

Spray Systems and Special Systems

Product Catalogue



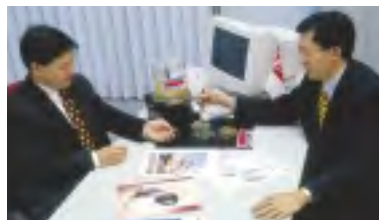
Productivity is key in today's global economy. Proper lubrication increases uptime and makes maintenance routines simple.

Spray Systems and Special Systems



Our Experience

Lincoln was established in 1910 and is the long-standing world leader in grease lubrication systems and equipment. Decades of business experience have provided us with a high level of expertise and know-how within the lubrication system industry. As a pioneer in the industry, we will continue being a trend-setter confidently providing our customers with the best lubrication system solutions in both price and quality.



Our Service

Our customer service includes the consulting, engineering and planning of customer-oriented systems for all applications, the manufacturing of standard components such as pumps, metering devices or control equipment, the installation and start up of lubrication systems on site in all parts of the world, as well as the customer training, and after-market service.

Our Quality

Our certified Quality Management System according to DIN EN ISO 9001, our expertise, consulting qualities and inventiveness, lead the way for future customer-oriented, economical and intelligent solutions.



Our Product

Lincoln lubrication systems reduce friction and wear; thereby, decreasing maintenance costs, improving productivity, ensuring a higher level of safety and contribution to the environment.

Our Environmental Management System

Our Environmental Management System according to DIN EN ISO 14001 and EMAS, is an integral part of our company philosophy that reflects Lincoln's future orientation.

Our Motto

Keep in motion –
Bleiben Sie mit uns in Bewegung!

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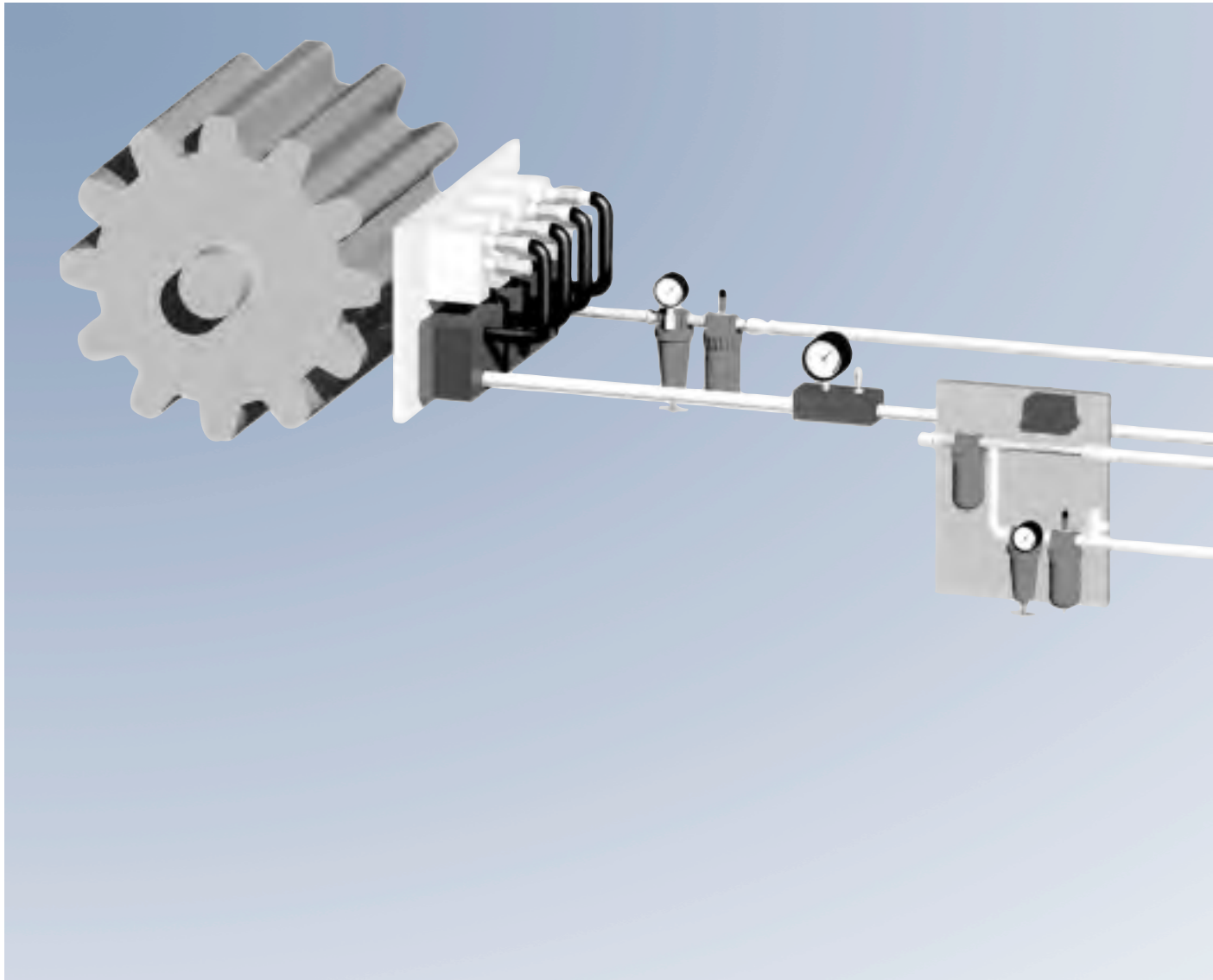
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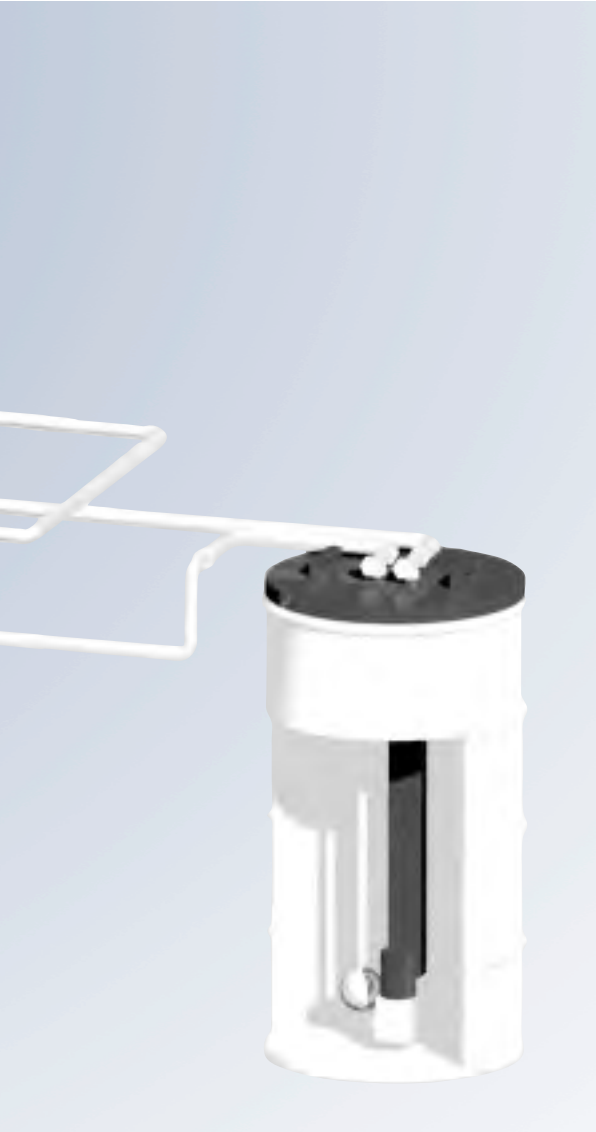
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Schematic Spray System



Applications

- Pinion lubrication
- Open gears

Industries

Cement, mills, pulp and paper

Spray systems use compressed air to spray the lubricant delivered by the pump on parts sliding against one another or rolling across one another.

Common Components

Pumps

- 215 electric pump*
- SAF and Lubrigun pneumatic pumps
- Ejectors (mini pneumatic pump)**

Nozzles

- HSA wide-angle spray nozzles

Capabilities

- Controlled nozzles provide 100% monitoring of air-flow and lubricant supply as opposed to air pressure and lubricant flow
- Repeatability of spray pattern
- Complete air control possibility to reduce consumption

* see *Progressive & Multi-line catalogue*

** not covered in this catalogue – ask your Lincoln representative for details



SAF1-YL



SAF Pump with Stand and Winch
(Drum Supplied by Lubricant Supplier)

These pneumatic barrel pumps, SAF1-YL with one outlet and SAF2-YL with two outlets are designed for use in spray systems for the supply of adhesive lubricants (NLGI 0 and 00). SAF pumps are placed directly into 200 liter drums. They do not require a follower plate, thus the supply of lubricant is possible even if the drum is severely dented. With the aid of an optional stand and winch unit, it is easy to exchange barrels.

Models

Part No.	Description	Number of Outlets	Lubricant Output/Stroke	Low-level
615-26392-3	SAF1-YN	1	1.1 cm ³ (0.067 in ³)	no
615-26393-4	SAF1-YL	1	1.1 cm ³ (0.067 in ³)	yes
615-26394-3	SAF2-YN	2	2 x 1.1 cm ³ (2 x 0.067 in ³)	no
615-26395-4	SAF2-YL	2	2 x 1.1 cm ³ (2 x 0.067 in ³)	yes

Technical Data

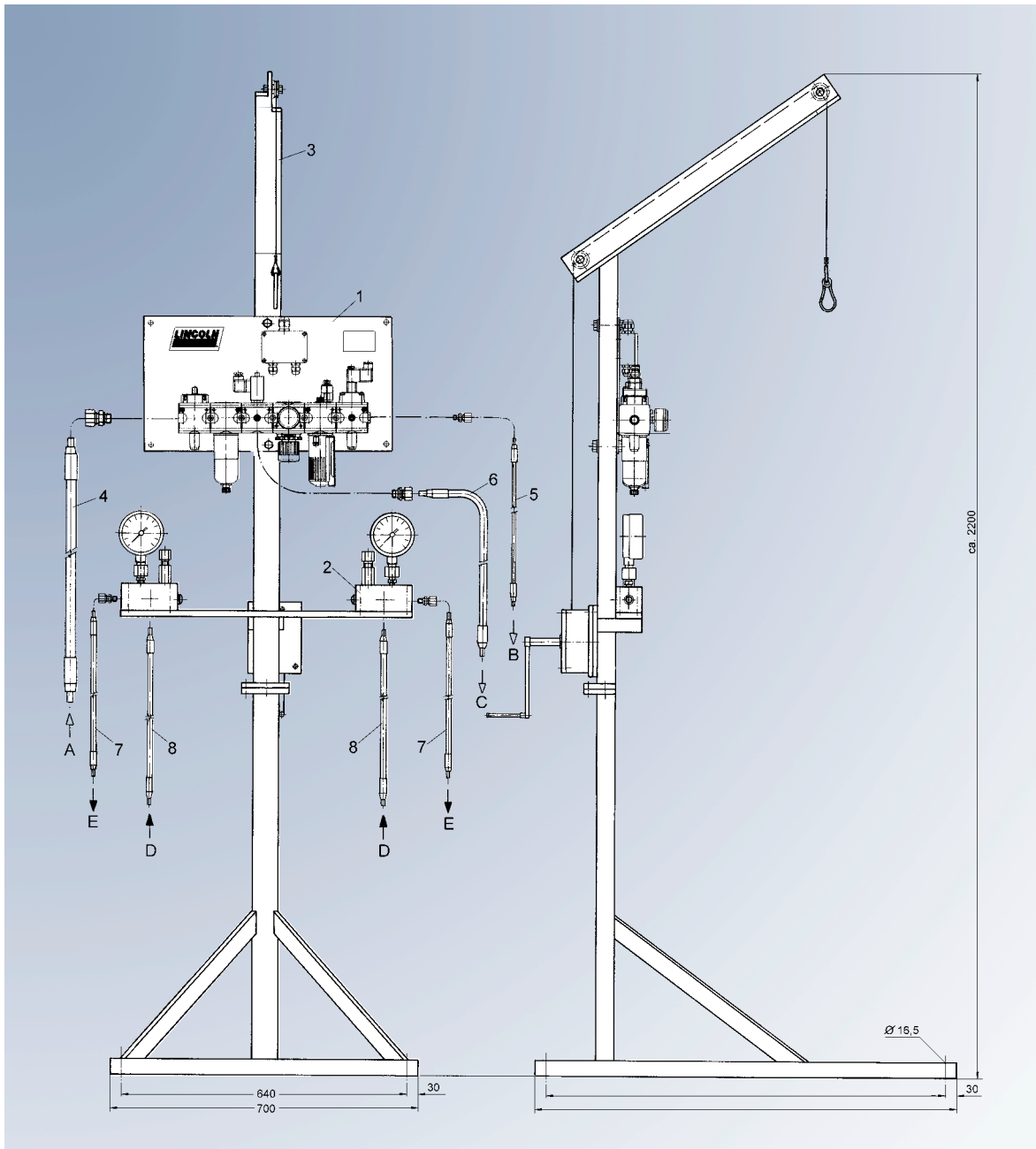
maximum operating pressure	300 bar (4350 psi)
driving pressure	minimum 4 bar (58 psi) maximum 10 bar (145 psi)
air inlet connection	1/4 NPT female
pneumatic drive ratio	40:1
sound level	< 70 dB(A)
lubricant outlet	G 1/4 f (BSPP)
drum type	for 200 l lidded barrels acc. to DIN 6644
dimensions (L x W x H)	610 x 610 x 985 mm (24 x 24 x 38.8 in)

Note: A 3/2 way air solenoid valve is required.

Accessories

Part No.	Description
615-26739-1	stand with winch for SAF1 (1 pinion drive) with air maintenance unit (FLR), pressure relief valve, air hoses and lubricant hoses
615-26740-1	stand with winch for SAF2 (2 pinion drive) with air maintenance unit (FLR), 2 pressure relief valves, air hoses and lubricant hoses
515-30955-1	overpressure valve (120 bar) manifold with pressure gauge

Example: Stand with Winch for SAF2



Dimensions (L x W x H): 950 x 700 x 2200 mm (37.4 x 27.6 x 86.6 in)

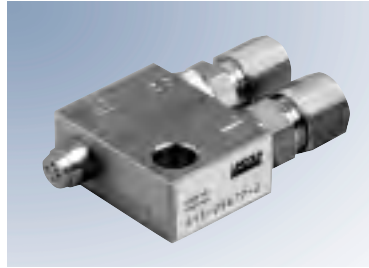
Item Designation

- A compressed air from compressor
- B compressed air to pump
- C compressed air to spray unit
- D lubricant from pump
- E lubricant to spray unit

Item Designation

- 1 maintenance unit
- 2 pressure relief device HSA-TD21
- 3 stand with winch
- 4 low-pressure hose OD 16 x 1040 mm with 20 mm stud
- 5 high-pressure hose OD 6 x 1540 mm with 10 mm stud
- 6 low-pressure hose OD 13 x 1040 mm with 15 mm stud
- 7 high-pressure hose OD 8 x 1040 mm with 10 mm stud
- 8 high-pressure hose OD 8 x 1540 mm with 10 mm stud

Lincoln spray nozzles are designed for the spraying of adhesive lubricants on pinions and open gears. The nozzles are available in several versions that cover a wide range of applications and functional features. The SDLKR series are the only nozzles that can monitor both the flow of air and lubricant within the nozzle. The economically priced SD series can be monitored externally by means of a progressive metering device and the air can



HSA-TD2

be controlled with an air solenoid valve. Complete mounting plates are available for easy alignment.



HSA-TD26

Nozzle Selection Guide & Part Numbers

Mounting Style	Uncontrolled Nozzles	Controlled Nozzles		
		without monitoring	with monitoring	
			limit switch (15-250 VAC)	proximity switch (15-250 VAC)
mounting plate	HSA-TD2	HSA-TD27	HSA-TD25	HSA-TD26
	SD	SDLMNR	SDLMKR-ES	SDLMKR-EN
	part no. 615-25677-2	part no. 615-27519-2	part no. 615-27518-2	part no. 615-27571-2
single mounted nozzle (for brackets)	HSA-TD2	HSA-TD30	HSA-TD28	HSA-TD29
	SD	SDLHNR-G	SDLHKR-ESG	SDLHKR-ENG
	part no. 615-25677-2	part no. 615-27583-2	part no. 615-27585-2	part no. 615-27586-2

Technical Data

lubricant output	0.2 – 20 cm ³ (0.0122 – 1.22 in ³) per minute		
spray surface coverage	approx. 150 mm (6.0 in) wide and 80 mm (3.3 in) high		
mounting distance	150 – 200 mm (6 – 8 in) from nozzle to application point		
air pressure	uncontrolled nozzle: 3 bar (43 psi), controlled nozzle: 6 bar (87 psi)		
air requirement	approx. 200 NI/min (free air) for uncontrolled nozzle max. 40 NI/min (free air) for controlled nozzle		
operating pressure	max. 200 bar (2900 psi) for uncontrolled nozzle max. 120 bar (1740 psi) for controlled nozzle		
connections HSA-TD25, 26, 27	air:	G 1/4 female (BSPP)	
	lubricant:	G 1/4 female (BSPP)	
	fastening:	M 12	
connections HSA-TD2, 28, 29, 30	air:	8 mm tubing or hose stud	
	lubricant:	6 mm tubing or hose stud	
	fastening:	8.5 mm dia.	

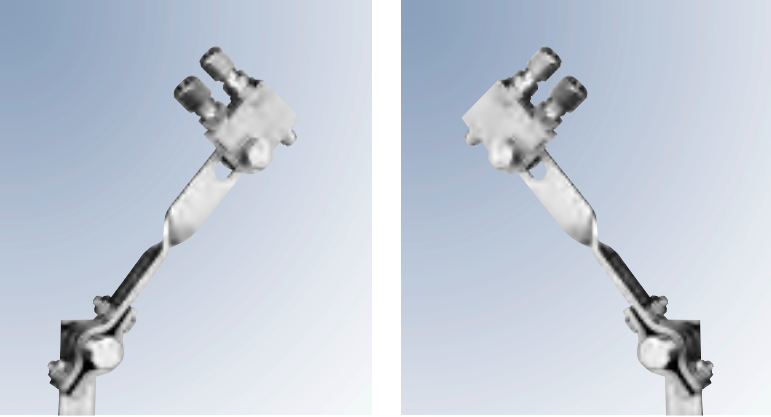
Note: Air inlet is marked as "L" and lubricant inlet is marked as "S".

Tightening torque for controlled nozzles = 20 Nm, electric monitoring signal = 20 ms.

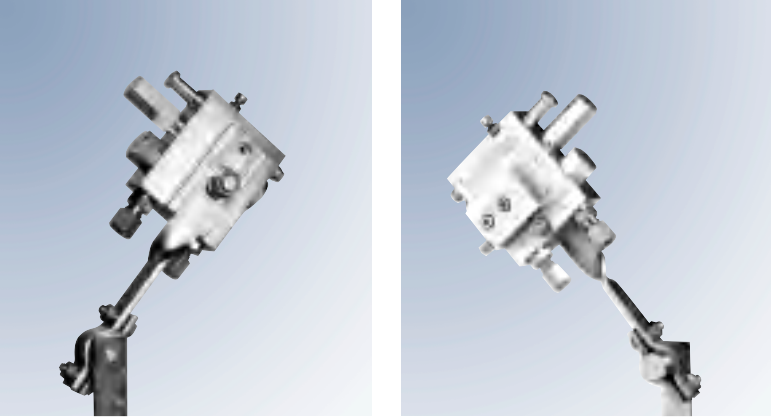
Dimensions

Model	Height	Length	Depth
nozzle SD	50 mm (2.0 in)	87 mm (3.4 in)	20 mm (0.8 in)
nozzle SDLMKR-EN	110 mm (4.3 in)	140 mm (5.5 in)	45 mm (1.8 in)
nozzle SDLMKR-ES	110 mm (4.3 in)	185 mm (7.3 in)	45 mm (1.8 in)
nozzle SDLMNR	110 mm (4.3 in)	140 mm (5.5 in)	45 mm (1.8 in)

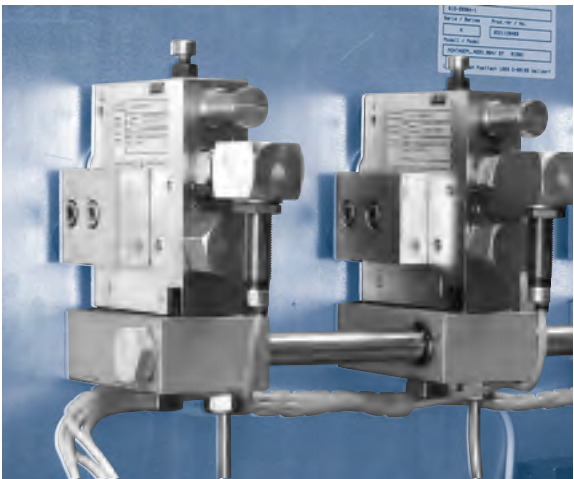
Bracket Mounting, Accessories, Mounting Plates



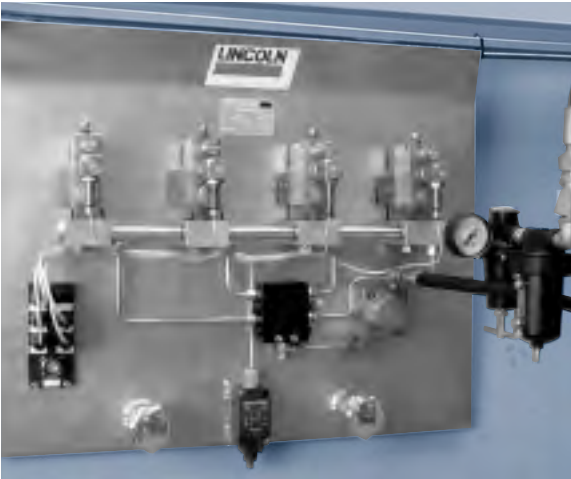
Bracket Mounting (Bracket 515-31224-1) of SD Nozzles



Bracket Mounting (Bracket 515-31225-1) of SDLH Nozzles



Mounting Plates with SDLM Nozzles



Accessories, Lubricant Filter, Pressure Relief Unit



Compressed Air Block for 3 Nozzles



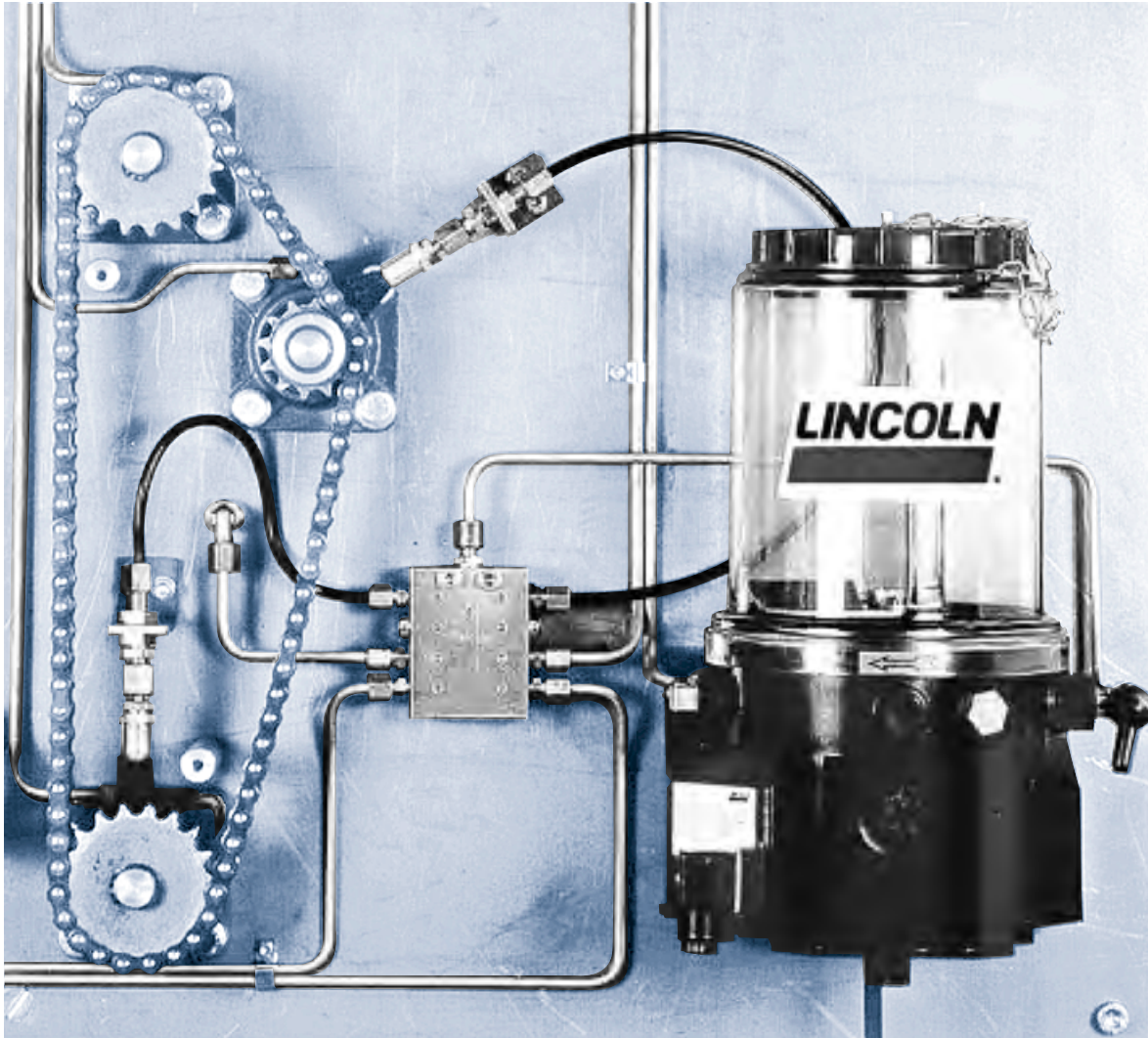
Lubricant Filter Unit



Pressure Relief Valve with Pressure Gauge

Models

Part No.	Description	
515-31224-1	bracket for nozzles SD	
515-31225-1	bracket for nozzles SDLH...	
615-25679-1	compressed air block for 2 nozzles	air inlet: R 3/8 f (BSPT)
615-25680-1	compressed air block for 3 nozzles	
615-25681-1	compressed air block for 4 nozzles	air outlets: for 8 mm tube or hose stud
628-25530-4	lubricant filter unit with pressure gauge and 120 bar (1740 psi) pressure relief valve (ideal for 215 pumps used for spray systems)	
515-31252-2	pressure relief unit, 120 bar (1740 psi) with pressure gauge threaded connections: G1/4 female (BSPP)	



Chain Lubrication

The largest relative movement of all chains occurs between the link plate and the chain stud where considerable force is transmitted.

Insufficient lubrication of this area will cause premature wear and chain failure. The consequence is expensive production downtime.

Careful and efficient automated lubrication is a prerequisite for optimum functioning and an extended chain life.

Lincoln automated chain lubrication systems apply a precisely metered quantity of lubricant to the chain, where it is needed.

Benefits

- Prolongation of durability
- Reduction of energy consumption
- Absorption of beats and shocks
- Silencing of noise
- Cooling for fast-running chains

Brush Lubrication Application

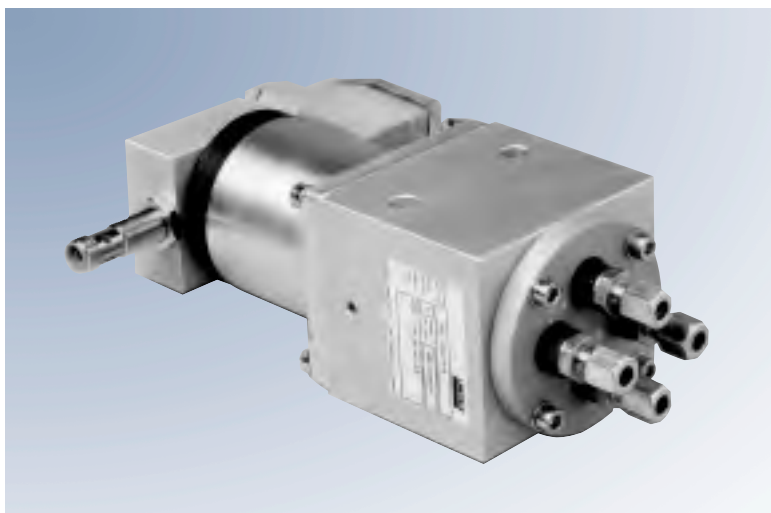
- Chains of small designs and low speeds

Complete chain lubrication is achieved by using a brush system.

The pump delivers the lubricant either directly or via a progressive metering device to the brushes. The brushes apply the lubricant evenly to the chain.

This is a simple, inexpensive, maintenance-friendly and reliable way of applying thick chain oils/lubricants.

Magnetic Pump with Squirt Nozzles



PMA1 Pump

Application

- Suitable for high-speed chains
- For individual chains

Precise, target-specific lubrication for high-speed chains is achieved by using a magnetic pump type PMA1 with squirt nozzles.

The gravity-fed magnetically operated pump is signaled by a proximity switch. Then, fixed quantities of oil are supplied to the squirt nozzles by the pumping elements, thus squirting a fine drop of oil on the chain. With this application, only those lubrication points which actually need it will be lubricated.

PMA1 Pump

This solenoid pump is designed to be used as an oil supply pump, primarily in a chain lubrication system. It can be used in a centralized lubrication system either as a squirt lubrication device when used in connection with nozzles, or as a drop lubrication or brush lubrication device when used with progressive metering devices. This electromagnetically driven pump is well suited for high-speed chains and can be monitored by a proximity switch (KN version).

Popular Models with 60 mm³ Output (0.0036 in³)

Part No.	Description	Outlet Type	Number of Outlets	Supply Voltage	Proximity Switch
651-40803-1	PMA1-A1-D6-60-230AC/ 25	screw type	1	230 VAC	no
651-40803-2	PMA1-A2-D6-60-230AC/25		2		no
651-40803-3	PMA1-A3-D6-60-230AC/25		3		no
651-40803-4	PMA1-A4-D6-60-230AC/25		4		no
651-40803-5	PMA1-A1-D6-60-230AC/25-KN		1	24 VDC	yes
651-40803-6	PMA1-A2-D6-60-230AC/25-KN		2		yes
651-40803-7	PMA1-A3-D6-60-230AC/25-KN		3		yes
651-40803-8	PMA1-A4-D6-60-230AC/25-KN		4		yes
651-40804-1	PMA1-A1-D6-60-24DC/25		1		no
651-40804-2	PMA1-A2-D6-60-24DC/25		2		no
651-40804-3	PMA1-A3-D6-60-24DC/25		3		no
651-40804-4	PMA1-A4-D6-60-24DC/25		4		no
651-40804-5	PMA1-A1-D6-60-24DC/25-KN		1	yes	
651-40804-6	PMA1-A2-D6-60-24DC/25-KN		2	yes	
651-40804-7	PMA1-A3-D6-60-24DC/25-KN		3	yes	
651-40804-8	PMA1-A4-D6-60-24DC/25-KN		4	yes	

Popular Models with 30 mm³ Output (0.0018 in³)

Part No.	Description	Outlet Type	Number of Outlets	Supply Voltage	Proximity Switch
651-40806-3	PMA1-A3-D6-30-230AC/25	screw type	3	230 VAC	no
651-40805-1	PMA1-A1-D6-30-230AC/25		1	24 VDC	no

Magnetic Pump with Squirt Nozzles



Squirt Nozzle



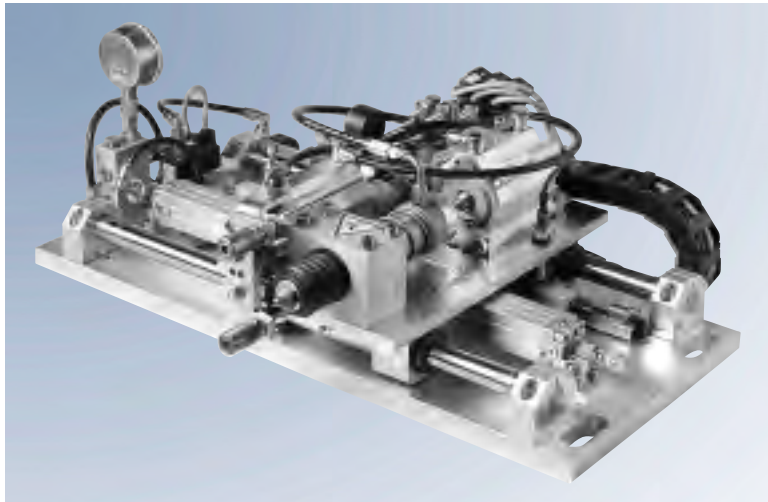
13 l Reservoir

Technical Data

number of outlets (A1 to A4)	1–4
outlet connection (D6)	for 6 mm tube
lubricant output per stroke and outlet	60 mm ³ or 30 mm ³ (0.0036 in ³ or 0.0018 in ³)
supply voltage	24 VDC 230 VAC
operating temperature range	-15 to 70° C (5 to 158° F)
installation position	preferably horizontal
suction connection	G 1/4 female (BSPP)
pressure	50 bar (725 psi)
dimensions (L x W x H)	214 x 80 x 110 mm (8.4 x 3.2 x 4.3 in)

Accessories

Part No.	Description
615-28660-2	squirt nozzle for 6 mm tube
651-28691-1	13 l plastic reservoir with electric low-level (float switch)
651-28685-1	36 l plastic reservoir with electric low-level (float switch)



Cobra

Lincoln offers a complete range of chain lubrication systems. The Cobra system is designed to lubricate the rollers of conveyors and power-free chains while they are in operation. The Cobra system delivers a metered amount of lubricant into moving bearing fittings. Available in a pure mechanical version (Cobra 1D), and a pneumatic version (Cobra 501), these custom-engineered lubrication systems are perfect for applications even in harsh operating conditions.

Each conveyor or chain requires two Cobra units, one for the left-hand side and one for the right. The lubricant is delivered to the Cobra unit by a reservoir pump or a barrel pump. The Cobra units can accommodate grease bearings that are located off center or whose pitch varies. The sequence of the lubrication events (each roller or every other roller, etc.) depends on the number of rollers, the speed of the chain conveyor or on the distance between the rollers. The Cobra will automatically disengage should the conveyor or chain reverse direction.

Benefits

- Metered application of lubricant through lubrication fittings into the moving bearing unit
- Serves moving parts which are difficult and time consuming to lubricate manually
- Lubricates while the conveyor is in normal operation – no lost production time
- Supplies all types of lubricant including greases up to NLGI class 2
- The sturdy design allows reliable lubrication even under harsh operation condition

Applications

Track rollers of heavy-duty or overhead conveyor units in:

- Mining
- Steel and iron industry
- Cement industry
- Automotive industry
- Food processing industry

Technical Data

	Cobra1D	Cobra501
maximum lube event frequency	two lube events every second	one lube event per second
maximum chain speed*	330 mm/s (13 in/s)	400 mm/second (16 in/second)

* higher chain speed available on request

The following information is necessary when requesting a quote for Cobra system

- Number of chains
- Distance between the chains
- Deviations of lubricating nipple – horizontally and vertically
- Position of chain at Cobra mounting place
- Number of lubricating points/chain
- Forward and backward movement of chain
- Speed of chain
- Pitch of chain
- Total length of chain/conveyor
- Type of operation – continuous, discontinuous (pause and run times needed)
- Type of lubricating nipple
- Temperature in mounting area
- Compressed air supply pressure
- Electrical supply
- Environmental influences – humidity, aggressive environment, etc.
- Type of lubricant

Note: Pumping station is not included with the Cobra unit and must be quoted separately.

Application

- Hydrostatic and hydrodynamic bearings
- Turbines
- Steel mills
- Gears
- Paper machines
- Power stations

Oil circulation systems may be classified into the following groups:

- Oil supply systems – hydraulic
- Lubrication oil supply systems
- Blocking oil systems (used to maintain separation points – e.g. different pressures or mediums)
- Regulation / control oil systems

Oil circulation systems differ largely depending on the requirements and desired features of the customer. Our experts are always pleased to provide you with a tailor-made system to meet your application.



Oil Circulation Station

ZPU09/09A Pump for Hydrostatic Lubrication

This high-pressure central lubrication pump is designed for use with

hydrostatic lubrication systems only. It is available with one or two outlets and is for use with oils with a viscosity of 20 to 460cSt.

Oil Circulation System



Models

Part No.	Description	Number of Outlets	Motor
605-27545-1	ZPU09/08GT-380-415,420-480	1	3-phase gear motor, multi-range 380-415/420-480 volt
605-27546-1	ZPU09/08GT-500	1	3-phase gear motor, 500 volt
605-27547-1	ZPU09A/08GT-380-415,420-480	2	3-phase gear motor, multi-range 380-415/420-480 volt
605-27548-1	ZPU09A/08GT-500	2	3-phase gear motor, 500 volt
605-27672-1 replaced by	ZPU09/08ST-380		3-phase standard motor, multi-range 380-415/420-480 volt
605-28960-1	ZPU09/08ST-380-415,420-480	1	separate 20:1 gear drive
605-28166-1	ZPU09/08GT-000	1	no motor

Technical Data

	ZPU09	ZPU09 A
number of outlets	1	2
lubricant output	8 liters/hour (2.1 U.S. gal/h) 488 in ³ 16 Lbs.	2 x 4 liters/hour (2 x 1 U.S. gal/h) 2 x 488 in ³ 16 Lbs.
maximum operating pressure	400 bar (5800 psi)	
drive speed	60 rpm	
reservoir capacity	8 liter (2.1 U.S. gal) 488 in ³ 16 Lbs.	
connection threads	pressure line G 3/8 female (BSPP) filling line G 3/8 female (BSPP)	



Bulk Supply System

Application

- Bulk supply systems
- Complete plant systems

We offer complete plant lubrication supply systems that, from a single source, supply an entire network of systems.

Container pumps or, if needed, booster pumps are used to supply secondary pump stations.

Booster pumps are used to assist in pumping lubricants over extremely long distances. When tube lengths exceed several hundred meters, booster pumps are required to boost the pressure.

Lincoln's lubrication supply systems guarantee trouble-free operation in all sorts of applications.

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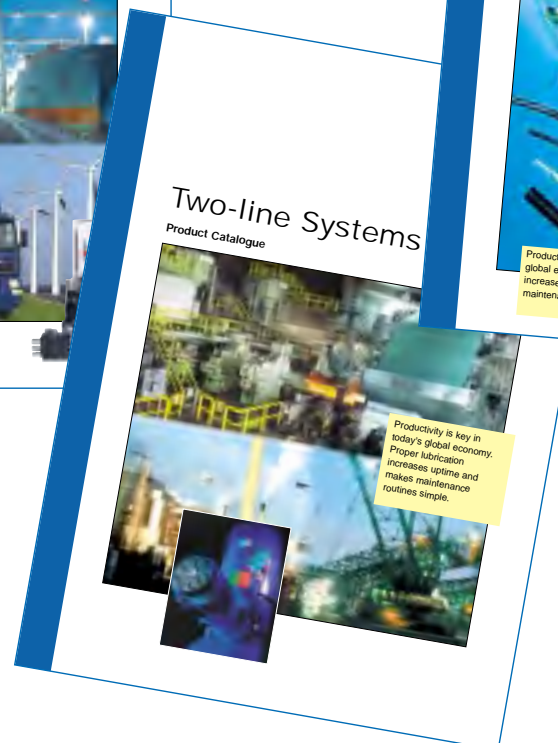
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Productivity is key in today's global economy. Lincoln – the leader in knowledge, technology and service for lubrication systems – is key to your Total Productivity Maintenance System.

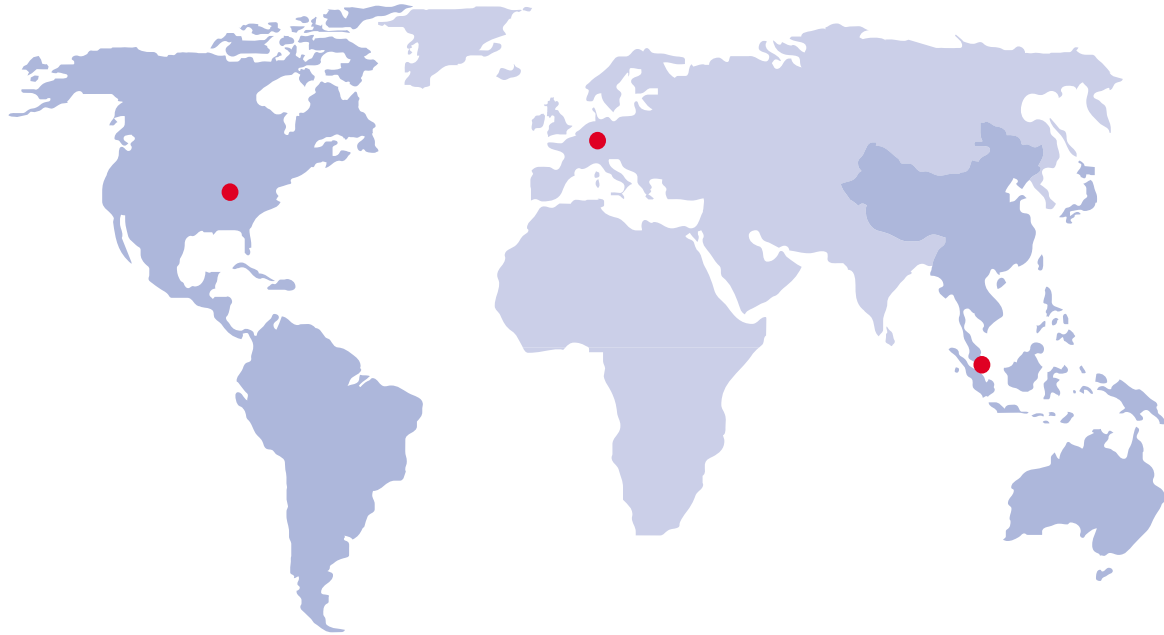
Now you got our catalogue about "Spray Systems and Special Systems". Further Lincoln catalogues, brochures, owner manuals and technical information are available at your local Lincoln office, distributor or sales agency, or at Lincoln GmbH & Co. KG, Walldorf, Germany (see address on last page).

For more information just get in touch – phone, fax, or click: www.lincolnindustrial.com/Locator/Distributor to find your nearest Lincoln representative.

You know: Information is key to your productivity.



Lincoln's Global Distribution Network Is the Best in the Industry



In all levels of service – lubrication system evaluation, custom-engineered system installation, or the supply of top-quality products – your Lincoln distributor makes certain you always get the very best value.

Systems House Distributors

Our systems house distributors offer the highest level of expertise available in the industry. They custom-design systems with the exact combination of Lincoln components you need. Then they install the system in your plant with experienced technicians or work with your personnel to make sure the job is done correctly. Each distributor stocks a full inventory of pumps, metering devices, controllers, monitors and accessories. Each continues to meet our stringent requirements for product, systems and service knowledge. From St. Louis to Singapore, Walldorf and worldwide, Lincoln's top-of-the-industry systems house distributors will be there when and where you need them.

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St. Louis, Missouri
Phone +1 314.679.4200
Fax: +1 800.424.5359

Europe/Middle East/Africa:

Walldorf, Germany
Phone + 49.6227.33.0
Fax: + 49.6227.33.259

Asia/Pacific:

Singapore
Phone + 65.65627960
Fax: + 65.65629967



Heinrich-Hertz-Str. 2-8
D-69190 Walldorf
Germany

Phone + 49.6227.33.0
Fax + 49.6227.33.259
www.lincolnindustrial.de
lincoln@lincolnindustrial.de

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