



# ITT Conoflow Product Overview

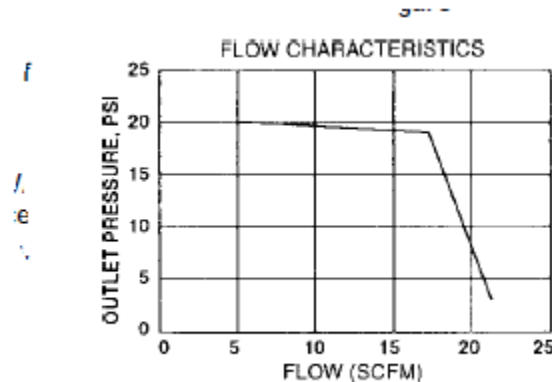
ITT Control Technologies



# Common Regulator Terminology

- **Droop**

The deviation of regulator output from set point as downstream flow requirements change. Typical curve for a 0-50 psi unit with a 20 psi set pressure and 100 psi supply.



- **Flow Capacity – Dynamic**

Expressed as SCFM for air/gases and GPM for liquids. The rate at which volume of medium will pass through the device in a minute under changing conditions.

- **Flow Chart**

A set of regulator performance curves depicting 'droop' under varying conditions such as inlet pressures, set point and flow rates.

- **Leakage**

Flow of gas or liquid past the seat or seal in the closed position.

Leakage is regulator dependent:

LPR – Meat to Metal – 100 cc/m

LPR – Option Metal to Metal – 15 cc/m

LPR – Option Soft Seated – Bubble Tight

HPR –  $2 \times 10^{-8}$  atm cc/sec helium (in board and main valve)

- **Supply Pressure Effect**

The effect of supply pressure variations relative to output pressure a constant set point.

LPR 0.xx psi increase for 25 psig change in supply pressure

HPR 0.xx psi increase for 100 psig supply decrease



# Common Regulator Terminology

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- **Differential Pressure**      **The regulated output difference between two or more independent pressure sources.**
- **Exhaust Capacity**      How quickly the regulator can flow relief pressure away to atmosphere for bleed and relieving regulators.
- **GPM**      **Gallons per minute of flow.**
- **Maximum Supply Pressure**      Maximum inlet pressure that is safe for the regulator to withstand.
- **Pressure Reducing Regulator input**      **A pressure regulator which controls an output pressure by reducing the pressure.**
- **Sensitivity**      The smallest variable change at which point the instrument will respond.
- **SCFH**      **Standard Cubic Feet per Hour**
- **SCFM**      Standard Cubic Feet per Minute
- **Set Point**      **The output or control pressure under non-flowing conditions**
- **Single Stage Regulator**      A regulator which reduces supply (inlet) pressure to desired output pressure with a single sensing element and control valve. Used where supply pressure is constant and frequent adjustment is not necessary.
- **Steady State or Static**      **Non-dynamic; a condition where expected input values and flow rates change negligibly over a period of time.**
- **Supply Pressure Effect**      The effect of supply pressure variations relative to output pressure at a constant set point.
- **Vacuum Regulators**      **Control of pressures in a vessel at pressures less than atmospheric.**
- **Vent Port/Capture Port**      A port installed in the bonnet that allows the user to pipe away any fluid/gas that enters the bonnet. Common with relieving and bleed diaphragm regulators and a feature employed in hazardous or regulated environments.

# **ITT Conoflow**

## **Low Pressure Regulators Overview**

# Conoflow's Product Portfolio

## AIRPAK® FILTER REGULATORS GFH45 *Brass Construction*

Provides filtered and controlled air supply to instruments and control panels, automatic machinery and other pneumatic devices.



## Competitive Comparison

Competitive	GFH45
BELLOFRAM	65 Series
CONTROL AIR	NONE
FAIRCHILD	NONE
FISHER	NONE
MASONEILAN	NONE
MOORE	NONE

# Conoflow's Product Portfolio

## AIRPAK® FILTER REGULATOR FR95 Series Aluminum Construction

Provides filtered and controlled air supply to instruments and control panels, automatic machinery and other pneumatic devices.



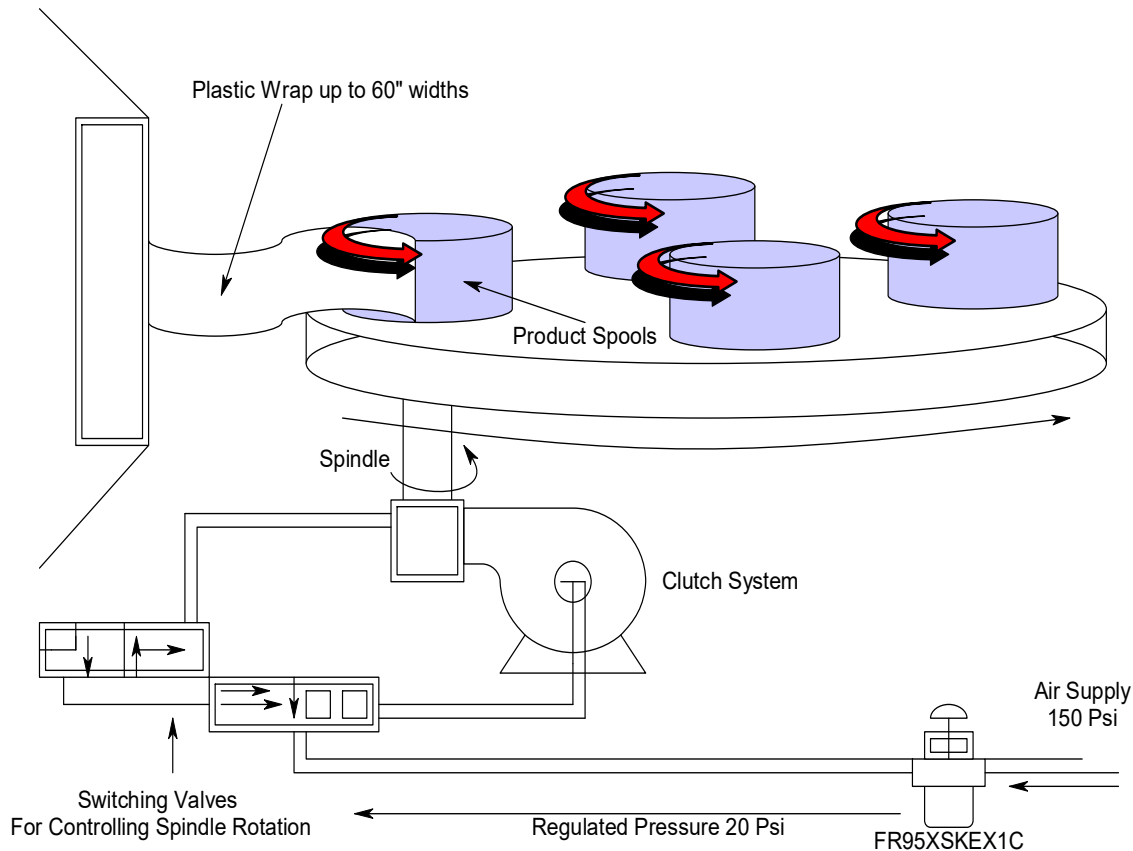
## Competitive Comparison

MODEL #	ITT CONOFLOW	BELLOFRM	CONTROL AIR	FAIRCHID	FISHER
Max Supply Pressure (Psig)	250	250	250	300	250
Flow Capacity	25 SCFM Cv 0.5	20 SCFM	20 SCFM	22 SCFM	22 SCFM
Exhaust Capacity	1.5 SCFM Cv 0.03	0.2-45 SCFM	0.2 SCFM	1 SCFM	N/A
Control Range Settings (Psig)	25/60/125	10/30/60/100	10/30/60/100	10/30/60/100	20/35/60/125
Supply Pressure Effect / 25 Psig Pressure Change	0.6	0.2	0.2	0.1	N/A
Filter Rating (Microns)					
- Polypropylene	35	40	None	40	None
- Cellulose	10	5	40	None	40
- Stainless Steel	40	None	None	None	40

- General service
- Economical OEM
- Higher flow
- Comment about Fisher Bolt-Thru



# Conoflow's Product Portfolio



## Plastic Wrap Clutch System

Air is supplied at 150 psi through our FR95XSKEX1C Filter Regulator. The downstream pressure is adjusted to 20 Psi where it flows through a series of switching valves. These valves control the rotation of the spindle that carries a large spool for rolling up and holding the plastic wrap.

The switching valves also send control air to the clutch assembly. This assembly applies pressure at very slow speeds then a new roll is starting. As the pressure increases the spindle speed also increases speeding up the Plastic Wrap Cycle.

Once the roll is complete the spindle unlocks and the next roll rotates around. The spindle again locks into position and the cycle is repeated.

# Conoflow's Product Portfolio

## MANUAL LOADING REGULATORS GH10

Provides precise controlled air supply in laboratory environments, remote loading of pneumatic devices, medical devices and other general purpose applications.



## Competitive Comparison

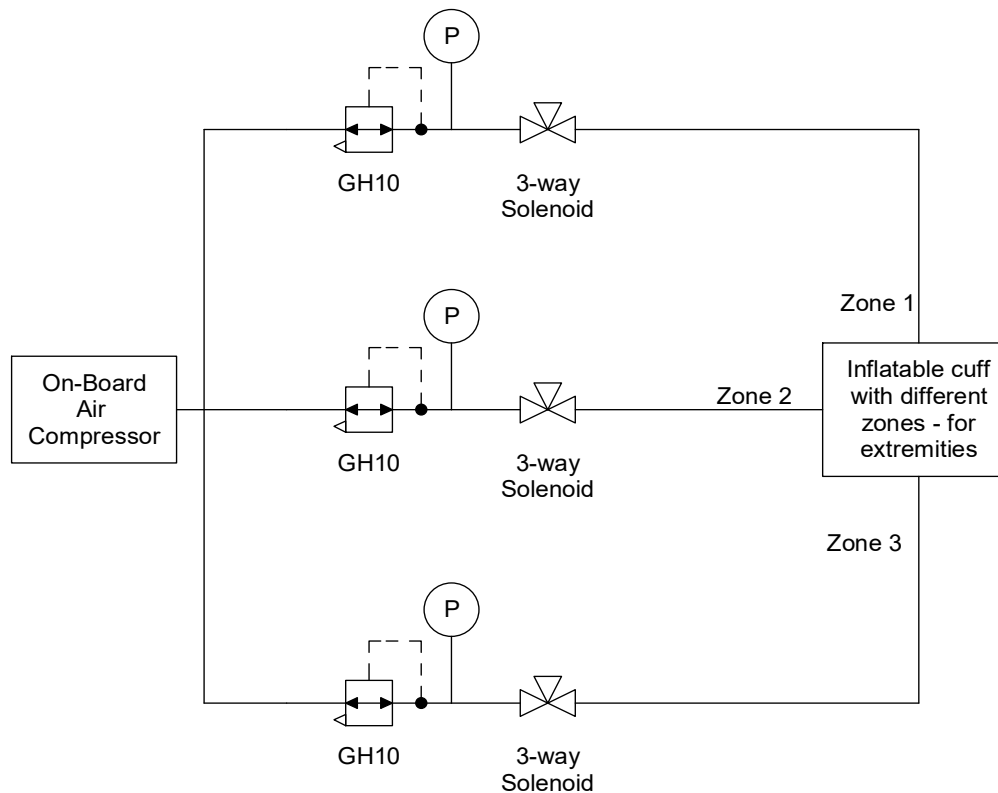
CONOFLOW	GH10
Competitive	
Bellofram	40
Control Air	100
Fairchild	10
Fisher	67R/S
Masoneilan	77-3
Moore	41

- Aluminum, Brass and Stainless Steel
- 8 output range selections (3,5,15,25,35,50,60 &125)
- 14 diaphragm selections including relief, non-relief & bleed (Fast response).
- Application: Test stands, labs, control panels, pneumatic web tensioning, etc.



# Conoflow's Product Portfolio

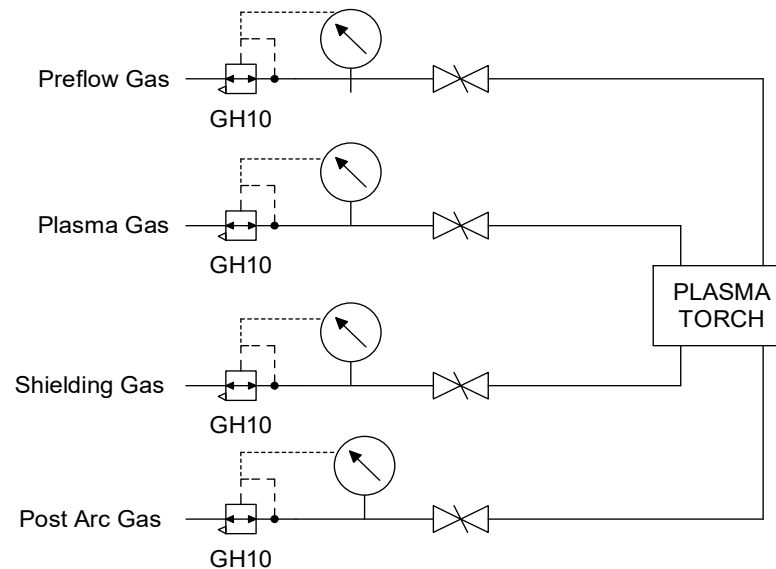
## Pressure Support for Lymphedema Therapy



Supply air is feed to the GH10 Series Manual Loading Regulator from the on board air compressor. The output of the regulator is set to 10 millimeters of mercury. This output pressure is fed to an inflatable cuff, which applies gradient pressure for relieving fluid and pressure build-up in limbs due to lymphedema.

# Conoflow's Product Portfolio

## Plasma Cutting Torch



The GH10 Series Manual Loading Regulators are used on a gas-mixing panel for a plasma cutting machine. There are four GH10 Regulators in each panel that have a modified mounting bracket that adapts a small servo motor to the regulator. The motors receive a 4-20mA DC signal from four corresponding pressure transducers. The regulators control the pressure of the four types of gases to the cutting nozzle. A preflow gas which is an arc starting gas, a plasma gas which is the cutting gas, a shielding gas which surrounds the arc and a post flow gas.

The plasma cutting machines are used to cut steel plate into various precise forms. The thickness of the plate varies from 0.25" up to 2". The plate is positioned on a cutting table and the pressurized nozzle via the various gas mixtures creates a high temperature cutting arc, which cleanly cuts a predetermined shape or form.

# Conoflow's Product Portfolio

## PRESSURE REDUCING AND SERVICE REGULATORS

### ▪ GH20 & GH40 Series / GH25 Series

Provides precise controlled air supply for instrument grade and industrial applications.



## Competitive Comparison

CONOFLOW	GH20 / GH40	GH24 / GH25
Competitive		
Bellofram	41	None
Control Air	100	None
Fairchild	10	None
Fisher	67R/S	None
Masoneilan	77 – 31	None
Moore	None	None

### ▪ GH20 & GH40 Series

- Available in brass & Stainless
- Both hard & soft seat options
- GH20/40 rated for 200 psi inlet max
- GH40 has soft-seat nozzle for positive 'bubble-tight' shut-off.
- 1/4" NPT Connections

### ▪ GH25 Series

- 1/2" NPT Connections
- Low Viscosity Liquid & Air applications



# Conoflow's Product Portfolio

## MINIATURE CUSHION LOADING (soft start) REGULATOR GH04

Provides precise controlled air supply to pneumatic actuators and systems that cannot be 'slammed' by incoming air pressure upon initial start-up.



GH04

### Competitive Comparison

Competitive	CONOFLOW GH04 SERIES
BELLOFRAM	?
CONTROL AIR	NONE
FAIRCHILD	30
FISHER	NONE
MASONEILAN	NONE
MOORE	NONE

- GH04 used as a cushion loading regulator on actuators
- Not commonly sold as a stand-alone product.

# Conoflow's Product Portfolio – Specialty Regulators

## DIFFERENTIAL REGULATORS / PURGE ASSEMBLIES

**GH21, GH41, GDH21 Differential Regulators and Purge Assemblies**

**GH31X Back Pressure Differential Regulators**

Maintains a constant pressure differential across a fixed or variable orifice by way of downstream or upstream signal pressure. Used for liquid level and machine control applications.



## Competitive Comparison

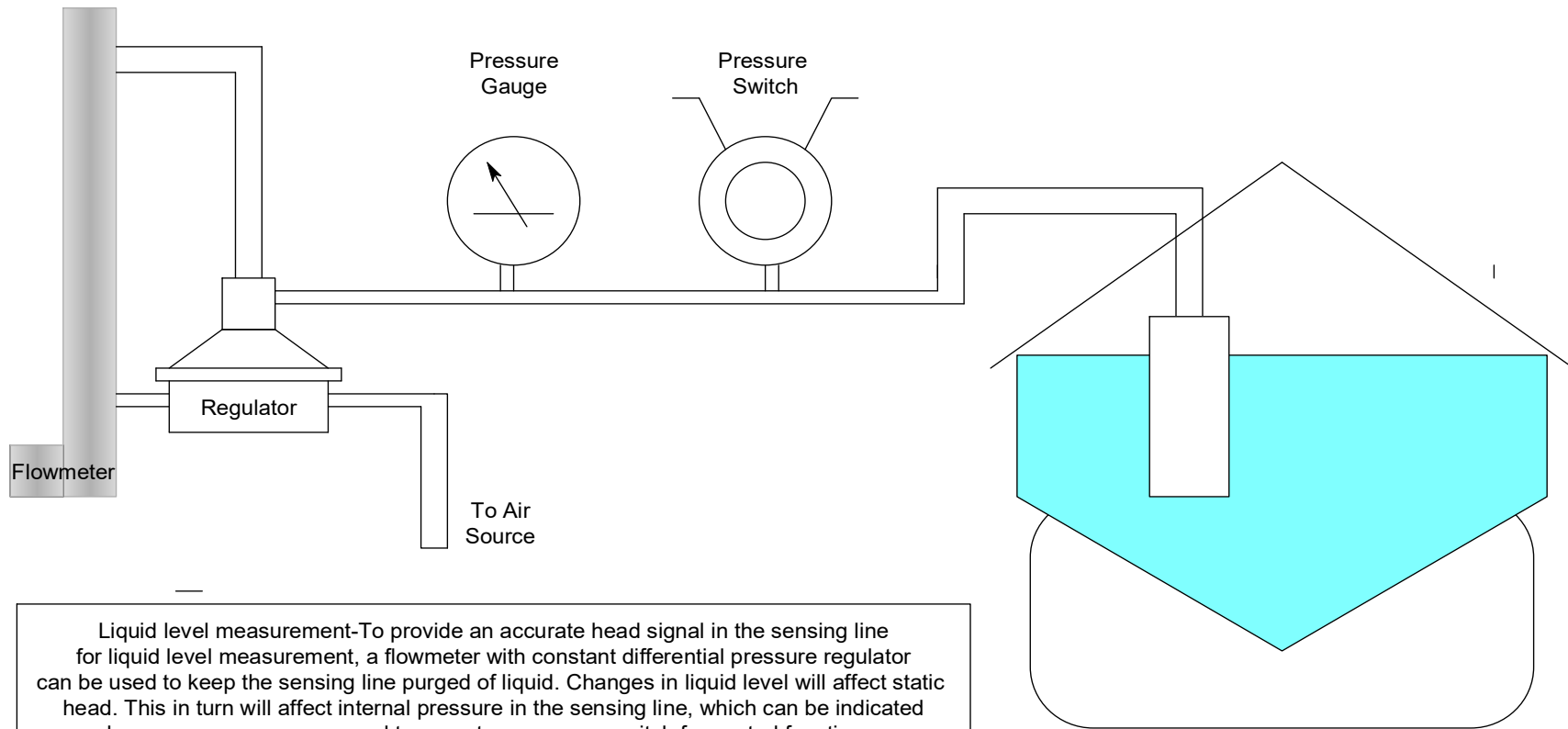
CONOFLOW	GH21 / GH41 / GDH21
Competitive	
Bellofram	20
Control Air	None
Fairchild	15
Fisher	None
Masoneilan	None
Moore	62 / 63

- Adjustable (AT) or fixed (XT) differential regulators at 3 psi Differential.
- GDH21 includes needle valve and flow-rate indicator that is ready to install.
- GH31XT is fixed back pressure differential
- Available in brass, aluminum & stainless
- Storage tank liquid level and machine control applications.



# Conoflow's Product Portfolio – Specialty Regulators

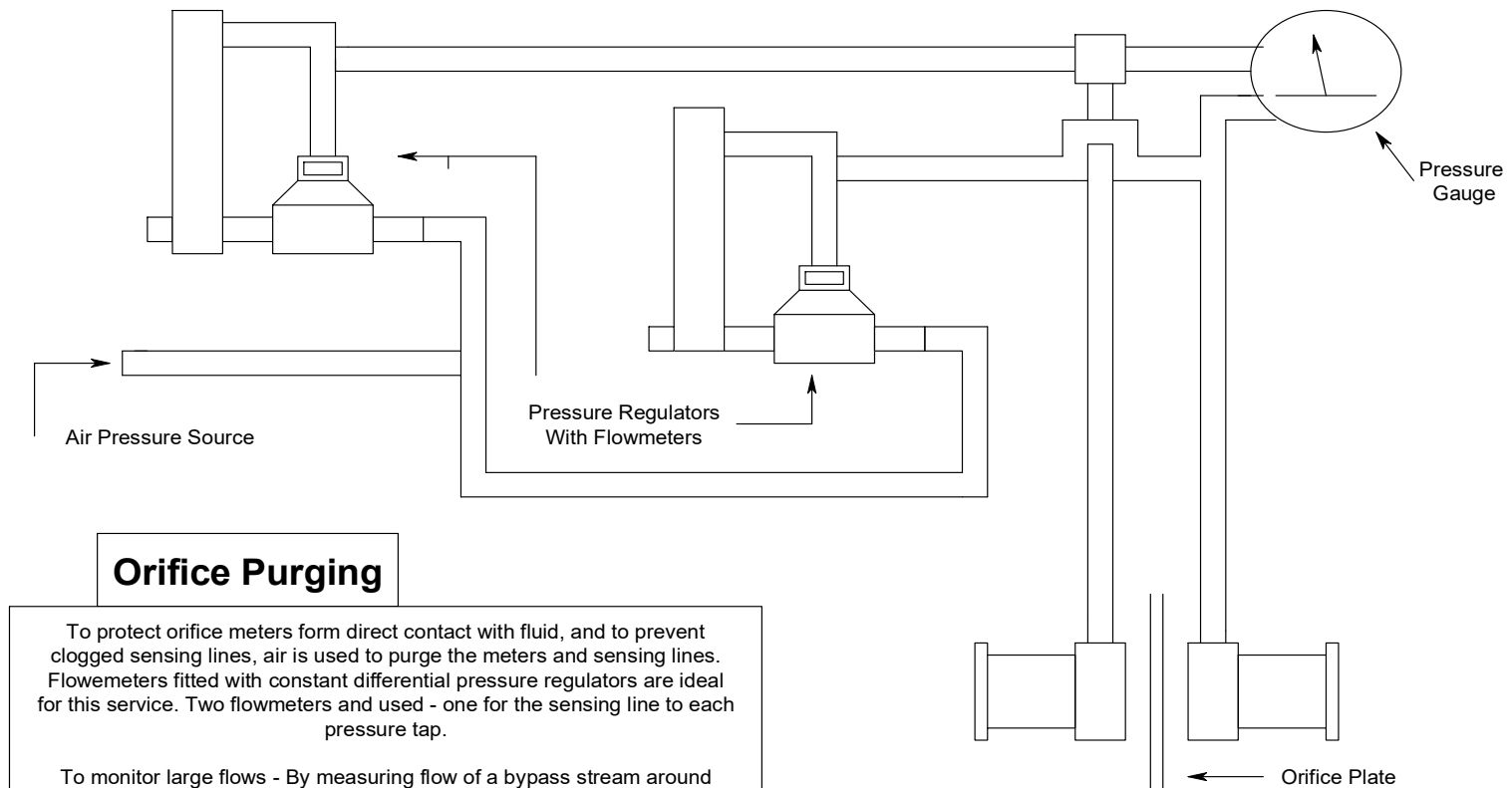
## Liquid Level Measurement



Liquid level measurement-To provide an accurate head signal in the sensing line for liquid level measurement, a flowmeter with constant differential pressure regulator can be used to keep the sensing line purged of liquid. Changes in liquid level will affect static head. This in turn will affect internal pressure in the sensing line, which can be indicated by a pressure gauge or used to operate a pressure switch for control functions. If other means are used to maintain a constant liquid level, this same set up can be used to detect specific gravity changes in the liquid.

# Conoflow's Product Portfolio – Specialty Regulators

## Orifice Purging



### Orifice Purging

To protect orifice meters from direct contact with fluid, and to prevent clogged sensing lines, air is used to purge the meters and sensing lines. Flowmeters fitted with constant differential pressure regulators are ideal for this service. Two flowmeters are used - one for the sensing line to each pressure tap.

To monitor large flows - By measuring flow of a bypass stream around an orifice in the main stream.

Bleed air supply - For pneumatic instruments used in chemical process and power industries. Bleed or pilot air in a metered volume flow is used to control large flows, transmit signals to remote locations, operate recorders and similar instruments.

# Conoflow's Product Portfolio – Specialty Regulators

## VACUUM REGULATORS GH20VT, GH28VT Series

Provides precise control in sub-atmospheric pressure applications. Often used for high altitude conditions simulation, medical grade purge assemblies and leak-check detection.



### Competitive Comparison

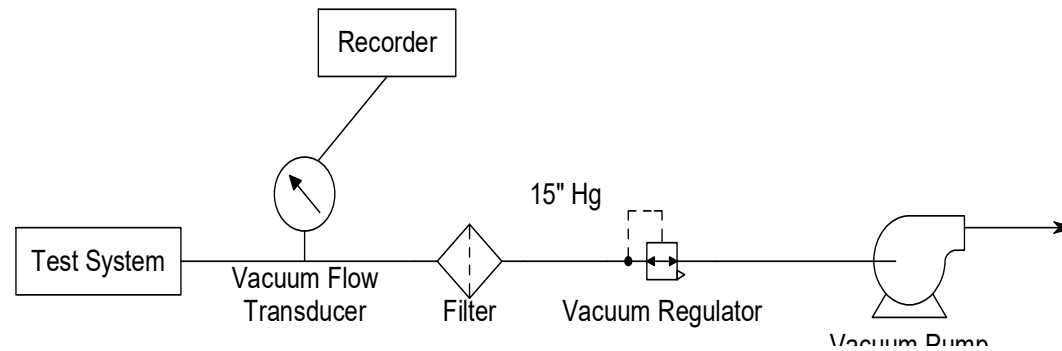
CONOFLOW	GH20VT / GH28VT
Competitive	
Bellofram	None
Control Air	None
Fairchild	16
Fisher	None
Masoneilan	None
Moore	43 - 20

- Aluminum, Brass and Stainless
- Applications include: Test labs, pick-and-place robotics, silicone disc mfg. and leak detection



# Conoflow's Product Portfolio – Specialty Regulators

## Vacuum Leak Detector



This application uses a vacuum flow transducer to detect leakage and a vacuum regulator to provide reliable vacuum control. Typical industries include glass containers, medical and plastic containers.

# Conoflow's Product Portfolio

## RATIO / BOOSTER RELAYS GH22, GH42 Series

Used to multiple or divide signal pressure in some fixed ratio or to act as a volume booster

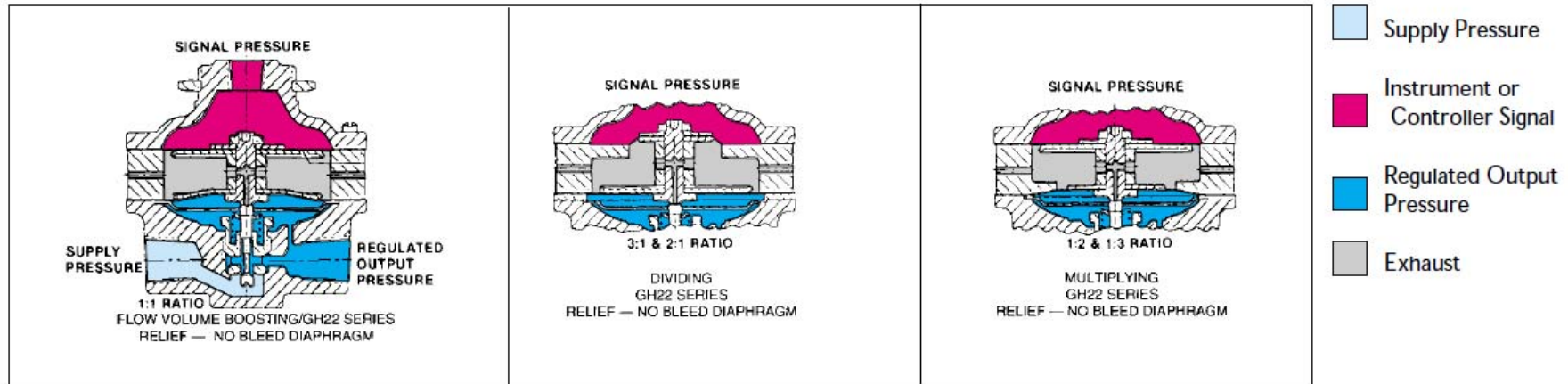


## Competitive Comparison

CONOFLOW	GH22 / 42
Competitive	
Bellofram	75
Control Air	None
Fairchild	20
Fisher	2625
Masoneilan	None
Moore	61

- Pneumatic output conversions
  - 1:1, 1:2 & 1:3
  - 2:1 & 3:1
- Signal conditioning for extended distances or capacity requirements

# Conoflow's Product Portfolio



**Flow Volume Boosting/GH22 Series  
Relief - No Bleed Diaphragm**

**Dividing/GH22 Series  
Relief - No Bleed Diaphragm**

**Multiplying/GH22 Series  
Relief - No Bleed Diaphragm**

The GH22XT Ratio Relay provides an output pressure proportional to signal pressure applied to the bonnet connection. The ratio of signal pressure to output pressure is determined by the ration of effective areas of the top and bottom diaphragms. In the 1:1 ratio model the effective areas of the two diaphragms are equal. Therefore, in equilibrium, the output pressure is equal to the signal pressure. If the signal pressure is increased above the output pressure, there is a net downward force on the diaphragm assembly causing the nozzle to open. Supply pressure flows through the nozzle to the output port until the output pressure equals the signal pressure. The nozzle remains in a position to supply the required flow while maintaining the output pressure equal to the signal pressure. If the signal pressure drops below the output pressure, there is a net upward force on the diaphragm assembly which causes the diaphragm seat to life off of the nozzle plug. This allows the excess pressure to vent to atmosphere until equilibrium is again established.

In the 3:1 and 2:1 ration models the effective area of the top diaphragm is proportionally less than the effective area of the bottom diaphragm. Since force is equal to pressure times area, less output is required to balance the force resulting from a given signal pressure. For example, in the 2:1 ratio model, a signal pressure of 2 psi would result in an output pressure for only 1 psi since the effective area of the bottom diaphragm is twice of the top diaphragm.

In the 1:3 and 1:2 ratio models, the effective area of the top diaphragm is proportionally larger than the area of the bottom diaphragm which results in an output pressure proportionately higher than the signal pressure.

# Conoflow's Product Portfolio

## BACK PRESSURE REGULATORS GH30 Series

Maintains a constant upstream pressure of gas, liquid or vapor. Designed for accurate regulation under low flow conditions. Widely used for protection of gas analyzer equipment. Simply acts as a relief valve.



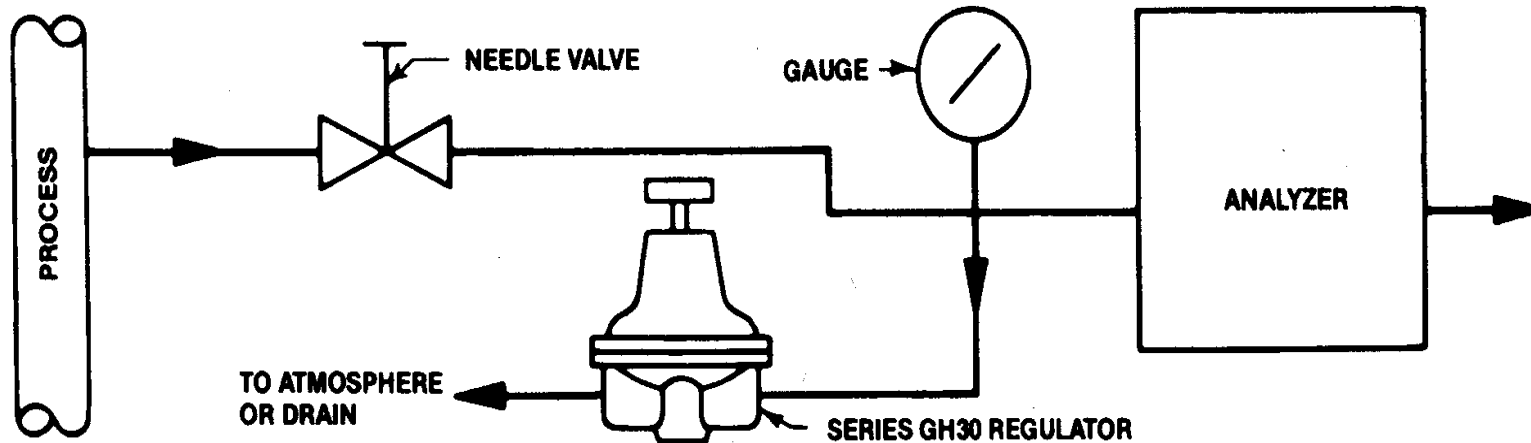
### Competitive Comparison

CONOFLOW	GH30
Competitive	
Bellofram	70BP
Control Air	700BP
Fairchild	10 – BP
Fisher	95L
Masoneilan	77-71 / 72
Moore	43R

- Brass and Stainless construction
- 7 control ranges from 0-3 to 0-125 PSI
- Line and panel mounting
- Applications include: Overpressure protection on vessels and instrumentation

# Conoflow's Product Portfolio

## TYPICAL APPLICATION FOR BACK PRESSURE REGULATORS



In the above application, the GH30 Back Pressure Regulator is maintaining a constant upstream pressure on the sample stream by relieving the excess pressure prior to its arrival at the analyzer.

# **ITT Conoflow**

## **High Pressure Regulators Overview**

# Conoflow's Product Portfolio

## HIGH-PRESSURE REGULATORS

### PRESSURE REDUCING HP300, HP400 Series

**HP400** Provides economical controlled high-pressure gas supply using a piston sensing element.

**HP300** Same piston sensing but higher range and more material options.

### Competitive Comparison

CONOFLOW	HP300	HP400
CompetitiveS		
AP TECH	NONE	NONE
GO	PR-56/57	NONE
TESCOM	44-1100	44-1800
VERIFLO	NONE	NONE



- **HP300:**
  - Brass, Stainless & NACE
  - 0 - 10,000 in / 8 - 6,000 out
  - Adjustable relief stem
  - Breathing Apparatus filling, CNG & Natural Gas filling
- **HP400:**
  - Brass & relief only
  - 0 - 3500 in / 20 - 2500 out
  - Dead end systems

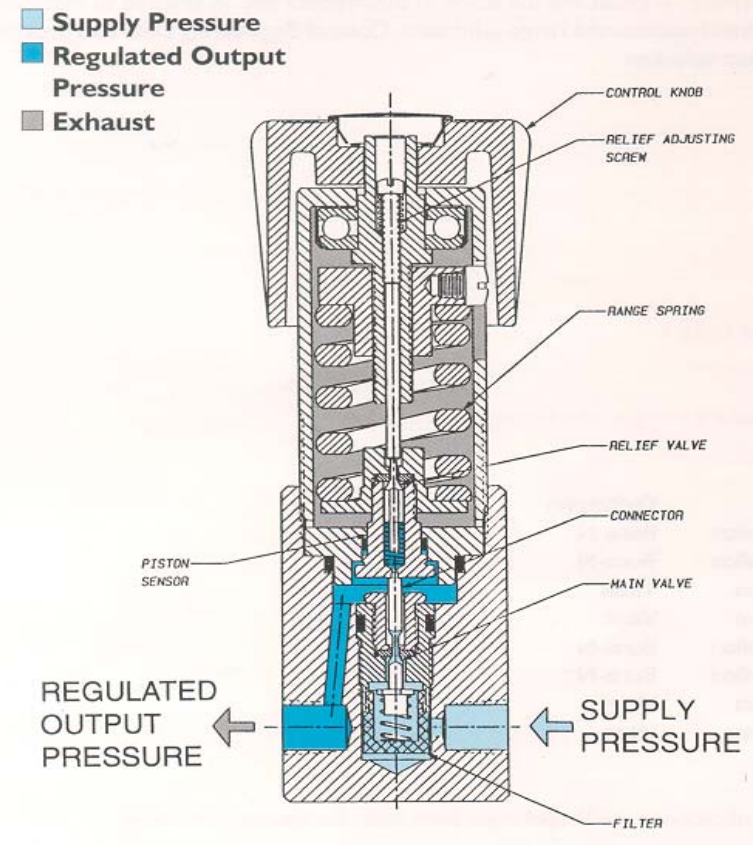
# Conoflow's Product Portfolio

## Principle of Operation

TURNING THE CONTROL KNOB CLOCKWISE WILL INCREASE THE FORCE ON THE RANGE SPRING AND, IN TURN, THE OUTLET SET PRESSURE. CONVERSELY, TURNING THE CONTROL KNOB COUNTERCLOCKWISE WILL DECREASE THE FORCE ON THE RANGE SPRING AND DECREASE THE OUTLET SET PRESSURE. IN EQUILIBRIUM, THE FORCE EXERTED BY THE RANGE SPRING IS BALANCED BY THE OUTLET PRESSURE.

AN UNBALANCE BETWEEN THE OUTLET PRESSURE AND THE SET PRESSURE CAUSES A CORRESPONDING REACTION ON THE SENSOR AND VALVE. IF THE OUTLET PRESSURE RISES ABOVE THE SET PRESSURE, THE PISTON SENSOR WILL LIFT ALLOWING THE MAIN VALVE TO SEAT. THIS ACTION CAUSES THE RELIEF VALVE TO OPEN RELIEVING THE EXCESS PRESSURE TO ATMOSPHERE UNTIL EQUILIBRIUM IS REACHED.

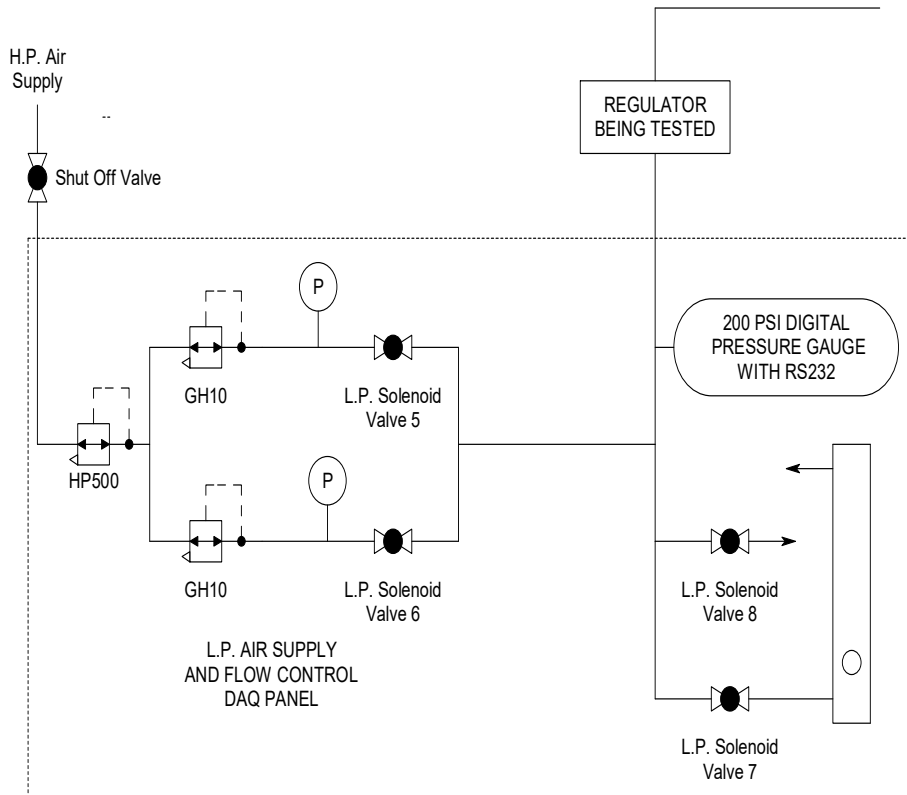
IF THE OUTLET PRESSURE FALLS BELOW THE SET PRESSURE, THE RANGE SPRING WILL PUSH THE SENSOR DOWN AND UNSEAT THE MAIN VALVE. THIS ALLOWS SUPPLY PRESSURE TO FLOW THROUGH THE MAIN VALVE TO THE DOWNSTREAM PORT INCREASING THE SET PRESSURE. AT EQUILIBRIUM, THE VALVE PLUG ASSUMES A POSITION WHICH SUPPLIES THE REQUIRED FLOW WHILE MAINTAINING THE OUTLET PRESSURE AT THE SET PRESSURE.





# Conoflow's Product Portfolio

## HP300 / GH10 Series Regulator Test Stand



# Conoflow's Product Portfolio

## HIGH-PRESSURE REGULATORS

### PRESSURE REDUCING

High-Purity Capable

HP600

HP610 (high flow version)

Provides controlled gas supply using a metallic diaphragm sensing element. Best for semiconductor, research labs and regulation of corrosive and specialty gases.



HP600



HP610

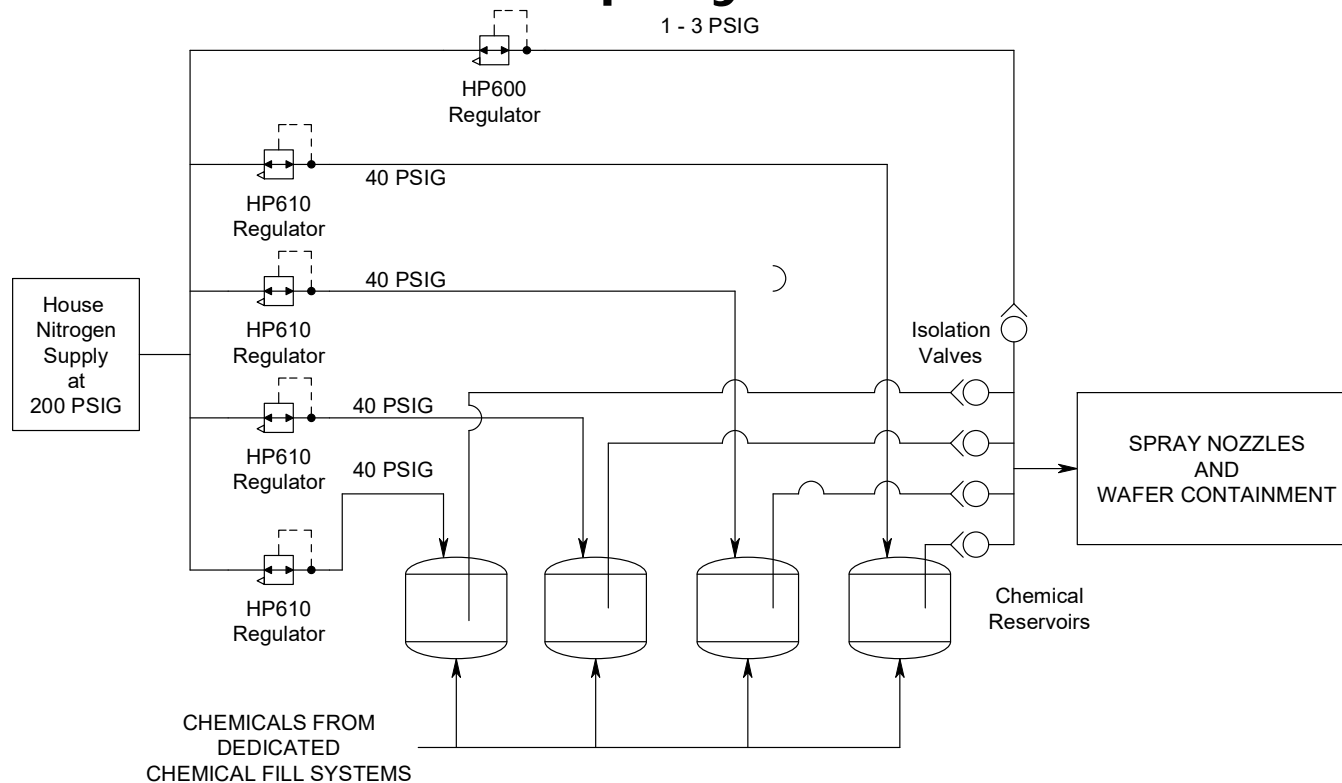
### Competitive Comparison

CONOFLOW	HP600	HP610
Competitive		
AP TECH	AP-1800	NONE
GO	NONE	NONE
TESCOM	44-2800	NONE
VERIFLO	NONE	NONE

- Stainless & NACE construction
- Tied diaphragm for positive shut off.
- Max input of 3,000 PSI
- 4 control ranges up to 150 PSI
- HP610 has a Cv of 0.95

# Conoflow's Product Portfolio

## Semiconductor Spray Process Tool

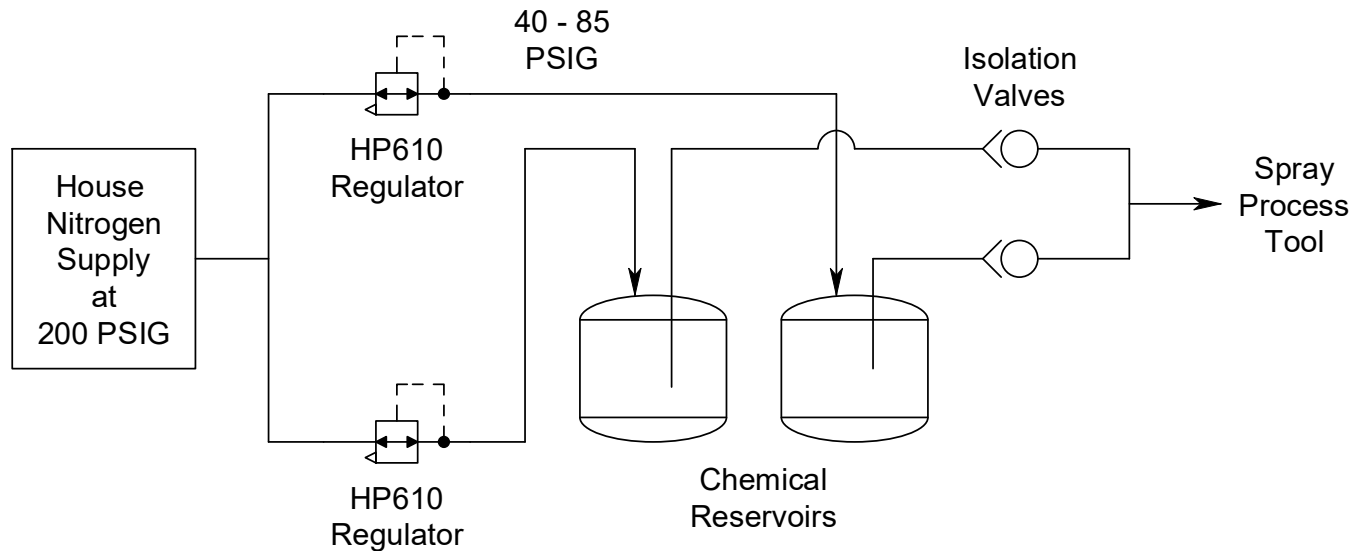


The HP610's are utilized to provide a nitrogen blanket pressure to chemical dispensing containers that are required for the spray process. The nitrogen blanket pressure forces the chemical through the spray nozzles with a laminar flow. This insures a smooth, non-pulsing delivery of the chemical onto the wafer.

The HP600 Regulator which combines high purity and low pressure capability are utilized for the purpose of nitrogen purging of the chemical and deionized water in the chemical delivery lines to eliminate cross-contamination and potential sputtering that could adversely effect the wafer integrity.

# Conoflow's Product Portfolio

## Semiconductor Chemical Fill System



The HP610's are utilized to provide a nitrogen blanket pressure to chemical dispensing containers that are required for the spray process. The nitrogen blanket serves as a pressure source that forces the chemical to Dispense to the semiconductor process tool.

# Conoflow's Product Portfolio

## HIGH-PRESSURE REGULATORS

### PRESSURE REDUCING DIAPHRAGM TYPE

#### HP500 / HP700 Series

#### High-Purity Capable

Single & dual stage regulators which provide precise controlled gas supply using a metallic diaphragm sensing element. Suitable for spec gas, GC, research labs and regulation of corrosive gases and liquids.



HP500



HP700

### Competitive Comparison

CONOFLOW	HP500	HP700
Competitive		
AP TECH	AP-1000 / AP1600	AP-1700
GO	PR1 / PR2	CYL-20
TESCOM	44-2200	44-3400
VERIFLO	IR400 / IR4000	IR600 / IR6000

- Brass, Stainless, Monel, Hasteloy C & NACE
- Multiple port options
- Relieving & non-relieving options
- Minimal supply pressure effect



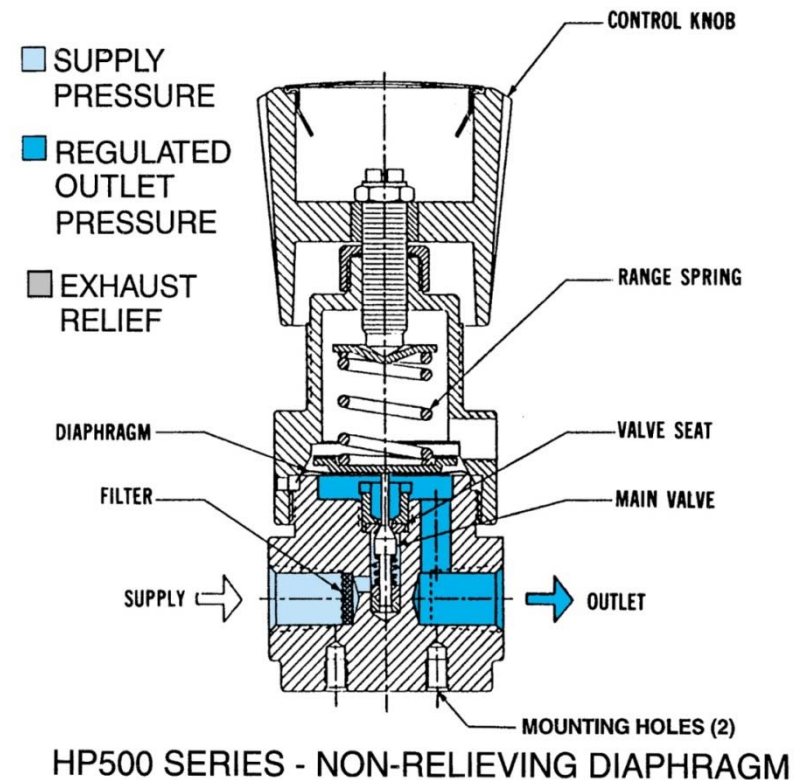
# Conoflow's Product Portfolio

## Principle of Operation

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IN EQUILIBRIUM, THE FORCE EXERTED BY THE RANGE SPRING IS BALANCED BY THE OUTLET PRESSURE. AN UNBALANCE BETWEEN THE OUTLET PRESSURE AND THE SET PRESSURE CAUSES A CORRESPONDING REACTION IN THE DIAPHRAGM AND MAIN VALVE. IF THE OUTLET PRESSURE RISES ABOVE THE SET PRESSURE, THE METAL DIAPHRAGM WILL LIFT ALLOWING THE MAIN VALVE TO SEAT. IF THE OUTLET PRESSURE FALLS BELOW THE SET PRESSURE, THE RANGE SPRING WILL PUSH THE DIAPHRAGM DOWN, UNSEATING THE MAIN VALVE, ALLOWING SUPPLY PRESSURE TO FLOW THROUGH THE MAIN VALVE TO THE DOWNSTREAM PORT INCREASING THE SET PRESSURE.

AT EQUILIBRIUM, THE VALVE PLUG ASSUMES A POSITION WHICH SUPPLIES THE REQUIRED FLOW WHILE MAINTAINING THE OUTLET PRESSURE.



# ITT Conoflow

## I/P – E/P Transducer Overview

# Conoflow's Product Portfolio

**I/P TRANSDUCERS**  
**GT210, GT\_8, GT\_5,**  
**(Gen. Purpose and**  
**Explosion Proof options**  
**available)**

Used to convert an analog  
 electronic input signal and  
 generate a proportional  
 pneumatic output.



**GT210**  
**GT410**  
**GT610**



**GT18**  
**GT28**  
**GT38**  
**GT48**  
**GT58**  
**GT68**

## Competitive Comparison

CONOFLOW TRANSDUCERS	GT210 / GT410 / GT610 Series	GT18 / GT28 / GT38 / GT48 / GT58 / GT68
CompetitiveS		
Bellofram	T1000	None
Control Air	500X	None
Fairchild	T5700	T5220
Fisher	None	546
Masoneilan	None	8006A
Moore	None	77-16





# Conoflow's Product Portfolio

## GT\_2 Series E/P Transducers

## GT\_8 Series I/P Transducers

Input Signal: 4-20 / 10-50 mA DC

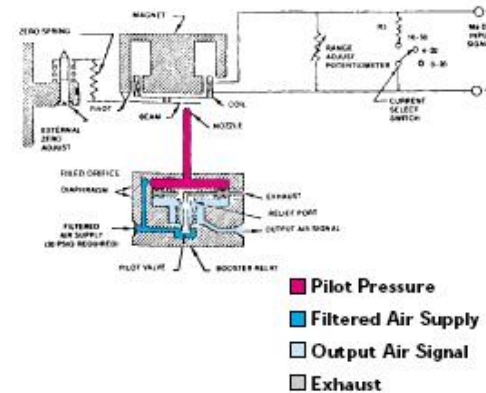
Input Signal: 0-5 / 0-60 VDC

Output Pressure: 3-15, 3-27, 6-30 PSIG

In the direct acting mode, an increase in the input signal causes the coil to move away from the magnet which moves the flexure assembly toward the nozzle. This reduces the flow through the nozzle increasing the back pressure in the top chamber of the booster. The increased pressure in the booster causes the diaphragm assembly to move downward, opening the pilot valve and increasing the output pressure. The output pressure will continue to increase until it is equal to the nozzle back pressure and the forces on the diaphragm assembly are balanced.

A decrease in the input signal allows the coil to move toward the magnet which moves the flexure assembly away from the nozzle. This allows the flow through the nozzle to increase which reduces the back pressure in the top of the booster. Since the output pressure is greater than the nozzle back pressure, there is a net upward force on the diaphragm assembly which causes it to move upward allowing the pilot valve to close and the relief port to close. The excess output pressure is vented to atmosphere through the relief port until equilibrium is established.

In the reverse acting mode, an increase in the input signal causes the coil to move toward the magnet instead of away from it since the direction of the current through the coil is reversed. An increasing signal, therefore, causes a proportionally decreasing output.



# ITT Conoflow

## Specialty Products Overview

# Conoflow's Product Portfolio

## POSITIONERS / ACTUATORS

GC31-34 Series

GB50-53 Series

GB52SC Series

- Pneumatic, linear positioning devices for louvers, dampers and variable pitch fans.
- Pistons from 3" to 12.5" and strokes up to 10"



GC31



## Competitive Comparison

CONOFLOW	GC31 / GC34	GB50 – GB53 / GB52 – GB53 Lever
CompetitiveS		
Bellofram	80	None
Control Air	None	None
Fairchild	None	None
Fisher	3570D/A	None
Masoneilan	None	None
Moore	73N12F / 73N24F	None



# Conoflow's Product Portfolio

## ACCESSORIES

### FILTERS

#### GFX02, GFX04 Series

Provides filtered air supply.



**GFX02/04**

### SNAP ACTING RELAYS GVB11-12 Series

Relays are used to:

- Switch a main port to a secondary air source port when main supply falls below a predetermined set point.
- Lock an actuator in last position.
- Divert pressure/flow from one device to another.

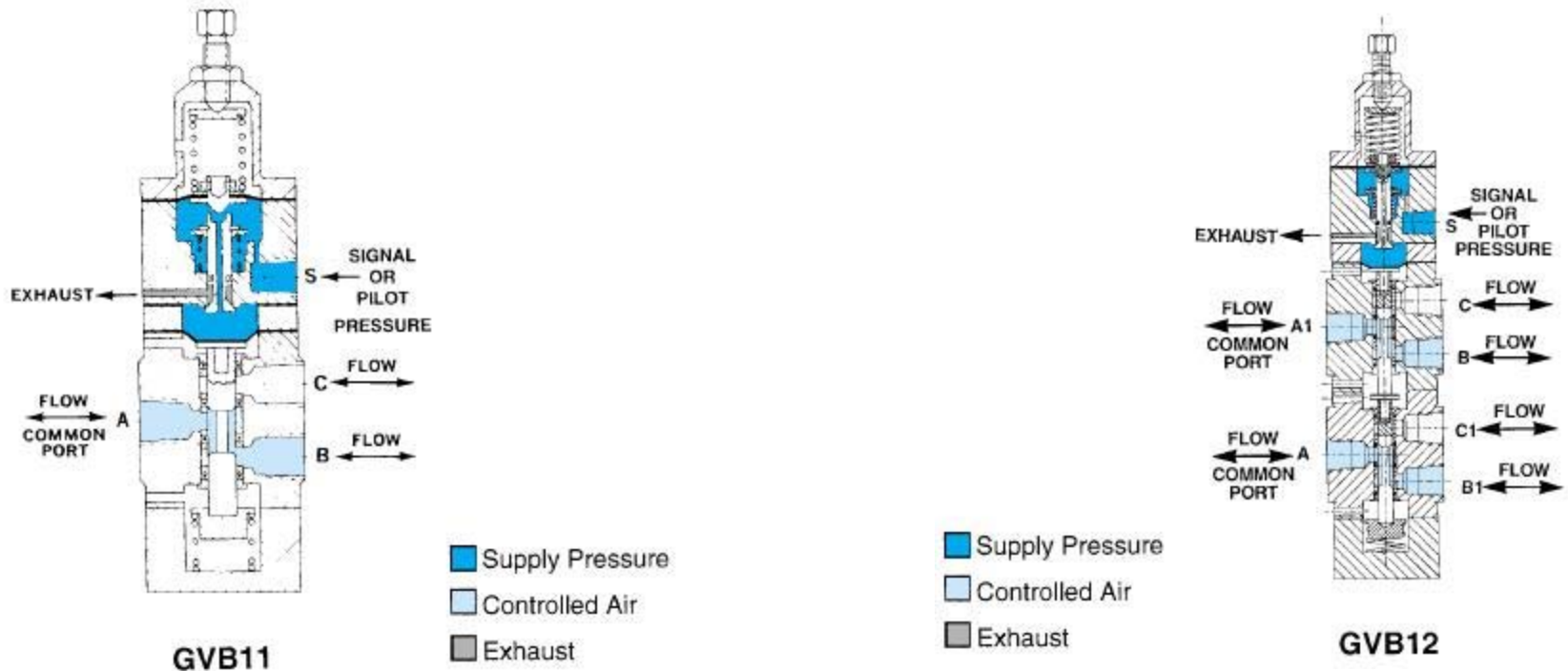


**GVB11**

## Competitive Comparison

CONOFLOW	GFX02	GFX04	GVB11AB / GVB12AB
Competitive			
Bellofram	None	None	None
Control Air	None	None	None
Fairchild	F4032	F4032	24
Fisher	None	None	167A
Masoneilan	62-1	62-1	77-8
Moore	2306	2306	GC58L

# Conoflow's Product Portfolio



## PRINCIPLE OF OPERATION (GVB11)

The pressure at which the relays will actuate can be adjusted to any point between 25 PSI (172 kPa) and 85 PSI (586 kPa). Signal or pilot pressure acting in the upper diaphragm overcomes the force of the spring in the bonnet and permits air to flow into the lower chamber. This pressure buildup forces the spring-loaded spool valve to open common Port "A" to "B". When the pressure drops below the preset point, the exhaust port opens and common Port "A" is switched from "B" to "C" by releasing the spring loaded spool valve.

The spool valve will return to its original position ("A" to "B" when the pressure to the pilot is less than or equal to 20% greater than the set point. For example, if the set pressure is 50 PSI (345 kPa), the unit will return to its original position when the pressure to the pilot builds up to approximately 60 PSI (414 kPa). Model GVB12 Relay has two spool sections mounted in tandem with the lower ports designated as "A1", "B1" and "C1".



# Conoflow's Product Portfolio

## ACCESSORIES

**LIFE-GARD® DIAPHRAGM SEALS**  
100, 200, 300, 330, 300BP, 300BT, 600 Series

**ECONO-GARD® DIAPHRAGM SEALS**  
140, 190 Series

**SANO-GARD® SEALS**  
700, 700CEX Series

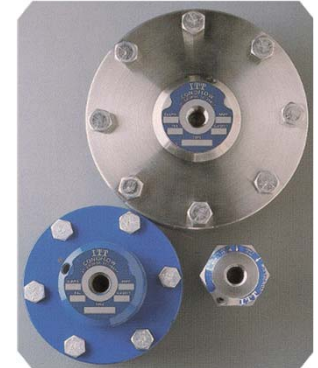
Used as a protective device to isolate a pressure sensing instrument such as a pressure switch, gauge, or transmitter, from the process fluid being monitored



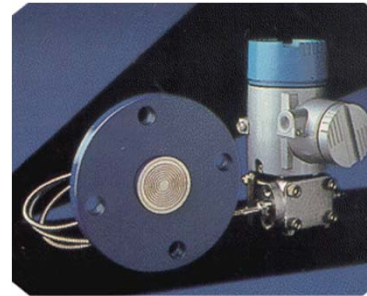
300A W/ SWITCH



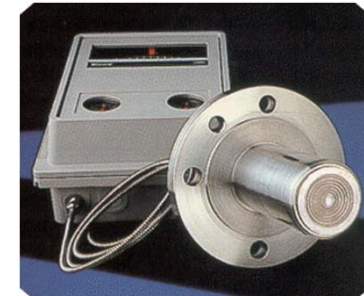
100A W/ GAUGE



300 & 190 SERIES



300B W/ TRANSMITTER



300BX W/ SWITCH

# Regulators Made Easy – Questions to Ask

## 1. High or Low Pressure?

- Low pressure inputs are typically 300 psi or lower.
- High pressure inputs are anything >300 psi.
- All regulators control a pressure and pass a flow.

## 2. How Will the Regulator Be Used?

- What media will flow across the regulator?
- What are preferred materials of construction?
- What outlet pressure range do you want?
- What are your flow requirements?
- What are your minimum/maximum media temperatures?

## 3. Need Filtration With Regulation?

- Low pressure filter-regulators are available as well as standalone filters and regulators.

## 4. What Type of Diaphragm?

- Relief and Constant Bleed
- Relief and No Bleed
- No Relief and No Bleed



**ITT** Conoflow

### Regulators MADE EASY

#### SECTION 1 - LOW PRESSURE REGULATORS

**CONTROL A PRESSURE - PASS A FLOW**  
That's what we do. That's what all regulators do in the most simplistic of definitions. Hopefully, this training guide will attempt to simplify the ITT Conoflow catalog into easy to understand terms and selections as we work our way through the various choices and selection process.

**HIGH vs. LOW**  
Pressure, that is. Conoflow produces both High and Low Pressure regulators. We are one of the few manufacturers who do. Conoflow defines low pressure as input pressures of 300 psi and lower and high pressure as above 300. That 300 psi border separates Conoflow's two regulator types. Although all regulators Control a Pressure - Pass a Flow and work relatively the same, we will separate Conoflow's High and Low pressure regulators into two sections.

**Remember, High or Low?** This is one of the first application questions to ask a customer. For additional questions, see page 5.

ITT Conoflow manufactures many types of Low Pressure Regulators. Some are for general service and some are for much more specific applications. In an attempt to group these regulators into a "basket" of products with similar characteristics, we have broken down our offering in the following groups:

- Air-Pak Filter Regulators
- Pressure Reducing Regulators
- Specialty Reducing Regulators

In many instances, the application will lead you to the group of Regulators that fit best. Thus, your second Regulator question to ask would be "What is the Regulator being used for or what is its application?". If the answer leads you to a general service air or gas regulator supplying filtered media to some type of equipment, Group #1 would be your first choice.

**Note:** Please make yourself familiar with the "Terminology" section in front of the catalog and/or product whitepapers available on our web site.

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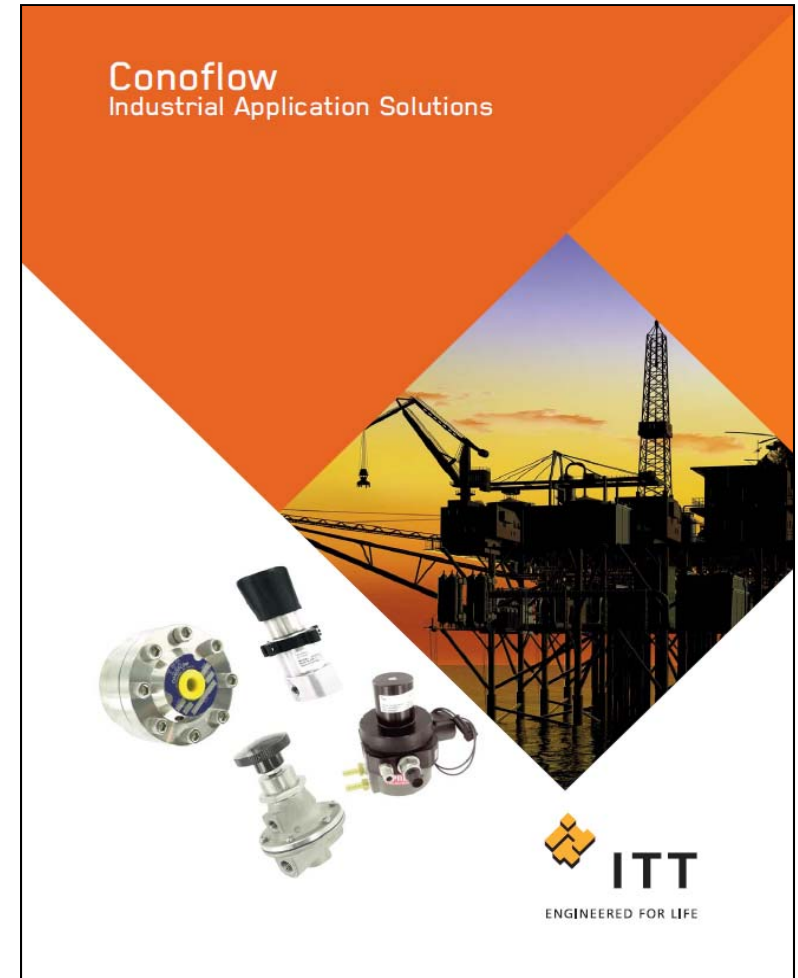
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