

PAPER MILL APPLICATION

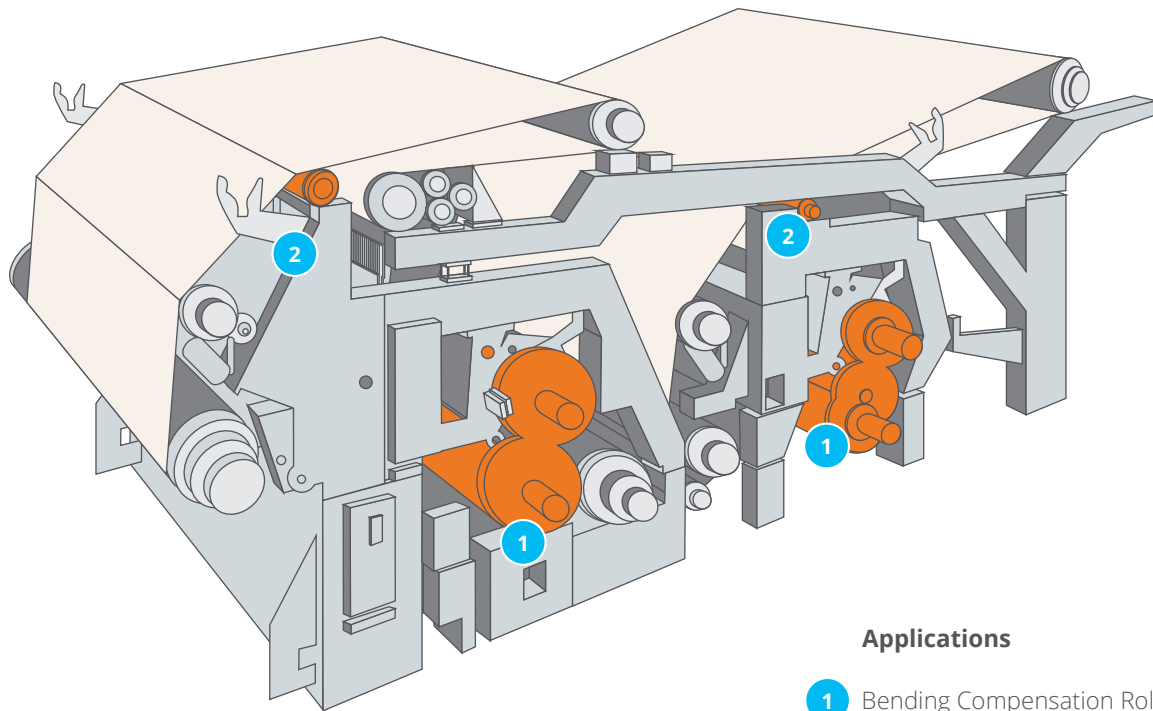
TECHNICAL HANDBOOK



PAPER MILL APPLICATION

Press Section

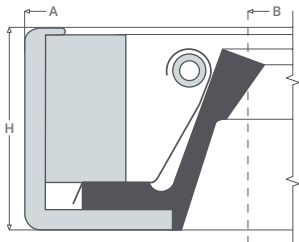
The press section is the paper mill unit where you remove water from the pulp, through wet pressing, in order to improve paper run-ability at the beginning of the drying section.



Applications

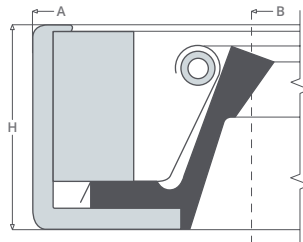
- 1** Bending Compensation Rolls
(Nipco Flex, SimRoll, Shoes Press...)
Suction Rolls
- 2** Spreader Rolls
(FinBow...)

There are various types and models of machines, with different working systems.



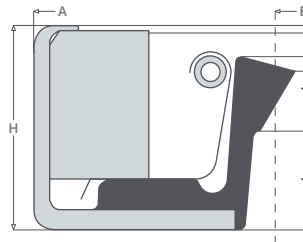
L2M®

Oil seal produced with self-lubricating FKM material vulcanized is one single piece to the metal casing. Reinforced with a stiffening ring and two different springs.



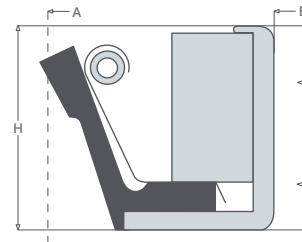
L2M-PL

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.



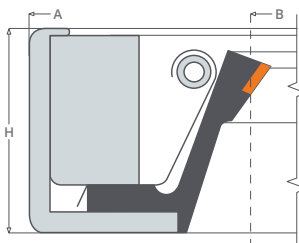
L2M-BP

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



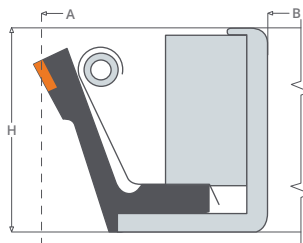
L2M-TE

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



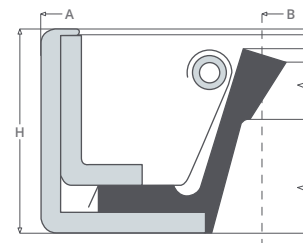
L2M-VF

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.



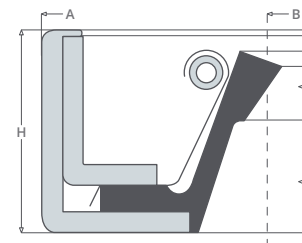
L2M-TE-VF

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

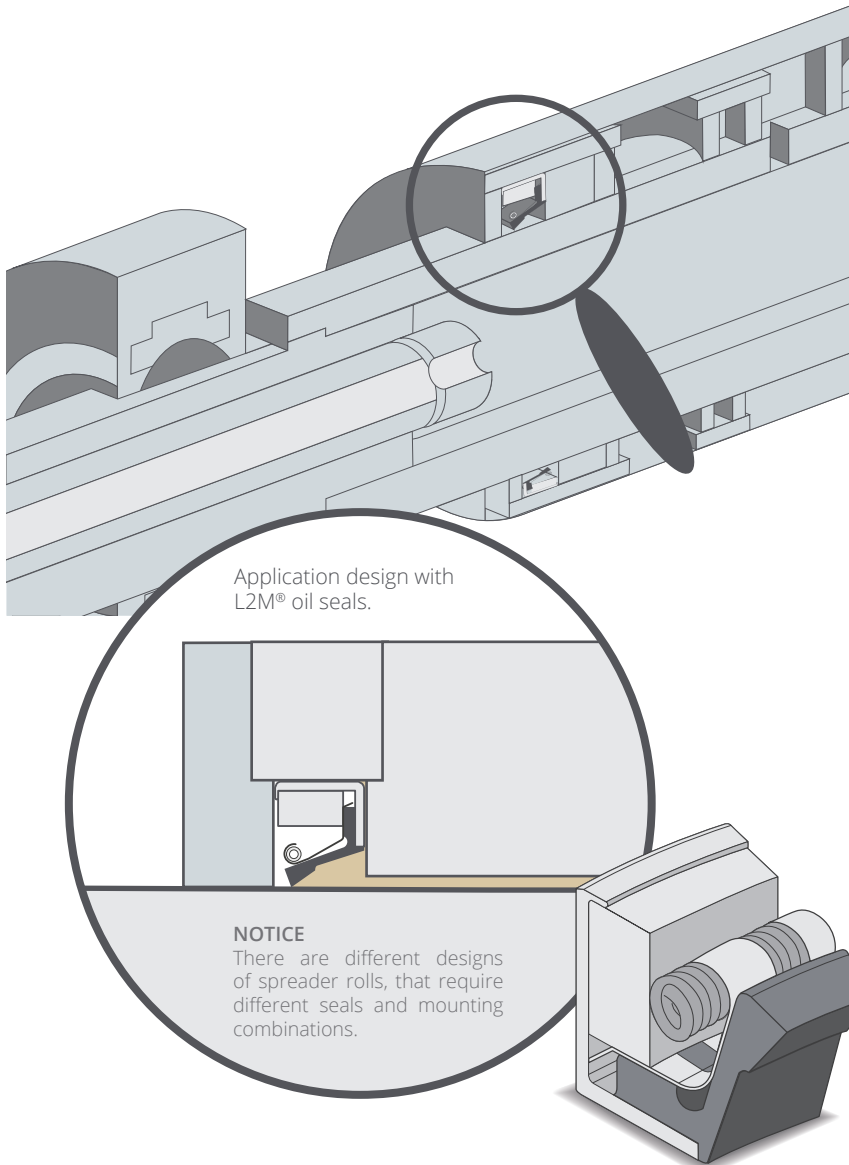
Like L2ML but with a reduced interference of the lip to solve overheating issues caused by friction in high-speed applications.

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

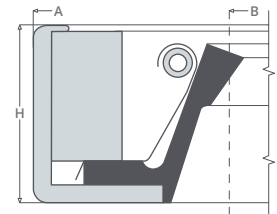
Spreader Rolls

Spreader rolls are installed in the dryer section of paper machines. They consist of a stationary axle which is fixed symmetrically to its longitudinal axis, and around which the

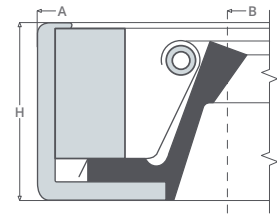
roll shell rotates. Special seals mount in the roll end protect the bearings inside the roll from moisture and dust.



Sealing System



L2M[®]



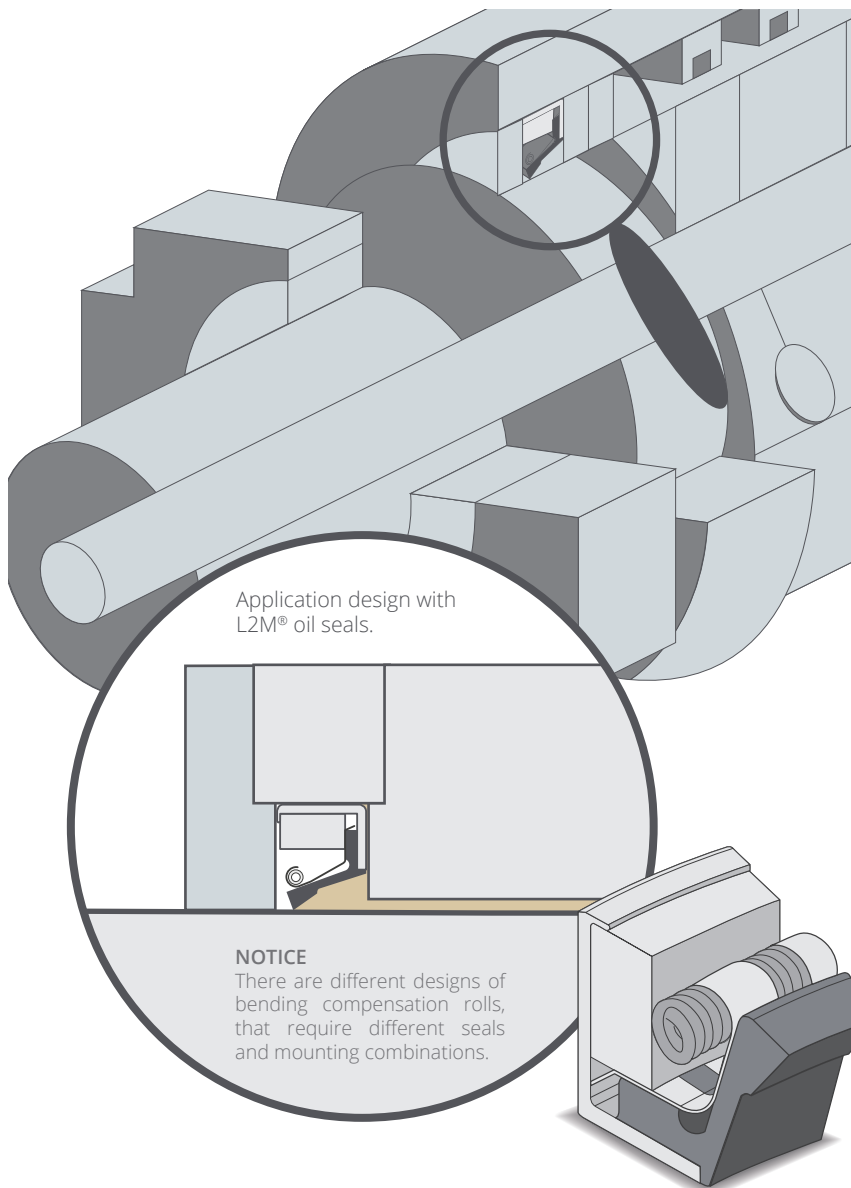
L2M-PL

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

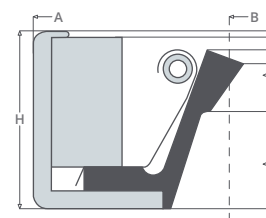
Bending Compensation Rolls

Shoe press rolls are used for pulp dewatering in the press section unit. The shoe roll is equipped with a stationary holder with attached hydraulic cylinders. These cylinders

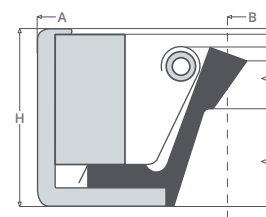
push a profiled shoe down to a rotary shell. Special seals mount in the roll end protect the bearings inside the roll from moisture and dust.



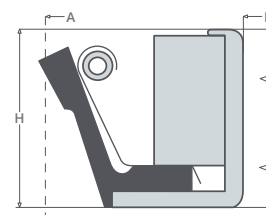
Sealing System



L2M[®]



L2M-PL



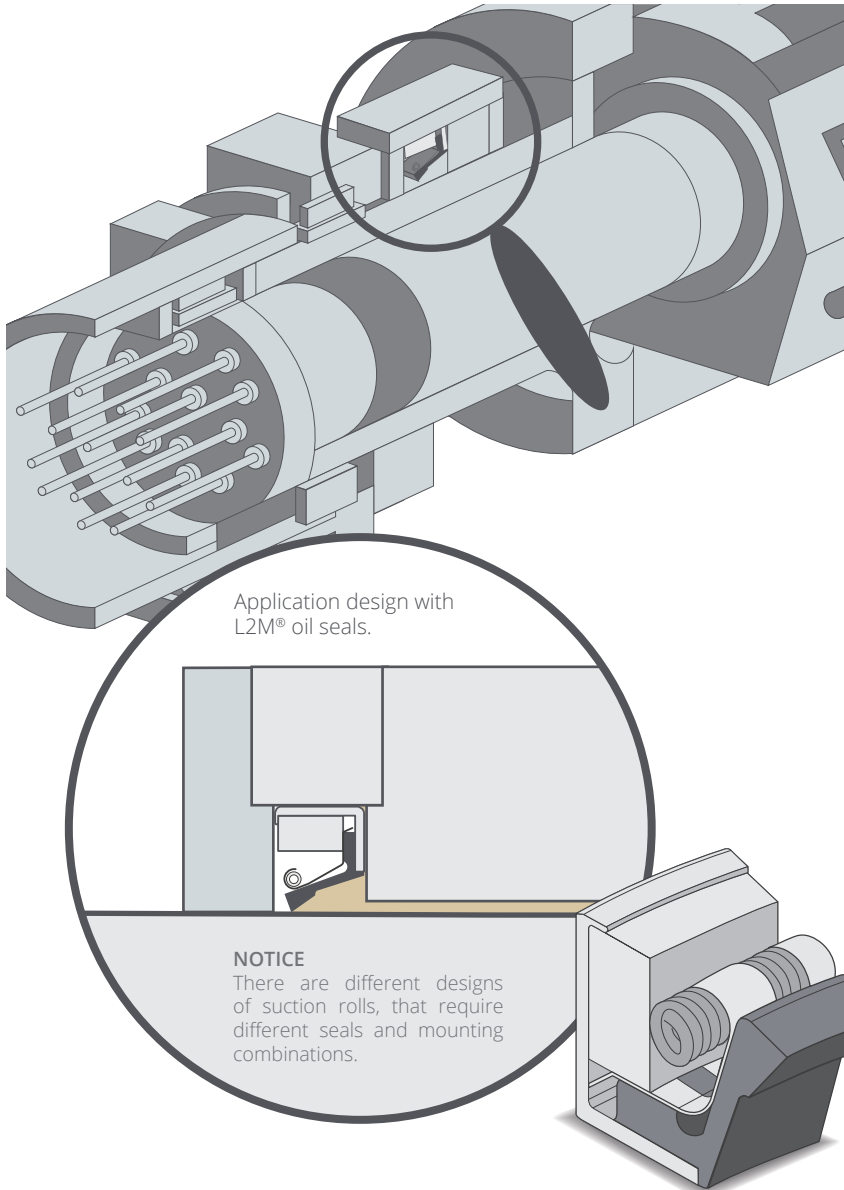
L2M-TE

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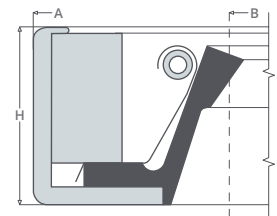
Suction Rolls

The Suction Rolls are used to remove water from the pulp, and to transfer the paper. They consist on a double stainless steel shell with precision drilled holes, a suction box,

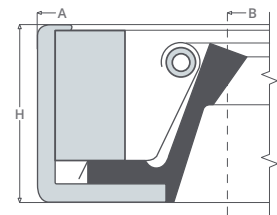
and water shower pipes, for seal lubrication and shell cleaning. Special sealing system are used to secure bearing operation.



Sealing System



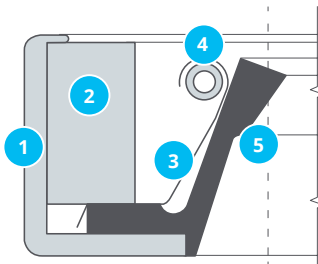
L2M[®]



L2M-PL

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

L2M® Oil Seal



L2M®

1 Groove on the outer diameter

A groove on the external diameter allows the operator to center the oil seal in the housing bore, easing the assembly.

2 Stiffening ring

The stiffening ring placed inside the metal casing of the oil seal endures an accurate assembly of the finger spring, and provides the rigidity and the hardness required.

5 Sealing lip

The sealing lip is vulcanized onto the metal casing, so to prevent leakages between the rubber and the metal case. The internal and the external diameters are perfectly centered (the centering is given by the mould).

1 Outer metal case

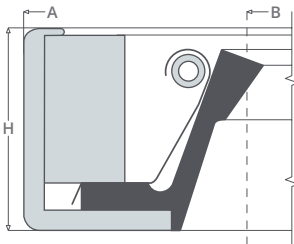
The outer metal case of the oil seal is conceived in one single piece without welding points, and it is ground according to FP's internal specification. It provides an ideal contact surface between the seal and the housing. No O-Ring is necessary to ensure a perfect retention.

3 Finger spring and garter spring

The Finger and the Garter springs enable a higher interference on the internal diameter without compromising the high flexibility of the sealing lip. The two springs help the sealing lip to recover the important shaft deflections avoiding leakages, and allowing the oil seal to reach high speeds.

- The interference, the profile, and the different components of the oil seal (finger spring, garter spring, stiffening ring) can be modified in accordance with the working conditions.
- Dedicated equipment and modern generation machineries are used to produce these special oil seals.
- Every lot of production is totally traceable thanks to the laser engraving of the lot number on every oil seal.

L2M[®] Oil Seal



L2M[®]

TECHNICAL FEATURES OF THE L2M[®] OIL SEAL

Maximum speed	1.200-1.800 m/min.
Minimum I.D.	180 mm
Maximum O.D.	2.000 mm
Maximum pressure	0.5 BAR
Misalignment	up to 5 mm

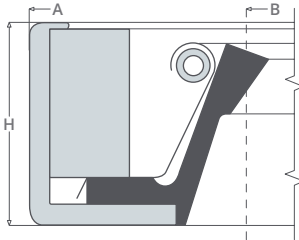
Metal outer casing with ground surface.

MATERIAL INFORMATIONS OF THE L2M[®] OIL SEAL

Outer metal case	Fe DC 04
Stiffening ring	Fe 37
Finger spring	AISI 301
Garter spring	AISI 316
Elastomers used for the sealing lip	FKM – FKM Low Friction NBR – HNBR – VQM

- All the L2M[®] type oil seals are also available with dust lip "P".
- All the L2M[®] type oil seals are available on demand with rubber or iron spacers.
- We do produce a special oil seal type called L2M-BP realized to resist up to a pressure of 2-3 BAR.
- Thanks to the structure of the L2M[®] oil seal, the preload, the lip profile and the elastomer can be customized according to the working conditions.

L2M[®] Oil Seal



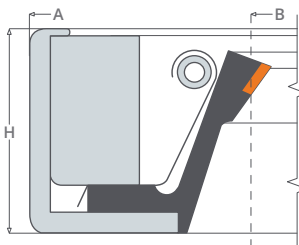
L2M-PL

L2M-PL is an 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.

TECHNICAL FEATURES OF THE L2M-PL OIL SEAL

Maximum speed	1.500-2.100 m/min.
Minimum I.D.	180 mm
Maximum E.D.	2.000 mm
Maximum pressure	0.5 BAR
Misalignment	up to 3 mm

Machine finished on the external diameter



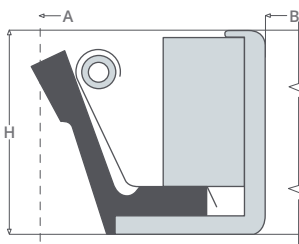
L2M-VF

L2M-VF is an oil seal produced with self-lubricating FKM material and a vulcanized PTFE insert in the lip, to resist to abrasion. It combines the flexibility of the FKM compound with the chemical-physical features of the PTFE element. It is recommended for applications with very high speeds.

TECHNICAL FEATURES OF THE L2M-VF OIL SEAL

Maximum speed	2.100-2.700 m/min.
Minimum I.D.	300 mm
Maximum O.D.	1.000 mm
Maximum pressure	0.5 BAR

Metal outer casing with ground surface



L2M-TE

L2M-TE is an external lip oil seal. It is used in machineries with stationary axis and rotating shell. It is available only in self-lubricating FKM material.

TECHNICAL FEATURES OF THE L2M-TE OIL SEAL

Maximum speed	1.200-1.800 m/min.
Minimum I.D.	300 mm
Maximum O.D.	1.000 mm
Maximum pressure	0.5 BAR
Misalignment	up to 3 mm

Metal outer casing with ground surface



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