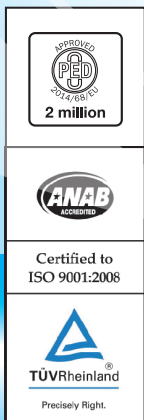


# Micro24™ Hose & Tube System

THE COMPACT HOSE & TUBE SYSTEM

*IDEAL FOR HOSING APPLICATIONS  
IN SMALLER AND PROGRESSIVE DIES  
WHERE SPACE IS LIMITED.*



**HYSON**  
Metal Forming Solutions™

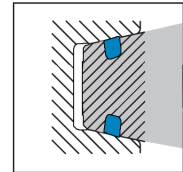
# GENUINELY HYSON

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.



**Double Seal Protection**

## 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<sub>2</sub>) 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 HOISING 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.

## 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.

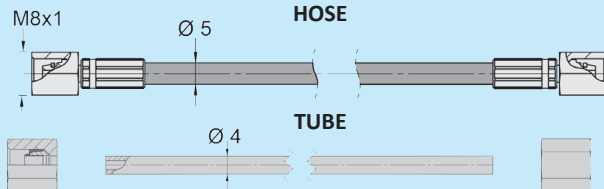
### DualSeal 24™ Hose System/The Preferred Hose System



- 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

### FEATURED IN THIS CATALOG....

#### Micro24™/Compact Hose & Tube System



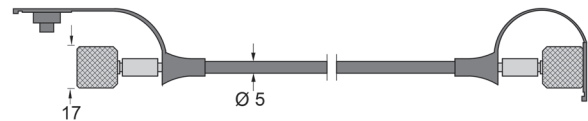
- Featuring a dual seal design which utilizes both metal to metal & o-ring sealing, this is ideal for high vibration applications
- Offers hard tubing options as short as 75mm as well as the smallest hose bend radius of 20mm which allows springs to be connected with minimum center to center distances
- 2mm hose & tube ID limits the speed of charge and drain times
- Compatible for hosing springs with G 1/8, 7/16-20 & M6 ports

### 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

All dimensions are in millimeters unless otherwise noted.

## Control Panels

### Micro24™ Control Panel

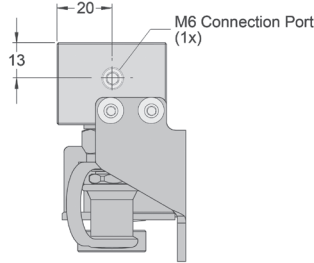
Order Number: 3023888 without rupture disk

Order Number: 3123888 with rupture disk\*

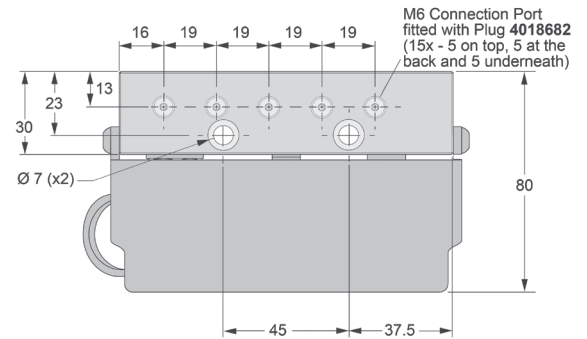
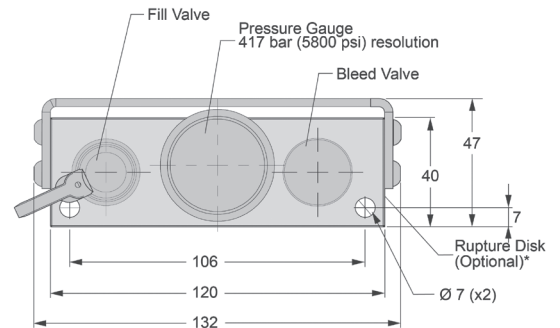
This compact control panel contains sixteen M6 connection ports.

\* 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.



| Service Parts     |                |
|-------------------|----------------|
| Order Number      | Description    |
| <b>4024535</b>    | Bleed Valve    |
| <b>502328</b>     | Fill Valve     |
| <b>502351</b>     | Pressure Gauge |
| <b>RD-7500-T2</b> | Rupture Disk*  |
| <b>4018682</b>    | M6 Port Plug** |



### 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.

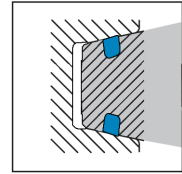
| Mounting Parts         |                           |
|------------------------|---------------------------|
| Order Number           | Description               |
| <b>503764</b>          | Adapter - G 1/8 to M6     |
| <b>4022057</b>         | Adapter - Straight        |
| <b>CS M10-1.5X30MM</b> | Mounting Screws - Metric  |
| <b>CS 3/8-16X1250</b>  | Mounting Screws - English |

For dimensions and other information on **CP-N2-T**, refer to the DualSeal 24™ Hose System Catalog.

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.



**Double Seal Protection**

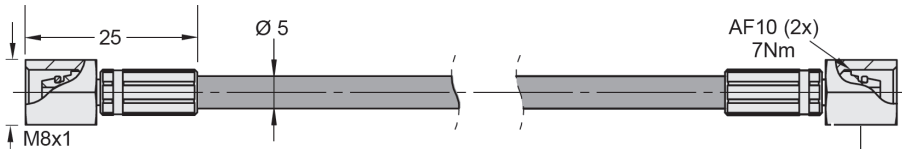
- OD ..... 5mm
- ID ..... Ø2mm
- Max. Working Pressure ..... 475 bar/6888 psi
- Min. Burst Pressure ..... 1900 bar/27550 psi
- Min. Bend Radius ..... 20mm
- Min. Crimped Hose Length..... 100mm\* (total length assembled)

\* **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

| Hose Lengths |        |
|--------------|--------|
| Order Number | L (mm) |
| 4023500-0100 | 100    |
| 4023500-0200 | 200    |
| 4023500-0300 | 300    |
| 4023500-0400 | 400    |
| 4023500-0630 | 630    |
| 4023500-0800 | 800    |
| 4023500-1000 | 1000   |
| 4023500-1500 | 1500   |
| 4023500-2000 | 2000   |
| 4023500-XXXX | XXXX*  |

### Micro24™ Hose Only Order Number 505081



### Micro24™ Hose End Order Number 505082

### Micro24™ Hose Clip Order Number 502646

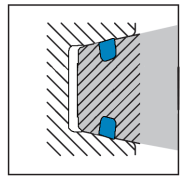
Can be used to secure hoses using an M5 screw.



All dimensions are in millimeters unless otherwise noted.

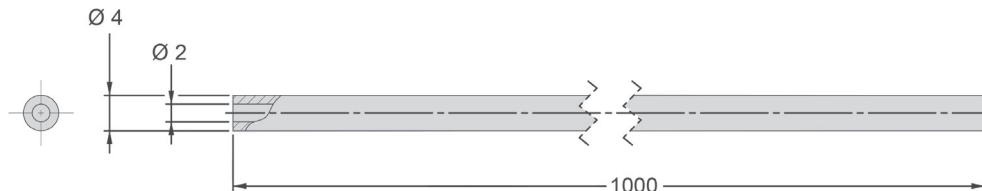
## Tube System

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.



Double Seal Protection

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



- OD ..... 4mm
- ID ..... 2mm
- Max. Working Pressure ..... 430 bar/6235 psi
- Min. Burst Pressure ..... 1100 bar/15950 psi
- Min. Bend Radius ..... 12mm
- Min. Tube Length..... 30mm

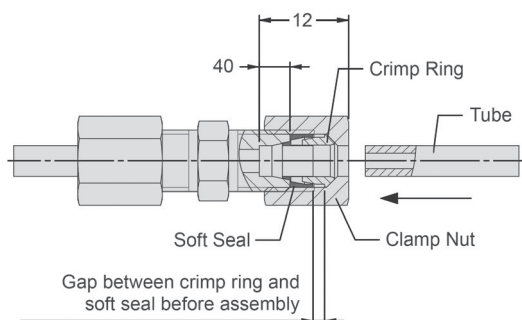
### Using the Micro24™ Tube

The cutting angle is  $90^\circ \pm 1^\circ$ . 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.  $0.3 \times 45^\circ$  alt. R0.3) using the tube deburring tool. After cutting and deburring, clean the tube. Use compressed air to remove all loose particles.

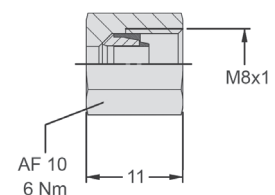
Fit the clamp nut onto the adapter. **Note:** Do not tighten. Run the tube through the nut until it stops (~12mm from the top surface of the nut). When tightening the nut, use a torque of 7 Nm. Tools to have available are a hacksaw, tube cutting fixture, tube bending tool, deburring tool, compressed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



Tube Deburring Tool  
Order Number 505096



Tube Bending Tool  
(Bend Radius 20mm)  
Part No. 504711



Clamp Nut  
Order Number 504589

All dimensions are in millimeters unless otherwise noted.

**Adapters & Connectors**

**Charge Port Adapters**

|  |  |   |  |
|--|--|---|--|
| <p><b>M6 Elbow Adapter for</b><br/><b>Order Number 4022059</b></p> | <p><b>M6 Run Tee for</b><br/><b>Order Number 4024092</b></p> | <p><b>M6 Branch Tee</b><br/><b>Order Number 4022061</b></p> | <p><b>M6 Cross</b><br/><b>Order Number 4024348</b></p> |
|--|--|---|--|

**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.

|   |  |  |
|---|--|--|
| <p><b>M6 Straight Adapter</b><br/><b>Order Number 4022057</b></p> | <p><b>G 1/8 Straight Adapter</b><br/><b>Order Number 4022058</b></p> | <p><b>G 1/4 Straight Adapter</b><br/><b>Order Number 4022063</b></p> |
|---|--|--|

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

|  |  |  |  |
|--|--|--|--|
| <p><b>Union</b><br/><b>Order Number 504590</b></p> | <p><b>Union Elbow</b><br/><b>Order Number 504591</b></p> | <p><b>Union Tee</b><br/><b>Order Number 504592</b></p> | <p><b>Union Cross</b><br/><b>Order Number 504593</b></p> |
|--|--|--|--|

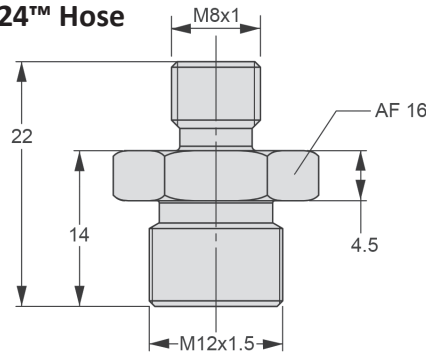
**NOTE:** All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

All dimensions are in millimeters unless otherwise noted.



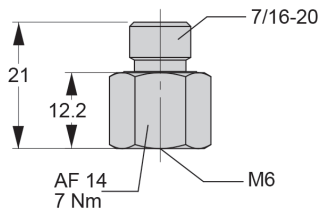
**Adapters for Connecting Springs with Control Panels and Distribution Blocks**

**Adapter for Micro24™-to-DualSeal 24™ Hose**

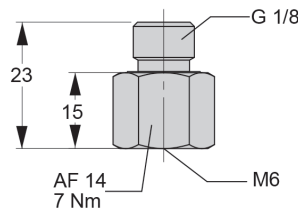


**Order Number 4024351**

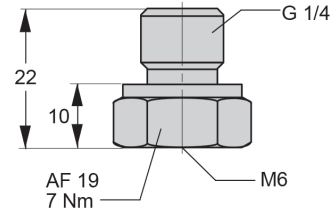
**Adapters for 7/16-20, G 1/8 and G 1/4 Connection Ports**



**7/16-20 TO M6  
Order Number 503814**

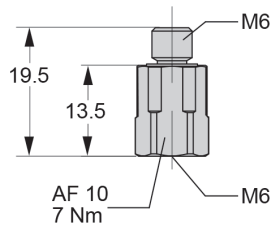


**G 1/8 to M6  
Order Number 503764**



**G 1/4 to M6  
Order Number 503966**

**Adapter for Hose and Tube – M6 to M6**

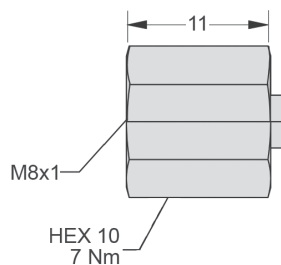


**M6 to M6**

**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

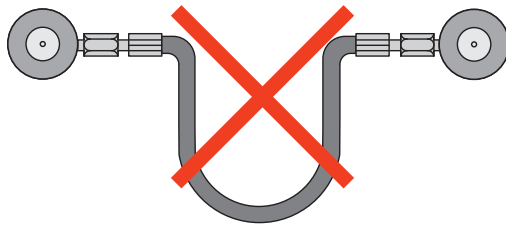
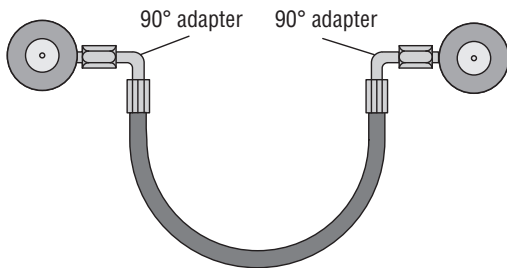
### Incorrect



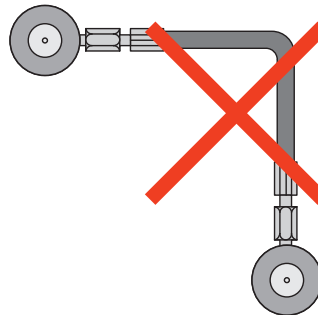
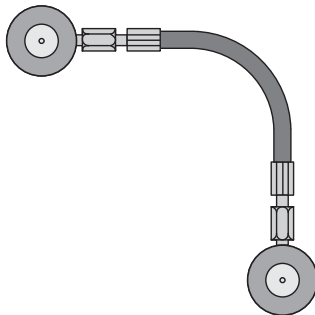
Choose a hose length that allows for a certain amount of play.



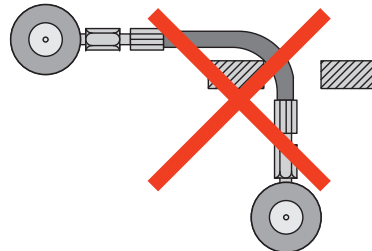
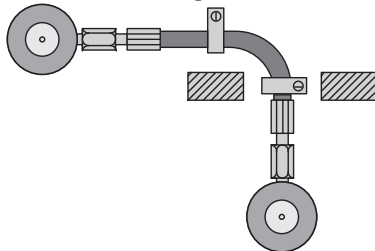
After assembly, the longitudinal marking on the hose must not be twisted.



Choose hose adapters that avoid sharp bends in the hose.

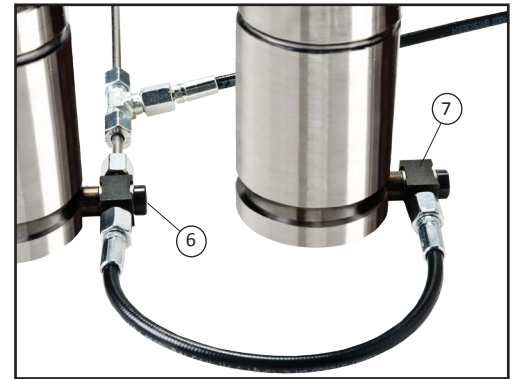
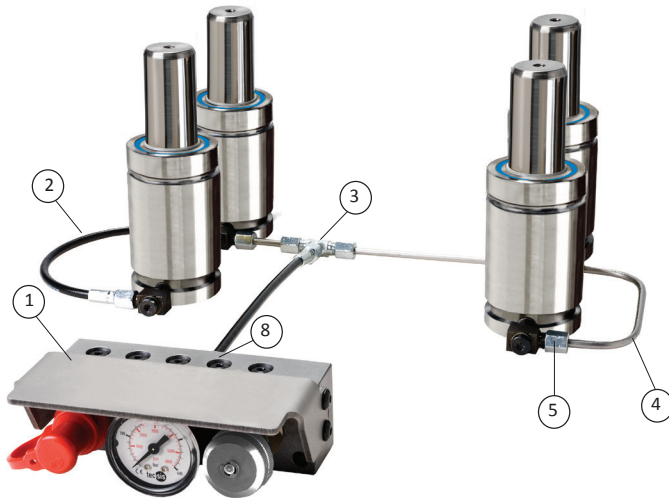


Never go below the recommended minimum bend radius of the hose.



Position the hose to avoid mechanical damage.

## Installation Example



| Ordering Information |          |                        |              |
|----------------------|----------|------------------------|--------------|
| Position             | Quantity | Description            | Part No.     |
| 1                    | 1        | Micro24™ Control Panel | 3123888      |
| 2                    | 2        | Micro24™ Hose          | 4023500-XXXX |
| 3                    | 1        | Union Tee              | 504592       |
| 4                    | 1        | Micro24™ Tube          | 504594       |
| 5                    | 6        | Clamp Nut              | 504589       |
| 6                    | 2        | M6 Tee                 | 4022061      |
| 7                    | 2        | M6 Elbow               | 4022059      |
| 8                    | 1        | M6 Straight Adapter    | 4022057      |



## 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 hoses 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.

The logo features the word "HYSON" in a large, bold, black sans-serif font. Above the letters "Y" and "S" is a blue horizontal bar with a white outline, which has a jagged, sawtooth-like cutout. Below "HYSON" is the text "Metal Forming Solutions™" in a smaller, black sans-serif font.

**HYSON**  
Metal Forming Solutions™

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