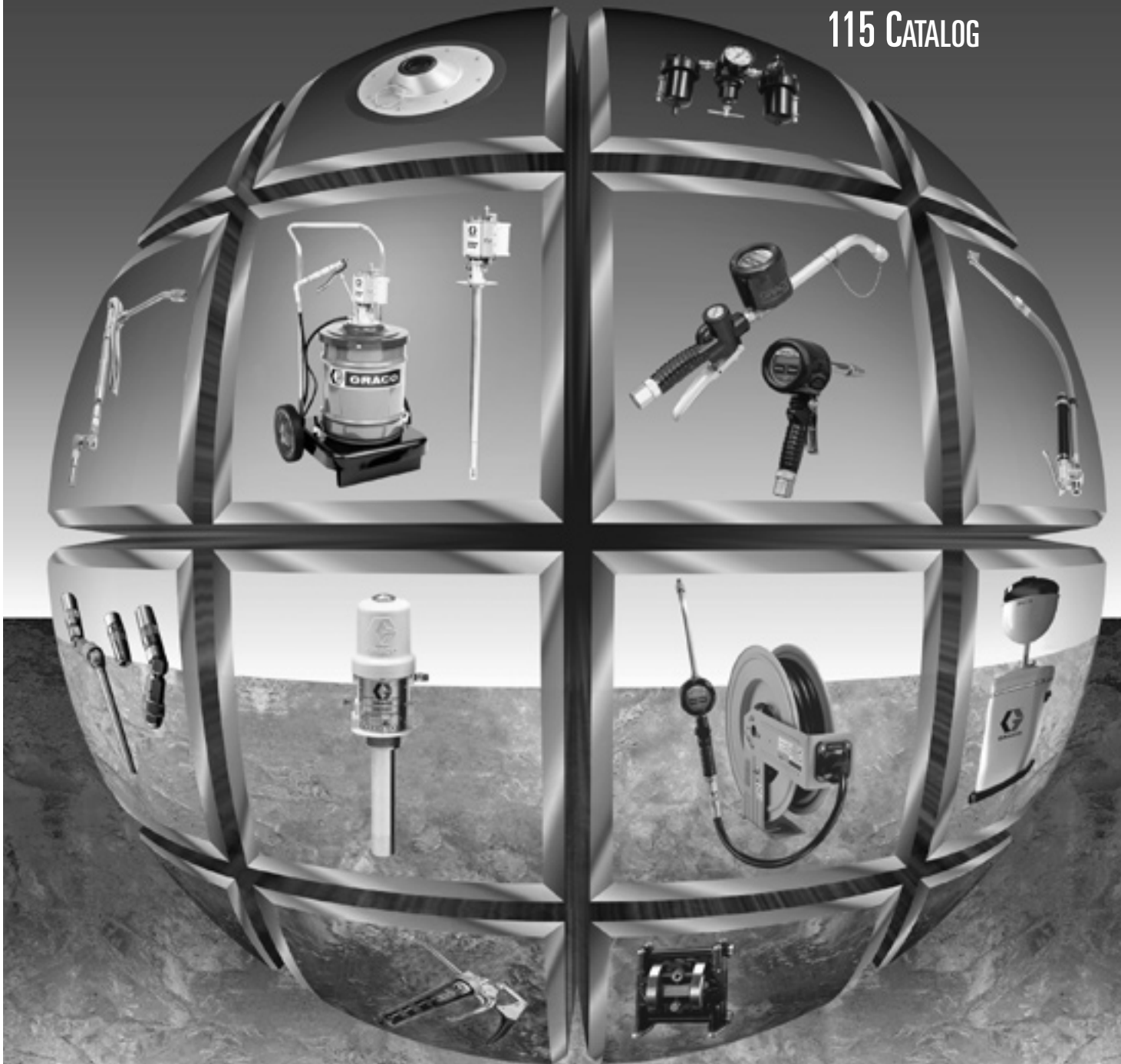


*The Lubrication
Professionals™*

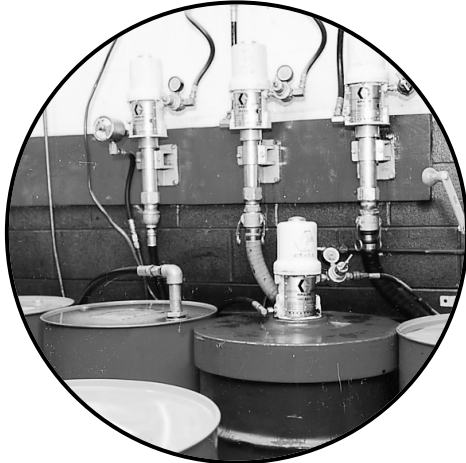
115 CATALOG



Lubrication Equipment & Systems

LUBRICATION

LUBRICATION EQUIPMENT & SYSTEMS





We are
proud to
be the



About the Pumps

The heart of any fluid delivery system is the pump. Graco pumps and pump systems are recognized worldwide for high quality and dependable long term performance. These pumps are designed to handle all types of lubricants in today's most demanding environments.

Fast-Ball Pumps Fast-Ball pumps are the ideal choice for the transfer and dispensing of light lubricants such as motor oil and ATF. The Fast-Ball is available in stubby length for wall mounting or with various tube lengths to lift containers from 5 to 275 gallons (20 to 1100 liters) and larger.

Fast-Flo Pumps This all-purpose pump can handle a variety of different fluids. Due to interchangeable pump lowers, stainless steel, carbon steel and with various packing materials, the Fast-Flo is very versatile. It is available in stubby length for wall mounting or with various tube lengths to lift containers from 5 to 275 gallons (20 to 1100 liters) and larger.

Eagle Pumps Eagle pumps offer many important advantages. They are available in a variety of sizes, and all are very reliable and incredibly durable even under rough conditions. Systems come in both portable and stationary packages for tanks and drums. Not only are they economical to own, operate and maintain, but at a maximum of 85 dBA, they are also quiet.

Fire-Ball Pumps Quiet Fire-Ball pumps are the industry leaders for lubrication equipment in fast lubes, car dealerships and medium-sized fleet and equipment service garages. The Fire-Ball 5:1 provides the power to supply several remote outlets in stationary installations, yet is economical enough for use with portable lubricators. With a 3 in. (7.6 cm) air motor, the Fire-Ball 5:1 is available in stubby length for wall mounting or with various tube lengths to fit containers from 5 to 275 gallons (20 to 1100 liters) and larger.

President Pumps President pumps, the power leaders, are the top choice in large fleet and mass transit service installations. President pumps have a 3:1, 6:1 or 10:1 ratio and are available in stubby length for wall mounting or with various tube lengths to fit containers from 16 to 275 gallon (60 to 1100 liters) and larger. With a big 4.25 in. (10.8 cm) air motor, each President pump can supply multiple outlets for simultaneous use.

Bulldog Pumps Bulldog pumps are perfect for industrial installations where simultaneous dispensing of oil at multiple points is required. Its large 7" (17.8 cm) air motor means the pump can also be used for high volume bulk oil or grease transfer.

Double Diaphragm Pumps Double diaphragm pumps are built with high quality, precision parts. They are very economical, and last a long time even when operated in an evacuation or dry condition. But more than anything else, these pumps are a good choice because they make life easier, providing a simple, hands-off, hassle-free solution to your fluid handling needs.

Oil Pumps: Double Ball Check

Part No.	Ratio	Container Size	Air Motor Diameter in. (mm)	Max. Rec. Air Pressure psi (bar)	Max. Free-Flow Flow Rate gpm (lpm)	Approx. cpg (cpl)	Rec. Max. cpm	Air Inlet
FAST-BALL								
222-051	1:1	Universal	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
222-103	1:1	55 gal. Bung Mtd.	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
222-104	1:1	275 gal. Bung Mtd.	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
FAST-FLO								
226-944*	1:1	Universal	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
226-945*	1:1	Universal	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
226-941*	1:1	55 gal. Bung Mtd.	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
226-942*	1:1	55 gal. Bung Mtd.	1.37 (34.8)	180 (12)	10 (37)	20 (5.3)	200	1/4 npt(f)
EAGLE								
236-874	3:1	Universal	2.9 (73.7)	150 (10)	9 (33)	26 (6.9)	130	3/8 npt(f)
236-875	3:1	16 gal. Bung Mtd.	2.9 (73.7)	150 (10)	9 (33)	26 (6.9)	130	3/8 npt(f)
236-876	3:1	16 gal. Cover Mtd.	2.9 (73.7)	150 (10)	9 (33)	26 (6.9)	130	3/8 npt(f)
236-877	3:1	55 gal. Bung Mtd.	2.9 (73.7)	150 (10)	9 (33)	26 (6.9)	130	3/8 npt(f)
236-878	3:1	55 gal. Cover Mtd.	2.9 (73.7)	150 (10)	9 (33)	26 (6.9)	130	3/8 npt(f)
236-879	3:1	275 gal. Bung Mtd.	2.9 (73.7)	150 (10)	9 (33)	26 (6.9)	130	3/8 npt(f)
FIRE-BALL								
203-876	5:1	Universal	3 (76.2)	180 (12)	11 (40.7)	28 (7.4)	60	3/8 npt(f)
203-872	5:1	16 gal.	3 (76.2)	180 (12)	11 (40.7)	28 (7.4)	60	3/8 npt(f)
203-857	5:1	55 gal. Cover Mtd.	3 (76.2)	180 (12)	11 (40.7)	28 (7.4)	60	3/8 npt(f)
204-254	5:1	55 gal. Bung Mtd.	3 (76.2)	180 (12)	11 (40.7)	28 (7.4)	60	3/8 npt(f)
222-087	5:1	275 gal. Bung Mtd.	3 (76.2)	180 (12)	11 (40.7)	28 (7.4)	60	3/8 npt(f)
206-405	15:1	Pail Length	3 (76.2)	180 (12)	3.6 (13.6)	90 (24)	60	3/8 npt(f)
206-699	15:1	16 gal.	3 (76.2)	180 (12)	3.6 (13.6)	90 (24)	60	3/8 npt(f)
206-700	15:1	55 gal.	3 (76.2)	180 (12)	3.6 (13.6)	90 (24)	60	3/8 npt(f)
PRESIDENT								
205-626	10:1	Universal	4.25 (108)	180 (12)	12 (44.4)	20 (5.3)	60	1/2 npt(f)
222-065	10:1	55 gal. Cover Mtd.	4.25 (108)	180 (12)	12 (44.4)	20 (5.3)	60	1/2 npt(f)
222-095	10:1	55 gal. Bung Mtd.	4.25 (108)	180 (12)	12 (44.4)	20 (5.3)	60	1/2 npt(f)
237-526	3:1	Universal	4.25 (108)	180 (12)	32 (120)	6 (1.6)	60	1/2 npt(f)
238-108	6:1	Universal	4.25 (108)	180 (12)	16 (59.2)	14 (3.7)	78	1/2 npt(f)

NOTE: All pumps are double ball, double acting.

** Divorced design*



222-051



226-944

Material Outlet	Fluid Inlet	Stroke Length in. (mm)	Service Kit: Motor	Service Kit: Fluid Section	Wetted Parts:	Data Sheet	Instruction Manual
3/4 npt(f)	1-1/2 npt	4 (102)	223-059	223-059	CS/Buna	NA	307-906
3/4 npt(f)	1-1/2 npt	4 (102)	223-059	223-059	CS/Buna	NA	307-906
3/4 npt(f)	1-1/2 npt	4 (102)	223-059	223-059	CS/Buna	NA	307-906
3/4 npt(f)	1-1/2 npt	4 (102)	214-584	215-964	CS/Poly	305-806	307-427
3/4 npt(f)	1-1/2 npt	4 (102)	214-584	215-964	SST/Poly	305-806	307-427
3/4 npt(f)	1-1/2 npt	4 (102)	214-584	215-964	CS/Poly	305-807	307-427
3/4 npt(f)	1-1/2 npt	4 (102)	214-584	215-964	SST/Poly	305-807	307-427
1/2 npt(f)	1-1/2 npt	4 (102)	236-729	236-729	CS/Buna	305-637	308-381
1/2 npt(f)	1-1/2 npt	4 (102)	236-729	236-729	CS/Buna	305-638	308-381
1/2 npt(f)	1-1/2 npt	4 (102)	236-729	236-729	CS/Buna	305-638	308-381
1/2 npt(f)	1-1/2 npt	4 (102)	236-729	236-729	CS/Buna	305-639	308-381
1/2 npt(f)	1-1/2 npt	4 (102)	236-729	236-729	CS/Buna	305-639	308-381
1/2 npt(f)	1-1/2 npt	4 (102)	236-729	236-729	CS/Buna	305-640	308-381
1/2 npt(m)	1-1/2 npt	3 (76)	206-728	206-924	CS/Buna	NA	306-518
1/2 npt(m)	1-1/2 npt	3 (76)	206-728	206-924	CS/Buna	NA	306-518
1/2 npt(m)	1-1/2 npt	3 (76)	206-728	206-924	CS/Buna	NA	306-518
1/2 npt(m)	1-1/2 npt	3 (76)	206-728	206-924	CS/Buna	NA	306-518
1/2 npt(m)	1-1/2 npt	3 (76)	206-728	206-924	CS/Buna	NA	306-518
3/8 npt (f)	Tube	3 (76)	206-728	206-925	Leather/Rubber	NA	306-531
3/8 npt (f)	Tube	3 (76)	206-728	206-925	Leather/Rubber	NA	306-531
3/8 npt (f)	Tube	3 (76)	206-728	206-925	Leather/Rubber	NA	306-531
3/4 npt(m)	1-1/2 npt	4 (102)	207-385	206-927	CS/Buna	NA	306-655
3/4 npt(m)	1-1/2 npt	4 (102)	207-385	206-927	CS/Buna	NA	306-655
3/4 npt(m)	1-1/2 npt	4 (102)	207-385	206-927	CS/Buna	NA	306-655
3/4 npt(m)	1-1/2 npt	4 (102)	207-385	236-862	CS/Buna	305-694	308-485
3/4 npt(m)	1-1/2 npt	4 (102)	207-385	238-225	CS/Buna	305-752	308-608



236-874



203-876



237-526

Manual Pump Packages for Oil Dispense



225-819



226-289



225-378



225-564



226-290



112-202

Pump package includes the following:

Part No./ Description	Manual Pump	Cover	Caster Base	Enclosure	Meter
4 GALLON (15 LITER) BULK DISPENSER					
225-819	203-052	X		X	154-785
225-820	203-052	X		X	
5 GALLON (20 LITER) PAIL					
226-289	X	X		X	
226-374	X		X	X	157-769
16 GALLON (60 LITER)					
<i>Economy Dispenser</i>					
225-378	204-867	204-574	203-622		
225-376	204-867	204-574	203-622		203-647
225-880	204-867	204-574	203-622		203-419
225-384	204-867	204-574	203-650		203-647
225-380	204-867	204-574	203-650		
55 GALLON (210 LITER) HAND PUMPS					
225-564	Lever Pump				
226-290	Rotary Pump				
112-202	Hand-Lever Diaphragm				

Note: an X designates inclusion in this specific package but not available as a general accessory.

Measure	Hose & Fitting Kit	Hose Length	Bung Adapter	Dispense Nozzle/ Spout Outlet	Instruction Manual
Pint	X	6 ft. (1.8 m)			306-327
	X	6 ft. (1.8 m)			306-327
Pint	X	4 ft. (1.2 m)			306-875
	214-658	6 ft. (1.8 m)		200-348	307-097
Pint Quart Pint	214-658	6 ft. (1.8 m)		200-348	306-436
	214-658	6 ft. (1.8 m)		203-469	306-436
	214-658	6 ft. (1.8 m)		200-348	306-436
	214-658	6 ft. (1.8 m)		200-348	306-436
	214-658	6 ft. (1.8 m)		200-348	306-436
	X		X X X	X X	

LUBRICATION

Manual Pump Packages for Oil Dispense

Bulk Dispensers

Self-contained package includes its own reservoir for transporting gear lube from bulk containers to point of application. Enclosed bucket holds 4 gallons (15 liters) of bulk lubricant. Lever-operated pump has adjustable pivot to provide variable pressure to 180 psi (12 bar).

225-819 Lubricant Dispenser, Metered

Dispenser includes: lever-operated pump (203-052), meter (154-785) measuring pints, cover, enclosure, and a 6 ft. (1.8 m) hose and fitting kit. Instruction manual: 306-327. Metric models available by special order.



225-820 Lubricant Dispenser, Un-metered

Same as 225-819 only un-metered.

Pail Packages

Pump mounts to a standard 5 gallon (20 liter) pail.

226-289 Economy Gear Lube Dispenser

Cover-mounted lever-operated dispenser. Includes: pump, cover, enclosure, a 4 ft. (1.2 m) delivery hose with curved nozzle that stores in cover port. Instruction manual: 306-875.



Economy Dispenser Packages

Uses fluid drum as reservoir with economical caster base and cover for portability and pump mounting. Pump and cover mount directly on a 16 gallon (60 liter) drum. Exposed drum provides ready product identification (drum not included).

225-378 Lubricant Dispenser, Un-metered

Dispenser includes: manual pump (204-867), drum cover (204-574), caster base (203-622), 1/2 in. x 6 ft. (1.8 m) fluid hose (214-658), and dispense nozzle (200-348). Instruction manual: 306-436.



225-376 Lubricant Dispenser, Pint-metered

Dispenser includes: manual pump (204-867), drum cover (204-574), caster base (203-622) and meter (203-647). Instruction manual: 306-436.



225-880 Lubricant Dispenser, Quart-metered

Dispenser includes: manual pump (204-867), drum cover (204-574), caster base (203-622) and meter (203-419). Instruction manual: 306-409.



225-384 Lubricant Dispenser

Dispenser includes: manual pump (204-867), drum cover (204-574), meter (203-647), 1/2 in. x 6 ft. (1.8 m) fluid hose (214-658), dispense nozzle (200-348), and two-wheel cart (203-650). Instruction manual: 306-436. Product appearance similar to 225-880 but has two-wheel cart.

225-380 Lubricant Dispenser

Dispenser is designed for stationary installation. Dispenser includes: manual pump (204-867), drum cover (204-574), 1/2 in. x 6 ft. (1.8 m) fluid hose (214-658), and dispense nozzle (200-348). Instruction manual: 306-436.



Manual Transfer Pumps

For bulk lubricant transfer from 16 gallon (60 liter) or 55 gallon (210 liter) drums.

225-564 Lever Pump

Hand-operated pump for transferring light oils and lubricants. Delivery: approximately 5 fl. oz. (150 ml) per downstroke. Telescopic suction tube mounts in 2 in. npt bung opening of 16 gal. (60 liter) or 55 gal. (205 liter) drum. Package includes: pump, bung adapter, and a spout outlet.



226-290 Rotary Pump

Rotary pump for dispensing light oils and lubricants. Delivery: approximately 7 gpm (55 lpm). Has adjustable 2 in. npt bung mounting to allow use with either 16 gal. (60 liter) or 55 gal. (205 liter) drum. Package includes: pump, bung adapter, and a spout outlet.



112-202 Hand-Lever Diaphragm Pump

Double-action, high volume diaphragm pump. Transfers approximately 1 gal. (3.7 liter) per nine strokes. Telescopic suction tube mounts in 2 in. npt bung opening of 16 gal. (60 liter) or 55 gal. (205 liter) drum. Package includes: 6 ft. (1.8 m) hose and fitting kit and a bung adapter.



Air-Operated Pump Packages for Oil Dispense



222-601



236-705



236-706



236-708



236-707



236-709

Pump package includes the following:

Part No. / Description	Pump package includes the following:		
	Pump	Regulator Assembly	Hose & Fitting Kit
POWER-FIL DISPENSE MODULE			
<i>55 Gallon (205 liter)</i>			
222-602 Fast-Ball 1:1 Un-metered	222-103		
222-601 Fast-Ball 1:1 U.S.-metered	222-103		
223-452 Fast-Ball 1:1 Metric-metered	222-103		
UNIVERSAL SUPPLY MODULE			
236-705 Eagle 3:1	236-874	224-512	222-062
225-852 Fire-Ball 5:1	203-876		222-062
225-853 President 10:1	205-626		222-068
COVER-MOUNT MODULE			
<i>16 Gallon (60 liter)</i>			
236-706 Eagle 3:1	236-876	224-512	222-063
225-094 Fire-Ball 5:1	203-872		222-063
<i>55 Gallon (205 liter)</i>			
236-708 Eagle 3:1	236-878	224-512	222-063
225-642 Fire-Ball 5:1	203-857		222-063
225-782 President 10:1	222-065		222-066
BUNG-MOUNT MODULE			
<i>55 Gallon (205 liter)</i>			
236-707 Eagle 3:1	236-877	224-512	222-063
225-640 Fire-Ball 5:1	204-254		222-063
225-786 President 10:1	222-095		222-066
<i>275 Gallon (1100 liter)</i>			
236-709 Eagle 3:1	236-879	224-512	222-063
225-931 Fire-Ball 5:1	222-087		222-063
PORTABLE PACKAGES			
<i>16 Gallon (60 liter)</i>			
236-710 Eagle 3:1 Economy Line	236-876		
225-728 Fire-Ball 5:1 Economy-Line	203-872		

For pump specifications, see pages 4-4 through 4-5.

Cover	Bung Adapter	Dispense Kit	Caster Base	Instruction Manual
	222-308	218-115		307-637
	222-308	222-365		307-637
	222-308	223-454		307-637
				308-382
				306-520
				306-520
204-574				308-382
204-574				307-883
200-326				308-382
200-326				307-883
200-326				307-883
	222-308			308-382
	214-583			307-883
	222-308			307-883
	222-308			308-382
	222-308			307-883
204-574		222-064	203-622	308-382
204-574		222-064	203-622	307-884

LUBRICATION

Air-Operated Pump Packages for Oil Dispense

Power-Fil Dispensing Modules

222-602 Fast-Ball 1:1, Non-metered

Module includes: pump (222-103) bung-mounted for 55 gallon (205 liter) drums and un-metered dispense kit. Dispenser includes a 0-60 psi (0-4 bar) regulator. Dispenser also fits any work bench tank having a 35 in. (89 cm) height. Instruction manual: 307-637.



222-601 Fast-Ball 1:1, U. S.-metered

Module includes: pump (222-103) bung-mounted for 55 gallon (205 liter) drums and metered dispense kit for dispensing a measured amount of lubricant. A separate meter records the total amount of lubricant used. Dispenser includes a regulator 0-60 psi (0-4 bar). Dispenser also fits any work-bench tank having a 35 in. (89 cm) height. Instruction manual: 307-637.



223-452 Fast-Ball 1:1, Metric-metered

Same as 222-601 except meter measures in liters.

Universal Supply Module

Graco universal-length dispense pumps consist of a short, stubby length pump with a threaded inlet, allowing the use of a variety of inlet tubes or hoses. Universal dispense pumps can be wall-mounted for use with a suction hose kit or suction tube may be added to create a bung-mounted drum pump in any length. For cover-mounted pumps, add only the appropriate suction tube. For bung-mounted, add the appropriate suction tube and a bung adapter. Note: Graco manufactures a selection of suction tubes to accommodate various size containers. See page 4-37 for details.

236-705 Eagle 3:1 Universal

Module includes: pump (236-874), 18 in. (46 cm) hose and fitting kit (222-062) for stub or wall-mount applications, and air regulator assembly (224-512). Instruction manual: 308-382.



225-852 Fire-Ball 5:1 Universal

Module includes: 18 in. (46 cm) hose and fitting kit (222-062). Instruction manual: 306-520. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



225-853 President 10:1 Universal

For large installations with long dispense lines, where low air pressures would otherwise limit pump performance, or for cold weather operation. This pump is similar to the Fire-Ball 5:1 but uses the President air motor and has a higher ratio. Module includes air and fluid hoses, 18 in. (46 cm) hose and fitting kit (222-068). Instruction manual: 306-520. Note: use 1/2 in. air regulator (104-266) as required (not included). See page 4-63.

Cover-Mount Module

To be used with open-head drums or containers.

236-706 Eagle 3:1 16 Gallon (60 Liter)

Module includes: pump (236-876), air regulator assembly (224-512), 6 ft. (1.8 m) hose and fitting kit (222-063), and drum cover (204-574). Instruction manual: 308-382.



225-094 Fire-Ball 5:1 16 Gallon (60 Liter)

Module includes: pump (203-872), 6 ft. (1.8 m) hose and fitting kit (222-063), and drum cover (204-574). Instruction manual: 307-883. Order low-level cutoff separately for metered dispense systems. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



236-708 Eagle 3:1 55 Gallon (205 Liter)

Module includes: pump (236-878), air regulator assembly (224-512), 6 ft. (1.8 m) hose and fitting kit (222-063), and drum cover (204-574). Instruction manual: 308-382.



225-642 Fire-Ball 5:1 55 Gallon (205 Liter)

Module includes: pump (203-857), 6 ft. (1.8 m) hose and fitting kit (222-063), and drum cover (200-326). Instruction manual: 307-883. Order low-level cutoff (204-159) separately for metered dispense systems. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



225-782 President 10:1 55 Gallon (205 Liter)

Module includes: pump (222-065), 6 ft. (1.8 m) hose and fitting kit (222-066), and drum cover (200-326). Instruction manual: 307-883. Order low-level cutoff (203-688) separately for metered dispense systems. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.

Bung-Mount Module

To be used with a closed-head drum or tank with a 2 inch bung.

236-707 Eagle 3:1 55 Gallon (205 Liter)

Module includes: pump (236-877), air regulator assembly (224-512), 6 ft. (1.8 m) hose and fitting kit (222-063), and 2 in. npt bung adapter (222-308). Instruction manual: 308-382. Order low-level cutoff (203-688) separately for metered dispense systems. See page 4-37.



225-640 Fire-Ball 5:1 55 Gallon (205 Liter)

Module includes: pump (204-254), 6 ft. (1.8 m) hose and fitting kit (222-063), and 2 in. npt bung adapter (214-583). Instruction manual: 307-883. Order low-level cutoff (204-159) separately for metered dispense systems. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



225-786 President 10:1 55 Gallon (205 Liter)

Module includes: pump (222-095), 6 ft. (1.8 m) hose and fitting kit (222-066), and 2 in. npt bung adapter (222-308). Instruction manual: 307-883. Order low-level cutoff (203-688) separately for metered dispense systems. Note: use 1/2 in. air regulator (104-266) as required (not included). See page 4-63.

236-709 Eagle 3:1 275 Gallon (1100 Liter)

Module includes: pump (236-879), air regulator assembly (224-512), 6 ft. (1.8 m) hose and fitting kit (222-063), and 2 in. npt bung adapter (222-308). Instruction manual: 308-382.



225-931 Fire-Ball 5:1 275 Gallon (1100 Liter)

Module includes: pump (222-037), and 6 ft. (1.8 m) hose and fitting kit (222-063), and 2 in. npt bung adapter (222-308). Instruction manual: 307-883. Outlet size: 1/2 npt(f). Order low-level cutoff (203-688) separately for metered dispense systems. Note: uses 3/8 in. air regulator assembly (109-075) as required (not included). See page 4-63.



Portable Packages

To be used with 16 gallon (60 liter) drums.

236-710 Eagle 3:1 Economy Dispenser

Caster base provides portability. Exposed drum provides ready product identification (drum not included). Includes: pump (236-876), cover (204-574), dispense kit (237-075), and caster base (203-622). Instruction manual: 308-382. Use 3/8 in. air regulator kit (224-512) as required (not included). See page 4-63.



225-728 Fire-Ball 5:1 Economy Dispenser

Caster base offers portability. Exposed drum provides ready product identification (drum not included). Includes: pump (203-872), cover (204-574), dispense kit (237-075), and caster base (203-622). Instruction manual: 308-382. Use 3/8 in. air regulator kit (224-512) as required (not included). See page 4-63.



Pourable Grease Dispense Systems

DESIGNED FOR DISPENSING HEAVY WEIGHT GEAR OILS AND LIGHT WEIGHT POURABLE GREASES, THESE LUBRICATORS USE THE 3 IN. (7.6 CM) FIRE-BALL AIR MOTOR AND A 15:1 RATIO PUMP TO PROVIDE HIGH VOLUME DISPENSING AT MODERATE PRESSURES.

222-078 Fire-Ball 15:1 Pail: 35 lb. (16 kg)

Fire-Ball 15:1 pump and pail cover mount directly on 35 lb. (16 kg) pails. Pump provides convenient clutch handle. Unit includes: pump (206-405), drum cover (222-058), and dispense kit (222-080). Instruction manual: 307-748. Dispense valve includes Z-swivel to provide freedom of movement without kinking or binding hose. Order with follower plate (220-653) as necessary. See page 4-38.



220-170 Fire-Ball 15:1 Drum: 120 lb. (55 kg)

Fire-Ball 15:1 pump and drum cover mount directly onto 120 lb. (55 kg) drum. Unit includes: pump (206-699), drum cover (204-574), and dispense kit (222-081). Instruction manual: 307-749. Dispense valve includes Z-swivel to provide freedom of movement without kinking or binding hose. Order with follower plate (223-845) as necessary. See page 4-38.



220-171 Fire-Ball 15:1 Drum: 400 lb. (180 kg)

Fire-Ball 15:1 pump and drum cover mount directly onto 400 lb. (180 kg) drum. System is stationary-mounted and has 25 ft. (7.6 m) hose for servicing equipment. Unit includes: pump (206-700), drum cover (200-326), and dispense kit (222-081). Instruction manual: 307-750. Dispense kit includes Z-swivel to provide freedom of movement without kinking or binding hose. Order with follower plate (204-130) as necessary. See page 4-38.



Pourable Grease Dispense Kits

222-080 Pourable Grease Dispense Kit: 15 ft. (4.6 m)

222-081 Pourable Grease Dispense Kit: 25 ft. (7.6 m)

Kits can be used interchangeably on any length Fire-Ball 15:1 pump. See undercoaters on page 15 for typical usage.

Kit 222-080 includes: grease dispense valve (223-903), Z-swivel (202-577), 15 ft. 3/8 in. fluid hose (109-165), 3/8 in. close nipple (156-849), quick-disconnect air nipple (169-971), quick-disconnect air coupler (208-536), and 3/8 in. air regulator (109-075). Instruction manual: 307-882.

Kit 222-081 is the same as 222-080 but with 25 ft. (7.6 m) 3/8 in. fluid hose (206-409).

Undercoating Systems

ALL GRACO UNDERCOATER SYSTEMS USE THE INDUSTRY STANDARD FIRE-BALL 15:1 PUMP. DESIGNED AND PACKED SPECIFICALLY TO WITHSTAND THE RIGORS AND CORROSIVENESS OF UNDERCOATING COMPOUNDS, THEY WILL DELIVER MANY YEARS OF TROUBLE-FREE SERVICE. ALL SYSTEMS ARE COMPLETE AND INCLUDE A SPRAY TIP OF YOUR CHOICE. CONTACT YOUR UNDERCOATING MATERIALS SUPPLIER FOR A RECOMMENDED TIP SIZE AND SPECIFY THIS WITH YOUR ORDER. ALL UNITS INCLUDE GRACO'S HEAVY-DUTY RAC TIPS FOR INSTANT CLEARING OF CLOGGED SPRAY TIPS.

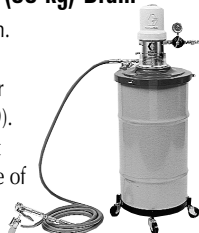
222-077 Fire-Ball 15:1 Portable: 35 lb. (16 kg)

System includes Fire-Ball 15:1 pump with convenient carry handle. Pump and cover mount directly onto pail. Undercoater has a smaller, lighter weight spray gun for maximum portability and convenience. System includes: pump (206-405), drum cover (222-058), and undercoating dispense kit (222-079). Instruction manual: 306-797. Undercoating dispense kit includes HD RAC housing and spray tip of your choice. Specify tip size at time of order.



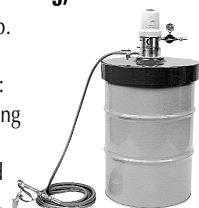
226-342 Fire-Ball 15:1 Roll-Around: 120 lb. (55 kg) Drum

Pump and cover mount to standard 120 lb. (55 kg) drum. Caster base provides roll-around portability. System includes: pump (206-699), drum cover (204-574), caster base (204-144), and undercoating dispense kit (222-079). Instruction manual: 306-973. Undercoating dispense kit includes spray tip of your choice. Specify tip size at time of order.



226-269 Fire-Ball 15:1 Stationary: 400 lb. (180 kg) Drum

Fire-Ball 15:1 pump and cover mount to standard 400 lb. (180 kg) drum. Unit is stationary-mounted and includes 25 ft. fluid hose for wide service reach. System includes: pump (206-700), drum cover (200-326), and undercoating dispense kit (222-082). Instruction manual: 306-852. Undercoating dispense kit includes HD RAC nozzle and spray tip of your choice. Specify tip size at time of order. See page 4-39 for drum elevator information.



Undercoating Accessories

214-570 Filter

Filter has 60 mesh screen for use with unfilled materials or those with fine filler material.



202-577 Z-Swivel

Z-configuration allows greater freedom of movement for access to difficult-to-reach spots. Optional for all Fire-Ball undercoaters.



206-496 39 in. (99 cm) Nozzle Extension



Steel tube with conical tip reaches deep into blind areas and delivers 360° coating fan. Use for unfilled wax and graphite products.

206-408 Inline Spray Valve—No Tip



210-890 Pistol Spray Gun

The best choice for general purpose undercoating. Standard spray gun used on all Fire-Ball undercoaters.



Undercoating Dispense Kits

222-079 Undercoating Dispense Kit: 15 ft. (4.6 m)

222-082 Undercoating Dispense Kit: 25 ft. (7.6 m)

Use for dispensing undercoating material with Fire-Ball 15:1 pumps. Kits can be used interchangeably on any length Fire-Ball 15:1 pump.

222-079 kit includes: undercoating gun (210-890), gun swivel (204-940), spray tip of choice, spray tip holder (205-649), 15 ft. 3/8 in. fluid hose (109-165), quick-disconnect air nipple (169-971), quick-disconnect air coupler (208-536), and 3/8 in. air regulator (109-075). Instruction manual: 307-879.

222-082 is the same as 222-079 with 25 ft. (7.6 m) 3/8 in. fluid hose (206-411).

HD RAC Ordering Information

222-674 HD RAC Housing/Guard Assembly

Orifice Size (Inches)

	.015	.017	.019	.021	.023	.025	.027
Fan	6	315	317	319	321	323	325
Width	8	415	417	419	421	423	425
(Inches)	10	515	517	519	521	523	525
	12	615	617	619	621	623	625



Tip identification: all spray tips for HD RAC must be ordered using six characters. The first three characters are always GHD. The next three digits are numbers as shown in the selection chart of available sizes. For example, the correct order number for a tip with a .021 orifice and a 10 in. pattern width is GHD-521. Fan width is spray pattern width as measured 12 in. from the spray tip orifice.

223-335 Tip Kit

222-674 Guard With Tip of Choice

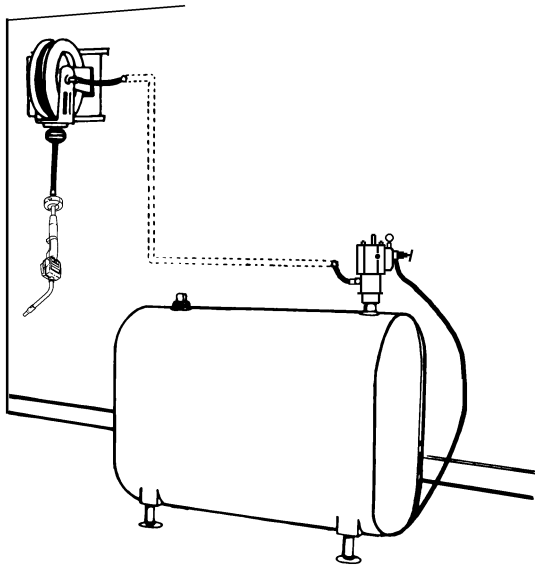
Bulk-Oil Dispensing Systems

GRACO BULK-OIL DISPENSING SYSTEMS ALLOW THE ECONOMIES OF BUYING OIL IN BULK WITHOUT THE NEED TO DESIGN OR SPECIFY A SYSTEM.

NOTE: THE FOLLOWING SYSTEMS INCLUDE THE APPROPRIATE LUBRICATION EQUIPMENT NEEDED TO COMPLETE A BULK-OIL DISPENSING SYSTEM. **GRACO DOES NOT SUPPLY TANKS.** CONTACT YOUR GRACO SALES REPRESENTATIVE FOR ASSISTANCE IN SELECTING TANKS.

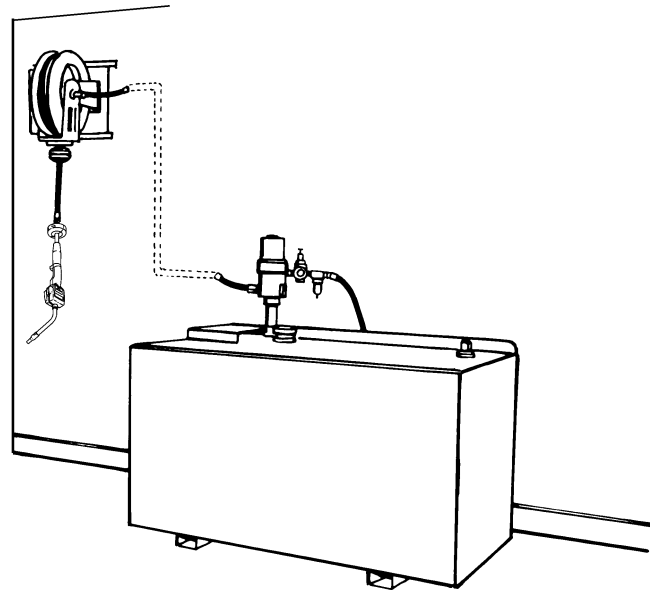
224-536 Deluxe Dispensing System from Obround Tank 275 Gal. (1100 Liter)

System includes: Eagle 3:1 pump (236-879), valve (203-688), adapter (222-308), tube (224-495), air regulator kit (224-512), nipples (156-849), 50 ft. (15.3 m) 350 series hose reel (237-022), EM5 metered dispense valve (238-451), and a hose and fitting kit (222-063).



224-534 Deluxe Dispensing System from a Bench Top Tank 250 Gal. (940 Liter)

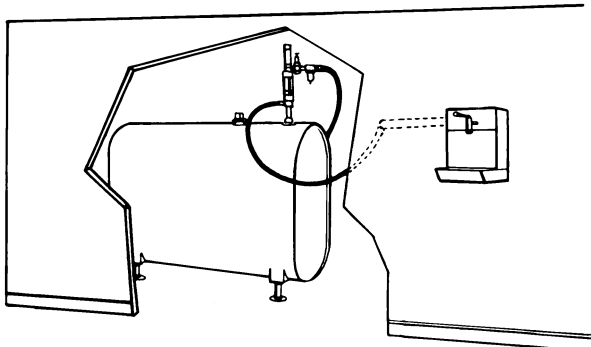
System includes: Fire-Ball 5:1 pump (204-254), air regulator (109-075), air filter (106-148), hex nipples (156-849), 50 ft. (15.3 m) 350 series hose reel (237-022), EM5 metered dispense valve (238-451), drain valve (106-151), and a hose and fitting kit (222-063).



NOTE: DUE TO THE TANK DIMENSIONS OF THE VARIOUS MANUFACTURERS, PUMP TUBE EXTENSIONS MUST BE ORDERED SEPARATELY. SEE PAGE 4-37 FOR DETAILS.

223-693 Dispensing System from Obround Tank to an Oil Dispense Bar 275 Gal. (1100 Liter)

Convenient access to bulk-oil products from multiple work stations. Tank can be located in a storage room with only the oil bar in the work area (requires installation). System includes: Fast-Ball 1:1 pump (222-104), air regulator and gauge, (110-147), air filter (110-146), nipples (156-971), one stationary oil dispense bar (220-107), drain valve (110-929), and a hose and fitting kit (222-119).

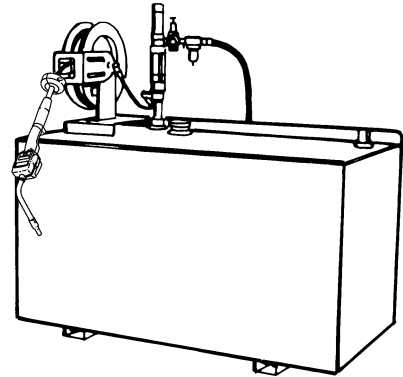


224-537 Dispense System from Bench Top Tank 250 Gal. (940 Liter)

System includes: 715 aluminum double diaphragm pump (223-158), 16 ft. (4.9 m) hose reel (218-444), EM5 metered dispense valve (238-451), air control kit (221-147), swivels (202-965), bushing (100-896), and suction kit (213-099).

224-533 Dispensing System from Rectangular Tank 250 Gal. (940 Liter)

System includes: Fast-Ball 1:1 pump (222-103), air regulator (110-147), air filter (110-146), hex nipples (156-971), 25 ft. (7.6 m) hose reel (218-445), EM5 metered dispense valve (238-451), drain valve (110-929), air hose (109-125), and bushing (100-896).



GRACO MANUFACTURES A VARIETY OF BULK-OIL SYSTEMS CAPABLE OF DISPENSING OILS OUT OF ANY SIZE OR CONFIGURATION OF STORAGE TANKS. PLEASE CONTACT YOUR LOCAL GRACO LUBRICATION SYSTEMS SALES REPRESENTATIVE FOR ADDITIONAL SYSTEMS TO MEET YOUR DISPENSING NEEDS.

LUBRICATION

Grease Priming Piston Pumps: Low Pressure & High Pressure

Part No.	Ratio	Container Size	Air Motor Diameter in. (mm)	Max. Rec. Air Pressure psi (bar)	Max. Free-Flow Flow Rate lb./min. (kg/min.)	Approx. cpg (cpl)
EAGLE						
235-888	50:1	35 lb./12.5 kg	2.9 (73.7)	150 (10)	2.2 (1.0)	416 (110.2)
235-889	50:1	120 lb./55 kg	2.9 (73.7)	150 (10)	2.2 (1.0)	416 (110.2)
235-890	50:1	400 lb./180 kg	2.9 (73.7)	150 (10)	2.2 (1.0)	416 (110.2)
FIRE-BALL						
949-290*	5:1	Stubby	3 (76.2)	180 (12)	25 (11.3)	28 (7.4)
949-503*	5:1	120 lb./55 kg	3 (76.2)	180 (12)	25 (11.3)	28 (7.4)
949-041*	5:1	400 lb./180 kg	3 (76.2)	180 (12)	25 (11.3)	28 (7.4)
207-609	50:1	Pail Length	3 (76.2)	180 (12)	2.2 (1.0)	310 (82)
203-869	50:1	120 lb./55 kg	3 (76.2)	180 (12)	2.2 (1.0)	310 (82)
203-868	50:1	400 lb./180 kg	3 (76.2)	180 (12)	2.2 (1.0)	310 (82)
231-028	80:1	Pail Length	3 (76.2)	80 (5.5)	8.8 (3.9)	750 (199)
204-469	80:1	120 lb./55 kg	3 (76.2)	80 (5.5)	8.8 (3.9)	750 (199)
231-029	80:1	400 lb./180 kg	3 (76.2)	80 (5.5)	8.8 (3.9)	750 (199)
PRESIDENT						
965-124*	10:1	Flange Mount	4.25 (108)	180 (12)	85 (39)	20 (5.3)
965-130*	10:1	400 lb./180 kg Cover	4.25 (108)	180 (12)	85 (39)	20 (5.3)
965-129*	10:1	400 lb./180 kg Bung	4.25 (108)	180 (12)	85 (39)	20 (5.3)
205-394	50:1	120 lb./55 kg	4.25 (108)	180 (12)	11 (4.9)	110 (29)
205-395	50:1	400 lb./180 kg	4.25 (108)	180 (12)	11 (4.9)	110 (29)
948-416*	75:1	Pail Length	4.25 (108)	100 (7)	8.25 (3.7)	166 (44)
948-402*	75:1	120 lb./55 kg	4.25 (108)	100 (7)	8.25 (3.7)	166 (44)
948-415*	75:1	400 lb./180 kg	4.25 (108)	100 (7)	8.25 (3.7)	166 (44)
BULLDOG "SINKER"						
205-148	3:1	Bare	7 (178)	120 (8.16)	200 (90)	NA

* *Special order product*



235-888



203-868

Rec. Max. cpm	Air Inlet	Material Outlet	Stroke Length in. (mm)	Service Kit: Motor	Service Kit: Fluid Section	Data Sheet	Instruction Manual
115	3/8 npt(f)	1/4 npt(f)	3.25 (82.5)	236-059	236-059	305-577	308-262
115	3/8 npt(f)	1/4 npt(f)	3.25 (82.5)	236-059	236-059	305-577	308-262
115	3/8 npt(f)	1/4 npt(f)	3.25 (82.5)	236-059	236-059	305-577	308-262
66	3/8 npt(f)	1/2 npt(f)	3 (76)	206-728	NA	NA	NA
66	3/8 npt(f)	1/2 npt(f)	3 (76)	206-728	NA	NA	NA
66	3/8 npt(f)	1/2 npt(f)	3 (76)	206-728	NA	NA	NA
66	3/8 npt(f)	1/4 npt(f)	3 (76)	206-728	204-164	NA	306-517
66	3/8 npt(f)	1/4 npt(f)	3 (76)	206-728	204-164	NA	306-517
66	3/8 npt(f)	1/4 npt(f)	3 (76)	206-728	204-164	NA	306-517
75	3/8 npt(f)	1/4 npt(f)	3 (76)	206-728	236-599	NA	306-554
75	3/8 npt(f)	1/4 npt(f)	3 (76)	206-728	236-599	NA	306-554
75	3/8 npt(f)	1/4 npt(f)	3 (76)	206-728	236-599	NA	306-554
60	1/2 npt(f)	3/4 npt(m)	4 (102)	207-385	NA	NA	NA
60	1/2 npt(f)	3/4 npt(m)	4 (102)	207-385	NA	NA	NA
60	1/2 npt(f)	3/4 npt(m)	4 (102)	207-385	NA	NA	NA
66	3/8 npsm(f)	3/8 npt(f)	4 (102)	207-385	206-928	NA	306-674
66	1/2 npsm(f)	3/8 npt(f)	4 (102)	207-385	206-928	NA	306-674
110	1/2 npt(f)	3/8 npt(f)	4 (102)	207-385	949-707	NA	NA
110	1/2 npt(f)	3/8 npt(f)	4 (102)	207-385	949-707	NA	NA
110	1/2 npt(f)	3/8 npt(f)	4 (102)	207-385	949-707	NA	NA
60	3/4 npsm(f)	2 npt(f)	4.75 (121)	206-734	NA	NA	306-642



205-395



205-148

LUBRICATION

Manual Pump Packages for Grease Dispense



520-252

Part No.	Manual Pump	Follower Plate	Dispense Kit	Valve	Cover	Base	Instruction Manual
BEARING PACKER							
520-252	X	X			X		307-343
DUAL DUTY DISPENSE							
225-750	204-137		203-703	203-697	X	X	306-453
BUCKSHOT LUBER							
<i>35 lb. (16 kg) Pail</i>							
225-914	203-702	203-701	203-703	203-697	X		306-455
225-844	203-702	203-701	203-703		X		306-455
GUN FILLER							
<i>35 lb. (16 kg) Pail</i>							
112-197	X	X	Filler Adapter		X		N/A
<i>120 lb. (50 kg) Pail</i>							
112-198	X	X	Filler Adapter		X		N/A



225-750



225-914



112-197

Note: an X designates inclusion in this specific package but not available as a general accessory.



112-198

Manual Pump Packages for Grease Dispense

520-252 Bearing Packer

The 35 lb. (16 kg) pail cover is integral with the high pressure hand pump. The unit efficiently removes old grease from bearings and repacks with clean lubricant. It handles roller or ball bearings from 5/16 in. (8 mm) ID to 7 in. (180 mm) OD. Package includes: manual pump, follower plate, cover, and a choice of 2 sizes for dispense kit. Instruction manual: 307-343.



225-750 Dual Duty Dispense

An enclosed bucket holds 30 lbs. (14 kg) of bulk grease. The lever-operated pump delivers 1-3/4 oz. (4.96 grams) of grease per stroke at pressures up to 500 psi (34 bar). Package includes: pump and bucket (204-137), hose and coupler (203-703), and booster gun (203-697). Instruction manual: 306-453.



225-914 Buckshot Luber with Booster Gun

This lever-operated pump and cover mount directly on a 35 lb. (16 kg) pail. The pump delivers 1/4 oz. (0.7 grams) of grease per stroke at pressures to 3000 psi (207 bar). The pump can service fittings directly or can be used to charge a booster gun for more efficiency and higher pressures. Package includes: pump, follower plate 5 ft. (1.52 m) hose, coupler, and booster gun (203-697). Instruction manual: 306-455. For use on 5g pail (not included).



225-844 Buckshot Luber

Same as 225-914 but without the booster gun. Instruction manual: 306-455.

112-197 Grease Gun Filler Pump

Fits standard 35 lb. (16 kg) pail. Fills all three-way loading grease guns equipped with filler fittings. Package includes: pump, follower plate, gun filler adapter, and cover.



112-198 Grease Gun Filler Pump

Fits standard 120 lb. (55 kg) drum with removable covers. Fills all three-way loading grease guns equipped with filler fittings. Includes pump, follower plate, gun filler adapter, and cover.



Air-Operated Grease Dispense Modules

For 35-70 lb. (16-32 kg) Portable Containers



236-041



236-043



236-044



236-042

Pump module includes the following:

Part No. / Description	Pump	Container	Handle	Holster	Follower Plate
35 LB. (16 KG) PORTABLE PAIL DISPENSER					
236-041 Eagle 50:1	235-888		188-832		220-653
222-069 Fire-Ball 50:1	207-609		164-704		220-653
35-70 LB. (16-32 KG) CONTAINER					
<i>Stationary Pail Dispenser</i>					
236-043 Eagle 50:1	235-888	204-134			
225-827 Fire-Ball 50:1	207-609	204-134		203-976	
<i>With Cart</i>					
236-060 Eagle 50:1	235-888	204-134			
236-044 Eagle 50:1	235-888	204-134			
225-773 Fire-Ball 50:1	207-609	204-134		203-976	
<i>Cart-Mounted Pail Topper</i>					
236-042 Eagle 50:1	235-888				
226-012 Fire-Ball 50:1	207-609			203-976	

*Dispense Kits include: hose, Z-swivel and grease dispense valve.

For pump specifications, see pages 4-18 through 4-19.

Dispense Kit*	Cover	Enclosure	Cart	Elevator	Inductor	Instruction Manual
236-058 222-070	222-059 222-059					308-300 307-878
236-058 222-070	204-574 204-574					308-300 307-878
236-058 236-058 222-070	204-574 204-574 204-574		204-144 203-650 203-650			308-300 308-300 307-878
236-058 222-070			203-650 203-650	203-664 203-664	204-351 204-351	308-300 NA

Air-Operated Grease Dispense Modules

Portable Pail Dispenser

These basic systems fit directly on a 35 lb. (16 kg) pail.

236-041 Eagle 50:1

Module includes: pump (235-888) with handle (188-832), follower plate (220-653) for use on original pail, dispense kit (236-058), and cover (222-059). Instruction manual: 308-300. Dispense kit includes: 12 ft. (3.7 m) hose, Z-swivel and grease dispense valve. Pail cover includes valve holster. Use 3/8 in. air regulator as required (not included).



222-069 Fire-Ball 50:1

Module includes: pump with handle (207-609), follower plate (220-653) for use on original pail, dispense kit (222-070), and cover (222-059). Instruction manual: 307-878. Dispense kit includes: 6 ft. (1.8 m) hose, Z-swivel and grease dispense valve. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



Stationary Pail Dispensers

These self-contained dispensers include a 70 lb. (10 gallon) metal pail. They can also be used with a similar 35 lb. (5 gal.) pail (including plastic) if used inside the supplied pail.

236-043 Eagle 50:1

Dispenser includes: pump (235-888), pail (204-134), 12 ft. (3.7 m) hose dispense kit (236-058), and drum cover (204-574). Dispense kit includes: hose, Z-swivel and grease dispense valve. Instruction manual: 308-300. Note: follower plate not included. Order follower plate (220-654) for 70 lb. pail or follower plate (220-653) for 35 lb. pail. See page 4-38.



225-827 Fire-Ball 50:1

Dispenser includes: pump (207-609), pail (204-134), holster (203-976), dispense kit (222-070), and drum cover (204-574). Dispense kit includes: 6 ft. (1.8 m) hose, Z-swivel and grease dispense valve. Instruction manual: 307-878. Use 3/8 in. air regulator as required (not included). See page 63. Note: follower plate not included. Order follower plate (220-654) for 70 lb. (32 kg) pail or follower plate (220-653) for 35 lb. (16 kg) pail. See page 4-38.



Portable Dispensers

These systems fit directly on a 35-70 lb. (16-32 kg) drum.

236-060 Eagle 50:1 with Band Caster Base

Same as 236-043 with the addition of band caster base (204-144). Instruction manual: 308-300.



236-044 Eagle 50:1 with Cart

Same as 236-043 with the addition of a two-wheel tilt-back cart (203-650). Instruction manual: 308-300.



225-773 Fire-Ball 50:1 with Cart

Same as 225-827 with the addition of a two-wheel tilt-back cart (203-650). Instruction manual: 307-878.



Cart-Mounted Topper

For use with 35 lb. (16 kg) pails.

236-042 Eagle 50:1

System includes: pump (235-888), 12 ft. (3.6 m) hose dispense kit (236-058), cart (203-650), elevator (203-664), and inductor (204-351). Instruction manual: 308-300. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



226-012 Fire-Ball 50:1

System includes: pump (207-609), 6 ft. (1.8 m) dispense kit (222-070), cart (203-650), elevator (203-664), and inductor (204-351). Instruction manual: 306-579. Note: use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



Air-Operated Grease Dispense Modules

For 120 lb. (55 kg) Stationary and Portable Containers



225-014



220-073



222-245

Part No. / Description	Pump module includes the following:			
	Pump	Cover	Follower Plate	Hose Kit
STATIONARY SUPPLY MODULES				
236-049 Eagle 50:1	235-889	204-574	220-654	222-072
225-014 Fire-Ball 50:1	203-869	204-574	220-654	222-072
223-108 President 50:1	205-394	204-574	223-344	222-076
STATIONARY TOPPER INDUCTOR SYSTEM				
236-051 Eagle 50:1	235-889			
222-073 Fire-Ball 50:1	203-869			
PORTABLE PACKAGES				
<i>with Caster Base</i>				
236-046 Eagle 50:1	235-889	204-574	220-654	236-058*
225-006 Fire-Ball 50:1	203-869	204-574	220-654	222-070**
<i>with Two-Wheel Tilt-Back Cart</i>				
236-047 Eagle 50:1	235-889	204-574	220-654	236-058*
225-026 Fire-Ball 50:1	203-869	204-574	220-654	222-070**
<i>with Heavy-Duty Cart</i>				
236-048 Eagle 50:1	235-889	222-060	220-654	222-383***
222-245 Fire-Ball 50:1	203-869	222-060	220-654	222-383***

* Hose dispense kit includes: 12 ft. (3.6 m) hose, Z-swivel, dispense valve and holster kit.

** Hose dispense kit includes: 6 ft. (1.8 m) hose, Z-swivel, and dispense valve.

*** Hose dispense kit includes: 25 ft. (7.6 m) hose, Z-swivel, and dispense valve.

For pump specifications, see pages 4-18 through 4-19.

Holster	Caster Base	2-Wheel Cart	Elevator	Pump Support	Hold Down Kit	Instruction Manual
						308-300 307-880 307-880
			204-121 204-121	222-074 222-074		308-300 306-523
203-976	203-622 203-622					308-300 307-878
203-976		203-650 203-650				308-300 307-878
203-976		222-243 222-243			222-061 222-061	308-300 307-878

Air-Operated Grease Dispense Modules

Stationary Supply Modules

Drum cover-mounted grease pumps offer a convenient method of supplying lubricants from 120 lb. (55 kg) drums to a grease dispense system.

236-049 Eagle 50:1

Module includes: pump (235-889), drum cover (204-574), follower plate (220-654), and 6 ft. (1.8 m) hose and fitting dispense kit (222-072). Instruction manual: 308-300.



225-014 Fire-Ball 50:1

Module includes: pump (203-869), drum cover (204-574), follower plate (220-654), and 6 ft. (1.8 m) hose and fitting dispense kit (222-072). Instruction manual: 307-880. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



223-108 President 50:1

Module includes: pump (205-394), cover (204-574), follower plate (223-344), and 6 ft. (1.8 m) hose and fitting kit (222-076). Instruction manual: 307-880. Use 1/2 in. air regulator (104-266) as required (not included). See page 63. Product appearance similar to 225-014 but with a President 50:1 pump instead of a Fire-Ball 50:1.

Stationary Topper Inductor System

Topper inductor systems for 120 lb. (55 kg) drums have an inductor plate that serves as a seal to prevent entry of foreign material. The heavier weight of the plate produces enough pressure for thorough grease evacuation. An elevator assembly allows for easy drum changeovers that can be accomplished by one person.

236-051 Eagle 50:1

System includes: pump (235-889), elevator (204-121) with assembly support (222-074). Instruction manual: 308-300. Support assembly includes: plastic dust cover, base, inductor plate, 6 ft. (1.8 m) air hose and 6 ft. (1.8 m) fluid hose. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



222-073 Fire-Ball 50:1

The Fire-Ball 50:1 topper inductor system is capable of supplying lubricants to a four-point simultaneous dispense system. System includes: pump (203-869), elevator (204-121), and assembly support (222-074). Instruction manual: 306-523. Support assembly includes: dust cover, base, inductor plate, 6 ft. (1.8 m) air hose and 6 ft. (1.8 m) fluid hose. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



Portable Packages

Large container sizes with portable bases make these pump packages easy for workers to use. The equipment can be rolled out to the work area when needed and rolled back when not in use. Graco offers a wide variety of carts to accommodate the many different environments that the lubrication equipment is used in: caster base, two-wheel tilt-back cart and heavy-duty cart.

Caster Base

The caster base of these four systems provide maximum portability. The pump and cover mount directly onto a 120 lb. (55 kg) drum. The exposed drum provides ready product identification.

236-046 Eagle 50:1

System includes: pump (235-889), drum cover (204-574), follower plate (220-654), 12 ft. (3.6 m) hose dispense kit (236-058). Hose dispense kit includes: hose, Z-swivel, dispense valve, and holster, and caster base (203-622). Instruction manual: 307-300. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



225-006 Fire-Ball 50:1

System includes: pump (203-869), drum cover (204-574), follower plate (220-654), 6 ft. (1.8 m) hose dispense kit (222-070). Hose dispense kit includes: hose, Z-swivel, and dispense valve, holster (203-976), and caster base (203-622). Instruction manual: 307-878. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



Two-Wheel Tilt-Back Cart

Two-wheel tilt-back carts provide flexibility for moving the pumps over uneven surfaces. They are also helpful when working around small steps.

236-047 Eagle 50:1

System includes: pump (235-889), drum cover (204-574), follower plate (220-654), 12 ft. (3.6 m) hose dispense kit (236-058), and two-wheel cart (203-650). Instruction manual: 308-300. This system can be ordered with an accessory cabinet (226-189). Use 3/8 in. air regulator (109-075) as required (not included). See page 63. Hose dispense kit includes: hose, Z-swivel, dispense valve, and holster.



225-026 Fire-Ball 50:1

System includes: pump (203-869), drum cover (204-574), follower plate (220-654), 6 ft. (1.8 m) hose dispense kit (222-070), and two-wheel cart (203-650). Instruction manual: 307-878. This system can be ordered with an accessory cabinet (226-189). Use 3/8 in. air regulator (109-075) as required (not included). See page 63. Hose dispense kit includes: hose, Z-swivel, and dispense valve.



Heavy-Duty Cart

These heavy-duty carts make it easy to maneuver the pumps in outdoor situations. They are well-used in railroad yards, construction sites and mining facilities. Heavy-duty truck-mounted grease pumps offer a convenient method of dispensing lubricants from 120 lb. (55 kg) drums.

236-048 Eagle 50:1

System includes: pump (235-889), drum cover (222-060), follower plate (220-654), 25 ft. (7.6 m) hose dispense kit (222-383), heavy-duty two-wheel cart (222-243), and hold-down kit (222-061) for use on unpaved terrain. Instruction manual: 308-300. Hose dispense kit includes: hose, Z-swivel, dispense valve.



222-245 Fire-Ball 50:1

System includes: pump (203-869), drum cover (222-060), follower plate (220-654), 25 ft. (7.6 m) hose dispense kit (222-383), holster (203-976), heavy-duty two-wheel cart (222-243), and hold-down kit (222-061) for use on unpaved terrain. Instruction manual: 307-878. Hose dispense kit includes: hose, Z-swivel, and dispense valve. Note: drum not included.



Air-Operated Grease Dispense Modules

For 400 lb. (180 kg) Modules



225-016



226-018

Pump module includes the following:

Description/ Part No.	Pump	Drum Cover	Hose & Fitting Kit	Follower Plate	Carriage	Elevator	Base	Inductor Plate	Instruction Manual
STATIONARY MODULES									
Eagle 50:1 236-052	235-890	200-326	222-072	223-845					308-300
Fire-Ball 50:1 225-016	203-868	200-326	222-072	223-845					307-880
President 50:1 225-781	205-395	200-326	222-076	223-846					307-880
TOPPER INDUCTOR SYSTEMS									
Fire-Ball 50:1 226-013	203-868		204-467		204-461	204-385	205-339	204-353	306-556
President 50:1 226-018	205-395		205-102		204-461	204-385	205-339	205-699	306-556

For pump specifications, see pages 4-18 through 4-19.

Air-Operated Grease Dispense Modules

Stationary Modules

The 400 lb. (180 kg) stationary modules are typically used to supply bulk grease from the original container to remote dispense locations. These systems support two, four and four plus dispense points.

236-052 Eagle 50:1

This module handles dispensing to two dispense points simultaneously. Module includes: pump (235-890), drum cover (200-326), 6 ft. (1.8 m) hose and fitting kit (222-072), and follower plate (223-845). Instruction manual: 308-300. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



225-016 Fire-Ball 50:1

This module handles dispensing to four dispense points simultaneously. System includes: pump (203-868), drum cover (200-326), 6 ft. (1.8 m) hose and fitting kit (222-072), and follower plate (223-845). Instruction manual: 307-880. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



225-781 President 50:1

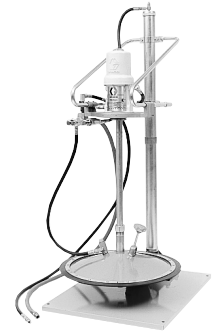
This module handles dispensing to four plus dispense points simultaneously. System includes: pump (205-395), cover (200-326), follower plate (223-846), and hose and fitting kit (222-076). Instruction manual: 307-880. Use 1/2 in. air regulator (104-266) as required (not included). See page 63. Similar appearance to 225-016 but with a President 50:1 pump instead of a Fire-Ball 50:1 pump.

Topper Inductor Systems

Topper inductor systems for 400 lb. (180 kg) drums have an inductor plate that serves as a seal to prevent entry of foreign materials. The heavy weight of the plate produces the pressure needed for thorough grease evacuation. An elevator assembly allows for clean and easy drum changeovers that can be accomplished by one person.

226-013 Fire-Ball 50:1 Topper

The baseplate-mounted elevator supports the Fire-Ball grease pump and inductor plate. System includes: pump (203-868), 6 ft. (1.8 m) hose and fitting kit (204-467), carriage (204-461), elevator (204-385), base (205-339), and inductor (204-353). Instruction manual: 306-556. Use 3/8 in. air regulator (109-075) as required (not included). See page 4-63.



226-018 President 50:1 Topper

The baseplate-mounted elevator supports the President grease pump and inductor plate. System includes: pump (205-395), 6 ft. (1.8 m) hose and fitting kit (205-102), carriage (204-461), elevator (204-385), base (205-339), and inductor (205-699). Instruction manual: 306-556. Use 3/8 in. air regulator (104-266) as required (not included). See page 4-63.



Double Diaphragm Pumps

Part No.	Model Type	Fluid Inlet & Outlet	Description	Recommended Applications <i>See Below</i>	Maximum Flow Rate	Operating Air Pressure Range psi (bar)
2150 DOUBLE DIAPHRAGM: 2 in. Ported						
DF3-525	2150	2 npt(f)	General Purpose	OT, DW, OE	150 gpm (568 lpm)	20-120 (1.4-8.4)
1590 DOUBLE DIAPHRAGM: 1-1/2 in. Ported						
DB3-525	1590	1-1/2 npt(f)	General Purpose	OT, DW, OE	90 gpm (341 lpm)	20-120 (1.4-8.4)
1040 DOUBLE DIAPHRAGM: 1 in. Ported						
D71-225	1040	face flange	General Purpose	Acetal, OT, DW, WA, Acetal Body	40 gpm (151 lpm)	20-120 (1.4-8.4)
D73-525	1040	1 npt(f)	General Purpose	Alum, OT, DW, WA, Alum Body	40 gpm (151 lpm)	20-120 (1.4-8.4)
236-268	1040	1 npt(f)	U/L (V) 50 psi (3.4 bar)	FD Unleaded Gas & Diesel	40 gpm (151 lpm)	Recmnd. 20-50 (1.4-3.5)
236-267	1040	1 npt(f)	U/L 50 psi (3.4 bar)	FD Leaded Gas & Diesel	40 gpm (151 lpm)	Recmnd. 20-50 (1.4-3.5)
236-266	1040	1 npt(f)	U/L	FT Unleaded Gas & Diesel	40 gpm (151 lpm)	20-120 (1.4-8.4)
236-265	1040	1 npt(f)	U/L	OE Crank Case Oil FT Leaded Gas & Diesel	40 gpm (151 lpm)	20-120 (1.4-8.4)
715 DOUBLE DIAPHRAGM: 3/4 in. Ported						
D61-277	715	3/4 npt(f)	General Purpose	Acetal, OT, WA, Acetal Body	15 gpm (57 lpm)	15-100 (1.8-7)
D63-277	715	3/4 npt(f)	General Purpose	Alum, OT, WA, Alum Body	15 gpm (57 lpm)	15-100 (1.8-7)
237-042	715	3/4 npt(f)	Restricted Inlet	OE Gear Oil	5 gpm (19 lpm)	15-100 (1.8-7)
238-226	715	3/4 npt(f)	U/L Restricted Inlet	OE Crank Case Oil	5 gpm (19 lpm)	15-100 (1.8-7)
237-311	715	3/4 npt(f)	U/L	FT Leaded Gas & Diesel	15 gpm (57 lpm)	15-100 (1.8-7)
307 DOUBLE DIAPHRAGM: 3/8 in. Ported						
D31-255	307	3/8 npt(f)	General Purpose	OT, WA	7 gpm (26.6 lpm)	15-100 (1-7)

*** APPLICATION DESIGNATION:**

OT – Oil Transfer DW – Dewatering FD – Fuel Dispense (with 50 psi relief valve)
 OE – Oil Evacuation WA – Water Anti-Freeze FT – Fuel Transfer (without 50 psi relief valve)



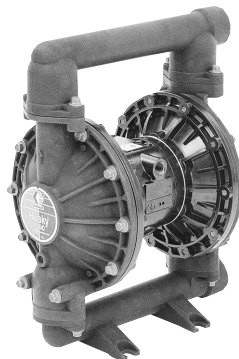
D31-255



D61-277



D71-225



DB3-525



DF3-525

Air Inlet	Wetted Parts				Data Sheet	Instruction Manual
	Housing	Diaphragm	Ball	Seat		
1/2 npt(f)	Aluminum	Hytrel	Acetal	Hytrel	305-673	308-368
1/2 npt(f)	Aluminum	Hytrel	Acetal	Hytrel	305-672	308-441
1/2 npt(f)	Acetal	Hytrel	Acetal	Acetal	NA	308-443
1/2 npt(f)	Aluminum	Hytrel	Acetal	Hytrel	305-588	308-479
1/2 npt(f)	Aluminum	Viton	Viton/UL	Viton	305-588	308-326
1/2 npt(f)	Aluminum	Hytrel	Acetal	Hytrel	305-588	308-326
1/2 npt(f)	Aluminum	Viton	Acetal	Viton	305-588	308-326
1/2 npt(f)	Aluminum	Hytrel	Acetal	Hytrel	305-588	308-326
1/4 npt(f)	Acetal	Buna-N	Buna-N	Acetal	305-587	308-444
1/4 npt(f)	Aluminum	Buna-N	Buna-N	Aluminum	305-587	308-445
1/4 npt(f)	Acetal	Buna-N	Buna-N	Acetal	NA	307-855
1/4 npt(f)	Aluminum	Buna-N	Buna-N	Acetal	NA	308-132
1/4 npt(f)	Aluminum	Buna-N	Buna-N	Acetal	NA	308-132
1/4 npt(f)	Acetal	Hytrel	Hytrel	Acetal	305-577	308-553

Double Diaphragm Accessories

	For 307	For 715	For 1040	For 1590	For 2150
Wall Mounting Bracket	224-835	224-835	189-233		
Grounding Wire & Clamp	222-011	222-011	222-011	222-011	222-011
Bung Adapter	188-181 (AC)	183-553 (PP)			
55 Gal. Suction Kit	235-500 (AC) 235-502 (PP)	221-094 (SS)	223-009 + 158-586 1 npt(m) x 3/4 npt(f)	223-009 + 158-586 1 npt(m) x 3/4 npt(f)	223-009 + 158-586 1 npt(m) x 3/4 npt(f)
Pressure Relief Valve	110-134 (AL/BN) 112-119 (SS/TF)	110-134 (AL/BN) 112-119 (SS/TF)	235-409 (Kit-AL only)	110-134 (AL/BN) 112-119 (SS/TF)	110-134 (AL/BN)
Dual Manifolds	237-210 (PP) 237-211 (AC)	237-633 (AC) 185-615 (PP)	685-984 (AL)		
55 Gal. Suction Line Assembly (Wall-Mounted)	235-500 (AC)	221-094 (SS)	158-586 (Bushing) 223-009 (Suction Tube)		

Hydraulic-Powered Lubrication Equipment

THESE PUMPS REQUIRE HYDRAULIC FLUID CONTROLS. SEE PAGE 4-35.



224-741



224-751

Part No.	Ratio	Container Size	Max. Fluid Output Pressure psi (bar)	Max. Free-Flow Flow Rate gpm (lpm)	Data Sheet	Instruction Manual
FOR OIL						
<i>Dyna-Star</i> 236-753	1/4:1	Universal	400 (28)	10 (37.9)	305-647	308-390
224-741	1:1	Universal	1500 (103.4)	3 (11.4)	305-649	308-155
224-742	1:1	55 gal. Cover Mtd.	1500 (103.4)	3 (11.4)	305-649	308-155
237-653 SST	1:1	Stubby	1000 (68.9)	3 (11.4)		308-155
<i>Power-Star</i> 236-754	1:1	Universal	1500 (103.4)	12 (45.4)	305-648	308-391
FOR GREASE						
				lb./min. (kg/min.)		
<i>Dyna-Star</i> 224-912	5:1	35 lb. Pail	7500 (525)	5.3 (2.4)		
224-751	5:1	120 lb. Drum	7500 (525)	5.3 (2.4)	305-650	308-156
224-752	5:1	400 lb. Drum	7500 (525)	5.3 (2.4)	305-650	
<i>Viscount II</i> 222-902	2400	Stubby	2000 (138)	60 (27.2)		
965-353*	5500	Stubby	5000 (344.7)	26 (11.8)		

**Part No. includes pump and floor stand assembly. This is a special order product.*

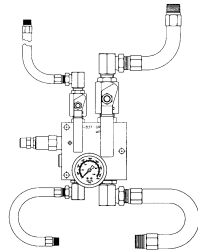
Hydraulic-Powered Lubrication Equipment

HYDRAULIC-POWERED PUMPS ARE DURABLE, EFFICIENT AND VERSATILE FLUID SUPPLY SYSTEMS. THEY OPERATE IN A CLOSED SYSTEM WITH LITTLE CHANCE OF CONTAMINATION, THUS COMPONENTS LAST LONGER. HYDRAULIC SYSTEMS ARE SELF-LUBRICATING AND HAVE NO EXHAUST NOISE FOR QUIET OPERATION. THEY ARE ALSO CAPABLE OF MAINTAINING HIGH FLOW RATES OVER MODERATE DISTANCES. CONSULT YOUR HYDRAULIC-POWERED LUBRICATION EQUIPMENT TRAINING PACKAGE FOR APPLICATION AND PRODUCT SELECTION INFORMATION.

Hydraulic Fluid Controls

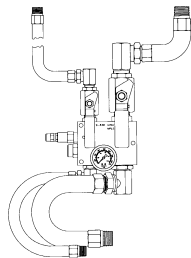
236-864 For Dyna-Star Pumps

Includes: manifold with pressure reducing valve and flow control valve, pressure gauge, shutoff ball valves, and 3 ft. (0.9 m) supply and return hoses. Instruction manual: 308-395. Data Sheet: 305-651.



236-865 For Power-Star Pumps

Includes: manifold with pressure reducing valve and flow control valve, pressure gauge, shutoff ball valves, and 3 ft. (0.9 m) supply and return hoses. Instruction manual: 308-395. Data Sheet: 305-651.

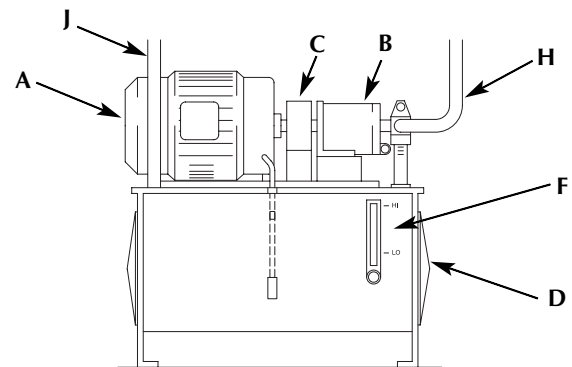
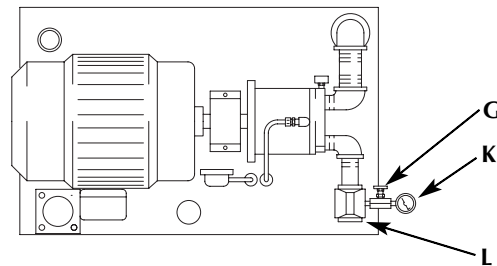


Installation Hose Kits for Power Supply Units

Part No.	Description	Power Pack Size gpm (lpm)
949-610	6 ft. (1.8 m) supply & return hoses with ball valves	5-15 (18.5-55.5)
949-611	6 ft. (1.8 m) supply & return hoses with ball valves	21-28 (77.7-103.6)
949-612	6 ft. (1.8 m) supply & return hoses with ball valves	37-54 (136.9-199.8)

Power Supply Units

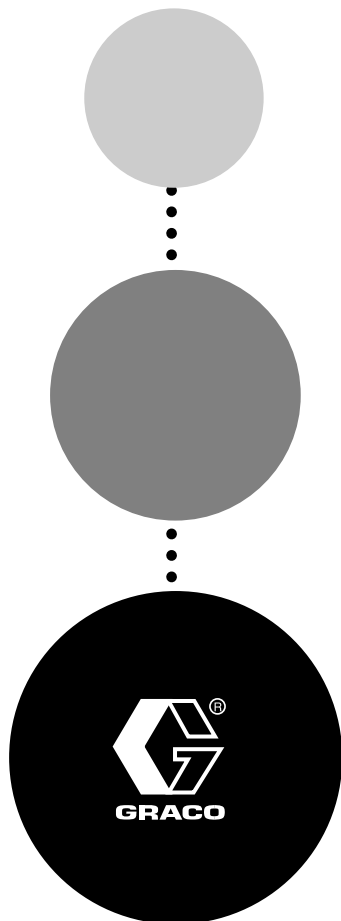
Part No.	Reservoir Size Gal. (Liter)	HP	Flow Rate gpm (lpm)	Max. Fluid Pressure psi (bar)
514-908	20 (74)	5	5 (18.5)	1500 (103)
514-909	30 (111)	10	10 (37)	1500 (103)
514-910	50 (185)	15	15 (55.5)	1500 (103)
514-911	60 (222)	20	21 (77.7)	1500 (103)
514-912	80 (296)	25	28 (103.6)	1500 (103)
514-913	100 (370)	30	37 (136.9)	1500 (103)
514-914	120 (444)	40	46 (170.2)	1500 (103)
514-915	150 (555)	50	54 (199.8)	1500 (103)



KEY	
A	Electric Motor
B	Piston Pump
C	Coupler
D	Reservoir
F	Sight Gauge (Temperature & Level)
G	Safety Relief Valve
H	Fluid Outlet
J	Fluid Return
K	Pressure Gauge
L	Filter

SYSTEM COMPONENTS & ACCESSORIES

SYSTEM COMPONENTS AND ACCESSORIES COMPLEMENT THE PUMP TO COMPLETE THE SYSTEM. GRACO PROVIDES AN EXTENSIVE LINE OF THESE COMPONENTS TO HELP YOU CUSTOMIZE YOUR SPECIFIC PUMPING NEEDS.



Pump Mounting Accessories

PUMP MOUNTING ACCESSORIES ALLOW FOR CONVERSION TO WALL, PAIL, DRUM, TANK OR STAND MOUNTING.

Suction Tubes



Used with universal Eagle, Fire-Ball or President pumps, suction tubes allow cover or bung-mounting. Threading the suction tube into the pump's foot valve reduces the overall functional length by approximately 1/2 in. (12.7 mm).

For Pumps Manufactured prior to 1996

220-686 For 16 Gal. (60 Liter) Cover-Mounted Pumps

220-688 For 55 Gal. (205 Liter) Cover-Mounted Pumps

Use with Fire-Ball 5:1 and President 10:1 cover-mounted pumps. Length for 220-686: 16-5/16 in. (41.4 cm). Length for 220-688: 23-13/16 in. (60.5 cm)

220-687 For 16 Gal. (60 Liter) Bung-Mounted Pumps

220-690 For 55 Gal. (205 Liter) Bung-Mounted Pumps

220-691 For 275 Gal. (1100 Liter) Bung-Mounted Pumps

Use with Fast-Ball 1:1, Fire-Ball 5:1 and President 10:1 bung-mounted pumps. Order bung adapter (222-308). Length for 220-687: 19-1/16 in. (48.4 cm). Length for 220-690: 28-1/16 in. (71.3 cm).

220-688 For 16 Gal. (60 Liter) Bung-Mounted Pumps

220-692 For 55 Gal. (205 Liter) Bung-Mounted Pumps

220-693 For 275 Gal. (1100 Liter) Bung-Mounted Pumps

Use with Fast-Flo 1:1 bung-mounted pumps. Order bung adapter (222-308). Length for 220-688: 23-13/16 in. (60.5 cm). Length for 220-692: 31-13/16 in. (metric). Length for 220-693: 41-13/16 in. (106.2 cm).

For Pumps Manufactured after January, 1996

Cover-Mounted Pumps

238-592 For 16 Gal. (60 Liter)

238-593 For 55 Gal. (205 Liter)

Bung-Mounted Pumps

238-595 For 55 Gal. (205 Liter)

238-596 For 275 Gal. (1100 Liter)

Use 222-308 Bung Adapter on all current production Fast-Ball 1:1, Eagle 3:1, Fireball 5:1 and President 10:1 pumps.

222-308 Bung Adapter for Fast-Ball, Eagle, Fire-Ball and President



214-583 Bung Adapter for Fast-Flo and Fire-Ball

222-308: allows direct mounting of all universal length and extended Fast-Ball 1:1, Eagle 3:1, Fire-Ball 5:1 and President 10:1 pumps into standard 2 in. npt drum bung.

214-583: allows direct mounting of full length Fast-Flo 1:1 and Fire-Ball 5:1 pumps into standard 2 in. npt drum bung.

204-076 Sealed Bung Adapters for Full Length Pumps

224-579 Sealed Bung Adapters for Universal Pumps

217-359 Sealed Bung Adapters for use with 213-099

Sealed bung adapter prevents rain water and other fluids from entering drum when pump is bung-mounted outdoors.

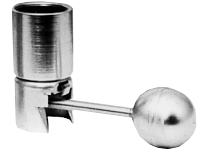
203-688 Low-Level Cutoff for Universal Pumps 1.5 in. f inlet

204-159 Low-Level Cutoff for Full Length Pumps 2 in. m inlet

Prevents air from entering pump by closing intake when supply is exhausted. Can be used with suction hose kit or standard suction tube without changing tube length.

Use 203-688 with all pumps (Eagle, Fast-Ball, Fire-Ball and President) that have a universal design with suction tube extension supplying metered outlets. Replaces stand-off of suction tube.

Use 204-159 with pump models 203-857, 203-872 and 204-254. Replaces standard foot valve.



Drum Covers

200-326 400 lb. (55 Gallon) (205 Liter)

Cover for use with 400 lb. (55 gallon) (205 liter) open-head drums. Mounts any Eagle, Fire-Ball or President. Use with adapter (160-754) for cover-mounted bung pumps. See below.



204-574 120 lb. (16 Gallon) (60 Liter) or 70 lb. (10 Gallon) (40 Liter) Drum Cover

Cover for use with 120 lb. (16 gallon) (60 liter) or 70 lb. (10 gallon) (40 liter) open-head drums. Mounts Eagle, Fire-Ball or President lubrication pump. Use with adapter (160-754) for cover-mounted bung pumps. See below.



206-522 35 lb. (5 Gallon) (20 Liter) Pail Cover

Cover for use with 35 lb. (5 gallon) (20 liter) pails. Mounts Eagle 3:1, Fire-Ball 5:1 or 15:1 lubrication pump. Use with riser bracket (165-094) for direct mounting of 70 lb. Fire-Ball grease pump.



222-059 35 lb. (5 Gallon) (20 Liter) Pail Cover

Cover for use with 35 lb. (5 gallon) (20 liter) pails. Mounts Eagle, Fire-Ball 50:1 pump using friction-type clutch lock. Allows use of 70 lb. length pump with 35 lb. pail.



160-754 Cover to Bung Adapter Plate

Mounts to standard 55 gallon (400 lb.) (205 liter) or 16 gallon (120 lb.) (60 liter) drum cover and converts mounting to standard 2 in. npt bung opening. Allows use of bung-mounted pumps with drum covers.



Follower Plates



Follower plates ride on the surface of the grease in a drum to reduce aeration and channeling. The plates have a center rubber grommet to seal around the pump tube and a formed cone to allow the pump to fully empty the drum without uncovering the pump inlet slots.

220-653 For 35 lb. Pail with Fire-Ball, Eagle

948-895 For 25 kg with Fire-Ball, Eagle

These follower plates fit Fire-Ball 15:1, 50:1, 80:1, and Eagle 50:1 pumps.

220-654 For 70/120 lb. Drum with Fire-Ball, Eagle

223-344 For 120 lb. Drum with President

223-700 For 120 lb. Drum with Dyna-Star, Fire-Ball & President

220-654 fits Fire-Ball 15:1, 50:1, 80:1, and Eagle 50:1 pumps.

223-344 fits President 50:1 and 75:1 pumps.

223-700 fits Dyna-Star 1:1, Fire-Ball 5:1, and President 10:1 pumps.

223-845 For 400 lb. Drum with Fire-Ball, Eagle

204-130 Same as 223-845 without Flexible Wiper

223-846 For 400 lb. Drum with President

205-337 Same as 223-846 without Flexible Wiper

223-701 For 400 lb. Drum with Dyna-Star, Fire-Ball

223-845 and 204-130 fits Fire-Ball 15:1, 50:1, 80:1 and Eagle 50:1 pumps.

223-846 and 205-337 fits President 50:1 and 75:1 pumps.

223-701 fits Dyna-Star 1:1, Fire-Ball 5:1 and President 10:1 pumps.

Clamps

203-156 Open-Drum Pump Clamp

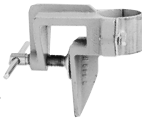
Clamp attaches to side of open-head drum and mounts any size pump except President 3:1 and Bulldog 5:1.



210-880 Open-Drum Pump Clamp

For use with Fire-Ball 5:1 and President 10:1 pumps.

Bracket clamps onto pump tube, attaches to open drum lip.



188-832 Pump Handle

Attaches to top of Eagle pump for convenient handling during container changeover.



Wall-Mounting Brackets

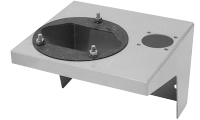
203-987 Wall Bracket for Universal

For use with Fast-Flo 1:1, Fire-Ball 5:1, President 10:1. Clamps on Universal pump tube.



206-220 Wall Bracket for President 3:1

For use with President 3:1. Divorced pump mounts to top surface.



206-221 Wall Bracket for Proportioning Pump

For use with 5:1 proportioning pump (207-914) when used with 168-417 adapter plate.



**236-778 Wall Bracket for President 3:1
Dyna-Star 1/4:1 and Power-Star 1:1 Pump**

Clamps to pump tube and provides mounting to wall surface by flange.

Portable Bases

205-054 Ring Caster Base for 5 Gallon (20 Liter) Pail

204-144 Ring Caster Base for 10/16 Gallon (40/60 Liter) Drums

Pail nests inside band ring. Ring clamps to hold pail/drum secure. Casters provide portability.



**203-622 Caster Base for 5/10/16 Gallon
(20/40/60 Liter) Drums**

Drum fits into recess on formed base. Rim clamps hold drum securely onto base. Casters provide portability.

- Portable base 203-622 Series B cannot be used with enclosure shield 236-221 or 236-220.
- See instruction manual for replacement parts.

Two-Wheel Carts

203-650 Two-Wheel Cart for 5/10/16 Gallon (20/40/60 Liter) Drums

Drum fits into recess on formed base. Rim clamps hold drum securely onto base. Wheels provide portability. Use with pail clamp (159-952) when using cart with 5 gal. (20 liter) pails.



Pump Hoist

218-704 Portable Hoist

Has lift hook for use with any pump equipped with lifting eye. Maximum lift weight: 100 lbs. (45.3 kg). Maximum inlet air pressure: 50 psi (3.3 bar).



Muffler

214-873 President Air Motor Muffler

Clamp type muffler can be added to any new or existing President air motor. Muffler reduces exhaust noise level, allows continuous use near personnel.

102-656 President Air Motor Muffler

External thread-in muffler.

222-559 Quiet Fire-Ball Muffler Kit

Upgrades all 1989 and older Fire-Ball pumps to reduced db level.



Drum Elevator

225-758 Drum Elevator

Used for making quick drum changes. Air-powered elevator with a 39.5 in. (100.33 cm) maximum raised height.

Kits: Dispense, Hose & Fittings

HOSE & FITTING KITS GIVE YOU THE NECESSARY ACCESSORIES TO GET YOUR GRACO PUMP HOOKED UP TO YOUR AIR AND FLUID LINES. WITH AN INSTRUCTION MANUAL AND ALL THE PROPER FITTINGS, OUR HOSE & FITTING AND DISPENSE KITS WILL ENABLE YOU TO INSTALL YOUR EQUIPMENT EASILY WITHOUT PURCHASING ADDITIONAL COMPONENTS.

Oil

222-062 Fire-Ball 5:1 Hose and Fitting Kit: 18 in. (.46 m)

222-063 Fire-Ball 5:1 Hose and Fitting Kit: 72 in. (1.83 m)

Use 222-062 for connecting wall-mounted pumps to piping. Kit includes: air hose (204-560), swivel elbow (155-494), fluid hose (220-598), and swivel elbow (155-470). Instruction manual: 306-520.

Use 222-063 with drum-mounted pumps.

Kit includes: air hose (203-320), swivel elbow (155-494), fluid hose (220-591), and swivel elbow (155-470). Instruction manual: 307-883.

237-075 Gear Oil Dispense Kit: 6 ft. (1.83 m)

For use with portable Fire-Ball 5:1 powered lubricators. Meter mounts near pump outlet. Kit includes: gear lube valve (222-412), fluid hose (220-591), elbow (190-021), pint meter (157-769), and seal nut (112-841).

222-068 President 10:1 Hose and Fitting Kit: 18 in. (.46 m)

222-066 President 10:1 Hose and Fitting Kit: 72 in. (1.83 m)

Use 222-068 for connecting wall-mounted pumps to piping. Kit includes: air hose (218-093), swivel elbow (155-470), fluid hose (109-108), and swivel elbow (160-327). Instruction manual: 306-520.

Use 222-066 with drum mounted pumps.

Kit includes: air hose (205-418), swivel elbow (155-470), fluid hose (215-241), and swivel elbow (160-327). Instruction manual: 307-883.

222-118 Fast-Flo 1:1 Hose and Fitting Kit: 18 in. (.46 m)

222-119 Fast Flo 1:1 Hose and Fitting Kit: 72 in. (1.83 m)

Use 222-118 for connecting wall-mounted pump (226-948) to piping. Kit includes: air hose (109-123), swivel elbow (155-541), fluid hose (109-108), and swivel elbow (160-327).

Use 222-119 with drum-mounted pumps.

Kit includes: air hose (109-125), swivel elbow (155-541), fluid hose (109-105), and swivel elbow (160-327).

236-054 Suction Hose Kit

Consists of drum tube bung adapter and 6 ft. 3/4 in. hose with 3/4 - 1 1/2 adapter to allow the use of Fire-Ball 5:1 or President 10:1 universal pumps with barrels. Kit includes tube. Use with low-level cut-off (203-688) when metering fluids. Includes instruction manual. Order wall brackets separately.



Grease

For 5000 psi (345 bar)

222-070 Fire-Ball 50:1 Dispense Kit: 6 ft. (1.8 m)

236-058 Fire-Ball or Eagle 50:1 Dispense Kit: 12 ft. (3.6 m)

222-383 Fire-Ball or Eagle 50:1 Dispense Kit: 25 ft. (7.6 m)

For use with portable Fire-Ball or Eagle pumps.

222-070 Dispense Kit includes: grease dispense valve (223-903), fluid hose (109-151), air coupler (208-536), air nipple (169-971), and Z-swivel (202-577). Instruction manual: 307-878.

236-058 Dispense Kit includes: grease dispense valve (223-903), fluid hose (109-151), air coupler (208-536), air nipple (169-971), and Z-swivel (202-577). Instruction manual: 307-878.

222-383 Dispense Kit includes: grease dispense valve (223-903), fluid hose (109-154), air coupler (208-536), air nipple (169-971), and Z-swivel (202-577). Instruction manual: 307-878.

For 5000 psi (345 bar)

222-072 Fire-Ball 50:1 Hose and Fitting Kit: 6 ft. (1.8 m)

For use with stationary drum-mounted Fire-Ball 50:1 pumps. Kit includes: air hose (203-320), swivel elbow (155-494), fluid hose (109-150), and swivel elbow (155-541). Instruction manual: 307-880.

For 4000 psi (276 bar)

222-076 President 50:1 Hose and Fitting Kit: 6 ft. (1.8 m)

For use with stationary drum-mounted President 50:1 pumps. Kit includes: air hose (205-418), swivel elbow (155-470), fluid hose (109-163), and swivel elbow (155-494). Instruction manual: 307-880.

Oil Meters and Valves

IT'S SIMPLE. OVERFILL AND YOU OVERSPEND. THE NATURAL TENDENCY FOR WELL-MEANING TECHNICIANS IS TO ADD A LITTLE EXTRA TO EACH OIL CHANGE. ESPECIALLY WHEN THEIR PRESENT OIL METER IS WORN AND LESS THAN ACCURATE. THAT'S WHERE GRACO CAN HELP. OUR METERS ELIMINATE COSTLY REWORK. ALL VALVES AND METERS HAVE 1/2 INCH INLET.

Bare Dispense Valves

222-648 Automotive
Instruction manual 307-995.



224-304 High-Flo
Instruction manual 308-113.



Un-metered Automotive Dispense Valves

222-411 For Oil
Valve includes: dispense valve (222-648) and non-drip nozzle (203-265). Instruction manual 307-995.



222-412 For Gear Lube
Valve includes: dispense valve (222-648) and non-drip nozzle (201-701). Instruction manual 307-995.



222-413 For ATF
Valve includes: dispense valve (222-648) and non-drip nozzle (203-687, includes hose). Instruction manual 307-995.



Un-metered High-Flo Dispense Valves

222-561 With Non-drip Nozzle
Instruction manual 308-113.



222-461 With Cap and Chain



EM5 Dispense Valves

Instruction manual 304-487.

EM5 Electronic Meter, Rigid Extension
238-451 U.S. Measure
238-454 Metric Measure
***238-457 Metric Measure**



EM5 Electronic Meter, Flexible Extension
238-452 U.S. Measure
238-455 Metric Measure
***238-458 Metric Measure**



EM5 Electronic Meter, Gear Lube Extension (15° Bend with 90° Elbow)
238-453 U.S. Measure
238-456 Metric Measure
***238-459 Metric Measure**



Swivel Cover
191-287 Red
191-288 Blue
191-289 Green
191-290 Yellow
191-286 Black

High-Flo Electronic Meter: U.S. Measure
Instruction manual 308-113.

222-441 With Non-drip Nozzle
222-471 With Cap and Chain



High-Flo Electronic Meter: Metric Measure
222-541 With Non-drip Nozzle
222-571 With Cap and Chain

** Canadian Weights and Measures approved. Available in Canada only.*

Bare Electronic Meter: U.S. Measure

235-880 In-line (Inlet-Outlet)

Instruction manual 307-999.

235-878 Hockey Puck Replacement Part



Bare Electronic Meter: Metric Measure

235-900 In-line (Inlet-Outlet)

235-901 Hockey Puck Replacement Part

223-179 Fluid Filter for Bare Electronic Meter

Mechanically-Metered Dispense Valves

Pistol Grip Pre-set Mechanically-Metered Valves

Instruction manual 306-976.

218-698 16 Quart

207-738 60 Quart

207-739 60 Gallon

207-742 60 Liters

207-743 60 Quart (for use with Anti-Freeze)



Pre-set design allows operator to enter amount to be dispensed and then engage the trigger lock. Once the pre-set amount is dispensed, the trigger automatically releases. Allows unattended operation. Units have separate register to record total volume dispensed to 99,999 gallons.

Valve 218-698 includes: valve (108-058) and non-drip nozzle (203-687).

Valve 207-738 includes: valve (103-156) and non-drip nozzle (207-745).

Valve 207-739 includes: valve (103-157) and non-drip nozzle (207-745).

Valve 207-742 includes: valve (103-160) and non-drip nozzle (207-745).

Valve 207-743 includes: valve (103-156) and non-drip nozzle (207-745).

Meter Valve Accessories

191-156 Valve Mounting Bracket

Mounts EMS valves to hose reels.

224-444 Valve Mounting Bracket

Mounts unmetred and high flow valves to hose reels.

Accessories for Oil Dispense

Bare Mechanical Meter

157-771 U.S. Pint

157-769 U.S. Pint

157-779 U.S. Quart

157-958 Metric Liter



Pointer on the meter indicates volume dispensed. Resets to zero for each dispense while tallying register records total volume dispensed up to 99,999 units. All meters have a 12 o'clock outlet except 157-769 which has 6 o'clock outlet.

180-685 Water/Anti-Freeze Bibb

Durable, full volume dispense nozzle for water and windshield wash. 1/4 npt(f) inlet.



108-458 Oil Line Shutoff Valve: 1/2 npt(f)

108-537 Oil Line Shutoff Valve: 3/4 npt(f)

110-314 Oil Line Shutoff Valve: 1 npt(f)

Shutoff valves for isolation of oil dispense lines. Use 108-458 for branch lines. Use 108-537 or 110-314 for main header lines. Working pressure: 2000 psi (140 bar).



237-893 Fire Ball Thermal Relief Kit: 900 psi (60 bar)

237-904 President Thermal Relief Kit: 1600 psi (108 bar)

235-998 Eagle Thermal Relief Kit: 600 psi (40 bar)

Used to relieve heat-induced excess pressure from dispense system back to inlet of Eagle and Fire-Ball pumps. 1-1/2 npt(m) x 1-1/2 npt(f) porting on inlet adapter allows use on male or female threads. Recommended for use with Fluid Commander inventory control systems.



204-999 60 Mesh Strainer

Has 1/2 npt(f) swivel x 1/2 npt(m) ports. Prevents foreign material from entering dispense lines. Not for use with grease systems. Working pressure: 750 psi (51 bar). See below for replacement elements.



238-433 (3) Replacement Elements: 40 mesh

238-434 (25) Replacement Elements: 40 mesh

238-431 (3) Replacement Elements: 60 mesh (Standard)

238-432 (25) Replacement Elements: 60 mesh (Standard)

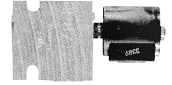
238-429 (3) Replacement Elements: 100 mesh

238-430 (25) Replacement Elements: 100 mesh



110-025 24 VDC Two-Way Solenoid Valve

Ports: 1/2 npt(f). Valve is normally closed and can be used to remotely open and close dispense branch or drop lines. Also used as part of Fluid Commander package. Not for use on grease systems.



150-150 Trigger-Operated Oiler: 6 Oz.

For use with general-purpose and penetrating oils.



101-078 Y-Strainer: 3/4 npt(f) both ends

110-877 Y-Strainer: 1/2 npt(f) both ends

110-878 Y-Strainer: 1 npt(f) both ends

To filter material before entering pump. Maximum working pressure: 500 psi (35 bar). 20 mesh screen.



Colored Impact Guards for Electronic Meters

These impact guard accessories can be used to color code the various fluids dispensed to reduce errors, match store colors, or to create a private brand appearance. Available in black, yellow, red, blue, and green. Fits on electronic meters only.

Pistol Style Meters	In-line Style Meters	Shroud Color
186-037	109-118	Black
190-485	190-383	Yellow
190-486	190-384	Red
190-487	190-385	Blue
190-488	190-386	Green



Oil Dispense Bar

Instruction manual 307-742.

220-107 Oil Dispense Bar

Bar includes tough metal cabinet with baked on enamel finish; non-drip, single dispense tap; and waste pan with plated perforated metal service area and drain connection. Modular design allows additional traps or meters to be added at the time of installation or later as needed.

220-112 Tap Kit

Basic oil dispense bar (single tap) can be converted to two or three taps by adding one or two kits. Kit includes non-drip dispense valve, manifold and all necessary mounting hardware.

220-111 Meter Kit

Fluid meter can be added to any individual tap by the installation of a meter kit. Kit includes 157-781 meter and all necessary mounting hardware.

Hose Reels

- FOUR SERIES TO CHOOSE FROM: 100 - 200 - 350 - 500.
- OPEN OR ENCLOSED DESIGN AVAILABLE.
- REELS COMPATIBLE WITH MOST PETROLEUM-BASED FLUIDS, AS WELL AS WATER. NO PREMATURE FAILURE DUE TO CORROSION OR CHEMICAL ATTACK OF COMPONENTS.
- FULL LINE OF ACCESSORIES INCLUDING VALVES, METERS, HOSE AND FITTINGS.
- REEL PRODUCT LABELS. QUICK, CLEAR IDENTIFICATION OF GREASE, OIL, AIR AND WATER.
- PARTS AND SERVICE WORLDWIDE.

Quiet-Latch 100 / 200 Hose Reels

Graco offers hose reels designed to provide maximum fluid dispensing convenience. All Graco 100 and 200 series reels feature the unique Quiet Latch design to take the clank and clunk out of hose retraction giving longer life and quieter operation. In addition, the 100 and 200 series offer you a full range of hose capacity and service life. Order the one best suited to your shop and get all the Graco reel advantages.

Ribbed, Metal Construction: provides resistance to bending and distortion, allowing long life under severe service.

Choice of Medium Pressure or High Pressure Reels: allows for full ported fluid passages, giving maximum dispense flow regardless of the fluid being dispensed – a Graco exclusive.

Multi-position Arms: allows the most convenient mounting angle whether reel is ceiling, wall, or truck mounted.

Molded End Panels for Enclosed Reels: rust-free and provides many years of maintenance-free service.



Supreme Duty 500 Hose Reels

A highly durable, long lasting hose reel!

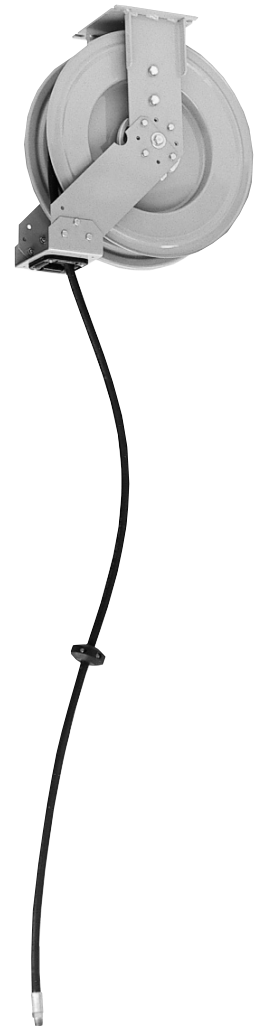
The 500 series Supreme Duty reels are the ideal choice for extreme installations such as mining, construction or bus/truck fleets. The Supreme Duty construction features fabricated frames, discs and drums, welded and gusseted double pedestal arms and a fully-ported swivel for maximum fluid flow.

Open and Enclosed Models: order open model reels or with enclosures and panels to suit your installation requirements.

Permanently Lubricated Bearings: assure positive recoil and long life.

Extra Large Ratchet Latch: provides a positive, audible hose position lock, even in the toughest of applications.

Mounts to Any Position: the multiple position roller guide and pedestal arm provide the perfect mounting position for wall, floor, ceiling, pit or truck mounting.



Heavy-Duty 350 Hose Reels

The 350 series hose reel is designed for applications where longer hose is needed and moderate use is required. At 50 ft. (15.3 m) in length, these hose reels are perfect for small-to-medium sized fleet facilities, car and truck dealerships with high ceilings, and independent service garages where reaching more service areas from a stationary pump tank package is a must.

Some key features of the 350 series hose reels are:

Unique Base Mount Hose Guide: for tank mounting.

Lightweight, Slotted Base: for easy installation.

Factory-Installed Fluid Hose: stays flexible for easier handling, even under pressure.

Multi-Position Hose Guide: for overhead applications.



100 Series Open Reels

The 100 series is Graco's high value standard series reel. These reels incorporate the Quiet Latch design to provide many years of trouble-free service. The reels have a capacity of 3/8 in. x 30 ft. (9.2 m) air/water hose, or 1/2 in. x 25 ft. (7.6 m) oil dispense hose. They can also be mounted on 200 series reel channels and in 200 series enclosures, either singly or in conjunction with 200 series reels.

100 Series Hose Reels for Oil

220-935 1/2 in. x 16 ft.

230-980 1/2 in. x 20 ft.

235-625 1/2 in. x 25 ft.

100 Series Hose Reels for Air / Water / Anti-Freeze

226-974 1/4 in. x 25 ft.

226-975 3/8 in. x 25 ft.

226-976 3/8 in. x 30 ft.

Specifications for 100 Series Open Reels (with Hose)

Description	For Oils	For Air, Water and Anti-Free
Bare Hose Reel	220-018	220-018
Dispense Hose	220-592	109-132
Dispense Outlet Connection	1/2 npt(m)	3/8 npt(m)
Inlet Hose	110-069	109-129
Inlet Hose Size	1/2 in. x 15 in. (0.4 m)	3/8 in. x 15 in. (0.4 m)
Inlet Connection	1/2 npt(m)	3/8 npt(m)
Reel Pressure Rating (with hose)	1500 psi (100 bar)	180 psi (12 bar)
Bare Reel Pressure Rating	1500 psi (100 bar)	1500 psi (100 bar)
Ball Stop	218-341	218-341
Instruction Manual	307-481	307-481



200 Series Open Reels

Graco's 200 series reels use the Quiet Latch design plus heavier construction throughout to provide a heavy-duty reel to withstand the rigors of high usage, severe duty installations. This series reel has a capacity for 3/8 in. x 40 ft. (12.2 m) air/water hose, 1/2 in. x 25 ft. (7.6 m) oil dispense hose, and 1/4 in. x 35 ft. (10.7 m) high pressure grease hose.



Open Dispense Reels – Oil

Part No.	Part No. Consists of:		Description:	
	Reel with Hose	EM5 Dispense Valve	Hose	No. of Cartons
Motor Oil:				
223-146	218-444	+ 238-451	1/2" x 16' (4.9 m)	2
223-147	218-445	+ 238-451	1/2" x 25' (7.6 m)	2
ATF:				
223-148	218-444	+ 238-452	1/2" x 16' (4.9 m)	2
223-149	218-445	+ 238-452	1/2" x 25' (7.6 m)	2
Gear Lube:				
223-150	218-444	+ 238-453	1/2" X 16' (4.9 m)	2
223-151	218-445	+ 238-453	1/2" x 25' (7.6 m)	2
218-452	218-444	+ 222-412*	1/2" x 16' (4.9 m)	2
218-453	218-445	+ 222-412*	1/2" x 25' (7.6 m)	2
Oil:				
218-444	218-444	None	1/2" x 16' (4.9 m)	1
218-445	218-445	None	1/2" x 25' (7.6 m)	1

* Bare valves with 90° gear lube extension.

Open Dispense Reels – Grease

Part No.	Part No. Consists of:		All Part Nos. Include	
	Reel with Hose	Valve No.	Hose	No. of Cartons
Grease:				
218-442*	218-440	+ 223-903	1/4" x 20' (6.1 m)	3
218-443*	218-441	+ 223-903	1/4" x 35' (10.6 m)	3
218-440	218-440	None	1/4" x 20' (6.1 m)	1
218-441	218-441	None	1/4" x 35' (10.6 m)	1

*Includes 1/4 in. Z-Swivel (202-577)

Open Dispense Reels – Air/Water/Anti-Freeze/Wash Solvent

Part No.	Part No. Consists of:		All Part Nos. Include	
	Reel with Hose	Valve No.	Hose	No. of Cartons
Air:				
224-846	224-885	+ 218-544	1/4" x 40' (12.2 m)	2
224-847	224-886	+ 218-545	3/8" x 40' (12.2 m)	2
Water / Anti-Freeze:				
224-930	224-885	+ 180-685	1/4" x 40' (12.2 m)	2
224-931	224-886	+ 180-685	3/8" x 40' (12.2 m)	2
Air / Water / Anti-Freeze / Wash Solvent:				
224-885	224-885	None	1/4" x 40' (12.2 m)	1
224-886	224-886	None	3/8" x 40' (12.2 m)	1

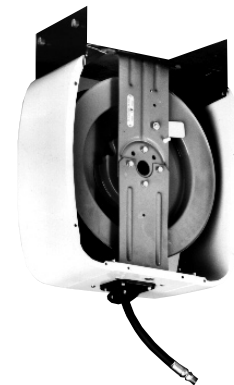
Above hose reels include SST shaft and bronze swivel for use with corrosive fluids.

Specifications for 200 Series Open and Enclosed Reels

Description	Oil		Grease		Air/Water/Anti-Freeze/Wash Solvent	
	218-444	218-445	218-440	218-441	224-885	224-886
Bare Hose Reel	218-345	218-345	218-344	218-344	224-880	224-880
Bare Reel Pressure Rating	1800 psi (124 bar)	1800 psi (124 bar)	8000 psi (550 bar)	8000 psi (550 bar)	1800 psi (124 bar)	1800 psi (124 bar)
Dispense Hose	220-592	220-608	218-494	218-493	218-491	218-497
Dispense Hose Size	1/2" x 16' (4.9 m)	1/2" x 25' (7.6 m)	1/4" x 20' (6.1 m)	1/4" x 35' (10.6 m)	1/4" x 40' (12.2 m)	3/8" x 40' (12.2 m)
Dispense Outlet Connection	1/2 npt(m)	1/2 npt(m)	1/4 npt(m)	1/4 npt(m)	1/4 npt(m)	3/8 npt(m)
Inlet Hose	110-069	110-069	159-796	159-796	110-069	110-069
Inlet Hose Size	1/2" x 15" (0.4 m)	1/2" x 15" (0.4 m)	1/4" x 15" (0.4 m)	1/4" x 15" (0.4 m)	1/2" x 15" (0.4 m)	1/2" x 15" (0.4 m)
Inlet Connection	1/2 npt(m)	1/2 npt(m)	1/4 npt(m)	1/4 npt(m)	1/2 npt(m)	1/2 npt(m)
Reel Pressure Rating (with hose)	1800 psi (124 bar)	1800 psi (124 bar)	5000 psi (345 bar)	5000 psi (345 bar)	180 psi (12 bar)	180 psi (12 bar)
Ball Stop	218-341	218-341	218-340	218-340	218-341	218-341
Weight in lbs. (kg)	37.5 (16.8)	40.0 (17.9)	49.7 (22.25)	61.8 (27.7)	40.0 (17.9)	39.0 (17.5)
Instruction Manual	307-694	307-694	307-694	307-694	307-694	307-694

100 Series and 200 Series Enclosed Reels

This enclosed series provides the same heavy-duty reel construction as the open 200 series plus an attractive enclosure for maximum appearance. Enclosures are designed for ease of installation and removal for service or inspection. Enclosed reels can be used singly or in a bank. End panels are also available to complete single or multiple reel banks. Any 100 series reel can be used in the 200 series enclosure. Reels in this column include enclosure as shown. Complete reel bank also requires end panels and reel mounting channel.



Enclosed Dispense Reels – Oils

Part No.	Part No. Consists of:			Description:	
	Reel w/Hose	Valve	Enclosure	Hose	No. of Cartons
Motor Oil:					
223-130	218-444	+ 238-451	+ 218-546	1/2" x 16' (4.9 m)	3
223-131	218-445	+ 238-451	+ 218-546	1/2" x 25' (7.6 m)	3
ATF:					
223-132	218-444	+ 238-452	+ 218-546	1/2" x 16' (4.9 m)	3
223-133	218-445	+ 238-452	+ 218-546	1/2" x 25' (7.6 m)	3
Gear Lube:					
223-134	218-444	+ 238-453	+ 218-546	1/2" x 16' (4.9 m)	3
223-135	218-445	+ 238-453	+ 218-546	1/2" x 25' (7.6 m)	3
218-436	218-444	+ 222-412*	+ 218-546	1/2" x 16' (4.9 m)	3
218-437	218-445	+ 222-412*	+ 218-546	1/2" x 25' (7.6 m)	3
Oil:					
100 Series Reel:					
220-936	220-935	None	218-546	1/2" x 16' (4.9 m)	2
200 Series Reels:					
220-482	218-444	None	218-546	1/2" x 16' (4.9 m)	2
220-483	218-445	None	218-546	1/2" x 25' (7.6 m)	2

* Bare valves with 90° gear lube extension.

Enclosed Dispense Reels – Grease

Part No.	Part No. Consists of:			All Part Nos. Include	
	Reel with Hose	Valve No.	Enclosure	Hose	No. of Cartons
Grease:					
218-428	218-440	+ 223-903	+ 218-546	1/4" x 20' (6.1 m)	4
218-429	218-441	+ 223-903	+ 218-546	1/4" x 35' (10.6 m)	4

The above hose reels include 1/4 in. Z-Swivel (202-577).

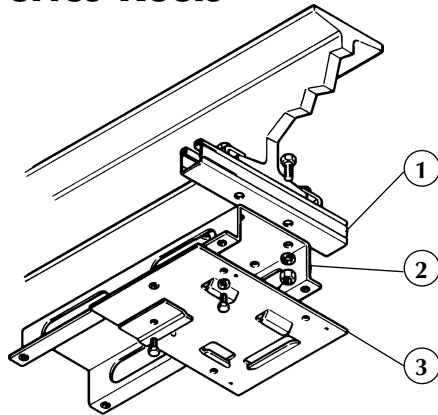
Enclosed Dispense Reels – Air / Water / Wash Solvent

Part No.	Part No. Consists of:			All Part Nos. Include	
	Reel with Hose	Valve No.	Enclosure	Hose	No. of Cartons
Air:					
220-938*	226-975	+ 218-545	+ 218-546	3/8" x 25' (7.6 m)	3
224-841**	224-886	+ 218-545	+ 218-546	3/8" x 40' (12.2 m)	3
Water / Anti-Freeze:					
220-939*	226-975	+ 180-685	+ 218-546	3/8" x 25' (7.6 m)	3
224-844**	224-886	+ 180-685	+ 218-546	3/8" x 40' (12.2 m)	3
Air / Water / Anti-Freeze / Wash Solvent:					
220-937*	226-975	+ None	+ 218-546	3/8" x 25' (7.6 m)	2
224-838**	224-886	+ None	+ 218-546	3/8" x 40' (12.2 m)	2

* Uses 100 series reel.

** Above hose reels include SST shaft and bronze swivel for use with corrosive fluids.

Accessories for 100 Series and 200 Series Reels



No drilling or welding required to hang Graco reels. Pre-drilled and threaded brackets allow bolt-together assembly. It's as easy as 1-2-3.

1. Attach channel-mounting bracket to I-beam.
Bolts and clamps included with bracket.
2. Bolt one to six reel-mounting channels to mounting brackets.
Channel is pre-threaded.
3. Fasten individual reel-mounting plates to each reel station.
Bolts and washers included.

Then just slide the reels into the tabs provided on each reel-mounting plate and secure a tab plate. No lifting of reels while trying to engage a bolt; a definite plus when working on ladders or scaffolding.

204-741 Channel Mounting Bracket*

Secures 100/200 series reel channels to standard I-beams. Does not require drilling of holes and will fit I-beams with up to 7 in. (178 mm) flange. Two brackets will support one to three reels. Three brackets are required for four to six reels.



- 203-521 1 Reel Mounting Channel – Enclosed Reels
- 203-522 2 Reel Mounting Channel – Enclosed Reels
- 203-523 3 Reel Mounting Channel – Enclosed Reels
- 203-524 4 Reel Mounting Channel – Enclosed Reels
- 203-525 5 Reel Mounting Channel – Enclosed Reels
- 203-526 6 Reel Mounting Channel – Enclosed Reels

For mounting of one to six open or enclosed reels in a bank. Includes nuts, screws and lockwashers. Channel is pre-drilled to allow individual mounting of reels. For reel banks over six, use multiple channels, i.e. for a 9 reel bank, use a 5 reel channel and a 4 reel channel or a 6 reel channel and a 3 reel channel, etc.



- 205-072 2 Reel Mounting Channel – Open Reels
- 205-073 3 Reel Mounting Channel – Open Reels

Same as enclosed channels but includes reel mounting plate. Additional open reels can be mounted up to 6 position channel. Consult factory for details. Kits include items 2 and 3 from drawing.

218-546 Reel Enclosure

Included with all 200 series enclosed reel assemblies. Can be purchased separately to enclose any 100/200 series open reel. Includes reel mounting plate. Reel bank also requires end panel (218-548).



218-548 End Panel Kit

Used on enclosed 100/200 series reel bank to cover ends of bank. One set includes 2 end panels and necessary hardware.



180-698 Service Label Kit**

Label size: 1 in. x 5 in. (25.4 mm x 127 mm).

Kit contains mylar self-adhesive labels (1 each) for the following services:

Anti-Freeze	Hydraulic
SAE 10-40	ATF
SAE 10-30	Dexron
SAE 5-40	Chassis
SAE 10W	Water
SAE 20W	Gear
SAE 30W	Air



* Works with all Graco hose reels.

** Works with 100, 200, 350 and 700 series hose reels.

350 Series Heavy-Duty Hose Reels

Compact in design, the 350 series hose reel enhances productivity and efficiency in the shop. The ratchet latch allows users to work productively without excessive hose getting in the way. The heavy-duty spring, bearings and ratchet latch ensure many years of reliable service.



Air & Water Reels

238-211 3/8 in x 40 ft.

238-213 3/8 in. x 60 ft.

Medium Pressure Hose Reel

237-020 Bare Reel

237-021 with 1/2 in. x 40 ft. (12.2 m) hose

237-022 with 1/2 in. x 50 ft. (15.25 m) hose

High Pressure Hose Reel

237-030 Bare Reel

For 5000 psi (350 bar)

237-031 with 1/4 in. x 40 ft. (12.2 m) hose

237-032 with 1/4 in. x 50 ft. (15.25 m) hose

For 4000 psi (280 bar)

237-033 with 3/8 in. x 40 ft. (12.2 m) hose

237-034 with 3/8 in. x 50 ft. (15.25 m) hose

Specifications for 350 Series Open Reels (without Hose)

Description	Medium Pressure Hose	High Pressure Hose
Inlet	1/2 npt(f)	1/2 npt(f)
Outlet	1/2 npsm(f)	3/8 npsm(f)
Max. Pressure	1800 psi (126 bar)	8000 psi (550 bar)
Operating Temperature	-40-200°F (-40-93°C)	-40-200°F (-40-93°C)
Bearings	Brass	Brass
Wetted Parts	CS, nitrile rubber, brass	CS, leather, brass
Instruction Manual	308-400	308-400

Note: Inlet kits are not included. Order 219-096 or 219-097 separately.

Accessories for 350 Series Reels

205-072 2 Reel Mounting Channel – Open Reels

205-073 3 Reel Mounting Channel – Open Reels

Same as enclosed channels but includes reel mounting plate. Additional open reels can be mounted up to 6 position channel. Consult factory for details.

219-096 Hose Inlet Kit for Medium Pressure Reels

219-097 Hose Inlet Kit for High Pressure Reels

Includes nipple, union and hose. 219-097 also includes bushing.

223-903 High Pressure Dispense Valve: 1/4 npt fluid inlet

224-132 High Pressure Dispense Valve: 3/8 npt fluid inlet

Maximum working pressure: 8000 psi (550 bar)

202-577 Z-Swivel: 1/4 npt(m) x 1/4 npt(f)

224-569 Z-Swivel: 3/8 npt(m) x 3/8 npt(f)

Maximum working pressure: 6500 psi (450 bar)

180-685 Water Bibb

Maximum working pressure: 100 psi (7 bar)

500 Series Open Reels

The 500 series Supreme Duty reels are the ideal choice for extreme installations such as mining, construction, bus/truck fleets and lube trucks. The Supreme Duty construction features fabricated frames, discs and drums, welded and gusseted double pedestal arms and a fully-ported swivel for maximum fluid flow. The larger Supreme Duty design provides for a reel capacity of 3/8 in. x 60 ft. (18.3 m) air/water hose, 1/2 in. x 50 ft. (15.3 m) oil dispense hose, or 3/8 in. x 50 ft. (15.3 m) high pressure grease hose. A reel enclosure is also available for those installations where maximum appearance is important.

Note: Inlet hose kit not included on 500 series reels. Order separately. See page 4-51.



Open Dispense Reels – Oils

Part No.	Part No. Consists of:			Description:	
	Reel with Hose	+	EM5 Dispense Valve	Hose	No. of Cartons
Motor Oil:					
224-381	224-057	+	238-451	1/2" x 40' (12.2 m)	2
224-382	224-058	+	238-451	1/2" x 50' (15.3 m)	2
ATF:					
224-383	224-057	+	238-452	1/2" x 40' (12.2 m)	2
224-384	224-058	+	238-452	1/2" x 50' (15.3 m)	2
Gear Lube:					
224-379	224-057	+	238-453	1/2" x 40' (12.2 m)	2
224-380	224-058	+	238-453	1/2" x 50' (15.3 m)	2
224-361	224-057	+	222-412*	1/2" x 40' (12.2 m)	2
224-362	224-058	+	222-412*	1/2" x 50' (15.3 m)	2
Oil:					
224-057	224-057		None	1/2" x 40' (12.2 m)	1
224-058	224-058		None	1/2" x 50' (15.3 m)	1

* Bare valves with 90° gear lube extension.

Open Dispense Reels – Grease

Part No.	Part No. Consists of:			All Part Nos. Include	
	Reel with Hose	+	Dispense Valve	Hose	No. of Cartons
224-363*	224-053	+	223-903	1/4" x 40' (12.2 m)	3
224-364*	224-055	+	223-903	1/4" x 50' (15.3 m)	3
224-053	224-053	+	None	1/4" x 40' (12.2 m)	1
224-055	224-055	+	None	1/4" x 50' (15.3 m)	1
224-365*	224-054	+	222-903	3/8" x 40' (12.2 m)	3
224-366*	224-056	+	222-903	3/8" x 50' (15.3 m)	3
224-054	224-054	+	None	3/8" x 40' (12.2 m)	1
224-056	224-056	+	None	3/8" x 50' (15.3 m)	1

* Includes 1/4 in. Z-Swivel (202-577)

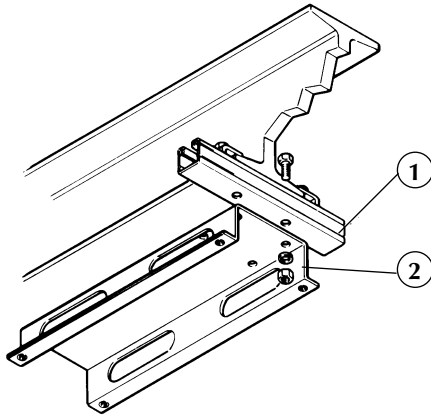
Open Dispense Reels – Air/Water/Anti-Freeze

Part No.	Part No. Consists of:				All Part Nos. Include	
	Reel with Hose	+	Air Chuck	Water Bibb	Hose	No. of Cartons
Air:						
224-351	224-059	+	218-545	+	None	3/8" x 40' (12.2 m) 2
224-352	224-051	+	218-545	+	None	3/8" x 60' (18.3 m) 2
224-059	224-059	+	None	+	None	3/8" x 40' (12.2 m) 1
Water / Anti-Freeze:						
224-353	224-059	+	None	+	180-685	3/8" x 40' (12.2 m) 2
224-354	224-051	+	None	+	180-685	3/8" x 60' (18.3 m) 2
224-051	224-051	+	None	+	None	3/8" x 60' (18.3 m) 1

Specifications for 500 Series Hose Reels

Description	Oils		Grease				Air/Water/Anti-Freeze	
	224-057	224-058	224-053	224-055	224-054	224-056	224-059	224-051
Bare Hose Reel	224-050	224-050	224-060	224-060	224-060	224-060	224-050	224-050
Bare Hose Reel Pressure Rating	1800 psi (126 bar)	1800 psi (126 bar)	8000 psi (560 bar)	8000 psi (560 bar)	8000 psi (560 bar)	8000 psi (560 bar)	1800 psi (126 bar)	1800 psi (126 bar)
Dispense Hose	221-092	221-093	109-157	109-158	109-169	109-170	218-497	218-498
Dispense Hose Size	1/2" x 40'	1/2" x 50'	1/4" x 40'	1/4" x 50'	3/8" x 40'	3/8" x 50'	3/8" x 40'	3/8" x 60'
Dispense Outlet Connection	1/2 npsm(f)	1/2 npsm(f)	3/8 npt(f)	3/8 npt(f)	3/8 npt(f)	3/8 npt(f)	1/2 npsm(f)	1/2 npsm(f)
Inlet Hose/Kit*			Inlet hose/kit not included. Order separately. See page 4-51.					
Inlet Connection	1/2 npsm(m)	1/2 npsm(m)	3/8 npsm(m)	3/8 npsm(m)	3/8 npsm(m)	3/8 npsm(m)	1/2 npsm(m)	1/2 npsm(m)
Reel Pressure Rating (with hose)	1800 psi (126 bar)	1800 psi (126 bar)	5000 psi (350 bar)	5000 psi (350 bar)	4000 psi (280 bar)	4000 psi (280 bar)	180 psi (12 bar)	180 psi (12 bar)
Ball Stop	218-341	218-341	222-225	222-225	218-341	218-341	218-341	218-341
Weight (lbs.)	69.9 lb. (31.3 kg)	71.8 lb. (32.2 kg)	63.2 lb. (28.3 kg)	64.8 lb. (29 kg)	63.5 lb. (28.4 kg)	65.3 lb. (29.3)	70.9 lb. (31.8 kg)	64.0 lb. (28.7 kg)
Instruction Manual	308-109	308-109	308-109	308-109	308-109	308-109	308-109	308-109

500 Series Reel Accessories



No drilling or welding required to hang Graco reels. Pre-drilled and threaded brackets allow bolt-together assembly. It's as easy as 1-2-3.

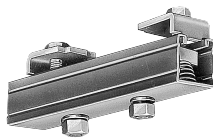
1. Attach channel-mounting bracket to I-beam.
Bolts and clamps included with bracket.
2. Bolt one to six reel-mounting channels to mounting brackets.
Channel is pre-threaded.
3. Fasten individual reel-mounting plates to each reel station.
Bolts and washers included.

Then just slide the reels into the tabs provided on each reel-mounting plate and secure a tab plate. No lifting of reels while trying to engage a bolt, a definite plus when working on ladders or scaffolding.

Note: Graco 500 series Supreme Duty reel accessories are interchangeable with existing 400 series reels and systems.

204-741 Channel Mounting Bracket

Secures 500 series reel channels to standard I-beams. Does not require drilling of holes, and will fit I-beams with up to 7 in. (17.8 cm) flange. Two brackets are required per mounting channel.



218-679 1 Reel Mounting Channel 218-680 2 Reel Mounting Channel 218-681 3 Reel Mounting Channel

For mounting of from one to three open or enclosed reels in a bank. Channel is pre-drilled to allow individual mounting of reels. For reel banks over three, use multiple channels, i.e. for a 4 reel bank, use a 3 reel channel and a 1 reel channel or two 2 reel channels. Plus the appropriate number of channel mounting brackets as stated above.



218-551 Reel Enclosure

A sturdy, attractive enclosure is available for any of the 500 series hose reels. Intended for ceiling mounting, the enclosures present a finished appearance to your shop. Enclosure consists of formed metal panels with all necessary mounting hardware. Reel bank also requires end panel kit (218-552).



218-552 End Panel Kit

Used on enclosed 500 series reel bank to cover ends of bank. One set includes 2 end panels and necessary hardware.



218-549 Medium Pressure Inlet Hose Kit

224-417 High Pressure Inlet Hose Kit

218-550 High Pressure Inlet Hose Kit

Inlet hose kits must be ordered separately on 500 series hose reels.

218-549: 1/2 in. x 24 in. (0.6 m).

Fittings rated for 2000 psi (140 bar).

224-417: 1/4 in. x 24 in. (0.6 m).

Fittings rated for 5000 psi (345 bar).

218-550: 3/8 in. x 24 in. (0.6 m).

Fittings rated for 4000 psi (275 bar).



Service Label Kits

Metal label size: 3/4 in. x 4-1/4 in. (1.9 cm x 10.8 cm).

One kit contains one label and mounting hardware for the following services:

218-670 Motor Oil

218-671 Grease

218-672 Gear Lube

218-673 ATF

218-674 Hydraulic Oil

218-675 Air

218-676 Water

218-677 Anti-Freeze

218-678 Evacuation



LUBRICATION

Heavy-Duty Dual Hose Reel

206-941 Dual Hose Reel

For hydraulic tool or similar service. Holds one 3/8 in. x 50 ft. (15.3 m) hose and one 1/2 in. x 50 ft. (15.3 m) hose. Dual inlets provide separate flow to each hose. Reel is rated for 3000 psi (200 bar). Hoses not included. **Not for use with oxygen.** For details, see instruction manual 306-864.



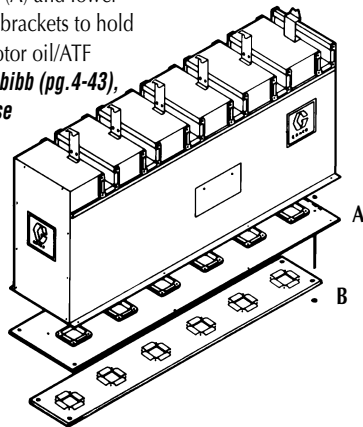
Lubricant Dispense Consoles

- Accommodates two service bays from a central location
- Parallel-to-bay opening design eliminates crossed hoses and allows two vehicles to receive simultaneous service
- Upper and lower floor plates simplify installation
- Compact size uses less than four square feet of floor space
- Reduces floor mess by containing hose drips and spills
- Protective floor plates with rollers eliminate jagged concrete or PVC edges that cut or wear hoses
- A lower cost alternative to overhead reels
- Unit is constructed of heavy gauge, painted sheet metal
- Instruction manual 307-953

222-629 Console: 6 Station

Includes: 6 station console, upper (A) and lower (B) floor plates with roller guides, brackets to hold one water bibb and five Graco motor oil/ATF EM5 dispense valves. **Order water bibb (pg. 4-43), dispense valves (pg. 4-41), and hose (pg. 4-65) separately.**

Console (excluding brackets) measures:
 27 in. H x 55 in. L x 10 in. W
 (68.58 cm H x 139.7 cm L x 25.4 cm W). Requires a floor opening of 6 in. x 51 in. (15.2 cm x 122.4 cm).

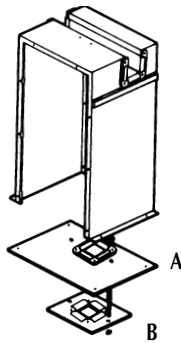


223-448 Console: 4 Station

Includes: 4 station console, upper and lower floor plates with roller guides, brackets to hold one water bibb and 3 Graco motor oil/ATF EM5 dispense valves. **Order water bibb (pg. 4-43) and dispense valves (pg. 4-41) separately.**

222-645 Single Add-on Fluid Station

Includes: add-on module for console, floor plates (A & B) with roller guides to fit module and one bracket for motor oil/ATF dispense gun. Add-on module measures: 27 in. H x 9 in. L x 10 in. W (68.5 cm x 22.86 cm x 25.4 cm).

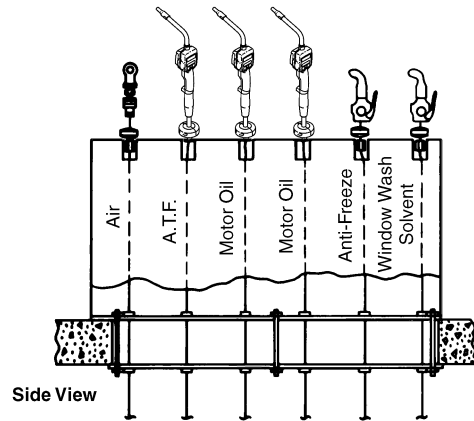


110-289 Optional Pistol Grip Bracket: Kit 110-285 Optional Pistol Grip Bracket: Single

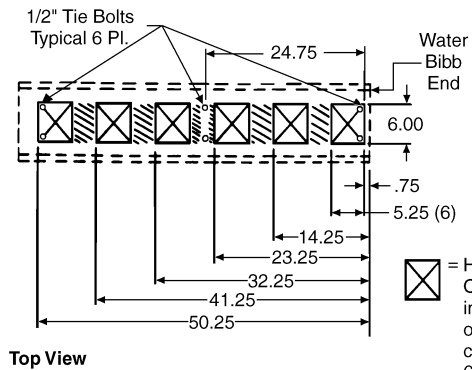
When using dispense console with Graco pistol grip dispense valves, order one of the following: kit which includes five pistol grip support dispense valve brackets (110-289) or optional add-on one bracket to support a pistol grip dispense valve (110-285).

191-155 EM5 Bracket

Typical Installation



6 Unit Dispense Console

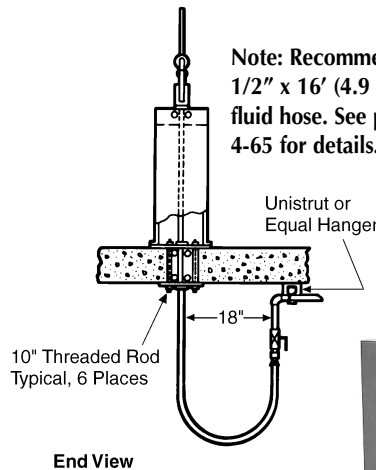


☒ = Hose guide opening. Openings may be individual or in groups of two, three or a continuous opening of 6" wide x 51" long. All dimensions ± .25

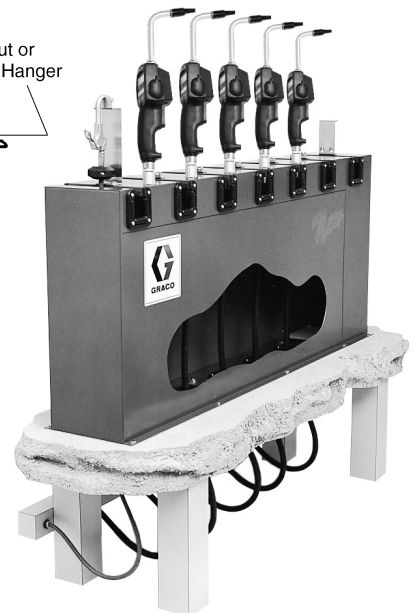
▨ = Area available for concrete reinforcement across 6" dimension

Top View

Note: Recommend 1/2" x 16' (4.9 m) fluid hose. See page 4-65 for details.



End View



Used-Oil Handling Systems

GRACO USED-OIL HANDLING SYSTEMS OFFER FLEXIBILITY AND EFFICIENCY IN TRANSFERRING OIL DRAINAGE AND OTHER USED LUBRICANTS FROM VEHICLE TO OIL RECEIVERS OR TO BULK STORAGE TANKS. COMPONENTS FOR THESE SYSTEMS INCLUDE USED-OIL RECEIVERS AND USED-OIL EVACUATION EQUIPMENT.

Used-Oil Receivers

239-302 16 Gallon Receiver Without Drum

Includes caster base, drum cover with front level gauge and funnel assembly.



239-301 16 Gallon Receiver With Drum

Includes caster base, drum cover with front level gauge, funnel assembly and 16 gallon drum.



238-866 25 Gallon Used Oil Receiver

Polyethylene tank with used filter tray, tool holders, 4" capped port and site gauge, includes all hardware for top side evacuation or bottom drain.



225-272 Pedestal Receiver

Telescoping funnel includes splash cover and adjusts and locks from 47 to 68 in. (119 to 172 cm) height. Funnel has internal automatic check valve to hold used oil until it is drained into used-oil drum or tank through funnel drains. Base provides carry-around portability.



154-616 Wall-Mount Funnel Drain

Use with pedestal receiver (225-272) to open automatic check valve and drain used oil through wall to remote tank. Drain has 1-1/4 npt(f) outlet.



156-789 Drum-Mount Funnel Drain

Use with pedestal receiver (225-272) to open automatic check valve and drain used oil into standard drum. Funnel drain has 2 in. npt bung fitting for use with 55 gal. (210 liter) or 16 gal. (60 liter) drums or 275 gallon (1100 liter) obround tank.



208-009 ATF Drain Funnel

Extends reach of used-oil receiver funnels. Use for draining transmissions and converters. Not equipped with drain plug.



218-969 Rolling Used-Oil Receiver

Designed specifically for car and truck fast-lube facilities where speed of operation and durability are important. Unit includes 30 gal. (114 liter) tank plus: 1-1/2 npt drain valve (108-204), 1-1/2 npt quick-coupler (108-202), and 1-1/2 npt coupler cap (108-203). Instruction manual: 307-727.



- 12 gauge steel construction, 30 gal. (114 liter) capacity tank allows more oil changes before emptying.
- Anti-splash baffles help prevent unstable movement, reduce spills, keep shop cleaner.
- Anti-splash grill provides large drain area and serves as convenient surface for tools, drain plugs, etc. 3/8 in. (9.5 mm) mesh openings.
- Front and rear drain fittings allow use of two drains on a single track. Flow-through feature allows both receivers to drain at once.
- Low-noise, adjustable steel track rollers fit track widths of 39 to 46 in. (99 to 117 cm); web to web of I-beam or channel, and a running width of 2-1/2 in. (63.5 mm) minimum.

See Accessories for Used-Oil Handling Systems on page 4-55.

235-346 Narrow Used-Oil Receiver

Same as 218-969 except track widths are 34.2 to 42.2 in (87 to 108 cm).

Used-Oil Evacuation Systems

Groundable and Bondable System

The 236-265 diaphragm pump used in these systems is listed by Underwriters Laboratories Inc. (UL) for pumping petroleum products including used oil and combustion by-products. The pump has a provision for connection to an earth ground to prevent the buildup of a static electrical charge. Additionally, all fluid components including the suction and discharge hoses are electrically conductive to provide electrical bonding of the system. Crankcase drainings often contain gasoline or other flammables. For this reason, component substitutions are not recommended.

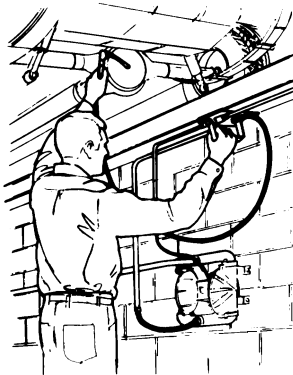
Model 236-265 pump is UL Listed for use with petroleum products. Installation and use must be in accordance with the Flammable and Combustible Liquids Code (NFPA 30) and Automotive and Marine Service Station Code (NFPA 30A) and must comply with all local, state and federal codes.



This symbol on the nameplate means the product is listed by Underwriters Laboratories Inc.

224-955 Gear Oil Evacuation System Using 715 Pump 222-148 Gear Oil Evacuation System Using 1040 Pump

System evacuates lube from differential case using suction from diaphragm pump. An assortment of nylon tubes ranging from 3/16 in. OD to 1/2 in. OD are included to fit through sight plug to completely drain case. Used gear lube can be delivered to a used storage tank (piping and tank not included). **Note: system fully groundable and bondable** for safe transfer of used oil. See additional description on this page.



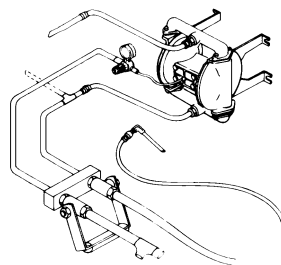
System 224-955 consists of: (A) UL-listed diaphragm pump (238-226), (B) air control kit (221-147), (C) hose and fitting kit (222-149), (D) suction hose/wand* (221-146), (E) control valve* (220-969) and (F) wall-mount bracket (224-835).

System 224-148 consists of identical components with the exception of UL-listed diaphragm pump (236-265).

See Accessories for Used-Oil Handling Systems on page 4-55.

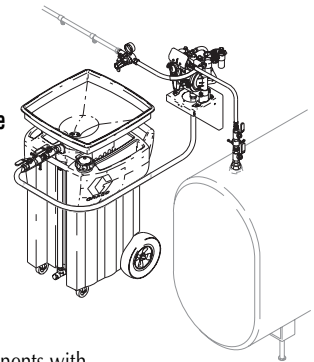
* Order 1 additional 221-146 suction hose/wand and 1 additional 220-969 control valve for each additional suction point.

Note: Order 222-011 grounding clamp or use locally supplied grounding wires and clamps in accordance with applicable codes.



224-873 Portable Used-Oil Evacuation System Using 715 Pump 222-090 Portable Used-Oil Evacuation System Using 1040 Pump

System provides a quick and simple method of evacuating used oil from portable roll-around style used-oil receivers (not included). Included is diaphragm pump, air on-off valving, air regulator and 6 ft. (1.8 m) suction hose with valving to eliminate spills. **Note: system fully groundable and bondable** for safe transfer of used oil. See additional description on this page.



System 224-873 consists of:

- (A) UL-listed diaphragm pump (238-226),
- (B) evacuation kit (222-147) and
- (C) receiver adapter kit* (222-007).

System 222-090 consists of identical components with the exception of UL-listed diaphragm pump (236-265).

* Order 1 additional 222-007 receiver adapter kit to convert each additional used oil receiver.

Note: Order 222-011 grounding clamp or use locally supplied grounding wires and clamps in accordance with applicable codes.

Note: Used-oil funnel and drum not included. Order separately. See page 4-53.

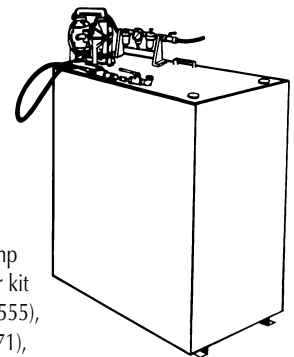
224-198 Tank-Mounted Used-Oil Assembly Using 715 Pump 237-797 Tank-Mounted Used-Oil Assembly Using 1040 Pump

Used-oil pump assembly provides a convenient and safe method of evacuating used oil from portable roll-around used-oil receivers (not included). This UL listed diaphragm pump assembly features:

- groundable system-connection for earth ground
- operates on less than 5 scfm air flow
- air inlet muffler below 65 dba

Assembly includes: UL listed diaphragm pump (238-226), evacuation kit (222-147), receiver kit (222-007), Y-strainer (101-078), nipple (158-555), 90° swivel adapter (160-327), nipple (156-971), filter (110-146), nipple (151-519), lubricator (110-148), and bushing (100-030).

System 237-797 consists of identical components with the exception of UL-listed diaphragm pump (236-265).



223-695 Port-Evac Pump

Allows fast, clean withdrawal of gear lube, ATF, anti-freeze and more. Unique balanced pump design provides maximum evacuation efficiency.

Complete assembly includes: pump, adjustable mounting bracket, 10 ft. (3 m) suction hose which attaches to four different diameter wands:

- 1/2 in. (12.7 mm), 3/8 in. (9.5 mm), 1/4 in. (6.4 mm), and 3/16 in. (4.7 mm). Instruction manual 308-035.



See Accessories for Used-Oil Handling Systems on page 4-55.

Accessories for Used-Oil Handling Systems

For Rolling Used-Oil Receiver

218-970 Tandem Drain Kit

Connects two rolling receivers for flow-through draining operation. Kit consists of: connector hose, shutoff valve, pipe nipple, quick-connect nipple, and instruction manual.



108-491 Drain Hose Kit

Kit allows the rolling used-oil receiver to be drained directly into the used-oil line. Kit is 24 in. (0.6 m) in length with a camlock coupler on one end.

221-007 Swing-Arm Drain Kit

Mounted at either end of fast lube service pit, swing-arm drain stores against pit wall, and is rotated into position for use. Use swing-arm drain for servicing single rolling used oil receiver (218-969). Use with tandem drain kit (218-970) for servicing two receivers on single track. Kit consists of: swivel elbow, connector hose, dust cap, and a male adapter.

For Port-Evac Pump

223-888 Suction Hose

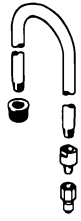
Optional suction hose for ATF and anti-freeze for the Port-Evac pump (223-695). Length 6 ft. (1.8 m). Includes filter screen.



For Gear Oil Evacuation System

222-178 U-Tube 1/2 npt (mbe)

For use with used-oil drain cart evacuation system (222-148).



For All Used-Oil Handling Systems

222-011 Grounding Clamp

Includes clamp and 25 ft. (7.6 m) grounding wire.

Fas-Vac Evacuation Systems

224-667 Basic System

Basic pump includes: Husky 715 pump and mounting hardware. Instruction manual 308-154.

224-763 16 Gallon System

Includes basic pump, dolly, wand storage kit and 1/4" x 32" suction wand. Instruction manual 308-154.

224-700 16 Gallon System

Includes basic pump, dolly, wand storage kit, 1/4" x 32" suction wand and 16 gallon drum. Instruction manual 308-154.

224-701 55 Gallon System

Includes basic pump, 55 gallon drum truck, wand storage kit and 1/2" x 32" suction wand. Instruction manual 308-154.

Fluid Commanders

GRACO'S FLUID COMMANDERS PROVIDE THE KEY TO MAKING BULK DISPENSING OF LUBRICANTS PRACTICAL. FROM A CENTRALLY-MOUNTED CONSOLE, A MANAGER CAN DETERMINE WHEN AND IN WHAT QUANTITY LUBRICANTS ARE DISPENSED TO A SPECIFIC SERVICE LOCATION. ELECTRONIC OR MECHANICAL FLUID COMMANDERS AVAILABLE.

- **REDUCE PRODUCT COSTS – BY PURCHASING IN BULK, PRODUCT COSTS ARE REDUCED.** THE FLUID COMMANDERS ALLOW DISPENSING FROM A HOSE, REEL OR OIL BAR ONLY IN THE QUANTITY AUTHORIZED.
- **PREVENT THEFT – A KEY LOCK, OR P.I.N. CODE, PREVENTS UNAUTHORIZED DISPENSING OF FLUIDS.** ELIMINATES INVENTORY SHRINK.
- **ELIMINATE FORGOTTEN CHARGES – BY CONTROLLING FROM A CENTRAL POINT.**
- **INCREASE PRODUCTIVITY / SAVE COSTS – DISPENSING LUBRICANTS FROM BULK ELIMINATES THE COSTLY AND LABOR-INTENSIVE USE OF INDIVIDUAL CANS AND CONTAINERS, ALLOWING THE SERVICE TECHNICIAN TO BE MORE PRODUCTIVE.**



Electronic Fluid Commander

User-Friendly Technology

Easy-to-operate with digital display that enables precise volume-dispensing of motor oils, gear lubricants and ATF. Dispense control console displays in pints-quarts-gallons. Central control affords remote dispensing without forgotten charges. Upgrade to electronic lube dispensing that is as easy as a calculator to operate.

Instant, Accurate Inventory Control

Solid-state reliability provides cumulative total of fluids dispensed. Excellent way to monitor lubricant inventory. Battery back-up retains inventory data even after power failure.

Installation Simplicity

Design features like surface or wall mounting, spring-loaded wire attachments, digital electronics, layout recommendations and complete hardware availability provide installation simplicity. Your Graco Electronic Fluid Commander System lets you quickly make the transition to modern state-of-the-art lubricant dispensing.

Electronics Replace Mechanical Counters

No shafts, seals or gears to leak or strip. No mechanical devices to fail. The Electronic Fluid Commander accurately dispenses and records all fluids dispensed. Increase your confidence and reduce your maintenance.

System Flexibility

The Electronic Fluid Commander affords multiple system combinations to match your service requirements.

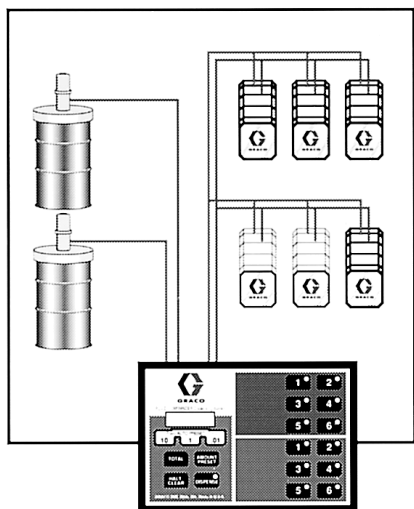
Specifications

Maximum number of fluids: 2
Dispense stations (bays): 6
Air solenoids required: one per pump
Fluid solenoids required: one per fluid dispense station
Electrical requirements: 120 volt, 60 Hz, .25 amps
Digital readout: liquid crystal display
Incremental measurements: pint, quarts or gallons (liters)
Dimension: 8 in. L x 10 in. W x 4 in. H
(203 mm L x 245 mm W x 102 mm H)
Weight: 4 lbs., 5 oz. (8.0 kg)
Instruction manual: 308-238

How the Fluid Commanders Work . . .

1. The service technician requests a desired quantity of product and gives this service bay number to the manager.
2. The manager enters the type of product, quantity, and service location, then activates a dispense button.
3. A ready light, located on the technician's hose reel or dispense bar, indicates when dispensing can begin.
4. As product is dispensed, the Fluid Commander keeps count of the amount dispensed and shuts off when the preset amount is reached. The system is then closed to further dispensing until again authorized.

Electronic Fluid Commander – Fluid/Dispense Station Options



2 x 6
Model No. 235-532

232-076 2x6 Electronic Fluid Commander Basic System

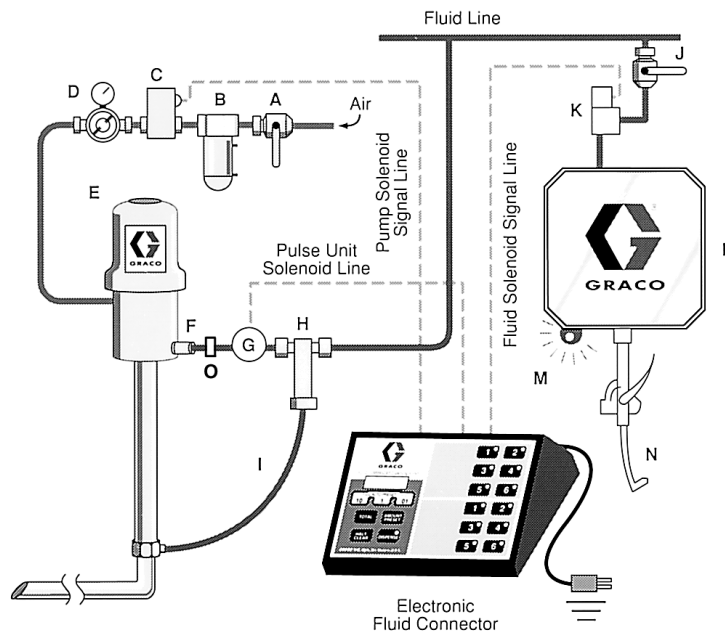
Includes: (1) 235-532 2x6 fluid commander, (1) 236-763 oil meter, (1) 215-487 fluid solenoid, (1) 215-407 air solenoid. Order additional accessories separately.

Accessories (order separately)

Part No.	Description
236-763	pulse meter
215-407	air solenoid valve
218-588	reel ready kit (includes indicator light, fluid solenoid valve and hardware)
207-221	thermal relief kit
223-179	fluid filter kit
186-472	wall mounting bracket
108-458	fluid shutoff valve

Connecting Cables:

215-481	preconnected both ends – 100 ft. (30.5 m)
215-480	preconnected both ends – 10 ft. (3.1 m)
224-090	preconnected one end – 50 ft. (15.3 m)



- | | |
|----------------------------------|----------------------------------|
| A. air shutoff valve, bleed type | I. fluid drain hose |
| B. air filter | J. fluid shutoff valve (108-458) |
| C. air solenoid valve (215-407) | K. fluid solenoid valve** |
| D. air regulator | L. hose reel |
| E. pump | M. ready light** |
| F. fluid strainer | N. dispense valve |
| G. pulse meter (236-763) | O. check valve |
| H. thermal relief kit* (207-221) | |

* Kit required to protect system from rupture due to thermal expansion of fluid in lines.

** Included in Kit No. 218-588

For a detailed system recommendation, please contact your local Graco Lubrication Systems Representative. All components must be ordered separately.

PULSE METER at each pump assures precise fluid flow measurement. Solid-state design for maintenance-free performance. Rated at 1500 psi (103 bar).

REEL KIT includes a low voltage solenoid with ready light mounted on the hose reel. Light remains illuminated until technician dispenses authorized fluid amount.

THERMAL RELIEF KIT protects the system from the potential damage of thermal pressure expansion. Excess fluid pressure is harmlessly directed through the valve back to the supply container.

NOTE: Thermal relief kit required in system to maintain product warranty.

Electronic Fluid Commander Accessories

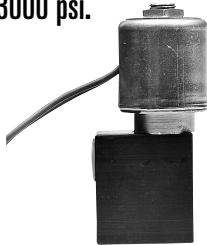
215-407 Air Solenoid Valve: 1/2 npt(f) 150 psi.

Operates on 24 VDC. Provides automatic shutoff of pump-inlet air when controlled dispense is complete. Includes: tube, pin connector, wire plug connector, 3-way air valve, coupling, and hex pipe nipple. For bare valve without wiring connectors, order 105-474.



215-487 Fluid Solenoid Valve: 1/2 npt(f) 3000 psi.

Operates on 24 VDC. Provides automatic shutoff of dispense fluid when controlled dispense is complete. Includes: tube, valve, pin connector, wire plug connector, and adapter. For bare valve without wiring connectors or adapters, order 110-025.



207-221 Thermal Relief Kit for 900 psi (61.2 bar)

Used to relieve heat-induced excess pressure from dispense system back to inlet of universal Fire-Ball and President pumps. Male x female threads allow simple installation.



218-588 Ready Kit

Contains light to signal operator when a preset amount of product is available for dispense. Also includes solenoid valve to provide on/off control of product as controlled from console. Kit includes indicator light (218-547), fluid solenoid valve (215-487), strainer (204-999), and hardware. Instruction manual: 307-696.



215-480 Preconnected Electrical Cable — 10 ft. (3.1 m)

215-481 Preconnected Electrical Cable — 100 ft. (31 m)

For use between solenoids and consoles. 90V, 2-wire, 18 gauge. For over 300 ft. (90 m), use 16 gauge wire.



Grease Dispense Valves, Lever Guns & Accessories

Grease Dispense Valve

223-903 Grease Dispense Valve: 1/4 npt(f) inlet

224-132 Grease Dispense Valve: 3/8 npt(f) inlet

High pressure valve with knurled grip body for operator comfort. Working pressure: 8000 psi (560 bar). Includes nozzle (200-389). Order swivel below.



224-872 Fast Lube Grease Dispense Valve 5000 psi (333 bar)

High pressure chassis grease valve with knurled grip body for operator comfort. Includes hose (109-148), Z-Swivel (202-577) and grease valve (223-903).

202-577 Z-Swivel: 1/4 npt(m) x 1/4 npt(f)

224-569 Z-Swivel: 3/8 npt(m) x 3/8 npt(f)

Use 202-577 with 223-903 grease dispense valve.

Use 224-569 with 224-132 grease dispense valve.



202-600 Power-Shot Booster Gun

For use with any high-pressure lubricator or a booster/dispense valve with hose reels. Has molded rubber trip handle.

Boosts pressure of incoming grease to 18,000 psi (1260 bar). Maximum inlet pressure: 5000 psi (333 bar). Inlet and outlet: 1/8 npt(f)

Not for use with flexible hose nozzle. Includes nozzle (200-389).

Order hose swivel (202-579) separately.



203-697 Hot-Shot Booster Gun

For portable operation without continuous connection to grease supply. Has 4 oz. (113 grams) self-contained grease reservoir in handle capable of servicing up to 100 fittings before recharge. Has grease fitting for recharge from manual- or air-powered luber. Single-hand operation squeeze handle develops up to 10,000 psi (666 bar). Includes grease nozzle (200-325).



Lever and Pistol Guns

110-218 Standard Lever Action Grease Gun

Develops up to 6000 psi (400 bar) working pressure. Two-way loading cartridge and bulk fill. Optional loader fitting available. Equipped with rigid extension and hydraulic coupler.



110-216 Heavy-Duty Lever Action Grease Gun

High pressure variable – low volume. Three-way loading: bulk fill, loader fitting and cartridge. Air bleeder valve and vinyl grip handle included. Equipped with rigid extension and hydraulic coupler.



110-203 Pistol-Matic Grease Gun

Develops up to 6000 psi (400 bar) working pressure. Three-way loading: bulk fill, loader fitting and cartridge. Air-bleeder valve and vinyl grip handle included. Equipped with rigid extension and hydraulic coupler.



110-202 Pistol-Matic Grease Gun

Same as 110-203 except includes 12 in. (30.4 cm) rubber flex hose and hydraulic coupler.

110-201 Suction Gun

Designed for evacuating and filling fluids into gear housings, differentials, transmissions and a variety of applications. Equipped with 12 in. (30.4 cm) clear plastic hose.



112-196 Air-Operated Grease Gun

Pistol-type, single shot. Three-way loading: bulkfill, loader fitting and 14 oz. (400 g) cartridge. Air input range: 75-100 psi (5-7 bar). Spring-primed, standard gun coupler, bleeder valve. Working pressure: 6000 psi (420 bar).



225-946 Heavy-Duty Selection Gun

For filling and evacuating gear housings, differentials, transmissions, etc. Holds 11 fl. oz. (325 ml). Has 3/8 in. (0.95 cm) flex metal nozzle.

236-196 Suction Gun

For filling and evacuating gear housings, differentials, transmissions etc. Equipped with 12 in. (30 cm) clear plastic hose.



Accessories for Grease Dispense

Hose and Gun Swivels



Three-Way Z-Swivel

- 202-579 Free, Ball Bearing, 1/8 npt(m) x 1/4 npt(f)
- 202-577 Free, Ball Bearing, 1/4 npt(m) x 1/4 npt(f)
- 224-569 Free, Ball Bearing, 3/8 npt(m) x 3/8 npt(f)
- 207-948 Free, Needle Bearing, 1/2 npt(m) x 1/2 npt(f)

Straight Swivel



- 204-082 Free, Ball Bearing, 1/8 npt(m) x 1/8 npt(f)
- 204-083 Free, Ball Bearing, 1/4 npt(m) x 1/8 npt(f)
- 204-084 Free, Ball Bearing, 1/4 npt(m) x 1/4 npt(f)
- 214-925 Free, Ball Bearing, 3/8 npt(f) x 1/4 npsm(f-union)
- 214-926 Free, Ball Bearing, 3/8 npt(f) x 1/2 npsm(f-union)
- 207-946 Free, Needle Bearing, 3/8 npt(f) x 1/2 npsm(f-union)
- 207-947 Free, Needle Bearing, 1/2 npt(m) x 1/2 npt(f)

Grease Nozzles

200-389 Standard Grease Nozzle

Provided as standard with most grease dispense valves. Nozzle includes: 1/8 npt(m) extension tube (150-485) to reach out-of-the-way fittings and taper nose coupler (200-325). Tube length: 6 in. (15.2 cm).



204-072 Swivel Grease Nozzle: 6 in. (15.2 cm)

204-897 Swivel Grease Nozzle: 12 in. (30.4 cm)

Nozzle includes: straight 1/8 npt(m) extension tube (150-622) for 6 in. (15.2 cm) or 155-836 for 12 in. (30.4 cm) and taper-nose coupler (200-325). Tube length: 6 in. or 12 in. (15.2 cm or 30.4 cm). Coupler has 360° swivel adapter for maximum adaptability.



204-204 Hose Nozzle

203-504 Hose Nozzle w/Lock Sleeve Connector

Flex hose, 12 in. (20.3 cm), provides ability to reach difficult-to-reach fittings. Nozzle includes: taper-nose coupler (200-325). 204-204 has 1/8 npt(m) inlet. 203-504 includes lock sleeve connector (204-497) for quick connection to any grease nozzle having taper nose coupler. Warning: potential injection hazard. Not for use above 5000 psi (333 bar).



109-145 Hose Nozzle (Less Coupler): 12 in. (30.4 cm)

112-255 Hose Nozzle (Less Coupler): 18 in. (45.8 cm)

109-148 Hose Nozzle (Less Coupler): 30 in. (76.2 cm)

Flex hose, 30 in. (76.2 cm) has 1/8 npt(m) both ends. Use as alternate for rigid nozzle. Use with taper-nose coupler (200-325). Warning: Not for use above 5000 psi (333 bar).



Hydraulic Couplers

200-325 Standard Taper Nose Hydraulic Coupler

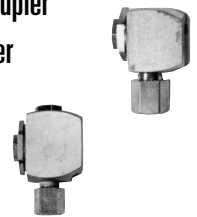
Standard with most grease dispense nozzles and valves. Hardened jaws grip grease fittings through wide sealing angle, yet can be released easily. Inlet: 1/8 npt(f).



200-020 Standard Buttonhead Hydraulic Coupler

200-021 Giant Buttonhead Hydraulic Coupler

Gives fast, positive seal on buttonhead fittings. Choice of two sizes for standard or giant buttonhead fittings. Both have 1/8 npt(f) inlet.



Adapters

201-881 Hydraulic-to-Push Adapter

205-532 Hydraulic-to-Steel Needle Adapter

205-582 Hydraulic-to-Nylon Needle Adapter

223-187 90° Hydraulic-to-Push Adapter (K-Car)

Adapters have lock sleeve connector for quick connection to any grease nozzle having taper nose coupler. Use 201-881 for U-joints and low pressure service. Use 205-532 for flush fittings, and 205-582 for removable plugs.



205-568 Nylon Adapter

Similar to needle adapter used in 205-582 but has 5 in. (12.7 cm) length for greater reach. Inlet: 1/8 npt(m).



203-597 360° Grease Swivel w/Coupler

203-198 360° Grease Swivel Only

Swivels and locks full 360°. Use for maximum coupler adaptability and reach. 1/8 npt(f) x 1/8 npt(m). 203-597 includes taper-nose coupler (200-325).



203-497 Lock Sleeve Connector

Allows quick connection to taper-nose coupler. Inlet is standard grease fitting with sleeve to lock connector in place. Outlet: 1/8 npt(f).



205-554 Plug Adapter

For use with removable type plugs. Fits 1/4-28 thread; has speed nut. Uses standard grease fitting inlet.



236-171 Easy Fill Valve

For faster loading of hand grease guns with Graco gun loaders. Replaces hydraulic fittings on all grease guns with 1/8 npt(f).



204-929 Grease Loader Valve

For use with lever-operated high-volume grease pumps. Inlet: 3/8 npt(f). Permits fast bulk refilling of hand-operated grease lever guns equipped with Easy Fill Valve (236-171).

205-592 Hydraulic Adapter Assortment Pack

Complete package contains assorted adapters for servicing bearings with plugs and flush fittings: needle adapter (205-568), plug adapter (205-554), push adapter (201-881), nylon needle adapter (205-582), hydraulic-to-steel needle adapter (205-532), and whip hose nozzle connector (203-504).



Grease Fittings

Threaded Fittings

Part No.	Description	Shank
100-054	1/8 npt straight	9/32
101-277	1/8 npt straight	19/32
100-970	1/8 npt 30°	9/32
100-834	1/8 npt 45°	9/32
100-971	1/8 npt 65°	9/32
100-833	1/8 npt 90°	9/32
100-835	1/4 npt straight	13/32
100-848	1/4 npt 65°	3/8
100-846	1/4-28 straight	3/16
100-847	1/4-28 45°	13/64
101-283	1/4-28 90°	3/16
101-281	1/4-28 straight	11/32
110-701	1/4-28 straight	19/32
110-702	1/4-28 65°	19/64



Thread Forming

Part No.	Description	Shank
110-703	1/4-28 straight	13/64
110-704	1/4-28 45°	3/16
110-705	1/4-28 90°	13/64
110-706	3/16 npt straight	3/32
110-707	3/16 npt straight	7/32
110-708	3/16 npt 45°	7/32
110-709	3/16 npt 65°	7/32



Drive Type

Part No.	Description	Shank
110-713	3/16 npt straight	1/4
101-312	3/16 npt straight	1/4
101-287	1/4 npt straight	17/64
110-710	5/16 npt straight	1/4



Standard Button Head

Part No.	Description	Shank
100-837	1/4 npt straight	7/16
101-297	3/8 npt straight	33/64
110-711	1/2 npt straight	35/64



Giant Button Head

Part No.	Description	Shank
110-712	3/8 npt straight	9/16



Grease Accessory Packages

202-654 Assortment Package

VISI-Box contains the following threaded fittings:

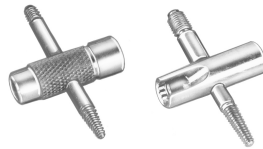
- 100-054 30 ea.
- 100-970 10 ea.
- 100-833 10 ea.
- 100-846 20 ea.
- 100-847 10 ea.



101-604 Easy Out: 1/8 npt

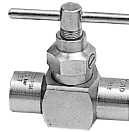
101-605 Easy Out: 1/4 npt

For installation and removal of grease fittings.



202-869 Grease Dispense Line Shut-off Valve

Ported-valve for drop-line isolation: 1/2 npt(f). Needle valve construction rated for 5000 psi (333 bar).



111-229 Needle Valve

Ported valve: 3/8 npt(m) x 3/8 npt(f). Rated for 10,000 psi (666 bar).

226-189 Accessory Box — Complete

Fully-stocked box including accessory package (205-795). Shipped in two cartons.



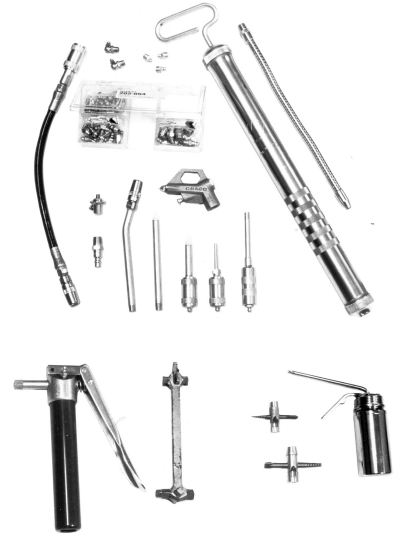
215-249 Accessory Box — Box Only

Includes clasp, mounting clasps and exterior suction gun clamps. Black only. Dimensions are: 17-1/4 in. L x 6-3/4 in. W x 10 in. H (43.8 cm L x 17.15 cm W x 25.4 cm H).

205-795 Lubrication Accessory Package

Contains assorted adapters for servicing bearings with plugs and flush fittings:

- 205-568 needle adapter
- 205-554 plug adapter
- 201-881 push adapter
- 205-582 nylon needle adapter
- 205-532 hydraulic-to-steel needle adapter
- 203-504 hose nozzle connector
- 101-606 drain-plug wrench
- 101-604 easy out, 1/8 npt
- 101-605 easy out, 1/4 npt
- 150-150 pistol oiler
- 202-654 hydraulic fittings box
- 169-970 air fitting
- 203-697 hot-shot booster gun
- 150-161 flexible nozzle
- 203-329 suction gun
- 208-625 air blow gun



Air Line Accessories

GRACO'S AIR LINE ACCESSORIES ARE SIZED TO MATCH YOUR EQUIPMENT SELECTIONS TO ASSURE OPTIMUM EFFICIENCY AND PERFORMANCE. THIS INCLUDES AIR FILTERS, AIR REGULATORS, LUBRICATORS, FRL ASSEMBLIES FOR MATCHED COMBINATION OF COMPONENTS, VALVES, FITTINGS, PRESSURE GAUGES AND INFLATORS. ALL THESE ACCESSORIES KEEP YOUR EQUIPMENT WORKING IN THE PROPER OPERATING RANGE, ESSENTIAL TO REDUCING DOWNTIME AND REPAIR COSTS.

Air Filters

- 110-146 1/4 npt(fbe)
- 106-148 3/8 npt(fbe)
- 106-149 1/2 npt(fbe)
- 106-150 3/4 npt(fbe)

Centrifugal action and 40 micron element remove water and foreign particles from plant air supply.



Air Regulators

- 110-318 1/4 npt(fbe)
- 110-234 3/8 npt(fbe)
- 104-266 1/2 npt(fbe)
- 207-755 3/4 npt(fbe)

- 110-147 with Gauge: 1/4 npt(fbe)
- 109-075 with Gauge: 3/8 npt(fbe)
- 202-858 with Gauge: 3/8 npt(m) x 1/2 npsm(f)

- 218-316 with Installation Kit for Fast-Flo, Fire-Ball and 307 & 715 Diaphragm Pumps
- 224-512 with Installation Kit for Eagle and Fire-Ball
- 207-468 with Installation Kit for President
- 205-712 with Installation Kit for Senator and Bulldog

Precision control of outlet air pressure. Feedback principle allows constant pressure to pump regardless of air demand rate and fluctuations in supply pressure. Additional fittings are required except on air regulators with installation kits. Installation kits include: shutoff valve, regulators, gauges, hoses, and fittings as necessary for normal installation on the indicated pumps.



Air Lubricators

- 110-148 1/4 npt(fbe)
- 214-847 3/8 npt(fbe)
- 214-848 1/2 npt(fbe)
- 214-849 3/4 npt(fbe)

Extends life of pump and smooths pump movement by applying measured lubricant to all moving parts within the pump air motor. Control knob and sight window allow adjustment of lubricant dispensed.



FRL Combination Units

- 110-149 Combination Unit: 1/4 npt(fbe)
- 110-150 Combination Unit: 3/8 npt(fbe)
- 217-072 Combination Unit: 1/2 npt(fbe)
- 217-073 Combination Unit: 3/4 npt(fbe)

Easy-to-install combination packaged units include: filter, regulator, pressure gauge, lubricator and connection fittings. Complete. Convenient.



Filter Drain

- 106-151 Automatic Filter Drain: 1/4 npt(m)

Float-type accessory drain for automatic emptying of accumulated fluid.

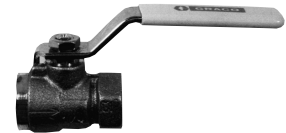


Valves

Bleed-Type Shutoff Valve

- 110-223 1/4 npt(fbe)
- 110-224 3/8 npt(fbe)
- 110-225 1/2 npt(fbe)
- 110-226 3/4 npt(fbe)

Closes air inlet to pump and relieves trapped air pressure downline from valve. Recommended for each pump drop line.



Air Line Shutoff Valve

- 208-390 1/4 npt(mbe)
- 208-393 3/8 npt(mbe)
- 107-142 1/2 npt(mxf)
- 107-141 3/4 npt(mxf)

Ball valve type air line shutoff valve. Non-pressure relieving.



Quick-Connect Coupler

- 208-536 1/4 npt(fbe)
- 110-198 3/8 npt(f)
- 110-199 1/2 npt(f)
- 110-200 3/4 npt(f)

Fast, convenient air hose attachment. Female thread allows easy attachment to Graco air hoses.



Quick-Connect Nipple

169-970 1/4 npt(m)

169-971 3/8 npt(m)

110-196 1/2 npt(m)

110-197 3/4 npt(m)

Easy attachment of air supply to motor. Male fitting allows threading directly into Graco air motors.



Air Needle Valve

205-090 Outlet Port 1/4 npt(f)

206-264 Outlet Port 1/8 npt(f)

Controls speed by restricting air flow to pump or other air-operated equipment. Inlet Ports for both: 1/4 npt(m).



Air Pressure Relief Valve

103-347 90 psi (6 bar)

110-065 60 psi (4 bar)

Relief valve opens at a pre-set maximum air pressure to prevent pump from operating beyond the recommended working pressure. Ports: 1/4 npt(m).



Air Pressure Gauge

100-960 Bottom Inlet: 1/4 npt(m), Black

101-180 Bottom Inlet: 1/4 npt(m), Chrome

110-319 Bottom Inlet: 1/8 npt(m), Black

Allows visual check of air pressure being supplied to pump. Rated to 200 psi (14 bar).



158-990 Manifold: Four Outlet Ports 3/8 npt(f)

601-950 Manifold: Three Outlet Ports 1/2 npt(f)

Supply several pumps from a common air supply line. Air inlet port is larger than delivery ports to ensure adequate air flow to all pumps.

Inlet Port for 158-990: Two at 1/2 npt(f)

Inlet Port for 601-950: Two at 3/4 npt(f).



105-474 3-Way Solenoid Valve

3-way configuration allows valve to be used in normally open or closed position with downstream bleed for safety. Operates on 24 VAC 60 Hz, 115 VAC 60 Hz or 110V 50 Hz. 1/4 npt(f) ports.



224-040 Runaway Valve

Prevents pump damage by sensing a runaway pump condition due to empty barrel or hose leak and automatically closes air line to stop pump operation. Ports: 3/4 npt(fbe).



208-627 Air Blow Gun

Connects to coupler 208-536. Inlet: 1/4 npt(f).



150-136 Tire Chuck

Durable, full volume tool for maintaining, adding or relieving air pressure. Inlet: 1/4 npt(f).



Tire Inflators

236-205 Heavy-Duty Tire Inflator

Has 12 in. (30 cm) hose with swivel dual-foot chuck. Tapered chuck nut fits wheel-cover holes on cars and light trucks. Maximum working pressure: 250 psi (18 bar). Inlet: 1/4 npt(f).



236-206 Passenger Car Tire Inflator

Has 12 in. (30 cm) hose with straight-on chuck. Tapered chuck nut fits wheel-cover holes on cars and light trucks. Ideal for use on reels. Maximum working pressure: 250 psi (18 bar). Inlet: 1/4 npt(f).



Safety Gun

236-211 Safety Blow Gun

Tip swivels freely and cannot be removed. Tip pressure will not exceed 30 psi (2 bar), yet provides an adequate blast of air for cleaning. Maximum working pressure: 150 psi (10 bar).



Hoses & Fittings

Lubrication Hose

Heavy-duty reinforced hose for use with oils, greases and undercoating material. Color: Black. All fittings are male both ends.



1/4 in. ID – 5000 psi (333 bar)

Part No.	Inside Diameter x Length	Fittings
109-145	1/4 in. x 12 in. (0.3 m)	1/8 x 1/8 with bend restrictor
109-146	1/4 in. x 15 in. (0.4 m)	3/8 x 3/8
109-147	1/4 in. x 24 in. (0.6 m)	3/8 x 3/8
109-148	1/4 in. x 30 in. (0.8 m)	1/8 x 1/8 with bend restrictor
109-149	1/4 in. x 48 in. (1.2 m)	1/4 x 1/4
109-150	1/4 in. x 72 in. (1.8 m)	1/4 x 1/4
109-151	1/4 in. x 12 ft. (3.6 m)	1/4 x 1/4
109-152	1/4 in. x 15 ft. (4.6 m)	1/4 x 1/4
109-153	1/4 in. x 20 ft. (6.1 m)	1/4 x 3/8
109-154	1/4 in. x 25 ft. (7.6 m)	1/4 x 1/4
109-156	1/4 in. x 35 ft. (10.6 m)	1/4 x 3/8
109-157	1/4 in. x 40 ft. (12.2 m)	1/4 x 3/8
109-158	1/4 in. x 50 ft. (15.3 m)	1/4 x 3/8

3/8 in. ID – 4000 psi (266 bar)

Part No.	Inside Diameter x Length	Fittings
109-160	3/8 in. x 12 in. (0.3 m)	1/4 x 1/2
109-162	3/8 in. x 48 in. (1.2 m)	3/8 x 3/8
109-163	3/8 in. x 72 in. (1.8 m)	3/8 x 3/8
109-165	3/8 in. x 15 ft. (4.6 m)	1/4 x 1/4
109-167	3/8 in. x 25 ft. (7.6 m)	1/4 x 1/4
109-169	3/8 in. x 40 ft. (12.2 m)	1/4 x 3/8
109-170	3/8 in. x 50 ft. (15.3 m)	1/4 x 3/8

1/2 in. ID – 3000 psi (200 bar)

Part No.	Inside Diameter x Length	Fittings
220-604	1/2 in. x 12 in. (0.3 m)	1/2 x 1/2
110-069	1/2 in. x 15 in. (0.4 m)	1/2 x 1/2
220-598	1/2 in. x 18 in. (0.4 m)	1/2 x 1/2
220-600	1/2 in. x 54 in. (1.4 m)	1/2 x 1/2
220-591	1/2 in. x 72 in. (1.8 m)	1/2 x 1/2
220-590	1/2 in. x 10 ft. (3.1 m)	1/2 x 1/2
220-592	1/2 in. x 16 ft. (4.9 m)	1/2 x 1/2
220-593	1/2 in. x 20 ft. (6.1 m)	1/2 x 1/2
220-608	1/2 in. x 25 ft. (7.6 m)	1/2 x 1/2
221-092	1/2 in. x 40 ft. (12.2 m)	1/2 x 1/2
221-093	1/2 in. x 50 ft. (15.3 m)	1/2 x 1/2

3/4 in. ID – 2250 psi (150 bar)

Part No.	Inside Diameter x Length	Fittings
109-108	3/4 in. x 18 in. (0.4 m)	3/4 x 3/4
109-105	3/4 in. x 72 in. (1.8 m)	3/4 x 3/4

Tubing

181-803 Nylon Tubing: 1/4 in. x 12 ft. (3.6 m)

183-422 Nylon Tubing: 3/8 in. x 12 ft. (3.6 m)

Nylon tubing for use as wand for gear case evacuation. Cut lengths as necessary. Not for pressure use.

Air/Water Hose

Available in both self-storing and fabric-reinforced for general-purpose use with air or water, antifreeze, and windshield wash. Color: Red. Fittings: male both ends.



Self-Storing

1/4 in. ID – 180 psi (12 bar)

Part No.	Inside Diameter x Length	Fittings
205-600	1/4 in. x 50 ft.	1/4 x 1/4

Fabric-Reinforced

1/4 in. ID – 180 psi (12 bar)

Part No.	Inside Diameter x Length	Fittings
109-123	1/4 in. x 18 in. (0.4 m)	1/4 x 1/4
109-124	1/4 in. x 4 ft. (1.2 m)	1/4 x 1/4
109-125	1/4 in. x 6 ft. (1.8 m)	1/4 x 1/4
109-126	1/4 in. x 10 ft. (3.1 m)	1/4 x 1/4
109-127	1/4 in. x 25 ft. (7.6 m)	1/4 x 1/2
109-128	1/4 in. x 40 ft. (12.2 m)	1/4 x 1/2

3/8 in. ID – 180 psi (12 bar)

Part No.	Inside Diameter x Length	Fittings
109-129	3/8 in. x 15 in. (0.4 m)	3/8 x 1/2
204-560	3/8 in. x 18 in. (0.4 m)	3/8 x 3/8
109-130	3/8 in. x 4 ft. (1.2 m)	3/8 x 3/8
203-320	3/8 in. x 6 ft. (1.8 m)	3/8 x 3/8
109-131	3/8 in. x 10 ft. (3.1 m)	3/8 x 3/8
109-132	3/8 in. x 25 ft. (7.6 m)	3/8 x 1/2
109-133	3/8 in. x 30 ft. (9.2 m)	3/8 x 1/2
109-134	3/8 in. x 40 ft. (12.2 m)	3/8 x 1/2
109-135	3/8 in. x 60 ft. (18.3 m)	3/8 x 1/2
110-326	3/8 in. x 16 ft. (4.9 m)	1/4 x 3/8

1/2 in. ID – 180 psi (12 bar)

Part No.	Inside Diameter x Length	Fittings
218-093	1/2 in. x 22 in. (0.56 m)	1/2 x 1/2
110-046	1/2 in. x 4 ft. (1.2 m)	1/2 x 1/2
205-418	1/2 in. x 6 ft. (1.8 m)	1/2 x 1/2
214-656	1/2 in. x 10 ft. (3.1 m)	1/2 x 1/2
205-273	1/2 in. x 25 ft. (7.6 m)	1/2 x 1/2
208-594	1/2 in. x 50 ft. (15.3 m)	1/2 x 1/2

3/4 in. ID – 180 psi (12 bar)

Part No.	Inside Diameter x Length	Fittings
110-047	3/4 in. x 18 in. (0.4 m)	3/4 x 3/4
110-048	3/4 in. x 4 ft. (1.2 m)	3/4 x 3/4
208-610	3/4 in. x 6 ft. (1.8 m)	3/4 x 3/4
214-955	3/4 in. x 10 ft. (3.1 m)	3/4 x 3/4
208-611	3/4 in. x 25 ft. (7.6 m)	3/4 x 3/4

Pipe Fittings

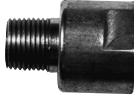
Bushing – Reducing, Standard & Expanding

Part No.	Thread Size Male x Female	Part No.	Thread Size Male x Female
100-030	1/4 x 1/8	100-505	3/4 x 3/8
159-841	3/8 x 1/4	100-896	3/4 x 1/2
100-206	1/2 x 1/4	100-380	1 x 1/2
100-081	1/2 x 3/8	158-586	1 x 3/4
100-615	3/4 x 1/4		



Pipe Adapters

Part No.	Thread Size Male x Female	Part No.	Thread Size Male x Female
150-171	1/8 x 1/8	159-842	1/4 x 1/2
159-840	1/8 x 1/4	150-286	3/8 x 3/8
156-580	1/8 x 3/8	156-022	3/8 x 1/2
150-287	1/4 x 3/8	168-595	1/2 x 3/4



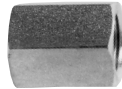
Street Elbow

Part No.	Thread Size Male x Female
100-840	1/4 x 1/4
155-699	3/8 x 3/8
158-683	1/2 x 1/2
176-393	3/4 x 3/4



Coupling – Standard

Part No.	Thread Size
100-451	1/8
113-093	1/4
162-024	3/8
158-581	1/2
100-385	3/4
100-474	1



Hex Nipple – Standard & Reducing

Part No.	Thread Size
151-519	1/4 x 1/8
156-971	1/4 x 1/4
156-296	3/8 x 1/8
165-198	3/8 x 1/4
156-849	3/8 x 3/8
162-449	1/2 x 1/4
159-239	1/2 x 3/8
158-491	1/2 x 1/2
157-191	3/4 x 1/2
175-013	3/4 x 3/4
158-555	1 x 3/4



Square-Head Plug

Part No.	Thread Size
111-697	1/4
100-040	3/8
100-737	1/2
104-663	3/4



Pipe Swivels

Straight Swivel Adapter – Male x Female

Part No.	Rigid Thread x Swivel Thread
208-434	1/8 x 1/4
156-823	1/4 x 1/4
157-705	1/4 x 3/8
155-665	3/8 x 3/8
162-505	3/8 x 1/2
156-684	1/2 x 1/2
158-256	1/2 x 3/8
157-785	3/4 x 3/4
202-965	1 x 3/4
160-022	1 x 1



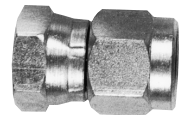
90° Swivel Adapter – Female x Female

Part No.	Rigid Thread x Swivel Thread
157-676	1/4 x 1/4
155-677	3/8 x 3/8
159-801	3/8 x 1/2
157-416	1/2 x 1/2
156-589	3/4 x 3/4



Straight Swivel Adapter – Female x Female

Part No.	Rigid Thread x Swivel Thread
155-570	1/4 x 1/4
159-153	3/8 x 1/4
156-173	3/8 x 3/8
155-653	1/2 x 1/4
161-077	1/2 x 3/8
155-865	1/2 x 1/2
156-172	3/4 x 3/4
158-383	1 x 1



90° Swivel Adapter – Male x Female

Part No.	Rigid Thread x Swivel Thread
155-541	1/4 x 1/4
155-495	3/8 x 1/4
155-494	3/8 x 3/8
217-430	3/8 x 1/2
161-037	1/2 x 3/8
155-470	1/2 x 1/2
160-327	3/4 x 3/4



45° Swivel Adapter – Male x Female

Part No.	Rigid Thread x Swivel Thread
161-889	3/8 x 3/8
105-281	3/4 x 3/4



Tube Fittings

These fittings are rated to 3000 psi (207 bar) maximum fluid pressure when coupled with the appropriate tubing wall thickness. Reference Iron Pipe and Steel Tubing Data on page 4-70.

Male Connector

Part No.	Tube O.D.	Thread
101-339	7/8 in.	3/4 npt



Female Connector – Straight

Part No.	Tube O.D.	Thread
101-008	5/8 in.	1/2 npt
101-520	7/8 in.	3/4 npt



Tube Union Elbow

Part No.	Tube O.D.
101-012	5/8 in.
101-376	7/8 in.



Tube Tee – Female Branch

Part No.	Tube O.D.	Thread
101-013	5/8 in.	5/8 npt
101-378	7/8 in.	3/4 npt



Tube Union – Straight

Part No.	Tube O.D.
101-009	5/8 in.
101-340	7/8 in.



For other tube fitting needs (i.e. high pressure, low pressure), consult with your local distributor of:

- Parker
- AeroQuip
- Weatherhead
- Lenz
- Crawford
- Imperial Eastman

for fitting recommendations.

Pump Accessories for Lube Trucks

LUBRICATION TRUCKS HAVE SPECIAL REQUIREMENTS FOR SECURING PUMPING EQUIPMENT PROPERLY. THESE ACCESSORIES ARE DESIGNED FOR PORTABILITY AND LIMITED SPACE.

Oil

222-086 Fire-Ball 5:1 (Cover-Mounted)

Pump mounts in center of cover for 16 gallon (60 liter) open head drum. Drum is not included. System is complete and ready for truck or cart mounting. System includes: pump (203-872), cover (222-060), hold-down (222-061), hose and fitting kit (222-063), and instruction manual (307-883). Use 3/8 in. air regulator (109-075), not included. See page 4-63.



206-655 Fire-Ball 5:1 (Cover-Mounted)

Pump mounts off center of cover for 55 gallon (205 liter) closed head drum. Drum is not included. Pump tube draws through standard 2 in. npt bung opening and is equipped with grommet for rain tight seal to cover. System is complete and ready for truck or cart mounting.

System 206-655 includes: pump (203-857), cover (207-367), hold-down (207-361), and hose and fitting kit (222-063). Instruction manual: 307-883. Use 3/8 in. air regulator (109-075), not included. See page 4-63.

System 206-656 includes: pump (222-065), cover (207-367), hold down (207-361), and hose and fitting kit (222-066). Instruction manual: 307-883. Use 1/2 in. air regulator (104-266), not included. See page 4-63.



204-264 Fire-Ball 5:1 (Bung-Mounted)

222-067 President 10:1 (Bung-Mounted)

Pump is equipped with bung adapter for direct mounting in standard 2 in. npt drum bung. Drum is not included. System is complete and ready for truck or cart mounting.

System 204-264 includes: pump (204-254), hold-down (207-361), bung adapter (204-076), sturdi-clamp (204-095), and hose and fitting kit (222-063). Instruction manual: 307-883. Use 3/8 in. air regulator (109-075), not included. See page 4-63.

System 222-067 includes: pump (222-095), hold down (207-361), bung adapter (224-579), sturdi clamp (204-095), and hose and fitting kit (222-066). Instruction manual: 307-883. Use 1/2 in. air regulator (104-266), not included. See page 4-63.



Grease

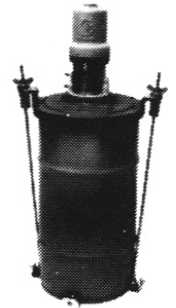
222-085 Fire-Ball 50:1 (Cover-Mounted)

223-107 President 50:1 (Cover-Mounted)

Pump mounts in center of cover for 120 lb. (55 kg) open head drum. Drum is not included. System is complete and ready for truck or cart mounting.

System 222-085 includes: pump (203-869), follower plate (220-654), hose and fitting kit (222-072), cover (222-060), and hold down (222-061). Instruction manual: 307-880. Use 3/8 in. air regulator (109-075), not included. See page 4-63.

System 223-107 includes: pump (205-394), follower plate (223-344), hose and fitting kit (222-076), cover (222-060), hold down (222-061), and instruction manual (307-880). Use 3/8 in. air regulator (109-075), not included. See page 4-63.



222-071 Fire-Ball 50:1 (Cover-Mounted)

222-075 President 50:1 (Cover-Mounted)

Pump mounts in center of cover for 400 lb. (180 kg) open head drum. Drum is not included. System is complete and ready for truck or cart mounting.

System 222-071 includes: pump (203-868), cover (207-366), hold down (207-361), follower plate (223-845), and hose and fitting kit (222-072). Instruction manual: 307-880. Use 3/8 in. air regulator (109-075), not included. See page 4-63.

System 222-075 includes: pump (205-395), cover (207-366), hold down (207-361), follower plate (223-846), hose and fitting kit (222-076), and instruction manual (307-880). Use 1/2 in. air regulator (104-266), not included. See page 4-63.



Track Lube

222-091 Fire-Ball 15:1

Pump mounts in center of cover for 400 lb. (180 kg) open head drum. Drum is not included. System is complete and ready for truck or cart mounting.

System includes: pump (206-700), cover (207-366), hold down (207-361), follower plate (223-845), and hose and fitting kit (222-072). Instruction manual: 307-880. Air regulator not included, order 3/8 in. (109-075). See page 4-63.

Lubrication Systems Installation Recommendations

A GOOD INSTALLATION IS CRITICAL TO ACHIEVE MAXIMUM LUBRICATION SYSTEM PERFORMANCE AND LONG, RELIABLE OPERATION. ALWAYS USE A QUALIFIED INSTALLER AND MAKE CERTAIN THE INSTALLER FOLLOWS THE DETAILED INSTRUCTIONS INCLUDED WITH EVERY GRACO PRODUCT.

1. MAKE CERTAIN THAT PIPE IS CLEAN AND FREE FROM RUST AND SCALE. ALWAYS USE NEW PIPE.
2. WHEN CUTTING PIPE, REMOVE BURRS AND CHIPS THAT MAY LATER DAMAGE THE CONTROL VALVES.
3. ALWAYS FLUSH THE SYSTEM WITH OIL BEFORE ATTACHING DISPENSING VALVES.

Air Lines

Pump Model	Main Line	Branch Line
Fast-Ball Pumps	3/4 in. or 1 in. ID pipe	3/8 in. or 1/2 in. ID pipe
Fire-Ball Pumps	3/4 in. or 1 in. ID pipe	3/8 in. or 1/2 in. ID pipe
President Pumps	3/4 in. or 1 in. ID pipe	1/2 in. ID pipe

Fluid Lines

This information applies to typical automotive flow rate service requirements.

Low Pressure Fluid Line*

(Motor Oil, Gear Lube, ATF and Windshield Wash)

Length	Tubing Size (Minimum ID)
10 ft. (3 m)	1/2 in.
25 ft. (7.6 m)	1/2 in.
100 ft. (30.5 m)	3/4 in.
200 ft. (61 m)	3/4 in.

*Tubing sizes apply to installations where the ambient temperature exceeds 50° F (11° C). For lower temperatures or longer lengths, use larger ID pipe.

High Pressure Fluid Line (Grease)

Length	Tubing Size (Minimum ID)
75 ft. (23 m)	1/2 in.
100 ft. (30.5 m)	3/4 in.
150 ft. (46 m)	3/4 in.

WARNING

Some equipment contained in this catalog is capable of producing high pressure. Misuse or misapplication of this equipment can cause component rupture, fire or explosion and result in serious bodily injury, including fluid injection or splashing in the eyes or on the skin. Never exceed the maximum working pressure of the lowest rated component in the system. See the instruction manual included with the equipment for more detailed information.

Iron Pipe and Steel Tubing Data

STANDARD IRON PIPE IS DESIGNATED BY ITS NOMINAL INSIDE DIAMETER, NAMELY, 1/8 IN., 1/4 IN., 3/8 IN., 1/2 IN., 3/4 IN., 1 IN., 1-1/4 IN., 1-1/2 IN., 2 IN., 2-1/2 IN., 3 IN., ETC. WHILE ERRORS IN THE EARLY MANUFACTURE OF PIPE HAVE CAUSED INCONSISTENCIES IN THE SMALLER PIPE INSIDE DIAMETERS, THE SIZE DESIGNATIONS HAVE STILL BEEN RETAINED.

THREE WEIGHTS OF PIPE; STANDARD, EXTRA-HEAVY AND DOUBLE EXTRA-HEAVY ARE IN COMMON USE AND ALL THREE HAVE THE SAME OUTSIDE DIAMETER. THE ADDED WALL THICKNESS FOR THE HEAVIER PIPE THEREFORE REDUCES THE INSIDE DIAMETER. CAST STEEL FITTINGS ARE RECOMMENDED FOR EXTRA HEAVY PIPE AND FORGED STEEL FITTINGS FOR DOUBLE EXTRA-HEAVY PIPE. STEEL TUBING IS DESIGNATED BY ITS OUTSIDE DIAMETER AND ITS WALL THICKNESS. WHILE IT IS AVAILABLE IN A WIDE RANGE OF SIZES, 3/8 IN., 1/2 IN., 5/8 IN., 7/8 IN. AND 1 IN. O.D., TUBES ARE QUITE COMMONLY USED AS FLUID LINES. CHOICE OF WALL THICKNESS IS PRACTICALLY UNLIMITED AND IS GOVERNED BY THE WORKING PRESSURES ENCOUNTERED.

Steel Tubing – Maximum Working Pressures (PSI)

O.D.	Wall Thickness												
	.025"	.028"	.032"	.035"	.042"	.049"	.058"	.065"	.072"	.083"	.095"	.109"	.125"
1/8 in. . . . .	.6000	6700	7680	8430	9920	11750	—	—	—	—	—	—	—
3/16 in. . . . .	.4000	4470	5100	5610	6750	7850	—	—	—	—	—	—	—
1/4 in. . . . .	.2980	3350	3830	4200	5040	5890	7000	7850	—	—	—	—	—
5/16 in. . . . .	.2410	2690	3080	3370	4040	4710	5610	6290	6950	8010	—	—	—
3/8 in. . . . .	.1990	2240	2560	2800	3360	3920	4660	5240	5790	6660	7640	8720	9990
13/32 in. . . . .	.1845	2070	2360	2585	3100	3620	4285	4800	5320	6130	7015	8050	9235
7/16 in. . . . .	.1715	1920	2190	2400	2880	3360	4000	4500	4960	5720	6550	7490	8580
1/2 in. . . . .	.1490	1675	1920	2100	2520	2940	3500	3925	4340	5000	5720	6540	7500
9/16 in. . . . .	.1330	1490	1705	1870	2240	2620	3110	3490	3860	4450	5090	5810	6660
5/8 in. . . . .	.1200	1340	1535	1680	2020	2350	2800	3140	3470	4000	4580	5230	6000
11/16 in. . . . .	.1090	1220	1395	1530	1830	2135	2530	2835	3140	3620	4145	4755	5455
3/4 in. . . . .	.1000	1120	1280	1400	1640	1960	2320	2600	2880	3320	3800	4360	5000
7/8 in. . . . .	.860	960	1090	1200	1440	1680	1985	2225	2465	2845	3255	3740	4285
1 in. . . . .	.750	840	960	1050	1260	1470	1740	1950	2160	2490	2850	3270	3750
1 1/8 in. . . . .	.665	747	854	935	1120	1310	1545	1735	1920	2215	2535	2910	3330

Note: The values above are based on an allowable fibre stress of 15,000 psi. For approximate bursting pressures, multiply these values by a factor of 3.3.

Pipe Data*

Standard Pipe (Schedule 40)

	Nominal Diameter (inches)										
	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3
Actual Outside Diameter (inches)	.405	0.540	0.675	0.840	1.050	1.315	1.660	1.90	2.375	2.875	3.5
Actual Inside Diameter (inches)	.269	0.364	0.493	0.622	0.824	1.049	1.380	1.61	2.067	2.469	3.068
Inside Area (Sq. Inches)	.06	0.10	0.19	0.30	0.53	0.86	1.49	2.04	3.36	4.79	7.39
Working Pressure* (PSI)	.2820	2172	1797	1731	1434	1348	1124	1017	864	940	822
U.S. Gallons in 1 Lineal Ft.	.0003	0.005	0.010	0.016	0.028	0.045	0.077	0.106	0.174	0.248	0.383
Ft. of Pipe Containing 1 U.S. Gal.	.333.7	185.1	100.8	63.33	36.12	22.21	12.87	9.45	5.74	4.02	2.59
Weight Per Foot	.0244	0.424	0.567	0.850	1.13	1.68	2.27	2.72	3.65	5.79	7.58

Extra Heavy Pipe (Schedule 80)

Actual Outside Diameter (inches)	0.405	0.540	0.675	0.840	1.050	1.315	1.660	1.90	2.375	2.875	3.5
Actual Inside Diameter (inches)	0.215	0.302	0.423	0.546	0.742	1.957	1.278	1.500	1.939	2.323	2.90
Inside Area (Sq. Inches)	0.036	0.071	0.141	0.231	0.425	0.710	1.28	1.75	3.0	4.24	6.6
Working Pressure* (PSI)	3977	2937	2488	2333	1954	1814	1533	1403	1222	1280	1142
U.S. Gallons in 1 Lineal Ft.	0.0018	0.0037	0.008	0.012	0.022	0.0375	0.0675	0.09	0.15	0.225	0.345
Ft. of Pipe Containing 1 U.S. Gal.	534.7	266.5	133.3	82.0	44.4	26.6	14.8	11.1	6.66	4.40	2.90
Weight Per Foot	0.314	0.538	0.738	1.09	1.47	2.2	3.0	3.6	5.0	7.7	10.25

Double Extra Heavy Pipe (Schedule 160)

Actual Outside Diameter (inches)				0.840	1.050	1.315	1.660	1.90	2.375	2.875	3.5
Actual Inside Diameter (inches)				0.464	0.612	0.815	1.160	1.338	1.687	2.125	2.624
Inside Area (Sq. Inches)				0.050	0.148	0.282	0.630	0.950	1.77	2.46	4.15
Working Pressure* (PSI)				4666	3910	3629	3068	2807	2560	2446	2285
U.S. Gallons in 1 Lineal Ft.				0.0026	0.0075	0.015	0.033	0.049	0.092	0.127	0.216
Ft. of Pipe Containing 1 U.S. Gal.				381.8	133.2	66.6	30.3	20.2	10.8	7.84	4.53
Weight Per Foot				1.71	2.44	3.66	5.21	6.40	9.03	13.7	18.6

*For approximate bursting pressures, multiply these values by six.

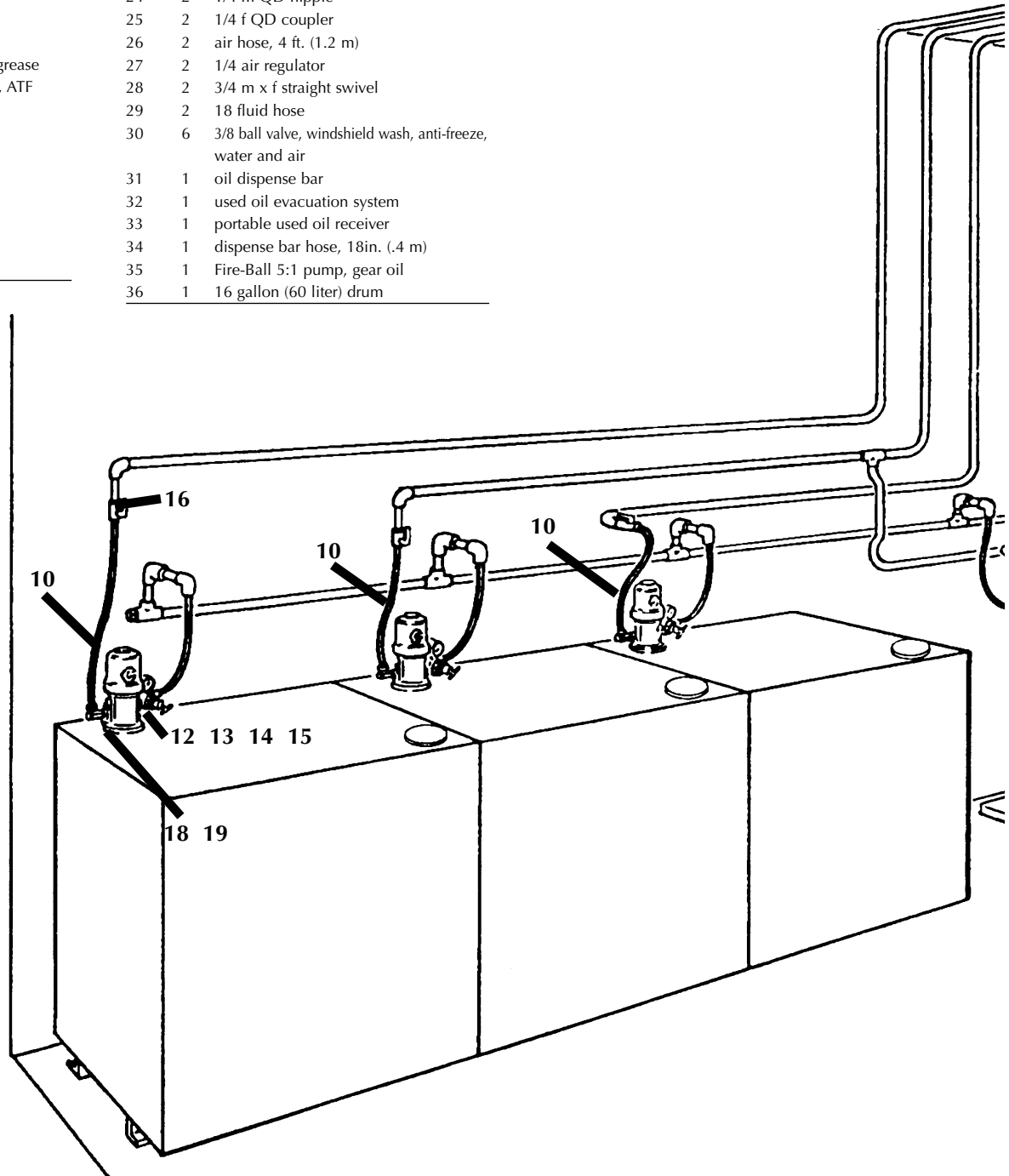
Typical System for Fleet Applications

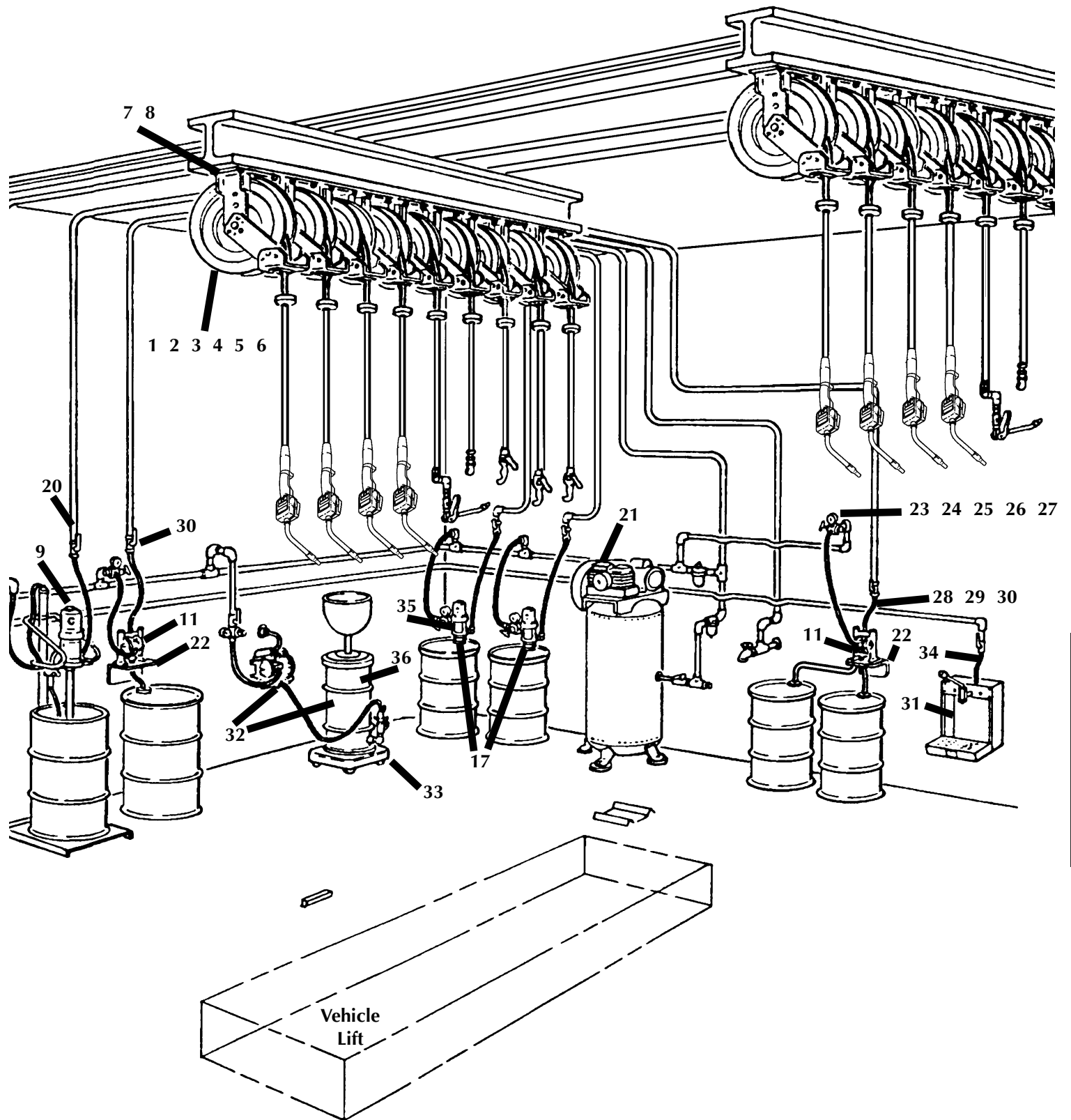
THE TYPICAL INSTALLATION IS ONLY A GUIDE TO SELECTING AND INSTALLING REQUIRED AND OPTIONAL ACCESSORIES. FOR ASSISTANCE IN DESIGNING A SYSTEM TO MEET YOUR NEEDS, CONTACT YOUR GRACO REPRESENTATIVE.

Fleet Bill of Materials

Item	Qty.	Description
1	3	water bibb hose reel, 60 ft. (18.3 m)
2	1	air hose reel, 60 ft. (18.3 m)
3	2	motor oil hose reel, 50 ft. (15.3 m)
4	1	gear lube hose reel, 50 ft. (15.3 m)
5	1	chassis grease hose reel, 50 ft. (15.3 m)
6	1	ATF hose reel, 50 ft. (15.3 m)
7	6	channel mounting bracket
8	3	3 reel mounting channel
9	1	Fire-Ball 50:1 pump, chassis grease
10	3	Fire-Ball 5:1 pump, motor oil, ATF
11	2	1:1 diaphragm pump
12	5	3/8 nipple
13	5	3/8 air regulator
14	5	3/8 m QD nipple
15	5	3/8 f QD coupler
16	9	1/2 ball valve
17	3	bung adapter
18	3	46 in. (117 cm) riser tube

Item	Qty.	Description
19	4	low level cut-off
20	2	1/2" hp chassis grease valve
21	1	air compressor
22	2	wall mount bracket
23	2	suction hose, 6 ft. (1.8 m)
24	2	1/4 m QD nipple
25	2	1/4 f QD coupler
26	2	air hose, 4 ft. (1.2 m)
27	2	1/4 air regulator
28	2	3/4 m x f straight swivel
29	2	18 fluid hose
30	6	3/8 ball valve, windshield wash, anti-freeze, water and air
31	1	oil dispense bar
32	1	used oil evacuation system
33	1	portable used oil receiver
34	1	dispense bar hose, 18in. (.4 m)
35	1	Fire-Ball 5:1 pump, gear oil
36	1	16 gallon (60 liter) drum



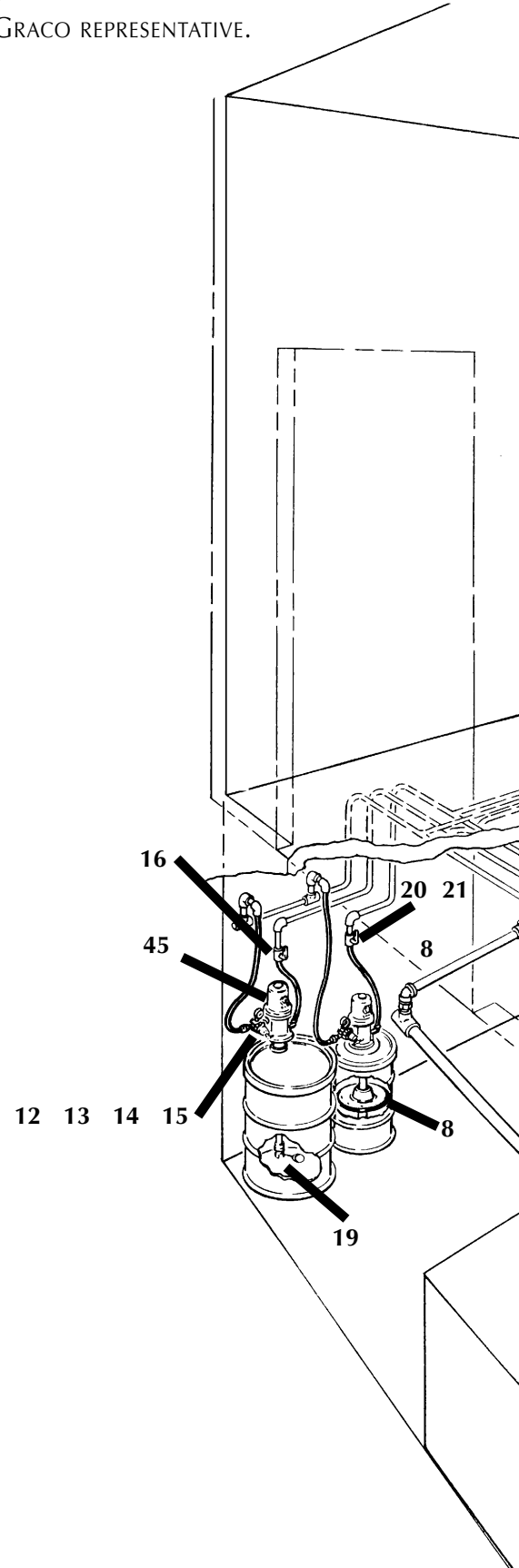


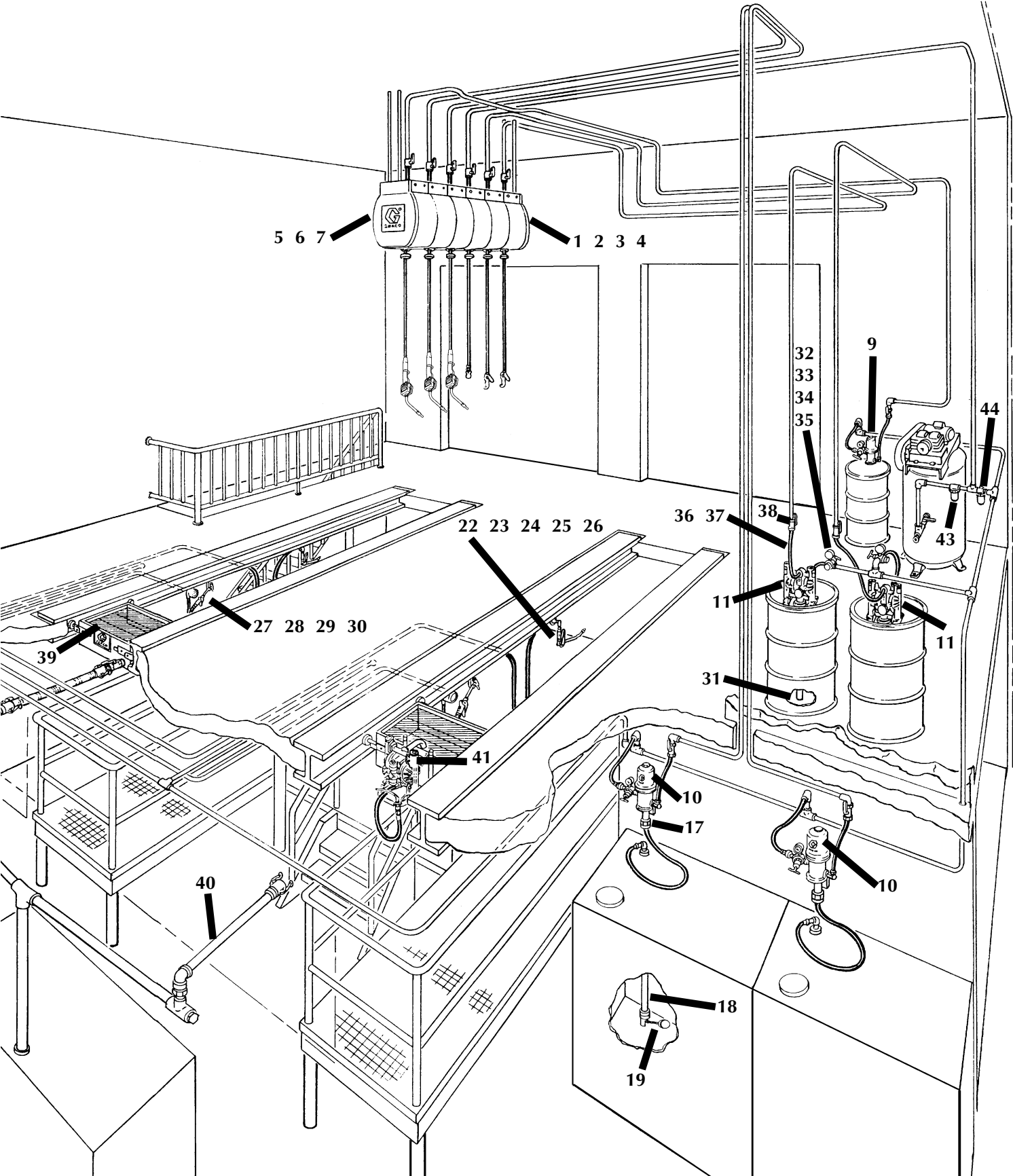
Typical System for Fast Oil Change Applications

THIS TYPICAL INSTALLATION IS ONLY A GUIDE TO SELECTING AND INSTALLING REQUIRED AND OPTIONAL ACCESSORIES. FOR ASSISTANCE IN DESIGNING A SYSTEM TO MEET YOUR NEEDS, CONTACT YOUR GRACO REPRESENTATIVE.

Fast Oil Change Bill of Materials

Item	Qty.	Description
1	2	windshield wash/anti-freeze hose reel, 40 ft. (12.2 m)
2	1	air hose reel, 40 ft. (12.2 m)
3	2	motor oil hose reel, 25 ft. (7.6 m)
4	1	ATF hose reel, 25 ft. (7.6 m)
5	1	6 reel mounting channel
6	3	channel mounting bracket
7	1	end panel kit
8	1	Fire-Ball 50:1 pump, chassis grease
9	1	Fire-Ball 5:1 pump, ATF
10	2	Fire-Ball 5:1 pump, motor oil
11	2	1:1 diaphragm pump
12	5	3/8 nipple
13	5	3/8 air regulator
14	5	3/8 m QD nipple
15	5	3/8 f QD coupler
16	9	1/2" ball valve
17	2	suction kit and wall mount bracket
18	2	riser tube, 58 in. (1.5 m)
19	2	low level cut-off
20	3	1/2 hp chassis valve
21	1	1/4 f x 1/2 m bushing
22	2	1/4 f x 1/2 m street elbow
23	2	dispense hose, 15 ft. (4.6 m)
24	2	Z-swivel
25	2	chassis grease dispense valve
26	2	whip hose, 30 in. (.8 m)
27	2	1/2" nipple
28	2	wall mount meter
29	2	dispense hose, 10 ft. (3.1 m)
30	2	gear oil dispense valve
31	2	bung suction kit
32	2	1/4 m QD nipple
33	4	1/4 f QD coupler
34	2	air hose, 6 ft. (1.8 m)
35	4	1/4 air regulator
36	2	3/4 m x f straight swivel
37	2	fluid hose, 6 ft. (1.8 m)
38	5	3/8 ball valve, windshield wash, anti-freeze and air
39	2	rolling drain cart
40	2	swing arm drain kit
41	1	Port-Evac
43	1	1/2 in. (.3 m) main air filter
44	1	1/2 in. (.3 m) main air lubricator
45	1	Fire-Ball 5:1 pump, gear oil





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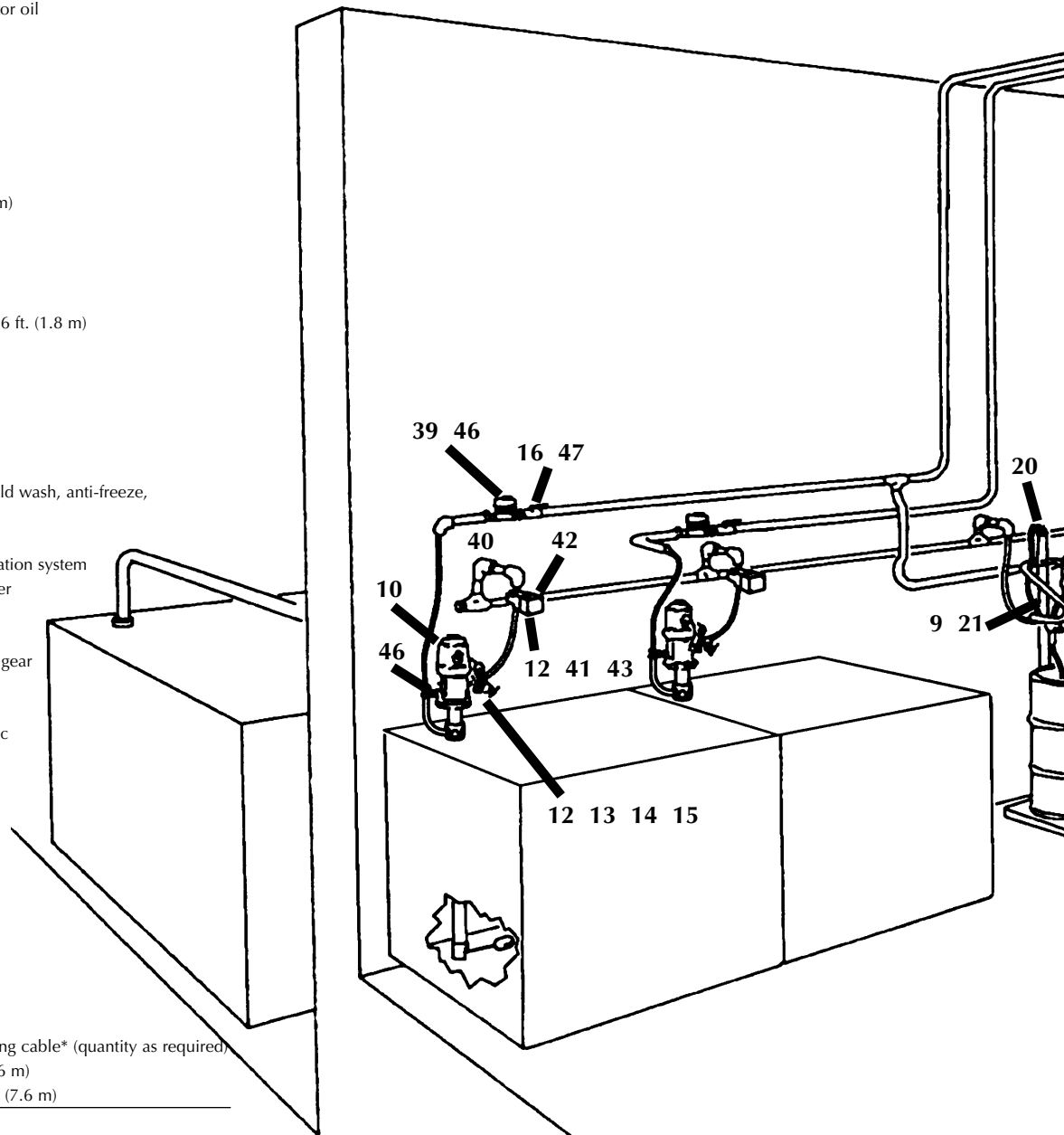
Typical System for Auto Dealer Applications

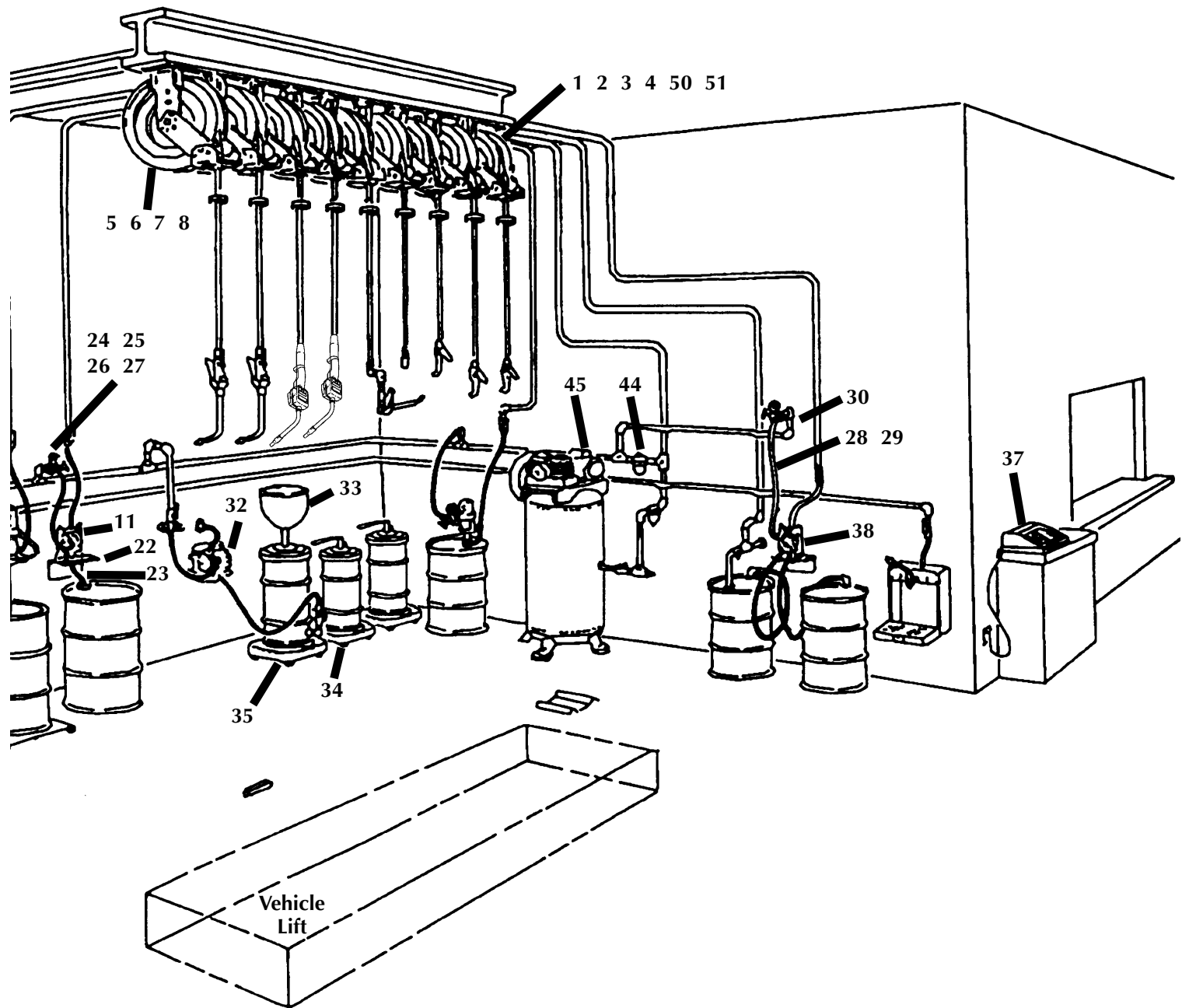
THE TYPICAL INSTALLATION BELOW IS ONLY A GUIDE TO SELECTING AND INSTALLING REQUIRED AND OPTIONAL ACCESSORIES. FOR ASSISTANCE IN DESIGNING A SYSTEM TO MEET YOUR NEEDS, CONTACT YOUR GRACO REPRESENTATIVE.

Auto Dealer Bill of Materials

Item	Qty.	Description
1	3	windshield wash/anti-freeze hose reel, 40 ft. (12.2 m)
2	1	air hose reel, 40 ft. (12.2 m)
3	2	motor oil hose reel, 25 ft. (7.6 m)
4	1	chassis grease hose reel, 35 ft. (10.6 m)
5	1	6 reel mounting channel
6	1	3 reel mounting channel
7	1	end panel kit
8	4	channel mounting bracket
9	1	Fire-Ball 50:1 pump, chassis grease
10	2	Fire-Ball 5:1 pump, motor oil
11	2	1:1 diaphragm pump
12	5	3/8 nipple
13	3	3/8 air regulator
14	3	3/8 m QD nipple
15	3	3/8 f QD coupler
16	4	1/2 ball valve
17	2	1-1/2 m x 3/4 f bushing
18	2	suction hose, 6 ft. (1.8 m)
19	2	3/4 ball valve
20	2	1/2 hp chassis valve
21	1	1/4 nipple
22	2	wall mount bracket
23	2	suction hose with filter, 6 ft. (1.8 m)
24	2	1/4 m QD nipple
25	2	1/4 f QD coupler
26	2	air hose, 48 in. (1.2 m)
27	2	1/4 air regulator
28	4	3/4 m x f straight swivel
29	2	18 fluid hose
30	7	3/8 ball valve, windshield wash, anti-freeze, water and air
31	2	wall mount bracket
32	1	portable used oil evacuation system
33	1	portable used oil receiver
34	1	portable hand-operated ATF pump
35	1	portable hand operated gear oil pump
36	2	pressure relief kit
37	1	3 fluid 4 station electronic fluid commander
38	1	dual inlet manifold kit
39	1	fluid pulse meter
40	2	air solenoid valve
41	2	3/8 air filter
42	2	1/2 air shut-off valve
43	2	3/8 x 1/2 nipple
44	1	1/2 main air filter
45	1	1/2 main air lubricator
46	2	line strainer
47	4	1/2 nipple
48	2	1/2 coupler
49	-	50 ft. (15.3 m) connecting cable* (quantity as required)
50	1	ATF hose reel, 25 ft. (7.6 m)
51	1	gear oil hose reel, 25 ft. (7.6 m)

*Not pictured





LUBRICATION

