Micro24™
Hose & Tube System

THE COMPACT HOSE & TUBE SYSTEM

IDEAL FOR HOSING APPLICATIONS
IN SMALLER AND PROGRESSIVE DIES
WHERE SPACE IS LIMITED.
Since 1964, HYSON has been dedicated to providing safer and more reliable products with worldwide support and service. We are continually at the forefront of innovative product design, and engineer forward-thinking features into our product lines, enabling our customers to provide safer working environments.

**EO24 Safety Feature**

**Double Seal Protection:**
Metal Cone and O-Ring Seal design, provide double sealing for a robust and leak free connection.

**EO24 Safety Guidelines**

For optimum performance life:

- Before connecting gas springs to a hosed system, discharge the nitrogen gas and remove the inlet valve from each spring.
- Position the control valve in the tool where it will be protected from mechanical damage, and on a higher level than the gas springs to minimize loss of lubrication oil when discharging the gas.
- Use only nitrogen ($N_2$) gas. The use of other types of gas can result in personal injury or failure of the gas spring/control panel.
- Never exceed the maximum charging pressure marked on the gas spring. For most standard gas springs, the maximum charging pressure is 150 bar/2175 psi.
- All valves on the control panel should be closed during operation.
- We do not recommend hosing gas springs mounted using FC or FCS flanges as there is a risk that the gas spring will rotate while in operation.
- Gas springs should be connected in a closed loop to help prevent the pad from tilting during charging.

**Safety and Product Training**

We offer safety and product training at our location or yours, teaching precautions and best practices applicable while working with or maintaining HYSON products.
IDEAL FOR HOSING APPLICATIONS IN SMALLER AND PROGRESSIVE DIES WHERE SPACE IS LIMITED.

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General Information

HYSON, headquartered in Brecksville, Ohio, is a world class engineering and manufacturing company that provides high-quality, safety-engineered force and motion control solutions for a wide range of applications and industries, including automotive, aerospace, appliance, medical and HVAC. HYSON partners with our customers to understand applications and provide the best solutions for each one. We are a full service force control provider for critical machine, vehicle and precision metal processing applications, meaning we can supply dependent upon each customer’s needs, including: gas springs, cam systems, cushions, manifolds to knockout systems.

Our success lies with our commitment to continually improve ourselves, our processes and our products to ensure we meet or exceed our customers’ expectations. Our ISO-9001, AS-9000 and PED certifications attest to our ongoing commitment to the highest standards of quality.
The Compact Hose & Tube System

**Introduction**

Connecting nitrogen gas springs via hose or tube offers the distinct advantage of being able to monitor and adjust pressure as well as charge and discharge the springs from outside the die. HYSON features five separate systems for connecting gas springs including DualSeal 24™, Micro24™, O-Ring Face Seal, EZ Hose (CNOMO) and JIC.

**DualSeal 24™ Hose System/The Preferred Hose System**

- Incorporates a dual seal design which utilizes both metal to metal & o-ring sealing, this is ideal for high vibration applications
- Featuring 5mm hose ID offering a high flow rate between springs and external tanks as well as quick charge and drain times
- The 11mm OD hose offers a minimum bend radius of 40mm and minimum hose length of 120mm
- Compatible for hosing springs with G 1/8, 7/16-20 & M6 ports
- Double leak-proof joints and rotational protection

**O-Ring Face Seal/Traditional High Vibration Hose System**

- Used for high vibration applications
- Featuring 6.25mm hose ID offering the highest flow rate between springs & external tanks as well as the fastest charge and drain times
- The large diameter 13mm OD hose requires additional accommodation to account for a minimum bend radius of 51mm and minimum hose length of 152mm
- Compatible for hosing springs with G 1/8 or 7/16-20 ports only
- This system is recommended when high gas flow is required, such as with the CS2 Series of controllable gas springs

**EZ/CNOMO Hand Connection Hose System**

- Offers hand tightened connections which facilitates easy connection of the hose system with no tool required
- 2mm hose ID limits the speed of charge and drain times
- The 5mm OD hose offers a minimum bend radius of 20mm and minimum hose length of 75mm
- Compatible for hosing springs with G 1/8, 7/16-20 and M6 ports

**JIC/ Traditional Hose System**

- Featuring 6.25mm hose ID offering the highest flow rate between springs & external tanks as well as the fastest charge and drain times
- The large diameter 13mm OD hose requires additional accommodation to account for a minimum bend radius of 51mm and minimum hose length of 152mm
- Compatible for hosing springs with G 1/8 or 7/16-20 ports only
- This system is recommended for servicing existing dies only

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All dimensions are in millimeters unless otherwise noted.
Control Panels

Micro24™ Control Panel
Order Number: 3023888 without rupture disk
Order Number: 3123888 with rupture disk

This compact control panel contains sixteen M6 connection ports.

* Rupture disks are only on model 3123888 and not recommended for use where the initial charging pressure exceeds 150 bar/2175 psi.
** Control Panel comes standard with all 4018682 M6 port plugs installed.

Alternate Control Panel to Meet Automotive Standards
Order Number CP-N2-T

To use CP-N2-T with the Micro24™ Hose System, M6 Adapter 503764 must be ordered separately.

Service Parts

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>4024535</td>
<td>Bleed Valve</td>
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<tr>
<td>502328</td>
<td>Fill Valve</td>
</tr>
<tr>
<td>502351</td>
<td>Pressure Gauge</td>
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<tr>
<td>RD-7500-T2</td>
<td>Rupture Disk*</td>
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<tr>
<td>4018682</td>
<td>M6 Port Plug**</td>
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Mounting Parts

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Description</th>
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<tr>
<td>503764</td>
<td>Adapter - G 1/8 to M6</td>
</tr>
<tr>
<td>4022057</td>
<td>Adapter - Straight</td>
</tr>
<tr>
<td>CS M10-1.5X30MM</td>
<td>Mounting Screws - Metric</td>
</tr>
<tr>
<td>CS 3/8-16X1250</td>
<td>Mounting Screws - English</td>
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</table>

All dimensions are in millimeters unless otherwise noted.
Hose System
The Micro24™ hose features a Dual Seal System to ensure double leak-proof joints as well as rotational protection. It shares the same fittings and adapters with the Micro24™ tube for a wide range of application options. In addition, G 1/8 and G 1/4 ports can be connected to the Micro24™ using an appropriate adapter. A wide range of standard lengths is available with custom lengths 100mm up.

OD ................................................................. 5mm
ID ................................................................. Ø2mm
Max. Working Pressure ........................................ 475 bar/6888 psi
Min. Burst Pressure .......................................... 1900 bar/27550 psi
Min. Bend Radius ................................................. 20mm
Min. Crimped Hose Length .................. 100mm* (total length assembled)

* Customer specified lengths. Assembled hose length in millimeters.
Minimum order length is 100mm. Simply add the hose length onto the Order Number (i.e., 4023500-2500 for a hose assembly of 2500mm length).

Micro 24™ Hose & Hose End available separately

Micro24™ Hose Only
Order Number 505081

Micro24™ Hose End
Order Number 505082

Micro24™ Hose Clip
Order Number 502646

Can be used to secure hoses using an M5 screw.
The Compact Hose & Tube System

Tube System

The Micro24™ tube features soft sealed and self-crimping connections to ensure leak-proof tube joints. Easily cut into correct lengths, the tube can be bent into the desired shape using a tube bending tool or even by hand.

**Tube (available in one meter lengths)**
Order Number 504594-E

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<table>
<thead>
<tr>
<th>OD</th>
<th>4mm</th>
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<tbody>
<tr>
<td>ID</td>
<td>2mm</td>
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<tr>
<td>Max. Working Pressure</td>
<td>430 bar/6235 psi</td>
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<tr>
<td>Min. Burst Pressure</td>
<td>1100 bar/15950 psi</td>
</tr>
<tr>
<td>Min. Bend Radius</td>
<td>12mm</td>
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<tr>
<td>Min. Tube Length</td>
<td>30mm</td>
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Using the Micro24™ Tube

The cutting angle is 90° ± 1°. A hacksaw can be used to cut the tube. If a regular tube cutter or cutting pliers are used, the tube can become clogged limiting gas flow. Deburr the tube inside and out (max. 0.3X45° alt. R0.3) using the tube deburring tool. After cutting and deburring, clean the tube. Use compressed air to remove all loose particles.

Fit the clamp nut onto the adapter. **Note:** Do not tighten. Run the tube through the nut until it stops (~12mm from the top surface of the nut). When tightening the nut, use a torque of 7 Nm. Tools to have available are a hacksaw, tube cutting fixture, tube bending tool, deburring tool, compressed air and torque wrench.

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Adapters & Connectors

**Charge Port Adapters**

- **M6 Elbow Adapter**
  - Order Number 4022059

- **M6 Run Tee**
  - Order Number 4024092

- **M6 Branch Tee**
  - Order Number 4022061

- **M6 Cross**
  - Order Number 4024348

*Note:* When using tubes, order Clamp Nut separately.

*Note:* To use the M6 adapters with G 1/8 charge ports, use Order Number 503764. See page 7.

**Hose-to-Hose, Tube-to-Tube and Hose-to-Tube Connectors**

- **Union Elbow**
  - Order Number 504591

- **Union Tee**
  - Order Number 504592

- **Union Cross**
  - Order Number 504593

*Note:* All dimensions are nominal. Data shown are typical. Actual date for any particular unit may vary.

All dimensions are in millimeters unless otherwise noted.
Adapters for Connecting Springs with Control Panels and Distribution Blocks

Adapter for Micro24™-to-DualSeal 24™ Hose

Extension for gas springs using foot mounts.

Adapters for 7/16-20, G 1/8 and G 1/4 Connection Ports

7/16-20 TO M6
Order Number 503814

G 1/8 to M6
Order Number 503764

G 1/4 to M6
Order Number 503966

Adapter for Hose and Tube – M6 to M6

M6 to M6
Order Number 503762

Extension for gas springs using foot mounts.

End Cap for Micro24™

Order Number 4024353

All dimensions are in millimeters unless otherwise noted.
Installation Guidelines

⚠️ Warning: Never exceed the maximum values given for pressure and temperature for the hoses. Make sure that hoses and adapters are clean before assembling.

**Correct**

- Choose a hose length that allows for a certain amount of play.
- After assembly, the longitudinal marking on the hose must not be twisted.
- Choose hose adapters that avoid sharp bends in the hose.
- Never go below the recommended minimum bend radius of the hose.
- Position the hose to avoid mechanical damage.

**Incorrect**

- Choose a hose length that does not allow for a certain amount of play.
- After assembly, the longitudinal marking on the hose is twisted.
- Choose hose adapters that cause sharp bends in the hose.
- Never go below the recommended minimum bend radius of the hose.
- Position the hose in a way that causes mechanical damage.
Installation Example

Optional Accessories

Compatible with the Micro24™ Hose System, the following accessories offer additional versatility and increase the customization of your force system:

- **Pressure Monitors** which indicate pressure in hosed systems. If the pressure rises or falls below a preset level, die operation is interrupted to reduce the probability of damage to a tool, machinery or scrap parts.
- **Distribution Blocks** which allow for individual gas springs to be connected to a common point.
- **Modular Control Panels** allow for control of individual gas springs or multiple systems.