

# DualSeal 24™ Hose System

## THE PREFERRED HOSE SYSTEM

IDEAL FOR CONNECTING  
NITROGEN GAS SPRINGS  
AND ENSURING A  
BALANCED LOAD



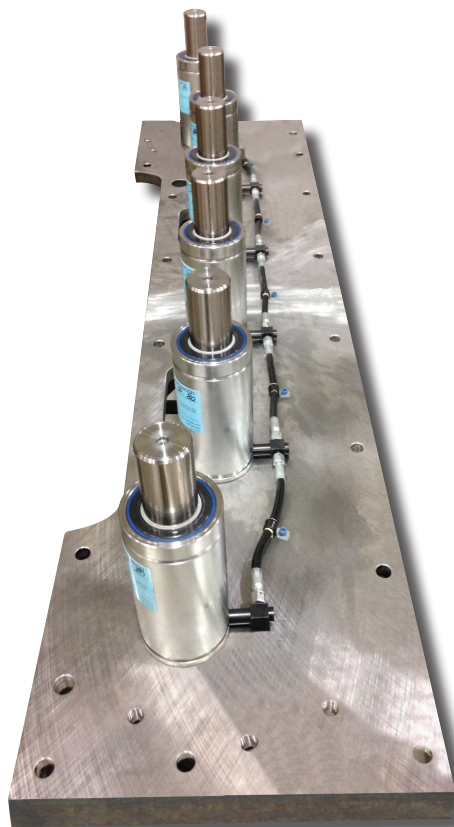
**HYSON**  
Metal Forming Solutions™

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***IDEAL FOR CONNECTING NITROGEN GAS SPRINGS  
AND ENSURING A BALANCED LOAD***

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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, all of which have undergone rigorous testing including endurance, static leakage and performance.

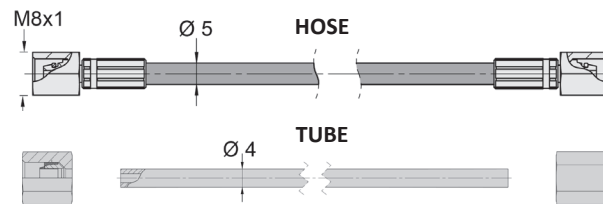
### FEATURED IN THIS CATALOG....

#### 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

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



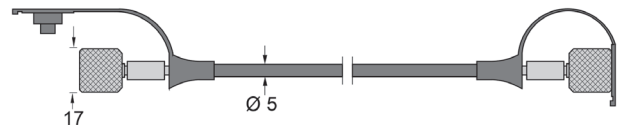
- Featuring a dual seal design which utilizes both metal to metal & o-ring sealing, this is ideal for high vibration applications
- Offers hard tubing options as short as 75mm as well as the smallest hose bend radius of 20mm which allows springs to be connected with minimum center to center distances
- 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



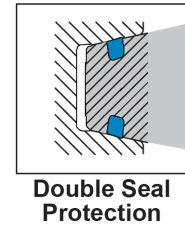
- Featuring 6.25mm hose ID offering the highest flow rate between springs & external tanks as well as the fastest charge and drain times
- The large diameter 13mm OD hose requires additional accommodation to account for a minimum bend radius of 51mm and minimum hose length of 152mm
- Compatible for hosing 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.

## Safety Guidelines

For safety and optimum performance life:

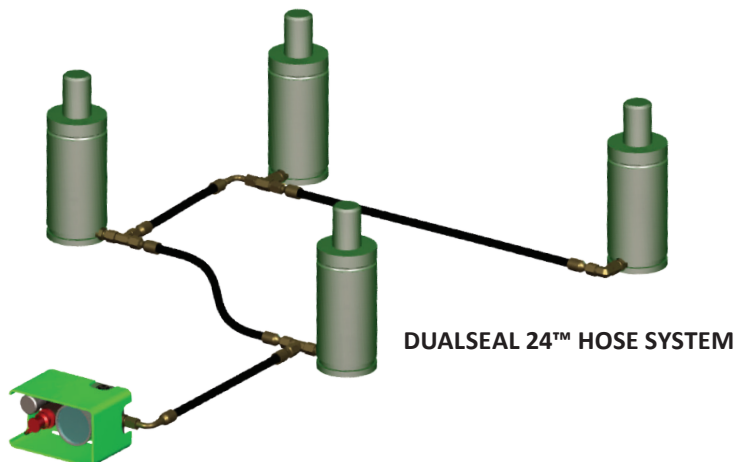
- ⚠ Before connecting gas springs to a hosed system, discharge the nitrogen gas and remove the inlet valve from each spring.
- ⚠ Position the control panel in the tool where it will be protected from mechanical damage, and on a higher level than the gas springs to minimize loss of lubrication oil when 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.



## DualSeal 24™ Optional Accessories

Compatible with the DualSeal 24™ 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.
- **High-Pressure Surge Tanks** increase volume in a hosed system, reducing the pressure rise.
- **Modular Control Panels** allow for control of individual gas springs or multiple systems.



## Control Panel

The Control Panel contains bleed and fill valves and a pressure gauge for charging, exhausting and reading pressure in the system. A rupture disk safety feature is also included to ensure all system pressure is exhausted, keeping springs from becoming over-pressurized in the event the pressure exceeds a safe level for the system.



### Control Panel

Order Number CP-N2-T

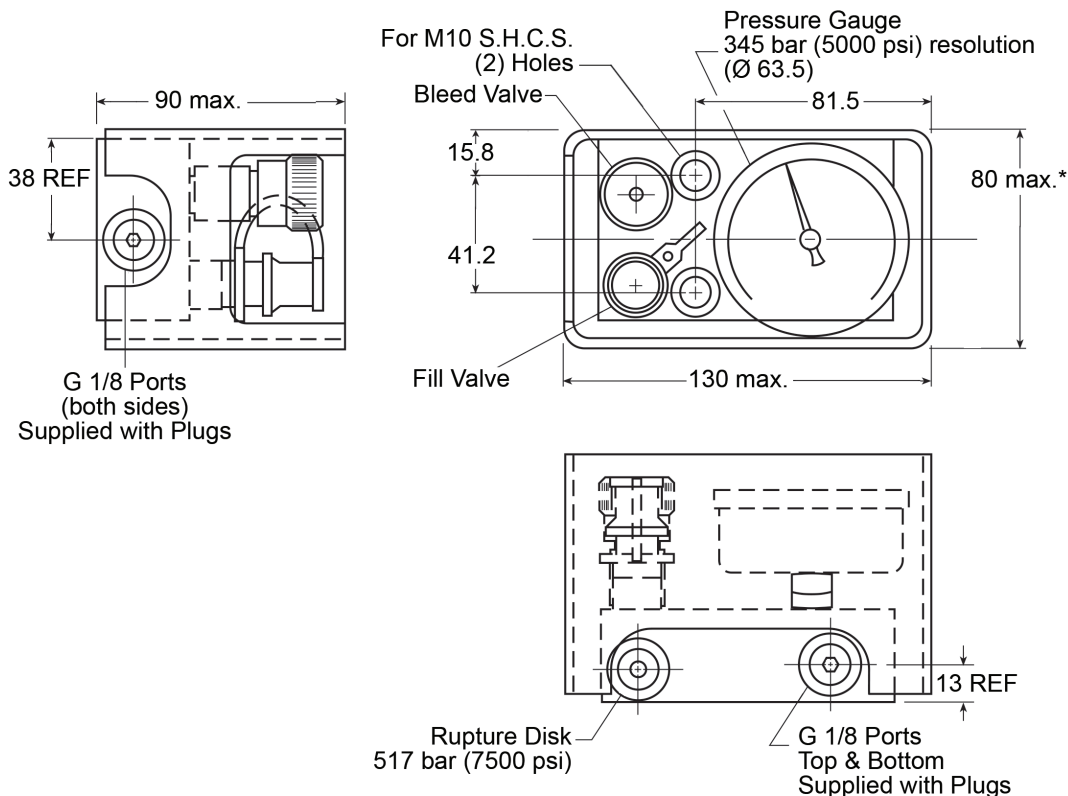
\* Straight Adapter and Mounting Screws are sold separately.

#### Service Parts

Order Number	Description
<b>4024535</b>	Bleed Valve
<b>11-700-8555</b>	Fill Valve
<b>51-700-9000-LG</b>	Pressure Gauge
<b>RD-XP</b>	Rupture Disk

#### Mounting Parts

Order Number	Description
<b>503593</b>	Straight Adapter
<b>CS M10-1.5X30MM</b>	Mounting Screws - Metric
<b>CS 318-16X1250</b>	Mounting Screws - English



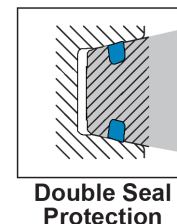
\*Includes clearance for button head cap screws

All dimensions are in millimeters unless otherwise noted.



## Hose System

Our most popular hose system to connect nitrogen gas springs, distribution blocks and control panels using an appropriate adapter. It features a Dual Seal™ System to ensure double leak-proof joints as well as rotational protection.



All preassembled hose segments are factory crimped and tested for certified sealing.

OD .....	11mm
ID .....	Ø5mm
Max. Working Pressure .....	345 bar/5,000 psi
Min. Burst Pressure .....	1,380 bar/20,000 psi
Min. Bend Radius .....	40mm
Min. Crimped Hose Length.....	120mm (total length assembled)

- Meets SAE 100R8 and ISO 3949-2 specifications.

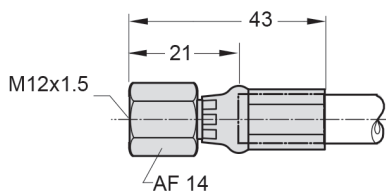
### DualSeal 24™ Cut-to-Length Hose

Order Number 502319-L

Sold by the millimeter.

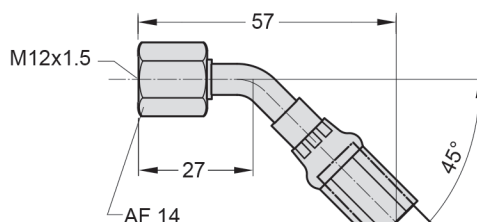


### DualSeal 24™ Hose Connections for Crimping



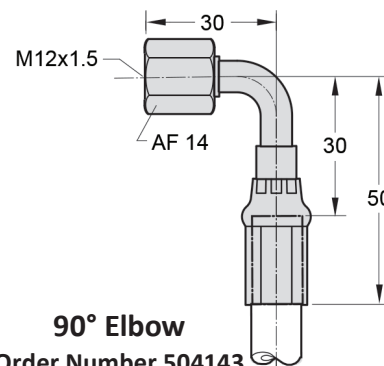
**Straight**

Order Number 504141



**45° Elbow**

Order Number 504142



**90° Elbow**

Order Number 504143

### DualSeal 24™ Hose Clip

Order Number HC-GM-E024

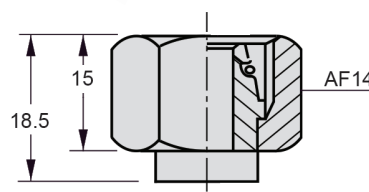
Secure hoses using an M6 screw.



### DualSeal 24™ End Cap

Order Number 504913

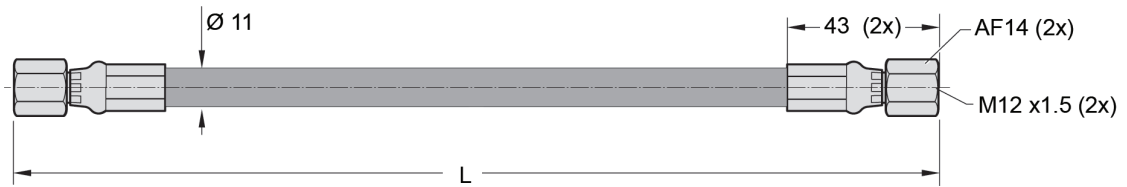
For capping unused hose connections.



All dimensions are in millimeters unless otherwise noted.

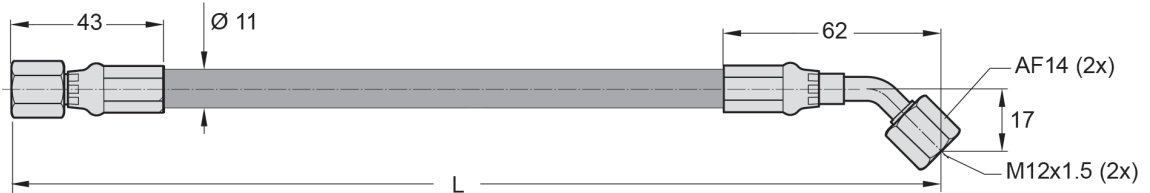
**Pre-Assembled Hose Segments / Straight–Straight**

Order Number 3020857-XXXX\*



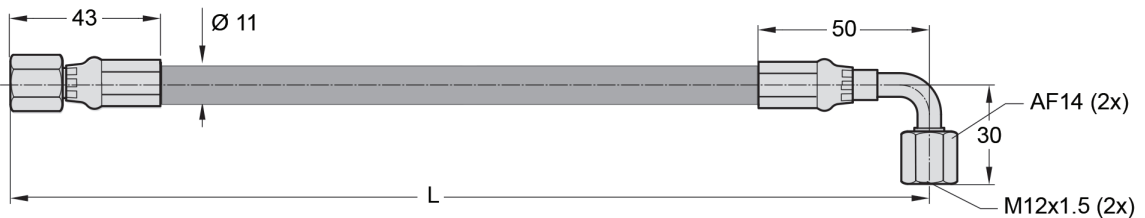
**Pre-Assembled Hose Segments / Straight–45°**

Order Number 3120857-XXXX\*

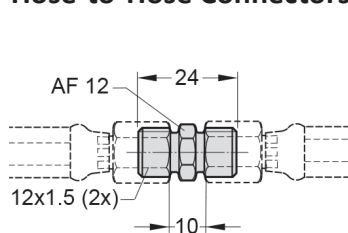


**Pre-Assembled Hose Segments / Straight–90°**

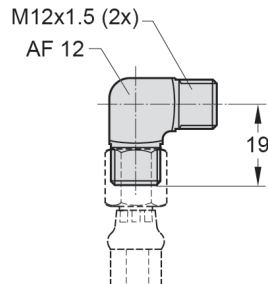
Order Number 3220857-XXXX\*



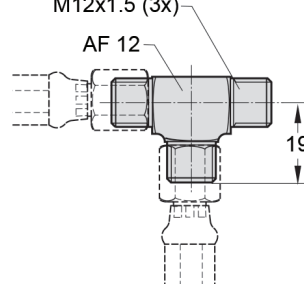
**Hose-to-Hose Connectors**



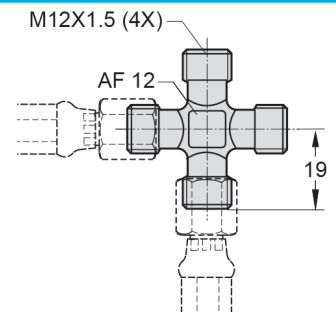
**Union**  
Order Number 504149



**Union Elbow**  
Order Number 504150



**Union Tee**  
Order Number 504151

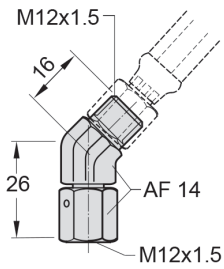


**Union Cross**  
Order Number 504152

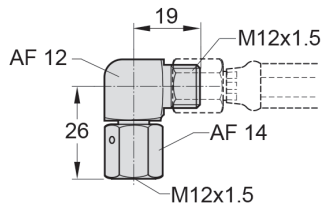
**\* NOTE:** “xxxx” = Assembled hose length in millimeters. Minimum order length is 120mm. Simply add the hose length onto the Order Number (i.e., 3020857–2500 for a Straight–Straight assembly with a 2500mm hose length).

All dimensions are in millimeters unless otherwise noted.

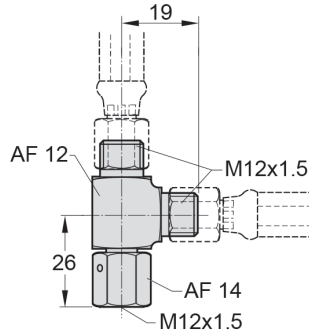
## Standard Adapter-to-Hose Connectors



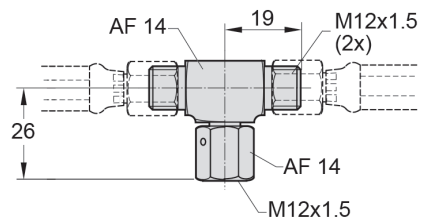
**45° Elbow**  
Order Number 504145



**90° Elbow**  
Order Number 504146



**Run Tee**  
Order Number 504147

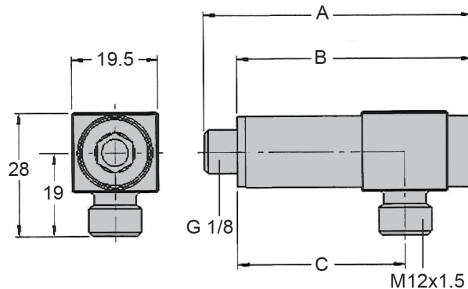


**Branch Tee**  
Order Number 504148

## Heavy Duty Hose Adapters for Connecting Springs with G 1/8 Port

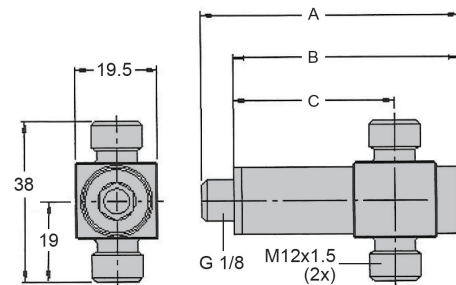
### Elbow Adapter

Order Number	A mm	B mm	C mm
3025562-01	40	32.5	17
3025562-02	54	46.5	31
3025562-03	61	53.5	38



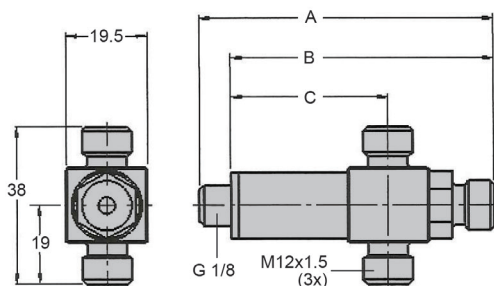
### Branch Tee Adapter

Order Number	A mm	B mm	C mm
3025551-01	40	32.5	17
3025551-02	54	46.5	31
3025551-03	61	53.5	38



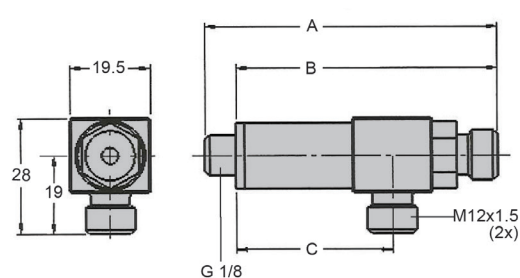
### Cross Tee Adapter

Order Number	A mm	B mm	C mm
3025594-01	50	42.5	17
3025594-02	64	56.5	31
3025594-03	71	63.5	38



### Run Tee Adapter

Order Number	A mm	B mm	C mm
3025599-01	50	42.5	17
3025599-02	64	56.5	31
3025599-03	71	63.5	38



All dimensions are in millimeters unless otherwise noted.

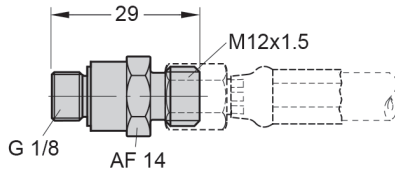


## Straight Adapters

The DualSeal 24™ Hose system has M12X1.5mm threads for connecting the springs, the control panels and the distribution blocks to the hose segments or connectors.

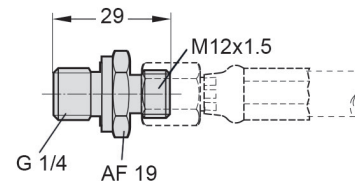
### Straight G 1/8 Adapter

Order Number 503593



### Straight G 1/4 Adapter

Order Number 504144



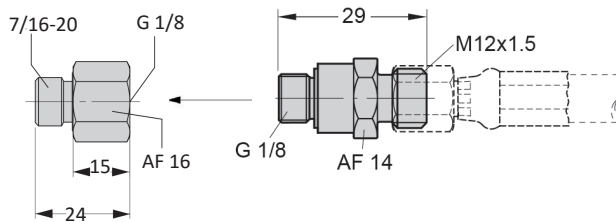
**NOTE:** For applications with SAE-4 ports, utilize combination of adapters 503593 with NF-1600-G 1/8-4.

### Straight 7/16-20 Adapter

Order Number NF-1600-G 1/8-4

### Straight G 1/8 Adapter

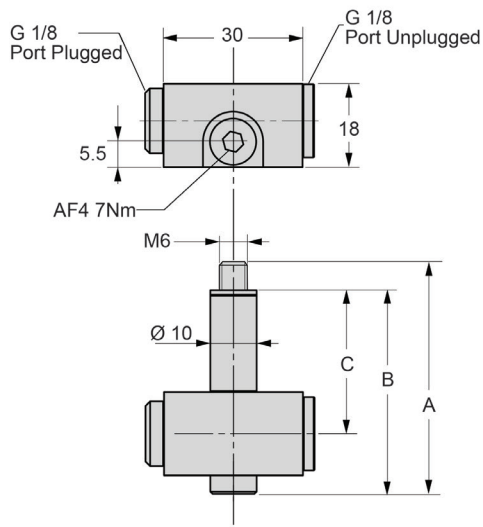
Order Number 503593



## Standard Hose Adapters for Connecting Springs and Distribution Blocks with M6 Ports

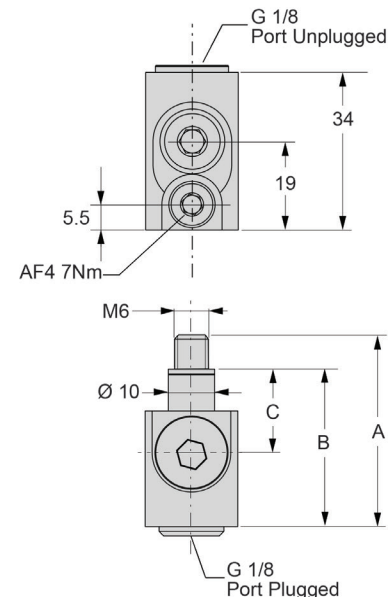
### Two-Way Adapter

Order Number	A mm	B mm	C mm
4023519	36	30	17
4023506	49	44	31




### Angle Adapter

Order Number	A mm	B mm	C mm
4023520	39	34	18
4023518	51	46	30



All dimensions are in millimeters unless otherwise noted.

## Installation Guidelines

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

### Correct

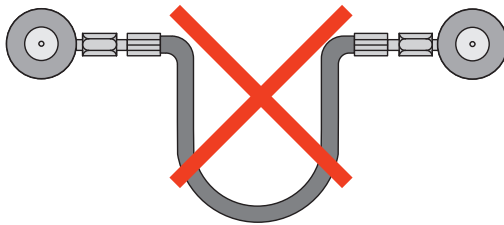
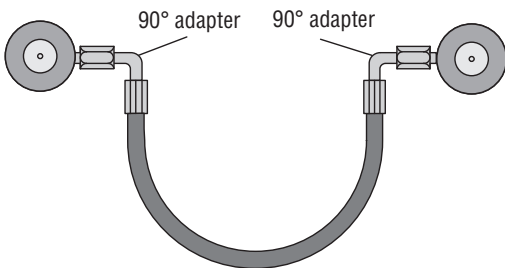
### Incorrect



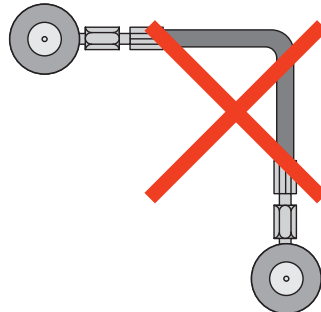
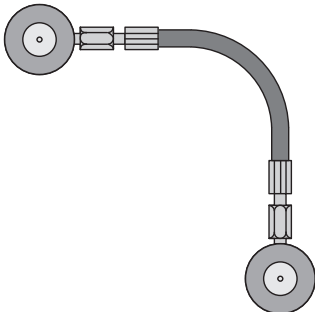
Choose a hose length that allows for a certain amount of play.



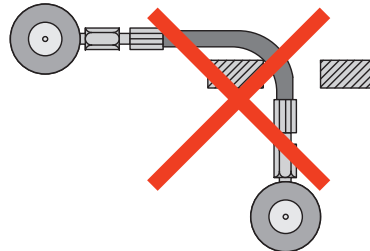
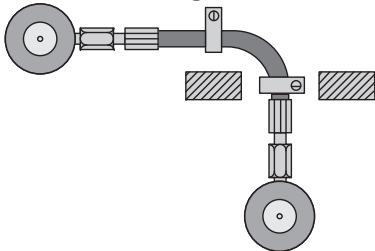
After assembly, the longitudinal marking on the hose must not be twisted.



Choose hose adapters that avoid sharp bends in the hose.



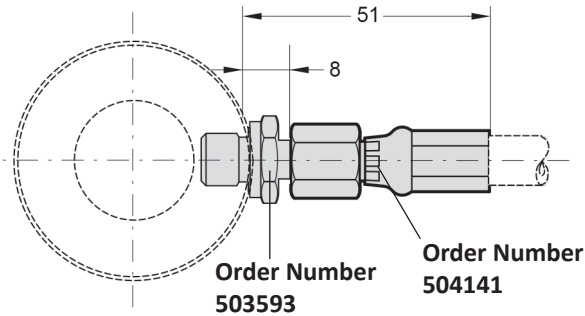
Never go below the recommended minimum bend radius of the hose.



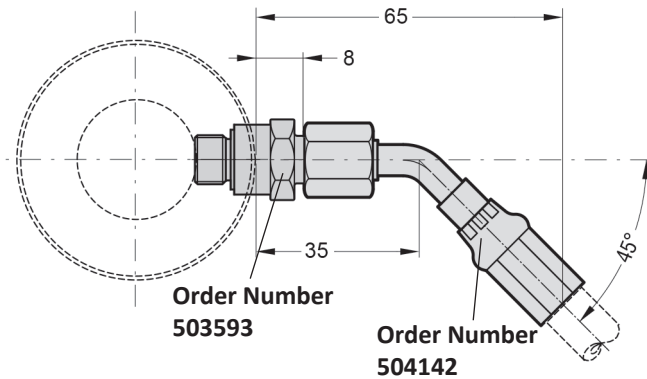
Position the hose to avoid mechanical damage.

## Installation Examples

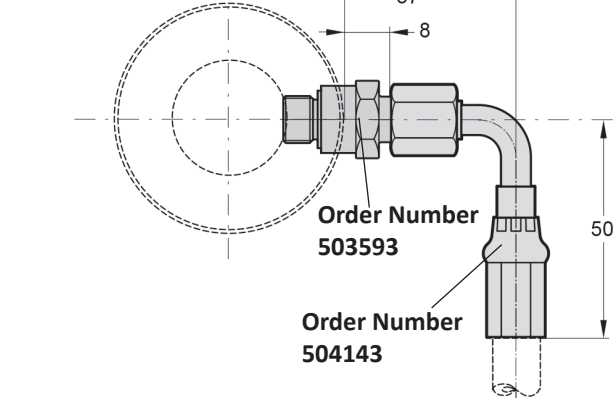
### Straight Hose Connection



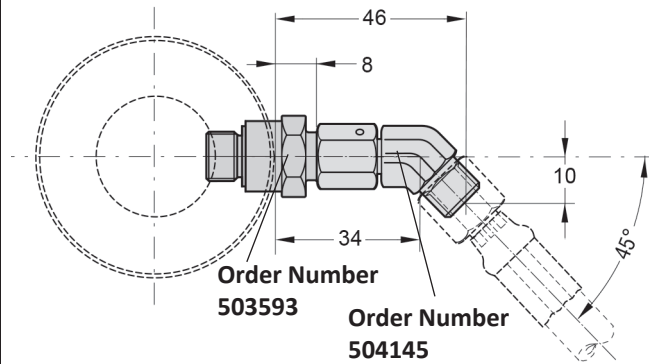
### 45° Hose Connection



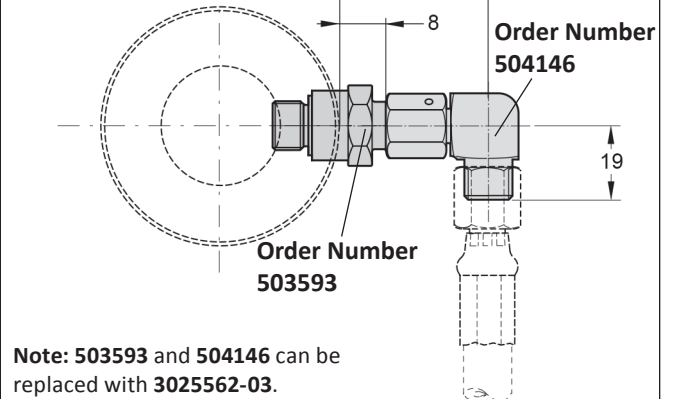
### 90° Hose Connection



### 45° Angle Connection

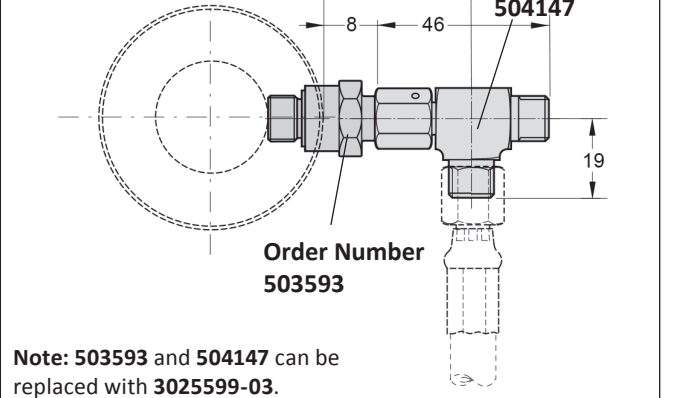


### 90° Angle Connection



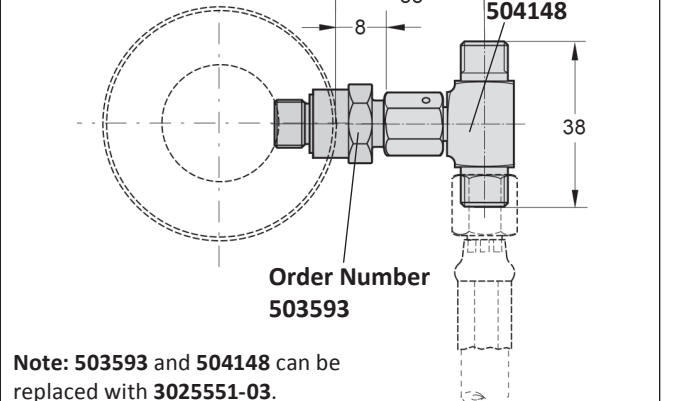
Note: 503593 and 504146 can be replaced with 3025562-03.

### Run Tee Connection



Note: 503593 and 504147 can be replaced with 3025599-03.

### Branch Tee Connection



Note: 503593 and 504148 can be replaced with 3025551-03.

All dimensions are in millimeters unless otherwise noted.



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