Automatic Lubrication for Off-Road Equipment



Lubricating Vital Components While Your Vehicle Works



Keep Your Machines Working and Maximize Uptime!



A complete range of products for a variety of off-road applications:

- Mining
- Construction
- Forestry
- Quarry
- Scrap Yards
- Concrete
- Asphalt
- Agriculture
- And More!

Graco® Off-Road Lubrication Systems deliver precise and proportioned amounts of lubricant at frequent intervals, ensuring your pins and chassis components have an optimal grease film at all times.

Increases Uptime and Productivity

- Equipment stays on-site working instead of sitting idle
- Cuts down on unplanned component failure and repair time

Extends Equipment Component Life

- Precise amounts of grease at frequent intervals helps equipment run smoothly and last longer
- Lubrication is applied while your equipment is workingpushing out contaminants and moisture while it works

Saves Time and Lowers Operating Costs

- Reduces labor costs by eliminating manual greasing
- Reduces replacement part and labor costs by extending grease-able component life







Equipment designed for the way you work

Money savings you'll dig.

				_				
		Pump Packages	Injectors	letering Techi Divider Block	nology Pump-to-Point	Standard-Duty	Heavy–Duty	Extreme–Duty
		MLX			~	V		
5	on	Grease Jockey®	~			~	~	
	Solution	Tri-Lube™ HD Electric		~			V	~
So	S	Fire-Ball® Pneumatic	~	~			V	~
		Dyna-Star® Hydraulic	~	~			V	~

Heavy to Extreme-Duty

Electric Lubrication System

Designed for simplicity and performance

The Graco 24VDC, MLX system is a compact and rugged pump-to-point system designed for lubricating small and intermediate sized vehicles with up to 12 lube points. Durable, impact-proof and corrosion resistant enclosure for years of dependable operation. Complete packages with all the hardware included to make installation easy. We even provide a reservoir full of NLGI #00 grease to get you moving fast!

Features

- Delivers the right amount of grease at the right time
- Space saving design puts everything in one unit
- Internal controller for simple installation and ease of use
- Standard kits come with pre-charged tubing attached to the pump manifolds
- Electrical connections and harness included for trouble free installation



With Graco Automatic Lubrication Equipment



Choose the reliable grease reservoir or a convenient, disposable grease cartridge



Scalable for all your off-road equipment

The Tri-Lube HD is a heavy-duty, 24 VDC electric grease pump package designed specifically for the off-road market and is ideal for series progressive centralized lubrication systems. Lubricate your machine while it's working to reduce wear and increase component life.

Features

- Pump body can be configured to operate one to three fixed displacement pump cartridges that can feed three different zones or be combined for maximum output
- Reservoir capacities of 13 lb (6 kg), 20 lb (9 kg) and 30 lb (14 kg)
- Designed to deliver up to NLGI #2 at pressures of 3500 psi (238 bar, 23.8 MPa)
- Integral controller for easy system installation, or a remote controller connection offers even more functionality and options
- Low level indicator option stops the pump before the reservoir is empty
- · Additional top mounts enable both top and bottom mounting for exceptional strength



<u>Tri-Lube HD</u>



Minimize Unexpected Breakdo

Extreme-Duty for Extreme Conditions

Rugged and Dependable in the Field

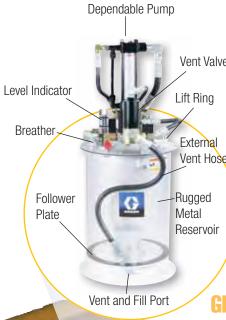
Hydraulic Lubrication System

Dvna-Star 10:1 & 5:1

Long lasting, high pressure performance by tapping into low or high pressure hydraulic circuits

Features

- A wide variety of 60 lb (27 kg), 120 lb (54 kg) and 400 lb (181 kg) pump lengths and 60 lb (27 kg) and 90 lb (41 kg) reservoir options to fit all your off-road equipment
- Pre-configured pumps kits for injector or divider valve-based systems give you maximum flexibility
- Optional Graco controller, level indicator, pressure switch, follower plates and drum covers put you in control of your system-no more second guessing
- Convenient pressure and flow control built-in
- Hydraulic control module-all your controls in one package for easy system setup and maintenance







Pneumatic Lubrication System

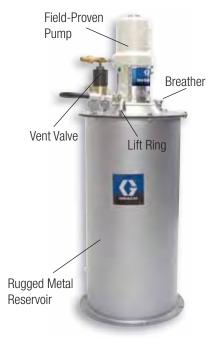
Rugged pneumatic pump for years of dependable operation

Graco's pneumatic, mechanical double-acting pump gives you smooth fluid flow and is ideal for equipment with pneumatic engine starters or another on-board pneumatic power source.

Features

- Fewer moving parts for less maintenance, minimal pump wear and low ownership cost
- 90 lb (41 kg) reservoir with convenient bottom fill and vent port for trouble-free filling
- Vent valve included for trouble-free GL injector operation
- Optional Graco controller, level indicator, follower plate, pneumatic solenoid and pressure switch to optimize your system's performance and give added flexibility

Fire-Ball 300 50:1



Injectors_

Field-adjustable, high pressure injectors for single line parallel automatic lubrication systems

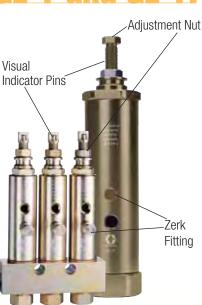
Fine tune your system with Graco's field adjustable GL-1 and GL-11 high pressure injectors. Combine the output from two to five GL-1 injectors using an output adapter kit or step up to a GL-11 for maximum grease volume.

Features

- Standard visual indicator pins easily monitor injector function
- External grease fitting on the injectors enables convenient troubleshooting and supply
- Uses NLGI #2 grease down to 32° F (0° C)



GL-1 and GL-11



Controllers and Valves Complete Your System

Tri-Lube HD Ordering Information

Divider Valves

LSV, Lean Lube™ and MSP

Options to fit every application and budget

From exact volume delivery to scalable divider blocks, Graco's divider valves give you the flexibility you need. All blocks use NLGI #2 grease or lower viscosities to fit your lubrication needs.

LSV Modular Divider Valves

- Solid blocks offering 6 to 18 outlets for outstanding scalability
- Cycle indicator pins for visual indication of system operation
- · Easy system design and installation-simply plug outlets to cross-port output to the next outlet
- Compact for installations with limited space

Lean Lube Modular Divider Valves

- . No assembly required with its one piece construction
- 6 to 20 fluid outlets for a wide variety of applications
- · Compatible with off-the-shelf fittings and Trabon MSP accessories for full monitoring capability
- Each piston can be singled to double the output to one side of the piston section
- External cross porting on the valve face for additional flexibility
- Minimum operating pressure 350 (20 bar), maximum pressure 4500 psi (310 bar)

MSP Modular Divider Valves

- Fine tune up to 16 grease outputs per block for precise volume delivery
- Monitoring accessories such as cycle and performance indicators for complete monitoring and positive feedback







GLC 4400

Controller

GLC 4400 Controller

- Rugged controller to withstand harsh outdoor environments as well as in-plant applications
- · Password protected, multi-mode setup to customize operation
- · Simple, icon-based interface makes programming easy
- LEDs provide critical feedback at a glance
- Fault indication for low level, cycle indication and machine count
- Diagnostic mode for troubleshooting your system
- Multi-operation modes including pump pulse, continuous or manual run, and pump jog



MLX 24VDC Kits

Part Number	Description	# of Points	Output/Cycle 0.015 cu in	Output/Cycle 0.010 cu in	Output/Cycle 0.005 cu in
24B309	MLX Kit with Replaceable Cartridge	8	5	3	
24B307	MLX Kit with Replaceable Cartridge	9		6	3
24B310	MLX Kit with Replaceable Cartridge	10		6	4
24B308	MLX Kit with Replaceable Cartridge	11		6	5
24B313	MLX Kit with Replaceable Cartridge	12		4	8
24B311	MLX Kit with Fill Port	8	5	3	
24B316	MLX Kit with Fill Port	9		6	3
24B312	MLX Kit with Fill Port	10		6	4
24B315	MLX Kit with Fill Port	11		6	5
24B314	MLX Kit with Fill Port	12		4	8

Tri-Lube HD Pump and MSP Divider Valve Kits

Ordering order your Tri-Lube HD in the following configurations:

Part Number	Description	Pump	Filter	Master Block	Secondary 1 & 2	Secondary 3	Secondary 4	Secondary 5
563533	Lubrication Kit, C980G Loader–25 Points	563531	214570	MSP-20T- 15S-30T	MSP-35T-25S- 15S	MSP-40T- 35T-10T-10S	MSP-40T-10T- 30S	MSP-40T- 35T-5S
563534	Lubrication Kit, C988F Loader–25 Points	563531	214570	MSP-20T- 15S-30T	MSP-35T-25S- 15S	MSP-40T- 35T-10T-10S	MSP-40T-10T- 30S	MSP-40T- 35T-5S
563535	Lubrication Kit, C773D Haul Truck–25 Points	563531	214570	MSP-35T- 15S-35S	MSP-20S-25T- 15S-25T	MSP-10S- 10S-20S	MSP-40T-20T- 20T-15T-30T	N/A

Tri-Lube HD Pump Kits

For greater flexibility, order your Tri-Lube HD pump from the following:

Part Number	Reservoir Size	Number of Pump Elements	Controller Option	Low Level Sensing
563529	13 lb.	3	Remote Controller Connection	No
563528	20 lb.	1	Integral Controller	Yes
564407	20 lb.	1	None	Yes
563531	20 lb.	2	Integral Controller	Yes
563532	20 lb.	3	Integral Controller	No
563530	30 lb.	3	Integral Controller	No

Tri-Lube HD Components and Accessories

Mix and match for custom installations from the following:

Part Number	Description
563536	Base Pump Drive Assembly
563538	Pump Element
563543	Reservoir Kit - 13 lbs
563541	Reservoir Kit - 20 lbs
563542	Reservoir Kit - 30 lbs

563544	Integral Controller Kit
563545	Remote Controller Connection Kit
563548	Scraper with Low Level Sensor
214570	Lubrication Filter

LSV Series Ordering Information

LSV Accessories

LSV Modular Divider Valves

Part Number	Maximum Outlets	Inlet/Outlet Size	Cycle Indicator Pin
24B158	6	1/8" BSPP	No
24B159	6	1/8" BSPP	Yes
24B160	6	1/8" NPTF	Yes
24B161	8	1/8" BSPP	No
24B162	8	1/8" BSPP	Yes
24B163	8	1/8" NPTF	Yes
24B164	10	1/8" BSPP	No
24B165	10	1/8" BSPP	Yes
24B166	10	1/8" NPTF	Yes
24B167	12	1/8" BSPP	No
24B168	12	1/8" BSPP	Yes
24B169	12	1/8" NPTF	Yes
24B170	14	1/8" BSPP	No
24B251	14	1/8" BSPP	Yes
24B252	14	1/8" NPTF	Yes
24B171	16	1/8" BSPP	No
24B253	16	1/8" BSPP	Yes
24B254	16	1/8" NPTF	Yes
24B172	18	1/8" BSPP	No
24B255	18	1/8" BSPP	Yes
24B256	18	1/8" NPTF	Yes

Technical Specifications

Minimum/Maximum Operating Pressure	350/5076 psi (24/350 bar)
Output per Cycle per Outlet	0.012 in ³ (0.2 cm ³)

Note: Outlets 1 and 2 must be used to allow proper system functionality.

Lean Lube Series Ordering Information

SV Accessories			Part	Number				1
3145 Outlet Cross Port Plug	10)T*	15	T**	20	T***	Maximum Outlets	
Adapters for 1/4" OD Steel or Nylon Tubing Compression	Zinc Plated Steel	Stainless Steel	Zinc Plated Steel	Stainless Steel	Zinc Plated Steel	Stainless Steel	Outlots	
e with Check Valve	257175	258454	257206	258470	257236	258486	6	1/
Complete Assembly	257167	258446	257198	258462	257228	258478	6	1/8
ponents	-	-	257265	258502	257280	258518	6	1/8
3054 Ferrule 1/4"	-	-	257258	258494	257272	258510	6	1/8
3055 Compression Nut	257176	258455	257207	258471	257237	258487	8	1/8
3056 Check Valve Body	257168	258447	257199	258463	257229	258479	8	1/8'
3057 Clamping Rings	-	_	257266	258503	257281	258519	8	1/8'
let Adapters for 1/4" OD Steel or Nylon Tubing Compression le without Check Valve	-	-	257259	258495	257273	258511	8	1/8'
HB747 Complete Assembly	257177	258456	257208	258472	257238	258488	10	1/8"
mponents	257169	258448	257200	258464	257230	258480	10	1/8"
8057 Clamping Ring	-	-	257267	258504	257282	258520	10	1/8"
8058 Compression Nut	-	-	257260	258496	257274	258512	10	1/8"
let Adapters for 1/8" NPT Female	257178	258457	257209	258473	257239	258489	12	1/8"
059 Outlet Adapter with Check Valve	257170	258449	257201	258465	257231	258481	12	1/8"
Outlet Adapter w/o Check Valve	-	_	257268	258505	257283	258521	12	1/8"
57 Clamping Ring	-	-	257261	258497	257275	258513	12	1/8"
Adapters Push-to-Connect Style for 1/4" OD Nylon Tubing	257179	258458	257210	258474	257240	258490	14	1/8"
Outlet Adapter with Check Valve	257171	258450	257202	258466	257232	258482	14	1/8"
O62 Outlet Adapter w/o Check Valve	-	-	257269	258506	257284	258522	14	1/8"
et Adapters Push-to-Connect Style for 1/8" Hose	_	_	257262	258498	257276	258514	14	1/8"
Outlet Adapter for 1/8" Hose with Check Valve	257180	258459	257211	258475	257241	258491	16	1/8"
	257172	258451	257203	258467	257233	258483	16	1/8"
	-	_	257270	258507	257285	258523	16	1/8"
	_	_	257263	258499	257277	258515	16	1/8"
	257181	258460	257212	258476	257242	258492	18	1/8"
	257173	258452	257204	258468	257234	258484	18	1/8"
	-	-	257271	258508	257286	258524	18	1/8" I
	-	_	257264	258500	257278	258516	18	1/8"
	257182	258461	257213	258477	257243	258493	20	1/8" I
	257162	258453	257213	258469	257243	258485	20	1/8"
	237174	200400	231203	200403	201200	200400	20	1/0 1

 $^{^{\}star}$ 10T - Twin Output 0.010 cm $^{\rm 3}$ Per Each Outlet / Singled Output 0.020 cm $^{\rm 3}$ One Outlet

Minimum/Maximum Operating Pressure 350/4500 psi (24/310 bar)

257294

257293

258509

258501

257287

257279

Lean Lube Accessories

258525

258517

Part Number	Description
24B607	Cross Porting Kit - Zinc Plated Steel
24B909	Cross Porting Kit - Stainless Steel
122831	Outlet Plug - Zinc Plated Steel
123205	Outlet Plug - Stainless Steel

20

20

1/8" BSPP

1/8" NPTF

Yes

Note: MSP accessories will work with Lean Lube

^{** 15}T - Twin Output 0.015 cm3 Per Each Outlet / Singled Output 0.030 cm3 One Outlet *** 20T - Twin Output 0.020 cm3 Per Each Outlet / Singled Output 0.040 cm3 One Outlet

Technical Specifications

Dyna-Star Pumps and Kits

Additional Accessories

Dyna-Star 10:1 Modules and Kits

247574	60 lb (27 kg) Pump Module - Injector - Overall height 35.15 in (842mm). Includes pump (247540), reservoir assembly (247575), hydraulic control assembly (247538) and vent valve assembly (243170) fully assembled.
247706	60 lb (27 kg) Pump Kit - Divider Valve (DV) - Overall height 35.15 in (842mm). Includes pump (247540), reservoir assembly (247575) and hydraulic control assembly (247538) not assembled.
247444	90 lb (41 kg) Pump Module - Injector - Overall height 42.75 in (1086 mm). Includes pump (247443), reservoir assembly (241486), hydraulic control assembly (247538) and vent valve assembly (243170) fully assembled.
247707	90 lb (41 kg) Pump Kit - DV - Overall height 42.75 in (1086 mm). Includes pump (247443), reservoir assembly (241486) and hydraulic control assembly (247538) not assembled.
247902	Pressure Relief Kit for 247706 and 247707 hydraulic pumps
312349	Instruction, repair and parts manual for 247574, 247706, 247444, 247707

Dyna-Star 10:1 Refinery Drum And Custom Tank Applications

Bytha dair for Hollinory Brain find dubtom failth applications									
Description Refinery Drums			Custom Tank Applications						
Weight lbs (kg)	120 (55)	400 (180)	60 (27)	60 (27)	120 (55)	120 (55)	400 (180)	400 (180)	
Divider Valve (DV) or Injector Based	DV	DV	Injector	DV	Injector	DV	Injector	DV	
Pump	247443	247450	247540	247540	247443	247443	247450	247450	
Hydraulic Control (1)	247705	247705	247538	247538	247538	247538	247538	247538	
Vent Valve			243170		243170		243170		
Cover	247703	247704							
Follower Plate	247701	247702							
Pump Gasket	15M442	15M442	15M442	15M442	15M442	15M442	15M442	15M442	
Custom Tank Kit (2)			247970		247456		247457		

 $[\]hbox{(1) Hydraulic control assembly (247705) includes longer hoses to enable remote mounting.}\\$

Dyna-Star Module and Kit Accessories

3	
247700	Follower plate for 60 lb (27 kg) and 90 lb (41 kg) modules
244023	Level indicator for 60 lb (27 kg) and 90 lb (41 kg) modules*
24B591	GLC 4400 12/24 VDC Controller
115124	Pressure switch

^{*} Follower plate 247700 required for level indicator 244023 to function

Fire-Ball 300 and Dyna-Star 5:1 Modules and Accessories

modulos dila / lossossilos	
241573	Fire-Ball 300, 50:1 90 lb (41 kg) Pump Module. Includes pump (239887), reservoir assembly (241486) and vent valve assembly (241572).
241485	Follower plate (fits 241573).
243159	Dyna-Star 5:1 90 lb (41 kg) Pump Module. Includes pump (224751), reservoir assembly (241486), hydraulic control assembly (243501) and vent valve assembly (243170).
243191	Follower plate (fits 243159).

MSP Working Sections

Part Number	Description		
Without Cycle Pin Indicator		With Right Hand Cycle Pin Indicator	
562720	MSP-5T	_	_
562711	MSP-5S	_	_
562721	MSP-10T	_	_
562712	MSP-10S	_	_
562722	MSP-15T	_	_
562713	MSP-15S	_	_
562723	MSP-20T	562739	MSP-20T
562714	MSP-20S	562729	MSP-20S
562724	MSP-25T	562740	MSP-25T
562715	MSP-25S	562730	MSP-25S
562725	MSP-30T	562741	MSP-30T
562716	MSP-30S	562731	MSP-30S
562726	MSP-35T	562742	MSP-35T
562717	MSP-35S	562732	MSP-35S
562727	MSP-40T	562743	MSP-40T
562718	MSP-40S	562733	MSP-40S

Must be ordered in multiples of 5

GL Injectors

Part Number	Description
114901	One GL-1 Injector and Manifold
114902	Two GL-1 Injectors and Manifold
114903	Three GL-1 Injectors and Manifold
114904	Four GL-1 Injectors and Manifold
114905	Five GL-1 Injectors and Manifold
114909	Replacement GL-1 Injector
24A918	GL-11 Injector

GL Injectors Technical Specifications

Reset Pressure	600 psi (41 bar)
Minimum Operating Pressure GL-1 GL-11	1,850 psi (127 bar) 1,000 psi (69 bar)
Normal Operating Pressure	2,500 psi (172 bar)
Maximum Pressure	3,500 psi (241 bar)
Output Range* GL-1 GL-11	0.05 - 0.500 in ³ (0.82 - 8.2 cm ³) 0.008 - 0.8 in ³ (0.13 - 13.1 cm ³)

^{*} Limited by operating temperatures and lubricant additives

MSP Tie Rods, Nuts and Accessories

Part Number	Description
557731	3 - Section Tie Rod for MSP
557732	4 - Section Tie Rod for MSP
557733	5 - Section Tie Rod for MSP
557734	6 - Section Tie Rod for MSP
557735	7 - Section Tie Rod for MSP
557736	8 - Section Tie Rod for MSP
556371	Tie Rod Nut
557349	Outlet Plug, Dry seal 1/8 NPTF
563175	Pressure Relief - 2500 psi (172 bar)

Three tie rods are needed for each block assembly

MSP Inlet, Intermediate & Base Sections

Part Number	Description
560919	MSP Inlet, 1/4 - 18 NPSF Ports (NPT)
563419	MSP Intermediate Base 18 - 27
563428	MSP Standard End

Must be ordered in multiples of 5



Graco Now Offers a Bigger Line of Products to Serve You Better.

GL Injector Accessories

de injudici /lococconico	
Part Number	Description
115120	GL-1 Injector Outlet Adaptor Kit
115119	GL-1 Clear Plastisol Injector Cover
114906	GL-1 and GL-11 Zerk Fitting and Cap Kit

⁽²⁾ Kits include pump (24750, 247443 or 247450), hydraulic control assembly (247538), vent valve (243170) and pump gasket (15M442).



ABOUT GRACO

PROVEN QUALITY. LEADING TECHNOLOGY.

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company's success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco's ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.

GRACO LOCATIONS

MAILING ADDRESS P.O. Box 1441

Minneapolis, MN 55440-1441 Tel: 612-623-6000 Fax: 612-623-6777

AMERICAS

MINNESOTA

Worldwide Headquarters Graco Inc. 88-11th Avenue N.E. Minneapolis, MN 55413

EUROPE

BELGIUM

European Headquarters Graco N.V. Industrieterrein-Oude Bunders Slakweidestraat 31 3630 Maasmechelen, Belgium

Tel: 32 89 770 700 Fax: 32 89 770 777

ASIA PACIFIC

AUSTRALIA

Graco Australia Pty Ltd. Suite 17, 2 Enterprise Drive Bundoora, Victoria 3083 Australia Tel: 61 3 9467 8558

Tel: 61 3 9467 8558 Fax: 61 3 9467 8559

CHINA

Graco Hong Kong Ltd.
Shanghai Representative Office
Room 118 1st Floor
No.2 Xin Yuan Building
No.509 Cao Bao Road
Shanghai, 200233
The People's Republic of China
Tel: 86 21 649 50088

Fax: 86 21 649 50077

INDIA

Graco Hong Kong Ltd.
India Liaison Office
Room 432, Augusta Point
Regus Business Centre 53
Golf Course Road
Gurgaon, Haryana
India 122001
Tel: 91 124 435 4208
Fax: 91 124 435 4001

JAPAN

Graco K.K. 1-27-12 Hayabuchi Tsuzuki-ku Yokohama City, Japan 2240025 Tel: 81 45 593 7300 Fax: 81 45 593 7301

KORFA

Graco Korea Inc.
Shinhan Bank Building
4th Floor #1599
Gwanyang-Dong, Dongan-Ku,
Anyang-si, Korea 431-060
Tel: 82 31 476 9400
Fax: 82 31 476 9801

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North America Customer Service 800-533-9655 Fax 800-533-9656

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