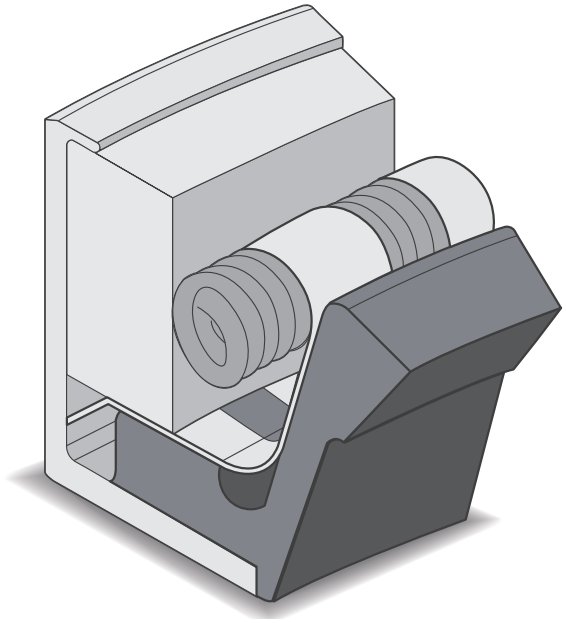
Rev. 01 07-10-2016

OIL SEALS TYPE L2M®

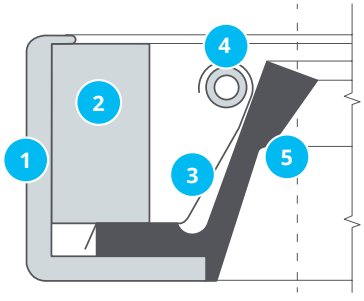


- Developed specifically for severe operating conditions with great misalignments and high speeds where rigidity and strength are necessary.
- Recovery of misalignment up to 5 mm (radial up to 2,5 mm).
- A groove on the external diameter allows the operator to center the oil seal in the housing bore, easing the assembly.
- The outer metal case of the oil seal is conceived in one single piece without welding points.
- Available on demand with rubber or iron spacers.
- The sealing lip is vulcanized onto the metal casing.

Applications:
Paper mill industry, Primary metals industry, Wind mill industry, Mining industry, Power generation and supply, General industry

Dimensions: Minimum I.D. 180 mm; Maximum O.D. 2.000 mm
Working speed: up to 40 m/s
Pressure: up to 0.5 BAR
Operating temperature range: - 40°C / + 220°C
Remarks: All working parameters vary, considering the different type of materials and elastomer used.

L2M®



Technical features

1. Metal outer casing with ground surface
2. Stiffening ring
3. Finger spring
4. Garter spring
5. Rubber sealing ring vulcanized on the metal case

Materials

1. Metal body: **Fe-DC04**
2. Stiffening ring: **Fe 37**
3. Finger spring: **AISI 301**
4. Garter spring: **AISI 316**
5. Elastomer: **NBR; HNBR; FKM; VMQ**

For further information on all our seals, please check our web page or contact our offices.

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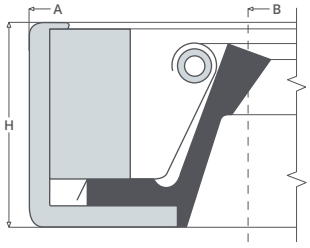
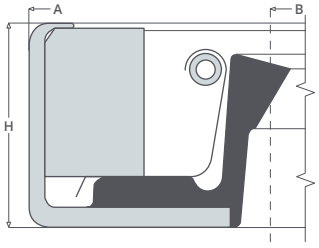
L2M® TYPES



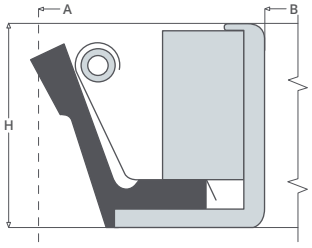
L2M-PL

Oil seal with a reduced interference of the lip to solve overheating issues caused by friction in high-speed applications. Only available in self-lubricating FKM material.



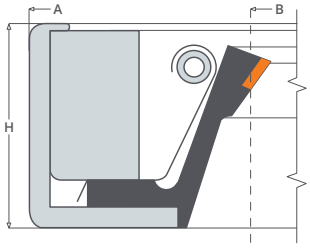
L2M-BP

Oils seals produced to withstand pressures above 0.5 BAR up to 1 BAR. Special profiles can be produced to withstand higher pressures.



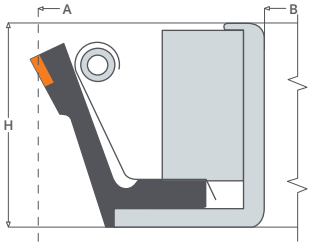
L2M-TE

External lip oil seal. Only available in self-lubricating FKM material.



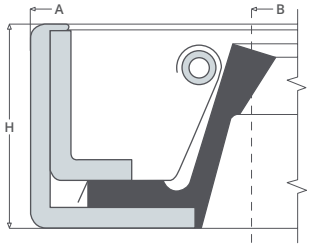
L2M-VF

Oil seals produced with self-lubricating FKM material and vulcanized PTFE insert for a resistance to abrasion and for applications up to 40 m/s.



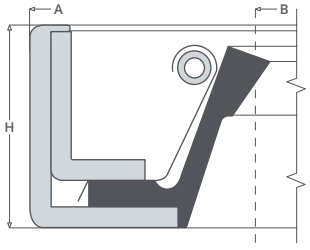
L2M-TE-VF

External lip oil seal. Only available in self-lubricating FKM material with a vulcanized PTFE insert.



L2ML

Similar to L2M® but with a reversed metal insert. This solution has been engineered for rings with narrow housing, which does not allow the presence of the stiffening rings.



L2ML-PL

Like L2ML but with a reduced interference of the lip to solve overheating issues caused by friction in high-speed applications.

All the profiles are also available with dust lip "P"

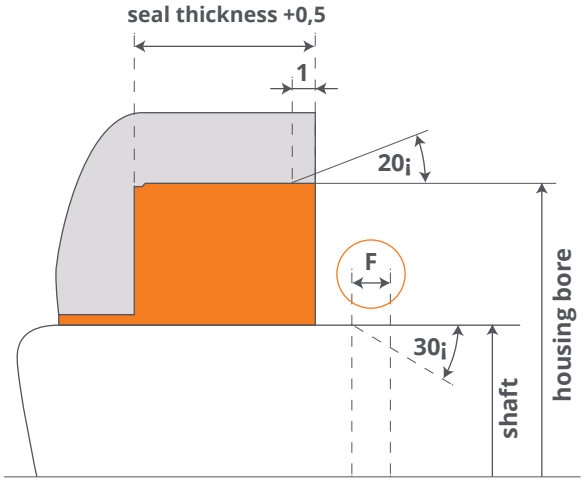
TECHNICAL FEATURES FOR L2M®

Tolerances on shaft and housing for metric (mm) and imperial (inch.)

Shaft size	<= 100	± 0.080
Ø (mm)	101 ÷ 150	± 0.100
	151 ÷ 250	± 0.130
	>= 250	± 0.250
Housing	<= 76	± 0.025
Ø (mm)	77 ÷ 150	± 0.040
	151 ÷ 255	± 0.050
	256 ÷ 510	+ 0.05 /-0.10
	511 ÷ 1015	+ 0.05 /-0.15
	>= 1015	+ 0.05 /-0.15

Maximum misalignment allowed 2,5 mm

Shaft Ø (mm)	Chamfer "F" (mm)
<= 250	7.00
> 250	12.00



"We recommend the use of a conical mounting tool for the installation of the seal"

Finishing of the shaft

A surface finishing of the cylinders done with chromium carbide has shown excellent results. Finishes made with chromium oxides have the disadvantage of reducing the heat dissipation capacity through the cylinder and should not be used with high-speed installations (<10 m/s). It is recommended to apply sleeves on the cylinders in the sealing areas of the ring and finished with hardness 58-62 HRC.

Shaft hardness and surface finishing

Speed	Maximum roughness		Hardness
(m/s)	Ra (mm)	Rmax (mm)	HRC
<= 10	0.5-0.6	2.0-3.0	30
11 ÷ 16	0.3-0.5	1.0-2.0	40
> 16	0.2-0.3	0.8-1.0	50

Selecting the sealing elastomers

Elastomers	Applications
Nitrile NBR	Lubricating oils, hydraulic oils and mineral fats, water, HFA and HFB fluids, caustic cleaners.
Hydrogenated Nitrile HNBR	Lubricating oils, hydraulic oils and mineral fats, water, HFA and HFB fluids, caustic cleaners. It guarantees an excellent resistance to abrasion and a good thermal behavior.
Fluoroelastomer FKM	Mineral based liquids and fats, HFA, HFB, HFC and HFD fluids, water, chemicals and solutions. Not applicable with highly flammable liquids based on phosphoric acid. Recommended for use with flammable oils.
Silicon VQM	Organic oils and oils with high aniline content. Engine and gearbox oil. Excellent characteristics for mineral oils and fats. It can be used with aliphatic and aromatic hydrocarbons. This material is resistant to high and low temperatures.

Description		NBR	FKM	VQM	HNBR
Working temperature	C (± 2)	-20 ÷ +100	-20 ÷ +220	-60 ÷ +180	-40+150
Standard Hardness	Shore A (±5)	70	70	70	70
Maximum working speed	m/s	12	25 ÷ 35	25	15

The above data has been obtained through tests that •FP• considers to be reliable. •FP• does not guarantee that the same results with be replicated in other laboratories with different preparation conditions and laboratory sample evaluation. For more details, please contact our technical office.