



Smartify
lubrication process by
SIPOAL an
Electromechatronic
Automatic
Lubricator

young **i**ndustry deas nnovations

XOROWIN MECHATRONICS LLP is focused on producing the **Cyber-Physical Systems** for industrial automation needs. In these systems, we are integrating the mechanization with computer, sensors, networks, Industrial Internet of Things (IIoT), Software, Mobile app controls and their user to work together in unison to monitor, control and process the data to fortify and increase the efficacy of machines. Thus, we make your industry "**smart**".

presenting **SIPOAL**
a
smart lubricator
to
replace
manual lubrication
process in industries



Generation **1.0**

spring loaded
single point
lubricators



Generation **2.0**

electro chemical
single point
lubricators



Generation **3.0**

electro mechanical
single point
lubricators



Generation **4.0**

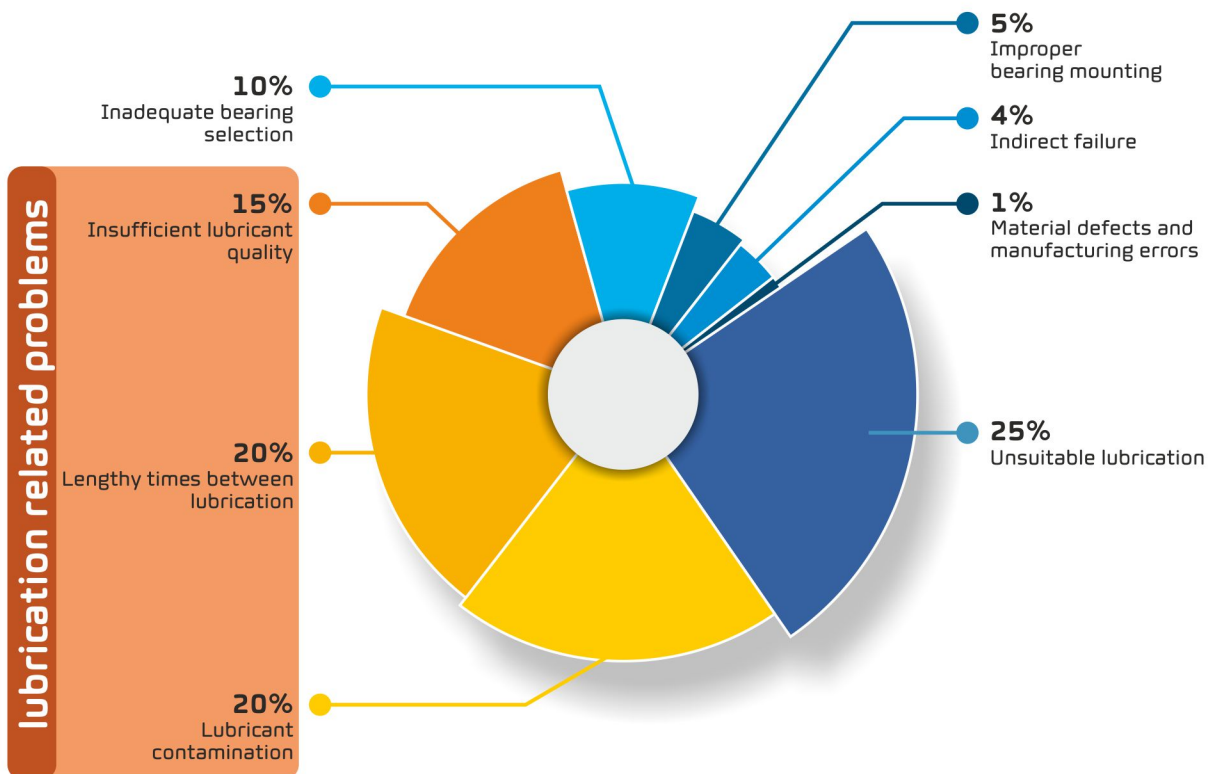
electro
mechatronical
single point
lubricators



IMPORTANCE OF LUBRICATION

Around the world, it is estimated that approximately one billion bearings are replaced every year because of its failure or damage and for preventive reasons. There are several reasons why bearings can be damaged or failed. But the extensive researches made by many experts globally have determined that up to 55% of premature bearing failures are due to the lubrication related problems.

factors affecting BEARING service life



In every industry, many machineries will involve in different operating conditions which requires different lubricants, re-lubrication intervals and lubricant change intervals. Therefore, it is important to apply the right lubricant, the right volume at the right intervals of time using the right method to achieve the optimal lubrication. Hence, performing optimal lubrication is a very crucial step to eliminate the premature failures of bearings and to enhance the machine reliability and life.

MANUAL LUBRICATION VS SIPOAL

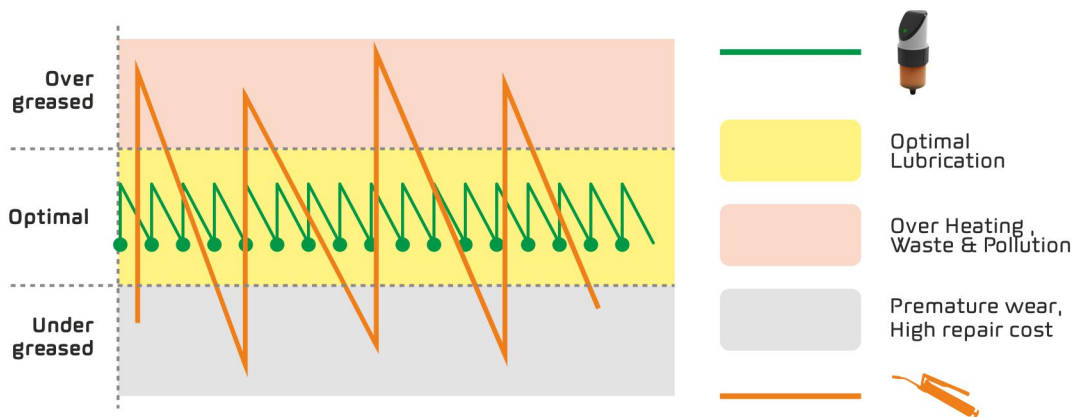
manual lubrication

This would be an ineffective process due to the following reasons

- Possibilities of Excess / Under lubrication
- Often requiring equipment shutdown for lubrication
- Lubricating the Difficult-to-access lubrication points may lead to accidents
- Manual handling of lubricant leads to wastages, contaminations and pollution
- Chances are more to forget the lubrication points during lubrication due to its plentiful counts located throughout the factory
- Work and Time intensive

Thus, Manual Lubrication would be impractical and result in

- Premature bearing failures and components wear and tear
- Loss of productivity
- Wastage of Time and Manpower
- Increased maintenance cost
- Deterioration of Lubricants quality
- Wastage of Lubricants
- Unsafe working environment

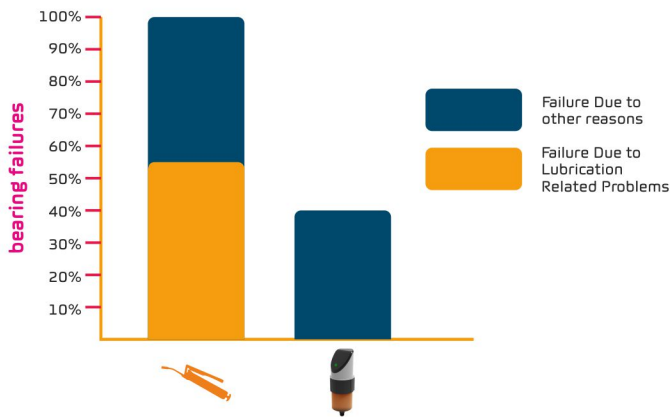


SIPOAL

- SIPOAL is designed to dispense correct volume of grease at short intervals of time automatically while the machine is in operation. This leads to longest bearing service life. Thus, machine reliability can be enhanced substantially with proper lubrication.
- SIPOAL can be monitored and controlled lively to ensure that the correct volume of lubricant at the right time is delivered to the lubrication point during its operation. This provides a more accurate amount of lubricant supplied properly when compared to traditional manual lubrication techniques.
- This regime of grease delivery by SIPOAL maintains a steady-state of lubrication protection where excess lubrication or lubricant starvation does not occur, prevention of contaminants entry and eliminates all the problems integrated with manual lubrication process.



upto 55% prevention of bearing failures



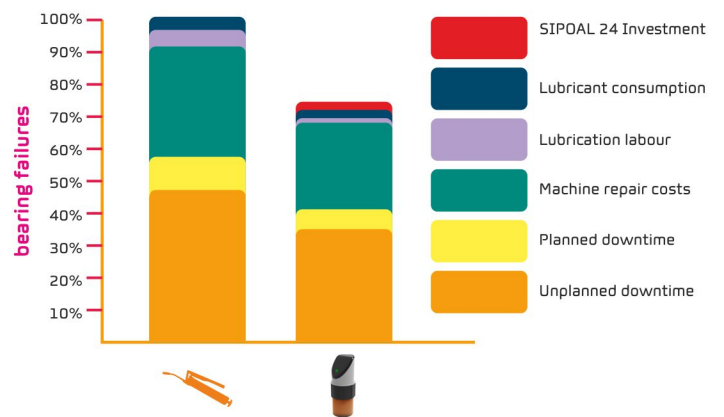
upto 55% prevention of bearing failures

SIPOAL ensures clean and precise volume of lubricant at each lubrication point at frequent intervals automatically and maintain sufficient level of fresh grease around the bearings or other frictional areas of working machineries so as to reduce the heat generated, prevention of contaminants entry and act as a sealant. Hence, SIPOAL prevents premature bearing failures that occurs due to improper lubrication practices.

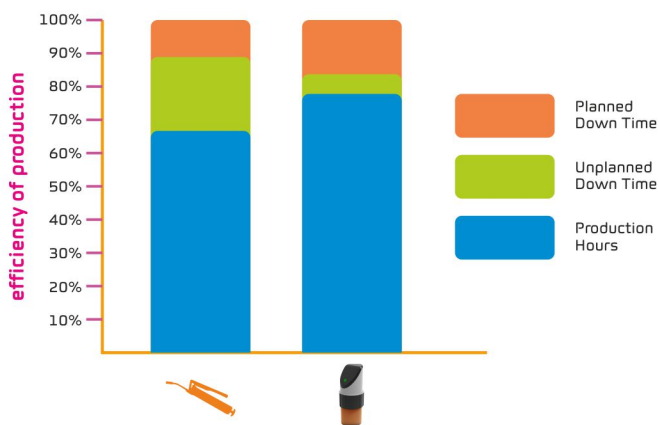
upto 25% reduction in maintenance cost

By eliminating the premature failures of bearings and other frictional components, SIPOALS not only enhances the machinery life but also reduces the cost spent on repairs, lubricants, lubrication downtime, unplanned downtime and manpower which shares enormous part and plays major role on overall maintenance cost of an industry.

upto 25% reduction in maintenance cost



upto 15% improvement of production



upto 15% improvement in productivity

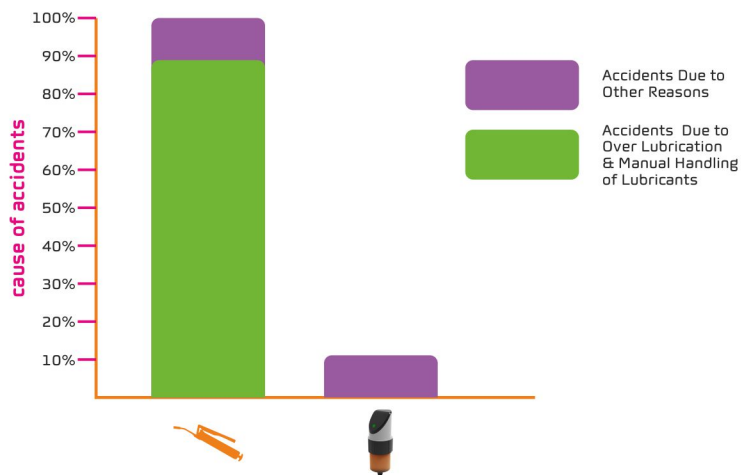
While unplanned downtime and lubrication downtime are reduced by SIPOAL, the availability of machine, time and manpower will be increased. Thus, these extra resources availability due to the role of SIPOALS can let the opportunity to the industries to improve their productivity to a greater extent thereby leading to higher profits.





ADVANTAGES

upto 90% reduced risk of accidents



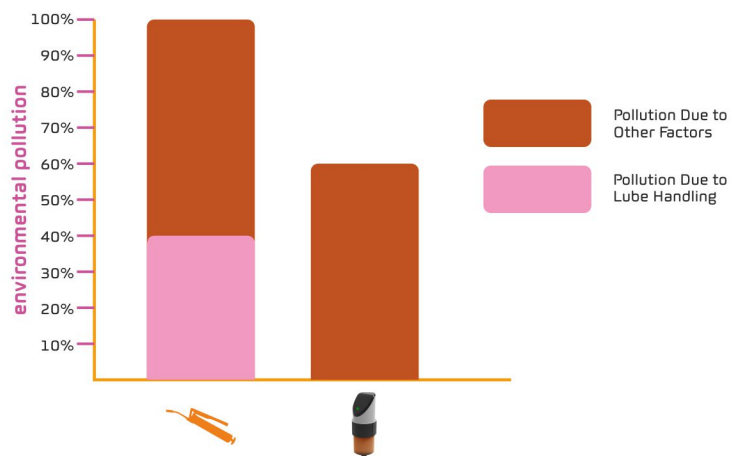
upto 90% reduced risk of accidents

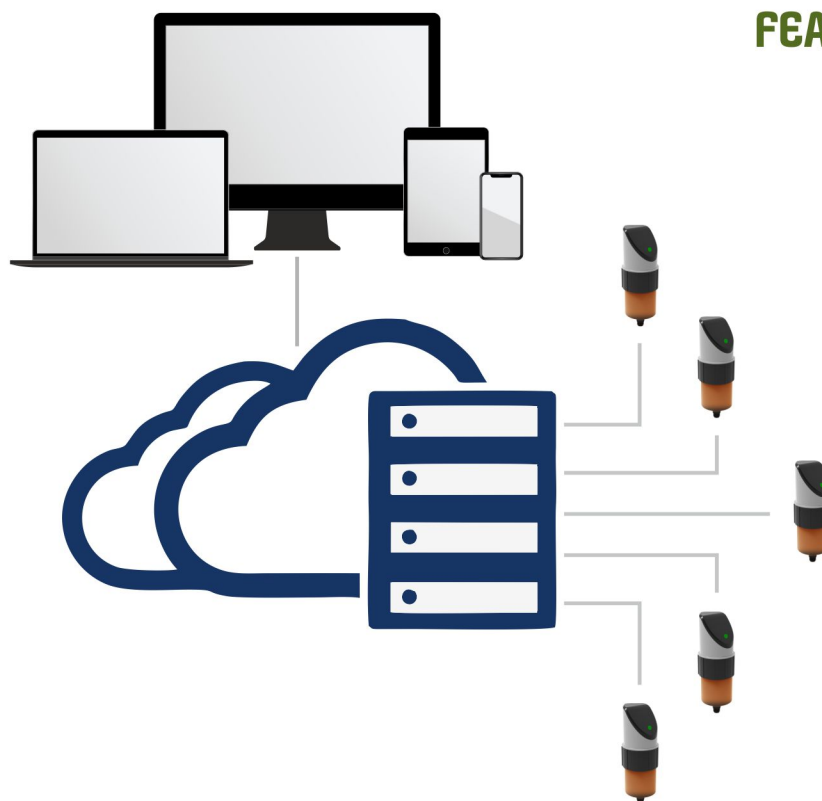
As SIPOAL lubricates every lubrication point automatically, no need of manpower entry to do lubrication for the machinery located in hazardous, risky and difficult-to-access lubrication points. Besides, no lubricants spillage due to no lubricant handling at machinery area. Hence, major causes of accidents such as these prevail are eliminated by SIPOAL.

upto 40% improved environment

SIPOALS are completely closed systems and dispenses controlled volume of lubricant to the needs. Hence, no lubricant spillages on the floor. SIPOAL is equipped with refillable type cartridges and rechargeable type batteries which avoids frequent disposal of materials and moreover, SIPOALS are made of environmental friendly materials for simple and easy disposal.

upto 40% improved environment





cloud based data management

- Keeps track on operational status and open service calls
- Keeps records on lubricant consumptions, refills, recharges and services / repairs
- Retrieves statistical and projection reports
- Reminders on lubricant refill and battery recharge

SIPOAL-B/L



remote monitoring thru smart phone / computer

- Time settings
- Lubricant level and Battery level
- Working status

remote control thru smart phone / computer

- Lubricant feed rate calculation and Initial Programming
- Program resetting
- Pause / Resume during emergencies

automated performance feedbacks

- Alert notifications on lubricant refill and battery recharge
- Warning notifications during abnormalities
- Notifications on open service calls \

SIPOAL-L



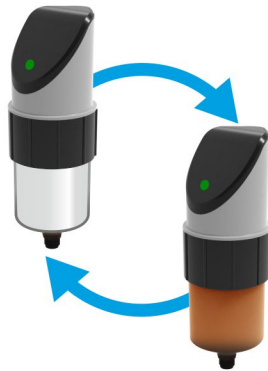
FEATURES

general



rechargeable type controller

- SIPOALs are equipped with re-chargeable type Lithium battery.
- Single recharge lasts until one complete dispensing cycle - maximum 12 months.



refillable type cartridges

- SIPOALs shall be supplied with either empty Cartridges or lubricant filled.
- Cartridges can be refilled and reused. Available sizes : 120 ml and 240 ml.



dual point lubrication

- SIPOALs can lubricate two lube points simultaneously.
- Suitable only for special applications.

add-ons

Cloud based data management system can be customized and integrated with Temperature Sensors, Humidity Sensors, Motion Sensors, Touch Sensors, Vibration Sensors and any type of Micro Switches to monitor, process and control the particular machinery and make it as "SMART INDUSTRY"





WORKING

SIPOALs consists of self-powered electromechanical controller to drive the lubricant cartridges which delivers the precise volume of lubricant to the lubrication point of machinery automatically at frequent intervals of time programmed by the user.

SIPOALs are available in two variants such as

SIPOAL - B Enabled with Bluetooth

SIPOAL - L Enabled with Wireless Network

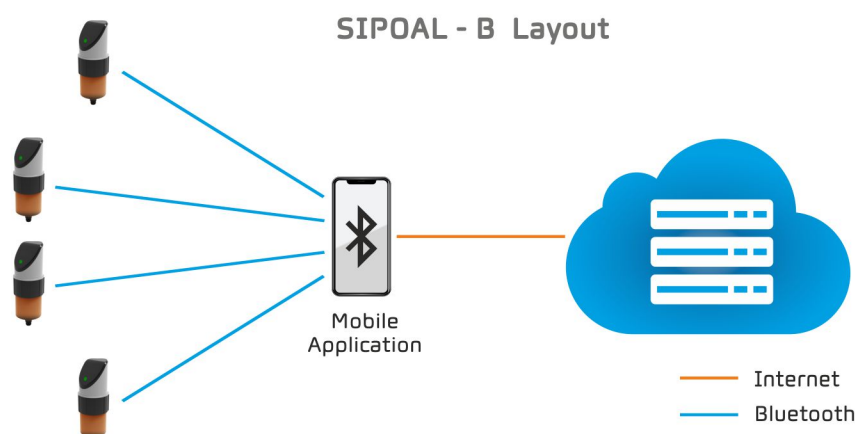
SIPOAL – B

SIPOAL – B are enabled with Bluetooth technology which connects the user thru Smartphone to program, monitor, control and manage the data of installed SIPOALs remotely.

Whenever required, user can connect the SIPOAL – B by using Bluetooth connectivity thru Smartphone to trigger initial time setting program or receive current feedbacks or to reset the program.

Whenever SIPOAL – B is connected with Smartphone, it will send the performance data of its functionality, lubricant level, battery level and respond to reset its program or pause / resume according to the updates received from the user, if any.

SIPOAL – B are provided with an exclusive Mobile App to the user to communicate the installed SIPOAL – B and to manage the data from anywhere by using IoT.



SIPOAL – L

SIPOAL – L are enabled with wireless functionality which connects to wireless Gateway exclusively installed in the factory premises from where it connects the user thru Smartphone / Computer to program, monitor, control and manage the data of installed SIPOALs remotely.

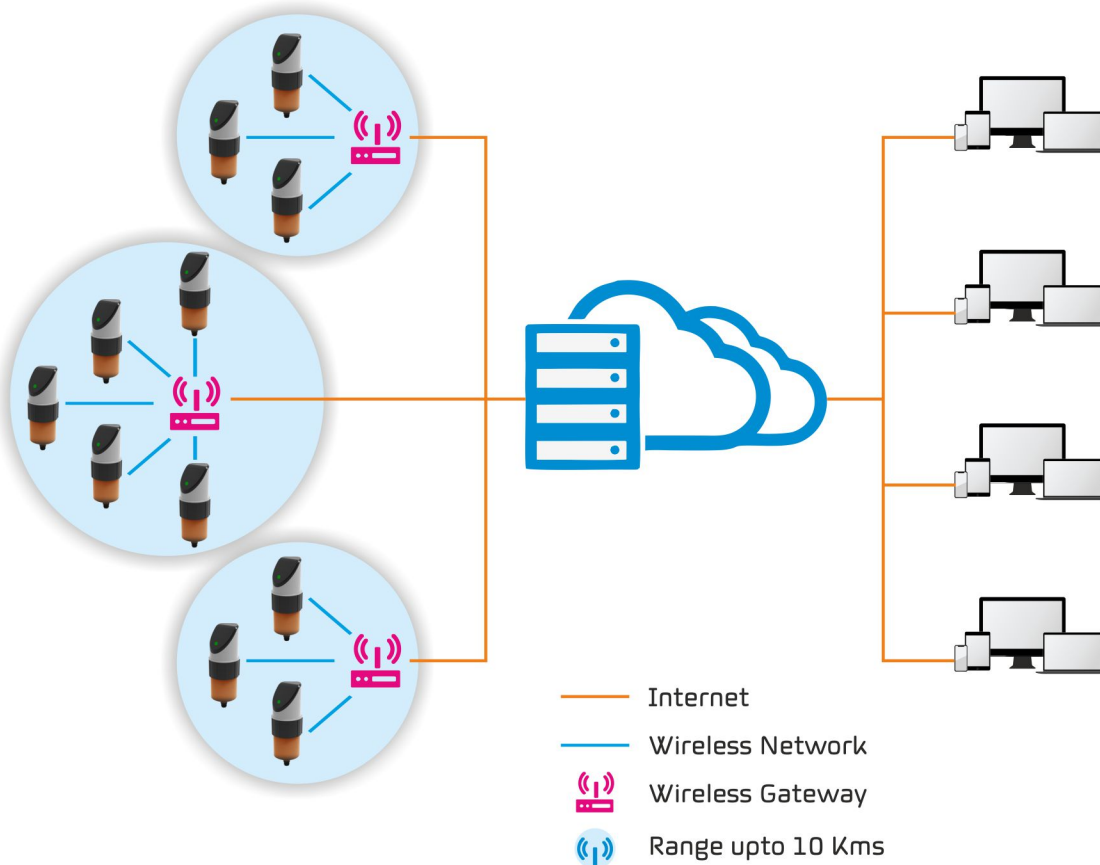
Wireless Gateways are designed to connect battery operated 'things' to the internet in regional, national or global networks and targets key Internet of Things (IoT) requirements such as bi-directional communication, end-to-end security, mobility and localization services. Network range – 10 Km+.

SIPOAL – L connects with wireless Gateway at frequent intervals of time in a day and exchange the bi-directional data between SIPOAL – L and the user.

During the connected time, SIPOAL – L sends the performance data of its functionality, lubricant level, battery level and respond to reset its program or pause / resume according to the updates received from the user, if any.

Each Industry will be provided with an exclusive Mobile App and Cloud based application to communicate with each installed SIPOAL – L from anywhere around globally with a dedicated Server Space to manage the data pertaining to each SIPOAL – L by using IoT.

SIPOAL - L Layout



TECHNICAL DATA

SIPOAL-B



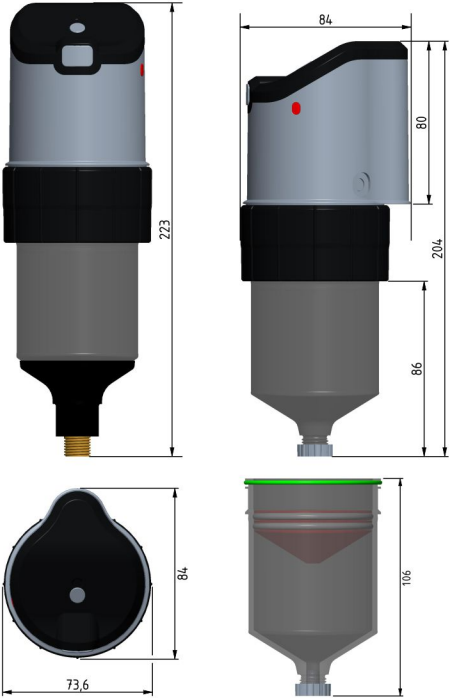
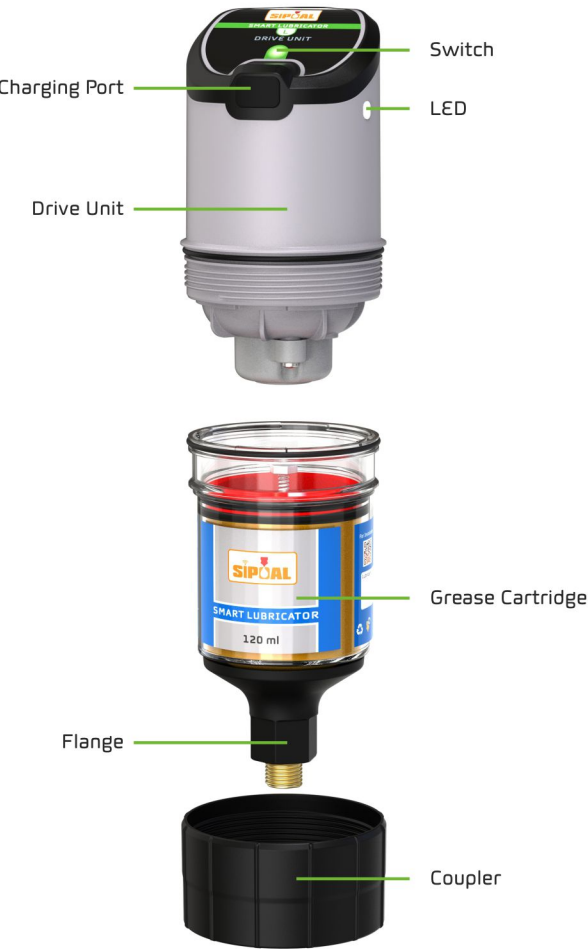
SIPOAL-L



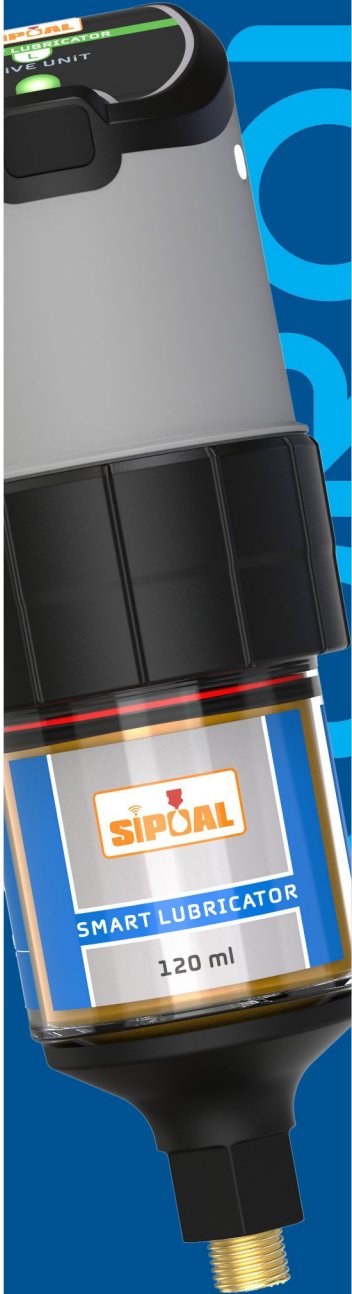
Type	Electromechatrical Single Point Lubricator	Electromechatrical Single Point Lubricator
Description	IoT based Fully Automatic Lubricator enabled with Bluetooth (wireless network range: 5-20m depending on installation environment)	IoT based Fully Automatic Lubricator enabled with wireless technology (network range: upto 10 Kms depends on environment)
Activation	Power Button and Remote – Thru Smartphone on the spot	Power Button and Remote – Thru Smartphone or Computer on the spot
Monitoring	Remote – Thru Smartphone from anywhere within the Bluetooth range	Remote – Thru Smartphone or Computer from anywhere Globally
Control	Remote – Thru Smartphone from anywhere within the Bluetooth range	Remote – Thru Smartphone or Computer from anywhere Globally
Database Management	Thru Exclusive Mobile Application	Real time management thru cloud based application & Exclusive Mobile Application
Drive	DC Motor	DC Motor
Power Supply	Inbuilt 2600 mAh Lithium Rechargeable Battery	Inbuilt 2600 mAh Lithium Rechargeable Battery
Recharge Port	Type C	Type C
Permissible Lubricants	Greases upto NLGI-2 Grade	Greases upto NLGI-2 Grade
Dispensing Period	1 Day to 12 Months	1 Day to 12 Months
Continuous Dispense Option	Available	Available
Working Pressure	5 Bar	5 Bar
Operating Temperature	-10 °C to +60 °C	-10 °C to +60 °C
Housing	Plastic	Plastic
Cartridge Type	Reusable	Reusable
Type of Refilling	Manually by cartridge refilling kit	Manually by cartridge refilling kit
Cartridge Volume	120 ml / 240 ml	120 ml / 240 ml
Approx. Weight	510 gms. (120ml) / 590 gms. (240ml)	510 gms. (120ml) / 590 gms. (240ml)
Multipoint Lubrication	Supply of lubricant to 2 points (max). Applicable on for NLGI 0	Supply of lubricant to 2 points (max). Applicable on for NLGI 0
Remote Installation	Single Point: Upto 5 meters (16 ft) with Ø6 tube Dual Point: Upto 2 meters (6 ft) per point with Ø6 tube (Up to 8 lube points)	Single Point: Upto 5 meters (16 ft) with Ø6 tube Dual Point: Upto 2 meters (6 ft) per point with Ø6 tube (Up to 8 lube points)
Protection Class	IP 65	IP 65



TECHNICAL DATA



INSTALLATION



key industrial machine elements

Bearings



Linear / Sliding Guides



Threaded Spindles

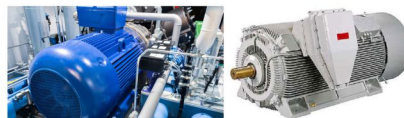


Open Gears & Chains



key industrial machines

Electric motors



Pumps



Conveyors



Drives



Robots



Cranes / Lifting systems



Blowers & Fans



APPLICATIONS

applicable industries

Automotive



Textile



Food and Beverage



Steel



Cement



Construction



Pulp & Paper



Sewage Treatment Plants



Recycling Plants



Mining & Quarrying



Metal Fabrication



Chemical & Pharmaceutical



Printing



Refineries



Wind Turbines



And suitable for any type of Industries wherever friction management is required.



ACCESSORIES

adaptors



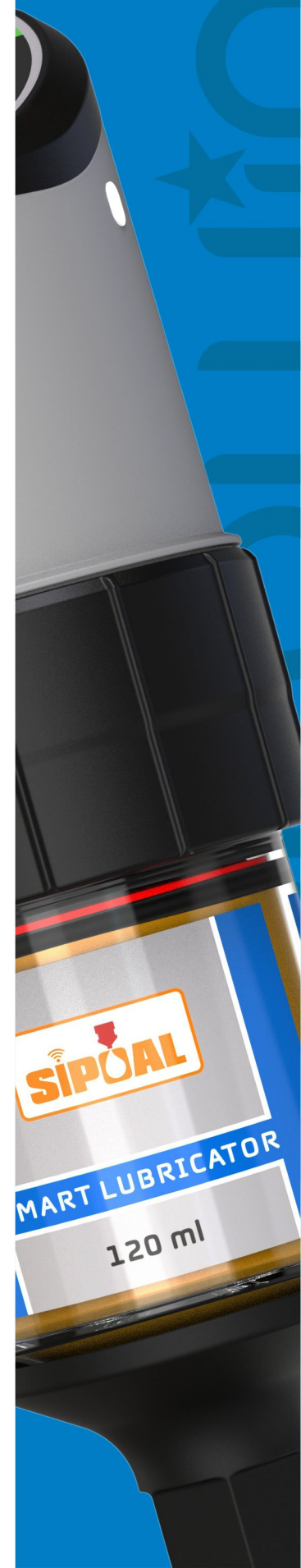
extensions

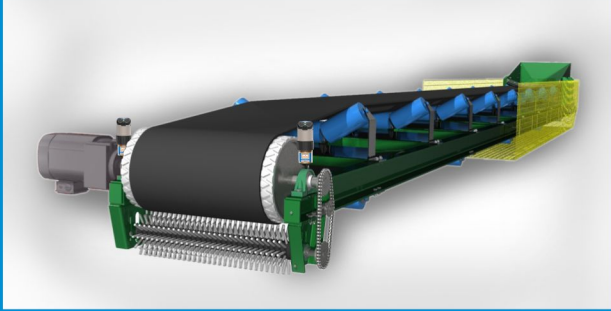


mounting brackets



tubes & fittings





Channel Partner



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