

CENTRALIZED LUBRICATION SYSTEMS

N° 807-CG



**ADVANCED FLUID
MANAGEMENT SOLUTIONS**

**GENERAL
CATALOGUE**

15

SINGLE LINE

20

DUAL LINE

25

MULTI-DELIVERY

30

PROGRESSIVE





**ADVANCED FLUID
MANAGEMENT SOLUTIONS**

*the human side
of Quality*

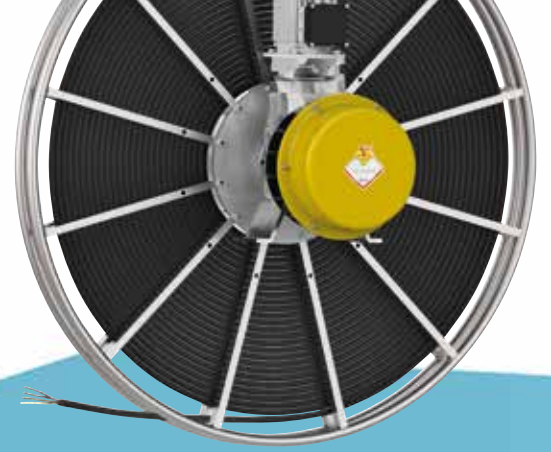


founded in 1975





**ADVANCED FLUID
MANAGEMENT SOLUTIONS**





2020



2014

2015

2016

2018

More than **5000** products available for your business



1983

1979

1978

1975



**ADVANCED FLUID
MANAGEMENT SOLUTIONS**

VISION

DESIGN

TECHNOLOGY

QUALITY

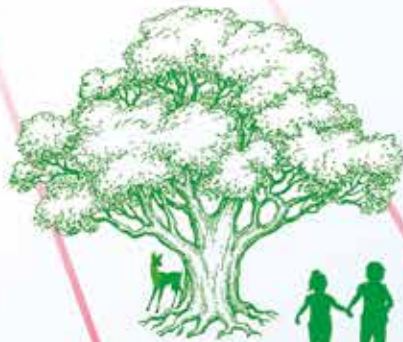
EFFICIENCY

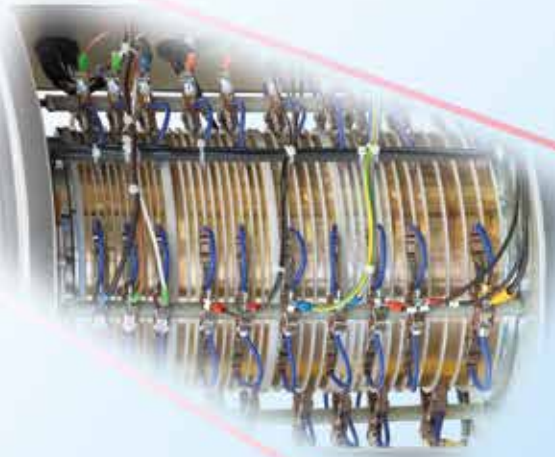
ASSISTANCE

ENVIRONMENT

PACKAGING

SHARING





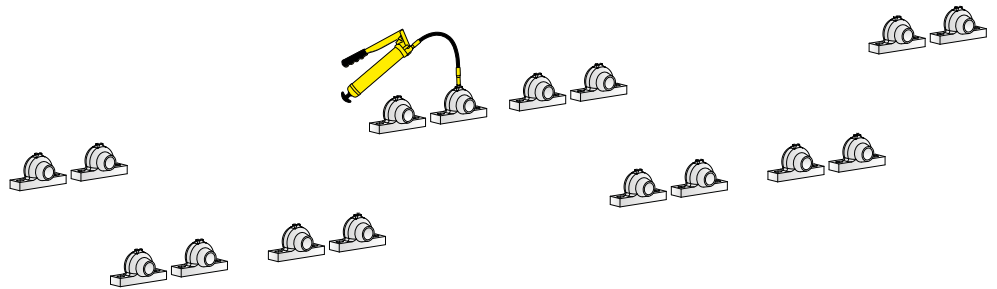


LUBRICATION

The parts in relative, rotary or linear motion, making up any industrial machine, are producers of friction. The purpose of lubrication is to reduce the friction and consequently the wear of moving parts, significantly decreasing the generation of heat, improving the performance of the machine, and increasing its service life. The lubrication of moving parts can take place through different methods:

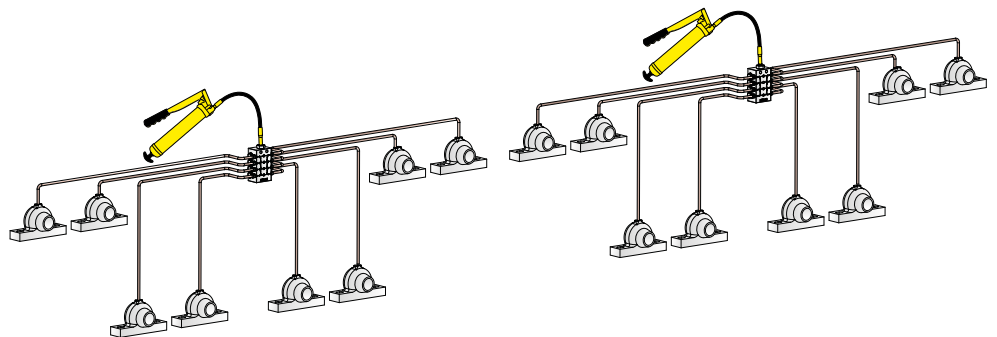
MANUAL LUBRICATION

The operator in charge is the only one responsible for the proper lubrication of the moving parts. He decides the quantity of lubricant to be dispensed and the intervals at which the operation is carried out, physically reaching each single lubrication point. Manual lubrication depends solely on the operator's diligence and experience. Also, in case of hard-to-reach places the operator is put in uncomfortable or hazardous conditions.



MANUAL CENTRALIZED LUBRICATION

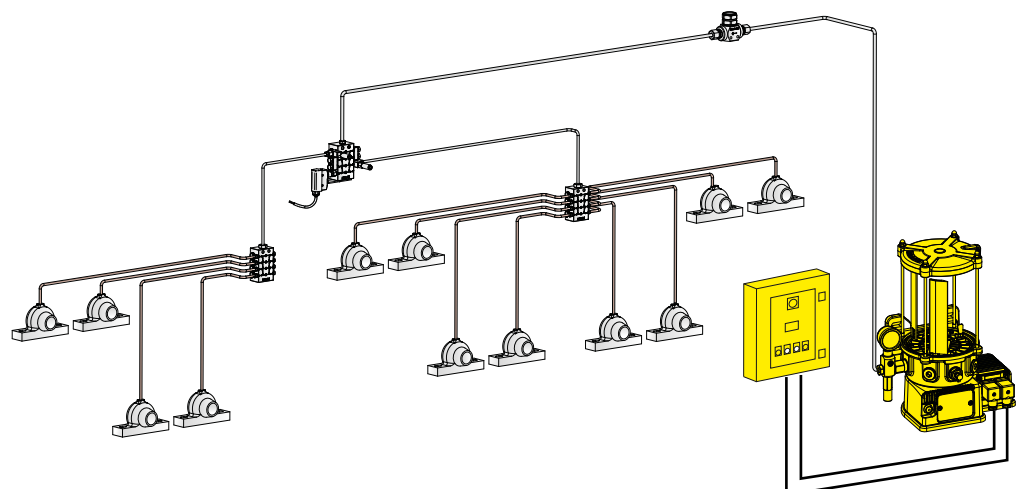
All the machine lubrication points are grouped by means of appropriate piping, thus facilitating the task of the operator, who must intervene on a small number of points, reducing operation times and dosing the quantity of lubricant with greater precision, avoiding uncomfortable or hazardous conditions.



AUTOMATED CENTRALIZED LUBRICATION

In addition to grouping all the lubrication points in a single point the operator is completely replaced by a pumping unit and specific control equipment.

The correct dosing of lubricant for a single point, the possibility of monitoring the entire system, the programming by times of work time/ cycles and pause depending on of the needs of the machine from lubricate, are the main ones peculiarity of this methodology of lubrication.



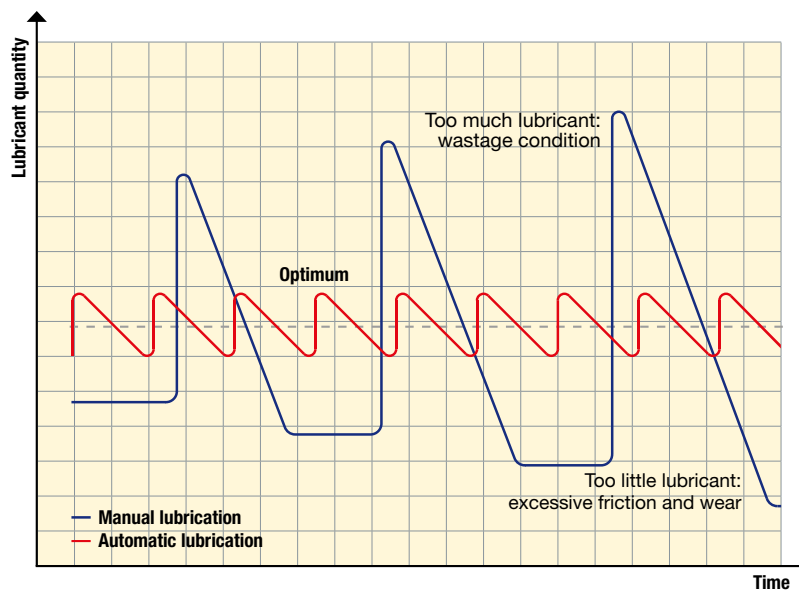


AUTOMATED CENTRALIZED LUBRICATION

The centralized lubrication systems are designed for the automatic lubrication of moving parts that generate friction. These systems considerably reduce maintenance costs for the machinery on which they are installed, eliminating machine downtimes for lubrication and extending the life of the lubricated components. The automated systems also allow all the points requiring lubrication to be reached; even those not easily reached by an operator.

For example, to better understand the concept, imagine being in your garden and having to water all the flowers and plants. You can choose to do this entirely by hand, using the classic watering can (manual lubrication) or make use of a manually-operated irrigation system (manual centralized lubrication) or add a system that times the delivery of water (automated centralized lubrication).

The graph below compares the various lubrication conditions following the methods described above



CHARACTERISTICS

Automated centralized lubrication offers various advantages compared to manual lubrication:

- ⊕ Improves machine **productivity**.
- ⊕ Lengthens the average **service life** of machinery.
- ⊕ **Avoids costly downtimes**.
- ⊕ **Reducing the costs** of repair and spare parts.
- ⊕ Correct dosing **avoids unnecessary waste of lubricant**, minimising costs and reducing the risk of environmental impact.
- ⊕ **Allows to reach hard to access area**, thereby avoiding potentially dangerous situations for the operator.
- ⊕ Allows the programming of **dosing times** according to the specific machine requirements.
- ⊕ Allows the **right quantity of lubricant** to be adjusted point by point, even in phases after installation.
- ⊕ Facilitates the implementation of the system through the use of **additional modular components**, thus responding to the changing needs of the end-customer.



INDUSTRIAL MACHINERY LUBRICATION SYSTEMS

LUBRICATION SYSTEMS

(Reference to international standard ISO 5170)

POINT BY POINT

OIL

GREASE

CENTRALIZED

WITH LOSS

The lubricant is fed to the lubrication points and consumed during use

HYDROSTATIC

Fluid lubrication where the still or moving surfaces are separated by a fluid introduced between them by an external pressure

WITH CIRCULATION

The lubricant is fed to the lubrication points and then returned to the tank for subsequent use

05

RESISTIVE SINGLE LINE

LUBRICANT

Oil

M

SA

A

-

RESISTIVE SINGLE LINE

LUBRICANT

Oil

-

SA

A

-

15

SINGLE LINE WITH DECOMPRESSION

LUBRICANT

Oil

M

SA

A

Grease

SINGLE LINE WITH DECOMPRESSION

LUBRICANT

Oil

-

SA

A

-

20

DUAL LINE

LUBRICANT

Oil

M

SA

A

Grease

DUAL LINE

LUBRICANT

Oil

-

SA

A

-

25

MULTI-DELIVERY

LUBRICANT

Oil

M

SA

A

Grease

MULTI-DELIVERY

LUBRICANT

Oil

-

SA

A

-

30

PROGRESSIVE

LUBRICANT

Oil

M

SA

A

Grease

PROGRESSIVE

LUBRICANT

Oil

-

SA

A

-

40

AIR-OIL

LUBRICANT

-

-

-

A

Oil

M: Manual

SA: Semiautomatic

A: Automatic

☐ Systems offered by RAASM



AUTOMATED CENTRALIZED LUBRICATION: COMPONENTS

PUMPING UNIT

It consists of lubricant tank and a pump which can be electric, air-operated or hydraulic.



VOLUMETRIC DISTRIBUTORS

Hydraulically operated devices, directly connected to the user points, arranged to dispense a predetermined and adjustable quantity of lubricant.



CONTROL EQUIPMENT

Is the set of devices (PLC, pressure switches, sensors and level gauges) for programming, monitoring and ensuring proper functioning of the lubrication system.



FEED LINES

Connect the pumping unit to the volumetric distributors (primary line) and from them to the individual users (secondary line). Depending on the system pressure, it can be consisting of rigid pipes in steel, copper, or flexible tubing in thermoplastic material.

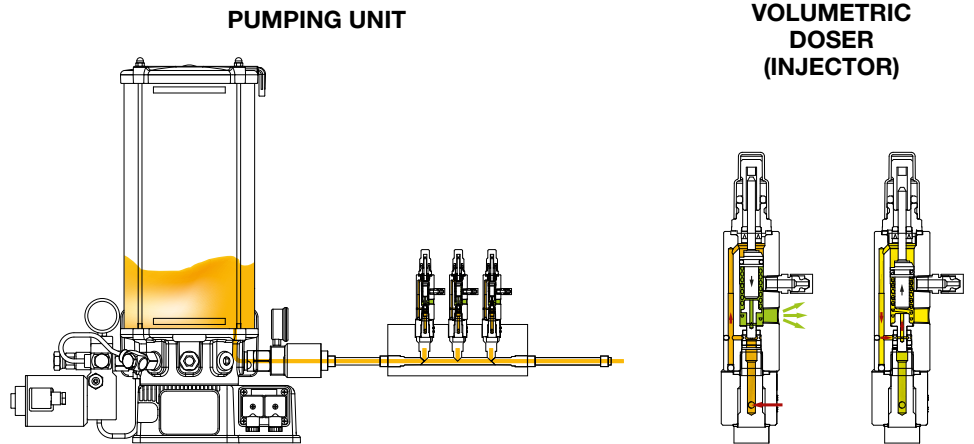




RAASM CENTRALIZED LUBRICATION SYSTEMS

SYSTEM 15 SINGLE LINE

It consists of an independent pumping unit which, through a main line, delivers the lubricant (oil or grease) in a predetermined quantity to volumetric dosers (injectors). They operate in two phases: in the first phase the pressurization of the system (40-300 bar) allows dispensing of the previously loaded lubricant; in the second, when the system is not under pressure, it allows the loading of the dispenser (decompression) placed inside the injector. Each injector can be adjusted to deliver predetermined quantities of lubricant.

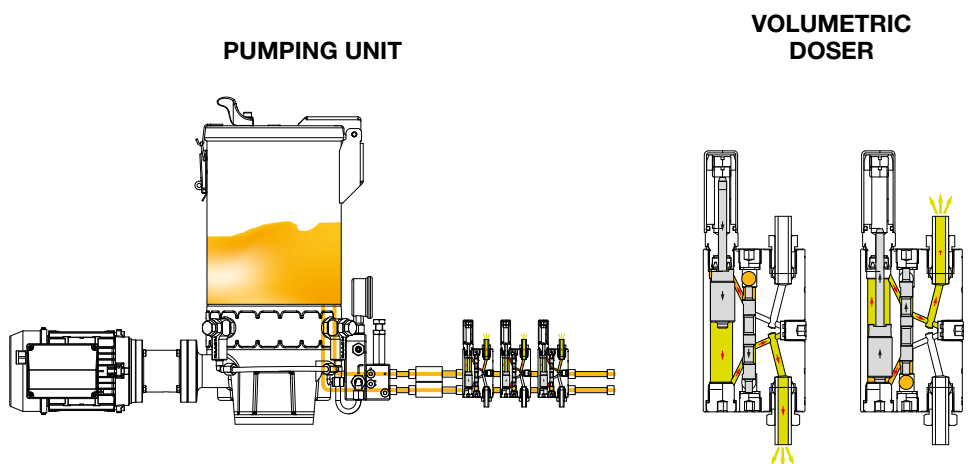


Power supply *	24 V DC - 230/400 V AC - 50 Hz - 275/480 V AC - 60 Hz - pneumatic
Lubrication session management	By cycles
Controls	One for each critical user
Type of installation	On fixed/movable machinery
Length of system	Medium/long
System architecture	Parallel
Maximum pressure	300 bar
Delivery	Medium/high
Functionality	There are no machine stops/interruption if an injector sticks

* On request: available different voltages depending on the standard of the various countries of the world.

SYSTEM 20 DUAL LINE

The system is thus defined because lubricant (oil or grease) dispensing occurs through two separate lines that are fed alternately by the pumping unit. In turn the two lines feed volumetric distributors connected to them, adjustable to dispense predefined quantities of lubricant.

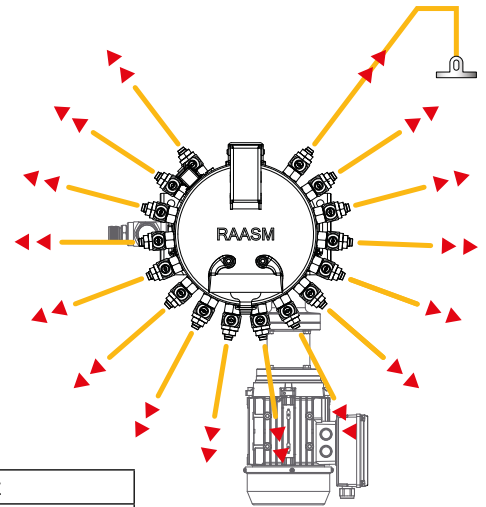
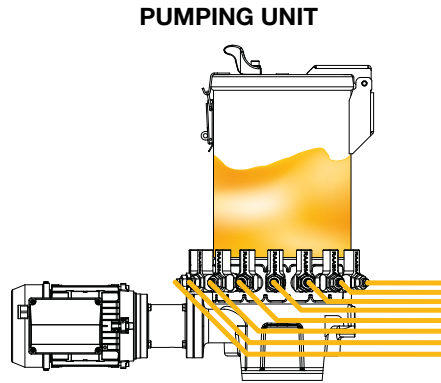


Power supply *	230/400 V AC - 50 Hz - 275/480 V AC - 60 Hz - pneumatic
Lubrication session management	By cycles
Controls	One for each critical user
Type of installation	On fixed
Length of system	Long
System architecture	Parallel
Maximum pressure	400 bar
Delivery	Medium/high
Functionality	There are no machine stops/interruption if an injector sticks

* On request: available different voltages depending on the standard of the various countries of the world.

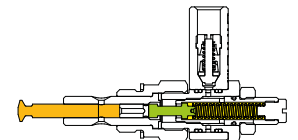
SYSTEM 25 MULTI-DELIVERY

It consists of a central pumping station allowing the lubrication (oil or grease) of a high number of users in predetermined quantities. The pumping unit consists of an electric pump fitted radially with a number of pumping elements (up to 16) which, through the continuous movement of a cam, push the lubricant in succession to the different deliveries.



Power supply *	230/400 V AC - 50 Hz - 275/480 V AC - 60 Hz
Lubrication session management	Timed
Controls	System maximum pressure
Type of installation	On fixed machinery
Length of system	Medium/short
System architecture	Single pumping element (separate outlets)
Maximum pressure	400 bar
Delivery	Medium
Functionality	There are no machine stops/interruption if a pumping element jams

PUMPING ASSEMBLY

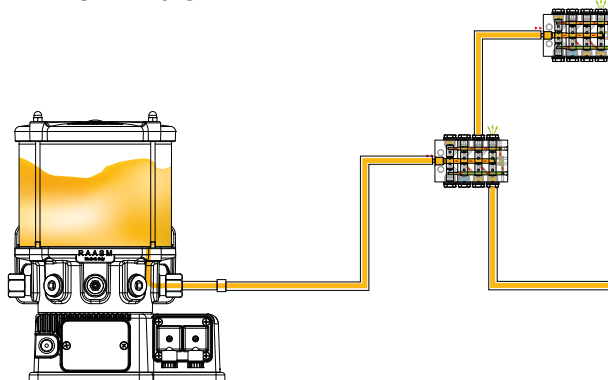


* **On request:** available different voltages depending on the standard of the various countries of the world.

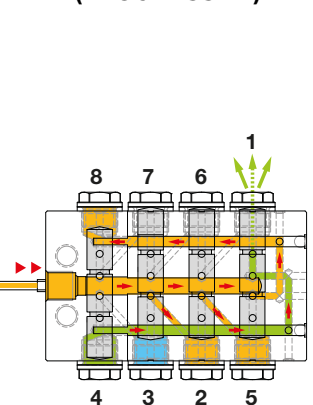
SYSTEM 30 PROGRESSIVE

It consists of an independent pumping unit that feeds the volumetric distributors equipped with several outlets. The dispensing of lubricant (oil and grease), in a predetermined quantity, occurs through a progressive sequence.

PUMPING UNIT



VOLUMETRIC DOSER (PROGRESSIVE)



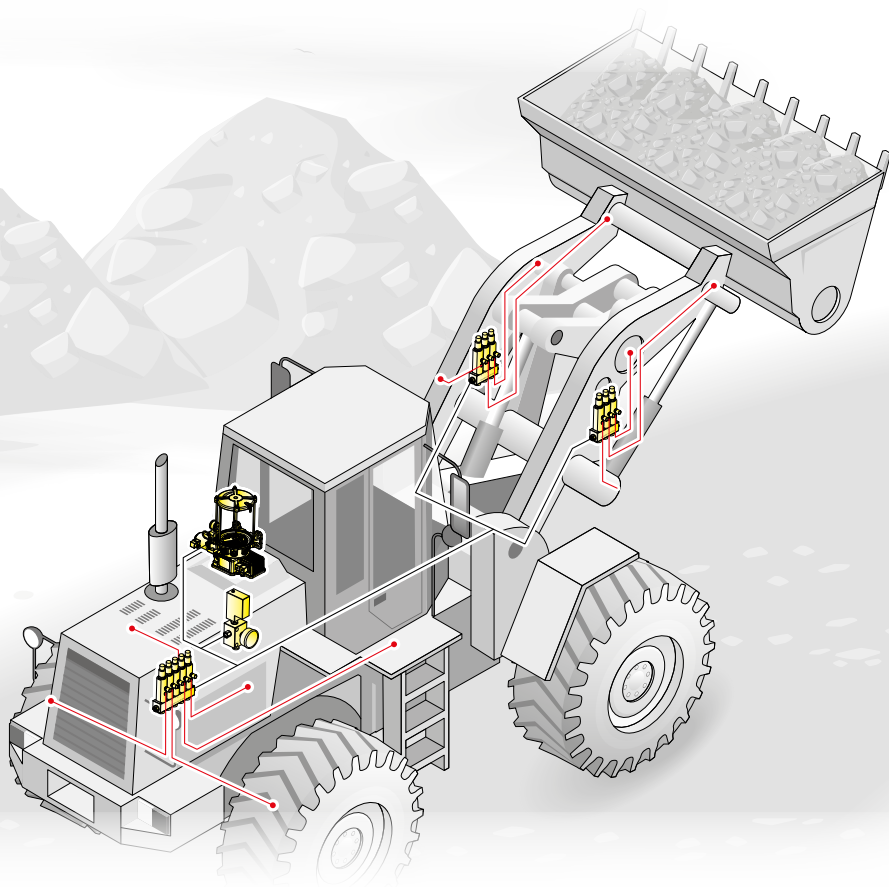
Power supply *	12/24 V DC - 230/400 V AC - 50 Hz - 275/480 V AC - 60 Hz - pneumatic
Lubrication session management	Timed/cycle
Controls	A single control is sufficient to check operation of the complete system
Type of installation	On fixed/movable machinery
Length of system	Medium/short
System architecture	In series
Maximum pressure	250 bar
Delivery	Medium/low
Functionality	Each dispenser is placed in series with all the others, therefore the malfunction of one causes blocking of all the others

* **On request:** available different voltages depending on the standard of the various countries of the world.



SYSTEM 15 SINGLE LINE







SYSTEM 15 SINGLE LINE

The single-line decompression lubrication system consists of an independent pump assembly, which distributes the lubricant (oil or grease) to direct-response distributors (injectors).

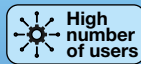
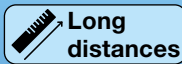
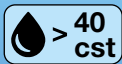
The operation of the system occurs through two phases:

- 1 - Injector loading (the system is not under pressure)
- 2 - Lubricant dispensing (the system is under pressure)

Each injector can be adjusted to dispense different quantities of lubricant. The pump assembly is equipped with a device (discharge valve) which enables rapid decompression of the system immediately after the action of the injectors. The pumps feeding these systems can be:

- air-operated pumps for standard drums (200 l);
- air-operated pumps with 10 l. tank;
- electric pumps C15 S (max. 4 deliveries);
- electric pumps C15B18 (max. 4 deliveries).

Management and control of the system occurs through the application of electrical equipment (PLC, level sensors, microswitches, pressure switches).

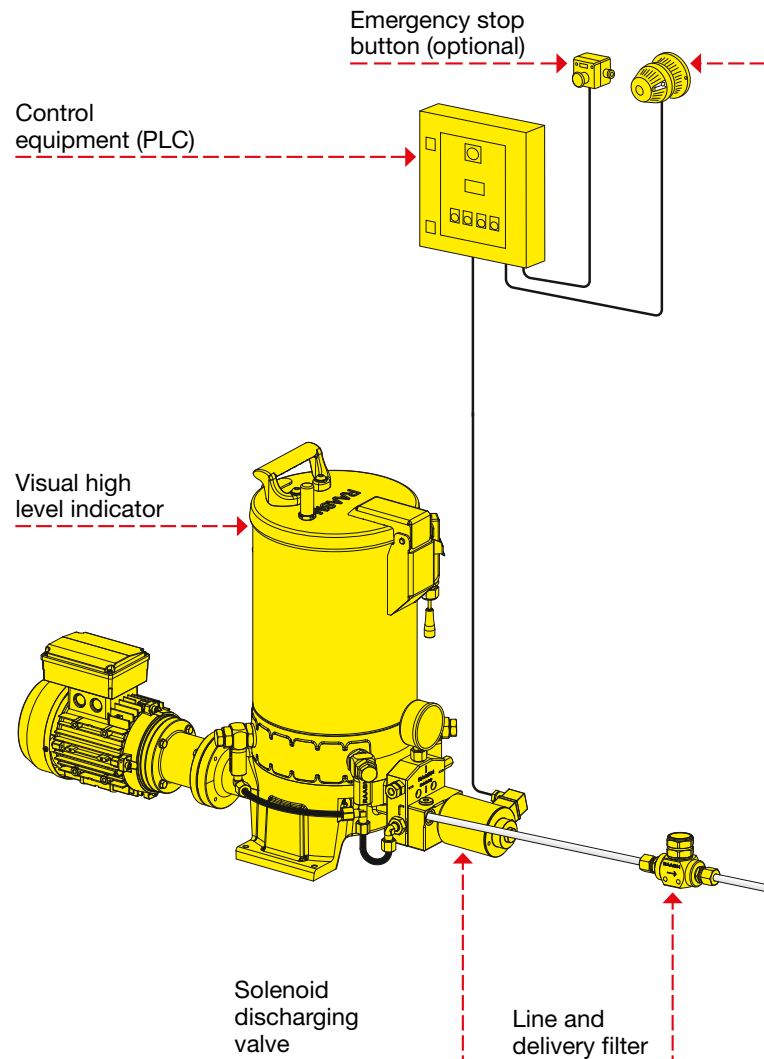


APPLICATION SECTORS

Bucket wheel excavators	Agriculture
Cement works	Conveyor belts
Forestry	Mining trucks
Quarries	Excavators with front loader
Shiploaders	Tracked cranes
Pipe bending machines	

CHARACTERISTICS

- Longer life of components.
- Reduced lubricant consumption.
- Precise dosing at each point to be lubricated.
- System easily extended without need to be redesigned.
- Suitable for particularly demanding environments.
- Easy to carry out (pump plus number of users).
- Adjustable injector delivery.
- No lubrication stops/interruptions in case of injector block.
- Pumping unit offering easy maintenance and very safe operation.
- Reduction of operating costs.
- Reduction of downtime events.
- Suitable for powering even very large systems and with a high number of users.





Acoustic and flashing alarm (optional)

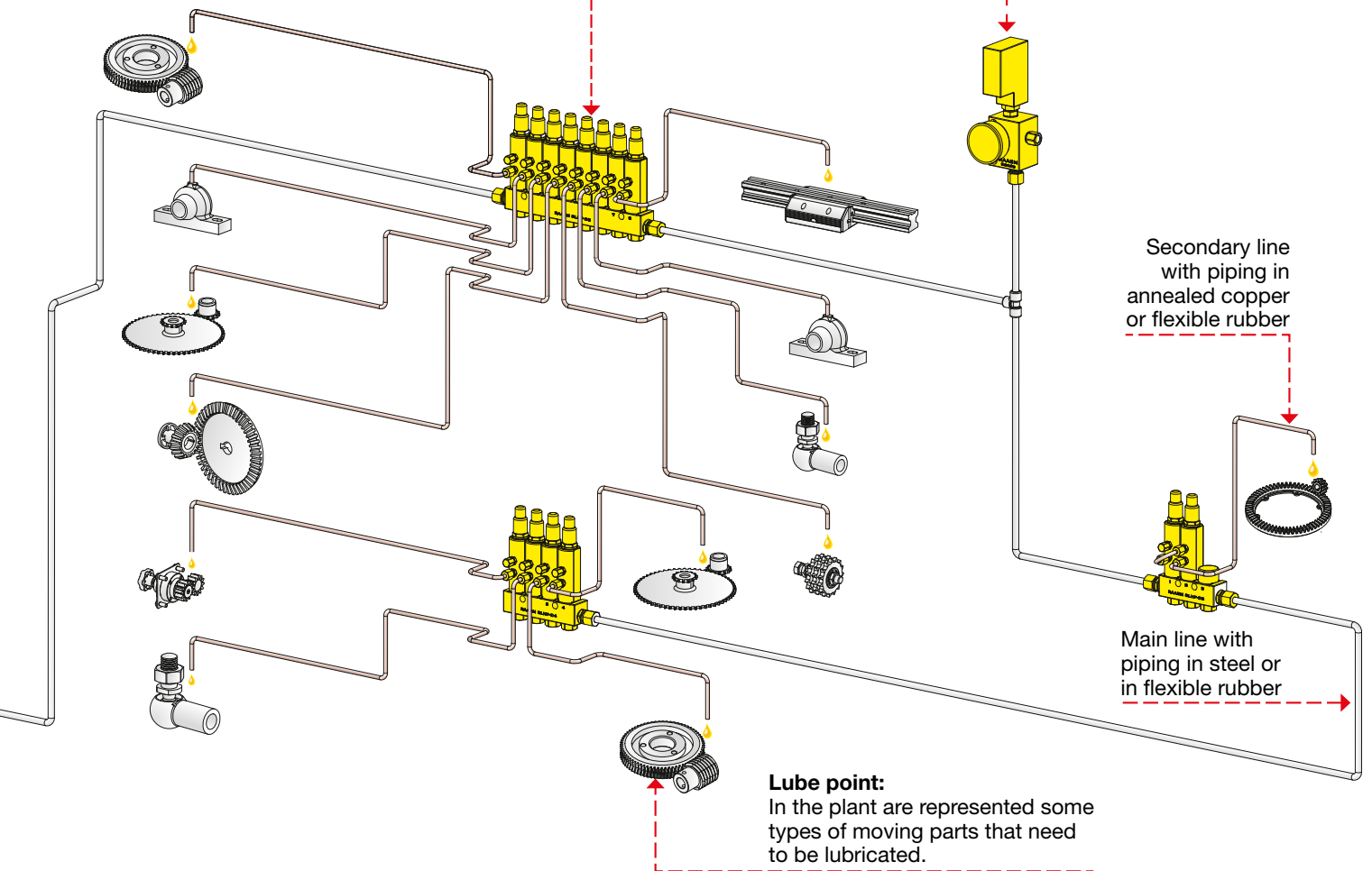
Volumetric injectors SLHP-D

Line end pressure switch

Secondary line with piping in annealed copper or flexible rubber

Main line with piping in steel or in flexible rubber

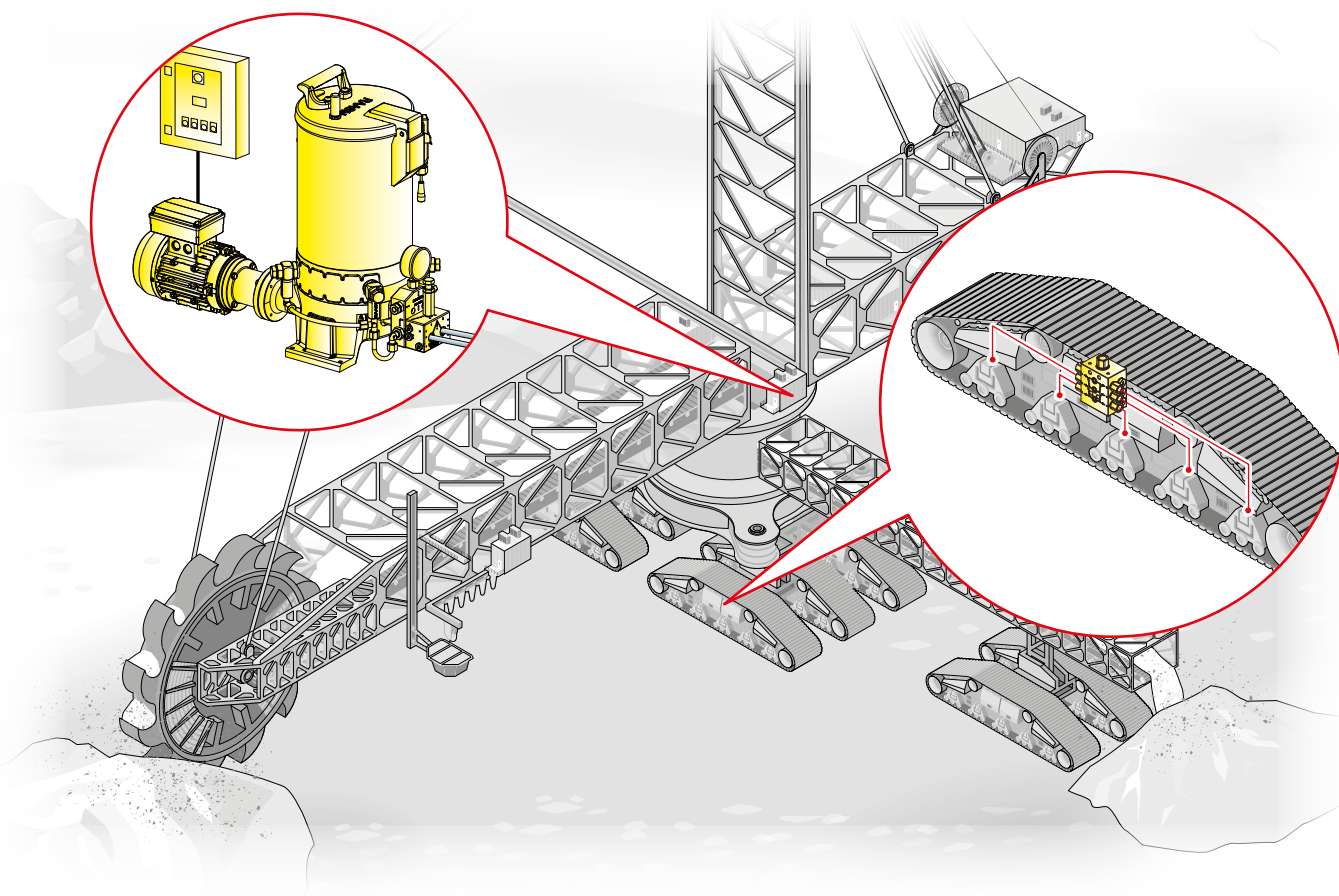
Lube point:
In the plant are represented some types of moving parts that need to be lubricated.





SYSTEM 20 DUAL LINE





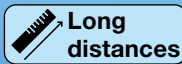
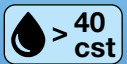


SYSTEM 20 DUAL LINE

The dual-line centralized lubrication systems line find application in large plants dimensions such as steel mills, cement plants, mines, shipyards.

The systems are sized in order to be able to reach rather high pressures from (200 - 400 bar). In such systems the length of the piping can easily exceed 70 metres.

The system essentially consists of a pumping unit and volumetric distributors for lubricant dispensing. The distributors are fed by two distinct lines: these operate alternately thanks to a line inverter which ensures its continuity filling and control of operating pressure.

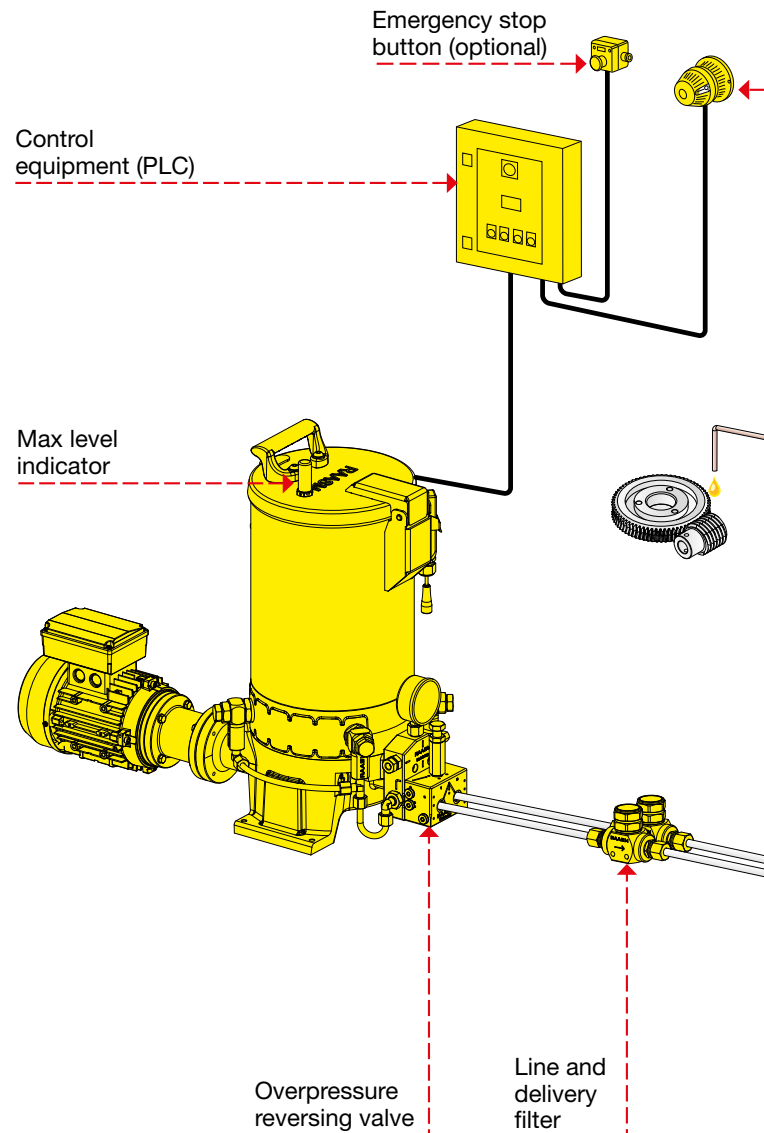


APPLICATION SECTORS

Bucket wheel excavators	Agriculture
Cement works	Conveyor belts
Forestry	Mining trucks
Laminates	Port cranes
Steelworks	Chairlifts

CHARACTERISTICS

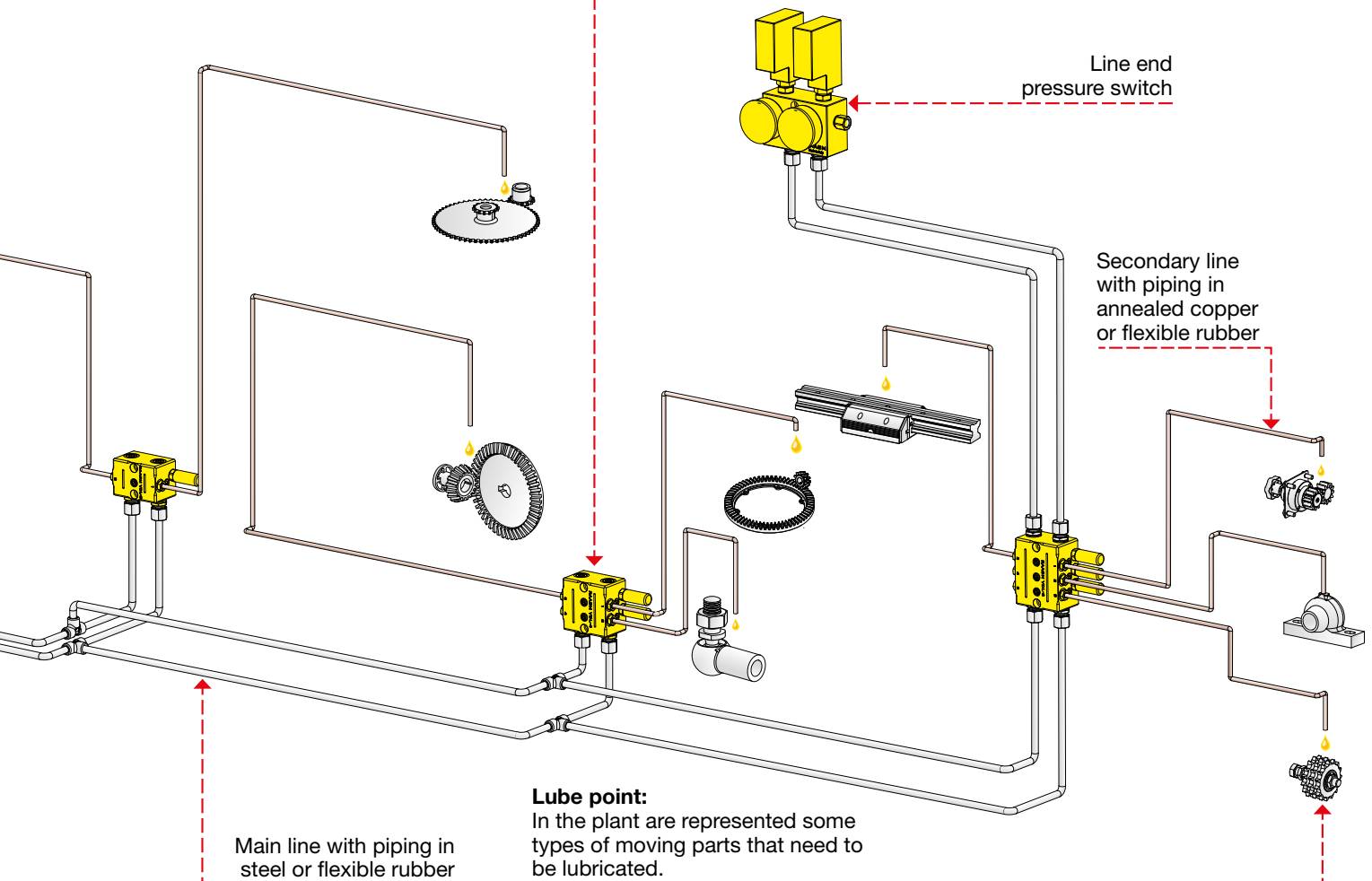
- Exact quantity of lubricant to all the grease points located even at great distances.
- The system can be easily extended through the addition of one or more volumetric distributors.
- Narrow pipes enabling a reduction in the quantity and the deterioration of the residual grease inside the piping.
- Control of each volumetric distributor through sensors or mechanical devices.
- Continuity of work even when a single distributor is blocked.
- Easy re-calibration of each distributor even after installation.
- Possibility of controlling the system using appropriate external equipment.
- System constantly controlled in terms of pressure and temperature.
- Increased life of lubricated components.
- Reduction of operating costs.





Acoustic and flashing alarm (optional)

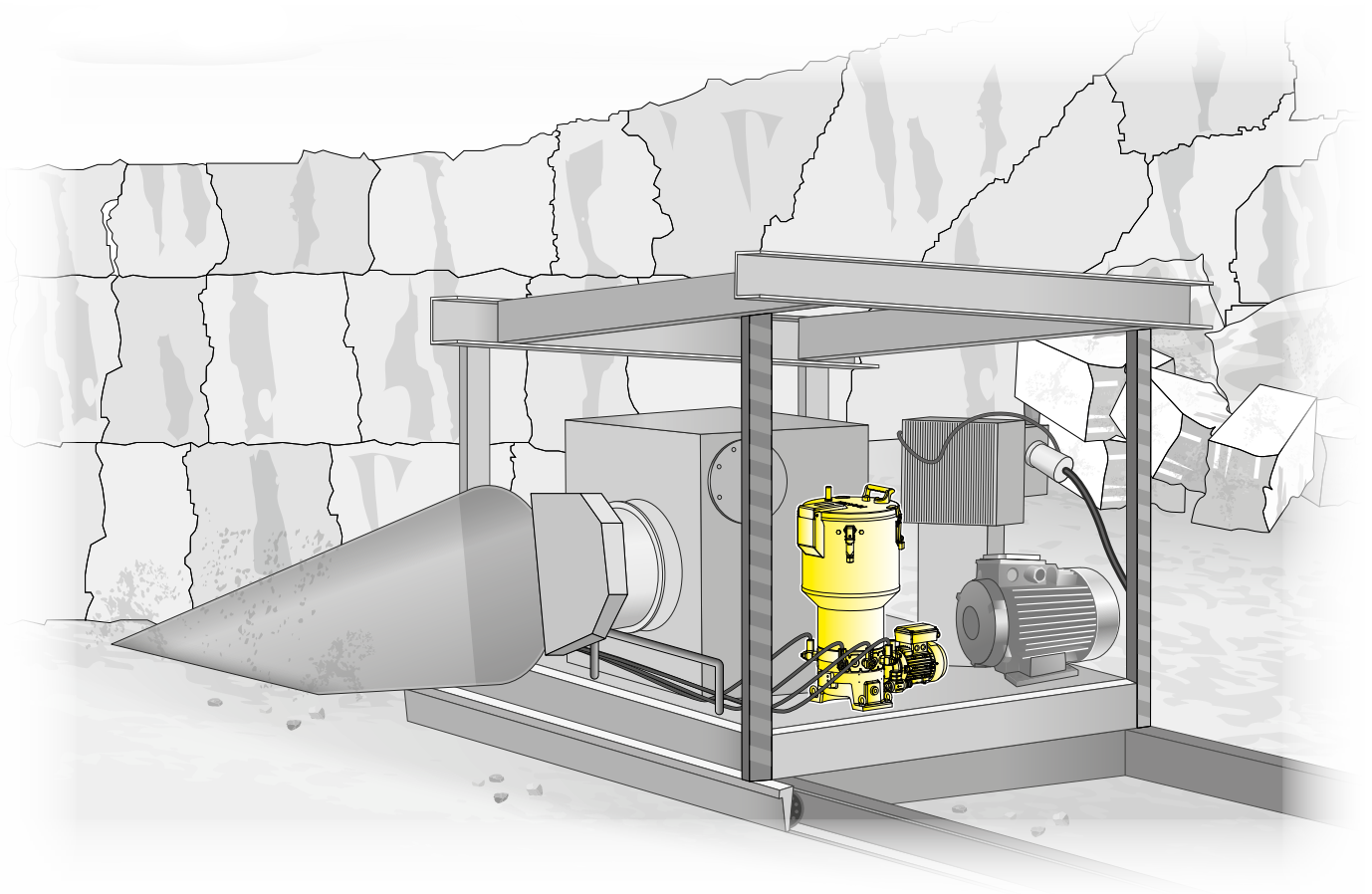
Volumetric distributor Series VDL-M





SYSTEM 25 MULTY DELIVERY







SYSTEM 25 MULTY DELIVERY

The multi-delivery system enables the lubrication of up to 16 separate users without using distributors. The central pumping unit consists of an electric pump radially fitted with a series of pumping elements which, through the movement of a cam, push the lubricant in succession to the various deliveries.

The pump unit can be supplied by a minimum of 1 to a maximum of 16 pumping elements individually adjustable in delivery.

Each pumping element is intended to directly power a user. Any pressure changes on the different lines are constantly monitored through the use of a dedicated pressure switch.

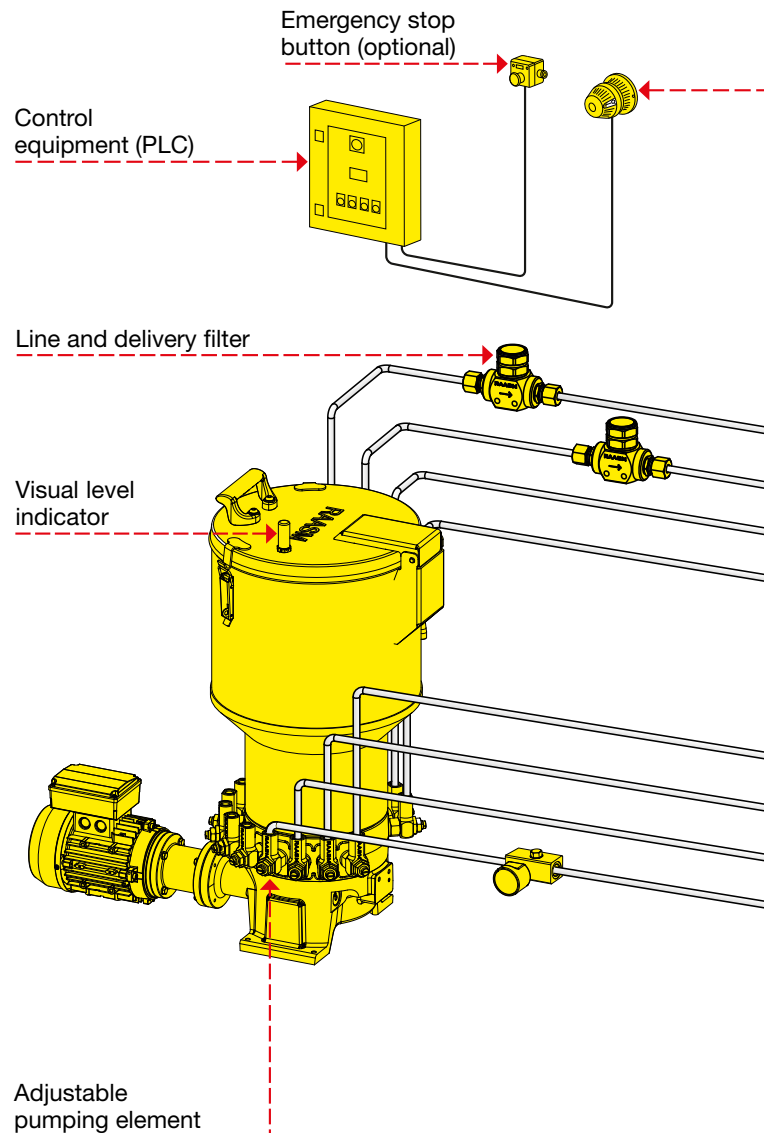


APPLICATION SECTORS

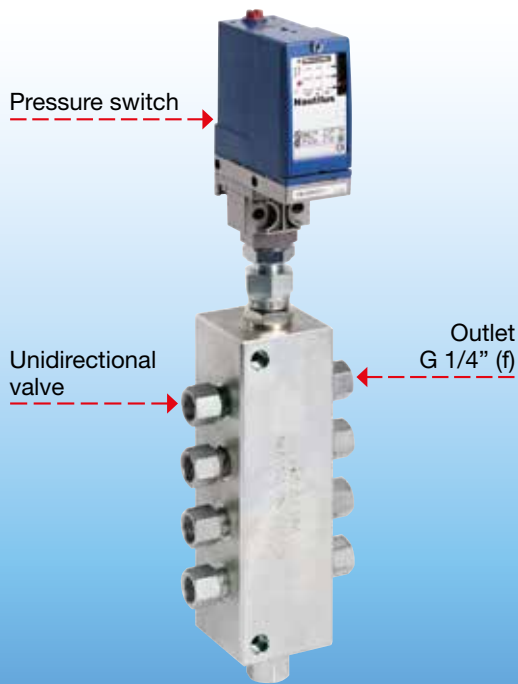
Machine tools	Railways, rolling stock
Woodworking machines	Mines
Marble working machines	Water scooping machine
Construction machinery	Farm machinery
Foundry and die casting machines	Machines for the steel industry
Port facilities	

CHARACTERISTICS

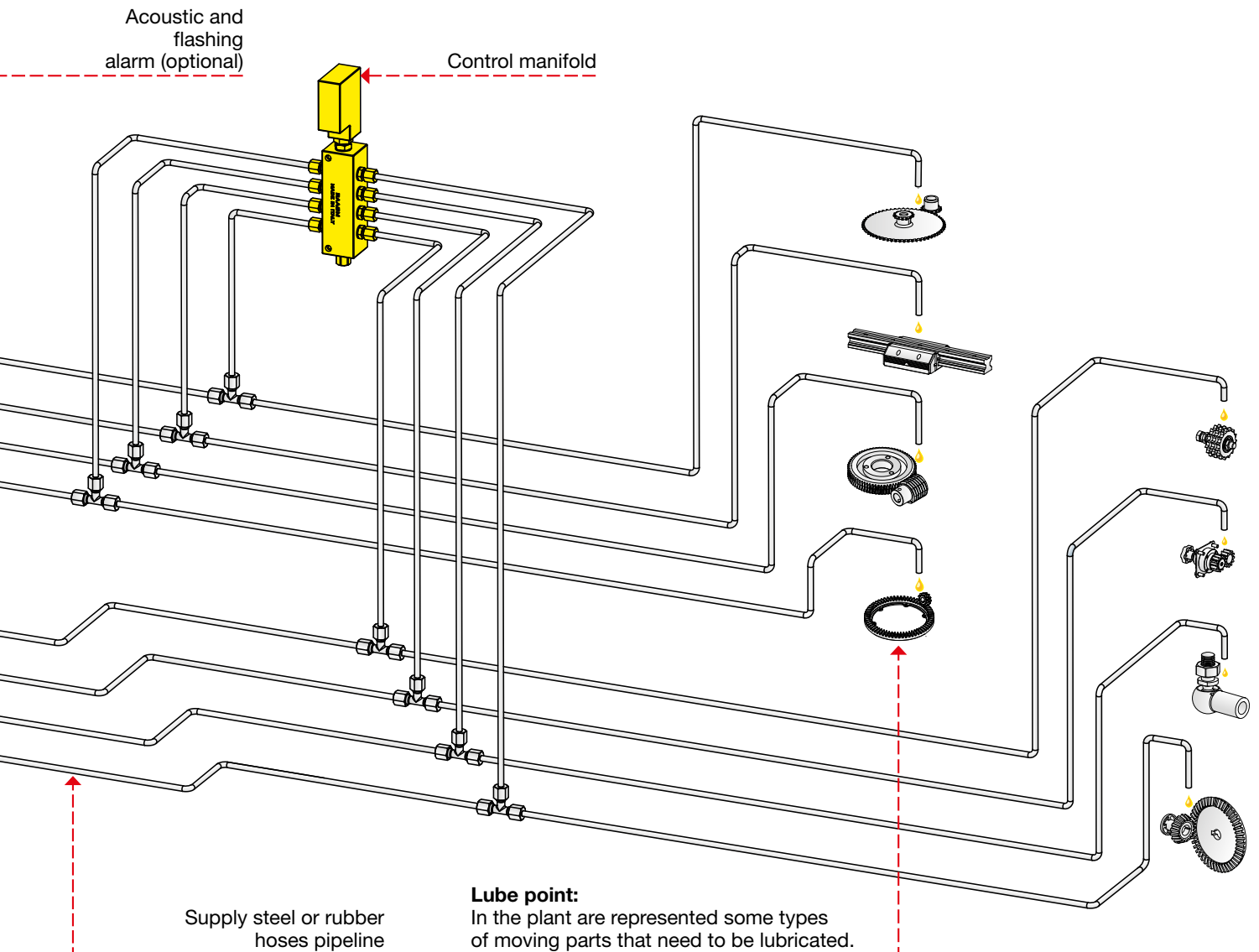
- Supplies a precise quantity of lubricant to various lubrication points placed at medium-short distance.
- Pumping unit of easy maintenance and high operating safety.
- Delivery of pumping elements adjustable by means of adjustment screw.
- Possibility of using 1 to 16 pumping elements.
- Pumping elements easily to remove and replace.
- Possibility of monitoring the system by means of appropriate control and management equipment.
- Variable delivery from 4.2 to 140 cm³/min (grouping the pumping elements in a single delivery).
- Reduction of installation costs.
- Increased life of lubricated components.
- Reduction of operating costs.



The **control manifold** controls monitors the delivery pressure of each line, sending an alarm signal if the measured pressure is higher than a predefined value. The manifold can be installed either individually (to manage 8 delivery points) or in series with another manifold (to manage up to 16 delivery points). It is also provided with a discharge union on the bottom of the manifold block which is activated when the operating pressure is higher than a predefined value.



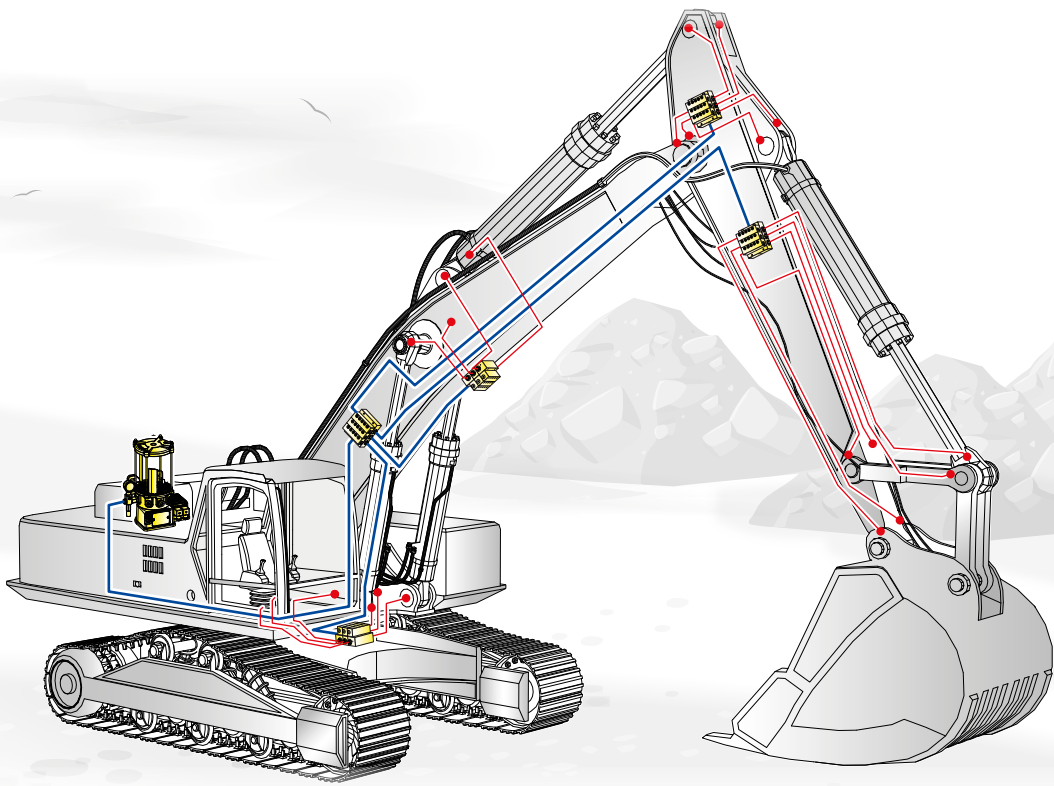
The **C25S pump** is designed to be connected directly to the pumping elements which operate as volumetric dosers. They are easy to maintain and high operating safety thanks to the two unidirectional valves and by the delivery regulating unit.





SYSTEM 30 PROGRESSIVE



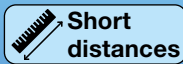
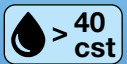




SYSTEM 30 PROGRESSIVE

The progressive lubrication system consists of a pumping unit connected to volumetric distributors. These, through the pumping action of a piston placed inside them, ensure the delivery of a predetermined quantity of lubricant to a corresponding number of users.

This system is defined progressive as the action of each piston inside the distributor follows a progressive sequence of distribution to the various users. Each dispenser is placed in series with all the others, therefore malfunctioning of just one causes blocking of all the others. The control of the operation of a single distributor therefore allows the monitoring of the whole system.

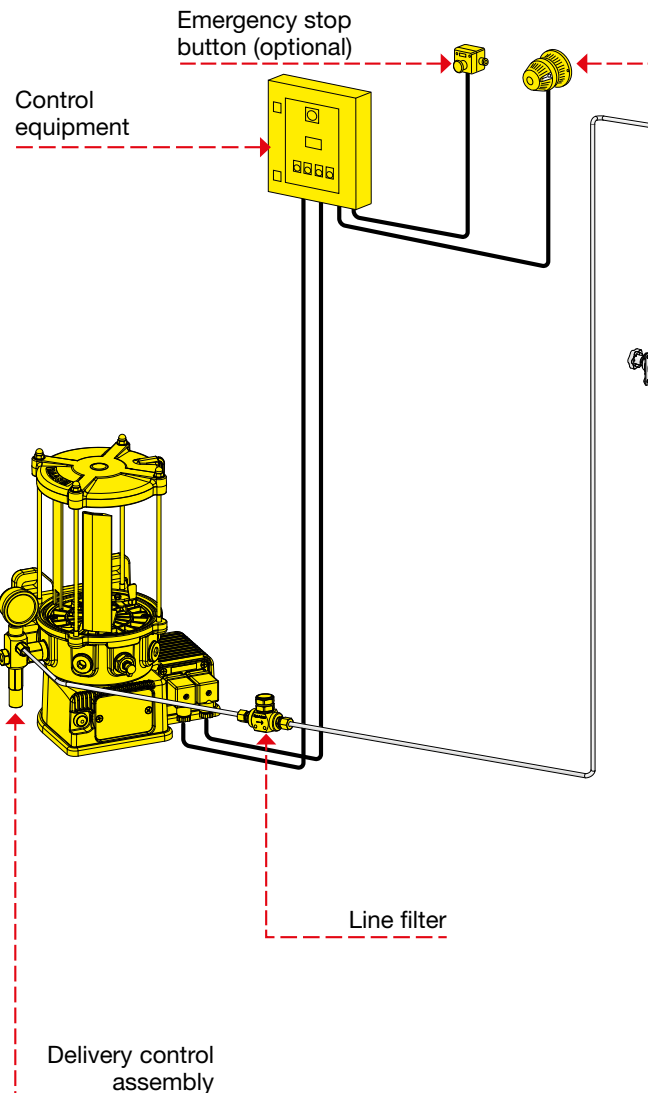


APPLICATION SECTORS

Earthmoving	Railways, rolling stock
Trucks - Transport	Mines
Construction machinery, mobile concrete mixers	Drilling machines
Vehicles for garbage collection	Machines for the steel industry
Port facilities	Farm machinery
Marble industry machinery	

CHARACTERISTICS

- Every individual point is properly lubricated.
- Possibility of installing visual or electric-type controls to implement the control for each individual point.
- Available various distributor models are available for the number of outlets and for deliveries.
- Careful choice of materials and treatments, ensuring the long life of all components.
- Reduced wear of all parts of the system.
- Suitable for medium short systems with a high number of users.
- Increased life of lubricated components.
- Reduction of operating costs.



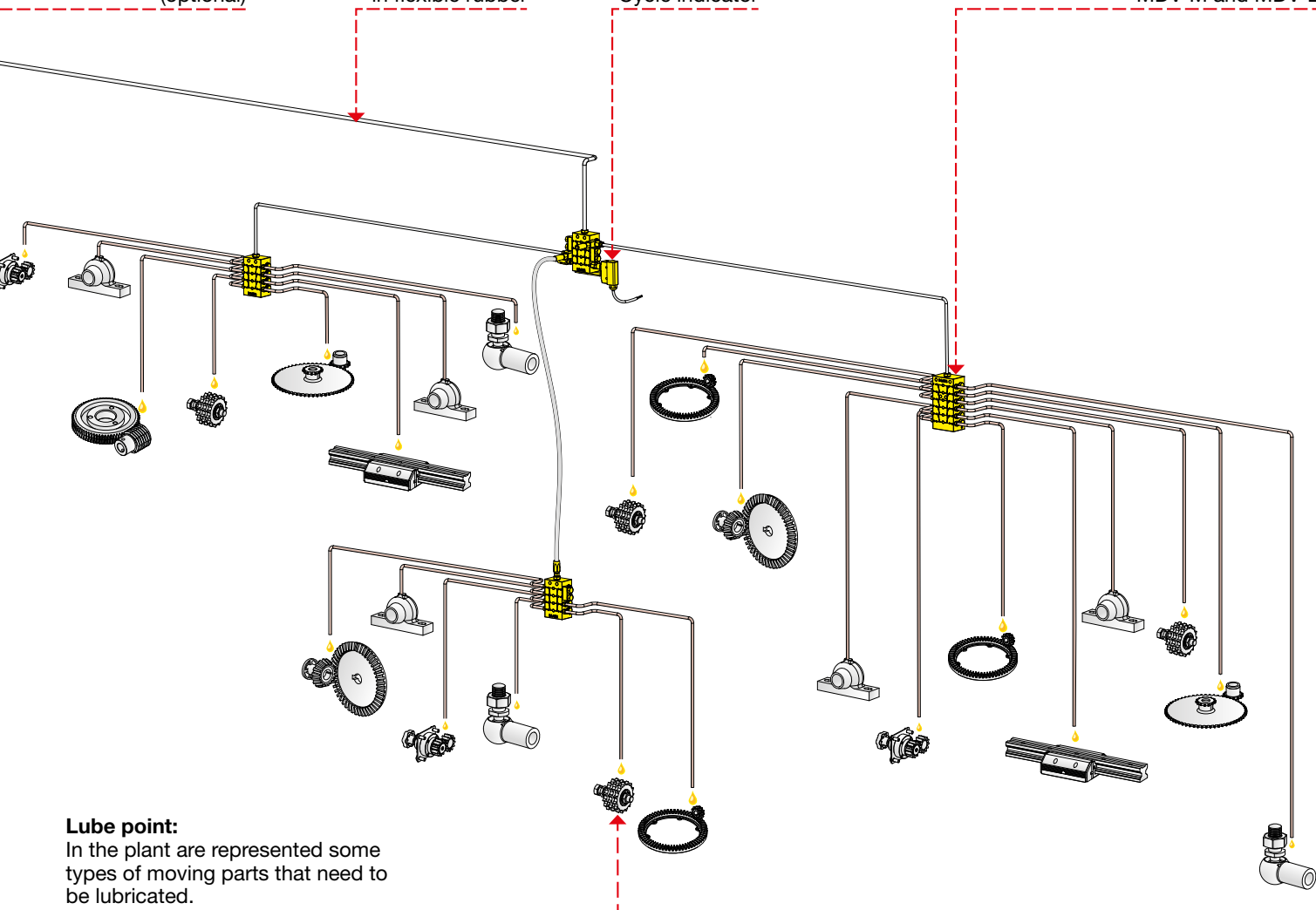


Acoustic and flashing alarm (optional)

Main line with piping in steel or in flexible rubber

Cycle indicator

Monobloc and modular "Master" divider valves MDV-M and MDV-L



Lube point:
In the plant are represented some types of moving parts that need to be lubricated.



EXAMPLE ACCESSORIES



Overpressure reversing valve
- fittings G 1/4" (f) - delivery 5500 cm³/min



Overpressure reversing valve with pressure gauge
- fittings G 3/8" (f) - delivery 6600 cm³/min



Pneumatic reversing valve
- fittings G 1/2" (f)



Electromechanical reversing valve
- fittings G 1/2" (f) - delivery up to 7700 cm³/min



Pressure switches assembly
- fittings G 3/8" (f) - pressure from 30 to 400 bar



Oil filter (30 - 60 - 90 μm)
- fittings G 1/2" (f) - pressure 500 bar

Grease filter (150 - 300 μm)
- fittings G 1/2" (f) - pressure 500 bar



Pressure gauge ø 40 mm - fittings G 1/8" - pressure 400 bar

Pressure gauge ø 60 mm - fittings G 1/4" - pressure 400 bar

Pressure gauge ø 63 mm - fittings G 1/4" - pressure 600 bar

Pressure gauge ø 100 mm - fittings G 1/2" - pressure 600 bar



Pumping assembly

- fittings G 3/8" (f) - delivery 4,2 - 6 - 8,7 cm³/min (adjustable pumping element)

Pumping assembly

- fittings G 3/8" (f) - delivery 30 - 40 - 60 - 80 - 120 cm³/min



Pressure discharge valve

- fittings G 3/8" (f) - pressure min. 2 bar max. 8 bar



Electric discharge valve

- fittings G 3/8" (f) - 24 V DC - max. lubricating pressure 500 bar



Control pressure switch assembly

- fittings G 1/4" (f) - pressure 30 - 400 bar



Delivery control valve assembly

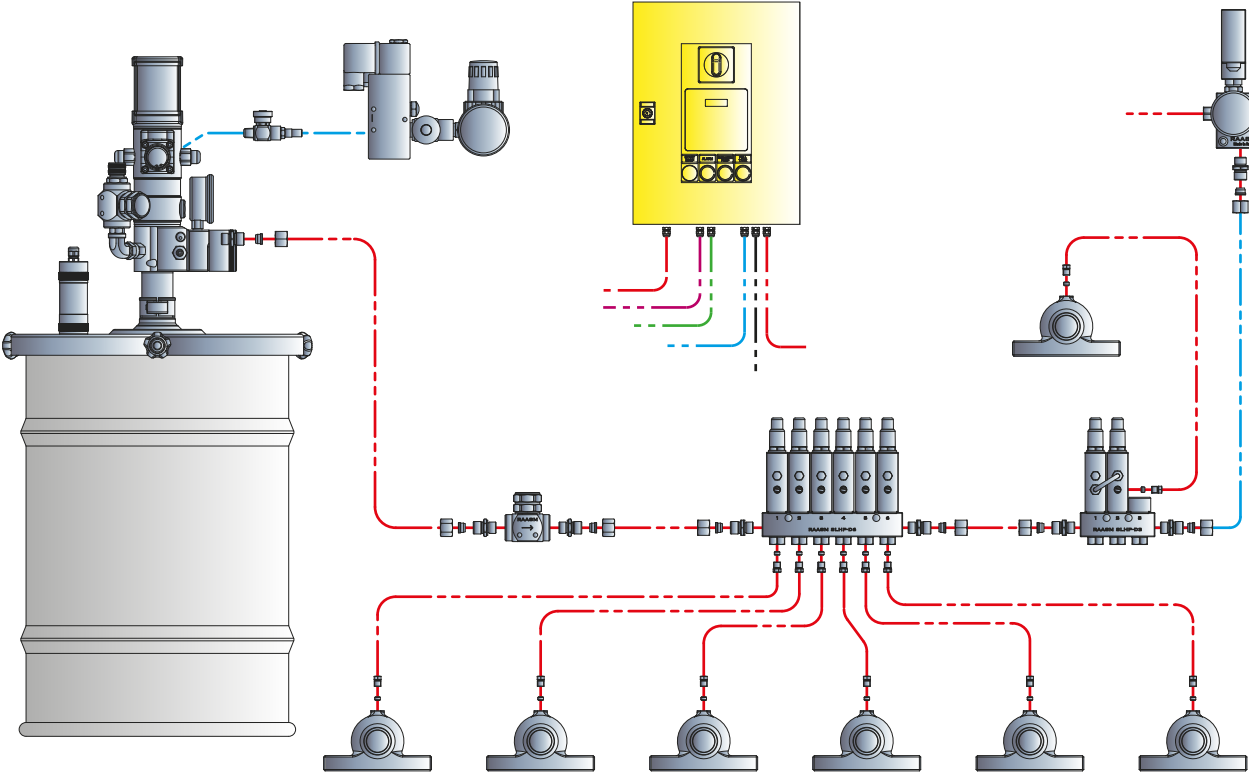
- fittings on pumping elements G 1/4" (f) - pressure 100 - 300 bar



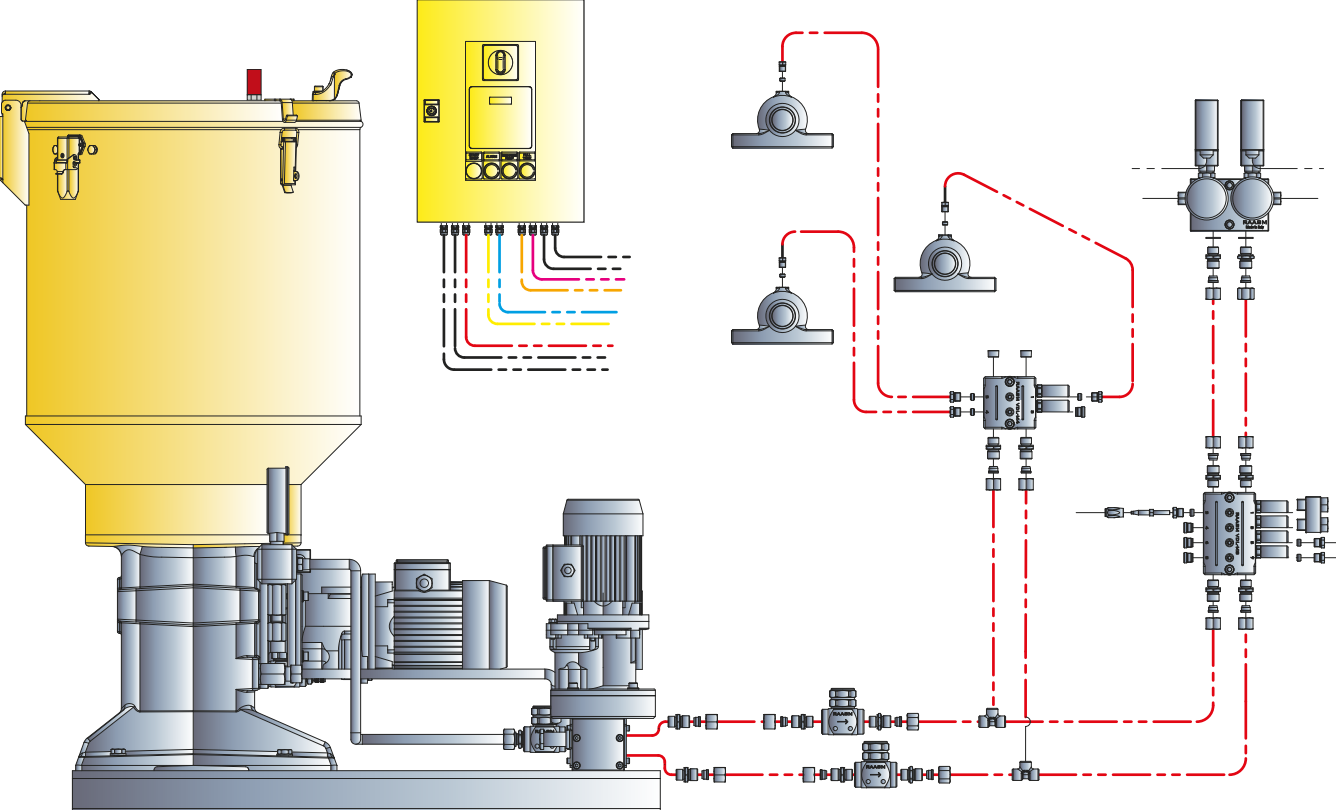
Delivery control valve assembly

- fittings G 3/8" (f) - delivery 1330 cm³/min

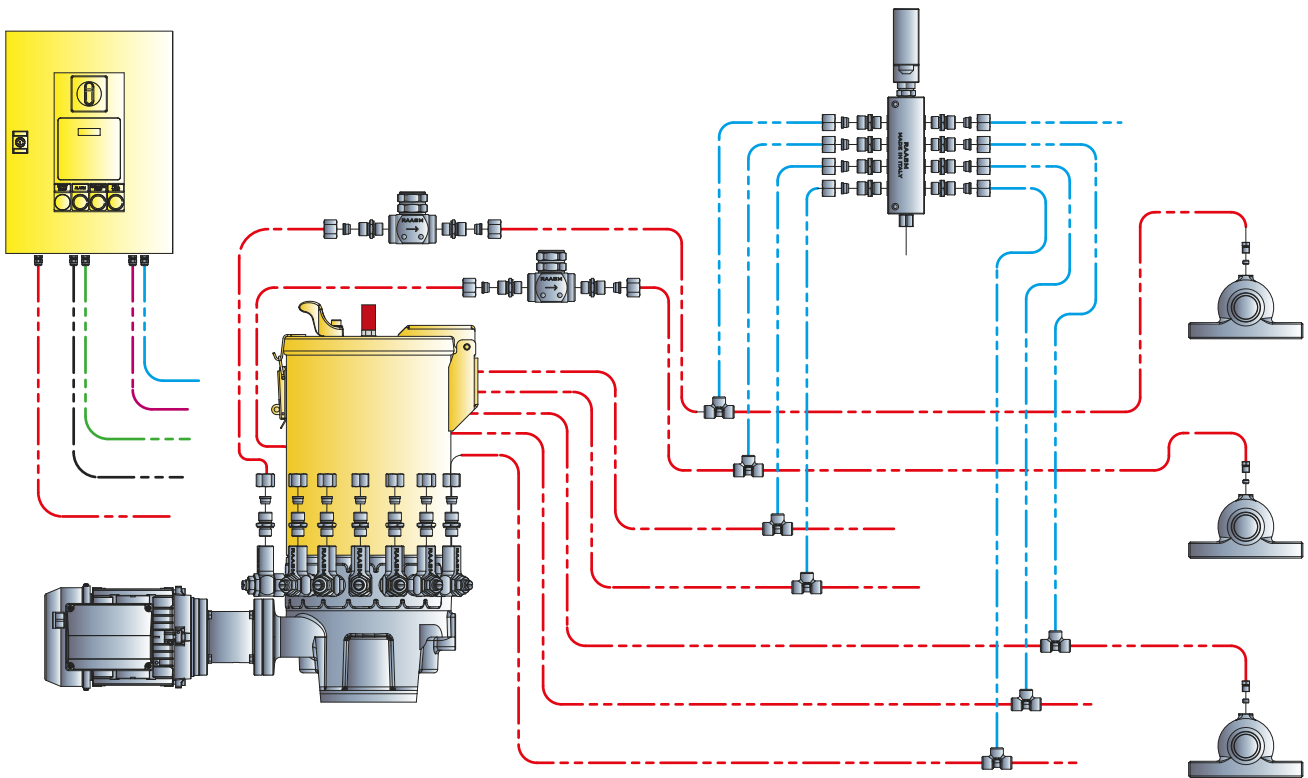
SYSTEM 15 SINGLE LINE



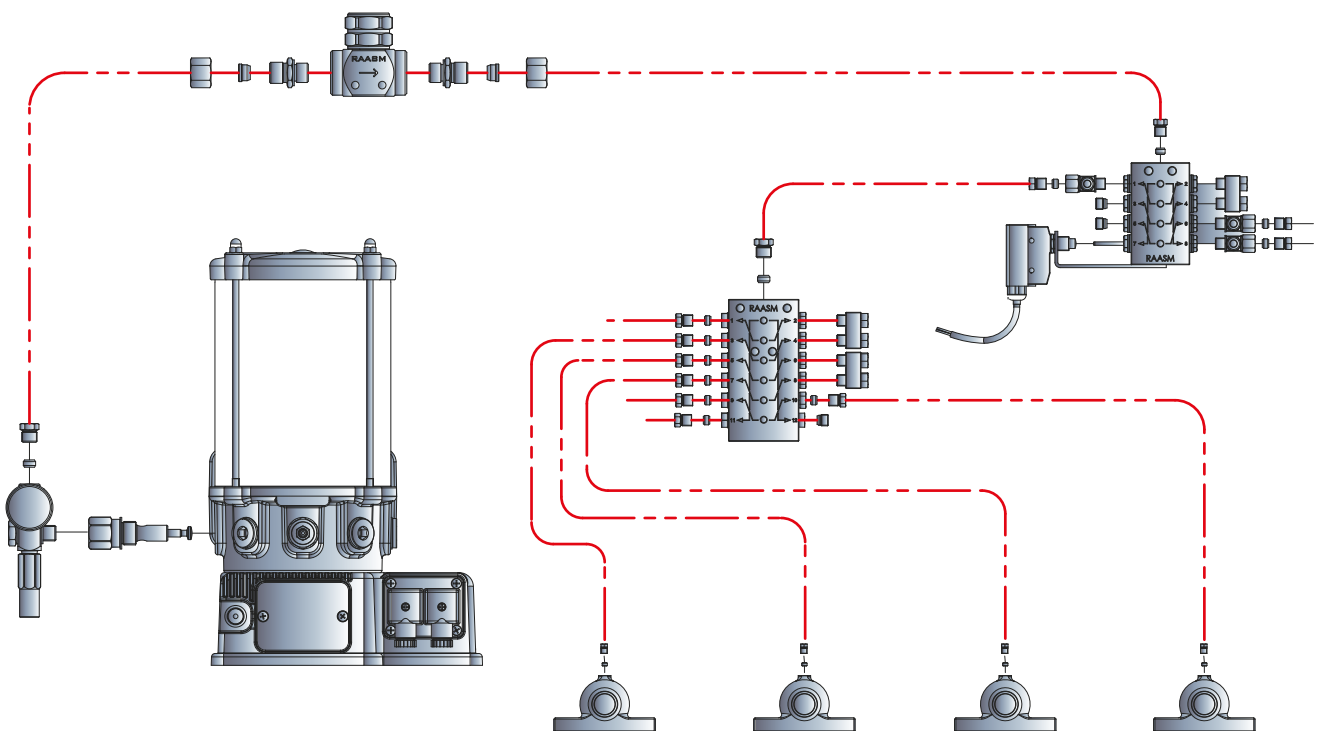
SYSTEM 20 DUAL LINE



SYSTEM 25 MULTI-DELIVERY



SYSTEM 30 PROGRESSIVE





GLOSSARY

Air-oil	A system where lubricant (oil) and air are conveyed together and, through a special device, reach the user points in the form of particles. The flow rate is adjusted by acting on the volume of air and the quantity of lubricant.
Eccentric cam	A circular-shaped element, with axis offset with respect to its axis of rotation and generally used to convert continuous rotary motion into reciprocating motion or to generate a vibrating force.
Centistokes (cst)	It is the practical unit of measure of kinematic viscosity 100 times smaller than the stokes (St) where 1 St = $1 \times 10^{-4} \text{ m}^2/\text{s}$ or $10.000 \text{ St} = 1 \text{ m}^2/\text{s}$ 1 Cst = $1 \times 10^{-2} \text{ St}$ or $1 \text{ Cst} = 1 \times 10^{-6} \text{ m}^2/\text{s}$
Cycle	A lubrication sequence in which all the deliveries connected (distributors - user points) have carried out a lubricant dispensing operation.
Cycle sensors	Electromechanical or magnetic-type devices for detecting the lubrication cycle or phase, by means of an electrical signal to the PLC.
Distributors	These are hydraulically operated devices (volumetric dosers, injectors and progressive), fed by the pumping unit, connected directly to the user points and arranged to deliver a predetermined and adjustable quantity of lubricant.
Dual line	A system with double piping which, alternately, feeds distributors (volumetric dosers) that in turn feed user points.
Feed lines	Usually pipes in different materials and diameters, depending on the pressures developed by the system. They convey lubricant and connect the pumping unit to the distributors (main line) and the distributors to the user points (secondary line).
Friction	Is a dissipative force that is exerted between two surfaces in contact with each other at their opposing relative motion. Static friction: if the contact surfaces are at a state of rest. Dynamic friction: if the surfaces are in relative motion.
Injector	A hydraulically operated volumetric distributor, fed by the pumping unit, connected directly to the user points, arranged to deliver a predetermined and adjustable quantity of lubricant. Characteristic of the single line system 15 with decompression (high pressure).
Level sensors	Devices (capacitive or ultrasound) for signaling the minimum or maximum level of lubricant in the tank to the PLC by impulse.
Lubricant	A substance in liquid, semi-solid or solid state which, interposed between two surfaces, is suitable for decreasing friction and therefore wear. It creates a very thin layer which allows the separation between two surfaces in contact. Lubricants are divided into: lubricating oils, fluid greases, lubricating greases, very thick greases.
Lubrication session	The time interval in which the lubrication operation (adjusted according to a work time or a number of cycles) occurs followed by a pause (pause time).
Maximum pressure switch	A device able to provide an electrical-type signal when the preset pressure is reached.

Multi-delivery	A system where every user point is fed by a pumping element (with adjustable or fixed delivery) installed directly in the pumping unit.
Nlgi	The acronym of National Lubricating Grease Institute, i.e. the body that issued the technical standard for the classification of lubricating greases based on their consistency. The classification comprises a series of consistency intervals, identified by numbers (from 000 to 6). Belonging to a certain class depends on the penetration test (standard cone dropped into the grease. Result expressed in tenths of a millimeter. Test performed at 25 °C). High penetration values (soft greases) correspond to low NLGI numbers and vice versa.
PLC	It is the acronym of "Programmable Logic Controller". Device that executes a program and processes the digital and analogue signals coming from sensors and directed to the actuators present in an industrial system.
Pressure relief valve	Pneumatic device (in presence of a pneumatic pump) or electric device (electromagnetically controlled - 24V DC) allowing the pressure inside the system to be discharged and the return of the lubricant to the tank, when a maximum pressure value is reached in the system.
Progressive	A system where the quantity of lubricant fed by the pumping unit is supplied to the user points following a progressive distribution sequence.
Proximity	Device able to detect the presence of objects placed at short distances from the sensor, without been actual physical contact between the interested parties (eg. car parking sensors).
Pumping element	A device that allows lubricant to be dispensed externally through the coaxial movement of a piston placed inside the pump body. The flow rate of the lubricant dispensed can be adjustable or fixed.
Radial pumping element	Pump positioned fixed along the circumference of the pump body. Characteristic of electric pumps series C20S - C30S - C25S.
Resistive	A system where the quantity of lubricant (oil) fed by the pumping unit is supplied to the user points by means of adjustable flow control valves which determine the quantity of lubricant to be dispensed.
Reversing valve	A hydraulically operated or electric motor operated device used in the Double Line system. Its task is to reverse the lubricant feed from line 1 to line 2 (and vice versa) once a predetermined maximum pressure value is reached.
Single line	System in which a single supply line reaches injectors which in turn feed the user points.
User points	The places of a machine to be lubricated in order to reduce the friction generated during operation.
Viscosity	Commonly defined as the resistance met by the mass of fluid flowing freely in a duct. This impediment depends on the cohesion forces existing between the molecules of the fluid, which exert a braking action on the free sliding of the layers of the substance on each other. The viscosity depends on the type of fluid and the temperature. There are various viscosity classifications for lubricating oils, with respective comparison tables (e.g. from cSt to ISO VG - AGMA - SAE - SUS).

GENERAL SALES CONDITIONS

FOR FOREIGN MARKETS



The following general sales conditions regulate the sale of goods and services by the company RAASM S.p.A. for customers residing outside the territory of the Italian State.

Art. 1 GOODS DELIVERY TERMS

The goods are delivered ex works RAASM S.p.A. The subsequent transport/shipment must occur by, in the name and at the expense of the purchasing customer, even by means of a carrier appointed and designated by the same. All risks arising from loading, subsequent custody and transport are borne entirely by the purchasing customer.

Art. 2 MINIMUM ORDERS

Each order cannot be for less than € 1,500.00, net of fees, taxes, customs duties, discounts and rebates and any other charges not included in the price of the goods. If, at the option of RAASM S.p.A., orders for lower amounts are accepted, an extra charge of € 155,00 shall be applied for order management administrative expenses.

Art. 3 ACCESSORIES

All the accessories given in the price list (plugs, oil bar taps, oil guns, grease guns, probes, protection caps, clutches, swivelling supports, etc.) are supplied exclusively for fitting to or combining with the items RAASM S.p.A. produces

Art. 4 COMPLAINTS

Any defects immediately noticed after a brief inspection of the goods (damage, shortages or different product from that ordered) must be notified in writing to our company within 8 (eight) days of receipt the goods. Any defects in the product noticeable only during its use must be notified in writing to RAASM S.p.A. within 8 (eight) days of being detected. Any returns of goods must be authorized in advance by RAASM S.p.A. and freight charges are at the customer's expenses.

Art. 5 DELIVERY TIMES/TERMS

Delivery times and dates are only approximate and are subject to change. Any delays in delivery do not entitle the customer to cancel the order or claim compensation for damages caused by delay of delivery. Delivery times for urgent orders must be agreed directly with RAASM S.p.A. RAASM S.p.A. has the right not to carry out the order and/or totally or partially carry it out, without this giving rise to reimbursement or claims for compensation for damage.

Art. 6 PACKS AND PACKAGING

Packaging costs are included in the price, except for special packing, which shall be charged at cost.

Art. 7 PRICES

The current Price list cancels and replaces the previous price list. In the event of changes to our price list and/or individual items, the goods shall be forwarded at the price in force on the day of the order confirmation. The price list and/or the prices of individual items can be changed even without notice, according to the changes in market conditions or technical innovations/modifications made to the product. The prices are understood to be ex works RAASM S.p.A.

Art. 8 PAYMENTS

Payments must be made exclusively to RAASM S.p.A. at the agreed conditions. Under no circumstances will deductions or roundings be accepted. In case of late payment with respect to the agreed conditions, RAASM S.p.A. reserves the right to charge interest at the current rate, effective from the day after that agreed for payment, plus any additional expenses. Discounts conditional on the payment term and already credited shall be recharged.

Art. 9 WARRANTY

RAASM S.p.A. provides each product with the communication of particular instructions for the installation, use and maintenance requirements and the need to carry out possible checks on the product. All the technical information and data mentioned in the catalogue and in the price-list in force are not binding and can be changed without prior notice for the purpose of improving the quality of the products. All products manufactured by RAASM S.p.A. are guaranteed for a period of 5 (five) years from the date of delivery to the first user. The user must keep and show the sales invoice - or an equivalent document - together with the item's serial number in order to make a claim under the RAASM S.p.A. guarantee. The 5 (five) year guarantee does not apply to components which are subject to normal wear and tear (such as gaskets, diaphragms, O-rings, hoses, etc.), electronic components and items that are sold but not manufactured by RAASM S.p.A. (marked with a red asterisk in the current product catalogue) which are guaranteed for 1 (one) year from the date of delivery to the first user.

1 (one) year warranty is valid also for the following products:

- digital litre counters and FCS system;

- cable reels;

- electric, pneumatic or hydraulic motor supplied with our industrial hose reels s. 600 and 700.

Incorrect installation, use or maintenance of the product shall void the warranty. Upon written notice, the articles must be returned free to our Factory for checking and acceptance. In any case, the guarantee expires in the 10th year from the date of manufacture (indicated by the serial number), if the stated expiry takes place before the expiration terms indicated above (1 or 5 years from delivery to the first user).

The manufacturer declines any responsibility for possible inaccuracies contained in this catalogue, due to printing or transcription errors. The manufacturer reserves the right to make any changes or improvements of a functional, technical or aesthetic nature without prior notice.

RAASM

Art. 10 RESPONSIBILITY

RAASM S.p.A. is exempt from any responsibility and liability for accidents that may occur to persons and property, as a result of or during the use of the equipment, due to or depending on the same whenever the products have been damaged during transport, tampered with or modified, or improperly used, or stored, installed, protected and preserved without complying with the instructions of RAASM S.p.A. as given in the installation, use and maintenance instruction manuals for each product. RAASM S.p.A. is liable for the value for the supplied product and cannot be held responsible in any way for other possible costs or additional costs that the customer may bear.

Art. 11 CONFIDENTIALITY

Information not in the public domain that is exchanged in the execution of the contract is subject to the obligation of confidentiality, secrecy and security; said information is covered as an industrial secret and is of a confidential and reserved nature and may not be disseminated to third parties; its use is permitted exclusively and strictly to execute the supply contract.

Art. 12 INTELLECTUAL PROPERTY RIGHTS

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Art. 13 INFORMATION ON THE PROCESSING OF DATA PURSUANT TO ITALIAN LEGISLATIVE DECREE 196/2003

In accordance with article 13 of Italian Legislative Decree 196/2003 - Personal Data Protection Code - you are hereby advised that the processing of the personal data, provided with the purchase of goods or services and/or the supply of goods or services is solely for the purposes of carrying out the contract-based obligations and to comply with the specific requests from customers/ suppliers, as well as adhering to legislative obligations, in particular accounting and tax obligations or to respect orders issued by public authorities or to exercise a right in court. The data shall also be used for commercial statistics for corporate use and to obtain commercial information on our products and services if expressly authorised by the applicant. The processing of data shall be done using hard-copy and computerised procedures, in the manner and within the limits necessary to achieve the aforementioned purposes. Data may be communicated and processed by other companies in the Group for the same specified purposes, and may be made known to employees of our company, consultants and other suppliers, always and exclusively within the limits of the aforementioned purposes. The provision of data is mandatory for the correct execution of the contract and pre-contract based obligations, and failure to do so could result in it being impossible to fully comply with contractual obligations, and make it impossible to provide updates on the new products and services offered by our company. Data shall be processed for the duration of the contract relationship in place and subsequently to fulfil any legal formalities.

Art. 14 RIGHTS OF DATA SUBJECTS

The information is aimed at defining the limits and methods for the processing of data, based on which individual customers and/or suppliers may freely authorise the collection and subsequent use of data. Data subjects are entitled to the rights pursuant to article 7 of the aforementioned Code and in particular, the right to access their personal data, ask for the amendment, update and cancellation thereof, if incomplete, incorrect or collected in violation of the law, and may object to the processing for legitimate reasons, addressing requests in this regard to RAASM S.p.A. Pursuant to the same article the data subject also has the right to request the complete and updated list of the Data Supervisors, and to ask for the cancellation, transformation into anonymous form or blocking of data processed in violation of the law, and to oppose in any case, for legitimate reasons, the processing thereof.

To exercise these rights, and in the case of problems or any requests for clarification regarding what has been explained herein, kindly address these to RAASM S.p.A. - Via Marangoni, 33, Cassola (VI) - Italy or to the following email address: info@raasm.com.

Art. 15 DATA CONTROLLER

The Data Controller is RAASM S.p.A. with registered office at Via Marangoni 33, Cassola (VI) – Italy, and this is where the data processing shall take place.

Art. 16 COMPETENT LAW COURT

Any disputes shall be settled by the Law Court of Vicenza, Italy.

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Company with quality,
environment and safety system
according to ISO 9001:2015,
ISO 14001:2015 and
ISO 45001:2018 standards

RAASM S.p.A.
36022 S. ZENO DI CASSOLA (VI)
Via Marangoni, 33 - ITALY

Export department
Tel. +39 0424 571130 - Fax +39 0424 571135

Technical department
Tel. +39 0424 571150 - Fax +39 0424 571155
info@raasm.com - www.raasm.com



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