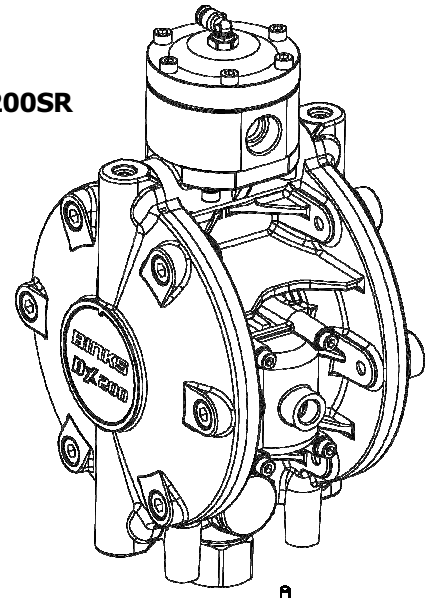
INSTALLATION MANUAL EN

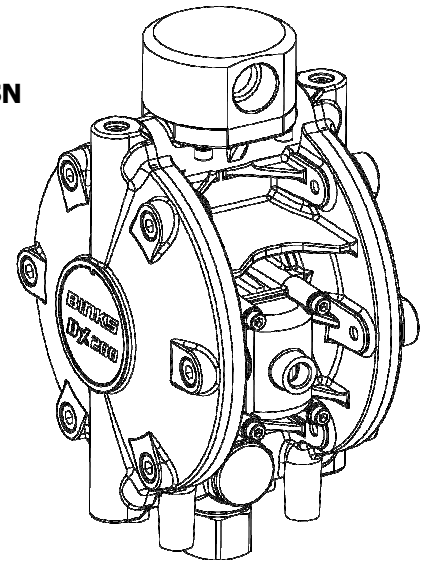
77-3211

# DX200 Stainless Steel Diaphragm Pump

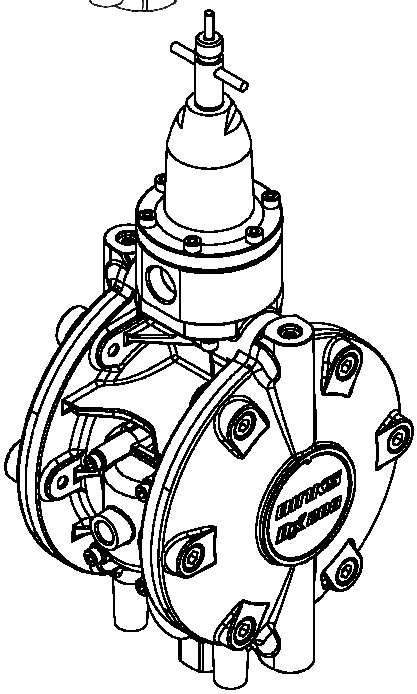
DX200SR



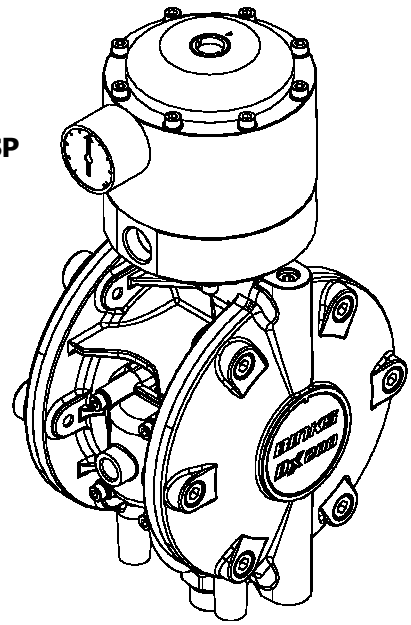
DX200SN



DX200SM



DX200SP



Patent US 9447780

**DX200SR**
**DX200SN**
**DX200SM**
**DX200SP**

## ADDITIONAL RESOURCES

For additional information or copies of your service manual, please visit us online at:
binks.com/en/library

Obey local or municipal regulations for product recycling and disposal.

| IMPORTANT! DO NOT DESTROY |
| --- |
| It is the Customer's responsibility to have all operators and service personnel read and understand this manual.<br><br>Contact your local Binks representative for additional copies of this manual. |
| **READ ALL INSTRUCTIONS BEFORE OPERATING THIS PRODUCT** |

| | |
|---|---|
| **Product Description / Object of Declaration:** | **Diaphragm Pumps - DX70, DX200, DX200-3 Bare pump and packages** |
| **This Product is designed for use with:** | **Solvent & Waterbased Materials** |
| **Suitable for use in hazardous area:** | **Zone 1/Zone 2** |
| **Protection Level:** | **II 2 G Ex h IIB T4 Gb** |
| **Notified body details and role:** | **Element Materials Technology Rotterdam B.V. (2812)** |
| | **Lodging of ATEX Technical file** |
| **This Declaration of Conformity / Incorporation is issued under the sole responsibility of the manufacturer:** | **Binks U.K. Limited,<br>Ringwood Road,<br>Bournemouth, BH11 9LH. UK** |
| **Representative authorised to compile the technical file** | **President @. Binks France SAS<br>5 Place Pierre Semard, 94130 Nogent sur Marne , Paris, France** |

# EU Declaration of Conformity

**This Declaration of Conformity / Incorporation is issued under the sole responsibility of the manufacturer:**

Machinery Directive 2006/42/EC
ATEX Directive 2014/34/EU
by complying with the following statutory documents and harmonised standards:
EN ISO 12100:2010 Safety of Machinery - General Principles for Design
EN 12621:2006+2010 Machinery for the supply and circulation of coating materials under pressure - Safety requirements
EN ISO 80079-36:2016 Explosive Atmospheres- Part 36:Non Electrical equipment for explosive atmospheres-Basic methods and requirements.
EN ISO 80079-37:2016 Explosive Atmospheres- Part 37: Non Electrical equipment for explosive atmospheres - protection by methods "c", "b" and "k".
EN 1127-1:2019 Explosive atmospheres - Explosion prevention - Basic concepts

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 Binks U.K. Ltd: | F. A. Sutter | Executive President: Engineering and Operations, Shoreview, MN, 55126. USA |
| Document Part No.<br>. EN | 22/04/25 | |

| | |
|---|---|
| **Product Description / Object of Declaration:** | **Diaphragm Pumps - DX70, DX200, DX200-3 Bare pump and packages** |
| **This Product is designed for use with:** | **Solvent & Waterbased Materials** |
| **Suitable for use in hazardous area:** | **Zone 1/Zone 2** |
| **Protection Level:** | **II 2 G Ex h IIB T4 Gb** |
| **Approved body details and role:** | **Element Materials Technology Warwick Ltd. UK. (0891)** |
| | **Lodging of UKEX Technical file** |
| **This Declaration of Conformity / Incorporation is issued under the sole responsibility of the manufacturer:** | **Binks U.K. Limited,<br>Ringwood Road,<br>Bournemouth, BH11 9LH. UK** |
| | |

# UKCA Declaration of Conformity

**This Declaration of Conformity / Incorporation is issued under the sole responsibility of the manufacturer:**

Supply of Machinery (Safety) Regulations 2008
Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016
by complying with the following statutory documents and designated standards:
BS EN ISO 12100:2010 Safety of Machinery - General Principles for Design
BS EN 12621:2006+2010 Machinery for the supply and circulation of coating materials under pressure - Safety requirements
BS EN ISO 80079-36:2016 Explosive Atmospheres- Part 36:Non Electrical equipment for explosive atmospheres-Basic methods and requirements.
BS EN ISO 80079-37:2016 Explosive Atmospheres- Part 37: Non Electrical equipment for explosive atmospheres - protection by methods "c", "b" and "k".
BS EN 1127-1:2019 Explosive atmospheres - Explosion prevention - Basic concepts

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 Binks U.K. Ltd: | F. A. Sutter | Executive President: Engineering and Operations, Shoreview, MN, 55126. USA |
| Document Part No. . EN | 22/04/25 | |

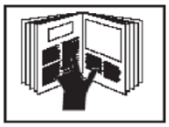
In this part sheet, the words WARNING, CAUTION and NOTE are used to emphasize important safety information as follows:

EN

| 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.

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

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.

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.

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.

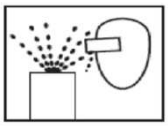
EQUIPMENT MISUSE HAZARD. Equipment misuse can cause the equipment to rupture, malfunction or start unexpectedly and result in serious injury.

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.

STATIC CHARGE. Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and alll 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.


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

AUTOMATIC EQUIPMENT. Automatic equipment may start suddenly without warning.



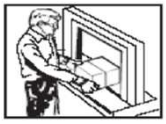
PROJECTILE HAZARD. You may be injured by venting liquids or gases that are released under pressure, or flying debris.

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

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

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

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



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

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

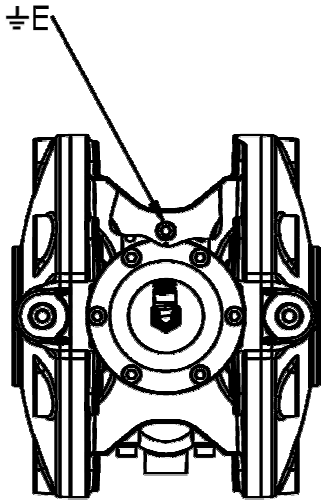
PINCH POINT HAZARD. Moving parts can crush and cut. Pinch points are any areas where ther are moving parts.

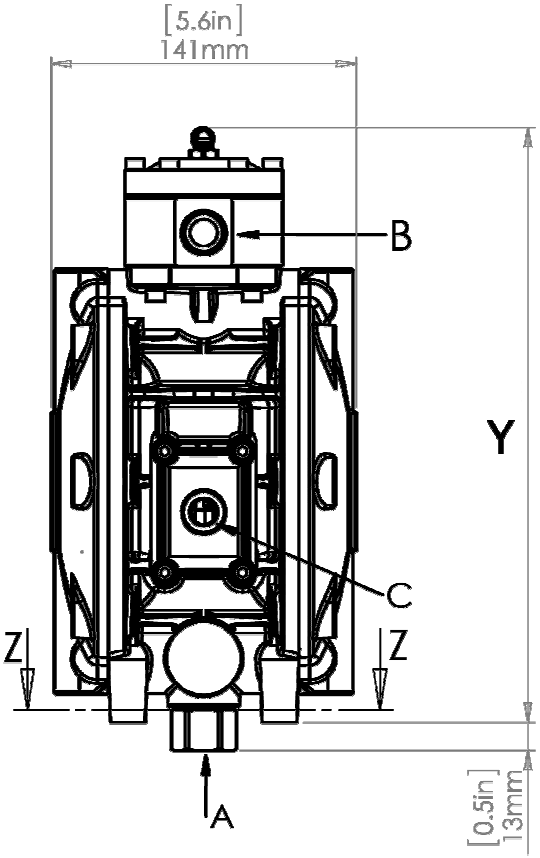
**IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT.**

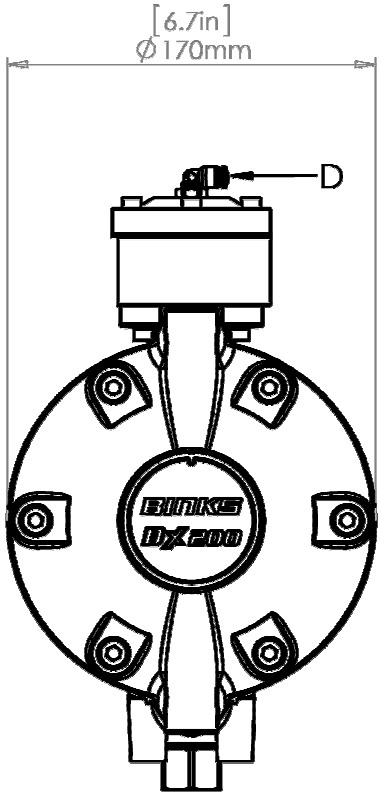
## Specification

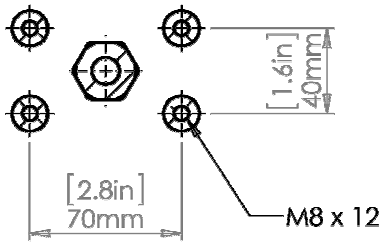
| | | |
|---|---|---|
| Ratio: | | 1:1 |
| Maximum air inlet pressure: | | 7 bar [100 psi] |
| Maximum fluid pressure: | | 7 bar [100 psi] |
| Displacement per cycle: | | 0.20 Litres [0.05 US gall] |
| Output @ 60 cycles / min: | | 12 Litres/min [3.17 US gall/min] |
| Maximum Recommended Continous Cycle Rate [cycles/min]: | | 25 |
| Maximum Recommended Intermittent Cycle Rate [cycles / min]: | | 60 |
| Fluid inlet connection: | A | 1/2'' BSPP Female |
| | | 1/2" NPT Female (xxN Models ) |
| Fluid outlet connection: | B | 1/2'' BSPP Female |
| | | 1/2" NPT Female (xxN Models ) |
| Air inlet connection: | C | 1/4" [6mm] Universal (BSPP/ NPSM) Female |
| Fluid regulator pilot connection: | D | Ø4mm [Ø5/32"] |
| Maximum dry/wet Lift: | | 4.6m [15.1ft] / 7.5m [24.6ft] |
| Air volume / cycle @ 6.9 bar/100psi: | | 2.83 l/min [0.1 SCFM] |
| Air flow @ 25 cycles / min 6.9 bar / 100psi: | | 71 l/min [2.5 SCFM] |
| Air flow @ 60 cycles / min 6.9 bar / 100psi: | | 139 l/min [4.9 SCFM] |
| Recommended air quality ISO 8573.1 Class 3.3.2 #: | | Dirt: 5 µm |
| | | Water: -20ºC@7bar [940ppm] |
| | | Oil: 0.1mg/m³ |
| | | Non Lubricated |
| Noise Level @ 30 cycles/min & 7 bar [100 psi]: | | 71.2 dBA Leq |
| Earth connection resistance: | E | <1Ω |
| Weight: | | 8.05Kg [17.75 lb's] |
| Temperature range | | 0 - 40 °C [32 - 104 °F] |

## Installation




SECTION Z-Z

| | Dimension Y |
|---|---|
| DX200SN | 249mm |
| DX200SR | 270mm |
| DX200SM | 379mm |
| DX200SP | 339mm |

## Prior To Use

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 to allow for maintenance.

Attach flexible hoses to all connections.

Connect a regulated air supply to the air connection.

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

## ATEX special conditions for safe use:

## Pump Earthing

The pump must be earthed at all times. A resistance <1Ω when measuring with an ohm-meter at the earth point

Earth connection, Binks Part No. 0114-011798

## Paint section materials of construction

| DX200S# Pumps | |
|---|---|
| **Item** | **Material** |
| Pump body inserts | Stainless Steel |
| End cap | Stainless Steel |
| Diaphragms | PTFE |
| Seals | FKM/PE |
| Valve ball & spring | Stainless Steel |
| End cap plugs | Stainless Steel |
| Ball Cage | (Acetal) POM |
| Fluid regulator & pulsation chamber | Stainless Steel |

| DX200SE# Pumps | |
|---|---|
| **Item** | **Material** |
| Pump body inserts | Stainless Steel |
| End cap | Stainless Steel |
| Diaphragms | PTFE |
| Seals | PU/PE |
| Valve ball | PU |
| End cap plugs | Stainless Steel |
| Ball Cage | (Acetal) POM |

## Important Notes

1. For regulated units, the pump air inlet pressure should be no more than 1.5 bar [21 psi] higher than the air pressure to the fluid regulator.

Failure to do this will produce a greater pressure pulse than is intended and may reduce diaphragm or regulator life.

2. End cap seals (DXK-226) MUST BE REPLACED every time an end cap is removed.

3. If end cap is removed fully clean and dry area around diaphragm before pump assembly.

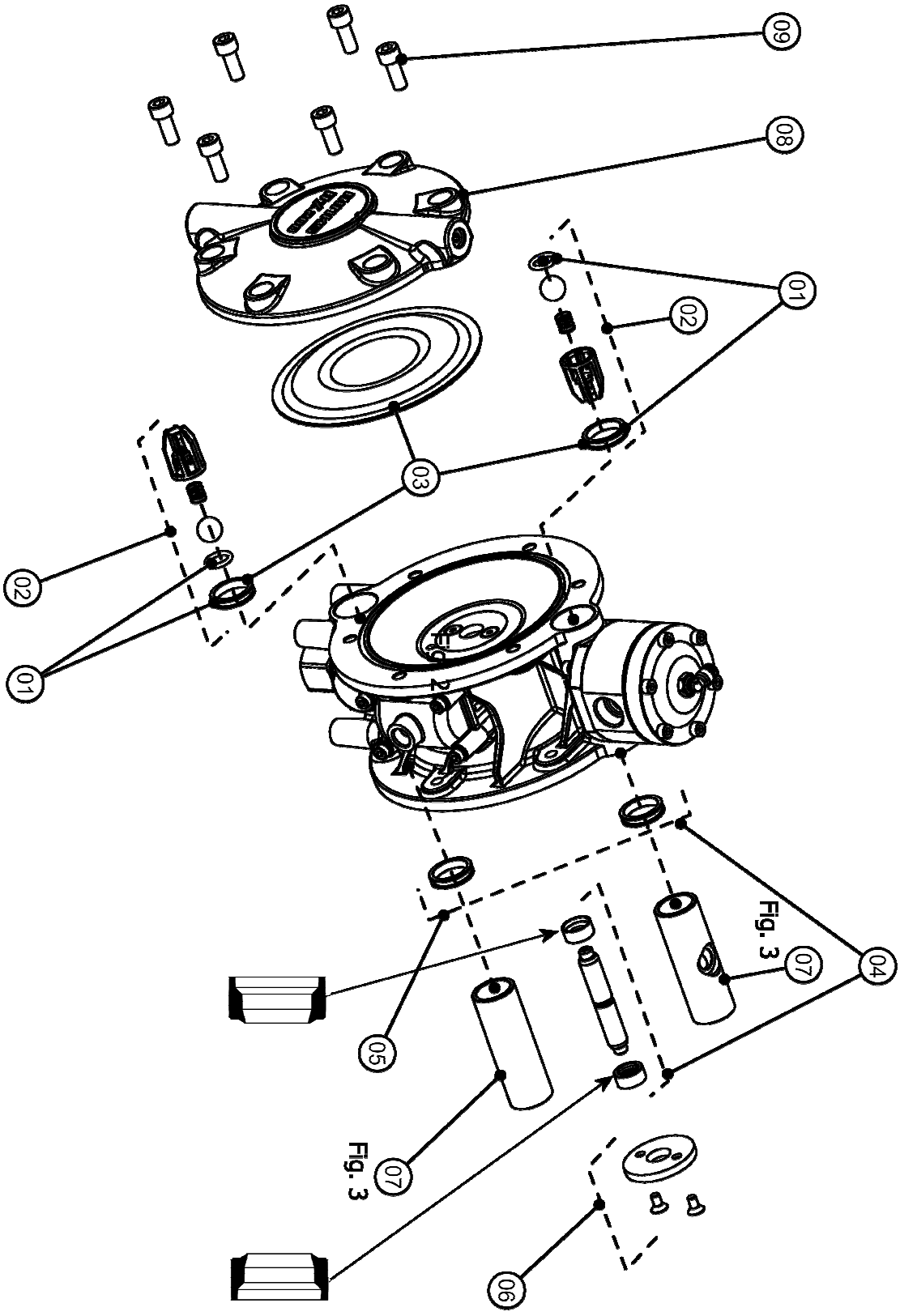
4. Do not run the pump dry or allow it to 'race away', this may reduce the life of the diaphragms.

**Failure to operate the pump correctly will invalidate the Warranty.**

## Spare Parts

| Item | Part No. | Description |
|---|---|---|
| 1 | DXK-222 | Check valve seal kit x 4 |
| | DXK-260 | Enamel check valve seal kit x 4 |
| 2 | DXK-223 | Check valve kit x 4 |
| | DXK-262 | Enamel check valve kit x 4 |
| 3 | DXK-224 | Diaphragm kit x 2 |
| 4 | DXK-225 | Shaft & seal kit |
| 5 | DXK-226 | End cap seal kit x 4 |
| 6 | DXK-206 | Caps & screws x 2 |
| 7 | DXK-283 | Stainless Steel inserts |
| 8 | DXK-227 | End cap x 1 - Includes Item 5 x 2 |
| 9 | DXK-207 | End cap bolts x 12 |

## Spare Parts



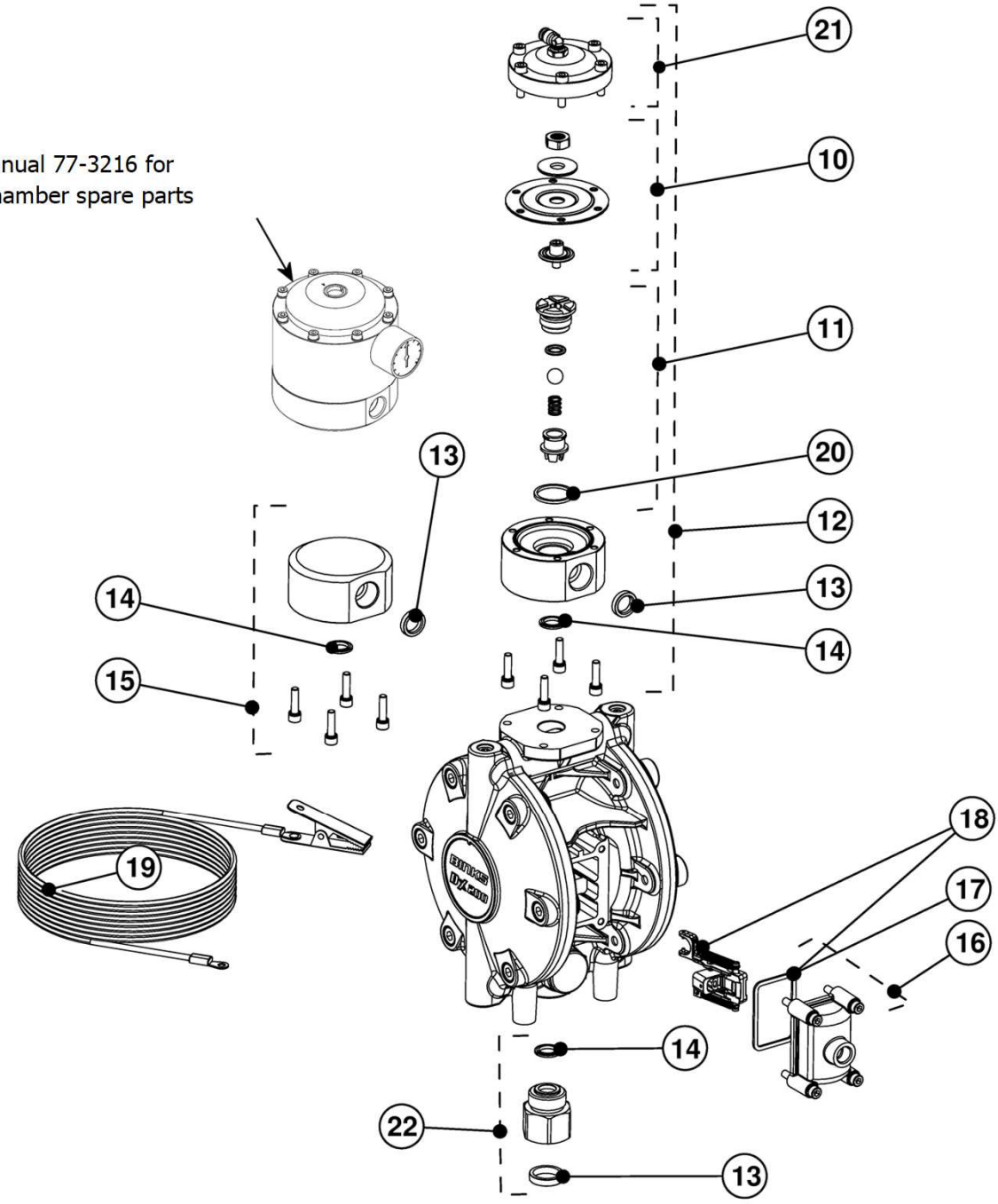
## Spare Parts

| Item | Part No. | Description |
|---|---|---|
| 10 | DXK-213 | Diaphragm assembly |
| 11 | DXK-214 | Regulator Insert |
| 12 | DXK-228 | Fluid regulator assembly |
| 13 | DXK-229 | Inlet/outlet seal x 4 |
| 14 | DXK-230 | Insert seal x 4 |
| 15 | DXK-231 | Non regulated assembly |
| 16 | DXK-18 | Cover, seal & screws |
| 17 | DXK-25 | Gasket x 4 |
| 18 | DXK-216 | Air valve kit |
| 19 | 0114-011798 | Grounding cable 4m |
| 20 | DXK-215 | Seal x 4 |
| 21 | DXK-212 | Regulator cap & screws |
| 22 | DXK-232 | 1/2" Female inlet connector kit, with seals |
| | DXK-291 | 1/2" NPT Female inlet connector kit, with seal (DX200S RN/NN/PN pumps only) |
| 23 | DXK-282 | 1/2" NPT Female outlet connector (not shown) (DX200S RN/NN/PN pumps only) |

# Spare Parts

**Note:**

Refer to manual 77-3216 for pulsation chamber spare parts

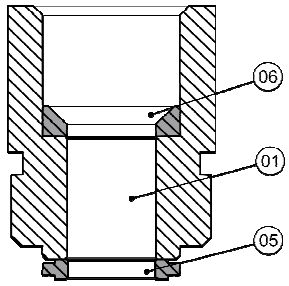


# Spare Parts

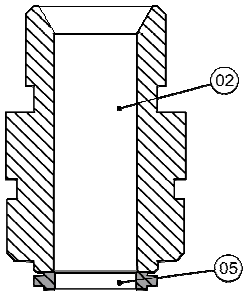
| Item | Part No. | Description |
|---|---|---|
| 1 | DXK-232 | 1/2" Female inlet connector kit, with seals |
| 2 | DXK-233 | 1/2" Male inlet connector kit, with seals |
| 3 | DXK-234 | 3/4" Female inlet connector kit, with seals |
| 4 | DXK-235 | 1/2" - 3/8" Male inlet connector kit, with seals |
| 5 | DXK-230 | Seal x 4 |
| 6 | DXK-229 | Seal x 4 |
| 7 | DXK-221 | Seal x 4 |
| 8 | DXK-291 | 1/2" NPT Female inlet connector kit, with seals |
| 9 | DXK-292 | 1/2" NPT Female outlet connector kit, with seals |

**Inlet Connectors**

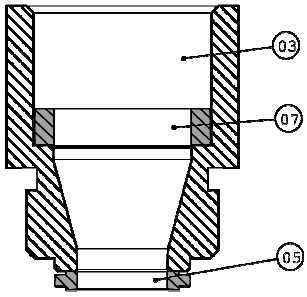
1/2" BSPP Female



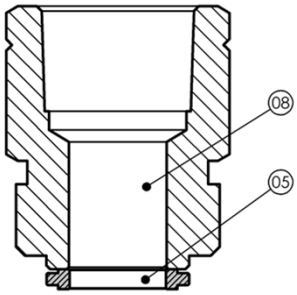

1/2" BSPP Male




3/4" BSPP Female

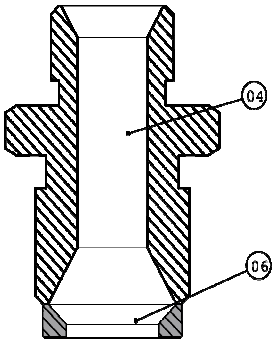



1/2" NPT Female



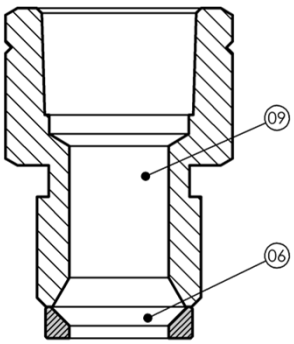

**Outlet Adaptor**

Male connector kit, with seals




Pump Outlet

1/2" NPT Female



# Maintenance

| Key - Maintenance symbols | | |
|---|---|---|
| # | = | Order for dis-assembly *(reverse for assembly)* |
| G | = | Grease (AGMD-010) |
| Fig. 1 | = | Refer to figure |
| 13MM | = | Spanner or socket size |
| 8 Nm | = | Torque required |

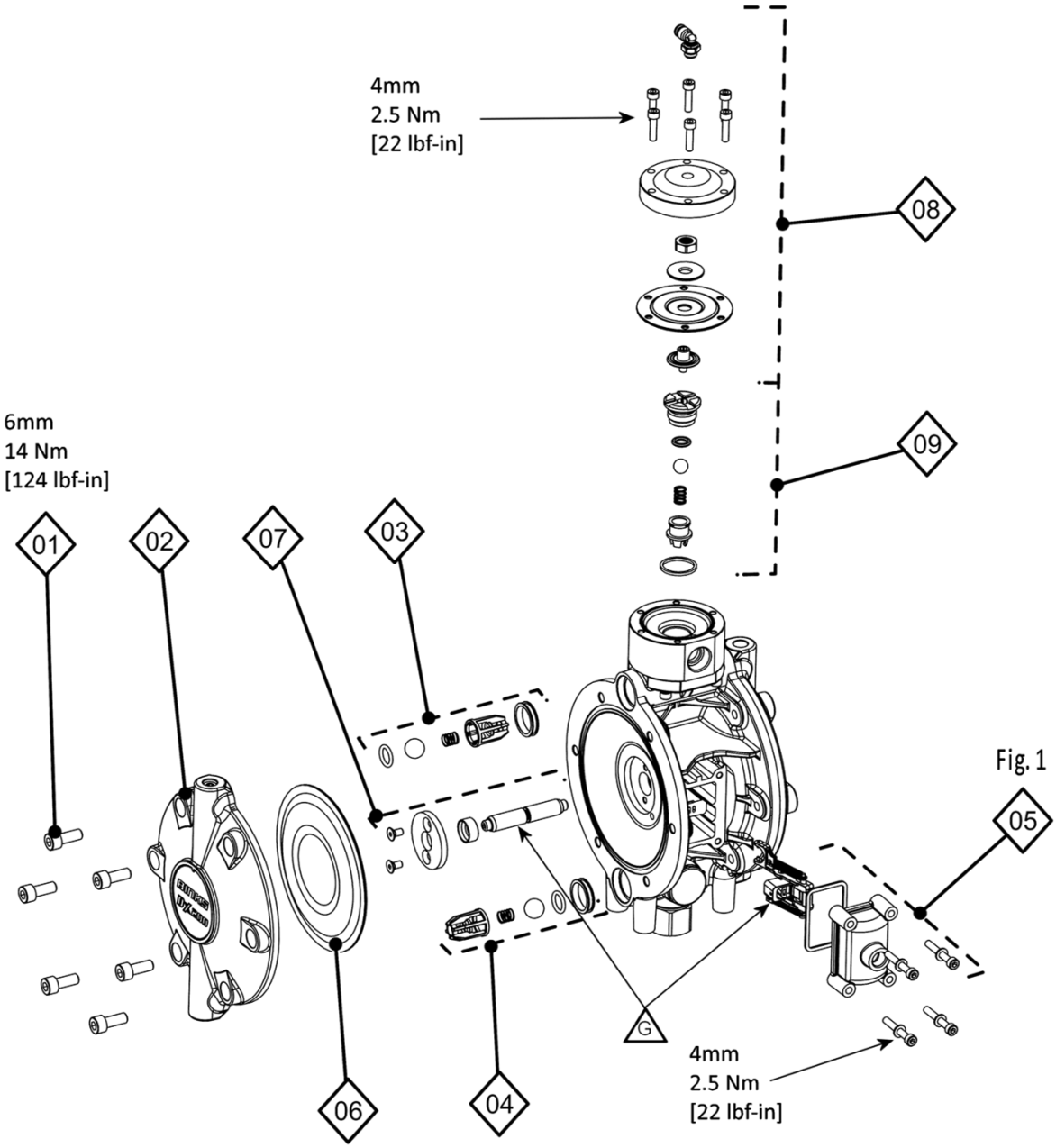



Fig. 1

# Maintenance

**Figure 1**

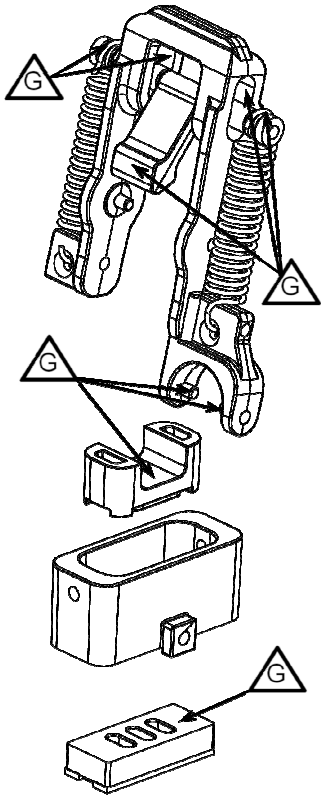
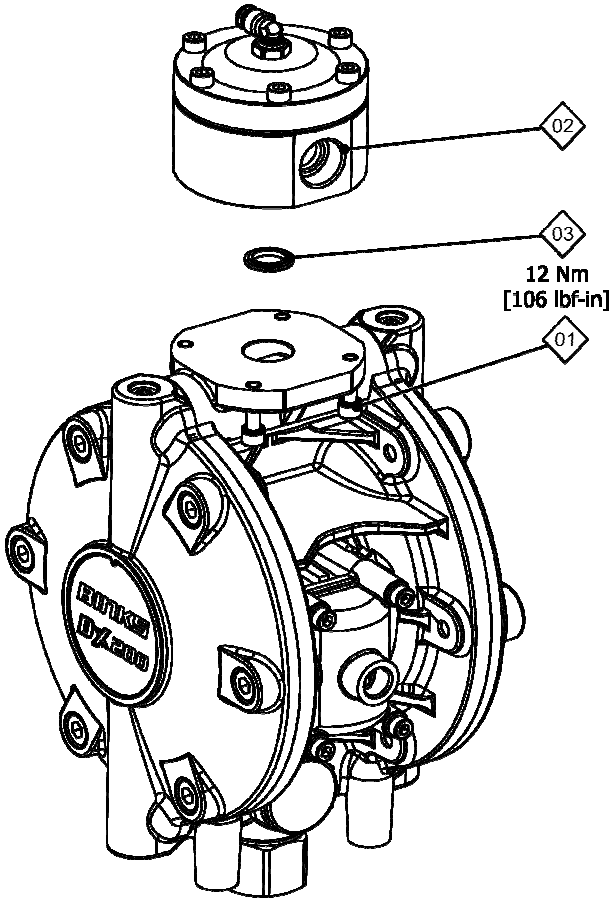
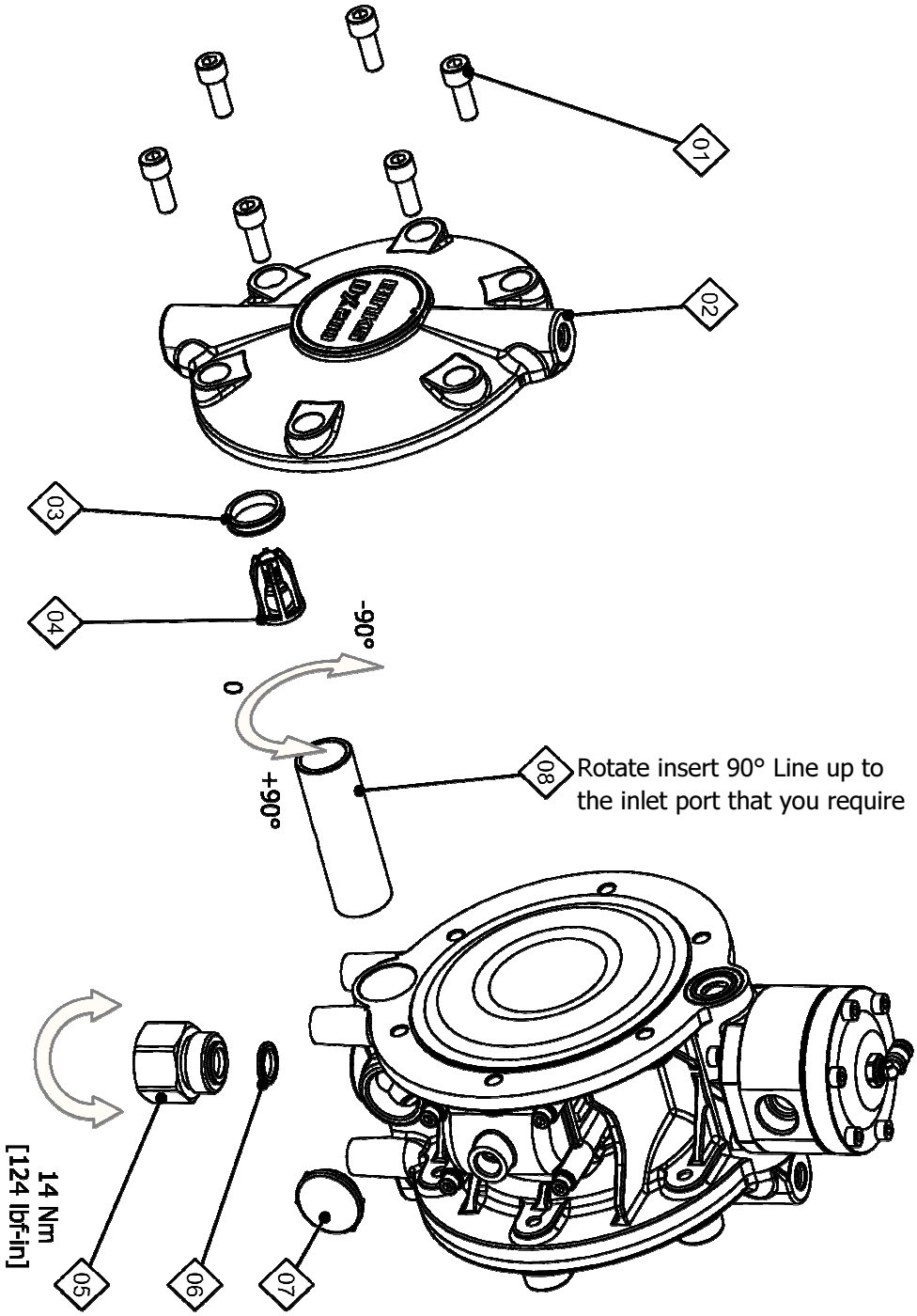



**Figure 2**



# Maintenance

**Figure 3**



## Maintenance schedule

| Typical period | Recommended operation |
|---|---|
| Monthly | - Check for fluid or air leaks<br>- Inspect Pump for Correct operation<br>- Check for any excessive mechanical noise<br>- Check for excessive fluid pressure pulsation |
| 6 Months | - Perform a pump stop test to ensure correct operation, by ensuring pump stops when the spraygun trigger is closed and there is no fluid flow.<br>- If pump does not stop, inspect ball check valves, replace as required.<br>- Check fluid regulator adjusts fluid pressure correctly.<br>- Replace if faulty |
| 12 Months | - Replace Diaphragms<br>- Replace fluid regulator seat and diaphragm<br>- Replace centre shaft and seals<br>- Replace Check Valves<br>- Inspect and replace if required:- Air Valve module |

## Fault finding

| Symptom | Possible Cause | Remedy |
|---|---|---|
| Pump will not 'Prime' | a. Air getting into the suction hose/manifold<br>b. Check valve ball/seal damaged | a. Check hose connections<br>b. Inspect, clean/replace balls/seats |
| Pump will not run | a. No Air or Fluid supply<br>b. Air valve worn or defective | a. Check air and fluid supply ball valves and supply hoses.<br>b. Replace valve module. |
| Pump runs but has excessive pulsation | a. Air getting into fluid line, air supply restricted.<br>b. Fluid check valves damaged<br>c. Worn centre shaft/seals<br>d. Worn air valve | a. Check seals and hose connections. Check air supply<br>b. Remove, clean, and inspect seat, ball, and ball cage. Replace if suspect or worn.<br>c. Replace shaft and seals.<br>d. Replace air valve module |

# Bare pump selection

| DX200 | S | N | - | 1 |
|---|---|---|---|---|

| Pump body | |
|---|---|
| **S** | Stainless Steel |
| **SE** | Stainless Steel - Enamel |

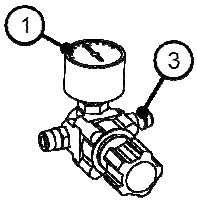
| Fluid regulator | |
|---|---|
| **R** | Regulator |
| **N** | No regulator |
| **M** | Manual Regulator |
| **P** | Pulsation Chamber |
| **RN** | Regulator (NPT) |
| **NN** | No regulator (NPT) |
| **PN** | Pulsation Chamber (NPT) |

| Air regulators | | For use with |
|---|---|---|
| **-** | No regulator | DX200## |
| **1** | 1 Regulator | DX200#N & P |
| **2** | 2 Regulators | DX200#R |
| **22** | 2 Regulators | DX200#N |
| **3** | 3 Regulators | DX200#R |

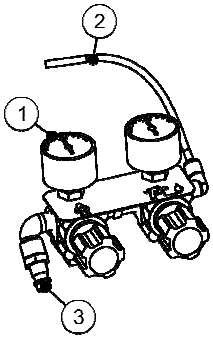
**Note**

Fluid regulator versions DX200SER & DX200SEM are not suitable for use with enamel

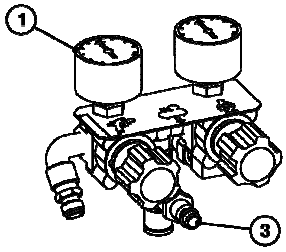
# Air regulators



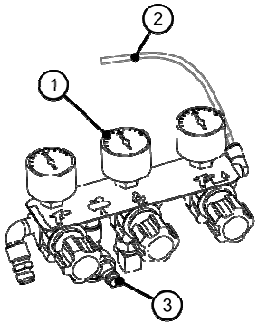

| DXA-AC1-200 |
|---|
| 1 Regulator |
| - Pump |




| DXA-AC2-200 |
|---|
| 2 Regulators |
| - Pump |
| - Fluid regulator |




| DXA-AC22-200 |
|---|
| 2 Regulators |
| - Pump |
| - Spraygun |




| DXA-AC3-200 |
|---|
| 3 Regulators |
| - Pump |
| - Spraygun |
| - Fluid regulator |

| Item | Part No. | Description |
|---|---|---|
| 1 | GA-382-P | Gauge |
| 2 | S-1817 | Ø4mm Hose |
| 3 | MPV-10 | QD stem 1\4" male |

## NOTES

# WARRANTY POLICY

This product is covered by Binks materials and workmanship limited warranty.

The use of any parts or accessories, from a source other than Binks, will void all warranties. Failure to reasonably follow any maintenance guidance provided, may invalidate any warranty.

For specific warranty information please contact Binks.

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For technical assistance or to locate an authorised distributor, contact one of our international sales and customer support locations below.

| REGION | BINKS CONTACT |
|---|---|
| Americas | Tel: 1-888-992-4657 |
| Europe, Africa, Middle East | Tel: +44 (0)1202 571 111 |
| India | marketingroa@binks.com |
| China | Tel: +8621-3373 0108 |
| Korea | Tel: +82313663303 |
| Japan | Tel: +81 45 785 6421 |
| Australia | Tel: +61 (0) 2 8525 7555 |

# WARRANTY PAGE

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