	8	IE	FKM	772259		100	10	IE	NBR	772059
	95	10	IE	NBR	792787		100	10	IEL	NBR	792777
	95	10	IEL	NBR	792673		100	10	IEL	NBR	792777
	96	13	IEL	NBR	725106		117	10	IE	NBR	772283
	100	10	IE	NBR	792788	68.3	80	4.8x8.4	EOLS	NBR	723271
	110	13	IEL	NBR	792674	69	85	8	IE	NBR	722900
60.3	88.5	12.7	II	NBR	721480	69.8	100	13	II	NBR	721274
60.4	97	12	IE	NBR	722175	70	85	8	IE	FKM	722317/81
61	74	6	IOS	NBR	726743		90	10	IE	NBR	722458
62	80	10	IE	NBR	792789		90	10	IE	FKM	722458/81
	81	6	IE	NBR	722540		90	10	IEL	NBR	792566
	85	10	IE	NBR	722144		90	12	IE	NBR	722639
	85	10	IE	FKM	722144/81		90	12	IEL	NBR	725758
	85	12	IE	NBR	722750		90	12	IELR	NBR	725634
	85	12	IEL	NBR	725762		90	12	II	NBR	721051
	85	12	II	NBR	721033		90	12	IIL	NBR	724544
	85	12	IIL	NBR	724543		90	13	II	NBR	721277
	90	10	IE	NBR	722941		95	10	IE	NBR	792794
	90	13	II	NBR	721034						
	100	12	IE	NBR	722877						
	110	13	II	NBR	721115						

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.



SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER

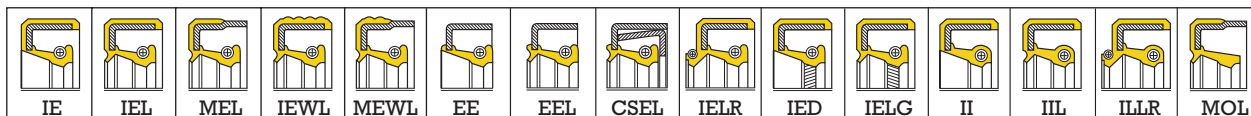
New ! CSEL Seals

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	
70	95	13	IE	NBR	792795	80	100	10	IEL	NBR	792570	
	100	10	IE	NBR	722497		100	10	IEL	FKM	725662	
	100	10	IEL	NBR	792678		100	13	IE	NBR	722819	
	100	10	II	NBR	721158		100	13	IE	FKM	722819/81	
	100	10	IE	FKM	722497/81		100	13	IE	FKM	772304	
	100	13	IEL	NBR	792679		100	13	IEL	NBR	725021	
	100	13	II	NBR	721079		100	14	IEL	NBR	724466	
	110	12	IE	NBR	792796		100	14	IEL	NBR	792829**	
	110	13	IE	NBR	792797		105	13	IE	NBR	792799	
							110	13	CSEL	NBR	793101	
70.5	85	10	IELS	NBR	725335		110	10	IE	NBR	772061	
72	86	7	IEL	NBR	725367		110	10	IEL	NBR	792571	
	88	7	IEL	NBR	725337		110	10	IE	FKM	772061/81	
	95	10	IE	NBR	722942		110	13	IELR	NBR	725704	
	95	10	IE	FKM	722942/81		115	10	IE	NBR	792800	
	95	10	IEL	NBR	725444		125	12	IE	NBR	792802	
	95	13	IE	NBR	722004		125	13	IE	NBR	792803	
	95	13	II	NBR	721181							
	100	10	IE	NBR	722944		82	102	13	IE	NBR	722195
	100	12	IE	NBR	722861			102	13	II	NBR	721036
	100	12	IEL	NBR	725653			105	13	IE	NBR	722862
	100	12	II	NBR	721104			105	13	II	NBR	721359
	100	12	IEL	NBR	724485							
72	101.6	12.5	IE	NBR	722298		84	100	13	IE	NBR	722680
72.5	100.5	14	IE	NBR	722604			110	16	IE	NBR	722565
74	90	13	IE	NBR	722618			110	16	IEL	NBR	725597
	90	13	II	NBR	721074			112	14	IELX	NBR	725281
	90	15	IEL	NBR	725251		85	100	9	IE	NBR	722973
	90	15	IELR	NBR	724453			100	13	IE	NBR	722102
74.6	101.8	13	II	NBR	721150			102	13	IE	NBR	722552
75	90	8	IE	NBR	722053			102	13	II	NBR	721591
	90	8	IEL	NBR	792680			102	13	IEL	NBR	792826**
	90	8	II	NBR	721393			105	8	IEWLG	FKM	702619
	90	10	IED	FKM	702365			105	10	EE	FKM	720037
	95	8	IE	NBR	722902			105	10	EEG	FKM	702333
	95	10	IE	NBR	722379			105	12	IEWLG	FKM	702596
	95	10	IE	FKM	722379/81			105	13	IE	NBR	792804
	95	10	IEL	NBR	792567			110	13	CSEL	NBR	793102
	95	12	IE	NBR	722333			110	12	IE	NBR	722413
	95	12	IE	FKM	722333/81			110	12	IE	FKM	722413/81
	95	12	IE	FKM	722470			110	12	IEL	NBR	792572
	95	12	II	NBR	721219			110	12	IE	FKM	722413/81
	100	10	IE	NBR	722943			110	12x6	IIS	NBR	726637
	100	10	IE	FKM	722943/81			110	13	IE	NBR	722510
	100	10	IEL	NBR	792568			110	13	IE	FKM	722510/81
	100	12	IE	NBR	722585			110	13	IEL	NBR	725884
	100	13	IE	NBR	722687			110	13	II	NBR	721037
	100	13	IE	FKM	722687/81			110	13	IELG	FKM	702404
	100	13	IEL	NBR	792569			110	13	IEX	NBR	726076
	100	13	II	NBR	721190			120	13	CSEL	NBR	793103
	100	16	IEL	NBR	724446			120	12	IE	NBR	772062
	102	15	IE	NBR	722698			130	17	EELD	FKM	702379
	110	13	IE	NBR	722752			130	13	IEL	NBR	792684
	110	13	IEL	NBR	792681		88.9	114.3	15.9	IE	NBR	722631
	110	13	II	NBR	721152		89.7	105	6	IE	NBR	722807
	115	10	IEL	NBR	792682		90	105	10	IE	NBR	792805
	120	15	IE	NBR	722221			105	10	II	NBR	721410
	120	15	IE	NBR	792798			105	10	IEL	NBR	792823**
76	100	16	IEL	NBR	724245			105	13	IE	NBR	722720
76.2	101.6	17.4	IEL	NBR	724291			110	13	CSEL	NBR	793104
78	100	10	IE	NBR	772060			110	10	IEWLG	FKM	702389
	100	10	IEL	NBR	725445			110	11	IEWG	FKM	702486
	100	13	IE	NBR	772020			110	12	IE	NBR	772063
	100	13	IE	NBR	772313			110	12	IE	FKM	772063/81
80	95	6.5	IOS	NBR	726125			110	12	IEL	NBR	792573
	95	8	IE	NBR	722776			110	12	IE	FKM	772063/81
	95	8	IEL	NBR	792683			110	13	IE	NBR	722719
	95	8	II	NBR	721012			110	13	IE	FKM	722719/81
	98	10	MEWLG	FKM	702569			110	13	IEL	NBR	792574
	100	10	CSEL	NBR	793100			110	13	II	NBR	721236
	100	10	IE	NBR	722186			110	13	IEX	NBR	726500
	100	10	IE	FKM	722847/81			110	15	IELG	FKM	702317
								110	16	IELR	NBR	724091
								115	9	IE	NBR	722975
								115	9	IE	NBR	772302
								115	13	IE	NBR	722703
								115	13	IEL	NBR	725695

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

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d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
90	115	13	II	NBR	721127
	115	13	IEL	NBR	725695**
	120	13	CSEL	NBR	793105
	120	12	IE	NBR	772064
	120	12	IE	FKM	772064
	120	12	IEL	NBR	792575
	140	13	CSEL	NBR	793106
	140	13	IEL	NBR	792685
	150	12	IE	NBR	772343
92	107	12	IE	NBR	722970
	110	7	IEWLG	FKM	702644
	110	10	MEWLG	FKM	702518
	112	10	IE	NBR	722654
	120	13	IEL	NBR	725044
	120.6	16	II	NBR	721203
	139	12x30	IES	NBR	726173
	140	14x25	IELS	NBR	725225
93	114	13	IEWLG	FKM	702350
95	109.2	7	IOLS	NBR	723263
	109.5	7	IEW	NBR	772390
	115	13	IE	NBR	792815
	120	13	CSEL	NBR	793107
	120	11.3	IELG	NBR	702355
	120	12	IE	NBR	772065
	120	12	IE	FKM	772065/81
	120	12	IEL	NBR	792576
	120	13	IE	NBR	722088
	120	13	IE	FKM	722088/81
	120	13	IEL	NBR	725410
	120	13	IEL	FKM	725410
	120	13	IELR	NBR	725697
	125	12	IE	NBR	772066
	125	12	IEL	NBR	792686
	130	13	IE	NBR	792808
	130	13	II	NBR	721213
	140	10x18	IIS	NBR	726452
95.2	127.1	11.9	IE	NBR	722924
96	112	10	IE	NBR	722633
	112	10	II	NBR	721320
98	110	7	IEWLG	FKM	702533
100	114	8	IEWLG	FKM	702578
	120	13	CSEL	NBR	793108
	120	10	IE	NBR	792809
	120	10	IE	FKM	722704
	120	12	IE	NBR	722993
	120	12	IE	FKM	722993/81
	120	12	IEL	NBR	792557
	120	12	IE	NBR	726258
	120	13	IE	NBR	722957
	120	13	IE	FKM	722957/81
	120	13	IE	FKM	772148
	120	13	IELG	FKM	702338
	120	14	IELR	NBR	725231
	120	17	IEL	NBR	725599
	125	13	CSEL	NBR	793109
	125	12	IE	NBR	772067
	125	12	IEL	NBR	792578
	125	13	IE	NBR	722949
	125	13	IEL	NBR	792579
	125	13	II	NBR	721080
	130	13	CSEL	NBR	793110
	130	12	IE	NBR	772068
	130	12	IE	FKM	772068/81
	130	12	IEL	NBR	792580
	130	14	IE	NBR	722464
	130	14	II	NBR	721241
	150	12	IE	NBR	792810
	150	13	IEL	NBR	792687
101.6	130.2	14.3	IE	NBR	722168
102	120	12	IE	NBR	722546
	122	14	IELD	FKM	702136
	130	13	CSEL	NBR	793111

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
102	130	13	II	NBR	721136
	135	14	II	NBR	721130
104	120	13	IE	NBR	722688
105	122	13	IE	NBR	772150
	122	13	II	NBR	721321
	125	13	IE	NBR	726274
	130	13	CSEL	NBR	793112
	130	12	IE	NBR	772069
	130	12	IE	FKM	772069/81
	130	12	IEL	NBR	725617
	130	12	IELR	NBR	792502
	130	13	IE	NBR	722689
	130	13	IE	NBR	722689**
	130	13	IE	FKM	722689/81
	130	13	IEL	NBR	725103
	130	13	IELD	FKM	702174
	132	13	II	NBR	721458
	140	13	CSEL	NBR	793113
	140	12	IE	NBR	772070
107.9	152.6	17.3	IEL	NBR	725478
109	122	7	IEW	NBR	772391
	122.2	7	IOLS	NBR	723262
110	130	12	IE	NBR	772071
	130	13	CSEL	NBR	793114
	130	12	IE	FKM	772071/81
	130	12	IEL	NBR	792581
	130	13	IE	NBR	722465
	130	13	IEL	NBR	725114
	140	13	CSEL	NBR	793115
	140	10.2	IE	NBR	772357
	140	12	IE	NBR	772072
	140	12	IE	FKM	772072/81
	140	12	IEL	NBR	792688
	140	13	IE	NBR	722708
	140	13	IEL	NBR	792582
112	130	13	IE	NBR	722553
	130	13	II	NBR	721592
	130	13	IEL	NBR	792827**
	140	13	CSEL	NBR	793116
	140	13	IE	NBR	722820
	140	13	IEL	NBR	725353
113	160	12	II	NBR	721098
	160	13	IE	NBR	722730
114	140	13	IE	NBR	722753
115	140	13	CSEL	NBR	793117
	140	12	IE	NBR	772073
	140	12	IE	FKM	772073/81
	140	12	IEL	NBR	792689
	140	13	IE	NBR	722374
	140	13	IEL	NBR	725101
	140	13	IELG	FKM	702176
	140	13	IE	NBR	726260
	140	14	II	NBR	721232
	140	15	IEL	NBR	725054
	140	15	IELRG	FKM	702260
	150	13	CSEL	NBR	793118
	150	12	IE	NBR	772074
	150	13	II	NBR	721053
	150	13x24	IELS	NBR	725063
116	150	13	II	NBR	721237
119.1	152.7	11	II	NBR	721214
120	140	13	CSEL	NBR	793119
	140	13	IE	NBR	722690
	140	13	IE	FKM	722690/81
	140	13	IE	FKM	772133
	140	13x14.3	IEL	NBR	725644
	140	16	IELR	NBR	725706
	150	13	CSEL	NBR	793120
	150	12	IE	NBR	772075

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.
 The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.
 **Stainless steel spring.



SEALS WITH NITRILE AND FLUOROCARBON ELASTOMER

New !
CSEL Seals

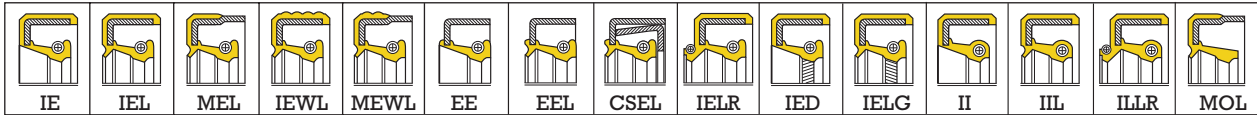
d (mm)	D (mm)	E (mm)	Type	Elastomere	Reference
120	150	12	IE	FKM	772075/81
	150	12	IEL	NBR	792583
	150	13	IE	NBR	722573
	150	13	IEL	NBR	792584
	150	13	IEX	NBR	726627
	160	13	CSEL	NBR	793121
	160	12	IE	NBR	772076
	160	15	IEL	FKM	725654
120.6	158.9	15	II	NBR	721482
122	150	13	CSEL	NBR	793122
	150	12	II LR	NBR	724454
	150	13	IE	NBR	722646
	150	13	II	NBR	721063
122.2	152.4	6	IE	NBR	722548
122.3	152.4	6	II	NBR	721298
125	145	13	IEX	NBR	726257
	150	13	CSEL	NBR	793123
	150	12	IE	NBR	772077
	150	12	IE	FKM	772077/81
	150	12	IEL	NBR	792585
	150	12	IELG	FKM	702064
	150	14	II	NBR	721252
	160	13	CSEL	NBR	793124
	160	12	IE	NBR	772078
	160	12	IE	FKM	772078/81
	160	13	II	NBR	721133
	160	15	IE	NBR	722279
	160	15	IEL	NBR	792690
127	158.7	14.3	II	NBR	721358
	158.7	18.5	IELS	NBR	725005
	158.9	15.9	IE	NBR	722232
130	145	7	IE	NBR	772270
	150	12	IEX	NBR	726259
	160	13	CSEL	NBR	793125
	160	12	IE	NBR	772079
	160	12	IE	FKM	772079/81
	160	15	IE	NBR	722881
	160	15	IE	FKM	722881/81
	160	15	IEL	NBR	725115
	160	15	IEX	NBR	726077
	170	13	CSEL	NBR	793126
	170	12	IE	NBR	772080
132	150	13	IE	NBR	722134
	150	13	II	NBR	721328
135	160	13	CSEL	NBR	793127
	160	14	IE	NBR	722270
	165	15	IE	NBR	722261
	165	15	IEX	NBR	726320
	170	12	IE	NBR	772081
	170	12	IE	FKM	772081/81
	170	15	IE	NBR	722280
	170	15	IE	FKM	722280/81
	170	16	IEL	NBR	725055
139.7	171.4	21	IELR	NBR	725542
	171.6	15.9	IE	NBR	722914
140	160	13	IE	NBR	772252
	170	13	CSEL	NBR	793128
	170	15	IE	NBR	722700
	170	15	IE	FKM	722700/81
	170	15	IEL	NBR	725716
	170	15	II L	NBR	724766
	170	15	IEL	NBR	725716**
	175	15	IE	NBR	772082
	180	14	IE	NBR	722662
144	160	12	IE	NBR	722113
	180	12	II	NBR	721116
145	170	15 x 20	EELS	NBR	725596

d (mm)	D (mm)	E (mm)	Type	Elastomere	Reference
145	175	13	CSEL	NBR	793129
	175	14	EEL	NBR	725593
	175	15	IE	NBR	772114
	180	13	CSEL	NBR	793130
	180	14	IE	NBR	722956
	180	14	IE	NBR	721054
146	177.9	15.9	IE	NBR	722563
148	170	14.5	IELR	NBR	725630
	170	14.5	II L	NBR	724260
	170	14.5	IELG	NBR	702099
150	168	12	II	NBR	721187
	170	15	CSEL	NBR	793131
	172	14	EELSG	FKM	702301
	175	16	IEX	NBR	726261
	180	15	CSEL	NBR	793132
	180	15	IE	NBR	722731
	180	15	IE	FKM	722731/81
	180	15	IEL	NBR	792586
	180	15	II	NBR	721230
152	190	15	IE	FKM	772195
155	180	15	CSEL	NBR	793133
	180	15	IE	NBR	722754
	180	15	IEL	NBR	792587
	180	15	II	NBR	721415
	180	15	MEWLG	NBR	702457
	190	15	CSEL	NBR	793134
	190	15	IE	NBR	772083
	190	15	IEL	NBR	792691
157.1	190.5	6	IE	NBR	722547
	190.5	6	II	NBR	721299
158	180	16	IEL	NBR	725232
160	190	15	CSEL	NBR	793135
	190	15	IE	NBR	722313
	190	15	IEL	NBR	725715
	190	15	II L	NBR	724765
	190	15	IE	FKM	722313/81
165	190	13	CSEL	NBR	793136
	190	15	IE	NBR	772321
	190	15	IE	NBR	792811
	200	15	CSEL	NBR	793137
	200	15	IE	NBR	772084
170	200	15	CSEL	NBR	793138
	200	15	IE	NBR	722377
	200	15	IE	FKM	722377
	200	15	IE	NBR	792588
175	200	13	IE	NBR	722979
	200	13	II	NBR	721122
	200	15	IEL	NBR	792692
	210	15	IE	NBR	722085
	210	15	IEL	NBR	792693
	230	10	IIS	NBR	726200
177.8	209.5	16	IEL	NBR	725018
180	210	15	CSEL	NBR	793139
	210	15	IE	NBR	772086
	210	15	IE	NBR	772086/81
	210	15	IEL	NBR	792589
	210	15	IEL	FKM	725655
	215	15	CSEL	NBR	793140
	215	16	IE	NBR	722661
185	215	15	CSEL	NBR	793141
	215	16	IE	NBR	722863
	215	16	II	NBR	721280
190	220	15	CSEL	NBR	793142
	220	15	IE	NBR	772088/81
	220	15	IE	FKM	772088
	220	15	IEL	NBR	792694

The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.

The part numbers indicated in bold type are kept in stock. Abbréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.



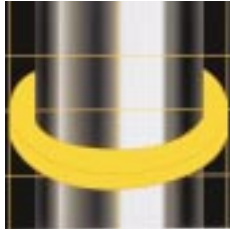


d (mm)	D (mm)	E (mm)	Type	Elastomere	Reference
190	230	16	CSEL	NBR	793143
	230	17	IE	NBR	722860
	230	17	II	NBR	721235
190.5	228.6	16	IEL	NBR	725017
195	230	15	CSEL	NBR	793144
	230	15	IE	NBR	772089
	230	17	IE	NBR	722759
	230	17	II	NBR	721362
196.8	228.6	16	IEL	NBR	725019
200	230	15	CSEL	NBR	793145
	230	15	IE	NBR	772090
	230	15	IE	FKM	772090/81
	230	15	IEL	NBR	792695
205	230	16	II	NBR	721411
	230	16	IEL	NBR	792824**
210	240	15	CSEL	NBR	793146
	240	15	IE	NBR	772091
	240	15	IE	FKM	772091/81
220	250	15	CSEL	NBR	793147
	250	15	IE	NBR	772092
	250	15	IE	FKM	772092/81
	250	15	IEL	NBR	792696
230	260	15	IE	NBR	772093

d (mm)	D (mm)	E (mm)	Type	Elastomere	Reference
240	270	15	IE	NBR	772094
	270	15	IE	FKM	772094/81
250	280	15	IE	NBR	772095
260	300	20	IE	NBR	772096
260.3	298.4	22	IEL	NBR	725009
265	290	16	IE	NBR	722782
280	320	20	IE	NBR	772097
300	340	20	IE	NBR	772098
320	360	20	IE	NBR	772099
340	380	20	IE	NBR	772100
380	420	20	IE	NBR	772203
400	440	20	IE	NBR	772108
420	460	20	IE	NBR	772109
440	480	20	IE	NBR	772110
460	500	20	IE	NBR	772111
480	520	20	IE	NBR	772112

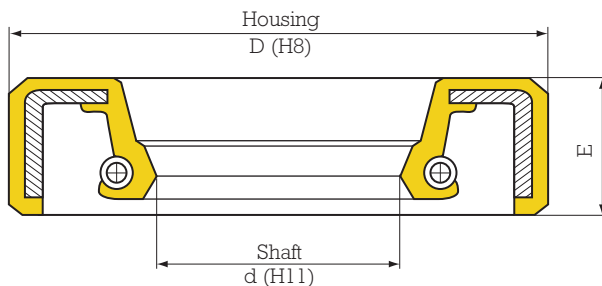
The fluorocarbon seals previously with the suffix 83 now have the suffix 81. Suffix 83 parts may be delivered until stocks are replaced with parts having the suffix 81.
 The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.
 **Stainless steel spring.





SEALS FOR ROTATING SHAFTS

SEALS WITH OTHER ELASTOMERS



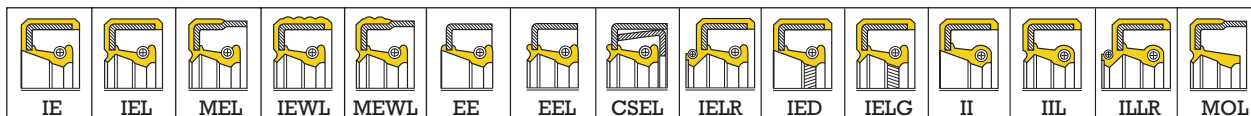
- The part numbers indicated in bold type are normally kept in stock.
- Special elastomers are available on request.

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
4.5	11.3	3.5	IO	SIL	723298
7.9	16	6	IEWLD	POL	702493
8	14	3	IO	SIL	723268
	16	6.5	IE	POL	772178
8.4	16	4x13	IES	POL	726325
	16	6	IE	POL	772293
8.5	16	6.5	IED	POL	702347
	16	6.5	IES	POL	726421
9	17	5	IEWL	POL	725683
11	17	4	IE	SIL	772381
11.8	26	7.5	IEWG	SIL	702553
12	25	8	IE	POL	772181
	21	5	IEL	POL	725671
14	30	8	IE	EPD	772377
15	21	6	IO	POL	723305
	30	6.8	EEL	POL	725487
	35	7	MEW	POL	772405
16	24	6	IED	POL	702419
	28	8	IE	POL	772307
17	28	6	IED	POL	702274
	28	4x13	IESD	POL	702009
	29	4x13	IESG	POL	702065
	34	4	IE	POL	772221
	40	7	EED	POL	702243
18	24	3	EED	POL	702105
	28	6	IEWL	POL	725670
	28	7	IED	POL	702403
19	34	7	IELD	POL	702399

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
20	30	6x10	IESD	POL	702139
	30	8	EED	POL	702232
	32	7	IE	POL	772176
	32	8	IED	POL	702253
	47	7	IEG	POL	702235
21.9	47	8	IED	POL	702234
22	35	6.5	IED	POL	702426
	35	7	IE	POL	772290
	38	8	IED	POL	702228
	40	7	IELD	POL	702400
24	37	7	IELD	POL	702407
	38.5	10x12	IESD	POL	702007
	47	10	EED	SIL	720067
24.5	38	5x6.5	IED	POL	702392
	38.7	6x7	IED	POL	702392
	43.1	6.5	IED	POL	702382
24.7	40	8.5	IED	POL	702277
25	35	10.5	IESPD	POL	702275
	35	10.5	IEDP	POL	702383
	36	7	IEG	SIL	702313
	38.1	9.9	EED	SIL	720068
	40	8	IEWD	POL	702341
	41	8	MEWD	POL	702520
	42	8	IELG	POL	702414
	47	7	EESD	POL	702087
	55	7	IE	SIL	772331
	26	38	6	IE	POL
47		7	IEWD	POL	702519
26.5	45	7	IEWD	POL	702500
27	37	7	IEL	POL	725497
	42	10	IEL	POL	725498
27.9	70	10	IEWLD	POL	702431

The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.





d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
28	40	8	IEWLD	POL	702494	42	54	8	IED	POL	702418
	42	10	IED	POL	702376		55	7	IEWLD	POL	702492
	47	7	IED	POL	702192		58	10x13	IESF	POL	726396
	52	12	IE	POL	772229		60	10	IE	POL	772336
	56	10	IED	POL	702420		60	10	IEL	SIL	725500
	56	10	IELV	POL	704016		61.9	10	IED	SIL	702357
	70	10	IELD	POL	702431		62	8	IELD	POL	702402
							62	10	IED	POL	702085
29	46	10	IEG	POL	702270		62	10	IED	SIL	702396
	46	10	IED	POL	702375		62	12	IELD	POL	702227
	50	10	EEL	SIL	725640		66	8	IEWD	POL	702432
	50	10	MEWLG	POL	702455		66	23	EES	POL	726484
30	40	7	IED	POL	702158	44	67	10	IEWL	POL	725664
	42	7	IED	POL	702203		67	10	MEWLV	POL	704040
	42	7	IEWD	SIL	702443						
	42	8	IEV	POL	704000	45	50	7	IED	SIL	702413
	45	7	IED	POL	702124		60	7	IEG	POL	702036
	48	10	IED	POL	702201		60	10	IED	POL	702132
	52	8	IEWLG	POL	702445		60.2	8	IEWLV	POL	704019
							62	7	IED	POL	702424
31.7	76.1	12.7 x 15.7	EELSD	POL	702199		62	8	IEWLG	POL	702438
							62	10	IEL	SIL	725491
32	47	9.5	EES	POL	726465		62	12	IE	SIL	722811
	47	10	IEWD	POL	702241		64	8	IEWLG	POL	702547
	50	10	IED	POL	702212		64	8	IEWLD	POL	702439
	52	7	IEG	POL	702300	46	73	9	IEWLD	POL	702437
	52	7	IEG	SIL	702294						
34	54	9	IE	POL	772325	47.5	65	10	IELR	POL	792591
34.7	50	7	IEW	POL	772394	48	58	4	IOS	POL	726433
							66.6	8	IELD	SIL	702302
35	47	7	IED	SIL	702217		68	12	IED	POL	702137
	47	7	IELD	SIL	702282		68	12	IED	SIL	702037
	47	7	IELD	SIL	702487	48.8	58	6.1x8.5	IOLS	POL	723265
	47	8	IEWG	POL	702608		58	6.1x8.5	EOLS	POL	727110
	50	8	IE	SIL	722456						
	50	8	IEV	POL	704027	50	65	10	IEWL	POL	725657
	50	10	IE	POL	772129		65	10	IEWLV	POL	704041
	52	10	IEWL	POL	725675		76	10	IEWLV	POL	704046
	54	9.5x15	EES	POL	720055		76	12	IEL	POL	725493
	55	12	IEWD	POL	702205	50.8	73.4	17	IELR	SIL	725177
	58	8	IED	POL	702412						
	62	10	IELG	POL	702464	52	68	10	IED	SIL	702218
	65	10	IEWLV	POL	704030		68	10	IELD	SIL	702283
							68	10	IELD	SIL	702488
36	46	7	IEWLG	POL	702641	53	68	13	IELR	POL	792590
	50	8	IED	POL	702405	55	75	9	IE	SIL	772118
	54	7.5	IELV	POL	704025		75	12	IE	SIL	772353
	58	10	IEWLR	POL	725711	57.5	70	10	IEG	SIL	702295
37	47	5.5	IOB	POL	729005		120	10	IE	POL	772139
38	50	7	IED	POL	702278	58	72	9	IE	SIL	722531
	50	7.5	IEWLG	POL	702444		80	12	IE	SIL	722843
38.1	60.3	12	IED	POL	702332	60	80	12	IEG	POL	702143
38.2	60.3	7	IEWLG	POL	702589	60.4	97	12	IELD	POL	702160
40	49.6	5.5	IOB	SIL	729006	60.5	78	9	ie	SIL	722602
	52	7	IED	SIL	702293		78	9	ied	SIL	702002
	55	8	IELG	POL	702204	62	80	8	IEWLD	POL	702525
	55	8	IEWG	POL	702386		100	12x13	IELD	POL	702144
	55	8	MEWLG	POL	702542	63.5	89	12.7	IEL	POL	725562
	55	10	EWG	POL	702290		89	19	EEL	POL	725569
	58	8	IED	POL	702181	69.8	98.5	19	EEL	POL	725570
	58	10	IE	POL	772207	70	90	10	IEG	POL	702318
	58	10	IEL	SIL	725502		90	10	IEG	POL	702130
	58	10	IED	POL	702328						
	60	8	IEWLG	POL	702523						
	60	8	IEWLD	POL	702480						
	60	8	IEWLV	POL	704044						
	62	8	IEWLD	POL	702524						
	62	10	IE	POL	772243						
	65	10	IE	POL	772236						

The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ;S (in "Type" column) = special shape.



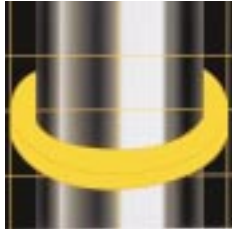
SEALS WITH OTHER ELASTOMERS

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
70	90	10	IEG	SIL	722127
	90	12	IELD	POL	702029
72	95	12	IE	SIL	772107
75	95	12	IE	POL	772318
	95	12	IE	SIL	722632
	112	12	IELG	SIL	702197
	120	14x15	IELD	POL	702094
78.7	96.4	9	IEG	POL	702303
80	100	10	IEG	SIL	702189
	100	13	IE	SIL	722476
	100	13	IEG	SIL	702030
82	105	12	IEG	SIL	702141
85	110	13	IE	SIL	722837
	110	13	IED	SIL	702207

d (mm)	D (mm)	E (mm)	Type	Elastomer	Reference
90	105	10	IEG	SIL	702374
	110	10	IEWLG	POL	702389
	110	12	IEG	SIL	702031
	110	13	IE	SIL	722814
	110	13	IED	SIL	702092
	110	15	IEWLG	SIL	702125
92	110	10	IEG	SIL	702219
	110	10	IELG	SIL	702284
95	120	13	IELG	POL	702115
110	130	13	IE	SIL	722536
115	140	13	IE	SIL	722844
155	174	15	IEL	SIL	725609
158	180	14x15	IELG	SIL	702140
165	190	13	IE	POL	772330

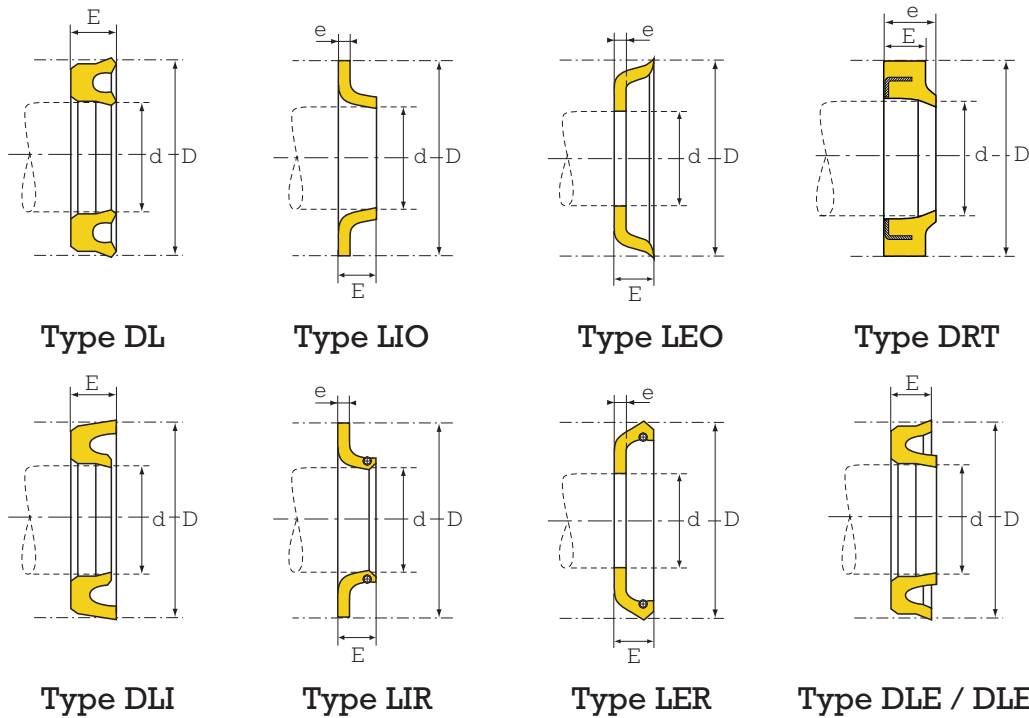
The part numbers indicated in bold type are kept in stock. Abréviations : NBR = Nitrile ; FKM = Fluorocarbon ; SIL = Silicone ; POL = Polyacrylate ; EPD = EPDM ; S (in "Type" column) = special shape.





SEALS FOR SLIDING SHAFTS

DIMENSIONS



- Width of the groove : $E + 1$ mm (for DL).
- Operating parameters :
 Maximum admissible pressure : 150 bars (for DL) ; 30 bars (for LIO, LEO).
 Linear speed admissible : up to 0.3 m/sec depending on the operating conditions.

d (mm)	D (mm)	E (x e) (mm)	Type	Elastomer	Reference
4	14	12	DL	NBR	710093
6	14	11.5	DL	NBR	710620
	32	10	LEO	NBR	714057
8	14	3.5x5	DRT	NBR	711700
	14	4	DLI	NBR	716501
	17.9	5.5x1.5	LEO	NBR	714432
9	20	4	DLS	NBR	710678
10	16	3.5x5	DRT	NBR	711701
	17.9	5.5	LEO	NBR	714045
	20	7	DLP	NBR	711001
	20	7.8	DL	NBR	710288
11	28	7x2.5	LIO	NBR	712094
	36	12	LEO	NBR	714020
12	18	3.5x5	DRT	NBR	711702
	22	5	DLS	NBR	710679
	22	5	DLI	NBR	716502
	22	5x1.5	LIO	NBR	712350
	25	5.5	DL	NBR	710062
	25	6.5	DLS	NBR	710233
13	21	5x2	LIO	NBR	712414

d (mm)	D (mm)	E (x e) (mm)	Type	Elastomer	Reference
14	20	3.5x5	DRT	NBR	711703
	26	8	LIR	NBR	713653
	38.1	10	DL	NBR	710132
15	21	3.5x5	DRT	NBR	711704
	25	8	DLT	NBR	711404
	25	10x3	LEO	NBR	714178
	30	10x3	LEO	NBR	714179
16	22	3.5x5	DRT	NBR	711705
	24	9	DL	NBR	710129
	25	6.5	DLE	NBR	716506
	26	8	DLT	NBR	711405
	28	9.6	DL	NBR	710218
	35	10	LER	NBR	715402
	35	10x3	LEO	NBR	714418
	36	8x2.5	LIO	NBR	712095
	38	12	LEO	NBR	714442
	40	10	DL	NBR	710343
40	12x3	LEO	NBR	714864	
18	28	5x7	DRT	NBR	711706
	30	8	DLES	NBR	716531
	30	10	DL	NBR	710290
	32.9	7.2	DL	NBR	710431
	36	6x2	LEO	NBR	714006
	36	7x2.5	LIO	NBR	712005

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DIMENSIONS

d (mm)	D (mm)	E (x e) (mm)	Type	Elastomer	Reference
18	38	10	LIR	NBR	713613
	40	6x2	LEO	NBR	714538
	45	6x2	LEO	NBR	714645
	52	8x2	LEO	NBR	714013
	55	10x3	LEO	NBR	714471
19	37	12	LEO	NBR	714817
19.6	49	10.5	LEO	NBR	714486
20	28	4.8	DL	NBR	710777
	30	5	DLI	NBR	716503
	30	5x7	DRT	NBR	711707
	30	8	DLT	NBR	711407
	32	8	DL	NBR	710555
	35	6.5	DLS	NBR	710091
	35	12	DL	NBR	710795
	40	8x3	LIO	NBR	721572
	40	12	DL	NBR	710111
	65	10x3	LEO	NBR	714472
21	40	12	DL	NBR	710023
	45	12	DL	NBR	710344
22	28	5x9	DRT	NBR	711742
	32	5x7	DRT	NBR	711708
	32	7	DLP	NBR	711004
	32	8	DLT	NBR	711408
	32	12	DLES	NBR	716588
	40	12	DL	NBR	710527
	44	10x4	LIO	NBR	712533
22.2	38	6x2.5	LIO	NBR	712701
	38	10	LIR	NBR	713702
24	36	8x2.5	LIO	NBR	712348
	36	9.6	DL	NBR	710289
25	35	5x7	DRT	NBR	711709
	40	9	DLP	NBR	711005
	45	11	DL	NBR	710061
	49	10.8	DL	NBR	710060
	25	8x2.5	LIO	NBR	712012
	60	10x5	LEO	NBR	714110
25.4	38.1	8	DLE	NBR	716560
26	41	8.4	DL	NBR	710144
27	40	10	DLE	NBR	716507
28	38	5x7	DRT	NBR	711710
	46	10	DL	NBR	710528
	47.5	4x3	LEO	NBR	714047
	49	13x4	LIO	NBR	712534
29	41	10	DL	NBR	710570
30	40	5x7	DRT	NBR	711711
	40	12	DLES	NBR	716589
	42	8x2.5	LIO	NBR	712092
	45	8	DLI	NBR	716629
	46	12	DL	NBR	710433
	48	10	DLES	NBR	716532
	95	14x4	LEO	NBR	714539
32	42	5x7	DRT	NBR	711712
	47	10	DLT	NBR	711412
	50	9x3	LIO	NBR	712535
	50	12	DL	NBR	710470
34	44	12	DLES	NBR	716596
	50	14.4	DL	NBR	710073
	52	12x3.5	LIO	NBR	712694
35	45	7x10	DRT	NBR	711713

d (mm)	D (mm)	E (x e) (mm)	Type	Elastomer	Reference
35	50	9	DLP	NBR	711006
	51	9.6	DL	NBR	710354
36	46	5x7	DRT	NBR	711714
	50	8	DLI	NBR	716536
	55	12	DL	NBR	710490
	60	10x4	LIO	NBR	712492
40	50	5	DL	NBR	710190
	50	5x8	DRT	NBR	711715
	55	10	DLT	NBR	711415
	60	12	DL	NBR	710422
	62	14.5	DL	NBR	710489
	65	10x5	LIO	NBR	712491
42	52	5x7	DRT	NBR	711716
	52	12	DLES	NBR	716590
45	55	5x7	DRT	NBR	711717
	63	12	DL	NBR	710529
	65	10x4	LIO	NBR	712536
	74	17x5	LIO	NBR	712737
48	63	9	DLP	NBR	711008
	63.5	10	DLE	NBR	716561
	65	3.5x5	LEOS	NBR	714093
50	56	5x7	DRT	NBR	711746
	60	5x7	DRT	NBR	711718
	65	7x10	DRT	NBR	711745
	65	10	DLT	NBR	711417
	70	10x3	LIO	NBR	712571
	70	12	DL	NBR	710530
	74	15	DL	NBR	710078
	76	17	DL	NBR	710056
50.5	66.5	12	DL	NBR	710196
52	68	10	LIR	NBR	713809
55	63	7x10	DRT	NBR	711747
	65	5x7	DRT	NBR	711719
	65	12	DLES	NBR	716591
	71	12	DL	NBR	710629
	75	10	DLS	NBR	710057
	80	12x3	LIO	NBR	712822
56	66	5x7	DRT	NBR	711720
	72	12	DLES	NBR	716533
	80	12x3	LIO	NBR	712475
	80	14.5	DL	NBR	710474
57	73	9.6	DL	NBR	710086
58	78	10	DLS	NBR	710058
60	70	5x7	DRT	NBR	711721
	80	10	DL	NBR	710423
	80	12	LIR	NBR	713611
	85	7x2.5	LEO	NBR	714421
	89.5	20x5	LIO	NBR	712823
62	85	12x3	LIO	NBR	712131
63	73	5x7	DRT	NBR	711722
	93	18	DL	NBR	710531
63.5	203.2	28.5x8.7	LEO	NBR	714497
64	80	12	DL	NBR	710434
	82.5	13	DLE	NBR	716562
65	75	5x7	DRT	NBR	711723
	83	12	DL	NBR	710729
	90	10	LER	NBR	715403
	90	10x5	LIO	NBR	712624

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DIMENSIONS

d (mm)	D (mm)	E (x e) (mm)	Type	Elastomer	Reference	d (mm)	D (mm)	E (x e) (mm)	Type	Elastomer	Reference					
70	80	5x7	DRT	NBR	711724	98	114	12	DL	NBR	710724					
	80	12	DLES	NBR	716592											
	86	12	DL	NBR	710635											
	95	15	DL	NBR	710025											
75	83	7x10	DRT	NBR	711725	100	110	7x10	DRT	NBR	711728					
	91	12	DL	NBR	710413											
	100	10x3	LIO	NBR	712022	104	120	11	DLE	NBR	716549					
76.2	107.8	26.5	DL	NBR	710569							106	122	12	DL	NBR
						78	94	12	DL	NBR	710632					
80	88	7x10	DRT	NBR	711726							115	130.2	6.5	LEOS	NBR
						90	7x10	DRT	NBR	711744	116					
												94	9	DLE	NBR	716335
						100	12	DLT	NBR	711425	125					
												100	17	DL	NBR	710169
						117	14	LIR	NBR	713796	140					
85	95	7x10	DRT	NBR	711743							160	18	DL	NBR	710047
						103	13x3	LIO	NBR	712981						
86	117	14	LIR	NBR	713740						150	209	25	LEO	NBR	714781
						88	110	8x3.5	LIO	NBR						
90	100	7x10	DRT	NBR	711727						196.3	232	21	DL	NBR	710004
						130	10x4	LIO	NBR	712821						
92	112	12.6	DL	NBR	710068											
						94	112	12	DL	NBR	710079					

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