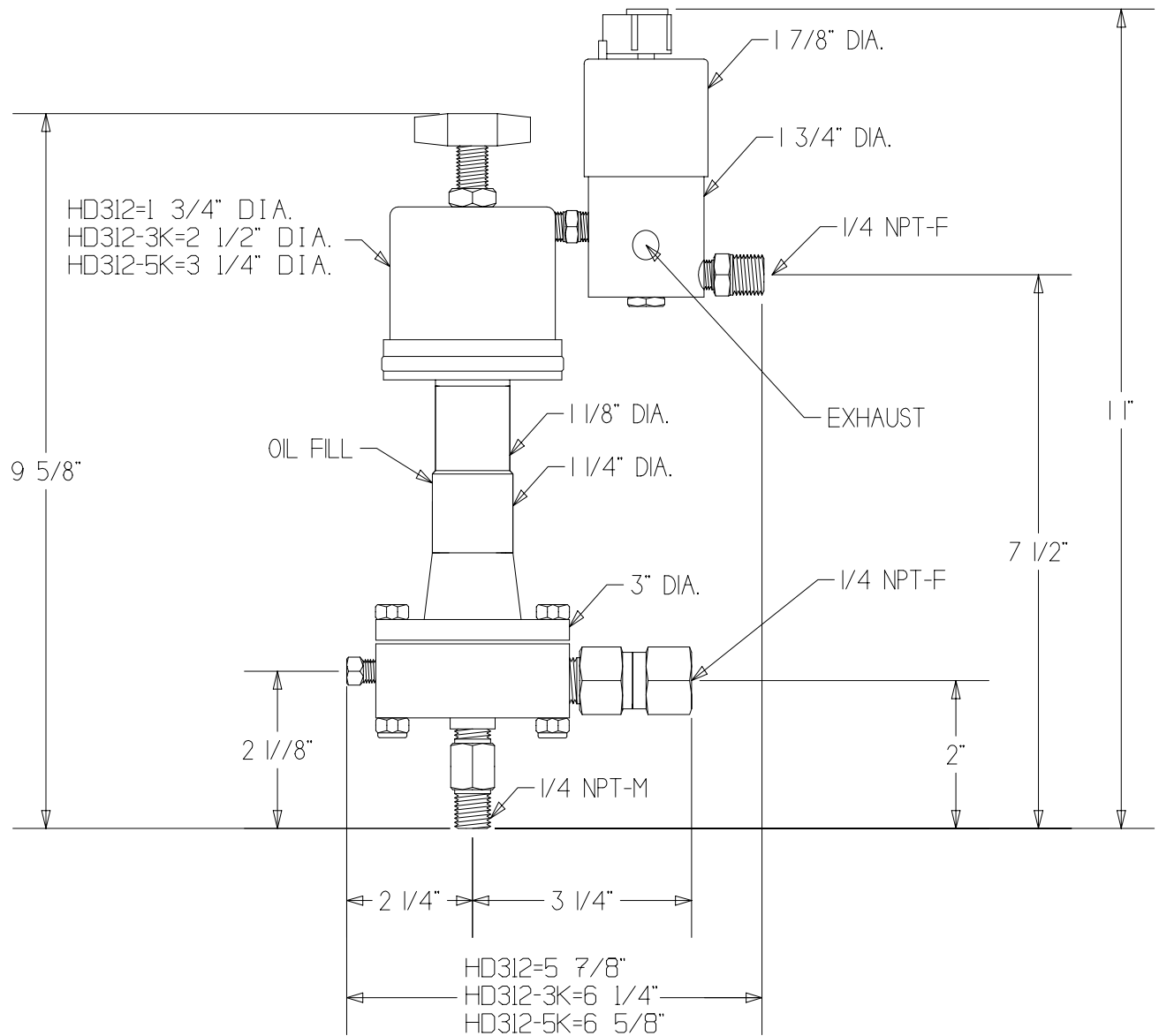


MORGAN PRODUCTS

PNEUMATIC CHEMICAL PUMPS FOR THE GAS AND OIL INDUSTRIES

MODEL HD312 / HD312-3K / HD312-5K

AIR ACTUATED HYDRAULIC DIAPHRAGM PUMP



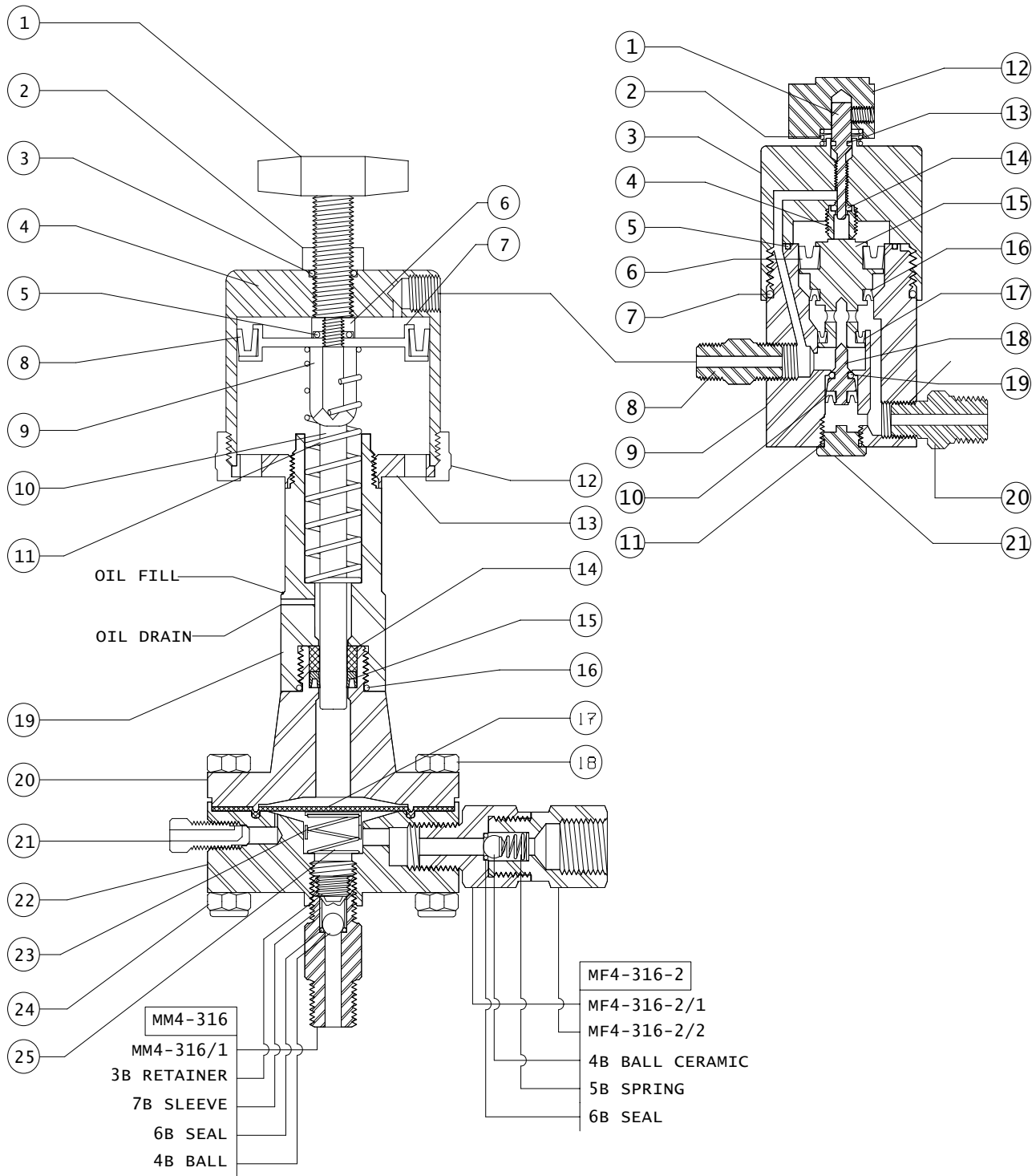
| MODEL (WITH TIMER) | DISPLACEMENT | PUMP RATIO | STROKE LENGTH in. - cm. | CONNECTIONS ALL NPT INPUT / OUTPUT | MAXIMUM DISCHARGE PSI - BAR | OUTPUT PER HOUR GAL. / LTS. |
|-----------------------|--------------|---------------|-------------------------------|--|-----------------------------------|-----------------------------------|
| HD312-TR2 | 1 cc | 10:1 | 1 - 2.5 | 1/4 - M / 1/4 - F | 1000 - 68.9 | .06 - .63 / .24 - 2.4 |
| HD312-3K-TR2 | 1 cc | 30:1 | 1 - 2.5 | 1/4 - M / 1/4 - F | 3000 - 207 | .06 - .63 / .24 - 2.4 |
| HD312-K5-TR2 | 1 cc | 50:1 | 1 - 2.5 | 1/4 - M / 1/4 - F | 5000 - 345 | .06 - .63 / .24 - 2.4 |

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HD312-TR2 / HD312-3K-TR2 / HD312-5K-TR2



To order check valve parts, use check valve designation & dash number.
 EXAMPLE: Ball for MF4-316-2 Order MF4-316-2/4

Keep all rubber goods lubricated with Morgan Products grease or equivalent.

**MODEL HD312 / HD312-3K / HD312-5K
PARTS LIST**

| NO | NAME | PART NO. | MODEL |
|----|-------------------|-------------------------------|-------------------------------|
| 1 | Stroke Adjuster | HD312-1 | ALL |
| 2 | Locknut | 100-2 | ALL |
| 3 | O-Ring Seal | 100-3 * | ALL |
| 4 | Air Chambers | 100-4 200-4 300-4 | HD312 HD312-3K HD312-5K |
| 5 | O-Ring Seal | 100-11 * | ALL |
| 6 | Piston Locknut | 100-7 | ALL |
| 7 | Pistons | 100-8 200-8 300-8 | HD312 HD312-3K HD312-5K |
| 8 | Piston Seals | 100-9 * 200-9 * 300-9 * | HD312 HD312-3K HD312-5K |
| 9 | Spring Guide | HD312-10 | HD312-3K, 5K |
| 10 | Plunger | HD312-15 * | ALL |
| 11 | Return Spring | 100-13 * 200-13 | HD312 HD312-3K, 5K |
| 12 | Air Chamber Rings | 100-5 200-5 300-5 | HD312 HD312-3K HD312-5K |
| 13 | Faceplates | 200-6 300-6 | HD312-3K HD312-5K |
| 14 | Back Up Ring | HD312-19 * + | ALL |
| 15 | Pressure Seal | HD312-20 * + | ALL |
| 16 | O-Ring Seal | 50-21 * | ALL |
| 17 | Diaphragm | HD312-32 * | ALL |
| 18 | Chamber Bolt | D40-PVC-10 (8) HD-5K-36 | HD312, HD312-3K HD312-5K |
| 19 | Oiler Housings | HD312-14 HD312-3K-14 | HD312 HD312-3K, 5K |
| 20 | Hydraulic Chamber | HD312-29 | ALL |
| 21 | Bleeder | 125-22 | ALL |
| 22 | Pressure Chamber | HD312-23 | ALL |
| 23 | Spring Cup | HD312-35 | ALL |
| 24 | Locknut | D40-9 (8) HD-5K-37 | HD312, HD312-3K HD312-5K |
| 25 | Diaphragm Spring | HD312-36 * | ALL |
| | 1oz. Grease | * | ALL |
| | 1oz. Oil | HD187-24 * | ALL |

* = Included in Repair Kit

+ = Included in Seal Set

REPAIR KITS AND SEAL SET

| PART NO. | DESCRIPTION | MODEL |
|-------------|-------------|----------|
| HD312-50 | REPAIR KIT | HD312 |
| HD312-3K-50 | REPAIR KIT | HD312-3K |
| HD312-5K-50 | REPAIR KIT | HD312-5K |
| HD312-48 | SEAL SET | ALL |
| TR2-50 | REPAIR KIT | TR2 |

**MODEL TR2
PARTS LIST**

| NO | NAME | PART NO. | MATERIAL |
|----|----------------------|----------|----------|
| 1 | Metering Valve | TR2-3 | 303 SS |
| 2 | Knob Spring | TR2-2 | 302 SS |
| 3 | Upper Body | TR2-5 | 303 SS |
| 4 | Metering Seat | TR2-6 | 18-8 SS |
| 5 | O-Ring | TR2-13 * | BUNA-N |
| 6 | Upper Seal | TR2-10 * | VITON |
| 7 | O-Ring | TR2-14 * | BUNA-N |
| 8 | 1/8" NPT Nipple | TR2-22 | 303 SS |
| 9 | Lower Body | TR2-8 | 303 SS |
| 10 | Poppet Seal | TR2-17 * | VITON |
| 11 | Plug Seal | TR2-18 * | BUNA-N |
| 12 | Knob | TR2-1 | PLASTIC |
| 13 | O-Ring | TR2-4 * | BUNA-N |
| 14 | Teflon Seal | TR2-7 * | TEFLON |
| 15 | Piston | TR2-9 | NYLON |
| 16 | Middle Seal | TR2-11 * | VITON |
| 17 | Lower Seal | TR2-12 * | VITON |
| 18 | Poppet | TR2-15 | PVC |
| 19 | Poppet O-Ring | TR2-16 * | VITON |
| 20 | 1/8 x 1/4 NPT Nipple | TR2-21 | 303 SS |
| 21 | Plug | TR2-19 | 303 SS |
| | 1oz. Grease | * | |

* = Included in Repair Kit

**MATERIAL SPECIFICATIONS
HD312 / HD312-3K / HD312-5K**

| NAME | STANDARD | OPTION |
|---------------------|------------------------|--------|
| Stroke Adjuster | 18-8 SS & ABS | |
| Locknut | 18-8 SS | |
| O-Ring Seals | Buna - N | Viton |
| Piston Seals | Buna - N | Viton |
| Plunger | 17-4 SS | |
| Return Spring | Teflon Coated Inconel | |
| Back Up Ring | PVC | |
| Pressure Seal | Graphite Filled Teflon | |
| Diaphragm | Teflon Faced Buna-N | |
| Chamber Bolt | 18-8 SS | |
| Bleeder | 316 SS | |
| Pressure Chamber | 316 SS | |
| Spring Cup | 316 SS | |
| Diaphragm Spring | Inconel | |
| Check Valve Bodies | 316 SS | |
| Check Valve Seals | Teflon | |
| Check Valve Balls | Ceramic | |
| Check Valve Springs | Inconel | |

**AIR / GAS USAGE
SCF/DAY AT 1 STROKE PER MINUTE**

| MODEL | 25 psi | 50 psi | 75 psi | 100 psi | 125psi | 150 psi |
|----------|--------|--------|--------|---------|--------|---------|
| HD312 | 3.9 | 6.4 | 8.9 | 11.3 | 13.8 | 16.2 |
| HD312-3K | 8.9 | 14.4 | 19.9 | 25.5 | 31.0 | 36.5 |
| HD312-5K | 15.7 | 25.6 | 35.4 | 45.3 | 55.1 | 64.9 |

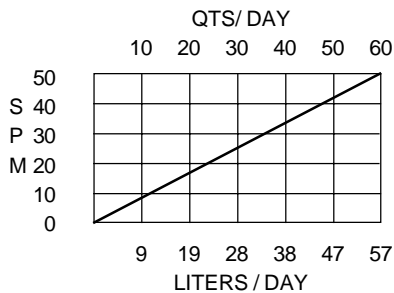
Table constant multiplied by stroke rate = SCFD
 Example: HD312 (operated at 50 psi) Multiply 6.4 by 20 SPM = 128 SCFD

INSTALLATION INSTRUCTIONS

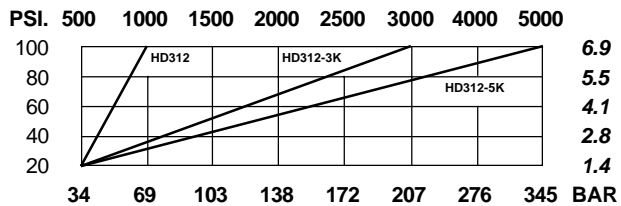
1. Discard all red plastic closures.
2. Connect suction check valve, to a gravity fed chemical source.
3. Connect discharge check valve, to process line.
4. Connect a regulated air or gas supply, to the timing relay.
5. Fill oil reservoir with oil provided, until oil flows out of the bleed hole.
 ** This must be done BEFORE start up.**
6. Open bleeder valve until chemical flows from bleeder.
7. Set regulator at 10 to 15 psi ABOVE the pressure required.
 (See Discharge pressure graph.)
8. Set cycle rate in strokes per minute.
 (See volume graph)

CAUTION: Use only light hydraulic oil.

VOLUME



DISCHARGE PRESSURE



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