

## **LabTecta**™

# "The 21st Century Bearing Protector" PATENTED AND PATENT PENDING in over 39 countries.



IMPROVED	REDUCED
Equipment life	<ul> <li>Bearing failures</li> </ul>
<ul> <li>Process uptime</li> </ul>	<ul> <li>Maintenance cost</li> </ul>
Operational profit	• Operational losses
Environment	Clean-up costs



"With bearing protection truly essential in a reliability-focused plant, I have carefully analyzed both the new LabTecta design and the results of thorough testing. I firmly conclude this ingenious

field-repairable isolator will prove highly cost effective and lead to demonstrable equipment failure reductions".

#### **AESSEAL® - Company Overview**



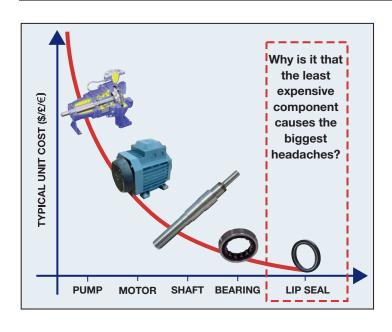


Left: The AESSEAL® Global Technology Centre is one of over 69 Locations worldwide.

Right: AESSEAL® have 6 branches in the USA - Rockford, Kingsport, Longview, Marion, Central Maine and Texas.

AESSEAL® is one of the leading global specialists in the design and manufacture of mechanical seals, support systems and bearing seals. With operations in six continents, AESSEAL® is the world's 4th largest supplier of mechanical seals, achieving growth through exceptional customer service and innovative products that provide real customer benefits.

#### The Problem with Lip Seals - What is the TRUE Cost?



## Lip Seals often have a short effective lifespan.

We use Lip Seals, despite the known problems, because we ignore the costs of shaft wear and premature bearing and equipment failure.

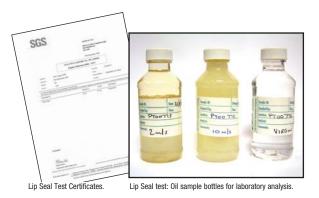
The LabTecta<sup>™</sup> was designed to outperform Lip Seals and be inexpensive to repair.

## The Lip Seal Water Ingress Test Results

A water jet was applied at 13.3 m/s (2,616 ft/min) in two separate tests to a 100mm (4.000") Lip Seal at 382 rpm and 1,910 rpm.

Both tests were abandoned after an average of 3 hours due to the visual level of water in the housing. The housing oil was then analysed for percentage water contamination.

The Lip Seal test results, from a 3rd party laboratory showed **83%** (830,000 ppm) and **> 99%** (990,000 ppm) **water** contamination of the oil.





From research done by a major academic institution water contamination as low as 0.002% (20 ppm) can reduce bearing life in some oils by as much as 48%.

**Test Results Conclusion -** A single acting Lip Seal cannot prevent forced water contamination.

#### **Limitations of Lip Seals**

- Lip Seals are ineffective at keeping contamination from bearing housings.
- Lip Seals can seriously wear shafts, causing extensive equipment damage and added cost.
- When Lip Seals leak, loss of lubrication causes catastrophic bearing and equipment failure.
- API610 9th edition, Section 5.10.2.7 recognizes this and states that "Lip-type Seals shall not be used in centrifugal pumps".

#### **LabTecta™** - Designed to be easily & economically repaired

With most competitor labyrinth designs the whole unit must be removed if it needs to be repaired. This means the "as designed" interference fit between the housing and the pump is damaged each time during removal. This can make the re-use of a labyrinth seal impossible because the close fit has been destroyed.

By design, the outer housing of the AESSEAL® LabTecta™ can be left inside the bearing housing while its internal components are replaced, as shown below.

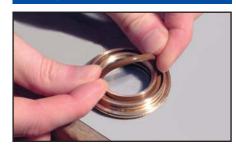
**Step 1 - Remove Face Shield** 



Step 2 - Remove External Components of LabTecta™



Step 3 - Replace Internal Components



Step 4 - Re-Install New External Components



Step 5 - Re-Install Face Shield



REPAIR YOUR
LABTECTA™ WITHOUT
REMOVING IT FROM THE
EQUIPMENT HOUSING IN
5 EASY STEPS!

DESIGNED TO MAKE LIP SEALS OBSOLETE

**LabTecta™** - No need for shaft refurbishment

#### **REPLACING SHAFTS COSTS MONEY**



Shaft damage from Lip Seals.

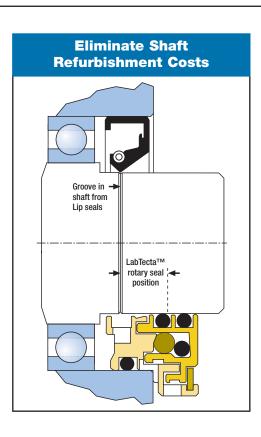


Shaft damage from a Labyrinth Seal

## The LabTecta™ Fits in the same space as a Lip Seal.

However, the LabTecta<sup>™</sup> rotary elastomers are designed to sit on a shaft surface which was not previously damaged by a previous Lip Seal installation. This means that the customer shaft should not need to be replaced or refurbished when upgrading from a Lip Seal to a LabTecta<sup>™</sup> bearing protector, thereby saving cost.

 The twin rotary O-Ring design avoids worn Lip Seal grooves.



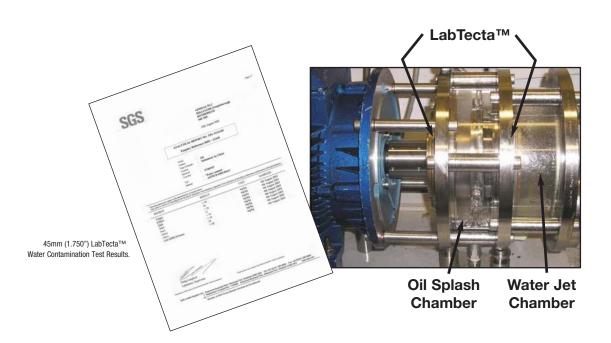
#### The LabTecta™ Water Contamination Test Results

In over 30 separate tests a 13.3 m/s (2,616 ft/min) water jet was directed at the LabTecta<sup>™</sup> in a wide range of shaft sizes and operating speeds.

At 332 rpm the post test results of a 100mm (4.000") LabTecta™ showed 3 parts per million (3 ppm) water contamination. At 1,910 rpm the results showed 0 ppm water contamination.

**Conclusion -** A LabTecta<sup>™</sup> can and does prevent forced water contamination.

The LabTecta<sup>™</sup> also has excellent performance on Grease lubrication and Dry Running conditions.





## LabTecta™ - A fundamentally superior bearing protector . . .



The Laws of Economics tell us that maintenance costs are directly proportional to the number of replaceable parts, the simplicity of construction of these parts, the tools required to disassemble the parts and the time it takes to perform the component replacement task.

The LabTecta<sup>™</sup> is field repairable in three (3) minutes for the cost of two O-Rings and one face shield. No special disassembly tools are required ... just one small conventional screwdriver and/or an O-Ring extraction tool.



NO CHEMICALS
NEEDED FOR REPAIR



NO TORCHES/HEAT
NEEDED FOR REPAIR

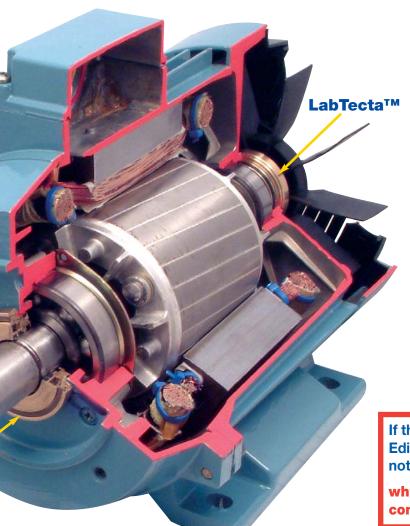


NO PRESS/SPECIAL TOOLS NEEDED FOR REPAIR

#### IEEE Std 841-2001 Bearing Protection

When you fit LabTectas to your motors, you keep your motor clean, rotating and IP56 rated.





Non contacting Seal
 Ingress protection to IP56
 Easy to refurbish
 Safe - Non sparking
 Low cost
 No shaft wear

The LabTecta™ is independently certified to IP56 which exceeds the Ingress Protection requirement for IEEE Std 841-2001.

If the premium centrifugal pump standard, API 610 10th Edition, Section 5.10.2.7 dictates that Lip Seals shall not be used in such rotating equipment .....

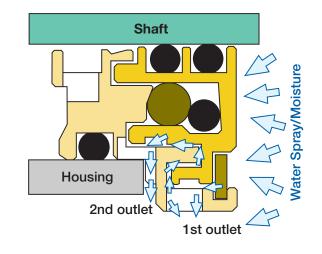
why do some Electric Motors manufacturers continue to use Lip Seals as the same issues apply?

## **Babylonian Terrace System -** Designed to keep **CONTAMINANTS OUT**

External contaminants would have a tough time getting past the multi-tiered terraces designed into the LabTecta™.

There is a cascading effect and any water getting past the face shield is likely to be expelled in one of the two expulsion spaces. Like the famous hanging gardens of Babylon, these cascading segments are ingenious, dependable, and highly functional.

THE LABTECTA™ IS GUARANTEED
TO LAST 3 TIMES LONGER THAN
A CONVENTIONAL LIP SEAL





Reliable Technology confirmed by rigorous testing and independent laboratory analysis



#### **LabTecta™** - Designed to comply with the Laws of Physics, Probability, Economics & "Murphy"



"The elegant but ingenious simplicity of the LabTecta is an outstanding example of innovation, pushing forward the frontiers of seal design to overcome the problems and performance of traditional lip seals".

Dr. Michael Harrison, MA, D.Phil President of the Chartered Institute of Patent Agents.



The Laws of Physics dictate that ALL contacting, counterrotating components will wear. To minimize wear we need:

- Abrasion-resistant contacting materials with a low coefficient of friction.
- Self-adjusting contact force, depending on the shaft velocity.
- ... exactly what the LabTecta $^{\text{TM}}$  provides.

#### **Twin Rotary Drive**

Murphy's Law dictates, "if it can go wrong, it will go wrong".

The LabTecta's "Twin Rotary Drive" construction means that the rotating O-Rings have twice the normal probability of fitting onto a clean and smooth shaft surface.

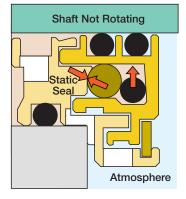
Furthermore, the twin rotary drive system provides 100% more drive integrity and optimizes the rotary stability during dynamic operation. This added stability must be considered essential when operating close-proximity labyrinth stator and rotor components.

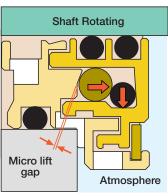
#### The Arknian™ Shut-off Valve

The Arknian™ shut-off valve has an axial energizing member, which automatically adjusts the contact force on the primary shut-off valve. This contact force varies when the equipment is operating or idle. In operation a micro lift gap develops. At idle a static seal is formed.

The shut-off valve member is manufactured from a wear-resistant material with low coefficient of friction.

This unique Arknian™ arrangement prevents moisture particles from being sucked back into the oil during cycles of bearing chamber breathing.

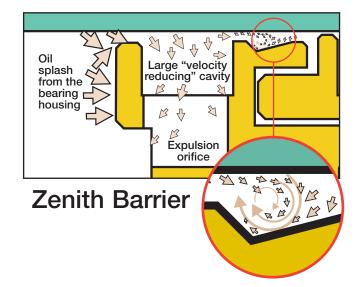




### Zenith Barrier - Designed to keep OIL IN

In dynamic shaft operation, the oil in the bearing housing must provide splash-lubrication for the equipment bearings. Most of the oil entering the LabTecta's velocity-reducing stator cavity is expelled through the stator expulsion orifice. However, the Laws of Probability make it likely that some oil will get past this first cavity. As the oil particles now travel axially along the shaft, they are subject to centrifugal radial forces from the rotating shaft.

The radially accelerating oil particles are forced to contact the inclined stator surface and will move counter-axially towards the stator shoulder. The stator and shaft geometries and their relative proximity create a standing vortex. This standing vortex acts as an essential second physical barrier that prevents further oil egress.



#### **Protecting Electric Motor Integrity**

The Electric Motor is the most popular piece of rotating equipment in the world today.

Without reliable electric motors, loss of plant production and increased downtime hits company profits hard.

## Two of the main factors in motor malfunction are:

- 1. Failure of the bearings causing seizure of the equipment.
  - 2. Liquid contamination causing electrical shorting.

Not only can these cause damage to the motor windings and possible damage to the driven equipment, liquid ingress can be hazardous. Risk of electrocution may be present.

#### How are these risks reduced?

Like pumps, the first issue to address is prevention of premature bearing failure from contamination in the bearing chamber.

The traditional contamination prevention method employed in Electric Motors are Lip Seals. We know that Lip Seals will not prevent water ingress, as described earlier. However, like pumps, Lip Seals also damage motor shafts during dynamic operation escalating refurbishment costs.

The second issue of concern is that of plant safety as water and electricity do not mix.

The level of protection is dictated by an internationally recognized ingress protection (IP) standard as shown below.

If an Electric Motor with Lip Seals fitted is IP55 rated when it is shipped from the factory, is it still IP55 qualified after it has run 100, 250 or 1000 hours given that we know ALL Lip Seals WEAR?

### IP56 - Ingress (contamination) Protection for electrical equipment

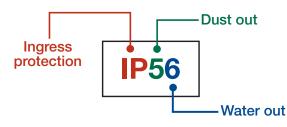
'IP' rating stands for 'Ingress Protection'. An IP number, such as 56, is used to specify the sealing effectiveness of enclosures against the intrusion of foreign bodies (i.e. tools, dust, and moisture).

#### **IEEE Std 841-2001**

Requires IP55 Ingress Protection and the use of a 'non-contacting whilerotating' device like the LabTecta™.

#### 1st digit: Protection against foreign objects

Provide a degree of protection against the following environmental conditions:	0	1	2	3	4	5
No protection	•					
Protection against solid objects up to 50mm (1.968") e.g. accidental touch by hands		•	•	•	•	•
Protected against solid objects up to 12mm (0.472") e.g. fingers			•	•	•	•
Protected against solid objects over 2.5mm (0.098") e.g. tools				•	•	•
Protected against solid objects over 1mm (0.039") e.g. wires					•	•
Protected against dust- limited ingress (no harmful deposit)						•



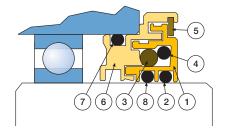
#### 2nd digit: Protection against water

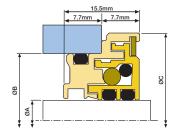
Provide a degree of protection against the following environmental conditions:	0	1	2	3	4	5	6
No protection	•						
Protected against vertically falling drops of water		•	•	•	•	•	•
Protected against direct sprays of water up to 15° from the vertical			•	•	•	•	•
Protected against sprays to 60° from the vertical				•	•	•	•
Protected against water sprayed from all directions - limited ingress permitted					•	•	•
Protected against jets of water from all directions- limited ingress permitted						•	•
Protected against strong jets of water from all directions- limited ingress permitted							•

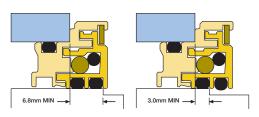
No contacting Lip Seal can conform to IEEE Std 841-2001.

#### **LabTecta™ dimensions -** 16.0mm - 145.0mm









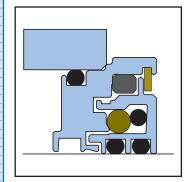
Twice the chance of fitting onto an unmarked shaft surface.

DIM A	DIM B	DIM C	STOCK CODE
16.0	36.0	43.4	L1M016PP-001-M036
	41.0	44.9	L1M016PP-001-M041
	34.0	43.4	L1M016PP-001-M034
	38.0	43.4	L1M016PP-001-M038
18.0	38.0	45.4	L1M018PP-001-M038
	43.0	46.9	L1M018PP-001-M043
	36.0	45.4	L1M018PP-001-M036
	40.0	45.4	L1M018PP-001-M040
20.0	40.0	47.4	L1M020PP-001-M040
	45.0	48.9	L1M020PP-001-M045
	38.0	47.4	L1M020PP-001-M038
	42.0	47.4	L1M020PP-001-M042
22.0	42.0	49.4	L1M022PP-001-M042
	47.0	50.9	L1M022PP-001-M047
	40.0	49.4	L1M022PP-001-M040
	44.0	49.4	L1M022PP-001-M044
24.0	44.0	51.4	L1M024PP-001-M044
	49.0	52.9	L1M024PP-001-M049
	42.0	51.4	L1M024PP-001-M042
	46.0	51.4	L1M024PP-001-M046
25.0	45.0	52.4	L1M025PP-001-M045
20.0	50.0	53.9	L1M025PP-001-M050
	43.0	52.4	L1M025PP-001-M043
	47.0	52.4	L1M025PP-001-M047
28.0	48.0	55.4	L1M028PP-001-M048
20.0	53.0	56.9	L1M028PP-001-M053
	46.0	55.4	L1M028PP-001-M035
	50.0	55.4	L1M028PP-001-M050
30.0	50.0	57.4	L1M030PP-001-M050
30.0	55.0	58.9	L1M030PP-001-M055
	48.0	57.4	L1M030PP-001-M033
	52.0		L1M030PP-001-M048
20.0		57.4	L1M030PP-001-M052
32.0	52.0	59.4	
	57.0	60.9	L1M032PP-001-M057
	50.0	59.4	L1M032PP-001-M050
22.0	54.0	59.4	L1M032PP-001-M054
33.0	53.0	60.4	L1M033PP-001-M053
	58.0	61.9	L1M033PP-001-M058
	51.0	60.4	L1M033PP-001-M051
05.0	55.0	60.4	L1M033PP-001-M055
35.0	55.0	62.4	L1M035PP-001-M055
	60.0	63.9	L1M035PP-001-M060
	53.0	62.4	L1M035PP-001-M053
	57.0	62.4	L1M035PP-001-M057
38.0	58.0	65.4	L1M038PP-001-M058
	63.0	66.9	L1M038PP-001-M063
	56.0	65.4	L1M038PP-001-M056
	60.0	65.4	L1M038PP-001-M060
40.0	60.0	67.4	L1M040PP-001-M060
	65.0	68.9	L1M040PP-001-M065
	58.0	67.4	L1M040PP-001-M058
	62.0	67.4	L1M040PP-001-M062
43.0	63.0	70.4	L1M043PP-001-M063
	68.0	71.9	L1M043PP-001-M068
	61.0	70.4	L1M043PP-001-M061
	65.0	70.4	L1M043PP-001-M065

DIM A	DIM B	DIM C	STOCK CODE
45.0	65.0	72.4	L1M045PP-001-M065
	70.0	73.9	L1M045PP-001-M070
	71.0	74.9	L1M045PP-001-M071
	75.0	78.9	L1M045PP-001-M075
48.0	68.0	75.4	L1M048PP-001-M068
	73.0	76.9	L1M048PP-001-M073
	74.0	77.9	L1M048PP-001-M074
	78.0	81.9	L1M048PP-001-M078
50.0	70.0	77.4	L1M050PP-001-M070
	75.0	78.9	L1M050PP-001-M075
	76.0	79.9	L1M050PP-001-M076
	80.0	83.9	L1M050PP-001-M080
52.0	72.0	79.4	L1M052PP-001-M072
	77.0	80.9	L1M052PP-001-M077
	78.0	81.9	L1M052PP-001-M078
	82.0	85.9	L1M052PP-001-M082
53.0	73.0	80.4	L1M053PP-001-M073
	78.0	81.9	L1M053PP-001-M078
	79.0	82.9	L1M053PP-001-M079
	83.0	86.9	L1M053PP-001-M083
55.0	75.0	82.4	L1M055PP-001-M075
	80.0	83.9	L1M055PP-001-M080
	81.0	84.9	L1M055PP-001-M081
	85.0	88.9	L1M055PP-001-M085
58.0	78.0	85.4	L1M058PP-001-M078
	83.0	86.9	L1M058PP-001-M083
	84.0	87.9	L1M058PP-001-M084
	88.0	91.9	L1M058PP-001-M088
60.0	80.0	87.4	L1M060PP-001-M080
	85.0	88.9	L1M060PP-001-M085
	86.0	89.9	L1M060PP-001-M086
	90.0	93.9	L1M060PP-001-M090
63.0	83.0	90.4	L1M063PP-001-M083
	88.0	91.9	L1M063PP-001-M088
	89.0	92.9	L1M063PP-001-M089
	93.0	96.9	L1M063PP-001-M093
65.0	85.0	92.4	L1M065PP-001-M085
	90.0	93.9	L1M065PP-001-M090
	91.0	94.9	L1M065PP-001-M091
	95.0	98.9	L1M065PP-001-M095
68.0	88.0	95.4	L1M068PP-001-M088
	93.0	96.9	L1M068PP-001-M093
	94.0	97.9	L1M068PP-001-M094
	98.0	101.9	L1M068PP-001-M098
70.0	90.0	97.4	L1M070PP-001-M090
	95.0	98.9	L1M070PP-001-M095
	96.0	99.9	L1M070PP-001-M096
	100.0	103.9	L1M070PP-001-M100
75.0	95.0	102.4	L1M075PP-001-M095
	100.0	103.9	L1M075PP-001-M100
	101.0	104.9	L1M075PP-001-M101
	105.0	108.9	L1M075PP-001-M105
80.0	100.0	107.4	L1M080PP-001-M100
	105.0	108.9	L1M080PP-001-M105
	106.0	109.9	L1M080PP-001-M106
	110.0	113.9	L1M080PP-001-M110

DIM A	DIM B	DIM C	STOCK CODE
85.0	105.0	112.4	L1M085PP-001-M105
	110.0	113.9	L1M085PP-001-M110
	111.0	114.9	L1M085PP-001-M111
	115.0	118.9	L1M085PP-001-M115
90.0	110.0	117.4	L1M090PP-001-M110
	115.0	118.9	L1M090PP-001-M115
	116.0	119.9	L1M090PP-001-M116
	120.0	123.9	L1M090PP-001-M120
95.0	115.0	122.4	L1M095PP-001-M115
	120.0	123.9	L1M095PP-001-M120
	121.0	124.9	L1M095PP-001-M121
	125.0	128.9	L1M095PP-001-M125
100.0	120.0	127.4	L1M100PP-001-M120
	125.0	128.9	L1M100PP-001-M125
	126.0	129.9	L1M100PP-001-M126
	130.0	133.9	L1M100PP-001-M130
105.0	125.0	132.4	L1M105PP-001-M125
	130.0	133.9	L1M105PP-001-M130
	131.0	134.9	L1M105PP-001-M131
	135.0	138.9	L1M105PP-001-M135
110.0	130.0	137.4	L1M110PP-001-M130
	135.0	138.9	L1M110PP-001-M135
	136.0	139.9	L1M110PP-001-M136
	140.0	143.9	L1M110PP-001-M140
115.0	135.0	142.4	L1M115PP-001-M135
	140.0	143.9	L1M115PP-001-M140
	141.0	144.9	L1M115PP-001-M141
	145.0	148.9	L1M115PP-001-M145
120.0	140.0	147.4	L1M120PP-001-M140
	145.0	148.9	L1M120PP-001-M145
	146.0	149.9	L1M120PP-001-M146
	150.0	153.9	L1M120PP-001-M150
125.0	145.0	152.4	L1M125PP-001-M145
	150.0	153.9	L1M125PP-001-M150
	151.0	154.9	L1M125PP-001-M151
100.0	155.0	158.9	L1M125PP-001-M155
130.0	150.0	157.4	L1M130PP-001-M150 L1M130PP-001-M155
	155.0 156.0	158.9 159.9	L1M130PP-001-M155
125.0	160.0	163.9	L1M130PP-001-M160
135.0	155.0 160.0	162.4 163.9	L1M135PP-001-M155 L1M135PP-001-M160
	161.0	164.9	L1M135PP-001-M161 L1M135PP-001-M165
140.0	165.0 160.0	168.9	L1M135PP-001-W165
140.0		167.4	L1M140PP-001-M165
	165.0 166.0	168.9 169.9	L1M140PP-001-W165
	170.0	173.9	L1M140PP-001-M170
145.0	165.0	173.9	L1M145PP-001-M170
145.0	170.0	172.4	L1M145PP-001-M165
	170.0	173.9	L1M145PP-001-W170
	171.0	174.9	L1M145PP-001-M171
	175.0	170.9	L1W140FF-001-W11/0

#### LabTecta-SS™



The LabTecta-SS™ is available in full stainless steel construction giving even greater flexibility in more chemically demanding environments.

This unique design incorporates all the benefits of the standard LabTecta<sup>TM</sup> With the addition of a bumper/spacer to prevent incidental metal to metal contact in misaligned equipment.

The use of stainless steel bearing isolators in misaligned equipment will lead to equipment seizure and sparking.

USE WITH CAUTION!

WARNING

Dimensional Information (mm) Larger sizes available upon request.

NOT ALL SIZES ARE INVENTORIED. CONTACT THE LabTecta™ TEAM FOR DETAILS

IIK: Email: sales@labtecta.com Phone: +44 (0) 1709 369966 Fax: +44 (0) 1709 720788

USA: Email: usasales@labtecta.com Phone: +44 (0) 1709 369906 Fax: +44 (0) 1709 7207

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### **LabTecta™ -** TWICE the Bearing Protection



Zenith Barrier - TWICE the chance of preventing oil escaping.



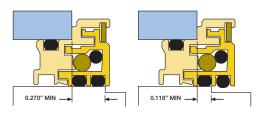
Babylonian Terrace - TWICE the chance of preventing water contamination.

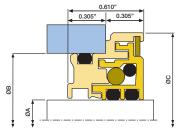


Twin Rotary Drive - TWICE the chance of fitting onto an unmarked shaft surface.

## **LabTecta™ dimensions -** 0.750" - 5.875"







Item	Description	Material
1	LabTecta™ Rotary	Phosphor Bronze
2	Outboard Rotor O-Ring	Viton <sup>®</sup>
3	Arknian™ Shut Off Device	Compound Elastomer
4	Arknian™ Energizer	Viton®
5	Face Shield	Composite Material
6	Stator Housing	Phosphor Bronze
7	Stator Housing O-Ring	Viton®
8	Inboard Rotor O-Ring	Viton®

Twice the chance of fitting onto an unmarked shaft surface.

DIM A	DIM B	DIM C	STOCK CODE
0.750	1.500	1.829	L1I06-PP-001-I12-
	1.625	1.829	L1I06-PP-001-I13-
	1.750 1.875	1.889 2.014	L1I06-PP-001-I14- L1I06-PP-001-I15-
0.875	1.625	1.954	L1107-PP-001-I13-
0.070	1.750	1.954	L1I07-PP-001-I14-
	1.875	2.014	L1I07-PP-001-I15-
	2.000	2.139	L1I07-PP-001-I16-
0.937	1.687	2.016	L1I081PP-001-I41
	1.812	2.016	L1I081PP-001-I51
	1.937 2.062	2.076 2.201	L1I081PP-001-I61 L1I081PP-001-I71
1.000	1.750	2.079	L1108-PP-001-I14-
11000	1.875	2.079	L1I08-PP-001-I15-
	2.000	2.139	L1I08-PP-001-I16-
	2.125	2.264	L1I08-PP-001-I17-
1.062	1.812	2.141	L1I091PP-001-I51
	1.937 2.062	2.141	L1I091PP-001-I61 L1I091PP-001-I71
	2.062	2.326	L11091PP-001-171
1.125	1.875	2.204	L1109-PP-001-I15-
1.120	2.000	2.204	L1I09-PP-001-I16-
	2.125	2.264	L1I09-PP-001-I17-
	2.250	2.389	L1I09-PP-001-I18-
1.187	1.937	2.266	L1I101PP-001-I61
	2.062	2.266	L1I101PP-001-I71
	2.187 2.312	2.326 2.451	L1I101PP-001-I81 L1I101PP-001-I91
1.250	2.000	2.451	L1I10-PP-001-I91
1.200	2.125	2.329	L1I10-PP-001-I17-
	2.250	2.389	L1I10-PP-001-I18-
	2.375	2.514	L1I10-PP-001-I19-
1.312	2.062	2.391	L1I111PP-001-I71
	2.187	2.391	L1I111PP-001-I81
	2.312	2.451 2.576	L1I111PP-001-I91 L1I111PP-001-201
1.375	2.125	2.454	L1I11-PP-001-117-
1.373	2.250	2.454	L1I11-PP-001-I18-
	2.375	2.514	L1I11-PP-001-I19-
	2.500	2.639	L1I11-PP-001-I20-
1.437	2.187	2.516	L1I121PP-001-181
	2.312	2.516	L1I121PP-001-191
	2.437 2.562	2.576 2.701	L1I121PP-001-201 L1I121PP-001-211
1.500	2.250	2.701	L1I12-PP-001-I18-
1.000	2.375	2.579	L1I12-PP-001-I19-
	2.500	2.639	L1I12-PP-001-I20-
	2.625	2.764	L1I12-PP-001-I21-
1.562	2.312	2.641	L1I131PP-001-191
	2.437	2.641	L1I131PP-001-201
	2.562	2.701	L1I131PP-001-211 L1I131PP-001-221
1.625	2.687 2.375	2.826 2.704	L11131PP-001-221 L1113-PP-001-I19-
020	2.500	2.704	L1I13-PP-001-I20-
	2.625	2.764	L1I13-PP-001-I21-
	2.750	2.889	L1I13-PP-001-I22-
1.687	2.437	2.766	L1I141PP-001-201
	2.562	2.766	L1I141PP-001-211
	2.687 2.812	2.826	L1I141PP-001-221 L1I141PP-001-231
1.750	2.500	2.829	L1I14-PP-001-231
1.730	2.625	2.829	L1I14-PP-001-I21-
	2.750	2.889	L1I14-PP-001-I22-
	2.875	3.014	L1I14-PP-001-I23-
1.812	2.562	2.891	L1I151PP-001-211
	2.687	2.891	L1I151PP-001-221
	2.812	2.937	L1I151PP-001-231
1 975	2.937	3.076	L1I151PP-001-241
1.875	2.625 2.750	2.954 2.954	L1I15-PP-001-I21- L1I15-PP-001-I22-
	2.750	3.014	L1I15-PP-001-I23-
	3.000	3.139	L1I15-PP-001-I24-
1.937	2.687	3.016	L1I161PP-001-I221
	2.812	3.016	L1I161PP-001-I231
	2.937	3.076	L1I161PP-001-I241
	3.062	3.201	L1I161PP-001-I251

DIM A	DIM B	DIM C	STOCK CODE
2.000	2.750	3.079	L1I16-PP-001-I22-
	2.875	3.079	L1I16-PP-001-I23-
	3.000	3.139	L1I16-PP-001-I24-
2.062	3.125 2.812	3.264	L1I16-PP-001-I25- L1I171PP-001-I231
2.002	2.812	3.141 3.141	L11171PP-001-1231
	3.062	3.201	L1I171PP-001-I251
	3.187	3.326	L1I171PP-001-I261
2.125	2.875	3.204	L1I17-PP-001-I23-
	3.000	3.204	I 1117-PP-001-124-
	3.125 3.250	3.264 3.389	L1I17-PP-001-I25- L1I17-PP-001-I26-
2.187	2.937	3.266	L11181PP-001-1241
2.1107	3.062	3.266	L1I181PP-001-I251
	3.187	3.326	L1I181PP-001-I261
	3.312	3.451	L1I181PP-001-I271
2.250	3.000	3.329	L1I18-PP-001-I24-
	3.125 3.250	3.329 3.389	L1118-PP-001-I25-
	3.375	3.514	L1I18-PP-001-I26- L1I18-PP-001-I27-
2.312	3.062	3.391	L1I191PP-001-I251
	3.187	3.391	L1I191PP-001-I261
	3.312	3.451	L1I191PP-001-I271
	3.437	3.576	L1I191PP-001-I281
2.375	3.125 3.250	3.454	L1I19-PP-001-I25-
	3.250	3.454 3.514	L1I19-PP-001-I26- L1I19-PP-001-I27-
	3.500	3.639	L1I19-PP-001-I28-
2.437	3.187	3.516	L1I201PP-001-I261
	3.312	3.516	L1I201PP-001-I271
	3.437	3.576	L1I201PP-001-I281
2.500	3.562 3.250	3.701 3.579	L1I201PP-001-I291 L1I20-PP-001-I26-
2.500	3.250	3.579	L1I20-PP-001-I20-
	3.500	3.639	L1I20-PP-001-I28-
	3.625	3.764	L1I20-PP-001-I29-
2.562	3.312	3.641	L1I211PP-001-I271
	3.437	3.641	L1I211PP-001-I281
	3.562	3.701	L1I211PP-001-I291 L1I211PP-001-I301
2.625	3.687 3.375	3.826 3.704	L1I211PP-001-I301 L1I21-PP-001-I27-
LIOLO	3.500	3.704	L1I21-PP-001-I28-
	3.625	3.764	L1I21-PP-001-I29-
	3.750	3.889	L1I21-PP-001-I30-
2.687	3.437	3.766	L1I221PP-001-I281
	3.562 3.687	3.766 3.826	L1I221PP-001-I291 L1I221PP-001-I301
	3.812	3.951	L1I221PP-001-I311
2.750	3.500	3.829	L1I22-PP-001-I28-
	3.625	3.829	L1I22-PP-001-I29-
	3.750	3.889	L1I22-PP-001-I30-
2.812	3.875 3.562	4.014 3.891	L1I22-PP-001-I31- L1I231PP-001-I291
2.012	3.562	3.891	L1I231PP-001-I291
	3.812	3.951	L1I231PP-001-I311
	3.937	4.076	L1I231PP-001-I321
2.875	3.625	3.954	L1I23-PP-001-I29-
	3.750	3.954	L1I23-PP-001-I30-
	3.875 4.000	4.014 4.139	L1I23-PP-001-I31- L1I23-PP-001-I32-
2.937	3.687	4.016	I 11241PP-001-I301
	3.812	4.016	L1I241PP-001-I311
	3.937	4.076	L1I241PP-001-I321
2.000	4.062	4.201	L1I241PP-001-I331
3.000	3.750 3.875	4.079 4.079	L1I24-PP-001-I30- L1I24-PP-001-I31-
	4.000	4.079	L1I24-PP-001-I31-
	4.125	4.264	L1I24-PP-001-I33-
3.062	3.812	4.141	L1I251PP-001-I311
	3.937	4.141	L1I251PP-001-I321
	4.062	4.201	L1I251PP-001-I331
3.125	4.187 3.875	4.326 4.204	L1I251PP-001-I341 L1I25-PP-001-I31-
3.120	4.000	4.204	L1125-PP-001-131- L1125-PP-001-132-
	4.125	4.264	L1I25-PP-001-I33-
	4.250	4.389	L1I25-PP-001-I34-

DIM A	DIM B	DIM C	STOCK CODE
3.187	3.937	4.266	L1I261PP-001-I321
	4.062	4.266	L1I261PP-001-I331
	4.187 4.312	4.326 4.451	L1I261PP-001-I341 L1I261PP-001-I351
3.250	4.000	4.431	L1I26-PP-001-I32-
	4.125	4.329	L1I26-PP-001-I33-
	4.250	4.389	L1I26-PP-001-I34-
	4.375	4.514	L1I26-PP-001-I35-
3.312	4.062	4.391	L1I271PP-001-I331
	4.187	4.391	L1I271PP-001-I341 L1I271PP-001-I351
	4.312 4.437	4.451 4.576	L1I271PP-001-I351 L1I271PP-001-I361
3.375	4.437	4.454	L1I27-PP-001-I33-
0.070	4.250	4.454	L1I27-PP-001-I34-
	4.375	4.514	L1I27-PP-001-I35-
	4.500	4.639	L1I27-PP-001-I36-
3.437	4.187	4.516	L1I281PP-001-I341
	4.312	4.516	L1I281PP-001-I351
	4.437	4.576	L1I281PP-001-I361
3.500	4.562	4.701	L1I281PP-001-I371 L1I28-PP-001-I34-
3.300	4.250 4.375	4.579 4.579	L1I28-PP-001-I35-
	4.500	4.639	L1I28-PP-001-I36-
	4.625	4.764	L1I28-PP-001-I37-
3.562	4.312	4.641	L1I291PP-001-I351
	4.437	4.641	L1I291PP-001-I361
	4.562	4.701	L1I291PP-001-I371
3.625	4.687 4.375	4.826 4.704	L1I291PP-001-I381 L1I29-PP-001-I35-
3.020	4.375	4.704	L1129-PP-001-136-
	4.625	4.764	L1I29-PP-001-I37-
	4.750	4.889	L1I29-PP-001-I38-
3.687	4.437	4.766	L1I301PP-001-I361
	4.562	4.766	L1I301PP-001-I371
	4.687	4.826	L1I301PP-001-I381
2.750	4.812	4.951	L1I301PP-001-I391
3.750	4.500 4.625	4.829 4.829	L1I30-PP-001-I36- L1I30-PP-001-I37-
	4.023	4.889	L1I30-PP-001-I38-
	4.875	5.014	L1I30-PP-001-I39-
3.812	4.562	4.891	L1I311PP-001-I371
	4.687	4.891	L1I311PP-001-I381
	4.812	4.951	L1I311PP-001-I391
3.875	4.937 4.625	5.076 4.954	L1I311PP-001-I401 L1I31-PP-001-I37-
3.073	4.625	4.954	L1I31-PP-001-I38-
	4.875	5.014	L1I31-PP-001-I39-
	5.000	5.139	L1I31-PP-001-I40-
3.937	4.687	5.016	L1I321PP-001-I381
	4.812	5.016	L1I321PP-001-I391
	4.937	5.076	L1I321PP-001-I401
4.000	5.062	5.201	L1I321PP-001-I411 L1I32-PP-001-I38-
4.000	4.750 4.875	5.079 5.079	L1I32-PP-001-I38-
	5.000	5.139	L1I32-PP-001-I40-
	5.125	5.264	L1I32-PP-001-I41-
4.062	4.812	5.141	L1I331PP-001-I391
	4.937	5.141	L1I331PP-001-I401
	5.062	5.201	L1I331PP-001-I411
4.405	5.187	5.326	L1I331PP-001-I421
4.125	4.875 5.000	5.204 5.204	L1I33-PP-001-I39- L1I33-PP-001-I40-
	5.000	5.204	L1I33-PP-001-I40-
	5.250	5.389	L1I33-PP-001-I42-
4.187	4.937	5.266	L1I341PP-001-I401
	5.062	5.266	L1I341PP-001-I411
	5.187	5.326	L1I341PP-001-I421
	5.312	5.451	L1I341PP-001-I431
4.250	5.000	5.329	L1I34-PP-001-I40-
	5.125	5.329	L1I34-PP-001-I41-
	5.250 5.375	5.389 5.514	L1I34-PP-001-I42- L1I34-PP-001-I43-
4.312	5.062	5.391	L1I351PP-001-I411
	5.187	5.391	L1I351PP-001-I421
	5.312	5.451	L1I351PP-001-I431

DIM A	DIM B	DIM C	STOCK CODE
4.375	5.125	5.454	L1I35-PP-001-I41-
	5.250	5.454	L1I35-PP-001-I42-
	5.375	5.514	L1I35-PP-001-I43-
	5.500	5.639	L1I35-PP-001-I44-
4.437	5.187	5.516	L1I361PP-001-I421
	5.312	5.516	L1I361PP-001-I431
	5.437	5.576	L1I361PP-001-I441
4.500	5.562 5.250	5.701 5.579	L1I361PP-001-I451 L1I36-PP-001-I42-
4.500	5.250	5.579	L1136-PP-001-142-
	5.500	5.639	L1I36-PP-001-I44-
	5.625	5.764	L1I36-PP-001-I45-
4.562	5.312	5.641	L1I371PP-001-I431
11002	5.437	5.641	L1I371PP-001-I441
	5.562	5.701	L1I371PP-001-I451
	5.687	5.826	L1I371PP-001-I461
4.625	5.375	5.704	L1I37-PP-001-I43-
	5.500	5.704	L1I37-PP-001-I44-
	5.625	5.764	L1I37-PP-001-I45-
	5.750	5.889	L1I37-PP-001-I46-
4.687	5.437	5.766	L1I381PP-001-I441
	5.562	5.766	L1I381PP-001-I451
	5.687	5.826	L1I381PP-001-I461
	5.812	5.951	L1I381PP-001-I471
4.750	5.500	5.829	L1I38-PP-001-I44-
	5.625	5.829	L1I38-PP-001-I45-
	5.750	5.889	L1I38-PP-001-I46-
4 010	5.875	6.014	L1I38-PP-001-I47- L1I391PP-001-I451
4.812	5.562 5.687	5.891 5.891	L1I391PP-001-I451
	5.812	5.951	L1I391PP-001-I471
	5 937	6.076	L1I391PP-001-I481
4.875	5.625	5.954	L1I39-PP-001-I45-
4.070	5.750	5.954	L1I39-PP-001-I46-
	5.875	6.014	L1I39-PP-001-I47-
	6.000	6.139	L1I39-PP-001-I48-
4.937	5.687	6.016	L1I401PP-001-I461
	5.812	6.016	L1I401PP-001-I471
	5.937	6.076	L1I401PP-001-I481
	6.062	6.201	L1I401PP-001-I491
5.000	5.750	6.079	L1I40-PP-001-I46-
	5.875	6.079	L1I40-PP-001-I47-
	6.000	6.139	L1I40-PP-001-I48-
	6.125	6.264	L1I40-PP-001-I49-
5.125	5.875	6.204	L1I41-PP-001-I47-
	6.000	6.204	L1I41-PP-001-I48-
	6.125	6.264	L1I41-PP-001-I49-
5.250	6.250	6.389	L1I41-PP-001-I50- L1I42-PP-001-I48-
3.230	6.000 6.125	6.329	L1I42-PP-001-I48- L1I42-PP-001-I49-
	6.250	6.329	L1142-PP-001-I49-
	6.375	6.514	L1I42-PP-001-I50-
5.375	6.125	6.454	L1I43-PP-001-I49-
3.070	6.250	6.454	L1I43-PP-001-I50-
	6.375	6.514	L1I43-PP-001-I51-
	6.500	6.639	L1I43-PP-001-I52-
5.500	6.250	6.579	L1I44-PP-001-I50-
	6.375	6.579	L1I44-PP-001-I51-
	6.500	6.639	L1I44-PP-001-I52-
	6.625	6.764	L1I44-PP-001-I53-
5.625	6.375	6.704	L1I45-PP-001-I51-
	6.500	6.704	L1I45-PP-001-I52-
	6.625	6.764	L1I45-PP-001-I53-
	6.750	6.889	L1I45-PP-001-I54-
5.750	6.500	6.829	L1I46-PP-001-I52-
	6.625	6.829	L1I46-PP-001-I53-
	6.750	6.889	L1I46-PP-001-I54-
		7.014	L1I46-PP-001-I55-
	6.875		
5.875	6.625	6.954	L1I47-PP-001-I53-
5.875	6.625 6.750	6.954 6.954	L1I47-PP-001-I53- L1I47-PP-001-I54-
5.875	6.625	6.954	L1I47-PP-001-I53-

Dimensional Information (inches) Larger sizes available upon request.

## **LabTecta™** - Operating Envelope

NOT ALL SIZES ARE INVENTORIED. CONTACT THE LabTecta™ TEAM FOR DETAILS

UK: Email: sales@labtecta.com Phone: +44 (0) 1709 369966 Fax: +44 (0) 1709 720788

USA: Email: usasales@labtecta.com Phone: +1 865 531 0192 Fax: +1 865 531 0571

The LabTecta<sup>™</sup> is designed for use in Oil Splash, Dry Running and Grease applications on horizontal pieces of equipment at shaft surface velocities up to 20 m/s (3,937 ft/min).

The LabTecta<sup>™</sup> can also be used in the vast majority of existing Oil Mist applications that comply with the now superseded API 610, 7th Edition requirements and where a small quantity of Oil Mist escapes to atmosphere.

For a seal compliant with the modern API 610, 8th, 9th and 10th Edition Closed Loop Oil Mist requirements, please use a MagTecta-OM™.

#### MagTecta™ - a bearing sealing revolution

Bearing Pro or marginal

The LabTecta™ is a non-contacting Labyrinth Bearing Protector ideally suited for high shaft speed or marginal lubrication applications.

The LabTecta's sister products, the MagTecta<sup>™</sup> and MagTecta-OM<sup>™</sup>, are contacting dual magnetic bearing seals which will seal the bearing chamber.

The patent pending MagTecta<sup>™</sup> range is offered with true mechanical seal faces manufactured from blister resistant carbon and solid tungsten carbide, exactly the materials you would select for sealing oil.

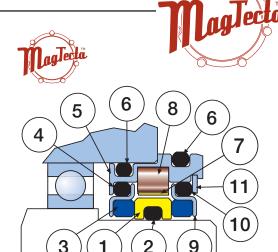
After many years of research and development, AESSEAL® is proud to offer these products which, in its opinion, are probably the most technologically advanced bearing protectors in the world.

The designs combine the latest AESSEAL® "pure innovation" with its world-leading, customer orientated, "modular" concept.

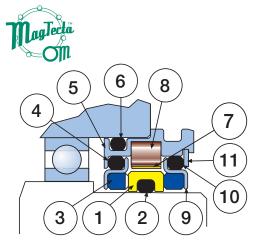
For further information, contact magtecta@aesseal.com or visit www.bearingprotection.com

#### MagTecta™ Range Parts List

Item	Description	Material
1	Rotary Seal Face	Tungsten Carbide
2	Rotary Elastomer	Viton® / Aflas® / EPR / Kalrez®
3	Stationary Seal Face Assy	Ant.Car-S/S
4	Stationary Elastomer	Viton® / EPR
5	Outer Body	Stainless Steel
6	Outer Body Elastomer	Viton® / Aflas® / EPR / Kalrez®
7	Shroud	Phosphor Bronze
8	Magnet	Metal
9	Stationary Seal Face Assy	Ant.Car-S/S
10	Stationary Elastomer	Viton® / EPR
11	Circlip	Stainless Steel



MagTecta™ shown in normal orientation



MagTecta-OM™ shown in normal orientation

## FOR EXACT WORKING PARAMETERS OF ALL THESE PRODUCTS CONTACT THE AESSEAL® BEARING PROTECTION TEAM.

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THIS DOCUMENT IS DESIGNED TO PROVIDE DIMENSIONAL INFORMATION AND AN INDICATION OF AVAILABILITY.
FOR FURTHER INFORMATION AND SAFE OPERATING LIMITS CONTACT OUR TECHNICAL SPECIALISTS AT THE LOCATIONS BELOW.















USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS:

GUARD YOUR EQUIPMENT

AESSEAL Inc.

Rockford.

TN 37853

USA

E-mail:

355 Dunavant Drive

 WEAR PROTECTIVE CLOTHING



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