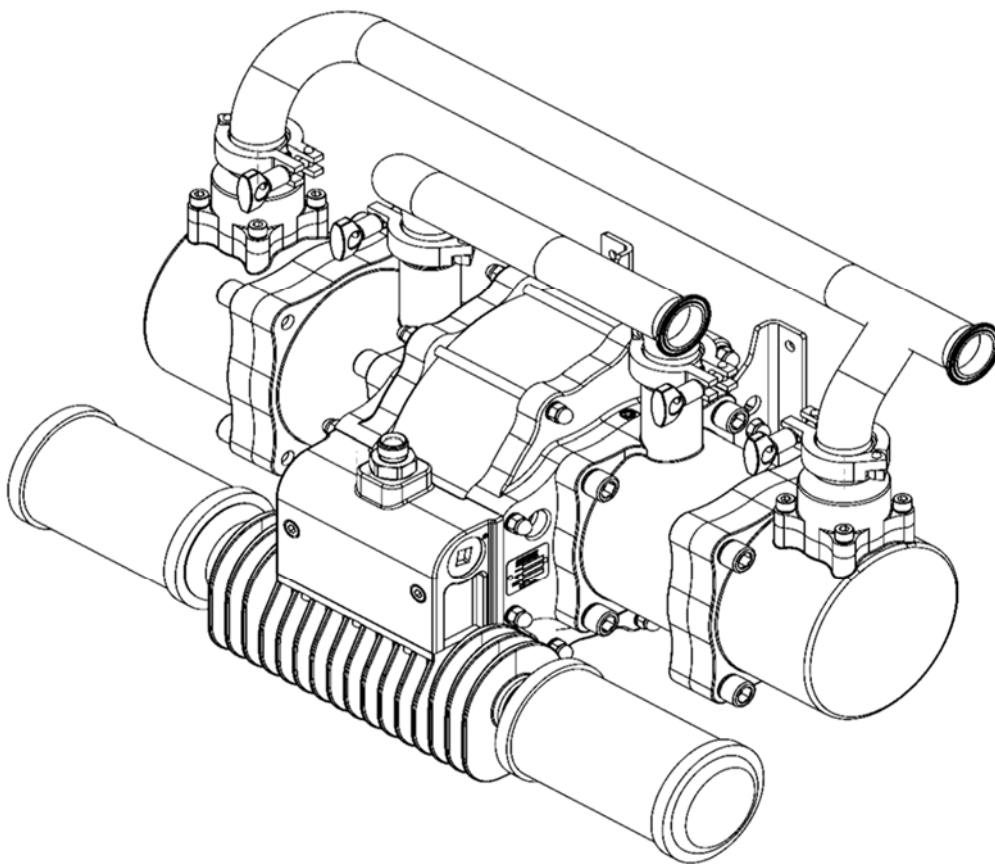


BINKS®

Maple 60/3 Pump

• Model 104020-M2



IMPORTANT! DO NOT DESTROY

It is the Customer's responsibility to have all operators and service personnel read and understand this manual.

Contact your local Carlisle Fluid Technologies representative for additional copies of this manual.

READ ALL INSTRUCTIONS BEFORE OPERATING THIS PRODUCT

Product Description / Object of Declaration:

Pumps - Maple, DVP, 104009, 104010/LS, 104016, 104027, 104032, 104040/1/2, 104077, 104020, 104023, 104025, 104028/9, 106933, 104205, 104149-52, 104207-15, 104147.

EN

This Product is designed for use with:

Solvent and Water based materials

Suitable for use in hazardous area:

Zone 1

Protection Level:

II 2 G X IIB T4

Notified body details and role:

Element Materials Technology (0891)
Lodging of Technical file

This Declaration of conformity / incorporation is issued under the sole responsibility of the manufacturer:

Carlisle Fluid Technologies UK Ltd,
Ringwood Road,
Bournemouth, BH11 9LH. UK

EU Declaration of Conformity



The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery Directive 2006/42/EC

ATEX Directive 2014/34/EU

by complying with the following statutory documents and harmonized standards:

EN ISO 12100:2010 Safety of Machinery - General Principles for Design

EN 12621:+A1:2010 Machinery for the supply and circulation of coating materials under pressure - Safety requirements

EN 1127-1:2011 Explosive atmospheres - Explosion prevention - Basic concepts

EN 13463-1:2009 Non electrical equipment for use in potentially explosive atmospheres - Basic methods and requirements



EN 13463-5:2011 Non electrical equipment for use in potentially explosive atmospheres - Protection by constructional safety "c"

Providing all conditions of safe use / installation stated within the product manuals have been complied with and also installed in accordance with any applicable local codes of practice.

Signed for and on behalf of Carlisle Fluid
Technologies UK Ltd:

D Smith
27/6/18

Director of Sales (EMEA)
Bournemouth, BH11 9LH, UK

 WARNING	 CAUTION	NOTE
Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.	Hazards or unsafe practices which could result in minor personal injury, product or property damage	Important installation, operation or maintenance information.

 **WARNING**

Read the following warnings before using this equipment.



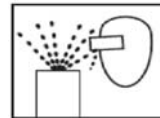
READ THE MANUAL. Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.



AUTOMATIC EQUIPMENT. Automatic equipment may start suddenly without warning.



WEAR SAFETY GLASSES. Failure to wear safety glasses with side shields could result in serious eye injury or blindness.



PROJECTILE HAZARD. You may be injured by venting liquids or gases that are released under pressure, or flying debris.



DE-ENERGIZE, DE-PRESSURISE, DISCONNECT AND LOCK OUT ALL POWER SOURCES DURING MAINTENANCE. Failure to de-energize, disconnect and lock out all power supplies before performing equipment maintenance could cause serious injury or death.



KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY.



NOISE LEVELS. The A-weighted sound level of pumping and spray equipment may exceed 85 dB(A) depending on equipment settings. Actual noise levels are available on request. It is recommended that ear protection is worn at all times while equipment is in use.



PRESSURE RELIEF PROCEDURE. Always follow the pressure relief procedure in the equipment instruction manual.



INSPECT THE EQUIPMENT DAILY. Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.



OPERATOR TRAINING. All personnel must be trained before operating finishing equipment.



EQUIPMENT MISUSE HAZARD. Equipment misuse can cause the equipment to rupture, malfunction or start unexpectedly and result in serious injury.



PACEMAKER WARNING. You are in the presence of magnetic fields which may interfere with the operation of certain pacemakers.



HIGH PRESSURE CONSIDERATION. High pressure can cause serious injury. Relieve all pressure before servicing. Spray from the gun, hose leaks or ruptured components can inject fluid into your body and cause extremely serious injury.



KEEP EQUIPMENT GUARDS IN PLACE. Do not operate the equipment if the safety devices have been removed.



STATIC CHARGE. Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.



NEVER MODIFY THE EQUIPMENT. Do not modify the equipment unless the manufacturer provides written approval.



PROP 65 WARNING. WARNING: This product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.



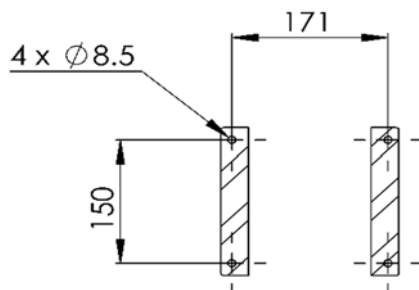
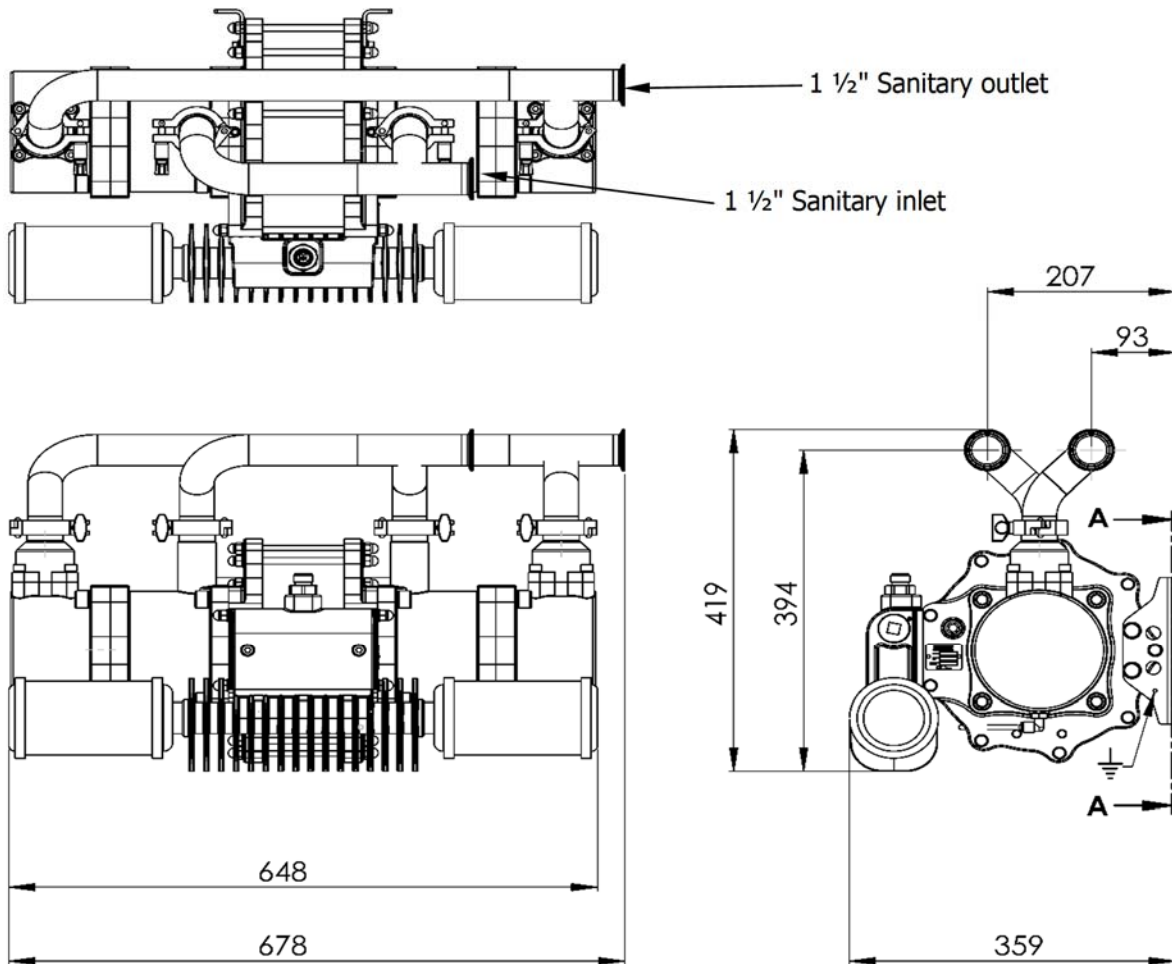
PINCH POINT HAZARD. Moving parts can crush and cut. Pinch points are any areas where there are moving parts.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT.

Specification

Ratio:	3:1
Maximum air inlet pressure	7 bar [101.5 psi]
Maximum fluid pressure:	21 bar [304.5 psi]
Nominal Flow Volume / Cycle:	1.5 l/m [0.4 US gal/m]
Fluid Output @ 60 cycles/min	90 l/m [24 US gal/m]
Maximum Recommended Continuous Cycle Rate:	20 Cycles / min
Maximum Recommended Intermittent Cycle Rate:	40 Cycles / min
Fluid inlet connection:	1 ½" Sanitary
Fluid outlet connection:	1 ½" Sanitary
Compressed Air Inlet	1/2" BSPP / NPSM
Air volume / cycle:	9.5 l/m [0.33 SCFM] @ 3.1 bar [45 psi] 18.5 l/m [0.65 SCFM] @ 90 psi [6.2 bar]
Air flow @ 15 cycles / min 6 bar / 87psi:	595 l/m [21 CFM]
Air flow @ 30 cycles / min 6 bar / 87psi:	1190 l/m [42 CFM]
Max. Pump Fluid Inlet Pressure	2 Bar [30 psi]
Air Quality ISO 8573.1 Class 3.3.2	Dirt: 5 microns Water: -20°C @ 7bar [940ppm] Oil: 0.1mg/m ³
Total Weight of Pump	65 kg / 143 lbs
#Note:	Class 3.4.2 Air Quality (Refrigerant dried - water +3°C@7bar) may be used, however, above 15 cycles/min optional heavy duty mufflers 192821 or piped exhaust system should be used, if used continuously.

Dimensions and Mounting Details



**MOUNTING LOCATIONS
SECTION A-A**

Installation

This product should be flushed with a suitable compatible solvent prior to use.

Mount the pump securely and position the pump at a convenient height (below the lid height of the paint container), to allow for maintenance, visual observation, and periodic inspection.

The wall mount bracket is included with all pumps.

The Pump Mounting bracket must be connected to a suitable earth ground to ensure that there is no possibility of static build up.

Attach suitable flexible hoses to the inlet and outlet connections.

Connect a suitable 3/8" NB air hose and 1/2" Pressure Filter Regulator to the air motor.

(Filter rated at minimum 1000 l/min)

No additional air lubrication is required as piston ring lubricant is applied during assembly or repair.

If an air lubricator is used then, this must be maintained.

Installation

Set the pump speed to a slow cycle rate and prime the pump to remove any air before increasing pressure.

Inspect for any system leaks.

Set the pump cycle rate to achieve the required paint volume and then adjust the system back pressure regulator and pump air pressure to achieve the desired system fluid pressure.

A Back Pressure Regulator should be mounted in the paint system return line.

The return line 'back pressure' regulator responds to the changes in system fluid flow demand, (due to variable paint usage) by dynamically adjusting the paint flow rate returning to the system paint tank, thus maintaining the set pressure.

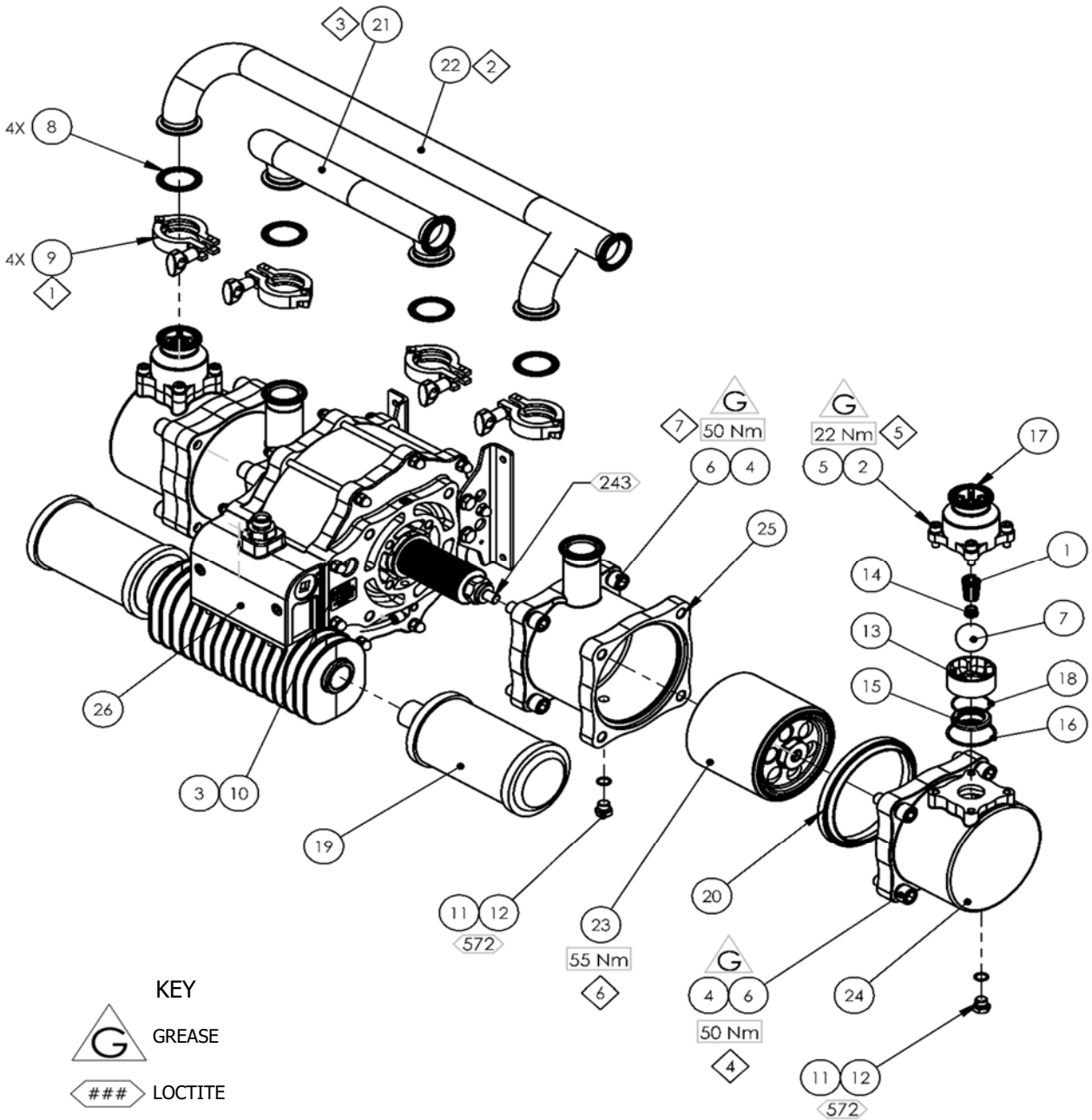
If an air blow out system is used, never exceed 2 bar [29 psi] on the inlet of the pump.






Exhaust kits are available for these pumps if the air exhaust is required to be piped away from the pump rather than exhausting locally through the mufflers.

Parts list - Pump Assembly

ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1	160513	SPRING	2	① ②
2	164472	M8 x 25 SOCKET HEAD CAP SCREW	8	① ②
3	164838	No.2 x 4.75 RIVET	2	
4	165077	M14 SPRING WASHER	16	
5	165108	M8 SPRING WASHER	8	
6	165978	M14 x 40 SOCKET HEAD CAP SCREW	16	
7	171788	Ø1 3/8" BALL	2	②
8	192008	1 1/2" SANITARY GASKET	4	① ②
9	192009	1 1/2" SANITARY CLAMP	4	
10	192147	NAMEPLATE	1	
11	192505	Ø12.42 x 1.79 O-RING	4	① ②
12	192551	1/4 BSP HEXAGON PLUG	4	① ②
13	192626	OUTLET CAGE	2	
14	192629	INLET SPRING KEEP	2	① ②
15	192632	SEAT	2	②
16	192647	Ø50.5 x 2.62 O-RING	2	① ②
17	192595	OUTLET CHECK	2	
18	192648	Ø41.0 x 1.78 O-RING	2	① ②
19	192821	VALVE MUFFLER	2	
20	194239	PISTON SEAL	2	① ②
21	192895	INLET MANIFOLD	2	
22	192896	OUTLET MANIFOLD	1	
23	193651	PISTON ASSEMBLY	1	
24	193690	OUTLET CYLINDER	2	
25	193691	INLET CYLINDER	2	
26	194983	AIR MOTOR ASSEMBLY	2	

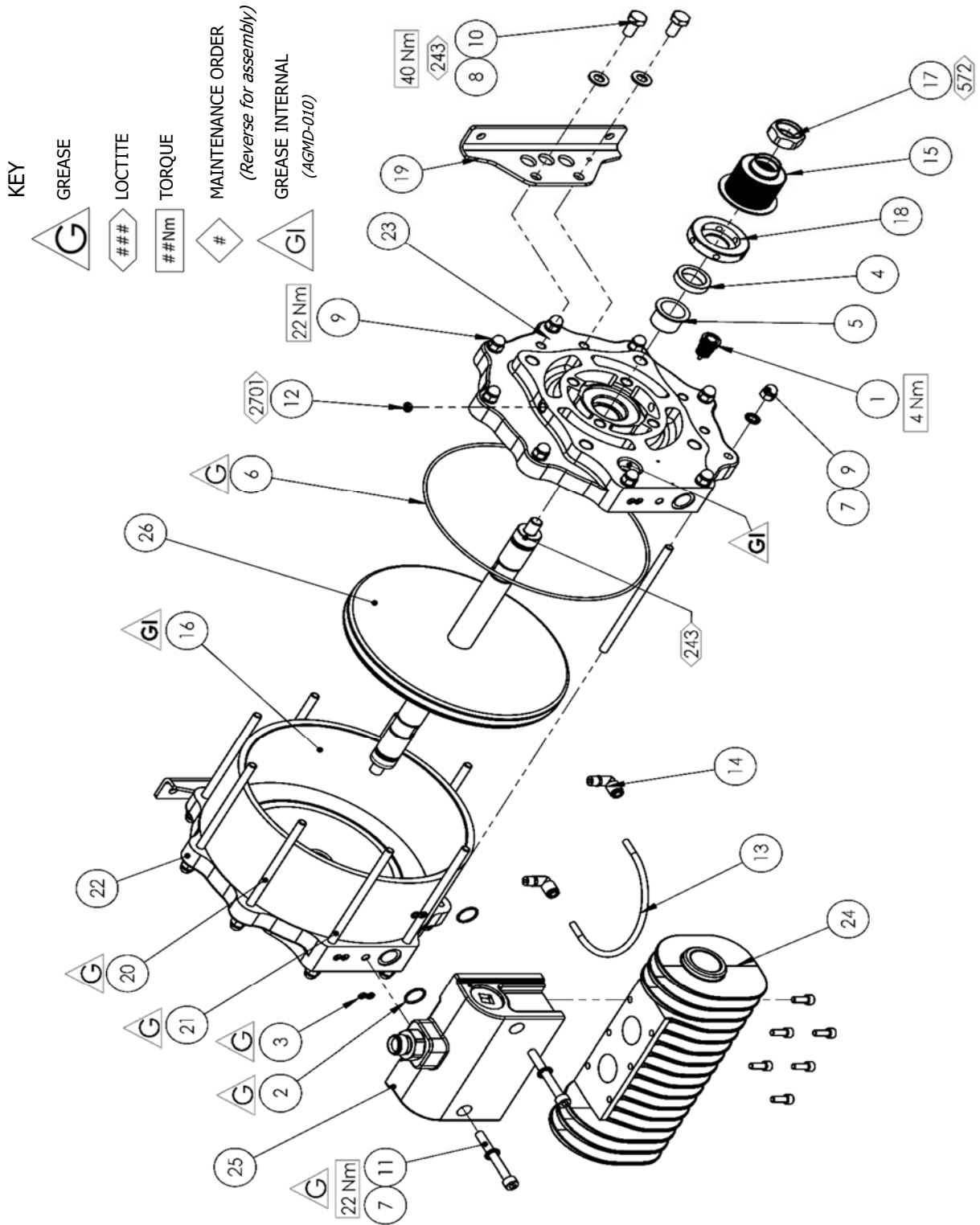
Parts list - Pump Assembly



- KEY**
-  GREASE
 -  LOCTITE
 -  TORQUE
 -  MAINTENANCE ORDER
(Reverse for assembly)
 -  GREASE INTERNAL
(AGMD-010)

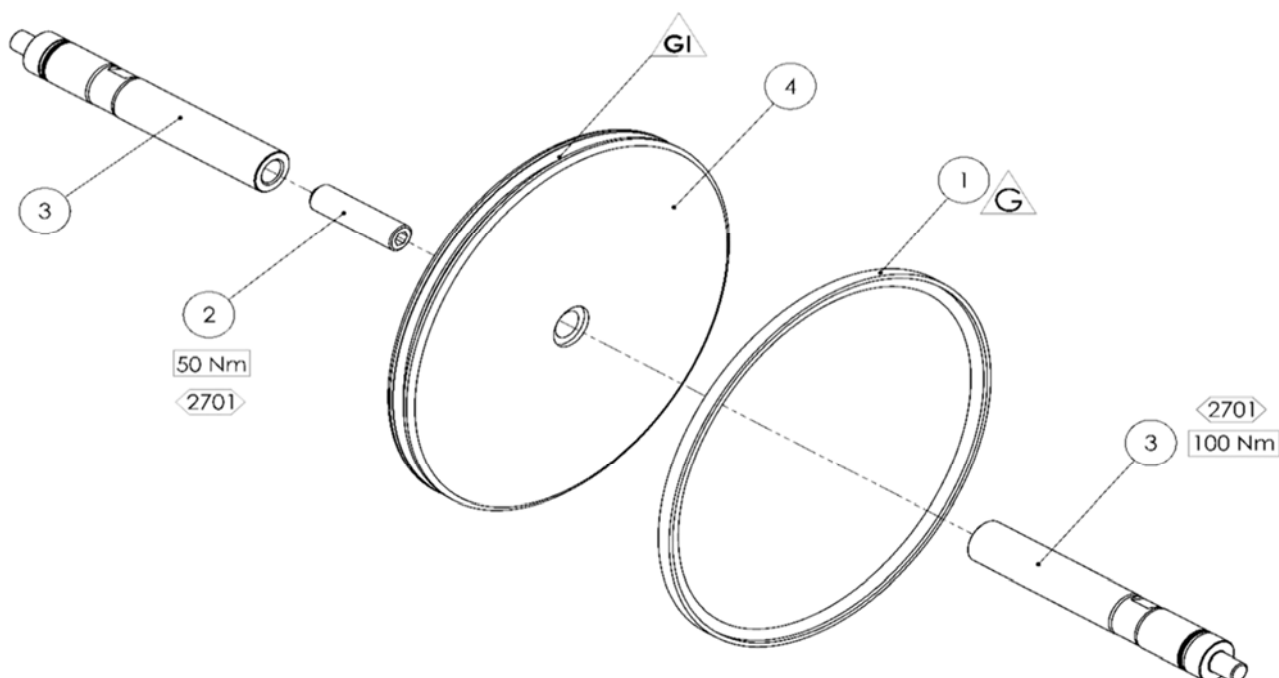
Parts list - Air Motor Assembly






ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1	0115-010037	POPPET ASSEMBLY	2	
2	161993	Ø23.5 x 1.78 O-RING	2	
3	161994	Ø4.47 x 1.78 O-RING	4	
4	162729	SHAFT SEAL	2	③
5	162730	SHAFT BEARING	2	③
6	162731	Ø230 x 4 O-RING	2	③
7	165108	M8 SPRING WASHER	20	
8	165135	M10 PLAIN WASHER	4	
9	165963	M8 DOME NUT	18	
10	165965	M10 x 17 HEX HEAD CAP SCREW	4	
11	177010	M8 x 71 SOCKET HEAD CAP SCREW	2	
12	192799	VENT PLUG	2	
13	192814	BELLOWS LEAK DETECTION HOSE	1	
14	192815	1/8R - 6mm PUSH IN ELBOW	2	
15	192881	KNIFED BELLOWS	2	②
16	192883	CYLINDER	1	
17	192887	RETAINING NUT	2	
18	192888	BELLOWS SPACER	2	
19	192906	PUMP BRACKET	2	
20	193094	CYLINDER STUD	7	
21	193095	CYLINDER STUD	2	
22	193237	LH END PLATE MACHINING	1	
23	193238	RH END PLATE MACHINING	1	
24	193240	EXHAUST ADAPTER	1	
25	193605	AIR VALVE ASSEMBLY	1	
26	194983	AIR MOTOR PISTON ASSY	1	



Parts list - Air Motor Piston Assembly

ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1	162728	AIR MOTOR PISTON SEAL	1	③
2	165975	M16 x 61 GRUB SCREW	1	
3	192882	PISTON SHAFT	2	
4	192886	PISTON	1	

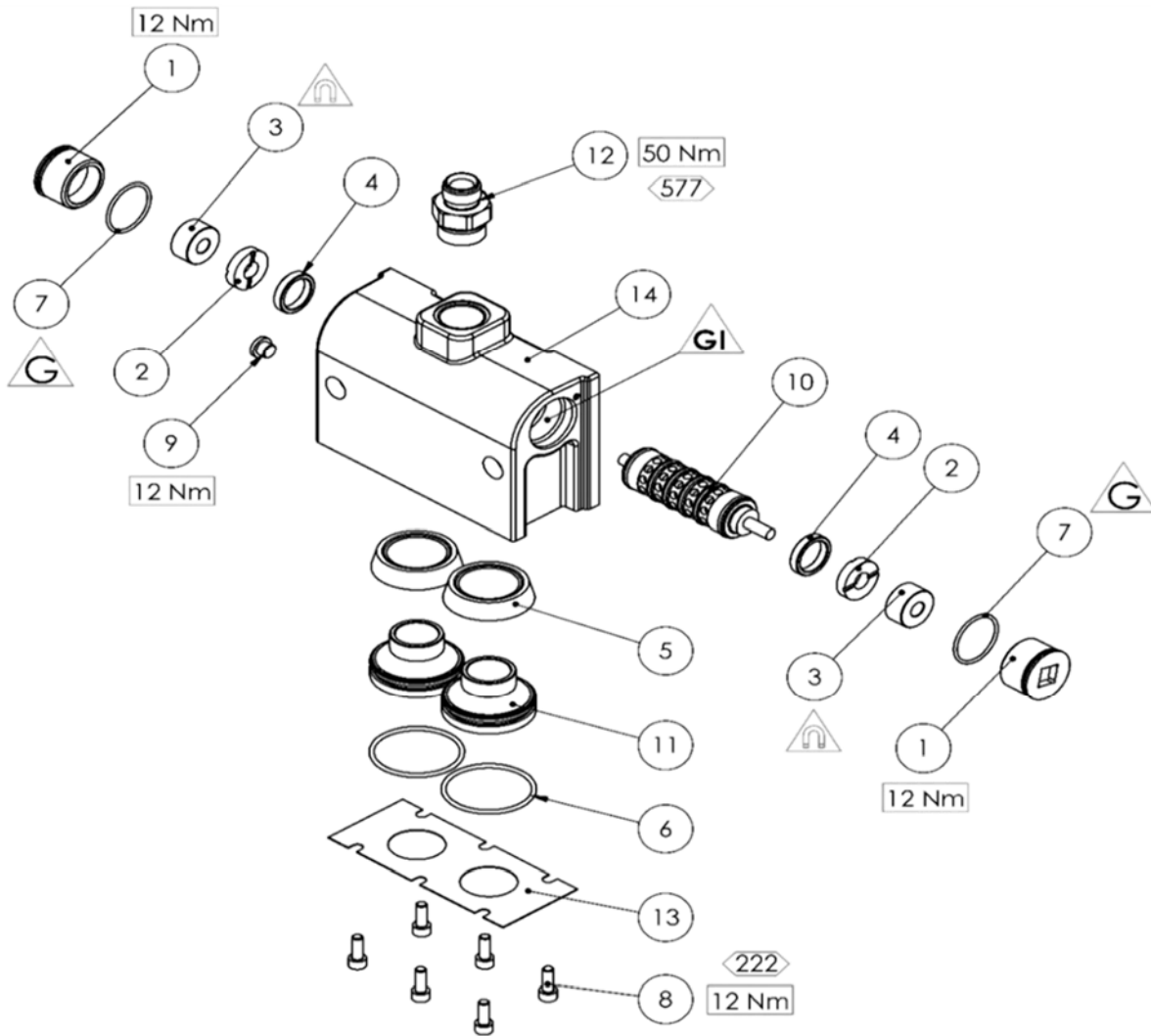








- KEY
-  GREASE
 -  LOCTITE
 -  TORQUE
 -  MAINTENANCE ORDER
(Reverse for assembly)
 -  GREASE INTERNAL
(AGMD-010)

Air Valve Assembly

ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1	0115-010425	SPOOL AND SLEEVE O-RING	2	
2	0115-010427	BUMPER	2	③
3	0115-010428	MAGNET	2	
4	0115-010431	SPACER	2	
5	0115-010463	QEV PISTON	2	
6	162719	Ø47.29 x 2.62 O-RING	2	③
7	162767	Ø30 x 2 O-RING	2	③
8	163951	M16 x 16 SOCKET HEAD CAP SCREW	6	
9	192651	1/" BSPP PLUG	1	
10	0115-010424	SPOOL AND SLEEVE ASSEMBLY	1	#
11	193241	QEV CARTRIDGE	2	
12	193243	AIR INLET	1	
13	193244	AIR EXHAUST GASKET	1	③
14	193606	MAIN VALVE BODY ASSY.	1	

Air Valve Assembly

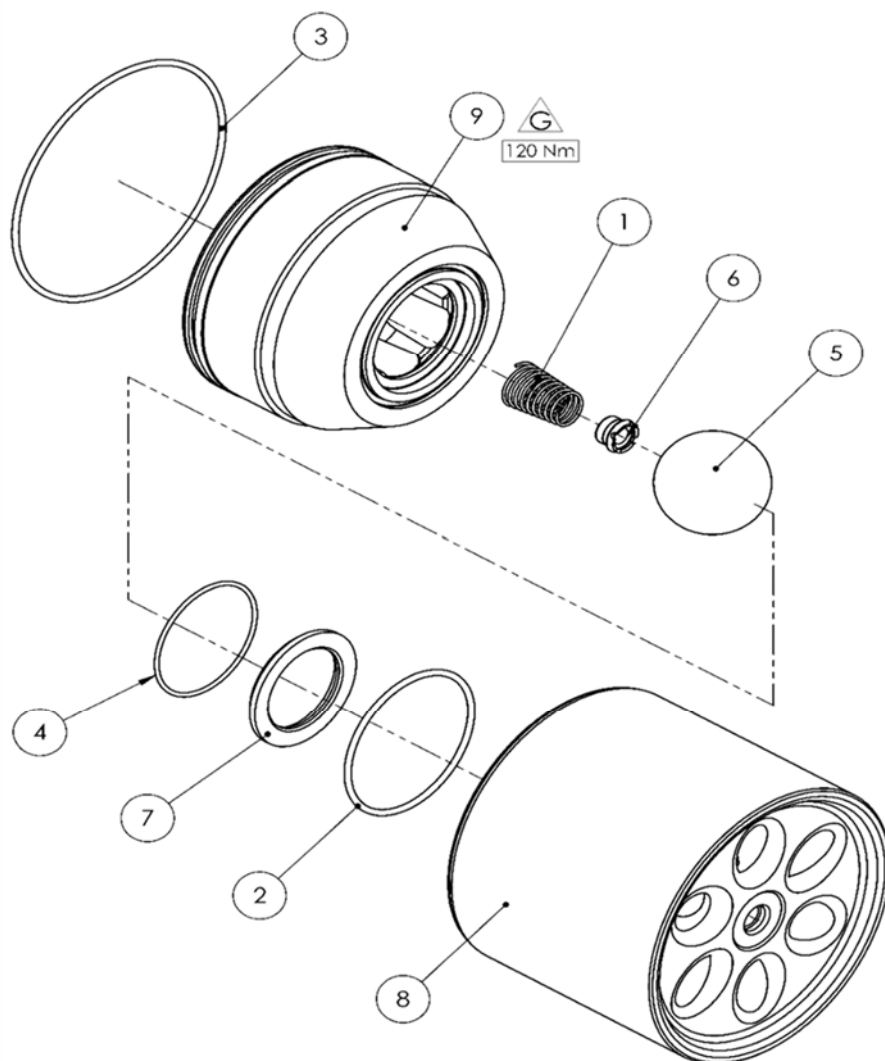







- KEY
-  GREASE
-  LOCTITE
-  TORQUE
-  MAINTENANCE ORDER
(Reverse for assembly)
-  GREASE INTERNAL
(AGMD-010)
-  MAGNET HAZARD

Parts list - Piston Assembly

ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1	160513	PISTON BALL CHECK SPRING	1	① ②
2	162805	Ø63.17 x 2.62 O-RING	1	① ②
3	162806	Ø107.62 x 2.63 O-RING	1	① ②
4	162807	Ø50.52 x 1.78 O-RING	1	① ②
5	171784	BALL	1	②
6	192629	INLET SPRING KEEP	1	
7	192631	SEAT	1	②
8	193652	FLUID PISTON	1	
9	193653	BALL CAGE	1	

Use a 36mm Single Hex Socket when tightening or removing ball cage from Piston.



- KEY
-  GREASE
 -  LOCTITE
 -  TORQUE
 -  MAINTENANCE ORDER
(Reverse for assembly)
 -  GREASE INTERNAL
(AGMD-010)

Fault Finding

Symptom	Possible Cause	Remedy
Pump will not 'Prime'	Air getting into the suction hose/manifold	Check seals and hose connections.
	Worn piston seal.	Replace piston seals.
	Ball checks not seating correctly.	Inspect, clean and/or replace balls and seats.
Pump will not run	No air or fluid supply	Check air and fluid supply ball valves and supply hoses.
	Air piston seal worn.	Replace piston seal.
	Pilot valve assemblies inoperable.	Switch/interchange pilot valves to isolate faulty pilot valve and clean/replace.
	Main air valve inoperable.	Check clean/replace Air valve.
	QE cup defective.	Check for constant exhaust air when pump is not running. Check/replace QE cups.
	Ball checks not seating correctly.	Inspect, clean and/or replace balls and seats.

Fault Finding		
Symptom	Possible Cause	Remedy
Pump runs but has excessive pulsation.	Air getting into fluid line, air supply restricted.	Check seals and hose connections. Check air supply
	Obstructed fluid ball checks.	Remove, clean, and inspect seat, ball, and ball cage. Replace if suspect or worn.
	Worn air motor piston seals.	Replace air motor piston seal.
	Worn/failed air motor shaft seals.	Disassemble pump as required to replace air motor shaft seals.
	Worn fluid piston seal.	Replace fluid piston seal.
	Air exhaust restricted.	Check QE cups and exhaust outlets.
Paint leaking into detection hose, air bleeding from vent plug	Bellows seal failure	Replace bellows seal
	Air motor shaft seal leaking	Check air motor shaft seal replace as necessary

Spares Kits for Maple 60/3 Pump

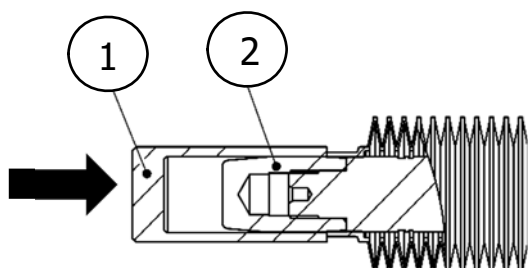
KIT No.	PART No.	DESCRIPTION	QTY.	REMARKS
①	250632	Fluid section seal kit	1	Check main parts list for details of individual kit contents
②	250687	Fluid overhaul kit	1	
③	250656	Air Motor Seal Kit	1	
#	0115-010037	Poppet Assembly	1	2 off per pump
#	0115-010424	Main Spool & Sleeve Valve Assembly	1	1 off per pump
#	194239	Piston seal	1	2 off per pump
#	192881	Knifed Bellows	1	2 off per pump
#- Recommended spare parts for continually running pumps				

Maintenance schedule

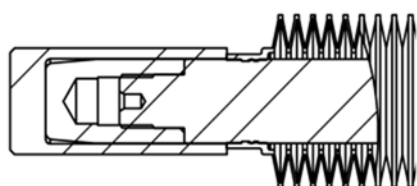
Inspection	Operation
Daily	Check for any general fluid or air leakage.
Weekly	<p>Inspect Pump for Correct operation</p> <p>Check for any excessive mechanical noise</p> <p>Check for excessive fluid pressure pulsation</p>
6 Month Test	<p>Perform a pump stall test to ensure correct operation.</p> <p>If pump does not stall, check fluid piston seals and ball checks, replace as required.</p> <p>If air is escaping through exhaust, check air motor piston seal and quick exhaust diaphragm, replace as required.</p>
12 to 36 Months (Typically 10 million pump cycles dependant on air quality and abrasiveness of the paint used)	<p>Replace air piston seal,</p> <p>Replace shaft seals & bearings.</p> <p>Inspect and replace if required: Pilot Air Valves & Main Air Valve Parts.</p> <p>Replace fluid piston seal,</p> <p>Replace Balls,Seats and Bellows.</p>

Bellows Replacement

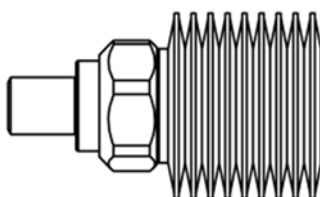
ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1	502682	Bellows positioning tool	1	
2	502681	Bellows assembly spigot	1	



Screw Item No. 2 (assembly spigot) onto the piston shaft



Using Item No. 1, push bellows over spigot until located in groove.



Smear loctite 572 over nose of bellows, thread nut onto bellows ensuring the thread starts squarely. Grip bellows lightly by hand and tighten the nut with a 32mm A/F spanner until the nut contacts the bellows shoulder.

Accessories

PART NO.	DESCRIPTION	REMARKS
192008	1 1/2" Sanitary Gasket	
192009	1 1/2" Sanitary Clamp	
502680	Seal Insertion Tool	For Shaft seal (162729)
502681	Bellows Assembly Spigot	
502682	Bellows Positioning Tool	
AGMD-010	Kluber Isoflex Topas NB 52 Grease	50ml Tube
192779	Exhaust Tube Adapter (1" NB hose)	For piped exhaust
192820	Exhaust Tube Adapter (1.5" NB hose)	For piped exhaust
192803	1" Manifold Plug	For piped exhaust
192821	1" BSP Heavy Duty Mufflers	For piped exhaust

NOTES

WARRANTY POLICY

This product is covered by Carlisle Fluid Technologies' materials and workmanship limited warranty. The use of any parts or accessories, from a source other than Carlisle Fluid Technologies, will void all warranties. Failure to reasonably follow any maintenance guidance provided, may invalidate any warranty.

For specific warranty information please contact Carlisle Fluid Technologies.

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Region	Industrial / Automotive	Automotive Refinishing
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Europe, Africa, Middle East, India	Tel: +44 (0)1202 571 111 Fax: +44 (0)1202 573 488	
China	Tel: +8621-3373 0108 Fax: +8621-3373 0308	
Japan	Tel: +81 45 785 6421 Fax: +81 45 785 6517	
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