

Product Catalog



The World of Automatic Lubrication

Product Catalog

perma[®]



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Electrochemical Lubricators

CLASSIC	FUTURA	FROST	NOVA
Lubricant Volume 120cc	Lubricant Volume 120cc	Lubricant Volume 120cc	Lubricant Volume 130cc
Housing Design Metal	Housing Design Transparent Plastic	Housing Design Metal	Housing Design Transparent Plastic
Lubricant Discharge Period 1, 3, 6, or 12 months	Lubricant Discharge Period 1, 3, 6, or 12 months	Lubricant Discharge Period 1 or 3 months	Lubricant Discharge Period 1, 2, 3, ..., 12 months
Operating Temperature Range 32° F to 104° F	Operating Temperature Range 32°F to 104° F	Operating Temperature Range -13° F to 50°F	Operating Temperature Range -4° F to 140° F
Pressure Build-up max. 4 bar / 65 psi	Pressure Build-up max. 4 bar / 65 psi	Pressure Build-up max. 4 bar / 65 psi	Pressure Build-up max. 6 bar / 87 psi

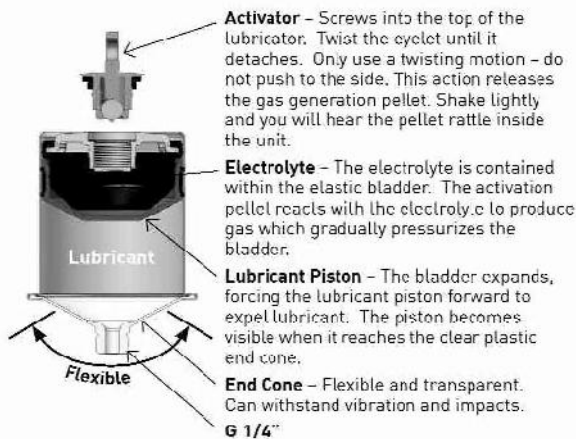


Electromechanical Lubricators

STAR VARIO / STAR CONTROL	PRO MP-6 / PRO C MP-6	ECOSY
Lubricant Volume 60cc, 120cc, or 250cc	Lubricant Volume 250cc or 500cc [1 to 6 lubrication points] (Optional 8-12 point block available)	Lubricant Volume 7 liters (oil) [1 to 6 lubrication points]
Lubricant Discharge Period STAR VARIO 1, 3, 6, or 12 months STARCONTROL Time or Impulse controlled	Lubricant Discharge Period PRO MP-6 1 day to 24 months PRO C MP-6 Machine controlled	Lubricant Discharge Period Machine / Time controlled
Operating Temperature Range 14° F to 122° F	Operating Temperature Range - 4°F to 140° F	Operating Temperature Range - 4° F to 140°F
Pressure Build-up max. 5 bar / 75 psi	Pressure Build-up max. 25 bar / 360 psi	Pressure Build-up max. 10 bar / 145 psi



Operating Principle



Dispensing Rates

Different rates are achieved by selecting color coded activators. There are 4 types: 1 (yellow), 3 (green), 6 (red) and 12 (grey).

A Type 1 activator will dispense the lubricator contents over a 1 month period when the average ambient temperature is 68°F, Type 3 = 3 months and so on.

As demonstrated by the table below higher average ambient temperatures will lead to faster allocations of lubricant and lower temperatures to slower allocations of lubricant. Note that the dispensing rates depend on the average ambient temperature, not extreme highs and lows. One shot of grease from a standard grease gun is approximately 1cc.

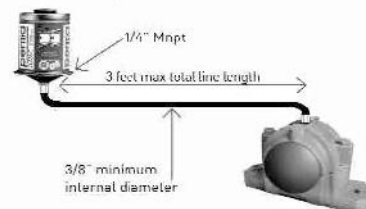
Average temperature	Type 1		Type 3		Type 6		Type 12	
	Discharge period (months)	cc. per day	Discharge period (months)	cc. per day	Discharge period (months)	cc. per day	Discharge period (months)	cc. per day
+10° C/50°F	2	2	5	0.8	8	0.5	18	0.2
+20° C/68°F	1	4	3	1.3	6	0.7	12	0.3
+30° C/86°F	0.8	5	2	2	3	1.3	6	0.7
+40° C/104°F	0.6	6.7	1	4	2	2	3	1.3

Remote Installations

Direct mount where safe to provide optimal access to the bearing. If remote mounting is necessary use lines which are no more than 3 feet long and with an internal diameter of at least 3/8". Smaller diameter lines increase resistance to grease flow.



Remote installed perma Classic.



Always prime grease lines and pre-grease bearings. Minimize small orifice restrictions and ensure that the bearing will freely receive grease.

Contamination Prevention – for high contamination sites

Different bearing configurations have different greasing requirements. The examples here demonstrate the importance of preventing solid contaminants and water from reaching the grease point.

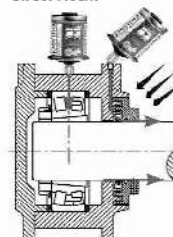
a positive purge of grease through the seals to prevent contamination of slow and medium speed bearings.



perma Classic providing bearing lubrication and a positive purge of grease to prevent contaminants.

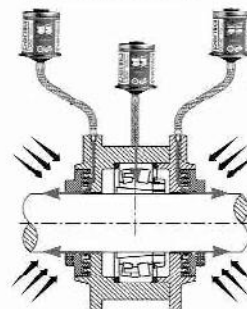
For sites where contamination levels are high it is common to apply grease directly to taconite and labyrinth type seals, in addition to the application of grease to the bearing. This provides

Direct Mount



Dirt & water Contaminants

Remote Mount



Dirt & water Contaminants

Bracket Configurations Examples

A complete range of accessories is available for all types of applications.



Installation & Servicing Tips

1. Always ensure that newly installed bearings are pre-packed prior to installing lubricator.
2. Pre-grease bearings using a grease gun to ensure that the point can receive grease freely. Clean all fittings to prevent contamination.
3. Select the appropriate dispensing rate to suit each application.
4. Decide whether to direct or remote mount depending on access and safety considerations. When remote mounting, do not exceed the recommended line dimensions.
5. Activate the lubricator prior to installation by fully inserting the activation screw.
6. Write the date of installation on the lubricator and record the date of installation in the site maintenance scheduling system or keep a separate record.
7. Screw the lubricator into the grease port by hand – tools are not necessary.
8. Once installed the lubricator should be periodically inspected to check that accidental damage has not occurred.
9. Change-out lubricator on the planned date.
10. When changing out empty lubricators, manually purge the bearing to ensure that lubrication conditions have not changed.

Trouble Shooting

Correct installation is essential for correct lubricator operation.

Observation	Solution
Grease dispensing too quickly	Average ambient temperature too high for activator type – • Select slower activator type. OR • Remote mount away from heat source. OR • Change to STAR Vario for temp independent dispensing.
Grease dispensing too slowly	Average ambient temperature too low for activator type – • Select faster activator type. OR • Change to STAR Vario for temperature independent dispensing. Resistance to grease flow too high – • Manually purge point to ensure that grease can be freely received by bearing. THEN • Reduce grease line length AND/OR increase line diameter. OR • Eliminate restrictions caused by small orifice fittings. OR • Select faster activator type. OR • Select grease with better pumpability.
Grease 'spurts' from lubricator when removed from service	Resistance to grease flow too high – • Manually purge point to ensure that grease can be freely received by bearing. THEN • Reduce grease line length AND/OR increase line diameter. OR • Eliminate restrictions caused by small orifice fittings. • Change to STAR Vario for higher pressure output.

Notes–









1. Application backpressure and other factors can also affect dispensing rates.
2. Rarely is there a categorically correct answer when it comes to the grease lubrication of bearings. Greasing decisions should take into account the recommendations of original equipment manufacturers, site based maintenance experience and good maintenance practices in general. Information here is based on perma's general opinion only.

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Electrochemical Single Point Lubricators

		Activating Screw	Information
CLASSIC			
 <p>120cc</p>	<p>1 Month 3 Months 6 Months 12 Months</p> 	<p>Constant and reliable lubrication over a period of 1, 3, 6, or 12 months with a lubricant volume of 120cc. The activating screw generates pressure (max 65 psi) which moves the piston forward and injects small lubricant amounts into the lubrication point. Is fully dust and water proof.</p>	
FUTURA			
 <p>120cc</p>	<p>1 Month 3 Months 6 Months 12 Months</p> 	<p>Due to its resistance to corrosion the FUTURA is the ideal automatic lubrication system for areas that require hygiene or for harsh operating conditions. The transparent plastic body allows users to easily monitor the remaining lubricant.</p>	
FROST			
 <p>120cc</p>	<p>1 Month 3 Months</p> 	<p>The FROST was specifically designed for use in temperatures down to -13 F. Once the 120cc of lubricant in the FROST is empty, the colored piston can be seen through the transparent plastic end cone.</p>	
NOVA			
 <p>130cc</p>	<p>1, 2, 3, ..., 12 months</p> 	<p>A discharge period of 1 to 12 months can be easily programmed by pushing the selection button on the NOVA control unit. A temperature sensor measures the ambient temperature and automatically calculates the required gas generation based on this data.</p>	

- > Above units filled with customer requested lubricant (oil / grease) and include (1) discharge rate activating screw (not required in NOVA).
- > When ordering oil filled units, use of A-810 oil throttle is recommended to control the flow of oil.
- > Common installation adapters for electrochemical units: A-105, B-100, B-101

perma STAR VARIO – Quick Reference

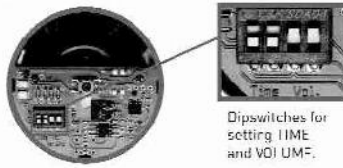


Assembly

- B700 Protective Cover** – STAR VARIO lubricators are supplied standard with the B700 protective cover. Alternative covers are available for differing operating conditions.
- Drive Unit Cover** – Forms part of the Drive Unit and incorporates the ON/OFF switch. Connect to the lubricant cartridge and tighten firmly. Do not over tighten.
- Battery Pack** – A battery pack is supplied with every lubricant cartridge. Always change the battery set when changing the lubricant cartridge.
- Drive Unit** – Ensure the correct TIME and VOLUME settings for your application. To assemble place the Drive Unit on top of the lubricant cartridge and seal correctly. Then screw on the Drive Unit Cover.
- Lubricant Cartridge (LC)** – Lubricant cartridges are filled with oils and greases. Empty cartridges cannot be refilled. The nozzle of the cartridge is 1/4" BSPM.
- B110/B111 Support Adapter** – The support Adapter accessory provides a durable connection between the lubricant cartridge and the point of installation. It is recommended for all direct mount installations. The Support Adapter is available in 1/4" and 1/8" Mnut sizes.

Dispensing Rates & Settings

Different rates are achieved by selecting a TIME period of 1, 3, 6 or 12 months and a cartridge VOLUME setting of 60, 120 or 250cc.



Dipswitches for setting TIME and VOLUME.

The STAR VARIO delivers a wide range of dispensing rates. It caters to the low rates required for electric motor bearings and to high rates for applications such as the wet end seals on slurry pump barrels.

Example – A 6 month setting with a 120cc cartridge will pump 0.26cc every 9hrs and 17mins to deliver an average daily total of 0.67cc.

Note: On dipswitch settings, black indicates switch position.

Dipswitch Settings	60cc	120cc	250cc
1 Month	1hr:30m 0.13 2.0	1hr:30m 0.26 4.0	1hr:30m 0.53 8.33
3 Month	3hr:37m 0.13 0.67	3hr:37m 0.26 1.33	3hr:37m 0.53 2.78
6 Month	9hr:17m 0.13 0.33	9hr:17m 0.26 0.67	9hr:17m 0.53 1.39
12 Month	18hr:36m 0.13 0.17	18hr:36m 0.26 0.33	18hr:36m 0.53 0.67

Key for reading table

9hr:17m		Time lapse between each pumping cycle in hour & minutes	
0.26	0.67	Grease pumped per cycle in cc	Grease pumped per day in cc

Lubricator Inspections

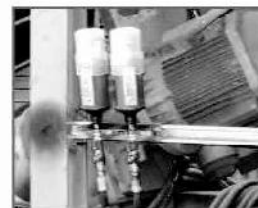
- LED System** – Check the flashing sequence of the green and red LEDs to confirm operational status.
- Drive Setting** – Mark Drive Units with the TIME setting. This assists in inspections. E.g. 3 months.
- Date Marking** – Always record the installation date on the cartridge.
- Piston Position** – Visual check of piston position provides a quick indication of operational status.

Automatic lubricators are not "set and forget." Once lubricators have been correctly installed they should be periodically inspected.

Operational Status	LED message
Initial purge when turned on	Continual red for 75 seconds
System on and operating correctly	Green flash every 15 seconds
System error (blockage detected)	Red flash every 30 seconds
Grease canister empty	Green & red flash every 15 seconds
Drive unit discharging	Continual red for 1 to 5 seconds

Remote Installations

- Use flexible lines which are no more than 9 feet long and have an internal diameter of at least 8mm. Smaller diameter lines present increased resistance to grease flow.
- 1/4" or 1/8" Mnut
- 9 ft. max total line length
- 8mm minimum internal diameter



Before installing, always prime grease lines and pre-grease bearings. Minimize small orifice restrictions and ensure that the bearing will freely receive grease.

Bracket Configuration Examples

A complete range of accessories are available for all types of applications.

- A452** – Includes beam clamp, L-bracket and tube connector. Shown with B110/B111.
- A755** – Includes beam clamps and L-bracket with dual VARIO mounting capability.
- B702** – Clip on protective cover.
- A755** – Bracket with two beam clamps and dual VARIO mounting capability.
- B550** – Manual purge kit.

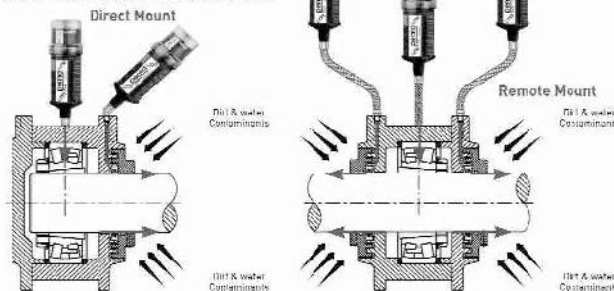
Custom bracket available upon request.

Contamination Prevention – for high contamination sites

Different bearing configurations have different greasing requirements. The examples here demonstrate the importance of preventing solid contaminants and water from reaching grease points.

where high it is common to apply grease directly to taconite and labyrinth type seals, in addition to the application of grease to the bearing.

For sites where contamination levels



Installation & Servicing Tips

1. Always ensure that newly installed bearings are pre-packed with grease.
2. Pre-grease bearings prior to installation using a manual grease gun to ensure that the grease point can receive grease freely. Clean all fittings prior to greasing.
3. Decide whether to direct or remote mount depending on access and safety.
4. Do not exceed the recommended line dimensions.
5. Select the desired TIME and VOLUME settings for the application.
6. Assemble the lubricator –
 - a. Seat the Drive Unit correctly onto the Lubricant Cartridge (you will feel it seat into the correct position). Insert battery pack.
 - b. Fit the Drive cover and screw into position. Do not over-tighten – screw down firmly.
7. Write the date of installation on the lubricator and record the date of installation in the site maintenance scheduling system or keep a separate record.
8. Once installed the lubricator should be periodically inspected to check that accidental damage has not occurred. Observe the LED signals and the position of the piston.
9. When changing-out empty lubricators, manually purge the bearing to ensure that lubrication conditions have not changed.
- c. Turn unit on and check that grease is being discharged.
- d. Firmly attach the support adaptor (B110/B111) for direct mount applications.
- e. Fit the protective cover (B700, B702 or B703).

Notes –

1. Rarely is there a categorically correct answer when it comes to the grease lubrication of bearings. Greasing decisions should take into account the recommendations of original equipment manufacturers, site based maintenance experience and good maintenance practices in general. Information here is based on perma's general opinion only.

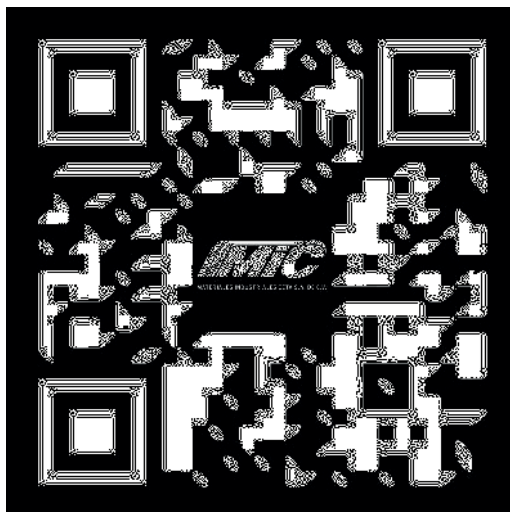
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Yale
HOISTS



perma
Lubrication Systems



WILFLEY
HEAVY DUTY
CENTRIFUGAL PUMPS

Flexitallic

STAR VARIO

60cc



120cc



250cc



STAR CONTROL Drive (Optional)



- STAR VARIO units are battery operated. STAR CONTROL units are PLC/machine controlled.
- STAR VARIO dipswitch allows for 1, 3, 6 or 12 month lubricant discharge settings.
- STAR CONTROL discharge type (please specify): Impulse mode or timed controlled.
- STAR VARIO includes drive motor, lubricant filled LC, battery pack, STAR adapter, and wet cap.
- STAR CONTROL includes drive motor, lubricant filled LC, STAR adapter, and PLC/SPS power cable (10m length).

STAR VARIO LC Kit

60cc



120cc



250cc



- When STAR VARIO LC is empty, reorder appropriate LC Kit.
- STAR VARIO LC Kit includes LC filled with customer-specified lubricant (oil / grease) and battery pack.
- LC units are not refillable.

- When ordering, specify lubricant (oil / grease).
- Specify COMPLETE (STAR VARIO or STAR CONTROL) or LC KIT.

perma PRO MP-6 – Quick Reference

Components



Protective Cover - Fits snugly over the LV unit to protect and minimize contamination.



Reservoir (LV unit) - Available in 250cc and 500cc sizes and filled with customer-preferred grease. Transparent design allows for visibility of remaining lubricant.



Battery Pack - Consists of two batteries which should be changed every time the LV is replaced.



Drive Unit - Contains gear motor, electronic (PCB) unit with display, and electro-mechanical ramp pump system. Programmable to maximize options for distribution of grease. Reusable.



Data Cable - Allows for communication between the PRO and MP6.



Multi Point Distributor (MP-6) - Powered and controlled by PRO. Utilizes up to six ports for distribution of lubricant. Information concerning each port is communicated via PRO display. No pressure is lost due to the rotary distribution system.

Systems / Options

PRO – Battery operated.

PRO Control (PRO C) – PLC/machine controlled, communicates with PLC

MP-6 – Two to six ports may be utilized, directly distributes lubricant, continuously evaluates the performance of each individual outlet.

DKU Block (measuring valve) – Allows a single PRO to lubricate up to twelve points.

Enclosures – Suitable for outdoor and high contamination areas. Several styles allow for protection of a single PRO or double PRO applications. Optional operational status strobe light kit available.

Installation kit – Comes standard with each PRO order. Allows for mounting and installation on most applications. See back of sheet for complete bill of materials.

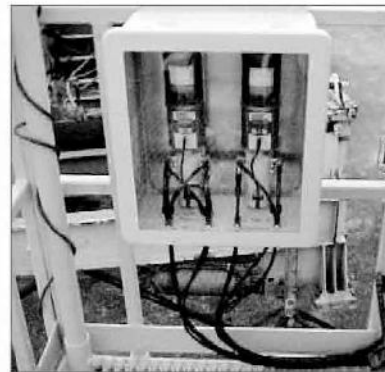
Characteristics: Operating pressure up to 360 psi allows PRO to be mounted remotely at distances of up to fifteen feet. Temperature range -4° F to 140° F. Dispersing rate is not effected by ambient temperature. Discharge period/range: One day to twenty-four months.



Remote Applications

The perma PRO line is a proven leader in the lubrication of industries including: automotive, mining, paper, steel, foundry, wind energy and manufacturing.

PROs are used on linear motion applications, hazardous locations, applications with confined space, on moving machinery and in high temperature applications.



Roller bearings, sliding bearings, robots, motors, generators, pumps and fans are some of the general applications on which PROs continue to be successful.

Pictured above: A dual PRO MP-6 enclosure installed on the crown of offshore drilling equipment.

At left: A single PRO MP-6 in a quarry application.

PRO Discharge Chart

Average discharge volume (cc/per day)

1cc = 1 shot (approx.)

1 week = 7 days

1 month = 30.4 days

DAYS	250cc	500cc
1	250	500
2	125	250
3	83.33	166.67
4	62.5	125
5	50	100
6	41.67	83.33
7	35.71	71.43
8	31.25	62.5
9	27.70	55.56
10	25	50
11	22.73	45.45
12	20.83	41.67
13	19.23	38.46
14	17.86	35.71
15	16.67	33.33
16	15.63	31.25
17	14.71	29.41
18	13.89	27.78
19	13.16	26.32
20	12.5	25
21	11.9	23.81
22	11.36	22.73
23	10.87	21.74
24	10.42	20.83

WEEKS	250cc	500cc
1	35.71	71.43
2	17.86	35.71
3	11.9	23.81
4	8.93	17.86
5	7.14	14.29
6	5.95	11.9
7	5.1	10.2
8	4.45	8.93
9	3.97	7.94
10	3.57	7.14
11	3.25	6.49
12	2.98	5.95
13	2.75	5.49
14	2.55	5.1
15	2.38	4.76
16	2.23	4.46
17	2.1	4.2
18	1.98	3.97
19	1.88	3.78
20	1.79	3.57
21	1.7	3.4
22	1.62	3.25
23	1.55	3.11
24	1.49	2.98

MONTHS	250cc	500cc
1	8.22	16.45
2	4.11	8.22
3	2.74	5.48
4	2.06	4.11
5	1.64	3.29
6	1.37	2.74
7	1.17	2.35
8	1.03	2.06
9	0.91	1.83
10	0.82	1.64
11	0.75	1.5
12	0.69	1.37
13	0.63	
14	0.59	
15	0.55	
16	0.51	
17	0.48	
18	0.46	
19	0.43	
20	0.41	
21	0.39	
22	0.37	
23	0.36	
24	0.34	

Display / Diagnostics



LCD – Shows settings, operating conditions and error messages. In error free conditions, the LCD shows volume of remaining lubricant in numeric percent volume. If one

lubrication point becomes blocked or significant application back pressure affects unit performance, the PRO sends a notification code via the display screen while maintaining normal operation for all other points.

Control Buttons – For detailed information on the use of these buttons, please consult the perma PRO installation manual.

LED	Signal	Signal Length	Explanation
green	flash	every 10 seconds	normal operation ✓
red	flash	every 3 seconds	error / malfunction ✗
green and red	flash	every 3 seconds	LV-unit empty ✗
green	light	permanently	Lubricator is discharging ✓
green and red	none	none	Lubricator switched off or battery low ✗

Installation & Services

1. Ensure that newly installed bearings are pre-packed with grease.
2. Pre-grease bearings prior to installation using a manual grease gun to ensure that the grease point can freely receive grease. Clean all fittings prior to greasing.
3. Select proper LV size and distribution rate for application.
4. Assemble lubricator according to instruction manual (including accessories and kit if necessary). Install.
5. Once installed, the lubricator should be periodically observed to check that accidental damage has not occurred. Inspect the LEDs and display screen. If remote mounted, check lines.

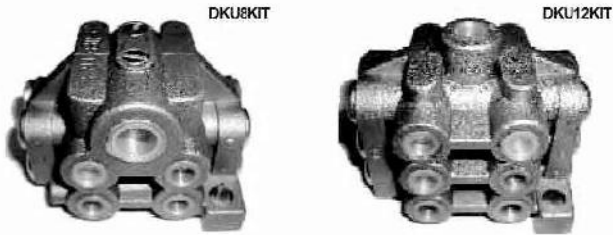
Notes:

1. PRO units may be filled with greases up to NLGI 2.
2. perma USA carries a full line of grease and fills all units with customer-specified lubricant(s).
3. PRO units are available without a MP-6 for single point applications.



perma PRO MP-6 – Quick Reference

DKU Distribution Block



DKU blocks pictured above allow the user to lubricate up to twelve points with a single PRO unit. Blocks with a maximum eight and twelve ports are available. Please note that a MP-6 unit is not compatible with a DKU block.

PRO MP-6 Installation Kit

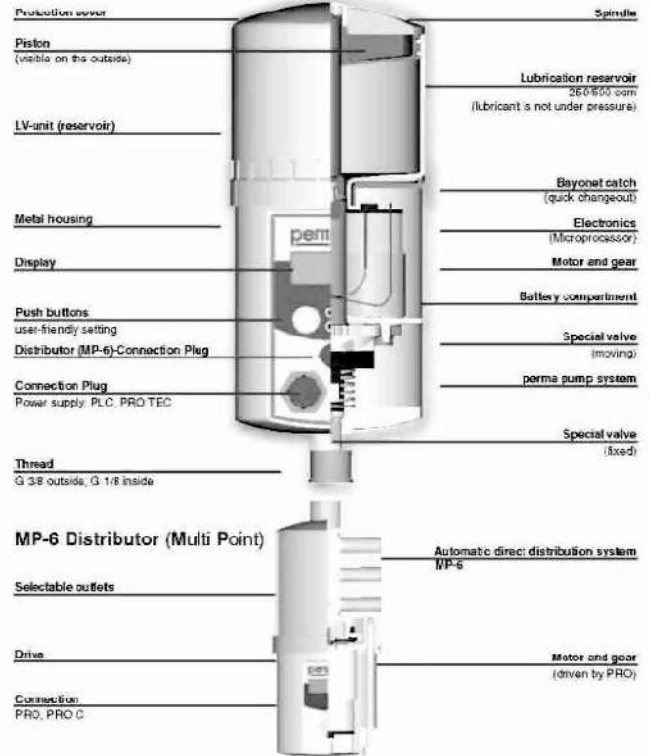
All PRO orders come with a complete installation kit, which includes:

- 2 **A-710 Kit** - 1" Beam Clamp (includes fasteners)
- 6 **B-801** - (5/16" T x 1/8" MBspp Tube Connector (straight))
- 6 **B-802** - (5/16" T x 1/8" MBspp Tube Connector (90 degree))
- 6 **B-803** - (5/16" T x 1/8" Mnpt Tube Connector (straight))
- 6 **B-804** - (5/16" T x 1/4" Mnpt Tube Connector (straight))
- 4 **B-806** - MP6 Port Plugs (for non-active ports)
- 1 **B-807** - PRO Mounting Bracket bolts and washers
- 1 **B-808** - PRO/MP6 Mounting Bracket
- 100ft. **B-810** - (8mm tubing, pre-filled)

PRO MP-6

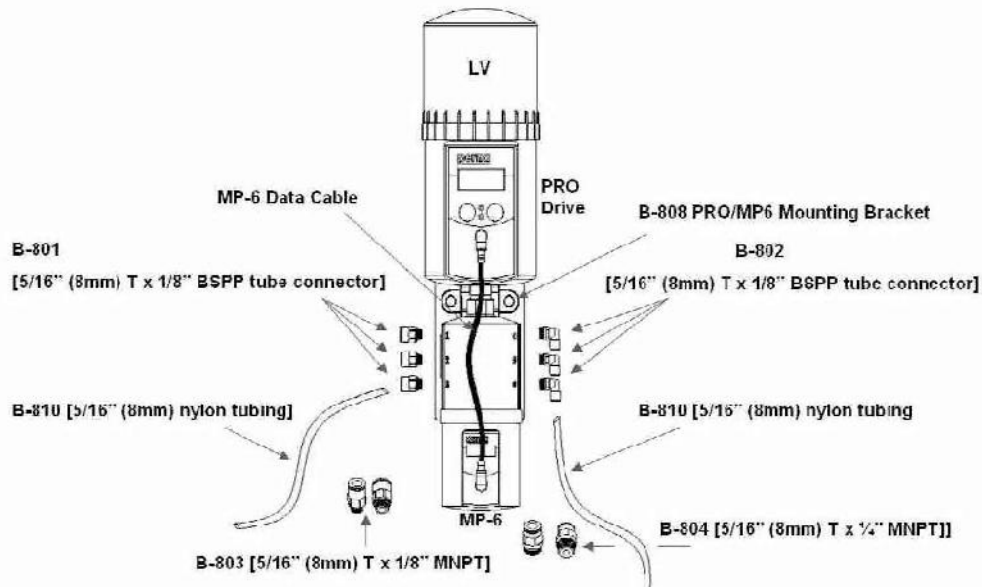
perma PRO with MP-6 (Distributor with 6 outlets)

PRO Lubrication System



Assembly

Note: Not all PRO installation kit accessories are pictured below



Notes:

1. PRO units may be filled with greases up to NLGI 2.
2. perma USA carries a full line of grease and fills all units with customer-specified lubricant(s).
3. PRO units are available without a MP-6 for single point applications.

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PRO MP-6 Quick Reference | 7



Description

The remarkable features of the compact perma ECOSY (Electronically Controlled Oil System) are its durable construction and multiple functionality. The base of the body is the seven liter oil tank. All of the unit's structural components are integrated in the base body. Up to six lubrication points can be supplied with oil by means of simple plug-in connections. The configuration of each outlet is user friendly, menu-driven with buttons and can be done on a multilingual display. Each outlet's discharge amount can be set individually and separately from the other outlets.



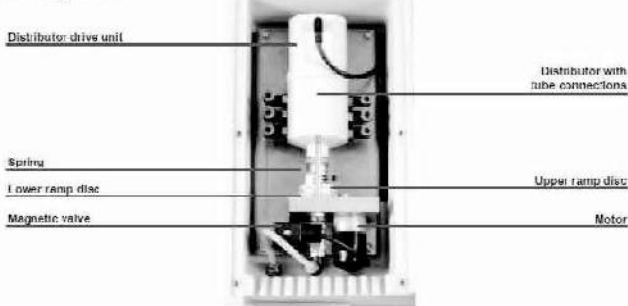
Sensors collect data about operating conditions and communicate with the ECOSY. This ensures lubrication as needed. The integrated fill level monitoring sensor with a reserve indication in the display and signaling capability makes it easy to monitor the system. Once the oil reservoir is refilled by the customer, the ECOSY is ready to function without requiring any other maintenance. Connection to a PLC or external machine is possible.

System Components

ECOSY Housing



Dosing Unit



Advantages

The advantages of the ECOSY are a visible wear reduction and protection against corrosion and contamination. The ECOSY collects data about the chain's operating condition with its sensors and directs the discharge intervals according to individual application requirements. Metallic friction between chain studs, bushings, rollers, and sprocket wheels is reduced by building up a support-ring lubricant film. Continuous re-lubrication ensures that chain links are operated within a range of liquid and mixed friction. The system minimizes friction and increases efficiency on up to 6 chain drives.



With its interval lubrication, the ECOSY supplies all contact areas of chains with the correct amount of lubricant. Different speeds and lengths (constructions) of industrial chains are taken into consideration by adjustable lubricant amounts.

The economic operation of the ECOSY increases the service life of chains and decreases maintenance costs.

Technical Data

Reservoir volume	7 liters
Number of outlets	1 to 6
Refill	On-site, manually
Discharge period	Machine-controlled / time-controlled
Filling	Manually refillable
Pump capacity	0-999ml / 1000h Programmable in 1ml steps
Operating temperature	-20° to 60° C / -4° to 140° F
Max. working pressure	10 bar / 145 psi
Input supply voltage	85 - 240 V AC 50/60Hz / typ. 20W
External dimension	310 x 370 x 170mm

The pump can be operated within the above stated temperature range. The operating temperature depends on the lubricant. The stated pump capacity refers to oil viscosity 65 - 2000mm²/s (+40 °C/104 °F), ambient temperature 20 °C /68 °F, without back pressure and 85 - 240 V AC 50/60 Hz rated voltage. Different pressure, temperature and voltage will change the pump capacity.

- > Sturdy PE-housing
- > Reservoir and electronic housing in one compact sturdy unit
- > Mains supply safely integrated in the housing
- > Pump integrated in reservoir
- > Menu-driven configuration
- > Easy access to all connection points (1-6 outlets selectable)
- > High pressure build-up to 10 bar/145 psi at each outlet
- > Individual supply of each lubrication point (dosage as required)
- > Easy installation with tubes (up to 10 m)
- > Discharges oil with viscosity of 65 - 2000 mm²/s (at 40 °C/104 °F)
- > Signaling of fill level and operating status to external control systems possible
- > Independent, freely programmable control unit
- > Economical: reduced oil amount; less oil contamination of surrounding areas
- > Installation away from danger zones
- > Easy refill
- > Integrated fixing device



The ECOSY comes complete with an installation kit, which includes hose and tube connectors.

Notes:

1. Lubricant is customer-supplied.
2. ECOSY is designed to utilize oil only, for grease applications other perma product units may be appropriate.



PRO MP-6



250cc



500cc

PRO Options

PRO CONTROL Drive



8 Port DKU Block



12 Port DKU Block



- All PRO orders comes complete with an installation kit.
- PRO MP-6 Complete includes drive unit, lubricant filled LV, battery pack, MP-6, data cable, and installation kit.
- Machine controlled discharge mode is available only with the PRO CONTROL MP-6.
- PRO CONTROL MP-6 includes drive unit, lubricant filled LV, MP-6, PLC/SPS power cable, and installation kit.

PRO LV Kit



250cc



500cc

ECOSY



- PRO LV Kit includes lubricant filled LV and battery pack.
- PRO CONTROL LV Kit includes lubricant filled LV only.

The ECOSY comes complete with an installation kit, which includes hose and tube connectors.

PRO Enclosures (Optional)



B-778 - PRO Protection Box
Single



B-780 - PRO Protection Box
Double

- Specify lubricant (grease) when ordering PRO MP-6, PRO MP-6 CONTROL, PRO LV, and ECOSY units.

Notes:

1. PRO units may be filled with greases up to NLGI 2.
2. perma USA carries a full line of grease and fills all units with customer-specified lubricants).
3. PRO units are available without a MP-6 for single point applications.
4. ECOSY is designed to utilize oil only, for grease applications other perma product units may be appropriate.

→ **Accessories - perma offers an extensive range of connection parts for your perma lubrication system**

Reducing Adapters

- | | |
|---|---|
| B-100 1/4" F x 1/8" M Straight | B-203 1/8" F x 1/8" M 45° Adapter |
| B-101 1/4" F x 1/4" - 28 M Straight | B-300 1/4" F x 1/8" M 90° Adapter |
| B-102 1/8" F x 1/4" - 28 M Straight | B-301 1/4" F x 1/4" - 28 M 90° Adapter |
| B-110 1/4" F x 1/4" M Support Star Adapter | B-302 1/8" F x 1/4" - 28 M 90° Adapter |
| B-111 1/4" F x 1/8" M Support Star Adapter | B-303 1/8" F x 1/8" M 90° Adapter |
| B-200 1/4" F x 1/8" M 45° Adapter | A-511 M6 x 1/4" F Straight Adapter |
| B-201 1/4" F x 1/4" - 28 M 45° Adapter | A-514 M8 x 1/4" F Straight Adapter |
| B-202 1/8" F x 1/4" - 28 M 45° Adapter | P-116 1/4" F x 1/8" F Bell Reducer |



B-100



B-110



B-201



A-511



B-203



B-301

Pipe Fittings, Nipples, Elbows, Bushings

- | | |
|--|--|
| B-401 1/4" M Close Pipe Nipple | B-450 1/4" M x 1/8" F Bushing |
| B-402 1/4" M x 2" Pipe Fitting Nipple | B-451 3/8" M x 1/4" F Bushing |
| B-404 1/4" M x 4" Pipe Fitting Nipple | P-110 1/8" x 1" Pipe Fitting Nipple |
| B-411 1/4" Street - 45° Elbow | P-112 1/8" F Coupler Pipe Fitting |
| B-420 1/4" F - 90° Elbow | P-113 1/8" x 2" Pipe Fitting Nipple |
| B-421 1/4" Street - 90° Elbow | P-115 1/8" F - 90° Elbow |
| B-430 1/4" F Pipe Tee | P-117 1/8" Street - 45° Elbow |
| B-440 1/4" F Pipe Cross | P-118 1/8" Street - 90° Elbow |



B-402



B-420



B-430



B-440



B-450



P-110



P-115



P-117

Check Valves & Relief Valves

- | | |
|---|--|
| A-810 Oil Throttle Check Valve 1/4" M x 1/4" F | B-501 Relief Valve 1/8" M (1 lb.) |
| B-500 Relief Valve 1/8" M (5 lbs.) | B-502 Relief Valve 1/8" M (25 lbs.) |



A-810



B-501

Brackets, Clamps, Angles

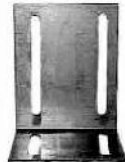
- | | |
|---|--|
| A-105 Perma Plastic Clip | A-710 Beam Clamp |
| A-150 Uni-Bracket | A-752 Bracket Assy. (A-105 / A-651 / A-710 / B-611 / B-110) |
| A-151 A-150 Insert Fitting 1/4" M x 1/4" F | A-753 Heat Shield 8" x 3" |
| A-610 Mounting Angle, Medium | A-754 Bracket Assy. (A-651 / A-105 / A-710) |
| A-611 Mounting Angle, Large | A-755 Dual Unit Bracket |
| A-651 L-Bracket | |
| A-652 Bracket Assy. (A-651 / A-710) | |



A-105



A-150



A-610



A-652



A-710



A-752



A-755

Tube Connectors

- | | |
|---|--|
| B-600 1/4" T x 1/4" F | B-623 3/8" T x 1/4" M |
| B-601 3/8" T x 1/4" | B-624 3/8" T x 1/8" M 90° |
| B-611 3/8" T x 1/4" Γ Bulkhead Push Lock Fitting | B-625 3/8" T x 1/4" M 90° |
| B-620 1/4" T x 1/8" M | B-821 1/4" MNPT Hose & Fitting |
| B-621 1/4" T x 1/4" M | B-822 1/4" Hose End FNPT Swivel Fitting |
| B-622 3/8" T x 1/8" M | B-823 1/4" MJIC x 1/4" MNPT Adapter |



B-601



B-611



B-622



B-625



B-821



B-823

Star Vario Protection Caps

- | |
|--------------------------------|
| B-700 Top Cap |
| B-702 Full Cap 60/120cc |
| B-703 Full Cap 250cc |



B-702



B-703

Manual Purge Kit



B-550

Manual Purge Kit

This simple accessory incorporates a manual greasing option utilizing a T-piece and a miniature ball valve. This facilitates no-fuss priming of lines and purging of bearings between the service exchange of the grease cartridge.

Standard Temp Brushes (Temp < 212° F)

- A-400** Pighair Brush - 1/4" F - 3/4" Diameter
- A-410** Std. Brush 1" x 1.5"
- A-411** Std. Brush 1" x 2.4"
- A-412** Std. Brush 1" x 4"
- A-417** Link Chain Brush

- T-36033** Everlast Felt Chain Applicator 1 1/4" x W 1/2" D
- T-36036** Everlast Felt Chain Applicator 2" W x 1/2" D
- T-36039** Round Brush 5/8" D x 1/8" M
- T-36045** Round Brush 1" D x 1/8" M
- T-36051** Even-Flo Brush 1/8" M—2" W x 1/2" D



A-400



A-411



A-417



T-36036



T-36045



T-36051

High Temp Brushes (Temp < 464° F)

- A-420** H.T. Brush 1" x 1.5"
- A-421** H.T. Brush 1" x 2.4"
- A-422** H.T. Brush 1" x 4"



A-421

Extreme Temp Brushes (Temp < 680° F)

- A-430** E.T. Brush 1" x 1.5"
- A-431** E.T. Brush 1" x 2.4"
- A-432** E.T. Brush 1" x 4"



A-431

Specialty Applicators / Misc. Accessories

- A-900** 3-Sided Plastic Rail Applicator
- A-903** Felt Insert - 0.20" (5 mm)
- A-907** Felt Insert - 0.63" (16 mm)

- A-955** Chain Lubrication Oil Box 1/4" F Special Order
- A-920** 3-Sided Brush Rail Oiler - Special Order
- A-950** Open Gear Lubrication Pocket 1/4" F - Custom



A-900



A-903



A-955



A-920



A-950

Tubing & Hydraulic Hose

- B-630** 1/4" OD Nylon Tubing, Blue*
- B-640** 3/8" OD Nylon Tubing, Blue*
- B-645** 5/16" (8mm) Clear Nylon Tubing*
- B-652** 2' Hydraulic Hose w/ Swivel Fitting 3/8" ID
- B-654** 4' Hydraulic Hose w/ Swivel Fitting 3/8" ID

- B-662** 2' Hydraulic Hose w/ Push Lock Swivel Fitting 3/8" ID
- B-664** 4' Hydraulic Hose w/ Push Lock Swivel Fitting 3/8" ID
- B-810** 5/16" (8mm) Nylon Tubing, Black
- B-820** 1/4" High-Temp Hose, Blue
- B-900** 6mm Nylon Tubing, ECOSY*



B-630



B-640



B-661



B-810



B-900

*Specify length, priced per foot

PRO / MP-6 / ECOSY Accessories

B-901 6mm T x 1/4" MNPT Tube Connector, ECOSY

B-800 1/8" MBSPT x 1/8" FNPT Straight Adapter

B-801 5/16" T (8mm) x 1/8" MBSPP Straight Connector

B-802 5/16" T (8mm) x 1/8" MBSPP 90° Tube Connector

B-803 5/16" T (8mm) x 1/8" MNPT Straight Connector

B-804 5/16" T (8mm) x 1/4" MNPT Straight Connector

B-805 5/16" T (8mm) x 3/8" MBSPP
MP-6 Remote Tube Connector

B-811 5/16" (8mm) Bulkhead Tube Connector

B-812 5/16" (8mm) Y-Tube Connector

DKU8 8-Point Measuring Valve Kit

DKU12 12-Point Measuring Valve Kit



B-901



B-800



B-802



B-803



B-805



B-812



DKU8

PRO Enclosures

B-778 PRO Box - Single Enclosure

B-780 PRO Box - Double Enclosure



B-778



B-780

Flex-Spring Kits

Designed for those applications where vibration can be an issue, these springs eliminate the tension on the lubrication units and provide consistent and uninterrupted performance.



SAKB Flex-Spring Blue Kit (CLASSIC/ FUTURA / 60cc STAR Units)

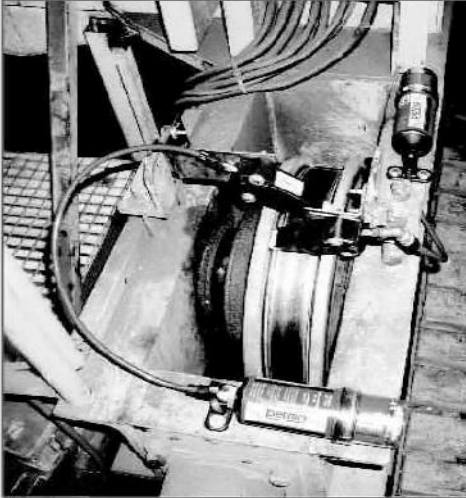
SAKR Flex-Spring Red Kit (120cc STAR Units)

SAKG Flex-Spring Green Kit (250cc STAR Units)



→ Special solutions for special applications –
designed by perma

Crane Wheel Lubricator (CWL Kit)

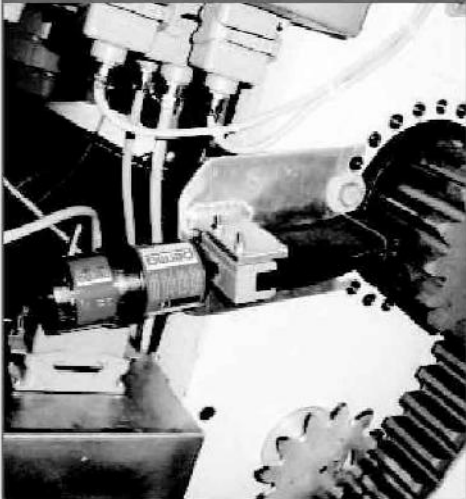


The perma Cwl kit is an automatic lubrication system designed for the lubrication of wheel flanges on cranes. The set consists of a 250cc perma STAR VARIO and the Cwl applicator assembly. The perma STAR VARIO lubricator pushes lubricant through a tube into the Cwl applicator assembly. The spring loaded applicator applies it to the wheel flange.

When the crane wheel turns, the special lubricant is transported from the wheel flange to the side of the sliding rail. This reduces the wear on the wheel flange and extends the crane's operating time.



Open Gear Lubricator (OGL Kit)



The OGL system is a special solution for applying grease to open gears. An elastic rubber applicator (paddle) is mounted between the teeth. The connected perma lubricator pushes grease into the rubber applicator. When the wheel turns, the paddle applies grease to the flange of each tooth. Since the OGL only applies small grease amounts, it is both economical and environmentally friendly. The no-wear and maintenance-free OGL system offers ideal lubrication for open gears.



Other Kits

→ **Journal Box Kit**

Brass Journal Bearings - Bridge Cranes

→ **Escalator Kits**

Drive, Hand Rail, and Step Chains

→ **Slurry Pump Kits**

Bearing and Seal lubrication kits

→ **Drilling Industry Kits**

Drawworks, Crowns, Brakes, Pumps, Generators

Please contact us for more information on other available kits.

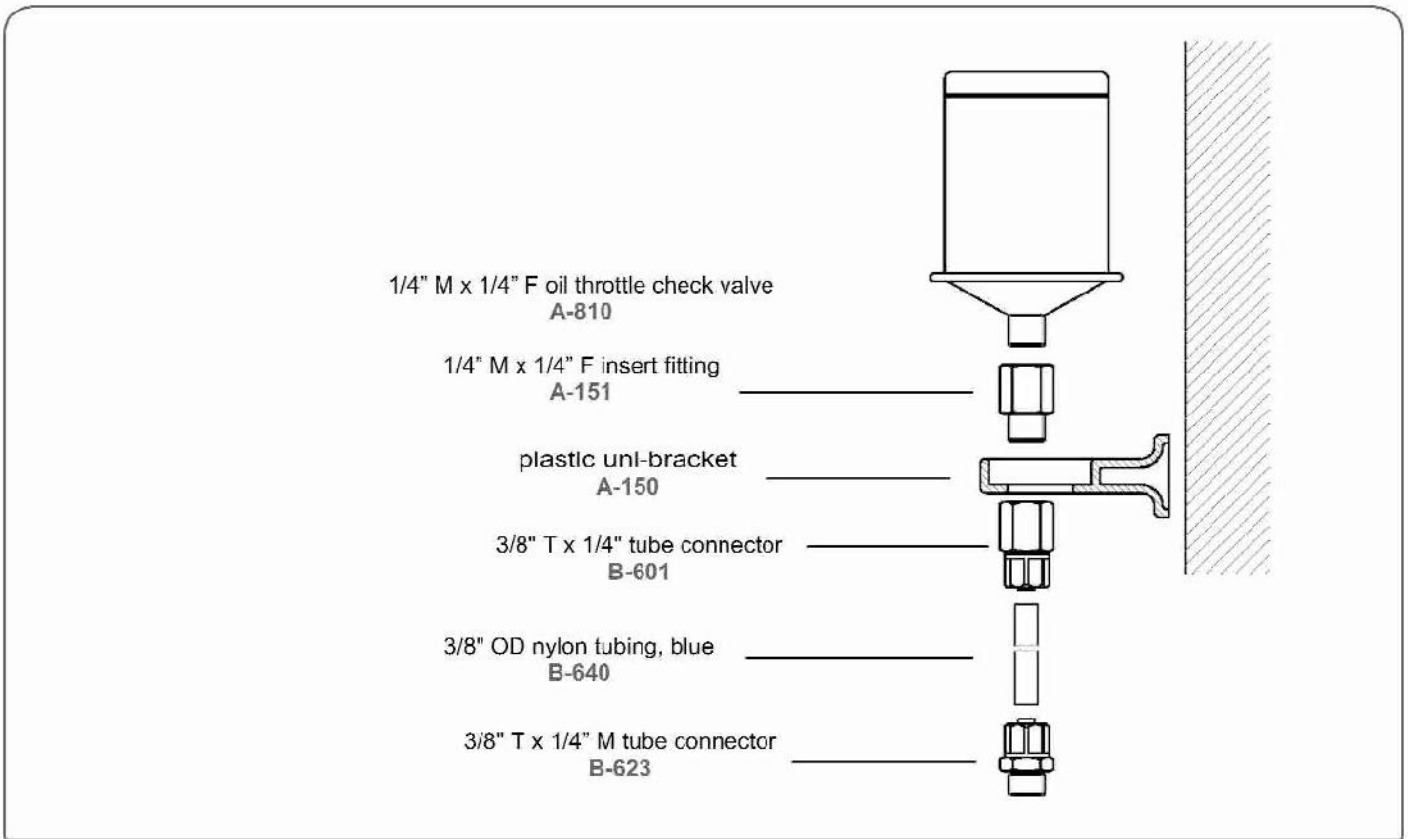


Journal Box Kit

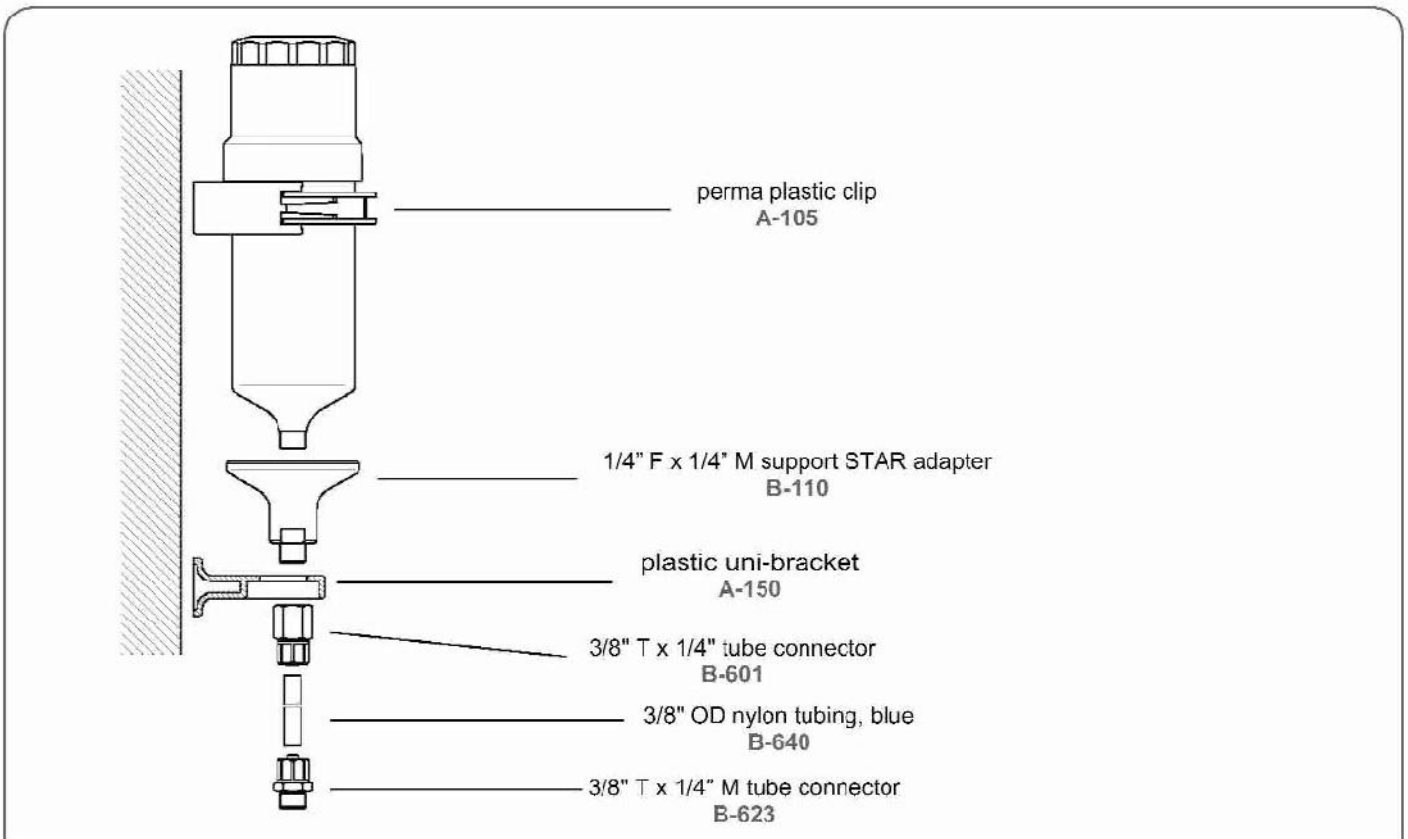


Drilling Industry Brake Kit

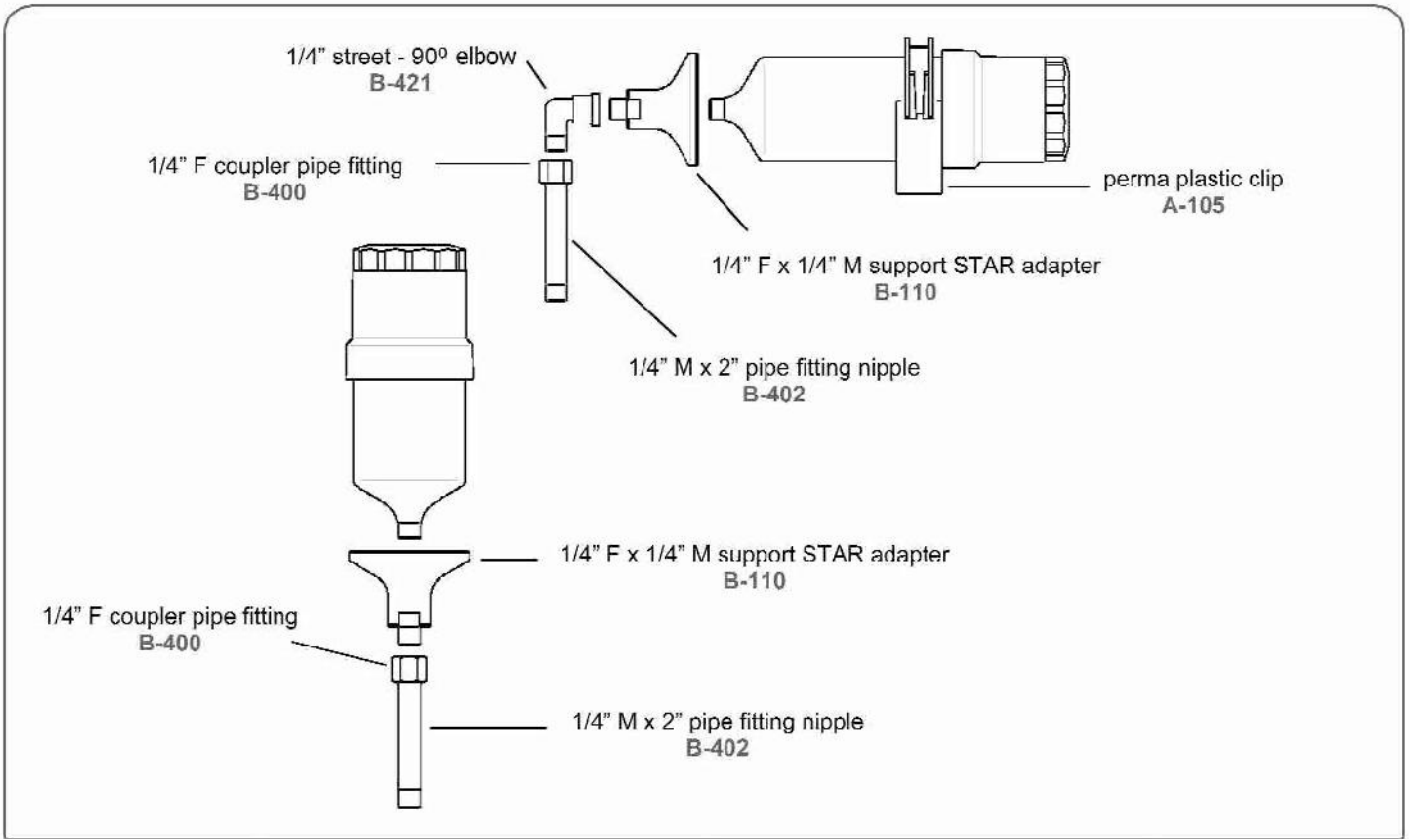
→ Remote mounting with tubing (CLASSIC, FUTURA, FROST)



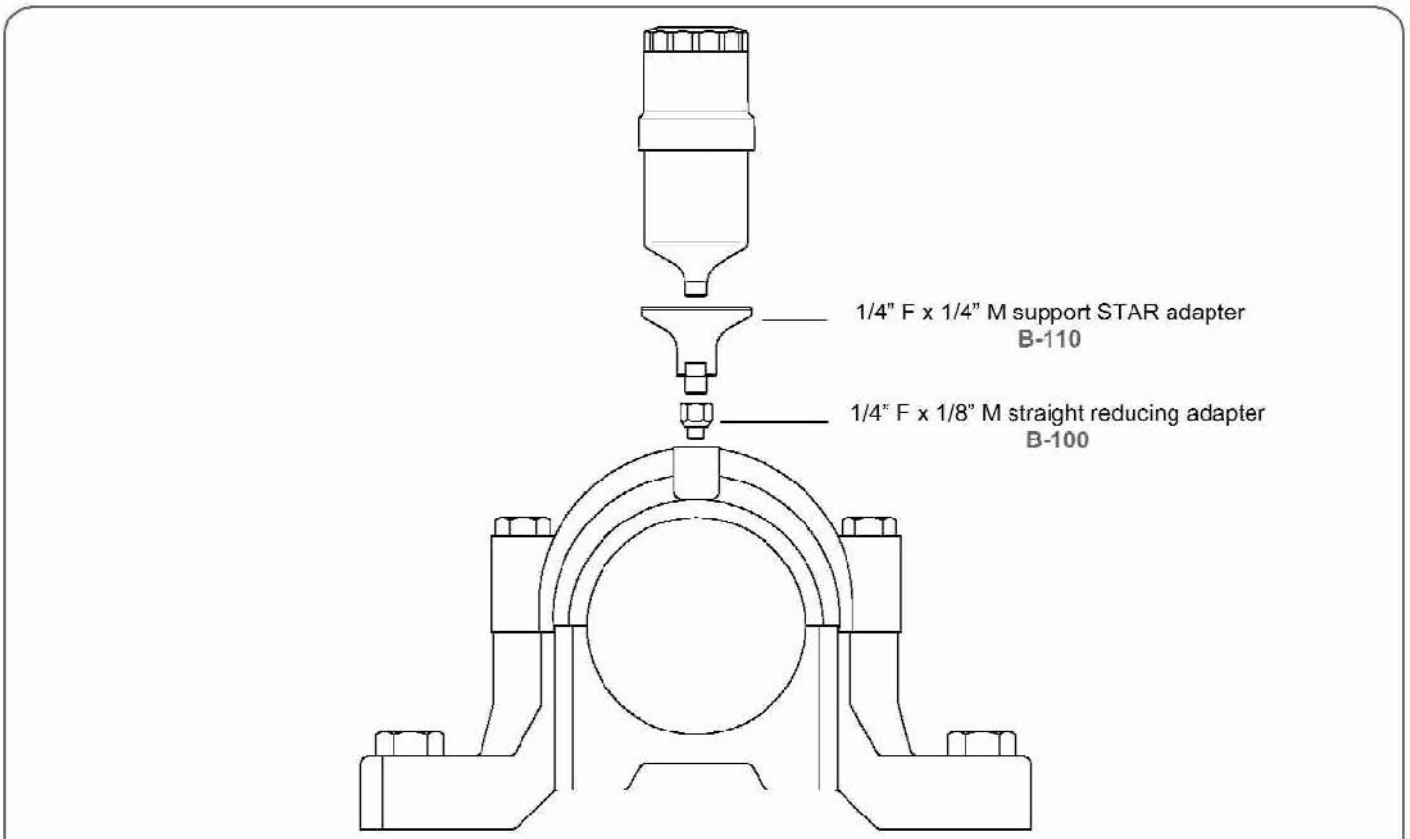
→ Remote mounting with tubing (STAR VARIO, STAR CONTROL)



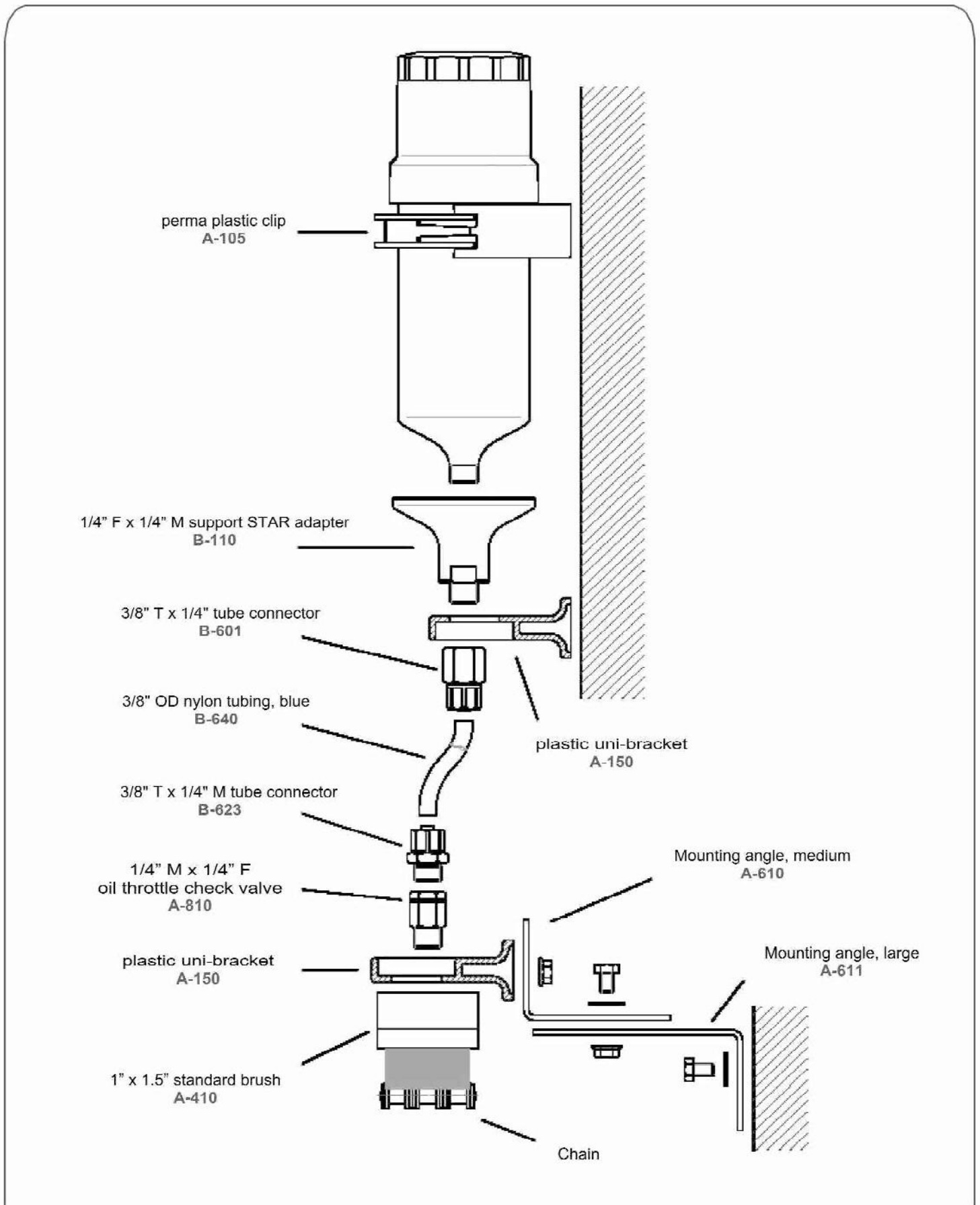
→ Directly with extensions



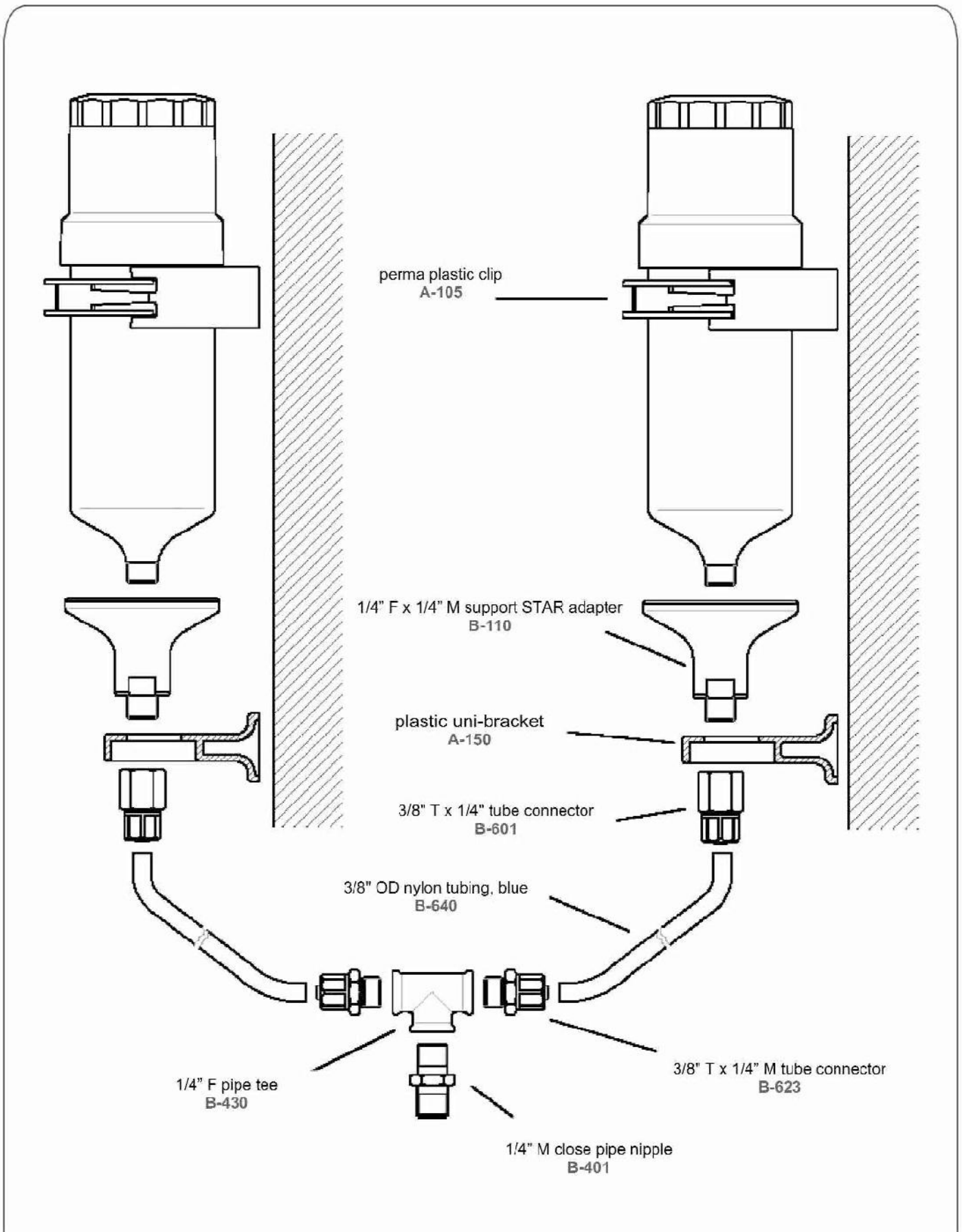
→ Directly on pillow block



→ Lubrication of chain with brush



→ Assembly with T-fitting



→ The right lubrication solution for each industry

→ Mining

Rough conditions, in the cement, quarrying, and mining industries, require maintenance-free, and precise lubrication. At the same time it is extremely important that all lubrication points and seals (between shaft and bearing housing) are totally protected against environmental influences.



→ Steel

Equipment in the steel industry is subjected to the roughest ambient conditions, especially extremely high temperatures. Incorrect and insufficient lubrication causes unnecessary maintenance down-time. perma offers lubrication systems specially designed for machines and equipment operated under such extreme conditions.

→ Automotive Industry

At every manufacturing stage of the vehicle, specially suited automatic lubrication systems from perma reliably supply all types of lubrication points with the correct amount of lubricant. High-end solutions like perma PRO ensure that each lubrication point, even in long production lines, is individually lubricated.

→ Power plants

Safety and economic efficiency are two of the most important priorities for power plant operators. perma automatic lubrication systems minimize equipment failures caused by incorrect lubrication. This increases safety and reliability of power plants and prevents power outages.



→ Mechanical engineering

Precision is the key to success in mechanical engineering. This includes precise lubrication of equipment such as roller and sliding bearings, linear guides, chains, and other moving components. perma lubrication systems are capable of providing individual lubrication on demand. Maintenance-free permanent lubrication minimizes down time caused by unscheduled maintenance and results in higher effectiveness and economic efficiency.

→ Food Industry

Food manufacturers depend on an extremely hygienic working environment. Automatic lubrication systems from perma are clean, safe and economical. Dirt and contamination, often generated by manual lubrication, are avoided.

→ Chemical Industry

Safety is one of the most important factors in all areas of the chemical industry. perma automatic lubrication systems guarantee the required safety and cleanliness. They prevent contamination of equipment with drops of excess lubricant and ensure uninterrupted, maintenance-free, long-term lubrication.

Customer Service is not just a slogan for us – we mean it!



Website

Log in and view product information, operating instructions, installation guides, technical specifications, and specific industrial applications for all perma lubrication systems. www.permausa.com

For every application, the right lubricant

Every application has different operating conditions ranging from wet to dry, accessibility, extreme temperature, strong vibration, etc. perma's lubricant inventory is extensive and you can select from almost every major manufacturer's brand. These include, but are not limited to: food grade, high temperature, synthetic, and custom blended products. We can also fill units with your own specific specialty lubricant.

Product training

We welcome the opportunity to share with you our knowledge on the perma product line and its industrial applications. We have an interactive training program in which all our distributors participate and we can arrange a training session upon your request.

Global support

The perma organization is worldwide and provides not only up to date product application and technical information to our customers here in North America, we also can support your subsidiaries and related affiliates located throughout the world.

On-site surveys

If requested, we will come to your facility and do a plant survey on your lubrication systems and overall lubrication maintenance program. We will make recommendations and provide you with any supporting documentation as well as ROI calculations. Surveys are done without any cost or obligation.

Reliable technical support

Our technical support is unmatched in the industry. We offer an 800 number, onsite support capabilities, and an interactive website with comprehensive technical information, so you can be assured that your questions will be addressed and answered in a timely and professional manner.

Service whenever you need us

Service teams all over the world will professionally install your lubrication systems and, if requested, work out a service contract with you.

Our service contract usually includes:

- How often and when maintenance is required
- General and visual check of all lubrication points
- Cleaning of lubrication points
- Delivery of required lubrication systems
- Installing of new lubrication systems
- Maintaining a lubrication- and maintenance plan

Certifications

Our products are known worldwide and we take pride in the quality, safety and overall reliability. perma products have received safety and quality certifications from well known and industrially accepted testing laboratories worldwide. perma-tec, our parent company, has earned the ISO Certification.

A full list of current certifications can be found on our website.

→ Certifications



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